



# *LeanView*<sup>TM</sup>

## *Hands-On-Lab Exercise*



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*For use with versions 4.0.39 – 6.0.0 of LeanView*

## LeanView Hands-On-Lab Guide

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## Section I: Introduction to Lean and Value Stream Mapping

### A. What is Lean?

Lean is a systematic approach to identifying and eliminating waste (non-value-added activities) through continuous improvement. The approach calls for product flow at the pull of the customer and in pursuit of perfection. The term 'Lean' is used because Lean manufacturing uses less:

- human effort in the factory
- manufacturing space
- capital investment
- materials
- time between the customer order and the product shipment

### B. Why Do Companies Transition to Lean?

Most companies view Lean as a means to an end. By embracing and implementing Lean, they are able to achieve and maintain competitive strategic advantage by providing:

1. Quality Product - Standard expectation of Global Customer
2. Cost Competitive Product/Service and Process
  - High Productivity
  - Minimum WIP / Inventory
3. Flexibility - Process are responsive to rapidly changing conditions
4. Speed - First To Market
  - Lead-time Competitive
  - New Products/Timely Introduction
5. Simple Processes
  - Dependable
  - Capable Processes
  - Repeatable

### C. What is Value Stream Mapping?

Lean follows a structured process that starts with Value Stream Mapping. The Value Stream is a collection of processes that create value for the customer. A Value Stream consists of the activities, transports, queues and inventories, both value added (VA) and non-value added (NVA), required to bring the product or service from raw material to customer.

The Value Stream includes:

- People
- Tools and technologies
- Physical facilities
- Communication channels
- Policies and procedures

## *Section I: Introduction to Lean and Value Stream Mapping*

A Value Stream Map (VSM) helps companies document and visualize the flow of information and materials through the various process/manufacturing steps required to transform raw materials into finished goods. By analyzing a Value Stream, companies can identify improvement opportunities that, when implemented, will enable the company to do more with less while meeting or exceeding customer expectations.

### **D. The role of LeanView in Value Stream Mapping & Analysis**

The traditional approach to Value Stream Mapping & Analysis usually involves Lean or Six Sigma practitioners walking a product or service Value Stream from end-to-end. This process enables the practitioner to "see" the flow of information and materials at point-of-use. The process of "seeing the flow" is fundamental to Lean and must be performed.

The next step in the process is to create a picture of the Value Stream which is called the Value Stream Map (VSM). Most practitioners draw the VSM using paper and pencil and then create an electronic version using Microsoft Visio, PowerPoint or Excel. The practitioner must then capture and analyze all of the operational and financial data associated with the Value Stream. Practitioners routinely use Excel to perform these steps.

As with any such manual process, information technology solutions can go a long way towards enabling and sustaining the process. An increasing number of Lean and Six Sigma practitioners are looking to LeanView to help enable and sustain the process. LeanView's capabilities go beyond basic drawing and analysis to provide a robust tool for Value Stream Mapping, Lean Process Design, Lean Analysis, and Lean Implementation.

By using LeanView, companies stand to realize the following benefits:

- **Connectivity**
  - Collaborate more effectively as a Lean team
  - Access Lean project information at all levels in the organization, at the desired level of detail
  - Give practitioners training and information when they need it, relevant to the context
- **Productivity**
  - Maximize Lean results with project and resource planning, forecasting, and tracking
  - Improve Lean and business processes continuously
  - Automate routine report creation
  - Increase training efficiencies
- **Dependability**
  - Use reliable, proven Microsoft technology and services from Microsoft and certified partners
  - Plan firm goals, achieve desired results
  - Achieve solid top-level executive support for Lean and its critical role in your organization

## *Section I: Introduction to Lean and Value Stream Mapping*

LeanView was developed with one formula in mind: Lean = fewer required resources. That is, Lean allows organizations to use less space, less capital, less material and less time to produce a given set of products or perform a given set of functions.

To that end, Bluespring provides a comprehensive Value Stream Mapping, Analysis, and Reporting tool that leverages and extends the most commonly used Microsoft Office Products, thereby allowing Lean practitioners to rapidly adopt and utilize the tools, power, and extensibility in a highly flexible and collaborative environment.

LeanView Improves and Integrates Lean and Six Sigma processes and programs.

- Streamline drawing, distribution, and updating of value stream map (VSM) diagrams.
- Automatically calculate key operational metrics for each VSM state.
- Transform raw financial and process data into business intelligence as a Microsoft Excel document depicting key performance indicators for each VSM state.
- Seamlessly transform process improvement opportunities into actionable project plans.
- Assist the finance department with Sarbanes-Oxley compliance by closing the gap between reported Lean savings and actual bottom-line performance.

Communicate information clearly and collaborate more effectively.

- Create comprehensive management reports for each value stream.
- Add hyperlinks between parts of a LeanView diagram, to other LeanView diagrams, or to supporting files or Web pages for enterprise-level views.
- Share LeanView diagrams from within Microsoft Visio® interface using Document Workspaces that reside on Windows SharePoint Services sites.
- Populate management dashboards with Solution XML and Visio XML output from LeanView.
- Identify and prioritize opportunities to improve your value stream.
- Project operational improvements to your value stream.

### **LeanView and the Supply Chain**

LeanView allows practitioners and managers to assess overall performance of their supply chains by linking to Value Streams at the supplier level and allowing “Roll-Up” analysis of process performance data.

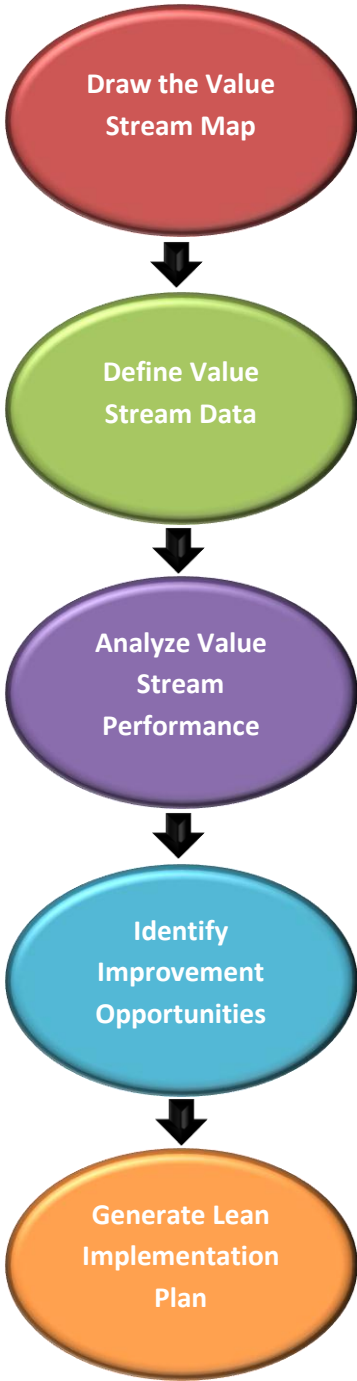
Organizations can request that suppliers utilize LeanView to create Current state Value Stream Maps, and can use Microsoft collaboration technologies such as Microsoft Windows SharePoint Services and Microsoft Office Project Server to share and collaborate with suppliers to reduce costs throughout the entire supply chain.

Whether through collaborative use or standalone use by suppliers, LeanView allows opportunities for improvement to be identified and quantitatively analyzed, thus reducing the costs of materials and parts supplied to your production or service lines. Please contact Bluespring Software if you are interested in incorporating LeanView into your Supply Chain.

Section I: Introduction to Lean and Value Stream Mapping

LeanView provides a toolset that allows the improvement team to clearly visualize, fully define, and confidently validate any product or service value stream.

Value Stream Mapping and Analysis with LeanView



**LeanView 'Map Sequence' for Auto-Drawing**

**LeanView Shape Stencils**

**LeanView Input dialogs standardize VSM data collected.**

**LeanView provides preconfigured analysis reports to provide value stream performance information in an actionable format.**

**Burst Shapes denote improvement actions within the VSM and contain tasks, responsibilities, and notes.**

**Centralize Rep Assignment Information**

**Export improvement task information to Microsoft Project automatically.**

Type	Process	Filter	Pg.	All
1	Review Order			
2	Log Order			
3	Lookup Rep			
4	Review			
	Check Product			

Attribute	Value	Units
Flow Time Calculated (FT)		1.02 Hrs

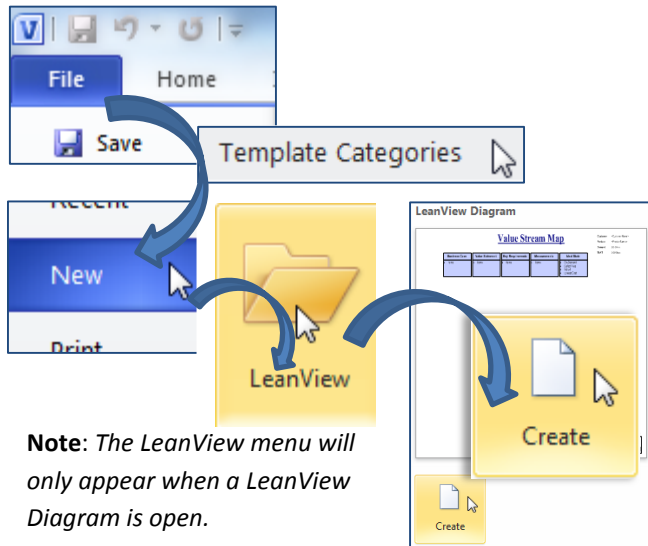
NVA	Time	Process	Flow Time (FT)	Process
3	0.42 hrs	Log Order	0.42 hrs	Log Or
4		Review Order		
5		Review		
6		Tax Review		
7		Check ProductAvailability		
8		Lookup Rep		
9		Enter Order		

Goal	Start	End	Resources	Fixed
1 Identify existing rep assignment storage repositories.	08/11/2010	08/12/2010		
2 Estimate development effort to centralize data.	08/11/2010			
3 Draft desired UI for access to new repository.	08/11/2010			
4 Determine security/access/credentialing for use of the new repository.	08/11/2010			

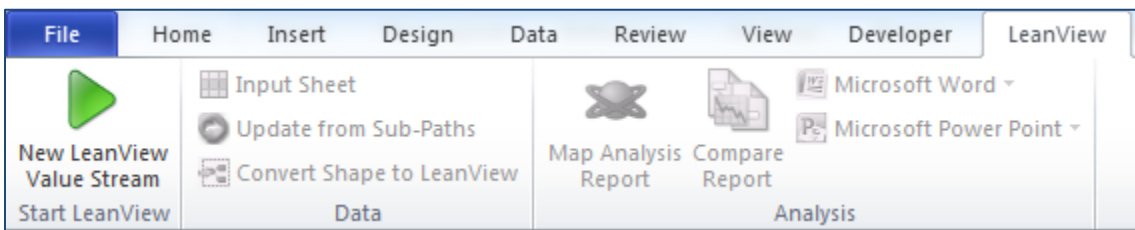
## Section II: The LeanView Environment

LeanView provides a drawing template and shape stencils to make value stream map construction easy.

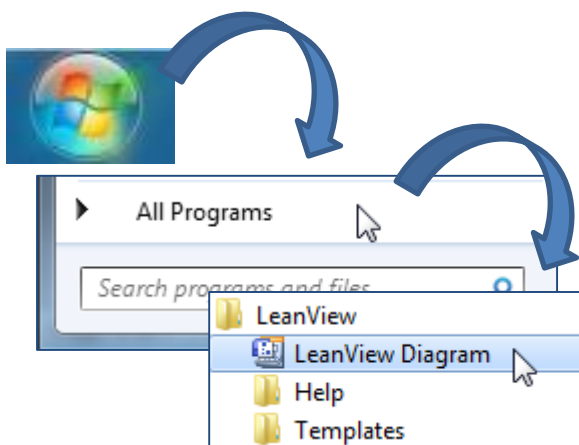
A LeanView drawing can be quickly created through the Visio File menu. To open a LeanView diagram, launch Microsoft Visio (2007 or 2010) and, through the Visio File menu, choose New → LeanView → LeanView Diagram.



If utilizing LeanView 6.0 in Visio 2010, users may also create a new LeanView drawing by launching Microsoft Visio 2010, accessing the LeanView ribbon, and clicking the 'New LeanView Value Stream' button.



In LeanView version 4, a new LeanView drawing may be created through the Windows Start menu.

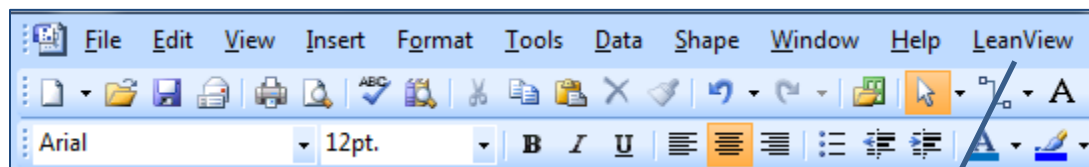
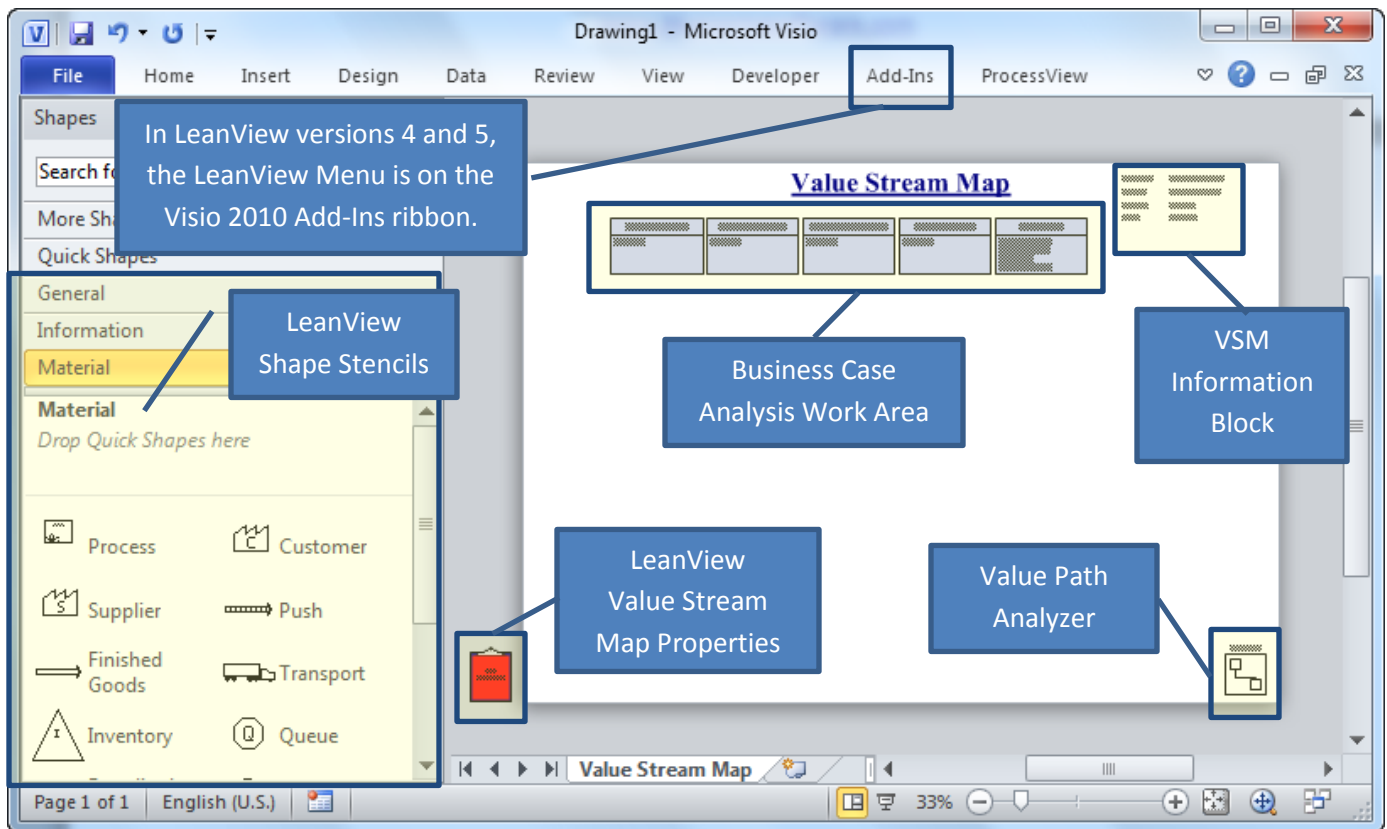
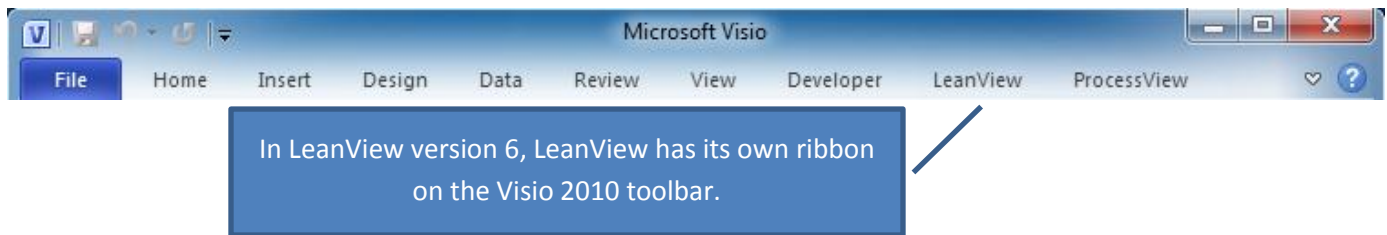


*Note that, in LeanView versions 4 and 5, the LeanView menu is only visible when a LeanView drawing is active.*

*In LeanView version 6, the LeanView ribbon is always visible, but only active when a LeanView drawing is open.*

## Section II: The LeanView Environment

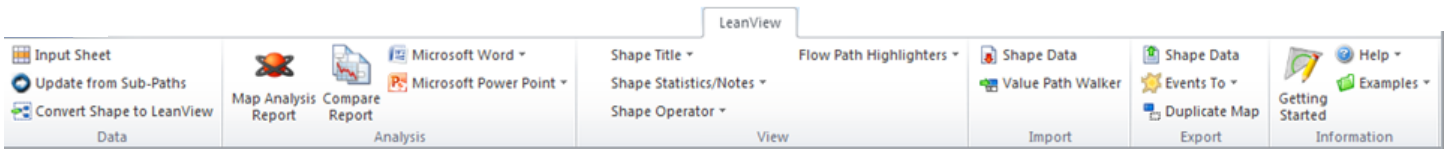
Once a diagram is created with the LeanView template, a drawing canvas and shape stencils are presented.



With Visio 2007, with LeanView versions 4, 5 and 6, the LeanView menu will appear to the right of the Visio menus.

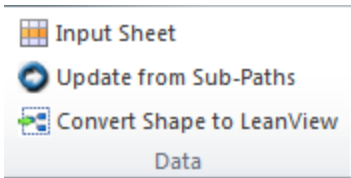
## LeanView 6.0.x Ribbon (Visio 2010)

The LeanView ribbon is divided into six sections: Data, Analysis, View, Import, Export, and Information.



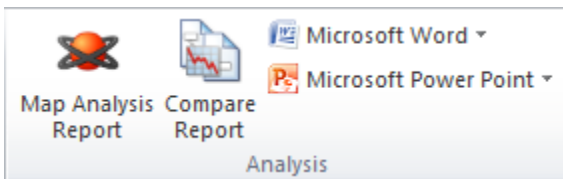
### Data

The Data menu provides access to an input sheet where LeanView shape properties can be reviewed and revised. Properties for process shapes linked to sub-value paths can be automatically updated; any Visio shape can be converted into a LeanView shape using the Data menu.



