

Value Stream Mapping



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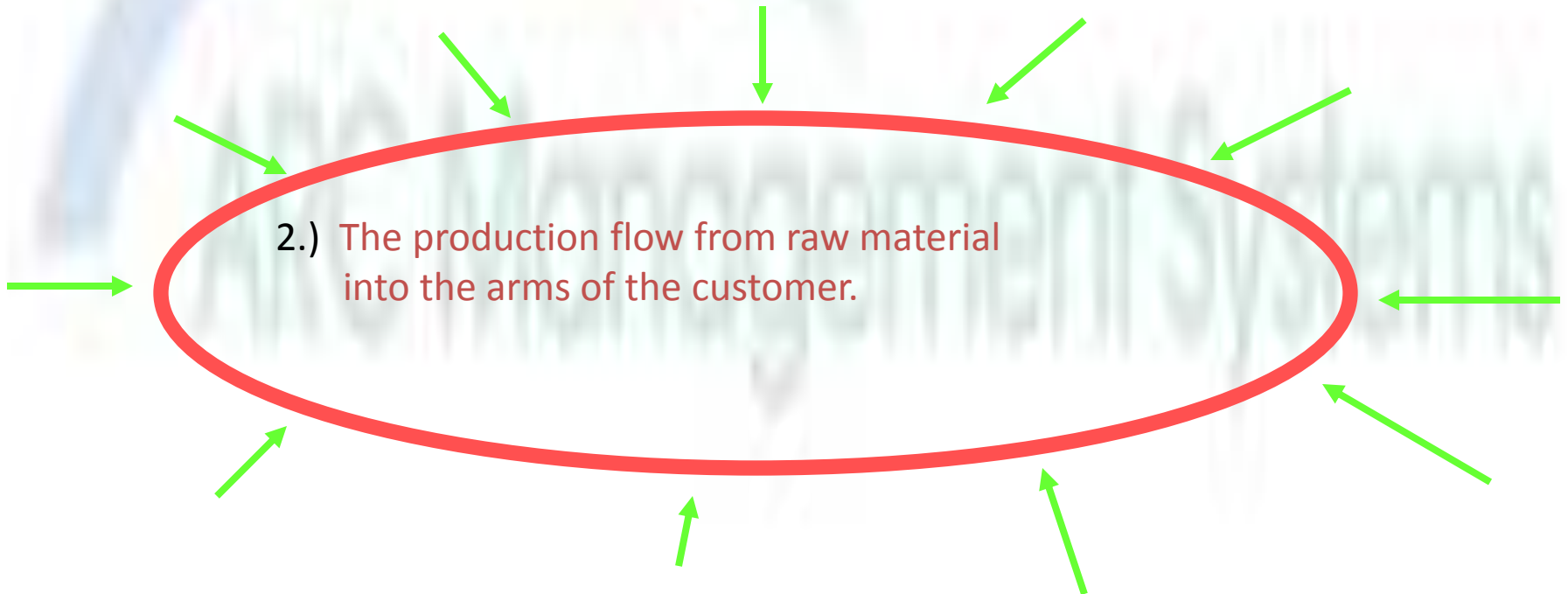
What is a Value Stream

Definition

A value stream is all the actions (both value added and non-value added) required to bring a product through the main flows essential to every product.

1.) The design flow from concept to launch.

2.) The production flow from raw material into the arms of the customer.



What is Value Stream Mapping?

It is a paper and pencil tool, that results in a hand drawn visual representation of every process in the material and information flow



It helps you to see and understand the **flow** of material and information as a product makes its way through the value stream



Value Stream Mapping

Helps you visualize more than the single process level.

Links the material and information flows.

Provides a common language.

Provides a blueprint for implementation.

More useful than quantitative tools.

Ties together lean concepts and techniques.

Stamping. Welding. Assembly.

Why Value Stream Mapping

Lean Implementation Effort Steps

- 1 Find a Change Agent
- 2 Find a Sensei
- 3 Seize or create a crisis to motivate action
- 5 Pick something important and get started removing waste quickly, to surprise yourself with how much you can accomplish in a very short time.
- 4 ***Map the entire value stream for all of your product families.***

Why Value Stream Mapping

Kaizen efforts, or any Lean Manufacturing technique for that matter, are **most effective** when applied strategically within the context of building a Lean Value Stream.

If Not?????

