

# A Study on Inventory Management with Reference to MS Charan Windows Private Limited

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## ABSTRACT

In the manufacturing sector, effective inventory management plays a crucial role in maintaining cost control and ensuring smooth operational efficiency. This research centers around MS Charan Windows Private Limited, a company that specializes in producing custom window solutions, and explores the inventory management practices it adopts to stay competitive in a rapidly evolving market. As customer demands fluctuate and competition intensifies, it becomes increasingly important for manufacturers like MS Charan Windows to implement robust inventory strategies that prevent stock outs, reduce excess inventory, and lower overall holding costs. The study aims to delve into the specific methods, technologies, and systems the company uses to monitor, control, and optimize its inventory levels throughout the production process. By maintaining the right balance between supply and demand, MS Charan Windows can not only streamline its operations but also enhance its profitability and ensure timely order fulfillment, leading to greater customer satisfaction. The research highlights the direct link between efficient inventory planning and a company's success in terms of both financial performance and service quality. Key concepts examined in this study include stock control, supply chain coordination, cost minimization, production optimization, and overall operational efficiency.

**KEYWORDS:** inventory management, manufacturing industry, custom window solutions, stock control, supply chain, operational efficiency, cost reduction, inventory optimization, production flow, inventory planning, holding costs, profitability, customer satisfaction, inventory strategies, manufacturing operations.

## INTRODUCTION

The modern manufacturing landscape, inventory management has evolved from being merely a logistical concern to a strategic pillar that significantly influences a company's profitability and long-term sustainability. This research focuses on MS Charan Windows Private Limited, a well-established manufacturer known for delivering high-quality, customized window and door solutions. Operating in a highly competitive environment where timely delivery and product availability are critical to maintaining customer satisfaction and a strong market presence, the company places great emphasis on efficient inventory handling. MS Charan Windows demonstrates the ability to adapt swiftly to changing market demands by maintaining an optimal balance between raw material procurement and the availability of finished products, thereby minimizing waste and reducing excess inventory. However, like many players in the manufacturing sector, the company faces several ongoing challenges, including unpredictable fluctuations in raw material prices, varying levels of supplier reliability, and inconsistent customer demand. These complexities require a well-structured inventory system supported by sound policies and advanced technological tools. Through this study, we aim to investigate the specific inventory practices, strategies, and technologies employed by MS Charan Windows, comparing them with broader industry standards to

identify areas of strength and opportunities for improvement. By doing so, this research aspires to uncover practical insights that can not only enhance the efficiency of the company's inventory management but also contribute to improved operational performance, cost savings, and increased productivity across its manufacturing processes.

## OBJECTIVES OF THE STUDY

1. To evaluate MS Charan Windows Private Limited's current inventory management system
2. To evaluate the effectiveness of the procedures for acquiring raw materials and storing them
3. To discover inconsistencies and holes in the current systems for controlling inventory
4. To determine technology and analyse the process of managing inventory
5. To investigate the connection between production scheduling and inventory management
6. To investigate how inventory practices affect service levels and customer satisfaction

## SCOPE OF THE STUDY

This research is centered exclusively on the inventory management process at MS Charan Windows Private Limited, with a comprehensive focus on how the company handles every stage of inventory from the initial procurement of raw materials to their storage, monitoring, and eventual dispatch as finished goods. The investigation goes beyond basic stock control and delves into the internal mechanisms that drive inventory decisions, including the use of software systems, day to day operational workflows, inventory related policies, and the nature of supplier relationships. It closely examines how each of these elements interacts to influence production timelines, operational cost efficiency, and the overall quality of customer service. Importantly, the study is limited in scope to the company's core manufacturing unit and does not cover third-party vendors, external contractors, or other branches of the organization. By narrowing the focus in this way, the research aims to provide a detailed and accurate understanding of the specific inventory practices followed within the main production facility. The ultimate goal is to generate practical insights that can help the company's leadership identify existing inefficiencies and adopt proven inventory management strategies. Furthermore, the findings may also serve as a valuable reference for other small and medium-sized manufacturing businesses that are striving to enhance their inventory systems and streamline operations in a competitive market.

