

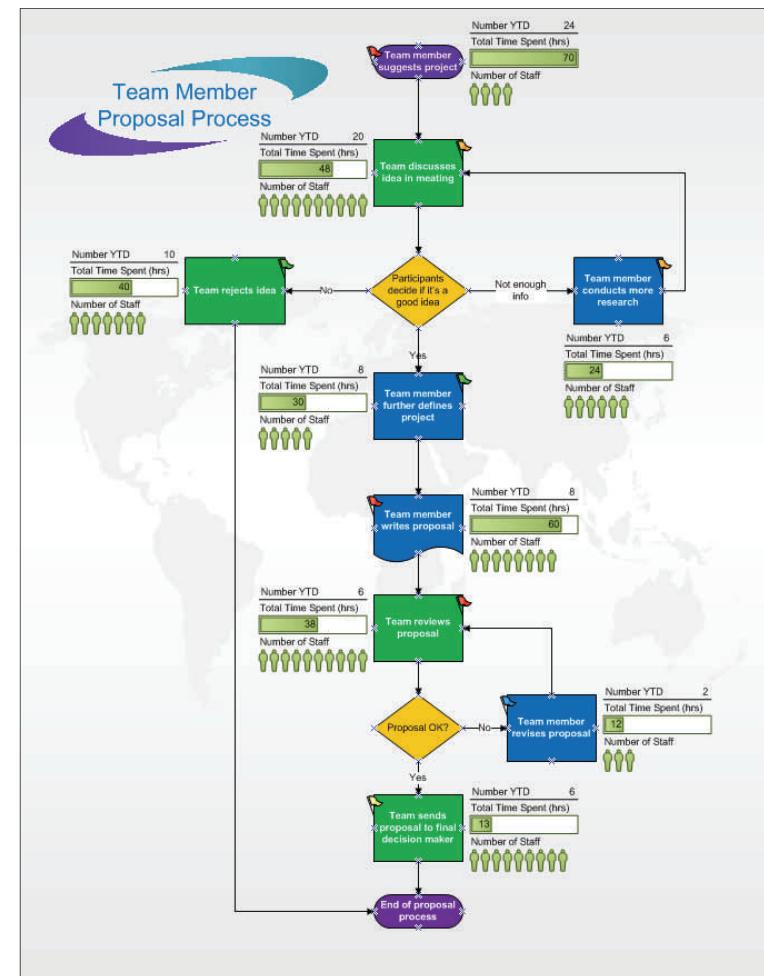
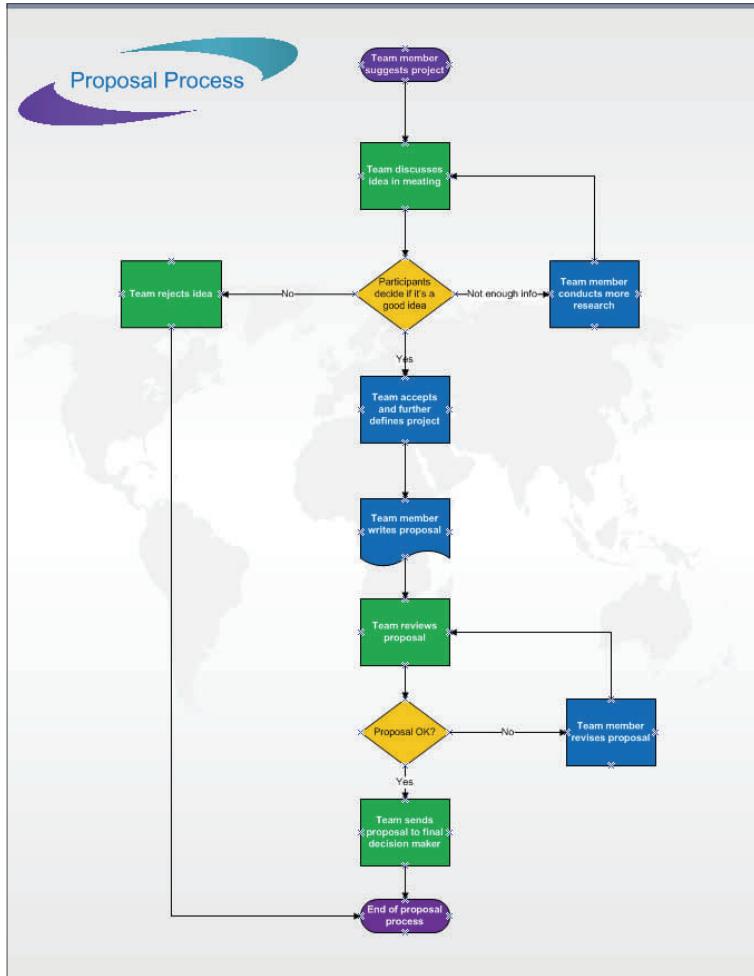
Making Visio Diagrams Come Alive with Data



An Information Commons Workshop

Why Add Data to A Diagram?

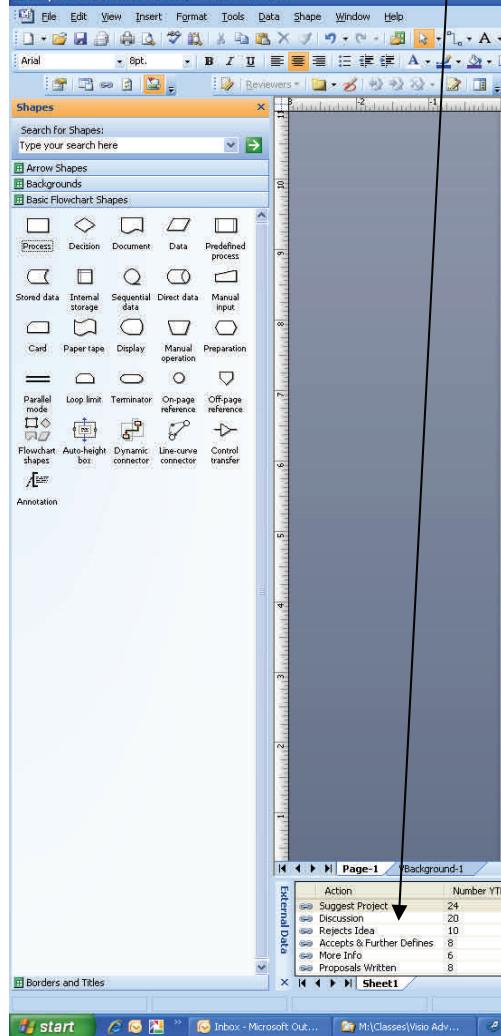
Here are comparisons of a flow chart with and without data. You can see that the diagram on the right looks more meaningful and appealing than the one on the left. Data helps to explain the significance of what is being described by the diagram. It is also a way of detecting where problems are occurring so as to alert those responsible to anomalies in the system.



The Visio Data Graphic Interface

Data Menu

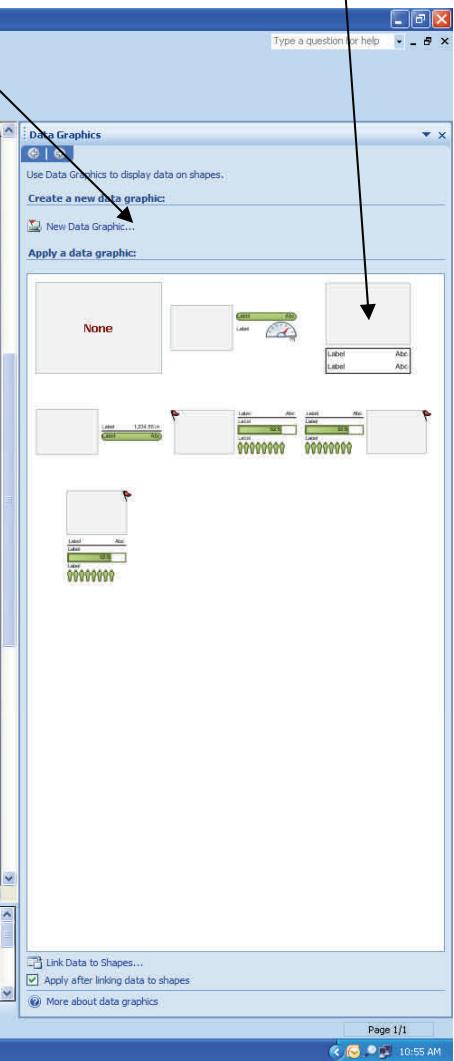
Proposal Flow Chart-Datas.d - Microsoft Visio



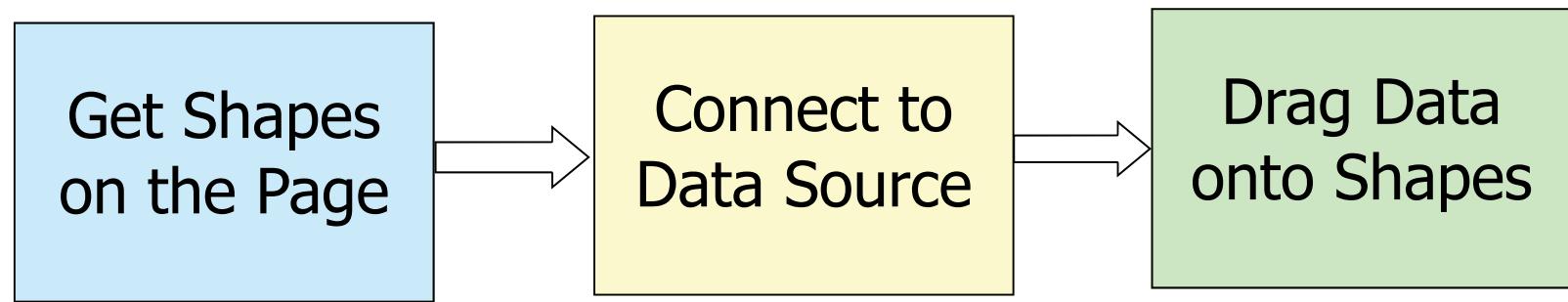
External Data Window

New Data Graphic Link

Data Graphics Task Pane



Inserting Data in a Diagram is a 3-Stage Process

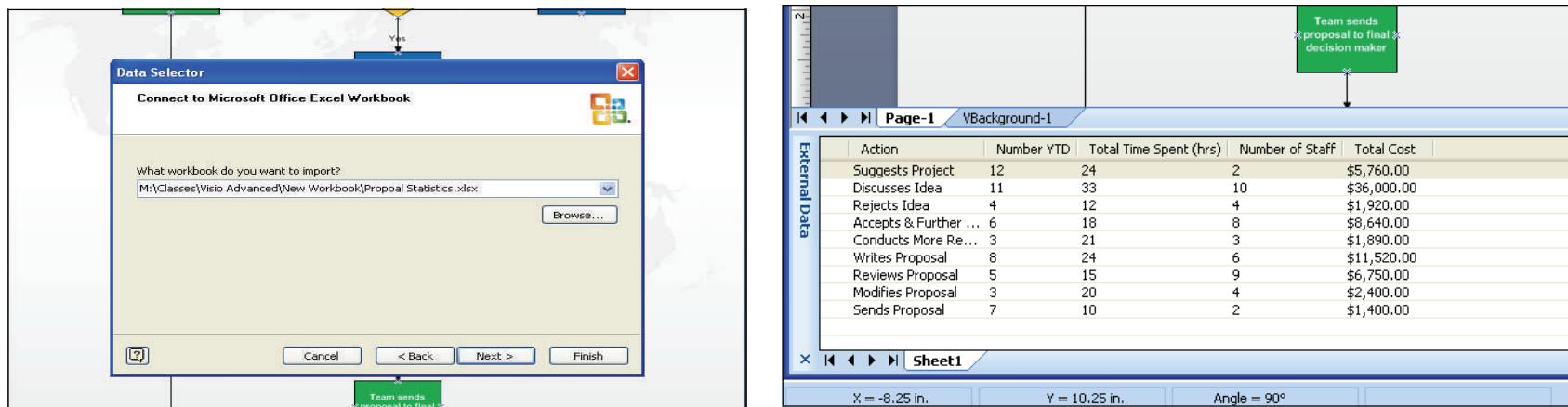


Connecting to Data Source

Acquiring Source Data

1. To apply data to a diagram, you first need to compile the data in a spreadsheet, setting up rows and columns like the example on the right.
2. From the Visio *Data* menu select *Link Data to Shapes*
3. Select the type of file you want to import and press *Next*
4. Select the file you want to import from the *Browse* field, then press *Next*
5. Select the Sheet number or range and press *Next* again
6. Edit the columns and rows you want to exclude, if necessary, and press *Next* again
7. Set up your *Refresh* parameters, if different from the default, then press *Next*
8. Press *Finish*
9. The rows and columns of data, and their headings, are imported into Visio and arrayed at the bottom of the drawing window

A	B	C	D	E
1 Action	Number YTD	Total Time Spent (hrs)	Number of Staff	Total Cost
2 Suggests Project	12	24	2	\$5,760
3 Discusses Idea	11	33	10	\$36,000
4 Rejects Idea	4	12	4	\$1,920
5 Accepts & Further Defines	6	18	8	\$8,640
6 Conducts More Research	3	21	3	\$1,890
7 Writes Proposal	8	24	6	\$11,520
8 Reviews Proposal	5	15	9	\$6,750
9 Modifies Proposal	3	20	4	\$2,400
10 Sends Proposal	7	10	2	\$1,400
11				



Acquiring Additional Data Sources

Adding additional datasheets to the file so additional data would be available for the diagram.

