

**Pre-attentive attributes** are the elements of a data visualization that people recognize automatically without conscious effort. The essential, basic building blocks that make visuals immediately understandable are called marks and channels.

**Marks** are basic visual objects like points, lines, and shapes

**Channels** are visual aspects or variables that represent characteristics of the data. Channels are basically marks that have been used to visualize data.

## **Four elements of successful visualizations**

The Venn diagram by David McCandless identifies four elements of successful visualizations:

- **Information (data):** The information or data that you are trying to convey is a key building block for your data visualization. Without information or data, you cannot communicate your findings successfully.
- **Story (concept):** Story allows you to share your data in meaningful and interesting ways. Without a story, your visualization is informative, but not really inspiring.
- **Goal (function):** The goal of your data visualization makes the data useful and usable. This is what you are trying to achieve with your visualization. Without a goal, your visualization might still be informative, but can't generate actionable insights.

- **Visual form (metaphor):** The visual form element is what gives your data visualization structure and makes it beautiful. Without visual form, your data is not visualized yet.

**Histograms are used to demonstrate how often data values fall into certain ranges.**

**A diverging color palette in Tableau displays a value's magnitude by color intensity and a value's range by color hue.**

**An effective narrative has a beginning, a middle, and an end. It also clearly explains important insights from the analysis.**

## **Messy data presentation**

- No story or logical flow
- No titles
- Too much text
- Inconsistent format (no theme)
- No recommendation or conclusion at the end

## **Good data presentation**

- Title and date the presentation was last updated
- Flow or table of contents
- Transition slides
- Visual introduction to the data (also used as a repeated theme)
- Animated bullet points
- Annotations on top of visuals
- Logic and progression

- Limitations to the data (caveats) - what the data can't tell you