



Visualization Data Visualization

What is data visualization?

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19 Answers



Sunay Sawant, Passionate Reader, Avid Researcher

Answered Apr 25

Data Visualization is the representation of information in the form of chart, diagram, picture, etc. These are created as the visual representation of information.



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It helps a lot to decision makes to see the analytics presented visually, so they can work accordingly and can grasp the difficult concept or identify new patterns.

Importance of Data Visualization:

- Absorb Information Quickly
- Understand Your Next Steps
- Connect The Dots
- Hold Your Audience Longer
- Kick The Need for Data Scientists
- Share Your Insights with Everyone
- Find the Outliers
- Memorize the Important Insights
- Act On Your Findings Quickly

Data Vizualization using R Programming Language with ggplot2

There are 10 Elements of Successful Data Visualization:

- It Tells a Visual Story
- It's Easy to Understand
- It's Tailored for your Target Audience
- It's User Friendly
- It's Useful

In other languages

En español: [¿Qué es la visualización de datos?](#)

Auf Deutsch: [Was ist Datenvisualisierung?](#)

In italiano: [Cos'è la visualizzazione dei dati?](#)

Question Stats

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Last Asked Jun 27, 2016

Edits

- It's Honest
- It's Succinct
- It Provides Context

Some of The 7 Best Data Visualization Tools:

- **Tableau**



- **Qlikview**



- **FusionCharts**



- **Highcharts**



HIGHCHARTS

- **Datawrapper**

Datawrapper

Create charts and maps in just four steps. This tool reduces the time you need to create visualizations from hours to minutes.

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The banner features a dark grey background with white text and icons. On the right side, there is a grid of ten white icons representing various data visualization types: a map, a bar chart, a pie chart, a stacked bar chart, a table, a line chart, a donut chart, a gauge chart, a horizontal bar chart, and a grouped bar chart.

- **Plotly**



- **Sisense**



What is GGLOT?

Ggplot2 is a data visualization package for the statistical programming language R. which tries to take the good parts of base and lattice graphics and none of the bad parts. It takes care of many of the fiddly details that make plotting a hassle (like drawing legends) as well as providing a powerful model of graphics that makes it easy to produce complex multi-layered graphics.

For more information about Ggplot:

- [ggplot2](#)
- [ggplot2 - Wikipedia](#)

10 Reasons to Switch to GGplot:


1. It can do quick-and-dirty and complex, so you only need one system
2. The default colors and other aesthetics are nicer
3. Never again lose an axis title (or get told your pdf can't be created) due to misspecified outer or inner margins
4. You can save plots (or the beginnings of a plot) as objects

5. Multivariate exploration is greatly simplified through faceting and coloring

6. Easily build plots in layers to tell a more complete story...

(more)

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Saanvi S, works at Mindmajix Technologies Inc (2015-present)

Answered Jan 16

Data visualization enables decision-makers to see analytics presented visually so that they can grasp difficult concepts or identify new patterns. Data visualization software plays an important role in big data and advanced analytics projects.

Applications of Data Visualization

Many business organizations implement data visualization software to track their own initiatives. For example, a marketing team might implement a data visualization software to monitor the performance of an email campaign and track metrics like open rate, click-through rate, and conversion rate.

Nowadays, data visualization is also used as BI reporting tool.

Benefits of Data Visualization

As per Robert Cordray's article, the [benefits of data visualization](#) are:

1. Faster action.
2. Communicate findings in constructive ways.
3. Understand connections between operations and results.
4. Embrace emerging trends.
5. Interact with data.
6. Create new discussion.

Data Visualization Tools

Here is a list of some of the best data visualization tools!

Tableau

Tableau Public is perhaps the most popular [visualization tool](#) . It has a very large customer base of 57,000+ accounts across many industries and supports a wide variety of charts, graphs, maps, and other graphics.



You can download the free version of [Tableau's data visualization software here](#) . Users can easily drag and drop data into the system and watch it update in real-time, as well as collaborate with other team members for quick project turnaround.

