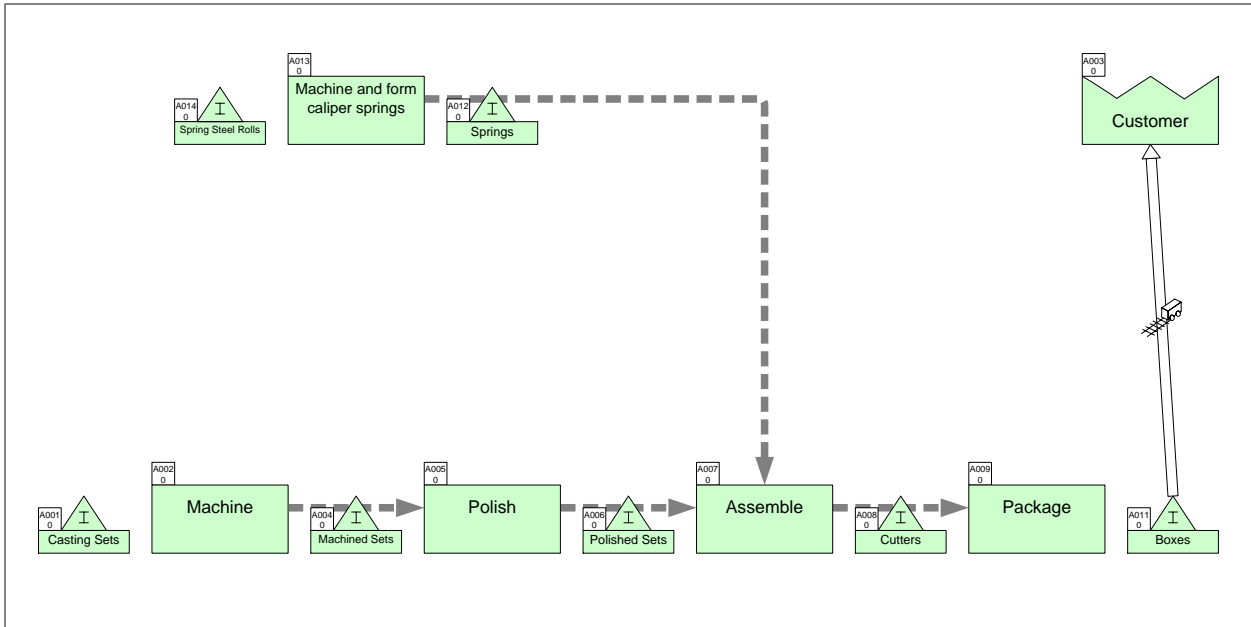


Quick Manufacturing Tutorial

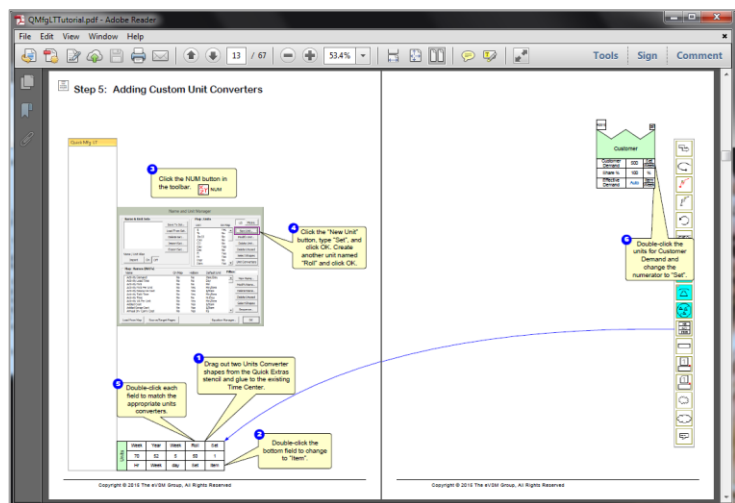
This tutorial will guide you through the steps to draw a simple map, perform common calculations, and plot charts using the Quick Manufacturing stencil.



Viewing/printing eVSM Tutorial:

This tutorial is designed for two page layout. If printing, you will need double-sided print.

For on-screen viewing, save the PDF file to your PC and then open it in Acrobat Reader (not in a web browser). In the Acrobat menus, click “View>Page Display”, make sure “Show Cover Page in Two Page View” is checked and then select “Two Page View”.



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

This area intentionally left blank

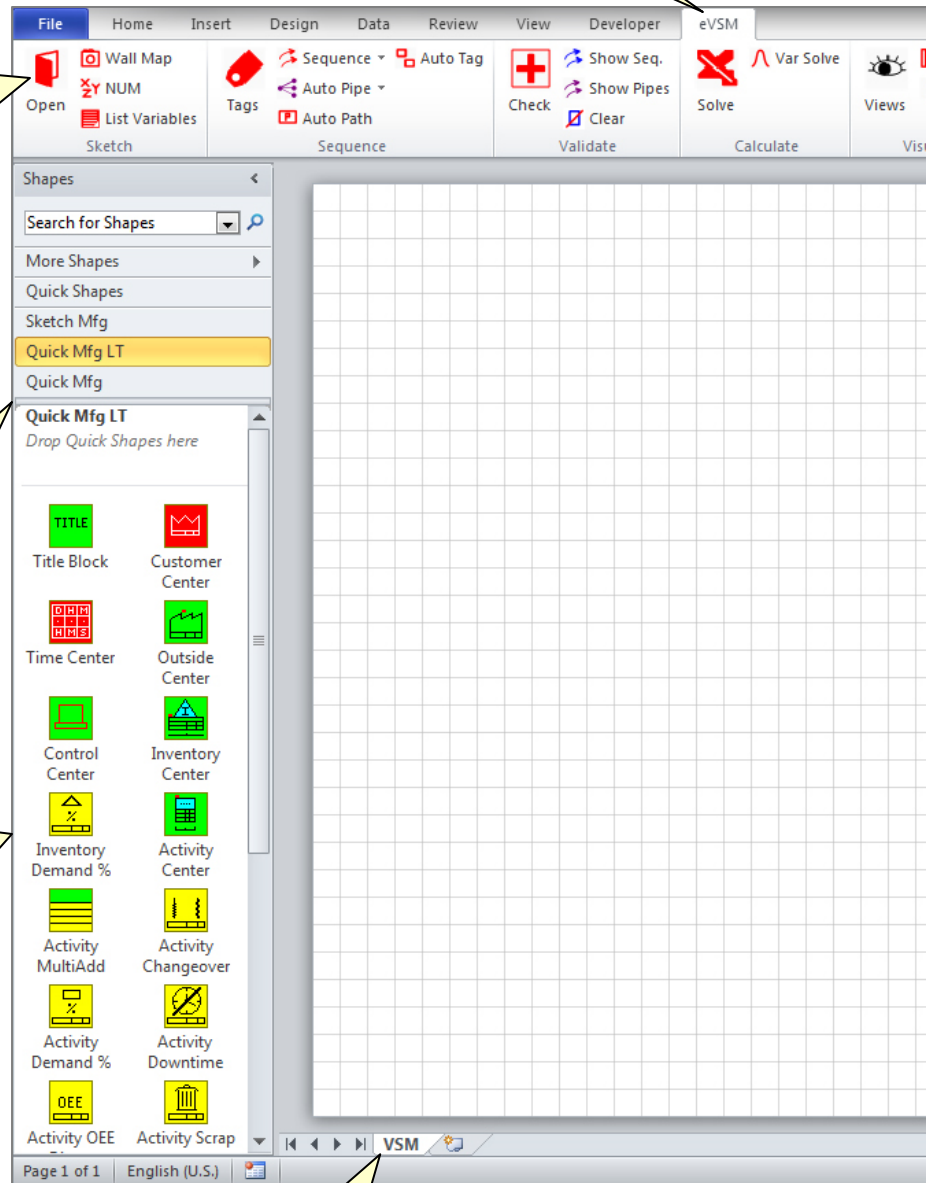
The eVSM Environment

eVSM adds this toolbar to Visio as well as the stencils on the left and right. If the eVSM toolbar disconnects, click File>Save As and save the file, close the file, then re-open it. This tip can be used for other crashes in eVSM.

A new map is initiated by selecting your application area from the "Open" button. Only the stencils required for your selected application area will open on the left side.

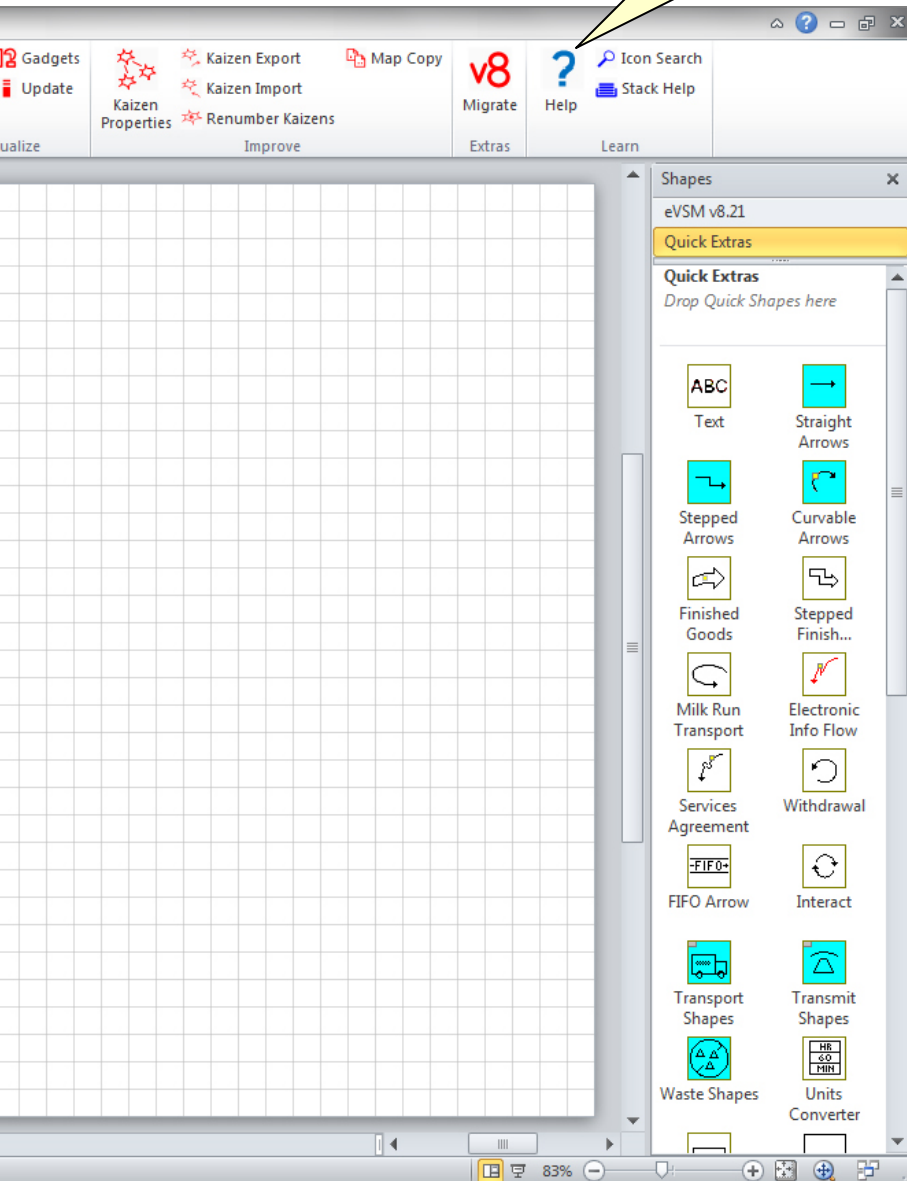
The left hand side has the Quick eVSM stencils which are optimized for specific application areas such as manufacturing vs office vs healthcare.

The Quick stencils contain macro shapes which are often collections of individual eVSM shapes with pre-built names, units, equations, and other properties.



A Visio file can have multiple pages which are accessed with these tabs. Each page gets locked to a chosen eVSM application and then not be used for other applications.

Hover over each button in the eVSM Toolbar to learn what it does. Detailed help and tutorials are available at the eVSM help site which can be accessed via this button.



The right side has two stencils. The main eVSM stencil, showing the eVSM version number, and the eVSM Extras stencil which is just a subset of the main stencil to help new users.

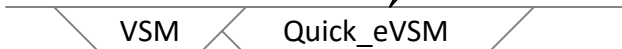
Step 2: Learn eVSM Basics

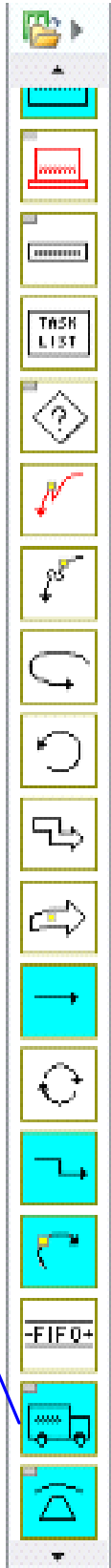
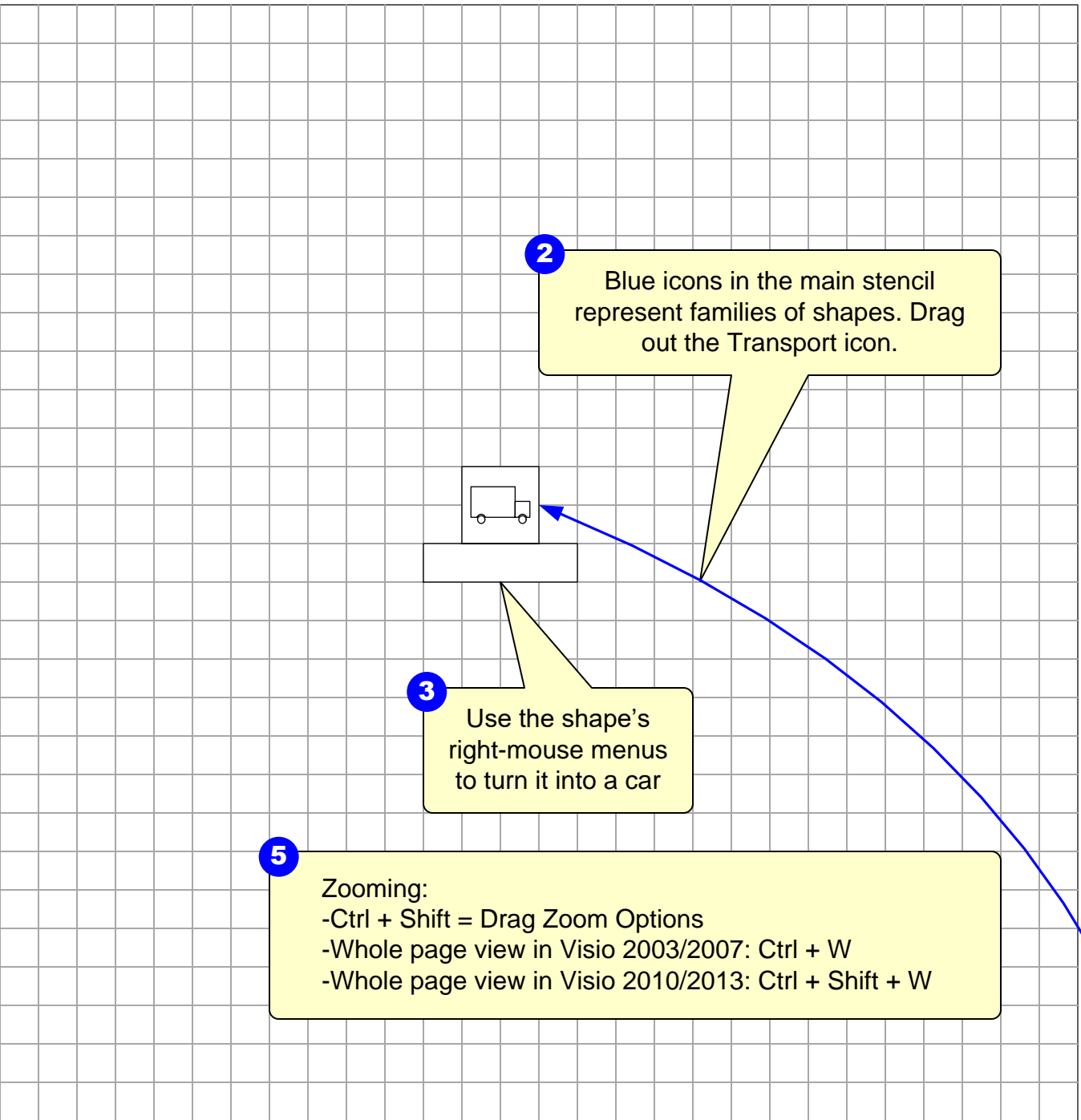


1 Avoid re-sizing eVSM shapes. Instead grow the drawing page when needed. To resize the page, hold down the “Ctrl” key, and then drag any page edge to the required size. This method works on all four edges of the page.



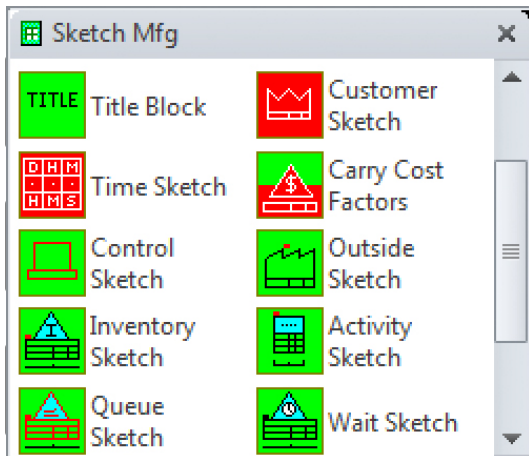
4 Save your Visio file and then insert a new page via the right-mouse menus on the page-tabs.



