The Toyota Way
September 11, 2014

Using Operational Excellence as a Strategic Weapon

Chapter 1

4 Ps

• Philosophy – Long-term thinking
• Process – Eliminate waste
• People and Partners
  • Respect
  • Challenge
  • Grow them
• Problem Solving – Continuous improvement and learning
Lean Manufacturing

- Defining customer value
- Defining the value stream
- Making it “flow”
- “Pulling” from the customer back
- Striving for excellence

Womack & Jones

Lean Manufacturer

Focuses attention on making the product flow through value-adding processes without interruption (one-piece flow), a “pull” system that cascades backward from customer demand by replenishing only what the next operation takes away at short intervals, and, a culture in which everyone is striving continuously to improve

Ohno - Time

...from the moment the customer gives us an order to the point when we collect the cash
• Fast, flexible processes that give customers what they want, when they want it, at the highest quality and affordable cost

Requirements

• Often the best thing you can do is to idle a machine and stop producing parts.

• Often it is best to build up an inventory of finished goods in order to level out the production schedule, rather than produce according to actual fluctuating demand of customer orders.

Lean's Counter-intuitive Thoughts

• Often it is best to selectively add and substitute overhead for direct labor.

• It may not a top priority to keep your workers busy making parts as fast as possible.

• It is best so selectively use information technology and often better to justify its cost in reducing your headcount.

Lean's Counter-intuitive Thoughts
• Identify activities that add value to raw material and get rid of everything else

• Map the value stream of the raw material moving to finished product that the customer is willing to pay for

Ohno

“What value are we adding from the customer’s perspective?

The only thing that adds value in any type of process is the physical or information transformation of that product, service, or activity into something the customer wants

TPS - asks

• Every organization functions through a myriad of processes.

• One observer: Every process is characterized by a minimum of 30% waste.

Processes
Process Improvement

- Eliminating wasted time and resources
- Building quality into workplace systems
- Finding low-cost but reliable alternatives to expensive new technology
- Perfecting business processes
- Building a learning culture for continuous improvement

How Toyota Became the World’s Best Manufacturer

Chapter 2

- Began making weaving looms
- Developed means by which to identify when a thread broke and, thereby, to stop by machine before it produced defective product
- Saw automobiles as the future

Toyota
• ...thoroughly understanding a condition by confirming information or data through personal observation at the source of the condition
  • “go and see”
  • “actual place and actual thing”
  • Gemba

**Genchi Genbutsu**

• ... providing machines and operators the ability to detect when an abnormal condition has occurred and immediately stop work.

**Jidoka**

• Raw materials
  • Work in Progress (WIP)
  • Finished goods

**Terms**
US Visits

• Supermarket analogy
• US auto company visits
  • Mass production

When should Process 1 send its Output to Process 2?

Process 2 is a customer of Process 1

Processes

...a signaling device that gives authorization and instructions for the production or withdrawal (conveyance) of items in a pull system

Kanban
JIT delivers the:
• the right items
• at the right time
• in the right amounts

Just In Time

...the preceding process must always do what the subsequent process says

If not, JIT fails

JIT Requirement

Eliminate Waste

TPS

Chapter 3
Fundamental Process Question:

*What does the customer want from this process?*

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Let's compare two advising processes: B&E and Engineering.

Pair up with someone from your own college.

Make a list of all the activities that must be completed for you to be advised.

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Estimate how long each activity takes.

Let time be your currency.

Identify which of the activities you consider value added.

What % of time is value added?
Waste

- Non-value added time = \textit{WASTE}

Waste - Categories

- Overproduction
- Waiting
- Unnecessary transport or conveyance
- Over processing or incorrect processing
- Excess inventory
- Unnecessary movement
- Defects
- Unused employee creativity