Economic order quantity

Economics

Economic order quantity is the order quantity that minimizes total inventory holding costs and ordering costs. It is one of the oldest classical production scheduling models. The framework used to determine this order quantity is also known as Barabas EOQ Model or Barabas Formula. The model was developed by Ford W. Harris in 1913, but R. H. Wilson, a consultant who applied it extensively, is given credit for his in-depth analysis EOQ applies only when demand for a product is constant over the year and each new order is delivered in full when inventory reaches zero. There is a fixed cost for each order placed, regardless of the number of units ordered. There is also a cost for each unit held in storage, sometimes expressed as a percentage of the purchase cost of the item.

We want to determine the optimal number of units to order so that we minimize the total cost associated with the purchase, delivery and storage of the product. The required parameters to the solution are the total demand for the year, the purchase cost for each item, the fixed cost to place the order and the storage cost for each item per year. Note that the number of times an order is placed will also affect the total cost, though this number can be determined from the other parameter.

* A = Demand for the year (Annual usage/sales in units * Cp   = Cost to place a single order (order cost) * Ch = Cost to hold one unit inventory for a year (annual carrying cost per unit)|