A Study On Inventory Control And Its Management In Automobile Industry

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ABSTRACT

Inventory control and management at Automobile industry play a crucial role in ensuring efficient supply chain operations, cost optimization, and seamless production processes. The company employs advanced inventory management techniques such as EOQ, ABC analysis and VED analysis automated tracking systems, and data analytics to maintain optimal stock levels while minimizing holding costs and reducing wastage. By integrating modern ERP solutions and real-time monitoring, it ensures accurate demand forecasting, timely procurement, and effective warehouse management. These practices not only help in avoiding stockouts and overstock situations but also enhance the overall efficiency of production and distribution processes.

1.INTRODUCTION

Inventory control is a crucial aspect of supply chain management that focuses on overseeing the procurement, storage, and utilization of materials, goods, and products to ensure an efficient and cost-effective operation. It helps businesses maintain an optimal stock level to meet customer demands while minimizing excess inventory, reducing holding costs, and preventing stockouts. Effective inventory control ensures that an organization has the right products in the right quantities at the right time, preventing disruptions in production and customer service. It also involves systematic tracking and monitoring of inventory levels, sales trends, and supplier performance to enhance decision-making and operational efficiency.

Features of Inventory Control and its Management

- **Cost Reduction**: Inventory control slashes expenses by preventing overstocking, which reduces warehousing fees, insurance costs, and losses from spoilage or obsolescence. It also minimizes the need for rush orders, which often come with premium prices.
- **Improved Cash Flow**: By optimizing stock levels, inventory control frees up capital that would otherwise be tied up in excess inventory. This allows businesses to invest in growth, pay down debt, or handle unexpected expenses.

- **Enhanced Customer Satisfaction:** Accurate inventory management ensures product availability, preventing stockouts and delays. This leads to faster order fulfillment, improved customer loyalty, and positive reviews.

2. OBJECTIVES OF THE STUDY

a. To evaluate the effectiveness of inventory management.
b. To classify inventory based on its value and volume.
c. To analysis efficient inventory management through accurate order planning.
d. To analysis inventory control by focusing management efforts on critical material.

3.SCOPE OF THE STUDY

The study will investigate the effectiveness of current inventory policies, including order quantity determination, safety stock levels, and lead time management, in relation to the company's operational efficiency and cost-effectiveness It aims to delve into the existing systems, procedures, and technologies employed by the company to manage its inventory, encompassing raw materials, work-in-progress, and finished goods.

4.REVIEW OF LITERATURE

Ravi S. Sisodiya and Jaimin Kamleshbhai Patel (October 2023)

"A Study on Efficiency Evaluation of Selected Automobile Companies in India" Through the utilization of metrics such as raw material turnover, work-in-progress turnover, and finished goods turnover ratios, this study investigates the effectiveness of a selection of automobile firms located in India. This research sheds light on the ways in which these factors contribute to improved sales and increased profitability, both of which are essential for efficient inventory management in the commercial vehicle industry.

Rahul Kumar Verma (June 2020)

"Comparative Evaluation of Economic Order Quantity and Modeling Technique for Inventory Control" When compared to other methods of inventory control, the Economic Order Quantity (EOQ) model is examined in this article for their similarities and differences. The approaches that were presented can be adopted to maximize inventory control in the commercial vehicle industry, despite the fact that the case study was conducted in a different industry.

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5.RESEARCH METHODOLOGY

Research is a systematic, methodical, and objective investigation aimed at discovering new knowledge, validating existing theories, or solving real-world problems. It involves collecting, analyzing, and interpreting data to answer questions, test hypotheses, or explore phenomena in a structured and logical manner.

6.DATA ANALYSIS AND INTERPRETATION

INVENTORY TURNOVER RATIO
TABLE SHOWS THEURNOVER RATIO OF THE ANALYSIS

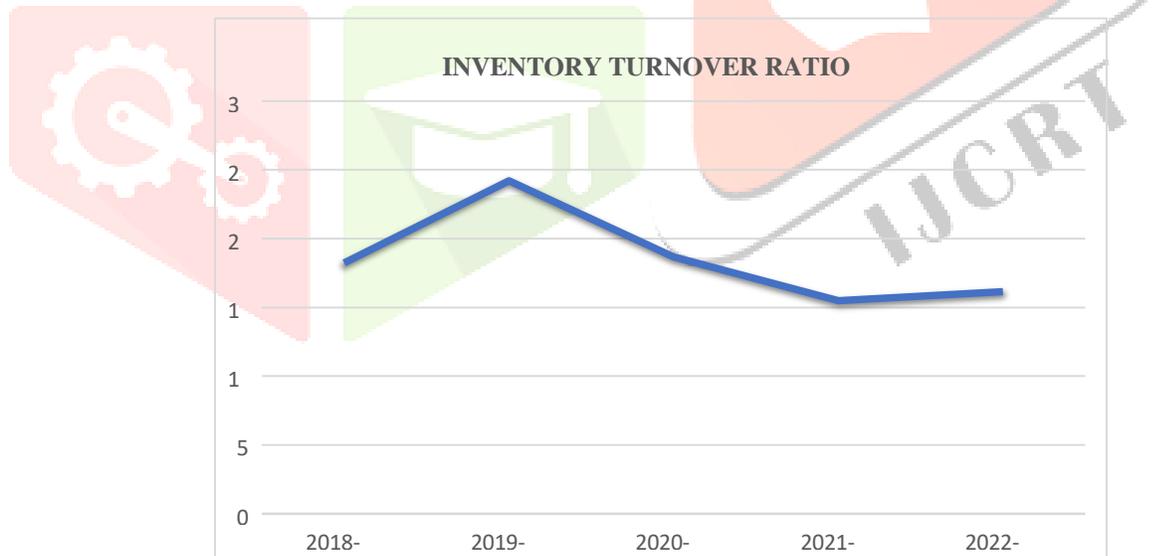| PARTICULARS	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
PURCHASES	16649.86	19460.12	22443.15	29978.28	35337.60
INVENTORY	912.48	803.82	1201.70	1934.25	2187.98
RATIO	18.25	24.21	18.68	15.50	16.15

CHART SHOWS THE INVENTORY TURNOVER RATIO OF THE ANALYSIS

INTERPRETATION

In 2018-2019 with a ratio of 18.25, this indicates that for every unit of inventory, the company made purchases worth 18.25 units.