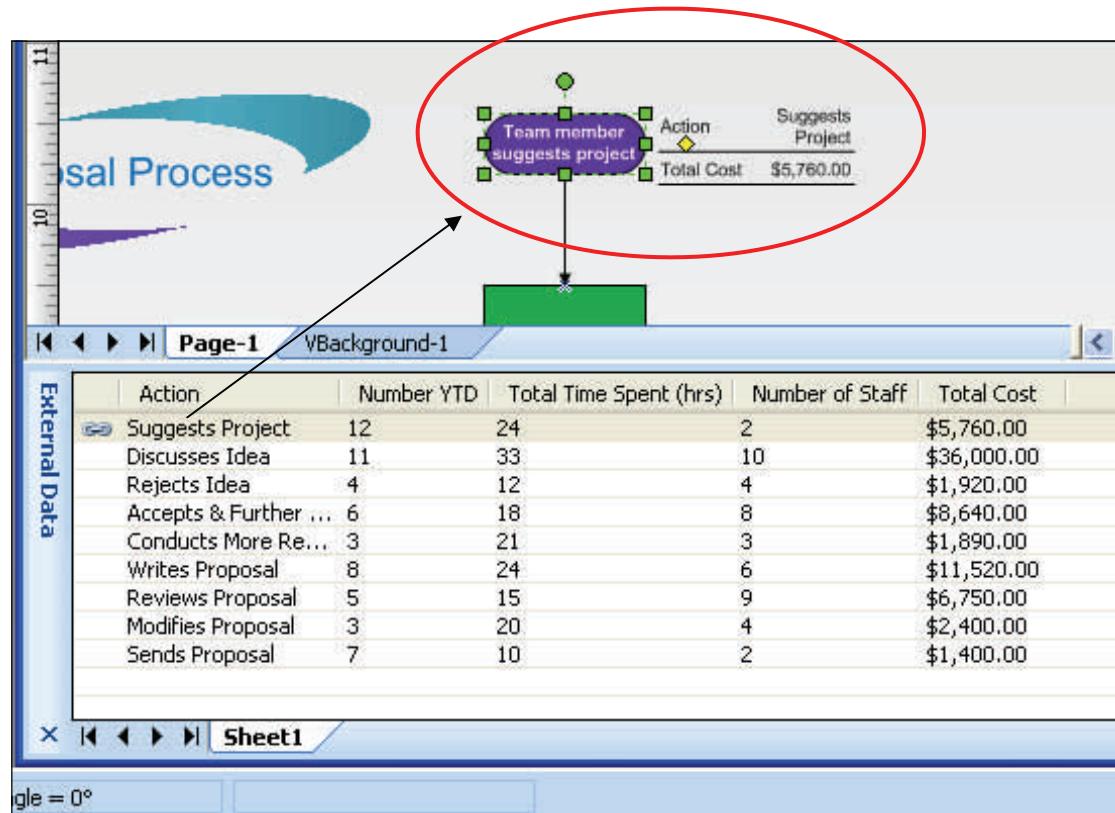
1. To add another Excel spreadsheet data group to a diagram that already has external data, go through the same procedure as you would for the first group of data (see workbook, page 5);
2. The additional external data will show up as a second tab at the bottom of the External Data Window (looking very much like what you see in an Excel spreadsheet).
3. So, using the two Excel files from the workshop, after adding the second one, it would look something like,
4. You can then drag and drop the new data rows onto the existing icons, and those icons will merge the data into the existing data.
5. One easy way to see what data is connected with a specific shape is to bring up the Shape Data Window - if it is not already visible, use the View command at the top and select it.
6. It will look something like the example on the right: with the data from two different spreadsheet rows.
7. When you go into the Edit Data dialogue box, and press the down arrow of an existing data field, you will also see that the new data is available for you to use in revising the data graphic.
8. From here, you can either modify or copy the data graphic to show just the data you need.
9. If you are adding a new shape and attaching the new data to that shape, you will need to create a new data graphic to accommodate the different data.
10. In the workshop, this is one of the exercises we did (see instructions starting on page 12 in the workbook).

Action	Number
Discusses Idea	20
Rejects Idea	10
Further Defines Project	8
Conducts More Research	6
Writes Proposal	8
Reviews Proposal	6
Revises Proposal	2
Sends Proposal	6

Shape Data : Accounts Payable	
Department	Billing
Orders in Process	7
Avg Time (Days)	4
Qty Staff	1
OT Avail?	No
P6	
FT	
Action	Reviews Proposal
Number YTD	6
Total Time Spent (hrs)	38
Number of Staff	12
Cost	\$8,000.00

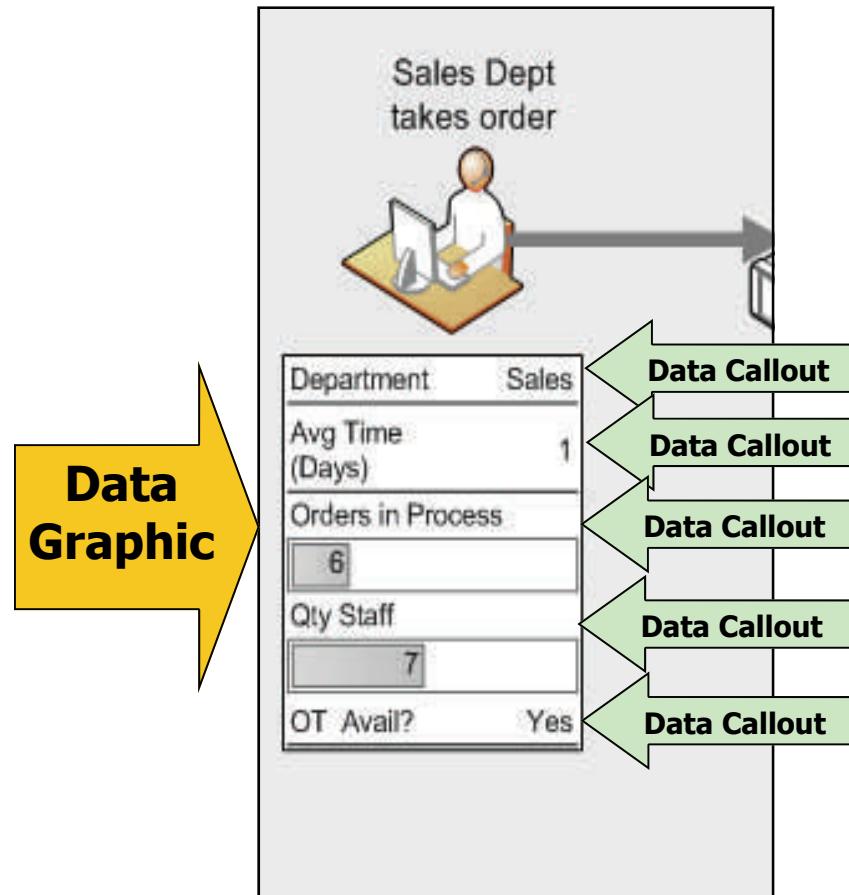
Dragging Data onto Shapes

1. Note which rows of data apply to each shape
2. To apply data from a row to the corresponding shape, select a row and drag it to the shape
3. When the data is over the shape, a frame will appear around the shape, let go of the mouse key
4. Data from the entire row is imported into the shape. However, only two items of data are displayed (To see all of the data for the shape, click on the *Data* menu and select *Shape Data*.)
5. A link icon appears in the field preceding the data in a row

