

# Power BI

## Dashboard in a Day

### Lab 3

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# Introduction

This document is lab three out of five total labs.

Please continue to use your file after completing Lab 2. If you are joining the Dashboard in a Day at this point or were unable to complete previous labs, please start this lab with the provided **Lab 2 solution.pbix** file found in the Reports folder.

At the end of this lab, you will have completed a full report that is ready to be published to the Power BI Service. In the report, you will have learned how to do conditional formatting, add a logo to the manufacturer filter, import a custom visual, and apply a custom theme to the report. By the end of this lab, you will have also learned how to add bookmarks to tell a story about the report.

The flow of this document includes screenshots to provide a visual aid for the users and a text description of the steps the user needs to follow. In the screenshots, sections are highlighted with red or orange boxes to indicate the action or area on which a user needs to focus.

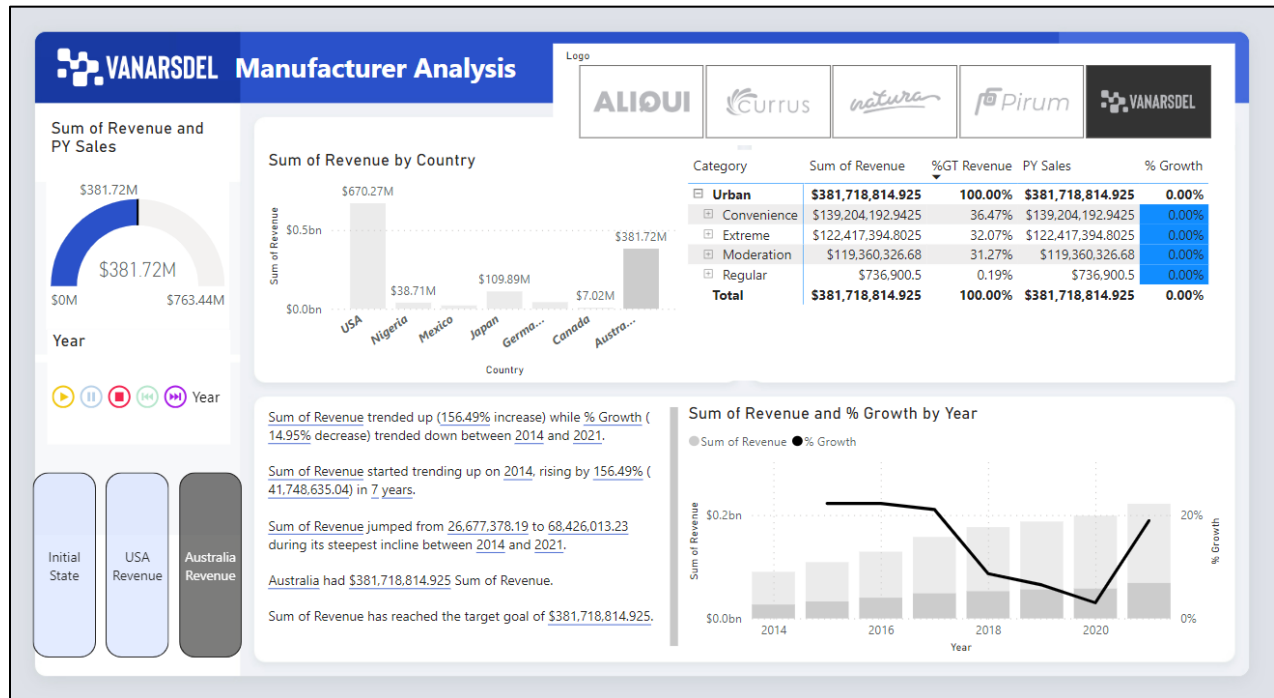
**NOTE:** This lab uses real, anonymized data provided by ObviEnce, LLC. Visit their site to learn about their services: [www.obvience.com](http://www.obvience.com). This data is the property of ObviEnce, LLC and has been shared to demonstrate Power BI functionality with industry sample data. Any use of this data must include this attribution to ObviEnce, LLC.

# Power BI Desktop

## Power BI Desktop – Data Visualization

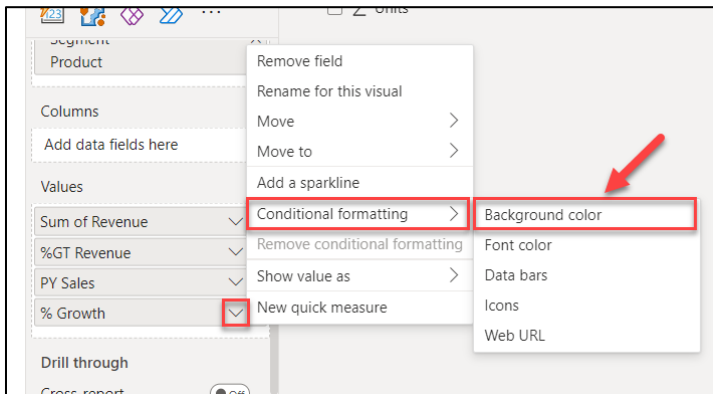
Now that we've completed data exploration and visualization in Labs 1 and 2, you have good insights to share with your team. In this section, you create a professional report for the benefit of you and your entire team.

At the end of this section, you will build a report like the one shown in the figure below.

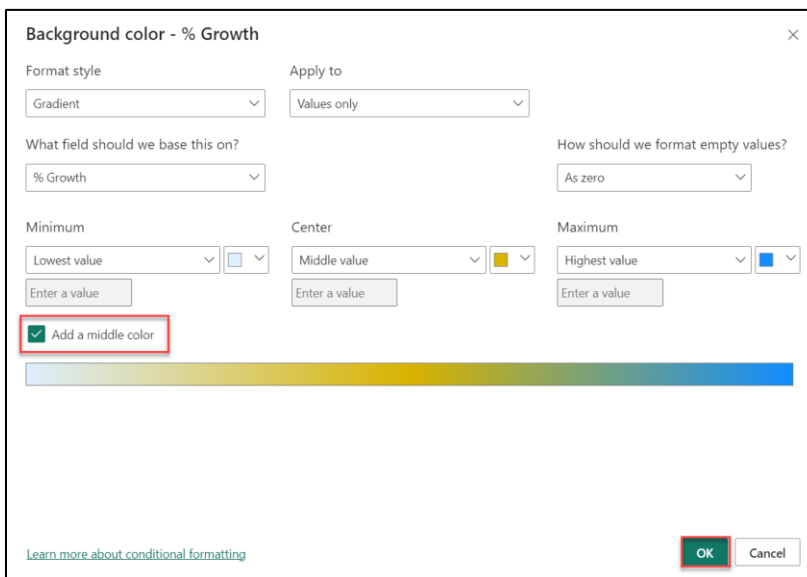


Now let's get started. We will pick up where we left off at the end of **Lab 2** within the report you saved entitled **MyFirstPowerBIModel**.

1. With the **Matrix** visual selected, navigate to the **Values** section in the **Visualizations** pane and select the arrow to the right of **% Growth**.
2. Select **Conditional Formatting** and then choose **Background color**. The **Background color** dialog box opens. This dialog provides options to format the report background color using either rules or diverging colors.



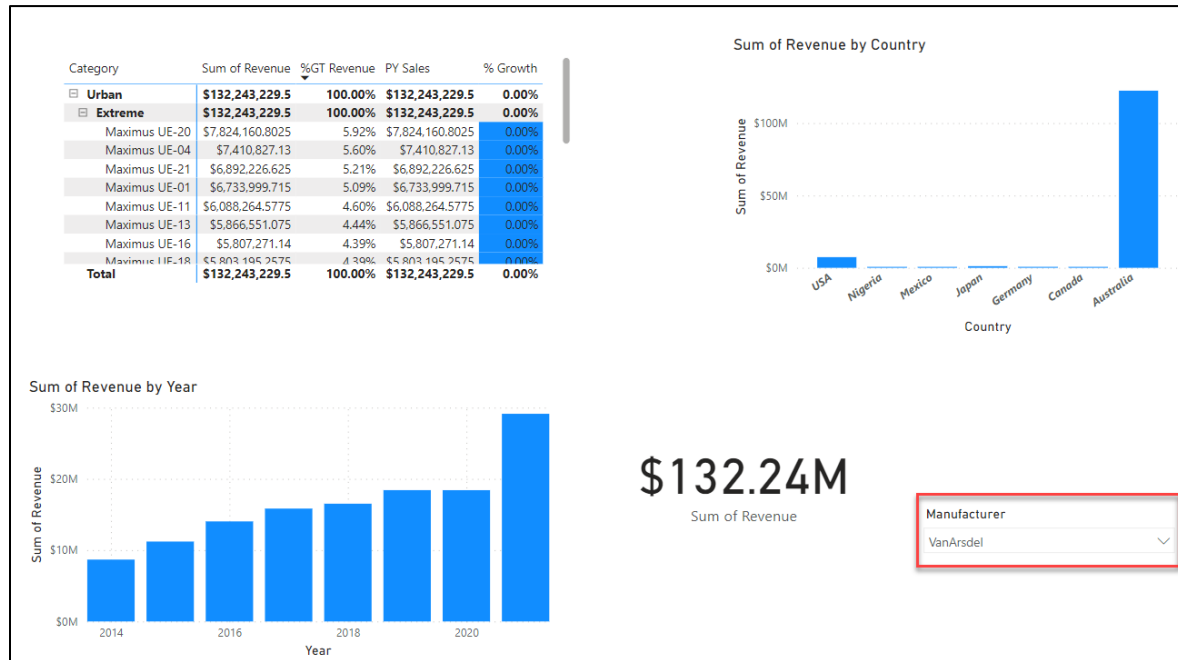
3. Within the **Background color - % Growth** dialog box, select the **Add a middle color** checkbox.
4. Then, select **OK**.



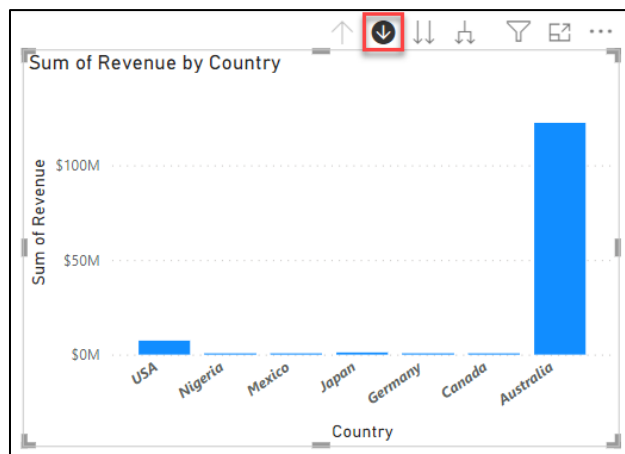
**Note:** Conditional formatting can also be based on another column using the **Color based on** option from the drop-down menu.

**Note:** As a reminder if you see 0.00% for every value in the **% of Growth** column in the Matrix then you likely need to multi-select **Australia** and **2021** like you did in **lab 2**.

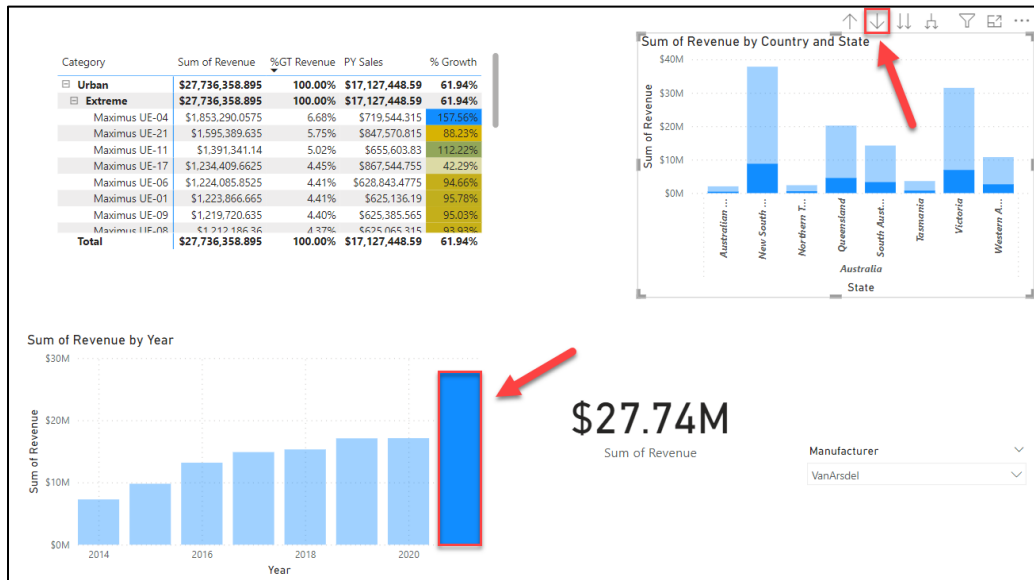
Make sure the report is filtered by **VanArsdel** using the **Manufacturer** slicer. Remove all other filters.



