
Is data is the new oil or the new soil?
david howard 2011

who am i?

7th year of teaching Units 1 & 2 IT

Assessor of IP&M, ITA and SD

In 2011 teaching load – Units 1&2, ITA & SD

Acting Head of IT & Online Learning at St Michael's Grammar School, St Kilda

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the challenge

On completion of this unit the student should be able to apply the problem-solving methodology and use appropriate software tools to create data visualisations that meet users' needs.

where to get data

Australian Bureau of Statistics – www.abs.gov.au

Bureau of Meteorology – www.bom.gov.au

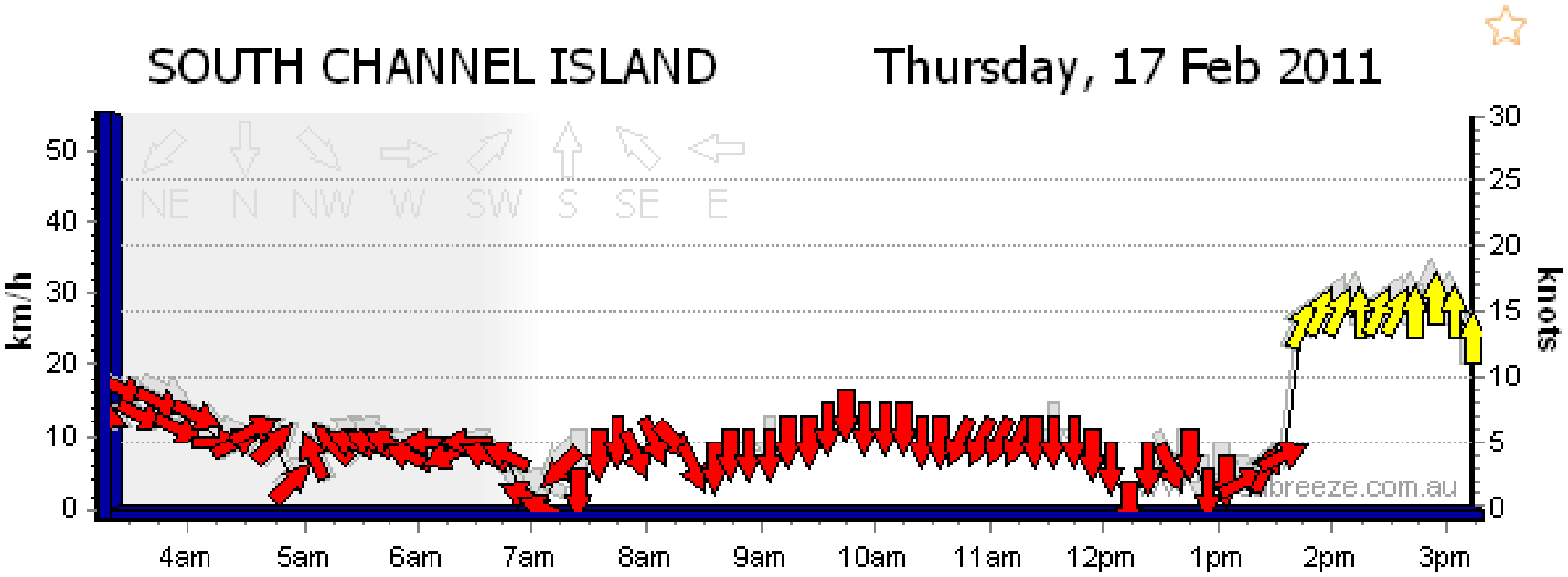
For the brave – Mozenda – more on that later.

why visualise?

Date/Time EDT	Tmp °C	App Tmp °C	Dew Point °C	Rel Hum %	Delta-T °C	Wind					Press QNH hPa	Press MSL hPa	Rain since 9 am mm
						Dir	Spd km/h	Gust km/h	Spd kts	Gust kts			
17/03:00pm	-	-	-	-	-	S	28	33	15	18	-	-	-
17/02:30pm	-	-	-	-	-	SSW	28	32	15	17	-	-	-
17/02:00pm	-	-	-	-	-	S	28	32	15	17	-	-	-
17/01:30pm	-	-	-	-	-	SW	6	7	3	4	-	-	-
17/01:00pm	-	-	-	-	-	N	4	7	2	4	-	-	-
17/12:30pm	-	-	-	-	-	N	2	6	1	3	-	-	-
17/12:00pm	-	-	-	-	-	N	7	9	4	5	-	-	-
17/11:30am	-	-	-	-	-	N	9	11	5	6	-	-	-
17/11:00am	-	-	-	-	-	NNE	9	11	5	6	-	-	-
17/10:30am	-	-	-	-	-	N	7	9	4	5	-	-	-
17/10:00am	-	-	-	-	-	N	11	13	6	7	-	-	-
17/09:30am	-	-	-	-	-	N	7	9	4	5	-	-	-
17/09:00am	-	-	-	-	-	N	7	9	4	5	-	-	-
17/08:30am	-	-	-	-	-	NNW	6	7	3	4	-	-	-
17/08:00am	-	-	-	-	-	N	7	9	4	5	-	-	-
17/07:30am	-	-	-	-	-	N	4	9	2	5	-	-	-
17/07:00am	-	-	-	-	-	CALM	0	6	0	3	-	-	-
17/06:30am	-	-	-	-	-	E	9	9	5	5	-	-	-
17/06:00am	-	-	-	-	-	E	7	9	4	5	-	-	-
17/05:30am	-	-	-	-	-	SE	9	11	5	6	-	-	-
17/05:00am	-	-	-	-	-	SW	4	7	2	4	-	-	-
17/04:30am	-	-	-	-	-	W	9	11	5	6	-	-	-
17/04:00am	-	-	-	-	-	WNW	11	13	6	7	-	-	-
17/03:30am	-	-	-	-	-	WNW	15	17	8	9	-	-	-
17/03:00am	-	-	-	-	-	NNW	13	17	7	9	-	-	-

www.bom.gov.au

why visualise?



why visualise?

Forecast for Thursday until midnight

Winds: West to southwesterly 5 to 10 knots tending south to southwesterly 10 to 15 knots around midday then increasing to 15 to 20 knots during the afternoon. Seas: Below 0.5 metres increasing to 0.5 to 1 metres during the afternoon.

