



**USER GUIDE FOR THE  
VSM KIT**



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# 1. Introduction

A value stream map is a visualization tool that shows the flow of material and information, as a product makes its way through the value stream. It is a good foundation for understanding how activities and operations are connected and forms a basis for analysis of the process. It is a potent Lean tool for eliminating waste from a system.

Lean is a management philosophy whose goal is the elimination of waste, and waste is broadly defined as any activity that does not create value for the customer.

The 8 lean wastes are :-



Based on lean thinking principles, the tasks performed can be classified into the following 3 categories:

1) Value added: This category of tasks are the ones that really move a product forward and create value that external customers are willing to pay for.

2) Non-value added but necessary: This category of tasks are the ones that may not move the product forward and may not create value that external customers are willing to pay for, but they are necessary under current circumstances.

3) Non-value added: This category of tasks are the ones that does not move the product forward and they create no value for external customers. These tasks should be identified and eliminated.

## 2. Value Stream mapping

Value Stream Mapping (VSM) is one of the critical tools in the implementation of Lean Manufacturing across organizations. It is effective in reducing the waste in any process by segregating value added and non-value-added activities.

VSM is a universal language that can be communicated in the form of symbols. It is useful as an appropriate and fundamental instrument to analyse material as well as information flow in the manufacturing system.

It helps in mapping current state and developing a future state map that will aid in achieving the continuous improvement goals of the company.

1. The Value stream mapping that companies initially perform are usually the door-to-door value streams. This refers to a value stream map of processes or internal operations that are performed within the organization.
2. A VSM must be detailed enough to allow identification of all non-value-added steps, no matter how small.
3. The creation of a VSM is an iterative process. As interventions are undertaken to eliminate waste, the VSM changes and must be reevaluated in comparison with an “ideal” state. As such, it represents the continuous nature of lean.

## 4. Objectives









The main objectives of value stream mapping are:

1. Identifying opportunities for improvement.
2. Elimination of waste with support from operational staff.
3. Observe the material and information flow in real time starting from the order placement by the customer to the order and delivery of raw material from the supplier and production.
4. Represent the process visually for guiding improvements that are based on a carefully developed plan.


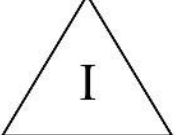




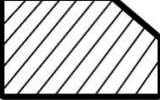
### The 5 key elements of a Value Stream Map


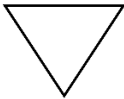
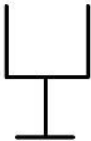



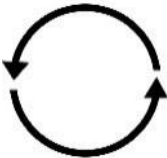
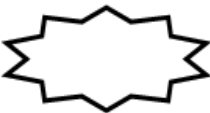
1. Customer - A customer is a person or company that receives, consumes, or buys a product or service from your organization.
2. Supplier - A supplier is an entity that provides goods and services to your organization. It is usually a manufacturer or a distributor.
3. Information flow - This symbolises the movement of information between people and systems that are required to convert a customer order to a product.
4. Material flow - Denotes the flow of material from the procurement of raw material to the conversion to product and shipping to customer.
5. Timeline - The timeline the lower most part of the VSM, indicates the value added and non-value-added time related to each operation.






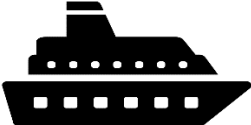


## 6. VSM symbols and descriptions

	<p><b>Process box</b> A manufacturing process. For example, cutting, stamping, or painting.</p>
	<p><b>External Supplier/Customer</b> External Supplier - An external source of raw material, services, or supplies. Customer-The order placing organization</p>
	<p><b>Data Box</b> Information about a process, department, or facility.</p>
	<p><b>Timeline</b> This square wave is drawn at the bottom of the value stream map and helps separate the value-added cycle time from the non-value-added time.</p>
	<p><b>Work cell</b> U-shaped manufacturing cell</p>
	<p><b>Shipments</b> This arrow shows the transport of raw materials from the supplier to your facility and the shipments from your facility to your customer.</p>
	<p><b>Push movement</b> This arrow shows material flow that is produced and moved forward before the subsequent process needs it.</p>
	<p><b>Manual Information flow</b> Manual information flow from meetings, memos, etc. Frequency and type of information can be noted. For example, the work order papers from production control centre to each workstation.</p>



