

#ODSC

BOSTON
APR 30 - MAY 3

Data Storytelling - Communicating Your Data-Driven Ideas with Impact

Bill Shander

Founder,
Beehive Media



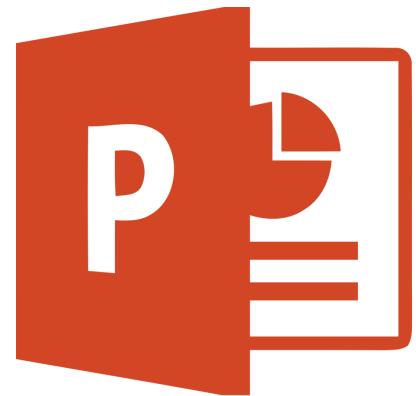
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why are we here?

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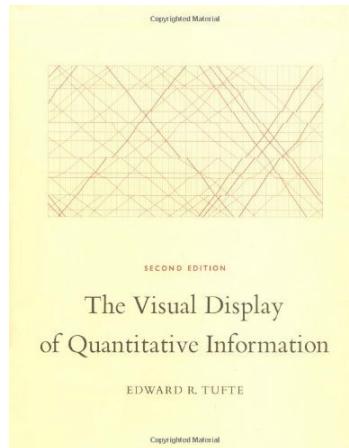
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1981

1982

1987



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2.
APRIL 1855 to MARCH 1856.

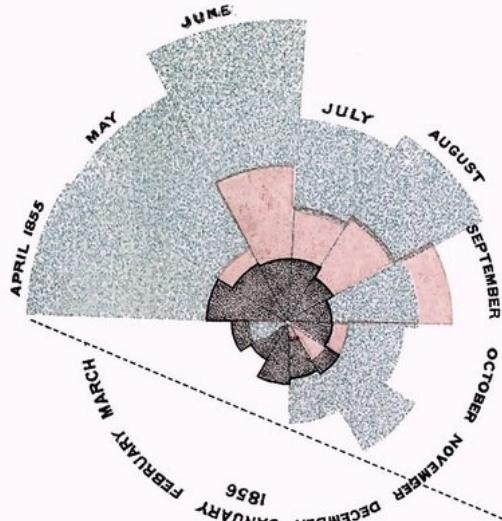
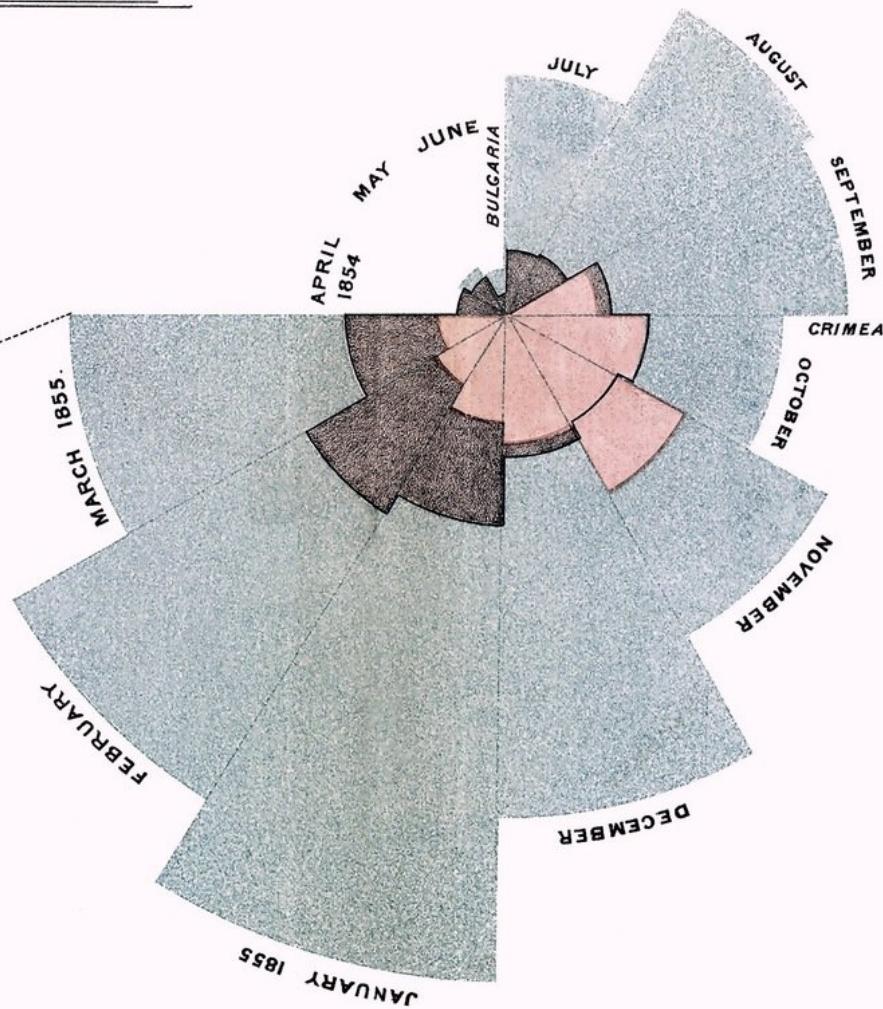


DIAGRAM OF THE CAUSES OF MORTALITY
IN THE ARMY IN THE EAST.

1.
APRIL 1854 to MARCH 1855.



The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex.

The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic diseases; the red wedges measured from the centre the deaths from wounds; & the black wedges measured from the centre the deaths from all other causes.