Forecast for Friday

Winds: Southeasterly 5 to 10 knots tending east to southeasterly 10 to 20 knots during the afternoon then becoming easterly 15 to 25 knots by early evening. Seas: 0.5 to 1 metre increasing to 1 to 1.5 metres later in the evening.

Forecast for Saturday

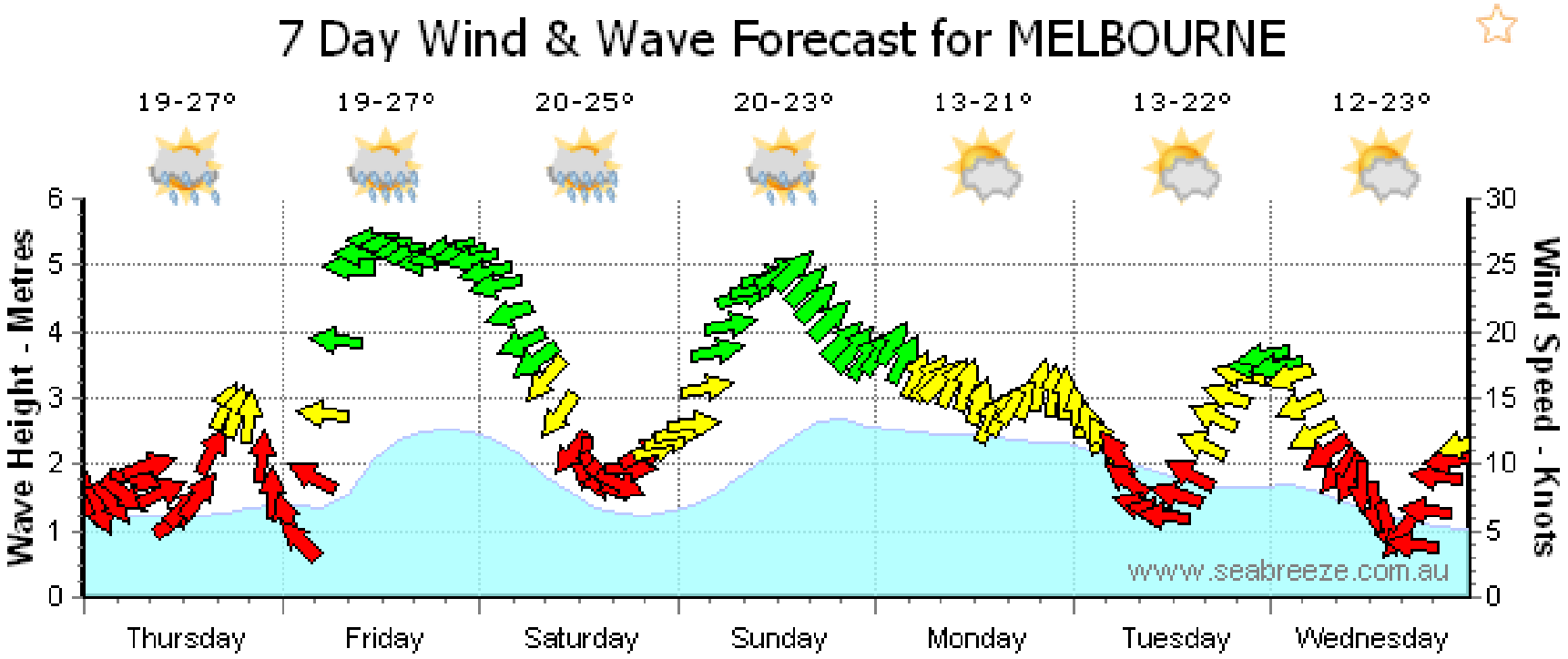
Winds: East to northeasterly 15 to 20 knots tending north to northwesterly during the morning then tending west to southwesterly during the afternoon. Winds tending south to southwesterly up to 15 knots during the evening. Seas: 0.5 to 1.5 metres.

Forecast for Sunday

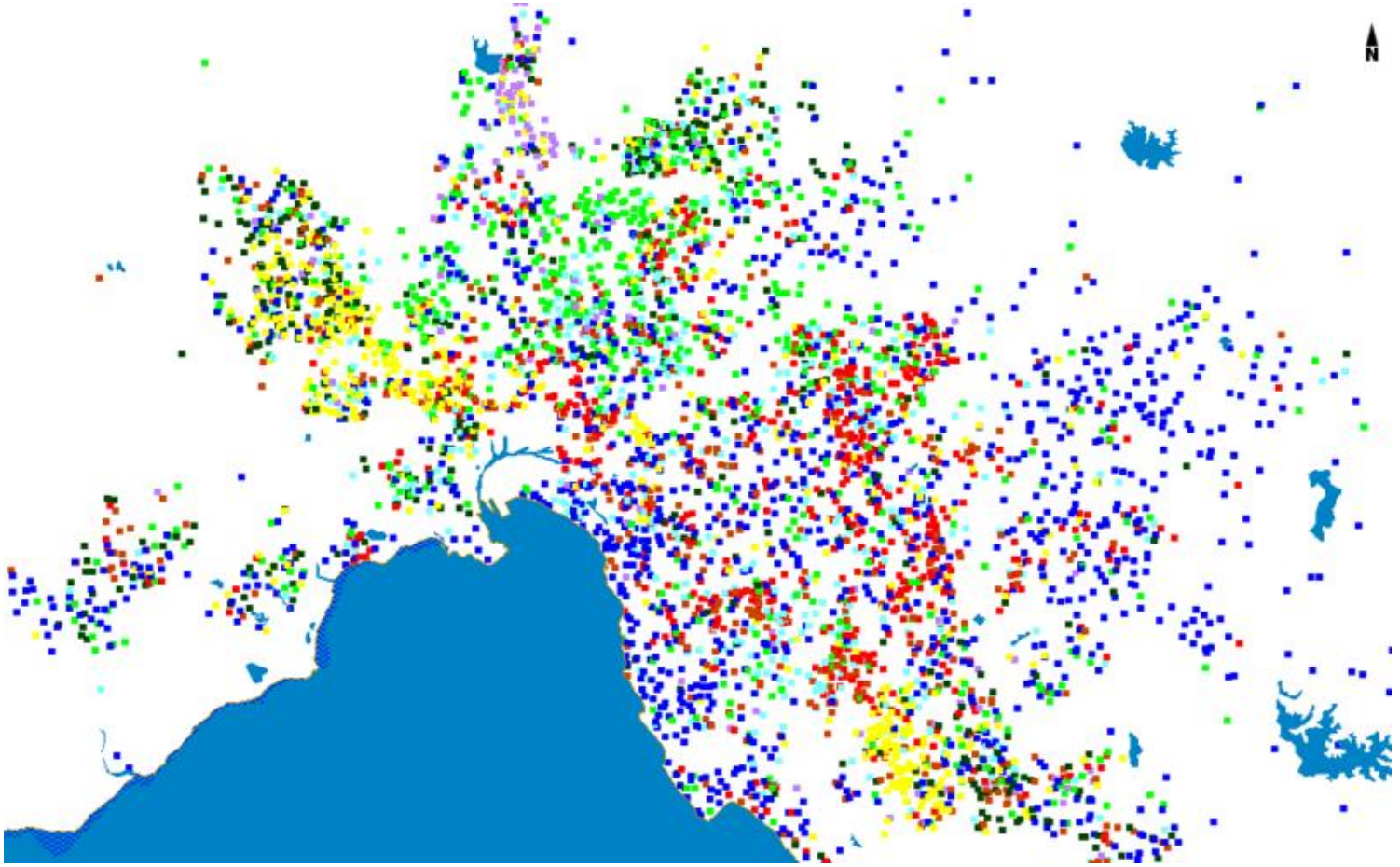
Winds: Southwesterly 10 to 20 knots increasing to 20 to 25 knots during the afternoon then decreasing to 15 to 20 knots during the evening. Seas: Below 0.5 metres increasing to 1 to 1.5 metres during the morning.