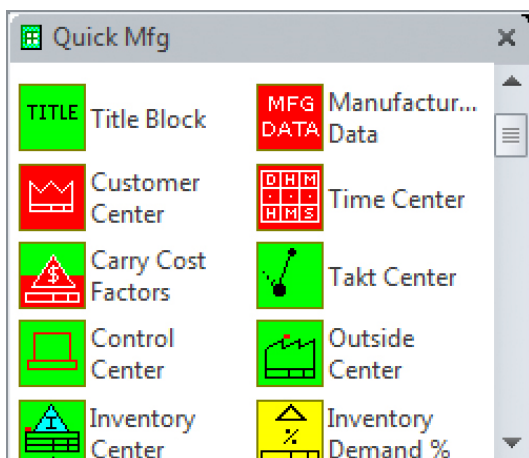


Quick Mfg Stencils Overview

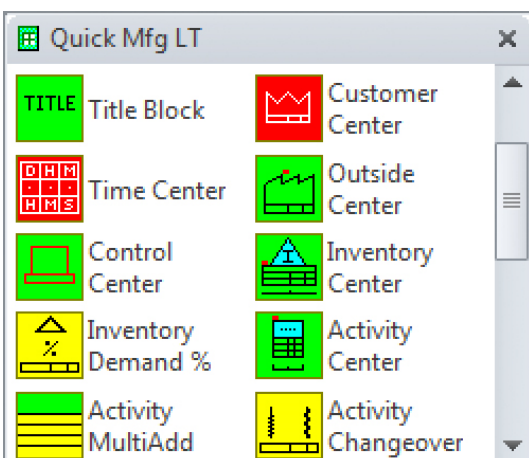
Quick Manufacturing has three stencils.



The Sketch stencil allows you to capture the value stream flow with no data shapes. Data shapes can later be added automatically via right mouse button menus.



The full Quick stencil contains all of the macro shapes available in Quick manufacturing. Includes the full set of add-on (yellow icons) calculations.



The LT stencil contains all the flow shapes but only a small subset of the add-on (yellow icons) calculations. Great for new users and for users who don't need the advanced calculations.

Quick Stencil Icon Colors

Below is an overview of the Quick Mfg stencil shapes.

The image shows a software window titled "Quick Mfg LT" containing a grid of stencil icons. The icons are organized into two columns. The left column contains icons for Title Block, Time Center, Control Center, Inventory Demand %, Activity MultiAdd, Activity Demand %, Activity OEE Direct, Activity Stations, Wait Center, Transmit Center, Lead Time Chart, and CT / TT Chart. The right column contains icons for Customer Center, Outside Center, Inventory Center, Activity Center, Activity Changeover, Activity Downtime, Activity Scrap, Activity Time, Transport Center, Time Summary, and Capacity / Demand... Callouts explain that green icons represent Centers, yellow icons are additional add-on calculations, purple icons are graphs, and white icons represent Summary Centers. A note also indicates that red shapes should be dragged out first.

Icon Color	Icon Name
Green	Title Block
Green	Time Center
Green	Control Center
Green	Inventory Demand %
Green	Activity MultiAdd
Green	Activity Demand %
Green	Activity OEE Direct
Green	Activity Stations
Green	Wait Center
Green	Transmit Center
Green	Lead Time Chart
Green	CT / TT Chart
Red	Customer Center
Green	Outside Center
Green	Inventory Center
Green	Activity Center
Yellow	Activity Changeover
Yellow	Activity Downtime
Yellow	Activity Scrap
Yellow	Activity Time
White	Time Summary
Purple	Capacity / Demand...

****DRAG RED SHAPES OUT FIRST****

Green icons represent Centers

Yellow icons are additional add-on calculations to add to Centers

Purple icons are the graphs and other charts


White icons represent Summary Centers

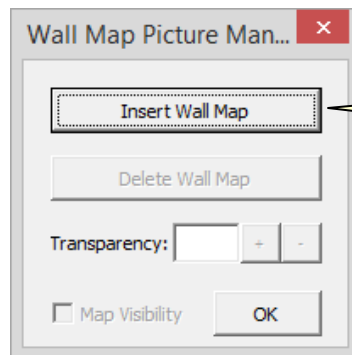
Step 3: Using the wall map sketcher

Often value stream maps are started on walls or paper. Converting a hand-drawn map can be tedious and error prone. An easy way to handle this is to take a clear picture of the map, import it into eVSM and then draw the electronic map, directly on top of the picture. This page shows how the eVSM Wall Map function can help with this. You can use a picture of any map to learn this step, if you don't have one, download a copy from:

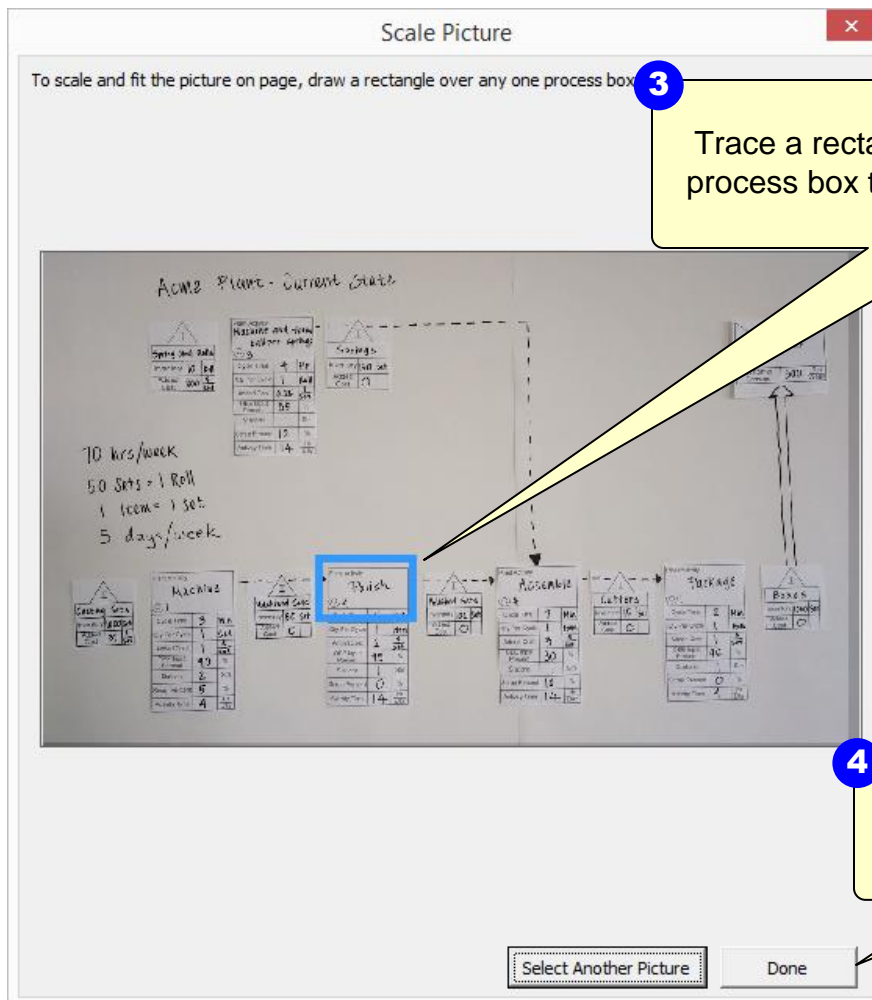
<http://www.evsm.com/wallmap>



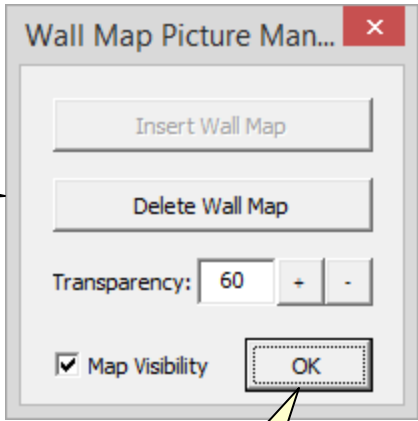
1 Click the Wall Map button in the toolbar to import a wall map picture into eVSM.  Wall Map



2 Click the Insert Wall Map button to browse for the image on your computer.

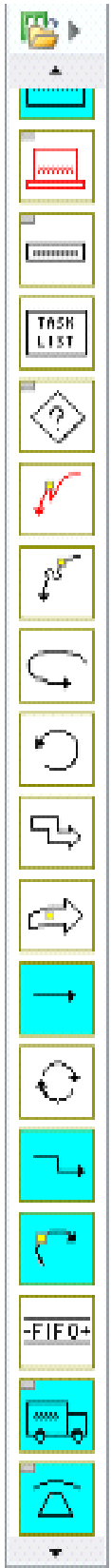
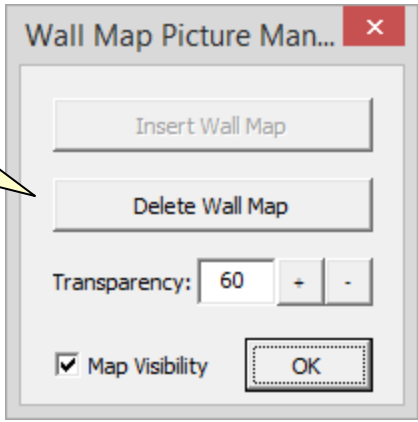


5 Map visibility can be switched on/off and transparency can be set in this form as well.



6 Click OK to start sketching over the picture.

7 Delete the wall picture. Click the Wall Map button again to bring up the form.



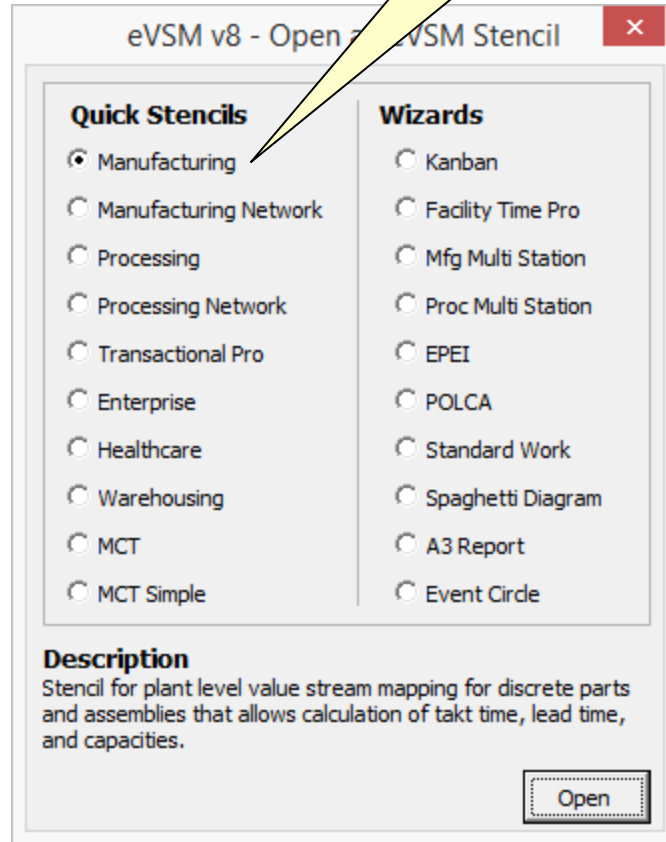
Step 4: Initiate the map for Quick Manufacturing LT

1

Click the  Open button in the eVSM toolbar.

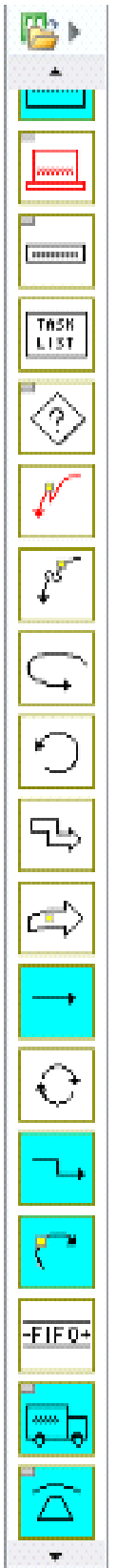
2

Select Manufacturing, and click Open.




3

The Manufacturing stencils will open on the left. For this tutorial, use the Quick Mfg LT.




Step 4B: Initiate the map for Quick Manufacturing LT

Quick Mfg LT



Customer Center



Time Center

1 Drag out the two red icons first. This is very important!

2 Set to US Units and click OK.

Select map units

Select the unit types and currency unit for this map:

Currency:

6 Enter available hours per week here. This is actual work hours after subtracting break time.

Units	Week	Year	Week
	70	52	5
	Hr	Week	day

A0010

all

Customer

Customer Demand	1000	Item Week
Share %	100	%
Effective Demand	Auto	Item Week

3 Align all new shapes to the grid as you drop them.


4 Enter customer demand here.

5 Leave "Auto" fields alone. They will be calculated automatically.

Toolbar icons: Undo, Redo, Refresh, Copy, Paste, Move, Zoom In, Zoom Out, Rotate, Scale, Erase, Lasso, Text, Image, Table, FIFO+, Truck, Warehouse.

Step 5: Adding Custom Unit Converters

Quick Mfg LT

3 Click the NUM button in the toolbar.  NUM

Name and Unit Manager

Name & Unit Sets

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

Name / Unit Alias
Import On Off

Map : Units

Unit	On Map	US	Metric
\$	Yes		
%	No		
1to10	No		
Cntr	No		
CO	No		
Day	Yes		
Doc	No		
ft	Yes		
Hr	Yes		
Impr	No		
Item	Yes		

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

Map : Names (NVU's)

Name	On Map	Hidden	Default Unit	Filter:
Activity Demand	No	No	Item/Day	
Activity Lead Time	No	No	Day	
Activity NVA	No	No	Min	
Activity NVA Per Unit	No	Yes	Min/Item	
Activity Resource Cost	No	Yes	\$/Item	
Activity Takt Time	No	Yes	Min/Item	
Activity Time	No	No	Hr/Day	
Activity VA Per Unit	No	Yes	Min/Item	
Added Cost	No	Yes	\$/Item	
Added Scrap Cost	No	Yes	\$/Item	
Annual Inv Carry Cost	No	Yes	K\$	

Load From Map Source/Target Pages Equation Manager.. OK

4 Click the "New Unit" button, type "Set", and click OK. Create another unit named "Roll" and click OK.

1 Drag out two Units Converter shapes from the Quick Extras stencil and glue to the existing Time Center.

5 Double-click each field to match the appropriate units converters.

2 Double-click the bottom field to change to "Item".


Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

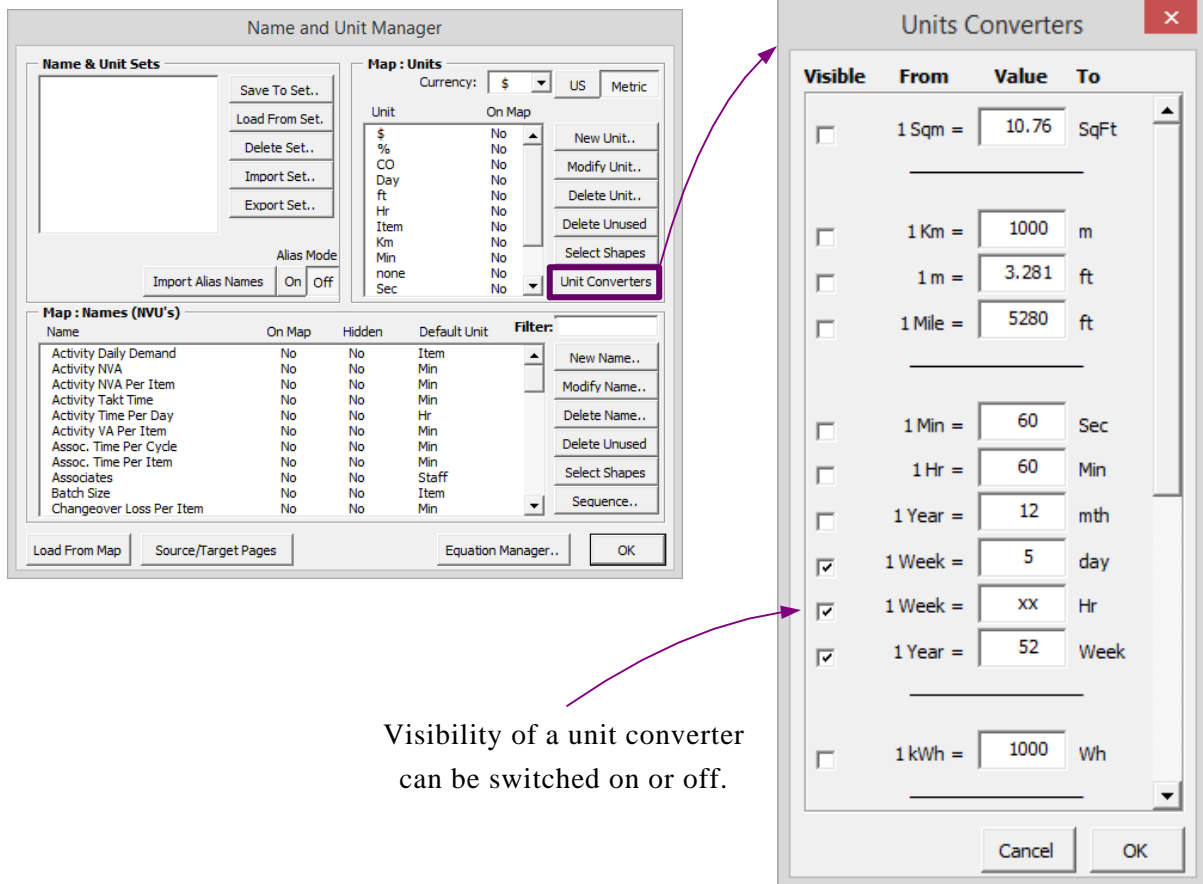
A0010	all	
Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	Auto	Item Week



6 Double-click the units for Customer Demand and change the numerator to "Set".

Unit Converters Usage

- Secs/Mins, Mins/Hrs units converters are hidden
- Made visible through **NUM** button in the toolbar  NUM



The image shows two dialog boxes. The left one is 'Name and Unit Manager' and the right one is 'Units Converters'. A purple arrow points from the 'Unit Converters' button in the first dialog to the 'Units Converters' dialog. Another purple arrow points from the 'Visibility' checkboxes in the second dialog to the text below.

