SNS COLLEGE OF TECHNOLOGY

Coimbatore - 35

23BAT613 – Operations Management

Case Study on Economic Order Quantity

Presented by

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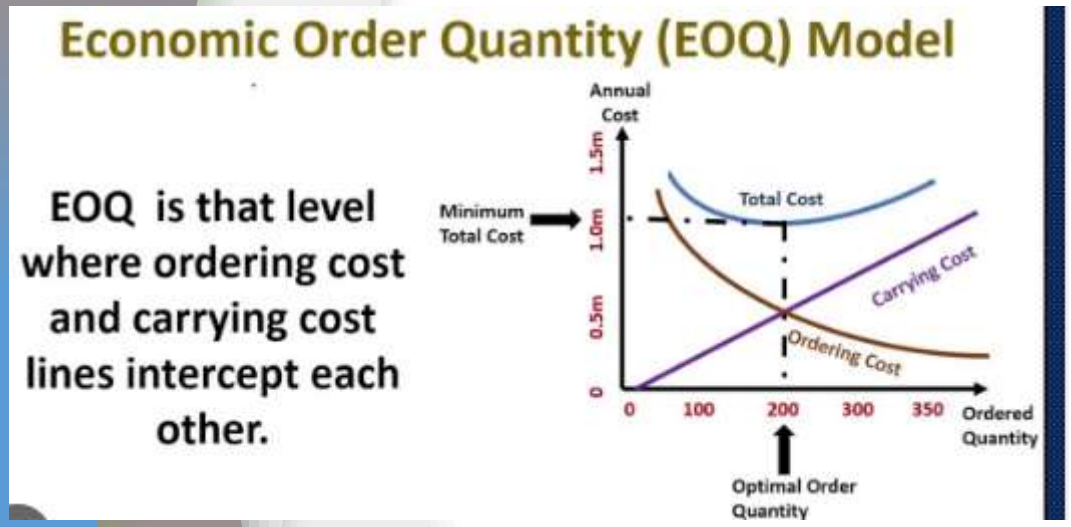
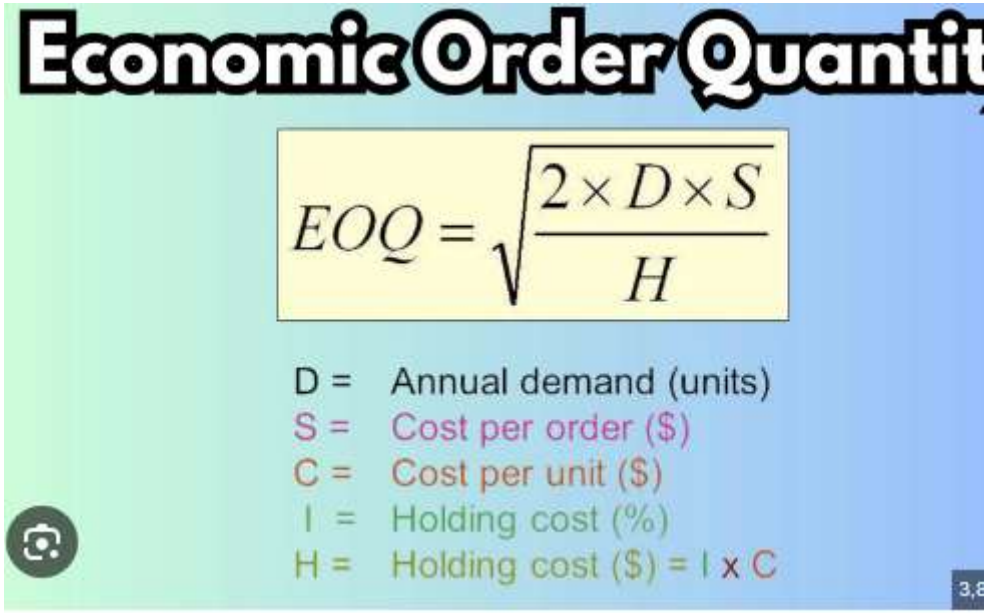
RECAP:

