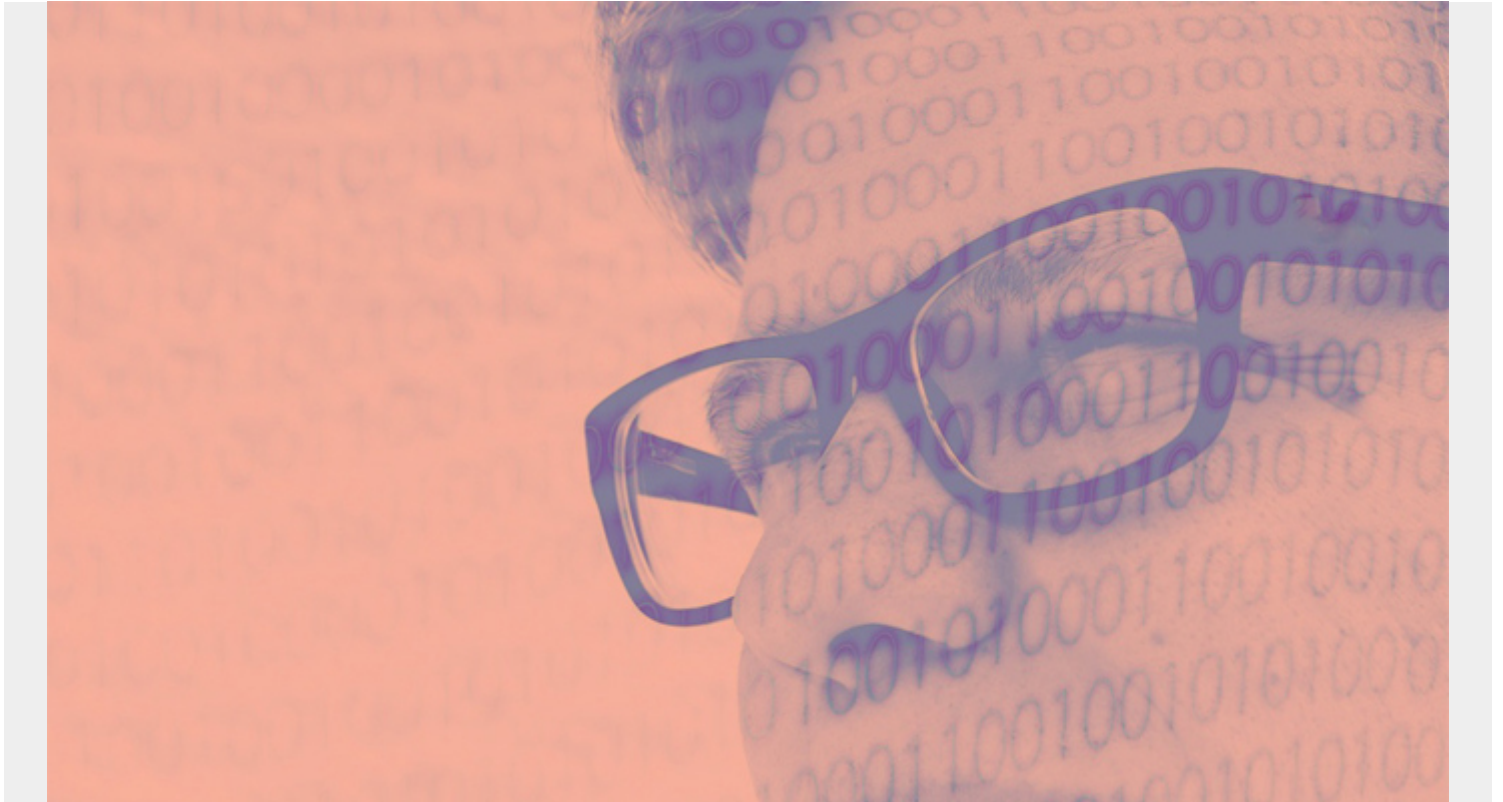# THE DATA VISUALIZATION BEGINNER'S GUIDE

"The medium is the message."

Data visualization is the graphical representation of data. It is a way to communicate the overall meaning of data points in a simple and meaningful way. Where a picture is worth a thousand words, a data visualization is worth a thousand data points.

In a world of [big data](#), where organizations and entities such as businesses, the weather, traffic, and customer acquisition might contain hundreds or thousands of data points, your message is more impactful if you use a graph rather than simply displaying an Excel spreadsheet.

