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FACULTY OF BUSINESS AND MANAGEMENT STUDIES

DEPARTMENT OF PROCUREMENT AND SUPPLY SCIENCE

ASSESSING THE EFFECT OF INBOUND LOGISTICS PRACTICES ON OPERATIONAL PERFORMANCE: A CASE STUDY OF HPW FRESH AND DRY LIMITED, ADEISO.

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A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF PROCUREMENT AND SUPPLY SCIENCE, KOFORIDUA TECHNICAL UNIVERSITY, FACULTY OF BUSINESS AND MANAGEMENT STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF BACHELOR OF TECHNOLOGY (BTECH) DEGREE IN PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

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DECLARATION

We certify that, this work is the result of our own research under the supervision of Mr. Ofosu Frimpong Frank. We hereby declare that apart from reference made from quoted books, journals and articles which have been duly acknowledged, the entire work has been produced through our own effort. In spite of the guidance from our supervisor, we wish to be held responsible for any criticism, omission and corrections that may remain.

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CERTIFICATION

I, the undersigned supervisor, do certify that, the preparation and presentation of this research work was carried out by Dablu Edmond Lew and Okoh Prince under my guidance in accordance with the guideline on project work supervision laid down by Koforidua Technical University. I hereby endorse and recommend this research work for final approval.

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Supervisor

DEDICATION

This research stands as a testament to the boundless grace and benevolence of the Almighty God, the source of all wisdom and strength. It is to Him we owe our deepest gratitude for showering us with relentless guidance, immense blessings, and an unwavering spirit throughout this academic voyage.

Furthermore, this work is fervently dedicated to Lucy Awittor whose unwavering support and love have been the pillars upon which my resilience was built. To my precious children, members of the Dablu Edmond Lew family, your patience and encouragement has been my beacon in moments of doubt and exhaustion.

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ABSTRACT

This study investigates inbound logistics practices and their impact on operational performance at HPW Fresh and Dry Limited. Garnering a notable 98.9% response rate from 90 participants, the research utilized various analytical tools to present its findings. It focused on three objectives: delineating inbound logistics practices, evaluating their influence on operational performance, and spotlighting associated challenges. This research employs a quantitative, explanatory design to investigate the effect of inbound logistics on the operational performance at HPW Fresh and Dry Limited. The study source data from company records, performance metrics, and structured questionnaire administered to logistics and operation personnel. The population of this study comprises individual involved in the inbound logistics and operational activities at Fresh and Dry Limited, such as drivers, procurement personnel, operational, warehousing, store personnel, information technology and production personnel with a total sampling size of 90. The study uses (SPSS) software version 21 to analyses the data. Key inbound logistics practices surfaced: transportation, inventory management, and warehousing. These practices highlight the company's commitment to efficiency, accuracy, innovation, and agility. Despite HPW Fresh and Dry Limited's evident structural strengths and compliance protocols, challenges persist. These include customer satisfaction variances and delivery challenges, pointing to areas that require attention and optimization. In essence, inbound logistics are more than mere operational tools; they're strategic catalysts for performance. The study offered recommendations emphasizing the importance of technology adoption, continuous training, customer engagement, partnerships, and consistent audits to craft a well-oiled, customer-focused logistics system. Implementing advanced technological solutions, such as AI-driven demand forecasting and real-time inventory tracking, to refine transportation and inventory management process. To aid in promptly addressing any discrepancies, ensuring accuracy in tracking and reporting. Establishing regular training sessions for warehousing and logistics staff. Given the criticality of their roles in ensuring systematic storage, timely issuance and delivery, equipping them with the latest skills and knowledge will foster efficiency and reduce errors. Fresh and dry introduce robust feedback mechanisms, regularly engaging with customers to understand their pain points, and preferences to offer an insight for refining delivery timelines and enhancing overall service quality.

LIST OF ABBREVIATION

IMS	Inventory Management Systems
JIT	Just-In-Time
RFID	Radio Frequency Identification
NPS	Net Promoter Scores
SKU	Stock-Keeping Unit
SCM	Supply Chain Management
TQM	Total Quality Management
TMS	Transportation Management Systems
WMS	Warehouse Management Systems
WHO	World Health Organization

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CHAPTER ONE

INTRODUCTION

1.0 General Introduction

This chapter aims at providing a focus for the study as it looks at the background, statement of the problem, research objective, research question, significance of the study, scope of the study and limitations of the study.

1.1 Background of the study

Logistics has been recognized as a vital component for integrating the internal operations of an organization with supply chain processes, leading to increased customer satisfaction and operational performance. Supply management processes that influence logistics and customer satisfaction encompass a logistical value proposition, focusing on order processing, inventory management, transportation, handling and packaging, as well as facility network design (Chiarini, 2014).

Inbound logistics integrates planning and scheduling activities to manage the flow of physical goods, services, or financial resources along the supply chain (Chiarini, 2014). Incoming shipments carried by inbound vehicles are unloaded, sorted, and forwarded to the respective locations at the distribution center, aiming for synchronization between inbound activities. In the current competitive climate, inbound logistics plays a significant role in differentiation and value creation in the market (Bowersox et al., 2002; Gunaseakaran and Ngail, 2003). Various empirical studies emphasize the strategic importance of inbound logistics activities, impacting service quality and overall profitability, thereby becoming valuable tools for securing competitive

advantage and improving organizational performance (Ellinger et al., 2000; Meutzer et al., 2001; Fugate et al., 2010; Li et al., 2006).

Recognizing the significance of managing inbound logistics activities for competitive advantage, it has been found that operational performance positively impacts companies' financial performance (Tilokavichai et al., 2012). The logistics function's role in ensuring smooth material, product, and information flow within supply chains has become a key determinant of business performance (Kilasi, 2013). Companies, under pressure to reduce costs and enhance performance, are increasingly looking for ways to improve the efficiency and effectiveness of their logistics operations. Thus, effective and efficient management of inbound logistics practices is crucial for superior performance, leading to cost reductions, optimized resources, and improved service delivery.

Inbound logistics activities have been identified as a primary activity in the value chain of businesses and industries (Porter, 1985). It has also been acknowledged as one of the leading cost contributors in the manufacturing industry, making it an essential aspect to address for improving future competitiveness. Consequently, this study aims to assess the effect of inbound logistics activities on operational performance at HPW Fresh and Dry Limited –Adeiso.

1.2 Problem of the statement

In the current business landscape, corporations are confronted with mounting competitive pressures, market fluctuations, and evolving regulations (Roth et al., 2013). To surmount these challenges, organizations are increasingly recognizing the need to enhance the effectiveness and

efficiency of their operations (Mundia et al., 2015). Adopting various strategies to maintain competitiveness, one such emerging approach among modern companies is to bolster their logistics service capabilities, resulting in reduced internal costs and improved market competitiveness (Boonpattarakan 2012). Managing inbound logistics activities, as emphasized by Bagshaw (2017), has become a crucial strategy for firms aiming to achieve higher performance levels.

Bagshaw (2017) maintained that performance of organizations in Africa is not encouraging and need support to improve their logistical activities. Most organizations in Ghana operate at a technical efficiency of about 45 percent (Kwateng et al., 2015) compared to 59 percent of Kenya and other counterparts in Malaysia that average about 74 percent (Achuora et al., 2015). While all the previous studies had tended to focus more on the developed world (McKinnon et al., 2009; Sanchez-Rodrigues, et al., 2009), little can be said of organizations in Ghana currently. Evidence showed that cultural, social, economic and environmental aspects of each country do influence the link between inbound logistics management and performance (Miguel & Brito 2011; Kaufmann & Carter 2006). Keebler and Plank (2009) agreed that the findings of US firm could not represent the universe of companies nor could findings be generalized to other countries. Again, developed economies such as Europe, America and part of Asia had more developed infrastructure and business structures that easily support the implementation of logistics activities of their organizations as opposed to developing countries. The effort to achieve generalization of the causal relationship between inbound logistics activities and performance of these firms calls for empirical confirmation in diverse environments, especially developing economies such as Ghana. This study therefore intended to empirically assess the effect of inbound logistics practices on operational

performance of a typical manufacturing companies in Ghana, HPW Fresh and Dry Limited, Adeiso.

1.3 Objective of the study

The objective of this study is to assess the effect of inbound logistics practices on operational performance.

1.3.1 Specific objectives

1. To assess the inbound logistics practices in HPW fresh and Dry limited.
2. To determine the challenges associated with inbound logistics practices in HPW fresh and Dry limited.
3. To examine the effects of inbound logistics practices on operational performance.

1.4 Research question

1. What are the inbound logistics practices currently implemented in HPW Fresh and Dry Limited?
2. What are the challenges that HPW Fresh and Dry Limited faces in relation to their inbound logistics practices?
3. What is the effect of inbound logistics practices on the operational performance of HPW Fresh and Dry Limited?

1.5 Significance of the study

The study on the effect of inbound logistics practices on operational performance at HPW Fresh and Dry Limited holds significant implications for multiple stakeholders.

Firstly, the government stands to benefit from the research findings as it gains valuable insights into the effect of inbound logistics in the manufacturing sector. This understanding can aid in formulating policies and regulations to promote efficient logistics management, leading to increased productivity, reduced costs, and improved competitiveness within the sector. Consequently, these positive changes can contribute to overall economic growth, job creation, and socio-economic development.

Secondly, for the owners and management of HPW Fresh and Dry Limited, the study offers crucial insights into the relationship between inbound logistics practices and operational performance. Armed with this knowledge, they can make informed decisions to optimize their logistics processes, leading to benefits such as better inventory management, shorter lead times, improved supplier relationships, and enhanced overall operational efficiency. These improvements can result in cost savings, increased customer satisfaction, and a stronger competitive position in the market.

Thirdly, the study is of great significance to scholars and the academic community, contributing to the existing body of knowledge on inbound logistics and its influence on operational performance. Serving as a valuable case study, it can inspire further research and academic discussions on logistics practices and their influence in diverse business settings. Additionally, the study provides valuable insights into logistics management in the context of a developing economy like Ghana, offering opportunities for scholars interested in logistics and supply chain management in emerging markets.

1.6 Scope of the study

The study seeks to explore the potential depth of the effect of inbound logistics on operational performance. It will specifically concentrate on inbound logistics practices, analyzing its effects on operational performance and identifying the challenges linked to these practices. The study's geographical scope is limited to HPW Fresh and Dry Limited, which is located in Adeiso, Upper West Akim district, Ghana's Eastern region. The research will concentrate on the procurement, finance, stores, transportation and distribution departments.

1.7 Organization of the study

The study is organized into five chapters. Chapter one is the introduction which contain which captures the study background, statement of the problem, research objective, research question, significance of the study, scope of the study and limitation.Chapter two is the literature review. The chapter is centered on the relevant theories underpinning the study and review of related literature with much focus placed on inbound logistics and operational performance. In addition, empirical findings related to the study was also reviewed in this chapter. Chapter three is the methodology employed by the researchers to get answers pertaining to the research questions. This includes the research approach, research design, target population, sampling techniques, sample size estimation, source and collection of data and data analysis techniques employed. Chapter four presents the result and analysis of the data obtained from field survey. This includes the result on the demographic characteristics of the respondents as well as well as the result pertaining to the research questions. Again, this chapter will indicate the tools used in data presentation and analysis. Chapter five is the summary of key findings, conclusions and recommendations. This was based on related literature and the result obtained from the analysis.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of literature pertaining to the research variables. The aspects covered included the conceptual review which provides definitions and explanation of some concepts in respect to inbound logistics practices and organizational performance. Empirical review in respect to the research variables is presented. The chapter concludes on challenges on the subject area.

2.1 Conceptual Review

A conceptual review is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001).

2.1.1 Logistics

The definition of SCM has gained increasing interest from the same researchers, analysts and company managers (Croom et al., 2000; Tan et al., 2002; Feldmann and Muller, 2003). In general, the logistic chain is characterized as a group of three or more entities directly linked to the upstream or downstream set of goods, resources, finance and information from source to customer (Mentzer et al., 2001; Ross, 1997),). Logistics is also part of the supply chain, including the reverse flow of capital and goods, resources, money and information (Armistead and Mapes, 1993). It also covers both transport management, inventory, operation and delivery systems, third party logistics and logistics practices (Maber and Venkatara, 1998). Merriam-Webster (1995) describes logistics as the "detail treatment of an operation." Many companies are starting to identify SCM as the

cornerstone to creating a sustainable competitive edge for their goods and services to satisfy rising consumer needs (Van Hoek, 1998; Jones, 1998). Which covers anything from the transportation of a product or service to the handling of raw incoming materials, manufacturing, storage, distribution to consumers and the partnership management after sales service (Pollitt, 1998). In summary, we can conclude that logistics covers both knowledge and the transfer of resources within the enterprise, covering anything from the transportation of the commodity to the control of the entry of raw materials, processing, storing of products, delivery of goods to customers and after-sales facilities (Narasimhan and Jayaram, 1998). The instrument for calculating SCM activities has been developed by Li et al (2002).

The SCM practice methods include four phases: (1) production of general data, (2) pilot study, (3) pilot study, and (4) review of data on a larger scale (Zhang 2001). Instruments to calculate competitive advantage and operational efficiency have been adopted by Zhang (Zhang, 2001). Among the leading logistics operations are: transport-transport is defined as one of the activities involving the movement of finished goods or items from a producer to a particular center, warehouse or sales center (Stephen, 2011; translation by UET Press); warehousing-Merriam-Webster (1995) describes stock as a system or storage space.Kenyon and Meixell (2011) identify as storage warehousing materials, raw products and finished goods; packaging-defined as one of the most critical operations of the delivery system and supply chain (Kotler and Keller, 2012); warehouse management-defined as stock or storage of goods; (Hoda and Sala, 2011). It can also be seen as a bench with everything needed to make a company (Jakupi and Osmani, 2012). In their report on logistics techniques, McGinnins and Kohn (1990) referred to logistical roles. These duties are split into several stages: transport from overseas, transport between firms, internal transport, storage for goods produced, order handling, finished goods in inventory management

and raw materials/work in progress in inventory management. When it comes to logistics, certain things become the most relevant in this area.

