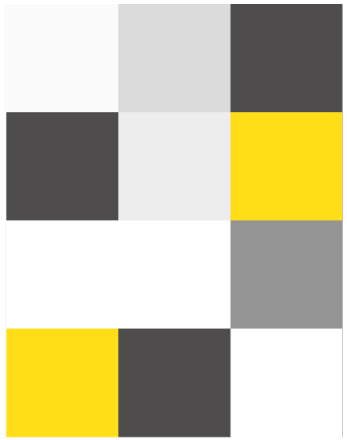


graphic

Introduction to data visualisation

Adam Frost – Content Director
@adamfrostuk

Tobias Sturt – Creative Director
@skelington

@gDigitalAgency

LOVE

ANGER

DANGER

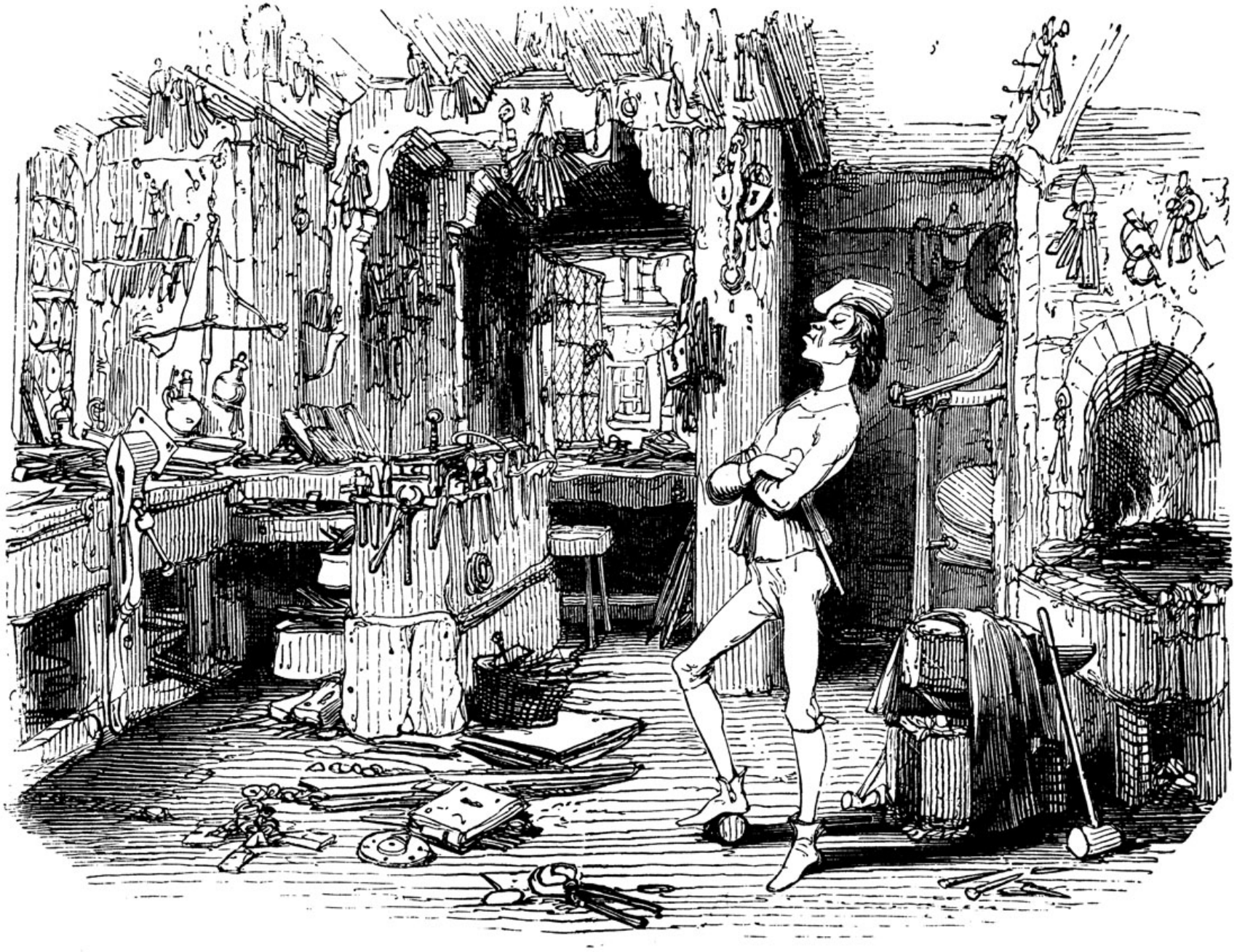
DANGER

DANGER!!!

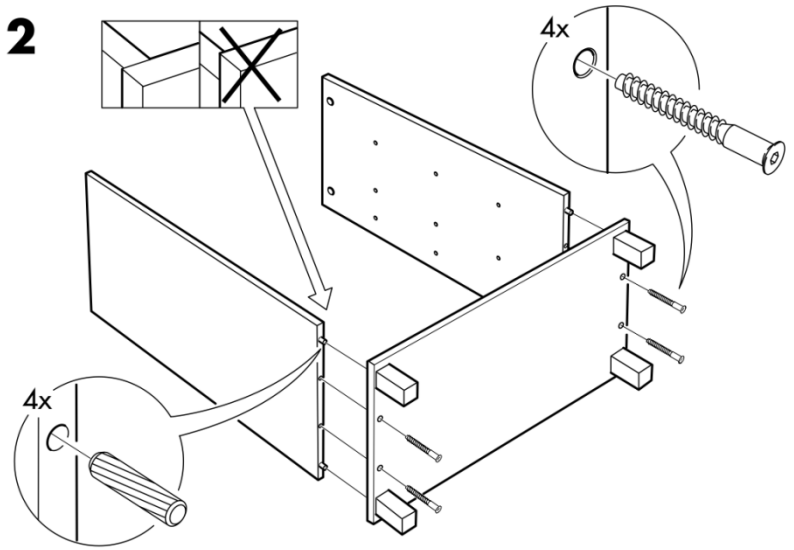
DANGER

DANGER

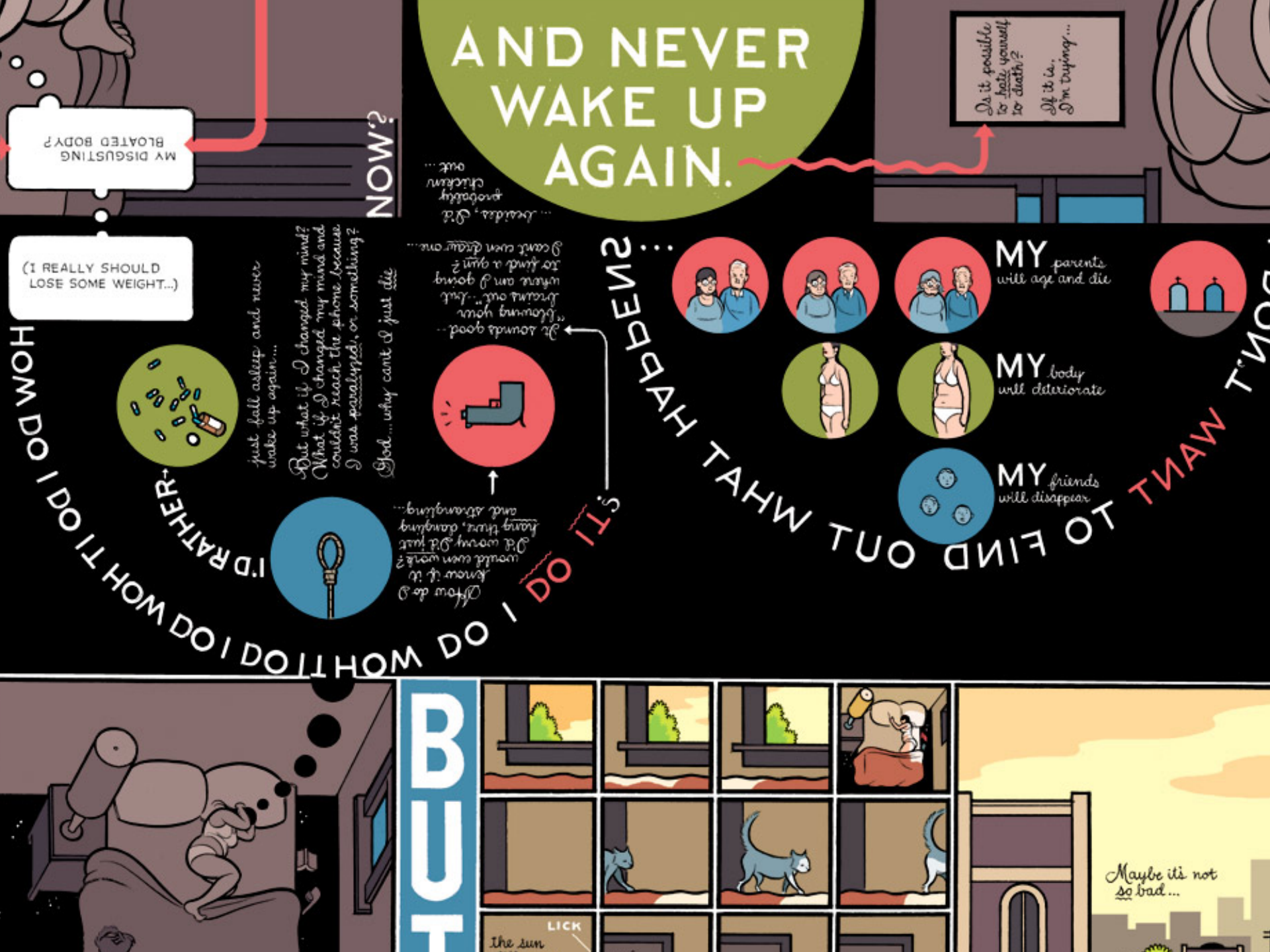
danger



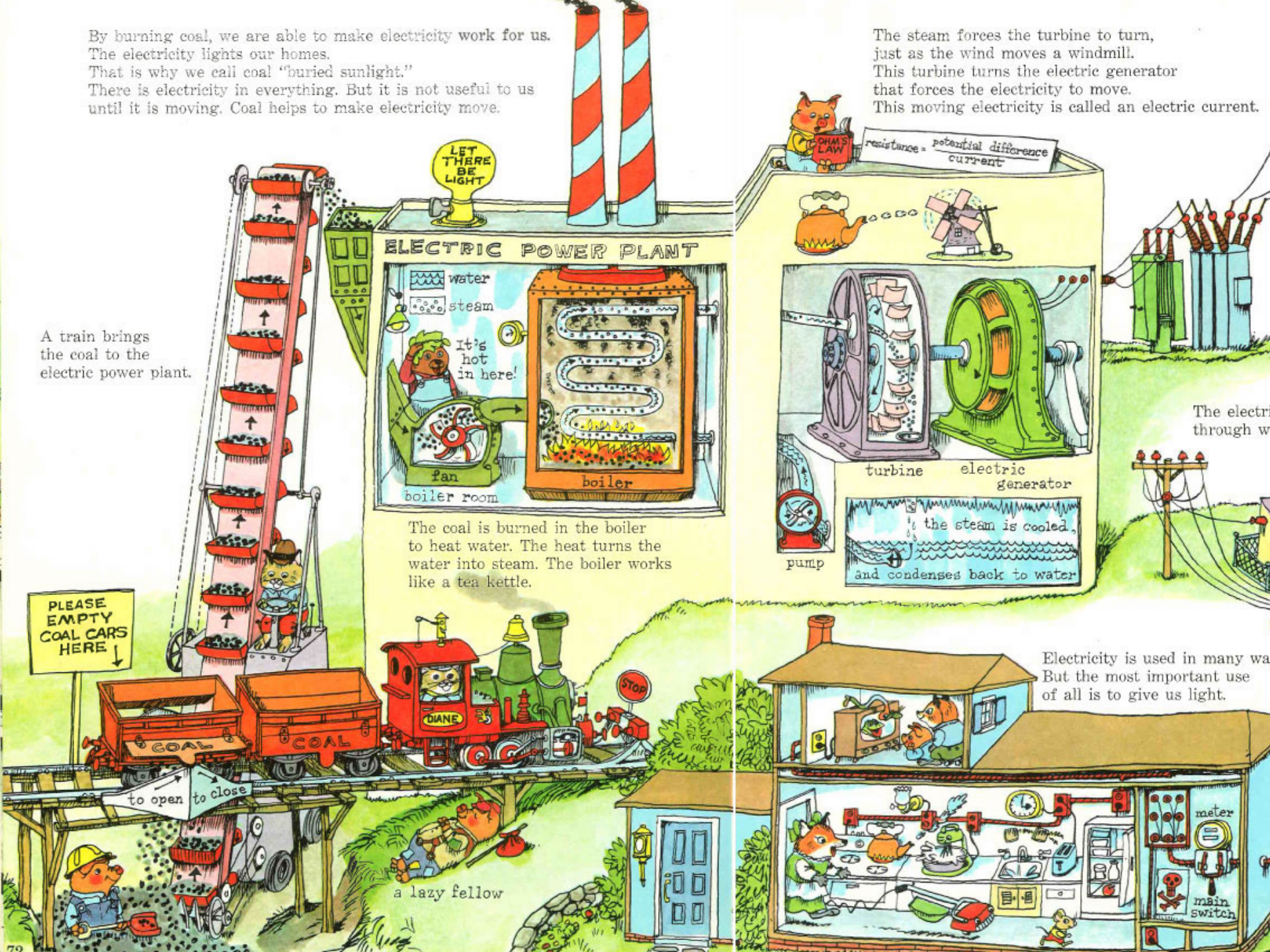
His lip began to curl; he smiled; uttering meanwhile with supreme contempt the monosyllable "Joe!"



graphic


AND NEVER WAKE UP AGAIN.
Is it possible to hate yourself to death?
If it is, I'm trying...
MY DISGUSTING BLOATED BODY?
NOW?
(I REALLY SHOULD LOSE SOME WEIGHT...)
HOW DO I DO IT? HOW DO I DO IT? HOW DO I DO IT?
I'D RATHER...
just fall asleep and never wake up again...
But what if I changed my mind? What if I reach the phone because I was paralyzed, or something?
God... why can't I just die
How do I know if it would even work? I'd worry I'd just hang there, dangling and strangling...
It sounds good... "blowing your brains out"... but where am I going to find a gun? I can't even draw one...
... besides, I'd probably chicken out...
HOW DO I DO IT?
HAPPENS...
MY parents will age and die
MY body will deteriorate
MY friends will disappear
TO FIND OUT WHAT HAPPENS...
BUT
LICK
the sun
Maybe it's not so bad...

By burning coal, we are able to make electricity work for us.
The electricity lights our homes.
That is why we call coal "buried sunlight."
There is electricity in everything. But it is not useful to us
until it is moving. Coal helps to make electricity move.



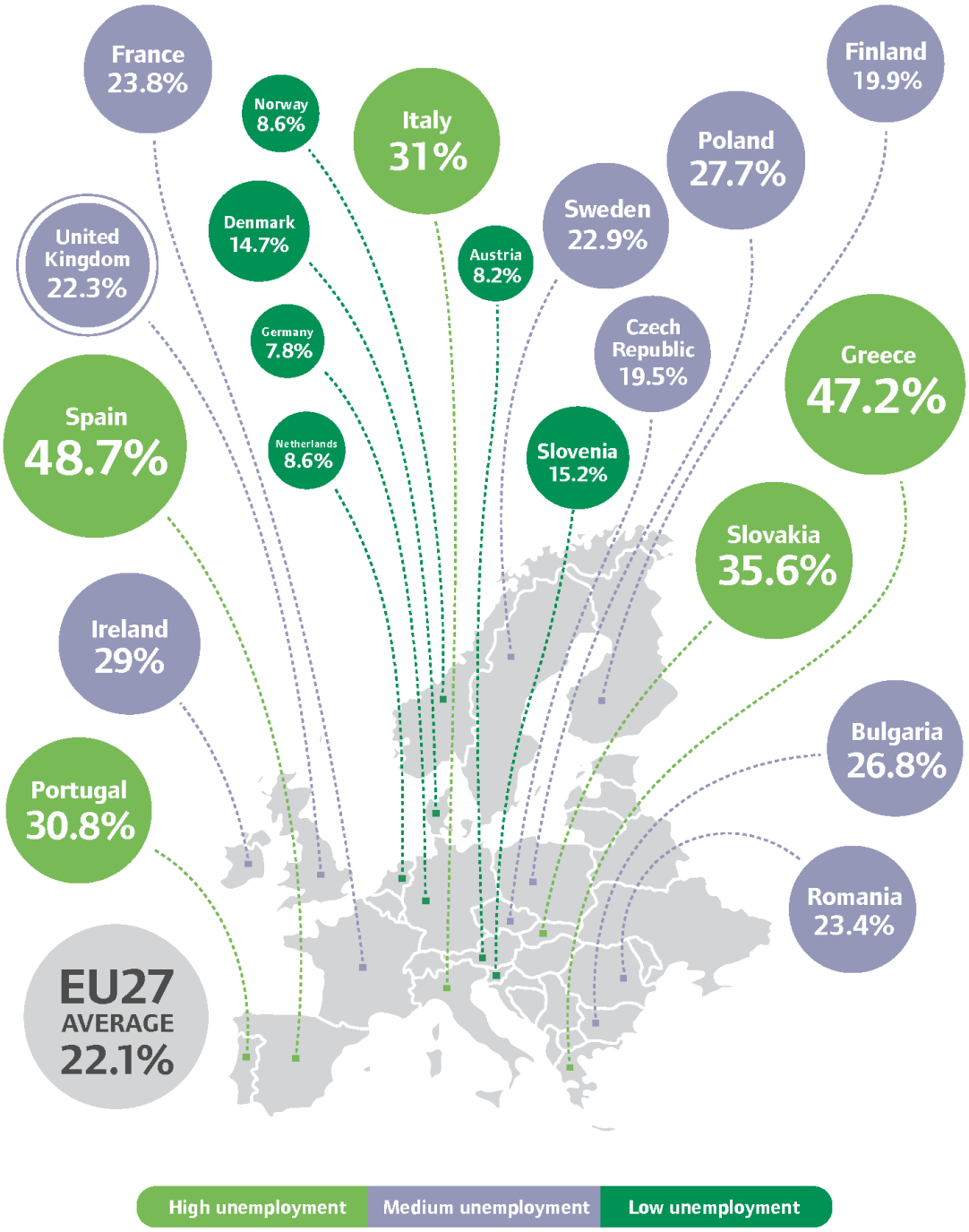
A train brings the coal to the electric power plant.

