

Evaluating the Importance of Warehouse in the Logistics System

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Key words: Warehouse, logistics system, storage, distributions, customer service

Abstract: The research aims to assess the importance of the warehouse in the logistics system. Specifically it focused on warehouse logistics tasks and significance of warehouse to the competitiveness of the logistics system whilst examining the requirements for effective warehousing. Following a descriptive survey and a cross sectional research design, relying on review of related literatures and analysis of data gathered through the issue of questionnaires, the study affirms the strategic position of warehouse in the logistics system. Descriptive and inferential statistics were employed in the data analysis. Test of study hypothesis by one sample T-test shows a significant difference for warehousing and the variables describing the competitiveness of the logistics system. Firms through efficient warehouse system as the research concludes, reap huge benefits in terms of enduring customer preference and loyalty. Study findings require that organizations approach warehouse leadership with utmost sense of value, adopting best possible strategies for utmost competitiveness.

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Page No.: 192-196

Volume: 16, Issue 11, 2021

ISSN: 1818-5800

The Social Sciences

Copy Right: Medwell Publications

INTRODUCTION

Warehousing has evolved enormously from its historical roots as the simple storage of goods to a source of strategic solution in the logistics and supply chain operations. Warehousing network plays a major role in the success of the physical distribution of products. It is observed that the leading firms adopt and implement the different warehousing strategies such as capacity switching, hub networking, cobbling and outsourcing to improve their performance^[1]. Warehouse efficiency has become a centre of competency or a strategic weapon that numerous organizations use to improve their situations in the market^[2].

However, with the advent of just in time delivery where customer orders could be delivered directly from

the factory, the significance of warehouse in the logistics and supply chain process seems to be undermined. By this, many enterprises have developed a negative attitude towards the necessity for warehousing, explaining that storing the products in a warehouse stops the flow of materials which in turn increases the costs of distribution. Furthermore, the traditional school of thought is of the view that warehousing does not add value to a product; in fact, warehousing is strictly a cost-adding activity that is a necessary evil. And in firms that follow this school of thought, warehousing costs are typically classified as indirect costs. Often, these cost categories are spread over the direct costs of the firm in such a way that the cost of warehousing is not distinguishable.

The research is necessary to annul the traditional supply chain view of the warehouse as a necessary evil, a

cost centre with no added value to the chain of distribution and as a part of a body research relating to the subject by the current study that the warehouse in and of itself is a logistics strategy for which supply chain operators could rely on to leverage performance. The traditional view of warehouse as a cost centre with no added value stifles innovations and the ability to make improvements to increase efficiency and productivity. Storage, research notes is very necessary and if properly designed, provides added value for which customer is willing to pay for. Inefficient warehousing could spell disaster for a company. When warehouse operations are efficient, companies keep costs low and customers happy. When they're not, companies don't ship or receive inventory in time, workers are not as productive as possible and the company loses money and credibility.

Objectives of the research: The specific objectives of the study are to:

- Examine the warehouse logistics tasks and requirements for effective warehousing
- Propose a model for the analysis of the significance of warehouse in the logistics system
- Evaluate the significance of warehouse to competitiveness of the logistics system with respect to the companies under study

Research hypothesis

Hypothesis:

- H_{01} : There is no significant difference for warehousing and product value enhancement
- H_{02} : There is no significant difference for warehousing and effective distribution of goods
- H_{03} : There is no significant difference for warehouse services and quality customer service
- H_{04} : Warehousing services has no significant effect on sales turnover

Literature: Logistics as well as supply chain management has received increasing attention since the early 1980s as organizations due to globalization of market and shifts in consumers demand seek to adopt numerous business improvement methodologies to enhance performance. Logistics is an integral part of the supply chain management which results in the timely delivery of the goods and materials to the final destination. It aims at providing right goods, at given time, in desired quantity and condition, at proper place and price^[3]. It has evolved to become a competitive strategy adapted by the enterprise to meet and exceed the expectations of its existing and prospective customers. It refers to a complete process of total supply chain management that is established to achieve a state of perfection through efficiency and integration. The

management of transportation, inventory, warehousing and customer service provides time, space, possession and form utility that can provide competitive advantage. This is especially true when product offerings are otherwise undifferentiated. As such, the significance of logistics as for a competitive position of enterprises is certain and as a consequence, special significance in the functioning of logistic processes is ascribed to the warehousing process.

