ROCK THE VIZCOMM

DATA STORYTELLING
INFOGRAPHICS
DATA VISUALIZATION
WHY ARE WE HERE?
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 1766, by W. Playfair.

Neal sculpt. 358, Strand, London.
Diagram of the Causes of Mortality
in the Army in the East.

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: The deaths from Preventable 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.
VISUALS HELP US MAKE SENSE OF THE WORLD
INFO DESIGN & DATAVIZ

CONSULTING
DESIGN
PRODUCTION
SPEAKING
TEACHING
ABOUT YOU

FIRST NAME
ONE WORD...
AGENDA

Blah, blah, blah
(whys, hows, examples)

Exercises
(do)
<table>
<thead>
<tr>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:05</td>
<td>4X4 Model &amp; the KWYs</td>
</tr>
<tr>
<td>0:20</td>
<td>4X4/KWYs exercise</td>
</tr>
<tr>
<td>0:30</td>
<td>Storytelling</td>
</tr>
<tr>
<td>0:30</td>
<td>Storytelling Exercise</td>
</tr>
<tr>
<td>0:15</td>
<td>[break]</td>
</tr>
<tr>
<td>0:60</td>
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<tr>
<td>0:30</td>
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<tr>
<td>0:30</td>
<td>Warmup exercises</td>
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<tr>
<td>0:15</td>
<td>Picking the right chart</td>
</tr>
<tr>
<td>0:30</td>
<td>Picking the right chart exercise</td>
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<tr>
<td>0:60</td>
<td>Capstone exercise</td>
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<tr>
<td>0:10</td>
<td>Tools</td>
</tr>
<tr>
<td>0:05</td>
<td>Wrap-up</td>
</tr>
</tbody>
</table>
THE CHALLENGE
EVERY TWO DAYS

WE NOW GENERATE MORE DATA THAN WAS GENERATED FROM THE DAWN OF CIVILIZATION THROUGH 2003

– Eric Schmidt
4x4
A Model for Knowledge Content

Visualization
Story Telling
Interactivity
Shareability

Key Components

http://bhv.io/kaconnect
VISUALIZATION + STORYTELLING + INTERACTIVITY + SHAREABILITY
WHY VISUALIZATION
A PICTURE IS WORTH
A PICTURE IS WORTH 81.4 WORDS

http://bhb.io/pictureworth
PICTURE SUPERIORITY EFFECT
VISUALIZATION + STORYTELLING + INTERACTIVITY + SHAREABILITY
WHY STORYTELLING
VISUALIZATION + STORYTELLING + INTERACTIVITY + SHAREABILITY
WHY INTERACTIVITY
VISUALIZATION + STORYTELLING + INTERACTIVITY + SHAREABILITY
WHY SHAREABILITY
GETTING FROM NUMBERS TO NARRATIVE
KWYRWTS >> STORY >> DESIGN >> EXECUTION
KWYRWTS >> STORY >> DESIGN >> EXECUTION
KNOW WHAT YOU REALLY WANT TO SAY
KwyRwTs >> Story >> Design >> Execution
KwyDis
KNOW WHAT YOUR DATA IS SAYING
KWyRwTs >> Story >> Design >> Execution
KWyDis
KWyAnth
KNOW WHAT YOUR AUDIENCE NEEDS TO HEAR
YES, THE WORST ACRONYMS EVER
YES, THE MOST IMPORTANT ACRONYMS EVER

The KWYs

ALL ABOUT
THE PRIORITIZATION OF MESSAGES
4X4 EXERCISE
(KWYRWTS/WATERCOOLER)
HEADLINE = WATER COOLER = KWYRWTS!!
HEADLINES

The New York Times

NEW YORK POST
MEN WALK ON MOON
ASTRONAUTS LAND ON PLAIN; COLLECT ROCKS, PLANT FLAG

Voice From Moon: 'Eagle Has Landed'

A Powdery Surface Is Closely Explored

Voyage to the Moon: In Preparation

Today's Page Has It All

11.4
HEADLESS BODY IN TOPLESS BAR

Gunman forces woman to decapitate tavern owner

PAGE TWO

SENATE OKAYS PREZ'S PICK FOR ARMS CONTROL

PAGE FIVE

Koch plans to leave…
How many people live in London?

18 percent of London's population is growing older. Although many people leave the city, the population continues to increase. It is any comparison could be very a staged estimate.

1940 1960 1980 2000 2020

Tower Bridge by

See more amazing maps of
EXERCISE
Olympic Medals

You have the data for every single Olympic medal ever awarded from 1896-2016.

Think of the possibilities for stories:

- Different Sports
- Gender Issues
- Doping
- Regional Competition
- Famous Participants
- Etc

E.g., "Why ice hockey is the best sport in the history of humanity"
WHO IS IT FOR?
- Sports Illustrated?
- Stockholm News?
- World Anti-Doping Agency Website?

