

# Analyzing the Impact of Logistics in Supply Chain Management

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## **Abstract**

*The success of logistic operations consists in ensuring the synchronization of material flows thanks to the coordination of processes and the use of resources in the company and the supply chain, and as a consequence ensuring the availability of goods in the place and time expected by the customer. An extremely important dimension of logistics management success is also the cost level, both logistic and manufacturing costs as well as transaction costs (Witkowski, 2010; Pfohl 1998). The impact of material flow organization on transaction and production costs is a consequence of the nature of logistics processes, which is to support both production processes, transactions, and customer service. Logistics and supply chain should not be confused. Logistics is a rather narrowly focused concept (narrower than the SCM), which means globalization of resource management from every local unit to the entire network of production points. In turn, supply chain management is a more complex category. Supply chain management involves logistics and thus performs end-to-end optimization - that is, within the enterprise and when working with counterparties.*

*Efficient logistics management aims to achieve maximum competitiveness and profitability of the company and the entire network structure of supply chains, including the end-user. In reality this is not always the case as logistics in its role to coordinate the various functions of the supply chain tend to face various challenges. These include transportation issues, technological and skills deterrent, issues with customer service. Customers want full clarity into where their delivery is at on time and so keeping customers waiting is a major cause for concern. This is a major problem because meeting customer demand and delivery on time helps to complete a successful supply. After conducting the research study above, the researcher came up with the following conclusions; The researcher concluded that the following are the modes of transport used at GHACEM; inland water transport (shipping), rail transport for longer journeys, road transport for short hauls and air transport. Again, the researcher concluded that the main factor influencing the selection of transport modes at GHACEM is legal procedures. The size of the load to be shipped out either in large or small volumes, distance coverage, speed and transit time and rate of risk are the other factors influencing the selection of transport modes at GHACEM.*

*Moreover, the researcher concluded that improve Just in Time is the main impact of transport management on operational efficiency. Improvement of delivery, increase responsiveness, quality and safety in distribution assurance are the other impact of transport management on operational efficiency. Lastly, the researcher concluded that the following are the challenges of transport operations at GHACEM; transport operation management is a capital intensive venture in operations of the organization, fixed or standing cost are incurred when transport vehicles and concrete mixers are standing still and not working, insurance cost associated to the vehicle or equipment as well as the physical goods in transit may be expensive, variable or running costs are incurred whilst the vehicles or transport equipment are in operations and bad roads and poor infrastructure*

*Keywords: Competitive Tendering's | Procurement Planning | Value for Money | Procurement System, Cost-Reduction*

## 1.0 INTRODUCTION

Supply chain has become more complex than ever and as such it comes with major challenges which includes the problem of sourcing and transporting the right raw materials to meet customer requirements. This study seeks to examine the role logistics has to play in order to contribute to a successful supply chain. To meet customer demand, business leaders must appreciate the critical importance of one supply chain aspect and logistics management. Logistics is the part of the supply chain involved in managing the forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption to meet customer's requirements. Use of advanced logistics, lean management, and optimization produce the most efficient, cost-effective, and sustainable supply chains. Logistics in general creates an environment that promotes business result.

Effective transport systems are critical in the socio-economic development of nations. Globally, there is a wide recognition of the need to put in place adequate measures to achieve sustainable transport systems for the greater good of society. To do this, requires an awareness of the myriad of challenges faced by stakeholders in the transport sector. Against this background, the researchers sought to explore the transportation challenges companies in Ghana face using Sekondi-Takoradi Metropolis (STM) as a case. The study adopted the mixed methods approach with descriptive survey as the design.

A total of 85 employees of three companies in the Metropolis was involved in the study through census data collection method. The research instruments used were questionnaire and interview guide whilst percentages, means, standard deviation and thematic analytical tools were employed for the study. The study discovered that the greatest transport management challenge in the Metropolis is the general lack of transport management experts. Other challenges include high cost of transport operations, poor vehicle maintenance, ineffective transport policies in organizations and weak transport infrastructure in the Metropolis. It is recommended that companies in STM should put in place proper training and development programs to address the skill gaps inherent in their transport management systems. (Transportation Management Challenges in Ghana: A Study of Three Selected Companies in the Sekondi-Takoradi Metropolis, American Journal of Economics, Vol. 10 No. 3, 2020,)

### 1.1 Background of the study

The logistics has its practical input in creating economical strategies as well as in creating modern economic environment. Processes of planning, designing and functioning of logistic systems must be based both on the theoretical knowledge covering various areas as well as practical experiences to provide the required support. To provide logistic services in the rational way, it is necessary to learn the complicated set of implications resulting from three areas covering the theoretical knowledge, practical ones as well as the regulation by the law. To leverage well-run logistics, it helps to understand the history of the field, and its wider integration into supply chain management, a relatively new term. With its roots in the U.S. military practices of the 1940s and 1950s, logistics as a business concept and academic discipline finally emerged in the early 1960s. Originally, logistics referred to the physical distribution of resources. Over the following decades, businesses and academic scholarship recognized the importance of supply chains on efficiency and profit margins. By the end of the 20th century, logistics had been identified as an early "boundary-spanning" role, meaning that someone engaged in logistics would often work with other departments to improve the functionality of an organization in its entirety. A logistician could play a role in strategic planning, marketing, and accounting. Over time, these duties of the logistician fell under the umbrella of the newer role of "supply chain manager." Simply put, supply chain management oversees a more extensive process, which includes determining the specifications and type of materials needed for a product. Moreover, within that process, the logistics manager determines how long it will take to move those materials and the most efficient way to ship them to the manufacturer. This study is to examine the role and impact of logistics and its important contribution to a successful supply chain.

### 1.2 Statement of the problem

The success of logistic operations consists in ensuring the synchronization of material flows thanks to the coordination of processes and the use of resources in the company and the supply chain, and as a consequence ensuring the availability of goods in the place and time expected by the customer. An extremely important dimension of logistics management success is also the cost level, both logistic and manufacturing costs as well as transaction costs (Witkowski, 2010; Pfohl 1998). The impact of material flow organization on transaction and production costs is a consequence of the nature of logistics processes the task of which is to support both production processes as well as transactions and customer service. Logistics and supply chain should not be confused. Logistics is a rather narrowly focused concept (narrower than the SCM), which simply means globalization of resource management from every local unit to the entire network of production points.

