

Module 6

Section C: Itemized Inventory Management

Term
Cold chain

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Economic order quantity (EOQ)

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Fixed order quantity

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Fixed reorder cycle inventory model

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Hazardous materials

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Hazardous waste

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Inventory ordering system

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Level of service

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A type of fixed order quantity model that determines the amount of an item to be purchased or manufactured at one time. The intent is to minimize the combined costs of acquiring and carrying inventory. [To calculate this find the square root of $((2AS)/(iC))$ where A = annual usage in units, S = ordering costs in dollars, i = annual inventory carrying cost rate as a decimal, and C = unit cost.] Syn.: economic lot size, minimum cost order quantity. See: total cost curve.

A term referring to the storage, transfer, and supply chain of temperature-controlled products. Industries in the cold chain include food and agriculture, pharmaceuticals, and chemicals.

A form of independent demand management model in which an order is placed every n time units. The order quantity is variable and essentially replaces the items consumed during the current time period. If M is the maximum inventory desired at any time and x is the quantity on hand at the time the order is placed, then in the simplest model, the order quantity equals M minus x. The quantity M must be large enough to cover the maximum expected demand during the lead time plus a review interval. The order quantity model becomes more complicated whenever the replenishment lead time exceeds the review interval, because outstanding orders then have to be factored into the equation. Syn.: fixed-interval order system, fixed order quantity system, order level system, periodic review system, time-based order system. See: fixed reorder quantity inventory model, hybrid inventory system, independent demand item management models, optional replenishment model.

A lot-sizing technique in MRP or inventory management that will always cause planned or actual orders to be generated for a predetermined fixed quantity, or multiples thereof, if net requirements for the period exceed [this].

Waste, such as chemicals or nuclear material, that is hazardous to humans or animals and requires special handling.

Any material that a country's relevant government agency has classified as a risk to human, animal, or environmental health or to property—either on its own or due to interaction with other elements. A government's transportation authority may allow transportation only when proper permits and safety precautions are implemented. Similarly, a government may regulate or supervise hazardous material disposal. Categories include explosives, flammable or corrosive liquids or gasses, biohazards, and radioactive materials.

A measure (usually expressed as a percentage) of satisfying demand through inventory or by the current production schedule in time to satisfy the customers' requested delivery dates and quantities. In a make-to-stock environment, [this] is sometimes calculated as the percentage of orders picked complete from stock upon receipt of the customer order, the percentage of line items picked complete, or the percentage of total dollar demand picked complete. In make-to-order and design-to-order environments, [it] is the percentage of times the customer-requested or acknowledged date was met by shipping complete product quantities. Syn.: measure of service, service level. See: cycle service level.

Inventory models for the replenishment of inventory. Independent demand inventory ordering models include fixed reorder cycle, fixed reorder quantity, optional replenishment, and hybrid models, among others. Dependent demand inventory ordering models include material requirements planning, kanban, and drum-buffer-rope.

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Lot size

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Lot-for-lot (L4L)

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Maintenance, repair, and overhaul (MRO)

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Mean time between failures (MTBF)

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Mean time for failures (MTFF)

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Mean time to repair (MTTR)

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Min-max system

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On-time schedule performance

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A lot-sizing technique that generates planned orders in quantities equal to the net requirements in each period. See: discrete order quantity.

The amount of a particular item that is ordered from the plant or a supplier or issued as a standard quantity to the production process. Syn.: order quantity.

The average time interval between failures for repairable product for a defined unit of measure (e.g., operating hours, cycles, miles). See: reliability.

An item for reprocessing in the remanufacturing industry.

The average time that it takes to repair a product.

Average time for failure of a nonrepairable product (expected life) or average time to first failure of a repairable product. See: reliability.

A measure (percentage) of meeting the customer's originally negotiated delivery request date. Performance can be expressed as a percentage based on the number of orders, line items, or dollar value shipped on time.

A type of order point replenishment system where the minimum (min) is the order point, and the maximum (max) is the "order up to" inventory level. The order quantity is variable and is the result of the max minus available and on-order inventory. An order is recommended when the sum of the available and on-order inventory is at or below the min.

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Order point

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Order point system

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Period order quantity

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Periodic replenishment

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Perpetual inventory record

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Point of sale (POS)

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Reorder quantity

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Replenishment lead time

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An inventory replenishment system based on the stock on hand plus on order. Syn.: statistical order point system. See: order point, reorder point, fixed reorder quantity inventory model, hybrid inventory system.

A set inventory level where, if the total stock on hand plus on order falls to or below that point, action is taken to replenish the stock. [It] is normally calculated as forecasted usage during the replenishment lead time plus safety stock. Syn.: reorder point, statistical order point, trigger level. See: fixed reorder quantity inventory model.

A method of aggregating requirements to place deliveries of varying quantities at evenly spaced time intervals rather than variably spaced deliveries of equal quantities.

A lot-sizing technique under which the lot size is equal to the net requirements for a given number of periods (e.g., weeks into the future). The number of periods to order is variable, each order size equalizing the holding costs and the ordering costs for the interval. See: discrete order quantity, dynamic lot sizing.

The relief of inventory and computation of sales data at the time and place of sale, generally through the use of bar coding or magnetic media and equipment.

A computer record or manual document on which each inventory transaction is posted so that a current record of the inventory is maintained.

The total period of time that elapses from the moment it is determined that a product should be reordered until the product is back on the shelf available for use. Syn.: reorder cycle.

1) In a fixed [type of this] system of inventory control, the fixed quantity that should be ordered each time the available stock (on-hand plus on-order) falls to or below the reorder point. 2) In a variable [type of this] system, the amount ordered from time period to time period varies. Syn.: replenishment order quantity.

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Safety data sheet (SDS)

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Safety lead time

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Sawtooth diagram

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Service-level agreement (SLA)

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Stockout percentage

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Two-bin inventory system

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Visual review system

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An element of time added to normal lead time to protect against fluctuations in lead time so that an order can be completed before its real need date. When used, the MRP system, in offsetting for lead time, will plan both order release and order completion for earlier dates than it would otherwise. Syn.: protection time, safety time.

A document that is part of the materials information system and accompanies the product. Formerly referred to as the manufacturing safety data sheet (MSDS). The document is prepared by the manufacturer and provides information regarding the safety and chemical properties to downstream users and (if necessary) the long-term storage, handling, and disposal of the product. Among other factors, the SDS describes: the hazardous components of a product; how to treat leaks, spills, and fires; and how to treat improper human contact with the product.

A document that represents the terms of performance for organic support.

A quantity-versus-time graphic representation of the order point/order quantity inventory system showing inventory being received and then used up and reordered.

A type of fixed-order system in which inventory is carried in two [containers]. A replenishment quantity is ordered when the first [container] (working) is empty. During the replenishment lead time, material is used from the second [container]. When the material is received, the second [container] (which contains a quantity to cover demand during lead time plus some safety stock) is refilled and the excess is put into the working [container]. At this time, stock is drawn from the first [container] until it is again exhausted. Also used loosely to describe any fixed-order system even when physical [containers] do not exist. Syn.: bin reserve system. See: visual review system.

A measure of the effectiveness with which a company responds to actual demand or requirements. The stockout percentage can be a comparison of total orders containing a stockout with total orders or of line items incurring stockouts with total line items ordered during a period. One formula is $\text{stockout percentage} = (1 - \text{customer service ratio}) \times 100 \text{ percent}$. Ant.: customer service ratio.

A simple inventory control system where the inventory reordering is based on actually looking at the amount of inventory on hand. Usually used for low-value items, such as nuts and bolts. See: two-bin inventory system.