MicroStrategy | 2021

Workshop: Build Dossiers that Delight and Inform

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Create a Guided Analytical Experience

A dossier that delights and informs

Getting started

Create a guided analytical experience by working with an interactive dossier to showcase and explore business data through visualizations and workflows.

Leverage the latest enhancements to the authoring experience, such as panels, to display different slices of your data in the same location on the dossier page. Design a responsive, free-form layout to further customize your dossier pages with visualizations layered on each other. Enrich your analysis with compound grids and microcharts:

- Analyze unrelated attributes and metrics across a common dimension in a compound grid. Compare average prices for different hotel room types for regions and neighborhoods (the common dimension) in the first set of columns. In the second set of columns, compare revenue values for a night, for the total, and year-over-year for the same regions and neighborhoods.

	Avg Price				Revenue		
	Type of room						
− Region Neighbourhood	Entire home/apt	Private room	Shared room	Average	Revenue per night	Total Revenue	YoY Revenue
Total	$245.62	$120.26	$85.93		$118	$1,966,673	15%
− North	$224.21	$102.86	$73.23		$101	$722,994	6%
Jardim Botânico	$177.60	$81.95	$68.08	$109.21	$71	$215,038	
Lapa	$226.31	$118.33	$84.09	$142.91	$112	$234,472	
Barra de Tijuca	$234.40	$134.05	$50.74	$139.73	$112	$115,417	
Santa Teresa	$291.00	$95.71	$207.50	$198.07	$133	$18,272	
Lagoa	$278.72	$205.65	$180.00	$221.46	$161	$139,794	
+ Center	$216.91	$117.10	$83.81		$113	$231,016	1%
− South	$271.49	$143.16	$97.68		$136	$1,012,663	8%
Ipanema	$189.55	$91.70	$65.04	$115.43	$80	$101,172	
Flamengo	$262.05	$122.64	$95.23	$159.97	$127	$282,690	

- Grasp the trend of a metric's values at a glance, when the metric is displayed as a microchart (individual small graph). For example, you can track the yearly trends of key happiness factors for the happiest countries, as determined by the World Happiness Report.

Begin by exploring the interactive dossier.

Exercise 1: Explore the dossier's layers of visualizations

You can organize your visualizations and other objects in chapters, pages, and panels. Panels are stacked layers of objects displayed on a page. Use them to display different slices of your data in different visualizations, so different users can focus on what they each need to analyze.

In this dossier, each of the dossier's panels is focused on a specific dimension, such as flight delays or cancellations, to help you analyze flight patterns across airlines, airports, and time. As you explore the dossier, update visualizations to improve the analytical experience.

Access your workshop environment

This workshop uses MicroStrategy Web to view and update a dossier.

1. In a Chrome browser window, open the MicroStrategy landing page provided to you separately.
2. In the **User name** and **Password** boxes, enter the login credentials provided to you separately.
3. Click **Login**. The MicroStrategy landing page displays in a browser window.

Open MicroStrategy Web

4. On the landing page, scroll down and hover your cursor over **MicroStrategy Web**, then click the **Launch** icon that is displayed.

   The MicroStrategy Tutorial Home page opens.

5. Click **Go to MicroStrategy Web**.

   The Shared Reports folder of the MicroStrategy Tutorial project opens.

6. Click **My Reports** to open the folder.

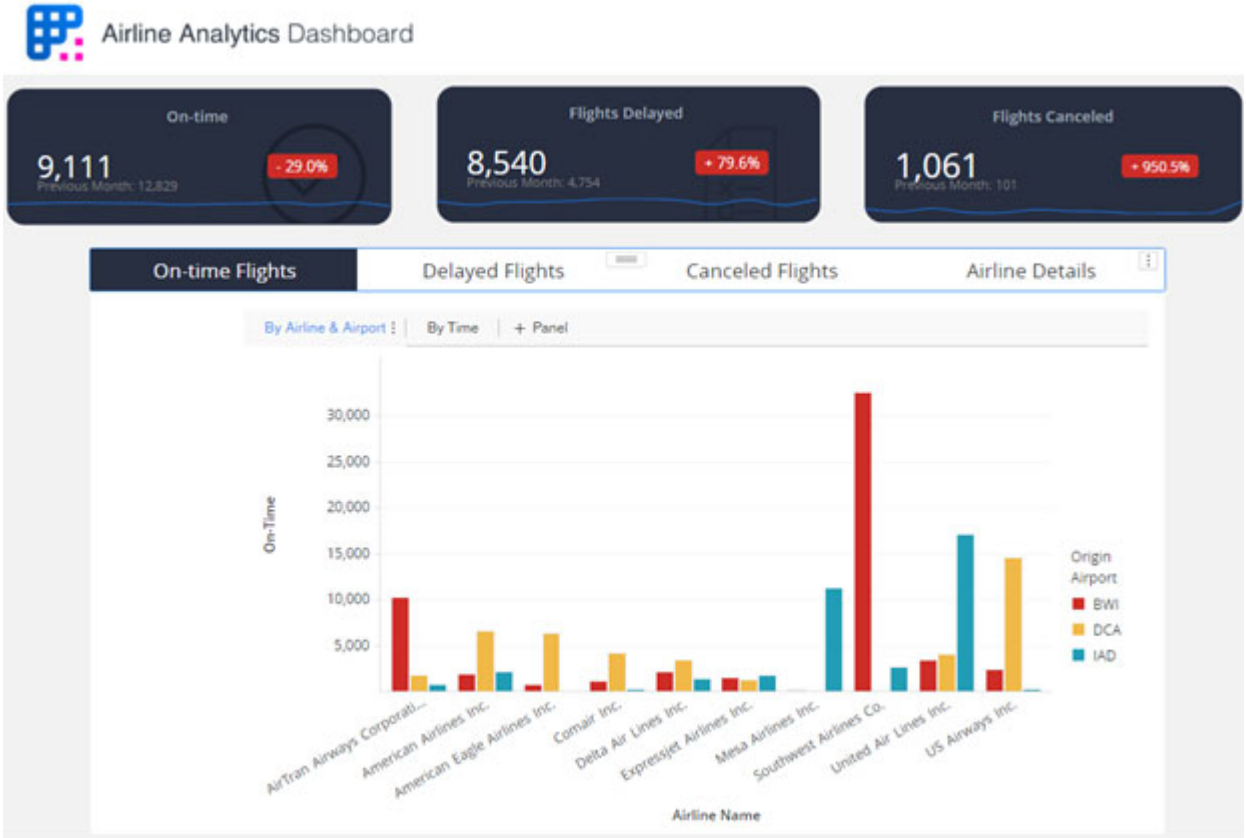
Upload the dossier

Instead of creating a dossier from scratch, explore and update an existing dossier. Add this dossier to your workshop environment.

1. In the My Reports folder page, click **Create**, and select **Upload MicroStrategy File**.
2. In the Open window, navigate to the folder where you saved the exercise file provided to you separately.
3. Select **Workshop Dossier.mstr**, and click **Open**.
4. Click **View Dossier**.

Explore the dossier's panels

1. The dossier contains a series of KPI visualizations across the top of the page, with a panel stack below them.



Best Practice

- The KPI (Key Performance Indicator) visualizations display essential measurement values for this dossier: On-time, Flights Delayed, and Flights Canceled. Use them to understand key metric values at a glance.
- The panel stack organizes a series of panels, which are layers of visualizations and other objects. Stacking the panels creates a workflow through your data and presents many layers of information, all on the same page. The panel names (On-time Flights, Delayed Flights, Canceled Flights, and Airline Details) are displayed across the top of the panel stack. Click a panel name to focus on that type of analysis.

Explore and update the visualizations on the Delayed Flights panel

Passengers are usually more concerned about flight delays, because they happen more frequently than canceled flights. Check the KPIs to see that this is true: 8,540 delayed flights vs. 1,061 cancellations. Start your exploration with the Delayed Flights panel.

2 Switch panels by clicking **Delayed Flights**. This panel contains multiple visualizations, to provide different analyses of delayed flights. Scroll to view the pie chart and more of the heat map.

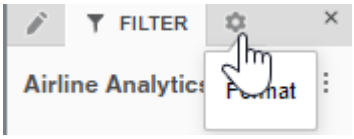
Delayed Flights panel

- The values of the visualizations (determining the bar length, line height, and so on) are the numbers of delayed flights.
- The colors are determined by the delay rate, that is, the percentage of delayed flights compared to all flights.

3 Track the daily delayed flights using the line chart in the top right. The daily number of delayed flights would be helpful, as a baseline for comparison. Add a reference line to the line chart:

a Select the **Delays by Day** line chart.

b Click the **Format** icon to display the Format panel.

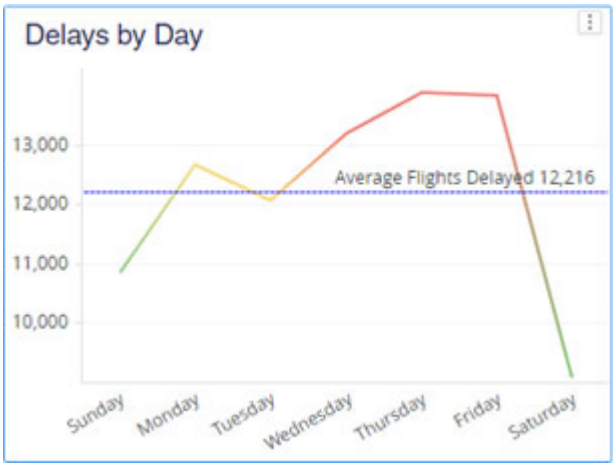


c From the first drop-down list on the Format panel, select **References Lines**.

d Click **Add** and select **Average**.

e From the line color palette, select **Blue**.

f The reference line is labeled with the reference type (Average) and value. Display the metric name as well by clicking **Metric**.



