INNOVATIONS

Determinants of Warehouse Management Performance: The Case of Habesha Cement Share Company

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Abstract

This research contributed to the current trend of evaluating warehouse performance, with a focus on the Habesha Cement share Company. The warehouses were swamped by bad warehouse performance as a result of years of warehouse management performance in the Habesha cement Share Company.The research was conducted in this context, with the goal of evaluating and identifying determinants of the warehouse performance at Habesha cement Share Companyas a case study. Given this fact, the purpose of this study is to evaluate the determinants of warehouse performance (as measured by Edward Frazelle (2001) in terms of the four most commonly used dimensions: quality, reaction time, total warehouse cost, and productivity) in Habesha cement share company. A qualitative and quantitative or mixed method research strategy was used in this study. The researcher achieved this goal by administering a self-administered questionnaire on the four basic warehouse performance metrics using a Likert scale. In addition, the researcher will use both secondary and primary data collection methods. Because the total population is fewer than 100 (57), the researcher will conduct the study using the census method. The study used a descriptive research approach to evaluate determinants of warehouse management performance in Habesha cement Share Company. A total of 57 warehouse employees were taken as a study population. Frequency tables and percentages were utilized to describe the demographic information of respondents; descriptive statistics such as mean and standard deviations of respondents' scores on all aspects were assessed to ascertain the determinants of Warehouse performance in the company. Finally based on the results of data analysis the researcher concludes that all performancedimensions of warehouse affects the warehouseperformance of Habesha cement Share Company.

Key words: 1.Warehouse 2. Quality reaction time 3.Total warehouse cost 4. productivity

1. Introduction

Warehousing is one of history's oldest activities, dating back to ancient agriculture and trade. Rich farm owners stored vast quantities of maize, wheat, and barley in barns during the harvest time to consume during periods of drought and low harvest, while rich merchants stored large quantities of produce in warehouses for eventual trade to other areas of the world. Farms, barns, storehouses, and animals were used to measure wealth in ancient Egypt and Rome as early as 700BC.

(Genesis 41, verses 37–57) Warehouses were built in commercial ports across Europe during the nineteenth century, including the Gloucester docks in the United Kingdom, Brooklyn, Amsterdam in the Netherlands, and Manchester in the United Kingdom. The urban landscape was dominated by warehouses.

In Europe, warehousing has become an important enabler of globalized production networks, and warehousing outlets serving specific trade areas are frequently used to achieve short lead times, volume and mix flexibility, postponed customizing in terms of assembly and packaging, as well as corporate profitability (Christopher et al. 2006; Baker 2007; Koskinen and Hilmola 2008; Hilletofth 2009). Even if warehousing remains a key enabler of performance for global firms, it is increasingly being outsourced (Cap Gemini 2007; Selviaridis and Spring 2007; Marasco 2008), and this trend is expected to continue in the next years, even if global economic instability continues (UNCTAD 2008).

Remember, it's tough to improve anything if you can't measure it. An operational assessment can assist businesses in increasing productivity, maximizing distribution center space, increasing throughput and capacity of orders processed in the warehouse, streamlining work-flow by reducing steps, improving service levels, processes, and costs, and achieving higher profits and lower costs in general. If these are the objectives, the key to successfully implementing the assessment findings is to combine measurement of the many aspects of the operation with an organized strategy to developing changes. You'll be able to build an action plan once you've gathered the data and made the comparisons. (F.Curtis Barry & Company/Multi-Channel Operations Solution)& completion in 2016)LiviuIlieș, Ana-Maria Turdean, and Crișan Emil Babeș, (2009) – A Case Study on

According to Warehouse Performance Measurement, companies can save money by utilizing their logistics department. Warehouse management could be a source of cost savings from logistics for businesses during this economic downturn. They include best practices in warehouse performance assessment that lead to performance gains in their case study, as well as answers to questions such as, what are the warehouse performance indicators. What methods are used to calculate them, and how are they interpreted?

One of the most significant commodities in the construction sector is cement. It's a product with a lot of volume and a lot of sensitivity. Warehousing is a critical component of this firm, and the costs are not insignificant. In cement storage operations, there is a lot of room for JIT. Even if only partially implemented, it has the potential to enhance the bottom line of any organizations who use it. On the one hand, it would increase profitability, while on the other, it would aid in the decrease of quality degradation.

