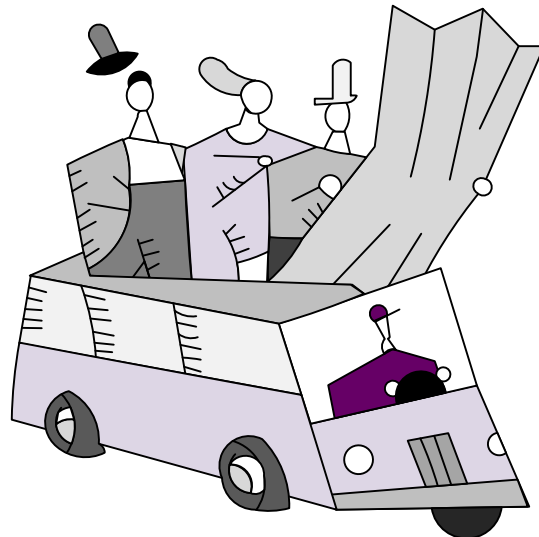


eVSM Workshop for Chemical Processing Industries



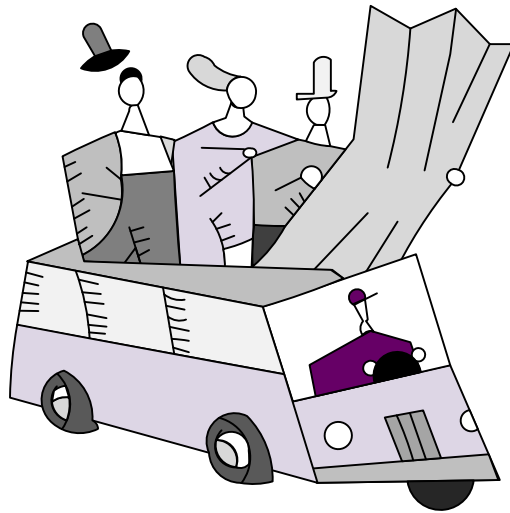
eVSM Contact:

Dilesh Patel – dilesh.patel@evsm.com

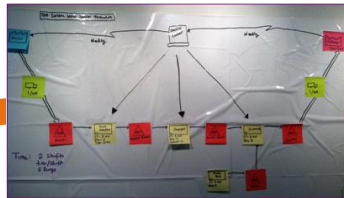
Rajvi Desai – rajvi.desai@evsm.com

Part I: eVSM Overview	3
Lean & eVSM Slides	8
Part II: Plant Level Mapping	21
Quick Processing Slides	22
Process Industries VSM Terms	25
Hand Soap - Plant	30
Plant Templates	33
Quick Processing Tutorial	43
eVSM Multi-Station Workshop	82
eVSM - Improvements Workshop	83
Chicago Soap – Resource Workshop	84
Part III: Inbound and Outbound Maps	93
Soap Premix - Inbound	94
Inbound Network Templates	99
eVSM Inbound Workshop	105
Hand Soap - Outbound	108
Outbound Network Templates	111
eVSM Outbound Workshop	119
Part IV: Linking Inbound, Plant, and Outbound Maps	125
eVSM Extras	129
Units Handling	130
Using Gadgets to Visualize Data	134
Spaghetti Diagram Tutorial	138

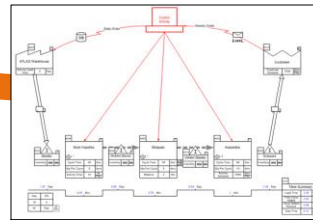
Part I: eVSM Overview



eVSM / Visualization & Improvement Cycle



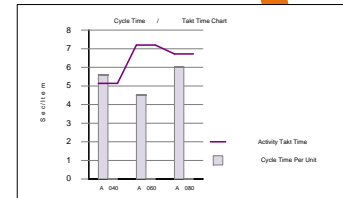
Wall Map



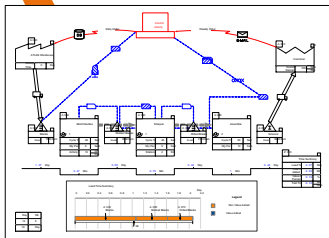
Capture



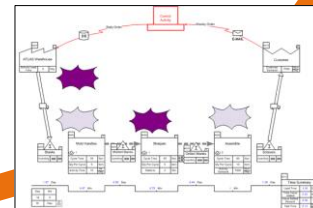
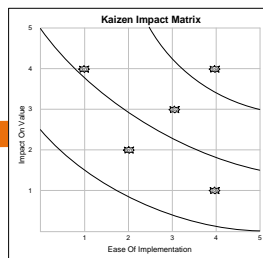
Improve



Analyze



Prioritize



What is eVSM?

Company App's

Visualization
Applications

Visualizing and Analyzing
Quantitative Information

eVSM

Standardized
mapping &
analysis

Application Specific Stencils

Use maps for
calculations

Excel Integration

Capture wall
maps

VSM Icons for Visio

Collaborative Tools

Group
Interaction

Brown
Paper &
Post-Its

Diagramming

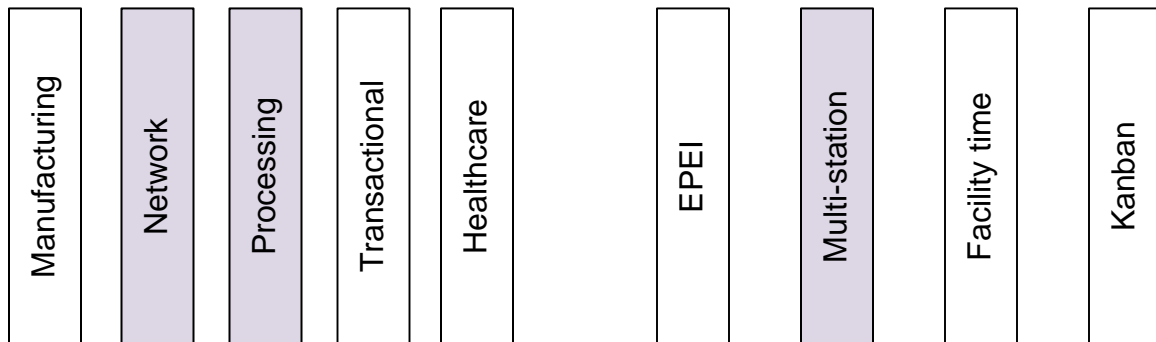
Visio

Data

Excel

eVSM Architecture

Process Based Toolbar



Quick Stencils

Wizards

Drag and Drop Core

Sketcher (wall maps)	Standard Variables	Built-in Equations	Kaizen Impact
Multi-path Maps	Production Units	Built-in Charts	Kaizen Risk
Multi-level Maps	Data Variation	What-If Studies	Kaizen Report

Visio + Excel Integration (32 bit + 64 bit)

Windows 7 + 8 Support (32 bit + 64 bit)

eVSM Learning Levels

Development of Company App's

eVSM Supplied App's

eVSM Environment

What is Lean?

Lean is a set of concepts, principles, and tools used to create and deliver the **most value** from the **customer's perspective** while consuming the **fewest resources**.

...Lean Enterprise Institute

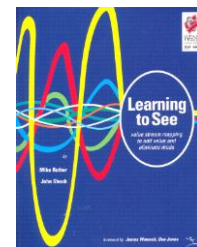
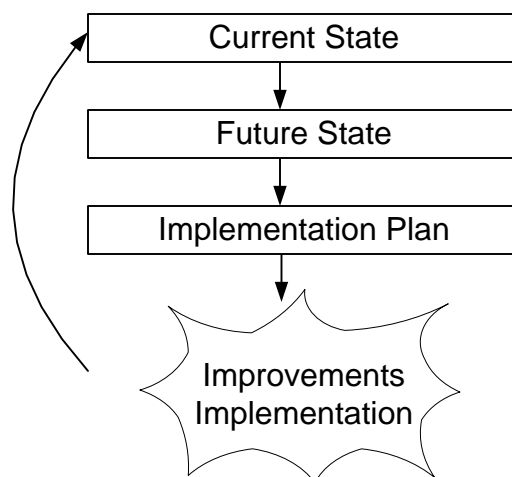
Lean Principles

- Value is defined from the Customer's perspective
- Map the Value Stream
- Create flow & eliminate waste
- Create pull where flow is difficult
- Seek perfection

Lean Means...

- Lower cost
- Less inventory
- Less space
- Shorter lead-time
- Fewer people

The Lean Process



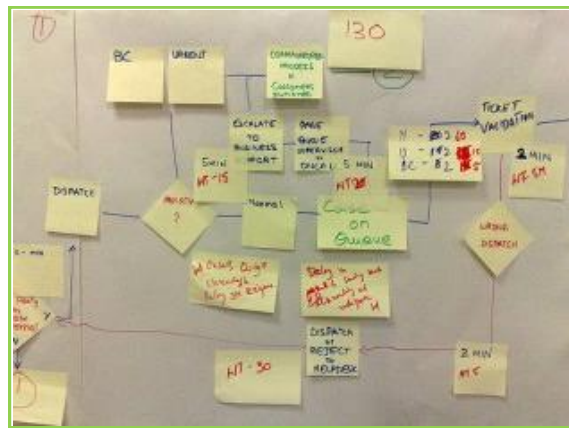
...Learning to See, LEI

What is a Value Stream?

All steps, both Value Added and Non Value Added, required to complete a product or service from beginning to end

What is a Value Stream Map?

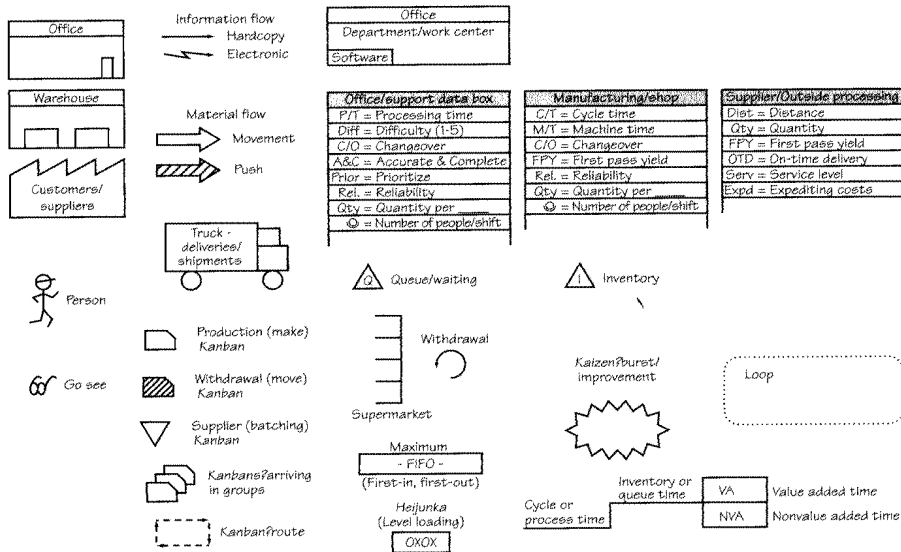
A simple tool that visually represents what's going on in a value stream



What is a Value Stream Map?



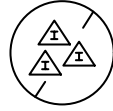
VSM – Learning to See



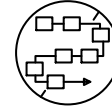
Types of Waste



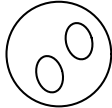
Transportation



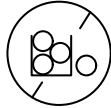
Excess Inventory



Over Processing



Duplicate Entry



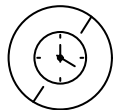
Over Production



Excess Motion



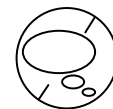
Confusion



Waiting

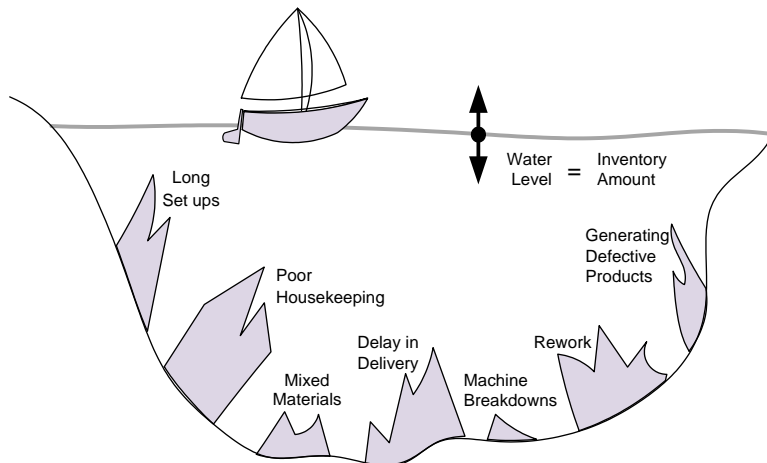


Defects



Knowledge

Hiding the Waste

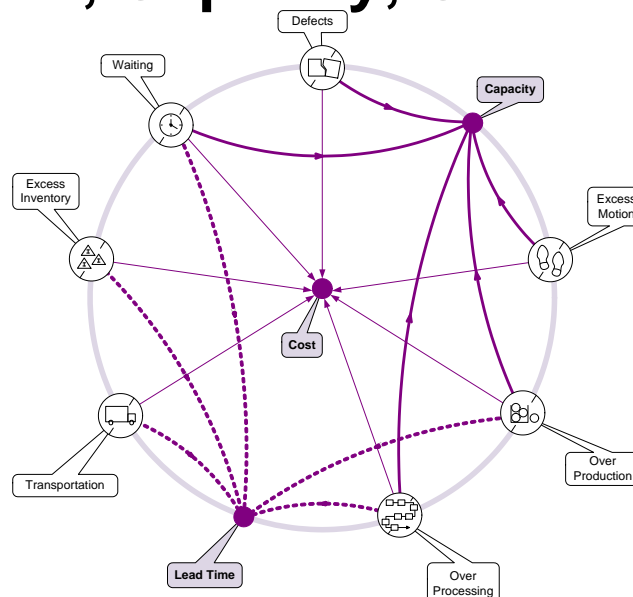


What is a LEAN Value Stream?

- Define value from the customer's perspective
- **Map the value stream**
- Create flow and eliminate waste
- Create pull where flow is difficult
- Seek perfection

- Minimize the LEAD TIME
- Adequate & Efficient CAPACITY
- Minimum COST for QUALITY

Lead Time, Capacity, Cost



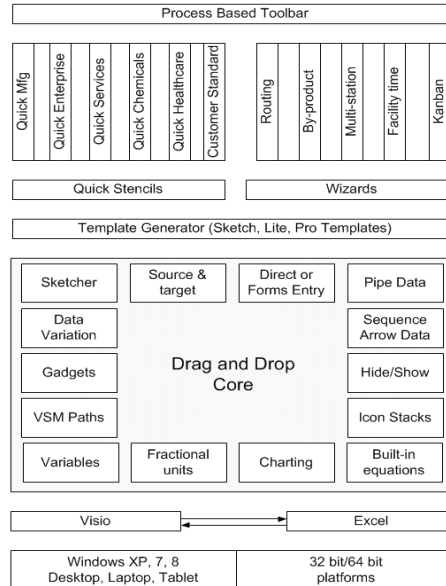
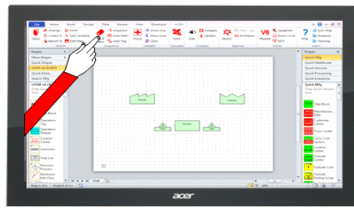
What is eVSM?

- Software Tool:
 - VSM, A3 Reports, Spaghetti Reports, Communication Circles
 - Analyze VSM Data
 - Manage Lean Transformation
- Built on Visio and Excel
- Based on Publications from Lean Enterprise Institute

Lean Workbooks

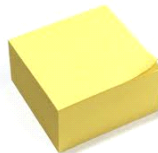
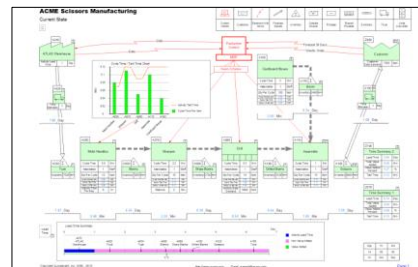
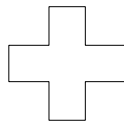


eVSM v7 Platform



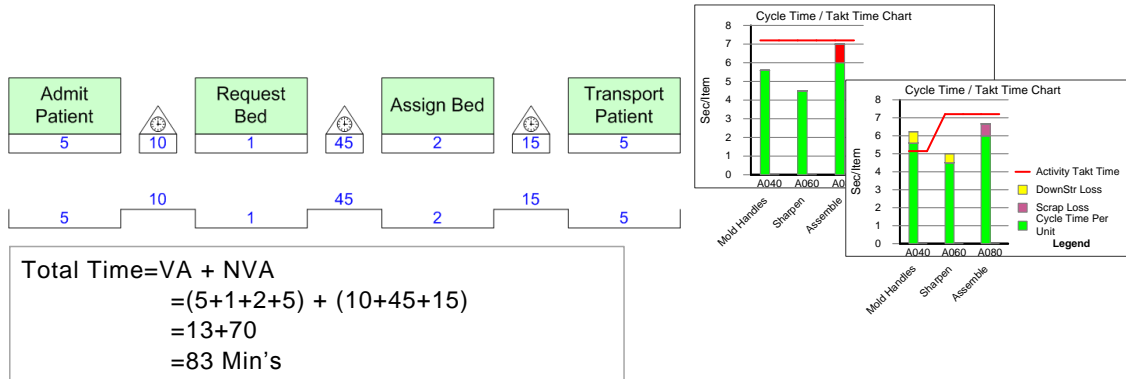
Wall Maps/Digital Pictures/eVSM

Value Stream Mapping is a Paper & Pencil tool

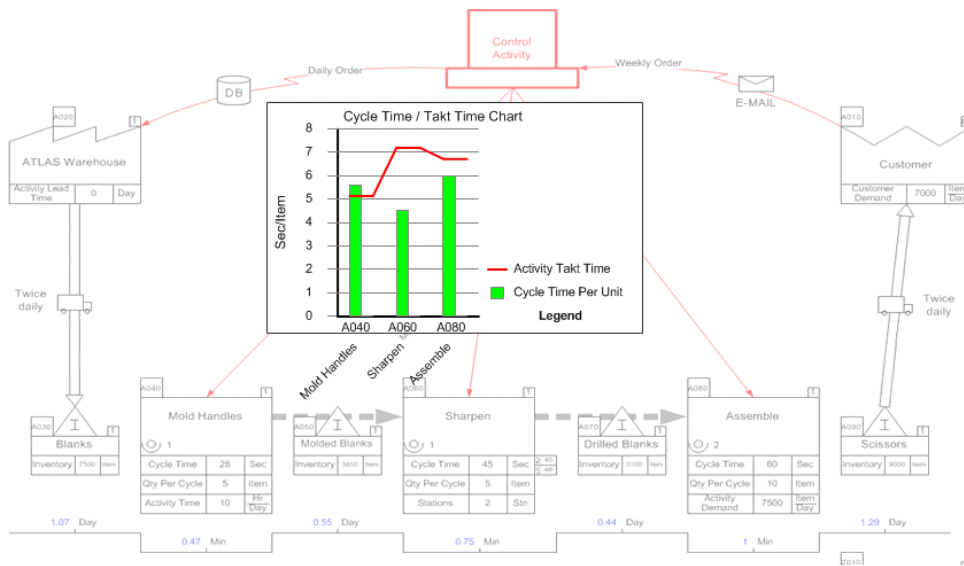


What is a Quick Stencil?

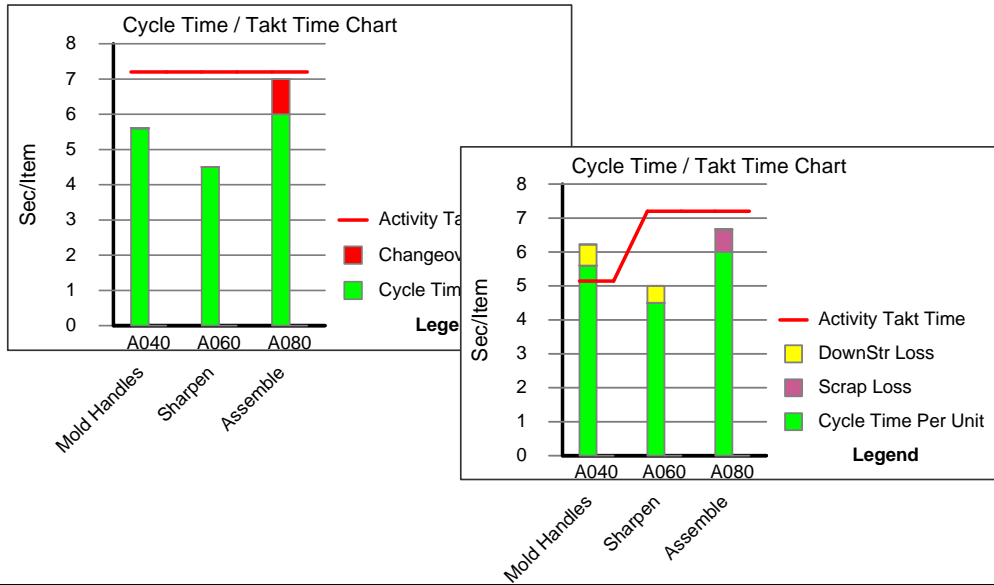
- Very fast way to map
- Drag, Drop & Enter Values
- Automated Calculation & Charts



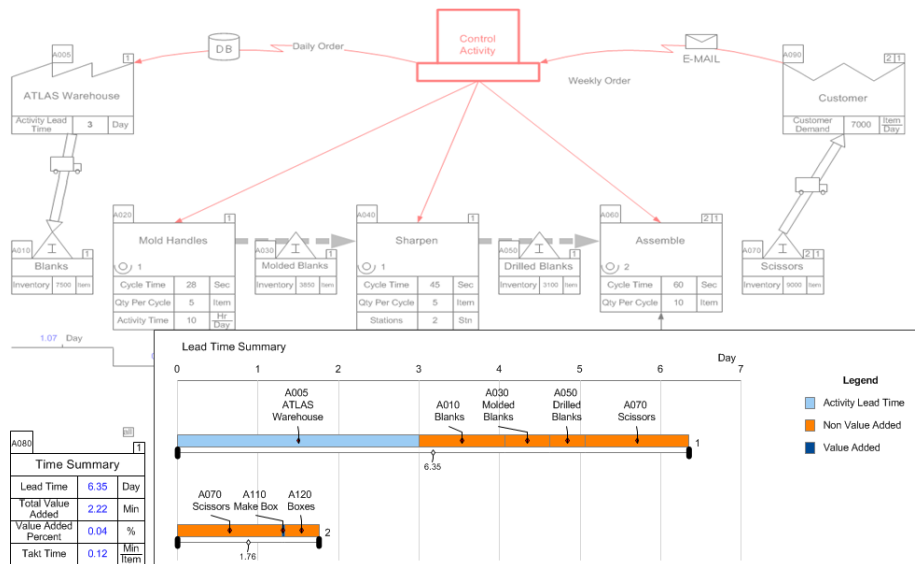
Visualizing Capacity



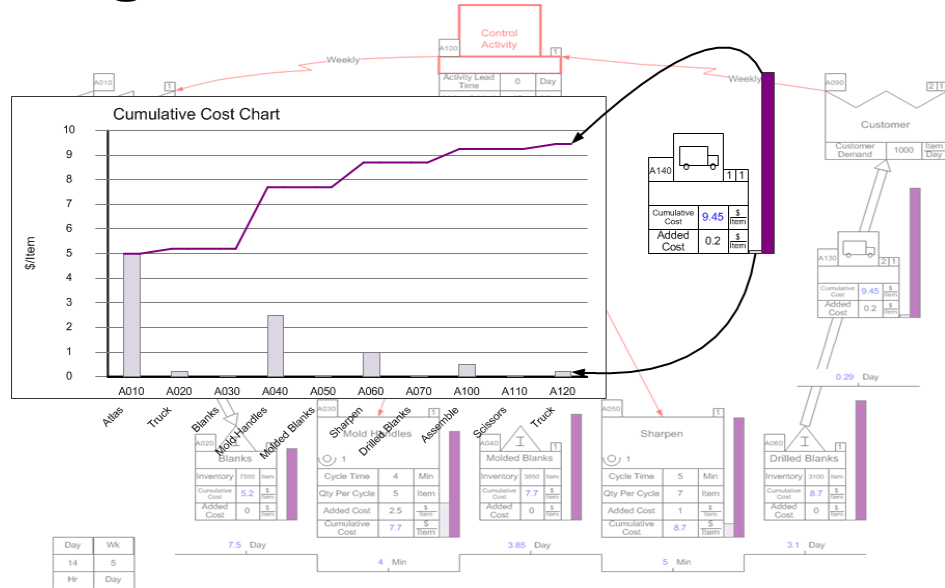
Capacity Losses



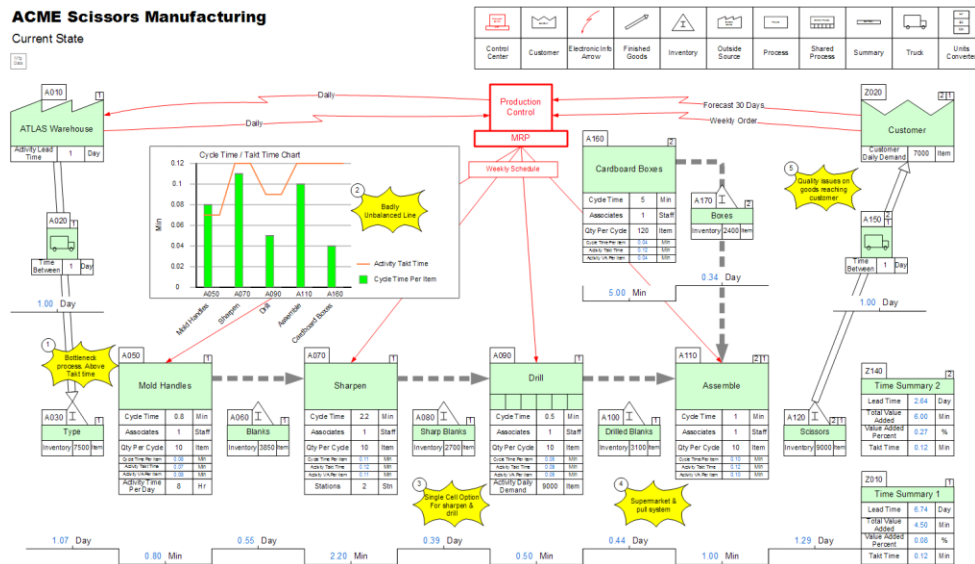
Visualizing Lead Time



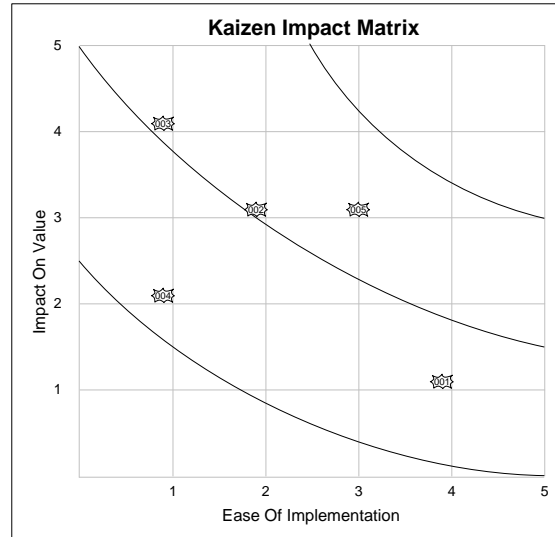
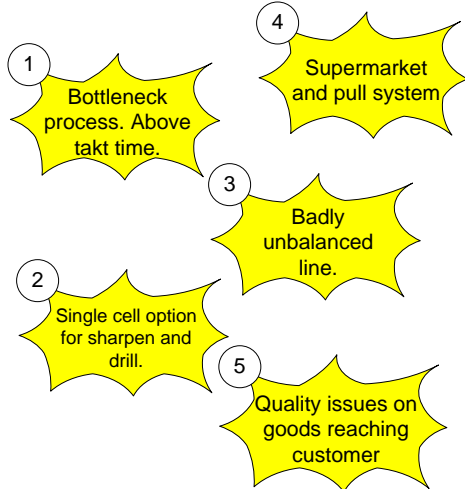
Visualizing Cost



