

Storytelling

Hanspeter Pfister
pfister@seas.harvard.edu

How Louis C.K. Tells a Joke



How Louis C.K. Tells a Joke

THE MONOPOLY JOKE

207 WORDS - 1.5 MINUTES

I play Monopoly with my kids, that's really fun. My nine year old, she can totally do Monopoly. The six year old totally gets how the game works but she's not emotionally developed enough to handle her inevitable loss in every game of Monopoly because a monopoly loss is dark. It's heavy. It's not like when you lose at Candyland 'Oh you got stuck in the fudgy-thing, baby! Oh well you're in the gummy twirly-o's! You didn't get to win!' But when she loses at Monopoly, I gotta look at her little face and go 'Ok, so here's what's gonna happen now, ok? All your property, everything you have, all your railroads and houses, and all your money...that's mine now. Gotta give it all to me. Give it to me, that's right. And no no, you can't play anymore because, you see, even though you're giving me all of that, it doesn't even touch how you owe me. Doesn't even touch it, baby. You're going down hard, it's really bad. All you've been working for all day, I'm gonna take it now and I'm gonna use it to destroy your sister. I mean I'm gonna ruin her! It is just mayhem on this board for her now.

Activity

What is the structure of the joke? What does Louis C.K. do in his delivery?

I play Monopoly with my kids, that's really fun. My nine year old, she can totally do Monopoly. The six year old totally gets how the game works but she's not emotionally developed enough to handle her inevitable loss in every game of Monopoly because a monopoly loss is dark. It's heavy. It's not like when you lose at Candyland 'Oh you got stuck in the fudgy-thing, baby! Oh well you're in the gummy twirly-o's! You didn't get to win!' But when she loses at Monopoly, I gotta look at her little face and go 'Ok, so here's what's gonna happen now, ok? All your property, everything you have, all your railroads and houses, and all your money...that's mine now. Gotta give it all to me. Give it to me, that's right. And no no, you can't play anymore because, you see, even though you're giving me all of that, it doesn't even touch how you owe me. Doesn't even touch it, baby. You're going down hard, it's really bad. All you've been working for all day, I'm gonna take it now and I'm gonna use it to destroy your sister. I mean I'm gonna ruin her! It is just mayhem on this board for her now.

How Louis C.K. Tells a Joke

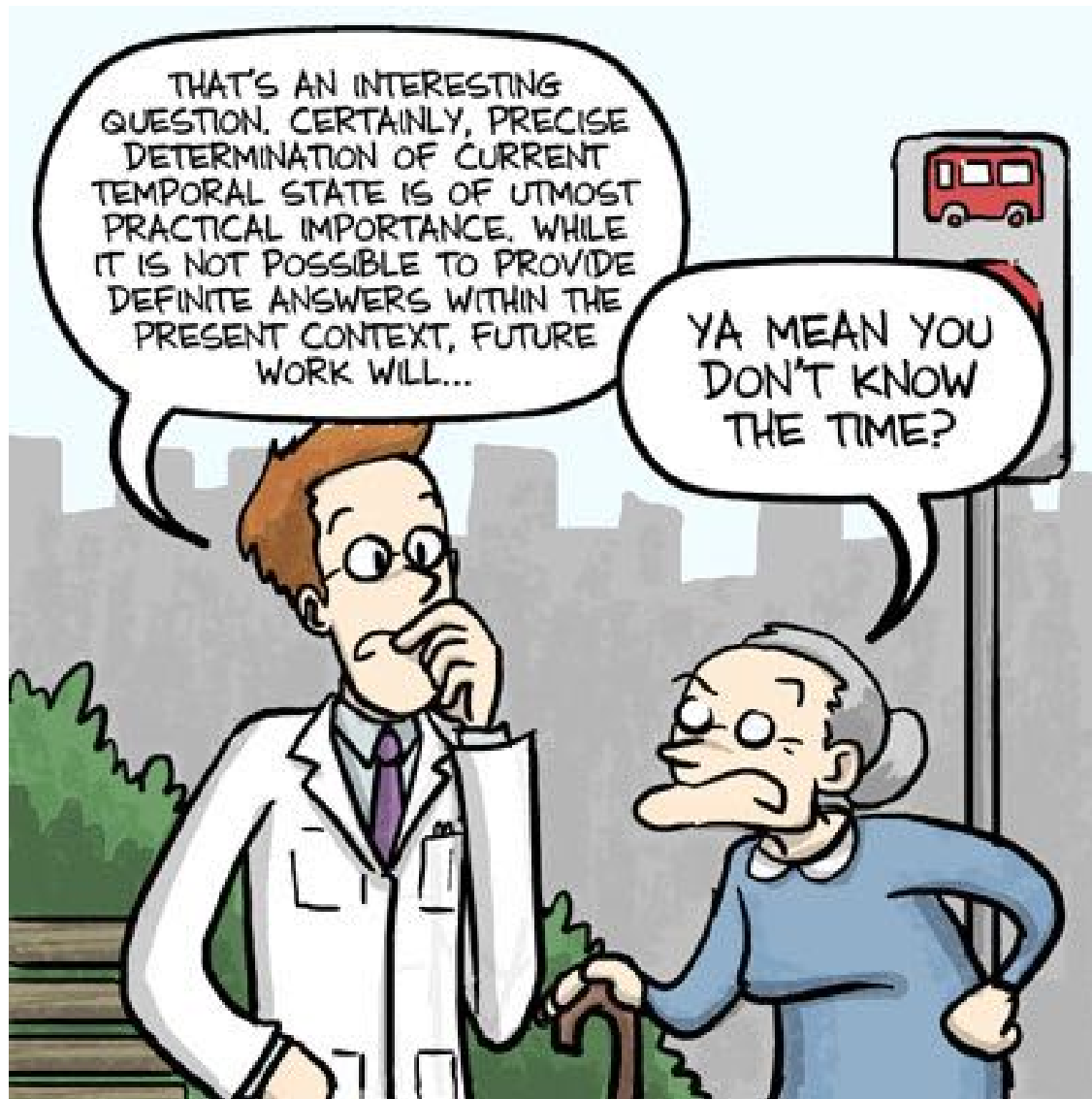
- Shares the **context** of the story with your audience
- States the **premise** clearly
- Presents a vivid **counterpoint**
- Adds **surprises** to grab the audiences attention
- Keeps it **simple** to get your message across
- **Emphasizes** the punchline from multiple perspectives
- Uses **non-verbal** communication and **pauses** (white space)
- Articulates things **just the right way**

Activity

In recent months, think of a communication that frustrated you as an audience member. Try to identify the reason for your frustration.



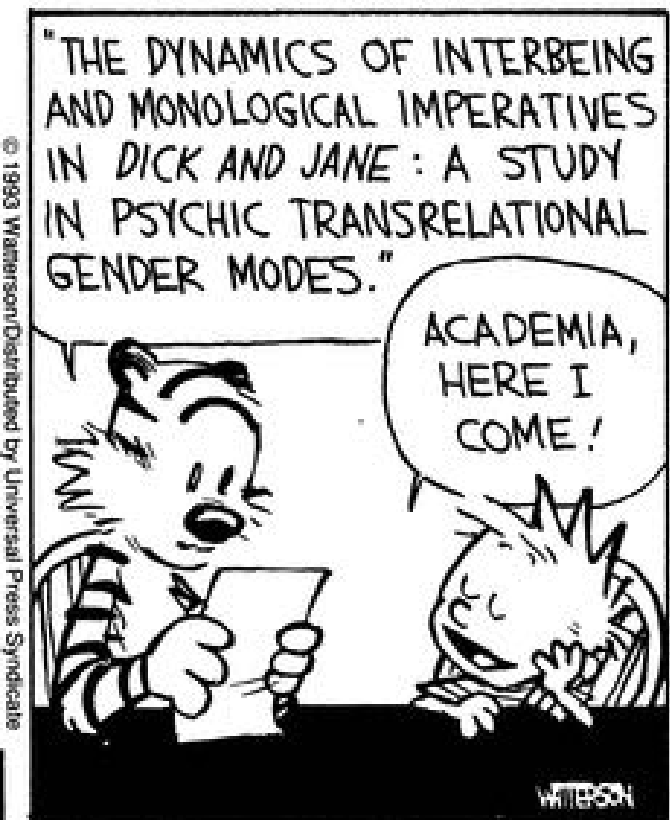
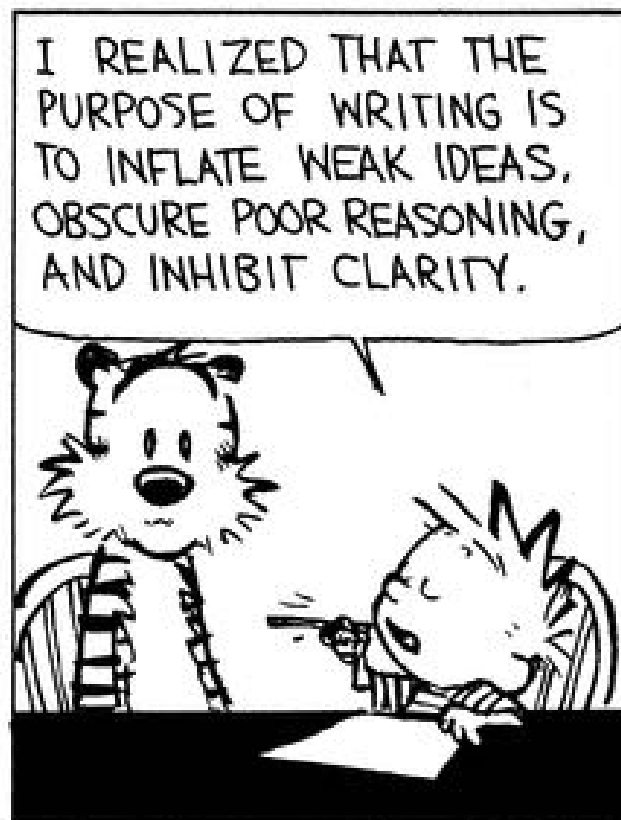
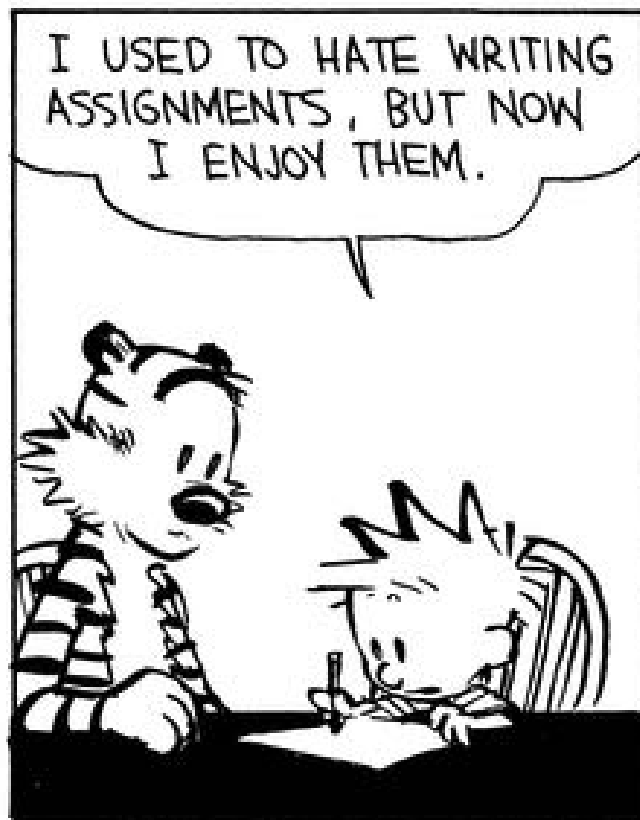
Communication in Science



“Why Academics Stink at Writing”

- S. Pinker

Calvin and Hobbes by Bill Watterson



Today

Communication Fundamentals

What are the main issues in communication?

Maximize Your SNR

How can you maximize your signal-to-noise ratio?

Balanced Design

How should you effectively structure your communication?

Communication

Communication

Noise



Verbal



Nonverbal



Me

Audience

Information: what

Message: so what

Laws of Communication

- Know your message
- Adapt to your audience
- Maximize the data-ink ratio
- Use effective verbal and non-verbal redundancy
- Use balanced design

Know your message

Geographic Database of Bigfoot / Sasquatch Sightings & Reports



- Home
- Features
- Reports
- Media Articles
- Report Form
- FAQs
- Departments

Select Language

owered by Google Translate



OFFICIAL
BFRO GEAR
AVAILABLE
HERE!!

This comprehensive database of credible sightings and related reports is maintained by an all-volunteer network of bigfoot/sasquatch researchers, archivists, and investigators in the United States and Canada--the BFRO.

If you have had a sighting in the United States, Canada, or any other country, please take a moment and [report it](#) to our team of scientists. The report will be kept quiet and not published if you request it.

If permitted by the witness, the sighting report and the followup investigation notes are added to the main sightings database (accessible below). Reports added to the database during the current month and previous three months are also listed on the [Recent Additions page](#).

If you will be periodically checking this site for new reports from your part of the country, you will be checking the [Recent Additions page](#) most often.

United States Sighting Reports



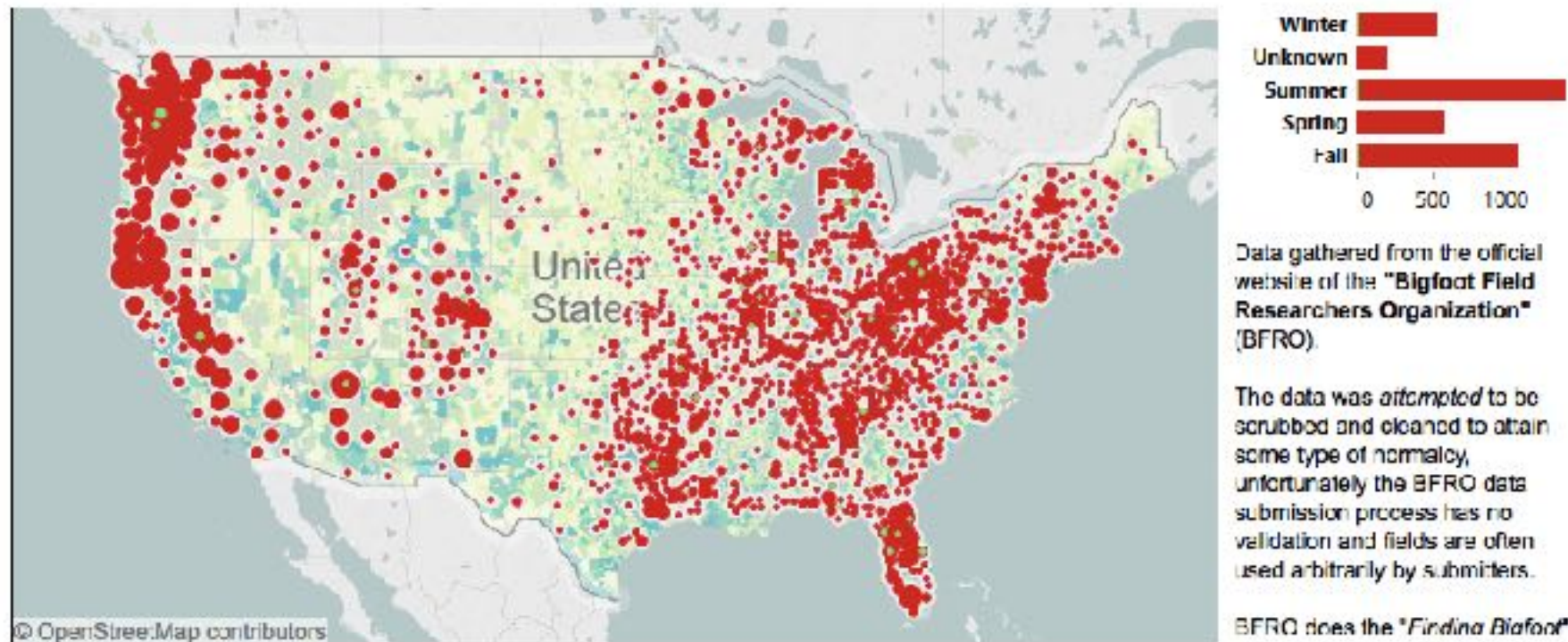
State	# of Listings	Most Recent Report	Last Posted
Alaska	22	1-2014	1-2013
Alabama	98	3-2016	7-2016
Arkansas	93	12-2016	12-2015

State	# of Listings	Most Recent Report	Last Posted
Montana	45	3-2016	11-2015
North Carolina	96	3-2016	10-2015
North Dakota	6	12-2010	8-2005

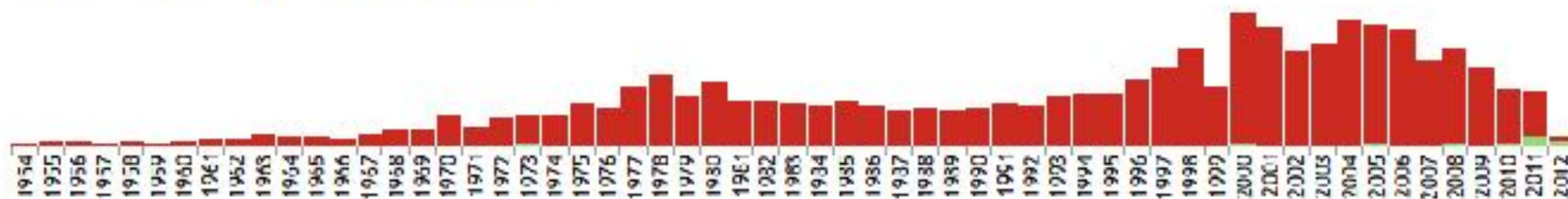


Activity

What is the message? The "so what"?