In turn, supply chain management is a more complex category. Supply chain management involves logistics and thus performs end-to-end optimization - that is, not only within the enterprise but also when working with counterparties. The purpose of efficient logistics management is to achieve maximum competitiveness and profitability of the company, as well as the entire network structure of

supply chains, including the end-user. In reality this is not always the case as logistics in its role to coordinate the various functions of the supply chain tend to face various challenges. These include transportation issues, technological and skills deterrent, issues with customer service. Customers want the full clarity into where their delivery is at on time and so keeping customers waiting is a major cause for concern. This is a major problem because meeting customer demand and delivery on time helps to complete a successful supply

### 1.3 Objective of the study:

The general objective of this study is to assess the role and the impact of logistics and its contributing factor to the process of supply chain in general

Specifically, this study seeks to:

1. Identify the role of supply chain
2. Identify the role of logistics and transport
3. Determine the impact of logistics in supply chain

### 1.4 Significance of the study:

This study will help examine the general role of logistics transport and supply chain. It will also help identify the Importance of logistics and its contributing factor to supply chain, in relation to academia, government policies and practices. by so doing we get to identify the major activities involved in supply chain which includes the sourcing of raw materials up till the final stage of the chain by which goods reach the final consumer. This study will look to establish how important the functions of logistics is to supply chain. We would also address the fact that that Logistics is a part of supply chain management involved with meeting customer needs and delivering products and services in the most efficient and accessible way. Logistics degrees provide transferable skills to help students remain competitive and ready for industry challenges not just from a traditional transportation stance, but from unleashing advantages from within the supply chain itself, to include quality, costs and lead-times. The supply chain revolutionizes the 'value' concept, therefore studying this discipline helps unlock the stepped potential of adding value and cutting costs between the way information and physical goods travel from the supplier to the customer.

Government authorities have much to gain by bridging the gap between economic and commercial development via Government Supply Chain and Logistics supply chain efficiency, according to Logistics Bureau Director Maurice Sinclair. Logistics Bureau Director Maurice Sinclair believes that local government, state development bodies, port, airport and rail authorities can create commercially sustainable strategies by taking a big picture approach and focusing on the entire supply chain of which they are just one small link. "Traditionally, these organizations have taken a very local approach, where they consolidate their strengths and 'push' the benefits of their infrastructure, business inducements and other attractions to their target customers," said Sinclair. "If you asked them what their customers' actual needs were, many would not be able to articulate them. They need to think more globally and consider how their decisions ultimately affect their customers

### 1.5 Scope of the study:

The scope of the study is limited to manufacturing companies, which means that the findings of the research cannot be generalize to cover all industries. In addition, it is assumed that some of the companies will not be having a manufacturing unite as well as a qualified resource personnel leading them to respond inappropriately, which may skew the findings of the study. This study would be conducted at GHANA CEMENT (GHACEM). This is because it is a manufacturing company which goes through the entire process of Logistics and supply chain

## 2.0 LITERATURE REVIEW

This chapter seeks to review researchers' opinion on important themes identified within the subject of the study. In pursuance of the research objectives, this section seeks to review relevant literature on the

chosen topic "Examining the role and impact of logistics and transport and its important contribution to a successful supply chain"

## 2.1 Supply Chain Management

Will Kenton (2021) A supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. This network includes different activities, people, entities, information, and resources. The supply chain also represents the steps it takes to get the product or service from its original state to the customer. Companies develop supply chains so they can reduce their costs and remain competitive in the business landscape. Supply chain management is a crucial process because an optimized supply chain results in lower costs and a faster production cycle. A supply chain involves a series of steps involved to get a product or service to the customer. The steps include moving and transforming raw materials into finished products, transporting those products, and distributing them to the end-user. The entities involved in the supply chain include producers, vendors, warehouses, transportation companies, distribution centers, and retailers.

The elements of a supply chain include all the functions that start with receiving an order to meeting the customer's request. These functions include product development, marketing, operations, distribution networks, finance, and customer service. Supply chain management is a very important part of the business process. There are many different links in this chain that require skill and expertise. When supply chain management is effective, it can lower a company's overall costs and boost profitability. If one link breaks down, it can affect the rest of the chain and can be costly.

## 2.2 Logistics and warehousing

The terms warehousing and logistics are often coupled together as they are essentially two sides of the same coin, however many people get the terms mixed up. Both warehousing and logistics fulfil functions within the supply chain of a business. On the one hand, warehousing focuses on the safe storage of goods within a building, whilst logistics is the functional aspect of the storage and delivery of goods stored in a warehouse. This is why it is vital to have both warehousing and logistics working in tandem to ensure these components collaborate effectively.

Warehousing is simply another term for a warehouse. It is a commercial building where goods or raw materials are stored for use in production or for sale. A warehouse provides a central location for receiving, storing and distributing raw goods or finished products. The warehousing aspect of a business covers a number of elements such as unloading, receiving and checking inbound goods, storage, order picking and handling returns. There are two sides to logistics, the inbound and the outbound flow of goods. Ultimately though, logistics is about the flow of goods (both raw and finished) in to, and out of a warehouse. Logistics covers transportation, internal movement, inventory and any other form of relevant information. A large part of logistics is the end-to-end consumer requirements, ranging from the availability of goods through to the final delivery of products. As you can see, whilst warehousing and logistics are two separate business functions, it would be impossible to have one without the other. By having your warehousing and logistics working in tandem, you can ensure the safe storage and delivery of your products, whilst having the technical functionality to manage end to end consumer requirements.

## 2.3 Material Management

Materials management is a core function of supply chain management, involving the planning and execution of supply chains to meet the material requirements of a company or organization. These requirements include controlling and regulating the flow of material while simultaneously assessing variables like demand, price, availability, quality, and delivery schedules. Material managers determine the amount of material required and held in stock, plan for the replenishment of these stocks, create inventory levels for each type of item (raw material, work in progress or finished goods), and communicate information and requirements to procurement operations and the extended supply chain. Materials management also involves assessing material quality to make sure it meets customer demands in line with a production schedule and at the lowest cost.

Material management systems embrace all of the activities related to materials and are a basic business function that adds value to a finished product. It can also include the procurement of machinery

and other equipment needed for production processes as well as spare parts. Typical roles in Materials Management include inventory analysts, inventory control managers, materials managers, material planners, and expeditors as well as hybrid roles like buyer/planners. Regardless of role, the main objective of Materials Management is assuring a supply of material with optimized inventory levels and minimum deviation between planned and actual results. The objectives of material management are sometimes referred to as the 'Five Rs of Materials Management; the right material, the right time, in the right amount and the quality that is: at the right price and from the right sources. (TWI Ltd Granta Abington, Cambridge link: @twi.co.uk)

#### 2.4 Logistics and Transportation Management

Zemima khan (2022) Transportation and logistics management are two closely related business units that share a common objective. The primary goal is to transport inventory throughout a company's supply chain efficiently and effectively. While people use the terms interchangeably, transportation management is a subdivision of logistics. It's a symbiotic relationship that requires care and attention. Actively managing supply chain offers your company tremendous cost- and time-saving advantages. In other words, you can't afford to miss out on opportunities due to non-prioritization of this essential service function. Logistics refers to the receipt, production, and distribution of goods and materials in the customer-requested amounts to its final destination. It is also the strategy that determines how your company stores products in its warehouse, tracks orders, and delivers products to its customers. Simply put, logistics is the overarching business unit that oversees the entire process of order fulfilment and matching customers' expectations. It's both an art and a science.

