



An Introduction to Data Visualization for Marketers

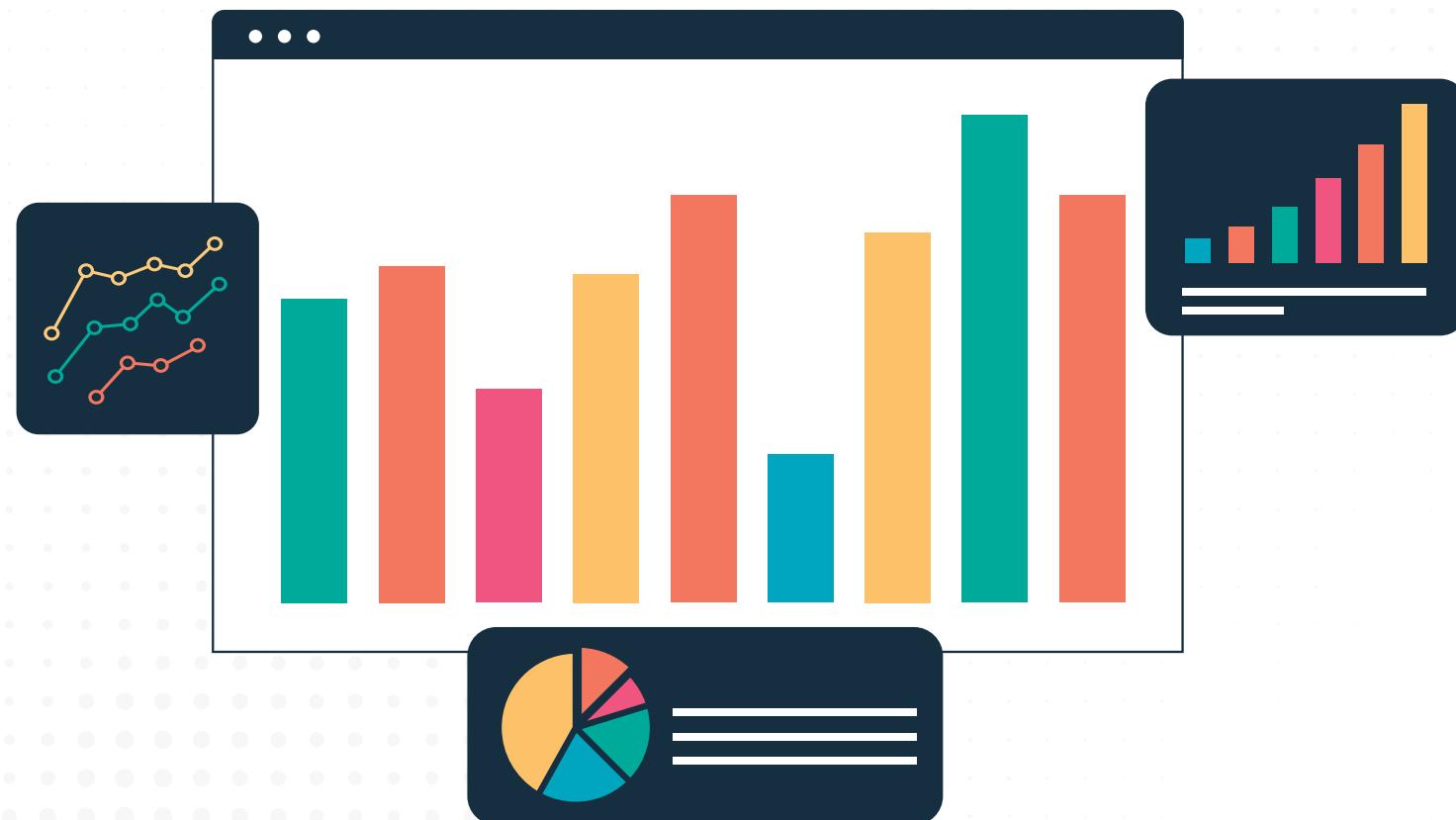


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Introduction

What is data visualization and why is it important?

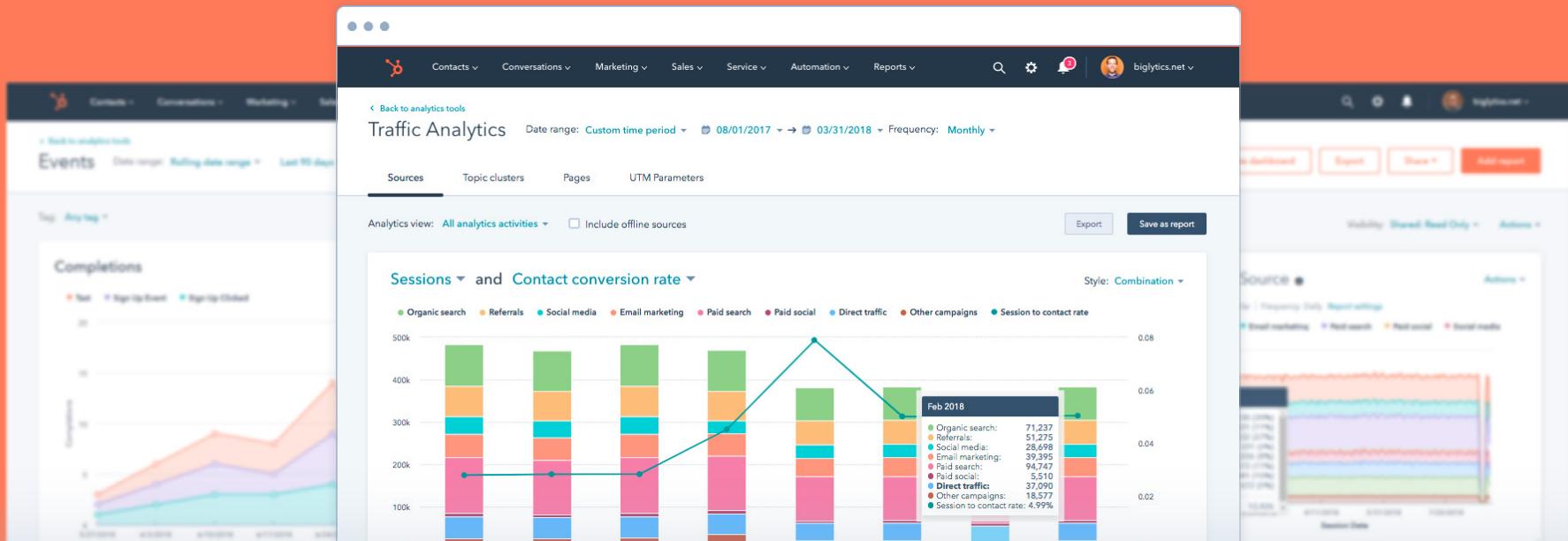
Your data is only as good as your ability to understand and communicate it. You need to be able to understand and effectively tell the story behind the numbers. The right data with the wrong visual is useless and can even mislead your audience. Ever heard of the 1954 book, How to Lie with Statistics? (Spoiler: it's actually a helpful book for those learning about statistics and contains a lot of really useful info.)

When you can (correctly) visualize your data using graphs and charts, you'll be more likely to uncover patterns, correlations, and outliers, communicate insights to your boss, your team, company, or social media audience, and make data-backed decisions.

With a few simple statistics, data, and spreadsheet lessons – and a few of our favorite tools of the trade – this guide will teach you how to create data visualizations like a pro. You'll learn the best ways to present different types of data, the importance of data as a marketer (for both internal and external stakeholders), and tips on analyzing and displaying your data effectively.

If your technical skills don't extend much beyond Microsoft Excel, then check out the list of the best data visualization tools we've included as well.

Ready to make a big impact with your data? Let's jump right in.



Measure All Your Marketing in One Place

HubSpot's software includes a powerful analytics platform that automatically connects your marketing activities to individual contacts, allowing you to see the ROI for every campaign. Run custom reports or use HubSpot's built-in reports and start using data to grow your business.

The Importance of Data as a Marketer

Data is information meant to be analyzed and “used to help decision-making,” per [the Cambridge Dictionary](#).

As a business, you are collecting data every day, from website visitor locations, to social media followers, to sales by region. By uncovering the right information and pairing it with the right data

organization and analysis, you can take action and help your team with data-backed decision-making.

Data visualization refers to showcasing data, numbers, and statistics through images and charts. When you display data visually, you can more easily tease out meaningful patterns from a set of otherwise indecipherable numbers, and draw conclusions leading to informed decisions.

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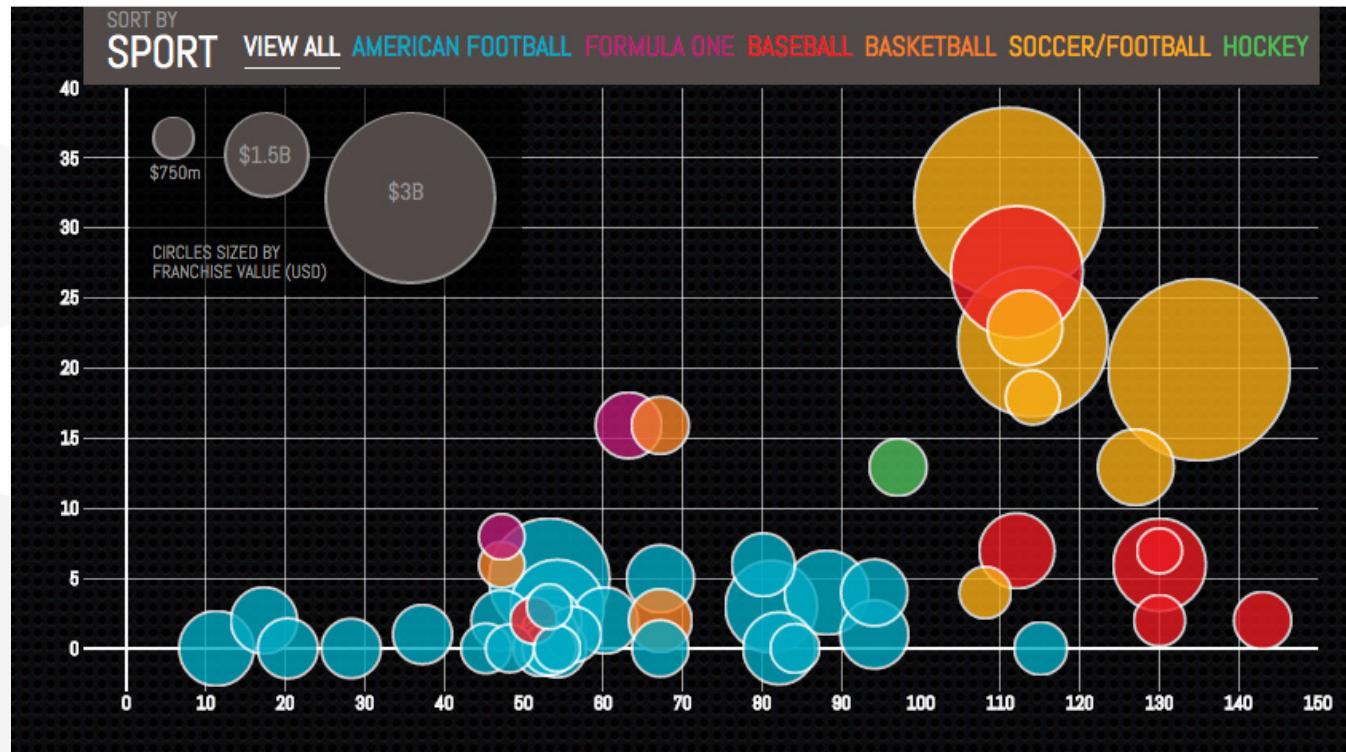
When you display data visually, you can more easily tease out meaningful patterns from a set of otherwise indecipherable numbers, and draw conclusions leading to informed decisions.