Inventory Management and Control

Today's Topic:

Economic Order Quantity





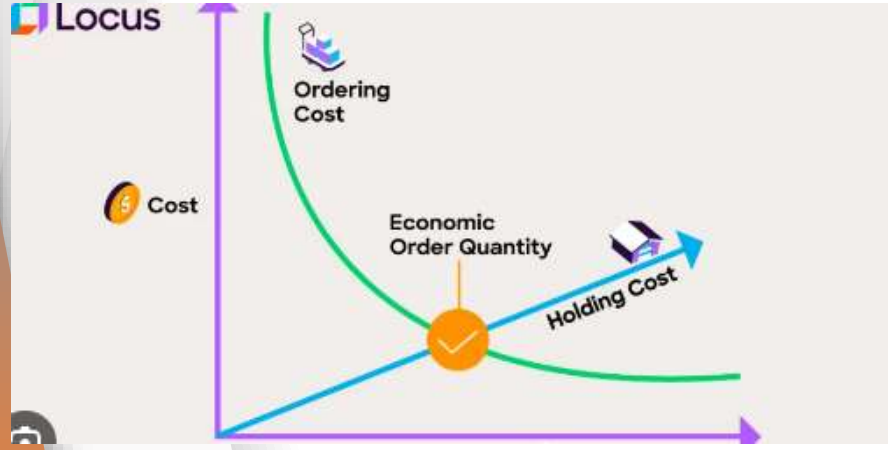
Definition

- Economic order quantity (EOQ) is a calculation companies perform that represents their ideal order size, allowing them to meet demand without overspending. Inventory managers calculate EOQ to minimize holding costs and excess inventory.

$$EOQ = \sqrt{\frac{2 * Demand * Ordering\ Costs}{Holding\ Costs}}$$

Problem

- The John Equipment Company estimates its carrying cost at 15% and its ordering cost at $9 per order. The estimated annual requirement is 48,000 units at a price of $4 per unit.



Required?

- What is the most economical number of units to order?
- How many orders should be placed in a year?
- How often should an order be placed?

Solution

- **What is the most economical number of units to order?**

HOW MUCH TO ORDER

The basic economic order quantity (EOQ) model.

Problem

A manager receives a forecast for next year. Demand is projected to be 600 units for the first half of the year and 900 units for the second half. The monthly holding cost is $2 per unit, and it costs an estimated $55 to process an order.

Given:

$D_1 = 600$ units $D_2 = 900$ units $H = \$2$ $S = \$55$

c. If the vendor is willing to offer a discount of $10 per order for ordering in multiples of 50 units (e.g., 50, 100, 150), would you advise the manager to take advantage of the offer in either period? If so, what order size would you

Given

Annual requirement = 48,000 units

Ordering cost = $9 per order

Carrying cost = 15% of per-unit cost

Per unit cost = $4 per unit

Solution

- What is the most economical number of units to order?

$$EOQ = \sqrt{2DCo/PCi}$$

$$= \sqrt{\frac{2 \times 48{,}000 \times 9}{4 \times 15\%}}$$

$$= \sqrt{\frac{864{,}000}{0.6}}$$

Given

Annual requirement = 48,000 units

Ordering cost = $9 per order

Carrying cost = 15% of per-unit cost

Per unit cost = $4 per unit

Solution

- What is the most economical number of units to order?

$$EOQ = \sqrt{2DCo/PCi}$$

Given

Annual requirement = 48,000 units

Ordering cost = $9 per order

Carrying cost = 15% of per-unit cost

Per unit cost = $4 per unit

$$= \sqrt{\frac{864,000}{0.6}}$$

$$= \sqrt{1,440,000}$$

$$= 1,200 \text{ units}$$

Conclusion

- What is the most economical number of units to order?