VISUAL STORYTELLING WITH DATA AND INFORMATION

Bryan Connor &
Heather Bradbury

MICA

Figures often beguile me, particularly when I have the arranging of them myself.

- Mark Twain

The greatest value of a picture is when it forces us to notice what we never expected to see.

— John W. Tukey

Exploratory Data Analysis, 1977

Storytelling* with data

*Non-fiction

What makes up a story?

idea / curiosity / event,

a human component, a catalyst,

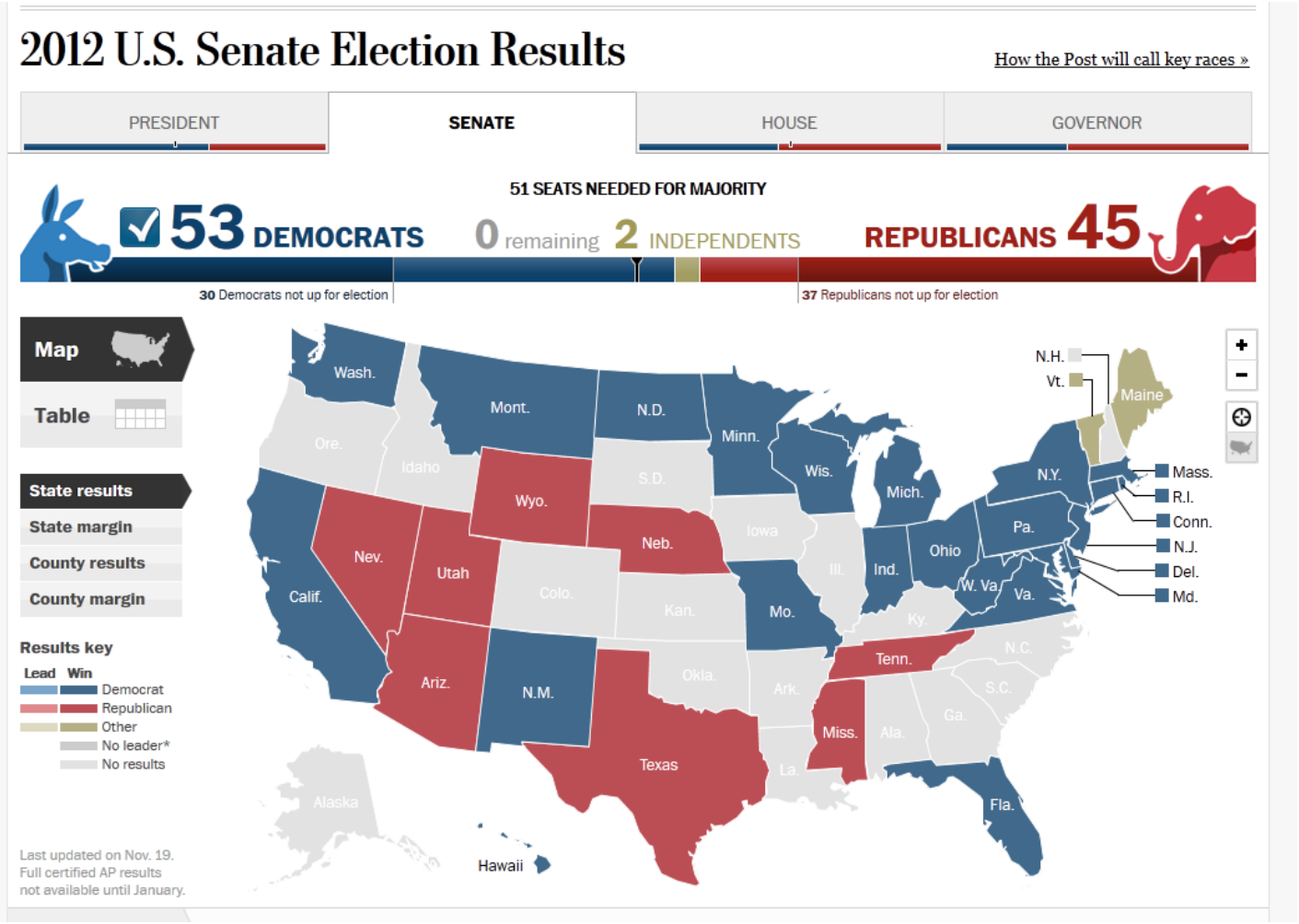
a climax, an ending.

Parts of a good story:

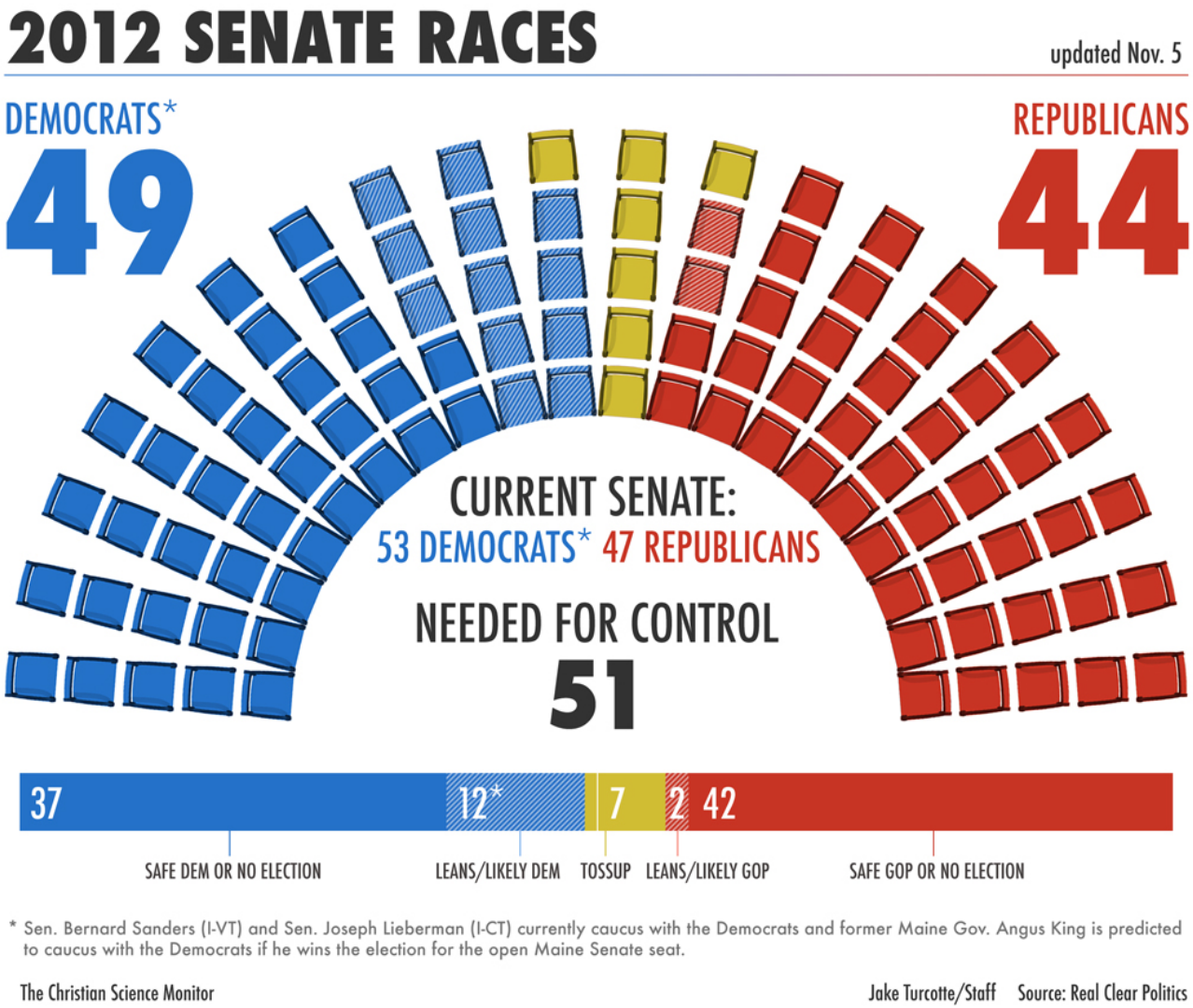
powerful & compelling,

has a clear or pursuasive message,

has a call to action.



The Washington Post



Christian Science Monitor

Data Scientist:

The Sexiest Job of the 21st Century

-Thomas H. Davenport and D.J. Patil

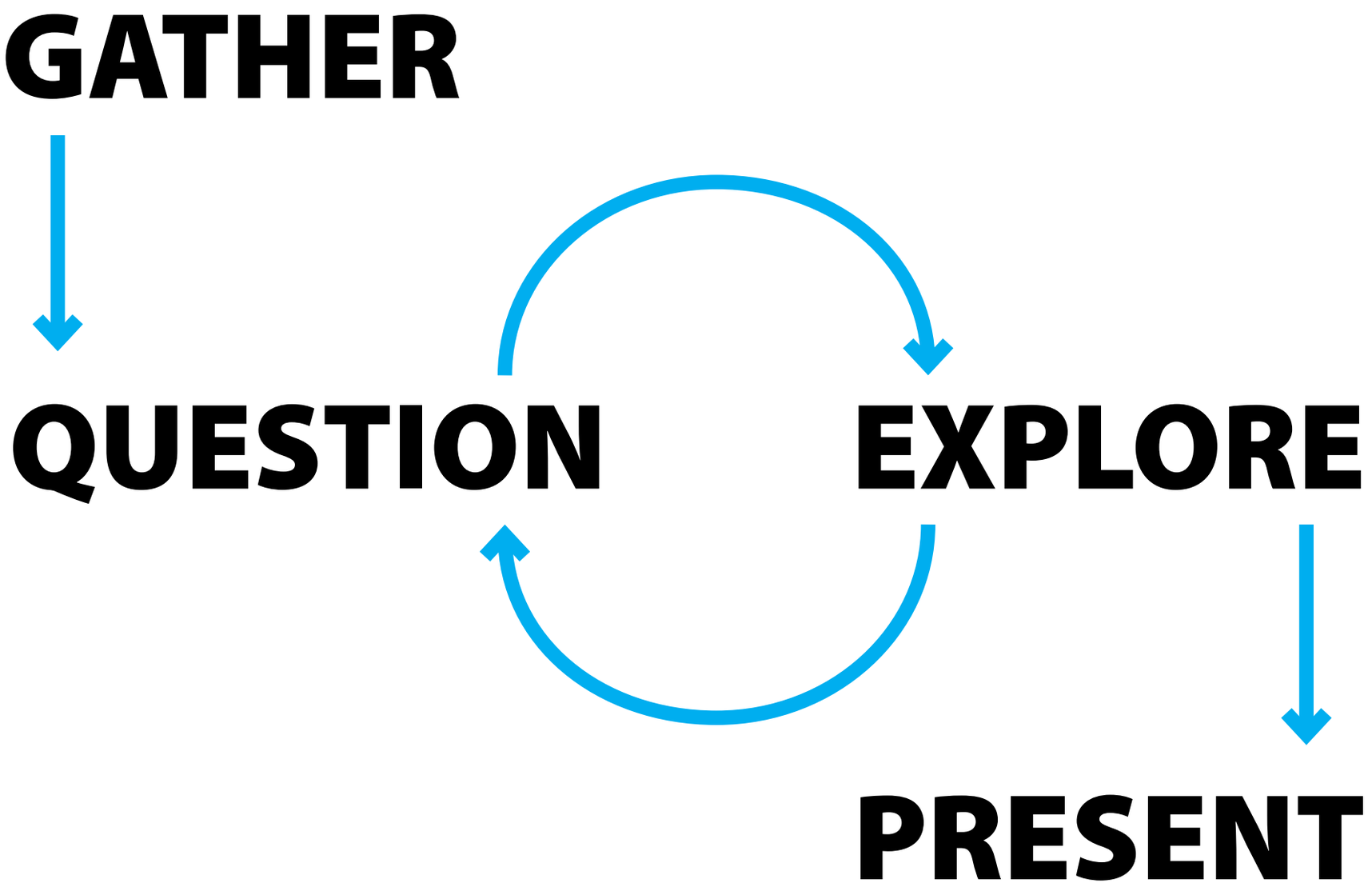
Harvard Business Review, October 2012

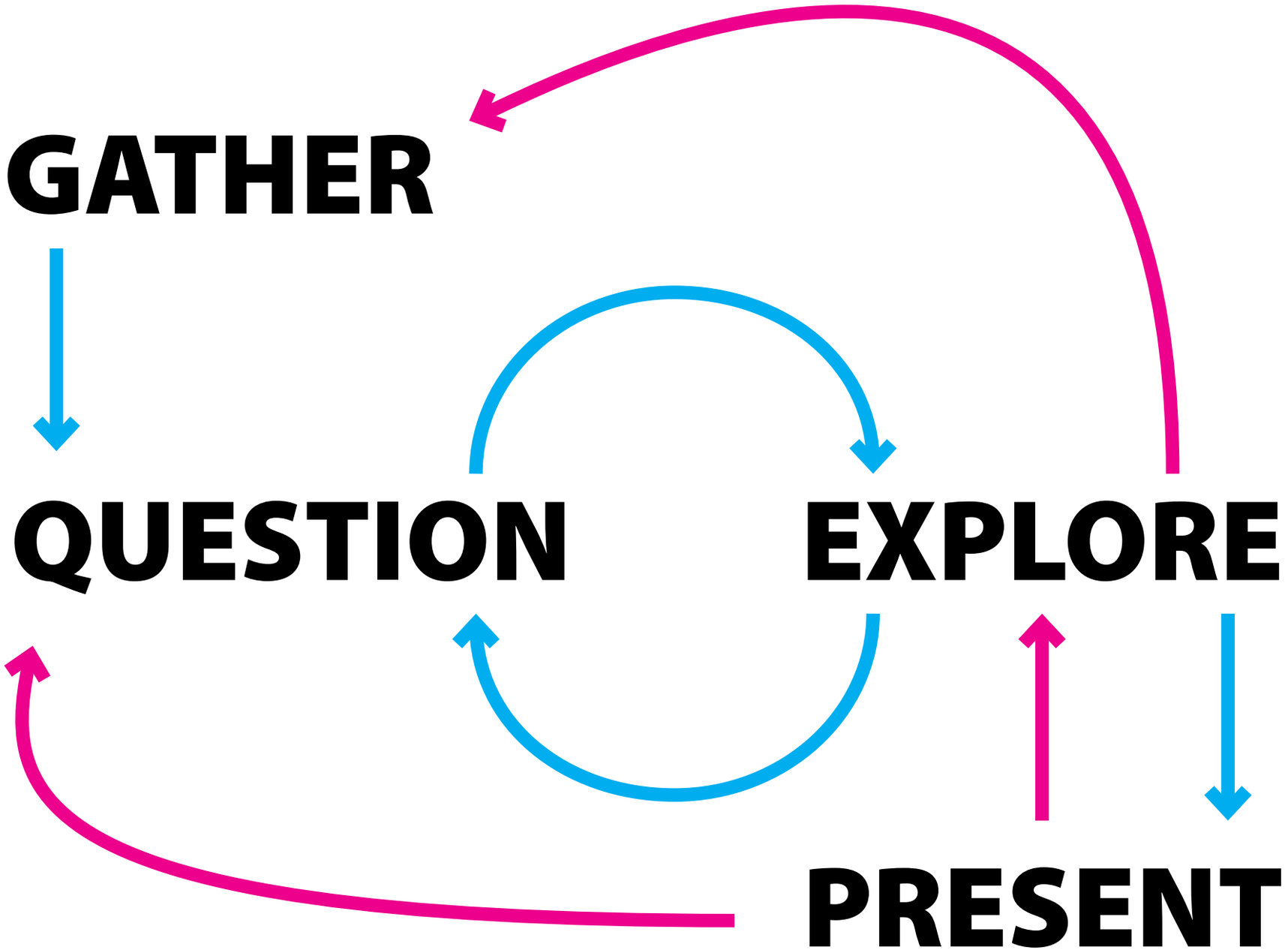
Good design is a lot like clear thinking made visual.

— Edward Tufte

20%
80%
DATA
VISUALIZATION

80%
20%
DATA
VISUALIZATION


GATHER
QUESTION
EXPLORE
PRESENT


GATHER
QUESTION
EXPLORE
PRESENT

GATHER

- Scrape
- Scrub
- Supplement
- Segment
- Evaluate

QUESTION

What are Baltimore City employees paid?

↓

Who are the highest and lowest paid Baltimore City Employees?

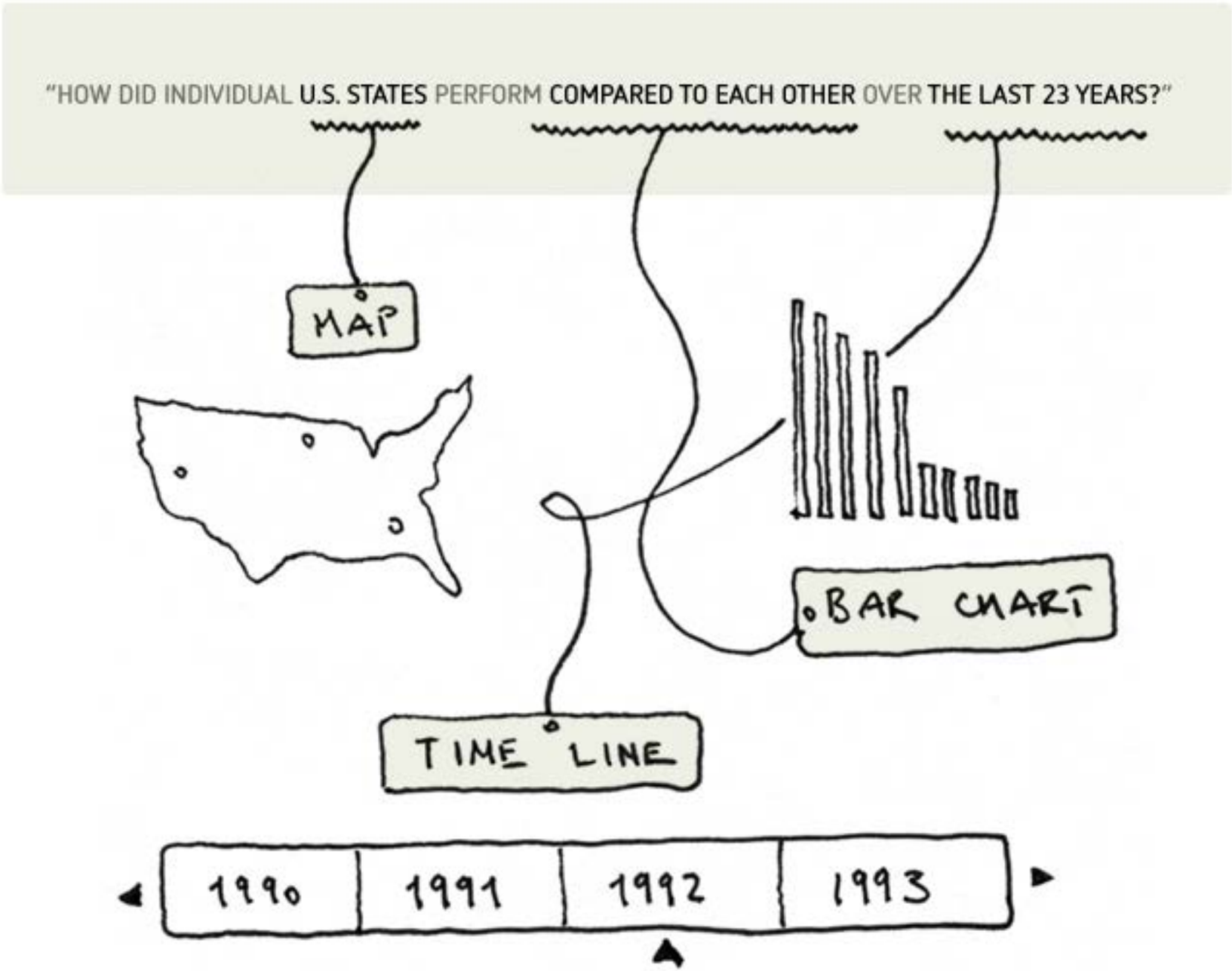
↓

How have the salaries of Baltimore city employees changed over time?

↓

How does the change in Baltimore city employee salaries compare to tax rates over time?

http://datavisualization.ch/inside/



INVOLVEMENT IN THE OLYMPICS

A LOOK AT WHICH COUNTRIES HAVE THE MOST ATHLETES IN ANY PARTICULAR CLASS OF SPORTS

Show involvement by:

- [x] Greatest to Lowest
- [x] Continent ∨
  - (●) N. America
  - ( ) S. America
  - ( ) Europe
- [ ] Percent in ∨ Sport Class
  - ( ) track & field
  - ( ) ~~~
  - ( ) ~~~

track & field Swimming Combat

. . . .

Making the Weight

Do athletes really weigh in at the top of their weight class?

***Weight classes** are divisions of competition used to match competitors against others of their own size. This reduces the exclusion of smaller athletes in sports where physical size gives a significant advantage. Weight classes are used in a variety of sports, especially combat sports (such as boxing, wrestling, and mixed martial arts)*

The existence of weight divisions gives rise to the practice of weight cutting. It is generally considered an advantage to be the largest individual in a weight division, therefore some athletes will work hard to lose weight through dieting and dehydration prior to weigh-ins to meet the required weight class. Reference

Select which groups to investigate in the graphs on the right

- ☐ All Athletes
  - ☐ All non-Weight Class Events
  - ☐ All Weight Class Events
    - [+] All Men's Weight Class Events
      - [+] Mens Wrestling
        - [+] 61 kg
        - [−] 81 kg
      - [+] Mens Boxing
        - [+] 61 kg
        - [−] 81 kg
    - ☐ All Women's Weght Class Events
      - ☐ Women's Judo
        - ☐ 50 kg
        - ☐ 60kg

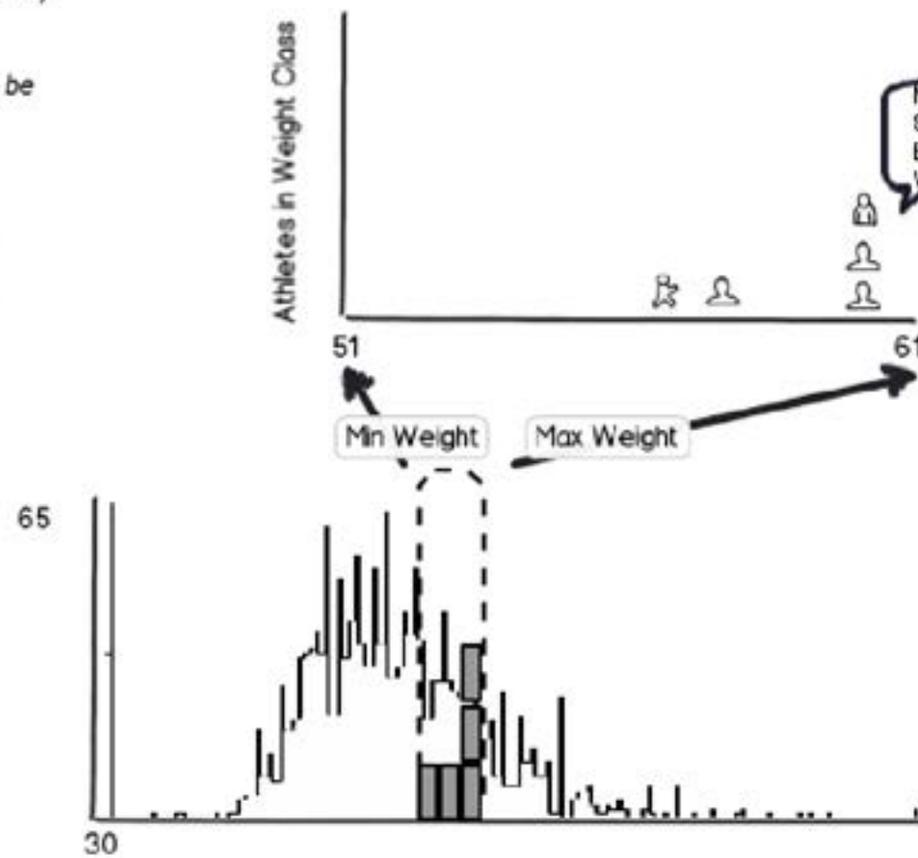
These #s change as selections change

3 of 5 athletes are less than the cut-off

- ◉ Show all athletes in class
- ○ Show only athletes below maximum weight

Distribution of Atheletes within the selecte

Point to an icon to get idetailed nformation abou



ide bar of other related formation of interest

Some human interest stories from athletes on what it is like to have to meet these weigh-ins

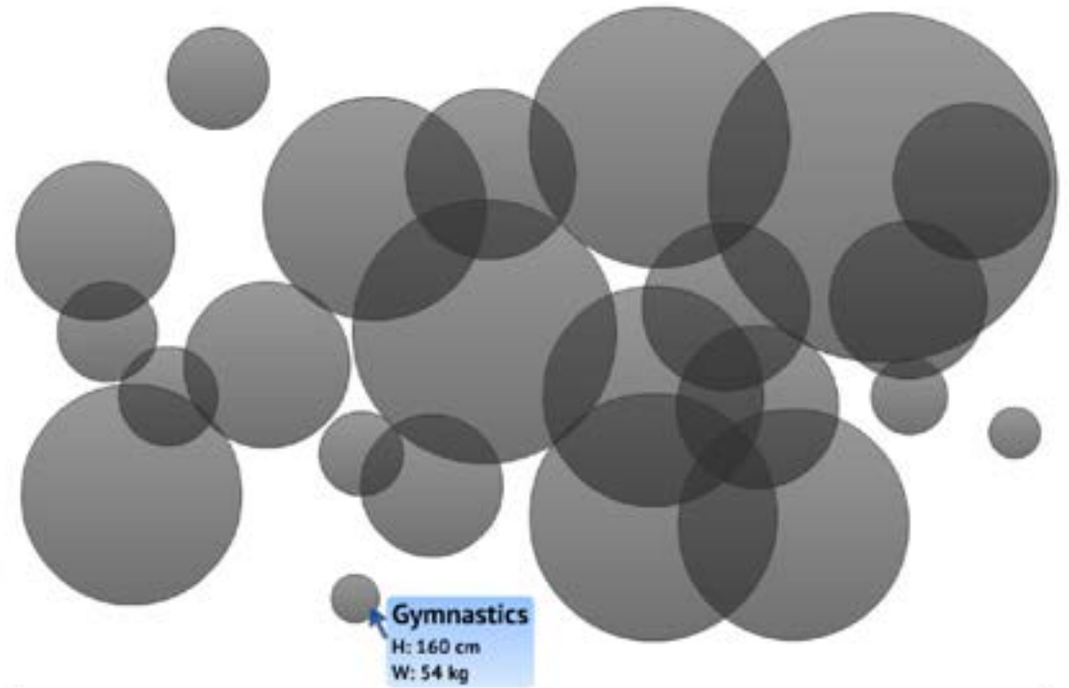
Some stories from coaches on how they help

Some stories on the health effects and risks of meeting these weigh-on goals

This histogram show
The atheletes in the weight classes chosen
for comp
The dotted lines show the bounds of the
automatically as the weight

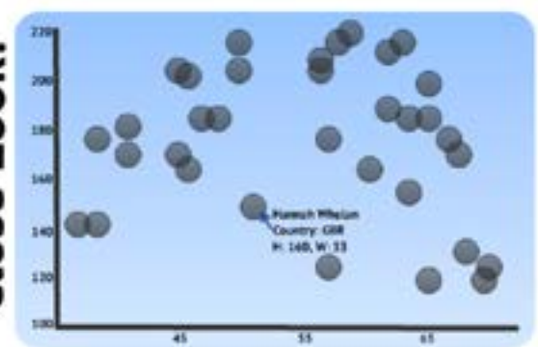
2012 Olympic Athletes

Height & Weight



A to Z

Close Look:



Filter no parameters Reset

Country:
- Argentina
- Australia
- Canada
- Czech Republic
- Ecuador
- Italy
- Japan
- Kazakhstan
- Latvia
- New Zealand
- Russian Federation

Sport:
- Athletics
- Cycling - BMX
- Handball
- Football
- Hockey
- Swimming
- Volleyball

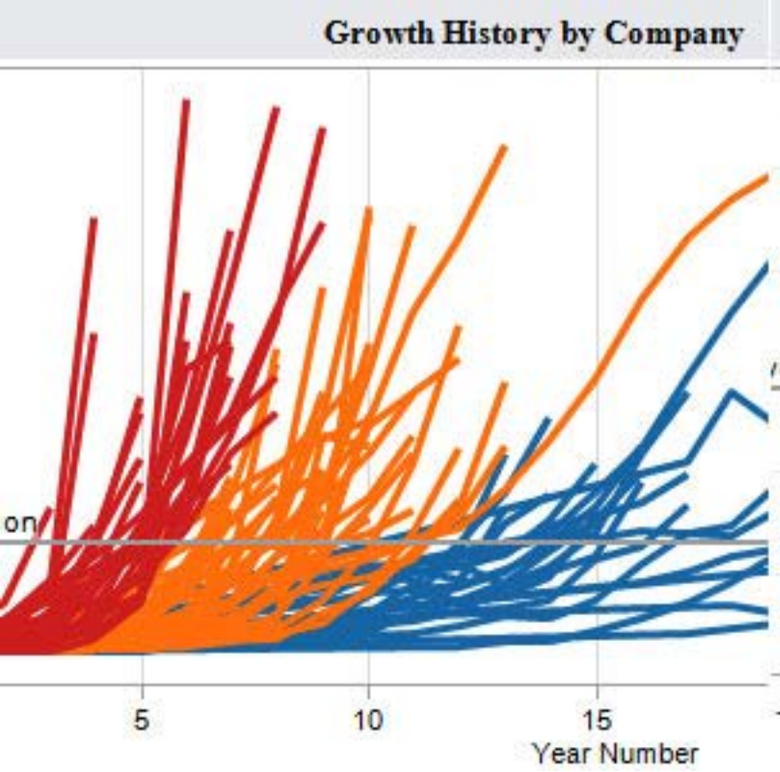
Gender:
- male
- female

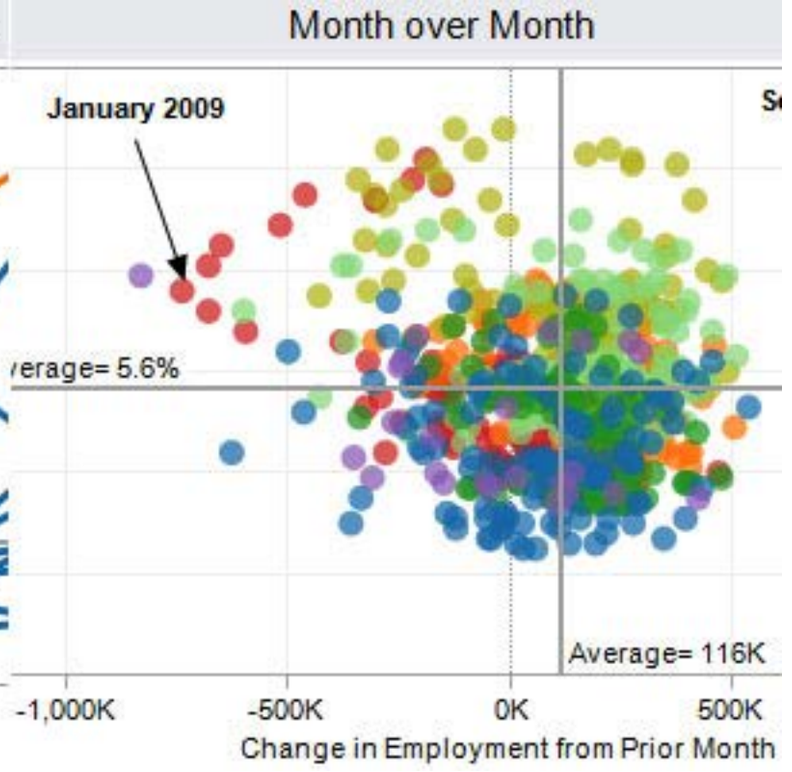
EXPLORE

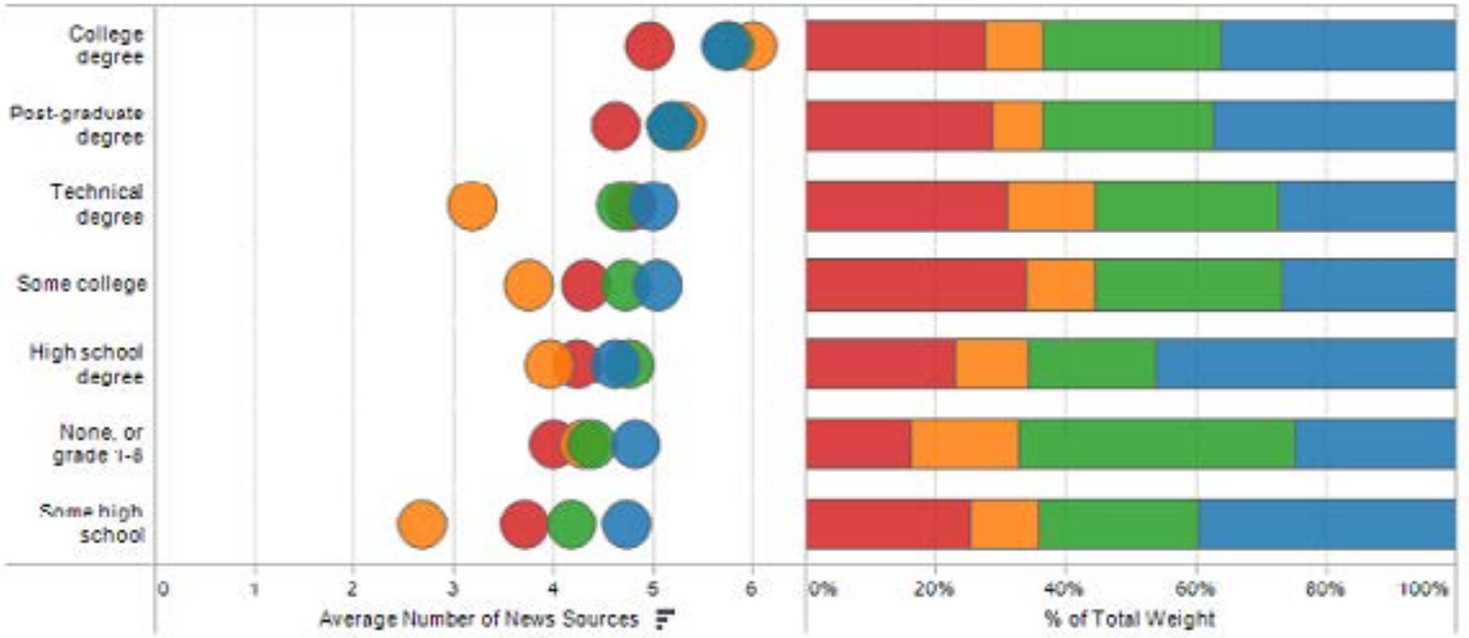
Spotfire

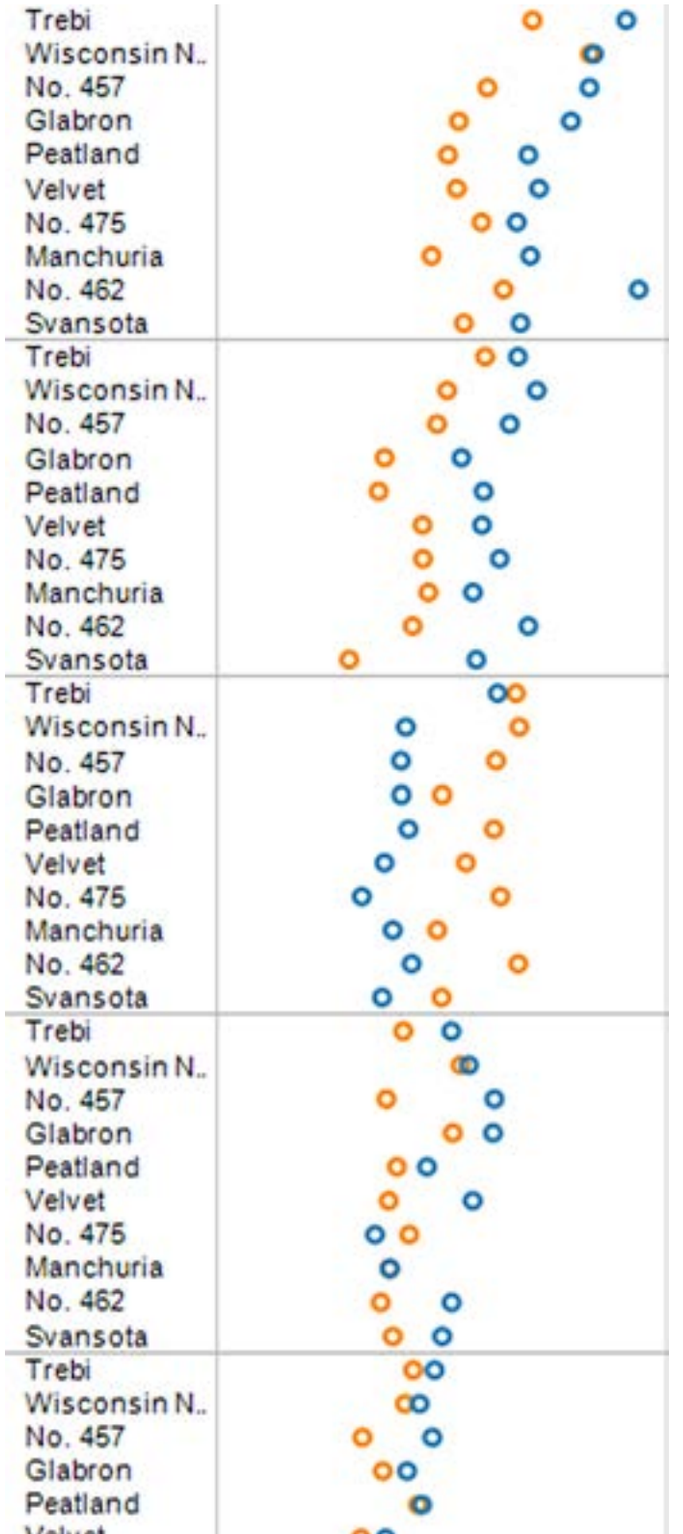
tableau
SOFTWARE

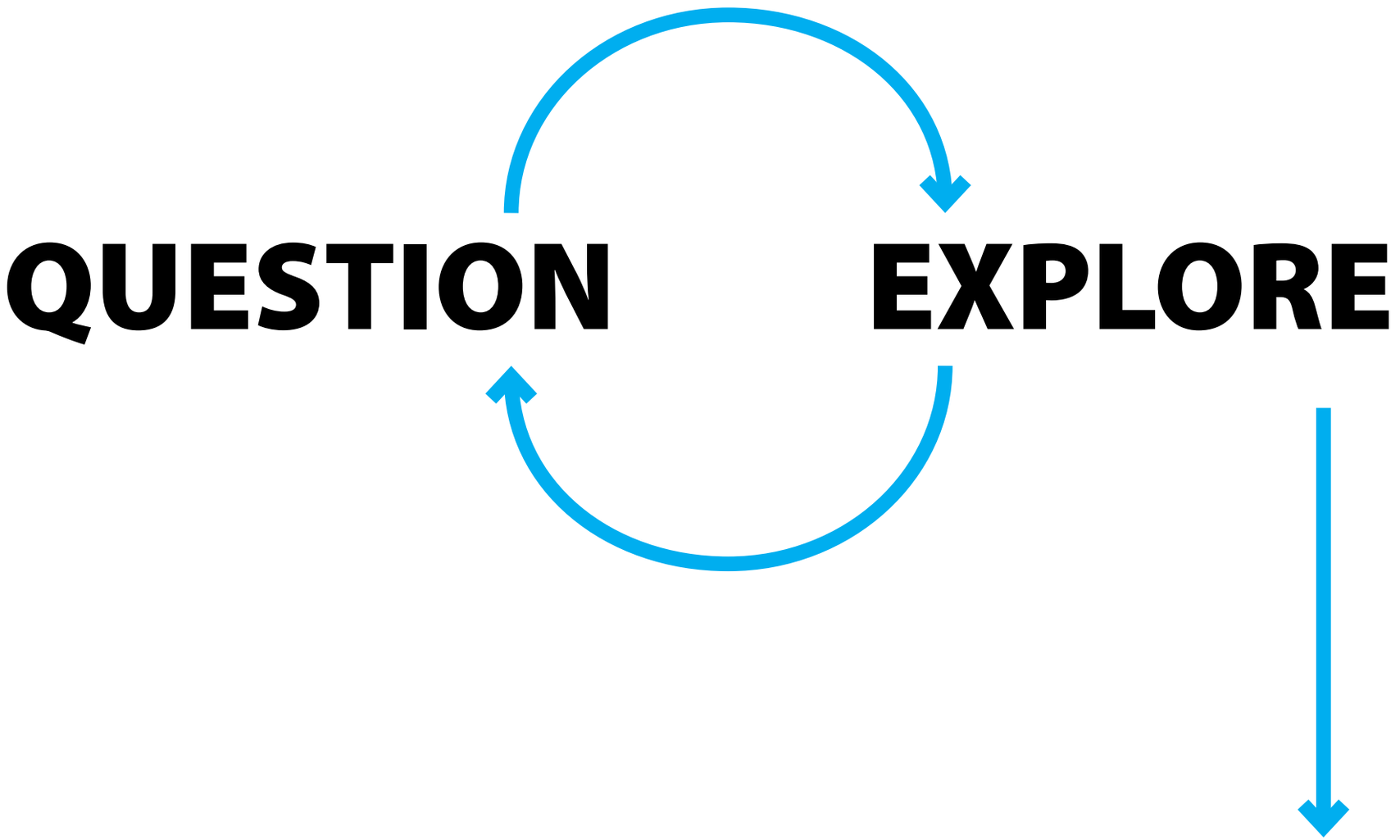
QlikView


Growth History by Company
5
10
15
Year Number

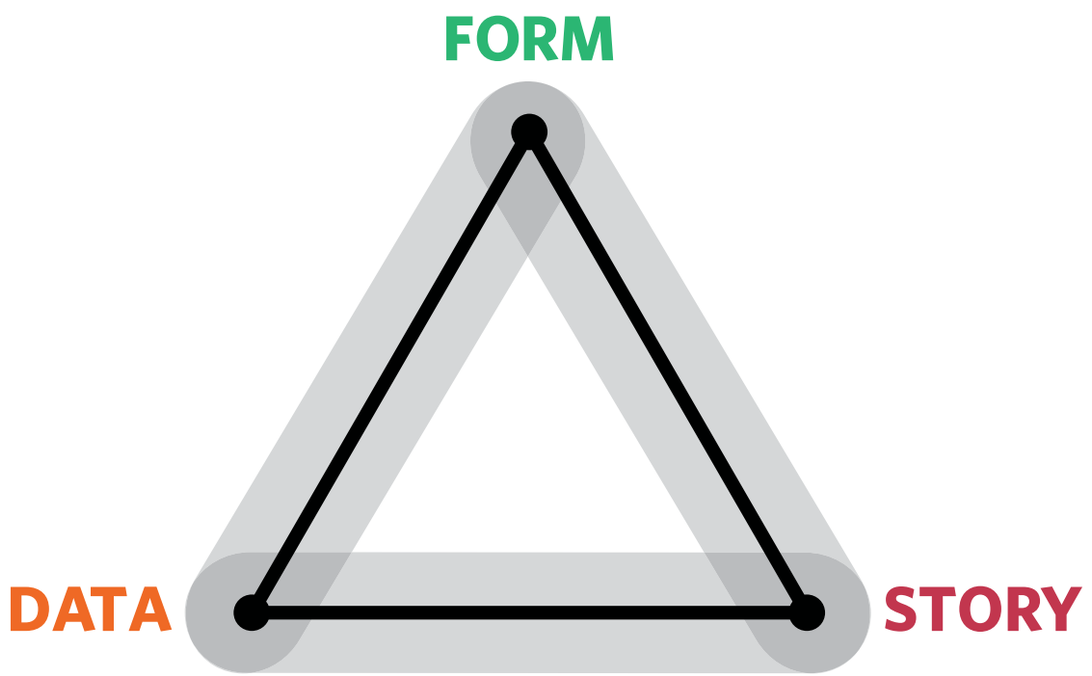

Month over Month
