A STUDY ON MANAGING MATERIAL HANDLING, STORAGE AND PACKAGING IN FREIGHT FORWARDING AT FLYJAC LOGISTICS PVT LTD

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ABSTRACT

This study looks into the difficulties and practices that the freight forwarding industry is currently facing in these areas. A combination of quantitative data collection through surveys and qualitative insights gained from interviews with industry experts were combined in a mixed-method research approach. Thematic analysis and statistical methods were used for data interpretation and analysis. The results indicate that there exist noteworthy prospects for enhancing material handling procedures, optimizing storage, and refining packaging tactics. Among the recommendations are the use of cutting-edge technologies for inventory control, the application of lean concepts to optimize processes, and the creation of environmentally friendly packaging options. Freight forwarding businesses can increase customer satisfaction, cut expenses, and increase efficiency by putting these recommendations into practice.

KEY WORDS: Inventory management software, Conveyor systems, Inventory control, Space utilization and Packaging materials.

INTRODUCTION

The principles of managing material handling, storage, and packaging in freight forwarding are rooted in efficiency, reliability, and customer satisfaction. We prioritize the careful handling of goods throughout their journey, ensuring that they are properly packaged to withstand transportation stresses and minimize the risk of damage. Our dedicated team employs advanced material handling techniques and state-of-the-art equipment to streamline operations and maximize productivity. In addition, we maintain strategically located warehouses equipped with modern storage facilities, allowing us to offer flexible storage solutions tailored to our clients' needs. By adhering to stringent quality standards and leveraging our expertise in logistics, we ensure timely delivery and optimal inventory management, thereby enhancing the overall supply chain efficiency and delivering exceptional value to our customers.

OBJECTIVE OF STUDY

PRIMARY OBJECTIVE

- To Study the Managing Material Handling, Storage and Packaging in FreightForwarding at Flyjac Logistics Pvt Ltd.

SECONDARY OBJECTIVE

- To Evaluate the level of satisfaction and pinpoint areas where material handlingprocedures need to be improved.
- To Determine and provide a quality rating to Flyjac Logistics Pvt Ltd presentmaterial handling procedures.
- To evaluate the efficiency of storage methods utilized within the freight forwardingoperations.
- To explore opportunities for implementing sustainable practices in materialhandling, storage, and packaging.

SCOPE OF STUDY

- Implementing efficient material handling, storage, and packaging procedures to increase productivity and cut down on lead times.
- Generating a layout for an efficient warehouse that will maximize space use, ease the flow of goods, and reduce traffic and wait times.
- Establishing uniform packaging practices to reduce waste, guarantee product security, and maximize space use in transit.
- Inserting strong inventory control procedures into place to keep the right amount of inventory on hand, lower carrying costs, and avoid situations where there is anoverstock or stockout.
- Performing closely with clients to comprehend their unique needs and provide material handling, storage, and packaging solutions that successfully address those needs.

NEED OF STUDY

- To guarantee efficient operations and reduce delays in getting goods to their destinations, Flyjac Logistics must manage material handling, storage, and packaging effectively.
- In order to comply with industry regulations and guarantee the safety and security of transported goods, it is imperative that proper handling and packaging standardsbe followed.
- By maximizing resource utilization and minimizing waste, efficient handling, storage, and packaging techniques contribute to a reduction in overall logistics costs.
- When goods are handled and packaged properly, they are delivered to customers in the best possible condition, which increases customer satisfaction and loyalty.
- By maximizing the use of warehouse space, efficient storage techniques allow Flyjac Logistics to handle higher volumes of goods and enhance inventory control.

LIMITATIONS OF STUDY

- Insufficient warehouse space may prevent the effective storage and management of materials, resulting in traffic jams and challenges when attempting to retrieve items.
- Productivity and service quality may be negatively impacted by outdated technology or inadequate equipment that restricts efficient material handlingprocedures.
- Accurately monitoring inventory levels and maintaining appropriate stock rotation can be challenging. This can lead to shortages or excess inventory, which can negatively affect profitability and customer satisfaction. .
- The effectiveness of material handling and packaging operations may be impacted by a lack of skilled labor or high employee turnover rates, which could result in delays and higher expenses.
- It might take more resources and knowledge to satisfy the various demands of customers for specialized handling, particular storage conditions, or specific packaging solutions.

REVIEW OF LITERATURE

- **Mary J. Meixell, Mario Norbis (15 August 2008) A review of the transportation mode choice and carrier selection literature.**

  They Explores topics related to logistics and supply chain management. However, without the specific title or additional information about the article, I can't provide a detailed summary. If you have access to the article or can provide more context, I'd be happy to help summarize its key points or discuss its relevance to managing material handling, packaging, and storage in freight forwarding at Flyjac Logistics.