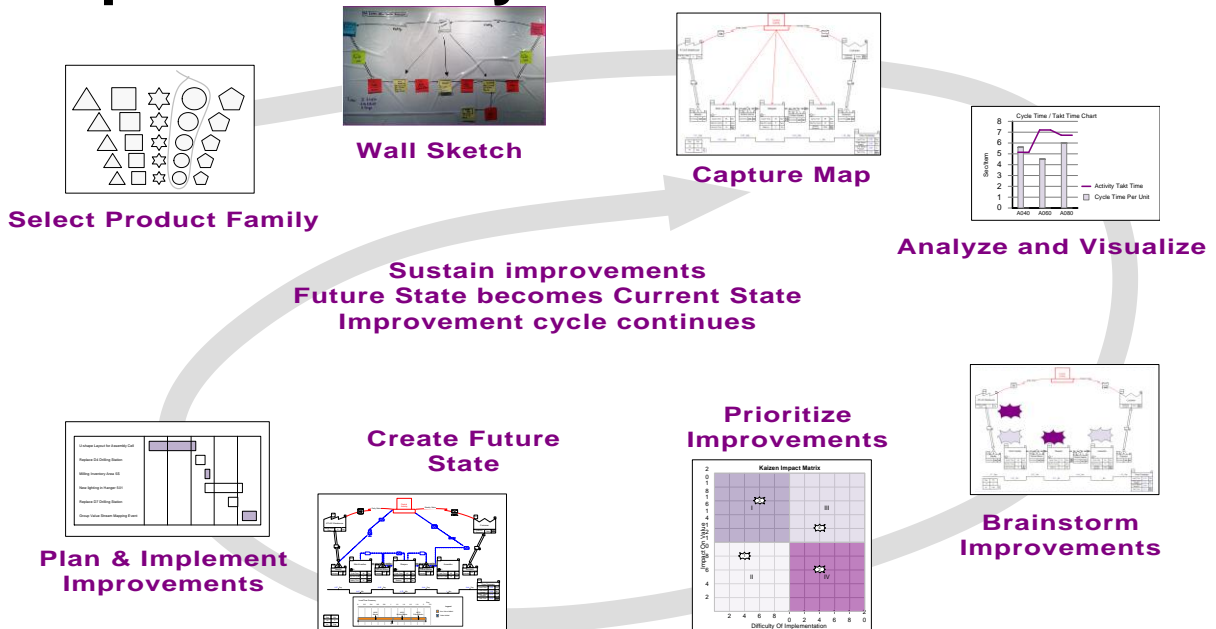
Kaizen – Ideas in Context



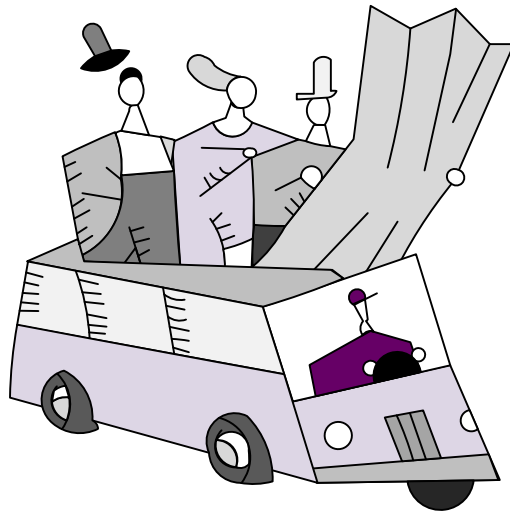
Kaizen Impact Matrix



Improvement Cycle

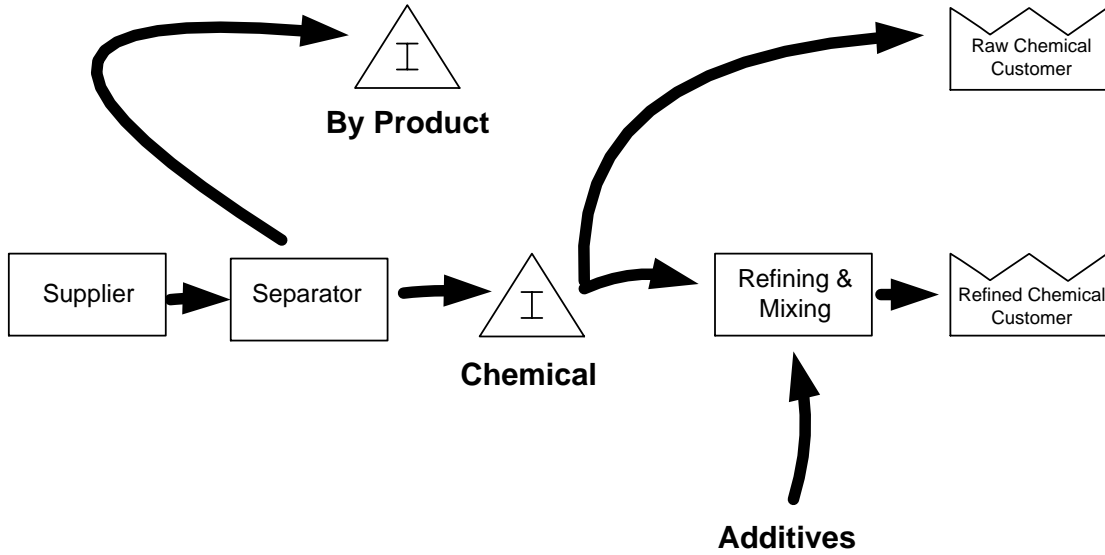


Part II: Plant Level Mapping

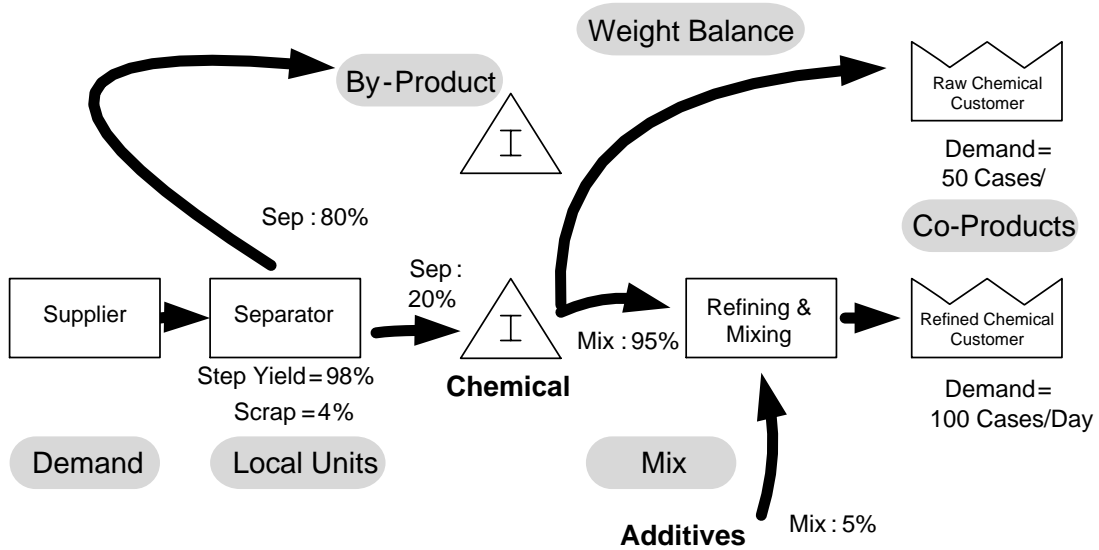


Quick Processing Slides

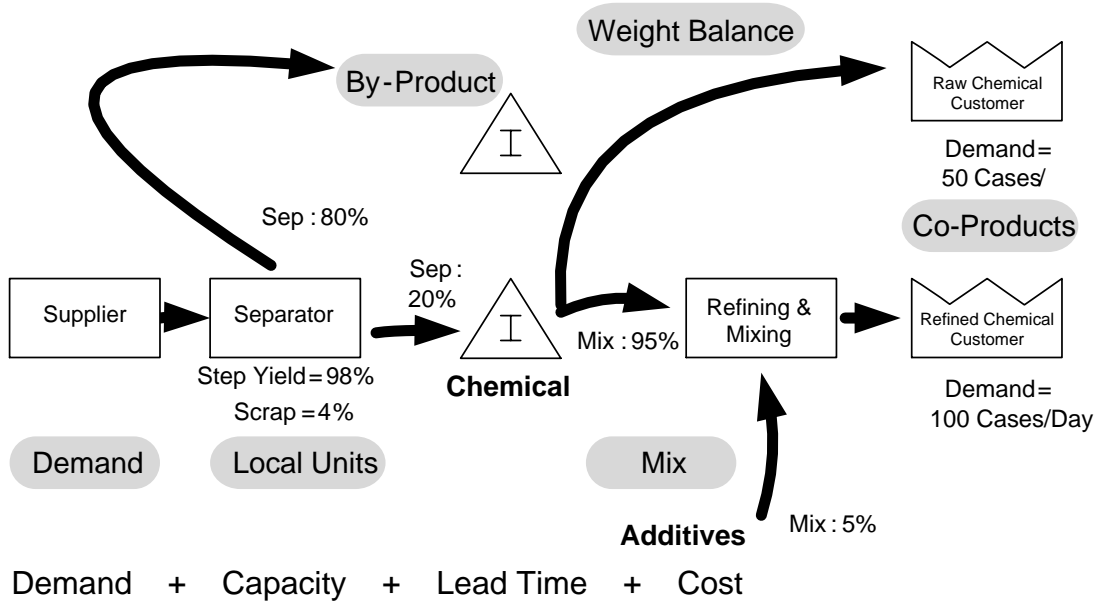
VSMs for the Processing Industries: Sample Process



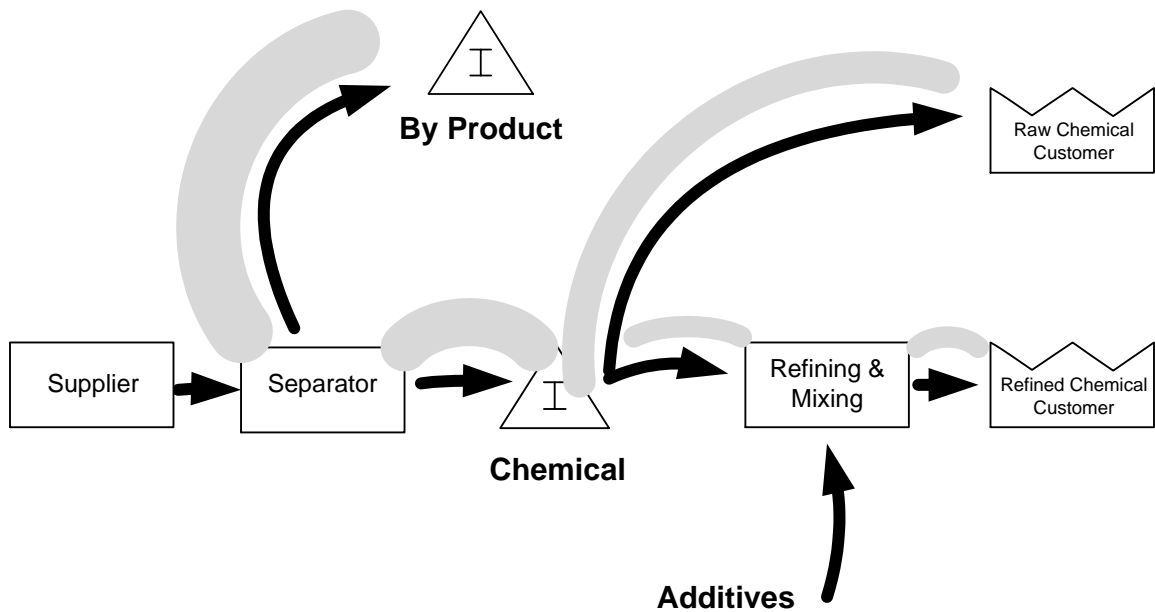
Process Variables



VSM Concepts and Analysis



Weight Balance Solution



VSM Concepts

- Weight Balance ties Demand for all the raw materials, WIP and process steps to the finished product(s) through a central measure of weight.
- Local Units: Each step along the process can use local units of weight for convenience in comprehension.
- By-Product: Created through the manufacture of the primary products, usually of no or low value.
- Co-Product: Created simultaneously through similar processes and inventories.
- Demand: The amount of product requested by customers.
- Mix: The amount of product used from two different inventories in a process.
- Step Yield Percent: The weight ratio between the primary incoming material(s) (ingredients) and the output of the step.

Process Variables

- Local Output Quantity (LOQ) : The unit of measure most meaningfully used at each step for the Output of that step. It can vary for different steps.
- Weight per LOQ : The actual weight of the LOQ.
- Step Yield: The weight ratio between the output of the step and the primary inputs (ingredients).

$$\text{Step Yield} = \frac{\text{Output Weight}}{\text{Input Weight}} \times 100$$

- Downstream Input Weight % (DIW%): The material contribution of the process step or inventory to the next (downstream) step. The sum of all DIW % must equal 100.
- Upstream Output Weight % (UOW%): The percent of output material, by weight, that flows to the next step. The sum of all UOW% must = 100.

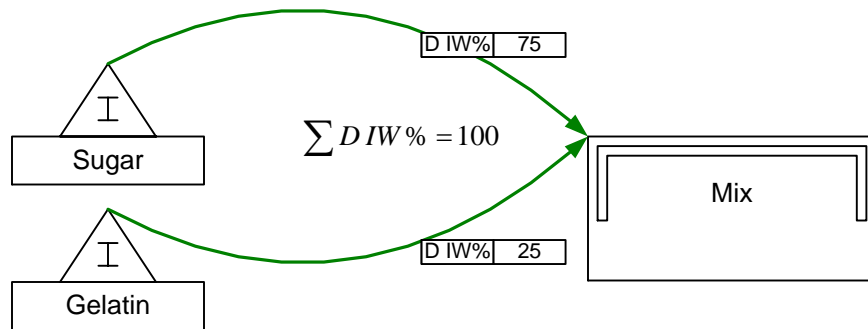
Process Industries VSM Terms

Acronyms

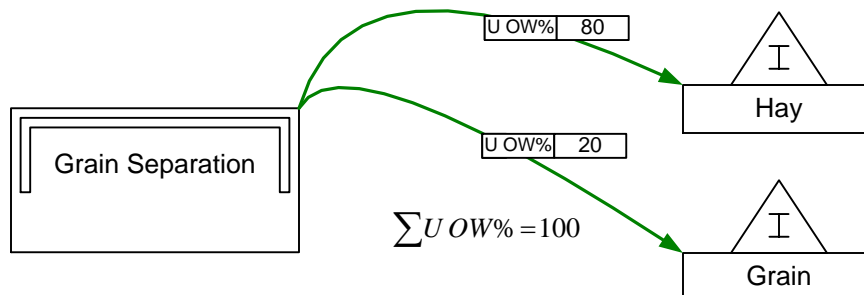
- DIW – Downstream Input Weight
- EPEI – Every Part Every Interval
- LOQ – Local Output Quantity
- NVA – Non Value Added
- OEE – Overall Equipment Effectiveness
- UOW – Upstream Output Weight
- VA – Value Added
- VSM – Value Stream Map
- WIP – Work In Process

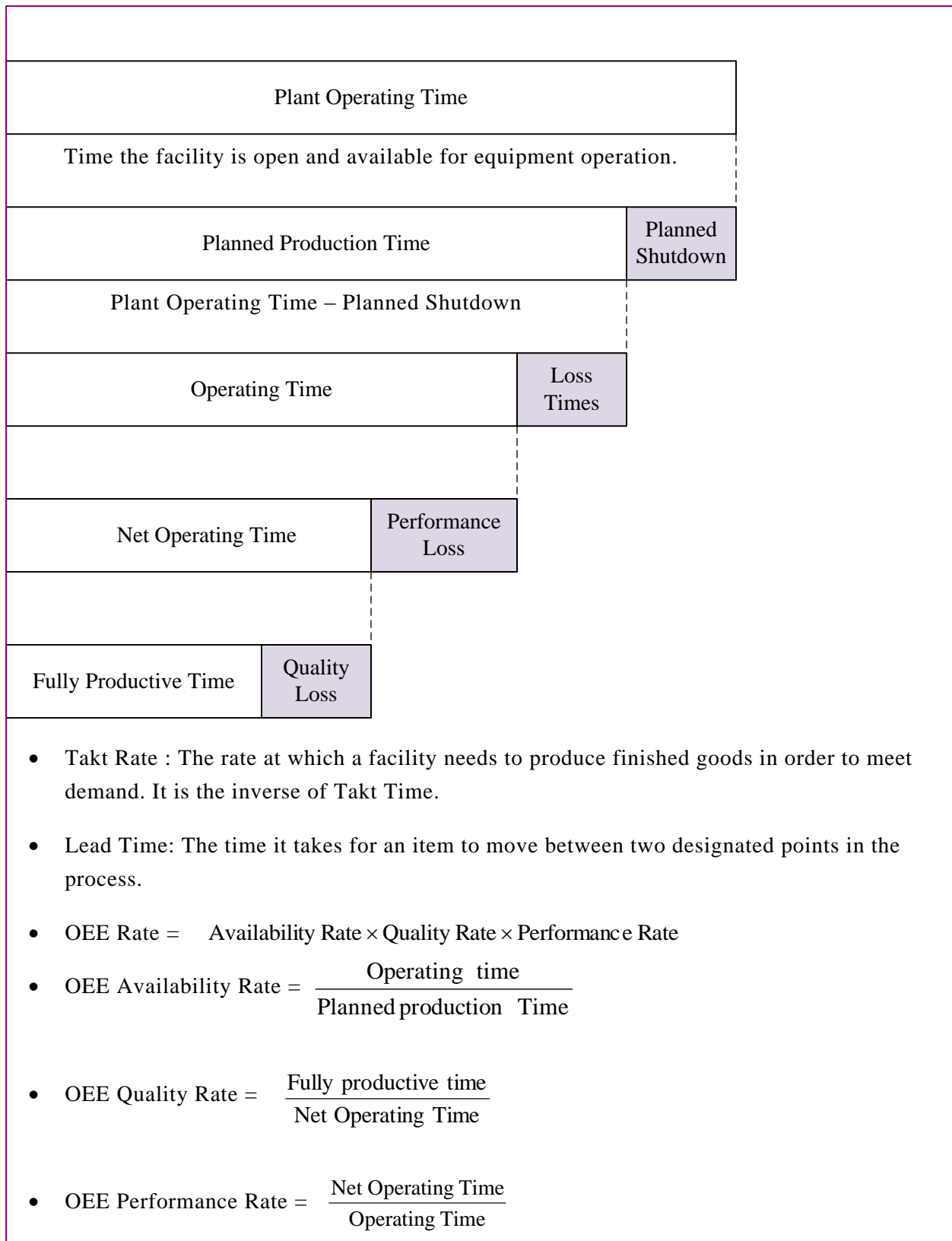
Weight Balance Related Terms

- Local Output Quantity (LOQ) : The unit of measure most meaningfully used at each step for the Output of that step. It can vary for different steps.
- Weight per LOQ : The actual weight of the LOQ.
- Step Yield: The weight ratio between the output of the step and the primary inputs (ingredients).
$$\text{Step Yield} = \frac{\text{Output Weight}}{\text{Input Weight}} \times 100\%$$
- Required Input Weight: The quantity of input required by a process step in order to produce enough output to meet demand.
- Required Output Weight: The quantity of output a process step needs to produce to meet the Input Weight requirements of all downstream steps.
- Downstream Input Weight % (DIW%): The material contribution of the process step or inventory to the next (downstream) step. The sum of all DIW % must equal 100.



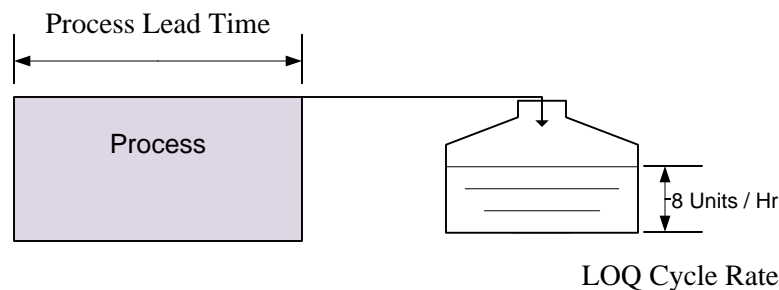
- Upstream Output Weight % (UOW%): The percent of output material, by weight, that flows to the next step. The sum of all UOW% must = 100.





Activity Time Related Terms

- LOQ Cycle Rate : The maximum rate at which a station is designed to run, measured in the Local Output Quantity (LOQ) unit. This rate will usually be different from the actual run rate.
- Process Lead Time : The time it takes one unit to move all the way through a process, from start to finish. Unless explicitly stated, this will be the process's value-added time.



- Activity Takt Rate : The rate at which an activity needs to produce output to meet demand .
- Effective Output Cycle Rate : The rate at which output is actually produced by an activity, after accounting for any OEE losses.
- Utilization : A measure of how fully utilized an activity is.
- Activity Time: Total production time available to an activity to complete all work elements.
- Setup Time: Time required to get a station ready to start production.

$$\text{Utilization} = \frac{\text{Takt Rate}}{\text{Effective Cycle Rate}}$$

Quality Related Terms

- Scrap: The percent of the output of a step that is defective and has to be scrapped.

Exercise

With your group, read the information below and then:

1. Draw a wall value stream map for the product showing the customer, inventories, and processes.
2. Show the data associated with the inventory, activities, and any costs.
3. Calculate how many days of inventory you have at each point.
4. Identify useful summary metrics for the map.
5. Identify what charts would be useful to visualize the value stream and mark these up.

Background and Overview

Chicago Soap Inc. sells a hand soap product which is made from a combination of soap premix, fragrance, and water. Bottles and cases are added into the Bottling and Packing steps.

Value Stream Walk

To capture the current state value stream, you meet the plant supervisor on Monday afternoon and he walks you through the plant. You learn that the line is operational 5 days a week. After breaks are taken out, the actual production time is 15 hours per day.

The plant supervisor explains how the soap premix and fragrance from the suppliers is stored in separate inventories. The two ingredients must be combined with water in a mix tank. The raw materials are measured by the metric ton (MTon), which is equal to 1000 kilograms (kg). The delivered product is cases of 25 bottles of hand soap, each case having a net weight of 12.5 kgs.


You see that the soap premix is stored in an inventory that currently holds 75 MTons, with an added cost of \$0.50 per kg. The fragrance is stored in an inventory that currently holds 10 MTons with an added cost of \$5 per kg, and the water is stored in a tank that holds 1000 MTons with an added cost of \$0.01 per kg. The three materials enter the Mix Tank process which can mix 1 tank of soap an hour with a net weight of 2500 kg in each of two stations. The mix consists of 18% soap premix, 2% fragrance, and 80% water. The lead time for this process is 60 minutes and it requires 3 setups per day per station, with each setup taking 15 mins. The OEE for the Mix Tank is 85%, including a scrap of 4%. The added cost of the mix tank is \$100 per tank. Once mixed, the soap is stored in a Run Tank inventory that currently has 3 Tanks holding 7500 kg each.


