IJARETY

International Journal of Advanced Research in Education and TechnologY (IJARETY)

Volume 12, Issue 6, November-December 2025

Impact Factor: 8.152

www.ijarety.in editor.ijarety@gmail.com

International Journal of Advanced Research in Education and TechnologY(IJARETY)

| ISSN: 2394-2975 | www.ijarety.in| | Impact Factor: 8.152| A Bi-Monthly, Double-Blind Peer Reviewed & Refereed Journal |

|| Volume 12, Issue 6, November-December 2025 ||

DOI:10.15680/IJARETY.2025.1206017

Inventory Management Practices in Food Manufacturing: A Case Study of MOTI Namkeen Pvt. Ltd

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ABSTRACT: A thorough understanding of inventory management procedures in the food production industry was obtained through on-the-job training at MOTI Namkeen Pvt. Ltd. In order to guarantee efficient manufacturing and on-time delivery, the study concentrated on maintaining ideal stock levels, keeping an eye on replenishment cycles, and setting up storage systems. Inefficiencies were found through inventory turnover rate analysis, which led to suggestions for better stock rotation techniques and demand forecasts. Additionally, efficient logistics and warehouse techniques were used to reduce material transportation time waste. To strike a balance between cost effectiveness and operational efficacy, contemporary methods including Just-in-Time (JIT), Economic Order Quantity (EOQ), and ABC analysis were examined. The strategic significance of inventory management as a factor in supply chain resilience, profitability, and customer happiness has been reaffirmed by literature. The experience demonstrated how automation, cross-functional cooperation, and data-driven decision-making can improve productivity. Overall, the results show that efficient inventory management boosts customer confidence and organizational competitiveness in the food sector while simultaneously cutting expenses and waste.

KEYWORDS: Inventory management, Food Manufacturing Sector, Stock Levels, Replenishment cycles, Storage organization, Inventory Turnover, Stockouts, Demand Forecasting, Stock Rotation, Supply Chain Management, Operational Efficiency, Customer Satisfaction, Data-driven decision making, Problem-solving, Data analysis, Cross-Functional Communication, Waste Minimization, and Production Scheduling.

I. INTRODUCTION

During the On Job Training (OJT) at MOTI Namkeen Pvt. Ltd., Researcher gained invaluable insights into inventory management within the food manufacturing sector, bridging theoretical knowledge with real-world application and understanding operational challenges faced by manufacturing companies. The focus was on observing, analyzing, and improving inventory practices to ensure smooth production cycles and timely deliveries, which involved tracking stock levels, monitoring replenishment cycles, and organizing storage systems. Daily tasks included managing inventory movements from raw materials to finished products, maintaining accurate stock records, and recognizing the critical role of inventory in production scheduling and customer satisfaction. The assessment of existing practices highlighted issues such as stockouts and inefficiencies in turnover rates, leading to recommendations for improved demand forecasting, better stock rotation, and enhanced data accuracy to minimize waste. This OJT experience also developed essential skills in problem-solving, data analysis, and cross-functional communication, while emphasizing the importance of data-driven decision-making and adaptability in supply chain management. In conclusion, the On Job Training enriched understanding of inventory management and provided practical insights into strategies that drive operational efficiency, customer satisfaction, and long-term success in the manufacturing sector.

A. Objectives

- To maintain optimal stock levels.
- To minimize time loss in material movement.
- To manage inventory levels effectively to avoid excess stock.
- To develop skills in data-driven decision making for inventory management

B. Scope

This study's scope includes analysing and enhancing an organization's inventory management procedures. It emphasizes on keeping the right amount of inventory on hand to guarantee seamless operations and reduce instances of shortages or overstock. The study also looks at ways to use effective logistics and warehouse management strategies to cut down on time lost during material movement. In order to prevent surplus stock and lower carrying costs, it also

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seeks to improve inventory control systems. The course covers how to make data-driven decisions for efficient inventory management by supporting strategic and operational decisions with the use of contemporary technologies and analytical approaches.

II. LITERATURE REVIEW

1. Jon Schreibfeder (2010) emphasized accurate order cycles as critical to inventory management. His work highlights aligning inventory with demand, reducing excess stock without stockouts, and using metrics like turnover, fill rate, and service level. Forecasting accuracy and replenishment strategies are central to effective inventory control.
2. Aashna Sharma and Vivek Arya (2016) examined inventory management in manufacturing, focusing on inventory quantity, reducing investment, and ensuring material availability. They emphasized that large inventories tie up funds, making effective management essential. Neglecting inventory control risks profitability, while eliminating surplus inventories improves efficiency and supports business success.
3. Mihir A. Thacker, Viren Y. Patel, and Prof. Hasmukh Panchal (2020) studied inventory optimization, drawing on EOQ models for cost efficiency. They introduced fuzzy demand functions to handle uncertainty and emphasized spare parts planning with software training. The study highlights reducing waste, improving forecasting, and enhancing customer satisfaction through automation and analytics in supply chains.
4. Maneesh Karumathil Nair (2025) reviewed inventory management from manual systems to modern lean and automated methods. He emphasized inventory as both financial asset and strategic buffer, citing Render, Vrat, and Christopher. Techniques like JIT, EOQ, ABC, VMI, ARS, and Lean Inventory were noted for efficiency and cost control. Sector-specific needs such as humanitarian stocks and FMCG cycles were addressed. Overall, inventory management was underscored as key to resilience, profitability, and customer satisfaction.
5. Dr. Sivakumar and Prem Rajkumar (2025) traced inventory management from manual practices to automated systems, stressing its role in supply chain efficiency. They reviewed JIT, EOQ, ABC, VMI, ARS, and Lean methods for balancing stock, reducing waste, and improving responsiveness. Citing Render, Vrat, and Christopher, they emphasized inventory's financial and operational significance. Sector-specific needs like humanitarian stocks and FMCG buffers were noted, presenting inventory as key to cost control, customer satisfaction, and competitiveness.

