Chapter at a Glance
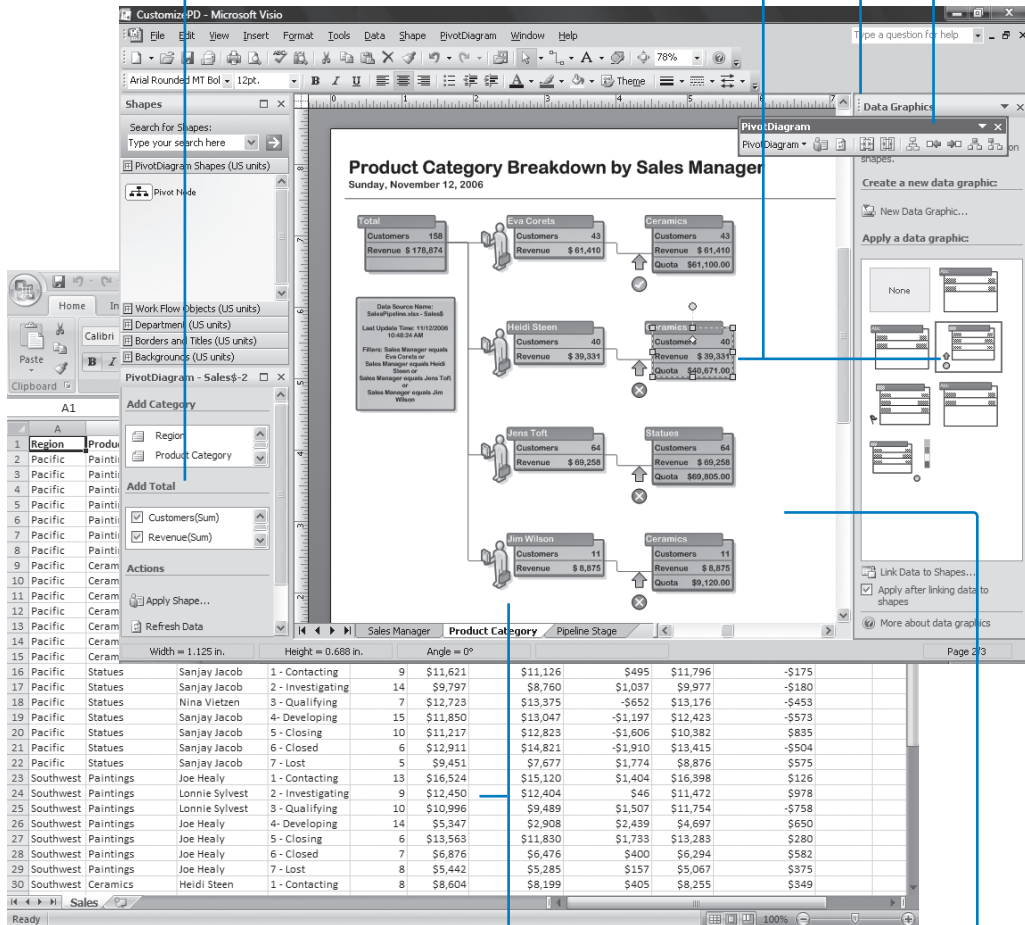
Customize the layout of a PivotDiagram

Track and total data in a PivotDiagram

Link to business data to start a PivotDiagram

Build the tree structure for a PivotDiagram

10 Analyzing Business Data in PivotDiagrams

In this chapter, you will learn how to:

- ✔ Link to business data to start a PivotDiagram.
- ✔ Build the tree structure for a PivotDiagram.
- ✔ Track and total data in a PivotDiagram.
- ✔ Customize the layout of a PivotDiagram.

Business data is normally shown as static text, in tables, or in spreadsheet format. *PivotDiagrams*—a new diagram type in Microsoft Office Visio Professional 2007—let you analyze, explore, and visualize business data as a collection of shapes arranged in a tree structure. In PivotDiagrams, you can quickly summarize numeric data, identify key issues, flag data trends, and pivot data on various data points to create different views of the same data. By analyzing data in PivotDiagrams, you can more fully understand various aspects of complex business data from different viewpoints.

> **Tip** Visio Professional 2007 includes professional-looking sample PivotDiagrams that you can use as models for your own. In the Getting Started window, click Samples to see the sample diagrams.

In this chapter, you learn how to start a PivotDiagram by linking to sales data for the Wide World Importers company. You learn how to build the tree structure for PivotDiagrams and visualize the sales data from different viewpoints by pivoting data off different data points. Then, you learn how to summarize the numeric data in your diagram. You visualize the business data and trends with shapes on the drawing page by using data graphics, which were introduced in Chapter 9, "Visualizing Data in Diagrams." Finally, you learn how to change the appearance of a PivotDiagram to suit your diagramming needs.

> **Important** Before you can use the practice files in this chapter, you need to install them from the book's companion CD to their default location. See "Using the Book's CD-ROM" on page xix in the printed book for more information.

Linking to Business Data to Start a PivotDiagram

You don't start a PivotDiagram by dragging shapes onto the drawing page as you do for many other Visio diagram types. Instead, you start a PivotDiagram by linking to your business data. In the Getting Started window, you click the Business category, and then under Featured Templates, you click PivotDiagram to open the template. Then, Visio Professional immediately starts the new Data Selector wizard to link the blank PivotDiagram drawing page to any of the data sources shown on the first page of the wizard.
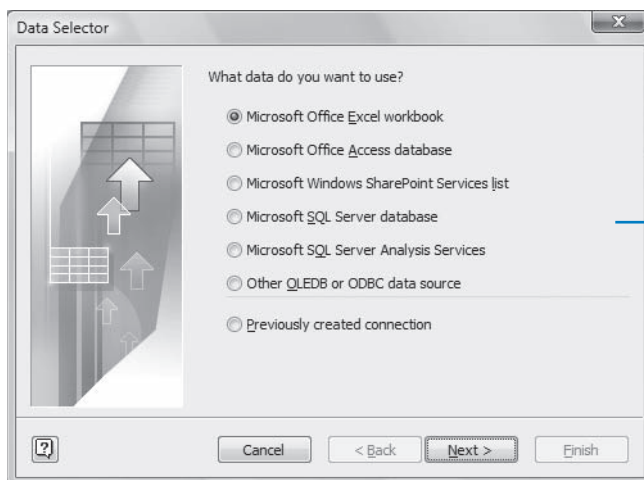
Start a PivotDiagram by linking to any of these external data sources using the Data Selector wizard

> **Tip** The Data Selector wizard used to start a PivotDiagram is the same wizard used to link any existing Visio diagram to data; this topic is discussed in Chapter 9, "Visualizing Data in Diagrams." However, unlike linking existing diagrams to data, PivotDiagrams don't store a copy of the data with the diagram because, many times, the data sources for PivotDiagrams are quite large. The data also isn't shown in the External Data window. If you move the data source linked to a PivotDiagram, you can view the diagram but you can't drill down into the data to show it on the drawing page. To reestablish the connection to the data source, select the top node in the PivotDiagram, and then on the PivotDiagram menu, click Options. In the PivotDiagram Options dialog box, click Change Data Source to start the Data Selector wizard so you can update the data source location for the diagram.

As the Data Selector wizard finishes, it adds a Pivot Node shape from the PivotDiagram Shapes stencil to the drawing page. This shape, called the ***top node***, is linked to all the data in the external data source. The shape next to the top node is the ***data legend***, which contains details about the data source that's linked to the top node, such as the data source name, location, last time it was updated, and so on. Using the PivotDiagram window that opens with the PivotDiagram template, you can then expand levels of ***nodes***—shapes in a PivotDiagram that represent data—below the top node that correspond to the data you want to analyze.

PivotDiagram window

Top node, which is linked to an external data source

Data legend that contains details about the data source linked to the top node

PivotDiagram toolbar

PivotDiagram Shapes stencil

Pivot Node shape that is used to create the top node on the drawing page
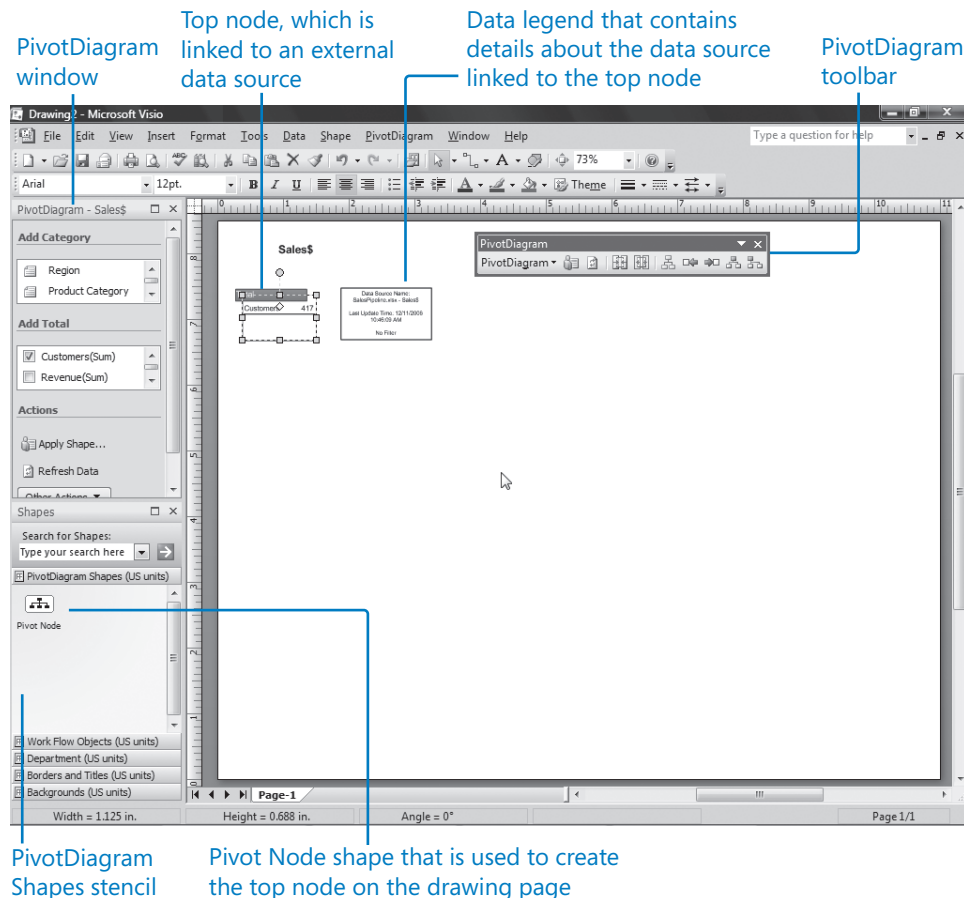
> **Tip** You can view more than one data source in a PivotDiagram. And, you can link to the same data source multiple times to show different views of the data in the data source. To link to an additional data source, drag a Pivot Node shape from the PivotDiagram Shapes stencil onto the drawing page, and then follow the instructions in the Data Selector wizard.

In this exercise, you start a PivotDiagram by linking to an external data source—a Microsoft Office Excel 2007 workbook—that includes sales data for the Wide World Importers company.

> **Tip** If you link a PivotDiagram to an Excel workbook, you can make your PivotDiagram much easier to understand by ensuring that the top cell in each column of the Excel workbook is a column heading rather than a row of data. These column headings correspond to categories that you'll use later to build the tree structure for the PivotDiagram.

> **USE** the *SalesPipeline* file in Documents\Microsoft Press\Visio 2007 SBS\10_PivotDiagrams for this exercise.

1. Start Visio Professional. In the **Template Categories** list, click **Business**. Under **Featured Templates**, double-click **PivotDiagram**.

Visio Professional 2007 opens the PivotDiagram template, which opens the PivotDiagram Shapes stencil in the Shapes window to the left of the drawing page, and it starts the Data Selector wizard.
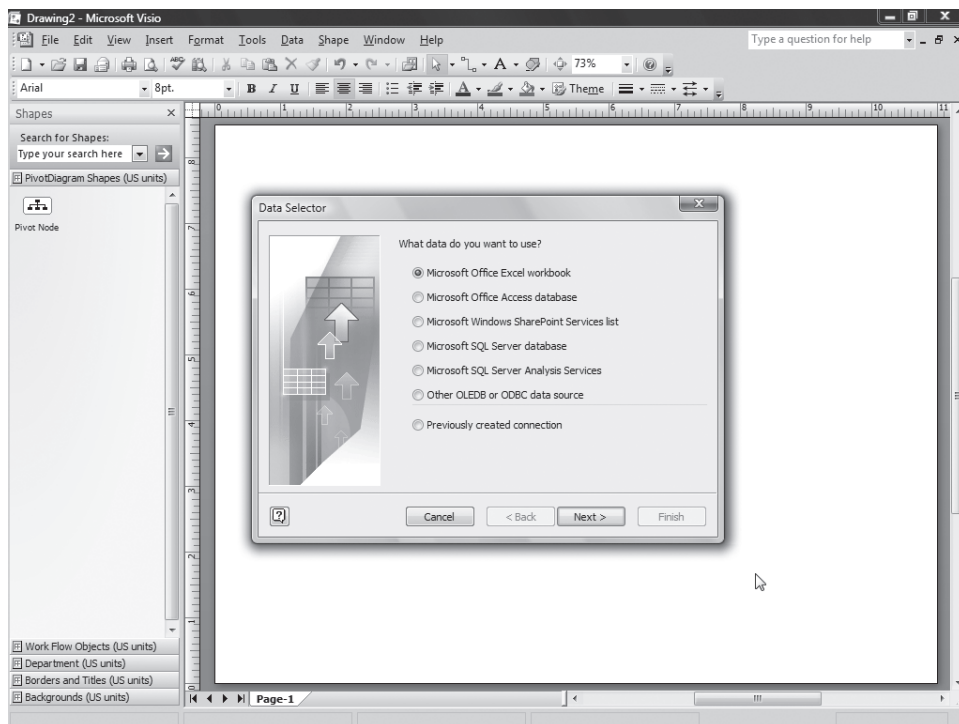
2. On the first page of the **Data Selector** wizard, make sure **Microsoft Office Excel workbook** is selected.
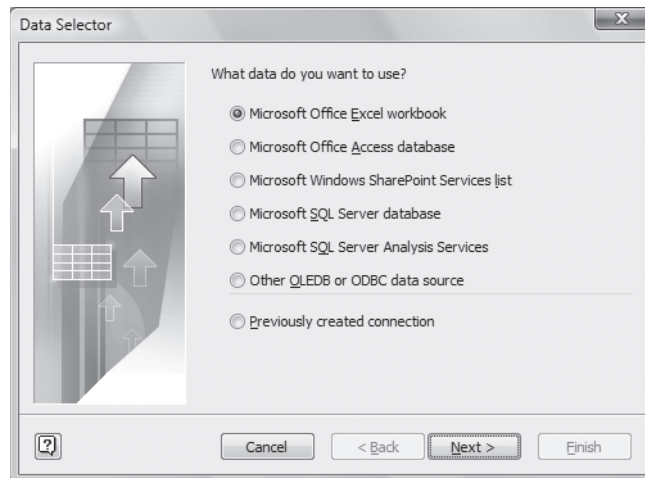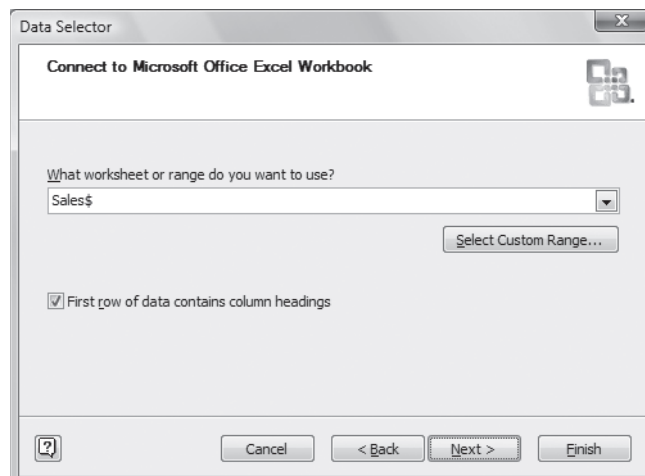

3. Click **Next**.

The next page of the wizard appears.

4. On the second page of the wizard, click **Browse**, navigate to the **10_PivotDiagrams** folder, double-click **SalesPipeline.xlsx**, and then click **Next**.

The next page of the wizard appears.

5. On the third page of the wizard, make sure the **What worksheet or range do you want to use?** box shows **Sales$** and the **First row of data contains column headings** box is checked.

6. Click **Next**.

The next page of the wizard appears.

7. On the fourth page of the wizard, under **Columns to include**, make sure **All Columns** appears. Under **Data to include**, make sure **All Data** appears. Click **Next**.

The next page of the wizard appears.

8. On the last page of the wizard, click **Finish**.

The Data Selector wizard places a top node (using a Pivot Node shape from the PivotDiagram Shapes stencil) in the diagram, and links the top node to the data source. Visio Professional 2007 opens the PivotDiagram toolbar, and it opens the PivotDiagram – Sales$ window to the left of the drawing page. It also places a diagram title and data legend containing details about the data source next to the top node on the drawing page.
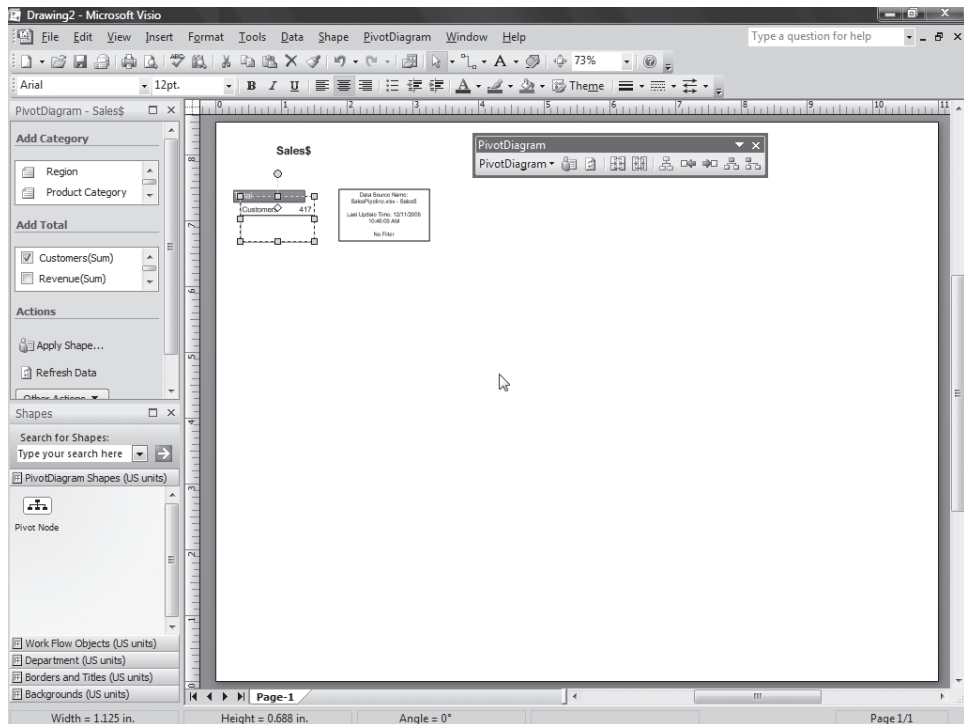
> **Tip** To open the PivotDiagram toolbar yourself, right-click a blank area of the toolbar area, and then click PivotDiagram on the shortcut menu. If you don't see the PivotDiagram Shapes stencil, it's probably minimized in the Shapes window below or above the PivotDiagram window. Maximize the Shapes window to see the stencil.

