

Data Visualization 101

A Guide to Visually Understanding Your Data

onebridge



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INTRODUCTION

With data analytics playing a larger role in business performance each year, the ability to visualize results has become a useful skill for anyone looking to share the results of their work or anticipate future outcomes.

At Onebridge, our in-depth experience with data analytics means we spend a lot of time developing innovative ways to visualize our clients' data. Creating reports and dashboards to drive meaningful discussions and provide a solid foundation for decision making is one of our specialties, and key to building an accurate understanding of your data within your team.

Knowing which pitfalls and mistakes to avoid can make your visual reporting more impactful and helpful for your audience. That's why we put together this e-book—to give you a basic introduction into data visualization tips and tricks to boost your reporting efforts. If you'd like to know more, we'd love to have a conversation with you about our data analytics and visualization capabilities—contact us now.

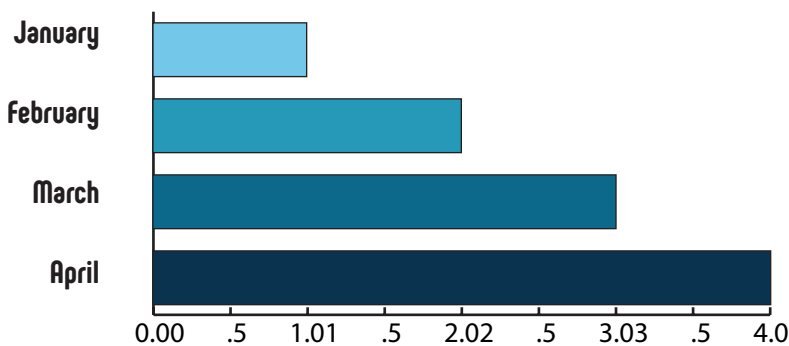




COMMON VISUALS & THEIR USES

BAR GRAPH

The best use for a bar graph is to display trends grouped by categories or time. One axis shows an amount while the other is used to label each bar. It's best not to use a bar graph to compare items that require different scales (see the chapter on Scale.) If you need to show percentages that add up to a whole, try a 100% bar graph. They are always the same length, and divided by color.

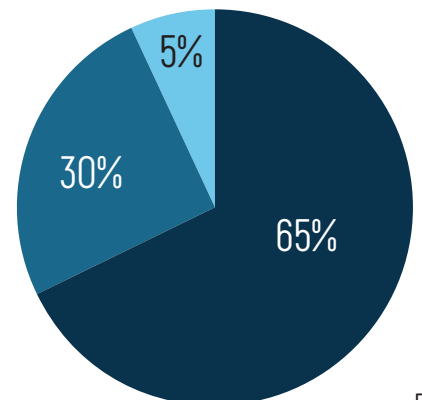


This works a little better than pie charts because the eye sees differences in length more easily than it sees differences in area.

PIE CHART

We'll be blunt: most data visualization experts would recommend avoiding pie charts completely because they are frequently misused and can so easily misrepresent the data. Their popularity is high, but their usability is low.

Pie charts are used to depict a part of a whole, creating the common misconception that all percentages can be accurately represented by a pie chart. But a percentage meant to show an increase or decrease from an original number, common in financial reporting, can't be accurately represented by a pie chart because pie charts do not show change over time and are usually not appropriate for making comparisons.





COMMON VISUALS & THEIR USES

LINE GRAPH

Line graphs are great for displaying trends over time and across categories. The advantage of a line graph over a bar graph is that it shows trend lines which make understanding change over time easier. Plus, you can show multiple lines to see how trends compare.

It's best to reserve the line graph for visualizations showing trends and change over time, otherwise they can begin to complicate the message.

