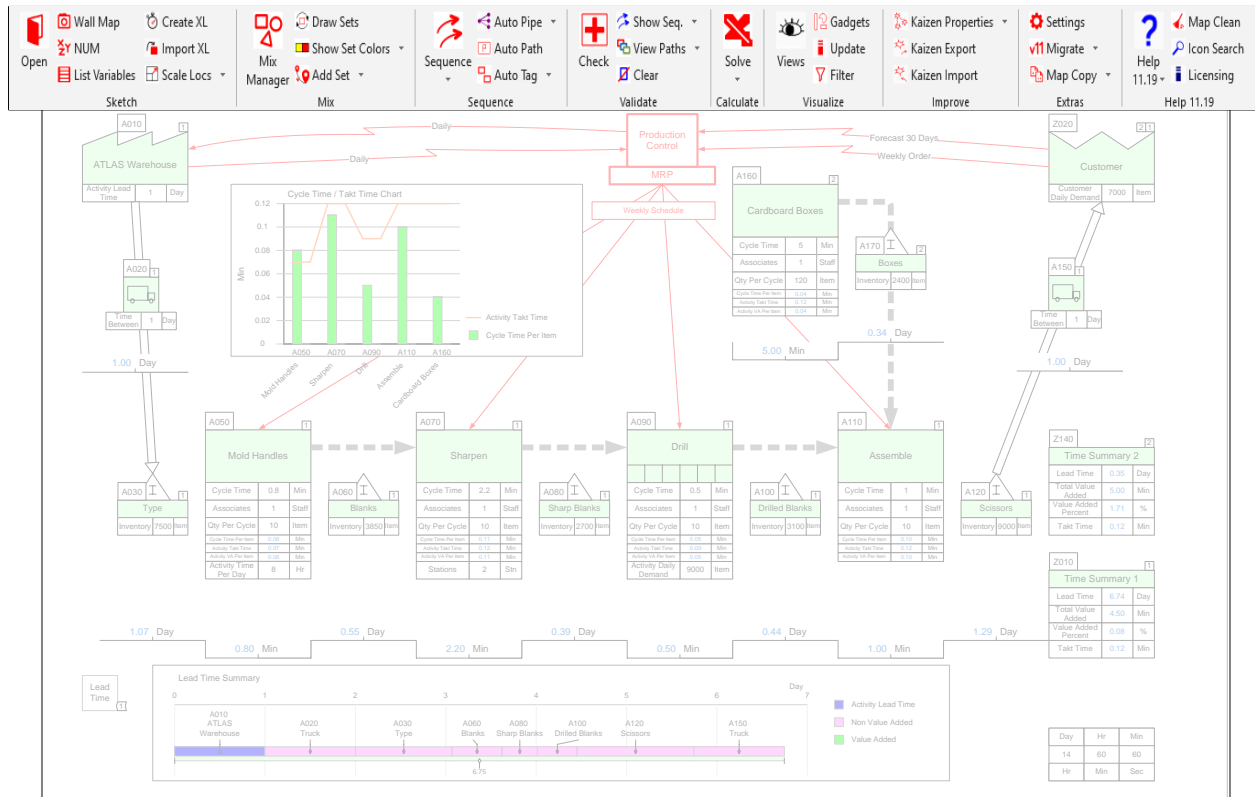# eVSM v11
Toolbar Reference Manual

This reference manual complements eLeanor with functional descriptions of all the buttons in the eVSM toolbar (ribbon) and some other core functionality.

How to use this book

New users of eVSM should begin with eLeanor, the eVSM learning and certification site at https://evsm.com/learn. eLeanor is a points based fun learning environment which uses multi-media and facilitates anytime, anywhere, individual, or team based training. The eVSM Group also offers live instructor-led training, see details at https://evsm.com/services.

This reference manual complements eLeanor with functional descriptions of all the buttons in the eVSM toolbar and some other core functionality.

The manual is designed both for on-screen viewing and print. For on-screen usage, the manual is best viewed in Acrobat Reader. To search, use the Ctrl+F shortcut. Also, it is a good idea to set the Acrobat view to "Show two pages side-by-side".

Use Ctrl+F to Search in Acrobat Reader
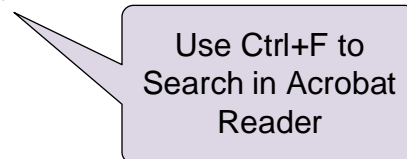
For hardcopy, print the manual on double-sided paper and use the table of contents or the index to quickly find answers to your questions.

Table of Contents

1. The eVSM Environment

eVSM Overview

Value stream mapping provides a high level view of a lean deployment. Its methodology is well laid out in the series of workbooks from the Lean Enterprise Institute (www.lean.org). The eVSM software has been designed to complement these workbooks and provide lean practitioners a tool to support their value stream mapping activities, starting from paper and pencil through improvement projects, leading to a leaner future state.

The primary modules in eVSM (Sketch, Sequence, Validate, Calculate, Visualize, Improve) are deliberately organized to match the process steps that we have seen practitioners follow in their mapping activities.

We have seen eVSM used in three ways in our user community:

1. By practitioners who simply want to capture a map electronically and want access to a complete VSM icon set that is easy to use.

2. By practitioners that want to draw a map and do simple calculations in Excel corresponding to data on the map.

3. By practitioners who want highly standardized and automated maps to include icons as well as variables, lean equations, charts, and improvement methodology.

While the third approach best leverages the software in a lean deployment, its drawback in the past has been the learning curve associated with its usage. eVSM has introduced ready-built stencils for different application areas to address this issue. Applications include:

- Plant level mapping for discrete parts and assemblies

- Plant level mapping for food and chemical processes

- Supply network mapping

- Services and information flow mapping

- Facility layout design

There are also a collection of other stencils available such as Kanban calculations, spaghetti diagramming, milk run design, etc.

Recommended Layout for Quick eVSM
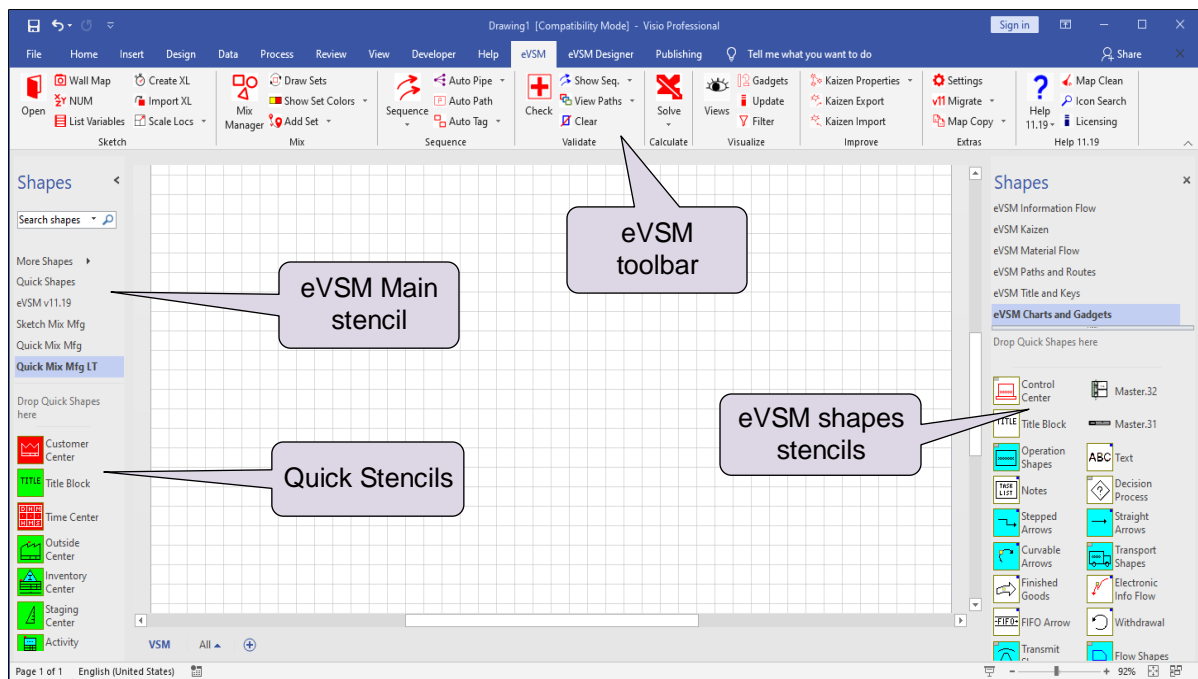
Note that the main eVSM stencil (typically named eVSM vX.XX) is on the left of the screen. We refer to this as the "Main Stencil". It's important that this stencil is never closed. The main stencil is organized into sub-stencils, so that it is easier to find shapes, and are also found on the right.

Any Quick eVSM stencils (such as Quick Mfg) are docked on the left of the screen. We refer to such stencils as the "Quick Stencil". Click and drag the Quick Stencil header bar to move it to this docked position.

eVSM Pre-requisites and Updates

See current system requirements for eVSM at https://evsm.com/evsm-technical-support#toc-1

For later updates to eVSM see: https://evsm.com/install

## Starting eVSM   Start eVSM

The best way to start a blank value stream map is to double-click the eVSM icon on your desktop. If your Visio security setting is set to anything but low, messages will come up asking for permission to "Enable Macros". You must answer "Yes" allow macros to run.

Drag & Drop

The Help button on the toolbar requires an internet connection and will open up a web browser pointed to the eVSM help site at www.evsm.com/learn. **?** Help

We offer technical support for the latest release of the eVSM software through our Maintenance, Enhancement, and Support program.. Please email us at support@evsm.com.

eVSM Shapes & Stencils
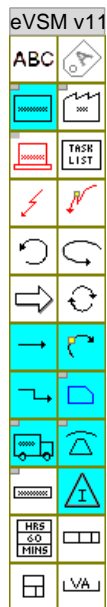
eVSM has a collection of value stream mapping shapes that appear in the main eVSM stencils to the right of the drawing page.

These shapes, behaviors, and corresponding functions have been designed from the outset to support the series of lean workbooks from the Lean Enterprise Institute (www.lean.org) and its worldwide network partners. The primary workbook impacting the design has been "Learning To See".

As software usage has become widespread across multiple industries, the icon language has been extended to keep pace with practitioner requests and lean publications in each industry.

In addition to the basic icons to the right of the drawing page, eVSM includes Quick stencils for Manufacturing, Enterprise, Processing, Transactional, Warehousing, and Healthcare.

These quick stencils offer rapid map development complete with automated analysis and charting.

Page Resizing

To resize the page, hold down the CTRL key and move the cursor to the middle of the edge of the page. The cursor will turn into a double-headed arrow. Simply grab the edge and pull it to the required size.
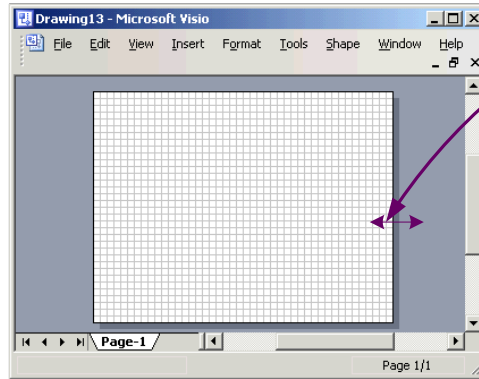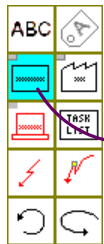
Snap To Grid

Shapes are designed to be grid-sized. The drawing page has a grid on it. Snap shapes to grid locations for easy alignment.
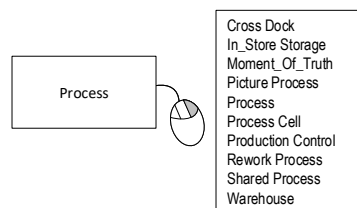
Resizing Shapes

Avoid resizing shapes. Shapes are designed to fit together and resizing a shape will make "fitting" shapes together difficult and create a lot of extra work.

eVSM Help Site

Drag and drop eVSM icons from the stencil onto the drawing page.

Blue icons represent stacks of shapes. Access the stack by dragging out the shape and then clicking the right mouse button.

Cross Dock
In_Store Storage
Moment_Of_Truth
Picture Process
Process
Process Cell
Production Control
Rework Process
Shared Process
Warehouse

Process

Icons with a blue square in the top right corner symbolize that shapes in that icon stack are used for visual purposes only, and not used for calculations.

Straight Arrows

Manipulating Text

Double-click a shape to edit its text. Some eVSM shapes require additional steps to change text. Just double-click and then follow the on-screen instructions.

The Visio Text Block Tool (located in the Visio Home toolbar) can be used to resize or move the text within a shape.

 Text Block Tool

When active, the Text Block Tool displays control handles around the text belonging to a shape. These control handles can be used to position and size the text block.


Twice per week   Twice per week   Twice per week
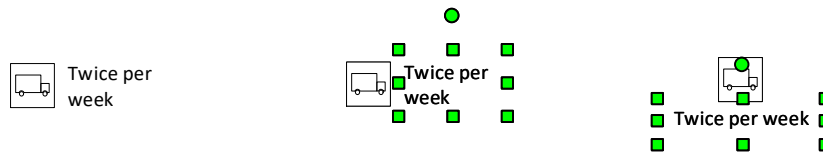
Caution: Be sure to de-select the Text Block Tool when finished. You can deselect it by clicking it again in the toolbar, or by clicking the Pointer tool also in the Home toolbar.

 Pointer Tool

Re-opening eVSM Stencils

The eVSM stencils (*.vss files) are stored in the "C:\Program Files (x86)\eVSM\Setup\Solutions" folder. You can open these in Visio by clicking "More Shapes > Open Stencil..." at the top of the shapes pane on the left.

If the stencils on the right side of your eVSM session are missing then you need to open all the stencils with the name starting with "eVSM_". These will open on the left, so you need to drag them over to the right.
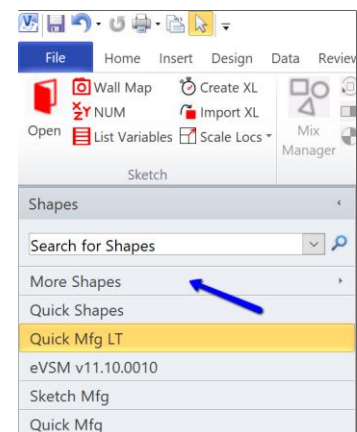
Visio Pages

Pages can be created, deleted, etc. via the right mouse menu on the page tabs.

Rules for Visio drawing page naming:

- Page names must start with an alpha character.
- Page names must be limited to 0-9 and A-Z characters. Characters such as [!@#$%^&*()|+-?] are not allowed.
- Page names should be kept as short as possible.

Zooming In and Out

- CTRL-SHIFT-Drag Select region (Zoom into the selected region).

- Try the Visio menu "View > Task Panes > Pan & Zoom" for another navigation option with a mini-window.

- To set up the mouse scroll wheel to zoom, use the Visio menus: "File > Options > Advanced" and check:

  ☑ Zoom on roll with InteliMouse
  ☑ Center selection on zoom

- Visio 2013 (and later versions) has zoom controls at the bottom right of the window.
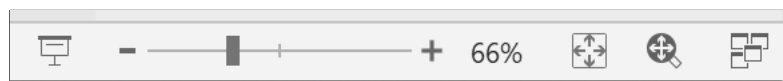
Copy and Paste into PowerPoint or Excel

Visio shapes can simply be selected, copied and then pasted into other Microsoft office applications like PowerPoint and Excel. Be sure to paste a picture using the "Paste As…" command. This will allow re-sizing of the pasted picture without requiring editing and font adjustments.

Acrobat PDF

Acrobat PDF allows capture of any size drawing in a single file, which can be viewed with the free Acrobat Reader, and is easily printable. On-screen viewing is good, it is searchable, and supports password security. Visio 2019 allows direct creation of PDF files.

Convert to Bitmap

Common bitmap formats such as JPEG, GIF, and TIFF can be viewed in most browsers and mobile devices without any additional software. eVSM maps can be converted to these and other graphic formats from the "File>Save As…" menu. In the "Save As" dialog, click the "Save as type" pull-down and select the format.

Printing

Visio allows drawings of any size. The drawings can then be printed on any size paper supported and available on the printer.

When the drawing size does not match the paper size, you can either print across several sheets, or shrink (or expand) the drawing to fit the paper by clicking "File>Page Setup…" and then checking the "Fit to 1 sheet" radio button.
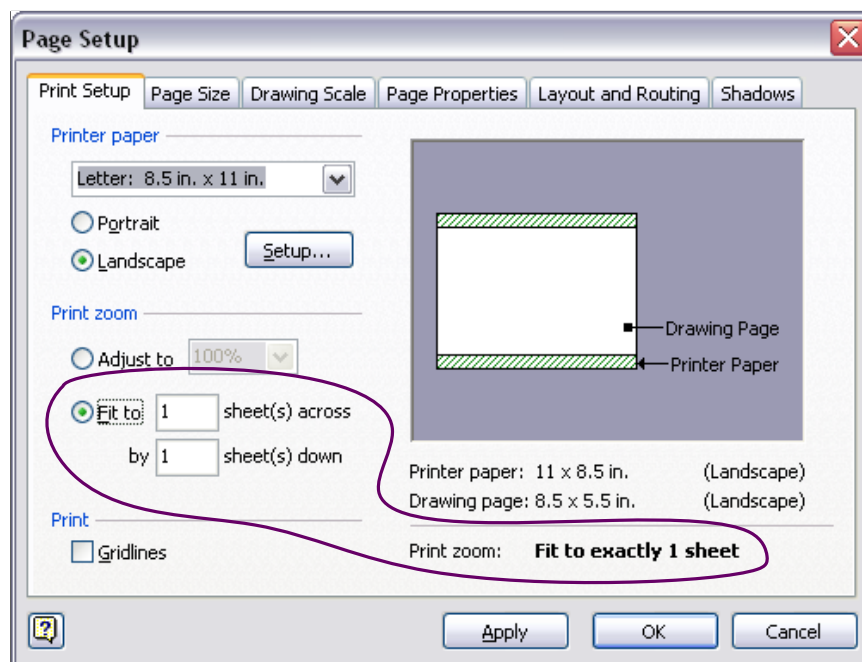
The "File>Print Preview" function can and should be used to assess the print output before committing the drawing to paper.

Printing Problems

The eVSM Software essentially generates a Visio file. The printing of the file is handled by standard Visio functionality. Problems printing from Visio could be due to Visio, the print driver, or the printer.

Here are some suggestions if you have problems printing from Visio:

- Make sure you have the latest Visio Service Patch installed

- Try copy/pasting your VSM to PowerPoint or Excel and then print from there

- Convert your VSM to Acrobat PDF and then print the PDF file

Do's and Don'ts

✔ DO use a mouse to be productive with eVSM.

✔ DO Snap shapes to grid locations.

✔ DO zoom in fast with CTRL-SHIFT-Drag.

✔ DO zoom out quickly with CTRL-SHIFT-W

❗ DON'T resize eVSM Shapes whenever possible.

❗ DON'T close eVSM Stencils.

2. Sketch

Overview

This section is focused on the first electronic capture of a map and data input. This area is ONLY for those using Quick stencils.

Open

Lists the sketcher stencils available and allows one to be selected. The corresponding Quick Stencil will also be activated. Note that only one sketcher stencil can be used per map.

Wall Map

Import a photo of an existing value stream map, and scale for drawing the map in eVSM.

NUM

Opens the Name Unit manager which manages the names, units and equations used on this map. If used in conjunction with a Quick Stencil, its important NOT to modify variable and unit names or equations. Typically a few unit names might be added.

List Variables

View a window showing all data for the selected center.

Create XL

Creates an input data sheet in the same folder as the Visio file and opens it up on the PC. You can now add data into the cells and then use the 'Import XL' button to bring the data onto the map.

Import XL

Imports the data from the worksheet that was created by the 'Create XL' button.

Scale Locs

Scale locations of shapes on the page to stretch or shrink the map.

Reverse Scale

Reverse the last stretch scale you applied.

How Do I Use the Sketch Module?

The Sketch Module allows you to quickly capture a wall map in eVSM. It can also be used to simply capture the flow of the value stream with no data. Built in commands allow you to add the data later when needed. The main steps in the Sketch Module are:

1. Use the Wall Map button to import your wall map picture(s) into eVSM, and scale the image.

2. Use the Open button to select the application area (manufacturing, services, etc.) for your map.

3. Use the Sketch stencil to capture the flow over the wall map image.

4. Once the initial capture has been done, add data to the map and enter the data.

## Import Single Image Wall Map   Wall Map

The Wall Map function provides an efficient way to convert an image of the wall into an electronic VSM. If your wall map is simple enough to capture in a single clear photo (must be able to read all text), then import the image into eVSM with the steps below. If the map is complex and requires multiple images then see section 1b on the next page.

Try this:

1. Click the Wall Map button in the toolbar.

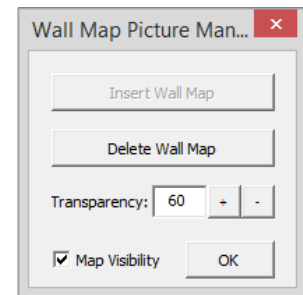2. Click the Insert Wall Map button to browse for your wall map picture on your computer.
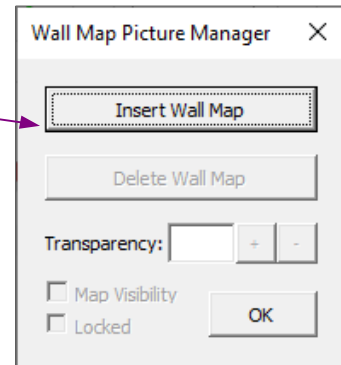
3. Select the picture and click Open.
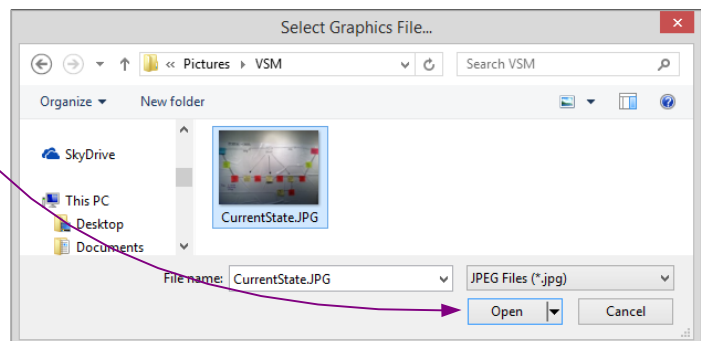
4. To scale the picture, draw a rectangle over any one process box. Click the Done button when finished.

Scale Picture

To scale and fit the picture on page, draw a rectangle over any one process box.

Select Another Picture   Done
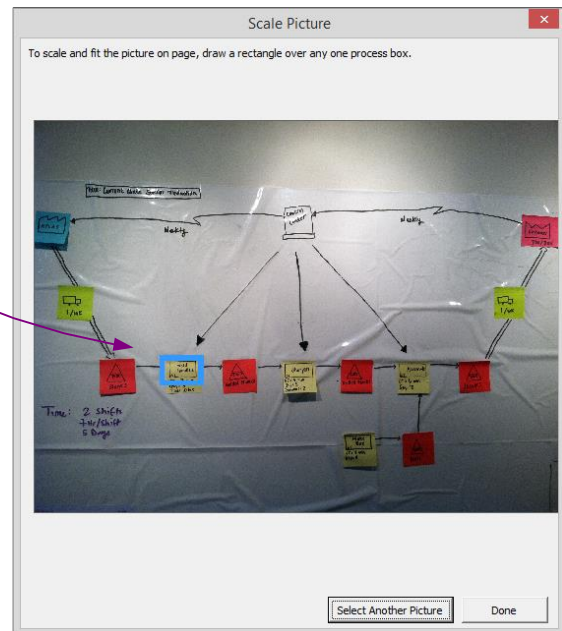
5. Next a form will appear allowing you to change the transparency of the picture, make it visible/invisible on the page, or delete the picture. After you click OK, if you need to get back to this form, click the Wall Map button in the toolbar again.   Wall Map

Wall Map Picture Man...

Insert Wall Map

Delete Wall Map

Transparency: 60   +   -

☑ Map Visibility   OK

6. The image will become the background of the Visio drawing page, allowing you to drop shapes on top without it moving. To delete the image, click the Wall Map button in the toolbar.   Wall Map
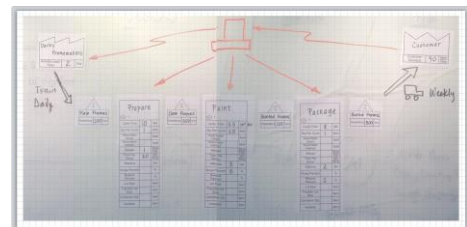
For more complex maps requiring multiple images, here are some tips for good results:

   a.) Take all photos from approximately similar distance from the wall. This will ensure similar scale.
   b.) Capture sufficient overlap between pictures so nothing is missed.
   c.) Ensure lighting is similar for all photos.
   d.) Hold camera square to the wall to minimize skewing of the image.

1. Use the Insert>Picture option in Visio to import all of the pictures on your Visio page.
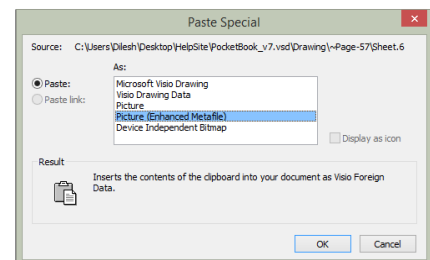
2. Line up the pictures so that the wall map is aligned properly.
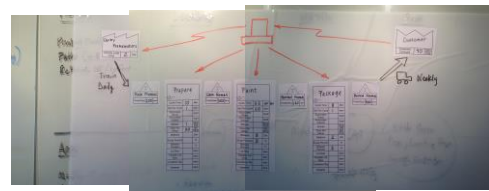
3. Hold down the SHIFT key and select each picture. Right-click on the selected images and choose "Copy".

4. Delete the images from the Visio page.

5. Right-click on the page and select "Paste Special". Choose the "Picture (Enhanced Metafile)" option and click OK.

6. All of the images should now be joined into one single image now. Crop or resize the image to fit the desired drawing page size.
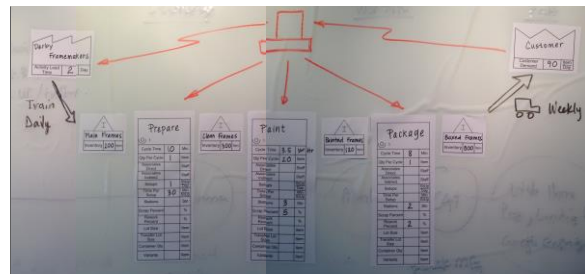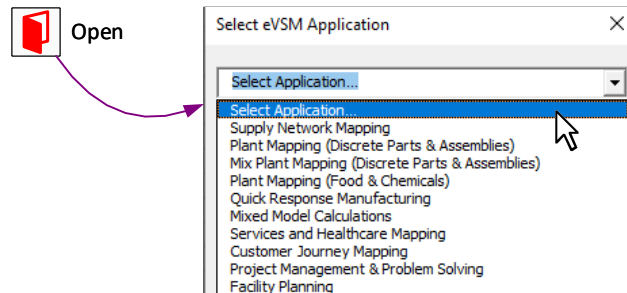
7. Click File>Save As. Name the image and then in the "Save as Type" dropdown, select "Graphics Interchange Format (*.gif)". Click Save.
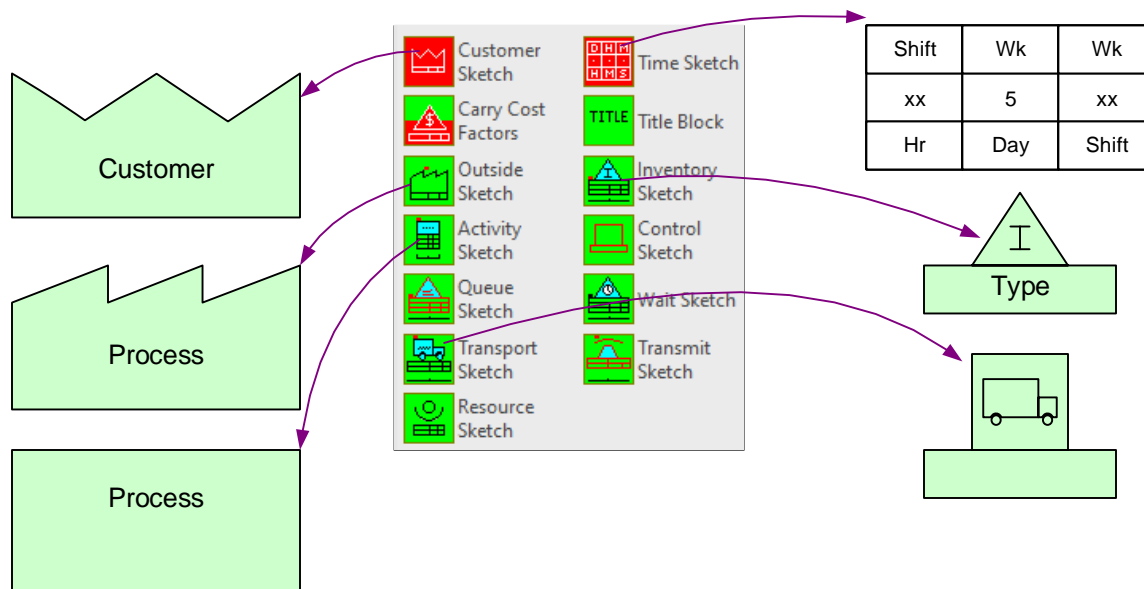
8. Click the Wall Map button in the toolbar, and follow the steps on the previous page of 1a.

