



A STUDY ON LOGISTICS MANAGEMENT PRACTICES IN FREYER INTERNATIONAL LOGISTICS PVT LTD, BANGALORE

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Abstract

Efficient material handling management is critical for optimizing logistics operations and ensuring smooth supply chain processes. This study examines the material handling practices at Freyer International Logistics Pvt Ltd, focusing on equipment usage, storage strategies, and challenges faced by employees. Using a descriptive research design, data was gathered from 126 employees through structured questionnaires. Statistical tools, including chi-square tests and correlation analysis, were employed to derive insights. Findings indicate that while automation and material handling systems are widely adopted, areas such as storage efficiency, safety compliance, and operational workflow require improvement. The study concludes with actionable recommendations for optimizing material handling and improving logistics efficiency.

Keywords: *Material Handling, Logistics Operations, Automation, Equipment Efficiency, Freyer Logistics.*

Introduction

Material handling involves the movement, storage, and control of materials within a logistics environment. Its efficient management minimizes waste, reduces costs, and enhances productivity. At Fryer International, material handling plays a critical role in optimizing warehouse operations. This study identifies key challenges, evaluates employee satisfaction, and proposes improvements based on empirical data.

Benefits of Material Handling

Improved Operational Efficiency

Streamlining transportation, storage, and distribution enhances workflow, reduces delays, and optimizes resource allocation.

Cost Reduction: Efficient logistics minimize unnecessary expenses, such as fuel costs, warehouse storage fees, and operational overheads.

Enhanced Customer Satisfaction: Faster deliveries, accurate tracking, and reduced errors improve reliability, boosting customer trust and loyalty.

Better Inventory Control: Real-time tracking and optimized storage systems reduce stock shortages and overstock situations, ensuring smooth operations.

Increased Supply Chain Visibility: Advanced tracking systems enable better monitoring of shipments, improving coordination and decision-making. Efficient systems reduce delays.

Risk Mitigation: Proactive planning and automation reduce disruptions caused by external factors like supply chain bottlenecks or transportation delays.

Sustainability & Environmental Benefits: Efficient logistics reduce fuel consumption, optimize packaging, and promote eco- friendly practices to lower carbon foot prints.



Competitive Advantage: Strong logistics systems help businesses stand out by delivering reliable, cost-effective and faster services compared to competitors

Objectives of the Study

1. Identify inefficiencies, equipment constraints, and safety concerns affecting logistics operations.
2. Assess workforce experiences with existing equipment and identify areas needing improvement.
3. Examine automation, storage layouts, equipment reliability, and process optimization.
4. Investigate how technology-driven solutions enhance productivity, reduce errors, and improve workplace safety.

Scope of the Study: The scope of this study focuses on material handling management within logistics operations at fryer international. It examines equipment usage, automation, storage practices, and employee perceptions, aiming to identify inefficiencies and recommend improvements. The research is limited to analyzing handling challenges within the company's logistics framework, providing insights into optimizing operational efficiency, safety, and cost-effectiveness. While the study primarily addresses internal logistics processes, its findings may have broader implications for similar industries seeking to enhance material handling strategies.

Review of Literature

Researchers have explored various strategies to optimize handling processes, emphasizing automation, ergonomic designs, and structured storage solutions. Frojd (2021) discussed how supplier integration improves logistics efficiency, highlighting the benefits of automated systems in reducing delays and minimizing human errors. Similarly, Alghalayini (2020) examined case studies in the food industry, identifying the impact of efficient storage layouts on inventory management and product quality.

Gustafsson (2020) explored reverse logistics, pointing out that material handling strategies must align with organizational size and market demands to maximize profitability. Studies such as Balasubramaniam (2020) and Sharma & Mishra (2010) emphasized the importance of minimizing movement inefficiencies through optimized warehouse designs and structured handling protocols. Singh and Sharma (2016) highlighted the role of automation combined with ergonomic principles in reducing worker fatigue while improving throughput, showing that companies with integrated material handling systems experience fewer injuries and higher workforce productivity.

Overall, existing research underscores the significance of automation, systematic planning, and workforce training in optimizing material handling processes

Research Methodology

Hypothesis

H₀₁: There is no significant relationship between employee experience and satisfaction with current material handling equipment.