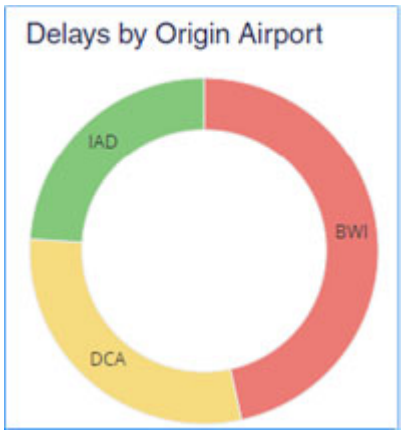
You can see that Sunday, Tuesday, and Saturday all have less than the average number of delayed flights. The line on those days is colored green, meaning that the number of delays compared to the overall number of flights is also lowest.

4 Compare the delays among the airports using the pie chart on the lower left. Switch to a ring chart to provide a more modern feel to your dossier:

a Select the **Delays by Origin** pie chart.

b From the first drop-down list on the Format panel, select **Shapes and Data Labels**.

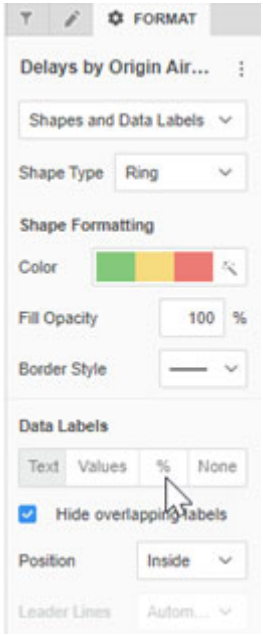
c From the **Shape Type** drop-down list, select **Ring**.



A pie chart displays the same information as a ring chart, except the slices fill to the center of the chart. You can use the extra space in the middle of a ring chart to display context, such as a KPI. (You add a KPI to this ring chart later in the workshop.)

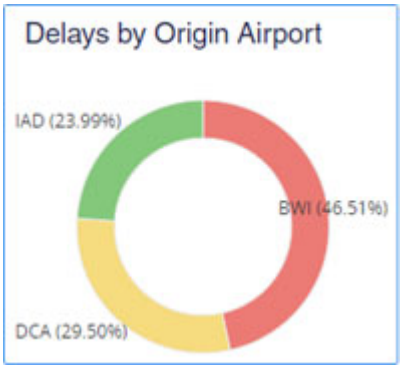
5 You can see at a glance the proportion of delays for each airport, but you want to see exact numbers. The ring segments are labeled with the airport names only.

a In the Data Labels area of the Format panel, click **%** to display the percentage of delayed flights for each airport. You can also choose to display the number of delayed flights, but do not need it for this analysis.



b Depending on your screen size, a label may not display for BWI, because overlapping labels are hidden by default. Display all labels by clearing the **Hide Overlapping Labels** check box. Now you can see that the BWI label runs into the heat map.

c To display the full label, display the labels outside of the ring instead of on it. From the **Position** drop-down list, select **Outside**. The size of the ring shrinks, and you can more easily read the labels.



BWI has the most delayed flights of the Washington, DC-area airports.

6 Identify the worst-performing airlines, in terms of delays, using the heat map in the bottom right. Southwest has the most number of delays, at 23,991, but is in the middle range (yellow) for delay rate. This means that although Southwest has a lot of delayed flights, they fly more total flights out of these airports, compared to other airlines. This is why their delay rate is in the middle range. While Delta and AirTran have many fewer delays by number, their delay rates are higher (they are shown in red).

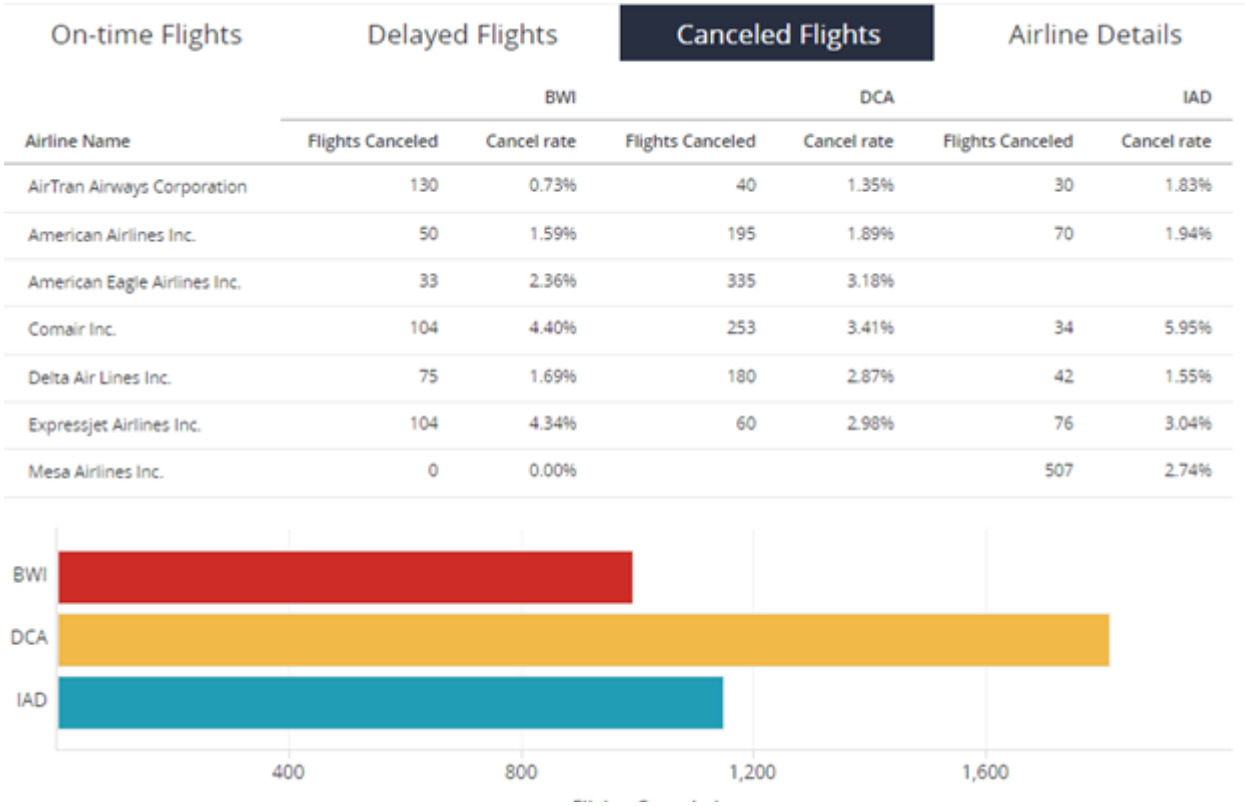
7 Use the bar chart in the top left to compare which months have the most delays (the longest bars) and the fewest (the shortest bars). You can also see which months have the highest rate of delays (red bars) and the lowest (green bars). Filter the other visualizations on the panel by selecting a month to focus on.

   a Click **January** to see the change in the line chart, ring, and heat map.

   b Clear the filter by clicking **January** again.

Explore and update the visualizations on the Canceled Flights panel

8 Switch panels by clicking **Canceled Flights**. This panel contains multiple visualizations, to provide different analyses of the number of canceled flights.



- The grid at the top of the panel provides the detailed breakdown of canceled flights for each airline at each airport.
- The bar chart at the bottom of the panel provides a quick overview by airport.
- This panel was designed to provide both levels of detail, using the appropriate visualization type for each.

Best Practice

9 To help distinguish between the different grid rows, band the rows. This means that every other row will have a gray background.

a Select the grid.

b On the Format panel, click **Visualization Options**  .

c Expand **Layout**.

d Select the **Enable Banding** check box.

	BWI		DCA		IAD	
Airline Name	Flights Canceled	Cancel rate	Flights Canceled	Cancel rate	Flights Canceled	Cancel rate
AirTran Airways Corporation	130	0.73%	40	1.35%	30	1.83%
American Airlines Inc.	50	1.59%	195	1.89%	70	1.94%
American Eagle Airlines Inc.	33	2.36%	335	3.18%		
Comair Inc.	104	4.40%	253	3.41%	34	5.95%
Delta Air Lines Inc.	75	1.69%	180	2.87%	42	1.55%
Expressjet Airlines Inc.	104	4.34%	60	2.98%	76	3.04%
Mesa Airlines Inc.	0	0.00%			507	2.74%
Southwest Airlines Co.	351	0.63%			23	0.61%

10 **Save** the dossier.

Analyzing unrelated data across a common dimension: Compound grids

Compound grids combine multiple aspects of your data in a single view, so they can be analyzed across a common dimension. This means you can stitch together different sets of columns that contain multiple unrelated attributes and metrics, to achieve a 360-degree view of your data, make connections, and find relationships in the same grid. Positioning attributes and metrics in different sets of columns in a compound grid provides greater flexibility in a cross-tab (grid) format.

You can use metrics as an essential dimension to look across different aspects of your business, by adding metrics to the rows of a compound grid. This increases the power of compound grids to analyze and derive insights from your data.

