Value Stream Mapping

The Current State Map

Product Family → **Current State Drawing** → Future State Drawing → Work Plan & Implementation

The Current State Map

Getting started with the Current State Map

- Developing a future state begins with an analysis of the current production situation
- This Module shows you how to create a "current state map" using a simple example factory.
- We use a set of symbols, or "icons," to represent processes and flows.

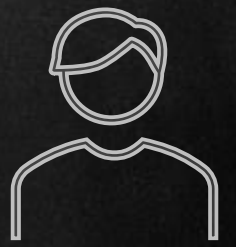
Process Level

👉 Single Plant

Multiple Plants

Across Companies

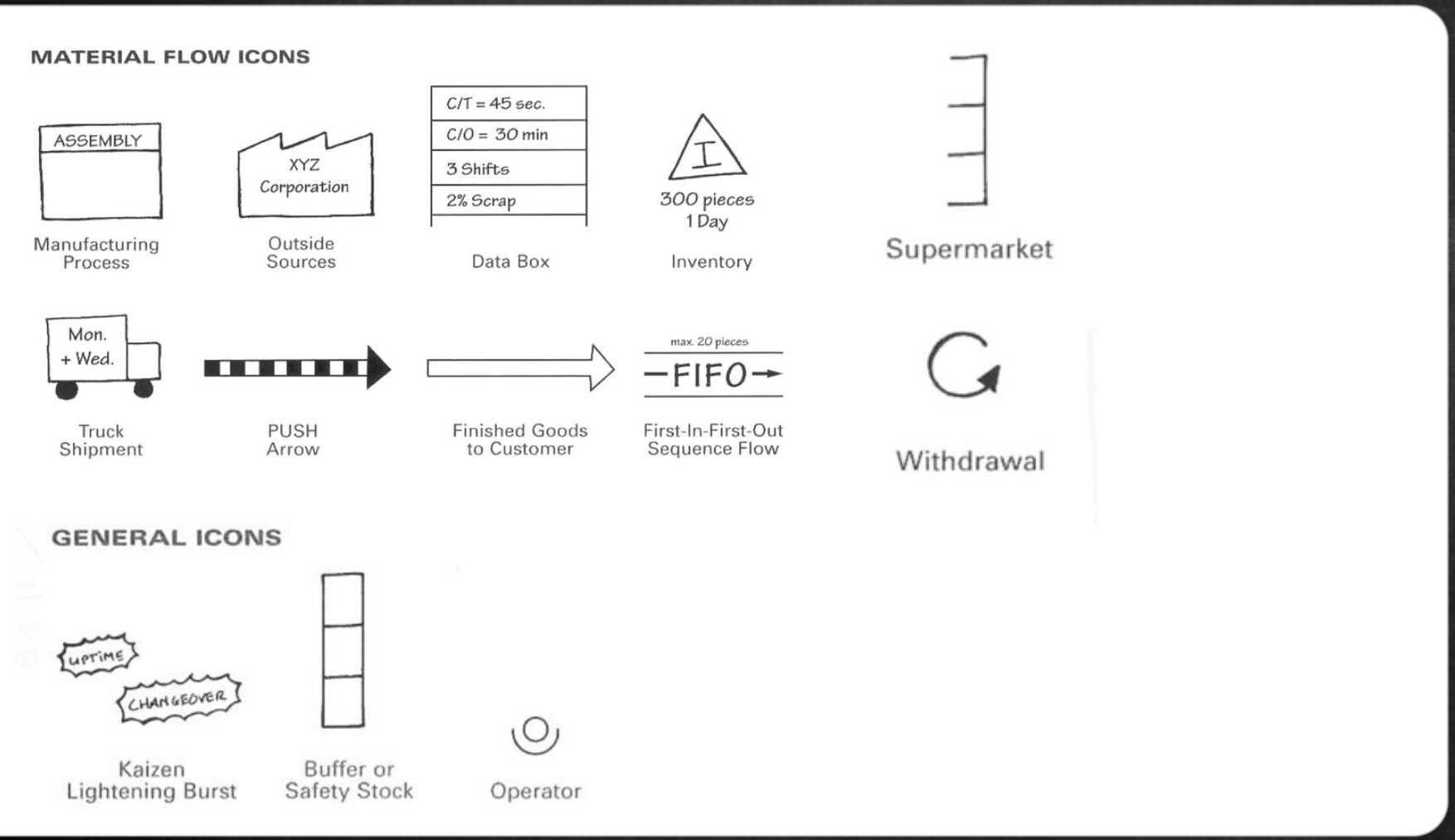
- You can develop additional icons of your own, but keep them consistent within your company so that everyone will know how to draw and understand the maps that you need to institute lean manufacturing.



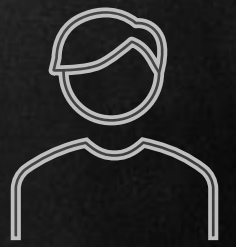
Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Value Stream Map Symbols – Material Flow & General Icons



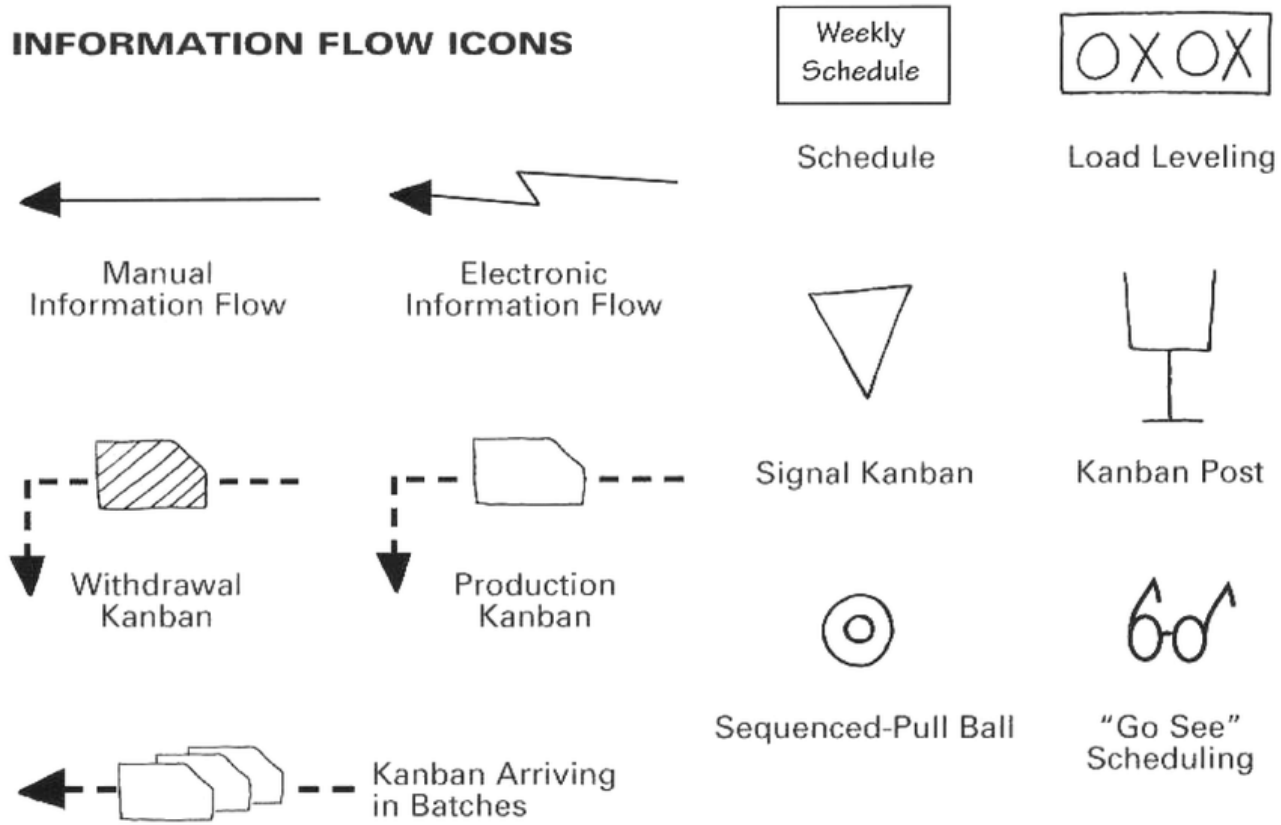
- You can develop additional icons of your own, but keep them consistent within your company so that everyone will know how to draw and understand the maps that you need to institute lean manufacturing.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Value Stream Map Symbols – Information Flow Icons



Source: Rother and Shook (1999)

- You can develop additional icons of your own, but keep them consistent within your company so that everyone will know how to draw and understand the maps that you need to institute lean manufacturing.

