Basics of Lean Systems

Lean is about eliminating the needed "fat" in the enterprise and from the organization

What is Not Lean?

- Too much unnecessary available resources are stocked
- Cluttered
- Talents that are not being utilized

What is Lean all about?

- It's about eliminating the "fat" and unwanted resources from any system
- A culture, philosophy, mindset, way of life
- A culture that focuses on continuous improvement, open-minded thinking, and challenging the norm
- Removing **NVAs** (Non-Value Adding Activities)
- Much more than manufacturing
- All about waste elimination BY creating value flow in organizations

Lean Manufacturing

- Employee empowerment
- The systematic elimination of all wastes
- Simplification of value-streams
- Excellent environment, health, and safety
- Value stream to customer satisfaction
- As-is process -> eliminate NVA -> To-be process

What is value?

- Adds to the perceived value of product/service
- The customer is willing to pay for
- Eliminate NVA in Quality, Quantity, and People

Lean Enterprise, Lean Enablers, and Lean Toolbox

- Lean Systems - enablers and measures
- Lean enterprise - an enterprise with people excellence where culture in manufacturing processes and business processes focuses on waste elimination
- Reducing waste through its enablers and measures
- Lean enablers:
    - **5S**: Standard, efficient, and effective workplace for all employees
    - Sort, simplify, shine, standardize, and sustain

- **Visual Management:** To enable everyone to immediately see deviations to apply immediate corrective action
    - Visual indicators -> easy to interpret
- **Standard Work:** To reduce process variability, standardizing the process
    - Sets the standard, helps to labor flexibility
- **Kaizen:** Continuous improvement for current and future state
- **Leadership Standard Work:** Provides structure and routine
    - Coaching and constructive feedback
- Process mapping -> maps the process of all relevant activities, good for a communication tool
    - Helps to identify wastes and obstacles

Lean Tools

Visual displays
Shainin Shift 7 ± 2 meetings QFD
One-by-one strategy Kaizen blitzes SPC
SMED Hoshin Kanri High-performance teams
DOE Process re-engineering Balanced scorecard
Constraint management Integrated product development
Gain sharing Team-oriented problem-solving Black belts
Total preventive maintenance Value-stream mapping 5S
ISO/QS Six Sigma Kanbans Poka-Yoke
Flowcharts Primary visual displays FMEA
Enterprise software (EIS) 20 keys

- **Reducing process variability**: statistical process control, failure mode effect analysis (FME-A), Six Sigma, Jidoka
- **Lead time:** big picture mapping, brown paper mapping, value-stream mapping
- **Capacity:** Constand identification, batch sizing, production leveling, finite capacity scheduling, order rules
- Material flow

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