- **Material handling improvement in warehouses by parts clustering. Mohammad Moshref-Javadi (28th September 2014).**

Focusing on the concept of parts clustering, the study investigates methods to optimize the layout and organization of warehouse inventory for streamlined retrieval and transportation processes. By grouping related parts together based on factors such as frequency of use, size, and compatibility, this approach aims to reduce travel time and labor requirements, ultimately improving overall productivity and operational effectiveness. Moshref-Javadi's research sheds light on practical solutions for warehouse management, offering valuable insights for industry professionals seeking to optimize material handling workflows and enhance warehouse performance.

- **Impacts of Containerised Cargo Handling System in Logistics Performances. Mr Habibu Kazimzuri (23rd April 2021).**

Using case studies and data analysis, he looks into how they affect effectiveness, dependability, and affordability. Kazimzuri demonstrates how these technologies increase supply chain visibility, expedite procedures, and shorten transit times. In order to optimize the advantages of containerized cargo handling systems, he highlights the necessity of modifying logistics strategies. All things considered, his study provides insightful information to business leaders and legislators who wantto improve logistics performance using these technologies.

- **Performance Framework in Third Party Logistics. Smriti Asthana, RahulSingh (3rd March 2021).**

A comprehensive framework for evaluating performance within the third-party logistics (3PL) sector. Their research focuses on identifying key performance indicators (KPIs) relevant to 3PL operations and developing a structured approach for assessing performance across various dimensions. By analyzing factors such as service quality, cost efficiency, timeliness, and customer satisfaction, Asthana and Singh aim to provide logistics professionals with actionable insights to optimize their operations and enhance overall performance. Their framework offers a valuable tool for 3PL companies to monitor, evaluate, and improve theiperformance in today's competitive market landscape.

RESEARCH METHODOLOGY

RESEARCH DESIGN

The research has chosen the questionnaire methods of data collection. Due to limited time in hand. While designing the hand collection procedure, adequate safeguard against bias and reliability must be ensured. Researcher has examined the collections of data for completeness, comprehensibility, consistently and reliability. Research is also gathered secondary data which has been collected and analyzed by someone else.

SOURCES OF DATA

The research uses both Primary data and secondary data

PRIMARY DATA

The Questionnaire method have been used as a tool for a data collection in this research

SECONDARY DATA

Secondary data is obtained from existing sources such as standard books, internal documents, magazines, newspapers, and external sources like company annual reportsor websites.

SAMPLE SIZE

- Sample size 110 responses

TOOLS USED FOR ANALYSIS

- Percentage analysis
- Chi square
- One-way ANOVA
- T-Test

DATA ANALYSIS

Table 4.1 Age of the respondents.

S.NO	AGE GROUP BELONGS TO	RESPONDENTS	PERCENTAGE ANALYSIS
1	AGE 18 TO 25	39	33.30%
2	AGE 25 TO 35	34	29.10%
3	AGE 35 TO 45	23	19.70%
4	ABOVE 45 AGES	21	17.90%
	TOTAL	117	100.00%

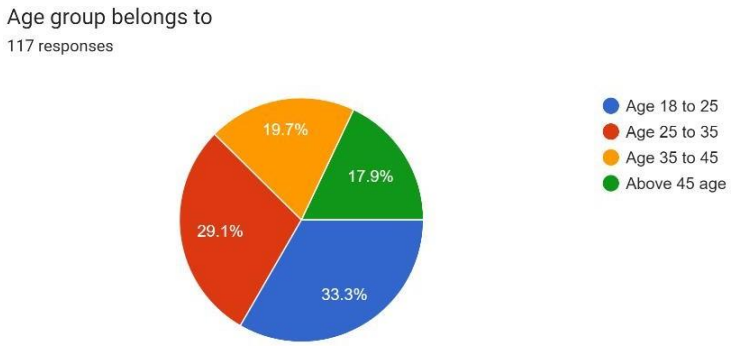

Table 4.1 Age of the respondents

INTERPRETATION

From the above table it is interpreted that the number of respondents Age 18to 25 of respondents are 33.3%, between Age 25 to 35 of respondents are 29.1%,
between Age 35 to 45 of respondents 19.7%, Above 45 Age of respondents are 17.9%.

INFERENCE

Majority 33.3% of the respondents belong to the age group of 18 to 25 category.

Table 4.3 Gender of the respondents.