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

A few Mapping tips

Begin with a quick walk along the entire door-to-door value stream

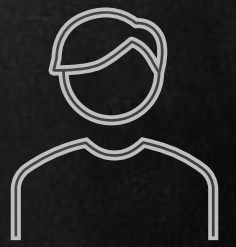
Begin at the shipping end and work upstream

Bring your stopwatch and do not rely on standard times or information that you did not personally obtain

Map the whole value stream yourself

Always draw by hand in pencil

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.
- Drawing by hand can be done without delay, while you are on the floor. As you draw you will think of further information that you need.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Steps for Current State Map

Understand Customer Requirements
- Demand Rate
- Raw Material Required

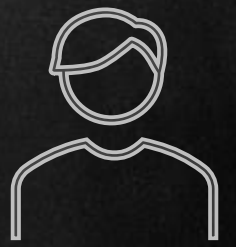
Draw The Basic Production Processes
- Cycle Time
- Uptime
- N Operators

Draw Inbound & Outbound Logistics
- Shipping from Supplier
- Shipping to Customer

Draw the Information Flow
- Manual Information Flow
- Electronic Information Flow
- External Information Flow
- Internal Information Flow

Draw the Timeline
- Cycle Times
- Waiting Times

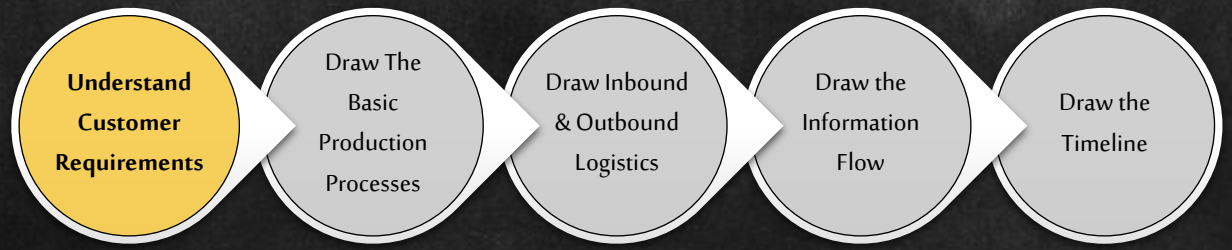
- Always collect current-state information while walking along the actual pathways of material and information flows yourself.
- Drawing by hand can be done without delay, while you are on the floor. As you draw you will think of further information that you need.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 1 – Understand Customer Requirement



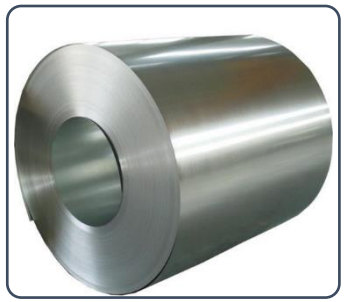
Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

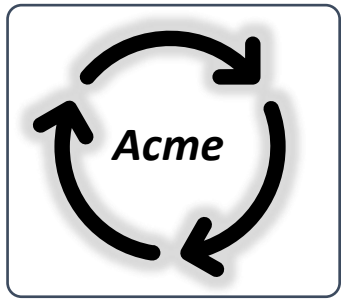
The Current State Map

Drawing Step 1 – Understand Customer Requirement

- Acme's product family to be mapped is a stamped-steel steering bracket.
- Because there is no variability in the design beyond the left-drive and right-drive versions, the **product family is very narrow** in this example.

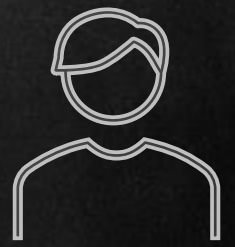
Input → Process → Output





- State Street Assembly operates on **two shifts**. This customer uses **18,400 steering brackets per month** and requires daily shipments. Typically **12,000** "left-hand drive" brackets **and 6,400** "right-hand drive" are needed every month.
- State Street Assembly requests palletized returnable tray packaging with **20 brackets in a tray** and **up to 10 trays on a pallet**. The customer orders in multiples of trays, so the "pack size" is one tray of 20 parts. All of the brackets on each pallet need to be either left-drive or right-drive style

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 1 – Understand Customer Requirement

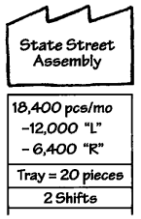
- **CUSTOMER REQUIREMENTS :**
  - 18,400 pieces per month
  - 12,000 per month of Type "LH" 6,400 per month of Type "RH"
  - Customer plant operates on two shifts
  - Palletized returnable tray packaging with 20 brackets in a tray and up to 10 trays on a pallet. The customer orders in multiples of trays.
  - One daily shipment to the assembly plant by truck
- **WORK TIME :**
  - 20 days in a month
  - Two shift operation in all production departments
  - Eight (8) hours every shift, with overtime if necessary
  - Two 10-minute breaks during each shift Manual processes stop during breaks
  - Unpaid lunch
- **ACME PRODUCTION CONTROL DEPARTMENT :**
  - Receives State Street's 90/60/30-day forecasts and enters them to MRP
  - Issues Acme 6-week forecast to Michigan Steel Co. via MRP
  - Secures coil steel by weekly faxed order release to Michigan Steel Co.
  - Receives daily firm order from State Street
  - Generates MRP-based weekly departmental requirements based upon customer order, WIP inventory levels, F/G inventory levels, and anticipated scrap and downtime
  - Issues weekly build schedules to Stamping, Welding, and Assembly processes
  - Issues daily shipping schedule to Shipping Department

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 1 – Understand Customer Requirement

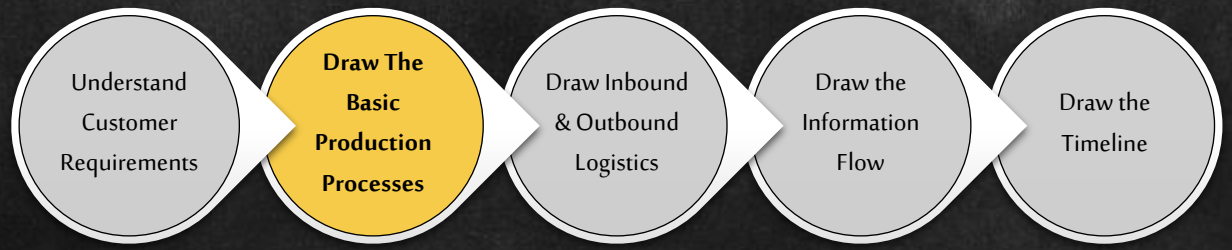


First View of the Current-State Map Showing the Customer

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 2 – Draw The Basic Production Processes

