



A Study on Implementation of Warehouse Management System for Efficient Logistics Operations to the Aachi Masala Foods Pvt Ltd.

Hemalatha. G. R¹, Dr. M. Deepa²

¹MBA Student, Sathyabama Institute of Science and Technology, Chennai

²Assistant Professor, Sathyabama Institute of Science and Technology, Chennai

ABSTRACT

The implementation of a Warehouse Management System (WMS) is crucial for enhancing the efficiency and effectiveness of logistics operations in modern supply chains. This study explores the impact of WMS implementation on streamlining warehouse processes, optimizing inventory management, and improving overall logistics performance. Through a comprehensive review of the literature, various benefits and challenges associated with WMS adoption are identified. The findings underscore the significance of WMS in enhancing operational visibility, accuracy, and responsiveness in warehouse operations. Additionally, factors influencing successful implementation, such as organizational readiness, technology infrastructure, and change management strategies, are discussed. This study provides valuable insights for businesses seeking to leverage WMS to achieve competitive advantage and operational excellence in logistics operations.

KEYWORDS: WMS, Logistics Management, Performance

INTRODUCTION :

Modern warehouses are increasingly adopting advanced technologies such as warehouse management systems (WMS) to optimize operations and enhance efficiency. These systems automate processes such as inventory tracking, order fulfillment, and resource allocation, leading to improved accuracy, productivity, and customer satisfaction.

Logistics management is the part of supply chain management that plans, implements, and controls the efficient, effective forward, and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customer's requirements.

Logistics management plays a significant role in the success of any company's operations and has a direct impact on its bottom line. More importantly, logistics processes play a big part in customer satisfaction, which is more important than low product costs. Efficient logistics operations at Aachi Masala are strategically crafted to enhance productivity and minimize costs. By meticulously optimizing transportation routes, implementing cutting-edge Warehouse Management Systems (WMS), and embracing automation scanning technologies, we effectively reduce carrying costs and streamline processes. Real-time tracking technology enables us to monitor shipments and react promptly to any deviations, ensuring smooth operations. Furthermore, nurturing strong partnerships with suppliers and distributors is pivotal, guaranteeing timely deliveries and maintaining customer satisfaction at the forefront of our operations.

OBJECTIVES OF THE STUDY :

- To examine the current logistics operations at Aachi Masala Foods Pvt. Ltd.
- To study the current warehouse management system in facilitating efficient logistics operations.
- To analyze the WMS (ERP System) contributes to planning and executing logistics operations.
- To analyze the impact of automation on human errors in scanning.
- To implement the WMS to improve customer satisfaction and enhance logistics.

REVIEW OF LITERATURE :

Nowadays, many leading manufacturing industries have started to practice various

concepts to boost their productivity as well as the quality of their products. The industries have understood that to survive in this competitive world, they have to satisfy their customers.

❖ According to Leuschner et al., (2013), understanding warehouse operations and management is the key to increasing the efficiency of operations and enhancing customer service. Warehouse operations and management are gradually shifting from the traditional role of merely storing products for later distribution to centers of added value in logistics and supply chain management.

❖ The two basic roles of a warehouse are the temporary storage and protection of products, and the provision of value-added services such as order fulfillment, packing of products, after-sales services, repairs, testing, inspection, and assembly (Heragu et al., 2010).

❖ To make this possible, a warehouse must perform certain actions in order to reach the desired service levels and operating costs. Principal warehouse operations include of receiving, transferring and put away, storage, order picking/selection, accumulation/sortation/packing, cross-docking, and shipping ((R.de Koster et al., 2007) & (Tarczynski, 2013)).

❖ Receiving is the initial step of the material flow at the warehouse. Receiving entails unloading products from the transport vehicle, updating the inventory record, and inspecting for any quantity or quality 37 discrepancies (R. de Koster et al., 2007). This operation must be completed as soon as possible to avoid wasting space, update the system with new inventory, and be prepared for shipment (Ho et al., 2019).

❖ After this, the steps of transfer and put away involve the transfer of movements to storage locations, represented for certain activities such as repackaging, from full pallets to cases or standardized bins, and physical movements, from the receiving docks to various functional areas, between these areas, and from these areas to the shipping docks ((R. de Koster et al., 2020).

❖ When the products that were inspected and scanned to update the inventory record are placed on shelves or pallets in the storage site, storage occurs (Ariyanti et al., 2021). The speed of storage is determined by the size of the warehouse, its handling capability, and the size of incoming shipments (Ho et al., 2019), the selected storage assignment technique must guide a set of rules that can be utilized to assign products to storage locations based on how the pick activity will occur in this storage system (R. de Koster et al., 2007).

❖ According to R. de Koster et al., (2017), improving order-picking procedures effects all warehouse activity and, consequently, the performance of the supply chain. Therefore, it is essential to enhance the process in order to eliminate errors and shorten the period between when an order is released from the warehouse and when it reaches its destination.

❖ After choosing, the warehousing operation could transition to packaging and value-adding according to the shipping procedure's standards (Ariyanti et al., 2021).

❖ Some businesses use a warehouse management system (WMS) to monitor, track, store, and manage the merchandise in the warehouse to manage and organize the various procedures that occur within a warehouse (Faber et al., 2013).

❖ With all the acquired requirements and data, it is required to change them to represent the future of the warehouse, which implies that actual data must be raised by an increasing proportion to be in accordance with the forecasting plane (Richards, 2018).

❖ Indicators are one of the most important decision-support tools used by senior management because they provide a picture of a situation and quantifiable information about the present state of a process or set of activities. Moreover, they are crucial for the development of innovative ideas to enhance company performance (Parmenter, 2015).