	<p><b>Electronic information flow</b>  A broken arrow indicates electronic information flow between processes.  For example, the production control centre receives orders from the customer via email or web orders.</p>
	<p><b>Inventory</b>  A location of inventory storage. Usually this refers to Work in Progress (WIP) inventory that is stored between workstations. It can also refer to the raw material inventory and the finished product inventory that is stored at the beginning and end of the manufacturing process respectively.</p>
	<p><b>Supermarket</b>  The location where a predetermined standard inventory is kept to supply to the downstream processes. The open side faces the supplying process.</p>
	<p><b>Withdrawal</b>  Used to indicate where a downstream process is pulling from an upstream supermarket.</p>
	<p><b>First-in-first-out station</b>  Used to indicate a “first in, first out” flow of material between workstations.</p>
	<p><b>Production kanban</b>  A kanban card. The card initiates a process to produce a product and stays with the product from raw material to finished good.</p>
	<p><b>Withdrawal kanban</b>  A kanban card that instructs the operator to move parts from a supermarket to a process.</p>

	<p><b>Kanban arriving in batches</b> Multiple kanban cards moving through the processes together.</p>
	<p><b>Signal kanban</b> Signal kanban indicates when a batch of raw materials has been depleted and a new batch is required.</p>
	<p><b>Kanban post</b> A place where kanban cards are collected and held for conveyance.</p>
	<p><b>Buffer / Safety stock</b> Buffer stock inventory is the extra product set aside to compensate for unexpected delays from suppliers or when the demand is greater than anticipated.</p>
	<p><b>Load levelling</b> A tool to intercept batches of kanban cards and level their volume and mix to smoothen the production process.</p>
	<p><b>MRP</b> Material requirements planning (MRP) is an inventory scheduling symbol.</p>
	<p><b>Iteration or rework loop</b> A symbol placed within a process to show that it requires repetition. Planned repetition is called iteration, whereas unplanned repetition is called rework.</p>
	<p><b>Kaizen burst</b> Used to indicate where kaizen (continuous improvement) activities will be focused. The specific type of kaizen activity and any supporting information is recorded within the burst.</p>

	<p><b>Worker / Operator</b> Indicates where an operator or worker is required. The number of operators is to be mentioned.</p>
	<p><b>Milk run</b> Indicates a worker movement to pick up parts, equipment, or supplies</p>
	<p><b>Go-see scheduling</b> These “go and see” goggles indicate that information is being collected through physical observation, such as when a supervisor performs a visual check of inventory.</p>
	<p><b>Truck shipment</b> A shipment via road. The frequency of shipments should be recorded below the symbol, for example: daily.</p>
	<p><b>Train shipment</b> A shipment via rail. The frequency of shipments should be recorded below the symbol, for example: monthly, weekly, fortnightly</p>
	<p><b>Boat shipment</b> A shipment via boat. The frequency of shipments should be recorded below the symbol, for example: monthly.</p>
	<p><b>Air freight</b> A shipment via air. The frequency of shipments should be recorded below the symbol, for example: weekly.</p>
	<p><b>Pacemaker</b> Any process along a value stream that sets the pace for the entire stream.</p>

# 7. Current State Map

The current state intends to visualize the whole 'as-is' process in the correct order of occurrence to the participants. The mapping begins with the selection of product families (i.e.) products with common features or similar processes. Interestingly, the value stream maps are read from right to left – the customer on the right, your organization in the middle and the supplier on the left. The current state visualization should enable participants to spot areas of improvement. These improvements basically intended at transforming from a push-based system to a pull-based system.

To identify root causes of issues, we recommend using our A3 Problem Solving board