Pro Tip: HubSpot Academy offers a free course on measuring and analyzing your content.



Here's a simple example of using data visualization. The chart below shows sports franchises by value, which are then plotted against championships and years competing.



Source: HubSpot

Each circle shows the franchise's value and the color shows the sport. You may expect American football to be those big yellow circles, but in fact, soccer is the most valuable sport worldwide. Data visualization can show trends on a larger scale and include several variables, revealing interesting findings!

Data visualization is especially helpful when you're presenting data to others. You can more easily identify trends, answer questions, prove theories, and—if you're creating them for a business—showcase your brand. When you visualize your data, you can more easily see numbers in context and understand how they relate to one another.

When it comes to processing information, we are wired to comprehend images much faster and more easily than text. According to research from the American Management Association, when paired with visuals, information is 70% easier to remember than when displayed as text alone.

Marketers can use data visualization to showcase the results of a campaign or better analyze results from a customer survey, thereby affecting your marketing and sales strategy or budget decisions.

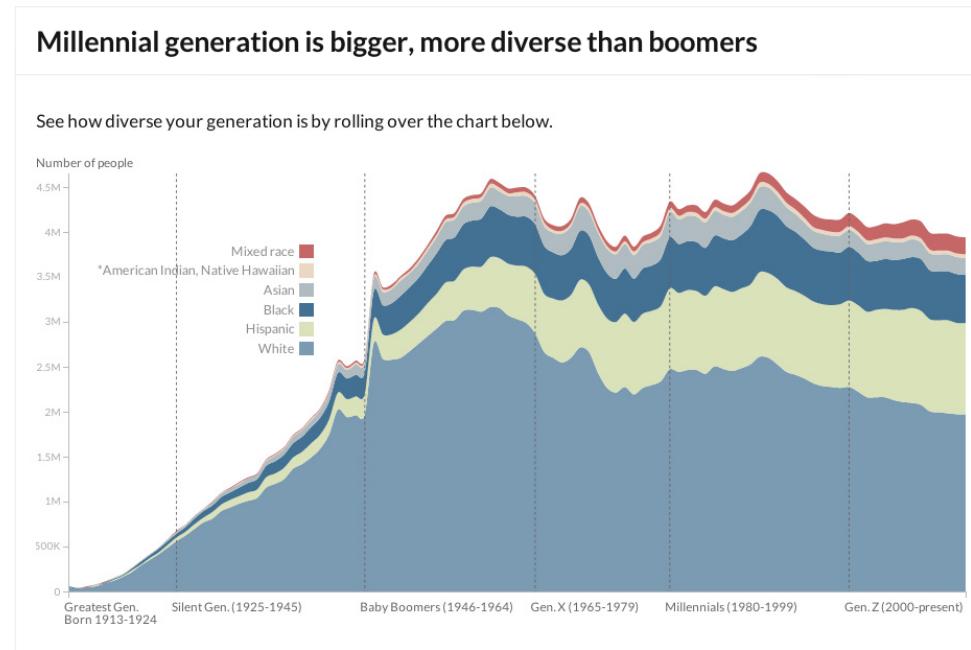
Arming yourself with data, you can impress key stakeholders by proving the worth of your campaigns via ROI reporting, show how you've reduced cost per acquisition with your organic SEO strategies, or fight for more budget for your social team after showcasing their audience growth and reach.



Types of Data Visualization

You can [use data visualization to display](#) part-to-whole data, ranking, correlation, geographical distribution, deviation, timelines, and scale. You can compare your company's growth over time to your inspiration brand or competitor. Data can represent survey results, or common keywords in customer service tickets, indicating where your product team may need to make improvements.

Look at the following data set.



Source: Udacity

Displayed as a simple spreadsheet of numbers, the impact of this image would not shine through.

When looking at this data as an area chart stacked up against each other, over time, and using different colors, the audience is able to clearly see how the makeup of today's society has changed from what it looked like 100 years ago.

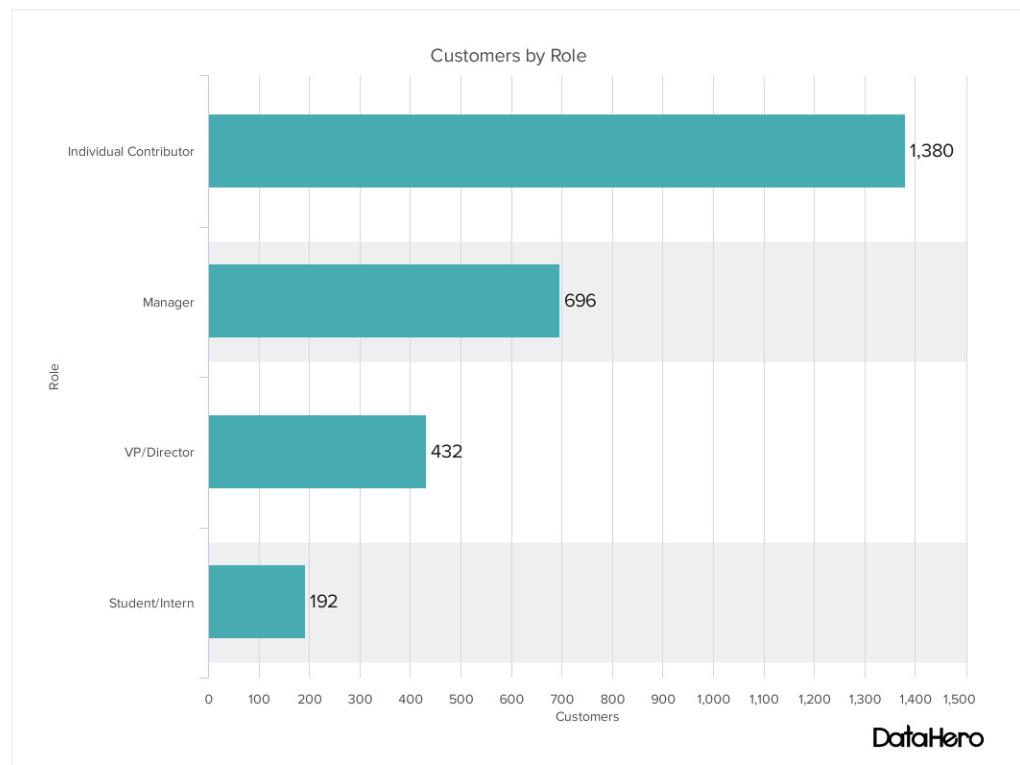
Types of data visualizations

Common types of [data visualizations](#) include charts, graphs, maps, and tables. You'll often see many data visualizations included in infographics, and data can be animated or coded to be manipulated and reveal data slowly or over time.

1

Bar Graphs

Bar graphs are very versatile, they're best used to show change over time, compare different categories, or compare parts of a whole.

