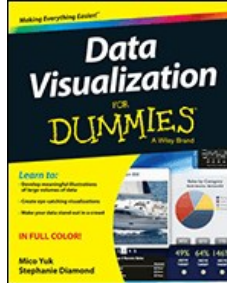# Chapters to Go

Data Visualization for Dummies

by Mico Yuk and Stephanie Diamond

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Chapter 8: Developing a Clear Mock-Up

In This Chapter

- Going from storyboard to mock-up
- Knowing when to use color
- Using a template
- Developing your first mock-up

After you've done the hard work of defining and outlining your story-board, it's time to develop your mock-up. Mock-ups are also referred to as *wireframes* or *prototypes.* Think of them as rough sketches that help you visualize what the final output will look like.

Much like developing your storyboard, developing a clear, effective mock-up requires working very closely with your users. This is where many newbies get into trouble. If the process isn't handled correctly, it can quickly turn into a never-ending cycle of layout and color changes.

You'll quickly discover that the Big Data visualization world is full of what we call "color-crazy users." They can become your worst nightmare unless you follow the proven, untraditional approach we use in the Business Intelligence Dashboard Formula (BIDF) described in this book.

In this chapter, you discover how to start with a simple black-and-white sketch to focus your users on confirming your mock-up layout. In Chapter 9, you see how to apply effective visuals that convey your storyboard message. In Chapter 10, you discover how to add functionality and color to finalize your mock-up.

Getting Started with Your Mock-Up

Mico learned the hard way that working with users to develop anything visual is like handing candy to a baby. Without some guidance and hand-holding, users can't help but overindulge in color and chart changes. They lose focus and miss the opportunity to effectively display the story their data is trying to tell.

Mock-ups are particularly important in the Big Data visualization process for two reasons:

- **They help accelerate the overall design discussion and process with the users**. It's much easier to change a sketch of the data than it is to change the final model.

- **They help users understand the look, feel, and functionality of the final data visualization**. Mock-ups help to prevent any cosmetic surprises for the users when they see the final data visualization.

 Remember In the Big Data visualization world, visuals are made for data — not data for visualizations. This means that any design choice made based on the idea that it will be "sexy" often leads to a non-user-friendly visualization that doesn't convey the message of the storyboard effectively.

Sticking to black and white

You may find the title of this section a bit unexpected. After all, isn't one of the main points of data visualization to use elements like color to tell the most effective stories from the data? The answer is yes, but not during the mock-up stage.

 Warning! If you start the mock-up process with color, your users won't focus on anything else — not on the data, on the layout, or even on whether the message is being conveyed correctly. The color discussion will become the focal point of the entire mock-up process, and your final data visualization will suffer.

Mico clearly remembers her first experience working with five color-crazy users at a Fortune 50 company. The discussion about the final shade of the colors for the alerts lasted days beyond the allotted project time. The resulting data visualization, which was late, was not worth showing.

Tip Don't be perturbed if you have a similar experience. Sticking to black and white in initial mock-ups is the key to avoiding repeats of that experience. By using mock-ups without color, you force users to focus on what you need them to focus on.

Your only goal at this stage is to get participants to sign off on the layout of your mock-up. You don't need to do anything fancy or artsy to get that approval.

Although this approach seems to be fairly logical, we realize that some of you may be nervous about taking it. You may fear that users may grow impatient with or be turned off by a plain black-and-white mock-up. To overcome this worry, you should make it a habit to reiterate and set expectations up front about what users should expect to happen next and in the final outcome.

Tip We always tell the users that color will be added as the last step, but we need them to focus on the layout before they can get to the fun stuff. This discussion is fairly easy to have, and most users won't object.

Warning! The exception to this rule is mock-ups created for an executive audience. Your time with executives is likely to be limited, so it's critical that you don't approach them until you have a fully functional, well-branded visualization (see Chapter 10). Anything less, and you risk being axed!

Some other benefits of sticking to black and white for your initial mock-up include the following:

- **Saves time and money when making changes:** It's less expensive to make design modifications on a black-and-white sketch than it is to make changes on a system-ready visualization connected to live data.

- **Keeps the focus on the placement, position, and size of each element on the visualization:** Laying things out in a flat, colorless space helps you figure out where to place each component to provide a nice, clear user interface that tells a compelling story. Color sometimes distorts your view of the overall layout and causes you to focus on the shiniest items in the model.

Now that you know why it's so important to stick to black and white for your mock-ups, we'll discuss the most effective tools to use.

Using good ol' pencil and paper

Although software is available for doing just about everything, including drawing your mock-ups, don't overlook the good old pencil-and-paper approach. It's as good now as it was in 1801, when the first pie chart appeared in William Playfair's publication *The Statistical Breviary*.