This research mainly focused on investigating determinants of warehouse management performance in Habesha cement Share Company.

2. Literature Review

2.1. Warehouse Definition

Warehouses are typically big, basic structures used for commercial reasons such as products warehousing. Exporters, importers, distributors, and manufacturers, among others, frequently employ warehouses. Warehouses typically contain loading docks for loading and unloading trucks, as well as cranes and forklifts for transporting items. Goods are typically stored on ISO standard pallets in pallet racks. (Tompkins & Smith, 2019; Tompkins & Smith, 2019; Tompkins & Smith, 2019

Some warehouses are fully automated, with automated conveyors and automated storage and retrieval machinery controlled by programmable logic controllers and logistics automation software. A warehouse management system (WMS), a database-driven computer application, coordinates material tracking in an automated warehouse. WMS is used

by logistics professionals to improve warehouse efficiency by maintaining accurate inventory levels, taking into account warehouse transactions, and directing put routes. 2014 (Gwynne)

With the emergence of Just in Time (JIT) procedures, which are specifically designed to boost a business's return on investment (ROI) by mitigating in-process inventory, traditional warehousing has been steadily declining since the last decade of the twentieth century. The JIT concept is based on delivering products directly from the factory to the retail outlet without the use of a warehouse. However, in some cases, such as offshore outsourcing and offshoring in roughly the same time period, the distance between the manufacturer and the retailer increases significantly in many regions, necessitating at least one warehouse per region or per country for a given range of products in any typical supply chain. S. Tompkins, 1998.

Recent advancements in the marketing area have resulted in the creation of a warehouse design style in which the same warehouse is used for both warehousing and retail. These warehouses are equipped with tall, heavy-duty industrial racks, with ready-to-sell commodities placed in the bottom portions of the racks and palletized and wrapped inventory items often placed in the top parts. Johnson (2008; Johnson, 2008; Johnson, 2008; Johnson, 2008; Johnson, 2008.

2.2. Warehouses' role, purpose, and goal

Warehousing is essentially the process of storing commodities until they are required. The distinction between a finished goods warehouse and a raw materials storage area is frequently made. However, the functions done in a finished goods warehouse, such as receiving, storing, picking, and shipping, are the same as those performed in a raw materials warehouse. As a result, they're both warehouses. The only genuine distinction between the two is the source of the commodities and the user to whom the goods are delivered. A raw materials storage accepts commodities from a third party, stores them, picks them up, and ships them to an internal user. A finished products warehouse collects goods from an internal source, keeps them, picks them up, and sends them to an external customer (Rushton et al 2000).

A distribution warehouse, on the other hand, receives items from an outside source, keeps them, picks them up, and ships them to an outside user, whereas an in-process inventory warehouse receives things from an inside source, stores them, picks them up, and delivers them to an inside user. The distinctions between these warehouses are limited to the views of the items' suppliers, management, and users. If receiving is one of a facility's key duties,

Regardless of its location in a company's logistics, if a facility is used for storage, picking, and shipping, it is referred to as a warehouse. Rushton (2000, Rushton, Rushton, Rushton, Rushton, RushAccording to Rushton et al. (2000), there are several reasons for keeping stock and maintaining warehouses and distribution terminals in supply chains:

• To act as a buffer to balance out supply and demand fluctuations.

· To save money on procurement by making huge purchases.

• To offer a diverse choice of products from various suppliers in an one area.

• To cover planned or unplanned production outages.

A warehouse's resources include space, equipment, and employees. The utility of a warehouse is determined by how well it utilizes its resources to meet client needs. Customers simply want the appropriate goods in good shape delivered to the right location at the right time. As a result, the product must be both accessible and secure. If a warehouse is unable to achieve these standards, the warehouse does not add value to the product and, in fact, most likely detracts from it. The fundamental goal of any warehouse management system is to maximize the utilization of warehouse space, equipment, manpower, accessibility, and protection of all objects, as well as information, based on assessments of a warehouse's resources and client requirements.