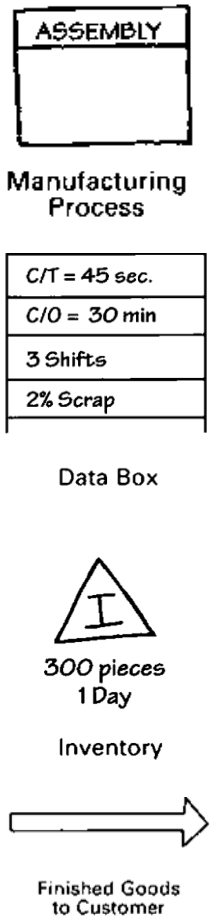


Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

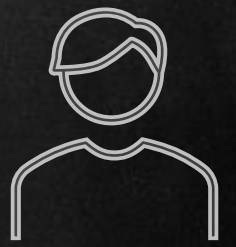
The Current State Map

Drawing Step 2 – Draw The Basic Production Processes

- Since drawing one box for every single processing step would make the map unwieldy, we **use the process box to indicate one area of material flow**, ideally a continuous flow.
  - For example, an assembly process with **several connected workstations**, even if there is some WIP inventory between stations, **would be drawn as one process box**. But if one assembly process is disconnected from the next assembly process downstream, with inventory stagnating, accumulating, and being moved in batches between them, then two process boxes would be used.
  - Likewise, a **machining line of say 15 sequential machining operations, such as drilling,** tapping, etc., that are connected by a transfer line between each operation would be shown with **only one process box** on the door-to-door map, even if some inventory accumulates between machines.
- Material flow is drawn from **left to right** on the bottom half of the map in the order of processing steps; **not according to the physical layout of the plant.**



- The general rule of thumb for the door-to-door map is that a process box indicates a process in which the material is flowing.



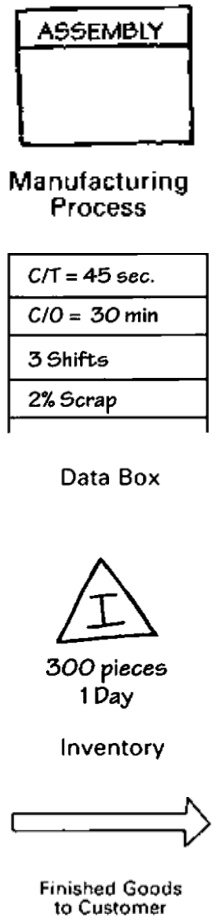
Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

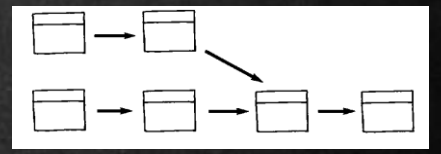
Drawing Step 2 – Draw The Basic Production Processes

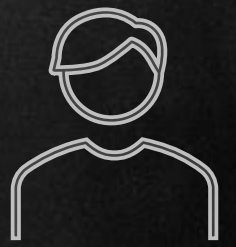
- As you walk this flow on the shop floor, you need to **collect data** that is **important** for deciding what the future state will be. So a **data box** is drawn under each process box.
- To help you get started here is a list of typical process data:

C/T (cycle time)	**C/O (changeover time)**	**Uptime (on-demand machine uptime)**	**EPE (production batch sizes)**	**number of operators**
number of product variations	**pack size**	**working time (minus breaks)**	**scrap rate**	



- Many value streams have multiple flows that merge. Draw such flows over one another as shown here. But don't try to draw every branch if there are too many. Choose the key components first and get the others later if you need to.



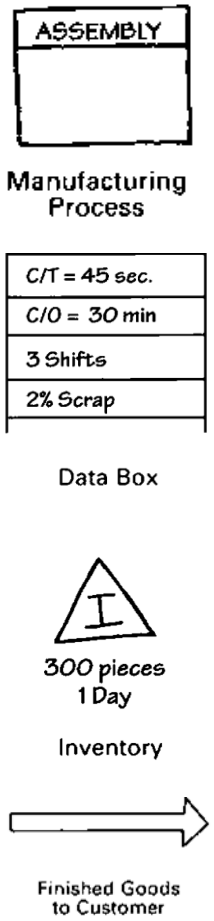


Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 2 – Draw The Basic Production Processes

- At Acme Stamping, we have the following information to record in the data box under each processing step:
  - The **cycle time** (time that elapses between one part coming off the process to the next part coming off, in seconds);
  - The **changeover time** to switch from producing one product type to another (in this case switching between left-drive and right-drive brackets);
  - The **number of people** required to operate the process;
  - The **available working time** per shift at that process (in seconds, minus break, meeting, and cleanup times); and machine **uptime** information.
  - Available work time divided by cycle time multiplied by uptime percent is a measure of **current process capacity**, if no changeovers are made.
- In the "stamping" data box we also show EPE, which stands for "every part every _____" and is a measure of production batch size in a Time Unit. For example, if you change over to produce a particular part once every three days, then the production batch size is about three days worth of parts.
- Use a "**warning triangle**" icon to capture the location and amount of inventory.



- Value stream mapping uses seconds as the time unit for cycle times, takt times, and available working times.
- The **cycle time** is the time between parts coming off the end of the process and not the total cycle time it takes one part to move through all process steps.

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 2 – Draw The Basic Production Processes

1. STAMPING (The press makes parts for many Acme products)

- Automated 200 Ton press with coil (automatic material feed)
- Cycle Time: 1 second (60 pieces per minute)
- Changeover time: 1 hour (good piece to good piece)
- Machine reliability: 85%
- Observed Inventory:
  - 5 days of coils before stamping
  - 4,600 pieces of Type "LH" finished stampings 2,400 pieces of Type "RH" finished stampings

2. SPOT-WELD WORKSTATION I (dedicated to this product family)

- Manual process with one operator
- Cycle Time: 39 seconds
- Changeover time: 10 minutes (fixture change)
- Reliability: 100%
- Observed Inventory:
  - 1,100 pieces of Type "LH" 600 pieces of Type "RH"

3. SPOT-WELD WORKSTATION II (dedicated to this product family)

- Manual process with one operator
- Cycle Time: 46 seconds
- Changeover time: 10 minutes (fixture change)
- Reliability: 80%
- Observed Inventory:
  - 1,600 pieces of Type "LH"
  - 850 pieces of Type "RH"

4. ASSEMBLY WORKSTATION I (dedicated to this product family)

- Manual process with one operator
- Cycle Time: 62 seconds
- Changeover time: none
- Reliability: 100%
- Observed inventory:
  - 1,200 pieces of Type "LH" 640 pieces of Type "RH"

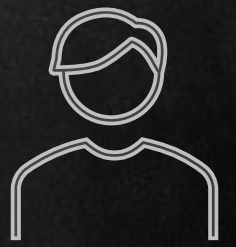
5. ASSEMBLY WORKSTATION II (dedicated to this product family) Manual process with one operator

- Cycle Time: 40 seconds
- Changeover time: none
- Reliability: 100%
- Observed Finished-Goods Inventory in Warehouse:
  - 2,700 pieces of Type "LH" 1,440 pieces of Type "RH"

6. SHIPPING DEPARTMENT

- Removes parts from finished goods warehouse and stages them for truck shipment to customer

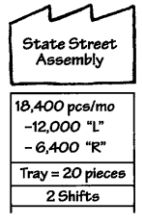
- Always collect current-state information while walking along the actual pathways of material and information flows yourself.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 2 – Draw The Basic Production Processes



