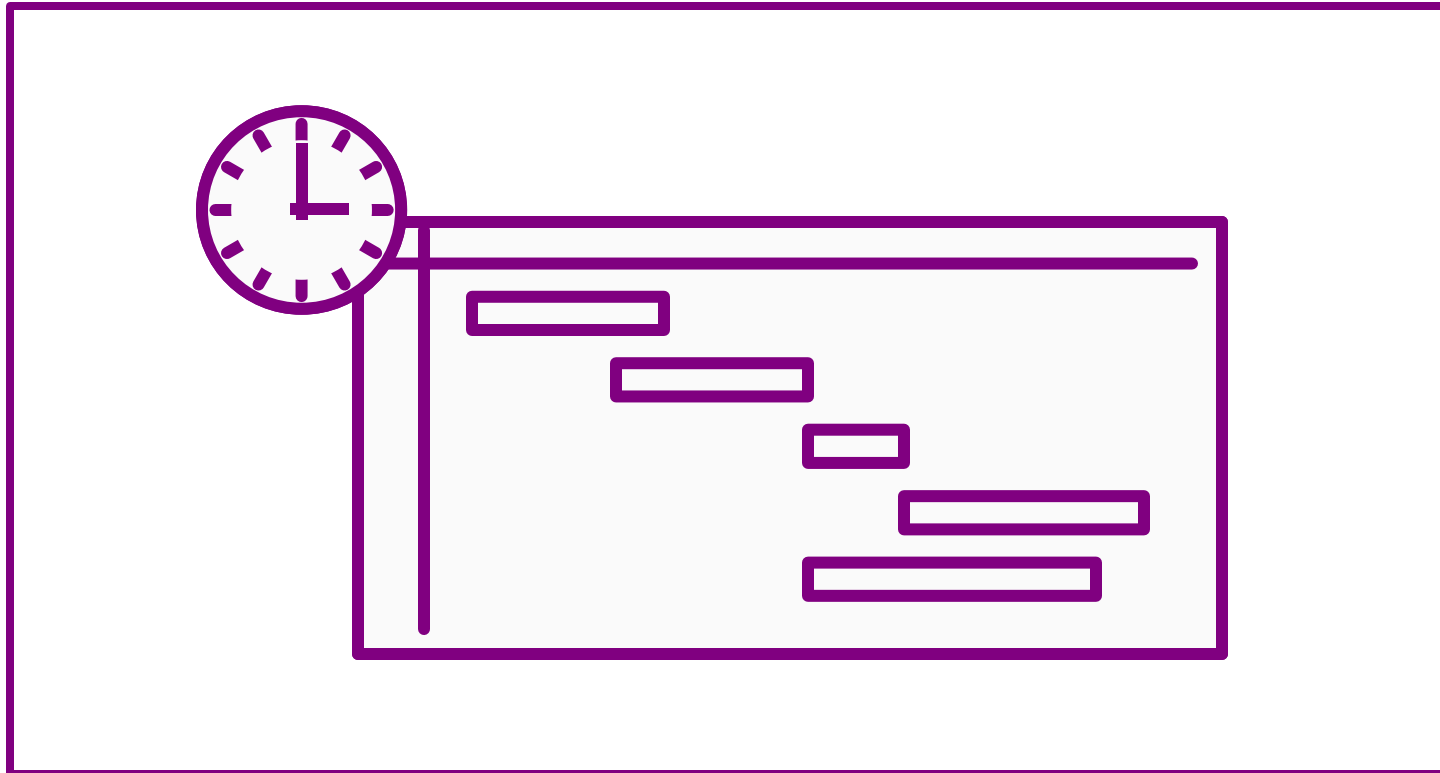


# Quick Project

Learn to plan, communicate, and manage projects in eVSM



## How to Use this File

This file contains the reading materials and the exercise pages from the course (title on previous page). While the course can only be taken on a computer, this booklet can be useful for note taking and later for refresher training.

This booklet is designed for on-screen and print use. For on-screen use, we recommend Acrobat Reader with the page display set to "Single Page View".

For hardcopy use, print the file on 8.5x11 or A4, and bind along the long edge.

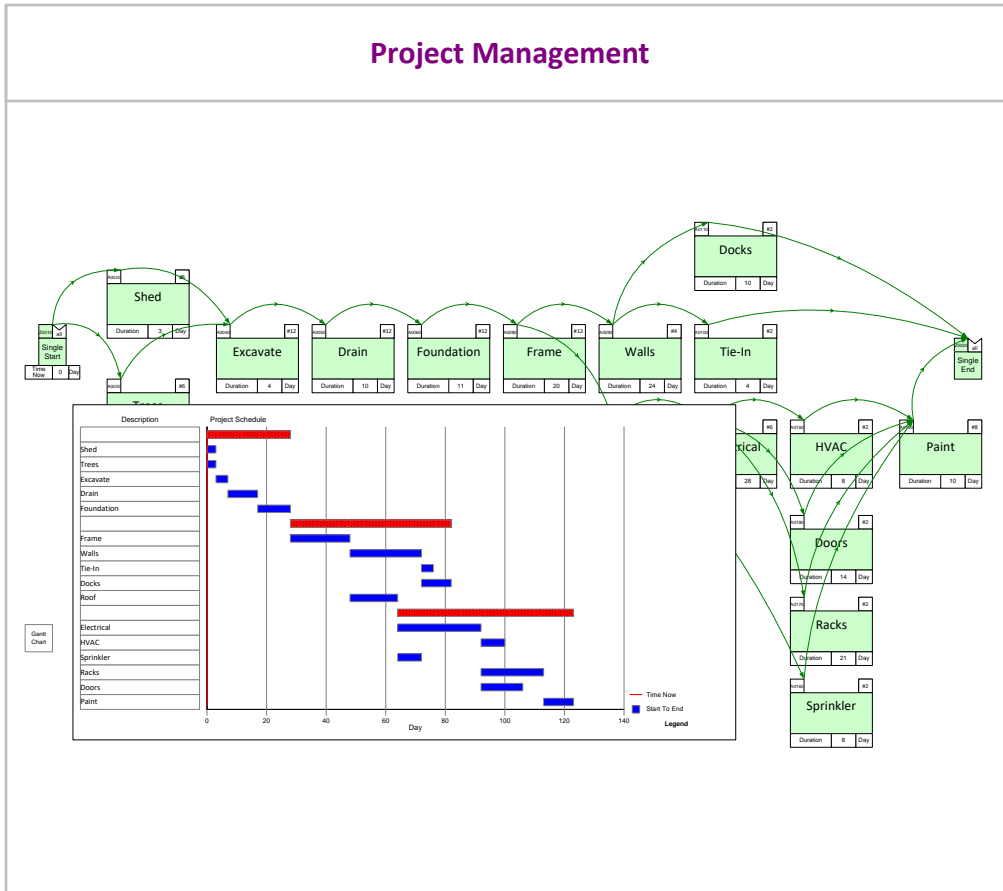
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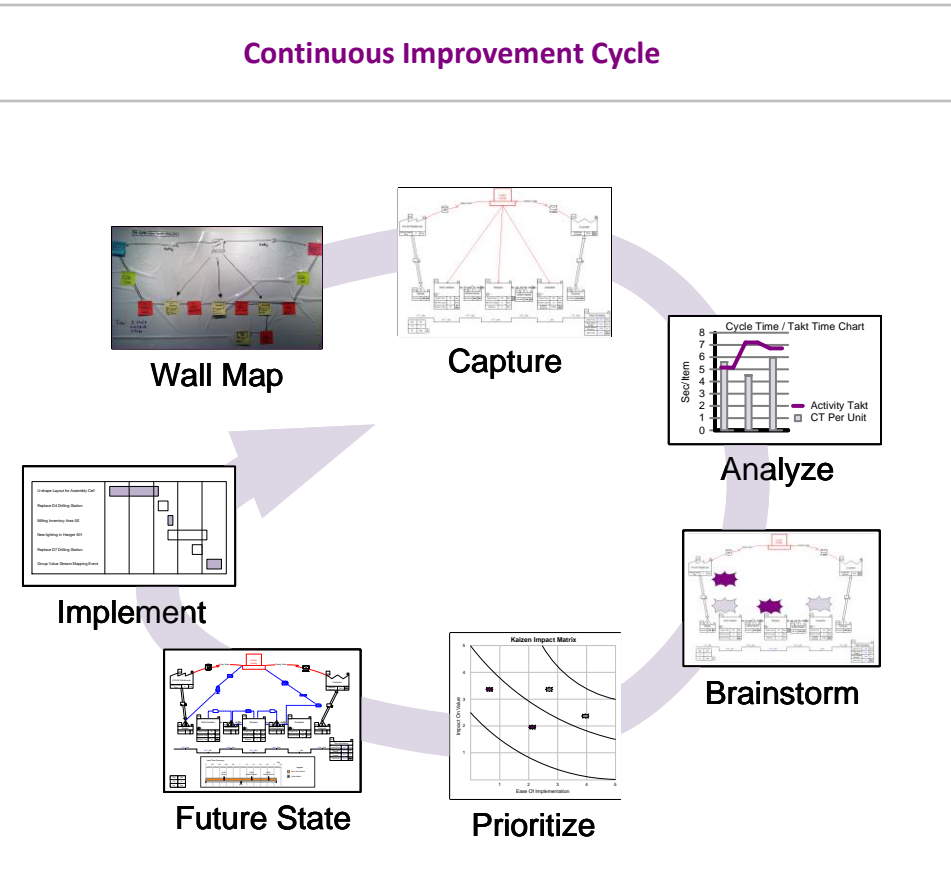
# eVSM Project

The eVSM Project stencil allows simple visual project planning with tasks, times, dependencies, and associated resources. It automatically generates a Gantt chart, resource usage charts, and allows highlighting of the critical path.

## Project Management



## Continuous Improvement Cycle



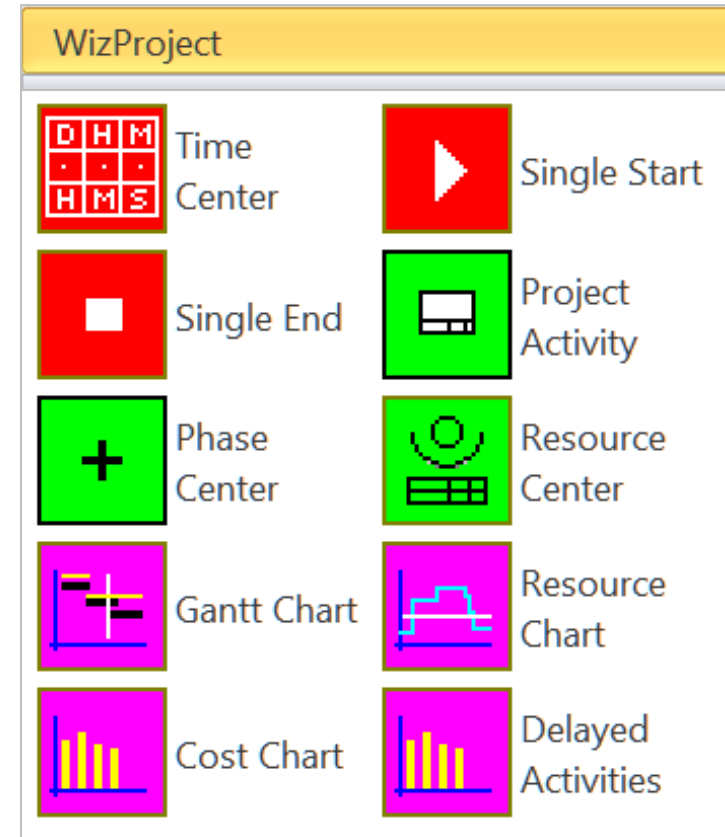
# eVSM Project

## eVSM for Project Planning and Management

The eVSM Project application is a simple visual planning and scheduling tool

It allows:

- Visual representation of the tasks, durations, and dependencies
- Generation of Project Gantt chart
- Optional identification of phases (as groups of activities)
- Optional allocation and charting of resource usage
- Optional Identification of risks and mitigating actions
- Optional allocation of costs to activities and resources
- Optional Input of activity completion percent



# Project Planning Visuals

**Project Risks and Actions**

001 Risk

002 Risk Mitigating action

Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr

**Activity Costs**

Activity	Added Cost (K\$)
Shed	3
Trees	2
Excavate	0.5
Drain	10
Foundation	4
Frame	3
Walls	24
Tie-In	1
Docks	2
Roof	4
Electrical	2
HVAC	8
Racks	1
Doors	14
Sprinkler	2
Paint	1

(Optional) Cost breakdown by activity

Visual identification of dependencies

**Clear project Start/End**

**Resource Usage chart for each resource type**

Gantt chart with activities (blue) grouped into phases (red)