Candidate Financials by Party and Incumbency Status

	DEM	REP	Total	DEM CHALLENGER	DEM INCUMBENT	DEM OPEN	REP CHALLENGER	REP INCUMBENT	REP OPEN
Candidate Contribution	29975101.44	15480881.55	**45455982.99**	4864188.93	898996.19	24211916.32	12851880.36	6556.14	2622445.05
Candidate Loan	41977661.57	167056982.23	**209034643.80**	8639306.45	3501425.50	29836929.62	84257984.13	1351400.00	81447598.10
Cash on Hand Beginning of Period	137138286.86	84435041.14	**221573328.00**	2314594.05	133221799.63	1601893.18	600238.15	79668210.57	4166592.42
Cash on Hand Close of Period	97773536.29	126217611.34	**223991147.63**	3179736.27	91244558.89	3349241.13	6768702.97	111709701.92	7739206.45

Exercise 2: Explore a compound grid

Explore the Airline Details compound grid

1 Switch panels by clicking **Airline Details**. This panel contains a compound grid, with a common attribute of Airline Name, displayed in the rows.

On-time Flights | Delayed Flights | Canceled Flights | **Airline Details**

					Flights Delayed								
				On-Time	BWI			DCA			IAD		
Airline Name	Morning	Afternoon	Evening	Overnight	Sunday	Friday	Saturday	Sunday	Friday	Saturday	Sunday	Friday	Saturday
AirTran Airways Corporation	6,126	3,784	2,929	81	991	1,246	923	142	197	145	121	129	97
American Airlines Inc.	5,434	3,359	1,886		150	186	129	481	576	405	197	215	178
American Eagle Airlines Inc.	3,202	2,286	1,582		80	96	96	576	712	414			
Comair Inc.	2,709	1,594	1,336		149	197	134	400	585	221	46	54	45
Delta Air Lines Inc.	2,979	2,004	1,841	315	273	347	268	339	464	261	141	221	122
Expressjet Airlines Inc.	2,118	1,114	1,156	179	114	139	109	87	139	57	91	104	68
Mesa Airlines Inc.	3,189	4,165	2,857	1,095	5	1	8				1,005	1,118	982

The analyst who created this compound grid needs to review various flight metrics in a variety of ways. A possible solution uses two grids:

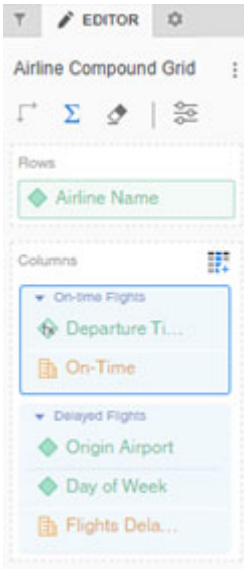
- The first grid displays each airline's number of on-time flights by departure time.
- The second grid displays each airline's delays by departure airport and day of the week.

The results are not satisfactory, because the repeating airline names and weekdays take up screen area. It's also hard to jump between the two grids to see data for the same airline.

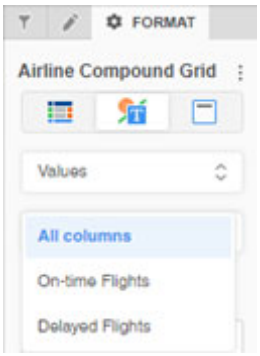
Best Practice

The information from the grids can be combined into a compound grid because the requirements share an attribute (airline). A compound grid can display the different relationships, with different metrics and different levels of calculation in each set of columns.

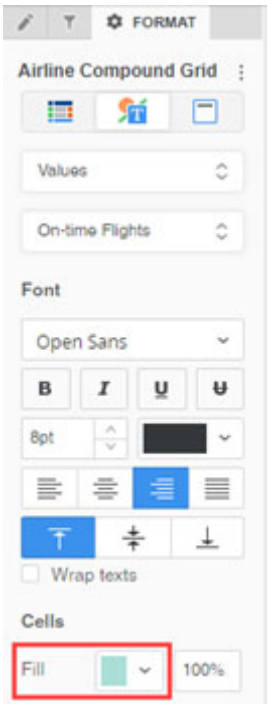
2 Select the grid and then click **Editor** . The two column sets listed in the Columns drop zone of the Editor panel create the two different analyses, for on-time flights and delayed flights, in the grid.



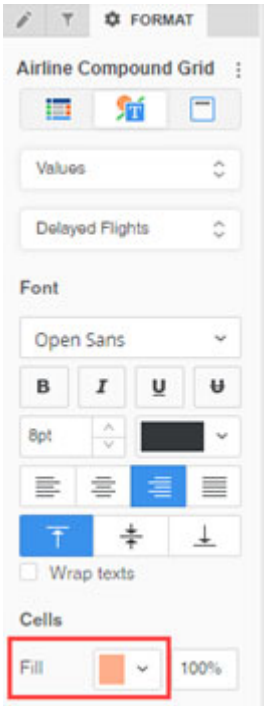
3 Click the **Format** icon to display the Format panel, then click **Text and Form** . From the first drop-down list, select **Values**. In the second drop-down list, you can choose to format all the columns or each column set.



4 In the second drop-down list, select **On-Time Flights**. This column set uses a green shade for the background.



5 In the second drop-down list, select **Delayed Flights**. The background of this column set is orange.



Best Practice

Each column set uses a different background color, to differentiate them. You can change the font, cell background fill, and border for each column set individually.

6 It is a little difficult to tell which days are for which airport. Add vertical lines to the column headers to help clarify this.

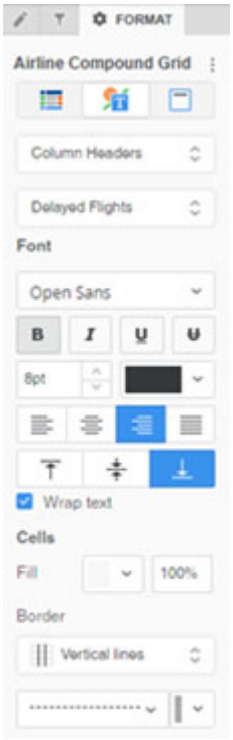
a From the first drop-down list in the Text and Form tab, select **Column Headers**.

b In the second drop-down list, select the **Delayed Flights** column set.

c From the first drop-down list in the Border area, select **Vertical Lines**.

d In the second drop-down list, select the **1 Point Dashed** icon ------.

e From the color palette, click **#ABABAB** (a medium gray).



The compound grid is now easier to read, as shown below:

					Flights Delayed								
				On-Time	BWI			DCA			IAD		
Airline Name	Morning	Afternoon	Evening	Overnight	Sunday	Friday	Saturday	Sunday	Friday	Saturday	Sunday	Friday	Saturday
AirTran Airways Corporation	6,126	3,784	2,929	81	991	1,246	923	142	197	145	121	129	97
American Airlines Inc.	5,434	3,359	1,886		150	186	129	481	576	405	197	215	178
American Eagle Airlines Inc.	3,202	2,286	1,582		80	96	96	576	712	414			

7 In the Delayed Flights column set, only weekend days are displayed, not all days of the week. You can filter each column set of a compound grid individually, since the column sets contain unrelated attributes and metrics.

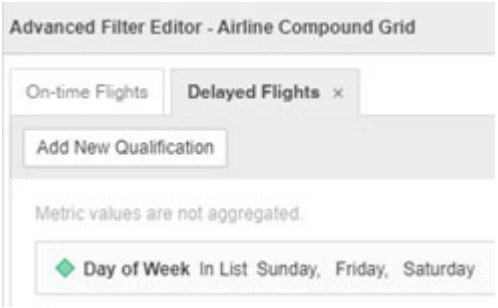
Best Practice

It is also important to know how to check what data is filtered in a visualization. This helps you understand the context of the data that you are analyzing. For example, you can determine what related, additional data might become available if you remove filter qualifications, or how you can magnify the analysis focus by adding filter qualifications.

a Hover your cursor over the compound grid and click the filter icon in the top left corner, and then click **Advanced Qualification**.

The Advanced Filter Editor window contains two tabs, one for each of the column sets of the compound grid. The On-Time Flights column set is not filtered.

b Click the **Delayed Flights** tab. This column set is filtered to include Sunday, Friday, and Saturday.



c Click **Cancel**.

Displaying data in modern grids: Simple grids, compound grids, and microcharts

You can use the modern grid to display:

- A simple grid of columns and rows, like this comparison of the rates of canceled, delayed, and on-time flights across airports and departure times:

Origin Airport	Departure Time	Cancel rate	Delay Rate	On-Time Rate
BWI	Morning	1.12%	31.98%	68.02%
	Afternoon	0.85%	45.54%	54.46%
	Evening	1.08%	50.94%	49.06%
	Overnight	1.68%	37.63%	62.37%
DCA	Morning	2.54%	32.00%	68.00%
	Afternoon	2.80%	40.76%	59.24%
	Evening	2.80%	41.67%	58.33%
	Overnight	1.28%	27.88%	72.12%
IAD	Morning	1.86%	31.48%	68.52%
	Afternoon	1.92%	34.56%	65.44%
	Evening	2.09%	40.64%	59.36%
	Overnight	2.17%	32.60%	67.40%

- A compound grid, with multiple column sets analyzed across a common dimension, like the airline analysis from the dossier:

				On-Time	BWI			DCA			IAD		
Airline Name	Morning	Afternoon	Evening	Overnight	Sunday	Friday	Saturday	Sunday	Friday	Saturday	Sunday	Friday	Saturday
AirTran Airways Corporation	6,126	3,784	2,929	81	991	1,246	923	142	197	145	121	129	97
American Airlines Inc.	5,434	3,359	1,886		150	186	129	481	576	405	197	215	178
American Eagle Airlines Inc.	3,202	2,286	1,582		80	96	96	576	712	414			
Comair Inc.	2,709	1,594	1,336		149	197	134	400	585	221	46	54	45
Delta Air Lines Inc.	2,979	2,004	1,841	315	273	347	268	339	464	261	141	221	122
Expressjet Airlines Inc.	2,118	1,114	1,156	179	114	139	109	87	139	57	91	104	68

- Microcharts, which display attribute and metric data in an individual small graph, which can be understood quicker than a value displayed in a grid's cell. This microchart visualization compares on-time flights by day of the week for

airports. You can quickly assess how each day's on-time values compare to other days and in different airports.