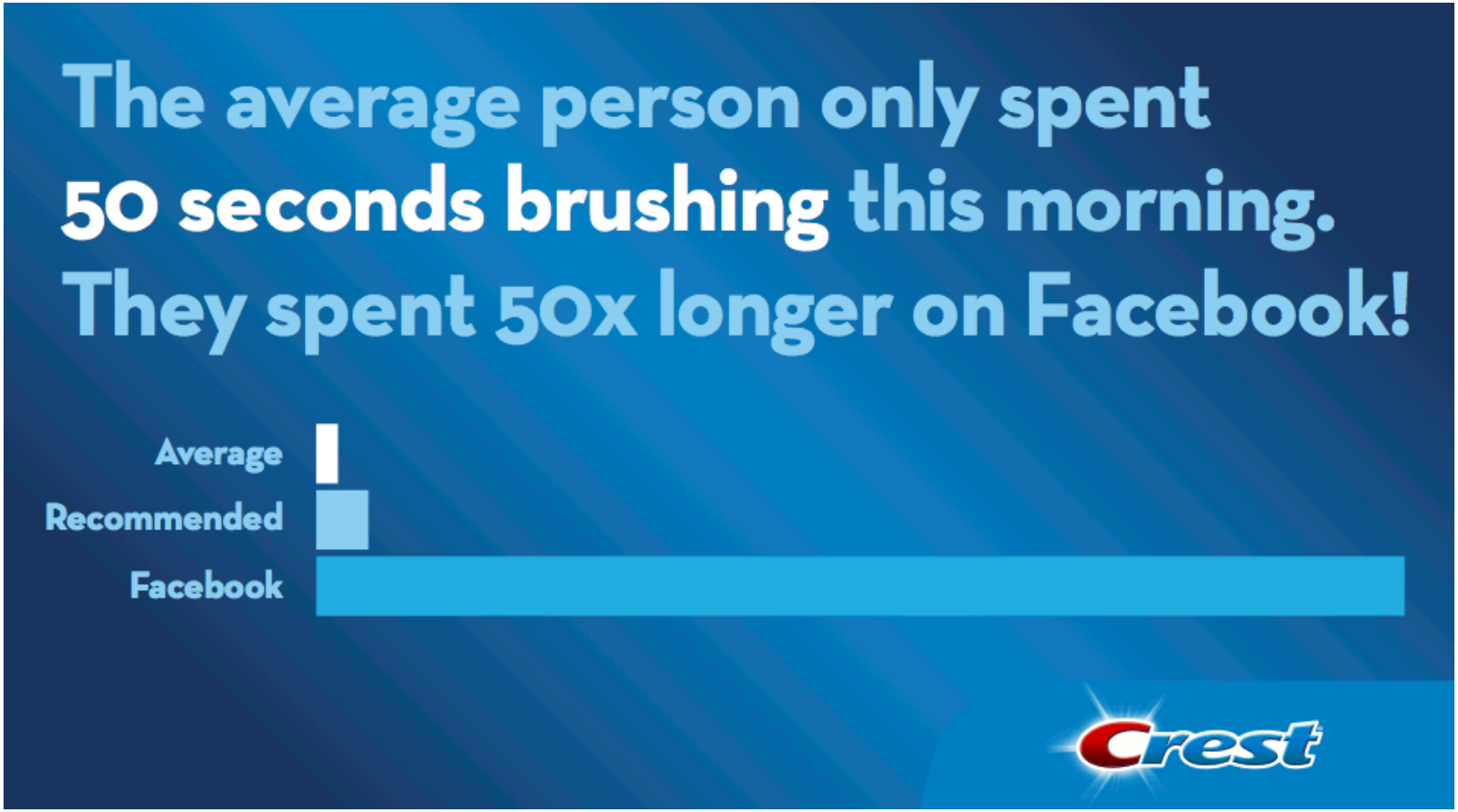
The coal is burned in the boiler to heat water. The heat turns the water into steam. The boiler works like a tea kettle.

The steam forces the turbine to turn, just as the wind moves a windmill.
This turbine turns the electric generator that forces the electricity to move.
This moving electricity is called an electric current.

The electri
through w

Electricity is used in many wa
But the most important use
of all is to give us light.

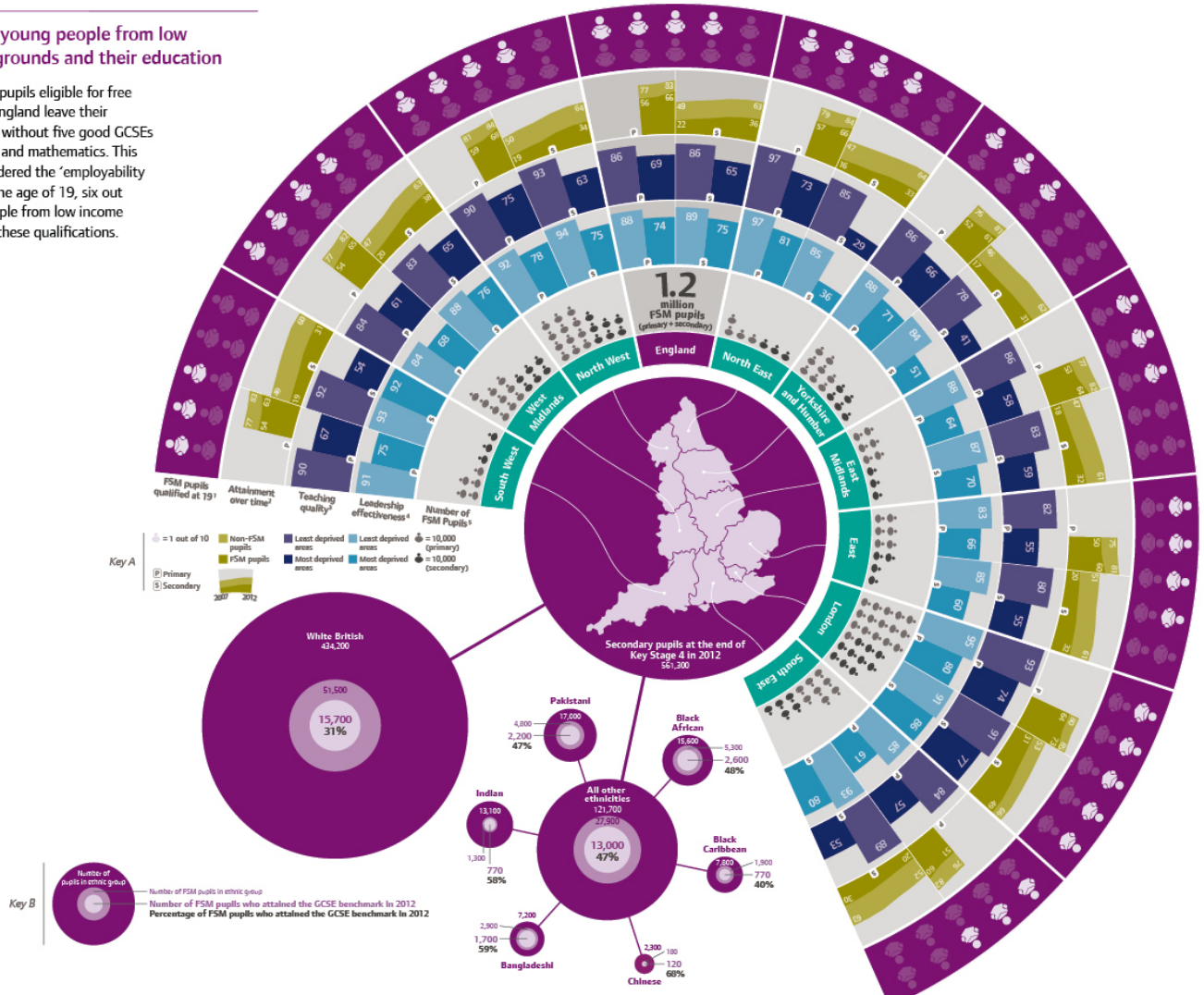

France
23.8%
Norway
8.6%
Italy
31%
Finland
19.9%
Poland
27.7%
Sweden
22.9%
Denmark
14.7%
Austria
8.2%
United Kingdom
22.3%
Germany
7.8%
Czech Republic
19.5%
Greece
47.2%
Spain
48.7%
Netherlands
8.6%
Slovenia
15.2%
Slovakia
35.6%
Ireland
29%
Bulgaria
26.8%
Portugal
30.8%
Romania
23.4%
EU27
AVERAGE
22.1%
High unemployment
Medium unemployment
Low unemployment


The average person only spent
50 seconds brushing this morning.
They spent 50x longer on Facebook!
Average
Recommended
Facebook
Crest

Unseen children

Children and young people from low income backgrounds and their education

Two out of three pupils eligible for free school meals in England leave their secondary school without five good GCSEs including English and mathematics. This is generally considered the 'employability benchmark'. By the age of 19, six out of ten young people from low income families still lack these qualifications.



London stands out

Pupils from low income families perform best in London, in both primary and secondary schools. Schools in London generally have strong leadership and teaching regardless of whether they serve the most or least deprived communities.

Poor families in rich areas

Pupils from low income families do particularly badly in some relatively affluent areas. Outcomes are worst in the South East, in both primary and secondary schools.

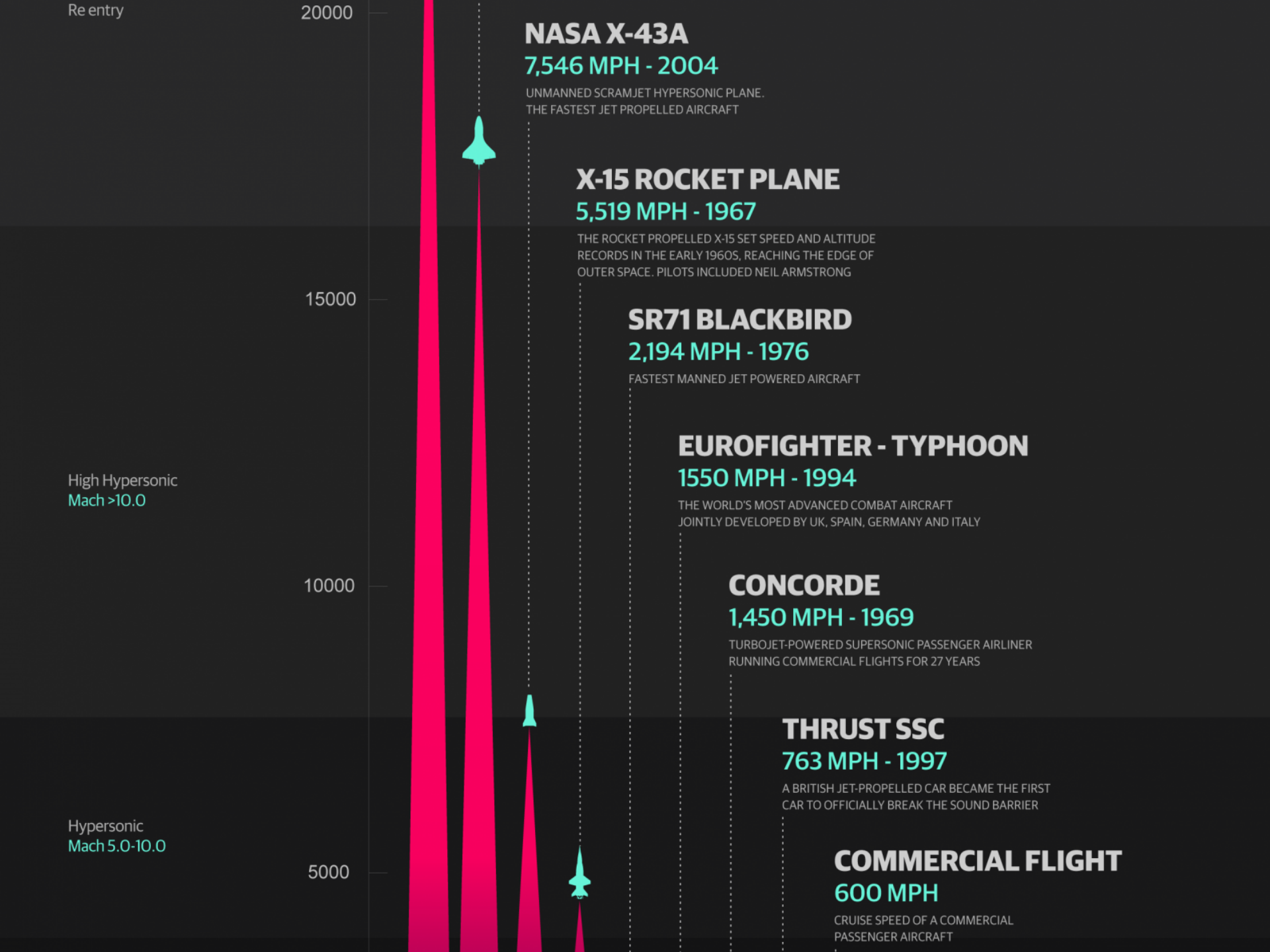
White British pupils

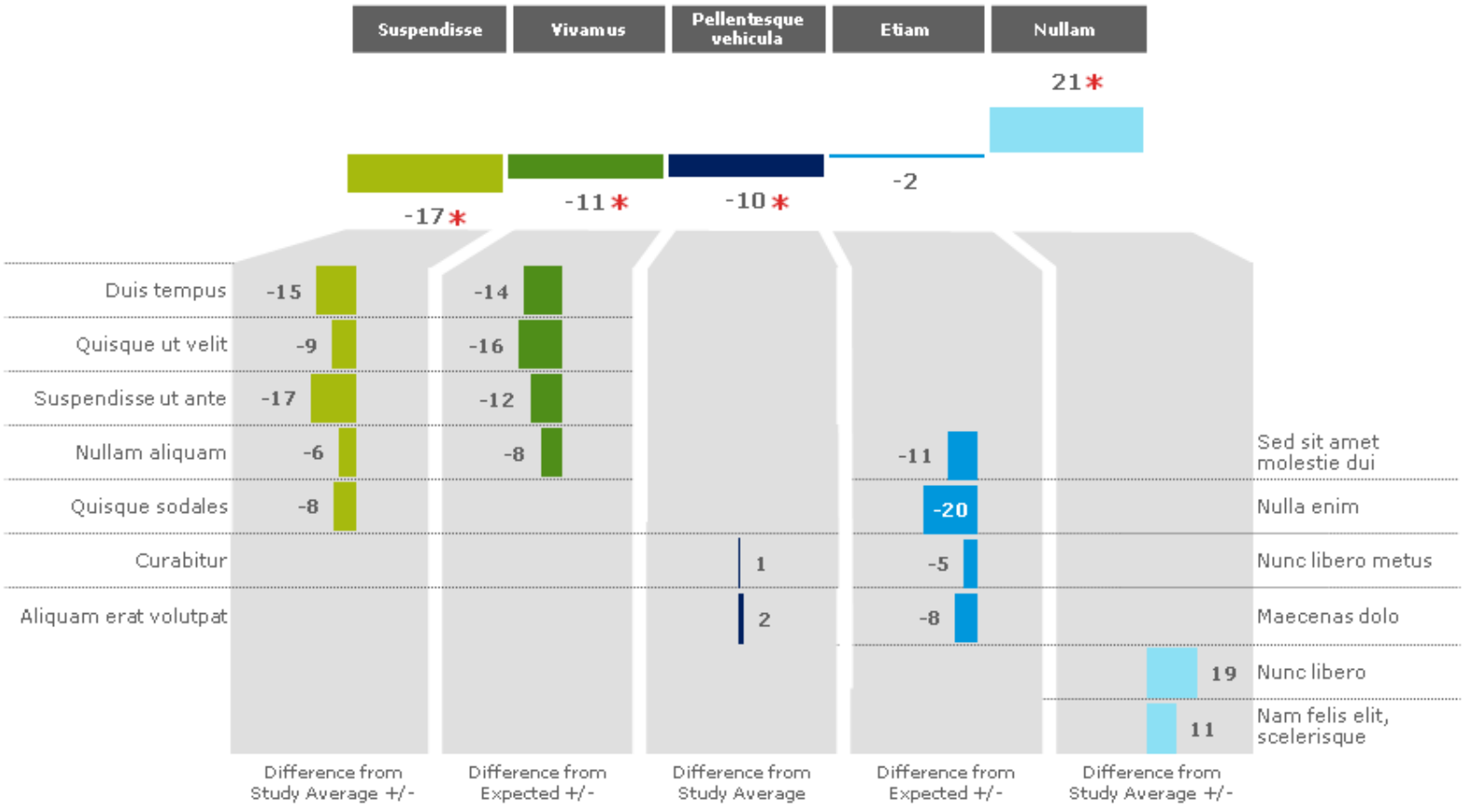
White British pupils are by far the largest disadvantaged group, accounting for around two thirds of all pupils from low income backgrounds. They are the lowest performing major ethnic group in GCSE exams.

Figure 1

1. Based on the percentage of FSM pupils at age 19 in each region that had qualified to Level 2 with English and mathematics.
2. Attainment at primary is the percentage of Key Stage 2 pupils attaining Level 4+ in English and mathematics. Attainment at secondary is the percentage of Key Stage 4 pupils attaining five GCSEs at A* to C grade including English and mathematics. Key Stage 2 attainment data for FSM and non-FSM pupils only available by region only from 2010.
3. Figures are the percentage of schools judged good or outstanding for the quality of teaching in each region.
4. Figures are the percentage of schools judged good or outstanding for leadership and management in each region.
5. The number of free school meal pupils is the total of all eligible pupils in primary and secondary schools as at the 2012 Annual School Census.
6. Ethnicity bubbles are based on the number of eligible free school meal pupils at the end of Key Stage 4 only.
7. Pupil numbers for ethnicity bubbles have been rounded to the nearest 10 if less than 1000, and to the nearest 100 if 1000 or over.