2.3. Warehouse Performance Factors.

Various researchers have used different factors to operationalize warehouse performance, with a visible repetition in the use of some of these factors (John M. Hill's, 2007), indicators to assess warehouse performance, grouped into three categories, (Aronovich, Dana, Marie Tien, Ethan Collins, Adriano Sommerlatte, and Linda Allain. 2010), (Per Axelsson& Jonathan Frankel, 2014), and (Aronovich, Dana, Marie Tien, Ethan Collins (IlieLiviu, Turdean Ana-Maria and Crisan Emil, 2009). The use of one or more factors by these research studies has been justified by the contexts in which they were conducted.

1. Quality

A. Accuracy Rate of Inventory

Out of the total number of sites under examination, this indicator represents the percentage of warehouse or storage locations that had no inventory discrepancies when stock cards were compared to a physical inventory count during a set period of time. Alternatively, the proportion of months or quarters with no inventory discrepancies out of the total number of months or quarters in the review period can be used to construct this indicator for a single facility (e.g., annual). (Barry, F.cruits, 2011)

Over a period of time, the inventory accuracy rate can be used to evaluate overall inventory management performance for a group of storage facilities or for a single storage facility. Managers need inventory accuracy to know how much they have in stock at any given time and when they need to place a new order to replenish stock. This discrepancy analysis can assist managers in identifying storage facilities with inventory management issues, as well as chances for improvement. (Barry, F.curtis, 2011)

B. Movement Precision

In a warehouse or storage space, this indication represents the percentage of objects placed in the correct location or container. This metric assesses a facility's capacity to stock products in the proper position so that they may be found quickly and easily. This might indicate whether or not employees are following proper warehousing procedures and requirements. This indicator can be measured during a site visit or by checking the facility on a regular basis for a set amount of time. The number of times items were found in the improper location during the course of a quarter, for example.

C. Choosing the Accuracy Rate

Based on a request or packing list, this indicator is defined as the percentage of things or lines picked appropriately (i.e., the correct items and quantities) from storage and placed into the appropriate container.

This metric determines whether things are appropriately selected from storage and loaded into a container for shipment to the requesting location. It can disclose the facility's capacity to correctly pick requests in terms of number and item. Stock outs or overstocks at the ordering facility can occur as a result of errors. A review of things right before they are loaded for transporting might be undertaken to assess the accuracy of picked items compared to an invoice or requisition form to collect data for this indicator. It can be calculated for a single order or all orders during a specified time period.

D. The Rate of Warehouse Accidents

This metric tracks the overall number of accidents that occur in a warehouse or other storage facility during a given time period.Bad warehouse management and practises, unskilled workers, unclear safety instructions, malfunctioning equipment, or poor circumstances can all be shown by this signal. It can assist in identifying areas that require improvement by determining the cause of accidents, which could be due to human error or other factors.

Accidents should become less common as a result of involvement.

E. Security Measures That Have Been Defined

This indicator determines if a storage location has guidelines or standard operating procedures (SOP) in place that provide guidance on how to prevent theft or leaking.

Implementing effective security measures at storage facilities can assist avoid product theft and leakage, saving money and enhancing commodity availability.The programme should include clear and precise instructions for facilities to follow in order to keep the facility safe and the products safe. Evaluators should also look at the quality and thoroughness of these rules or SOPs, as well as how well the facilities follow them.

2. Response Time

A. Response Time A. Order Processing Time in the Warehouse

From the time an order is received at the storage facility until it is actually dispatched to the client, this indicator measures the average amount of time (e.g., minutes, hours, days, weeks). The average order processing time for a specific shipping facility, or for orders to a certain client or for a specific product, can be computed.

This metric is used to track how well an order is processed and how efficient a shipping facility is. It also aids in identifying areas where staff effectiveness in order management and a facility's response time might be improved. (Geraldiene, 2011) (Geraldiene, 2011) (Geraldiene,

B. The Customs Clearance Process

This indicator tracks the length of time (in minutes, hours, days, and weeks) that passes between the time the cargo arrives at the port or airport and the time it clears customs, arrives to the warehouse, and is ready for storage. This indicator can be determined by product or supplier, or by taking the average of all products or suppliers during a given time period. If other issues, such as a lack of equipment at the port facility, affect transporting the goods from the port to the warehouse, evaluators can scale this estimate down to the exact period of time the products were sent to the customs office until the customs office cleared and released them. The indicator can help identify customs clearance delays and, with more research, the factors behind them—for example, incomplete paperwork, poor material descriptions, and missing certificates of origin, among other things. On this basis, possibilities for improvement can be identified, and steps done to reduce the time it takes for products to clear customs and arrive at the warehouse.

