Data Visualization: Creating Impactful Reports

Summary

Data visualization is a great way to create impactful reports, dashboards that improve decision making, better ad-hoc data analysis, improved information sharing, increased ROI, time saving and reduced burden on IT. Data visualization is a critical component in the era of big data, enabling users to see trends and patterns that provide actionable intelligence. Visualizations help business users to see data patterns that were not obvious before. Data visualization is the key to present data in a way that is easy to interpret, saving time and energy.

The **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.

Interactive visualization

Interactive visualization is the next step moving beyond static graphics and use tablets and mobile devices to drill down into charts and graphs for more details. By using interactive visualization, users can interact and manipulate input to know key performance of specific areas of interest. By presenting data in different ways, users can benefit from understanding different aspects of their data at the same time. With a combination of data and aesthetics and visualizations creates a medium for users that can shape data into quality decision-making.
As humans can easily distinguish between shape, color and length without significant effort, there are variety of conventional ways to visualize data effectively such as tables, histograms, pie charts and bar graphs. Some modern approaches to data visualizations are mind maps, data blocks, zoomed in and out, visual spikes, heat maps, site graphs, roundup etc. Effective visualizations are clear and effective in communicating the content. In addition to content, presentation is equally, if not more, important. The perfect balance between content and presentation allows the user to absorb the information in the optimal way.

Data visualization DO's and DON'Ts

Below is a crucial list of DOs and DON'Ts in data visualization that help build impactful reports for successful information communication:

Start with the purpose – Message the visualization intended to convey to the user

Keep it simple – Choose a simple medium of conveying the message. Don't overload the user with unnecessary information or visuals

Choose correct chart types – It is very difficult to make sense of an incorrect chart type. For instance, bar charts are used to illustrate comparisons while scatter plots depict relationships between variables.

Use the full axis to avoid distortions – comparing data points when there is a break in an axis in very misleading.

Descriptive titles – including a good title will communicate the focus of visualization.

3D graphics – using 3D graphics makes it difficult to interpret the data. Using the 3D graphic perspective users could misrepresent the surface area if slices and distorts leading to incorrect decisions.

Make assumptions about the users – Not everyone knows the jargon. Poorly designed visualizations are

confusing and irritating for users as time and attention to detail is limited for the average user.

Overstating or oversimplifying – The conclusions are dependent on how the data is represented. Resist overstating or oversimplifying as the user may get an incorrect idea of the data being presented.

Choice of Colors – Choosing the correct choice of colors will better convey the core meaning of data and misusing/overusing colors can lead to sending the user the wrong message about the data.

Avoid too much text – The use of too much data distracts users.

Limit the number of shapes – Overloading the diagram with too many shapes can also overwhelm users trying to understand the data patterns.

Organize the windows – If there are more than one visualization methods used in the same window, organize for better comparison and data flow.

Guide to choose the right chart type

Understanding the intention of the chart to answer corporate questions is key to a successful data visualization. Let us now look at the analysis type and the right chart type to use.

Trends – Trends over time is a popular method to analyze the life of a product and the revenue generated. Line charts, area charts and bar charts are the best chart types to interpret this data.

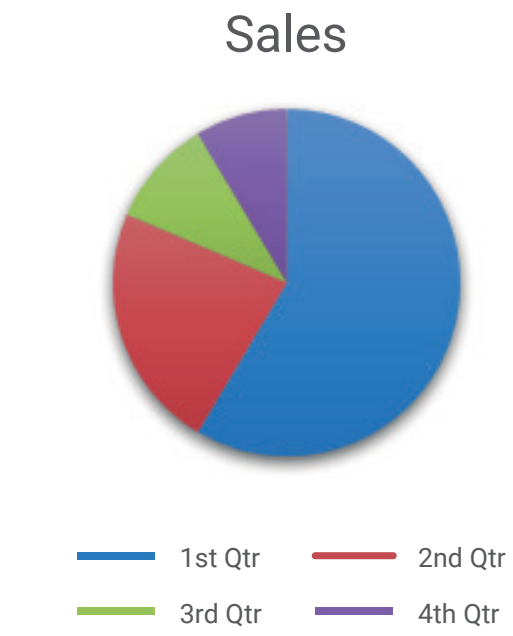
Distribution – Box plots are an excellent way to understand how values are distributed across the range.

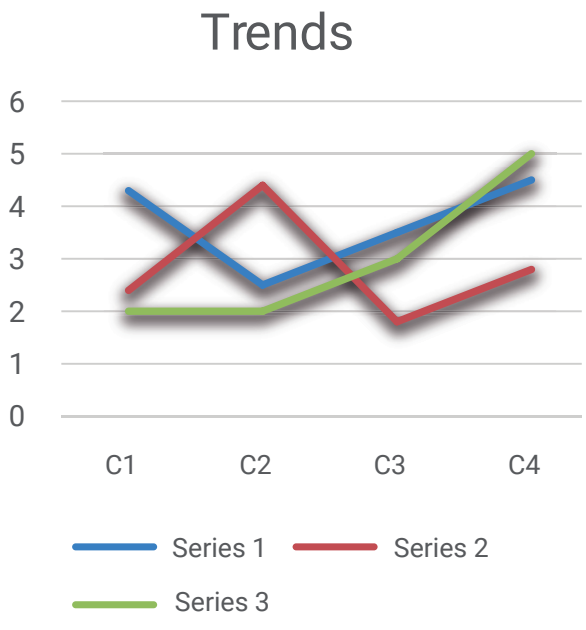
Part-to-Whole – In many situations, part-to-whole analysis requires using a visual system that is easy to process. While pie charts are traditionally used, percentage-total bars are a great alternative.

Comparison – To perform any comparison between two or more products in the same category, the ranking bar chart is a great way to visually represent this sort of information.

Correlation – To analyze relationships between measures, scatter plots are great place to start and can be used in conjunction with other visual representation methods to solidify the message being conveyed.

Geographical data – To show geographical data based on location, it is best practice to always use a map paired with a chart showing a more detailed breakdown. Based in the type of analysis map can be paired with line for trends and pie for part-to-whole analysis.





Conclusion

Great visualization representation will drive the analytical process. Data visualization techniques enable the user to make faster decisions and a better technological investment. Interactive visualization is the next step in the visual representation of data, choosing the correct chat type and avoiding pitfalls will lead to impactful reporting.