Name and Unit Manager

Name & Unit Sets

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

Alias Mode
Import Alias Names On Off

Map : Units

Currency: \$ US Metric

Unit	On Map
\$	No
%	No
CO	No
Day	No
ft	No
Hr	No
Item	No
Km	No
Min	No
none	No
Sec	No

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

Map : Names (NWU's)

Name	On Map	Hidden	Default Unit	Filter:
Activity Daily Demand	No	No	Item	New Name..
Activity NVA	No	No	Min	Modify Name..
Activity NVA Per Item	No	No	Min	Delete Name..
Activity Takt Time	No	No	Min	Delete Unused
Activity Time Per Day	No	No	Min	Select Shapes
Activity VA Per Item	No	No	Min	Sequence..
Assoc. Time Per Cycle	No	No	Min	
Assoc. Time Per Item	No	No	Min	
Associates	No	No	Staff	
Batch Size	No	No	Item	
Changeover Loss Per Item	No	No	Min	

Load From Map Source/Target Pages Equation Manager.. OK

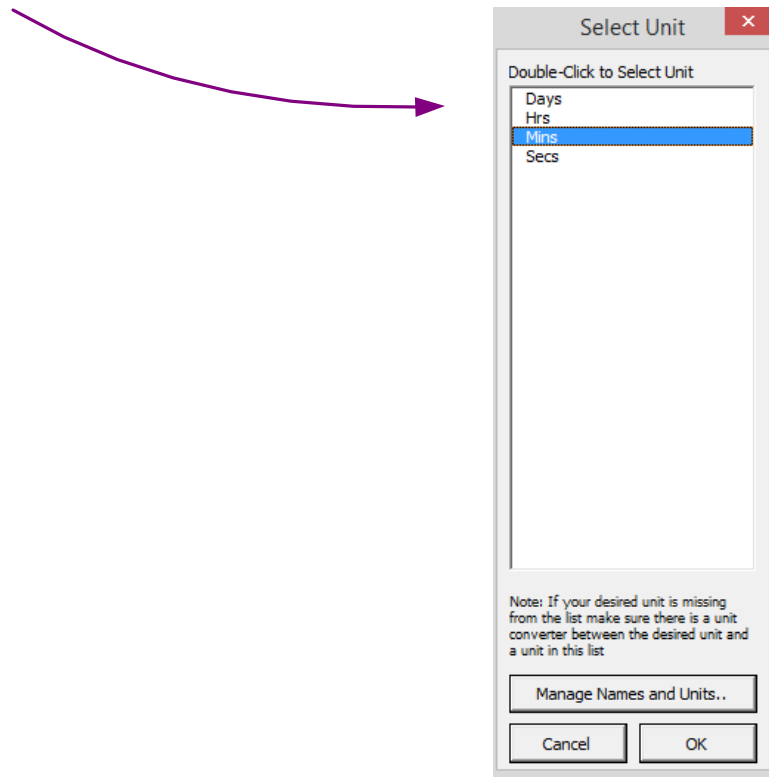
Units Converters

Visible	From	Value	To
<input type="checkbox"/>	1 Sqm =	10.76	SqFt
<input type="checkbox"/>	1 Km =	1000	m
<input type="checkbox"/>	1 m =	3.281	ft
<input type="checkbox"/>	1 Mile =	5280	ft
<input type="checkbox"/>	1 Min =	60	Sec
<input type="checkbox"/>	1 Hr =	60	Min
<input type="checkbox"/>	1 Year =	12	moth
<input checked="" type="checkbox"/>	1 Week =	5	day
<input checked="" type="checkbox"/>	1 Week =	xx	Hr
<input checked="" type="checkbox"/>	1 Year =	52	Week
<input type="checkbox"/>	1 kWh =	1000	wh

Cancel OK

Visibility of a unit converter can be switched on or off.


- Unit families eliminate errors when changing units
- Only Time units will appear when double-clicking on Mins to change to Hrs



- If desired unit does not appear:
 - Create a new unit -- OR --
 - Place a units converter on map

- Use NUM button in toolbar to create the new unit
- New unit will require units converter to connect default unit to new unit

Hr
60
Min

- New unit will appear in “Select Unit” window when double-click unit (family)  NUM
- If desired unit was in the NUM, add a units converter to the map
- Built-in error proofing to prevent incompatible units

Step 6: Draw the flow

Quick Mfg LT

1 The green shapes are called "Centers". Use the centers to represent the flow.



Activity Center



Inventory Center

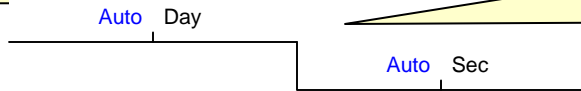
4 Operation Tag number may not match with your screen. This is OK, this will be handled later.

A0020	I	P
Type		
Inventory	xx	Item

A0030		P
Process		
1		
Cycle Time	x.xx	Sec
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

2 Remember to align all new shapes to the grid as you drop them.

3 If the Value Added and Non Value Added timeline is not lined up, use the "Align Timeline" command in the right-mouse button menu.

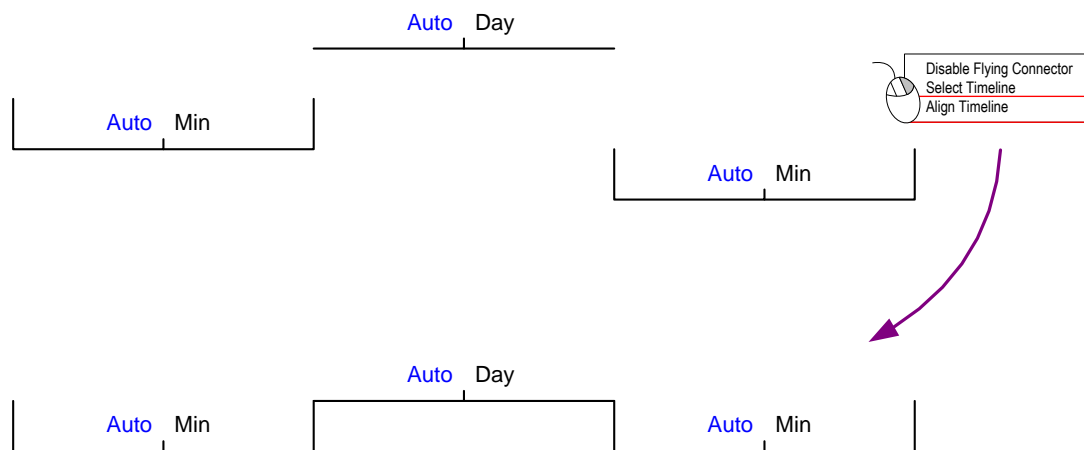


Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

A0010		all
Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	Auto	Item Week

Working with the timeline

- Shift the entire timeline up or down, use “Select Timeline” in the right-mouse menu
- If that option doesn’t appear in the menu, make sure you have the entire VA or NVA shape selected and try again
- “Align Timeline” function also in the right-mouse menu will create the ladder timeline for you if the VA and NVA shapes are not correctly aligned, as shown below



This area intentionally left blank

Step 7: Complete the flow and enter data

Quick Mfg LT

2

If text does not fit, avoid re-sizing eVSM shapes. Instead, make the font smaller.

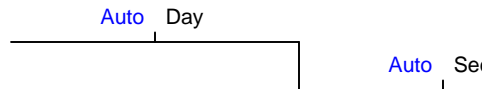
A0110	I	P
Spring Steel Rolls		
Inventory	10	Roll

A0120		P
Machine and form caliper springs		
☉ 1		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0130	I	P
Springs		
Inventory	150	Set

3

Check to make sure you have the appropriate units. If not, double-click the unit to change it.

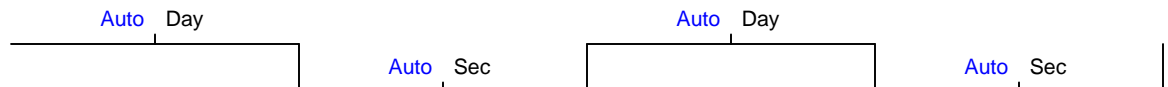


A0020	I	P
Casting Sets		
Inventory	1000	Set

A0030		P
Machine		
☉ 1		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0040	I	P
Machined Sets		
Inventory	50	Set

A0050		P
Polish		
☉ 1		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

1 Complete as shown below, including annotation, data values, and units.

A0010	all	
Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	Auto	Item Week

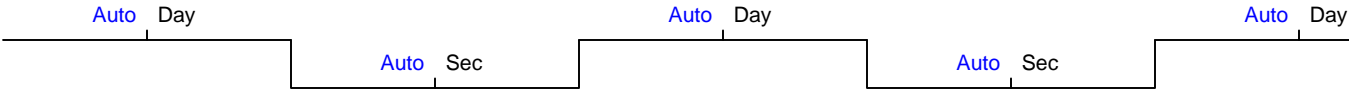
A0060	I	P
Polished Sets		
Inventory	100	Set

A0070	P	
Assemble		
⊙ 1		
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0080	I	P
Cutters		
Inventory	15	Set

A0090	P	
Package		
⊙ 1		
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

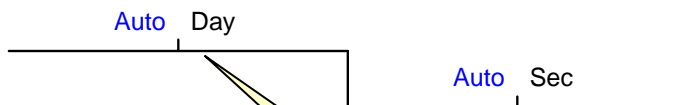
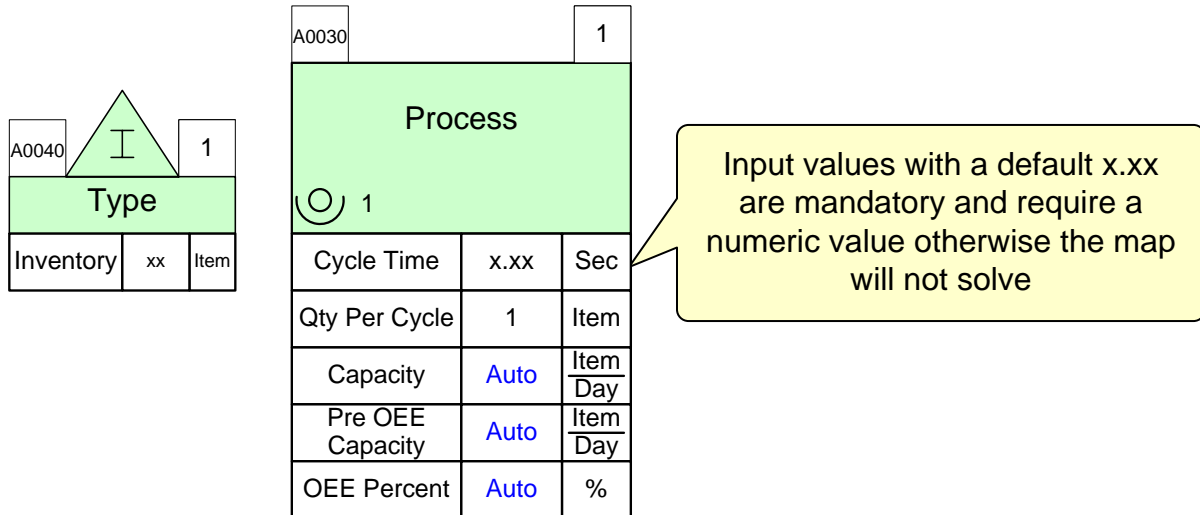
A0100	I	P
Boxes		
Inventory	1000	Item



Fractional Units

- Fractional units makes specifying and computing demand quantities or production times easier
- Provides better control of data entry and display
- Fractional units changed like any other unit on map using the NUM button in the toolbar

Data Entry Hints



Little's Law:

$$\text{Wait Time (Non-Value Added)} = \text{Inventory} / \text{Customer Demand}$$

- When entering data use tab key to go to next NVU
- Non-Value Added and Value Added ladders are already glued to Activity Center and Inventory Center, respectively
- The standard NVUs on an Activity Center are required for calculations and MUST NOT be deleted

Step 8: Add Arrows from Main Stencil

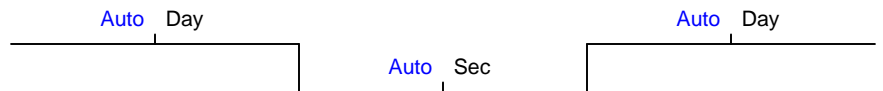
Quick Mfg LT

Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

A0110	I	P
Spring Steel Rolls		
Inventory	10	Roll

A0120		P
Machine and form caliper springs		
	1	
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0130	I	P
Springs		
Inventory	150	Set



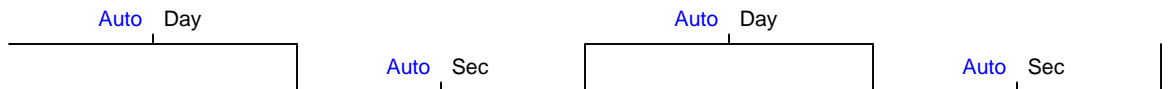
2 Glue all arrows at both ends.

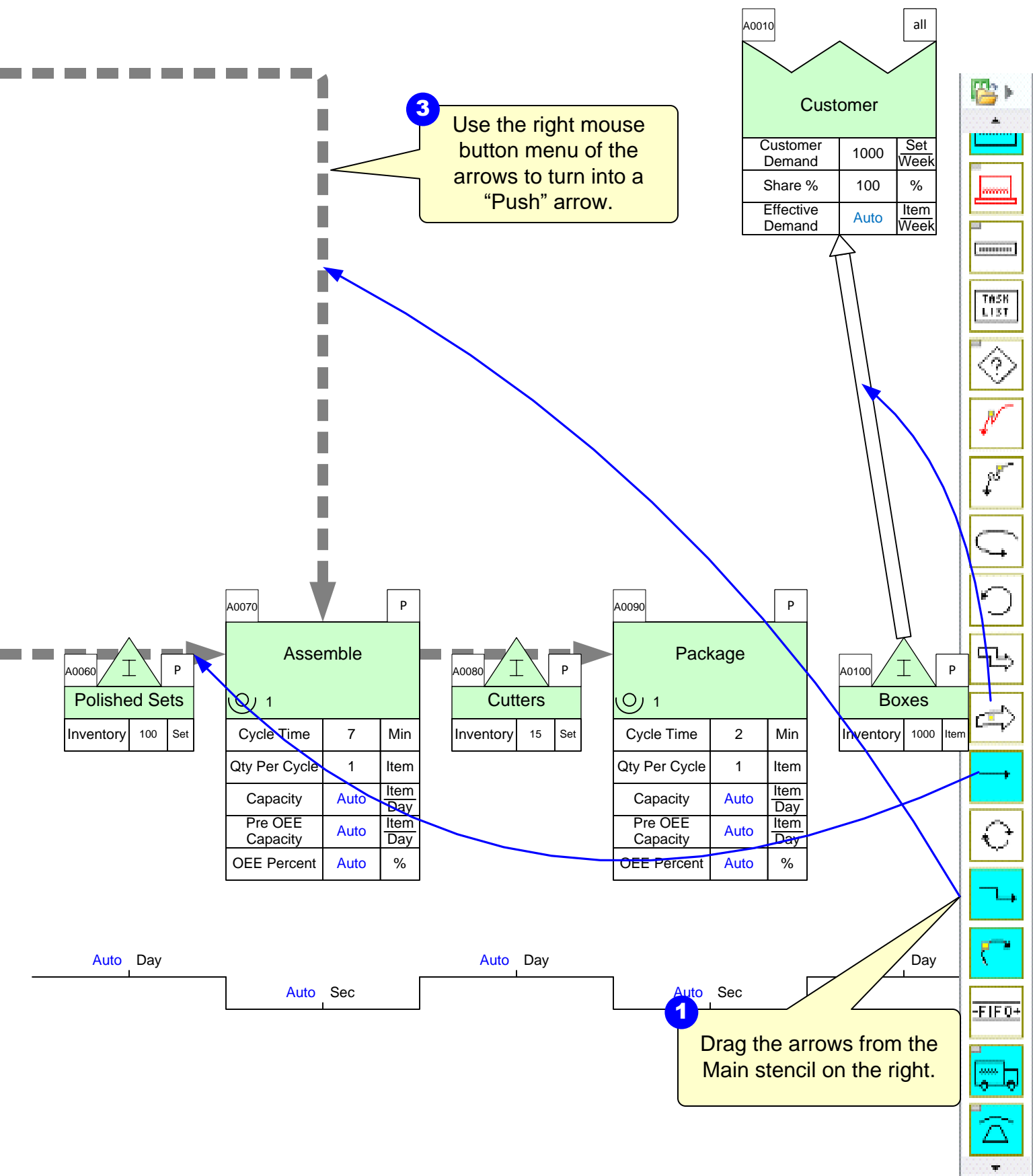
A0020	I	P
Casting Sets		
Inventory	1000	Set

A0030		P
Machine		
	1	
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0040	I	P
Machined Sets		
Inventory	50	Set

A0050		P
Polish		
	1	
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%





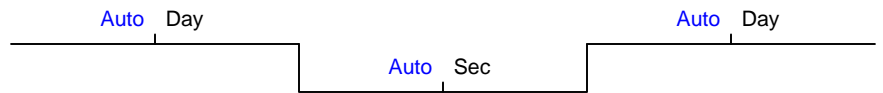
Step 9: Add Transport shapes

Quick Mfg LT

A0110	I	P
Spring Steel Rolls		
Inventory	10	Roll

A0120		P
Machine and form caliper springs		
	1	
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0130	I	P
Springs		
Inventory	150	Set