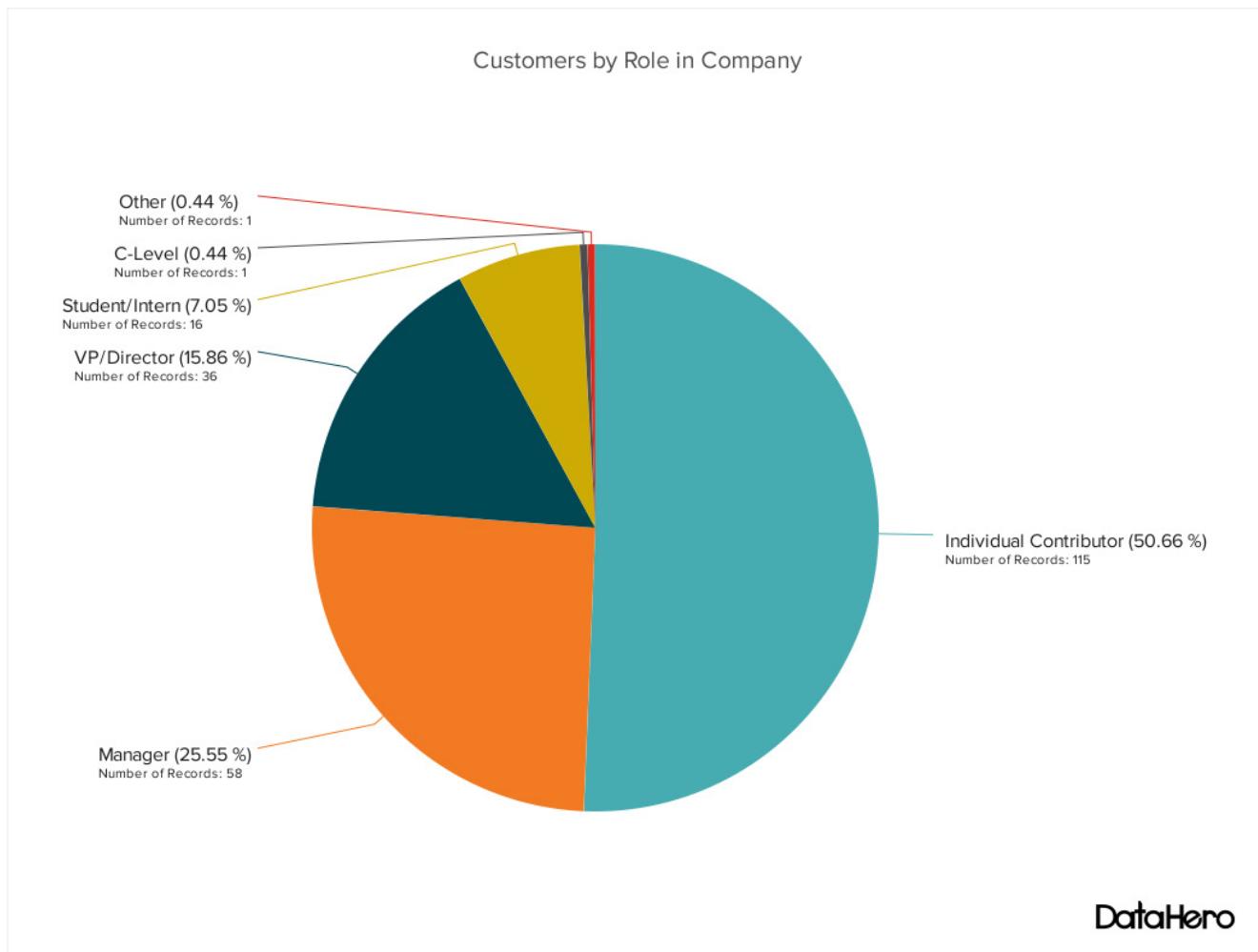


Source: HubSpot

2

Pie Charts

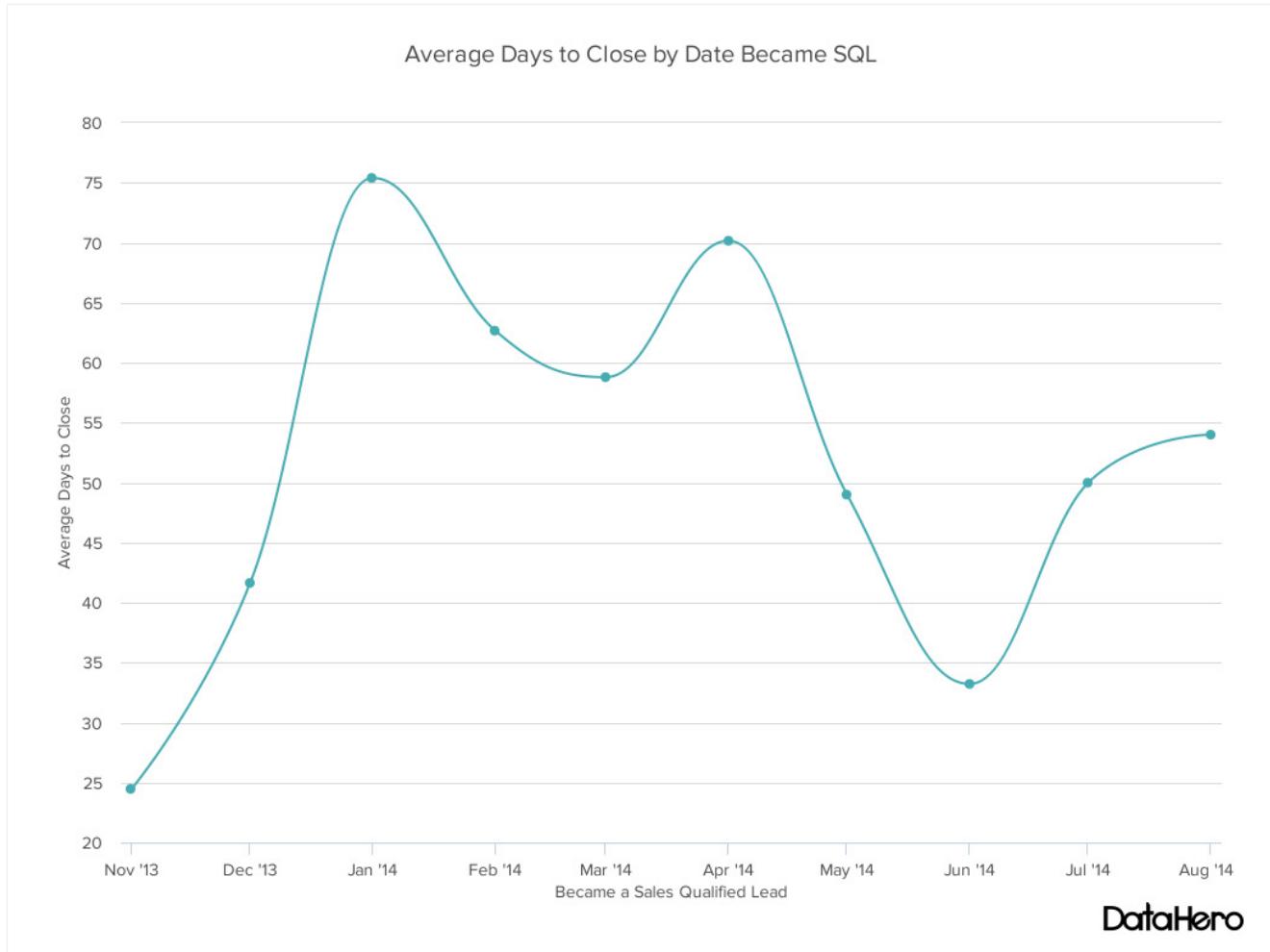
Pie charts are best used for making part-to-whole comparisons with discrete or continuous data. They are most impactful with a small data set.



3

Line Graphs

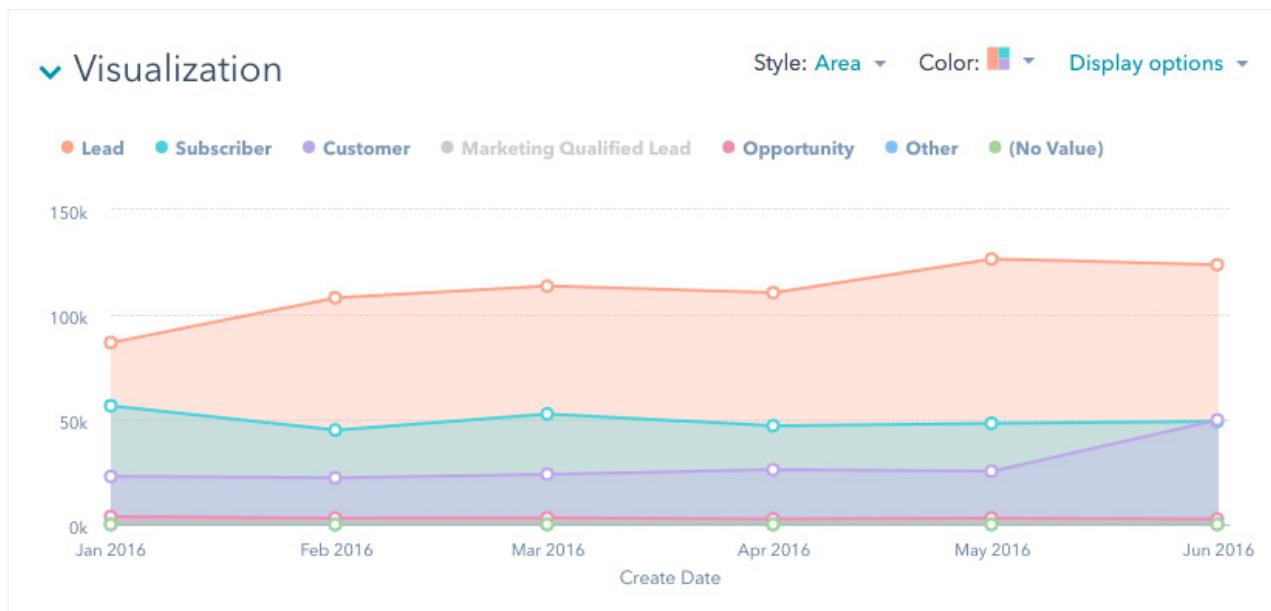
Line graphs are used to show time-series relationships with continuous data. They help show trends, acceleration, deceleration, and volatility.



4

Area Charts

Area charts also depict a time-series relationship, but they're different than line charts in that they can represent volume.



Source: HubSpot

5

Scatter Plots

Scatter plots show the relationship between items based on two sets of variables. They are best used to show correlation in a large amount of data.