www.bom.org.au

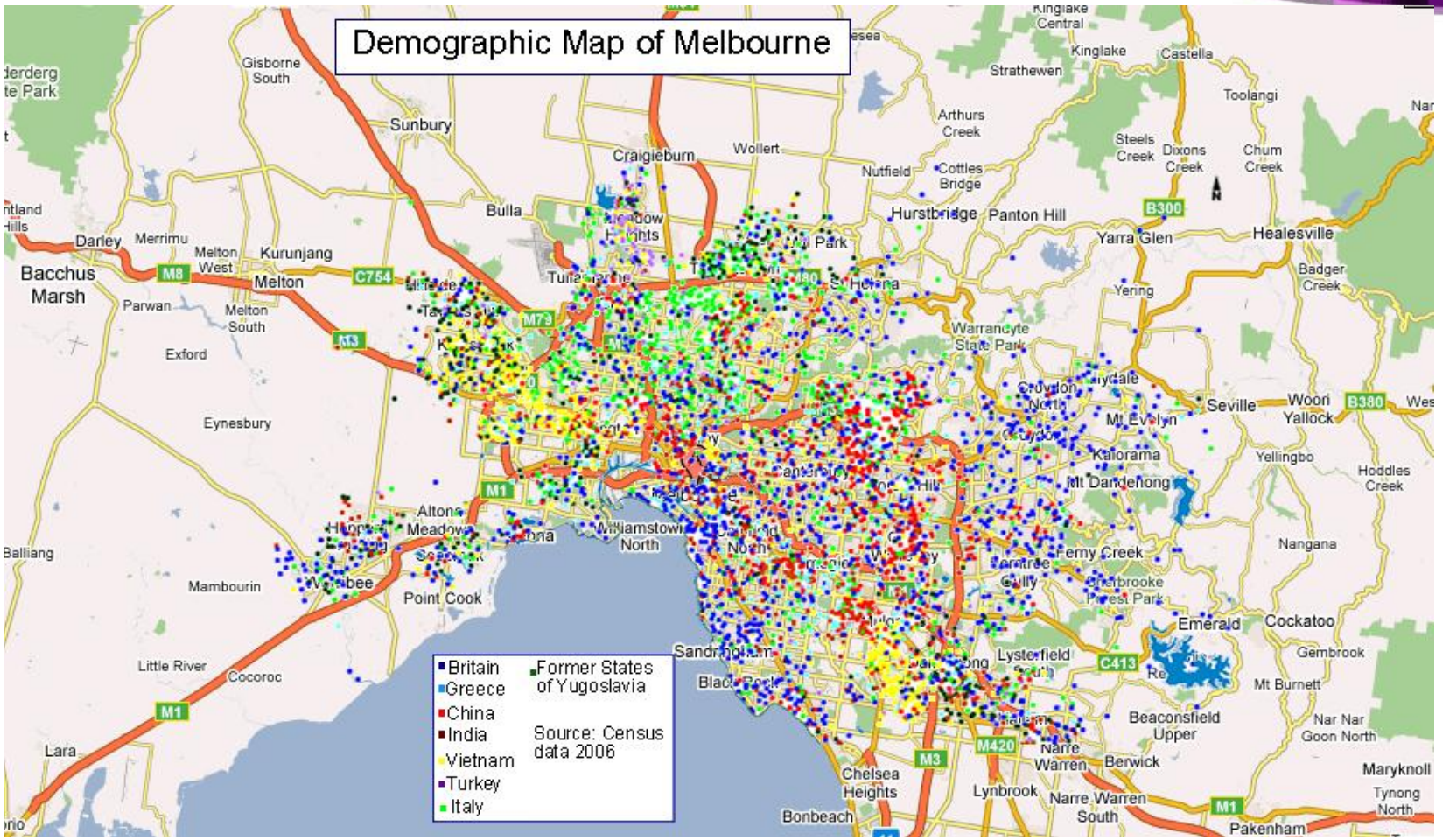
why visualise?