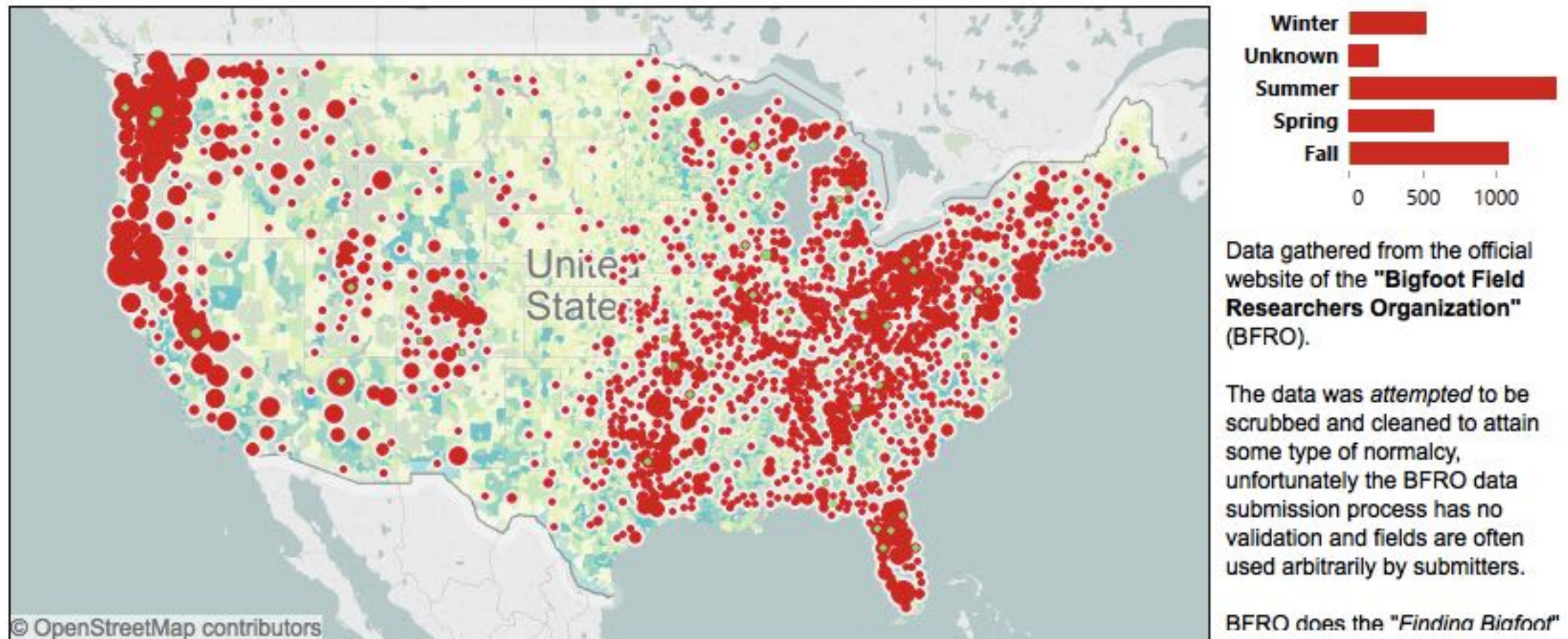
Click on ANY element of the visualization (location, season, year, detail field) in order to filter by that item.
Select the element AGAIN to go back to the full view.



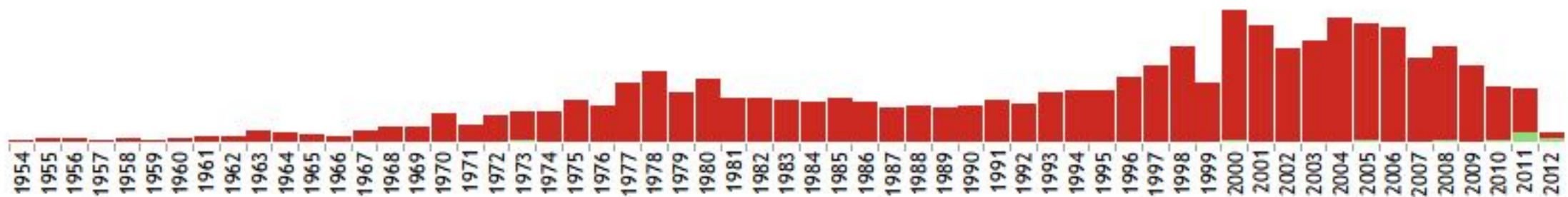
The BFRO classifies sightings according to a system based on the sightings 'potential for misinterpretation'.

Total Sightings		Class A		Class B		Class C		Unclassified	
3,806		1,951		1,696		31		128	
Alabama	Baldwin County	1979	September	Class A	Men recalls a sighting after Hurricane Frederic north of Mobile				+
	Barbour County	1980	January	Class A	Motorists pulled over on a rural highway at night describe standoff in headlights e.				+
	Bibb County	1987	August	Class B	Rescue workers describes possible stalking on the Cahaba River outside Montevallo.				+

Where is Bigfoot seen in the USA?



Click on **ANY** element of the visualization (*location, season, year, detail field*) in order to filter by that item.
Select the element **AGAIN** to go back to the full view.



The BFRO classifies sightings according to a system based on the sightings "potential for misinterpretation".

Total Sightings
3,806

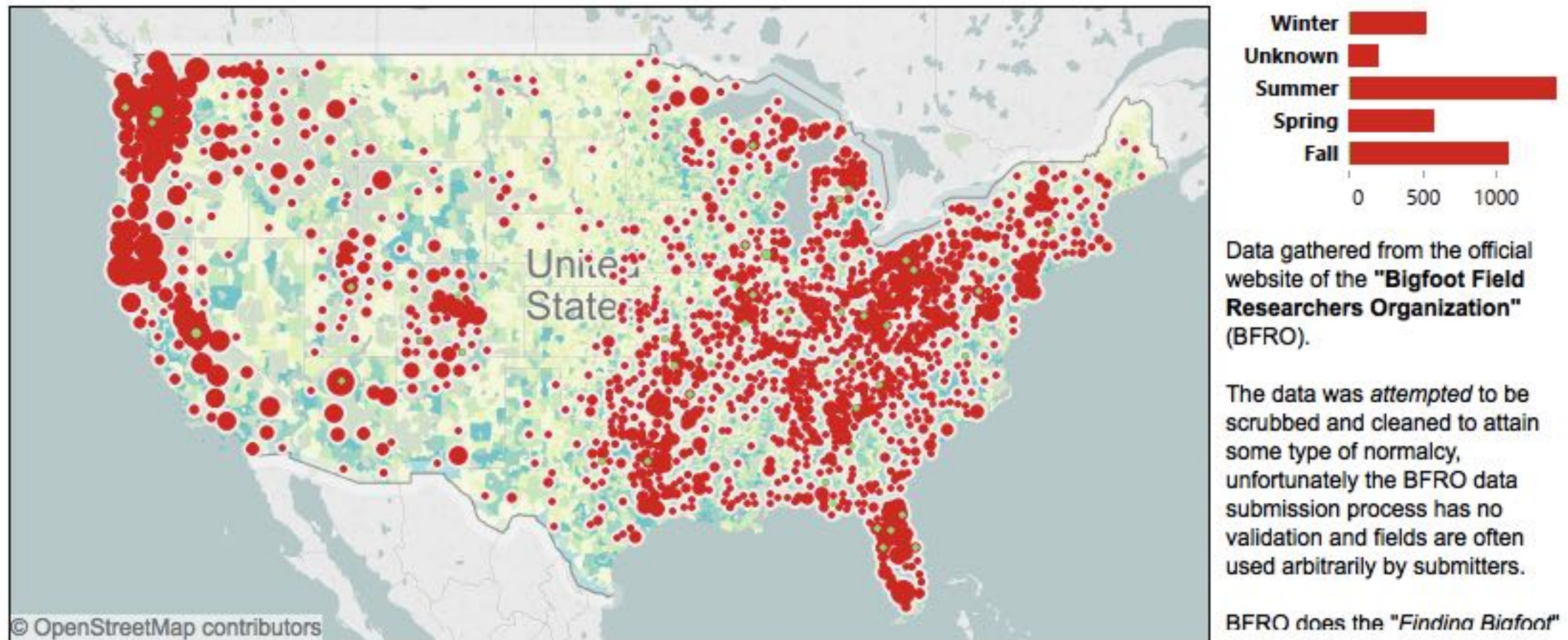
Class A
1,951

Class B
1,696

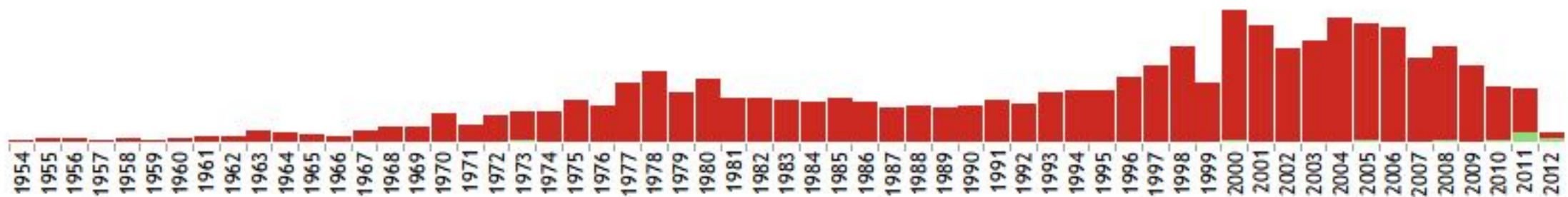
Class C
31

Unclassified
128

Bigfoot Prefers the West Coast



Click on **ANY** element of the visualization (*location, season, year, detail field*) in order to filter by that item.
Select the element **AGAIN** to go back to the full view.



The BFRO classifies sightings according to a system based on the sightings "potential for misinterpretation".

Total Sightings
3,806

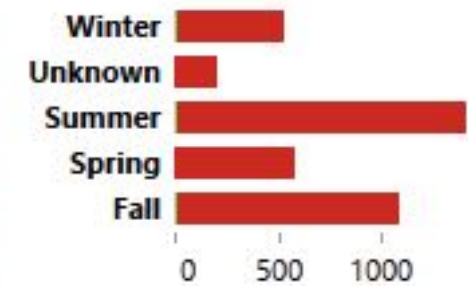
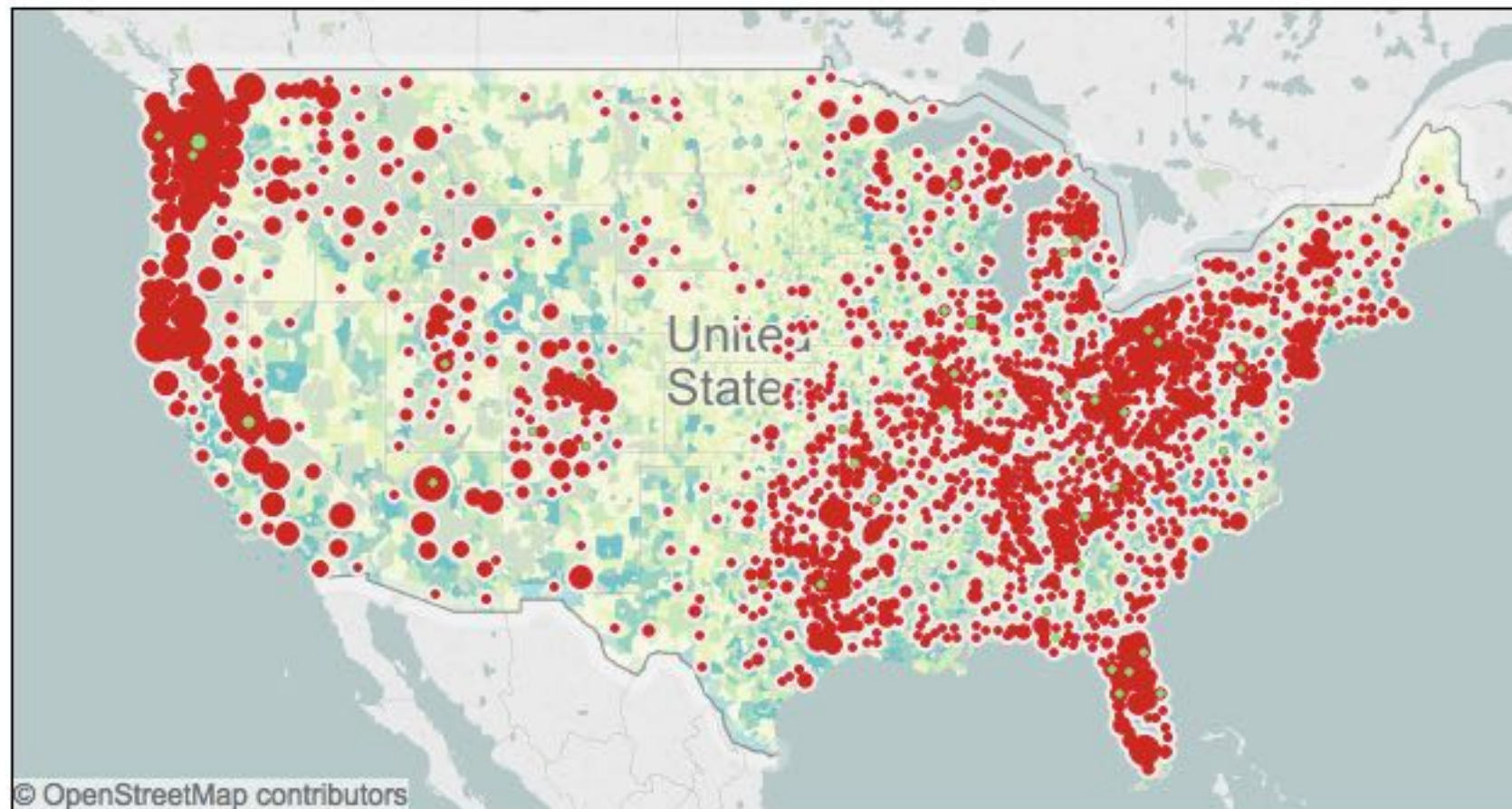
Class A
1,951

Class B
1,696

Class C
31

Unclassified
128

Bigfoot Avoids the Mid-West

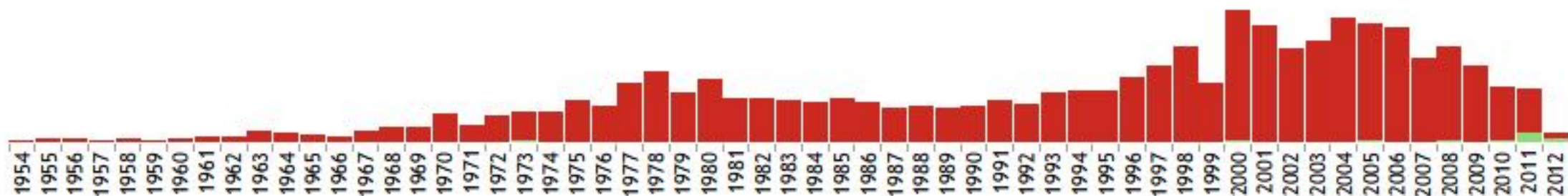


Data gathered from the official website of the "Bigfoot Field Researchers Organization" (BFRO).

The data was *attempted* to be scrubbed and cleaned to attain some type of normalcy, unfortunately the BFRO data submission process has no validation and fields are often used arbitrarily by submitters.

BFRO does the "Findina Biafoot"

Click on **ANY** element of the visualization (*location, season, year, detail field*) in order to filter by that item.
Select the element **AGAIN** to go back to the full view.



The BFRO classifies sightings according to a system based on the sightings "potential for misinterpretation".

Total Sightings
3,806

Class A
1,951

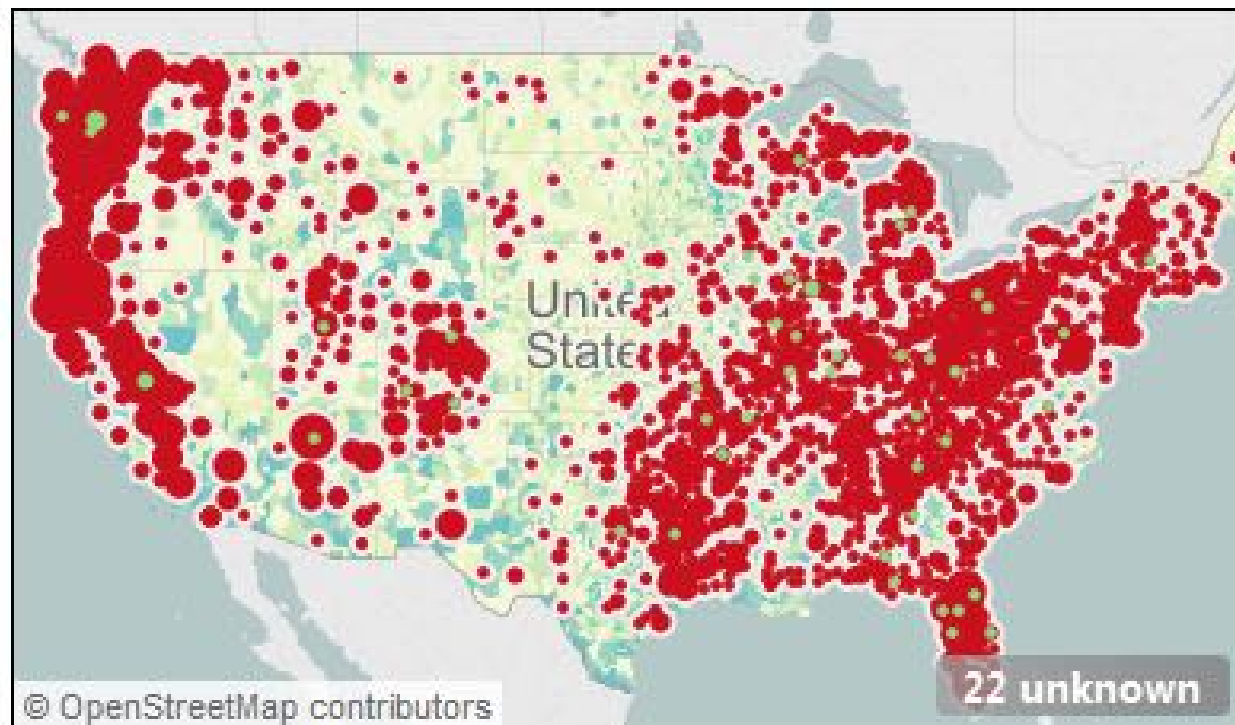
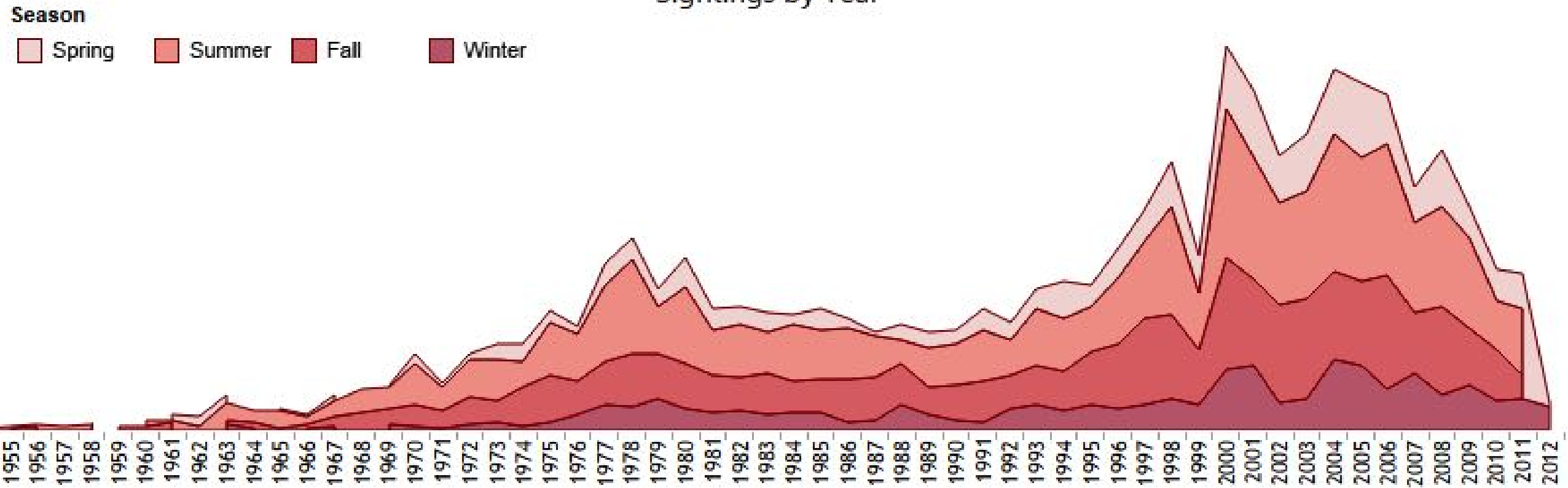
Class B
1,696

Class C
31

Unclassified
128

Bigfoot sightings are in decline

Sightings by Year



Data gathered from the official website of the "**Bigfoot Field Researchers Organization**" (BFRO).

