



Analysis of Inventory Management in Manufacturing Companies

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ABSTRACT

Inventory management plays a crucial role in the smooth functioning of manufacturing companies by ensuring the availability of raw materials, minimizing costs, and avoiding production delays. This study analyzes inventory management practices in manufacturing companies and examines how effective inventory control techniques influence operational efficiency and profitability.

The study focuses on important topics like demand forecasting, inventory planning, stock control techniques, and the application of contemporary inventory systems. It emphasises how effective inventory control lowers carrying costs, avoids stockouts, and enhances production continuity.

The report also highlights how using scientific inventory methods like ABC analysis, JIT, and EOQ improves productivity and facilitates improved decision-making. The results indicate that competitive advantage and organisational performance are greatly enhanced by efficient inventory management.

Keywords: Inventory Management, Manufacturing Companies, EOQ, JIT, Stock Control, Operational Efficiency

INTRODUCTION

Since inventory management directly affects cost control, production efficiency, and overall organisational success, it is an essential function in manufacturing enterprises. In order to guarantee that the appropriate amount of inventory is available at the appropriate time, it entails the methodical planning, regulating, and monitoring of raw materials, work-in-progress, and finished goods. Effective inventory management helps prevent disruptions, cuts waste, and guarantees smooth operations in manufacturing businesses where continuous output is crucial.

Manufacturing businesses are under growing pressure to maximise their resources and save operating expenses in the fiercely competitive business world of today. Keeping an ideal level of inventory is one of their biggest problems. While insufficient inventory can lead to stockouts, manufacturing delays, and a decline in customer satisfaction, excess inventory results in expensive carrying expenses, including storage, insurance, and obsolescence risk. Therefore, increasing productivity and profitability requires striking a balance between overstocking and understocking.



Manufacturing businesses frequently employ contemporary inventory management strategies like ABC analysis, Just-in-Time (JIT), and Economic Order Quantity (EOQ) to efficiently manage inventory. These methods aid in cost reduction, better demand forecasting, and improved decision-making. The accuracy and effectiveness of inventory control have also been significantly enhanced by the use of technology, such as enterprise resource planning (ERP) systems and inventory management software.

By ensuring fast product delivery, efficient inventory management not only ensures continuous manufacturing but also improves customer service. Additionally, it lowers the possibility of overproduction or underproduction and enables businesses to react swiftly to shifts in consumer demand. Additionally, effective inventory management techniques help businesses make better use of their resources and obtain a competitive edge in the marketplace.

The analysis of inventory management procedures in manufacturing firms and their effects on cost-cutting and operational efficiency are the main goals of this study. It seeks to pinpoint important variables affecting inventory control and make recommendations for ways to enhance inventory management systems. The report offers useful insights into how manufacturing companies can improve their performance through efficient inventory management by looking at these factors.

RESEARCH OBJECTIVES

- To analyze inventory management practices in manufacturing companies
- To identify factors affecting inventory control efficiency
- To examine the impact of inventory management on operational performance
- To suggest improvements in inventory management systems

REVIEW OF LITERATURE

Munyaka, J. B., & Yadavalli, V. S. S. (2022) Started that Inventory management is a key function in supply chain and logistics, essential for meeting customer and organizational needs. Effective control of inventory directly impacts operational efficiency and overall performance. Demand plays a crucial role in inventory decisions, varying in certainty and dependency. This study focuses on how different types of demand, especially deterministic independent and dependent demand, influence inventory management practices.

Ahmed Esmail Mohamed (2023) found that Inventory management is essential for improving business performance, profitability, and operational efficiency. Poor inventory control can lead to financial losses, stock imbalances, and customer dissatisfaction. The main objective is to balance overstocking and understocking while optimizing costs and working capital. Key techniques like Vendor-Managed Inventory (VMI) and Just-in-Time (JIT) help enhance supply chain efficiency, supported by accurate demand forecasting as a best practice.

