

The Use of Tableau in Data Visualizations

I would say that there was a very steep learning curve in understanding how Tableau works, and the tutorials that we watched did not really provide insight into the inner mechanisms behind the visualizations. However, tinkering around in the program was the best teacher. I think I could definitely still stand to learn a bit more about the theory of data visualization and best practices in the field.

For example, I realized that I was unfamiliar with several of the types of charts that Tableau has available for use. One such chart was the Gantt chart, which I did end up using twice within my workbook. I decided to use this unfamiliar chart because, as I applied the data that I wanted to show, the Gantt chart came up as the recommended type. After exploring my other options, I agreed with Tableau's recommendation. However, at other times, I knew exactly which chart type I wanted to implement and used Show Me's criterion to determine which data I needed to include in order to have that option. Other times still, I knew exactly which chart type I wanted to employ, applied the data that I needed according to Show Me's criteria, and came up with ugly and uninformative results. In those cases, Tableau did, in fact, know best and had recommended the best chart type.

I understand data visualization to be the use of visual elements (such as color, size, orientation, location, and more) to represent different variables. A good data visualization should show more than just the data; it should also make it easy to understand the conclusions that can be drawn from the data. According to Keim et al. (2010), raw data is useless, whereas the information that is gained from the analysis of that data can be incredibly useful.

Additionally, data visualizations should take into account their audience. An audience of experts will have a more developed understanding of the raw data and a reason to be interested in the conclusions that can be drawn from it. For example, Thomas and Cook's (2005) conclusions highlight the need for employees of the Department of Homeland Security to be experts within their field as well as within data visualization; in this scenario, a viewer should require little to no explanation when viewing a relevant visualization because they would be a subject matter expert. Meanwhile laymen will have very little understanding of data and may not even be interested in it. Lee et al. (2021) discovers that different data analysts can have vastly different results within the same community using the same data. The probability of success is based on the analyst's understanding of their audience. Successful analysts understand their audience, how to get them interested in the data, and how to present the data in an understandable format.

As for interactive visualizations, the effective ones make possible actions intuitive and they make the impacts that they have on the visualization obvious and easy to understand. Norman (2013) considers this to be integral to the design of data representations (as well as everything else) and outlines the multiple cognitive levels at which data visualizations need to be appealing.

Fortunately, Tableau easily meets all of the requirements that I've listed for static and interactive data visualizations. It allows the analyst to explore the data in numerous ways to draw countless conclusions and insights. Also, in Tableau, the user decides what level of detail to go into within their visualizations, how to arrange them, and what story to tell with the data, allowing the analyst to cater to the appropriate audience. Furthermore, Tableau provides a robust framework for configuring the actions that a viewer can take within the data, along with what impact the actions will have.

References

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