The black line across the red triangle in Nov? 1854 marks the boundary of the deaths from all other causes during the month.

In October 1854, & April 1855, the black area coincides with the red; in January & February 1855, the blue coincides with the black.

The entire areas may be compared by following the blue, the red & the black lines enclosing them.

Exports and Imports to and from DENMARK & NORWAY from 1700 to 1780.



The Bottom line is divided into Years, the Right hand line into £10,000 each.

Published as the Act directs, 1st May 1786, by W^m. Playfair

Neale sculpt 352, Strand, London.

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VISUALS HELP US MAKE SENSE OF THE WORLD

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VISUALS HELP US MAKE SENSE OF THE WORLD

and humans are wired for story...

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THE CHALLENGE

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WE NOW GENERATE MORE DATA

EVERY TWO DAYS

THAN WAS GENERATED
FROM THE DAWN OF CIVILIZATION
THROUGH 2003

- Eric Schmidt

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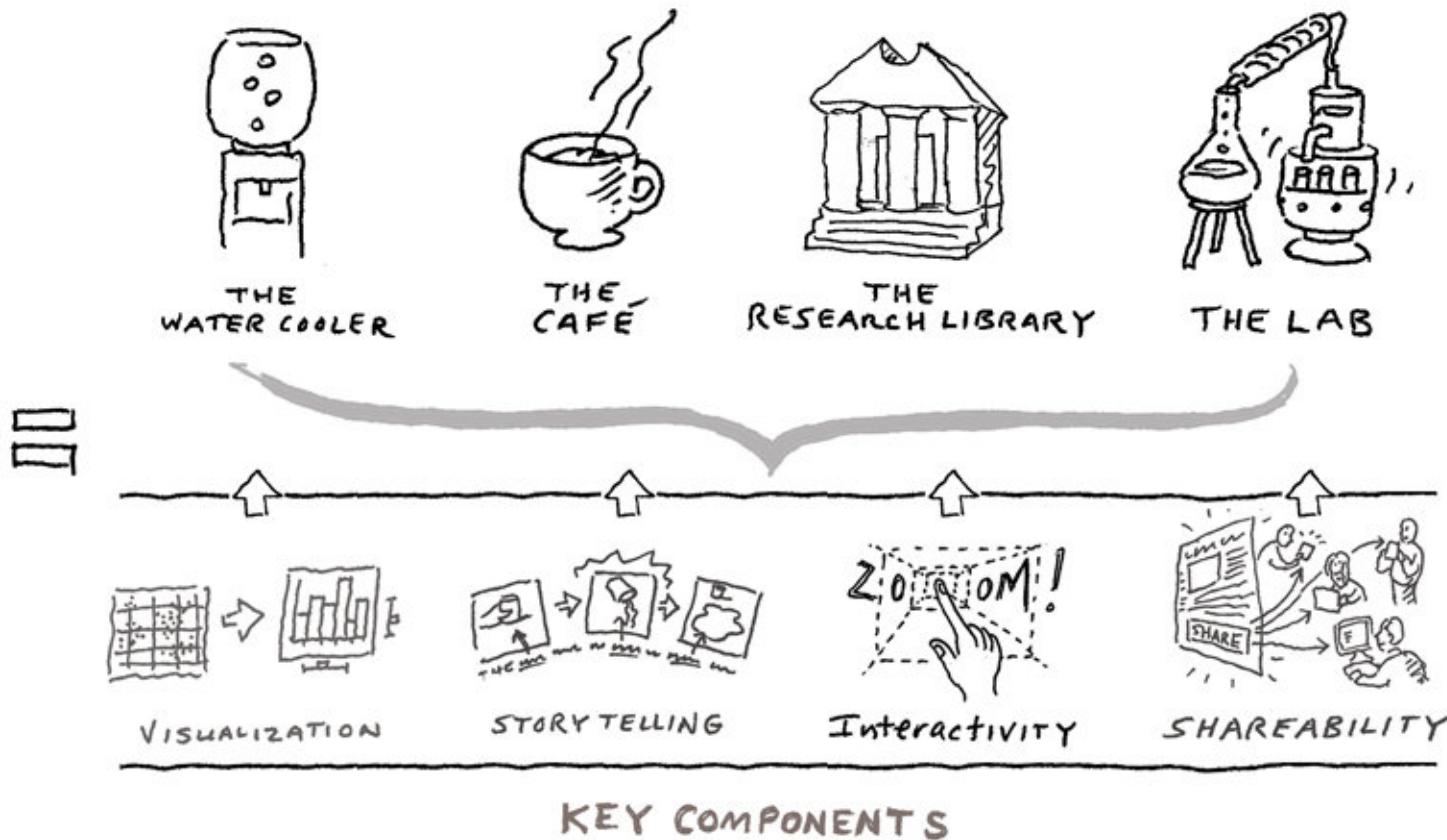