some neat examples



some neat examples



some neat examples

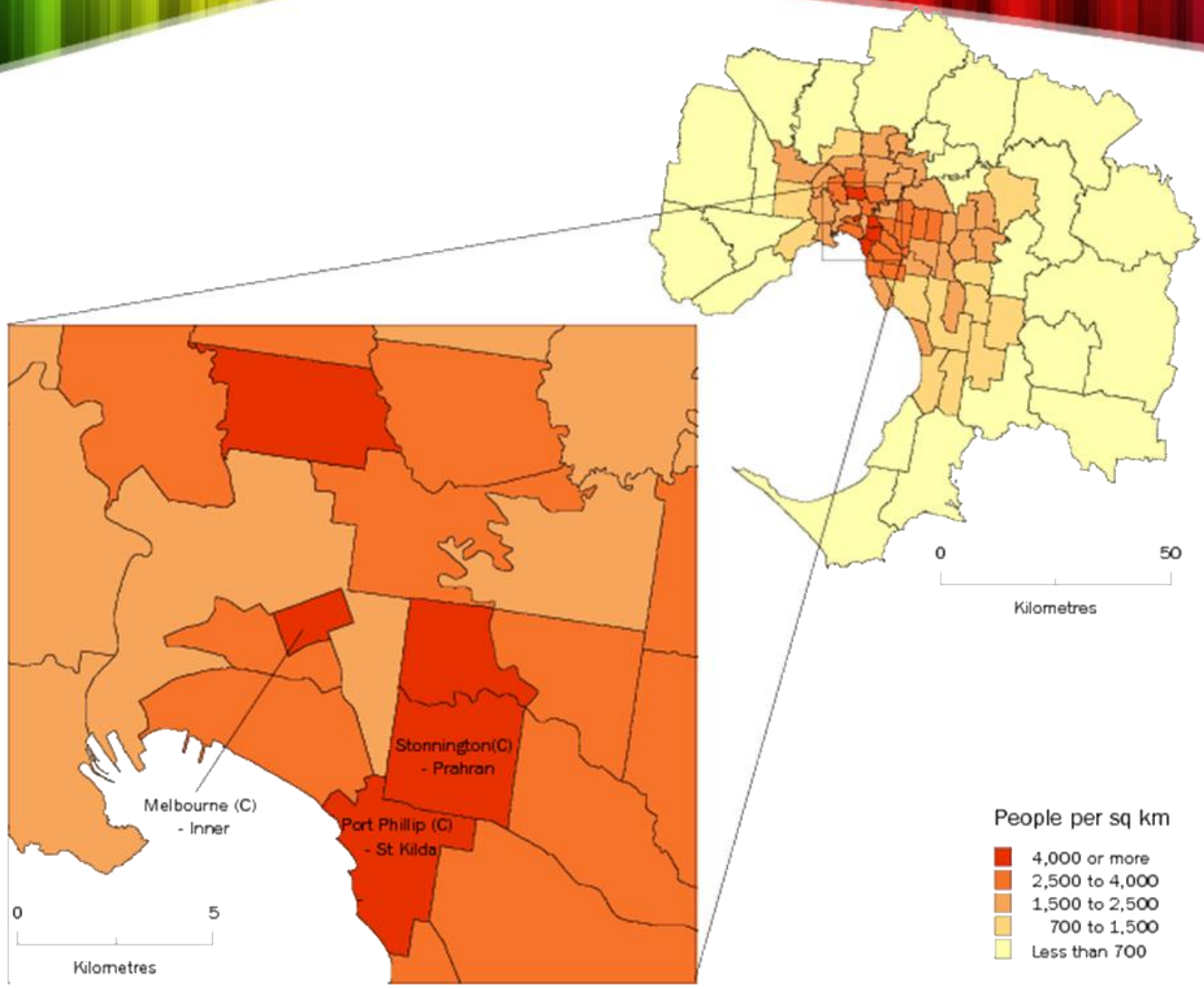
At June 2009, the population density of Victoria was 23.9 people per square kilometre (sq km), the second highest of all states and territories after the ACT (149.8). The population density of the Melbourne SD was 520 people per sq km, much higher than Australian capital cities combined (370 people per sq km).

Within the Melbourne SD, the SLAs with the greatest population densities were Melbourne (C) - Inner (7,800 people per sq km) and nearby Port Phillip (C) - St Kilda (6,300). The neighbouring Stonnington (C) - Prahran (5,300) was the third most densely populated SLA.

The most densely populated SLAs in the capital city also experienced some of the largest increases in density between June 2008 and 2009. Melbourne (C) - Inner increased in density by 460 people per sq km, the greatest of all SLAs. The next largest increases occurred in Melbourne (C) - Southbank-Docklands (190 people per sq km) and Port Phillip (C) - St Kilda (110).

The lowest population densities were in the outlying SLAs of Cardinia (S) - South (17.0 people per sq km), Nillumbik (S) Bal (30.9) and Yarra Ranges (S) - North (34.4).