Fix one small part

1 pc. flow not connected

SMED with no inventory or lead time reduction

Frustration because the improvements are not hitting the bottom line

Using the Value Stream Mapping Tool

This is how it goes

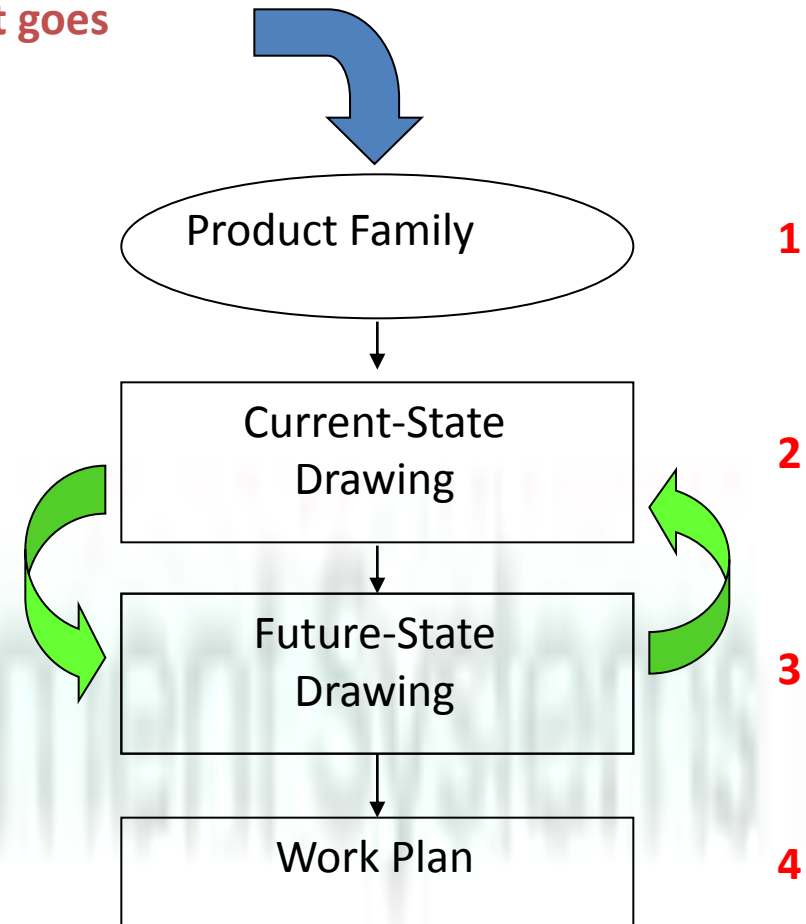
Can be :

Communication Tool

Business planning Tool

Change Management Tool

Remember the goal is a Future State



Value Stream Mapping

Remember.....

