

#040 : The Effect of Lead-time (Uncertainty)

Lead time is the minimum time difference between placing an order and delivery of that order.

Lead-time Uncertainty:

In most cases lead-times are suggested by the suppliers based on their production capacity, transportation distance and other affecting factors.

However, in practice the « suggested » value is seldom realized accurately. This is due to the inherent uncertainties associated with the processes (production, transportation, etc.). Therefore, **in most cases lead-time is uncertain.**

The Effect:

Uncertainties and changes in lead time affect inventory management in two ways:



Effect on
inventory levels



Effect on
total cost

	Optimal Inventory Level	Optimal Cost
↗ Lead-time Uncertainty	↗	↗
↗ Lead-time Magnitude	↗	↗ ↘

With increase in lead-time uncertainty, both the optimal inventory level and the optimal inventory cost increase. However, with increase in lead-time magnitude, even if the optimal inventory level increases, the optimal cost may increase or decrease.

Lead-time During COVID 19:

In the current situation, lead-time is even more uncertain because of the disruptions (It is also longer). Therefore, supply chain organizations must evaluate the effect of such changes on their inventory practices, costs, service levels, etc.

It might be difficult to reduce the lead-time uncertainty. But organizations can work towards the new optimal levels so to ensure minimum additional cost. Also, negotiation with suppliers can be done regarding the magnitude of lead time.