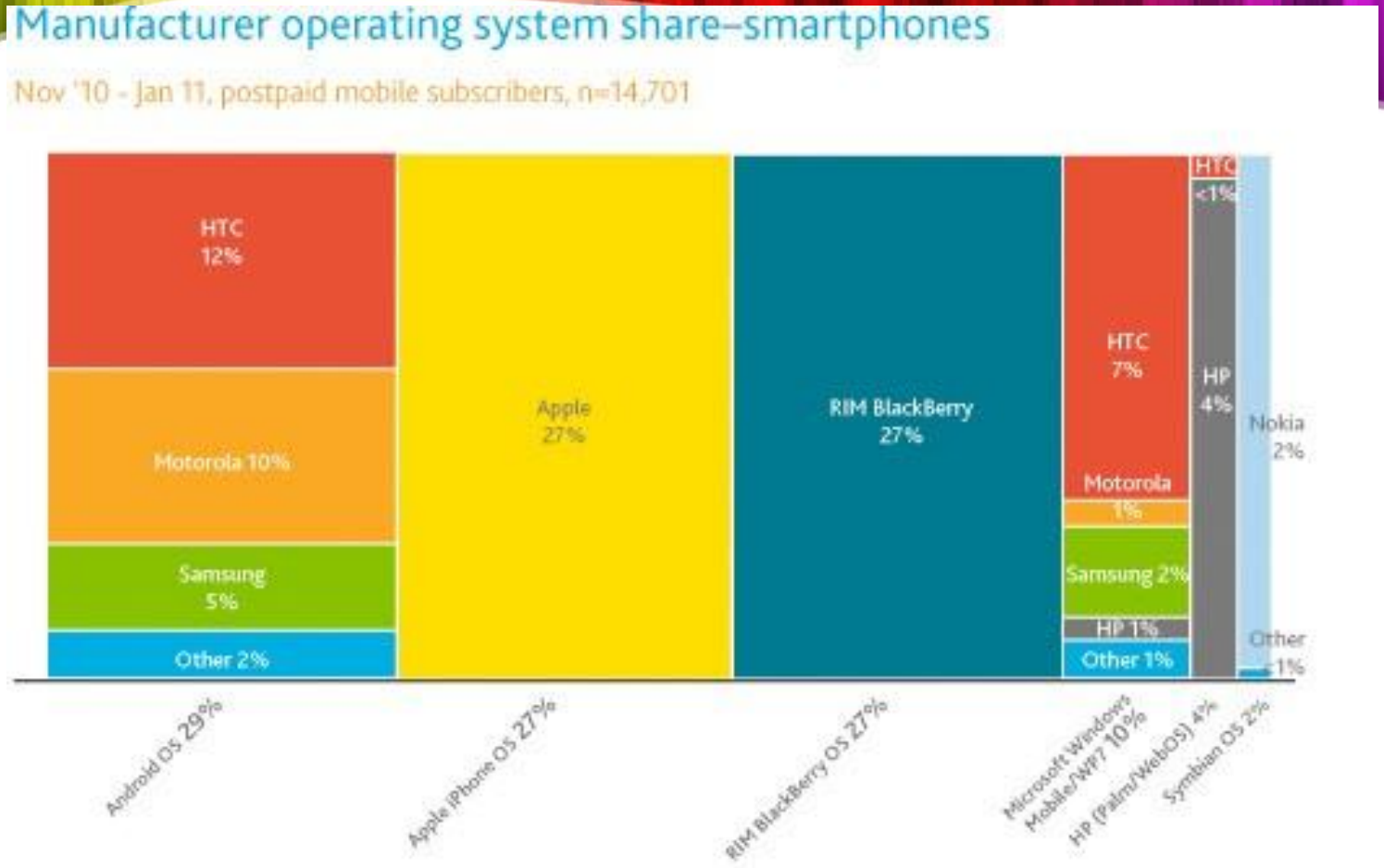
some neat examples



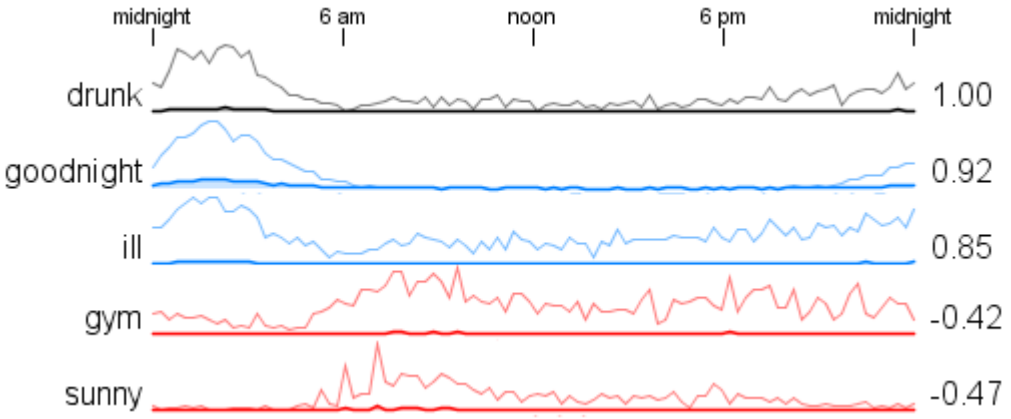
www.abs.gov.au

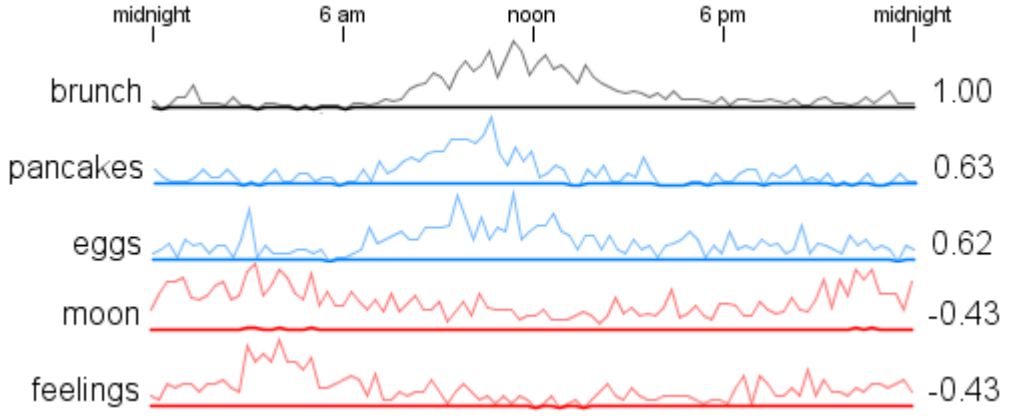
displaying friendships

better than a bar graph



some neat examples





http://neoformix.com/2009/TimeOfDayWordCorrelations.html

in the classroom

mozenda

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data extraction • screen scraping • web harvesting • web crawling

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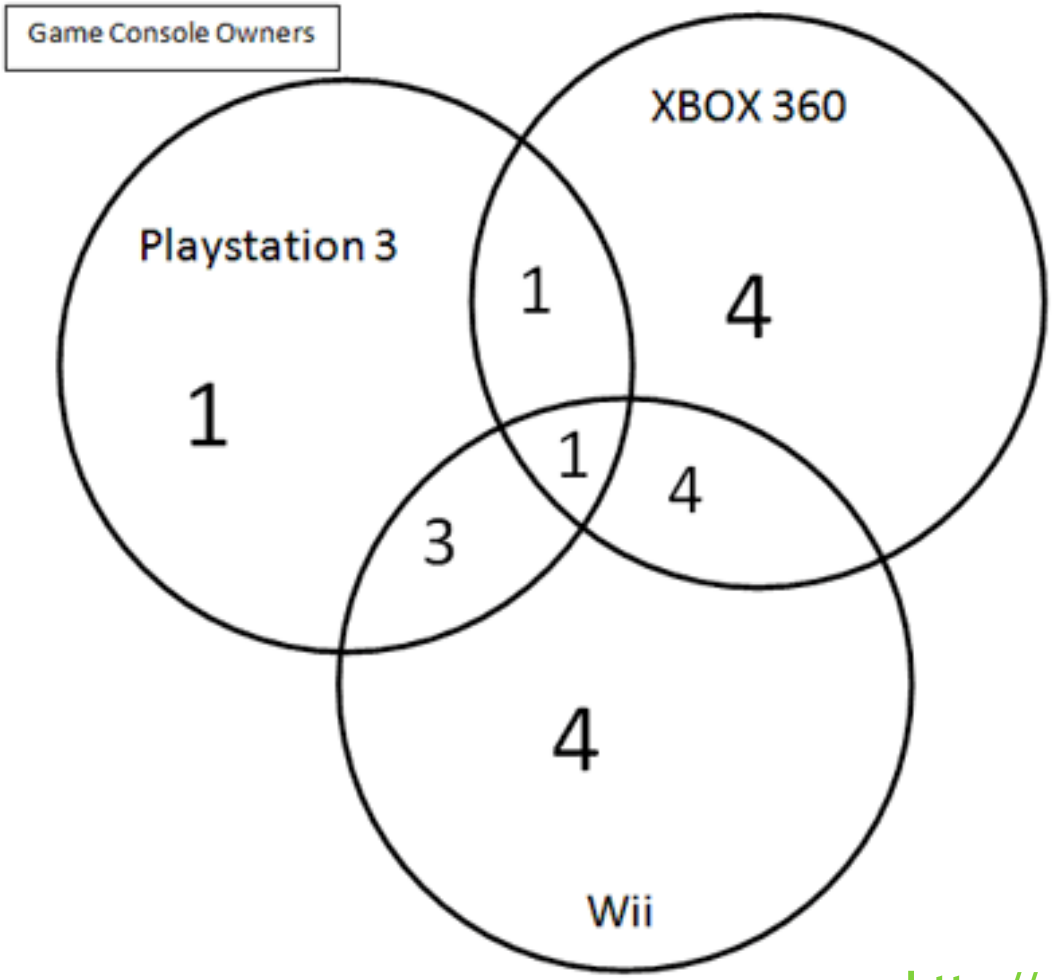
gaming