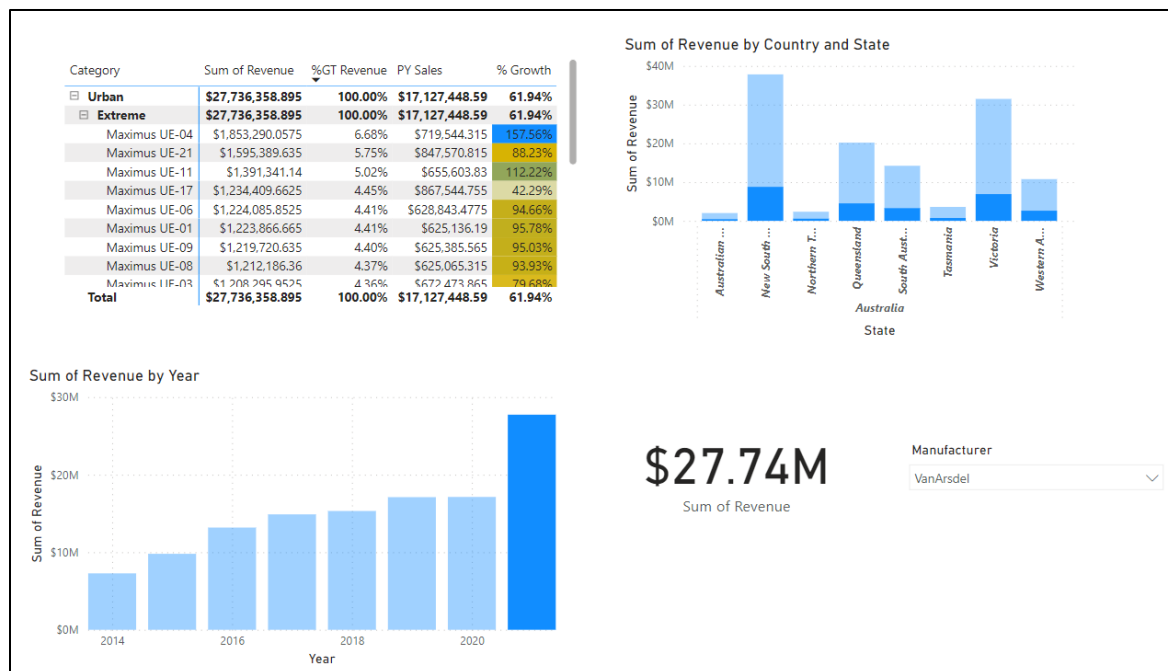
5. Enable **drill down** mode on the **Sum of Revenue by Country** visual by selecting the **down arrow** within the header of the visual (*this may alternatively be located at the bottom of the visual based on how you have the visual placed within the canvas*).



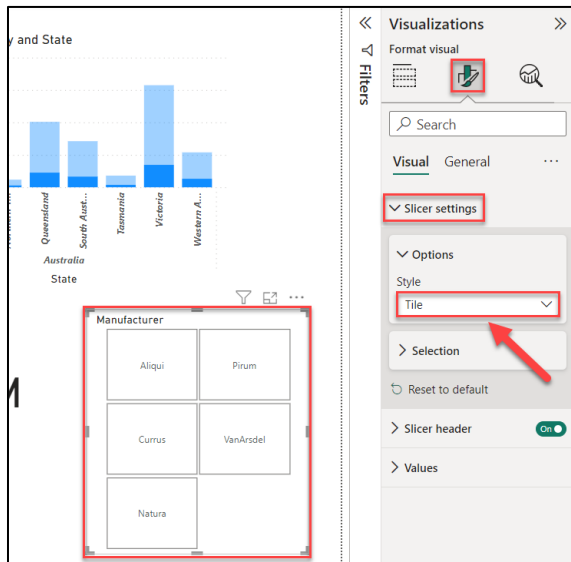
6. Within the visual, select the **Australia** column to drill down to the **State** level.
7. **Disable** drill down mode on the **Revenue by Country and State** visual.
8. Ensure you still have the year **2021** selected in the **Sum of Revenue by Year** visual. If you do not, hold down the **Ctrl** key on your keyboard and select the **2021** column.



At this point, your canvas and visuals should look similar to those in the figure below. You can resize and move visuals as you need:

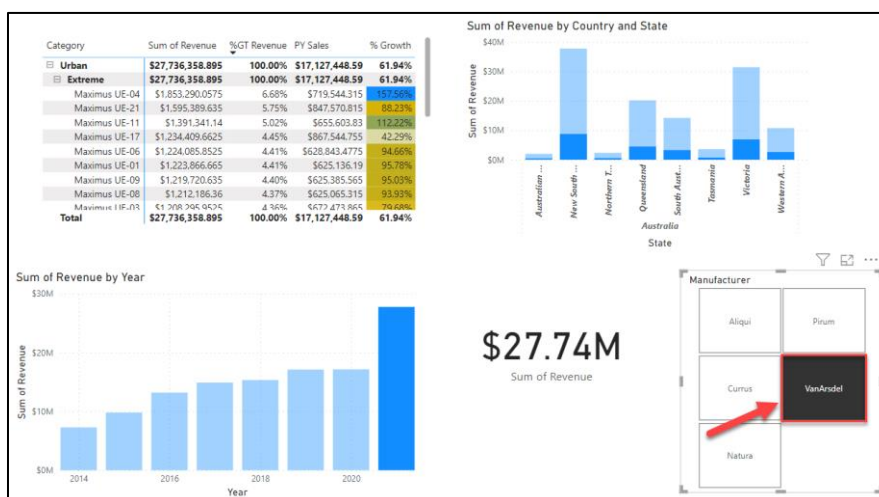


9. Select the **Manufacturer slicer** visual within the canvas.
10. Within the **Visualizations** pane, switch to the **Format visual** tab. Then, expand the **Slicer settings** section, then the **Options** section.
11. From the **Style** drop-down, select **Tile**. Notice that the Manufacturer slicer visual changes to a tile style. You may need to **resize** your visual so that you can view **all** of the Manufacturers at once within the list.



**Note:** There are other options that can optionally be changed here to modify the outline color, weight, and more. There is an option to enable the **Select All** option in the visual. There is also an option to make the slicer **multi-select**. Feel free to explore other formatting options.

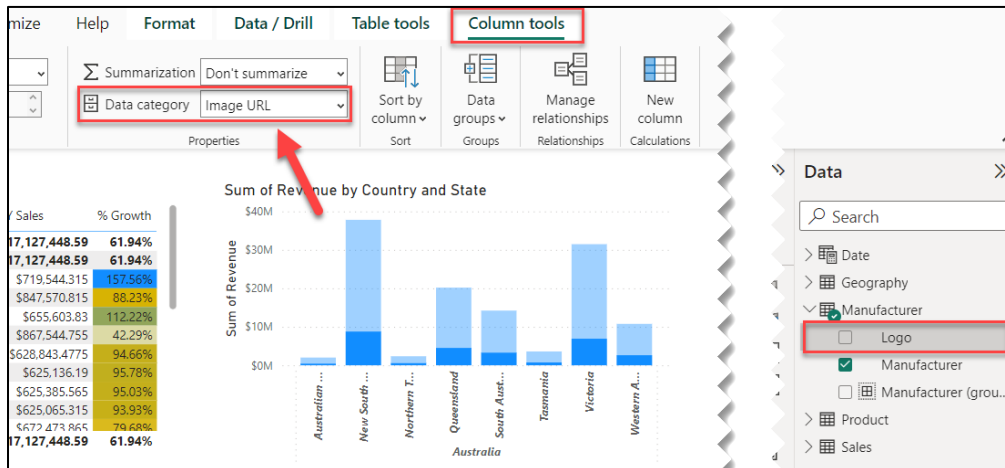
12. Select **VanArsdel** within the **Slicer** visual.



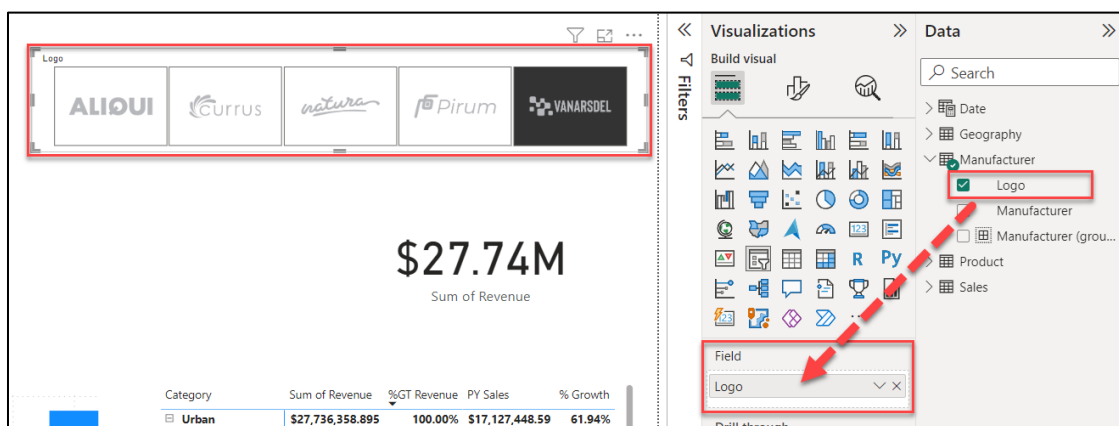


Now it would be nice to add logos of the manufacturer to the slicer instead of just text. Let's do it.

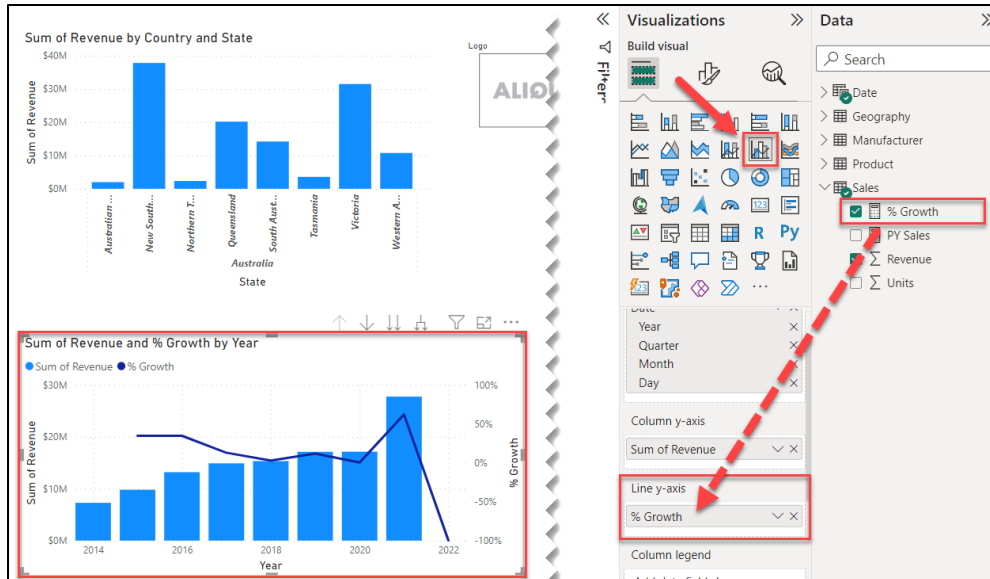
13. Ensure that the **Manufacturer** slicer visual is still selected. From the **Data** pane, select the **Logo** field from the **Manufacturer** table. (Do not select the checkbox; only select the *name* of the field.)
14. From the ribbon, select the **Column tools** tab, choose the **Data Category** drop down and then select **Image URL**. Setting the data category property to **Image URL** helps Power BI understand that the data in this field is a URL so it can render the image in the report.