1. STAMPING (The press makes parts for many Acme products)

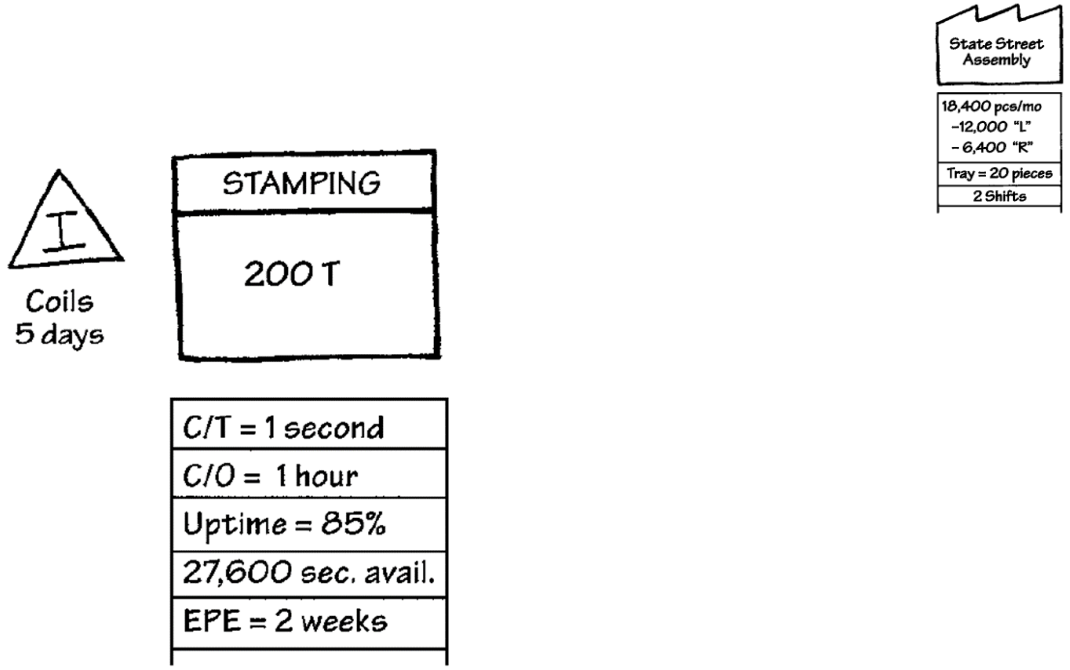
- Automated 200 Ton press with coil (automatic material feed)
- Cycle Time: 1 second (60 pieces per minute)
- Changeover time: 1 hour (good piece to good piece)
- Machine reliability: 85%
- Observed Inventory:
  - 5 days of coils before stamping
  - 4,600 pieces of Type "LH" finished stampings 2,400 pieces of Type "RH" finished stampings

Second View of the Current-State Map with all Processes, Data Boxes, and Inventory Triangles

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 2 – Draw The Basic Production Processes

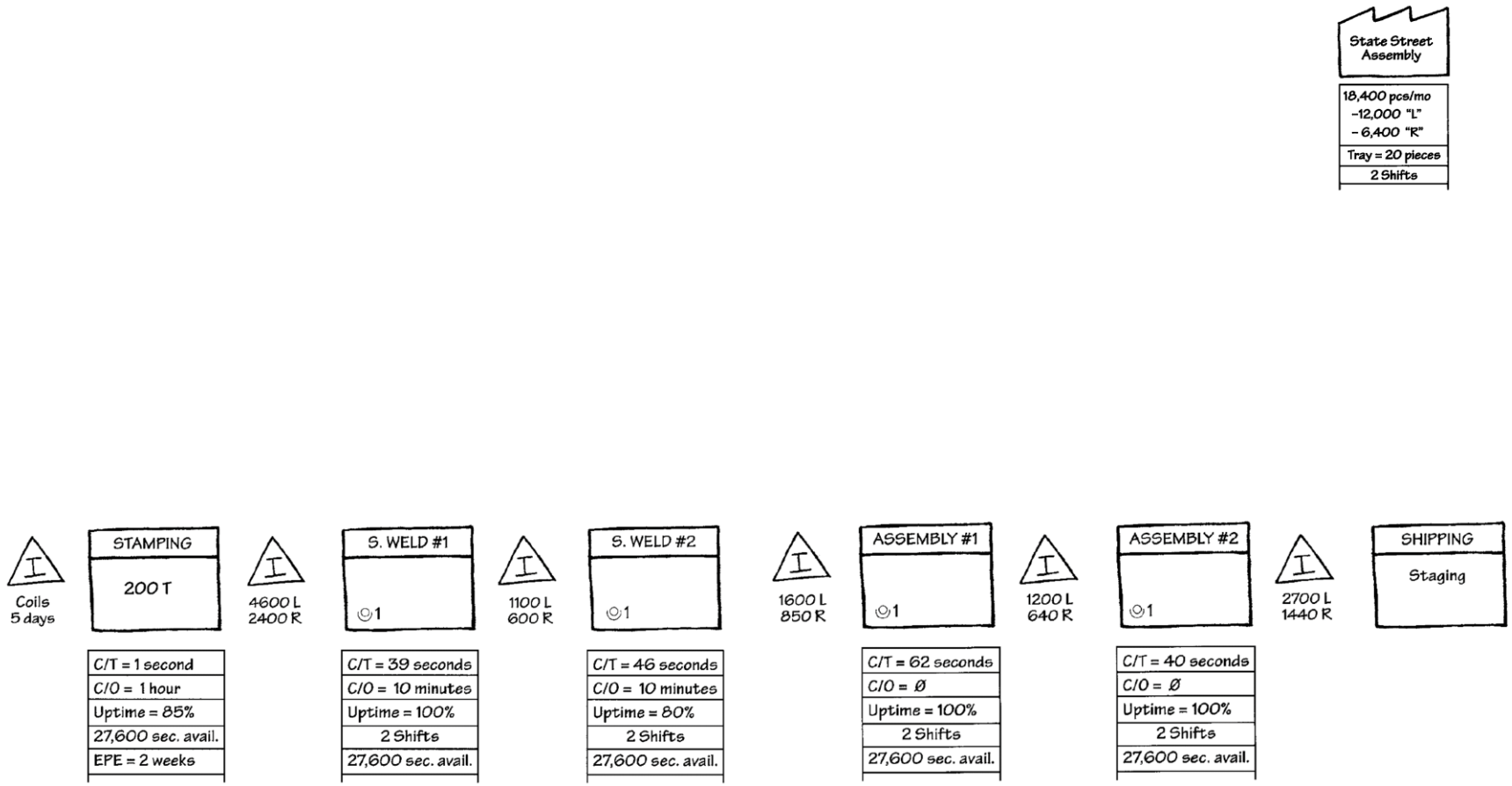


Second View of the Current-State Map with all Processes, Data Boxes, and Inventory Triangles

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 2 – Draw The Basic Production Processes