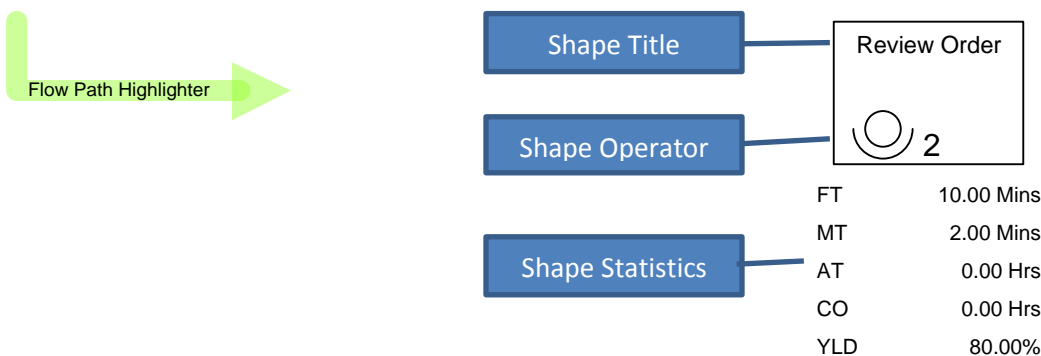
### Analysis

Value Stream performance information can be reported to Microsoft Excel in the Map Analysis Report or Compare Report. Performance metrics and information about improvement opportunities may also be reported to Microsoft PowerPoint and Word.



### View

The View menu provides the ability to 'show' or 'hide' flow paths highlighters and shape titles, statistics, and operators.

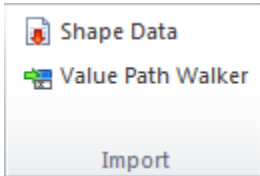


## Section II: The LeanView Environment

### LeanView 6.0.x Ribbon (Visio 2010)

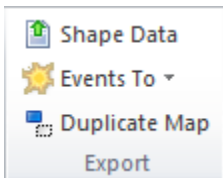
#### Import

Shape properties data can be imported from an Excel worksheet. Value stream maps can be automatically drawn and shape properties imported using an Excel worksheet created with the LeanView Value Path Walker template.



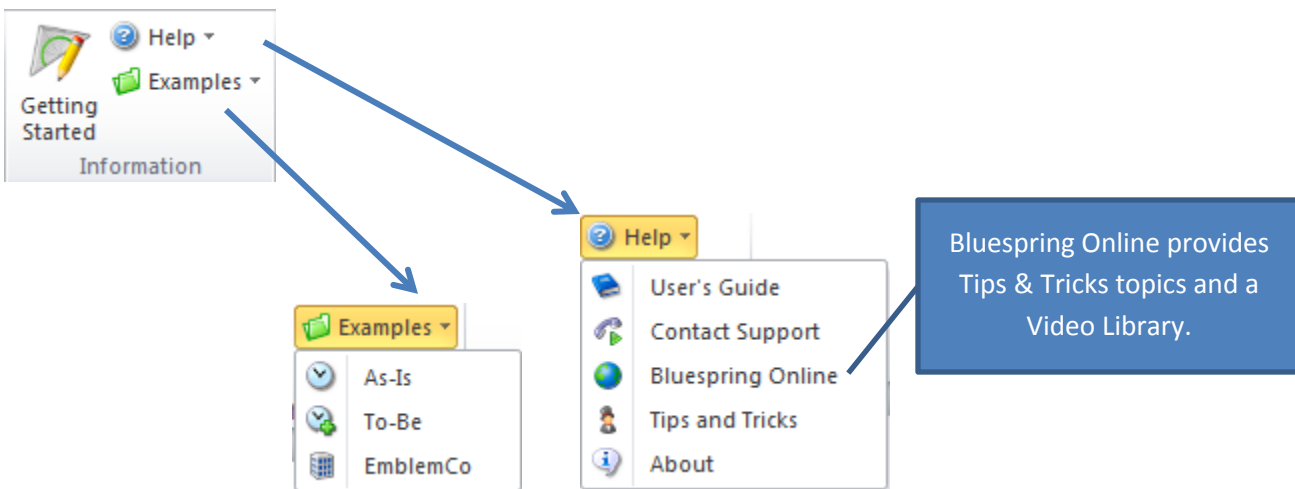
#### Export

Shape properties data can be exported to Microsoft Excel. Additionally, kaizen burst shape properties to describe improvement actions, tasks and resources can be exported to Microsoft Excel or Microsoft Project. LeanView diagrams created with older versions of LeanView (< 5.0.0) can be updated using the new LeanView template with the 'Duplicate Map' option.



#### Information

Access to the LeanView Getting Started Tutorial, example value streams, and LeanView Online Resources can be obtained using the options in the information section of the LeanView ribbon. Additionally, information about the LeanView version and license can be reviewed by selecting the 'About' button.

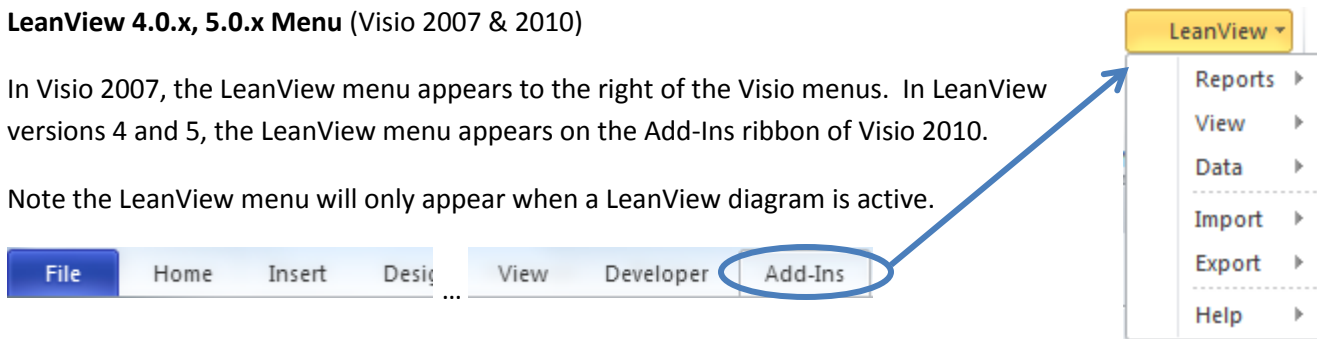


## Section II: The LeanView Environment

### LeanView 4.0.x, 5.0.x Menu (Visio 2007 & 2010)

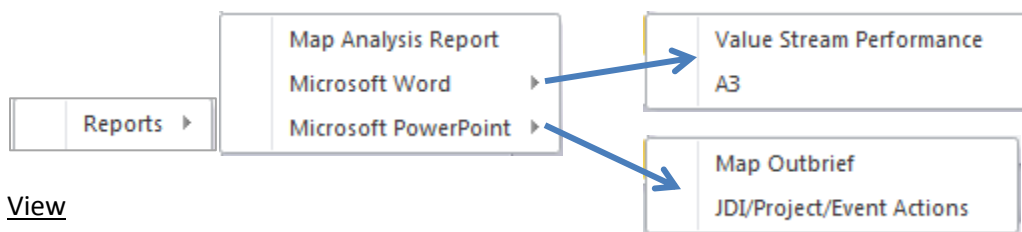
In Visio 2007, the LeanView menu appears to the right of the Visio menus. In LeanView versions 4 and 5, the LeanView menu appears on the Add-Ins ribbon of Visio 2010.

Note the LeanView menu will only appear when a LeanView diagram is active.



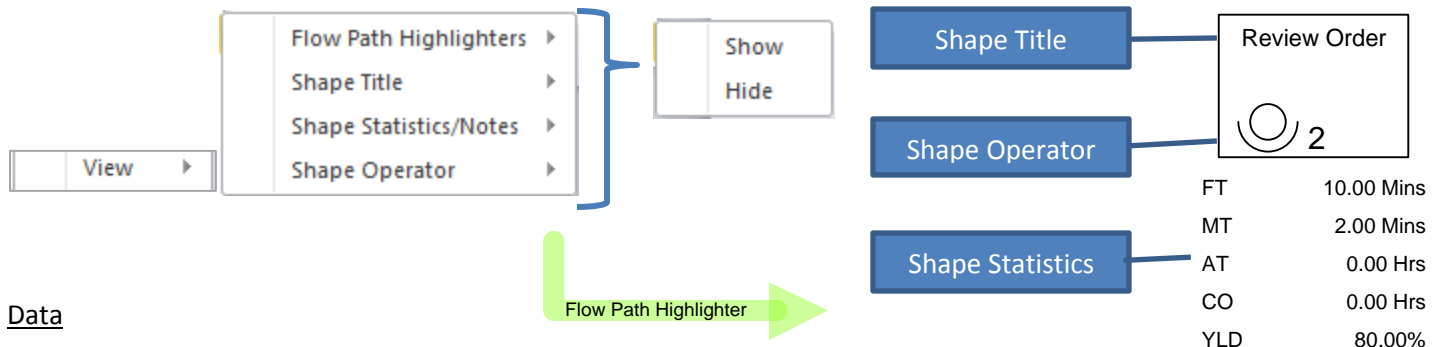
### Reports

Value Stream performance information can be reported to Microsoft Excel in the Map Analysis Report. Performance metrics and information about improvement opportunities may also be reported to Microsoft PowerPoint and Word.



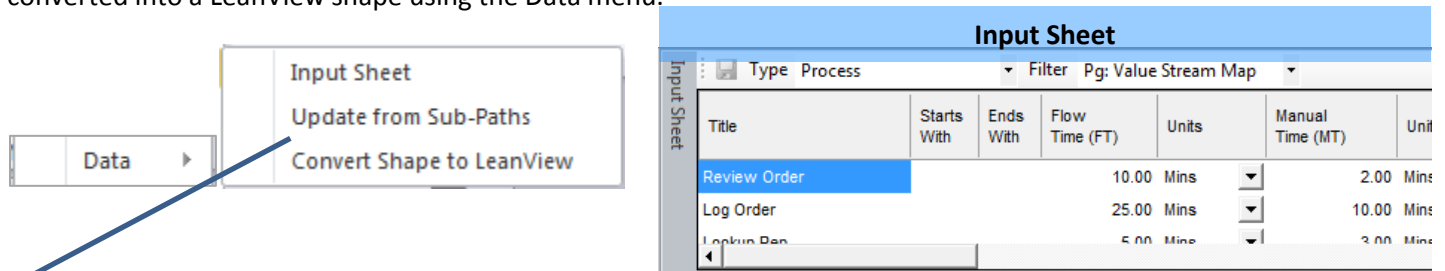
### View

The View menu provides the ability to 'show' or 'hide' flow paths highlighters and shape titles, statistics, and operators.



### Data

The Data menu provides access to an input sheet where LeanView shape properties can be reviewed and revised. Properties for process shapes linked to sub-value paths can be automatically updated and any Visio shape can be converted into a LeanView shape using the Data menu.



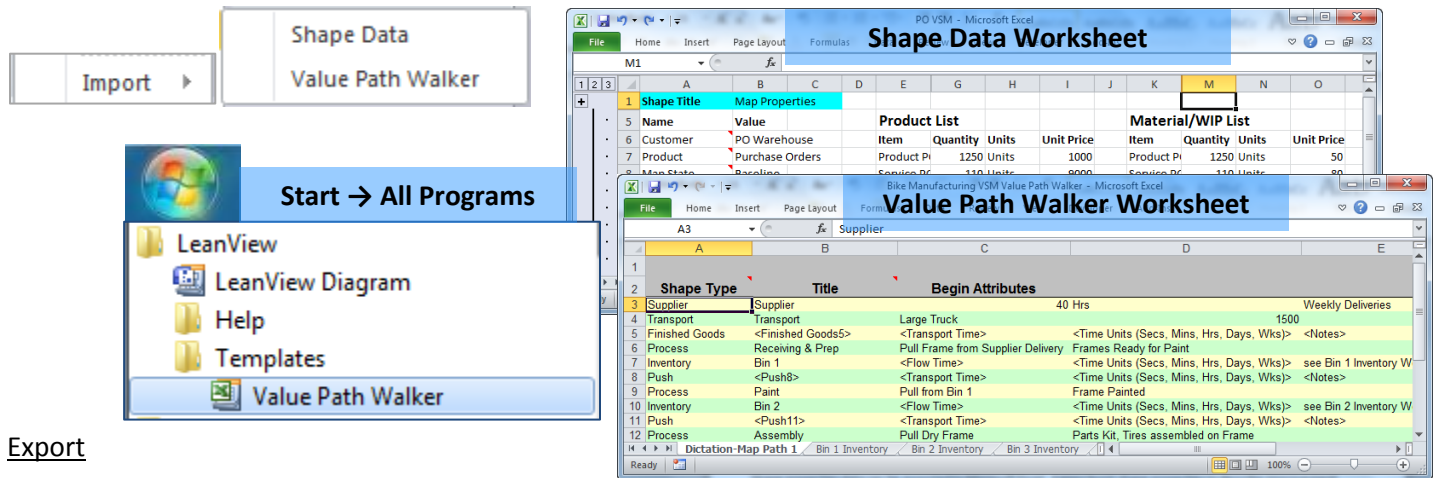
Create sub-paths and 'roll' performance metrics to update 'parent' process properties automatically.  
Leverage custom shapes... Any Visio shape can be converted into a LeanView shape.

## Section II: The LeanView Environment

### LeanView 4.0.x, 5.0.x Menu (Visio 2007 & 2010)

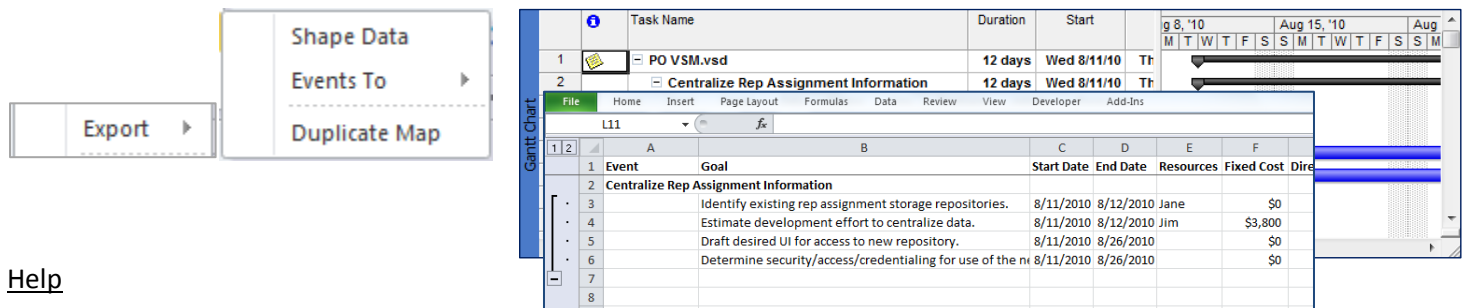
#### Import

Shape properties data can be imported from an Excel worksheet; a shape data worksheet can be created with the LeanView export shape data option. Value stream maps can be automatically drawn and shape properties imported using an Excel worksheet created with the LeanView Value Path Walker template.



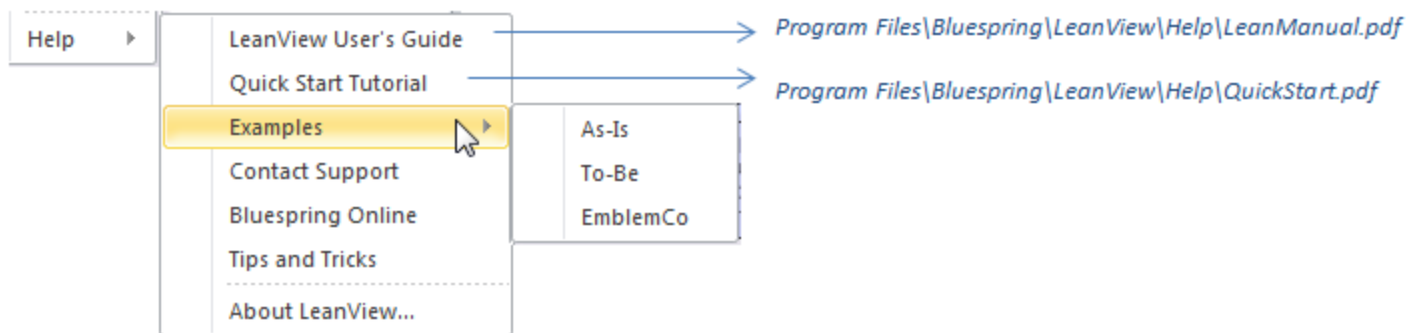
#### Export

Shape properties data can be exported to Microsoft Excel. Kaizen burst shape properties to describe improvement actions, tasks and resources can be exported to Microsoft Excel or Microsoft Project. LeanView diagrams created with older versions of LeanView (< 5.0.0) can be updated using the new LeanView template with the 'Duplicate Map' option.



#### Help

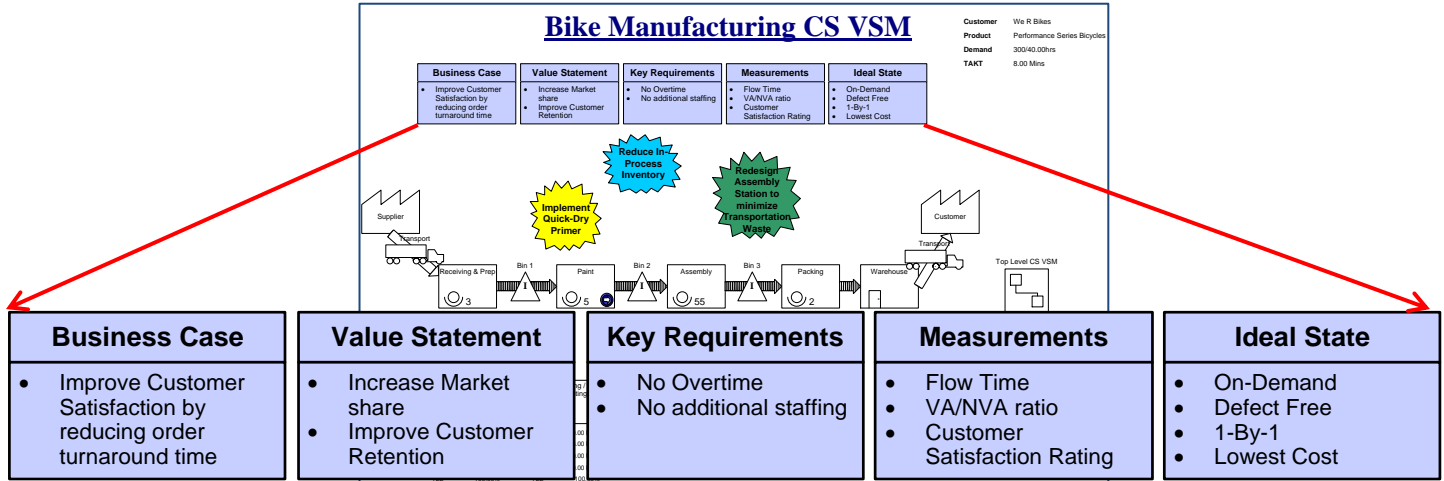
This User's Guide, a Quick Start Tutorial and example value stream maps are available in the LeanView Help. Additionally, LeanView version information and access to the LeanView support team are also available in the Help.