2.1.2 Inbound logistics

Numerous researchers have worked in the area of inbound logistics, Inbound logistic is defined as the variation in the distribution of possibly comes in the plant is called inbound (Zakariah and Pyeman, 2013). Inbound logistics is important not only to reduce cost but to achieve a healthy relationship with suppliers and logistic providers which resultantly prove beneficial for the organization.

According to Shyam (2012) inbound logistics is a process concerned with movement of materials or finished inventory from supplier to the purchasing organization. It supports business efficiency through delivery of materials, spares and products necessary for daily operations. Baker and Rushton (2008) note that inbound logistics practices involve collection and transportation of inbound shipments, inventory management, and warehousing. These activities are a major focus area for SC cost savings, inventory optimization, and customer service.

According to Ayantoyinbo et al., (2018, p. 70) and Porter (2008, p. 39), inbound logistics can be defined as transport, storage, distribution of commodity inputs, such as material processing, warehousing, inventory management, vehicle scheduling, returns to vendors, as well as delivery of products to the place of operation. Hakim, Zaqiah and Zagloel (2018) note that the key aim is to reduce the overall costs of inbound logistics by getting the right supplies in the right place and in the right time. Analysis has indicated that organizations should pay more attention to the

management of inbound logistics as it is one of the most critical areas for development in the supply chain. As this component is used as the starting point of the supply process, it would have a larger influence on all the subsequent processes.

Carter and Ferrin (1996) point out that it is necessary to manage inbound logistics in order to reduce high transport costs.Organizations have managed inbound logistics in a number of ways to minimize these costs, i.e., strict transport schedules. In addition, in terms of costs, the inbound logistics component of the process involves content, distribution, administration and inventory costs. The quality of distribution preparation has a significant effect on all logistics costs as well as on results. Inefficient preparation will lead to higher shipping costs, a high inventory of surplus stock and a poor use of containers (Hakim et al., 2018, p. 2). Van Niekerk and Bean (2019) also added that the logistics roles can be translated as a central facilitator in a cross-functional attempt to align the supply chain and fulfil potential consumer demands, and is often perceived to be of strategic significance. For supply chain flows, the aim of the organization is to ensure that costs are handled in the sense of revenue generation going forward.

From the above, it can be reviewed that inbound logistics focus on planning that give firms an opportunity for substantial savings and attains SC reliability. Even though there is no standard definition of inbound logistics, three significant inbound logistics practices can be identified. These are transportation, inventory control, and warehousing. The study adapts the definition of Shyam (2012) to define inbound logistics as a process concerned with movement of materials or finished inventory from supplier to the purchasing organization. It supports business efficiency through delivery of materials, spares and products necessary for daily operations.

2.1.3 Inbound Logistic Practices

Harrington (2008), emphasis on inbound logistic practices offers companies a chance to make significant savings and improves organizational efficiency. Three important inbound logistics activities may be defined even though there is no common concept of inbound logistics. Baker et al (2008) classified them into transportation process, warehousing and inventory control.

2.1.3.1 Transportation

Movement of goods from the manufacturer to customer is a crucial task in addressing logistic (Lambert, 2005). The balance between these factors leads to the productivity of organizations (Bowersox 2010). With regard to Foreign Trade Services (2003), transport activities include that can consolidate shipments. Inventory consolidation aims at achieving self-denials of scale with fewer transport costs per unit. Consolidation does not, however, occur at the cost of scheduled transportation, reliability and timely delivery (Ulku 2009). Customs enforcement procedures at the entry points of a country will raise transactional costs. Efficiency of clearance determines the speed and predictability of delivery of inventories. Proper documentation allows for quicker customs clearance and reduce its effect on global lead times in sourcing (Zamora-Torres, 2013). Electronic channels allow information to be sent directly to government departments, cutting on clerical efforts (Hanouz, Geiger and Doherty, 2014). According to Helo (2011), businesses are monitoring and monitoring shipments by gathering and handling product position information around the SC, helping to identify and reduce exemptions to eliminate delays and interruptions. Dukare, Patil and Rane (2015) say real-time monitoring offers traceability and visibility of cargo delivery. Transport intermediaries in freight forwarding increase operating efficiency and boost service rates through their expertise and skills in the industry. Most freight forwarders provide related services such as

warehousing, unloaded shipping, express parcel services and multimodal transportation arrangements (Asian Development Bank 2012).

2.1.3.1.1 Freight Consolidation

Freight consolidation is a strategic approach in the logistics and transportation industry aimed at optimizing shipment processes to increase efficiency and reduce costs. Essentially, it involves the aggregation of several smaller shipments destined for similar locations into a single, larger shipment (Rushton, Croucher, & Baker, 2014). By doing this, businesses can maximize their use of transportation resources and minimize wasteful, fragmented shipments.The benefits of freight consolidation are multifaceted. First, by consolidating shipments, businesses can significantly cut down on transportation costs. When shipping out smaller parcels or packages individually, a company pays for each separate shipment. By consolidating, they can ship multiple items together, thereby taking advantage of economies of scale. This often results in reduced costs per unit of freight (Christopher, 2016).

Additionally, freight consolidation can lead to reduced carbon emissions, as fewer trips mean a decrease in the overall carbon footprint of the transportation process. With growing concerns about the environment and the increased emphasis on sustainable logistics practices, freight consolidation stands as a practical measure to enhance eco-friendly operations (McKinnon, 2010).From a logistical standpoint, consolidation simplifies the tracking and monitoring process. Instead of managing multiple shipments with various delivery times and locations, logistics managers have a streamlined process with consolidated freight, ensuring more predictable delivery schedules. This consolidation can, therefore, improve service reliability and enhance customer

satisfaction (Gold, 2014).However, effective freight consolidation requires strategic planning and efficient operations. This is because it involves understanding the shipping needs of different customers, coordinating between various freight carriers, and optimizing route planning. Implementing a successful consolidation strategy often requires the integration of advanced technology solutions, such as Transportation Management Systems (TMS), which can automate the consolidation process and provide real-time visibility into the supply chain (Langley, 2012).In the global landscape, with the rise of e-commerce and cross-border trade, freight consolidation has taken a central role, especially in the management of international shipments. International freight often incurs higher costs, longer lead times, and increased complexities in terms of customs clearances and regulations. Consolidation can help businesses navigate these challenges more effectively, offering both time and cost savings (Branch, 2009).

Moreover, there's an uptick in the use of freight forwarders and third-party logistics providers (3PLs) specializing in consolidation services. These entities possess the expertise, network, and technology to offer efficient consolidation solutions to shippers, allowing businesses to focus on their core operations while ensuring optimal shipment strategies (Coyle, Langley, Gibson, Novack, &Bardi, 2016).

2.1.3.1.2 Custom Clearance

Customs clearance is a critical procedure in international trade, serving as the official authorization for goods to enter or exit a country's borders. This process ensures that shipments comply with local laws, regulations, and tariffs and that all appropriate duties and taxes are paid (David, 2011). When goods arrive at a port, airport, or international border, they must undergo a detailed

inspection by the customs authorities to verify documentation, assess the correct classification and value of the products, and ensure that there are no prohibited or restricted items (Johnson, 2015).The customs clearance process often begins with the submission of a set of required documents, including the bill of lading, invoice, packing list, and a certificate of origin. These documents provide the customs officials with essential details about the shipment, its origin, destination, and the nature of goods (Black, 2013). Once the documentation is approved, customs duties and taxes are calculated based on the shipment's declared value and classification. Only after these are paid can the goods be released to the importer or moved onward to their final destination.

Delays in customs clearance can have significant implications for businesses. Extended hold-ups can result in perishable goods deteriorating, increased storage costs, and potential disruptions to supply chains, underscoring the need for precise documentation and adherence to the clearance processes (Smith, 2016). Furthermore, the increasing emphasis on security post 9/11 has tightened customs regulations globally, making compliance more stringent than before (White, 2012).

2.1.3.1.3 Track and Trace

Track and Trace systems, essential in the realm of modern logistics and supply chain management, provide visibility into the movement of goods from origin to destination. These systems utilize a combination of technologies, including barcodes, RFID tags, and GPS, allowing stakeholders to monitor the real-time status and location of their shipments (Bowersox, Closs, & Cooper, 2010).The primary advantage of Track and Trace lies in its ability to boost transparency across the supply chain. For businesses, this means being able to proactively manage potential delays, reroute

shipments in real-time, and provide accurate delivery estimates to customers. From a consumer perspective, these systems deliver peace of mind, knowing they can access information about their order at any time and be informed of any changes or delays (Sweeney, 2015). Additionally, Track and Trace mechanisms play a pivotal role in enhancing security. By monitoring the movement and handling of goods, companies can quickly identify if a shipment has been tampered with or deviates from its intended route, mitigating risks associated with theft, loss, or fraud (Mentzer, Myers, & Stank, 2007).

In industries like pharmaceuticals, Track and Trace systems aren't just advantageous but are mandated by regulations. Ensuring the integrity and authenticity of products, especially in cases of sensitive or life-saving medicines, is crucial, and tracking technologies provide an effective means to this end (Yadav & Smith, 2012). The rise of e-commerce has further amplified the importance of robust Track and Trace systems. As consumers increasingly turn to online shopping, their expectations for swift, transparent, and reliable deliveries have escalated. Meeting these demands without an effective tracking system in place is almost impossible (Langley, 2012).

2.1.3.1.4 Freight Forwarding

Freight forwarding, a cornerstone of international trade, refers to the services provided by intermediaries who specialize in organizing storage and shipping of goods on behalf of shippers. Typically, freight forwarders are well-versed in the entire shipping process, from the intricacies of customs documentation to the best shipping routes and modes of transport, making them invaluable to businesses navigating the complex world of global logistics (Branch, 2009).A primary advantage of employing freight forwarders is their ability to streamline the shipping

process. They possess in-depth knowledge of documentation requirements, shipping regulations, transportation costs, and banking practices, ensuring that shipments are compliant with international laws and reach their intended destination efficiently (David, 2011). Moreover, forwarders usually have a vast network of contacts and partnerships with carriers across various modes of transport, including air, sea, and road. This allows them to offer more flexible shipping options and negotiate better rates for their clients.

Another crucial role of freight forwarders is their expertise in customs clearance. With international shipments often facing stringent customs regulations and potential bottlenecks at border checkpoints, forwarders can help navigate these challenges, ensuring that the correct paperwork is provided and any duties or taxes are properly addressed (Tseng, Yue, & Taylor, 2005).Furthermore, the digital transformation of the logistics industry has seen many freight forwarders adopt advanced technology solutions. Modern forwarders now offer clients sophisticated track and trace systems, providing real-time visibility on shipments and ensuring that any potential disruptions can be proactively managed (Harland, 2012).The dynamics of global trade, coupled with the increasing complexity of supply chains, makes the role of freight forwarders more critical than ever. Their ability to optimize shipping routes, handle customs formalities, and negotiate favorable shipping rates ensures that businesses can focus on their core operations while trusting their shipping needs to experts (Christopher, 2016).

2.1.3.2 Inventory management

According to Jay and Barry (2006), Inventory management ensures adequate inventory to satisfy increasing demand in a firm defending against disruption from stock outs. This reduces over

inventory, ensures sufficient efficiency, and increases customer satisfaction through availability of goods (Cheung and Lee, 2002). Customer orders are met in a sensitive and versatile way according to Kwon and Suh, (2004). It is achieved by inventory management activities such as; inventory level monitoring, cost control, lead times and accuracy (Axsater, 2006). Inventory rates are a crucial feature of businesses trying to balance supply and demand in order to prevent overstocking. Automated production of new supply orders controls the inventory levels of the companies (Jacobs, 2010). Inventory may also be regulated by setting intervals of time or quantity levels to reduce the loss of storage (Jacobs, 2013). Keeping inventory is expensive, and the rates must be at optimal levels for businesses to be profitable (Adeyemi 2010). Berman et al (2006) described inventory costs as a significant component of overall supply chain management costs. Industries regulate the flow of inventories and the keeping of supply chain (SC) production costs. Inventory expense is borne in many ways; it involves taxes, insurance costs, obsolescence and expense of storage in the form of rent or lease as an asset on the balance sheets. Companies must balance money kept aware of inventory and the resources required for daily operations (Goldsby et al., 2005). Reducing lead times for replenishment is critical when managing inventory. Organizations keep more safety stocks when volatility of demand and volatile lead times are present. This raises their cost of holding stocks and lowers customer satisfaction, while shortening cooperation in the lead time and timely exchange of knowledge is of significance to SC partners (Chopra, 2004). Companies achieve the accuracy of inventories by matching physical counts with inventory records in terms of quantity and location as per system inventory data. Cycle counting ensures timely detection, correction of inconsistencies and optimal stock rates are maintained. Periodic checks and object monitoring also eradicate product mistakes (Jacobs, 2013).

2.1.3.2.1 Inventory Level

Inventory level, pivotal in supply chain management, refers to the quantity of goods or materials a business has on hand at any given moment. It provides insights into a company's operational efficiency and its capability to meet customer demand. Maintaining optimal inventory levels is a delicate balance, with overstocking and understocking presenting distinct challenges and costs for businesses (Hugos, 2003). One of the primary goals of inventory management is to ensure that a business has sufficient stock to meet its customers' demands without overstocking. Overstocking ties up capital and increases storage costs, potentially leading to waste, especially if the goods are perishable or become obsolete (Waters, 2010). On the other hand, understocking can lead to missed sales opportunities, negatively impacting customer satisfaction and loyalty. In worst-case scenarios, it can also interrupt production processes if essential parts or materials aren't available, causing costly delays (Slack, Brandon-Jones, & Johnston, 2013).