9. Hold down ⎡Ctrl⎤+⎡Shift⎤ and drag a selection box around the top node on the drawing page to zoom in on it so you can see it better.
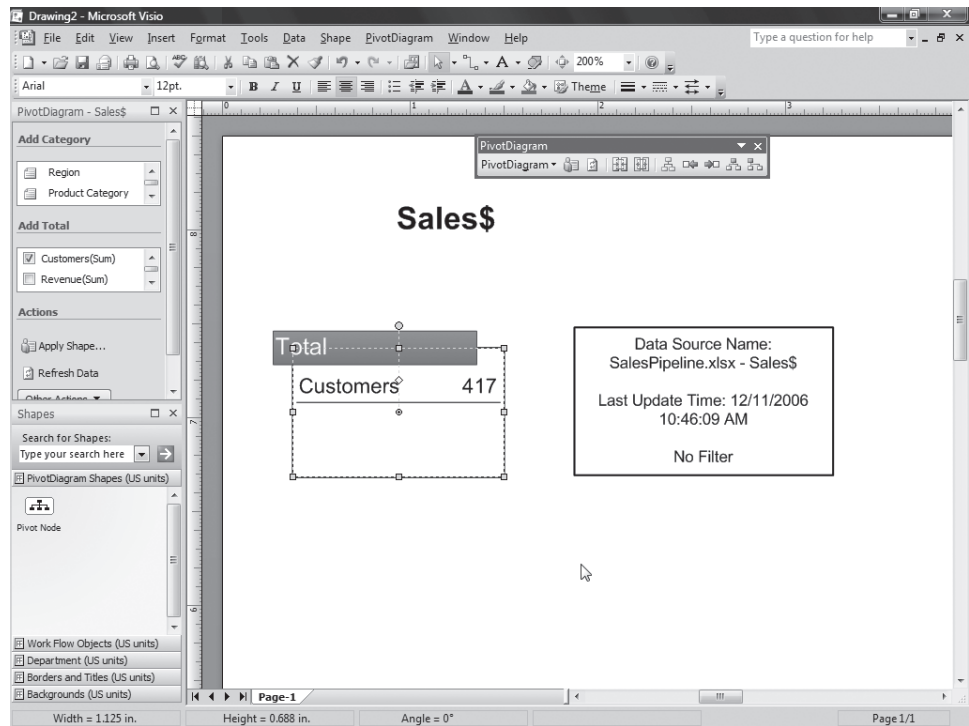
> **Tip** You can also insert a PivotDiagram into an existing diagram. Just open the diagram into which you want to insert a PivotDiagram. Then, on the Data menu, click Insert PivotDiagram, follow the instructions in the Data Selector wizard, and create the PivotDiagram. You can also generate visual reports—in PivotDiagram form—from SharePoint Portal Server lists and Project. From SharePoint Portal Server lists, you can report on issues and tasks and to track workflow. From Project, you can report on resource and task data.

10. On the **File** menu, click **Save As** to save the diagram.

11. In the **Save As** dialog box, in the **File name** box, type **StartPivotDiagram**, and then click **Save**.

12. On the **File** menu, click **Close** to close the diagram.

✕ **CLOSE** the *StartPivotDiagram* file.

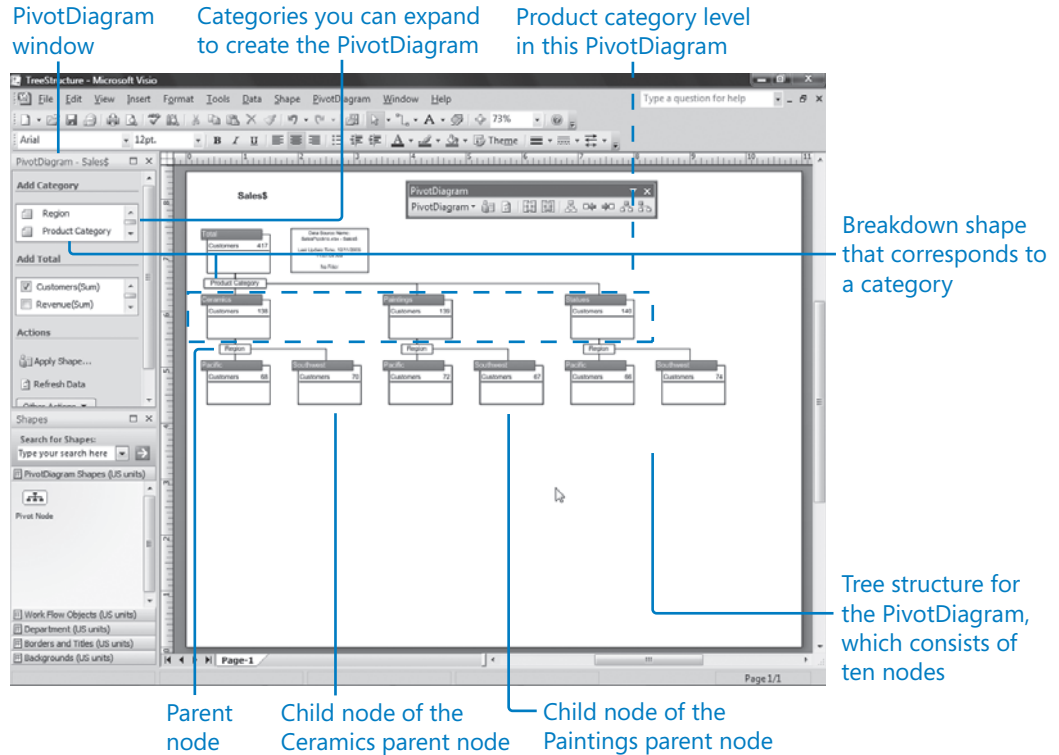# Building the Tree Structure for a PivotDiagram

A PivotDiagram shows business data as a collection of shapes, called *nodes*, arranged in a tree structure. The node placed on the drawing page when the Data Selector wizard finishes is the top node in the diagram that's linked to the data in the external data source. You begin building the tree structure for a PivotDiagram by expanding levels of nodes below the top node on the drawing page, and then expanding more nodes below each subsequent level. In other words, you're exposing more layers of data in the external data source, and you're pivoting data off different data points with each level of nodes that you expand in the diagram.

A level of nodes in a PivotDiagram shows the data for a category listed in the PivotDiagram window. For example, a Product Category level could include a node for each product in the data source: Ceramics, Paintings, and Statues. If the data linked to a PivotDiagram is in an Excel workbook, the categories in the PivotDiagram window correspond to columns that include nonnumeric values in the workbook. For example, typical categories for sales data might be Product Category, Sales Manager, Region, and Pipeline—all of which would typically contain nonnumeric values.

Visio Professional also places a *breakdown shape* between a *parent node* and its *child node* in a PivotDiagram:

- A breakdown shape is a shape in a PivotDiagram that shows the name of the category that's broken down, or shown, on the drawing page. A breakdown shape is positioned on the connector between the parent node and child node.

- A parent node is the node for which you expanded a category, or level of child nodes.

- A child node is a node below a parent node.

For example, if you select the top node and expand the category named, Product Category, in a PivotDiagram, a Product Category heading, or breakdown shape, is added between the top node (parent node) and each product category (the child nodes) in the diagram.
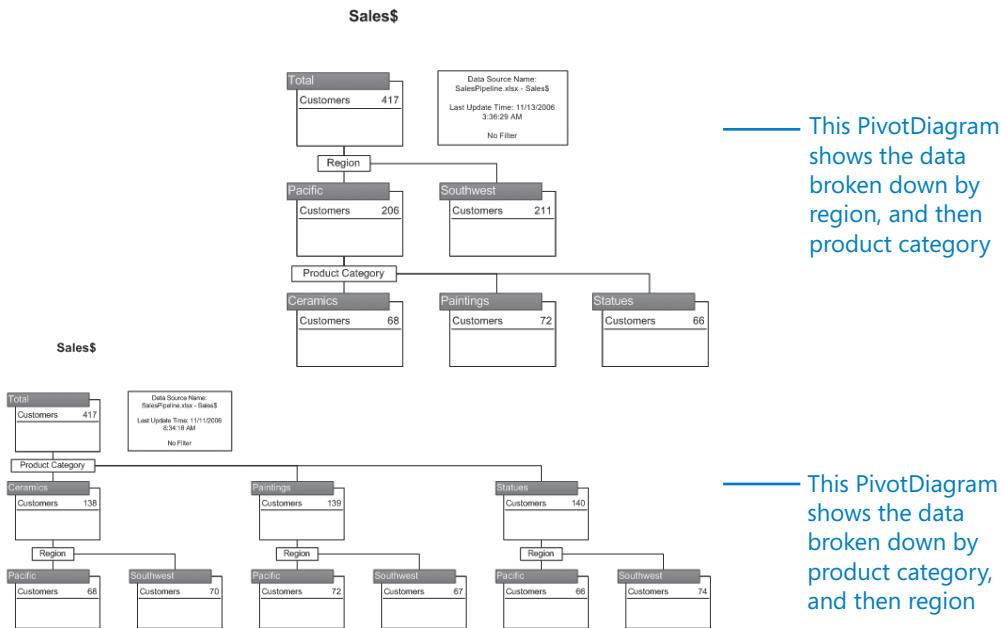
PivotDiagram window

Categories you can expand to create the PivotDiagram

Product category level in this PivotDiagram

Breakdown shape that corresponds to a category

Tree structure for the PivotDiagram, which consists of ten nodes

Parent node

Child node of the Ceramics parent node

Child node of the Paintings parent node

Important You don't build a PivotDiagram by dragging Pivot Node shapes onto the drawing page. When you drag a Pivot Node shape onto the drawing page, it immediately starts the Data Selector wizard, so you only use this shape when you want to create another top node that's linked to an external data source.

To expand a level of nodes to show categories in a PivotDiagram, click one or more nodes (if you're just beginning the diagram, you click the top node), and then in the PivotDiagram window on the left side of the drawing page, in the Add Category area, click the category you want to view.

> **Tip** You can also select one or more nodes, right-click one of them, and then click a category on the shortcut menu that appears to expand the category below the selected nodes.

You can pivot data off different data points to show different views of the same data in one PivotDiagram. You can accomplish this by showing the various views on separate pages in the diagram. Just add a new drawing page, and then on each page, drag a Pivot Node Shape from the PivotDiagram Shapes stencil onto the new page, and follow the instructions in the Data Selector wizard to the link a new top node to the external data source. Or, you can just copy the top node from the first page of your PivotDiagram to the other pages. After you have a top node on a drawing page, you can expand levels of nodes below it to create a different tree structure than those on other pages of your drawing file to show a different view of the same data.

This PivotDiagram shows the data broken down by region, and then product category

This PivotDiagram shows the data broken down by product category, and then region

> **Tip** You can refresh the data in a PivotDiagram when the data in the external data source changes. To refresh the data in a diagram, on the PivotDiagram window, click Refresh Data.

You can also add visual interest to PivotDiagrams and make them look more profes-sional-looking by displaying various Department and Work Flow Object shapes with the nodes in the diagram. Just click one or nodes to which you want to apply a shape, and then in the PivotDiagram window, click Apply Shape to see the shapes you can choose from.

Apply Shape dialog box

A Sales department shape applied to a node in a PivotDiagram
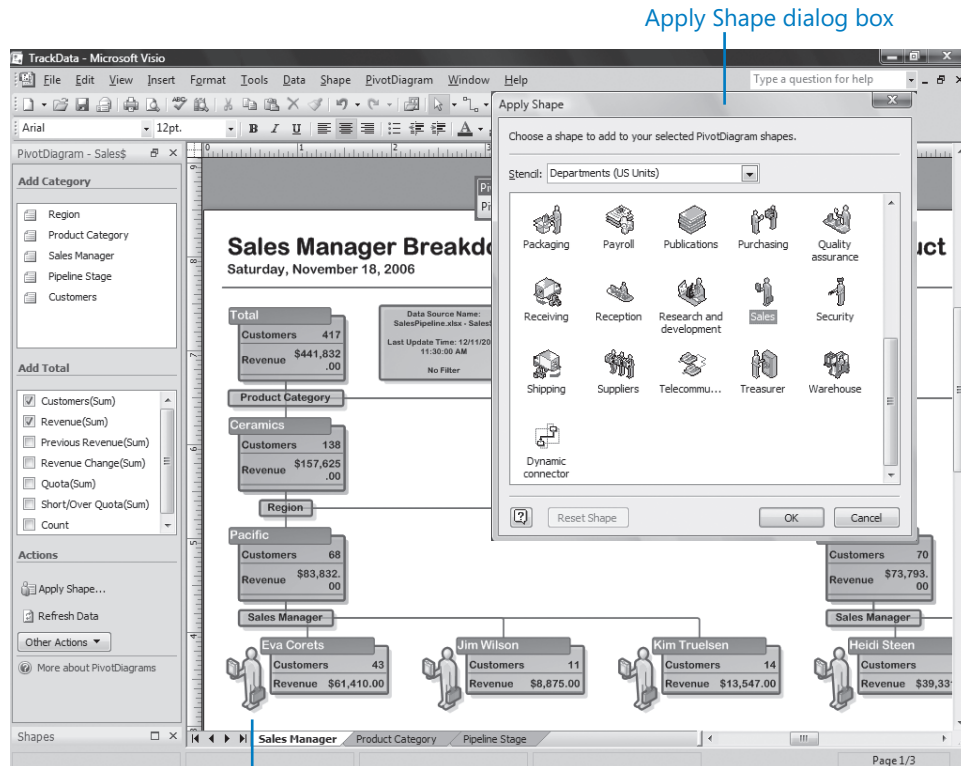
> **Important** When you apply a Department or Work Flow Object shape to a node in a PivotDiagram, Visio Professional also opens the Department and Work Flow Object stencils to the left of the drawing page; however, use the Apply Shape dialog box to apply shapes to nodes in the PivotDiagram if you want the node and applied shape to behave as one shape. For example, when you move nodes or change the layout of nodes in the diagram, the ap-plied shape and node move together. You can add shapes to the PivotDiagram by dragging them from stencils; however, they won't automatically move with the nodes in the diagram.

In this exercise, you create the tree structure for the first page of your PivotDiagram. You insert a second drawing page in the drawing file, copy the top node onto the second page of the diagram, and then create a different tree structure on the second page to

view the data from the same data source differently. Finally, you apply Sales department shapes to the sales manager nodes on both pages of the drawing file.

> **Tip** If you're new to PivotDiagrams, open the SalesPipeline.xlsx data source that's linked to the PivotDiagram used throughout this chapter. Then, familiarize yourself with the data in the workbook to further your understanding of the correlation between data in the data source and visual elements in the PivotDiagram.

> **OPEN** the *TreeStructure* file in Documents\Microsoft Press\Visio 2007 SBS \10_PivotDiagrams.

1. On the **File** menu, click **Open**, and then navigate to the **10_PivotDiagrams** folder to open the **TreeStructure** diagram.

Visio Professional opens a PivotDiagram with only the top node on the drawing page. It also opens the PivotDiagram Shapes stencil, the PivotDiagram – Sales$ window, and the PivotDiagram toolbar.
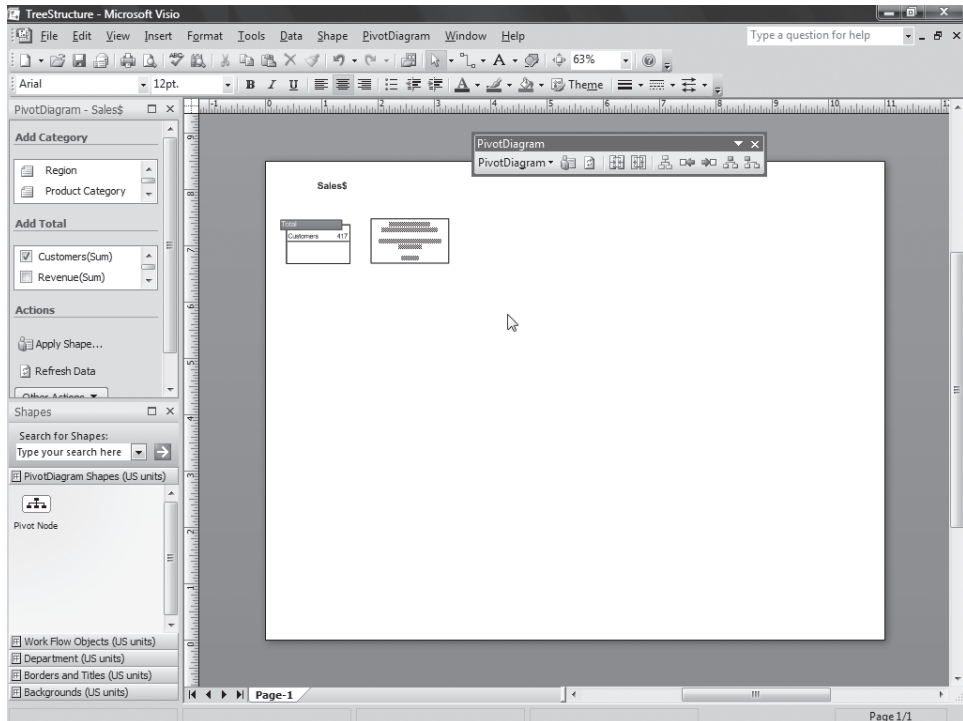
> **Tip** Find more information about creating and working with PivotDiagrams by click-
> ing More About PivotDiagrams at the bottom of the PivotDiagram window.

2. Click the top node on the drawing page, and then in the PivotDiagram – Sales$
window, under **Add Category**, click **Product Category**.

> **Troubleshooting** If you have any problems using the data linked to your
> PivotDiagram, you can relink the diagram to the data source. First, select the top
> node on the drawing page. Then, on the PivotDiagram menu, click Options. In the
> PivotDiagram Options dialog box, click Change Data Source. In the Data Selector wiz-
> ard that starts, click Next. On the second page of the wizard, click Browse, navigate to
> the 10_PivotDiagrams folder, double-click SalesPipeline.xlsx, and then finish the wiz-
> ard. After you've relinked the diagram to the data source, you can continue with this
> exercise by first completing step 2.

3. If the **Microsoft Office Visio Security Notice** dialog box appears, check the **Don't
show this message again** checkbox, and then click **OK**.

Visio Professional adds a Product Category breakdown shape and three product
category child nodes to the drawing page below the top node and connects the
child nodes to the top node. The product category nodes correspond to the three
product categories (Ceramics, Paintings, and Statues) in the Excel spreadsheet
linked to the PivotDiagram. Visio Professional also automatically displays the to-
tal number of customers for each product category inside each product category
node.

4. Click the pasteboard to deselect the shapes. Hold down `Ctrl`+`Shift` and drag a se-
lection box around the shapes on the drawing page to zoom in on them so you can
see them better.
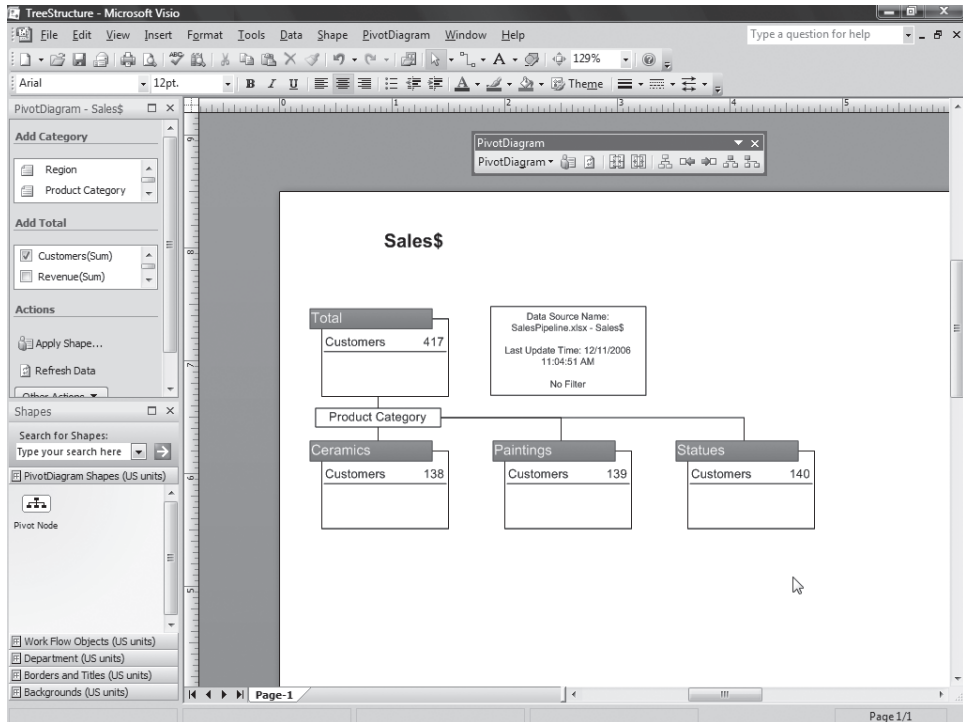
> **Tip** If the top cell in each column in the Excel workbook you linked to shows data instead of a column heading, the names of the categories under the Add Category area in the PivotDiagram window might be confusing. You can rename a category by pausing the pointer over a category, clicking the down arrow that appears, and then clicking Configure Column on the shortcut menu. In the Configure Column dialog box, in the Name box, you can rename the category. This name change doesn't affect the data in the external data source.