Section II: The LeanView Environment

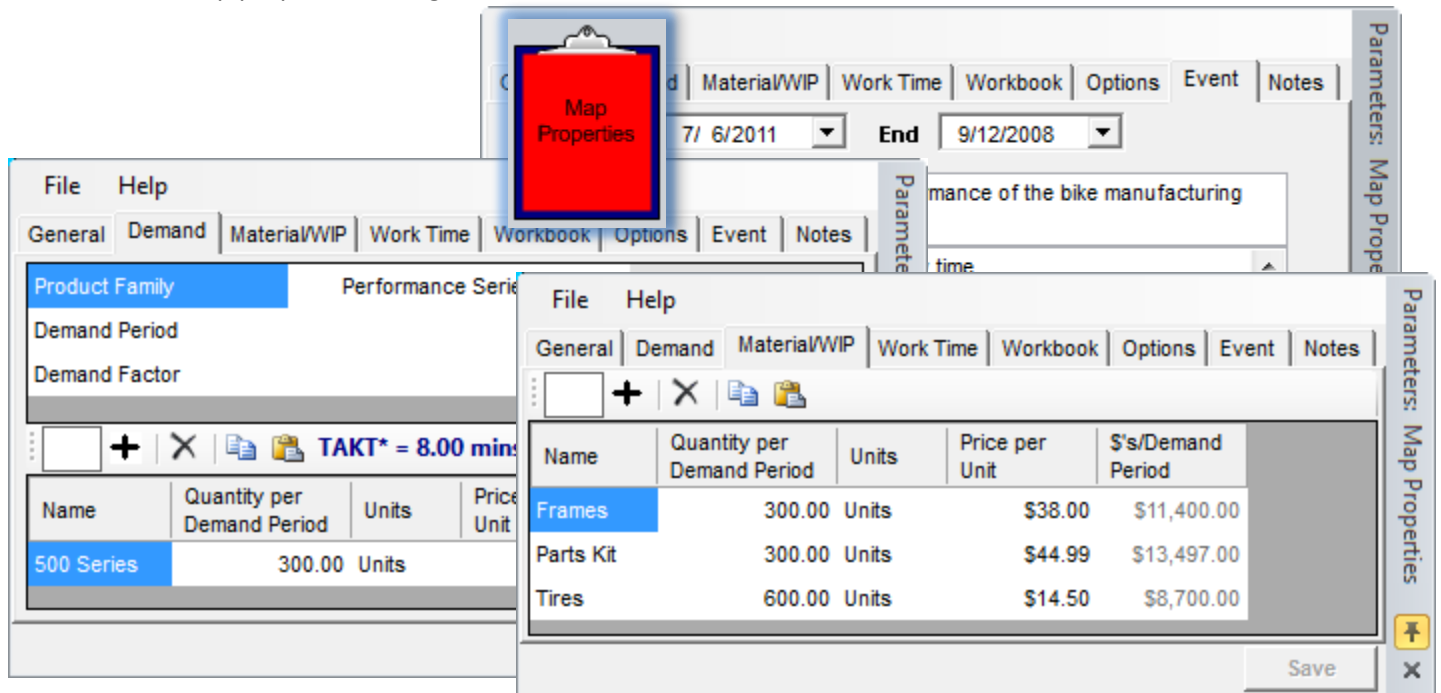
Business Case Analysis Work Area

The Business Case Analysis Work Area allows you to define the Business Case for creating the Value Stream Map, the **Value Statement** or what you expect to achieve from this exercise, the **Key Requirements** or what operational requirements are to be met upon completion and implementation of this process, the **Measurements** or how you will be measuring success and the **Ideal State** which you are seeking to obtain by this process.



LeanView Value Stream Map Properties

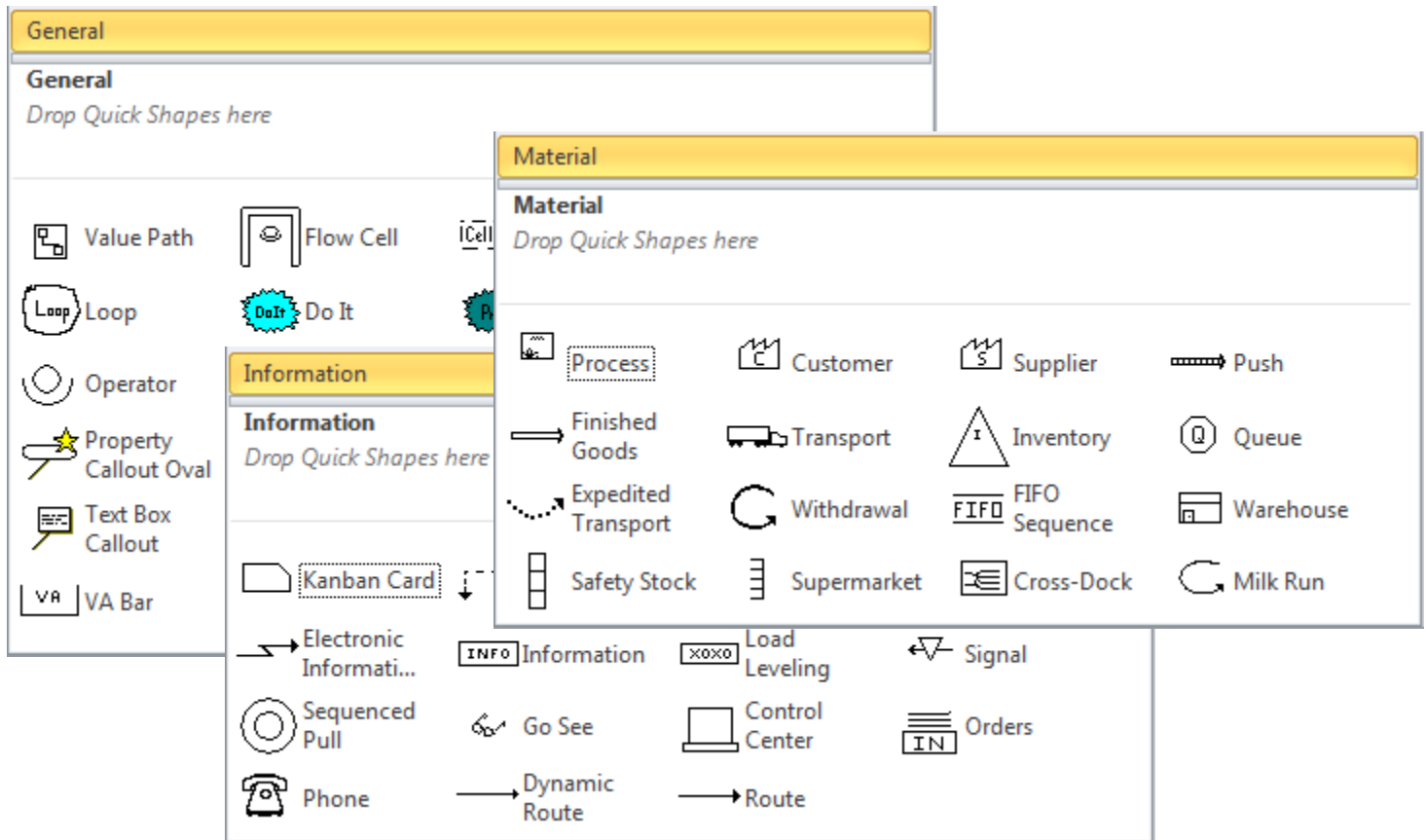
The LeanView value stream map properties shape is used to store information about the product or service being analyzed. The Map Properties shape stores information about the quantity and cost of finished goods to be produced and raw materials to be consumed in the demand period. Additionally, the work schedule and default properties can be defined in the map properties dialog.



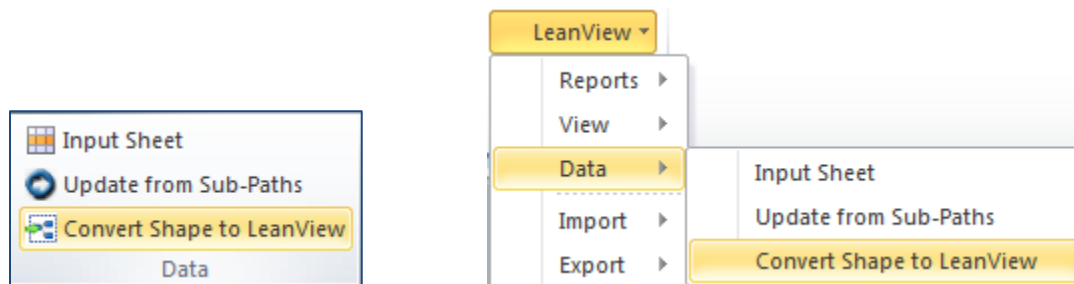
## Section II: The LeanView Environment

### LeanView Shape Stencils

The standard LeanView shapes are preconfigured to store various shape attributes and Lean data items. The General stencil contains Value Path and various data and loop shapes. The Information stencil contains shapes to represent how data or information is gathered and sent, and the Materials stencil contains shapes to track the movement of materials throughout the process.

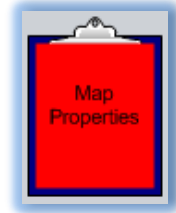


Note, any Visio shape can be used for map construction, but only shapes pulled from the LeanView General, Information and Material stencils are preconfigured to store lean process data. If other Visio shapes are used to build a value stream map, these shapes will need to be converted to LeanView shapes. (LeanView → Data → Convert Shapes)

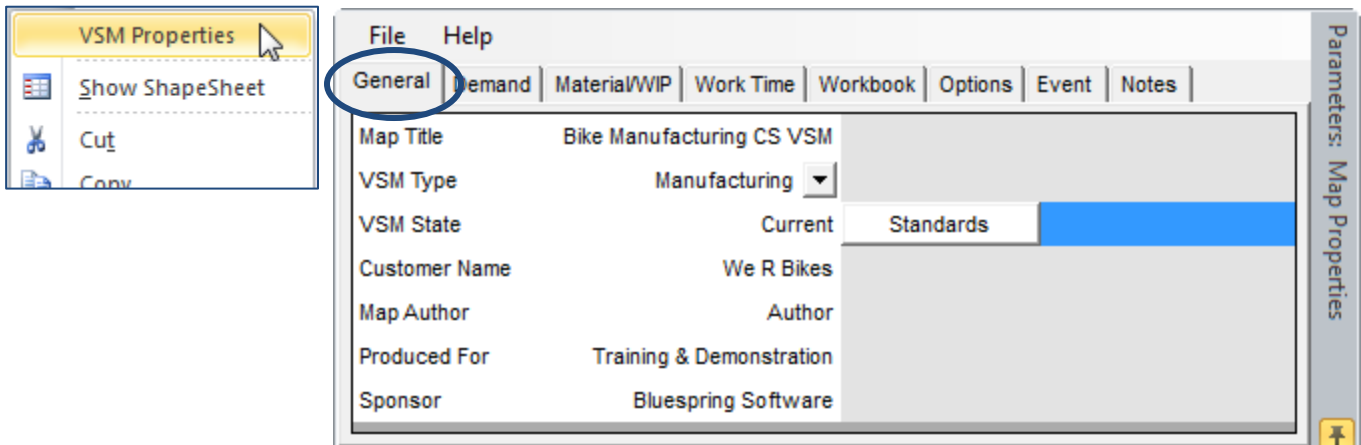


### Section III: Getting Started

**A:** To begin, create a new Visio diagram using the LeanView template. Locate the red clipboard shape titled “Map Properties” in the lower left hand corner. The Map Properties shape is used to store information about the products or services being delivered and the raw materials consumed to deliver the good or service.



**B:** Right-click on the Map Properties shape and select “VSM Properties”. The Map Properties dialog will be launched.

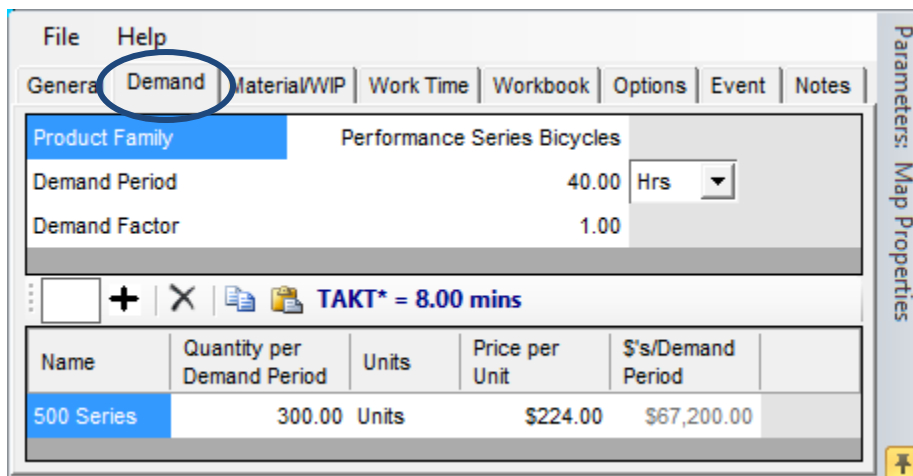


**C:** Enter the Customer Name ‘We R Bikes’ and enter a value for the Map Author.

**D:** Switch to the Customer Demand Tab. Enter Product Family “Performance Series Bicycles”.

**E:** Enter a Customer Demand Period of 40 hrs.

**F:** Enter an Item “500 Series” with Quantity 300 and Price \$224.00.

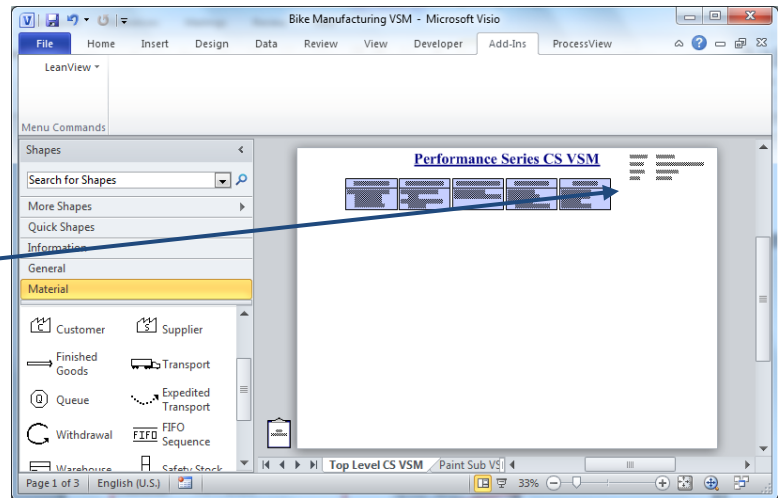


**G:** Click “Save”

### Section III: Getting Started

Notice once changes to the Map Properties are saved, the information block in the top right of the LeanView diagram reflects the Customer, Product and Demand information.

<b>Customer</b>	We R Bikes
<b>Product</b>	Performance Series Bicycles
<b>Demand</b>	300/40.00hrs
<b>TAKT</b>	8.00 Mins



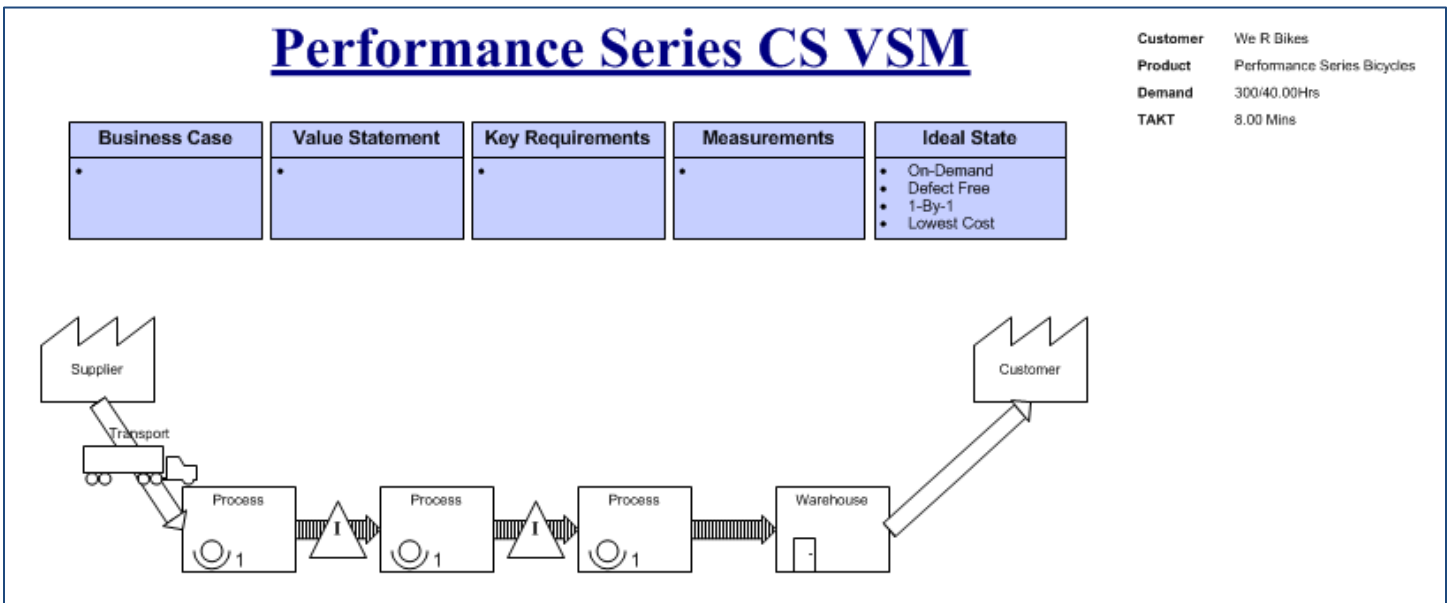
H: Close the Map Properties Dialog.

I: Save your Value Stream Map as "500 Series Current State VSM".

### Section IV: Drawing a Value Stream Map with LeanView

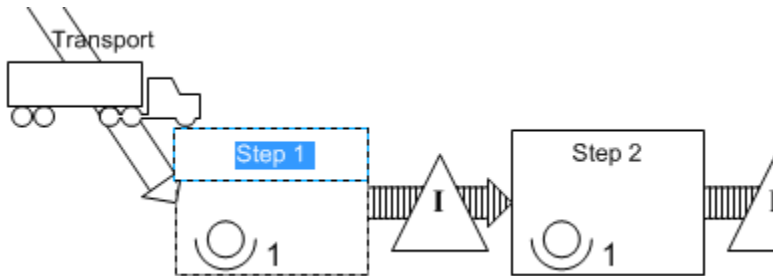
A: Now that the customer demand is defined, the next step is to draw the value stream map.

B: Go to the Material shapes stencil and drag the standard shapes onto the drawing area to create the VSM shown below. (Supplier > Finished Goods > Transport > Process > Push > Inventory > Process > Push > Inventory > Process > Push > Warehouse > Finished Goods > Customer)



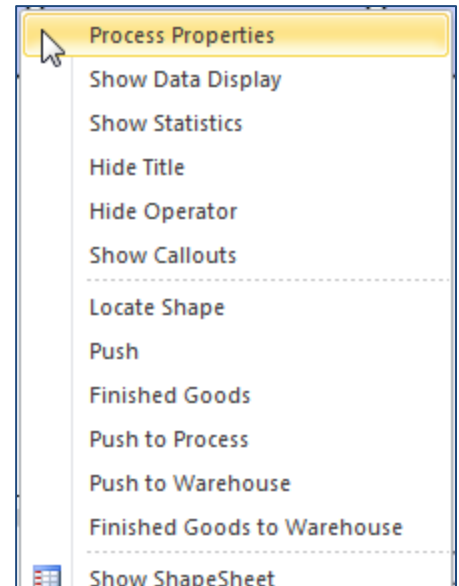
## Section IV: Drawing a Value Stream Map with LeanView

- C: Rename the processes “Step 1”, “Step 2”, and “Step 3” from left to right. You can accomplish this by double clicking on the process, so that it highlights the name (as shown above), then you type in the new name. Once you’re done, click on another spot on the VSM, and the name will be saved.



- D: Right-click menu’s:

Select one of the processes (by clicking on it), then right-click; notice that several options are presented. All LeanView shapes have right-click menu options and the LeanView context menu options will appear at the top of the context menu.



- E: Open and review the Process Properties dialog.

### General Tab

The General tab contains the Process Data, Delays, and Calculated Statistics.

### Pieces Tab

The Pieces tab is used to store information about the number of pieces per unit. [Example: Wagon Assembly = 1 shell, 4 wheels, etc...]

### Waste Tab

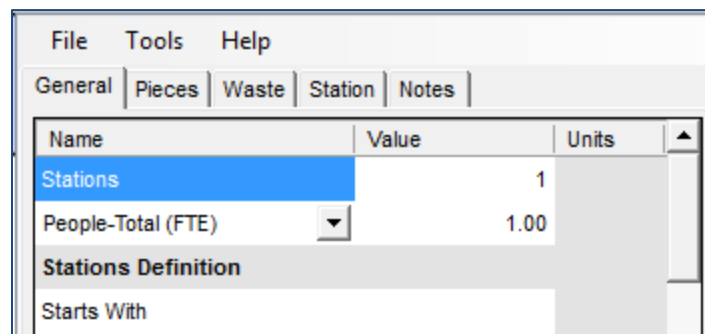
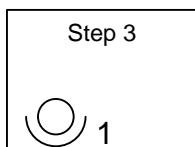
The waste tab holds information about the costs associated with the 7 major wastes.

### Stations Tab

This tab provides a mechanism to define a takt time for a process station.

### Notes Tab

All LeanView shapes have a notes tab to store supplemental information and comments.



## Section IV: Drawing a Value Stream Map with LeanView

**F:** Enter Process Data for Step 3.

- Enter a Flow Time of 435 and change units to minutes [Note: that you have many options for time units]
- Enter a Manual Time of 7 Hrs
- Enter an AT (Automated Time) of 6.5 minutes
- Enter a yield of 97 %
- Enter a %VA of 100%

**G:** Without saving the process properties, click on another process box. Notice that LeanView prompts you to save your data!!!