Several factors influence a company's inventory level. These include the lead time required to restock, historical sales data, forecasted demand, and any seasonal or promotional impacts on sales. The emergence of Just-In-Time (JIT) inventory systems, which focus on reducing inventory levels and ordering stock only as required, exemplifies the modern approach to efficient inventory management (Lee & Billington, 1992). Technological advancements have played a transformative role in managing inventory levels. Modern Inventory Management Systems (IMS) allow businesses to monitor stock levels in real-time, set automatic reorder points, and use predictive analytics to anticipate demand changes (Stevenson, 2015). This proactive management ensures optimal inventory levels, minimizing costs, and maximizing responsiveness to market fluctuations.

2.1.3.2.2 Inventory Cost

Inventory cost is a vital metric in both supply chain and financial management, encapsulating all expenses related to acquiring, storing, and maintaining goods a business intends to sell or use in production. At its core, inventory cost comprises several elements. The purchase cost signifies the direct expenses of obtaining the goods, factoring in the price to suppliers, associated taxes, and transport to the business (Waters, 2010). Once in possession, holding or carrying costs come into play, which cover expenses like warehouse rent, utilities, insurance, and even the opportunity cost of capital tied up in stored goods. Excess inventory can accentuate these costs (Hopp & Spearman, 2008).

Additionally, there are costs associated with order placements, including administrative overheads and software costs for processing orders (Silver, Pyke, & Peterson, 1998). Businesses also need to account for stockout costs, which arise when inventory depletes, potentially causing lost sales, reputational damage, and production delays. Moreover, in rapidly evolving sectors, the threat of inventory obsolescence is real, leading to significant financial write-downs for unsold, outdated items (Wild, Wild, & Han, 2014). Modern technological tools, particularly advanced inventory management systems, now assist businesses in monitoring and optimizing these costs, ensuring efficiency and profitability (Stevenson, 2015). In essence, understanding and managing inventory costs are crucial, directly influencing a company's financial health and operational efficacy.

2.1.3.2.3 Lead time

Lead time is a pivotal concept in both manufacturing and supply chain management, denoting the duration between the initiation and completion of a process. In a supply chain context, it typically

refers to the time taken from the moment an order is placed with a supplier until the product is received by the customer. This encompasses a multitude of stages including order processing, production, quality checks, shipping, and delivery.Understanding lead time is crucial for various reasons. Firstly, it plays a significant role in inventory management. A longer lead time might necessitate higher safety stock levels to buffer against uncertainties, whereas a shorter lead time can allow for leaner inventory practices (Chopra & Meindl, 2016). In industries where trends and demands shift rapidly, like fashion or technology, shorter lead times can provide a competitive edge, allowing firms to respond swiftly to market changes (Christopher & Holweg, 2011).

Furthermore, lead time directly influences customer satisfaction. In today's digital age, where instant gratification is often expected, prolonged lead times can deter potential buyers and harm business reputations. Thus, many companies invest in strategies like Just-In-Time (JIT) manufacturing to reduce lead times and increase efficiency (Womack & Jones, 1996). Several factors can impact lead time, including supplier reliability, production complexities, quality control measures, transportation methods, and customs clearances for international shipments. As global supply chains become increasingly intricate, managing and reducing lead time has become a focal point for operations managers and logistics professionals.

2.1.3.2.4 Inventory Accuracy

Inventory accuracy is a pivotal metric in supply chain management and operations, representing the congruence between recorded inventory figures (usually in an inventory management system or ledger) and the actual physical count of items on hand. High inventory accuracy ensures that the quantity of items recorded in the system aligns with what is physically present in the warehouse

or store (De Kok&Inderfurth, 2014).Ensuring inventory accuracy is of paramount importance for a myriad of reasons. Primarily, it plays a crucial role in customer satisfaction and trust. When inventory records are accurate, businesses can confidently promise product availability, leading to reliable order fulfillment and delivery timelines (Raman, DeHoratius, & Ton, 2001). On the financial side, inventory accuracy ensures that the company's assets are accurately represented, aiding in correct financial reporting and ensuring stakeholders have a clear view of the company's health.

Errors in inventory, whether it's excesses or shortages, can have detrimental effects. Overestimating inventory can result in missed sales opportunities when customers are told products are available when, in reality, they aren't. Conversely, underestimating can lead to overstocking and increased holding costs (Rekik, Sahin, &Dallery, 2008).Several strategies can be employed to enhance inventory accuracy. Cycle counting, where sections of inventory are counted regularly rather than waiting for an annual physical count, is a popular method that allows for more frequent validation and correction of discrepancies (Schreibfeder, 2004). Moreover, integrating technologies like Radio Frequency Identification (RFID) and barcode scanning can streamline the tracking process and reduce human errors (Kochak & Rabinovich, 2007).

Additionally, the rise of advanced Inventory Management Systems (IMS) equipped with artificial intelligence and predictive analytics has made it easier to maintain and monitor inventory accuracy in real time, allowing for prompt detection and rectification of discrepancies.

2.1.3.3 Warehousing

According to Ramaa (2012), organisations, through warehousing, link material flows from suppliers and buyers. They are pursuing efficiency in warehouses to improve customer service. Warehousing activities are used to determine order fulfilment and inventory management. Warehouse activities usually include: collecting, testing, putting away (transfer), and selecting orders. Receipt of goods starts shortly after delivery to the warehouse. Activities at this point include unloading, testing for correct quantity and updating proper records of quality and inspection as per the latest distribution (Koster et al., 2006). Incoming items may be processed for delivery directly to outbound vehicles commonly known as cross-docking.

This method saves money for organizations by removing practices to put products in the warehouse as stock (Stephan and Boysen, 2011). After the goods have been purchased, they are moved to their respective warehouse storage position, this process is known as put away ready for order picking or transfer (Frazelle, 2001). Choosing orders involves bunching and arranging customer orders, choosing products from storage locations and then releasing the same for order fulfilment. This is driven by an object or stock-keeping unit (SKU)'s uniqueness or features (Koster et al., 2006). It can be handled as entire pallets, cartons, or divided into groups. Picking may be performed in variants of either the article or the order. When selecting by article, numerous purchaser orders are simultaneously selected while selecting a purchaser's order by order is treated at any time (Koster et al., 2006).

2.1.3.3.1 Inspection and Receiving

Inspection and receiving are vital steps in the supply chain and procurement processes, serving as critical checkpoints to ensure that goods delivered align with purchase orders in terms of quantity, quality, and specification. These processes ensure both operational consistency and the maintenance of quality standards throughout the value chain (Wisner, Tan, & Leong, 2014). Upon arrival, items are received at a designated area, typically a dock or a reception point in a warehouse or factory. Here, they're systematically checked against the purchase order to ensure that the correct quantity has been delivered. This process aids in identifying any potential shortages or overages early on, ensuring inventory accuracy and correct financial documentation (Harrison & van Hoek, 2008).

After initial receiving, inspection takes precedence. The primary goal is to validate the quality and integrity of the goods. This involves checking items for potential defects, damages, or discrepancies against predetermined quality standards or specifications. The importance of this step cannot be overstated; receiving subpar or damaged goods can adversely impact production processes, final product quality, and, consequently, customer satisfaction (Chopra &Sodhi, 2014).In industries where precision is paramount, such as aerospace or pharmaceuticals, inspection procedures are rigorous and often governed by regulatory standards. Even a minor deviation from quality benchmarks can result in significant consequences, underscoring the importance of thorough inspection practices (Handfield, Monczka, Giunipero, & Patterson, 2019).

Technological advancements have considerably streamlined inspection and receiving processes. Automated receiving systems, barcode and RFID scanning, and integrated inventory management

systems now allow for real-time tracking, error reduction, and accelerated processing (Tajbakhsh & Hassini, 2015). In some high-tech environments, machine learning and computer vision are being deployed to automate quality inspections, providing higher accuracy rates than manual checks (Wuest, Weimer, Irgens, & Thoben, 2016).

2.1.3.3.2 Put away and Transfer

Put-away and transfer processes are foundational in warehousing and inventory management, helping maintain an organized, efficient, and fluid movement of goods within a storage facility. These procedures ensure that products are stored safely, can be easily retrieved when needed, and are tracked meticulously throughout their lifecycle in the warehouse (Gibson, Defee, & Randall, 2014). Upon receiving goods, the put-away process begins. This involves moving items from the receiving area to their designated storage locations within the warehouse. Effective put-away practices are essential for a number of reasons. Firstly, they aid in maximizing storage space, ensuring that items are placed optimally based on their size, shape, and turnover rate. This also has implications for picking efficiency; items that are stored methodically can be retrieved faster, leading to quicker order fulfillment times (Bowersox, Closs, & Cooper, 2002).

Next, the transfer process involves relocating goods from one location within a warehouse to another, or even between different warehouse facilities. Transfer might be necessitated due to various reasons: rebalancing stock across multiple locations, making space for new arrivals, or moving items closer to packing areas based on anticipated demand. Like put-away, an efficient transfer process ensures that goods are readily accessible and can be located swiftly, minimizing lead times and improving customer satisfaction (Axsäter, 2006).Modern warehousing solutions have integrated technology to enhance both put-away and transfer processes. Warehouse

Management Systems (WMS) can automate storage decisions, directing workers to the ideal locations for storing or retrieving items based on real-time inventory data (Tompkins et al., 2010). Moreover, technologies like RFID and barcode scanning ensure that each item's movement within the warehouse is tracked, leading to high levels of inventory accuracy and visibility (Sari, 2015).

2.1.3.3.3 Order picking

Order picking stands as one of the most pivotal operations within warehousing. It involves the selective retrieval of items from storage locations to meet specific customer orders, and its importance in the supply chain cannot be understated, especially given its influence on order fulfillment speed and accuracy (De Koster, Le-Duc, & Roodbergen, 2007). Interestingly, despite its critical role, it also represents one of the most labour-intensive and cost-consuming aspects of warehouse operations. Thus, achieving both efficiency and accuracy in order picking is paramount; after all, rapid but erroneous picking can escalate costs through returns and can detrimentally impact customer satisfaction (Bartholdi & Hackman, 2014).

Over time, several strategies have emerged to enhance the picking process. Notable among these are zone picking, where the warehouse is segmented into zones with pickers designated to specific areas; batch picking, which amalgamates the retrieval of items for multiple orders; and wave picking, a method that synchronizes picking with packing and shipping cycles (Frazelle, 2001). The advent of technology has further streamlined order picking. Systems like Pick-to-Light or Voice-Directed Picking provide real-time visual or auditory cues, drastically reducing errors. Similarly, the integration of Automated Storage and Retrieval Systems (AS/RS) has brought automation to the forefront, making the picking process swifter and more accurate (Hausman,

Schwarz, & Graves, 1976).In today's e-commerce dominated era, where consumer expectations are ever-escalating, refining the order picking process has become indispensable. Organizations are thus compelled to continually innovate, ensuring they leverage both strategic methodologies and advanced technologies to uphold and enhance this crucial warehouse function.

2.2 Concept of Operational Performance

Operational performance refers to the efficacy with which an organization conducts its business processes, from production and delivery to customer service. It's a metric by which companies gauge how well they're translating their resources and efforts into results. A sound operational performance denotes not just efficiency but also effectiveness, ensuring that an organization is not only doing things right but also doing the right things (Neely, Gregory, &Platts, 2005).Several factors influence a company's operational performance. These encompass process efficiencies, workforce productivity, technology integration, supply chain management, and quality control. With the rise of global competition and rapidly changing market dynamics, firms increasingly recognize the importance of continuously monitoring and enhancing their operational performance to remain competitive and meet stakeholder expectations (Porter, 1996).

Key performance indicators (KPIs) often help in evaluating operational performance. These metrics provide insights into different facets of operations, from production cycle times and defect rates to customer satisfaction scores and order fulfillment rates. They are pivotal in identifying areas that require improvement and those that are performing optimally (Kaplan & Norton, 1992).

Technological advancements, such as Enterprise Resource Planning (ERP) systems and advanced analytics, are revolutionizing the way organizations measure and enhance their operational performance. These tools provide real-time insights, enabling managers to make informed decisions and swiftly address any inefficiencies (Davenport, 2006).Moreover, methodologies like Lean, Six Sigma, and Total Quality Management (TQM) have been instrumental in driving operational excellence. These frameworks emphasize continuous improvement, waste reduction, and customer-centricity, collectively serving as blueprints for companies striving for superior operational performance (Womack & Jones, 1996).

2.2.1 Speed of delivery

The speed of delivery is an increasingly vital aspect of operational performance, especially in our fast-paced, digital-first economy. It refers to the time taken for a product, service, or piece of information to move from its point of origin to its intended recipient, and it holds significant implications for customer satisfaction, operational costs, and overall competitiveness (Christopher, 2016). Today's consumers, shaped by the rise of e-commerce giants and the convenience of digital platforms, have come to expect swift and reliable deliveries. This "Amazon effect," as it's colloquially termed, underscores the shift in consumer expectations where delays in delivery can not only lead to a single lost sale but also long-term attrition of customer loyalty (Morganti et al., 2014).

But achieving fast delivery isn't solely about transportation speed. It encompasses a holistic view of the supply chain, starting from the efficiency of order processing systems, the effectiveness of

inventory management practices, the responsiveness of distribution networks, to the actual transportation and last-mile delivery solutions in place (Aguirre, 2017).

Technological advancements play a pivotal role in enhancing the speed of delivery. Integrated logistics platforms, for example, enable real-time tracking of shipments, predictive analytics can anticipate delays, and innovative solutions like drones or autonomous vehicles promise to revolutionize last-mile delivery (Cairns, 2018). Additionally, firms are increasingly adopting localized distribution centers or leveraging micro-fulfillment strategies to position inventory closer to consumers, reducing transit times (Yossi & Raz, 2018).

Yet, it's crucial to strike a balance. Speed, while imperative, must not come at the sacrifice of accuracy or increase costs prohibitively. A rushed delivery that brings a wrong product or incurs exorbitant shipping fees can be as detrimental to customer satisfaction as a delayed one.

