

Computer Laboratory Session 8

Aim

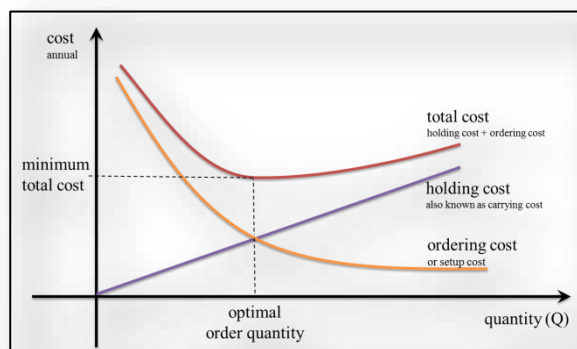
To manage inventory using the Economic Order Quantity system

Objectives

1. To find the economic order quantity
2. To determine the total costs
3. To propose the order dates

Challenge – Supermarket inventory management

A supermarket wants to order pallets of a certain rice product, so that it can fulfil its demand $D = 10,000$ pallets. You have determined the annual carrying cost per item $c_c = £0.75$. You have found out that the ordering cost is: $c_o = £150$ per order.



Tasks

1. What is the optimal order quantity?

$$Q_{opt} = \sqrt{2D \frac{c_o}{c_c}}$$

2. What is the holding cost? $c_c \frac{Q_{opt}}{2}$

3. What is the ordering cost? $c_o \frac{D}{Q_{opt}}$

4. What is the total annual inventory cost? $TC_{min} = c_o \frac{D}{Q_{opt}} + c_c \frac{Q_{opt}}{2}$

5. How many orders have to be done per year? $\frac{D}{Q_{opt}}$

6. What is the cycle time? (i.e. when do the orders have to be done?)

a. Assume: 6x52 – 6 days

7. At which dates should the orders be done? (year 2014)

Annual Demand	10,000 units
Costs per order	£150.00
Holding costs per item	£0.75
Optimal order quantity	2,000.0 units
Orders per year	5.0
Working days per year	306 days
Cycle time	61.2 days
Total ordering costs	750
Total holding costs	750
Total costs	1500