**H:** Click “Yes” to save changes.

**I:** Enter the following data for Steps 1 and 2.

	Step 1		Step 2	
Flow Time-Input (FT)	18	Mins	1	Days
Manual Time (MT)	9	Mins	7	Hrs
% Yield (YLD)	95%		89%	
% VA Processing Time	0%		80%	

**J:** Switch back and forth between Step 2 and Step 3 by clicking on each process shape.

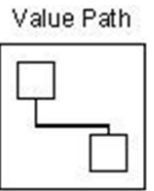
Notice that LeanView automatically displays the data for the shape that you click on while the properties box is open.

**K:** Don't forget to save your work!!!

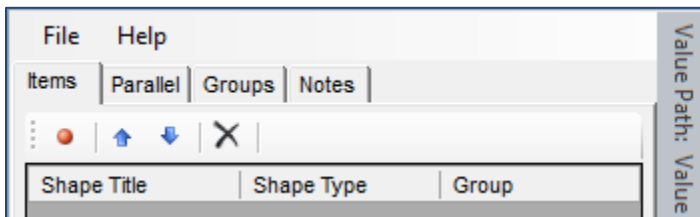
Now the most basic features of the Value Stream Map have been defined, the shapes must be recorded into a LeanView value path shape before analysis can be performed.

## Section V: Recording a Value Stream with LeanView

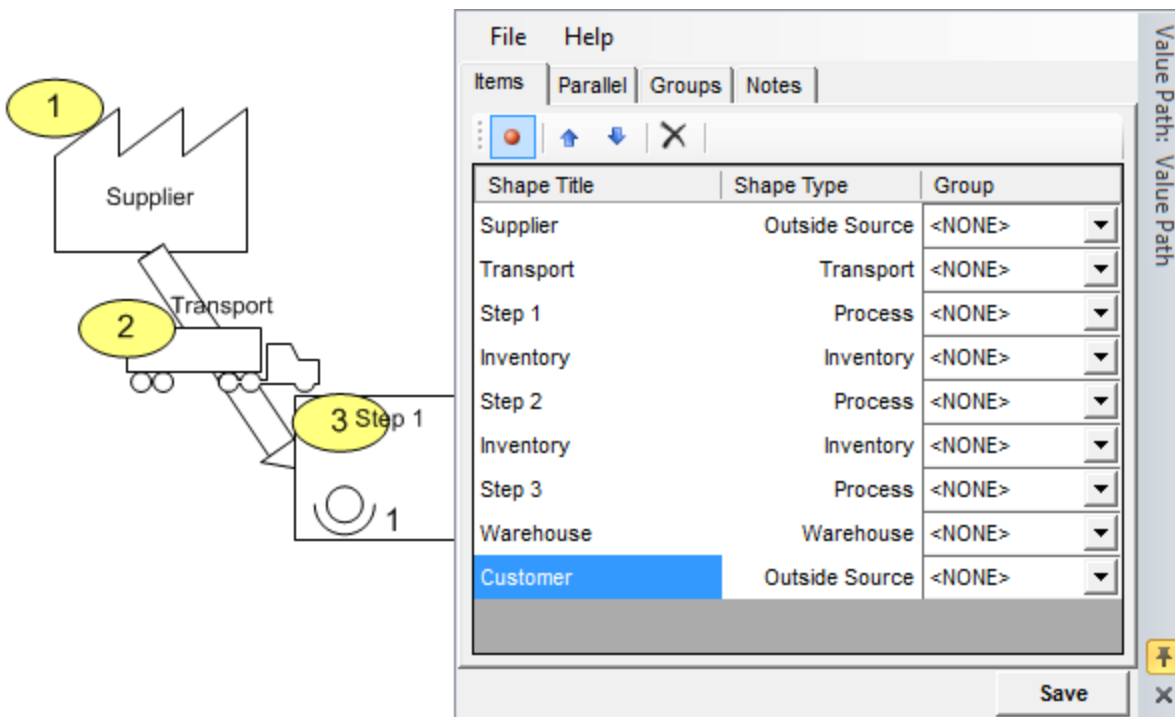
We need to be able to tell LeanView what data needs to be included in our analysis, so that the system can generate meaningful output when the time comes to analyze our Value Stream. In order to do this, we need to record our Value Stream Path.



- Locate the “Value Stream Path” shape on the lower right corner of your VSM drawing. If a value stream path is not found on the page, a new value path shape may always be pulled from the LeanView General shape stencil.
- Right-click on this shape and choose “Define Value Stream Path”. You will be presented with a Value Stream Path Dialog with four tabs.
- Click on the Red record button on the “Items” tab.



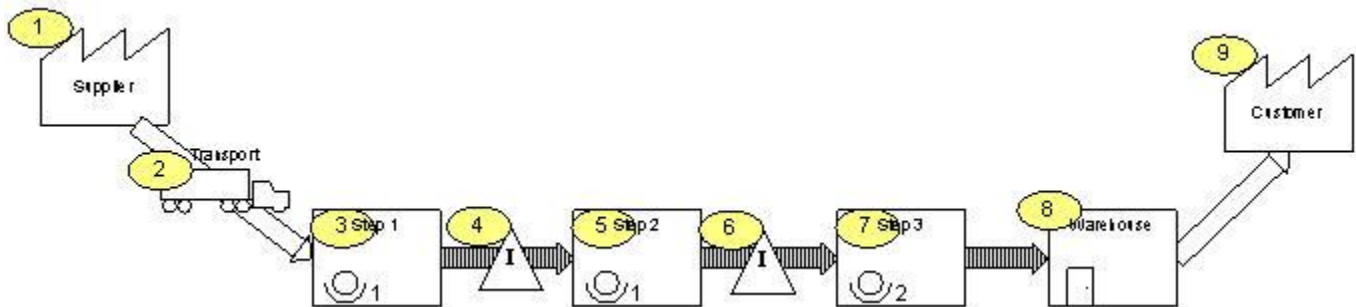
- Click on each of the shapes, in order, from left to right (omit finished goods/push arrows). You will notice that each of the 3 steps appear, in order that you clicked them, in the Value Stream Path dialog.



- Click on the “Save” Button to Save the recorded Value Stream Path.

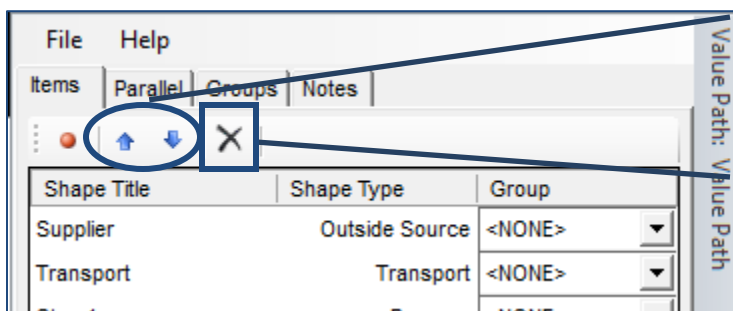
## Section V: Recording a Value Stream with LeanView

Notice that along the Value Stream Path you have recorded, there are numbered Bubbles that indicate the flow of materials, goods or processes.



[ DISCUSSION ] Adding, re-ordering, deleting items.

If shapes were missed or are added and need to be included, opening the 'Define Value Stream Path' dialog and pressing the record button allows you to add any new shapes. To re-order shapes, there are up and down arrows provided. To delete shapes recorded in error, use the 'X' button in the dialog.



Arrow buttons can be used to reorder the shape list. These buttons will move the selected row/shape up or down.

The 'x' button will delete any unwanted shapes/rows from the path shape list.

**F:** Close the Value Stream Path Dialog

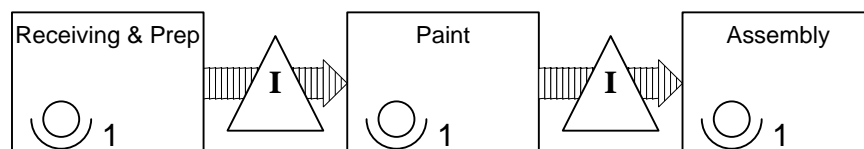
**G:** Deselect the Value Stream Path shape. Notice that the numbered bubbles only appear when you select the Value Stream Path shape. This is in order to signify which path belongs to which value stream path shape.

**H:** Don't forget to save your work!!!

With LeanView, you can analyze and report on single or multiple value streams, as well as "sub" value streams.

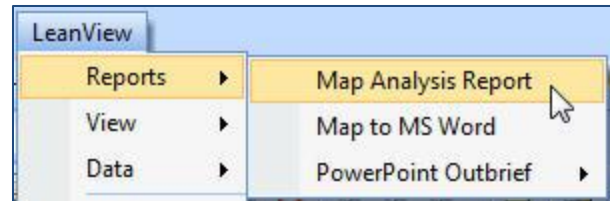
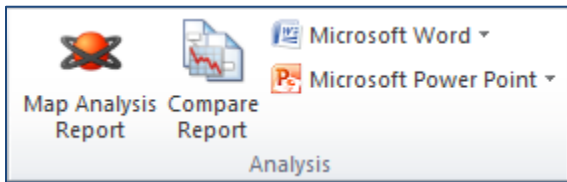
**I:** Rename the process steps, from left to right "Receiving & Prep", "Paint", and "Assembly".

(Save your diagram)

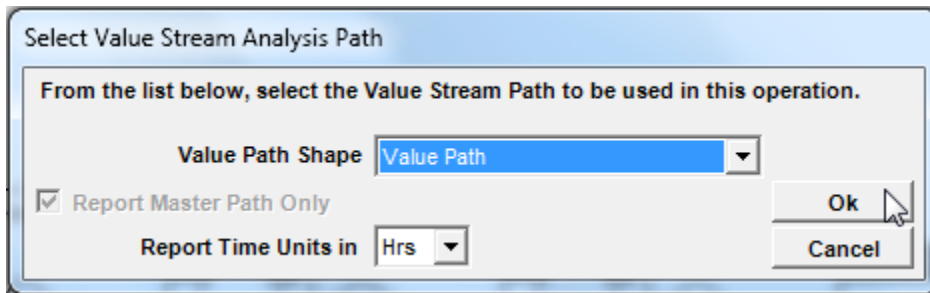


## Section VI: Producing the Map Analysis Report

**A:** To create a Map Analysis Report (MAR), navigate to the Analysis section of the LeanView ribbon and click Map Analysis Report.



**B:** A prompt to select the value path for analysis and time units to be used for reporting will be presented.



You will notice that you can change your report time units. LeanView will automatically normalize and recalculate all time statistics in the chosen time units when writing the Excel Report.

**C:** Accept defaults and Click "OK". LeanView will launch Microsoft Excel and begin writing the Map Analysis Report (MAR).

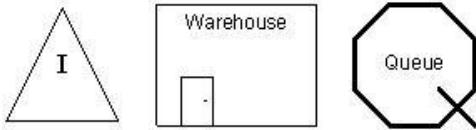
Activity Name	Type	Flow Time (FT)	Manual Time (MT)	People (FTE)	Total Work	Auto Time (AT)	Transfer Time	% Yield (YLD)	Value Added Time	NVA Time	Value Stream Yield	Cumulati Flow Tin
Supplier	Supplier	-						100%		-	100%	
Transport	Transport	-						100%		-	100%	
Receiving & Prep	Process	0.30 hrs	0.15 hrs	2.00	0.30 hrs	0.07 hrs		95.0%	-	0.30 hrs	95.0%	0.30
Inventory	Inventory	-								-	95.0%	0.30
Paint	Process	8.83 hrs	7.00 hrs	1.00	7.00 hrs	1.00 hr		89.0%	6.40 hrs	2.43 hrs	84.6%	9.13
Inventory	Inventory	-								-	84.6%	9.13
Assembly	Process	7.25 hrs	7.00 hrs	2.00	14.00 hrs	0.11 hrs		97.0%	7.11 hrs	0.14 hrs	82.0%	16.38
Inventory	Inventory	-								-	82.0%	16.38
Packing	Process	0.23 hrs	0.22 hrs	1.00	0.22 hrs	0.01 hrs		98.0%	0.16 hrs	0.07 hrs	80.4%	16.61
Warehouse	Warehouse	-								-	80.4%	16.61
<b>Path Total</b>		<b>16.61 hrs</b>	<b>14.37 hrs</b>	<b>6.00</b>	<b>21.52 hrs</b>	<b>1.19 hrs</b>			<b>13.67 hrs</b>	<b>2.94 hrs</b>	<b>80.4%</b>	<b>16.61</b>

## Section VII: Inventory

There are several ways to account for Inventory or Work In Process (WIP) items in a LeanView value stream map.

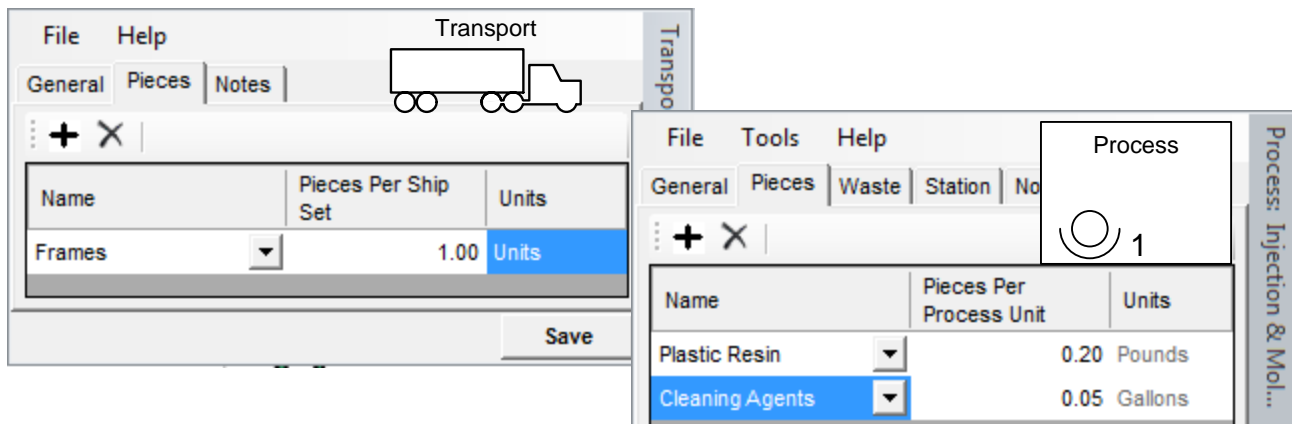
- 1) Inventory, Warehouse and Queue shapes will contribute to the value path flow time as well as inventory quantities and costs reported.

Inventory/Warehouse/Queue:



WIP inside these shapes, when recorded in the Value Stream Path, affect the flow time of the value stream by using a weighted average of the flow time based on the quantity and mix of items stored in the inventory.

- 2) Information captured in the Pieces tab of the Transport and Process properties dialogs will be incorporated in the inventory quantity and costs reported.

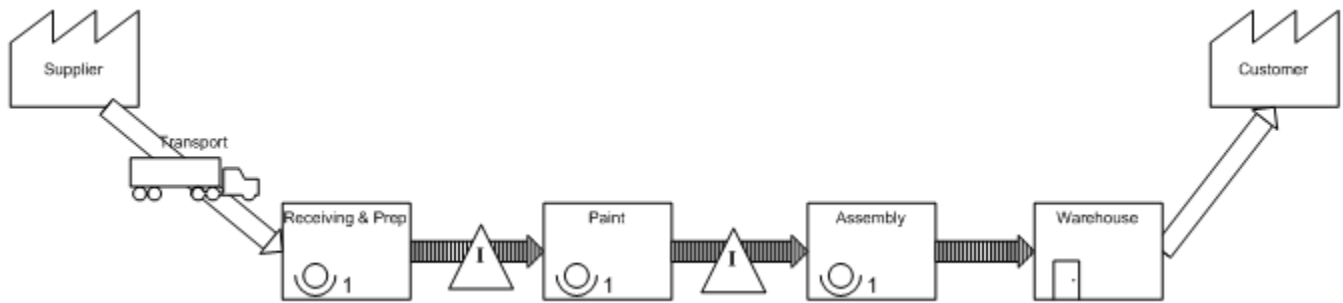


In the pieces tab, items entered here represent the pieces per process unit being processed or transported. (Example: if you're assembling wagons, you would have 4 tires per wagon, so you would have a "Wheel" item with Pieces Per Process Unit of "4".)

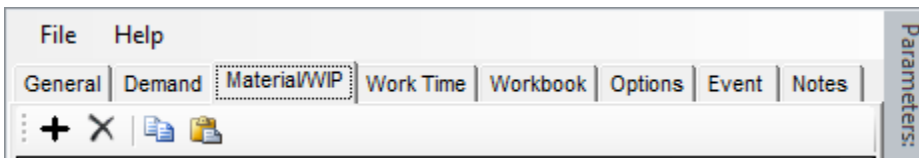
In a process shape, if there is batch processing (Normal Process Quantity > 1), LeanView will multiply the Pieces per Unit by the number of concurrent units (Normal Process Quantity\*Stations) to determine the quantity of inventory associated with that process step. If the Normal Process Quantity for an activity is 50, the number of stations is 1, and the Pieces per Unit is 4, the quantity of inventory added to the total reported is 200 (50 \* 4 \* 1 = 200). With this, LeanView augments standard Value Stream Mapping techniques to more accurately account for in-process inventory materials.

## Section VII: Inventory

Refer back to the example built previously with the 3 process steps.



A: Go to the Map Properties and open the “Raw Material/WIP” tab.



The Raw Material/WIP tab is used to keep track all of the raw material and WIP used or needed in order to manufacture or produce those items in customer demand. If, for instance, the demand is for 20 bicycles and 2 wheels are needed for each bicycle, than the raw material needed is 40 wheels.

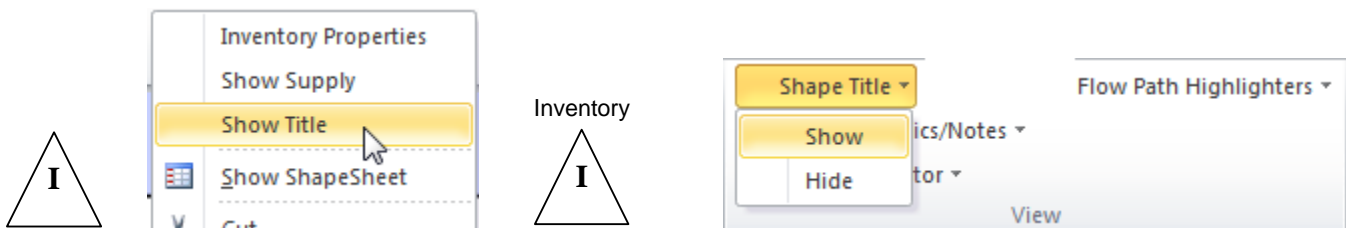
B: Enter the Raw Material/WIP items listed below and click “Save”, then “Close”

Name	Quantity per Demand Period	Units	Price per Unit	\$'s/Demand Period
Frames	300.00	Units	\$38.00	\$11,400.00
Parts Kit	300.00	Units	\$44.99	\$13,497.00
Tires	600.00	Units	\$14.50	\$8,700.00

### WIP ITEMS

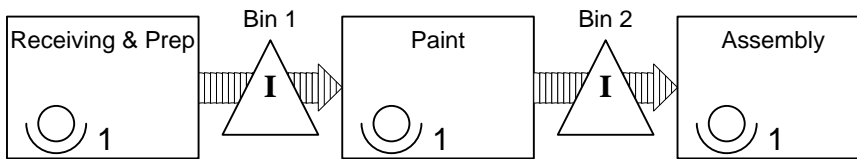
Item	Quantity	Price
Frames	300	\$38.00
Parts Kit	300	\$44.99
Tires	600	\$14.50

C: Rename each of the inventory shapes so that they can be uniquely identified in the Map Analysis Report. Right-click on each of the inventory shapes and choose “Show Title” or select all inventory shapes at once and click the “Show Title” option in the View section of the LeanView ribbon.