Next, the mixture is sent to Bottling, which can fill 6000 bottles an hour, each with a net weight of 0.5 kg. Bottling has a process lead time of 30 seconds. The OEE at Bottling is 85%, with a scrap rate of 2%. Bottling has an additional cost per bottle of \$0.03. Each set of empty bottles and caps is stored in an inventory which currently has 25000 sets, each weighing 0.1 kg and with an added cost of \$0.50 per kg. Each empty bottles/cap (0.1Kg) set thus weighs 20% of the weight of the bottle contents (0.5Kg).

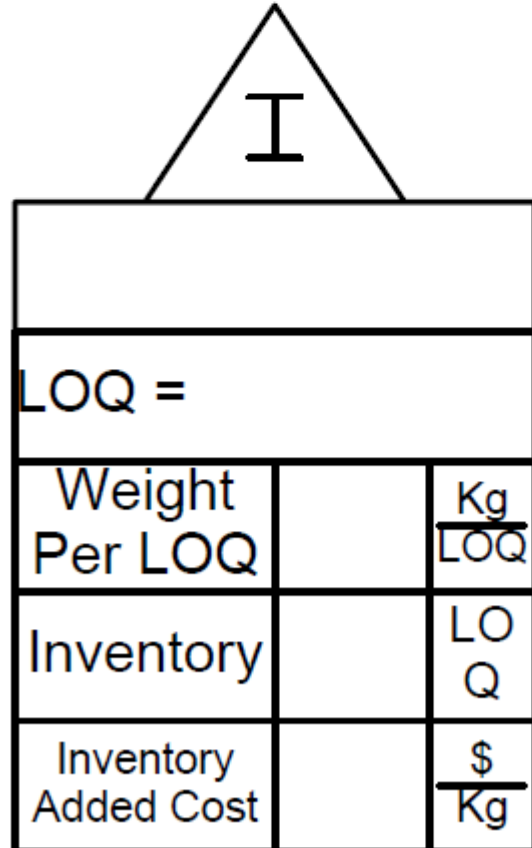
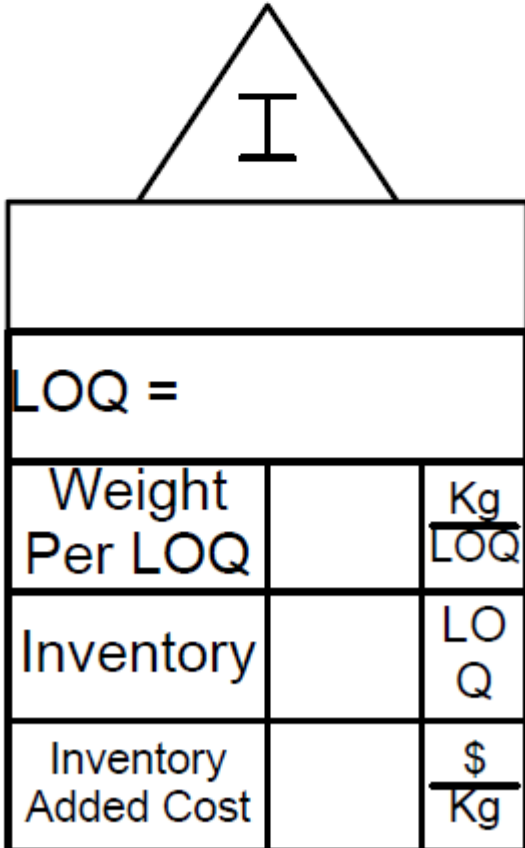
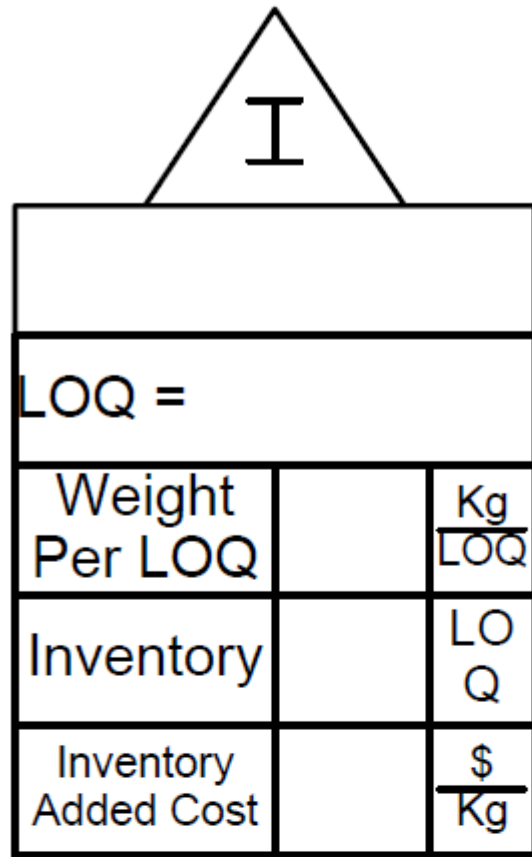
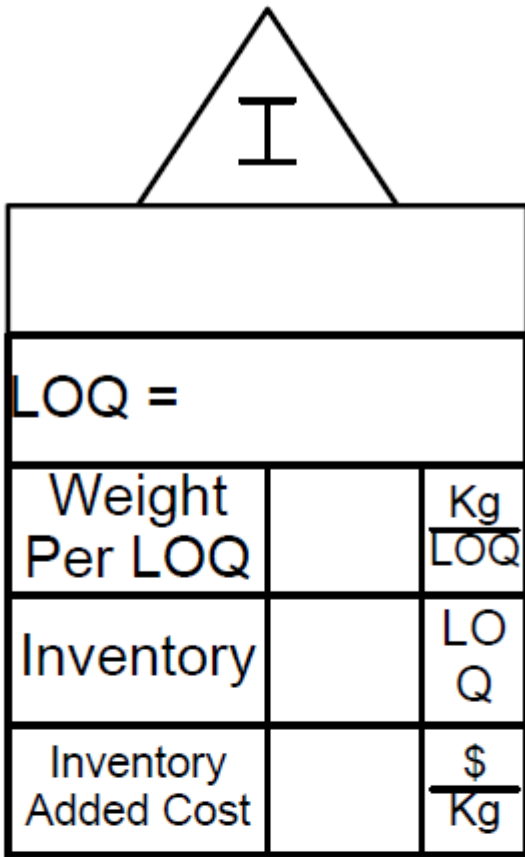
Bottles moves on to Case Packing which packs 25 bottles per case, 200 cases an hour, each with a net weight of 12.5 kg, and a process lead time of 1 minute. The case packing step has an additional cost of \$0.40 and an OEE percent of 85. The empty cases are fed in from an inventory that currently has 5000 case packs, each weighing 0.25 kg with an added cost of \$0.2 per kg. The cases (0.25Kg) thus weigh 2% of the net weight of the contents of each case (12.5Kg).

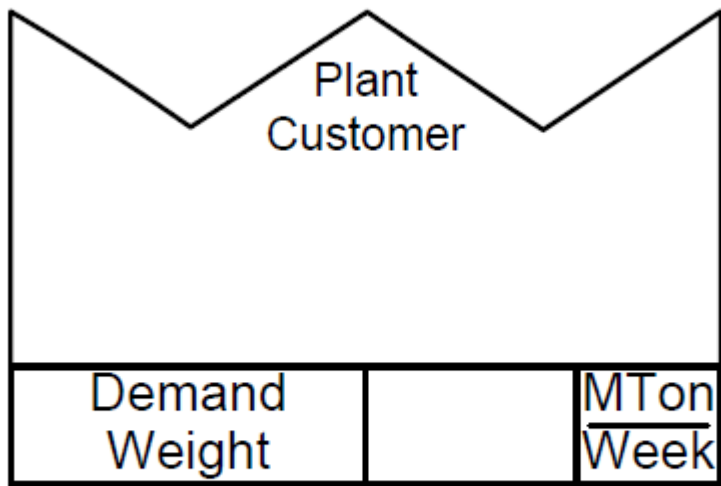
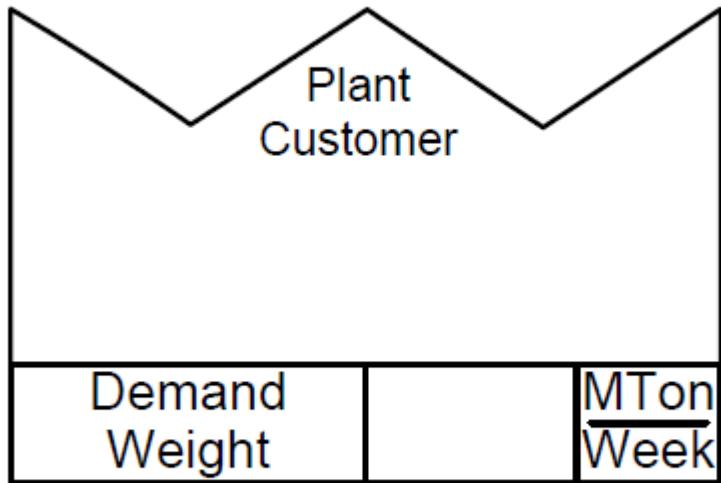
Once the hand soap is packed, it is stored in a finished goods inventory that currently holds 1000 cases, and sent to the customer whose demand is 175 MTons of soap per week.

Plant Templates

Plant Activity		
 1		
LOQ (Local Output) =		
Weight Per LOQ		$\frac{\text{Kg}}{\text{LOQ}}$
LOQ Cycle Rate		$\frac{\text{LOQ}}{\text{Hr}}$
Process Lead Time		Min
Step Yield		%
Activity Added Cost		$\frac{\$}{\text{LOQ}}$
Setups		$\frac{\text{StUp}}{\text{Day}}$
Time Per Setup		$\frac{\text{Min}}{\text{StUp}}$
OEE		%
Stations		Stn
Scrap		%

Plant Activity		
 1		
LOQ (Local Output) =		
Weight Per LOQ		$\frac{\text{Kg}}{\text{LOQ}}$
LOQ Cycle Rate		$\frac{\text{LOQ}}{\text{Hr}}$
Process Lead Time		Min
Step Yield		%
Activity Added Cost		$\frac{\$}{\text{LOQ}}$
Setups		$\frac{\text{StUp}}{\text{Day}}$
Time Per Setup		$\frac{\text{Min}}{\text{StUp}}$
OEE		%
Stations		Stn
Scrap		%





This area intentionally left blank

A0010	I	1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	33.48	MTon Week
Days of Inventory	11.20	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	37.50	K\$

DIW%	18	%
------	----	---

A0060	I	4
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	25000	LO Q
Inventory Requirement	35.71	MTon Week
Days of Inventory	0.35	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	1.25	K\$

DIW%	20	%
------	----	---

A0020	I	2
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	3.72	MTon Week
Days of Inventory	13.44	Day
Cumulative Output Cost	5.00	\$ Kg
Inventory Added Cost	5	\$ Kg
Inventory Value	50.00	K\$

DIW%	2	%
------	---	---

DIW%	80	%
------	----	---

A0030		3 2 1
Mix Tank		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	56.02	%
Stations	2	Stn
Cumulative Output Cost	0.25	\$ Kg
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	StUp Day
Time Per Setup	15	Min StUp

DIW%	100	%
------	-----	---

DIW%	100	%
------	-----	---

A0050	I	3 2 1
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	178.57	MTon Week
Days of Inventory	0.63	Day
Cumulative Output Cost	0.25	\$ Kg
Inventory Added Cost	0	\$ Kg
Inventory Value	5.54	K\$

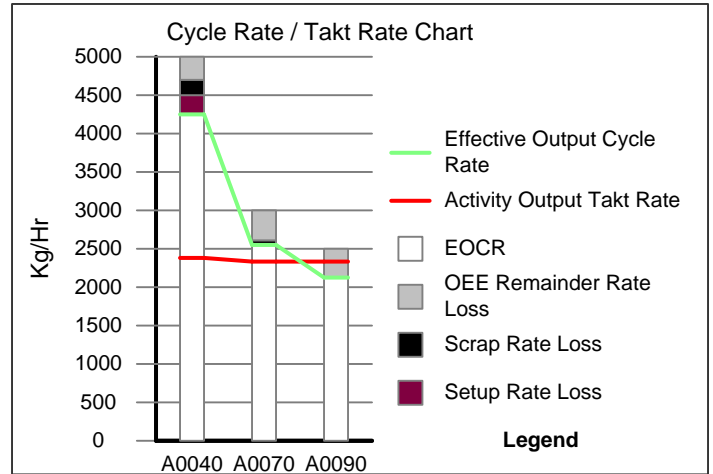
A0030	I	3
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	148.81	MTon Week
Days of Inventory	33.60	Day
Cumulative Output Cost	0.01	\$ Kg
Inventory Added Cost	0.01	\$ Kg
Inventory Value	10.00	K\$

Day	Week
15	5
Hr	Day

Chicago Plant – Hand Soap

A0080	I	5
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	3.50	MTon Week
Days of Inventory	1.79	Day
Cumulative Output Cost	0.20	\$ Kg
Inventory Added Cost	0.2	\$ Kg
Inventory Value	0.25	K\$

DIW%	2	%
------	---	---



A0070	4 3	2 1
Bottling		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	91.50	%
Stations	1	Stn
Cumulative Output Cost	0.41	\$ Kg
Activity Added Cost	0.03	\$ LOQ
OEE	85	%

A0090	4 3	2 1
Case Packing		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	109.80	%
Stations	1	Stn
Cumulative Output Cost	0.45	\$ Kg
Activity Added Cost	0.4	\$ LOQ
OEE	85	%

A0100	4 3	2 1
Finished Goods		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	175.0	MTon Week
Days of Inventory	0.36	Day
Cumulative Output Cost	0.45	\$ Kg
Inventory Added Cost	0	\$ Kg
Inventory Value	5.62	K\$

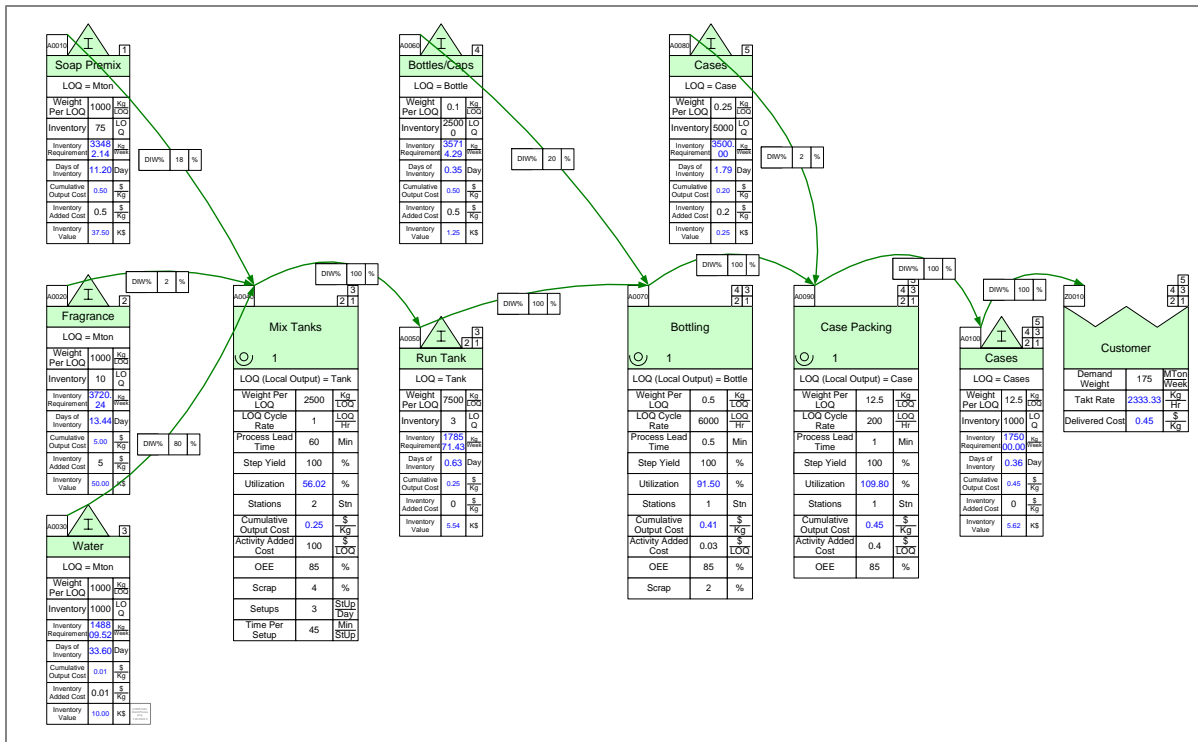
Z0010	4 3	2 1
Customer		
Demand Weight	175	MTon Week
Takt Rate	2333.33	Kg Hr
Delivered Cost	0.45	\$ Kg

Lead Time Chart



Quick Processing Tutorial

This tutorial will guide you through the steps to draw the following map using the Quick Processing stencil.



Step 1: Start eVSM

1 On your Desktop, click the "Start eVSM" icon.

2 If you see a message like this, you must "Enable" macros.

3 Click to enable macros.

4 Click "Trust all from publisher" to avoid the security notice in future.

Recycle Bin

Start eVSM

Microsoft Visio Security notice

Microsoft Office has identified a potential security concern.

Note: The digital signature is valid, but the signature is from a publisher whom you have not yet chosen to trust.

File Path: C:\Program Files\evsm\Setup\Solutions\evsmIcons.vss

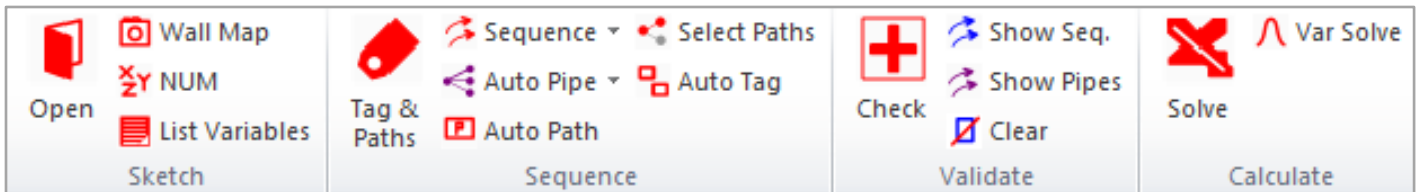
Macros have been disabled. Macros might contain viruses or other security hazards. Do not enable this content unless you trust the source of this file.

[More information](#)

[Show Signature Details](#)

Trust all from publisher Enable Macros Disable Macros

Step 2: Learn eVSM Basics



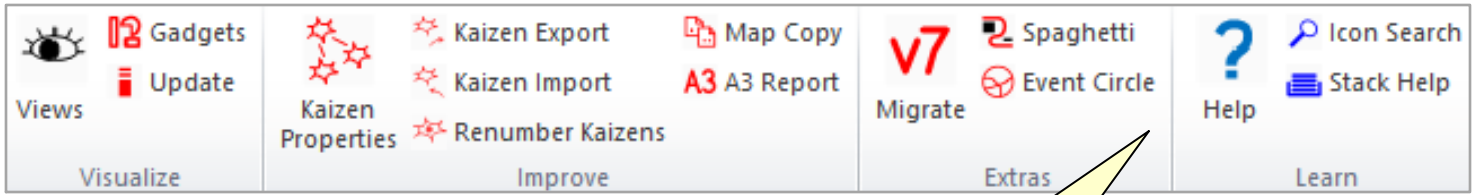
Quick Processing

Sketch Processing

2 Avoid re-sizing eVSM shapes. Instead grow the drawing page when needed. To resize the page, hold down the “Ctrl” key, and then drag any page edge to the required size. This method works on all four edges of the page.



6 Save your Visio file and then insert a new page via the right-mouse menus on the page-tabs.



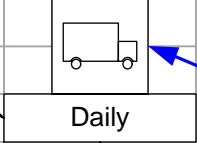
1 eVSM Help resources are available here. Try clicking each help button and learn what it does.

4 To edit any text, just double-click it. To move text relative to the shape location, use the Visio Text Block Tool located by the Text Tool in the Visio Standard toolbar.

3 Blue icons in the main stencil represent families of shapes. Drag out the Transport icon.

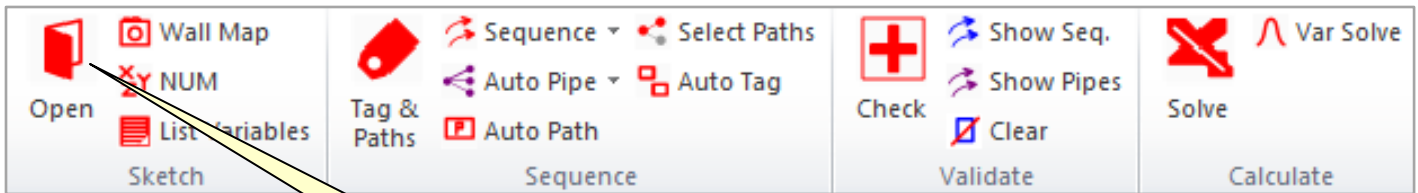
5 Use the shape's right-mouse menus to turn it into a car

7 Zooming:
 -Ctrl + Shift = Drag Zoom Options
 -Whole page view in Visio 2003/2007: Ctrl + W
 -Whole page view in Visio 2010/2013: Ctrl + Shift + W

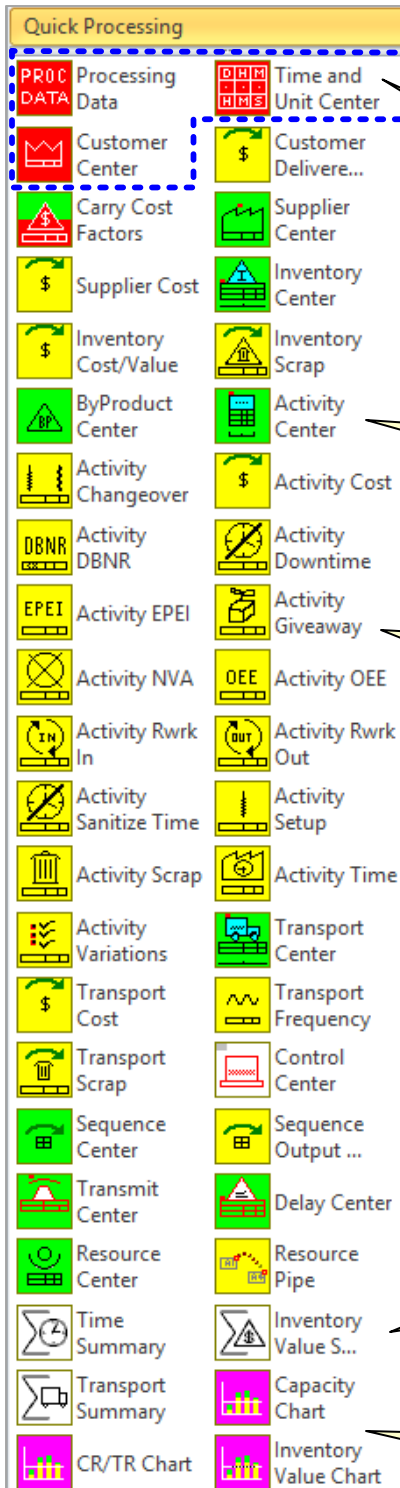


Working with Quick Stencils in eVSM v7

eVSM Toolbar



Quick Stencil



1 Access each Quick Stencil using the Open button and a corresponding Sketch Stencil for initial map capture and layout will open as well

2 Drag out the red icons FIRST

3 Use the Green icons to draw the Flow

4 Yellow icons represent optional "Add-on" calculations

6 Blue values get calculated automatically

A0110			1
Process			
1			
LOQ (Local Output) = ?			
Weight Per LOQ	xx	Kg	1
LOQ Cycle Rate	xx	LOQ	Hr
Process Lead Time	x.xx	Min	
Step Yield	100	%	
Utilization	Auto	%	
Stations	1	Stn	

Available Activity Time	xx	Hr	Day
-------------------------	----	----	-----

5 Add-ons must be glued under existing data shapes

7 Summary calculations

8 Automatic Charts

Views	Gadgets Update	Kaizen Properties	Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate	Spaghetti Event Circle	Help Icon Search Stack Help
Visualize			Improve		Extras		Learn

A0120 1

Process		
1		
LOQ (Local Output) = ?		
Weight Per LOQ	xx	Kg LOQ
LOQ Cycle Rate	xx	LOQ Hr
Process Lead Time	x.xx	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

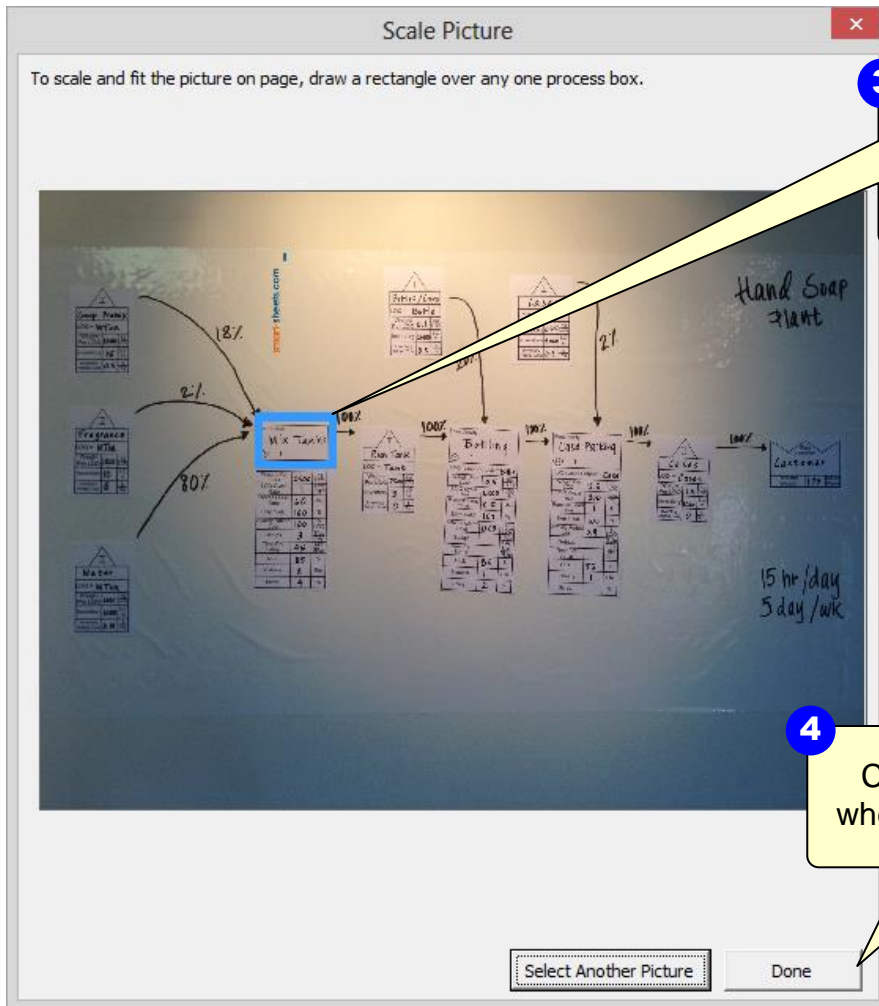
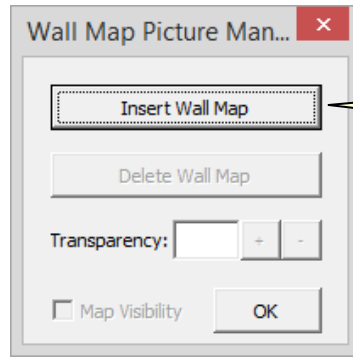
9 For variable name help, select any variable and use the right-mouse button menu "Name Help" for a description of the variable.