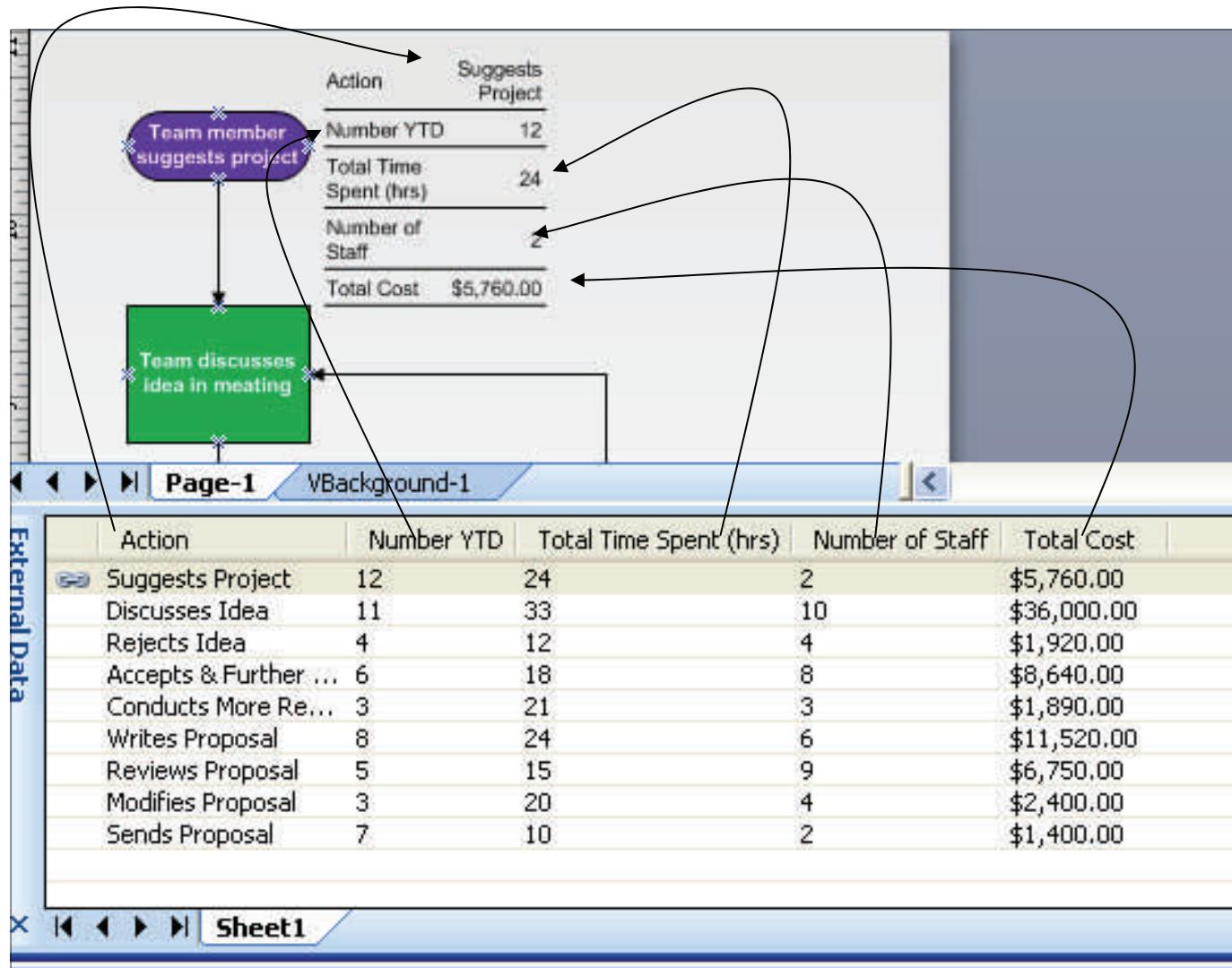


Data Graphics

A **Data Graphic** is a set of **Callouts** relating to a shape

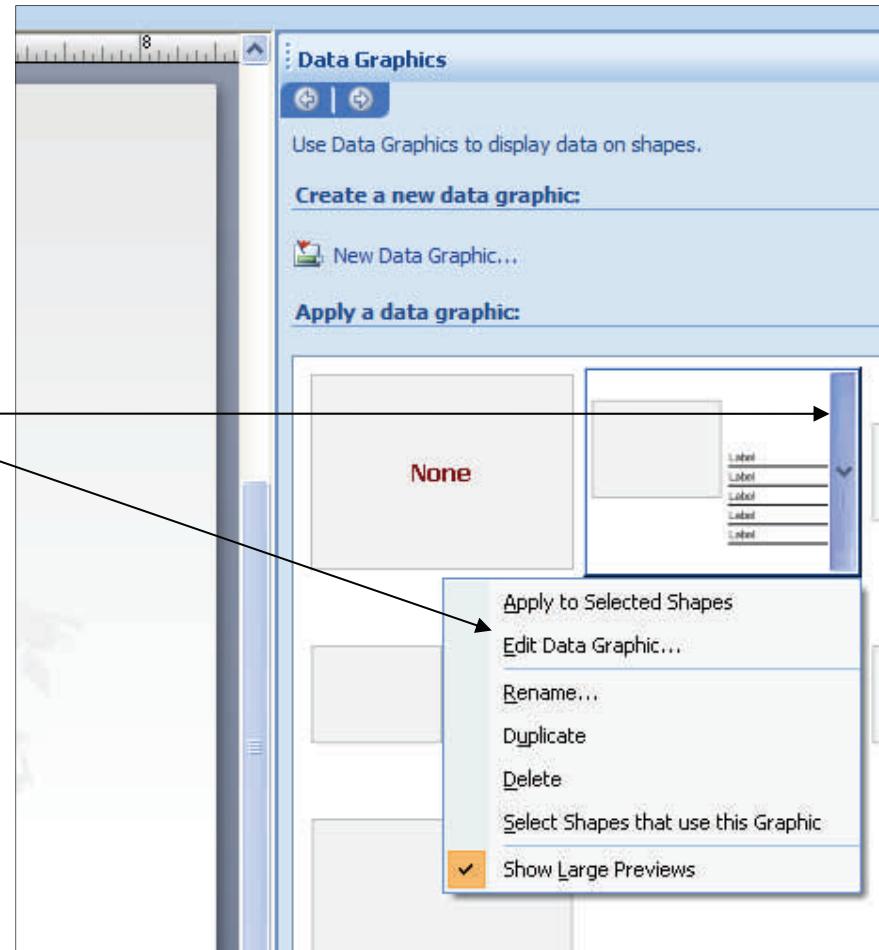


Relationship Between Data Callouts and Columns of Data



The Data Graphic Task Pane

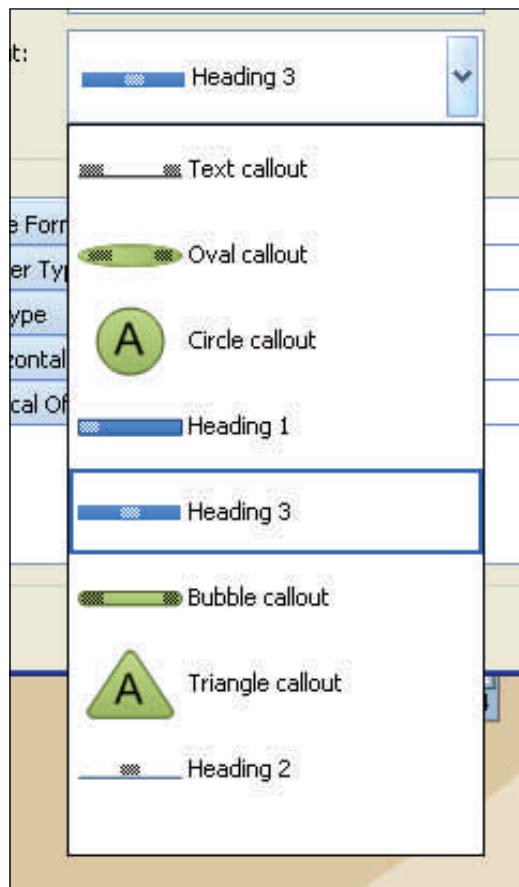
- The *Data Graphic Task Pane* appears on the right hand side of the drawing window.
- It is opened by clicking on the *Data* menu on the menu bar and selecting *Display Data on Shapes*.
- It contains *format boxes* which determine the content and presentation of Data Graphics
- Changes are made by clicking on the down arrow of a *Data Graphic Format Box* and selecting *Edit Data Graphic*, which provides a wide range of editing tools.
- Changes can be applied to data graphics by selecting a shape that you want to change, then selecting the relevant *Format Box*.



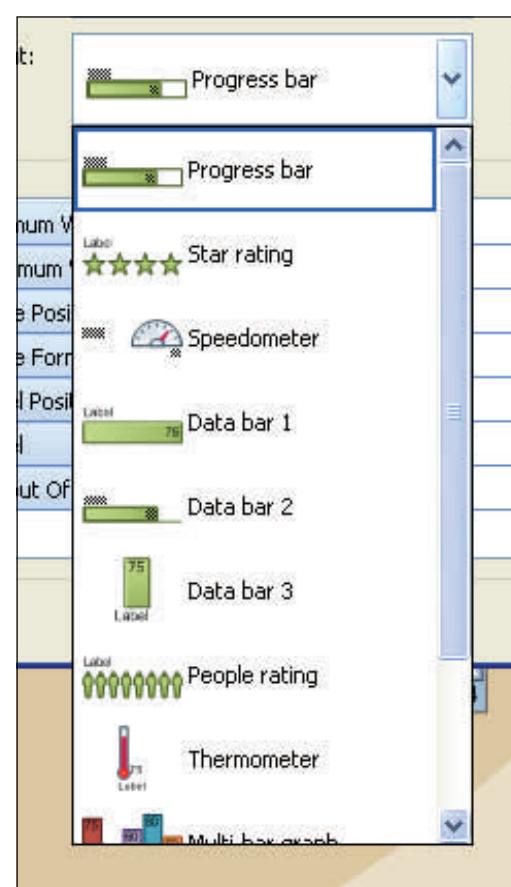
Types of Callouts

Below are some of the callouts, bars and icons available for use with data graphics. The type of graphic you use depends on what you wish to define.

Text Callouts



Data Bars

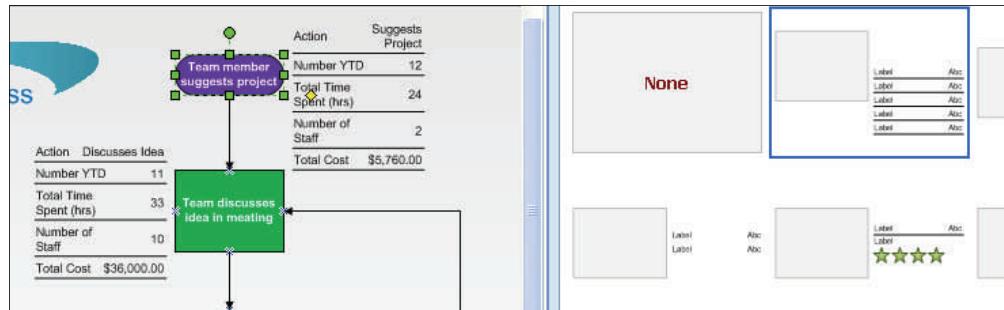


Icon Sets

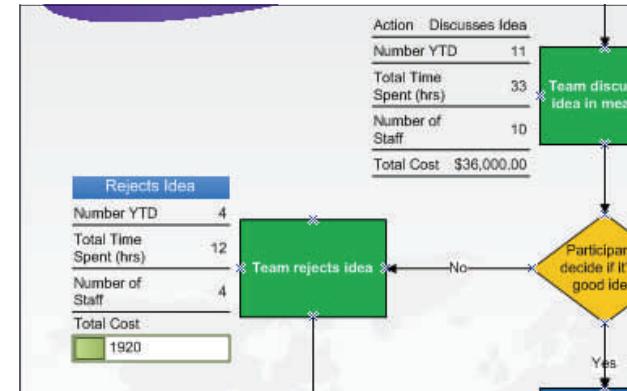


Examples of Data Graphic Formats

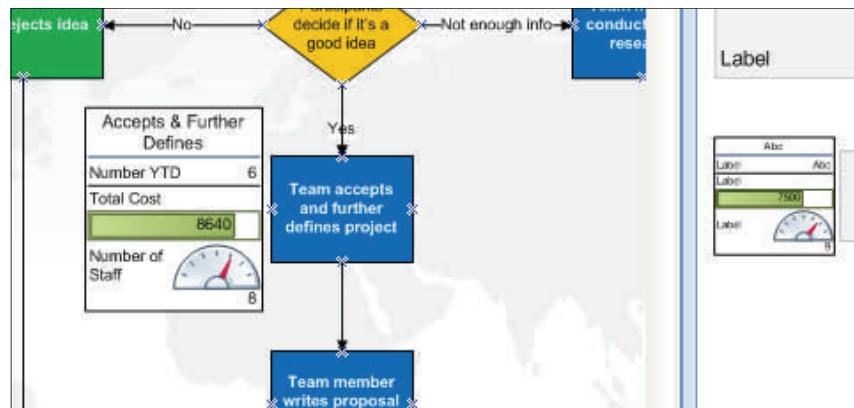
Below are some examples of the different ways you can use data graphics to communicate data, using both text and graphics. The following pages illustrate how to create these formats.



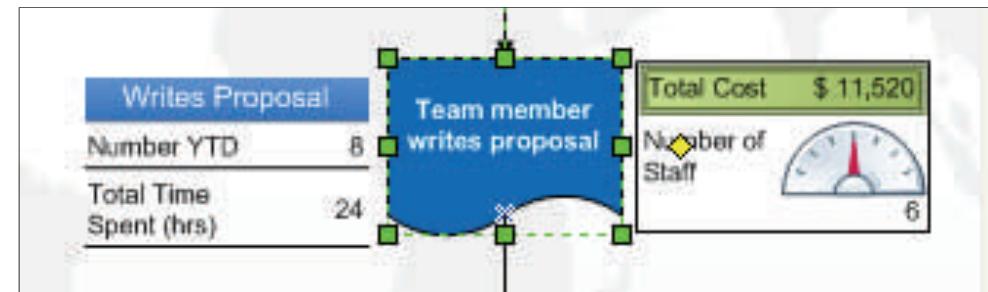
Suggests Project and *Discusses Idea* share the same Data Graphic Format which is shown selected in the Data Graphic Task Pane on the right.



With the *Rejects Idea* shape, we used a different type of heading in the *Text* category and used a bar to specify *Total Cost* as opposed to text in the previous shapes.



In this Data Graphic format, the heading has assumed a different format and a meter has been added to Number of Staff. We also specified a border which encloses the data graphic and puts a background behind it.