H₁₁: Employee experience significantly influences satisfaction with material handling equipment.

H₀₂: Automation does not have a measurable impact on operational efficiency in logistics management.

H₁₂: Automation positively contributes to increased operational efficiency in logistics management.



H₀₃: Storage system preferences are independent of job designation within the organization.

H₁₃: Job designation influences the preference for specific storage systems in logistics operations.

H₀₄: Employee safety perception is not significantly affected by the type of material handling equipment used.

H₁₄: The type of material handling equipment has a significant impact on employee safety perception.

Research Design

The study adopts a descriptive research design, aiming to systematically analyze material handling challenges, equipment usage, and employee perceptions within logistics operations. This approach allows for the collection of quantifiable data through structured questionnaires, ensuring a comprehensive evaluation of efficiency, automation, and safety factors. By utilizing statistical tools such as correlation analysis, ANOVA, and percentage-based assessments, the research identifies trends, relationships, and key areas for improvement in material handling processes.

Sample Size

The study was conducted with a sample size of 126 employees selected from various departments within the organization. This sample provides a diverse and representative perspective on material handling challenges, equipment preferences, and automation trends. By ensuring adequate participation across different job roles, the study captures meaningful insights that contribute to improving logistics efficiency and workplace safety.

Sampling Technique

The study utilizes a convenience sampling technique, where employees who were readily available and willing to participate were selected. This non-probability method was chosen due to time constraints and accessibility, allowing efficient data collection while capturing diverse perspectives within the organization. Although convenience sampling does not guarantee complete representation of the workforce, it provides valuable insights into material handling practices and employee experiences.

Data Collection Method

Both primary and secondary data were collected for this study:

Primary Data: Gathered through a structured questionnaire that included both open-ended and closed-ended questions focusing on equipment usage, storage methods, automation, safety measures, and employee satisfaction with material handling systems.

Secondary Data: Collected from company reports, internal manuals, previous research articles, and online databases relevant to logistics, warehouse management, and material handling practices.

Analytical Tools Used

The data collected was analyzed using various statistical tools to derive meaningful insights:

Percentage Analysis: Used to summarize employee responses and identify overall trends in material handling preferences.

Chi-Square Test: Applied to assess relationships between categorical variables, such as job designation and preferred storage systems.

Correlation Analysis: Determines the strength and direction of relationships between factors like automation adoption and operational efficiency.



ANOVA (Analysis of Variance): Evaluates differences in perceptions across demographic groups, such as employee experience levels.

Independent T-Test: Measures significant differences in material handling satisfaction among distinct workforce segments.

Results and Discussion

Table1: Age Distribution of Respondents

Age Group	No. of Respondents	Percentage
21–30	56	44%
31–40	51	40%
41–50	16	13%
51–60	3	3%

Result: The majority of respondents (44%) fall within the 21–30 age group, indicating a relatively young work force in the logistics operation.

Table 2: Preferred Material Handling System

Handling System	No. of Respondents	Percentage
Manual	28	22%
Automated	98	78%

Result: A large portion (78%) of respondents prefers automated material handling systems, indicating a growing trend toward automation.

Table3: Equipment Frequently Used

Equipment	No. of Respondents	Percentage (%)
Forklift	6	5
Power Trolleys	79	63
Hand Trolleys	19	15
Pallet Stackers	22	17

Result: Power trolleys are the most commonly used equipment, reported by 63% of employees, highlighting their central role in internal logistics.

Table4: Time Taken to Load/Unload Materials

Time Duration	No. of Respondents	Percentage (%)
<15min	1	1
15–30 min	88	70
30–45 min	29	23
>45min	8	6

Result: Pallet racking is the dominant storage system, used by 59% of the respondents, indicating structured and organized warehousing practices.



Findings of the Study

The study revealed that most of the employees participating in the survey were young, with a significant portion aged between 21 and 30 years. The workforce was predominantly male, and a majority held undergraduate qualifications. This indicates that the organization is supported by a youthful and moderately educated work force, which can be an asset when introducing new systems and processes in the material handling domain.