Transportation within the context of commerce is the movement of goods from one location to another. It's considered to be a sub-unit of logistics. Companies deliver products by land, air, or sea. Sometimes referred to as transport logistics, it's a function divided into three significant areas in which a business must engage: Operations Management, Vehicle and Fleet Organization and Infrastructure Administration. Now that you can see how the two activities operate on their own, it's time to shift our focus toward how they can work together. Practicing logistics management, in an effective and efficient manner, requires you to pave the foundation for a transportation network that responds with your business' needs while remaining economical. Doing so allows you to address unanticipated issues and improve customer service with zero downtime or disruption to your service process. Transportation is one element of the process. Logistics further provides for inventory planning, goods storage, and demand forecasting in addition to delivery. Optimizing your supply chain's performance means that you satisfy your customers' needs at the lowest cost possible.

#### 2.5 Meaning of material management in logistics

Materials management controls the material flow within a company as well as order-related material flows to customers and suppliers. As a rule, the focus is on the business management and thus commercial aspects. Seen from above, it links all the commercial and technical infrastructures of a company that affect the flow of goods in terms of time, quantity, quality and space. The central tasks of materials management are to plan and control the flow of goods between the company, suppliers and ultimately the customer. This also includes internal recipients or senders. The internal stakeholders are, for example, the various departments within large companies as well as the associated branch offices and subsidiaries (warehouse, production, sales). Materials management should not be confused with production management or production logistics.

In professional circles, it is regarded as a central starting point from which the entire value chain can be controlled. This is based on three different target types. The material goals, formal goals, and environmental goals are closely interlinked. Material goals are usually targets with which formal goals can be achieved. They are of an economic nature and ultimately stand for the turnover and profit of a company. As an example: Goods or materials are only made available in the required quantity. Storage location (transport costs), storage costs (storage economy) and product price are decisive and interdependent success factors.

The social objectives are commonly based on environmental protection and are therefore also considered to be of high social value. On the one hand, companies in Europe are obliged to comply with

legal guidelines and regulations regarding recycling and disposal; on the other hand, it has become part of their reputation management to practice environmentally friendly and thus low-emission materials management (lean production). But energy efficiency is also an integral part of materials management these days, ensuring the aforementioned environmentally friendly image and at the same time promoting a positive formal goal. These social objectives are usually supported by the state.

## 2.6 Goals and Objectives Of Logistics

For any given supply chain to be effective, it is imperative that third-party logistics businesses meet several internal logistics goals and objectives. These business goals include:

- Increasing Efficiency
- Rapid Response
- Fewer Unexpected Events
- Minimum Inventory
- Reduced Transportation and Logistics Cost
- Quality Improvement

**Increased Efficiency:** Increasing efficiency for both inbound and outbound logistics and transportation should always be a top priority for every logistics organization. To do so, they will need to develop cost-effective transportation rates while, at the same time, reducing overhead, cost-per-order processing, and inventory. By working closely with a transportation provider, warehouse operations like processes, layout, and flow can be improved significantly. To increase efficiency, consider having the vendor perform value-added services like packaging or quality inspections. This will help catch any errors at the source. Likewise, form a two-way carrier relation with them to share best practices, trends, and opportunities.

**Rapid Response:** Similar to efficiency, customer satisfaction plays a crucial role in the overall success of logistics. To satisfy your customer service goals promptly, consider a rapid response approach. Thanks to today's technology, you can now postpone many logistics operations to the last possible moment. This means that you can eliminate excessive inventories that were usually stockpiled in anticipation of customer requirements. You will also be able to shift your operational emphasis from an anticipatory posture and move toward responding to customer requirements based on a delivery-to-delivery basis.

**Fewer Unexpected Events:** Unexpected events can happen with every aspect of logistic operations. An unexpected disruption during manufacturing, goods arriving damaged at their final destination, delays with the customer order receipt, or wrong delivery, can all result in wasted time and resources. Traditionally, these unforeseen events were addressed by establishing safety stocks of inventory or by using a high-cost transport mode. More recently, these have been replaced with sophisticated software, capable of achieving positive logistics systems control. Depending on how much a company manages to minimize these events, its logistical productivity will also stand to improve. It is, therefore, in everyone's best interest to keep any unforeseen circumstances at a minimum.

**Minimum Inventory:** While on the topic of minimums and unexpected events, inventory management is critical. In the end, aiming to keep these events at a minimum will also involve asset commitment and relative turn velocity. This turn velocity translates to the rate of inventory usage over a given period of time. Inventory availability and high turnover rates indicate that your stocks are used effectively. The objective of reducing inventory deployment to the lowest possible levels also works to satisfy customers and lower the total logistics cost. The concept of Zero Inventory has been gaining some traction in recent years as managers seek to reduce inventory deployment. This type of approach will have some definite benefits. When inventories are reduced to their lowest-possible levels, various operational defects and inefficiencies also start to show themselves. That said, having an inventory does provide some benefits of its own. When it comes to economies of scale, particularly in manufacturing or procurement, inventories can generate ROI. In any case, the objective is to reduce the inventory to the lowest possible level, while also achieving the desired operational objectives.

**Reduced Transportation Cost:** One of the major costs associated with logistics is transportation. Lowering the cost of transportation requires movement consolidation. It's important to remember

that transportation costs are directly influenced by the type of product being shipped, the size of the shipment, and the distance. Many logistics systems that provide premium, high-quality service often depend on high-speed, small-shipment transportation. This typically comes at a cost. As a general rule, the larger the shipment, and the longer the distance, the lower the transportation cost per unit. Therefore, having software capable of grouping small shipments for consolidated movement is ideal.

**Quality Improvement:** Another goal that needs to be taken seriously is long-term quality improvement, increasing sales and boosting customer satisfaction. In fact, total quality management (TQM) has become a major trend throughout the business landscape. If a product becomes defective for whatever reason or if service promises are not kept, there's nothing much that can be done about it from a logistics perspective. Once expended, logistics costs cannot be reversed. And when quality fails, the logistical performance will almost always need to be repeated or reversed. As such, logistics will need to perform to high-quality standards. The problem arises when logistical operations are carried out around the clock and across vast geographical areas. It's particularly difficult to maintain a zero-defect performance in this type of scenario. In addition, much of the work will be carried out outside of a supervisor's vision. Everybody knows that it's far more costly to rework a customer order as a result of an incorrect shipment or in-transit product damages than to get it right the first time.

**Takeaway:** These are, in large, the main goals and objectives every logistics organization should look to achieve. It is for this reason why they should also look to adopt a transportation management software (TMS) and freight management that will best suit their needs. As we said before, it's also beneficial to work with expert trucking companies capable of offering you that software, as well as all other services that will help you achieve your goals more quickly and effectively. Rather than having to deal with everything yourself, you can rely on your logistics partner to share the load, exchange ideas and best practices, and help you optimize your processes for mutual success. With Logistics Titans, you will have access to the best software on the market as well as a team to match. Our TMS will not only provide you with everything you need in terms of features and benefits, but it's also free of charge. Contact us today for more information!