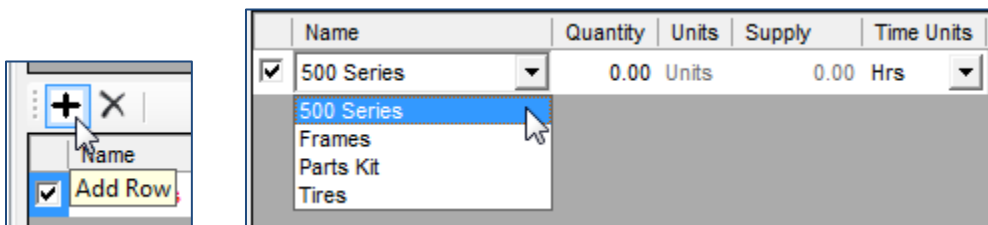
## Section VII: Inventory

D: Rename the inventory shapes, working from left to right, “Bin 1” and “Bin 2”.



E: Select Bin 1 inventory, right-click and choose “Inventory Properties”.

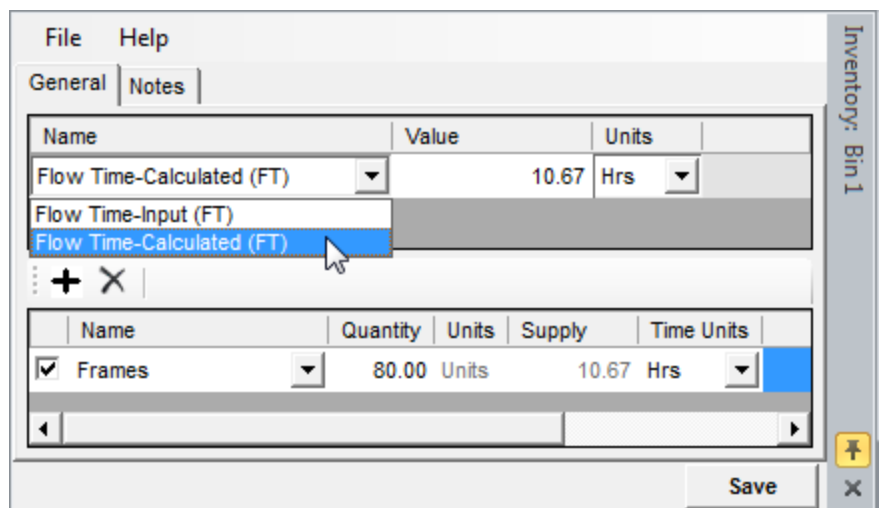
Use the ‘+’ button to add new rows to the inventory shape list on the General Tab. Click in the Name column to reveal a drop-down list of Finished Goods and Material/WIP items from which to choose. This drop-down list is populated with the information defined on the Demand and Material/WIP tabs of the Map Properties shape.



The inventory properties dialog is where the count of items observed in inventory may be documented. If you were to walk out onto the production line and count items in inventory at a particular point in time, this is the quantity that you would enter. Sampling on multiple occasions may be helpful here to arrive at an average inventory count. Documenting this inventory allows us to calculate the time and cost associated with the raw materials and WIP in a value stream.

F: For Bin 1, let’s select “Frames” and enter a Quantity of 80.

You will notice that after clicking “Save”, your days-supply of each inventory item is automatically calculated. You will notice that the inventory shape has the option of allowing LeanView to automatically calculate Flow Time for you or you can manually enter it. Use dropdown selector to select the appropriate option for you.

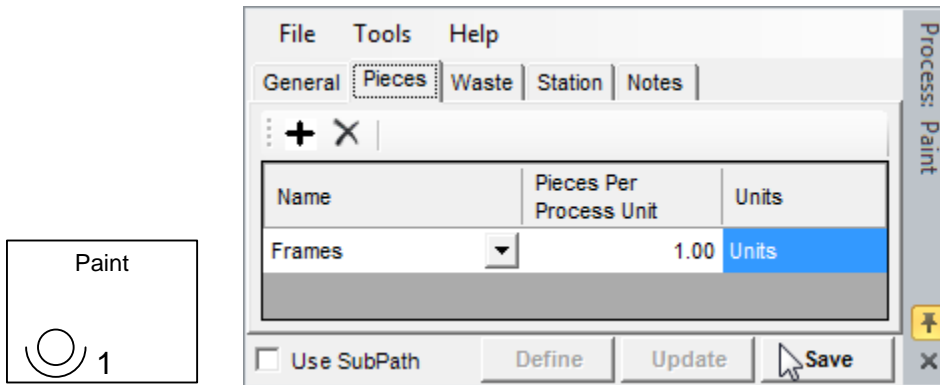


## Section VII: Inventory

### Pieces

There may be steps in this Value Stream where we are processing more than one unit at a time (Normal Process Quantity > 1), so it would be advantageous for us to account for WIP inside the process steps.

- A:** Go to the Paint Process Properties, select Frames in the Pieces tab, and enter a quantity of 1. Notice that the dropdown list under Name is also populated from the list in the Material/WIP tab on the Map Properties.



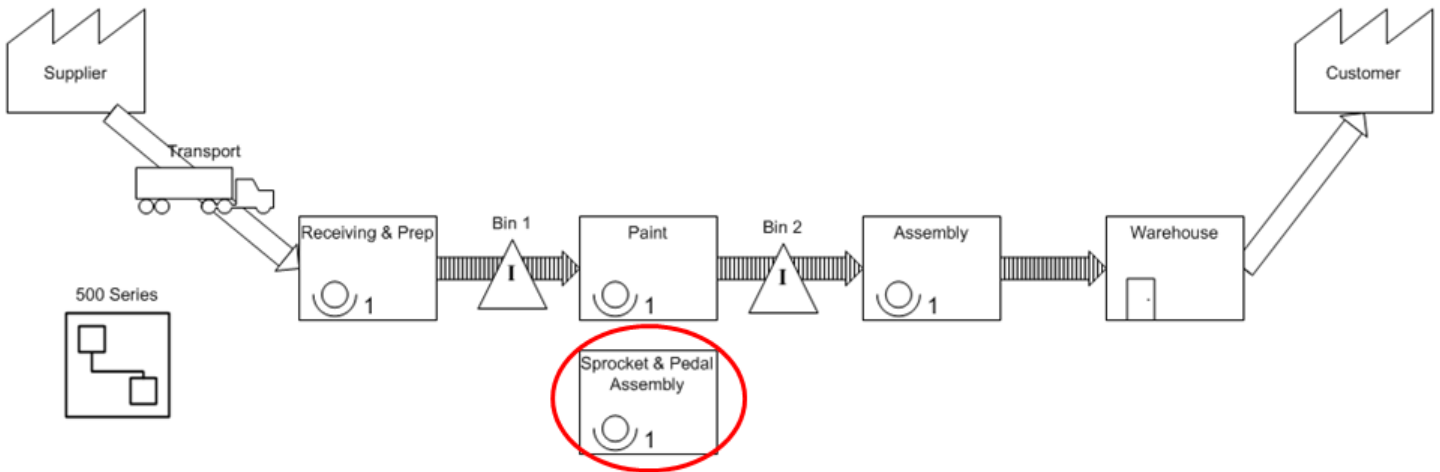
- B:** In Bin 2, enter 100 Parts Kits, 45 Frames and 62 Tires  
**C:** In the Warehouse Properties, select “500 Series” and enter a quantity of 150.  
**D:** In the Assembly Step Process Properties, enter 1 Frame, 1 Parts Kit and 2 Tires in the Pieces tab  
**E:** Produce a Map Analysis Report and review the Inventory worksheet.

	A	B	C	D	E	F	G
1	<b>Inventory: Value Path</b>						
		Unit of	Total Inventory	Average Unit Cost	Value	Consumption in Period	Turns in Period
2	Item	Measure	Quantity	Cost	Value	Period	Period
3	500 Series	Units	150	\$224.00	\$33,600	300	2.00
4	Product	Items	150		\$33,600	300	2.00
5	Frames	Units	127	\$38.00	\$4,826	300	2.36
6	Parts Kit	Units	101	\$44.99	\$4,544	300	2.97
7	Tires	Units	64	\$14.50	\$928	600	9.38
8	Material/WIP	Items	292		\$10,298	1,200	4.90
9	<b>Total</b>	<b>Items</b>	<b>442</b>		<b>\$43,898</b>	<b>1,500</b>	<b>3.45</b>

Section VIII: Parallel Paths

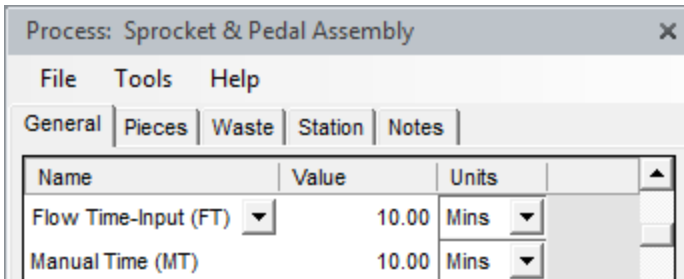
Continuing with the bicycle assembly plant value stream...

- A: Assume there is a sprocket and pedal assembly process that happens in parallel for use in the main value stream assembly step. Add a new process shape to the drawing canvas as shown below and name it 'Sprocket & Pedal Assembly'.

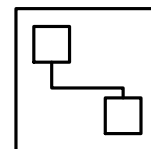


While parallel processes may not affect the flow time of the critical value stream, they will cause other effects, such as people and inventory costs, which need to be included in the analysis data.

- B: Access the process shape properties and enter flow time and manual time of 10 minutes.



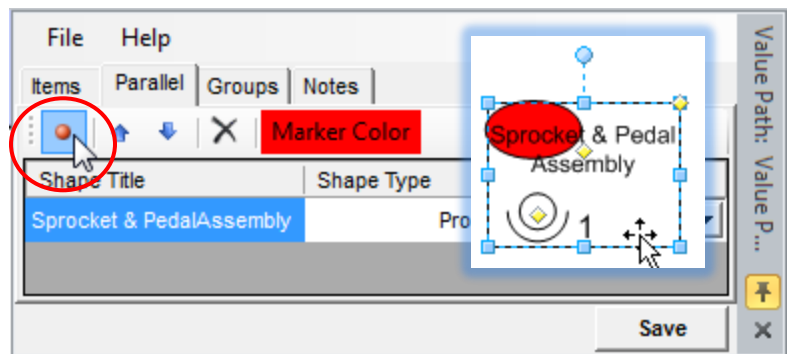
Value Path



- C: Right click the Value Stream Path Shape and choose "Define Value Stream Path".

- D: Open the Parallel tab.

- E: Click on the Red record button and select the sprocket and pedal assembly shape.



Section VIII: Parallel Paths

- F: Click the "Save" Button
- G: Click "Close" and save your Value Stream Map
- H: Generate a new Map Analysis Report and review the differences in computed values with Parallel activity added.

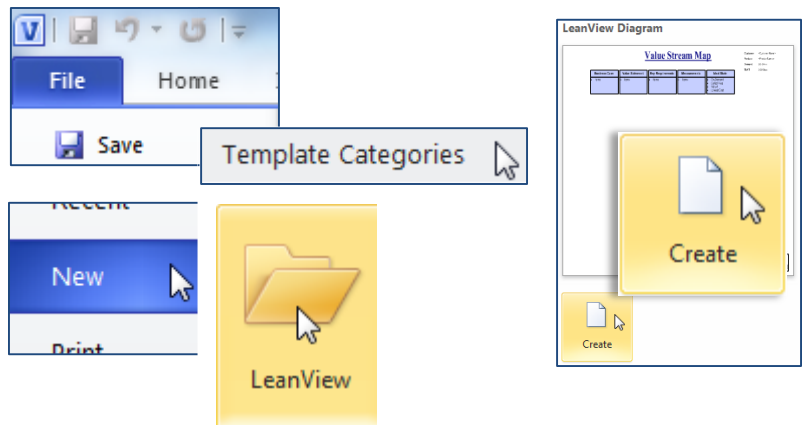
	A	B	C	D	E	F	G	H
1	<b>Value Stream: Value Path</b>							
			<b>Flow Time (FT)</b>	<b>Manual Time (MT)</b>	<b>People (FTE)</b>	<b>Total Work</b>	<b>Auto Time (AT)</b>	<b>Trans Time</b>
2	<b>Activity Name</b>	<b>Type</b>						
3	Supplier	Supplier	-					
4	Transport	Transport	-					
5	Receiving & Prep	Process	0.30 hrs	0.15 hrs	1.00	0.15 hrs	-	
6	Bin 1	Inventory	10.67 hrs					
7	Paint	Process	8.00 hrs	7.00 hrs	1.00	7.00 hrs	-	
8	Bin 2	Inventory	7.82 hrs					
9	Assembly	Process	7.25 hrs	7.00 hrs	1.00	7.00 hrs	0.11 hrs	
10	Warehouse	Warehouse	20.00 hrs					
11	Customer	Customer	-					
12	Sprocket & Pedal Assembly	Process		0.17 hrs	1.00	0.17 hrs	-	
13	<b>Path Total</b>		<b>54.04 hrs</b>	<b>14.32 hrs</b>	<b>4.00</b>	<b>14.32 hrs</b>	<b>0.11 hrs</b>	
14	<b>Takt Time</b>	<b>8.00 mins</b>					<b>Percent Value</b>	

Parallel Path shapes do not contribute to the Flow Time, but the work is incorporated in the path total reported for Manual Time, Auto Time, and Work Time.

Section IX: AutoDraw and AutoRecord

Using AutoDraw

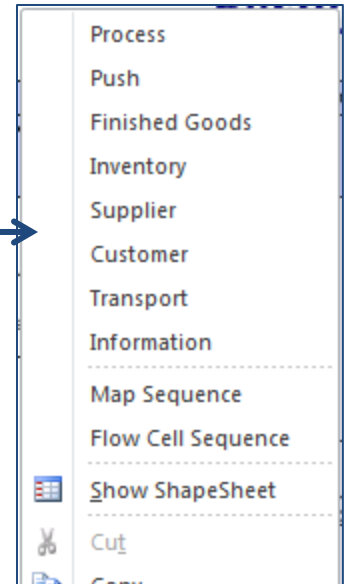
- A: Create a new LeanView diagram using the LeanView Template.



## Section IX: AutoDraw and AutoRecord

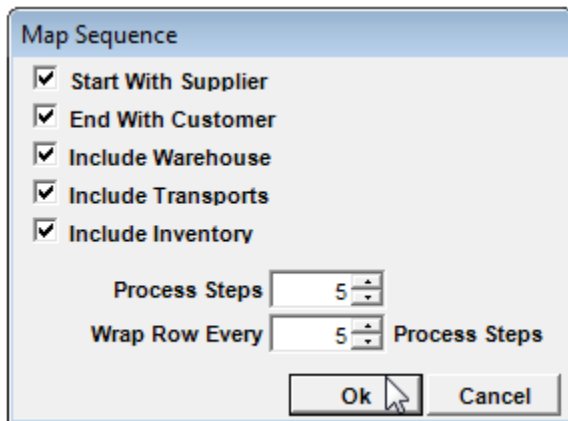
### Using AutoDraw

- B:** Right click your mouse on the Map to expose the right-click menu (see image to the right). You will notice that the right-click menu has several options for shapes you can automatically draw on the map.

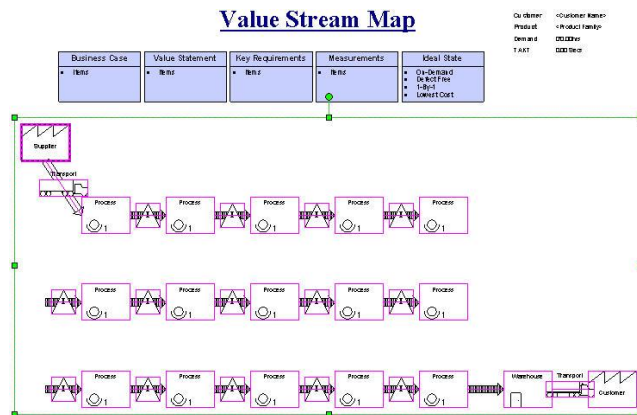


This functionality allows for quick drawing of first order representations of Value Stream Maps, and enhances the ability to follow along during VSMA events.

- C:** Choose the “Map Sequence” option on the right-click menu. You will see the Map Sequence dialog appear. The Map Sequence Dialog allows you to quickly and easily draw an entire Value Stream Map.

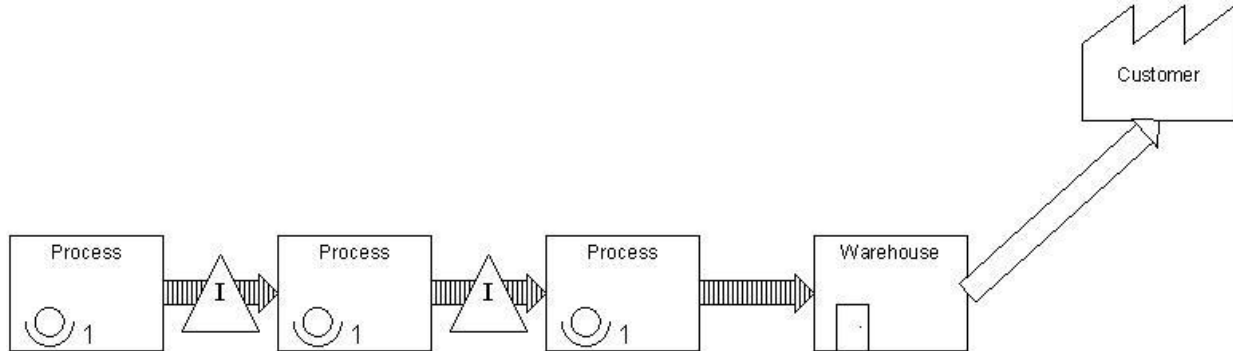


- D:** Enter 15 for Process Steps, leave all other defaults and click “OK”. There will be a slight delay while the value stream map is drawn for you. You will notice that it starts with a supplier, includes push arrows and inventories and the 15 processes we designated. It ends with a warehouse and customer at the end of the Value Stream Map.



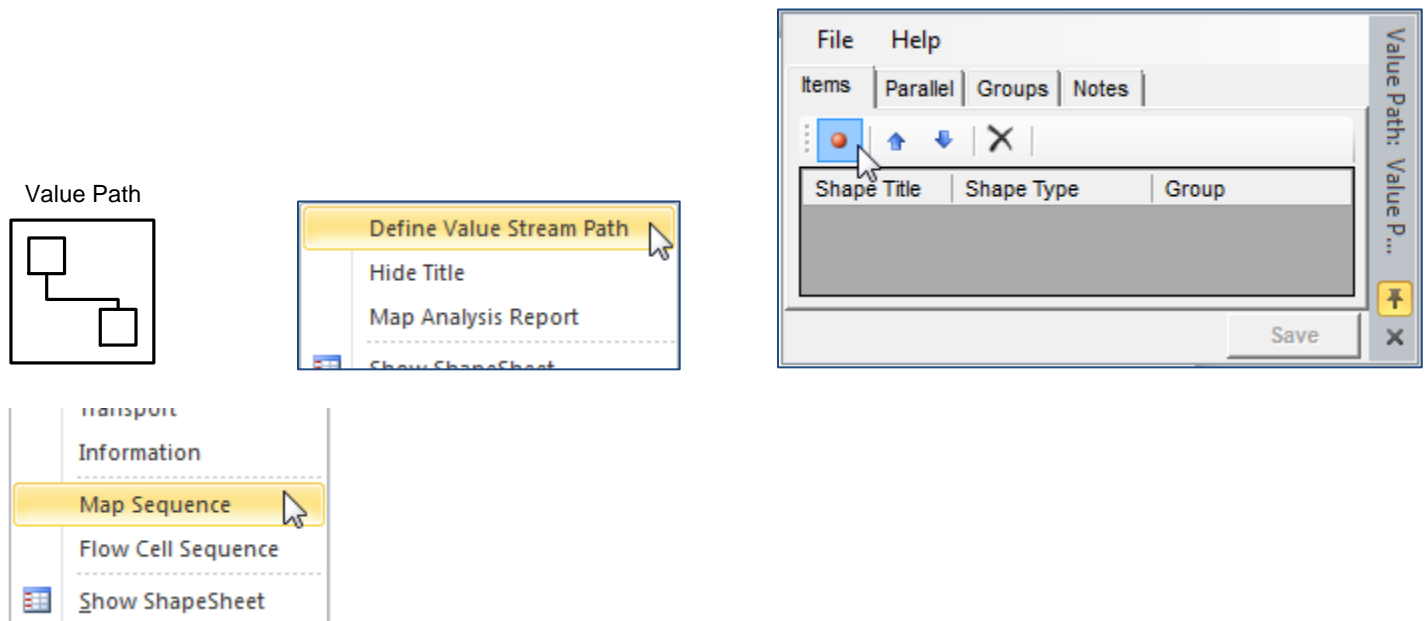
## Section IX: AutoDraw and AutoRecord

- E. Insert a new page into the existing Visio file or open a new LeanView diagram. Right-click on the map and choose “Process”. Right-click on the Process and choose “Push to Process”. Repeat that step for the next process. Right click on the last Process and choose “Push to Warehouse”. Finally, right click on the warehouse and choose “Finished Goods to Customer Sequence”. Your Map should look like this:



### Using AutoDraw with AutoRecord

- A: Begin this section with an empty LeanView diagram.
- B: Right-click on the Value Path shape and choose “Define Value Stream Path”.
- C: Click the Red Record button on the Items tab.
- D: Keep the Value Path dialog open, right-click on the map, and choose the “Map Sequence” option.