It is just a tool

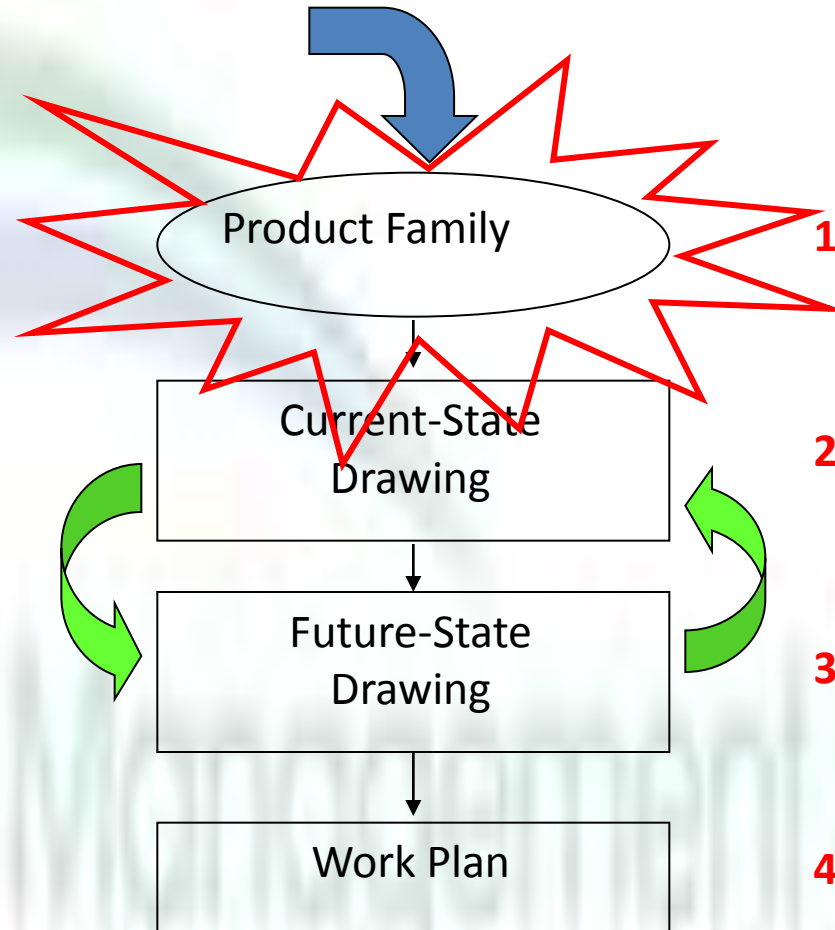


What's important is creating a value-adding flow.

Use the tool to help you see



The Value Stream Mapping Process



1.) Selecting a Product Family

Identify product families from the customer end of the Value Stream



It should be products that pass through similar processing steps and over common equipment in downstream processes.

We already have a tool for this.....

What is it?????

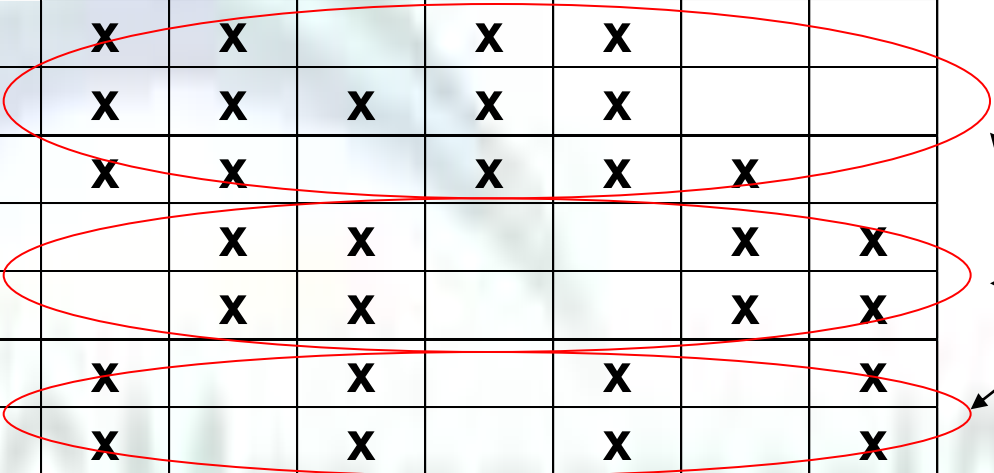
A Process Map!!



Determine Product Families

		Process Steps & Equipment						
		1	2	3	4	5	6	7
P r o d u c t s	A	x	x		x	x		
	B	x	x	x	x	x		
	C	x	x		x	x	x	
	D		x	x			x	x
	E		x	x			x	x
	F	x		x		x		x
	G	x		x		x		x