Warehouse logistics task: Warehousing process poses a significant component of a basic logistics system which covers activities in the scope of supplies management, or arrangement of inlet and outlet, in order words inflows and out flows, of goods in an enterprise. While looking from the perspective of pace of logistics process and the level of logistics customer service, however in numerous cases, warehousing is necessary condition for proper course of the logistics process. Warehousing has always been very significant in terms of cost, customer service and also plays an important role in the success or failure of many supply chains^[4]. Warehouse logistics tasks according to research can be categorized into storage and inventory management, distributions and customer service.

Storage and inventory management: Specifically, the major functions of a warehouse are to store products in order to make an assortment for customers, to assemble customer orders, sometimes to add value to the orders by customization activities, organize transport to the customers and ship orders timely, in the way desired by the customer in order to increase profitability^[5]. The customer journey doesn't end when an order is placed. A warehouse makes for better control of the inventory and ensures that customers will receive their products on time which ultimately leads to higher profits. Warehousing provides storage for the finished goods and also includes packing and shipping of the order. Efficient warehousing provides an important economic benefit to the business as well as the customers. Warehouse creates time utility by bridging the time gap between production and consumption of goods. Also, minimizing travel time between point of supply locations and demand destinations can greatly improve productivity^[6].

Distribution: Warehouses are not just rooms for the storage of goods; they are transport and storage facilities, they process three types of flows; input, output and internal. The warehouse poses a hub in a logistic network of dependencies, where goods are stored temporarily, or directed to another path leading through the network of interdependencies. Warehousing network plays a major role in the success of the physical distribution of products. It is observed that the leading firms adopt and implement

the different warehousing strategies such as capacity switching, hub networking, cobbling and outsourcing^[1]. Warehouse, contribute to the transformation of cargo flows by changing the parameters of accepted and issued consignments in size, composition, physical characteristics of the incoming goods and time spent^[7]. Goods in warehouse because they are not yet in the hands of the final consumers are described as goods in transit and in this sense; the warehouse could be described as a vehicle at zero speed.

Customer service: The logistics system is customer centric and the overall goal is to contribute to maximum current and future profitability through the cost-effective fulfillment of customer orders. The task of the logistician is to ensure customer orders as required get to customers in the right time, right place and right quality at a competitive price. Break bulk, picking, sorting and packaging, as well as organization of transport for onward delivery are basic warehouse service and operations integral to customer service and satisfaction.

Ineffective and inefficient management of warehousing will mean that the organization loses customers and sales will decline and ultimately affects the profit of the firm^[8]. Warehousing thus, plays a significant role in the growth and survival of an organization. Customer service failings at the warehouse level can have significant impacts on firms in terms of market share^[9]. This is so given that effective warehousing eliminates inefficiencies along the supply chain, making products get to customers. If the firm cannot deliver the products into the hands of customers in reasonable timeframe, the customer is likely to look elsewhere for alternate product that will give him or her satisfaction.

In a warehouse, items are handled in order to level out the variability and imbalances of the material flow caused by factors such as seasonality in demand, production scheduling, transportation and consolidation of items. Ineffective warehousing could paralyze the whole supply chain, e.g., as a result of lack of goods, delays, jams. Goods transported from the manufacturer to the final recipient are stored at least once along the chain of supply Kabus.