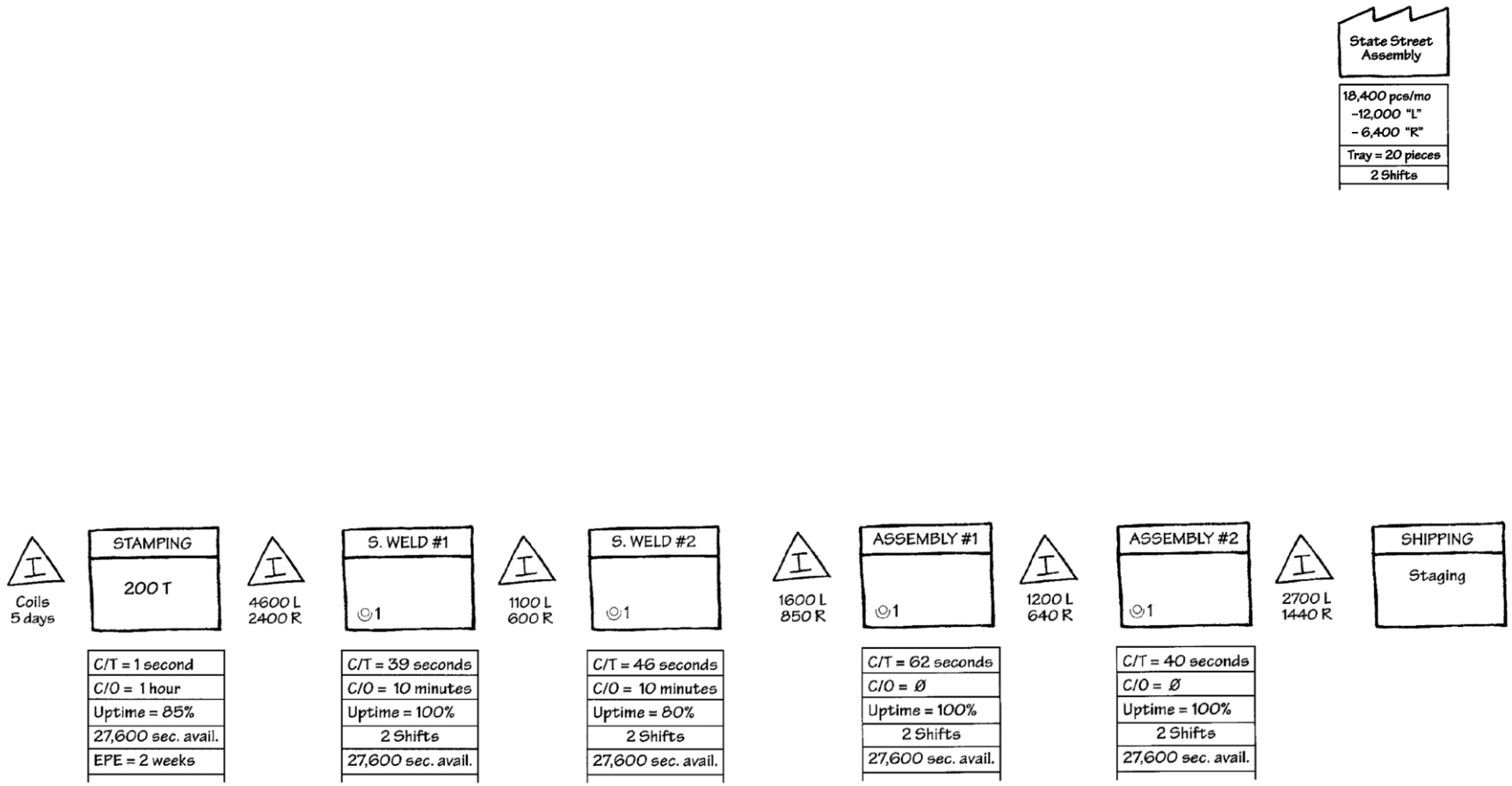


Second View of the Current-State Map with all Processes, Data Boxes, and Inventory Triangles

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 2 – Draw The Basic Production Processes



Second View of the Current-State Map with all Processes, Data Boxes, and Inventory Triangles

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 3 – Draw Inbound & Outbound Logistics

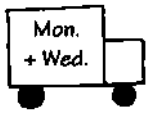
Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 3 – Draw Inbound & Outbound Logistics

Outbound Logistics (Right Side)

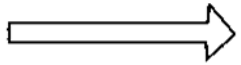
- After Acme's last assembly workstation, steering brackets in trays are taken to a storage area (triangle icon). They are then staged in the shipping area according to the daily shipping schedule and **delivered daily** by truck to the customer's assembly plant.
- A **truck** icon and a **broad arrow** indicate movement of finished goods to the customer. (Create rail or air freight icons if you need them.)



Truck Shipment

Inbound Logistics (Left Side)

- We'll represent the steel supplier with another factory icon.
- We use the same truck icon and broad arrow to show movement of material from the supplier to Acme.
- The steel supplier receives a weekly order from Acme and ships twice a week.
- We record in a **data box** that the supplier's pack size is a 500 foot roll of coiled steel. (In other words, the supplier cannot deliver less than a full coil but can deliver any number of full coils, as requested.)
- Do not map every purchased part in your product family. Just draw the flow for one or two main raw materials.



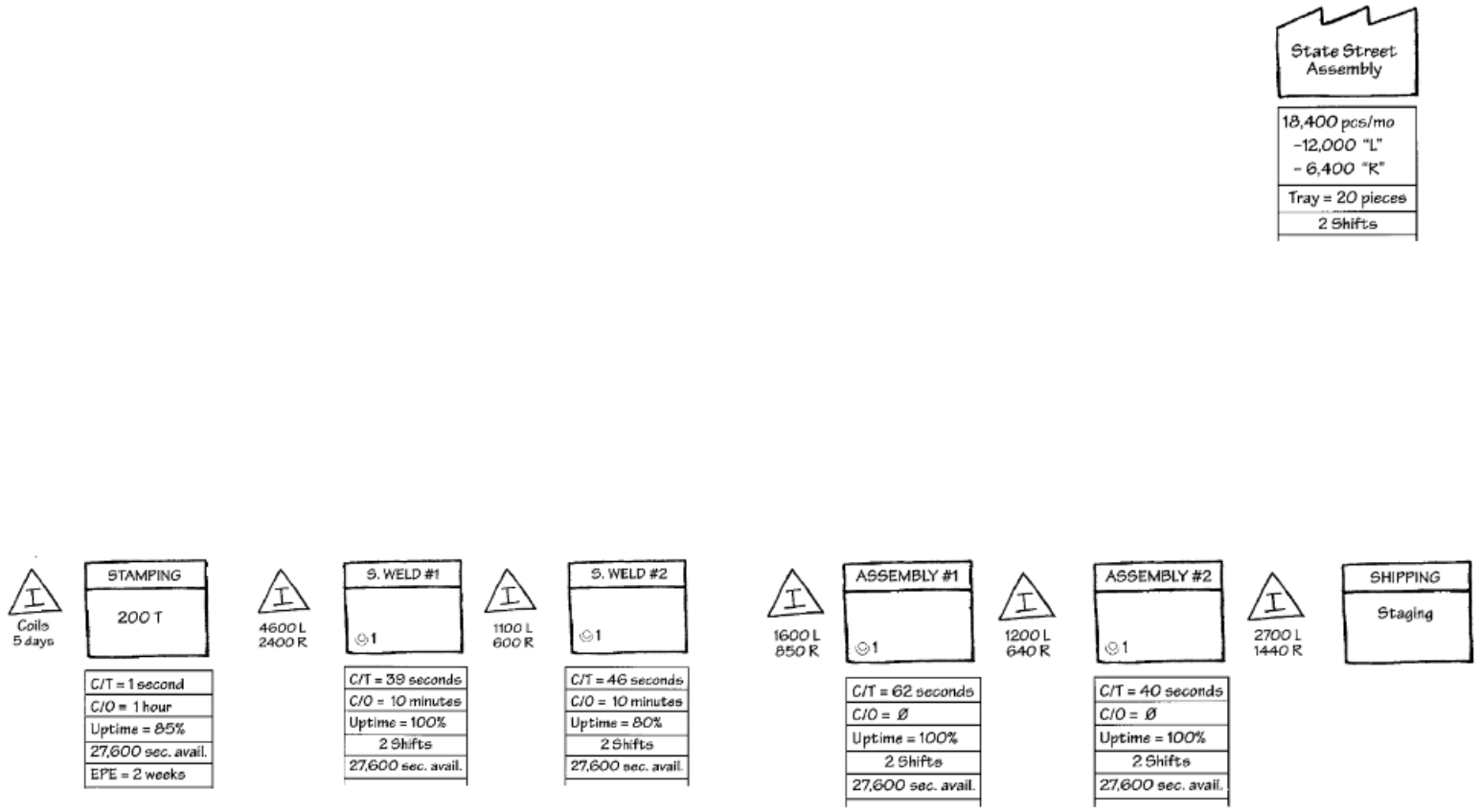
Finished Goods to Customer

- Value stream mapping uses seconds as the time unit for cycle times, takt times, and available working times.