## 2.7 Types of logistics

Logistics is termed to be a complex service execution between the origin point and the point of fulfillment. These dedicated logistics companies intend to meet the necessities of clients upon different products or resources. Some of the common resources that are managed with logistics are materials, supplies, hardware, consumable things, foods, and other such tangible products. The entire process of logistics is a combination of different service aspects that include creation, stock, packaging, regular security, warehousing, and transportation. There are different types of logistics that you need to be aware of. This article will give you an in-depth idea about the five major types of logistics. So, let's dive in.

**Inbound Logistics:** Inbound logistics is used to execute strategic organizational tasks for working upstream. Under this inbound logistics, the movement, transportation and storage solutions of various information and product from the suppliers is passed onto the warehouse and then is transferred to the production facilities for further processing & production. Inbound logistics is all about the transportation between the companies and their suppliers. The logistic firms intend to use order-fulfillment systems or automatic ordering for proficiently managing the inbound logistics. And with this integration, you can expect to enhance the successful aspects of your organization. For instance, if you are manufacturing car parts in your factory, you will need to ship them to businesses or recipients such as manufacturers, for implementing them upon the finished products. The job of inbound logistics is to transfer the crude or raw materials to the respective departments or manufacturers for further processing. Large trucks are mostly preferred for transporting these crude raw materials. Logistics companies have wide network and large trucks to safely transport the goods without much cost. It is the first step within the value chain of logistics, for which it is important to seek better process flow, to avoid hampering the remaining processes. Choose the right logistics company for a hassle-free logistics service. Trans Asia Group can help you with setting up your inbound logistics in an efficient manner.

**Outbound Logistics:** Outbound logistics is the movement of products or finished goods from the production centers to the next supply chain link. After that, these products are moved from the warehouse to the consumption point or the customers. Hence, outbound logistics is also known as the process of

order fulfillment. All the products that are shipped under outbound logistics are meant for end-users, moving through this process flow. The inbound logistics is used to help the raw materials reach out to the manufacturer, and the processed product is then transported to the end-users through outbound logistics. In simple terms outbound services allow businesses to ship & deliver their specified products from warehouse storage to the customer's doorstep. There are separate sets of tracking solutions available for the end-users to monitor the movement of their parcel. Extra care should be taken as outbound logistics play a major role in building the reputation of businesses, as customers expect on-time and safe delivery of their goods or products. Hire logistic companies like Trans Asia Group for your businesses as they offer outbound logistics with same-day delivery, depending upon the location. You can trust Trans Asia with the delivery of products within the estimated time.

**Reverse Logistics:** As the name suggests, Reverse Logistics is the transportation of goods or products from the end-users to the supply chain. Reverse logistics is needed in the event of a replacement or return of products for refurbishing, repairing, exchange, disposal, or recycling. Reverse logistics is basically carried out after the sale is done and is mostly opted by the electronics and automobile industry, but is also used for products associated with all other sectors. Suppose, you deliver a product that doesn't fit the purpose, or is wrongly manufactured. You will have to send it back to the supplier for repair or replacement of the same. In such scenarios, reverse logistics is required to get it done smoothly.

**Third-Party Logistics (3PL Logistics):** Third-party logistics (or 3PL) is known as outsourcing operational or eCommerce logistics to a third-party logistics company who then handles everything from inventory management to delivery of the products. This enables business owners to focus on their business while the order fulfillment operations are handled smoothly by a 3PL provider. A 3PL specialist company provides a wide range of services that supports the logistics of the supply chain. The services include transportation, warehousing, inventory management, picking & packing, freight forwarding, and reverse logistics/returns.

**Fourth Party Logistics (4PL):** 4PL or fourth-party logistics is used by companies to outsource all of their logistics operations to a single logistics partner. The logistics provider would be responsible for managing the entire supply chain including assessing, designing, building, running and tracking supply chain solutions for the client. This is why a 4PL logistics partner represents a higher level of supply chain management for the client. Having a 4PL logistics partner has many benefits. If you're looking for a logistics partner who can manage your supply chain effectively, then check out Trans Asia Group.

## 2.8 Benefits of Logistics to Supply Chain

Any successful business leader will acknowledge the crucial importance of effectively organized logistics. They understand that implementing seamless logistics is a key element in keeping pace with customer demands and outperforming competitors. Whatever the size of your business, you will want to grow and expand. That probably means expanding on a regional, international or global level. Whatever your business location or industry, logistics can help cut on the costs and time you spend to move products from one point to another. Supply chains are complex and sensitive as they depend on always-changing customer demands. A supply chain cannot ensure high value if it is without effectively organized transport. For this reason, logistics is one of the most crucial factors in the quality of any supply chain. If you look at effective transport done right, you might get the impression that it "seems simple". It actually requires a lot of special knowledge, skills and professional management to get it look so "effortless. Don't let the end result of good logistics fool you - it takes a lot of specialized assistance to get it to flow so smoothly. Effective transport improves a supply chain by decreasing (if not avoiding) waste of materials and time. This helps supply chain professionals transport products and deliver them to the right location, on time - which is a priority for any successful business.

Effectively coordinated logistics leads to positive business results: As businesses grow and expand (regionally, internationally or even globally), they become more reliant on effectively organized supply chains which includes sophisticated logistics. This element of supply chains is not something that "only matters in large-business development". It is just as crucial in terms of improving efficiency and profitability with smaller and medium-sized business as well. Logistics plays an essential part in supply chain management. It is used to plan and coordinate the movement of products timely, safely and effectively. Customers now not only include your neighbors and local friends; they include people from



across the globe, as well. Regardless of the distance, each customer expects their products to be delivered quickly and flawlessly. In order to do this, smart businesses hire experienced professionals to align the pattern of movement of products in the most convenient and practical way.

Logistics helps businesses create value: Providing value to customers does not only refer to quality or quantity. It also refers to availability. As better logistics makes your products more available to an increasing group of people, wise business leaders consider it a very important tool in creating value for customers. Logistics creates and increases the value businesses offer by improving merchandise, and ensuring the availability of products. In order to provide more value, businesses either work on improving their own logistic activities or rely on professionals.

Logistics helps in reducing costs and improves efficiency: With global trade growing more popular, logistics has become the heart of supply chains. Business leaders have realized they can reduce their costs by establishing partnerships with other businesses which offer transportation and warehousing. When businesses start using such services to outsource transport and warehousing, they improve their overall business efficiency, sometimes dramatically. If they let these partners take charge of shipping their goods to end customers, this results in a better reputation and a stronger brand. By working with highly professional and reliable logistics companies such as A&A, many businesses have improved their efficiency by providing faster delivery of product. This leads to an improved customer experience and higher working efficiency in general.

Logistics helps delivering your product at the right place timely: Logistics is firmly and clearly defined within a supply chain. However, due to differing customer demands, it has to be constantly evolving in order to provide better results. Customers nowadays are more likely to impulse shop using a smartphone, and be equally as impatient about receiving their order. With professionally organized logistics, businesses are able to answer short-time requirements. By choosing an experienced team of professionals, business entrepreneurs can ensure quick and safe shipping, warehousing and delivery of their products to customers. They can incorporate these services to add value to their offers, and ensure their products get to the right place on time.