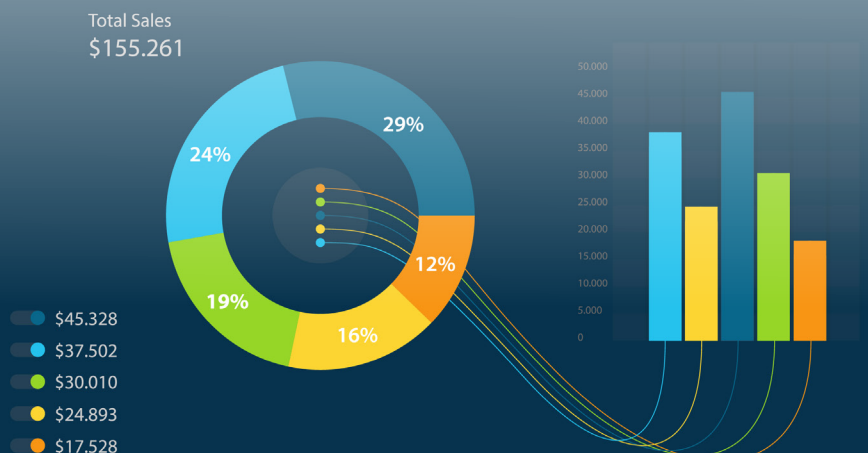
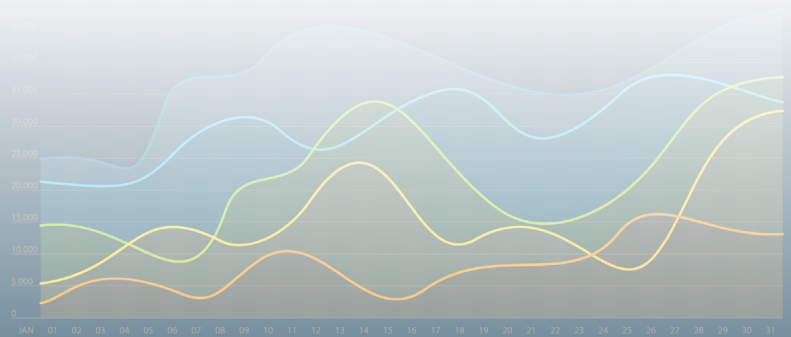




CHOOSING A VISUAL

Always focus on your end goal. Identify the main takeaway and choose a visual that will get your audience to it as quickly as possible.

- 1 Know your target audience.**
What do you want them to do?
What will most motivate them to do it?
- 2 Focus on what's important.**
What will make them sit up and take notice?
What is the one thing you want them to remember most?
- 3 Tailor the visual to the data.**
Avoid choosing visuals out of habit.
Ask yourself: which visual will most accurately and quickly convey the main takeaway?

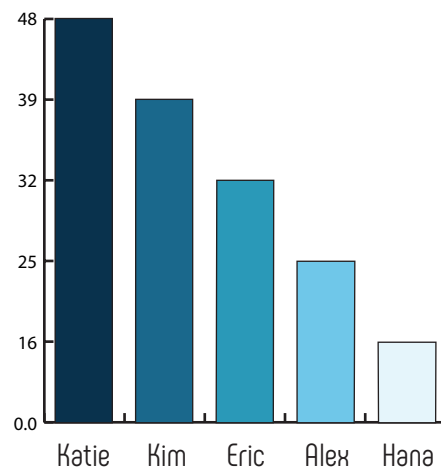
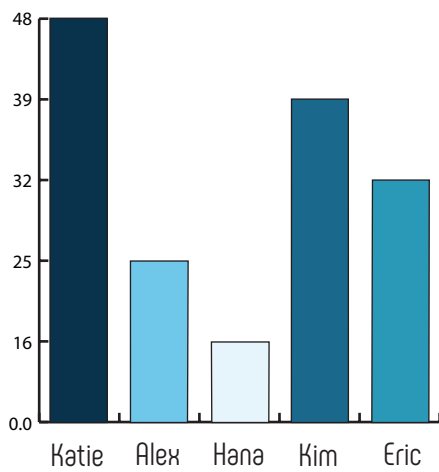