- Enable Flying Connector
- Name Help**
- Select all with Name
- Select all with Name on Path
- Edit Name.. (Cycle Time)
- Edit Unit.. (Min)

Main Stencil

eVSM ...

Step 3: Using the wall map sketcher



The screenshot shows a software interface with a top menu bar containing various icons and labels: 'Views', 'Visualize', 'Gadgets', 'Update', 'Kaizen Export', 'Kaizen Import', 'Map Copy', 'A3 A3 Report', 'v7', 'Spaghetti', 'Event Circle', 'Help', 'Icon Search', and 'Stack Help'. A vertical toolbar on the right side contains numerous icons for different functions, including a 'TASK LIST' icon. A dialog box titled 'Wall Map Picture Man...' is open in the center, featuring buttons for 'Insert Wall Map' and 'Delete Wall Map', a 'Transparency' slider set to 60, a checked 'Map Visibility' checkbox, and an 'OK' button. Three callout boxes provide instructions: Box 5 points to the 'Map Visibility' checkbox, Box 6 points to the 'OK' button, and Box 7 points to the 'Delete Wall Map' button.

5 Map visibility can be switched on/off and transparency can be set in this form as well.

6 Click OK to start sketching over the picture.

7 To delete the wall picture, click the Wall Map button again to bring up the form.

Step 4: Initiate the map for Quick Processing

The screenshot displays a software interface with a top toolbar and a main workspace. The toolbar contains several groups of icons: 'Sketch' (Open, Wall Map, XY NUM, List Variables), 'Tag & Paths' (Tag & Paths, Sequence, Auto Pipe, Auto Path), 'Validate' (Check, Show Seq., Show Pipes, Clear), and 'Calculate' (Solve, Var Solve). A yellow callout box with a blue circle containing the number '1' points to the 'Open' button in the Sketch group. The text inside the callout reads: "Click the Open button and select the Quick Processing Stencil and click OK." Below the toolbar, the 'Quick Processing' stencil is active, showing two red icons: 'Time and Unit Center' (a red square with 'OHM' and 'HMS' text) and 'Customer Center' (a red square with a crown icon). A second yellow callout box with a blue circle containing the number '2' points to these red icons. The text inside this callout reads: "Drag out the red icons from the Quick Processing Stencil first. This is very important!"

3 Enter the available hours per day and days per week.

Day	Week
15	5
Hr	Day

4 To move the unit converter, select the middle value field and then drag to the desired location

5 Align all shapes to the grid as you drop them.

6 Enter demand weight here.

Customer		
Demand Weight	175	M Ton Week
Takt Rate	Auto	Kg Hr

7 Double-click to change the unit to MTon/Week.

Step 5: Draw the Flow

Wall Map Open NUM List Variables Sketch	Tag & Paths Sequence Auto Pipe Auto Path Sequence	Select Paths Auto Tag Check Validate	Show Seq. Show Pipes Clear Calculate	Var Solve Solve
---	---	---	---	--------------------

Quick Processing

Sketch Processing

Activity Center

Inventory Center

A0040	I	1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

2 Fill in the data as shown for all shapes.

A0090	I	1
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

1 Green icons in the Quick eVSM stencils are called "Centers." Use these to create the flow.

A0050	I	1
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0140		1
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	Auto	%
Stations	2	Stn

A0080	I	1
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0060	I	1
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

3 Do not change any blue "Auto" values. These will get calculated automatically later.

eVSM Data
QualProcess
.img
7.20.2021.9

Views	Gadgets Update	Kaizen Properties	Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help	Icon Search Stack Help
Visualize			Improve		Extras		Learn

A0130		1
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

Day	Week
15	5
Hr	Day

A0100		1
Bottling		
1		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

A0110		1
Case Packing		
1		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

A0120		1
Finished Goods		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

Z0020		1
Customer		
Demand Weight	175	MTon Week
Takt Rate	Auto	Kg Hr

- Home
- Print
- Task List
- Help
- Refresh
- Undo
- Redo
- Copy
- Paste
- Zoom In
- Zoom Out
- Reset
- Fullscreen
- Close

Step 6: Sequence Path 1

Open Wall Map NUM List Variables Sketch	Sequence Auto Pipe Auto Path Sequence	Select Paths Auto Tag Sequence	+ Show Seq. Show Pipes Clear Calculate	Solve Var Solve Calculate
---	--	--------------------------------------	--	---------------------------------

2 Click the Sequence button.

1 Hold down the Shift key and select the green shapes in the order shown. This will be path 1.

A0040		1
A		
Sc Mix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0090		1
I		
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0050		1
I		
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0070		1
B		
M S		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	Auto	%
Stations	2	Stn

A0080		1
C		
R k		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0060		1
I		
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

v10M Data
Qualification
v10
7/20/2021

Views	Gadgets Update	Kaizen Properties	Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help	Icon Search Stack Help
Visualize			Improve		Extras		Learn

A0130		1
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

Day	Week
15	5
Hr	Day

A0100		1
D		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

A0110		1
E		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

A0120		1
F		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

Z0020		1
G		
Demand Weight	175	MTon Week
Takt Rate	Auto	Kg Hr

- Home
- Print
- Task List
- Help
- Refresh
- Undo
- Redo
- Copy
- Paste
- Zoom In
- Zoom Out
- Reset
- Fullscreen
- Close

Step 7: Sequence Path 2

Wall Map NUM List Variables Sketch	Tag & Paths Sequence Auto Pipe Auto Path	Select Paths Auto Tag Validate Show Seq. Show Pipes Clear	Check Solve Calculate
---	---	--	-----------------------------

Quick Processing

Sketch Processing

A0040	I	1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

3 Again, hold down the Shift key, select the shapes in order for Path 2, then click the Sequence button.

2 To move the data on the sequence arrow, select the green sequence arrow, then move the yellow diamond to the desired spot.

A0050	I	1
Free		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

A0070	I	1
B		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	Auto	%
Stations	2	Stn

DIW%	100	%
------	-----	---

A0080	I	1
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0060	I	1
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

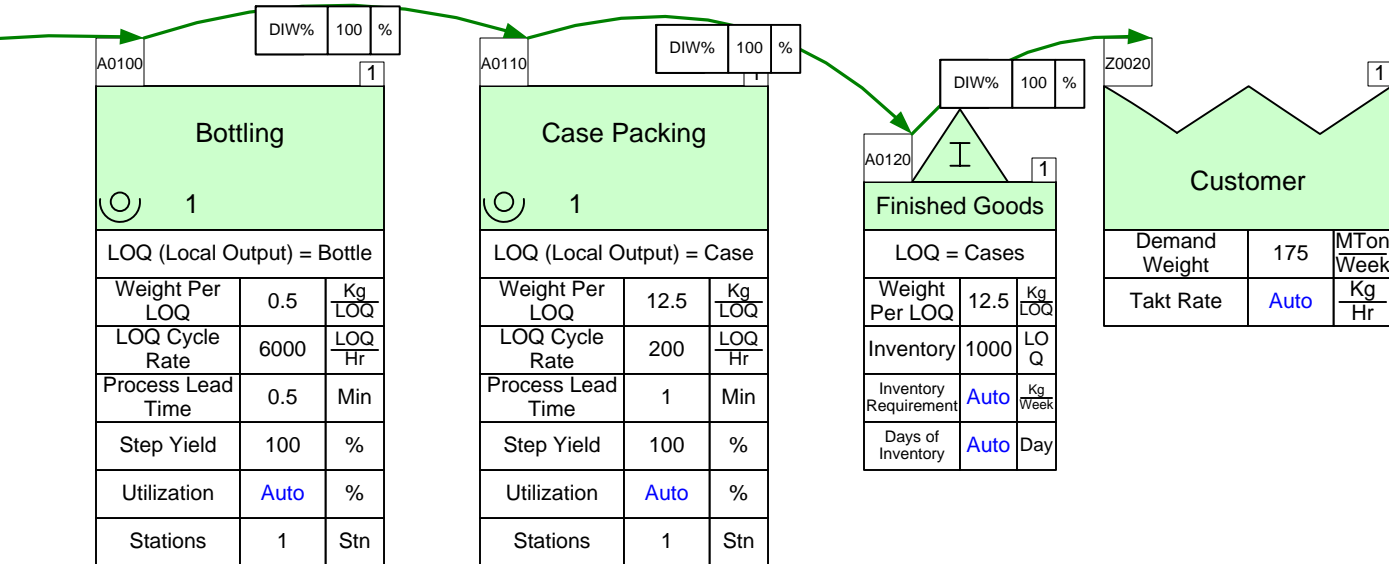
v38M Data
QualProcess
v38M
7/20/2019

Views	Gadgets Update	Kaizen Properties Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help Icon Search Stack Help
Visualize		Improve		Extras	Learn

A0130		1
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

Day	Week
15	5
Hr	Day

1 These sequence arrows show the first path with the data attached.



A vertical toolbar on the right side of the interface, containing icons for:

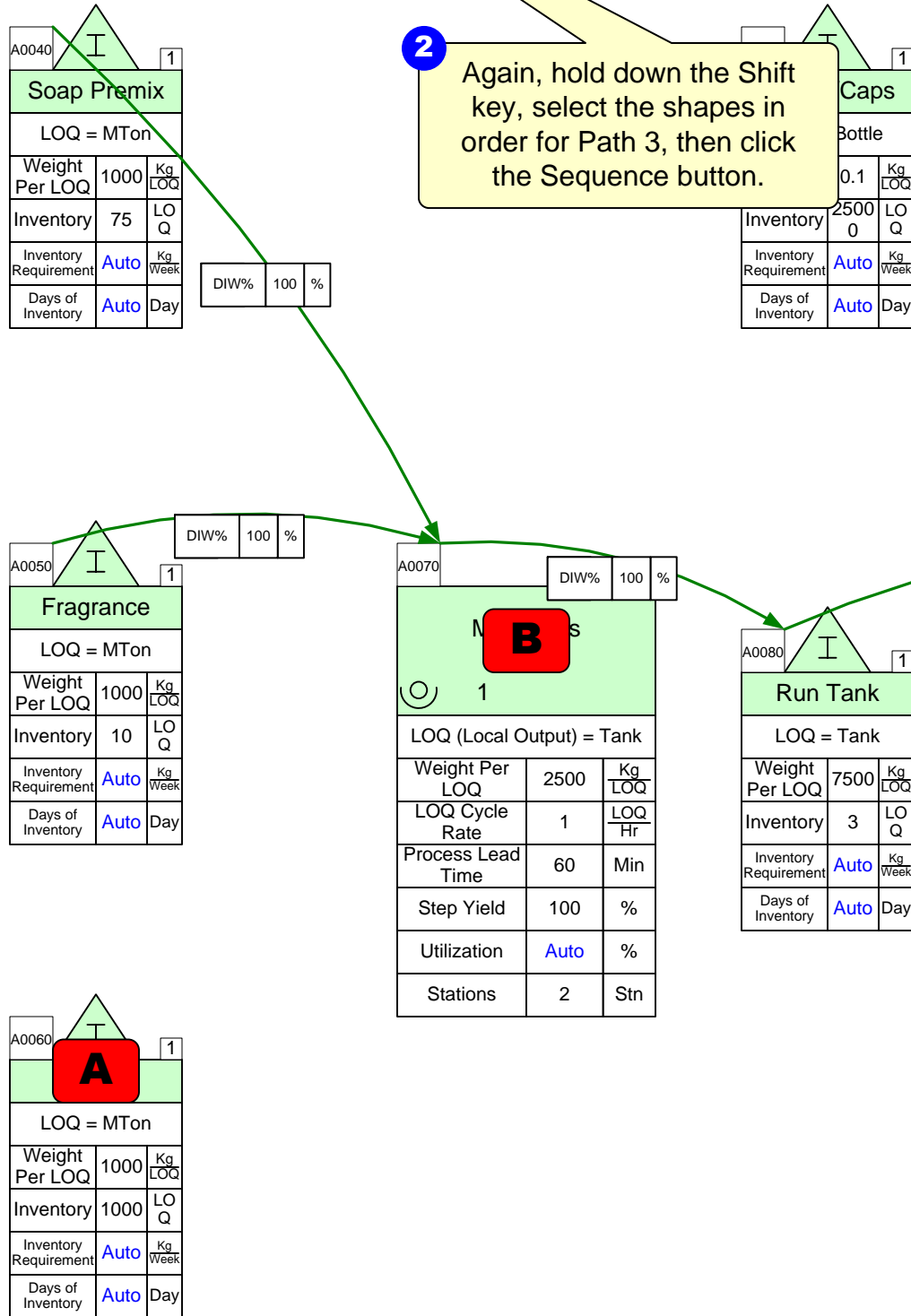
- Home
- Print
- Task List
- Help
- Navigation arrows
- Refresh
- Undo/Redo
- Zoom in/out
- Reset
- Other process-related icons

Step 8: Sequence Path 3

Open	Wall Map	Tag & Paths	Sequence	Select Paths	Auto Pipe	Auto Tag	Check	Show Seq.	Show Pipes	Clear	Solve	Var Solve
	NUM											
	List Variables											
Sketch			Sequence				Validate			Calculate		

Quick Processing

Sketch Processing



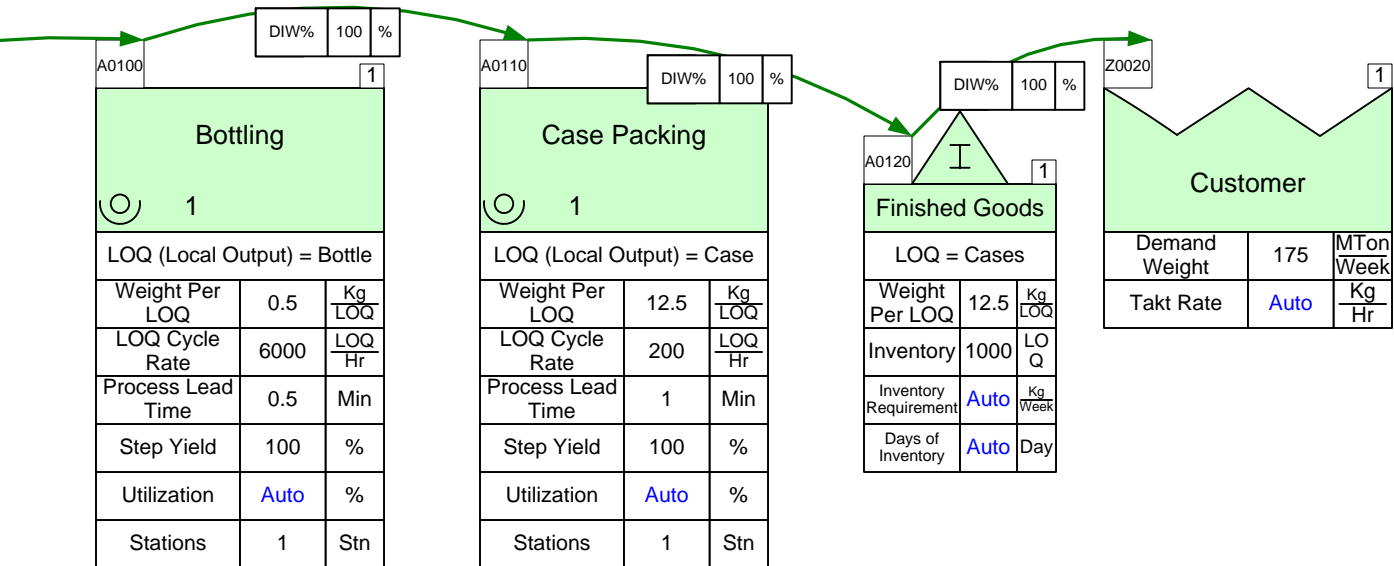
v38M Data
QualProcess
.img
7.20.2021.9

Views	Gadgets Update	Kaizen Properties Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help Icon Search Stack Help
Visualize		Improve		Extras	Learn

A0130		1
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

Day	Week
15	5
Hr	Day

1 These sequence arrows show the first path with the data attached.



A vertical toolbar on the right side of the screen containing various icons for navigation and tool management, including a search icon, a task list icon, and several directional arrows.

Step 9: Sequence Path 4

Open	Wall Map	Tag & Paths	Sequence	Select Paths	Auto Pipe	Auto Tag	Auto Path	Check	Show Seq.	Show Pipes	Clear	Solve	Var Solve
	NUM												
	List Variables												
Sketch			Sequence				Validate			Calculate			

Quick Processing

Sketch Processing

A0040		1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

2 Again, hold down the Shift key, select the shapes in order for Path 4, then click the Sequence button.

A0090		1
Bottle		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0050		1
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

DIW%	100	%
------	-----	---

A0070		1
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	Auto	%
Stations	2	Stn

DIW%	100	%
------	-----	---

A0080		1
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0060		1
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

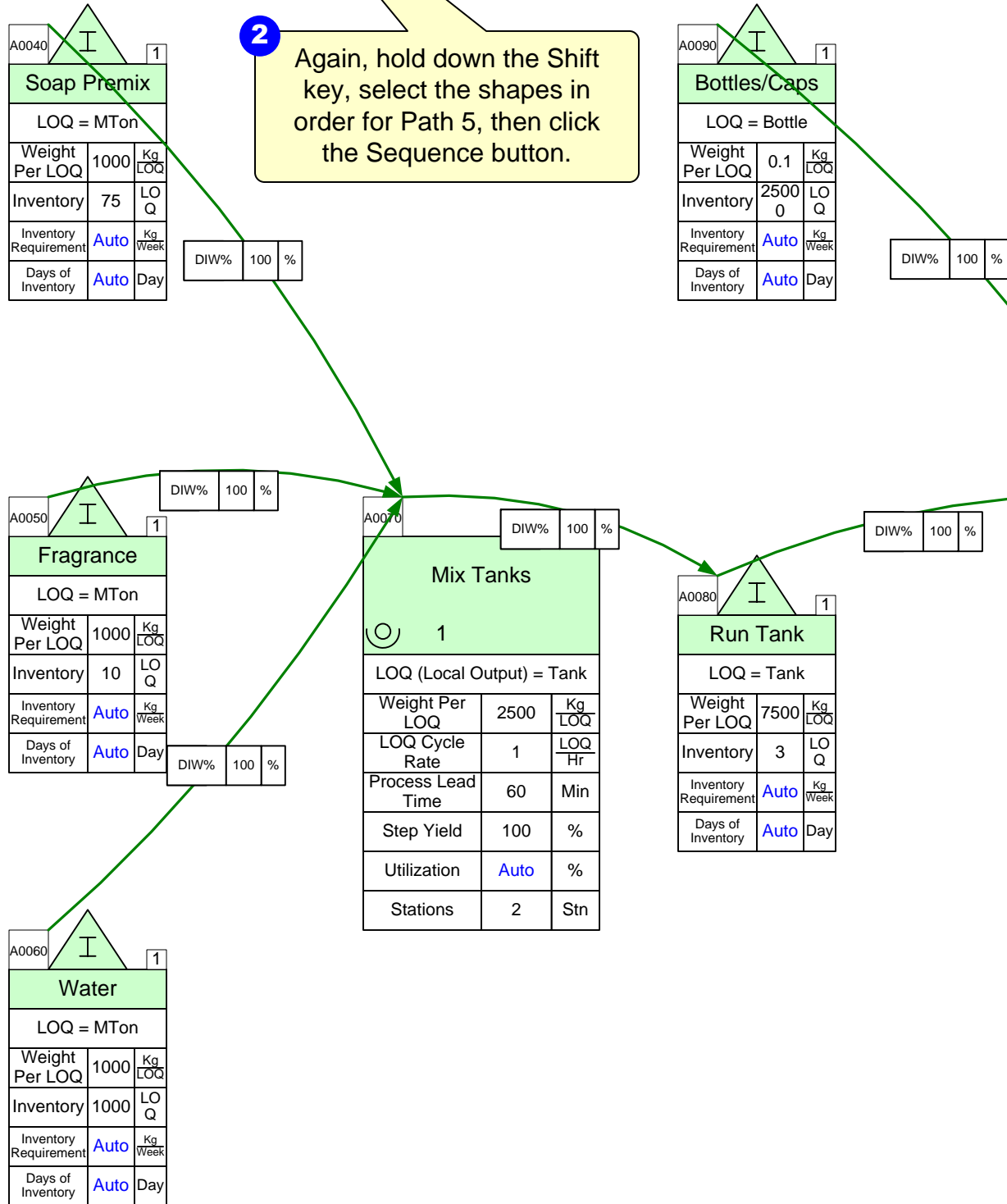
v35M Data
QualProcess
.img
7.20.2021.9

Step 10: Sequence Path 5

Open	Wall Map	Tag & Paths	Sequence	Select Paths	Auto Pipe	Auto Tag	Auto Path	Check	Show Seq.	Show Pipes	Clear	Solve	Var Solve
	NUM												
	List Variables												
Sketch			Sequence				Validate			Calculate			

Quick Processing

Sketch Processing



v38M Data
QualProcess
.img
7.20.2021.9

Step 11: Auto Path and Auto Tag

Wall Map NUM List Variables Sketch	Tag & Paths Auto Path Sequence	Sequence ▾ Auto Pipe ▾ Auto Tag	Select Paths Auto Tag Update	Check Show Seq. Show Pipes Clear Calculate	Var Solve Solve
---	--------------------------------------	---------------------------------------	------------------------------------	--	--------------------

Quick Processing

Sketch Processing

A0010	I	1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

2 Click Auto Path to automatically generate path numbers based on the sequence arrows.

3 Click Auto Tag to automatically generate tag numbers in sequence based on the sequence arrows.

DIW%	100	%
------	-----	---

Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

A0020	I	2
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

A0030	I	3
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	Auto	%
Stations	2	Stn

DIW%	100	%
------	-----	---

DIW%	100	%
------	-----	---

A0030	I	3
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0050	I	3
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

v10M Data
QualProcess
.img
7.20.2021.9

Views	Gadgets Update	Kaizen Properties Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help Icon Search Stack Help
Visualize		Improve		Extras	Learn

A0080		5
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

1 The sequence arrows with data attached are now shown for both paths.

Day	Week
15	5
Hr	Day

A0070		4 3 2 1
Bottling		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

DIW%	100	%
------	-----	---

A0090		4 3 2 1
Case Packing		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

DIW%	100	%
------	-----	---

A0100		5 4 3 2 1
Finished Goods		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

4 After clicking Auto Path, the appropriate path numbers are added.

Z0010		5 4 3 2 1
Customer		
Demand Weight	175	MTon Week
Takt Rate	Auto	Kg Hr

Step 12: Update Sequence Data

Wall Map NUM List Variables Sketch	Sequence ▾ Auto Pipe ▾ Auto Path Tag & Paths Sequence	Select Paths Auto Tag Check Validate	Show Seq. Show Pipes Clear Calculate	Var Solve Solve
---	---	---	---	--------------------

Quick Processing

Sketch Processing

A0010		1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0060		4
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

1 Change the DIW% on the highlighted sequence arrows.

A0020		2
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0030		3
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	Auto	%
Stations	2	Stn

A0050		3
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

A0030		3
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW% 18 %

DIW% 20 %

DIW% 2 %

DIW% 100 %

DIW% 100 %

DIW% 80 %

v10M Data
QualProcess
eng
7.20.2021.9

Views	Gadgets Update	Kaizen Properties Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help Icon Search Stack Help
Visualize		Improve		Extras	Learn

A0080		5
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	2	%
------	---	---

Day	Week
15	5
Hr	Day

A0070		4 3 2 1
Bottling		
1		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

DIW%	100	%
------	-----	---

A0090		4 3 2 1
Case Packing		
1		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn

DIW%	100	%
------	-----	---

A0100		5 4 3 2 1
Finished Goods		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day

DIW%	100	%
------	-----	---

Z0010		5 4 3 2 1
Customer		
Demand Weight	175	MTon Week
Takt Rate	Auto	Kg Hr

Step 13: Add-Ons

Wall Map
 Sequence
 Select Paths
 Show Seq.
 Solve
 Var Solve

3 Click the Wall Map button and select "Delete Wall Map" to remove the wall map background picture.

Quick Processing

Sketch Processing

- Customer Center
- Customer Delivered Cost
- Inventory Center
- Inventory Cost/Value
- Activity Center
- Activity Cost
- Activity OEE
- Activity Scrap
- Activity Setup

A0010

Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day
Inventory Added Cost	0.5	\$ Kg
Inventory Value	Auto	K\$

A0060

Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day
Inventory Added Cost	0.5	\$ Kg
Inventory Value	Auto	K\$

A0020

Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day
Inventory Added Cost	5	\$ Kg
Inventory Value	Auto	K\$

A0040

Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	Auto	%
Stations	2	Stn
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	StUp Day
Time Per Setup	15	Min StUp

A0050

Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day
Inventory Added Cost	0	\$ Kg
Inventory Value	Auto	K\$

A0030

Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day
Inventory Added Cost	0.01	\$ Kg
Inventory Value	Auto	K\$

1 Note how all these yellow add-on names start with the word "Activity." Yellow Add-ons that follow a green Center can only be used with that Center. So, these "Activity..." add-ons can be used only with the Activity Center.