Source: Ofsted; Department for Education


Re entry
20000
NASA X-43A
7,546 MPH - 2004
UNMANNED SCRAMJET HYPERSONIC PLANE.
THE FASTEST JET PROPELLED AIRCRAFT
X-15 ROCKET PLANE
5,519 MPH - 1967
THE ROCKET PROPELLED X-15 SET SPEED AND ALTITUDE RECORDS IN THE EARLY 1960S, REACHING THE EDGE OF OUTER SPACE. PILOTS INCLUDED NEIL ARMSTRONG
15000
SR71 BLACKBIRD
2,194 MPH - 1976
FASTEST MANNED JET POWERED AIRCRAFT
EUROFIGHTER - TYPHOON
1550 MPH - 1994
THE WORLD'S MOST ADVANCED COMBAT AIRCRAFT
JOINTLY DEVELOPED BY UK, SPAIN, GERMANY AND ITALY
High Hypersonic
Mach >10.0
10000
CONCORDE
1,450 MPH - 1969
TURBOJET-POWERED SUPERSONIC PASSENGER AIRLINER
RUNNING COMMERCIAL FLIGHTS FOR 27 YEARS
THRUST SSC
763 MPH - 1997
A BRITISH JET-PROPELLED CAR BECAME THE FIRST
CAR TO OFFICIALLY BREAK THE SOUND BARRIER
Hypersonic
Mach 5.0-10.0
5000
COMMERCIAL FLIGHT
600 MPH
CRUISE SPEED OF A COMMERCIAL
PASSENGER AIRCRAFT



Country, Category, Time period covered (e.g, 1H '11)

Apple
Amazon
Monsanto
Stryker
Petrochina
WellPoint
159,871
CEZ
NTT
France Telecom
1,467,681
East Japan Railway
Starbucks
1,014,105
Mobil
147,000,000
Dell
438,906
Halliburton
4,020,000
RWE
170,200,000
Barclays
993,000
AT & T
8,903,473
Westfield
513,557
Cisco
650,620
BT
1,674,583
FujiFilm
1,315,765
BP
74,920,000
Rio Tinto
44,600,000
Automatic Data Processing
JFE
Hyundai
2,227,634
Lafarge
104,663,099
Tesco
3,152,927
UPS
12,630,498
America Movil
Nike
71,900
Telefonica
1,814,799
Gilead Services
67,094
Centrica
10,714,959
Intel
2,878,008
Coca-Cola
3,359,909
Bank of America
1,872,213
Chubb
14,226
Shell
85,000,000
Kinross Gold
1,125,494
Google
1,237,476
Philips
896,987
Jonhson & Johnson
1,279,804
American Electric Power
138,294,800
Hitachi
4,719,794
Daimler
3,699,102
FedEx
14,149,767
P&G
Pfizer
2,707,928
Kellogg
1,343,409
Rolls-Royce
592,123
Medtronic
Honeywell International
Prudential
Novatek

LLOYD'S

A TALE OF TWO ECONOMIES

How much did it cost each country to rebuild?

CHINA

COST THE TAXPAYER
$137BN

In May 2008, the Sichuan Province of China was struck by an earthquake measuring 7.9 on the Richter scale.

$1.3BN
Allocated to the Central emergency fund[1]

146,000
Soldiers and police mobilised[2]

45,000
Medical workers contributing to care[3]

Insurance gap

$125 BILLION

Insured loss

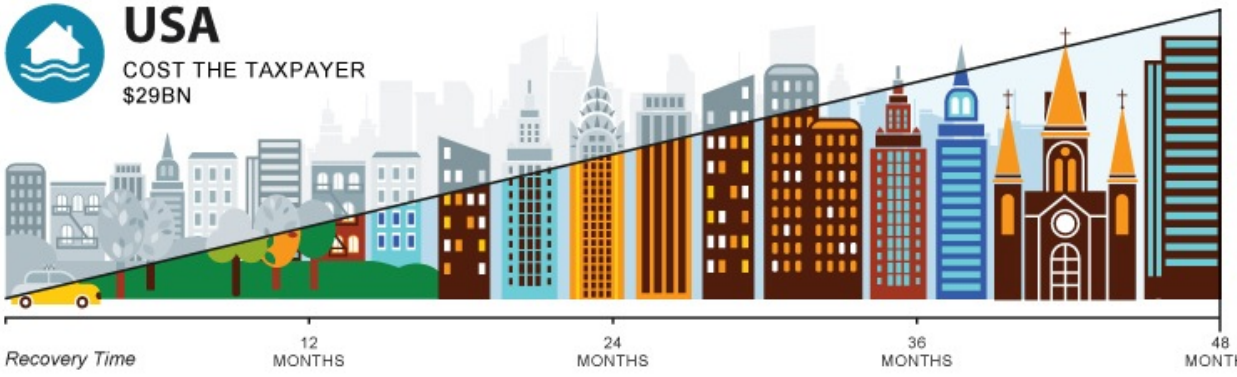
$0.33BN

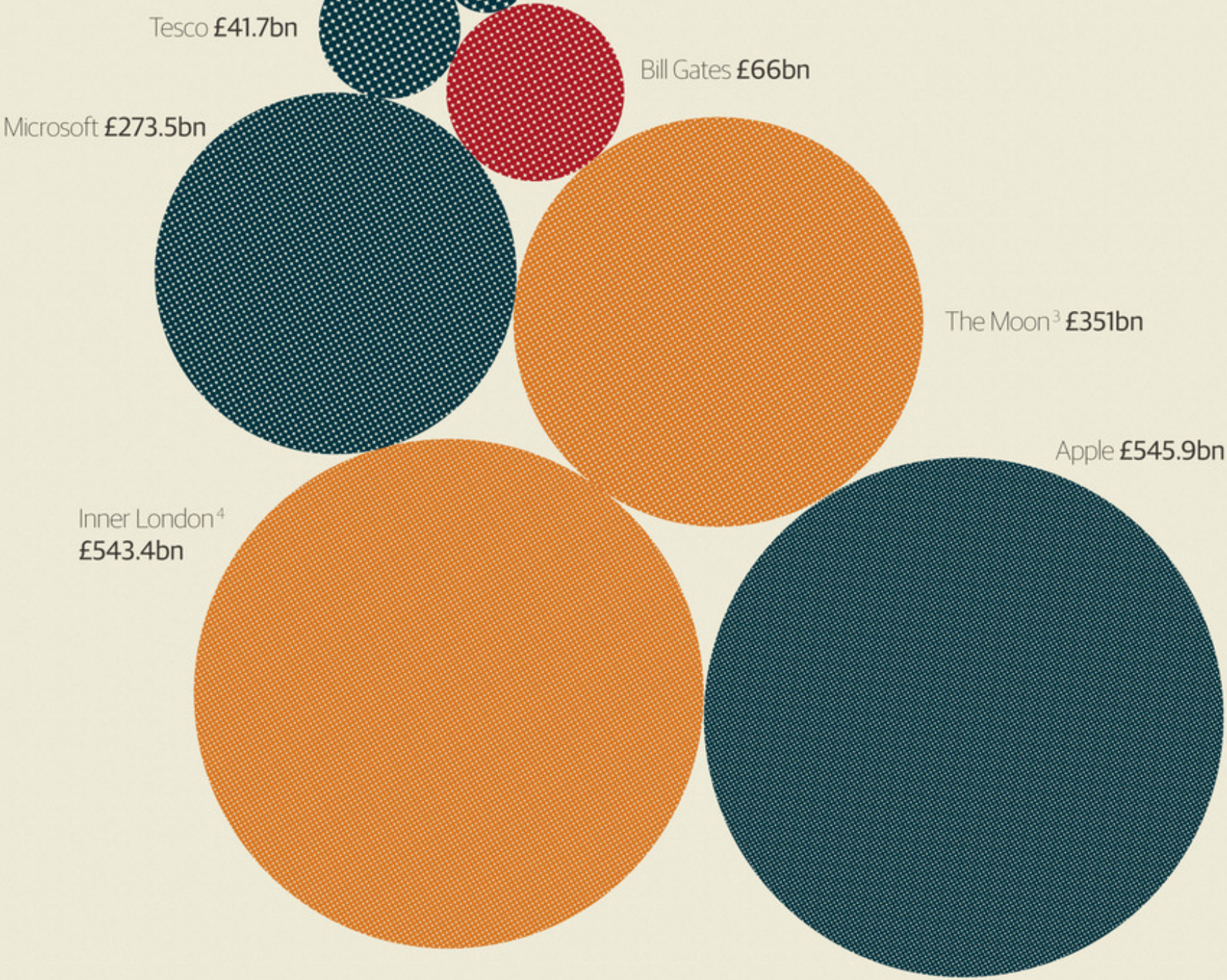
Total damage
$125BN

Cost to the taxpayer
$137.5BN

USA

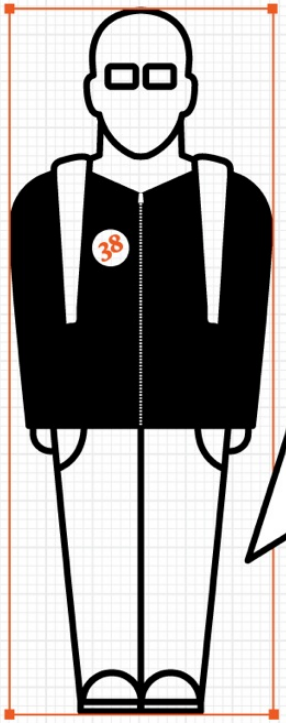
COST THE TAXPAYER
$29BN




Tesco £41.7bn
Bill Gates £66bn
Microsoft £273.5bn
The Moon[3] £351bn
Apple £545.9bn
Inner London[4]
£543.4bn

In Design?

How do you measure up?



There are 232,000 designers[1] in the United Kingdom.

Who are they?

The average designer[1] is white, male and 38.

50% of all designers work in **London**, the **South East** & the **East**[1]

How do they compare with other professions?[4]

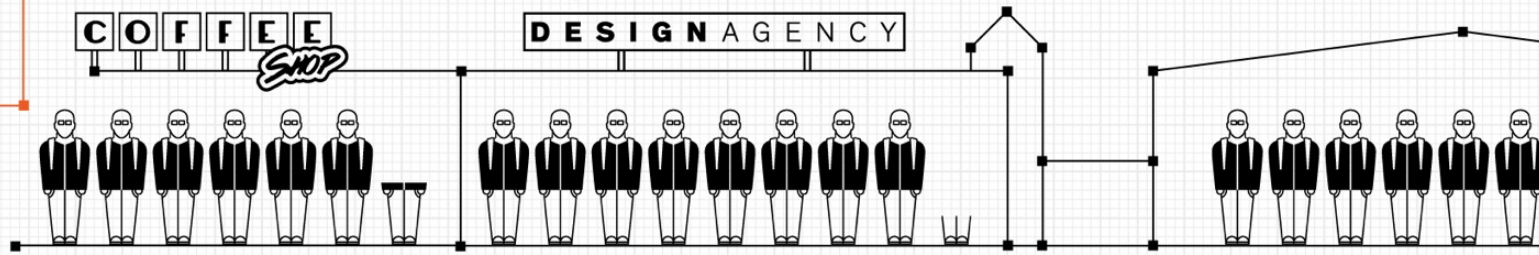
(average salary for mid-level roles)

Architect

Designer

Marketing

Where do they work ?



Freelance - 65,900 (28%)

In Design Consultancies - 82,500 (36%)

In-house - 83,600 (36%)

1. Design Council Survey 2010 2. Major Players Salary Survey 2012 3. Econsultancy digital agency rate card survey 2011 4. Major

EXPLORE THE DATA:

Select Area: GLOBAL

Select Sector: FMCG

COMPARE BRANDS:

Brand 1: --

Brand 2: --

GLOBAL / FMCG

Toggle View

Colours:
- Positive CRP growth
- Declining CRP growth

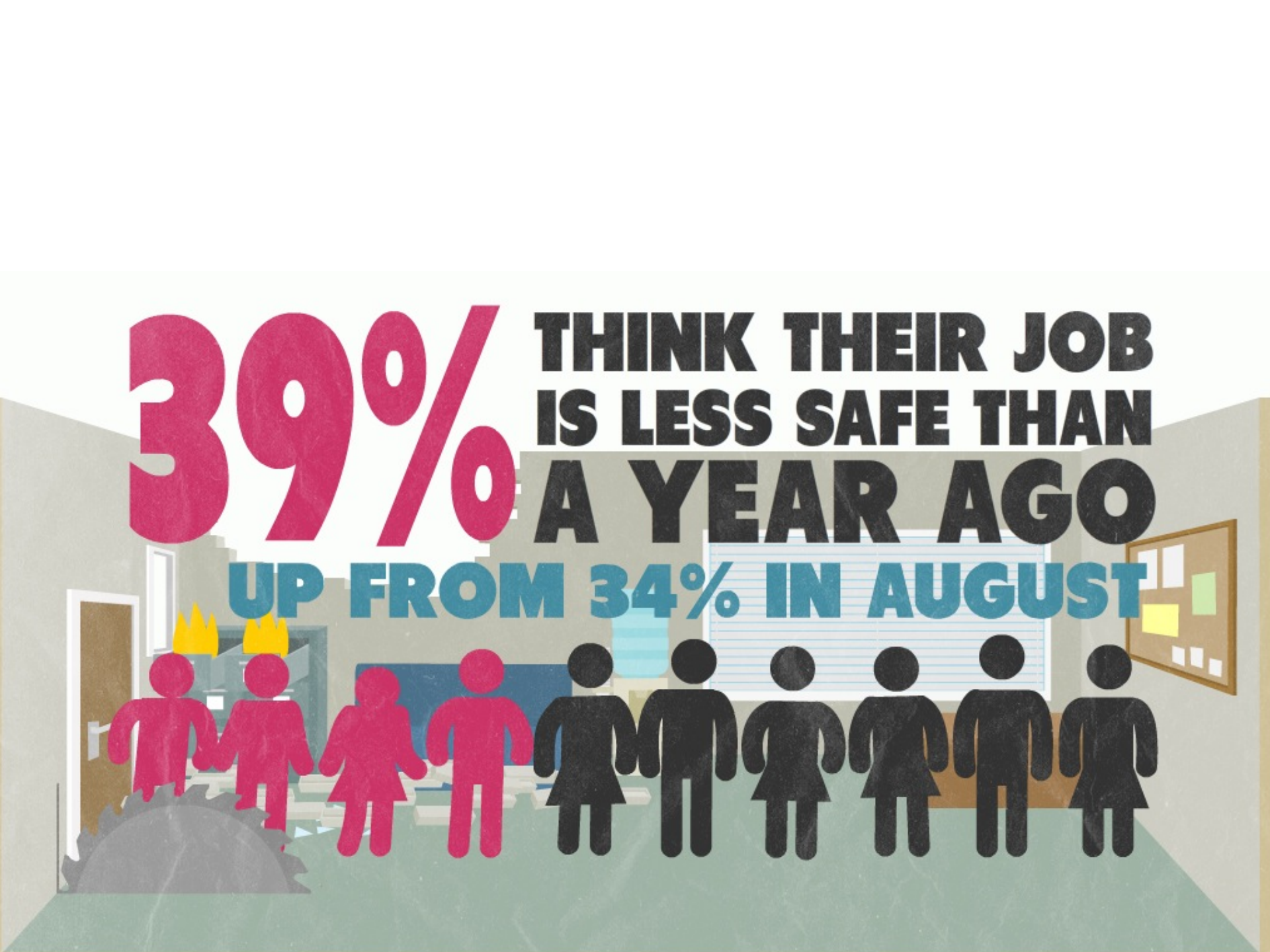
Years:
- 2013
- 2014

Y axis Rank by: CONSUMER REACH POINTS

X axis Distribute by: PENETRATION

Size by: FREQUENCY

Brand name	Rank	+/-	Penetration	SHOW 50
Coca-Cola	1	0	5,722	
Colgate	2	0	3,992	
Maggi	3	0	2,755	
Lifebuoy	4	+1	2,338	
Nescafe	5	-1	2,137	
Pepsi	6	0	1,984	
Lay's	7	+2	1,747	
Knorr	8	-1	1,647	
Dove	9	+3	1,457	
Tide	10	0	1,438	


39%
THINK THEIR JOB
IS LESS SAFE THAN
A YEAR AGO
UP FROM 34% IN AUGUST

Data Visualisation

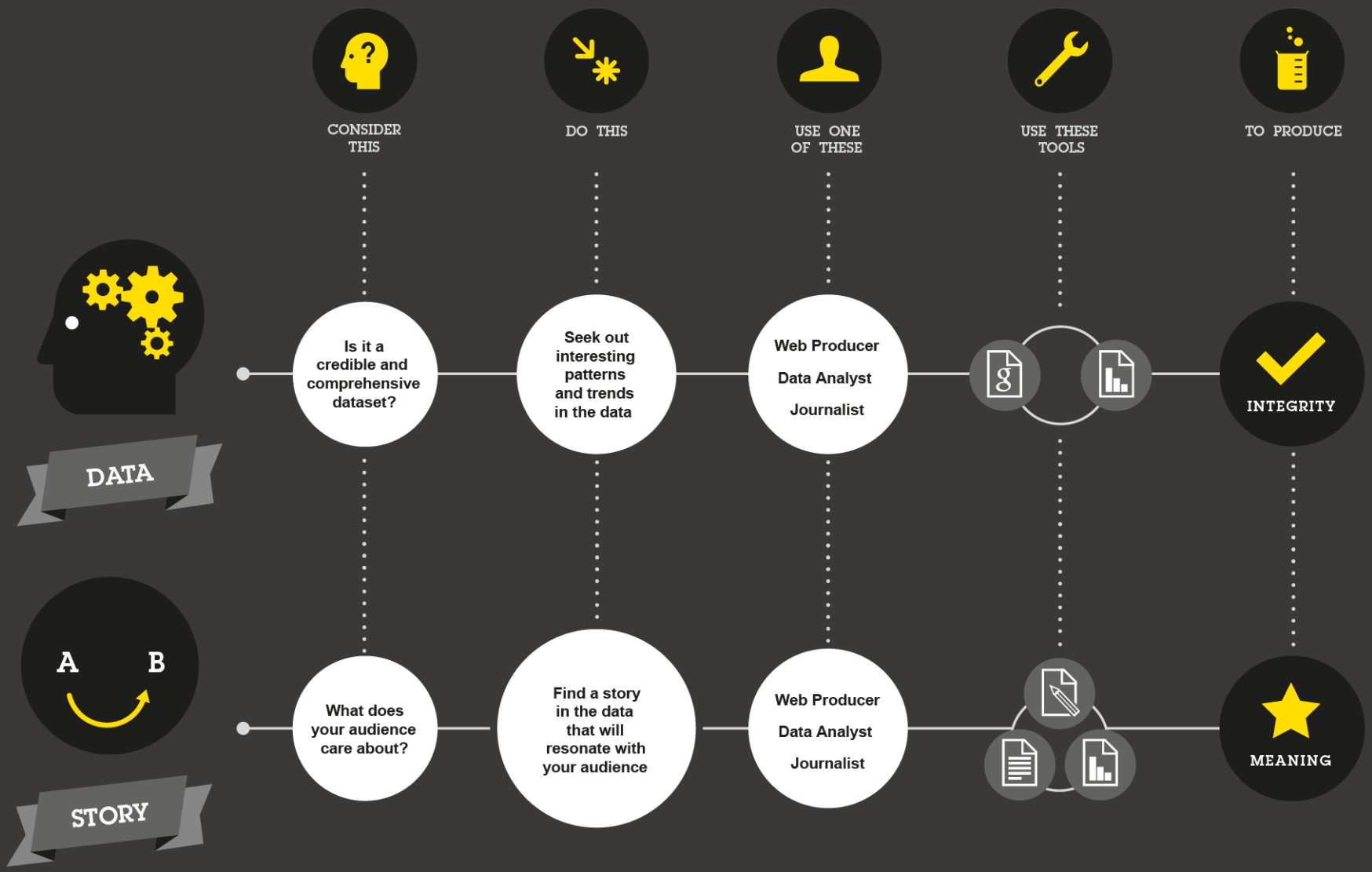
Merge form and function to create outstanding infographics.

