Visualizing Open Data
2016
GODAN
SUMMIT

Outcomes

- You'll have an overview of what to look out for with data visualizations
- You have a sense of what tools to use
- You get to see one practical data visualization software for publishing charts on the web

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Why do we visualize data?

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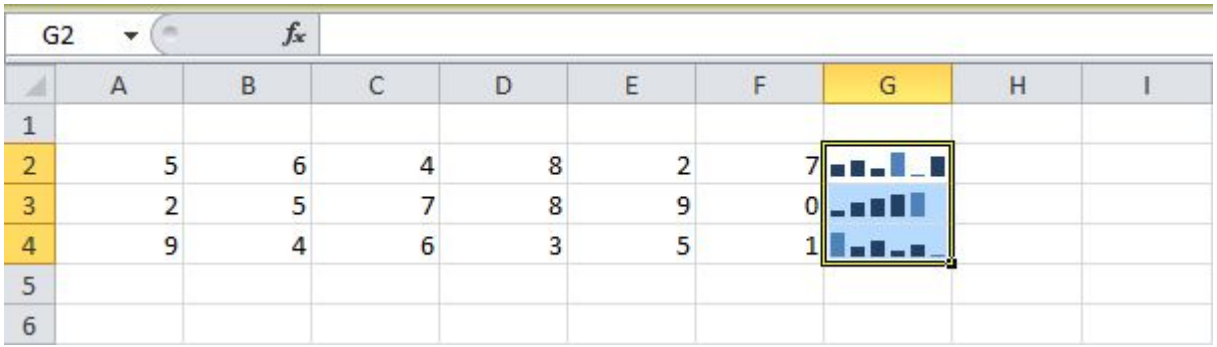
Efficiency

Example: sparklines in Excel



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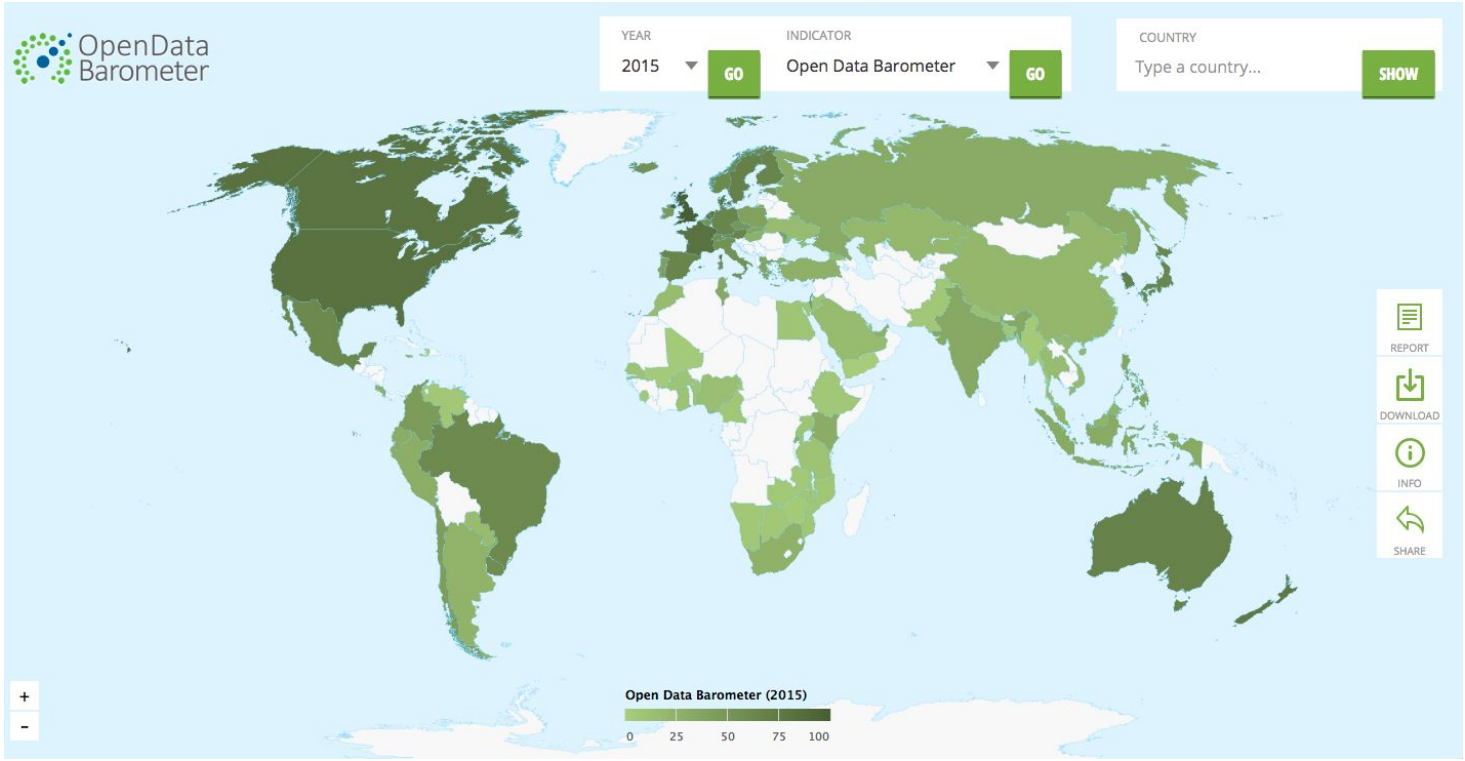
http://www.excel-easy.com/examples/sparklines.html

Exploratory



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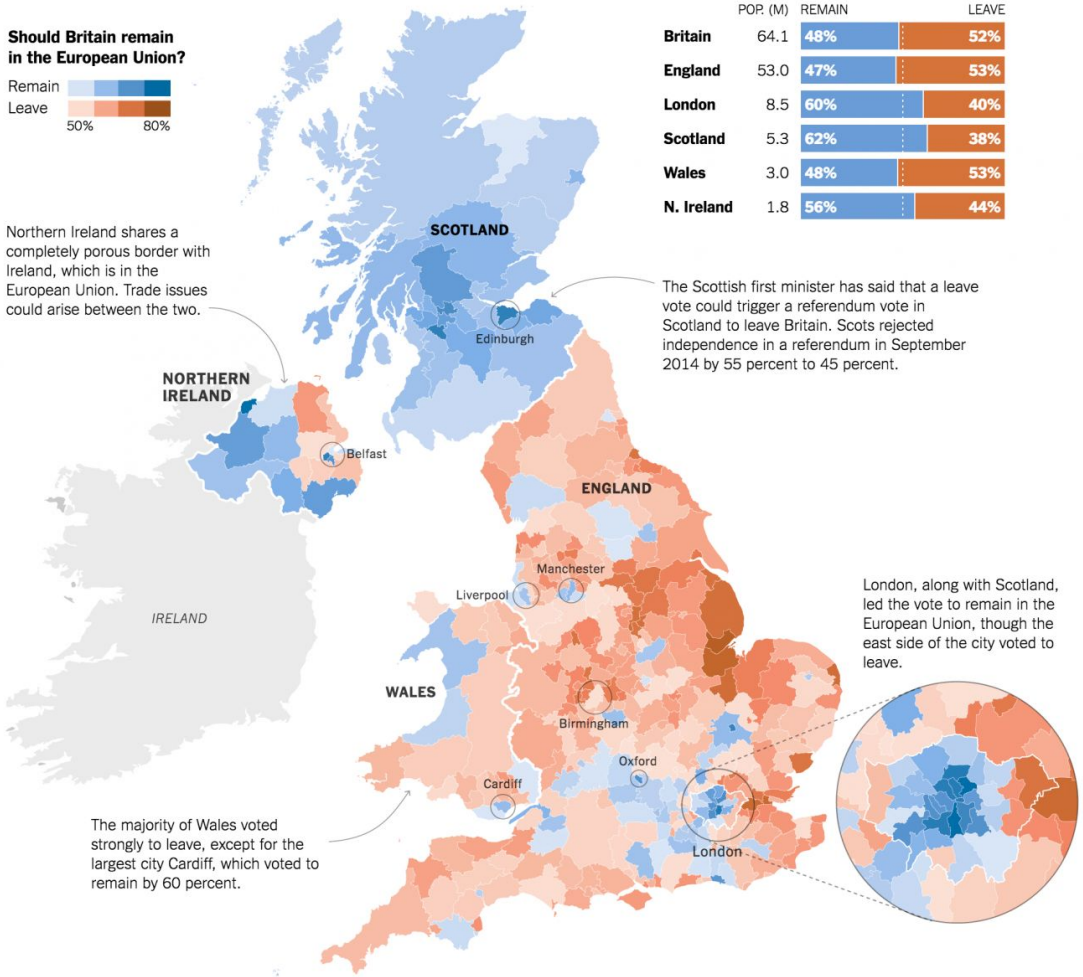
http://opendatabarometer.org/

