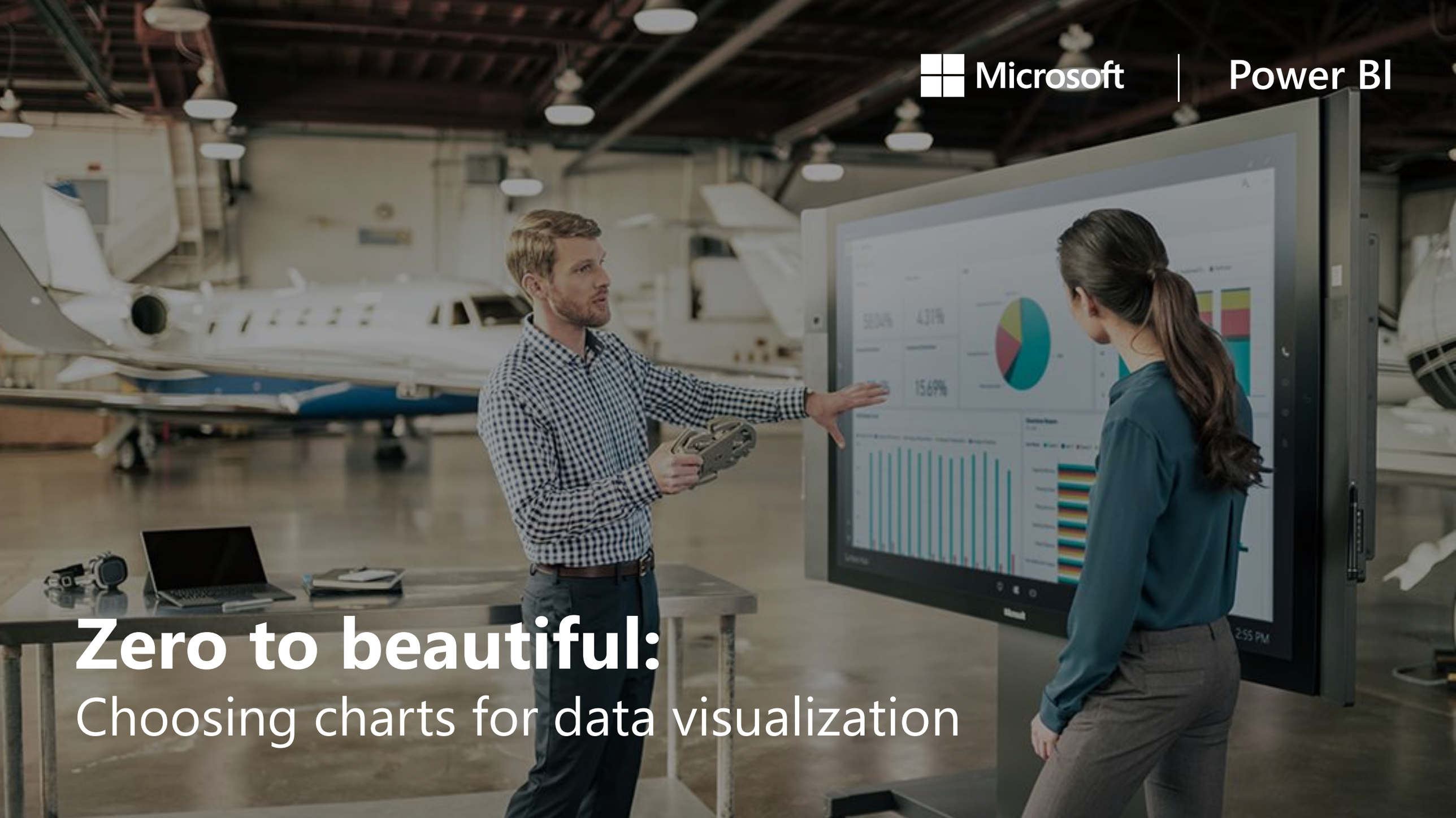

Microsoft | Power BI

Zero to beautiful:

Choosing charts for data visualization

Choosing charts for data visualization

You have data to explore and know some best practices for sharing insights. But before you can create visualizations, it’s time to decide how to display your data. Here are some tips for choosing your charts.

Line chart

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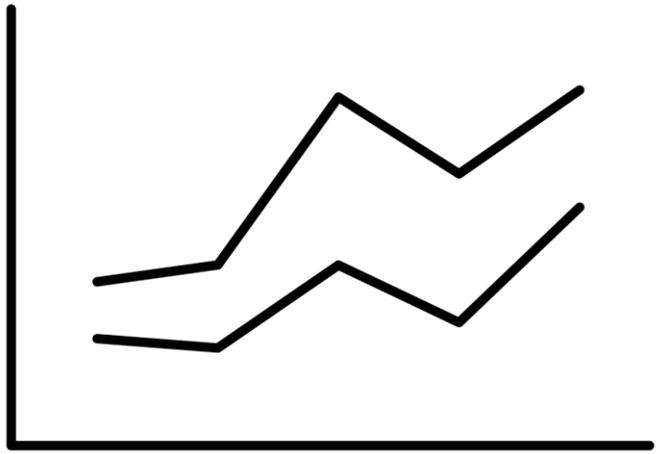

What it is. A line chart is characterized by having one or more lines that correspond to category data values.

When to use it. This type of visualization works best for displaying and comparing trends over time.