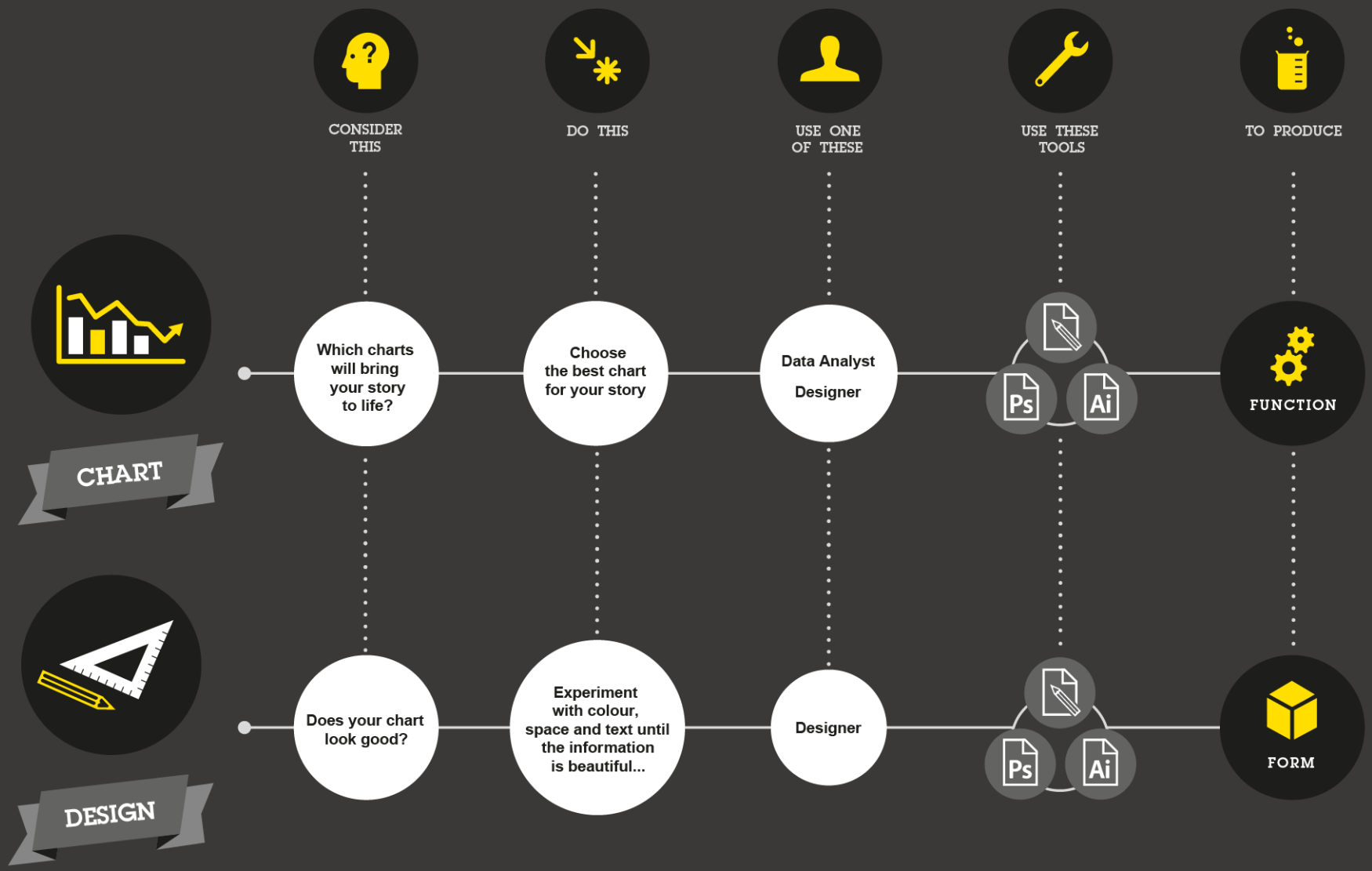
DATA

STORY

CHART

DESIGN


CONSIDER THIS
DO THIS
USE ONE OF THESE
USE THESE TOOLS
TO PRODUCE
DATA
Is it a credible and comprehensive dataset?
Seek out interesting patterns and trends in the data
Web Producer
Data Analyst
Journalist
INTEGRITY
A
B
STORY
What does your audience care about?
Find a story in the data that will resonate with your audience
Web Producer
Data Analyst
Journalist
MEANING


CONSIDER THIS
DO THIS
USE ONE OF THESE
USE THESE TOOLS
TO PRODUCE
CHART
Which charts will bring your story to life?
Choose the best chart for your story
Data Analyst
Designer
Ps
Ai
FUNCTION
DESIGN
Does your chart look good?
Experiment with colour, space and text until the information is beautiful...
Designer
Ps
Ai
FORM

That's Not The Way I See It...

There are many different approaches to data visualisation - but two in particular have generated the most discussion.
Edward Tufte favours a traditional statistics-based approach, favouring clarity and accuracy.
David McCandless is more interested in teasing stories out of data and then making them as visually appealing as possible.

Tufte

Evidence

The author of Beautiful Evidence believes that if you notice the chart first and not the data - then you've failed.

LOVES

McCandless

Information

His book Information is Beautiful is an attempt to apply graphic design principles to data journalism.

Tufte		McCandless
Theorist He has spent most of his life in Universities, in particular Yale and Princeton.	ROLE	**Practitioner** He writes blogs and produces infographics for a range of publications, including the Guardian and Wired.
Present all data to show top-level trends	DISPLAY	Selective use of data to guide reader to key story
Never cheat data	ACCURACY	Tweak visuals if it makes the story clearer

Tufte		McCandless
Design should be minimal or invisible	DESIGN	Design should be used to emphasise the story
First loyalty is to data	PRIORITY	First loyalty is to audience
Loved by academics and statisticians	FOLLOWERS	Loved by journalists and graphic designers

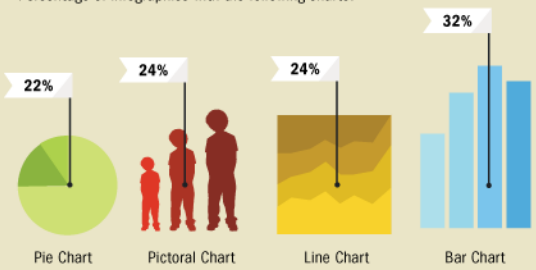
INFOGRAPHIC OF INFOGRAPHICS

Data visualization is a popular new way of sharing research. Here is a look at some of the visual devices, informational elements, and general trends found in the modern day infographic.

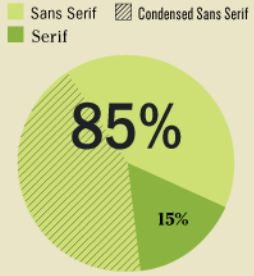
DESIGN

CHART STYLE

Percentage of infographics with the following charts:

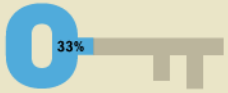


FONT



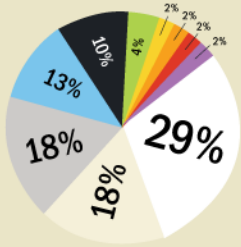
KEY INFO

Percentage of infographics with key:



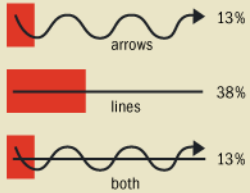
Average number of symbols per key: **5.1**

BASE COLOR



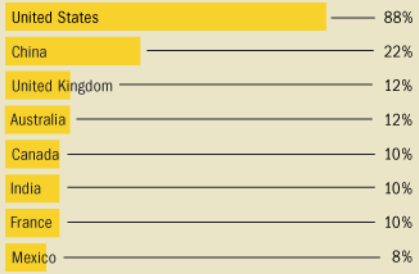
NAVIGATIONAL ICONOGRAPHY

Frequency of arrows & connecting lines in infographics:



CONTENT

COUNTRIES FEATURED



THEME

Relative popularity of different infographic themes:

SECTIONS

CREDITED SOURCES

Average number of sources per infographic: **2.29**

TITLE

Average number of words per infographic title: **4.36**

"RICHEST AND POOREST AMERICAN NEIGH

CONCEPT & DESIGN Ivan Cash **SOURCE** 49 infographics collected at random from www.good.is/infographics

Profile of the UK Private Sector

These graphs show a profile of the UK's private sector split by number of employees; region and industry type.

By Size (employees)

- 500 - or more
- 250 - 499
- 200 - 249
- 100 - 199
- 50 - 99
- 20 - 49
- 10 - 19
- 5 - 9
- 2 - 4
- 1
- Sole Trader

Turnover

The total turnover of the UK private sector is estimated at £3,200 billion **. SMEs generate 48.7% of this total.

Employment

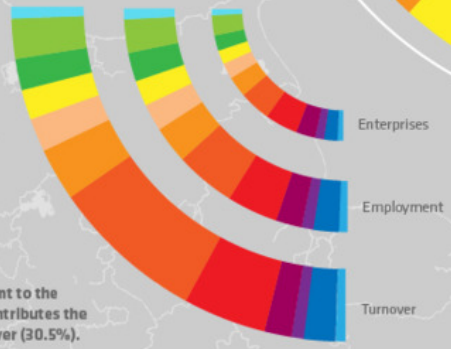
SMEs provide 59.1% of jobs.

Enterprises

SMEs account for 99.9% of the UK's private sector.

By Region

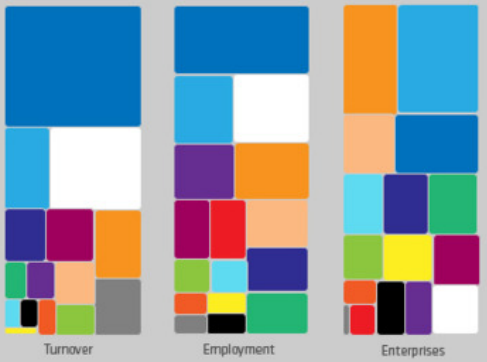
- NorthEast
- North West
- Yorkshire and the Humber
- East Midlands
- West Midlands
- East of England
- London
- South East
- South West
- Wales
- Scotland
- Northern Ireland



London provides employment to the most people (15.8%) and contributes the highest proportion of turnover (30.5%).

The South East has the largest number of enterprises (16.3% as compared to London's 15.8%).

By Industry



- Other Service Activities
- Arts, Entertainment and Recreation
- Human Health and Social Work Activities
- Education
- Administrative and Support Service Activities
- Professional, Scientific and Technical Activities
- Real Estate Activities
- Financial and Insurance Activities
- Information and Communication
- Accommodation and Food Service Activities
- Transportation and Storage
- Wholesale and Retail Trade
- Construction
- Manufacturing
- Mining and Quarrying
- Agriculture, Forestry and Fishing

Whilst construction accounts for 20% of all enterprises in the UK, wholesale and retail trade employ the largest percentage of people (21%).

Of the data available for turnover*, wholesale and retail trade make the biggest contribution to turnover across all industries 37% (estimated at £1,186 billion).**

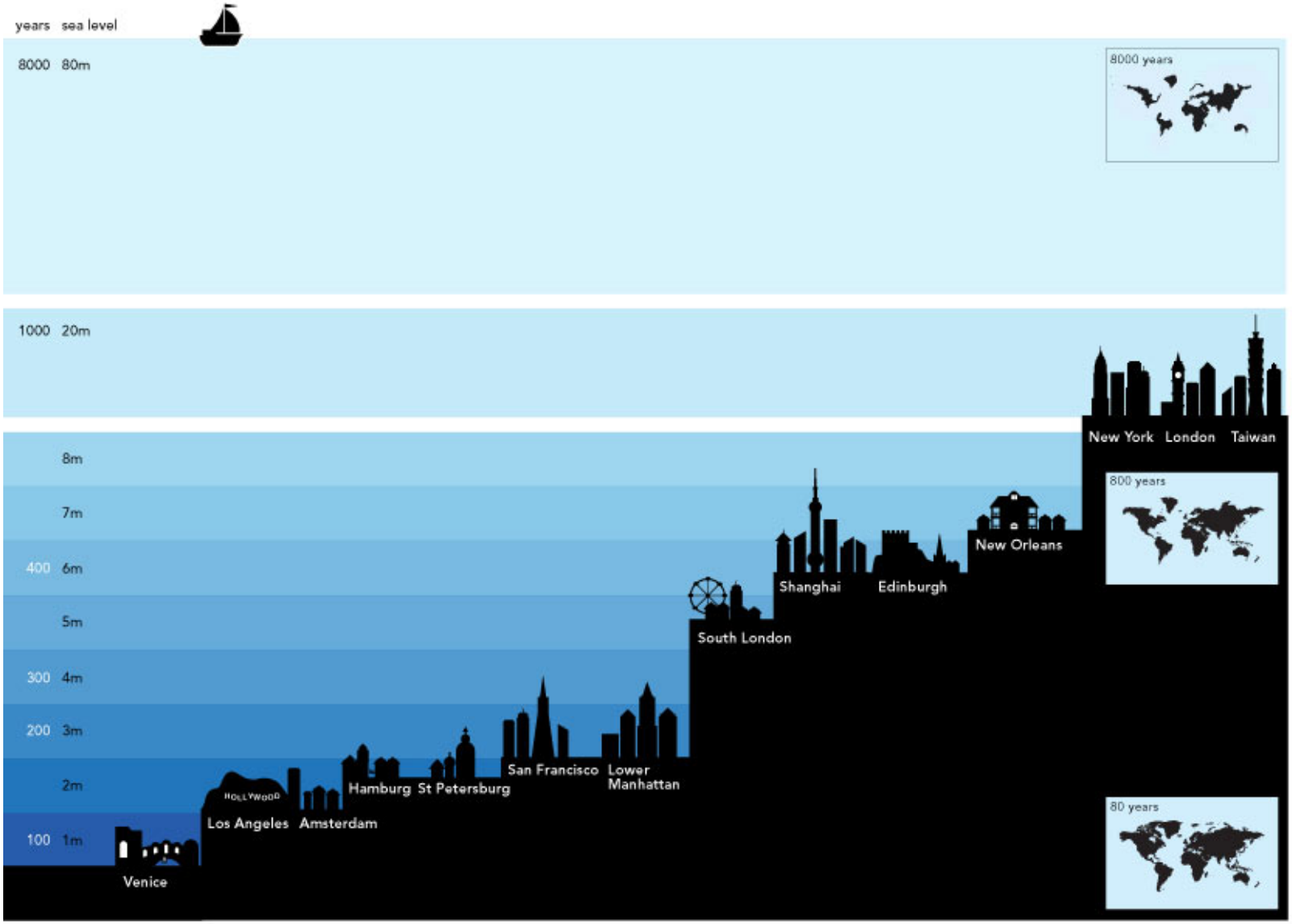
*As defined by the ONS (see Source).
**Turnover estimates exclude VAT
***No data is provided for turnover from financial and insurance activities.
Source: All data is taken from the Business Population Estimates for the UK and Regions 2010 issued by the Department for Business Innovation and Skills, published by the ONS. Detail here: http://stats.bis.gov.uk/ed/bpe/

Simply Business

graphic

When Sea Levels Attack!

Which cities will flood when?



TOTAL CONTRIBUTIONS

- Antarctic ice sheet (South Pole) 61m
- Greenland ice sheet 7m
- West Arctic ice sheet 6m
- Heating ocean expanding 1m per century
- Already happened 20-40cm

David McCandless // v1.0 // Jan 2010
Illustrations: Laura Sullivan & Joe Swainson

InformationIsBeautiful.net

note: Heights above sea level vary across cities. Lowest points used.

source: IPCC, NASA, NewScientist.com, Potsdam Institute, Sea Level Explorer

The **True Size** of **Africa**

A small contribution in the fight against rampant *Immappancy*, by **Kai Krause**

Graphic layout for visualization only (some countries are cut and rotated)
But the conclusions are very accurate: refer to table below for exact data

COUNTRY	AREA x 1000 km²
China	9.597
USA	9.629
India	3.287
Mexico	1.964
Peru	1.285
France	633
Spain	506
Papua New Guinea	462
Sweden	441
Japan	378
Germany	357
Norway	324
Italy	301
New Zealand	270
United Kingdom	243
Nepal	147
Bangladesh	144
Greece	132
TOTAL	**30.102**
AFRICA	**30.221**

In addition to the well known social issues of *illiteracy* and *innumeracy*, there also should be such a concept as "*immappancy*", meaning *insufficient geographical knowledge*.

A survey with random American schoolkids let them guess the population and land area of their country. Not entirely unexpected, but still rather unsettling, the majority chose *"1-2 billion"* and *"largest in the world"*, respectively.

Even with Asian and European college students, geographical estimates were often off by factors of *2-3*. This is partly due to the highly distorted nature of the predominantly used mapping projections (such as *Mercator*).

