ONLINE WEBINAR

INVENTORY MANAGEMENT

Creating a systematic approach to sourcing, storing, and selling inventory

PRESENTED BY

Lean QA
Experience Excellence

ASA
AVIATION SUPPLIERS ASSOCIATION

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Webinar Overview

Outline of topics

- Strategic Inventory Management
- Types of Inventory
- The Value & Cost of Inventory
- Inventory Planning
- Operations Planning
- Inventory Measurements
- Inventory Management Tools

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CONTROL THE INVENTORY.
CONTROL THE PROFITS.

JOSEPH BRANDT

Strategic Inventory Mgmt.

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Approaching inventory management with a plan is crucial.

During times like these, businesses should pay closer attention to their inventory & the carrying costs that come with it.

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What is inventory

Assets & liabilities.
The definition: goods or materials that a business holds for resale or manufacture or repair

What is inventory management?

Controlling the ordering, storage, & use of goods and materials.

Scope of Inventory Management

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- Replenishment lead times
- Inventory carrying costs
- Asset management
- Inventory forecasting
- Inventory valuation
- Inventory visibility
- Quality management
- Replenishment
- Returns & defects
- Demand forecasting

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Classifying Types of Inventory

Why classify & identify inventory?

As an inventory planner/manager you want to ensure that your warehouse is organized and that you can easily identify high moving or slow moving stock.

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Types of Inventory

RAW MATERIAL
Unprocessed material used to produce goods

WORK IN PROCESS (WIP)
In-process inventory (partially finished)

FINISHED GOODS (FG)
Goods completed by the process

BUFFER INVENTORY
Supply of inputs held as a reserve in case of future demand

JIT (JUST IN TIME) & VMI (VENDOR MANAGED INVENTORY)
Inventory following a pull system

TRANSIT OR TRANSFER INVENTORY
Material moving between locations

Inventory Classifications

HIGH MOVING - A

- Items that sell out almost as fast as they're produced or brought in

SLOW MOVING - B,C

- Items that take some time to sell

DEAD STOCK - D

- Inventory that hasn't moved and most likely will not move (costing money)

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Inventory Valuation

Why it's important

Inventory valuation is the monetary amount associated with the goods in the inventory at the end of an accounting period. The valuation is based on the costs incurred to acquire the inventory and get it ready for sale. Valuation allows you to evaluate your Cost of Goods Sold (COGS).

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INVENTORY VALUATION

Specific Identification

Every item in your inventory is tracked from the time it's stocked to when it's sold. Usually used for large items that can be easily identified. The primary requirement is that you should be able to track every item with RFID tag, stamped receipt date, P/N, or Lot number.

Inventory Accuracy

Inventory accuracy is attained using cycle counts or annual physical inventory counts. Cycle counts are preferred because they provide real time inventory levels. You can use ABCD analysis in determining which items should be counted more frequently.

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INVENTORY VALUATION

FIFO (First-In, First-Out)

Based on the premise that the first inventory purchased is the first to be sold. The remaining assets in inventory are matched to the assets that are most recently purchased or produced. During inflation, the FIFO method yields a higher value of the ending inventory, lower cost of goods sold, and a higher gross profit. However, unlike LIFO it doesn't offer tax benefits.

LIFO (Last-In, First-out)

The assumption is that the newer inventory is sold first while the older inventory remains in stock. The main reason to use LIFO is when businesses expect the inventory cost to increase over time and lead to a price inflation. By moving high-cost inventories to cost of goods sold, the reported profit levels can be lowered. This allows businesses to pay less tax.

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Inventory Planning

Setting Your Business Up For Success

A company's ability to understand and act on inventory planning can make or break their growth, profitability, and ultimate success.

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THE COST OF POOR INVENTORY PLANNING

- Excess inventory and obsolescence
- Inventory shortages and out-of-stocks
- Frequent back-ordering
- Tension between your company and it's suppliers
- Customer dissatisfaction
- Excesses and/or shortages of storage capacity