You can display all of these in a single modern grid:

				BWI	DCA	IAD
Airline Name	Total Flights Trend by Month	Avg Delay (min)	Delayed Flights Comparison by Time	Flights Canceled	Flights Canceled	Flights Canceled
AirTran Airways Corp...		68.257		130	40	30
American Airlines Inc.		74.013		50	195	70
American Eagle Airlin...		54.768		33	335	
Comair Inc.		57.258		104	253	34
Delta Air Lines Inc.		70.625		75	180	42
Expressjet Airlines Inc.		44.886		104	60	76
Mesa Airlines Inc.		48.758		0		507
Southwest Airlines Co.		46.267		351		23
United Air Lines Inc.		82.087		91	223	365
US Airways Inc.		48.755		53	527	1

You create this grid later in the workshop.

Creating layered views of data on a page: Panel stacks

As you can see in the dossier, a panel stack contains separate layers (panels) stacked into one container. Panels are ideal for displaying different views of your data on a single page. This can satisfy the requirements of many users who need different slices of your data.

Best Practice

Because you can add any dossier object, not just visualizations, to panels, panel stacks provide many independent layers of data on a single dossier page. Each panel can contain multiple visualizations, text boxes, filters, images, and shapes.

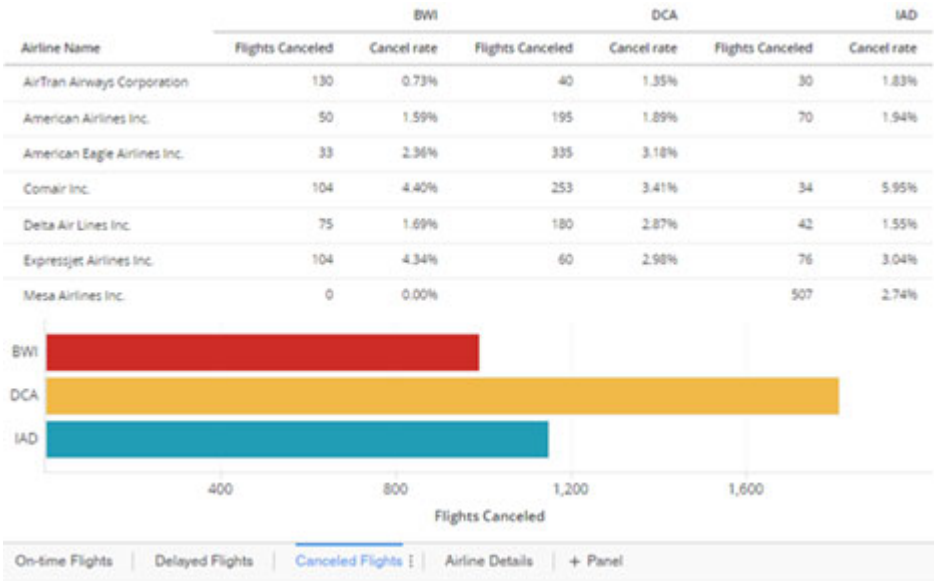
- Use panel stacks to create information-rich dossiers by reusing screen space. Panel stacks allow you to be more economical with your dossier layouts, while encouraging creativity and customization, especially when you use free-form

layout to design the panels. Use panels to present many layers of information, all on the same page.

- Use panels to create a workflow in your dossier. For example, panels can explore data at different levels of detail and organize related information.

This airline dossier stacks panels to display many visualizations on the same page, organized by different focuses: data for on-time flights, delays, cancellations, and airlines. Flip through the panels to quickly replace one set of analyses with another.

The main panel stack you looked at uses a separate panel selector, displayed as a link bar, to change panels. When you create a new panel stack, by clicking the Panel Stack icon on the toolbar, panel tabs are automatically displayed at the top of the panel. You can choose to display them at the bottom of the panel instead:



You can choose to hide these panel navigation tabs and create a selector outside of the panel stack, as this dossier does. A stand-alone panel selector can be placed anywhere on the dossier page, and can display panels as a drop-down list or link bar.

Exercise 3: Create a panel to display airline information in a modern grid

You need to track specific trends and compare different flight information, across different dimensions. The questions that need to be answered are:

- How does the monthly number of flights for each airline trend across a year?

  A line chart is a good solution for answering this question. The continuous line created by connecting data points helps you quickly identify metric trends.

- What is the average delay for each airline for the year?

  Display this data in a simple grid with airlines and the metric, to quickly view the exact values.

- How does the number of delayed flights compare by departure time for each airline?

  A bar chart answers this question with a quick glance to compare the height of the bars.

- What is the number of canceled flights for each airline at each airport?

  Display this data in a simple grid with airlines, airports, and the metric, to quickly view the exact values.

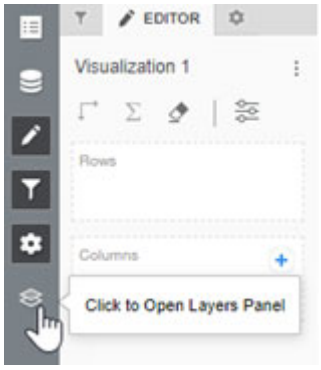
You could create a number of visualizations to answer these questions, or combine all the analyses into a single modern grid. The modern grid can display simple grids, compound grids, and microcharts in a single visualization.

- Use microcharts to display the line chart and bar chart within the grid. With just a quick glance at a microchart, you can determine the trend of a metric's performance.
- Use column sets to display the grids.

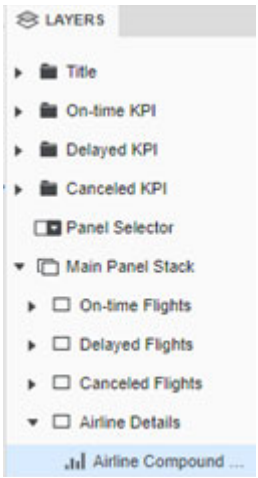
Because this grid is also focused on airline name, like the compound grid in the Airline Details panel, you could add the new grid to the same panel. However, that compound grid already fills the panel and displays well, allowing you to easily read all the data. Instead, create a new panel to display the new grid.

Create a panel

1 Before you add a panel, look at the dossier's current structure. Open the Layers panel, by clicking the **Layers Panel** icon in the panel toolbar on the left.



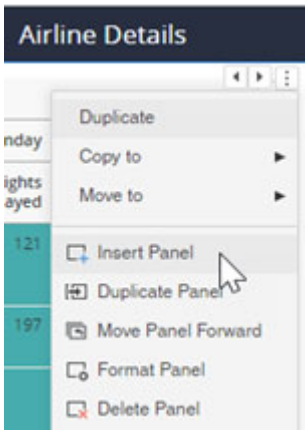
The Layers panel is displayed:



- The icon means that objects are grouped together. You can move a group and change what it overlaps.
- The icon indicates a panel stack, while the icon represents a panel in the panel stack.

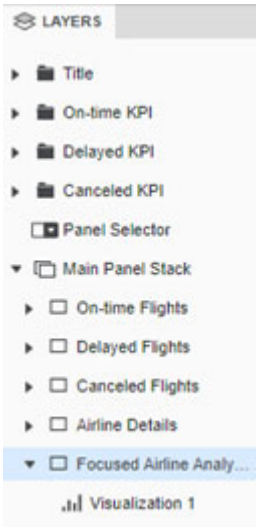
Add a panel to the panel stack

2 Click the menu icon ⋮ for the panel stack and select **Insert Panel**. The menu is displayed next to arrow icons to navigate through the panels.



If you do not see the Insert Panel option, you accessed the menu for a different object rather than the panel stack.

3 Rename the panel. In the Layers panel, double-click **Panel 1**. Type **Focused Airline Analysis**.



Add a grid to the panel

1 Right-click **Visualization 1**, the default grid on the panel, and select **Change Visualization**.

2 In the Change Visualization window, select the **Grid (Modern)** icon .

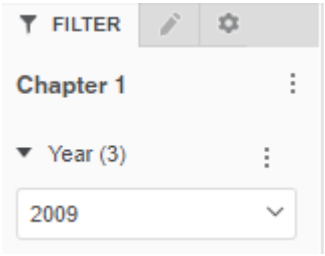
Click anywhere outside of the Change Visualization window to close it.

3 Click the **Datasets Panel** icon in the panel toolbar on the left, to display it.

4 All the questions revolve around airlines. The grid rows should display this common attribute, so you can show different relationships for it. Double-click **Airline Name** in the Datasets panel, to add it to the rows.

- If the Editor panel is not displayed, click **Editor** so that you can view the grid being constructed.

5 The questions are all yearly analyses. This dossier is filtered by year already, with a chapter filter on the Filter panel. To confirm this, click the **Filter** icon. The Filter panel contains a drop-down filter for Year, set to 2009. This means that you can select which year to focus on.



Create the monthly flight line graph

Answer the question: How does the monthly number of flights for each airline trend across a year?

Create a microchart to display the number of flights for each month in a line graph.