<https://www.magiboards.com/product-category/a3-problem-solving/>

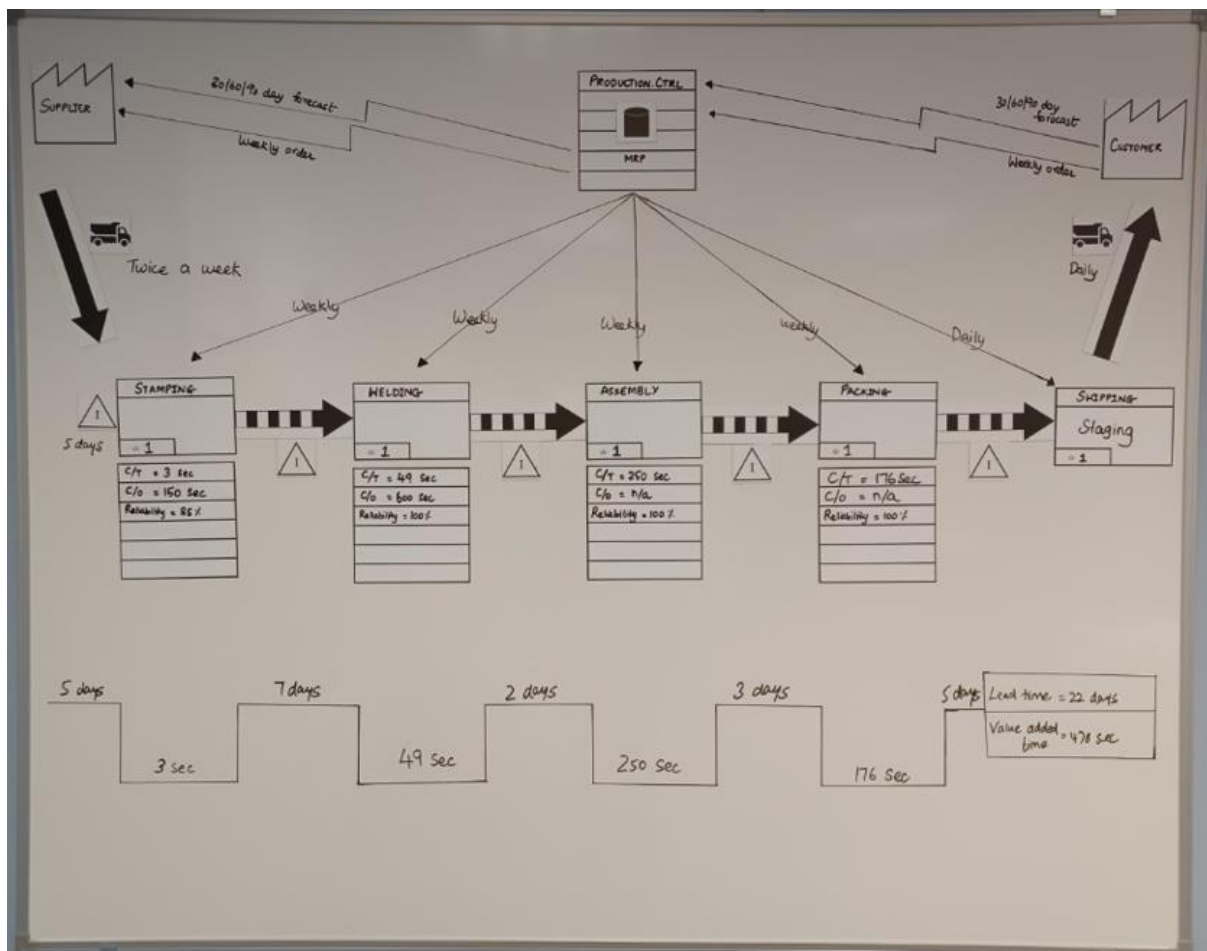


Figure – Current state using VSM kit

# 8. Future State Map

A future state map is a streamlined version of the current state. It intends to develop a continuous flow where possible and embed a pull-based system. It opts to use supermarkets to control production where continuous flow is not possible upstream. It sends the customer schedule to just one process – pacemaker and develops the ability to make the part ‘every part every day’ in the process upstream of the pacemaker process. The ultimate aim is to produce the products at ‘takt time’ - the rate at which a product is to be manufactured to meet the customer demand.

