

## Lean Manufacturing:

The fundamental concept of lean manufacturing is to provide a quality product while also ensuring that the product does not cost too much to the customer. Most organizations today are going through a stage where there is a necessity to respond to the rapidly changing customer needs. To sustain their place in the market, many organizations have started following the lean manufacturing concept.

Lean manufacturing utilizes a wide range of tools and techniques; the choice of tools is situation specific. Many factors contribute to lean success; not only is it mandatory to implement most of the lean tools, but an organization's culture needs transforming too. Companies following lean manufacturing have better flexibility and a good market share. Moreover, lean manufacturing produces an operational and cultural environment that is highly conducive to waste minimization.

## Introduction:

The concept of lean manufacturing was introduced in Japan, and the Toyota production system was the first to use lean practices. Lean manufacturing helps in enhancing production processes and boosting up the employees job satisfaction (Singh, Garg, Sharma, & Grewal, 2010c). Lean manufacturing is different from traditional manufacturing. The traditional manufacturing concept focuses on the inventory of the system, whereas lean manufacturing opposes this concept. The 'Lean' concept considers inventory as a waste in the organization. Understanding the differences between traditional manufacturing and lean manufacturing is very important for organizations if they want to follow lean practices (Andrew, 2006). The market is becoming more volatile day by day, so understanding market dynamics is a crucial factor if one wants to design manufacturing systems better (Gadalla, 2010). Lean manufacturing believes the simple fact that customers will pay for the value of services they receive, but will not pay for mistakes (Rawabdeh, 2005).

Introducing lean manufacturing in any type of industry has a straightforward impact on manufacturing processes. Today people have a different perspective on manufacturing processes. They understand that the value of a product is defined from the customer's point of view, not from an internal manufacturing point of view. Lean manufacturing focuses on the elimination of wastes from the organization. A waste is defined as anything that does not add value to the product. Lean tool techniques when combined with SWOT (strength, weakness, opportunity, threats) analysis help in eliminating wastes within the organization (Upadhye,

Deshmukh, & Garg, 2010). Lean manufacturing when implemented successfully results in an increase in production output per person and a reduction in the finished goods inventory and work in process (Seth & Gupta, 2005).

The ultimate goal of a lean manufacturing system is to eliminate all wastes from the organization. A lean system is represented as two pillars: the first is 'jidoka' and the second is 'just-in-time'. The main goal of a lean manufacturing system is to produce products of higher quality at the lowest possible cost and in the least time by eliminating wastes (Dennis, 2007).

Steps of lean manufacturing implementation:

- . Identification of wastes in the system. Many organizations need to know that they have many hidden and unhidden wastes in their systems.
- . Wastes present in the organization can be of different types. There is a need to recognize the types of waste and their causes. Lean manufacturing believes in treating the causes and curing the problems permanently. There are various tools and techniques that are quite helpful in reducing or eliminating these types of waste.
- . The next step is to find the solution for the root causes. One must stick to basic lean concepts and identify the root causes. Looking at causes might not help properly, so there is a need to identify the effects of the solution on the entire system.
- . The final step in the lean implementation process is to find the solutions and test the solutions first. Once solutions are tested then they should be implemented. Training and following up are important in each and every step explained above. One needs to be patient because the implementation process might take a long time.

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