C. Duration of Movement

This metric measures the time it takes for a product(s) to be unloaded from a truck, stored in its allocated position, and ready for pickup after arriving at a warehouse or other storage location. This indicator can be measured by product, shipment, or as an average of all items or shipments over a given time period.

By monitoring the effectiveness of the put-away processes and the people responsible for the task, measuring put-away time can assist enhance productivity. It can assist managers in identifying issues with work conditions or processes, as well as the need for staff training.

3. Cost/Financial

A. The Total Cost of Warehousing

Total warehousing costs include labor costs and warehouse rent, as well as mortgage payments, power bills, equipment, material- and information-handling systems, and other warehousing-related expenses. It also includes the price of systems, supplies, and any other warehousing-related materials. This metric is normally measured once a year.

The total warehousing cost per piece/SKU/product/line can alternatively be estimated by dividing the total warehousing cost by the number of stocked units or the volume of stocked items in cubic metres (m3), per storage space (m2), or per programme. Managers can use this indicator to keep track of the expenses of various components in a warehouse and to compare costs between different warehouses. It can aid in the identification of the most cost-effective warehouses as well as the study of best practises. Total warehousing costs divided by units or area can also reveal storage usage, cost effectiveness, and other factors. This indication gives the management team good precise cost visibility by separating the warehousing costs per SKU.

B. The Cost of Warehouse Product Damage

This indicator calculates the value of damaged products in the warehouse during a set period of time (typically a year) as a percentage of the total value of all shipped products during that time. Inventory damage can occur as a result of improper warehousing conditions or product handling.This indicator can be used to put the value of damaged products into context and to identify the reasons as well as the steps required to prevent such damages, such as better infrastructure, manpower, and training.

4. Productivity

A. Making the Most of Your Storage Space

The percentage of total storage space that is actually used out of the total storage space available is referred to as storage space utilization. Managers can use this indicator to keep track of a warehouse's storage capacity and utilization.

Managers can look for opportunities to improve storage capacity (e.g., remove expired products, de-junk, reorganise) and maximize the use of storage space by assessing storage space utilization, or request a re-evaluation of layout, material flow, shelf disposition, and so on, by assessing storage space utilization.

B. Per Person-Hour Units Moved

This indicator calculates the number of units (e.g., boxes, pallets) or weight moved per person-hour for each person working over a specified time period. It's something to think about when receiving and delivering inventory.

This metric is used to assess material handling productivity over time (hours, days, or months). It allows you to compare productivity levels across working shifts or warehouse sites. It can be used to identify training needs and evaluate their effectiveness. Beckham (2007; Beckham, 2007; Beckham, 2007; Beckham, 2007; Beck

C. Product Handling as a Percentage of Storage Space

This metric determines what percentage of total storage space is dedicated to product handling (receiving, unloading, packing, loading, and dispatching).

For an average volume of items, it is advised that a particular percentage of the storage area be dedicated specifically to product handling. The quantity of handling space required is determined by the volume of goods moved through the storage area as well as the equipment needed to transport those products. This specialised area is essential for the storage facility's successful operations, as it allows for organised and efficient product receiving, unloading, packing, loading, and dispatching, as well as protecting products from the elements while receiving and packaging. Beckham (2007; Beckham, 2007; Beckham, 2007; Beckham, 2007; Beck

2.3. The Concept of Performance Measurement

Performance measurement is defined as the process of quantifying the efficiency and effectiveness of an action, with effectiveness referring to the extent to which a customer's needs are met and efficiency referring to how efficiently a firm's resources are used to achieve a predetermined level of customer satisfaction (Neely et al., 1995) on Agami, Saleh, and