Platform	Number
Xbox 360	10
PS3	6
Wii	12
NDS	9
PSP	2
Phone	18
Older console	12
PC	18
Other device	6

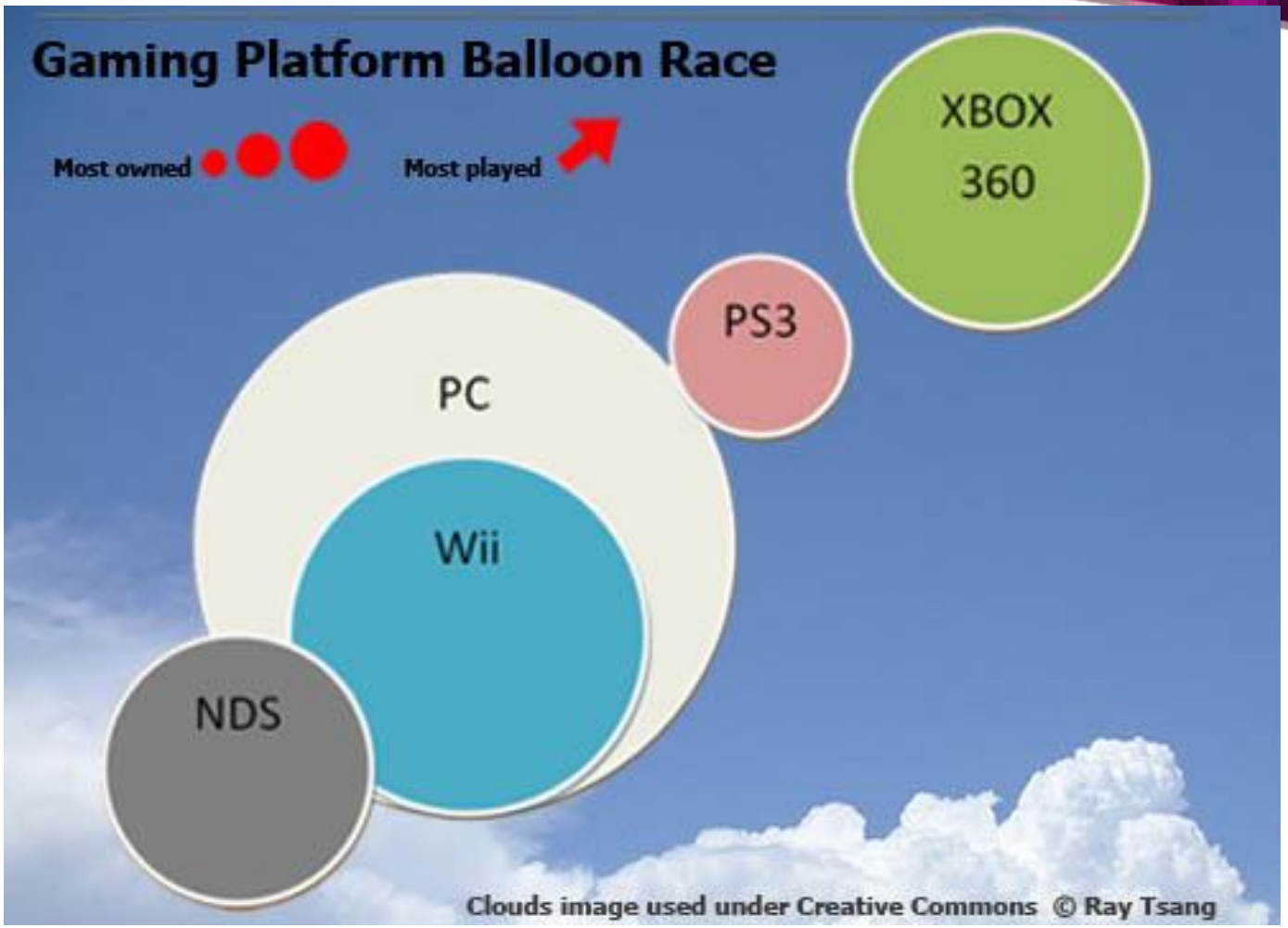
gaming

Platform	Number	Most used
Xbox 360	10	8
PS3	6	5
Wii	12	2
NDS	9	1
PSP	2	
Phone	18	
Older console	12	
PC	18	2
Other device	6	