5. Hold down the ⟨Shift⟩ key while you click the three product category nodes—
   Ceramics, **Paintings**, and **Statues**—to select them.

6. In the PivotDiagram – Sales$ window, under **Add Category**, click **Region**.

   Visio Professional adds six region child nodes (two for each product category par-
   ent node) to the drawing page below the product category nodes and connects
   them to the product category nodes. The region nodes correspond to the two re-
   gions (Pacific and Southwest) in the Excel spreadsheet linked to the PivotDiagram.
   Visio Professional also automatically displays the total number of customers for
   each region inside each region node. Visio Professional also adds three Region
   breakdown shapes below each of the three product category nodes.

7. Click the pasteboard to deselect the shapes. Press Ctrl + W to view the whole draw-ing page in the drawing window so you can see all the shapes better.
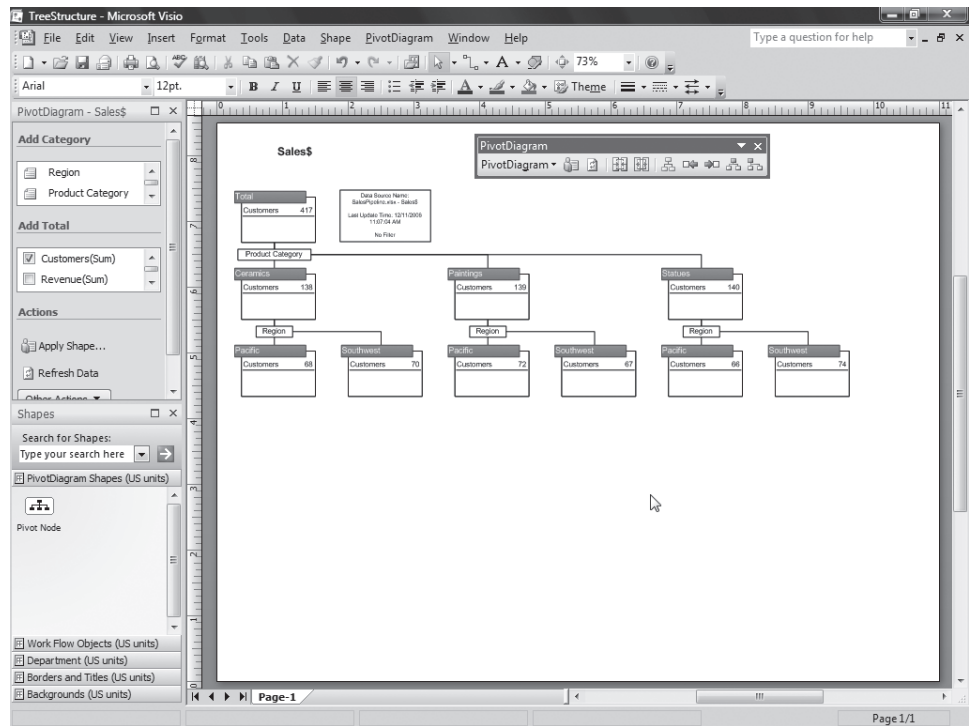
8. Right-click the leftmost **Pacific** region node on the drawing page, point to **Data** on the shortcut menu, and then click **Shape Data** to see all the data stored with the node.
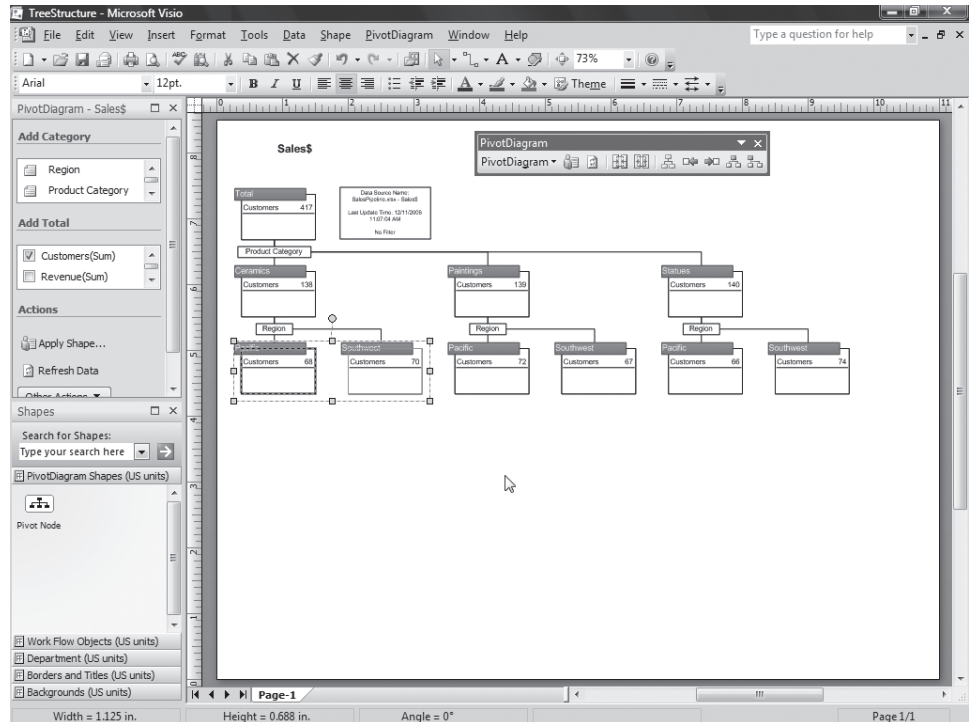
The Shape Data dialog box appears with all the data stored with the Pacific region node.

9. In the **Shape Data** dialog box, click **Cancel**.

10. Hold down the [Shift] key while you select the **Southwest** node that's to the right of the **Pacific** node, which is already selected on the drawing page.

Visio Professional selects both nodes.

11. Right-click one of the selected nodes, and then click **Sales Manager** on the short-cut menu that appears to add the category to the drawing page only for the two selected nodes.

Visio Professional adds six sales manager child nodes (three for each region in the ceramics product category) to the drawing page below the Pacific and Southwest parent nodes and connects them to the region nodes. The sales manager nodes correspond to the six sales managers for the Pacific and Southwest regions in the Excel spreadsheet linked to the PivotDiagram who are responsible for selling ceramics. Visio Professional also automatically displays the total number of customers within each region who bought ceramics from each sales manager inside the sales manager nodes. Visio Professional also adds a Sales Manager breakdown shape below each region node.
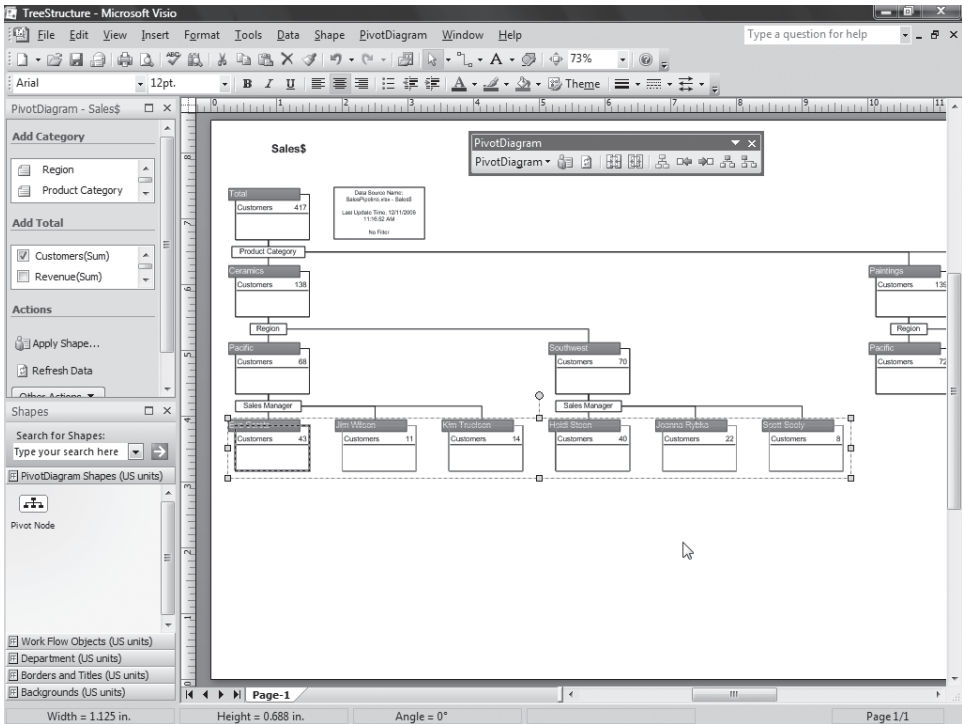
12. Click the pasteboard to deselect the shapes. Press `Ctrl`+`W` to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window.
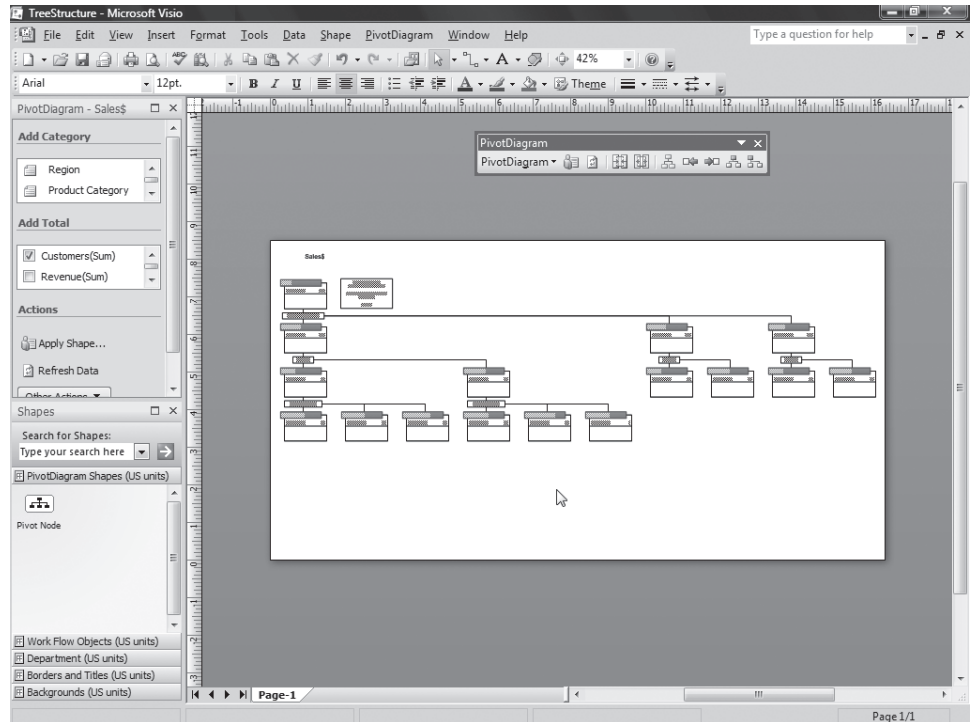
**13.** Click the top node in your PivotDiagram to select it.

14. On the **Edit** menu, click **Copy**.

15. Right-click the **Page-1** tab at the bottom of the drawing window, and then click **Insert Page** on the shortcut menu that appears. In the **Page Setup** dialog box, click **OK** to insert a new page in your drawing file.

16. On the **Edit** menu, click **Paste** to paste the top node from the first page of your diagram to the second page.

Visio Professional also adds a diagram title and data legend to the page.

17. Move the top node to the upper-left area of the drawing page.
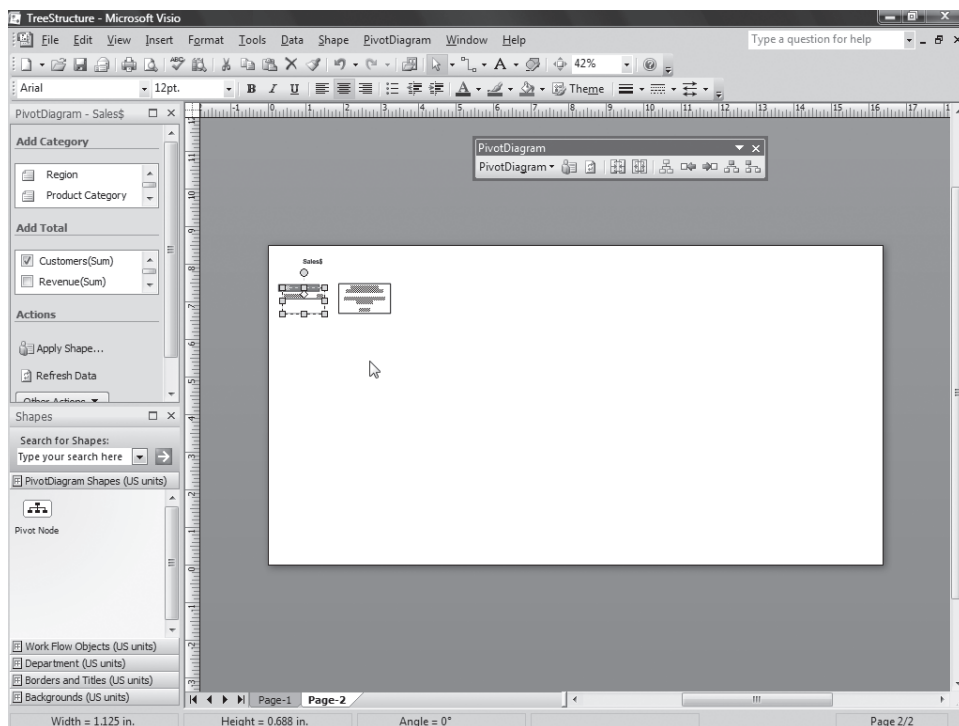
> **Tip** Alternatively, you could drag a Pivot Node shape from the PivotDiagram Shapes stencil onto the second page of the drawing file. Then, with the Data Selector wizard that starts immediately, link to the same data source—SalesPipeline.xlsx. You can also specify that the title and data legend aren't shown on a drawing page. With the top node selected, on the PivotDiagram menu, click Options. In the PivotDiagram Options dialog box, under Diagram options, uncheck the Show Title checkbox and the Show Data Legend checkbox.

18. Right-click the top node on the second drawing page, and then click **Sales Manager** on the shortcut menu that appears to add that category to the drawing page.

Visio Professional adds many sales manager nodes to the drawing page below the top node and connects the new child nodes to the top node. The sales manager nodes correspond to the names of the sales managers in the Excel spreadsheet linked to the PivotDiagram. Visio Professional also automatically displays the total number of customers for each sales manager inside each manager node.
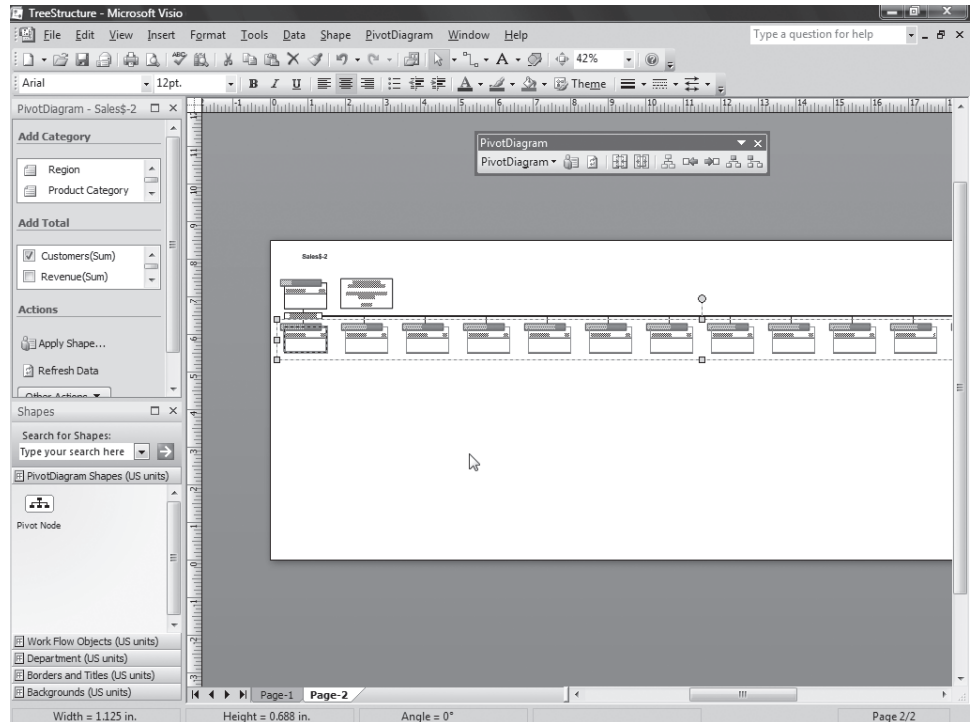
> **Tip** If the data source linked to your PivotDiagram is extremely large, you might
> want to limit the number of nodes added for a category and shown on the drawing
> page. On the PivotDiagram menu, click Options. In the PivotDiagram Options dialog
> box, under Data options, make sure the Limit Items In Each Breakdown checkbox is
> checked, and then type the number of items (nodes) to display for each level in your
> PivotDiagram tree structure.

19. With all the sales manager nodes selected on the drawing page, right-click one of
the nodes, and then click **Product Category** on the shortcut menu that appears to
add that category to the drawing page.