S.NO	GENDER	RESPONDENTS	PERCENTAGE ANALYSIS
1	MALE	88	75.20%
2	FEMALE	29	24.80%
	TOTAL	117	100.00%

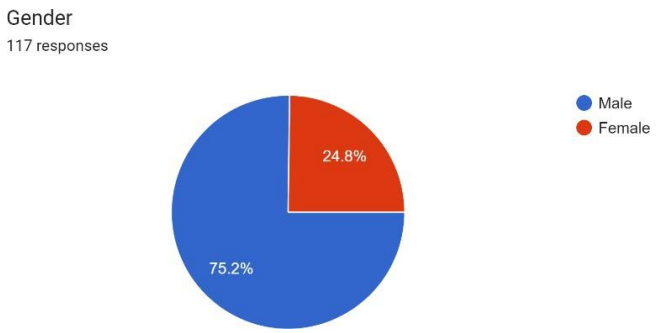

Table 4.3 Gender of the respondents.

INTERPRETATION

The majority of respondents, comprising 75.20%, are male, while 24.80% arefemale.

INFERENCE

Majority of respondents were 75.2% were Male.

Table 4.8 Meet any Difficulties While Handling these Materials.

S.NO	Meet any difficulties while handling these Materials	Respondents	Percentage
1	Insufficient equipment	14	12%
2	Lack of Training	34	29.10%
3	Inadequate storage space	34	29.10%
4	Poorly Organised warehouse	18	15.40%
5	Safety concerns	17	14.50%
	TOTAL	117	100%

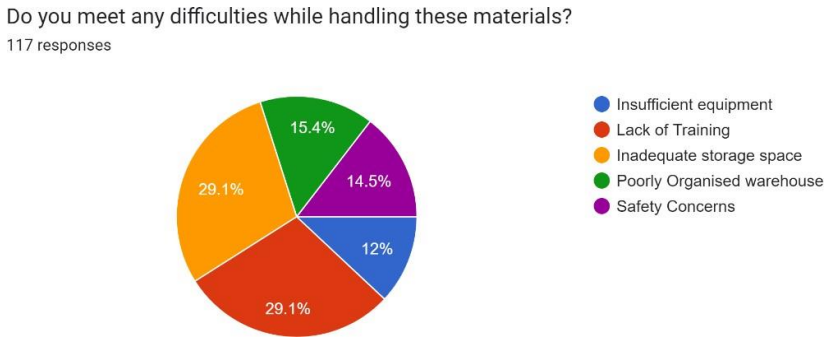

Table 4.8 Meet any Difficulties While Handling these Materials.

INTERPRETATION

Majority of respondents have "Insufficient equipment" received 14 responses, accounting for 12%. "Lack of Training" and "Inadequate storage space" both received 34 responses, each representing 29.10%. "Poorly Organized warehouse" garnered 18 responses, making up 15.40%. "Safety concerns" obtained 17 responses, comprising 14.50%.

INFERENCE

Majority of respondents have represent the 29.1% of total. In words, the majority would be Lack of training and Inadequate storage space.

Table 4.13 Procedure for Handling and Storing Hazardous Materials.

S.NO	Procedure for Handling and storing Hazardous materials, if applicable.	Respondents	Percentage
1	Yes	71	61%
2	No	14	12.00%
3	Occasionally, there is a procedure for handling and storing hazardous materials, if applicable	32	27.40%
	TOTAL	117	100.00%

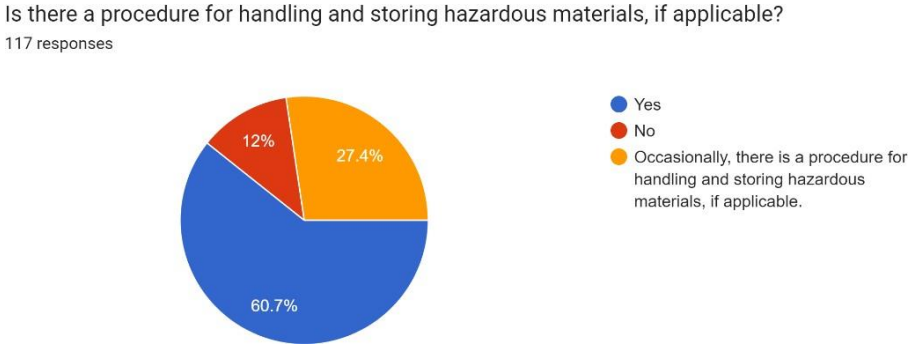

Table 4.13 Procedure for Handling and Storing Hazardous Materials.