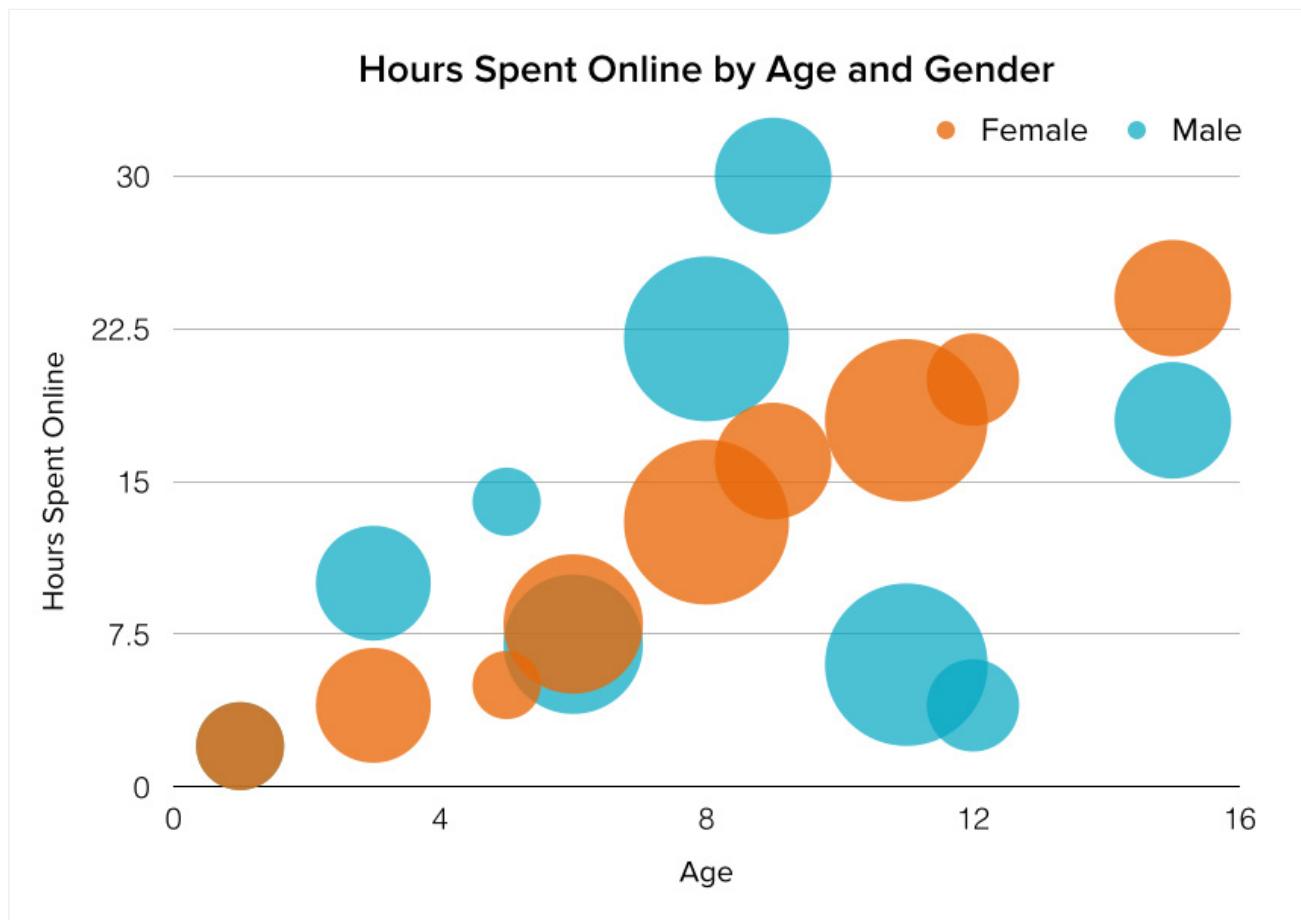
Source: HubSpot

6

Bubble Charts

Bubble charts are good for displaying nominal comparisons or ranking relationships.

They showcase three variables of data and are a combo of a scatterplot and a proportional area chart. These are helpful in comparing multiple data points on the same chart.



Source: HubSpot

7

Heat Maps

Heat maps display categorical data, using intensity of color to represent values of geographical areas or data tables.

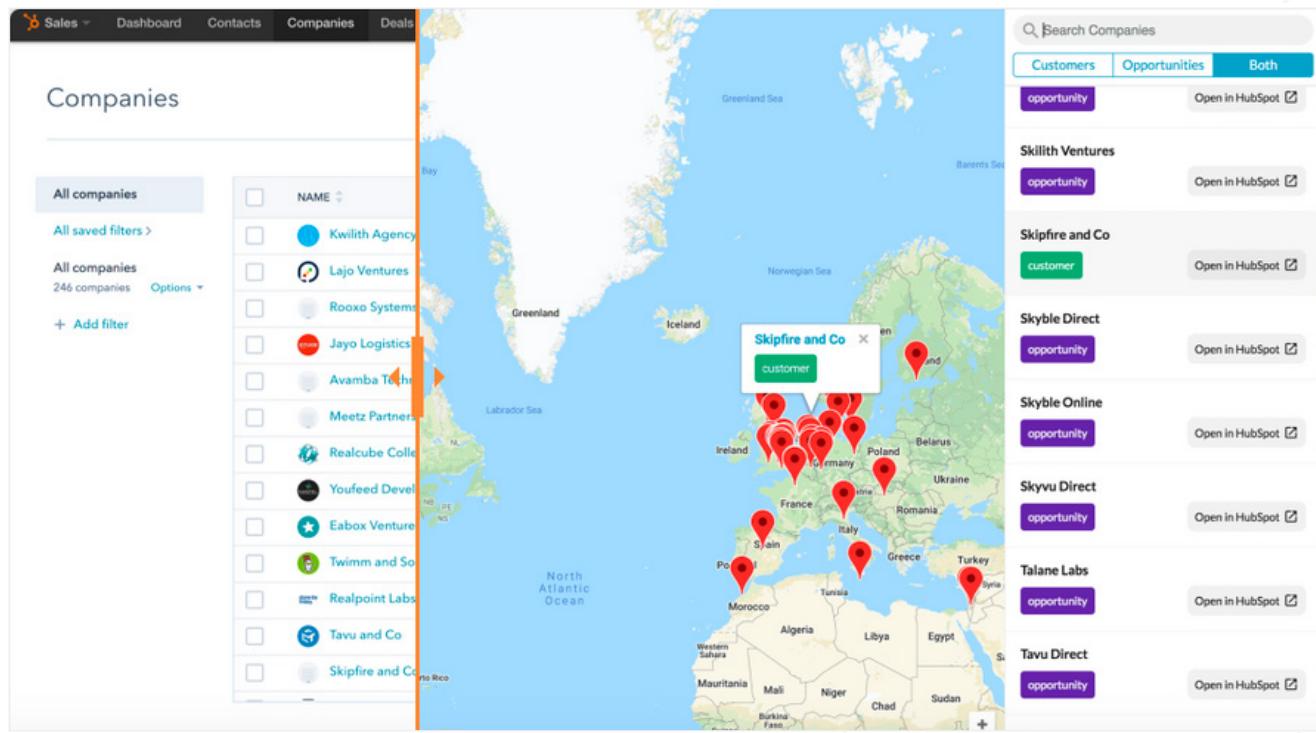


Source: HubSpot

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Geographical Maps

Maps plotting data on geographical maps, showing the distribution of data across regions.



Source: HubSpot

Tables

Tables are a simple way to quickly compare sales by sales representative, like the table below, or see where your top deals or blog views are coming from.

▼ VisualizationStyle: Table ▾Display options ▾

HUBSPOT OWNER	COUNT OF DEALS	AVERAGE DAYS TO CLOSE
Open Account	920	106.34
Shane	240	49.24
Amy	232	42.28
Greg	203	18.86
Kristy	199	24.93

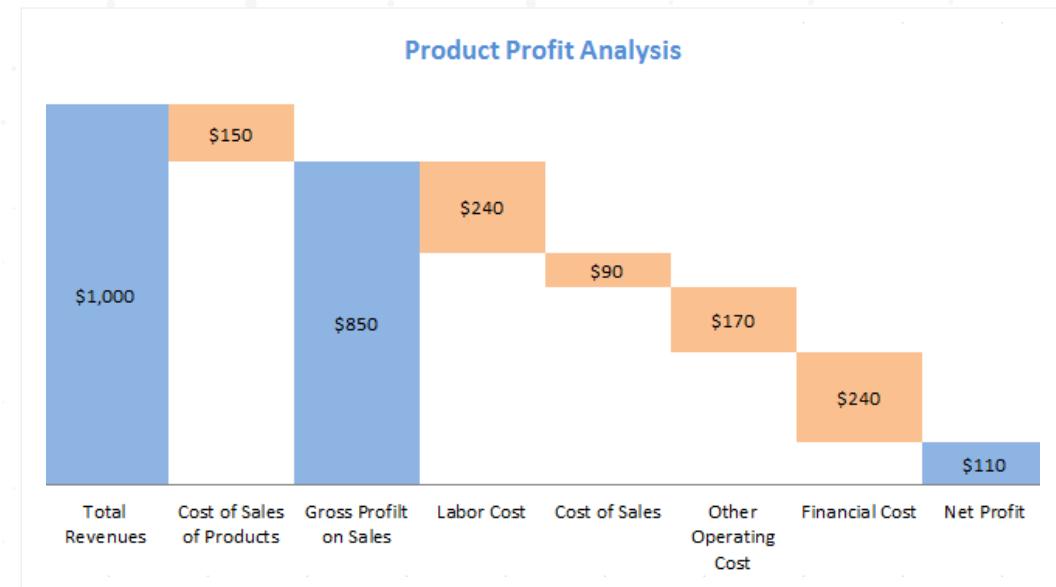
< Prev 1 2 3 4 5 Next >

Source: HubSpot

10

Waterfall Charts

Waterfall charts show value over time and how various cohorts perform over time.