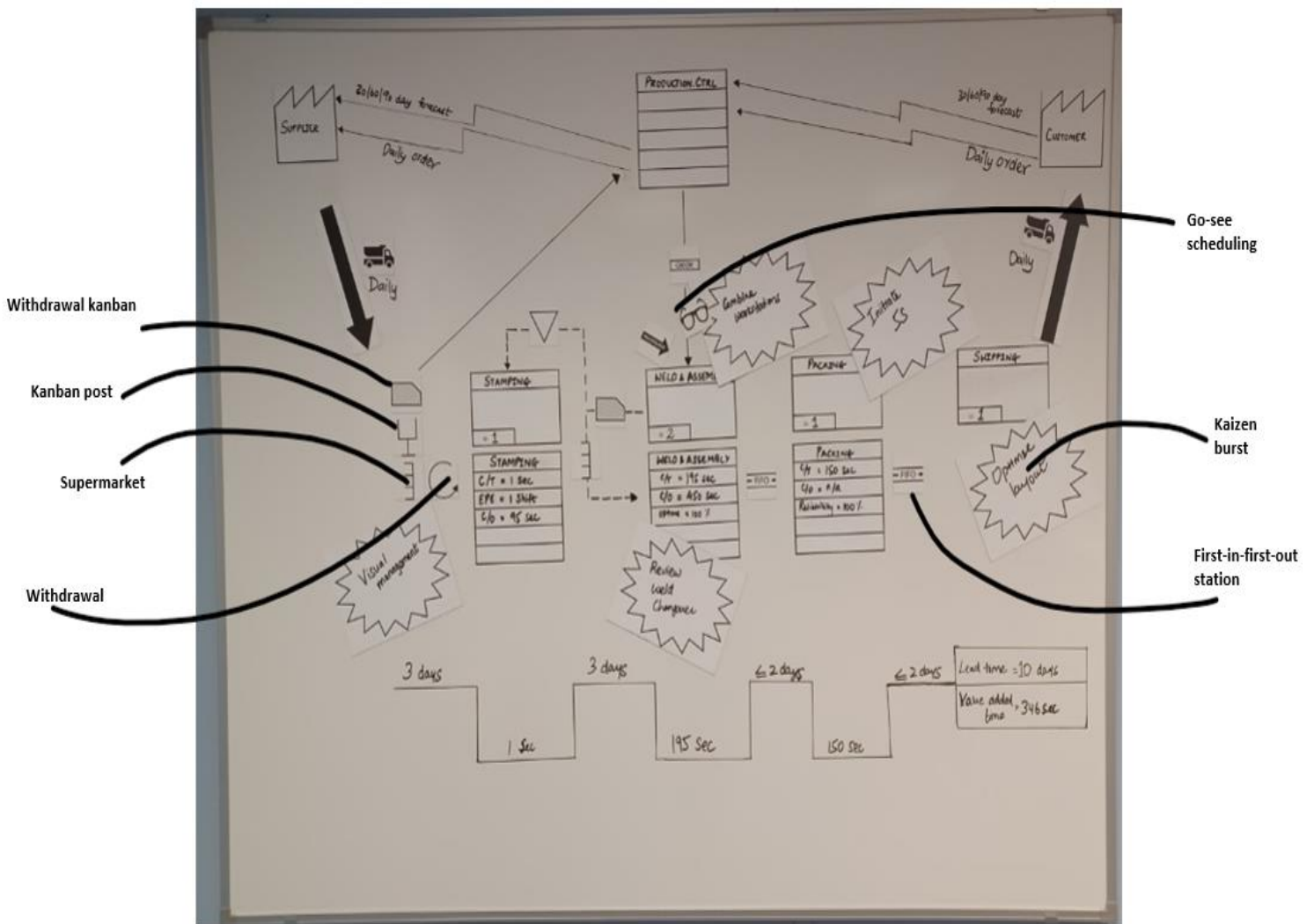


Figure – Future state using VSM kit

For a step by step guide we recommend these books

1. Value Stream Mapping: Reduce waste and maximise efficiency by 50 minutes.
2. How to build a value stream mapping (VSM): Step by step methodology, detailed explanations, examples, tips and tricks by Mickaël Réquillard.
3. Rother, M. and Shook, J., 2003. Learning to see: value stream mapping to add value and eliminate muda. Lean enterprise institute.

## You might also like

### Other Lean VM products

- ✓ Lean problem-solving printed boards
- ✓ 5S printed boards
- ✓ SQCDP/KPI boards and many more!

Thank you so much for purchasing our **VSM kit**. We hope you were happy with your order. We're so glad you chose to shop with us.

We value every one of our customers and are always trying to make your Lean implementation an easy and valuable experience for you.

Would you be kind enough to leave us a Google review [here](#).



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