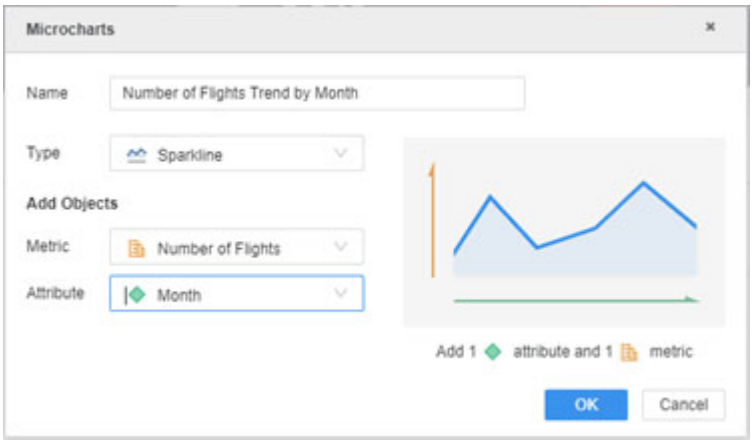
6 In the Editor panel, click **Add** in the Columns drop zone, and select **Microchart**.

7 In the Microcharts window, ensure that **Sparkline** is selected in the **Type** drop-down list.

8 In the **Metric** drop-down list, select **Number of Flights**.

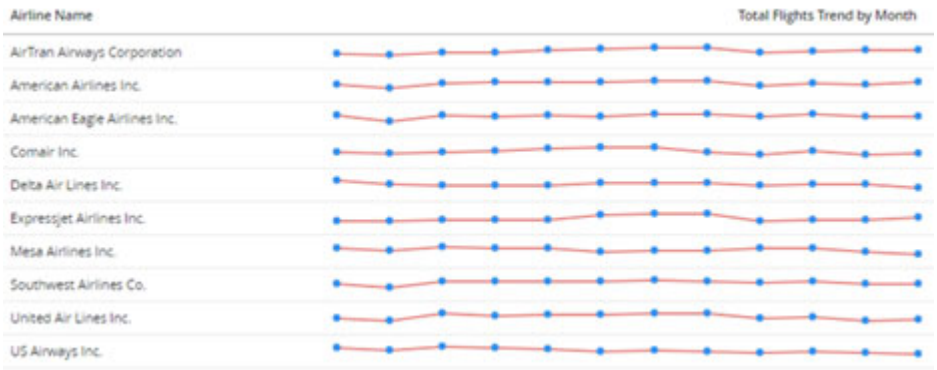
9 In the **Attribute** drop-down list, select **Month**.

As you create the microchart, its name is automatically created.



10 Change the **Name** to **Total Flights Trend by Month**.

11 Click **OK** to create the sparkline microchart in the first column of the grid.



Display the average delays

Answer the question: What is the average delay for each airline for the year?

Display this data in a simple grid with airlines and the metric, to quickly view the exact values. The airline name is already in the rows, so add a column set to display the average delay for each airline.

A column set must contain at least one metric, so that the grid can display values. Any attributes that you place in a column set provide context and a level of detail to the metric. You can add multiple metrics and attributes to a column set. This column set calculates a single value for each airline, so an additional attribute is not needed.

12 In the Editor panel, click **Add** + in the Columns drop zone, and select **Column Set**.

13 In the Datasets panel, double-click **Avg Delay (min)** to add it to the column set.

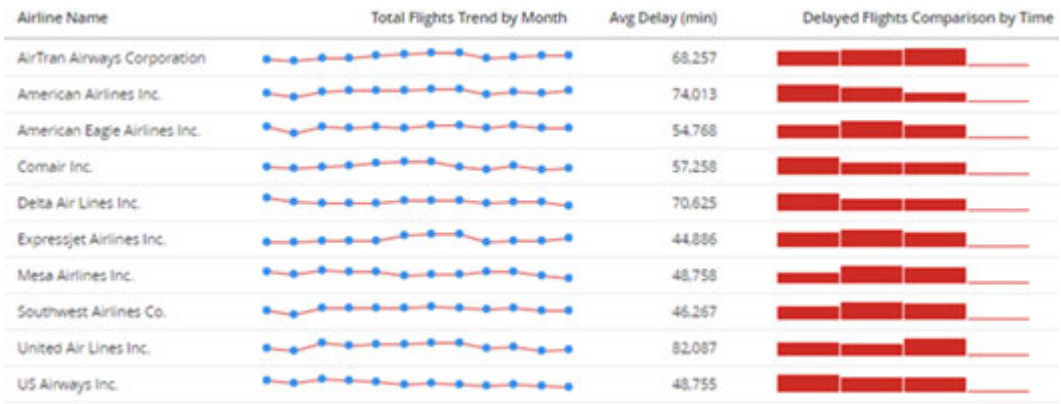
Create the delays by departure time bar chart

Answer the question: How does the number of delayed flights compare by departure time for each airline?

The trend bars microchart displays the number of delayed flights by departure time (morning, afternoon, evening, or overnight).

Test yourself: Can you create this microchart by yourself? Steps are provided below the image, if you need them.

Final trend bars microchart



14 In the Editor panel, click **Add** + in the Columns drop zone, and select **Microchart**.

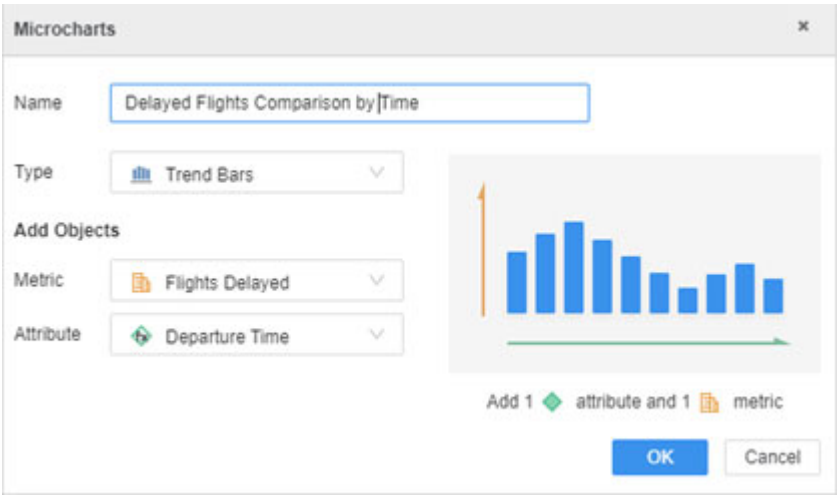
15 In the Microcharts window, select **Trend Bars** from the **Type** drop-down list.

16 In the **Metric** drop-down list, select **Flights Delayed**.

17 In the **Attribute** drop-down list, select **Departure Time**.

18 Change the **Name** to **Delayed Flights Comparison by Time**.

Trend bars automatically contain "Comparison" in their names, while sparklines are indicated by "Trend".



19 Click **OK** to create the trend bars microchart in the third column of the grid. It should look like *Final trend bars microchart, page 27*.

Display cancellations by airport

Answer the question: What is the number of canceled flights for each airline at each airport?

Display this data in a grid with airlines, airports, and the metric, to quickly view the exact values. The airline name is already in the rows, so create another column set. The relationship in this column set displays the number of canceled flights at each airport.

This column set contains an attribute to provide context and another level of detail to the number of canceled flights. The metric calculates a value for each airline and airport combination (or relationship).

Test yourself: Can you create this column set by yourself? Steps are provided below the image, if you need them.

Final airline/airport cancellations

				BWI	DCA	IAD
Airline Name	Total Flights Trend by Month	Avg Delay (min)	Delayed Flights Comparison by Time	Flights Canceled	Flights Canceled	Flights Canceled
AirTran Airways Corp...		68,257		130	40	30
American Airlines Inc.		74,013		50	195	70
American Eagle Airlin...		54,768		33	335	
Comair Inc.		57,258		104	253	34
Delta Air Lines Inc.		70,625		75	180	42
Expressjet Airlines Inc.		44,886		104	60	76
Mesa Airlines Inc.		48,758		0		507
Southwest Airlines Co.		46,267		351		23
United Air Lines Inc.		82,087		91	223	365
US Airways Inc.		48,755		53	527	1

20 In the Editor panel, click **Add** + in the Columns drop zone, and select **Column Set**.

21 Drag **Origin Airport** and then **Flights Canceled** to the **Column Set 3** drop zone. The grid should look like *Final airline/airport cancellations, page 29*.

22 Rename the column set to **Airport Cancellations**, so that you can identify it more easily when you format it. In the Editor panel, double-click the name to edit it.

23 **Save** the dossier.

Exercise 4: Use free-form layout to display a total flight KPI in the middle of a ring chart

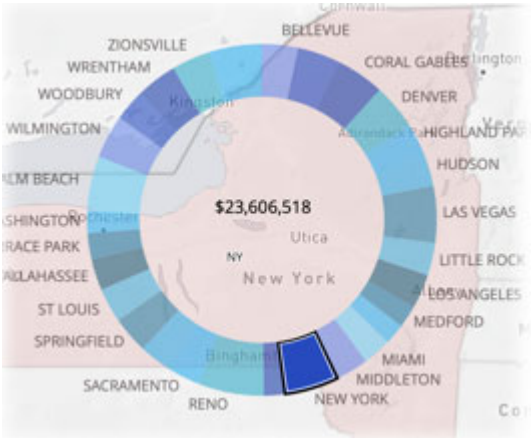
When you add objects to a dossier, those objects are automatically arranged to fill the dossier's screen area. You can reposition the objects around each other, using auto layout mode (the default).