The data was *attempted* to be scrubbed and cleaned to attain some type of normalcy, unfortunately the BFRO data submission process has no validation and fields are often used arbitrarily by submitters.

BFRO does the "*Finding Bigfoot*" Animal Planet TV show.

Sales Dashboard

Total Sales
\$3,190.2M

Number of Deals
16,610

Avg Deal Size
\$189,545

Rev. per
Salesperson
\$20.1M

Date Closed

8/7/2006

12/31/2010

Region

(All)

Country

(All)

Sales Team

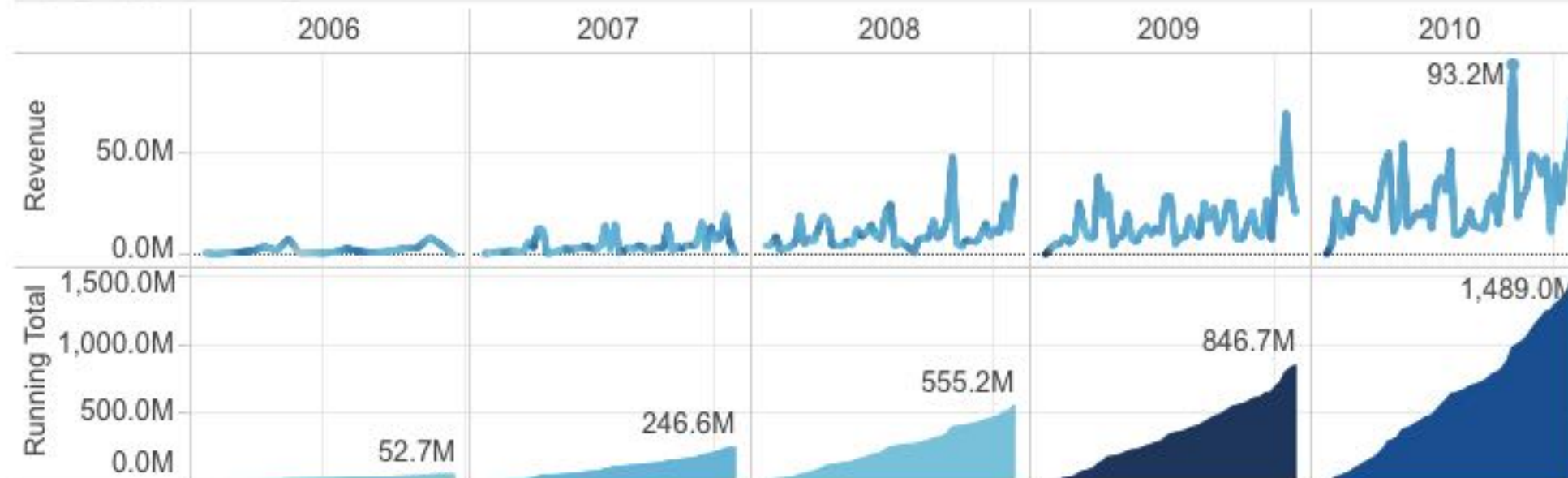
☒ (All)☐ Small and Midmarket☐ Enterprise

Avg Deal Size/Salespe...

