

Aim of this Presentation

To develop a knowledge of applying Value Stream Mapping

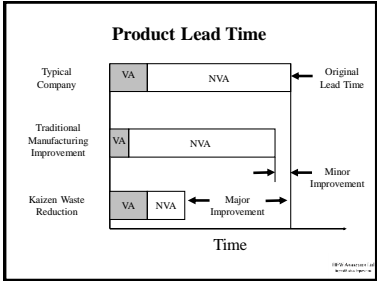
Objectives

By the end of this session you will:

- Identify and map a value stream
- Describe the components of production lead time
- Discuss the importance of lead time reduction

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What Is A Value Stream mapping exercise ?

- Map all actions (value and non-value added) currently required to produce a product from raw material into the arms of the customer
- "...the process of increasing the ratio of value to non-value by identifying and eliminating sources of waste in the overall value stream for defined product families, ensuring that the value stream is profitable and meets or exceeds customer requirements"

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VSM as a Tool

Value stream mapping is a communication tool, a business planning tool, and a tool to manage the extended enterprise.

Notice the steps at the right, and how VSM is aligned to a product family.

The goal is to design and introduce a lean value stream.

Step 1 is to draw the current state.

Future state and current are overlapping efforts.

Future state ideas will come up as you map the current state and lead to the work plan to implement change to achieve the future state.

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Benefits Of Value Stream Mapping

- Provides a simple but true picture of what is happening in the process
- Calibrates your team to a common understanding of the process
- Helps analyze a process by breaking it down into its component steps
- Provides a structure to which specific data can be attached
- Includes the flow of material and the flow of information

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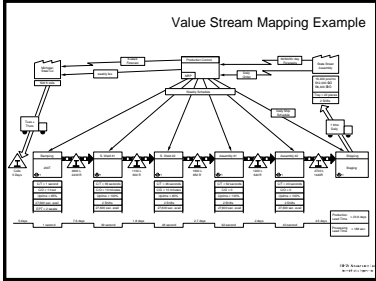
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Steps In Value Stream Mapping

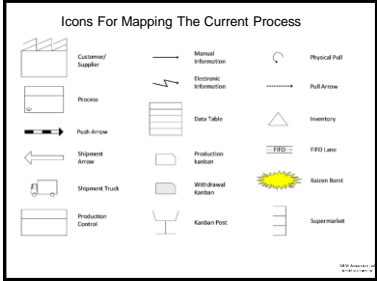
1. Select one product family based on end customer
2. Have one person lead the mapping effort
3. Map the current state at the "door to door" level for the plant
4. Map the desired future lean value stream
5. Develop an implementation plan to achieve the future state

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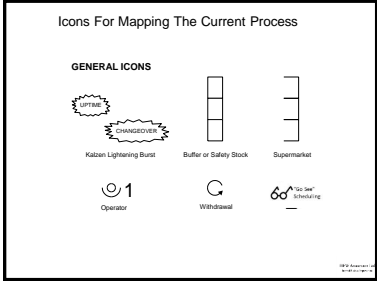
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Tips For Mapping The Current Process

- Collect data yourself by walking the pathways of material and information
 - "Walk the process" repeatedly
- Begin with a quick "door-to-door" walk
- Start at shipping and work upstream
- Bring a stopwatch and gather your own times
- Map entire stream yourself
- Draw by hand in pencil

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Typical Process Data

- Cycle time
- Changeover time
- Uptime
- Inventory
- Production batch sizes
- Number of operators
- Number of product variations
- Pack size
- Working time
- Scrap rate
- Defect rate (dpu)

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Time Definitions

- **Cycle time (C/T):** how often a unit or product is completed by the operation; start to finish
- **Changeover time (C/O):** time to switch from producing one product type to another
- **Lead time (L/T):** time it takes for one unit to complete the process (includes NVA time that unit or product waits between operations)
- **Total Cycle Time:** cumulative time it takes for unit or product to complete all operations (does not include wait time between operations)
- **Uptime** is calculated by dividing the actual machine time available to run by the time scheduled to run
- **Working time (W/T):** time per period minus breaks, clean up...

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Work Time Versus Value-Added Time

- Value-Added Time - The amount of the work time that is actually value-added... the rest is waste!
- Work Time - The shortest time currently possible for a task
- Cycle Time - The actual duration of a task from start to finish (the calendar time)

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Speed

"If things seem under your control, you're just not going fast enough"
- Mario Andretti

"It used to be that the big ate the small. Now the fast eat the slow"
- Geoff Yang, Institutional Venture Partners

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Future Lean Value Stream

- Produce to customer demand
- Develop continuous one-piece flow
- Control production with pull systems
- Send the customer schedule to only one process (the pacemaker)
- Level the production mix at the pacemaker
- Level the production volume at the pacemaker
- Shorten changeovers and produce in small lots upstream from the pacemaker

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Implementing The Future Lean Value Stream

- Begin with completed map of future value stream, broken down into a series of connected flows or "loops"
- Develop value stream plan
 - Exactly what you want to do by when, step by step
 - Measurable goals
 - Clear checkpoints with named reviewer(s)

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Advantages Of Lead Time Reduction

- Short delivery time to customer
- Quickly adapt to changes in demand
- Low work-in-process
- Minimize excess and obsolete material due to engineering changes

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