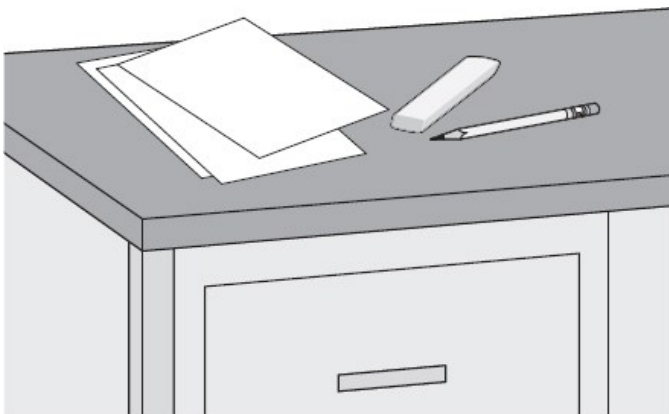Figure 8-1 shows the most basic tools you can use to create a mock-up: papers and a pencil and an eraser.

Figure 8-1: Pencil and paper worked in the 1800's, and they still work today.

To get started, you should have some blank white paper (or a sketch pad of some sort), two pencils, and a big eraser. You'll be doing a lot of erasing.

As software continues to evolve, however, there are fewer arguments for using pencil and paper. Here are a few pros for the old-fashioned method:

- **Low cost:** A few sheets of white paper, a pack of pencils, and a big eraser will set you back $10 at most, although it's likely that you already have most of these items in your possession.

- **No learning curve:** You can just pick up a pencil and start drawing. You don't need to learn how to use a toolbar or menu options in software.

- **More creative freedom for newbies:** It would be great if we were all blessed with graphic design skills. We're sure that you'd love to know how to use advanced graphics tools like Adobe Photoshop to whip up any visualization you desire. But most of us have no formal design training and need to stick to the basics. Pencil and paper provide the freedom to be as creative as you want without being

hampered by a keyboard, mouse, or annoying pop-ups on the screen.

Here are a few arguments against using pencil and paper:

- **Sharing can be difficult**. You won't have convenient options for sharing your mock-up to collaborate with your users or get their feedback.

- **Paper pages are often too small to share with a large audience**. Even big sheets of paper may be hard for everyone to see at once.

- **Paper lacks security**. To ensure the highest level of security, most organizations encourage their employees to embrace a digital lifestyle. Doing nightly backups on employees' PCs enables the company to minimize the impact of a disaster. Having a paper trail with no backup is asking for an accident. Based on some embarrassing experiences, we've exchanged some of our pencil-and-paper habits for more web-based ones.

Using web-based or desktop tools

Although this market is still maturing, using a software-based tool to do your mock-up can be quite beneficial for several reasons:

- **It's easy to get feedback**. Collecting feedback on your mock-up is easy when you use online or web-based tools. Most applications provide multiple options that allow you to export mock-ups in the form of PDF or image files. You can send these files to your users electronically to get their feedback.

- **Inviting collaborators is simple on the web**. Knowledge sharing and collaboration are vital parts of the mock-up process. By hosting mock-ups on the web, you can invite co-workers and other team members to provide their input or feedback.

  Warning! Be very careful about giving other people permission to modify your mock-ups directly. Not knowing who did what can lead to chaos.

- **You save time when making modifications**. The beauty of using software is that you can easily save old and new versions of your model for comparison purposes. Then it's easy to incorporate users' feedback and present updated mock-ups.

- **You can build a reusable library**. One much-overlooked benefit is the ability to create a library of template mock-ups that you can save and then reuse for future products. Templates save time, and it's much easier to start with a previous mock-up than it is to start with a blank canvas.

- **Most software tools are free or inexpensive**. Most tools on the market today are free to individual users for a specified number of mock-ups. If you want to invite more collaborators or have multiple projects running at the same time, the most sophisticated web tools cost anywhere from $5 to $100 per month for use by an entire team.

Tip As the market for software that allows users to design prototypes rapidly continues to evolve, do an Internet search for *online mock-up tools* to get an updated list of software choices.

Discovering some software tools

Here are two of our top software choices.

