

“VALUE STREAM MAPPING”

QUALITY TOOLS

Description of Value Stream Mapping

Value Stream Mapping or VSM is an advanced form of process mapping. During a value stream mapping session, all value (VA) and non-value (NVA) added activities required to bring a product or service to the customer are identified. Thus, a Value Stream Map is a tool to see and understand the flow of information or material as the product or service moves through the entire value stream. The Value Stream Map utilizes a variety of symbols to represent different information types, etc. Typically at the bottom of the map is the timeline showing the value and non-value added times that can be used to calculate the ratio of value and non-valued added activities.

When to use Value Stream Mapping

Typically, a VSM is used when there is an established process under investigation. If the process has no established steps or flow, it is usually beneficial to map the process first using tools like flowcharting, swimlane, etc. A VSM is used to identify value and non-value added activities with the purpose of improving the process by reducing lead time which will help to consistently meet customer demand. The primary benefit of using VSM is the ability to visualize the entire process instead of single, isolated processes. Traditionally, activities are focused on improving individual operations which may or may not impact the overall value stream. In the value stream approach however, improvement activities are prioritized depending on their effect on the overall process.

How to use Value Stream Mapping

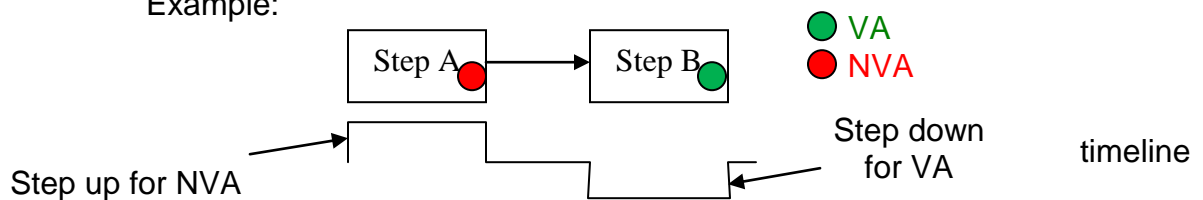
1. **Identify the team.** The team should be composed of personnel from different departments involved in the process including a few fresh eyes which can bring new perspective to the team. Key team members include management representative/sponsor, facilitator, and core team members.
2. **Map the current state.** Using a large piece of brown/white paper and Post-it notes, draw the current map utilizing the different symbols available (see page 4).
 - a. Depending on the process, it is typical to start with the customer on the right side of the map and working backwards towards the supplier on the left side of the map.
 - b. Leave ample spaces between the steps to allow for addition of information.

- c. Use yellow Post-it for the process steps, red/pink Post-it for “obstructions to flow”, and green Post-it for suggestions/ideas.
- d. Create the data boxes below each process steps. Typical information in the data boxes are cycle time, changeover time, first-time quality, number of personnel.

3. Identify value and non-valued activities. Be creative on this step. Examples of identifying VA and NVA items include green and red dots, green and red marks around the post-it notes.

4. Create timeline at the bottom of the map.

- a. Value added activities are represented by a step down in the timeline while non-value added activities are shown as a step up.
- Example:



- b. Add all value-added times and all non-value added times.
- c. Calculate the ratio of VA to NVA times and write in bold numbers on the right side of the timeline

5. Identify “obstruction to flow” and improvement suggestions/ideas

6. Prioritize improvement activities. Activities that have bigger impact on the value stream should be given higher priority.