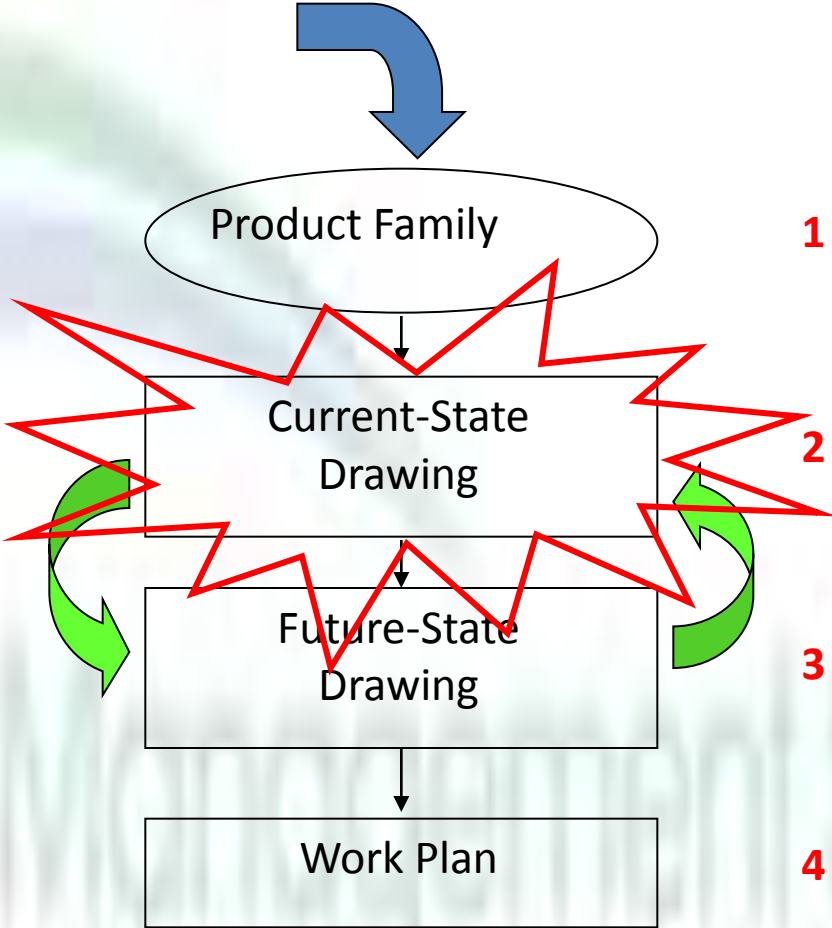
Product Families



Product Families are determined by similar downstream processes

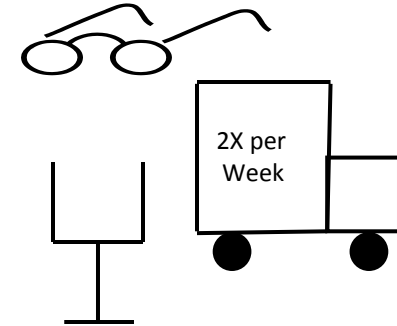
One value stream for **each** product family!

The Value Stream Mapping Process



2.) Drawing a Current State Map

A set of symbols or “icons” are used to represent processes and flows.