2.2.2 Reliability

Reliability, in a business context, refers to the consistency and dependability with which companies deliver their products, services, or solutions to their customers. In other words, it's the measure of a system's capability to perform its intended function without failure over a specific period (Barlow & Proschan, 1965). Reliability plays a central role in establishing trust, fostering customer loyalty, and ensuring repeat business.In the realm of product manufacturing, reliability indicates the likelihood of a product performing without defects or failures over its expected lifecycle. Companies often invest heavily in quality assurance and testing to ensure that products meet

stringent reliability standards, understanding that a product failure can lead to warranty claims, tarnished brand reputation, and decreased customer trust (Meeker & Escobar, 1998).

In the service industry, reliability is gauged by the consistency and dependability of service delivery. For instance, a reliable airline is one with minimal flight delays and cancellations, and a trustworthy bank processes transactions accurately every time. In these contexts, any deviation from expected service can lead to customer dissatisfaction and potential business loss (Parasuraman, Zeithaml, & Berry, 1988). Moreover, with the digital transformation of businesses, the reliability of IT systems and digital platforms has become paramount. System downtimes, software glitches, or security breaches can not only disrupt operations but can also compromise customer data, leading to significant financial and reputational damages (Laprie, 2008).

The importance of reliability extends to supply chain and logistics too. A reliable supply chain ensures timely and accurate delivery of products, minimizing stockouts, backorders, or other disruptions that could negatively impact both businesses and their customers (Christopher & Peck, 2004).It's worth noting that achieving high reliability often requires a proactive approach, which might include predictive maintenance, regular training, system redundancy, robust quality control mechanisms, and continuous feedback loops. The goal is not just to respond to failures but to anticipate and prevent them.

2.2.3 Customer Satisfaction

Customer satisfaction serves as a pivotal barometer for gauging the success of any business. At its core, it represents the measure of a customer's perception of how well a company meets or exceeds

their expectations in the context of a particular transaction or interaction (Anderson, Fornell, & Lehmann, 1994). In a highly competitive marketplace, ensuring customer satisfaction is not just about retaining loyal customers; it's also about creating advocates who will promote your brand through word-of-mouth and other channels.Several factors influence customer satisfaction. Product and service quality undeniably stand at the forefront. A product that performs reliably, offers value for money, and meets or surpasses its advertised promises can result in a satisfied customer. Similarly, the delivery of services – be it promptness, professionalism, or the ability to handle complaints and inquiries efficiently – can significantly shape customer perceptions (Parasuraman, Zeithaml, & Berry, 1988).

But the realm of customer satisfaction extends beyond the immediate product or service. The entire customer experience, from the ease of navigating a website or store, the clarity of communication, to post-purchase support and service, plays an integral role. Furthermore, emotional factors such as trust, reputation, and the feeling of being valued can influence satisfaction levels (Oliver, 1997).In the age of online reviews and social media, customer satisfaction has taken on amplified significance. Positive reviews and testimonials can bolster a brand's reputation, driving more sales and fostering loyalty. Conversely, negative experiences, if voiced publicly, can deter potential customers and mar a company's image (Chevalier & Mayzlin, 2006).

Regularly measuring customer satisfaction, through mechanisms such as surveys, feedback forms, or net promoter scores (NPS), is crucial. These tools provide invaluable insights into areas of improvement, emerging trends, and shifting customer expectations. Armed with this data, businesses can tailor their strategies to enhance the customer journey continually.

2.3 Challenges in Inbound Logistics for Fruit Manufacturing Companies

Inbound logistics plays a crucial role in the fruit manufacturing sector, ensuring the steady supply of fresh fruits for processing into products like juices, jams, dried fruits, and canned goods. Given the perishable nature of fruits, there are unique challenges inherent to the industry.

2.3.1 Perishability and Quality Control

The perishable nature of fruits presents a unique logistical challenge in the manufacturing sector. Due to their high-water content, fruits are inherently susceptible to microbial decay, a process further accelerated by their continuing metabolic activities post-harvest, resulting in ripening and eventual decomposition (Kader, 1992). This rapid degradation emphasizes the importance of appropriate storage and transportation measures. Any delay, even if slight, in transporting these fruits from their source to the manufacturing facility, especially under sub-optimal conditions, can lead to significant quality loss. For instance, temperature-sensitive fruits, when exposed to very low temperatures for prolonged durations, might endure chilling injuries, manifesting as discoloration and loss of flavor, thus shortening their shelf life (Saltveit, 2001). To combat such challenges, it becomes imperative for fruit manufacturers to invest in an effective cold chain logistics system. A seamless and timely transition from the farm to the processing facility can ensure the maintained quality of fruits and prevent losses (Aung & Chang, 2014). Moreover, the timing of harvesting is a crucial determinant of fruit quality. Picking them too early might compromise their flavor and nutritional richness, while late harvesting could yield overripe fruits with a drastically reduced shelf life, impacting the quality of the final product (Mitchell, 1992).

This intricate balance of timely harvesting combined with efficient logistics is pivotal for fruit manufacturers aiming for optimal product quality.

2.3.2 Seasonal Variability in Fruit Manufacturing

The seasonality of fruits introduces a complex dynamic into the manufacturing landscape. Each fruit variety has its specific growing season, characterized by a peak harvest time followed by periods of limited or no availability (Thompson, Mitchell, & Rumsey, 1996). For fruit manufacturers, this means grappling with cycles of abundance and scarcity.During peak seasons, manufacturers often face the challenge of efficiently processing large volumes of incoming produce before it perishes. This glut necessitates efficient logistics and storage solutions to manage the excess supply (Kader, 2002). Moreover, the quality of fruits can vary within a season depending on various factors like weather conditions, making consistent product quality a challenge (Grimm, Paris, & Johnson, 1993).

Conversely, in off-seasons, manufacturers can confront shortages, leading to potential production halts if not managed adequately. Some manufacturers opt for importing fruits during these periods, but this approach can introduce additional complexities like increased costs, potential quality variance, and dealing with international regulatory standards (Simonne, Simonne, Eitenmiller, Mills, & Cresman, 1997).To counter these challenges, many manufacturers adopt strategies like preserving fruits during peak seasons through freezing, canning, or turning them into concentrates. These processes allow them to maintain a steady production flow even during periods of scarcity (Nestle, 2003). Furthermore, effective demand forecasting and building strong relationships with

suppliers can help in navigating the ebb and flow of seasonal availability, ensuring that production lines remain active and product quality is consistent throughout the year.

2.3.3 Supplier Coordination in Fruit Manufacturing

Navigating the complexities of supplier coordination is a pivotal aspect of fruit manufacturing. The industry's landscape often comprises a broad spectrum of suppliers, from expansive commercial farms to small, localized growers. This diverse array not only pertains to size but also encapsulates differences in farming practices, technological prowess, harvesting techniques, and capacities, all of which can create disparities in the quality and consistency of supplied fruits (Reardon, Timmer, & Berdegue, 2005). When dealing with such a varied supplier base, the challenge lies in standardizing input quality. Large-scale farms, equipped with advanced agricultural technologies, might consistently deliver fruits that adhere to a manufacturer's specifications. In contrast, fruits from smaller farms, which might rely on traditional farming methods, could exhibit variability in size, ripeness, and other quality metrics (Hellin & Higman, 2005). Such inconsistencies necessitate rigorous quality checks and sometimes even further processing to ensure the final product maintains a consistent standard.

Another layer of complexity arises from the logistics and scheduling of fruit deliveries. Synchronizing harvest times, processing capacities, and transportation to minimize fruit spoilage requires meticulous planning. While larger farms might have established logistics infrastructures, smaller growers may need more coordination in terms of pickup schedules and transport provisions (Swinnen & Maertens, 2007).Communication is another critical challenge. Keeping open channels for feedback and updates is essential, especially when dealing with numerous suppliers. This

includes addressing issues like changing order quantities, relaying feedback on fruit quality, or coordinating harvest timings. The more diverse the supplier base, the more nuanced and tailored the communication strategies need to be (Hobbs & Young, 2000).

2.3.4 Regulatory and Compliance Challenges in Fruit Manufacturing

The globalization of the fruit manufacturing sector has ushered in an era where sourcing raw materials from international suppliers is not just an advantage but often a necessity. Yet, this interconnectedness brings with it a slew of regulatory and compliance challenges. Countries, despite subscribing to international guidelines like the Codex Alimentarius set by the FAO and WHO, often have their own nuanced standards for fruit quality, safety, and packaging (Henson &Jaffee, 2008). This divergence in standards poses a complex web for manufacturers to navigate.

Furthermore, the intricacies of customs, import restrictions, tariffs, and quotas present additional hurdles. Some countries may limit imports of specific fruits due to concerns about invasive species or diseases. As a result, manufacturers often find themselves buried under piles of documentation to prove adherence to an importing nation's requirements (Disdier, Fontagné, & Mimouni, 2008). The plot thickens with certification mandates. Labels indicating organic growth, fair-trade practices, or the absence of certain pesticides or GMOs can become crucial gatekeepers, determining whether a shipment gains approval or faces rejection at a country's borders (Grote, 2009).Adding another layer to this intricate puzzle are concerns surrounding pesticide residues and potential contaminants. Manufacturers need to be consistently vigilant to ensure their products stay within the stipulated maximum residue limits (MRLs) set by various nations, which, if overlooked, can lead to regulatory setbacks and dent consumer trust (Karipidis et al., 2009). Lastly, in today's

digital age, consumers and regulatory bodies alike demand unparalleled transparency. Fruit manufacturers are, thus, under constant pressure to trace and document the journey of each fruit batch, ensuring a seamless tale of compliance from farm to table (Golan et al., 2004).

2.3.5 Transportation Issues in Fruit Manufacturing

Transportation remains a cornerstone challenge in the realm of fruit manufacturing, largely due to the inherent fragility and perishability of fruits. Ensuring that these delicate goods reach their destination in pristine condition demands a seamless transportation infrastructure, a luxury that isn't universally available. Particularly in developing countries, manufacturers grapple with infrastructural inadequacies that range from poorly maintained roads to outdated or insufficient refrigeration facilities (Minten, Randrianarison, &Swinnen, 2009). These deficiencies not only elevate the risk of damage but also exacerbate the potential for spoilage, compounding the chances of financial loss and undermining efforts to ensure consistent product quality. Furthermore, in areas where power outages are frequent, even well-equipped cold storage vehicles might prove inadequate, rendering the preservation of fruit freshness a Sisyphean task. Therefore, for fruit manufacturers, the transportation conundrum is not just about moving products from point A to B; it's about doing so without compromising the integrity of the produce, a task that becomes particularly arduous in the face of infrastructural challenges.

2.3.6 Technological Challenges in Fruit Manufacturing Logistics

In the contemporary fruit manufacturing landscape, technology stands as both a beacon of opportunity and a potential quagmire of challenges. While technological advancements offer the

promise of refining logistics – through tools like real-time tracking, advanced forecasting models, and integrated supply chain management systems – their effective integration can be an uphill battle. One of the stark realities is the disparity in technological readiness across the supply chain. Especially when dealing with smaller suppliers, who may lack the infrastructure or expertise, the implementation of cutting-edge solutions becomes cumbersome (Trienekens, 2011). These smaller entities might be resistant to or unequipped for adopting new technologies due to financial constraints, lack of training, or apprehensions about the steep learning curve.

Moreover, the rapid pace of technological evolution means that even after adopting a particular solution, there's a constant need for updates and upgrades. This continuous technological flux can strain resources and demand persistent training and retraining of personnel. Data compatibility and integration challenges further complicate the picture. For instance, if a large manufacturer uses a sophisticated Enterprise Resource Planning (ERP) system, but a smaller supplier employs a basic inventory management tool, ensuring seamless data flow between the two can be daunting (Fritz &Schiefer, 2008).

2.3.7 Sustainability Concerns in Fruit Manufacturing Logistics

Today's marketplace is witnessing a profound shift in consumer consciousness, with a rising emphasis on sustainability. The logistical operations of fruit manufacturing, once viewed through the narrow lens of efficiency and cost, are now under the broader and more discerning microscope of environmental impact. Central to these concerns is the carbon footprint of transportation. With the transport sector accounting for a significant portion of global CO2 emissions, there's mounting

pressure on fruit manufacturers to adopt greener modes of transport, optimize routes for fuel efficiency, or transition to renewable fuels (Hickman, Ashiru, & Banister, 2010).

Beyond transportation, the spotlight also shines on packaging. Traditional packaging materials, many of which are non-biodegradable, contribute to escalating landfill waste. As such, there's a clamor for manufacturers to rethink packaging strategies, with a focus on recyclable, reusable, or compostable materials (Lewis, Verghese, & Fitzpatrick, 2010).Wastage presents another sustainability quandary. Given the perishable nature of fruits, any inefficiencies in the supply chain can result in significant spoilage. This not only constitutes a financial loss but also represents a waste of all the resources – water, land, labor – that went into producing those fruits (Engström & Carlsson-Kanyama, 2004.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology that was used in the study. It covers research design, population of the study, sample size and sampling technique, data collection methods, data analysis, ethical consideration, reliability and validity as well as the profile of the study area.

3.1 Research design

Cooper and Schindler (2014) define a research design as a plan that stipulates the conditions for data collection and its analysis and measurement by a researcher in fulfilling research objectives or answering research questions. This research employs a quantitative, explanatory design to investigate the effect of inbound logistics on the operational performance at HPW Fresh and Dry Limited. Utilizing a case study method, the study will source data from company records, performance metrics, and a structured questionnaire administered to logistics and operations personnel. The focus will be on key performance indicators such as efficiency, cost-effectiveness, and reliability.

3.2 Population of the study

According to Creswell (2018), population is a complete group of entities sharing particular features or characteristics. The population of this study comprises individuals directly involved in the inbound logistics and operational activities at HPW Fresh and Dry Limited. Specifically, the study will employ 15 logistics and procurement personnel, 5 operations personnel, 10 warehouse and store personnel, 20 drivers, 10 information technology personnel, and 30 production personnel.

