

# Value-Driven Evaluation of Visualizations

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“No user studies are reported in this paper,  
thus it is unclear if the visualization will be useful.”

Really?

- Which cars have the best miles-per-gallon?
- How much does a Ford Taurus cost?
- Is there a correlation between car weight and torque?
- How many different countries manufacture cars?
- What is the range of car's horsepower?

# ~~Evaluation~~

Explanation(s) and Illustration(s) of value

# Visualization's Value?

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$$V_{\text{alue}} = T + I + E + C$$

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Ability to minimize the total **time** needed to answer a wide variety of questions about the data

(Without formal queries, Interaction really helps)



# Visualization's Value?

$$V_{\text{alue}} = T + \mathbf{I} + E + C$$

Ability to spur and discover **insights** or insightful questions about the data

(Would be very difficult with only the data)

# Visualization's Value?

$$V_{\text{alue}} = T + I + E + C$$

Ability to convey an overall **essence**  
or take-away sense of the data

(The big picture: Whole is greater than  
the sum of the parts)

# Visualization's Value?

$$V_{\text{alue}} = T + I + E + C$$

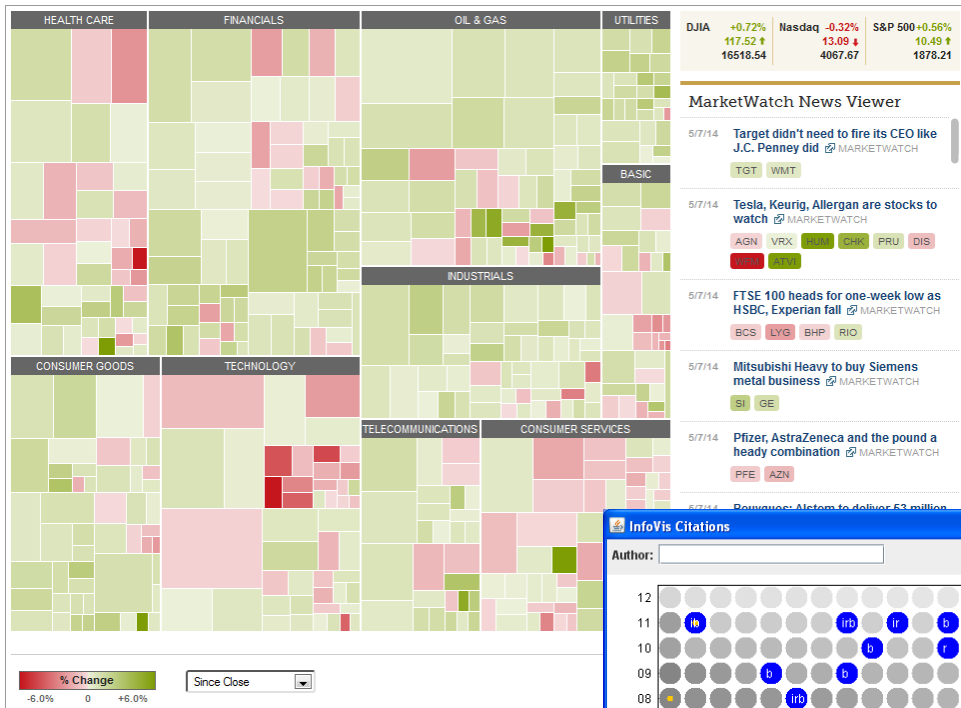
Ability to generate **confidence** and trust about the data, its domain and context

(Beneficial data analysis process side effects)

# Map of the Market

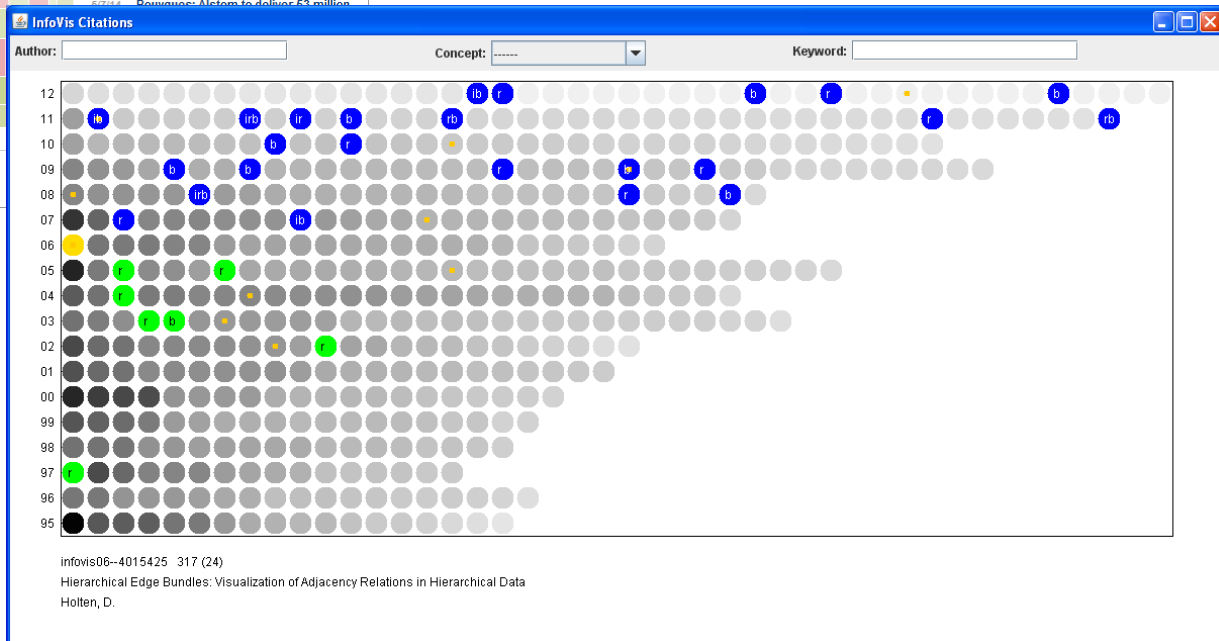
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All



CiteVis

# Map of the Market



# Data Visualization 101



Problem:

You have a lot of data (& attributes) to understand

Do you?

Pack all the data into one complex representation

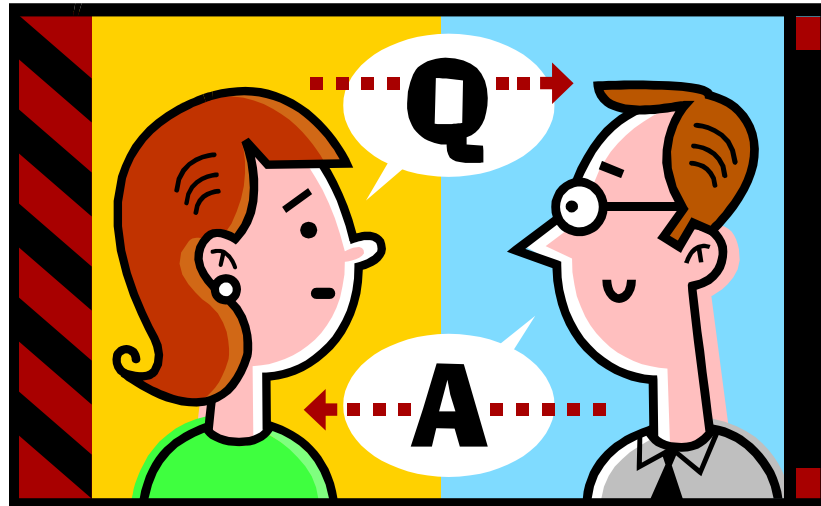
Spread the data into multiple coordinated views

Use interaction to reveal different subsets of the data



# Interaction is Vital

Engage in a dialog with your data



“The effectiveness of information visualization hinges on two things: its ability to clearly and accurately represent information and our ability to interact with it to figure out what the information means.”

*S. Few, Now you see it*

# Interaction

Understand the benefits (science of interaction)

Explore new interactive operations

Visualization on other display devices (touch)

# For more, see my EuroVis '14 Capstone Talk

The screenshot shows a Vimeo video player interface. At the top, the Vimeo logo is on the left, and navigation links for 'Join', 'Log In', 'Create', 'Watch', and 'Upload' are in the center. A search bar is on the right. Below the navigation is a vertical 'MORE VIDEOS' button. The video player itself displays the title 'The Value of Visualization... and Why Interaction Matters' by John Stasko, with his affiliation at Georgia Institute of Technology. The video player includes a play button, a progress bar at 1:01:58, and logos for Georgia Tech and the College of Computing. Below the video player, the video title is repeated, along with the VGTCCommunity logo and a 'NOT YET RATED' badge. An abstract is provided, and there are buttons for 'Follow', 'Stats', and 'Download' at the bottom.

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uroVis '14 Capstone  
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## The Value of Visualization... and Why Interaction Matters

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1:01:58

Georgia Tech College of Computing

**VGTC** EuroVis 2014: Capstone: The Value of Visualization...and Why Interaction Matters

from VGTCCommunity 1 month ago / via iMovie / NOT YET RATED

Capstone Speaker: John Stasko, Georgia Institute of Technology

Abstract: Visualization researchers need to do a better job communicating the value of our field externally. Visualization, by its very nature, provides inherent challenges to doing this. In this talk I will explain these challenges and articulate my views on the value of visualization, including its unique capabilities for data presentation and analysis. I will describe the advantages of interaction, and discuss in depth why interaction is so important to our field and how it has been under-utilized to date. Finally, I will present a number of new interaction ideas and techniques that can be integrated into our future systems.

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