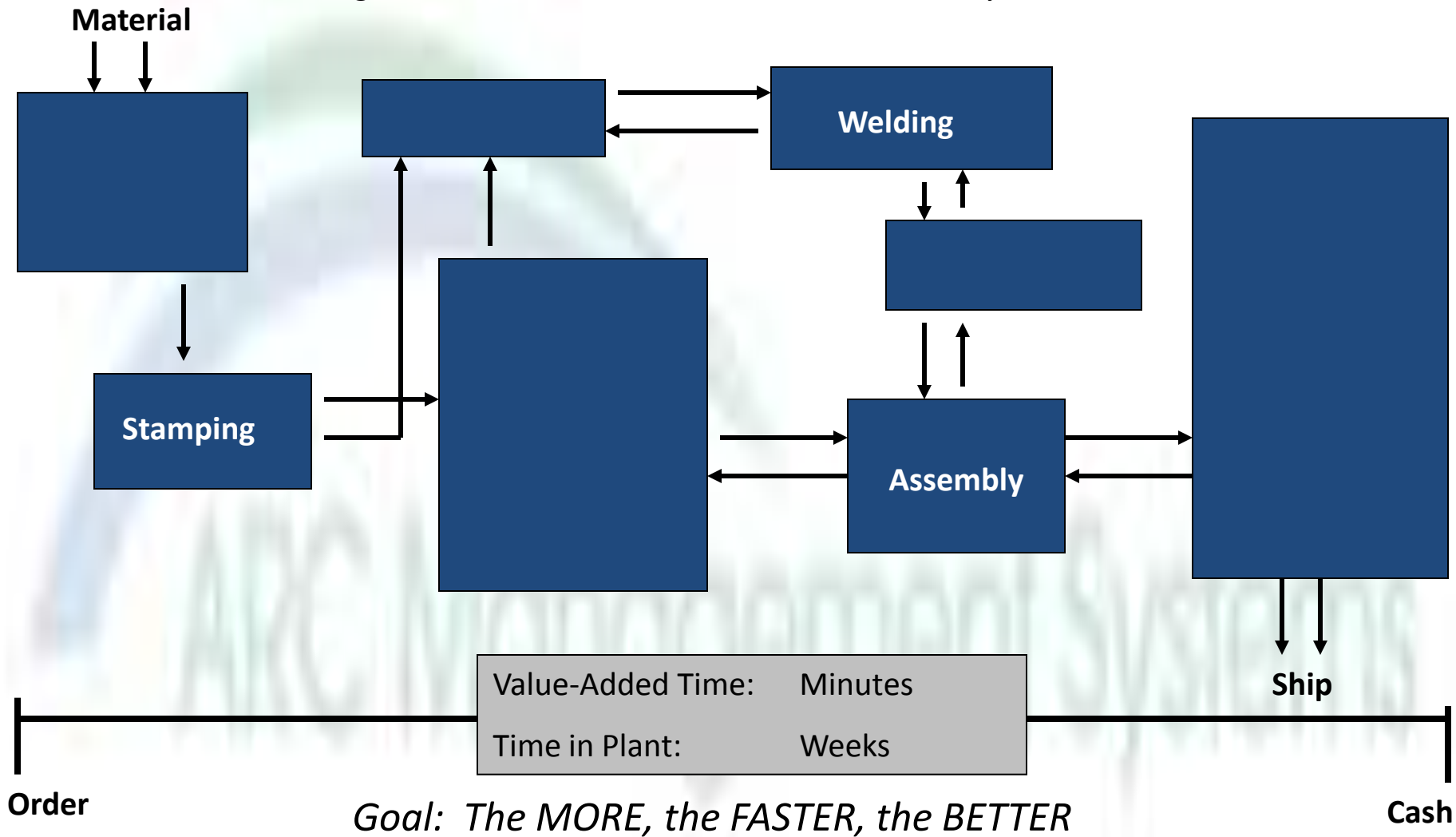


Keep them consistent for clear communication

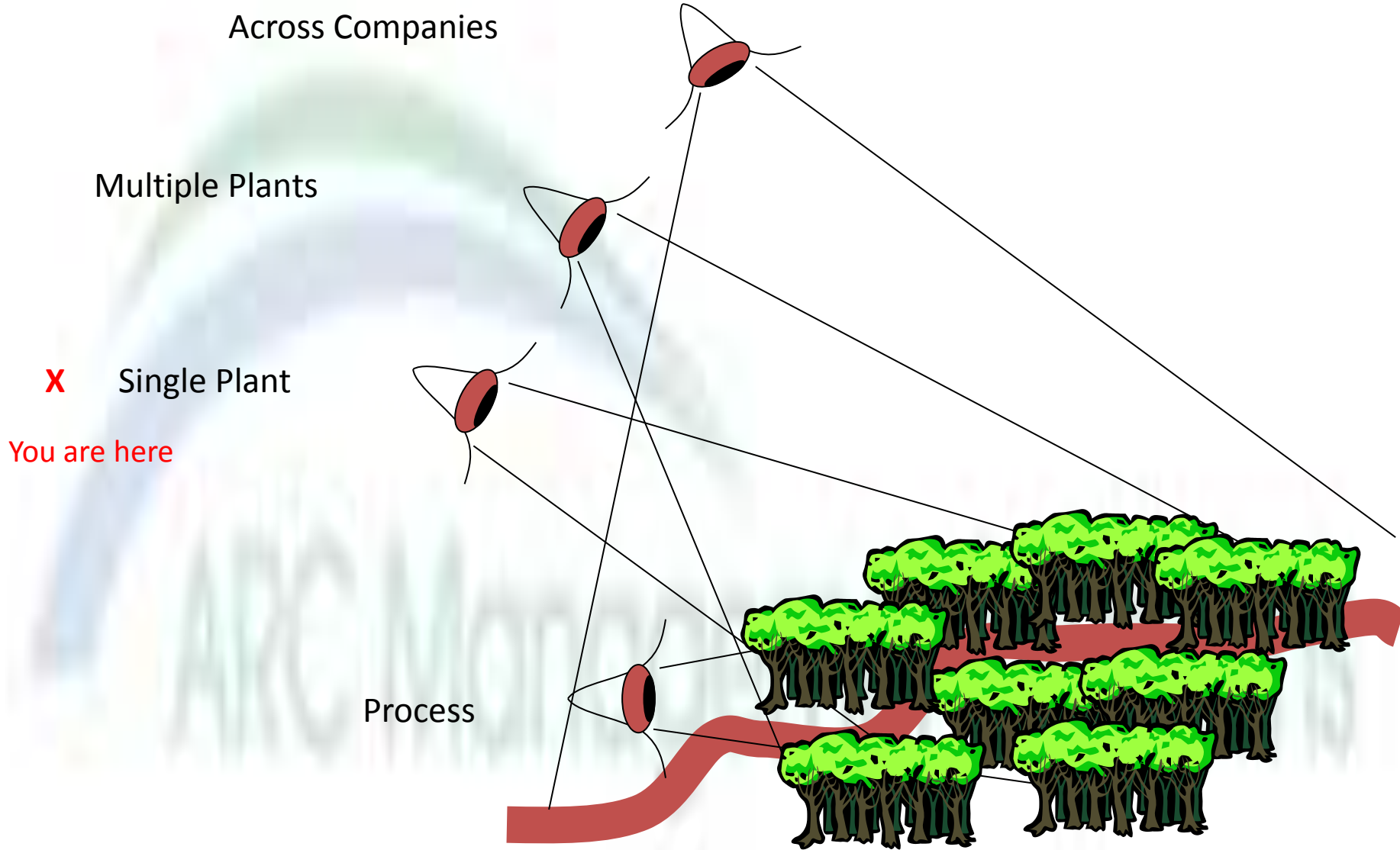


Mass Production

Large Lots, Pushed Ahead, "Island" Mentality