Visio Professional adds many product category nodes to the drawing page below
the sales manager nodes and connects the new nodes to the sales manager nodes.
The product category nodes correspond to the product categories in the Excel
spreadsheet linked to the PivotDiagram. Visio Professional also automatically dis-
plays the total number of customers for each product category inside each product
category node.
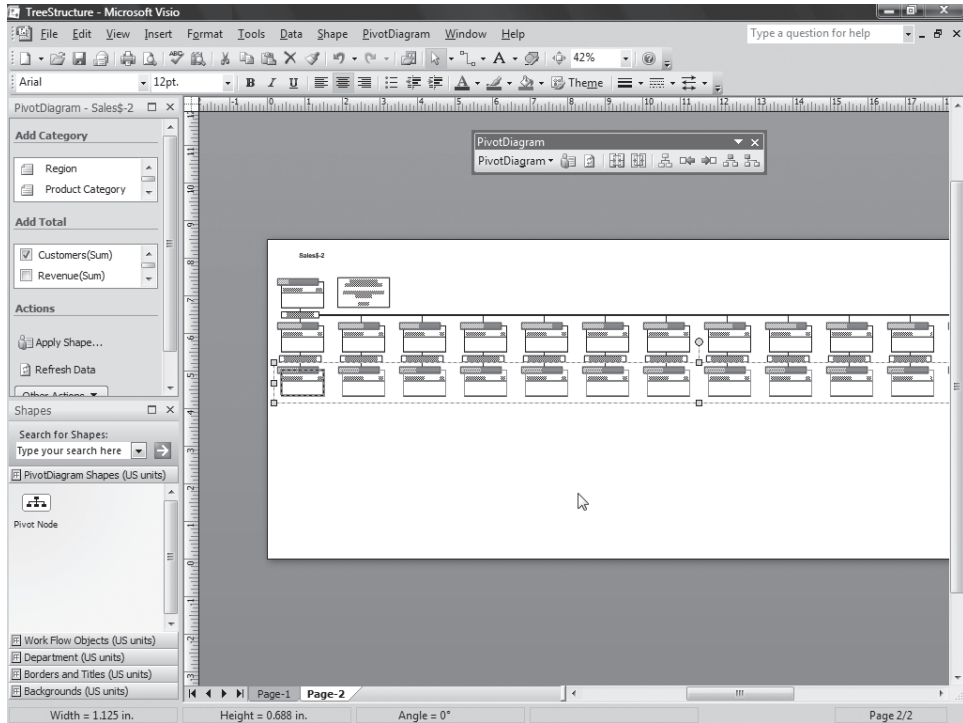
20. Click the pasteboard to deselect the shapes. Hold down `Ctrl` + `Shift` and drag a selection box around some of the shapes on the drawing page to zoom in on them so you can see them better.
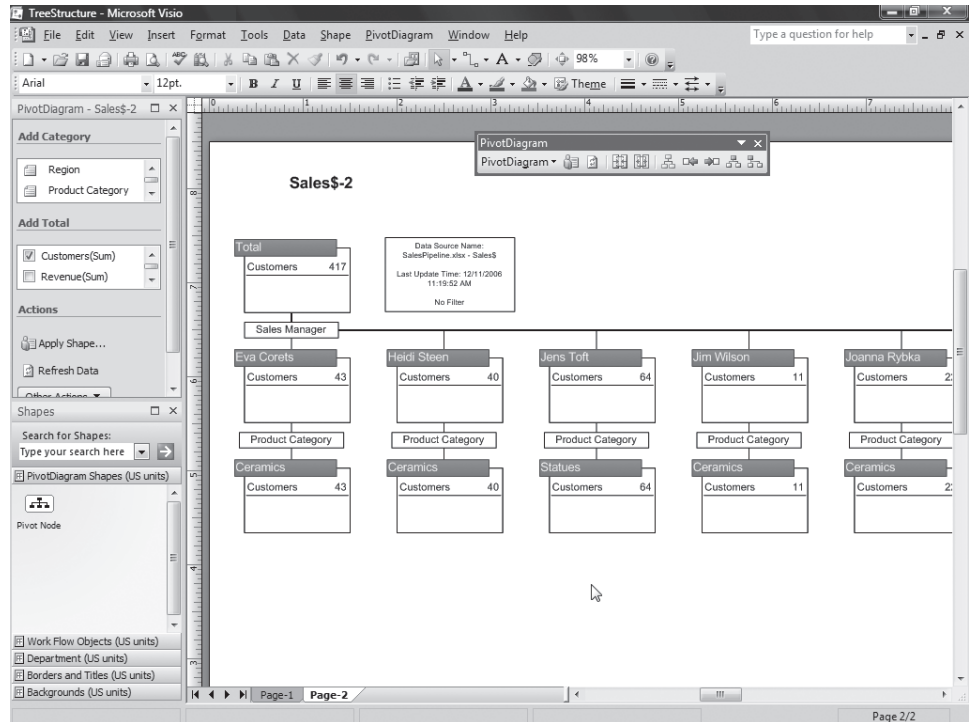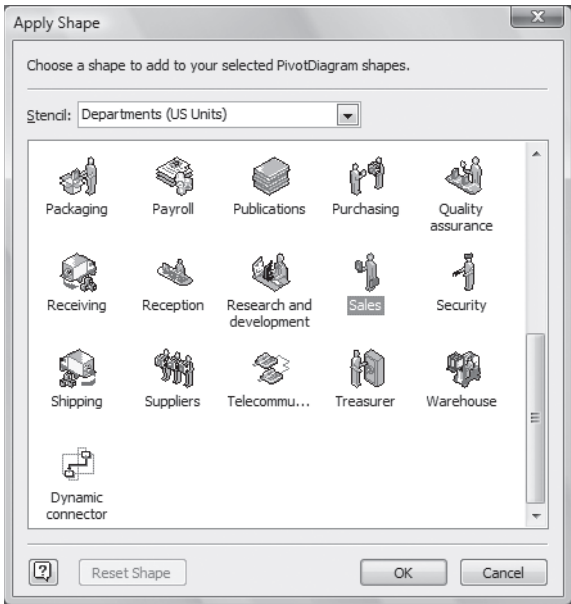
21. Press [Ctrl]+[W] to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window.

22. Drag a selection box around all the sales manager nodes—the second level of shapes—on the drawing page to select all of them.
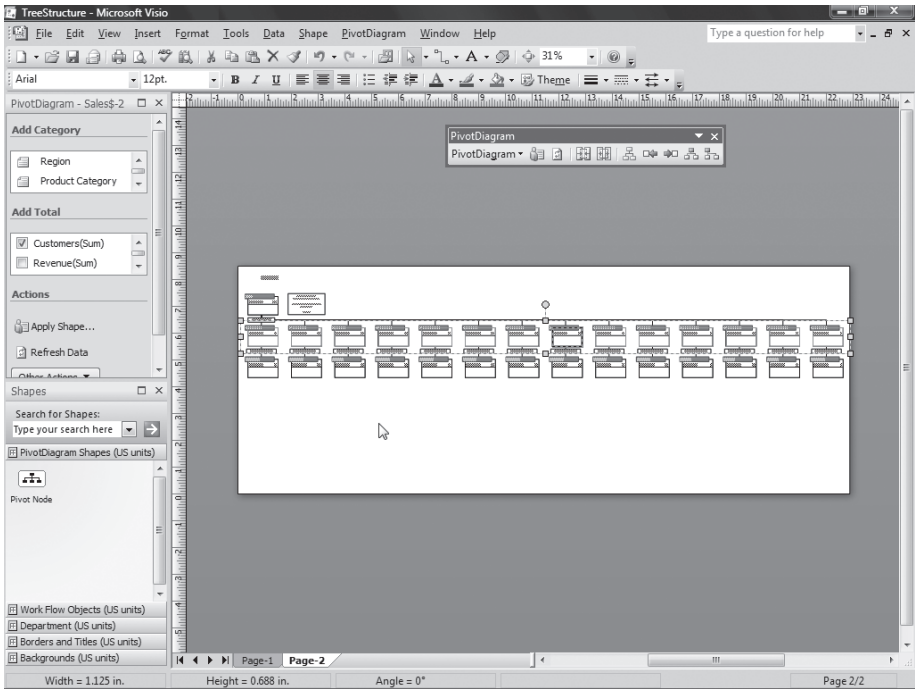
23. In the PivotDiagram – Sales$-2 window, click **Apply Shape**.
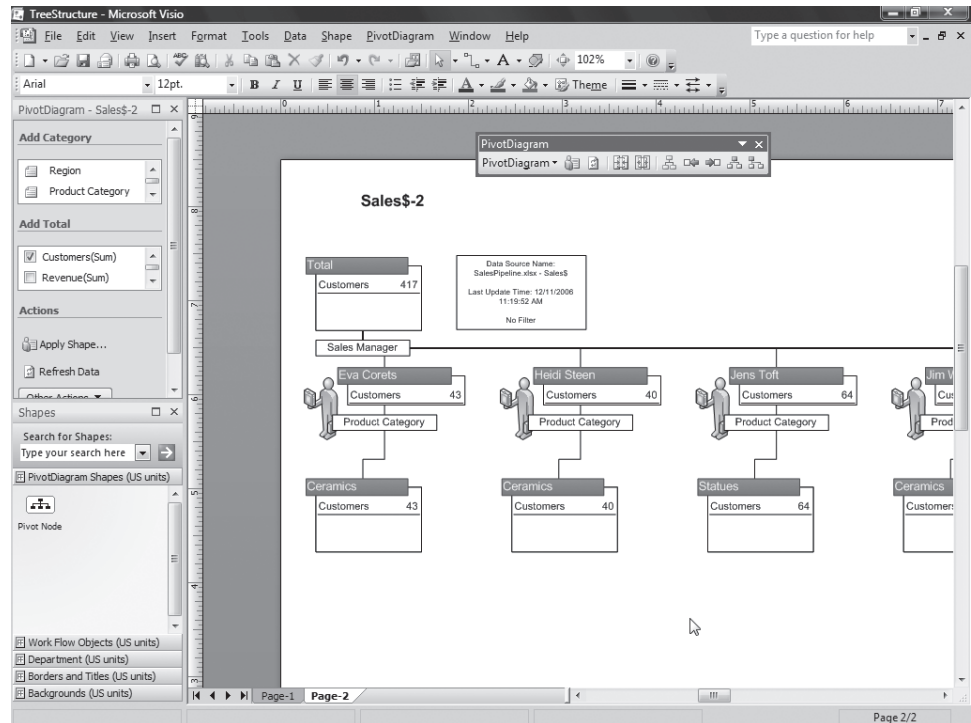
The Apply Shape dialog box appears.

24. In the **Apply Shape** dialog box, click the **Sales** shape.

25. In the **Apply Shape** dialog box, click **OK**.

Visio Professional applies the Sales shape to the sales manager nodes on the drawing page.

26. Click the pasteboard to deselect the shapes. Hold down `Ctrl` + `Shift` and drag a selection box around some of the shapes on the drawing page to zoom in on them so you can see them better.


27. Click the **Page-1** tab at the bottom of the drawing window to go to the first page of the drawing file.

28. Hold down `Ctrl` + `Shift` and drag a selection box around the sales manager nodes—the fourth level of shapes—on the drawing page to zoom in on them so you can see them better.

29. Drag a selection box around all the sales manager nodes—the forth level of shapes—on the drawing page to select all of them. Don't select the Sales Manager breakdown shapes.

30. In the PivotDiagram – Sales$ window, click **Apply Shape**.

The Apply Shape dialog box appears.

31. In the **Apply Shape** dialog box, click the **Sales** shape. Click **OK**.

Visio Professional applies the Sales shape to the sales manager nodes on the drawing page.
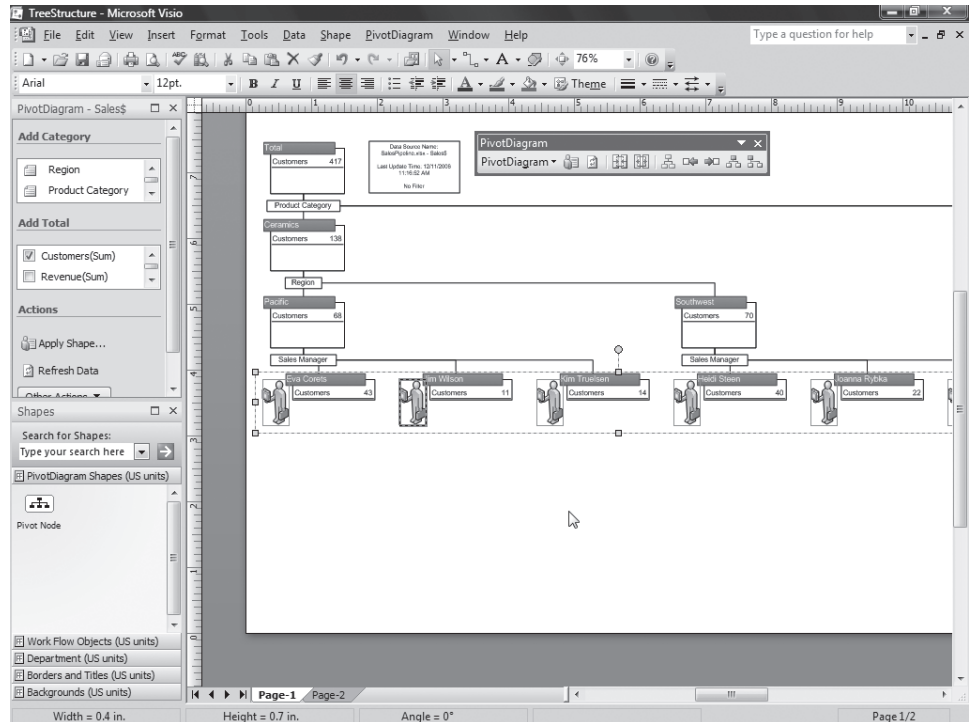
Tip When select a node in a PivotDiagram that has a shape applied to it, a control handle appears that you can drag to adjust the position of the applied shape.

32. On the **File** menu, click **Save As** to save the diagram.

33. In the **Save As** dialog box, in the **File name** box, type **PivotDiagram2**, and then click **Save**.

**34.** On the **File** menu, click **Close** to close the diagram.

CLOSE the *TreeStructure* file.

Tracking and Totaling Data in a PivotDiagram

You've created the tree structures you want to use for your PivotDiagrams. Now it's time to add data totals to the nodes in your PivotDiagram, and track data with the nodes so you can identify issues or opportunities at a glance. Using the Add Totals area in the PivotDiagram window, you can show the sum, average, minimum, maximum, or count

for a node in a diagram. If the data linked to your PivotDiagram is in an Excel workbook, the items that appear in the PivotDiagram window in the Add Totals area correspond to the columns in the Excel workbook that include numeric values, such as Revenue, Previous Revenue, Revenue Change, Quota, Short Quota, and Over Quota.
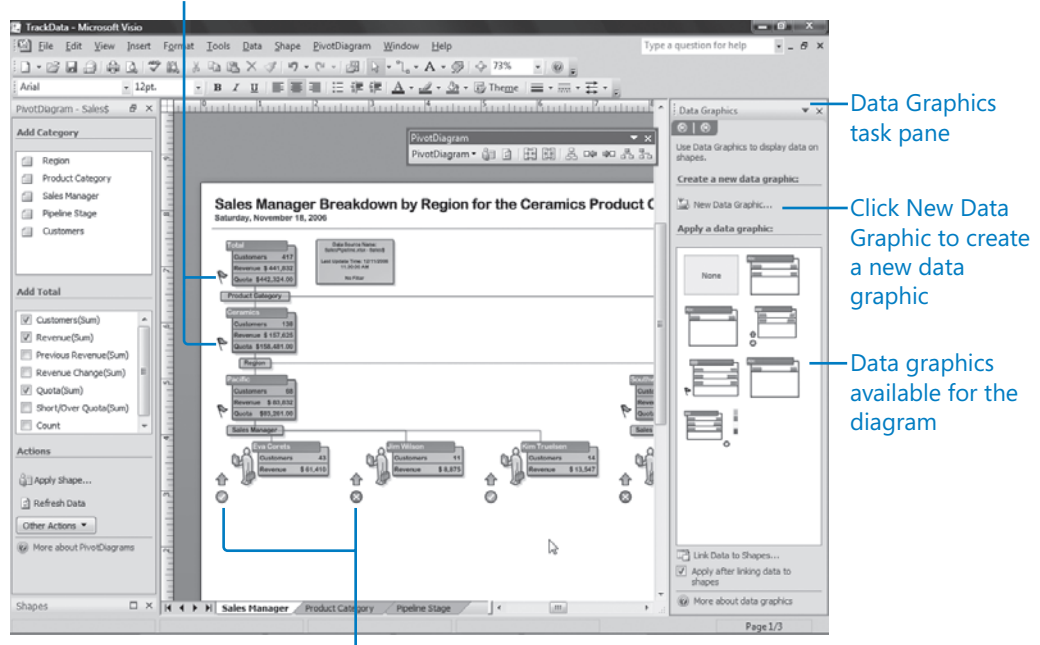
PivotDiagram window
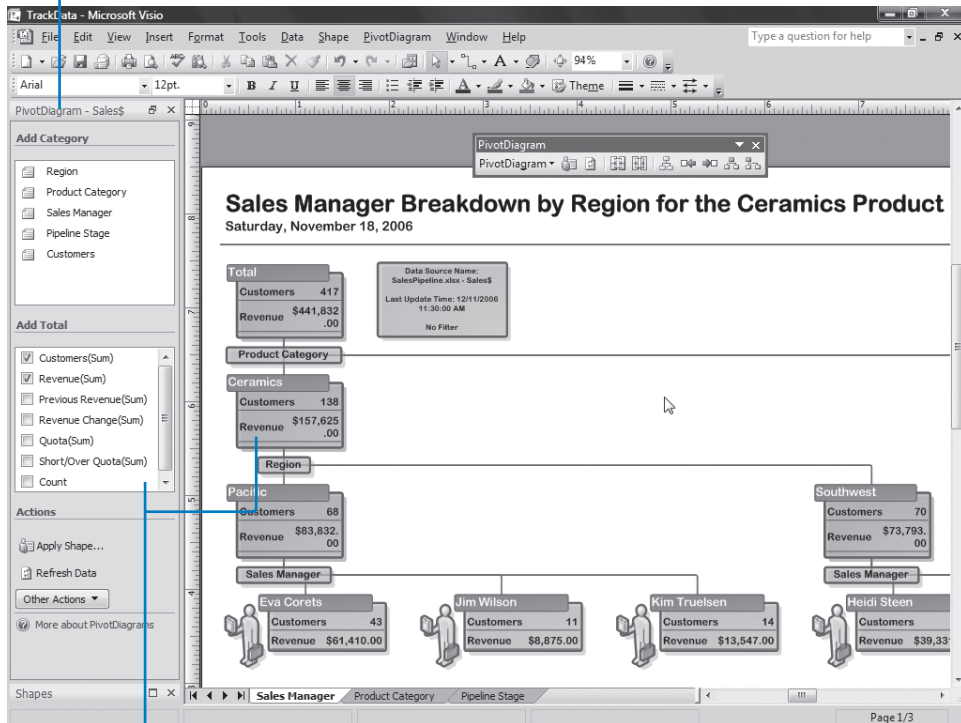
Totals that you can show in nodes in a PivotDiagram

To add totals to nodes on the drawing page, in the PivotDiagram window, in the Add Totals area, check the checkbox for the item you want to include in your PivotDiagram. If you want to customize the data total for the item, pause the pointer over the item, click the down arrow that appears, and then on the shortcut menu, click the type of total you want to show in the diagram.

You can go beyond just showing data totals in PivotDiagrams by applying data graphics from the Data Graphics task pane to nodes in PivotDiagrams to visually track data when particular conditions have been met. Data graphics are shapes that Visio Professional uses to display data with nodes on the drawing page so you can easily visualize data trends, flag issues, and identify problems in your PivotDiagrams. Data graphics can include visual elements, such as text, progress bars, icon sets, data flags, and so on that appear when specific data conditions have been met. Most data graphics include a com-

bination of these visual elements so each node in your PivotDiagram conveys a wealth of information. For example, you can compare data values for a node to display flags next to the node when certain conditions have been met. You can also change the color of shape according to a data value, compare a data value to a fixed number or amount, and so on.

Data graphic applied to the top node and product category nodes in the PivotDiagram that displays a green flag if this year's revenue surpasses last year's revenue, and red flag if it doesn't

Data Graphics task pane

Click New Data Graphic to create a new data graphic

Data graphics available for the diagram

Data graphic applied to sales manager nodes in the PivotDiagram that displays a checkmark when a sales manager exceeds his quota and an X if he falls short

The Data Graphics task pane shows all the data graphics available for a PivotDiagram. The PivotDiagram template includes some basic data graphics and applies one of them to the nodes in your diagram. To create your own data graphics, you can modify the basic data graphics included with the PivotDiagram template or create new ones to display the data that you want to track in your PivotDiagram.

Create a new data graphic by clicking New Data Graphic in the Data Graphics task pane. To modify an existing data graphic, pause the pointer over the data graphic in the Data Graphics task pane until a down arrow appears, click the down arrow, and then click Edit Data Graphic on the shortcut menu. Or, instead of pausing the pointer over the data graphic until a down arrow appears, you can right-click the data graphic to see the

shortcut menu. Then, edit any of the visual elements in or add new visual elements to the data graphic. After you've created or modified the data graphic you want to use in your diagram, simply select the shapes to which you want to apply the new data graphic, and then click the data graphic on the Data Graphics task pane.

> **Tip** This exercise in this section doesn't cover modifying or creating data graphics because this topic is discussed in a previous chapter of this book. For information about creating and modifying data graphics, see the "Modify and Create Data Graphics" section in Chapter 9, "Visualizing Data in Diagrams." You can use data graphics in any data-linked Visio diagram.