QlikView

QlikView is the most flexible business intelligence platform for turning data into knowledge. More than 40,000 organizations in over 100 countries have enabled their users to easily consolidate, search, and visually analyze all of their data for unprecedented business insight using QlikView's simplicity. It brings a whole new level of analysis, insight, and value to existing data stores with user interfaces that are clean, simple, and straightforward.

The logo for QlikView, with 'Qlik' in dark grey and 'View' in green.

QlikView is commonly used alongside its sister package, QlikSense, which handles data exploration and discovery. Try QlikSense by downloading the [free version here](#) !

FusionCharts

This is a very widely used, JavaScript-based charting and visualization package that has established itself as one of the leaders in the paid-for market. With over 90+ chart types and 965 maps, you'll find everything that you need right out of the box.



FusionCharts

FusionCharts supports both JSON and XML data formats, and you can export charts in PNG, JPEG, SVG, or PDF formats. They have a nice collection of business dashboards and live demos for inspiration.

You can always get started with their [unrestricted free trial](#) and then only buy it if you like it!

Datawrapper

[Datawrapper](#) is increasingly becoming a popular choice, particularly among media organizations that frequently use it to create charts and present statistics. Once you upload the data from CSV file or paste it directly into the field, Datawrapper will generate a bar, line, or any other related visualization.

Datawrapper

It is very easy to use, and it produces effective graphics.

Highcharts

Highcharts is a purely JavaScript-based charting library meant to enhance web applications by adding interactive charting capability. Highcharts provides a wide variety of charts; for example, spline charts, line charts, area charts, bar charts, pie charts, and so on.



Conclusion

Here, I explained what data visualization is and provided information about five of the most popular data visualization tools on the market. There are many more tools available, so don't hesitate to leave your insights about other tools in the comments!

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Erin Mastrantonio, Data Visualization professional working in EdTech

Answered Apr 24, 2016

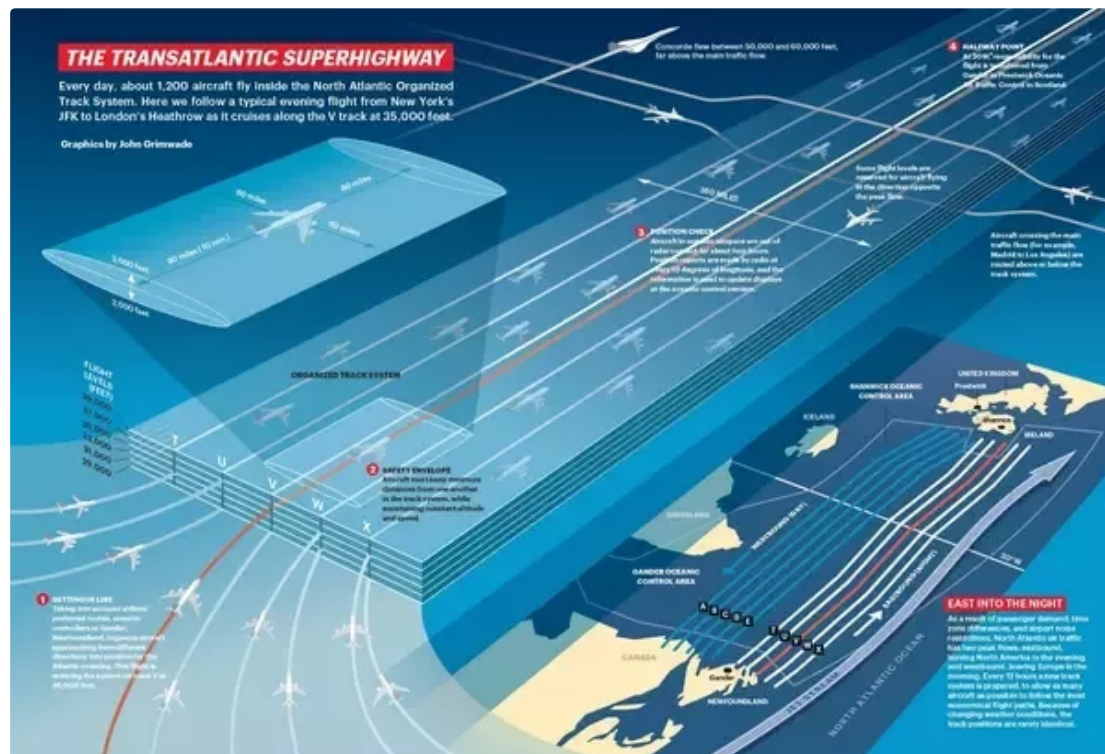
This is actually a deeper question than it would initially appear, and its answer is still being hotly contested today.