The Data Graphic has been split to appear on both sides of the shape and *The Total Cost* label has been incorporated into the bar graph

Creating & Modifying Data Graphics

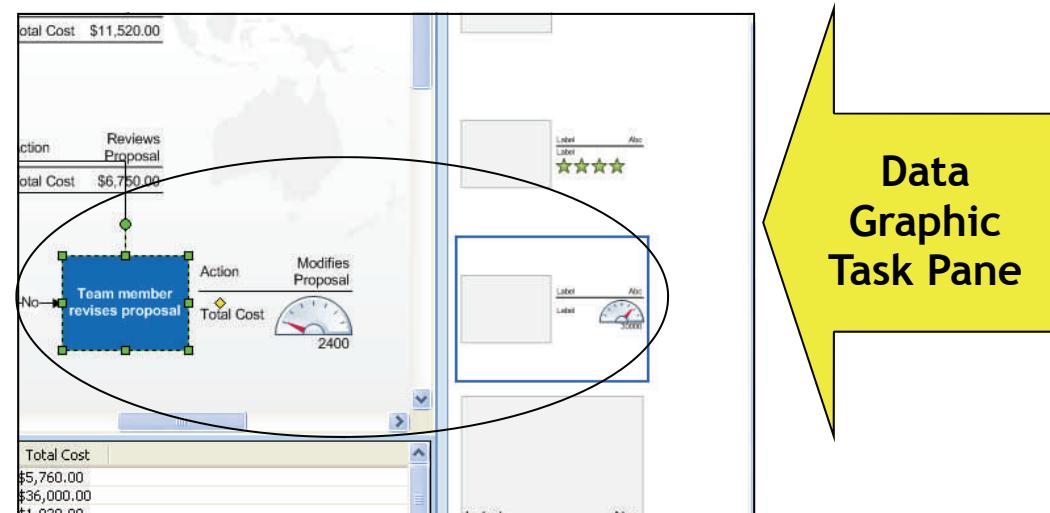
The *Data Graphics Task Pane* is where you can customize and create Data Graphics. You can either use one of the pre-set formats, modify a pre-set, or develop a new one from scratch.

When you first drag a row to a shape, a data graphic is automatically attached to the shape. That data graphic is a simple one with plain text showing just two pieces of information from two columns of the linked row. But you can create your own Data Graphic by using the *Data Graphics Task Pane*. You can open the *Task Pane* by clicking on the *Data* menu at the top of the screen and selecting *Display Data on Shapes*.

Use one of the pre-made formats

To use one of the existing Data Graphic formats

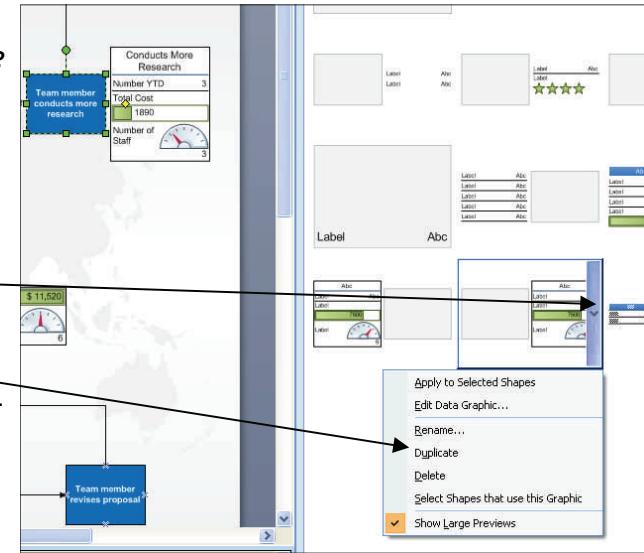
- 1) Click on the shape to which the graphic will be attached
- 2) Click a different format in the *Data Graphics Task Pane*
- 3) Your *Data Graphic* is amended to the new format



The Edit Data Graphic Dialog Box

To edit an existing *Data Graphic Format Box* in the *Data Graphic Task Pane*

- 1) In the Data Graphic Task Pane, identify the Data Graphic Format Box that you want to change.
- 2) Mouse-over the Format Box until the right side down arrow appears,
- 3) Click on the down arrow
- 4) Select *Edit Data Graphic* from the menu
- 5) The *Edit Data Graphic* dialog box appears
- 6) In the dialog box are listed the callouts which already exist in the document.
- 7) At this point, you have five options, four of which are listed in the menu at the top of the dialog box and one at the bottom of the list of callouts:
 - Create a new callout
 - Edit one or more of the existing callouts
 - Delete one or more of the existing callouts
 - Change the order in which the callouts appear
 - Change the location of the Data Graphic relative to the shape to which the Data Graphic is attached (below the callout list).



Parts of the Edit Data Graphic Box

New Item: Enables you to add a new callout to those that you already have

Edit Item: Opens the *Edit Item* dialog box in which you edit an existing callout

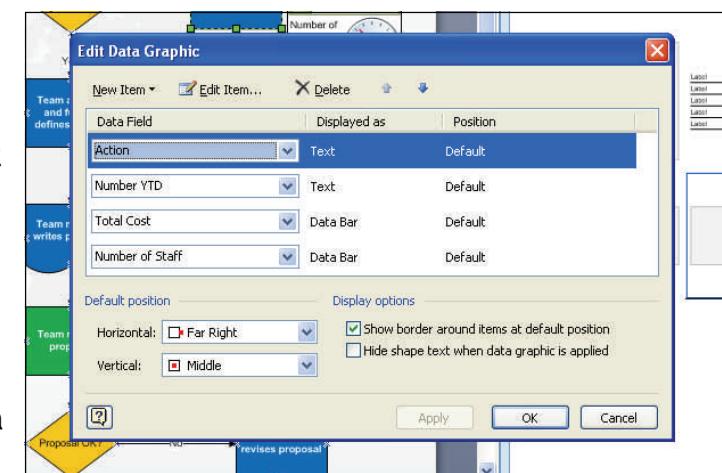
Delete: Deletes an existing callout

Up & Down Arrows: Change the order in which callouts appear

Default Position: Enables you to control the default position of the Data Graphic

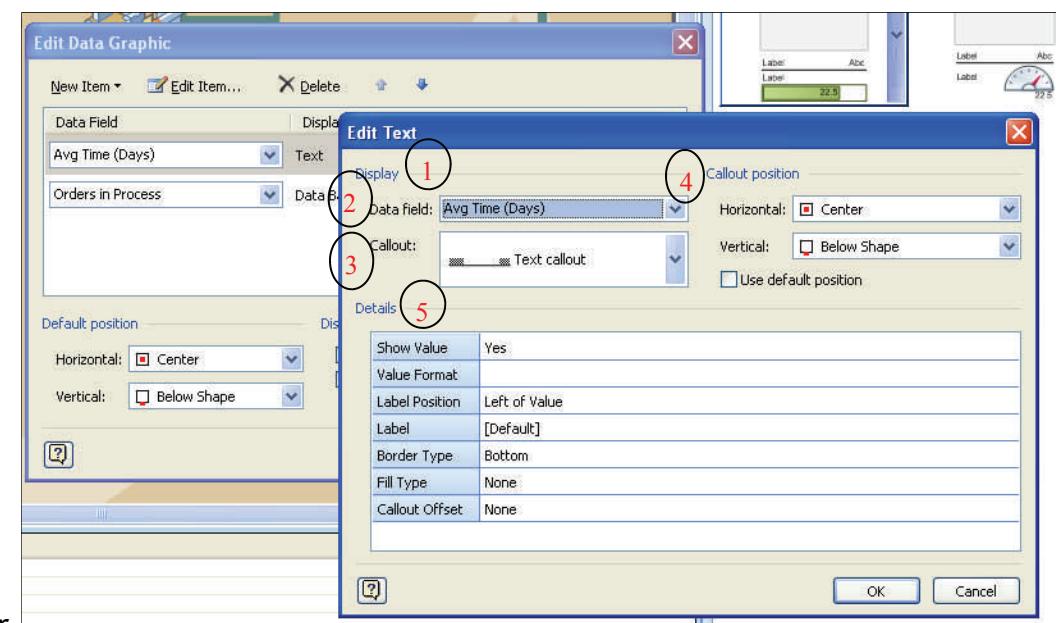
Show Border...: Displays a border around the data graphic

Hide Shape Text...: Ensures that shape text will not get in the way of the Data Graphic



The Edit Item Dialog Box

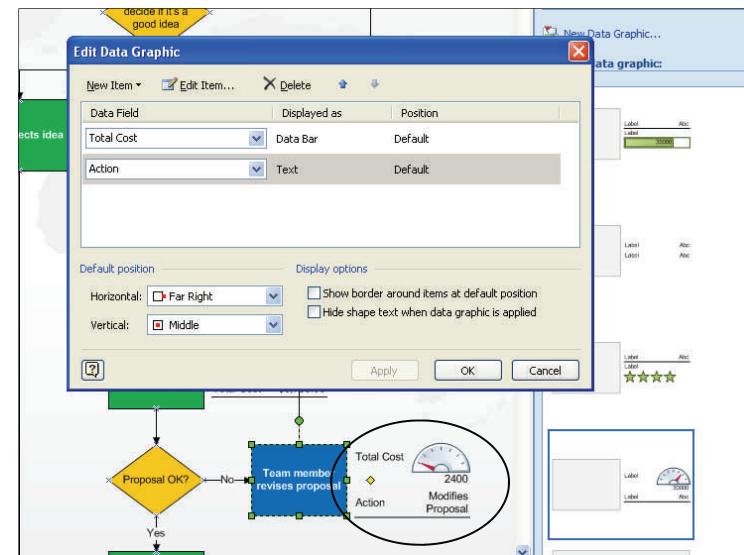
- When you select *Edit Item*, the *Edit Item Dialog Box* appears
- This box has four sections:
 - Display (Blue Heading)
 - The Data Field
 - The Callout Format
 - The Callout Position (Blue Heading)
 - The Callout Details (Blue Heading)



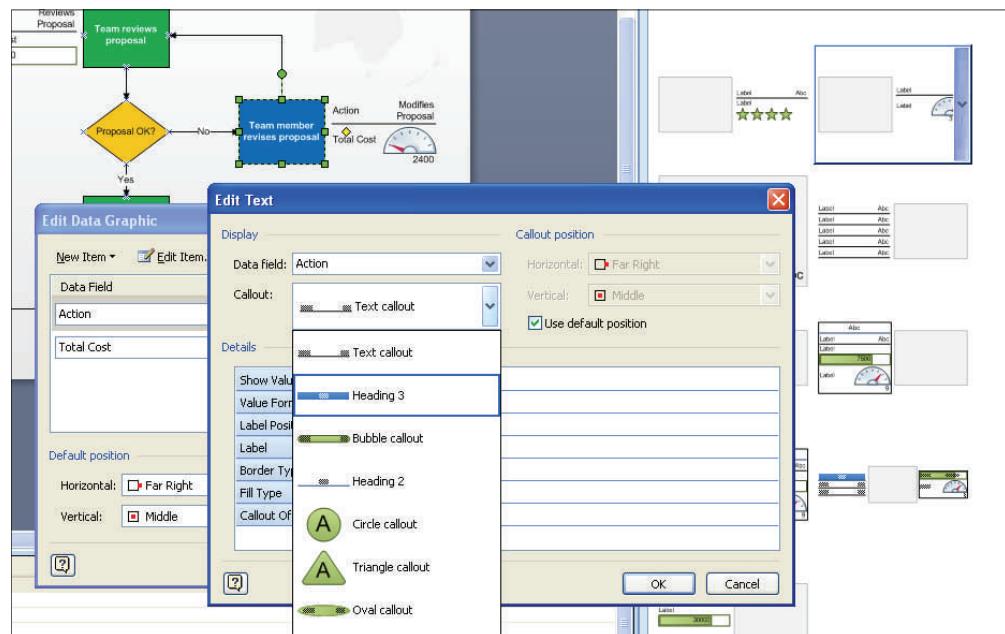
- The Data Field (Category of information) lists the callout headings which are derived from the column headings of the *External Data List* below.
- The Callout list (the way in which the information is displayed) provides a list of available formats for the type of graphic you are editing, i.e. Text, Bar, Icon, or Color.
 - When you are editing an existing callout, you are limited to the list of formats for that type of callout.
 - If you want to change the type of callout, you have to go back to Edit Graphic and select *New Item*, and format the callout as a new item, then delete the old one.
- The Callout Position (relative to the shape, both horizontal and vertical): Overrides the *Edit Data Graphic* default setting, which governs all the callouts, such that the individual callout can be positioned independently of the rest of the Data Graphic.
 - If you want a callout to appear in a different position than the rest of the callouts, click off the check mark and define the horizontal and vertical designations.
- The Details Field (allows you to fine tune the callout): The composition of the list of *Detail* settings that appear in the *Details* section is dependent on the type of callout format you select.
 - These items enable you to select specific elements that define exactly how the callout will appear and behave.
- When you have finished with setting up the *Edit Item* dialog box, click *OK* to return to the main, *Edit Data* dialog box.