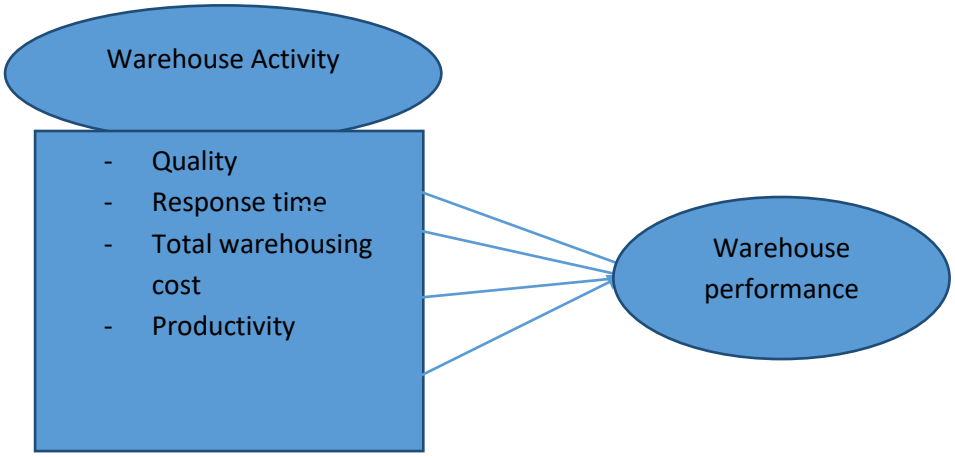
Rasmy, 2012. Firm performance, on the other hand, is a multi-dimensional notion that may be measured in a variety of ways. Despite the enormous number of publications on performance assessment, (Akyuz&Erkan, 2010) suggested that the existing literature lacks a uniform definition of what is included and excluded. However, it has been asserted that the performance concept encompasses both financial and non-financial (operational) aspects and related measures, with the financial aspect expected to include measures such as sales, profitability, and Return on Investment (ROI), among others, and the non-financial aspect expected to include measures such as inventory performance and cycle time, to name a few (Martin and Patterson, 2009).

The supply chain performance measurement is a complex proposition, according to (Thakkar, Kanda, and Deshmukh, 2009), since it is affected by, and in turn influences, many aspects of the firm's operations and surroundings. In a similar vein, Otto and (Kotzab, 2003) claimed that supply chain performance and measurement are dependent on unique notions and problems that can be identified beyond the perspectives available to be considered, and thus, none of the available alternatives is an optimal approach for all contexts; instead, different performance metrics should be combined based on the SCM holistic requirements. In this regard, (Thakkar et al., 2009) suggested that performance measurement metrics should be able to capture the essence of organizational performance, ensure an appropriate assignment of metrics to the areas where they are most appropriate, minimize the deviation between organizational goals and measurement goals, and measures, and reflect their clear linkages with various levels of decision-making such as strategic, tactical, and operational.

In terms of the use of specific performance metrics in the supply chain management context, some studies suggest a blended and balanced approach that includes both financial and non-financial/operational metrics (e.g. inventory reduction, improved delivery service, decreased order cycle times, and greater product availability...etc) (Thakkar, Kanda, and Deshmukh, 2009; Li, Ragu-Nathanb, Ragu-Nathanb, and Raob, 2006; Gunasekaran, Patel, and Macgraughey, 2004). (IlieşLiviu, Turdean Ana-Maria, and Crişan Emil Babeş, 2009) backed up this assertion with a structured literature study on warehouse performance, indicating that the bulk of the literatures they looked at looked at the effect of supply chain management on a combination of overall parameters.

However, (Van der Vaart and van Donk, 2008) argued that attributing total supply chain or firm performance to specific supply chain factors would be difficult, especially when performance is measured in broad terms such as market share, ROI, and profitability, because these broad measures include many other (both economic and managerial) variables that influence performance items (Rodriguez, 2009; Van der Vaart and van Donk, 2008).

Conceptual framework



3. Research Methodology

The blueprint for achieving research objectives and answering research questions is the study design (John A.H. et al., 2007. As a result, the research method used in this study is descriptive explanatory research. The most important goal of descriptive research is to describe the current state of circumstances. The study then goes on to explain and evaluate several important performance metrics for a particular warehouse within the firm.