Data visualization has existed since the late 18th century when [William Playfair](#) invented the line, area, bar, and pie charts. Because "data" is such a general concept, and the act of visualizing it can take on many forms, the combined term "data visualization" evades a singular definition. Here are some examples:

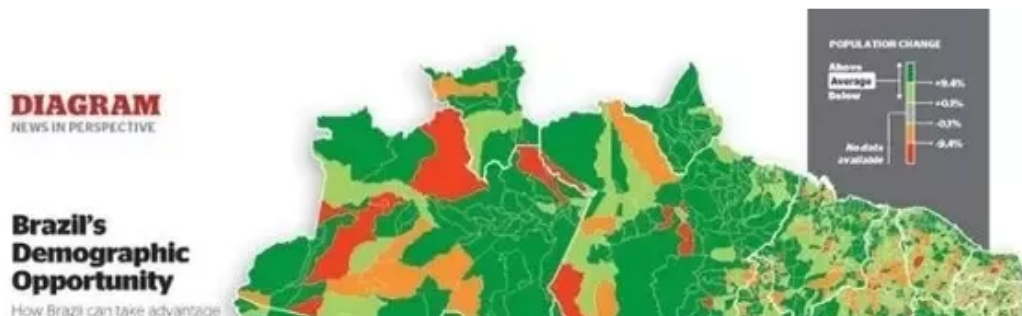
A photograph: each pixel is an encoded RGB value which, when laid out in an array, forms a visual image that has the ability to communicate a powerful message. Most of us would agree that the following Pulitzer Prize winning photo by Kevin Carter is more than just a collection of pixels.

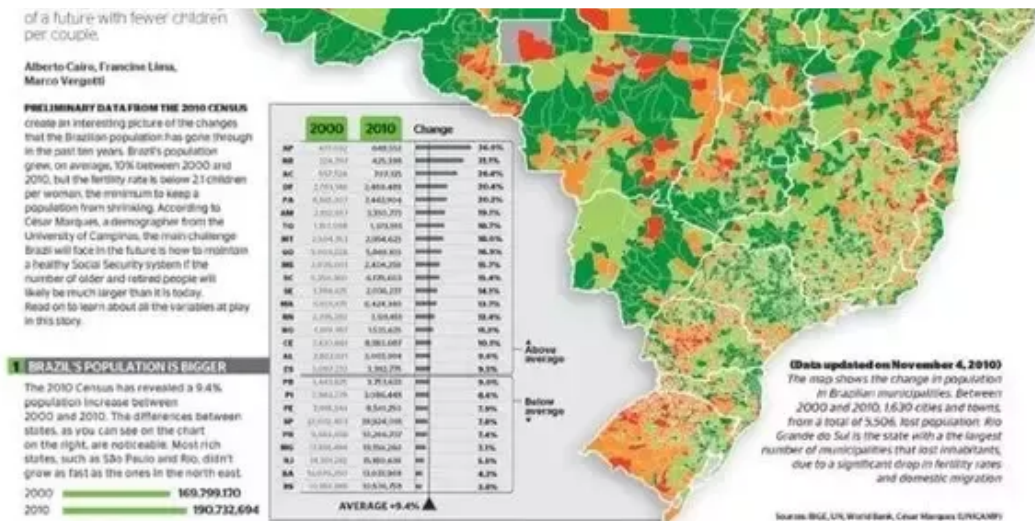


An illustration: a research-informed drawing, whether manually or digitally made, that contains encoded data in sometimes less obvious/direct ways, but nonetheless has a powerful capacity to show patterns and provide context. The following illustration by John Grimwade of the flight paths of jets across the Atlantic is award-winning.