A particularly extreme example is the worldwide misjudgement of the true size of *Africa*. This single image tries to embody the massive scale, which is larger than the *USA, China, India, Japan* and *all of Europe..... combined!*

creative commons **No Rights Reserved** This work is placed in the **Public Domain**

Top 100 Countries

Area in square kilometers, Percentage of World Total
Sources: Britannica, Wikipedia, Almanac 2010

		AREA km²	%
1	Russia	17.098.242	11,50
2	Canada	9.984.670	6,70
3	China	9.596.961	6,40
4	United States	9.629.091	6,40
5	Brazil	8.514.877	5,70
6	Australia	7.692.024	5,20
7	India	3.287.263	2,30
8	Argentina	2.780.400	2,00
9	Kazakhstan	2.724.900	1,80
10	Sudan	2.505.813	1,70
11	Algeria	2.381.741	1,60
12	Congo	2.344.858	1,60
13	Greenland	2.166.086	1,50
14	Saudi Arabia	2.149.690	1,40
15	Mexico	1.964.375	1,30
16	Indonesia	1.860.360	1,30
17	Libya	1.759.540	1,20
18	Iran	1.628.750	1,10
19	Mongolia	1.564.100	1,10
20	Peru	1.285.216	0,86
21	Chad	1.284.000	0,86
22	Niger	1.267.000	0,85
23	Angola	1.246.700	0,85
24	Mali	1.240.192	0,83
25	South Africa	1.221.037	0,82
26	Colombia	1.141.748	0,76
27	Ethiopia	1.104.300	0,74
28	Bolivia	1.098.581	0,74
29	Mauritania	1.025.520	0,69
30	Egypt	1.002.000	0,67
31	Tanzania	945.087	0,63
32	Nigeria	923.768	0,62
33	Venezuela	912.050	0,61
34	Namibia	824.116	0,55
35	Mozambique	801.590	0,54
36	Pakistan	796.095	0,53
37	Turkey	783.562	0,53
38	Chile	756.102	0,51
39	Zambia	752.612	0,51
40	Myanmar	676.578	0,45
41	Afghanistan	652.090	0,44
42	Somalia	637.657	0,43
43	France	632.834	0,43
44	C. African Rep	622.984	0,42
45	Ukraine	603.500	0,41
46	Madagascar	587.041	0,39
47	Botswana	582.000	0,39
48	Kenya	580.367	0,39
49	Yemen	527.968	0,35
50	Thailand	513.120	0,34
51	Spain	505.992	0,34
52	Turkmenistan	488.100	0,33
53	Cameroon	475.442	0,32
54	Papua New Guinea	462.840	0,31
55	Uzbekistan	447.400	0,30
56	Morocco	446.550	0,30
57	Sweden	441.370	0,30
58	Iraq	438.317	0,29
59	Paraguay	406.752	0,27
60	Zimbabwe	390.757	0,26
61	Japan	377.930	0,25
62	Germany	357.114	0,24
63	Rep o.t. Congo	342.000	0,23
64	Finland	338.419	0,23
65	Vietnam	331.212	0,22
66	Malaysia	330.803	0,22
67	Norway	323.802	0,22
68	Côte d'Ivoire	322.463	0,22
69	Poland	312.685	0,21
70	Oman	309.500	0,21
71	Italy	301.336	0,20
72	Philippines	300.000	0,20
73	Burkina Faso	274.222	0,18
74	New Zealand	270.467	0,18
75	Gabon	267.668	0,18
76	Western Sahara	266.000	0,18
77	Ecuador	256.369	0,20
78	Guinea	245.857	0,17
79	United Kingdom	242.900	0,16
80	Uganda	241.038	0,16
81	Ghana	238.539	0,16
82	Romania	238.391	0,16
83	Laos	236.800	0,16
84	Guyana	214.969	0,14
85	Belarus	207.600	0,14
86	Kyrgyzstan	199.951	0,13
87	Senegal	196.722	0,13
88	Syria	185.180	0,12
89	Cambodia	181.035	0,12
90	Uruguay	176.215	0,12
91	Suriname	163.820	0,11
92	Tunisia	163.610	0,11
93	Nepal	147.181	0,10
94	Bangladesh	143.998	0,10
95	Tajikistan	143.100	0,10
96	Greece	131.957	0,09
97	Nicaragua	130.373	0,09
98	North Korea	120.538	0,08
99	Malawi	118.484	0,08
100	Eritrea	117.600	0,08
	TOP 100 TOTAL	132.632.524	89,34

United States

Europe

India

Japan

China

The **True Size** of **Africa**

Correcting the fight against immappancy

The original image by Kai Krause was designed to graphically illustrate the true size of the continent of Africa in relation to various countries mapped by land area. The intention was to counter *immappancy* - that is *insufficient geographical knowledge*.

Unfortunately the original suffered from a fundamental error by showing component countries that were not projected in equal area form. This map uses Goode's Homolisine projection so each country is equal to one another in area. Furthermore, the original list of countries is used, United Kingdom is shown without Eire and Alaska is included to show the proper United States land area.

Kai's original was a great idea.
This is merely a cartographic correction (that needs work to tidy it up!!!).

COUNTRY	AREA x 1000 km²
China	9.597
USA	9.629
India	3.287
Mexico	1.964
Peru	1.285
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Italy	301
New Zealand	270
United Kingdom	243
Nepal	147
Bangladesh	144
Greece	132
TOTAL	**30.102**
AFRICA	**30.221**

Produced using Esri ArcGIS & Adobe illustrator
Kenneth Field, Kingston University London

Scale states equally

Scale states by population

Where your friends live

Connect to Facebook to see the rights of states where your friends live. Your information will not be saved.

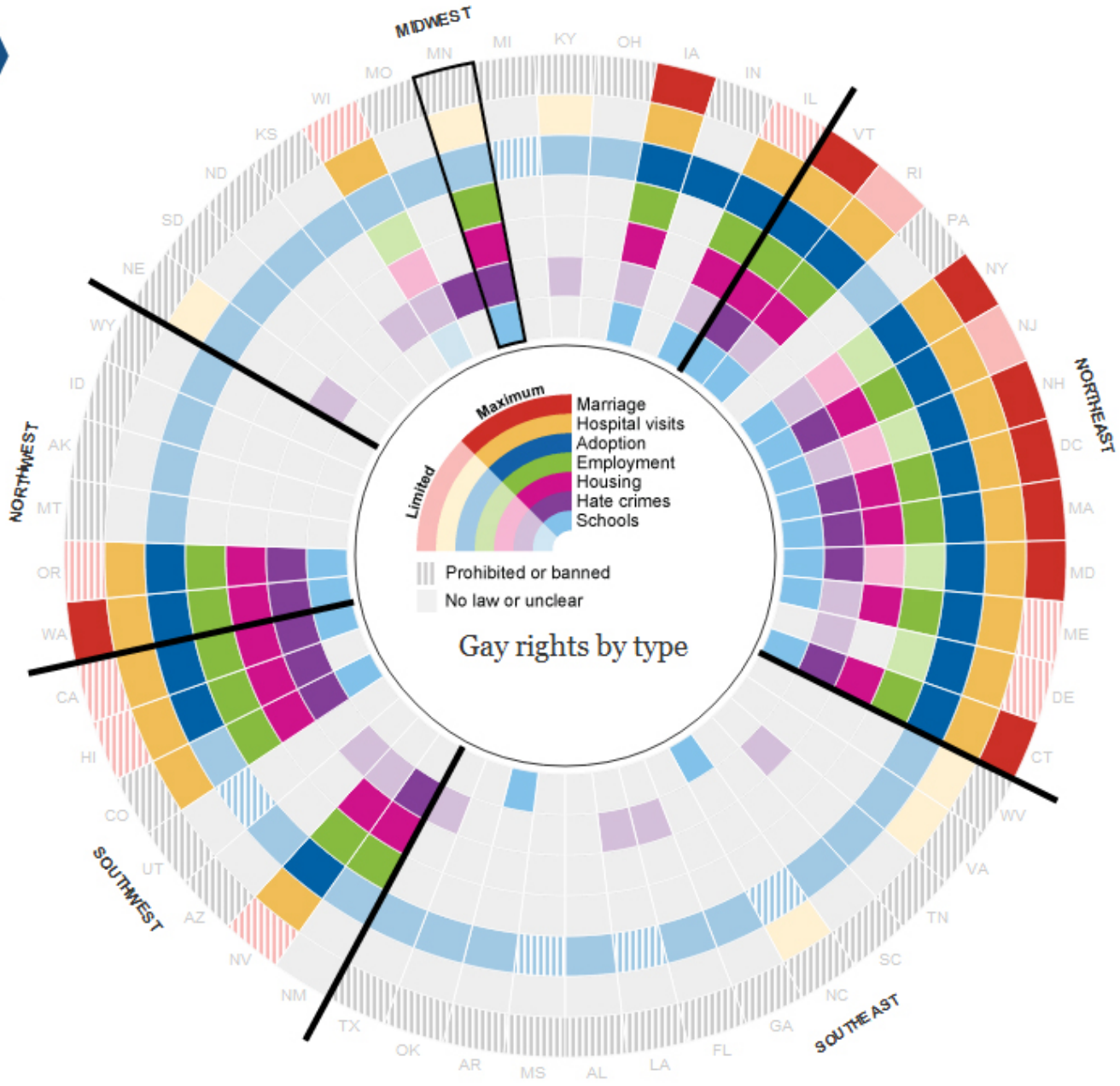
Share your state on Facebook

You are not connected to Facebook.

Minnesota

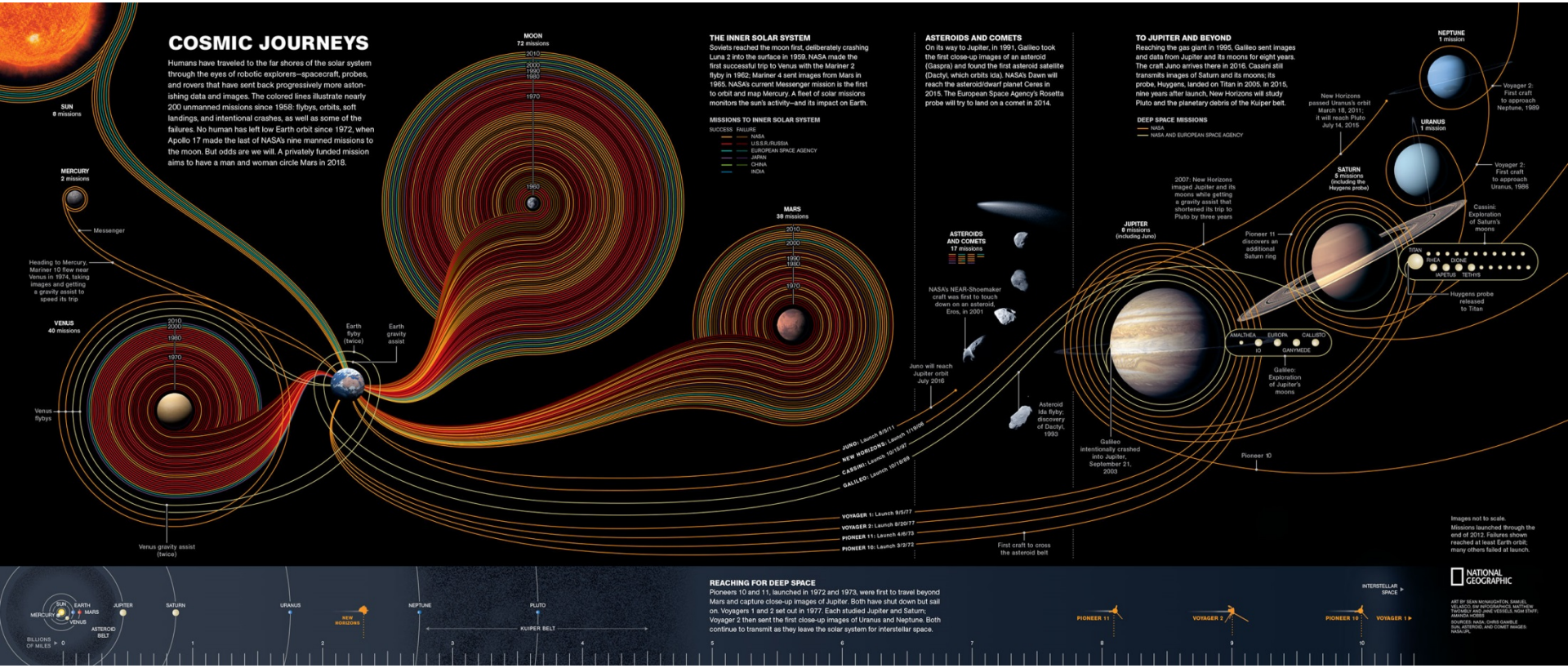
2010 population: 5,303,925

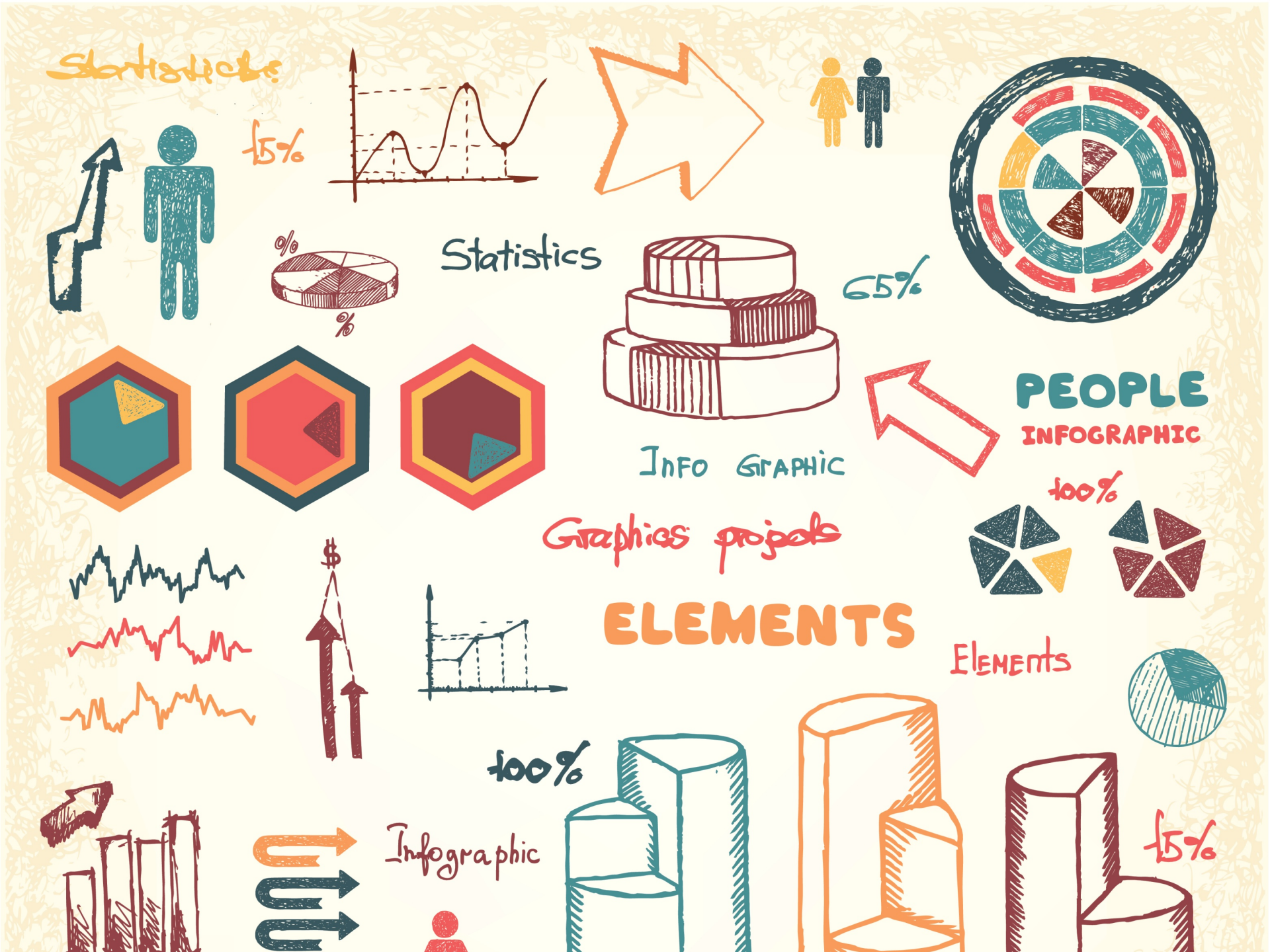
- **Marriage:** Same-sex marriage is illegal or banned.
- **Hospital visitation:** Allows designated visitors.
- **Adoption:** Allows adoption by a single person.
- **Employment:** Prohibits discrimination based on gender identity and sexual orientation.
- **Housing:** Prohibits discrimination based on gender identity and sexual orientation.
- **Hate crimes:** Law addresses hate crimes related to gender identity and sexual orientation.
- **Schools:** Prohibits harassment based on gender identity and sexual orientation.



all billionaires
all industries
all citizenships
all genders
all ages
all sources of wealth
$ change previous day
as of May 21, 2012
+$1.2B SLIM
+$937.1M GATES
+$795.6M ADELSON
+$777.4M ELLISON
+$729.9M BATISTA
+$407.7M PAGE
+$401.5M BRIN
+$379.7M KOCH
+$379.7M KOCH
+$374.8M BEZOS
+$359M PERSSON
+$327.8M LISIN
+$324M AKHMETOV
+$320.3M BAILLERES GONZALEZ
#31
Gina Rinehart
$18.1B
NET WORTH
+$234.5M LEE
+$234.2M WALTON
+$231.7M WALTON
+$229.4M ALBRECHT
+$211.4M WALTON
+$209.1M WALTON
+$185.6M ARNAULT
+$185M BALLMER
+$164.3M RINEHART
+$155.8M AMBANI
+$152.8M BUFFETT
+$137M BETTENCOURT
+$77.8M LI
+$65.2M ICAHN
+$51M FERRERO
+$30.7M SOROS
+$26.5M LEMANN
+$19.3M CHENG
−$42.3M FONTBONA
−$72.2M MARS
−$72.2M MARS
−$72.2M MARS
−$169.8M ORTEGA
−$281.6M AL SAUD