Critical Path identification

# Project Planning Time Input Variables

## Single Start

*Time Now* : This value is shown on the Gantt chart plots as a vertical red line

## Project Activity

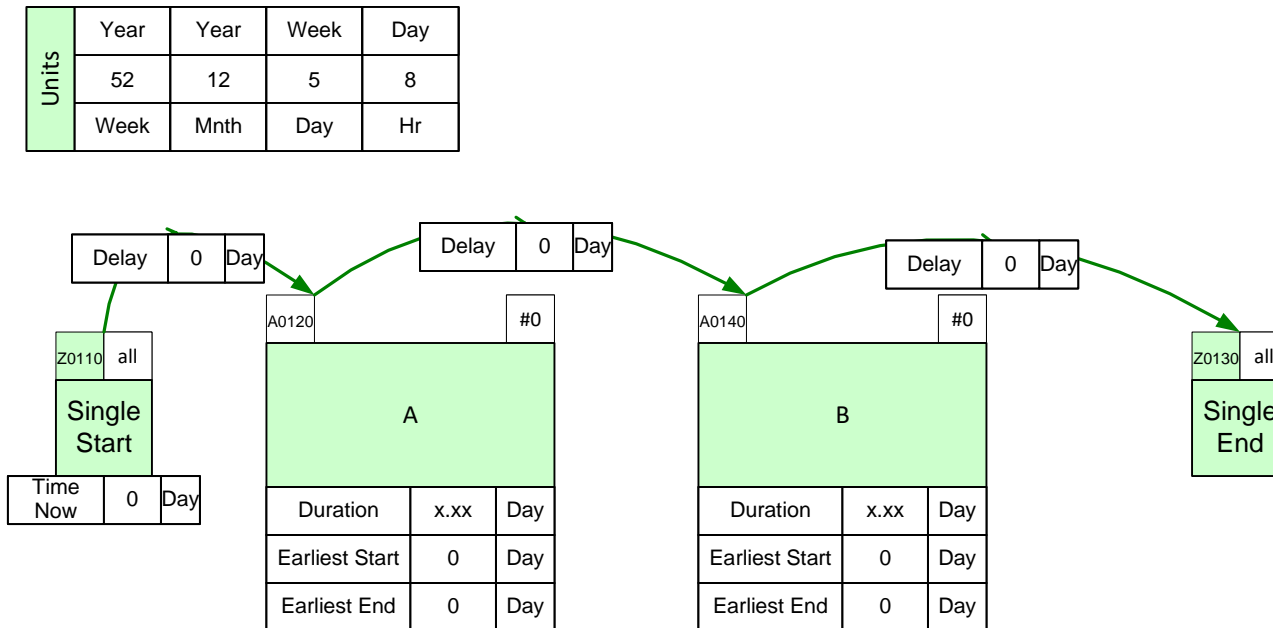
*Duration* : Expected Duration of an activity

*Earliest End* : (Optional) This can be used to constrain an activity to not be complete until the earliest end time

*Earliest Start* : (Optional) This can be used to constrain an activity to not start until the earliest start time

## Sequence Arrows

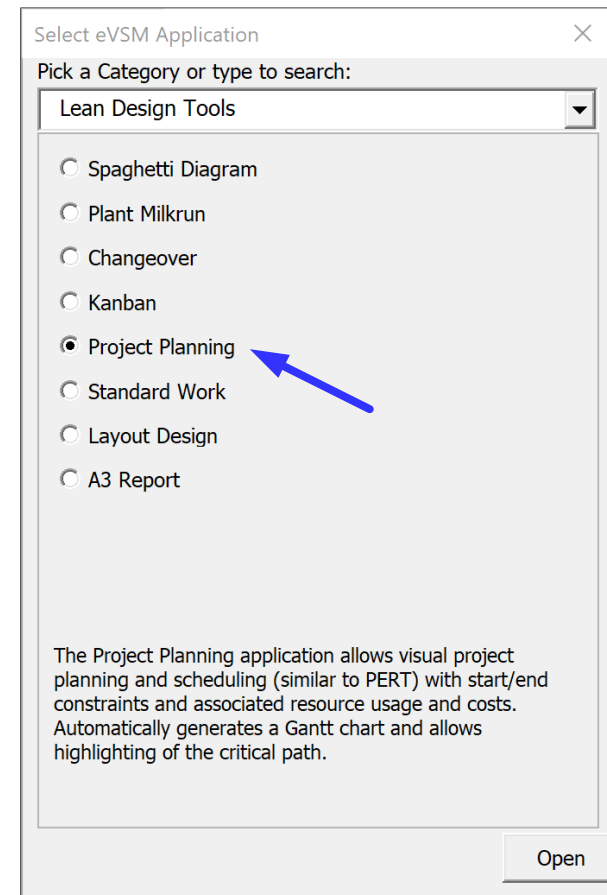
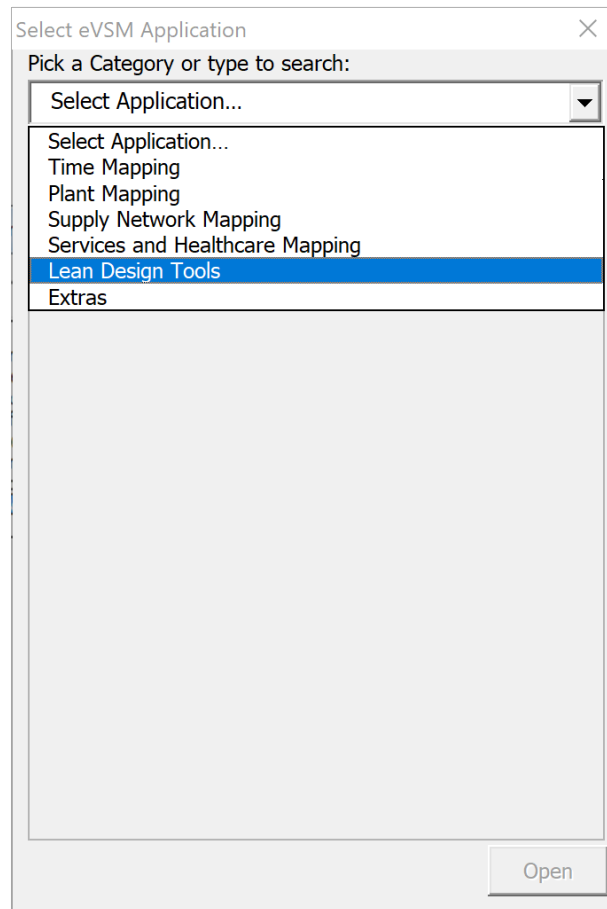
*Delay* : (Optional) The delay between the end of one activity and the start of another that are sequenced together. A negative delay number implies the next activity can start before the first activity is complete



## Opening the Project Planning stencil



Open



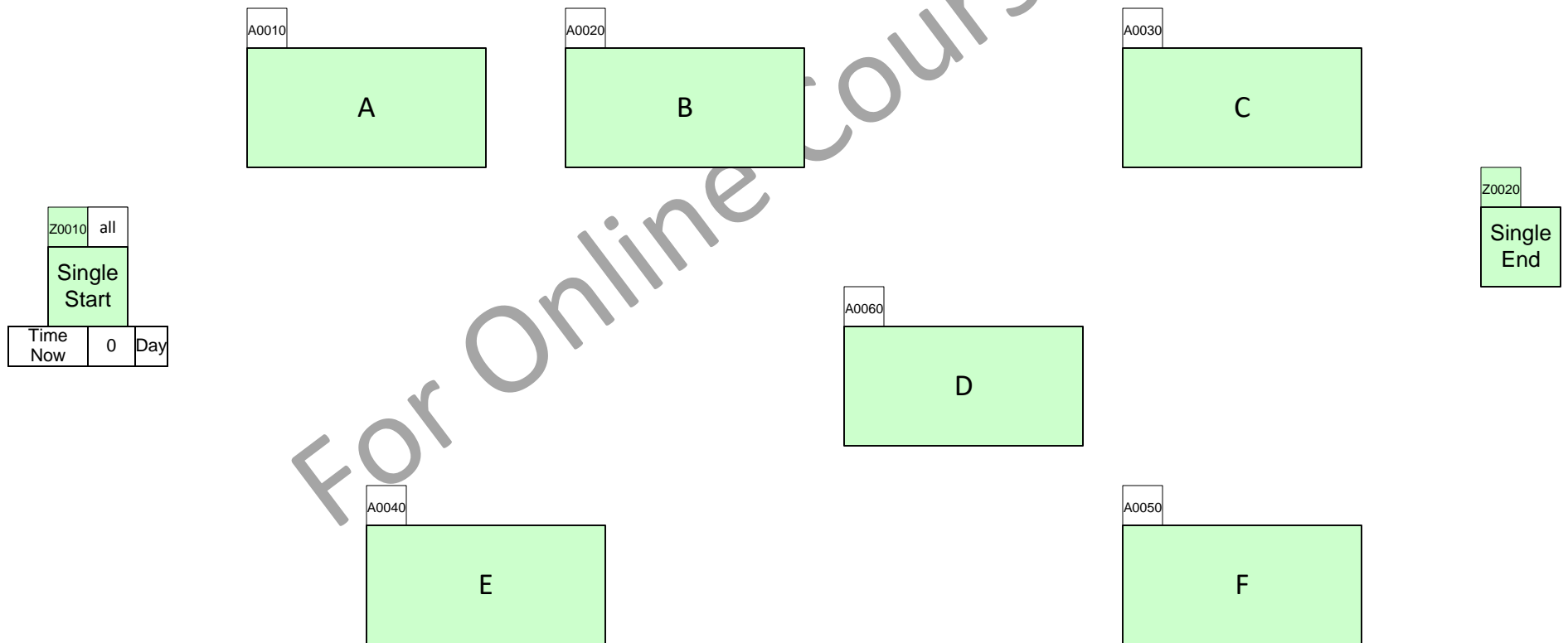


## Initiate a Quick Project

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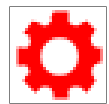
Add sequence arrows to indicate From/To dependency as shown in the table.

From	To
Single Start	A
A	B
B	C
B, E	D
Single Start	E
E	F
C, D, F	Single End

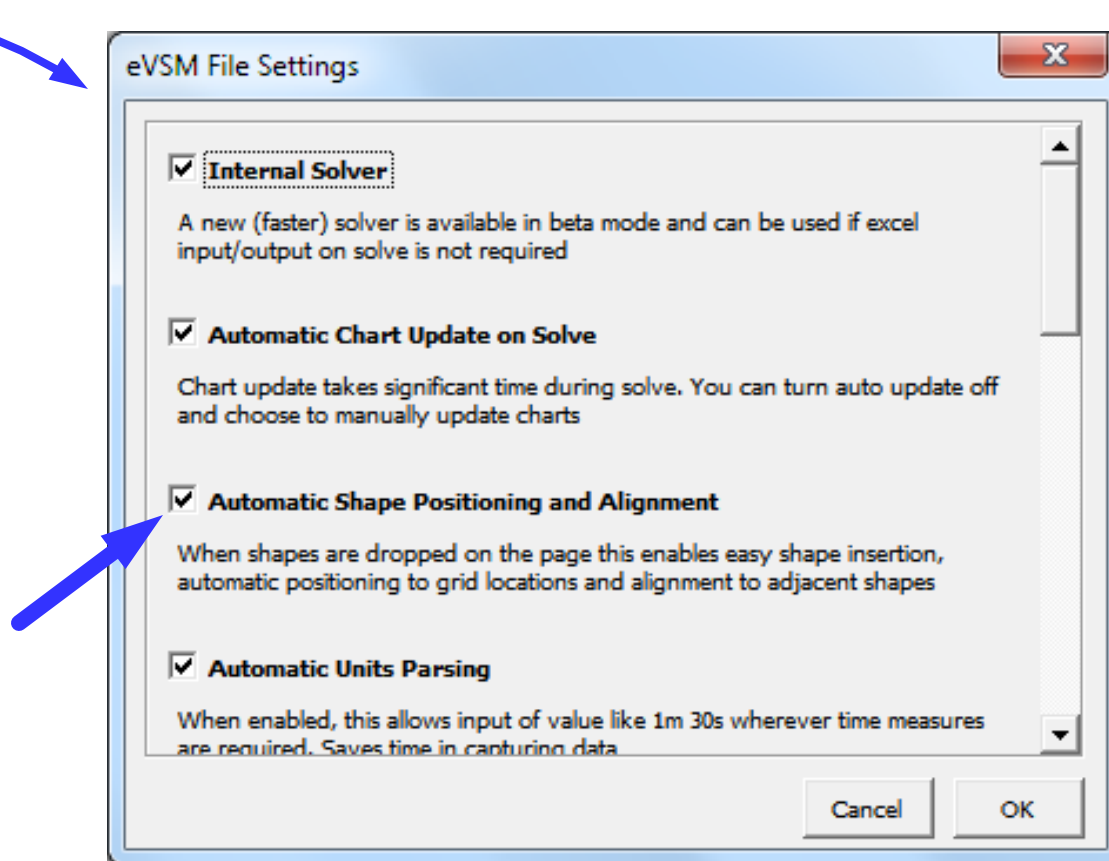


## eVSM Settings

The eVSM Settings dialog allows you to customize some of the eVSM functions. The “Automatic Shape Positioning and Alignment” is active by default and helps with automatic alignment of new shapes as they are dropped on the page. Sometimes you may want to switch this off if you prefer a more free form layout. The dialog box is accessed through the “Settings” button in the eVSM ribbon.