## REVIEW OF LITERATURE

**Chopra & Meindl (2016)** emphasized that inventory is not just a passive asset, but a strategic tool that can significantly affect a company's overall supply chain performance. According to them, effective inventory management creates a balance between supply and demand, leading to both cost savings and enhanced customer service. They outlined how aligning inventory levels with business strategy helps organizations respond more efficiently to market needs while minimizing unnecessary holding costs. Their study reinforces the idea that inventory should be managed as a dynamic and value-adding component of the supply chain.

**Ballou (2004)** research explored classical inventory control methods such as the Economic Order Quantity (EOQ) and Just-In-Time (JIT) models. He examined how these techniques, when appropriately applied in manufacturing settings, could reduce excess stock and improve material flow. EOQ helps in determining the optimal order quantity that minimizes total inventory costs, while JIT focuses on reducing waste by receiving goods only when needed in the production cycle. Ballou's work serves as a foundational reference for understanding the mathematical and operational approaches to inventory efficiency in manufacturing industries.

**Gaur et al. (2005)** analyzed the relationship between inventory turnover ratios and the operational health of a company. Gaur and his co-authors suggested that higher inventory turnover generally indicates better inventory management and stronger financial performance. Companies with high turnover tend to have faster production cycles, fewer obsolete goods, and more efficient cash flow management. Their research provides valuable insights into how turnover metrics can be used as performance indicators to assess and improve inventory strategies.

**Silver, Pyke & Peterson (1998)** delved into the importance of integrating decision support systems and demand forecasting models. They highlighted that accurate forecasting allows for more informed and timely inventory decisions, reducing both stock outs and excess inventory. Their study encourages manufacturers to adopt quantitative methods and forecasting tools to support real-time decision-making, ultimately leading to more responsive and streamlined operations.

**Mentzer et al. (2001)** investigated the role of collaboration across the supply chain and how it impacts inventory levels. Their findings indicated that businesses that engage in collaborative practices such as information sharing and joint planning with suppliers and distributors tend to operate with leaner inventories. This cooperation allows for better alignment between production and demand, leading to fewer disruptions and improved service levels. The study underlines the strategic importance of partnerships in achieving inventory efficiency.

**Schonberger (2008)** focused on lean manufacturing principles and their impact on inventory practices. He argued that adopting lean methods such as value stream mapping, continuous improvement, and waste elimination can dramatically reduce inventory waste while improving overall production flow. Lean practices help identify non value adding activities in the inventory cycle and enable organizations to focus on customer value. Schonberger's insights are particularly relevant for manufacturers aiming to enhance responsiveness and cut down on operational delays.

**Waters (2003)** explored the concept of risk management within inventory systems, stressing the need for companies to build resilience against supply chain uncertainties. His work discussed the use of safety stock, demand variability analysis, and supply buffering techniques as ways to safeguard against disruptions. By preparing for demand shifts and supplier inconsistencies, businesses can maintain service levels and avoid costly interruptions. Waters' contributions highlight the need for a strategic buffer in inventory planning, especially in volatile markets.

**Kumar & Saini (2020)** examined an Indian small to medium enterprise (SME) and found that the adoption of automation tools and ERP (Enterprise Resource Planning) systems had a significant impact on inventory visibility and accuracy. The integration of digital tools allowed the company to track stock in real-time, reduce human errors, and make more data-driven decisions. Their case study serves as a practical example of how modern technology can transform traditional inventory practices, especially in growing manufacturing businesses.