Switch to free-form layout to position, size, and layer each object independently. The layout area (or canvas) is completely open, so you can easily organize and overlap objects in any way that you need. You can reposition each object exactly where you want it to go, using the alignment guides and smart snapping. Select multiple objects, either in the layout area or the Layers panel, to group, align, or distribute them.

Best Practice

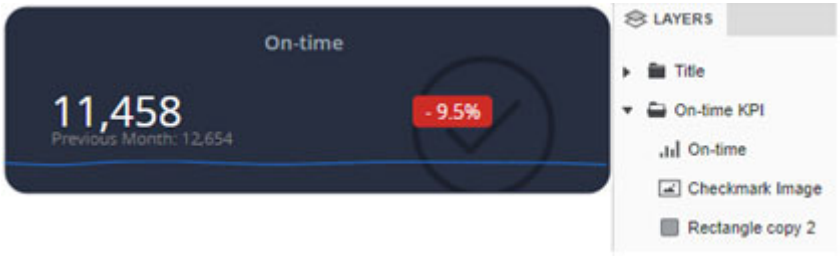
Use free-form layout to:

- Build dossiers with more complex design requirements.
- Create compound visualizations by overlaying different visualization containers to analyze different views of the data in the same space. For example, you can stack a ring chart on top of a map. When you click a city in the ring chart, its state, colored by revenue amount, is displayed on the map.



- Position and size visualizations freely while keeping responsiveness, so that you can build once and deploy everywhere.

This dossier page uses free-form layout. Each KPI is composed of the KPI visualization, displayed on top of an image, with a black rectangle at the bottom. The image in On-time KPI shown below is a grey check mark, for instance.



Because you can format each panel of a panel stack differently, each panel can use a different layout mode (auto or free-form). This provides the most flexibility to move and arrange objects on each panel.

You switched the Delays by Origin from displaying as a pie chart to using a ring chart. You can utilize the white space in the center of the ring to display the total number of flights. This provides context to the percentages displayed in the ring. Use free-form layout on the Delayed Flights panel to display the KPI behind the ring chart.

Switch a panel to free-form layout

1 Switch panels by clicking **Delayed Flights**.

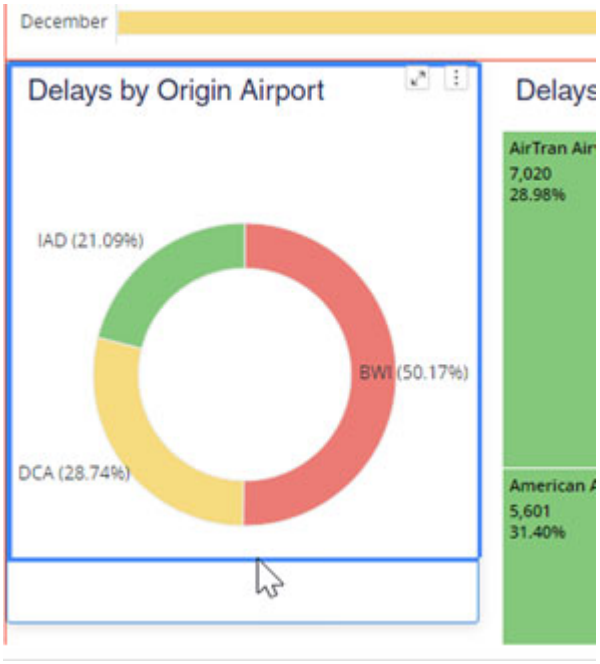
2 Switch the panel to free-form layout:

a In the Layers panel, right-click the **Delayed Flights** panel and select **Format**.

b In the Format panel, click the **Convert to Free Form Layout** icon for the Layout Mode.

Resize the ring chart

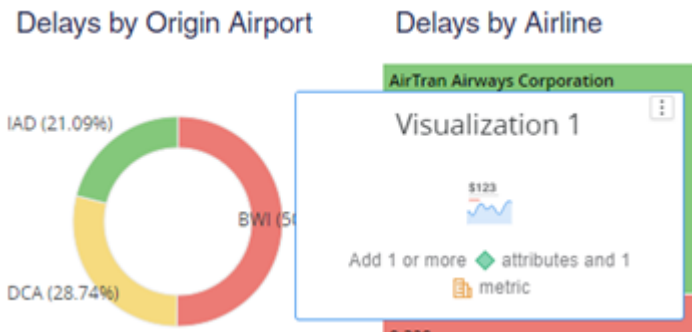
3 Resize the ring chart, so that most of the ring is visible without scrolling, by shrinking the height of its container. Select the visualization, and drag the bottom sizing line (displayed in blue) up.



Display a KPI behind the ring chart

1 On the toolbar, click the **Visualization** icon, point to **More**, and then click the **KPI** icon. The new visualization is added in the middle of the panel, on

top of the existing visualizations. In automatic layout, the existing visualizations would have moved around to display to the KPI.



2 Double-click the **Number of Flights** metric in the Datasets panel. The metric and its value is displayed in the KPI visualization.

3 Because the KPI needs to fit within the ring chart, rename the metric, but just for displaying in this visualization. In the Editor panel, right-click **Number of Flights**, select **Rename**, and type **Total Flights**.

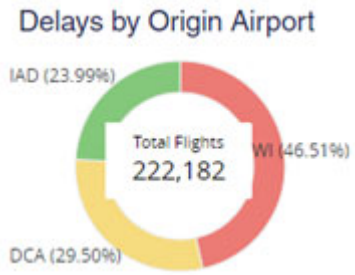
If you rename the metric in the Datasets panel, it is renamed throughout the dossier.

4 In the Layers panel, double-click **Visualization 1** (the KPI that you just added) and rename it **Flight KPI**. This makes it easy to identify which visualization you are working with.

5 Click the menu icon ⋮ on the Flight KPI and select **Hide Title Bar**. This gives more room to display the data.

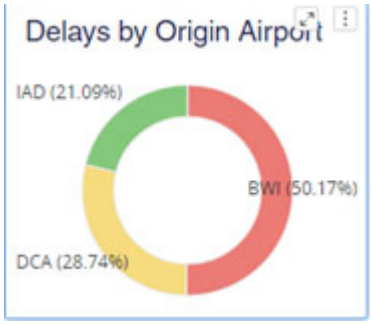
6 Resize the Flight KPI to a smaller rectangle. As you resize it, the font size changes to display the full metric value. You will resize it more precisely later in the exercise.

7 Drag the Flight KPI into the middle of the ring. Resize the KPI as necessary, to fill the space and display the metric value fully.



8 In the Layers panel, right-click **Flight KPI** and select **Send to Back**.

The Flight KPI disappears behind the white background of the ring chart.

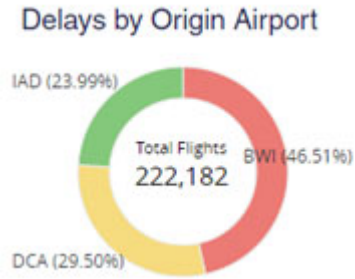


9 Make the background fill of the ring chart transparent (no fill).

a Select the ring chart.

b In the Format panel, select **Title and Container** from the first drop-down list.

c Set the **Fill Color** for the container to **No Fill**.



10 Emphasize the total flights text, so that it stands out from the ring chart data.

a In the Layers panel, right-click **Flight KPI** and select **Format**.

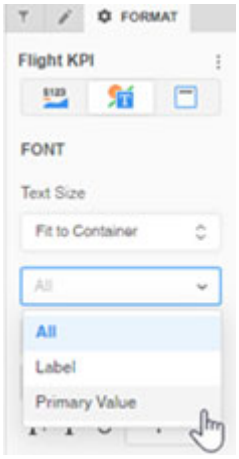
Best Practice

It is easier to use the Layers panel to select an object when the object is displayed behind others.

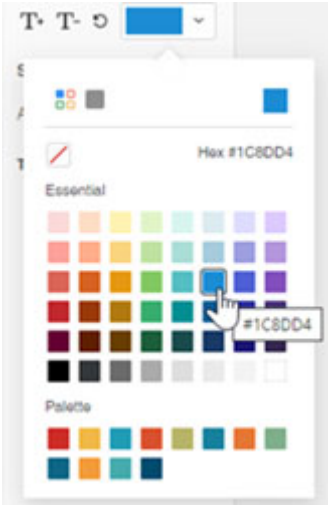
b In the Format panel, click **Text and Form** .

c Click the **Bold** icon B .

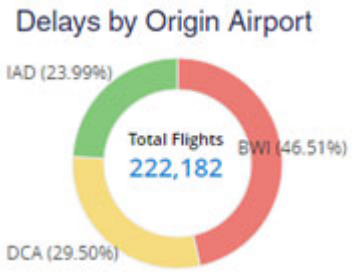
d From the second drop-down list, select **Primary Value**, as shown below:



e From the color palette, select **#1C8DD4** (blue).



f If your text is too big, you can decrease the size by clicking T-.

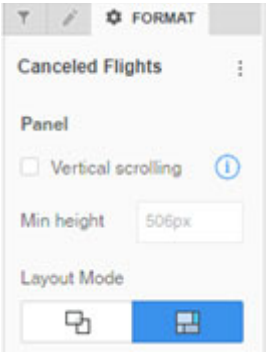


Check that the free-form layout applies only to the Delayed Flights panel

11 Switch panels by clicking **Canceled Flights**.

12 Click the menu icon ⋮ on the Canceled Flights panel and select **Format Panel**.

You can see that the layout mode for this panel is auto layout. You can format each panel of a panel stack independently of the other panels.