Balsamiq Mockups

One of the best-known, most popular mock-up tools is Balsamiq Mockups (http://balsamiq.com), a cloud-based service (with an accompanying desktop application) that enables you to create fun and interactive website mock-ups quickly and easily. With its trademark sketchy, hand-drawn look, as shown in Figure 8-2, Balsamiq Mockups is currently our number-one choice for black-and-white mock-ups, and we like the fact that adding color or images is simple.
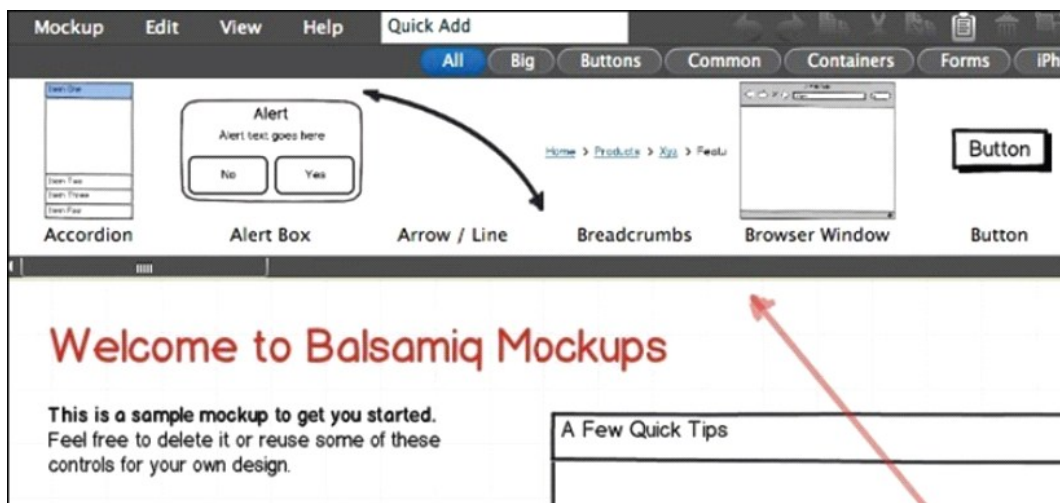
The application comes with a huge collection of drop-in components, reusable libraries, and an easy drag-and-drop interface. Because it's cross-platform and has full offline support, you can create mockups anywhere. At this writing, the desktop application starts at around $79 (one-time fee) for a single-user license. Plans start at $12 per month.

Mockup Tiger

Mockup Tiger (www.mockuptiger.com) is a web-based/desktop application that enables you to create dashboard mock-ups as shown in Figure 8-3 and share them with clients or co-workers.

Mockup Tiger comes with even more components than Balsamiq Mockups that can be used specifically for dashboarding. It includes an easy-to-use drag-and-drop interface.

When you're ready to share your mock-up, you can export projects as PDF or image files, or you can share them directly with others who have access to Mockup Tiger. People with access can leave feedback and comments on the project.
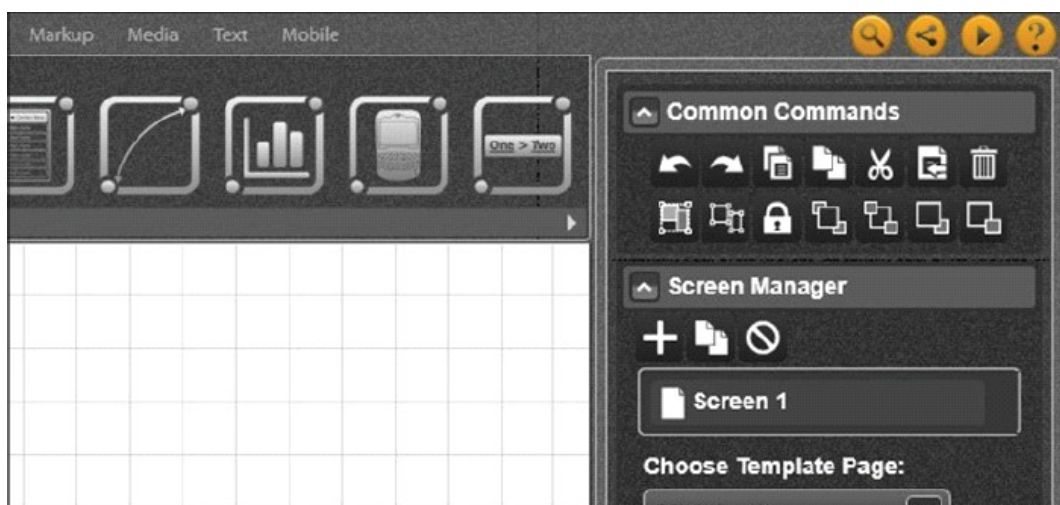
Building Template Layouts

Whether you've chosen to use pencil and paper or a software mock-up tool, the good news is that you don't need to reinvent the wheel. Building and using templates is the quickest and smartest way to approach designing your mock-ups.