January 2009
erage= 5.6%
Average= 116K
-1,000K
-500K
0K
500K
Change in Employment from Prior Month

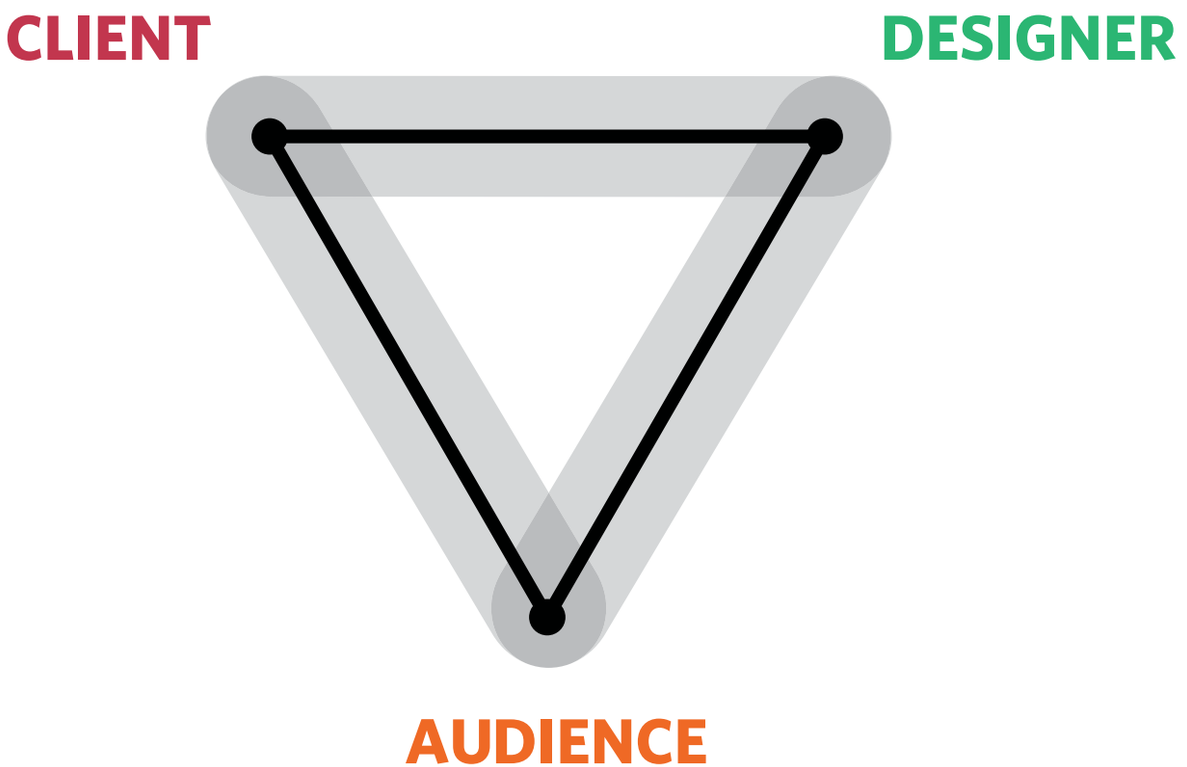

College degree
Post-graduate degree
Technical degree
Some college
High school degree
None, or grade 1-8
Some high school
0
1
2
3
4
5
6
Average Number of News Sources
0%
20%
40%
60%
80%
100%
% of Total Weight


Trebi
Wisconsin N..
No. 457
Glabron
Peatland
Velvet
No. 475
Manchuria
No. 462
Svansota


QUESTION
EXPLORE

PRESENT


FORM
DATA
STORY


CLIENT
DESIGNER
AUDIENCE

PRINT / STATIC VISUALIZATIONS

OR

INTERACTIVE VISUALIZATIONS

+

CONTEXTUAL INFORMATION

SOCIAL CONTEXT FROM FRIENDS

VIDEO / AUDIO CONTEXT

FULL EXPERIENCE OR GAME

Contact

Heather Bradbury
hbradbury@mica.edu
@MICA_MPS

Bryan Connor
@thewhyaxis
http://thewhyaxis.info