Exercise: Change a Data Graphic Format Box

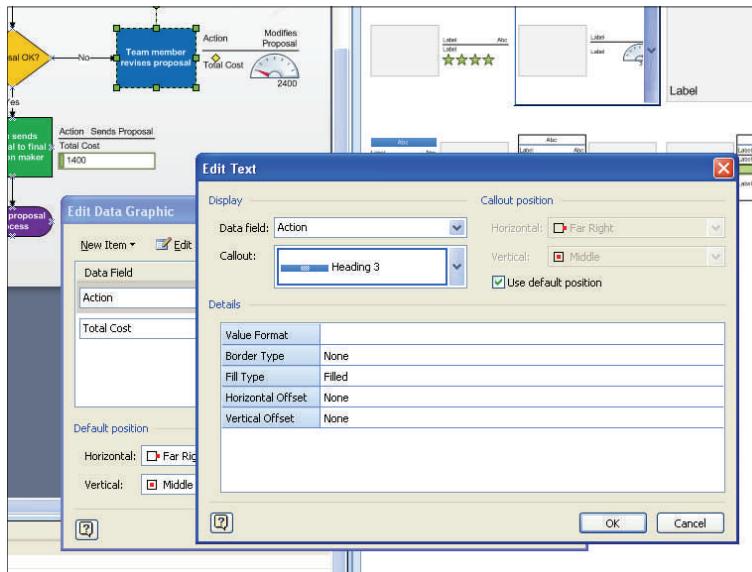
1. Select *Team Member Revises Proposal*
2. Mouse over the framed *Data Graphic Format Box*
3. Open the *Edit Data Graphic* dialog box from the format that is highlighted
4. Select *Action*
5. Change the order of the item in the list of callouts by clicking the down arrow in the top menu
6. Click *Apply*
7. The order of callouts is changed on all the shapes.
8. Return *Action* to the first position by clicking the *Up* arrow



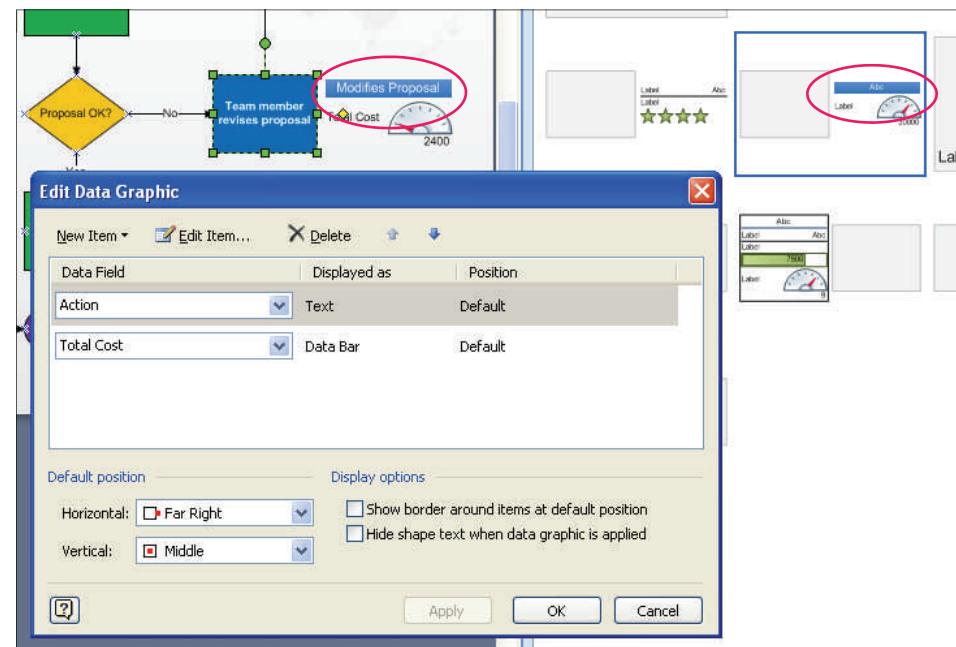
1. With *Action* selected, click on *Edit Item*
2. Click on the *Callout* down arrow
3. From the resulting list click on *Heading 3*
4. Click on *Okay*
5. Click *Apply*
6. The Action item is displayed with the blue background
7. Notice also that the *Data Graphic Format Box* in the Task Pane, has also changed.



1



2

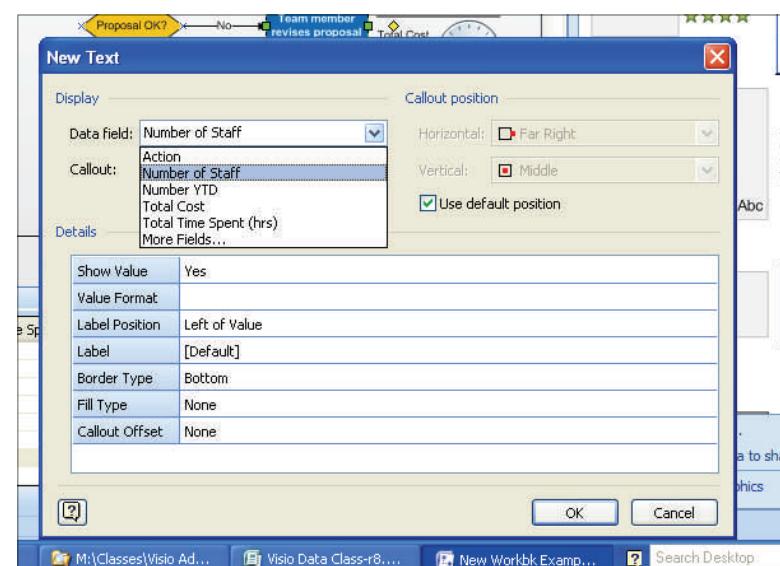
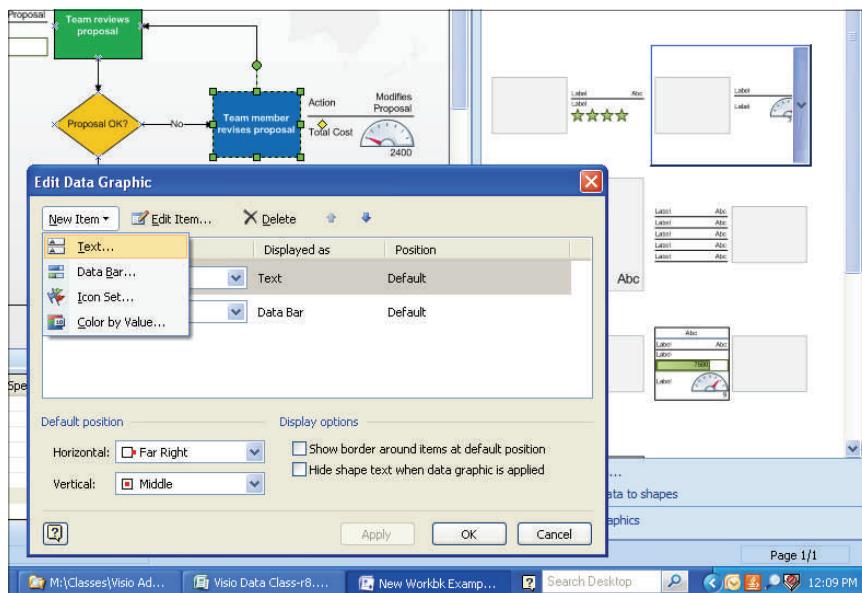


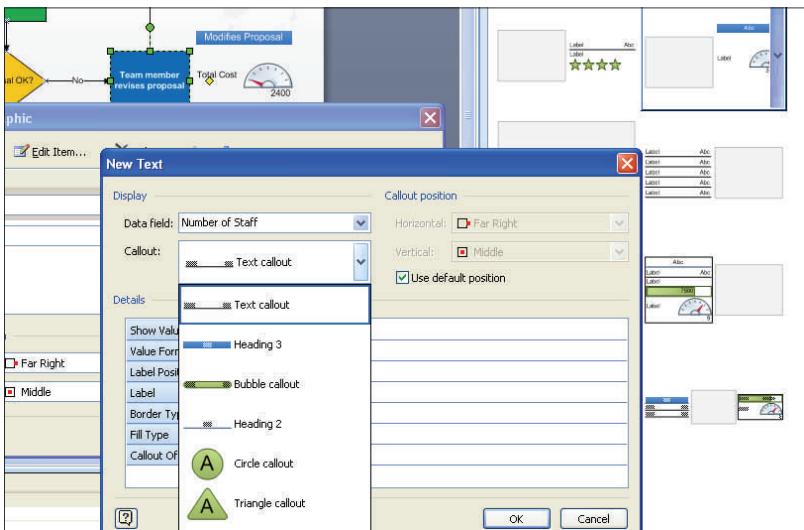
3

Exercise: Creating a New Callout

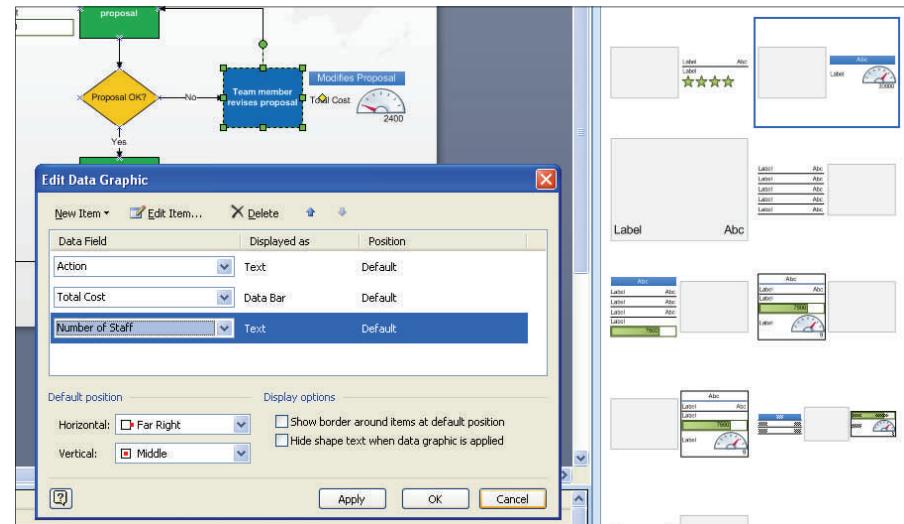
In the same *Edit Data Graphic* dialog box you used for the previous exercise ~

1. Click on *New Item*
2. Click on *Text*
3. In the Data Field, select *Number of Staff*
4. In the Callout drop down, select *Text Callout* at the top
5. Click *Okay*
6. And *Apply*