Try this:

1. To start drawing on your map, click on the Open button in the toolbar to open up the Sketcher stencil. From the pop-up menu, select which kind of map you're drawing, for example, Quick Manufacturing.

Open

Select eVSM Application	✕

Select Application...	▼

Select Application...
Supply Network Mapping
Plant Mapping (Discrete Parts & Assemblies)
Mix Plant Mapping (Discrete Parts & Assemblies)
Plant Mapping (Food & Chemicals)
Quick Response Manufacturing
Mixed Model Calculations
Services and Healthcare Mapping
Customer Journey Mapping
Project Management & Problem Solving
Facility Planning

2. Once you select what type of map you're drawing, the corresponding Quick Stencil will be placed in the forefront of the other Quick Stencils. Also, the Sketcher stencil will open with all of the shapes associated with that type of map.

Customer

Process

Process

Customer Sketch
Time Sketch
Carry Cost Factors
Title Block
Outside Sketch
Inventory Sketch
Activity Sketch
Control Sketch
Queue Sketch
Wait Sketch
Transport Sketch
Transmit Sketch
Resource Sketch

Shift	Wk	Wk
xx	5	xx
Hr	Day	Shift

Type

The shapes shown above are those used in the example map.

As with all eVSM drawings, start your map by dragging out the red shapes (Customer Sketch and Time Sketch) first.

3. Capture the Flow with the Sketch Stencil

If you're using a picture of a hand-drawn map as a guide, start dragging out the different Sketch shapes on top of each process as shown below. Otherwise, just recreate your basic process using the different Sketch shapes.

An alternative method can be done once a red shape has been placed on the drawing page. You can use the right mouse button menu (shown to the right) and select the various Sketcher shapes to drop them at the location clicked on the page.

Note: If you need additional map space, hold down CTRL and click and drag the edge of the page.
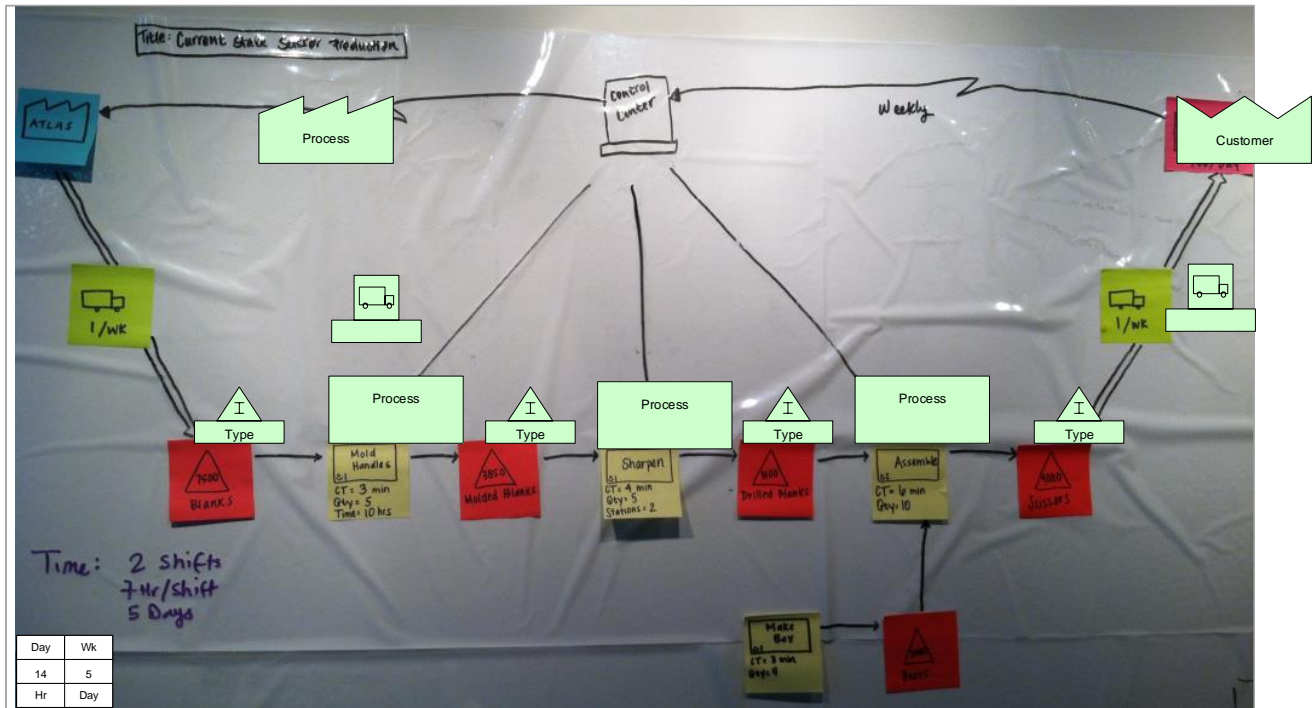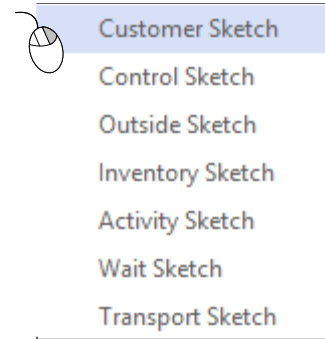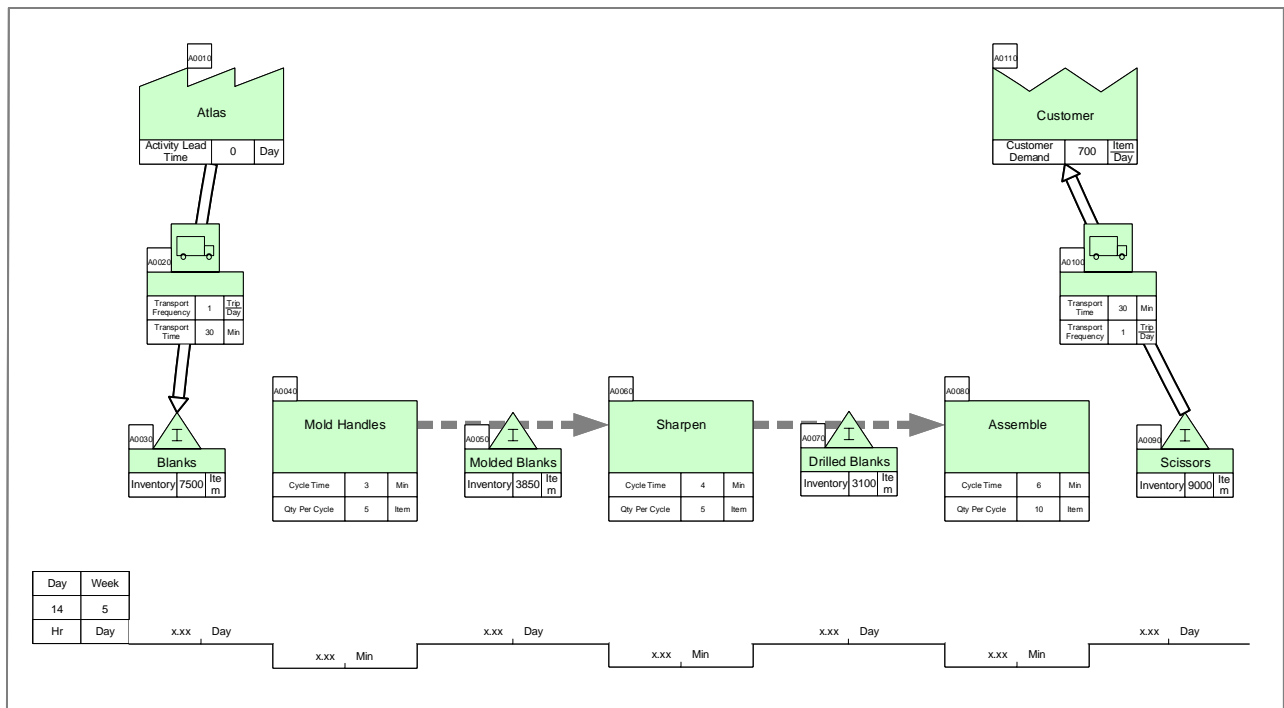
4. Add data to the map

Now you can either add data to an individual shape or to the whole map. If you right-click on any shape, you will see 4 options regarding the adding and removing of data:

- Add all data (shape): adds input and calculated data to the specific shape that you have selected

- Add all data (page): adds input and calculated data to all shapes on that particular page

- Remove all data (shape): eliminates the input and calculated data from the specific shape that you have selected

- Remove all data (page): eliminates the input and calculated data from all shapes on that particular page

For this example, right-click on any shape and select "Add all data (page).
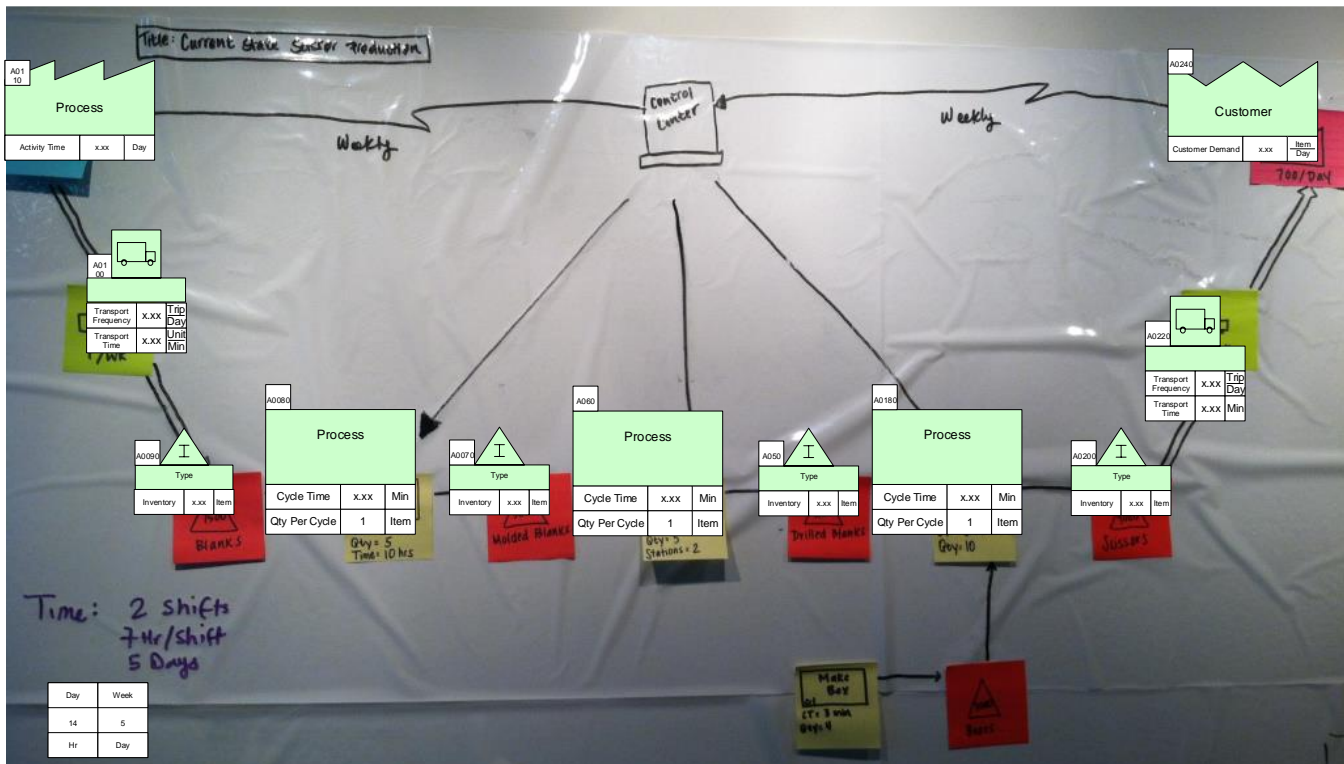
Annotate the map and fill in the values according to your wall map. Now you can finish the map by adding arrows from the eVSM Arrows stencil and add-on variables from the Quick stencil.

A0010			
Atlas			
Activity Lead Time	0	Day	

A0110			
Customer			
Customer Demand	700	Item Day	

A0020			
Transport Frequency	1	Trip Day	
Transport Time	30	Min	

A0100			
Transport Time	30	Min	
Transport Frequency	1	Trip Day	

A0040			
Mold Handles			
Cycle Time	3	Min	
Qty Per Cycle	5	Item	

A0060			
Sharpen			
Cycle Time	4	Min	
Qty Per Cycle	5	Item	

A0080			
Assemble			
Cycle Time	6	Min	
Qty Per Cycle	10	Item	

A0030		
Blanks		
Inventory	7500	Item

A0050		
Molded Blanks		
Inventory	3850	Item

A0070		
Drilled Blanks		
Inventory	3100	Item

A0090		
Scissors		
Inventory	9000	Item

Day	Week
14	5
Hr	Day

x.xx	Day

x.xx	Min

x.xx	Day

x.xx	Day

x.xx	Min

x.xx	Day

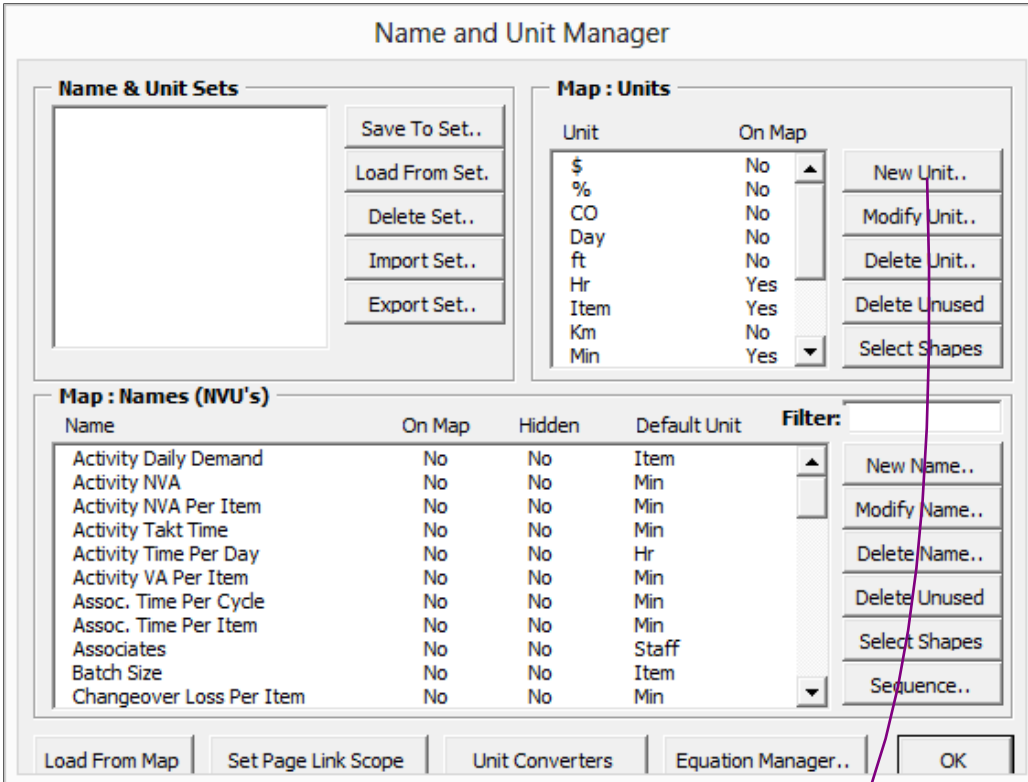| x.xx	Min

x.xx	Day

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.

Try this:

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

2. Click on the "New Unit" button in the form and create a new unit named "Part".

3. Drag out a Units Converter shape from the eVSM Data stencil or the main stencil on the right of the screen.


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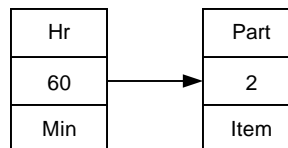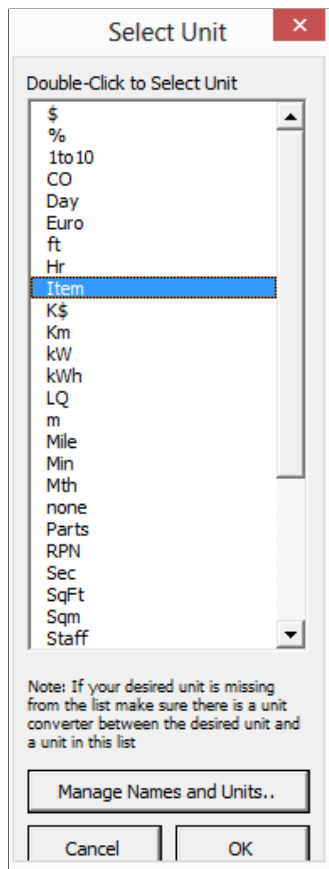
5. If you have more than one custom unit, repeat step two and three.

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.
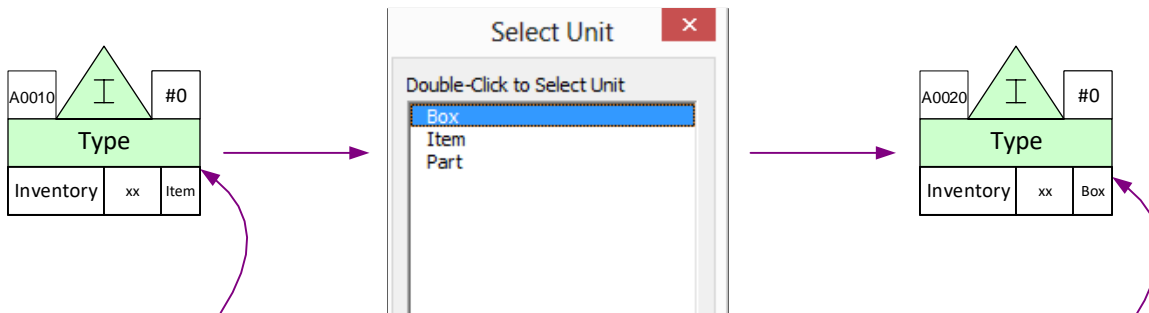
6. Double-click on the unit.

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

8. Selection of "Box" in the form causes the unit to be replaced in the data box.
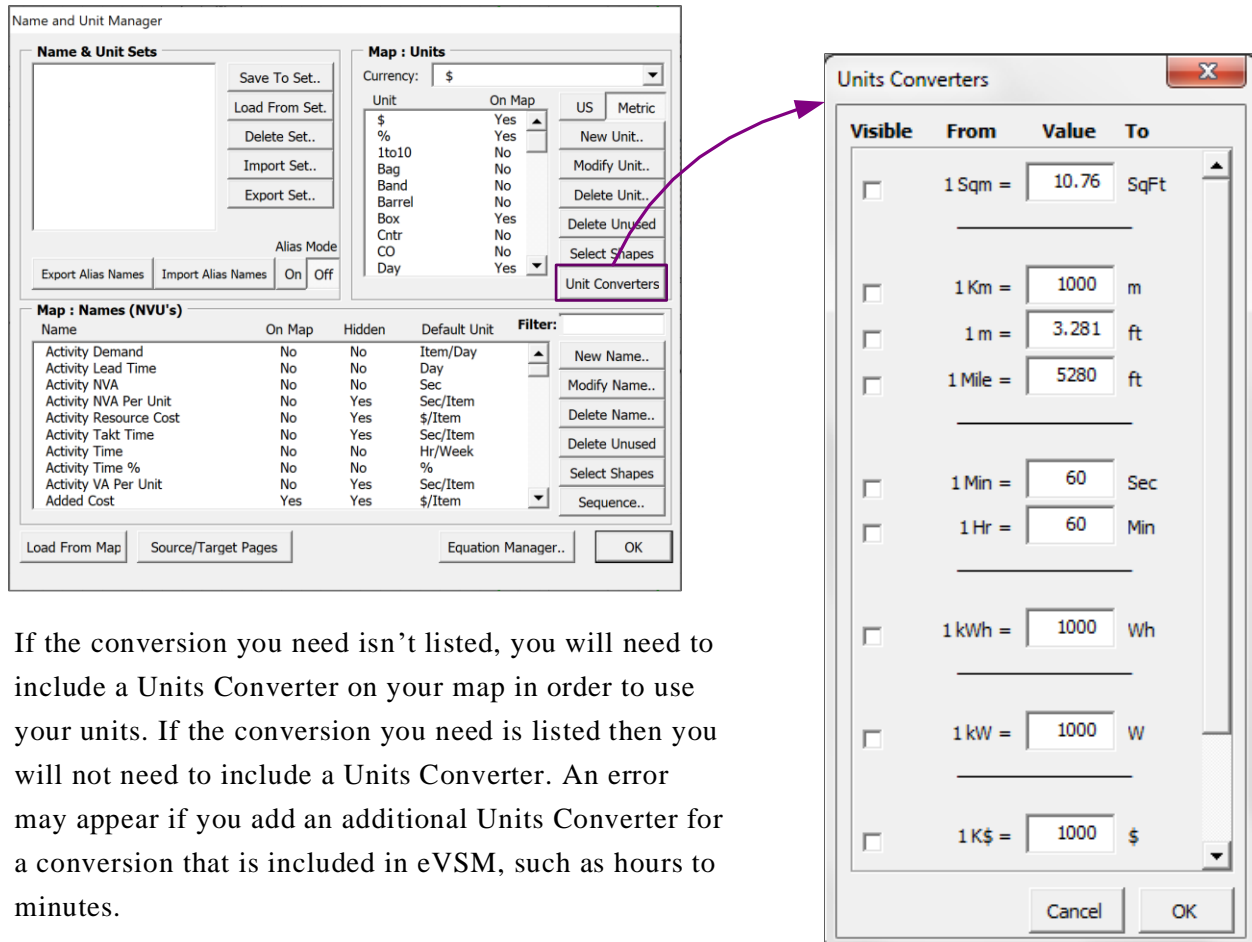
Miscellaneous Tips

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.

Managing Names & Units

The Name & Unit Manager (NUM) provides a simple way of managing the names and units on a map via this toolbar button.   NUM

The purpose of this management environment is to:

1. Provide a means to type in a name only once and then use it consistently through out the map.

2. Provide a means to associate a default unit with a name so that when a name is selected, the unit is automatically set.

3. Provide a means of creating a starter set of names and units for different application areas such as manufacturing, healthcare, etc. This will allow a company to create standard variable sets and deploy them easily.

The NUM function does not allow editing of names and units directly in the data shapes. New names must first be added to the NUM form. Then they can be accessed via right mouse button menus on the following data shapes.

| Long NVU | Short NVU | Value Added | Non Value Added | Units Converter |
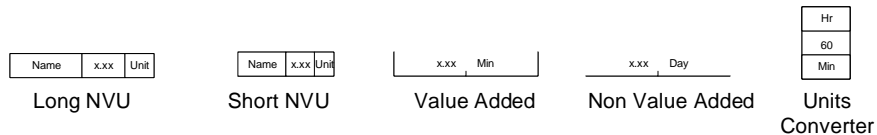
The NUM form is divided into three parts: Sets, Units, and Names. Names and units visible in this dialog box represent the Current Set. Only the Current Set names and units are available on the right mouse button menu of datasets.
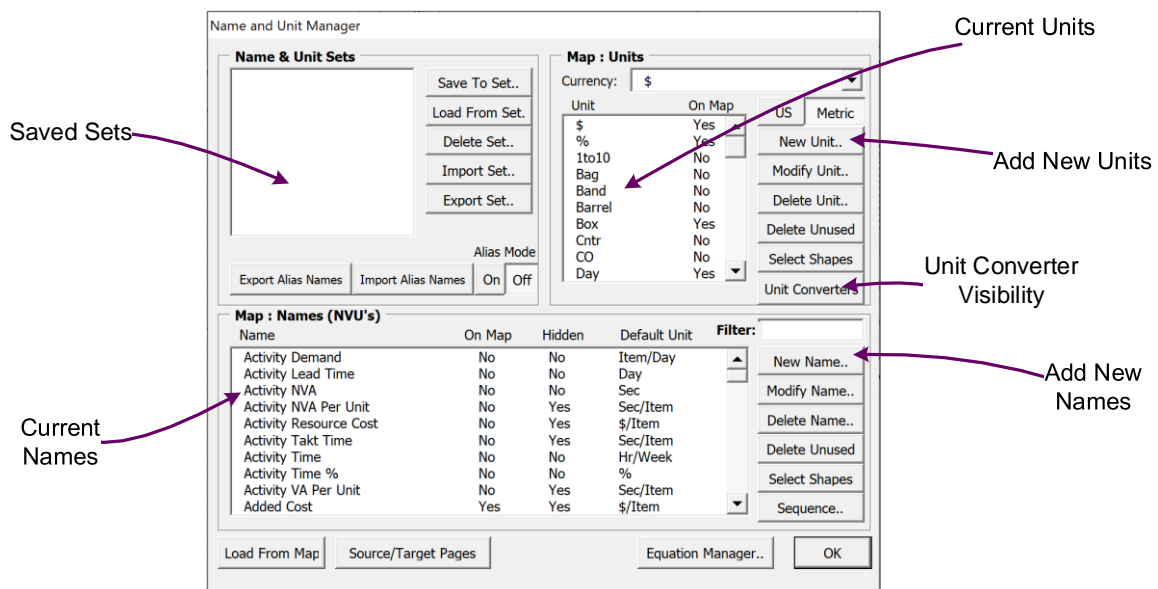
Fractional Units

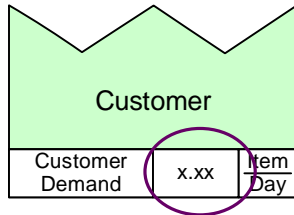Fractional units make computing demand or production much easier.

For the Customer Center, the default unit is items per day. If demand is calculated on a different basis though, it is simple to change the units.

Try this:

Double-click on "Item/Day," which will bring up a Unit Selection option. The Numerator can be changed to a different name, such as "Screw" rather than "Item," and the Denominator can be adjusted to a different demand, such as items per hour.

If you need to add a new unit, click on "Manage Names and Units…" which launches the Name and Unit Manager.
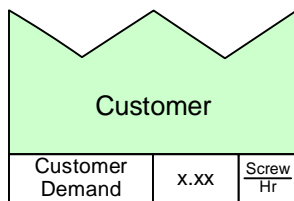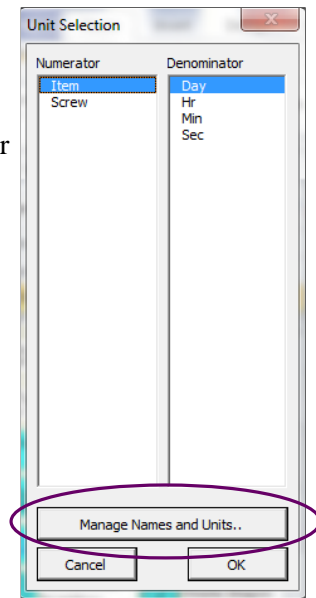
This shows the original Customer Center converted to screws per hour.

When adding a custom unit as a numerator or denominator, it needs to be linked to its units family using a Units Converter shape. For example, if you're trying to change a unit into "$/Screw," instead of "$/Item," create a Units Converter showing how many Screws are equal to one Item.

If you need to add a different unit of time, such as year, drag out another "Units Converter" shape from the eVSM stencil, add a new unit using the Name and Unit Manager, and specify the conversion rate. Make sure you add a Units Converter shape before trying to use a customer unit as a numerator or denominator in fractional units. It is easiest to keep track of any time conversions by placing them next to the Time Center.

In this example, "Week" was added as a new unit and the conversion to days was made using the Units Converter. Next, the Customer Demand was changed to items per week. The new unit "Week" can be used in any place requiring a unit.

Week	Day	Hr	Min
5	8	60	60
Day	Hr	Min	Sec
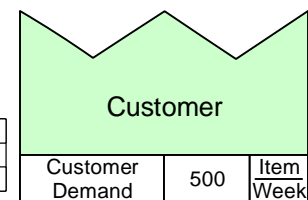
List Variables

 List Variables

To see a list of all of the data on a selected center, using the "List Variables" button will bring up a form of all of the hidden and visible data.

Try this:

1. Select the green part of any center on your map.

2. Click the List Variables button in the toolbar to bring up this form.

A0080		#0
	Milling Station	
◯ 1		
Cycle Time	10	Sec
Qty Per Cycle	2	Item
Capacity	Auto	Item/Day
Pre OEE Capacity	Auto	Item/Day
OEE Percent	Auto	%

	Auto	Sec

View Center Data

Milling Station
A0030

[]Cycle Time	>200<320 Sec
[]Qty Per Cycle	1 Item
Value Added	256.50 Sec
Activity Inv Carry Cost	Auto $/Year
[]Activity Inv Value	0 $
[]Activity Inventory	0 Item
Activity Period Cost	0.00 $/Day
Activity Resource Period	0.00 $/Day
[]Activity Resource PT C	0 $/Item
Activity Scrap Cost	0.00 $/Day
Activity Takt Time	28.80 Sec/Item
[]Activity Unit Cost	0 $/Item
[]Activity VA Per Unit	>200<320 Sec/Item
Added Period Cost	0 $/Day
[]Added Product Cost	0 $/Day
[]Added Scrap Cost	0 $/Item
[]Added Unit Cost	0.00 $/Item
Associates	1 Staff
Availability Capacity Los	0.00 Item/Day
[]Bad Parts Scrapped	0 Item/Day
Capacity	112.28 Item/Day
Changeover Utilization	0.00 %
Computed Activity Time	8.00 Hr/Day
[]Computed Demand	>100<300 Item/Day
[]Computed Inventory	1 Item
[]Cumulative Unit Cost	0 $/Item
[]Cycle Time Per Unit	>200<320 Sec/Item
Delivery Takt Time	256.50 Sec/Item
[]Eff Cycle Time Per Unit	>200<320 Sec/Item

☐ View All Variables

Double-Click Variables to Edit

> Blue indicates calculated values

> Black for input values. These can be edited here, just double-click.