Logistics is the key to success with supply chains: Supply chains are unique networks between businesses that deal with the production, shipment, warehousing and delivery of products. These networks are very important to businesses as they largely affect sales and profits. However, without effective and well-organized logistics, supply chains can't help your business gain a clear advantage over the competition. While a good marketing strategy can "open many doors" and attract customers, a reliable logistics service can help your business build and maintain a positive public image. Meanwhile, poorly organized logistics can lead to losing customers and decreased sales.

Keep your customers satisfied, rely on experienced logistic professionals: Satisfied customers are the most precious asset for any business. They are the main drive for the supply chains in each of the three phases: manufacturing, marketing and logistics. For this reason, it is a priority for each business owner to clearly understand customer needs, preferences and demands, and then work relentlessly to meet them. When successful business leaders acknowledge the needs and requirements of their existing and potential customers, they develop a strategy. Whether the business is small, middle-sized or large, strategies rely on effective logistics.

## 2.9 Logistics Management in Manufacturing Organisation

Logistics in Manufacturing Organizations Strategically managing the procurement, movement and storage of materials, production of parts and dispatch of finished products and the related information flows, into and through the organization and its marketing channels to meet customer needs for goods and service and to achieve sustained profitability by cost-effective order fulfilment.

### Objectives

- To analyses the functions required in a manufacturing link of a supply chain and design them as a sub-system which transforms materials into goods and relates effectively to immediate supply chain companies, for a specific industry
- To plan effective link structures and trade-offs between functions which would achieve the customer service and profit aims of logistics in a chosen supply network for products using the tools provided

- To consider the parts played by provision, inventory, transport and purchasing in the logistics of a manufacturing organization
  - To examine the more effective use of people to manage and improve the logistics performance of the link, hence satisfying end customers
- INTRODUCTION AND ASSUMPTIONS This chapter describes the supply chain tasks of achieving production flow within a plant so that the materials received are effectively converted into finished products.

It includes delivery of parts and material from suppliers and shipment of goods to the plant's immediate customers, commonly referred to as door to door\*. Four sub-sections examine the operations of logistics in one link of the supply chain: order-taking, provision, transport and inventory. Information communication systems are described where they occur, within functions, rather than separately. A number of tools for analyzing supply chains are introduced. These tools include arrangement of functions, inventory management and performance measurement.

## 2.10 Ways of Improving Logistics Processes

Logistics management is the backbone of any business since it ensures that shipping, delivery and supply chain management work as efficiently as possible. For businesses that want to overtake competition, improving the logistics management process is the first step toward increasing operational efficiency and productivity. There's always room for improvement in any aspect of a business, especially logistics, and using resources efficiently is more than half the game!

Focus on order-to-delivery lead time and plan accordingly: Customer satisfaction is the end goal of any logistics chain since it affects how your company is viewed. The time it takes from order placement to delivery is one of the most crucial aspects of the customer experience and the primary deciding factor in their opinion of your company. It doesn't matter how well you handle every other aspect of your business operations if your customer's opinion is affected by long lead times in order fulfillment. Since a number of departments and staff members are involved, improving lead times may require you to deal with the order fulfillment process as a whole.

Evaluate and redefine your standard operating procedures: To minimize production inefficiencies and help your entire team work as a cohesive unit, implement some changes to your SOPs. This is not as much of a challenge as it may seem since a few small steps can yield big results. Focus on improving the information flow across the logistics chain and go on from there. Implement a double-checking system to reduce human error and duplicate shipments, print and display key policy terminology across the facility, use analytics reports to share market behavior and sales flow trends with your team on a daily, weekly and monthly basis, and make sure people are clear about their roles and responsibilities.

Examine transportation and redesign for cost/time efficiencies: Transportation is often the largest expense in logistics, especially if it isn't planned and implemented properly. It also has a major effect on delivery timeframes and return on investment, especially if goods are damaged in transit. No matter the industry, a rise in transportation costs generally translates to a rise in goods prices. Analyze every aspect of your transportation process to determine where expenses are highest. Start with the delivery route and load planning, picking the shortest and safest route and using truck scales to ensure vehicles carry full loads. Product packaging should also be designed to minimize size and weight without compromising on security.

Optimize warehouse management for maximum productivity: Proper warehouse management is an essential aspect of any logistics process since it affects everything from lead time to inventory management and even product quality. Effective warehousing operations are largely defined by the type of product (perishable or non-perishable, what kind of environment it requires, etc.). Regardless of the goods being stored, certain improvements can help you reduce wastage and speed up operations. For instance, you can maximize storage space by using vertical columns and implement industrial weighing scales as part of your material handling equipment to help warehouse staff weigh goods faster and more accurately.

Embrace automation and make the most of new technologies: The last few years have been truly exciting in terms of technological innovation, especially automation in business logistics. Modern tools and systems are designed to speed up organization efficiency and lead times by reducing manual interference and eliminating human error. So now is the time to adopt them. From smart weighing scales

that integrate with warehouse management systems and track inventory to business process and communication software that provides real-time updates for any aspect of goods movement, there's a customized solution for practically any logistics challenge you might face today. Logistics management can be a complex and time-consuming process but the right tools make it easier and more profitable too!

## 2.11 Challenges of Logistics Management

Looking at the economy globally, there is a huge need for good logistics. She is the Chief Assistant in Commerce and contributes to business growth. Logistics managers face many challenges throughout the supply chain on a daily basis:

**Reduction of transport costs:** Transportation costs are a major item in logistics. All freight forwarders and agents try to negotiate the most optimal amounts for the transportation of the particular cargo. However, this is becoming increasingly difficult because of rising fuel prices and, consequently, services for moving goods and materials from one place to another, especially when it comes to imports and exports. To better optimize transportation costs, managers need to have a clear view of future orders, which is also difficult as people shop online, which can happen at any time. Different types of transport are used to develop better strategies in which containers and more are filled to the best of their ability. An optimal route needs to be drawn. Using logistic software can be very useful for tracking shipments. A third-country transport agency is also a good option for hassle-free delivery but needs to be found more cost-effective.

**Processing a large amount of information:** Generating timely and accurate documentation makes it difficult for logistics professionals because the process involves many figures, data and compliance with legal deadlines. This requires a great deal of concentration not only in coordinating and tracking shipments, ensuring the safety of staff, loading fleet, etc., but also administrative work. All the accompanying shipment information requires a great deal of attention to detail if done manually. The good news is that there are a number of logistics software that can be tailored to your individual business. The system enables the automatic generation of consignment notes and other documents for import and export when transporting goods by water, air and land. Investing in this direction will save a lot of headaches and continuous monitoring of the strict filing of documents.

**Compliance with regulations:** Some clients have no idea how much logistics managers need to know the regulations and laws. Sometimes the package price for the logistics service may seem high, but in fact you pay a "peace of mind" and a "guarantee fee" for your valuable supplies. Each rule varies from country to country, and goods can travel to many different destinations. This means that every logistics expert should be aware of current laws and upcoming updates on some aspects. A slight mistake in documentation, or lack thereof, can be very costly to the business. And every logistics company faces this challenge because it is a serious responsibility.