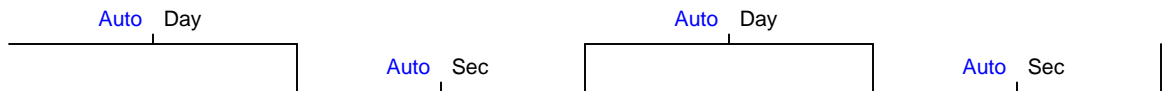


A0020	I	P
Casting Sets		
Inventory	1000	Set

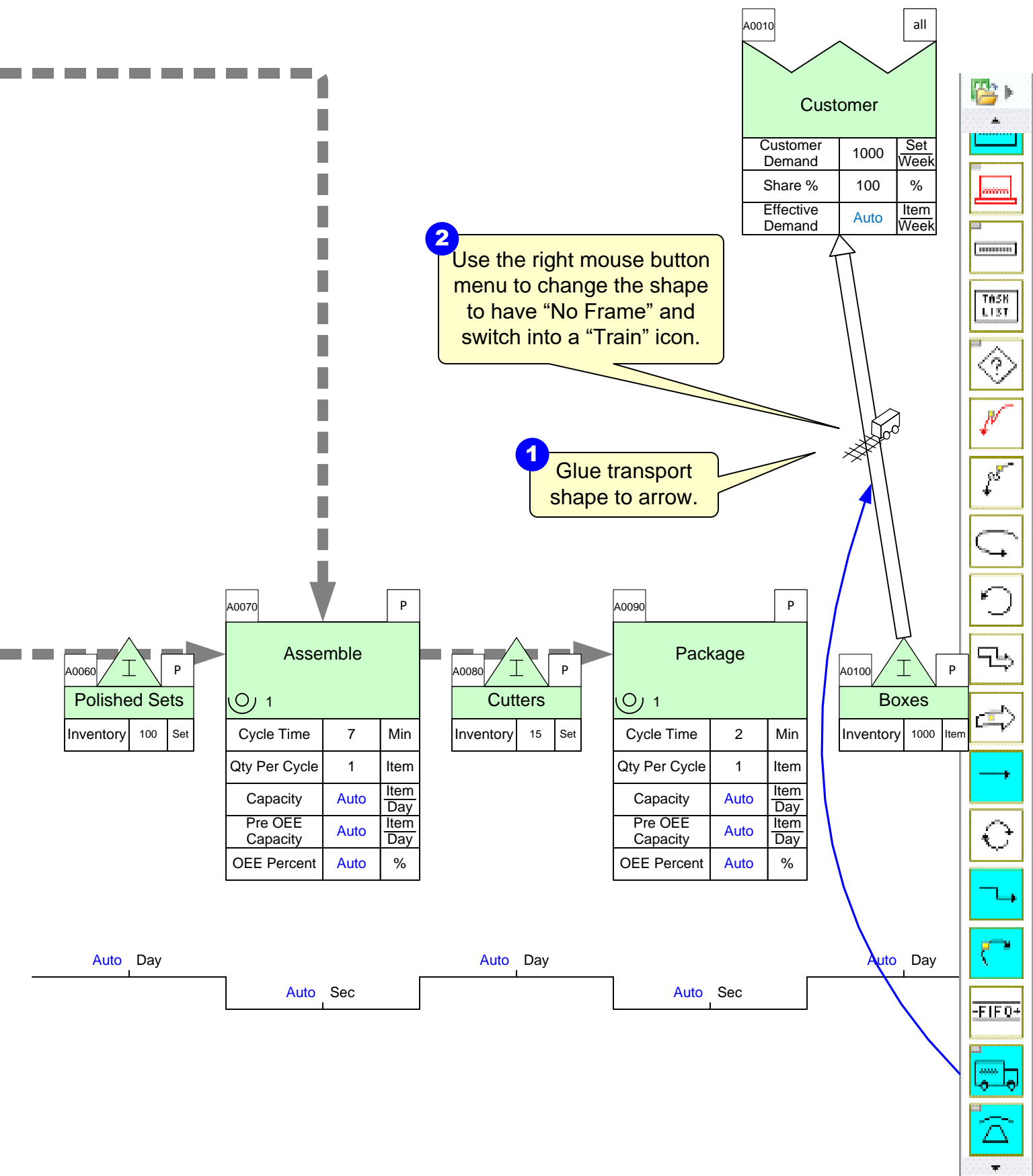
A0030		P
Machine		
	1	
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0040	I	P
Machined Sets		
Inventory	50	Set

A0050		P
Polish		
	1	
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

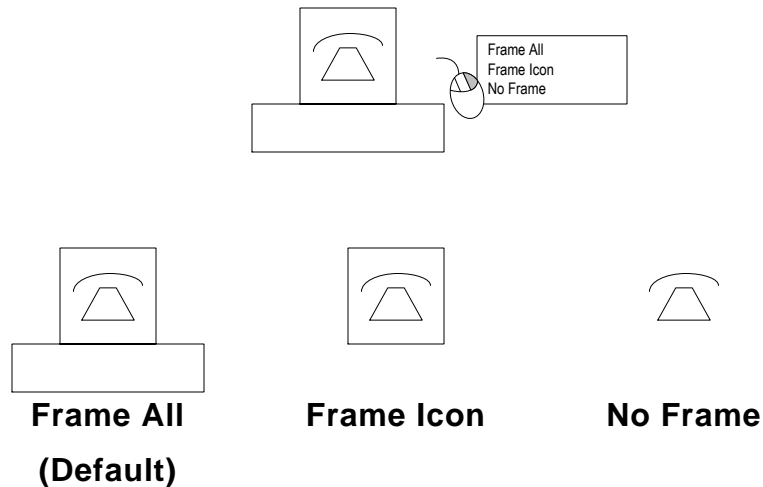


Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item



Transport, Transmit, and Flow Shapes

- Transport, Transmit, and Flow Shapes now have text box framed to allow data values to be added if needed
 - If data is added to shape, an Operation Tag and Path Locator needs to be added
- To remove frame, right-click on shape and select “Frame Icon”

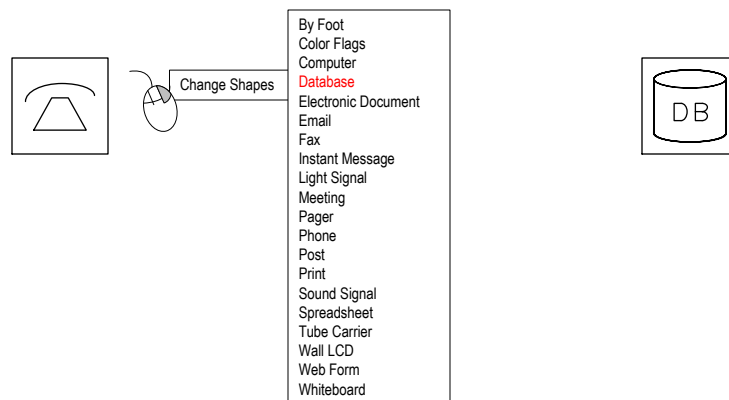


- Use Text Block tool to move text



Blue Stack Shapes

- Blue icon stack has other shapes to choose
- Right-click on shape and select desired shapes
- Use the **Stack Help** button in the toolbar to see complete list of shapes in a stack after selecting a blue or green stack icon from a stencil



Step 10: Sequence Arrows

Quick Mfg LT

1

Sequence arrows are needed for upstream and downstream calculations. To add them, hold down the SHIFT key and select the green shapes in the order shown here.

2

Click the Sequence button. Sequence

A0110	I		P			
Spring Steel Rolls						
Inventory	10		Roll			

A0120			P			
Machine and form caliper springs						
				1		
Cycle Time	4		Hr			
Qty Per Cycle	1		Roll			
Capacity	Auto		Item Day			
Pre OEE Capacity	Auto		Item Day			
OEE Percent	Auto		%			

A0130	I		P			
Springs						
Inventory	150		Set			

Auto Day

Auto Sec

Auto Day

A0020	I		P			
Ca			A	ets		
Inventory	1000		Set			

A0030			P			
B						
				1		
Cycle Time	3		Min			
Qty Per Cycle	1		Set			
Capacity	Auto		Item Day			
Pre OEE Capacity	Auto		Item Day			
OEE Percent	Auto		%			

A0040	I		P			
Ma			C	ets		
Inventory	50		Set			

A0050			P			
D						
				1		
Cycle Time	5		Min			
Qty Per Cycle	1		Item			
Capacity	Auto		Item Day			
Pre OEE Capacity	Auto		Item Day			
OEE Percent	Auto		%			

Auto Day

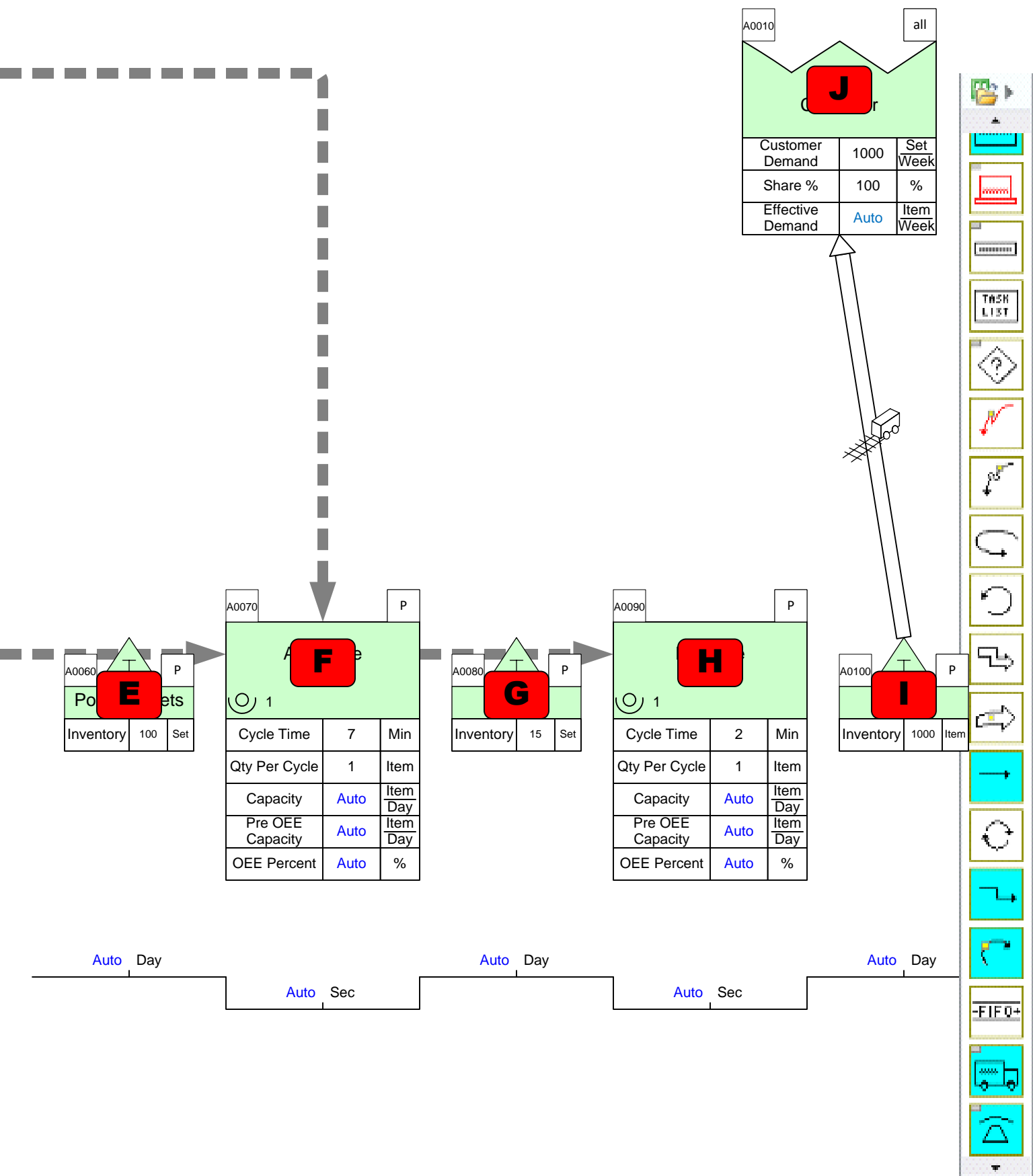
Auto Sec

Auto Day

Auto Sec

	Week	Year	Week	Roll	Set
Units	70	52	5	50	1
	Hr	Week	day	Set	Item



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Sequence Arrows



Sequence

- Provide a means of generating tag numbers in upstream to downstream sequence (using the **AutoTag** button)  Auto Tag
- Provide a means of generating path numbers that comprehend all of the paths on the map (using the **Auto Path** button)  Auto Path
- Are the basis for upstream/downstream calculations in the built-in eVSM equations
- Sequence arrows can be added for a few centers at a time or in a continuous path.

This area intentionally left blank

Step 11: Sequence Path 2

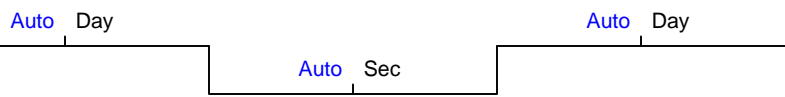
Quick Mfg LT

A0110		P
Springs		
Inventory	10	Roll

A0120		P
Machine Form calibrations		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0130		P
Inventory		
Inventory	150	Set

2 For the second path, hold the SHIFT key and select the green shapes A to D in the order shown. Then click the Sequence button.



A0020		P
Casting Sets		
Inventory	1000	Set

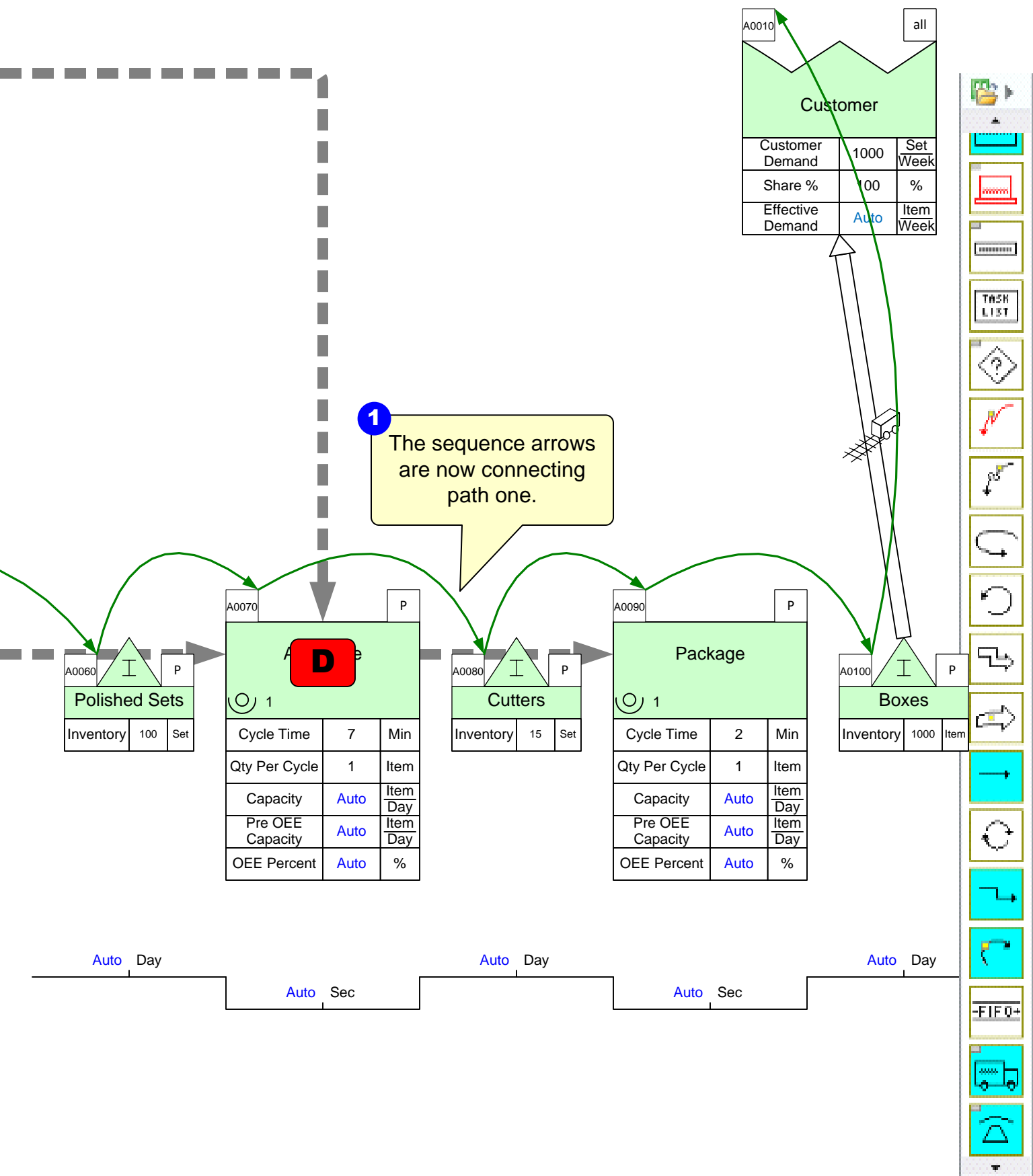
A0030		P
Machine		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0040		P
Machined Sets		
Inventory	50	Set

A0050		P
Polish		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

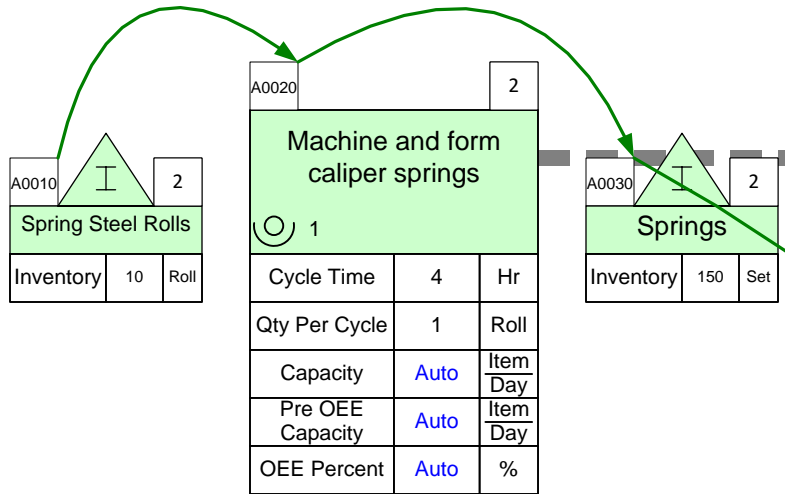


Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item




Step 12: Use Auto Path to Generate Path ID's based on Sequence Arrows


Quick Mfg LT

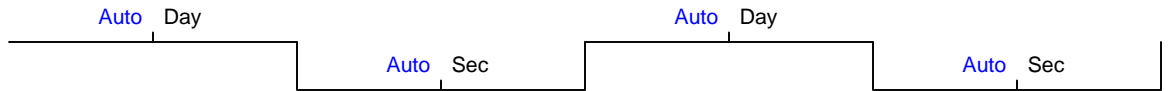
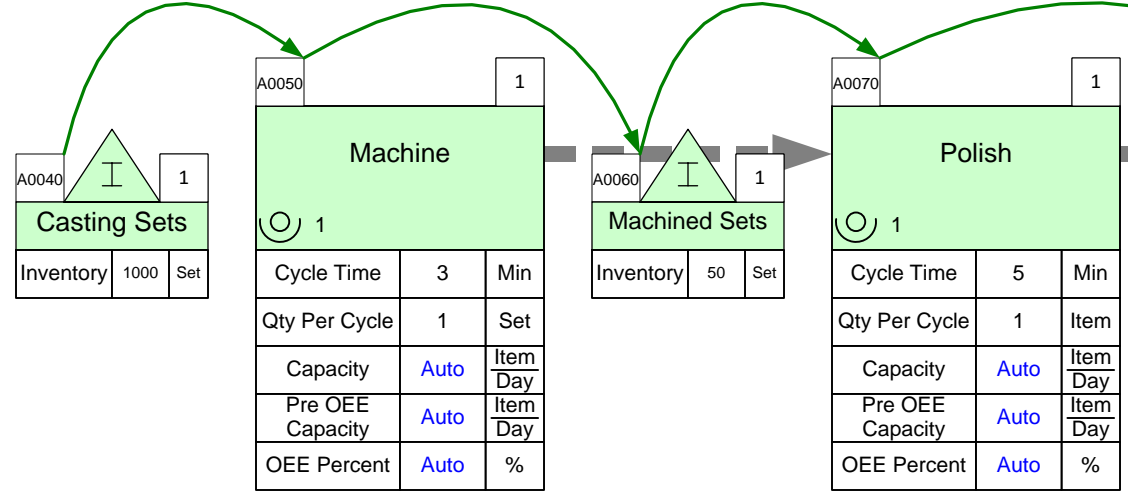


2 Click Auto Path to automatically generate Path numbers based on Sequence arrows. The path numbers on your map might not exactly match the ones on this example, and that is okay.