THE SOLUTION

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4x4

A MODEL FOR
KNOWLEDGE
CONTENT



<http://bhv.io/kaconnect>

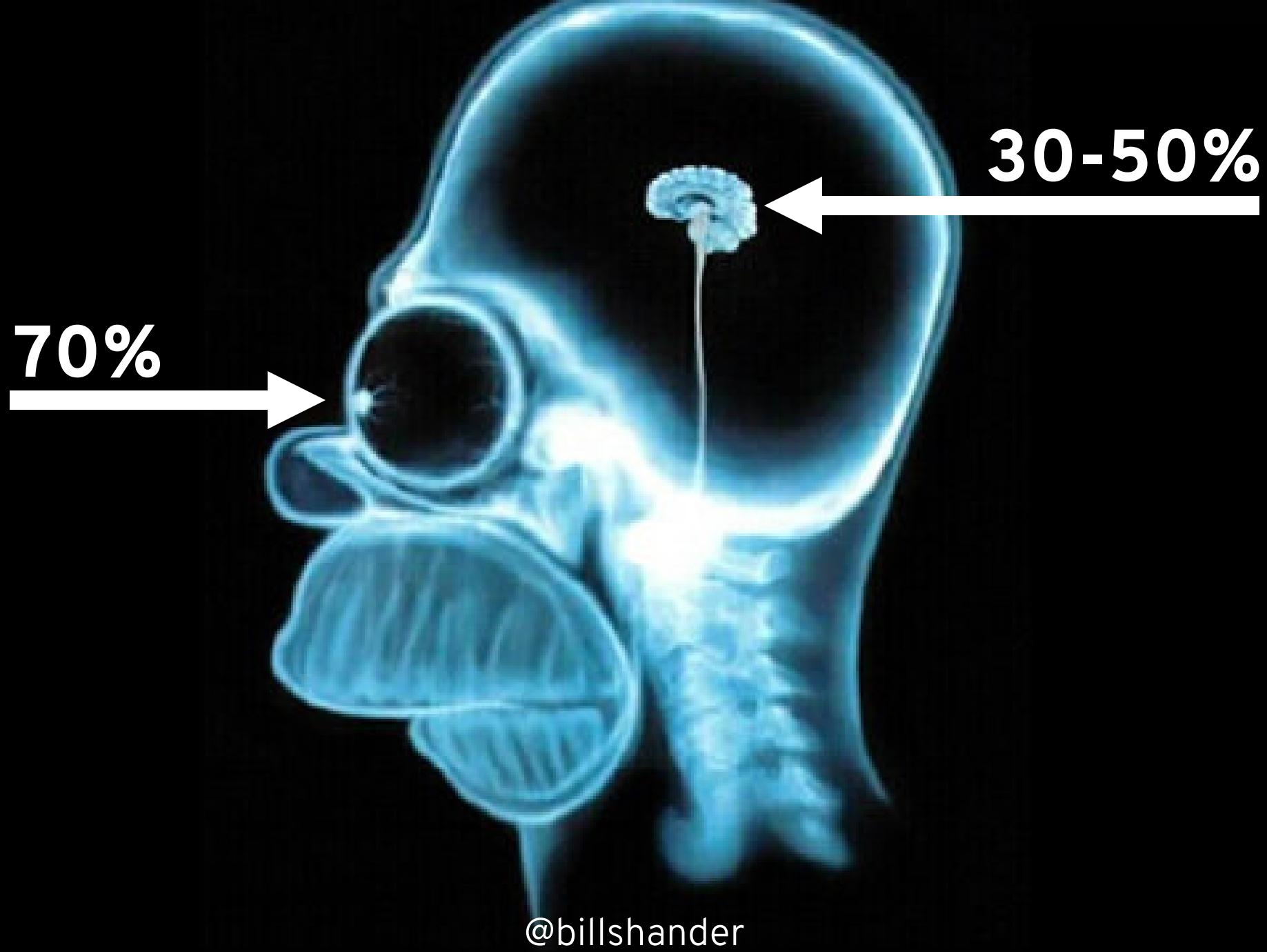
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VISUALIZATION + STORYTELLING + INTERACTIVITY + SHAREABILITY

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WHY VISUALIZATION

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PICTURE SUPERIORITY EFFECT

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VISUALIZATION + STORYTELLING + INTERACTIVITY + SHAREABILITY

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WHY STORYTELLING

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VISUALIZATION + STORYTELLING + INTERACTIVITY = SHARABLE



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GETTING FROM NUMBERS TO NARRATIVE

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KWYs >> STORY >> DESIGN >> EXECUTION

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KWYs >> STORY >> DESIGN >> EXECUTION
KWYWRTS

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KNOW
WHAT
YOU
REALLY
WANT
TO
SAY

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KWYs >> STORY >> DESIGN >> EXECUTION
KWYWRTS
KWYDIS

@billshander

KNOW
WHAT
YOUR
DATA
IS
SAYING

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KWYs >> STORY >> DESIGN >> EXECUTION

KWYWRTS

KWYDIS

KWYANTH

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**KNOW
WHAT
YOUR
AUDIENCE
NEEDS
TO
HEAR**

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YES, THE WORST ACRONYMS EVER
YES, THE MOST IMPORTANT ACRONYMS EVER

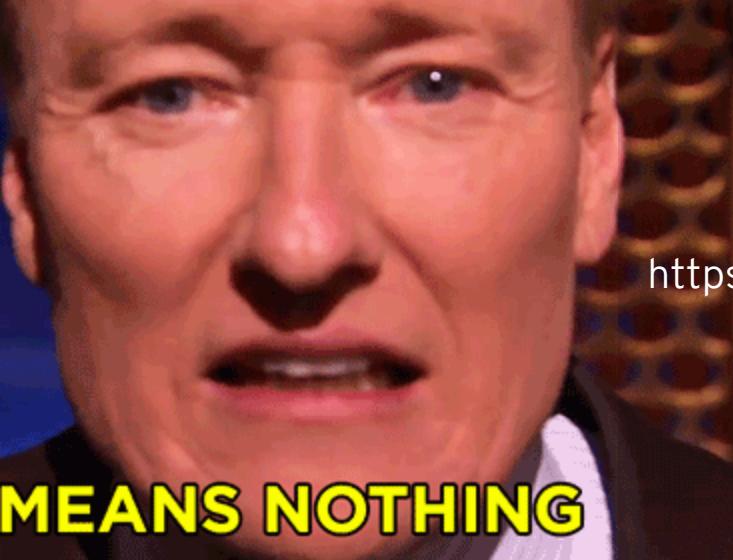
The KWYs

ALL ABOUT
THE PRIORITIZATION OF MESSAGES

BECAUSE

If you don't know what you're trying to say...