RESEARCH METHODOLOGY :

The type of research design used in this paper is descriptive research because it

helps to describe a particular situation prevailing within a company. A purposive sampling technique is used and the sampling unit is One hundred and twenty samples (120) are selected. the primary data only are collected. A questionnaire is used to collect primary data. Percentage analysis, ANOVA, and Correlation are the statistical techniques used to analyze the data of this study

HYPOTHESIS:

Hypothesis - 1

- H0: There is no significant difference between experiences and steps to improve logistics.
- H1: There is a significant difference between experiences and steps to improve logistics.

Hypothesis - 2

- H0: There is no significant relationship between human mistakes and automation scan technology.
- H1: There is a significant relationship between human mistakes and automation scan technology.

RESULTS AND DISCUSSION

PERCENTAGE ANALYSIS

S. No	Particulars	No. of Respondents	Percentage
1.	Gender of the respondents		
	Male	81	63%
	Female	39	37%
	Total	120	100%
2.	Experience		
	2-5 years	31	25%
	6-9 years	8	7%
	Above 10 years	4	3%
	Upto 1 year	77	64%
	Total	120	100%
	Type of WMS		
	ERP System	82	70.4%
	Standalone WMS	5	3.7%
	Supply chain WMS	33	25.9%
	None of the above	0	0%
	Total	120	100%
4.	Implement the automation scan		
	Yes	100	81.5%
	No	20	18.5%
	Total	120	100%

ANOVA

The Table shows the significant difference between experiences and steps to improve logistics.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Steps to improve logistics	Between Groups	14.855	3	4.952	11.501	.000
	Within Groups	49.945	116	.431		
	Total	64.800	119			

INTERPRETATION

P value is 0.000 which is < 0.05 , so reject the null hypothesis. There is a significant difference between experiences and steps to improve logistics.

CORRELATION

The Table shows the correlation between human mistakes and automation scan technology

Correlations			
		Human mistakes	Automation scan technology
Human mistakes	Pearson Correlation	1	.253**
	Sig. (2-tailed)		.005
	N	120	120
Automation scan technology	Pearson Correlation	.253**	1
	Sig. (2-tailed)	.005	
	N	120	120
**. Correlation is significant at the 0.01 level (2-tailed).			

INTERPRETATION

P value is $0 < 0.05$, so reject the null hypothesis. There is a significant relationship between human mistakes and automation scan technology.

FINDINGS

- Majority 63% of the respondents are male in gender.
- Majority 81.5% of the respondents belong to the age group of 21-35 category.
- Majority 64% of the respondents belong to the experiences of upto-1 year category.
- Majority 70.4% of the respondents are an ERP system.
- Majority 33.3% of the respondents had third and fourth rates to agree that all stocks are properly stored in WMS.
- Majority of 40.7% of the respondents are Highly satisfied with inventory visibility in WMS.
- Majority of 48.1% of the respondents are fifth agree with utilizing the barcode or RFID technology.
- Majority 40.7% of the respondents are satisfied with implementing the WMS for enhancing logistics.
- Majority of 81.5% of the respondents are Yes implementing the automation scan is useful for efficient logistics operation.
- Majority 30% of the respondents are in driver shortage the main challenges faced in logistics.
- The majority 48.1% of the respondents belong to the extremely challenging category for peak hours handling.
- The majority of 74.1% of the respondents are all of the above to optimize the logistics operations.
- The majority of 40.7% of the respondents are in the 4th rating for the current efficiency of logistics in Aachi.
- Majority of 63% of the respondents are Yes for the vehicle shortage issue in allocating the vehicles.
- Majority of 44.5% of the respondents are all of the above steps can a company take to enhance its logistics operations.

SUGGESTIONS:

Even the majority of the respondents are agree that useful to implement the automation scan in a modern warehouse and helps to improve logistics operations, our vehicle shortage, streamline processes avoid human mistakes, and avoid WMS issues. Based on the observation the automation system for modern warehouses is implemented in the company which is not in full fledge. If it is implemented fully then most of the practices will be systematically done.

CONCLUSION:

Efficient logistics operations at Aachi Masala are characterized by a strategic approach that focuses on optimizing transportation routes, implementing advanced Warehouse Management Systems (WMS), and deploying automation scanning to minimize carrying costs and enhance inventory accuracy. Leveraging technology for real-time tracking enables precise monitoring of shipments, fostering improved responsiveness and customer satisfaction. Additionally, maintaining robust relationships with suppliers and distributors ensures timely and reliable deliveries, further enhancing operational efficiency and supporting the company's commitment to quality and service excellence.

REFERENCE :

- Branch, A. E. (2009), *Global Supply Chain Management and International Logistics* (1st ed.). USA, New York: Route ledge.
- Amato F, Basile F, Carbone C, Chiacchio P (2005). An approach to control automated warehouse systems.
- Coyle, J. J., Novak, R. A., Gibson, B., & Bardi, J. E. (2010), *Transportation: A Supply Chain Perspective* (7th ed.). USA, Mason: South-Western Cengage Learning, 404.
- Cui, L., & Hertz, S. (2010). Network development of logistics firms, *Competitive paper*. Centre of Logistics and SCM, Jönköping International Business School, Sweden.
- Farahani, R. Z., Rezapour, S., & Kardar, L. (2011). *Logistics Operations and Management: Concepts and Models* (1st ed.). London: Elsevier.
- Azadeh K, de Koster R B M, Roy D (2019a). Robotized and automated warehouse systems: Review and recent developments. *Transportation Science*.
- Soinio, J., Tanskanen, K., & Finne, M. (2012); How logistics-service providers can develop value-added services for SMEs: A dyadic perspective. *The International Journal of Logistics Management*, 23(1).
- Stefansson, G. (2006). Collaborative logistics management and the role of third-party service providers. *International Journal of Physical Distribution & Logistics Management*, 36(2), 76-92.