

At the beginning of the talk, Mr *Edward Tufte gave us Galileo*, one of the the greatest *thinking eyes ever as an example of data visualization*.

To forecast the future of data analysis, there are some examples:

1. Swiss Mountain Maps, we can see the ski lifts going through the mountains. This Map of Swiss Alps works because it is:

- A. All about content
  - B. High resolution
  - C. A gentle expression of a third dimension- we don't need pop ups to see micro details
  - D. Light colors to avoid optical clutter
  - E. Colors are content driven, realistic
  - F. Smart graceful typography done by serious Swiss typographers. Size of type is proportional to the size of the object labeled, the type is quantified.
  - G. Contour lines are three dimensional spark lines
  - H. Fixed Z, they go in X,Y space
  - I. Complete integration of words and numbers in depictions
  - J. Zero charts,
  - K. Every pixel is moving and changing and carrying content (in animation)
  - L. Exact numbers provided for the height of the mountains
  - M. Labels of contour lines
  - N. It avoids the de-quantification found in most data visualization stuff
2. Soccer score. The video of this scored goal is 2–3 seconds and it's hard to figure out what's going on. Slow motion is a little better. But this layered still of the action is the best visualization to understand the story.
3. Compare Google Maps to the Swiss alps to see how far we have to go today.
4. Unemployment rate. As inflation rose, unemployment goes down.
5. Google Predictions of Flu Failed.

The Future of Data analysis is to take seriously the distinctions between studies that are confirmatory of an idea versus exploratory detective work. A fundamental task of analytical thinking is to make smart comparisons. No matter what the data is always comes down to making smart comparisons. The numbers are just representations of things. Go out and see how the data are actually inspected! Another principle in how data are collected- take any web metric and divide it by some power of ten to get the right answer.