7. Create ideal state. Ideal state is the interim state before the future state.

8. Create/visualize the future state.

Tips on use of Value Stream Mapping

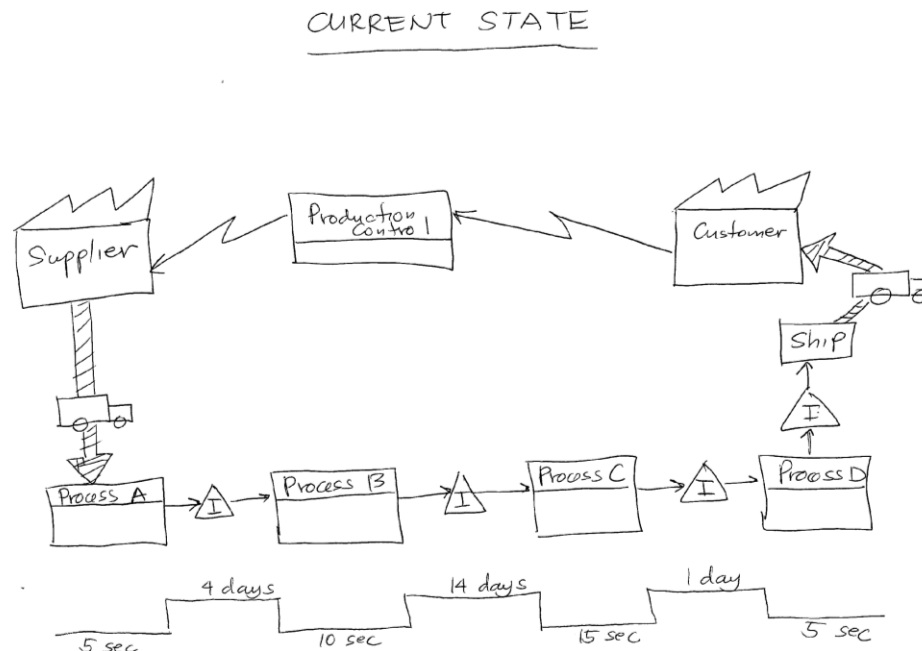
1. Make sure you walk the process and collect information, facts and data along the way. Do not rely on standard information available in the system.
2. The point of the value steam mapping is not the map, but understanding the flow of information and material.
3. Do not spend a lot of time making the map “pretty”. A VSM is designed to be messy as you will make numerous changes later on. A pencil, eraser, and pads of Post-it notes are good enough.
4. Management support is a key to the success of the value stream mapping exercise.
5. Start a VSM activity on a well-understood process where likelihood of success is high.
6. Conduct Value Stream Mapping with the purpose of improving the process.

Application of Value Stream Mapping

Typically your customers often define your value streams. If you are making similar products for company A and company B, each having unique specifications then you have two value streams. If your customer has not defined the value stream then two methods are available to define the value stream: Product-Quantity analysis (PQ) and Product-Routing (PR) analysis. PQ analysis is used to see if some part numbers are run in higher volumes to make the decision an obvious one. PR analysis involves identifying the processes that each product goes through. Those with similar processes can be grouped into the same value stream.

Value Stream Mapping is an important tool in highlighting wastes in the system. This tool is very useful in both manufacturing and non-manufacturing applications although the structure may differ slightly depending on the process under review.

Below is an example of a basic value stream map.



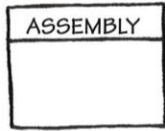
References

Learning to See by Mike Rother and John Shook
 Value Stream Management by Don Tapping, Tom Luyster and Tom Shuker

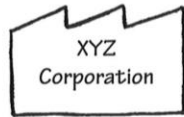
VALUE STREAM MAPPING ICONS

(from Learning to See book by M. Rother, J. Shook)

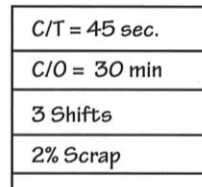
Material Flow Icons



Manufacturing Process



Outside Sources

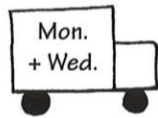


Data Box



300 pieces
1 Day

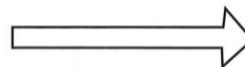
Inventory



Truck Shipment



PUSH
Arrow



Finished Goods
to Customer



First-In-First-Out
Sequence Flow

General Icons



Kaizen
Lightning Burst



Buffer or
Safety Stock



Operator



Supermarket



Withdrawal

Information Flow Icons



Manual
Information Flow



Electronic
Information Flow



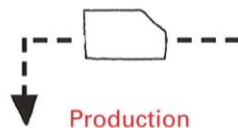
Schedule



Load Leveling



Withdrawal
Kanban



Production
Kanban



Signal Kanban



Kanban Post



Sequenced-Pull Ball



"Go See"
Scheduling



Kanban Arriving
in Batches