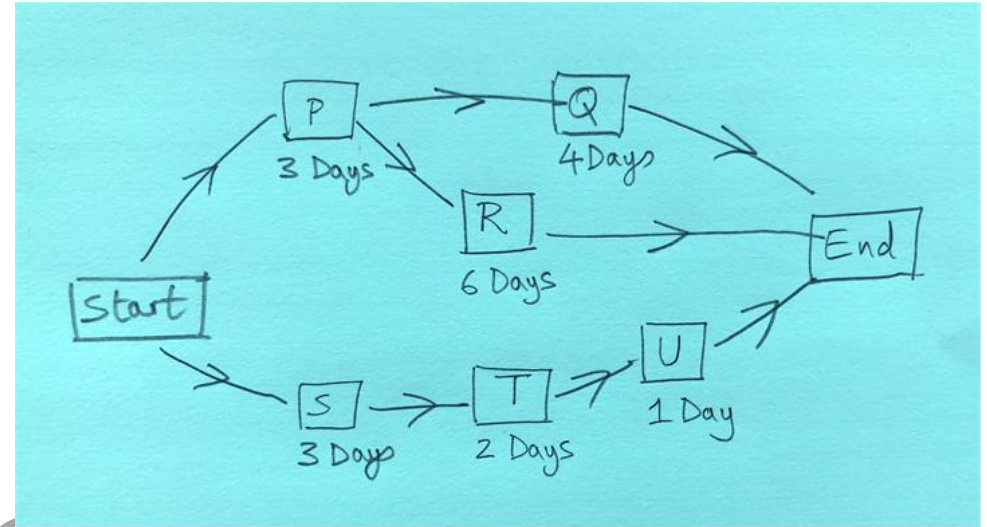


Settings



# Draw network diagram shown in the sketch

Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr



z0015	all
Single Start	
Time Now	0 Day

For Online Co

## Data entry for time values

The 'Duration' variable will be visible on the activity when you drag it out from the stencil and drop it on the page.

A0010			#0
Activity			
Duration	x.xx	Day	

The 'Earliest Start', 'Earliest End' and 'Delay' variables are hidden by default because they are optional. To expose them on the map, first select an activity and then use the 'Views' button in the toolbar to set visibility

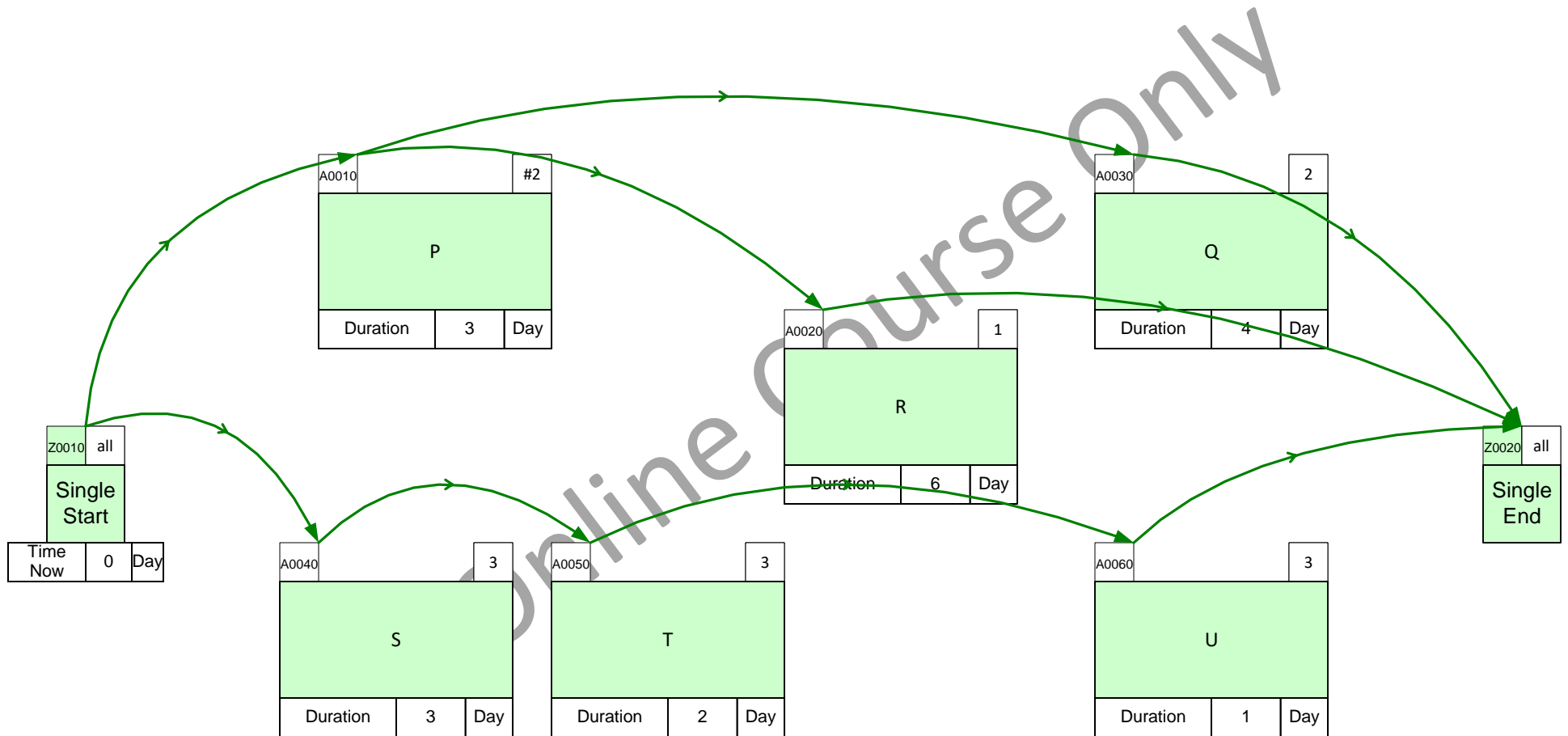


Views

For any time variable on the map, it is often convenient to input the value with a specific unit that is different from the current default unit. You can type into the center field and use abbreviations for the time unit like '10s', '10m', '10h', '10d' or '10w'. Then click the 'Enter' key. This will both change the value and unit for that variable.

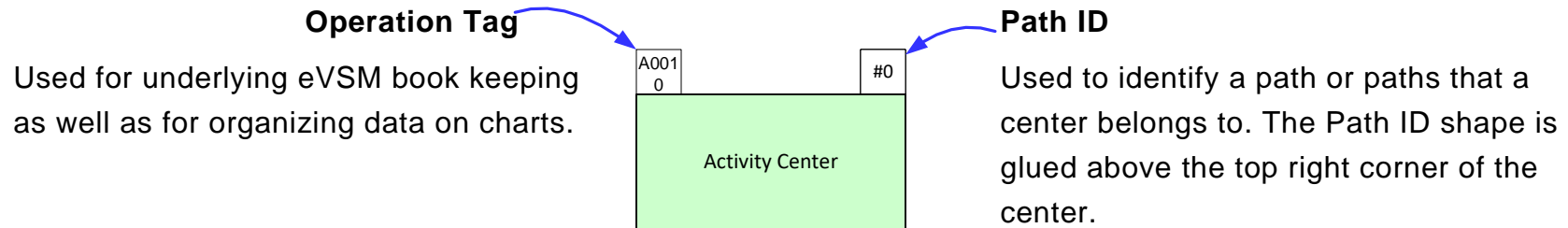
Units	Year	Year	Week	Day
	52	12	5	8
	10 Week	Mnth	Day	Hr

Expose the 'Earliest Start' variable on the map. Change its value for activity "U" to 2 weeks



Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr

## Paths and Tags



### Auto Path Auto Path

After adding the Sequence arrows, the Auto Path button can be clicked to automatically generate the path IDs for all the possible paths on the map based on the sequence arrows.

### Auto Tag Auto Tag

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

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

## IMPORTANT!

After making any significant changes to network diagram, such as adding/deleting activities or changing the sequence of steps, you must Auto Tag to ensure the charts plot the data in the correct order.

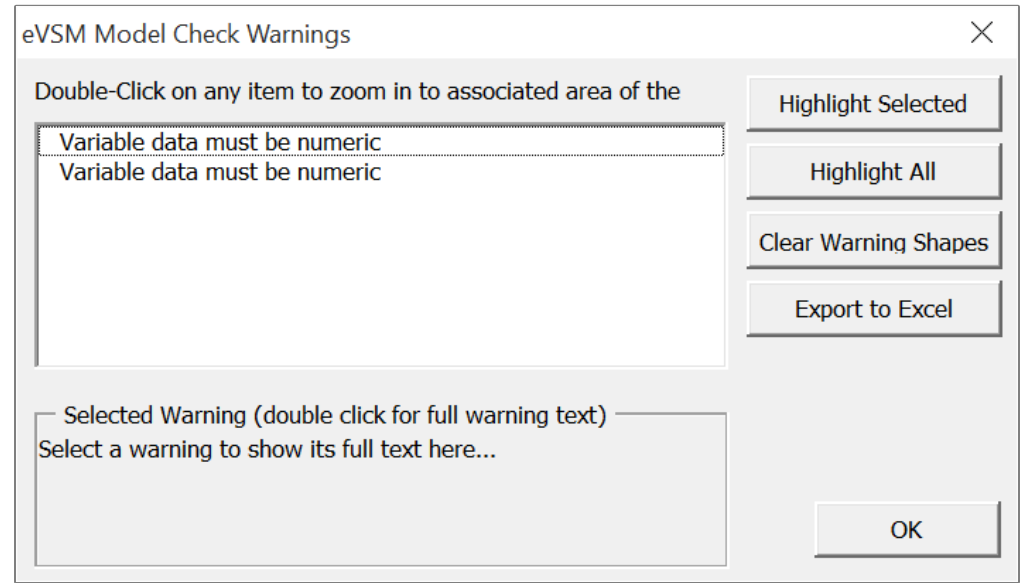
## Model Check, Fix, and Solve

### Model Check



Check

The Check function identifies common user mistakes on the map. It also automatically fixes some problems. If it finds any problems which require user interaction, you will see a dialog similar to below. You can select each warning for more details.



### Model Solve

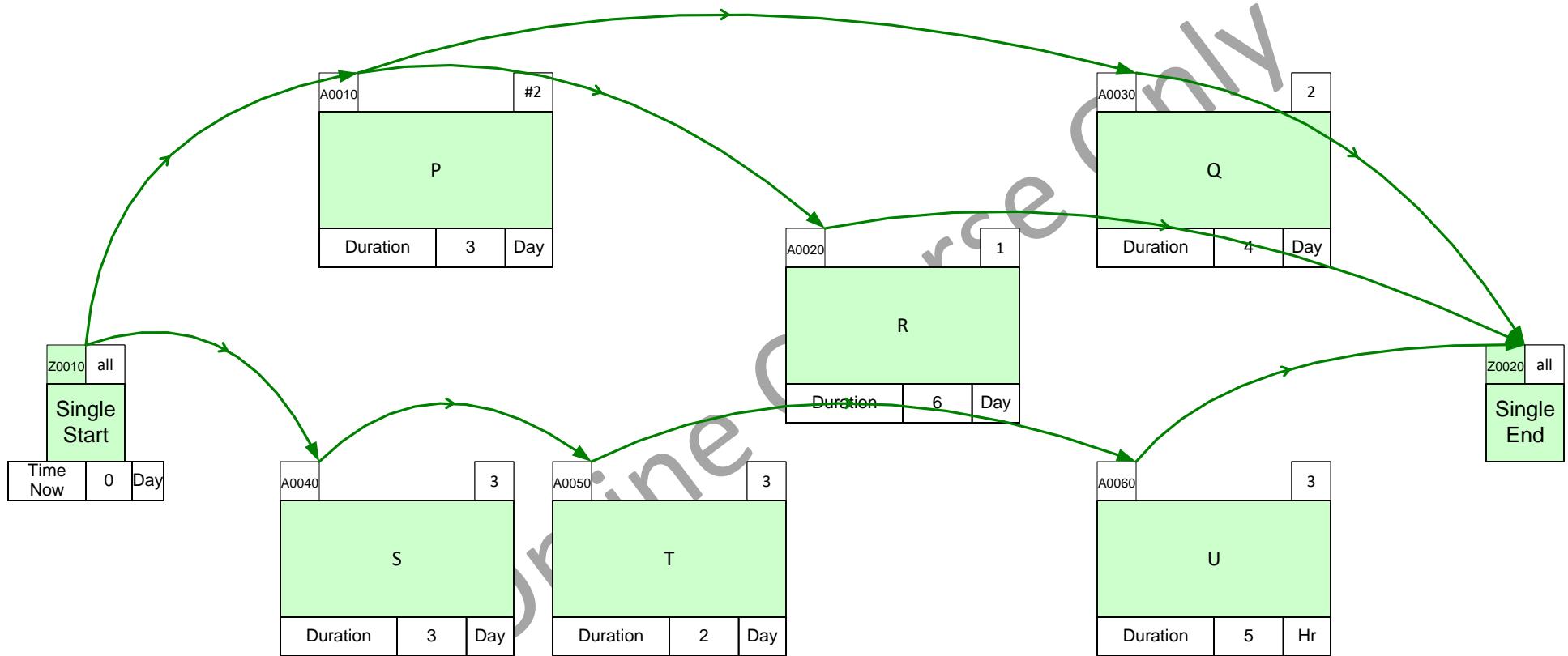


Solve

The Solve function runs the eVSM calculator. This may include updating of all calculations on the map and updating of any charts on the map. Controls for what gets updated during Solve are available via the “Settings” button in the eVSM ribbon.