> [ ] for distribution data. Only in eVSM Mix

> This switch allows you to shorten the list. What goes in the short list is controlled in the Views dialog.

The "List Variables" form can be left open as you click on different centers on the map. The form will update.

Since the List Variables form can get very long, you can customize what variables are shown in the list through the "Variable Visibility" form. Click the "Views" button in the toolbar.
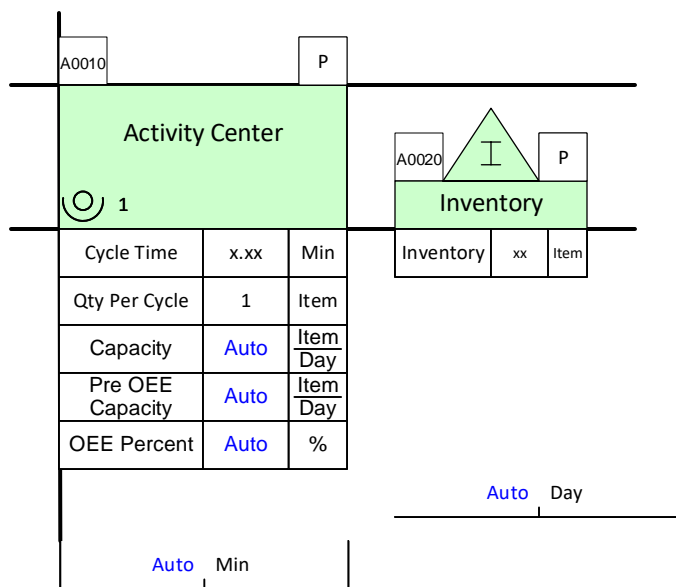
 Views

The "Show in List Vars" column allows you to select which variables will appear in the List Variables form.

Selecting & Aligning Timeline

eVSM is designed as a grid system and each shape should fit neatly into the lines. If the shapes aren't aligned to the grid, it could lead to later issues and so lining everything up should become a habit. It is best to line up the bottoms of each green center and then adjust the timeline, as shown below.

A0010   P

Activity Center

1

Cycle Time	x.xx	Min
Qty Per Cycle	1	Item
Capacity	Auto	Item/Day
Pre OEE Capacity	Auto	Item/Day
OEE Percent	Auto	%

A0020   P

Inventory

| Inventory | xx | Item |

Auto Day

Try this:

Auto Min

1. To move the timeline and get it aligned, you can simply click on the VA or NVA shapes and manually move them.

2. Alternatively, if you want to shift the entire timeline up or down you can right-click on any of the timeline shapes and choose "Select Timeline." If that option doesn't appear in the menu, make sure you have the entire VA or NVA shape selected and try again.

3. With the entire timeline selected, you can then move it to where you'd like it.

4. Similarly, in the right mouse menu there is an "Align Timeline" function that will create the ladder timeline for you if the VA and NVA shapes are not correctly aligned, as shown below.

Auto Day

Auto Min

Disable Flying Connector
Select Timeline
Align Timeline

Auto Min

Auto Day

Auto Min

Auto Min
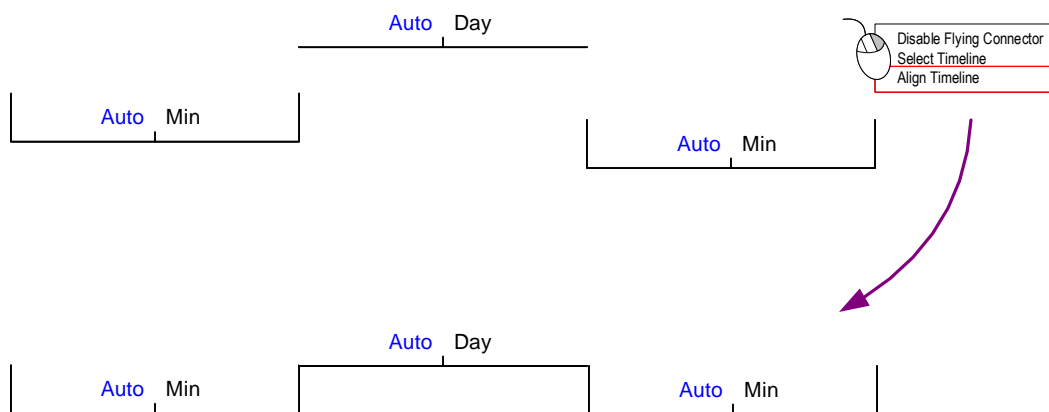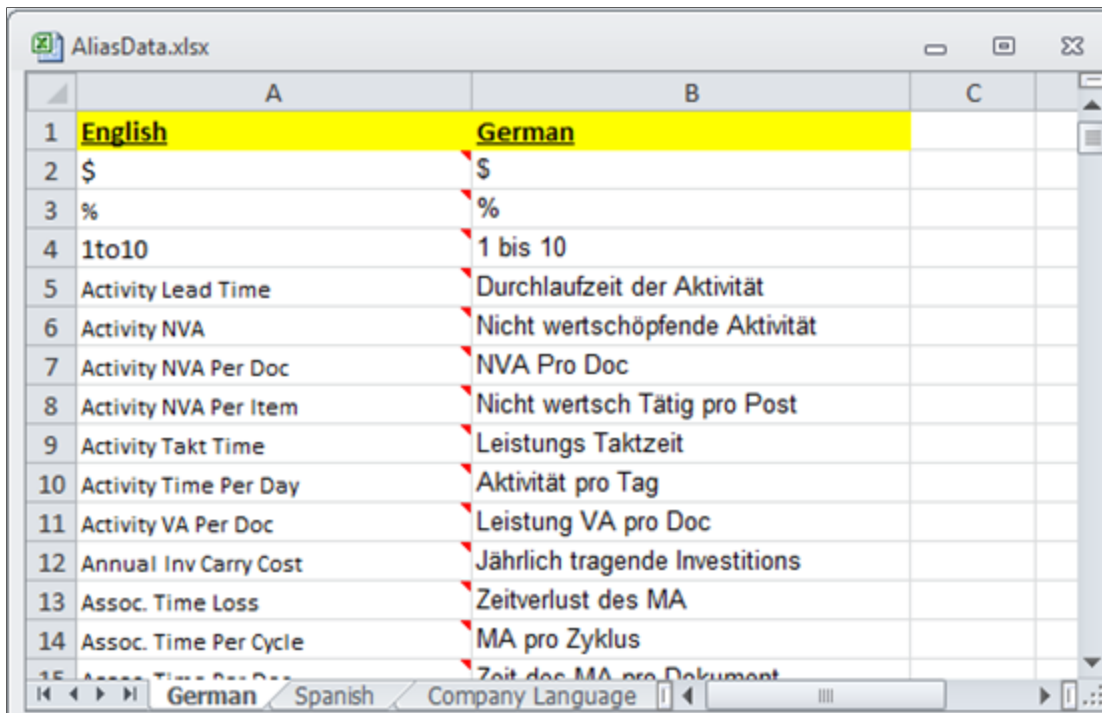
Aliases

Aliases are a feature in eVSM that allow a user to convert the variables into another language. They can also be used for companies that have a common language that is different than eVSM, such as referring to "Stations" as "Worktables." Using Aliases allows a map's names and variables to be easily updated to fit your needs.

Try this:

To start, first create an Excel file with two columns. In the first column, make a list of all the variables you would like to create an alias for. In the second column, list whatever you would like to variable to be changed to, like using the term "Employees" instead of "Associates," or translating the eVSM term to another language.

In this example, the English eVSM terms are converted to German. Make sure that you label each column since the Alias converter starts on the second row in the Excel file.

Also, label each page in your Excel file to whatever alias you're using, such as Spanish or the company language.

The conversions can be done on the entire list of variables and units or just on a select few. In the example below, the company only wants to use aliases for a few of the variable names so that their maps closer resemble terms used in the company.
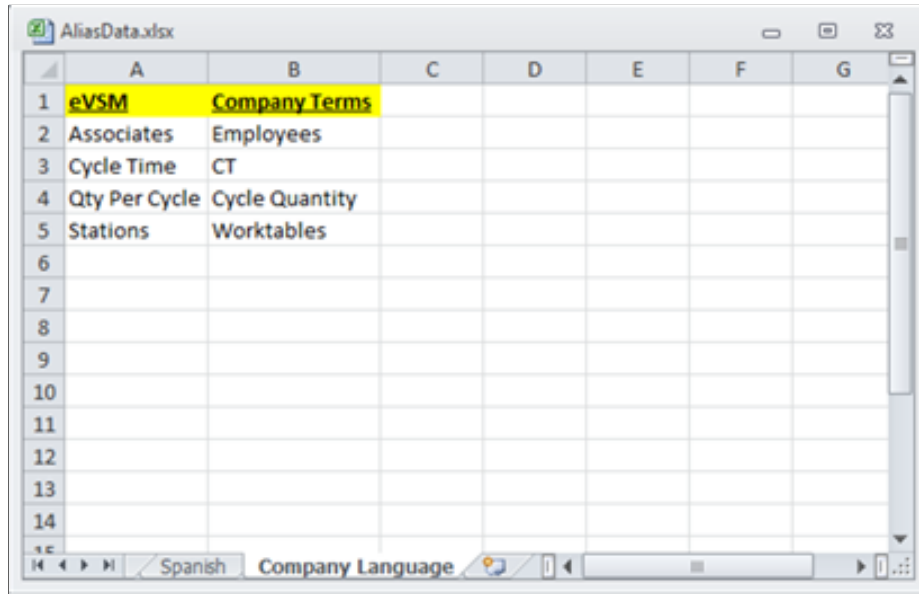
Once your alias Excel file is complete, draw your map in eVSM or open an existing map. Open up the NUM by clicking the button in the eVSM toolbar. NUM

Click on the "Import Alias Names" button in the NUM.

Select a worksheet

German
Company Language

Cancel   OK
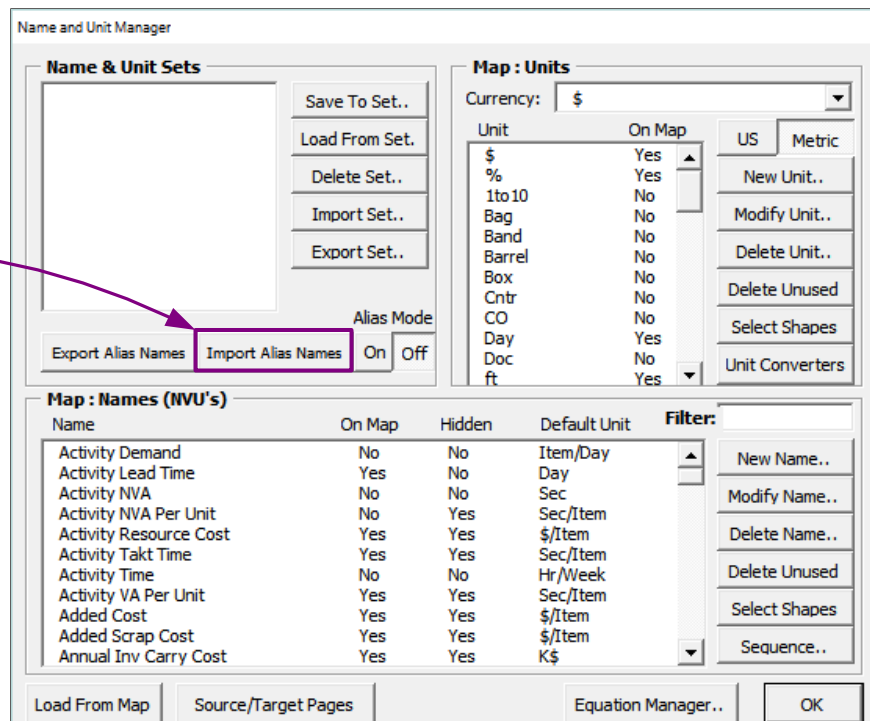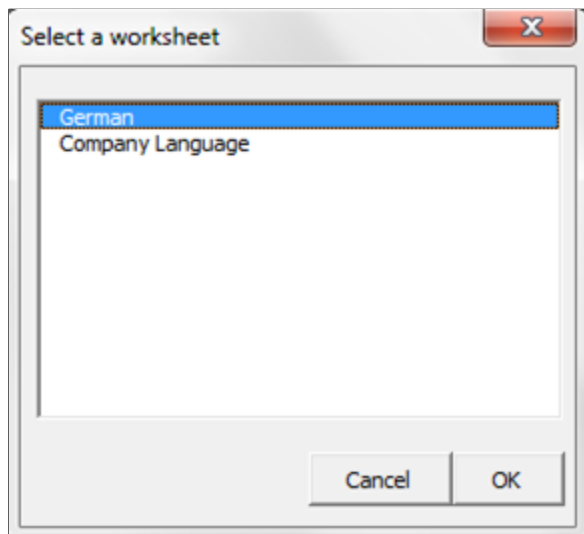
Locate the file on your computer and open it. A dialog box will appear asking which worksheet you would like to use. This example will start with the German worksheet.

Once you hit "OK," the variables and units in the map will be changed to whatever was listed as the Alias. The map below shows the updated terms.

A0010		P
Process		
Durchlaufzeit der activitat	x.xx	Day

A0020		P
Process 1		
Zycluszeit	x.xx	Sec
Menge Pro Zyclus	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

A0030		P
Type		
Bestand	x.xx	Item

A0040		P
Process 1		
Zycluszeit	x.xx	Sec
Menge Pro Zyclus	1	Item
Capacity	Auto	Item Day
Pre OEE Capacity	Auto	Item Day
OEE Percent	Auto	%

Auto	Sec	Auto	Day	Auto	Sec

If you would like to switch back to the default eVSM names, open up the NUM and turn the Alias Mode off.

Alias Mode

Export Alias Names | Import Alias Names | On | Off
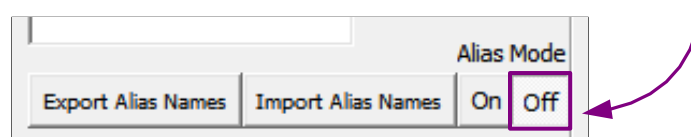
To use a different set of aliases, copy the map to a new page (except for the NUM) and drag out a new NUM. Import the same data file as before but use the Company Language worksheet instead. Now, the map shows terms that are used by the company.

A0090		P
Process		
Activity Lead Time	0	Day

A0100		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	%

A0110		P
Type		
Inventory	xx	Item

A0120		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	%

Adding a new variable

If you want to add in a new variable with an Alias, click on the "New Name" button in the NUM.


Fill in the Name and then the Name Alias. Note that the Name will be used when the Alias Mode is off and the Name Alias will be used when the Alias Mode is on.

Now that the name is added to the NUM, it can be added to the map and it will change when the Alias Mode is on or off.

Create XL/Import XL

Overview

It is sometimes easier to capture the value stream flow before any data is collected. This can help clarify what data is necessary. The data can be typed directly into datashapes on the map. Alternatively, the data can be collected in an Excel datasheet. Input is easier in Excel, and it also allows you to collect data directly in the Gemba on a mobile device (anything that Excel can run on). It also allows you to more easily have other people collect the data. The Create XL and Import XL functions allow you to create a datasheet for your map and then import the data into the map.

Visio   Create XL   Import XL   Excel
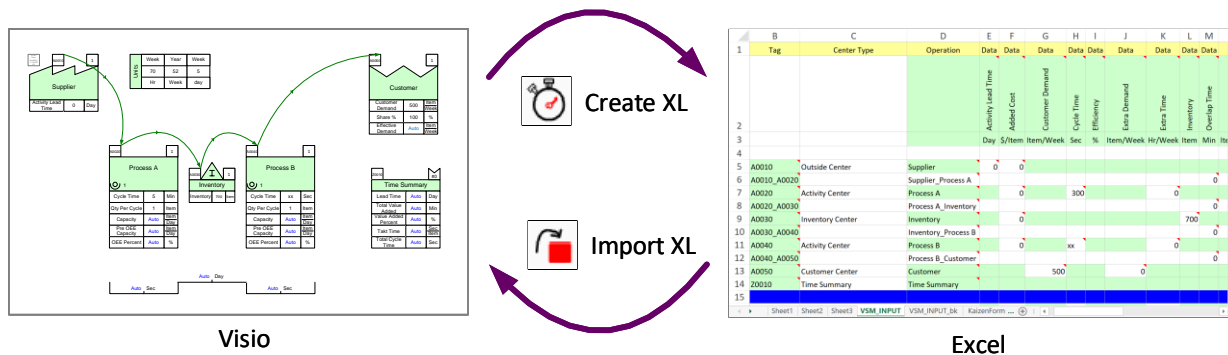
Create XL   Create XL

Creates an input data sheet in the same folder as the Visio file and opens it up on the PC. The new datasheet will be given the Visio page name along with "_INPUT". If a previous datasheet already exists, it will be renamed to "_INPUT_bk" so any prior data entered is not lost.

You can then add data into the cells and then use the 'Import XL' button to bring the data onto the map.

Import XL   Import XL

Imports the data from the worksheet that was created by the 'Create XL' button. The format of the Excel datasheet must not be altered. Also, the location, filename, and the worksheet name must not be changed.

Draw map with Import XL

The Import XL button also allows you to draw centers (Activity center, Inventory, Transport, Supplier, etc.) automatically on the map. See instructions below.

New centers are added below the blue row

Select center type from pulldown list in this column

Enter center name

The data values are entered in the white cells

The data values must be in the units shown here
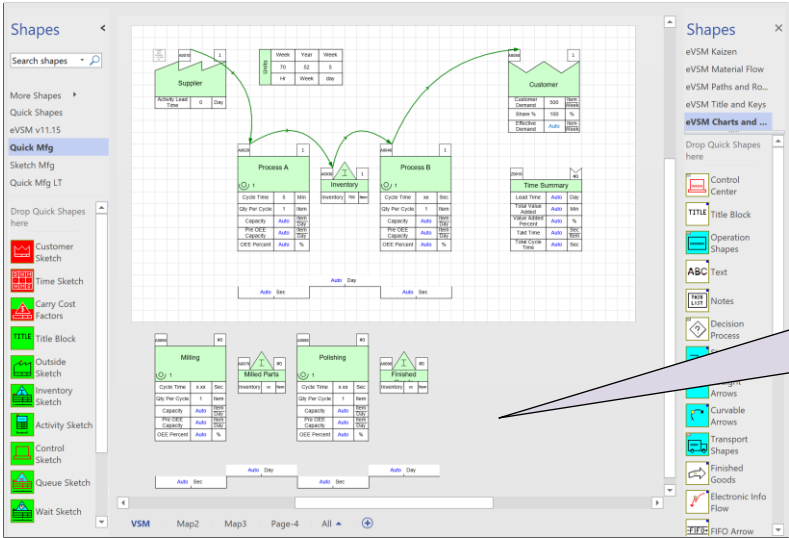
The new centers appear below the drawing page. These can now be moved to the required location

Scale Locs

 Scale Locs

While working on a map, you may need to keep many input and calculated values visible on the map. Your map could start looking like the one on the left below. The Scale Locs function explodes the view to look like the one on the right. The Reverse Scale function reverses the last scale expand.

Scale Locs

Reverse Scale
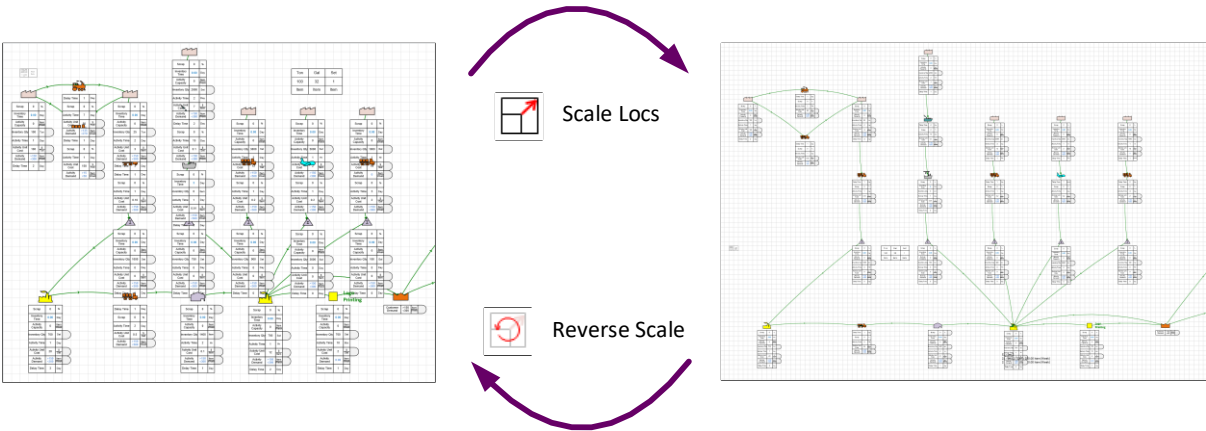
3. Mix

Overview

eVSM Mix is a separate product, and needs to be licensed/activated separately. The Mix icons in the toolbar and the Mix Stencils are only available if a valid license is active for eVSM Mix.
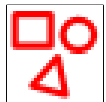
Mix Manager

Allows definitions of sets and the products within them.

Draw Sets

Draw needed Product Set Centers for any sets in the product data.

Show Set Colors

Shows set colors on the map.

Isolate Set

Highlight activities for a selected Set Center.

Add Set

Allow the selected set to the selected sequence arrows and centers.

Remove Set

Disallow the selected set to the selected sequence arrows and centers.

Mix Manager   Mix Manager

The Mix Manager dialog box is where the products and sets are declared for the Value Stream. The Mix Manager allows you to add new products/sets and edit/delete exiting items. It also includes functions to create products and sets via Excel.

Importing the Product Matrix

Once the matrix has been used to identify the common routes the data can be imported into eVSM by clicking the "Mix Manager" button in the toolbar and then the "Import" button on the dialog
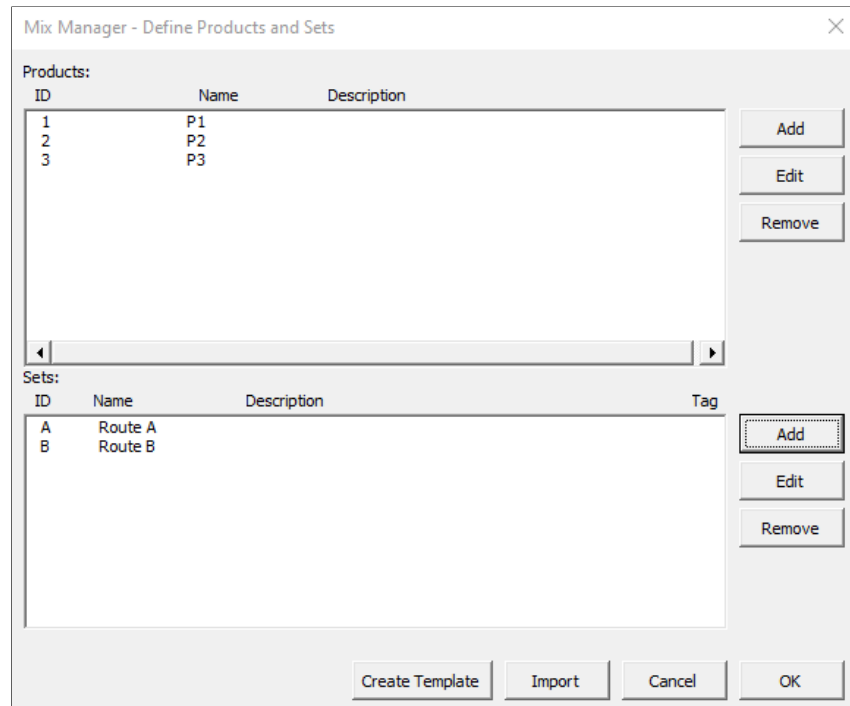
The import brings the products and routing sets into the dialog and also draws the activities at the bottom of the page. They can be moved into their map positions from there

You can add new products or edit their routings directly in the dialog.
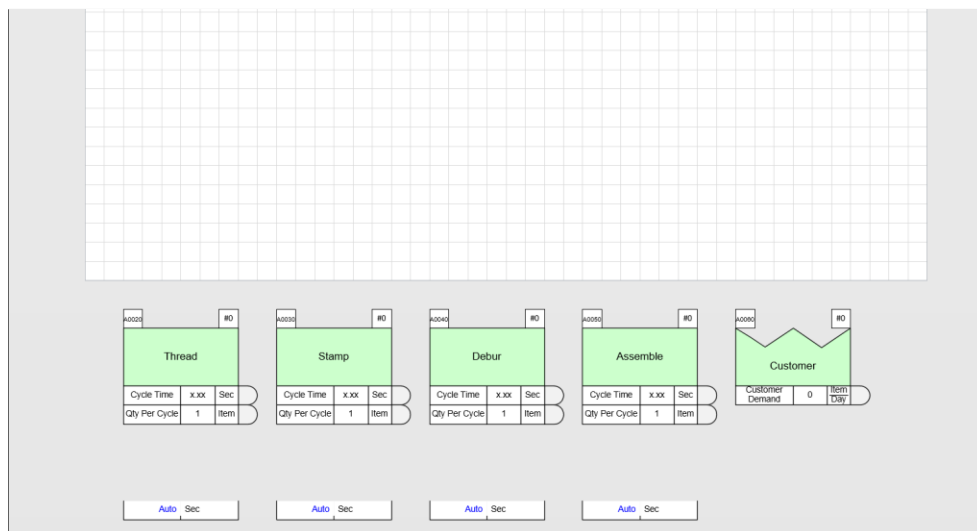
Draw Sets

▣ Draw Sets

The Draw Sets button draws any sets which are defined in the Mix manager dialog which do not exist on the drawing page. The Product Set centers (along with the product key) are drawn on the right side of the drawing page and can be moved to any desired location.

Product Set centers

Products key. Will update when value stream is Solved

A0050		1
Route A		
Set ID	A	Txt
Product Demand	0	Item Day
Set Demand	Auto	Item Day

A - Route A
1 - P1 (Qty = 0.0 Item/Day)
2 - P2 (Qty = 0.0 Item/Day)
3 - P3 (Qty = 0.0 Item/Day)
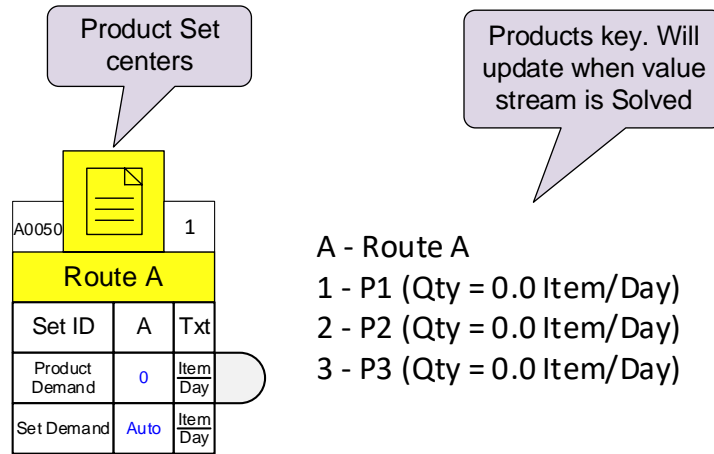
Show Sets

🟨🟥 Show Set Colors

The Show Set Colors button will create small color squares for each set on applicable paths and activities shown below. Use the 'Clear' button ⊘ in the tool bar to clear these.

Note how Set A does not require the Thread operation

A0050		
Thread		
Cycle Time	x.xx	Sec
Qty Per Cycle	1	Item

A0090		
Customer		
Customer Demand	0	Item Day

A0070		
Route A		
Set ID	A	Txt
Product Demand	0	Item Day
Set Demand	Auto	Item Day

Auto   Sec

A0030		
Stamp		
Cycle Time	x.xx	Sec
Qty Per Cycle	1	Item

A0040		
Deburr		
Cycle Time	x.xx	Sec
Qty Per Cycle	1	Item

A0060		
Assemble		
Cycle Time	x.xx	Sec
Qty Per Cycle	1	Item

A0080		
Route B		
Set ID	B	Txt
Product Demand	0	Item Day
Set Demand	Auto	Item Day

Auto   Sec

Auto   Sec

Auto   Sec

Units	Wk	Year	Wk
	5	52	40
	day	Wk	Hr

Isolate Sets

 Isolate Set

Select a Set Center and click the 'Isolate Set' button. This will fade away any paths or centers that are not on that set's production path. Set B was isolated in the example below.
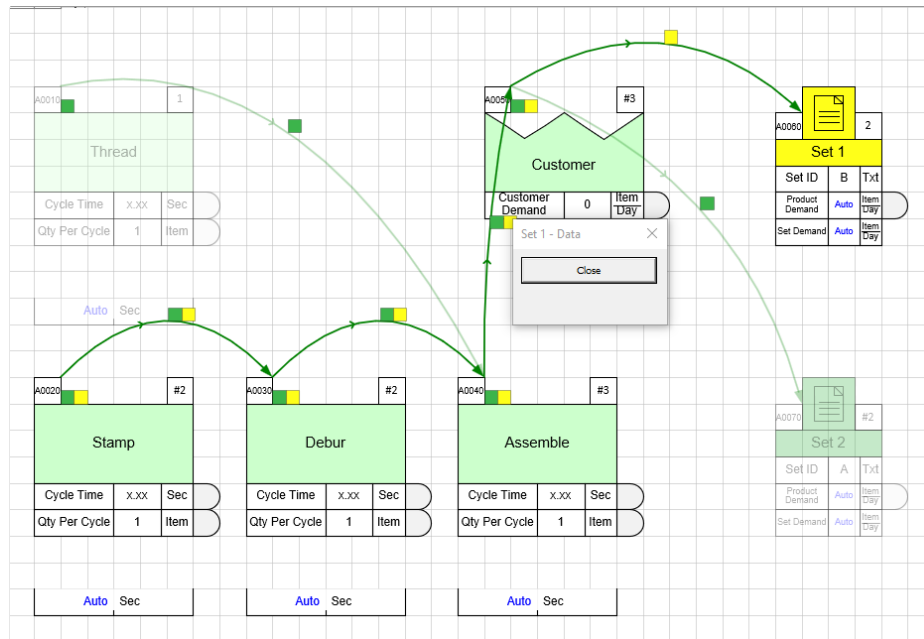
Add/Remove Sets

 Add Set   Remove Set

Route sets in eVSM are used to group all products which go through exactly the same route. Routes are specified with sequence arrows. Where multiple sets share a sequence arrow, you can specify which sets can pass through with the "Sets Allowed" variable built into the sequence arrows. This variable can be made visible via the Views dialog box, or can be accessed through the List Variables button.