The study population includes all warehouse staff who have a direct relationship with the warehouse, such as inventory and store. Because the target population is so small (only 57 people), it were considered as a target population.

For this study, the organization's warehouses were the unit of analysis. Warehouse staff were chosen because they are the most familiar with and have the most essential information about the company's warehouse activities.

For the goal of performing this research, both primary and secondary sources of data/information were used. Data collection instruments are ready to collect data from the target population. A five-point Likert scale (5=strongly agree, 4=agree, 3=no opinion, 2=disagree, and 1=strongly disagree) wasutilized for the questionnaires, and some of the items that are better to characterise the variable under research were adapted from Mustafa Najia (2008).

The data collected from different sources were analyzed by usingdescriptive and inferential statisticaltechniquesdepends on the type of the data, to analyze the data collect through Likert scaleregression techniques from the inferential statistics were used.

4. Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
	(Constant)	.954	.194		4.908	.000
	Quality	.401	.081	.557	4.946	.000
	RT	.164	.068	.182	2.404	.018
	TWC	.221	.082	.271	2.701	.008
	Productivity	.040	.068	.049	.590	.557

Whereas: RT: Response time TWC: Total warehousing cost

The coefficient of determination, as shown in the table above, describes the extent to which changes in the dependent variable can be explained by changes in the independent variables, or the percentage of variation in the dependent variable organizational competitiveness that can be explained by all four independent variables (quality, response time, total warehousing cost and productivity). As a result, the slope of the regression line is represented by the value of from the table. Although this value is the slope of the regression associated with a unit change in the outcome associated with a unit change in the predictor, it is.401 quality. This meant that increasing the predictor variable by one unit (for example, increasing quality by one unit) would boost organizational performance by 40.1 percent. As a result, at (=.401) and (t=4.946, p=. 000), quality has a positive and significant effect on organizational performance.

At (=.164) and (t=2.404, p=.018), Response time have a positive and significant effect on organizational performance. These meant that a unit change in response time resulted in a 16.4 percent increase in organizational performance. This finding is supported by Korpela (1998), who stated that in order to better serve customer requirements and maintain competitiveness, companies should establish a response time management system and focus on designing an efficient logistics system. This requires constant adaptation to market changes and a well-founded logistic strategy to meet and exceed customer requirements. Customer service, sales, and profitability will all improve as a result of logistic managers' ability to change and lead change.

At (=. 221) and (t= 2.701, p=. 008), total warehousing cost has a positive and significant effect on organizational performance. As a result, total warehousing cost and organizational performance have a positive and significant link. According to the findings, a one-unit increase in this variable can result in a 22.1 percent increase in organizational performance.

At (=. 040) and (t=.590, p=.557), Productivity has a positive but insignificant effect on organizational competitiveness. This demonstrated that even when the p value is positive, it is above the coefficient level, i.e. p>0.05, and productvity has a positive but insignificant effect on organizational performance.

5. Conclusion

The multiple regression analysis under multicollinearity test of variables there is no multicollinearity problems between variables and the variables are normally distributed and no linearity problem at all and under the summery of those models deployed here are explained 79.5% of warehousing performance . This means that out of all the total warehousing practices, 79.5% explained by the fourvariables used in this study (quality, Response Time, Total warehousing cost, and productivity). The remaining 20.5% of warehousing management practice of the company were explained by other variable

6. Suggestion

Basedonthestudyresultsandconclusionsdrawnabove,somerecommendationsareproposedas a means ofalleviatingthe problems found.

- As the finding indicated the practice of warehousing management is relatively good incompany. But some ware housingmanagementactivities(warehouse productivity management) has insignificance effect on organizationalperformance. There forethecompanyshouldimprove warehousing productivity management system andfactors associated with warehouse management practice need to be considered by thecompany in their performance strategic plans as they have significant impact oncompetitiveness.
- Based on the finding the mean scores of response time practice are low with compared to other variables. So thecompany should find the reason why it occur and develop strategies and procedures toimprovethose activities.
- Lastly the managers should also recruit competent staff with Knowledge and Skills on warehousing management and the recruitment process should be based on professionalqualifications and experience in logistics management functions and managers shouldcomeupwithprocedureofhowtheinformationshouldflowfromtoptoallemployeesin theorganization

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