# Tools for visualizing data

In this course, you'll work with Tableau and spreadsheets. Both of these tools have advantages and disadvantages Often, data analysts will discover they need to use multiple tools, even on a single project. What you use will largely be determined by the work you're doing and your goals. This reading explores two of the tools you might use to visualize and present data: spreadsheets and Tableau.

## Spreadsheets
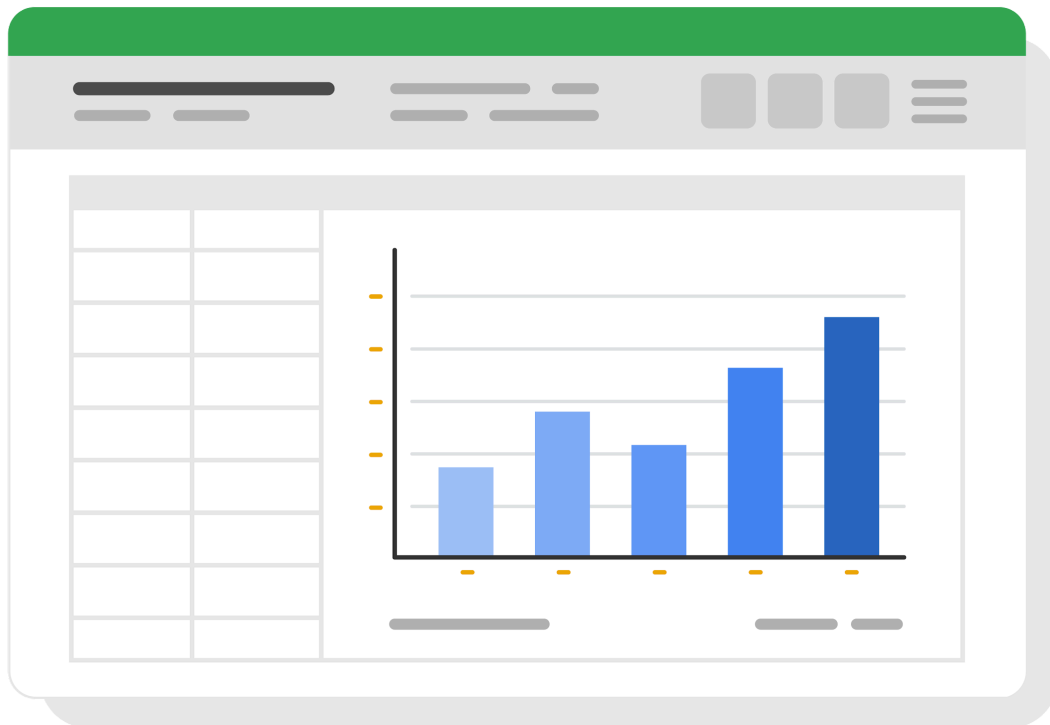
Google Workspace and Microsoft Office Suite both offer spreadsheet applications. You've worked with Google Sheets in this course, and it's very similar in function to Microsoft Excel. If you want to compare some of the features of Sheets to Excel, check out the Microsoft video Create a chart from start to finish.

Both Sheets and Excel are go-to choices for creating static charts and graphs. They offer basic data visualization capabilities that are often enough for simple visualizations. In addition, you can use them to  clean, sort, and filter data. And both offer a range of chart types, graphing tools, and pivot tables for creating effective data visualizations. These charts are easy to manage; they update when the source data is updated, so they don't require much manual intervention once implemented.

Sheets and Excel are connected to other apps in their product suites. Google Docs and Slides are very similar to Microsoft Word and Powerpoint, for example. You can incorporate data visualizations from Sheets or Excel into reports and documents in Docs and Word. Presentation programs such as

Slides and Powerpoint allow you to create engaging presentations that include data visualizations so you can share insights in a presentation format. Learn more about the power of this interconnectivity among Google tools in the article [Link a chart, table, or slides to Google Docs or Slides](#).

# Tableau

Tableau is used to create powerful and interactive visualizations, making it an excellent choice for data visualizations such as live dashboards. Tableau also makes it easy to create charts, graphs, and dashboards in a drag-and-drop interface. The application  supports a wide range of data sources and provides advanced analytics capabilities. These features allow for in-depth exploration of data trends and patterns.

Tableau is particularly useful for creating visualizations using huge datasets, like in this [World Happiness Report](#) by Sustainable Development Solutions which uses global reporting data on different countries' happiness ratings. Likewise, this visualization of [Population and Housing State Data](#) from 2020 United States Census Data compares population rates in the United States and available housing.

Tableau is widely known and used for its versatility and power, but it can take quite a bit of time to learn to use Tableau effectively. Soon, you'll begin practicing with Tableau. But if you'd like to check it out now, there is a free environment you can access at [Tableau Public](#).