 Auto Path

3 Click AutoTag again to re-order the tags based on the new sequence arrows.

 Auto Tag



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item


4 Sequence arrow visibility can be switched On/Off with the Show Seq. button. Try it.  Show Seq.

1 The sequence arrows are now connecting path one and two.


5 These Path tags are used to specify paths. #2 implies that the shape is on 2 paths. If you'd like to see the path numbers the shape is on, right click and select "Show paths on Center". This will display all the path numbers the shape is on just above the path tag.

A0130		all
Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	Auto	Item Week

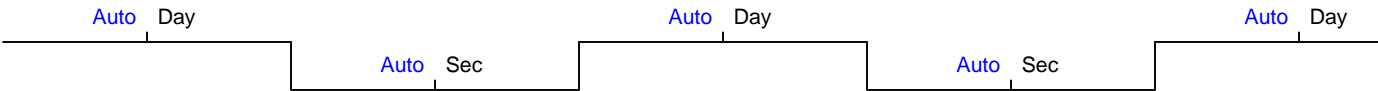
A0080		1
Polished Sets		
Inventory	100	Set

A0090		#2
Assemble		
 1		
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

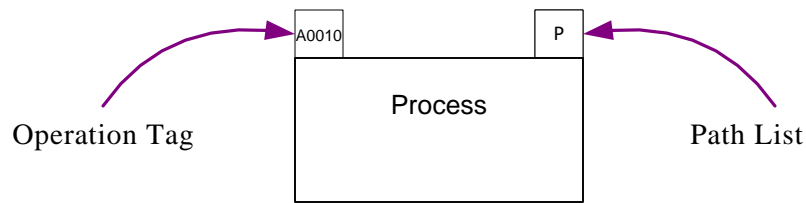
A0100		#2
Cutters		
Inventory	15	Set

A0110		#2
Package		
 1		
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0120		#2
Boxes		
Inventory	1000	Item



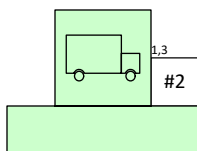
Path List



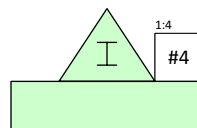
- Path List: The Path List is used to identify a path that an activity (or other shape able to be tagged) belongs to. The shape is glued above the top right corner of the shape.
- An activity can belong to no paths, one or more, or all paths. The benefit of assigning path numbers to activities is that the associated activity variables (like NVA time) can be summed up across the map in a path specific sense.
- After you have used the Auto Path function, the Path List will appear as either of the following:

- All The center is on all paths
- 6 The center is only on path 6
- #4 The center is on 4 different paths

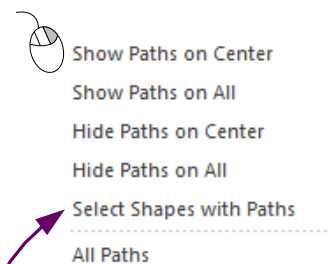
Right clicking on the Path List shape will pull up a menu to display all the path numbers on each center/page, or to hide all paths on each center or for the whole page.



The "1,3" indicates that this center is on paths 1 and 3



The "1:4" indicates that this center is on paths 1 through 4 (1, 2, 3, 4)



Using the "Select Shapes with Paths" option will highlight all shapes on the map that have those specific path numbers.

Operation Tags

- Operation Tags:
 - Provides short name for process step
 - Identifies process step to Excel for calculations
 - Defines the order in which data is plotted on charts
 - Operation Tags MUST be 1-alpha and 4-numeric characters (ie: A0200)
 - Are typically assigned using the [Auto Tag](#) button and AFTER sequence arrows have been applied

Step 13: Time Summary by Path

1 Drag out two Time Summary Centers.

Z0010 1

Time Summary		
Lead Time	Auto	Day
Total Value Added	Auto	Min
Value Added Percent	Auto	%
Takt Time	Auto	Min Item
Total Cycle Time	Auto	Min

2 Double-click to change this path filter to "1" using the Path Filter Manager.

Path Filter Manager

All Paths	Selected Paths
all	1
1	
2	

Highlight OK Cancel

A0080 2

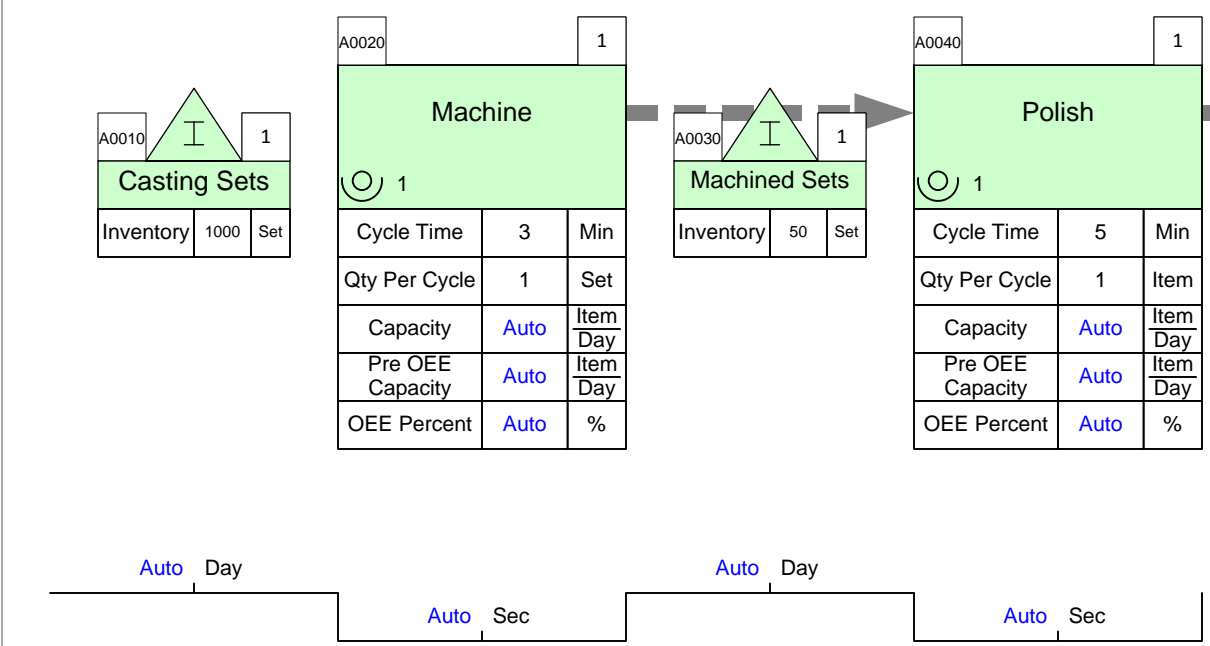
Springs		
Inventory	150	Set

Z0020 2

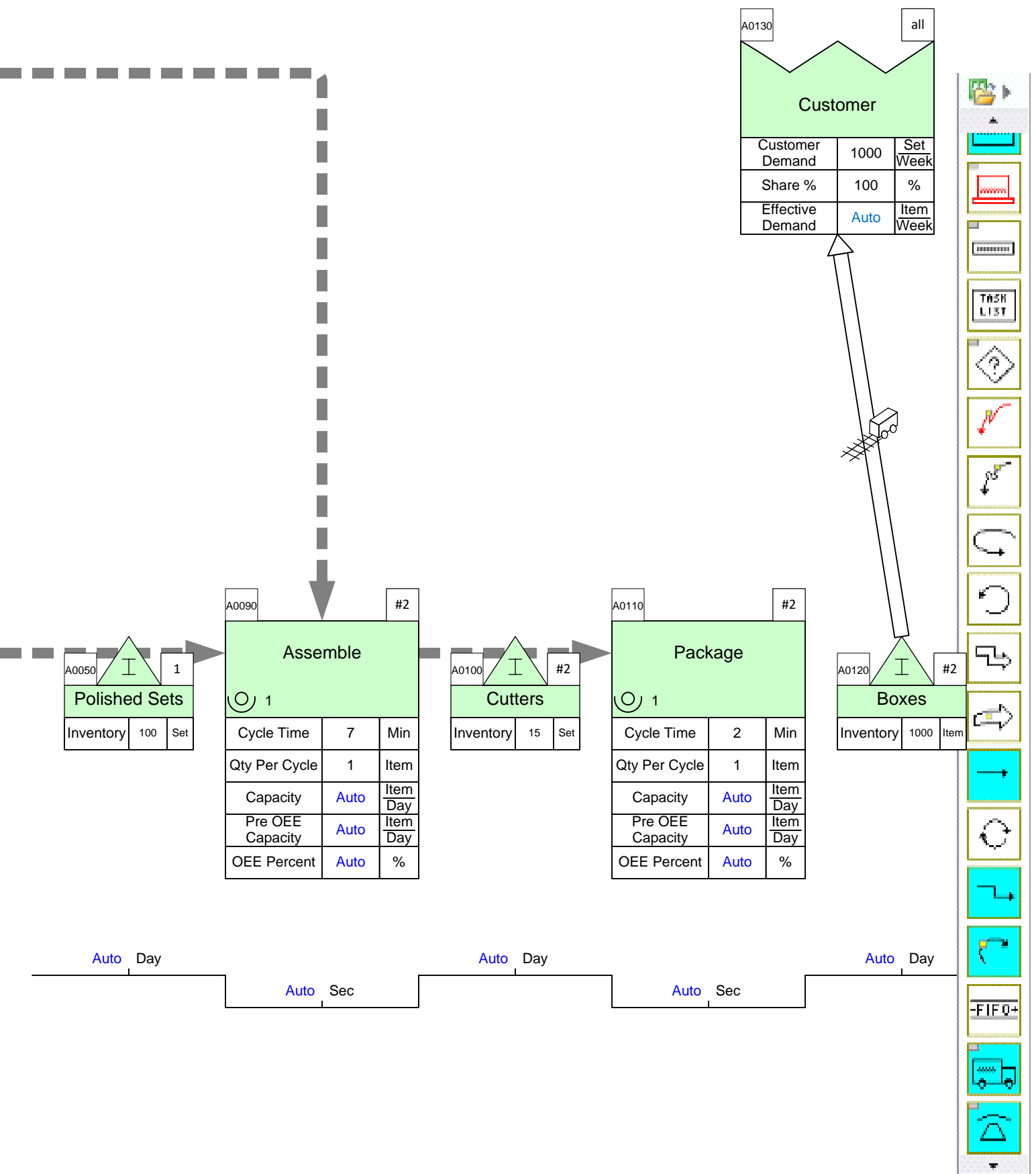
Time Summary		
Lead Time	Auto	Day
Total Value Added	Auto	Min
Value Added Percent	Auto	%
Takt Time	Auto	Min Item
Total Cycle Time	Auto	Min

3 Double-click to change this path ID to 2.

4 Double-click to change both units to Min on each Time Summary.



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item



Step 14: Perform Calculations

Quick Mfg LT

Z0010	1	
Time Summary		
Lead Time	10.85	Day
Total Value Added	17.00	Min
Value Added Percent	0.19	%
Takt Time	4.20	Min Item
Total Cycle Time	17.00	Min

A0060	2	
Spring Steel Rolls		
Inventory	10	Roll

A0070	2	
Machine and form caliper springs		
1.00		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	175.00	Item Day
Pre OEE Capacity	175.00	Item Day
OEE Percent	100.00	%

A0080	2	
Springs		
Inventory	150	Set

Z0020	2	
Time Summary		
Lead Time	8.62	Day
Total Value Added	249.00	Min
Value Added Percent	3.44	%
Takt Time	4.20	Min Item
Total Cycle Time	249.00	Min

2.50 Day

0.75 Day

14400.00 Sec

3 When complete, note that all blue values show calculated results

A0010	1	
Casting Sets		
Inventory	1000	Set

A0020	1	
Machine		
1.00		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	280.00	Item Day
Pre OEE Capacity	280.00	Item Day
OEE Percent	100.00	%

A0030	1	
Machined Sets		
Inventory	50	Set

A0040	1	
Polish		
1.00		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	168.00	Item Day
Pre OEE Capacity	168.00	Item Day
OEE Percent	100.00	%

5.00 Day


0.25 Day


180.00 Sec

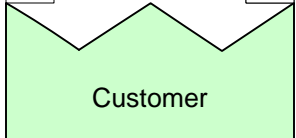
300.00 Sec

4 Double-click the unit if you would like to change it to minutes, or any other time measure.


Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item


1 Click the “Check” button and fix any problems flagged.  Check


2 Click the “Solve” button to calculate.  Solve


A0130 		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week


- Inventory icon
- Warehouse icon
- Task List icon
- Help icon
- Checkmark icon
- Refresh icon
- Undo icon
- Redo icon
- Reset icon
- Undo icon
- Redo icon
- Up arrow icon
- Refresh icon
- Down arrow icon
- FIFO+ icon
- Truck icon
- Scale icon

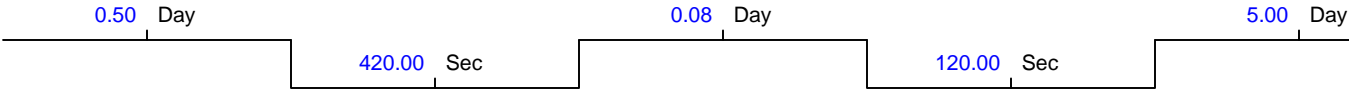
A0050 		
Polished Sets		
Inventory	100	Set

A0090 		
Assemble		
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	120.00	Item Day
Pre OEE Capacity	120.00	Item Day
OEE Percent	100.00	%

A0100 		
Cutters		
Inventory	15	Set

A0110 		
Package		
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	420.00	Item Day
Pre OEE Capacity	420.00	Item Day
OEE Percent	100.00	%

A0120 		
Boxes		
Inventory	1000	Item



First Check then Solve

Users should first Check and then Solve the map.

