

EXPERIMENT NO 2

Case study on Inventory management of Tata Motors

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Case Study:

Inventory management refers to the process of ordering, storing, using, and selling a company's inventory. This includes the management of raw materials, components, and finished products, as well as warehousing and processing of such items. There are different types of inventory management, each with its pros and cons, depending on a company's needs.

The Benefits of Inventory Management

A company's inventory is one of its most valuable assets. In retail, manufacturing, food services, and other inventory-intensive sectors, a company's inputs and finished products are the core of its business. A shortage of inventory when and where it's needed can be extremely detrimental.

At the same time, inventory can be thought of as a liability (if not in an accounting sense). A large inventory carries the risk of spoilage, theft, damage, or shifts in demand. Inventory must be insured, and if it is not sold in time it may have to be disposed of at clearance prices—or simply destroyed.

For these reasons, inventory management is important for businesses of any size. Knowing when to restock inventory, what amounts to purchase or produce, what price to pay—as well as when to sell and at what price—can easily become complex decisions. Small businesses will often keep track of stock manually and determine the reorder points and quantities using spreadsheet (Excel) formulas. Larger businesses will use specialized enterprise resource planning (ERP) software. The largest corporations use highly customized software as a service (SaaS) applications.

Accounting for Inventory

Inventory represents a current asset since a company typically intends to sell its finished goods within a short amount of time, typically a year. Inventory has to be physically counted or measured before it can be put on a balance sheet. Companies typically maintain sophisticated inventory management systems capable of tracking real-time inventory levels.

Inventory is accounted for using one of three methods: first-in-first-out (FIFO) costing; last-in-first-out (LIFO) costing; or weighted-average costing. An inventory account typically consists of four separate categories:

Raw materials — represent various materials a company purchases for its production process. These materials must undergo significant work before a company can transform them into a finished good ready for sale.

Work in process (also known as goods-in-process) — represents raw materials in the process of being transformed into a finished product.

Finished goods — are completed products readily available for sale to a company's customers.

Merchandise — represents finished goods a company buys from a supplier for future resale.

Inventory Management Methods

Depending on the type of business or product being analysed, a company will use various inventory management methods. Some of these management methods include just-in-time (JIT) manufacturing, materials requirement planning (MRP), economic order quantity (EOQ), and days sales of inventory (DSI). There are others, but these are the four most common methods used to analyze inventory.

1. Just-in-Time Management (JIT)

This manufacturing model originated in Japan in the 1960s and 1970s. Toyota Motor (TM) contributed the most to its development. The method allows companies to save significant amounts of money and reduce waste by keeping only the inventory they need to produce and sell products. This approach reduces storage and insurance costs, as well as the cost of liquidating or discarding excess inventory.

JIT inventory management can be risky. If demand unexpectedly spikes, the manufacturer may not be able to source the inventory it needs to meet that demand, damaging its reputation with customers and driving business toward competitors. Even the smallest delays can be problematic; if a key input does not arrive "just in time," a bottleneck can result.

2. Materials Requirement Planning (MRP)

This inventory management method is sales-forecast dependent, meaning that manufacturers must have accurate sales records to enable accurate planning of inventory needs and to communicate those needs with materials suppliers in a timely manner. For example, a ski manufacturer using an MRP inventory system might ensure that materials such as plastic, fiberglass, wood, and aluminum are in stock based on forecasted orders. Inability to accurately forecast sales and plan inventory acquisitions results in a manufacturer's inability to fulfill orders.

3. Economic Order Quantity (EOQ)

This model is used in inventory management by calculating the number of units a company should add to its inventory with each batch order to reduce the total costs of its inventory while assuming constant consumer demand. The costs of inventory in the model include holding and setup costs.

The EOQ model seeks to ensure that the right amount of inventory is ordered per batch so a company does not have to make orders too frequently and there is not an excess of inventory sitting on hand. It assumes that there is a trade-off between inventory holding costs and inventory setup costs, and total inventory costs are minimized when both setup costs and holding costs are minimized.

