A STUDY ON OPTIMIZING INVENTORY MANAGEMENT WITH REFERENCE TO AROMATIC INDUSTRIES

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Abstract

Inventory Management have significant influence in Aromatic Industry. The paper briefly discusses the impact of inventory management in the manufacturing company. The paper, with an aim of understanding the potential and practical implications of inventory management techniques and tools in the organization. Through a comprehensive review and analysis of existing literature, this paper examines various inventory management techniques and inventory optimization models. The study employees both descriptive and analytical approaches. The statistical tool considered to measure the significance is chi-square test method will be employed to test the significance.

Key words: Inventory management, inventory management techniques, turnover ratio

Introduction

Inventory management is a critical aspect of business operations, encompassing the processes and strategies employed by organisations to oversee and control the flow of goods. The background of this topic traces back to the dawn of commerce, where efficient inventory management was pivotal for sustaining trade and meeting customer demands. Over time, as

business landscapes evolved, inventory management emerged as a complex discipline influenced by factors such as globalization, technological advancements, and shifting consumer preferences.

From a theoretical standpoint, inventory management holds profound implications across various domains of management science. It intersects with concepts from operations management, logistics, supply chain management, and finance, among others. Theoretical frameworks such as the Economic Order Quantity (EOQ) model, Just-in-Time (JIT) inventory system, and ABC analysis provide insights into optimising inventory levels, minimising costs, and maximising efficiency. Moreover, theories of risk management and uncertainty play a crucial role in devising strategies to mitigate potential disruptions in the supply chain and safeguard against inventory-related risks.

Review Of Literature

- Shivaji Sagar (2018) "Inventory Management Techniques: Optimizing Plant Operation in a Manufacturing Industry". This paper examines inventory management techniques in a mechanical industry in Chennai, focusing on valve production. Data was collected through questionnaires and interviews with 50 respondents. The study found a positive relationship between the technique and company performance, with most agreeing.

- Anas M. Atieh (2016) "Performance Improvement of Inventory Management System Processes by An Automated Warehouse Management System". This study examines the impact of a warehouse management system on supply chain performance, focusing on a more efficient and reliable inventory management system. The research was conducted at a leading telecommunications service provider's warehouse in Jordan, where data was collected. The study highlights the gap between theory and practice, motivating researchers to develop and customize new systems to mitigate supply chain disruptions.

- Dimitrios P. Koumanakos (2008) "The Effect of Inventory Management on Firm Performance". This study investigates the linear relationship between inventory holdings and performance measures in Greek manufacturing firms. While a robust relationship is found in the chemical sector, other sectors require alternative models.

- Stephen Aro-Gordon and Jaideep Gupte (2016) "Review of Modern Inventory Management Techniques". This paper provides an overview of emerging inventory management techniques beneficial for management students, supervisors, and analysts. It identifies twelve viable approaches to address warehouse and store operational challenges, emphasizing the association between effective inventory control and cost reduction, timely delivery, and sustained profitability amid competitive markets.

- Cynthia Wallin, M. Johnny Rungtusanatham and Elliot Rabinovic (2006) "What Is The "Right" Inventory Management Approach for A Purchased Item?" This paper underscores the enduring

significance of optimizing inventory management for firm profitability, customer satisfaction, and cost reduction. It proposes a decision framework derived from anecdotal data to guide inventory management strategies, urging scholars to further explore research opportunities in this area for both practical and scientific advancement.

Objective of the Study

- To Investigate the Impact of Inventory Management Practices on Inventory Turnover Ratio
- To Assess the Relationship Between Inventory Tracking Tools and Handling of Damaged and Defective Goods

Research Methodology

This study employs both descriptive and analytical methods to make necessary inferences from the outpouring results that are obtained after examination of the particulars in question. In the study both primary and secondary data are used. The primary data is collected by questionnaires among 100 respondents which is used for data analysis and hypothesis. The secondary data has been extracted from journals and internet sources. For the chi-square test SSP software has been used.

Hypothesis

1. With regards to handling defective goods and tools used for inventory tracking.

Null Hypothesis (H0): There is no significant relationship between tools used for inventory tracking and method of handling damaged and defective goods.

Alternative Hypothesis (H1): There is significant relationship between tools used for inventory tracking and method of handling damaged and defective goods.

Dependent Variable: Method of Handling Damaged and Defective Goods

Independent Variable: Tools Used for Inventory Tracking-

Degree of freedom – 9

Significance level – 0.05, P<0.05

Critical value (table) - 18.001

Observed value – 16.812

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.001[a]	9	.047
Likelihood Ratio	15.379	9	.081

Interpretation

As the chi square have given values of p less than 0.05 significance level, the null hypothesis has been rejected and alternative hypothesis has been accepted. Therefore, there is a significant relationship between tools used in inventory tracking and method of handling damaged and defective goods.

