

Lean Thinking

The concept of 'Lean' manufacturing originates from the Toyota Production System developed by Taiichi Ohno and his colleagues in the early post war years - a system that challenged traditional mass production. In using this approach, Toyota found that compared to other manufacturers, they were able to create a given amount of value with less of everything – hence the name.

The key principles of Lean Thinking are:

- It always begins with the customer
- The customer wants value: the right goods or service at the right time, place, and price, with perfect quality
- Value in any activity – goods, services, or some combination - is always the end result of a process (design, manufacture, and service for external customers, and business processes for internal customers)
- Every process consists of a series of steps that need be taken properly in the proper sequence at the proper time
- To maximize customer value, these steps must be taken with zero waste (or **Muda**). The seven wastes are:
 1. overproduction
 2. waiting
 3. excess conveyance
 4. extra processing
 5. excessive inventory
 6. unnecessary motion
 7. and defects requiring rework or scrap
- To achieve zero waste, every step in a value-creating process must be valuable, capable, available, adequate, and flexible - and the steps must flow smoothly and quickly from one to the next at the pull of the downstream customer. (This is how we eliminate the seven wastes identified by Toyota many years ago)
- A truly lean process is a perfect process: perfectly satisfying the customer's desire for value with zero waste
- None of us have ever seen a perfect process nor will most of us ever see one. But lean thinkers still believe in perfection, the never-ending journey toward the truly lean process!