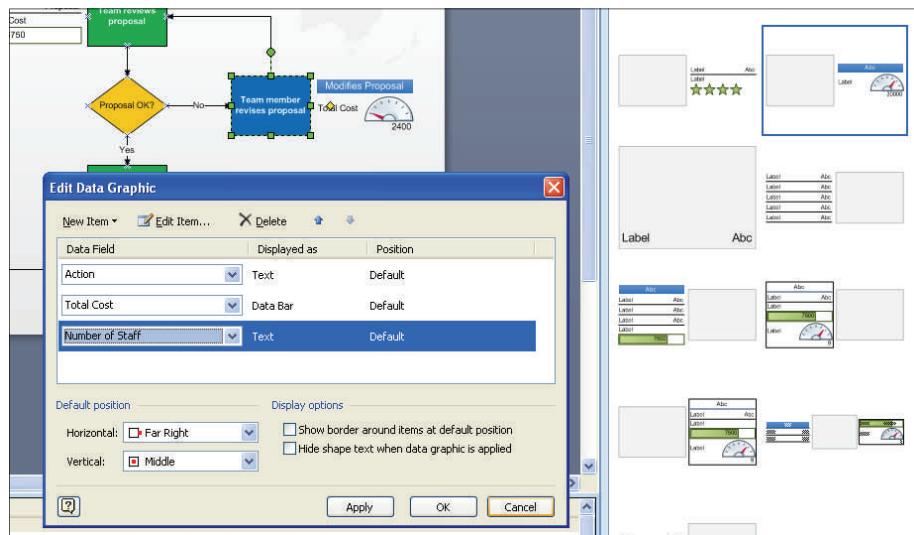




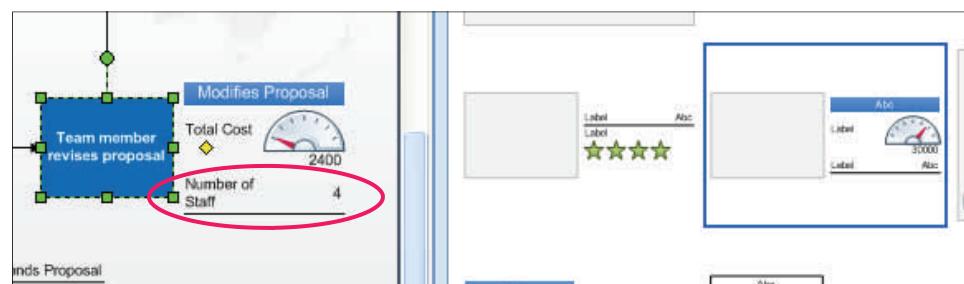
4



5



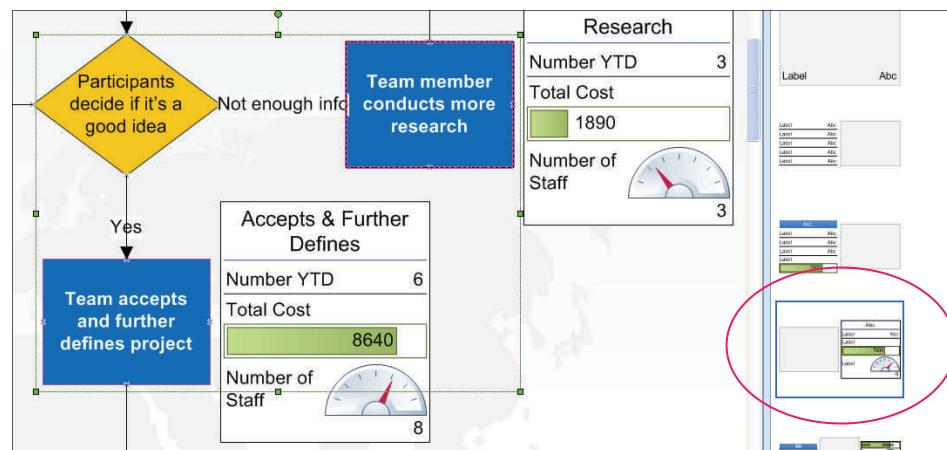
6



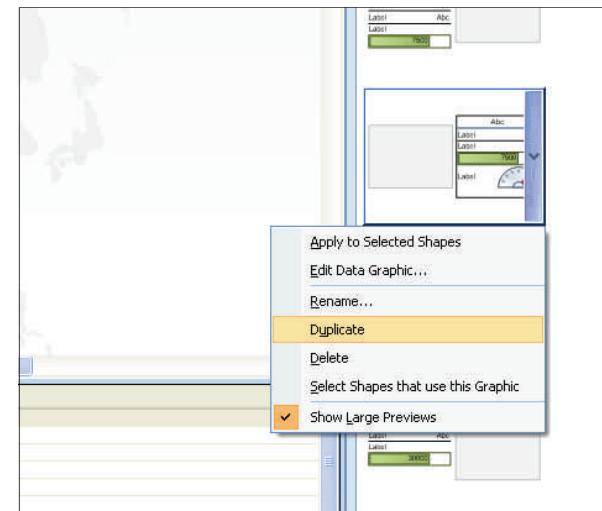
Result

Revising a Data Graphic Shared with Two or More Shapes

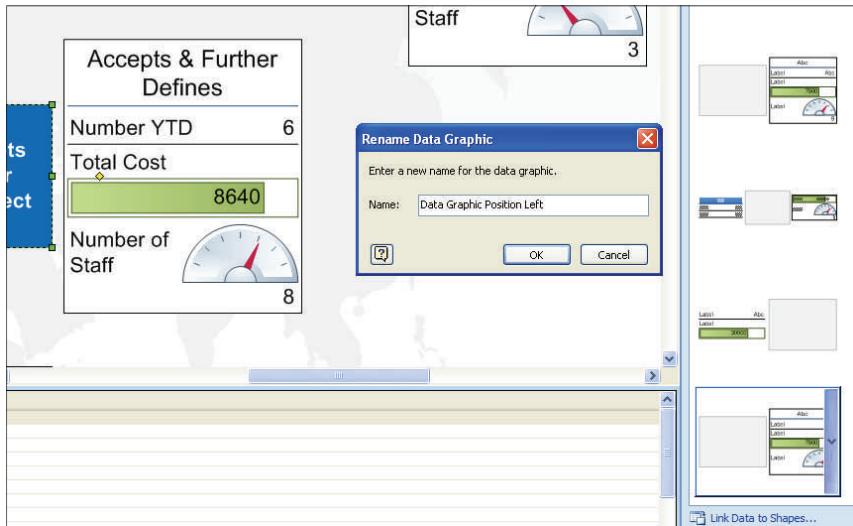
- Say you have a data graphic format that is shared with several shapes and you want to make an amendment to the Data Graphic's position relative to one of the shapes but not the others.
- If you make a change to the data graphic position of one shape, it will change the position of all the shapes that share this format.
- The way around it is to duplicate the *Data Graphic Format Box* in the *Data Graphic Task Pane*, make the position change in the duplicate, then apply the duplicate to the shape to which you want to make the change.
- You can duplicate a data graphic by clicking the down arrow to the right of the data graphic format to which it is attached and clicking on “Duplicate.”
- When the duplicate appears, select the shape that you want to change, click on the new Data Graphic Format, and the data graphic will appear with the change on the shape.



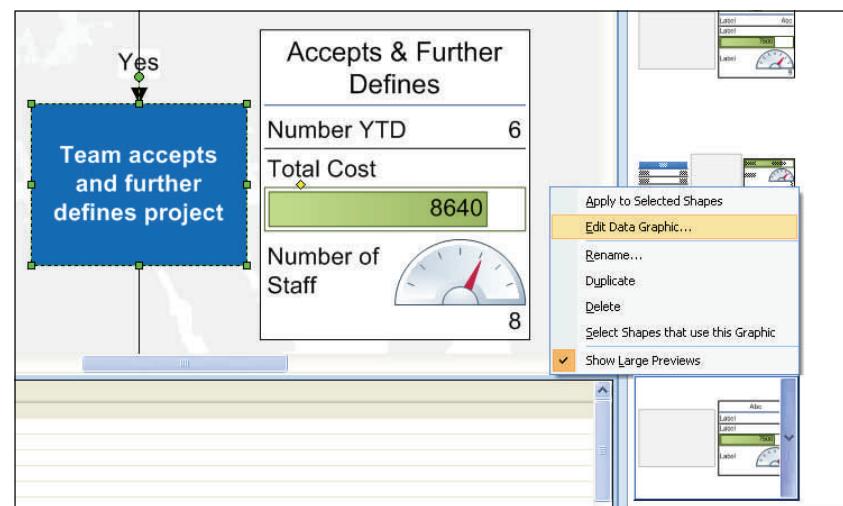
The highlighted Data Graphic format on the right is shared by the two selected shapes above, which both have their data graphic on the right. We want the *Accepts and Further Defines* Data Graphic to be on the left side of the shape.



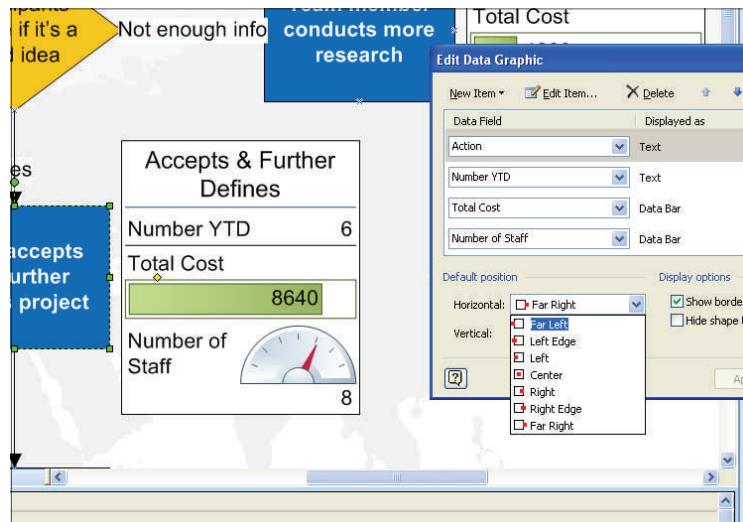
To do that, we duplicate the *Data Graphic Format Box* by selecting *Duplicate* from the format's drop down menu.



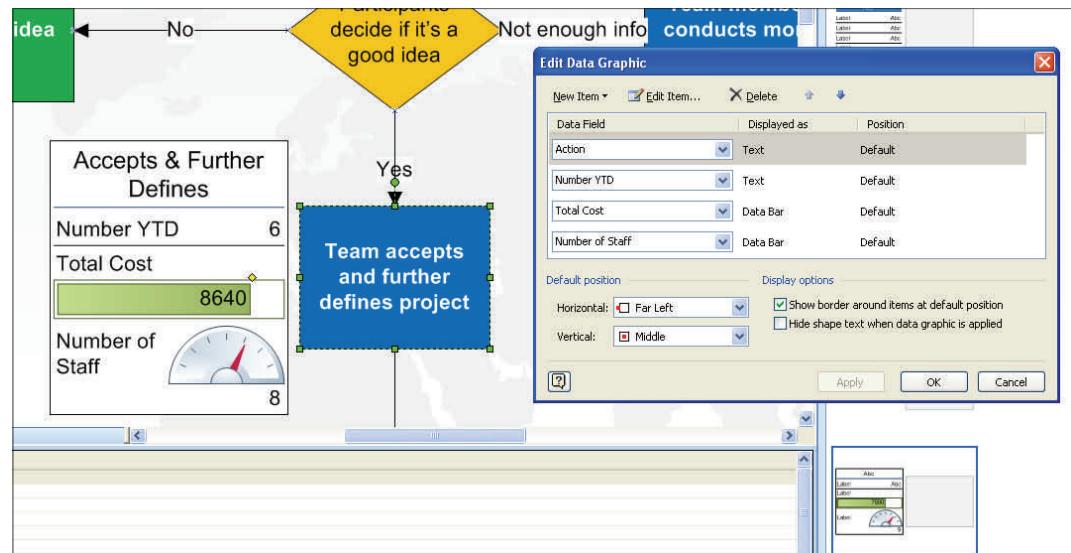
Rename duplicate format box by clicking the down arrow on the right and selecting *Rename*.