2. With regards to Inventory Turnover Ratio and Inventory Management Practices

Null Hypothesis (Ho): There is no significant relationship between the current inventory management practices within the organization and inventory turnover ratio.

Alternative Hypothesis (H1): There is significant relationship between the current inventory management practices within the organization and inventory turnover ratio.

Dependent Variable: Inventory Turnover Ratio

Independent Variable: Current Inventory Management Practices within the Organization

Degree of freedom – 9

Significance level – 0.05, $p<0.05$

Critical value (table) - 17.646

Observed value – 16.812

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.646[a]	9	.040
Likelihood Ratio	17.206	9	.046

Interpretation

As the chi square have given values of p less than 0.05 significance level, the null hypothesis has been rejected and alternative hypothesis has been accepted. Therefore, there is a significant relationship between the current inventory management practices within the organization and inventory turnover ratio.

Results And Discussion

Data Analysis of inventory management system and techniques used in aromatic industries:

Table 1: Inventory turnover Ratio

Particulars	Respondents	Percentage
Less than 1	5	5%
1-2	16	16%
3-4	54	54%
More than 4	25	25%

Total	**100**	**100%**

Interpretation

The table1, represents that out of 100 respondents, 54 respondents inventory turnover ratio is between 3 to 4, 25 respondents inventory turnover ratio is more than 4, 16 respondents inventory turnover ratio is between 1 to 2 and 5 respondents inventory turnover ratio is less than 1. It shows that there is good inventory turnover ratio in the industry.

Table 2: Inventory Management Practices within the Organization

Particulars	Respondents	Percentage
ABC Analysis	6	6%
FIFO (First In, First Out)	38	38%
JIT (Just-In-Time)	13	13%
LIFO (Last In, First Out)	43	43%
Total	**100**	**100%**

Interpretation

As above table 2 represents that 43 companies follow LIFO system inventory management in their companies, 38 companies follow FIFO system inventory management in their companies, 13 companies follow JIT system inventory management in their companies and only 6 companies follow ABC Analysis system inventory management in their companies. As per above majority companies follows FIFO and LIFO system in the inventory management.

Table 3 : Tools Used for Inventory Tracking

Particulars	Respondents	Percentage
Barcode Scanners	12	12%
Inventory Management Software	26	26%
Manual Tracking Sheets	62	62%
Total	**100**	**100%**

Interpretation

In table 3, we can see that out of 100 respondents 62 repondents is following manual tracking sheets for inventory tracking in their companies, 26 respondents are using software application for

inventory tracking in their companies and 12 respondents are using barcode scanners for inventory tracking in their companies. This indicates that majority of companies still follow old method manual tracking sheets to track inventory in their company and the companies must get updated and have to take benefits of new technologies.

Table 4: Method of Handling Damaged and Defective Goods

Particulars	Respondents	Percentage
Repair and resell	5	5%
Return Merchandise Authorization (RMA)	35	35%
Scrap	55	55%
Write-off	5	5%
Total	**100**	**100%**

Interpretation

In table 4, we can see that out of 100 respondents 55 respondents will sell the damaged or defective inventory for scrape value. 35 respondents will return to supplier the damaged or defective inventory, 5 respondents will try to repair and resell the damaged or defective inventory and 5 respondents will write-of the damaged or defective inventory in the companies books. This indicates that the majority companies sell damaged inventory at scrap value and some companies will return the inventory to suppliers.

Findings

- Most of the manufacturing companies, regardless of their size or tenure, prefer using FIFO and LIFO method.

- The many companies still rely on manual tracking sheets for inventory management, some companies have adopted inventory management software to track inventories.

- Most of companies sell the defective and damaged goods in a scrap value, they do not try to repair and resell in the aromatic industry.

- There is a significant relationship between the current inventory management practices within the organization and inventory turnover ratio.

- There is a significant relationship between tools used in inventory tracking and method of handling damaged and defective goods.

Conclusions

This paper delves into the substantial influence of inventory management within the Aromatic Industry, particularly focusing on its impact within manufacturing companies. Through a comprehensive review and analysis of existing literature, various inventory management techniques and optimization models have been explored. The study employs both descriptive and analytical approaches, aiming to understand the potential and practical implications of these techniques and tools within organizations operating in this sector, the research aims to measure the significance of inventory management strategies in improving operational efficiency, and enhancing overall performance.

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