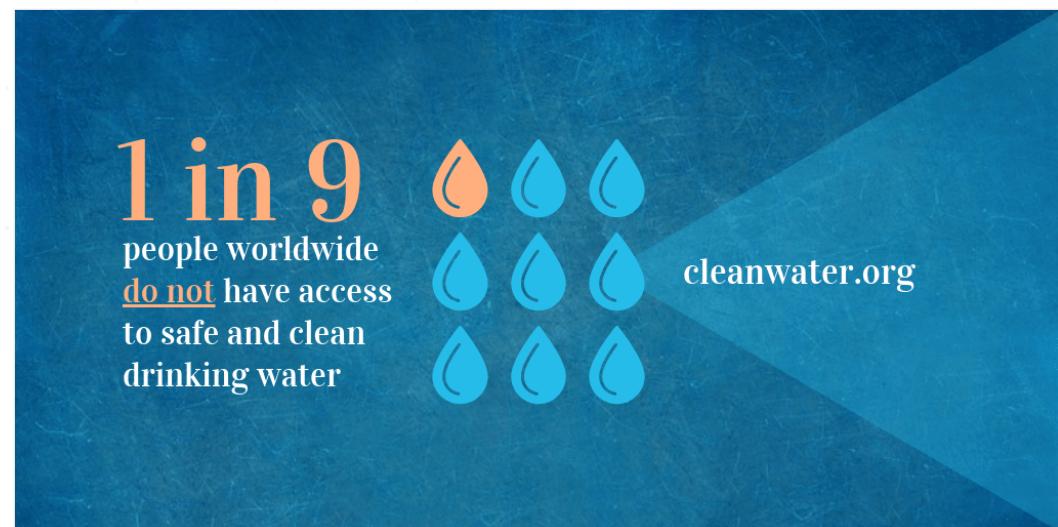


Source: HubSpot

11

Pictograms

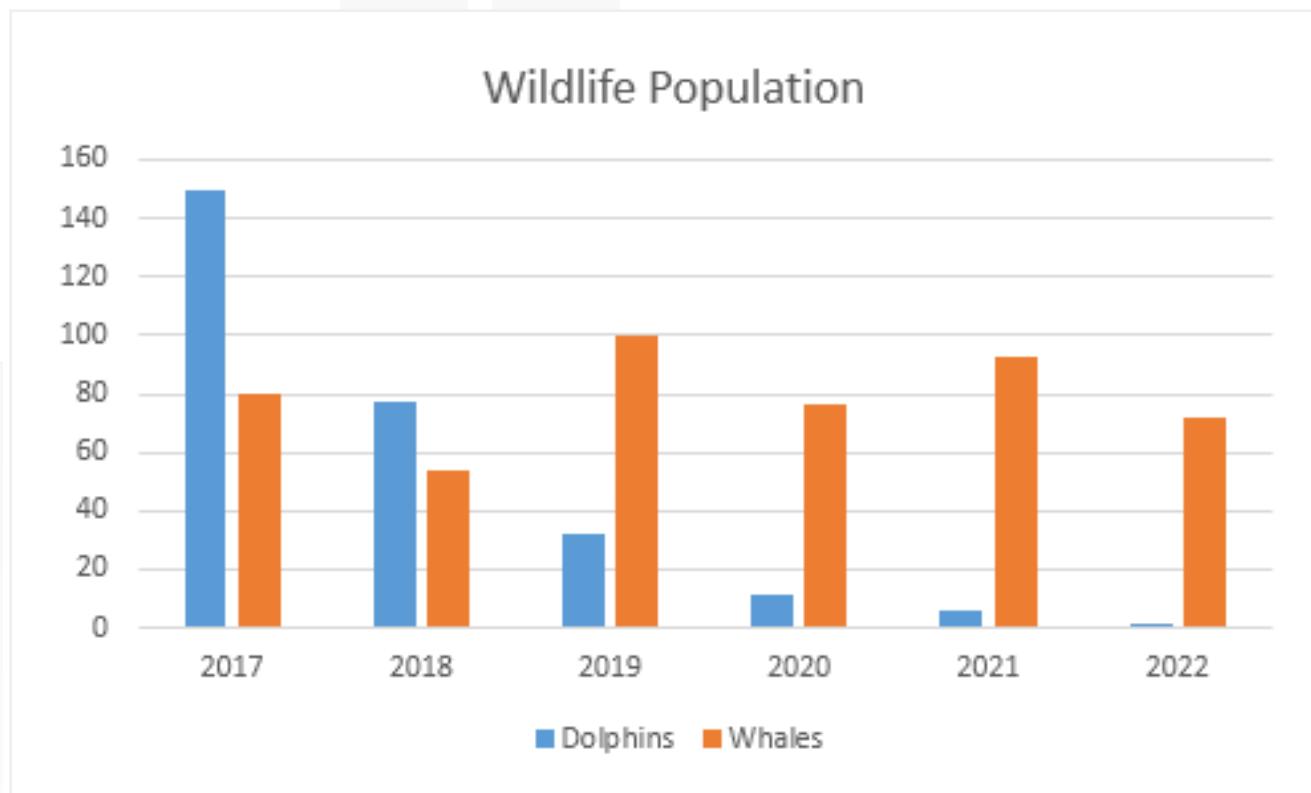
Pictograms are simple ways to display statistics using icons.



Source: Venngage

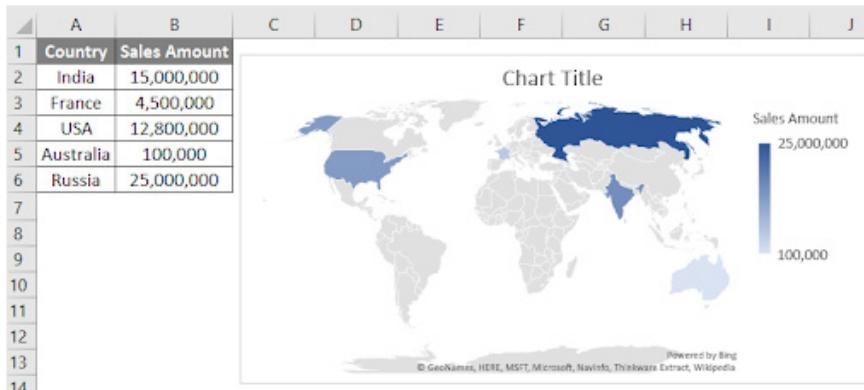
When to use different types of data visualization

When considering the type of chart, graph, or map to use when displaying your data, first, think about what you want to show, learn, or prove. When comparing two variables against the same data set, a column bar chart, like the one below, allows you to compare both at the same time and easily see gaps.



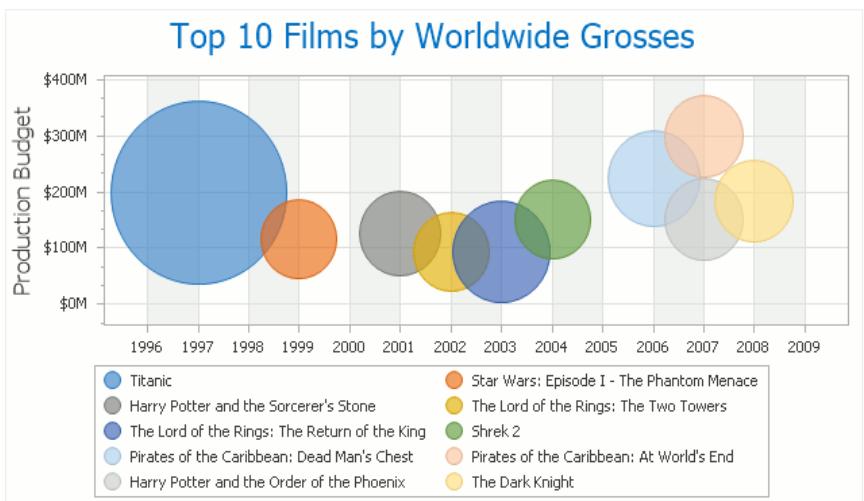
Source: [Excel Easy](#)

Source: EDUCBA



To show how the breakdown of a whole looks, like the visitors on your homepage by location, or sources for blog views, try a map or an area chart.

Source: DevExpress



Bubble charts can help you better see the relationship between multiple things and can help compare bigger picture topics like budget.

Source: Data Flair



To better understand the distribution of your data, and identify trends, outliers, and patterns, use a scatterplot or a line graph.

Many types of charts and graphs can be used for different types of data visualization. Try [these ten tips to enhance your data](#), like flipping your x and y axis, using a different type of chart, or omitting unrelated data points to better tell a story.

Data Visualization for Internal Teams and Stakeholders

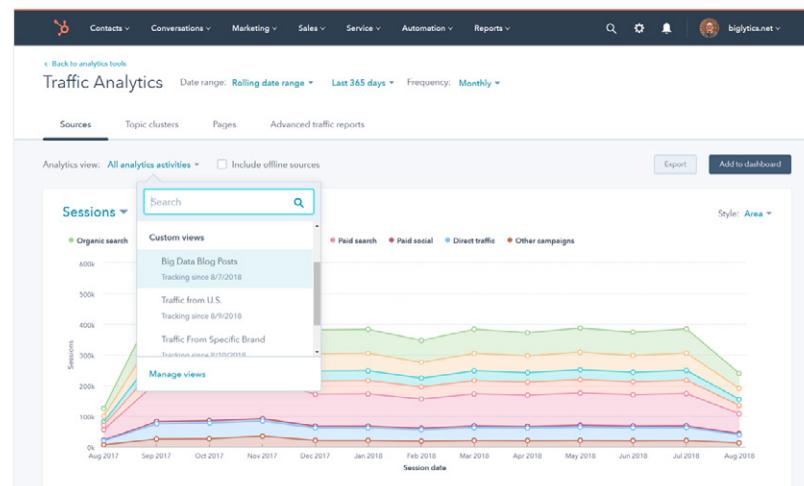
Data visualization is an important tool for internal meetings or stakeholders. Depending on your team and goals, use data when presenting things like subscriber growth over time (perhaps month over month), or email open rates by subject line.

No matter your role within your company's marketing team, you will use data both to do your job and present information about the projects you're working on. Almost all marketing decisions are data-backed. Data includes qualitative and quantitative information and spans anything that can be measured, collected, and analyzed.

For example, if you are responsible for content marketing, you'll have goals or KPIs (key performance indicators). On a content marketing team, these goals will likely be centered around number of blog posts written, page ranking,

organic page views, page shares, time spent on the page, amount of posts read or scrolled through, and leads generated from your posts. All of these would have their own report, and you'll update them regularly to check on your progress.

If you use a tool like HubSpot for both your blog and reporting, you'll be able to easily access built-in reports like traffic for your blog by source.



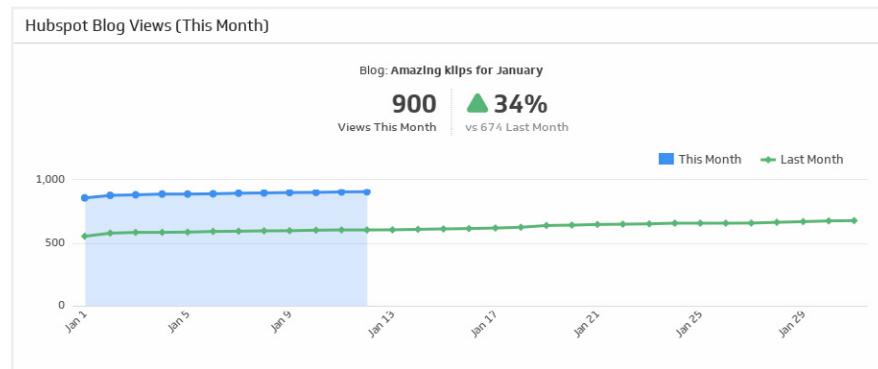
Source: [HubSpot](#)

Having accurate and simple reporting will help you both succeed in your job by identifying which topics are resonating with which audience, but they'll help you to prove your worth to your boss and other internal stakeholders, like your boss's boss when it comes time to ask for more budget or resources to grow your content program.