A static infographic: A blurred line demarcates where illustrations end and infographics begin, but displays given the title "infographic" tend to have more charts and graphs-- abstract displays of data that are less figurative and mimetic of their subject matter, as in the following from Alberto Cairo for Epoca Magazine. Because they are static, infographics tend to guide the reader through a fixed narrative toward some conclusion about the data, highlighting interesting trends via annotations.





A dynamic data display: some would argue that these are what is meant by the term "data visualization," as that phrase is often associated with data displays that the user can interact with through sorting, filtering, zooming, etc. With interactive capability it is possible to tell more than a single story, and users are empowered to explore the data and come to their own conclusions. A textbook example is the New York Times piece entitled "[Is It Better to Rent or Buy](#) ?" which allows the viewer to interact with a data driven tool to answer this question for themselves.

I would argue that data visualization is broad enough to encompass all of these. It is a ***medium***, not a ***message***. As such, it brings to life the self expression of its practitioner. There are many roles to play in making use of this medium:

... those who **collect** and **analyze** data (statisticians/analysts/data scientists)

... those who create the **tools** and **interfaces** that allow us to explore and visualize data (computer scientists, programmers, human-computer interaction specialists, UI designers, data engineers)

... those who use the principles of good **design** to make aesthetically pleasing informational displays (graphic designers, UX designers, artists)

This is why we have people as diverse as [Hans Rosling](#) (a statistician/medical doctor), [Santiago Ortiz](#) (an interactive visualization designer with a heavy mathematics/data science bent) and [Stefanie Posavec](#) (a designer who visualizes literary data in quite artistic ways) falling under the same umbrella of "data visualizers." It is exceedingly rare to find all of these skills well-developed in a single individual, though some come close ([Moritz Stefaner](#) , [Jan Willem Tulp](#) , and [Gregor Aisch](#) come to mind).

This can also be seen in the multitude of ways that data visualization is taught in universities around the world: sometimes as a concentration within a graphic design program ([University of the Arts, London](#)), sometimes as a subset of a computer science department ([Human Computer Interaction group at Stanford](#)), and all under a variety of names (information visualization, information architecture, interaction design, etc).

This is a credit to the versatility of the field, and it is my sincere belief that these differences should be celebrated rather than squabbled over. Because the skill set needed to pull off fantastic data visualizations is so broad, it follows that we should support each other and draw on our community's strengths.

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Adil Bhatt

Answered Jul 19, 2017

Data visualization is a general term that describes any effort to help people understand the significance of **data** by placing it in a visual context. Patterns, trends and correlations that might go undetected in text-based **data** can be exposed and recognized easier with **data visualization** software.

Today's data visualization tools go beyond the standard charts and graphs used in Excel spreadsheets, displaying data in more sophisticated ways such as infographics, dials and gauges, geographic maps, sparklines, heat maps, and detailed bar, pie and fever charts. The images may include interactive capabilities, enabling users to manipulate them or drill into the data for

querying and analysis. Indicators designed to alert users when data has been updated or predefined conditions occur can also be included.

Most business intelligence software vendors embed data visualization tools into their products, either developing the visualization technology themselves or sourcing it from companies that specialize in visualization.


Here is a list of top 5 tools that fit all the above criterias and are winning at big data and analytics data visualization :-

- QuilkView
- Tableau
- Microsoft Power BI
- ClearStory
- Dundas BI

Read more at :- [Top 5 Tools That Are Winning At Data Visualization - Thinklayer](#)

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Shafiq Marediya, Program Manager at K2 Data Science

Answered Jun 29, 2017

What is data visualization?

Data Visualization is the process of displaying information to more easily understand the underlying meaning. .

Why we visualize data?

Humans process visual input above all else and faster than any other method.

