**Unit 4**

**Material Management-**

**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.

## 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.

Economic order quantity

The Economic order quantity (EOQ) refers to the ideal order quantity a company should purchase in order to minimize its inventory costs, such as holding costs, shortage costs, and order costs. EOQ is necessarily used in inventory management which is the oversight of the ordering, storing, and use of a company's inventory. Inventory management is tasked with calculating the number of units a company should add to its inventory with each batch order to reduce the total costs of its inventory.

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.

The goal of the EOQ formula is to identify the optimal number of product units to order. If achieved, a company can minimize its costs for buying, delivering, and storing units. The EOQ formula can be modified to determine different production levels or order intervals, and corporations with large [supply chains](https://www.investopedia.com/terms/s/supplychain.asp) and high variable costs use an algorithm in their computer software to determine EOQ.

EOQ is an important [cash flow](https://www.investopedia.com/terms/c/cashflow.asp) tool. The formula can help a company control the amount of cash tied up in the inventory balance. For many companies, inventory is its largest asset other than its human resources, and these businesses must carry sufficient inventory to meet the needs of customers. If EOQ can help minimize the level of inventory, the cash savings can be used for some other business purpose or investment.

## Limitations of EOQ

The EOQ formula assumes that consumer demand is constant.1 The calculation also assumes that both ordering and holding costs remain constant. This fact makes it difficult or impossible for the formula to account for business events such as changing consumer demand, seasonal changes in inventory costs, lost sales revenue due to inventory shortages, or purchase discounts a company might realize for buying inventory in larger quantities.

**Just-in-Time Management (JIT)**

This manufacturing model originated in Japan in the 1960s and 1970s. Toyota Motor ([TM](https://www.investopedia.com/markets/quote?tvwidgetsymbol=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.

ccupational safety and health (OSH) is a multidisciplinary field concerned with the safety, health, and welfare of people at work. It is commonly referred to as occupational health and safety (OHS), occupational health or workplace health and safety (WHS).

As defined by the World Health Organization (WHO) "occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards." Health has been defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Occupational health is a multidisciplinary field of healthcare concerned with enabling an individual to undertake their occupation, in the way that causes least harm to their health. It contrasts, for example, with the promotion of health and safety at work, which is concerned with preventing harm from any incidental hazards, arising in the workplace.

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Safety aspects in work system design –

A system of work is a set of procedures according to which work must be carried out. Safe systems of work are required where hazards cannot be eliminated and some risk still exists. When developing your safe systems of work, consider how the work is carried out and the difficulties that might arise and expose you or your workers to risk. Then develop procedures detailing how the work must be done to minimize or reduce the risk of accident or injury.

Systems of work must be communicated and understood by the relevant employees. The detail of the system of work, for example, whether oral or written, will depend on the level of risk and the complexity of the work involved. For example, high-risk activities with a risk of serious injury or death must have documented systems of work that are strictly supervised and enforced.

The importance of safe systems of work stems from the recognition that most accidents are caused by a combination of factors (plant, substances, lack of training and/or supervision, etc.). Hence prevention must be based on an integral approach and not one which only deals with each factor in isolation. The adoption of a safe system of work provides this integral approach because of an effective, safe system:

* It is based on looking at the job as a whole;
* Starts from an analysis of all foreseeable hazards, for example, physical, chemical, and health;
* Brings together all the necessary precautions, including design, physical precautions, training, monitoring, procedures