4. Days Sales of Inventory (DSI)

This financial ratio indicates the average time in days that a company takes to turn its inventory, including goods that are a work in progress, into sales. DSI is also known as the average age

of inventory, days inventory outstanding (DIO), days in inventory (DII), days sales in inventory or days inventory and is interpreted in multiple ways.

Indicating the liquidity of the inventory, the figure represents how many days a company's current stock of inventory will last. Generally, a lower DSI is preferred as it indicates a shorter duration to clear off the inventory, though the average DSI varies from one industry to another.

Methods for Inventory management in TATA Motors:

Demand Forecasting:

Utilize accurate demand forecasting to estimate the quantity and types of vehicles and spare parts that will be needed. This involves analyzing historical sales data, market trends, and other relevant factors.

Just-in-Time (JIT) Inventory:

Implement JIT principles to minimize carrying costs and reduce the risk of obsolete inventory. JIT ensures that inventory levels are closely aligned with actual demand, reducing excess stock.

Safety Stock:

Maintain a safety stock level to account for unexpected fluctuations in demand or supply chain disruptions. This helps prevent stockouts during periods of increased demand or delays in the supply chain.

ABC Analysis:

Classify inventory items based on their importance and value. The ABC analysis categorizes items as A, B, or C, with A being the most valuable. This helps prioritize attention and resources on managing high-value items more closely.

Collaboration with Suppliers:

Foster strong relationships with suppliers to ensure timely and reliable deliveries. Collaborative planning with suppliers can lead to better coordination, reduced lead times, and improved overall supply chain efficiency.

Technological Solutions:

Implement advanced inventory management systems and technologies, such as RFID, barcoding, or warehouse management systems (WMS). These technologies enhance accuracy, visibility, and control over inventory levels.

Regular Audits and Cycle Counts:

Conduct regular physical inventory audits and cycle counts to ensure that actual inventory levels match the records. This helps identify discrepancies and enables prompt corrective actions.

Leverage Data Analytics:

Use data analytics to gain insights into historical sales patterns, seasonal trends, and other factors influencing demand. Advanced analytics can improve the accuracy of demand forecasting.

Optimize Order Quantities:

Use economic order quantity (EOQ) models to determine the optimal order quantity that minimizes total inventory costs, including holding costs and order costs.

Continuous Improvement:

Regularly review and update inventory management processes based on performance metrics and key performance indicators (KPIs). Continuous improvement ensures that the inventory management system remains agile and responsive to changes in the business environment.

It's important to note that the specifics of Tata Motors' inventory management practices would require access to the company's internal data and strategy documents. The effectiveness of inventory management also depends on various external factors, including market conditions, regulatory changes, and global supply chain dynamics.

Case Study Analysis:

Q 1: What inventory management strategies does Tata Motors employ to align with market demand?

Ans: Tata Motors employs demand forecasting techniques to estimate the quantity and types of vehicles and spare parts needed. This involves analysing historical sales data, market trends, and other relevant factors to ensure that inventory levels closely match actual demand.

Q 2: How does Tata Motors minimize carrying costs and reduce the risk of obsolete inventory in its inventory management practices?

Ans: Tata Motors implements Just-in-Time (JIT) principles to minimize carrying costs. JIT ensures that inventory levels are closely aligned with actual demand, reducing excess stock and mitigating the risk of holding obsolete inventory.

Q 3: What technologies and systems do Tata Motors use to enhance accuracy and control in its inventory management?

Ans: Tata Motors leverages advanced inventory management systems and technologies, including RFID, barcoding, and warehouse management systems (WMS). These technologies improve accuracy, visibility, and control over inventory levels, leading to more efficient operations.

Q 4: How does Tata Motors collaborate with suppliers to ensure timely and reliable deliveries in its inventory management practices?

Ans: Tata Motors fosters strong relationships with suppliers, engaging in collaborative planning to ensure timely and reliable deliveries. This collaboration with suppliers helps in better coordination, reduced lead times, and improved overall supply chain efficiency.

Q 5: What measures does Tata Motors take to continuously improve its inventory management processes?

Ans: Tata Motors regularly reviews and updates its inventory management processes based on performance metrics and key performance indicators (KPIs). Continuous improvement initiatives ensure that the inventory management system remains agile and responsive to changes in the business environment, contributing to operational efficiency.