Views	Gadgets Update	Kaizen Properties Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help Icon Search Stack Help
Visualize		Improve		Extras	Learn

A0080	I	5
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day
Inventory Added Cost	0.2	\$ Kg
Inventory Value	Auto	K\$

DIW%	2	%
------	---	---

Day	Week
15	5
Hr	Day

A0070	4 3	2 1
Bottling		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn
Activity Added Cost	0.03	\$ LOQ
OEE	85	%
Scrap	2	%

DIW%	100	%
------	-----	---

A0090	4 3	2 1
Case Packing		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	Auto	%
Stations	1	Stn
Activity Added Cost	0.4	\$ LOQ
OEE	85	%

DIW%	100	%
------	-----	---

A0100	I	5
Finished Goods		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	Auto	Kg Week
Days of Inventory	Auto	Day
Inventory Added Cost	0	\$ Kg
Inventory Value	Auto	K\$

DIW%	100	%
------	-----	---

Z0010	4 3	2 1
Customer		
Demand Weight	175	MTon Week
Takt Rate	Auto	Kg Hr
Delivered Cost	Auto	\$ Kg

2
Enter the values for all of the add-ons.

-
-
-
-
-
-
-
-
-
-
-
-
-
-

Step 14: Solve the model

Open	Wall Map	Tag & Paths	Sequence ▾	Select Paths	Check	Show Seq.	Solve
List Variables	NUM	Auto Pipe ▾	Auto Path	Auto Tag	Validate	Show Pipes	Var Solve
Sketch		Sequence			Validate		Calculate

Quick Processing

Sketch Processing

1 Click on the Check button on the toolbar to check for any errors in the map.

2 After addressing any errors, click the Solve button on the toolbar to solve the map.

Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	3348	Kg Week
Days of Inventory	11.20	Day
Inventory Added Cost	0.5	\$ Kg
Inventory Value	37.50	K\$

DIW%	18	%
------	----	---

Inventory Requirement	3571	Kg Week
Days of Inventory	0.35	Day
Inventory Added Cost	0.5	\$ Kg
Inventory Value	1.25	K\$

DIW%	20	%
------	----	---

Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	3720	Kg Week
Days of Inventory	13.44	Day
Inventory Added Cost	5	\$ Kg
Inventory Value	50.00	K\$

DIW%	80	%
------	----	---

Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	56.02	%
Stations	2	Stn
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	StUp Day
Time Per Setup	15	Min StUp

DIW%	100	%
------	-----	---

Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	1785	Kg Week
Days of Inventory	0.63	Day
Inventory Added Cost	0	\$ Kg
Inventory Value	5.54	K\$

DIW%	100	%
------	-----	---

Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	1488	Kg Week
Days of Inventory	33.60	Day
Inventory Added Cost	0.01	\$ Kg
Inventory Value	10.00	K\$

v10M Data Quality - 7/20/2019

A0080		5
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	3500.00	Kg Week
Days of Inventory	1.79	Day
Inventory Added Cost	0.2	\$ Kg
Inventory Value	0.25	K\$

DIW%	2	%
------	---	---

Day	Week
15	5
Hr	Day

DIW%	100	%
------	-----	---

A0070		4 3 2 1
Bottling		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	91.50	%
Stations	1	Stn
Activity Added Cost	0.03	\$ LOQ
OEE	85	%
Scrap	2	%

A0090		4 3 2 1
Case Packing		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	109.80	%
Stations	1	Stn
Activity Added Cost	0.4	\$ LOQ
OEE	85	%

DIW%	100	%
------	-----	---

A0100		5 4 3 2 1
Finished Goods		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	1750.00	Kg Week
Days of Inventory	0.36	Day
Inventory Added Cost	0	\$ Kg
Inventory Value	5.62	K\$

DIW%	100	%
------	-----	---

Z0010		5 4 3 2 1
Customer		
Demand Weight	175	MTon Week
Takt Rate	2333.33	Kg Hr
Delivered Cost	0.45	\$ Kg

3 When complete, verify that all automatic blue values were calculated.

Step 15: Changing default units via NUM

Click the NUM button.

A0010

I		
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	3348 2.14	Kg Week
Days of Inventory	11.20	Day
Inventory Added Cost	0.5	\$ Kg
Inventory Value	37.50	K\$

1 The Inventory Requirement is in Kg/Week. Let's change the default unit to MTON/Week map wide by using the NUM button in the toolbar.

A0060

I		
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500 0	LO Q
Inventory Requirement	3571 4.29	Kg Week
Days of Inventory	0.35	Day
Inventory Added Cost	0.5	\$ Kg
Inventory Value	1.25	K\$

DIW%	20	%
------	----	---

A0020

I		
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	3720. 24	Kg Week
Days of Inventory	13.44	Day
Inventory Added Cost	5	\$ Kg
Inventory Value	50.00	K\$

DIW%	2	%
------	---	---

DIW%	80	%
------	----	---

A0040

I		
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	56.02	%
Stations	2	Stn
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	StUp Day
Time Per Setup	15	Min StUp

DIW%	100	%
------	-----	---

A0050

I		
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	1785 71.43	Kg Week
Days of Inventory	0.63	Day
Inventory Added Cost	0	\$ Kg
Inventory Value	5.54	K\$

DIW%	100	%
------	-----	---

A0030

I		
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	1488 09.52	Kg Week
Days of Inventory	33.60	Day
Inventory Added Cost	0.01	\$ Kg
Inventory Value	10.00	K\$

v10M Data
QualProcess
.org
7.20.2021.9

A0080

Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg
Inventory	5000	LOQ

Name and Unit Manager

Name & Unit Sets

Save To Set..
Load From Set..
Delete Set..
Import Set..
Export Set..

Alias Mode: On Off

Import Alias Names

Map : Units

Currency: \$ US Metric

Unit	On Map
\$	Yes
%	Yes
CO	No
Day	Yes
feet	Yes
Gram	Yes
Hr	Yes
K\$	Yes
Kg	Yes
km	Yes
Lb	Yes

New Unit..
Modify Unit..
Delete Unit..
Delete Unused
Select Shapes
Unit Converters

Map : Names (NVU's)

Name	On Map	Hidden	Default Unit	Filter:
Insurance On Inventory	No	No	%	
Inventory	Yes	No	LOQ	
Inventory Added Cost	Yes	No	\$/Kg	
Inventory Damages	No	No	%	
Inventory Obsolescence	No	No	%	
Inventory Requirement	Yes	No	Kg/Week	
Inventory Shrinkage	No	No	%	
Inventory Unit Cost	Yes	Yes	\$/Kg	
Inventory Value	Yes	No	K\$	
LOQ Cycle Rate	Yes	No	LOQ/Hr	
Material Lead Time	No	No	Min	

New Name..
Modify Name..
Delete Name..
Delete Unused
Select Shapes
Sequence..

Day	Week
15	5
Hr	Day

3 Select Inventory Requirement in the NVU list.

4 Click "Modify Name"

Inventory Value 0.25 K\$

DIW% 100

A0070

4	3
2	1

Bottling

A0090

4	3
2	1

DIW% 100 %

Z0010

5	4	3
2	1	

Customer

Demand Weight	175	MTon/Week
Takt Rate	2333.33	Kg/Hr
Delivered Cost	0.45	\$/Kg

5 Select MTon as the numerator and click OK. Now the default unit for Inventory Requirement will be MTon/Week and the current units on the map will convert.

Edit Name

Name: Inventory Requirement

Name Alias: none

Default Unit:

Numerator	Denominator
Mile	STon
Min	StUp
MM\$	Trip
MTon	Txt
mtr	Unit
none	Week

Number Format: 0.00

Used by eqn: Days of Inventory

Description: Computed Inventory Requirement.

Cancel OK

Stations	1	Stn
Activity Added Cost	0.03	\$/LOQ
OEE	85	%
Scrap	2	%

Step 16: Hide/Show Variables

Open Wall Map NUM List Variables Sketch	Tag & Paths Sequence Auto Pipe Auto Path Sequence	Check Show Seq. Show Pipes Clear Validate	Var Solve Calculate
---	---	---	------------------------

Quick Processing

Sketch Processing

A0010	I	1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	33.48	MTon Week
Days of Inventory	11.20	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	37.50	K\$

A0060	I	4
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	35.71	MTon Week
Days of Inventory	0.35	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	1.25	K\$

A0020	I	2
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	3.72	MTon Week
Days of Inventory	13.44	Day
Cumulative Output Cost	5.00	\$ Kg
Inventory Added Cost	5	\$ Kg
Inventory Value	50.00	K\$

A0040	I	3
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	56.02	%
Stations	2	Stn
Cumulative Output Cost	0.25	\$ Kg
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	StUp Day
Time Per Setup	15	Min StUp

A0050	I	3
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	178.5	MTon Week
Days of Inventory	0.63	Day
Cumulative Output Cost	0.25	\$ Kg
Inventory Added Cost	0	\$ Kg
Inventory Value	5.54	K\$

A0030	I	3
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	148.8	MTon Week
Days of Inventory	33.60	Day
Cumulative Output Cost	0.01	\$ Kg
Inventory Added Cost	0.01	\$ Kg
Inventory Value	10.00	K\$

DIW% 18 %

DIW% 20 %

DIW% 2 %

DIW% 100 %

DIW% 100 %

DIW% 80 %

3 The Cumulative Output Cost is now visible on each center.

	Gadgets	Kaizen Export	Map Copy	Spaghetti	Icon Search
Views	Update	Kaizen Import	A3 A3 Report	Event Circle	Stack Help
Visualize	Kaizen Properties	Renumber Kaizens	Migrate	Help	Learn

1 Click the Views button in the toolbar.

A0080	I	5
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ

Day	Week
15	5
Hr	Day

Variable Visibility

Center/Addon Name	Variable Name(s)	Visibility	Multi-Add
Customer Center Customer Delivered	- Demand Weight	<input checked="" type="checkbox"/>	
	Takt Rate	<input checked="" type="checkbox"/>	
	- Delivered Cost	<input checked="" type="checkbox"/>	
+ Carry Cost Factors			
+ Supplier Center			
Inventory Center	- Descriptor	<input checked="" type="checkbox"/>	
	Weight Per LOQ	<input checked="" type="checkbox"/>	
	Inventory	<input checked="" type="checkbox"/>	
	Inventory Requirement	<input checked="" type="checkbox"/>	
	Days of Inventory	<input checked="" type="checkbox"/>	
	Required Input Weight	<input type="checkbox"/>	
	Req Output Weight	<input type="checkbox"/>	
	Cumulative Output Cost	<input type="checkbox"/>	
	Inventory Unit Cost	<input type="checkbox"/>	
	Non Value Added	<input type="checkbox"/>	

		5
		4 3
		2 1
Customer		
and ght	175	MTon Week
Rate	2333.33	Kg Hr
ed Cost	0.45	\$ Kg

2 Check the visibility box for "Cumulative Output Cost" and click OK.

Step 17: Add Lead Time Chart

4 Right-click on the chart shape and select "Plot Ladder Chart".

2 Double-click the "all" path locator and change it to "1".

3 Drag out a Path Locator from the Quick Extras stencil and glue to the Lead Time Chart shape. Double-click it to change it to "2".

1 Drag out a Lead Time Chart from the Quick Processing stencil.

Lead Time Chart

Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	33.48	MTon Week
Days of Inventory	11.20	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	37.50	K\$

Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	35.71	MTon Week
Days of Inventory	0.35	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	1.25	K\$

Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	3.72	MTon Week
Days of Inventory	13.44	Day
Cumulative Output Cost	5.00	\$ Kg
Inventory Added Cost	5	\$ Kg
Inventory Value	50.00	K\$

Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	56.02	%
Stations	2	Stn
Cumulative Output Cost	0.25	\$ Kg
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	StUp Day
Time Per Setup	15	Min StUp

Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	178.5	MTon Week
Days of Inventory	0.63	Day
Cumulative Output Cost	0.25	\$ Kg
Inventory Added Cost	0	\$ Kg
Inventory Value	5.54	K\$

Views	Gadgets Update	Kaizen Properties Kaizen Export Kaizen Import Renumber Kaizens	Map Copy A3 A3 Report	v7 Migrate Spaghetti Event Circle	Help Icon Search Stack Help
Visualize		Improve		Extras	Learn

A0080	I	5
Cases		
LOQ = Case		
Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LOQ
Inventory Requirement	3.50	MTon Week
Days of Inventory	1.79	Day
Cumulative Output Cost	0.20	\$ Kg
Inventory Added Cost	0.2	\$ Kg
Inventory Value	0.25	K\$

Day	Week
15	5
Hr	Day

DIW%	2	%
------	---	---

DIW%	100	%
------	-----	---

DIW%	100	%
------	-----	---

DIW%	100	%
------	-----	---

A0070	4 3	2 1
Bottling		
LOQ (Local Output) = Bottle		
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	91.50	%
Stations	1	Str

A0090	4 3	2 1
Case Packing		
LOQ (Local Output) = Case		
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	109.80	%
Stations	1	Str

A0100	I	5
Finished Goods		
LOQ = Cases		
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LOQ
Inventory Requirement	175.0	MTon Week
Days of Inventory	0.36	Day
Cumulative Output Cost	0.45	\$ Kg
Inventory	0	\$

Customer

Here's the completed chart.

Q

HR 60 MIN

1

1

Cloud

Cloud

Grid

Grid

m sd

V

+

Lead Time Chart



Legend

- Non Value Added
- Value Added


Step 18: Add Cycle Rate / Takt Rate Chart

Open Wall Map NUM List Variables Sketch	Tag & Paths Sequence Auto Pipe Auto Path Sequence	Select Paths Auto Tag Check Show Seq. Show Pipes Clear Validate	Var Solve Solve Calculate
---	---	---	---------------------------------

Quick Processing

Sketch Processing

1 Drag out the Cycle Rate / Takt Rate Chart from the Quick Processing stencil.



CR/TR Chart

A0010	I	1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	33.48	MTon Week
Days of Inventory	11.20	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	37.50	K\$

A0060	I	4
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	35.71	MTon Week
Days of Inventory	0.35	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	1.25	K\$

A0020	I	2
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	3.72	MTon Week
Days of Inventory	13.44	Day
Cumulative Output Cost	5.00	\$ Kg
Inventory Added Cost	5	\$ Kg
Inventory Value	50.00	K\$

A0040	I	3
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	56.02	%
Stations	2	Stn
Cumulative Output Cost	0.25	\$ Kg
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	
Time Per Setup	15	

A0050	I	3
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	178.5	MTon Week
Days of Inventory	0.63	Day
Cumulative Output Cost	0.25	\$ Kg
Inventory Added Cost	0	\$ Kg
Inventory Value	5.54	K\$

A0030	I	3
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	148.8	MTon Week
Days of Inventory	33.60	Day
Cumulative Output Cost	0.01	\$ Kg
Inventory Added Cost	0.01	\$ Kg
Inventory Value	10.00	K\$

DIW% 18 %

DIW% 20 %

DIW% 2 %

DIW% 100 %

DIW% 100 %

DIW% 80 %

2 Right-click on the chart shape and select "Plot Chart".

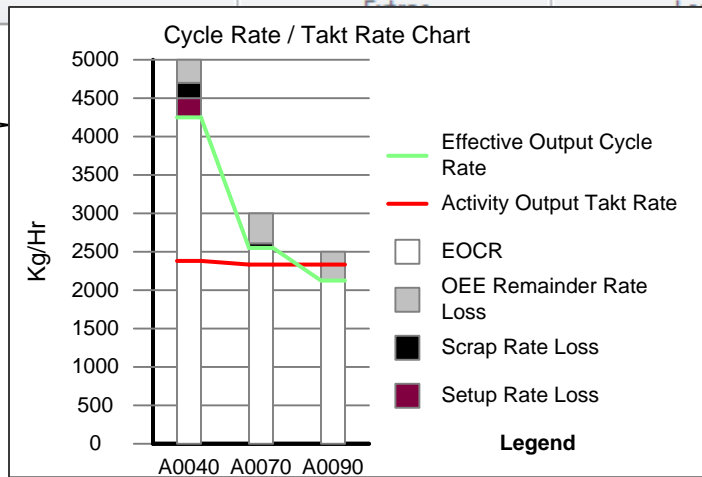
CR/TR Chart

3

Here's the completed chart.

Weight Per LOQ	0.25	Kg LOQ
Inventory	5000	LO Q
Inventory Requirement	3.50	MTon Week
Days of Inventory	1.79	Day
Cumulative Output Cost	0.20	\$ Kg
Inventory Added Cost	0.2	\$ Kg
Inventory Value	0.25	K\$

DIW%	2	%
------	---	---



DIW%	100	%
Weight Per LOQ	0.5	Kg LOQ
LOQ Cycle Rate	6000	LOQ Hr
Process Lead Time	0.5	Min
Step Yield	100	%
Utilization	91.50	%
Stations	1	Stn
Cumulative Output Cost	0.41	\$ Kg
Activity Added Cost	0.03	\$ LOQ
OEE	85	%
Scrap	2	%

DIW%	100	%
Weight Per LOQ	12.5	Kg LOQ
LOQ Cycle Rate	200	LOQ Hr
Process Lead Time	1	Min
Step Yield	100	%
Utilization	109.80	%
Stations	1	Stn
Cumulative Output Cost	0.45	\$ Kg
Activity Added Cost	0.4	\$ LOQ
OEE	85	%

DIW%	100	%
Weight Per LOQ	12.5	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	175.0	MTon Week
Days of Inventory	0.36	Day
Cumulative Output Cost	0.45	\$ Kg
Inventory Added Cost	0	\$ Kg
Inventory Value	5.62	K\$

Demand Weight	175	MTon Week
Takt Rate	2333.33	Kg Hr
Delivered Cost	0.45	\$ Kg

TASK LIST

Navigation icons: Home, Back, Forward, Refresh, etc.

eVSM Multi-Station Workshop

The Chicago Plant has replaced one of their old mixers with a new mixer to increase capacity.

Insert a new page and open the Proc Multi-Station Wizard to calculate the equivalent capacity from the two machines as shown below.

A0040			1
Old Mixing Tank			
Weight per LOQ_M	2500	Kg	LOQ
LOQ Cycle Rate_M	1	LOQ	Hr
Step Yield_M	100	%	
Stations_M	1	Stn	
Activity Time_M	15	Hr	Day
OEE Percent_M	80	%	
Tot LOQ Cycle Rate	41.67	Kg	Min
CT Capacity Per Day	37500.0	Kg	Day
WPL Contributor	15.00	LOQ	Day
All Stations Time	15.00	Hr	Day
Wt Avg SY Fac_M	30000.0	Kg	Day
Capacity Per Day	30000.0	Kg	Day

A0050			1
New Mixing Tank			
Weight per LOQ_M	2500	Kg	LOQ
LOQ Cycle Rate_M	1.5	LOQ	Hr
Step Yield_M	100	%	
Stations_M	1	Stn	
Activity Time_M	15	Hr	Day
OEE Percent_M	90	%	
Tot LOQ Cycle Rate	62.50	Kg	Min
CT Capacity Per Day	56250.0	Kg	Day
WPL Contributor	22.50	LOQ	Day
All Stations Time	15.00	Hr	Day
Wt Avg SY Fac_M	50625.0	Kg	Day
Capacity Per Day	50625.0	Kg	Day

Z0010			1
Multiple Station Equiv.			
LOQ Cycle Rate	1.25	LOQ	Hr
Weight Per LOQ	2500.00	Kg	LOQ
Step Yield	100.00	%	
Stations	2.00	Stn	
OEE	86.00	%	
Activity Time	15.00	Hr	Day
MS CT Capacity Per Day	93.75	MTon	Day
MS Capacity Per Day	80.63	MTon	Day
Wt Avg SY Fac	80.63	MTon	Day

Day
15
Hr

eVSM - Improvements Workshop

In looking at the current value stream, there has been concern raised about the large inventories of soap premix and fragrance and if these could be managed to an average inventory of 5 days of supply each.

The Case Packing process often proves to be a bottleneck. Speeding up the equipment seems to increase the downtime. It seems important to both improve the cycle rate and the OEE of the equipment here.

You can envision the above by first marking up the current state map:

1. Add kaizen bursts to the map
2. Add impact/ease of implementation ratings to the bursts
3. Draw a Kaizen Impact matrix
4. Create a Kaizen Key and a Kaizen Report
5. Add carry cost factors and an inventory summary to the map to calculate annual holding costs. Assume 7% as cost of borrowing and ignore other carry cost factors for now.

Assuming that the improvements identified above are targeted to manage the inventories of both the soap premix and fragrance to an average 5 days and that the Case Packing cycle rate is targeted to improve to 250 cases per hour, create a future state map that shows the impact of the changes.

Chicago Soap – Resource Workshop

Exercise

With your group, read the information below and then:

1. Model the resources for the activity.
2. Show the data associated with the resource handling as well as resource pipe data.
3. Calculate the map.
4. Identify what charts would be useful to visualize the value stream and mark these up.
5. Identify where there is a bottleneck.

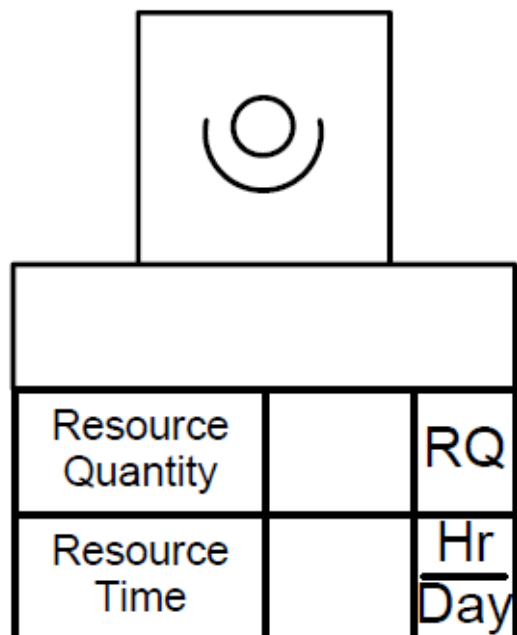
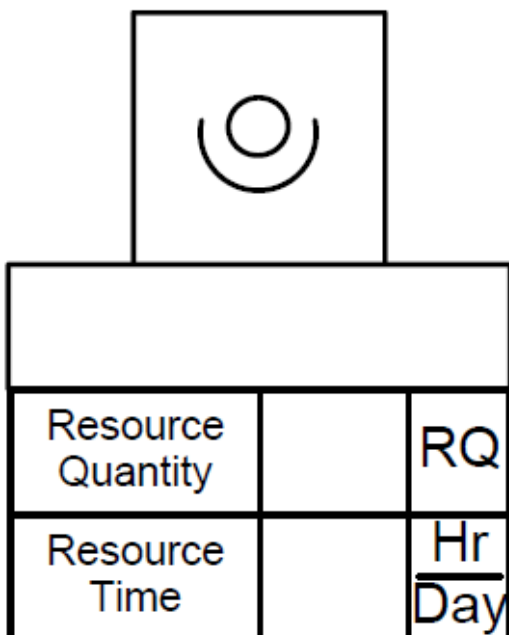
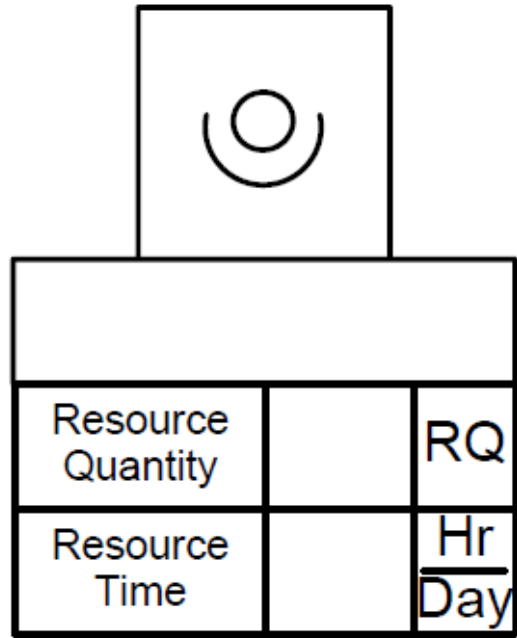
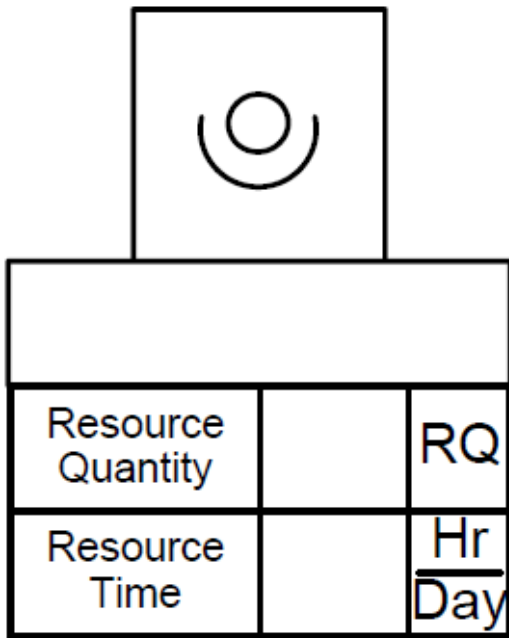
Background and Overview

Chicago Soap Inc. sells a hand soap product which is made from a combination of soap premix, fragrance, and water. You take a second value stream walk with the plant supervisor to model the resource allocation for the activity processes.