# Key takeaways

There are many visualization tools you will have the opportunity to use as a data professional. Different tools have different advantages and disadvantages. Although Tableau ultimately has more power than a basic spreadsheet application, it's most often used for specific cases and to work with large datasets. Don't underestimate how much you can do with spreadsheets or how powerful interconnectivity between apps can be!

Most of the time, especially for something like a quick report, you're more likely to reach into your toolkit for your spreadsheet app of choice. But your data career will definitely benefit from Tableau, so as you progress take advantage of opportunities to work with it. With so many different data analysis situations, familiarity with all of these tools will help you know which is the best for each situation.

# Design compelling dashboards

Dashboards are powerful visual tools that help you tell your data story. A dashboard is a tool that monitors live, incoming data. It organizes information from multiple datasets into one central location, offering huge time savings. Data analysts use dashboards to track, analyze, and visualize data in order to answer questions and solve problems. For a basic idea of what dashboards look like, refer to this article: "[Real-world examples of business intelligence dashboards.](#)"

## The beauty of dashboards

The following table summarizes the benefits of using a dashboard for both data analysts and their stakeholders.

| Benefits | For data analysts | For stakeholders |
|---|---|---|
| Centralization | Share a single source of data with all stakeholders | Work with a comprehensive view of data, initiatives, objectives, projects, processes, and more |
| Visualization | Show and update live, incoming data in real time* | Spot changing trends and patterns more quickly |
| Insightfulness | Pull relevant information from different datasets | Understand the story behind the numbers to keep track of goals and make data-driven decisions |
| Customization | Create custom views dedicated to a specific person, project, or presentation of the data | Drill down to more specific areas of specialized interest or concern |

It's important to remember that changed data is pulled into dashboards automatically only if the data structure is the same. If the data structure changes, you have to update the dashboard design before the data can update live.

## Tableau

There are many different visualization tools available. One of the most powerful is Tableau, which supports a range of data sources and has advanced analytics capabilities that allow for in-depth exploration of data trends and patterns. Tableau can handle more data and larger datasets than many other tools and offers real-time data availability.

It does take some time to learn to use Tableau, but your efforts  can be well-rewarded, as Tableau visualizations are pleasantly interactive. For a dashboard to be successful, it needs to engage users and help them learn. Tableau has put in a lot of effort to ensure that its users have a great experience and the platform is accessible to everyone.

## Create a dashboard

Here's a process you can follow to create a dashboard, whether in Tableau or another visualization tool:

## 1. Identify the stakeholders who need to see the data and how they will use it

Begin by asking effective questions. Check out this [dashboard requirements gathering worksheet](#) to explore a wide range of good questions you can use to identify relevant stakeholders and their data needs. This is a great resource to help guide you through this process again and again.

## 2. Design the dashboard (what should be displayed)

Use these tips to help make your dashboard design clear and easy to follow:
- Use a clear header to label the information.
- Add short text descriptions to each visualization.
- Show the most important information at the top.

## 3. Create mockups if desired

A mockup is a simple draft of a visualization used for planning a dashboard and evaluating its progress. This is optional, but a lot of data analysts like to sketch out their dashboards before creating them.

## 4. Select the visualizations

You have a lot of options here. Which visualizations you select depends on the data story you are telling. If you need to show a change in values over time, line charts or bar graphs might be the best choice. If your goal is to show how each part contributes to the whole amount being reported, a pie or donut chart is probably a better choice.



Two pie charts show an even distribution of 4 parts of a whole. The first pie chart is more traditional, appearing as a solid circle. The second pie chart is styled to show the same data in a doughnut shape.

To learn more about choosing the right visualizations, check out Tableau's galleries:
- For more samples of area charts, column charts, and other visualizations, visit the [Tableau Dashboard Showcase](#). This gallery is full of great examples that were created using real data; explore this resource on your own to get some inspiration.

- Explore [Tableau's Viz of the Day](#) to check out visualizations curated by the community. These are visualizations created by Tableau users and are a great way to learn more about how other data analysts are using data visualization tools.

## 5. Create filters as needed

Filters show certain data while hiding the rest of the data in a dashboard. This can be a big help to identify patterns while keeping the original data intact. It's common for data analysts to use and share the same dashboard, but manage their part of it with a filter. To dig deeper into filters and find an example of filters in action, visit Tableau's page on [Filter Actions](#). This is a useful resource to save and come back to when you start practicing using filters in Tableau on your own.

# Key takeaways

Just like how the dashboard on an airplane shows the pilot their flight path, your dashboard does the same for your stakeholders. It helps them navigate the path of a project inside the data. If you add clear markers and highlight important points on your dashboard, users will understand where your data story is headed. Then, you can work together to make sure the business gets where it needs to go.