15. From the **Data** pane, drag and drop the **Logo** field from the **Manufacturer** table to below the **Manufacturer** column within the **Field** box in the **Visualizations** pane.
16. Select the **X** to the right of the **Manufacturer** field in the box so that the **Logo** field has replaced it.
17. **Resize** and **move** the visuals as needed.
18. Select the **VanArsdel** logo within the **Manufacturer** slicer visual to filter all the other visuals.



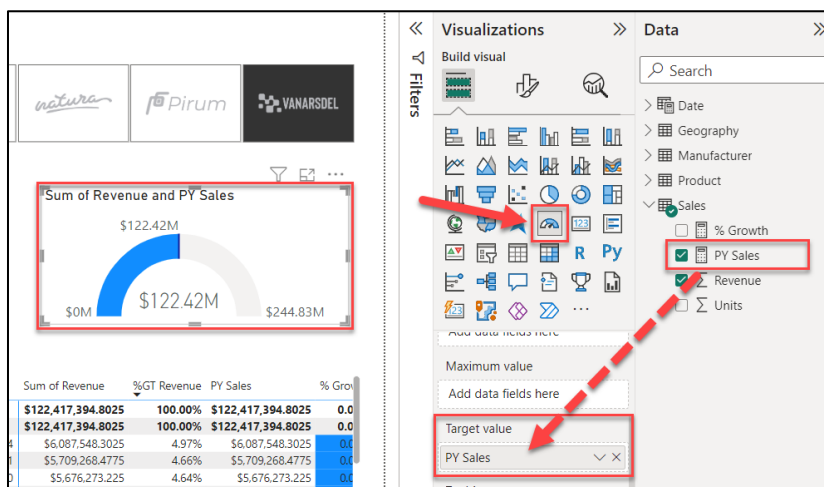
19. Select the **Sum of Revenue by Year** visual.
20. From the **Visualizations** pane, select the **Line and clustered column chart** to change the visual type.
21. From the **Data** pane, drag and drop the **% Growth** field from the **Sales** table to the **Line y-axis** box.



This provides a representation of the revenue and growth over time.

Now let's select the **Sum of Revenue** card visual so we can change it to a **Gauge** visual.

22. Ensure that the card visual is selected within the report. From the **Visualizations** pane, select the **Gauge** visual.
23. From the **Data** pane, drag and drop the **PY Sales** field from the **Sales** table to the **Target value** in the **Visualizations** pane.



**Resize and move** the visuals as needed. Now we can compare **Revenue** with the target.

Now let's take time to select the colors for the visuals.

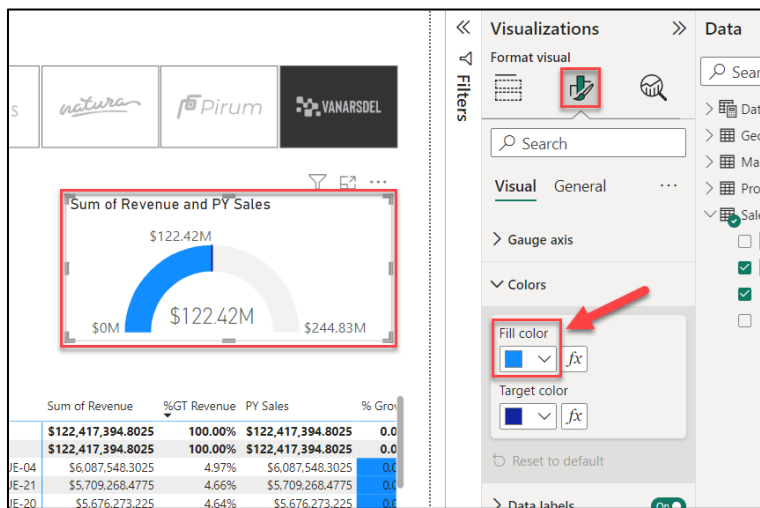
24. Select the **Gauge** visual.

25. From the **Visualizations** pane, select the **Format visual** tab (the paint brush icon).

26. Expand the **Colors** section.

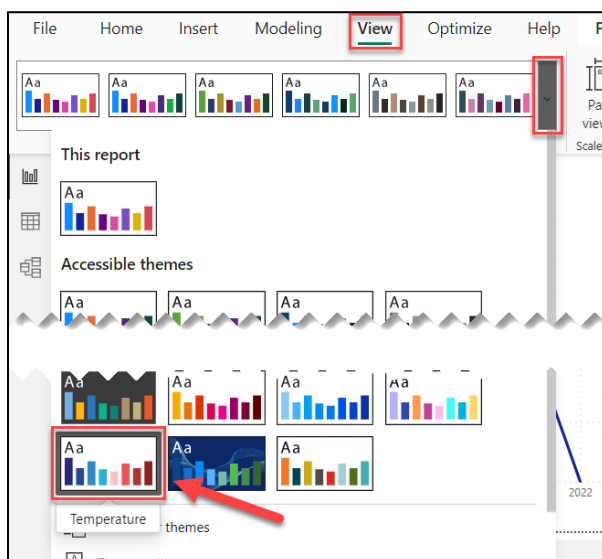
27. Select the drop-down for **Fill color**.

Notice you can pick a color from the default color palette or pick **More colors**. No need to make a change here because the next steps will standardize all the report colors used.



Let's check out some of the **themes** available.

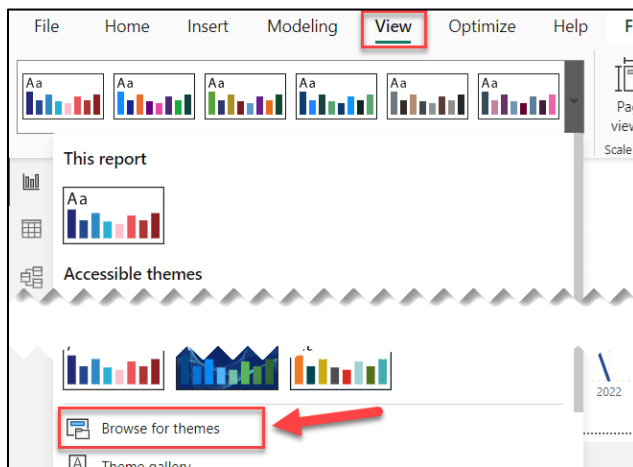
28. Ensure that the **Gauge** visual is still selected. From the ribbon, select the **View** tab, choose the drop-down arrow within the **Themes** menu, and then select the **Temperature** theme.



Notice that the colors on all the visuals are updated. Feel free to try the other **out-of-the-box themes**.

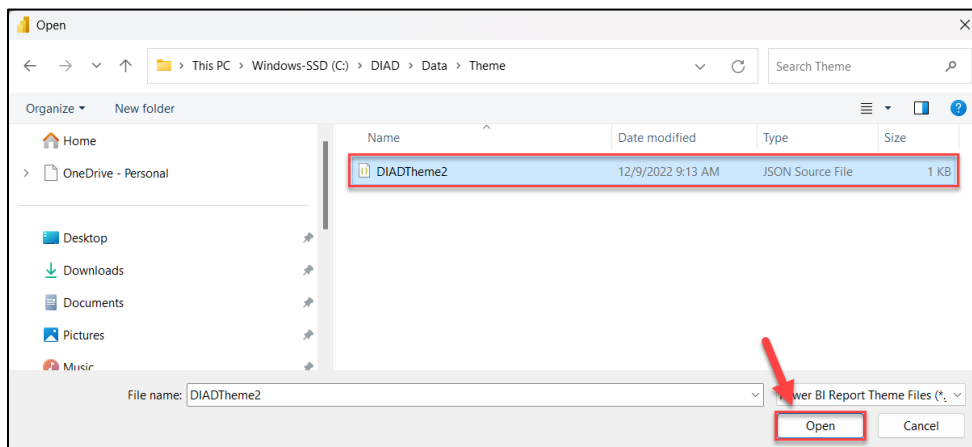
In our scenario, the Marketing department has provided standard color themes to be used across reports. We can use the **Report Theme** feature in Power BI by uploading a theme. The **Report Theme** requires a **JSON file** where the data colors, background, foreground, and a table of accent colors are defined. The JSON file can be used across all the reports.

29. From the ribbon, select the **View** tab, choose the drop-down within the **Themes** menu, and then select **Browse for themes**.



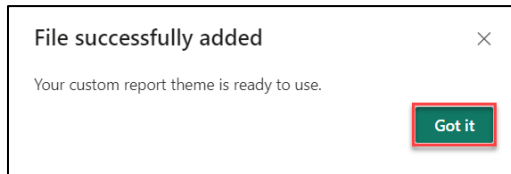
30. A file browser dialog box opens. Navigate to the **Data** folder, then the **Theme** folder (DIAD/Attendee/Data/Theme).

31. Select the **DIADTheme2** file and then choose **Open**.



**Note:** Here you can save and add your custom themes.

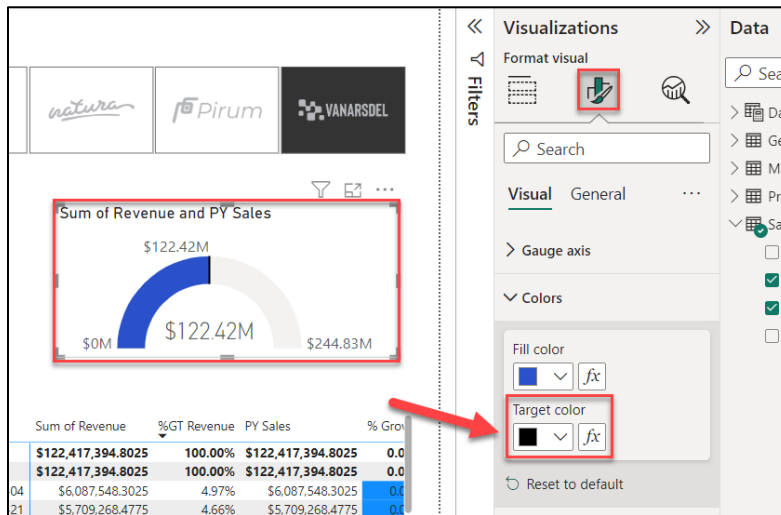
32. Once the theme is imported, a success dialog box opens. Select **Got it**.



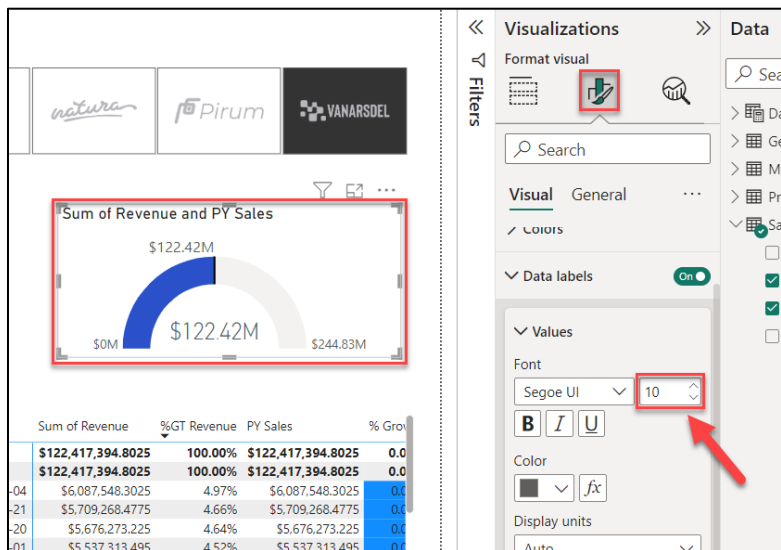
Notice colors on all the visuals are updated. Your report should look like the figure at this point. This theme looks good. Now, most of the visuals are blue, so let's add some contrast.



