

the definitions also hold for a continuous time axis where the inventory is measured at any point in time.

- *Inventory on hand*: I_t^p

The inventory on hand (physical inventory) at the end of period t , I_t^p , is the number of units of a product that is physically present in an inventory location. If an incoming customer order finds a zero inventory on hand, then a stock-out event occurs. The inventory on hand is the basis for the computation of the inventory holding costs, however, it must not be used as the sole basis for the decision to release a replenishment order.

- *Inventory on order*: I_t^o

The inventory on order at the end of period t , I_t^o , is the total quantity of a product that has been ordered from a supplier but has not yet arrived in the inventory location. In practice, it may happen that there are several orders simultaneously outstanding.

- *Backlog (backorders outstanding)*: I_t^f

The backlog at the end of period t , I_t^f , is the cumulated demand that has not been delivered to the customers due to a stock-out situation and that is currently waiting for the replenishment of the inventory. Once this happens, the waiting customer orders are usually delivered with highest priority.

- *Backorders*: F

The term backorders denotes the demand quantity observed within a time interval that is delivered to the customers with delay. If upon the arrival of a demand the inventory on hand is not sufficient to deliver the complete demand, then at least a part of the demand becomes a backorder and is added to the current backlog. By cumulating the amount of demand backordered within a given period one can derive indicators for the performance of a given inventory policy. An important measure, the so-called β service level, relates the total amount backordered to the total demand within a given period. There are also optimization models that penalize the amount backordered.

- *Net inventory*: I_t^n

The net inventory (sometimes called „inventory level”) is the inventory on hand I_t^p minus the backlog I_t^f (both counted at the end of period t):

$$I_t^n = I_t^p - I_t^f \quad (\text{B.2})$$