Line chart

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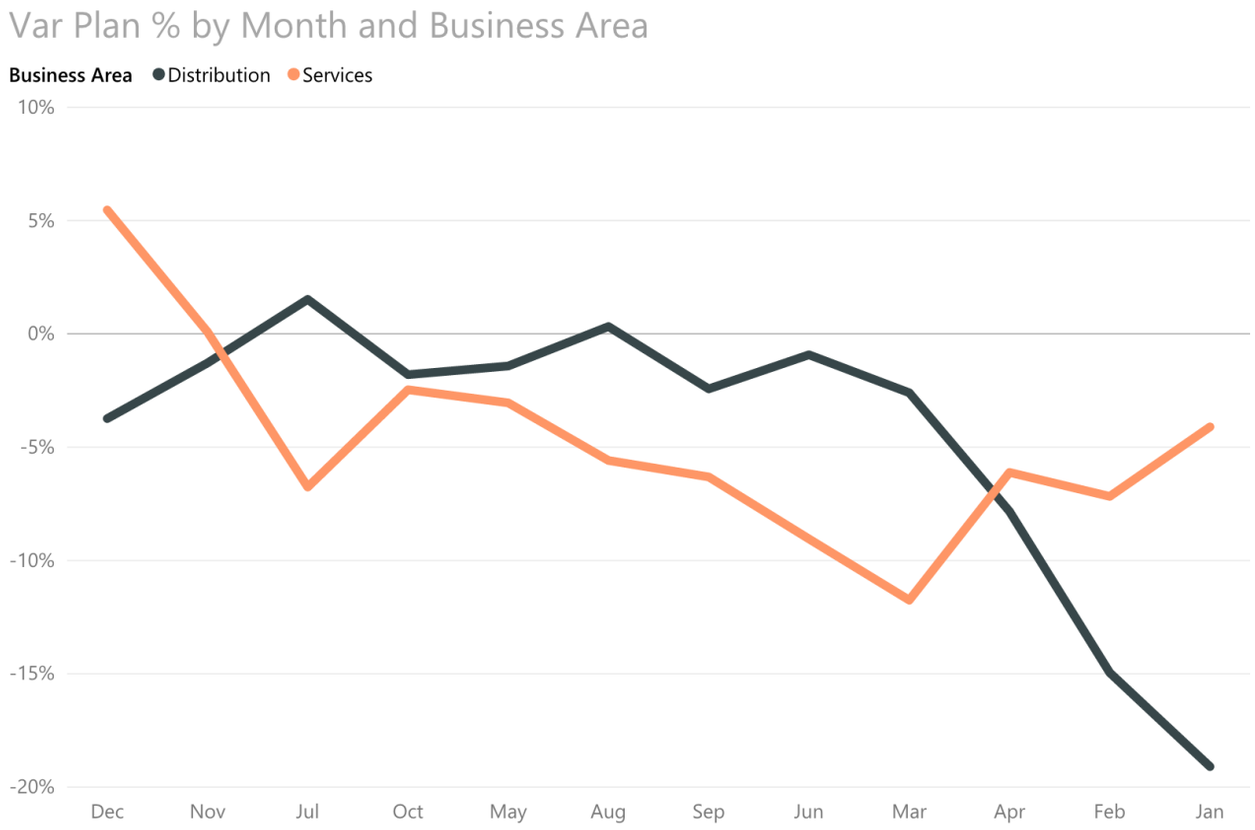
Why choose this type of chart?

A line chart shows correlations between category and time values. It can use two or more lines to compare performance in a category[1], for example:

- Annual temperatures.
- Months and units sold.
- Number of social media followers per week.



[1] To create a stacked area chart, shade the area below each line.

Column chart

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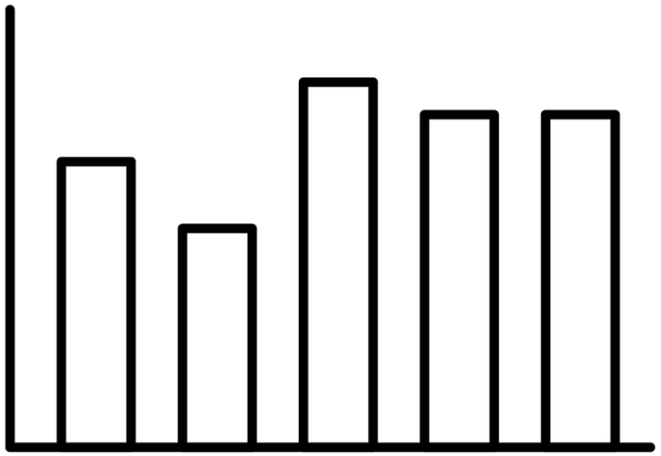

What it is. In a column chart (also called a bar chart), columns of varying length represent data values.

When to use it. This visualization works best for comparing data values across categories.

Column chart

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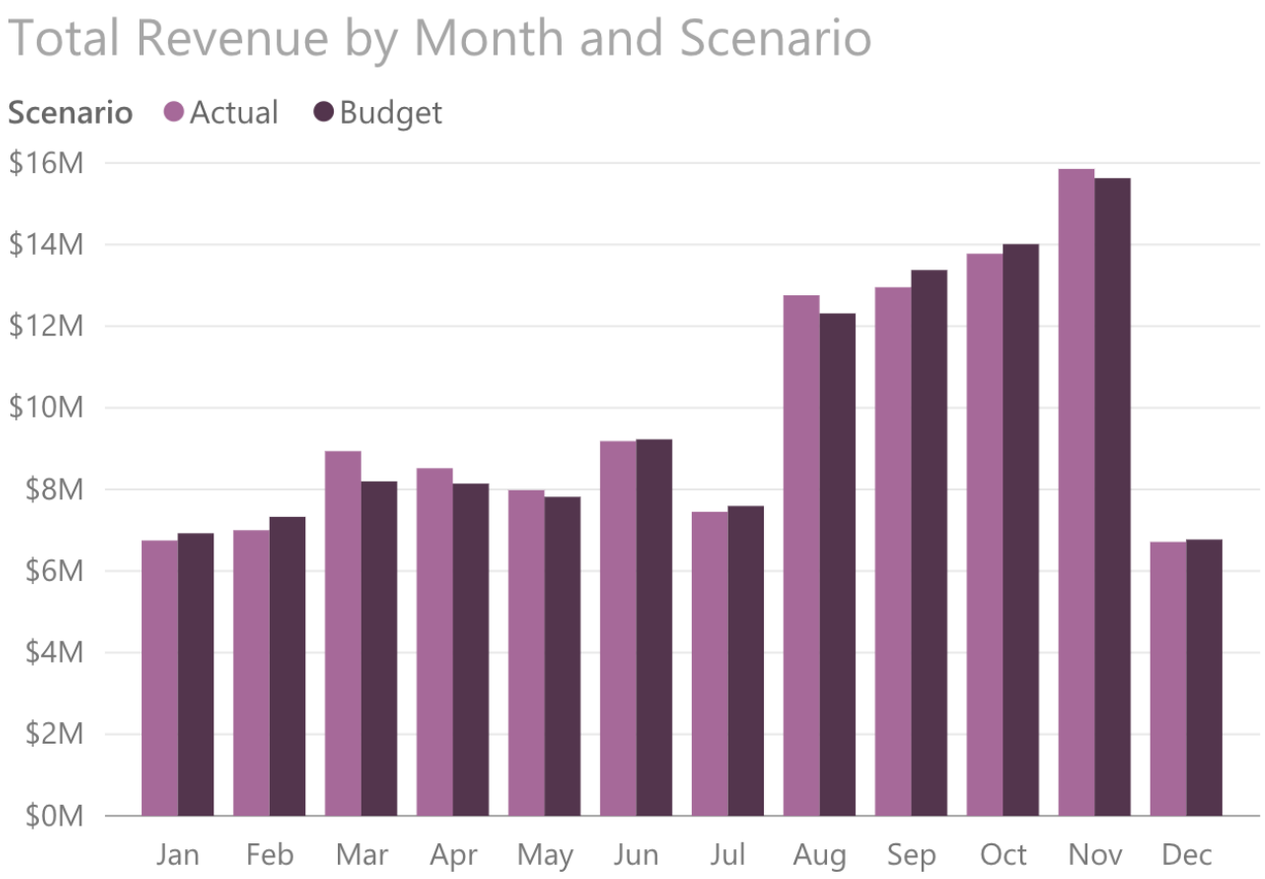
Why choose this type of chart?
This versatile chart can be rotated to show horizontal bars instead of vertical columns. Sample uses include:

- Part-to-whole relationships.
- Intercategory comparisons.
- Percentages of change or of totals.



Combination chart

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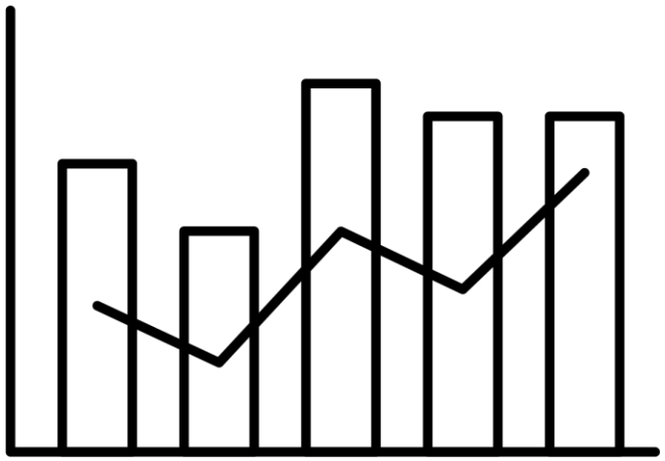

What it is. A combination chart includes elements of both line charts and bar charts.

When to use it. Pick this chart to visualize data sets with measures that have different scales. To compare several lines and bars for data sets with significantly different value ranges, use multiple scales on the y-axis.

Combination chart

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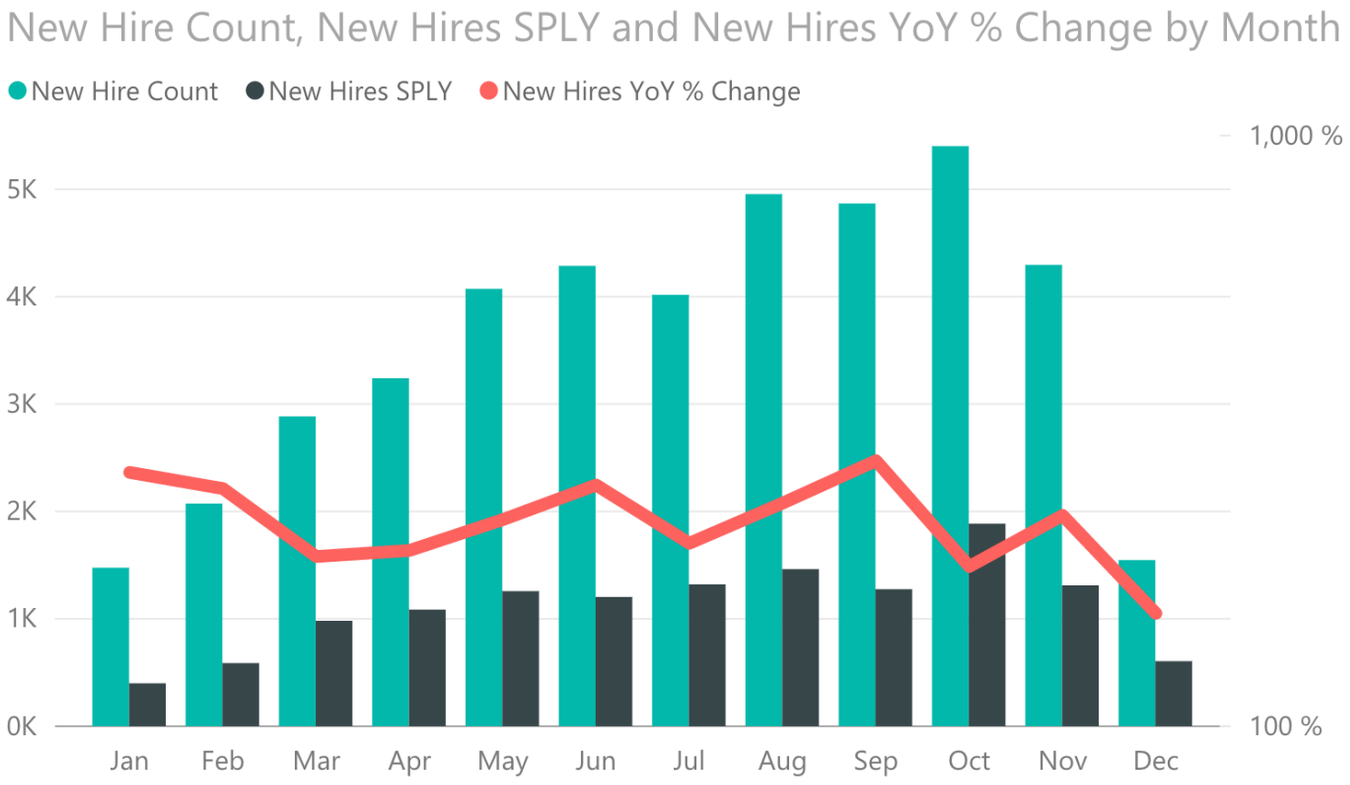
Why choose this type of chart?

A combination chart is best for:

- Comparing data sets with different axis scales (like temperature and precipitation).
- Displaying trends as continuous data over time, set against a common scale[2].



[2] To plot non-continuous numeric data, use a scatter chart.

Heat maps and bubble maps

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What they are. Heat maps are built on shape maps. Bubble maps are built on world maps.