INTERPRETATION

Majority of responses have "Yes"71 responses (61%), "No"14 responses (12.00%), "Occasionally, there is a procedure for handling and storing hazardous materials, if applicable": 32 responses (27.40%).

INFERENCE

Majority of responses are comprising 61% of the total responses, “Yes” indicates the existence of a procedure for handling and storing hazardous materials.

Table 4.16 Process for Inspecting Packaged Goods to Ensure they Meet QualityStandards Before Shipping.

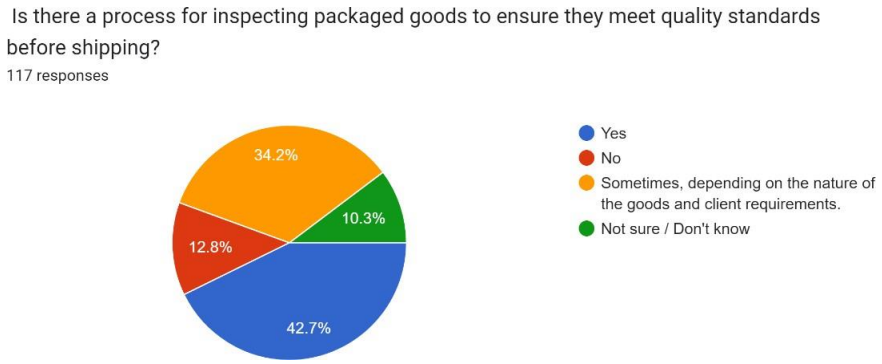

Table 4.16 Process for Inspecting Packaged Goods to Ensure they Meet Quality Standards BeforeShipping.

INTERPRETATION

Majority of responses are "Yes" 50 responses (43%), "No"15 responses (12.80%), "Sometimes, depending on the nature of the goods and client requirements" 40 responses (34.20%), "Not sure / Don't know"12 responses (10.30%).

INFERENCE

Majority, of respondents (43%) are answered “Yes, indicated that goods are sometimes stored in temperature-controlled facilities, depending on the nature of the goods and client requirements.

TEST ANALYSIS

CHI-SQUARE TESTHYPOTHESIS 1

Null Hypothesis (H0): There is no significant difference in the reported difficulties facedwhile handling materials across genders.

Alternative Hypothesis (H1): There is a significant difference in the reported difficultiesfaced while handling materials across genders.

Do you meet any difficulties while handling thesematerials?

*** Gender Crosstabulation**

		Gender		Total
		Female	Male	
Do you meet any difficulties while handling thesematerials?	Insufficient equipment	4	10	14
	Lack of Training	9	25	34
	Inadequate storag espace	8	26	34
	Poorly Organis edwarehouse	6	12	18
	Safety Concerns	2	15	17
Total		29	88	117

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.440[a]	4	.655
Likelihood Ratio	2.654	4	.617
Linear-by-Linear Association	.621	1	.431
N of Valid Cases	117		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 3.47.

INTERPRETATION

From the above table the p value is 0.655. There is no significant association between difficulties faced while handling materials across genders. Hence the nullhypothesis is accepted and reject the alternative hypothesis.

INFERENCE

It indicates no significant association between handling material difficulties and gender, leading to the rejection of the null hypothesis in favor of the alternative.

ONE-WAY ANOVAHYPOTHESIS 2

Hypothesis (H0): There is no significant difference in the frequency of having aprocedure for handling and storing hazardous materials across age groups.

Alternative Hypothesis (H1): There is a significant difference in the frequency of havinga procedure for handling and storing hazardous materials across age groups.

ANOVA

Is there a procedure for handling and storing hazardous materials, if applicable?

Sum of Squares		Df	Mean Square	F	Sig.
Between Groups	1.000	3	.333	.423	.737
Within Groups	89.000	113	.788		
Total	90.000	116			

INTERPRETATION

From the above table we can see that P value is .737 which Is greater than 0.05 we can interpret that there is no significant mean difference between the frequency of having a procedure for handling and storing hazardous materials across age groups. Hence the null hypothesis is accepted and reject the alternative hypothesis.

INFERENCE

` It suggests no significant mean difference in the frequency of having a procedure for handling hazardous materials across age groups, leading to the acceptance of the nullhypothesis and rejection of the alternative.

T-TEST

HYPOTHESIS 3

Null Hypothesis (H0): There is no significant difference in the reported presence of a process for inspecting packaged goods to ensure they meet quality standards before shipping between genders.