In this exercise, you add totals to the PivotDiagrams in the drawing file and apply data graphics to nodes in the diagrams to track data in the PivotDiagrams.

> **OPEN** the *TrackData* file in Documents\Microsoft Press\Visio 2007 SBS\10_PivotDiagrams.

1. On the **File** menu, click **Open**, and then navigate to the **10_PivotDiagrams** folder to open the **TrackData** diagram.

   Visio Professional opens a drawing file that includes three pages and the first page is showing. Each page contains a PivotDiagram that shows a different view of the same data. Visio also opens the PivotDiagram – Sales$ window and the PivotDiagram toolbar. A color and effect theme has been applied to the PivotDiagrams.
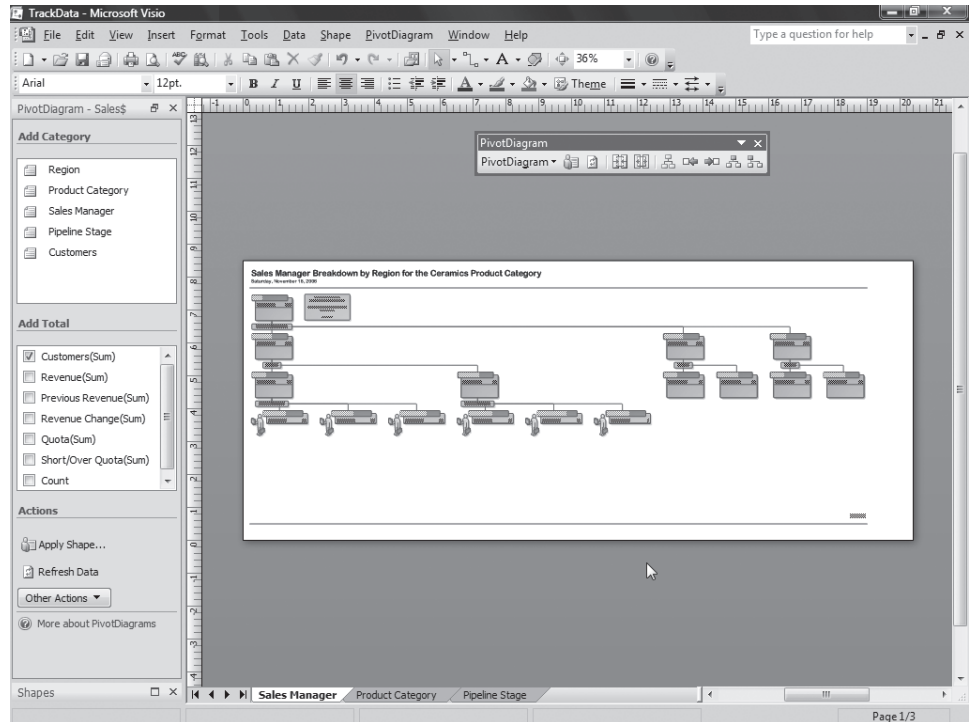
> **Tip** To apply a theme to any Visio diagram, on the Format menu, click Theme, and then choose the theme you want. For more information about themes, see Chapter 3, "Formatting Shapes and Diagrams."

2. In the PivotDiagram – Sales$ window, under **Add Total**, check the **Revenue(Sum)** checkbox.

Visio Professional displays the total revenue for each node in the PivotDiagram, in addition to the Customers(Sum), which was already displayed.

> **Tip** You can display the sum, average, minimum, maximum, and count of numeric data values in your PivotDiagram. To change the calculation used, in the PivotDiagram window, under Add Total, right-click an item, and then click the calculation you want to use on the shortcut menu that appears.

> **Troubleshooting** If you have any problems using the data linked to your PivotDiagram, you can relink the diagram to the data source. First, select the top node on the drawing page. Then, on the PivotDiagram menu, click Options. In the PivotDiagram Options dialog box, click Change Data Source. In the Data Selector wizard that starts, click Next. On the second page of the wizard, click Browse, navigate to the 10_PivotDiagrams folder, double-click SalesPipeline.xlsx, and then finish the wizard. After you've relinked the diagram to the data source, you can continue with this exercise by first completing step 2.

3. Hold down `Ctrl` + `Shift` and drag a selection box around the top node and some of the shapes below it on the drawing page to zoom in on them so you can see them better.
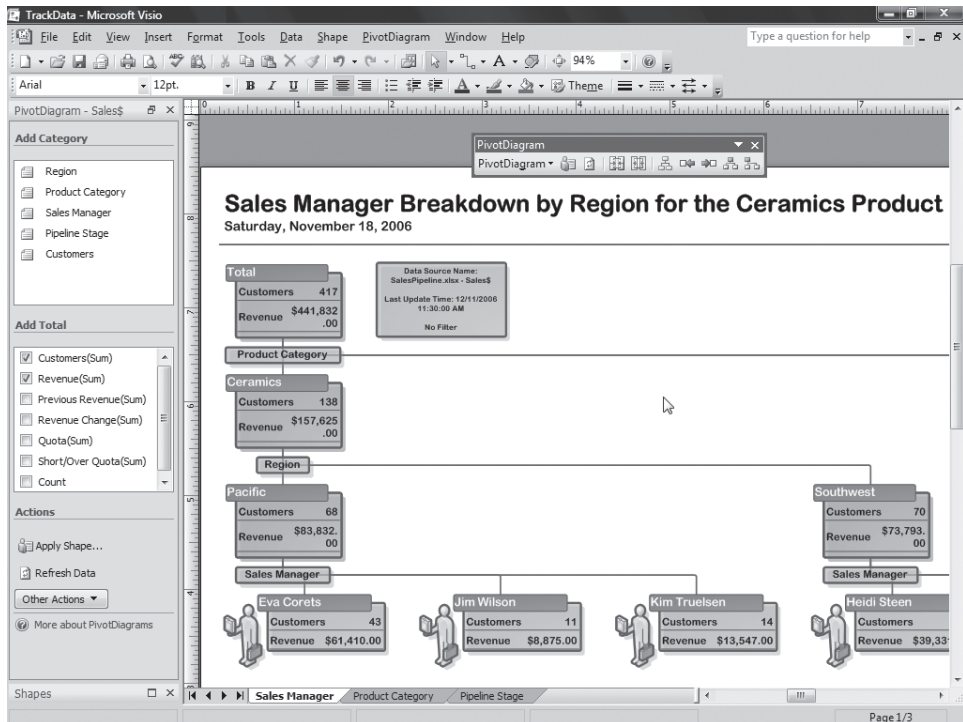
4. On the **Data** menu, click **Display Data on Shapes** to open the **Data Graphics** task pane.

> **Tip** When you create data graphics, they're stored with the PivotDiagram in which you created them. So, you might find yourself in a situation where you've created a lot of new data graphics in one diagram and you want to use them in other diagrams. You can copy data graphics from one diagram to another the same way you copy a color or effect theme—copy a shape from the diagram that has the data graphic applied to it and paste the shape into another diagram. After you copy the shape, the data graphic appears in the Data Graphics task pane for the other diagram. Then, you can delete the shape from the diagram. The data graphic remains in the Data Graphics task pane even after the shape has been deleted from the diagram.

5. Click the top node on the drawing page to select it.

Visio Professional highlights the data graphic applied to the top node on the Data Graphics task pane.
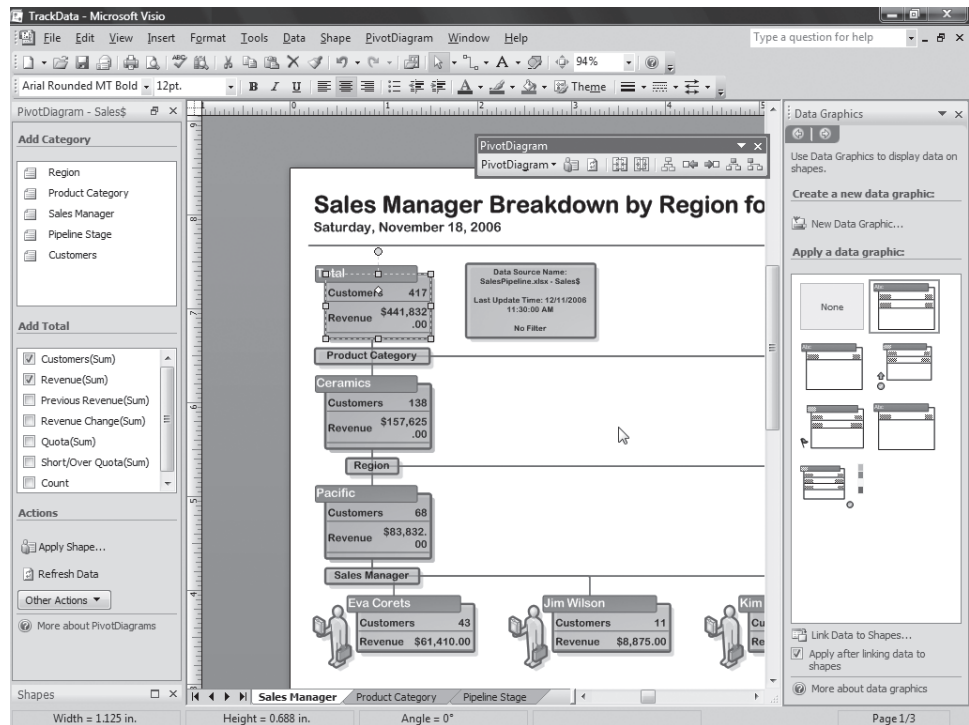
> **Tip** For information about creating and editing data graphics, see the "Modify and Create Data Graphics" section in Chapter 9, "Visualizing Data in Diagrams." To see the details of the visual elements that comprise the data graphics in this drawing file, right-click a data graphic on the Data Graphics task pane, and then on the shortcut menu that appears, click Edit Data Graphic. In the Edit Data Graphic dialog box, select a visual element, and then click Edit Item to see the details for that specific visual element.
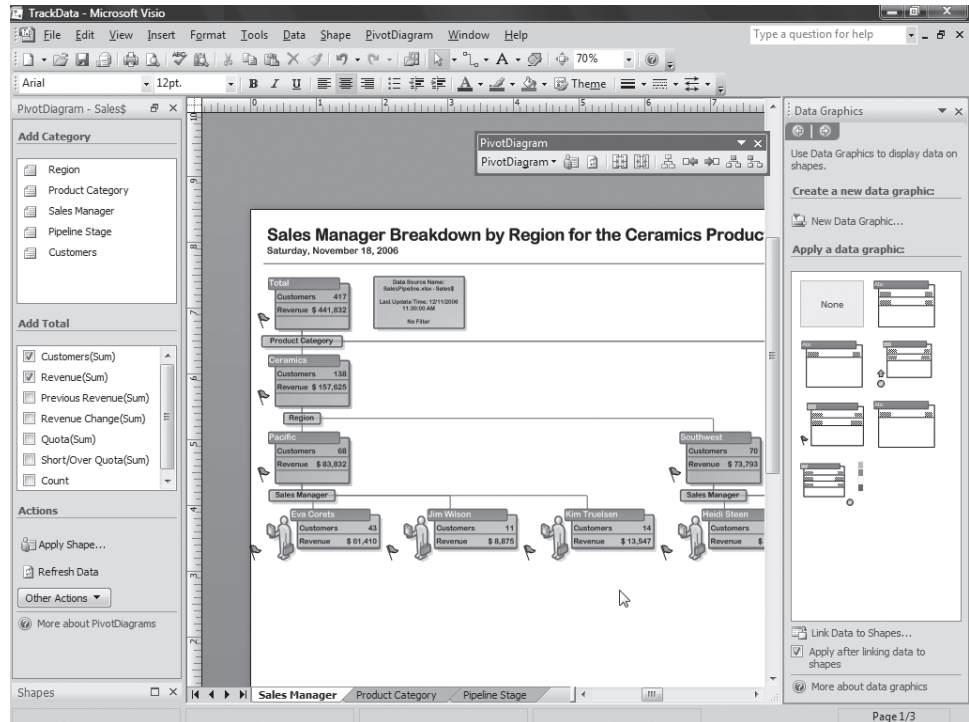
6. Press Ctrl+W to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window.

7. Hold down Shift while you click all the nodes in the diagram to select them.
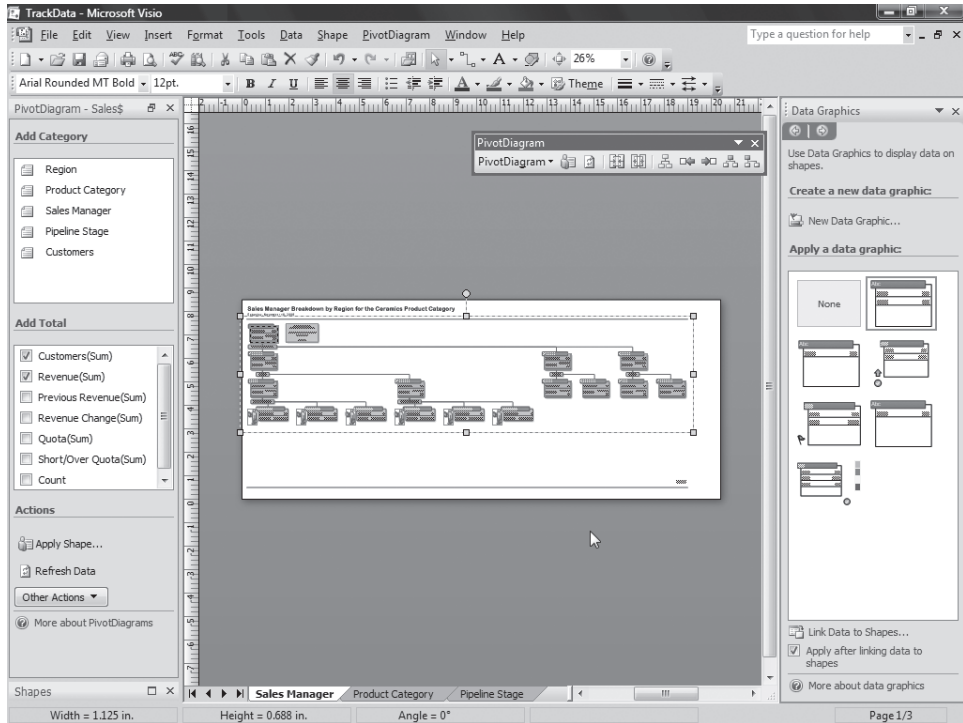
8. On the **Data Graphics** task pane, click the **Revenue Flags** data graphic (third data graphic in the first column).
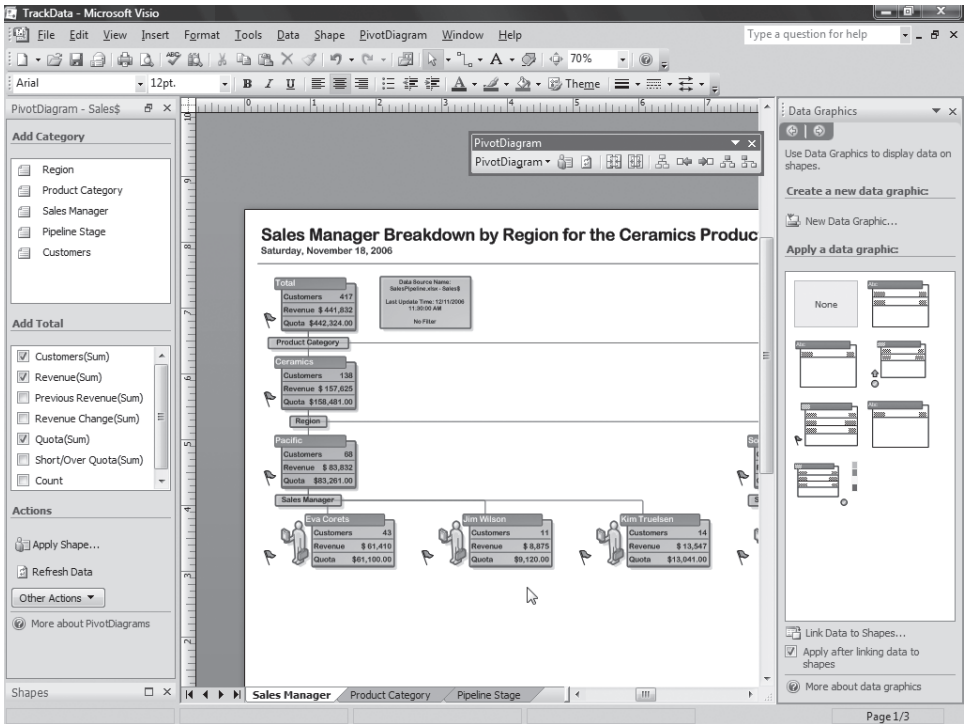
Visio Professional applies the Revenue Flags data graphic to all the selected nodes in the diagram. This data graphic displays a green flag if the value in the Revenue data field is greater than the value in the Previous Revenue data field and a red flag if it's less than the value in the Previous Revenue data field.

9. Click the pasteboard to deselect the shapes. Hold down Ctrl+Shift and drag a selection box around the top node and some of the shapes below it on the drawing page to zoom in on them so you can see them better.

10. In the PivotDiagram – Sales$ window, under **Add Total**, check the **Quota(Sum)** checkbox.

Visio Professional displays the total quota for each node in the PivotDiagram, in addition to the Revenue(Sum) and Customers(Sum), which were already displayed.
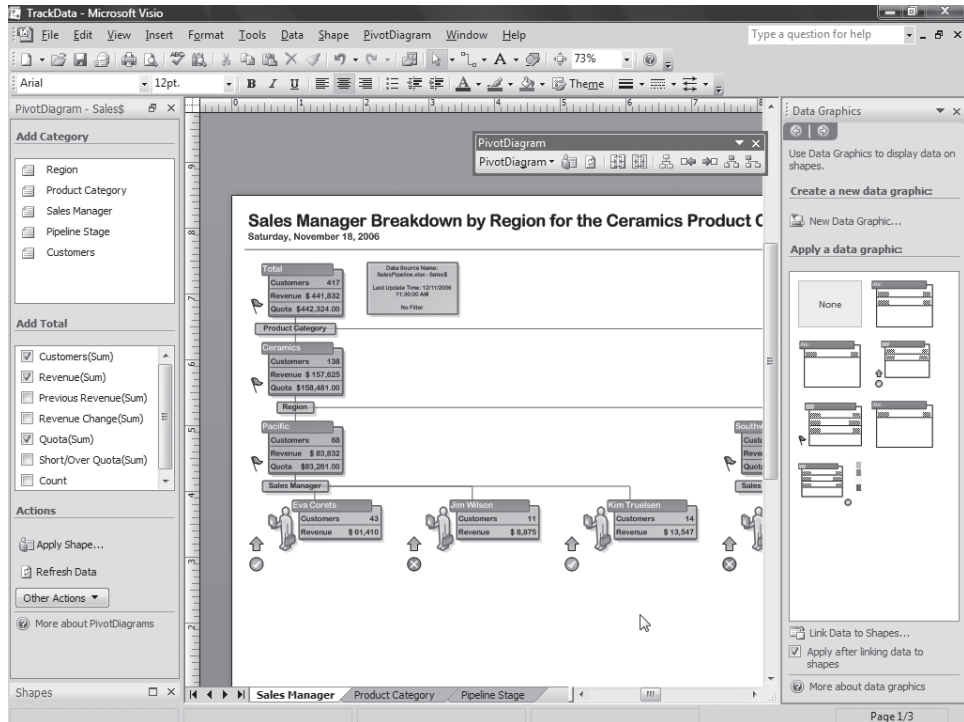
11. Press <kbd>Ctrl</kbd>+<kbd>W</kbd> to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window. Hold down <kbd>Shift</kbd> while you click the six sales manager nodes in the diagram to select them.
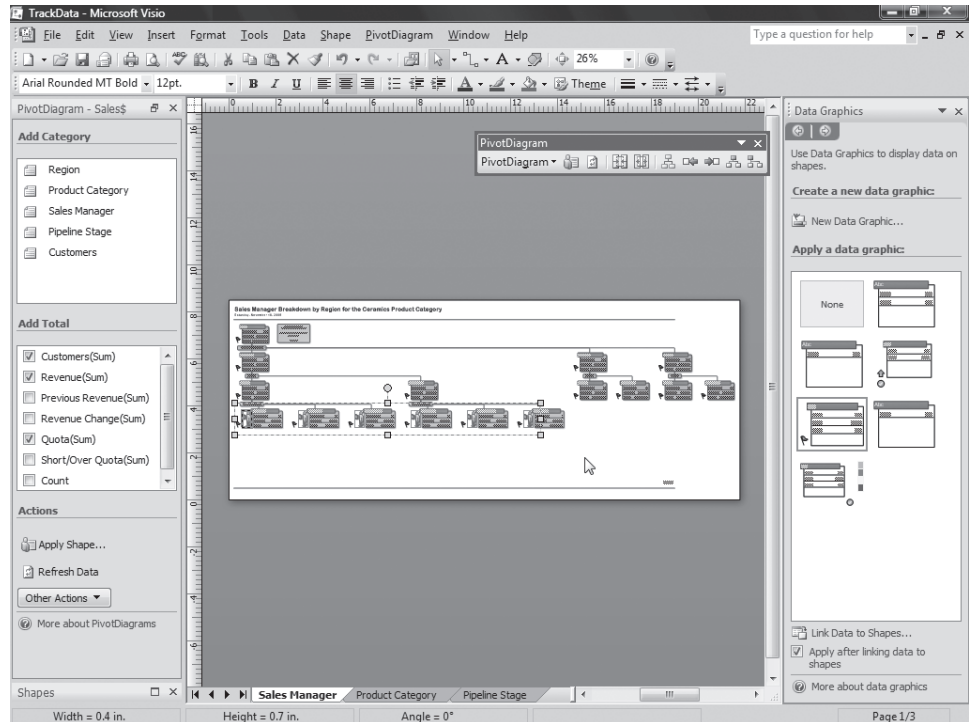
12. On the **Data Graphics** task pane, click the **Revenue & Quota Flags** data graphic (second data graphic in the second column).