WHAT'S THE ANGLE?
- We're #1!
- Rich vs. poor (3rd party data?)
- Sweden dominates Scandinavia
- The rise of Jamaica's dominance in sprinting
WRITE 2 HEADLINES (1 NYP, 1 NYT)
HEADLINES HELP YOU FOCUS

FOCUS HELPS YOU FIGURE OUT WHAT YOUR STORY IS REALLY ALL ABOUT
KWyRWts >> Story >> Design >> Execution
The Irresistible Power of Storytelling as a Strategic Business Tool

by Harrison Monarth

MARCH 11, 2014
Related Searches: storytelling for business.

**Storytelling in Business: The Authentic and Fluent Organization**  
by Janis Forman  
Published on Jan 30, 2013  
Hardcover: $23.04  
Trade in yours for an Amazon Gift Card up to $2.65

**Lead with a Story: A Guide to Crafting Business Narratives That Captivate, Convince, and Inspire**  
by Paul Smith  
Published on Aug 10, 2012  
Hardcover: $14.47  
Get it by Friday, Nov 20

**TED Talks Storytelling: 23 Storytelling Techniques from the Best TED Talks**  
by Akash Karia  
Published on Jan 11, 2015  
Paperback: $6.99  
Excerpt: Front Cover: ... TEDTalks Storytelling 23 Storytelling Techniques from the Best TED ... See a random page in this book.

**Hooked: How Leaders Connect, Engage and Inspire with Storytelling**  
by Gabrielle Dolan and Yamini Naidu  
Published on Sep 30, 2013  
Paperback: $2.99
Storytelling Is Not a Magic Bullet

By LARRY KAPLAN | September 17, 2013

October 2, 2010; Mother Jones
The Death of Branding and the Scam of Storytelling
YES, IT’S FADDISH RIGHT NOW IN BUSINESS… SORT OF
BUT IT’S A FAD WITH A PURPOSE
The Writer’s Guide to Using Brain Science to Hook Readers from the Very First Sentence

Wired for Story

Lisa Cron
“Story, as it turns out, was crucial to our evolution—more so than opposable thumbs. Opposable thumbs let us hang on; story told us what to hang on to.

– Lisa Cron (Wired for Story)
Storytellers make the most influential scientific researchers
Lorem Ipsum Dolor Sit Amet


MORBI Lacinia Venenatis EST NEC BLANDIT. Mauris A MOLLIS NISI. In Tortor Ipsum, Mattis UT Lectus Et, Rutrum Vulputate Urna.

Something Interesting Happened Here!
GETTING TO STORY
The Militarization of the Middle East in Numbers

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

Arms trading around the world
2011 - 2015

PERCENTAGE OF MARKET BY COUNTRY

- EXPORTS
- IMPORTS

NETHERLANDS 2.0%
BRITAIN 4.5%
FRANCE 5.6%
GERMANY 4.7%
UKRAINE 2.6%
TURKEY 3.4%
PAKISTAN 3.3%
RUSSIA 25%
Saudi buildup

Missing data

Gulf friends buildup

Per capita

Iran buildup
Iran buildup

Saudi buildup

Gulf friends buildup

Missing data
<table>
<thead>
<tr>
<th>Saudi buildup</th>
<th>Gulf friends buildup</th>
<th>Iran buildup</th>
<th>Missing data</th>
<th>Per capita</th>
</tr>
</thead>
</table>

SAUDI

YEMEN

OMAN

IRE

YEMEN

OMAN

LILAN

@billshander
headline
<table>
<thead>
<tr>
<th>Gulf friends buildup</th>
<th>Iran buildup</th>
<th>Missing data</th>
<th>Per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FLOW

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

THINK IN SENTENCES
THIS IS WHAT THE OUTLINES/BUCKETS OF CONTENT ARE REALLY ABOUT
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.

Saudi Arabia's military spending been going through the roof, but their air force spending, in particular, has been surprising.
STORY OPTIONS

Make it Human
Exclaim and Explain
Mystery Before History
Chronology
Problem/Solution
Six Ways to Sunday
STORIES WITH DATA

ARE JUST STORIES...WITH DATA

THE STORY COMES FIRST SO FOCUS ON THAT
GET EMOTIONAL
EMOTION

- Emotion is required for better decision-making
EMOTION

- It's hard to induce emotion (20%)
- But when you can, go positive (if accuracy matters)

Figure 7. Results for successfully primed participants.
STORYTELLING EXERCISE
(OUTLINING/SENTENCES)
TEAM EXERCISE

- One person is Creative Director
- Delegate tasks (each person creates a component)
- CD explains to the class
OLYMPIC MEDALS

YOU HAVE THE DATA FOR EVERY SINGLE OLYMPIC MEDAL EVER AWARDED FROM 1896-2016
DEFINE YOUR AUDIENCE
CREATE 3 "BUCKETS" OF CONTENT
WRITE A SENTENCE FOR EACH BUCKET
(~30-45 MINS)

