



# 19BAE711-WORKING CAPITAL MANAGEMENT

Inventory control is a crucial aspect of supply chain management that involves overseeing the ordering, storing, and use of components and products that a company uses in the production of the items it sells. Effective inventory control ensures that a company maintains the right balance of stock to meet customer demand without excessive oversupply or running out of stock. Here are detailed notes on various aspects of inventory control:

## 1. Types of Inventory

- **Raw Materials:** Basic materials used to produce goods.
- **Work-in-Progress (WIP):** Items that are in the production process but not yet completed.
- **Finished Goods:** Products that are ready for sale.
- **MRO Inventory:** Maintenance, Repair, and Operating supplies that support the production process but are not part of the finished product.

## 2. Inventory Control Systems

- **Periodic Inventory System:** Inventory levels are checked and updated at regular intervals.
- **Perpetual Inventory System:** Inventory records are updated continuously as transactions occur, using barcodes and RFID technology.

## 3. Inventory Management Techniques

- **ABC Analysis:** Categorizes inventory into three categories (A, B, and C) based on importance and value, with A being the most valuable.
- **Just-In-Time (JIT):** Inventory is ordered and received only as needed for production, minimizing holding costs.
- **Economic Order Quantity (EOQ):** Calculates the optimal order quantity that minimizes total inventory costs, including ordering and holding costs.
- **Safety Stock:** Extra inventory held to guard against variability in demand and lead time.
- **Reorder Point (ROP):** The inventory level at which a new order should be placed to avoid stockouts.
- **FIFO and LIFO:** First-In, First-Out (FIFO) and Last-In, First-Out (LIFO) methods for managing inventory flow and accounting.

## 4. Key Metrics and KPIs

- **Inventory Turnover Ratio:** Measures how often inventory is sold and replaced over a period. Higher turnover indicates efficient inventory management.

- **Days Sales of Inventory (DSI):** The average number of days it takes to sell the entire inventory.
- **Fill Rate:** The percentage of customer orders that can be fulfilled from available stock.
- **Carrying Cost:** The total cost of holding inventory, including storage, insurance, and opportunity costs.
- **Stockout Rate:** The frequency of running out of stock, which can affect customer satisfaction and sales.

## 5. Technology in Inventory Control

- **Barcoding and RFID:** Automate tracking of inventory levels and movements.
- **Inventory Management Software:** Provides real-time data, forecasting, and analytics to improve decision-making.
- **Enterprise Resource Planning (ERP) Systems:** Integrate inventory control with other business processes, such as purchasing, sales, and finance.

## 6. Challenges in Inventory Control

- **Demand Variability:** Fluctuations in customer demand can lead to overstocking or stockouts.
- **Supplier Reliability:** Delays or inconsistencies from suppliers can disrupt inventory levels.
- **Seasonality:** Seasonal variations in demand require careful planning and adjustment of inventory levels.
- **Inventory Accuracy:** Discrepancies between actual stock and recorded inventory can cause issues in planning and fulfillment.

## 7. Best Practices

- **Regular Audits:** Conduct periodic physical inventory counts to ensure accuracy.
- **Effective Forecasting:** Use historical data and market analysis to predict future demand accurately.
- **Supplier Management:** Develop strong relationships with reliable suppliers and have backup options.
- **Inventory Segmentation:** Apply different management strategies to different types of inventory (e.g., fast-moving vs. slow-moving).
- **Lean Inventory:** Minimize excess inventory and waste by implementing lean principles.

## 8. Benefits of Effective Inventory Control

- **Cost Reduction:** Lower holding and ordering costs through optimized inventory levels.
- **Improved Cash Flow:** Efficient inventory management frees up cash that can be used for other business needs.
- **Customer Satisfaction:** Maintaining adequate stock levels ensures timely fulfillment of customer orders.

- **Operational Efficiency:** Streamlined inventory processes improve overall productivity and reduce bottlenecks.

## 9. Case Studies and Examples

- **Toyota's JIT System:** Toyota's Just-In-Time inventory system is a benchmark in minimizing waste and improving efficiency.
- **Walmart's Inventory Management:** Walmart uses advanced inventory management technology to maintain high inventory turnover and reduce costs.

## 10. Conclusion

Effective inventory control is essential for the smooth operation and profitability of a business. By employing the right techniques, technologies, and best practices, companies can optimize their inventory levels, reduce costs, and enhance customer satisfaction. Regular review and adaptation to changing market conditions are crucial for maintaining effective inventory control.