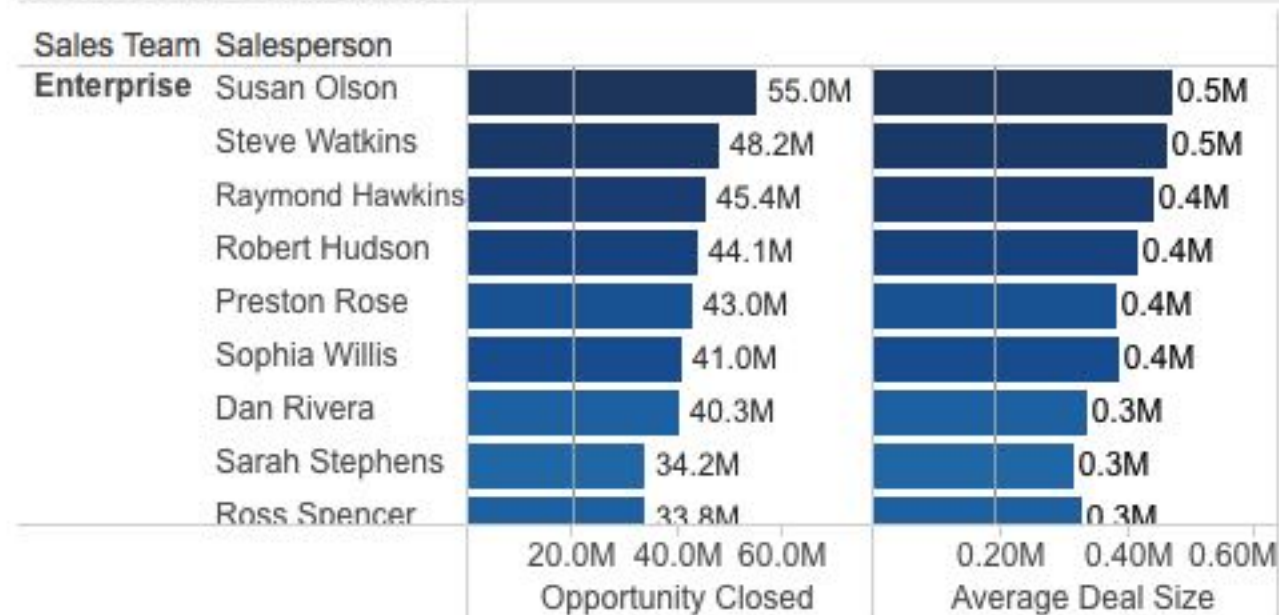
\$130,922

\$336,519

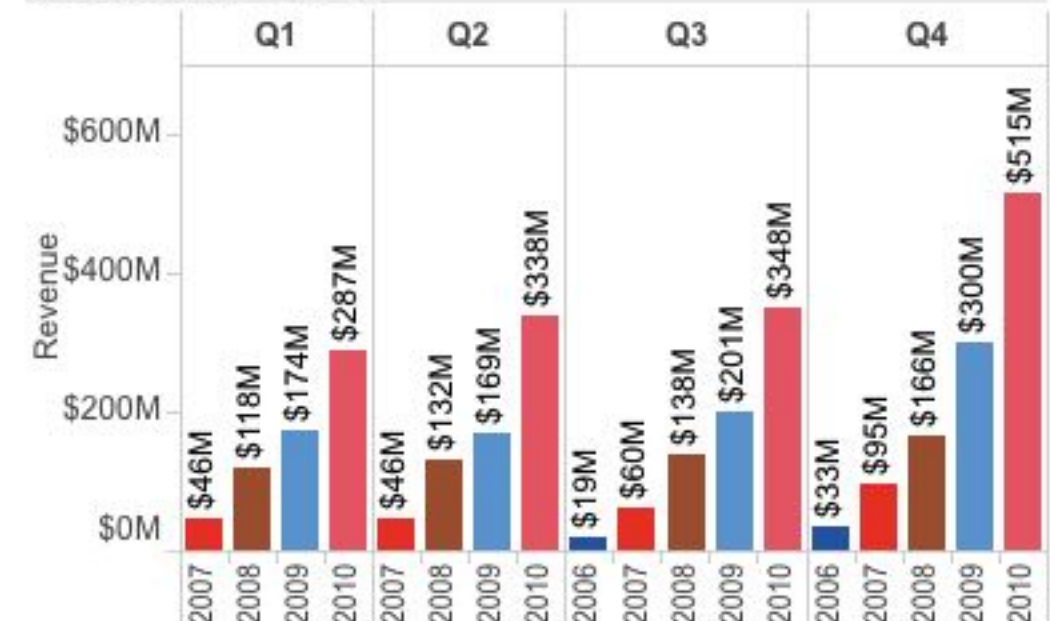
Revenue Over Time



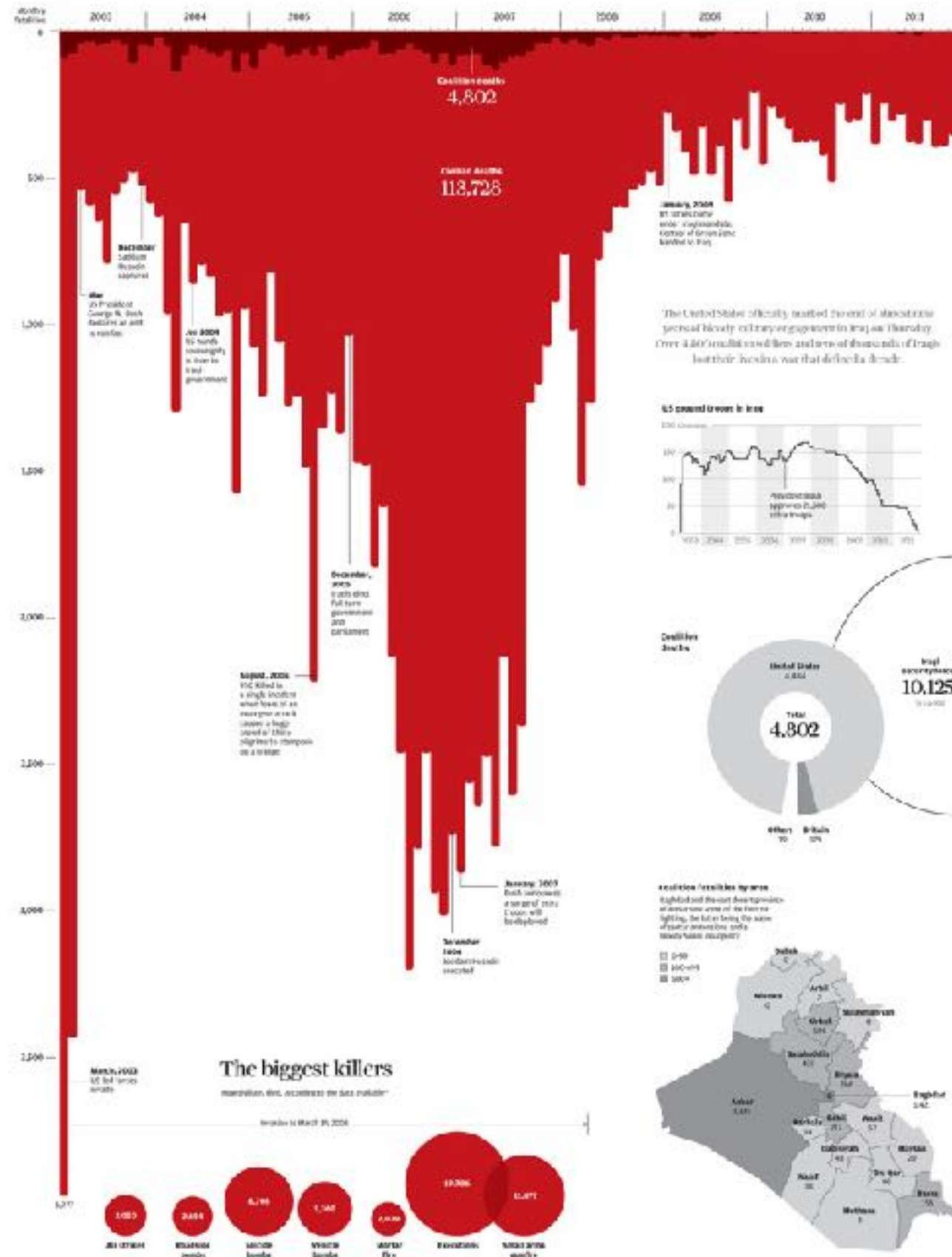
Sales Team Performance



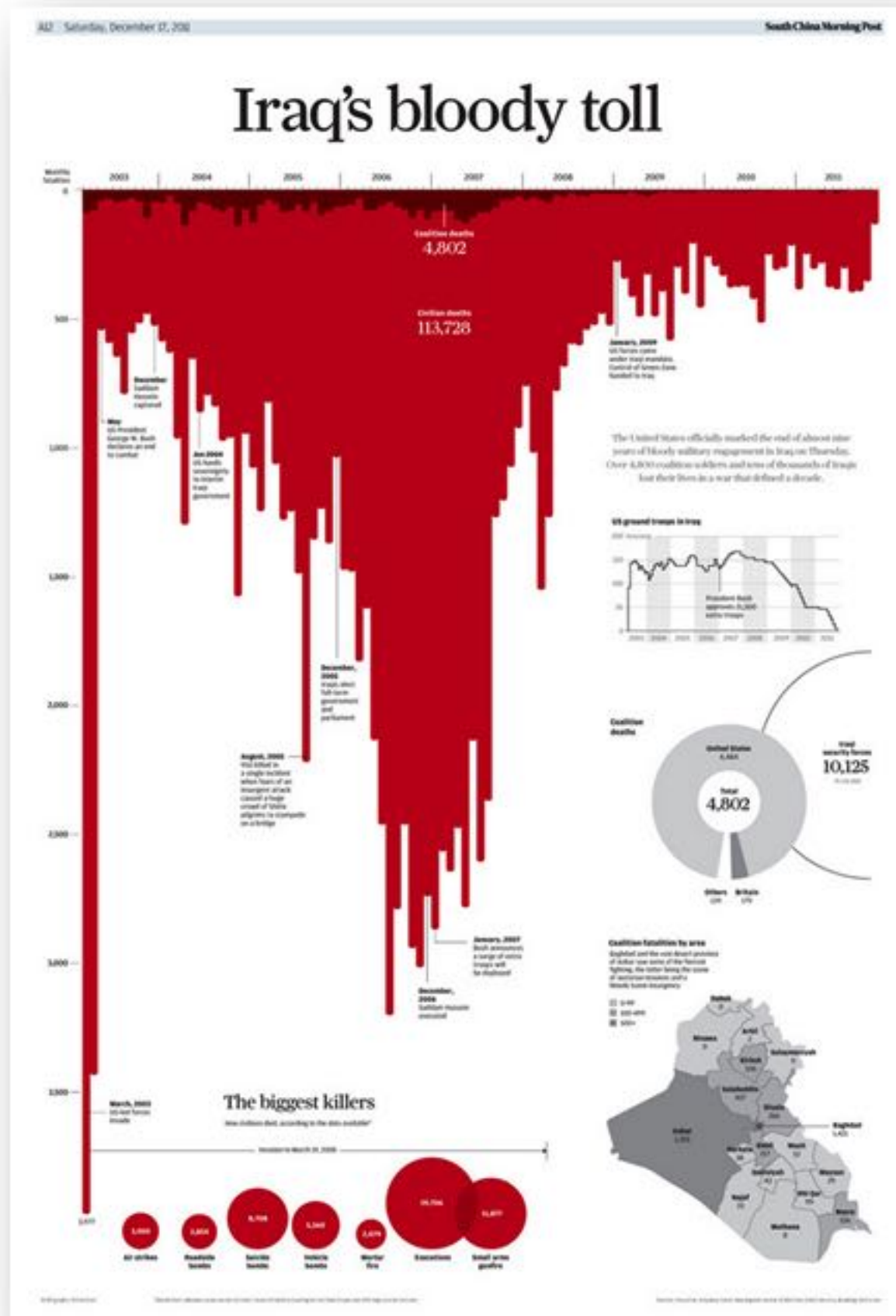
Revenue by Quarter



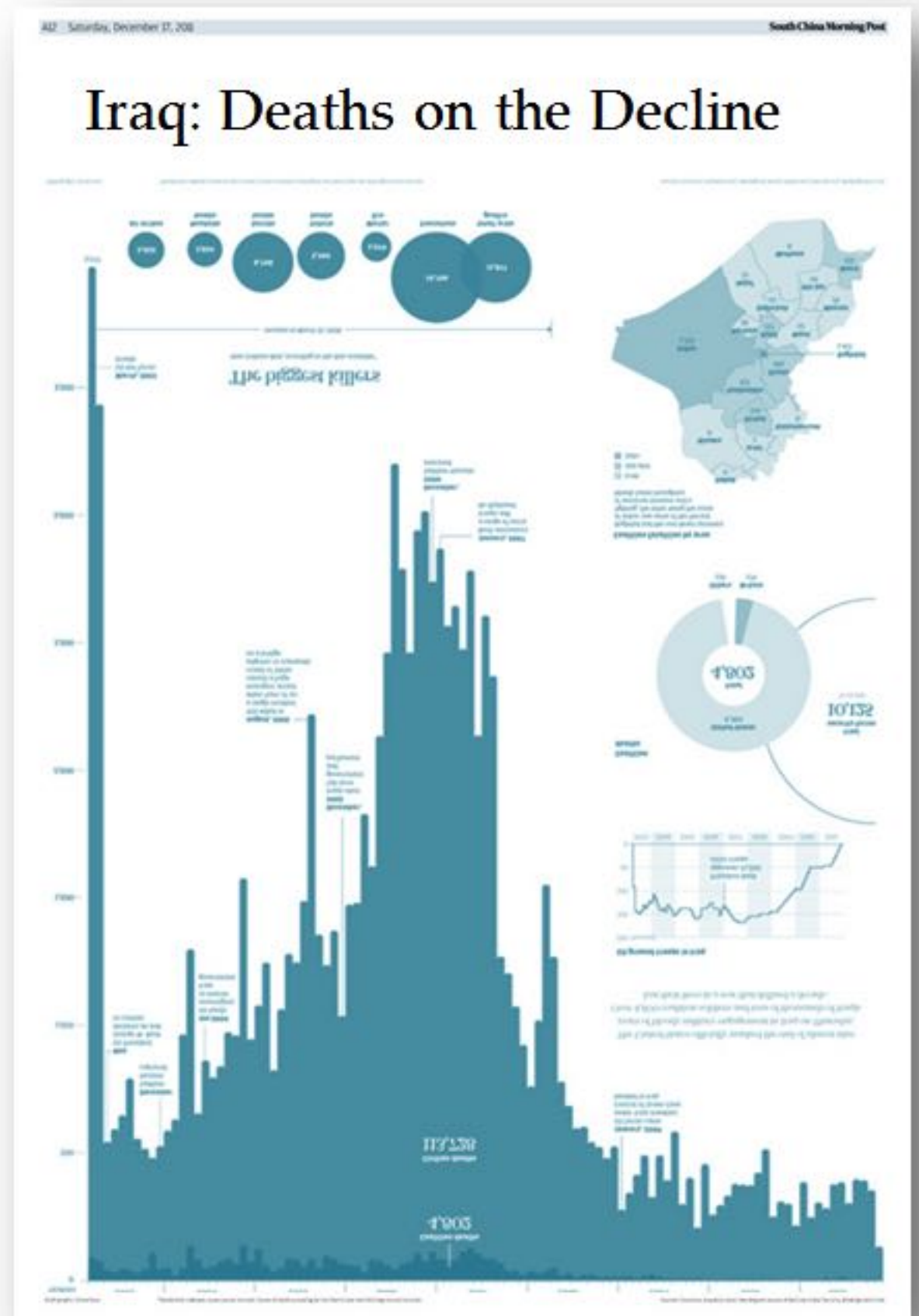
Iraq's bloody toll



Opinionated



Neutral

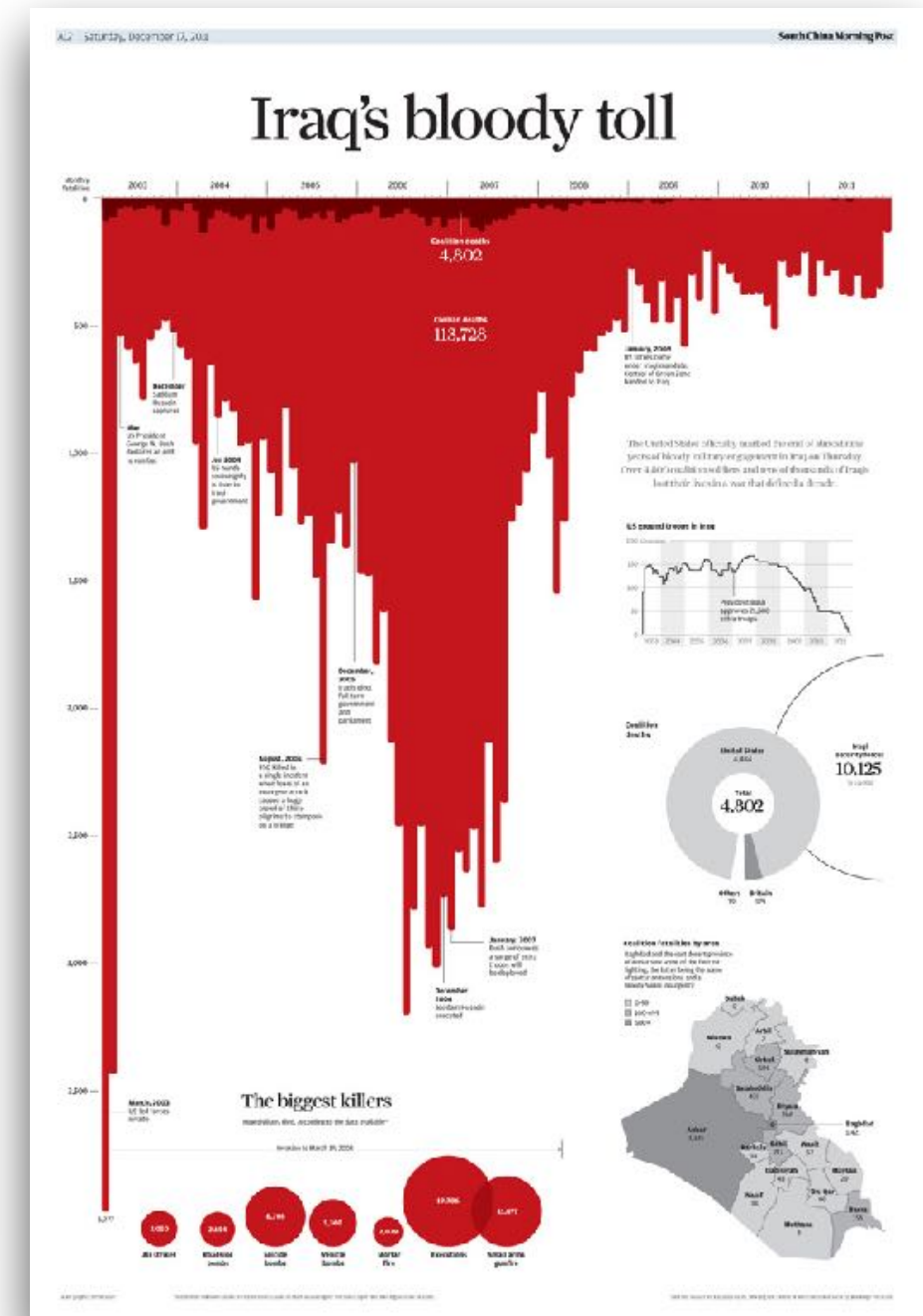
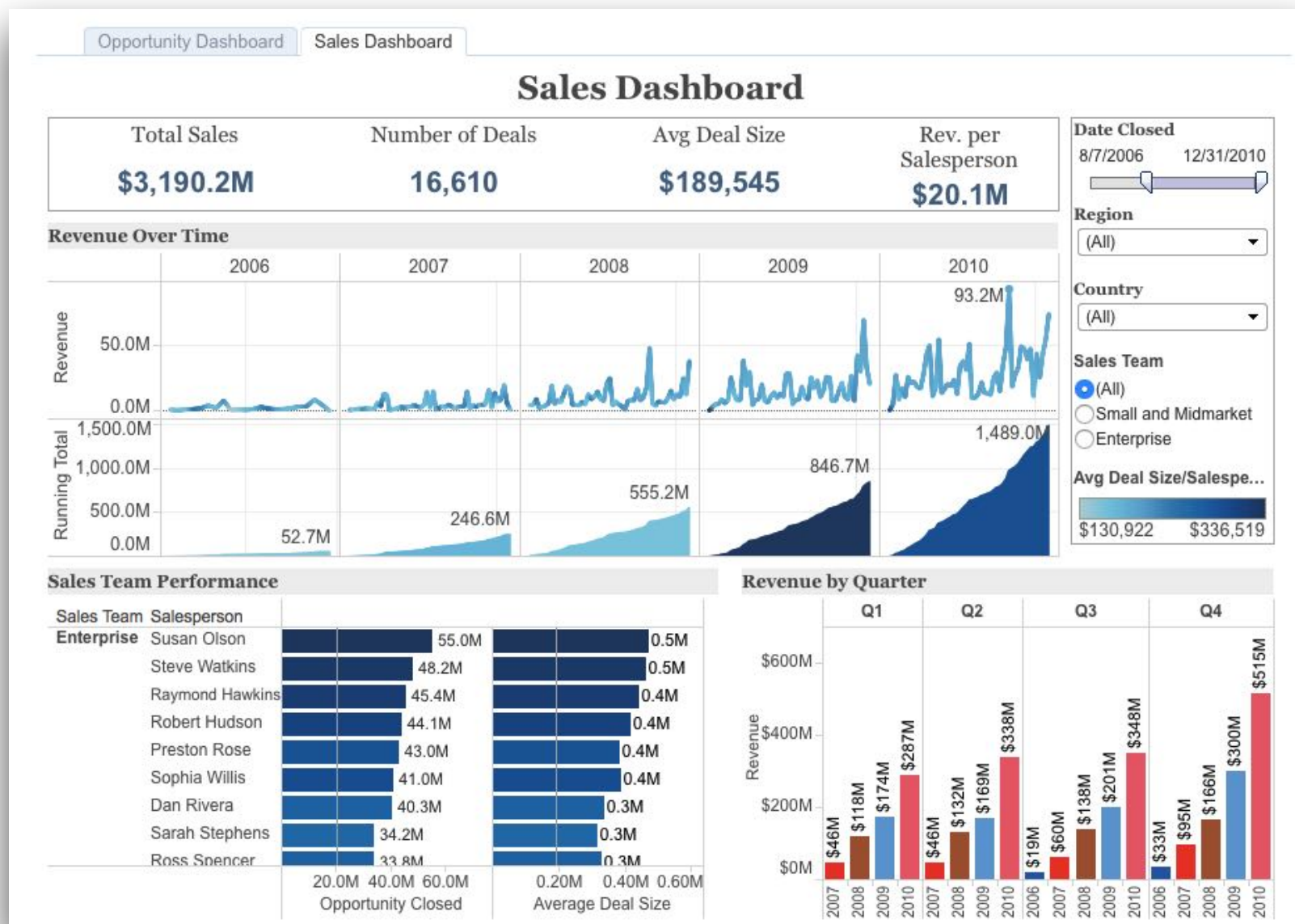


Andy Cotgreave, Tableau

Know your message

What

So What



Adapt to your audience

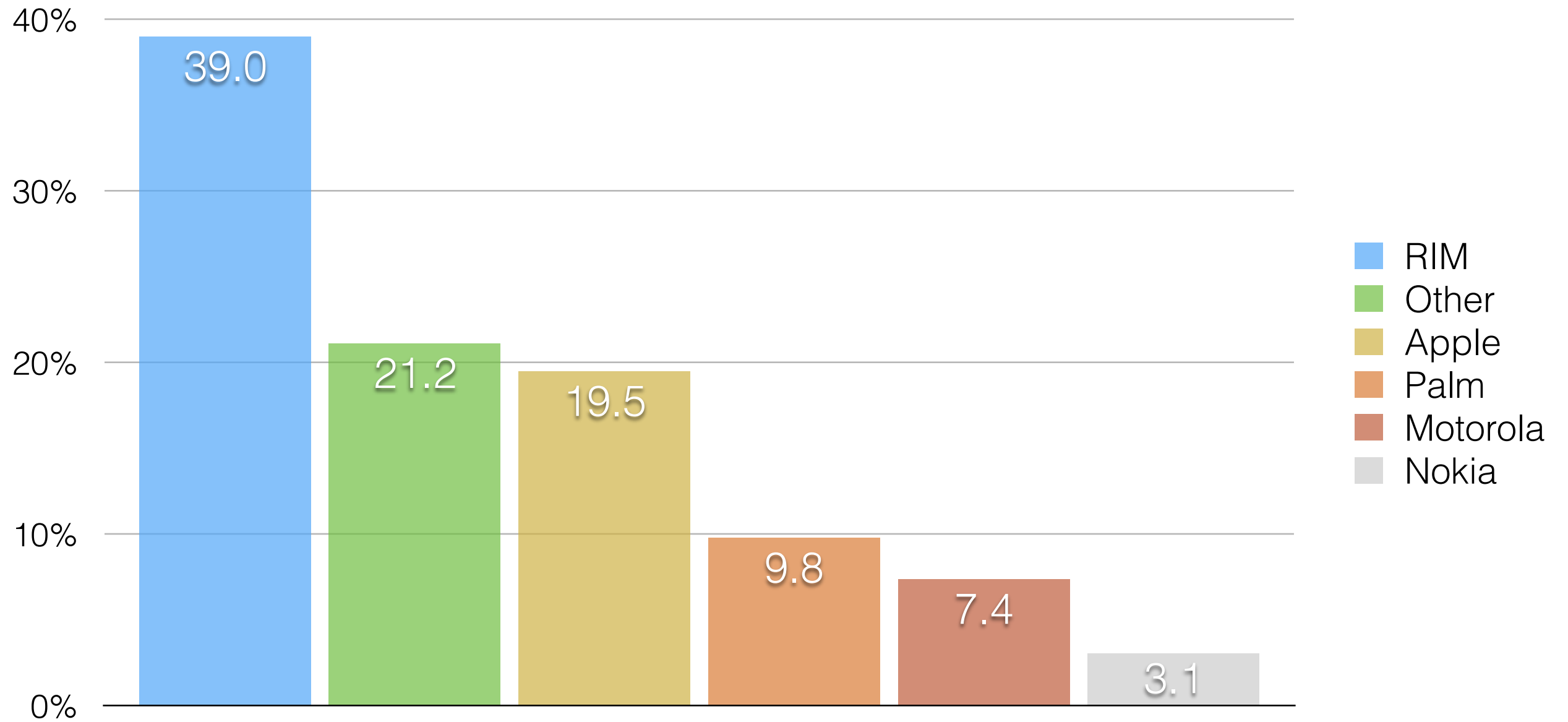
Adapt to your audience

- Put yourself in their shoes
- Anticipate their situation, their needs, their expectations
- Structure story along their line of reasoning, not yours
- Recognize their constraints: their familiarity with material, mastery of language, time, etc.
- Adapt: if one strategy does not work use another

Target Audience



Target Audience?



Target Audience?

Opportunity Dashboard

Sales Dashboard

Sales Dashboard

Total Sales
\$3,190.2M

Number of Deals
16,610

Avg Deal Size
\$189,545

Rev. per Salesperson
\$20.1M

Date Closed

8/7/2006

12/31/2010

Region

(All)

Country

(All)

Sales Team

(All)

Small and Midmarket

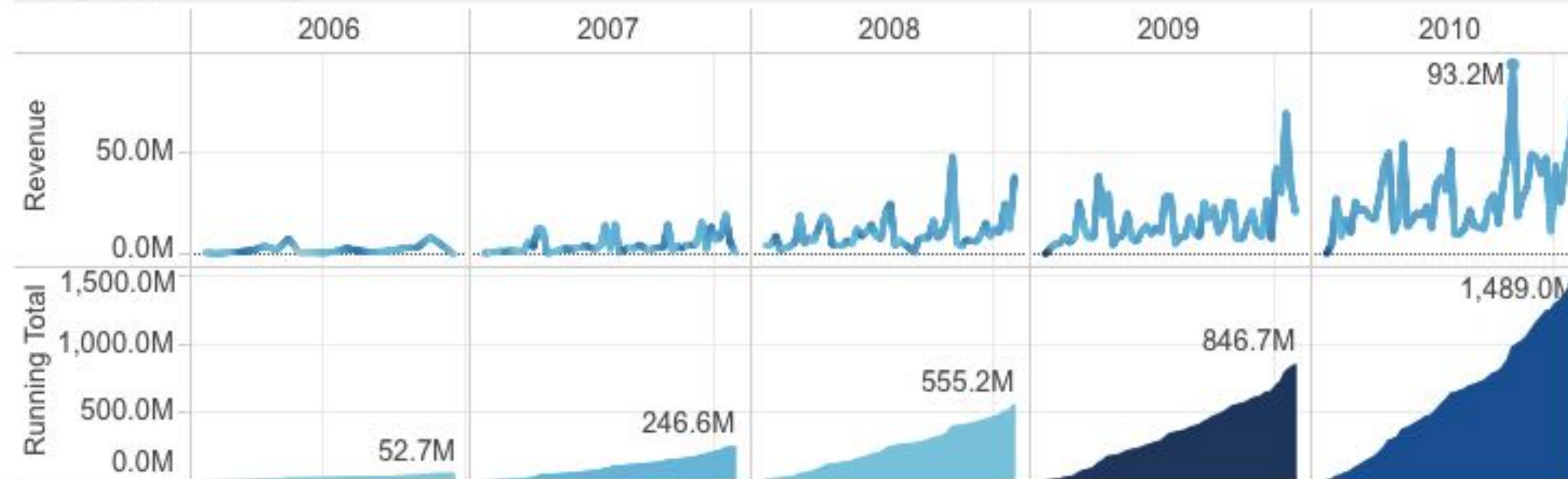
Enterprise

Avg Deal Size/Salespe...

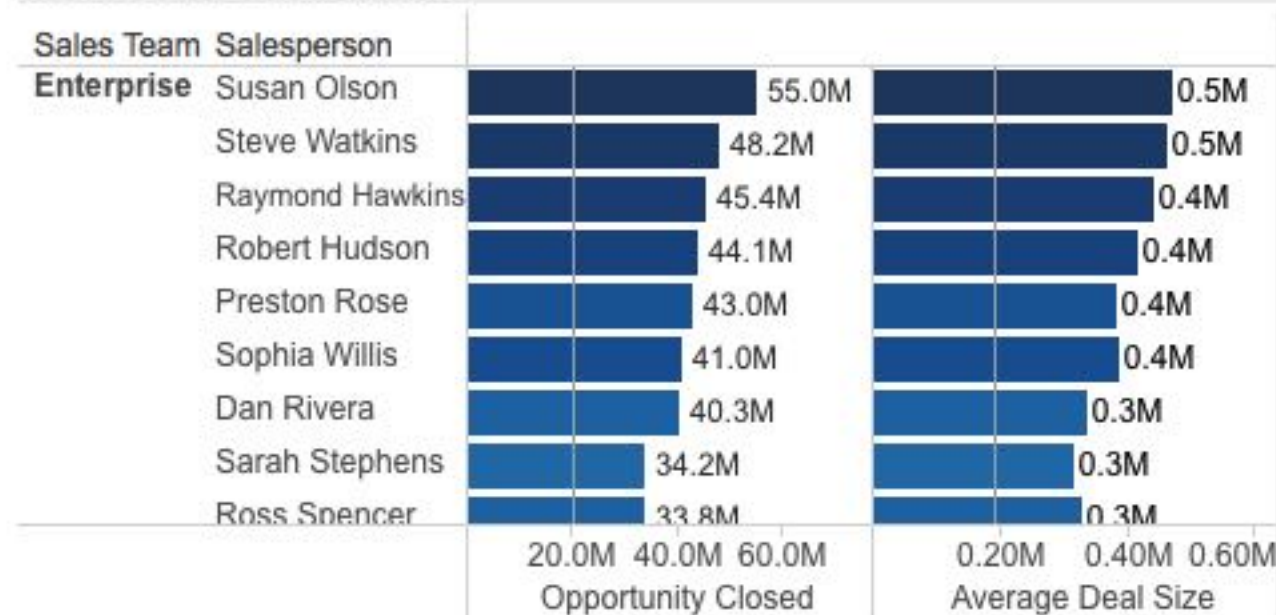
\$130,922

\$336,519

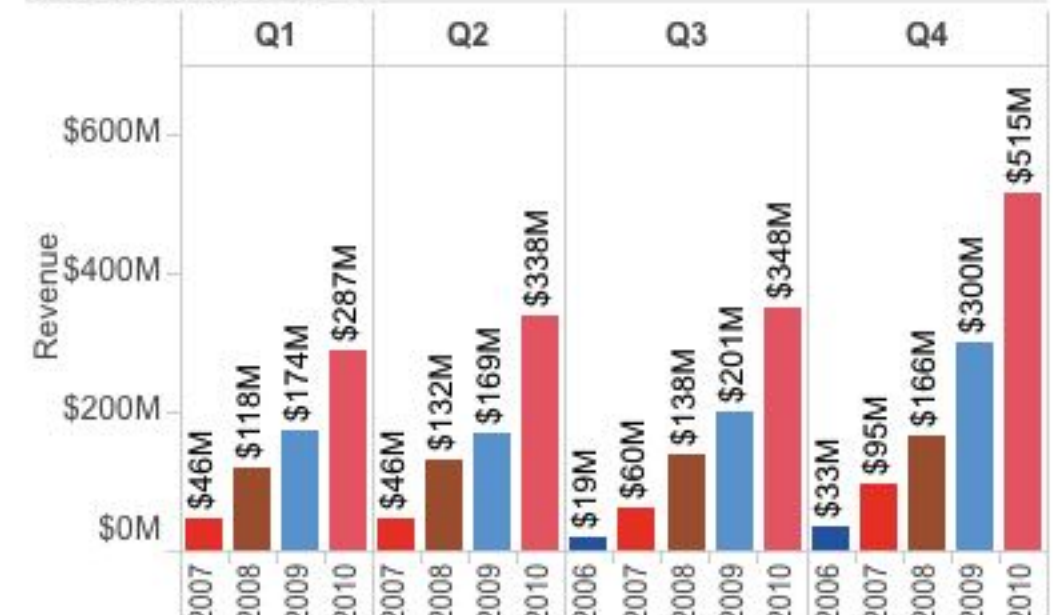
Revenue Over Time



Sales Team Performance



Revenue by Quarter



WHERE THERE'S SMOKE—THERE'S CANCER

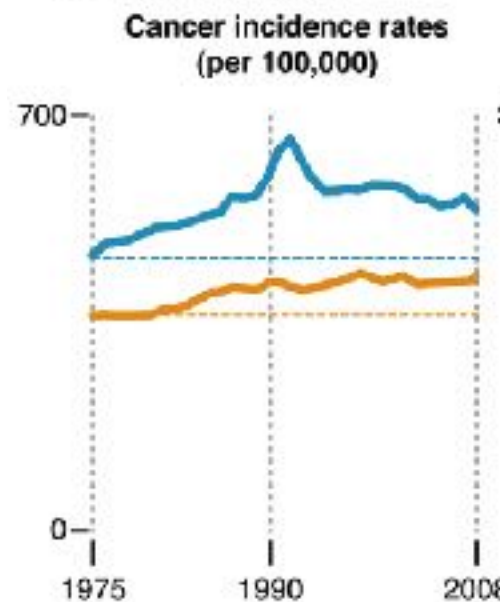
Cancer rates are up, but mortality is down. New diagnostics and treatments are responsible for part of this trend. But the greatest single contributing factor is the decline in smoking—rates are at their lowest level in 50 years.

Target Audience?

— Men — Women

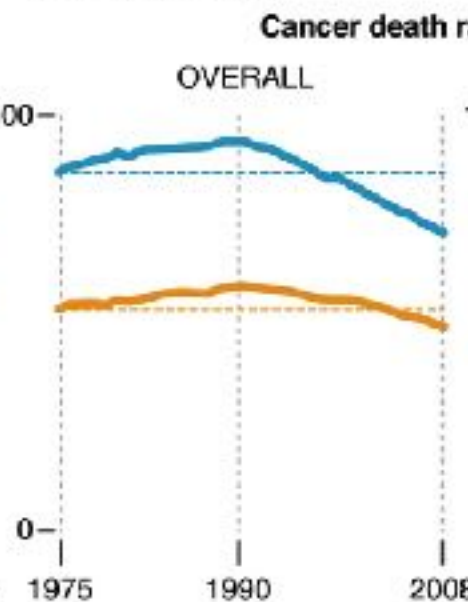
1 Increased incidence

An aging population contributes to rising incidence of cancer.



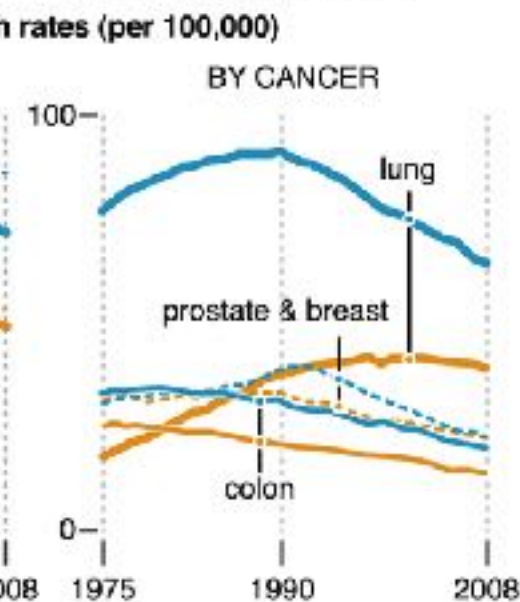
2 Fewer deaths

Cancer deaths have been dropping since 1991, especially in males.



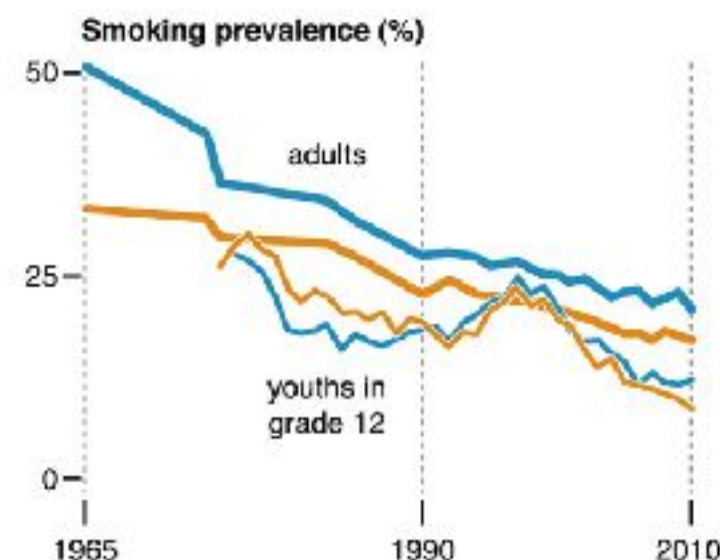
3 Decline of lung cancer

Drop in lung cancer deaths in males is the primary reason why death rates are down.



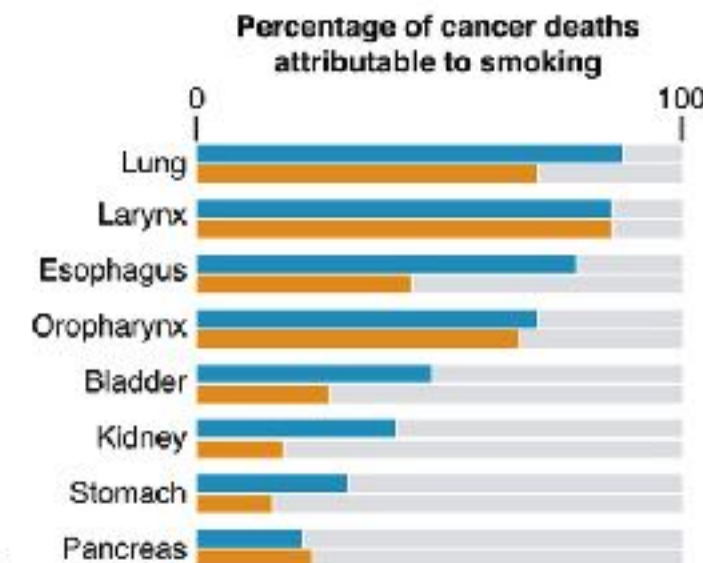
4 Decline in smoking

Since the 1964 first Surgeon General's report, smoking rates have been dropping. By 2010, the rate among males was down to 20%, from 50% at its peak. Among youths, rates have been on an even steeper decline since 1997.

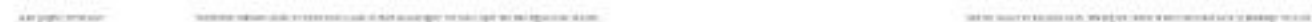


5 Impact of smoking on cancer deaths

Smoking is a major risk factor for many types of cancer and significant contributor to cancer-related deaths. It remains the single largest preventable cause of disease and premature death in the US.

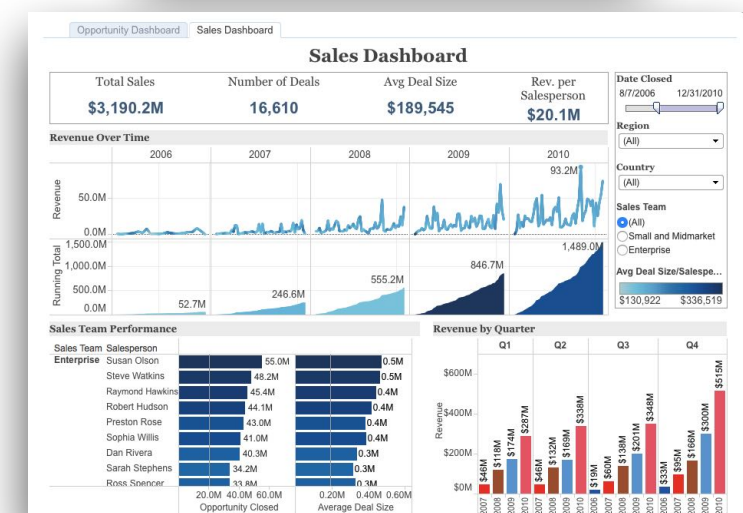
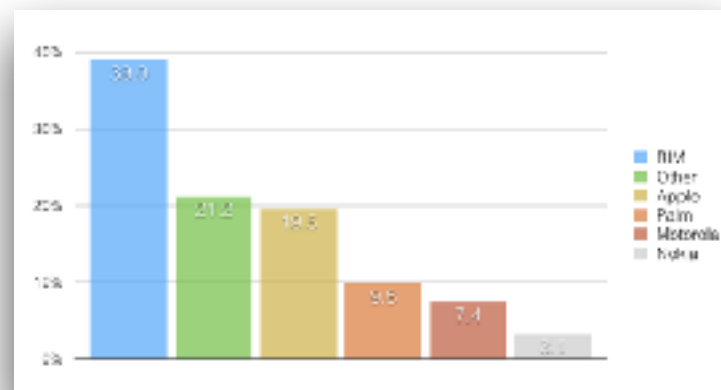
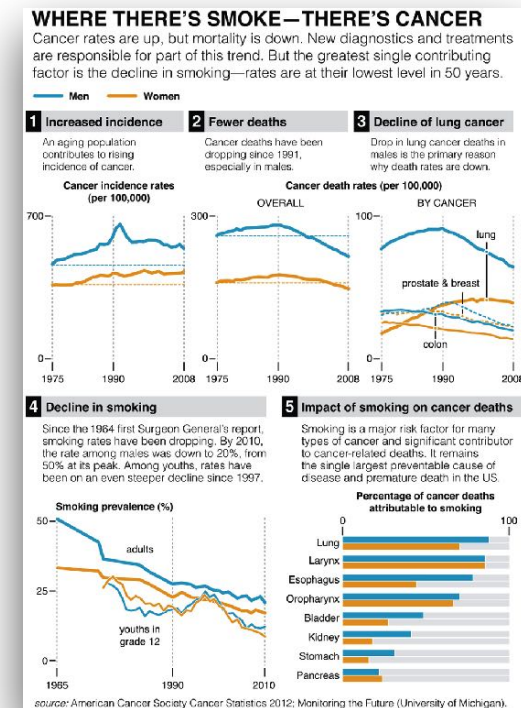
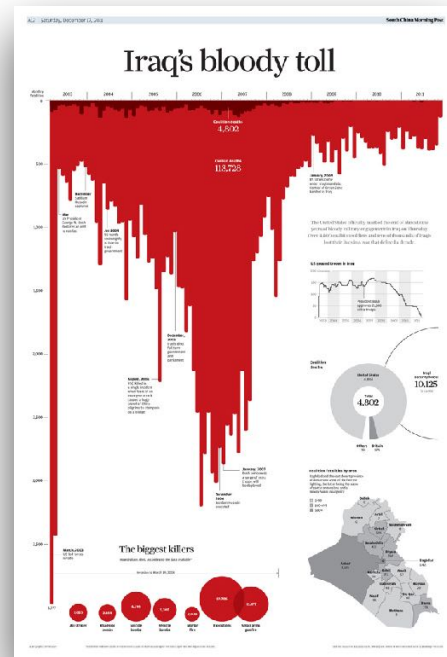


Target Audience?



Adapt to your audience

Opinionated



Neutral

Low
Information
Density

High
Information
Density

Maximize data-ink ratio

Iraq: I&W of Civil Conflict

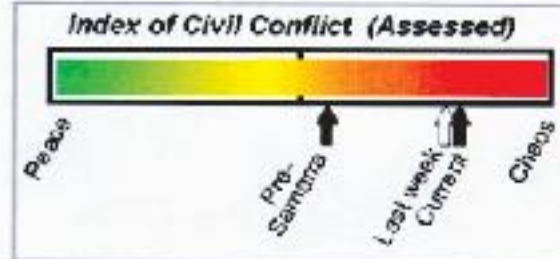
CENTRAL COMMAND

Key Reads:

- Political / religious leaders increase public hostile rhetoric
- ▲ Political / religious leaders lose moderating influence over constituents
- Provocative sectarian attacks / assassinations
- Unorganized spontaneous mass civil conflict

Additional Indicators:

- ▲ Militias expand security role
- ▲ Governance
- ▲ Police ineffectual
- ▲ Army ineffectual
- ▲ Neighbors enable violence
- ▲ Sectarian tensions / violence displace populace
- ▲ Sectarian conflicts between / within ISF forces
- ▲ ISF refuse to take orders from central government, mass desertion
- ▲ Kurdish accelerate moves toward secession / annexing Kirkuk
- ▲ Low level violence motivated by sectarian differences



CHANGE SINCE LAST WEEK: ● ROUTINE ■ IRREGULAR ▲ SIGNIFICANT ◆ CRITICAL

Urban areas experiencing "ethnic cleansing" campaigns to consolidate control ... violence at all-time high, spreading geographically.

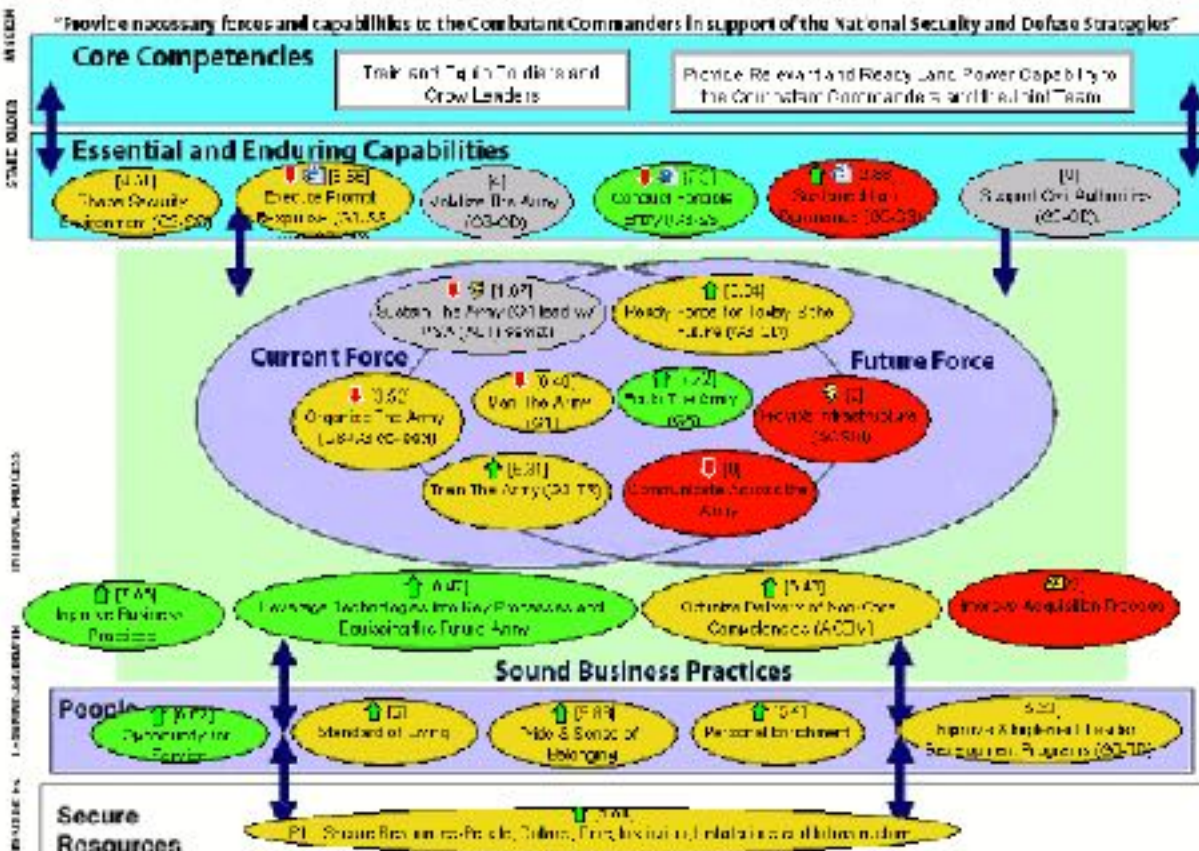
18 Oct 06

United States Central Command

The Microsoft "Live" Platform



Strategy Map for US Army/Army/Army Scorecard : Dec-00



VII. Maximizing Average Local Consistency

- Algorithm 7.4: find consistent labelings when the matrix of compatibilities is symmetric

Initialize:

- 1) Start with an initial labeling assignment $\hat{p}^0 \in \mathbb{K}$.

Set $k = 0$.

Loop until a stop is executed:

- 2) Compute $\hat{q}^k = \frac{1}{2} \text{grad } A(\hat{p}^k)$.
- 3) Use the algorithm in Appendix A, with $\hat{p} = \hat{p}^k$, $\hat{q} = \hat{q}^k$, to find the solution \hat{u}^k to Problem 7.1.
- 4) If $\hat{u}^k = 0$, stop.
- 5) Set $\hat{p}^{k+1} = \hat{p}^k + \alpha_k \hat{u}^k$, where $0 < \alpha_k < \alpha_k$ is determined so that $\hat{p}^{k+1} \in \mathbb{K}$. The maximum step size α_k is some predetermined small value, and may decrease as k increases to facilitate convergence.
- 6) Replace k by $k + 1$.

End loop.

- Successive iterates are obtained by moving a small step in the direction of the projection of the gradient

- Algorithm stops when the projection $\hat{q} = 0$

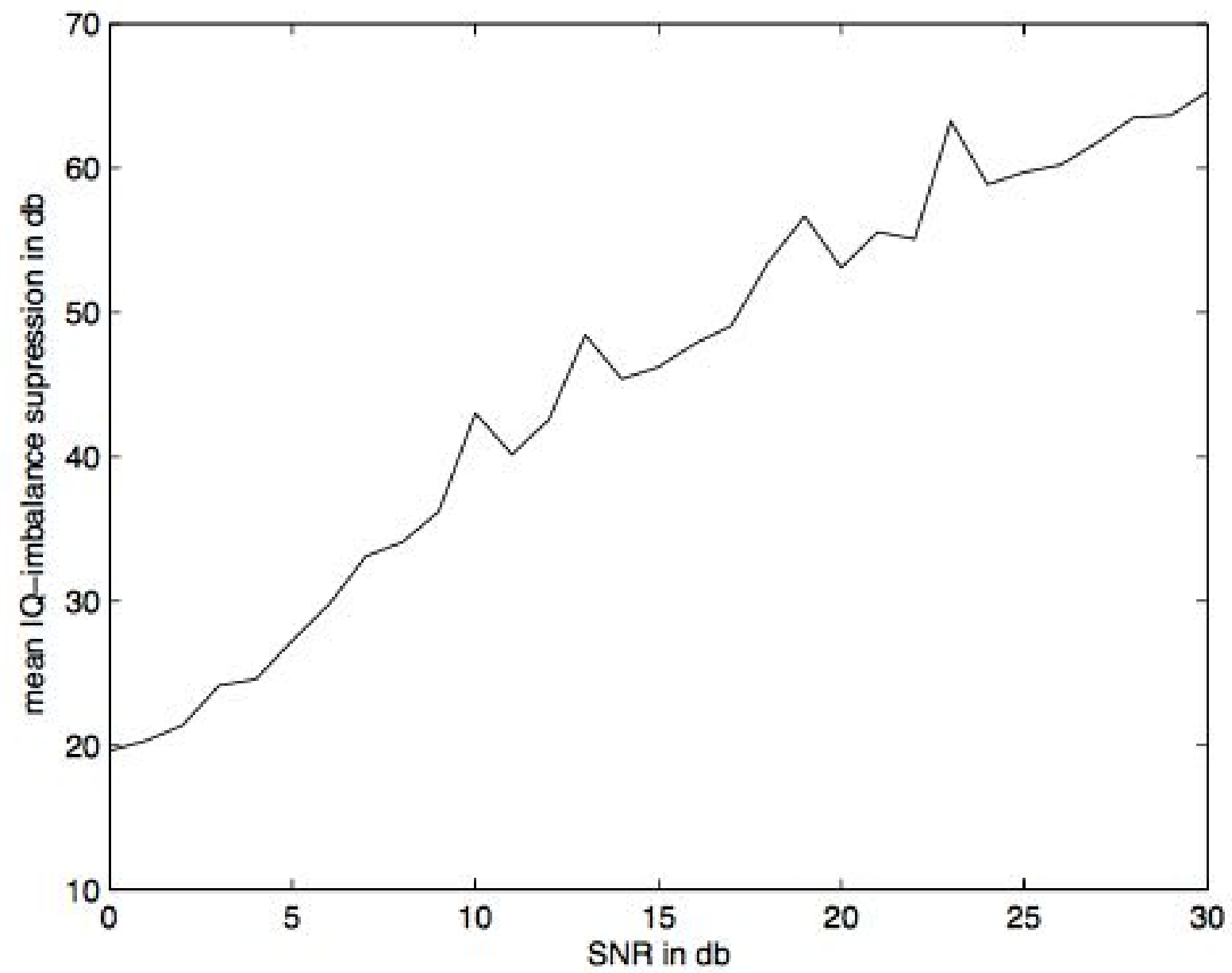


Fig. 6. IQ-imbalance suppression versus SNR

Contrast

Making elements different increases understanding.

Repetition

Repeat visual elements to create strong unity.

Alignment

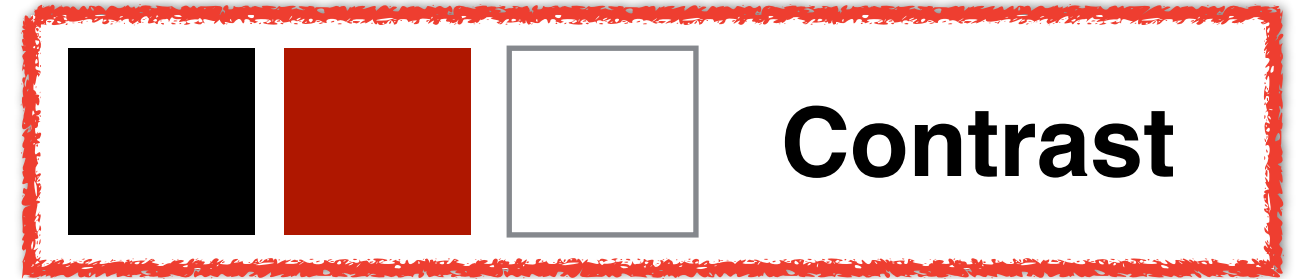
Nothing should be placed arbitrarily. Placement illustrates relationships between elements.

Proximity

Related items should be placed together.

Contrast

Making elements different increases understanding.



Repetition

Repeat visual elements to create strong unity.

Alignment

Nothing should be placed arbitrarily. Placement illustrates relationships between elements.

Proximity

Related items should be placed together.

Contrast

Making elements different increases understanding.

Repetition

Repeat visual elements to create strong unity.

Alignment

Nothing should be placed arbitrarily. Placement illustrates relationships between elements.

Proximity

Related items should be placed together.

Repetition



Contrast

Making elements different increases understanding.

Repetition

Repeat visual elements to create strong unity.

A Alignment

Nothing should be placed arbitrarily. Placement illustrates relationships between elements.

Proximity

Related items should be placed together.

Contrast

Making elements different increases understanding.

Repetition

Repeat visual elements to create strong unity.

Alignment

Nothing should be placed arbitrarily. Placement illustrates relationships between elements.

Proximity

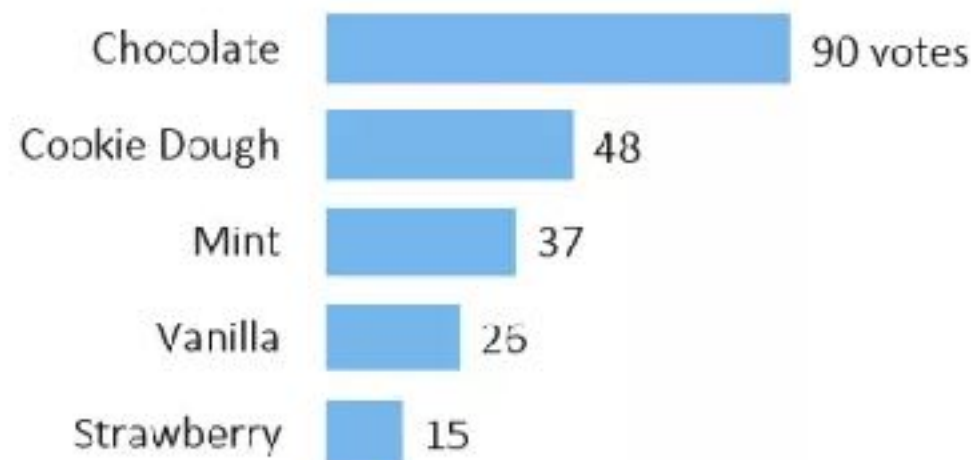
Related items should be placed together.



vs

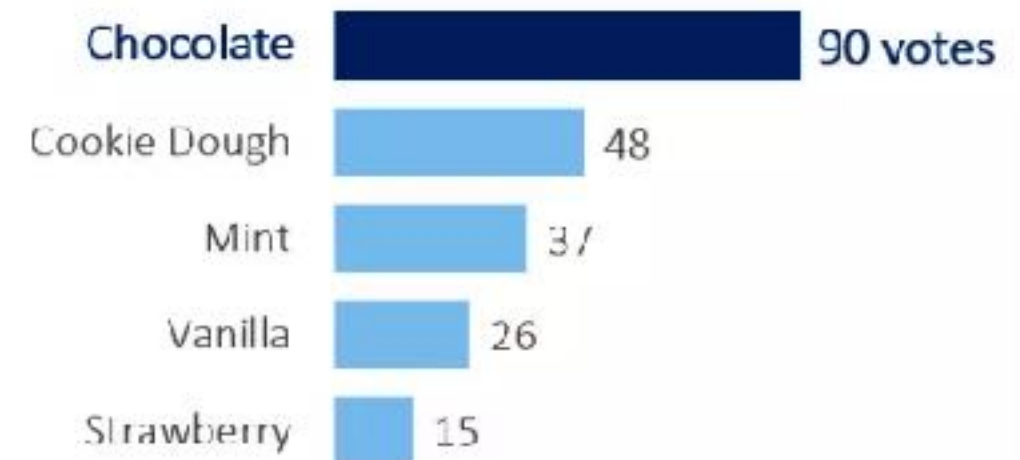
Descriptive title and **saturation** to show how chocolate is the preferred ice cream flavor

Ice cream flavor preferences based on 2014 survey of elementary school students (n=216)



or

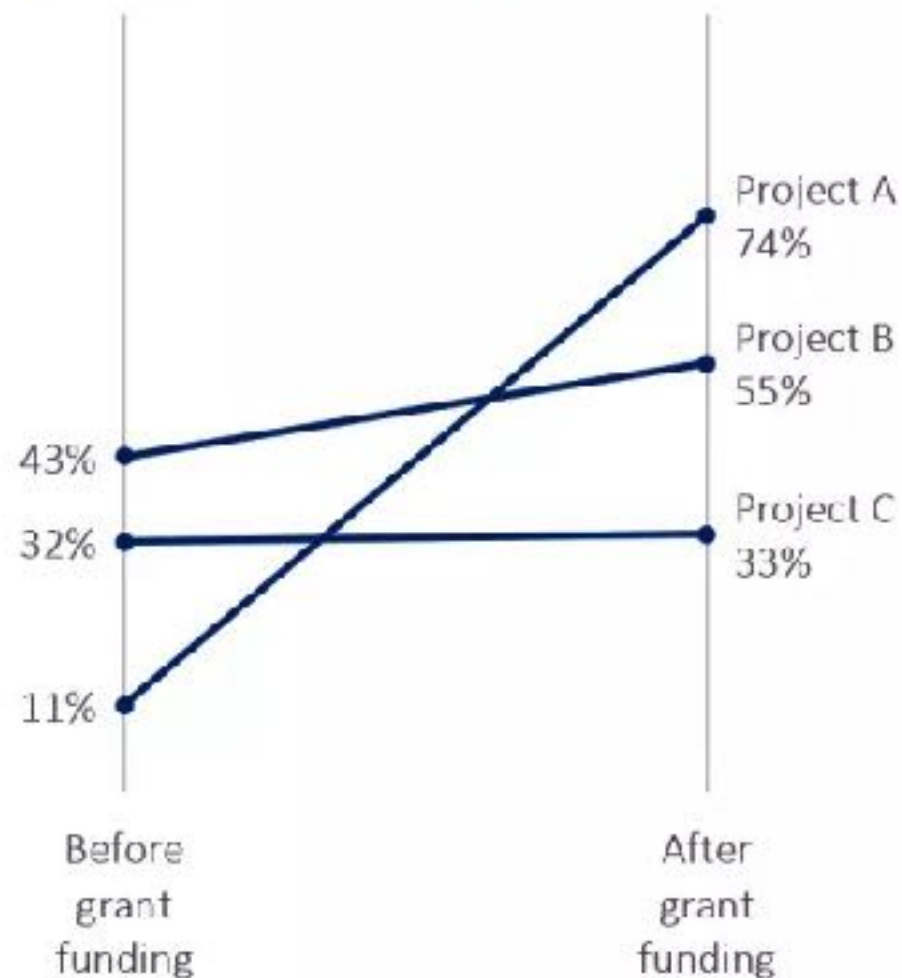
Chocolate was most popular flavor among elementary students surveyed



Source: 2014 survey of elementary school students (n=216)

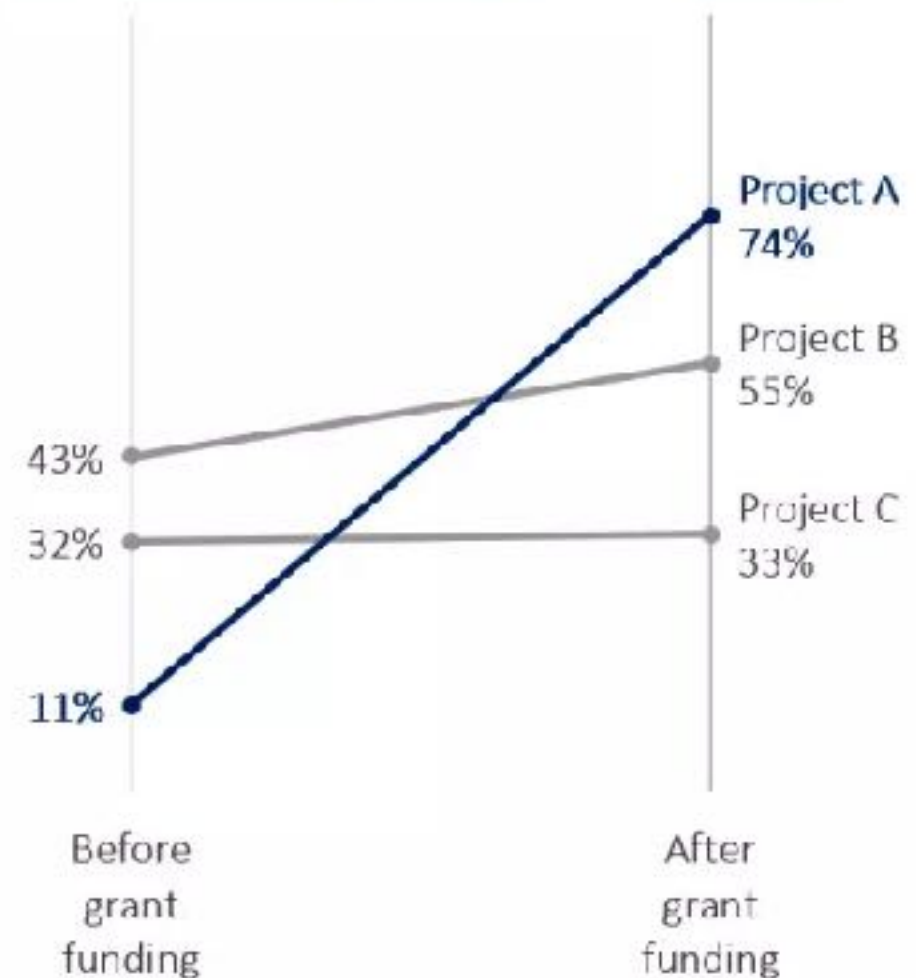
Descriptive title and **saturation** emphasize how Project A is performing particularly well

Project results before and after implementation of grant



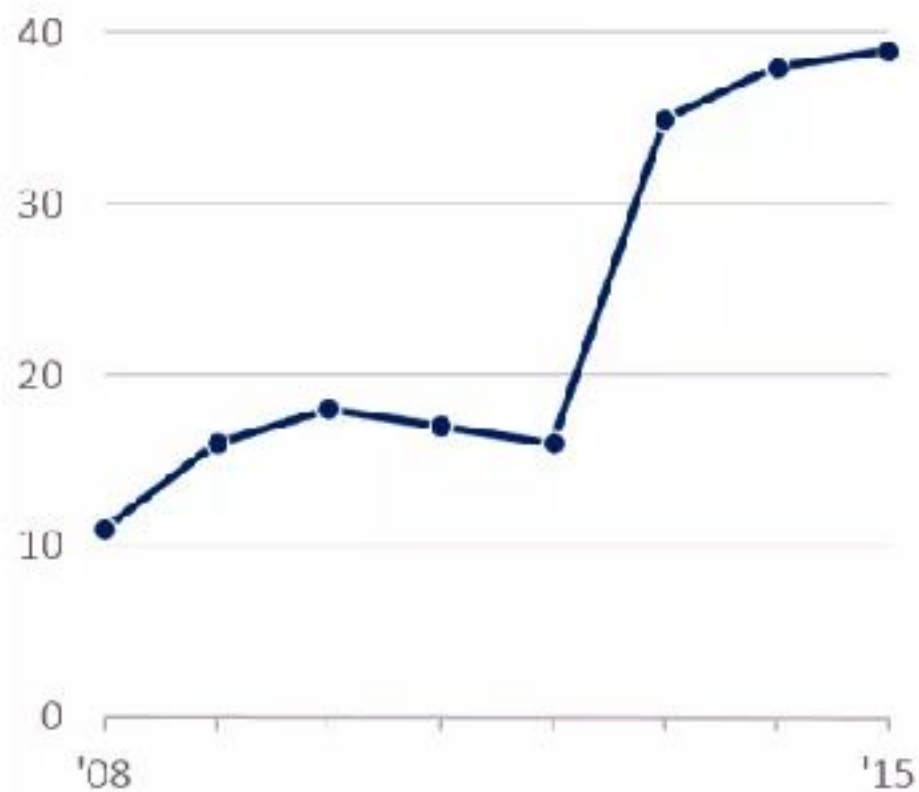
or

Project A had the greatest gains after the four-year grant funding



Descriptive title, **descriptive subtitle**, and **annotation** for increased understanding

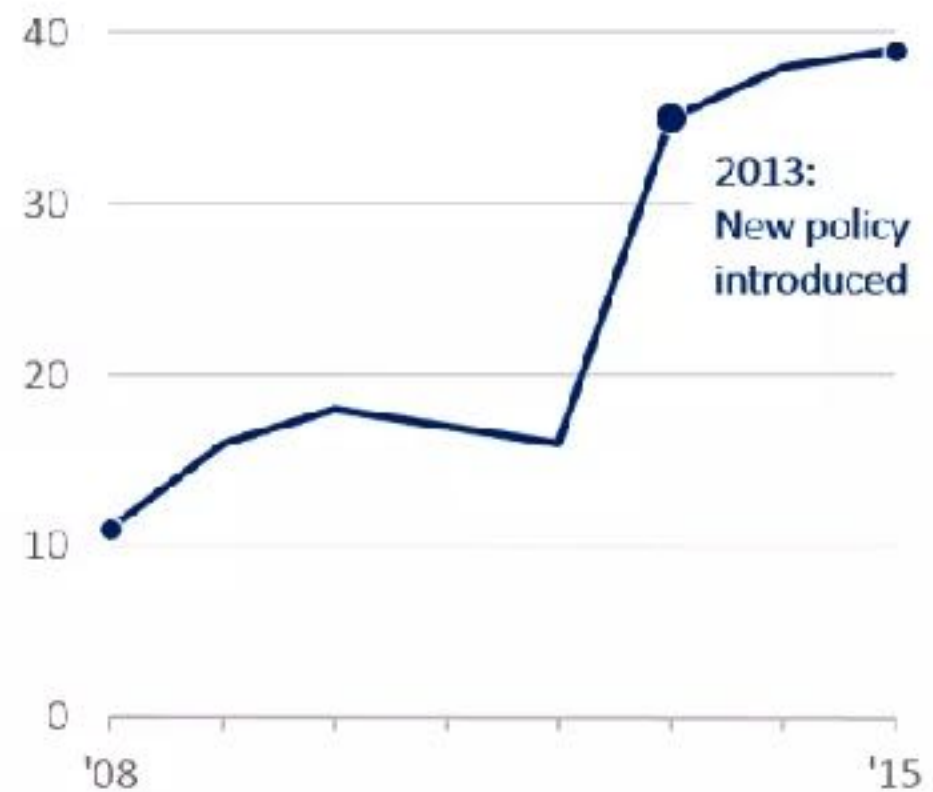
Number of studies funded each year



or

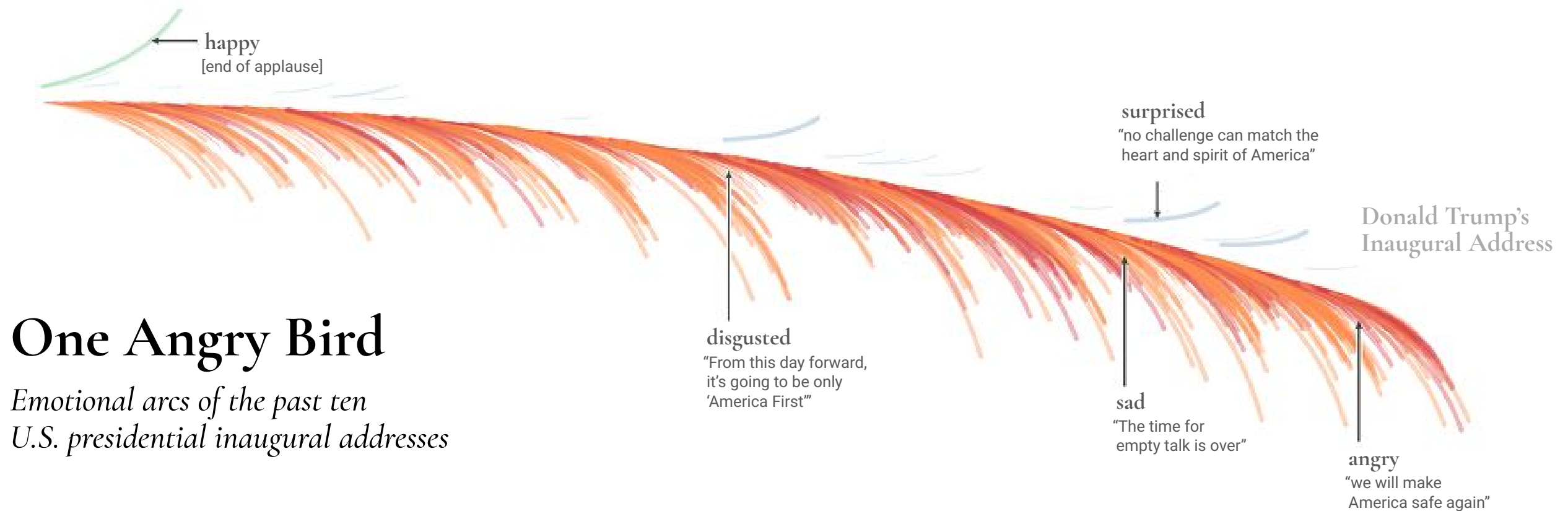
We're funding more studies each year

Beginning in 2013, we set aside new funding to measure the effectiveness of our initiatives – and we evaluated 39 of our programs in 2015 alone.



Activity

What do you like or dislike about the following report?



Dominant Emotions

We used the Microsoft Emotion API to detect facial expressions of the presidents while speaking. The emotions it identifies are similar to the 7 most widely identified emotions cross-culturally. While this does not provide a thorough analysis of the inaugural addresses, it does show a distinctive negative departure by Trump from the past nine speeches.

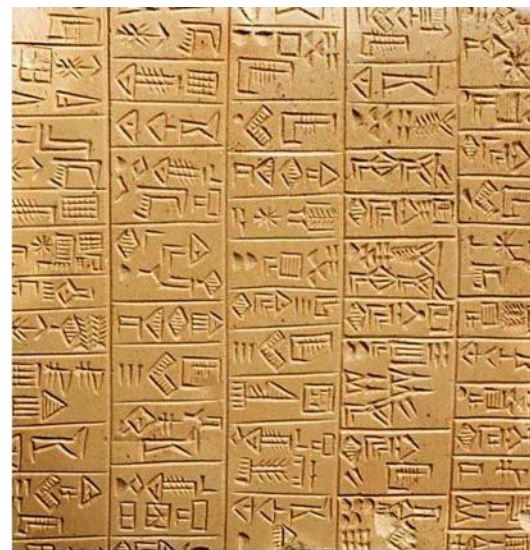
The inaugural address contains the first words uttered by a new president. It is an untarnished moment during which the American leader can set the presidential tone, inspire a country, put an election to rest, and look to the future.

An examination of the facial expressions of the last six presidents during the past 10 inaugurations revealed remarkable differences in the moods and emotions they conveyed. Five of the past six presidents were either positive or measured during their speeches, a striking contrast to the negative countenance found in President Trump's inaugural remarks.

Effective Redundancy

Effective Redundancy

- Verbal (text-like): rational, abstract, processed sequentially, slow, learned
- Nonverbal (image-like): intuitive, concrete, processed in parallel, fast, innate



✱ ' B
△ G
△ D
≡ H
Y W
I Z
日 H

⊗ T
λ Y
✈ K
C L
3 M
4 N
≡ S
O ,

2 P
2 S
⊗ Q
△ R
W Š
X T

ABCDEF
GHIJKLM
NOPQRS
TUVWXYZ

755

Steroids or Not, the Pursuit Is On

Barry Bonds is taking aim at the career home run record. He needs only six more to tie Babe Ruth and 47 to equal Hank Aaron.

Lines are cumulative home runs.

Hank Aaron
755 homers
23 seasons



Babe Ruth
714 homers
22 seasons



Barry Bonds
708 homers
20 seasons

Bonds takes lead
Home runs
after 16 seasons
Bonds 567
Aaron 554
Ruth 516

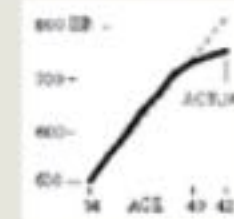
735
714
23 seasons
22 seasons
20 seasons
Bonds was injured last season. He played 14 games and hit 6 homers.

Homer Pace After Age 34

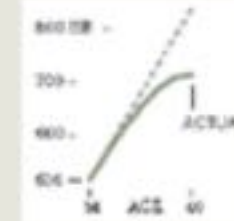
If the accusations are correct, Bonds was 34 in his first season on steroids. Here are projected home run paces for each player after age 34.

----- PROJECTED PACE BASED ON AVERAGE OF PREVIOUS FIVE SEASONS

Aaron
Actual homers slightly outpace projected homers for five seasons.



Ruth
Averaged 46.4 homers a season from age 30 to 34. Averaged 42.5 for next four seasons.



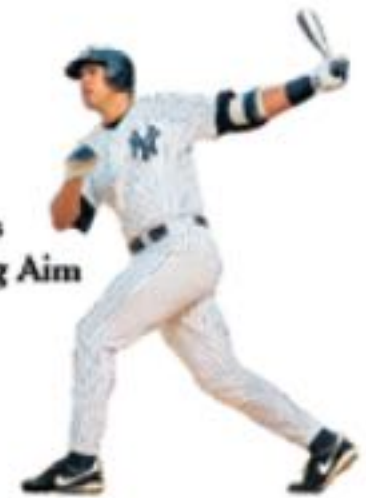
Bonds
From age 35 to 39, he averaged 14 more homers a season than projected.



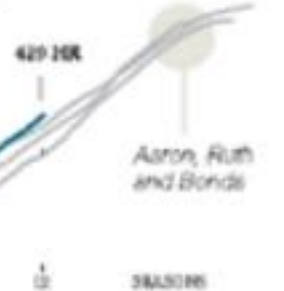
Note: Ages as of July 1 of each season.

According to allegations in a book about Bonds, he began taking steroids before the 1999 season, his 14th in the league. Two seasons later he hit 73 home runs, surpassing Aaron's career pace.

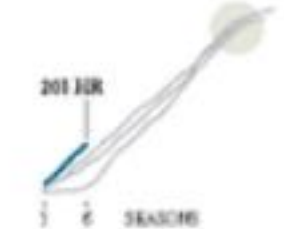
Others Taking Aim



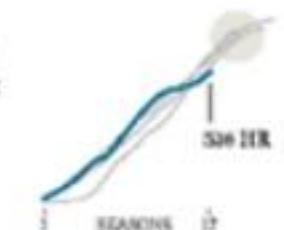
Alex Rodriguez
Is ahead of the pace set by all three home run leaders.



Albert Pujols
Averaging 40 homers a season, he has started stronger than the three leaders did.

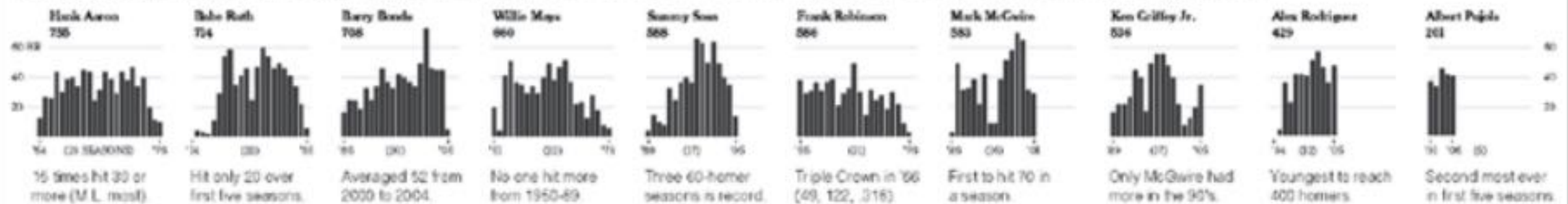


Ken Griffey Jr.
Many thought he would be the first to catch Ruth and Aaron until injuries limited his output.



Differing Paths to the Top of the Charts

The top seven players on the career home run list, along with a look at Griffey (12th), Rodriguez (37th) and Pujols (56th).

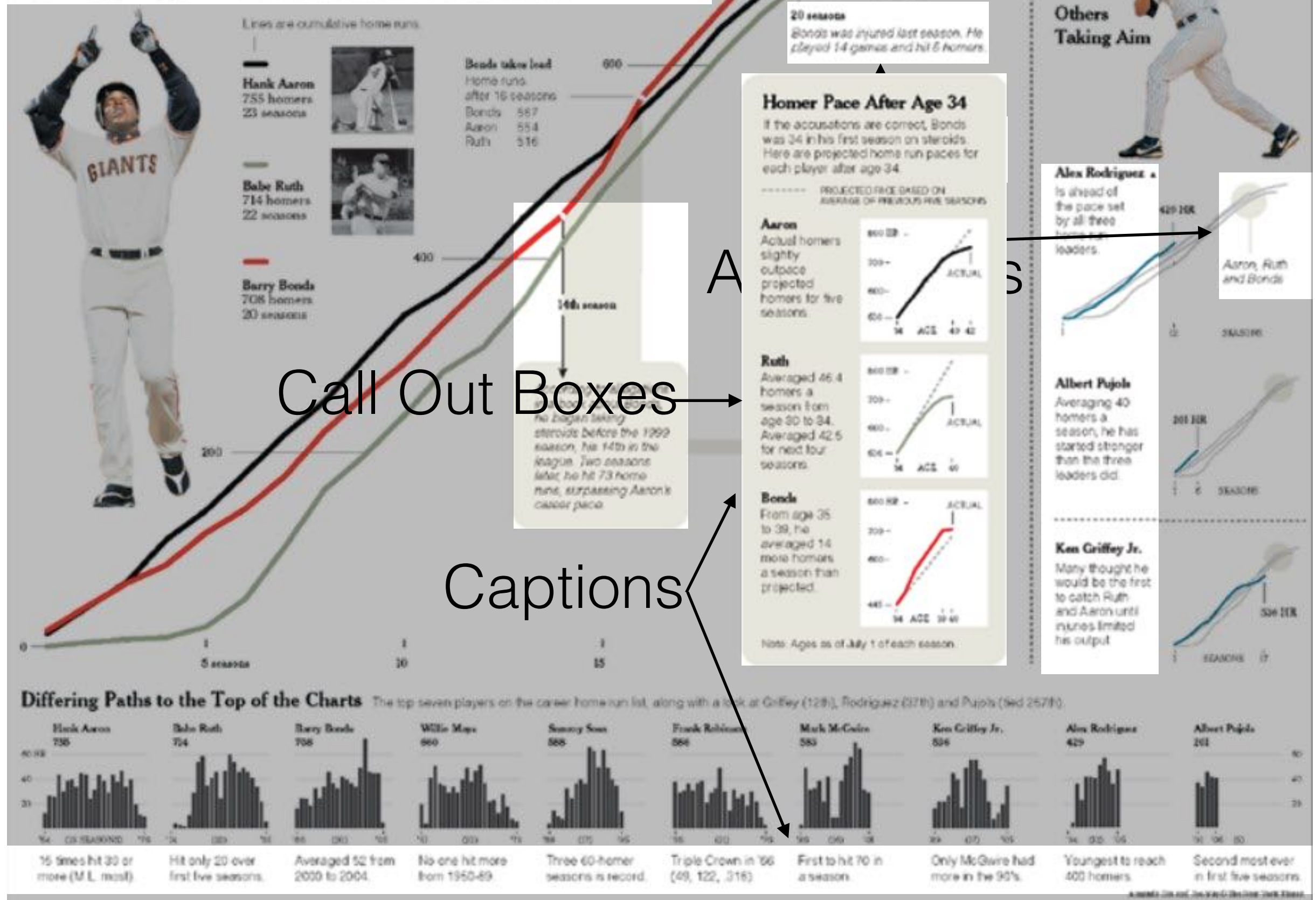


A source: Ken and the Way of the Home Run

755

Steroids or Not, the Pursuit Is On

Barry Bonds is taking aim at the career home run record. He needs only six more to tie Babe Ruth and 47 to equal Hank Aaron.



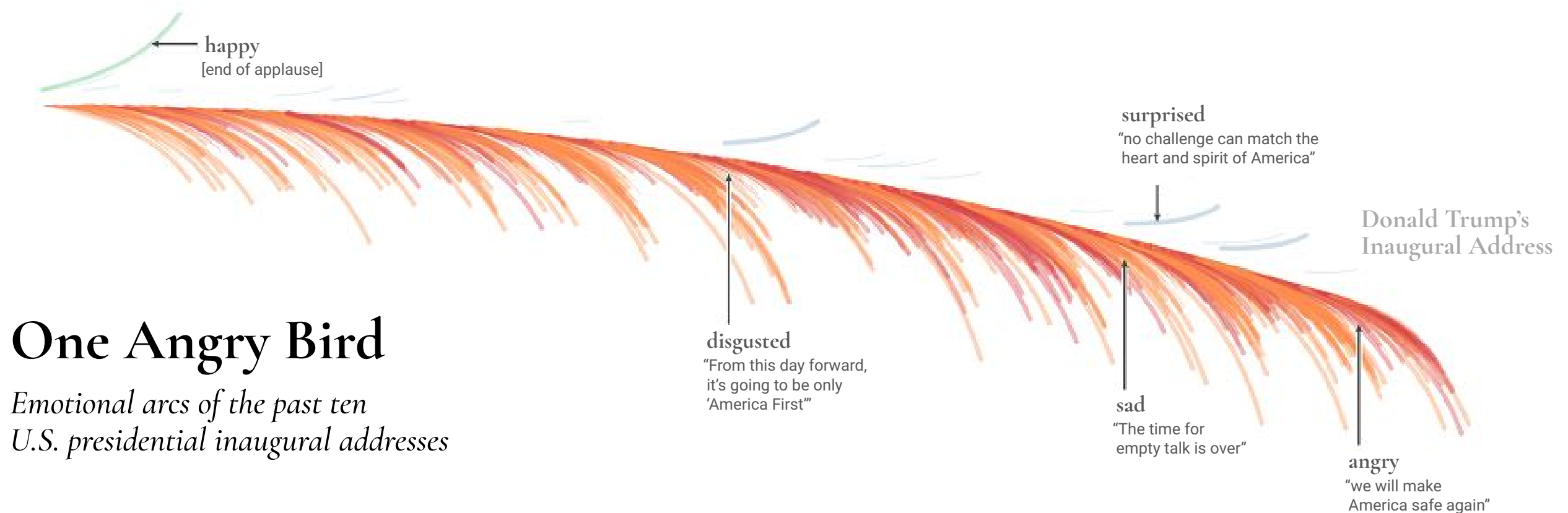
Captions

Call Out Boxes

A

S

A thousand words **and** a thousand pictures...



One Angry Bird

*Emotional arcs of the past ten
U.S. presidential inaugural addresses*

Dominant Emotions

We used the Microsoft Emotion API to detect facial expressions of the presidents while speaking. The emotions it identifies are similar to the 7 most widely identified emotions cross-culturally. While this does not provide a thorough analysis of the inaugural addresses, it does show a distinctive negative departure by Trump from the past nine speeches.

Interact with the feathers to see more information and matching video segment for each emotion. Since the Emotion API does not analyze the audio portion, we have removed it.

The inaugural address contains the first words uttered by a new president. It is an untarnished moment during which the American leader can set the presidential tone, inspire a country, put an election to rest, and look to the future.

An examination of the facial expressions of the last six presidents during the past 10 inaugurations revealed remarkable differences in the moods and emotions they conveyed. Five of the past six presidents were either positive or measured during their speeches, a striking contrast to the negative countenance found in President Trump's inaugural remarks.

Shown here in the form of collected emotion arcs, each "feather" represents an inaugural address. Each barb of the feather is a moment during the speech where the president displayed an emotion — positive emotions are drawn above the quill, negative emotions below. The length of each barb represents the intensity of the emotion. The curve of the feather itself indicates the overall positivity or negativity of the speech.

Unexpectedness

- Make the audience aware that there is something they did not know they didn't know
- Use surprise to grab the audience's attention
- “You might think you know this, but here is a new angle on it”
- Curiosity happens when we feel a gap in our knowledge

Activity

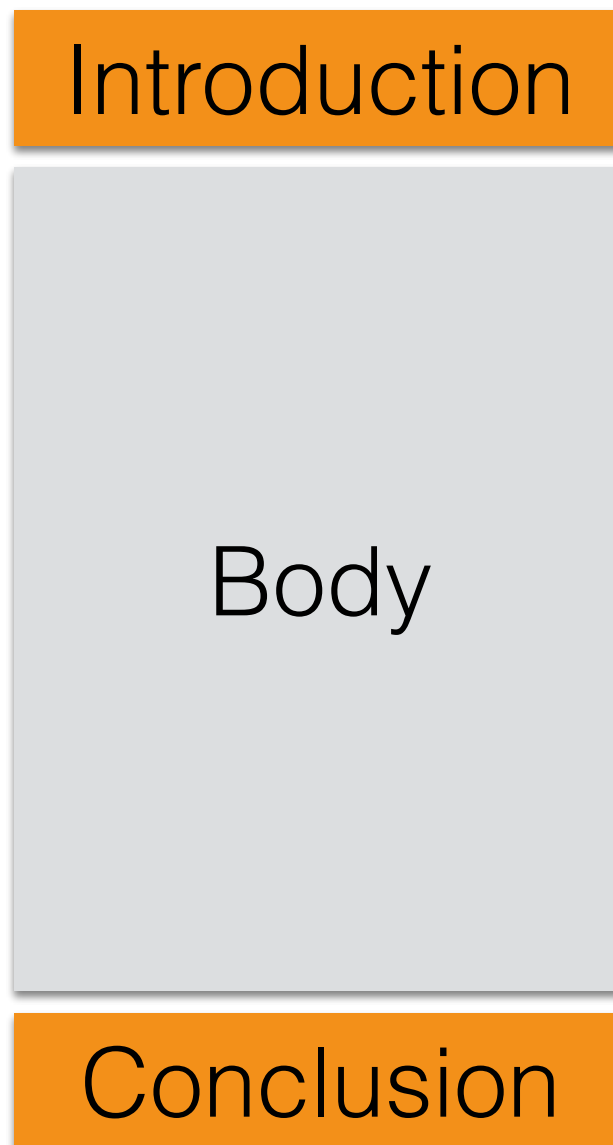
What do you like or not like about the following abstract? What organization does it use?

Abstract

This paper presents and assesses a framework for an engineering capstone design program. We explain how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. Next, we describe a way to administer and execute the capstone design experience including design workshops and lead engineers. We describe the importance of assessing the capstone design experience and report recent assessment results of our framework. We comment specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

Balanced Design

Chronological

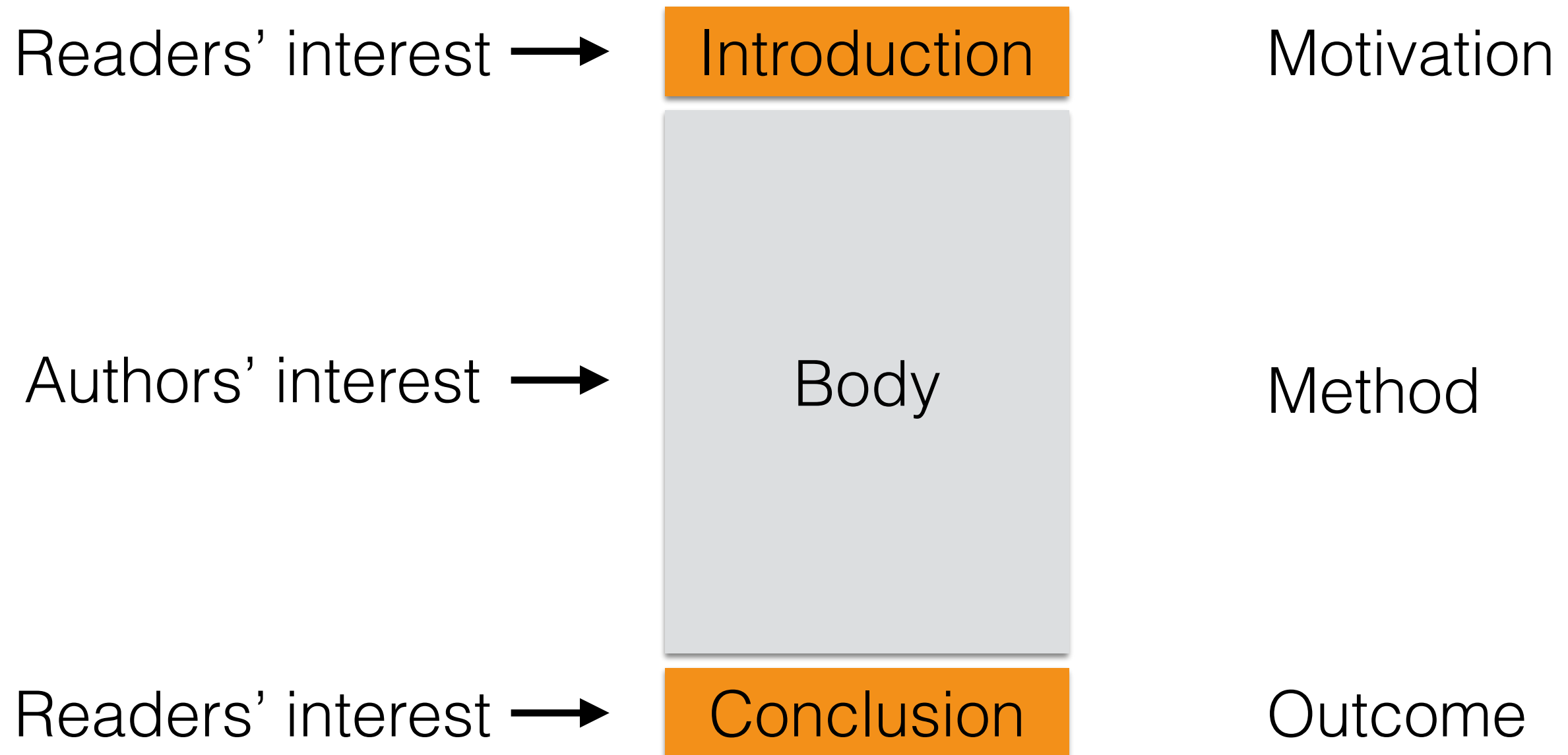


Motivation

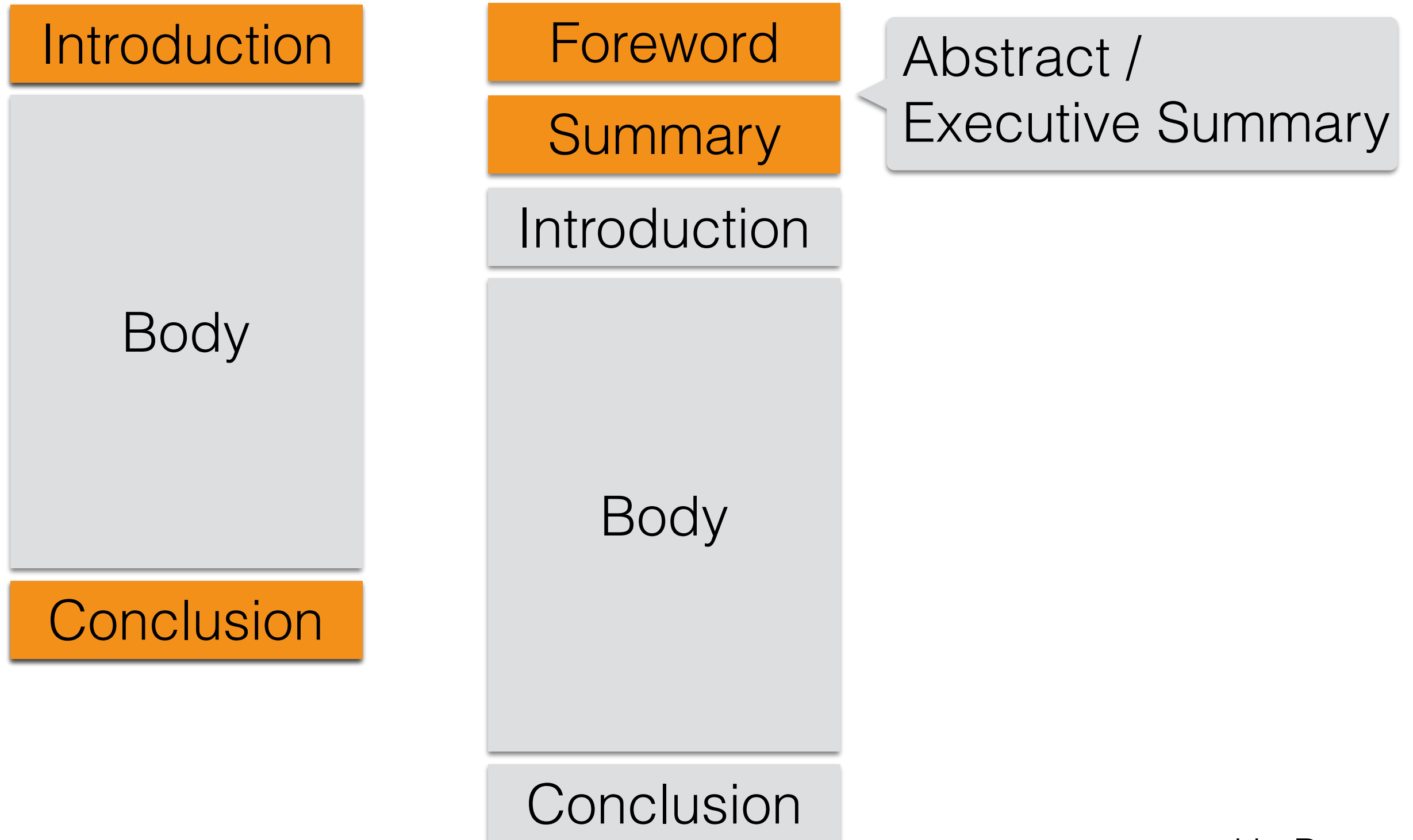
Method

Outcome

Chronological



Abstract / Summary



Abstract / Summary

Context

A way to lead the audience to the need efficiently

Need

What is the problem? Why is it interesting and important?

Approach

What we decided to do to address the need

Message

The main things we want the audience to remember

Conclusion

What this means to the audience and what the future holds

Report

Context

A way to lead the audience to the need efficiently

Need

What is the problem? Why is it interesting and important?

Approach

What we decided to do to address the need

Message

The main things we want the audience to remember

→ Findings

Stating the main results of the approach

Conclusion

What the above means to the audience

→ Perspectives

Recap of the message and what the future holds

Context

A way to lead the audience to the need efficiently

Need

What is the problem? Why is it interesting and important?

Approach

What we decided to do to address the need

Message

The main things we want the audience to remember

Preview

A map of the body (opt.)

Point 1

Transition

Point 2

Transition

⋮

Findings

Stating the main results of the approach

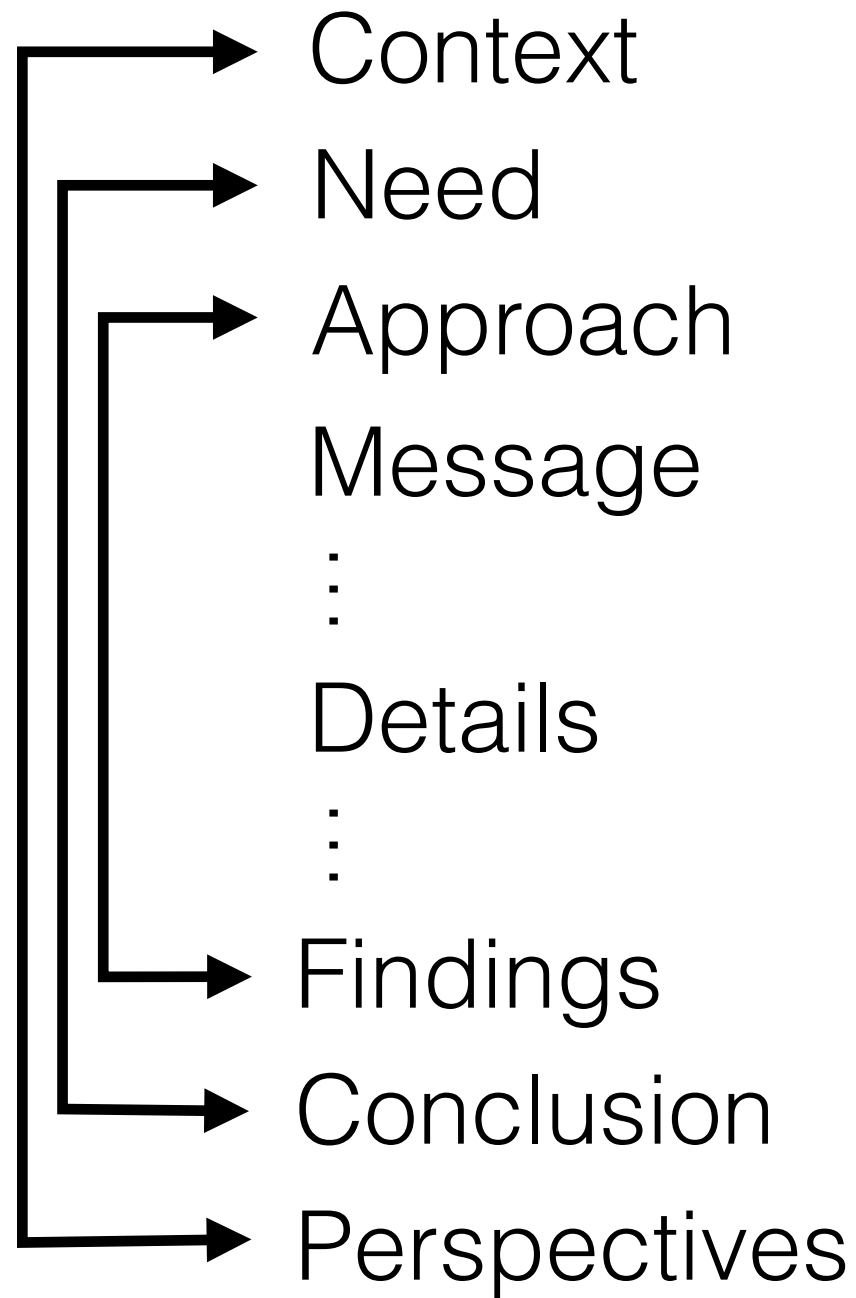
Conclusion

What the above means to the audience

Perspectives

Recap of the message and what the future holds

Balanced Design



Balanced Design

Before

Context
Need

Approach
Message

Now

⋮
Details
⋮

Findings

After

Conclusion
Perspectives



Abstract

Rankings are a popular and universal approach to structuring otherwise unorganized collections of items by computing a rank for each item based on the value of one or more of its attributes. This allows us, for example, to prioritize tasks or to evaluate the performance of products relative to each other.

While the visualization of a ranking itself is straightforward, its interpretation is not, because the rank of an item represents only a summary of a potentially complicated relationship between its attributes and those of the other items. It is also common that alternative rankings exist which need to be compared and analyzed to gain insight into how multiple heterogeneous attributes affect the rankings. Advanced visual exploration tools are needed to make this process efficient.

In this paper we present a comprehensive analysis of requirements for the visualization of multi-attribute rankings. Based on these considerations, we propose LineUp - a novel and scalable visualization technique that uses bar charts. This interactive technique supports the ranking of items based on multiple heterogeneous attributes with different scales and semantics. It enables users to interactively combine attributes and flexibly refine parameters to explore the effect of changes in the attribute combination.

This process can be employed to derive actionable insights as to which attributes of an item need to be modified in order for its rank to change. Additionally, through integration of slope graphs, LineUp can also be used to compare multiple alternative rankings on the same set of items, for example, over time or across different attribute combinations.

We evaluate the effectiveness of the proposed multi-attribute visualization technique in a qualitative study. The study shows that users are able to successfully solve complex ranking tasks in a short period of time.

Context

Need

Approach

Message

Findings

Activity

Discuss the pros and cons of the following report.

<http://bit.ly/cs109birthyear>



FOLLOW US: [f](#) [t](#) [v](#)
GET THE UPSHOT IN YOUR INBOX

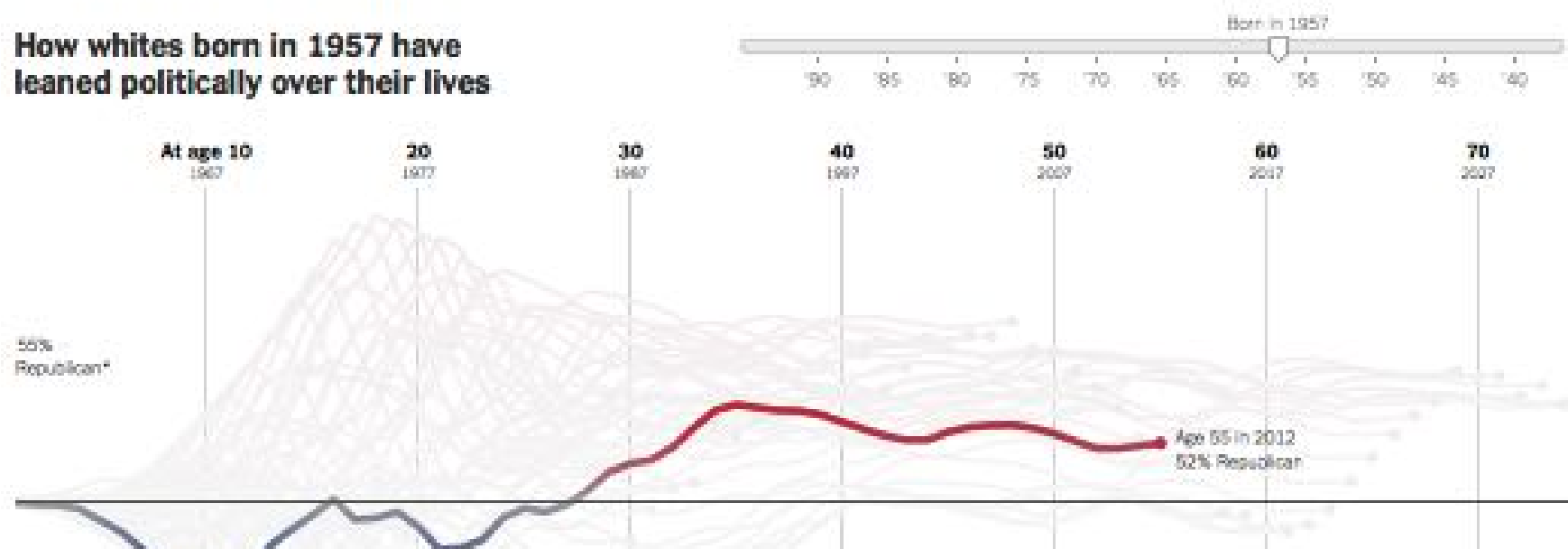
THE UPSHOT

[SHARE](#)

How Birth Year Influences Political Views

By AMANDA COX JULY 7, 2014

How whites born in 1957 have
leaned politically over their lives



Today

Communication Fundamentals

Know your message and adapt to your audience

Maximize Your SNR

Maximize data-ink and use effective redundancy

Balanced Design

Balance the before (context/need), the now (approach/details),
and the after (conclusion/perspective)

Further Reading

Trees, maps, and theorems

Effective communication for rational minds

Jean-luc Doumont



FOREWORD BY GUY KAWASAKI

presentationzen

Simple Ideas on Presentation Design and Delivery

Garr Reynolds

New
Riders

VOICES THAT MATTER™