Select the Shape you want to change, then select the duplicate format box, then *Edit Data Graphic*



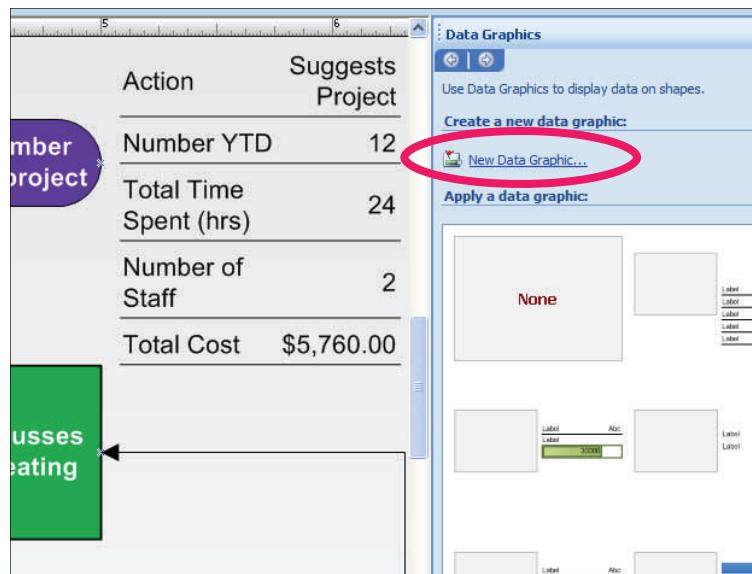
Change the position of the data graphic to *Far Left* and *Middle*



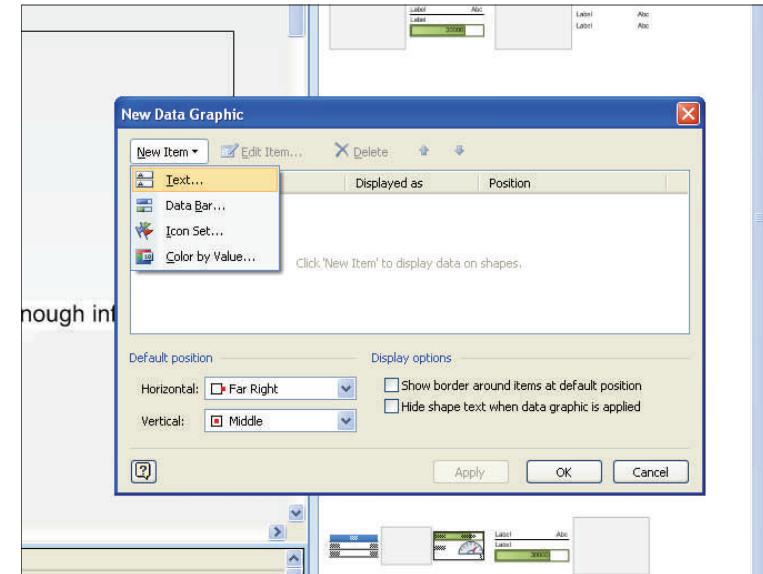
Click on *Apply*; The change is made to only the Further Defines Project Graphic you selected.

Creating Data Graphics from Scratch

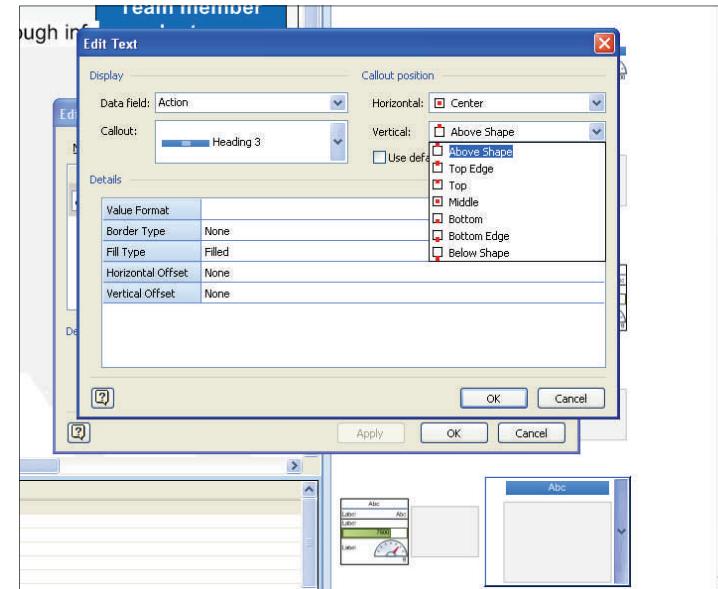
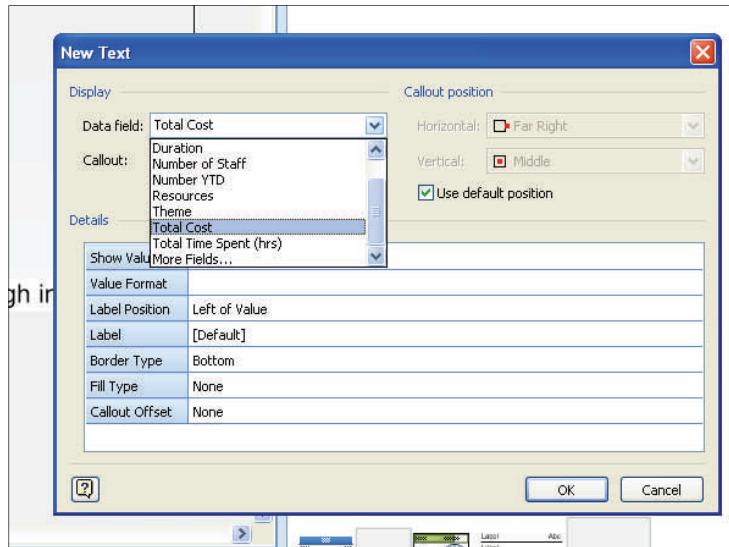
1. In the upper part of the Data Graphic task pane, click on *New Data Graphic* link
2. In the *New Data Graphic Dialog* box, click on *New Item*, then click *Data Bar*
3. In the *New Text* dialog box, in the *Data Field*, click on the down arrow and select *Total Cost*
4. In the *Callout* box, select *Progress Bar*
5. Click the check box labeled *Use Default Position* to uncheck it
6. Under *Callout Position*, click the *Horizontal* field and select "Centered"
7. In the *Vertical* field, click and select *Above Shape*
8. Press *Okay*, and *Okay* again.
9. A new Data Graphic format box appears
10. This can be applied to any of the shapes in your diagram by selecting the shape, then selecting the new format box in the task pane.



1 & 2

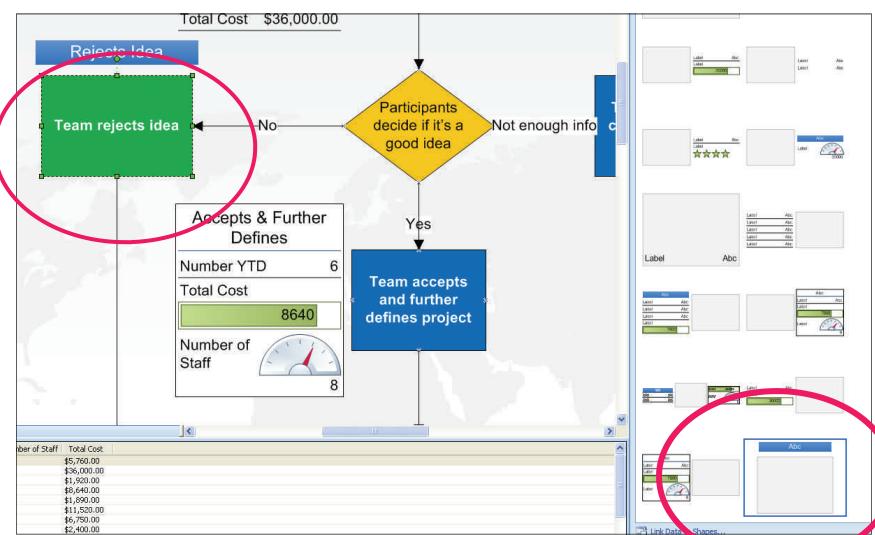


3



4

5, 6 & 7

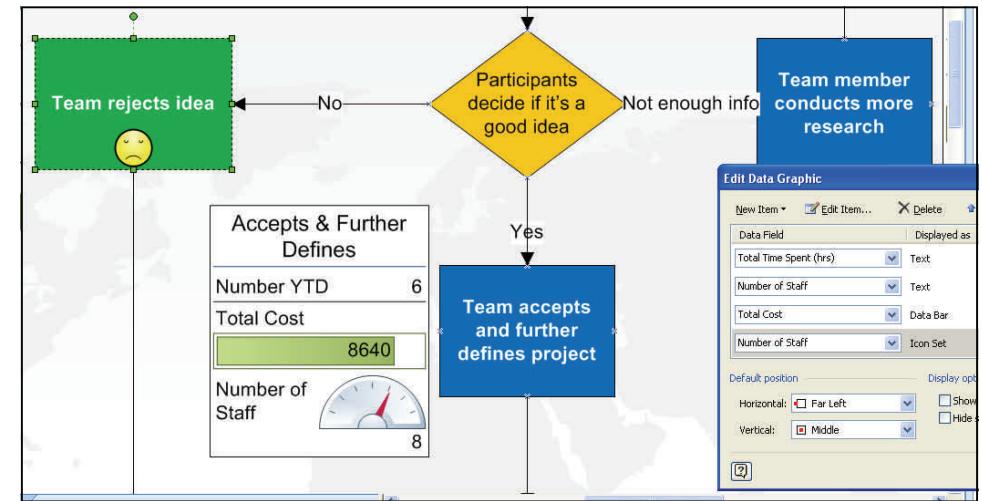
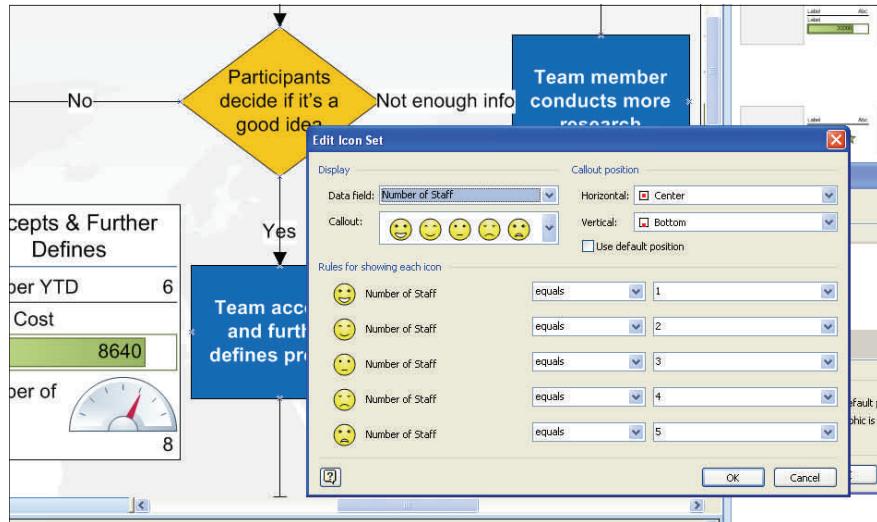
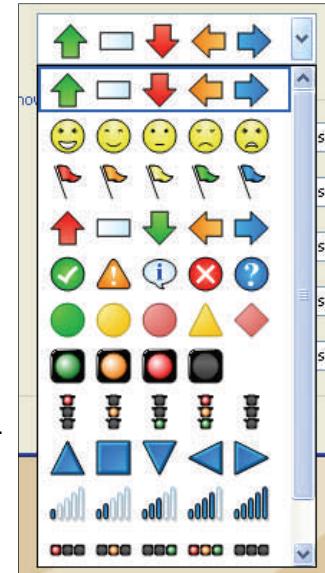


9 & 10

Using Data Graphic Icons

You can use a wide variety of icons that can communicate various attributes of a data graphic's status.

- You create an Icon Data Callout the same way you create other callouts, through creating a new callout in a data graphic format, and selecting Icon Set.
- You will then see a selection of different icon sets, as illustrated on the right, the selection of which will provide a dialog box that looks like the box below.
- You can then enter values for each of the icons in the icon set.
- The icon that appears in your data graphic does not have a category name, a value or any explanation; this you have to create by inserting a text box.
- It helps to create the callout again using a text format near the icon, which then has the effect of describing the icon.



