# A STUDY ON WAREHOUSE MANAGEMENT AND MATERIAL HANDLING PROCESS AT POLKART LOGISTICS

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***Abstract***
*The structuring of your warehouse material handling system will necessitate high-level efficiency. This will entail efficient logistics for warehouse and customer requirements. Both inbound and outbound processes will be crucial to material handling. Materials handling is essentially related to warehouse management. Thus, it has a direct impact on transit time, resources usage, and service levels. Materials handling is one among the factors that made an imperative contribution to the logistics and supply chain efficiency.The inventory management plays the main role in a warehouse management. Stock audit has to be done monthly.The present study delineates the material handling operations at third party logistics warehouses. it was possible to suggest that internal customers understood that the new materials handling management system enlarged service agility and reliability and reduced costs, which caused an improvement in overall satisfaction. The main objective of this study is to identify the methods employed in the material handling department at logistics warehouses.*

## INTRODUCTION:

Warehousing and material handling are crucial elements of logistics and supply chain management. Warehousing refers to the process of storing goods or products in a designated location, typically a warehouse or distribution centre, until they are ready for distribution or sale. Material handling, on the other hand, is the movement, control, and protection of materials throughout the supply chain, from raw materials to finished products.Successful warehousing and material handling can have a significant impact on the overall profitability of a business. By reducing storage and handling costs, increasing productivity, and improving accuracy and speed of order fulfilment, companies can gain a competitive edge in the marketplace.

Warehousing and material handling are also impacted by external factors such as changes in demand, supplier disruptions, and market fluctuations. Effective supply chain risk management strategies are essential to ensure that disruptions to warehouse operations are minimized and that inventory is managed in a way that allows for flexibility and responsiveness to changing market conditions.

## LITERATURE REVIEW:

- Warehouse Management and Materials Handling:Movement,storage and the warehouse function .according to **Graham Buxton (1975)** Materials handling activities within a distribution-oriented warehouse clearly emphasise movement as the major focus of warehousing operations, rather than storage. Indeed, we can identify a clear relationship between movement and storage, for 'the more efficiently in terms of time movement is accomplished, the less time and space have to be devoted to storage'. This fact reinforces the notion which has been implicit in much of what we have discussed so far in this book, that time is the underlying, unifying dimension of physical distribution activity. The objective of warehousing, as indeed of the total marketing logistics system, is to facilitate product availability by providing time-and-place utility to the market, and it is with this perspective that we now tum to the specific functions involved in movement and storage.
- Logistics Systems of Warehousing and Materials Handling .according to **(Khalyn V.G. - 2018)** The warehouse logistics market in the South of Russia is characterized by effective solutions and innovative imperatives of distribution systems. Enterprises, which form a logistic system at any level of an organization in their interaction, have the highest potential of functioning in the

framework of given economic and mathematical parameters. Their activity acts as the most coordinated, ensuring the emergence of the minimum number of risk-forming factors.The logistic distribution system created as a result of cooperation and interaction is a kind of guarantee of successful operation in the format of import replacement and reinforcement of production and distribution systems of the domestic market. These are such complexes that can provide financial opportunities to achieve the level of logistics services in the 4PL format, as well as the systematic transition of the best of them to the service of 5PL level.At the present stage of development of economic systems, logistics acts as a universal tool and catalyst for the organization of commercial activity

