A Course Material on

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Subject : LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Subject Code : **BBA404**

Class **: BBA 4th Semester/ 2nd Year**

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2021

LECTURE -12

UNIT – 2

Supply Chain Inventory Management

2.1 What is Inventory Management and Why is it Important?

Inventory management refers to the process of ordering, storing and using a company's goods or materials. Successfully managing inventory allows businesses to meet the demand level of their consumers with an appropriate amount of supply. Ineffective management can result in excess inventory which runs the risk of spoilage, damage or a shift in demand that causes stock to pile up even further. If inventory isn't sold before any of these happen, it is often sold at clearance prices or destroyed.

In a survey of 2,467 U.S. supply chain professionals conducted by the Association for Supply Chain Management (ASCM), 58% of respondents reported that inventory management is a top technical skill in their field. It's an essential component of keeping supply chains running smoothly. Effective inventory management requires a reliable technology platform and communication between all parties involved.

Without inventory management, businesses would experience higher levels of waste and excess storage costs. Communicating with customers about product availability and estimated shipping dates becomes impossible when accurate and up-to-date information is missing.

Improvement Inventory Management in Supply Chain

Effective supply chain management starts with technology. Eliminating traditional and often manual strategies saves time and reduces the risk of error. Digitally managing operations makes any information recorded simpler to share across an entire supply chain. If the company has already implemented a transportation management system (TMS), it is already halfway to full supply chain optimization.

Transportation management and inventory management are two essential parts of a successful supply chain. Transportation management systems (TMS) deal with the movement of products across the supply chain and provide a necessary platform for carriers, shippers and manufacturers to communicate. Inventory management platforms focus specifically on the quantity and type of product in a warehouse or other storage facility. Together, these pieces of technology form the basis for companies to get their products into the hands of customers as efficiently as possible.

For instance, when a company leverages a TMS to react quickly to a customer's order, product moves swiftly out of the warehouse and is no longer taking up inventory space. That space is then available for fresher inventory to replace it. Inventory management systems can react to those quick shipments and ensure that the oldest inventory is being shipped first.

Tracking spoiled or faulty inventory is also made easier when inventory management and a TMS work hand in hand. With a TMS, products are tracked down and can be easily traced once they leave the warehouse. When an item is on recall, inventory management teams have all the relevant information they need to find and isolate bad product.

Certain transportation management systems are able to integrate directly with ERPs like NetSuite or Microsoft Dynamics. When integrated, these technologies offer logistics professionals increased shipment accuracy by eliminating the need for manual entry, significant time savings, and access to meaningful analytics for cost allocation. Integrations between a TMS and an ERP can help bridge the gap between inventory management and transportation management by sharing data between systems to make sure all parties involved have accurate, real-time information on inventory.

2.2 Economic Order Quantity

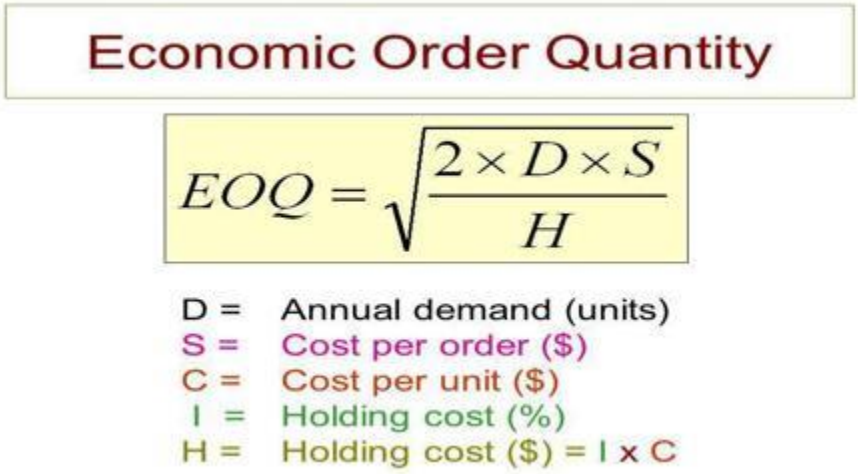
The **economic order quantity (EOQ)** refers to the ideal order quantity a company should purchase in order to minimize its inventory costs, such as holding costs, shortage costs, and order costs. EOQ is necessarily used in inventory management, which is the oversight of the ordering, storing, and use 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 economic order quantity (EOQ) refers to the ideal order quantity a company should purchase in order to minimize its inventory costs.
- A company's inventory costs may include holding costs, shortage costs, and order costs.
- The economic order quantity (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.

- EOQ is necessarily used in inventory management, which is the oversight of the ordering, storing, and use of a company's inventory.

The Formula for Economic Order Quantity (EOQ)



How to Calculate the Economic Order Quantity (EOQ)

To calculate the EOQ for inventory you must know the setup costs, demand rate, and holding costs.

Setup costs refer to all of the costs associated with actually ordering the inventory, such as the costs of packaging, delivery, shipping, and handling. Demand rate is the amount of inventory a company sells each year.

Holding costs refer to all the costs associated with holding additional inventory on hand. Those costs include warehousing and logistical costs, insurance costs, material handling costs, inventory write-offs, and depreciation.

Ordering a large amount of inventory increases a company's holding costs while ordering smaller amounts of inventory more frequently increases a company's setup costs. The EOQ model finds the quantity that minimizes both types of costs.