Explanatory



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http://vis4.net/blog/posts/to-cartogram-or-not-to-cartogram-the-brexit/

Examples of Data Visualizations

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WORK HOUSE
PORTLAND MEWS
BENTINCK STREET
EDWARD STREET
DUCK LANE
DUFOURS PLACE
BROAD STREET
PUMP
BREWERY
NEW STREET
HALL STREET
HUSBAND ST
FAIRHEAD COURT

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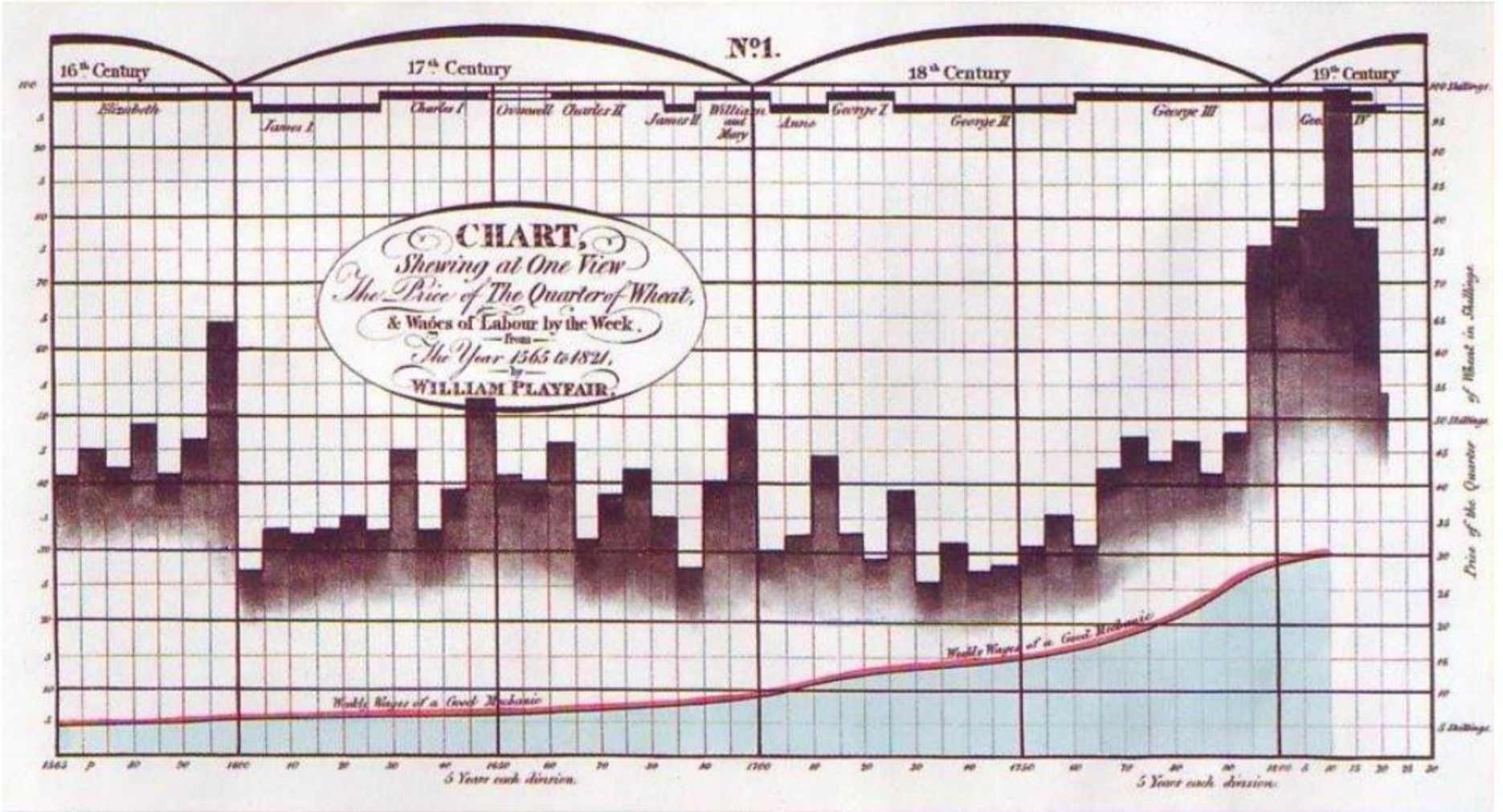
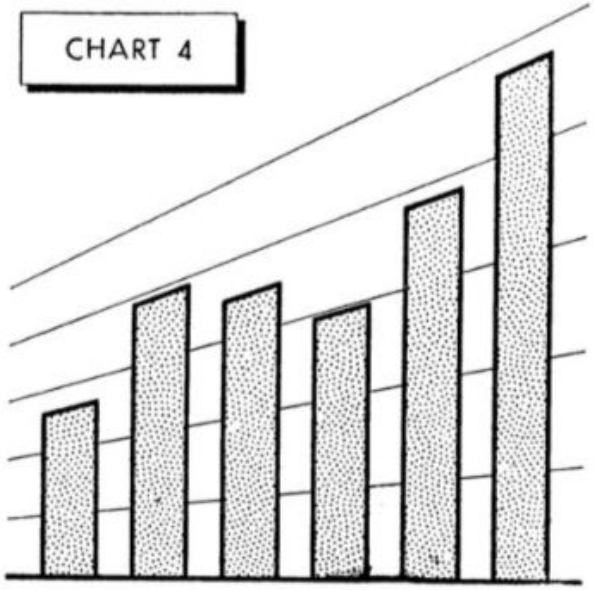
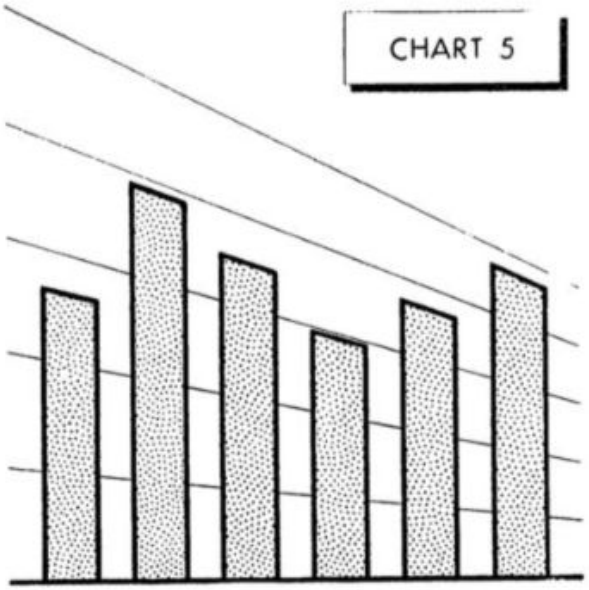

No.1.
16th Century
17th Century
18th Century
19th Century
Elizabeth
James I.
Charles I.
Oliver Cromwell
Charles II.
James II.
William and Mary
Anne
George I.
George II.
George III.
CHART,
Shewing at One View
The Price of The Quarter of Wheat,
& Wages of Labour by the Week.
— from —
The Year 1565 to 1821,
— by —
WILLIAM PLAYFAIR.
Weekly Wages of a Good Mechanic
Weekly Wages of a Good Mechanic
Price of the Quarter of Wheat in Shillings
5 Years each division.
5 Years each division.