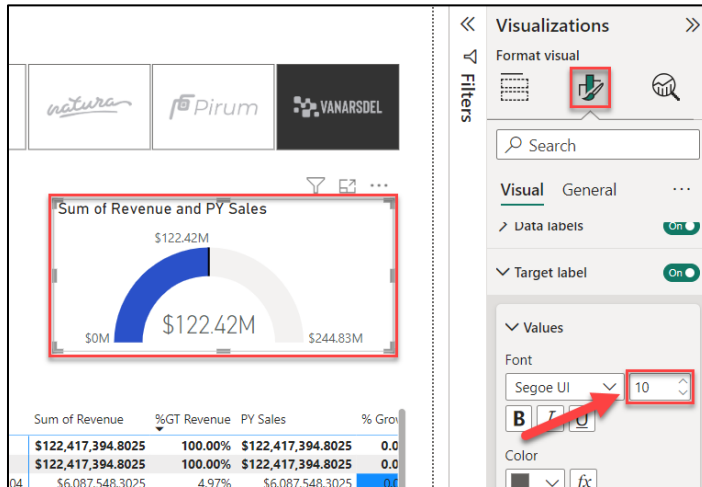
33. Select the **Gauge** visual.
34. From the **Visualizations** pane, select the **Format your visual** tab (the paint brush icon).
35. Expand the **Colors** section.
36. Select the drop-down menu below **Target color**. Notice the color palette is different now.
37. Select the color **black**. Notice the subtle change to the target line in the visual.
38. Collapse the **Colors** section.



39. Within the **Visualizations** pane, under the **Format visual** tab, expand the **Data labels** section.
40. Then, expand the **Values** section and change the **Font size** to 10.



41. While the **Gauge** visual is still selected, and still within the **Visualizations** pane, under the **Format** visual tab, expand the **Target label** section.
42. Within the **Values** section, change the **Font size** to **10**.



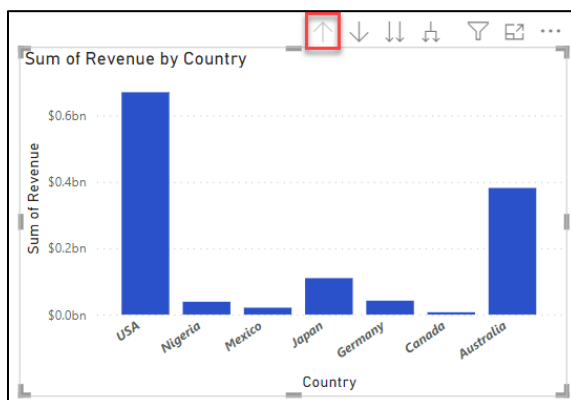
43. Select the **Matrix** visual.
44. Using the arrows within the visual header, **Drill up** to the **Segment** level.

The screenshot shows a Matrix visual in Power BI. The visual displays a table with the following data:

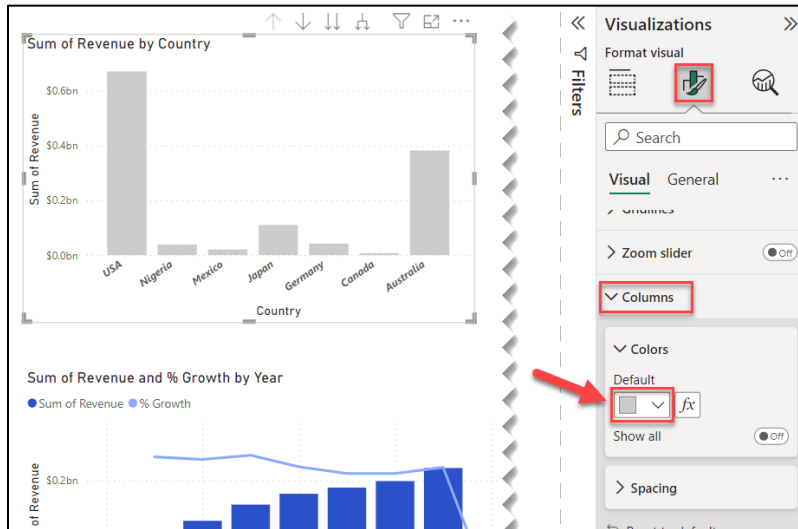
Category	Sum of Revenue	%GT Revenue	PY Sales	% Growth
Urban	\$381,718,814.925	100.00%	\$381,718,814.925	0.00%
Convenience	\$139,204,192.9425	36.47%	\$139,204,192.9425	0.00%
Extreme	\$122,417,394.8025	32.07%	\$122,417,394.8025	0.00%
Moderation	\$119,360,326.68	31.27%	\$119,360,326.68	0.00%
Regular	\$736,900.5	0.19%	\$736,900.5	0.00%
Total	\$381,718,814.925	100.00%	\$381,718,814.925	0.00%

The 'Drill up' arrow (upward arrow) is highlighted with a red box.

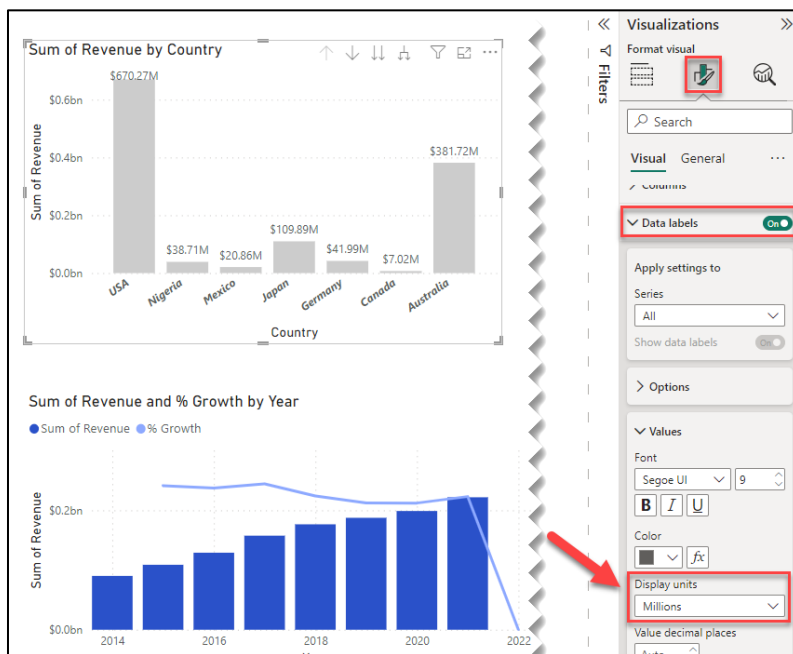
45. Select the **Sum of Revenue by Country and State** visual.
46. Using the arrows within the visual header, **Drill up** to the **Country** level.



47. While the **Sum of Revenue by Country** visual is still selected, within the **Visualizations** pane, select the **Format visual** tab (the paint brush icon).
48. Expand the **Columns** section, then the **Colors** section.
49. Using the drop-down menu, select a *light shade of gray* as the **Default color**.



50. Ensure that the **Sum of Revenue by Country** visual is still selected. Within the **Visualizations** pane, under the **Format visual** tab, turn **On** the **Data labels** and expand this section.
51. Expand the **Values** sub-section within the **Data labels** section.
52. Change the **Display units** to **Millions**.



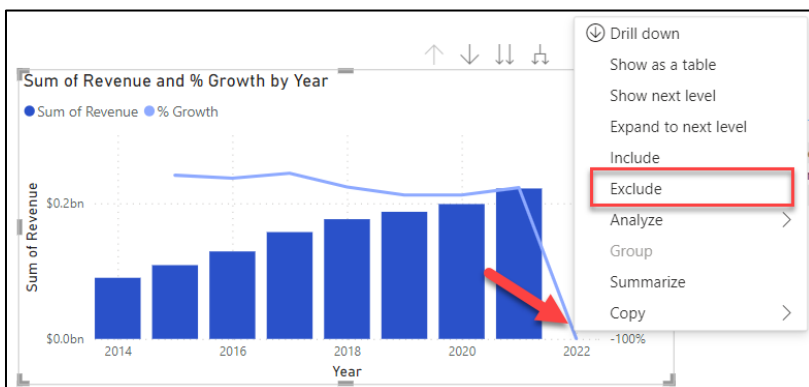


Notice that there are lot of formatting options. For example, a visual title can be changed and formatted, or you can add a border and background to the visual. Feel free to explore the options. Let's move to another visual.

53. Select the **Sum of Revenue and % Growth by Year** visual.

**Note:** You may need to *move* and *resize* the visuals in order to see all of the information that will be needed in the next steps.

54. Since there is no **Revenue** value in the year **2022**, right-click on the line above **2022** and select **Exclude**.

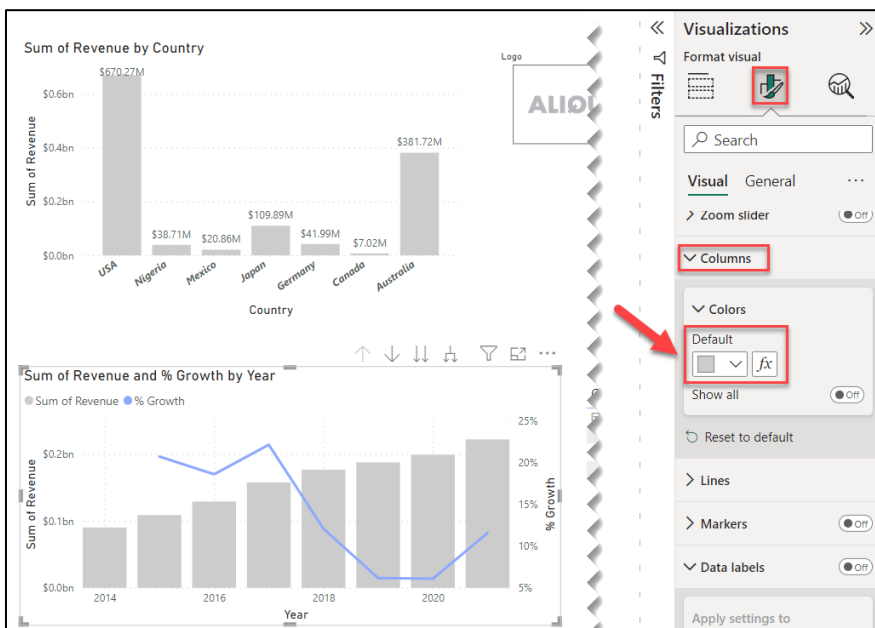


55. Next, from the **Visualizations** pane, select the **Format visual** tab (the paint brush icon).

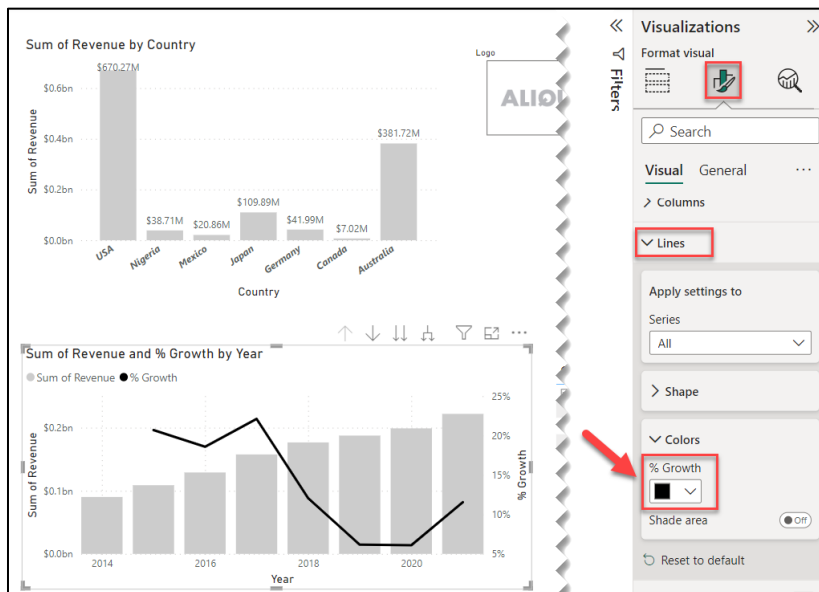
56. Expand the **Columns** section.

