

Survey of Visualization Techniques

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What is it?

- a way to represent the most recent massive growth of data
- over 100+ techniques used
- used for all forms of data and analysis

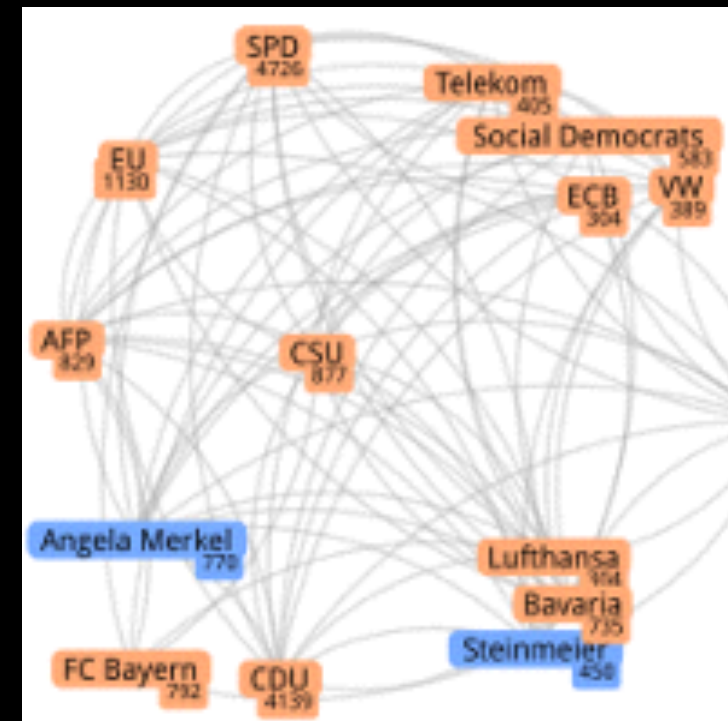
History

- 1786 - William Playfair published first presentation graphics
- 1987 - First strong prevalence on visualization, Computer Graphics in Visualization article in Scientific Computing Magazine

Some Uses

- Big Data Analytics
- Data Mining
- Production Control
- Human-Computer Interaction
- Psychology
- Drug Discovery

example visuals

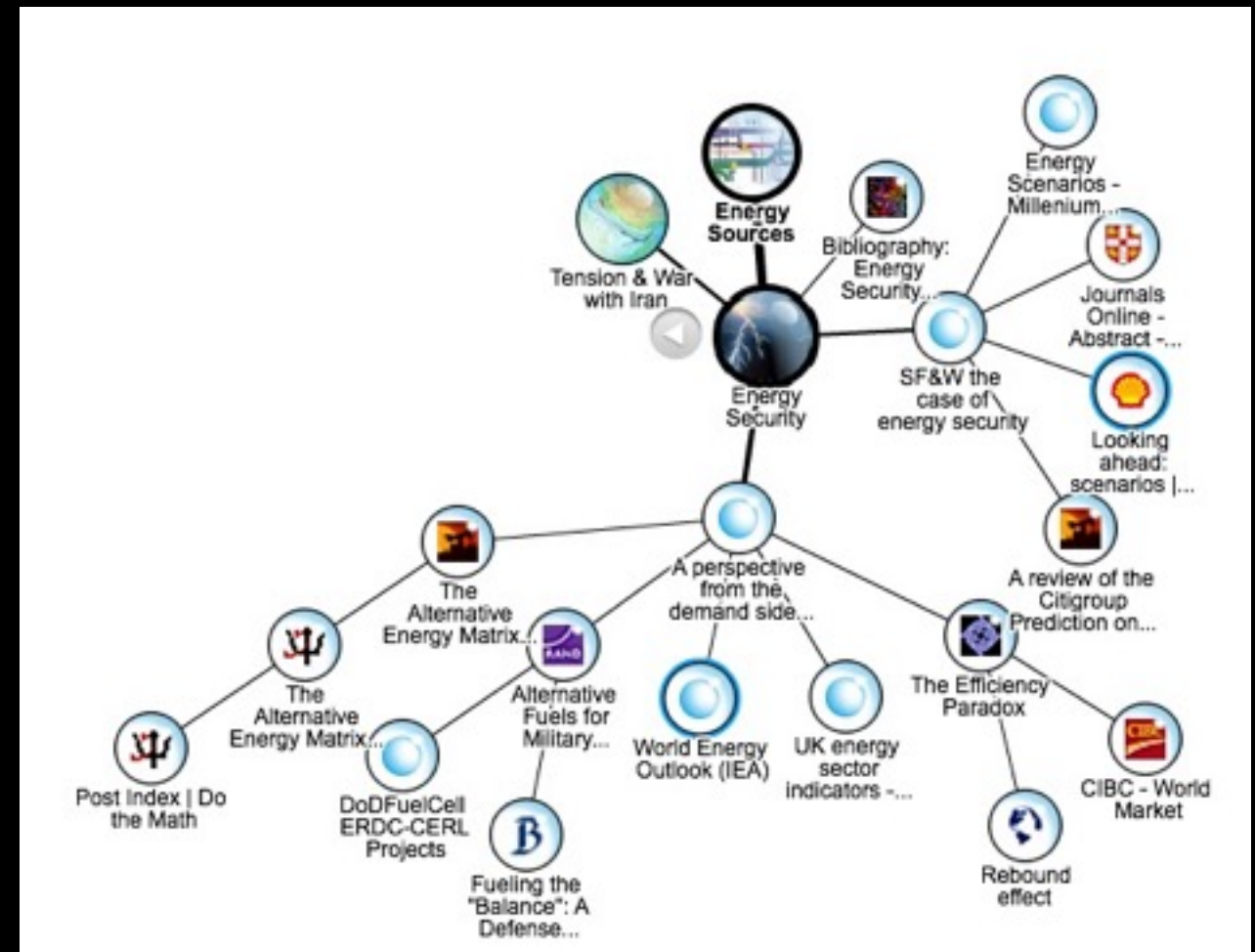


- the left most image was used to display computer documents
- to support a rich browsing experience to the user
- connected points to documents and groupings help with visualizing document space

- right most image is used to display the relationship between humans and organizations
- data set is large and abstract, this simplifies

3 Main Points

- Data - frame of reference/ variable
- Visuals - mapping/dimension
- Time - arrangement/ time

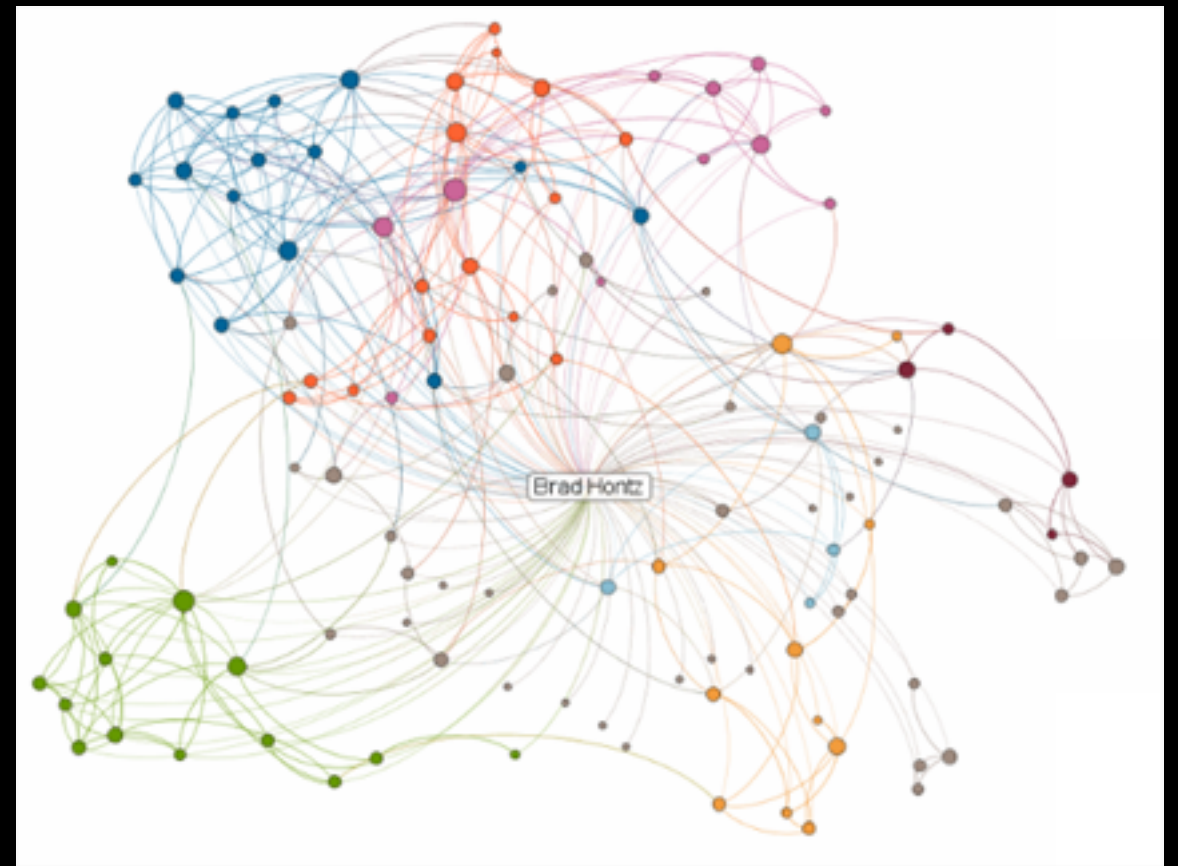


3 Main Points cont.

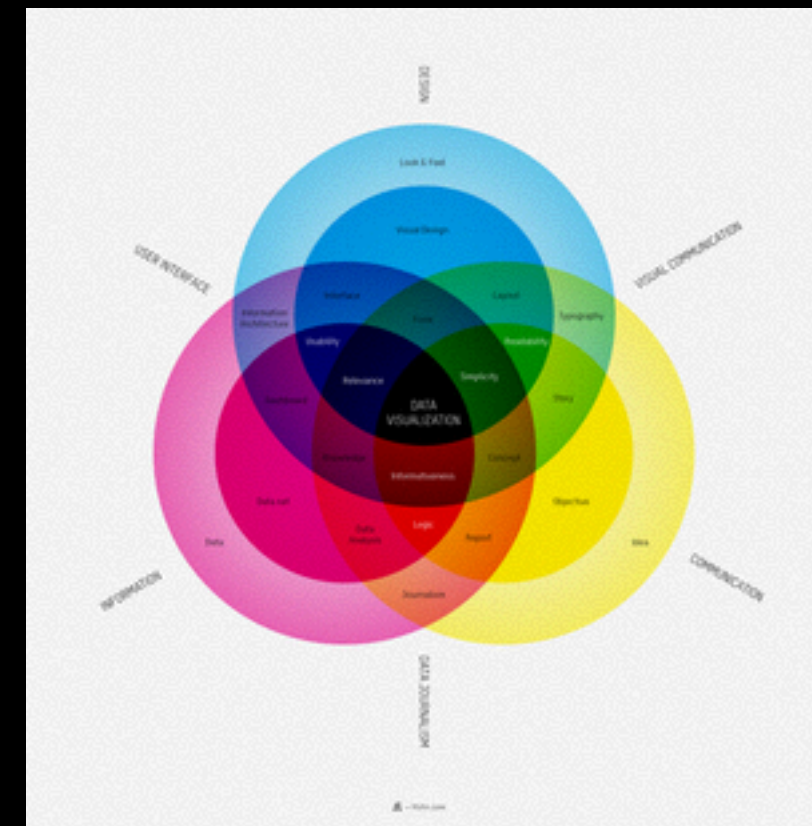
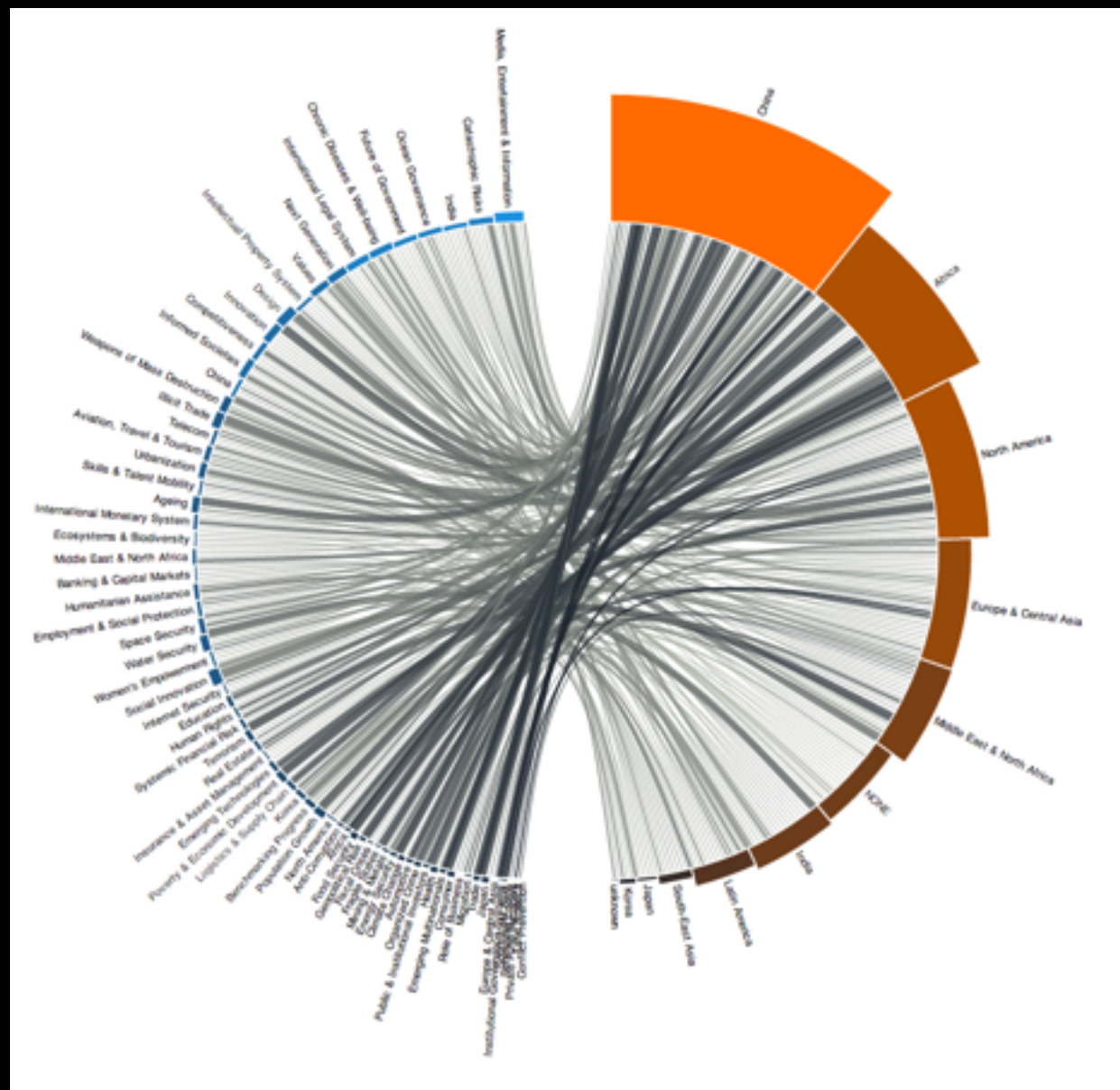


Visualization

- example from a LinkedIn Network
- visual graphs convey immediate purpose
- show trends and outliers not easily seen in a table
- designed to quickly come to a conclusion of analysis of results



<http://www.mtabsurveyanalysis.com/visualization-techniques-graphic-visualization-vs-presentation/>



Importance

- take advantage of the human cognitive ability
- allow users to explore and interpret large amounts of data at once
- convey abstract information in intuitive ways
- allow use of human imagination and creativity

Importance cont.

- drawing conclusions on the data is largely based on the abilities of the person analyzing the data
- interpreting can be done without any complicated or pre-required methods
- can be used for not only interpreting data for conclusion, but also hypothesis

References

- http://en.wikipedia.org/wiki/Information_visualization
- <http://textvis.lnu.se/>
- http://link.springer.com/chapter/10.1007/978-0-85729-079-3_7#page-1
- <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=235198>