graphic


COSMIC JOURNEYS
Humans have traveled to the far shores of the solar system through the eyes of robotic explorers—spacecraft, probes, and rovers that have sent back progressively more astonishing data and images. The colored lines illustrate nearly 200 unmanned missions since 1958: flybys, orbits, soft landings, and intentional crashes, as well as some of the failures. No human has left low Earth orbit since 1972, when Apollo 17 made the last of NASA's nine manned missions to the moon. But odds are we will. A privately funded mission aims to have a man and woman circle Mars in 2018.
SUN
8 missions
MERCURY
2 missions
Messenger
Heading to Mercury, Mariner 10 flew near Venus in 1974, taking images and getting a gravity assist to speed its trip
VENUS
40 missions
2010
2000
1990
1980
1970
Venus flybys
Venus gravity assist (twice)
Earth flyby (twice)
Earth gravity assist
MOON
72 missions
2010
2000
1990
1980
1970
1960
MARS
38 missions
2010
2000
1990
1980
1970
THE INNER SOLAR SYSTEM
Soviets reached the moon first, deliberately crashing Luna 2 into the surface in 1959. NASA made the first successful trip to Venus with the Mariner 2 flyby in 1962; Mariner 4 sent images from Mars in 1965. NASA's current Messenger mission is the first to orbit and map Mercury. A fleet of solar missions monitors the sun's activity—and its impact on Earth.
MISSIONS TO INNER SOLAR SYSTEM
SUCCESS
FAILURE
NASA
U.S.S.R./RUSSIA
EUROPEAN SPACE AGENCY
JAPAN
CHINA
INDIA
ASTEROIDS AND COMETS
On its way to Jupiter, in 1991, Galileo took the first close-up images of an asteroid (Gaspra) and found the first asteroid satellite (Dactyl, which orbits Ida). NASA's Dawn will reach the asteroid/dwarf planet Ceres in 2015. The European Space Agency's Rosetta probe will try to land on a comet in 2014.
ASTEROIDS AND COMETS
17 missions
NASA's NEAR-Shoemaker craft was first to touch down on an asteroid, Eros, in 2001
Juno will reach Jupiter orbit July 2016
Asteroid Ida flyby; discovery of Dactyl, 1993
First craft to cross the asteroid belt
TO JUPITER AND BEYOND
Reaching the gas giant in 1995, Galileo sent images and data from Jupiter and its moons for eight years. The craft Juno arrives there in 2016. Cassini still transmits images of Saturn and its moons; its probe, Huygens, landed on Titan in 2005. In 2015, nine years after launch, New Horizons will study Pluto and the planetary debris of the Kuiper belt.
DEEP SPACE MISSIONS
NASA
NASA AND EUROPEAN SPACE AGENCY
JUPITER
8 missions (including Juno)
2007: New Horizons imaged Jupiter and its moons while getting a gravity assist that shortened its trip to Pluto by three years
Pioneer 11 discovers an additional Saturn ring
AMALTHEA
EUROPA
CALLISTO
IO
GANYMEDE
Galileo: Exploration of Jupiter's moons
Galileo intentionally crashed into Jupiter, September 21, 2003
Pioneer 10
SATURN
6 missions (including the Huygens probe)
TITAN
RHEA
DIONE
IAPETUS
TETHYS
Cassini: Exploration of Saturn's moons
Huygens probe released to Titan
New Horizons passed Uranus's orbit March 18, 2011; it will reach Pluto July 14, 2015
URANUS
1 mission
Voyager 2: First craft to approach Uranus, 1986
NEPTUNE
1 mission
Voyager 2: First craft to approach Neptune, 1989
JUNO: Launch 8/5/11
NEW HORIZONS: Launch 1/17/06
CASSINI: Launch 10/15/97
GALILEO: Launch 10/18/89
VOYAGER 1: Launch 9/5/77
VOYAGER 2: Launch 8/20/77
PIONEER 11: Launch 4/6/73
PIONEER 10: Launch 3/2/72
Images not to scale.
Missions launched through the end of 2012. Failures shown reached at least Earth orbit; many others failed at launch.
SUN
MERCURY
EARTH
MARS
VENUS
JUPITER
SATURN
ASTEROID BELT
URANUS
NEPTUNE
PLUTO
NEW HORIZONS
KUIPER BELT
BILLIONS OF MILES
0
1
2
3
4
5
6
7
8
9
10
INTERSTELLAR SPACE
PIONEER 11
VOYAGER 2
PIONEER 10
VOYAGER 1
REACHING FOR DEEP SPACE
Pioneers 10 and 11, launched in 1972 and 1973, were first to travel beyond Mars and capture close-up images of Jupiter. Both have shut down but sail on. Voyagers 1 and 2 set out in 1977. Each studied Jupiter and Saturn; Voyager 2 then sent the first close-up images of Uranus and Neptune. Both continue to transmit as they leave the solar system for interstellar space.
NATIONAL GEOGRAPHIC
ART BY SEAN MCNAUGHTON, SAMUEL VELASCO, SW INFOGRAPHICS, MATTHEW TWOMBLY AND JANE VESSELS. NGM STAFF: AMANDA HOBBS
SOURCES: NASA; CHRIS GAMBLE (SUN, ASTEROID, AND COMET IMAGES); NASA/JPL


Statistics
15%
Statistics
65%
PEOPLE
INFOGRAPHIC
Info Graphic
100%
Graphics projects
ELEMENTS
Elements
100%
Infographic
15%

HOW **BABY BOOMERS** DESCRIBE THEMSELVES

LEADERS **40%**

WILLING TO LEARN **61%**

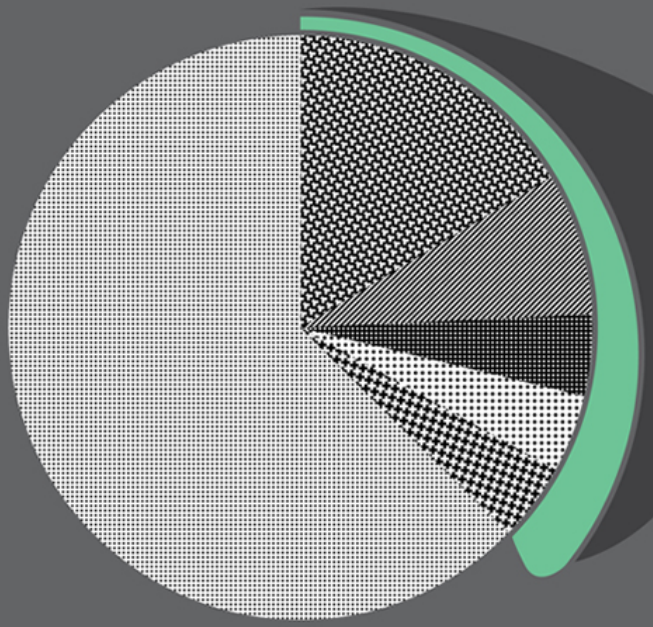
TECH-SAVVY **22%**

I HAVE A SMART PHONE, DON'T DISCOUNT MY TECHNICAL ABILITIES.

PEOPLE-SAVVY **78%**

CREATIVE **42%**

MY WORK EXPERIENCE HAS MADE ME RESOURCEFUL.

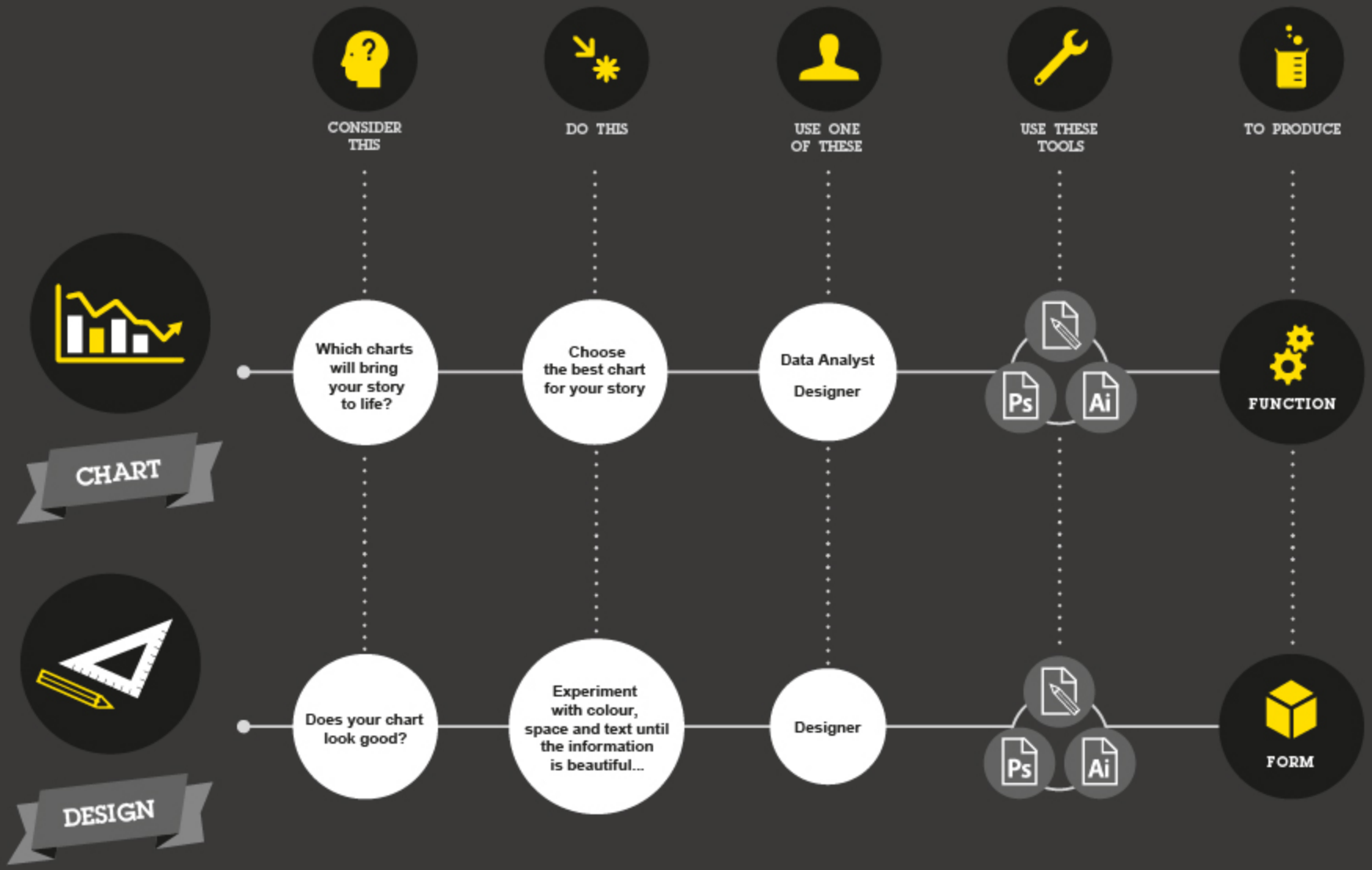


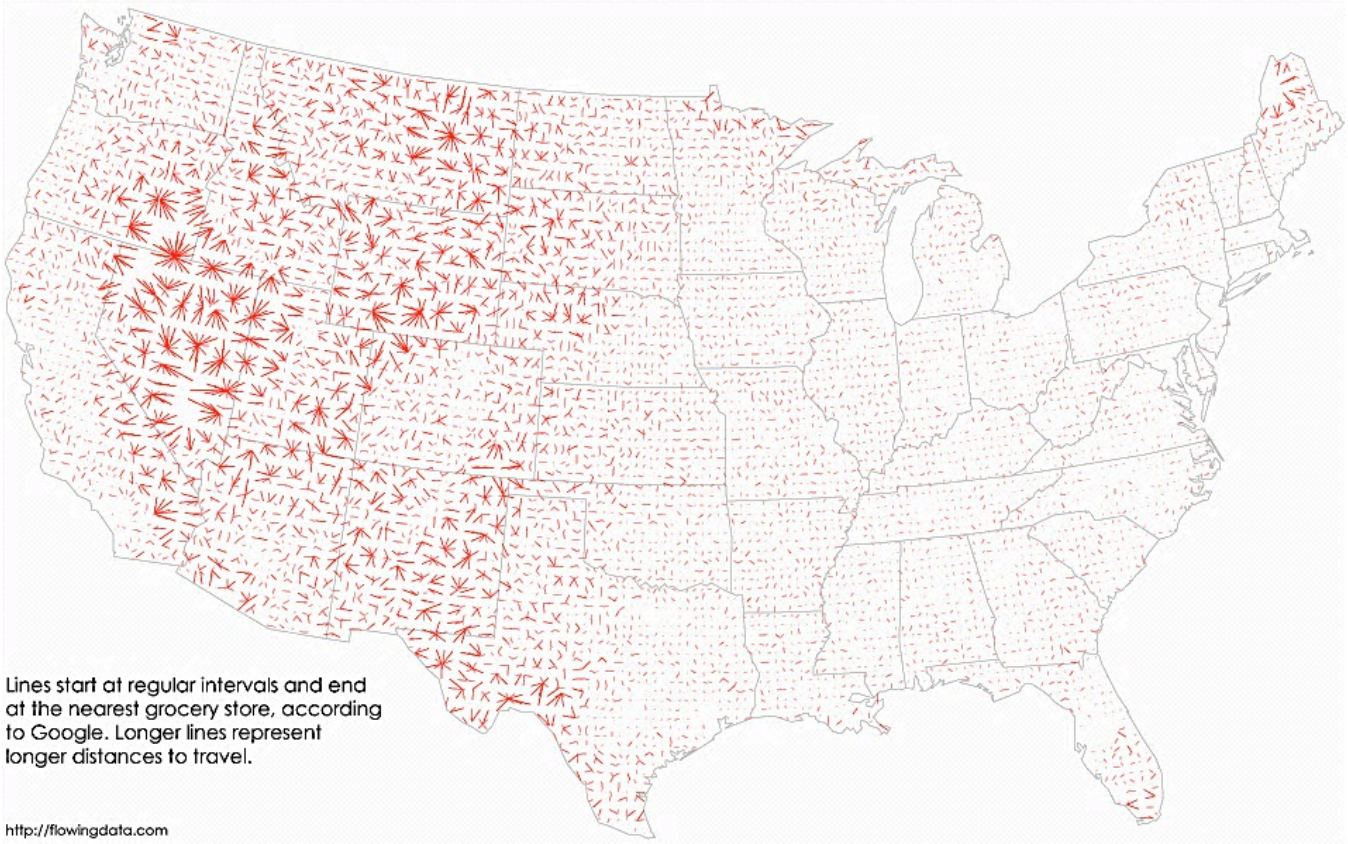
JUST FIVE COUNTRIES CONTROL OVER A THIRD OF THE WORLD BANK

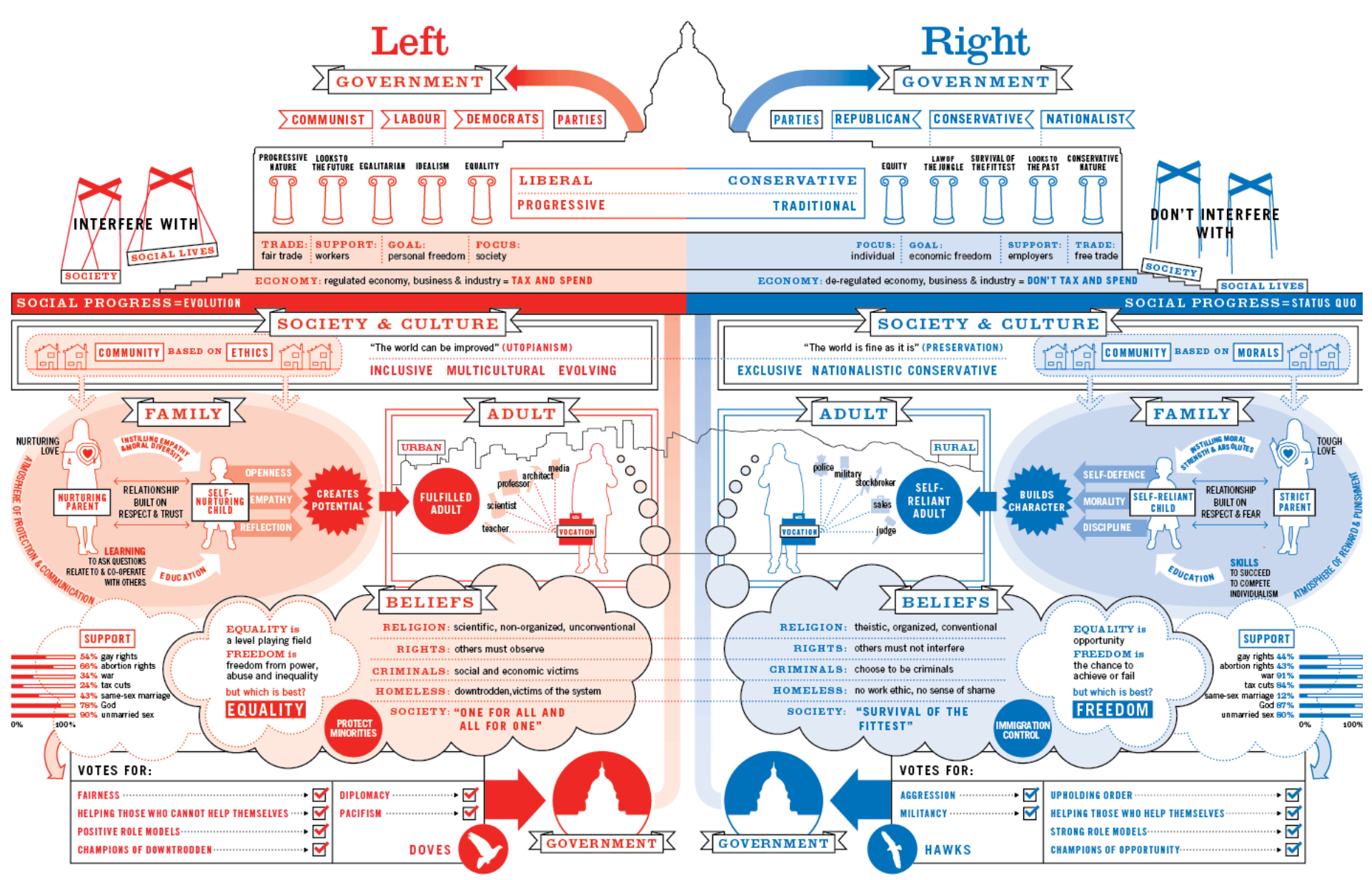
Rather than one member, one vote, the World Bank is controlled by the five largest shareholding countries: the United States, Japan, Germany, France and UK. Rich nations set the agenda and loans are provided on conditions that favour those in control.