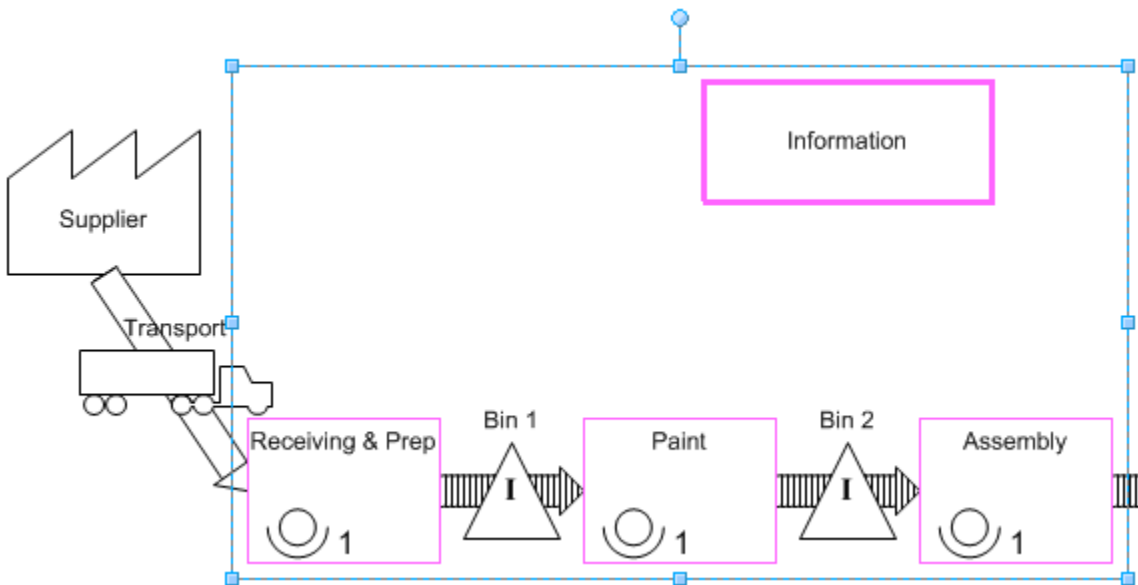




Section IX: AutoDraw and AutoRecord

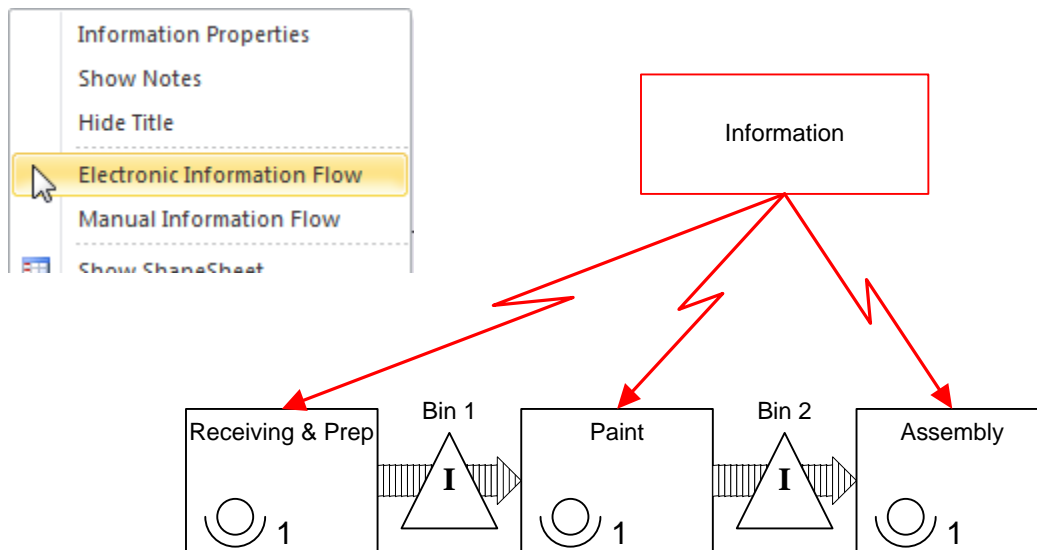
B: Select the Information Shape.

C: Hold down the “Ctrl” key and use your mouse to select all three process shapes.



D: Release your mouse, then right-click on the information shape to expose the right click menu.

E: Choose the “Electronic Information Flow” option.

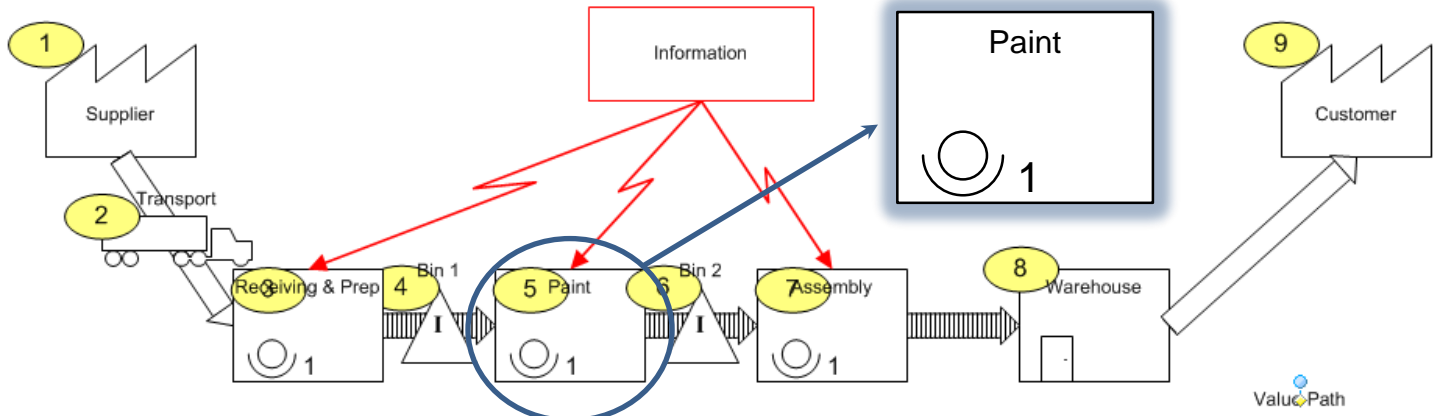


## Section X: High Level & Detailed Maps & Roll-up Analysis

When we evaluate a Value Stream at the high level, it is sometimes necessary to gain greater understanding by evaluating sub processes or sub assembly lines. In LeanView, you have the ability to create sub maps either in the same document, or you can maintain them in separate files. LeanView allows you to link these sub-maps to their higher level processes, so that when you run the analysis, data is “rolled up” to the higher level ‘master’ value stream map. This roll-up capability gives LeanView extreme flexibility and power.

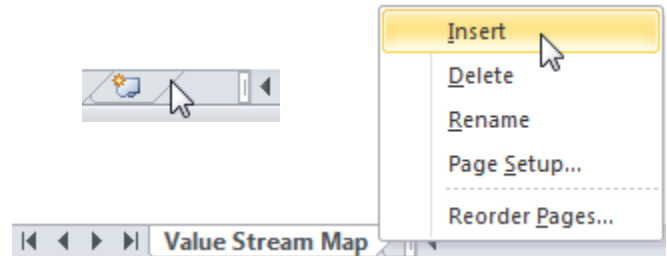
### Creating and Linking Sub-maps in the same document:

Continuing with the Performance Series CS VSM, we are going to break out the “Paint” step into a sub processes.

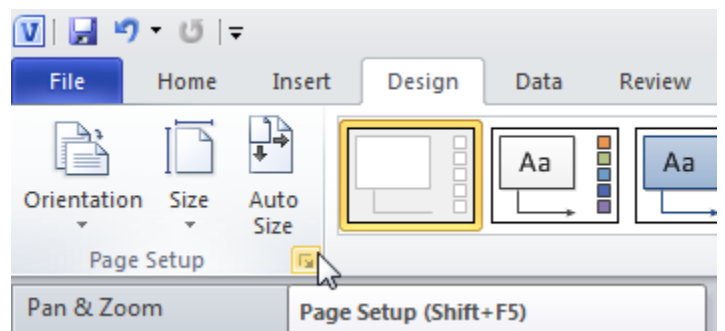
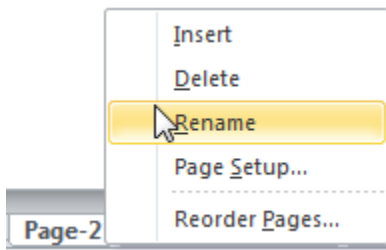


Though not required, it’s advisable to create your sub-maps on separate pages or to maintain them in separate files to facilitate organization. For this exercise, we will use a pre-crafted sub-value stream map in a separate file. If you choose to create your own sub-value stream map in a new page, use the instructions below to add a new page to an existing Visio file.

To add a new page to a Visio file, right-click on the page tab and choose ‘Insert’ from the context menu, use the ‘Insert Page’ icon, or navigate to the Visio Insert tab and select ‘Blank Page’.

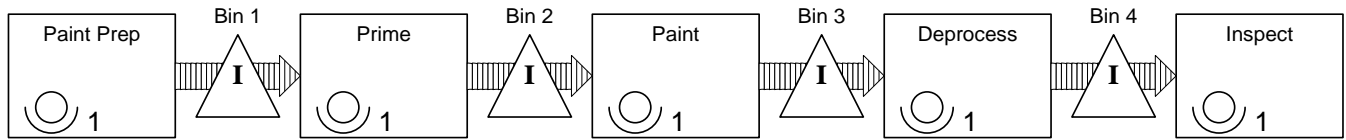


To rename a new page, right-click on the page tab and choose ‘Rename’ from the context menu or access the Page Setup dialog through the Visio Design tab and go to the Page Properties tab.



Section X: High Level & Detailed Maps & Roll-up Analysis

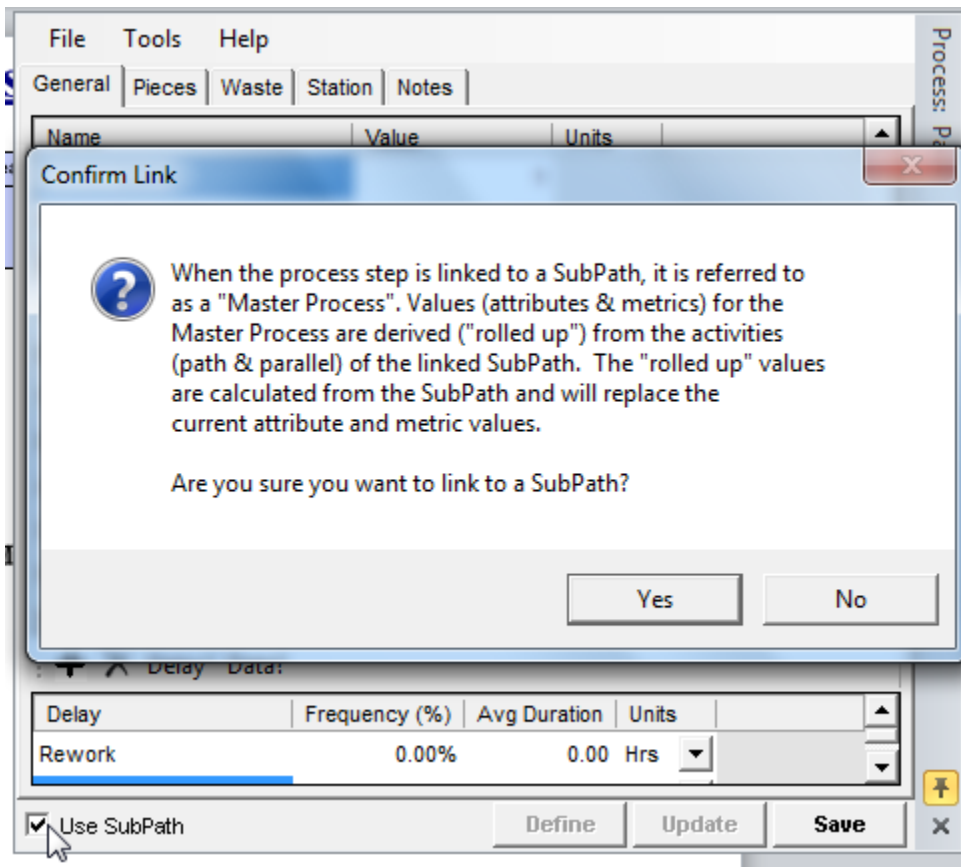
A: Open the *Paint Sub VSM.vsd* that has been provided.



Notice, these shapes have been pre-populated with time, yield, %VA, WIP and Inventory data. The process data is shown below and each of the inventory bins contain 1 Frame.

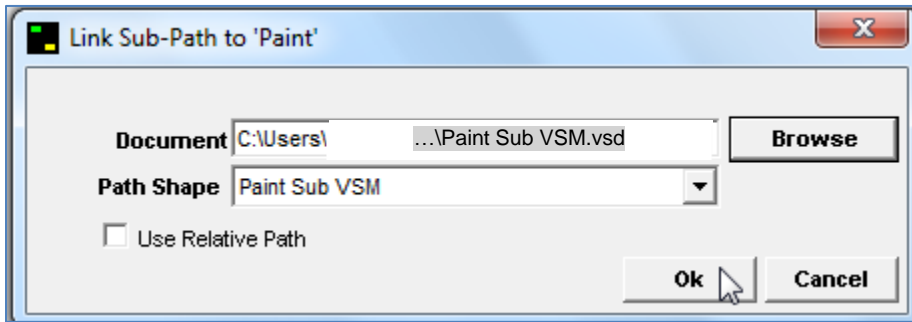
	Paint Prep	Prime	Paint	Deprocess	Inspect
People Total	1	1	1	1	1
Stations	1	6	4	1	1
FT	7 Mins	45 Mins	25 Mins	5 Mins	2 Mins
MT	7 Mins	8 Mins	8 Mins	5 Mins	2 Mins
AT	0	0	0	0	0
% Yield	100%	100%	98%	100%	95%
% VA	0%	0%	100%	0%	0%
Pieces	1 Frame	1 Frame	1 Frame	1 Frame	1 Frame

B: Now go back to the high level map and open the “Paint” process properties dialog. Check the “Use SubPath” box. You will receive a prompt to confirm the intent to link to a sub path. Click “Yes”.



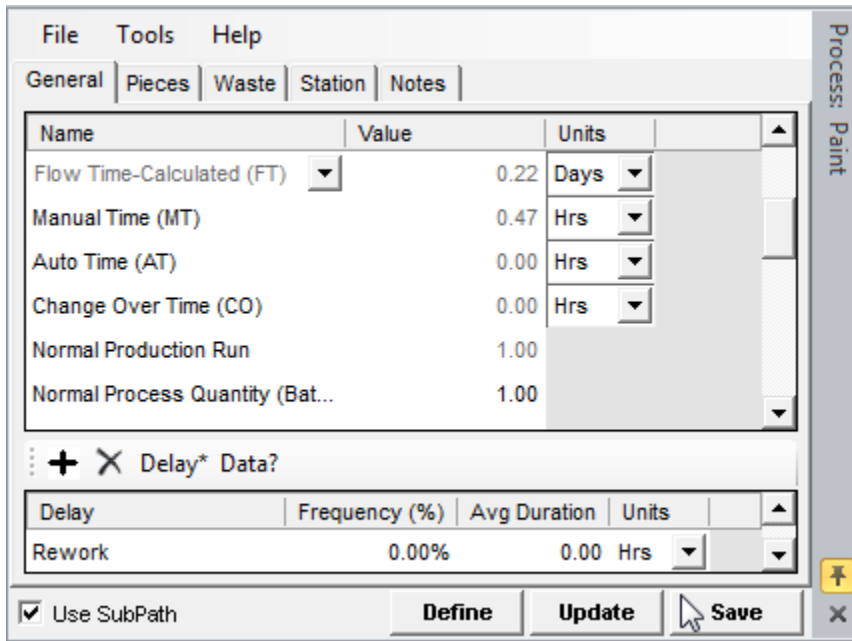
Section X: High Level & Detailed Maps & Roll-up Analysis

C. Browse to the location of the 'Paint Sub VSM.vsd' and choose the Path Shape 'Paint Sub VSM'.

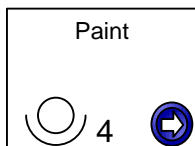


Note, if the sub-value stream path is in the same Visio file as the master path, the 'Use Relative Path' option can be used.

D: After clicking "OK", you will be back at the Process properties dialog. You will need to click "Save" to complete the linking process.



You will now notice a blue circle with an arrow in the lower right corner of the Paint process indicating that you have successfully linked to a sub-map.

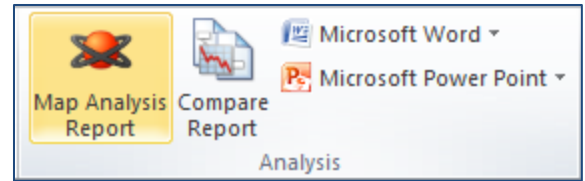


E: Save your Value Stream Map!!!

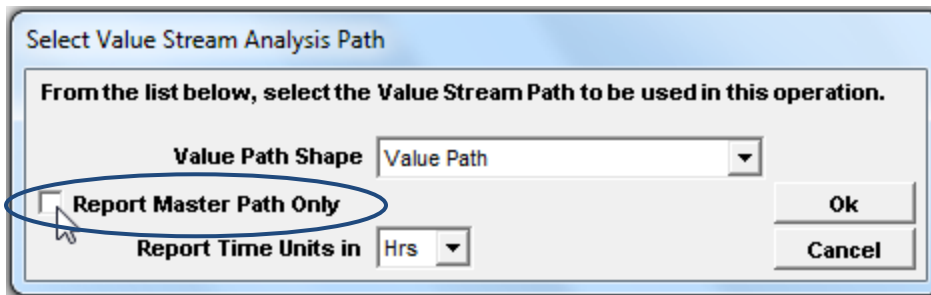
## Section X: High Level & Detailed Maps & Roll-up Analysis

### Roll-up Analysis

A: Go to the Analysis section of the LeanView ribbon and choose Map Analysis Report. If working in versions 4 or 5 of LeanView, go to the LeanView menu, choose Reports, and select the Map Analysis Report.



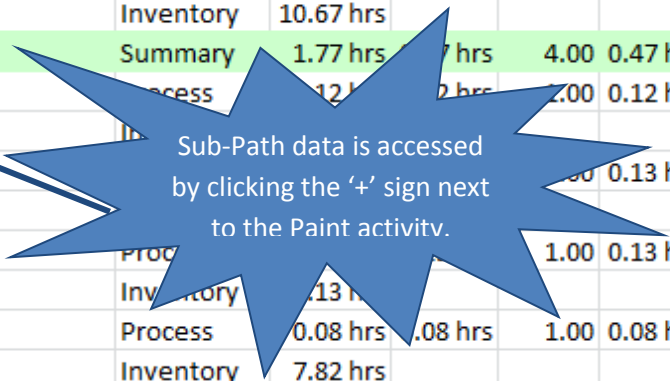
B: Choose the master Value Path Shape dropdown box, and uncheck "Report Master Path Only". Note that the "Report Master Path Only" box is only enabled if you've chosen a Value Path that has sub-paths attached to it. It is disabled otherwise.



C: Click "OK" to begin the Roll-up Analysis.

D: In the Map Analysis Report worksheets, sub-path data can be exposed or hidden by clicking the '+/-' sign next to the summary process shape name.