Perspective





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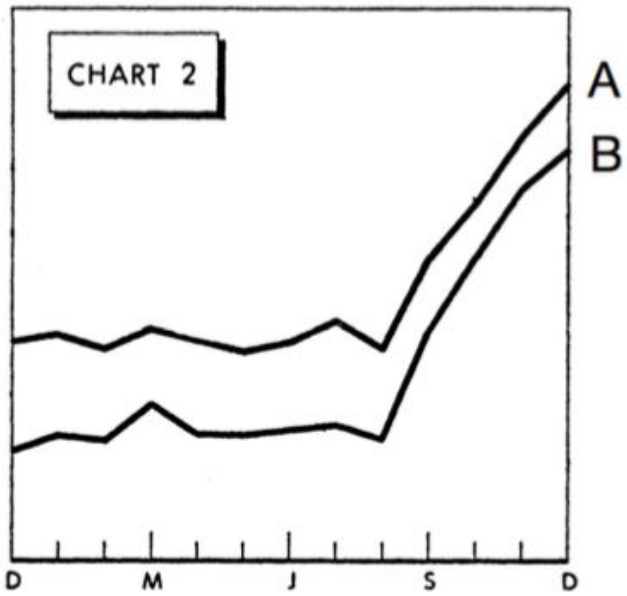
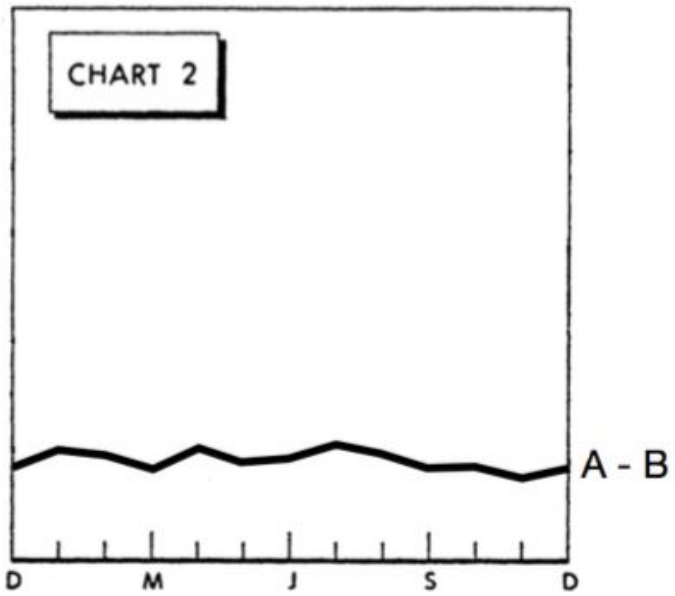
http://project.opendatamonitor.eu/wp-content/uploads/deliverable/OpenDataMonitor_611988_D2.3-Best-practice-visualisation,-dashboard-and-key-figures-report.pdf

Comparing multiple lines





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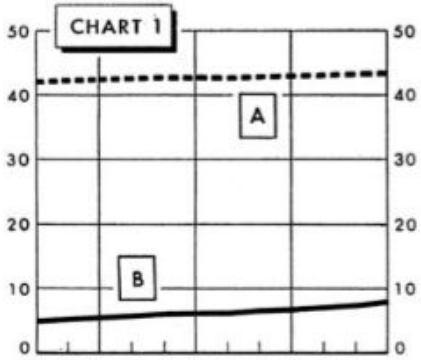
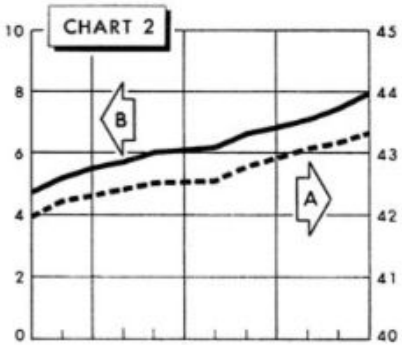
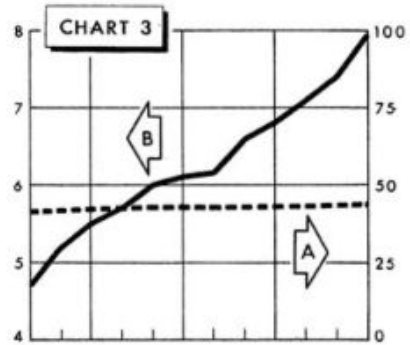
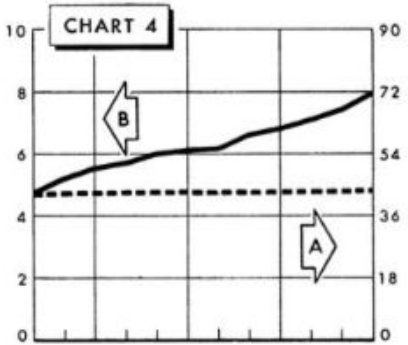
The dangers of two Y-axes









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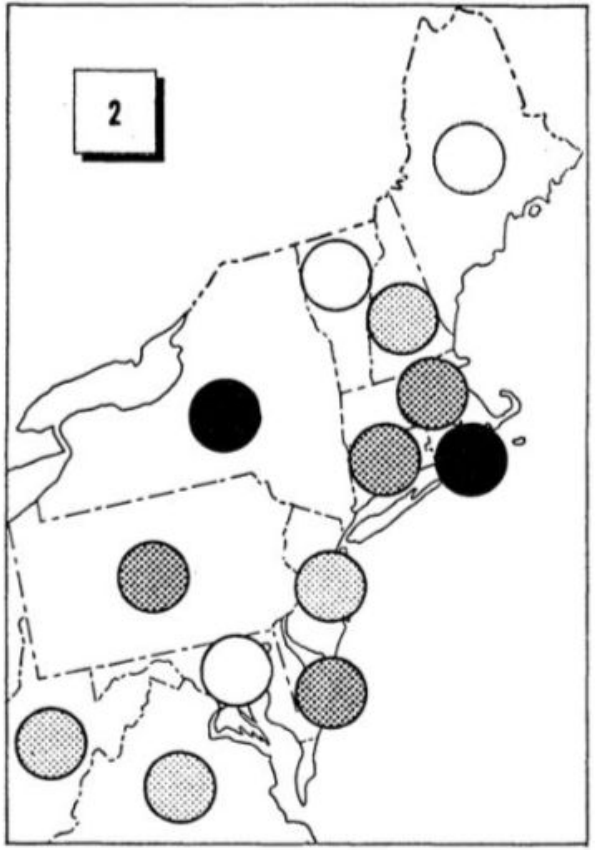
Area bias (compare also the example in section 4.4.1)