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[https://giphy.com/embed/kaq6Gnx
DIJaBq](https://giphy.com/embed/kaq6GnxDIJaBq)

<https://giphy.com/embed/ZebTmyvw85g>



<https://giphy.com/embed/91fEJqgdsnu4>

at's

KWYs >> STORY >> DESIGN >> EXECUTION



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Storytellers make the most influential scientific researchers



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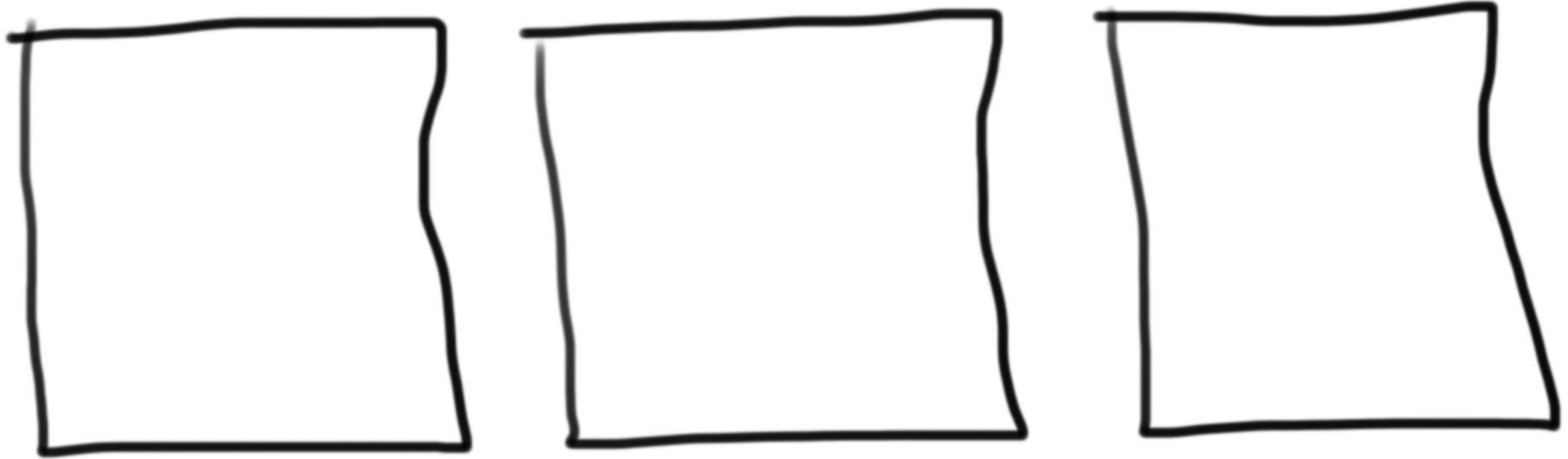
LINEAR

BEGINNING-MIDDLE-END

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GETTING TO STORY

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The Militarization of the Middle East in Numbers

JEFF DESJARDINS on March 3, 2016 at 12:31 pm



364
SHARES

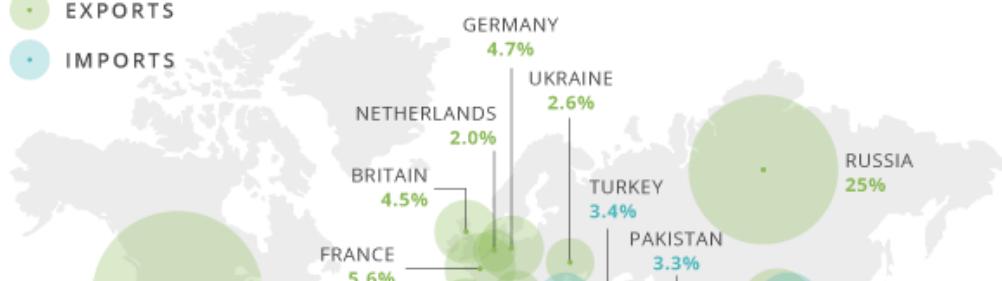
Arms trading around the world

2011 - 2015

PERCENTAGE OF MARKET BY COUNTRY

• EXPORTS

• IMPORTS



OUR LATEST ENDEAVOR:

THE MONEY PROJECT



LEARN MORE

LATEST POSTS



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Saudi
buildup

Per
capita

Missing
data

Gulf
friends
buildup

Iran
buildup

Iran
buildup

Saudi
buildup

Gulf
friends
buildup

Missing
data

Saudi
buildup

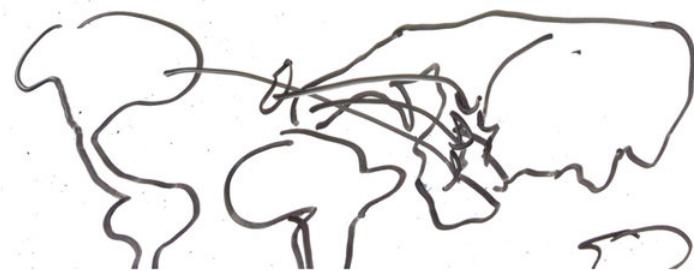
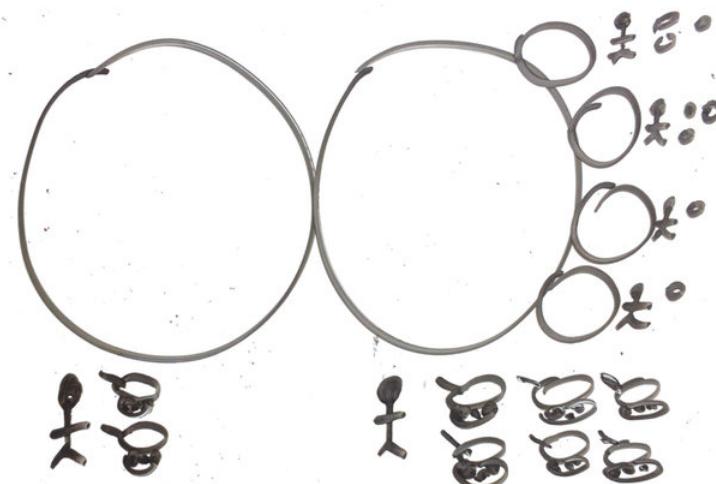
Gulf
friends
buildup

Iran
buildup

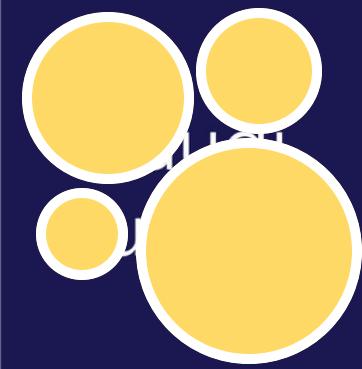
Missing
data

Per
capita

HEADLINE



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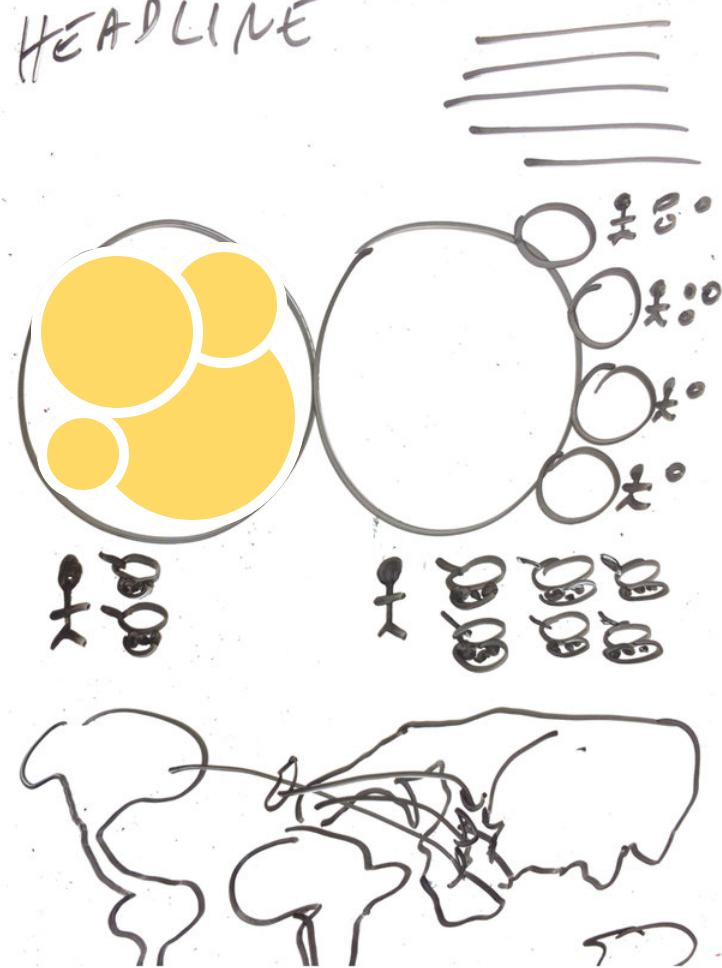
Gulf
friends
buildup

Iran
buildup

Missing
data

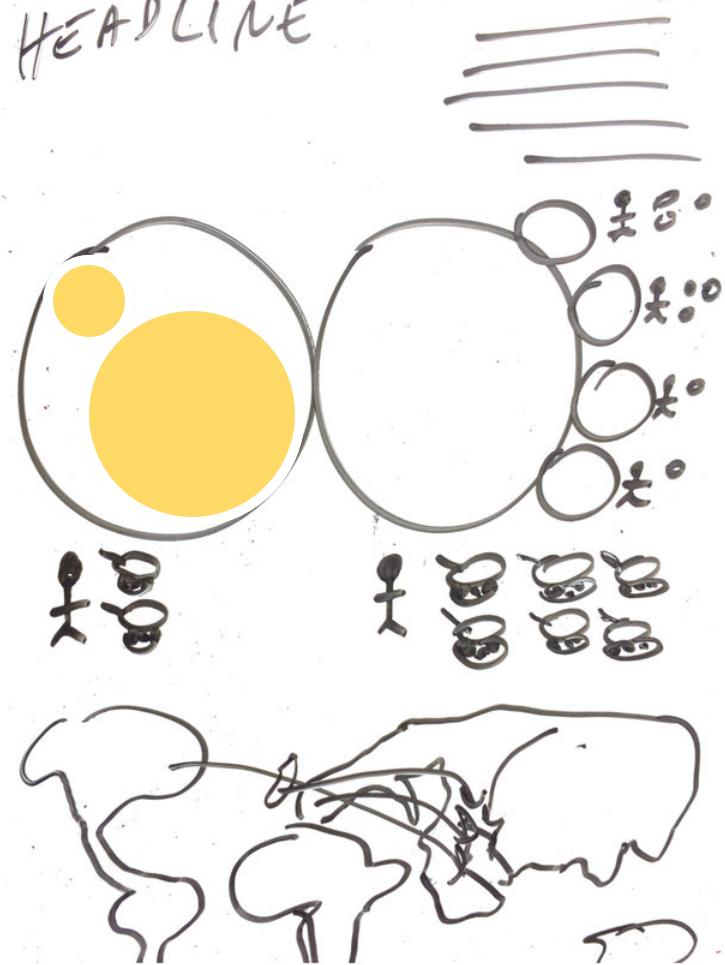
Per
capita

HEADLINE



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HEADLINE



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FLOW

AND STORIES FLOW
"PLOT", LOGIC, EMOTION, HUMOR...
ALL REQUIRE A FLOW, TIMING, ORDERING



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USE YOUR WORDS

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1. **30K FOOT VIEW** (couple words)
2. **HUMAN LEVEL VIEW** (sentence - for audience consumption)
3. **INSANE VIEW** (long run-on sentences/paragraphs with ALL the detail - for YOU!)

The Saudis have been spending increasing amounts on arms over the past 10 years - with an even steeper increase since 2012.

Unlike the rest of the Middle Eastern countries, Saudi Arabia has been spending increasing amounts on arms over the past 10 years.

STORIES WITH DATA

ARE JUST STORIES...WITH DATA

THE STORY COMES FIRST SO FOCUS ON THAT

KWYs >> STORY >> DESIGN >> EXECUTION

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BUT MOST ESPECIALLY...
IT'S REALLY REALLY REALLY...
ALL ABOUT

PRE-ATTENTIVE PROCESSING

392785338279016947821878384615298475653
837475903847560201928927364776352527495
73628297246494385618384916293849562094
95028746352528330885994826739848395829
873465839873101209298303749882973894651

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392785338279016947821878384615298475653
837475903847560201928927364776352527495
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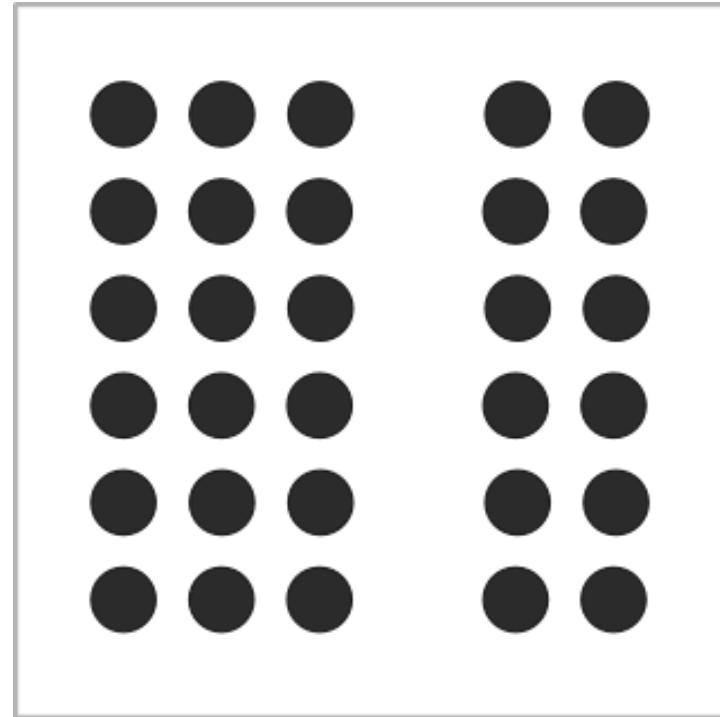
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PRE-ATTENTIVE PROCESSING

VISUAL PERCEPTION
GESTALT PSYCHOLOGY

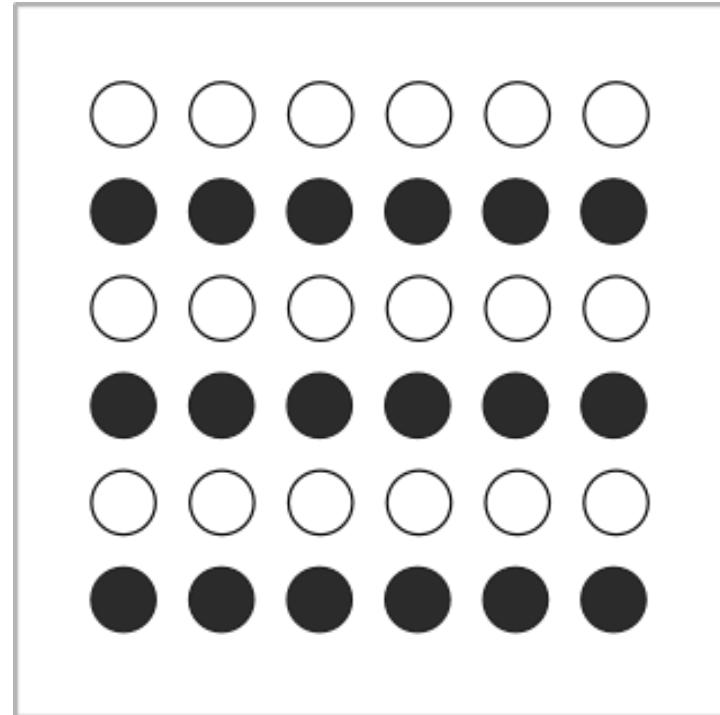
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PROXIMITY



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SIMILARITY



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to trigger pre-attentive responses...

