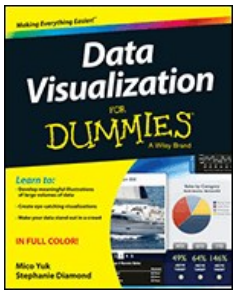


Data Visualization for Dummies

by Mico Yuk and Stephanie Diamond

Chapter 1: Introducing Data Visualization

In This Chapter

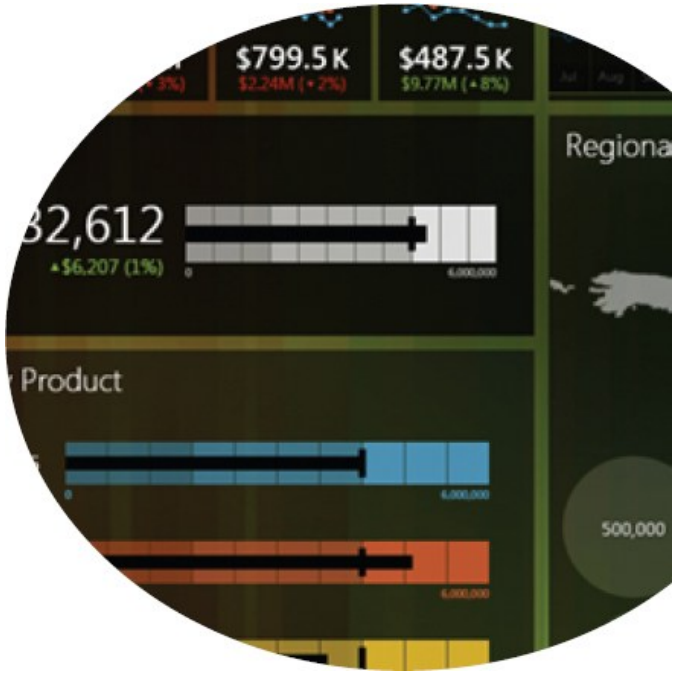
- Delving into data visualization
- Deploying data visualizations for your audience
- Embracing the data visualization design process

If you're reading this book, you're probably interested in finding better ways to visualize your information. When you help people visualize the meaning of data, you add tremendous value to any organization. In this chapter, we look at what data visualization is and what it means to different groups.

When it comes to gaining valuable insight in a company setting, the use of data visualization is critical. Companies are desperate to view and learn from their Big Data. Data visualization, however, is a growing field with a critical shortage of true experts.

Tip Big Data refers to the voluminous amounts of information that can be collected from social media data as well as internal company data. Analyzing and extracting insights from it is the goal.

After reading this book, you'll be able to help fill that role for your company, whether you're building your first data visualization or your hundredth one.



Understanding Data Visualization

Here's a simple definition of data visualization: It's the study of how to represent data by using a visual or artistic approach rather than the traditional reporting method.

Two of the most popular types of data visualizations are dashboards and infographics, both of which use a combination of charts, text, and images to communicate the message of the data. The practice of transforming data into meaningful and useful information via some form of visualization or report is called Business Intelligence (BI).

Understanding the importance of data viz

Data visualizations (you can call them *data viz* for short) are widely used in companies of all sizes to communicate their data stories. This practice, known as BI, is a multibillion-dollar industry. It continues to grow exponentially as more companies seek ways to use their big data to gain valuable insight into past, current, and future events.

With the recent popularity of social media and mobile apps, the amount of data that's generated on a moment-to-moment basis is astounding. For this reason, many companies find that making sense of that data requires the use of some form of data visualization. It's virtually impossible to view 1 million rows of data and try to make sense of it!

Imagine going out to your garage every morning, jumping into your car, and then heading to work blindfolded. Chances are that you wouldn't

make it past the driveway without having an accident. The same is true for a company that lacks insight into what its data is telling it. This lack of insight is dangerous, and its ramifications could be quite costly, both short- and long-term. Therefore, it's critical that companies use their data to gain insights about their performance.

Remember This book focuses specifically on data visualizations that contain intelligent data (data that is actionable) and that provide some value to a company by enabling a person or group of people to make faster decisions based on that data.