# Auto Path, Auto Tag, Check and Solve the map. Then plot the Gantt chart for the project.

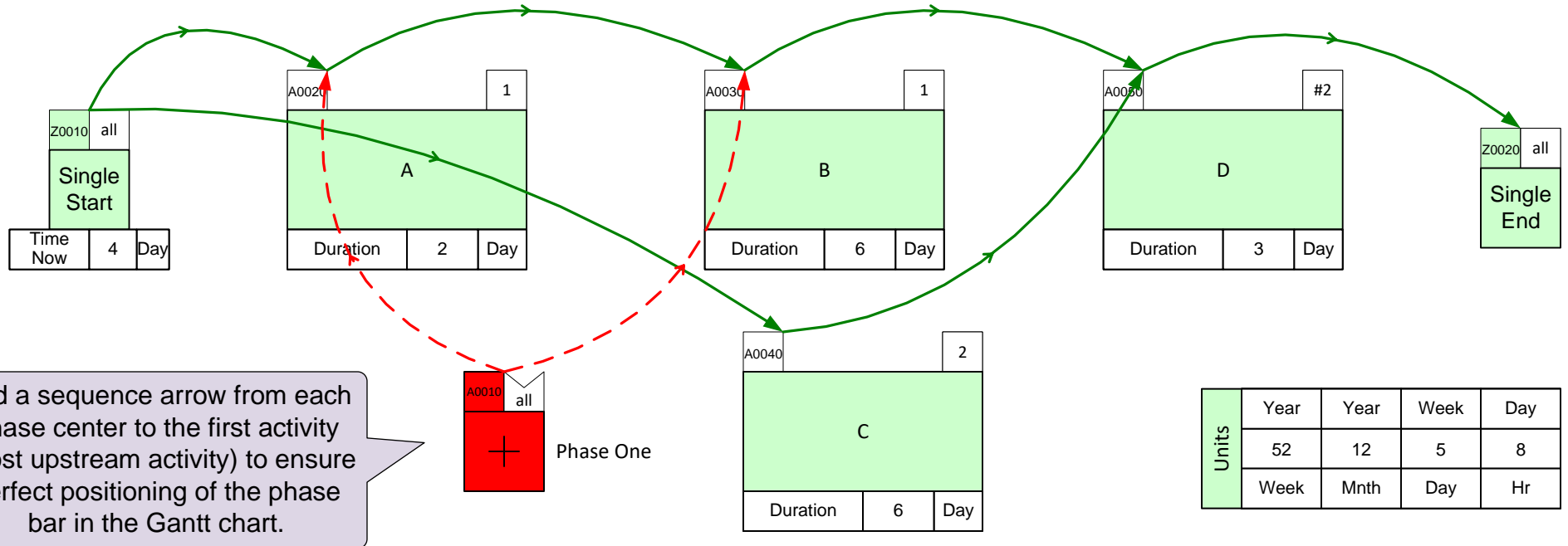


Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr

## Phase Identification and Visualization

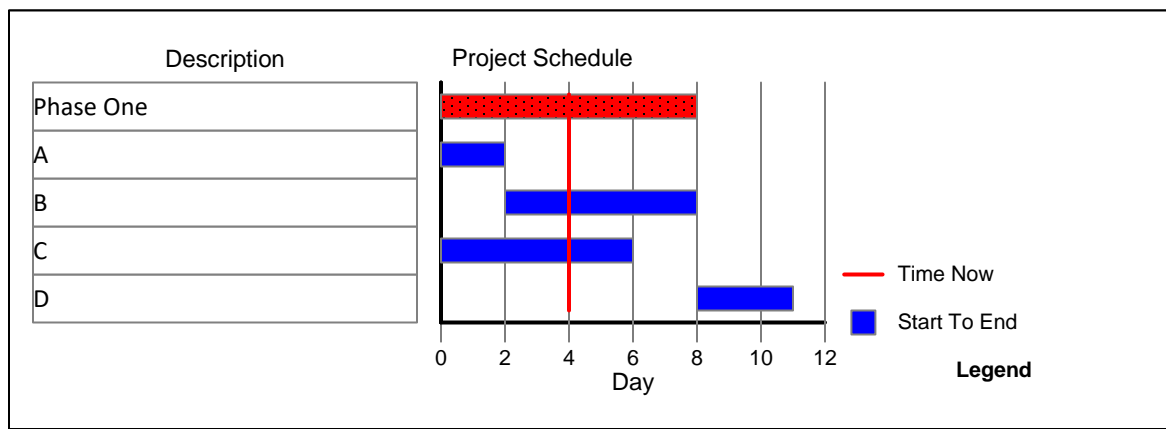
A phase is just a grouping of activities in the project, with the start/end time for the group indicated on the Gantt chart

Connect the phase center to the activities that belong to that phase (A and B below). End result will be the addition of a phase bar to the Gantt chart. Pipes should be connected from the phase center to each activity by using the 'Auto Pipe' button family in the eVSM toolbar. Members in the family can be accessed using the little drop-down arrow to the right of the button shown.

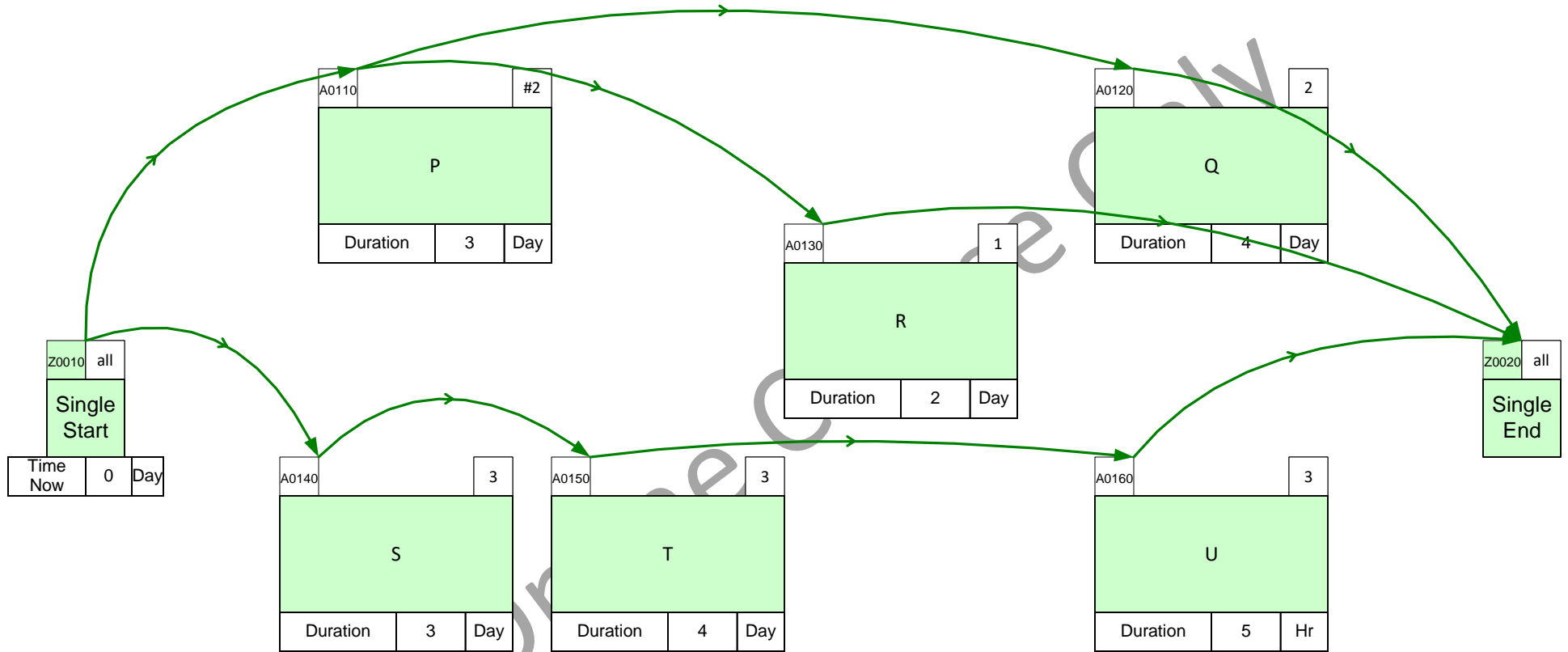


Gantt Chart

15



# Define a phase made of two activities, P and R. Plot Gantt Chart

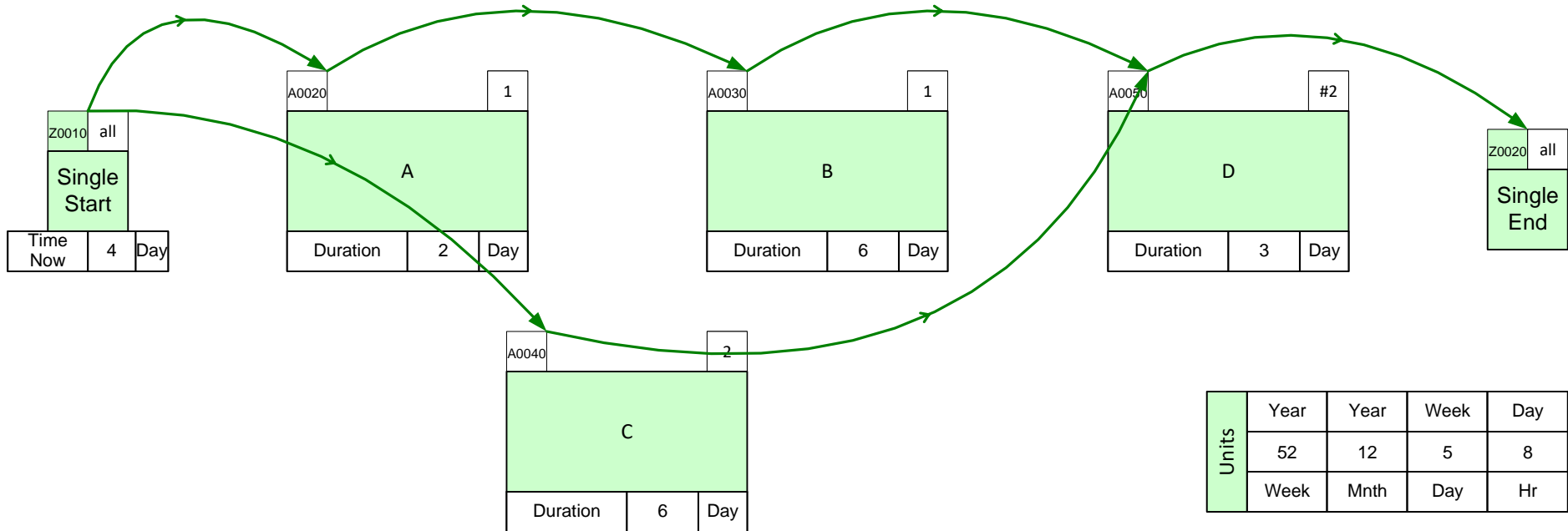


Units	Year	Year	Week	Day
	52	12	5	8
16	Week	Mnth	Day	Hr

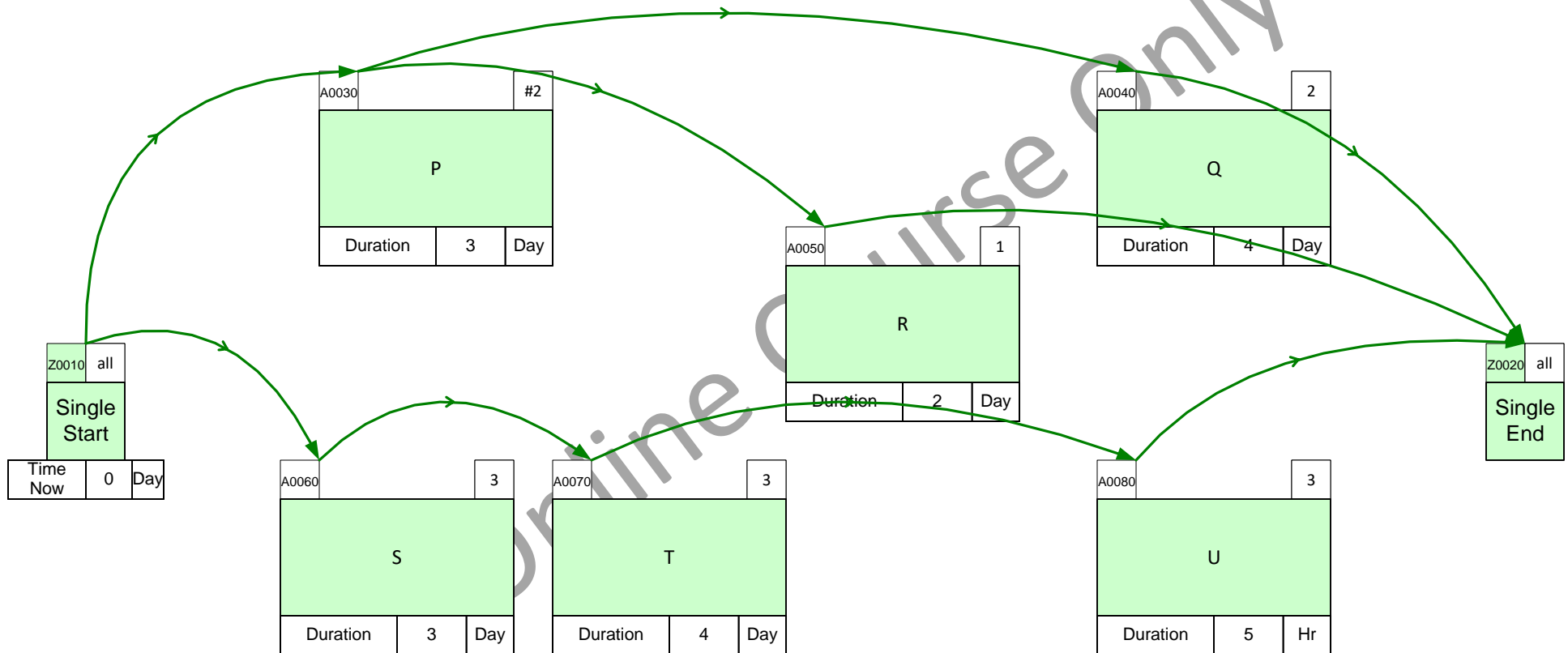
## Critical Path calculation and highlighting