Alternative Hypothesis (H1): There is a significant difference in the reported presence of a process for inspecting packaged goods to ensure they meet quality standards beforeshipping between genders.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Is there a process for inspecting packaged goods to ensure they meet quality standards before shipping?	Equal variances assumed	2.329	.130	-.486	115	.628	-.113	.233	-.575	.348
	Equal variances not assumed			-.497	49.710	.621	-.113	.228	-.571	.344

INTERPRETATION

From the above table P value is 0.130. This indicates significant difference between the reported presence of a process for inspecting packaged goods to ensure they meet quality standards before shipping between genders.

Hence the null hypothesis is accepted and alternative hypothesis is rejected.

INFERENCE

It indicates an important variance in the reported presence of a process for examining packaged goods between genders, accepting the null hypothesis and rejectingthe alternative.

FINDINGS

- Majority 33.3% of the respondents belong to the age group of 18 to 25 category.
- Majority of respondents were 75.2% were Male
- Majority of respondents have Represent the 29.1% of total. In words, the majority would be Lack of training and Inadequate storage space
- Majority of responses are comprising 61% of the total responses, “Yes” indicates the existence of a procedure for handling and storing hazardous materials.
- Majority, of respondents (43%) are answered “Yes, indicated that goods are sometimes stored in temperature-controlled facilities, depending on the nature of the goods and client requirements.
- It indicates no significant association between handling material difficulties and gender, leading to the rejection of the null hypothesis in favor of the alternative.
- It suggests no significant mean difference in the frequency of having a procedure for handling hazardous materials across age groups, leading to the acceptance ofthe null hypothesis and rejection of the alternative.
- It indicates an important variance in the reported presence of a process for examining packaged goods between genders, accepting the null hypothesis and rejecting the alternative.

SUGGESTIONS

- Investigate deeply Flyjac Logistics Pvt Ltd's current material handling, storage, andpackaging procedures.
- Analyze the effectiveness, safety, and efficiency of the currently used techniques.
- Determine the main obstacles and snags in the processes of material handling,storing, and packaging.
- Identify the causes of operational delays, damages, and inefficiencies.
- Create optimization plans to cut down on handling periods, optimize materialhandling workflows, and save operating expenses.
- Determine the employees' training requirements for handling, storing, and packingmaterials.
- Develop training programs that will improve abilities, encourage a safety-conscious mindset, and guarantee adherence to industry norms and laws.
- Provide risk management procedures to reduce possible risks related to materialhandling and storage operations.
- Include precautions in place to protect workers, property, and supplies fromincidents, theft, and damage.
- Evaluate the impact of material handling and packaging on overall customersatisfaction levels.

CONCLUSION

The research conducted by Flyjac Logistics Pvt Ltd on material handling, storage, and packaging management in freight forwarding operations provided significant insights into the optimization of logistics procedures. Opportunities for improvement have been identified through a thorough evaluation of current practices and the identification of obstacles. Through the incorporation of modern technologies, the application of optimization methods, and putting the importance of supplier cooperation and employee training, Flyjac Logistics can optimize operations, cut expenses, and guarantee adherence to industry norms and laws.

Additionally, by prioritizing customer satisfaction over environmental sustainability, the business can stand out from the competition and help create a more environmentally friendly supply chain. Maintaining these gains over time will require proactive risk management and ongoing performance metrics monitoring. In the end, this research establishes the necessary foundation for Flyjac Logistics to maintain its level of competitiveness and provide outstanding value to its clients within the dynamicand developing freight forwarding sector.

REFERENCES

- A review of the transportation mode choice and carrier selection literature. Mary J. Meixell, Mario Norbis (15 August 2008).
- Hazardous waste, impact on health and environment for development of better waste management strategies in future in India. Virendra Misra (Received 26 March 2004, Accepted 20 August 2004, Available online 2 October 2004).
- Reverse logistics and closed-loop supply chain: A comprehensive review to explore the future. Kannan Govindan (Received 25 June 2013, Accepted 2 July 2014, Available online 15 July 201).
- Automation of Packaging an material handling using progammable logic controller- Baroro Joanna Marie M Alipio Melcheize Dek I (11th April 2017).
- Design and Development of Object Recognition and Sorting Robot for Material Handling in Packaging and Logistic Industries. Vindhya Devalla, Amit Kumar Mondal (9th September 2012).
- Material handling improvement in warehouses by parts clustering. Mohammad Moshref-Javadi (28th September 2014).
- A hybrid approach for selecting material handling equipment in a warehouse. Thomy Eko Saputro (30th June 2015).
- Optimization of material handling in production and warehousing facilities.George Ioannou & Manolis N. Kritikos (8th September 2004)