The elements shown in Figure 8-2 make up your first mock-up template. Each element corresponds to one of the following steps:
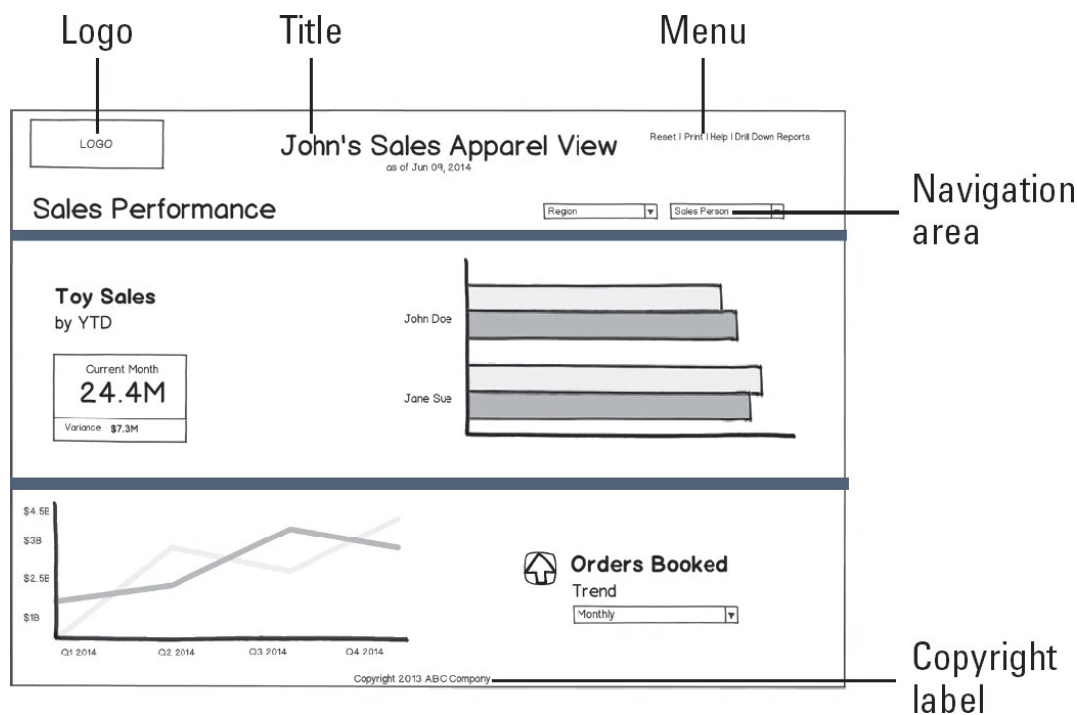
Figure 8-2: Elements of a mock-up.

1. **Start with a frame**.

   Start by drawing a simple, square frame. Think of this frame as being the home of all your data visualization elements.

2. **Determine where to place the logo**.

   Company branding is a top priority for most organizations. We recommend placing your logo in the top-right or top-left corner of your frame. Although some people argue that placement in the bottom-left corner of the frame works well, we prefer to place elements such as logos at the top.

3. **Add a title**.

   The title of your mock-up is very important and should be housed in the top-right corner or center of your frame. The title is the first thing that most users will see, and you want to make it very clear what they're viewing.

4. **Provide a help menu section**.

   You may want to include a set of help buttons in your data visualization. Some of the most popular options include

   - *Print button:* Allows users to print the data viz from their devices as needed

   - *Reset button:* Allows users to start from the beginning

   - *Help button:* Provides helpful information about the data viz

   - *FAQ button:* Provides information about various aspects of the data viz

5. **Add a navigation area**.

   The easiest way to tackle this section is to think about your three favorite websites. The navigation elements of those sites are probably along the top, on the left side, or in both places. Because users read in a backward Z pattern, these areas are the most effective places for any navigational menus.

6. **Add a copyright line**.

   This line usually goes at the bottom of the data visualization to ensure that users see that the work is copyrighted.

Now that you've included the main elements, it's time to decide on a layout to display your data elements, as shown in Figure 8-3.
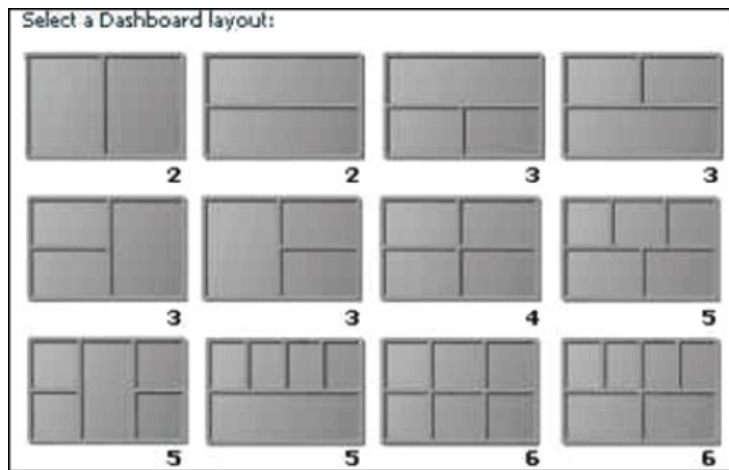
Figure 8-3: Choosing a layout.

Remember Your layout is the body of your mock-up, where the visualizations are housed. All the elements that we describe in Figure 8-2 are elements that surround the layout.