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Inventory Planning Process

1. Define Your Product

2. Apply the 4P Principle

4P

Product

Process

People

Profit

3. Evaluate Demand

- Knowing how to evaluate demand
- Setting up demand review meetings

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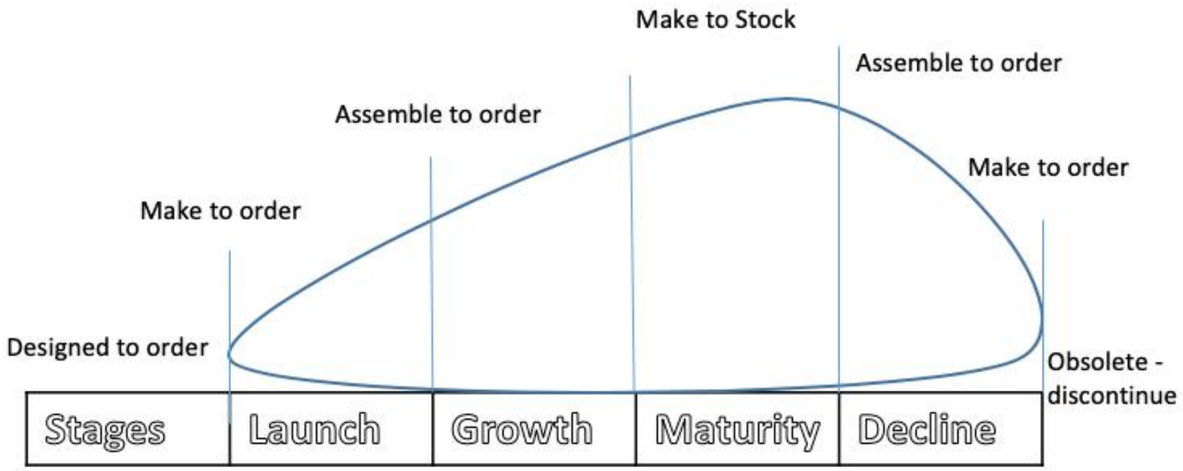
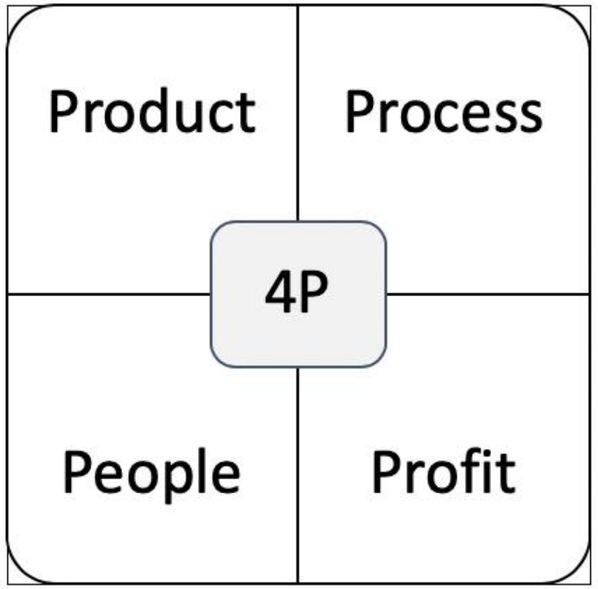
Inventory Planning Process

Product Life Cycle



4P Principle



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Questions to ask when evaluating demand

- What are Min Max Inventory Levels?
- What is Economic Order Quantity (EOQ)?
- What is Safety Stock?
- What is Re-Order Point?
- What is Historical Demand?
- What is Annual Usage?

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Primary objective of inventory management is to minimize relevant costs.

We should ask two fundamental questions:

1. How much should we buy (or manufacture) at a time?
2. When should we buy (or manufacture)

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Evaluating Demand

MIN MAX INVENTORY LEVELS

The projected stock must not fall below the minimum level. Max level is the maximum quantity which has to be kept in store, beyond which it increases cost of capital.

ECONOMIC ORDER QUANTITY (EOQ)

Optimum inventory level for purchasing (for stock) or when setting up production run

SAFETY STOCK

Risk mitigation against uncertainty - helps to prevent stock outs

EOQ Formula

$$EOQ = \sqrt{\frac{2(AD) \times CP}{ICC}}$$

LEGEND:
D = Annual Demand in units
CP = Cost of Purchasing
ICC = Inventory Carrying Cost

Key Point:
EOQ formula is best applied in situations where demand, cost of purchasing, and inventory carrying costs stay constant over time.

EXAMPLE

ANNUAL DEMAND: 4,000 units (AD)
PRICE: $20.00
COST OF PURCHASING: $2.00 (CP)
INVENTORY CARRYING COST: $20 X 3% = $0.60 (ICC)

$$EOQ = \sqrt{\frac{2(AD) \times CP}{ICC}}$$

$$EOQ = \sqrt{\frac{2(4000) \times 2.00}{0.60}}$$

$$EOQ = \sqrt{\frac{16,000}{0.60}}$$

$$EOQ = \sqrt{26,666.67}$$

EOQ = 163 UNITS

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Evaluating Demand

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RE-ORDER POINT

Safety stock + average usage during lead time (lead time is the time interval between placing an order and receiving delivery)

HISTORICAL DEMAND

Reviewing historical data to forecast future demand.