- Material Handling Management in Third Party Logistics Warehouse.(**G SankaR , Kusetty Naveen Kumar)**Materials handling is essentially related with production and manufacturing flow. Thus, it has direct impact on transit time, resource usage, and service levels. The logistics industry is identified to be a competitive environment, connected to the globalization phenomena, requires from companies more agility, greater performance and the consistent search for cost reduction. Materials handling is one among the factors that made an imperative contribution to the logistics and supply chain efficiency. The present study delineates the material handling operations at third-party logistics warehouses. The main objective of this study is to identify the methods employed in material handling department at the logistics warehouse.Material handling equipments are significant components of the knowledge base of every expert system resolving material handling selection problem.
- **1.**WAREHOUSE SAFETY AND SECURITY**(Hamid Khalifa Alhamami , Dr. Prakash Kumar Udupi - 7-JULY-2020)**Warehousing is a growing concept which is playing a crucial role in the modern supply chain and logistics sector. There are many safety and security hurdles that are present and can seriously hamper the progress of the logistics. After conducting research with the help of questionnaires and interviews, the paper finds that the Company is struggling and needs to ensure the employee's training and standard operating procedures need to be adopted within the warehouses which will substantially improve the effectiveness of the warehousing services. Proper safety and security protocols needs to be established, and they need to be ensured if they are being fulfilled at the countless warehouses that stretch along different parts of Oman. Furthermore, the paper also finds that information technology can improve the way how warehousing is traditionally done.
- Implementation of 5S methodology in warehouse**(Rizkya , R M Sari, K Syahputri, N Fadhilah)**Warehouse functions to store products and provide information about the conditions of inventory stored in warehouse, so that it easy access to anyone needed. This paper describes the assessment and application of the 5S work culture in the warehouse area. The 5S is a concept proven able to eliminate waste.Warehouse operation or warehousing is one of the most significant components in supply chain. Managing product to be successfully at the right time, right place and right quantity, without damages and differentiations is a mission of warehouse management. This chapter explains the typical warehouse processes and the integration of warehouse processes and reverse logistics optimization.It means that the 5S application in the warehouse area is more suitable with the actual concept.

**OBJECTIVE OF THE STUDY:**

- ➢ To determine whether the individual is aware of and follows the established safety protocols and guidelines while handling materials in the warehouse
- ➢ To analyse the adaptation of 5S in Own as well as other warehouses
- ➢ To review the safety measures followed during the warehouse operations
- ➢ To gather feedback from the employees or customers on the safety measure implemented by the company
- ➢ To determine the operational cost control
- Inventory management

- Physical control for prevent losses
- Training and development of workers
- Efficient transportation

**RESEARCH METHODOLOGY:**

This project consisted of descriptive researchers. The descriptive research is used by questionnaire method.. By this, the respondents are questioned through mail by sending framed questionnaires to their mail. The observational findings were obtained through the researcher's personal observation of the respondents reply, after analyzing the reply.

Universe refers to the total number of items in any field of enquiry whereas population refers to the total number of items about which the information is required. Here the population is the 150 employees of polkart logistics.The sample universe is the entire group of items the researcher wishes to study and about which they plan to generalize.The sample of this study on warehousing and material handling process at polkart logistics. Universal sampling is done in this study.

Samplesize:The questionnaire was given to 123 respondents . Thus 123 samples were considered as sample size.

**DATA ANALYSIS AND INTERPRETATION**

**ONE WAY ANOVA:**

**Descriptives**

9. Do you follow established safety protocols and guidelines when handling materials in the warehouse?

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| 1 | 60 | 1.12 | .324 | .042 | 1.03 | 1.20 | 1 | 2 |
| 2 | 65 | 1.22 | .414 | .051 | 1.11 | 1.32 | 1 | 2 |
| Total | 125 | 1.17 | .375 | .034 | 1.10 | 1.23 | 1 | 2 |

**ANOVA**

9. Do you follow established safety protocols and guidelines when handling materials in the

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | .304 | 1 | .304 | 2.178 | .143 |
| Within Groups | 17.168 | 123 | .140 | | |
| Total | 17.472 | 124 | | | |

**ONE SAMPLE T TEST:**

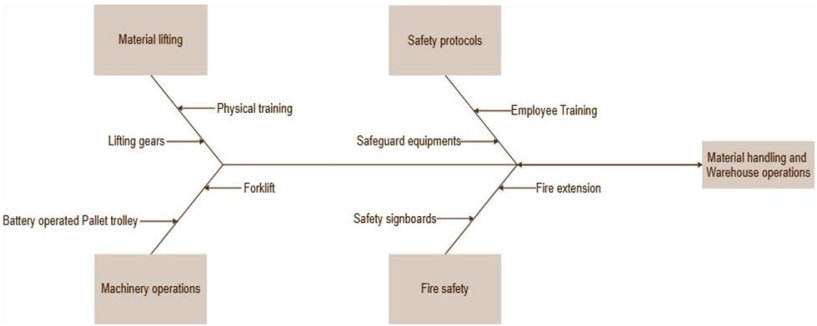
**One-Sample Statistics**

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| **10. Do u follow 5S in your warehouse** | **125** | **1.18** | **.389** | **.035** |
| **7. Do you operate your own warehouse?** | **125** | **1.74** | **.443** | **.040** |