## RESEARCH METHODOLOGY

This study follows a descriptive research design, which aims to provide a clear and detailed understanding of the inventory management practices at MS Charan Windows Private Limited. To ensure a well-rounded and insightful analysis, the study relied on both primary and secondary sources of data. Primary data was gathered directly from individuals involved in the day to day handling of inventory through structured interviews and targeted surveys conducted with inventory managers and warehouse staff. These interactions offered firsthand insights into the company's operational routines, decision-making processes, and inventory challenges. In addition to collecting verbal and written responses, direct observations were carried out to study the actual practices related to material handling, stock rotation, and storage techniques, allowing for a more practical view of how inventory is managed on the ground. Secondary data was collected from a variety of credible sources including company documents,

internal inventory records, academic publications, and industry specific journals that provided context and supported comparisons with broader industry standards. For the analysis of the collected data, basic statistical tools such as frequency tables and percentage analysis were employed to identify common trends, highlight irregularities, and uncover potential gaps in the existing system. This methodological approach was carefully designed to ensure a comprehensive understanding of inventory management within the company, while also offering reliable evidence to support the development of actionable recommendations.

## **OVERVIEW OF THE STUDY**

### **1. Strategic Planning of Inventory**

MS Charan Windows adopts a forward thinking approach to inventory planning, aligning their stock requirements with the projected needs of upcoming construction projects. By thoroughly analyzing historical sales data, they gain valuable insights into seasonal trends, enabling them to forecast demand with greater precision. This proactive strategy ensures that the company has the right materials available in the right quantities, avoiding both stock outs and overstocking, which can lead to unnecessary costs.

### **2. Streamlined Procurement Procedure**

The procurement process at MS Charan Windows is designed to maintain a steady flow of raw materials necessary for production. The company prioritizes long-term relationships with trusted suppliers, ensuring that they can rely on timely deliveries. By working closely with these suppliers, they can also negotiate favorable terms, which help in managing costs effectively. Additionally, the procurement team is constantly reviewing the market for new suppliers to guarantee competitive pricing and diversified sourcing.

### **3. Optimized Warehouse Layout**

MS Charan Windows has invested in designing an efficient warehouse layout, ensuring that all products are stored in a way that maximizes space utilization and minimizes the time needed to retrieve materials. The warehouse is organized with clear labeling, designated storage zones for different types of materials, and easy access to high-turnover products. This systematic approach not only reduces handling time but also ensures that inventory management staff can work safely and efficiently, leading to faster order fulfillment.

### **4. Leveraging Technology for Inventory Control**

The company uses a simple yet effective ERP (Enterprise Resource Planning) system to keep track of inventory levels, sales, and raw material requirements. This technology helps automate routine processes, such as generating reorder alerts when stock levels dip below a predefined threshold. Real time tracking of inventory allows for better decision making and helps prevent any issues related to stock outs or overstocking. The integration of technology enhances accuracy and speed in managing inventory, resulting in optimized operations.

### **5. Rigorous Inventory Review and Auditing**

To ensure that inventory records remain accurate and reflective of actual stock, MS Charan Windows conducts periodic inventory audits. These audits are a vital part of the company's operations, helping to identify discrepancies between physical stock and system records. Regular checks also highlight potential issues like damaged goods, misplacements, or under stocking. By maintaining high standards of accuracy, the company ensures that it can meet customer demands without delay and keeps operational costs under control.

### **6. Stock Classification for Efficient Management**

MS Charan Windows employs the ABC analysis technique to classify its stock based on value and importance. In

this system, items are categorized into three groups: A (high-value items with low quantity), B (moderate value and quantity), and C (low-value, high-quantity items). This method helps the company prioritize management efforts, ensuring that more attention is given to the critical and higher-value stock, which directly impacts production efficiency and overall profitability.

#### **7. Inventory Management**

For items that have a shelf life or expiration date, MS Charan Windows adopts the FIFO method. This inventory management technique ensures that older stock is used or sold first, minimizing the risk of goods becoming obsolete or unsellable due to expiration. By implementing FIFO, the company reduces waste, avoids losses from expired materials, and maintains a flow of fresh products in their inventory.