This brings the total study population to 90 unique data points or individuals. The selection of this population is strategic; it ensures that the data collected will be comprehensive, covering both human expertise and existing records, while also being directly relevant to the research objectives. Given the case study nature focused on a specific organization, the defined population allows for an in-depth, targeted quantitative analysis. The aim is to generate actionable insights that can improve logistics practices and operational performance specifically within HPW Fresh and Dry Limited.

3.3 Sample size and sampling techniques

A sample is a defined set of observations gathered from a population (Neuman, 2018). The sample size for this study will be the whole population of 90 distinct entities involved in incoming logistics and operations at HPW Fresh and Dry Limited. This method, known as a census survey, is used to achieve maximum internal validity and wide coverage. This research selecting the samples from five departments such as logistics and procurement personnel, operations personnel, warehouse and store personnel, drivers, information technology personnel, and production personnel , which constitute the population of the study. The technique produces estimates of overall population parameters with greater precision and without bias because the numbers are random (Saunders, Lewis, & Thornhill, 2019). The use of sample enables the researchers to save time and costs associated with studying the entire population (Saunders, Lewis, & Thornhill, 2019). The aim of using a census survey for this specific case study is to provide a complete and reliable set of data, which in turn will offer robust, actionable insights into how inbound logistics practices affect operational performance at HPW Fresh and Dry Limited.

3.4 Data Collection

According to Trochim, Donnelly, &Arora, (2015) Data collection is a systematic process of gathering observations or measurements. For data collection in this study, a multifaceted approach will be employed to ensure a comprehensive and accurate dataset. Since the research involves a census survey of the 90 unique entities within HPW Fresh and Dry Limited's inbound logistics and operational teams, each participant or data point is crucial. Structured questionnaires will be administered to the 90 human participants 15 logistics and procurement personnel, 5 operations personnel, 10 warehouse and store personnel, 20 drivers, 10 information technology personnel, and 30 production personnel. This questionnaire was designed to elicit quantitative data on various aspects of inbound logistics practices and their perceived impact on operational performance. The question was crafted to ensure uniformity and precision, facilitating subsequent statistical analysis. Additionally, a data extraction template will be applied to the available sets of historical data and performance reports.

3.5 Data Collection procedure

The data collection procedure for this study is designed to be both rigorous and systematic. Structured questionnaires will be distributed electronically to all 90 human participants, which include logistics managers, operations managers, warehouse staff, and drivers at HPW Fresh and Dry Limited. A specified time frame will be given for the completion of these questionnaires to ensure timely data collection. Simultaneously, a standardized data extraction template will be employed to gather relevant metrics from existing historical data and performance reports. This will involve accessing company databases and records to obtain specific key performance indicators such as efficiency rates, costs, and reliability metrics. Both the questionnaire data and

the extracted metrics will then be consolidated into a single dataset for subsequent analysis. By adhering to this structured procedure, the study aims to collect a comprehensive and consistent set of quantitative data, thereby providing a robust basis for analyzing the impact of inbound logistics practices on operational performance.

3.6 Data Analysis

Data was screened to identify omissions and removal of non-answered questions, checked for completeness, accuracy, errors in responses, omissions and other inconsistencies. The data was then coded using numerals in order to put them in limited numbers of categories. The data was analysed using SPSS version 21. Data was then classified, tabulated and summarized using descriptive measures: percentages, mean, standard deviation and frequency distribution tables was used for presentation of the findings. Pearson's correlations coefficients were run to examine the relationship among the independent and the dependent study variables that are set out in the objectives of the study.

3.7 Profile of HPW Fresh and Dry Limited

Established in 1997 by Hans Peter Werder in Switzerland, HPW Fresh and Dry has evolved to become a prominent supplier of value-added agricultural products for the European market. The company specializes in baby vegetables sourced from Asia, Africa, and Switzerland, as well as a range of dried fruits like pineapples, mangoes, coconuts, bananas, and papayas. These fruits are processed into various products, including fruit bars and coconut oils, at their production facility in Ghana and are then exported to packaging companies across Europe.

In 1999, HPW began exporting fresh pineapples from Ghana to Europe. By 2008, the company was responsible for handling or purchasing 50% of all pineapples exported from Ghana. However, this high volume proved unsustainable for the size of the company, and the financial crisis led to declining demand for fresh pineapples. This forced HPW to pivot its business strategy; it constructed a drying facility in Adeiso, Ghana, operating under the name HPW Fresh & Dry Ltd. The company is jointly owned by HPW AG and Managing Director MaikBlaser. Currently, the facility produces approximately 470 tons of dried fruits from an input of 5700 tons of fresh fruits, a testament to its effective management practices.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter presents the findings of a study conducted to assess the effect of inbound logistics practices on operational performance, specifically focusing on the sampled respondents from HPW Fresh and Dry Limited. The data obtained from the respondents was analyzed using various statistical and inferential methods, and the results were structured to align with the study's objectives and research questions outlined in the earlier chapters.

To analyze the data, the study utilized version 21 of the SPSS software, which facilitated the application of frequencies, charts, descriptive statistics, and figures to present the results. Regression values were also employed to help explain the observed effects. Throughout the presentation of the results, relevant literature from chapter two of the study was incorporated to provide context and support the findings.By following a structured approach, the chapter provides a comprehensive overview of the study's findings, offering insights into the relationship between inbound and outbound logistics practices and operational performance in HPW Fresh and Dry Limited. The results contribute to the existing body of knowledge and shed light on the specific dynamics of logistics operations within the Ghanaian context.

The research utilized tables, frequencies, descriptive analysis, and visual tools to clearly present its findings. Of the ninety (90) participants, 89 provided feedback, leading to a 98.9% response rate. This significant participation ensures a comprehensive representation of the entire group's perspectives. The ensuing interpretation of the findings is consistent with the literature reviewed in Chapter Two of the study.

4.1 Demographic Characteristics

The result regarding demographic information or background of the sampled respondents is presented in figure 4.1 to 4.1.7. It covers the issue of Gender, educational level, age and years of experience. The result is presented as follows;

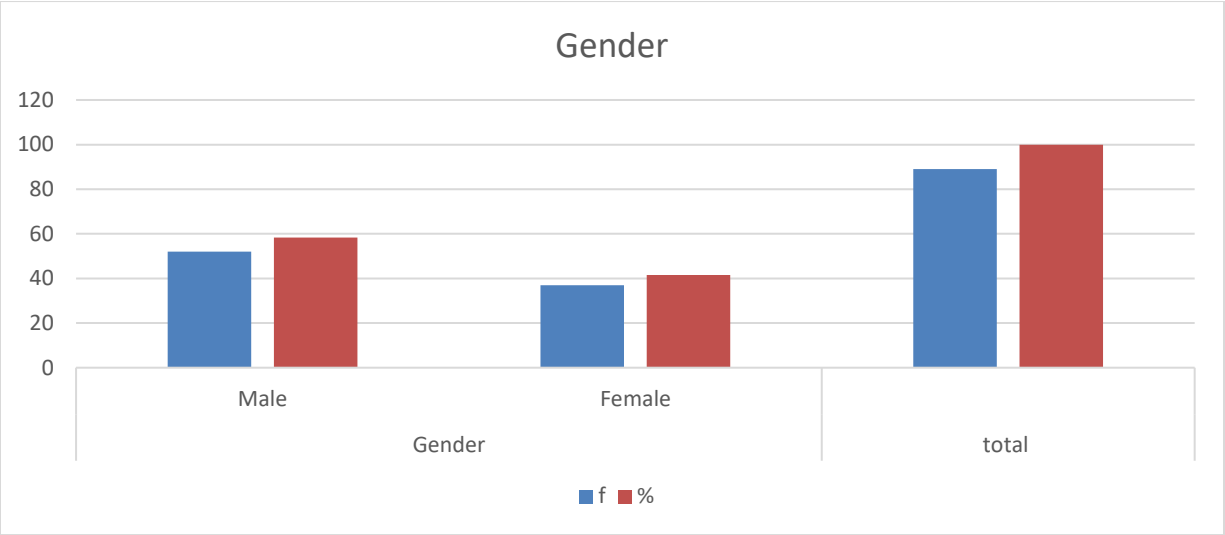

Figure 4.1: Gender distribution

Source: Field data, 2023

Figure 4.1 provides a detailed depiction of the gender distribution among the survey participants. Out of the 89 individuals who responded, 52 are male, accounting for 58.4% of the total, whereas the remaining 37 respondents are female, making up 41.6% of the overall count. Analyzing this data, it becomes evident that there is a noticeable predominance of male respondents over their female counterparts in the provided dataset. This imbalance underscores the importance of considering gender representation when interpreting the results or drawing conclusions from this survey.

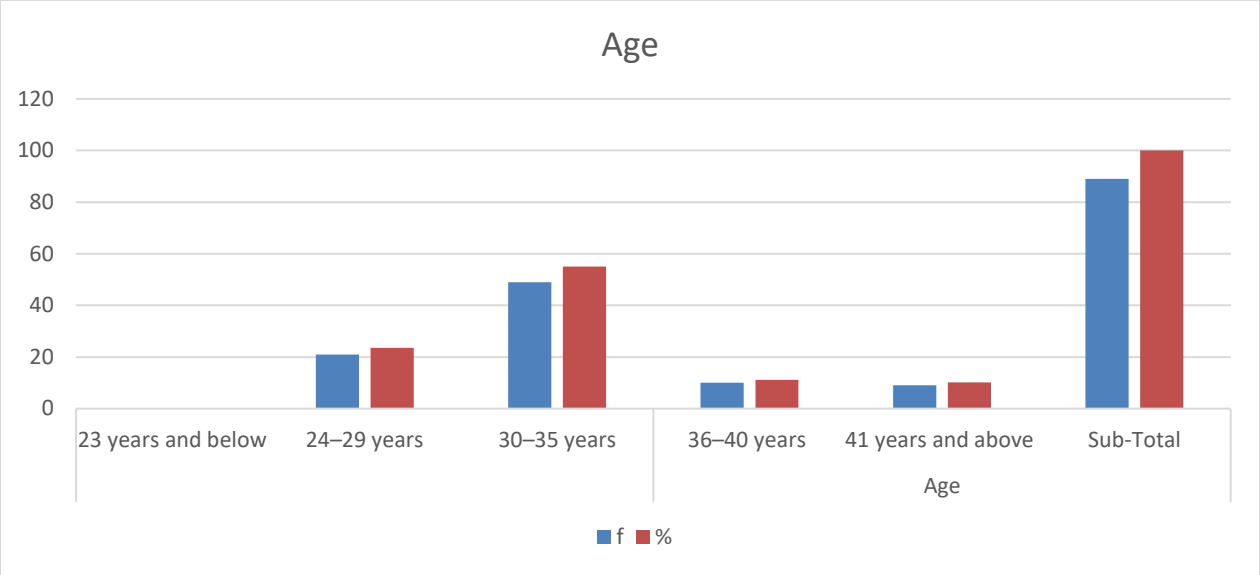

Figure 4.2: Age distribution

Source: Field data, 2023

Figure 4.2 showcases the age breakdown among a set of participants, highlighting both the number of participants ('f') and their respective percentages ('%') for each age group. Notably, the group aged 23 and below had no representation. The age group of 24-29 years saw a participation of 21 individuals, making up 23.6% of the overall count. The 30-35 years age bracket stands out with a remarkable 55.1%, translating to 49 participants. The numbers then taper off with the 36-40 years age group, which includes 10 participants or 11.2%. Those aged 41 years and above are slightly fewer in number, with 9 participants, constituting 10.1% of the total. Overall, the dataset comprises 89 participants.

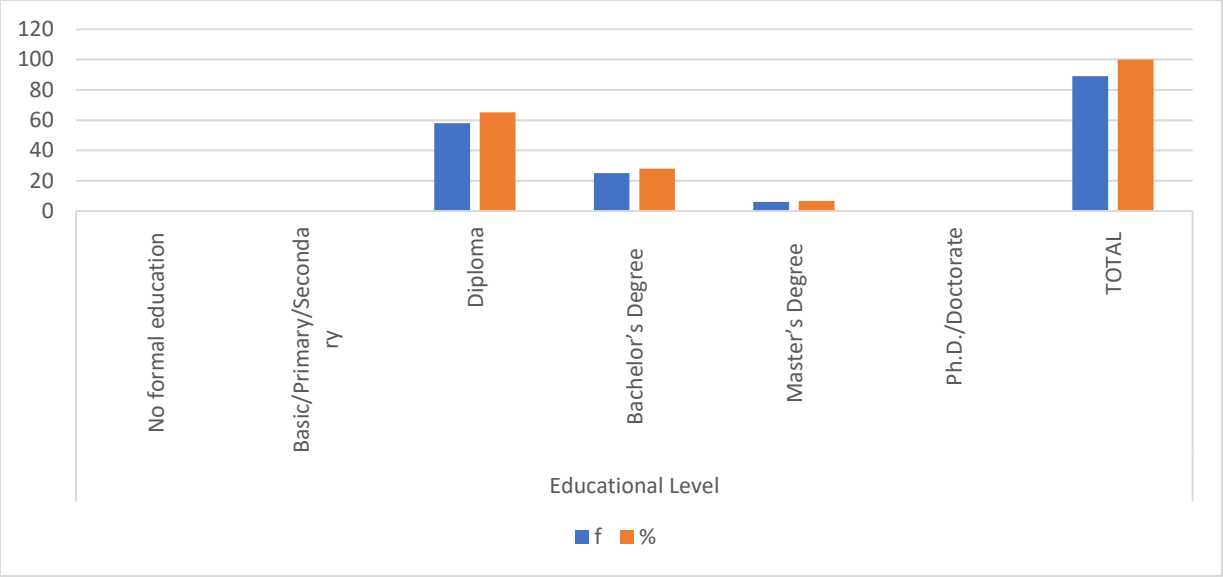

Figure 4.3: Education distribution

Source: Field data, 2023

Figure 4.3 provides a comprehensive breakdown of the educational levels attained by 89 participants. A significant majority, 65.2%, have completed a diploma, making it the most common educational level among the respondents. Following this, 28.1% of the participants hold a Bachelor's Degree. A smaller percentage, 6.7%, have attained a Master's Degree. Notably, none of the participants reported having no formal education, basic/primary/secondary education, or a Ph.D./Doctorate. Thus, the data indicates a heavy inclination towards diploma holders, with a moderate representation of Bachelor's degree holders and a minimal percentage having pursued postgraduate studies at the Master's level.