57. Expand the **Colors** section

58. Select a *light shade of gray* as the **Default color**.



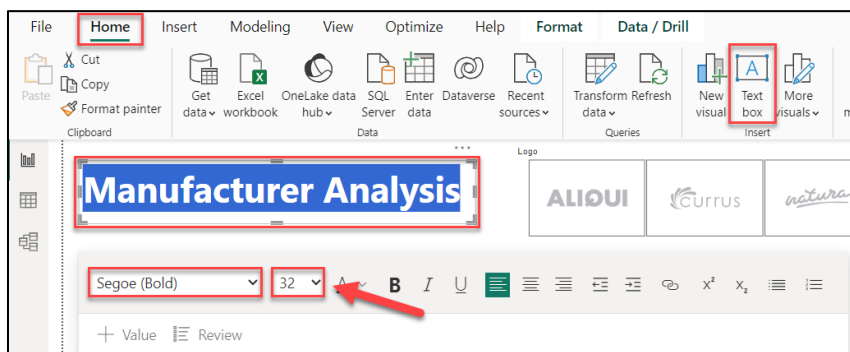
59. Ensure that the **Sum of Revenue and % Growth by Year** visual is still selected. Within the **Visualizations** pane, under the **Format visual** tab, expand the **Lines** section.
60. Then, expand the **Colors** section.
61. Set the **% Growth** color to **black**.



Now let's add a **report title**.

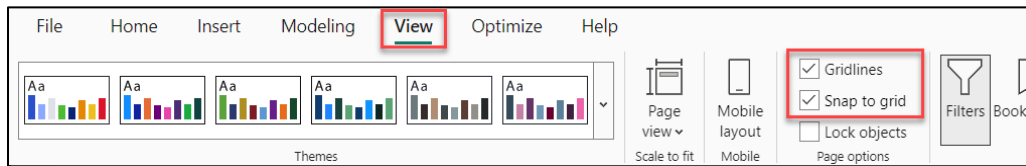
62. From the ribbon, select the **Home** tab and then choose **Text box**. Notice a text box visual is added.
63. **Resize** and move the visuals as needed.
64. Enter **Manufacturer Analysis** in the text box.
65. Highlight **Manufacturer Analysis** to format the text.
66. Select **Segoe (Bold)** as the **font**.
67. Select **32** as the **font size**.
68. **Resize** the text box as needed.

Notice the additional formatting options that have been added are highlighted in **black** (superscript, subscript, and bulleted lists)



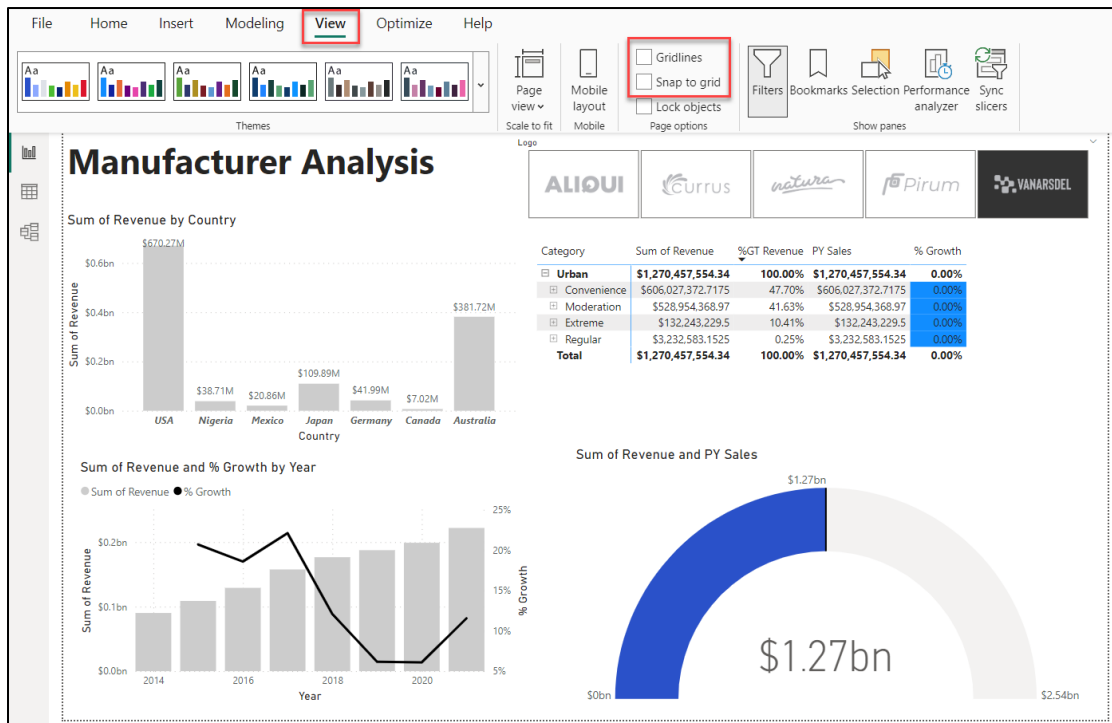
69. From the ribbon, select the **View** tab.

70. Select the **checkbox** next to **Show Gridlines** and **Snap to Grid** within the **Page options** section. This will help with aligning the visuals.



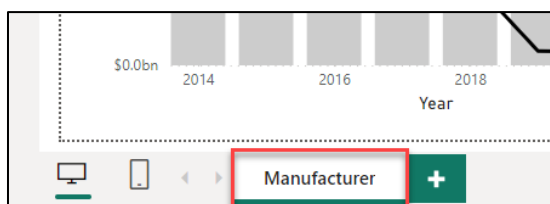
71. Now, use the **Gridlines** and **Snap to Grid** features to **position** and **resize** your visuals to appear like, or similar to, the figure below.

72. Uncheck the **Show Gridlines** and **Snap to Grid** options to disable these features once you have finished moving the visuals into the correct places.



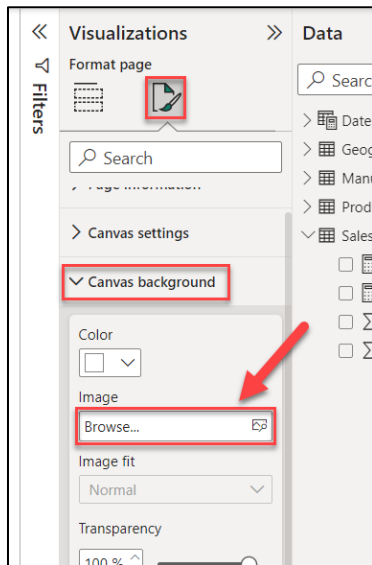
73. Right-click the page name in the lower-left corner and then select **Rename Page** from the options menu.

74. **Rename** the page to **Manufacturer**.

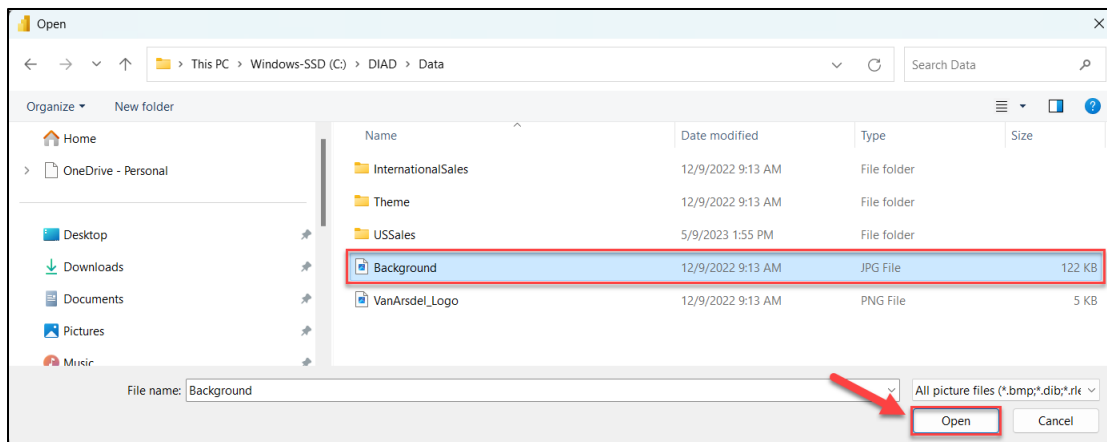


We can also use a background image to format the reports. Let's try it.

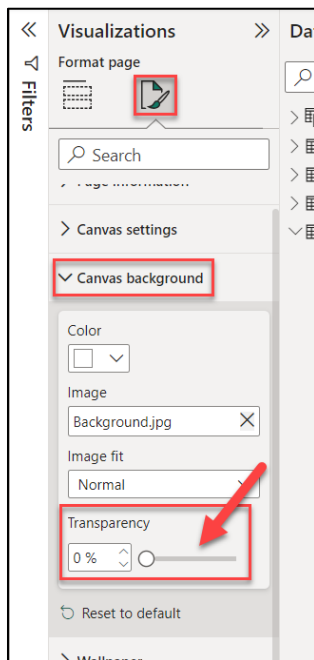
75. Select the white space in the canvas to deselect any possible selected visual(s).
76. From the **Visualizations** pane, select the **Format visual** tab (*the paint brush icon*).
77. Expand the **Canvas Background** section.
78. Select the **Browse Image** button.



79. A **File** browser dialog box opens. Browse to the **DIAD** folder, then the **Data** folder (DIAD/Attendee/Data).
80. Select the **Background.jpg** file.
81. Select the **Open** button.

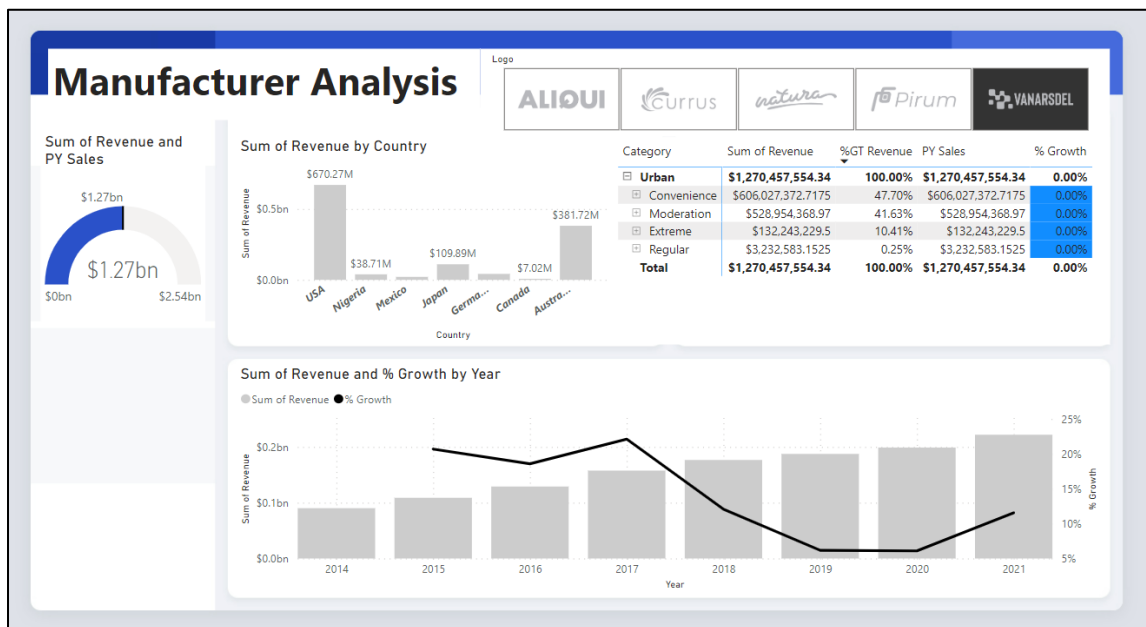


82. Within the **Canvas background** section of the **Visualizations** pane, change and set the **Transparency** slider to **0%**.