**one-Sample Test**

| | Test Value = 0 | | | | | |
|---|---|---|---|---|---|---|
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| 10. Do u follow 5S in your warehouse | 34.026 | 124 | .000 | 1.184 | 1.12 | 1.25 |
| 7. Do you operate your own warehouse? | 43.855 | 124 | .000 | 1.736 | 1.66 | 1.81 |

**CAUSE AND EFFECT(**FISH BONE)




**FACTOR ANALYSIS:**
**HYPOTHESIS**

| | Mean | Std. Deviation | Analysis N |
|---|---|---|---|
| 12. Do you follow daily cycle count to tally with system stock? | 1.20 | .402 | 125 |
| 20. physical control for prevent loss ? | 2.35 | .927 | 125 |

| | | | |
|---|---|---|---|
| 16. Have you received training on how to operate the material handling equipment ? | 1.15 | .360 | 125 |
| 25. Are you using your own transportation company ? | 1.70 | .835 | 125 |

KMO and Bartlett's Test

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .594 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 51.132 |
| | df | 6 |
| | Sig. | .000 |

Communalities

| | Initial | Extraction |
|---|---|---|
| 12. do you follow daily cycle Count to tally with system stock? | 1.000 | .617 |
| 20.physical control for prevent loss? | 1.000 | .313 |
| 16. Have you received training on how to operate material handling equipments | 1.000 | .614 |
| 25. Are you using your own transportation company? | 1.000 | .201 |

Extraction Method: Principal Component Analysis

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | %of Variance | Cumulative % | Total | %of Variance | Cumulative % |
| 1 | 1.745 | 43.635 | 43.635 | 1.745 | 43.635 | 43.635 |
| 2 | .970 | 24.243 | 67.878 | | | |
| 3 | .799 | 19.967 | 87.845 | | | |
| 4 | .486 | 12.155 | 100.000 | | | |

**Extraction Method: Principal Component Analysis.**

**FINDINGS:**

**ANOVA:**

From the above table it can be inferred that the probability value .143 is greater than 0.05 alpha value, therefore we accept H0 and reject H1. Hence we conclude that there is a significant association between experience and establish safety protocols and guidelines while handling materials

**ONE SAMPLE T TEST**

From the above table it can be inferred that the probability value .000 is less than 0.05 alpha value, therefore we accept H0 and reject H1. Hence we conclude that there is a significant association between 5S and own warehouse.

**FACTOR ANALYSIS:**

From the above table it can be inferred that the probability value .000 is less than 0.05 alpha value, therefore we accept H0 and reject H1. Hence we conclude that there is a significant association between 4 variable they are Inventory management,Physical control for prevent losses,Training and development of workers and Efficient transportation to know the best way to save cost .

**SUGGESTION:**

●Benchmark your warehouse performance against industry standards and best practices to identify areas for improvement. This can help identify opportunities to improve efficiency and reduce costs.

●**Employee Feedback**:Survey warehouse employees to gather feedback on their experiences and identify areas for improvement. This can help identify training needs and improve overall employee satisfaction, which can have a positive impact on warehouse performance.

●Regularly conduct safety inspections to identify hazards and potential risks in the warehouse. This can help identify areas for improvement and ensure that safety protocols are being followed.

●Implement training programs for all employees on warehouse safety procedures and protocols. This can help prevent accidents and injuries by ensuring that all employees are aware of and understand safety protocols.

## CONCLUSION:

Warehousing and material handling are critical components of the logistics and supply chain management process. Effective management of these functions can significantly impact the success of a company's operations. This study has explored various topics related to warehousing and material handling, such as warehouse layout optimization, automated material handling systems, inventory management, warehouse safety, lean warehousing, cross-docking, and sustainable warehousing. By conducting research in these areas and implementing the best practices, companies can optimize their warehouse operations, reduce costs, improve efficiency, and gain a competitive advantage in the marketplace.

## REFERENCE:

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