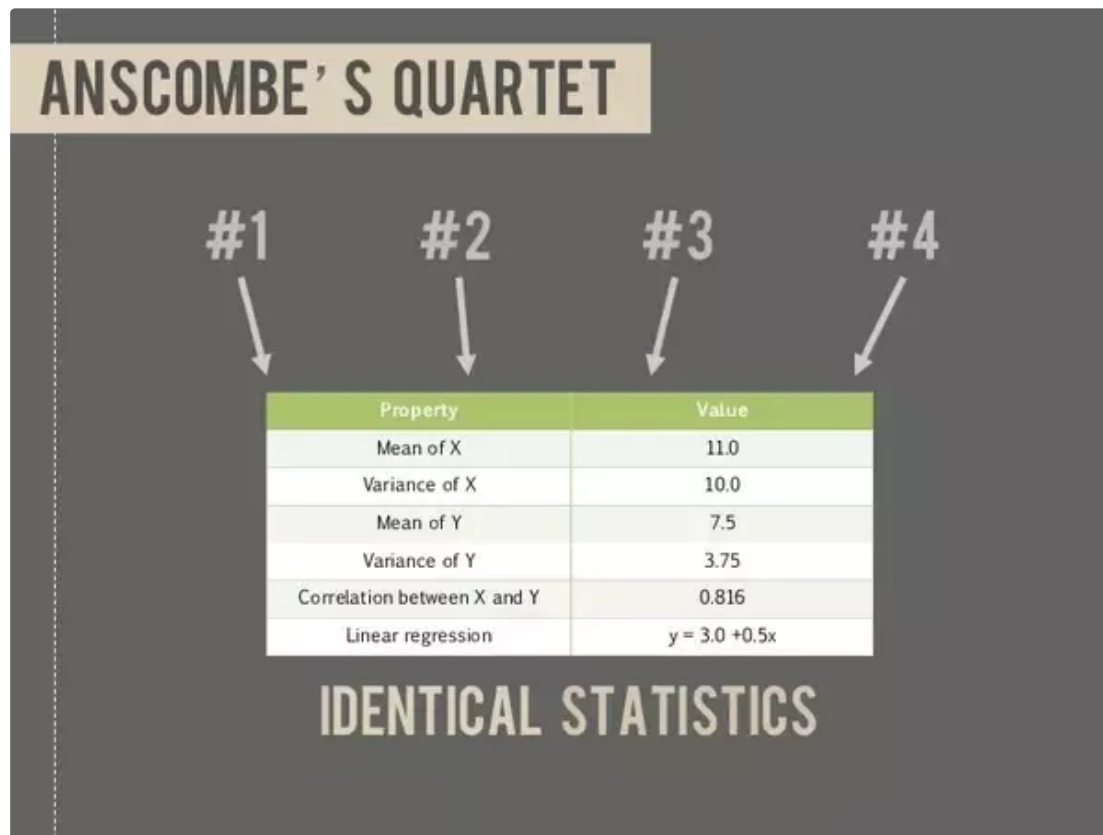
This is the key reason for visualizing data. Humans are visual by nature, so it helps to see data in a visual format. It's easier to find patterns, digest, and make decisions with visual data.

Example

Here's a list of number, broken down into 4 sets.