III. METHODOLOGY

Research methodology is a systematic way of solving a problem. It includes the research method for solving problems.

A. Research Design

- Type of Study: Applied research focusing on real-world challenges in inventory management.
- Research Approach: Quantitative (numbers, KPIs, metrics) and qualitative (company practices, employee perspectives).

B. Data Collection Methods

a) Primary Data:

- Interviews with employees, warehouse staff, supply chain managers, procurement officers.
- Surveys/questionnaires distributed to employees and stakeholders.
- Observations of inventory processes in warehouses, distribution centers, and plants.

b) Secondary Data:

- Academic journals, research reports, case studies, books, and scholarly articles on inventory and supply chain management.

c) Sampling Method

- Population: Employees from supply chain, procurement, warehouse, and logistics departments.
- Technique**:** Convenience sampling within the company.

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Sample Size: Formula used:

$$n = \frac{Z^2 p(1-p)}{C^2}$$

With 80 employees, questionnaires were sent to all; 62 genuine responses were analyzed for the study.

Data Analysis Tools and Techniques
The collected data was analyzed using descriptive statistics and comparative analysis methods. The data was organized and interpreted using tools such as Microsoft Excel and Google Sheets.

IV. DATA ANALYSIS AND FINDINGS

The sIVurvey conducted among employees in the food manufacturing company highlights key aspects of inventory management practices, challenges, and perceptions

- Awareness & Objectives: A large majority (90%) are aware of inventory management systems, with the primary objective being to ensure sufficient stock to meet demand (60%), followed by reducing storage costs (30%).
- Audit Practices: Most organizations conduct inventory audits monthly (33.3%) or daily (19%), ensuring regular monitoring of stock levels.
- Systems Used: ERP systems (42.9%) are the most widely adopted, while spreadsheets (28.6%) and manual methods (14.3%) remain in use.
- Technology Benefits: Barcode scanning is valued for comprehensive benefits (61.9%), including error reduction, speed, accuracy, and visibility.

Challenges: Demand forecasting errors (33.3%) are the most critical challenge, with overstocking and stockouts equally problematic (23.8% each).
- Excess Inventory Handling: Discounting and promotions (47.6%) are the most common strategies, followed by transfers and supplier returns.
- JIT Adoption: 38.1% regularly use Just-in-Time systems, while 28.6% plan to implement them, though 19% lack awareness.
- Key Metrics: Inventory turnover and stockouts rate (42.9% each) are considered most important, alongside lead time and carrying costs (38.1%).
- Tracking Methods: Integrated software (47.6%) is the dominant method, though spreadsheets (28.6%) are still common.
- Prioritization: FIFO (46.7%) and shelf life (26.7%) dominate prioritization strategies, reflecting focus on reducing waste and managing perishables.
- Supplier Collaboration: Half (50%) report close collaboration with suppliers, while 33.3% rely on occasional communication.
- Automation: Just over half (53.3%) use automated alerts for low stock, while 46.7% lack such systems.
- Customer Satisfaction: Inventory management is seen as having moderate to significant impact, with 36.7% rating it moderate and 46.7% rating it strong/significant.
- Expired Products: A majority (73.3%) report clear processes for handling expired or outdated food products, though gaps remain (26.7%).

Key findings summary

- Maintain Sufficient Stock during Short Supply. The Company can improve its ability to manage inventory during short supply situations by utilizing a more accurate demand forecasting system and developing better relationships with alternate suppliers.
- Ensure Availability of Finished Goods for Timely Delivery. Ensuring a streamlined production process and maintaining buffer stock of finished goods can significantly reduce the risk of delays in customer orders, especially during peak demand seasons.
- Control Investment in Inventory and Keep it at an Optimum Level. Implementing data-driven inventory control strategies, such as Economic Order Quantity (EOQ) or Just-in-Time (JIT), can help balance stock levels with minimal investment while avoiding stockouts or overstocking.

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- Facilitate Easy and Prompt Issue and Receipt of Items. Simplifying warehouse processes, through better training and the use of inventory management software, can reduce time lost during the receiving and issuing process, improving overall supply chain efficiency.
- Improving Lead Time for Raw Material Procurement. By establishing stronger vendor partnerships and negotiating better lead times, the company can reduce delays in raw material procurement, ensuring smoother production schedules.
- Enhancing Inventory Visibility Across the Supply Chain. Implementing a centralized inventory management system can help track stock levels in real-time across all locations, improving decision-making and reducing the risk of stockouts.
- Minimize Storage Costs by Optimizing Warehouse Space. Optimizing warehouse layout and adopting more efficient inventory storage systems (like vertical shelving or pallet racking) can help minimize storage costs and improve item retrieval times.

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International Journal of Advanced Research in Education and Technology

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