Fat to Lean: Journey of Waste Elimination

Any organization – Whether manufacturing or service – has some kind of waste in its process and therefore it is very important for any organization to Identify, Reduce & Eliminate waste in order to become Lean. There are many components of competitiveness, continual improvement of the Material and Information FLOW via waste elimination - is one of the most important components. Waste elimination is an effective way to increase profitability.

Leaders have been seeking ways to reduce waste through operational improvement programs inspired by Kaizen, lean manufacturing, six sigma, etc. Lean manufacturing techniques for eliminating waste, variability & inflexibility have been used successfully in variety of organizations, from those with processes that somewhat resemble manufacturing to others where the ideas might seem less obviously relevant.

A process adds value by producing goods or providing a service that a customer will pay for. A process consumes resources and waste occurs when more resources are consumed than are necessary to produce the goods or provide the service that the customer actually wants.

What is Waste?

Any activity in your process that does not add value is called MUDA. MUDA is not creating value for the customer.
Types of Wastes

One of the key steps in Kaizen or Lean is the identification of which step adds value and which do not add value. By classifying all the process activities into these two categories it is then possible to start the actions for improving the former and eliminating the latter. "Learning to see" is an ability to see waste where it was not perceived before. Many have sought to develop this ability by 'trips to world class gemba' to see the difference between their operation and one that has been under continuous improvement for several years. Organizations can learn by seeing, by sharing, hearing, directly implementing, etc.

The following "eight wastes" identify resources which are most commonly wasted in an organization:

**DEFECTS**

- **Inspection and repair of material in inventory**
- **Causes:**
  - Weak process control, Poor product & process design, Unbalanced inventory level, Deficient planned maintenance, Inadequate education/training/work instructions, Misunderstood Customer needs.

**OVERPRODUCTION**

- If you make **more** product than is required by the next process, make it **earlier** than is required by the next process, or make product **faster** than is required by the next process, you overproduce.
- **Causes:**
  - Just-in-case logic & misuse of automation, Long process set-up, Unlevel scheduling & unbalanced work load, Over engineered, Redundant inspections.

**WAITING**

- **Idle time created when waiting for…?**
- **Causes of Waiting Waste**
  - Unbalanced work load & un-level scheduling, Unplanned maintenance, Long process set-up times, Misuses of automation, Upstream quality problem.

**NON-USAGE OF HUMAN SKILLS**

- **Not using people’s (mental, creative, physical, skill) abilities.**
- **Causes:**
  - Management by fear and directive, Poor hiring practices, Low or no investment in training, Low pay, high turn over strategy.
WASTE OF TRANSPORTATION

- Transporting parts and materials around the plant without adding value
- Causes:
  - Poor plant layout, Poor understanding of the process flow for production,
  - Large batch sizes, long lead times, and large storage areas

INVENTORY

- Any supply in excess of a one-piece flow through your manufacturing process
- Causes of excess inventory
  - Protects the company from inefficiencies and unexpected problems,
    Product complexity, Unbalanced workload, unlevelled scheduling, Poor
    Market forecast, Unreliable shipments by suppliers, Misunderstood
    communications, Reward system.

MOTION

- Any movement of people or machines without adding value
- Causes:
  - Poor people/machine effectiveness, Inconsistent work methods,
    Unfavorable facility or cell layout, Poor workplace organization and
    housekeeping, Extra “busy” movements while waiting.

EXCESS PROCESSING

- Effort that adds no value to the product or service from the customers’ viewpoint
- Causes:
  - Product changes without process changes, Just-in-case logic, True
    customer requirements undefined, Over processing to accommodate
downtime, Lack of communications & redundant approvals, Extra
    copies/excessive information.

An easy way to remember these 8 deadly sins is DOWNTIME.

Things to remember about Waste:

1. MUDA is really a symptom rather than a root cause of the problem
2. MUDA points to problems within the system
Speak with data

Waste (MUDA)          Added Value

Customer Preference  Process  Customer Satisfaction

Quantifiable activity in the process:

- Routings
- Distances
- Frequencies
- Number of events
- %-Distribution
- Specifications
- Takt time
- Costs
- Process costs
- Machining times
- Waiting times
- Picking times
- Delays
- Breakdowns
- Mistakes and rework
- Employee contentment
- Technology