Research model: Following the review of related literatures, the research presents a model based on the conceptual frame work of the study for the analysis of the significance of warehouse in the logistics system. The model is an exemplification of the relationship which exists between warehouse functions and the logistics process. Effective warehouse service and operation regarding the functional role of the warehouse such as storage, packaging, break bulk, order fulfillment and inventory management are keys to effective distributions, product values enhancements, quality customer service and increase in sales returns. And as a consequence, improvements in logistics system performance defined by

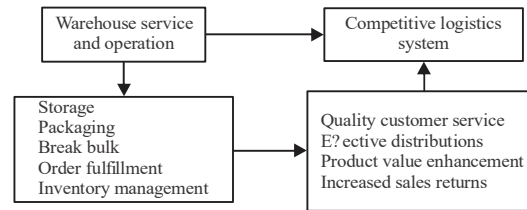


Fig. 1: Model for the analysis of the significance of warehousing to the logistics system

the competitiveness of the system; a position of customer preference and enduring market dominance through quality and effective customer service (Fig. 1).

Requirements for effective warehousing: Warehouse as part of the logistics system operates on the same principles as the system overall. Goals and objectives of the logistics system determine goals and objectives of the warehouse. Thus, an effective warehouse is one which meets the overall objective of the logistics system. Based on the general principles of warehouse design, the main conditions for the effective functioning of a warehouse as part of the bigger system, is considered as follow^[7]:

- Storage should not be considered separately but only as part of the logistics system. The effectiveness of the warehouse must serve the interests of the efficient functioning of the system
- It is necessary to take into account the interaction and relationships of the warehouse at the level of the entire external environment
- It is necessary to link technical and technological possibilities of the material flow passing through the warehouse with the external transport as well as with direct suppliers and buyers
- Reduction of warehouse handling of goods costs should not lead to a lowering of the level of customer service
- Technical and technological solutions in the warehouse should not come from trends but should be efficient and cost effective
- To reduce labor costs associated with the document, it is advisable to provide a unified approach to documentation between all participants of the system
- To automate the flow of information in the system and in a warehouse in particular, it is crucial to implement bar coding of goods in manufacturing plants

These conditions of effectiveness could be used as a foundation assessing the status of one's warehouse operations.

MATERIALS AND METHODS

The research followed a descriptive survey focusing on warehouse as a key component of the logistics system.

Logistics is approached from the perspective of a step along the supply chain of a single entity involving the purchase, transportation, storage and distribution to end users.

By a cross-sectional research design, structured questionnaires were distributed to sales staffs of 4 distribution companies in Nigeria. The 50 questionnaires making a total of 200 questionnaires were distributed, respectively to each of the companies employed in the research. By a simple random sampling, respondents were selected randomly from the list of sales staff collected from the companies.

The questionnaires were distributed by a self-visit to the target companies. The survey was completed in 3 months, starting from March to May 2020. The companies are; Technology Distribution Ltd, Konga online.com, Orange Drugs and BA Distribution Nigeria LTD. Both companies have their head office located in Lagos Nigeria.

They were chosen with respect to the magnitude of their sales and distribution network in Nigeria. The sales staffs were so considered because of their strategic position in the supply chain, mediating the relationship between the company and the customers. As such maintain close constant contact with the customers and providing feedback on the performance of the supply chain.

The survey questionnaire was divided into two sections. The first section of the questionnaire was based on the profile of respondents; the second section was based on the items relating to the study variables. The 183 valid responses were returned and collated to get results. Table 1 shows the response rate.