**Streamline operations:** The future of logistics is focused on improving technology – automating possible logistics processes. Different software solutions will help improve the performance of different industries, resulting in speed, efficiency and customer satisfaction. The shorter the time for completing a task, the more orders can be fulfilled, which is also associated with an increase in the revenues of the logistics industry.

**Offering segmented, personalized services:** Logistics today is not only about delivery within the agreed period, more specialized services should be offered. Logistics processes are turning into many small segments in the supply chain. Therefore, it is necessary to offer specific services as well as package price offers for overall freight management.

**Logistics management:** Logistics management is associated with complete control of actions. It is a complex process requiring flexibility, timely decisions, multi-unit communication, tracking, etc. Using software could significantly shorten some hard-to-trace operations and give you a detailed analysis of what is happening. Keep in mind that to tackle such a challenge, one device will not suffice. It is necessary to implement a system on all computers, to have good maintenance and to be adapted to the needs of the company. In addition, rely on other additional applications on your smartphone to be able to operate constantly when needed.

**Workforce Management:** Human resources are most valuable, though some processes can be facilitated through logistics software. The responsibility of the management is the greatest, even to the

employees of the company. Valuable staff at every level – contractors, administration, various levels of leadership positions require, above all, good attitude and stress-free work. This can be very difficult to implement, especially because of the dynamism of the work and the location of the participants performing different logistical functions in different places in the country and abroad. Manpower management requires great precision in terms of schedules, job responsibilities, good communication, consistency in the implementation of supply chain operations, etc. (Longitude's world. Link: [info@logitudeworld.com](mailto:info@logitudeworld.com))

### 3.0 METHODOLOGY

The research methods for this research includes both quantitative and qualitative methods. In summary, qualitative research methods sit perfectly alongside quantitative methods to offer a unique opportunity to gain in-depth consumer insight. What quantitative research lacks in depth of meaning, qualitative makes up for. Having access to both methods of research allows the ability for all research needs to be fulfilled. This chapter deals with the methodology employed to conduct this research. It comprises of the population and sample size, sampling method, data collection method, data collection activities, data analysis procedure, background of the organization and conclusion.

#### 3.1 Research Design

The research methods for this research includes both quantitative and qualitative methods. In summary, qualitative research methods sit perfectly alongside quantitative methods to offer a unique opportunity to gain in-depth insight from consumers. What quantitative research lacks in depth of meaning, qualitative makes up for. Having access to both methods of research allows the ability for all research needs to be fulfilled. The research includes research methodology and these are data collection that is done through interviews, questionnaires and collection through library research to acquire necessary information for the research work. Research design is conducting research which usually includes specification of the elements to be examined and the procedures to be used. The purpose is to have the most appropriate and feasible method for answering research questions

#### 3.2 Sampling Method

Both purposive and random sampling methods were used in selecting respondents. The purposive sampling technique also known as judgmental sampling is a non-probability sampling technique in which the sample selection criteria are based on the researcher's personal judgment about the representativeness of some appropriate characteristic of the population under study. The purposive sampling technique was used to select warehouse manager and senior managers and the random sampling technique is a probability sample selected by assigning a number to every individual of the population and then using a table of random numbers to select specific individuals for inclusion in the sample. The random sampling technique was used to select workers of the various departments.

#### 3.3 Data Collection Method

The study employed both primary and secondary source of data. The primary data will include questionnaire, personal interview and observation. Personal interview was used to solicit information from staffs in other to get much information about the study. The researcher also used observation to collect data this is because there is some information that the respondent feels reluctant to give but can be known through observation. Questionnaire is a document used to solicit information from individual or a group of people. The questionnaire will be in the form of both open-ended questions which allow respondent to provide into detailed any information that will be relevant to the study and closed ended questions which allows respondent to select from the lot which pertained to the study. Questionnaires are used because respondent sometimes find it difficult to answer sensitive questions through personal interview. Secondary data was also employed which includes internet, textbooks and literature review.

#### 3.4 Data Collection Activities

The researcher personally administered the self-designed questionnaires at the premises of Ghacem Takoradi and bridged any gaps with interviews. The questionnaires contain items in the form of open-ended question and close ended questions, the open-ended questions enabled respondents to have

flexibility within which they can provide detailed information where necessary and also express their own ideas. The close ended question was however, used for the purpose of making easy detailed analysis. Interview was also used to ensure accuracy and higher respond rate from respondents.

#### 4.0 DATA ANALYSIS AND PRESENTATION

This chapter focuses on the presentation and analysis of data collected from the questionnaire administered to respondents. Inferences were made to come out with the findings. This was designed purposefully to obtain information on the role and impact of logistics and transport and its impact on the supply chain system of an organization to a customer. The information was gathered from fifty (50) respondents whom questionnaires were sent out to and retrieved. The fifty (50) questionnaires retrieved represent 100% of response rate and served as the basis for the analysis. The data obtained were analyzed with the aid of descriptive statistics such as frequencies, percentages, and mean to explain the variable characteristics using Statistical Package for Social Sciences (SPSS) version 23.

##### 4.1. Reliability/Validity Test

As indicated in the preceding chapter on methodology, the researcher used questionnaire methods to elicit the required primary data from the case study institution. A uniform set of questionnaires were administered to all respondent to obtain the same trend of information concerning the variables of the study. A well-recognized statistical tool SPSS version 23 (Statistical Package for Social Sciences) was employed to generate data to prove the frequency of a variable's occurrence, percentages and mean.

##### 4.2. Demographic Characteristics Of Respondents

This section presents the demographic characteristics of the respondents from whom the data were collected. It consists of the gender and age group, academic qualification, working experience and department of respondents as shown in table 4.1. From the Table 4.1, it was revealed that out of a total of 50 respondents, a majority (60%) of respondents were males while 40% of the respondents were females. This shows that the study sampled more males as compared to females. For the age of respondents in Table 4.1, 20% of the respondents were between the age group of 18 – 25 years. However, most (50%) of the respondents were in the age range group of 26 – 31 years. While 20% of the respondents were in the age group of 32 – 40 years and the remaining (10%) of the respondents were in the age bracket of over 45 years. This indicates that the organization has matured employee who knows to strengthen the achievement of set organizational objectives.

It was revealed in Table 4.1 that, 16% of the respondent has served in the organisation for less than 1 year. However, 30% of the respondents have served in the organisation from 1 – 3 years. Besides, 40% of the respondents have served for 4 – 5 years. The remaining 14% of the respondents have served in the organizations for over 6 years in the organisation. This implies that respondents have worked long enough and have the experience to provide the requisite knowledge towards the achievement of the study variables.