#### **8. Regular Stock Rotation and Quality Control**

To maintain the quality and usability of its products, MS Charan Windows rotates stock on a regular basis. This practice ensures that older stock is always moved forward, while newer stock is placed at the back of the storage shelves. Regular stock rotation also facilitates thorough quality checks, allowing the company to identify any damaged, defective, or deteriorating materials. By staying on top of stock maintenance, MS Charan Windows prevents waste, keeps inventory fresh, and enhances customer satisfaction.

### **KEY BENEFITS**

#### **1. Reduced Holding Costs and Enhanced Capital Efficiency**

Effective inventory management ensures that a company holds only the necessary amount of stock, reducing the costs associated with storing excess inventory. By keeping inventory levels lean and optimized, businesses can free up valuable capital that would otherwise be tied up in unsold goods.

#### **2. Improved Customer Satisfaction**

Accurate inventory management directly impacts customer satisfaction by ensuring products are always available when needed. Customers expect prompt delivery, and by keeping a well-managed inventory, businesses can fulfill orders on time, every time.

#### **3. Streamlined Production Processes**

Having the right materials on hand at the right time is critical to maintaining smooth production processes. With good inventory management, businesses can avoid delays caused by shortages of raw materials or components.

#### **4. Improved Demand Forecasting**

When inventory management is based on real-time data and historical trends, companies can make more accurate predictions about future demand. By analyzing sales patterns and customer preferences, businesses can refine their inventory strategy to meet anticipated needs.

#### **5. Minimized Risk of Stock outs**

Stock outs are a major issue that can disrupt business operations and customer satisfaction. With effective inventory control systems in place, the likelihood of running out of important products is greatly reduced.



## 6. Increased Warehouse Efficiency

Properly managed inventory leads to a more organized and efficient warehouse. With optimized inventory levels and a logical storage system, businesses can maximize storage space and reduce wasted effort.

## 7. Strengthened Supplier Relationships and Coordination

Clear, transparent inventory systems improve communication and coordination with suppliers. By having accurate data on stock levels and future needs, businesses can plan better and place orders more strategically.

## 8. Reduction of Waste and Losses

Effective inventory management significantly reduces the risks of waste and losses caused by product obsolescence, expiration, or damage. By regularly tracking stock levels and expiry dates, businesses can ensure that products are used before they become obsolete.

## MAJOR OBSTACLES

### 1. Inaccurate Demand Forecasting

Accurate forecasting is crucial for managing inventory levels effectively. However, demand fluctuations whether due to seasonal trends, unexpected market shifts, or changing customer preferences can lead to inaccurate forecasts. These results in stock outs (when products run out) or overstocking (when inventory piles up).

### 2. Outdated Technology and Systems

Many businesses still rely on outdated inventory management systems that lack real-time tracking capabilities. Without advanced technology, it becomes difficult to have an accurate, up to the minute view of inventory levels. Manual systems or older software can result in errors, delays in stock updates, and missed opportunities for automation.

### 3. Limited Warehouse Space and Storage Constraints

Warehouse space can be a significant limiting factor when it comes to inventory control. While bulk procurement offers cost savings, it often requires more storage space. If the warehouse doesn't have enough capacity, it becomes a challenge to take advantage of purchasing in larger quantities, potentially increasing procurement costs.

### 4. Data Discrepancies Due to Manual Processes

Relying on manual data entry for inventory tracking is a common challenge in many businesses. Human error is inevitable, and mistakes in data entry can lead to significant discrepancies between actual stock levels and recorded inventory.

### 5. Disruptions in the Supply Chain

External disruptions, such as natural disasters, transportation delays, geopolitical events, or strikes, can have a significant impact on the supply chain. These interruptions delay the procurement of raw materials, which, in turn, leads to stock shortages and delays in production schedules.

#### Lack of Proper Training for Employees

Even with the best inventory management systems in place, they are only as effective as the people using them. A lack of proper training can result in employees not fully utilizing the features of inventory management tools or

making errors in stock handling.

