

Lot sizing in inventory

1. Lot size determines the lead time distribution in production, which in turn impacts inventory costs. Lot sizing decision is made in a local inventory environment, where production lead times are assumed to be exogenous and independent with respect to the lot size. lot sizing decision in a production/inventory environment, in which the order quantities generated by the inventory model determine the production lot sizes, and thus the (production) lead times. (Noblesse, Boute, Lambrecht, & Van Houdt, 2014)
2. A lot-sizing decision can be required to be made once in a single time period (independently of the decisions in the other time periods) or in several sequential time periods (decisions in different time periods are dependent), which correspond to single-period and multi-period models. For each machine and each time period, the products and the number of units, i.e. the lot size, of each product to be manufactured have to be determined such that the specified constraints are satisfied and a given objective function whose arguments include lot sizes is minimized or maximized. (Noblesse et al., 2014)
3. Simultaneous improvements in multiple parameters create positive feedback between shop-floor improvements and reduced lot sizes, thus allowing for even greater Lead Time reductions (Godinho Filho & Barco, 2015)
4. Lot sizing methods are inventory control methods often used in MRP systems to run grouped commands in order to minimize costs. The method performance is obtained after comparing the total costs, the total cost is defined as the sum of control costs (start-up costs), cost of the remaining stocks from one period to another (holding costs) and costs resulting from constraints to the system. (Javier, Fedriani, & Crespo, 2017)
5. Lot sizing decisions also relate strongly to the trade-off between utilisation and lead-times. large manufacturing lot sizes help avoiding time consuming and costly set-ups. However, from the order-fulfilment point of view, frequent changeovers allow better flexibility in production schedule changes and faster customer order delivery (Helo, 2006)
6. A pure Make to stock system is organised based on forecasts of future orders to respond to customer requirements. Therefore, the deliverable products are produced and stocked in warehouses. Then, customer demands are delivered from the finished products' inventory. In this kind of system, standard products are made upon the performance criteria such as higher fill rate, demand forecast, lot sizes, average work-in-process (Rafiei, Rabbani, & Alimardani, 2013)