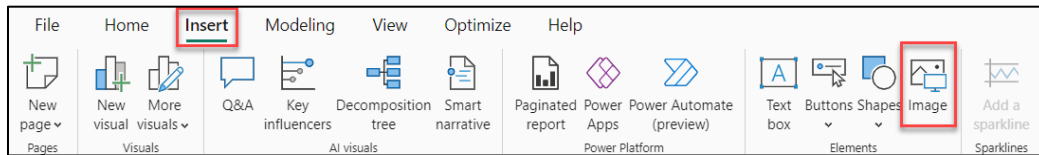
Notice we have a template which has a place for **header** and **slots** for images.

83. **Resize** and **position** the visuals as shown in the figure below:



Now let's add a **logo**.

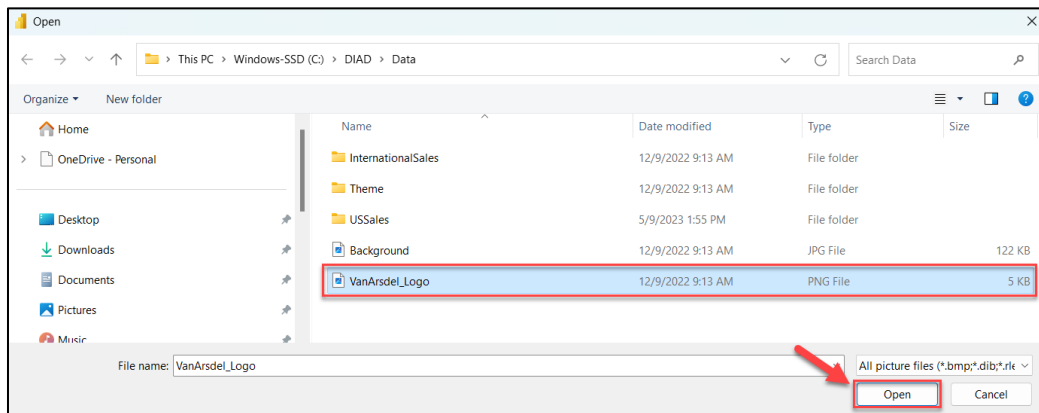
84. From the ribbon, select the **Insert** tab and then choose **Image**.



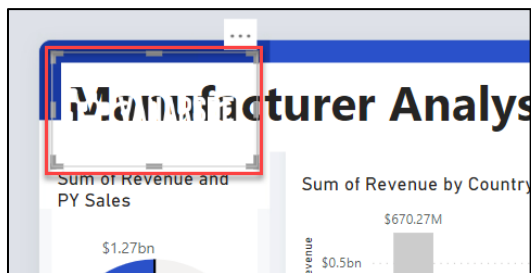
85. The **File** browser dialog opens. Browse to the **DIAD** folder then the **Data** folder (DIAD/Attendee/Data).

86. Select the **VanArsdel\_Logo.png** file.

87. Then, select **Open**.



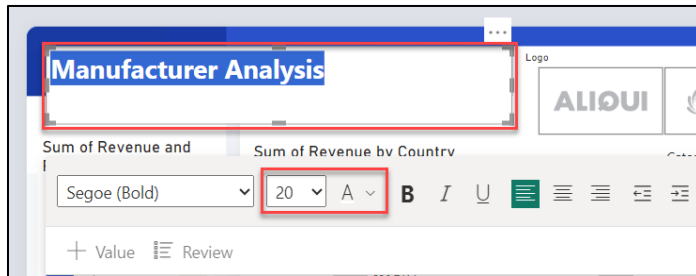
88. **Resize** and **drag** the image to the top left corner of the report.



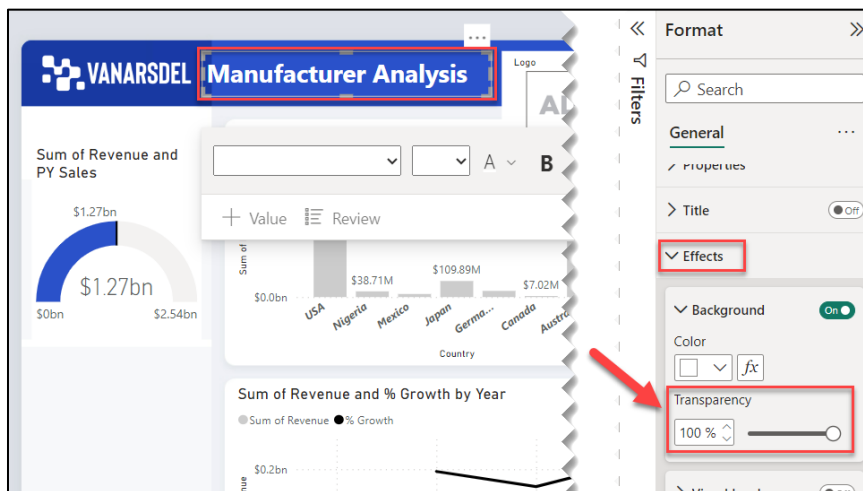
**Note:** The logo is transparent. You will need to place it on the blue background in order to see it.

Now let's change the font color of the report title.

89. Highlight **Manufacturer Analysis** within the text box.
90. Select the drop-down arrow next to the **A** to change the font color. Select the color **white**.
91. Change the **size** of the **font** to **20**.

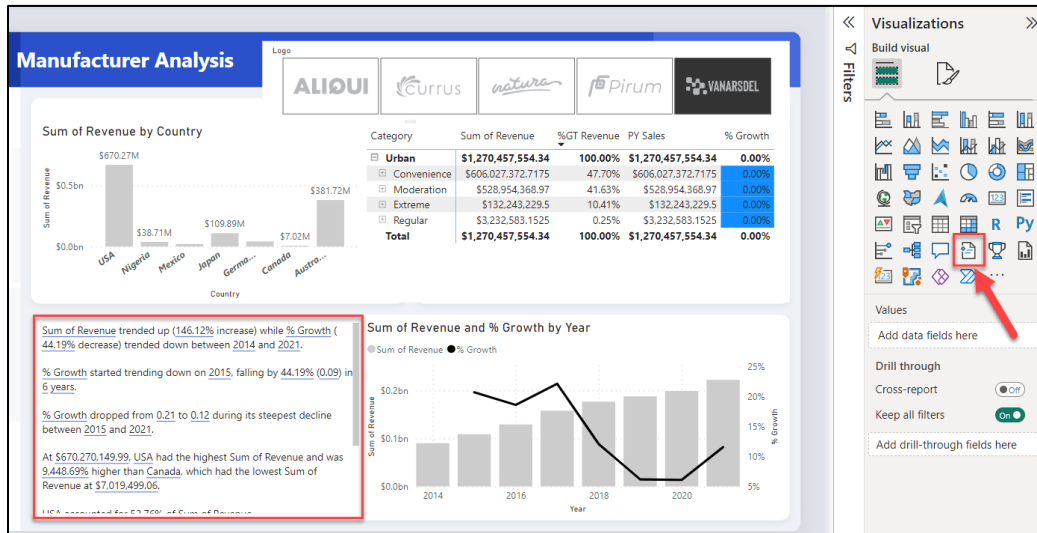


92. Expand the **Background** sub-section, within the **Effects** section, of the **Format** pane and set the **Transparency** to **100%**.
93. **Resize** and **move** the visuals around if needed making sure they are still in the same locations as before.



Now let's add a **smart narrative visual** to our report.

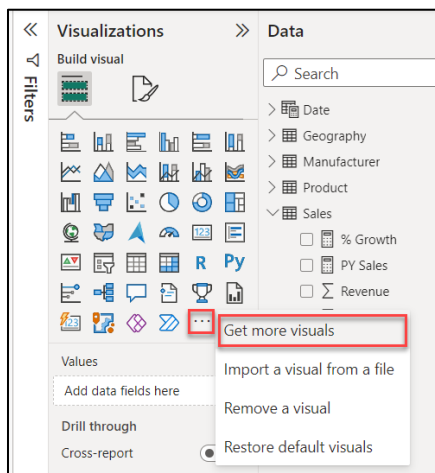
94. First, **resize** the **Sum of Revenue and % Growth by Year** visual to make space to the left of the visual at the bottom of the report.
95. Add a **Smart narrative visual** to the canvas. The smart narrative visualization helps you quickly summarize visuals and reports. It provides relevant innovative insights that you can customize.



Out of the box, Power BI has a large selection of visuals. However, there may be a use-case when you need a custom visual. To meet this requirement, the visualization engine is open-sourced. The Power BI community contributes visuals in the marketplace. You can add and use these visuals in your reports. There is also an option to create your own visual or import visuals into Power BI Desktop.

Now let's add a **custom visual**.

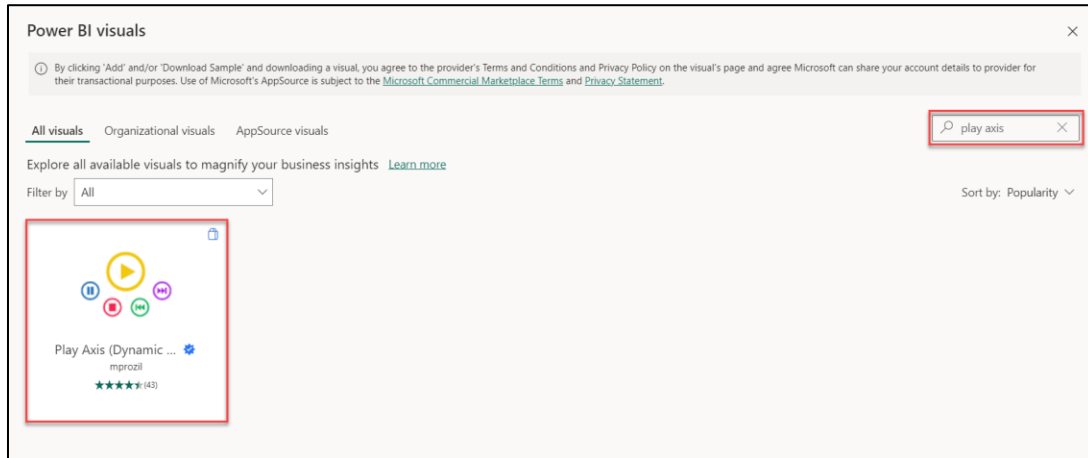
96. From the **Visualizations** pane, select the **ellipses (...)** in the last row of visuals.
97. Select **Get more visuals**.





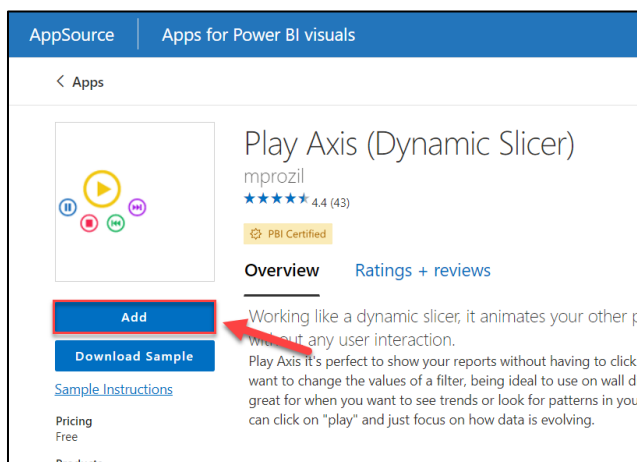
**Note:** You may be prompted to sign into your Power BI account to access the custom visuals library. If you are unable to login, you can select **Import a visual from a file** and select the **Play Axis** visual that is found in the class files (/DIAD/Data).

98. Type **play axis** in the **search box** in the top right-hand corner of the Power BI visuals dialog box and select the **Search** icon.
99. Select the **Play Axis (Dynamic Slicer)**.



**Note:** Notice the checkmark in the blue star. This image is used to identify certified custom visuals. Custom visuals that meet Power BI teams coding requirements are certified. Certified custom visuals support features like export to PowerPoint and the ability to display in subscription emails which are not supported by non-certified custom visuals.

100. The **AppSource** dialog box will then appear. Select the **Add** button below the **Play Axis (Dynamic Slicer)** cover image.



