A New Vision for Data Visualization:
Marrying Data Science and User Experience Design

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The financial services industry is changing the way it thinks about data. We can see this in new and upcoming regulations, like the Consolidated Audit Trail (CAT) in the US and the General Data Protection Regulation (GDPR) in Europe, where regulatory obligations have become stricter around data requirements. While the data security aspect of this is important, a large part of this shift is the increase in the amount of data. Data, especially in industries like financial services, can be a firm’s most valuable asset – but only if they can understand the data that they have generated and how to use it. Many tools in the industry have surfaced to address this need and enhance data visualization. The main challenge has been how to visualize data in a way that makes it the most meaningful and the most intuitive to the largest amount of people. The key challenge is to keep things simple. This can mean anything from taking into account how different people might take in and interpret these images, to how different use cases make more sense with certain visualization styles. User Experience (UX) design can help firms showcase what’s most important and to create a new vision for data visualization. The following are some best practices for firms to keep the top of mind when designing and implementing data visualization tools for financial services by leveraging UX.
A New Vision for Data Visualization

Avoid over-engineering solutions

As data becomes more complex, and we are able to do more deep analyses and intricate things with this data, solutions that bring meaning to data by using data visualization risk further complicating already difficult to understand data sets by being too elaborate or over-engineered. It cannot be stressed enough that simplicity here is key. Over-engineering & over-complicating will end up confusing the end user and they'll get far less value than less data shown clearly. Data visualization tools should make their purpose clear from the start and be intuitive to use, digest information, and achieve its purpose. Meaningful data visualizations are dependent on the correct workflow application.

Create easy-to-read images

There are many visually and aesthetically unique and interesting things that can be used to visualize data, or design really any sort of graphic. However, when the visual aspect is thought of before the data itself, the risk is that the actual design of the visualization and the temptation to do something new will become priority and convolute the message the data should get across. For data visualization, this the focus should be the data with simple messaging, visualized in the simplest way possible.

For example, when images are 3-D, it becomes harder to judge if the information should be read against the front or the back of the column, and therefore the message can’t be read quickly. The use of 3-D graphics can become muddled and have less meaning.

Other types of charts, like pie charts, can also become muddier and, in turn, make it difficult to read quickly and to differentiate between parts of the graph. While simple and perhaps boring, simply 2-D line and bar graphs have the easiest legibility. One key concept that often gets forgotten is color palette choices relating to readability. While a well-defined, bold color palette makes sense from a corporate perspective, this doesn’t work for everyone. By keeping in mind UX while creating data visualizations, one should keep contrasting color schemes so there is no confusion which section is which color. By keeping in mind UX while creating data visualizations, one consideration must be if it will be easy to read for those with color-blindness, rather than just focusing on a corporate color scheme that works for branding, but less so for usability. For instance, red/green coloring is a default for bad/good comparisons, but is generally the worst color scheme for color-blindness.

[Instruction: Add example UI of a good data visualization here and what is good about it…. Preferably something we’ve designed]

The data visualization should be simple and quickly draw the user’s attention to the right parts, and quickly grab the relevant information from the visual for them to continue on with their work. A good use case of data visualization in financial services might look like a trader’s screen where green bars go up with market activity. This simple visualization will quickly draw the trader’s attention to the spike in activity, and allow for them to react immediately upon seeing this.
Layers of simplicity

For visualizations in different workflows, data visualization should play by the rule of three layers of simplicity. What that means is that in a visualization, you can expand on a topic using layers, becoming more granular each layer down, with a limit of three layers. Any more than three, and users will become unfocused and the information will become muddled. With three layers, focus can shift as the topic is drilled into deeper, so that the focus of what is trying to be communicated is always at the center of the visualization. For example, a store might create a graphic that shows sales by Country, then Region, and then Store level to drill into more meaningful representations of how the sales are broken up.

Another example of this is Quantexa’s entity resolution and networking which shows a visualization of entities, relationships, and networks, mapping out how different corporations, individuals and other data points interact and relate with one another. Instead of becoming a spaghetti web of intertwined and confusing paths, they are able to distill the complex information into visualizations that focus in on the key elements and are easy to understand the first time. The entity being examined, when clicked on always remains the focal point of the visualization and the network dynamically shifts to map around that central data point.

Good data visualization should be extremely simple in nature, both in implementation and the visuals themselves. The reality is that keeping things very, very simple and concentrating on what the data should communicate and the story being told as simply as possible, is best. By leveraging UX to address data visualization makes the most sense because it is inherently at the heart of what data visualization is trying to accomplish – to scan the visualization quickly, know what is being looked at, and be able to work with that seamlessly. With the large amount of data most financial firms are dealing with today, creating an easy-to-read, quickly digestible visualization that flows nicely will help create meaningful visualizations that can drive decision-making processes.