



CENTRALIZED VERSUS DECENTRALIZED STOCK



Purpose

The purpose of this tool is to create facts to enable informed decisions. The company's stock structure describes the number of warehouses and the physical location of these in relation to the customer. Centralization of warehouses may make sense, since consolidation at fewer locations reduces the overall cost of storage. At the same time, the value of strategically domiciled and decentralized warehouses, for example near customers or production facilities, can be significant.

Participant(s)

Project manager and key employees in the supply chain.

Application


This tool is used in the specific supply chain innovation project.



Method

The company's warehouse structure can be organized with one central warehouse covering a geographically wide market, for example a country or a region. Alternatively, in a more decentralized warehouse structure the company uses several warehouses domiciled close to the production facilities and/or customers.

An argument for centralized warehousing is that you can take advantage of the square root law, giving the company an indication as to how much the stock can be reduced. The square root law states that the reduction in the total safety stock, which can be expected by reducing the number of locations, is proportional to the square root of the number of locations before and after rationalization (Christopher, 2011).



As an example, the company previously had 25 warehouse locations and now 4. The overall reduction can be expressed as:

$$\sqrt{25} \text{ to } \sqrt{4}$$

or

$$5/2 \text{ or a } 60 \% \text{ reduction}$$

Another dimension for consideration is transportation. In a centrally located warehouse, an increase in transportation cost must be expected. In some cases, the reflection on the choice of transport includes the storage rate during transport, this can be calculated by using the Total Distribution Cost formula (TDC):

$$TDC = \text{Transport cost} + \text{value} \times \text{transport time in days} / 360 \times \text{stock rate}$$

TDC is calculated for alternative transport modes, and the mode of transport with the lowest TDC is most profitable.



Benefits

The advantage of this tool is that facts about the advantages and disadvantages respectively to centralize or decentralize the company's stock are demonstrated.

Output

The output of this tool is an improved overview of the company's stocks. Likewise, it is input to the company's supply chain strategy and overall strategy.