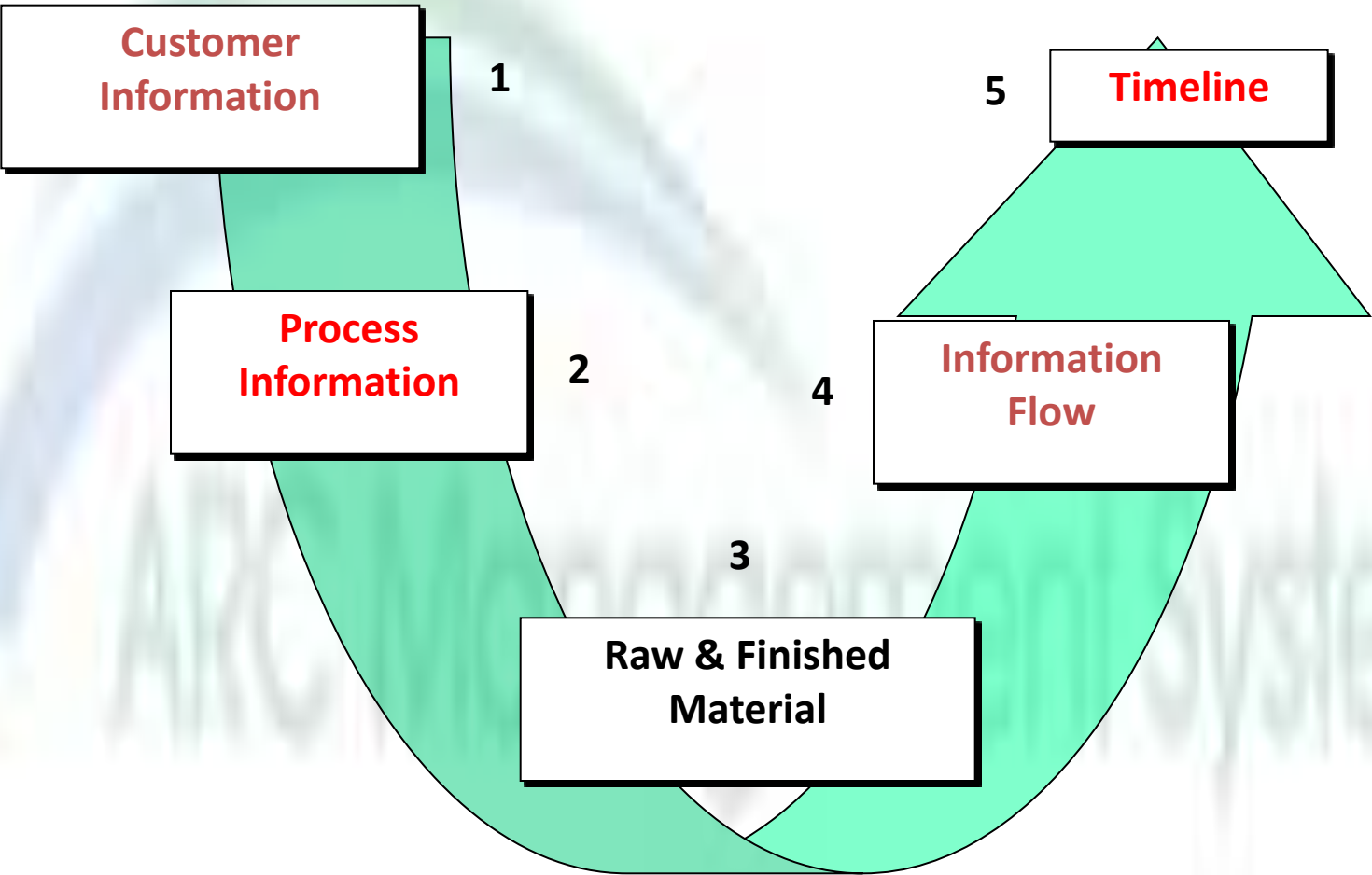


Levels of Value Stream Mapping



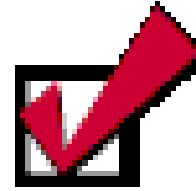
Current State Map Steps

Who is always first?