gaming



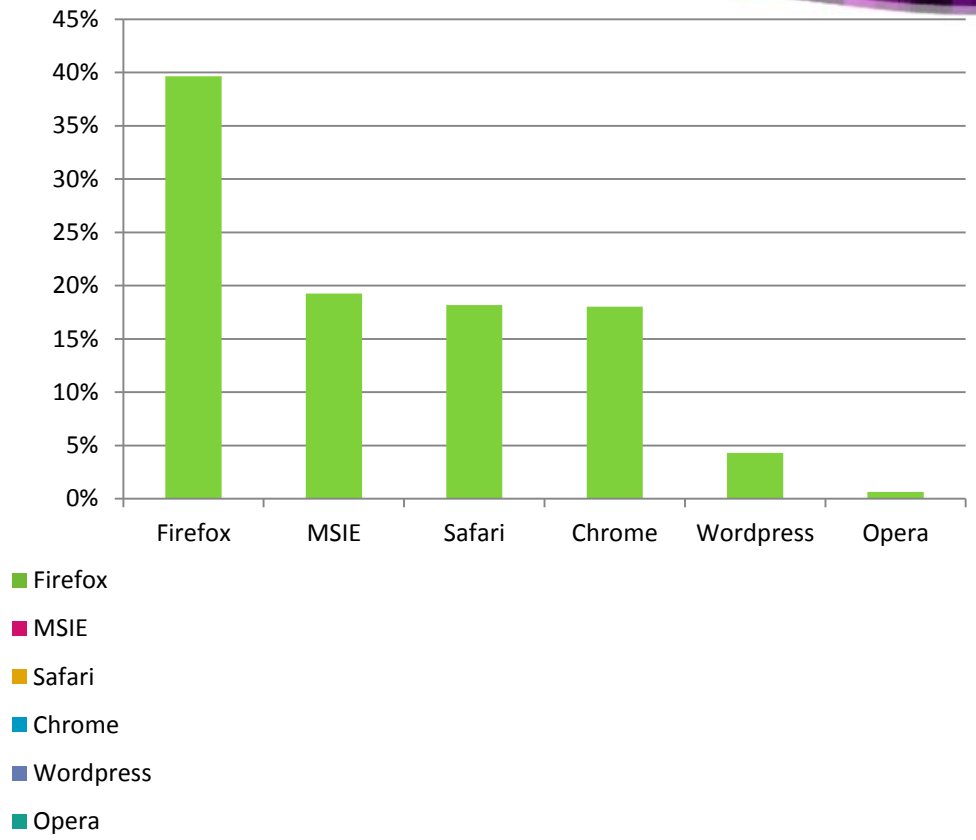
gaming – balloon race



http://www.maximized.co.uk/

browser stats

Firefox	40%
MSIE	19%
Safari	18%
Chrome	18%
Wordpress	4%
Opera	1%

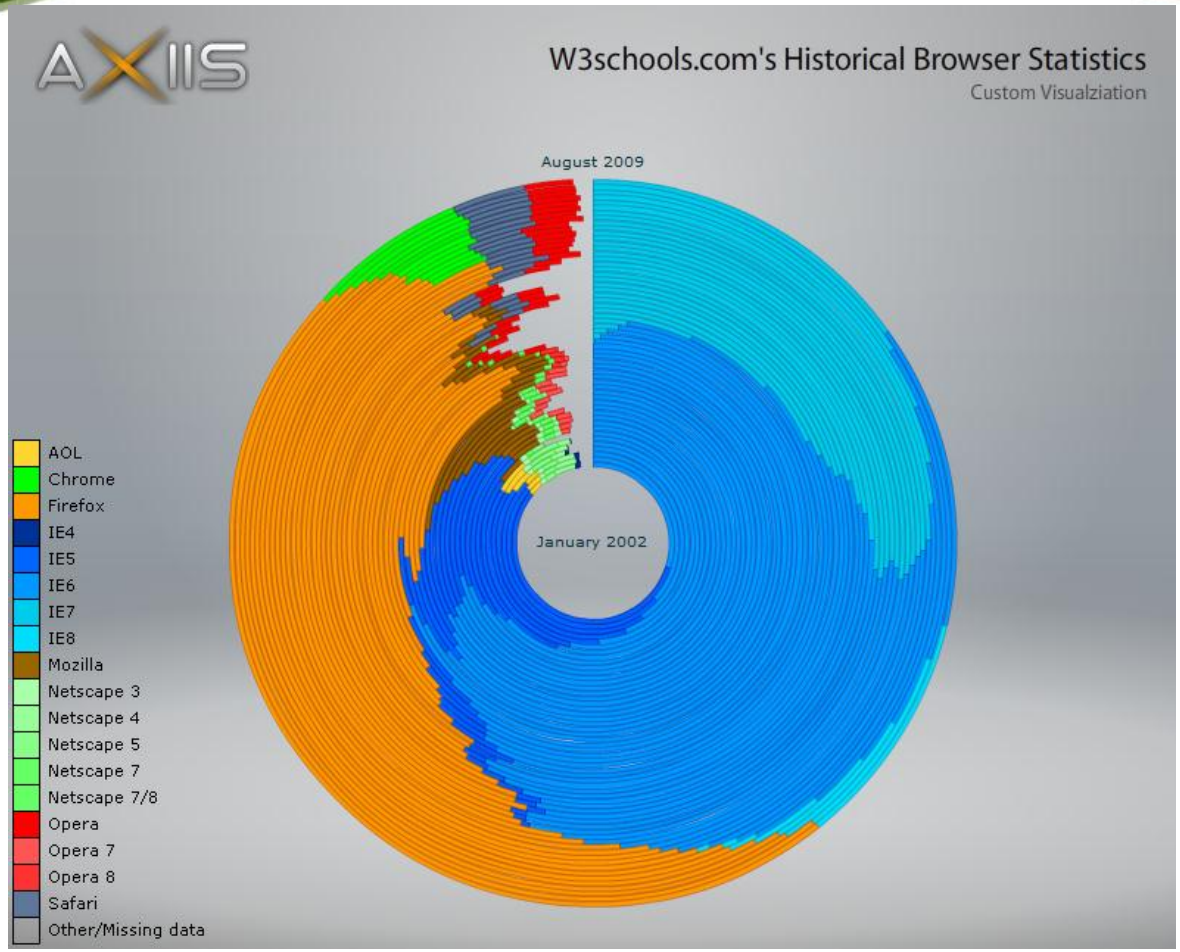


browser stats

Visitors by Browser ***www.davehoward.com.au***

size is relative to percentage

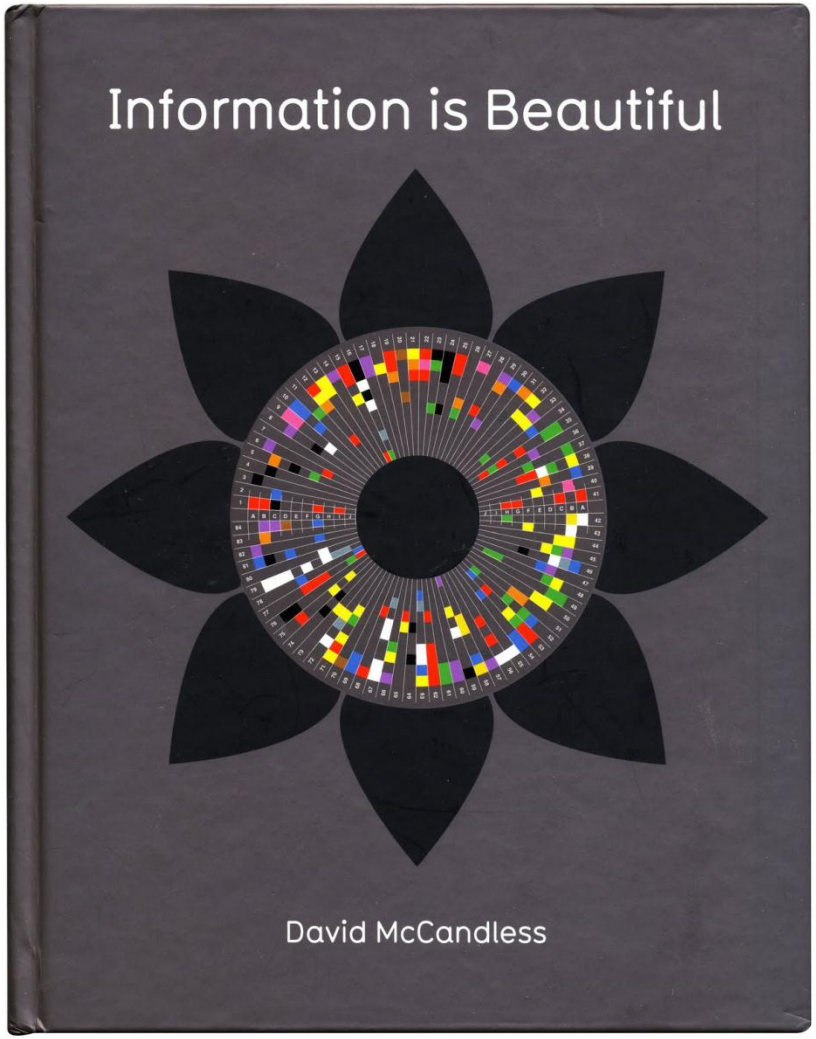