Visio Professional applies the Revenue & Quota Flags data graphic to all the selected nodes in the diagram. This data graphic displays a green upward pointing arrow if the value in the Revenue data field is greater than the value in the Previous Revenue data field and a red downward pointing arrow if it's less than the value in the Previous Revenue data field. The data graphic also displays a checkmark in a green circle if the sales manager exceeds his sales quota, and an X in a red circle if he falls short of his quota. This data graphic doesn't show the actual quota for each sales manager.

13. Click the pasteboard to deselect the shapes. Hold down `Ctrl` + `Shift` and drag a selection box around the top node and some of the sales manager nodes below it on the drawing page to zoom in on them so you can see them better.

14. Click the **Product Category** page tab at the bottom of the drawing window to go to the second PivotDiagram in the drawing file.

15. In the PivotDiagram – Sales$ window, under **Add Total**, check the **Revenue(Sum)** checkbox.

Visio Professional displays the total revenue for each node in the PivotDiagram, in addition to the Customers(Sum), which was already displayed.

16. Hold down ⌨Ctrl+⌨Shift and drag a selection box around the top node and some of the nodes below it on the drawing page to zoom in on them so you can see them better.
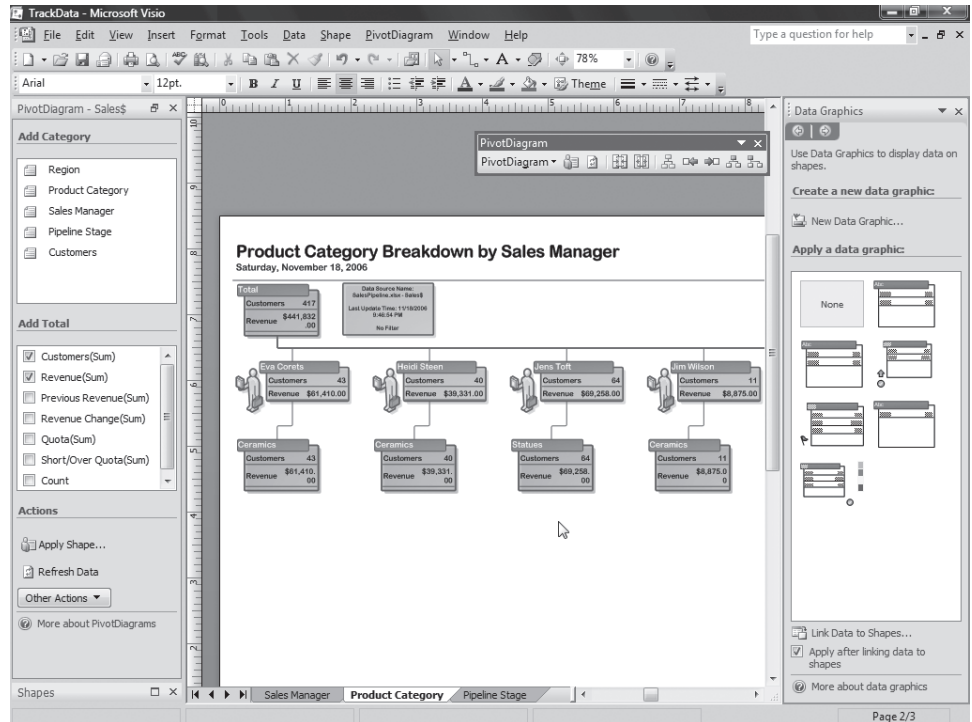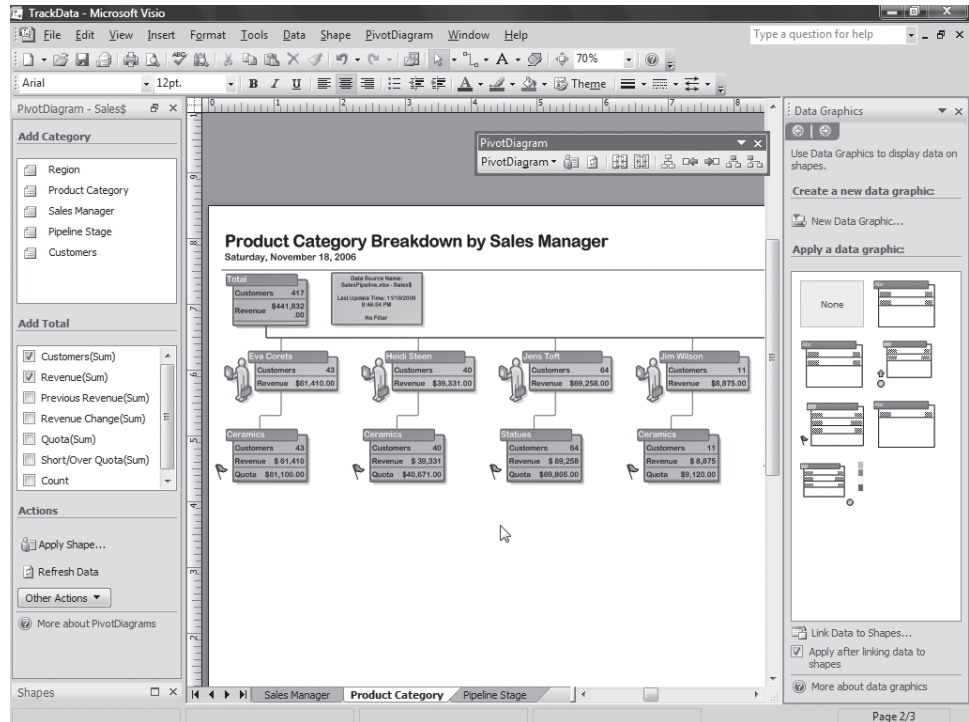
17. Press Ctrl + W to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window. Drag a selection box around the last level of nodes—the Product Category nodes—on the drawing page.
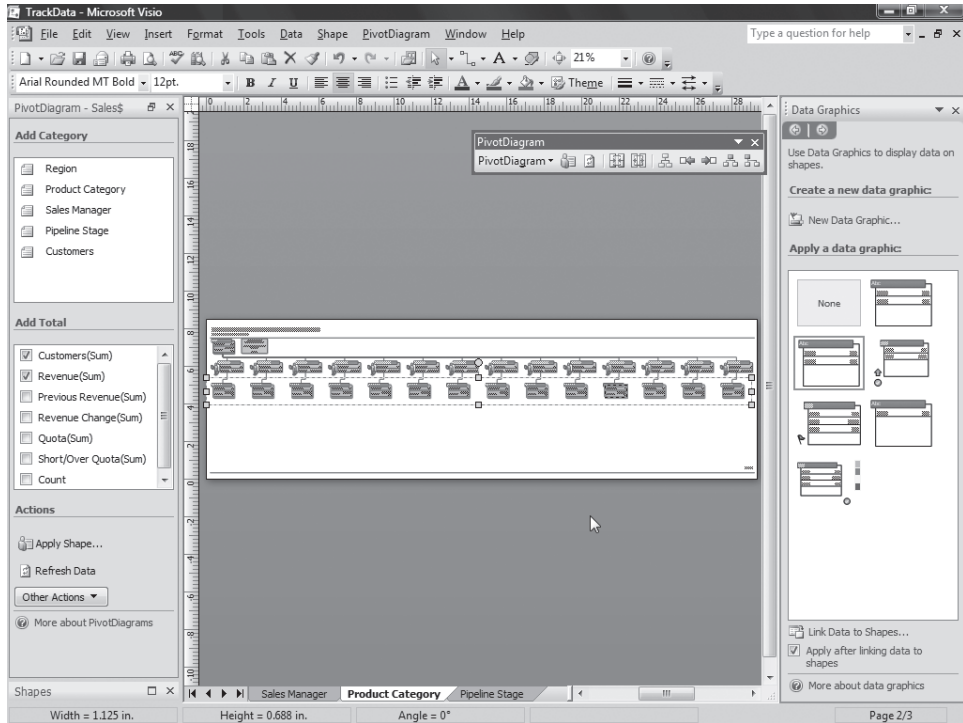
18. On the **Data Graphics** task pane, click the **Revenue Flags** data graphic (third data graphic in the first column).

Visio Professional applies the Revenue Flags data graphic to all the selected nodes in the diagram. This data graphic displays a green flag if the value in the Revenue data field is greater than the value in the Previous Revenue data field and a red flag if it's less than the value in the Previous Revenue data field.

19. Click the pasteboard to deselect the shapes. Hold down `Ctrl` + `Shift` and drag a selection box around the top node and some of the shapes below it on the drawing page to zoom in on them so you can see them better.

20. Click the **Pipeline Stage** page tab at the bottom of the drawing window to go to the third PivotDiagram in the drawing file.

21. In the PivotDiagram – Sales$ window, under **Add Total**, check the **Revenue(Sum)** checkbox.

Visio Professional displays the total revenue for each node in the PivotDiagram, in addition to the Customers(Sum), which was already displayed.

22. Hold down `Ctrl` + `Shift` and drag a selection box around the top node and some of the shapes below it on the drawing page to zoom in on them so you can see them better.
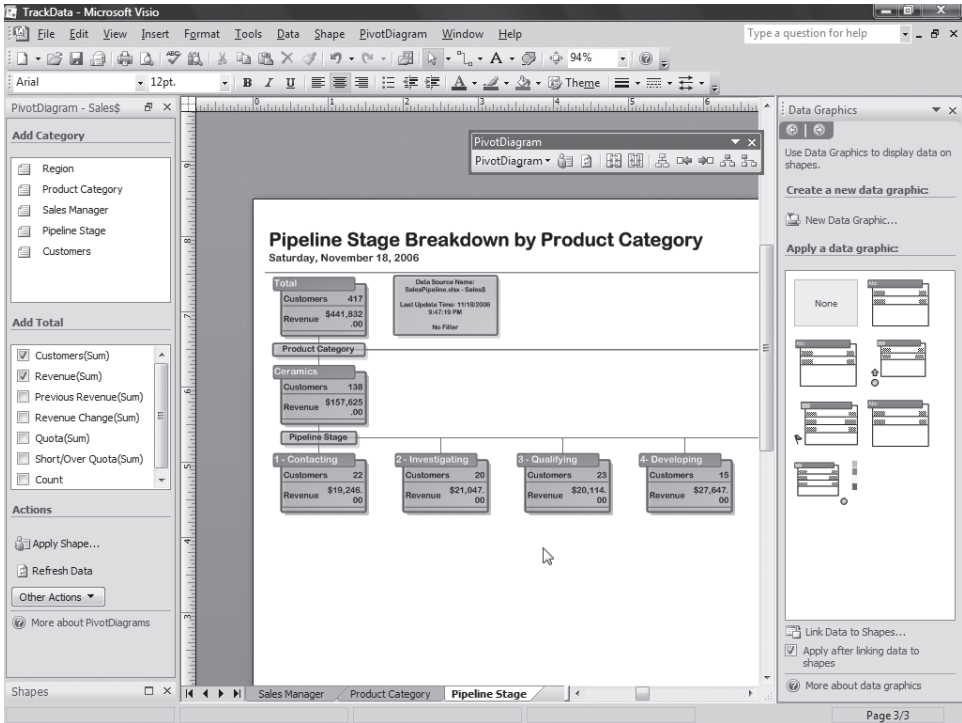
23. Press Ctrl + W to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window. Hold down Shift while you click the top node and the three product category nodes in the second level of nodes on the drawing page.
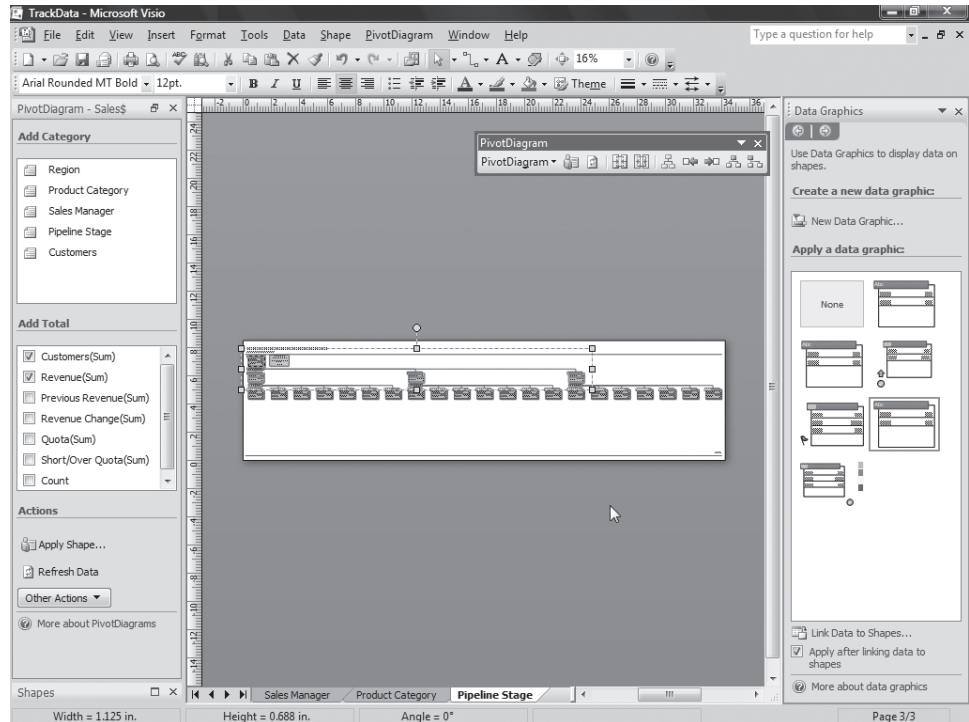
24. On the **Data Graphics** task pane, click the **Revenue Flags** data graphic (third data graphic in the first column).

Visio Professional applies the Revenue Flags data graphic to all the selected nodes in the diagram. This data graphic displays a green flag if the value in the Revenue data field is greater than the value in the Previous Revenue data field and a red flag if it's less than the value in the Previous Revenue data field.

25. Click the pasteboard to deselect the shapes. Drag a selection box around the third level of nodes—the Pipeline Stage nodes—on the drawing page to select them.

26. On the **Data Graphics** task pane, click the **Quota Flags & Color by Value** data graphic (fourth data graphic in the first column).

Visio Professional applies the Quota Flags & Color by Value data graphic to all the selected nodes in the diagram. This data graphic displays a checkmark in a green circle if the sales manager exceeds his sales quota, and an X in a red circle if he falls short of his quota. This data graphic also change the color of the node according to the amount the sales quota was exceeded or fell short. This data graphic also shows the actual quota for each stage.

> **Tip** To see the details for the Color by Value visual element in the data graphic, right-click the Quota Flags & Color by Value data graphic on the Data Graphics task pane, and then click Edit Data Graphic on the shortcut menu that appears. In the Edit Data Graphic dialog box, select the first element (the Short/Over Quota data field), and then click Edit Item to see the details for the color assignment conditions.

27. Click the pasteboard to deselect the shapes. Hold down `Ctrl` + `Shift` and drag a selection box around the top node and some of the shapes below it on the drawing page to zoom in on them so you can see them better.
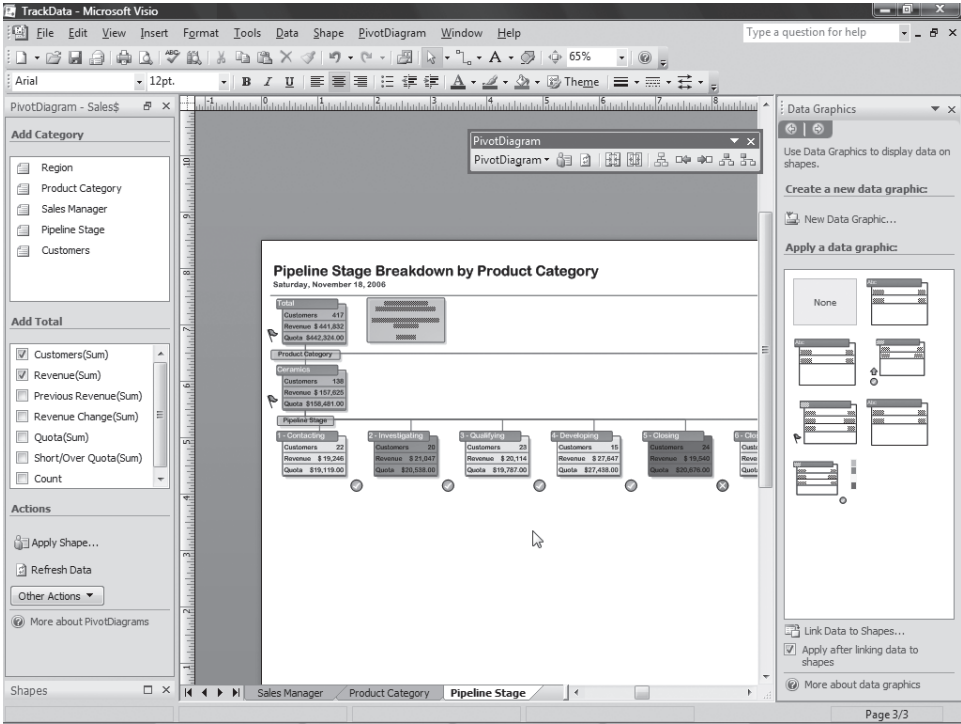
28. On the **File** menu, click **Save As** to save the diagram.

29. In the **Save As** dialog box, in the **File name** box, type **PivotDiagram3**, and then click **Save**.

30. On the **File** menu, click **Close** to close the diagram.

> **CLOSE** the *TrackData* file.

Customizing the Layout of a PivotDiagram

You can easily change the layout of a PivotDiagram using commands on the PivotDiagram menu or buttons on the PivotDiagram toolbar. Here are some typical ways you can change the layout of a PivotDiagram:

Move Left/Up

- Move the shapes in a PivotDiagram by selecting them and dragging them or clicking the Move Left/Up or Move Right/Down buttons on the PivotDiagram toolbar.