From Table 4.1, it was observed that 10% of the respondents were secondary school certificate (SSH) holders. However, 30% of the respondents were Higher National Diploma (HND) holders. Most of the respondents (50%) of the respondents were bachelor Degree holders. While the remaining (10%) of the respondent affirmed they had attained masters level in education. This is an indication that, respondents have the requisite knowledge to provide relevant information on the variables of the study. From the analysis, the researcher deduced that majority of the employees are males and are between the ages of 26-31years who are graduates possessing their bachelor degree and have worked with the organization for 4-5years.

|                               |                  | Frequency | Percent | Valid Percent |
|-------------------------------|------------------|-----------|---------|---------------|
| Gender Valid                  | Male             | 30        | 60.0    | 60.0          |
|                               | Female           | 20        | 40.0    | 40.0          |
|                               | Total            | 50        | 100.0   | 100.0         |
|                               | <b>Age group</b> |           |         |               |
| Valid                         | 18 - 25 yrs.     | 10        | 20.0    | 20.0          |
|                               | 26 - 31 yrs.     | 25        | 50.0    | 50.0          |
|                               | 32 - 40 yrs.     | 10        | 20.0    | 20.0          |
|                               | Over 45 yrs.     | 5         | 10.0    | 10.0          |
|                               | Total            | 50        | 100.0   | 100.0         |
| <b>Duration of Service</b>    |                  |           |         |               |
| Valid                         | Below 1 yrs.     | 8         | 16.0    | 16.0          |
|                               | 1 - 3 yrs.       | 15        | 30.0    | 30.0          |
|                               | 4 - 5 yrs.       | 20        | 40.0    | 40.0          |
|                               | Over 6 yrs.      | 7         | 14.0    | 14.0          |
|                               | Total            | 50        | 100.0   | 100.0         |
| <b>Educational Background</b> |                  |           |         |               |
| Valid                         | SHS              | 5         | 10.0    | 10.0          |
|                               | HND              | 15        | 30.0    | 30.0          |
|                               | Degree           | 25        | 50.0    | 50.0          |
|                               | Masters          | 5         | 10.0    | 10.0          |
|                               | Total            | 50        | 100.0   | 100.0         |

4.3 Analysis of Main Data

4.3.1 Modes of transport used at GHACEM

Table 4.2 Modes of transport used at GHACEM

| To what extent do you view the following as the mode(s) of transport used at GHACEM | Percent Likert Response |      |      |      |      |
|---|-------------------------|------|------|------|------|
|   | S.A                     | A    | U    | S.D  | D    |
| Inland water transport (shipping).  | 20.0                    | 60.0 | 10.0 | 10.0 | -    |
| Rail transport for longer journeys.   | 20.0                    | 50.0 | 10.0 | 10.0 | 10.0 |
| Road transport for short hauls.   | 10.0                    | 10.0 | 20.0 | 40.0 | 20.0 |
| Air transport.  | 10.0                    | 10.0 | 40.0 | 30.0 | 10.0 |

Source: Authors Field Survey (2020)

From the table 4.3.1, the findings indicated that, majority of the respondents (80%) both strongly agree and agreed to the statement that, “inland water transport (shipping)”, while 10% of the respondents were uncertain and (10%) strongly disagreed to the statement. Besides, a total of (70%) of the respondents both strongly agreed and agreed to the statement that “rail transport for longer journeys”, while (10%) of the respondents were uncertain and (20%) both strongly disagreed and disagreed to the statement.

However, an aggregate of (20%) of the respondents both strongly agreed and agreed to the statement that, “road transport for short hauls”, while (20%) of the respondents were uncertain and (60%)

both strongly disagreed and disagreed to the statement. Moreover, a total of (20%) the respondents both strongly agreed and agreed to the statement that, "air transport". Whiles (40%) of the respondents were uncertain and (40%) both strongly disagreed and disagreed to the statement. From the analysis, the researcher deduced that the following are the modes of transport used at GHACEM; inland water transport (shipping), rail transport for longer journeys, road transport for short hauls and air transport.

**Table 4.3 Factors influencing the selection of transport mode(s) and effectiveness of logistics at GHACEM**

| To what extent do you view the following as the factors that influence the selection of transport mode(s) used at GHACEM | Percent Likert Response |      |      |      |      |
|--|-------------------------|------|------|------|------|
|  | S.A                     | A    | U    | S.D  | D    |
| The size of the road to be shipped out either in large or small volumes.   | 20.0                    | 70.0 | 10.0 | -    | -    |
| Distance coverage.   | 30.0                    | 50.0 | 10.0 | 10.0 | -    |
| Speed and transit time.  | 40.0                    | -    | 10.0 | 50   | -    |
| Legal procedures.  | 70.0                    | 30.0 | -    | -    | -    |
| Rate of risk   | 20.0                    | 50.0 | 10.0 | 10.0 | 10.0 |

Source: Field Survey (2020)

From table 4.3.2 the findings indicated that, majority of the respondents (90%) both strongly agreed and agreed to the statement that," the size of the road to be shipped out either in large or small volumes. Whiles (10%) of the respondents were uncertain. However, an aggregate of (80%) of the respondents both strongly agreed and agreed to the statement that, "distance coverage". Whiles (10%) of the respondents were uncertain and (10%) strongly disagreed to the statement. Moreover, a total of (40%) of the respondents strongly agreed to the statement that," speed and transit time". Whiles (10%) of the respondents were uncertain and (50%) of the respondents strongly disagreed to the statement. In addition, a total of (90%) of the respondents both strongly agreed and agreed to the statement that, "legal procedures".

Finally, a total of (70%) of the respondents both strongly agreed and agreed to the statement that." rate of risk". Whiles (10%) of the respondents were uncertain and (20%) both strongly disagreed and disagreed to the statement. From the analysis, the researcher discovered that the following are the factors influencing the selection of transport modes at GHACEM; the size of the load to be shipped out either in large or small volumes, distance coverage, speed and transit time, legal procedures and rate of risk.

**Table 4.3.3 Impact of logistics management on operational efficiency.**

| To what extent do you view the following as the impact of transport operations on operational efficiency at GHACEM. | Percent Likert Response |      |      |      |   |
|---|-------------------------|------|------|------|---|
|   | S.A                     | A    | U    | S.D  | D |
| Improvement of delivery.  | 20.0                    | 70.0 | 10.0 | -    | - |
| Increase responsiveness.  | 30.0                    | 50.0 | 10.0 | 10.0 | - |

Quality and safety in distribution is assured. 40.0 60.0 - - -

Improve JIT. 50.0 40.0 - 10.0 -

Source: Field Survey (2020)

From table 4.3.3, the findings indicated that, majority of the respondents (90%) both strongly agreed and agreed to the statement that, "improvement of delivery". Whiles (10%) of the respondents were uncertain. Moreover, a total of (80%) of the respondents both strongly agreed and agreed to the statement that, "increase responsiveness". Whiles (10%) of the respondents were uncertain and (10%) strongly disagreed to the statement. Also, a total of (100%) of the respondents both strongly agreed and agreed to the statement that, "quality and safety in distribution is assured". In addition, a total of (90%) of the respondents both strongly agreed and agreed to the statement that, "improve JIT". Whiles (10%) of the respondents strongly disagree to the statement. From the analysis, the researcher discovered that the following are the impact of transport management on operational efficiency; improvement of delivery, increase responsiveness, quality and safety in distribution is assured and improve Just In Time (JIT).