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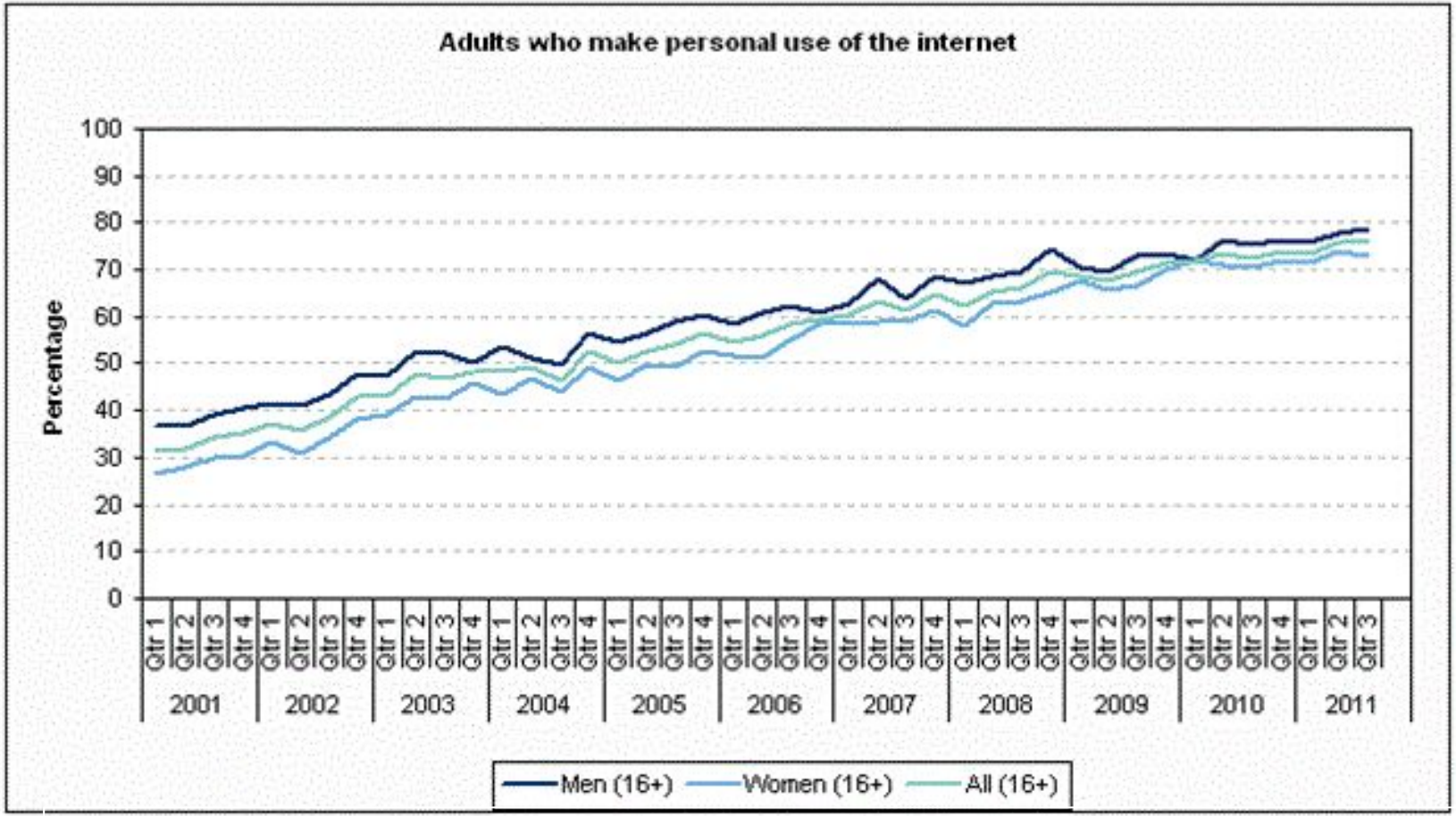

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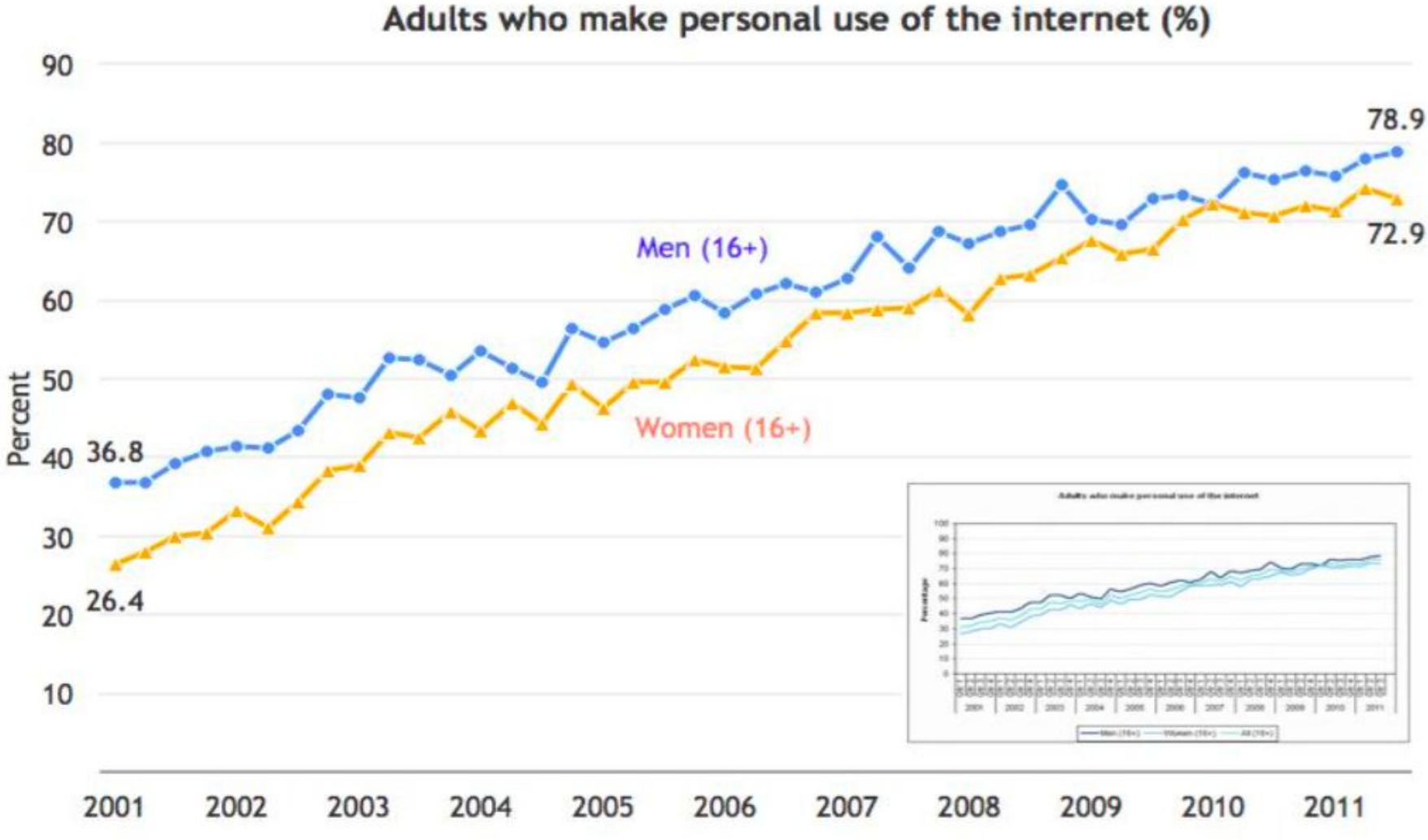
http://www.gov.scot/Topics/Statistics/16002/DataTrendsInternet


Adults who make personal use of the internet (%)
Percent
90
80
70
60
50
40
30
20
10
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Men (16+)
Women (16+)
36.8
26.4
78.9
72.9

Tools

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One size does not fit all

Tool	Pros	Cons
Pen & paper	You are an artist!	Time-consuming, error-prone
Spreadsheets, eg Excel	Familiar, fast	Limited options, hard to reproduce
Commercial software, eg Tableau	User-friendly, customization	Expensive, ‘golden cage’
Open source software, eg R	Free, community support	Learning curve, limitations
Programming languages, eg D3	Ultra-flexible, interactive	Technical skills, isolated

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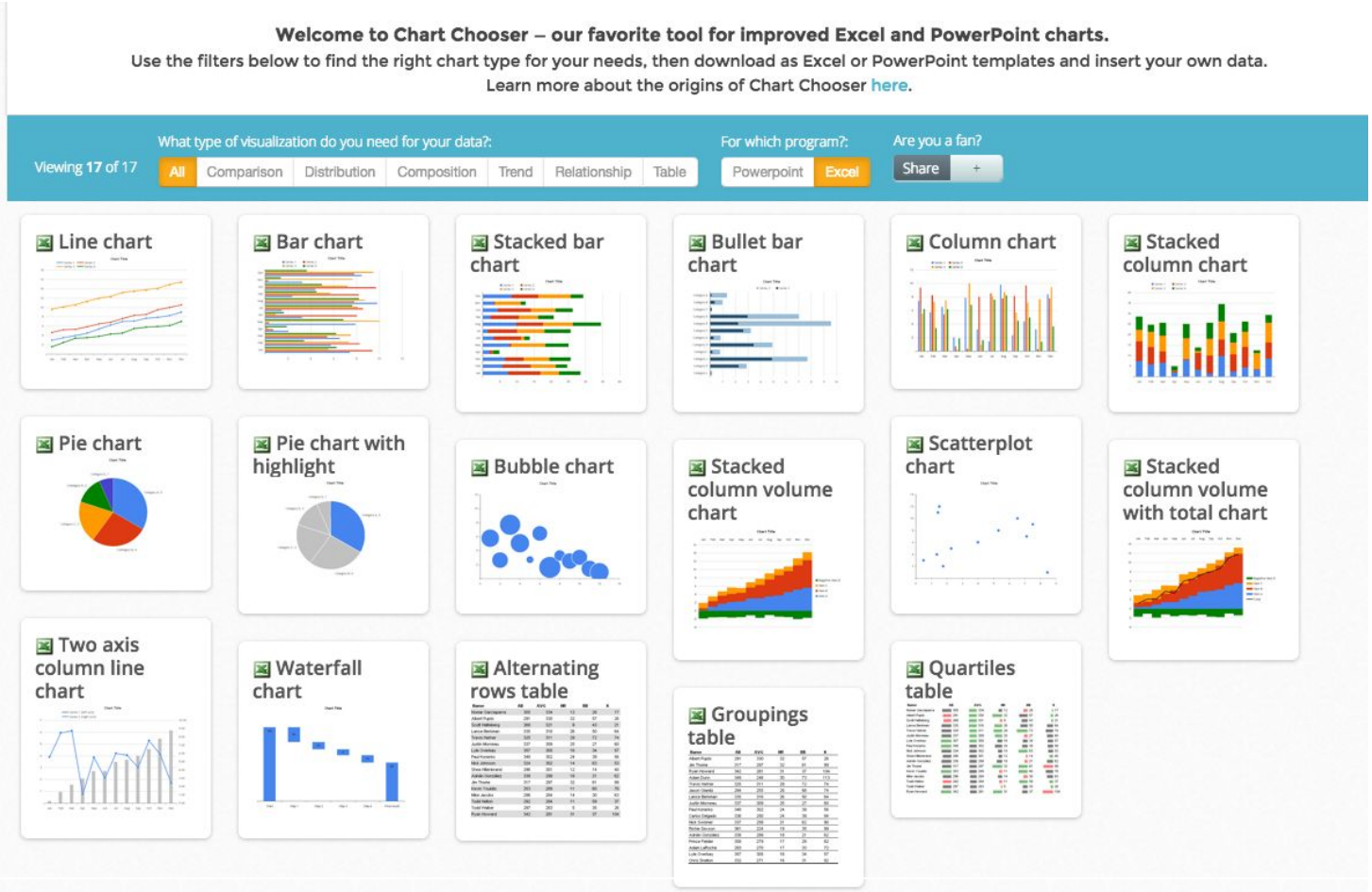

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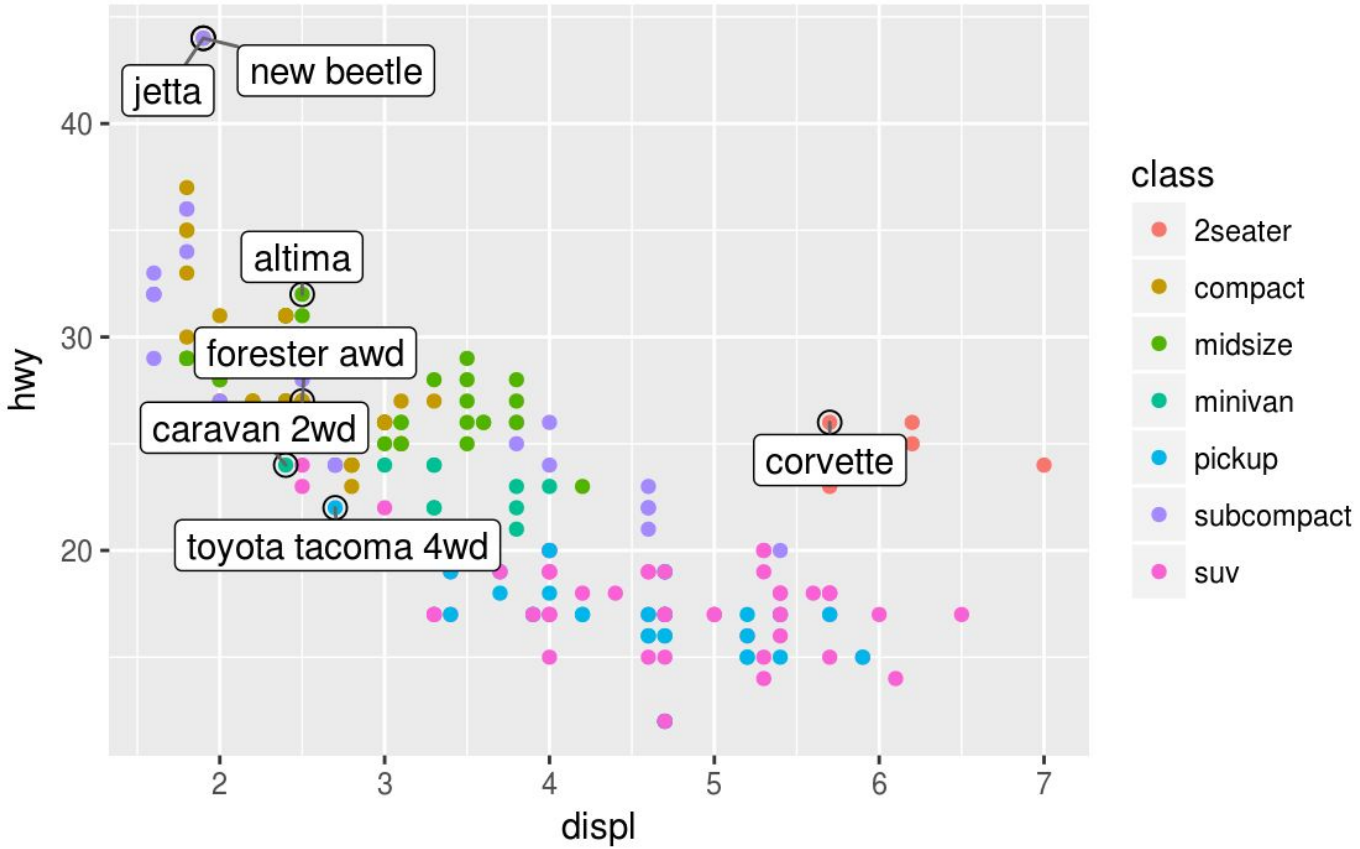
http://labs.juiceanalytics.com/chartchooser/index.html



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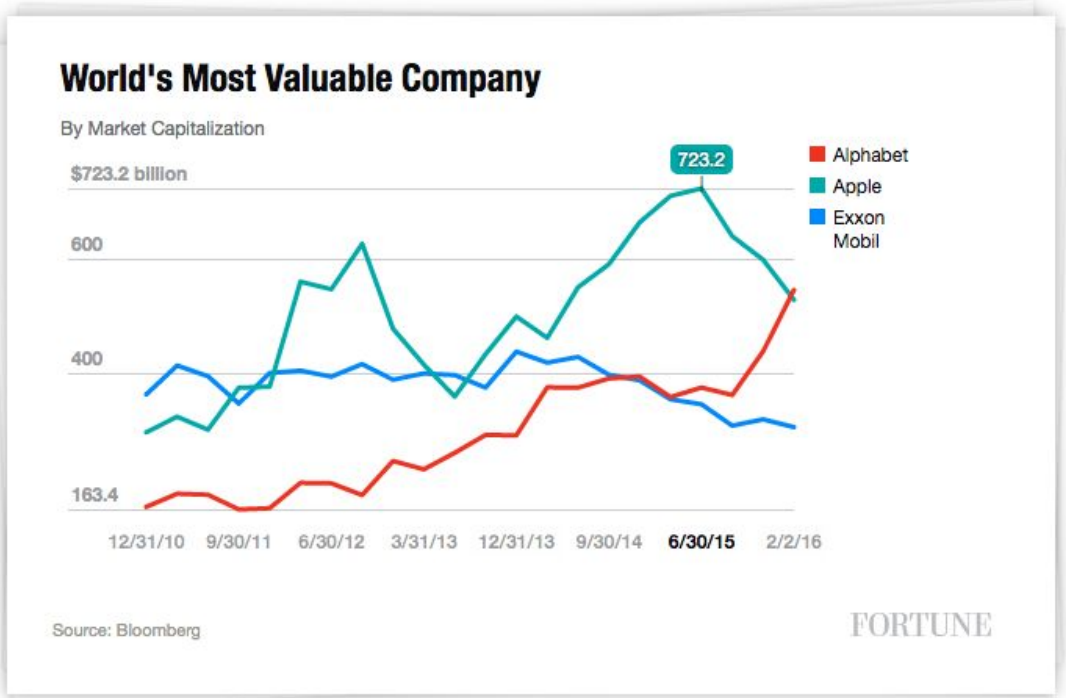
http://r4ds.had.co.nz/graphics-for-communication.html

With Datawrapper you add the power of data to your stories.



published in **Fortune Magazine**, created with Datawrapper

- Line chart
- Bar chart
- Stacked bar chart
- Map
- Donut
- Table

Want more charts? Check out the best ones in our Gallery!

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Resources

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If you love checklists 1/2

1 know your goal

- [ ] Who? identify your target audience
- [ ] What? articulate your intended message
- [ ] Why? define the desired effect

2 use the right data

- [ ] Necessary: get data that supports your point
- [ ] Sufficient: enough data to draw conclusions
- [ ] Relevant: eliminate any extraneous data

3 select suitable visualizations [1]

- [ ] Quantitative: position > length > angle >area
- [ ] Ordinal: position > gray ramp > color ramp
- [ ] Nominal: position > shape > color hue

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https://www.dropbox.com/s/7kggcjy218n2hil/SixPrinciplesofCommunicatingData.pdf

If you love checklists 2/2

4 design for aesthetics

- [ ] Clean up fonts, borders, gridlines, alignment
- [ ] Add graphic elements that aid cognition
- [ ] Ensure data is not occluded or distorted

5 choose medium & channel

- [ ] Medium: static, interactive, or animated?
- [ ] Channel: standalone, recorded, remote, live
- [ ] Mode: broadcast or directed?

6 check the results

- [ ] Reach: did you reach your target audience?
- [ ] Understanding: did they get it?
- [ ] Impact: did they react in the desired way?

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https://www.dropbox.com/s/7kggcjy218n2hil/SixPrinciplesofCommunicatingData.pdf

The weight of rain

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http://style.org/visualized/

BBC Radio 4 / Podcast More or Less

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http://www.bbc.co.uk/podcasts/series/moreorless

FlowingData

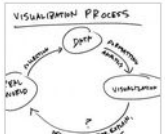
FLOWINGDATA MEMBERSHIP TUTORIALS GUIDES BOOKS FEATURES BECOME A MEMBER | LOG IN

Recent SEE ALL →

Explore the stars with this interactive Star Mapper

Jan Willem Tulp, in collaboration with the European Space Agency, produced the ESA Star Mapper. It shows nearly 60,000 stars ...

Shorten the Visualization Path Back to Reality



Visualization is complex, but if I

Features SEE ALL →

What Alcohol People Around the World Drink

Americans get most of their alcohol from beer, but it's not like that everywhere.

Become a member.
Learn to visualize your data.
From beginner to advanced.

WHAT YOU GET

Categories

Visualization
Seeing data

Statistics
Analyzing data

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http://flowingdata.com/

Bonus slides:

How (not) to visualize data

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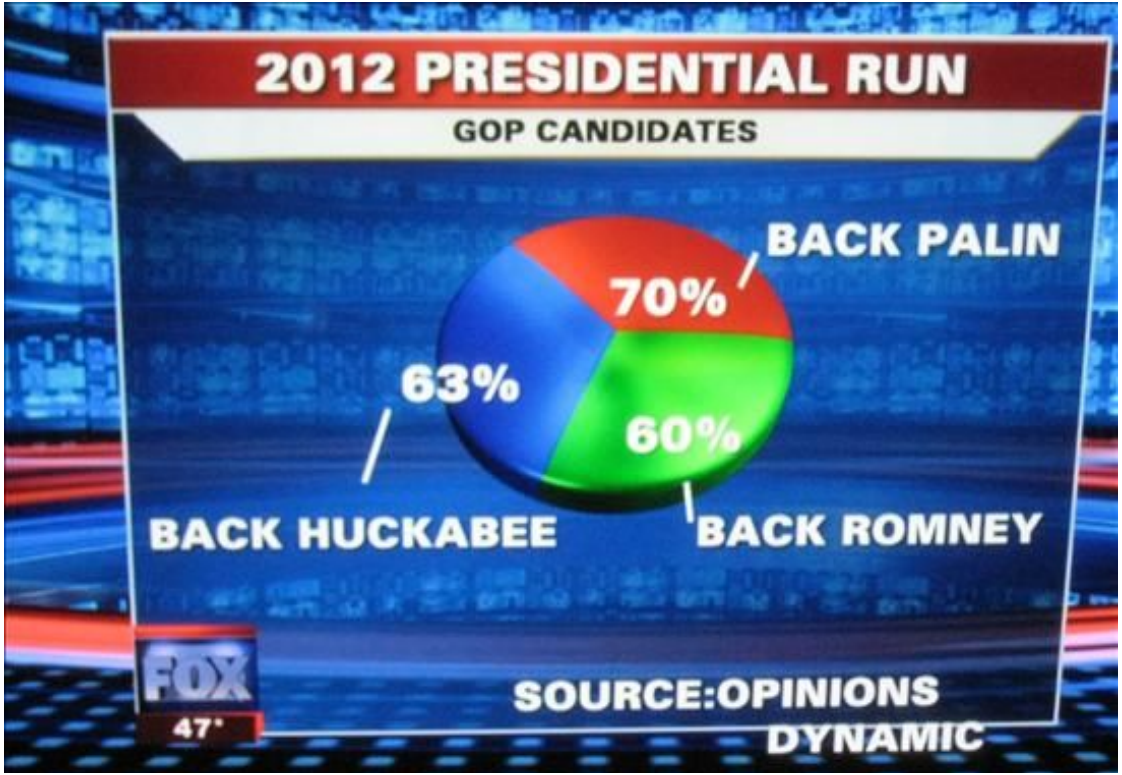
Non-traditional use of chart types



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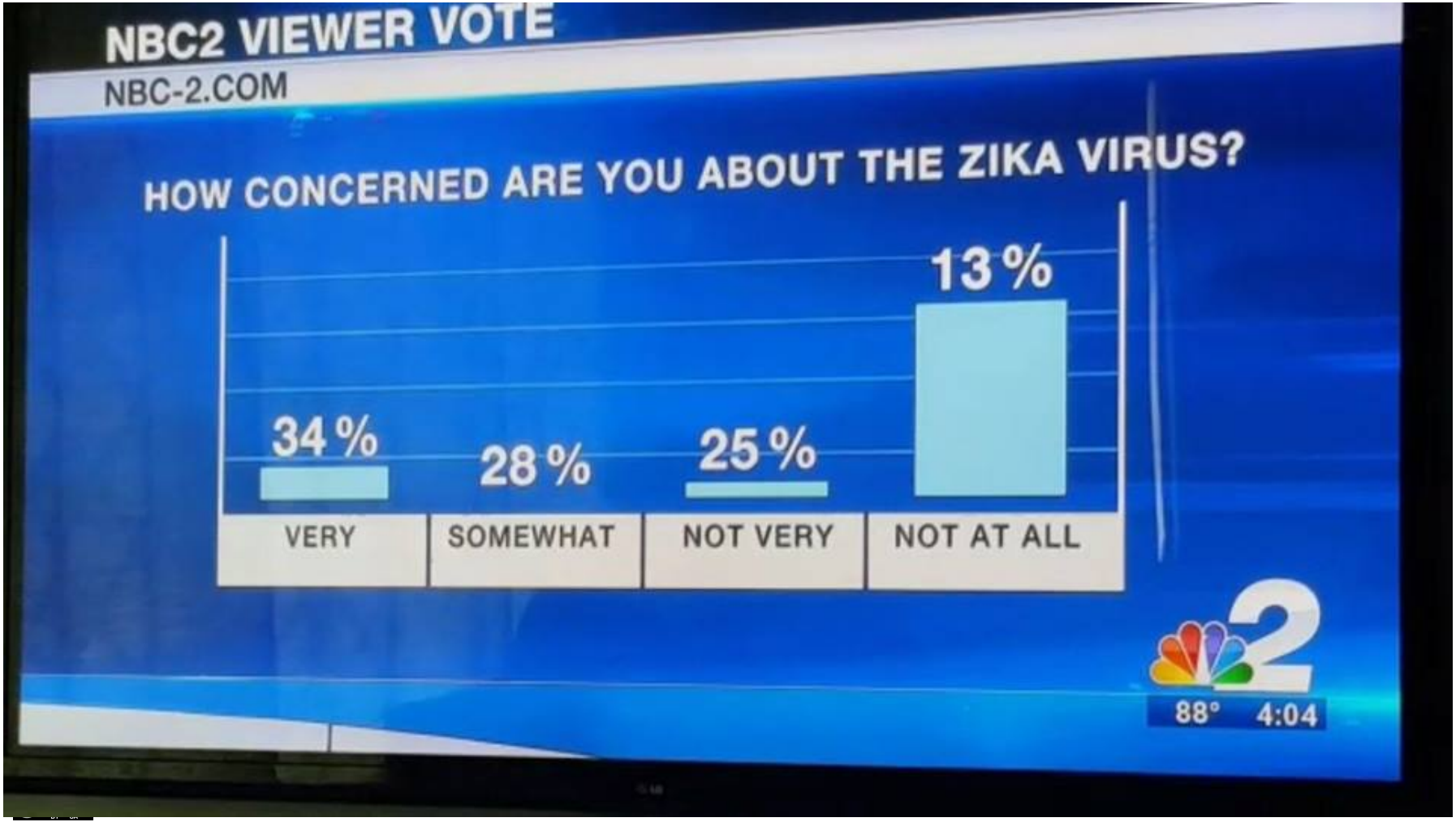
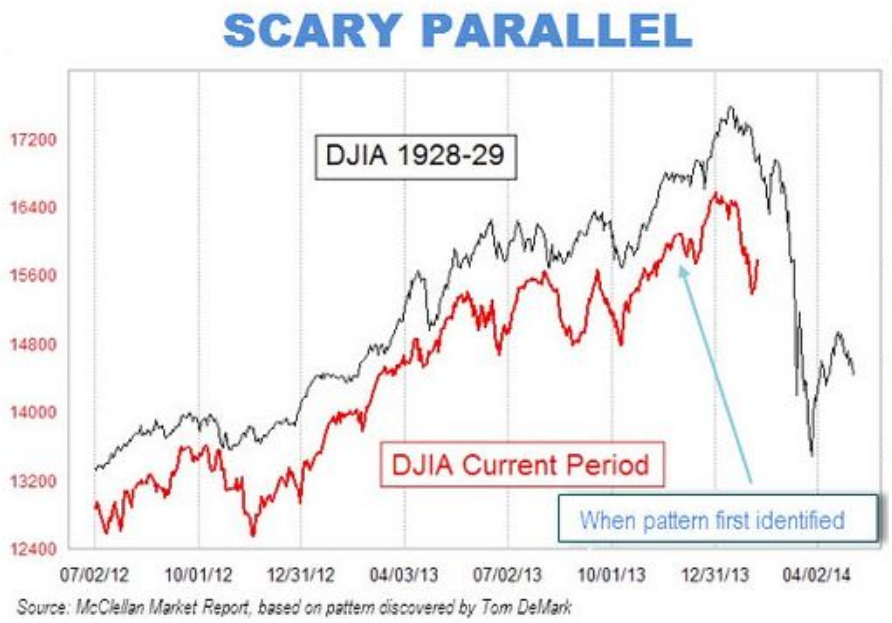
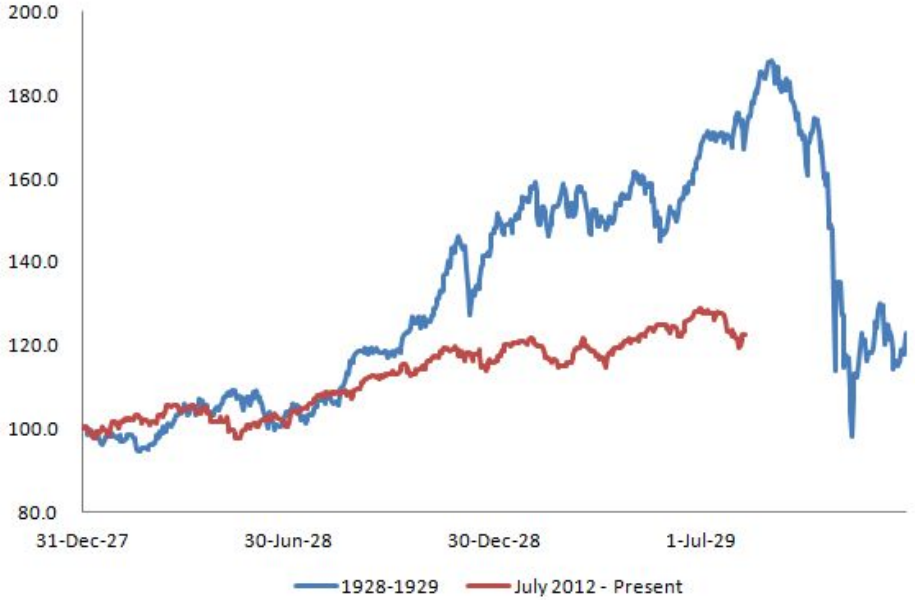

NBC2 VIEWER VOTE
NBC-2.COM
HOW CONCERNED ARE YOU ABOUT THE ZIKA VIRUS?
34 %
28 %
25 %
13 %
VERY
SOMEWHAT
NOT VERY
NOT AT ALL
88°
4:04

Arbitrariness of double axes





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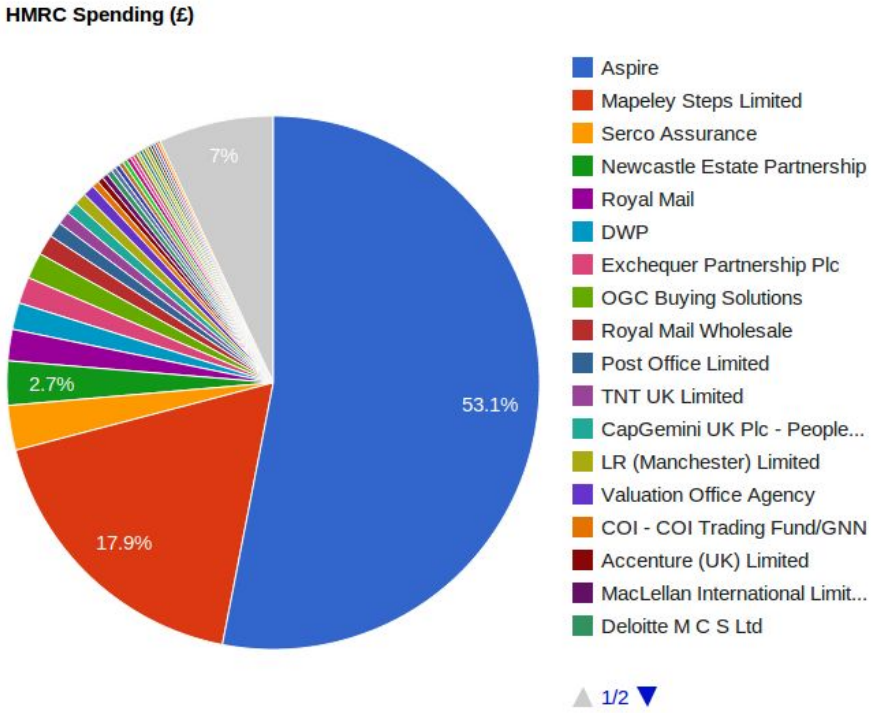
Charts that use ALL THE DATA