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to trigger pre-attentive responses...

DO LESS

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*“ I would have written a shorter letter,
but i didn't have the time.*

– Blaise Pascal

Real House Prices over the Past Year

Real house prices increased over the past year in most countries.

(2015:Q2 or latest, annual percent change)



Sources: Bank of International Settlements, Colliers International, European Central Bank, Federal Reserve Bank of Dallas, Savills, Sinyi Real Estate Planning and Research, and national sources.

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Real House Prices Increased over the Past Year in Most Countries

Annual
Percentage
Change
(2015 Q2 or later)

55%

0

-35%

Ukraine

Russia

United States

The only country in the Western Hemisphere with growth under 6%.

Qatar

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KWYRWTS >> STORY >> DESIGN >> EXECUTION



LET'S TALK ABOUT THESE THINGS

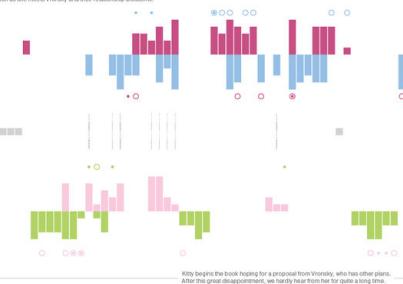
While we look at some examples...

LOVE AND HAPPINESS in Anna Karenina

**“Happy families are all alike;
every unhappy family is unhappy in its own way.**

So begins Anna Karenina, praised as one of the great novels of all time by critics and authors alike. Such an opening sentence might lead one to believe that happiness (or, more likely, unhappiness) is central to the story and its characters. The book follows the romantic entanglements of the eponymous Anna Karenina and her lover Alexey Vronsky. There is a second pair of lovers, Kitty Shtcherbatksaya and Konstantin Levin. Given that this is primarily a story of two couples, and clearly focused on their relative happiness, can we look at the novel analytically and measure their happiness and the influences on that happiness? Might the data reveal any other insights into the story?

Anna Karenina begins with the story of Kitty's and Anna's siblings, who are married to each other. It then moves on to Levin and his unrequited love for Kitty. After the opening chapters, the two couples have very few interactions with each other until much later in the book, despite the fact that they live in the same circles.



How happy?

Let's face it. This is a Russian novel. It's probably a bit much to expect joy as a common emotion. If you look at average happiness, you'll see that each couple is moderately happy overall. But that does not mean there is no joy! In fact, Kitty and Levin are pretty darn happy – experiencing joy at double the rate Anna and Vronsky do as well.



Being with you...

Togetherness does not equal happiness. No one's happiness is dramatically different from their partner than from their counterpart. But the two characters in primary focus (Anna and Levin) are slightly less happy alone while their two loves are both slightly happier apart.



Is this love?

Kitty and Levin are happy together, in the end. But throughout the novel, she appears without him in the book (so her inner life isn't as exposed) and she almost never thinks or speaks about him when he is not there.



Who is the book really about?

Anna Karenina could easily have been titled "Konstantin Levin". The book is more about him than it is about Anna. It is about three characters: Anna and Levin and most of his scenes do not even include his counterpart, Kitty. When Levin is alone, the story focuses on him and his inner life as well as his interactions with friends and family.



Notes

The data for this visualization is from the text of Anna Karenina, by Leo Tolstoy, downloaded in digital form from Project Gutenberg. Each chapter was displayed one at a time and the characters were tracked as they spoke. The data was then analyzed and sorted into scenes, when they spoke or thought about their counterpart and when they did not. The data was then used to calculate the average judgment to assess happiness on a five-point scale from miserable to joyful. The data visualization was created with Tableau Public, which is a successor company of Panoptiq International, which was based in Moscow.

The colored rectangles show when two characters appear in each chapter told out horizontally from left to right, represented by a rectangular shape of consistent width.

THE KEY CHARACTERS
Anna Karenina
Kitty Shtcherbatksaya
Alexey Vronsky
Konstantin Levin

Small grey squares represent chapters where none of the four key characters appear. They are pretty rare.
The dotted vertical lines indicate when the pairs of lovers (or at least one of each) appear in the same chapter.

As Anna and Vronsky's relationship fails irreversibly, Kitty and Levin's clearly strengthen. As the book draws to a close, Tolstoy brings the couples together again and forces them to consider their past mistakes and the need for change to consider the two relationships and how they reflect each other.

This area for the visualization is from the text of Anna Karenina, by Leo Tolstoy, downloaded in digital form from Project Gutenberg. Each chapter was displayed one at a time and the characters were tracked as they spoke. The data was then analyzed and sorted into scenes, when they spoke or thought about their counterpart and when they did not. The data was then used to calculate the average judgment to assess happiness on a five-point scale from miserable to joyful. The data visualization was created with Tableau Public, which is a successor company of Panoptiq International, which was based in Moscow.

After the opening chapters, the two couples have very few interactions with each other until much later in the book, despite the fact that they live in the same circles.

Anna and Vronsky's relationship was troubled from the start, but they go through several periods of happiness as they try to find a place to live within (or outside) the confines of St. Petersburg society.

Kitty begins the book hoping for a proposal from Vronsky, who has other plans. After this great disappointment, we hardly hear from her for quite a long time.

This is by far the happiest time in the book for Kitty and Levin, who are together and thinking.