- Do NOT do real data analysis
- Tell a story, don't just throw a bunch of facts at us
- Sentences should be VERY detailed
DEBRIEF

DETAILED SENTENCES HELP YOU GET SPECIFIC

SPECIFICITY HELPS YOU KNOW WHAT DATA WILL BE ON EACH SLIDE, WHAT YOU WANT TO EMPHASIZE (CHANGE OVER TIME, COMPARISONS, ETC.), AND WHAT COPY YOU'LL NEED TO SUPPLEMENT THE VISUALS
KWYRWTS >> STORY >> **DESIGN** >> EXECUTION
IT'S ALL ABOUT INFORMATION HIERARCHY
PLACEMENT + SIZE + COLOR + TYPOGRAPHY
<table>
<thead>
<tr>
<th>Saudi buildup</th>
<th>Gulf friends buildup</th>
<th>Iran buildup</th>
<th>Missing data</th>
<th>Per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VISUAL HIERARCHY can be expressed through thoughtful TYPOGRAPHY
BUT MOST ESPECIALLY...
IT'S REALLY REALLY REALLY...
ALL ABOUT

PRE-ATTENTIVE PROCESSING
PRE-ATTENTIVE PROCESSING

VISUAL PERCEPTION
GESTALT PSYCHOLOGY
FIGURE GROUND

FedEx®

[Images of figure-ground relationships]
PROXIMITY
PARALLELISM
CLOSURE/CONTINUITY

[Diagram of abstract shapes]
COMMON FATE
<table>
<thead>
<tr>
<th>Orientation</th>
<th>Line Length</th>
<th>Line Width</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Shape</td>
<td>Curvature</td>
<td>Added Marks</td>
<td>Enclosure</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Intensity</td>
<td>Hue</td>
<td>Position</td>
<td></td>
</tr>
</tbody>
</table>
FIXATION BIAS TOWARDS CENTER
(CAN RECOGNIZE AT A **GLANCE** VS NEEDING TO SCAN/INVESTIGATE LIKE DURING ENCODING)
Peripheral vision determines your interest in a visual

(It’s all about the GLANCE.)
Autumn - Heavenly Desserts

Pear Pie
Sweet and delicate. Juicy are the great cooking pears, and a hint of fresh orange juice complements the fruit.

Nutrition Facts:
- Calories: 330
- Fat: 15.80g
- Carbs: 44.87g
- Protein: 3.21g

Sweet Potato Pie with Almond-Oat Crust
This pie is rich in vitamin A and beta-carotene and it works perfectly well crustless.

Nutrition Facts:
- Calories: 250
- Fat: 9g
- Carbs: 35g
- Protein: 5g

Mulled Pears and Apples
Core the fruit from the bottom so that the stems stay intact and the fruit looks whole on the platter.

Nutrition Facts:
- Calories: 120
- Fat: 7g
- Carbs: 44.87g
- Protein: 0.09g

Apple Pie
There's nothing like America's favorite. Lemon juice heightens the flavor of the apples.

Nutrition Facts:
- Calories: 413
- Fat: 19.28g
- Carbs: 57g
- Protein: 3.72g

Pumpkin Pie
Core the fruit from the bottom so that the stems stay intact and the fruit looks whole on the platter.

Nutrition Facts:
- Calories: 315
- Fat: 14.43g
- Carbs: 40.92g
- Protein: 0.98g

Apple Walnut Crostada
A delicious apple-walnut pear. An early taste of fall.

Nutrition Facts:
- Calories: 300
- Fat: 9g
- Carbs: 36g
- Protein: 5g

Autumn Apple Crisp
This classic crisp has a twist; maple syrup and cranberries.

Nutrition Facts:
- Calories: 364
- Fat: 8.31g
- Carbs: 76.3g
- Protein: 4.26g

Sweetly Coated Walnuts
Package as small gifts, a snack, or top your cakes and pies with these delicious walnuts.

Nutrition Facts:
- Calories: 185
- Fat: 18.49g
- Carbs: 3.89g
- Protein: 4.32g

Source:
http://www.paradip.com
The case for regular, monochrome boxes

And against irregularly placed decorative elements
The value of well-defined, cohesive graphic elements
TOP 10
ENTRY-LEVEL SALARIES
IN SILICON VALLEY

[Bar chart showing salaries for various companies.]

*averages in 2013

Software engineers in Silicon Valley GET PAID
$50,000
MORE than the average software engineer in the United States*

*This includes benefits

We're on Facebook
www.CareerDean.com

CareerDean
The effect of a square logo and regular, uniformly colored elements such as bars or arrangements of logos and salaries
DO LESS
“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.
Real House Prices Increased over the Past Year in Most Countries

- The United States is the only country in the Western Hemisphere with growth under 6%.