Examples of marketing data visualization on internal teams

Content marketing data visualization

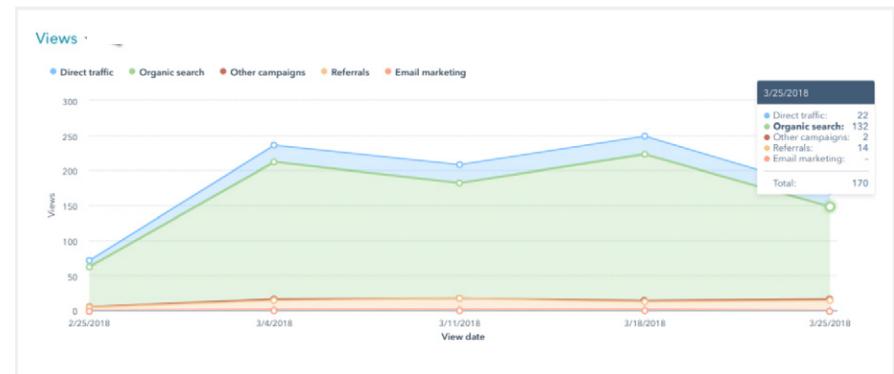
Blog views by source



Source: [Klipfolio](#)

SEO data visualization

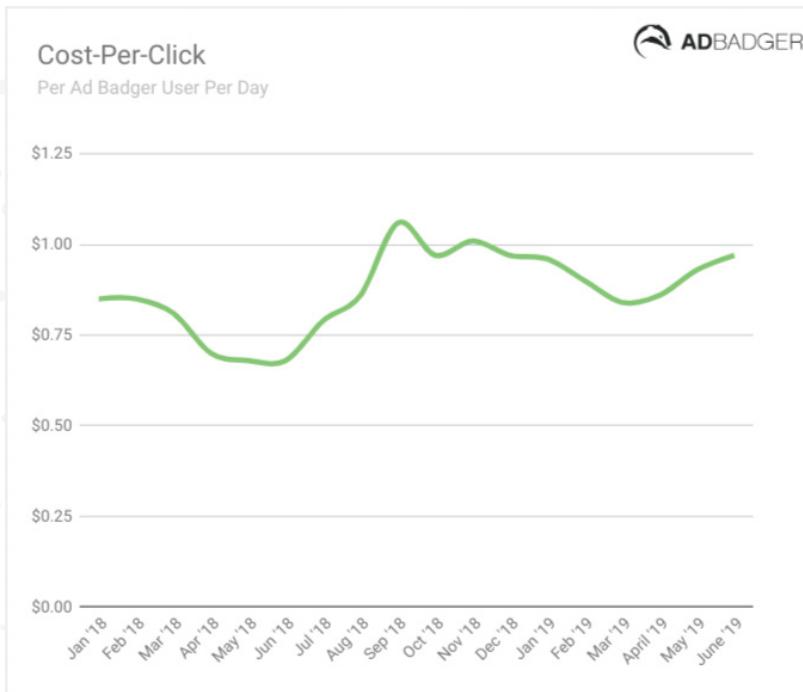
Organic website traffic by source



Source: [HubSpot](#)

Paid data visualization

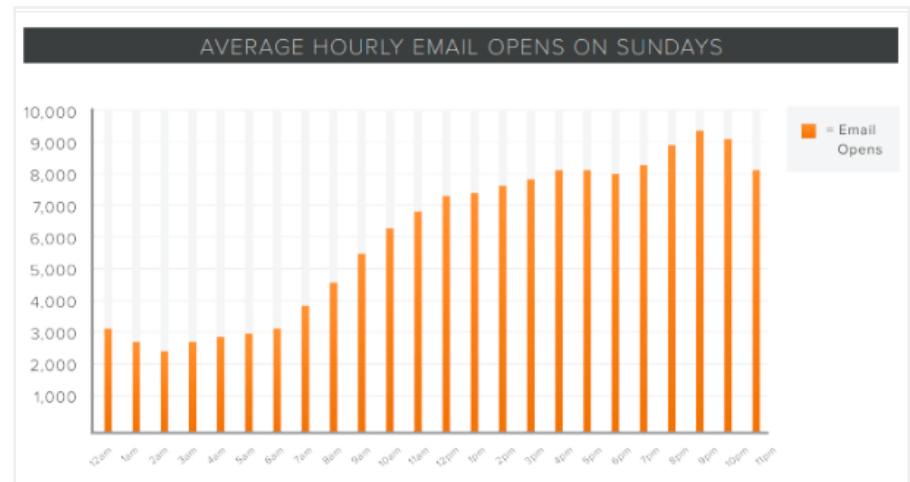
Average cost per click for ad campaigns by keyword



Source: [Adbadger](#)

Email and customer data visualization

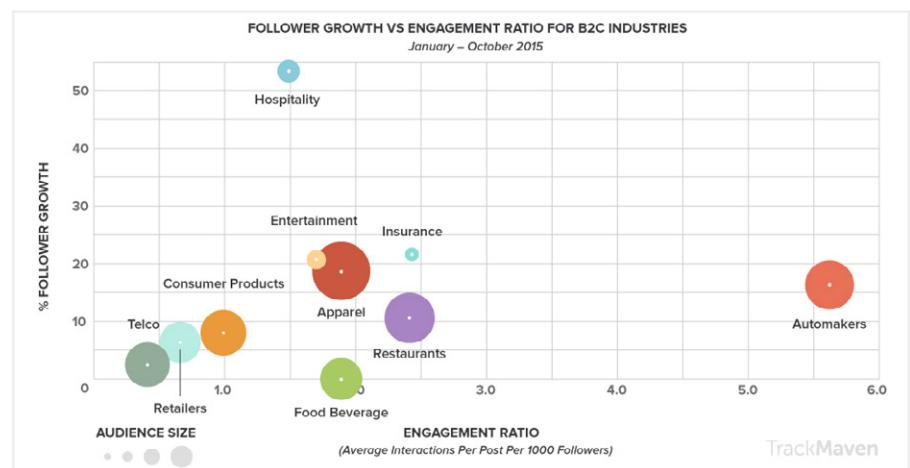
Average number of emails opened by customers each month



Source: [OptinMonster](#)

Social media data visualization

Followers over time by network in a bubble graph



Source: [Business2Community](#)

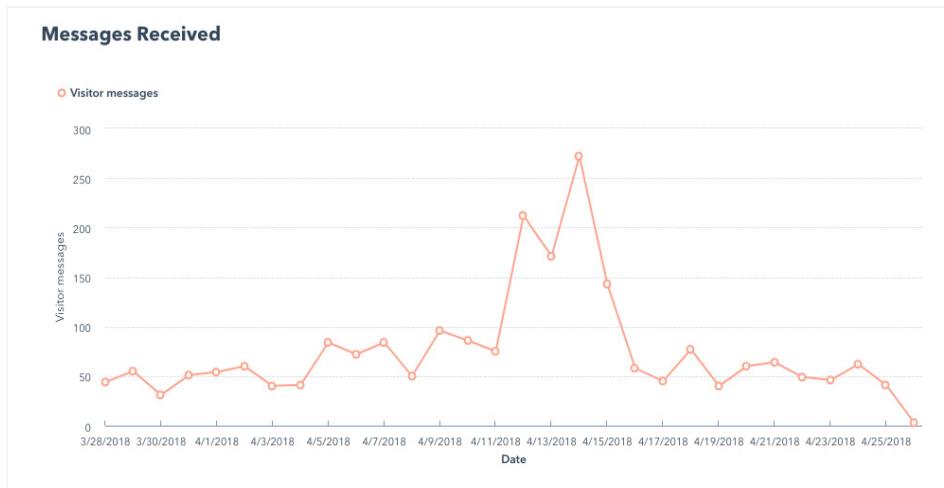
Data Visualization for External Stakeholders and Public Audiences

Data visualization will play a crucial part in your company's annual reports, infographics, case studies, benchmark reports, and more. With the right data and presentation, your company's benchmark report could become a key resource for other marketers in your industry, thus improving your company's authority and ranking for the report.

For example, let's say you work on your company's sales enablement team.

You likely create [case studies and testimonials](#) from your most successful clients.

Data visualization can help you to show the impact of how your product or service affected your client's metrics, like HubSpot's Rock and Roll Hall of Fame case study below.



Source: [HubSpot](#)

This line chart visualization shows the bump in messages received, which led to an [81% increase in their audience size](#).

Using data helps to bring the message home and can help your sales representatives close deals, illustrate your product's efficacy, and showcase your brand on social media.

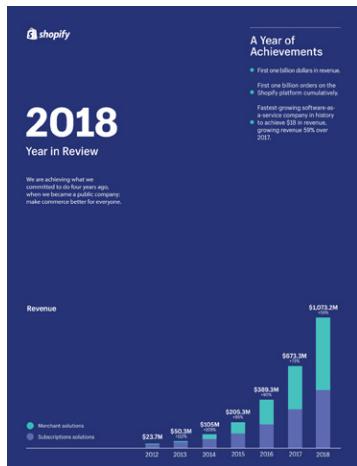
Data visualization can be used in public-facing PDFs, case studies, website pages, and reports. Make sure to sync up with your brand team to ensure that any designs match with your brand's approved style guide.



Pro Tip: Ask your design team to create a set of approved chart or graph templates that are style-guide approved! These can be created in Excel or Google Sheets.

Examples of external data visualizations:

Annual report



Source: [Shopify](#)

Benchmark report



Source: [Mixpanel](#)

Statistics



Source: [WHO](#)

Statistics



Source: [Toast](#)

You can also use data visualization for these reasons:

Case studies
PDFs

Social media images
User data

Follower data

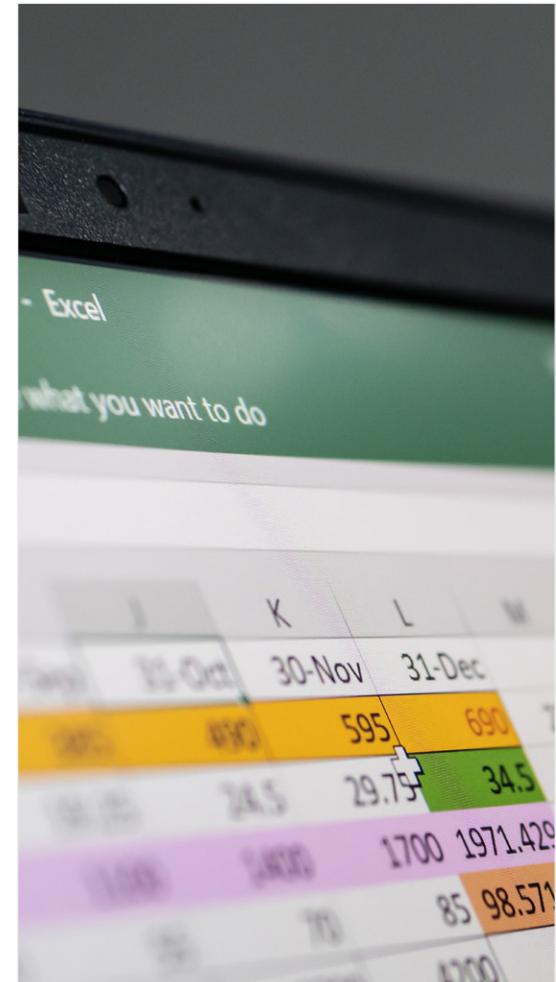
Data Visualization Tools and Resources

To get started with data visualization, you'll need some data. Many CMSs and blogging tools have some built-in reporting, or you may use a tool like Google Analytics to collect website data. Once you've collected your data by exporting it from any number of tools (including social media platforms, paid advertising platforms, customer data, survey results, and more), you can use Microsoft Excel or Google Sheets to get yourself familiar with organizing data.

