

Lean Supply Chain Fundamentals

Common problems and the need for Lean
concepts

What is a Supply Chain?

A supply chain is comprised of all the operations needed to deliver a good or service. This is outside the actual production or performance of the service.

- In manufacturing it covers the material flows between plants and between production lines within a plant.
- It also includes the information flow that is associated with those materials.
- It does not include the movement of materials through machining, fabrication, and assembly.

In-bound and out-bound logistics practices evolve through the interplay of independent organizations, each of whom acts based on assumptions about the others.

- Resolving dysfunctions that arise in the relationships between these agents is a vital element of a strong supply chain.
- This requires both technically workable solutions, and the ability to gain support from the different players.

Supply Chain vs. Production

As a basic example from the machining business; bringing work pieces, fixtures and tools to a work area is part of supply chain logistics.

- The person collecting these items to take to their machine is not part of supply chain logistics.

In aviation, getting the plane to the gate, getting passengers on and off, and loading and unloading luggage, are all part of supply chain logistics.

- Piloting the plane is not considered logistics.

Elements of the Supply Chain

In manufacturing, the supply chain includes the following:

Material Flows:

- Shipping, Transportation, Receiving, Storage, Retrieval

Information Flows:

- Transaction processing, Analysis, Forecasting, Planning, Scheduling

Funds Flows:

- Payments triggered by the movements of goods and information.

The Supply Chain Network

The supply chain encompasses everything that happens outside the factory walls.

The plant sees materials come in from a network of suppliers and products go out to a distribution network.

What happens inside each of these networks effects the plant, but it is often not visible to its management beyond the first tier.

- Allowing each plant to know more about its suppliers' suppliers, and its customers' customers is an important objective of supply chain management

In-bound, Out-bound and In-plant

There are differences in distances, quantities, vehicles, and management, of in-plant, in-bound, and out-bound logistics.

In-plant logistics is under the control of one organization.

In-bound and out-bound logistics are ruled by the interaction of multiple independent economic agents including multiple tiers of suppliers, distributors, and freight companies, all making their own decisions.

Dysfunction Between Organizations

Often, each organization does not just pursue the best deal in isolation, but does so based on assumptions about what the others will do.

Moving away from a dysfunctional state of affairs requires a change not only in each independent organization's perception of what "the best deal" is, but also in the expectations that each has of the others.

Customers and Suppliers

People who run companies involved in a supply network are trained to focus on customers, not suppliers. They do not argue with their customer's ordering pattern, no matter how erratic it may be.

The amplifications in the flow of orders as you move upstream through a multi-tiered network of suppliers is called the "bullwhip effect."

- The reason managers often use this logic is that they think it is not their job to make things easier for suppliers.
- It is important to change this perception .

Level Loading

One strategy that can be used to reduce or eliminate stress and fluctuation within a supply network is known as level loading.

The goal of level loading is to sequence products in order to smooth the flow of materials into mixed model assembly operations.

Level loading makes the workload more even and predictable both inside and outside the supply chain.

The Lean Approach

Using tools such as level loading to increase predictability and sustainability, the Lean approach to supply chain management creates cooperative and harmonious relationship between suppliers, producers, and consumers.