
Professional Certificate in AI-Driven Pharmaceutical Supply Chain Management

Demand Forecasting and Inventory Management

ABC Analysis: A method of inventory categorization that classifies items based on their value or usage. ABC analysis divides items into three categories: A items have high value or usage, B items have moderate value or usage, and C items have low value or usage. This approach helps prioritize inventory management efforts.

Demand Forecasting: The process of estimating future demand for a product or service. Demand forecasting uses historical data, market trends, and other factors to predict future demand. Accurate demand forecasting is crucial for effective inventory management, as it helps organizations plan for future production and stocking needs.

Economic Order Quantity (EOQ): A mathematical model used to determine the optimal order quantity that minimizes total inventory costs. EOQ considers order costs, carrying costs, and demand variability to determine the most cost-effective order quantity.

Inventory Turnover: A ratio that measures the number of times a company's inventory is sold and replaced within a given time period. A higher inventory turnover ratio indicates that a company is efficiently managing its inventory and reducing its carrying costs.

Just-In-Time (JIT) Inventory: A inventory management strategy that aims to minimize inventory levels by receiving goods and materials only as they are needed in the production process. JIT relies on close communication with suppliers and efficient production processes to reduce lead times and inventory costs.

Lead Time: The time between the initiation of a purchase order or production process and the delivery of the goods or materials. Lead time includes ordering, processing, and delivery times. Accurate demand forecasting and inventory management can help reduce lead times and improve supply chain efficiency.

Reorder Point: The inventory level at which a new order should be placed to ensure that stock is replenished before it runs out. Reorder point calculations consider lead time, demand variability, and desired service levels to determine the optimal reorder point.

Safety Stock: Extra inventory kept on hand to guard against variability in demand or lead time. Safety stock provides a buffer against stockouts and helps ensure that customer service levels are maintained.

Service Level: A measure of the probability that a customer's demand will be satisfied from inventory on hand. Service level is often expressed as a percentage and is used to balance inventory costs and customer satisfaction.

SKU (Stock Keeping Unit): A unique identifier for a specific product and its attributes, such as size, color, and style. SKUs help organizations track inventory levels and sales data for individual products.

Stockout: A situation in which inventory levels are insufficient to meet customer demand. Stockouts can result in lost sales, reduced customer satisfaction, and damage to a company's reputation.

Vendor Managed Inventory (VMI): A inventory management strategy in which suppliers manage their customers' inventory levels. VMI can help improve supply chain efficiency, reduce inventory costs, and improve customer service levels.

ABC Analysis: In the context of supply chain management, ABC analysis is a method for categorizing items or products based on their importance or value. A items are the most valuable or critical, B items are of moderate importance, and C items are the least valuable or critical. This approach helps organizations prioritize resources and manage inventory more effectively.

BOM (Bill of Materials): A comprehensive list of all the raw materials, components, and assemblies needed to produce a product. BOMs help organizations manage production processes, ensure accurate inventory levels, and reduce production costs.

Demand Planning: The process of forecasting and planning for future demand for a product or service. Demand planning uses historical data, market trends, and other factors to predict future demand and adjust production and inventory levels accordingly.

Distribution Requirements Planning (DRP): A inventory management strategy that uses demand forecasts to plan for the distribution of goods throughout a supply chain. DRP helps organizations optimize inventory levels, reduce lead times, and improve customer service levels.

Enterprise Resource Planning (ERP): A integrated software system used to manage business processes, including inventory management, production planning, and financial management. ERP systems help organizations streamline operations, reduce costs, and improve supply chain efficiency.

Inventory Days of Supply (DOS): A measure of the number of days that a company's inventory would last if no new purchases were made. DOS is calculated by dividing the total quantity of inventory on hand by the average daily usage.

Inventory Management System (IMS): A software system used to manage and track inventory levels, orders, and sales data. IMS helps organizations optimize inventory levels, reduce carrying costs, and improve supply chain efficiency.

Material Requirements Planning (MRP): A inventory management strategy that uses a bill of materials and demand forecasts to plan for the production of goods. MRP helps organizations optimize inventory levels, reduce lead times, and improve supply chain efficiency.

Perpetual Inventory System: A inventory management system that continuously updates inventory levels as sales and purchases are made. Perpetual inventory systems help organizations maintain accurate inventory levels and reduce the risk of stockouts or overstocking.

Periodic Inventory System: A inventory management system that conducts periodic physical counts of inventory to determine inventory levels. Periodic inventory systems are less accurate than perpetual inventory systems but are simpler to implement and maintain.

Push-Pull Inventory System: A hybrid inventory management strategy that combines the benefits of push and pull inventory systems. In a push-pull system, production is based on forecasts (push) while distribution is based on customer demand (pull).

Reorder Point Formula: The formula used to calculate the inventory level at which a new order should be placed to ensure that stock is replenished before it runs out. The formula takes into account lead time, demand variability, and desired service levels.

Sales and Operations Planning (S&OP): A management process that aligns sales, marketing, and operations to achieve business objectives. S&OP helps organizations balance supply and demand, optimize inventory levels, and improve supply chain efficiency.

SKU Proliferation: The phenomenon of increasing the number of stock keeping units (SKUs) offered by a company. SKU proliferation can lead to higher inventory costs, reduced supply chain efficiency, and lower customer service levels.

Vendor-Managed Inventory (VMI): A supply chain management strategy in which suppliers manage their customers' inventory levels. VMI can help improve supply chain efficiency, reduce inventory costs, and improve customer service levels.

ABC Analysis: In the context of pharmaceutical supply chain management, ABC analysis is a method for categorizing drugs or medical supplies based on their importance or value. A items are the most critical, such as high-value drugs or medical supplies with short shelf lives. B items are of moderate importance, and C items are the least critical. This approach helps organizations prioritize resources and manage inventory more effectively.

Batch Management: The process of managing and tracking the production and distribution of batches of drugs or medical supplies. Batch management helps ensure compliance with regulatory requirements, reduce the risk of errors, and improve supply chain efficiency.

Cold Chain Management: The management of temperature-sensitive drugs or medical supplies throughout the supply chain. Cold chain management ensures that drugs and medical supplies are stored and transported at the appropriate temperature to maintain their efficacy and safety.

Demand Sensing: The use of real-time data and analytics to detect and respond to changes in demand for

drugs or medical supplies. Demand sensing can help organizations adjust production and inventory levels to meet changing demand patterns.

Direct Store Delivery (DSD): A distribution strategy in which manufacturers deliver products directly to retail stores rather than through distribution centers. DSD can help improve supply chain efficiency, reduce lead times, and improve customer service levels.

Drug Shortages: A situation in which there is insufficient supply of a drug to meet demand. Drug shortages can be caused by a variety of factors, including manufacturing issues, regulatory changes, and supply chain disruptions.

Expiry Date Management: The process of managing and tracking the expiration dates of drugs or medical supplies. Expiry date management helps ensure that drugs and medical supplies are used before they expire, reducing waste and improving patient safety.

Good Distribution Practices (GDP): A set of guidelines for the proper distribution of pharmaceutical products. GDP ensures that drugs and medical supplies are stored and transported under appropriate conditions to maintain their quality and efficacy.

Pharmaceutical Serialization: