

Week 1: Data Visualization



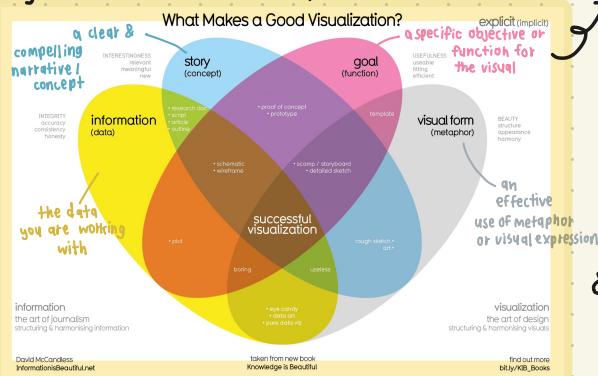
understand in 5 mins

* Avoid misleading visualization * not change over time unless they're edited
Static vs. Dynamic interactive / change over time

- Data Visualization → the graphical representation and presentation of data.
- ① Looking at visuals in order to understand & draw conclusions about data.
 - ② Creating visuals using raw data to tell a story.

What makes → "ISGV" a good visualization?

by the McCandless Method *



Frameworks for organizing your thoughts about visualization

Kaiser Fung's Junk Charts Traiecta Checkup

→ help consumers of data viz critique

what they are consuming and determine how effective it is. With these questions:

- > what is the practical question?
- > What does the data say?
- > What does the visual say?

② Pre-attentive attributes: Mark and Channels

→ elements of a data viz. that people recognize automatically without conscious effort.

Position (relation to others)

Size (big/small)

Shape (what shape communicating)

Color

color: good when distinguish
the differences like apple,
but may less effective in
like amount/quantity/quality

Accuracy

Popout

Grouping

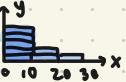
distinguish certain values
from others
consider proximity, similarity,
connectedness, and continuity
of the channel



① marks
(basic visual objects)



② channels
(variables that represent char. of the data)



data values

Correlation

vs.

Causation



Correlation Causation

• Correlation → two variables move in relationship to each other.

e.g. "As the temp goes up, ice cream sales also go up." Positive Neg/

* It indicates a pattern with relationship to each other, but it doesn't mean that one event causes another. *

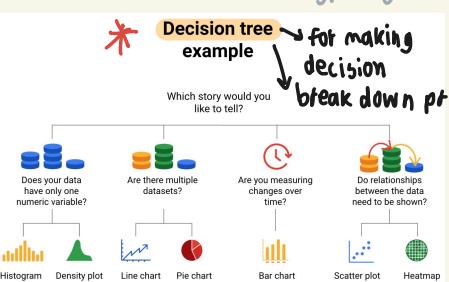
• Causation → Event leads to a specific outcome e.g. "When lightning strikes, we hear the thunder (sound wave), caused by the air heating and cooling from lightning strike" Lightning causes thunder,



Decision tree example

for making decision
break down problems into smaller

Which story would you like to tell?



- The elements of art

- × Line → Horizontal / vertical
- × Shape → should be 2 dimensional, not 3 because it can cause confusing.
- × Color → Hue = color
 - Intensity = how bright/dull the color is?
 - Value = lightness/blackness
- × Space
- × Movement

- 9 Basic Principles of design:



Data Composition

→ combining the individual parts in a viz. and displaying them together as a whole

Elements of Effective visuals

- ✓ Clear meaning → clear commu.
- ✓ Sophisticated use of contrast
 - ↳ separate the most important part out
- ✓ Refined Execution → deep attention to detail