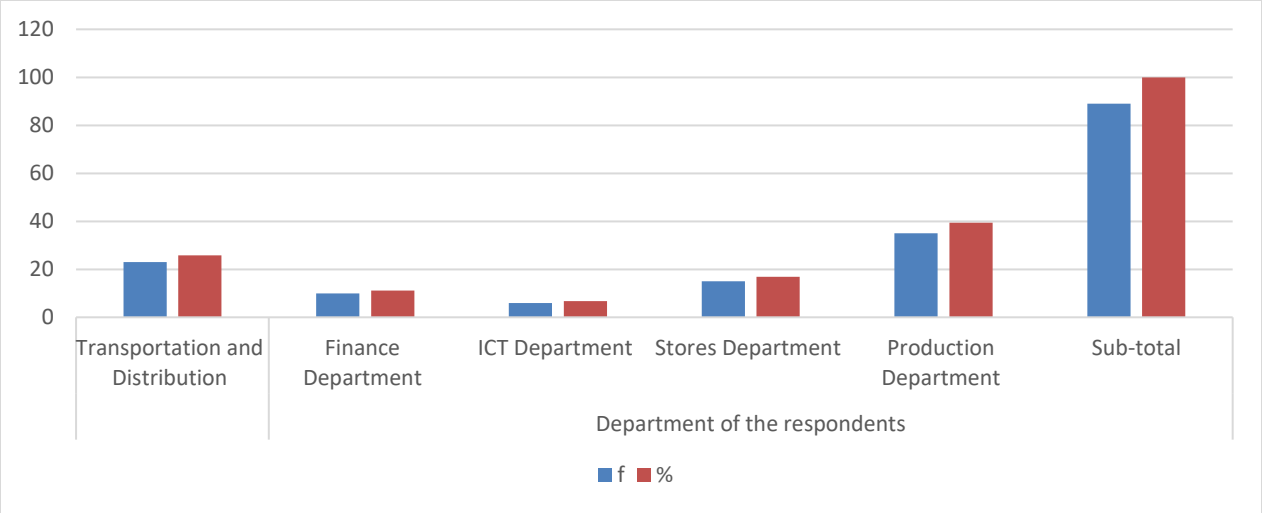

Figure 4.4: Department of the respondents

Source: Field data, 2023

Figure 4.4 outlines the departmental distribution of respondents, illustrating both the number of participants ('f') and their respective percentages ('%'). From the data provided, the Transportation and Distribution department had 23 respondents, which constitutes 25.8% of the total. This is followed by the Production Department with a significant 35 participants, representing 39.4% of the overall count, making it the most represented department. The Stores Department had 15 respondents, accounting for 16.9%, while the Finance Department had 10, equating to 11.2%. The least represented department was the ICT Department, with 6 respondents or 6.7% of the total. Cumulatively, the survey garnered feedback from 89 participants across these departments.

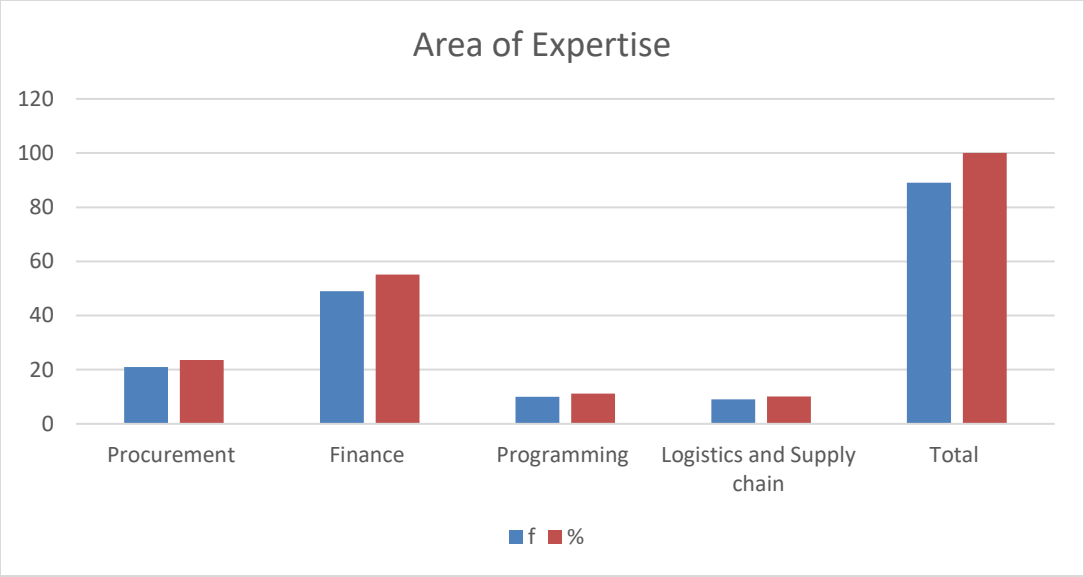

Figure 4.5: Area of Expertise

Source: Field data, 2023

Figure 4.5 provides a detailed insight into the distribution of expertise across four crucial domains: Finance, Procurement, Programming, and Logistics and Supply chain. The most striking observation from the data is the dominance of Finance, which overshadows the other fields with a compelling majority of 55.1%. This suggests that in the observed group, financial expertise is paramount, perhaps indicating a trend or a specific focus in the sample population. Following Finance, Procurement stands out as the next significant area, with 23.6% of individuals boasting expertise in this domain. The prominence of Procurement, albeit lesser than Finance, signifies its vital role and relevance in the concerned group. On the other hand, both Programming and Logistics and Supply chain appear to be less represented. With 11.2% for Programming and 10.1% for Logistics and Supply chain, it's evident that these domains, while essential, don't have as vast a representation as Finance or Procurement. This could imply that while there's a niche group of experts in these areas, they aren't the primary focus within this particular sample.

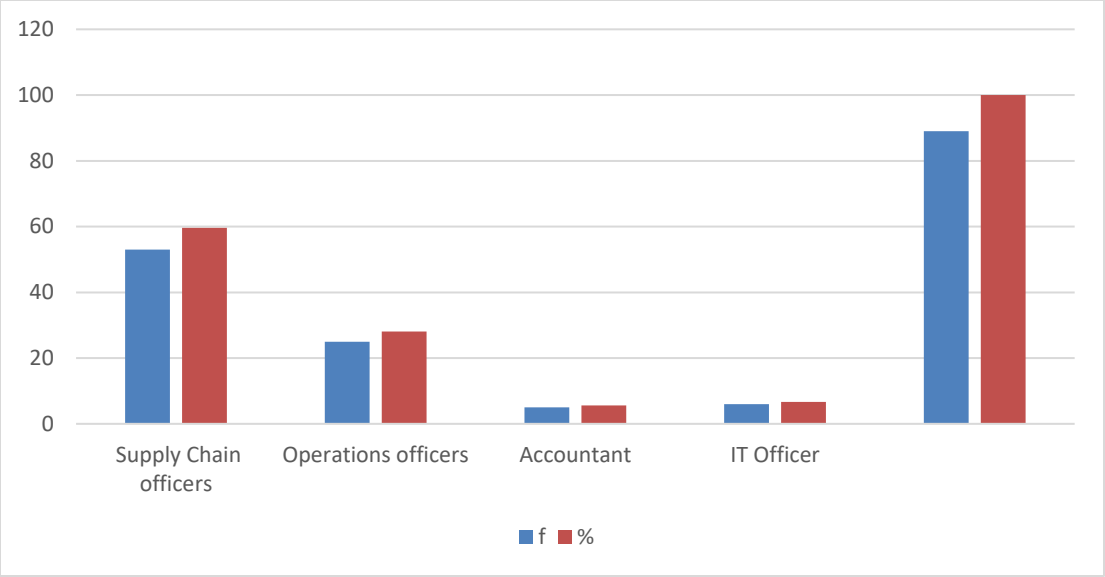

Figure 4.6: Position of the respondents

Source: Field data, 2023

Figure 4.6 provided offers a glimpse into the distribution of roles among a group of respondents. Notably, Supply Chain officers constitute the majority, with 59.6% of the total respondents falling into this category. This suggests that supply chain management is a dominant focus or expertise in the given sample. Following this, Operations officers make up 28.1% of the group, indicating a substantial representation of professionals who likely play a pivotal role in the day-to-day functions and management of their organizations. In comparison, Accountants and IT Officers are less prevalent among the respondents, with 5.6% and 6.7% representation, respectively. These percentages suggest that while there is a need for financial and technological expertise in the group, the number of professionals specializing in these areas is considerably less than those in supply chain and operations roles. In total, the data from 89 respondents paints a picture of a group with a strong emphasis on supply chain and operations expertise, complemented by essential financial and IT roles.

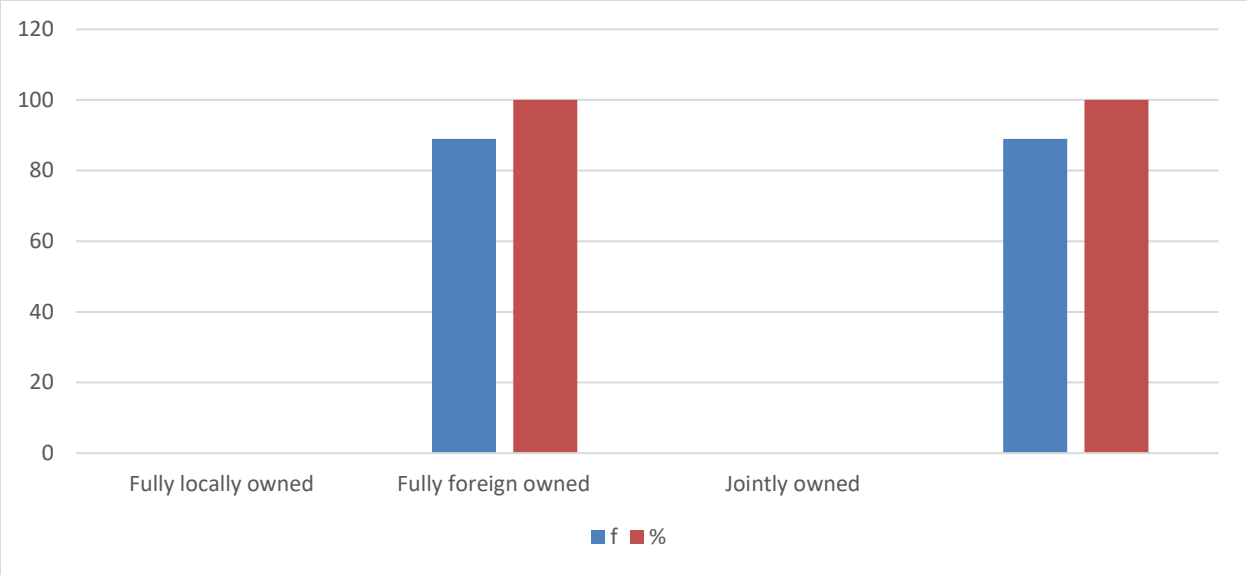

Figure 4.7: Ownership of the HPW Fresh and Dry

Source: Field data, 2023

Figure 4.7 provides a clear-cut insight into the ownership type of HPW Fresh and Dry Limited. Strikingly, the entirety of the sample, represented by 89 entities or 100%, is fully foreign owned. This implies a dominant presence of foreign stakeholders with exclusive control and ownership over these entities. On the other hand, both locally owned entities and jointly owned entities where ownership might be expected to be shared between local and foreign stakeholders are entirely absent from this sample, with both categories registering a 0% representation. The absence of any locally or jointly owned entities in this dataset might indicate a specific region or industry where foreign investment and ownership are predominant. Such a stark distribution underscores the importance of understanding the broader context or reasons that might have led to an overwhelming foreign ownership in this particular group.

4.2 Descriptive Statistics

Descriptive statistics provide a consolidated snapshot of the data gleaned from Likert scale assessments, frequently employed to gauge respondents' sentiments or concurrence with specific statements. Utilizing a 5-point Likert scale, responses span from "strongly disagree" to "strongly agree", interspersed with intermediate choices such as "agree", "neutral", and "disagree". The subsequent sections, from 4.2.1 to 4.2.3, delve deeper into the descriptive variables being analyzed.

4.3 Descriptive Statistics of Inbound Logistics Practice

Table 4.1: Transportation

Transportation	M	SD
Constantly innovates ways to further improve the loading and offloading local process.	**3.21**	**1.78**
Combines shipments leads to reduced transportation costs.	**3.58**	**1.49**
Accuracy of shipment tracking information should be of the highest standard.	**3.43**	**1.62**
Regular updates about the status of our shipments are deemed crucial for managing our logistics effectively.	**3.71**	**1.29**
Adequate resources, in terms of manpower and technology, are essential for efficiently clearing goods.	**3.23**	**1.79**
Overall Mean	**3.43**	

M-Mean, SD-Standard deviation
Source: Field Survey, 2023

Transportation plays an essential role in inbound logistics, ensuring that goods and materials move seamlessly from suppliers to a company's premises. From Table 4.1, several key insights about transportation practices in the context of inbound logistics can be derived.