Value Stream Walk

The plant supervisor explains how the maintenance and production resources are utilized. The Mix Tanks activity uses both a maintenance technician and an operator. The maintenance technician is allocated 1 hour a day for mix tank setup work, which is 15 minutes per setup. The operator on the Mix Tanks activity works each shift and the resource process time is 55 minutes per tank with a walk time of 5 minutes between tanks. The Case Packing activity also has an operator working on each shift. The resource process time is 0.3 minutes per Case.

Resource Templates



eVSM - Resource Workshop

1. Take the existing Plant map to add the resource centers to using the same Quick Processing stencil.
2. Drag out a Resource Center and fill in the appropriate data.
3. Drag out the Resource Pipe and make sure to glue both ends of an operation tag.
4. Make the Walk Time and Setup Time visible using the Views button in the toolbar.
5. Check the map and then Solve for the calculated fields.
6. Draw the Resource Balance Chart.

A0010	I	1
Soap Premix		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	75	LO Q
Inventory Requirement	33.48	MTon Week
Days of Inventory	11.20	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	37.50	K\$

A0110		all
MTech		
Resource Quantity	1	RQ
Resource Time	1	Hr Day

A0130		all
Operator 1		
Resource Quantity	1	RQ
Resource Time	15	Hr Day

A0060	I	4
Bottles/Caps		
LOQ = Bottle		
Weight Per LOQ	0.1	Kg LOQ
Inventory	2500	LO Q
Inventory Requirement	35.71	MTon Week
Days of Inventory	0.35	Day
Cumulative Output Cost	0.50	\$ Kg
Inventory Added Cost	0.5	\$ Kg
Inventory Value	1.25	K\$

DIW%	18	%
------	----	---

Resource PT	0	Min LOQ
Resource Walk Time	0	Min LOQ
Resource Setup Time	15	Min StUp

Resource PT	55	Min LOQ
Resource Walk Time	5	Min LOQ
Resource Setup Time	0	Min StUp

DIW%	20	%
------	----	---

A0020	I	2
Fragrance		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	10	LO Q
Inventory Requirement	3.72	MTon Week
Days of Inventory	13.44	Day
Cumulative Output Cost	5.00	\$ Kg
Inventory Added Cost	5	\$ Kg
Inventory Value	50.00	K\$

DIW%	80	%
------	----	---

A0040		3
Mix Tanks		
LOQ (Local Output) = Tank		
Weight Per LOQ	2500	Kg LOQ
LOQ Cycle Rate	1	LOQ Hr
Process Lead Time	60	Min
Step Yield	100	%
Utilization	56.02	%
Stations	2	Stn
Cumulative Output Cost	0.25	\$ Kg
Activity Added Cost	100	\$ LOQ
OEE	85	%
Scrap	4	%
Setups	3	StUp Day
Time Per Setup	15	Min StUp

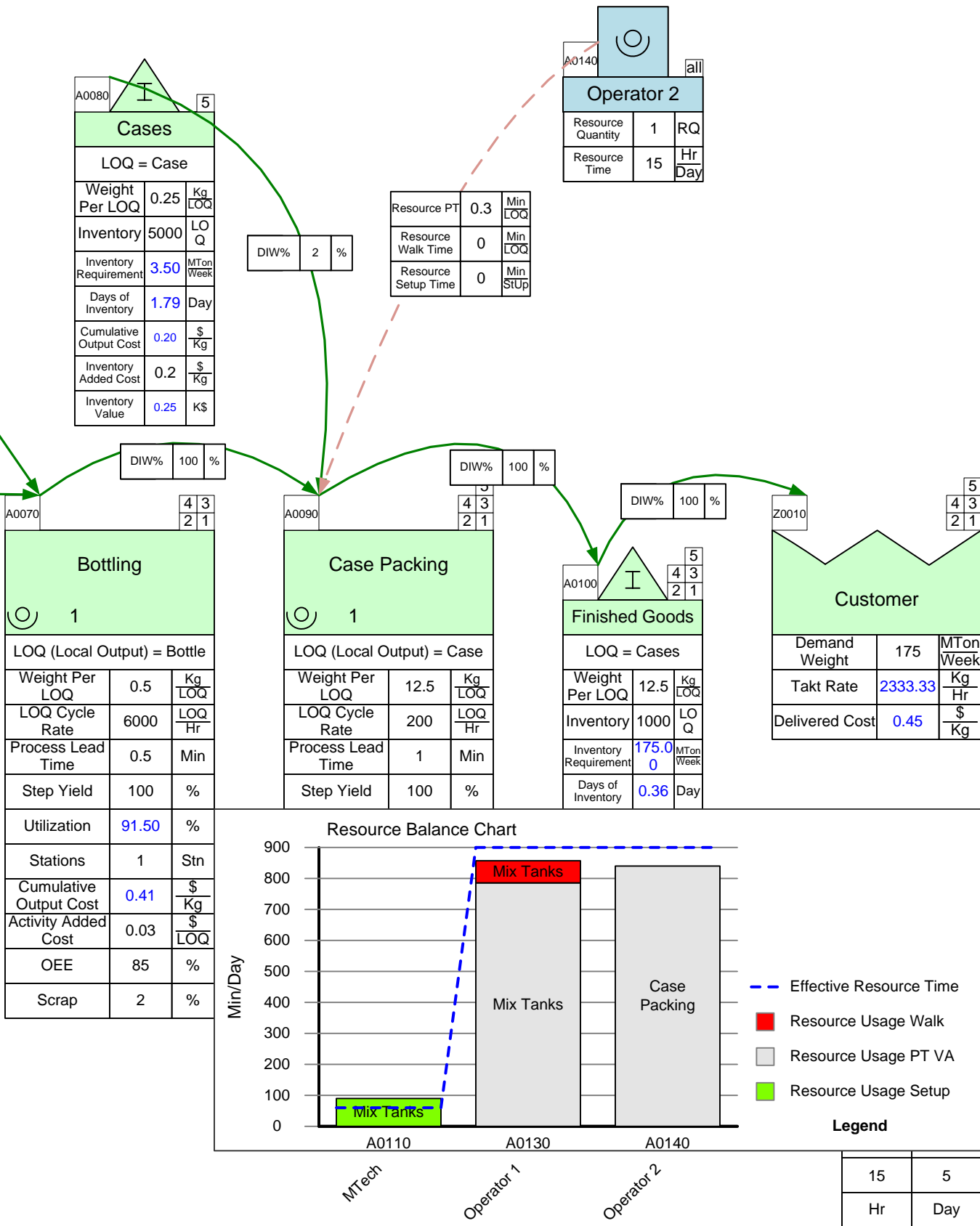
DIW%	100	%
------	-----	---

A0050	I	3
Run Tank		
LOQ = Tank		
Weight Per LOQ	7500	Kg LOQ
Inventory	3	LO Q
Inventory Requirement	178.5	MTon Week
Days of Inventory	0.63	Day
Cumulative Output Cost	0.25	\$ Kg
Inventory Added Cost	0	\$ Kg
Inventory Value	5.54	K\$

DIW%	100	%
------	-----	---

A0030	I	3
Water		
LOQ = MTon		
Weight Per LOQ	1000	Kg LOQ
Inventory	1000	LO Q
Inventory Requirement	148.8	MTon Week
Days of Inventory	33.60	Day
Cumulative Output Cost	0.01	\$ Kg
Inventory Added Cost	0.01	\$ Kg
Inventory Value	10.00	K\$

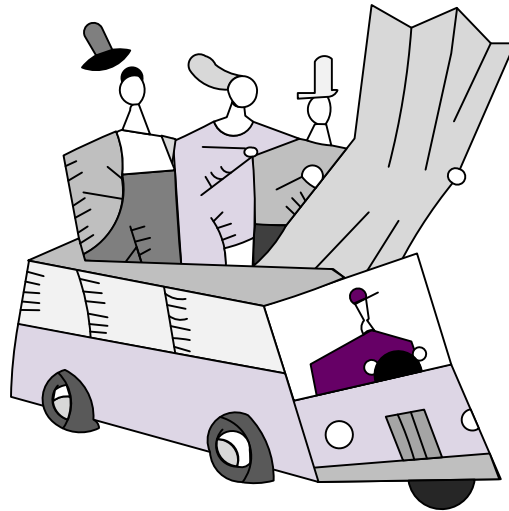
Chicago Soap – Resource Modeling



Plant Maps: Gaps in Analysis and Visualization

Part III: Inbound and Outbound Maps

Chicago Soap Inc. gets soap premix and fragrance from several suppliers and after production ships it's hand soap to it's customers via intermediate warehouses.



Exercise

With your group, read the information below and then:

1. Draw a wall value stream map for the inbound shipments to the plant.
2. Show the data associated with the supplier, transportation, and any costs.
3. Calculate the cumulative costs per step to determine the final cost of the materials when they reach the plant.
4. Calculate the demand for the soap premix and fragrance and then the demand for each of the suppliers.
5. Identify useful summary metrics for the map.
6. Identify what charts would be useful to visualize the value stream and mark these up.

Background and Overview

Chicago Soap Inc. sells a hand soap product which is made from a combination of soap premix, fragrance, and water. The company buys the soap premix and fragrance from three separate suppliers and has the materials shipped to the plant.

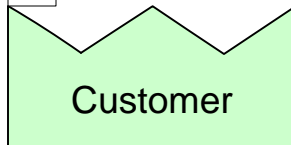
Value Stream Walk

To capture the current state of the inbound value stream, you meet the purchasing supervisor on Monday morning. The soap premix is supplied by two different suppliers, Rickerman Soaps and Juniper Soaps. Rickerman Soaps charges \$50 per metric ton (MTon) and holds an inventory of 1000 MTons. It has a utilization of 75% and Chicago Soap Inc. purchases 50% of their soap premix. Chicago Soap Inc. gets three shipments from Rickerman Soaps each week with each shipment taking 2 hours. The shipping costs an additional \$10 per MTon. Chicago Soap Inc. purchases the premix from Juniper Soaps for \$40 per MTon. This supplier has a utilization of 100%, and Chicago Soap Inc. is their only customer. Juniper Soaps currently holds 1500 MTons of soap premix. They send shipments 7 times per week, with each shipment taking 6 hours to deliver. The additional cost of shipping each MTon of premix is \$20. Chicago Soap Inc. needs 30 MTons of premix per week, 80% coming from Juniper Soaps and 20% coming from Rickerman Soaps.

The fragrance is supplied by Aromatic Fragrances at a cost of \$200 per MTon. Aromatic Fragrances has a utilization of 75% and Chicago Soap Inc. purchases 40% share of their fragrance. This supplier currently holds 20 MTons of fragrance at their warehouse and sends out shipments once a week. Each shipment takes 5 hours to reach Chicago and adds an additional cost of \$20 per MTon. The Chicago Soap Inc. needs 4 MTons of fragrance per week.

Cheat Sheet for Processing Network Shapes

A0010



The Customer Center is used at the end of a map to show the demand for each product.

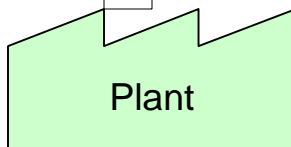
Customer Demand	xx	MTon Week
Cumulative Avg Cost	Auto	\$ MTon
Cumulative Avg Time	Auto	Week

The periodic demand for goods produced by this value stream.

Cumulative average cost of items at this point in the value stream

Cumulative average time elapsed at this point in the value stream

A0090



The Plant Center shows the amount of inventory held and the costs and data associated with that inventory.

Added Cost	0	\$ MTon
Inventory	0	MTon
Utilization	0	%
Share	100	%
Demand	Auto	MTon Week
Cumulative Avg Cost	Auto	\$ MTon
Inventory Time	Auto	Day
Inventory Value	Auto	K\$
Cumulative Avg Time	Auto	Week

Added cost due to this step in the value stream

The number of items waiting to be worked upon.

Required Output /Possible Output.

Percent of output or inventory attributable to this value stream

The customer demand.

Cumulative average cost of items at this point in the value stream

The time value associated with this inventory.

The total value of inventory at this location.

Cumulative average time elapsed at this point in the value stream

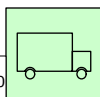
A0100

Warehouse or Mixing Center

The Warehouse or Mixing Center shows where multiple shipments are sent, mixed, and then re-shipped.

Added Cost	0	$\frac{\$}{\text{MTon}}$	Added cost due to this step in the value stream
Inventory	0	MTon	The number of items waiting to be worked upon.
Utilization	0	%	Required Output /Possible Output.
Share	100	%	Percent of output or inventory attributable to this value stream
Demand	Auto	$\frac{\text{MTon}}{\text{Week}}$	The customer demand.
Cumulative Avg Cost	Auto	$\frac{\$}{\text{MTon}}$	Cumulative average cost of items at this point in the value stream
Inventory Time	Auto	Day	The time value associated with this inventory.
Inventory Value	Auto	K\$	The total value of inventory at this location.
Cumulative Avg Time	Auto	Week	Cumulative average time elapsed at this point in the value stream

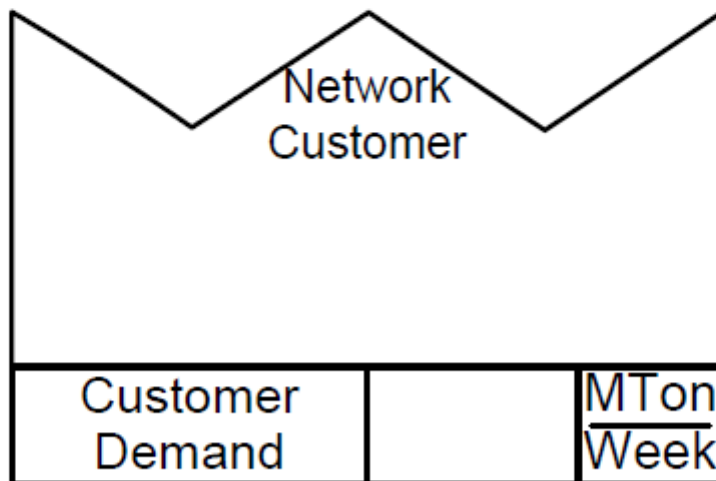
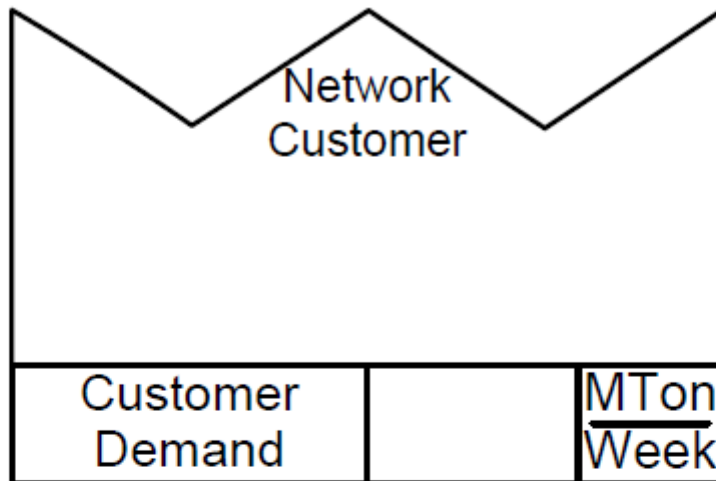
A0110



The Transport Center tracks shipments and the associated times and costs with each shipment.

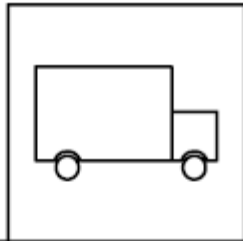
Transport			
Added Cost	0	$\frac{\$}{\text{MTon}}$	Added cost due to this step in the value stream
Transport Time	0	Hr	The time taken to deliver items.
Transport Frequency	0	$\frac{\text{Trip}}{\text{Week}}$	How often each transport trip occurs.
Transport Inventory	Auto	MTon	The quantity of inventory on this transport.
Demand	Auto	$\frac{\text{MTon}}{\text{Week}}$	The customer demand.
Cumulative Avg Cost	Auto	$\frac{\$}{\text{MTon}}$	Cumulative average cost of items at this point in the value stream
Inventory Value	Auto	K\$	The total value of inventory at this location.
Cumulative Avg Time	Auto	Week	Cumulative average time elapsed at this point in the value stream

Inbound Network Templates

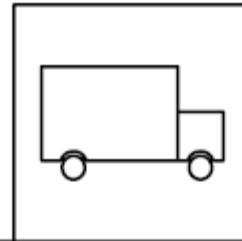


Network Plant Center		
Added Cost		$\frac{\$}{\text{MTon}}$
Inventory		MTon
Utilization		%
Share		%

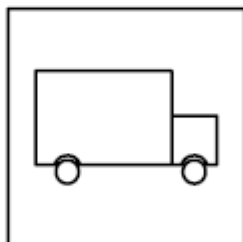
Network Plant Center		
Added Cost		$\frac{\$}{\text{MTon}}$
Inventory		MTon
Utilization		%
Share		%



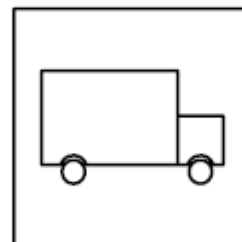
Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$



Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$



Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$

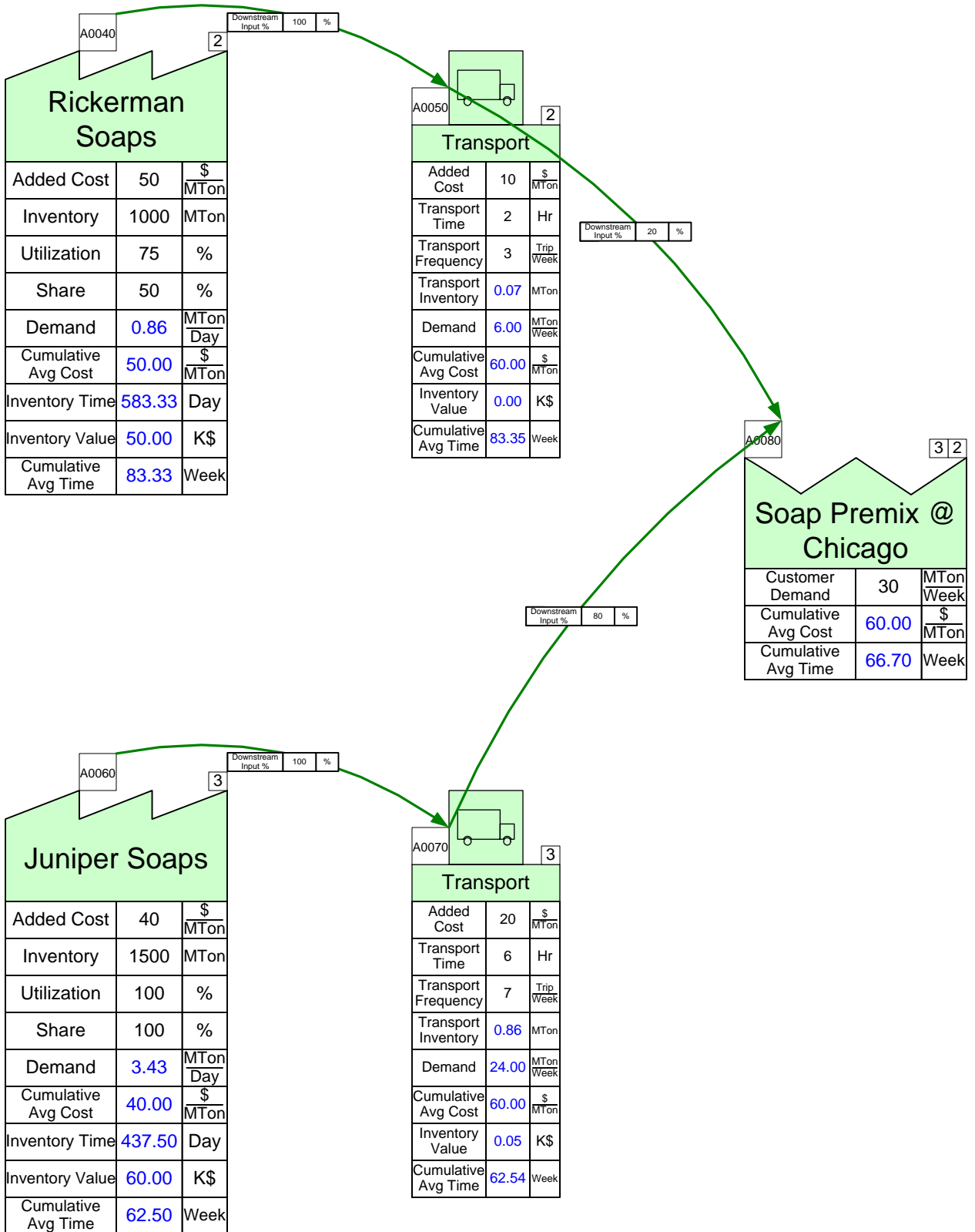


Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$

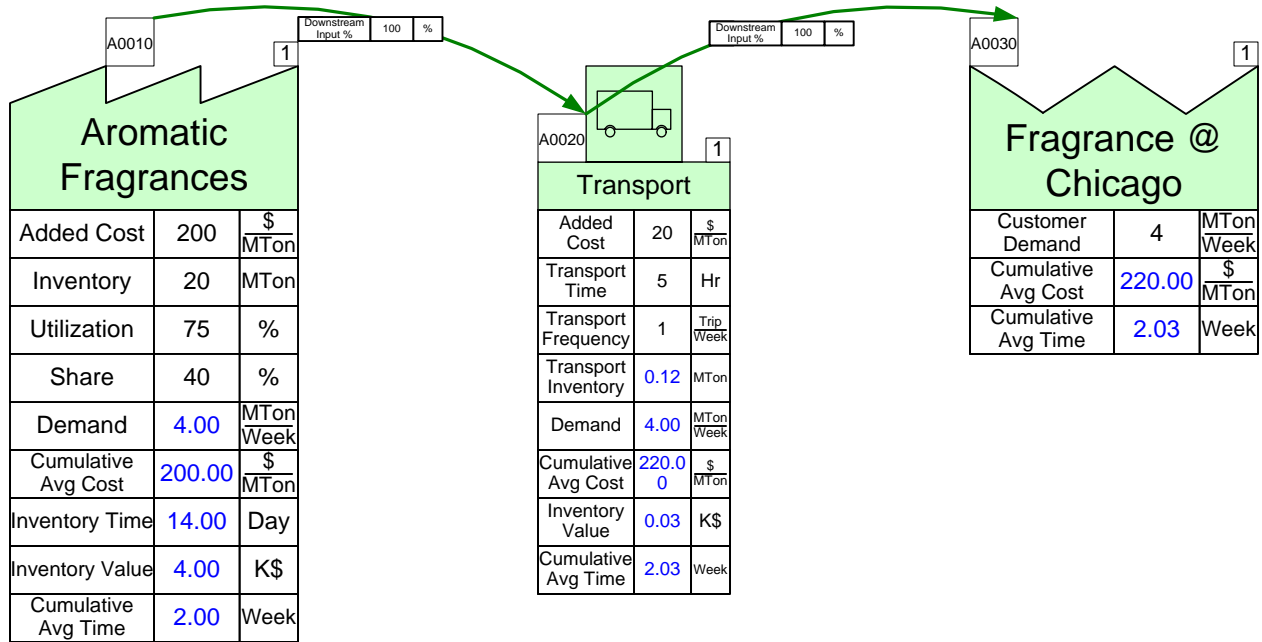
eVSM Inbound Workshop

1. Insert the picture of the wall map using the Wall Map button in the eVSM toolbar.
2. Use the Open command in the eVSM toolbar to open the **Quick Processing Network** stencil.
3. Draw the map in eVSM.
4. Create sequence arrows and note that the sum of the DIW values coming into an activity needs to add up to 100%.
5. Use the Auto Path button in the toolbar to assign path numbers.
6. Use the Auto Tag button to sequentially number the tags. (this affects charting)
7. Check the map and then Solve for the calculated fields.

Inbound – Soap Premix



Inbound – Fragrance



Day	Week
24	7
Hr	Day

Exercise

With your group, read the information below and then:

1. Draw a wall value stream map for the product showing the supplier, warehouses, transportation, and customers.
2. Show the data associated with the warehouses, transportation, and customers.
3. Calculate how many days of inventory you have at the plant and warehouses.
4. Calculate the demand at each warehouse and at the Chicago plant based on the customer demand.
5. Identify useful summary metrics for the map.
6. Identify what charts would be useful to visualize the value stream and mark these up.

Background and Overview

Chicago Soap Inc. sells a hand soap product which is made from a combination of soap premix, fragrance, and water. The outbound operations transport the hand soap to mixing centers and then to the two customers, Maple Leaf Groceries and Bath World.