Drawing a Current State Map

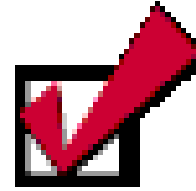
Mapping Tips



- Collect information while walking the actual paths of material and information yourself.
- Walk the path once to get a feel of the flow and sequence of processes, then go back and start collecting information.
- Begin at the end. Start closest to the customer and you will focus on things linked most closely to the customer.
- Bring a stopwatch, see it and time it for yourself do not trust information from the “system”.

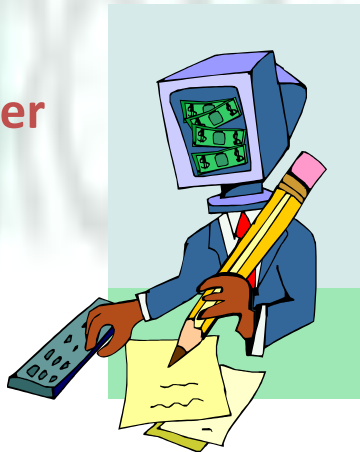
Drawing a Current State Map

Mapping Tips



- Map the whole thing by yourself , understanding the whole flow is what it's all about.
- Always, always draw by hand in pencil. Begin your rough sketch on the plant floor and if needed clean it up later. **DO NOT SIT IN AN OFFICE BEHIND A COMPUTER!!!!.**