1	2	A	B	C	D	E	F	G	H	I	J
1		<b>Value Stream: Value Path</b>									
				Flow Time (FT)	Manual Time (MT)	People (FTE)	Total Work	Auto Time (AT)	Transfer Time	% Yield (YLD)	Val Adc Tir
2		<b>Activity Name</b>	<b>Type</b>								
3		Supplier	Supplier	-							
4		Transport	Transport	-					-	100%	
5		Receiving & Prep	Process	0.30 hrs	0.15 hrs	1.00	0.15 hrs	-		95.0%	
6		Bin 1	Inventory	10.67 hrs							
7		Paint	Summary	1.77 hrs	0.13 hrs	4.00	0.47 hrs	-		100%	0.13
8		Paint Prep	Process	0.12 hrs	0.02 hrs	2.00	0.12 hrs	-		100%	
9		Bin 1	Inventory	7.82 hrs							
10		Prime	Process	0.08 hrs	0.08 hrs	1.00	0.13 hrs	-		100%	
11		Bin 2	Inventory	7.82 hrs							
12		Paint	Process	0.13 hrs	0.02 hrs	1.00	0.13 hrs	-		100%	0.13
13		Bin 3	Inventory	7.82 hrs							
14		Deprocess	Process	0.08 hrs	0.08 hrs	1.00	0.08 hrs	-		100%	
15		Bin 2	Inventory	7.82 hrs							



## Section XI: Advanced Analytics

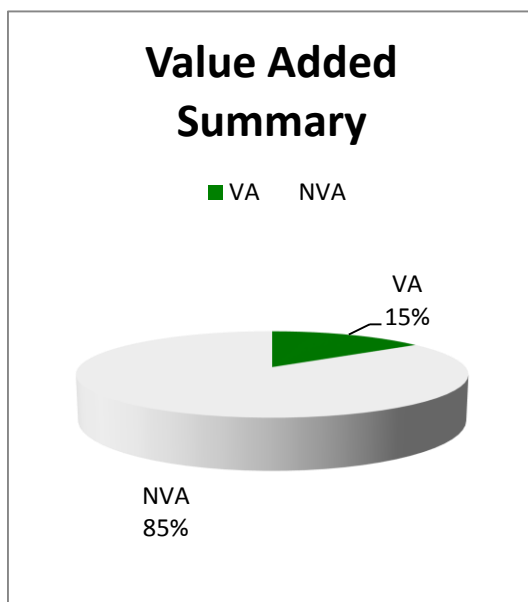
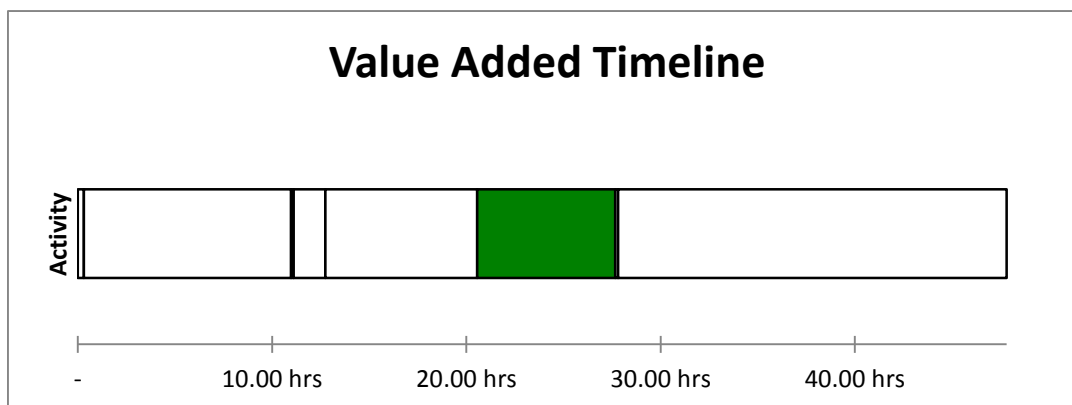
In evaluating a Value Stream for potential improvements, it is important to understand the analytics that LeanView provides, in order to make more informed decisions. To obtain information about value stream performance and potential for improvement, the LeanView Map Analysis Report (MAR) should be used.

### Map Analysis Report (MAR)

The MAR workbook is composed of ten worksheets: Value Added Timeline, Value Stream, Takt Analysis, Sorted Metrics, Inventory, Delays, Process Waste, VSM Data, User Data and Path Notes.

Note that the Performance Series CS VSM example does not incorporate user properties, waste data, delays or path notes. Therefore, these worksheets would be omitted from the MAR received in the previous section. They are described in this section for informational purposes.

- Value Added Timeline – this worksheet shows the total flow time and highlights when the value added time occurs using green on the horizontal bar. Additionally there is a pie graph showing the percent of value added versus non-value added time. The summary table shows each process/ inventory/ transfer and its individual VA/NVA flow time.



Activity Name	VA	NVA
Supplier	-	-
Transport	-	-
Receiving & Prep	-	0.30 hrs
Bin 1	-	10.67 hrs
Paint	0.13 hrs	1.63 hrs
Bin 2	-	7.82 hrs
Assembly	7.11 hrs	0.14 hrs
Warehouse	-	20.00 hrs
Customer	-	-
<b>SubTotal</b>	<b>7.24 hrs</b>	<b>40.57 hrs</b>
<b>Total</b>		<b>47.81 hrs</b>

Section XI: Advanced Analytics

Map Analysis Report (MAR)

- Value Stream – the value stream worksheet provides the overall performance for the value path as well as the performance metrics for shapes that make up the path.

Value Stream: Value Path												
Activity Name	Type	Flow Time (FT)	Manual Time (MT)	People (FTE)	Total Work	Auto Time (AT)	Transfer Time	% Yield (YLD)	Value Added Time	NVA Time	Value Stream Yield	Cumulative Flow Time
Supplier	Inventory	-	-	-	-	-	-	-	-	-	100%	-
Transfer	Inventory	-	-	-	-	-	-	-	-	-	100%	-
Receiving	Process	0.30 hrs	0.15 hrs	1.00	0.15 hrs	-	-	-	-	0.30 hrs	-	-
Bin 1	Inventory	10.67 hrs	-	-	-	-	-	-	-	10.67 hrs	-	-
Paint	Process	1.77 hrs	0.47 hrs	4.00	0.47 hrs	-	-	-	1.77 hrs	1.63 hrs	-	-
Paint	Process	0.12 hrs	0.12 hrs	1.00	0.12 hrs	-	-	-	0.12 hrs	0.12 hrs	-	-
Bin 2	Inventory	-	-	-	-	-	-	-	-	0.13 hrs	-	-
Paint	Process	-	-	-	-	-	-	100%	0.13 hrs	0.28 hrs	-	-
Bin 3	Inventory	-	-	-	-	-	-	-	-	0.13 hrs	-	-
Deprocess	Process	-	-	-	0.08 hrs	-	-	-	-	0.08 hrs	-	-
Bin 2	Inventory	-	-	-	-	-	-	-	-	7.82 hrs	-	-
Assembly	Process	7.25 hrs	7.00 hrs	1.00	7.00 hrs	0.11 hrs	-	97.0%	7.11 hrs	0.14 hrs	-	-
Warehouse	Warehouse	20.00 hrs	-	-	-	-	-	-	-	20.00 hrs	92.2%	47.81 hrs

The Flow Time shows the total time it takes an item to get through each step from start to finish.

Total Work is determined by multiplying the Manual Time and People (FTE).

For a Process shape, Value Added Time is processing time (MT + AT) multiplied by %VA.

NVA Time = Flow Time – VA Time

Cumulative Flow Time shows the total time it takes an item to traverse from the path start through any given point on the path.

- Takt Analysis – this sheet is used to compare process flow times to takt time

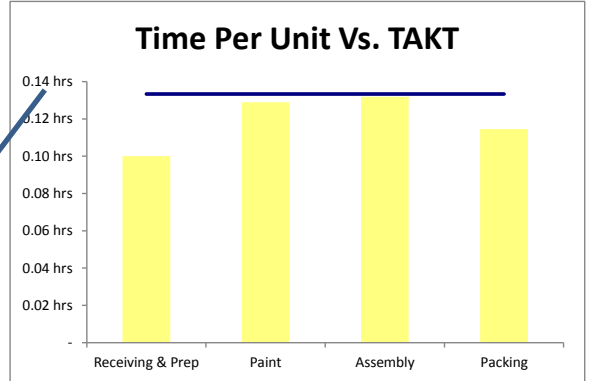
TAKT Analysis: Value Path					
Step	Flow Time	Takt Time	Takt Ratio	Concurrent Units	Time Per Unit
Receiving & Prep	0.30 hrs	0.13 hrs	2.25	1.00	0.30 hrs
Paint	-	-	13.25	1.00	1.77 hrs
As	-	-	54.38	-	-
To	-	-	23.29	-	-

Takt Ratio = Flow Time / Takt Time

Concurrent Units are determined by multiplying the Normal Production Quantity and Stations.

Time Per Unit = Flow Time / Concurrent Units

If the Time Per Unit is greater than the Takt Time, this indicates the process is incapable of meeting the pace of demand. Either the takt time must be increased (less demand and/or more available work time), the flow time must be decreased (reduce processing time and/or eliminate delays), or the concurrent units must be increased (add stations and/or increase the normal production quantity).



Section XI: Advanced Analytics

Map Analysis Report (MAR)

- Sorted Metrics – this sheet may be used to establish a priority sequence for process improvements; activities are listed in order of contribution to each of six performance metrics: NVA Time, Flow Time, Manual Time, Auto Time, Change Over Time, and Yield.

Process Sorted Metrics: Value Pa		NVA Time	Flow Time (FT)	Manual Time (MT)	Auto Time (AT)	Change Over Time (CO)	% Yield (YLD)
Process	NVA Time	Process	Process	Process	Process	Process	Process
Prime	0.75 hrs	Assembly	7.25 hrs	Assembly	7.00 hrs	Assembly	0.11 hrs
Receiving & Prep	0.30 hrs	Prime	0.75 hrs	Sprocket & Pedal Assembly	0.17 hrs	Receiving & Prep	-
Paint	0.28 hrs	Paint	0.42 hrs	Receiving & Prep	0.15 hrs	Paint Prep	-
Assembly	0.14 hrs	Receiving & Prep	0.30 hrs	Prime	0.13 hrs	Prime	-
Paint Prep	0.12 hrs	Sprocket & Pedal Assembly	0.17 hrs	Paint	0.13 hrs	Paint	-
Deprocess	0.08 hrs	Paint Prep	0.12 hrs	Paint Prep	0.12 hrs	Deprocess	-
Sprocket & Pedal Assembly	-	Deprocess	0.08 hrs	Deprocess	0.08 hrs	Sprocket & Pedal Assembly	-

- Inventory – this sheet is used to assess the total amount of inventory tied up in the value stream and the opportunity to reduce this investment. The total quantity in inventory is summed for each item type and the associated cost is reported. Note the unit cost and consumption rates for inventory items are defined in the value stream map properties. Unit cost and consumption rates from sub-paths may differ from the high-level summary (parent) value stream; consumption rates and unit costs within sub-paths are adjusted for any differences in the value stream map properties. The inventory turns in the customer demand period are then calculated based on these consumption rates and inventory quantities.

Value = Inventory Quantity \* Average Unit Cost

Item	Unit Measure	Total Inventory Quantity	Average Unit Cost	Value	Consumption in Period	Turns in Period
500 Series	Units	150	\$224.00	\$33,600	300	2.00
Product	Items	150		\$33,600	300	2.00
Frames	Units	141	\$38.00	\$5,358	300	2.13
Parts Kit	Units	101	\$44.99	\$4,544	300	2.97
Tires	Units	64	\$14.50	\$928	600	9.38
Material/WIP	Items	306		\$10,830	1,200	4.82
<b>Total</b>	<b>Items</b>	<b>456</b>		<b>\$44,430</b>	<b>1,500</b>	<b>3.41</b>

Turns in Period = Consumption in Period / Total Inventory Quantity. This is a typical measure of inventory performance. If inventory on hand is reduced, inventory turns will increase.

Inventory Quantities come from inventory shapes recorded into the value stream path.

Average Unit Cost and Consumption in Period are defined in the Value Stream Map Properties

Section XI: Advanced Analytics

Map Analysis Report (MAR)

- Delays – this worksheet is used to assess the total delay time documented in the Value Stream. Each delay type is summarized for the value stream and total delay time by activity is also shown. The contribution of each type of delay to the total delay time is reported and a comparison between the delay time and flow time is calculated.

Delays: Top Level CS VSM				
Activity Name	Activity Type	Rework	Scrap	Total
Transport	Transport			-
Receiving & Prep	Process	-	0.01 hrs	0.01 hrs
Paint	Process	-	-	-
Assembly	Process	0.15 hrs	-	0.15 hrs
Packing	Process	0.00 hrs	0.08 hrs	0.09 hrs
Transport	Transport			-
<b>Total Delay Time</b>		0.15 hrs	0.09 hrs	0.24 hrs
<b>Percent (%) of Delay</b>		62%	38%	100%
<b>Total Flow Time</b>		34.84 hrs	34.84 hrs	34.84 hrs
<b>Percent (%) of Flow Time</b>		0%	0%	1%

Delays are defined in the properties dialog of LeanView process and transport shapes.

- Process Waste – this worksheet summarizes the annual cost associated with the 7 major lean wastes

Process Waste: Top Level CS VSM				Overproduction	Waiting	Transportation	Inappropriate Processing	Unnecessary Inventory	Unnecessary/Excess Motion	Defects	Rework Defects	Scrap Defects	Other Defects	Annual Total
Activity Name	Type	On Value Path												
Receiving & Prep	Process	TRUE								X				\$20,000.00
Paint	Process	TRUE				X								\$45,000.00
Assembly	Process	TRUE								X				\$37,000.00
Packing	Process	TRUE												\$0.00
Order Confirmation	Process	FALSE												\$0.00
Invoicing / Accounting	Process	FALSE												\$0.00
<b>Total</b>				0	0	0	1	0	0	2	1	1	0	\$102,000.00

Waste is defined in the properties dialog of LeanView process shapes.

Section XI: Advanced Analytics

Map Analysis Report (MAR)

- VSM Data – this sheet lists the key data values entered for the shapes in the value path and is intended as a quick reference for input data values as an alternative to checking the data in the shapes of the VSM. Where appropriate, the values are totaled. Information is summarized for the value stream map properties, process shapes, inventory shapes, transfer shapes, transportation shapes and queue shapes.

Summary Data: Top Level CS VSM										
Demand Period	40.00 hrs									
Takt Time	8.00 mins									
<b>Work Time</b>										
Hours Per Day	8.00 hrs									
Days Per Week	5.00 days									
Days Per Year	250.00 days									
<b>General Properties</b>										
Map Type	Manufacturing									
Map State	Current									
Customer Name	We R Bikes									
Product Family	Performance Series Bicycles									
Author	Erica Wittenmyer									
Produced For	Training & Demonstration									
<b>Master Item List</b>										
Top-Level Map (Bike Manufacturing VSM.vsd)										
<b>Product</b>	<b>Base Demand</b>	<b>Units</b>	<b>Price</b>	<b>Demand Factor</b>	<b>Projected Demand</b>					
500 Series	300	Units	\$224.00	1	300					
<b>Raw Material/WIP</b>	<b>Base Demand</b>	<b>Units</b>	<b>Price</b>	<b>Demand Factor</b>	<b>Projected Demand</b>					
Frames	300	Units	\$38.00	1	300					
Parts Kit	300	Units	\$44.99	1	300					
Tires	600	Units	\$14.50	1	600					
<b>Process Step</b>	<b>Flow Time (FT)</b>	<b>Manual Time (MT)</b>	<b>Auto Time (AT)</b>	<b>People (FTE)</b>	<b>Normal Process Quantity</b>	<b>Change Over Time (CO)</b>	<b>% Yield (YLD)</b>	<b>Percent Value Added</b>	<b>Stations</b>	<b>Normal Production Run</b>
Receiving & Prep	18.00 mins	9.00 mins	4.00 mins	3	1	-	95.0%	0.00%	3	1
Paint	1.93 hrs	0.50 hrs	-	5	1	0.25 hrs	95.0%	26.67%	6	1
Assembly	435.00 mins	7.00 hrs	6.50 mins	55	1	-	97.0%	20.00%		
Packing	13.75 mins	13.00 mins	45.00 secs	2	1	-	98.0%	10.00%		
Order Confirmation	30.00 mins	3.00 mins	-	1	1	-	100%	100.00%		
Invoicing / Accounting	30.00 mins	6.00 mins	-	1	1	-	100%	100.00%		
Process Total	10.71 hrs	8.02 hrs	0.19 hrs	67.00		0.25 hrs				
<b>Inventory</b>	<b>Qty</b>	<b>Units</b>	<b>Supply</b>							
<b>Bin 1</b>										
Frames	80	Units	1.3333 days							
<b>Bin 2</b>										
Parts Kit	100	Units	13.3333 hrs							
Frames	45	Units	6 hrs							
Tires	62	Units	4.1333 hrs							
<b>Bin 3</b>										
500 Series	40	Units	5.3333 hrs							
<b>Warehouse</b>	<b>Qty</b>	<b>Units</b>	<b>Supply</b>							
500 Series	10	Units	1.3333 hrs							
Total:500 Series	50	Units	1 Days							
Total:Frames	125	Units	2 Days							
Total:Parts Kit	100	Units	2 Days							
Total:Tires	62	Units	1 Days							
<b>Transfers</b>	<b>Transfer Time</b>									
Push	0.2 hrs									
Transfers Total	0.20 Hrs									
<b>Transportation</b>	<b>Transport Time</b>	<b>Shipping Interval</b>								
Transport	4 hrs	40 hrs								
Transport	-	-								
Transportation Total/AvgWt	4.00 Hrs	20.00 Hrs								

Value Stream Map Properties Summary

Finished Goods and Material/WIP Summary

Process Properties Summary

Inventory and Warehouse Properties Summary

Transport and Transfer Properties Summary

## Section XI: Advanced Analytics

### Map Analysis Report (MAR)

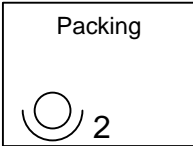
- User Data – if custom user properties have been defined in the Visio shape data window for LeanView shapes recorded into the value path, these properties will be reported in the user data worksheet of the MAR. Both textual and numeric shape data can be defined and incorporated in the MAR. Numeric properties are summed and averaged and the minimum and maximum values are identified.

User Defined Data: Top Level CS VSM	
Activity Name	Distance Traveled
Supplier	
Transport	
Receiving & Prep	75
Bin 1	
Paint	125
Bin 2	
Assembly	35
Bin 3	
Packing	65
Push	
Warehouse	
Transport	
Customer	
Order Confirmation	
Invoicing / Accounting	
<b>Total</b>	300
<b>Average</b>	75
<b>Minimum</b>	35
<b>Maximum</b>	125

<b>Total</b>	300
<b>Average</b>	75
<b>Minimum</b>	35
<b>Maximum</b>	125

Packing  


Custom properties captured in the Visio shape data window are reported in the User Data worksheet of the MAR.

Shape Data - Process.498	
Distance Traveled	65

- Path Notes – all data captured in the notes tab of the properties dialog for LeanView shapes recorded into the value path will be reported in the path notes worksheet of the MAR.

## Section XII: JDIs / Projects / Events

LeanView gives users the ability to identify opportunities for improvement, often called “Action Items” directly on the Value Stream Maps in the form of JDIs (Just Do Its), Projects or Events. The procedures for creating each one of these are identical; the shapes, however, are different colors to differentiate between them on the map.



All three are shaped as bursts, and are available on the General shape stencil in LeanView. Just Do Its are labeled simply “Do It” and are light blue in color. Project shapes are dark green in color and Events are Yellow.

Typically, a ‘Do It’ or ‘JDI’ (Just Do It) shape denotes obvious process improvement actions that should be implemented without additional approval or decision making. An ‘Event’ is slightly more involved than a ‘Do It’ and identifies additional kaizen events or process improvement events that must be scheduled. A ‘Project’ shape is used to capture information about improvement projects and a list of the essential tasks associated with each; a Project is slightly more involved than an Event and will require resource allocation, planning and costing.

Section XII: JDIs / Projects / Events

These 'burst' shapes are preconfigured to capture a description of the proposed event or action, the reason for the action, as well as information about the owner, team members, and tasks to complete the proposed event.