13 **Save** the dossier.

Exercise 5: Explore a panel stack layered on top of another panel stack

Best Practice

You can create up to two levels of panel stacks to organize your visualizations, combining them with chapters and pages to provide additional structure and order to your analyses and workflows. More levels of panel stacks can confuse your end users and clutter the dossier's display. Consider the different levels of detail that you need. You can add another panel to an existing panel stack, or more fully re-organize your dossier to use additional pages and chapters.

In this dossier, the On-time Flights panel contains a panel stack; each of its panels contains a single visualization. Each visualization displays across the entire panel, for ease of reading.

Explore the visualizations on the layered panel stack

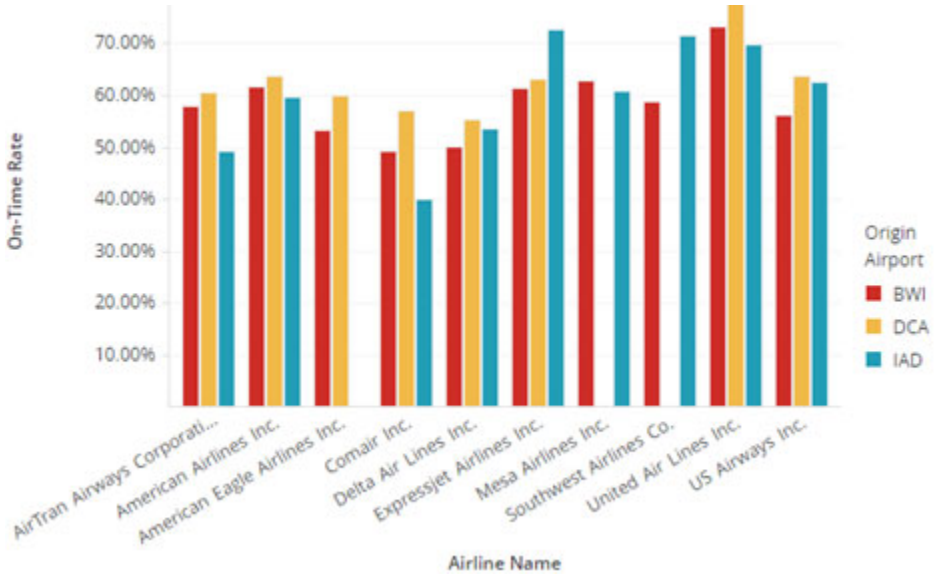
1 Click **On-time Flights** to display that panel. If the bar graph shown below is not displayed, click **By Airline & Airport**.

Track on-time flights using this bar graph, which displays a bar for each airline-airport combination. The bar's height represents the number of on-time flights. You can quickly see that Southwest Airlines, flying out of BWI, has the most on-time flights.

2 Hover your cursor over the Southwest-BWI bar. Southwest has 32,647 on-time flights out of BWI. But how many Southwest flights take off from BWI? More data is needed.

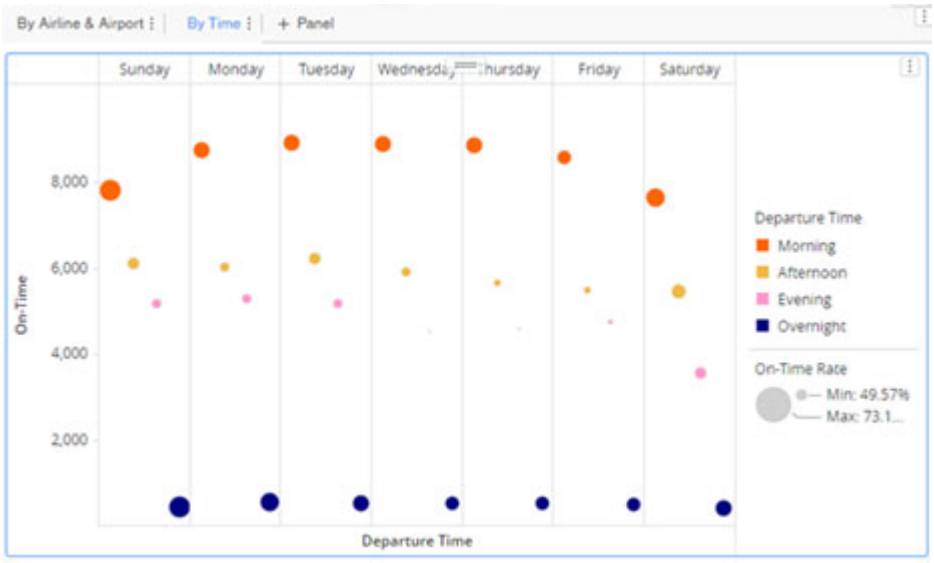
3 Replace the On-Time metric with the On-Time Rate metric. Select the bar chart. Drag **On-Time Rate** from the Datasets panel to the **Vertical** drop zone on the Editor panel, replacing On-Time.

If you do not see On-Time Rate on the Datasets panel, you can search for it.



Now you can see that Southwest's on-time rate is a little less than 60% at BWI. More than 70% of United Airlines flights leave BWI on time. Using just the number of on-time flights skewed your analysis.

4 Click **By Time** to display the other panel in the layered panel stack.



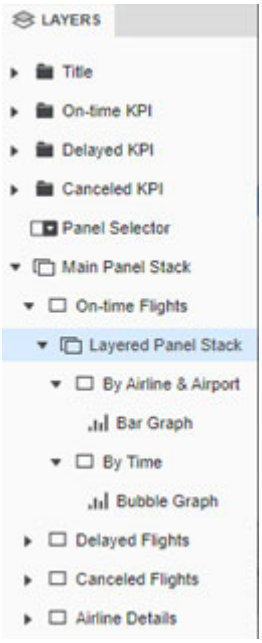
This bubble chart shows that morning and overnight flights leave on time more frequently than those in the afternoon or evening. However, far fewer flights depart overnight than at other times of the day.

Contrast using panels to display separate visualizations in the On-Time Flights panel, to the *Delayed Flights panel, page 8*, where you had to scroll to view different visualizations.

Create a selector to change panels

The layered panel stack uses the default selector, displayed across the top of the panel, to change panels. Create a stand-alone selector to replace it. You can move the stand-alone selector to the side of the panels, to distinguish between the selectors for each panel stack.

1 Use the Layers panel to view the structure of the different panel stacks. Expand the various panel stacks and panels to view what they contain.



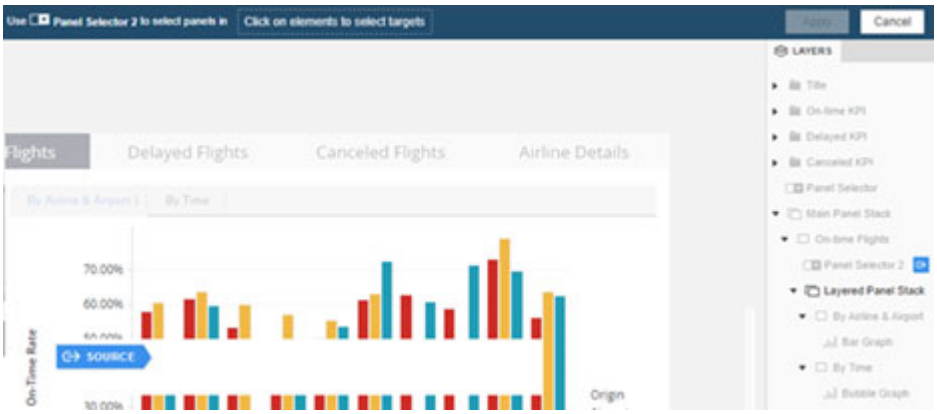
2 You can use the Layers panel to change which panel is displayed. In the Layers panel, click **By Airline & Airport**.

3 You can also use the Layers panel to select objects. In the Layers panel, click **On-time Flights**, to move the focus from the panel. The selector targets the Layered Panel Stack, so the selector is created on the panel that contains the Layered Panel Stack.

4 Click the **Filter** icon on the toolbar and click **Panel Selector**.

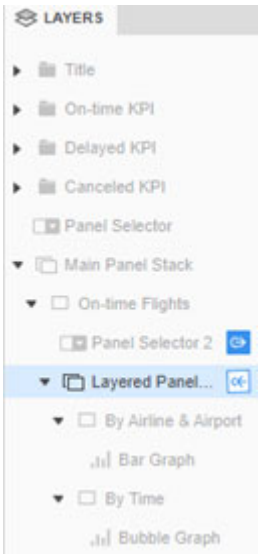
A blank selector is added to the panel stack.

5 Click **Select Target** in the panel selector. The selector is labeled as the Source SOURCE, and the source icon is displayed next to the Panel Selector 2 in the Layers panel.



- Because this is a panel selector, only panel stacks are shown as available in the Layers panel.
- Because you added the panel selector on the On-time Flights panel, the only panel stack available is the Layered Panel Stack.

6 In the Layers panel, click **Layered Panel Stack**. The panel stack is labeled as the target .



7 Click **Apply**. The panel selector displays the panels of the layered panel stack, in a horizontal link bar.

8 Display the selector vertically, so that it will fit better on the left side of the panel.

a Select the panel selector.

b On the Format panel, click **Selector Options** .

c In the Selections area, click **Vertical**.