## **6. Poor Vendor Management**

Effective vendor management is crucial to ensure that raw materials and products are delivered on time and in the correct quantities. However, poor vendor management can result in unreliable suppliers who fail to deliver materials on schedule or supply incorrect products.

## **7. High Holding Costs of Unsold Inventory**

Holding inventory that doesn't move can be an expensive problem. Stock that remains unsold for long periods not only ties up capital but also incurs additional costs for storage, insurance, and maintenance.

## **SUGGESTIONS**

To enhance inventory management at MS Charan Windows, the company should consider investing in an advanced ERP (Enterprise Resource Planning) system that offers real-time tracking and analytics features. Such a system would provide an up to the minute overview of stock levels across various stages of the supply chain, enabling data driven decision-making and reducing human errors. Alongside this, improving employee proficiency in using these digital tools is crucial, and this can be achieved through comprehensive training programs. Training staff to use the ERP system and other digital tools effectively ensures that everyone is capable of managing inventory accurately, reducing inefficiencies, and enhancing operational performance. Another key strategy would be to strengthen relationships with alternative suppliers. Furthermore, adopting predictive analytics would vastly improve demand forecasting, helping the company predict material requirements more accurately and avoid issues like overstocking or stock outs. This can be done by utilizing data driven models based on historical sales, market trends, and external influences, leading to a more streamlined and responsive inventory management process. Additionally, implementing barcode scanning and automating data entry processes would drastically reduce the likelihood of human error, ensuring accurate and real-time inventory tracking. Automation would also help streamline the inventory process by removing repetitive tasks, allowing employees to focus on more critical activities. Optimizing the warehouse layout and expanding storage facilities can also play a major role in inventory management. Redesigning the warehouse to make better use of available space, such as through vertical shelving or creating dedicated zones for high turnover items, would maximize storage capacity and reduce time spent searching for products. Finally, establishing a cross functional team to regularly review and assess the performance of the inventory management system would ensure continuous improvement. This team, consisting of representatives from procurement, sales, IT, and warehouse management, could identify bottlenecks, evaluate inventory efficiency, and implement lean practices to reduce waste and improve inventory turnover. By implementing these suggestions upgrading technology, training staff, diversifying suppliers, using predictive analytics, automating processes, optimizing storage, and setting up regular reviews MS Charan Windows can create a more efficient, cost-effective, and responsive inventory system that not only saves money but also improves customer satisfaction and operational efficiency.

## **CONCLUSION**

For manufacturing businesses like MS Charan Windows Private Limited to continue expanding sustainably, inventory management plays a crucial and indispensable role in their overall success. As an integral function that directly impacts cost control, production timelines, and customer satisfaction, efficient inventory management is a key factor that can determine whether a company thrives or struggles in a competitive market. While MS Charan Windows already follows a number of effective inventory management practices, this study reveals significant

opportunities for improvement, particularly in the areas of technology adoption, process optimization, and workforce development. Embracing advanced technologies such as real-time ERP systems, predictive analytics, and automation could streamline operations, reduce errors, and enhance forecasting accuracy, ultimately leading to better inventory control and cost savings. Additionally, optimizing current processes and workflows, particularly in storage, procurement, and stock management, would ensure that inventory is utilized efficiently, preventing excess stock, waste, and logistical inefficiencies. Furthermore, investing in training programs for employees will not only improve their proficiency in using digital tools but also create a more knowledgeable and capable workforce, better equipped to handle the challenges of modern inventory management. By addressing the challenges outlined in this study, MS Charan Windows will not only be able to lower operational costs but also enhance production efficiency, allowing the company to meet customer demands more effectively and improve overall satisfaction. With a more integrated and proactive inventory system in place, MS Charan Windows will be better positioned to remain competitive in a dynamic and ever-evolving market, respond to changes more effectively, and secure long-term growth and success. The combination of technological advancement, process improvements, and workforce development will ensure that MS Charan Windows stays ahead of the curve, making it more agile and resilient in the face of market fluctuations and future business challenges.

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