

3.1.13. Lead Time

This is the time gap between placement of an order and the time of actual supply. It is not necessarily identical to delivery time. It is composed of three components, namely

$$\text{Lead Time} = \text{Servicing time} + \text{Delivery time} + \text{Receiving time}$$

Servicing Time: It is time taken for placing an order. It includes:

- 1) Time for obtaining quotations,
- 2) Time for negotiating price,
- 3) Time for visiting potential suppliers, and
- 4) Time for 'letting' contracts.

Delivery Time: The time taken by the suppliers to comply certain order.

Receiving Time: This includes:

- 1) Time to uncrating goods,
- 2) Time for inspection of goods,
- 3) Time for movement of goods to store, and
- 4) Time for entering goods in stocks.

All these times never remain constant. Thus the determination of lead time is a complicated matter. In practice either it is taken to be constant or some reasonable or expected value is assigned to it. Theoreticians recommend that whenever the actual lead time is more than five times the active time, scheduling procedure should be investigated.

3.1.13.1. Lead Time Reduction

The most effective way for businesses to reduce stock is by reducing the supply lead time. Lead time can be defined as the time it takes from when it first determines a need for a product until it arrives on your doorstep. If lead time was zero, inventory could be zero.

In a perfect world, imagine how simple business would be with a lead time of zero and orders being filled instantly. A customer could walk through the door of your business, place their order and walk out happy with no delay. If business was this easy, you would require no warehouse space, no order follow-up, no inventory counting, no forecasting, no product damage, no obsolete inventory, fewer employees, less risk of theft and less cost overall.

Of course the real world does not work like this, but the shorter the lead times, the less complex our inventory management will be. Lead time can be separated into three components:

- 1) Review time,
- 2) Manufacture time,
- 3) Transit time.

3.1.13.2. Ways to Reduce Lead-time

The aim of lead-time reduction is to reduce the amount of unnecessary time within the order-to-delivery process and thus reduce the need to hold so many inventories as cover for this time delay. This can be achieved in a number of different ways, as follows:

- 1) **Manage the Supply Chain as One Complete Pipeline:** This will allow stock to be reduced at various stages in the total pipeline because it is clear that other stock exists to provide the necessary safety stock cover.
- 2) **Use Information Better:** If there is a clearer picture throughout the supply chain of what the true final demand for a product is, then it will be much easier to provide more accurate forecasts of the likely demand at other points in the supply chain.
- 3) **Achieve Better Visibility of Stock throughout the Supply Chain for all Participants:** This will allow for clearer and more confident planning of stock requirements at the various stock-holding points in the chain and thus reduce the need to hold safety stocks.
- 4) **Concentrate on Key Processes:** Make sure that the greatest planning and monitoring effort is spent on the most important processes in the supply chain. These may well be those that are providing the biggest bottlenecks or hold-ups in the system. It will often be necessary to undertake specific analysis to identify these bottlenecks using flowcharts.
- 5) **Use Just-in-Time (JIT) Techniques to Speed up the Flow of Products through the Supply Chain:** These will reduce lead times and thus mean that less stock is required within the supply chain.
- 6) **Use Faster Transport:** This is, of course, one of the classic trades-offs in logistics. Faster transport will almost certainly cost more, but there will be an associated reduction in the need to hold stock and savings will be made accordingly. Ideally this will provide an overall cost reduction in the supply of that product as a whole. It is also likely to result in a faster and more responsive service level.
- 7) **Develop Supply Chain Partnerships:** It is important to understand the need to identify lead-time reduction opportunities that lie outside a company's own boundaries. The most spectacular savings in stock reductions occur where companies in the same supply chain can work together, share information and build up a trust that allows them to reduce stocks with confidence.