Firstly, the innovation in the loading and offloading process has an average score of 3.21. This suggests that businesses recognize the importance of constantly innovating and improving these processes. However, with a standard deviation of 1.78, there seems to be a broad range of opinions, indicating that while some believe there's a high degree of innovation, others might feel the opposite. The practice of combining shipments to reduce transportation costs scores higher, with an average of 3.58. This might imply that many businesses see value in streamlining shipments for cost-efficiency. The standard deviation of 1.49 indicates some variability in the responses, but it's clear that this practice is generally well-accepted. Emphasis on the accuracy of shipment tracking information is also evident, with a score of 3.43. This underscores the importance businesses place on having precise and dependable tracking data. Given the rapid evolution of technology and customer expectations, ensuring accurate tracking has become paramount. Receiving regular updates about shipment status holds significant importance, as reflected by its highest mean score of 3.71. The relatively low standard deviation of 1.29 suggests a consensus on its cruciality for effective logistics management. Lastly, the necessity for adequate resources, both in manpower and technology, for efficient goods clearance is acknowledged, with a score of 3.23. The high standard deviation, however, suggests varied opinions on how well-resourced organizations are in this regard.

Table 4.1's findings highlight the pivotal role of innovation, shipment consolidation, and accurate tracking in inbound logistics. The data reveals a trend where businesses are gravitating towards technology-driven solutions and sophisticated processes to boost transport efficacy, signifying a broader industry progression towards digitization and efficiency. Christopher (2016) in "Logistics and Supply Chain Management" posits that transportation extends beyond mere movement of

goods, emphasizing strategic and effective practices. This aligns with the high rating on shipment consolidation for cost-effectiveness. Moreover, the focus on innovative loading techniques finds parallels in Rodrigue et al.'s (2020) "The Geography of Transport Systems", emphasizing the transformative impact of tech advancements on logistics. Mangan et al. (2016) in "Global Logistics and Supply Chain Management" stress the critical nature of precise tracking in an era of global supply chains and instant customer demands. Sahay and Ranjan (2008), in "Real-Time Supply Chain," further underscore the significance of timely shipment updates, arguing that they equip businesses with the agility to preemptively tackle disruptions, underscoring their indispensable role in logistics.

Table 4.2: Inventory Management

Inventory Management		
Effectively maintains an optimal level of inventory to meet customer demand.	**3.56**	**1.68**
Periodically reviews inventory levels to ensure there's neither an excess nor a shortage.	**3.22**	**1.79**
Cost considerations play a significant role when making inventory decisions.	**3.54**	**1.66**
Reducing lead time is a priority for inventory management strategy	**3.12**	**1.57**
Regular audits and checks are conducted to verify inventory accuracy.	**3.31**	**1.71**
Overall Mean	**3.35**	

M-Mean, SD-Standard deviation
Source: Field Survey, 2023

Inventory management is a crucial dimension of inbound logistics, deeply influencing a company's operational efficiency and customer satisfaction. The data presented offers a nuanced understanding of its significance. Maintaining an optimal level of inventory, as evidenced by a score of 3.56, is paramount for businesses to promptly meet customer demand, ensuring that

products are available when needed without incurring excessive holding costs. The act of periodically reviewing inventory levels, which scored 3.22, underscores the commitment of businesses to strike a balance, ensuring there's no wastage from overstocking or missed opportunities due to stock-outs. Cost considerations, with a score of 3.54, indicate the tightrope firms walk, trying to maintain inventory levels that are economically viable while satisfying demand. The emphasis on reducing lead time, albeit with a lower score of 3.12, suggests that businesses are recognizing the value of agility and responsiveness in their inventory management strategies. Regular audits and checks, as highlighted by a score of 3.31, emphasize the importance of accuracy, ensuring that inventory records mirror the actual stock, preventing potential discrepancies that can disrupt operations. In sum, inventory management within inbound logistics is a meticulous process of balancing cost, demand, accuracy, and efficiency, as captured by the overall mean score of 3.35.

The results concerning inventory management in inbound logistics can be traced back to several key market and operational dynamics. In today's fast-paced consumer landscape, heightened by the surge of e-commerce, businesses face mounting pressures to cater to immediate customer demands, which underscores the significance of maintaining optimal inventory levels. The score of 3.56 for this aspect reflects this urgency. Furthermore, the financial implications of inventory decisions, both in terms of holding costs and potential revenue loss from stockouts, emphasize the delicate balancing act firms must master. This explains the notable score of 3.54 for cost considerations. The periodic review of inventory levels, with a score of 3.22, can be attributed to businesses' efforts to adapt to changing market conditions, ensuring flexibility and responsiveness. Meanwhile, the emphasis on reducing lead time, although with a slightly lower score of 3.12,

suggests a growing recognition of the importance of agility in today's volatile market. Lastly, the score of 3.31 for regular audits underlines the critical role of accuracy in inventory management, given the complexities and potential disruptions arising from discrepancies. In essence, these results reflect an industry striving to synchronize demand, costs, and operational efficiencies in a challenging environment.

Modern businesses face the daunting task of fine-tuning inventory in an unpredictable market setting. A clear trend emerges where companies aim to strike a balance between satisfying customer demands and effective cost management. Concurrently, the move towards agile and accurate inventory strategies underlines the industry's acknowledgment of inventory management intricacies. This mirrors Chopra and Meindl's (2016) perspective in "Supply Chain Management," where the essence of inventory transcends mere storage to balancing storage costs against possible stockout expenses. The high score of 3.56 for inventory level is reflective of the Just-In-Time (JIT) approach championed by Ohno (1988), emphasizing timely and efficient inventory practices. The data also highlight the importance of regularly reassessing inventory, aligning with Slack et al.'s (2016) insights in "Operations Management" about the necessity for businesses to remain fluid in response to market shifts. The focus on shortening lead times finds backing in Christopher's (2016) "Logistics and Supply Chain Management," which heralds' agility as today's market cornerstone. Lastly, the score emphasizing consistent audits corroborates Bowersox et al.'s (2012) stance in "Supply Chain Logistics Management" on the imperative nature of accurate inventory record-keeping to circumvent potential operational hurdles.

Table 4.3: Warehousing

Warehousing		
Regularly performs detailed inspections of received goods to verify their quality and quantity.	**3.41**	**1.39**
Follows systematic procedures for storing goods, maximizing efficient use of storage space.	**3.43**	**1.59**
Issuing items within warehouse is done in a timely and organized manner, reducing the risk of misplacement.	**3.67**	**1.48**
Training and tools provided to staff significantly enhance the speed and precision of order picking.	**3.62**	**1.49**
Overall Mean	**3.5**	

M-Mean, SD-Standard deviation
Source: Field Survey, 2023

Warehousing, integral to inbound logistics, acts as the pivotal node that bridges the gap between procurement and final distribution. Analyzing the presented data reveals intricate nuances about contemporary warehousing practices. Starting with inspections, a score of 3.41 illustrates the importance businesses place on ensuring that received goods adhere to specified quality and quantity parameters. This not only assures product integrity but also aids in avoiding downstream issues in the supply chain. Regular and detailed checks indicate an inherent commitment to uphold standards and ensure accuracy right from the point of entry. A systematic approach to storing goods is emphasized by a score of 3.43. Efficient utilization of storage space is fundamental to modern warehousing, especially given the escalating costs of real estate and the need for rapid retrieval of goods. Such systematic procedures enable businesses to cater to customer demands more promptly and maintain operational fluidity. Timeliness in issuing items, as reflected by the highest score of 3.67, suggests a shift towards just-in-time practices and lean warehousing. By ensuring that items are retrieved and processed efficiently, organizations can reduce delays, misplacements, and

potential bottlenecks. The emphasis on equipping warehouse staff with training and tools, mirrored by a score of 3.62, underlines the industry's recognition of human capital as a critical asset. Enhanced speed and precision in order picking can significantly reduce errors, thereby streamlining operations and improving customer satisfaction.

The data implies a contemporary focus on quality assurance, operational efficiency, and the optimization of human capital within warehousing, reflecting an industry-wide trend of blending traditional warehousing practices with innovative techniques for maximal efficiency. These priorities are emblematic of businesses adapting to a competitive landscape where both product integrity and process efficiency are paramount. The score on inspections resonates with Mentzer et al. (2001) in "Logistics and Supply Chain Management," who stress that maintaining product integrity from the point of receipt is crucial for downstream operational efficiency. Efficient spatial utilization, as indicated by the systematic storage score, aligns with Gu et al. (2007) who emphasize in their research that strategic warehousing optimizes space to cater to timely demands, especially amid rising real estate costs. The emphasis on timeliness echoes the principles of lean warehousing and JIT as discussed by Womack and Jones (2003) in "Lean Thinking," where rapid retrieval and processing minimize waste and enhance responsiveness. Lastly, the score stressing the significance of training warehouse staff can be contextualized with Frazelle's (2001) "World-Class Warehousing," which posits that empowered and well-trained human capital is instrumental in achieving accuracy and efficiency, ultimately driving customer satisfaction.

4.4 Challenges for Inbound Logistics Practices

This section seeks to identify and comprehend the challenges and impediments that could potentially affect the Inbound Logistics Practices at HPW Fresh and Dry Limited.

Table 4.4: Challenges for Inbound Logistics Practices

Statement	M	SD
Accurately predicting the amount and types of fruits needed for production is a consistent challenge.	3.88	0.90
Communication gaps with suppliers often lead to misunderstandings or incorrect deliveries.	3.78	0.81
Frequent fluctuations in fruit prices impact cost planning and profitability.	3.25	1.20
Often, the organization faces challenges due to inaccurate demand forecasting, leading to operational inefficiencies	3.50	1.00
For imported fruits, customs and import regulations often cause unexpected delays.	3.41	0.61
Inconsistency in deliveries from suppliers often hinders production planning.	3.87	0.80
Current storage facilities are inadequate to maintain the freshness of fruits before processing.	3.73	0.80
Delays in transportation frequently disrupt the timely receipt of raw fruit materials.	3.76	1.00
Often, the organization face variations in the quality of fruits received, affecting production consistency.	3.82	0.86
Overall Mean	3.68	

M-Mean, SD-Standard deviation
Source: Field Survey, 2023

Inbound logistics plays a pivotal role in the smooth operation of any business, and HPW Fresh and Dry Limited is no exception. Table 4.4 sheds light on the various challenges this organization encounters in its inbound logistics practices. At the forefront, with a score of 3.88, is the consistent challenge of accurately predicting the quantity and types of fruits required for production. Such predictions are crucial for maintaining a streamlined production process, and inaccuracies can lead

to either wastage or unmet production targets. Communication remains a significant concern, as indicated by a score of 3.78. Gaps in communication with suppliers can result in misunderstandings, leading to incorrect deliveries that disrupt the production schedule. Price volatility of fruits, scoring 3.25, underscores the challenges in cost planning and maintaining profitability. Price fluctuations can strain budgets and necessitate frequent adjustments in procurement strategies. Another highlighted issue, with a score of 3.50, revolves around inaccurate demand forecasting. Such inaccuracies can lead to either overstocking or stockouts, both of which contribute to operational inefficiencies. Import-related challenges, especially pertaining to customs and regulations, score at 3.41. Such unexpected delays can disrupt production timelines, especially when reliant on imported fruits.

Inconsistency in supplier deliveries, near the top with a score of 3.87, directly affects production planning. Unpredictable deliveries can lead to ad hoc adjustments, potentially affecting the final product's quality. The storage facilities' adequacy is another concern, scoring 3.73. Proper storage is critical to ensure fruit freshness before processing, and inadequacies can compromise product quality. Transportation delays, with a score of 3.76, underline the importance of timely receipt of raw fruit materials. Any delays can have cascading effects on the entire production cycle. Lastly, variations in the quality of received fruits, at 3.82, emphasize the challenges in maintaining production consistency. Inconsistent quality can lead to varied end products, potentially affecting brand reputation.

The data from Table 4.4 suggests that HPW Fresh and Dry Limited grapples with a multifaceted array of challenges in its inbound logistics. These challenges encompass demand forecasting, communication, price dynamics, regulatory impediments, consistency in deliveries, and quality

variations. Collectively, these issues underscore the intricate balancing act businesses face in ensuring streamlined operations, consistent product quality, and profitability in the context of inbound logistics. The challenge of predicting the required quantity and types of fruits resonates with Mentzer et al. (2001) in "Logistics and Supply Chain Management," who highlight that demand forecasting accuracy is vital for operational efficiency. Communication gaps with suppliers echo the findings of Christopher (2016) in "Logistics and Supply Chain Management," asserting that effective supplier relationship management minimizes disruptions. Price volatility finds support in Chopra and Meindl's (2016) "Supply Chain Management: Strategy, Planning, and Operation," emphasizing the balance between cost planning and market volatility. Bowersox et al. (2012) in "Supply Chain Logistics Management" discuss the repercussions of inaccurate demand forecasting, mirroring concerns of overstocking or stockouts. Regarding import-related challenges, Rodrigue et al. (2020) in "The Geography of Transport Systems" touch upon the complexities of international trade regulations. Consistency in deliveries and variations in product quality underscore the importance of supplier reliability, as noted by Handfield and Nichols (2002) in "Supply Chain Redesign." Lastly, the significance of adequate storage and transport reflects the views of Frazelle (2001) in "World-Class Warehousing," emphasizing the linkage between product integrity and operational efficiency.

4.5 Operational Performance

Table 4.5: Operational Performance

Statement	M	SD
Effectively controls and stewards its resources.	3.54	1.39
Demonstrates efficiency and effectiveness in logistics.	3.66	1.47
Well-organized procedures and systems in place.	3.69	1.55
Consistently ensures customer satisfaction.	3.28	1.46
Provides delivery flexibility to meet customer needs.	3.59	1.49
Consistently delivers goods and services in a timely manner.	3.19	1.61
Minimizes costs effectively.	3.24	1.64
Maintains high process quality.	3.24	1.65
Adheres to audit and compliance requirements	3.77	1.49
Overall Mean	3.58	

M-Mean, SD-Standard deviation
Source: Field Survey, 2023

The operational performance of an organization is pivotal to its success and sustainability, and Table 4.5 provides insight into various facets of this performance. Starting with resource management, a score of 3.54 indicates that the organization effectively controls and stewards its resources. Good resource stewardship not only contributes to efficiency but also ensures that resources are allocated where they're needed most, leading to better outcomes.