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 3 – Draw Inbound & Outbound Logistics

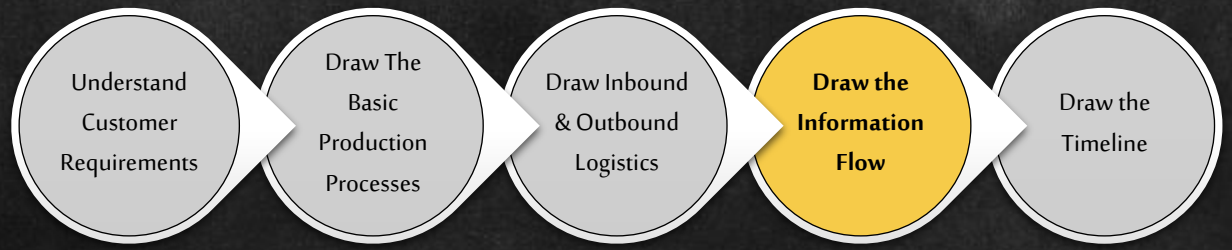


Third View of the Current-State Map Showing Supplier and the Inbound & Outbound Logistics

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 4 – Draw the Information Flow

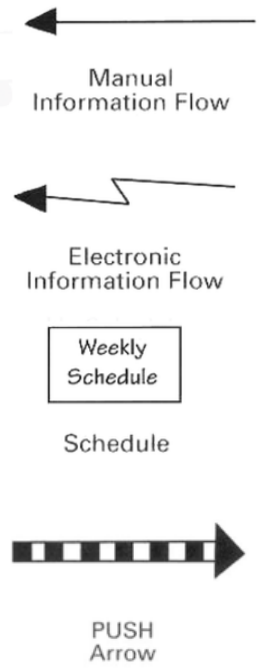


Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

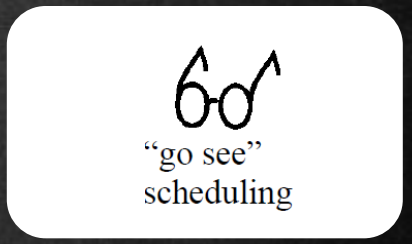
The Current State Map

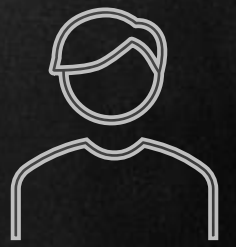
Drawing Step 4 – Draw the Information Flow

- The Acme production control department is drawn with a process box, including the note that Acme uses a computerized Materials Requirements Planning system (MRP) to schedule the shop floor.
- Acme production control **collects information** from **customers** and the **shop floor**, consolidates and processes it, and sends specific **instructions** to each **manufacturing process** about what it should produce and when.
- Production control also sends a **daily shipping schedule** to the shipping department.



- When scheduling is based on actual observation and adjustment, We call this "go see" scheduling and show it with an eyeglass icon.



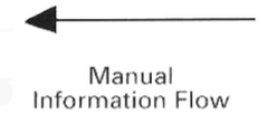


Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 4 – Draw the Information Flow

- Information flow is drawn from **right to left** in the top half of the map space.
- In our Acme Stamping example, we draw the flow of information back from the State Street Assembly Plant to Acme's Production Control department and from there to Acme's steel-coil supplier.
- Notice there are separate line for the forecasts and daily orders, as these are different information flows.



Manual Information Flow

Electronic Information Flow

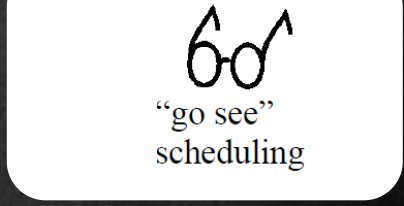
Schedule

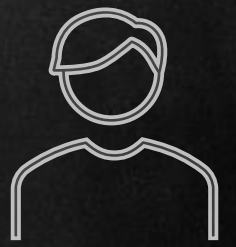
PUSH Arrow

ACME PRODUCTION CONTROL DEPARTMENT

- Receives State Street's 90/60/30-day forecasts and enters them to MRP
- Issues Acme 6-week forecast to Michigan Steel Co. via MRP
- Secures coil steel by weekly faxed order release to Michigan Steel Co.
- Receives daily firm order from State Street
- Generates MRP-based weekly departmental requirements based upon customer order, WIP inventory levels, F/G inventory levels, and anticipated scrap and downtime
- Issues weekly build schedules to Stamping, Welding, and Assembly processes
- Issues daily shipping schedule to Shipping Department

- When scheduling is based on actual observation and adjustment, We call this "go see" scheduling and show it with an eyeglass icon.

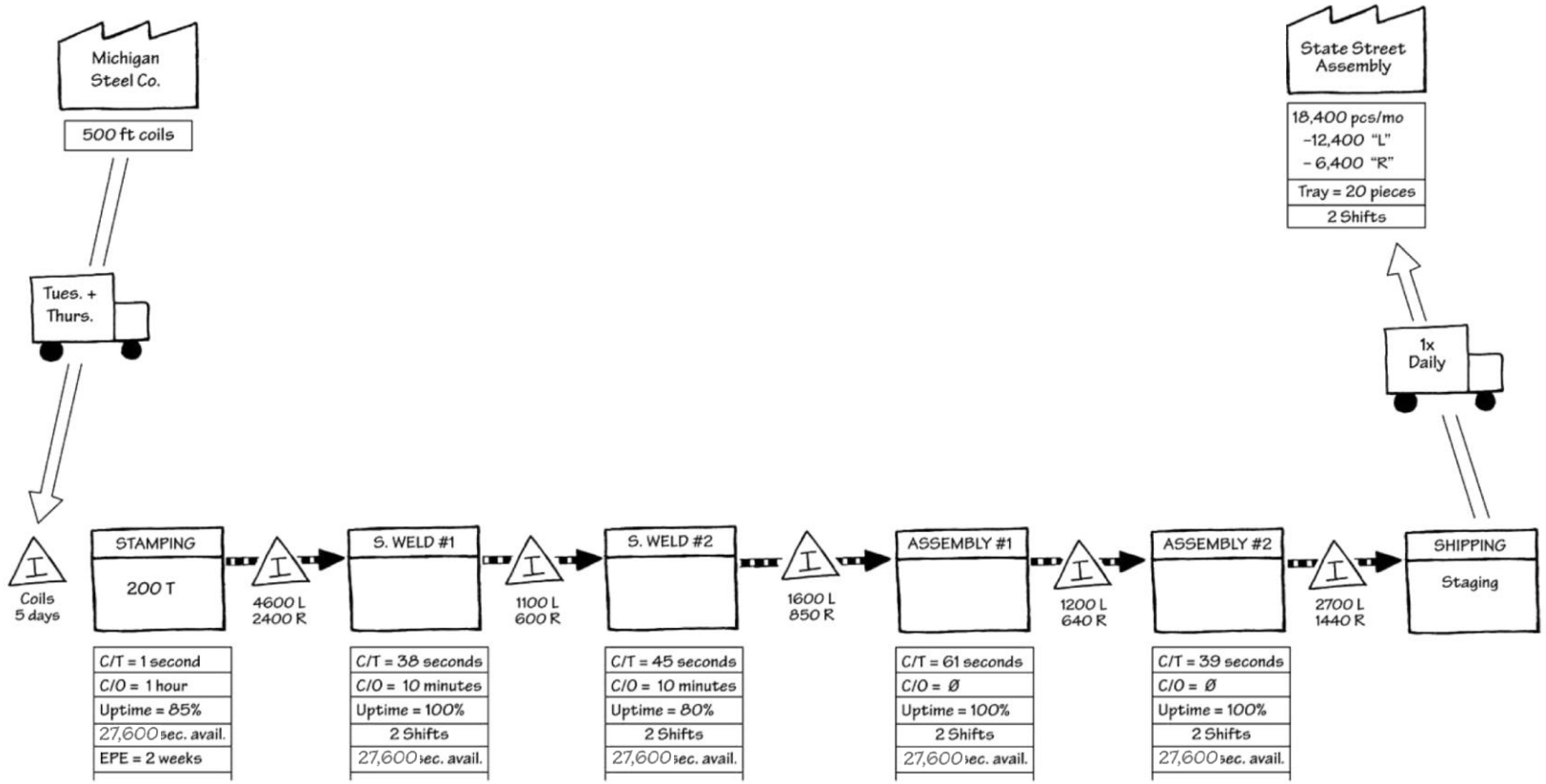




Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 4 – Draw the Information Flow