The Sets Allowed variable can be edited directly on each sequence arrow, however, for complex maps this can be very tedious. The Add/Remove Set functions make this easy. To use, just select a Set Center, select sequence arrows (holding down the shift key) you wish to change, and then click the "Add Set" or "Remove Set" buttons. You can check the resulting change by redrawing the set colors with the "Show Set Colors" button.

4. Sequence

Overview

Many of the calculations on the value stream map rely on the process sequence. This is defined on the map by using tag sequence arrows.
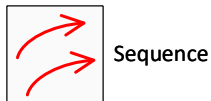
Sequence

First select the activity shapes using the shift key and in the CORRECT sequence and then click this button to create sequence arrows. This can be done a few shapes at a time. Note that the 'Check' section in the toolbar does have a hide/show for sequence arrows. No sequence arrow loops are allowed.

Seq One to Many

Select the source activity and using the shift key, select all downstream activities to connect the source to with tag sequence arrows. This button is located in the dropdown of the Sequence button.
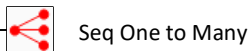
Seq Many to One

Using the shift key select the source activities from which to originate tag sequence arrows, to a single downstream activity (the final shape you select while still holding down the shift key). This button is located in the dropdown of the Sequence button.
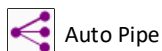
Auto Pipe

Select the activity from which to originate the pipe arrows, then hold down the shift key and select one or more activities to pipe to.

Auto Pipe – Many to One
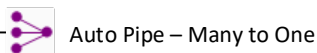
Select the activity to be at the head of the pipe arrow(s), then hold down the shift key and select or more activities to pipe from.

Auto Path

Identifies each unique path through the value stream (via sequence arrows) and adds path ID's to steps.

Auto Tag

Assigns tags in the order provided by sequence arrows.

Tags

Set tag defaults that are used for auto-numbering shapes as they are dropped on the page.

Sequence

 Sequence

The Tag Seq Arrow is used with Managed Equations and allows you to perform upstream and downstream calculations. This example shows how Accumulative Time can be calculated along the value stream with the use of Tag Seq Arrows.

A0320				A0330			A0340		
Process A							Process B		
CT	15	Min		Transport Time	10	Min	CT	20	Min
Accumulative Time	15	Min					Accumulative Time	45	Min
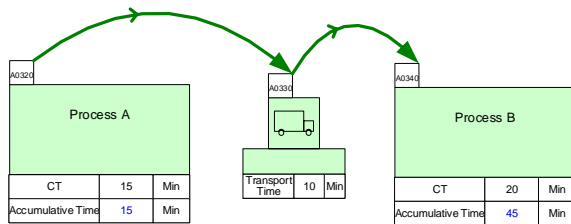
Managed Equation

Accumulated Time =
ST(CT;Min;0;APPLY)
  + ST(Transport Time;Min;0;APPLY)
    + UTS(ACCUMULATIVE TIME;MIN;0;APPLY;SUM)

To attach tag sequence arrows to tags, select a series of tags (or activities) in the correct sequence and then click the Sequence button in the toolbar.

Try this:

1. Select the shapes in the correct order using the SHIFT key.

Process A   Process B   Process C
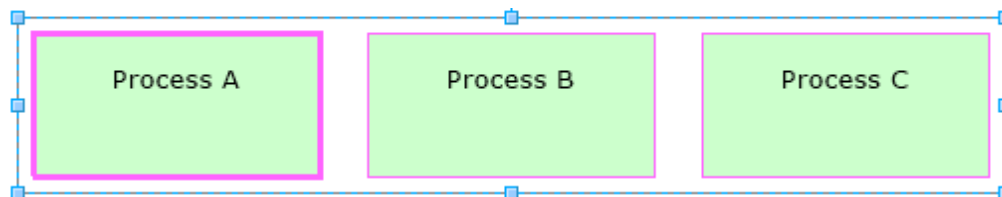
2. Click the Sequence button in the toolbar to automatically create sequence arrows to the shapes. If these shapes do not already have tags, using the Sequence button after having selected them in order will automatically attach tags to each shape.

A0350	A0360	A0370
Process A	Process B	Process C
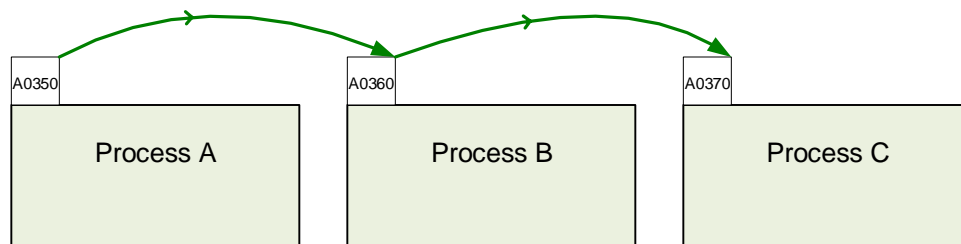
Auto Pipe

 Auto Pipe   Auto Pipe – Many to One

Pipe arrows are special arrows which allow data to flow between eVSM centers. Example usage: alllocate resource hours to an activity center, or collect costs from select activities.

The Auto Pipe functions allows you to automatically create pipe arrows from one center to another, one to many, and many to one.

Try this:

1. To use this function, select the center from which to originate the pipe arrows then hold down the SHIFT key and select one or more centers to pipe to. Resource A was selected and then while holding the SHIFT key, Activity B and C were selected.

2. Click the "Auto Pipe" button to automatically create pipe arrows from one activity to many activities.

3. Fill in the pipe arrow data of Resource Process Time which shows that Resource A is used for 2 minutes per item for Activity B and 5 minutes per item for Activity C.
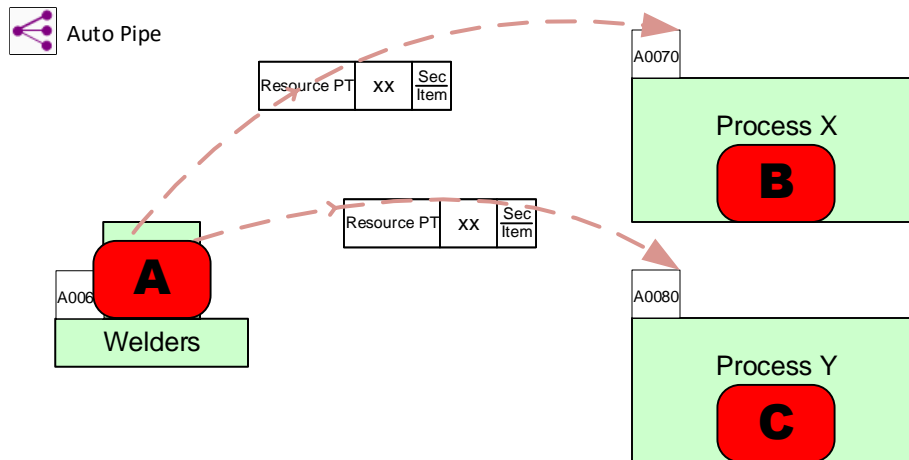
Alternately, you can use the Auto Pipe – Many to One button, which is in the dropdown menu of the Auto Pipe button, to create pipe arrows from multiple Resources into an Activity.
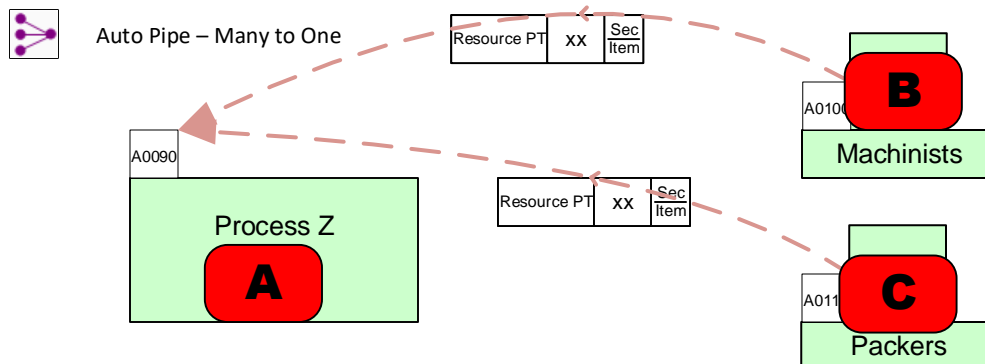
Auto Path   P Auto Path
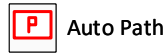
After your shapes have been sequenced, there is an option to automatically generate the path IDs for all the possible paths on the map based on the sequence arrows. After shapes have been sequenced using the "Sequence" button in the toolbar, click "Auto Path" in the toolbar. This will automatically give paths to the shapes in the order that they have been sequenced. If you make changes to the sequence, just click Auto Path again to update the path IDs.

Warning: AutoPath regenerates path numbers for all shapes connected by sequence arrows and without consideration of the current path number on these shapes.

The Path List Shape

The Path List is used to identify a path or paths that a center belongs to. The shape is glued above the top right corner of the shape.

A0030		6
	Process	

P

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 run the "Auto Path" button, each Path List could look like the following:

This center is only on path 2

The center is on all paths

The center is on 3 different paths

To find out what Paths a center is on, right-click on the Path List $\boxed{P}$ which will pull up a menu to display all the path numbers for that center or the whole map. You can also hide or show all paths and perform various functions as shown. Each path will be separated by comma, unless there are paths in a range which are denoted by x:x.

Show Paths on Center
Show Paths on All
Hide Paths on Center
Hide Paths on All
Select Shapes with Paths
All Paths

A0750		7
Inventory	2	Item
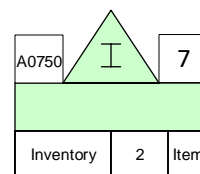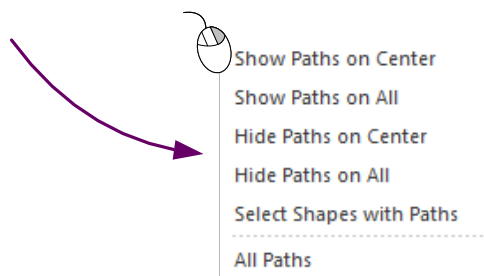
The path numbers for this inventory have been made visible. This center is on five different paths, which are 1, 3, 5, 6, and 7.

AutoTag ![Auto Tag icon] Auto Tag

A quick way to tag activities in order of the sequence arrows is to use the eVSM Auto Tag button.

The Auto Tag function works by re-tagging the whole map, so it disregards what you want as the "Next Value" in the Tag and Paths form. It orders the shapes by tag sequence arrows and then z-order (for un-sequenced rows). Then, it goes through the sequence, and it incre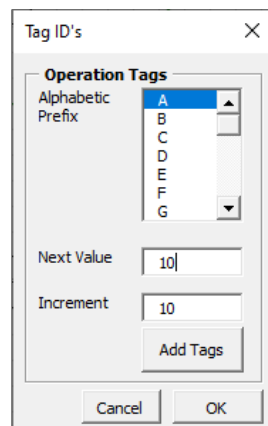ments each tag by the user-assigned interval (in the Tag and Paths form), with numbers starting at 0010 for each letter prefix.

Tag numbers can also be named manually by double-clicking to edit the text. However, the name must be unique and must be one letter followed by four numbers.

Charts are generally plotted in alphanumeric tag sequence, and the AutoTag button does a great job to help charts plot in upstream to downstream sequence.

Tags ![Tags icon] Tags

You can set preferences for activity tag numbering using the "Tags" form.

To add or change an Operation Tag, first select the shapes you wish to attach a tag shape to. Click on the "Tags" button in the toolbar. After you choose a tag prefix letter, next value, and increment value, click the "Add Tags" button.

5. Validate

Overview

This section contains checking functions to validate the model ahead of analysis.

Check

Must do this before using the Solve button. Performs numerous checks on the model and reports back any problems.

Show Seq.

A visibility toggle switch for tag sequence arrows. Generally recommended that you work with these visible so you can fix sequence arrows as you modify the map.

Show Pipes

Just a visibility toggle switch for pipe arrows. Generally recommended that you work with these while visible so you can fix pipe arrows as you modify the map.

View Paths

View and highlight all the paths on the map.

Same Paths

Please select shapes before clicking the "Same Paths" button. This will highlight the common paths that pass through ALL of the selected shapes.

All Paths

Please select shapes before clicking the "Same Paths" button. This will highlight ALL of the paths that pass through all of the selected shapes.

Clear

Removes various highlighter shapes used for glue display or problems displayed by the software.

Check ⊞ Check

The Check function checks the map and highlights (with a red circle) some common problems. It also automatically fixes somethings such as unglued operation tags, unglued datashapes, and duplicate datashapes.

Examples of problems the Check fuction will report:

- Missed mandatory data values

- Orphaned datasapes

- Unresolved units (missing unts convertors)

When the Check function finds a problem that requires attention, it provides useful information to fix it. Be sure to read this information so you can quickly resolve the issue.
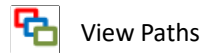
Hide/Show Sequence Arrows and Pipe Arrows

➚ Show Seq.   ➚ Show Pipes
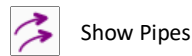
Clear all Highlighting ⊠ Clear

The Clear button clears and highlighting generated by the Check function, path highlighting, Set colors, etc.

View Same Paths

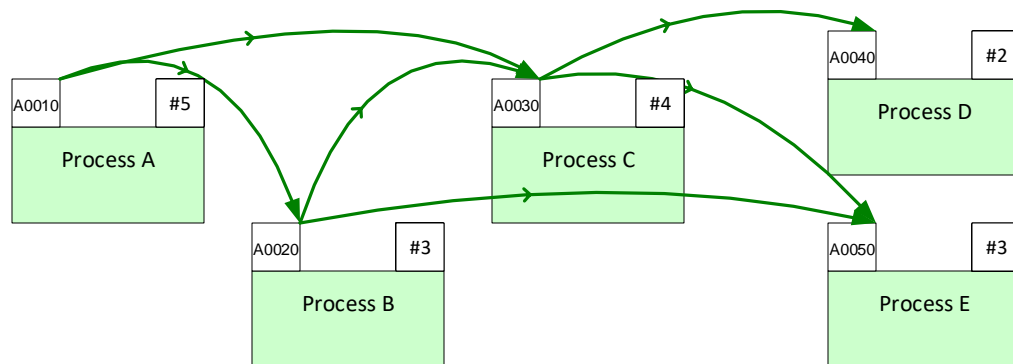 View Paths

If you have various paths on the map, and want to see the common paths that go through multiple centers, then use the Same Paths button in the toolbar. Same Paths

You must first select which centers on the map you'd like to view the paths for. Hold down the SHIFT key if you want to select more than one center. In this example below, Process B and Process C are selected.
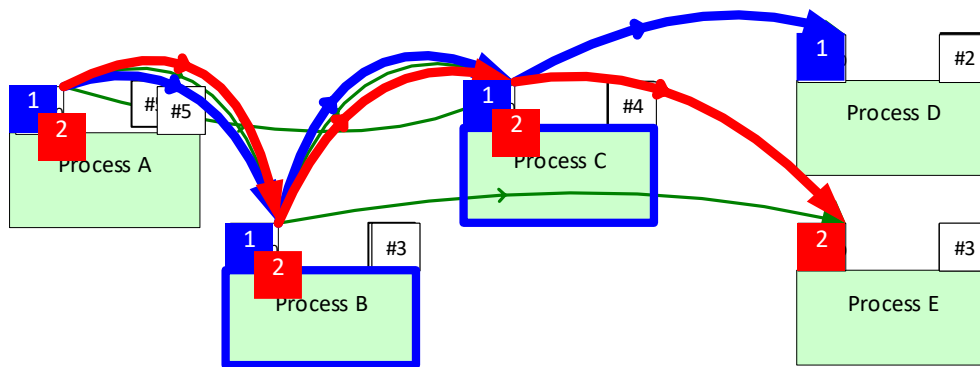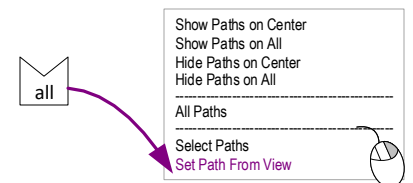

After the Same Paths button was clicked, Process B and Process C are highlighted, reminding you which centers were selected. Only the paths that go through both centers are highlighted, which are 1 and 2, shown in blue and red.

To start a view with different centers, click the Clear button in the toolbar to clear all highlights. Clear
Alternatively, if you want to add centers to the original two you selected, just hold down the SHIFT key and select the new centers to add. Then click the Same Paths button again. Same Paths

If you have a view of the paths that you would like to set into a Path Filter for a summary or chart, use the right-mouse option on the Path Filter and select "Set Path from View". This was done for the example view above for paths 3 and 4.

Show Paths on Center
Show Paths on All
Hide Paths on Center
Hide Paths on All

All Paths

Select Paths
Set Path From View

View All Paths

If you have various paths on the map, and want to see all of the paths that go through multiple centers, then use the All Paths button in the toolbar. In the example below, Process C and Process D were selected using the SHIFT key, and then the All Paths button was pressed. All of the paths are highlighted from Process C (3), and Process D (2).

All Paths
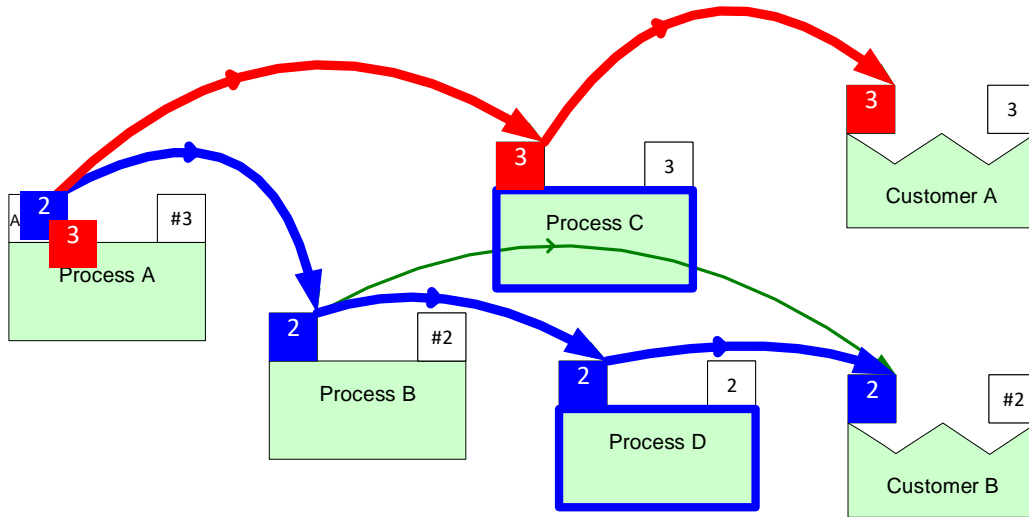
The right-mouse option on the Path Filter of "Set Path from View" will work for this function as well.

Highlight Path Arrows

If you have multiple paths highlighted, like the red, green, or blue boxes, you can view their path by highlighting the sequence arrows in the matching color. If you right-click on any of the highlighted path boxes, there is an option to "Highlight Path Arrows". This has been done for path 3.
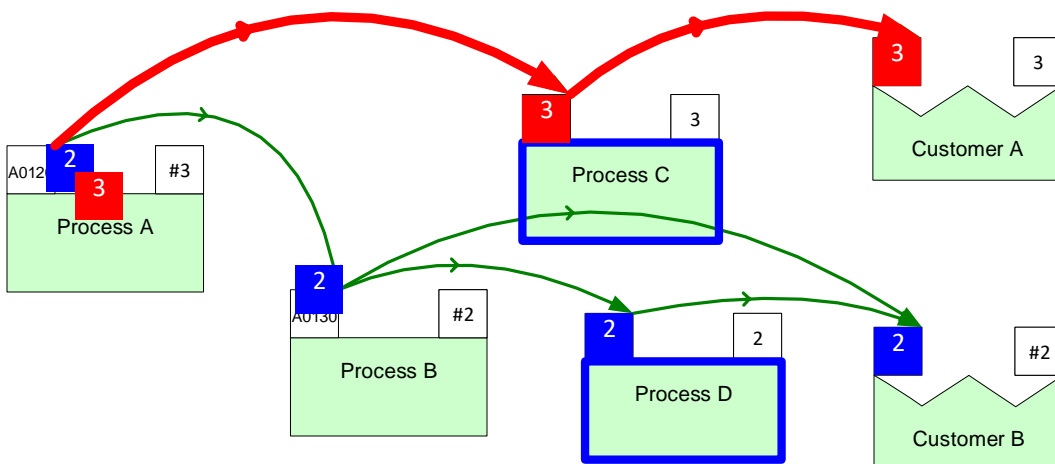
Path Marker

The Path Marker, found in the eVSM Sequence stencil, allows you to name paths by specific centers on the map. Glue the Path Marker to any glue point on a center and make sure a glue connection appears. Then double-click the marker to enter the marker name. Once you have attached Path Markers to the desired centers on the map, click the "AutoPath" button in the toolbar to update the path names. After adding Path Markers, the path names can be seen either in the Path Filter Manager or by hovering over path numbers on ladder charts (like lead time charts).
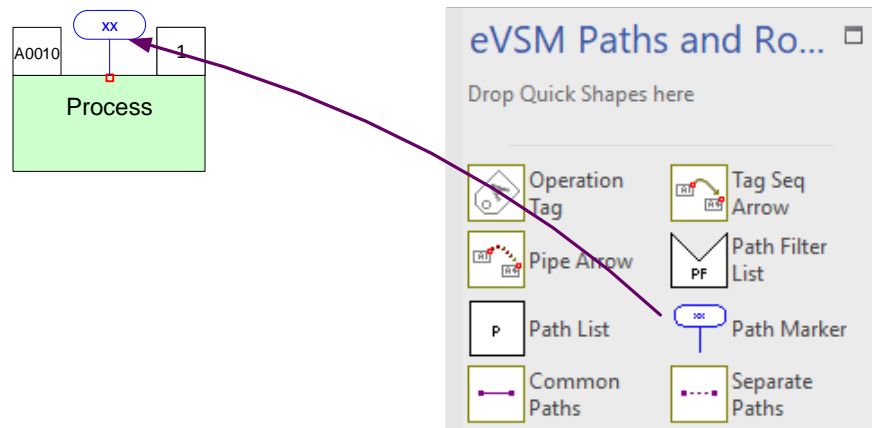
In the example Lead Time chart below, there are three paths, denoted by the bold numbers. If you right-click any of the path numbers, there are options to:

Highlight Path: Puts blue highlights on the centers for that particular path
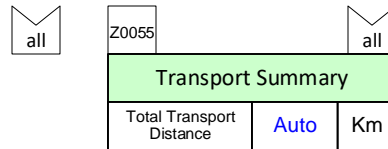
Animate Path: Animates that particular path with a moving token

Show Path Alias: Brings up a form that shows the path name based on the Path Markers
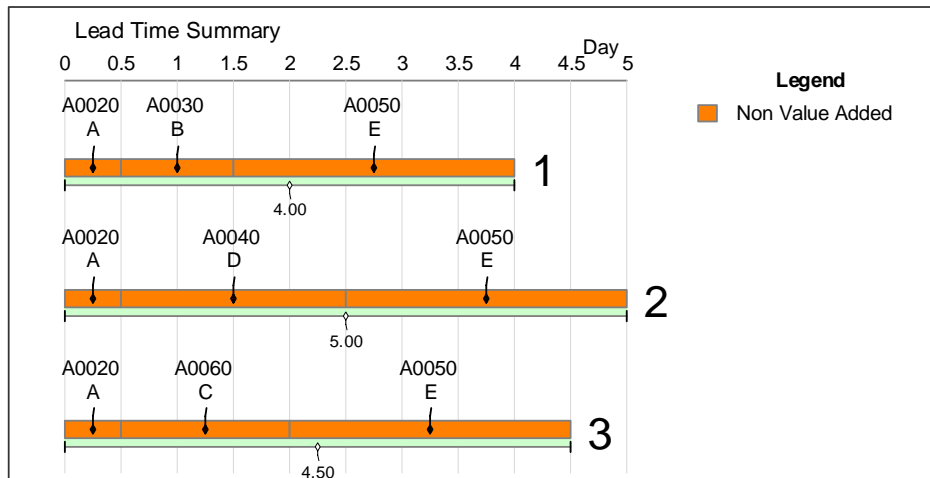
Path Filter List

The Path Filter List, found in the eVSM Sequence stencil, is used to filter summary or chart shapes by path(s). The default will be "all", if no changes are made.

By double-clicking on the Path Filter List, the Path Filter Manager will appear, allowing you to choose which paths to work with. Use the "Add" or "Remove" buttons to move the desired paths to the "Selected Paths" box.

This Search field allows you to find paths on the map based on the Path name (using Path Markers), center text names (typically green), and tags (like A0010), and will move them to the top of the list.

If you have attached any Path Markers on the map, the path name will appear next to the path number.
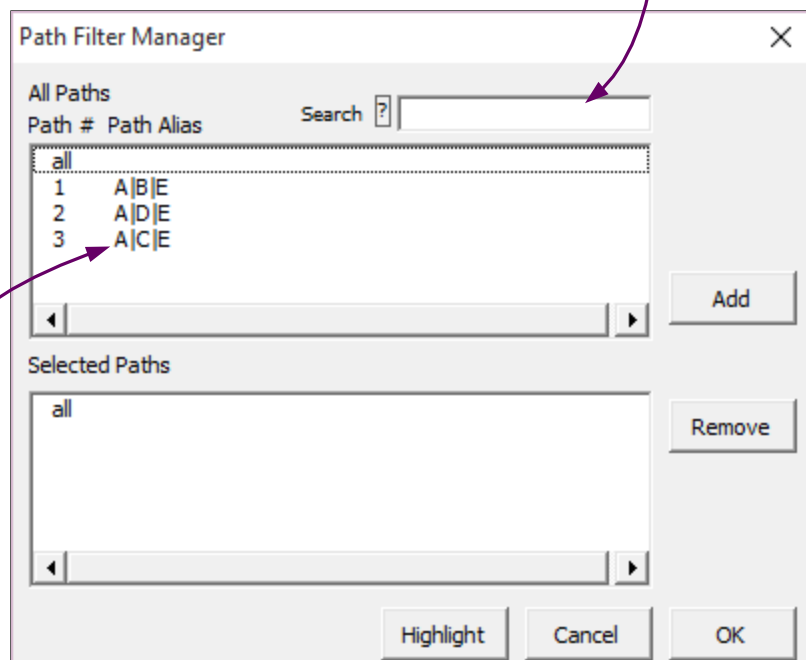
Use the "Highlight" button to show the paths in the "Selected Paths" box visually on the map.

6. Calculate

Overview

This section links the map to an underlying Excel spreadsheet to perform lean calculations with the results displayed back on the map.

Solve

Writes data out to excel, performs any calculations specified via managed equations and displays results back on the map. Also updates gadgets and charts on the map.

Variational Solve

Calculates values using variational data.

The eVSM Calculator

The eVSM Solve button in the toolbar provides bi-directional transfer of information between the map and a spreadsheet. When the button is clicked for the first time in a map, eVSM automatically creates a new Excel file and puts it in the same folder the Visio file is saved in. The function only operates on the current map page. All blue "Auto fields" will calculate to the appropriate values on the map.
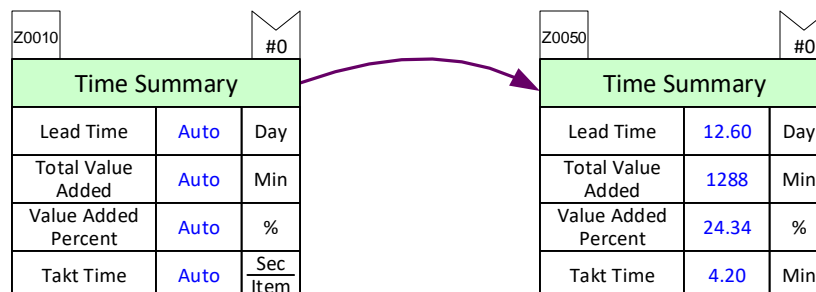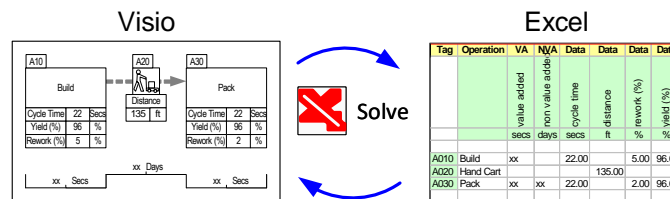
Variational Data

eVSM now supports simple means of specifying variation in data for selected input values and creates variational output for designated calculated values. The example below pulled from a Quick Manufacturing example map. Note that this functionality does not with the Quick Transactional Pro stencil.