Check Button Check

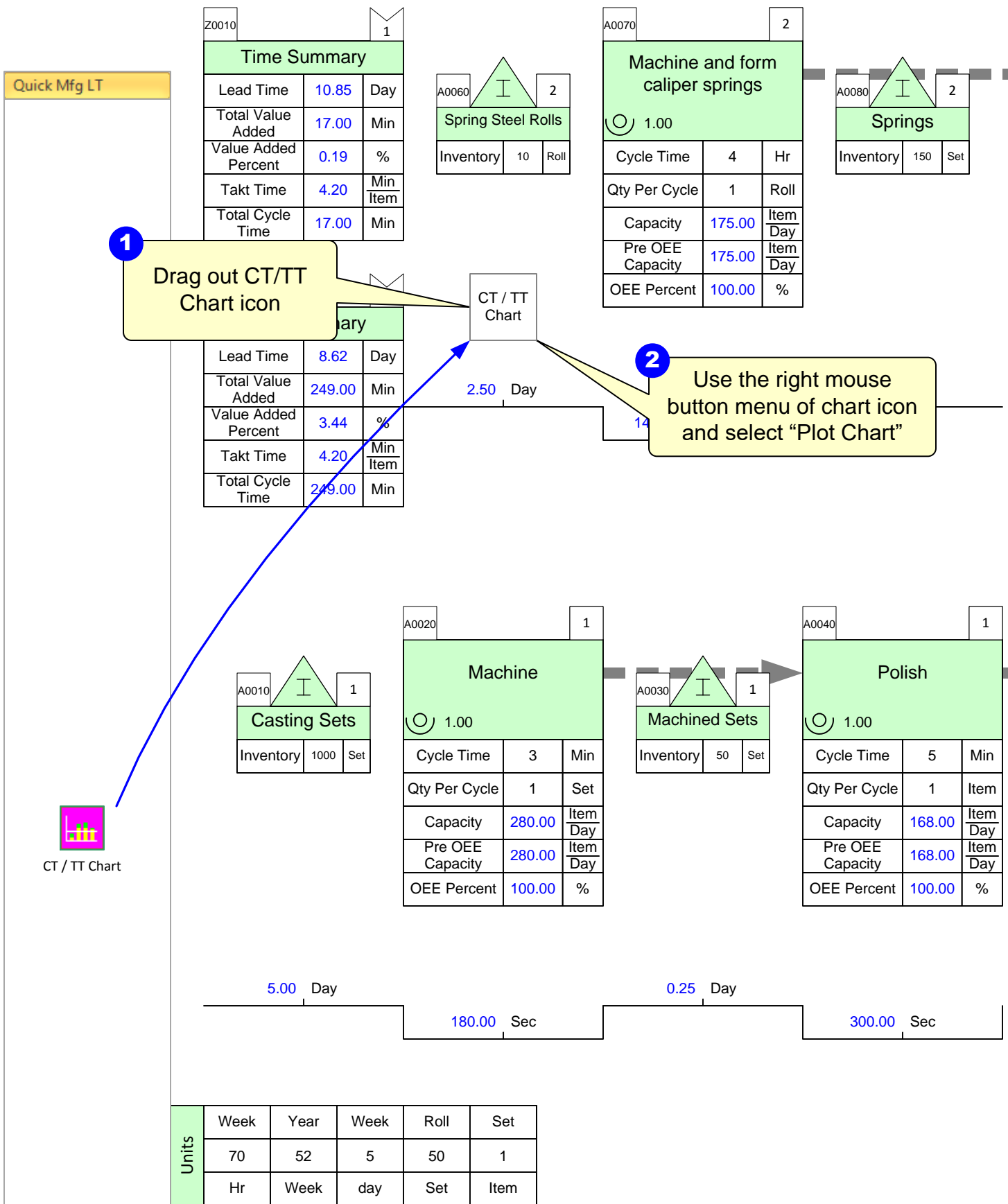
- Performs comprehensive model checking
- Fixes obvious problem
- Provides list of outstanding issues

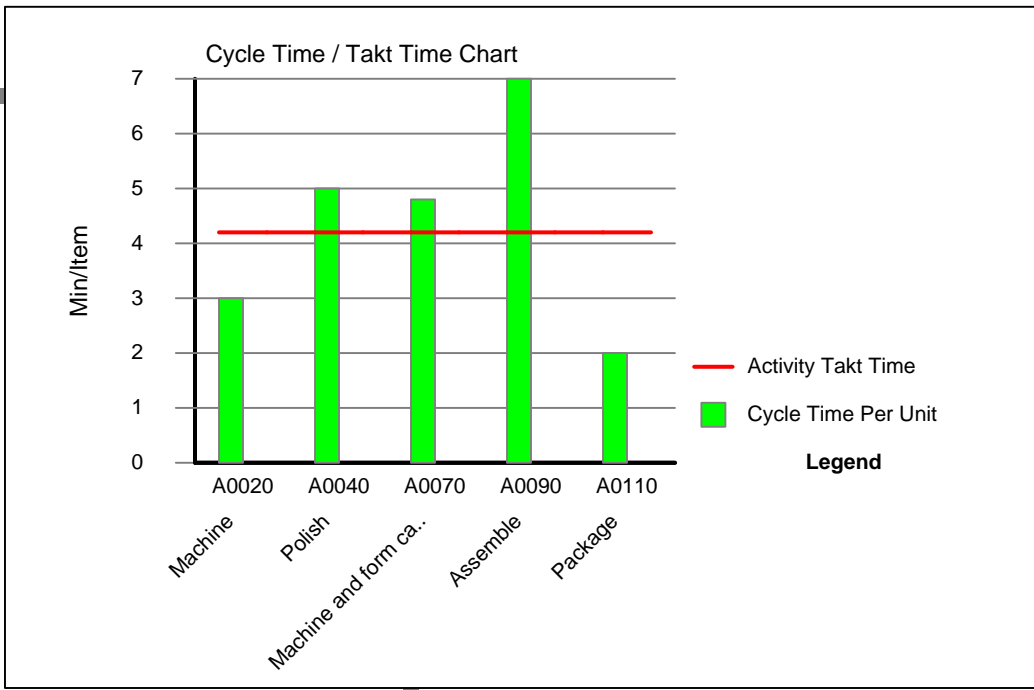
Solve Button Solve

- Performs basic model checking
- Stops if there is any obvious issues like missing data values
- Solves the built-in equations and puts the results on the map
- Exports data to an Excel spreadsheet

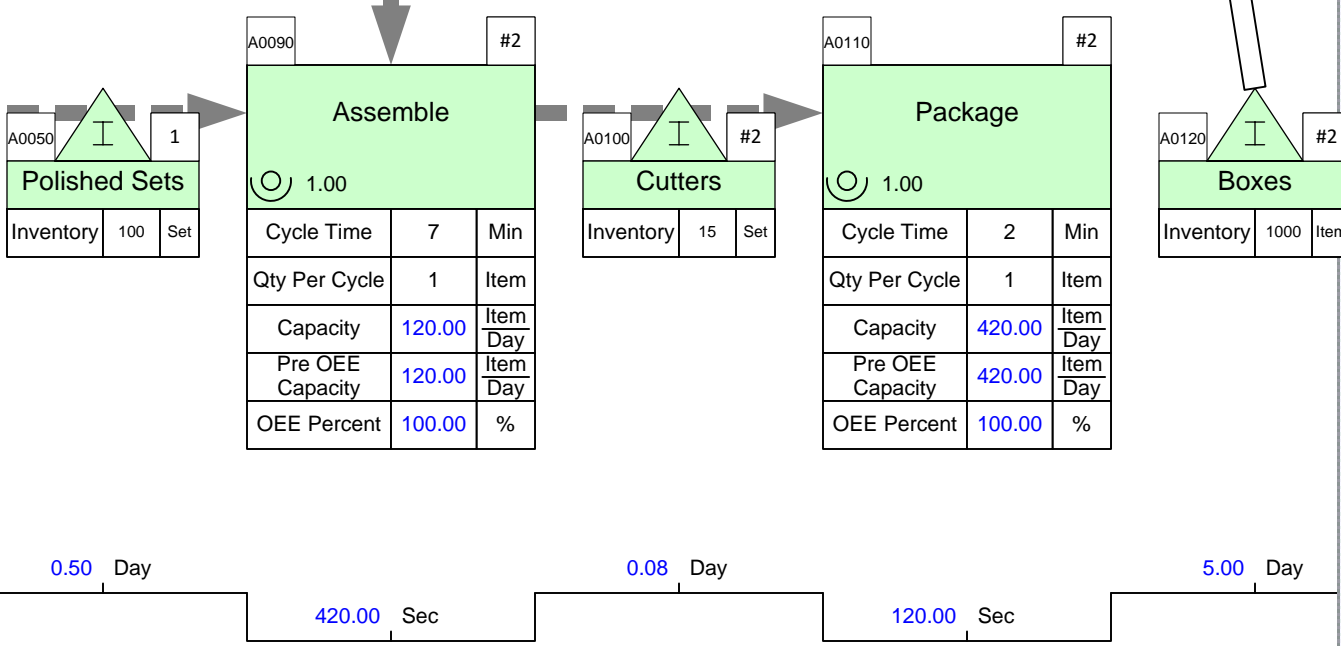
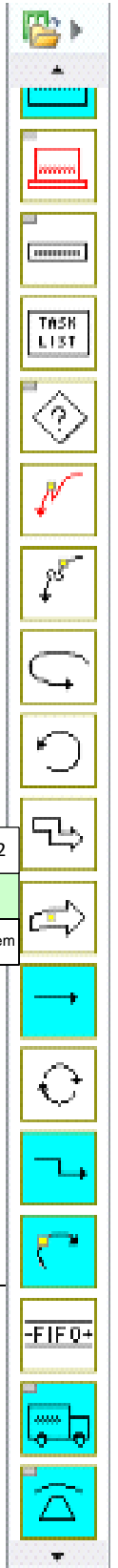
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Step 15: Add Cycle Time Takt Time Chart





A0130		all	
Customer			
Customer Demand	1000	Set	Week
Share %	100	%	
Effective Demand	1000.00	Item	Week



A0090		#2	
Assemble			
☉ 1.00			
Cycle Time	7	Min	
Qty Per Cycle	1	Item	
Capacity	120.00	Item	Day
Pre OEE Capacity	120.00	Item	Day
OEE Percent	100.00	%	

A0100		#2	
Cutters			
☉ 1.00			
Inventory	15	Set	

A0110		#2	
Package			
☉ 1.00			
Cycle Time	2	Min	
Qty Per Cycle	1	Item	
Capacity	420.00	Item	Day
Pre OEE Capacity	420.00	Item	Day
OEE Percent	100.00	%	

A0120		#2	
Boxes			
☉ 1.00			
Inventory	1000	Item	

Step 16: Try Add-on Calculations: OEE, Scrap, Activity Time

Quick Mfg LT

- Activity Center
- Activity OEE Direct
- Activity Scrap
- Activity Stations
- Activity Time


Z0010	1	
Time Summary		
Lead Time	10.85	Day
Total Value Added	20.75	Min
Value Added Percent	0.23	%
Takt Time	4.20	Min/Item
Total Cycle Time	17.00	Min

A0060	2	
Spring Steel Rolls		
Inventory	10	Roll

A0070	2	
Machine and form caliper springs		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	297.50	Item/Day
Pre OEE Capacity	350.00	Item/Day
OEE Percent	85.00	%
OEE Input Percent	85	%
Scrap Percent	10	%
Stations	2	Stn

A0080	2	
Springs		
Inventory	150	Set

Z0020	2	
Time Summary		
Lead Time	8.62	Day
Total Value Added	250.50	Min
Value Added Percent	3.46	%
Takt Time	4.20	Min/Item
Total Cycle Time	249.00	Min

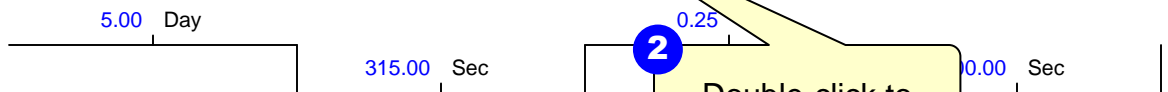
3 Run "Solve" and note the changes in the chart. 

A0010	1	
Casting Sets		
Inventory	1000	Set

A0020	1	
Machine		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	288.00	Item/Day
Pre OEE Capacity	320.00	Item/Day
OEE Percent	90.00	%
OEE Input Percent	90	%
Scrap Percent	5	%
Stations	2	Stn
Activity Time	8	Hr/Day

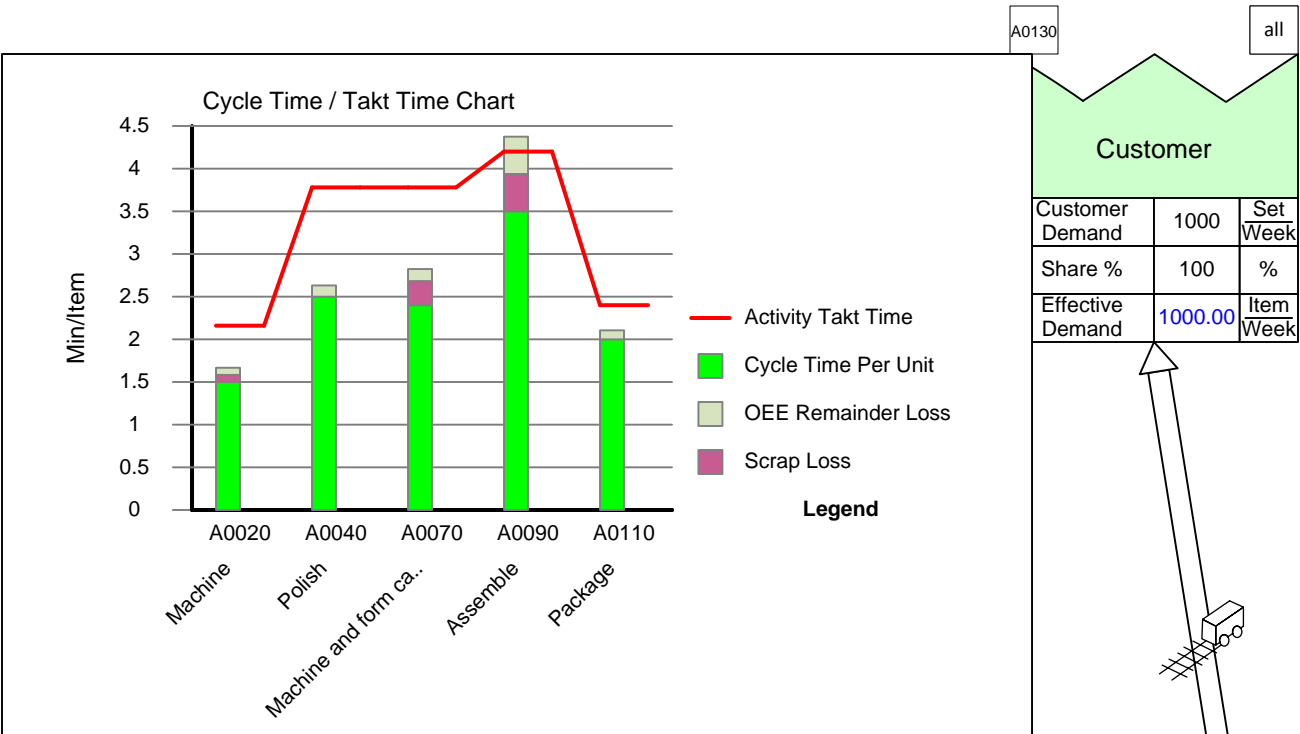
A0030	1	
Machined Sets		
Inventory	50	Set

A0040	1	
Polish		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	319.20	Item/Day
Pre OEE Capacity	336.00	Item/Day
OEE Percent	95.00	%
OEE Input Percent	95	%
Stations	2	Stn

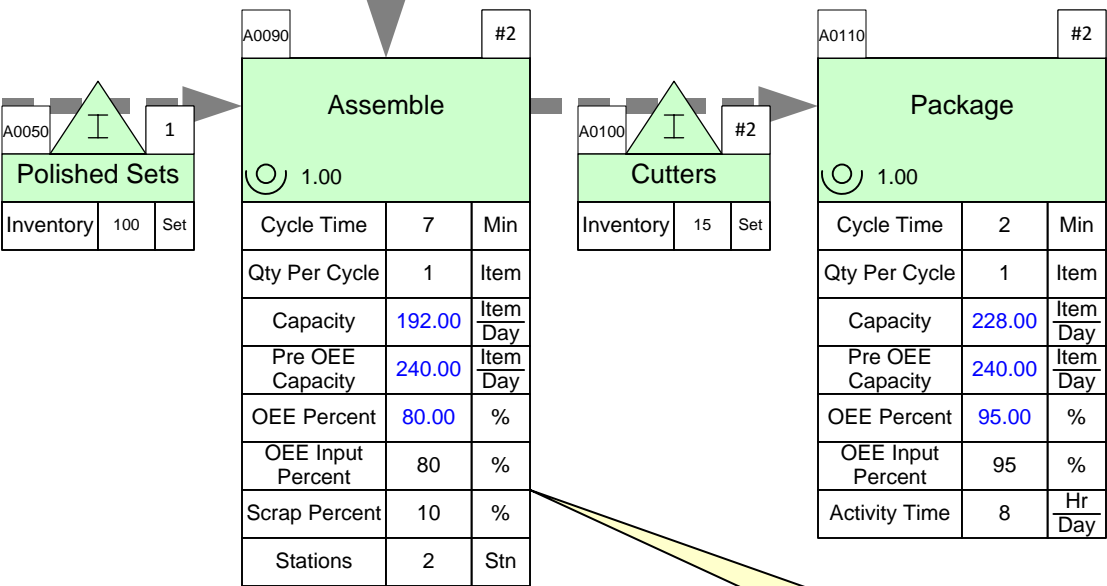


2 Double-click to change to Hr/Day.

Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item




Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week



1 Drag out the appropriate add-ons for each center. Be sure to glue the add-ons to the center.

Step 17: Hide/Show Cost Variables

1 Click the Views button in the toolbar.  Views

Quick Mfg LT

Z0010	1	
Time Summary		
Lead Time	10.85	Day
Total Value Added	20.75	Min
Value Added Percent	0.23	%
Takt Time	4.20	Min Item
Total Cycle Time	17.00	Min

A0060	2	
Spring Steel Rolls		
Inventory	10	Roll
Cumulative Cost	6.00	\$ Item
Added Cost	300	\$ Roll

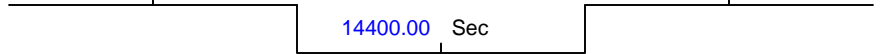
A0070	2	
Machine and form caliper springs		
1.00		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	297.50	Item Day
Pre OEE Capacity	350.00	Item Day
OEE Percent	85.00	%
Added Cost	0.25	\$ Set
Cumulative Cost	6.94	\$ Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	85	%

A0080	2	
Springs		
Inventory	150	Set
Cumulative Cost	6.94	\$ Item
Added Cost	0.00	\$ Item

Z0020	2	
Time Summary		
Lead Time	8.62	Day
Total Value Added	250.50	Min
Value Added Percent	3.46	%
Takt Time	4.20	Min Item
Total Cycle Time	249.00	Min

2.50 Day

0.75 Day



A0010	1	
Casting Sets		
Inventory	1000	Set
Cumulative Cost	37.00	\$ Item
Added Cost	37	\$ Set

A0020	1	
Machine		
1.00		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	288.00	Item Day
Pre OEE Capacity	320.00	Item Day
OEE Percent	90.00	%
Added Cost	1	\$ Set
Cumulative Cost	40.00	\$ Item
Stations	2	Stn
Scrap Percent	5	%
Activity Time	8	Hr Day
OEE Input Percent	90	%

A0030	1	
Machined Sets		
Inventory	50	Set
Cumulative Cost	40.00	\$ Item
Added Cost	0.00	\$ Item

A0040	1	
Polish		
1.00		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	319.20	Item Day
Pre OEE Capacity	336.00	Item Day
OEE Percent	95.00	%
Added Cost	2	\$ Set
Cumulative Cost	42.00	\$ Item
Stations	2	Stn
OEE Input Percent	95	%

