Value Stream Mapping Fundamentals
Learning Objectives

At the end of this module, you will be able to:

• Sketch a basic value stream map

• Demonstrate basic value stream analysis

• Recognize steps for process improvement using value stream mapping and analysis
How can Sasha and Andy improve their productivity to meet growing customer demand?
Five Lean Thinking Fundamentals

- Specify **value**: Value is defined by customer in terms of specific products and services

- Identify the **value stream**: Map out all end-to-end linked actions, processes and functions necessary for transforming inputs to outputs to identify and eliminate waste

- Make value **flow** continuously: Having eliminated waste, make remaining value-creating steps “flow”

- Let customers **pull** value: Customer’s “pull” cascades all the way back to the lowest level supplier, enabling just-in-time production

- Pursue **perfection**: Pursue continuous process of improvement striving for perfection

Value Stream Map (VSM)

- A tool used to improve a process by identifying added value and eliminating waste

- A process map with process data added

- Some examples of process data
  - Times: processing, wait, cycle
  - Quality: number of rejects
  - Inventory
  - Resources
    - Number of people
    - Space
    - Distance traveled
  - Whatever else is useful for analyzing the process

Only value-added data and graphics should be used!
Steps for Creating a VSM

1. Define customer value
2. Create a “current state” map
   • “Walk” the process to identify tasks and flows
   • Gather data on resources, time, quality for each
3. Analyze map to determine opportunities for improvement
   • Identify value-added and waste
   • Brainstorm actions to eliminate waste and add value
4. Create “future-state” map to visualize the desired state
5. Create action plans to move towards future-state
Display of data collected during Lean Thinking
With your team, take 10 minutes to
- Identify with colored dots the VAT (green), NVAT (yellow) and WT(red) value stream activities
- Calculate the total
  - Value added time
  - Non value added time
  - Wait time
- Calculate the total time Sasha and Andy spend on a single order
- Be ready to report your answers to the class
S&A Takt And Cycle Times

Open from 10AM - 2PM

50 customers
100 hot dogs

1- Take order
2 - In Order
3 - Cook Hot Dog
4 - Put in bun, wrap, add fruit
5 - Another dog?
6 - Out Order
7 - Order OK?
8 - Add beverage
9 - Deliver to Customer
10 - Set up
11 - Clean up

Takt time = \frac{\text{Available time}}{\text{Customer demand}} = \frac{4\text{hrs} \times 60\text{min/hr}}{50\text{ Customers}} = 4.8\text{min} = 288\text{ sec}

Cycle time = 446\text{ sec} = 7.43\text{ min}
Summary - S&A Value Stream Analysis (VSA)

• Current production (50 customers) is a little below current capacity (64 customers) of Andy and Sasha
  • Process improvement needed to meet growing demand
• Andy and Sasha are both underutilized
  • But utilization is not balanced between them
• Cycle time of 7.43 min per customer too long
  • Should be able to shorten cycle time to meet demands of customers for faster service

Bottom Line
Sasha and Andy should implement process improvement for week 3 to meet growing demand!
Improvement Brainstorm

- Help Sasha and Andy figure out what to improve
  - How can utilization be improved?
  - How can cycle time be reduced?
  - What has to be done to serve 75 customers?
  - What has to be done to serve 100 customers?
- Spend 10 minutes with teams and then discuss with class
Brainstorm Bursts

1 - Take order
2 - In Order
3 - Cook Hot Dog
4 - Put in bun, wrap, add fruit
5 - Another dog?
6 - Out Order
7 - Order OK?
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Why is VSM a Useful Tool?

• Helps visualize interactions and flows

• Shows linkages between information and product flows

• Provides a common language for talking about a process

• Helps to identify:
  • the constraint(s) - any resource whose capacity is less than customer demand;
  • wastes as well as their sources
Tips for Creating a VSM

- Involve entire team
- Actually walk the process - follow the material and information through the process, starting at the beginning
- Use Post-it notes and butcher paper
- Use symbols or icons that are meaningful to the process but common enough to be understood by all involved
More Information


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Hugh L. McManus, PhD

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