9 Resize the selector and move it between the text box and the panel stack.

10 Draw attention to the selector with formatting.

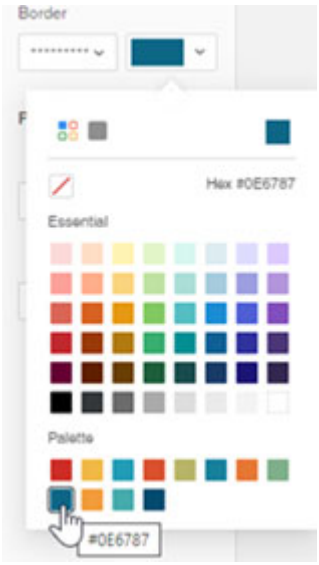
a In the Format panel, click **Text and Form** .

b Bold the text, by clicking bold **B** .

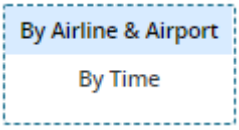
c Click **Title and Container** .

d From the **Border** drop-down list, select **1 Point Dashed** icon .

e From the border color palette, select **#0E6787** in the Palette area (a shade of blue).



Your formatted selector should look like the following:



Remove the default navigation tabs

Since the default navigation tabs are now redundant, you can hide them.

11 In the Layers panel, right-click **Layered Panel Stack** and select **Format**.

12 On the Panel Stack Options tab of the Format panel, from the **Navigation** drop-down list, select **None**.

You do not have to create a panel stack selector when you hide the navigation tabs. When they are hidden, you can change panels by scrolling through them. Hover your cursor over the panel, and click the arrow keys that are

displayed. These scrolling arrows are also available in Presentation Mode and in Library. In the image below, you can see the arrows for both the Main Panel Stack and the Layered Panel Stack.

13 **Save** the dossier.

Formatting individual words and phrases in a rich text box

You want to display a summary of your dossier's key metric values at a yearly level. Your executives like to see the graphs and other data visualizations, but they also want a few sentences to summarize the results.

Add a text box to display those sentences, but emphasize the metric values and the year by using a rich text box. You can format individual words or phrases separately in a rich text box. For example, you can bold the year and display metric values in blue font and percentages in green, as shown below.

Final rich text box

In **2009**, the number of flights in the Washington metropolitan area was 222,182. There were 85,511 (38.49%) flights delayed and 3,952 (1.78%) flights canceled during the year.

Instead of typing text into the text box, drag dataset objects into the box. The objects display the values, just as they do in a grid or other visualization. When you change the chapter filter, the dataset objects in the text box are automatically updated with the new values.

Exercise 6: Display and independently format yearly values in a text box

Add a rich text box

1 Click the top of the page, to move the focus from the panel to the page.

If you are working in a panel, any objects that you add are displayed in the current panel, rather than outside of the panel stack.

2 In the toolbar, click the **Text** icon T, and then select **Rich Text.**

3 Drag the text box to the top right, next to the logo and title. Resize it to fill the available space, as shown below:

Add dataset objects to the text box

Instead of typing a year and metric values into the text box, you can display dataset objects, which are automatically updated when the chapter filter changes. The year and various metric values in the rich text box shown in *Final rich text box, page 42* reflect the values of the year selected in the chapter filter.

4 Drag **Year** from the Dataset Objects panel into the text box. The year, as selected in the chapter filter, is displayed.

5 Double-click the text box to edit it.

The Year attribute is displayed as {[Year]}. The curly braces and brackets indicate that it is a dataset object.

6 Type **In** before the Year attribute.

7 Type a comma and a space (**,**) after the Year attribute.

8 Copy and paste the following text into the text box:

the number of flights in the Washington metropolitan area was {[Number of Flights]}. There were {[Flights Delayed]} ({[Delay rate]}) flights delayed and {[Flights Canceled]} ({[Cancel rate]}) flights canceled during the year.

In 2009, the number of flights in the Washington metropolitan area was 222,182. There were 85,511 (38.49%) flights delayed and 3,952 (1.78%) flights canceled during the year.

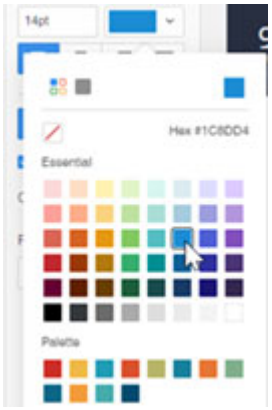
The metric names are replaced by the metric values for 2009.

9 Click the **Format** icon to display the Format panel.

10 In the text box, select **{[Year]}**. In the Format panel, click bold **B**.

- When you double-click the text box to edit it, the variable names are displayed, instead of the values.
- Be sure to include the braces and parentheses, which define the variable. If you select only the name, for instance, the variable name is displayed in the text box, rather than the value (2009).

11 Click the text box to select it again, and then select **{[Number of Flights]}**. In the Format panel, in the color palette, select **#1C8DD4** (blue).



Best Practice

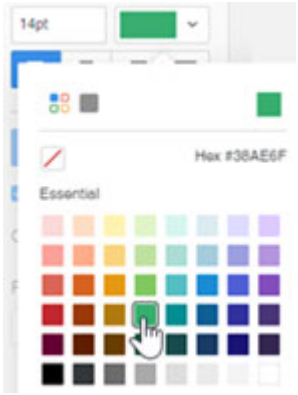
Select the text box before you select the text. This ensures that you are working within the text box, and not moving it on the layout.

12 Repeat the above step for **{[Flights Delayed]}** and then **{[Flights Canceled]}**.

13 Change the color of the following variables to **#38AE6F** (green):

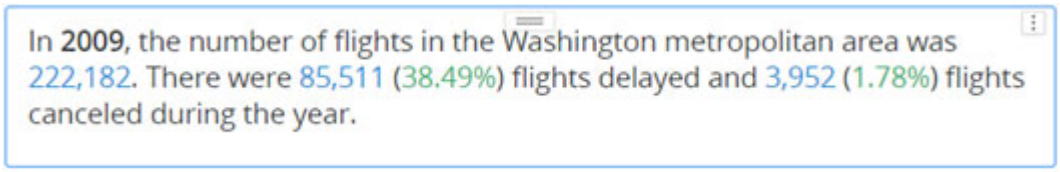
- **{[Delay rate]}**

- **{[Cancel rate]}**



14 You can also change a formatting option for the entire text box. For example, you can change the font size of all the text, without changing the color selections that you made.

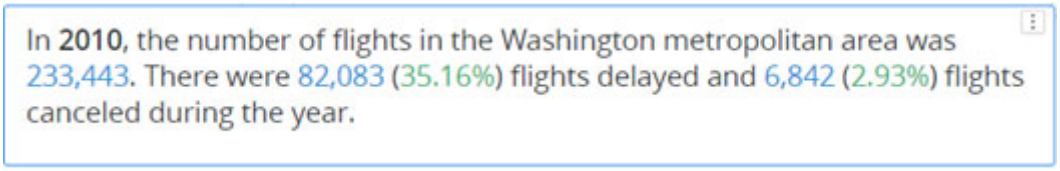
Select the text box. In the Format panel, type **12** in the font size box.



15 **Save** the dossier.

Change the chapter filter to update the values in the text box

1 In the Filter panel, select **2010** from the drop-down list.



Notice that 2010 is displayed for the Year attribute instead of 2009, and all the metric values have been updated as well. The chapter filter updates everything on this page, including all the visualizations on all the panels.

Best Practice

The rich text box provides flexibility; why would I use a regular text box? Use a regular text box to:

- *Quickly format all of the text in the same way, when individual text does not need to be formatted differently*
- *Dynamically resize the text box, so that all of the text displays without a scroll bar. This autosizing ensures that text is readable on smaller screens without the distraction of using a scroll bar.*

Expanding your dossier skills

You have now completed the *Build Dossiers that Delight and Inform* workshop. Over the course of this workshop, you have:

- Displayed different slices of your data in the same location on the dossier page, using panels
- Designed a responsive, free-form layout to further customize your dossier pages with visualizations layered on each other
- Enriched your analysis by displaying unrelated attributes and metrics across a common dimension in a compound grid
- Displayed metrics as microcharts to grasp the trend of a metric's values at a glance
- Formatted individual words and phrases in a rich text box

To learn more about creating appealing, insightful dashboard-style dossiers, MicroStrategy offers a variety of classes, based on your experience level and goals:

- For a new user who wants to learn how to create a basic dossier, take the *Dashboarding with Dossiers and Visualizations* course. Learn how to:
  - Import and refine data to create visually-compelling, interactive data representations (visualizations).
  - Format, analyze, filter, and layer those visualizations.
  - Share your dossiers to collaborate with colleagues.
  - Design effective dossiers for mobile devices.

- For an advanced user who is ready to extend dossiers by presenting complex, rich stories to other users so they can make informed business decisions, take the *Advanced Dashboarding with Dossiers* course. Learn how to:
  - Import and combine data from a variety of data sources to enhance your visualizations.
  - Create new objects by grouping attribute elements and creating new attributes and metrics based on dataset objects.
  - Build a story about your data with links to external content and other dossiers, helping your users make accurate, timely business decisions.
  - Create workflows to guide users through the information presented in your dossier.
  - Display your business data in the newest visualizations, such as Sankey diagrams (for data flow) and time series visualizations (for time-based trends).
- For a user who wants to focus on creating visualizations, take the *Visualizations: Foundations and Best Practices* course. Learn how to:
  - Select the type of visualization based on your analysis goals.
  - Improve visualizations with design elements.
  - Optimize visualizations to guide analysis.
  - Create and format visualizations.
  - Effectively display visualizations together on a dossier page.

To sign up for these courses and learn about other MicroStrategy Education offerings, visit **https://www.microstrategy.com/us/services/education**.

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