TOM INGRAM & ASSOCIATES, Inc.

SkinnY Support for Lean Summary

By Tom Ingram, PMP

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Lean Core Concepts:

1. "Cycle Time Reduction is Everything"
2. *Making obvious what adds value by reducing everything else*.
3. "Reduction of Waste" Philosophy: The original seven *muda* are:
   - 3.1. Transport (moving products that are not actually required to perform the processing)
   - 3.2. Inventory (all components, work in process, and finished product not being processed)
   - 3.3. Motion (people or equipment moving or walking more than is required to perform the processing)
   - 3.4. Waiting (waiting for the next production step, interruptions of production during shift change)
   - 3.5. Overproduction (production ahead of demand)
   - 3.6. Over Processing (resulting from poor tool or product design creating activity)
   - 3.7. Defects (the effort involved in inspecting for and fixing defects)[19]
   - 3.8. (Also) Waste created through overburden ("Muri")
   - 3.9. (Also) Waste created through unevenness in work loads ("Mura")

Key Definitions:

- Lean is the set of "tools" that assist in the identification and steady elimination of waste.
- "Muda" Types of waste to be reduced
- "Value" is any action or process that a customer would be willing to pay for.
- Quality = conformance to specification
- JIT (Just in Time)
- Takt Time: Pull Flow (The average time between the start of production of one unit and the start of production of the next unit, when these production starts are set to match the rate of customer demand. NOT just the time it takes to make the product – it is the time between customer demand for each product. From the German word **Taktzeit)**
- Heiljunka: Production Leveling. From TPS. The goal is to produce intermediate goods at a constant rate so that further processing may also be carried out at a constant and predictable rate.

- Heiljunka Box: A visual scheduling tool used in heijunka for achieving a smoother production flow. Whilst heijunka is the smoothing of production, the heijunka box is the name of a specific tool used in achieving the aims of heijunka. The heijunka box is generally a wall schedule which is divided into a grid of boxes or a set of 'pigeon-holes'/rectangular receptacles. Each column of boxes representing a specific period of time, lines are drawn down the schedule/grid to visually break the schedule into columns of individual shifts or days or weeks. Coloured cards representing individual jobs (referred to as kanban cards) are placed on the heijunka box to provide a visual representation of the upcoming production runs.
- Kaizen: Continuous Improvement
- Jidoka: Act on abnormally??? Intelligent Automation – generally requiring human judgement??? Detect process malfunctions or product defects, Stop itself, Alert the operator

Key Schools of Thought:

- Toyota Production System: Focuses on flow, smoothness of work. Two pillar concepts: Just-in-time (JIT) or "flow", and "autonomation" (smart automation).[7]
- "Lean", Jim Womack, IMVP, MIT: Identification and steady elimination of waste. Lean aims to make the work simple enough to understand, do and manage.
- RELELVENT TO SKINNY: In 1999, Spear and Bowen[9] identified four rules which characterize the "Toyota DNA":
    - Rule 1: All work shall be highly specified as to content, sequence, timing, and outcome.
    - Rule 2: Every customer-supplier connection must be direct, and there must be an unambiguous yes or no way to send requests and receive responses.
    - Rule 3: The pathway for every product and service must be simple and direct.
    - Rule 4: Any improvement must be made in accordance with the scientific method, under the guidance of a teacher, at the lowest possible level in the organization.

Key Tools

- SMED Single-Minute Exchange of Die
- Value stream mapping
- Five S Workplace organization method. Sort, Streamline, Shine, Standardize, Sustain
- *Kanban* **(Billboard, Make Visible)**
- *Poka-yoke* (error-proofing)
- Total productive maintenance
- Elimination of time batching
- Mixed model processing
- Rank order clustering
- Single point scheduling,
- Redesigning working cells
- Multi-process handling
- Control charts (for checking mura).

KEY CAUTIONS:

1. Assumes strategy is right, producing the right product / service for the right customer. Risk is overly focused on “doing things right” instead of “doing the right things”.

2. Core weakness of optimized manufacturing is **TOO RESISTANT, HARD TO CHANGE** – not flexible enough for Volatility, Uncertainty, Change and Ambiguity (VUCA) we face in current climate

Lean manufacturing

From Wikipedia, the free encyclopedia

See https://en.wikipedia.org/wiki/Lean_manufacturing