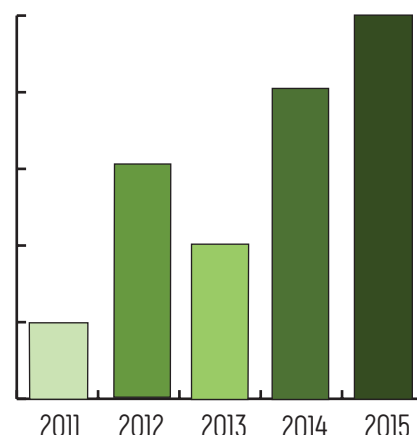
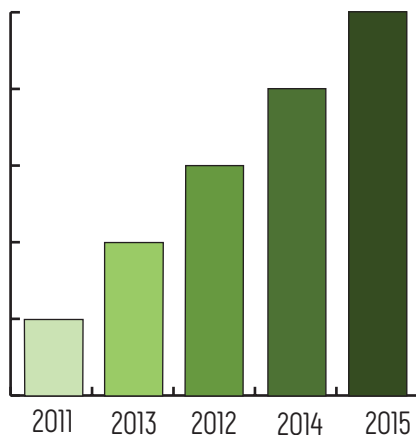
ORGANIZING THE DATA

To tell more of a visual story and help viewers draw quickly conclusions, always organize the data from highest to lowest or lowest.

Which graph gives a better understanding of the team's sales performance by employee?



Which graph gives a better understanding of overall sales performance year-over-year?





CHOOSING COLORS

Color is a powerful way to help the viewer understand information quickly. The goal should always be to use color to simplify the information, but it's easy to have a little too much fun with the color palette and overcomplicate the message.

A rainbow palette is visually interesting, but usually makes the data more difficult to understand.

Instead, choose a palette that helps viewers read your visualization at a glance—and always use darker or more vivid colors as the fill color.

A solid foundation to use when getting started is to start with some widely accepted basic color schemes:



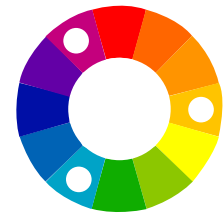
Complementary

Colors opposite one another on the color wheel.



Split Complementary

One color and the two colors on either side of its complementary color wheel.



Triad

Three colors from equidistant points on the color wheel.





SCALE

A graph's scale dictates the range of the graph's axes, which directly affects how the data is shown. Scaling is not the same as resizing. Scaling drives how the data is measured along each axis. Keep like visuals at the same scale/size unless there's a good reason to alter—otherwise, your data may be misunderstood.

If you do change the size or scale of similar visuals, explain to the viewer how that choice relates to the data. This helps you maintain control over the message rather than allowing the viewer to come to their own conclusions.

Base your scaling decisions entirely on the data available. If sales revenue peaks at \$800K, set that as the maximum value on one axis. Your visualization tool will render the bar graph large enough to give viewers a good look and the ability to analyze the data accurately.





TOP VISUALIZATION TOOLS

Tableau is a powerhouse of a data visualization tool. It can support very complex calculations including blending data and creating dashboards. In the right hands, Tableau can create stunning visualizations that deliver information quickly and easily.

Tableau users often enjoy the drag and drop functionality that allows them to create simple visuals in minutes. It's very user friendly with loads of options and solid guardrails to prevent you from unwittingly creating misleading visuals.

One of the top advantages of Microsoft Power BI is that it's very simple to implement and learn. Creating personalized dashboards and interactive reports is intuitive, and it integrates well with a large number of common enterprise systems.



LEARN MORE

A good visualization starts with basic knowledge of the tools available. We hope this guide helps you get started down the path of improving your data visualization efforts.

At Onebridge, we have experience with a wide variety of data visualization tools.

We can partner with you to build your internal data visualization capabilities and augment your team's data literacy from the inside. We'd love to meet you and learn more about your goals—[contact us now](#).