ANNUAL USAGE AKA EAU

Estimated Annual Usage is the quantity of a component or material used in a year multiplied by it's unit cost. EAU is the annual consumption report for materials.

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Operations Planning

A Company-Wide Strategic Plan

Operations planning determines the operation rates and resources required to meed the demand plan and build inventory - or backlog

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Ops Planning

Throughput: best described as the rate at which a system generates it's products per unit of time. Essentially, throughput is the number of items, passing through a system or process. Understanding the throughput will help you determine inventory levels and work in progress.

CALCULATING THROUGHPUT

I = R x T

I = number of units contained within the system, inventory

T = Time it takes for all the inventory to go through the process (flow time)

R = rate at which the process is delivering the throughput (TaKT) if you solve for R you will get R = I/T

INVENTORY MEASUREMENTS

INVENTORY TURN OVER

Measure of the number of times inventory is sold or used in a time period such as a year.

Inventory turn =

Cost of Goods Sold / Average Inventory

COGS = Beginning Inventory + Purchases During the Period – Ending Inventory.

ORDER CYCLE TIME

Order cycle time measures the time from when a customer places an order to when they receive their purchased product. This reflects how effective your inventory management, supply chain, and fulfillment operations are.

STOCK OUTS

The frequency of inventory requests without available stock. The number of stock outs, or frequency of inventory requests without available stock, is measured by taking the percentage of number of stock unable to be supplied of monthly or annual sales volume

Stock outs =

Frequency of stock outs / Monthly Sales Volume

CARRYING COST OF INVENTORY

An invaluable metric for measuring how much of a company's working capital is tied up in inventory. These include put-away, costs of obsolescence and how effective warehouse management systems are in reducing fulfillment costs.

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INVENTORY MANAGEMENT TOOLS

- ABCD Analysis
- Enterprise Resource Planning (ERP)
- Evaluating Demand Meetings
- Measurements that you can track

"Who needs a super hero when you are a top inventory control executive"

We hope this webinar has given you the confidence and know-how to become the inventory champion of your business.

AK Trikha

CEO of Lean QA
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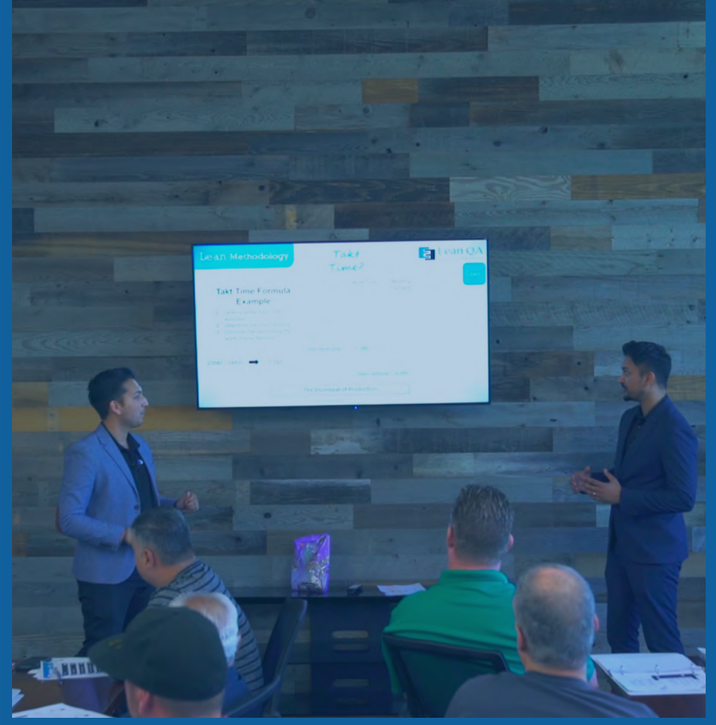
Lean QA provides highly effective coaching & consulting to help companies increase profit & thrive in a competitive market.

DEEP INDUSTRY EXPERIENCE

Over 40+ years of Aerospace Industry experience (fortune 100 and small business).

UNIQUE PURPOSE

AK helps people simplify complex concepts so they can apply the tools needed to significantly improve their businesses.



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Services

- Inventory Management Consulting & Coaching
- AS 9100D Audit Prep Kits
- AS 9120B Audit Prep Kits
- Quality Standards Implementation
- Business Soft & Hard Skills Training / Coaching
- Internal Auditing
- Lean Six Sigma Training & Implementation
- Root Cause Analysis

References

"Matching Supply With Demand" - Cachon | Terwiesch

"Knowledge Based Management" - Schmidt | Kiemele | Berdine

"Principles of Operations Management" - Heizer | Render

"Distribution in Inventory Management" - Gordon Graham