5.00 Day

0.25 Day



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

Variable Visibility

Center/Addon Name	Variable Name(s)	Visibility	Multi-Add
Customer Center	Customer Demand	<input checked="" type="checkbox"/>	
	Share %	<input checked="" type="checkbox"/>	
	Effective Demand	<input checked="" type="checkbox"/>	
Inventory Center	Inventory	<input checked="" type="checkbox"/>	
	Non Value Added	<input checked="" type="checkbox"/>	
	Cumulative Cost	<input checked="" type="checkbox"/>	
	Added Cost	<input checked="" type="checkbox"/>	
	Duration	<input type="checkbox"/>	
	End Time	<input type="checkbox"/>	
	Inventory Value	<input type="checkbox"/>	
	Annual Inv Carry Cost	<input type="checkbox"/>	
	Computed Inv Demand	<input type="checkbox"/>	
	Check Time	<input type="checkbox"/>	

Buttons: Default, Hide Auto, Hide All, Show All, Cancel, OK

A0130	all	
Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week

2 Check the Cumulative Cost visibility box.

3 Check the Added Cost visibility box and click OK.

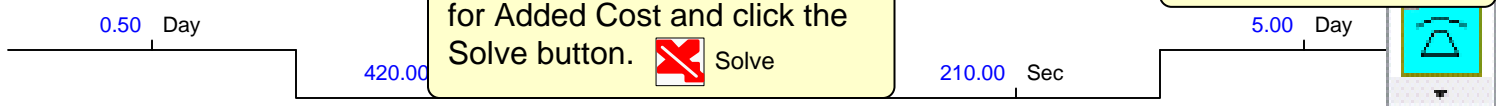
A0050	I	1
Polished Sets		
Inventory	100	Set
Cumulative Cost	42.00	\$/Item
Added Cost	0.00	\$/Item

A0100	I	#2
Cutters		
Inventory	15	Set
Cumulative Cost	57.72	\$/Item
Added Cost	0.00	\$/Item

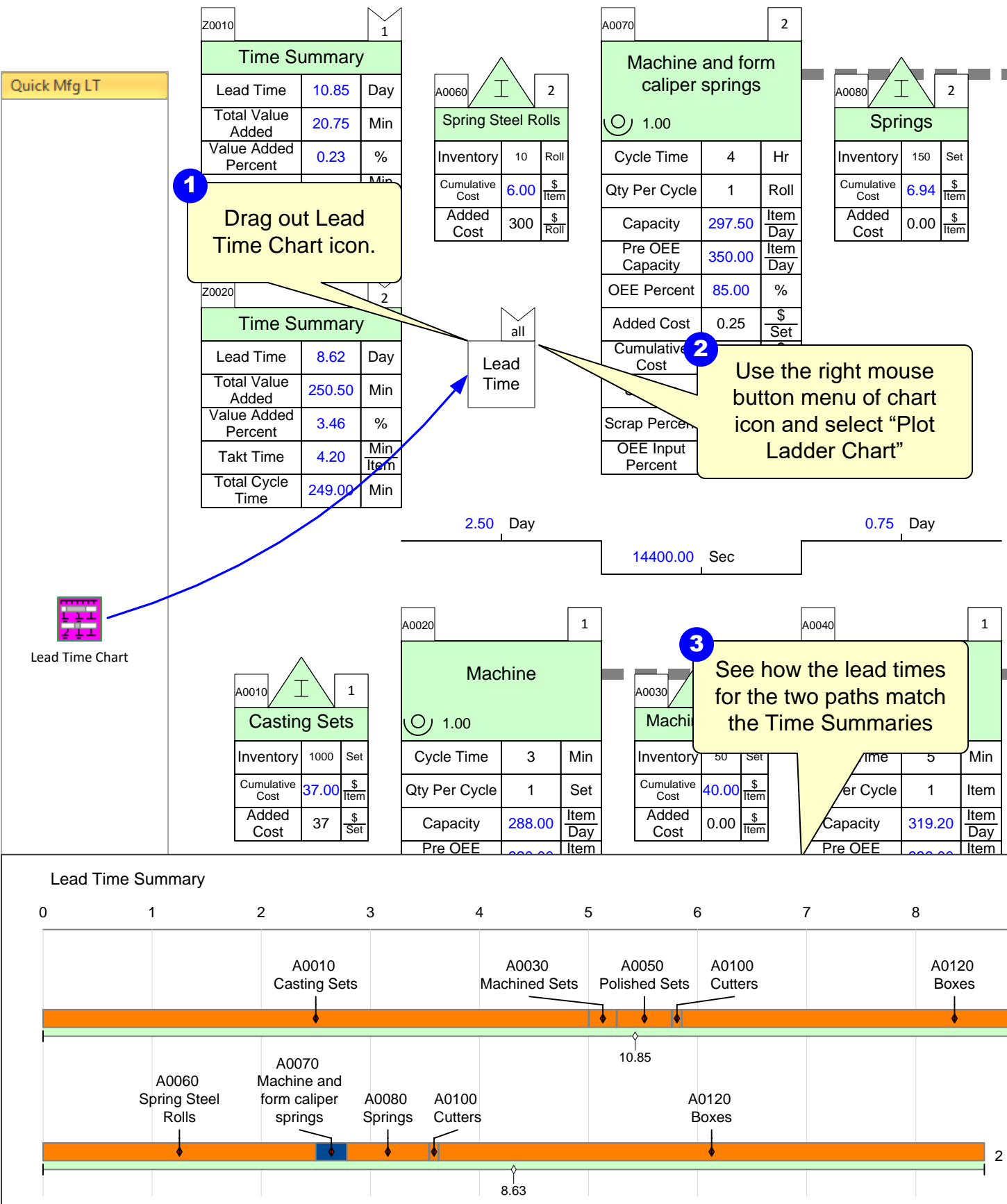
A0120	I	#2
Boxes		
Inventory	1000	Item
Cumulative Cost	58.72	\$/Item
Added Cost	0.00	\$/Item

4 Now that the Added Cost and Cumulative Cost variables are visible, fill in the data values for Added Cost and click the Solve button.

5 Make sure the correct unit is selected for each center.



Step 18: Plot Lead Time Chart



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item



A0130	Customer		all
Customer Demand	1000	Set	Week
Share %	100	%	
Effective Demand	1000.00	Item	Week

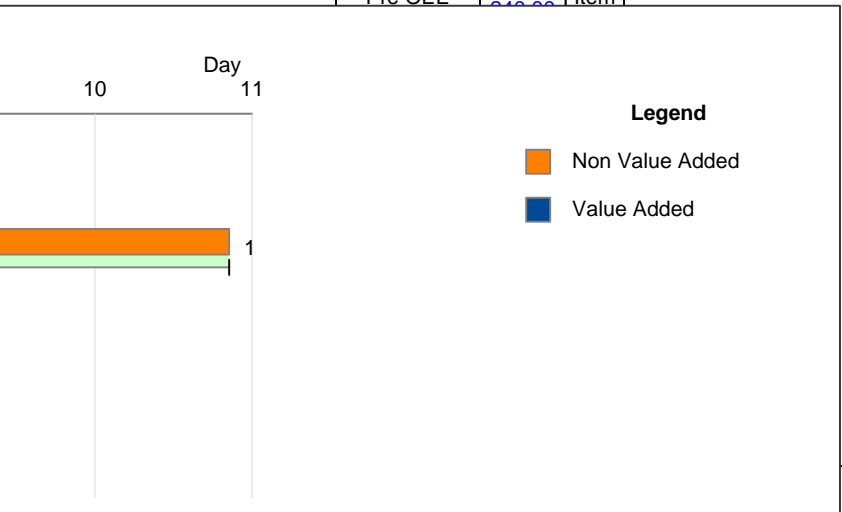
A0050	I	1
Polished Sets		
Inventory	100	Set
Cumulative Cost	42.00	\$/Item
Added Cost	0.00	\$/Item

A0090	#2
Assemble	
1.00	
Cycle Time	7 Min
Qty Per Cycle	1 Item
Capacity	192.00 Item/Day
Pre OEE	0.00 Item

A0100	I	#2
Cutters		
Inventory	15	Set
Cumulative Cost	57.72	\$/Item
Added Cost	0.00	\$/Item

A0110	#2
Package	
1.00	
Cycle Time	2 Min
Qty Per Cycle	1 Item
Capacity	228.00 Item/Day
Pre OEE Capacity	240.00 Item/Day
OEE Percent	95.00 %
Added Cost	1 \$/Set
Cumulative Cost	58.72 \$/Item
Activity Time	8 Hr/Day
OEE Input Percent	95 %

A0120	I	#2
Boxes		
Inventory	1000	Item
Cumulative Cost	58.72	\$/Item
Added Cost	0.00	\$/Item




210.00 Sec

5.00 Day

Step 19: Resource Modeling

Quick Mfg LT



Resource Center

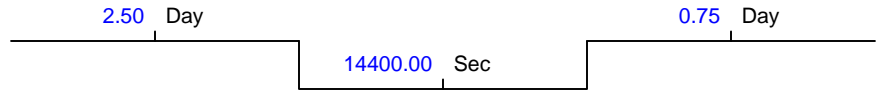
Z0010	1	
Time Summary		
Lead Time	10.85	Day
Total Value Added	20.75	Min
Value Added Percent	0.23	%
Takt Time	4.20	Min/Item
Total Cycle Time	17.00	Min

A0060	2	
Spring Steel Rolls		
Inventory	10	Roll
Cumulative Cost	6.00	\$/Item
Added Cost	300	\$/Roll

A0070	2	
Machine and form caliper springs		
1.00		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	297.50	Item/Day
Pre OEE Capacity	350.00	Item/Day
OEE Percent	85.00	%
Added Cost	0.25	\$/Set
Cumulative Cost	6.94	\$/Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	85	%

A0080	2	
Springs		
Inventory	150	Set
Cumulative Cost	6.94	\$/Item
Added Cost	0.00	\$/Item

Z0020	2	
Time Summary		
Lead Time	8.62	Day
Total Value Added	250.50	Min
Value Added Percent	3.46	%
Takt Time	4.20	Min/Item
Total Cycle Time	249.00	Min

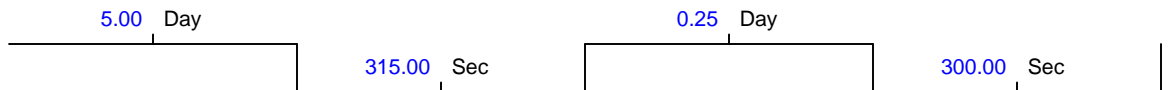


A0010	1	
Casting Sets		
Inventory	1000	Set
Cumulative Cost	37.00	\$/Item
Added Cost	37	\$/Set

A0020	1	
Machine		
1.00		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	288.00	Item/Day
Pre OEE Capacity	320.00	Item/Day
OEE Percent	90.00	%
Added Cost	1	\$/Set
Cumulative Cost	40.00	\$/Item
Stations	2	Stn
Scrap Percent	5	%
Activity Time	8	Hr/Day
OEE Input Percent	90	%

A0030	1	
Machined Sets		
Inventory	50	Set
Cumulative Cost	40.00	\$/Item
Added Cost	0.00	\$/Item

A0040	1	
Polish		
1.00		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	319.20	Item/Day
Pre OEE Capacity	336.00	Item/Day
OEE Percent	95.00	%
Added Cost	2	\$/Set
Cumulative Cost	42.00	\$/Item
Stations	2	Stn
OEE Input Percent	95	%



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

1 Drag out the Resource Center from the Quick Mfg stencil and enter the data.

A0140		all
Operator		
Resource Quantity	2	RQ
Resource Time	12	Hr Day
Resource Rate	20	\$ Hr
Resource Utilization	Auto	%

2 Right-click the center to change into a Machine.

A0150		all
Machine		
Resource Quantity	1	RQ
Resource Time	14	Hr Day
Resource Rate	15	\$ Hr
Resource Utilization	Auto	%

A0130		all
Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week

A0050		1
Polished Sets		
Inventory	100	Set
Cumulative Cost	42.00	\$ Item
Added Cost	0.00	\$ Item

A0090		#2
Assemble		
	1.00	
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	192.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	80.00	%
Added Cost	3	\$ Set
Cumulative Cost	57.72	\$ Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	80	%

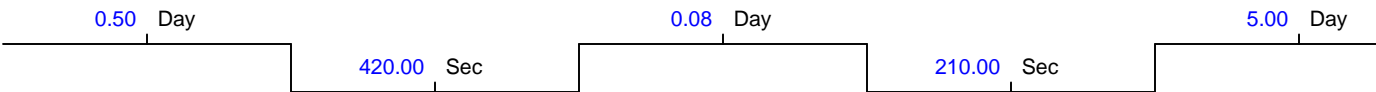
A0100		#2
Cutters		
Inventory	15	Set
Cumulative Cost	57.72	\$ Item
Added Cost	0.00	\$ Item

A0110		#2
Package		
	1.00	
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	228.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	95.00	%
Added Cost	1	\$ Set
Cumulative Cost	58.72	\$ Item
Activity Time	8	Hr Day
OEE Input Percent	95	%

A0120		#2
Boxes		
Inventory	1000	Item
Cumulative Cost	58.72	\$ Item
Added Cost	0.00	\$ Item

Vertical toolbar containing icons for:

- Simulation start/stop
- Inventory
- Trash List
- Help
- Undo
- Redo
- Refresh
- Zoom in/out
- Simulation controls (play, pause, stop)
- Simulation speed
- Simulation mode (FIFO+)
- Simulation environment icons (truck, factory)



Step 20: Adding Resource Pipes

Quick Mfg LT

Z0010	1	
Time Summary		
Lead Time	10.85	Day
Total Value Added	20.75	Min
Value Added Percent	0.23	%
Takt Time	4.20	Min/Item
Total Cycle Time	17.00	Min

A0060	2	
Spring Steel Rolls		
Inventory	10	Roll
Cumulative Cost	6.00	\$/Item
Added Cost	300	\$/Roll

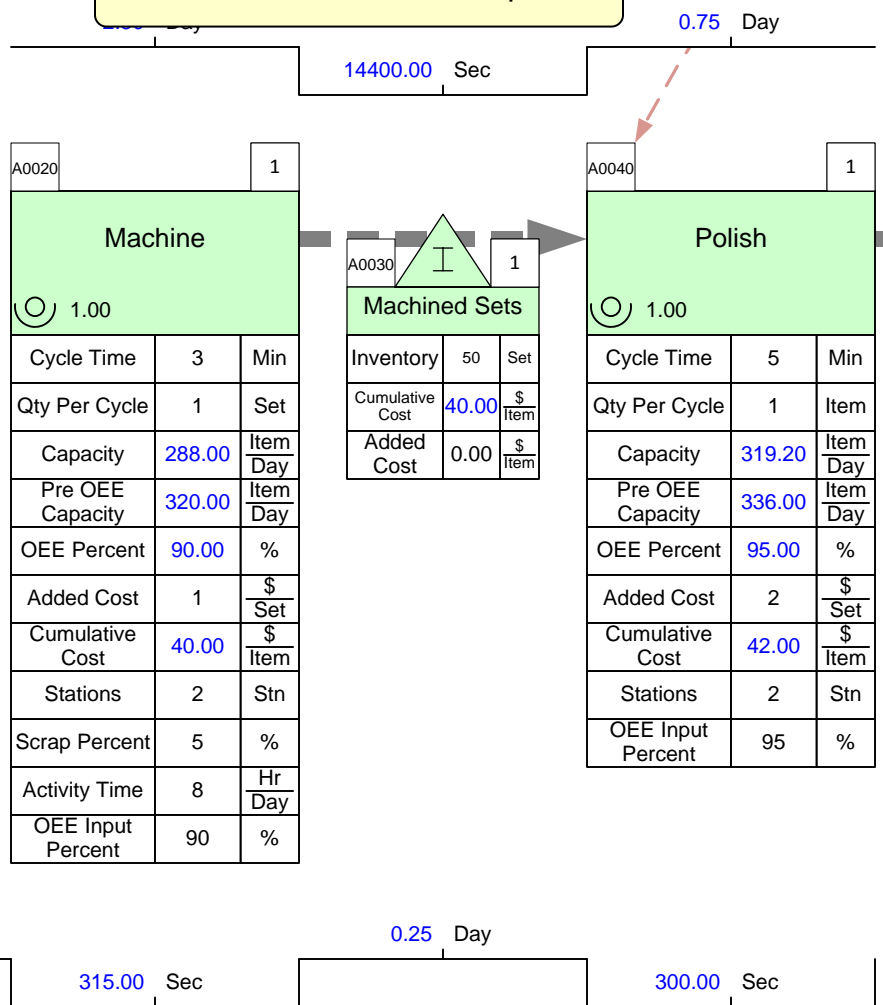
A0070	2	
Machine and form caliper springs		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	297.50	Item/Day
Pre OEE Capacity	350.00	Item/Day
OEE Percent	85.00	%
Added Cost	0.25	\$/Set
Cumulative Cost	6.94	\$/Item

A0080	2	
Springs		
Inventory	150	Set
Cumulative Cost	6.94	\$/Item
Added Cost	0.00	\$/Item

Z0020	2	
Time Summary		
Lead Time	8.62	Day
Total Value Added	250.50	Min
Value Added Percent	3.46	%
Takt Time	4.20	Min/Item
Total Cycle Time	249.00	Min

2 Add Resource Pipes for the appropriate Resource Centers to Activity Centers. Make sure the correct unit is changed for the data on the Resource Pipe.

Resource PT	5	Min/Item
-------------	---	----------



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

Operator		
Resource Quantity	2	RQ
Resource Time	12	Hr Day
Resource Rate	20	\$ Hr
Resource Utilization	Auto	%

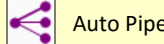
Machine		
Resource Quantity	1	RQ
Resource Time	14	Hr Day
Resource Rate	15	\$ Hr
Resource Utilization	Auto	%

Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week

Resource PT	10	Min Item
-------------	----	----------

Resource PT	10	Min Item
-------------	----	----------

1 To add Resource Pipes, hold down the SHIFT key and select the Resource Center and then the Activity that it is being piped into, then click the Auto Pipe button.