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Selective use of data

WRONG

FIXED

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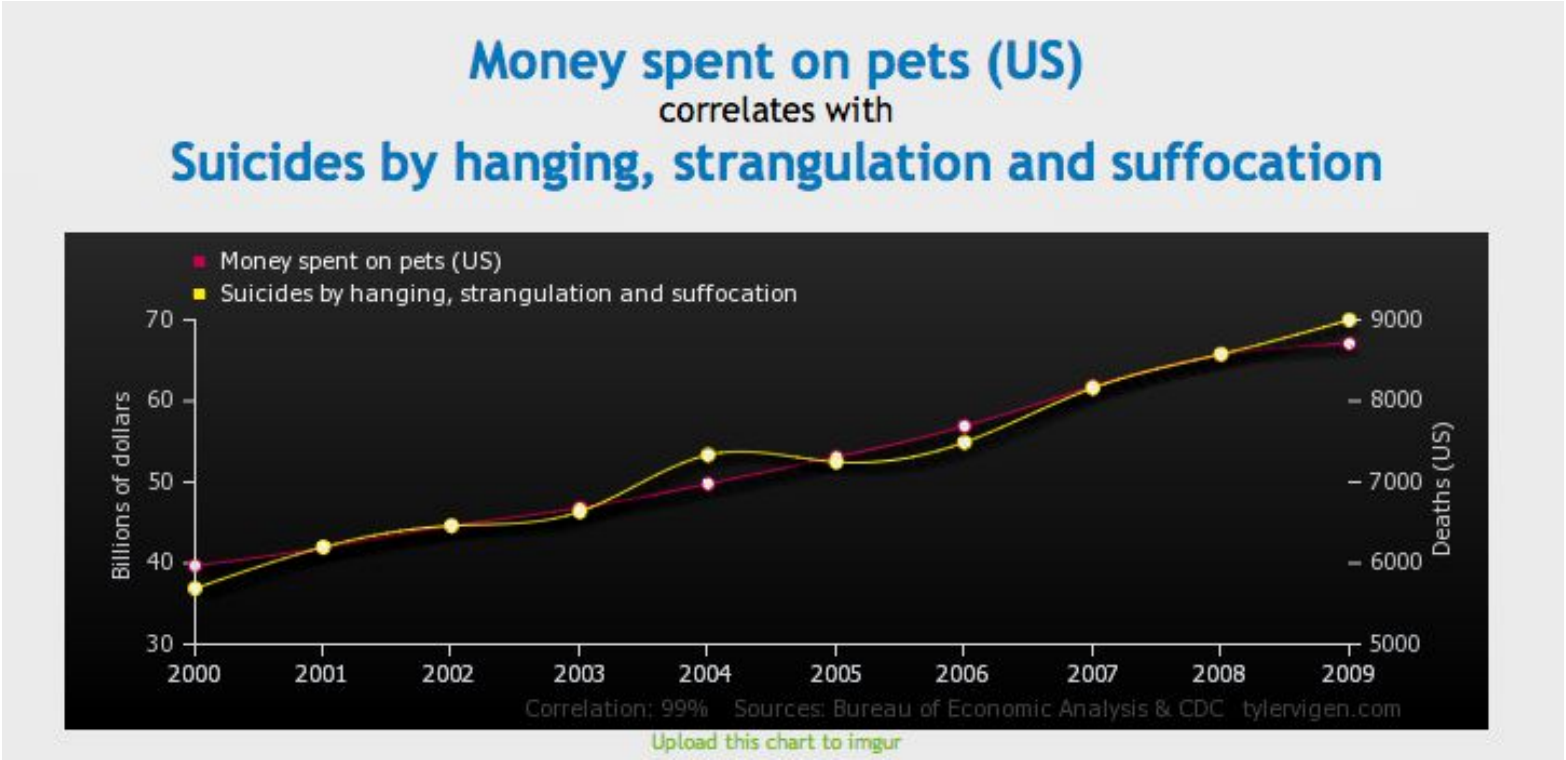
http://ampp3d.mirror.co.uk/2014/05/16/11-mistakes-that-will-drive-data-nerds-crazy/

Finding a meaningless correlation



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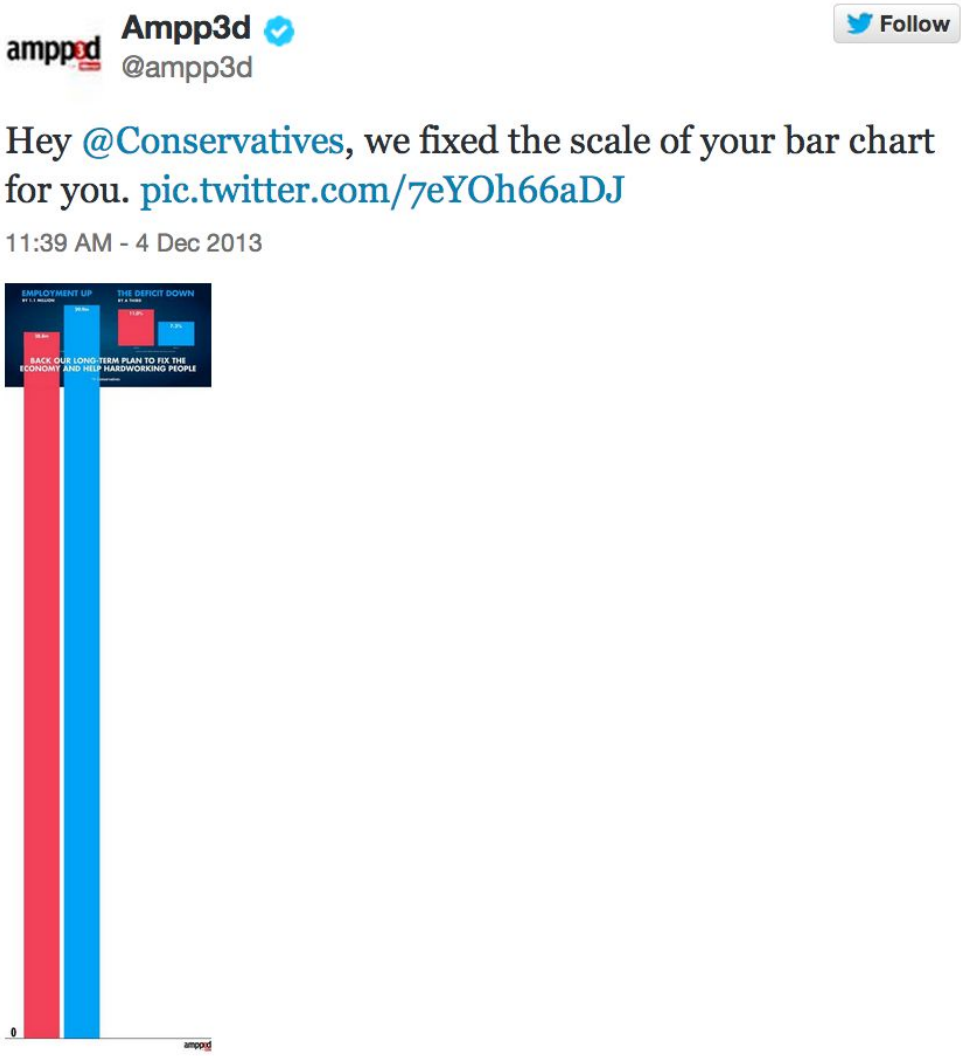
http://www.tylervigen.com
/

Y-axis does not start at zero



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