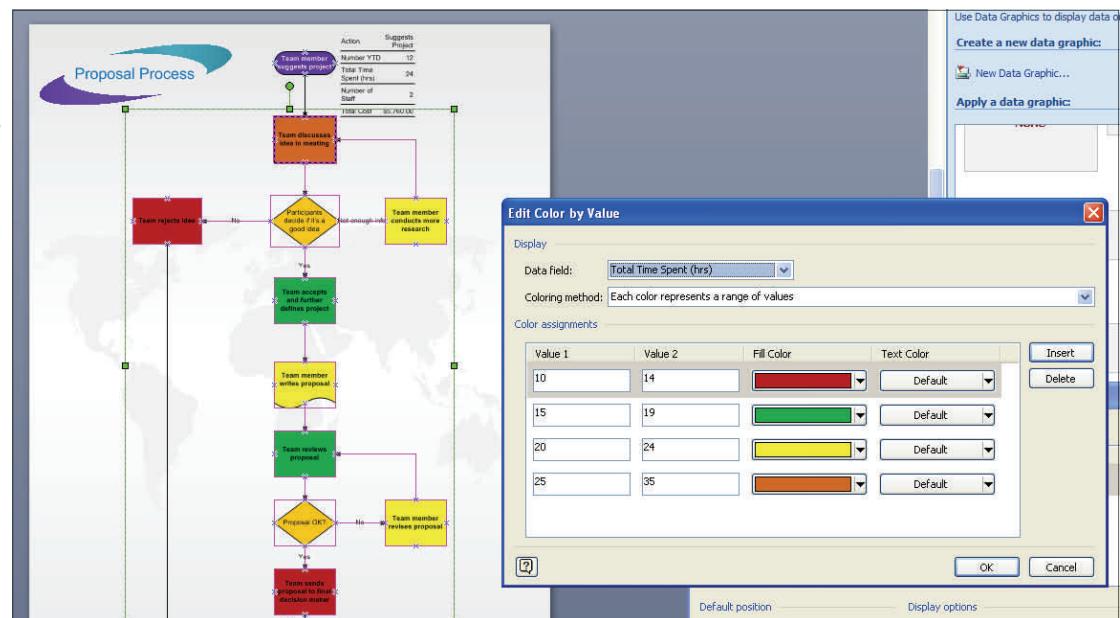
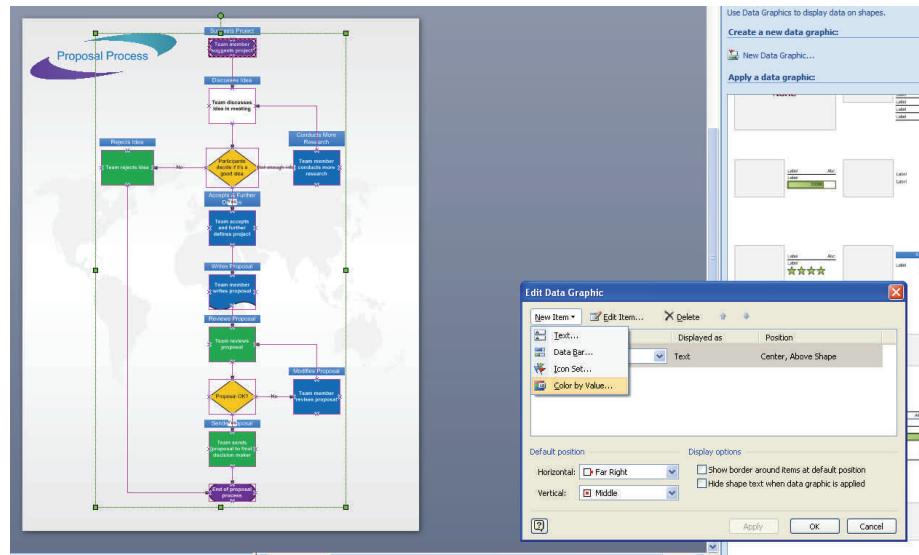
Color By Value

Color by Value allows you to indicate the value of a shape by what color it is. In the example below, more staff is considered to be negative, thus Shipping with 3 staff is red, while Accounts Receivable with one staff member is shown as green.

To set up Color by Value,

Use the data graphic format box you created in the last exercise

- In the Data Graphic Task Pane, select the format that relates to the shapes to which you want to add the CBV status indicator
- Click on *New Item*, then *Color by Value*
- Click on *Total Time Spent* in the Data field.
- The select *Each color represents a range of values*
- Select the colors you want to display for each situation
- Then copy the values from the illustration to the right in to the corresponding fields.
- Click on OK and Okay again.
- Select all the shapes, then click on the data graphic which contains the color



Exercise

Create the callouts illustrated in the diagram to the right.

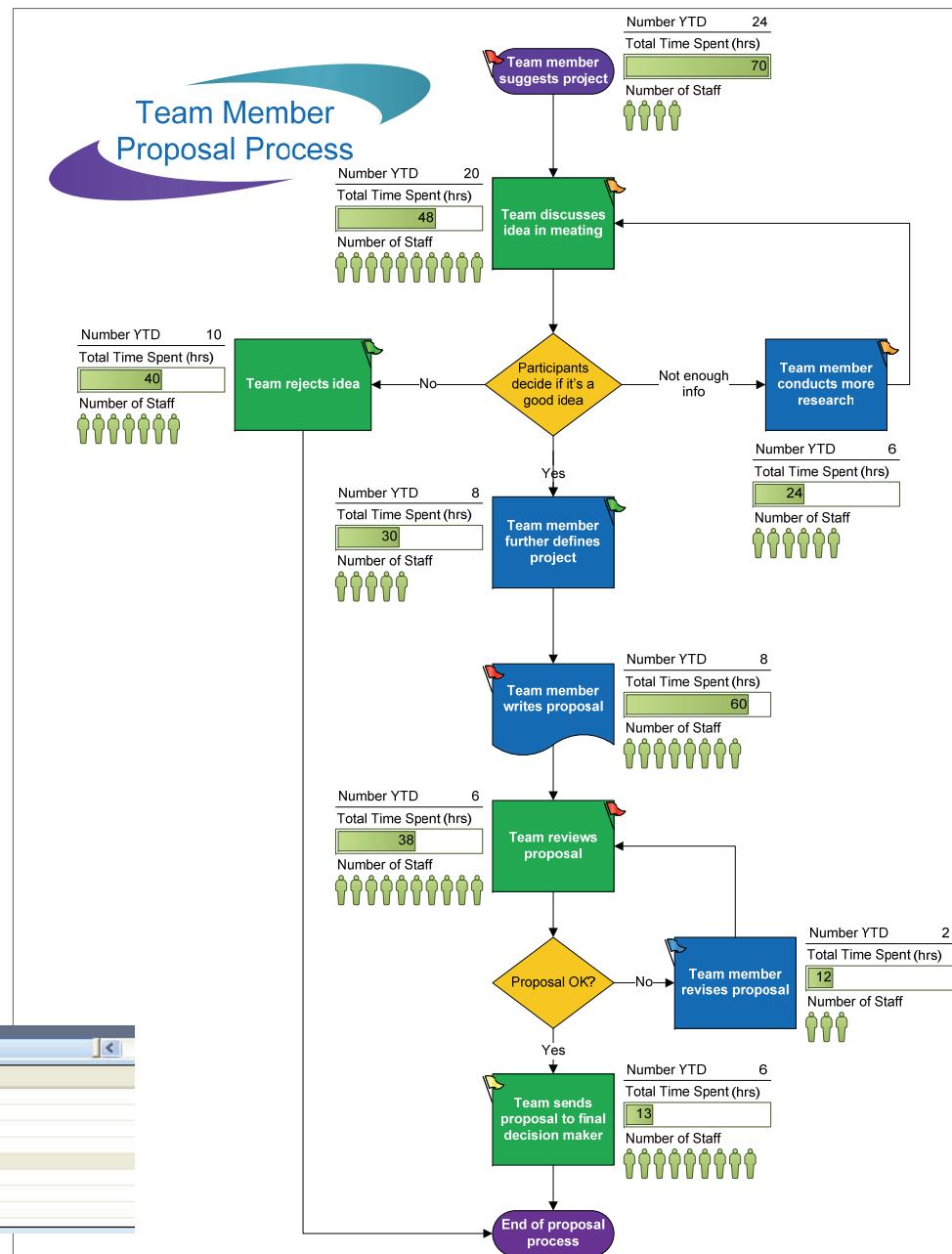
Use Excel file:

[My Documents/ICExercise/Visio Data Class/
Proposal Flow Chart ND.vsd](#)

and

Visio File

[My Documents/ICExercise/Visio Data Class/
Proposal Statistics.xlsx](#)



External Data				
Action	Number YTD	Total Time Spent (hrs)	Number of Staff	Cost
Rejects Idea	10	40	8	\$2,300.00
Accepts & Further Defines	8	30	5	\$2,100.00
More Info	6	24	7	\$4,600.00
Proposals Written	8	60	9	\$5,600.00
Proposal Approved	6	38	12	\$6,000.00
Proposal Modified	2	12	3	\$1,600.00
Proposal Sent	6	13	10	\$3,400.00

How to Perform the Previous Page Exercise

1. Open the *Proposal Flow Chart*
2. Click off the *Shapes Task Pane*
3. In the Data Menu click on *Display Data on Shapes*
4. In the Data Menu click on *Link Data to Shapes*
5. In the Data Selector box, click on next, then browse
6. Select the file: <M:\Classes\Visio Advanced\Practice\Proposal Statistics.xlsx> (or wherever this file is stored)
7. Click Next until you get to the *Finish* button, then click *Finish*
8. The *External Data List* appears with 11 Actions (Rows) and four columns
9. Drag each row to it's corresponding shape in the diagram (they match sequentially)
10. Click on the first shape and notice that the Data Graphic format box in the Data Graphic Task Pane, next to the *None* format box, is selected.
11. Click the down arrow of the selected Data Graphic format box and select *Edit Data Graphic*.
12. In the Edit Data Graphic dialog box select the first Data Field Action
13. Click on the down arrow and select *Number YTD*
14. With the *Number YTD* selected, click on *Edit Item*
15. In the *Details* section, in the *Border Type* category, click *Bottom*
16. Click on *Okay*, then *Apply*. The first callout in each Data Graphic changes
17. Click on the second Data Field *Cost* and delete it, using the X in the menu bar
18. Click on *New Item*, then *Data Bar*
19. For the *Data Field* select *Total Time Spent (hrs)*
20. In the *Details* section opposite *Maximum Value*, replace the 100 with 45.
21. Click *OK* and *Apply*
22. In the Data Graphic dialog box, click on *New Item*, then *Data Bar*
23. In the *Data Field* select *Number of Staff*
24. In the Callout box select the *People Rating* graphic toward the bottom of the list
25. In the *Details* section, select the *Maximum* category and replace the 100 with 12 and click *OK*.
26. Once again, click the *New Item* button in the Menu and select *Icon Set*
27. In the *Data Field*, select *Cost*
28. In the *Callout field*, select *Flags*
29. Change all the *equals* drop down boxes to *is between*
30. In the two boxes to the right of the *Red Flag*, enter 6000 and 5000
31. In the two boxes to the right of the *Orange Flag* enter 5000 and 4000
32. Continue in this way until opposite the *Blue Flag*, you enter 2000 and 1000

Continued Next Page →

33. In the Callout Position, change *Horizontal to Right Edge* and *vertical to Top Edge*
34. Press *OK*, then *Apply*, then *OK*.
35. Click the down arrow of the *Format Box* we have been modifying and select *Duplicate*, then *Duplicate* again
36. In the first duplicate box, click the down arrow and select *Edit Data Graphic*
37. In the *Default Position* area click on the down arrow of *Horizontal*, and select *Far Left* and press *OK*
38. In the second duplicate *Format Box*, click the right arrow and select *Edit Data Graphic*
39. In the dialog box, *Default Position*, click on the *Vertical box* and change to *Below Shape*
40. Click *OK*
41. Press and hold down the *Control* key and select the following shapes: *Team Discusses Idea*, *Team Rejects Idea*, *Team Accepts and Further Defines Project*, and *Team Reviews Proposal*
42. When all of the above shapes are selected, release the *Control* key and click on the first duplicate *Format Box* you created. The Data Graphics for the selected shapes should have moved to the left of the shapes
43. Next, select the shape, *Team Member Conducts More Research*, then select the second duplicate you made
44. The Data Graphic should re-position to the bottom of the shape.