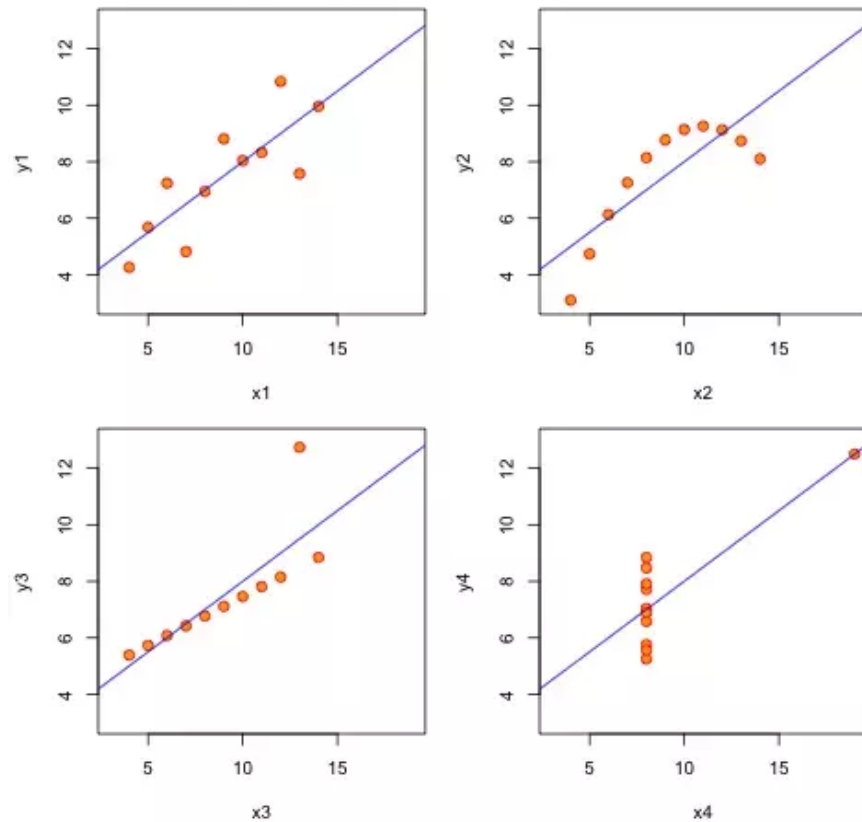
I		II		III		IV	
10	8.04	10	9.14	10	7.46	8	6.58
8	6.95	8	8.14	8	6.77	8	5.76
13	7.58	13	8.74	13	12.74	8	7.71
9	8.81	9	8.77	9	7.11	8	8.84
11	8.33	11	9.26	11	7.81	8	8.47
14	9.96	14	8.1	14	8.84	8	7.04
6	7.24	6	6.13	6	6.08	8	5.25
4	4.26	4	3.1	4	5.39	19	12.5
12	10.84	12	9.13	12	8.15	8	5.56
7	4.82	7	7.26	7	6.42	8	7.91
5	5.68	5	4.74	5	5.73	8	6.89

No way how you slice and dice this data, you get very similar results.



But when you start to visualize the data and add some context, you get this:

Anscombe's 4 Regression data sets



Each set has a different story. This could be something like a sport team that won the final 4 different years. By looking at each set, you can now see that the journey to the championship was very different!

These are the types of concepts we teach at K2 in our [online data analysis bootcamp](#). We break down each step of the data analytics cycle and you get assigned a mentor to help you along the way. In addition, you get support with career prep and building a project based portfolio.

If you're looking for something less intense, check out the Udemy course that covers all of the data analysis cycle at a beginner level. Use the link below to

receive a 95% off coupon.

Complete Data Analysis Course For Beginners - Udemy

Anyways, I hope this helped.

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Audrée Lapierre, Creative Director at FFunction, a data visualization agency

Answered May 30, 2017

In a nutshell, data visualization is the visual representation of information/data.

This is a chart I designed in the early days of my [data visualization company](#) , when I wanted to explain to clients what is involved in a data visualization project; fields, disciplines, mediums and the different overlapping qualities they bring to the table.

“The human brain is highly adept at identifying trends if given the right visual cues. Using design to leverage our brain’s built-in pattern detection system makes it much easier to understand complex structures and most importantly, data relationships.”

Quoted from our article “[What is data visualization](#) ”.



Norma Gulley

Answered Jan 8, 2016

[Data visualization or data visualisation is viewed by many disciplines as a modern equivalent of visual communication. It is not owned by any one field, but rather finds interpretation across many It involves the creation and study of the visual representation of data, meaning "information that has been abstracted in some schematic form, including attributes or variables for the units of information".

A primary goal of data visualization is to communicate information clearly and efficiently to users via the statistical graphics, plots, information graphics, tables, and charts selected. Effective visualization helps users in analyzing and reasoning about data and evidence. It makes complex data more accessible, understandable and usable. Users may have particular analytical tasks, such as making comparisons or understanding causality, and the design principle of the graphic follows the task. Tables are generally used where users will look-up a specific measure of a variable, while charts of various types are used to show patterns or relationships in the data for one or more variables.

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