Data Visualization Tips

Idea In Short

Simplify every chart, show trends rather than isolated data points, and ensure each visualization answers a clear question. Use color deliberately, avoid pie charts, label axes, and move dense detail to the appendix. Every graph must say something.

The Fundamentals of Clear Charts

Data visualization sounds fancy, but it basically means charts and graphs. Consultants excel at quickly breaking down problems and telling stories with data. A picture tells a thousand words, and the right chart can communicate an argument in seconds. 1 Best practices exist, and resources from Nancy Duarte and Gene Zelazny provide excellent foundations. The simplest approach, however, is to practice looking at many graphs and develop your own point of view about what works.

Keep It Simple

The biggest error in data visualization is clutter. When you try to do too much on a single chart, the message disappears. Often the best solution is to make two separate graphs. If oil and natural gas price trends move differently, they deserve separate charts. Forcing unrelated data onto one axis confuses the reader and weakens the argument. Simplicity is not a limitation. It is a discipline that separates effective communicators from those who overwhelm their audience.

Show a Trend, Not a Data Point

If you have enough data, show the trend. A single data point without context means little. Trends put your arguments in perspective and demonstrate whether something is improving, declining or stable. Special purpose acquisition companies raised $82 billion in 2020, a figure that looks impressive on its own. Compared to $13 billion in 2019, the trend

tells a far more compelling story. Always give your audience the context they need to understand significance.

Tell a Story

This is the meta-advice for anything combining business and visuals. Sometimes the story involves the relationship between two different factors. Over two years, US car sales remained steady while inventory dropped significantly. That contrast tells a story about supply chain disruption. The chart should make that narrative immediately obvious to anyone who glances at it. 2

Be Consistent

Data and charts can mislead when scales differ across comparisons. Use the same scale when comparing data sets. If you show Wikipedia's growth across languages, Hindi appears negligible when plotted on the same scale as English. Be able to explain potential outliers. Consistency builds trust, and inconsistent scales erode it. Audiences who catch manipulated axes will question everything else you present.

Make the Point Obvious

Get to the point and make it obvious. If a chart is busy, ensure the main takeaway stands out through bold labels, color emphasis or positioning. A graph showing Ireland's spike in Covid-19 cases should make Ireland immediately visible as the highest peak. Do not make the audience hunt for the insight. The chart should lead them directly to the conclusion you want them to reach.

Use Colors Deliberently

Using more colors without reason is an amateur move. Color should serve a purpose. If gas stations make great margins on everything except gasoline, highlight margin products in one color and gas in another. Deliberate color choices direct attention. Random color choices distract from the message and signal a lack of editorial control.

Say Something

Every slide or data visualization should say something. If the graph does not answer the question of significance, throw it away or put it in the appendix. The US government spending bills keep getting wordier, with the 2020 final version exceeding 2,000 pages. A chart showing this trend should make the point that the legislative process is broken and creates an environment for hidden appropriations.

Annotate and Label Carefully

Do not make a mess by adding data labels everywhere, but clarify key data points. The cyclically adjusted price-to-earnings ratio is not as inflated as during the 1929 and 2001 crashes. Labeling the average with a red dotted line provides reference even when current data seems to diverge from it. Annotation guides the reader's eye to what matters without cluttering the visual with every possible number.

Use Maps

Maps are intuitive because people understand geography. Americans know where Texas is. A map showing electoral college impact makes swing states immediately visible. The darker the color, the more likely that an individual vote would decide an election. Maps leverage spatial intuition that bar charts cannot tap, making them powerful for geographic comparisons.

Add Trend Lines and Delineate Forecasts

When your sample size is large enough, add trend lines to show correlations. When looking at gross domestic product per person, wealthier countries tend to trust science and doctors more. In contrast, wealthier countries are less likely to believe in vaccines. Trend lines reveal these patterns. When showing forecasts, label them differently from historical data. Use lighter colors or dashed lines for projected years. Never let the audience confuse what has happened with what might happen.

Show Data in Multiple Ways

There are many ways to analyze the same data set. While you should not bore the reader, sometimes different cuts reveal useful insights. Polyethylene demand varied by sector and region in 2020. Healthcare and packaging drove demand, while Asia led growth projections

for 2021. Multiple perspectives on the same data can answer different questions for different stakeholders.

Label the Graph Well

If your data requires explanation, make a clear graph title. The Chinese economy has made remarkable gains over 20 years. China is the top merchandise trading partner with 64 countries, while the United States holds the top position for only 38 countries. A descriptive title frames the insight before the audience even reads the chart. Titles are not optional. They are the first thing your audience processes.

Use Two Graphs Instead of One

There is nothing wrong with making multiple graphs and placing them side by side. A comparison of managed money shows active investing declining while passive investing rises. Approximately $100 trillion in managed assets shows increasing consolidation by major firms. Two graphs side by side can answer two related questions without cramming both into one confusing visual.

Handle Double Axes with Care

Double axes have the potential to confuse readers. If you must use them, label each axis in a different color. Red versus blue makes clear which data series corresponds to which axis. Use this approach sparingly and only when the relationship between two variables genuinely requires it. When in doubt, use two separate charts instead.

Bucket Data Thoughtfully

Consulting is about putting things into categories. When assets under management are categorized by region, question whether the grouping makes sense. Why is Japan grouped with Australia rather than with Asia? Thoughtless bucketing can mislead. Intentional bucketing can illuminate. Always ask whether your categories serve the audience's understanding or merely reflect convenience.

Pair Up Charts and Avoid Pie Charts

Proactively answer client questions before they ask. One graph shows IPO proceeds raised by Chinese companies, with 2020 reaching $110 billion. The second graph answers how many US listings occurred over the same period. Paired charts anticipate the natural follow-up question. On pie charts, a senior manager once noted they are not that useful. Trend lines are superior because they provide context. Market share of beverages over time tells a richer story than a static pie. 3

Surprise the Reader and Use Appendixes

Be creative with data sets and comparisons. The Midwest United States is a vibrant, often overlooked part of the economy. Comparing it to countries like Japan and Germany delivers the message effectively. Surprising comparisons stick. At the same time, know when material belongs in the appendix. A timeline of Google is an eyeful that probably belongs in supplementary materials, not the main presentation. If it does not convincingly answer the question of significance, move it.

Sometimes a Table Is Better

A mentor always said that tables are underrated. If you are showing a large set of numbers, consider putting them in a table. Why force 32 numbers into a chart when a table communicates them more clearly? Tables allow precise comparison without visual distortion. They are the right tool when accuracy matters more than pattern recognition. Choose the format that serves the data, not the format that looks more impressive.

- 1Data Visualization Best Practices
- 25 Data Visualization Best Practices
- 3How To Choose Between A Bar Chart And Pie Chart

Summary

Data visualization is about clarity and persuasion. Strip clutter, use consistent scales, annotate key points and let the data tell a story. Tables are underrated. When a graph cannot answer the question, put it in the appendix or discard it.