CIN7

The Elements of Inventory Planning

Introduction

The 2016 bankruptcy of Australian electronics retailer, Dick Smith Group, continues to be instructive.

According to press reports, the company's administrators highlighted poor inventory planning as one of the key reasons for the group's collapse. "Inventory decisions ... were not consistent with consumer demand, and DSG was ultimately le with a considerable level of obsolete and inactive stock, requiring a major write down."

Ignorance of inventory planning represents poor management by large and small companies. What does it take to correctly plan the right levels of inventory for your business?

Inventory Algorithms

Formulae or algorithms for calculating the optimum level of inventory have been available for many decades and are still the subject of research by gied mathematicians and operations research scientists striving to improve them for all sorts of business activity. They have been incorporated into all manner of software, at a range of costs. I have also seen organizations make significant savings using simple spreadsheet applications.

Unless you aspire to be a modern day Pythagoras, I doubt that you would wish me to write down even the most basic inventory planning algorithm. However, it is important for anyone interested in supply chain management to understand the key drivers of having the right amount of inventory. These drivers form the basis of inventory planning algorithms.

Key Inventory Drivers

1 Demand

This is the most obvious. Quite simply, the more that customers want to buy from you, the more stock that you will need to have.

2 Demand Variance

I hope I have not lost you using a word from statistics. This is a measure of "spread" of demand around a mean. The more irregular or sporadic the demand is likely to be, the more stock that is required to be sure of delivering good service. Think of an ice cream seller attempting to cover hot and cold days as an example of sporadic demand.

3 Lead Time

If it takes two weeks get fresh supply of widgets from your supplier and you sell ten items per week you need twenty widgets just to cover the lead time.

4 Lead Time Variance

Sorry to use the word again but if you have supply that averages two weeks but can take one or four weeks, then you have to cover for when things arrive later than usual.

5 Economic Order Quantity

When you take into account what it costs for you to place a single order on a supplier, what discounts may apply for buying several instead of one, costs for holding inventory and costs of stock-outs, there are formulae to work out what is the optimum quantity to purchase each time.

6 Service Level

Are you wanting to hold enough stock to make sure that customers are satisfied for 99% of the time? Or do you want to have suicient to satisfy them 95% of the time. That decision alone makes a dierence of nearly two-fold to the right amount of inventory.

In summary, inventory management algorithms consider all of these criteria, and more, to assist you in calculating how much inventory to hold.
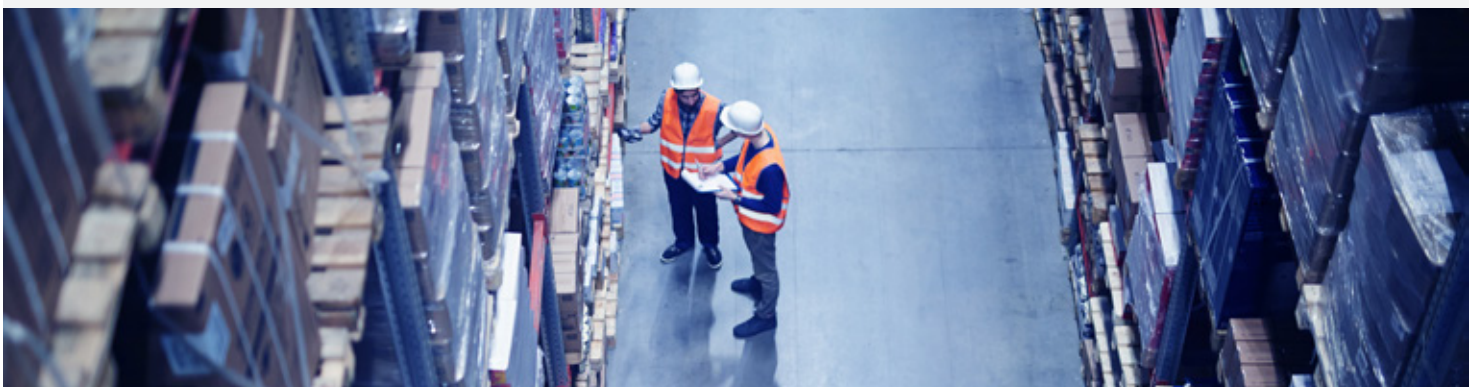
The Inventory Planning Process

An inventory planning process is a discipline for determining the optimum amount of inventory for delivering a prescribed level of customer service. The steps required for building the process are:

✔ Segment your customers and your products according to the service level that you wish to deliver. This is done by using one of the most simple but eective of all management tools, the Pareto Distribution, or 80/20 rule. Eighty percent of sales typically come from 20% of your product range and 20% of your customers. Prepare a curve showing cumulative revenue against products or customers and see for yourself. It is these customers and these products that you should oer your highest service level to. Give lower levels of service to less profitable products. Optimize your inventory investment in this way.

✔ Invest in smart people who have aptitude with figures.

✔ Invest in soware that can manage and calculate required stock levels for your business. Even a mathematical genius could not carry out these calculations for a large business without assistance.

✔ One of the great advantages of good B2B soware is that it captures point of sale information and transmits it back to suppliers so reducing lead times and lead time variance. Take waste time out of your supply chain.

✔ Get closer to understanding what are the real drivers of your customer demand. Collaborate with your customers and suppliers to share information on demand. Improve your demand forecasting. Monitor your inventory performance with measures of inventory turnover, stock-outs, stocks in excess and stocks in obsolescence.