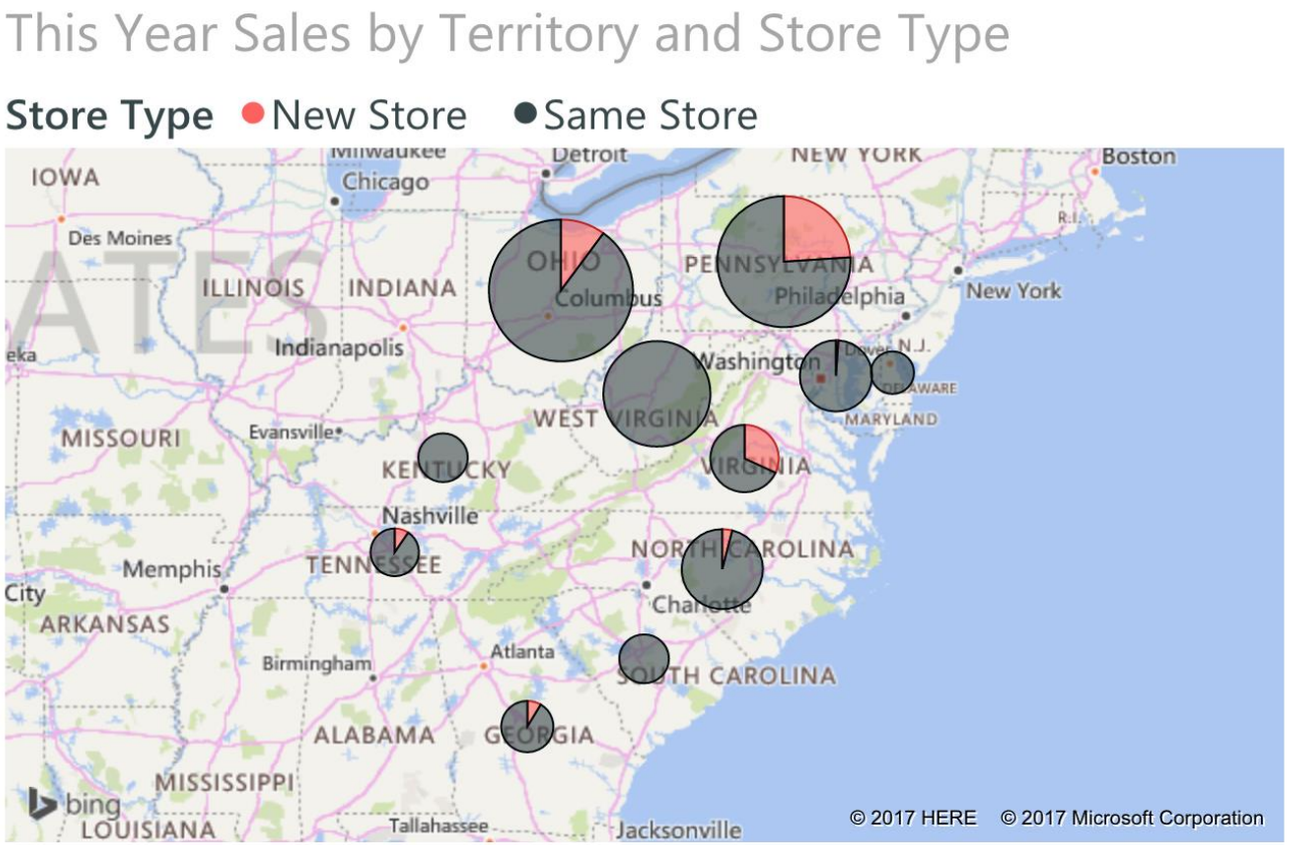
When to use them. Heat maps show details within cartographic boundaries or outlined areas. Bubble maps are good for visualizing data sets using bubbles of varying size (according to data value) plotted over geographic points.

Heat maps and bubble maps

Microsoft | Power BI

Why choose these types of charts?
Relative strengths include the following:

- A heat map shows data-result density and location within certain areas using color and color intensity (for example, voting results by county).
- Bubble maps can break down geo-spacial data by category for any point on a map, to show multiple results for the same location (such as gender, age, and home ownership rates by city).



Example of a bubble map

Scatter charts and bubble charts

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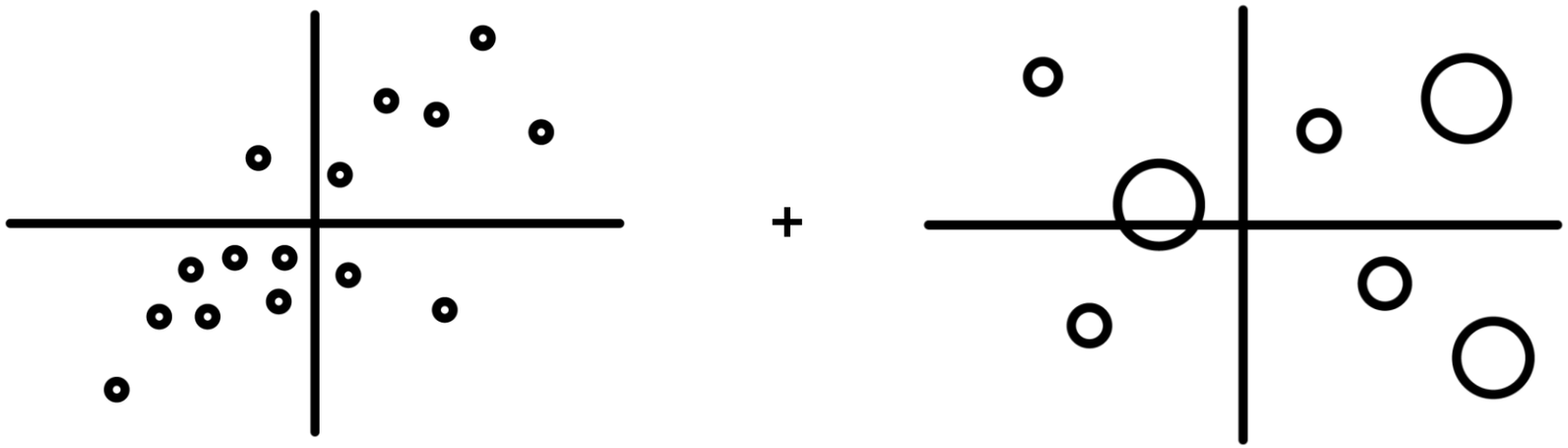

What they are. A scatter chart uses data points plotted on two value axes to display and compare numeric values. A bubble chart replaces the data points with bubbles, their sizes representing an additional dimension of the data.