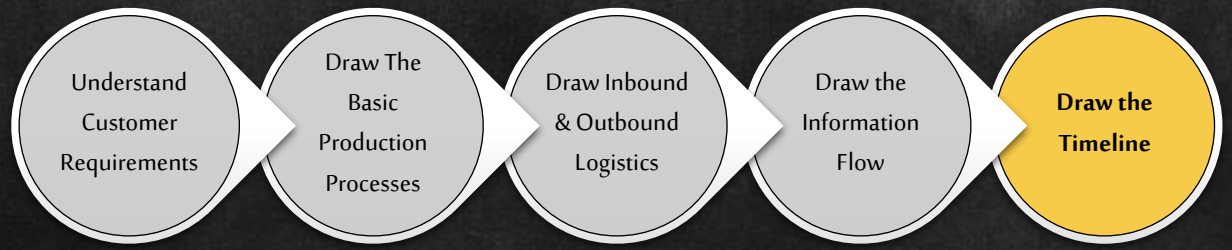


Fourth View of the Current-State Map with Information Flows & Push Arrows

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 5 – Draw the Timeline

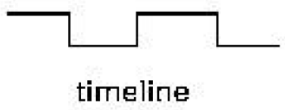


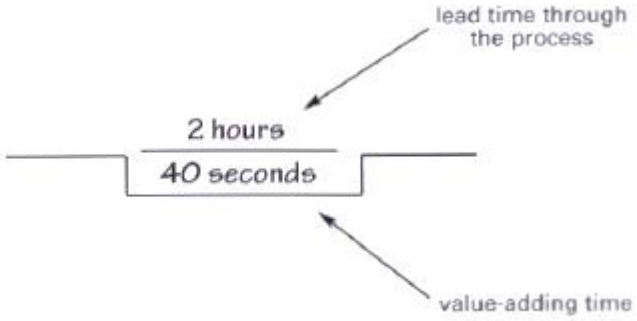
Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 5 – Draw the Timeline

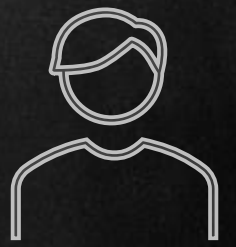
- With the data from observation of current operations drawn or recorded on the map, we can summarize the current condition of this value stream.
- Draw a timeline under the **process boxes** and inventory triangles to compile the **production lead time**, which is the time it takes one part to make its way through the shop floor, beginning with arrival as raw material through to shipment to the customer.
- **Lead times (in days)** = $\frac{\text{inventory quantity}}{\text{daily customer requirement}}$.





- Add only the value-adding times or the processing times, for each process in the value stream.
- The total processing time involved in making **one piece is only 184** seconds, whereas that piece takes **23.6 days to make its way through the plant**.

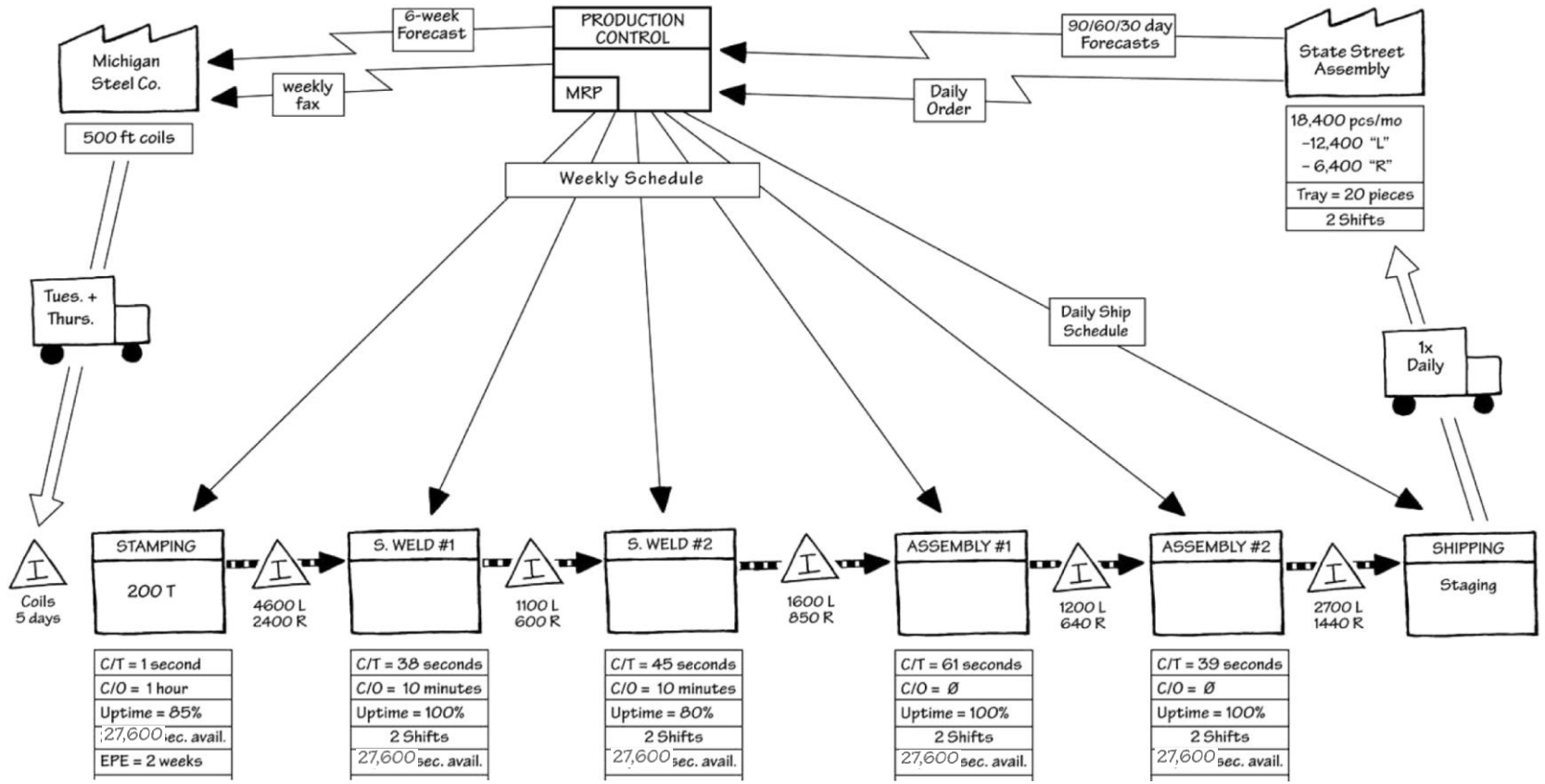
- The shorter your production lead time, the shorter the time between paying for raw material and getting paid for product made from those materials.
- For maps with multiple upstream flows, use the longest time path to compute total lead time



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Drawing Step 5 – Draw the Timeline



Fifth View of the Current-State Map with Timeline

Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

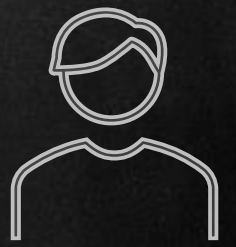
Exercise – TWI Industries

The Current State Map

Exercise Case – TWI Industries

- A steering arm is a metal rod with a forged fitting welded to each end.
- TWI's steering arms are available in 20 different lengths, 2 diameters, and with 3 different types of end fittings. (Each end of the steering arm can have a different fitting.) This means there are 240 different steering arm part numbers that TWI supplies.
- Because of the wide variety of product configurations and the fact that customer configuration requirements vary from order to order, steering arms are a "make-to-order" business.
- It currently takes a customer order 27 days to get through TWI's production processes. This long lead time and a significant order backlog have prompted TWI to quote a 60-day lead time to customers.
- However, TWI's customers cannot accurately predict their size requirements more than 2 weeks out, and thus they make adjustments to their orders 2 weeks before shipment. These order adjustments lead to order expediting on the shop floor at TWI.
- Orders are batched by product configuration on the shop floor to reduce the number of time-consuming changeovers.

