

# #028 : Inventory Optimization

Part 01 : The Single Echelon Inventory Optimization. Problem Parameters



## What Affects the Solution ?



### Supply Side

**Purchase price**

Cost paid per unit of item.

**Pack size**

Number of items in one pack.

**Lead time**

Time taken by the supplier to fulfill the order.

**Capacity**

Maximum possible supply quantity.

**Minimum Order Quantity (MOQ)**

Each order must of greater than or equal to MOQ.

**Quantity discount**

Discount provided based on purchase quantity.

**Service Level Agreement (SLA)**

Agreement with supplier regarding minimum purchase value, etc.



### Retailer

**Min. Stock Quantity**

Desired minimum stock quantity.

**Max. Stock Quantity**

Desired maximum stock quantity.

**Capacity**

Maximum storage quantity at the retailer.

**Reception Capacity**

Maximum reception quantity per unit time at the retailer.

**Merchandize Quantity**

Minimum desirable display quantity.

**Safety stock**

Inventory allocated for mitigating the effect of uncertainty.

**Flexibility**

Transshipment, outsourcing, expediting.



### Demand Side

**Demand type**

It can be deterministic or stochastic (stationary or non-stationary).

**Reaction to shortage**

Backordering – Unsatisfied demand appears as additional demand in future.  
Lost sales – Unsatisfied demand lost completely.  
Guaranteed service – Customer mandates certain service level.