KEY

- UNITED STATES
- JAPAN
- GERMANY
- FRANCE
- UNITED KINGDOM
- REST OF THE WORLD


CONSIDER THIS
DO THIS
USE ONE OF THESE
USE THESE TOOLS
TO PRODUCE
CHART
Which charts will bring your story to life?
Choose the best chart for your story
Data Analyst
Designer
Ps
Ai
FUNCTION
DESIGN
Does your chart look good?
Experiment with colour, space and text until the information is beautiful...
Designer
Ps
Ai
FORM


Lines start at regular intervals and end at the nearest grocery store, according to Google. Longer lines represent longer distances to travel.
http://flowingdata.com



CREATIVE CREDIT

David McCandless & Stefanie Posavec // v1.0 // Oct 09

InformationIsBeautiful.net / ItsBeenReal.co.uk

Order a signed, limited edition poster

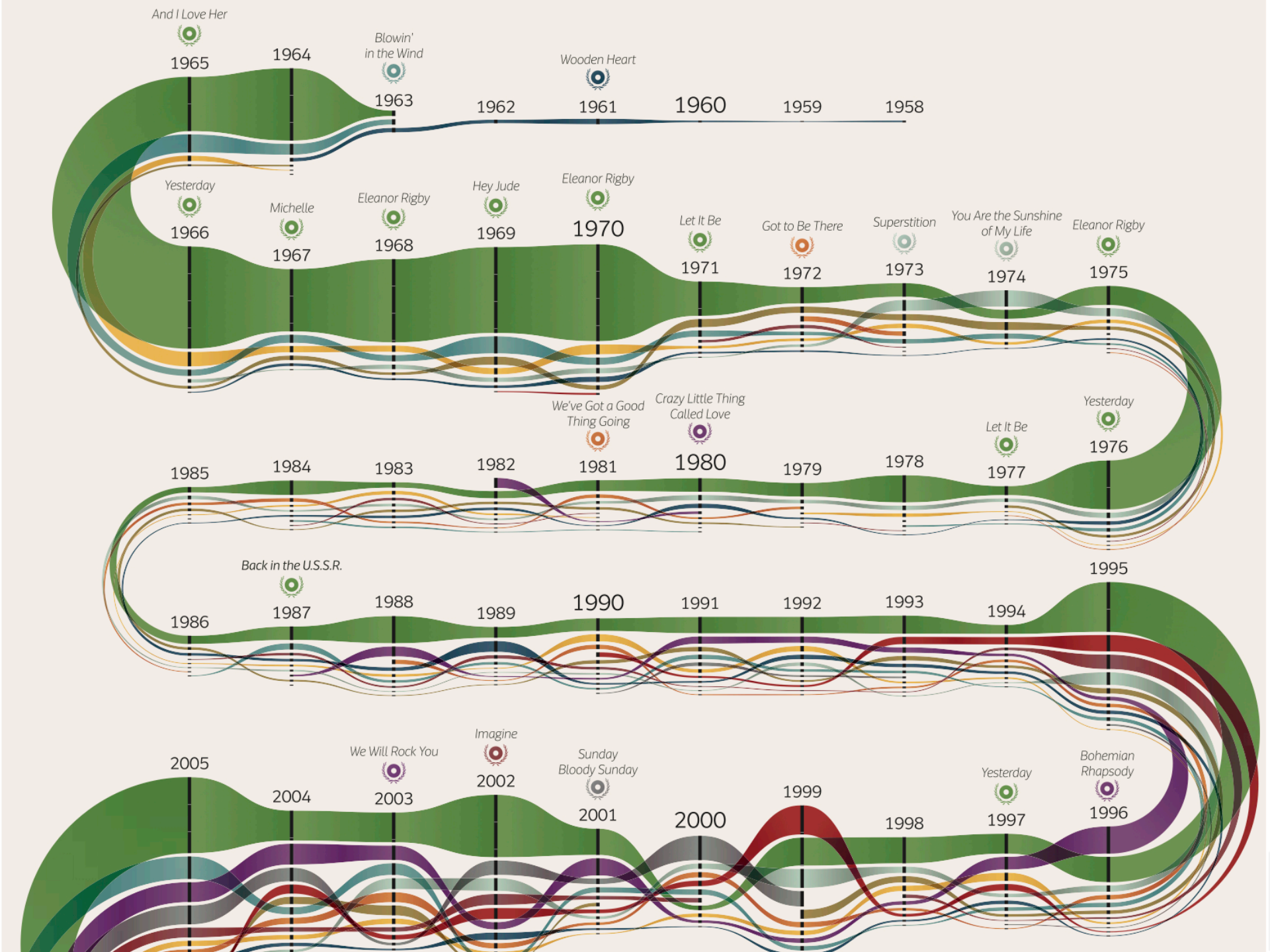
A1 size, offset-litho on 300 gsm art paper

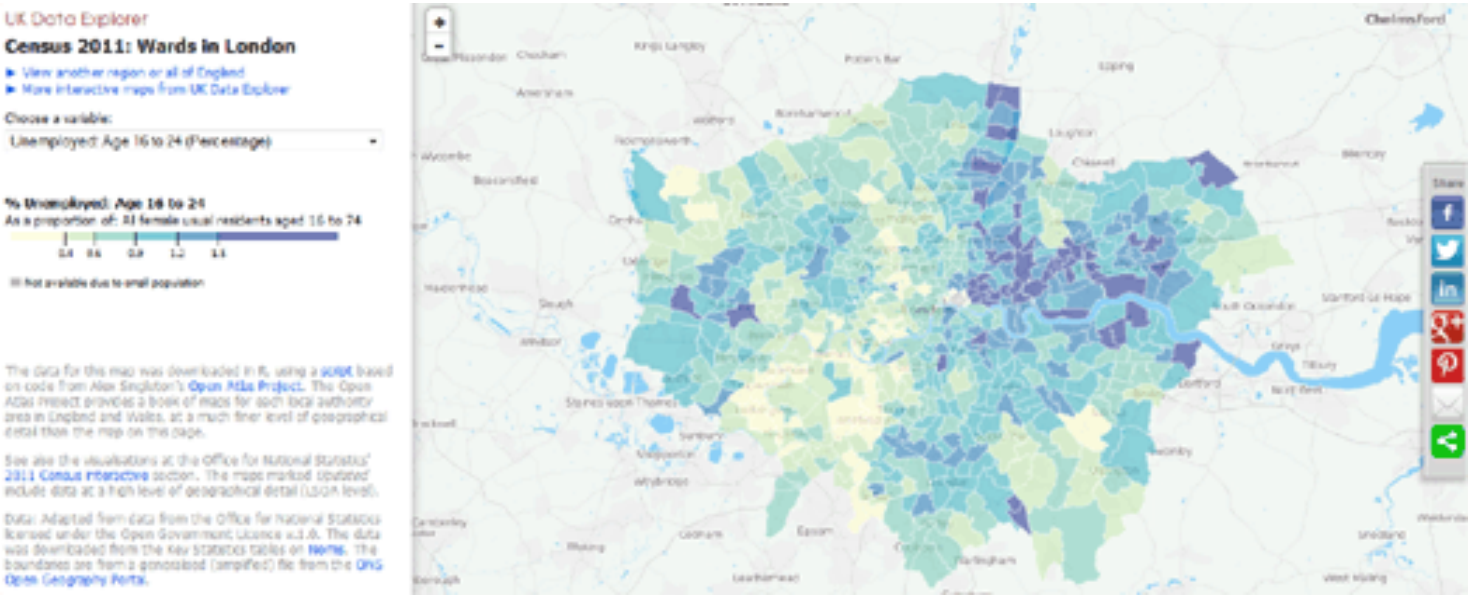
Translation: "It's gorgeous". Find out more

INEVITABLE CAPITALIST AGENDA

from the new infographic book of visual exploria

The Visual Miscellaneum


And I Love Her
1965
1964
Blowin' in the Wind
1963
Wooden Heart
1962
1961
1960
1959
1958
Yesterday
1966
Michelle
1967
Eleanor Rigby
1968
Hey Jude
1969
Eleanor Rigby
1970
Let It Be
1971
Got to Be There
1972
Superstition
1973
You Are the Sunshine of My Life
1974
Eleanor Rigby
1975
We've Got a Good Thing Going
1981
Crazy Little Thing Called Love
1980
1985
1984
1983
1982
1979
1978
Let It Be
1977
Yesterday
1976
Back in the U.S.S.R.
1987
1986
1988
1989
1990
1991
1992
1993
1994
1995
We Will Rock You
2003
Imagine
2002
Sunday Bloody Sunday
2001
2005
2004
2000
1999
1998
Yesterday
1997
Bohemian Rhapsody
1996


UK Data Explorer
Census 2011: Wards in London
View another region or all of England
More interactive maps from UK Data Explorer
Choose a variable:
Unemployed: Age 16 to 24 (Percentage)
% Unemployed: Age 16 to 24
As a proportion of: All female usual residents aged 16 to 74
0.4 0.6 0.8 1.2 1.6
Not available due to small population
The data for this map was downloaded in R, using a script based on code from Alex Singleton's Opun Atlas Project. The Opun Atlas Project provides a book of maps for each local authority area in England and Wales, at a much finer level of geographical detail than the map on this page.
See also the visualisations at the Office for National Statistics' 2011 Census interactive section. The maps marked Updated include data at a high level of geographical detail (LSOA level).
Data: Adapted from data from the Office for National Statistics licensed under the Open Government Licence v.1.0. The data was downloaded from the Key Statistics tables on Nomis. The boundaries are from a generalised (simplified) file from the ONS Opun Geography Portal.
Chelmsford
Share

graphic

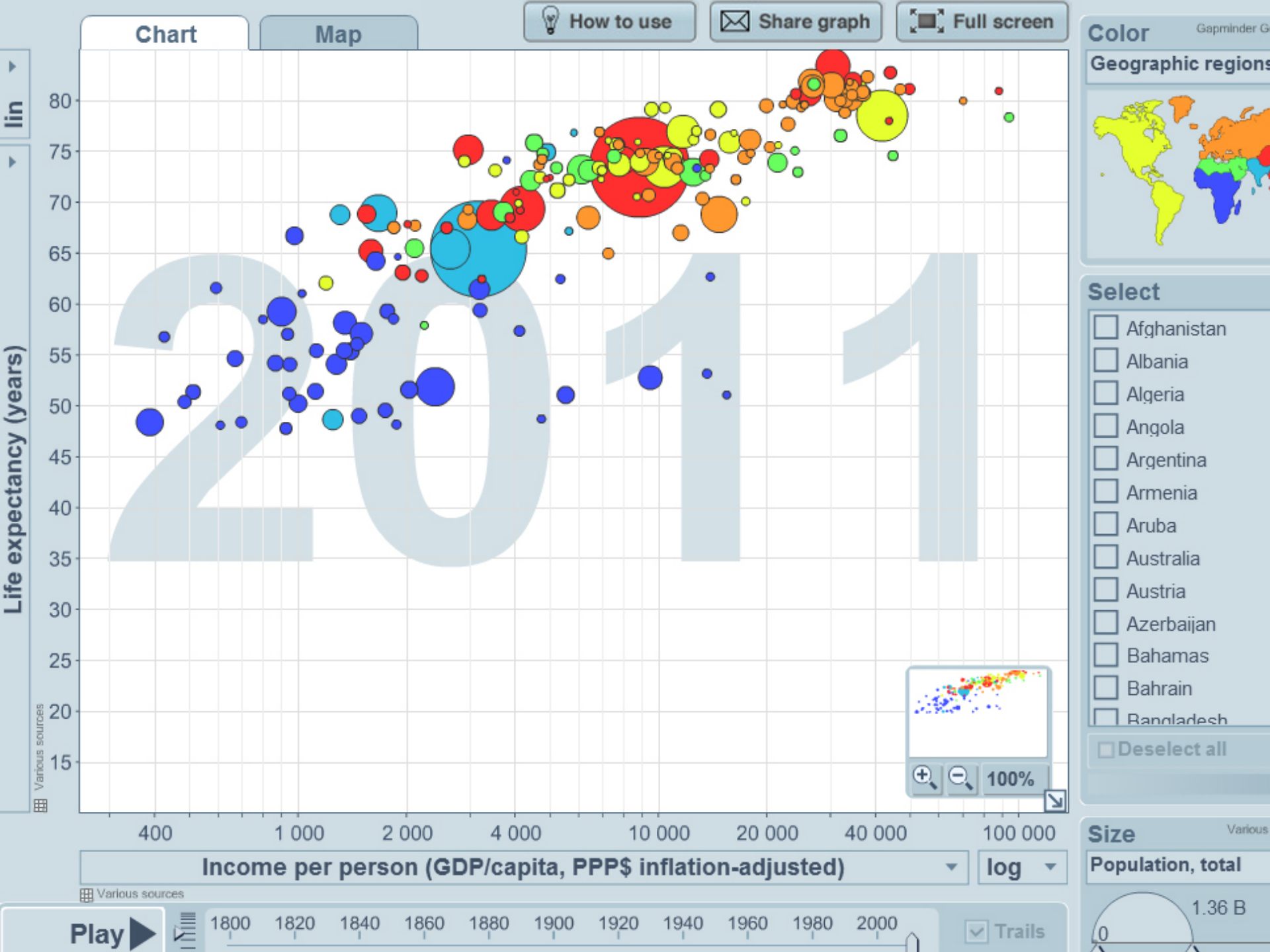
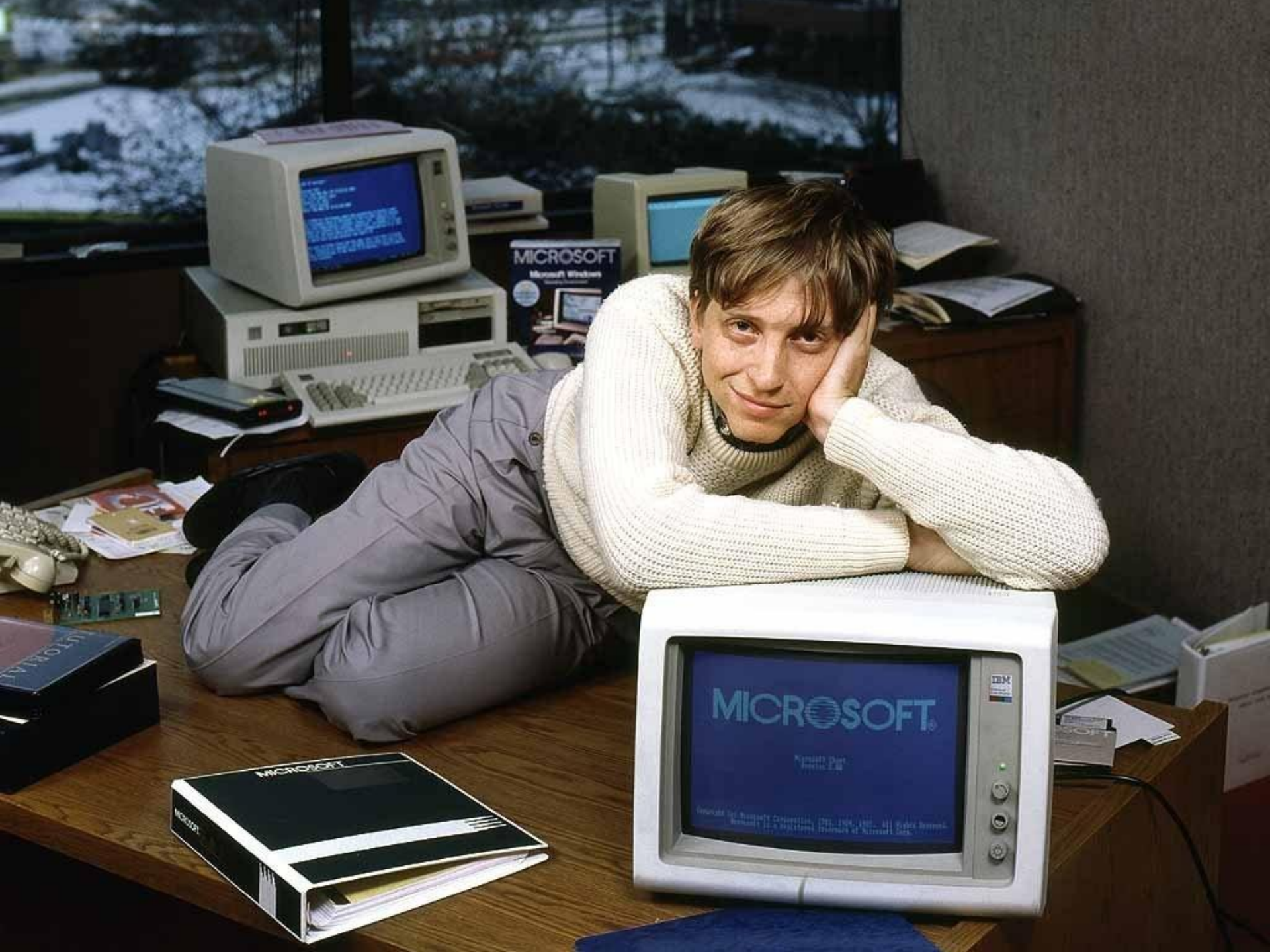


Chart
Map
How to use
Share graph
Full screen
lin
Life expectancy (years)
80
75
70
65
60
55
50
45
40
35
30
25
20
15
Various sources
2011
400
1 000
2 000
4 000
10 000
20 000
40 000
100 000
Income per person (GDP/capita, PPP$ inflation-adjusted)
log
Various sources
100%
Color
Gapminder G
Geographic regions
Select
Afghanistan
Albania
Algeria
Angola
Argentina
Armenia
Aruba
Australia
Austria
Azerbaijan
Bahamas
Bahrain
Bangladesh
Deselect all
Size
Various
Population, total
1.36 B
0
Play
1800
1820
1840
1860
1880
1900
1920
1940
1960
1980
2000
Trails


MICROSOFT
Microsoft Windows
MICROSOFT
MICROSOFT

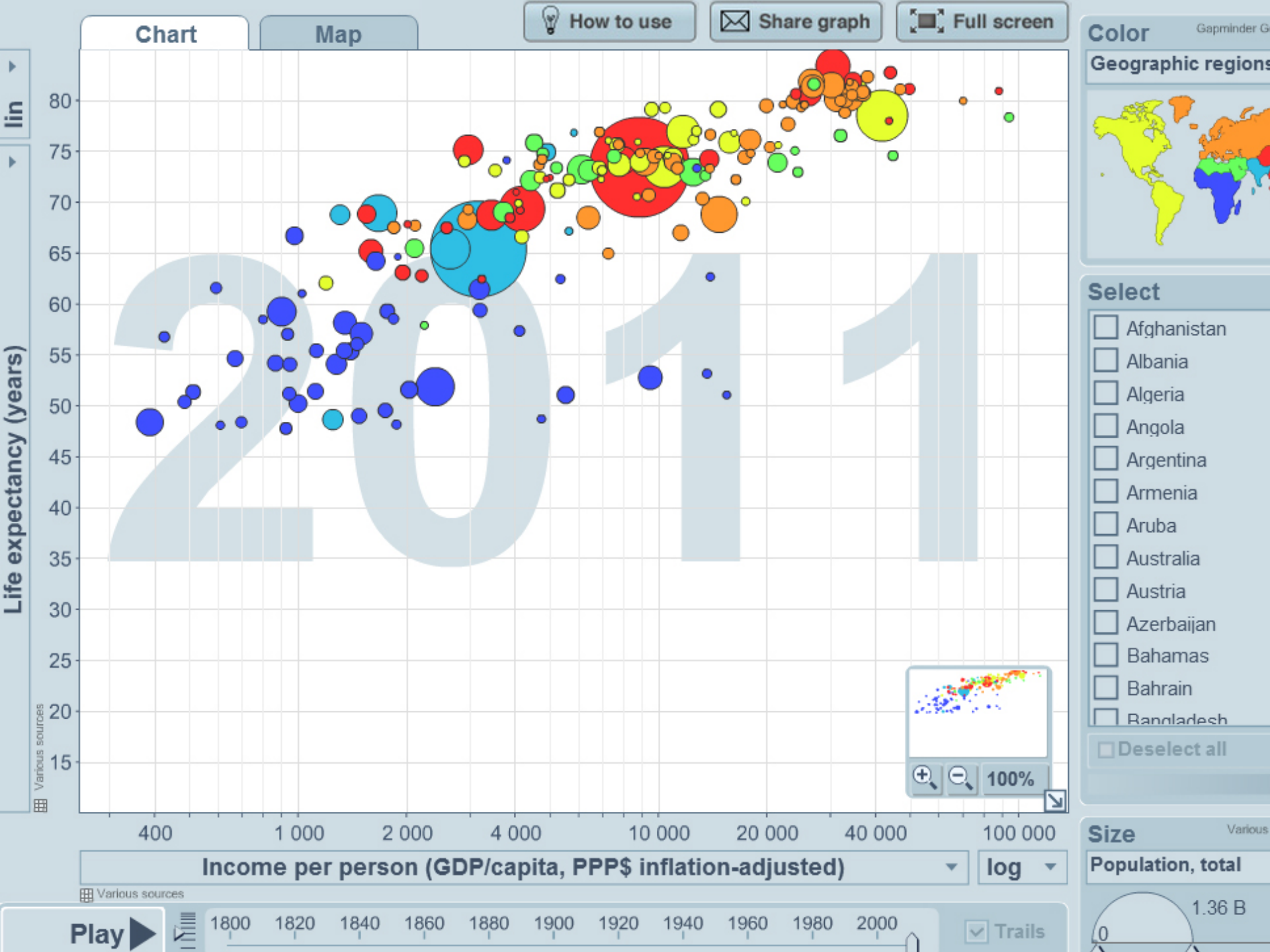


Chart
Map
How to use
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lin
Life expectancy (years)
80
75
70
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15
Various sources
2011
400
1 000
2 000
4 000
10 000
20 000
40 000
100 000
Income per person (GDP/capita, PPP$ inflation-adjusted)
log
Various sources
100%
Color
Gapminder G
Geographic regions
Select
Afghanistan
Albania
Algeria
Angola
Argentina
Armenia
Aruba
Australia
Austria
Azerbaijan
Bahamas
Bahrain
Bangladesh
Deselect all
Size
Various
Population, total
1.36 B
0
Play
1800
1820
1840
1860
1880
1900
1920
1940
1960
1980
2000
Trails