Move Right/ Down

- Collapse levels of nodes if you no longer want to show them in your PivotDiagram. Click one or more parent nodes under which you want to collapse all the nodes, and then on the PivotDiagram menu, click Collapse.

> **Important** The only way to reverse this action and see all the collapsed levels again is by clicking Undo on the Edit menu.

- Change the order of nodes in categories in a PivotDiagram. For example, instead of listing the product categories in this order, Ceramics, Paintings, Statues, you can reverse the order to Statues, Paintings, Ceramics. Right-click the breakdown shape for a category, and then click Sort on the shortcut menu that appears. In the Breakdown Options dialog box, under Sort by, click Ascending or Descending.

- Merge two or more nodes in the same category to show all the data for the nodes as one node. To merge nodes, select the nodes in a category that you want to merge, and then on the PivotDiagram menu, click Merge. All the node titles are displayed with the new node so you can easily determine what data is included with the new, single node.

> **Tip** To separate the nodes again, on the PivotDiagram menu, click Unmerge.

- Change the direction (e.g. left-to-right or top-to-bottom) and alignment (e.g. left, right, and center) of the PivotDiagram layout. Click one or more parent nodes under which you want to change the layout of all the nodes. To change the layout direction, on the PivotDiagram menu, click Layout Direction, and then click the direction you want. To change the layout alignment, on the PivotDiagram menu, click Layout Alignment, and then click the alignment you want.

The sort order for the nodes in the
Pipeline Stage category is ascending

This portion of the PivotDiagram shows data laid
out left-aligned in a top-to-bottom direction
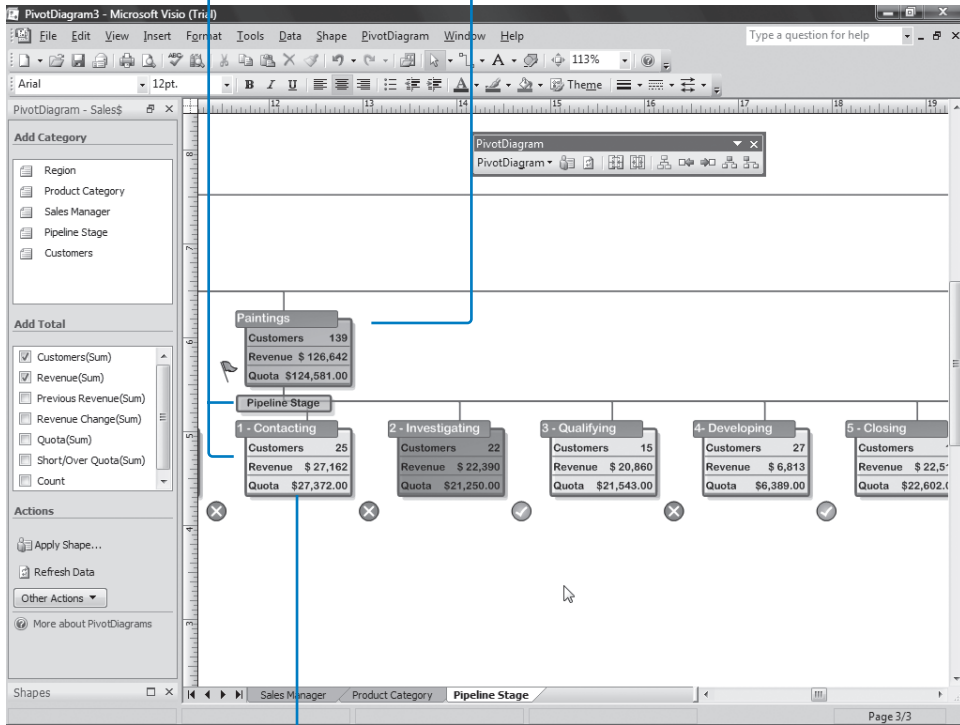
This single node shows all the data for two merged nodes:
1-Contacting and 2-Investigating

You can also filter the categories you want to view in your PivotDiagram by applying conditions to a category. For example, you could view only the Pipeline Stage categories in your diagram with values that equal Closing or Closed. Or, you could view only particular sales managers in a PivotDiagram by filtering the category by name. To filter a category, right-click a category in the PivotDiagram window, and then click Configure Column on the shortcut menu that appears. Or, to apply a filter to shapes that are already on the drawing page, right-click a breakdown shape on the drawing page. In the Configure Column dialog box, under Filter, specify the conditions that must be met to display a category on the drawing page.

Create filters for categories using the
Configure Column dialog box
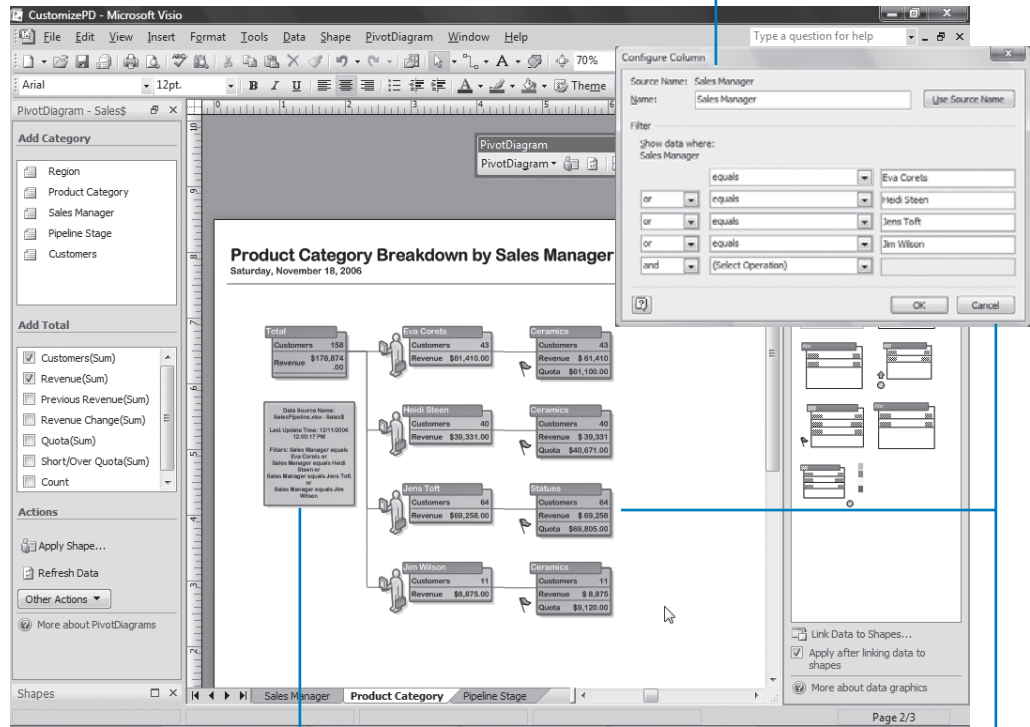
The filters placed on the PivotDiagram
are shown in the data legend

The Sales Manager category has been filtered so only
those sales managers Jens Toft, Jim Wilson, Eva Corets,
and Heidi Steen are shown in the Pivot Diagram

In this exercise, you change the layout of the PivotDiagrams in the drawing file using
various methods.

OPEN the *CustomizePD* file in Documents\Microsoft Press\Visio 2007 SBS
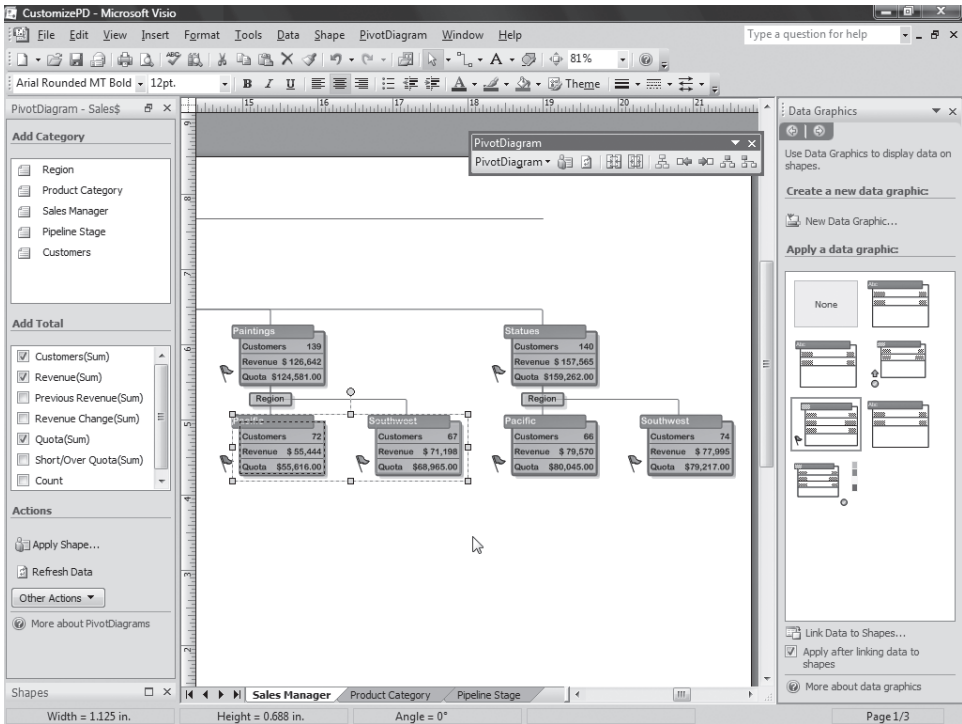\10_PivotDiagrams.

1. On the **File** menu, click **Open**, and then navigate to the **10_PivotDiagrams** folder
to open the **CustomizePD** diagram.

Visio Professional opens a drawing file that includes three pages and the first
page is showing. Each page contains a PivotDiagram that shows a different view
of the same data. Visio also opens the PivotDiagram – Sales$ window and the
PivotDiagram toolbar. A color and effect theme and data graphics have been ap-
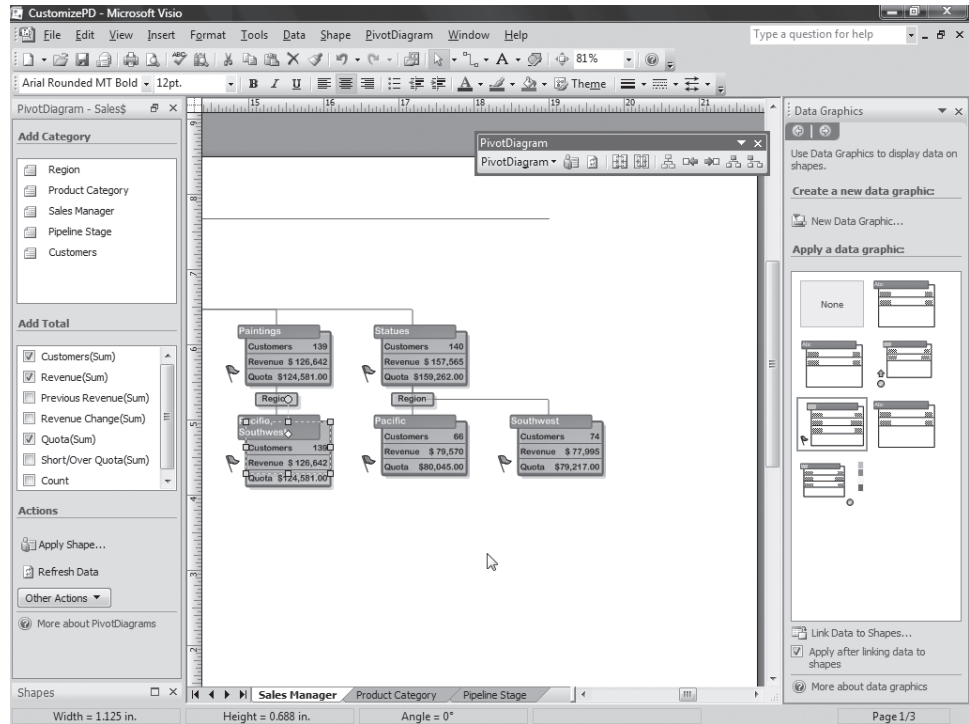plied to the PivotDiagrams.
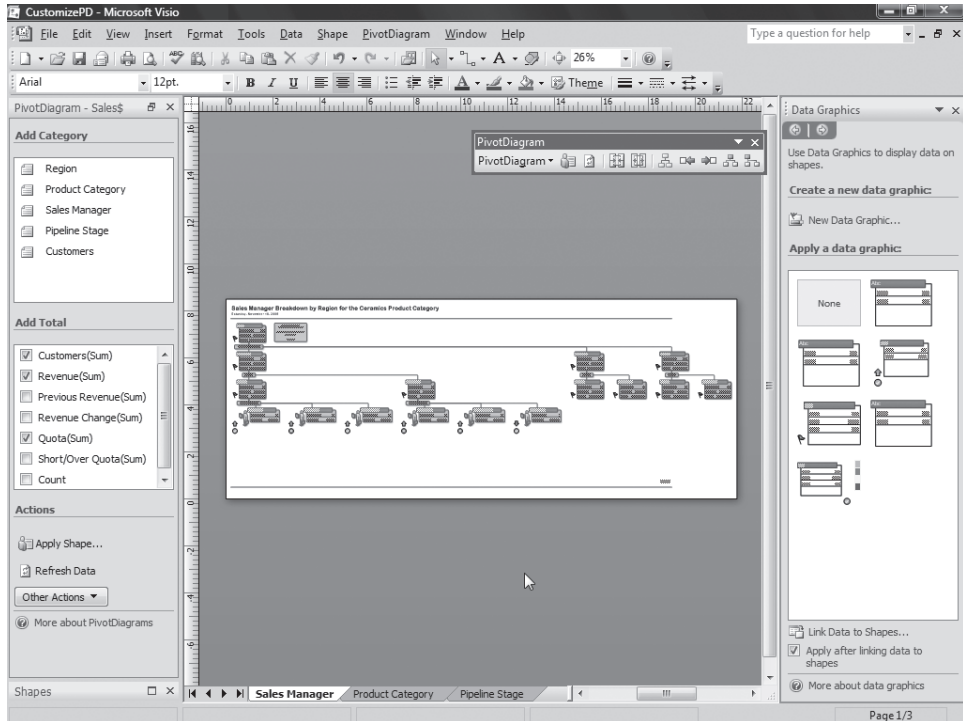
> **Troubleshooting** If you have any problems using the data linked to your PivotDiagram, you can relink the diagram to the data source. First, select the top node on the drawing page. Then, on the PivotDiagram menu, click Options. In the PivotDiagram Options dialog box, click Change Data Source. In the Data Selector wizard that starts, click Next. On the second page of the wizard, click Browse, navigate to the 10_PivotDiagrams folder, double-click SalesPipeline.xlsx, and then finish the wizard.

2. Hold down `Ctrl` + `Shift` and drag a selection box around the six nodes in the right area of the drawing page to zoom in on them so you can see them better.

3. Hold down Shift while you click the **Pacific** and **Southwest** nodes below the
Paintings product category to select them.

4. On the **PivotDiagram** menu, click **Merge**.

Visio Professional merges the two nodes into one node, displays both titles in the new node, and displays the combined data totals in the new node.
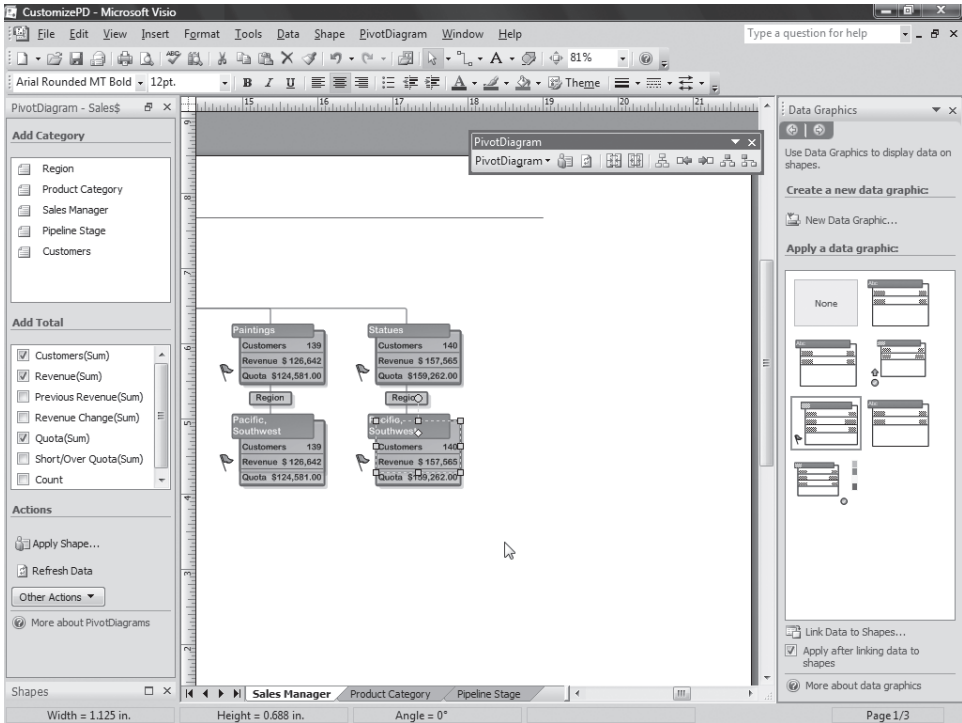
5. Hold down ⌷Shift⌷ while you click the **Pacific** and **Southwest** nodes below the **Statues** product category to select them.

Merge

6. On the **PivotDiagram** toolbar, click the **Merge** button.

Visio Professional merges the two nodes into one node, displays both titles in the new node, and displays the combined data totals in the new node.

Move Left/Up

Move Right/ Down

Tip To unmerge nodes, on the PivotDiagram toolbar, click Unmerge. Or, on the PivotDiagram menu, click Unmerge. You can also move nodes to the right, left, up, or down in a multi-node level in a PivotDiagram. To move a node, on the PivotDiagram toolbar, click the Move Left/Up button or the Move Right/Down button. Or, just select one or more nodes and drag them to move them.
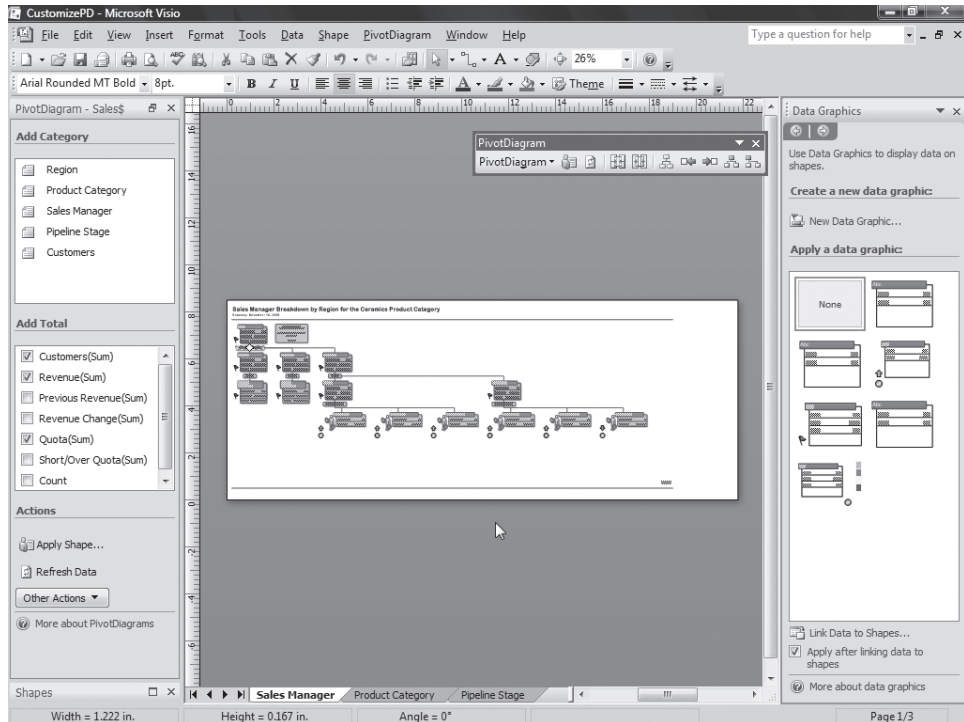
7. Press Ctrl+W to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window.