TABLE 4.3.4: Challenges of transport operations and material management at Ghacem.

| To what extent do you view the following as challenges of transport operations at GHACEM                             | Percent Likert Response |      |      |     |   |
|--|-------------------------|------|------|-----|---|
|  | S.A                     | A    | U    | S.D | D |
| Transport operations management is a capital intensive venture in operations of the organization.                    | 20.0                    | 60.0 | 10   | 10  | - |
| Fixed or standing costs are incurred when transport vehicles and concrete mixers are standing still and not working. | 50.0                    | 40.0 | 10.0 | -   | - |
| Insurance cost associated to the vehicles or equipment as well as the physical goods in transit may be expensive.    | 30.0                    | 50.0 | 20.0 | -   | - |
| Variable or running costs are incurred whilst the vehicles or transport equipment are in operations.                 | 24.0                    | 50.0 | 20.0 | 6.0 | - |
| Bad roads and poor infrastructure.   | 30.0                    | 50.0 | 20.0 | -   | - |

Source: Field Survey (2020)

From the table 4.3.4, the findings indicated that, majority of the respondents (80%) both strongly agreed and agreed to the statement that, "Transport operations management is a capital intensive venture in operations of the organization". Whiles (10%) Transport operations management is a capital intensive venture in operations of the organization of the respondents were uncertain and (10%) strongly disagreed to the statement. Moreover, a total of (90%) of the respondents both strongly agreed and agreed to the statement that, "for standing costs are incurred when transport vehicles and concrete mixers are standing still and not working". Whiles (10%) of the respondents were uncertain. Furthermore, a total of (80%) of the respondents both strongly agreed and agreed to the statement that, "insurance cost associated to the vehicles or equipment as well as the physical goods in transit may be expensive". Whiles (20%) of the respondents were uncertain. In addition, a total of (74%) of the respondents both strongly agreed and agreed to the statement that, "variable or running costs are incurred whilst the vehicles or transport equipment are in operations". Whiles (20%) of the respondents were uncertain and (6%) strongly disagreed to the statement. Finally, a total of (80%) of the respondents both strongly agreed and agreed to the statement that, "bad roads and poor infrastructure". Whiles (20%) of the respondents were uncertain.



From the analysis, the researcher discovered that the following are the challenges of transport operations at GHACEM; transport operation management is a capital intensive venture in operations of the organization, fixed or standing cost are incurred when transport vehicles and concrete mixers are standing still and not working, insurance cost associated to the vehicle or equipment as well as the physical goods in transit may be expensive, variable or running costs are incurred whilst the vehicles or transport equipment are in operations and bad roads and poor infrastructure.

#### 4.19 Conclusion

In conclusion, twenty (20) questionnaires was administered to the Ghana cement (GHACEM), Western region of Ghana and in return, all fifteen (15) questionnaires were retrieved after the data was given by the organization. Fourteen (14) of the respondents were males and fifteen (15) females gave out the data in respect. Five (5) from the warehouse section, eleven (11) from the transport section and four (4) from the production station. The research revealed after the analysis that the road system of transport is more efficient as compared to the rail and other systems of transport. And has therefore been beneficial to the operations and general work of the organization.

#### 5.0 CONCLUSION

This section highlights the summary of the research work, draws a meaningful conclusion and provide recommendation and suggestion upon the findings of the study. Data were analyzed with the aim to investigate the role of effective transport operations and its impact on operational efficiency.

#### 5.1 Summary Of Findings

Demographic characteristics of Respondents at Ghacem: The study focused on the role of effective transport operations and its impact on operational efficiency. It was carried out at GHACEM, Takoradi where 22 questionnaires were issued out to respondents. The study sought to determine the modes of transport used at GHACEM factors influencing the selection of transport modes, impact of transport management on operational efficiency and the challenges of transport operations at GHACEM. On the demography background of the respondents, the findings revealed that majority of the employees are males and the remaining were females. The findings further revealed that majority are between the ages of 26-31years. It was also revealed that on academic qualification, majority of the respondents possesses their bachelor degree and majority have worked with the organization for 4-5years.

Modes of transport used at GHACEM: The researcher sought to find out the modes of transport used at GHACEM. The researcher discovered that the following are the modes of transport used at GHACEM; inland water transport (shipping), rail transport for longer journeys, road transport for short hauls and air transport.

Factors influencing the selection of transport modes at GHACEM: The researcher sought to find out the factors influencing the selection of transport modes at GHACEM. The researcher finds out that the following are the factors influencing the selection of transport modes at GHACEM; the size of the load to be shipped out either in large or small volumes, distance coverage, speed and transit time, legal procedures and rate of risk.

Impact of transport management on operational efficiency: The researcher also sought to find out the impact of transport management on operational efficiency. The findings revealed that the following are the impact of transport management on operational efficiency; improvement of delivery, increase responsiveness, quality and safety in distribution is assured and improve Just In Time (JIT).

Challenges of transport operations at GHACEM: The researcher sought to find out the challenges of transport operations at GHACEM. The findings revealed that the following are the challenges of transport operations at GHACEM; transport operation management is a capital intensive venture in operations of the organization, fixed or standing cost are incurred when transport vehicles and concrete mixers are standing still and not working, insurance cost associated to the vehicle or equipment as well as the physical goods in transit may be expensive, variable or running costs are incurred whilst the vehicles or transport equipment are in operations and bad roads and poor infrastructure.

## 5.2 Conclusion

After conducting the research study above, the researcher came up with the following conclusions; The researcher concluded that the following are the modes of transport used at GHACEM; inland water transport (shipping), rail transport for longer journeys, road transport for short hauls and air transport. Again, the researcher concluded that the main factor influencing the selection of transport modes at GHACEM is legal procedures. The size of the load to be shipped out either in large or small volumes, distance coverage, speed and transit time and rate of risk are the other factors influencing the selection of transport modes at GHACEM.

Moreover, the researcher concluded that improve Just In Time is the main impact of transport management on operational efficiency. Improvement of delivery, increase responsiveness, quality and safety in distribution assurance are the other impact of transport management on operational efficiency. Lastly, the researcher concluded that the following are the challenges of transport operations at GHACEM; transport operation management is a capital intensive venture in operations of the organization, fixed or standing cost are incurred when transport vehicles and concrete mixers are standing still and not working, insurance cost associated to the vehicle or equipment as well as the physical goods in transit may be expensive, variable or running costs are incurred whilst the vehicles or transport equipment are in operations and bad roads and poor infrastructure

## 5.3 Recommendations

Based on the findings of the study and having thoroughly examined the manufacturing sector. It is appropriate to recommend the following to the organization since it will bring along with it benefits if properly implemented. Firstly, management should ensure full utilization of company's fixed assets such as concrete mixers and transport vehicles to reduce fixed cost since these costs are unavoidable. Also, management of GHACEM should train their employees to be abreast with transportation operations at the various stages of their operations. This will help the staff to have modernized approaches of operations in transportation. Lastly, management should adopt the use of modernized technological systems in their operations.

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