A considerable number of employees expressed a preference for automated systems over manual ones. This preference suggests a growing acceptance and reliance on technology to enhance operational efficiency. Among the equipment used, power trolleys were the most common, showing that mechanized tools play an important role in the company's day-to-day logistics activities.

In terms of operational speed, the data showed that most employees required 15 to 30 minutes for loading and unloading tasks. This indicates that while the processes are relatively efficient, there may still be room for improvement in optimizing time. The use of pallet racking systems was also prominent, pointing to structured and organized material storage practices within the warehouse.

Employees generally felt satisfied with the equipment provided by the company. Many considered power trolleys not only effective but also safe for handling materials. This shows that safety measures are being taken seriously, which is important for minimizing risks and ensuring smooth material movement throughout the facility.

Despite the overall satisfaction, some employees felt there was a need for additional equipment to further support their tasks. A few also mentioned occasional issues related to transportation and equipment availability. These responses highlight the need for continual assessment and upgrading of material handling systems to ensure efficiency is maintained and employee concerns are addressed proactively.

Suggestions

The organization should consider enhancing the existing storage methods to ensure better organization and space utilization. Implementing more structured and efficient storage systems can help reduce the time spent locating materials and improve overall workflow within the facility.

Upgrading current material handling equipment is another important step. Many employees have suggested the introduction of modern tools like bay cranes and scissor lifts. These additions would not only increase handling capacity but also improve safety and reduce manual effort.

Training programs for equipment operators, especially forklift drivers, should be strengthened. Well-trained personnel can handle machinery more effectively and safely, which contributes to higher productivity and reduces the chances of accidents or damage to materials.

It is also advisable to adopt a team-based approach when planning and designing material handling systems. Involving employees from different departments in the planning phase can lead to more practical and efficient solutions that address real-time challenges.

Lastly, the company should explore the use of automation wherever feasible. Automating repetitive or labor-intensive tasks can boost consistency, reduce errors, and allow employees to focus on more strategic activities, leading to improved operational efficiency and cost savings.



Limitations of the Study

The study was conducted within a single organization—Freyer International Logistics Pvt Ltd—which limits the generalizability of the findings. Since the data reflects only one company's operations; the results may not be applicable to other firms in the logistics sector with different processes or resources.

1. Another limitation is the use of convenience sampling for data collection. This non-random method may have introduced bias, as only readily available or willing participants were included. As a result, the views of certain employee groups may be underrepresented in the analysis.
2. The research relied primarily on self-reported data collected through questionnaires. Such data can be influenced by personal opinions, perceptions, and response bias. Some respondents may have provided socially desirable answers rather than reflecting their actual experiences.
3. The scope of the study was confined to material handling practices and challenges, without deeply exploring external factors such as market trends, economic conditions, or regulatory changes that might also impact material handling efficiency.
4. Time constraints were also a limitation, as the study was conducted over a short period. This restricted the depth of investigation and prevented long-term observation of the company's material handling processes and any seasonal or operational fluctuations.
5. Lastly, the study focused mainly on quantitative data and lacked qualitative insights from open-ended discussions or interviews. Including such methods could have provided a richer understanding of the practical issues faced by employees and allowed for more detailed suggestions.

Conclusion

The study on material handling management at Freyer International Logistics Pvt Ltd highlighted the critical role that efficient handling systems play in the logistics industry. It explored various aspects such as the types of equipment used, employee preferences, storage systems, and operational challenges. The findings revealed a strong preference for automation, with employees recognizing the advantages of modern equipment in improving safety, speed, and overall efficiency.

Through data analysis, it became evident that while the company has implemented several effective practices, there are still areas that require improvement. Key issues identified include the need for additional equipment, better training for operators, and enhancements in storage and transport systems. These insights suggest that although the organization is on the right track, continuous updates and investments are necessary to meet growing demands and maintain competitive standards. In conclusion, material handling is a vital component of logistics that significantly impacts productivity, employee satisfaction, and customer service. The study emphasizes the importance of regular system evaluation, employee involvement in planning, and the integration of automation and safety practices. By addressing the identified challenges and implementing the suggested improvements, Freyer International can strengthen its operational capabilities and create a safer, more efficient working environment.

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