The sequence of activities that define the earliest time a project can complete is called the critical path. In the example below, the activities from A to B to D which would take  $2+6+3 = 11$  days. Activities from C to D which would take  $6+3 = 9$  days. So activities A,B, D define the earliest the project can complete and are said to be on the critical path.

Once the map is solved you can right-click the “single end” center on the page and ‘Highlight Critical Path’ as shown.



# Highlight the sequence of activities that define the longest (or critical path) through the project?



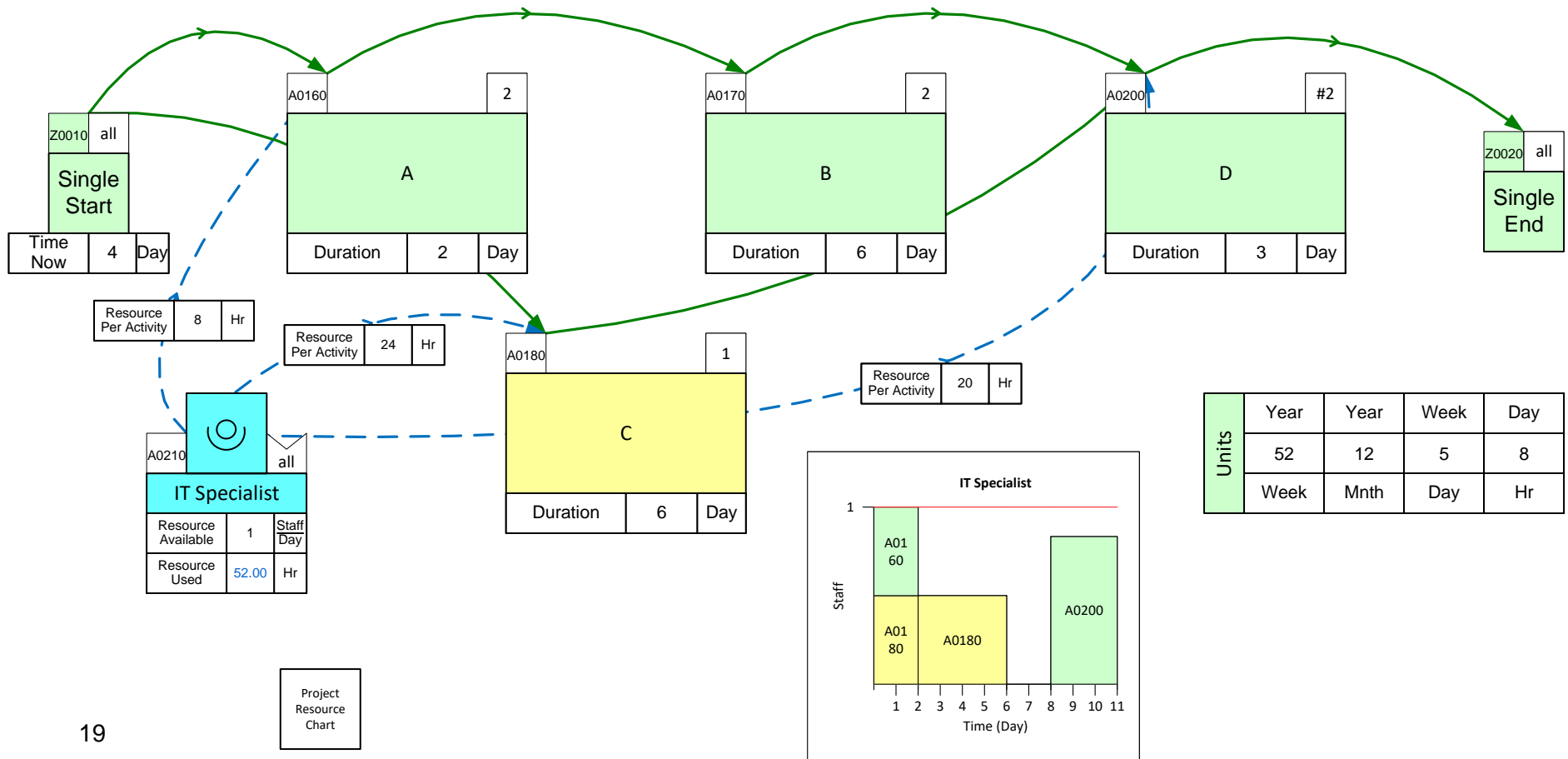
Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr

## Project resource model

A project timeline is often impacted by the resources its activities need. To support this a simple resource model is built into the project planning application. It allows

- Resources to be defined with their availability
- Resources to be allocated to activities
- A Resource usage chart to be plotted for any resource over the duration of the project

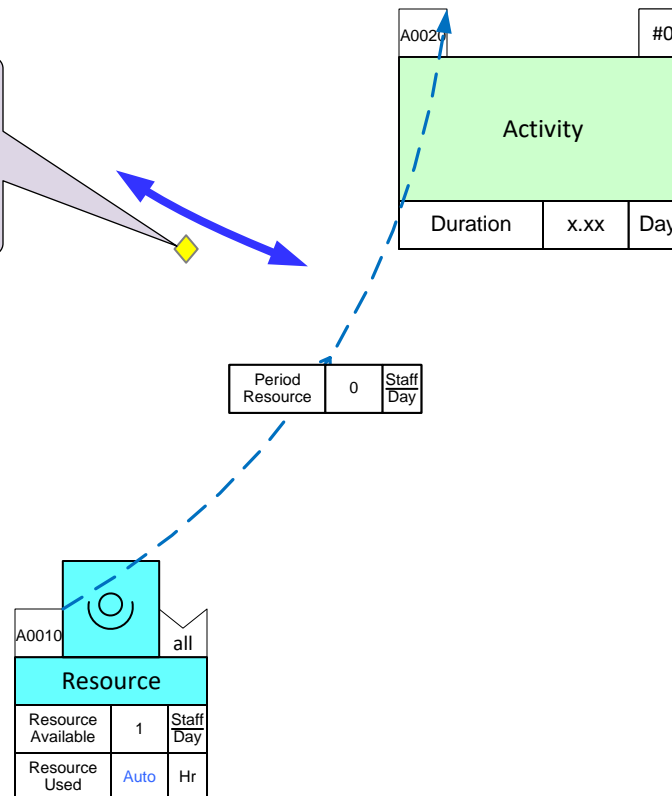
In the example below pipes connect the resource to activities and the time required for the duration of the activity is specified via the 'Resource per Period' variable. The map is solved and then the 'Resource Chart' is dropped on the map and glued to the resource to be charted via a yellow control handle. Right-click the chart shape to plot the chart



## Pipe Arrows

Pipe arrows are used to collect data from centers. Sometimes, pipe arrows may have additional visible data shapes. When the pipe arrows are created with the "Auto Pipe" button in the eVSM ribbon, the data shapes on the pipe arrows may not be in a desirable location, eg. may cover other important information on the map. In such cases, you can select the pipe arrow and then use the yellow diamond control handle located near the center of the pipe to adjust the pipe layout and move the data to any desired location.

Move yellow control handle to reshape arrow and move the data to any desired location.



Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr
	20			

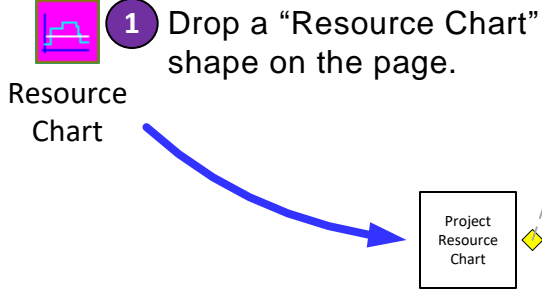
# Resource chart

The eVSM resource chart shows the requirement for a given resource type. The example below shows the steps to plot the chart for the carpenters.

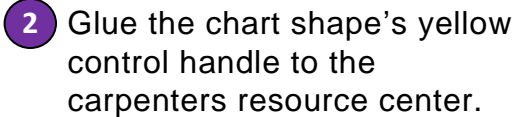
A0220		all
<b>Carpenters</b>		
Resource Available	4	Staff Day
Resource Used	Auto	Hr

A0230		all
<b>Electricians</b>		
Resource Available	1	Staff Day
Resource Used	Auto	Hr

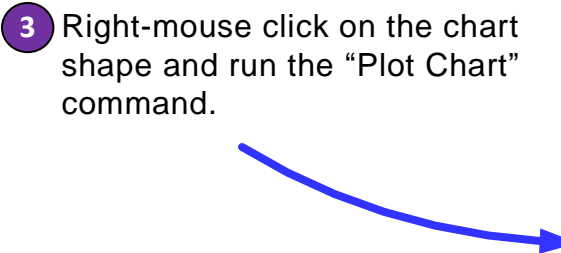
A0240		all
<b>Painters</b>		
Resource Available	1	Staff Day
Resource Used	Auto	Hr



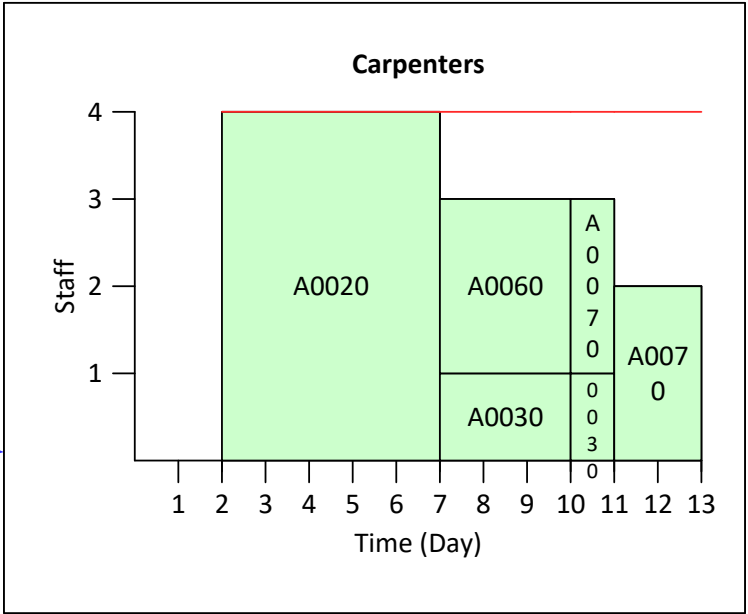
1 Drop a "Resource Chart" shape on the page.