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

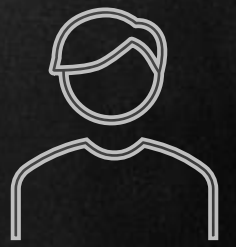
The Current State Map

Exercise Case – TWI Industries

- **CUSTOMER REQUIREMENTS :**
  - 24,000 pieces per month.
  - A customer order ranges from 25 to 200 pieces, with an average of 50 pieces.
  - Corrugated-box packaging with up to 5 steering arms in a box.
  - Several daily shipments per day by truck to various customers.
  - Each customer's configuration requirements vary greatly from order to order.
  - TWI requires orders to arrive 60 days before shipping date.
  - Customers often adjust their size mix 2 weeks before the shipping date.
- **WORK TIME :**
  - 20 days in a month.
  - Two shift operation in all production departments.
  - Eight (8) hours every shift, with overtime, if necessary.
  - Two 15 minute breaks during each shift.
  - Manual processes stop during breaks.
  - Unpaid lunch

- **TWI PRODUCTION CONTROL DEPARTMENT :**
  - Receives customer orders 60 days out and enters them to MRP
  - Generates one "shop order" per customer, which follows the order through the entire production process
  - Releases shop orders to production 6 weeks before shipment to accelerate MRP's procurement of rods and forgings.
  - Issues daily "priority" list to production supervisors. Supervisors sequence shop orders through their departments according to this list.
  - Receives customer size-changes 2 weeks before shipment and advises supervisors to expedite these orders.
  - Issues daily shipping schedule to Shipping Department.

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.

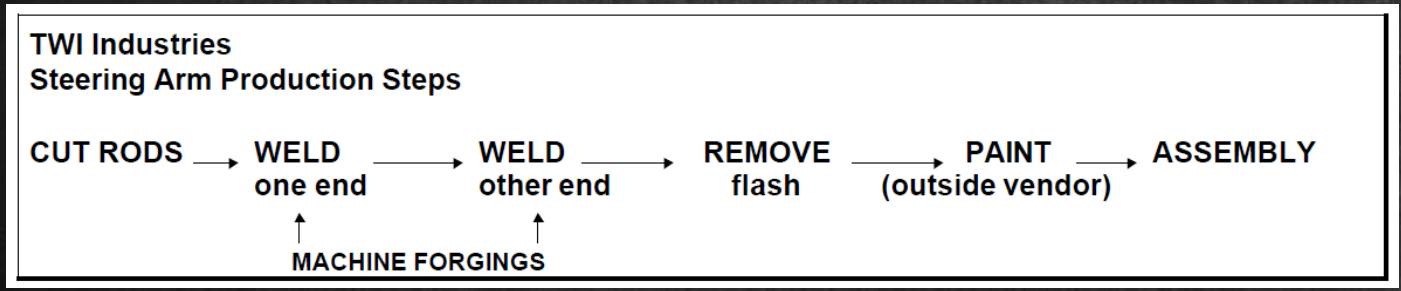


Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

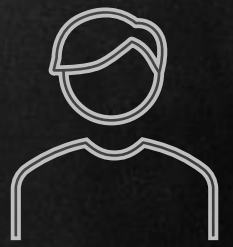
Exercise Case – TWI Industries

- **Production Processes**
  - TWI's processes for the steering arm product family involve cutting a metal rod followed by welding end fittings to the rod, deflash (machine removal of excess weldment), painting at an outside vendor, and subsequent assembly of the end fittings. The forged end-fitting sockets are also machined at TWI.
  - Finished steering arms are staged and shipped to customers on a daily basis. Switching between rod lengths requires a 15 minute changeover at the cutting, welding, and deflash operations.
  - Switching between rod diameters takes a 1 hour changeover at the cutting, welding, and deflash operations.
  - This longer diameter changeover is due mostly to an increased quality-control inspection requirement.
  - Switching between the three types of forged end fittings takes a 2 hour changeover at the machining operation.



- **Suppliers Data**
  - Steel rods are supplied by Michigan Steel Co. The lead time for obtaining rods is 16 weeks.
    - There are two shipments per month.
  - Raw forgings for the end fittings are supplied by Indiana Castings. The lead time for obtaining forgings is 12 weeks.
    - There are two shipments per month.

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Exercise Case – TWI Industries

1. Cutting (The saw cuts rods for many TWI products)

- Manual process with 1 operator.
- Cycle Time: 15 second
- Changeover time: 15 minutes (for length) and 1 hour (for diameter).
- Reliability: 100%
- Observed Inventory:
  - 20 days of uncut rods before the saw.
  - 5 days of cut rod.

2. Welding Workstation I (dedicated to this product family)

- This operation welds the first machined forging to the rod
- Automatic process with operator load & unload external to machine cycle.
- Cycle Time: Operator = 10 seconds, Machine = 30 second.
- Changeover time: 15 minutes (for length) and 1 hour (for diameter).
- Reliability: 90%
- Observed Inventory: 3 days of welded arms

3. Welding Workstation II (dedicated to this product family)

- This operation welds the second machined forging to the rod.
- Automatic process with operator load & unload external to machine cycle.
- Cycle Time: Operator = 10 seconds, Machine = 30 seconds.
- Changeover time: 15 minutes (for length) and 1 hour (for diameter).
- Reliability: 80%.
- Observed Inventory: 3 days of welded arms.

4. Deflash Workstation (dedicated to this product family)

- Automatic process with operator load & unload external to machine cycle.
- Cycle Time: Operator = 10 seconds, Machine = 30 seconds.
- Changeover time: 15 minutes (for length) and 1 hour (for diameter).
- Reliability: 100%.
- Observed Inventory: 5 days of deflashed arms

5. Painting (steering arms are shipped to an outside vendor for painting)

- Painting lead time = 2 days.
- One daily truck pickup of unpainted arms and drop-off of painted arms.
- Observed Inventory: 2 days at the painter 6 days of painted arms at TWI.

6. End-fitting Assembly (dedicated to this product family)

- Manual process with six operators.
- Total Work Time Per Piece: 195 seconds.
- Changeover time: l0-minute fixture swap.
- Reliability: 100%.
- Observed Finished-Goods Inventory in Warehouse:
  - 4 days of finished steering arms.

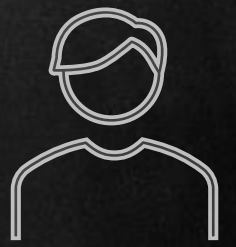
7. Machining of Forgings (dedicated to this product family)

- Automatic machining process with one machine attendant.
- Cycle Time: 30 seconds
- Changeover time: 2 hours
- Reliability: 100%
- Observed Inventory:
  - 4 weeks of raw forgings from the supplier
  - 4 days of machined forgings

8. Shipping Department

- Removes parts from finished goods warehouse and stages them for truck shipment to customer

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.

The Current State Map

Steps for Current State Map

Understand Customer Requirements
- Demand Rate
- Raw Material Required

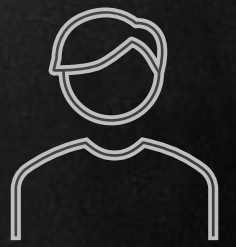
Draw The Basic Production Processes
- Cycle Time
- Uptime
- N Operators

Draw Inbound & Outbound Logistics
- Shipping from Supplier
- Shipping to Customer

Draw the Information Flow
- Manual Information Flow
- Electronic Information Flow
- External Information Flow
- Internal Information Flow

Draw the Timeline
- Cycle Times
- Waiting Times

- Always collect current-state information while walking along the actual pathways of material and information flows yourself.
- Drawing by hand can be done without delay, while you are on the floor. As you draw you will think of further information that you need.



Rother, Mike, and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate Muda*.