When to use them. A scatter chart is good for comparing two kinds of numeric data when you want to segment or categorize one or both types. If you want to use quadrants, or your data has three data series that each contain a set of values, choose a bubble chart.

Scatter charts and bubble charts

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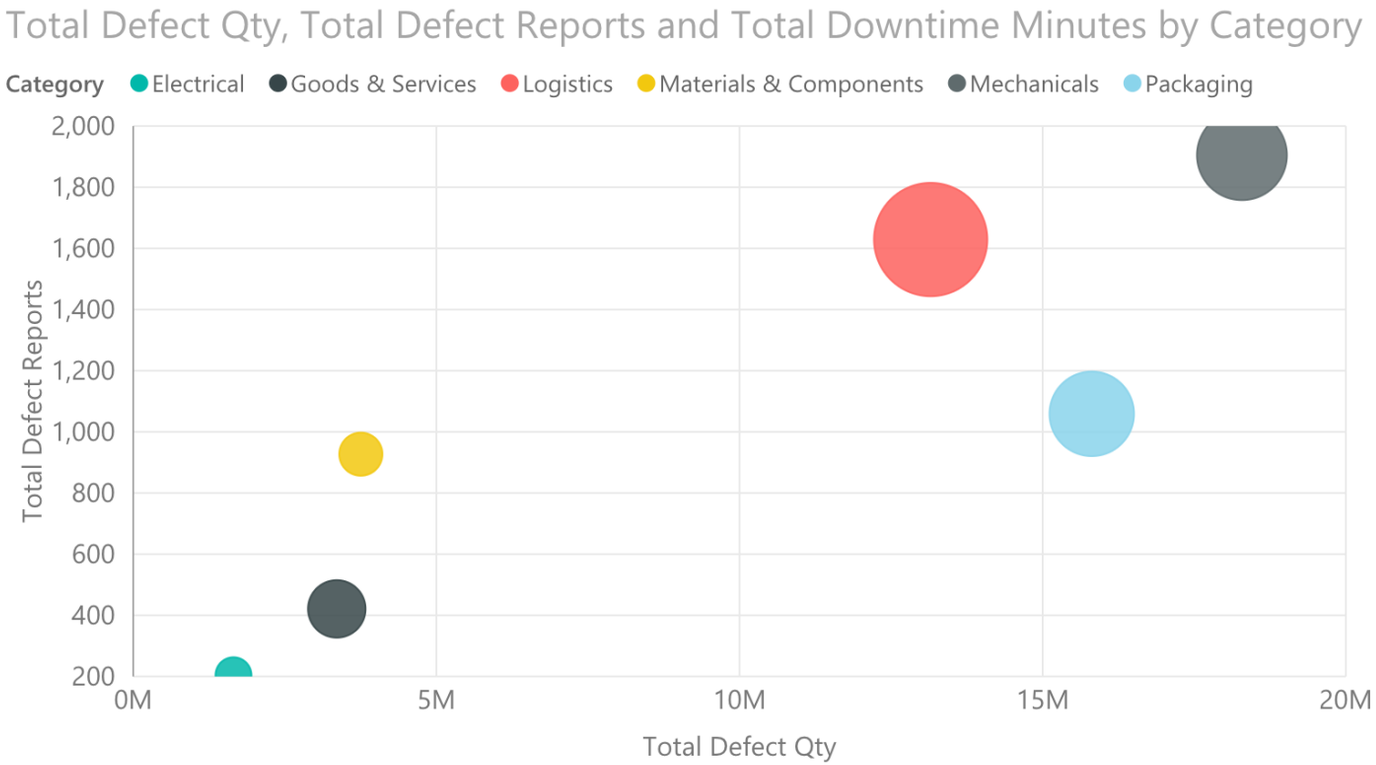
Why choose these types of charts?
Use cases include the following:

- A scatter chart is useful for distinguishing outliers, correlations, and categorization in two sets of data[3].
- A bubble chart can plot data points by relative size, if you want to segment three sets of data by category, source, or timeline milestone.



[3] In general, if your data contains only numeric values, use a scatter chart, and for non-numeric (category) data, use a line chart instead.

Waterfall charts and funnel charts

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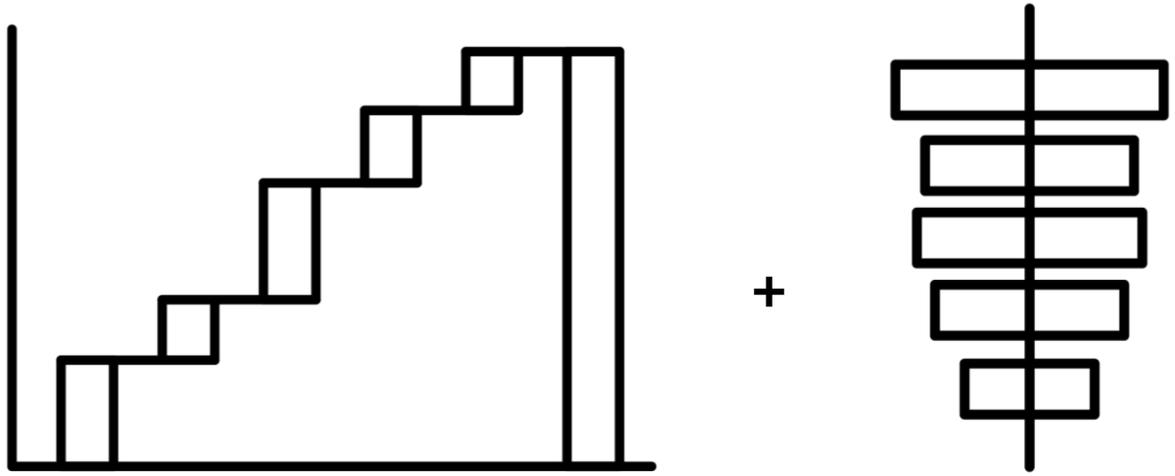

What they are. Waterfall chart results are arc-shaped, and funnel chart results usually taper vertically from wide to narrow.

When to use them. To show changes in a value over time, use a waterfall chart. To display variances in the stages of a process over time, use a funnel chart.