- Countries like Russia and Ukraine experienced a significant decrease in real house prices, with Ukraine seeing a decrease of 35%.
VISUALIZATION OF DATA IS ALWAYS BETTER
except when it isn't

http://bhv.io/dataviz-persuasion
Design Better Data Tables

*Poor tables.* Where did they go wrong?

http://bhv.io/designing-better-tables
### Alignment Matters

3½ simple rules to follow:

1. Numerical data is right-aligned
2. Textual data is left-aligned
3. Headers are aligned with their data
3½. Don’t use center alignment.

<table>
<thead>
<tr>
<th>Name</th>
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<th>1800</th>
<th>1810</th>
<th>1820</th>
<th>1830</th>
<th>1840</th>
<th>1850</th>
<th>1860</th>
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<td>590,756</td>
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<td>209,897</td>
<td>379,994</td>
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<td>Colorado</td>
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<td>251,002</td>
<td>262,042</td>
<td>275,202</td>
<td>297,675</td>
<td>309,978</td>
<td>370,792</td>
<td>460,147</td>
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<tr>
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<td>76,748</td>
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<td>91,532</td>
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<td>30,261</td>
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<td>51,687</td>
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<td>34,730</td>
<td>54,477</td>
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<td>340,989</td>
<td>516,823</td>
<td>691,392</td>
<td>906,185</td>
<td>1,057,286</td>
</tr>
</tbody>
</table>
As little ink as possible

When deciding how to style the graphic elements of a table, the goal should always be to reduce the table’s footprint without losing structural fidelity. One of the ways you can accomplish this is by using as little “ink” as possible—that is, whenever possible, choose not to style an element.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Tm | #Bat | BatAge | R/G | G | PA | AB | R | H | 2B | 3B | HR | RBI | SB | CS | BB | SO | BA | OBP | SLG | OPS | OPS+ | TB | GDP | HBP | SH | SF | IBB | LOB |
| Ari | 44 | 26.9 | 4.41 | 106 | 4071 | 3697 | 467 | 969 | 187 | 37 | 116 | 443 | 70 | 22 | 289 | 938 | .262 | .319 | .427 | .746 | 95 | 1578 | 79 | 32 | 27 | 25 | 29 | 728 |
| Atl | 47 | 29.2 | 3.43 | 105 | 3995 | 3582 | 360 | 866 | 176 | 18 | 65 | 340 | 52 | 24 | 301 | 798 | .242 | .306 | .355 | .661 | 80 | 1273 | 90 | 40 | 45 | 27 | 29 | 750 |
| Chc | 41 | 27.4 | 5.09 | 105 | 4129 | 3563 | 534 | 904 | 193 | 16 | 130 | 509 | 46 | 24 | 444 | 895 | .254 | .346 | .426 | .772 | 108 | 1519 | 74 | 69 | 29 | 23 | 33 | 794 |
| Cin | 45 | 28.1 | 4.30 | 104 | 3883 | 3505 | 447 | 848 | 170 | 18 | 117 | 420 | 83 | 34 | 283 | 865 | .242 | .303 | .401 | .704 | 87 | 1405 | 80 | 34 | 37 | 23 | 23 | 607 |
| Col | 38 | 28.1 | 5.10 | 105 | 4021 | 3608 | 536 | 969 | 212 | 27 | 130 | 510 | 47 | 28 | 331 | 861 | .269 | .332 | .450 | .783 | 92 | 1625 | 74 | 23 | 39 | 20 | 26 | 699 |
| Mia | 44 | 28.2 | 4.25 | 106 | 4059 | 3670 | 451 | 998 | 186 | 27 | 88 | 433 | 34 | 15 | 299 | 798 | .272 | .330 | .409 | .740 | 101 | 1502 | 90 | 34 | 29 | 26 | 24 | 784 |
| Mil | 42 | 27.9 | 4.04 | 104 | 3886 | 3399 | 420 | 838 | 154 | 12 | 111 | 400 | 106 | 34 | 389 | 997 | .247 | .325 | .397 | .722 | 92 | 1349 | 83 | 22 | 43 | 30 | 17 | 710 |
| Nym | 37 | 29.4 | 3.68 | 105 | 3903 | 3481 | 386 | 826 | 156 | 18 | 135 | 376 | 27 | 13 | 327 | 875 | .238 | .309 | .406 | .716 | 92 | 1415 | 73 | 43 | 28 | 23 | 22 | 729 |
| Phi | 39 | 27.1 | 3.55 | 107 | 3900 | 3554 | 380 | 849 | 152 | 26 | 102 | 358 | 54 | 30 | 261 | 846 | .239 | .295 | .382 | .677 | 82 | 1359 | 70 | 31 | 31 | 23 | 20 | 666 |
| Pit | 46 | 29.2 | 4.57 | 103 | 3989 | 3558 | 471 | 926 | 187 | 24 | 97 | 450 | 77 | 29 | 326 | 862 | .260 | .331 | .408 | .739 | 97 | 1452 | 80 | 59 | 25 | 21 | 26 | 739 |
| Sfo | 39 | 29.0 | 4.50 | 105 | 4058 | 3591 | 473 | 934 | 177 | 34 | 87 | 448 | 53 | 22 | 379 | 705 | .260 | .333 | .401 | .734 | 99 | 1440 | 86 | 29 | 27 | 29 | 28 | 768 |
| Stl | 36 | 28.5 | 5.08 | 105 | 4084 | 3626 | 533 | 932 | 200 | 25 | 143 | 509 | 26 | 19 | 359 | 834 | .257 | .329 | .444 | .774 | 106 | 1611 | 66 | 44 | 29 | 25 | 22 | 739 |
| Wsn | 35 | 29.1 | 4.69 | 106 | 4094 | 3606 | 497 | 905 | 177 | 20 | 139 | 482 | 75 | 28 | 375 | 806 | .251 | .325 | .427 | .752 | 97 | 1539 | 66 | 43 | 26 | 44 | 38 | 727 |
| Lavg | 41 | 28.4 | 4.36 | 105 | 4005 | 3575 | 459 | 901 | 179 | 22 | 113 | 437 | 58 | 24 | 334 | 860 | .252 | .321 | .409 | .730 | 94 | 1464 | 77 | 39 | 31 | 26 | 25 | 721 |
| Total | 609 | 28.4 | 4.36 | 1577 | 60075 | 53625 | 6883 | 13516 | 2685 | 323 | 1702 | 6554 | 873 | 365 | 5014 | 12894 | .252 | .321 | .409 | .730 | 94 | 21953 | 1157 | 578 | 461 | 383 | 379 | 10814 |
KWYRWTS >> STORY >> DESIGN >> EXECUTION
LET'S LOOK AT SOME EXAMPLES
Carte Figurative des pertes successives de l'Armée Française dans la campagne de Russie 1812-1813.

Paris, le 20 Novembre 1869.

Le nombre d'hommes présents est représenté par la longueur de lignes échelées à raison d'un millimètre pour six mille hommes ; de deux à plus dix fois en travers des gènes. Le rouge indique les hommes qui entrèrent en Russie, le noir ceux qui en sortirent. Les renforts qui ont servi à dessiner la carte ont été pris dans les ouvrages de MM. Arbeau, de Château, de Chambon, de l'Armée de l'Est depuis le 28 Octobre.

Pour mieux faire juger à l'œil la diminution de l'armée, j'ai représenté que les corps de Blücher, de Gneisenau et du Maréchal Davout qui avaient été débarqués en Allemagne, avaient toujours marché avec l'Armée.

TABLEAU GRAPHIQUE de la température en degrés du thermomètre de Réaumur au dessus de zéro.

...
12. LOVE OF NAPALM SMELL

High
Med.
Low

Morning Evening

– Apocalypse Now, 1979

13. NEED TO SAY SORRY

Always
Never

Like Love

– Love Story, 1970

14. DREAMS

– The Maltese Falcon, 1941

20. LOUIS

Not a beautiful friendship

Beginning

Beautiful friendship

– Casablanca, 1942

21. LIVER, FAVA BEANS, CHIANTI


22. BOND, JAMES

Start here

Bond James

– Dr. No, 1962
From Montauk to Cape May: The State of the Beaches

This winter's storms, though not the most devastating of the decade, caused significant beach erosion and damage to homes and businesses along parts of Long Island and New Jersey coasts.

In the past, the Army Corps of Engineers and some beach towns might have tried to prevent further damage by building sea walls or rocky groins or their longer sister structures, jetties. But these structures have proved to be, at best, ineffective, or even harmful. The Corps now favors softer solutions, like pumping sand from the ocean bottom onto eroded beaches.

But some towns have tried other approaches to protecting their oceanfront. Sea Isle City, for instance, is installing a tube filled with sand along 12 blocks of dunes. In Margate, a school class planted a wall of Christmas trees.

The cost of saving a beach...

- The cost of sand pumping and groin construction by the Corps of Engineers (from 1994 to the present, from Sandy Hook, N.J., to Barnegat Inlet [area within bracket at right]).
- And who pays for it.
- State and local governments have paid 35 percent of the total: $33.2 million.
- The Federal Government has paid 65 percent: $64.6 million.

- Total Cost to Save a Beach...

- $94.8 million

- The Breach at West Hampton Dunes

- In the 1970s, the Corps installed a groin from east to west, which turned out — from West Hampton to Menton Inlet. Ocean currents ran predominantly east to west along Long Island's south shore. As each new groin was added, sand carried by the current was prevented from reaching beaches in the west. These beaches gradually narrowed until a storm in 1992 cut through the island.

- The Repair

- Sand was pumped onto the beach to fill the breached area, and the groins were shortened. The groins were repositioned to the north, and the groins were widened to about three-fourths of a mile.
THOUGHTS ON TACOS

- Cheddar
- Queso fresco
- Radish & scallion
- Lime
- Roasted butternut squash
- Black beans
- Sautéed seitan or shredded pork
- Diced tofu or chicken sautéed with curry powder
- Kimchi
- Soft flour tortilla

WHITE LASAGNA

- Carrot
- Zucchini
- Rosemary
- Garlic
- Pesto
- Cream cheese
- Ricotta cheese
- Shredded mozzarella
- Olive oil
- Salt & pepper
- 8-inch (21-cm) pan

- 2 zucchinis
- 2 carrots
- 1 sprig rosemary
- 2 cloves garlic
- 1 cup pesto (optional)
- 7 oz cream cheese
- 4 oz ricotta cheese
- 2 oz shredded mozzarella
- S & P
- Lasagna noodles
- 2 TBS olive oil
THE OLYMPIC MEDALLION

In ancient Olympia, winning athletes were awarded the olive wreaths as prizes. But it wasn’t until 1896 when the modern Olympic games were first held that gold, silver, and bronze medals were introduced as prizes for the winners. The original design for the medals was created by Belgian artist Jules Wannenes in collaboration with Swiss sculptor Hubert Glaenzer. The design was based on the Greek goddess Nike, who was depicted as a winged figure holding a wreath. The reverse side of the medal featured a depiction of the Parthenon, the iconic temple dedicated to the goddess Athena. The London 2012 Olympics saw the introduction of a new design, which featured a modern interpretation of the Olympic rings and a depiction of the torch. This design was created by British designer David Young. The London 2012 Olympic Games are the first to feature a medal designed specifically for the occasion. The medals are made from recycled silver and bronze, with 75% of the silver coming from recycled computer chips and 30% of the bronze from recycled car parts.
LOVE AND HAPPINESS
in Anna Karenina

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

How happy?

Lautman’s research on happiness suggests that happiness is not just a matter of circumstances, but also of how we interpret them. In Anna Karenina, the happiness of the characters is often shadowed by their personal struggles and societal pressures.

Understanding the visualization

In this visual representation, you can see the changes in happiness levels over time. The x-axis represents time, and the y-axis represents happiness levels. The colors indicate the different characters: purple for Anna Karenina, red for Vronsky, and green for Levin.

Who is the character most affected by happiness changes?

Anna Karenina is the character most affected by happiness changes. Her happiness is highly dependent on her relationships and societal expectations.

Who is the character least affected by happiness changes?

Levin is the character least affected by happiness changes. He is more focused on his work and less influenced by external factors.

Who is the character who changes the most in happiness?

Vronsky is the character who changes the most in happiness. His happiness fluctuates greatly, reflecting his changing relationships and emotional state.

Who is the character who changes the least in happiness?

Levin is the character who changes the least in happiness. His happiness remains relatively stable throughout the novel.

Who is the character who is happiest at the end of the novel?

Levin is the character who is happiest at the end of the novel. His happiness is derived from his work and the success of his farm.

Who is the character who is unhappiest at the end of the novel?

Anna Karenina is the character who is unhappiest at the end of the novel. Her happiness is destroyed by her forced separation and the societal consequences of her actions.

Understanding the visualization

In this visual representation, you can see the changes in happiness levels over time. The x-axis represents time, and the y-axis represents happiness levels. The colors indicate the different characters: purple for Anna Karenina, red for Vronsky, and green for Levin.

Who is the character who is happiest at the beginning of the novel?

Anna Karenina is the character who is happiest at the beginning of the novel. Her happiness is derived from her relationship with Vronsky.

Who is the character who is unhappiest at the beginning of the novel?

Levin is the character who is unhappiest at the beginning of the novel. His happiness is derived from his work and the success of his farm.

Who is the character who changes the most in happiness?

Levin is the character who changes the most in happiness. His happiness fluctuates greatly, reflecting his changing relationships and emotional state.

Who is the character who changes the least in happiness?

Levin is the character who changes the least in happiness. His happiness remains relatively stable throughout the novel.

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Who is the character who is unhappiest at the end of the novel?

Anna Karenina is the character who is unhappiest at the end of the novel. Her happiness is destroyed by her forced separation and the societal consequences of her actions.
2017: the safest skies record
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.
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 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.

**Odds of being murdered in one year**

<table>
<thead>
<tr>
<th>Country</th>
<th>Odds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>1/256,100</td>
</tr>
<tr>
<td>United States</td>
<td>1/13,450</td>
</tr>
<tr>
<td>Brazil</td>
<td>1/2,473</td>
</tr>
<tr>
<td>South Africa</td>
<td>1/1,908</td>
</tr>
</tbody>
</table>

Honduras 1/599

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.
DESIGN WARMUPS
Milton Glaser
Drawing is Thinking
Introduction by Judith Thurman
WARMUPS
WARMUPS
MONEY
WARMUPS
MONEY (LONGER)
WARMUPS
SQUIGGLES (FACE)
WARMUPS

SQUIGGLES (MONSTER)
WARMUPS
SQUIGGLES (DIZZY)
WARMUPS

DOG
WARMUPS

YOU
FIRST RULE OF THINKING VISUALLY
FIRST RULE OF THINKING VISUALLY
DON'T THINK VISUALLY...AT FIRST
(ALSO KNOWN AS KWYRWTS)
PICKING THE RIGHT CHART
Visual vocabulary

Designing with data

There are so many ways to visualise data – how do we know which one to pick? Use the categories across the top to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive, nor a wizard, but is a useful starting point for making informative and meaningful data visualisations.

Inspired by the Streetlight Continuum by Jan Schuller and Jürgen Fliegner.
Visual vocabulary

Designing with data

There are so many ways to visualise data - how do we know which one to pick? Use the categories across the top to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive, nor a wizard, but is a useful starting point for making informative and meaningful data visualisations.

Inspired by the Seattle Continuum by Ian Schwetlik and Javiera Rivas.
Figure 2-1
Mean GDP Growth, 2007–2013

Percent change at an annual rate


1.8 0.2 4.9 2.9 (GDP only)
0.6 0.6 3.3 2.5
0.9 0.9 4.0 2.8
0.2 -1.8 0.4 1.8
-0.4 -1.0 1.0 1.8
-0.2 -1.8 0.4 1.8
-1.8 -5.8 0.3 1.8
-7.9 2.5 2.5 2.8

2013:Q4

Percent change at an annual rate

2.4
ROUND SHAPES
ROUND SHAPES
ROUND SHAPES
ROUND SHAPES

https://en.m.wikipedia.org/wiki/Jastrow_illusion
LINE CHARTS

- Independent variable (cause) belongs on X axis, dependent (effect) on Y
- BUT slope indicates height/quickness/amount so sometimes you ignore the convention
- Up is "better", "more"

Figure 1. Graphs that violate (A) or conform with (B) the slope-mapping constraint.
LINE CHARTS

– Bias toward 45-degree lines in charts (but not maps)

http://bhv.io/memory-distortions
http://bhv.io/45-degree-lines
If you are told, via annotations, that these are symmetrical, you're more likely to remember them as symmetrical.
BARS VS LINES

- Bars emphasize comparisons of values
- Lines emphasize trends

http://bhv.io/bars-lines
BARS VS LINES

- Lines aren't for categorical data - there is no trend from male to female (people DO read it this way)

http://bhv.io/bars-lines
CORRELATION

- Scatterplots & parallel coordinates win
- Stacked bars > stacked area & stacked line

http://bhv.io/correlation-viz
AESTHETICS MATTER

– Engagement increases with charts users like

http://b hv.io/aesthetics-viz
UNFAMILIAR VIZ & NOVICES

- First: "construct a frame" (sense-making)
- Regardless of the accuracy of the frame, we use this to judge everything (first impressions are really important)
ANIMATION VS SMALL MULTIPLES

- Animation = love/engagement
- Small multiples = accuracy
- Static/traced = bad

http://bhv.io/animation-viz
COLOR

- Use semantically resonant colors when relevant
COLOR

- Use semantically resonant colors when relevant
PICKING THE RIGHT CHART

TRY DIFFERENT PARADIGMS!!

DON’T BE LIMITED TO
BASIC CHARTS IN EXCEL, ETC.

FIND INSPIRATION AND TOOLS
PICKING THE RIGHT CHART

http://d3js.org
PICKING THE RIGHT CHART EXERCISE
“Picking one of the many great ways to visually display your information and communicate what you’re trying to communicate, given the data you have available."
A Nation of Poverty

Concentrated poverty in the neighborhoods of the nation's largest urban cores has exploded since the 1970s. The number of high poverty neighborhoods has tripled and the number of poor people in those neighborhoods has doubled according to a report released by City Observatory...
1. Figure out your KWYRWTS within 60 seconds
2. Ignore the data you don't need
3. Draw **AS MANY** visuals as you can that express your KWYRWTS
4. Think in circles, rectangles and lines (go beyond if you want to)
5. Once I call time, then quickly go through and circle the one you feel does the best job.
SAT Score Performance Across a School District

In your school district, there are 8 high schools. For the past 20 years, two of those schools have dramatically improved their students’ average SAT scores, one has gotten dramatically worse, and the rest have remained about the same. Among the static schools, one has always been a terrible performer and the another has been consistently great.
You are displaying a series of products produced by four companies. Each product can be categorized in 1 of 5 product categories. Each product is scored based on how well it performs for the customer as well as how well it performs for the company that created it.
CAPSTONE EXERCISE

- One person is Creative Director
- Swap roles between exercises
- Delegate tasks (each person creates a component)
- CD explains to the class
- Work in static or interactive frame of mind - your team’s decision
OLYMPIC MEDALS

YOU HAVE THE DATA FOR EVERY SINGLE OLYMPIC MEDAL EVER AWARDED FROM 1896-2016

THINK OF THE POSSIBILITIES FOR STORIES:

- DIFFERENT SPORTS
- GENDER ISSUES
- DOPING
- REGIONAL COMPETITION
- FAMOUS PARTICIPANTS
- ETC

e.g., "WHY ICE HOCKEY IS THE BEST SPORT IN THE HISTORY OF HUMANITY"
ASSEMBLE & VISUALIZE
(60+ MINS)

– Try to show as LITTLE AS POSSIBLE while still getting across your most important points.
– Include placeholder copy - to indicate where (and how much) copy would be needed to make your point - you don't need to actually write real copy.
DEBRIEF

DESIGN AND VISUALIZATION SHOULD DRAW THE EYE TO WHAT'S IMPORTANT

WHAT'S IMPORTANT IS SOMETHING YOU'LL BE CLEAR ABOUT BECAUSE OF THE KWYs AND THE OUTLINE/SENTENCES YOU WROTE EARLIER
TOOLS & RESOURCES
TOOLS

http://bhv.io/viztools1
http://bhv.io/viztools2
http://bhv.io/viztools3
DON’T BE:

DRIVEN BY...
LIMITED BY...
SEDUCED BY...

BUT

BE REALISTIC ABOUT
WHAT TOOLS YOU HAVE ACCESS TO,
WHICH TOOLS YOU CAN EXECUTE ON,
WHO YOU CAN HIRE TO HELP...
TOOLS

3D AND OTHER FANCY CHARTS
PROPORTIONS VIZ
In the Labor Force

Today unemployment was announced at 7.6% of the total labor force. When you look at Americans of working age, however, the unemployed include a much larger population—the retired, full time students, and yes, people who don’t have jobs.

Not in the Labor Force

1% Active Duty Military
2% Institutionalized
2% Stay at home parents
5% Disabled

11% Employed Part-Time
5% Unemployed
15% Retired
8% Other
3% Available to work but not actively searching
3% Full Time College Students

GRAPHIC BY BLOOMBERG BUSINESSWEEK
about 20,700,000 students will graduate from universities from 2012-2022

about 3,300,000 of them will be STEM majors

which is about 1,000,000 fewer than we need, according to the White House

= 100,000 graduates
COGNITIVE SCIENCE
ISOTYPES – GOOD OR BAD?

@sharoz @eagereyes @SteveFranconeri
http://bhv.io/isotypes
ISOTYPES – GOOD OR BAD?

Stacked icons allow you to encode data as both length and quantity (no harm done!)
ISOTYPES – GOOD OR BAD?

Icons aid memory and are more engaging

<table>
<thead>
<tr>
<th></th>
<th>Dogs</th>
<th>Parrots</th>
<th>Cats</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1</td>
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<td>6</td>
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</tr>
</tbody>
</table>
ISOTYPES – GOOD OR BAD?

Images that are not used to depict data are a distraction
ISO TYPES – GOOD OR BAD?

JURY STILL OUT
(I have my suspicions...)
WORKING WITH DESIGNERS
1) Lose your pre-conceived notions
2) Find the right kind of designer
2) Find the right kind of designer
3) Grill ‘em before you hire ‘em!

- What is the hardest project you’ve ever done that relates to this one and why? (You’ll see if they understand what you’re asking them to do, and hopefully hear a good answer for how they’ve overcome similar challenges.)

- What aspects of design are your weak spots, if any? (Honest designers will own up to something here – hopefully not the key thing you need from them!)

- Ask them how they’ll solve your challenge? Don’t expect a full answer. In fact, expect a lot of questions. A designer who doesn’t ask a lot of questions at this stage my not be able to really help you if your design challenge is at all complex. And hopefully their answer will include showing you something from their portfolio that’s relevant.
4) Agree on the PROCESS

**HOW**

is as important as what

- How many designs will you get at each phase of the project?
- How many rounds of changes are included in the fee?
- If they’re working on an hourly rate, what is the estimated number of hours the work will take?
- How and when will you know when you’re going over the budget allocation?
5) Don’t tell your designer what to do*

*Assumes you’ve hired a good designer (see #1), not the lowest common denominator, an intern...etc.
6) Share examples & inspiration

iPhone 6s
The only thing that’s changed is everything.

Learn more › Watch the film ›

WHY
is as important as what
7) Give constructive feedback

WHY is as important as what

- I don’t like that color -> I don’t think that color works with our brand
- It doesn’t pop enough -> I don’t think the data stands out enough compared to the body copy because the reader won’t get the message that...
- I hate the font -> I hate that font because it reminds me of a brochure I saw from Microsoft in 1986 and we need to look more current...
- The data is all wrong! -> I know you’re not the data expert but we need to...
- I don’t know why...I just don’t like it! [sometimes this is OK - sometimes...]
8) Design by committee (NOT!)
QUESTIONS?
Bill Shander shared a link.
July 21 at 11:51am · Buffer

Never the twain shall meet.
THANK YOU!

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