The organization's efficiency and effectiveness in logistics, with a score of 3.66, emphasize its capability in handling logistics processes, ensuring that goods move seamlessly from one point to another. A well-functioning logistics system is crucial for timely deliveries and cost savings. With a score of 3.69, the highest in the table, the presence of well-organized procedures and systems indicates a structured approach to operations. These structure likely aids in reducing errors,

improving efficiency, and ensuring consistency in service delivery. Customer satisfaction, scoring 3.28, remains central to any business. While this score suggests consistent efforts, it also implies areas of improvement to further enhance customer experiences. Flexibility in delivery, represented by a score of 3.59, highlights the organization's adaptability in meeting diverse customer needs, showcasing a customer-centric approach. Timely delivery of goods and services, with a score of 3.19, is slightly on the lower end. This suggests potential areas for improvement in ensuring faster delivery times and reducing delays. The organization's approach to cost minimization, with a score of 3.24, shows a conscious effort to keep costs low. Effective cost management can directly influence profitability. High process quality, also scoring 3.24, underlines the importance of maintaining quality across operational processes, ensuring that the end product or service aligns with organizational standards. Lastly, adherence to audit and compliance requirements, with a score of 3.77, showcases the organization's commitment to regulatory standards and best practices, ensuring both operational transparency and risk mitigation.

Table 4.5 elucidates the multi-dimensional aspects of operational performance, suggesting that while the organization is adept in many areas like resource management, logistics, and procedural structuring, there remain areas warranting further refinement, particularly timely delivery and customer satisfaction. This interplay between strengths and areas of growth underscores the complex nature of operational management, with every facet being intertwined and consequential for overall success. The value of resource management aligns with the assertions of Slack et al. (2016) in "Operations Management", who emphasize that judicious resource allocation is foundational to operational efficiency. The high score on logistics efficiency echoes Rodrigue et al. (2020) in "The Geography of Transport Systems", underscoring the role of seamless logistics

in boosting organizational competitiveness. Effective procedures and systems, scoring the highest, resonate with Hammer and Champy's (1993) seminal work "Reengineering the Corporation", where process streamlining is touted as a key driver of operational excellence. The centrality of customer satisfaction can be gleaned from Heskett et al. (1994) in "Putting the Service-Profit Chain to Work", linking customer contentment directly with business success. Flexibility, as highlighted by Pine (1993) in "Mass Customization", showcases an organization's agility in addressing diverse client needs. Lastly, the emphasis on audit and compliance mirrors the insights of Paine (1994) in "Managing for Organizational Integrity", positing that adherence to compliance fortifies organizational reputation and trustworthiness.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION

5.1 Introduction

This chapter gives the summary, which is a review of the objectives set for this study, conclusion, and recommendations based on the various findings and results gathered in relation to the objectives. The summary therefore presents an outline of the objectives of the study and how each of these objectives has been achieved. The conclusion and recommendations capture the lessons learnt and possible applications of findings.

5.2 Summary of findings

The study findings were summarized based on the objectives of the study and it as follows;

5.2.1 Inbound Logistics Practices

The first objective of the study was to assess the inbound logistics practices in HPW fresh and Dry limited. The data reveals three crucial inbound logistics practices: transportation, inventory management, and warehousing. Transportation focuses on the efficient movement of goods, with an emphasis on shipment tracking accuracy and innovation in loading processes. Inventory management underscores the importance of maintaining optimal stock levels, periodic reviews, and cost considerations. Warehousing emphasizes the systematic storage of goods, timely issuance, and the crucial role of trained staff equipped with the right tools. These practices, taken together, highlight the intricate balance organizations strive to achieve between efficiency, accuracy, and responsiveness in their logistics operations.

5.2.2 Effect of inbound logistics practices on operational performance

The second objective of the study was to examine the effect of inbound logistics practices on operational performance. The study emphasizes the profound influence of inbound logistics on operational performance. Derived from an analysis, the Significance (Sig.) value falls notably beneath the standard alpha benchmark, suggesting a meaningful relationship. Transportation, inventory management, and warehousing emerge as critical predictors, considerably impacting operational outcomes. The results clearly denote the intertwined relationship between effective inbound logistics practices and heightened operational performance. It accentuates the need for organizations to prioritize and refine these practices, ensuring they not only meet but exceed industry standards. This emphasis on inbound logistics, as the analysis suggests, could be a linchpin for organizations aiming for superior operational efficacy.

5.2.3 Challenges associated with inbound logistics practices

The third objective of the study was to determine the challenges associated with inbound logistics practices in HPW fresh and Dry limited. The findings suggest that while the organization effectively manages its resources and logistics and upholds well-organized procedures, there's room for improvement in customer satisfaction and timely delivery. Although delivery flexibility and adherence to audits are commendable, timely delivery and consistent customer satisfaction are slightly lagging. Emphasis on cost minimization and maintaining high-quality processes indicate a balanced approach to quality and financial efficiency. The results highlight the organization's strengths in structured operations and compliance but also point to areas needing further refinement, especially in customer-centric domains.

5.3 Conclusions

The study on HPW Fresh and Dry Limited offers a comprehensive understanding of the pivotal role inbound logistics practices plays in shaping operational performance. Three primary practices, namely transportation, inventory management, and warehousing, serve as the backbone of the company's logistics operations. These processes, while emphasizing efficiency, also pivot towards innovation, accuracy, and agility.

Furthermore, the profound effect of these inbound logistics practices on operational performance is undeniable, with statistical evidence underscoring their substantial influence. It's evident that optimal logistics practices are more than just operational requisites; they are strategic imperatives that can significantly enhance performance metrics.

However, no system is without its challenges. Despite its structured operations and compliance strengths, HPW Fresh and Dry Limited does face hurdles. These span from the nuances of ensuring consistent customer satisfaction to the complexities of timely deliveries. Addressing these challenges requires a harmonized approach that equally weighs operational efficiency and customer-centricity.

5.4 Recommendations

In the dynamic realm of logistics, efficiency and customer satisfaction are paramount. Embracing technology, continuous training, customer feedback, strong partnerships, and regular audits are key. The recommendations to HPW Fresh and Dry Limited below aim to optimize transportation and inventory processes, enhancing both operational efficacy and customer experience.

1. Implement advanced technological solutions, such as AI-driven demand forecasting and real-time inventory tracking, to refine transportation and inventory management processes.

This will also aid in promptly addressing any discrepancies, ensuring accuracy in tracking and reporting.

2. Establish regular training sessions for warehousing and logistics staff. Given the criticality of their roles in ensuring systematic storage, timely issuance, and delivery, equipping them with the latest skills and knowledge will foster efficiency and reduce errors.
3. HPW Fresh and Dry, introduce robust feedback mechanisms, regularly engaging with customers to understand their pain points and preferences can offer insights for refining delivery timelines and enhancing overall service quality.
4. Forge stronger relationships with suppliers and transportation partners. Collaborative problem-solving and open communication can alleviate issues related to timely deliveries and ensure better synchronization across the supply chain.
5. Conduct regular audits of all inbound logistics processes. This will not only ensure adherence to compliance standards but also identify bottlenecks or inefficiencies. Periodic reviews, based on real-time data and feedback, can guide process optimizations, aligning them more closely with organizational goals and customer expectations.

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APPENDIX

KOFORIDUA TECHNICAL UNIVERSITY

FACULTY OF BUSINESS AND MANAGEMENT STUDIES

DEPARTMENT OF PROCUREMENT AND SUPPLY SCIENCE

QUESTIONNAIRE

We are Bachelor of Technology students at the Koforidua Technical University, Koforidua. This survey instrument has been designed to enable us carry out research on the topic: **"ASSESSING THE EFFECT OF INBOUND LOGISTICS PRACTICES ON OPERATIONAL PERFORMANCE; A CASE STUDY OF HPW FRESH AND DRY LIMITED"**. Any information provided will be used for academic purposes ONLY. There are no risks associated with your participation, and your responses will remain confidential and anonymous.

SECTION A: RESPONDENT'S BIOGRAPHY AND COMPANY PROFILE

INSTRUCTIONS

When completing this questionnaire, please tick **[√]** in the applicable box or provide an answer as applicable.

1. Gender:
   a. [ ] Male
   b. [ ] Female

2. Age:
   a. [ ] 23 years and below
   b. [ ] 24–29 years
   c. [ ] 30–35 years
   d. [ ] 36–40 years
   e. [ ] 41 years and above

3. Educational Background:
   a. [ ] No formal education
   b. [ ] Basic/Primary/Secondary
   c. [ ] Bachelor's Degree
   d. [ ] Master's Degree
   e. [ ] Ph.D./Doctorate

4. Please, indicate the department you belong

   a. [ ]Procurement,
   b. [ ] HRM
   c. [ ] Warehouse/stores
   d. [ ] Transport and Distribution
   e. Others, please specify……

5. Please, indicate your area of expertise

a. [ ]Procurement,
b. [ ] HRM
c. [ ] Finance
d. [ ] Information Technology
e. Others, please specify……

6. Please indicate your position in the firm

a. [ ] Supply Chain Manager
b. [ ] Operations Manager
c. [ ] Accountant
d. [ ] IT Officer
e. Others please specify …….

7. Number of years the firm has been in operation:

a. [ ] Less than 1 year
b. [ ] 1-5 years
c. [ ] 6-10 years
d. [ ] 11-15 years
e. [ ] 16-20 years
f. [ ] 21 years & above

8. Type of ownership:

a. [ ] Fully locally owned
b. [ ] Fully foreign owned
c. [ ] Jointly owned

SECTION B: INBOUND LOGISTICS PRACTICE

Indicate the extent to which you agree or disagree with each statement by checking the appropriate number from 1 to 5 using the following scale:

1 = Strongly Disagree 2 = Disagree 3 = Indifferent/Not Sure 4 = Agree 5 = Strongly Agree

Item	Transportation	1	2	3	4	5
T 1	Constantly innovates ways to further improve the loading and offloading local process.					
T 2	Combines shipments leads to reduced transportation costs.					

T 3	Accuracy of shipment tracking information should be of the highest standard.					
T 4	Regular updates about the status of our shipments are deemed crucial for managing our logistics effectively.					
T 5	Adequate resources, in terms of manpower and technology, are essential for efficiently clearing goods.					
	Inventory Management					
IM 1	Effectively maintains an optimal level of inventory to meet customer demand.					
IM 2	Periodically reviews inventory levels to ensure there's neither an excess nor a shortage.					
IM 3	Cost considerations play a significant role when making inventory decisions.					
IM 4	Reducing lead time is a priority for inventory management strategy					
IM 5	Regular audits and checks are conducted to verify inventory accuracy.					
	Warehousing					
W 1	Regularly performs detailed inspections of received goods to verify their quality and quantity.					
W 2	Follows systematic procedures for storing goods, maximizing efficient use of storage space.					
W 3	Issuing items within warehouse is done in a timely and organized manner, reducing the risk of misplacement.					
W 4	Training and tools provided to staff significantly enhance the speed and precision of order picking.					

SECTION C: CHALLENGES OF INBOUND LOGISTICS PRACTICES

Indicate the extent to which you agree or disagree with each statement by checking the appropriate number from 1 to 5 using the following scale:

1 = Strongly Disagree 2 = Disagree 3 = Indifferent/Not Sure 4 = Agree 5 = Strongly Agree

Item	Statement	1	2	3	4	5
CILP 1	Accurately predicting the amount and types of fruits needed for production is a consistent challenge.					
CILP 2	Communication gaps with suppliers often lead to misunderstandings or incorrect deliveries.					
CILP 3	Frequent fluctuations in fruit prices impact our cost planning and profitability.					
CILP 4	Often, the organization faces challenges due to inaccurate demand forecasting, leading to operational inefficiencies					
CILP 5	For imported fruits, customs and import regulations often cause unexpected delays.					
CILP 6	Inconsistency in deliveries from suppliers often hinders production planning.					
CILP 7	Current storage facilities are inadequate to maintain the freshness of fruits before processing.					
CILP 8	Delays in transportation frequently disrupt the timely receipt of raw fruit materials.					
CILP 9	Often, the organization face variations in the quality of fruits received, affecting production consistency.					

SECTION D: OPERATIONAL PERFORMANCE

Indicate the extent to which you agree or disagree with each statement by checking the appropriate number from 1 to 5, using the following scale:

1 = Strongly Disagree 2 = Disagree 3 = Indifferent/Not Sure 4 = Agree 5 = Strongly Agree						
	Statement					
OP 1	Effectively controls and stewards its resources.					
OP 2	Demonstrates efficiency and effectiveness in logistics.					
OP 3	Well-organized procedures and systems in place.					
OP 4	Consistently ensures customer satisfaction.					
OP 5	Provides delivery flexibility to meet customer needs.					
OP 6	Consistently delivers goods and services in a timely manner.					
OP 7	Minimizes costs effectively.					
OP 8	Maintains high process quality.					
OP 9	Adheres to audit and compliance requirements					

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KOFORIDUA TECHNICAL UNIVERSITY

ASSESSING THE EFFECT OF INBOUND LOGISTICS PRACTICES ON OPERATIONAL PERFORMANCE: A CASE STUDY OF HPW FRESH AND DRY LIMITED, ADENSO

BY

DABLU EDMOND LEW

AND

OKOH PRINCE

A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF PROCUREMENT AND SUPPLY SCIENCE, KOFORIDUA TECHNICAL UNIVERSITY, FACULTY OF BUSINESS AND MANAGEMENT STUDIES, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF BACHELOR OF TECHNOLOGY IN

PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

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