2 Glue the chart shape's yellow control handle to the carpenters resource center.



3 Right-mouse click on the chart shape and run the "Plot Chart" command.

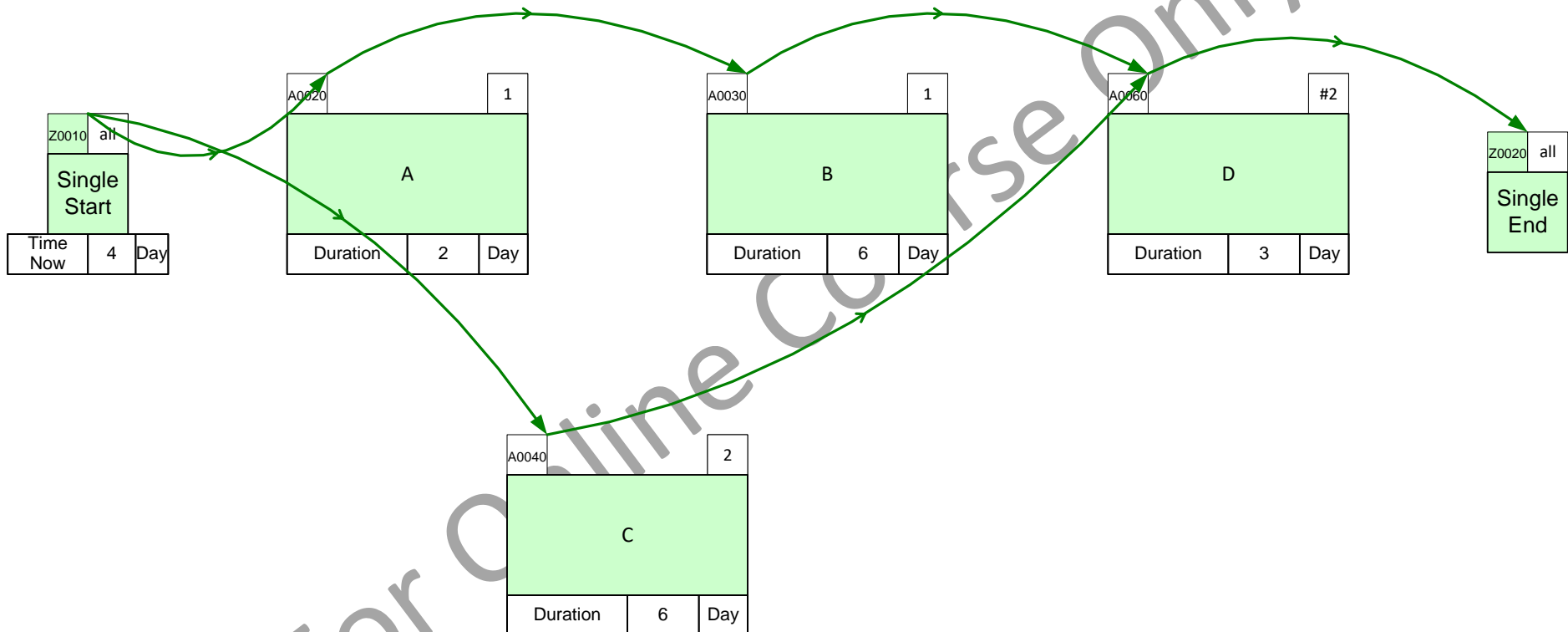


Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr



# Assign Resource “HR” to model and plot resource usage chart

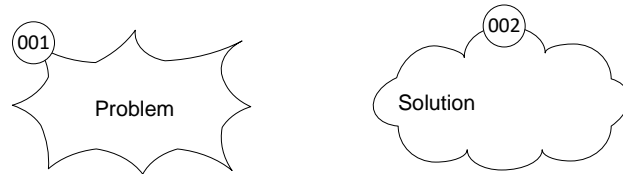
There is a recruitment project and most of the activities require some HR resource. Assume that 75% of an HR resource is needed for each activity and that two HR staff are available full time over the project duration. Add the resource to the map and plot the related resource usage chart



Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr
	22			

## Identifying project risks and actions

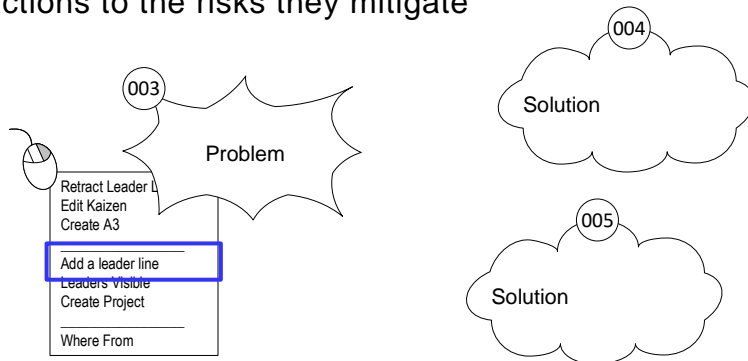
You can identify a project risk using a 'Kaizen Starburst' from the 'eVSM Kaizen' stencil. Drop the burst on the page and use right-click "Edit Kaizen" to add a detailed description



You can identify mitigating actions using 'Kaizen Cloud's' from the 'eVSM Kaizen' stencil. Right click to edit the cloud and enter action description and owner

There are more properties available for starburst and clouds if desired and these can be switched on using the 'Kaizen Properties' button in the eVSM toolbar

If you right click a Starburst there is an option to add a leader line. The ends of such lines can be glued to the vertices of the related cloud shapes. In this way you can relate actions to the risks they mitigate



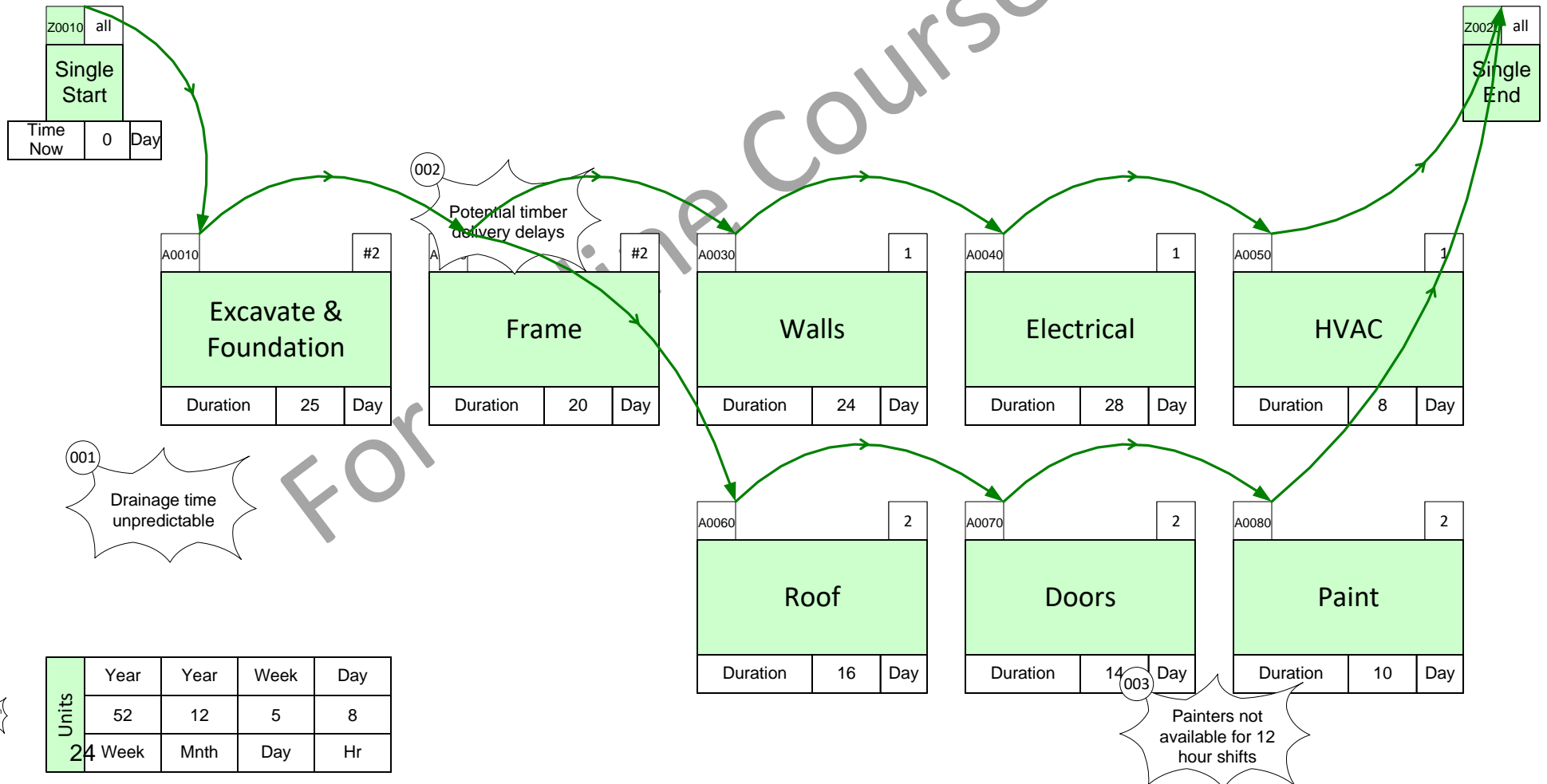
Once you connect bursts and clouds, use the 'Kaizen Renumber' button which sequences the set so that the actions follow each cloud. You can then generate a Kaizen report in Excel via the 'Kaizen Report' button in the eVSM toolbar

# Project Risks and Actions

For the potential timber delivery delays we have two solution ideas.

1. Negotiate delay penalties with existing supplier.
2. Establish a new supplier.

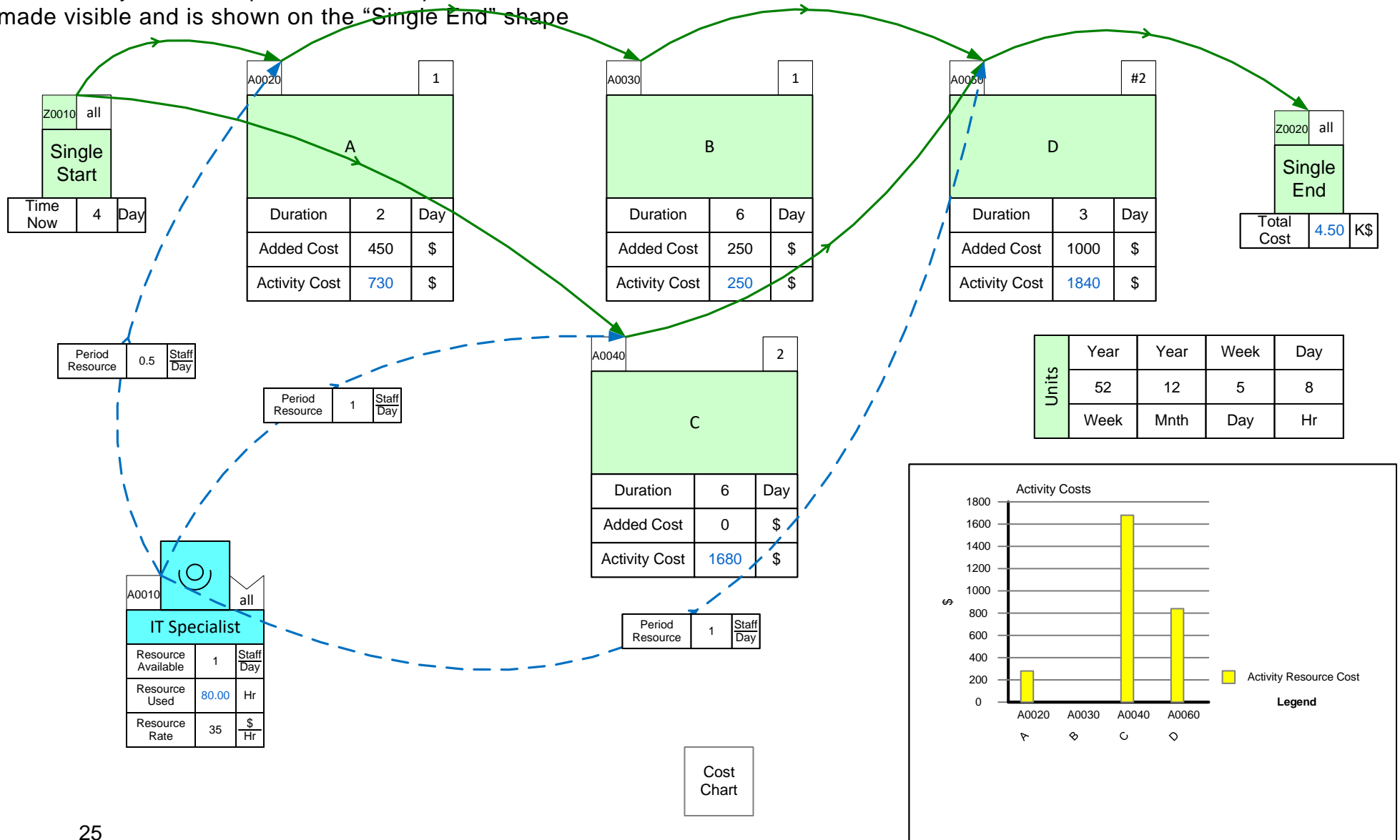
Use kaizen clouds to show these two solutions. Use the kaizen starburst leader lines to connect the problem to the solutions. For extra practice, try clicking the “Kaizen Export” button in the eVSM ribbon and explore the Excel file generated.