Try this:

1. Drag out a Normal Distribution icon from the eVSM Data and glue to the Cycle Time variable. Make sure a red glue connection appears to make sure it is glued properly.
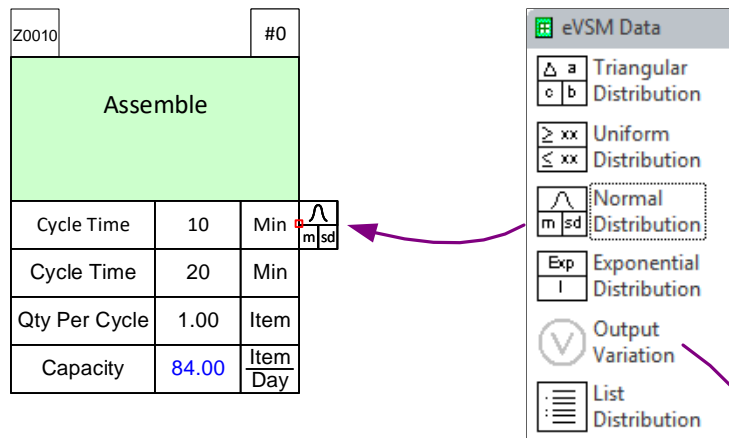
2. The mean and standard deviation for the activity's cycle time was entered.

Z0010		#0
Assemble		
Cycle Time	10	Min
Cycle Time	20	Min
Qty Per Cycle	1.00	Item
Capacity	84.00	Item/Day

eVSM Data
- Triangular Distribution
- Uniform Distribution
- Normal Distribution
- Exponential Distribution
- Output Variation
- List Distribution

3. We want to see what effect this will have on the Lead Time. The Output Variation icon from the main stencil has been glued to the Lead Time of the Summary Center.
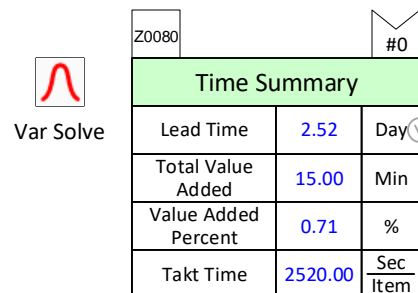
4. The Variational Solve button is selected and the user selects '75' solve iterations. Each solve uses a random number generator to "pick" a value from each variational input. It also creates a sample output for each designated out variable. This is a simple type of Monte Carlo analysis.

Var Solve

Z0080		#0
Time Summary		
Lead Time	2.52	Day
Total Value Added	15.00	Min
Value Added Percent	0.71	%
Takt Time	2520.00	Sec/Item

5. Right-click on the Output Variation shape and select "Plot Output Distribution".

6. The Lead Time has been plotted with the various confidence levels.

Normal Distribution
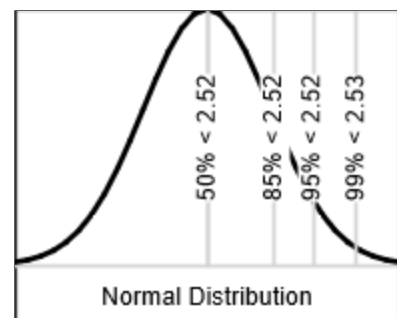
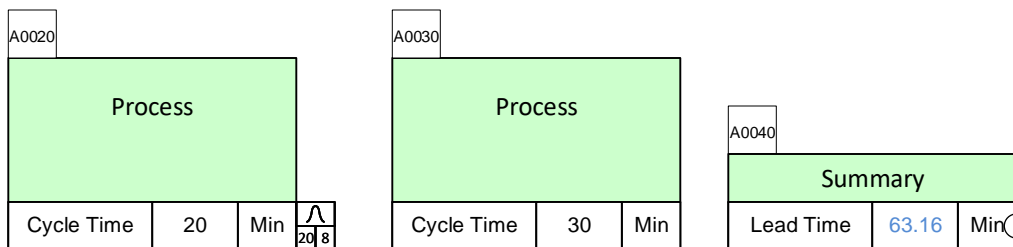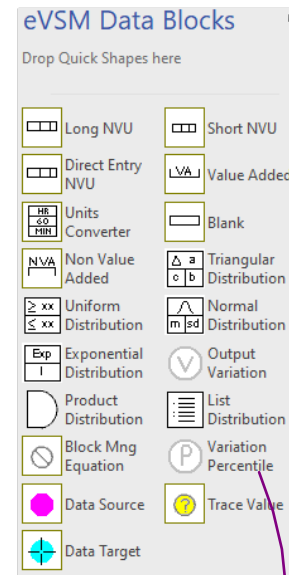# Variation Percentile Shape

The Variation Percentile shape, when attached to a variable that is calculated via an equation, provides a way to access percentile values for any terms in the equation that have an associated distribution. In the example below, lets say we want to calculate a lead time that will not be exceeded 95% of the time.
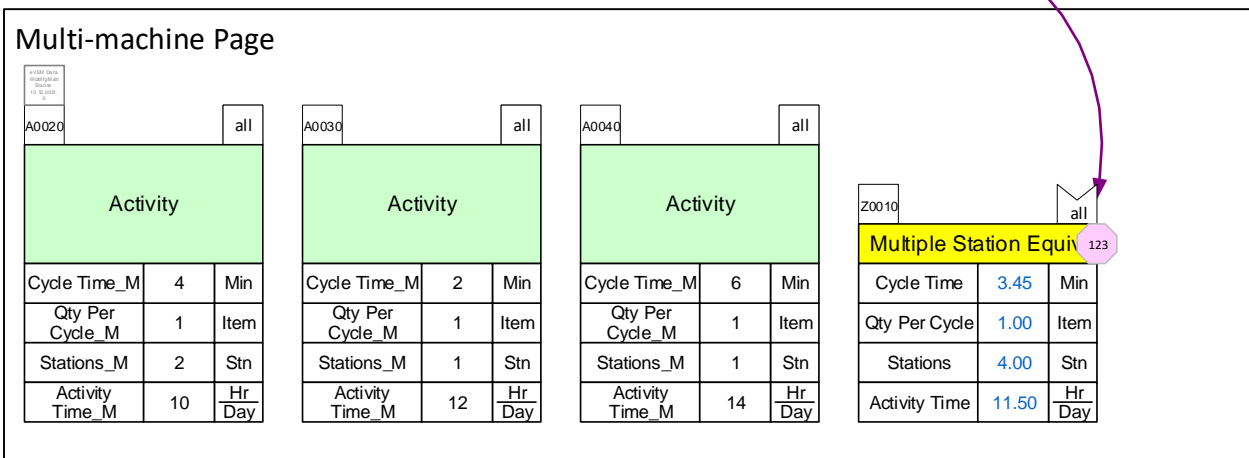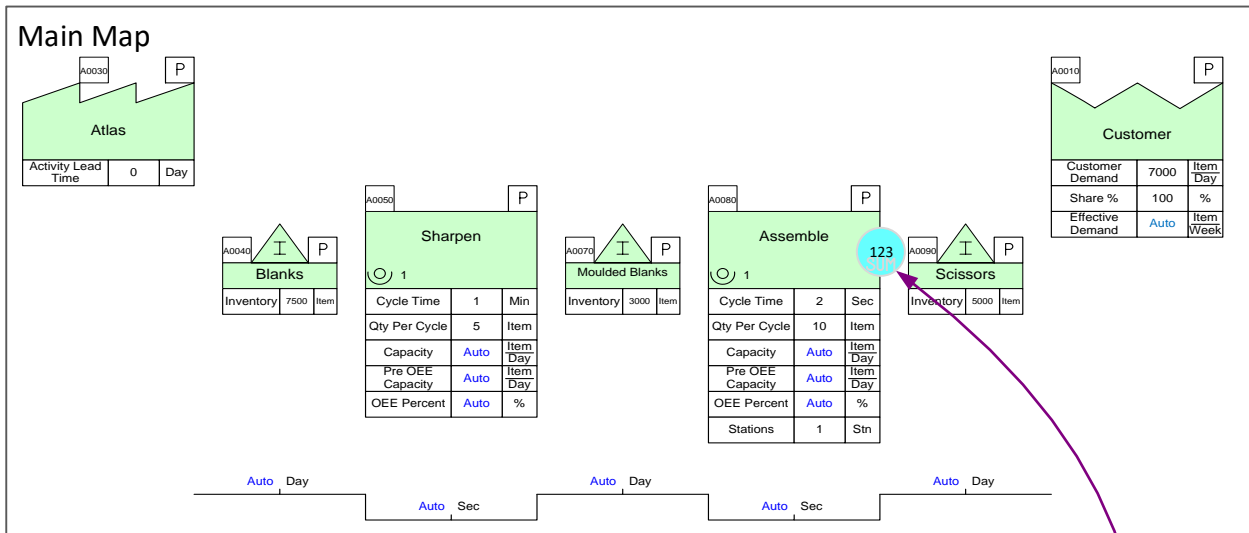
Try this:

1. Connect a Variation Percentile shape from the eVSM Data stencil to the target variable (lead time in the example below), and set it to 95.

2. Create a managed equation (refer to the managed equations section) that equates lead time to the sum of the cycle time.

3. Press the Solve button in the toolbar and note that the lead time solves to 63.16. Without the percentile specification the answer would have been 50.

Solve

eVSM Data Blocks

Drop Quick Shapes here

Long NVU		Short NVU	
Direct Entry NVU		Value Added	
Units Converter		Blank	
Non Value Added		Triangular Distribution	
Uniform Distribution		Normal Distribution	
Exponential Distribution		Output Variation	
Product Distribution		List Distribution	
Block Mng Equation		Variation Percentile	
Data Source		Trace Value	
Data Target			

A0020

Process

Cycle Time	20	Min

A0030

Process

Cycle Time	30	Min

A0040

Summary

Lead Time	63.16	Min

Source and Target

This is used to link the data values across datashapes which may be on the same page or on other pages within the same file. In this example, the main map has an Assembly station that is actually a multi-machine. The data from the Multi-Station Wizard will be linked to the main map for the center.

Main Map

A0030 — P

Atlas

| Activity Lead Time | 0 | Day |

A0040 — P

Blanks

| Inventory | 7500 | Item |

A0050 — P

Sharpen — 1

Cycle Time	1	Min
Qty Per Cycle	5	Item
Capacity	Auto	Item/Day
Pre OEE Capacity	Auto	Item/Day
OEE Percent	Auto	%

A0070 — P

Moulded Blanks

| Inventory | 3000 | Item |

A0080 — P

Assemble — 1 — 123

Cycle Time	2	Sec
Qty Per Cycle	10	Item
Capacity	Auto	Item/Day
Pre OEE Capacity	Auto	Item/Day
OEE Percent	Auto	%
Stations	1	Stn

A0090 — P

Scissors

| Inventory | 5000 | Item |

A0010 — P

Customer

Customer Demand	7000	Item/Day
Share %	100	%
Effective Demand	Auto	Item/Week

Auto Day   Auto Day   Auto Day
Auto Sec   Auto Sec

Data Source

Data Target

Multi-machine Page

A0020 — all

Activity

Cycle Time_M	4	Min
Qty Per Cycle_M	1	Item
Stations_M	2	Stn
Activity Time_M	10	Hr/Day

A0030 — all

Activity

Cycle Time_M	2	Min
Qty Per Cycle_M	1	Item
Stations_M	1	Stn
Activity Time_M	12	Hr/Day

A0040 — all

Activity

Cycle Time_M	6	Min
Qty Per Cycle_M	1	Item
Stations_M	1	Stn
Activity Time_M	14	Hr/Day

Z0010 — all

Multiple Station Equi — 123

Cycle Time	3.45	Min
Qty Per Cycle	1.00	Item
Stations	4.00	Stn
Activity Time	11.50	Hr/Day

The Assemble activity center on the main map is represented by the equivalent multi-machine. The goal is to populate the input fields for the Assembly activity from calculated values on the multi-machine map. The Multi Station Wizard has been purposely designed so that it calculates the values that the activity on the main map needs AND has the SAME variable names (Cycle Time, Stations, etc.). In the special case where source and target variable names are identical, source and target identifiers can be glued to the center shape as shown below.

Linking Variables with the Same Name: Try This

1. In the same file as your main map page, create a new page. Click the Open button and use the Mfg Multi Station Wizard to create the example map shown on the previous page. After you have created it, name the page to MS. Drag out the "Data Source" marker from the eVSM Data stencil and glue to the Multi Station Summary Center. Note that source variables can be located on the same page as the target variable or on another page in the same file. Enter an ID, like 123 which will be used for the target marker as well.

Z0010		P
Multiple Station Equiv.		123
Cycle Time	3.45	Min
Qty Per Cycle	1.00	Item
Stations	4.00	Stn
OEE	85.38	%
Activity Time	11.50	Hr / Day
MS CT Capacity Per Day	800.00	Item
MS Capacity Per Day	683.00	Item
MS Cycle Time Per Item	0.86	Min

Output Variation

List Distribution

Variation Percentile

Product Distribution

Block Mng Equation

Data Source

2. Go back to the main map page and drag out a "Data Target" marker and glue to the side of the Activity Center. Enter 123 for the ID. In order for the calculation to be correct, the first five variables from the multi-station summary center MUST be on the Activity Center. If they are not, you will have to manually drag them out from the Quick stencil and glue to the Activity Center.
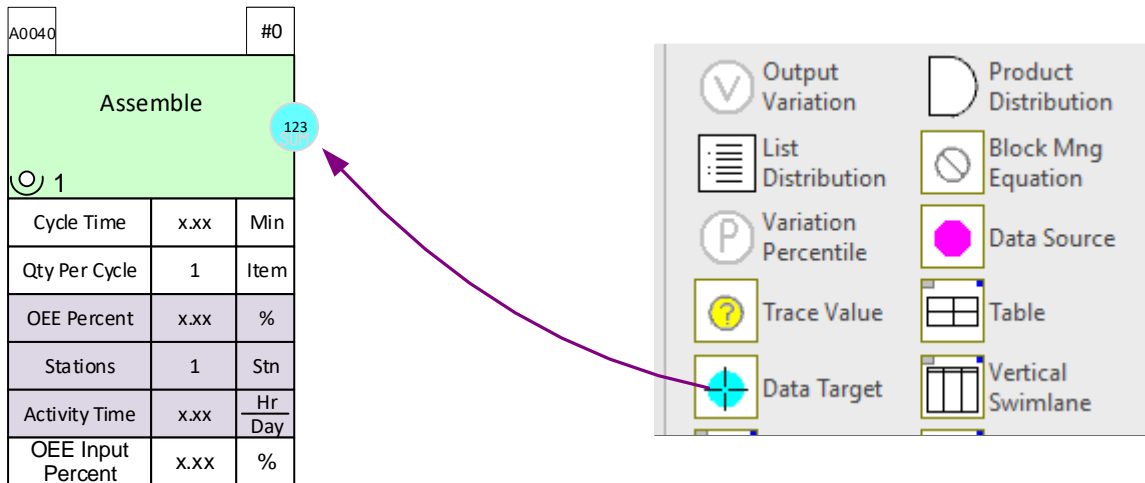
Note that the default setting for the target variable is set to sum all of the source variables. You can right-click on the target and change sum to average, max, or min.

3. If the source and target variables are on separate pages, the page where your target variable is must be linked to the source page. Make sure each page in your Visio File has a memorable name in order to differentiate pages when setting the scope.

4. In this example, go to the main map page where your target is and click the NUM button in the toolbar to open the dialog box to set the page scope. NUM

5. Click "Source/Target Pages" at the bottom of the box and select the page on which your source marker is located.
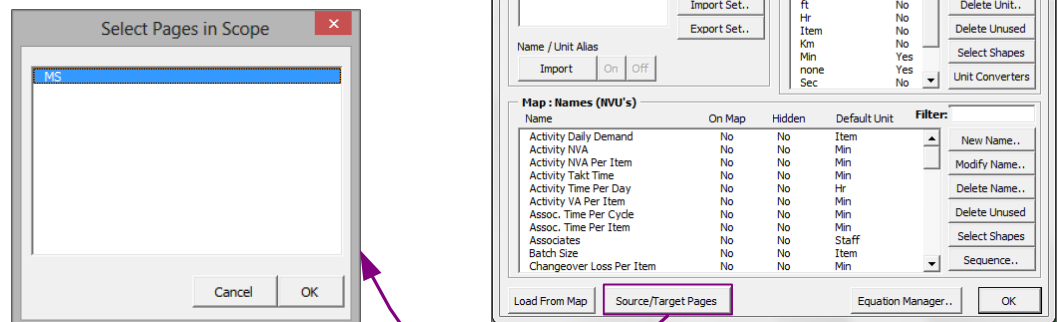
Linking Variables with Different Names/Units

In the general case when you are trying to link values of variables with different names, you should glue the source/target markers onto the side of the variable as opposed to the whole center.

Target Page

A0050		#0
Activity		
Cycle Time	x.xx	Sec
Qty Per Cycle	1	Item
CT	0.13	H 27

If the units are not the same, there must be compatible unit converters, like Min to Hr, located on the source page for the solve function to convert the value. If the units are not compatible and you try to solve, an eVSM Warning message will appear telling you to create a unit converter. See the example below which shows different variable names and units, but was able to link the values because of the correct unit converter.

Source Page

| Z0010		#0
Multiple Station Equiv.		
Qty Per Cycle	1.00	Item
Cycle Time	7.93	Mi 27
OEE	56.90	%
MS CT Capacity Per Day	348.00	Item
MS Capacity Per Day	198.00	Item
MS Cycle Time Per Item	1.98	Min

Hr
60
Min

XL Reports

eVSM has an XL Report builder that will export the tag, operation, type, and custom variables one directionally to Excel.

Try this:

1. After your map has been solved, drag out the XL Report icon from the eVSM Kaizen stencil.
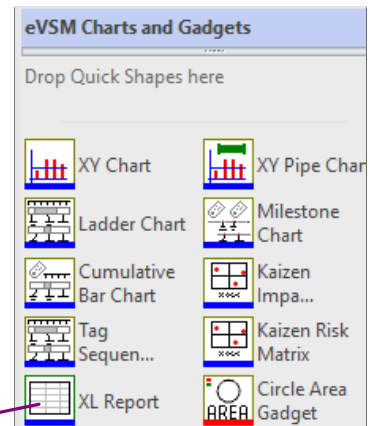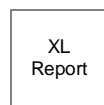
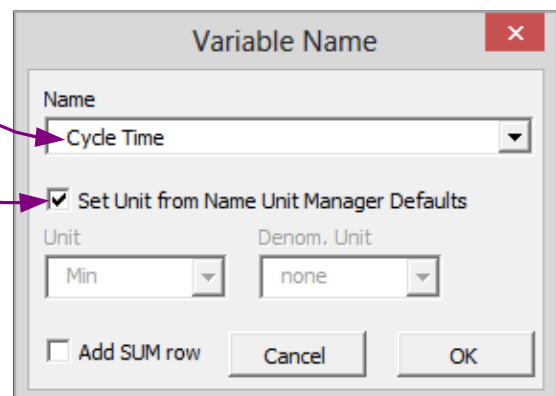2. Right-click on the XL Report shape and select "Edit Report Data".
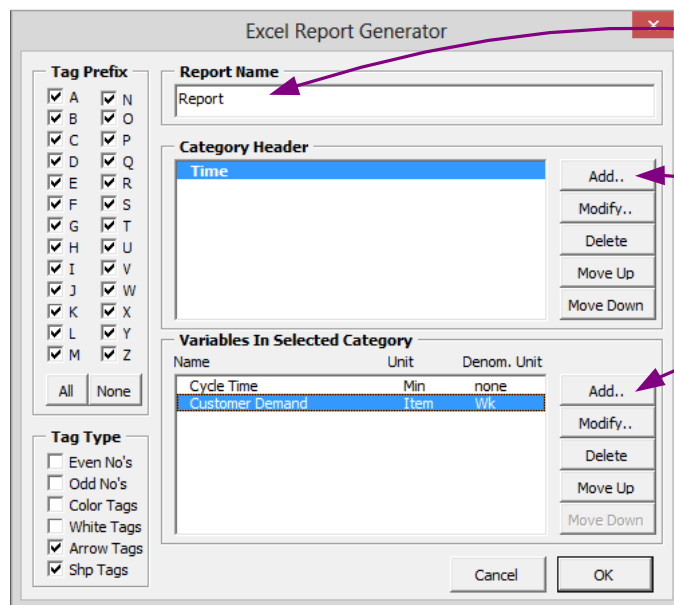
3. Enter a Report Name which will be the page name in the Excel file.

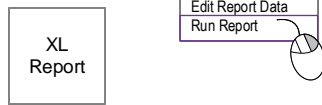4. Click "Add" to create a category header.

5. Click "Add" to select the variables to the export to the XL Report.
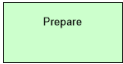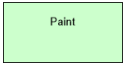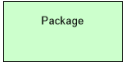
6. Select the desired variable from the dropdown menu.

7. If you don't want the default unit, uncheck this box and change the units manually.

8. After you have finished adding the desired variables, right-click on the XL Report shape and select "Run Report".

XL Report

Edit Report Data
Run Report

Tag	Operation	Type	Time	
			Cycle Time	Customer Demand
			Min	Item/Wk
A0010	Prepare	Prepare	5	
A0010_A0020				
A0020	Paint	Paint	10	
A0020_A0030				
A0030	Package	Package	8	
A0030_A0040				
A0040	Customer	Customer		100

7. Visualize

Overview

The view capability simplifies maps with better utilization of map space. Also allows the visualization of the numbers using gadgets and charts.

Views — Opens a window for modifying variable visibility settings for the map.

Gadgets — Allows management of gadget families providing geometric views of key numbers of the map with color coding, scale factors and hide/show.

Update — Updates all the geometric gadgets based on the current map values.

Filter — Lets you hide Quick Centers on your map by having their corresponding rows in Excel hidden. This lets you keep as much data as you want in Excel, and use Excel's built-in filtering tools to control visibility in eVSM.

You can make a view permanent using the 'Copy Filter View' button, and make calculations on your map using that view.

Hiding & Showing Variables   Views

To prevent maps from looking crowded, there are a large number of variables in eVSM that are hidden. The views capability allows you to manage which variables you would like to be hidden/visible on the map.

Try this:

1. Click the Views button in the toolbar.

2. This will open the form below which allows you to manage the visibility of variables on the map. The dark gray boxes indicate the hidden variables on the map, and white boxes represent that the visible variables on the map.

3. Check the boxes of some variables that are currently grayed out.

4. Click OK and the changes will apply to all centers on the map.

Switch off to hide all datashapes on map

Variable Visibility

Center/Addon Name   Variable Name(s)   Visibility   Show in List Vars
☐ All   ☑ All

|			
− Customer Center	− Customer Demand	☑	☑
	Effective Demand	☑	☑
	Share %	☑	☑
+ Carry Cost Factors			
+ Takt Center			
+ Outside Center			
− Inventory Center	− Added Cost	☐	☑
	Annual Inv Carry Cost	☐	☑
	Computed Inv Demand	☐	☑
	Cumulative Cost	☐	☑
	End Time	☐	☑
	Non Value Added	☑	☑
	Duration	☐	☑
	Inventory	☑	☑
	Inventory Value	☐	☑

Default Variable Visibility   Hide Auto Variables   Cancel   OK

Reverts all Views settings to the Default, as they were when the map was first started.

Hides all the (blue) calculated datashapes

Using Gadgets to Visualize Data Gadgets

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:
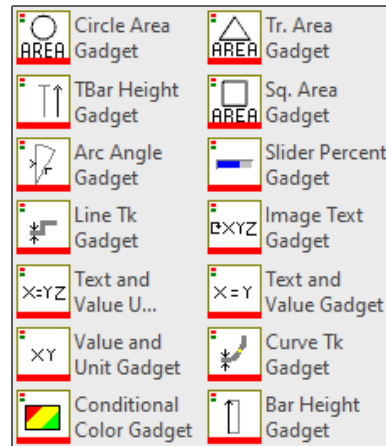

Each gadget has exactly one size parameter that can be tied to a data value on the map. Here's the typical means used to apply and manipulate gadgets:

Try this:

1. Drag out the gadget from the eVSM Visuals 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.
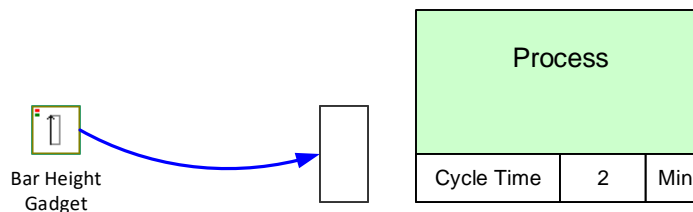

2. This system shape will be automatically dropped on the page the first time a gadget is used. If you copy a map to a new page make sure you also copy this shape because it is used to hold gadget data for the map.

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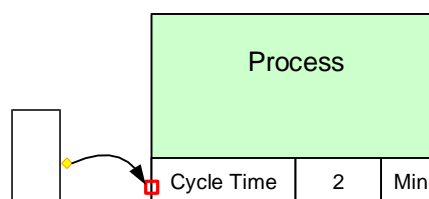
4. Right-click on the gadget and use the "Activate Gadget" option to create a new gadget collection. The collection name will be "Bar_Cycle Time". The name is created from the gadget type and the data variable name.

A gadget can only belong to one collection. Each collection can only have a single type (e.g. "Bar") of gadget.

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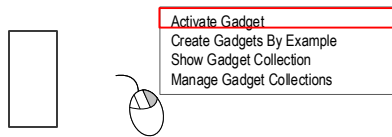
5. You can change gadget scale factors and color code them by modifying the properties of the associated Gadget Collection. You can easily create additional gadgets tied to other instances of the same data on the map. Just click on the gadget and use the right mouse button to select "Create Gadgets By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

Process A		
Cycle Time	2	Min

Process B		
Cycle Time	6	Min

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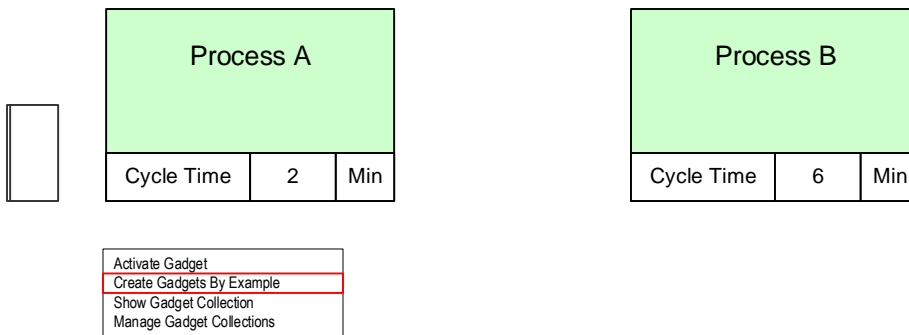
6. Note that the new gadget is automatically positioned, scaled and put into the same "Bar_Cycle Time" collection. If you do not wish to have new gadgets created for the whole map than select the original gadget, then sub-select an area of the map before using the "Create Gadgets By Example" menu.

Process A		
Cycle Time	2	Min

Process B		
Cycle Time	6	Min
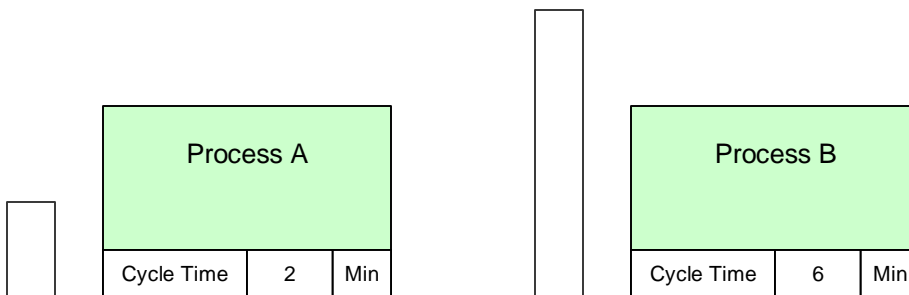
7. To modify a gadgets scale factor or to color code it, you need to change the properties of its associated collection. Right mouse click on the gadget and select "Manage Gadget Collections," or click the Gadgets button in the toolbar. **Gadgets**

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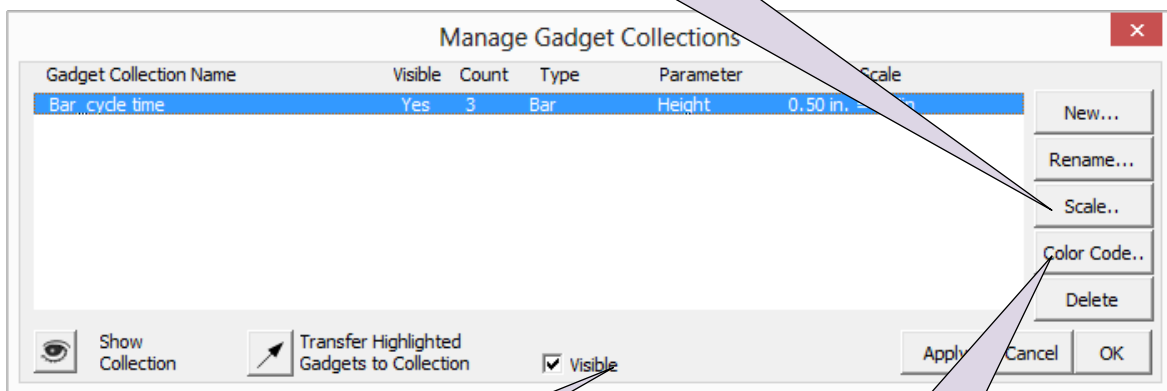
To hide or show gadgets in a collection, first select the collection from a list, then click this button.