Team Tab

These input fields are used to identify the project owner and team members.

Event Tab

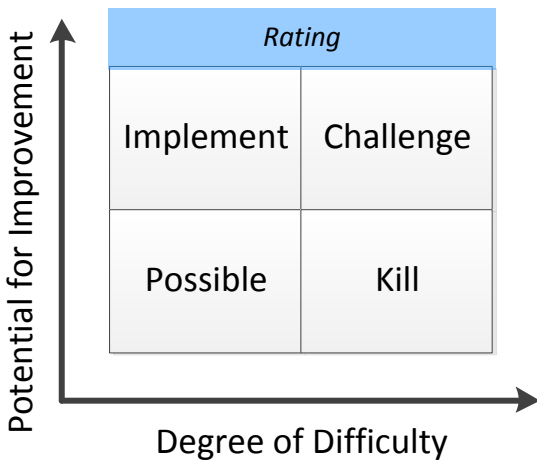
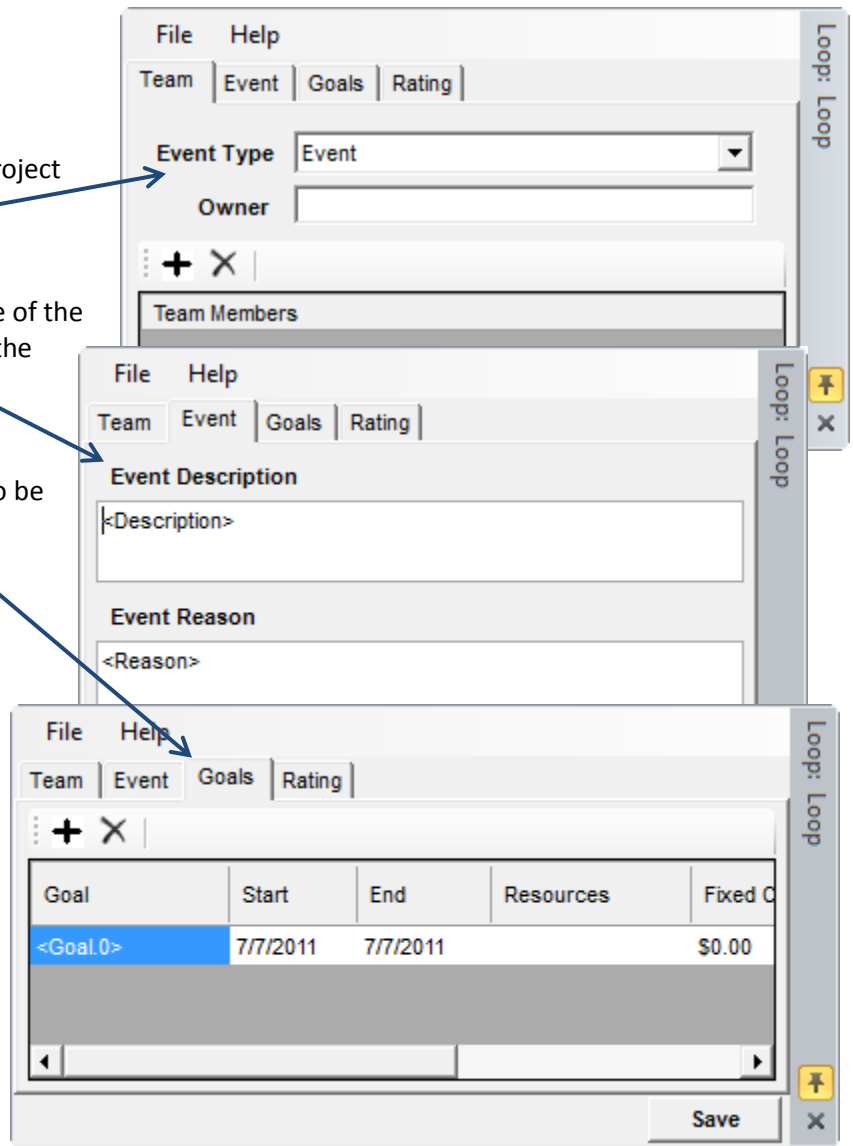
These fields are used to capture the purpose of the proposed actions and a brief description of the improvement tasks to be performed.

Goals Tab

These fields store information about tasks to be completed to improve value stream performance.

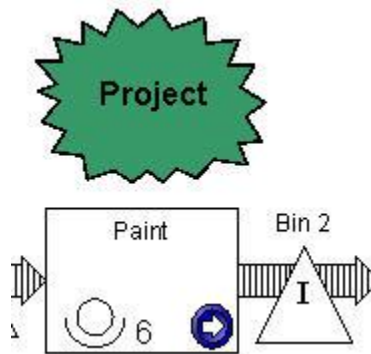
Rating Tab

This tab allows you to rate an Event/Project according to its Potential for Improvement and Degree of Difficulty.

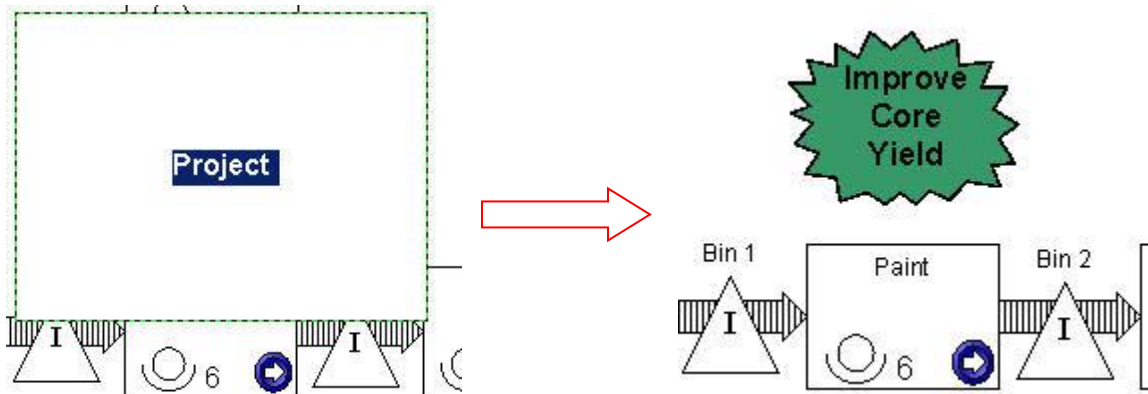


Section XII: JDIs / Projects / Events

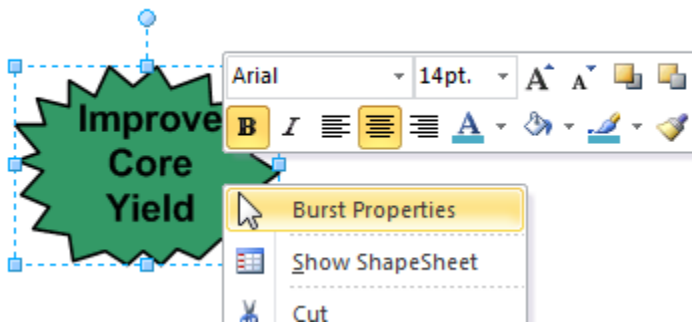
A: To create a JDI/Project or Event on your LeanView Map, simply drag one of the shapes onto your Value Stream Map, and position it where you need the improvement. Continuing to work with the Performance Series CS VSM, drag a Project shape onto the page.



B: Double-click on the Project shape and rename it "Improve Core Yield". When finished typing, click outside the shape to save the change.

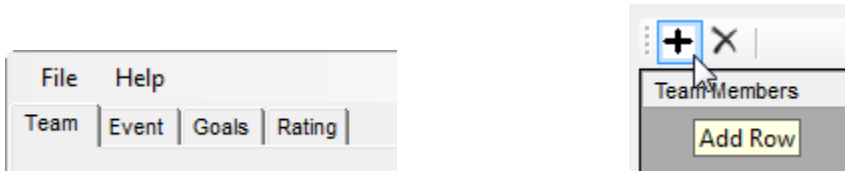


C: Once an action item is on the map, you can right-click on the shape to access its properties.

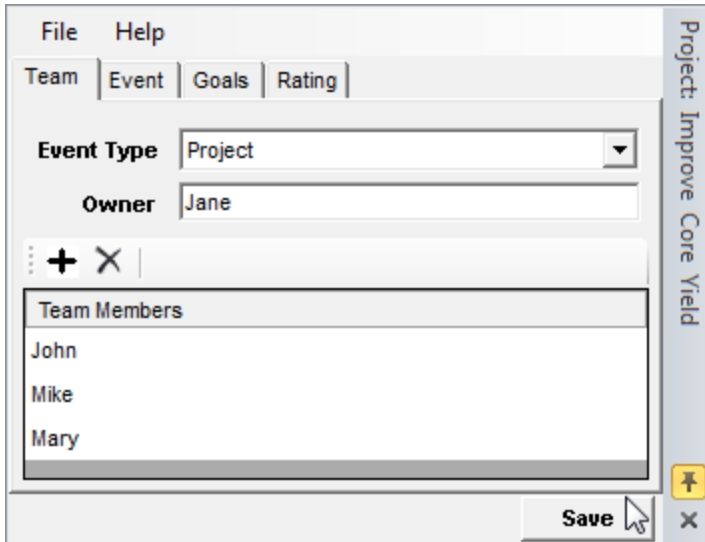


Section XII: JDIs / Projects / Events

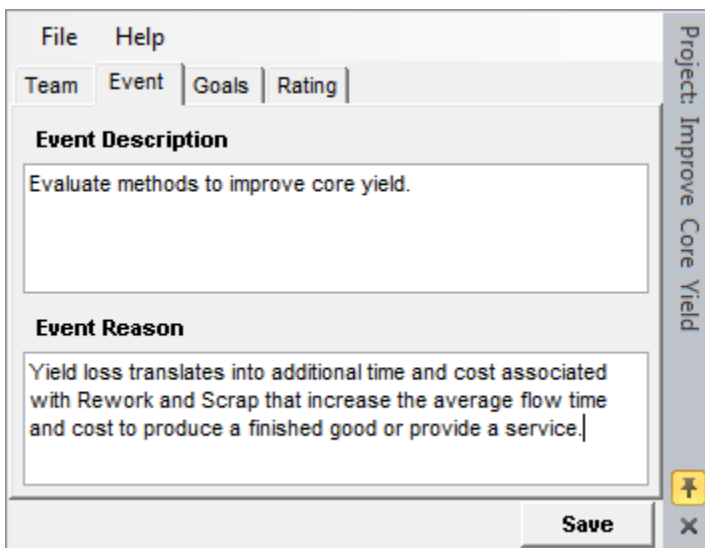
D: As previously described, the burst properties dialog has 4 tabs: Team, Event, Goals and Rating.



E: On the Team tab, identify the Project Owner as Jane and add Team Members John, Mike and Mary.



F: Enter the Event Description and Reason for Event as described below.

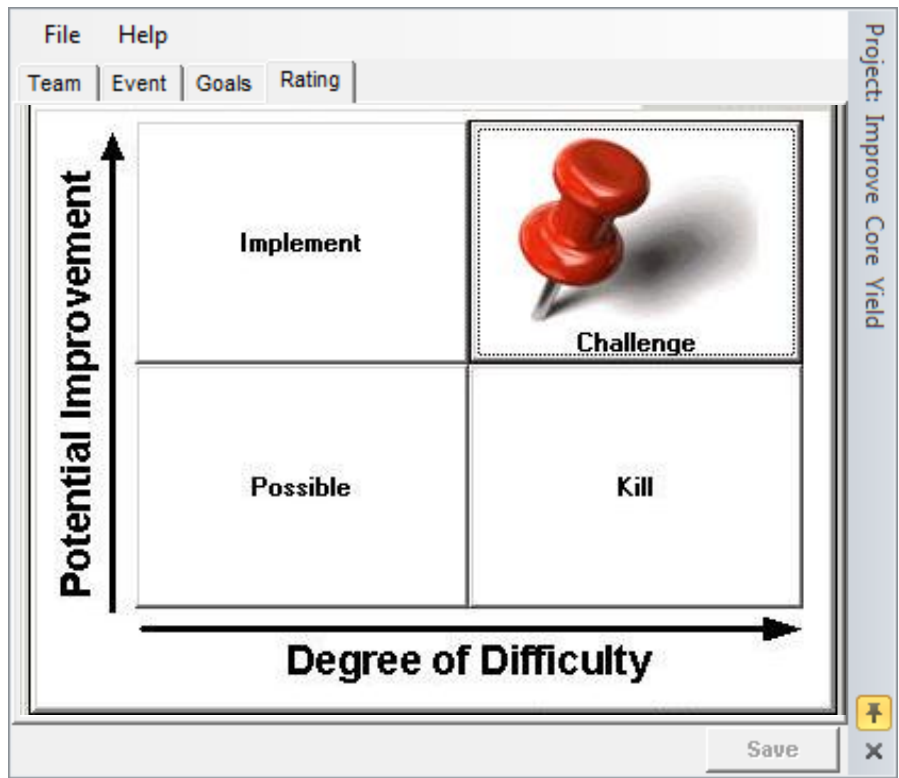


Section XII: JDIs / Projects / Events

G: Navigate to the Goals tab and enter a goal of “Evaluate Methods to Improve Core Yield”. Define a start date of the current date and an end date 15 days later, enter Resources of “Mike, John, Mary”, and add a Fixed Cost value of \$4500.” This data can be used to build project plans in either Microsoft Excel or Project, if you desire, to give you visibility into execution of action items.



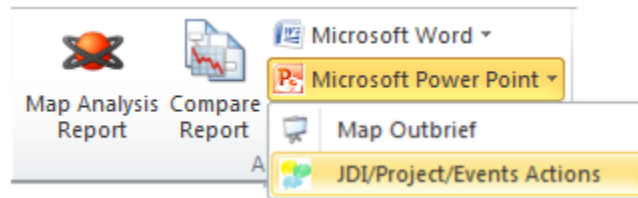
H: The final tab is the action item rating. This allows you to rate the action item with respect to its degree of difficulty and its potential for improvement. Select the “Challenge” square.



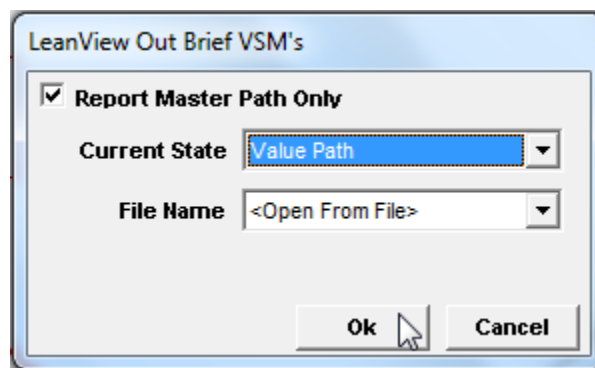
I: Now, click “Save”.

## Section XII: Out Briefing to Microsoft PowerPoint

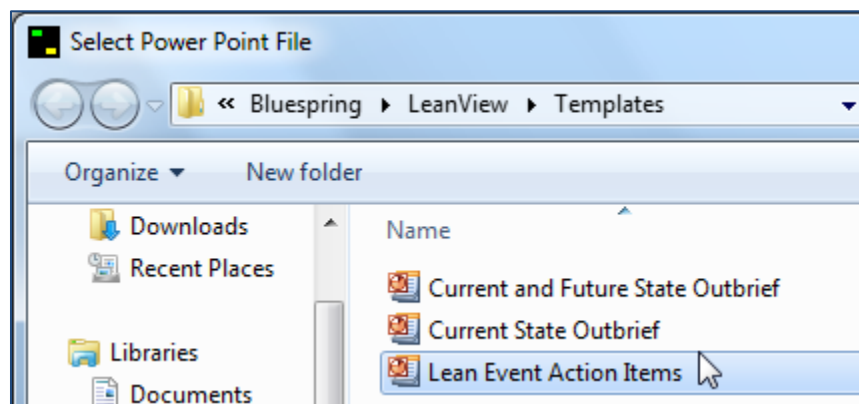
- A:** Make sure the Performance Series CS VSM Map Analysis Report is open in Excel, return to Visio, and go to the Analysis section of the LeanView ribbon and choose PowerPoint Outbrief → JDI/Project/Event Actions. (If working in LeanView versions 4 or 5, go to the LeanView menu and choose Reports → PowerPoint → JDI/Project/Event Actions.)



- B:** Select the Value Path to be analyzed and use <Open From File> for the File Name. This will allow you to select the template to be used to compose the PowerPoint slide deck.



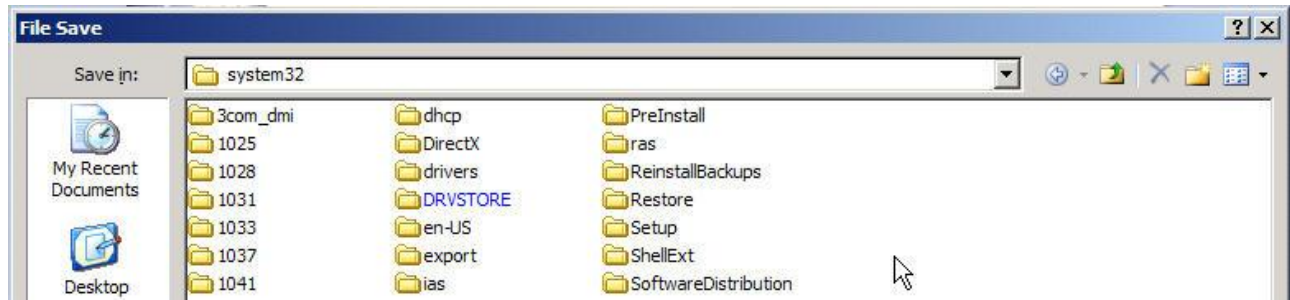
- C:** LeanView supplies several PowerPoint templates for reporting. These templates are stored inside the LeanView Templates folder with the installation. Navigate to C:\Program Files\Bluespring\LeanView\Templates and select the "Lean Event Action Items.pot" and click "Open". LeanView will then open a new Microsoft PowerPoint presentation and begin drafting the report slides.



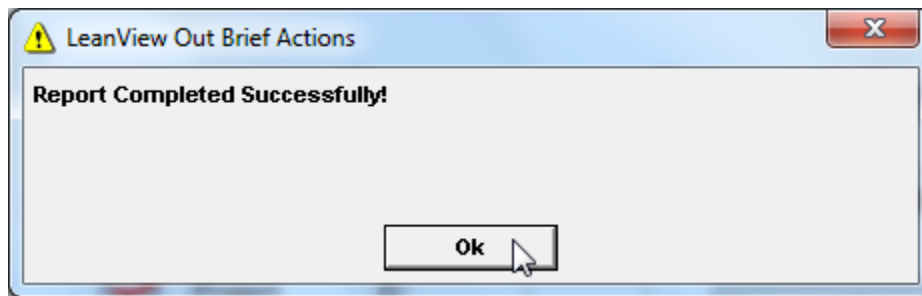
Note: If you have developed a custom report template and do not see it in the list of available templates when you browse to the storage location, change the file type to 'All Files'.

Section XII: Out Briefing to Microsoft PowerPoint

D: Before LeanView builds the report, a prompt to identify the file storage location will be presented. Once you are satisfied with the directory name and location defined to store the report, Click “Save”.



When the report is finished you will get the following dialog:



A slide like the one shown will be created for each action item or improvement opportunity shape on the LeanView diagram.

## Improve Core Yield

<input type="checkbox"/> JDI <input checked="" type="checkbox"/> Project <input type="checkbox"/> Event		<p><b>Estimated Event Dates:</b> 7/28/2011                      8/12/2011</p> <p><b>Process Owner:</b> Jane</p> <p><b>Potential Team Leaders &amp; Members:</b> •John •Mike •Mary</p> <p><b>Implementation Cost:</b> \$4,500.00</p> <p><b>Resultant Cost Savings/Avoidance:</b> TBD</p>
<p><b>Event Description:</b> Evaluate methods to improve core yield.</p>		
<p><b>Reason for Event</b> Yield loss translates into additional time and cost associated with Rework and Scrap that increase the average flow time and cost to produce a finished good or provide a service.</p>		

NOTE: LeanView provides a number of additional reports to Microsoft Excel, PowerPoint, Project and Word not discussed in this exercise. For more information, review the Users’ Guide in the LeanView Help menu.