## Allocation of costs to activities and resources

Using the 'Views' button in the eVSM toolbar, you can make visible the variables "Added Cost", "Activity Cost" and "Resource Rate" as has been done for the model below. For each activity the "Activity Cost" is the sum of the "Added Cost" and the cost of the resources used by the activity and for the times specified

The "Activity Cost" components can be plotted via the 'Cost Chart' as shown. The "Total Cost" variable can also be made visible and is shown on the "Single End" shape



## Calculation of Activity Cost

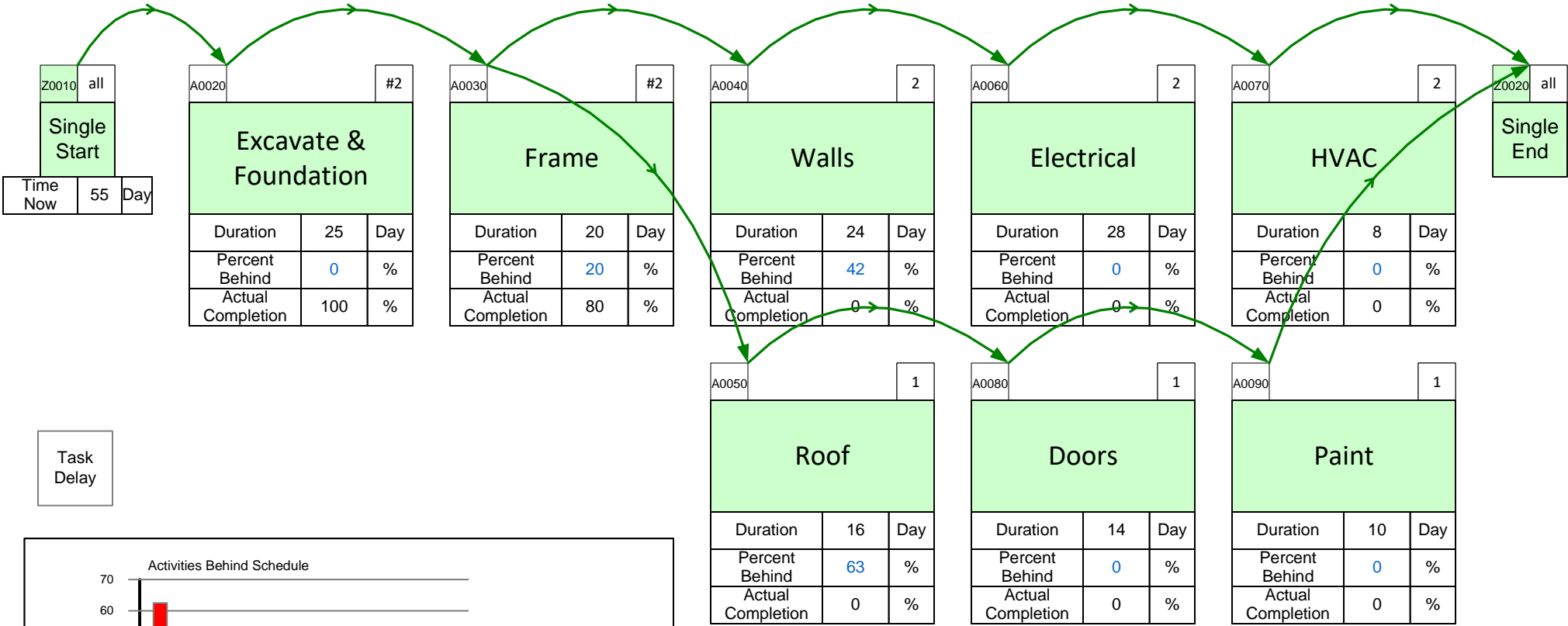
Q. An activity has a fixed or “Added Cost” of \$1000 and has a duration of 10 days. Over this period it uses a resource full time and at a “Resource Rate” of \$350 per day. What is the total “Activity Cost”?

- \$1000
- \$3500
- \$4500
- \$13500

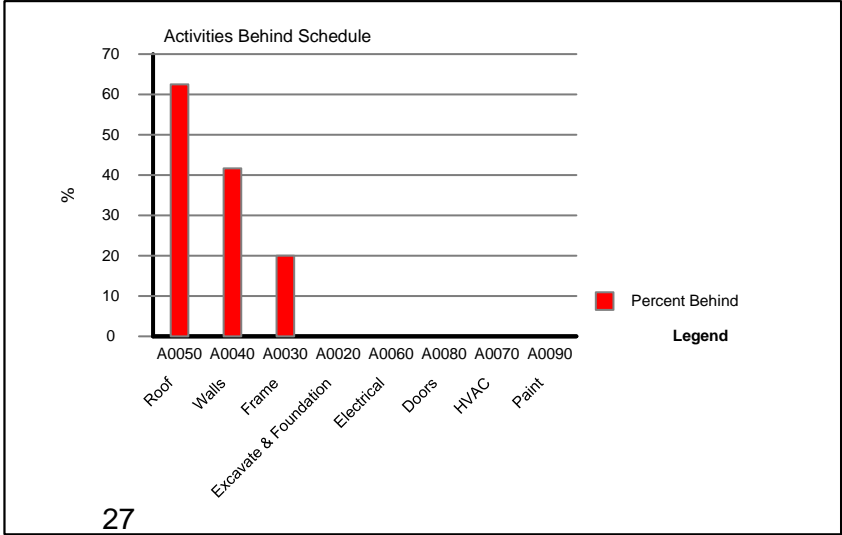
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# Activity Completion Percent

Using the 'Views' button in the eVSM toolbar, you can make visible the variables "Actual Completion" and "Percent Behind" as has been done for the model below. Based on the 'Time Now' variable the "Percent Behind" value for each activity is calculated and can be plotted via the "Delayed Activities" chart in Pareto format



Task Delay



Units	Year	Year	Week	Day
	52	12	5	8
	Week	Mnth	Day	Hr

## Calculation of “Percent Behind” value for an activity

Q. An activity was planned to start 10 days (after start of project) and then take 10 days to complete. The “Time Now” is 20 days and the activity’s “Percent Completion” is 60%. What is its “Percent Behind” value?

- 100%
- 40%
- 60%
- 0%

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## Making Use of Visuals

The following pages show how best to use colors and visuals to create clear and engaging views. Some examples shown here:

**Clarify calendar versus production time**

Units	Week	Week	Day	CDay
	5	7	8	24
	Day	CDay	Hr	CHr

**Common resource shared across multiple activities and lines can be represented with multiple Resource center**

**Separate resource center for resource chart**

**Auto Tag**

**Auto Tag before charting so the charts display data in the correct sequence**

**Use Path Markers to name paths. The path name will appear on the Lead Time chart.**

**Activity colors can be displayed in charts**

**Scales can be aligned across multiple charts**

**Resource X**

Staff	Time (Day)
3	0 - 8
2	A0100, A0110, A0040
1	A0030, A0030, A0040, A0050

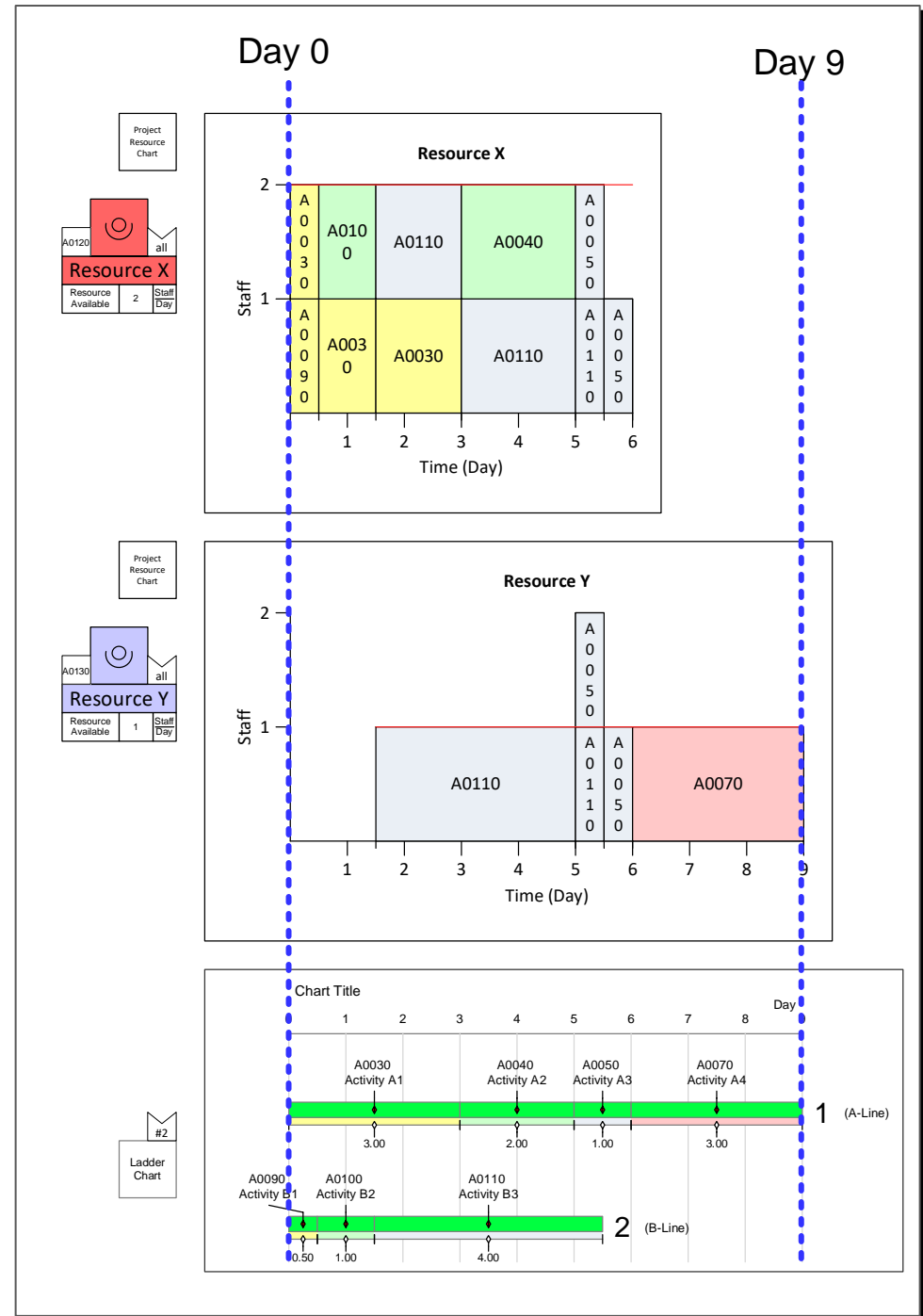
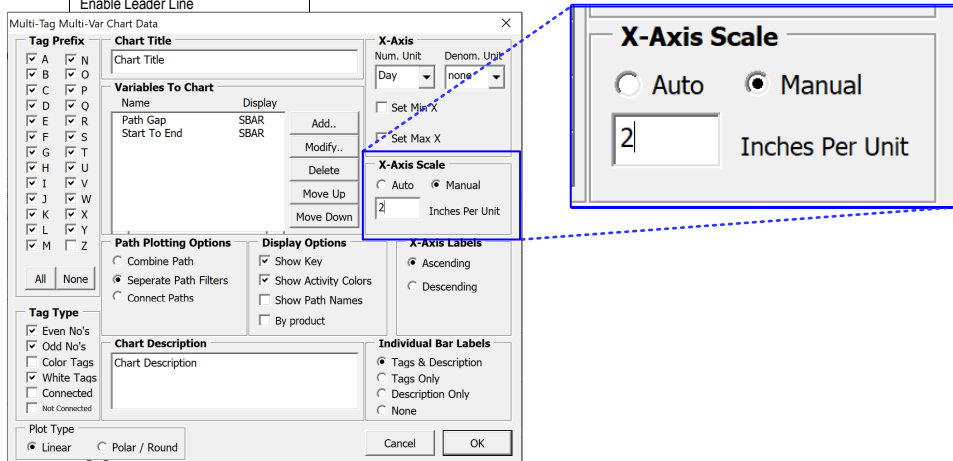
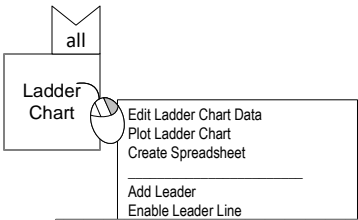
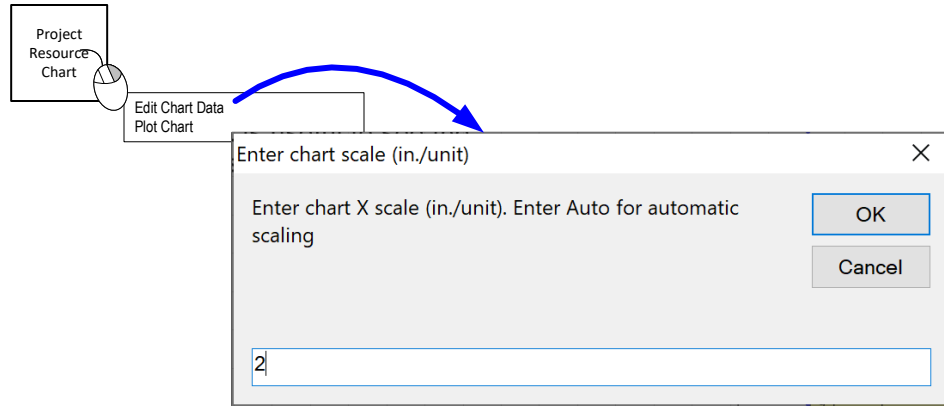
**Ladder Chart**