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

You can 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.

- See the "Examples" section on the eVSM help site (www.evsm.com/help) for usage examples of the different gadget types.

- A starter set of gadgets is provided with eVSM. Additional gadgets can be requested by contacting support@evsm.com.

Image/Text/Value/Unit Gadget

There are three gadgets that can be used to visualize hidden data in shapes on the map.

Image Text Gadget:

☆   **Name**   **=**   **Value**   **Unit**

Text and Value Unit Gadget:

abc =   **xx**   Unit

Text and Value Gadget:

abc =   **xx**

For example, if you have kaizen bursts with various properties assigned, you can visually see them with the combination of image, text, value and units. You can customize the font, color, and size of the gadget to apply map wide. The instructions below will explain how to visualize the Impact number with the Text and Value Gadget.

1. The kaizen burst must have the properties you want to visualize already assigned. From the eVSM Visuals stencil, drag out the Text and Value Gadget and place it near the starburst.

001

Problem

abc =   **xx**
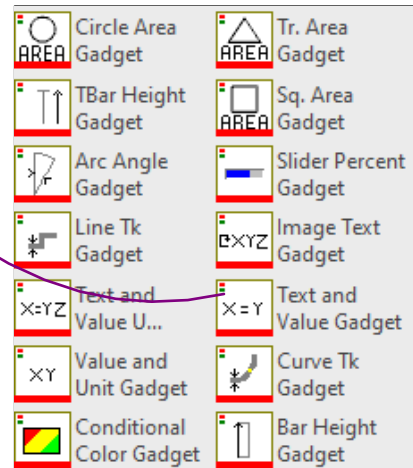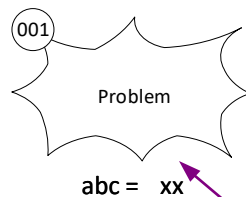
2. Select the gadget, drag the yellow flying connector, and glue it to a glue connection along the edges of the starburst. Make sure a glue connection appears.
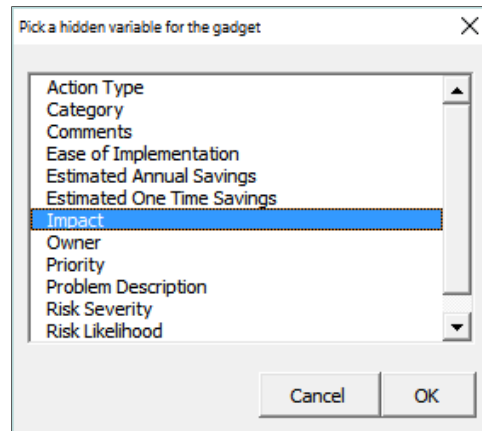

001

Problem

abc =   **xx**
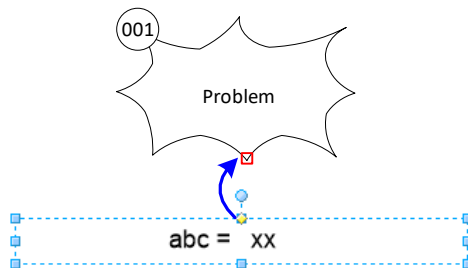
3. To change the "abc" to "Impact", click the abc text box, and click the "F2" button on your keyboard to edit the text. This is where you can also customize the font size, color, and positioning as the standard.
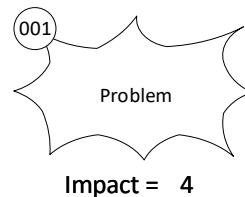
Impact =   **xx**

4. Right-click the gadget and select "Activate Gadget".

5. Select "Impact" from the list.

Once you click OK, the Impact number from the kaizen will be inputted into the gadget.
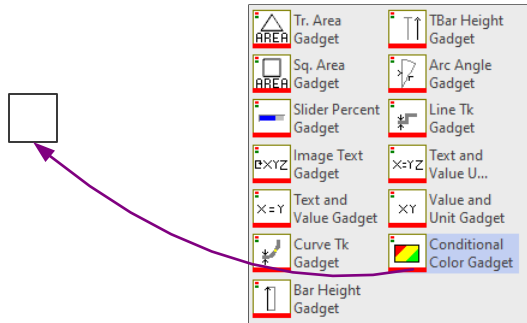

Impact = 4

6. To apply this gadget to the rest of the kaizens on the map, right-click the gadget and select "Create Gadgets by Example". You can manually move the gadgets, otherwise they will be created in the same location in relation to the starburst as the original one.

7. If you change any of the values shown by gadgets, you can click the "Update" button in the eVSM toolbar to update all gadget values. Update

Conditional Color Gadget

The Conditional Color Gadget allows the ability to color code values based on value ranges.

1. Drag out the Conditional Color Gadget from the eVSM Charts and Gadgets stencil.

△ AREA	Tr. Area Gadget	↑↑	TBar Height Gadget
□ AREA	Sq. Area Gadget	▷	Arc Angle Gadget
▬	Slider Percent Gadget	⌐	Line Tk Gadget
e×YZ	Image Text Gadget	X=YZ	Text and Value U...
X=Y	Text and Value Gadget	XY	Value and Unit Gadget
✎	Curve Tk Gadget	◩	Conditional Color Gadget
⬆	Bar Height Gadget		

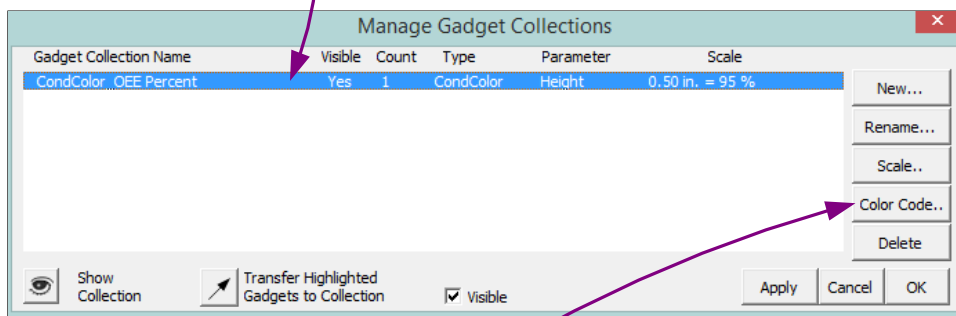| A0020		#0
	Process	
◯ 1.00		
Cycle Time	15	Sec
Qty Per Cycle	1	Item
OEE Percent	95.00	%
Scrap Percent	5	%

15.00	Sec

2. Click on the gadget, and use the yellow flying glue connector to glue to any side of a variable. Make sure a red glue connections appear, confirming that it is glued.

3. Right-click the gadget and click "Activate Gadget" if there is only one on the map, or select "Create Gadgets by Example" if you would like to add a gadget for that variable map wide.
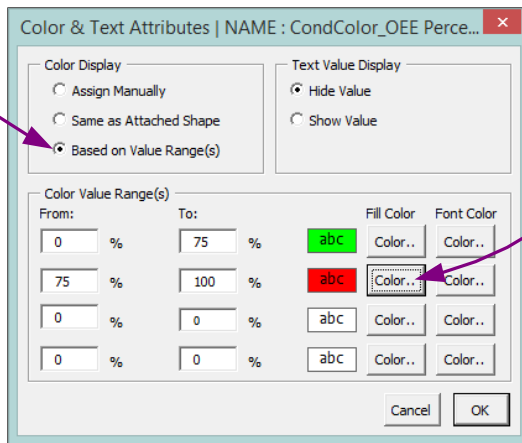
4. Click the Gadgets button in the toolbar.   ⧉ Gadgets

5. Select the Gadget collection.

Manage Gadget Collections						
Gadget Collection Name	Visible	Count	Type	Parameter	Scale	
CondColor_OEE Percent	Yes	1	CondColor	Height	0.50 in. = 95 %	New...
						Rename...
						Scale..
						Color Code..
						Delete
👁 Show Collection	↗ Transfer Highlighted Gadgets to Collection	☑ Visible			Apply	Cancel	OK

6. Click the "Color Code…" button.

7. Select "Based on Value Ranges(s).

Color & Text Attributes | NAME : CondColor_OEE Perce... ×

Color Display
  ○ Assign Manually
  ○ Same as Attached Shape
  ● Based on Value Range(s)

Text Value Display
  ● Hide Value
  ○ Show Value

Color Value Range(s)

From:		To:			Fill Color	Font Color
0	%	75	%	abc	Color..	Color..
75	%	100	%	abc	Color..	Color..
0	%	0	%	abc	Color..	Color..
0	%	0	%	abc	Color..	Color..

Cancel   OK

8. Fill in the desired ranges with the fill color.

9. The Gadget will change to the color chosen. If values change, so will the gadget color after Solve is run.

A0030		#0

Process

1.00

Cycle Time	15	Sec
Qty Per Cycle	1	Item
OEE Percent	95.00	%
Scrap Percent	5	%

15.00 Sec

Plot Name Value

There is now the option to plot the name values for all variables on the map.

Try This:

1. Drag out three activity centers and fill in the values.

2. Right-click on Cycle Time and select "Plot Name Values" in the menu.

A0040		#0
Drill		
Cycle Time	2	Min
Qty Per Cycle	1	Item

A0030		#0
Wash		
Cycle Time	4	Min
Qty Per Cycle	1	Item

A0050		#0
Inspect		
Cycle Time	6	Min
Qty Per Cycle	1	Item

Enable Flying Connector
Name Help
_____
Select all with Name
Select all with Name on Path
Edit Name.. (Cycle Time)
Edit Unit.. (Min)
Plot Name Values
Plot Distribution Values

Auto   Min   Auto   Min   Auto   Min

Visualize - Cycle Time

Min

| 6 |
| 5 |
| 4 |
| 3 |
| 2 |
| 1 |
| 0 |

A0030   A0040   A0050
Wash   Drill   Inspect

■ Cycle Time

Legend
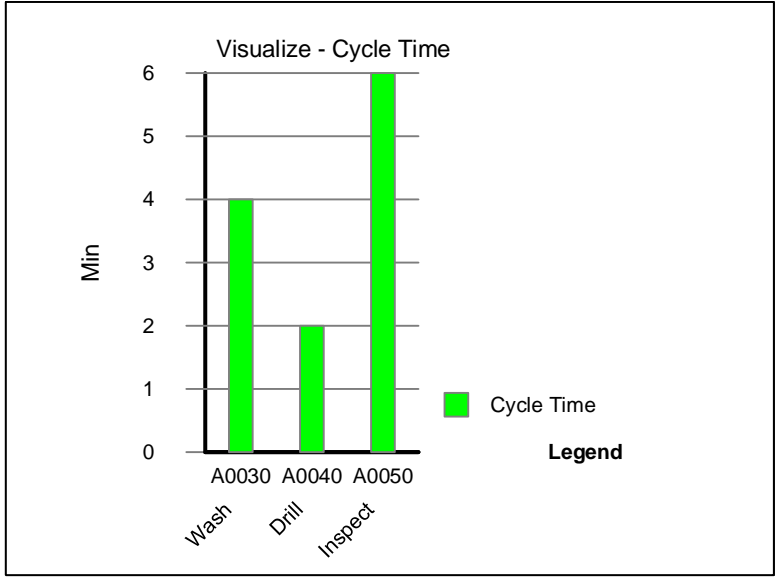
Plotting VSM Charts

XY Charts (Combination & Pareto Charts) - Any numeric data available for analysis in eVSM can be plotted on a chart such as this:
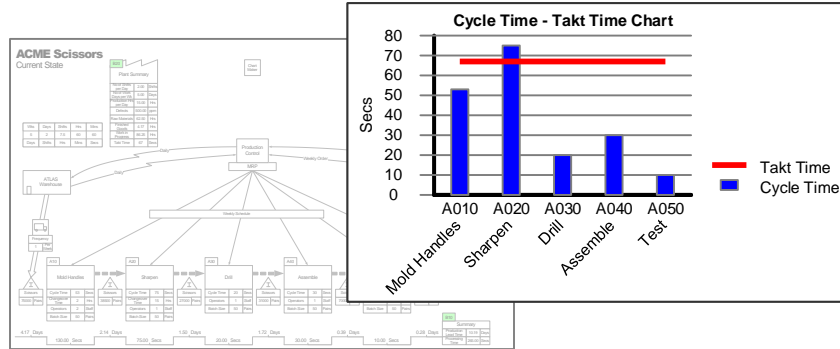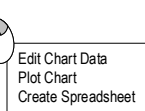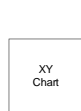
Before creating a chart, you must ensure that the data to be plotted is:

- Contained in eVSM data shapes
- The data shapes are glued to the parent rowmaker shapes
- Rowmaker shapes are tagged with Operation Tags

Hint: Use the Glue Check and Excel Check buttons in the eVSM toolbar to verify

Try this:

1. Drag out the XY Chart icon from the stencil, and place it anywhere on the map.

Right mouse click on the shape and select the "Edit Chart Data" command.

2. Set up chart parameters and click "Plot Chart" command in the right mouse button menu.

Enter chart title

Select Y-axis units

Set data filters

Variables will be plotted in sequence shown here. Use Up Down buttons to change sequence

Optional chart description

Options for Chart Variables:

Set a default value for non-existent plot points

Select Variables to plot

Select Display Type

Enter Tag number for single tag data plot

Set color of fill or lines
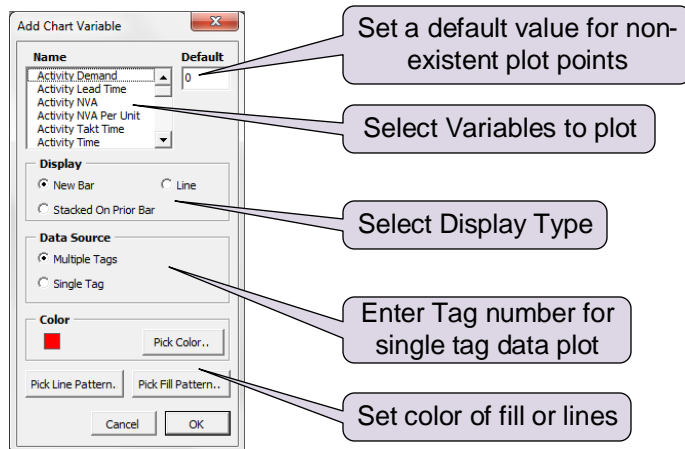
3. Click the Plot Chart command in the right mouse button menu.

Edit Chart Data
Plot Chart
Create Spreadsheet
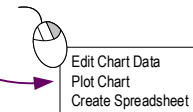
Notes:

▪ Each eVSM Chart is a group of simple shapes. Avoid ungrouping these as this may displace some of the shapes.

▪ Chart will update automatically when the Calculator is run. To update the chart manually, use the "Update command in" the chart's right mouse button menu.
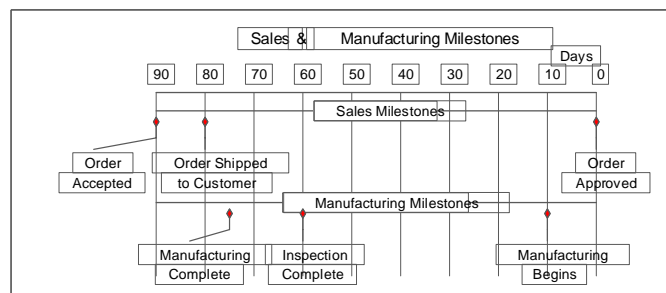
Milestone Charts

Try this:

1. Get data ready in this format:

A0030 Sales Milestones		
Order Approved	90	Days
Order Shipped to Customer	10	Days
Order Accepted	0	Days

A0040 Manufacturing Milestones		
Manufacturing Begins	80	Days
Inspection Complete	30	Days
Manufacturing Complete	15	Days

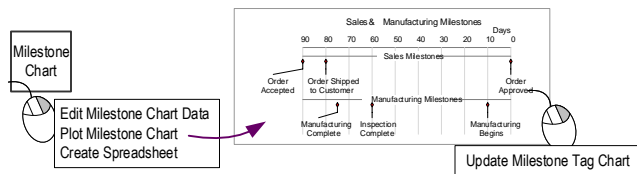2. Drag out the Milestone Chart icon and click the "Edit" command in its right mouse button menu.
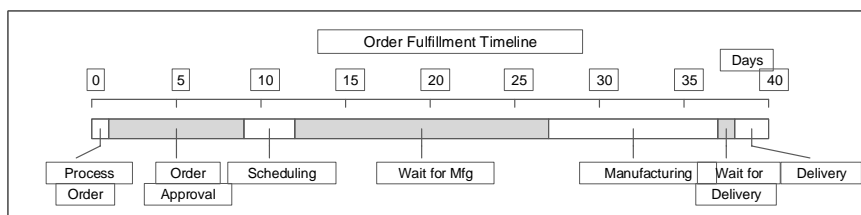
Milestone Chart

3. Complete the form:

4. Plot chart.

5. Use the "Update.." command in the chart's right mouse button menu to update the chart when the data changes.

Cumulative Bar Charts

The Cumulative Bar Chart allows you to visualize the phases of a value stream on a timeline.

1. Get data ready in this format:

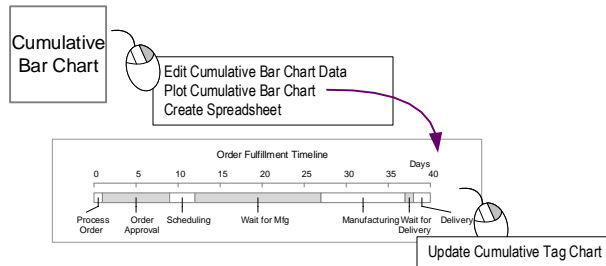| B070		
Order Fulfillment Timeline		
Process Order	1	Days
Order Approval	8	Days
Scheduling	3	Days
Wait for Mfg	15	Days
Manufacturing	10	Days
Wait for Delivery	1	Days
Delivery	2	Days

2. Drag out the Cumulative Bar Chart icon and click the "Edit" command in its right mouse button menu.
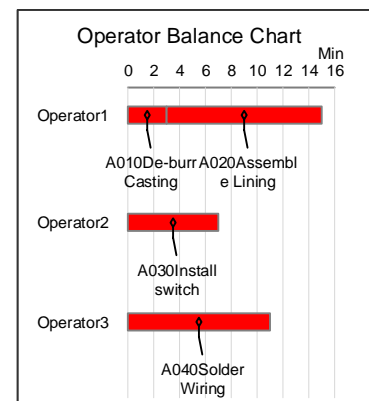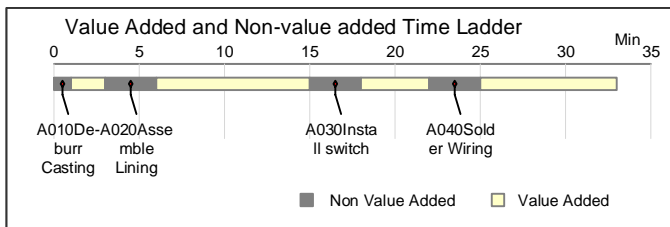
Cumulative Bar Chart

3. Complete the form:

4. Plot the chart:

5. The chart will update automatically when the Calculator is run. To update the chart manually, use the Update command in the chart's right mouse button menu.
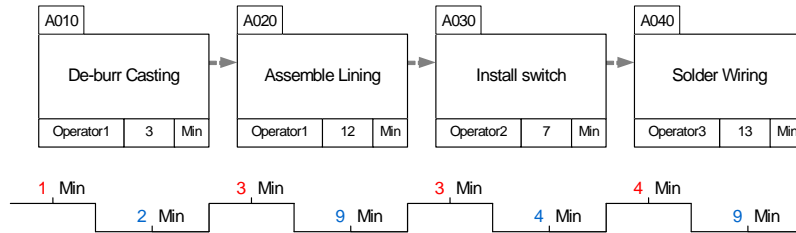
Ladder Charts

The Ladder Chart shape allows you to create timeline and operator balance charts such as the following:
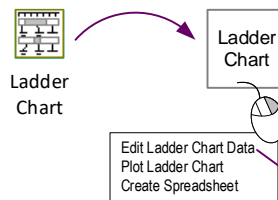
Try this:

We will plot a Timeline Ladder for the VA/NVA times from this VSM.

1. Drag out the Ladder Chart icon and click the "Edit" command in its right mouse button menu.

2. Complete the form:

3. Plot chart:

4. The chart will update automatically when the Calculator is run. To update the chart, manually, use the "Update Chart" command in the chart's right mouse button menu.

Filtering Views

The Filter button in the eVSM toolbar lets you hide Quick Centers on your map by having their corresponding rows in Excel hidden. This lets you keep as much data as you want in Excel, and use Excel's built-in filtering tools to control visibility in eVSM.   Filter

Configuring Excel

The corresponding page name in Excel must be the page name you are using in Visio + "_ID". So if the page name in Visio was "VSM", then the Excel page name needs to be "VSM_ID".

The data must be started on row 2, with headers on row 1, and the first column named "ID" to identify the centers. Below is an example of the Excel sheet with the corresponding ID on the Activity Center.

Configuring Visio

1. In order to specify the Quick Centers from Visio to Excel, an ID shape must be glued to it. From the "eVSM Data" stencil, drag out the "Long NVU" shape and glue it to the center.

2. Then click the NUM button in the toolbar to create an ID variable. **NUM**

Name and Unit Manager

Name & Unit Sets
Save To Set..
Load From Set.
Delete Set..
Import Set..
Export Set..

Alias Mode
Export Alias Names | Import Alias Names | On | Off

Map : Units
Currency: $

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

US | Metric
New Unit..
Modify Unit..
Delete Unit..
Delete Unused
Select Shapes
Unit Converters

3. Click the "New Unit" button.

Map : Names (NVU's) Filter:

Name	On Map	Hidden	Default Unit
Activity Daily Demand	No	No	Item
Activity NVA	No	No	Min
Activity NVA Per Item	No	No	Min
Activity Takt Time	No	No	Min
Activity Time Per Day	No	No	Hr
Activity VA Per Item	No	No	Min
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

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

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

New Unit

Select or Type In New Unit ID.
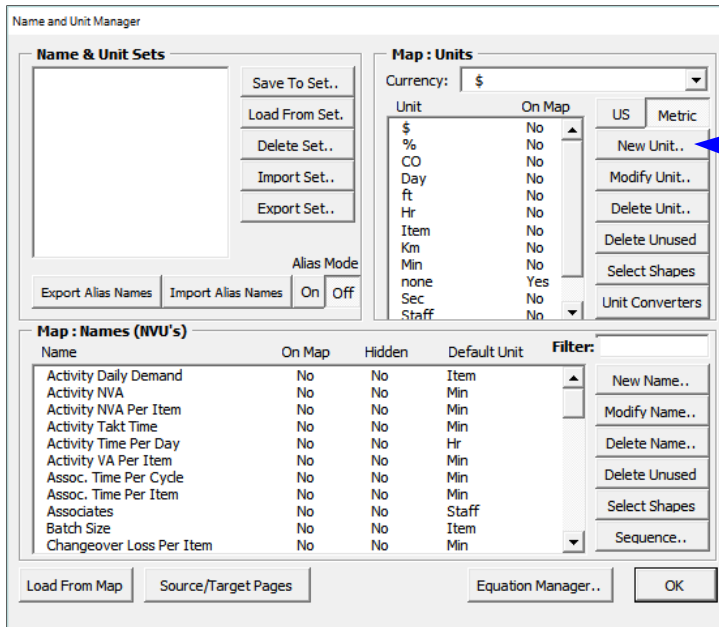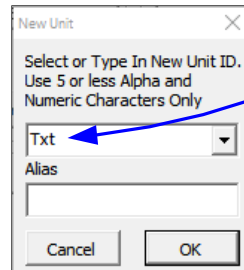Use 5 or less Alpha and
Numeric Characters Only

Txt

Alias

Cancel | OK

4. Enter the unit name of "Txt" and then click OK.

Name and Unit Manager

Name & Unit Sets
Save To Set..
Load From Set.
Delete Set..
Import Set..
Export Set..

Alias Mode
Export Alias Names | Import Alias Names | On | Off

Map : Units
Currency: $

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

US | Metric
New Unit..
Modify Unit..
Delete Unit..
Delete Unused
Select Shapes
Unit Converters

Map : Names (NVU's) Filter:

Name	On Map	Hidden	Default Unit
Activity Daily Demand	No	No	Item
Activity NVA	No	No	Min
Activity NVA Per Item	No	No	Min
Activity Takt Time	No	No	Min
Activity Time Per Day	No	No	Hr
Activity VA Per Item	No	No	Min
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

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

5. Click the "New Name" button.

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

6. Enter the Name "ID".

7. Select the new unit "Txt" that was created. Then click OK.

8. Double-click on the Name field, and select the newly created "ID" NVU. Then click OK.

9. In the x.xx field, type the unique ID for that center.

10. Once you have attached IDs to the desired Quick Centers, and hidden the rows in Excel for the view you want, then go back to the Visio file and click the "Filter" button. Filter

11. Once that view of the centers is configured on the page, a message will appear asking to close the filter view, or make a copy of that filter view to another page so you can make calculations on your map using that view.
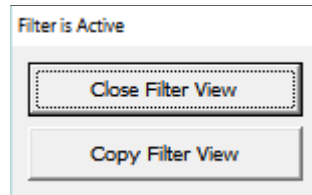
8. Improve

Overview

Allows addition of improvement ideas on the map supported by Impact matrix, Risk matrix, and Kaizen Report.

Kaizen Properties — Select the kaizen/project property set for the map.

Renumber Kaizens — Renumber the Kaizen shapes in the order they are selected. Numbering starts at 001, and any un-selected Kaizen shapes get numbered after the selected Kaizen shapes.

Kaizen Export — Creates an Excel spreadsheet of Kaizens with their property data.

Kaizen Import — Reads an Excel spreadsheet of Kaizens with property data back to eVSM.

Kaizen Standardization

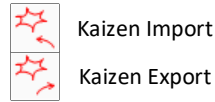You can now standardize your kaizen custom properties by selecting the set of data for the Kaizens on the map. The Kaizen Properties button in the toolbar will bring up a form allowing you to select which properties to standardize on for the map.   **Kaizen Properties**

Generating Kaizen Report

Kaizen Import

Kaizen Export

The Kaizen Export toolbar button scans the map for all Kaizen shapes (Starbursts) and exports custom properties associated with the shapes to Excel spreadsheets (Pagename_Kaizen). This Excel spreadsheet will show the connectivity of Kaizen starbursts with activities and other Kaizen starbursts. If you want to edit the custom properties data via Excel, you may do so and import the data back into eVSM using the Kaizen Import button.
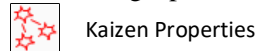

Kaizen
Starburst

123
Problem
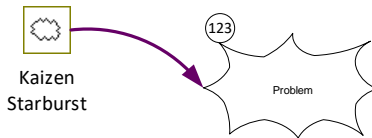
Problems can be documented using Kaizen starbursts, which can now be connected to activities as well as other Kaizens.

Try this:

1. Open a blank Visio drawing page with the Quick Manufacturing stencil.

2. Drag out an Activity Center.

3. Drag out two Kaizen Starbursts from the eVSM Kaizen stencil. Edit the descriptions to "Reduce Changeover Times" and "More Frequent Deliveries".

001
Reduce
Changeover Times

002
More Frequent
Deliveries

Kaizen
Starburst

4. Click the Kaizen Properties button in the toolbar to bring up the form to see which properties are available as well as a description of each. Kaizen Properties

Double-click the word "Visible" to toggle all of the properties on or off.

Check or uncheck the boxes to add/ remove properties to the standard custom properties list when editing each kaizen on the map.

Kaizen Properties			×
Visible Burst Cloud	**Name**	**Description**	
	Description		
☑ ☑	Problem Description	Description of the problem being addressed	
☐ ☐	Deliverable	What is the deliverable result of the project	
☐ ☐	Resources	What resources are required to complete the project?	
☐ ☐	Sustainment Plan	How will the project changes be sustained long-term?	
☑ ☑	Comments	Misc comments about issues, etc...	
	Finances		
☐ ☐	Estimated Cost	How much will the project cost?	
☐ ☐	Cost Incurred	Cost incurred up to this point in project execution	
☑ ☑	Estimated One Time Savings	One-time savings resulting from the project	
		Cancel	OK

5. Click the Kaizen Export button in the toolbar to create a Kaizen Report in Excel.   Kaizen Export

|	Kaizen No.	Kaizen Type	Kaizen	Problem Description	Comments	Estimated One Time Savings	Estimated Annual Savings	Impact	Ease of Implementation	Priority	Risk Likelihood	Risk Severity	Owner	Target Area	Category	Action Type
5	1	Starburst	Reduce Changeover Times					1.00 00	1.00 00		1.00 00	1.00 00				
6	2	Starburst	More Frequent Deliveries					1.00 00	1.00 00		1.00 00	1.00 00				
7																

Kaizen Impact Matrix

The Kaizen impact matrix was introduced in a late version of v5 and uses the "Impact" and "Ease of Implementation" custom properties of kaizen starbursts to plot an impact matrix. The goal of the matrix is to help select projects for implementation to improve the value stream.

The mini-Kaizens in the matrix copy the custom properties of the originals (map Kaizens). They are numbered based on the ID's of the Kaizens on the map (ID's are circles glued to the top left of the kaizen shapes). A right-mouse click on any of the mini-Kaizens allows for selection and highlighting of the parent map kaizen.

