INVENTORY MANAGEMENT ABSTRACT

When to hold Items in stock & Which ones?
Where, How much & How?

To avoid high inventory levels and stock-outs, we'll have to answer to the 6 following questions:

1. When do we need stock?

For effective inventory management it is necessary to be clear about
the different types of stocks that we have to manage.
Each type of stock can take a different management scheme.

SUMMARY OF STOCKS TYPES

MANAGEMENT INVENTORY
LEAD TIME INVENTORY
LOT SIZE INVENTORY
SAFETY STOCK
PIPE LINE INVENTORY
ANTICIPATION INVENTORY
HEDGE INVENTORY

2. What is the cost of the stock?

It is obvious to distinguish between three data:

- The value of the stock
- The cost of holding the stock (Carrying Cost)
- The rate of carrying a stock

Many companies do not know how much their stocks cost them
and therefore do not know their Carrying Rate (**CR**).

Each month, a stored item costs, *as a minimum*: **2 % of its value**

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One cannot seriously talk about **inventory optimization** without having determined which the Carrying Rates to be taken into account are. This information is mandatory to operate the various economic tradeoffs, notably about the quantities to be supplied or manufactured.

3-1. What are the parameters that determine the level of a stock?

The parameters to be used to size a stock are:

To calculate lot size – **Q:**

AD = Expected average demand
OC = Ordering Costs
CR = Carrying Rate
UC = unit cost of the item

To calculate the security stock – **SS:**

τ = target service rate (defined μ)
σ = standard deviation on demand (AD)
D = Lead time

For any stock a maximum quantity of output per order must be set

3-2. How to calculate the useful average stock level?

The calculated average stock **(AS)** is equal to: **Q / 2 + SS**

The safety stock is calculated as follows: $\mathbf{SS = \mu \times \sigma\sqrt{D / p}}$

4. What is the appropriate order system?

Procurement through the *smallest quantities* economically bearable. Increase replenishment *frequency*. Adopt a *pull system* driven by actual consumption. Issue replenishment orders under a "go with the flow" policy. Buy with *blanket orders*

5. What are the relevant performance indicators?

METRICS DRIVE BEHAVIOR *(Kaye Cee McKay – Logistics management specialist).*
No management system will function in a sustainable and satisfactory manner unless it is controlled by a relevant and coherent set of indicators.
Below are the typical indicators used to measure ***Flow Performance:***

- *CUSTOMER SERVICE RATE*
- *STATISTICS ON NON-CONFORM DELIVERIES*
- *"INTERNAL" SERVICE RATES*
- *DAYS OF SUPPLY*
- *TIGHT FLOW RATIO*
- *FORECAST RELIABILITY*

6. How to reduce inventory while improving service level?

There are four parameters driving the stock level.

- Lot size - Q
- The target service rate **(τ)** (defines the safety factor **μ**)
- **σ =** standard deviation of demand
- **D =** Lead time

The Products FLOW performance sought by the SCM is strongly conditioned by the INVENTORY performance.

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