

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
White Paper		W. E. F. dd/mm/yy



Business Performance Sustained

Best Practice eXensys – Order Methodology

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Table of Contents

Introduction: 3

Overview:..... 3

Benefits:..... 6

Conclusion: 6



Introduction:

Order methodologies used in inventory are used to determine suitable order quantities and timing for individual items that are required to meet the customer demand. On performing all these inventory functions better level of customer service can be achieved without excess inventory or management costs. When items are required on a regular basis, the logistical problem of getting goods from the source of supply to inventory, requires that enough goods be ordered in each order cycle to last for some reasonable period of time to fulfill the requirement for that item for that particular period. The more quantity of goods that are ordered each time, the longer they will last. But at the same time other costs involved in carrying the inventory should also be considered. The management should come up with an effective ordering technique to balance both inventory cost and at the same time achieving a reliable customer service level.

Overview:

The most widely used ordering techniques across industries are discussed in the following section:

Economic Order Quantity (EOQ):

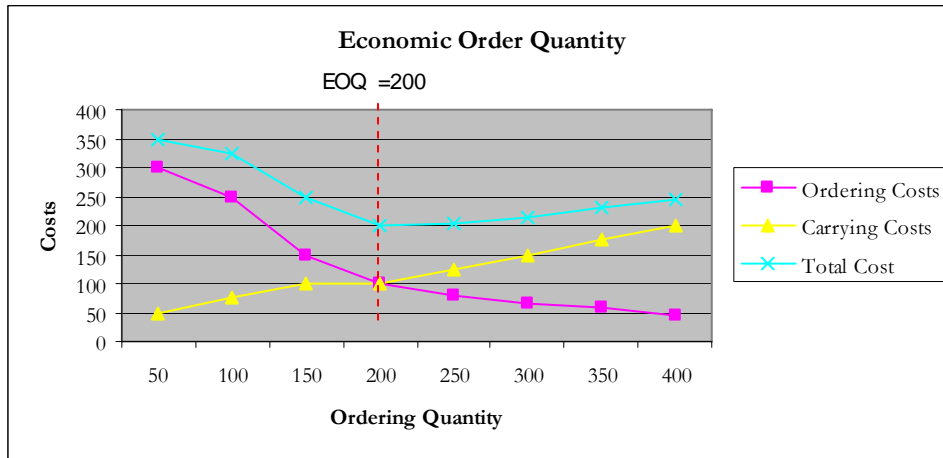
In order to replenish inventory it would require holding very large inventories. It is therefore obvious that some balance or trade-off is needed in deciding how much inventory to hold, and therefore how much to order. Hence these two costs (Ordering and Carrying costs) have to be balanced. The purpose of EOQ model is to minimise the total costs of inventory. The assumptions in EOQ Model are:

- Demand is known with certainty and is constant over a period of time.
- Shortages are not allowed
- Lead time for the receipt of orders is constant
- Order quantity is received all at once

EOQ will be calculated using the formula: $EOQ = (\sqrt{2AS/ic})$

Where, A = Annual Usage, S = Ordering Costs, i = Carrying Costs, c = Unit Costs.
Let's consider the following example:

Economic Order Quantity			
Order Quantity	Ordering Costs	Carrying Costs	Total Cost
50	300	50	350
100	250	75	325
150	150	100	250
200	100	100	200
250	80	125	205
300	65	150	215
350	57	175	232
400	45	200	245



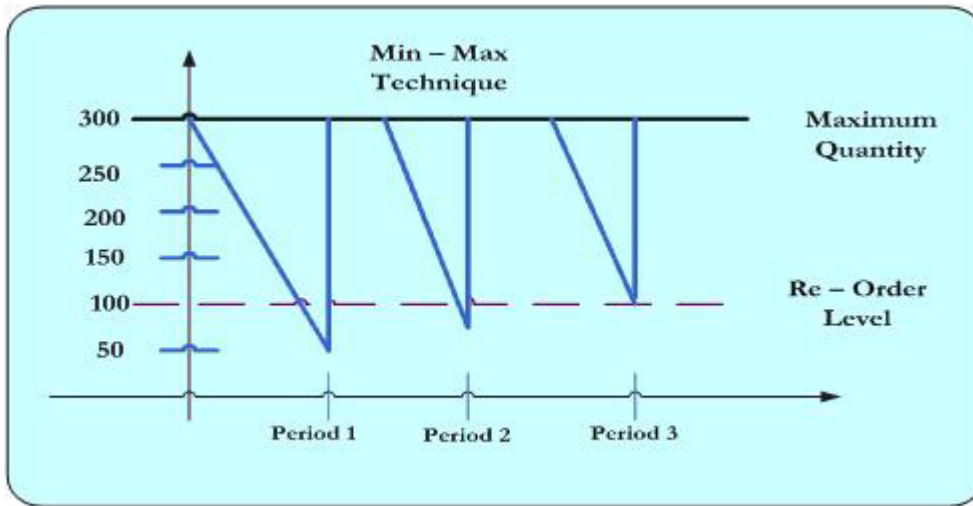
Fixed Order Quantity:

Fixed Order Quantity method specifies the number of units to be ordered every time. The quantity usually varies. The benefit of this type of rule is can be understood easily. The problem with this kind of ordering technique is that it doesn't minimize cost.

Min – Max System:

A slight variation of fixed order quantity is Min-Max System. In this kind of system, an order is placed when the quantity falls below an order point, called the re-order level. In this kind of ordering technique a maximum quantity is predefined when the quantity for an item falls below the re-order level, inventory is replenished till the pre defined max quantity.

The graph shown below is for item “x”. The Re order level is 100 Numbers. & the max quantity is 300 Numbers. In the period 1 the quantity falls to 50 Numbers during the time of ordering. So a replenishment order will be raised for 250 Numbers.



Similarly in second period the quantity falls to 75 Numbers, so quantity ordered will be 225 and for the period 3 quantity of 200 No will be ordered.

Lot – For – Lot:

In case of Lot-for-lot ordering technique exact quantity required will be ordered. Here the ordering quantity will vary based on the requirement. Since the items are ordered only when needed, this system does not create any unused inventory. Because of this it's more used in industries which follow Just-in-time system.

Periodic Review system:

Here the replenishment of items happens at a certain fixed interval of time. The quantity ordered is usually predetermined on some basis like EOQ or FOQ. Here a review will happen at a fixed period of time and the ordered quantity will keep varying.

How various ordering techniques are used in eXensys application:

The Properties of the items defined in the Order data are Sub-organization specific. Different kinds of ordering techniques and the item quantity required are mentioned in order data in inventory.

eXensys supports for following kind of ordering techniques **Max. Inventory, Fixed Order Quantity, Replenish to Max, Lot for Lot, EOQ.**

Based on the ordering technique MRP will raise the requirement accordingly when the purchase requisition is raised.

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Benefits:

- Helps in achieving required level customer service.
- Reduces the sum of all costs involved.

Conclusion:

An organization should select the appropriate ordering technique in order to balance both customer service & various costs involved because of carrying inventory.