Highlight Kaizen

Try this:

1. Change the Impact and Ease of Implementation properties of each starburst by right-clicking the starburst and selecting "Edit Kaizen". A form will appear allowing you to edit the various properties. Similarly, you could also edit the values via Excel spreadsheet and use the Kaizen Import button to bring the values back into eVSM.
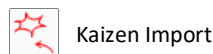
Kaizen Import

Impact (1-5): What impact this project will have on the value stream.
1 = Low, 5 = High

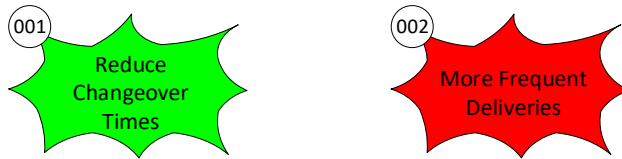Ease of Implementation (1-5): How easy/difficult will it be to implement this measurable improvement to the Value Stream?
1 = Difficult, 5 = Easy

Edit Kaizen Properties

001 - Reduce Changeover Times

Description
Problem Description

Comments

Finances
Estimated One Time Savings
Estimated Annual Savings

Priority
Impact   1.0000   + -
Ease of Implementation   1.0000   + -
Priority

Cancel   OK

2. Change the fill color of each starburst if you wish.

3. Drag out the Kaizen Impact Matrix icon from the eVSM Kaizen stencil and right-click to plot the matrix, which is shown on the next page.

4. If map Kaizens are modified, then the Impact matrix can be updated by selecting it with a right mouse click and the command "Update Chart".
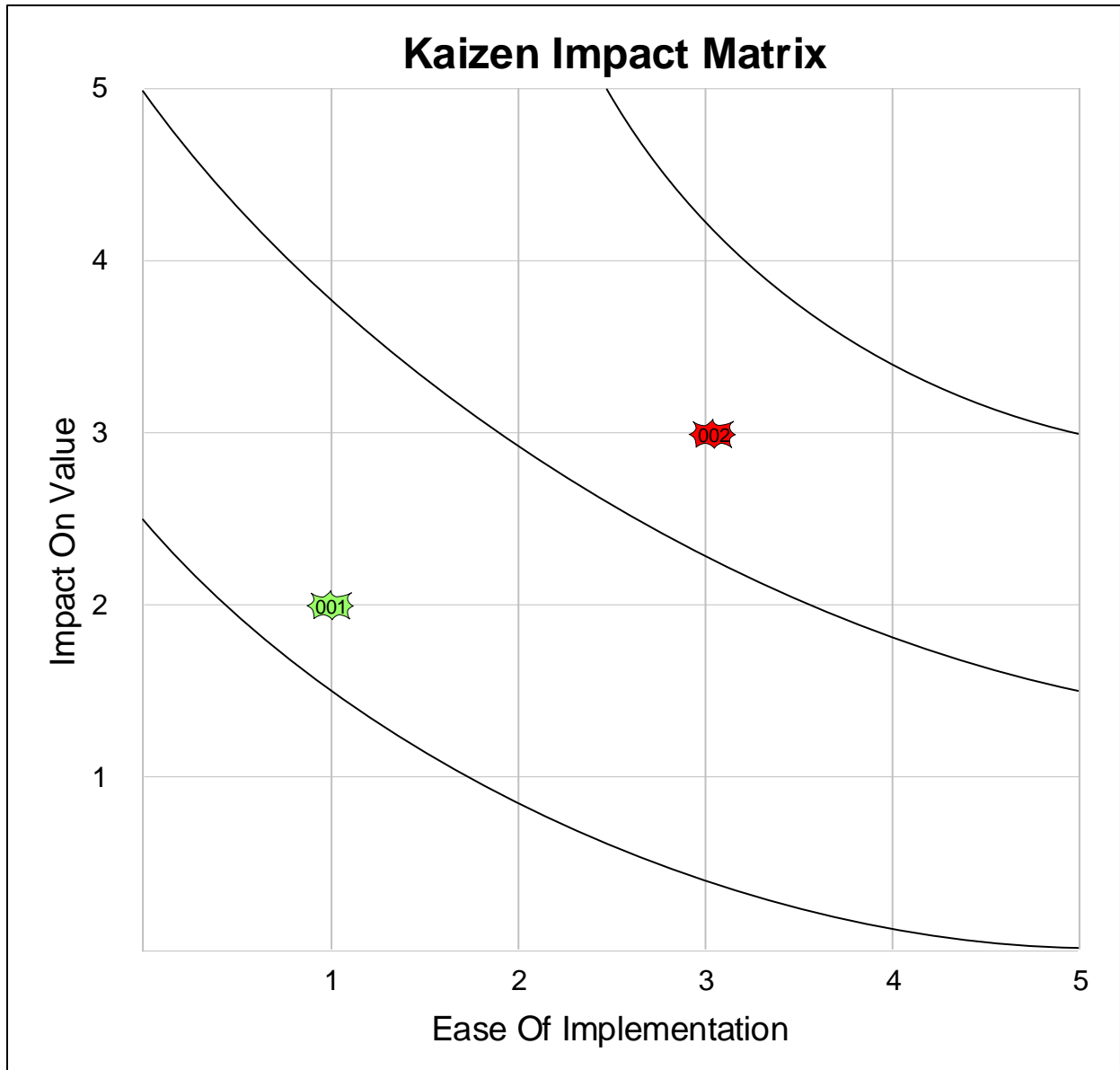
5. Using the Renumber Kaizen button in the toolbar, Kaizens can be renumbered in order starting at 001. Select the starbursts in the sequence you want using the Shift key, and then click the Renumber Kaizens button. Any un-selected kaizen shapes will get numbered after the selected kaizen shapes.   Renumber Kaizens
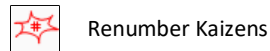
6. Drag out the Kaizen Key Creator from the eVSM Kaizen stencil to differentiate each starburst
   by description which is shown under the matrix.

KAIZEN
KEY

Kaizen Key Creator

Kaizen Impact Matrix

Impact On Value

5

4

3 · · · (002)

2 · · · (001)

1

Ease Of Implementation

1   2   3   4   5

Kaizen Bursts

(001) Reduce Cycle Time

(002) Incorrect Assembly
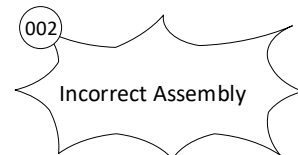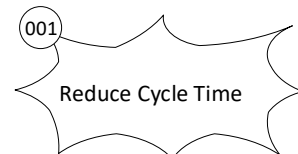
Kaizen Risk Matrix

The Kaizen Risk Matrix plots the kaizen starbursts based on the risk likelihood and risk severity values set up in the "Kaizen Properties" form brought up from the right-mouse menu. It also multiplies the values together to create an RPN number between 1 to 25.

Risk Likelihood (1-5): What is the likelihood of risk to the Value Stream if this project is not done/issue is not addressed?
1 = Low, 5 = High

Risk Severity (1-5): What is the likelihood/impact in the Value Stream if this identified risk did actually occur?
1 = Low, 5 = High

Try This:

1. Drag out a Kaizen starburst shape from the eVSM Kaizen stencil. Type "Reduce Cycle Time" into the starburst. Enter the values for the likelihood and severity by clicking "Edit Kaizen" via right-mouse menu.

2. Drag out another Kaizen Starburst. Type "Incorrect Assembly" into the starburst. Enter the likelihood and severity values via the Edit Kaizen form.

3. Drag out the Kaizen Risk Matrix from the eVSM Kaizen stencil.

4. Right-click the chart shape to plot.

Kaizen
Risk
Matrix

Kaizen Risk Matrix

Risk Severity

Risk Likelihood

Risk Number (Risk Severity * Risk Likelihood)

001

002

001

002
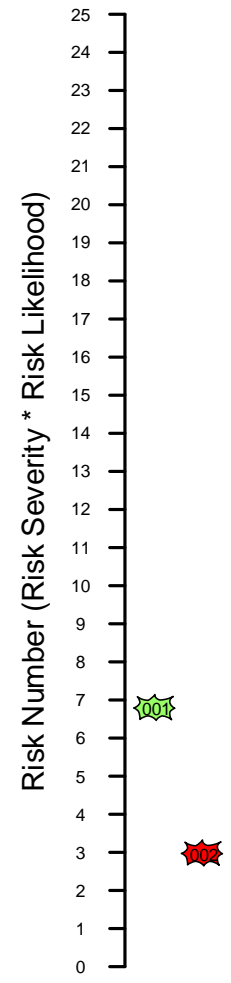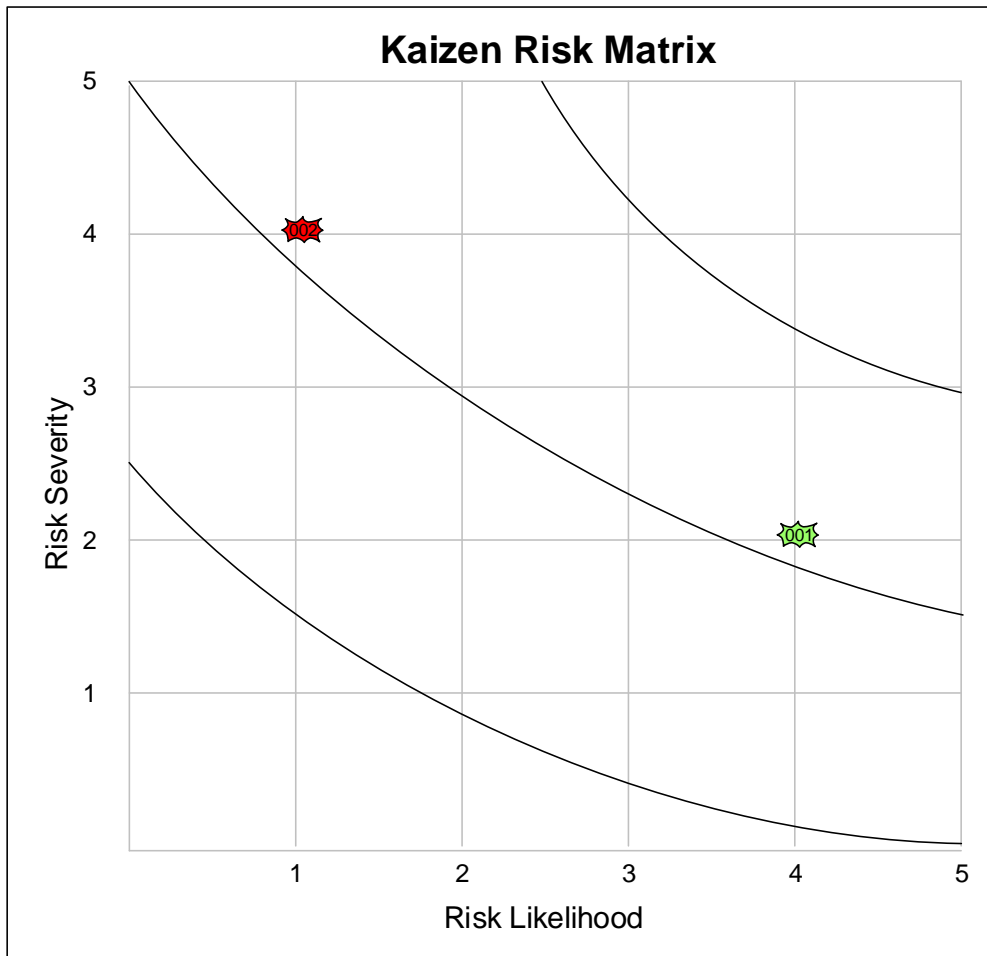
Formatting the Kaizen Report in Excel

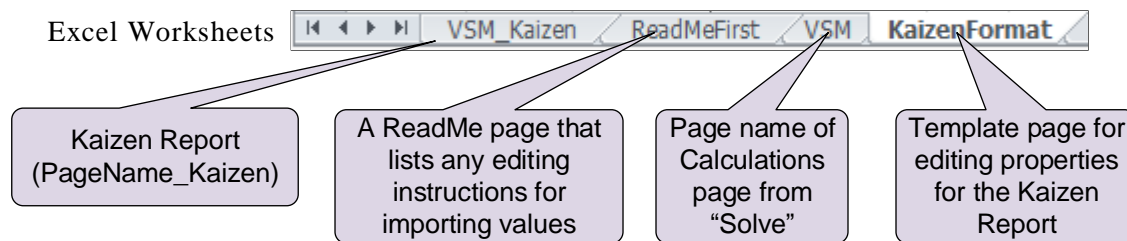The Kaizen Report in Excel can be formatted with custom properties of color, font, visibility, and row height. In order to be able to edit this formats, you need a specific Excel file. To get this file in the correct location for usage:

Try This:

1. Create a new folder called "eVSM Standards" at the same level as the "eVSM" folder on the C: drive>Program Files (x86)

2. Copy the templates file called "eVSMExcelTemplate.xlt" from the C:Drive>Programs Files (x86)>eVSM>Setup>Resources folder to the newly created "eVSM Standards" folder

3. Customize the templates file as needed by following the instructions below

Once you have clicked the Kaizen Export button in the toolbar and your Excel spreadsheet appears, there should be a page named "KaizenFormat". The changes made on this page will effect the actual report which is page named "PageName_Kaizen".

Excel Worksheets

Kaizen Report (PageName_Kaizen)

A ReadMe page that lists any editing instructions for importing values

Page name of Calculations page from "Solve"

Template page for editing properties for the Kaizen Report

In the "KaizenFormat" page in the spreadsheet:

- D1: Change the font color of this cell to set these properties for all Data headers

- D2: Change the font color, boldness, or italics of this cell to set the default for the Property names

- D3: Change for the fill color or row height of this cell to set these properties for all units

- B5: Change the fill color of this cell to set this color for all kaizen numbers

- Each Property header can have a unique fill color, set by this page

- To hide an entire row or column, right-click the row number or column letter and choose "Hide". To unhide that row or column, select the row before and after the hidden one by holding down the SHIFT key, or the column before and after the hidden one, and then right-click and select "Unhide".

9. Extras

Overview

Settings

Change settings for this document that affect some features and performance of eVSM.

Migrate

Provide utilities for upgrading older eVSM maps to v11.

Move Data

Allows you to move your map data to a new page using a new stencil.

Map Copy

Create a duplicate of this page on another page in this file.

Map Extract
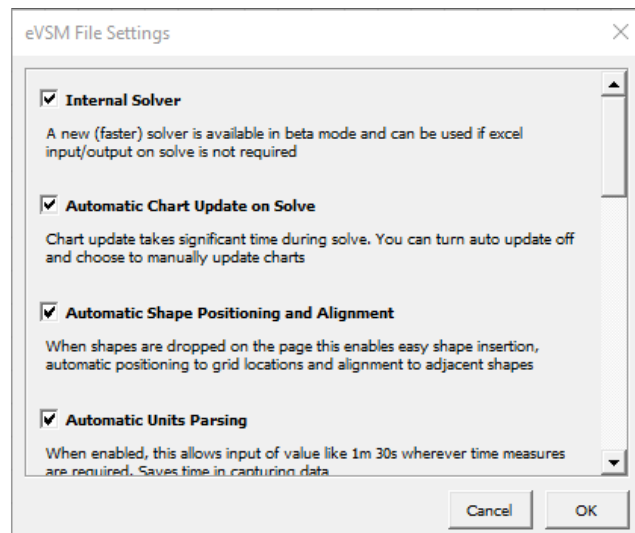
Extract the selected page to a separate file.

Settings-   Settings

Change settings for this document that affect some features and performance of eVSM.

Click the 'Settings' button to access the File Settings dialog box with the following options:

Internal Solver: A new (faster) solver is available in beta mode and can be used if excel input/output on solve is not required.

Automatic Chart Update on Solve: Chart update takes significant time during solve. You can turn auto update off and choose to manually update charts.

Automatic Shape Positioning and Alignment: When shapes are dropped on the page, this enables easy insertion, automatic positioning to grid locations, and alignment to adjacent shapes.

Automatic Units Parsing: When enabled, this allows input of values like 1m 30s wherever time measures are required. This saves time in capturing data.

Excel Color Synch: When enabled, this synchronizes Excel cells and Visio shape colors on solve. This makes solve take longer.

On Drop Variables: When enabled, data shapes (NVUs) dropped on the page are connected to the nearest center.

Pre Solve Data Source Pages: When enabled, data sources on other pages than the main solve map will be solved also. This ensures the data sources on calculated values are always up to date.

Delete Assist: When enabled, eVSM will prevent you from accidentally deleting shapes, and will also delete an entire center when you delete the center parent shape.

Trace Over Mode: When enabled, dropping centers from the stencil over shapes on a background page will make the dropped center 'inherit' the text and fill color of the shape behind.

Separate Starbursts and Clouds: When enabled, eVSM will output Kaizen Starbursts and Clouds to separate Excel worksheets when you use the Kaizen Export.
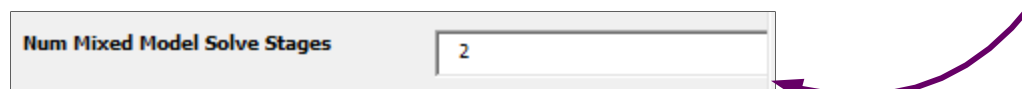
Hide Transparency Level: Impacts the brightness of shapes that are hidden by 'fading' them in the Layout, Customer Journey, and other eVSM applications.

Hide Transparency Level	True

Cache Mixed Model Data: Faster editing of Mixed Model input data; requires you to run Auto Path after modifying arrows and/or centers on the page.

NUM Mixed Model Solve Stages: Set number of Solve stages needed for Mixed Model solve.

| Num Mixed Model Solve Stages	2

Migrate Maps to eVSM v11 Migrate

The migrate button will initiate migration of eVSM v8, v9, and v10 maps to eVSM v11 format. The conversion is not 100% so some manual work will be required after migration. For example, charts are not migrated, so they need to be re-plotted in the new file. The Views settings may also not be exactly the same.

Migration attempts to migrate all pages in the file and will create a new file for the current version. It will also add some markup in the old file to highlight items which have not been converted.

Recommended steps to migrate a file:

1. Backup the old file.
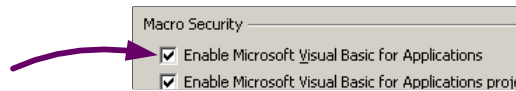
2. Open the old file to migrate making sure there are no other Visio files already open.

3. Hit the Migrate button. Migration will take some time for large files.

4. On completion, save both the old and the new files.

5. Scan through the old file to find items which are highlighted. These items have to be re-created manually in the new file.

6. Once you have completed any manual work in the new file, run the Check function on each page and fix any problems reported.

7. Run Solve and resolve any differences you see in calculation results.

Once a map is migrated to the current version, it cannot be opened in older releases of eVSM.

If you need to open a new version map in an old version of eVSM for viewing/printing purposes, here is a workaround:

1. In Visio, click "File > Options > Trust Center > Macro Settings > Disable all macros without notification". This will stop VBA from running the next time you start Visio.

2. Exit Visio.

3. Make a copy of the new version eVSM file, and open.

Note: Remember to reverse Step 1 when you wish to re-activate VBA.

Move Data ![icon] Move Data

Move Data allows you to convert a map from on e application type to another. E.g.:
Convert a Quick Mfg map to Quick Processing.

The conversion can not be 100%, but it will generally capture the flow and some of the
data.

The function allows you to select the target stencil and will create a new page where it
will draw the flow with shapes from the target stencil, and then copy some of the data it
considers equivalent.

Steps:

1. Navigate to the original map page

2. Click 'Move Data' (located in Migrate drop down box)

3. Select the target stencil and click OK
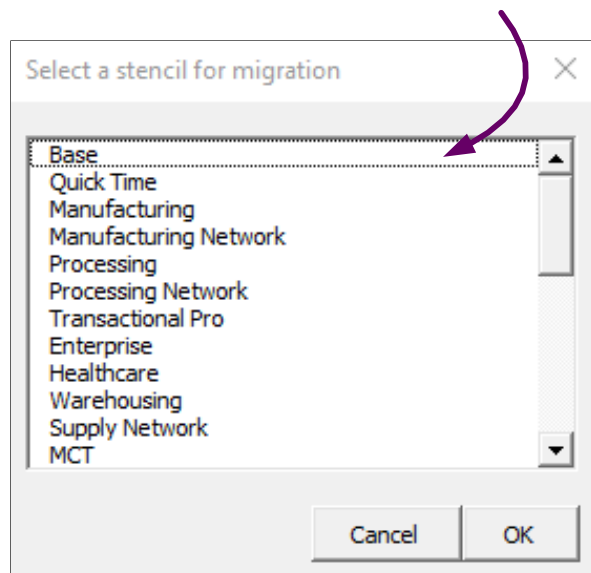
4. The function will create a new page with the original page name, plus _ target stencil name.

5. Check and manually complete the new page.

Map Copy   Map Copy

Using the Map Copy button, eVSM can copy your map to another page in the file. This function saves time as opposed to using Visio's regular copy and paste functions. It also duplicates the whole model, including shapes which are hidden through Views or Layers.
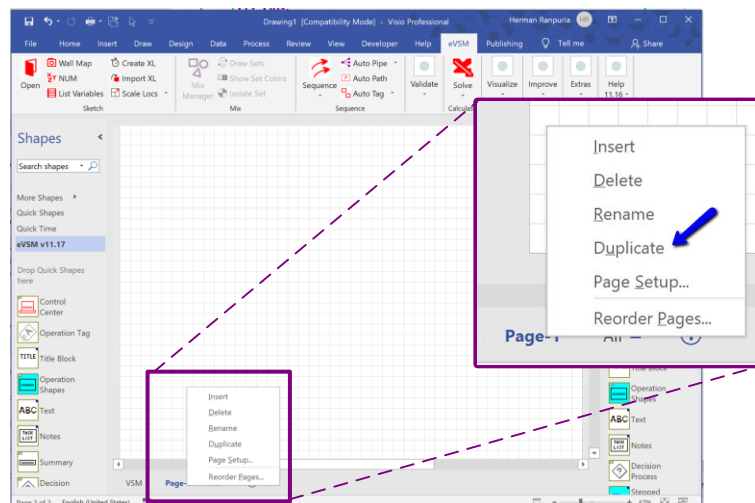
Try This:

1. Click the Map Copy button in the toolbar.

2. A box will appear asking you to enter a page name for the new page in the file.
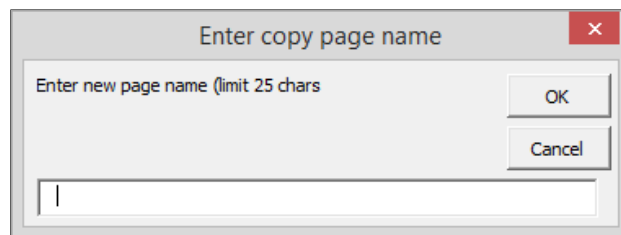
3. Type in a name for the new page.

4. Your entire map will be copied to this new page in the same file.

Tip: Visio 2016 and later versions have a "Duplicate" command in the page tabs which does the same thing.

Map Extract   Map Extract

eVSM Visio files can have multiple pages, each with a different map or other diagrams. Sometimes such files can get too big to Email or do general work with. The Map Extract function allows you to extract a single page into a new file.

The current page in the old file is the one that gets extracted. The result will be a new one-page file which will be saved in the same folder as the original with the same name plus the page name.

10. Help

Overview

Provides an on-line access to help resources and training options.

Help

Accesses the eVSM on-line help site.

eLearning

Opens the "My Gradebook" page on the eVSM website to check course status of eLearning material.

Stack Help

Builds a page full of all the choices available in an eVSM Stack shape master. Select a blue icon (from any of the eVSM stencils on the right) or green icon (from any Quick stencil) before running this tool.

Map Clean

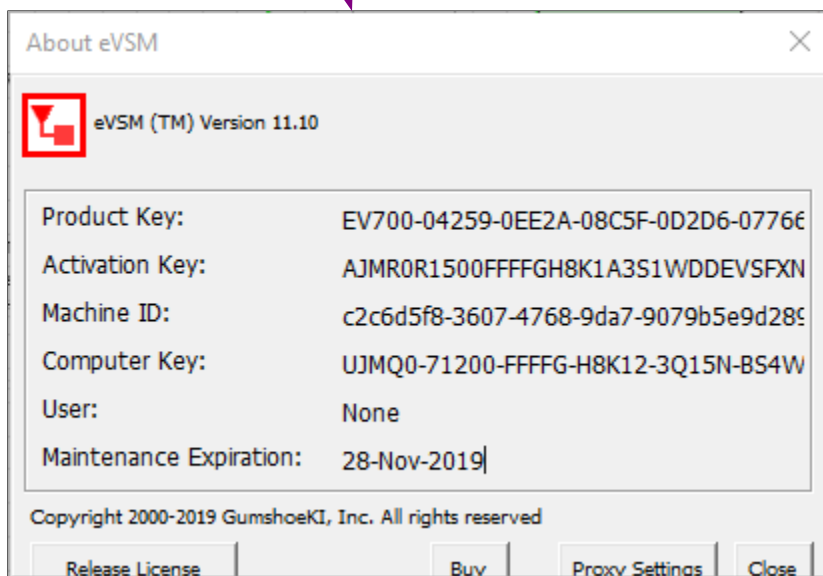Cleans your data by moving to a new Visio file.

Icon Search

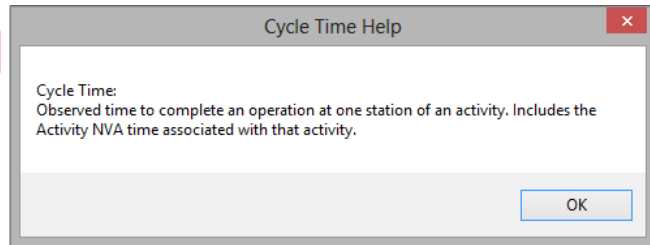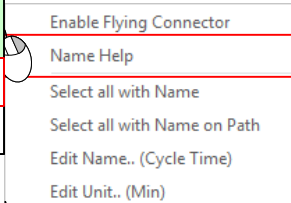Search for shapes in eVSM stencils.

Licensing

Gives you information about your eVSM license and installation status.

About eVSM

eVSM (TM) Version 11.10

Product Key:	EV700-04259-0EE2A-08C5F-0D2D6-07766
Activation Key:	AJMR0R1500FFFFGH8K1A3S1WDDEVSFXN
Machine ID:	c2c6d5f8-3607-4768-9da7-9079b5e9d289
Computer Key:	UJMQ0-71200-FFFFG-H8K12-3Q15N-BS4W
User:	None
Maintenance Expiration:	28-Nov-2019

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Release License   Buy   Proxy Settings   Close

Name Help

A0020		1
Process		
Cycle Time	x.xx	Min
Qty Per Cycle	1	Item
	Auto	Min

For variable name help, right-click any variable and select "Name Help" in the menu for a description of the variable.

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

Cycle Time Help

Cycle Time:
Observed time to complete an operation at one station of an activity. Includes the Activity NVA time associated with that activity.
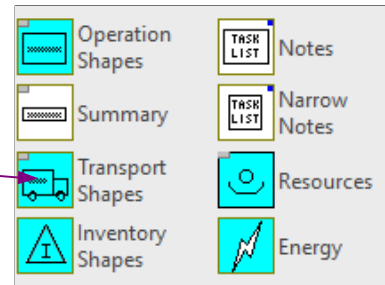
OK

Stack Help   Stack Help

The Stack Help button creates a new page in the file with all of the available shapes for a selected stack. An icon can be identified as a stack shape if it is blue or green in an eVSM stencil.

Try This:

1. Select the blue stack Transport Shape from the eVSM Material stencil.

2. Click the Stack Help button in the eVSM toolbar.

3. A new page will be created with the page name "Transport Shapes_Stacks" in the file with all of the shapes in the Transport stack.

Shape panel:
- Operation Shapes
- Summary
- Transport Shapes
- Inventory Shapes
- Notes
- Narrow Notes
- Resources
- Energy

Transport Shapes page:

Conveyor	Hook	Shipping Port
Container Yard	Helicopter	Ship
Container Truck	Hand Cart	Pump
Car	Hand Carrier	Plane
Blood Transport System	Full Truck Load	Parcel
Bike	Forklift	Multistop Truck

| |
|---|
| Wheelchair |
| Walk Patient |
| Tugger |
| Tube Transport |
| Truck Crane |
| Truck |

Map Clean

 Map Clean

As you work in a Visio fie, over time, you may see some performance degradation as the Visio cache grows. The Map Clean function allows you to clean this up. It essential creates a new empty file, and copies all your maps to it.

We recommend you run this if you suspect any corruption in the file, or if you see performance degradation. It is a good idea to run the Map Clean function every couple of hours when working with large files.

This function is also available through the Windows Start menu (useful if your eVSM toolbar is missing) at "Start > Programs > eVSM Software > eVSM Repair". This will open the dialog box shown below.

This is the Map Clean function

Reset the eVSM environment to recover a missing eVSM toolbar
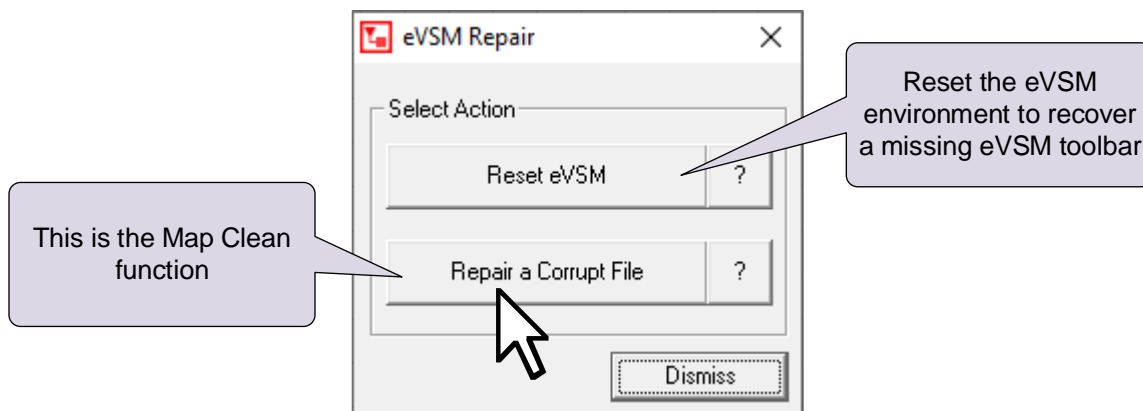
Just click the "Repair a Corrupt File" button and follow the prompts.