Waterfall charts and funnel charts

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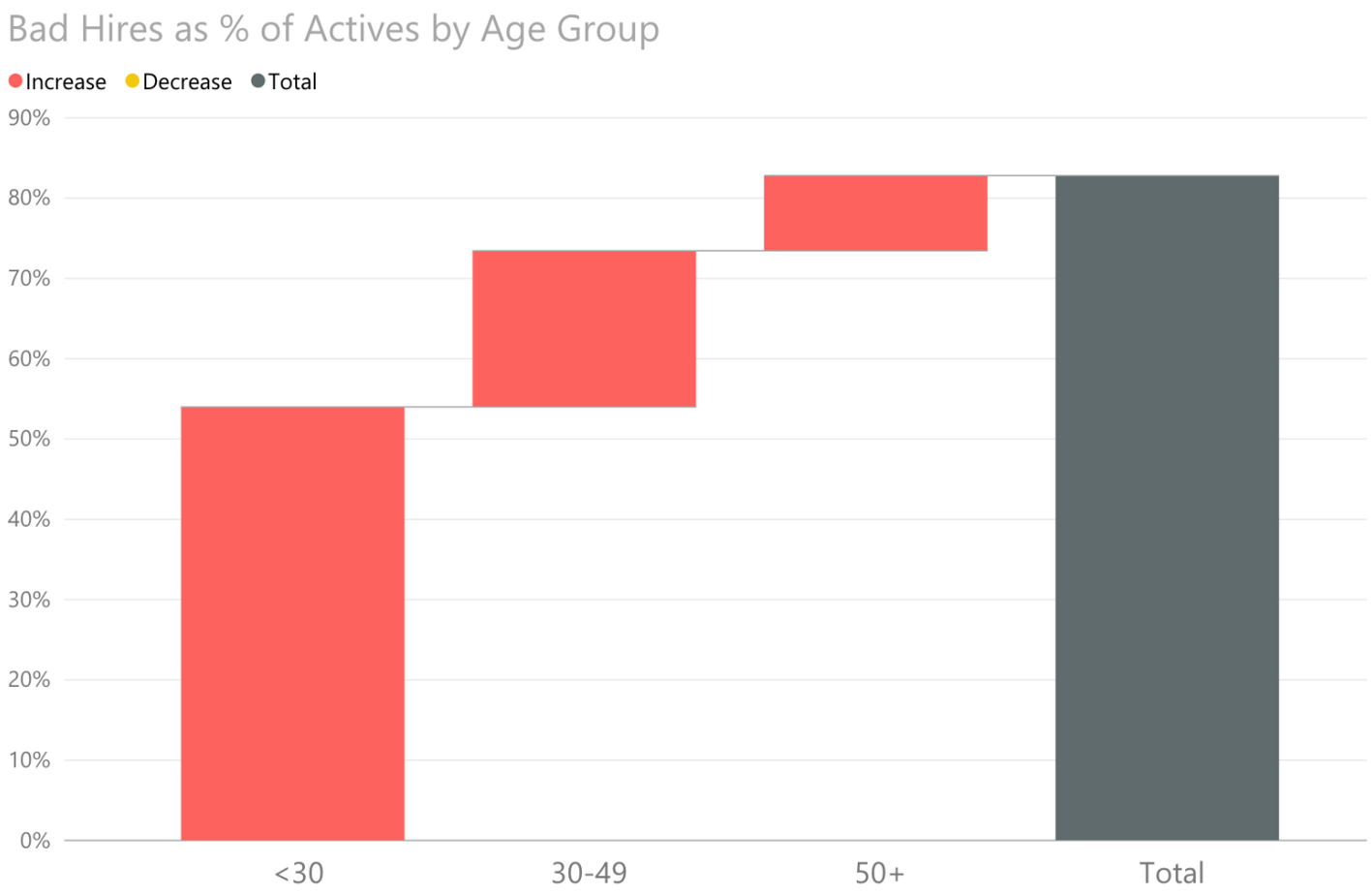
Why choose these types of charts?

Strengths of these charts:

- Waterfall charts are great for showing relationships and contingencies, such as month-to-date variances or workback schedules. Use colors to differentiate increases, decreases, and totals.
- Funnel charts are ideal for displaying customer retention, student graduation rates, and sales pipelines.



Example of a waterfall chart

Pie charts and doughnut charts

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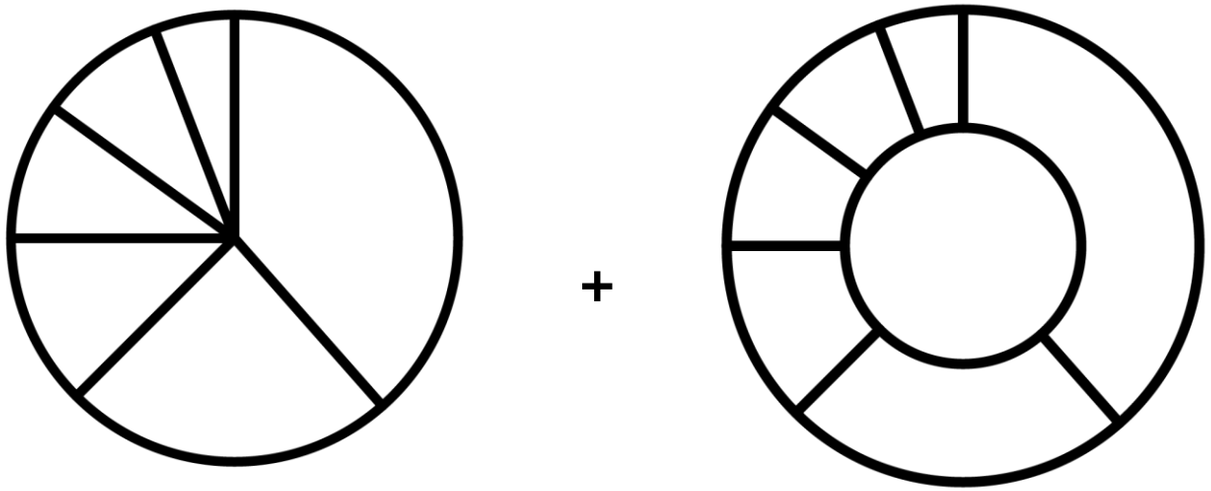

What they are. Pie charts are circles divided into wedges. Doughnut charts are wheels divided into sections. Neither uses x or y axes.

When to use them. These charts display data categories as proportions of a whole, so they are best for comparing just a few values.