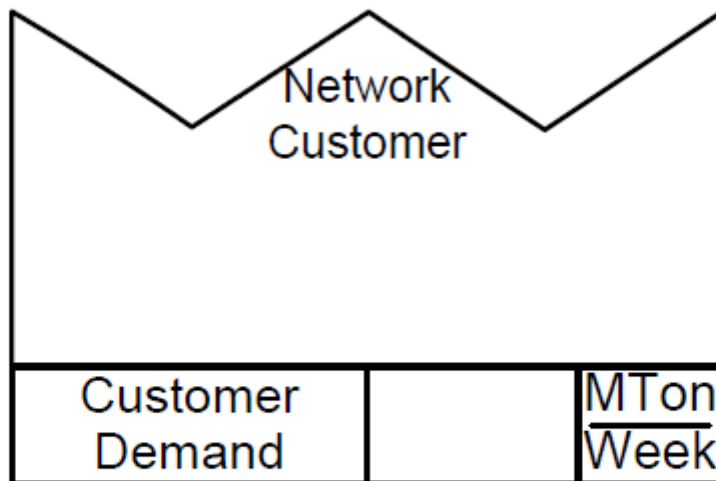
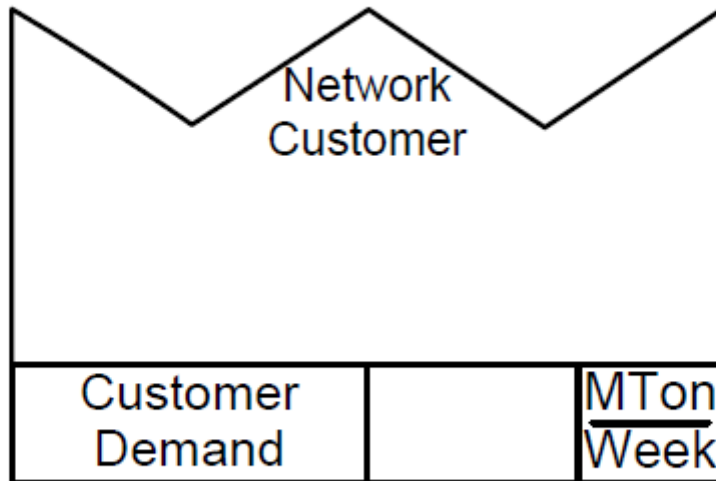
Value Stream Walk

To capture the current state value stream, you meet the logistics supervisor on Monday afternoon. You learn that the outbound operations transport the hand soap product to two different warehouses. From there, trucks take the product to Maple Leaf Groceries and Bath World. The hand soap is shipped as cases each weighing 12.5 kilograms. Occasionally the hand soap has to be shipped from warehouse 1 to warehouse 2.

The logistics supervisor explains how the hand soap product starts at our Chicago plant, which has a utilization of 95%. Maple Leaf Groceries has a customer demand of 100 metric tons (MTons) per week and is located close to Warehouse 1, which has a utilization of 75%. Chicago Soap Inc. ships 70% of Maple Leaf Groceries' demand to Warehouse 1 once a week with the transportation taking 6 hours and costing an additional \$20 per MTON. Warehouse 1 currently holds 200 MTons and incurs an added cost of \$15 per MTON. The remaining 30% of Maple Leaf Groceries' demand is sent in a shipment from Warehouse 2 to Warehouse 1 that occurs once per week. The shipping takes 12 hours and adds a cost of \$20 per MTON. Finally, Warehouse 1 ships to Maple Leaf Groceries once per week, with each trip lasting 2 hours and adding a cost of \$10 per MTON.

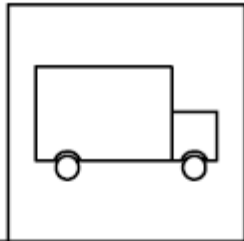
Bath World has a customer demand of 150 MTons per week. They receive their product from Warehouse 2, which has a utilization of 97%. Warehouse 2 gets all of its supply directly from the Chicago plant. The shipment from the Chicago plant to the warehouse takes 1 day and only occurs once a week. Additional transportation costs are \$10 per MTON. Warehouse 2 currently holds 200 MTons which each have an added cost of \$25 per MTON. Bath World then receives a shipment from Warehouse 2 once per week. The transportation takes 1 day and adds a cost of \$5 per MTON.

Outbound Network Templates

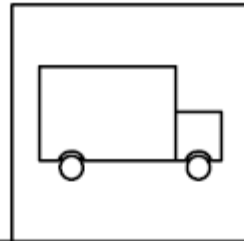


Network Plant Center		
Added Cost		$\frac{\$}{\text{MTon}}$
Inventory		MTon
Utilization		%
Share		%

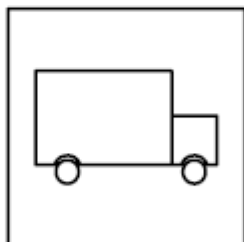
Network Plant Center		
Added Cost		$\frac{\$}{\text{MTon}}$
Inventory		MTon
Utilization		%
Share		%



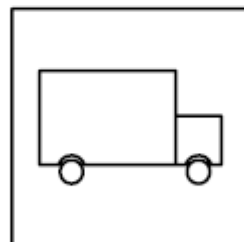
Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$



Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$



Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$



Transport		
Added Cost		$\frac{\$}{\text{MTon}}$
Transport Time		Hr
Transport Frequency		$\frac{\text{Trip}}{\text{Week}}$

Network Warehouse <input type="checkbox"/>		
Added Cost		$\frac{\$}{\text{MTon}}$
Inventory		MTon
Utilization		%
Share		%

Network Warehouse <input type="checkbox"/>		
Added Cost		$\frac{\$}{\text{MTon}}$
Inventory		MTon
Utilization		%
Share		%

eVSM Outbound Workshop

1. Insert the picture of the wall map using the Wall Map button in the toolbar.
2. Use the Open command in the eVSM toolbar to open the **Quick Processing Network** stencil.
3. Draw the map in eVSM.
4. Create sequence arrows and note that the sum of the DIW values coming into an activity needs to add up to 100%.
5. Use the Auto Path button in the toolbar to assign path numbers.
6. Use the Auto Tag button to sequentially number the tags. (this affects charting)
7. Check the map and then Solve for the calculated fields.

Day	Week
24	7
Hr	Day

A0010 3 2 1

Chicago Plant

Added Cost	0	\$	MTon
Inventory	0	MTon	
Utilization	95	%	
Share	100	%	
Demand	250.00	MTon	Week
Cumulative Avg Cost	0.00	\$	MTon
Inventory Time	0.00	Day	
Inventory Value	0.00	K\$	
Cumulative Avg Time	0.00	Week	

A0020 1

Transport

Added Cost	20	\$	MTon
Transport Time	6	Hr	
Transport Frequency	1	Trip	Week
Transport Inventory	2.50	MTon	
Demand	70.00	MTon	Week
Cumulative Avg Cost	20.00	\$	MTon
Inventory Value	0.05	K\$	
Cumulative Avg Time	0.04	Week	

A0050 2

Transport

Added Cost	20	\$	MTon
Transport Time	12	Hr	
Transport Frequency	1	Trip	Week
Transport Inventory	2.14	MTon	
Demand	30.00	MTon	Week
Cumulative Avg Cost	55.00	\$	MTon
Inventory Value	0.12	K\$	
Cumulative Avg Time	1.33	Week	

A0030 3 2

Transport

Added Cost	10	\$	MTon
Transport Time	1	Day	
Transport Frequency	1	Trip	Week
Transport Inventory	25.71	MTon	
Demand	180.00	MTon	Week
Cumulative Avg Cost	10.00	\$	MTon
Inventory Value	0.26	K\$	
Cumulative Avg Time	0.14	Week	

A0060 2 1

W1

Added Cost	15	\$	MTon
Inventory	200	MTon	
Utilization	75	%	
Share	100	%	
Demand	100.00	MTon	Week
Cumulative Avg Cost	45.50	\$	MTon
Inventory Time	14.00	Day	
Inventory Value	9.10	K\$	
Cumulative Avg Time	2.42	Week	

A0040 3 2

W2

Added Cost	25	\$	MTon
Inventory	200	MTon	
Utilization	97	%	
Share	100	%	
Demand	180.00	MTon	Week
Cumulative Avg Cost	35.00	\$	MTon
Inventory Time	7.78	Day	
Inventory Value	7.00	K\$	
Cumulative Avg Time	1.25	Week	

Downstream Input % 100 %

Downstream Input % 70 %

Downstream Input % 30 %


Downstream Input % 100 %

Downstream Input % 100 %

Downstream Input % 100 %

Outbound – Cases of Hand Soap


Downstream Input %	100	%
--------------------	-----	---

A0070		2	1
Transport			
Added Cost	10	\$	MTon
Transport Time	2	Hr	
Transport Frequency	1	Trip	Week
Transport Inventory	1.19	MTon	
Demand	100.00	MTon	Week
Cumulative Avg Cost	55.50	\$	MTon
Inventory Value	0.07	K\$	
Cumulative Avg Time	2.43	Week	

Downstream Input %	100	%
--------------------	-----	---

A0080		2	1
Maple Leaf Groceries			
Customer Demand	100	MTon	Week
Cumulative Avg Cost	55.50	\$	MTon
Cumulative Avg Time	2.43	Week	

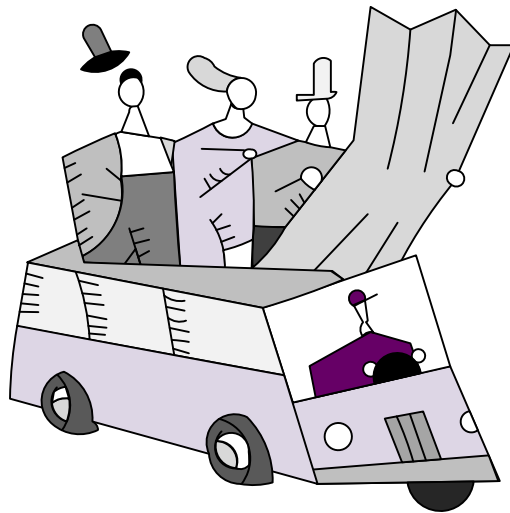
Downstream Input %	100	%
--------------------	-----	---

A0090			3
Transport			
Added Cost	5	\$	MTon
Transport Time	1	Day	
Transport Frequency	1	Trip	Week
Transport Inventory	21.43	MTon	
Demand	150.00	MTon	Week
Cumulative Avg Cost	40.00	\$	MTon
Inventory Value	0.86	K\$	
Cumulative Avg Time	1.40	Week	

Downstream Input %	100	%
--------------------	-----	---

A0100			3
Bath World			
Customer Demand	150	MTon	Week
Cumulative Avg Cost	40.00	\$	MTon
Cumulative Avg Time	1.40	Week	

Part IV: Linking Inbound, Plant, and Outbound Maps



Source and Target

What is it?

- A way to link values on one or more maps
- All of the linked maps must be in the same file
- A means to write simple equations (sum, min, max, average) visually and to link multiple source values to a target value
- Source values get updated on every “Solve”.

How does it work?

- Connect source shapes from the Quick Extras stencil to the source variables and give them an ID (like “SI”)
- Connect target shape from the Quick Extras stencil to the target variable and select one of sum, avg, min, or max as the operator
- If the source and target shapes are on separate pages, then point the source page to the target page
 - Via “Source/Target Pages” button in the Name and Unit Manager
- Use the “Solve” button to update source variables

Chicago Soap Inc. is part of an extended value stream. The demand and cost flow through the extended stream such that changes in the end customer demand ripple through the whole stream.

Linking Demand

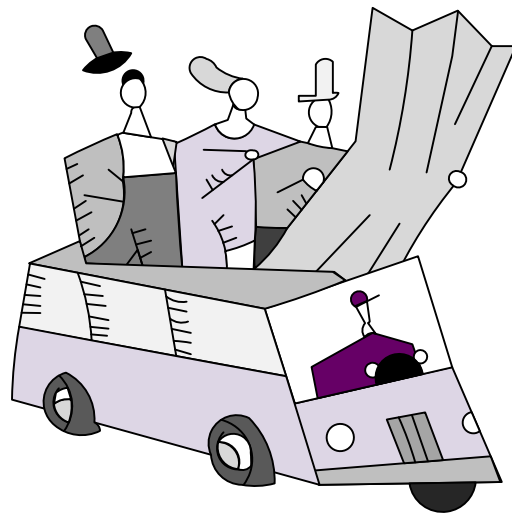
Demand starts at the customer shape on the outbound map and must be linked back to a demand on the plant and via that to demand on the suppliers.

Linking Cost

Cost starts accumulating at the suppliers and must be linked forward so that cumulative cost is visible at all points in the value stream and leading to a delivered cost at each customer.

eVSM Workshop

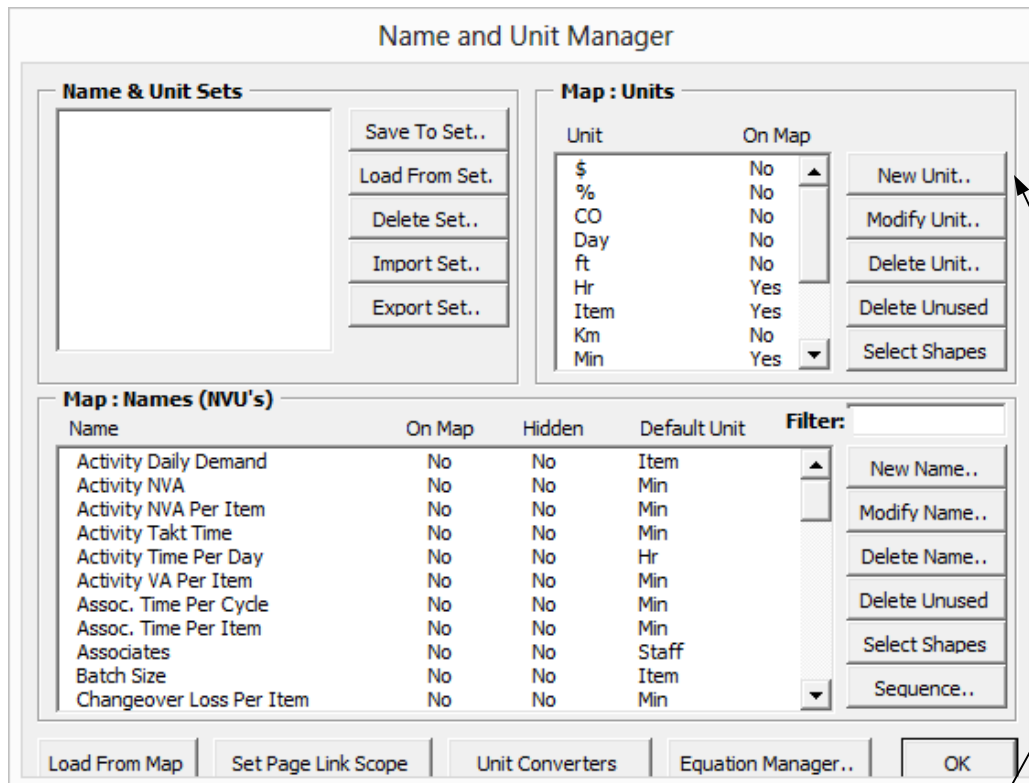
1. Open the file with the 3 maps (Inbound, Plant, Outbound).
2. Add a “Source Shape” called “OD” to the Chicago Plant “Demand” value on the Outbound map. We want to use this value for the demand on the plant map.
3. Add a “Target Shape” called “OD” to the “Demand Weight” on the customer shape on the Plant map. Click on the “Name and Unit Manager” button in the toolbar and use the “Source/Target” pages to select the “Outbound” page.
4. Solve the Plant map.
5. Add a “Source Shape” called “PFD” to the “Inventory Requirement” variable in the Fragrance inventory on the Plant map.
6. Add a “Source Shape” called “PSPD” to the “Inventory Requirement” variable in the Soap Premix inventory on the Plant map.
7. Add “Target Shapes” called “PFD” and “PSPD” to the appropriate “Customer Demand” values on the Inbound map, and use the Name and Unit Manager to access the “Source/Target Pages” button and select the “Plant” page.
8. Solve the Inbound map.
9. Do a “What-If” study where you change the demand for Bath World to 175 MTons/Week and need to understand the resulting weekly demand for Fragrance.



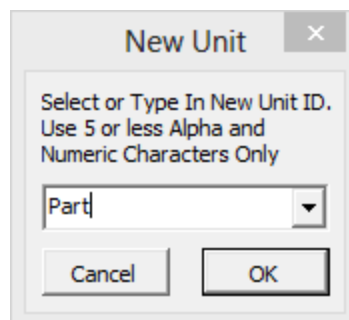
Units Handling

If you want to create a custom unit that you would like to use throughout the map, start with the Name and Unit Manager. If you want to use a built-in unit but need to convert it, such as Weeks to Days, start with Step 3.

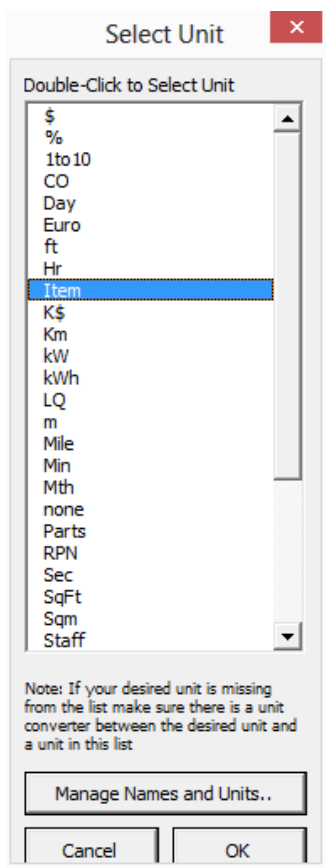
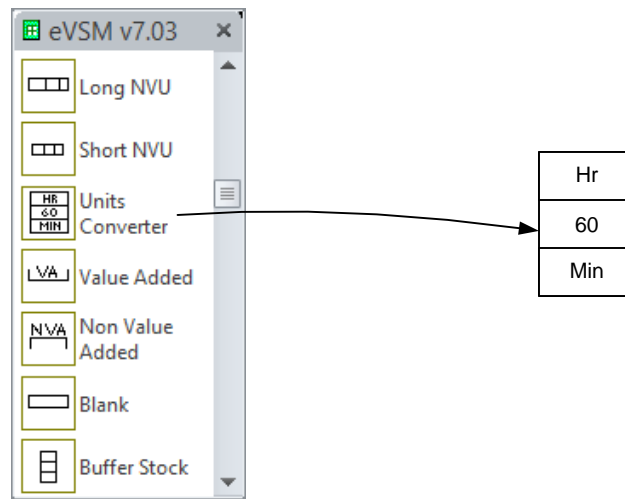
1. Click the Name and Unit Manager button in the eVSM toolbar.



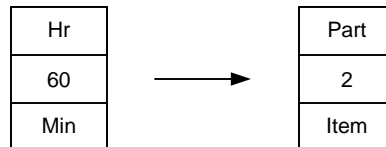
2. Add a new unit called “Part” by clicking on “New Unit...”



3. Drag out a Units Converter shape from the eVSM stencil.



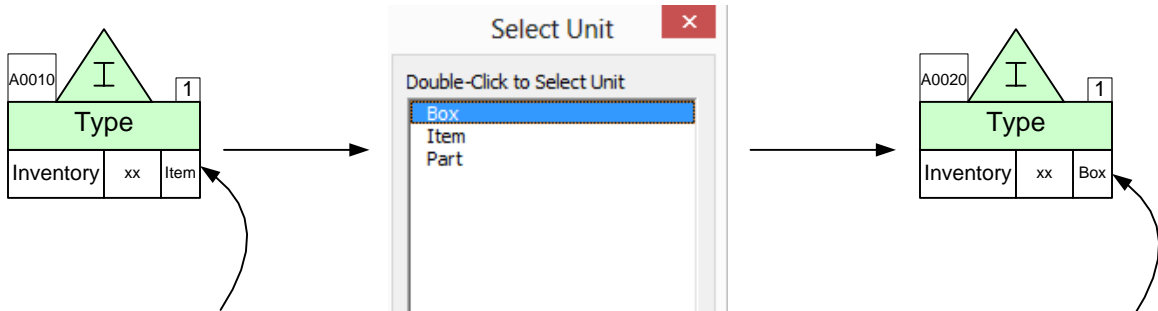
4. Double click on the default unit “Hr” to change the top unit to “Part” and the default unit “Min” to change the bottom unit to “Item.” This allows the calculator to account for the new unit. The top unit is the original unit, while the number specifies how many of the bottom unit makes up one of the top unit.



- If you have more than one custom unit, repeat step two and three.

Part	Box
2	60
Item	Part

Note: Only the custom units that you created via a unit converter(s) will appear in the form when trying to change a variable unit on a center. This is to avoid (for example) people converting quantity units to time units for a center, like the Inventory Center. To ensure that the units you want to change appear in the form, create the converters first between any units you plan to use.



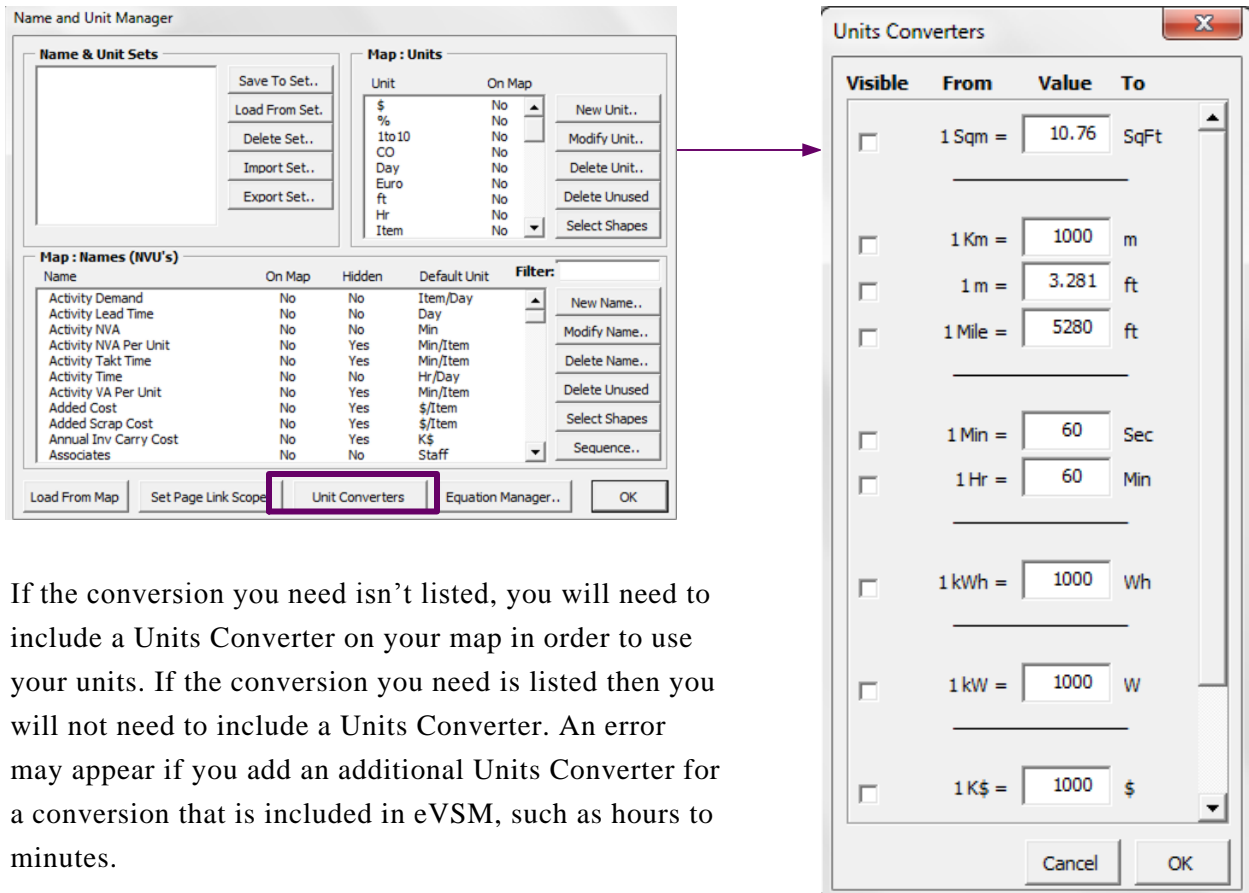
- Double-click on the unit.

- This form appears showing that it is “legal” to convert “Item” to “Box” or “Part” because unit converters exist between these three.

- Selection of “Box” in the form causes the unit to be replaced in the databox.

Miscellaneous Tips








eVSM comes with built-in basic unit conversions that don't require a Units Converter. To check and see which unit conversions are included, open the NUM and click "Unit Converters."



If the conversion you need isn't listed, you will need to include a Units Converter on your map in order to use your units. If the conversion you need is listed then you will not need to include a Units Converter. An error may appear if you add an additional Units Converter for a conversion that is included in eVSM, such as hours to minutes.

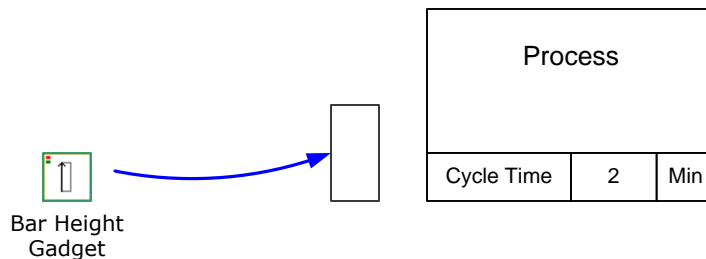
Using Gadgets to Visualize Data

Any data on the map can be linked to visual gadgets that change in size and color with change in the data. Some gadget types are shown below:

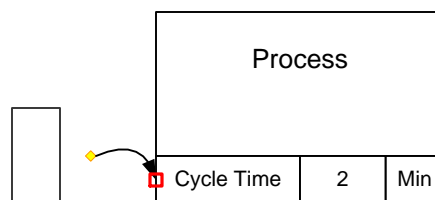
						
Bar Height Gadget	Sq. Area Gadget	Tr. Area Gadget	Slider Percent Gadget	Arc Angle Gadget	Line Tk Gadget	Curve Tk Gadget

Each gadget has exactly one size parameter that can be tied to a data value on the map. Here's the typical means used to apply and manipulate gadgets:

1. Drag out the gadget from the main eVSM stencil and position it near the data value with which it will be associated (in this case the "Cycle Time"). In this example the Bar Height Gadget is being used.