Ozge Albayrak Unal , Burak Erkayman & Bilal Usanmaz (2023) found that Modern companies must manage supply chains efficiently to meet global competition, customer demands, and cost pressures. This study reviews the role of Artificial Intelligence (AI) in inventory management using 59 research articles from 2012–2022. It highlights the growing use of AI, especially machine learning, in improving inventory practices. The study also outlines current trends and future opportunities, contributing valuable insights for further research.

Pablo Becerra , Josefa Mula , Raquel Sanchis (2022) This article reviews sustainable inventory management models in supply chains and highlights future research directions. It analyzes 36 studies, showing that environmental sustainability is widely studied, while social sustainability is often overlooked. The study emphasizes the need to include uncertainty in inventory models for better decision-making. It also proposes future research focusing on integrated, complex models that balance economic, environmental, and social aspects.



Salim Muhanna Salim Al Shukaili , Zaharuzaman Jamaluddin , Norhayah Zulkifli (2023) This study analyzes how strategic inventory management affects the performance of logistics organizations in Oman. It focuses on practices like demand forecasting, procurement optimization, and inventory control techniques. The findings show that effective inventory strategies improve key performance indicators such as order fulfillment, delivery time, and customer satisfaction. Overall, the study highlights that strong inventory management enhances efficiency, reduces stockouts, and improves supply chain responsiveness.

Çaylı O & Oralhan, Z. (2024) This study explores the use of Artificial Intelligence (AI) in improving inventory management in retail SMEs. It highlights how factors like seasonality, promotions, and economic conditions make inventory control complex. The research shows that AI techniques, especially machine learning and data analytics, help optimize inventory levels more effectively than manual methods. Overall, AI-driven approaches reduce costs.

RESEARCH HYPOTHESIS

H1: Inventory management practices have no significant impact on operational efficiency

H2: There is no significant relationship between inventory control and cost reduction

H3: Inventory techniques do not significantly improve production performance

RESEARCH METHODOLOGY

S.NO	COMPONENT	DESCRIPTION
1	Research Design	Descriptive research design
2	Research Approach	Quantitative approach
3	Source of Data	Primary & Secondary data
4	Sample Size	50 employees
5	Data Collection Method	Questionnaire & Survey
6	Research Instrument	Structured questionnaire
7	Study Area	Manufacturing company
8	Limitations	Time constraints, limited sample

DATA ANALYSIS AND INTERPRETATION

Inventory Control Efficiency

Response	No. of Respondents	Percentage (%)
Strongly Agree	15	30 %
Agree	20	40 %
Neutral	8	16 %
Disagree	5	10 %
Strongly Disagree	2	4 %
Total	50	100 %



INTERPRETATION

The majority of respondents (70%) agree that inventory management practices are effective. This indicates a strong positive perception among employees regarding inventory control systems.

A smaller percentage (16%) remains neutral, while very few respondents expressed dissatisfaction. This shows that inventory systems are generally well-implemented in manufacturing companies.

INVENTORY TECHNIQUES EFFECTIVENESS

Technique	Mean Score	Rank
EOQ	3.9	1
JIT	4.1	2
ABC Analysis	3.8	3
Safety Stock	3.7	4

KEY FINDINGS

- Most manufacturing companies maintain effective inventory control systems
- Inventory techniques like JIT and EOQ significantly improve efficiency
- Proper inventory management reduces costs and avoids production delays
- Employees show a positive perception towards inventory practices
- Lack of advanced technology affects inventory performance in some firms

SUGGESTIONS

- Companies should adopt modern inventory management systems and software
- Use of JIT technique can reduce storage and holding costs
- Regular inventory audits should be conducted
- Demand forecasting should be improved using data analytics
- Training should be provided to employees on inventory control techniques

CONCLUSION

The study concludes that inventory management plays a vital role in the success of manufacturing companies. Effective inventory control ensures smooth production, reduces costs, and improves overall efficiency.

The adoption of modern inventory techniques such as EOQ, JIT, and ABC analysis helps organizations maintain optimal stock levels and improve decision-making.

In conclusion, manufacturing companies should focus on improving inventory management practices to enhance productivity, reduce wastage, and achieve long-term growth.



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