Pie charts and doughnut charts

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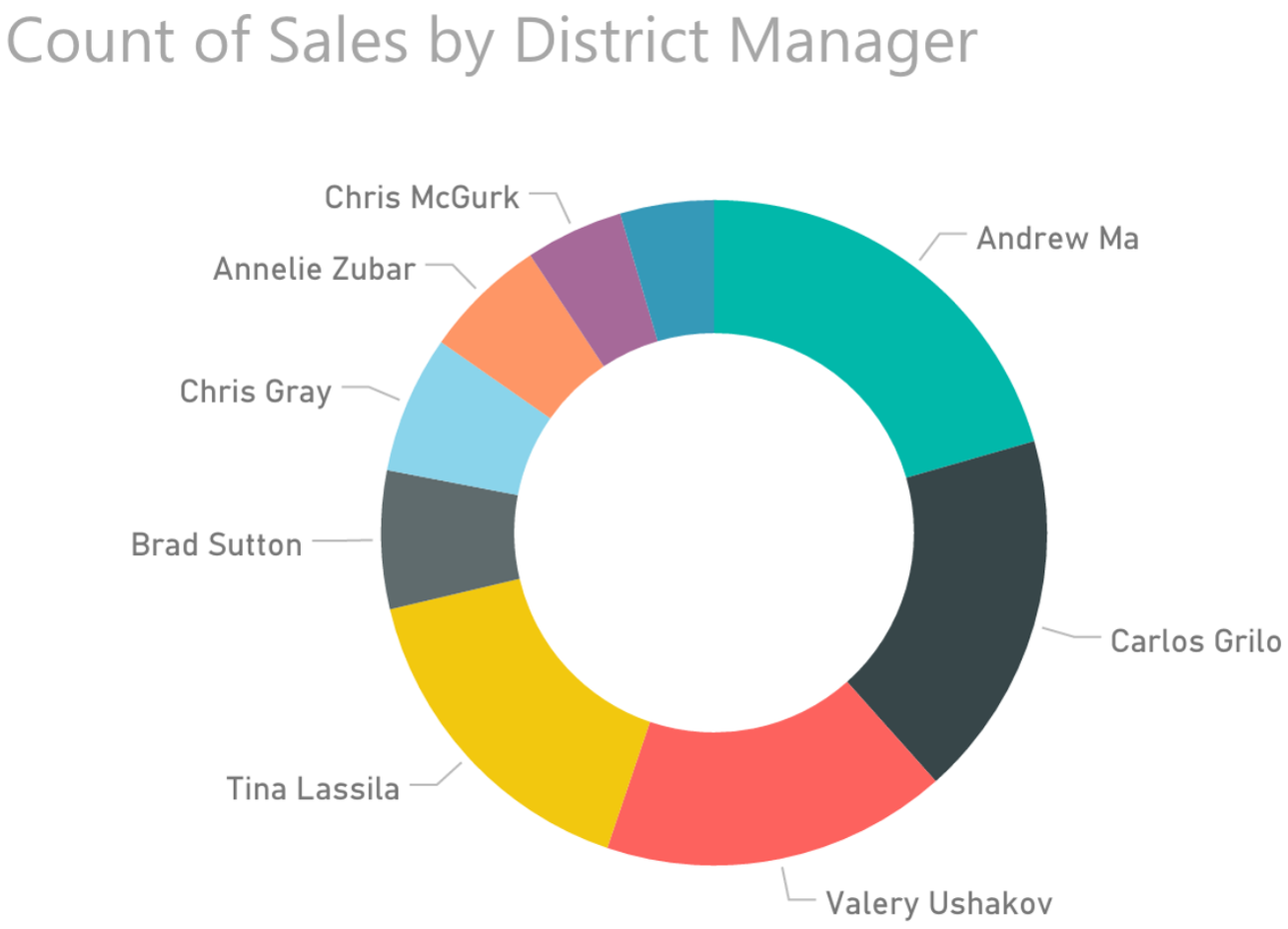
Why choose these types of charts?
Points to keep in mind:

- A pie chart is usually more effective than a bar graph when comparing a category (a slice of the pie) with the total (the whole pie) in a single chart.
- Pie charts are most commonly used to make comparisons between groups.
- With doughnut charts, you can rotate the slices, focus on specific ones by pulling them out of the chart, or change the hole size to enlarge or reduce the size of the slices.



Example of a doughnut chart

Gauges and single-number cards

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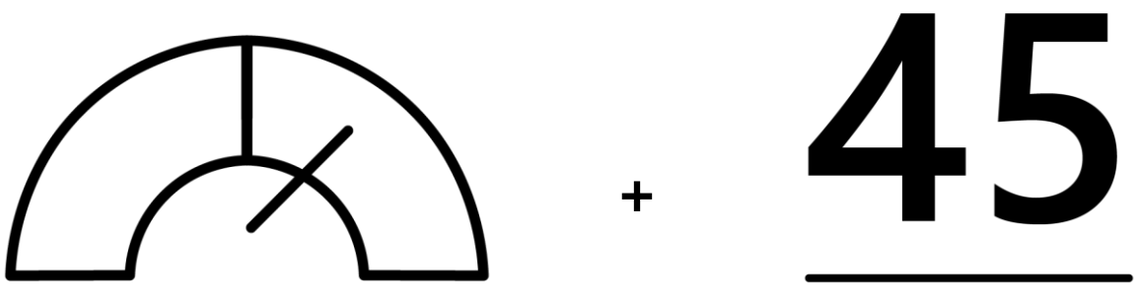

What they are. Gauges and single-number cards use a numeric value to indicate progress in relation to a goal.

When to use them. These charts are good for tracking a total, achievement level, or percentage for a single data value over time.