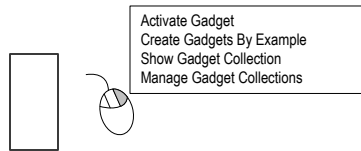


2. This system shape will be automatically dropped on the page the first time a gadget is used. If you copy a map to a new page make sure you also copy this shape because it is used to hold gadget data for the map.
3. Select the gadget, drag and glue the gadget's yellow flying connector to the side of the NVU data shape (avoid gluing to the top or bottom of the data shape).

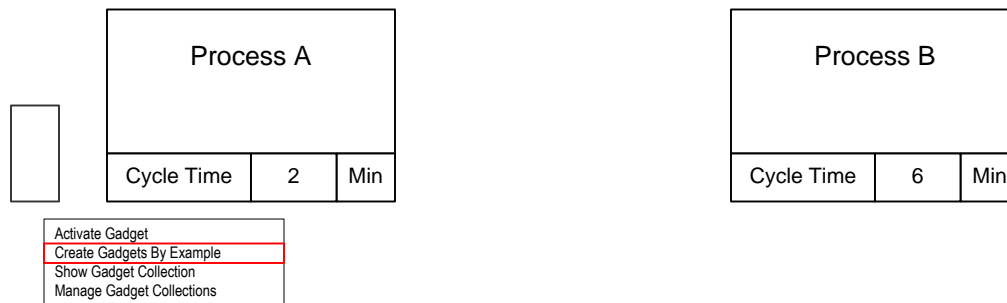


- Right click on the gadget and use the “Activate Gadget” option to create a new gadget collection. The collection name will be “Bar_Cycle Time”. The name is created from the gadget type and the data variable name.

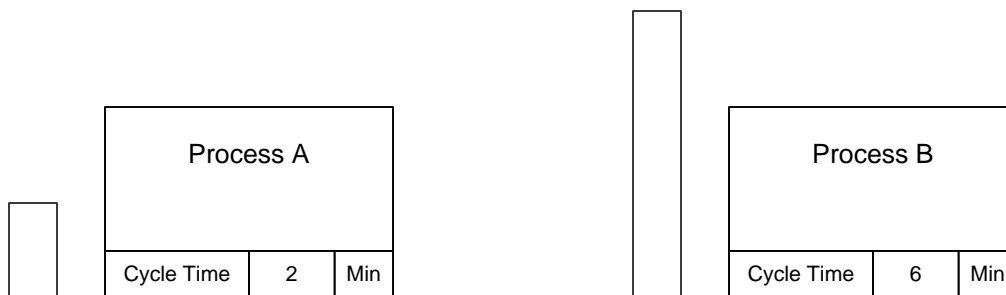
A gadget can only belong to one collection. Each collection can only have a single type (eg. “Bar”) of gadget.



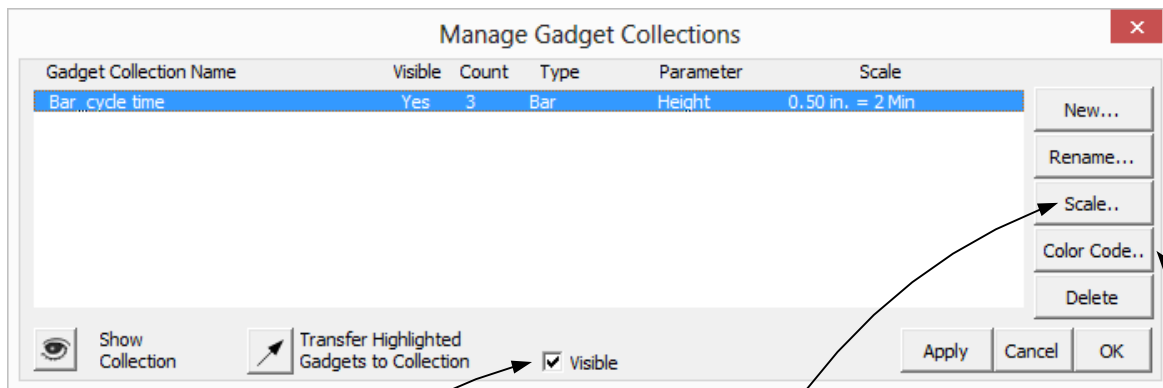
- You can change gadget scale factors and color code them by modifying the properties of the associated Gadget Collection. You can easily create additional gadgets tied to other instances of the same data on the map. Just click on the gadget and use the right mouse button to select “Create Gadgets By Example” to create the gadget for Process B below.



- Note that the new gadget is automatically positioned, scaled and put into the same “Bar_Cycle Time” collection. If you do not wish to have new gadgets created for the whole map than select the original gadget, then sub-select an area of the map before using the “Create Gadgets By Example” menu.



- To modify a gadgets scale factor or to color code it, you need to change the properties of its associated collection. Right mouse click on the gadget and select “Manage Gadget Collections,” or click the Gadgets button in the toolbar.



To hide or show gadgets in a collection, first select the collection from a list, then click this button.

Note: the collection list has a column indicating visibility status.

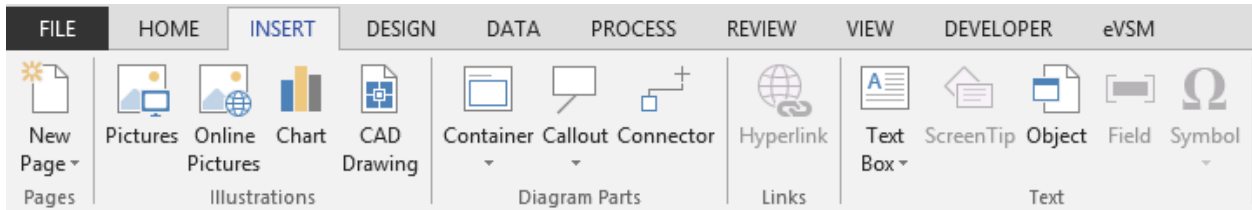
You can modify the scale factor for a collection that controls gadget size in relation to data value. Use the Apply button to see the new gadget sizes on the map before exiting the form.

You can color code the gadget fill and font colors based on the value of the data to which the gadget is glued. You can also simply “inherit” the color from the data shape or assign a color to a gadget manually.

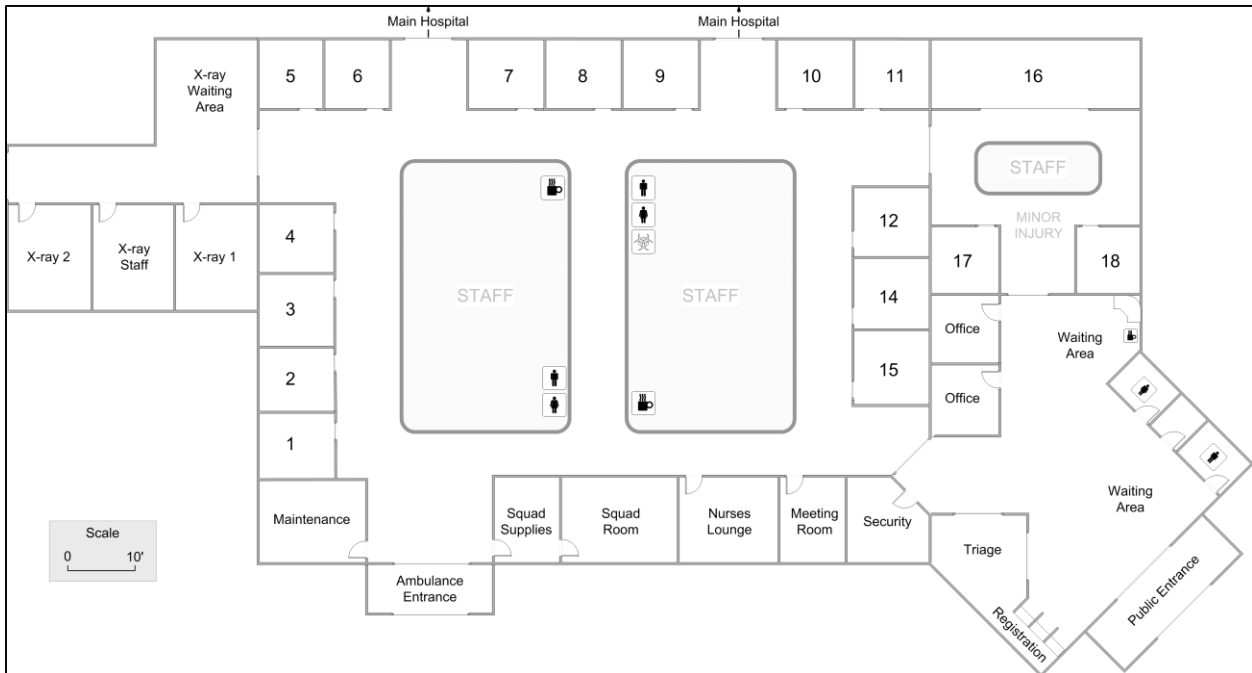
Gadget Tips

- Gadgets have a single size parameter that will scale to the data value in which a gadget is glued via the flying yellow connector.
- Gadgets are typically glued to NVU, VA or NVA shapes. When gadgets in a collection are glued to data shapes with different units, Units Converters are needed on the map to compute the correct scale factors.
- Gadgets have to belong to a collection. They can be put in a collection using the Activate Gadget command or by transferring them into a collection via the Manage Gadgets form.
- Gadget scale factors and color coding can be controlled via the Manage Gadgets form.
- An easy way to create a gadget “set” after creating a first gadget is to use the Create Gadgets By Example in the right mouse button menu.
- The Visible switch on the Manage Gadgets form is very useful in showing different metrics on the map in a presentation environment.
- A starter set of gadgets is provided with eVSM. Additional gadgets can be requested by contacting support@evsm.com.

Spaghetti Diagram Tutorial



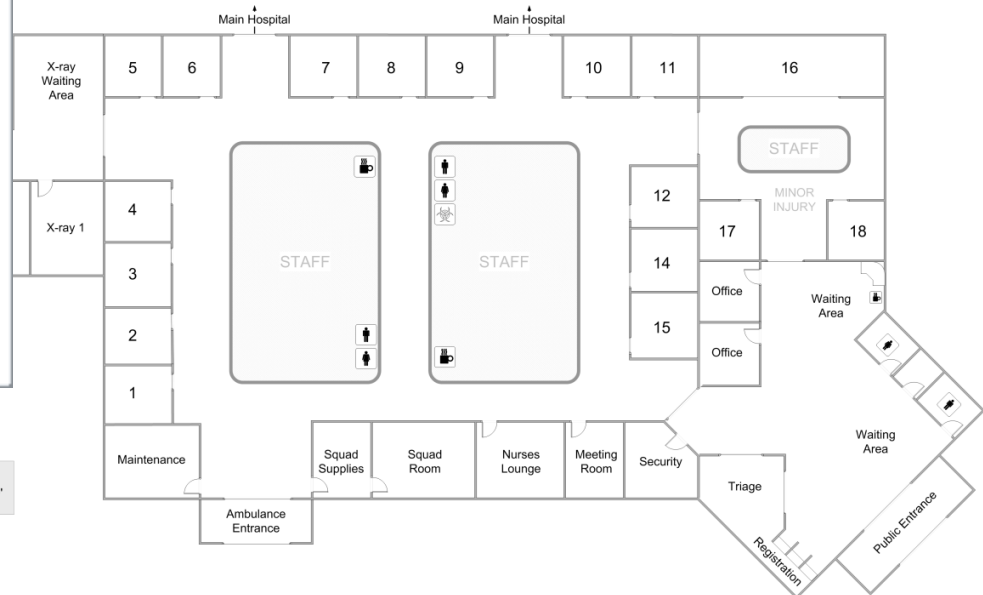
1. Draw or import a floor map. Visio can import most bitmap formats as well as AutoCAD drawings. Either use the “Insert” tab in Visio or simply copy and paste the picture into a new drawing.



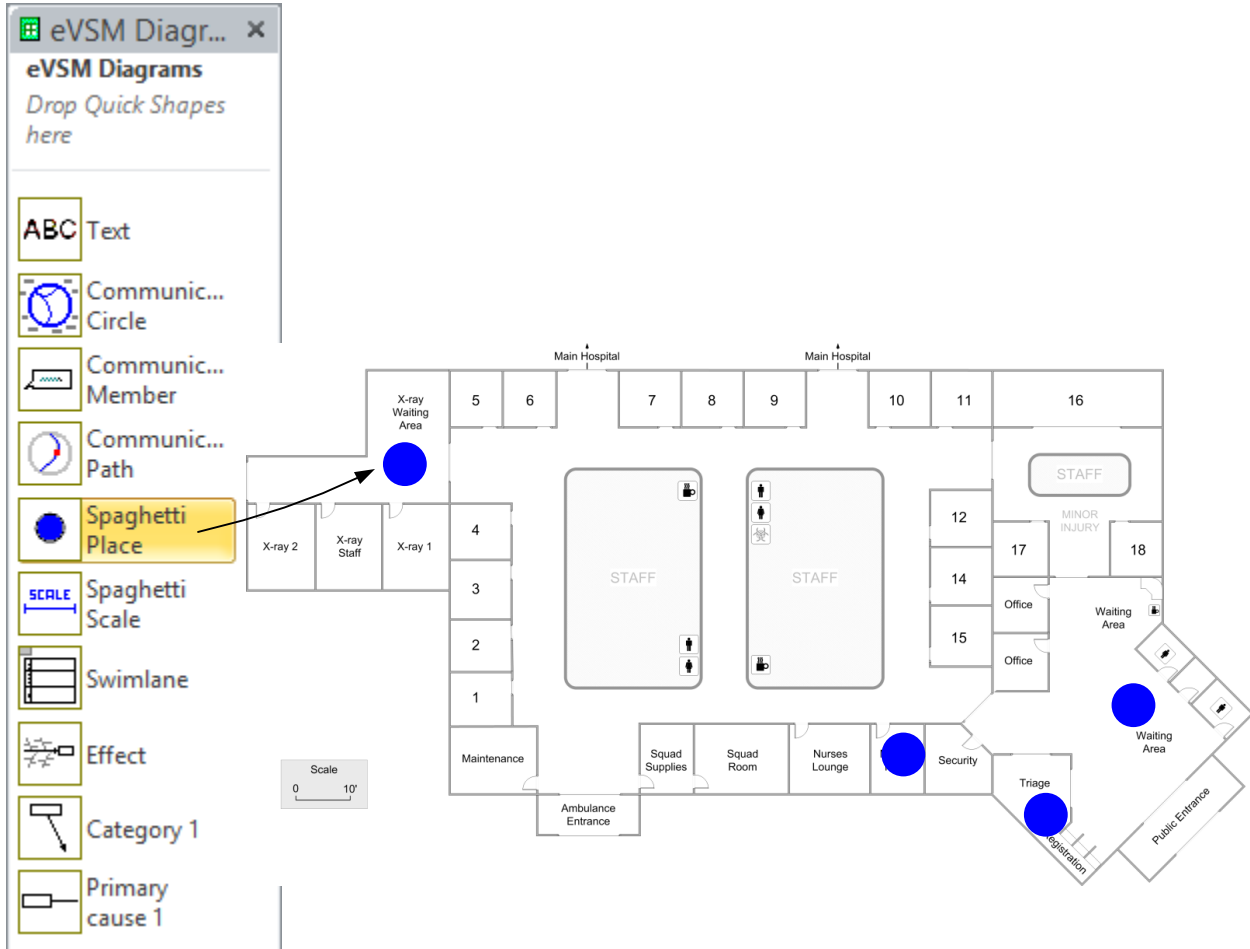
2. Click the Spaghetti Diagram button in the eVSM toolbar. This will open the eVSM Diagrams stencil.

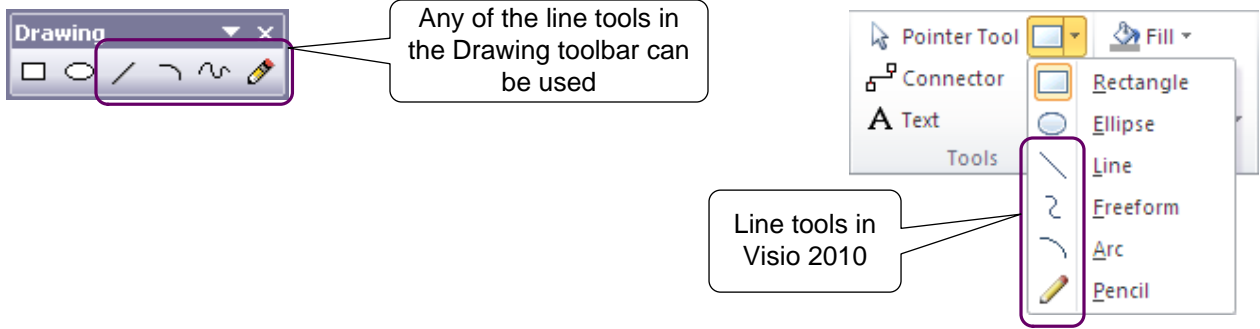


3. Drag out a Spaghetti Scale shape from the eVSM Diagrams, and stretch it out to exactly fit a known dimension on the map. The known dimension could be a map scale if available, or a floor dimension you have measured. Enter the actual dimension value on the scale shape.



4. Define Activity Centers by dropping and naming a Spaghetti Place icon onto the diagram for each place.

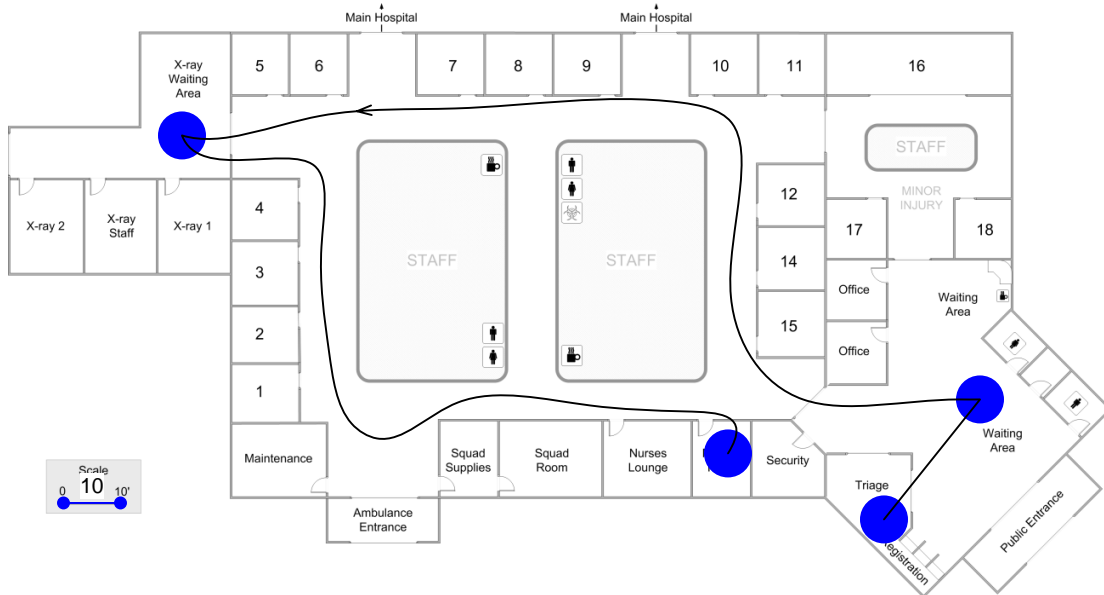




- Use the Visio line drawing tools to map the paths. You must ensure that each path starts and ends in a Spaghetti Place icon. You can set color and line thickness of the paths using standard Visio formatting.

In Visio 2003/2007, the line drawing tools are in the Drawing Toolbar. This can be opened via the right-mouse menus on the Visio Toolbars.

In Visio 2010, the drawing tools are near the center of the "Home" ribbon.



- Click the Spaghetti Diagram button again. eVSM will create a spreadsheet report of the paths.



- Additional attributes can be added to the path lines via Visio Custom Properties. Select a path line, and right-click “View>Custom Properties”.

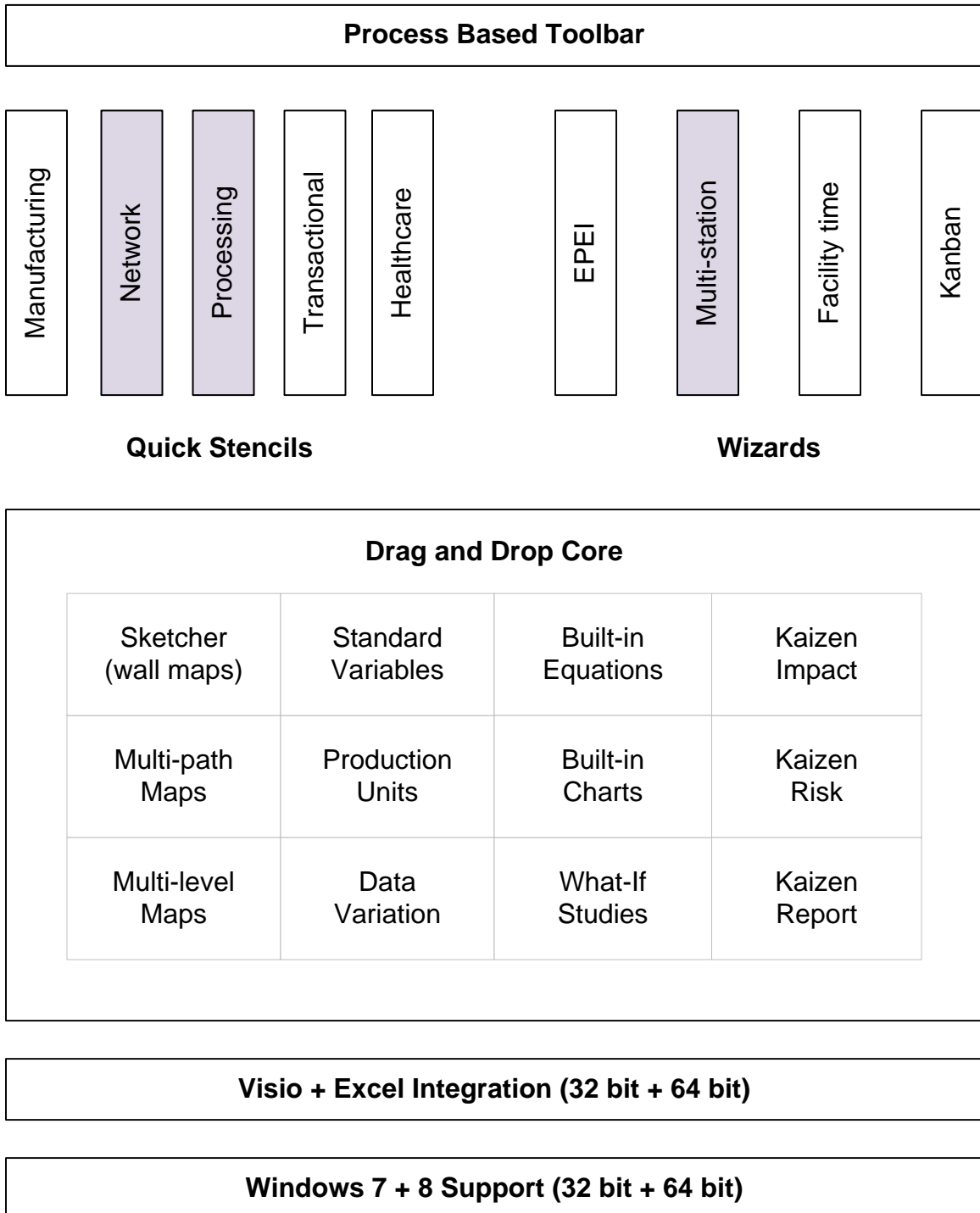
Label	Name	Type
Waiting Room		String

The next time the Spaghetti report is generated, the path attributes will be transferred to the report.

Note that the Spaghetti Diagram button recreates the Excel report. It DOES NOT update it.

FROM	Registration
TO	ER Bay 9
DISTANCE	102
SEQUENCE	1
DESCRIPTION	Patient assisted in wheelchair
DATE	3/3/2007
TIME	5:36pm

eVSM Architecture



eVSM Training Evaluation Form

Name: _____

Title/Role: _____

Email: _____

Please indicate your impressions of the items listed below.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The training met my expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I will be able to apply the knowledge learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The training objectives for each topic were identified and followed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The content was organized and easy to follow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The materials distributed were pertinent and useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The trainer was knowledgeable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The quality of instruction was good.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The trainer met the training objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Class participation and interaction were encouraged.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Adequate time was provided for questions and discussion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. How do you rate the training overall?

Excellent

Good

Average

Poor

Very Poor

12. What aspects of the training could be improved?

eVSM Training Evaluation Form

1. Describe the next VSM activity you are involved in. (Role, Training, Purpose, Team, Sponsor)

2. Do you plan to use the tools you have learned about in the workshop? If so, how?

3. What challenges do you envisage in applying these tools?

4. What advantages will you realize in applying these tools?

5. Other Comments?

THANK YOU FOR YOUR FEEDBACK!