101. After a few moments you should see a notification that the visual was successfully imported.  
Select **OK**.

Notice a new visual is added to the list of available visuals.

102. Select the white space in the canvas to deselect anything that may be currently selected.

103. From the **Visualizations** pane, select the newly imported **Play Axis** visual.

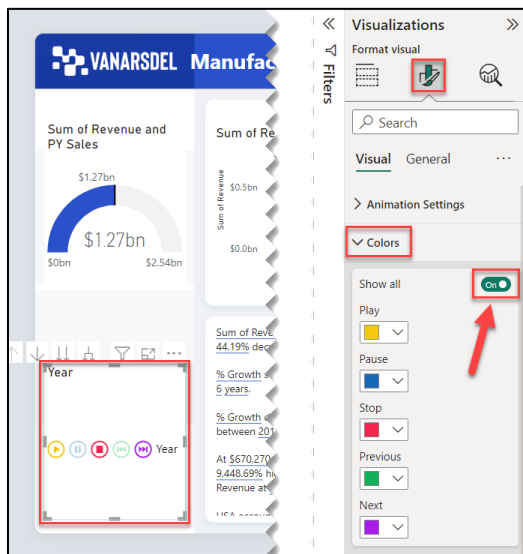
104. From the **Data** pane, select the **checkbox** next to the **Date** field in the **Date** table.

105. From the **Visualizations** pane, select the **Format visual** tab (the paint brush icon).

106. Expand the **Colors** section.

107. Enable the **Show all** option.

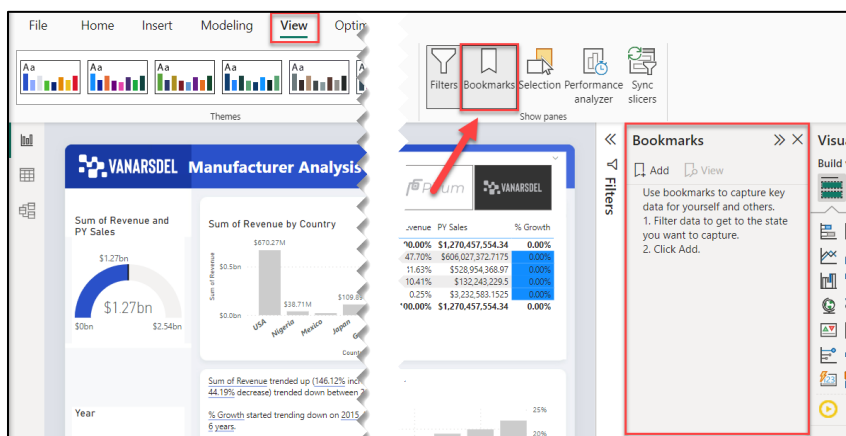
108. **Resize** and **position** the visual as shown in the figure below.



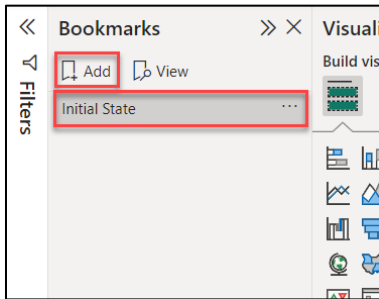
Now that we have a report ready, let's use **Bookmarks** to tell the story we discovered. Bookmarks capture the currently configured view of a report page, including filtering and the state of visuals which helps to make it easier to present the story.

109. From the ribbon, select the **View** tab.

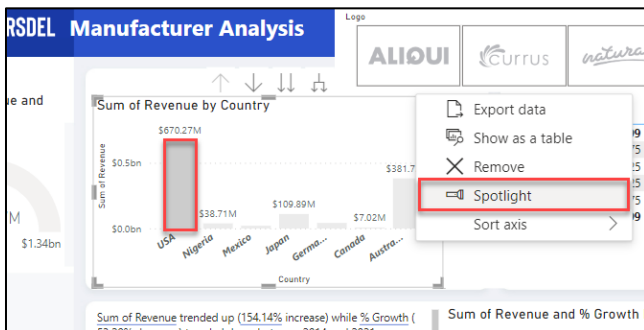
110. Select the **Bookmarks** button to *enable* Bookmarks. The **Bookmarks** pane will open.



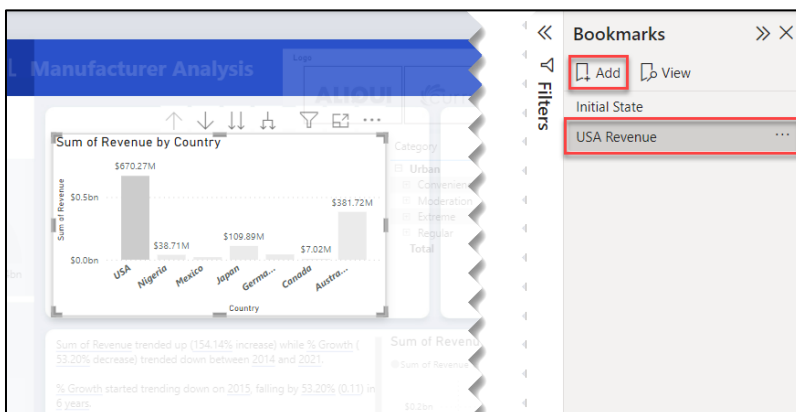
111. Select **Add** within the **Bookmarks** pane. This will add the current state of the visual to the bookmark.
112. Select the **ellipses (...)** to the right of the newly created **Bookmark 1**.
113. Choose **Rename** and change the name to **Initial State**.



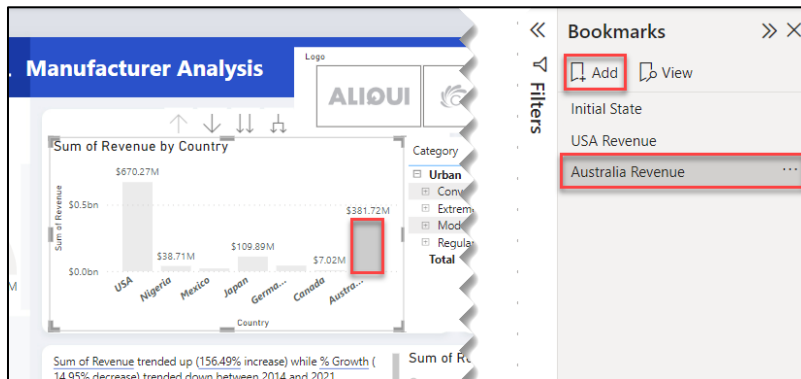
114. In the **Sum of Revenue by Country** visual, select the **USA** column.
115. Hover over the **Sum of Revenue by Country** visual and select the **ellipses (...)** on the top right corner.
116. Select **Spotlight**.



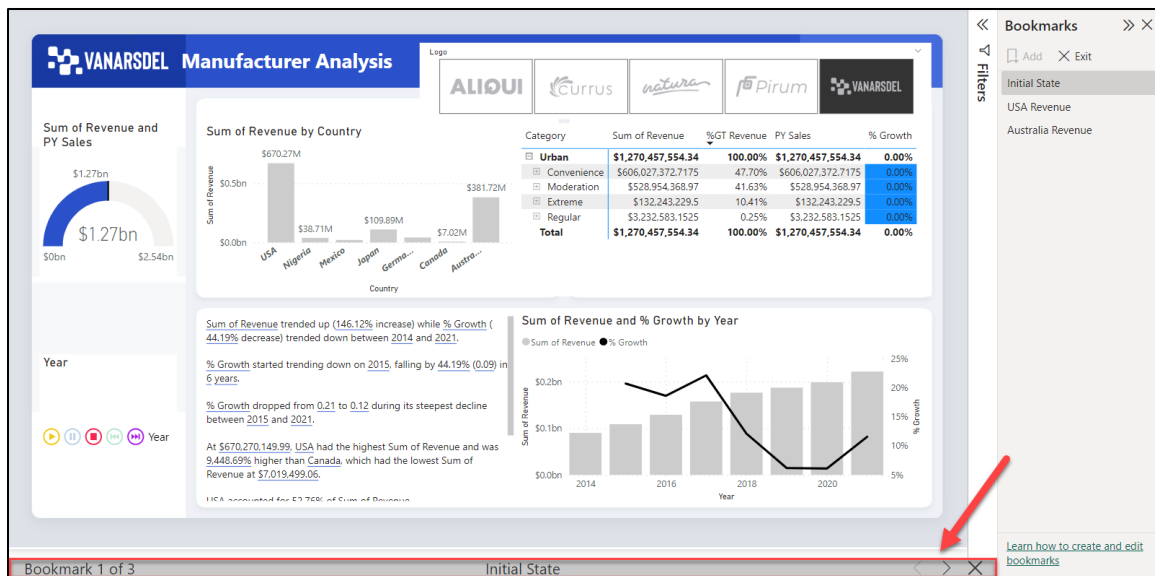
117. In the **Bookmarks** pane, select **Add**. This will add a new bookmark with the current state of the report.
118. Change the bookmark name to **USA Revenue**.



119. Select the canvas to ensure that nothing is currently selected.
120. Select **Australia** within the **Sum of Revenue by Country** visual.
121. In the **Bookmarks** pane, select **Add**. This will add a new bookmark with the current state of the report.
122. Change the bookmark name to **Australia Revenue**.



123. From the **Bookmarks** pane, select **View**. You are now in Bookmarks slide show mode. You will be in the first bookmark, which we called **Initial State**. Notice on the bottom of the report pane there is an option to navigate between bookmarks.
124. You can use the arrows to navigate between bookmarks and tell your story.



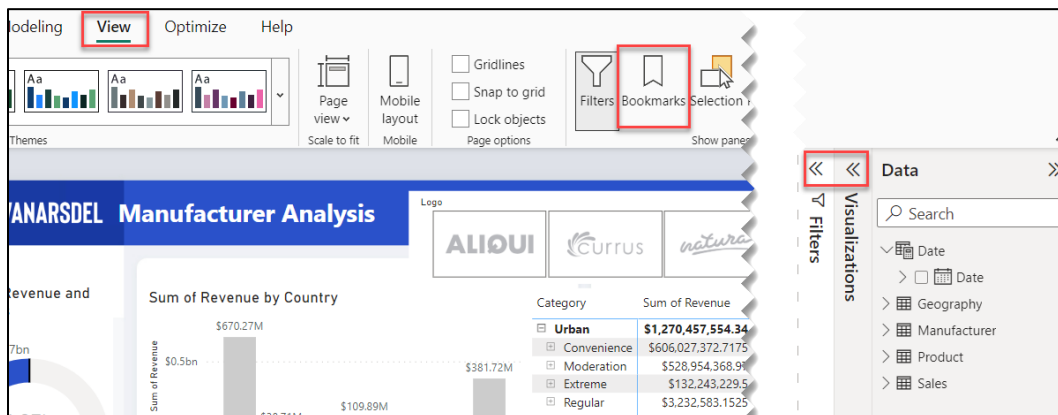
125. From the **Bookmarks** pane, select **Exit** to exit the Bookmarks slide show mode.

If time permits, feel free to explore other options available with Bookmarks, such as **Selected Visuals**, as you continue to build your story.

126. From the ribbon, select the **View** tab.

127. *Unselect* the **Bookmarks Pane** button.