This computer
is OK



Don't get
caught in this
trap



Current State Map Data

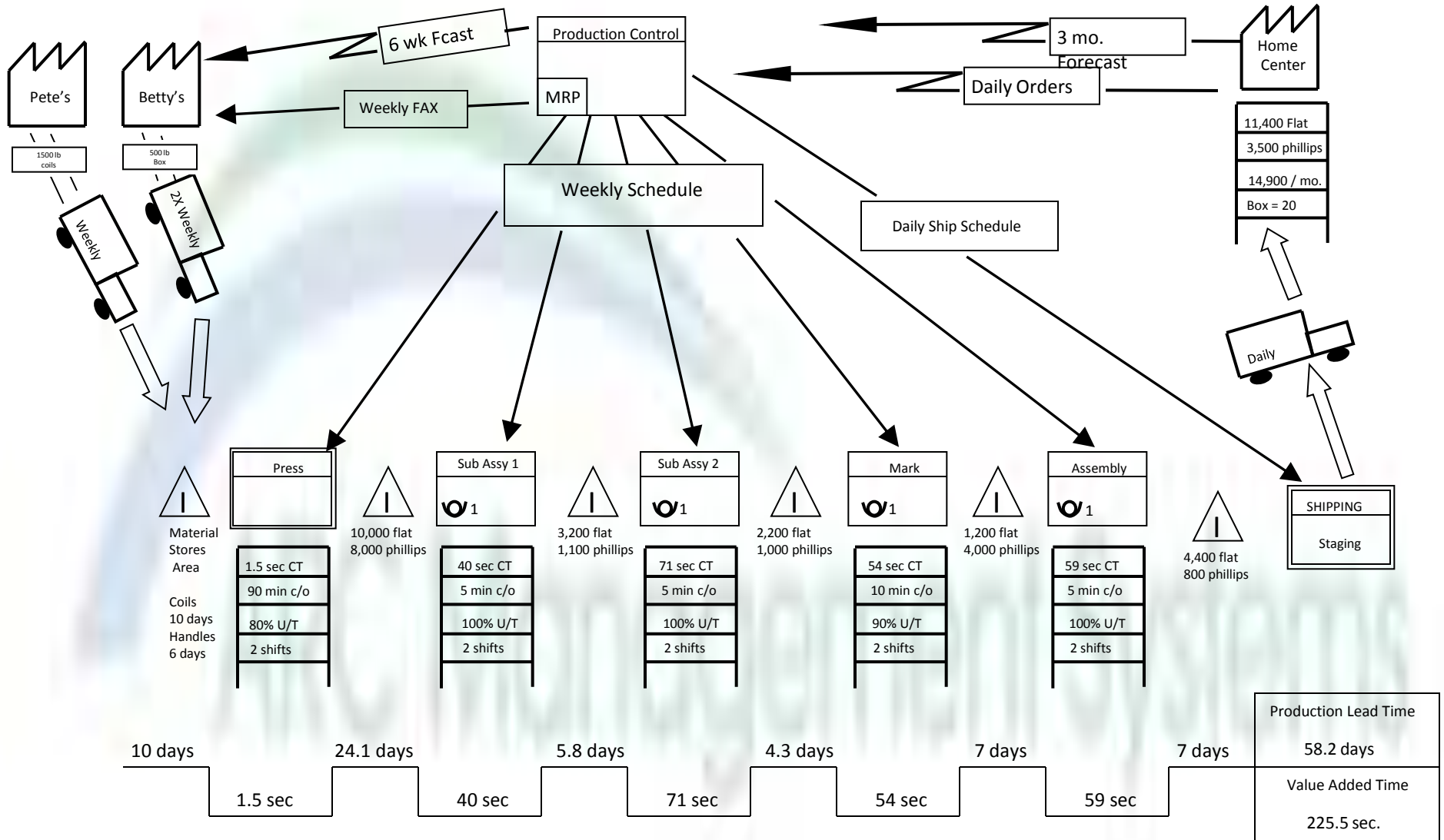


- Bobs Tools makes specialized screwdrivers for the home center market.
- The product to be mapped is the low cost ergonomically designed “ScrewBee” .
- The ScrewBee comes in one flat tip size and one phillips size and are sold in 20 piece packs.
- Typical demand is 11,400 flat tips and 3,500 phillips per month. (20 days per month).
- Typically the boxes are palletized 20 per pallet and the two types are not mixed on a pallet.
- Bobs ships to the Home Center Distribution Center 1 time per day.
- Steel Coil is provided by Pete’s Discount Steel and is shipped once per week. Bob stores it in his material stores warehouse.
- Handles are provided by Betty’s Plastics and are shipped 2 times per week. Bob stores it in his material stores warehouse.
- Bobs runs 2 shifts with 435 minutes available each shift.
- There are 6 processes in Bobs place, all processes occur in order and all parts go through the same processes.
- 1.) Press (Shared with other Products)
 - 150 Ton automated progressive die
 - 14 Presses, operators run multiple machines.
 - 1.5 sec. cycle time
 - 1hr 30 min. changeover
 - 80% uptime
 - 10 days of coil inventory in front
 - 10,000 finished flat tip
 - 8,000 finished phillips tip.
- 2.) Sub Assembly 1
 - 1 wing crimped on shaft 1 operator
 - 40 sec cycle time
 - 5 min. changeover
 - 100% uptime
 - 3,200 flat, 1,100 phillips

Current State Map Data

- 3.) Sub Assembly 2
 - 2nd wing crimped on shaft, inserted in handle 1 operator
 - 71 sec cycle time
 - 5 min. changeover
 - 100% uptime
 - 2,200 flat, 1,000 phillips
- 4.) Mark
 - Small bench press 1 operator
 - 54 sec. cycle time
 - 10 minute changeover
 - 90% uptime
 - 1,200 flat, 4,000 phillips
- 5.) Assembly
 - Manual assembly 1 operator
 - 59 sec. cycle time
 - 5 minute changeover
 - 100% uptime
 - 4,400 flat, 800 phillips
- 6.) Shipping (Shared with other Products)
 - Verifies quantities and weights
 - Removes product from finished goods stock and stages for shipment
- Bobs Production Control Department:
 - Receives a 3 month forecast from the Home Center D.C.
 - Loads forecast in MRP
 - Issues 6 week forecast to Pete and Betty
 - Issues releases to Pete and Betty weekly by FAX
 - Generates weekly department schedules through MRP
 - Receives daily release orders from Home Center D.C. by EDI
 - Issues daily shipping schedule to shipping

Current State Map



Current State Value Stream Mapping Summary

Helps you visualize more than the single process level.

Links the material and information flows.

Provides a common language.

Forces you to confront the reality of the current process.

Makes the difference between lead time and value-added time readily apparent.

Clearly shows the impact inventory has on lead time.

Identifies areas for improvement (groundwork for Future State Value Stream Map).