U.S. GUN DEATHS IN 2013 2010

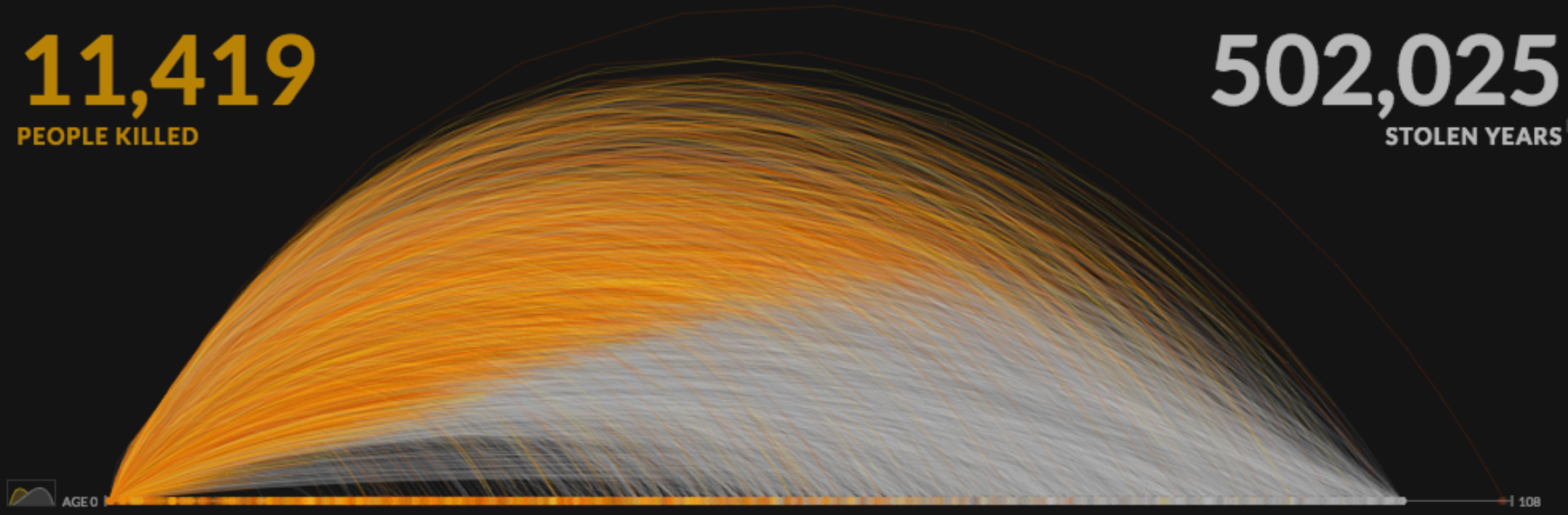
DECEMBER

11,419

PEOPLE KILLED

502,025

STOLEN YEARS

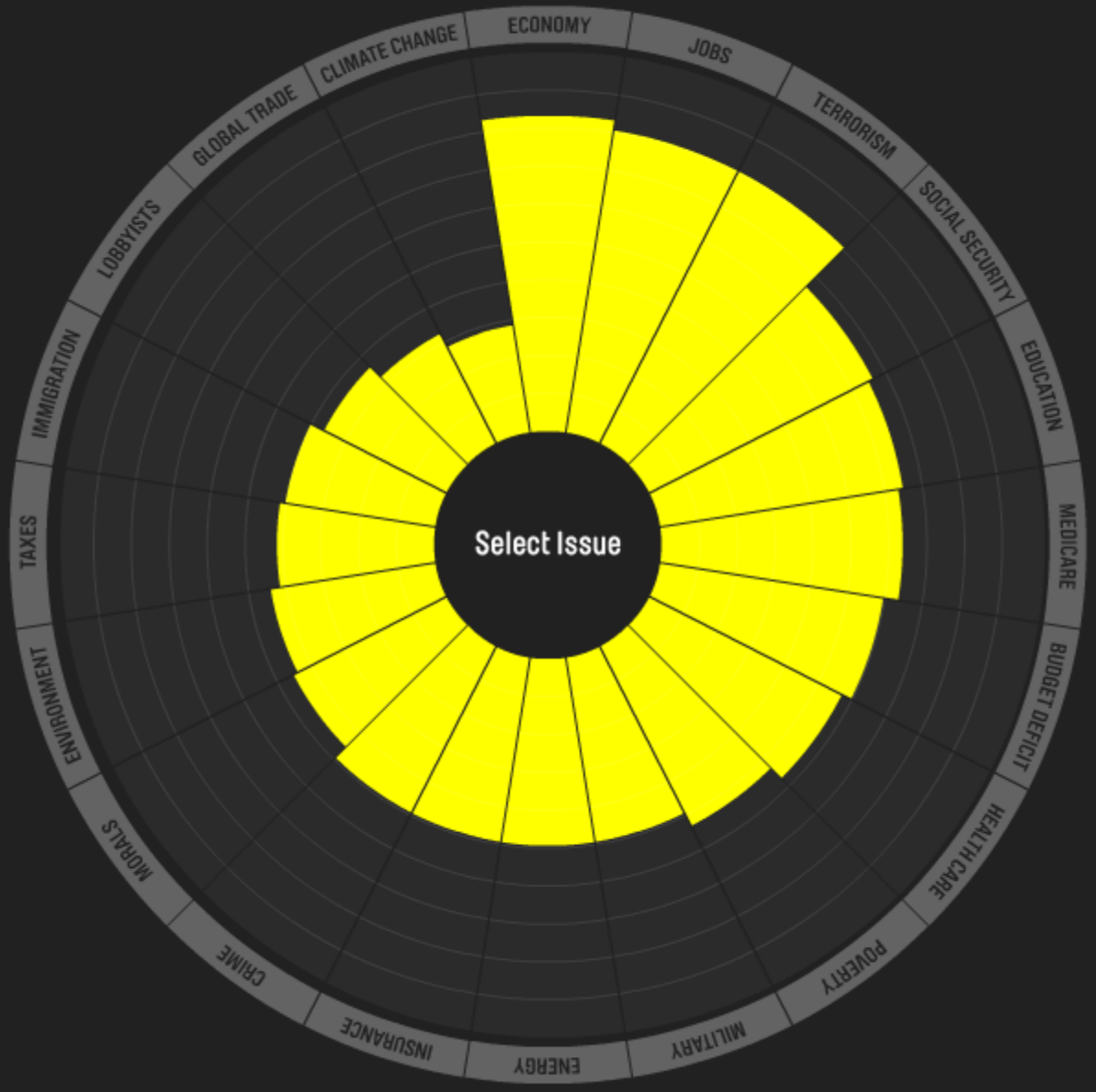


SEX | AGE GROUP | REGION | TIME

Near Real-Time, Crowdsourced Data of 2013 Deaths by Shooting

Political Climate

Every election cycle has its own issue; what Americans care about is constantly changing. Every January, the Pew Research Center for the People and the Press surveys Americans about what their top political priorities are for the year. These are their answers, going back to 2001.



Select Year

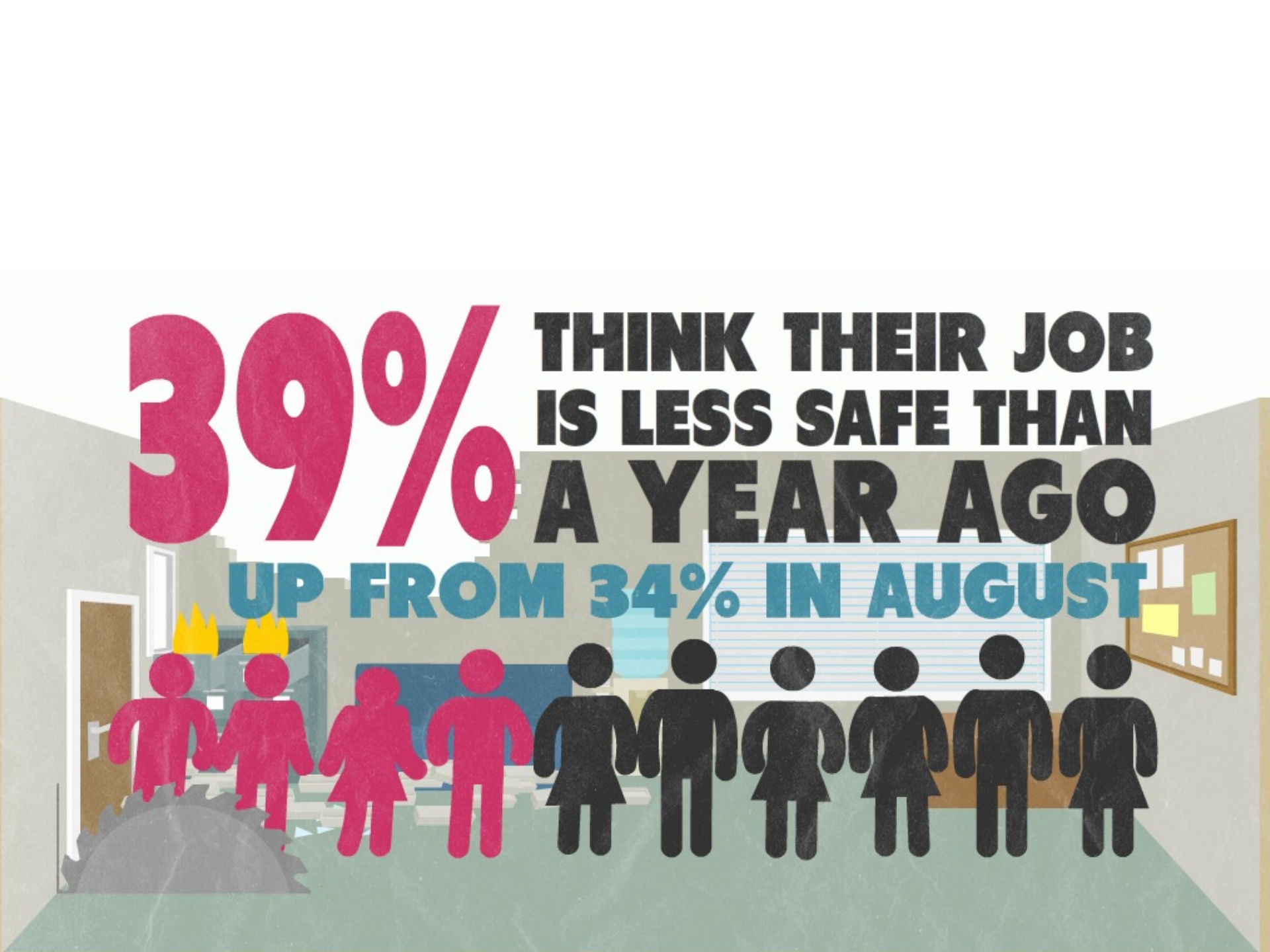
2001 2002 2003 2004 2005 2006 2007 2008 2009 **2010**

Health-care reform law signed

Select Party

- ALL AMERICANS
- DEMOCRATS
- REPUBLICANS

SOURCE The Pew Research Center for the People and the Press
A collaboration between GOOD and Hyperakt


39%
THINK THEIR JOB
IS LESS SAFE THAN
A YEAR AGO
UP FROM 34% IN AUGUST

“…and what do points mean?

Key blogs & bloggers

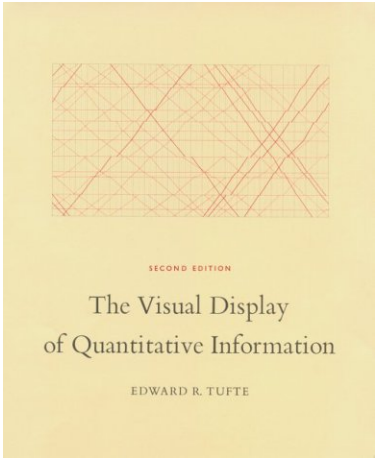
flowingdata.com
www.informationisbeautifulawards.com
www.fastcodesign.com
www.visualisingdata.com

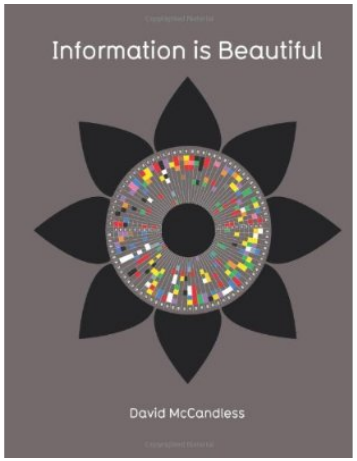
Guardian and New York Times data blogs, Washington Post, The Economist, The FT (behind paywall)
Five Thirty Eight, The NYT's Upshot, Vox

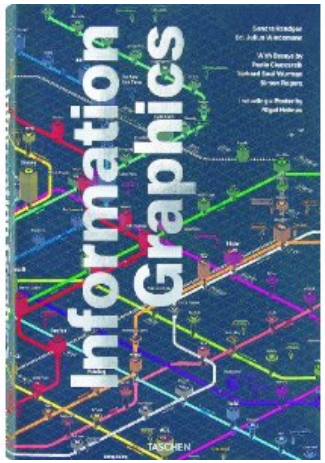
Design inspiration: www.behance.net

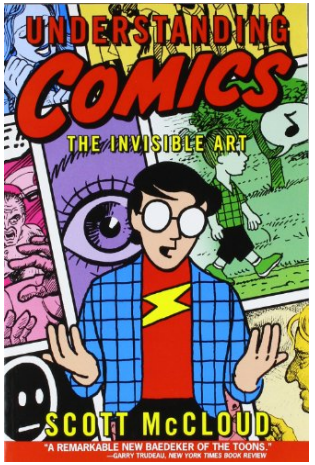
Design desperation: wtfviz.net

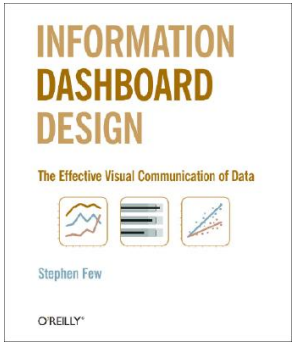
Some good books

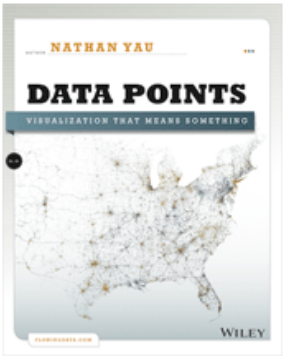


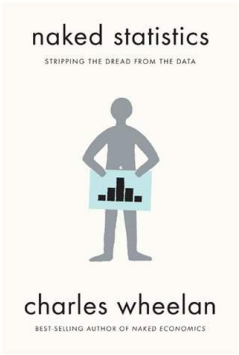


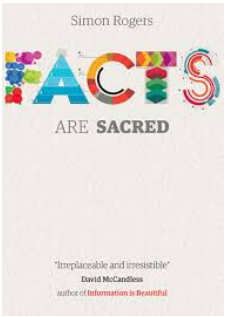












graphic

Other good books

How to…
The Functional Art by Alberto Cairo
A Kidd's Guide to Graphic Design by Chip Kidd
The Information Design Workbook by Kim Baer
Infographics – The Power of Visual Storytelling by Jason Lankow et al (Column Five)

Best practice examples
The Best American Infographics 2013 by Gareth Cook
Visual Storytelling: Inspiring a new visual language (Gestalten)
Understanding the World by Sandra Rengren
Around the World – The Atlas for Today (Gestalten)
Knowledge is Beautiful by David McCandless
London – The Information Capital by James Cheshire and Oliver Uberti

Miscellaneous
Dataclysm by Christian Rudder
Just My Type by Simon Garfield

Follow…

Alberto Cairo: @albertocairo
Conrad Hackett: @conradhackett
Tim Harford: @TimHarford
Simon Rogers: @smfrogers
Alan Smith: @theboysmithy

Journalists who tweet about data/tech: @MonaChalabi, @jamesrbuk, @olivia_solon, @helenlewis, @jimwaterson

Full Fact: @FullFact

Plus Twitter accounts of Guardian Data blog, Five Thirty Eight, Vox, Upshot, NYT Graphics, Ampp3d

Resources & Tools

Design:
Illustrator / InDesign / Photoshop (http://www.adobe.com/uk/products/creativecloud.html)
Inkscape (http://www.inkscape.org/en/)

Resources:
Colour: http://kuler.adobe.com/
Icons: http://thenounproject.com/
Fonts: https://www.google.com/fonts
Charts: http://www.datavizcatalogue.com/
Javascript: http://www.codecademy.com/

For data:
http://data.gov.uk/
http://www.statistics.gov.uk/hub/index.html
http://data.un.org/
http://data.worldbank.org/
http://data.london.gov.uk/

Software & charting libraries

Interactive charts:

- datawrapper.de
- Google charts
- Maps: Google Fusion tables/CartoDB

Infographics:

- infogr.am
- piktochart.com

Charting tools:

- Raw: app.raw.densitydesign.org
- Datavisual: datavisu.al

Site

- shorthand.com/social
- strikingly.com
- sway.com

Dashboards:

- tableausoftware.com
- qlik.com
- powerbi.microsoft.com

Javascript Libraries:

- highcharts.com
- d3js.org

Bye…
for now

If you write down one URL, write down this one:

https://goo.gl/dsG9bj

dadatavis.tumblr.com

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