Icon Search
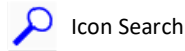
 Icon Search

The Icon Search button in the eVSM toolbar allows you to search for icons in any of the eVSM stencils. The search looks at the name and the brief help behind each icon and presents results in a separate search stencil.
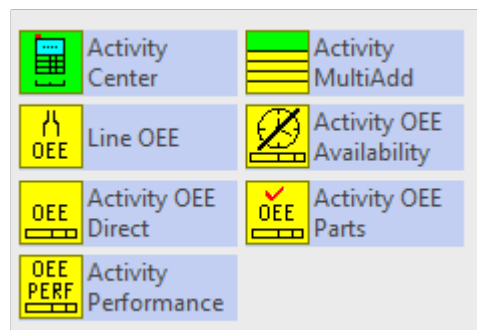
Try This:

1. Click the Icon Search button in the Learn module of the eVSM toolbar. Icon Search

2. Look for "OEE" in the Quick Mfg stencil.
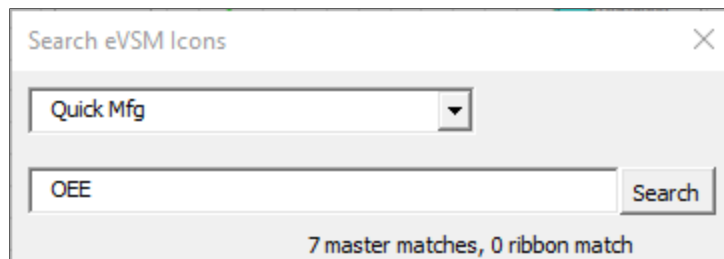
3. The resulting shapes associated with OEE will be brought up in a new search stencil.

11. Quick eVSM

Overview

Quick eVSM consists of ready-built stencils for specific application areas. Using these Quick Stencils will increase productivity and reduce learning time. Application areas supported include:

- Supply Network Mapping

- Plant Mapping (Discrete Parts and Assemblies)

- Plant Mapping (Food and Chemicals)

- Mix Model Mapping

- Quick Response Manufacturing

- Services and Healthcare Mapping

- Customer Journey Mapping

- Project Management and Problem Solving

- Facility Planning
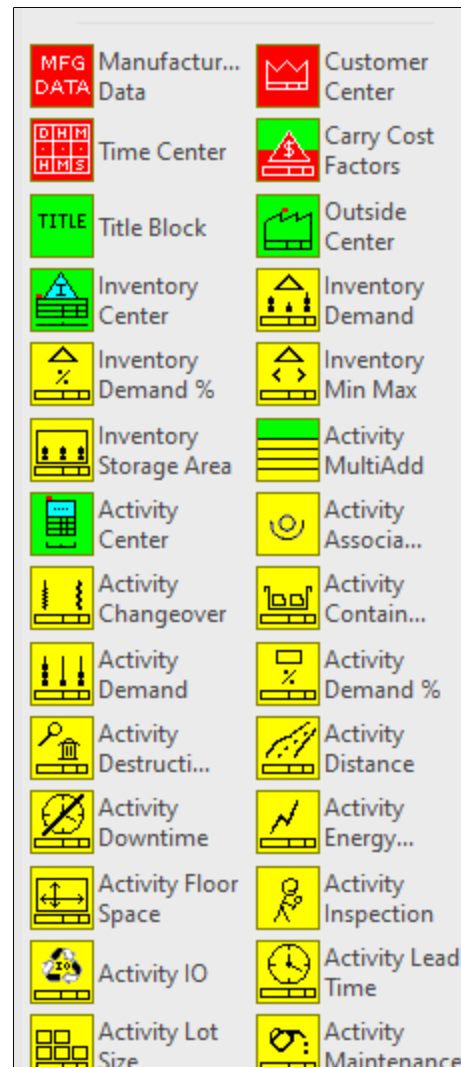
To access a Quick stencil, click the Open button in the toolbar.

Open

The Quick Stencils will be located on the left side of the Visio drawing page. Quick stencils contain macro shapes which are collections of individual shapes, sometimes with names, units and calculation equations built-in.

Quick eVSM maps must be initiated with the red icons found at the top of each Quick stencil. Once the red icons from a Quick stencil have been dropped on a page, the page is locked for use with that Quick stencil. You cannot add content from other Quick stencils. You can however add icons from the main stencil (right side) at any time. Some icons (e.g. Arrows) are available only in the main stencil.

Quick Stencils Icon Colors

Red icons are used to initiate the map for the chosen application area. Red icons must be dropped first on the new map. The red icons block the map from being used with any other Quick stencil.
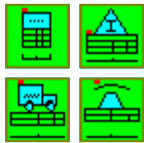
Green icons, called "Centers", are used to represent the flow.

Yellow icons, called "add-ons" are additions to "centers" for optional calculations. These add-ons must be properly glued to the data shapes under the Center. The yellow icons that follow a Center in the Quick stencil can only be used with that Center. Note the first word in the add-on names matches the parent Center.
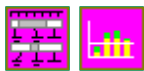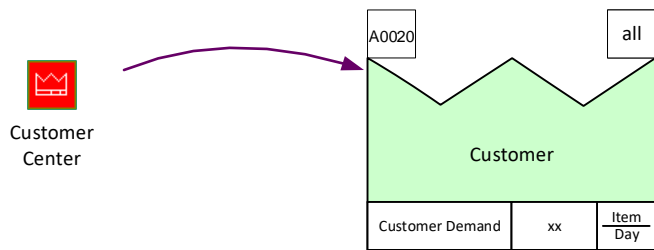
Magenta icons represent charts.

White icons used for miscellaneous macro shapes.

Red Icons in the Quick Stencils

Manufacturing
Data

The red Data icon acts as the vault for all of the system data for the map such as names, units, equations. Each stencil has its own data icon that must be dragged out first.

A0020		all

Customer Center

Customer

| Customer Demand	xx	Item/Day

The Customer Center represents the customer is where the customer demand is specified. Where multiple customers exist, a separate Center can be used to represent each customer.

Time Center

	Week	Week	Year
Units	5	xx	52
	day	Hr	Week
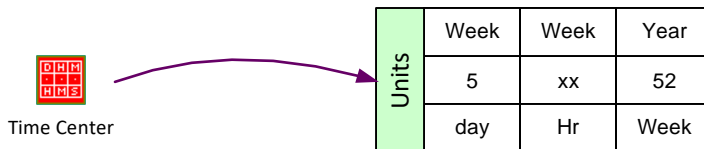
The Time Center shows the actual time (after deducting break times) the value stream operates for. Activity level local time can be specified for activities which work to a different schedule. Other units are available.

Quick Stencils Centers (Green Icons)

The Centers typically come out with tags and data shapes properly glued to the parent shape (green icon)
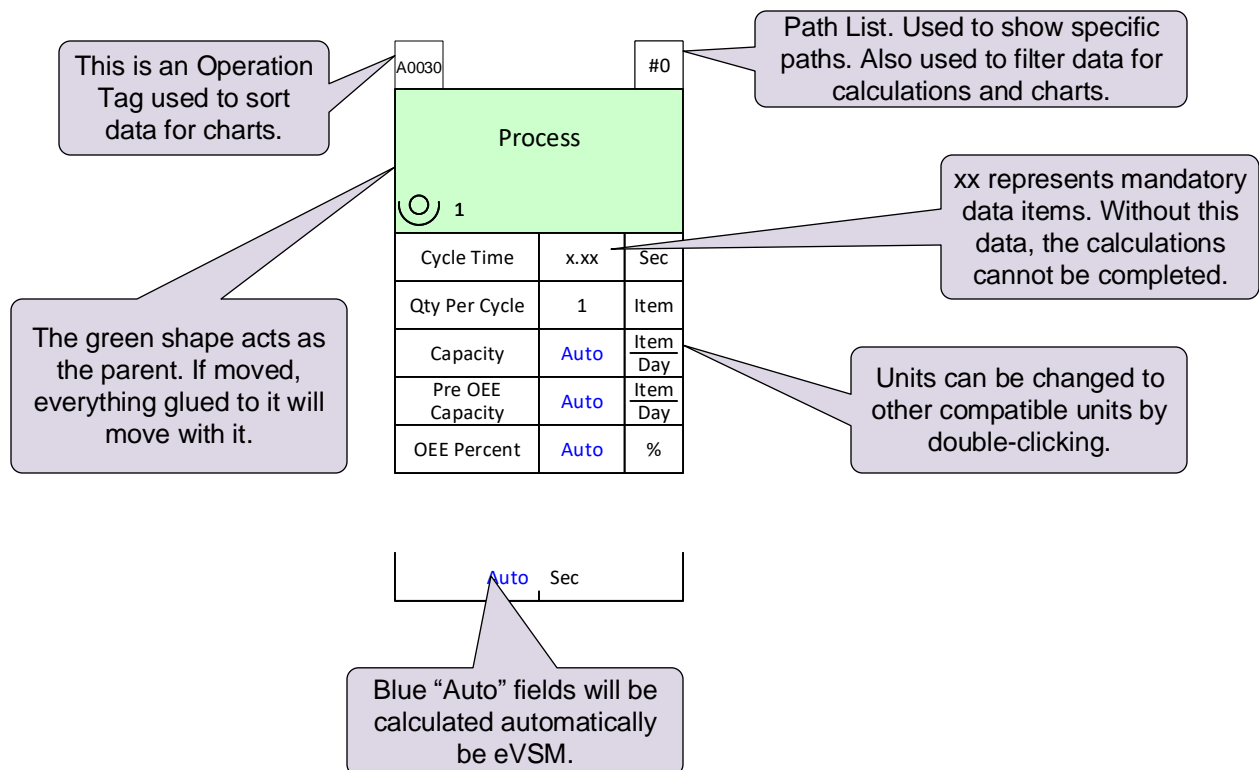
This is an Operation Tag used to sort data for charts.

Path List. Used to show specific paths. Also used to filter data for calculations and charts.

A0030		#0

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	%

xx represents mandatory data items. Without this data, the calculations cannot be completed.

The green shape acts as the parent. If moved, everything glued to it will move with it.

Units can be changed to other compatible units by double-clicking.

Auto	Sec

Blue "Auto" fields will be calculated automatically be eVSM.

Quick Manufacturing

The Quick Manufacturing stencil is designed to represent discrete parts flowing through plant level manufacturing value streams. Both, the material and information flow may be represented.

The Quick Manufacturing stencil includes built-in calculations for:

- Lead Time, Value added time, Takt time
- Scrap, OEE, and other common activity losses
- Energy and space calculations
- Multi-stations, part-time, over-time, shared resources
- Cost of activities, inventory, transport, scrap
- Transport distances
- Multi-paths

Quick Transactional Pro

Used to draw office, administrative, and general services value stream maps. May be used for any value streams concerned primarily with information flow.

Supported calculations include:

- Lead Time, Value added time, Takt time, Cumulative Rolling Time
- %Complete & Accurate (%C&A)
- Multi-stations, part-time, over-time, shared resources
- Multi-paths and looping

Quick Healthcare

Used to capture value streams that require following a patient through admin and non-clinical processes.

Supported calculations include:

- Lead Time, Value added time, Takt time, Cumulative Rolling Time
- %Complete & Accurate (%C&A)
- Multi-stations, part-time, over-time, shared resources
- Multi-paths and looping

Supply Network Mapping

- Supply Network: Model inbound and outbound supply for a product. Includes analyses for lead time, risk, and Total cost of ownership. Maps can be overlaid onto geographic views for additional insight.

- Warehousing: Stencil for Warehouse process mapping

Plant Mapping (Discrete Parts and Assemblies)

- Manufacturing: Stencil for plant level value stream mapping for discrete parts and assemblies that allows calculation of takt time, lead time, and capacities.

- Mfg. Multi Station: Application to calculate the properties of an equivalent machine that has the same capacity as multiple machines with differing properties. Designed to be used with Quick Processing.

- EPEI: Application to calculate min possible and actual EPEI (Every Part Every Interval) intervals for multiple products going through a single station with differing demands and lot sizes.

- Quick Materials: This supports quantification and reduction of the materials waste in the value stream and for detail steps within one process of the value stream. Includes provision for six sigma type X-Y association showing control variables that contribute to waste outcomes.

- Kanban: Calculates Kanban sizing and quantities for a simple Kanban loop and using safety factors against demand variation and supply issues.

- Changeover: Allows analysis of converting a line or machine from running one product to another with calculation of walk times, work times, and separation of internal and external work components. Also computes cost of product capacity lost during changeover. Supports changeover work content from multiple staff. Generates C/O work chart with timings.

Plant Mapping (Food and Chemicals)

- Processing: Stencil for plant level value stream mapping of chemicals and food processes that allows calculations of takt time, lead time, and capacities.

- Proc. Multi Station: Application to calculate the properties of an equivalent machine that has the same capacity as multiple machines with differing properties. Designed to be used with Quick Processing.

- Quick Materials: This supports quantification and reduction of the materials waste in the value stream and for detail steps within one process of the value stream. Includes provision for six sigma type X-Y association showing control variables that contribute to waste outcomes.

- Changeover: Allows analysis of converting a line or machine from running one product to another with calculation of walk times, work times, and separation of internal and external work components. Also computes cost of product capacity lost during changeover. Supports changeover work content from multiple staff. Generates C/O work chart with timings.

Mix Model Mapping

- Mixed Model Quick Time: A simple stencil to represent the flow and perform a time and resource analysis for a mix of products, information, or patients.

- Mixed Model Manufacturing: Mapping and modeling of value streams (discrete parts and assemblies) creating multiple products with different operational parameters, shared resources, and differences in routing. Provides visual feedback of routes and utilization by product. Results in better waste identification and the ability to do useful 'what-if' studies.

- Mixed Model Food and Chemicals: Mapping and modeling of value streams (food and chemicals) creating multiple products with different operational parameters, shared resources, and differences in routing. Provides visual feedback of routes and utilization by product. Results in better waste identification and the ability to do useful 'what-if' studies.

- Mixed Model Supply Network: Model inbound and outbound supply value streams creating products with different operational parameters, shared resources, and differences in routing. Includes analyses for lead time, risk, and Total cost of ownership. Maps can be overlaid onto geographic views for additional insight.

Quick Response Manufacturing

- MCT: Stencil for drawing the MCT (Manufacturing Critical-path Time) flow, timeline, chart, and flow summary.

- POLCA: POLCA (Paired-cell Overlapping Loops of Cards with Authorization) is a variant of Kanban, suitable for companies which produce many different and/or customized products.

Services and Healthcare Mapping

- Quick Time: Quick Time stencil simply measures the time (VA & NVA) associated with a value stream. It has no other variables.

- Transactional Pro: Merges key concepts from business process modeling and lean into a unified VSM solution to help improve transactional value streams for office, services, and healthcare.

Customer Journey Mapping

- A visual representation of the experience your customers have with your products and services. Allows ideation and prioritization to move the customer experience to one that build loyalty, a long term relationship, and long term revenue

Project Management & Problem Solving

- Project: This application allows visual project planning and scheduling with start/end constraints, and associated resource usage costs. Automatically generates a Gantt chart and allows highlighting of the critical path.

- Decision Tree: This application allows the creation of decision trees that lead to different outcomes as characterized by a flow percentage and a value.

- A3 Report: Create A3 Reports in Visio with a starter template and a dedicated stencil of standard shapes from eVSM.

- Event Circle: Event or Communication Circles allow you to visualize all the transactions in a given pathway or process.

Facility Planning

- Layout: The Layout Wizard supports visual planning of area layout with qualitative and quantitative consideration of material flows, transport mechanisms, service requirements and auxiliary conditions. It is a very visual approach and loosely based on the layout planning methodologies developed by Muther, Apple, and others.

- Spaghetti Diagram: This wizard allows you to draw paths on a floor plan and then export a Path Report with distances to Excel.

- Plant Milkrun: Allows design of material delivery routes and replenishment periods within a plant via overlay sketching on floor plan with calculation of travel times, load times, and unload times. Allows usage of specific transport types and one or more standardized containers per milk run.

Examples for many of these stencils can be found on the eVSM website Examples page at https://evsm.com/examples

Appendix A : Drawing with Base eVSM

Identifying Customers

Start the map at the customer end.

Drag out the 'Operation Shapes' icon and right-click the shape to change it to a customer shape.
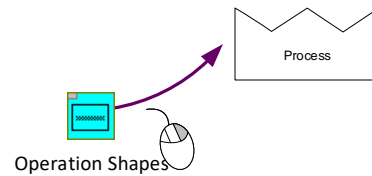
Identifying Operational Steps

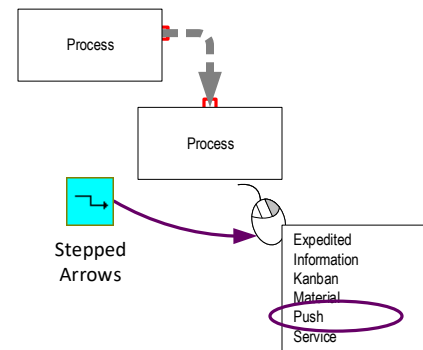Identify operations in the value stream and start at the customer end.

Use the right mouse button to swap to another process shape.
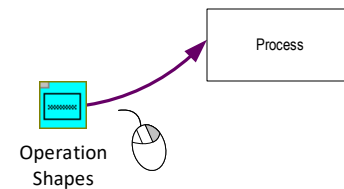
Connecting Operational Steps with Arrows

Drag and drop, then glue arrows to the operations or their data shapes for easy future modification of the map.

Use the right mouse button to swap to another arrow type (like this Push arrow)

Adding Operational Data

Value stream data which you may later want to use in calculations must be represented in eVSM data shapes. eVSM has the following data shapes:
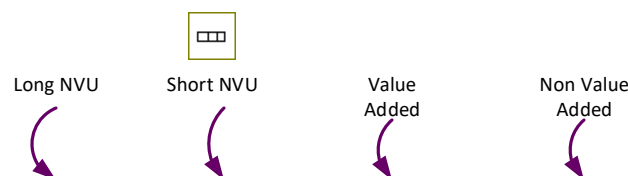
Data shapes consist of two or three fields. To move or delete a data shape, you MUST click on the Value field. To edit any of the fields, simply double-click on the desired part and you will be able to make any changes.
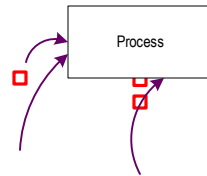
Data shapes must be glued directly, or via other shapes, to the activity they represent.

Variable Names and Units

To add variable names/units to the right mouse button (RMB) menu, follow these steps:

1. Click the following button in the eVSM toolbar to open the Name & Unit Manager (NUM) dialog.

2. To add a new unit, click the "New Unit…" button.

3. All variable names must have a default unit. When adding new variable names, first make sure that the unit you wish to make the default for the new variable, exists in the units list. Then, click the "New Name…" button and follow the prompts.
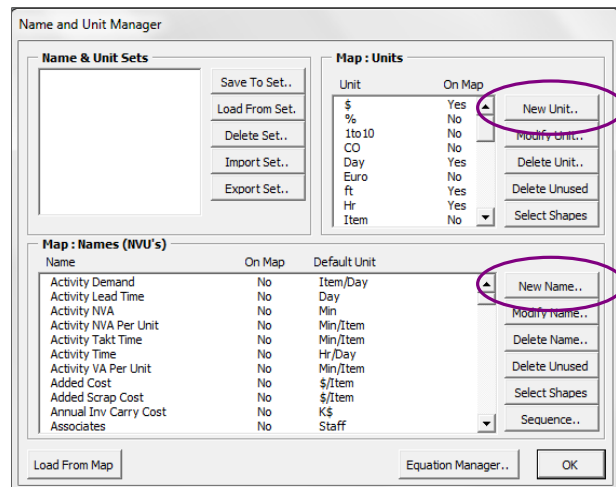
Adding Additional Data Shapes

Long NVU
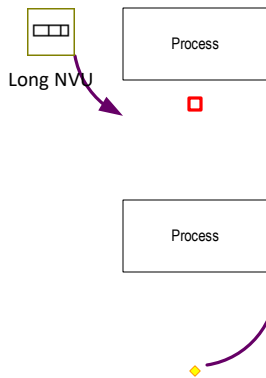
Process

Process

Additional data can be added to a process. Drag & glue a new NVU to the bottom of an existing NVU.

Data shapes that do not touch the operation or its data shapes directly should be associated with the operation by dragging the flying yellow connector and gluing it to the operation.

Note: Flying connectors should NOT be used where shapes are touching.

Representing VA & NVA data

Process

x.xx   Min

x.xx   Day
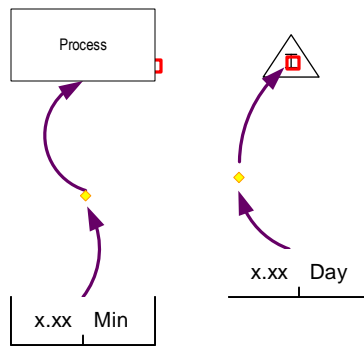
VA and NVA shapes are available to construct a timeline on the map.

Glue these shapes to operational shapes with a flying connector.

When there are several VA/NVA metrics to be tracked, the Long NVU shape should be used instead of the specific VA, NVA shapes.

Representing Inventory & Queues

Inventory
Shapes

I

Q

IN

Delay
FIFO Inventory
Hopper
In Tray
Inventory
Kanban Inventory
Package Forming Inventory
Query
Queue
Silo
Supermarket Inventory
Wait
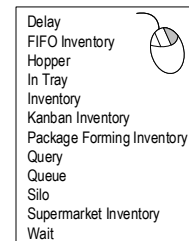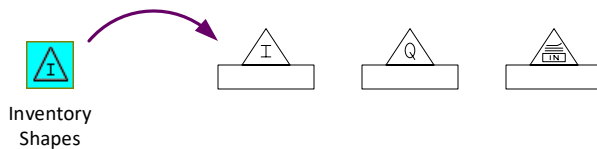
After an inventory shape has been dragged out, it can be changed to a variety of inventory shapes. Use the right mouse button to swap to another inventory shape (Queue, In-tray etc..).

Representing Inventory Data

Short NVU

I
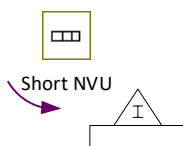
Drag out the NVU shape and glue it to the bottom of the inventory rectangle to document inventory type and quantity. Use additional triangles and NVU blocks for each inventory type.

Representing Supermarkets and Buffers

Supermarket

Short NVU
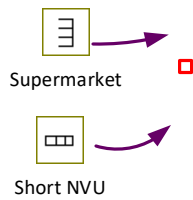
Supermarket and Buffer shapes work in a similar way to the Inventory Shape. Any data must be glued to the base of the shape.

Representing Transport Method and Data

Transport Shapes

Process

Finished Goods
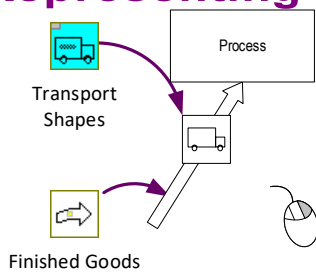
Drag out Transport Shapes and place them on the map or glue them to arrows. NVU shapes holding related variables can be attached to the base of the icons.

Use the right mouse button to swap to another transport type (Train, Helicopter etc..).

Representing Transmit Method and Data

Control
Activity
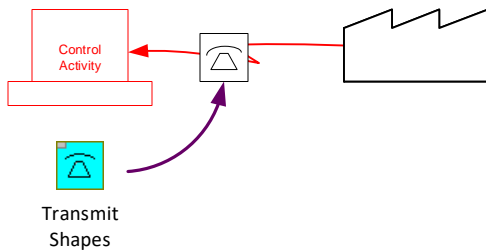
Transmit Shapes

Transmit Shapes work in a similar way to Transport Shapes and are generally applied to information flow.

Frameless Transport & Transmit Shapes

Transmit Shapes

By Foot
Computer
Fax
Pager / Radio
Phone
Post
Print
Web Form
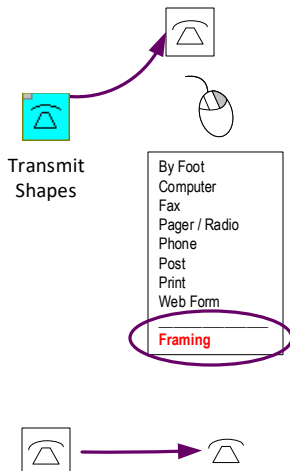
Framing

Right-click on a transmit or transport shape on the map to show alternate methods.

At the bottom of the list is a "Framing" option that allows the outer box around the shape to be turned on or off. When turned off the shape looks as below:

Swimlanes

The eVSM Swimlane function allows drawing of VSMs and flowcharts in swimlane layout, horizontally or vertically. The eVSM Swimlane shape is an implementation of the eVSM Table function.

To calculate totals or plot charts for each lane, see the Path List function.
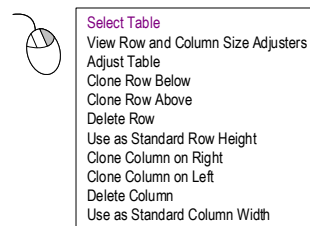
Note: The swim lane function in native Visio is NOT supported with eVSM. The eVSM Calculator will not work if the Visio swim lane shape is on your drawing page.

Horizontal Swimlane

Lane A
Lane B

Vertical Swimlane

Lane A   Lane B
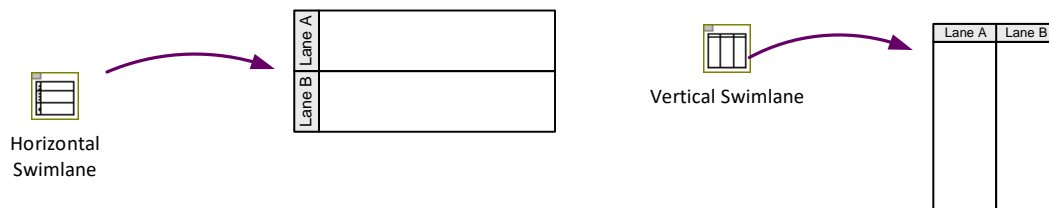
Try This:

1. Drag out the Horizontal Swimlane from the eVSM Information stencil.

2. Right mouse click on any of the lanes to bring up the modification menu allowing for row/column addition and modification.

Select Table
View Row and Column Size Adjusters
Adjust Table
Clone Row Below
Clone Row Above
Delete Row
Use as Standard Row Height
Clone Column on Right
Clone Column on Left
Delete Column
Use as Standard Column Width
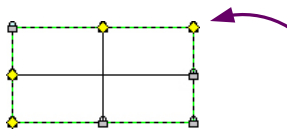
3. Pick the "Select Table" command in the right mouse menu to highlight the yellow diamonds. Move these yellow diamonds to the required width and height positions. Then click the "Adjust Table" command in the right mouse menu.

4. Double-click the "Header" to edit the text.

5. To move the table to a new position on the map, click the "Select Table" command in the right mouse menu. Then drag the table to the desired location.

Appendix B : Analysis with Base eVSM

Excel Rowmaker Shapes

Only shapes with a grey corner in the stencil can be tagged. These are called Excel rowmaker shapes since each of these creates its own row in the spreadsheet.

Row shape examples:

Operation Shapes   Transport Shapes   Transmit Shapes

Common Calculator Problems

The eVSM Calculator has some requirements, and if these are violated, the calculator will stop and display an error message. The problem area will be highlighted on the map with a red circle for you to correct. We recommend using the Check button before clicking Solve.

Excel and Visio File Naming

Map.vsd   Solve   Map.xls
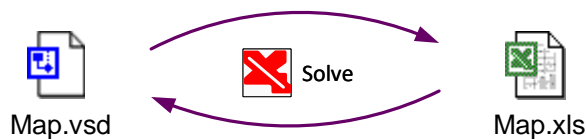
When the eVSM Calculator is run for the first time, the Excel file is created automatically and saved in the same folder as the Visio file. The Excel file is given the same name as the Visio file.

Unit conversion variables in Excel are also scoped by the page name.

Common Calculator Problems

Duplicate or Unglued Tags: Each Operation Tag on the map must have a unique value and must be glued to a valid Row Shape.

Overlapping Data Shapes: Some Data Shapes are hidden behind others because of overlap, and is not allowed.

Duplicate Data Shapes: Each Data Shape within a Row Shape collection must have a unique variable name.

Grouped Shapes: eVSM Shapes should not be grouped. The Calculator will abort if grouped shapes are found.

Data in Excel

Data columns sorted by variable name

One row per Rowmaker Shape

Rows sorted by Operation Tag number

All items in a column have same units

Calculations in Excel

Equations may be entered in the spreadsheet cells in which Data Shapes are represented.

Steps:

3 Click the Enter button

2 Type "=" followed by an equation

1 Select Cell

The next time the Calculator is run, the result of the equation will be displayed in the appropriate data shape on the map. The calculated value will be color coded red to show it is controlled by Excel.

Note: After the "=" sign, instead of an equation (e.g. =C3*D12), static values (e.g. =216) can also be entered. This allows entry of measured metrics directly in the spreadsheet.

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