Table 1: Response rate

Distributed	Returned	Invalid	Valid
200	183	9	174

Table 2: SPSS result for one-sample statistics

Indicative variable for Competitiveness of a logistics system	N	Mean	SD	SE mean
Warehouses are centers for value added services (PVE)	174	3.2126	1.20484	0.09134
Warehouses are needful for Quality Customer Service (QCS)	174	4.1092	0.83606	0.06338
Warehouses enable Effective Distribution of Goods (EDG)	174	4.4310	0.69960	0.05304
Organizations with effective warehouses enjoy high sales turn over (STO)	174	3.8793	1.00423	0.07613

Table 3: One-sample test

Variables	Test value = 3				95% confidence interval of the difference	
	T	Df	Sig. (2-tailed)	Mean difference	Lower	Upper
PVE	2.328	173	0.021	0.21264	0.0324	0.3929
QCS	17.500	173	0.000	1.10920	0.9841	1.2343
EDG	26.982	173	0.000	1.43103	1.3264	1.5357
STO	11.550	173	0.000	0.87931	0.7290	1.0296

RESULTS AND DISCUSSION

Data analysis: Data gathered from the research was analyzed to determine the significance of warehousing to the competitiveness of the logistics system. Following the research model as presented in the literature, competitive advantage in the logistics system hinges on:

- Quality customer service
- Effective distributions
- Product value added services
- Sales turn over

Descriptive statistics in Table 2 below shows the mean scores and standard deviation of each indicative variable. The five point Likert scale, represents a rating ranged from 1 (Strongly Disagree) to 5 (Strongly Agree). The high mean scores which represent rating between neutral and strongly agree denote that the indicative variables describe the significance of warehouse to competitiveness of the logistics system.

Furthermore, one sample T-test was carried out to identify the significance of warehouse to the competitiveness of the logistics system. In the T-test, the mean value of the Likert scale (1-5), 3 was used as the test value to compare the mean of the sample. The T-test result shows a significant difference between the sample mean and the test value.

Low $p < 0.05$ for all variables indicate high significant difference between sample mean and test value. Also, positive upper and lower confidence interval is an indication of the fact that the sample mean is > 3 . This leads to reject the null and accept that the warehouse is necessary for; effective distribution of goods, quality customer service, product added value services and increase in sales turnover and consequently, strategic to the competitiveness of the logistics system (Table 3).

Effective distributions, quality customer service, product value enhancements and inventory turnaround time are factors according to research that define the performance and competitiveness of the logistics system.

CONCLUSION

This study has identified some important findings on the importance of warehouse in the logistics system. Warehouses serve as effective distribution centers, enabling the supply chain to efficiently position products in the right place for easy accessibility to the market. Goods could be moved from factories in large volumes at a reduced cost per unit to warehouses strategically located for easy accessibility to market.

The warehouse as well is strategic to quality customer service acknowledged as the prime objective and a key competitive strategy in the logistics process. In the warehouse, goods are efficiently broken to lot sizes and sorted into smaller shipments according to customer order for onward delivery. When customers are satisfied, they pitch their tent with the brand and also bring other customers.

Also goods have to be delivered to customers not just according to order but timely. The warehouse brings goods closer to the customers and ensures through storage and availability of varieties that customers need are delivered timely according to order and as such, improving not just customer service but also the utility value of goods. The customer values the product more when it is available and accessible as at when needed. Storage also enables goods to be kept till maturity of demand. This is particular to seasonal goods. Goods are sold at higher profit margin during peak demand. Warehouse packaging function as well is significant to improving the value of goods. It is a prime goal of the logistics system to ensure that products get to the hands of customers in the right quality. Effective packaging ensures both storage and transit safety of goods.

The forgoing shows that warehousing operations posses a strong competitive strategy for which logistics and supply chain operators could leverage for enhanced performance. Organizations with efficient warehouse operation and networks rip huge benefit in terms of effective distributions, quality customer service and high sales turnover. It is therefore, pertinent for organizations

to seek warehouse practices most suitable to them and adopt same, investing strategically in warehouse efficiency for utmost competitiveness and profitability.

ACKNOWLEDGMENTS

We never cease to express our gratitude to the staff of the companies employed in the research for taking out time off their busy work schedule to attend to us and to provide us with information as required for the research. And most profoundly the management of the companies for opening the gates of their organizations to us and availing us of necessary information that made the research worthwhile.

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