Chart Title	Day
A0090 Activity B1	0.50
A0100 Activity B2	1.00
A0110 Activity B3	2.00
A0030 Activity A1	3.00
A0040 Activity A2	2.00
A0070 Activity A4	1.50



# Scale and Align Charts

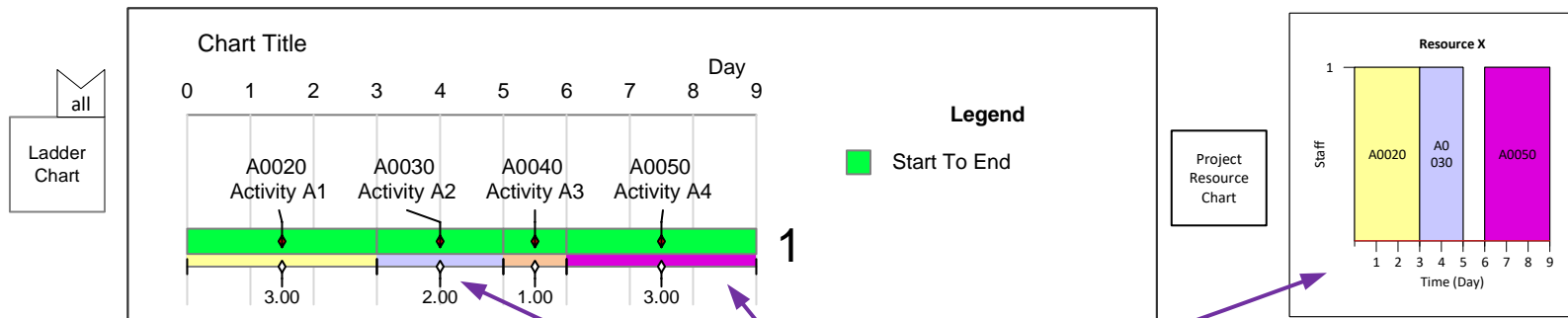
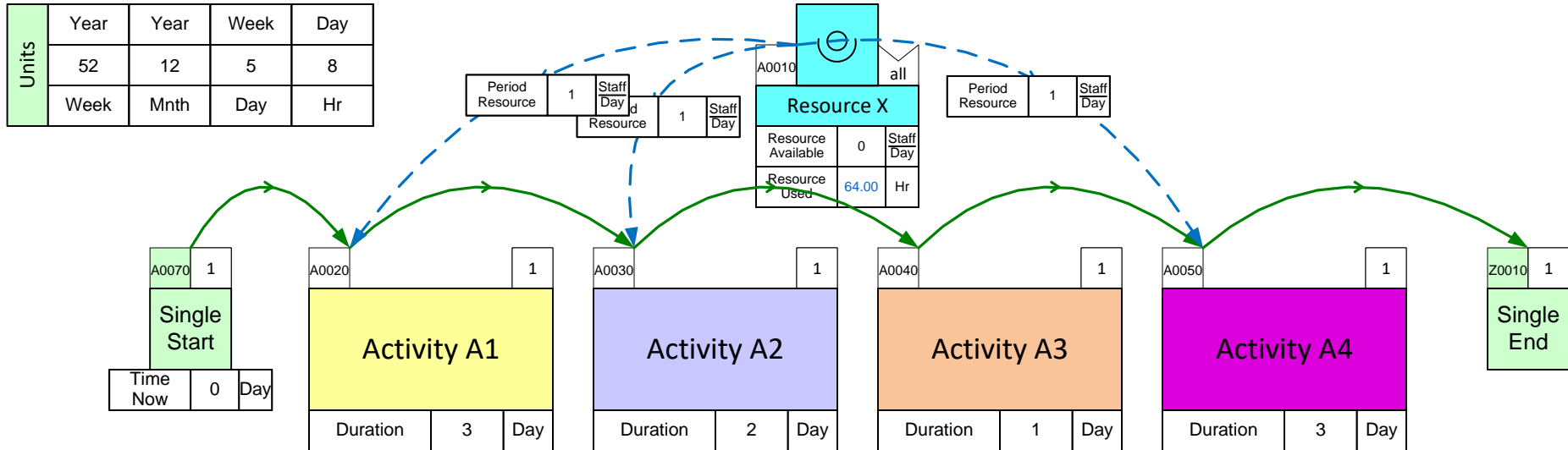
When you have multiple resources it is useful to see the resource usage and the lead times on the same timescale as shown in the example on the right. The Project Resource chart and the Lead Time Ladder charts allow you to set the scale manually so they match exactly. Here's how...



## Using Colors

Colors can help clarify diagrams and engage your audience more easily. The default fill color of project activities may be set by the user. The color will show through in the Lead Time ladder chart and Resource chart as shown in this example.

The fill color on activity centers appear in the ladder chart and in the resource chart as shown here.

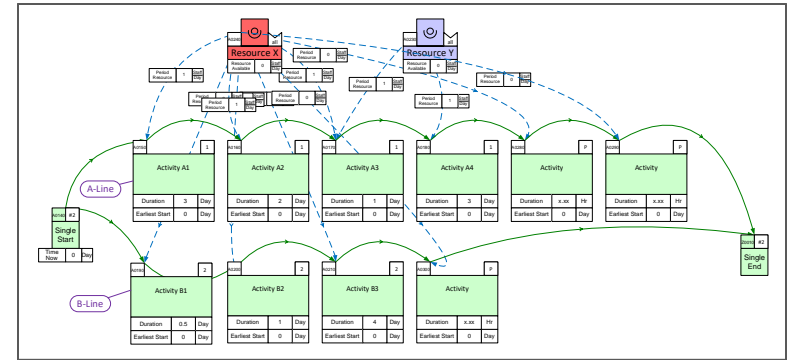


Activity colors appear here

**Recommendation:** Avoid dark fill colors which make it hard to read the text.

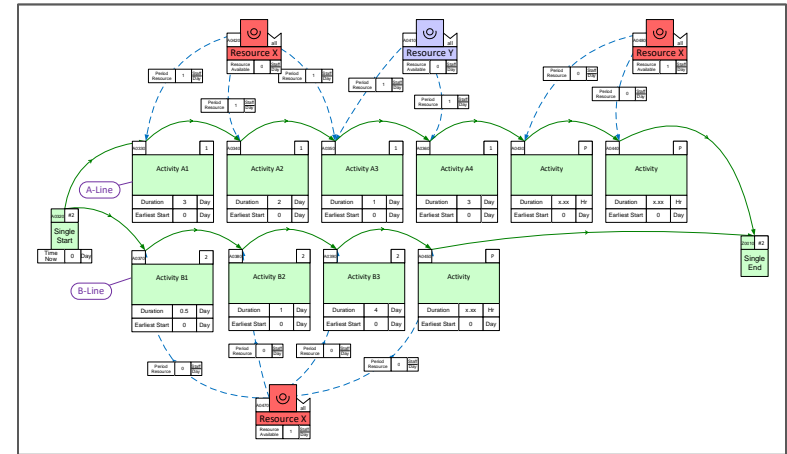
# Multi-activity Resources

When a resource is serving many activities, you can end up with a spaghetti of resource pipe arrows on the map making it hard to see the connections.

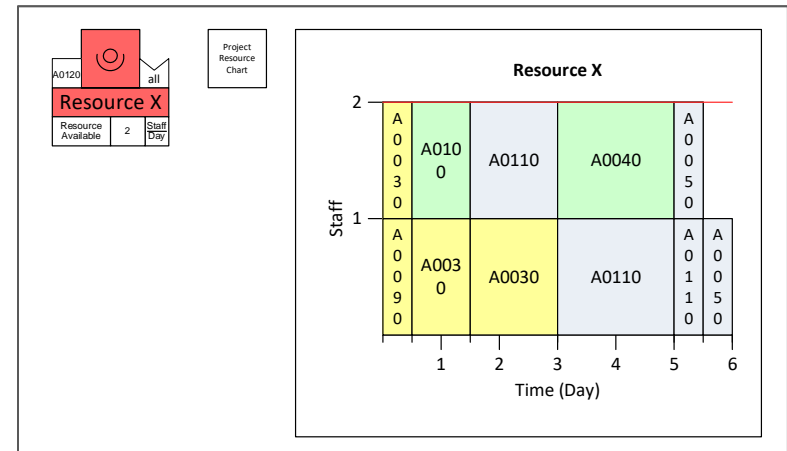


eVSM allows you to represent each resource with multiple Resource centers as seen here. This makes it connections easier to see the connections.

All centers representing the same resource must be given exactly the same name. It is a good idea to make them the same color as well.

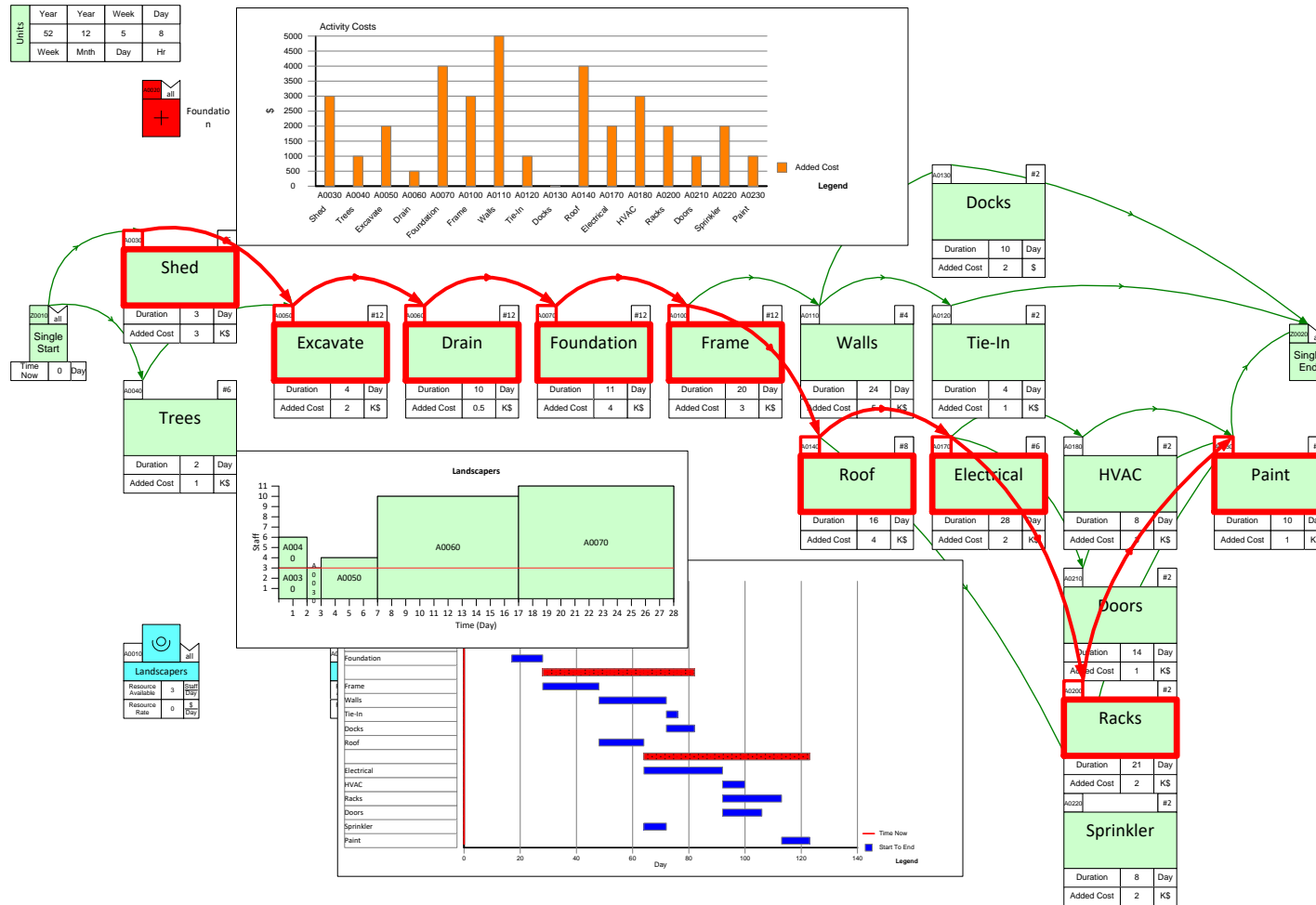


For the Resource Chart, use an additional Resource center and make it the same name (and color). Specify the "Resource Available" on this additional center and make it zero at all the other centers. The Resource chart chape will connect only to this additional resource center.



## You learned that:

- eVSM has a simple project planning tool that allows projects to be planned in a visual fashion, resources assigned and critical path identified.



## What's next:

The planning tool also optionally allows costs be assigned to resources and activities. Also you can model risk in the project via kaizen bursts and mitigating actions via kaizen clouds.

## —Useful Links—

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eVSM Toolbar Guide

[evsm.com/toolbarguide](https://evsm.com/toolbarguide)

Map Examples

[evsm.com/examples](https://evsm.com/examples)

eVSM Blogs

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