Polished Sets		
Inventory	100	Set
Cumulative Cost	42.00	\$ Item
Added Cost	0.00	\$ Item

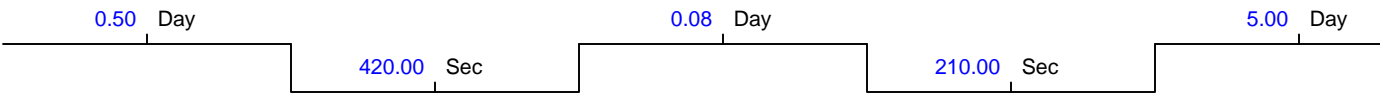
Activity B		
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	192.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	80.00	%
Added Cost	3	\$ Set
Cumulative Cost	57.72	\$ Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	80	%

Cutters		
Inventory	15	Set
Cumulative Cost	57.72	\$ Item
Added Cost	0.00	\$ Item

Package		
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	228.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	95.00	%
Added Cost	1	\$ Set
Cumulative Cost	58.72	\$ Item
Activity Time	8	Hr Day
OEE Input Percent	95	%


Boxes		
Inventory	1000	Item
Cumulative Cost	58.72	\$ Item
Added Cost	0.00	\$ Item

-
-
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-
-
-
-
-
-
-
-



Step 21: Resource Balance Chart

Quick Mfg LT



Resource Balance Chart


Z0010	1	
Time Summary		
Lead Time	10.85	Day
Total Value Added	20.75	Min
Value Added Percent	0.23	%
Takt Time	4.20	Min Item
Total Cycle Time	17.00	Min

A0060	2	
Spring Steel Rolls		
Inventory	10	Roll
Cumulative Cost	6.00	\$ Item
Added Cost	300	\$ Roll

A0070	2	
Machine and form caliper springs		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	297.50	Item Day
Pre OEE Capacity	350.00	Item Day
OEE Percent	85.00	%
Added Cost	0.25	\$ Set
Cumulative Cost	6.94	\$ Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	85	%

A0080	2	
Springs		
Inventory	150	Set
Cumulative Cost	6.94	\$ Item
Added Cost	0.00	\$ Item

Z0020	2	
Time Summary		
Lead Time	8.62	Day
Total Value Added	250.50	Min
Value Added Percent	3.46	%
Takt Time	4.20	Min Item
Total Cycle Time	249.00	Min

1 Click the Solve button to update the new calculations. 

A0010	1	
Casting Sets		
Inventory	1000	Set
Cumulative Cost	37.00	\$ Item
Added Cost	37	\$ Set

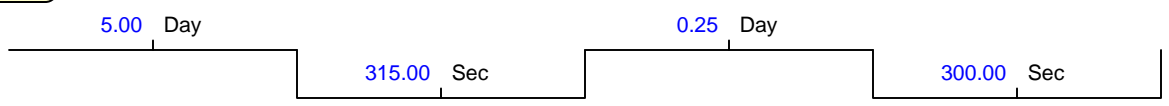
A0020	1	
Machine		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	288.00	Item Day
Pre OEE Capacity	320.00	Item Day
OEE Percent	90.00	%
Added Cost	2	\$ Set
Cumulative Cost	43.67	\$ Item
Stations	2	Stn
Scrap Percent	10	%
Activity Time	8	Hr Day
OEE Input Percent	90	%

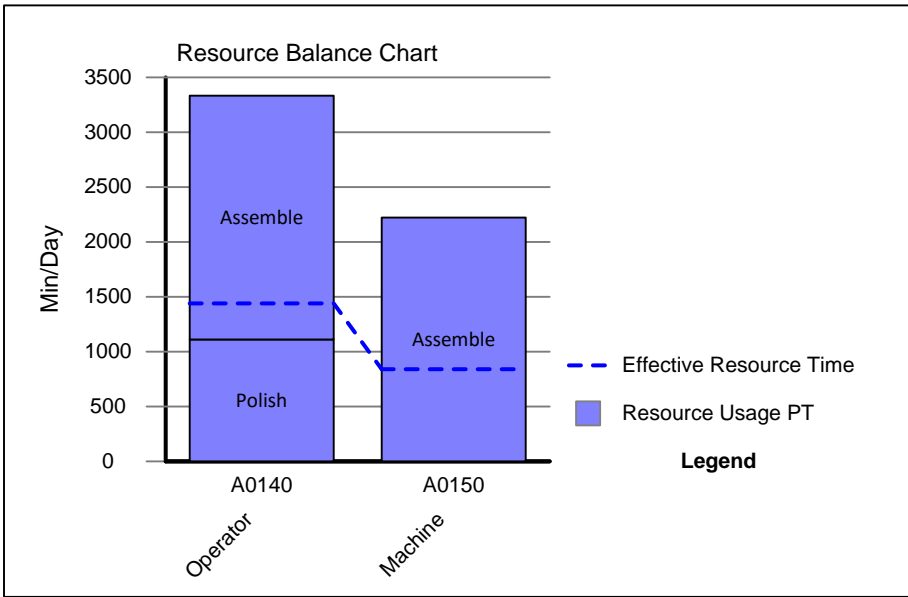
A0030	1	
Machined Sets		
Inventory	50	Set
Cumulative Cost	40.00	\$ Item
Added Cost	0.00	\$ Item

A0040	1	
Polish		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	319.20	Item Day
Pre OEE Capacity	336.00	Item Day
OEE Percent	95.00	%
Added Cost	2	\$ Set
Cumulative Cost	43.67	\$ Item
Stations	2	Stn
OEE Input Percent	95	%

3 Use the right mouse button menu of chart icon and select "Plot Chart"

2 Drag out the Resource Balance Chart shape.





Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week

Operator		
Resource Quantity	2	RQ
Resource Time	12	Hr Day
Resource Rate	20	\$ Hr
Resource Utilization	231.48	%

Machine		
Resource Quantity	1	RQ
Resource Time	14	Hr Day
Resource Rate	15	\$ Hr
Resource Utilization	264.55	%

Resource PT	10	Min Item
Resource PT	10	Min Item

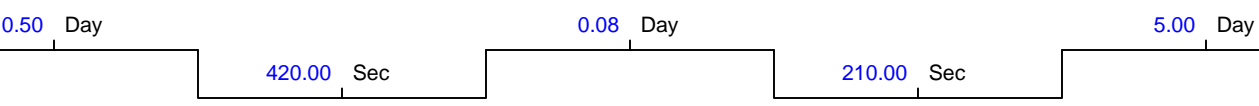
Polished Sets		
Inventory	100	Set
Cumulative Cost	43.67	\$ Item
Added Cost	0.00	\$ Item

Assemble		
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	192.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	80.00	%
Added Cost	3	\$ Set
Cumulative Cost	66.05	\$ Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	80	%

Cutters		
Inventory	15	Set
Cumulative Cost	66.05	\$ Item
Added Cost	0.00	\$ Item

Package		
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	228.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	95.00	%
Added Cost	1	\$ Set
Cumulative Cost	67.05	\$ Item
Activity Time	8	Hr Day
OEE Input Percent	95	%

Boxes		
Inventory	1000	Item
Cumulative Cost	67.05	\$ Item
Added Cost	0.00	\$ Item



Step 22: Kaizen Improvements

Quick Mfg LT

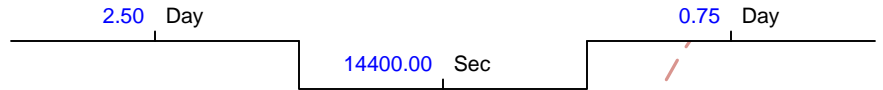
Z0010	1	
Time Summary		
Lead Time	10.85	Day
Total Value Added	20.75	Min
Value Added Percent	0.23	%
Takt Time	4.20	Min/Item
Total Cycle Time	17.00	Min

A0060	2	
Spring Steel Rolls		
Inventory	10	Roll
Cumulative Cost	6.00	\$/Item
Added Cost	300	\$/Roll

A0070	2	
Machine and form caliper springs		
⊙ 1.00		
Cycle Time	4	Hr
Qty Per Cycle	1	Roll
Capacity	297.50	Item/Day
Pre OEE Capacity	350.00	Item/Day
OEE Percent	85.00	%
Added Cost	0.25	\$/Set
Cumulative Cost	6.94	\$/Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	85	%

A0080	2	
Springs		
Inventory	150	Set
Cumulative Cost	6.94	\$/Item
Added Cost	0.00	\$/Item

Z0020	2	
Time Summary		
Lead Time	8.62	Day
Total Value Added	250.50	Min
Value Added Percent	3.46	%
Takt Time	4.20	Min/Item
Total Cycle Time	249.00	Min



A0010	1	
Casting Sets		
Inventory	1000	Set
Cumulative Cost	37.00	\$/Item
Added Cost	37	\$/Set

A0020	1	
Machine		
⊙ 1.00		
Cycle Time	3	Min
Qty Per Cycle	1	Set
Capacity	288.00	Item/Day
Pre OEE Capacity	320.00	Item/Day
OEE Percent	90.00	%
Added Cost	1	\$/Set
Cumulative Cost	40.00	\$/Item
Stations	2	Stn
Scrap Percent	5	%
Activity Time	8	Hr/Day

A0030	1	
Machined Sets		
Inventory	50	Set
Cumulative Cost	40.00	\$/Item
Added Cost	0.00	\$/Item

A0040	1	
Polish		
⊙ 1.00		
Cycle Time	5	Min
Qty Per Cycle	1	Item
Capacity	319.20	Item/Day
Pre OEE Capacity	336.00	Item/Day
OEE Percent	95.00	%
Added Cost	2	\$/Set
Cumulative Cost	43.67	\$/Item
Stations	2	Stn
OEE Input Percent	95	%


001 Excessive capital tied up in raw materials inventory

2 Right click kaizen and select "Edit Kaizen". Add relevant information in the Kaizen Properties form, such as Impact and Ease of Implementation values.



Resource PT	5	Min/Item
-------------	---	----------

Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

3 Click the Kaizen Export button in the toolbar to create a kaizen report in Excel.  Kaizen Export

Operator		
Resource Quantity	2	RQ
Resource Time	12	Hr Day
Resource Rate	20	\$ Hr
Resource Utilization	231.48	%

Resource PT	10	Min Item
-------------	----	----------

Resource PT	10	Min Item
-------------	----	----------

Machine		
Resource Quantity	1	RQ
Resource Time	14	Hr Day
Resource Rate	15	\$ Hr
Resource Utilization	264.55	%

Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week

002 Assemble process is a bottleneck because of low OEE and high scrap

Polished Sets		
Inventory	100	Set
Cumulative Cost	43.67	\$ Item
Added Cost	0.00	\$ Item

Assemble		
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	192.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	80.00	%
Added Cost	3	\$ Set
Cumulative Cost	66.05	\$ Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	80	%

Cutters		
Inventory	15	Set
Cumulative Cost	66.05	\$ Item
Added Cost	0.00	\$ Item

Boxes		
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	228.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	95.00	%
Added Cost	1	\$ Set
Cumulative Cost	67.05	\$ Item
Activity Time	8	Hr Day
OEE Input Percent	95	%

Inventory	1000	Item
Cumulative Cost	67.05	\$ Item
Added Cost	0.00	\$ Item

1 Drag out Kaizen starbursts from the Quick Extras stencil.

0.50 Day

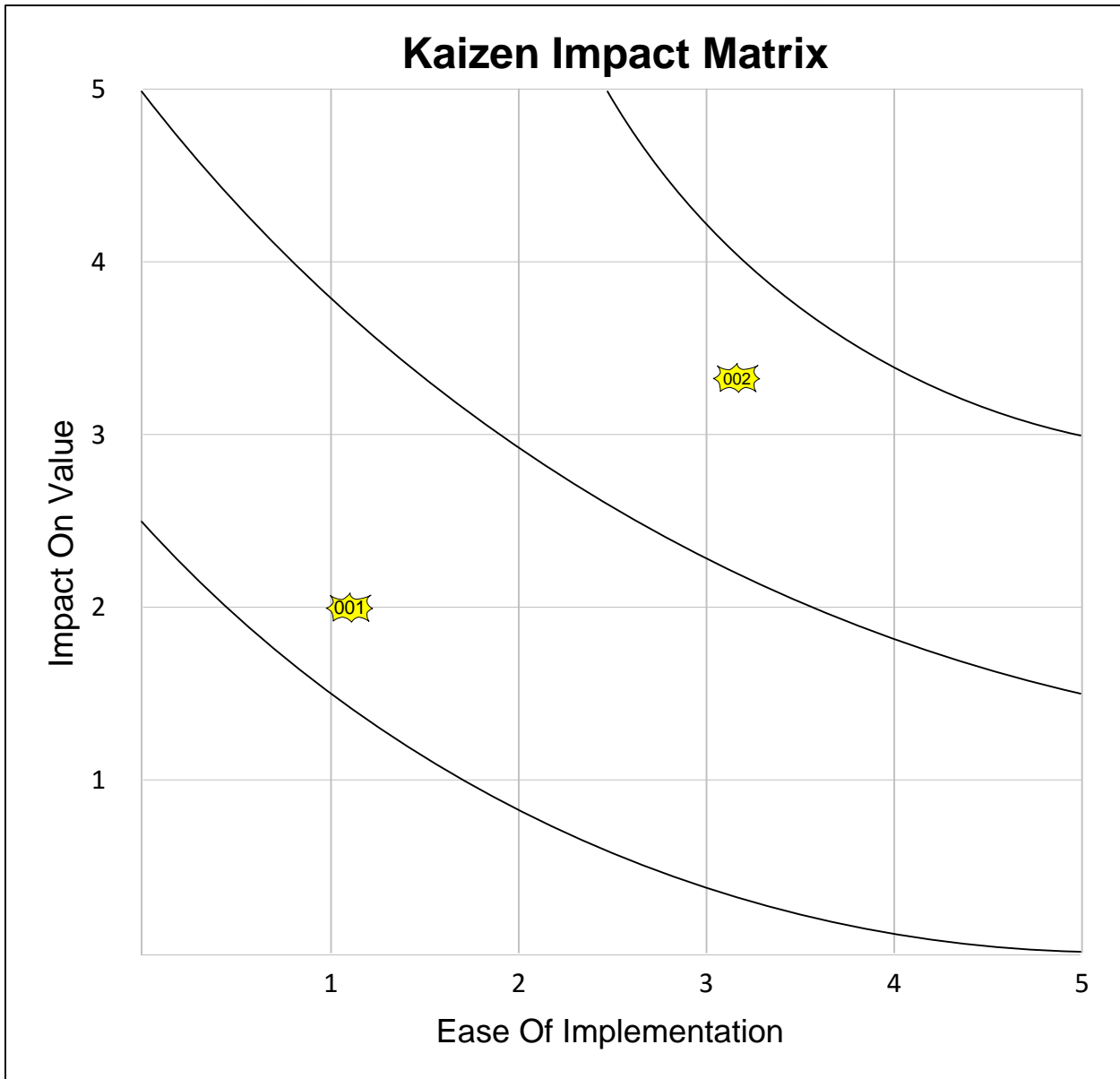
0.08 Day

5.00 Day

420.00 Sec

210.00 Sec

Step 23: Kaizen Impact Matrix



Springs		
Inventory	150	Set
Relative Cost	6.94	\$/Item
Fixed Cost	0.00	\$/Item

Resource PT	5	Min/Item
-------------	---	----------

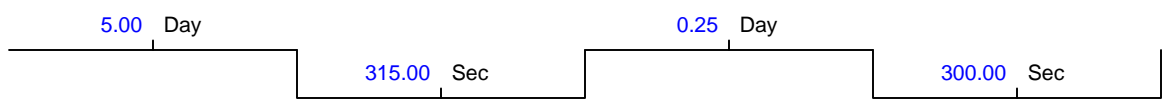
0.75 Day

Polish		
Time	5	Min
Cycle	1	Item
Quantity	319.20	Item/Day

001 Excessive capital tied up in raw materials inventory

Pre OEE Capacity	320.00	Item/Day
OEE Percent	90.00	%
Added Cost	1	\$/Set
Cumulative Cost	40.00	\$/Item
Stations	2	Stn
Scrap Percent	5	%
Activity Time	8	Hr/Day
OEE Input Percent	90	%

Pre OEE Capacity	336.00	Item/Day
OEE Percent	95.00	%
Added Cost	2	\$/Set
Cumulative Cost	43.67	\$/Item
Stations	2	Stn
OEE Input Percent	95	%



Units	Week	Year	Week	Roll	Set
	70	52	5	50	1
	Hr	Week	day	Set	Item

1 Drag out the Kaizen Impact Matrix and right-click to plot.

Kaizen Impact Matrix

Customer		
Customer Demand	1000	Set Week
Share %	100	%
Effective Demand	1000.00	Item Week

Machine		
Resource Quantity	1	RQ
Resource Time	14	Hr Day
Resource Rate	15	\$ Hr
Resource Utilization	264.5	5 %

Operator		
Resource Quantity	2	RQ
Resource Time	12	Hr Day
Resource Rate	20	\$ Hr
Resource Utilization	231.4	8 %

Resource PT	10	Min Item
-------------	----	----------

Resource PT	10	Min Item
-------------	----	----------

002 Assemble process is a bottleneck because of low OEE and high scrap

Polished Sets		
Inventory	100	Set
Cumulative Cost	43.67	\$ Item
Added Cost	0.00	\$ Item

Assemble		
Cycle Time	7	Min
Qty Per Cycle	1	Item
Capacity	192.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	80.00	%
Added Cost	3	\$ Set
Cumulative Cost	66.05	\$ Item
Stations	2	Stn
Scrap Percent	10	%
OEE Input Percent	80	%

Cutters		
Inventory	15	Set
Cumulative Cost	66.05	\$ Item
Added Cost	0.00	\$ Item

Package		
Cycle Time	2	Min
Qty Per Cycle	1	Item
Capacity	228.00	Item Day
Pre OEE Capacity	240.00	Item Day
OEE Percent	95.00	%
Added Cost	1	\$ Set
Cumulative Cost	67.05	\$ Item
Activity Time	8	Hr Day
OEE Input Percent	95	%

Boxes		
Inventory	1000	Item
Cumulative Cost	67.05	\$ Item
Added Cost	0.00	\$ Item

0.50 Day

0.08 Day

5.00 Day

420.00 Sec

210.00 Sec