Gauges and single-number cards

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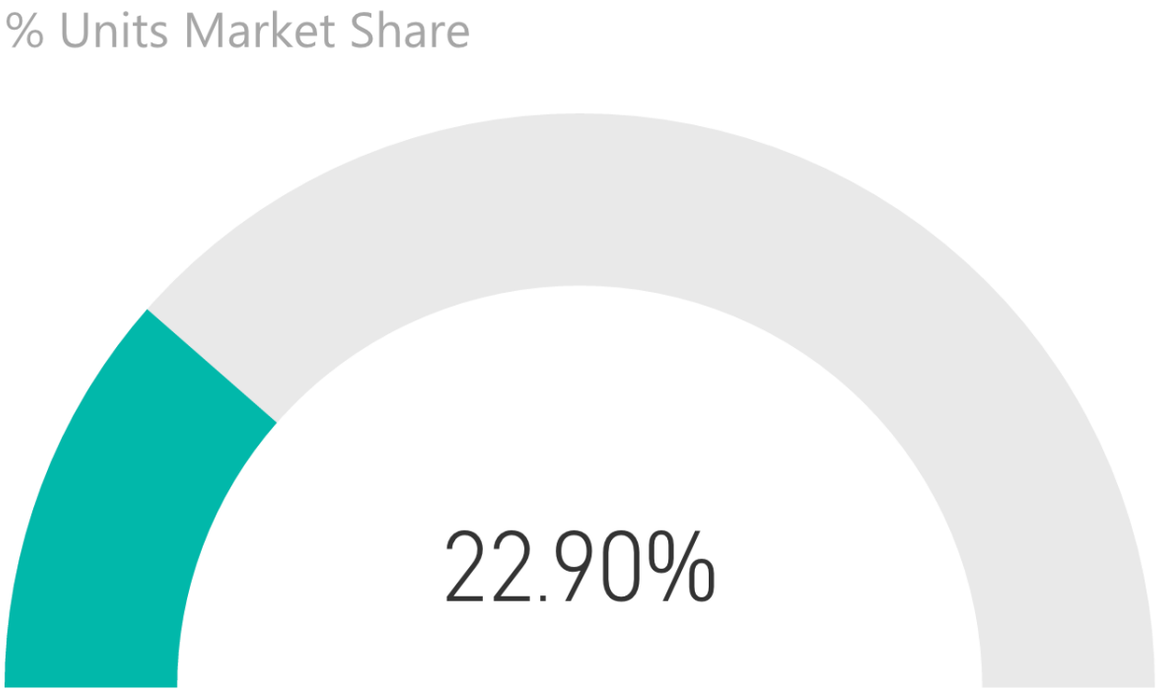
Why choose these types of charts?
These charts work well as part of a dashboard for highlighting a single value or KPI:

- Gauges are good for tracking progress toward a goal, such as revenue, savings, or number of Facebook followers.
- Number cards focus on a single KPI or metric to highlight performance and totals.



Example of a gauge

Format slicer

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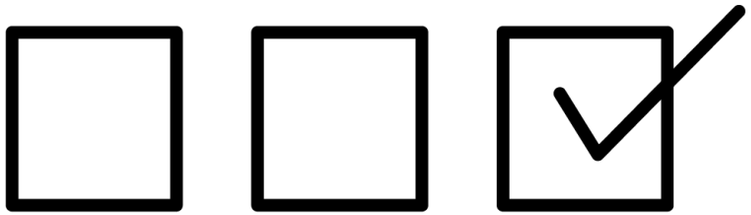

What it is. A slicer is a visual cue in Microsoft Power BI that viewers can use to interact with a data visualization.

When to use it. A slicer enables people to examine part of a data visualization more deeply through filtering. To keep the focus on the charts themselves, group all slicers together near the edge of the page.

Format slicer

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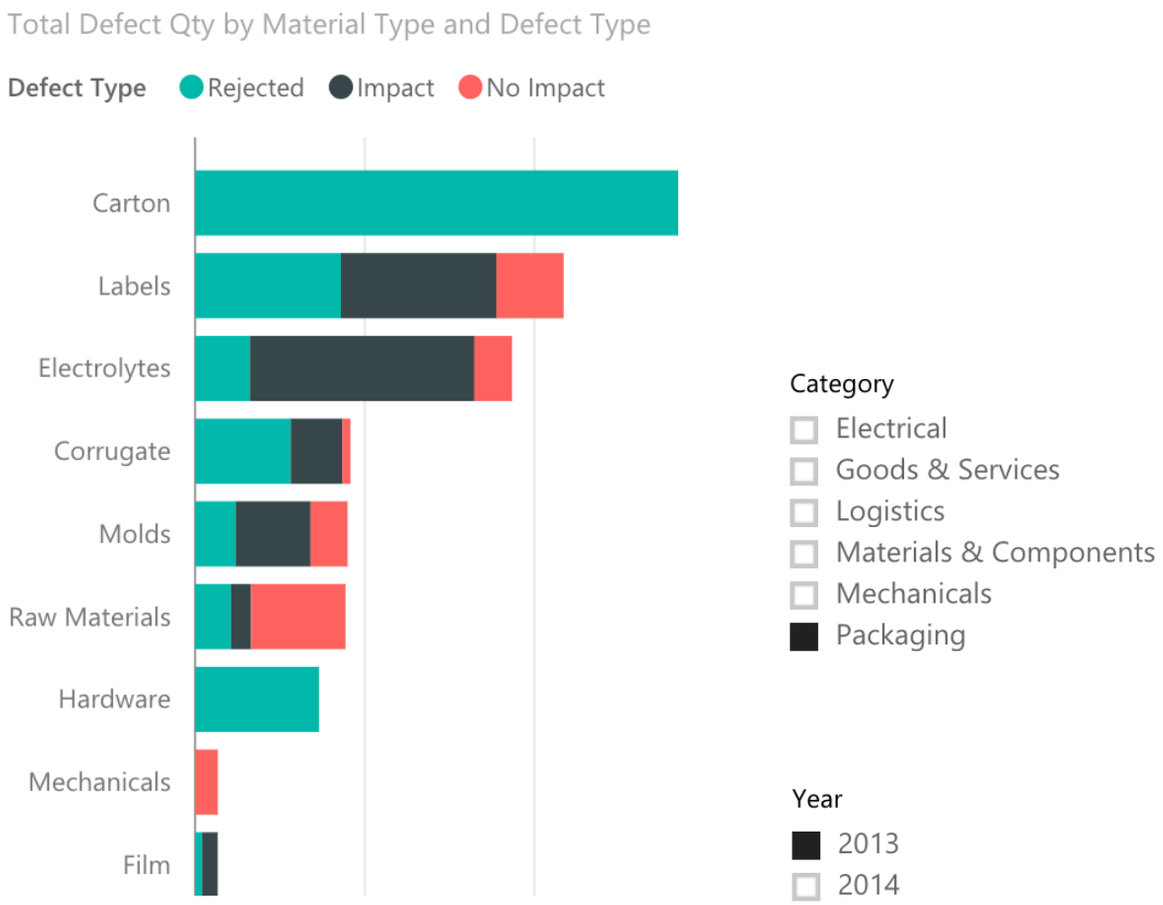
Why choose this type of visualization? When you link a slicer to a chart, viewers can segment the data by one or more values dynamically across a data set, dashboard, or report. Slicers can help people explore data like:

- Categories.
- Years.
- Geographical locations.



Keep learning

To delve deeper into the variety of data visualizations:

- Get started with Power BI and work with sample data.
- Check out the Power BI blog.
- Read the best practices chapter of the Zero to Beautiful series.

Microsoft