The data points can be presented in multiple forms to give a different message. It takes some discipline to understand the message you wish to convey in order to organize the data points into the proper visualization.

(This article is part of our [Data Visualization Guide](#). Use the right-hand menu to navigate.)

Data Visualization is an everyday skill

Creating a data visualization is an important career skill as more businesses are making data-driven decisions. [Everyone is a data scientist](#). Whether you are a data scientist filtering through a bunch of data to find out what makes it unique or you are on a sales team, attempting to understand your target customer, you will likely use some form of data visualization to explain what is happening.

Fortunately, making a visualization is very accessible. Because it is an everyday skill, the visualization

tools and articles explaining how to use them are abundant—for all data sources, and most common kinds of data types. The most common types of visualizations are:

- [Charts](#)
- Tables
- [Graphs](#)
- Maps
- Dashboards

Each of these can be explored for more specific representations. The best things to do to improve your skills are exploring the infographics that come across your path, read through the data charts, and practice creating some of your own at your own job.

(Get inspired with this gallery of beautiful data visualizations. Check out Nadieh Bremer's portfolio at [Visual Cinnamon](#).)

The importance of visualization

Data visualization is so essential in communicating what is happening with one's data. In fact, it is the consumer's expectation that a service should offer some form of visualization tool in order for the consumer to:

- Interact with their platform
- Give insights into what is happening with their activity

Whatever platform you might be using will generally have a data visualization element to it. Amazon, Azure, and Google all have their built-in data visualization tools to monitor all kinds of usage metrics within their platforms.

Companies like Salesforce, web hosting services, and social media companies, too, have created visualization tools for their content creators over the past few years so those people who create content on their service have easy access to understand what is happening between themselves and their audiences so they can better craft their message.

Top data visualization tools

Whether working individually or as part of a business, here are the top visualization tools available today:

- [Tableau](#)
- Grafana
- Google Charts
- d3.js

Data visualization best practices

When looking at data and determining how to visualize it, here are some key questions to ask yourself.

Good questions to ask

- How can I represent the information before me in a graphical representation?
- Can I say it all in one representation or do I need a few?
- Is the information time-sensitive?
- Does it represent growth of something?
- Does it represent frequency of occurrences?

Does it need to represent

- Dependence on time
- Growth
- Frequency of occurrence
- Dependence on location

Does your audience prefer beautiful or functional charts?

Craigslist's design has remained relatively the same for a couple decades, and its success is in large part due to its functional use. It is a boring design—sure—but one that works to get information to people by its own design staying out of the way.

Charting is similar.

Some of the visualizations the big platforms use are very basic because they just have to communicate something simple, but visualization dashboards that have users come back to it every single day often require a little more design considerations because it's users want to work with something that is pleasant on the eyes.

What message does the audience want?

The best visualizations are often the simplest ones that serve one purpose:

- **User activity charts** display user activity over time, either through a heatmap or a line chart.
- **Sales volumes** show cumulative or daily line charts.
- **User activity based on region** illustrates a geographical map with color-based activity overlaid.

But some users require visualizations that display information at a high level. They need to be able to dig deeper into it. Dashboards are particularly handy for:

- Displaying lots of data
- Allowing the user to dig deep when they see something on the chart that strikes them as interesting

Get involved with a community

"Imitation is the sincerest form of flattery."

Messages are bits of communication from one person to another. The information takes a form and garners a particular style. If you wish to be an effective communicator when crafting your visualization, become familiar with how other people are already crafting their message.

Join communities of people who are sharing visualizations with one another. Look outside that community and observe how other people are talking with one another. Like any type of communication, getting better at representing your data requires:

- Practice
- Mimicry
- Exposure to what options are out there

(Gain exposure with [Data Is Beautiful](#) & [these blogs](#).)

Seek feedback

Finally, visualizations rely on communication, so it is a good idea to get feedback from your audience. Pay attention to whether your audience is asking a lot of questions when you share your visualizations. Things as simple as decreasing line widths and using a bold font can improve your visualization's effectiveness. If it's not working, change it.

Good luck getting going!

Related reading

- [BMC Machine Learning & Big Data Blog](#)
- [Data Engineer vs Data Scientist: What's the Difference?](#)
- [How To Use Jupyter Notebooks with Apache Spark](#)
- [3 Simple Data Strategies for Companies](#)
- [Data Ethics for Companies](#)
- [Data Architecture Explained: Components, Standards & Changing Architectures](#)