INVENTORY MANAGENT SYSTEM

What Is Inventory Management?

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.

Inventory refers to the stock of goods, materials, or products that a business or organization holds at a specific point in time. It is a crucial aspect of various industries, including retail, manufacturing, and distribution. The purpose of maintaining an inventory is to meet customer demand, support production processes, and ensure smooth business operations.

There are different types of inventory, including:

Raw Materials: These are the basic materials used in the manufacturing process. They have not undergone any processing and are used to create finished goods.

Work-in-Progress (WIP): This includes goods that are in the process of being manufactured but are not yet completed. They represent the intermediate stages of production.

Finished Goods: These are the final products that are ready for sale to customers. Finished goods have completed the manufacturing process and are in their final form.

MRO (Maintenance, Repair, and Operations) Inventory: These are materials and supplies used in the day-to-day operations of a business. They are not directly used in the production process but are essential for ongoing operations.

NOTE

Efficient inventory management is essential for businesses to balance the costs associated with holding inventory against the benefits of having an adequate supply to meet customer demand. Excessive inventory can lead to increased carrying costs and the risk of obsolescence, while insufficient inventory may result in stockouts, missed sales opportunities, and customer dissatisfaction.

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.

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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:

1. 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.
2. Work in process (also known as goods-in-process) — represents raw materials in the process of being transformed into a finished product.
3. Finished goods — are completed products readily available for sale to a company's customers.
4. 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 analyzed, 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.2 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.3 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

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.

Inventory Management Red Flags

If a company frequently switches its method of inventory accounting without reasonable justification, it is likely its management is trying to paint a brighter picture of its business than what is true. The SEC requires public companies to disclose LIFO reserve that can make inventories under LIFO costing comparable to FIFO costing.

Frequent inventory write-offs can indicate a company's issues with selling its finished goods or inventory obsolescence. This can also raise red flags with a company's ability to stay competitive and manufacture products that appeal to consumers going forward.

What Are the Four Main Types of Inventory Management?

The four types of inventory management are just-in-time management (JIT), materials requirement planning (MRP), economic order quantity (EOQ) , and days sales of inventory (DSI). Each inventory management style works better for different businesses, and there are pros and cons to each type.

How Did Tim Cook Use Inventory Management at Apple?

Tim Cook is known as an inventory genius. “Inventory is like dairy products,” Cook is quoted saying. “No one wants to buy spoiled milk.” For this reason, inventory management can save a company millions.

What Is an Example of Inventory Management?

Let's look at an example of a just-in-time (JIT) inventory system. With this method, a company receives goods as close as possible to when they are actually needed. So, if a car manufacturer needs to install airbags into a car, it receives airbags as those cars come onto the assembly line instead of having a stock on supply at all times.

The Bottom Line

Inventory management is a crucial part of business operations. Proper inventory management depends on the type of business and what type of product it sells. There may not be one perfect type of inventory management, because there are pros and cons to each. But taking advantage of the most fitting type of inventory management style can go a long way.