

Economic order quantities

Determines the volume and frequency of orders that minimise the logistic costs within a specific time window.

Q : Order Volume h :
 S : Ordering Costs Holding
 C : Unit Cost Cost
 D : Demand I :
 Handling
 Cost

Total Ordering Costs = # of orders * costs per order $O = DS/Q$

Total Holding costs = Average holding costs * order volume $H = \square h/2$,
 where
 $h = IC$

Total costs of ordering and holding cargo that satisfies demand D is:
 $T = O + H = DS/Q + Qh/2$

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1. Optimal order Q^* is achieved when Holding and Order costs are balanced. $SD/Q^* = hQ^*/2$

2. Inventory costs have a small impact due to Q^* .

3. Cycle time = Q^*/D , and number of orders per year = D/Q^*

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 $□$: Unit Cost h : Holding Cost I :
 Handling Cost D : Demand