You'll need to learn a few key functions and formulas in order to get your data to a place where you can start to identify trends and statistics.

[Here's a complete guide to Excel that will walk you through filters, pivot tables, vlookups, and other functions that are fairly universal across all versions of Excel and Google Sheets. Using pivot tables, you can cross reference your data quickly and easily, and save yourself lots of time doing manual work.](#)

Once you've deleted all the irrelevant data, filtered what you need, and created some preliminary tables, pivot tables, and sheets, you're ready to start making and spiffing up your visualizations.

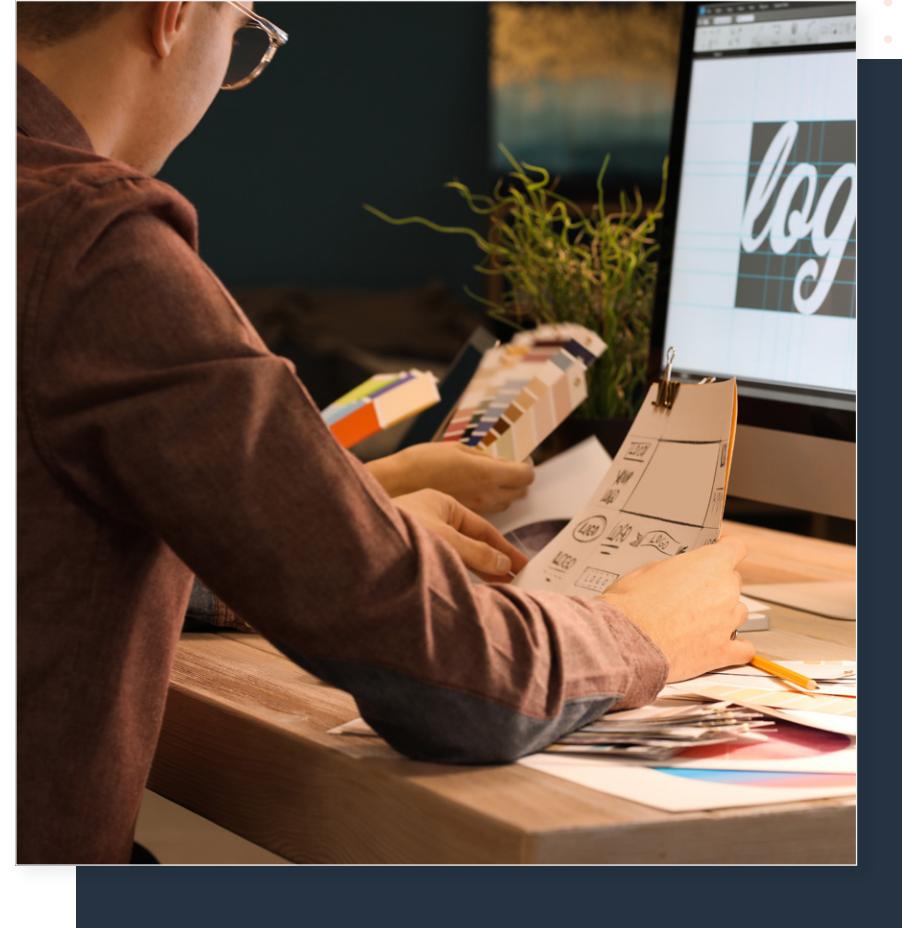


Data Visualization Tools

There are many different tools and data visualization software out there that you can use at varying levels of expertise to analyze and present data. Microsoft Excel and Google Sheets offer basic visualizations and allow you to easily create pivot tables, charts, and graphs, and see how the data presents.

After you've gotten comfortable with the ability to manipulate the data and pore through trends, charts, and graphics, it's time to get fancy design and create charts worthy of sharing. Start out with HubSpot's [Graphic Design Essentials](#) course, where you'll learn color theory, graphic design tools, and composing images within a brand identity and style guide. After that, you can use a tool like [Canva](#) to make additional branded charts and social images.

When it comes to internal reporting, you can use your CMS's internal reporting and analytics options, like [HubSpot's analytics dashboard](#), or external tools like Google Analytics or Hotjar, a heatmap software.



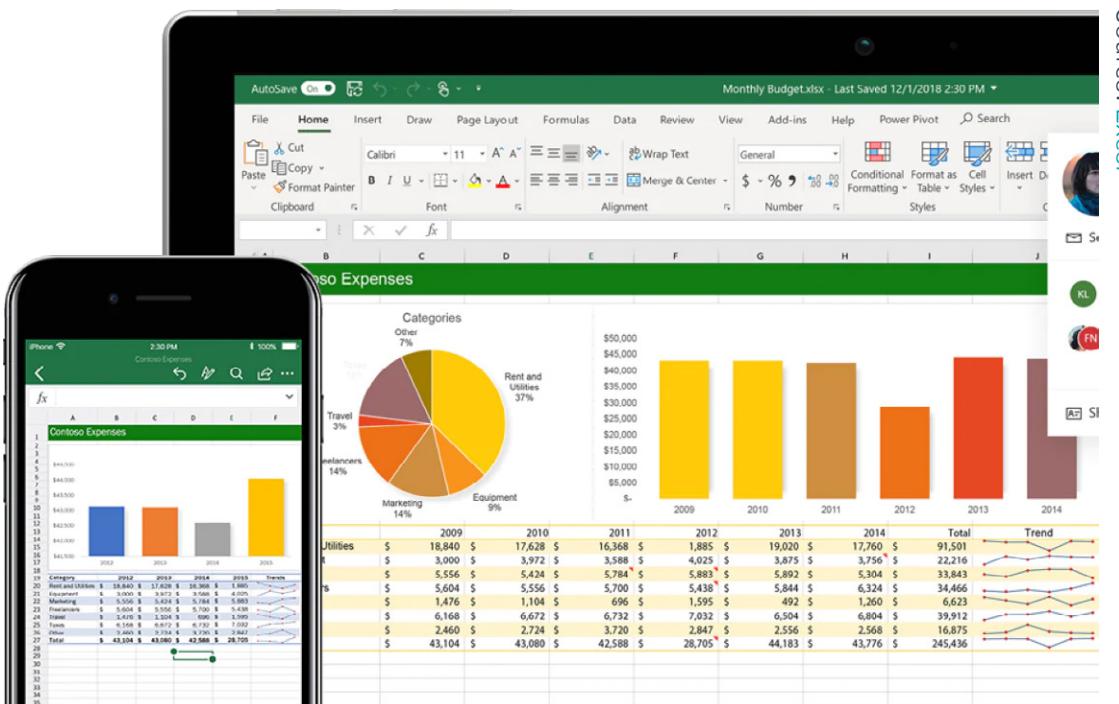
Here are some of the top data visualization and animation tools.



Microsoft Excel

This is the most common tool for data visualization. Excel allows you to sort and analyze data, then create data visualization using the chart wizard.

To learn more about using Excel, check out these resources below.





Statista

Statista is a database of studies, statistics, and forecasts that provide market data for presentations.

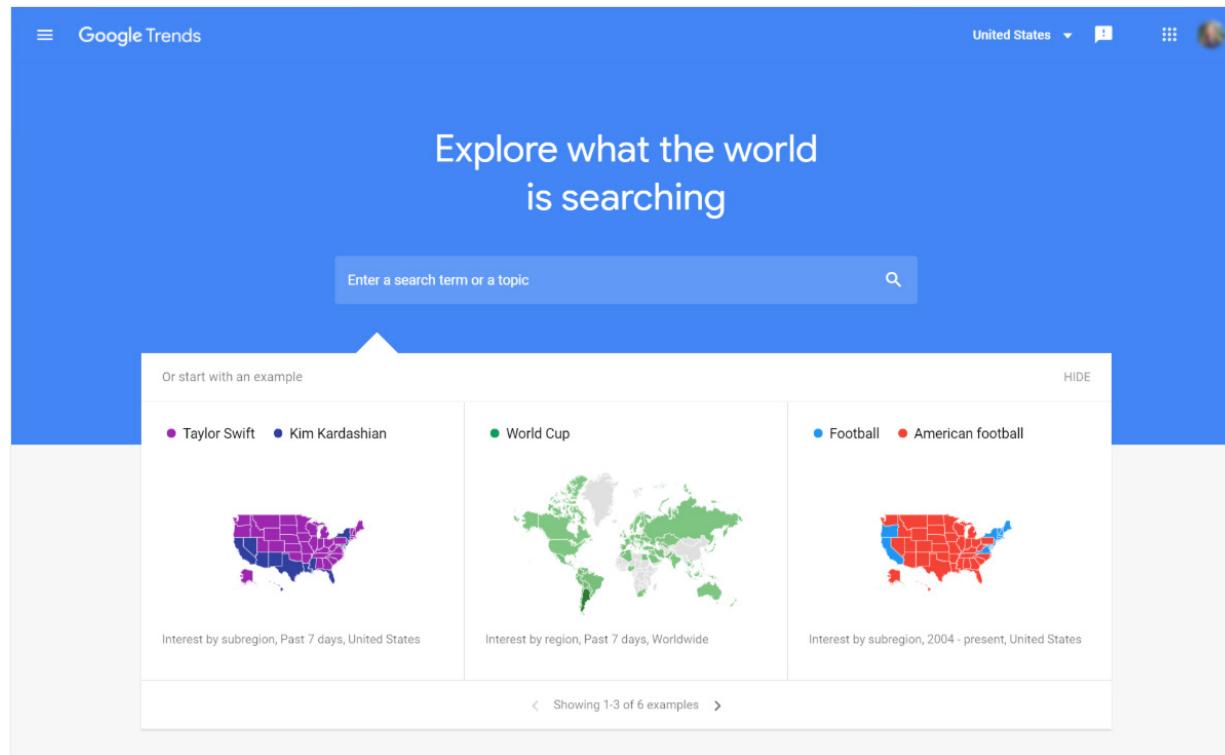


Source: Statista



Google Trends

Google Trends is a free tool from Google that shows search history of certain topics and keywords over time. You can evaluate the popularity of certain terms, compare them against other keyword variations, analyze how their popularity varies over time and in different regions/languages, and shows related keywords, which can be helpful in getting new keyword suggestions.