In 2019-2020 the ratio increased to 24.21, reflecting an even stronger purchasing position relative to inventory.

In 2020-2021 the ratio decreased to 18.68, which still indicates a healthy purchasing-to- inventory relationship.

In 2021-2022 the ratio further decreased to 15.50, indicating a notable change.

In 2022-2023 the ratio increased slightly to 16.15, indicating a small recovery from the previous year's decline

6.2 STATISTICAL TOOLS

ABC ANALYSIS

ABC ANALYSIS			
S.NO	CATEGORY	NO. OF ITEMS	PERCENTAGE (%)
1	A	8	10
2	B	21	25
3	C	55	65
	TOTAL	84	100

FINDINGS: The above table shows that out of 84 items, Only 8 items comes under the category of most important items, 21 items comes under the category of average important items and 55 items comes under the category of least important items.

INFERENCE: It is Inferred that 55 items out of 84 items consumes 65% are least important items.

VED ANALYSIS

VED ANALYSIS			
S.NO	CATEGORY	NO. OF ITEMS	PERCENTAGE (%)
1	V	12	17
2	E	23	32
3	D	36	51
	TOTAL	71	100

FINDINGS: The above table shows that out of 71 items, Only 12 items comes under the category of Vital items, 23 items comes under the category of Essential items and 36 items comes under the category of Desirable items.

INFERENCE: It is Inferred that 36 items out of 71 items consumes 51% are Desirable items.

7. SUMMARY OF FINDINGS

1. The inventory turnover ratio shows strong purchasing efficiency overall, despite fluctuations over the years.
2. The slight recovery in 2022–2023 suggests improved inventory management after a period of reduced turnover.
3. The analysis shows that **Category C** contains the majority of items (65%), indicating a large number of low-value inventory items. **Category A** includes only 10% of the items, highlighting a small group of high-value items that require close monitoring and tight control. (ABC Analysis)
4. **Category D** contains the highest percentage (51%) of items, indicating that most inventory consists of desirable items that are not critical but still beneficial. **Category V** includes only 17% of items, representing a smaller group of vital items that are crucial for operations and require closer management to avoid disruptions. (VED Analysis).

8.SUGGESTIONS

- Real-Time Tracking: Implement advanced inventory management software with real-time tracking capabilities to optimize stock levels, reduce lead times, and improve decision-making..
- Strengthen Supplier Relationships: Build stronger relationships with key suppliers to negotiate better lead times, prices, and order flexibility. This can lead to improved inventory turnover and reduced reliance on high inventory levels.
- Employee Training and Awareness: Regularly train staff involved in inventory management on best practices, new technologies, and emerging trends in supply chain management. This ensures they can make informed decisions and contribute to the overall efficiency of inventory control.

CONCLUSION

Effective inventory control and management are crucial for the operational efficiency and financial performance. Through various analytical tools such as VED, ABC, EOQ, and others, can better manage its inventory, ensure the timely availability of critical parts, and reduce costs associated with overstocking or stockouts. The VED analysis highlights the importance of prioritizing vital items to avoid disruptions, while the ABC analysis helps in distinguishing between high-value and low-value items for more efficient resource allocation. Additionally, EOQ analysis assists in optimizing ordering processes to reduce holding and ordering costs. By continuously refining these strategies, to enhance its supply chain efficiency, improve cash flow, and ensure seamless production processes, ultimately supporting the company's commitment to delivering high-quality commercial vehicle solutions.

BIBILIOGRAPHY

1 Arnold, J. R. Tony, Stephen N. Chapman, and Lloyd M. Clive. *Introduction to Materials Management.* 8th ed., Pearson, 2018.
2 Ballou, Ronald H**.** *Business Logistics/Supply Chain Management: Planning, Organizing, and Controlling the Supply Chain.* 5th ed., Pearson Education, 2003.
3 Chopra, Sunil, and Peter Meindl**.** *Supply Chain Management: Strategy, Planning, and Operation.* 7th ed., Pearson, 2019.
4 Wild, Tony. *Best Practice in Inventory Management.* 2nd ed., Routledge, 2002.
5 Silver, Edward A., David F. Pyke, and Rein Peterson. "Inventory Management and Production Planning and Scheduling." *Wiley Series in Industrial Engineering and Management Science*, 1998.
6 Zipkin, Paul H. "Foundations of Inventory Management." *McGraw-Hill/Irwin Series*, 2000.
7 Porteus, Evan L. "Foundations of Stochastic Inventory Theory." *Stanford Business Books*, 2002.
8 Slack, Nigel, Brandon-Jones, Alistair, & Johnston, Robert (2022). *Operations Management* (10th ed.). Pearson.
9 Heizer, Jay, Render, Barry, & Munson, Chuck (2017). *Operations Management: Sustainability and Supply Chain Management.*