Levin is the primary focus of the closing third of the book. During the same time, Vronsky is nearly completely absent, especially towards the end, and Anna's role is also greatly reduced. When we see Anna, she is pretty much obsessing about herself and is very unhappy.

The book ends on an tragic note, with deathbed scenes for both.

He is generally happier than the beginning, but not entirely.

He does, after all, still have his remaining concerns about class and pre-revolutionary Russia to think about.



Roger Federer

20 Years 20 Titles

Jan 28, 2018 - 13:00

20 years ago, he played his first professional match. Roger Federer has now won his 20th Grand Slam title. A data analysis of all the matches he has played reveals how he became the best tennis player of all time.

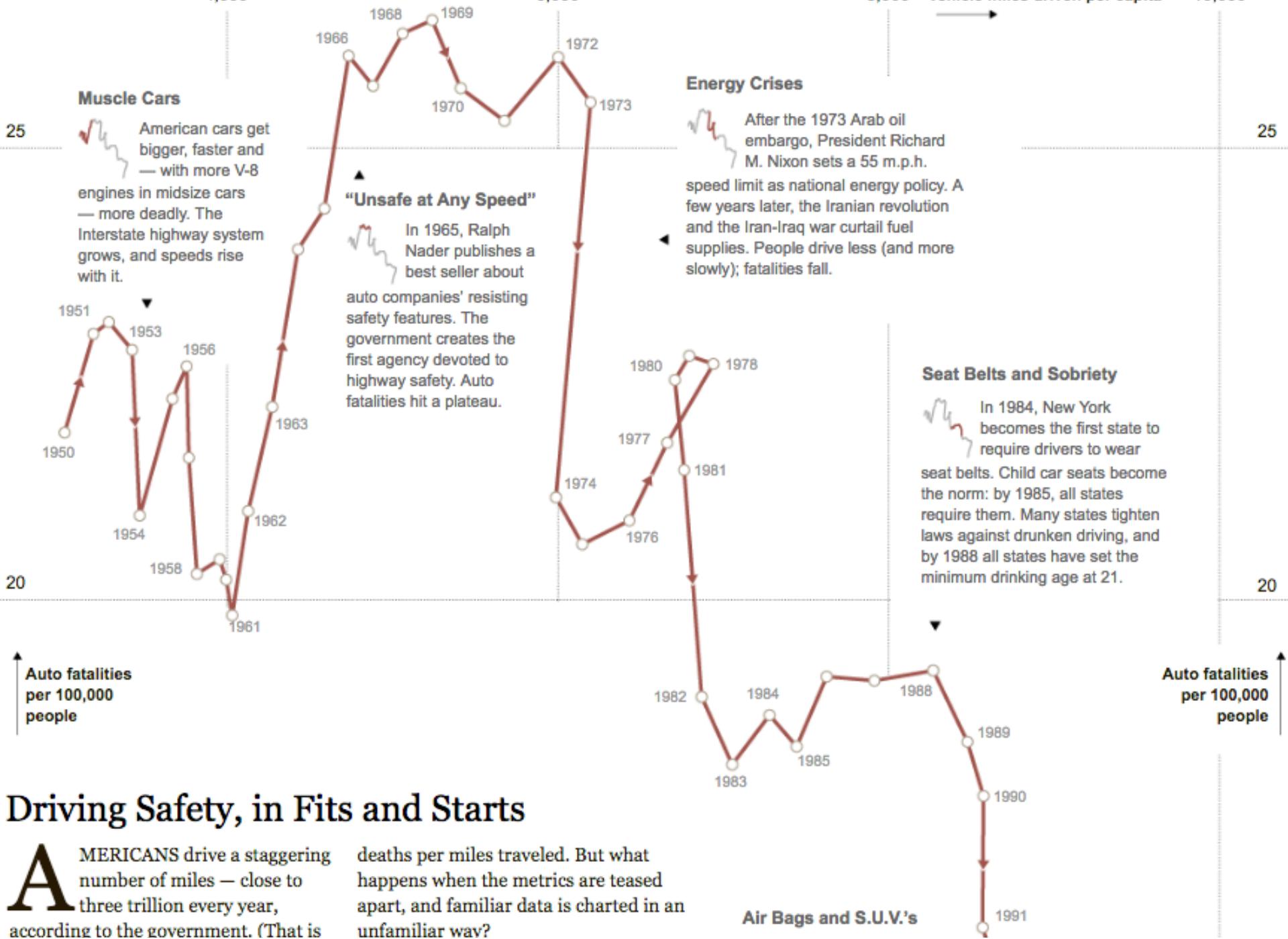
Australian Open
Hard Court

French Open
Clay

Wimbledon
Grass

US Open
Hard Court

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Blood on the page

In Honduras, the world's most violent country, one man in every 599 was murdered in 2012. To help readers visualise this statistic, we have created a (rare) print-only interactive chart. Stick this page of *The Economist* on the wall, don a blindfold, and throw a dart in its general direction. The chance of it hitting the large red

Odds of being murdered in one year

Men, 2012 or latest



square (assuming it lands somewhere on the page; if it doesn't, try again) is the same as a Honduran man's annual chance of being murdered. The chance for a man in Singapore, the world's safest country with a population in the millions, is the same as your dart's chance of hitting the tiny red speck to the left.

Over a lifetime (assuming a life expectancy of 71 years and a stable murder rate), a Honduran man's risk of being killed accumulates to a horrifying one in nine. That is equivalent to the chances of your dart landing anywhere in this red-outlined box.

LEARN

<http://bhv.io/LILBillShander>

and

WORKSHOPS

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