8. Hold down Ctrl+Shift and drag a selection box around the top node and some of the nodes below it on the drawing page to zoom in on them so you can see them better.

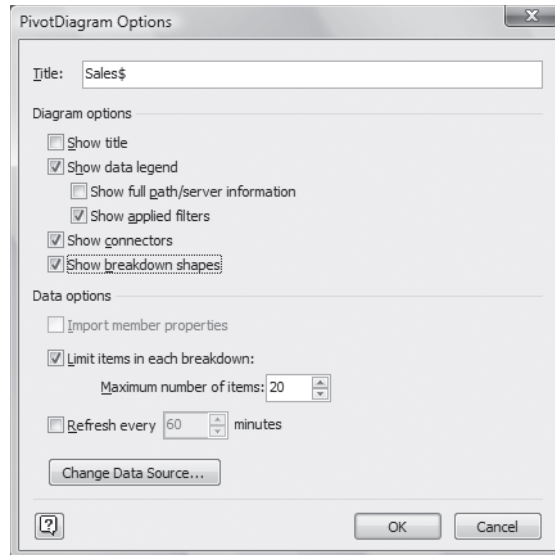**9.** Click the **Product Category** breakdown shape to select it.
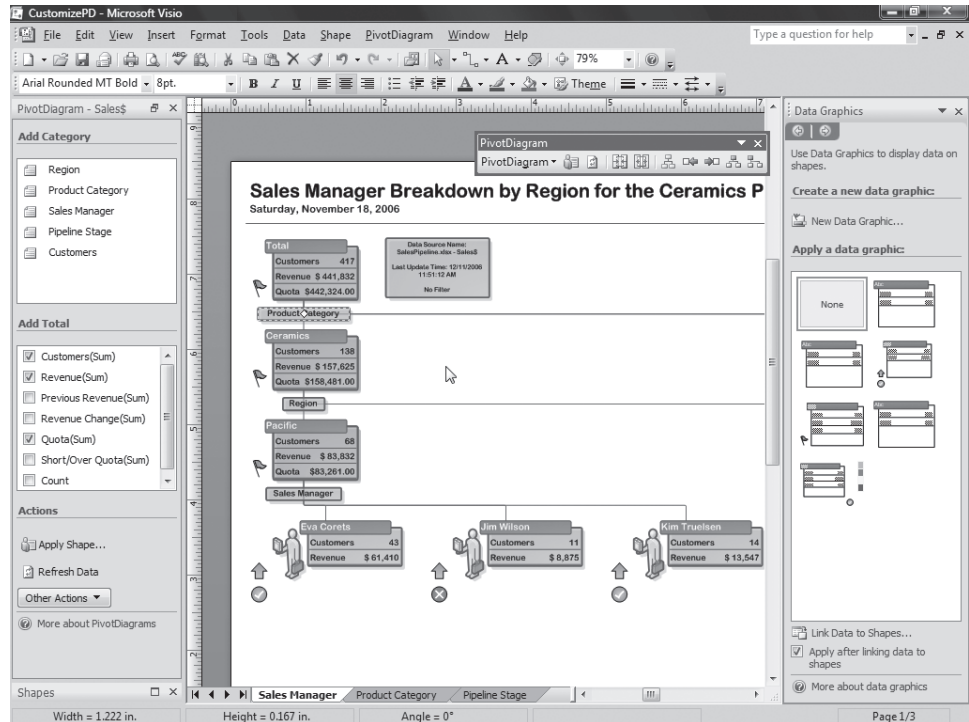
10. Right-click the shape, and then click **Sort** on the shortcut menu that appears.

The Breakdown Options dialog box appears.
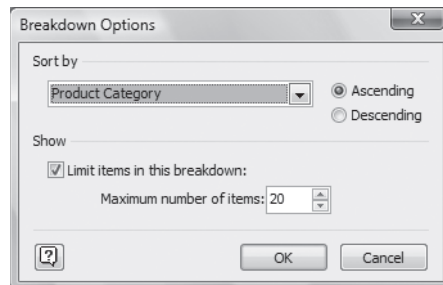
11. In the **Breakdown Options** dialog box, click **Descending**, and then click **OK** to change the order of the nodes in the **Product Category** category on the drawing page.

Visio Professional changes the sort order of the product categories (Ceramics, Paintings, and Statues) to Statues, Paintings, and Ceramics.

12. Click the pasteboard to deselect the breakdown shape. Press Ctrl + W to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window.

13. Click the **Product Category** page tab at the bottom of the drawing window to go to the second PivotDiagram in the drawing file.

14. Click the top node to select it, and then on the **PivotDiagram** menu, click **Options**.

The PivotDiagram Options dialog box appears.

15. In the **PivotDiagram Options** dialog box, check the **Show breakdown shapes** checkbox.

16. In the **PivotDiagram Options** dialog box, click **OK**.

Visio Professional shows the breakdown shapes for the categories on the drawing page.

17. Hold down `Ctrl` + `Shift` and drag a selection box around the top node and some of the nodes below it on the drawing page to zoom in on them so you can the Sales Manager and Product Category breakdown shapes better.

18. Click the **Sales Manager** breakdown shape to select it.
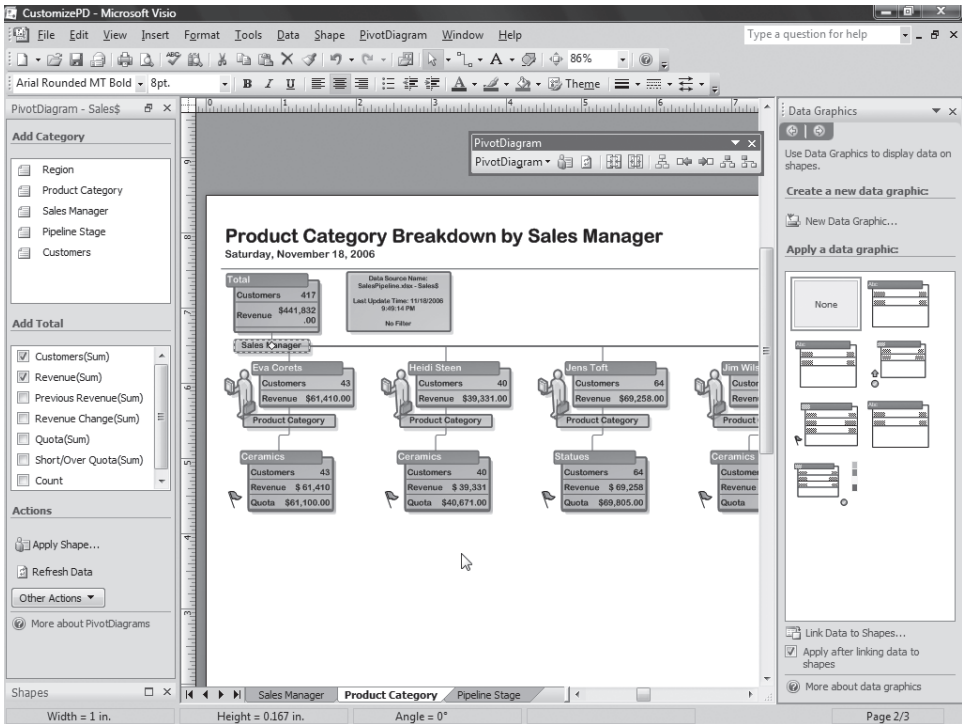
19. Right-click the **Sales Manager** breakdown shape, and then click **Configure Column** on the shortcut menu that appears.

The Configure Column dialog box appears.

20. In the **Configure Column** dialog box, click the down arrow in the **(Select Operation)** box, and then click **equals**. In the box to the right of the **equals** box, type **Eva Corets**.

21. Click the down arrow in the **and** box, and then click **or**. In the **(Select Operation)** box next to the **or** box, click **equals**. In the box to the right of the **equals** box, type **Heidi Steen**.

22. Click the down arrow in the **and** box, and then click **or**. In the **(Select Operation)** box next to the **or** box, click **equals**. In the box to the right of the **equals** box, type **Jens Toft**.

23. Click the down arrow in the **and** box, and then click **or**. In the **(Select Operation)** box next to the **or** box, click **equals**. In the box to the right of the **equals** box, type **Jim Wilson**.

24. In the **Configure Column** dialog box, click **OK**.

Visio Professional shows only the product categories that meet the conditions set in the Configure Column dialog box: Eva Corets, Heidi Steen, Jens Toft, and Jim Wilson. It also updates the data legend to show the filters applied to the PivotDiagram.

**25.** Click the pasteboard to deselect the breakdown shape. Press `Ctrl`+`W` to view the whole drawing page in the drawing window so you can see all the shapes in the drawing window.

26. Hold down `Ctrl`+`Shift` and drag a selection box around all the nodes on the drawing page to zoom in on them so you can them better.
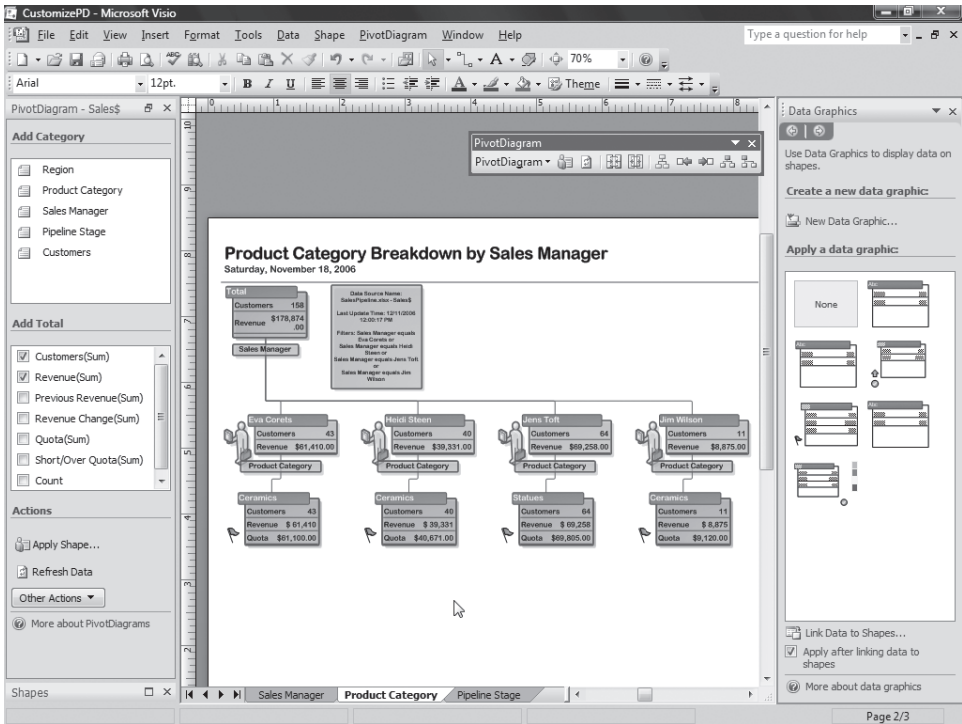
> **Tip** You can also collapse levels in a PivotDiagram if you don't want to show them in the diagram. Click the parent node for the level you want to collapse. Then, on the PivotDiagram menu, click Collapse.

27. Click the top node to select it.

28. On the **PivotDiagram** toolbar, click the **Layout Direction** button, and then click the **Left-to-Right** button to change the layout of the diagram to left to right instead of top to bottom.

29. Drag a selection box around all the nodes to select them, and then move them down a bit. Click the pasteboard to deselect the shapes.

Layout Direction

Left-to-Right
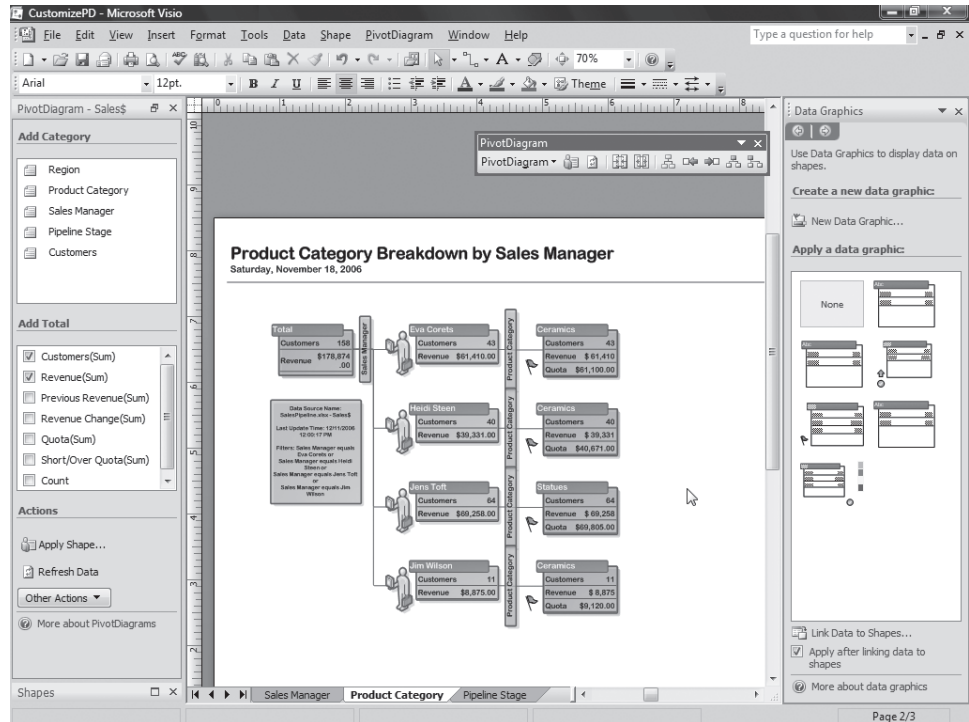
30. Click the top node to select it, and then on the **PivotDiagram** menu, click **Options**. In the **PivotDiagram Options** dialog box, uncheck the **Show breakdown shapes** checkbox so the breakdown shapes don't appear in the diagram. Click **OK**.

31. Drag a selection box around all the nodes to select them, and then move them down a bit. Click the pasteboard to deselect the shapes.
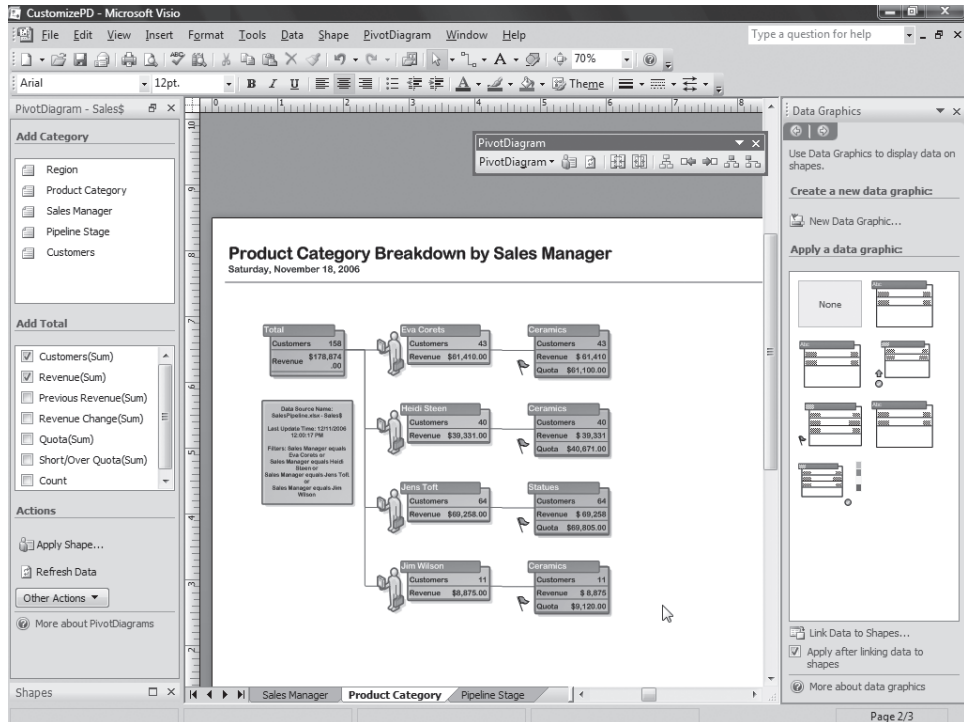
32. On the **File** menu, click **Save As** to save the diagram.

33. In the **Save As** dialog box, in the **File name** box, type **PivotDiagram4**, and then click **Save**.

34. On the **File** menu, click **Close** to close the diagram.

CLOSE the *CustomizePD* file.

Key Points

- Start a PivotDiagram by linking business data to the diagram. In the Getting Started window, click the Business category, and then under Featured Templates, click PivotDiagram to open the template, which immediately starts the Data Selector wizard.

- Don't drag Pivot Node shapes onto the drawing page to build the tree structure for your PivotDiagram. Select a node on the drawing page, and then in the PivotDiagram window, in the Add Category area, click a category to show it as a

level of nodes below the node you selected. Or, right-click a node, and then click a category on the shortcut menu.

● To apply a shape to one or more nodes in a PivotDiagram, click the nodes to which you want to apply a shape, and then in the PivotDiagram window, click Apply Shape to see the shapes you can choose from.

● You can pivot data off different data points to show different views of the same data in one PivotDiagram. You can accomplish this by showing the various views on separate pages in the diagram. Just add a new drawing page, and then on each page, drag a Pivot Node Shape from the PivotDiagram Shapes stencil onto the new page, and follow the instructions in the Data Selector wizard to the link a new top node to the external data source.

● To add totals to nodes on the drawing page, in the PivotDiagram window, in the Add Totals area, check the checkbox for the item you want to include in your PivotDiagram. If you want to customize the data total for the item, pause the pointer over the item, click the down arrow that appears, and then on the shortcut menu, click the type of total you want to show in the diagram.

● Create a new data graphic by clicking New Data Graphic in the Data Graphics task pane. To modify an existing data graphic, pause the pointer over the data graphic in the Data Graphics task pane until a down arrow appears, click the down arrow, and then click Edit Data Graphic on the shortcut menu.

● After you've created or modified the data graphic you want to use in your diagram, select the shapes to which you want to apply the new data graphic, and then click the data graphic on the Data Graphics task pane.

● Move the shapes in a PivotDiagram by selecting them and dragging them or click-ing the Move Left/Up or Move Right/Down buttons on the PivotDiagram toolbar.

● Collapse levels of nodes if you no longer want to show them in your PivotDiagram. Click one or more parent nodes under which you want to collapse all the nodes, and then on the PivotDiagram menu, click Collapse.

● To change the order of nodes in categories in a PivotDiagram, right-click the breakdown shape for a category, and then click Sort on the shortcut menu that appears. In the Breakdown Options dialog box, under Sort by, click Ascending or Descending.

- Merge two or more nodes in the same category to show all the data for the nodes as one node. To merge nodes, select the nodes in a category that you want to merge, and then on the PivotDiagram menu, click Merge. All the node titles are displayed with the new node so you can easily determine what data is included with the new, single node.

- Change the direction (e.g. left-to-right or top-to-bottom) and alignment (e.g. left, right, and center) of the PivotDiagram layout. Click one or more parent nodes under which you want to change the layout of all the nodes. To change the layout direction, on the Pivot-Diagram menu, click Layout Direction, and then click the direction you want. To change the layout alignment, on the PivotDiagram menu, click Layout Alignment, and then click the alignment you want.

- To filter a category, right-click a category in the PivotDiagram window, and then click Configure Column on the shortcut menu that appears. Or, to apply a filter to shapes that are already on the drawing page, right-click a breakdown shape on the drawing page. In the Configure Column dialog box, under Filter, specify the conditions that must be met to display a category on the drawing page.

- You can refresh the data in a PivotDiagram when the data in the external data source changes. To refresh the data in a diagram, on the PivotDiagram window, click Refresh Data.