Source: [Google Trends](#)



Canva

Canva is a really easy-to-use free tool with a new charts feature for creating simple pie charts, bar graphs, and more in any sized template. This is a great option for creating presentations, infographics, and social images.

The screenshot shows the Canva interface. On the left, there's a sidebar with categories like Home, Design, Resize, Tools, Templates, Elements, Text, Background, Uploads, Folders, and Apps. A search bar at the top says "Travel Social Graphic". The main workspace shows a graphic for "Beechtown Ski Lodge" advertising "WINTER VACATION PACKAGES". The background of the graphic is a snowy mountain landscape. The text "Beechtown Ski Lodge" and "WINTER VACATION PACKAGES" is centered within a white circle. Below the circle, it says "Visit [www.reallygreatsite.com](#) for full details.". The top right of the screen shows "Social Media - Untitled", "Share", and "Publish" buttons.

Source: [Canva](#)



Google Charts and Google Sheets:

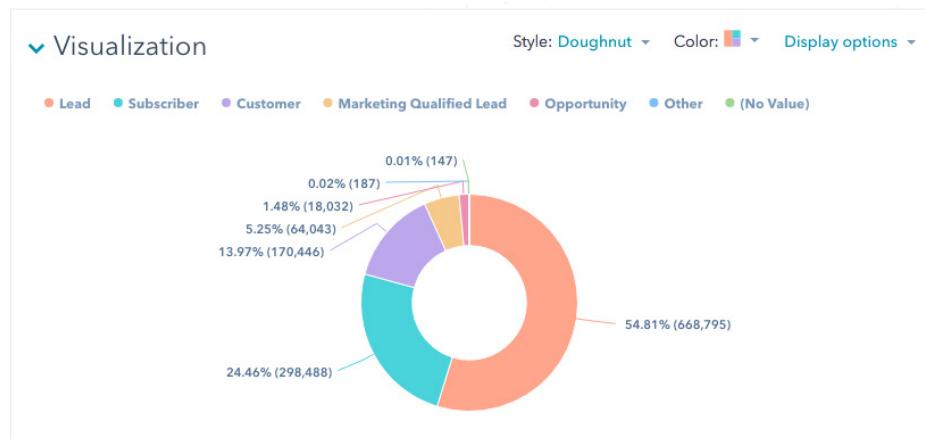
Google Charts lets you embed graphs and charts onto a web page. It is an API tool that lets you create custom graphs and charts with the option to animate them for a more dynamic visualization. Google Sheets is a good option for creating simple charts and graphs like you would in Excel.

The screenshot shows the Google Charts Guide page. The top navigation bar includes Home, Guides (which is selected), Reference, and Support. A search bar is at the top right. On the left, there's a sidebar with links like Overview, Hello, Charts!, Quickstart, Load the Charts Library, Prepare the Data, Customize the Chart, Draw the Chart, Draw Multiple Charts, and sections for Chart Types (Geo Chart, Scatter Chart, Column Chart) and Annotation Charts. The main content area is titled "Chart Gallery" and describes it as a collection of charts based on HTML5/SVG technology. It features three examples: a Geo Chart showing France in blue, a Scatter Chart with blue dots, and a Column Chart with blue and yellow bars.

Source: [Google Charts](#)

» HubSpot Analytics (or your CMS's analytics tool)

Pull custom reports or use HubSpot's own reports, then update your charts to your liking.



Source: HubSpot

» HubSpot Academy's Course on Graphic Design Essentials

Learn the basics of graphic design and create the most visually appealing charts and graphs for public-facing data content.

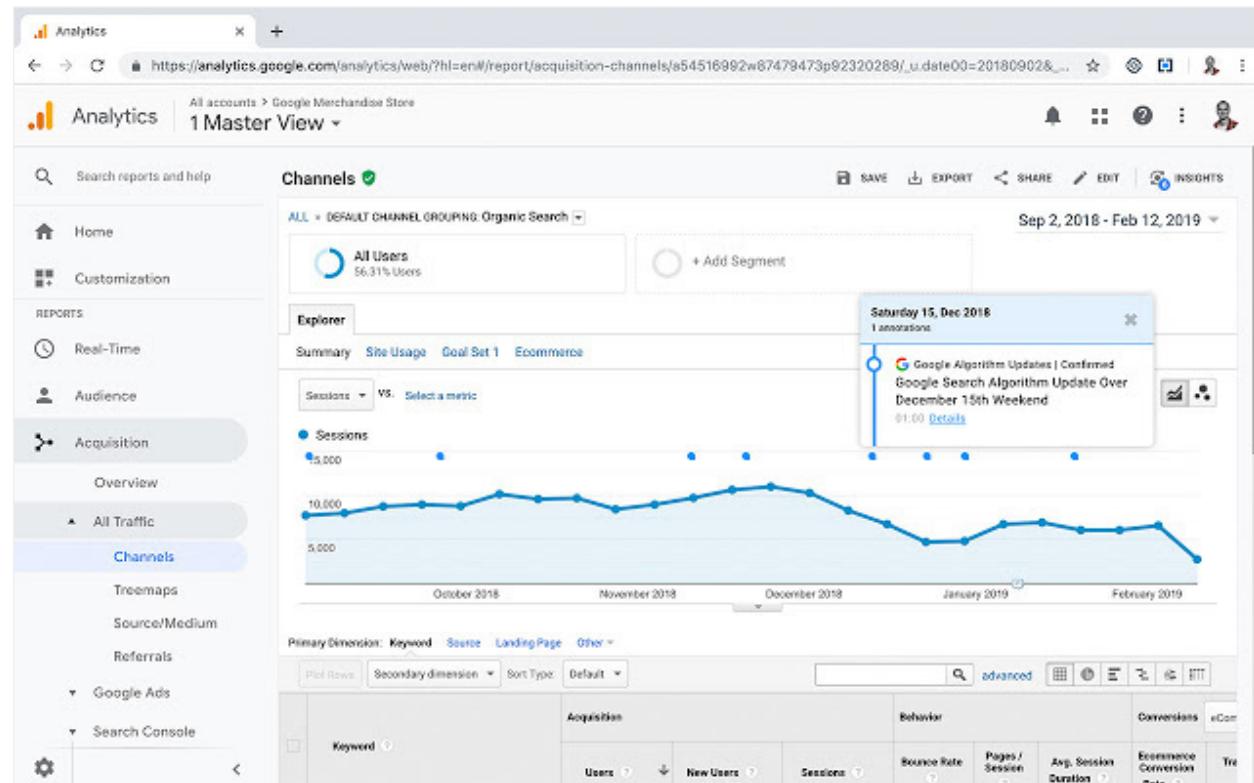
COURSE CURRICULUM		
LESSON		INSTRUCTOR
1	Graphic Design Principles and Best Practices	4 videos (19 minutes)
		Philippe Polman
2	Design Foundations: Building Brand Guidelines and Consistency	2 videos (10 minutes)
		Philippe Polman
3	Designing and Building Graphics	4 videos (16 minutes)
		Jonah McLachlan

Source: HubSpot



Google Analytics

Analyzes your website visitors and provides a live dashboard with data visualization, charts, and graphs of your visitors' behavior and actions.



Source: [Google Chrome](#)

6 Dos and Don'ts of Data Visualization

Dos

- ✓ Use colors to help enhance trends.
- ✓ Include statistics in readable formats for those with vision difficulties and with precise numbers.
- ✓ Use data from the past five years.
- ✓ Compare your data to previous benchmarks.
- ✓ Present your data in an organized order that helps the reader see trends.
- ✓ Go for readability, include data markers and percentages when applicable.

Don'ts

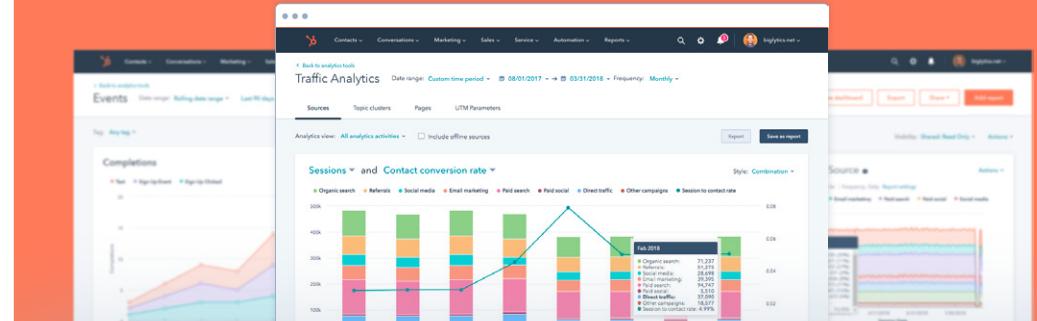
- ✗ Overwhelm the viewer with bright colors that clash.
- ✗ Forget to include the precise numbers and only include charts without percentages.
- ✗ Use data older than five years old.
- ✗ Lose your data as soon as you present it.
- ✗ Present your data out of order, forcing the audience to dig for conclusions themselves.
- ✗ Go for aesthetic or visual appeal over practicality and readability.



Closing

Data visualization can seem difficult and overwhelming, but with the tools and resources provided in this guide, you will be ready to start creating compelling data visualizations, persuasive presentations, and find trends in the data you already have.

Data can compel people to change global health outcomes or affect perceptions. It can also help marketing teams to create data-backed campaigns and only invest in opportunities that are trackable and can prove their own ROI. With data visualization, you can share what you've discovered and showcase the research you've done in a visually appealing and effective way. With data on your side, you'll help to create an exponential uptick in marketing team performance, then show it off with your newfound ability to create incredible charts!



HubSpot Marketing Analytics

HubSpot's data analysis tools allow you to access and customize a live reporting dashboard that spans marketing and sales. Stay on top of your site's performance, find out where you're generating the most value, and learn how to recreate your best performing campaigns by diving into the data.