Discovering who uses data viz

Data visualizations are for everybody. All of us use them, whether or not we realize it. If you use apps on your smartphone, for example, chances are that you depend on data visualizations to make critical decisions on an almost daily basis. Do you ever use a weather app to determine how to dress for that day? If you open the app and see a cloud with lightning at the top of the app, you have a good idea that it's going to be a stormy, rainy day without having to read any data about temperature, barometric pressure, and humidity.

This example shows you how a simple visual helps you gain quick insight and make a quick decision (in this case, to wear a raincoat and carry an umbrella). Believe it or not, you just consumed a good data visualization!

Recognizing the Traits of Good Data Viz

Good data visualizations come in all shapes and sizes, but all of them have certain traits, which we discuss in this section.

Mico once worked with a talented graphic-design expert named Natasha Lloyd to deliver a well-received presentation called "How to Build a Successful Business Intelligence Dashboard" at a major global conference. When she was asked what she thought was important about creating visualizations, Natasha said her focus wasn't on what was pretty versus ugly; her focus was on the end-user experience. Table 1-1 shows the key items discussed during the presentation.

Table 1-1: Traits of a Good Data Visualization

Trait	*Description*
Useful	People use it on a regular basis and can make relevant decisions by viewing all the information they need in one place.
Desirable	It's not only easy to use but also pleasurable to use.
Usable	People who use it can accomplish their goals quickly and easily.

Although these traits sound more like descriptions of a new car than descriptions of business data, focusing on these three traits for all your data visualizations should ensure that you produce something that's not only great to look at but that also provides value and deep insight to those who use it.

Tip Although the information in Table 1-1 may seem to be simple, we advise you to use it the way we do: as a tool to measure every data viz against, to ensure that you're focusing on the most important items. Your main goal should be to develop a data visualization that provides key insights to its users.

Embracing the Design Process

One of the main goals of this book is to guide you through the process of scoping, designing, and building your first data viz utilizing intelligence data.

Many methodologies and best practices are available in the marketplace. The ones described in this book are based on Mico's experience in building more than 400 enterprise-grade intelligent data visualizations, first as a consultant and then as founder of her company (BI Brainz). The methods in the book have been tried and tested not only by Mico's team but also by thousands of people at some of the biggest companies in the world.

Tip Although our recommended approach has been tested around the globe with lots of success, you may find that you can improve on or tweak it to better match your current environment or situation. Treat it as a starting point and solid foundation.

This book uses a methodology that Mico developed, called the *BI Dashboard Formula* (BIDF). To help you understand the process, we provide access to some of the templates and openly discuss our proven approach to developing these very powerful intelligent data visualizations. This method shows you the "what" (as in what data to display) as well as the "how" (as in how to add the right visuals to derive a powerful and compelling data viz).

Tip Think of the data viz development process as being like building a house. First, you need to ensure you have the right location. Then you must develop a clear blueprint that shows exactly how the house will look. Last but not least, you lay the foundation and build the house. BIDF teaches you how to develop a visualization from start to finish.

We advise that you read this book from start to finish and avoid skipping any chapters, especially in Part II. Although the sky is the limit when it comes to building fancy data visualizations, creating useful data viz that provide true value by displaying intelligent data does require some background and a well-outlined process. A step-by-step process is explained in this book.

Ensuring Excellence in Your Data Visualization

Before you move on to the basics of building your data visualization, you should have some idea of what criteria make a data visualization

excellent. An excellent data visualization has the following qualities:

- **It's visually appealing**. The advent of more sophisticated visual creation tools and the high quality of mobile apps have raised the bar very high on the user experience. It's only going to get higher with the evolution of technology such as Google Glass. Your visualization will go unused if it looks like it was designed with old technology.
- **It's scalable**. If your data viz is successful, others will want to use and leverage it. Be sure to build your visualization on a system that's scalable for accessibility and for future maintenance and modifications.
- **It gives the user the right information**. It's a problem when users focus on the visual or a particular feature and not on what they really need. Before creating a visualization, define exactly how it will be used, such as for self-service, drill-down, deep analysis, or executive overview.
- **It's accessible**. An accessible visualization is easy to use and can be modified easily when necessary. Also, the data must be accessible on any device, at any time, at any place. This feature is critical to user adoption.
- **It allows rapid development and deployment**. Gone are the days of waterfall (chart-type) projects and drawn-out data-viz deployments and builds. Users need their information today, and if you can't provide it in a timely fashion, they'll find other ways to get it.