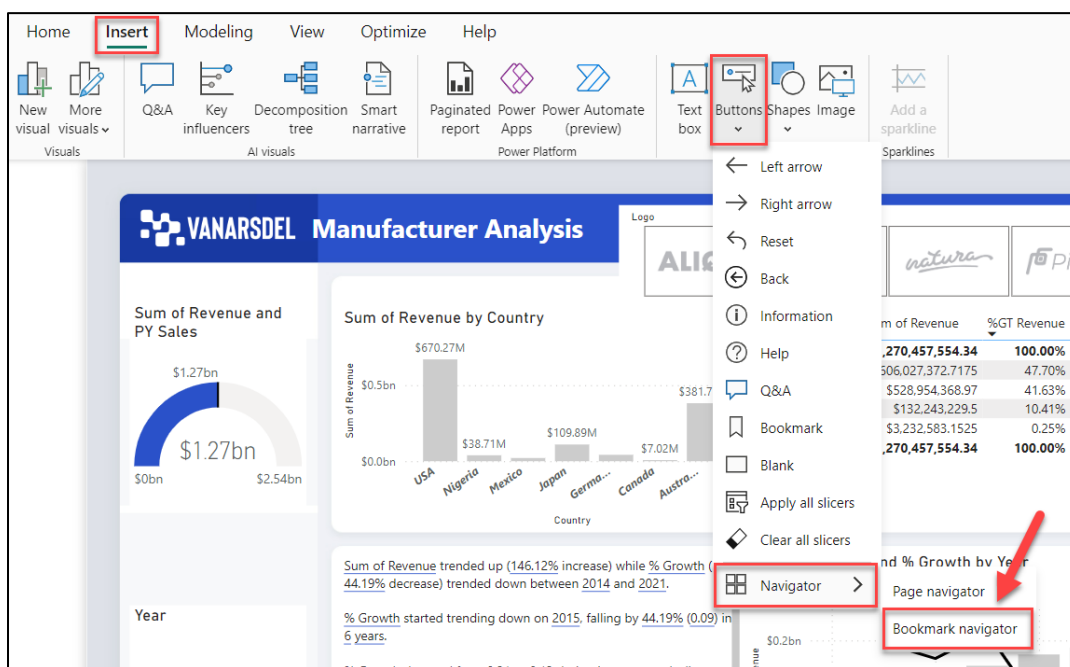
128. Collapse the **Visualizations** and **Filters** panes by selecting the arrows to the top left corner of each pane.



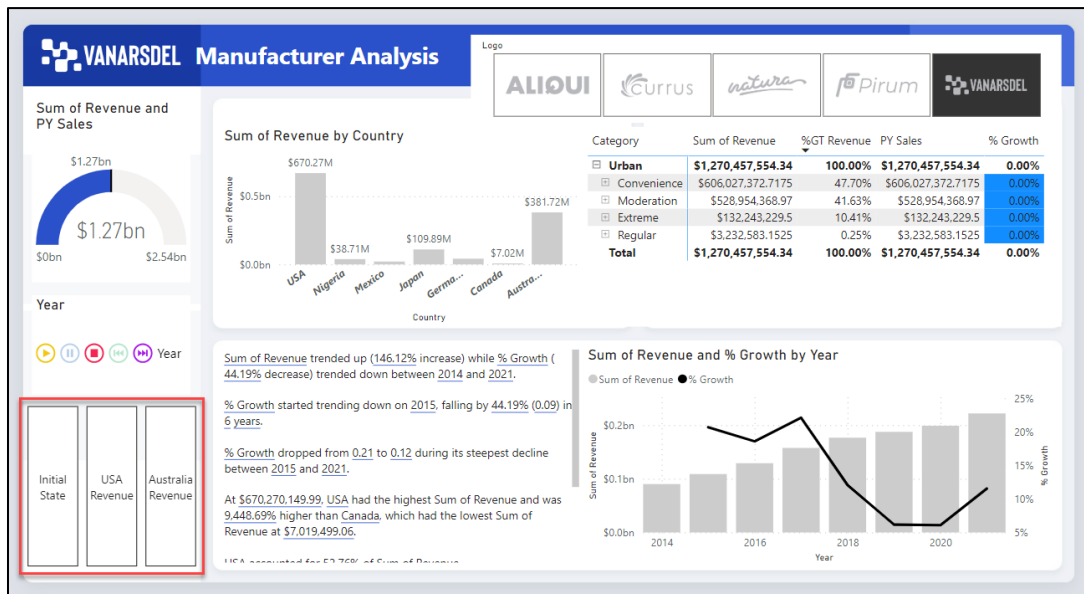
Now let's add bookmark navigator buttons to the canvas.

129. From the ribbon, select the **Insert** ribbon.

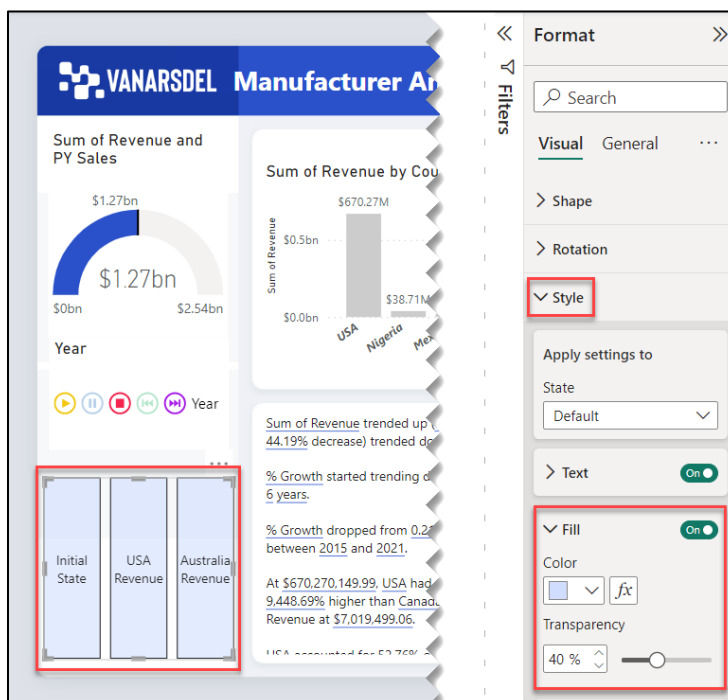
130. Select **Buttons** and choose **Navigator > Bookmark navigator**.



131. Arrange the Bookmark navigator to fit on the page as shown below in the figure:

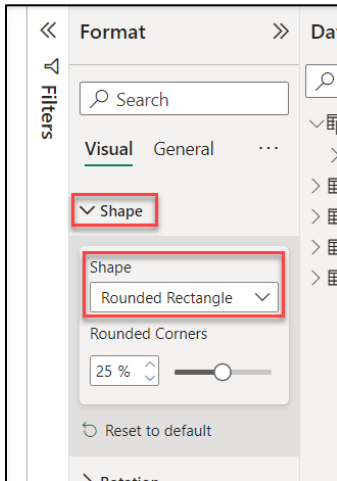


132. With the buttons visual still selected, navigate to the **Format** pane, expand the **Style** section, then expand the **Fill** section. Change the **Fill** color to a light blue and set the **Transparency** to 40%.



133. While still in the **Format** pane, expand the **Shape** section. From the **Shape** drop-down menu, select **Rounded Rectangle**.

**Note:** You may need to adjust the size of the buttons within the report after changing the shape.

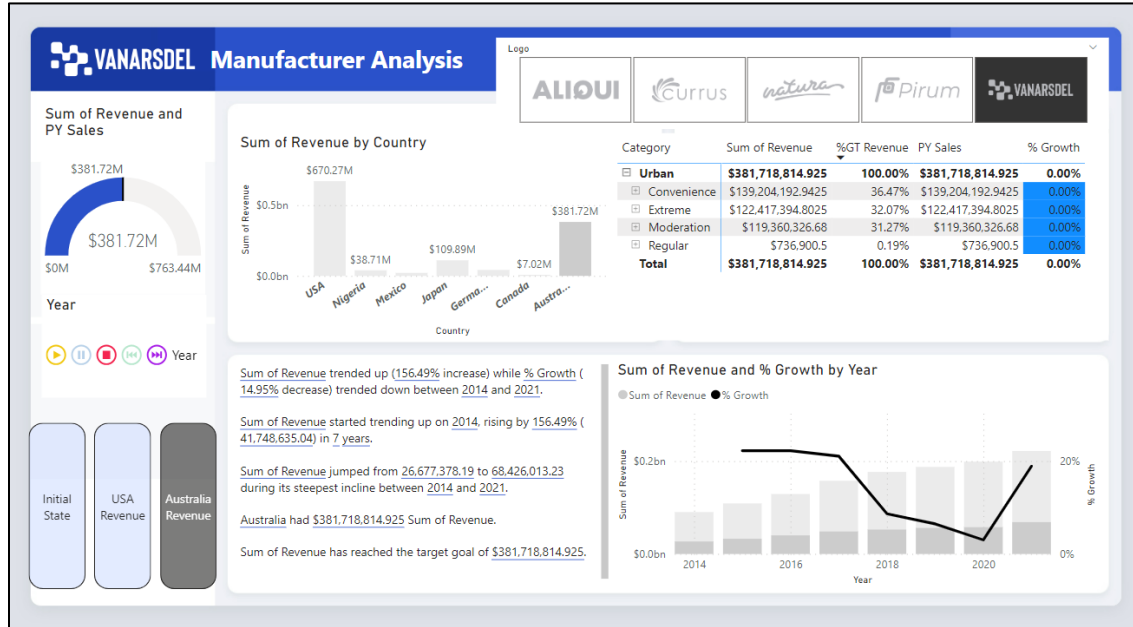


Feel free to test out the new functionality.

134. Using the **Ctrl** key on your keyboard, select the **Australia Revenue** bookmark from the visual. Notice how the data changes within the visuals in the report.

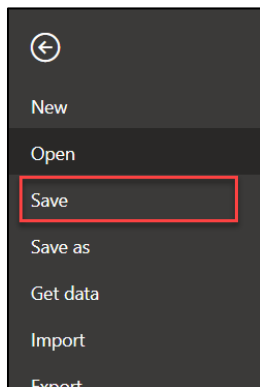
**Note:** To utilize the new buttons you must use CTRL + Select while inside the Power BI Desktop. After publishing the report your end users will simply select the buttons without needing to hold CTRL.

Your report should look like the figure shown below. Now let's finish up by saving the file.



**Note:** Interacting with the report can significantly change the report appearance. For example, selecting a year from the **Sum of Revenue and % Growth by Year** will activate the conditional formatting in the matrix.

135. From the ribbon, select the **File** tab. From the menu to the left, select **Save**.



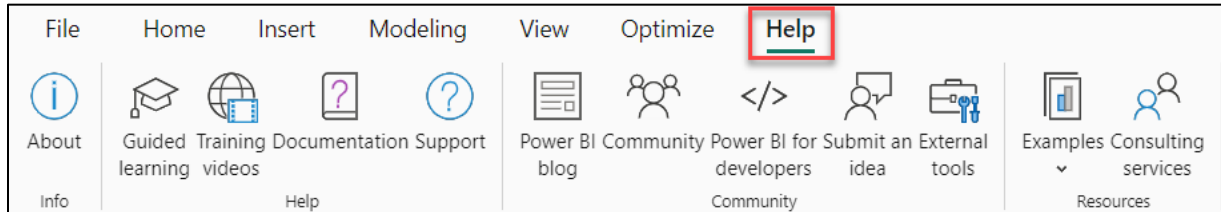
You have built your first report!

You have successfully completed the hands-on lab by creating a report to share to your team. The next lab covers creating a dashboard from this report to share with your team. You have seen an overview of the functionality in Power BI Desktop. There are many more features for you to explore with your data!



# References

Dashboard in a Day introduces you to some of the key functions available in Power BI. In the ribbon of the Power BI Desktop, the Help section has links to some great resources.



Here are a few more resources that will help you with your next steps with Power BI.

- Getting started: <http://powerbi.com>
- Power BI Desktop: <https://powerbi.microsoft.com/desktop>
- Power BI Mobile: <https://powerbi.microsoft.com/mobile>
- Community site <https://community.powerbi.com/>
- Power BI Getting started support page: <https://support.powerbi.com/knowledgebase/articles/430814-get-started-with-power-bi>
- Support site <https://support.powerbi.com/>
- Feature requests <https://ideas.powerbi.com/forums/265200-power-bi-ideas>
- New ideas for using Power BI [https://aka.ms/PBI\\_Comm\\_Ideas](https://aka.ms/PBI_Comm_Ideas)
- Power BI Courses <http://aka.ms/pbi-create-reports>
- Power Platform <https://powerplatform.microsoft.com/en-us/instructor-led-training/>
- Power Apps [Business Apps](#) | [Microsoft Power Apps](#)
- Power Automate [Power Automate](#) | [Microsoft Power Platform](#)
- Dataverse [What is Microsoft Dataverse? - Power Apps](#) | [Microsoft Docs](#)

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