browser stats



Interactive version available online

http://www.michaelvandaniker.com/labs/browserVisualization

information is beautiful



ISBN 978-0-00-729466-4

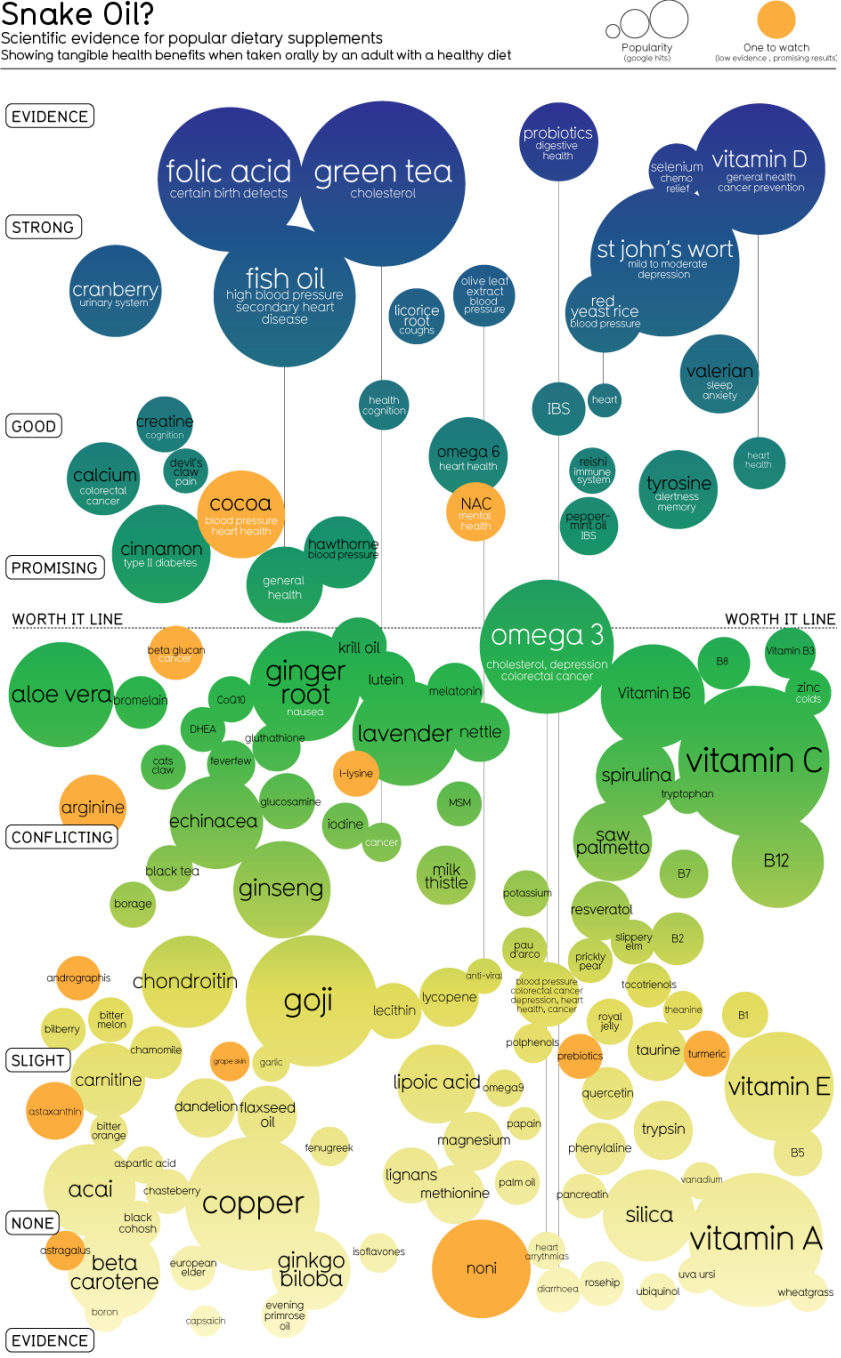
http://www.informationisbeautiful.net/

http://www.informationisbeautiful.net/

Snake Oil?

Scientific evidence for popular dietary supplements

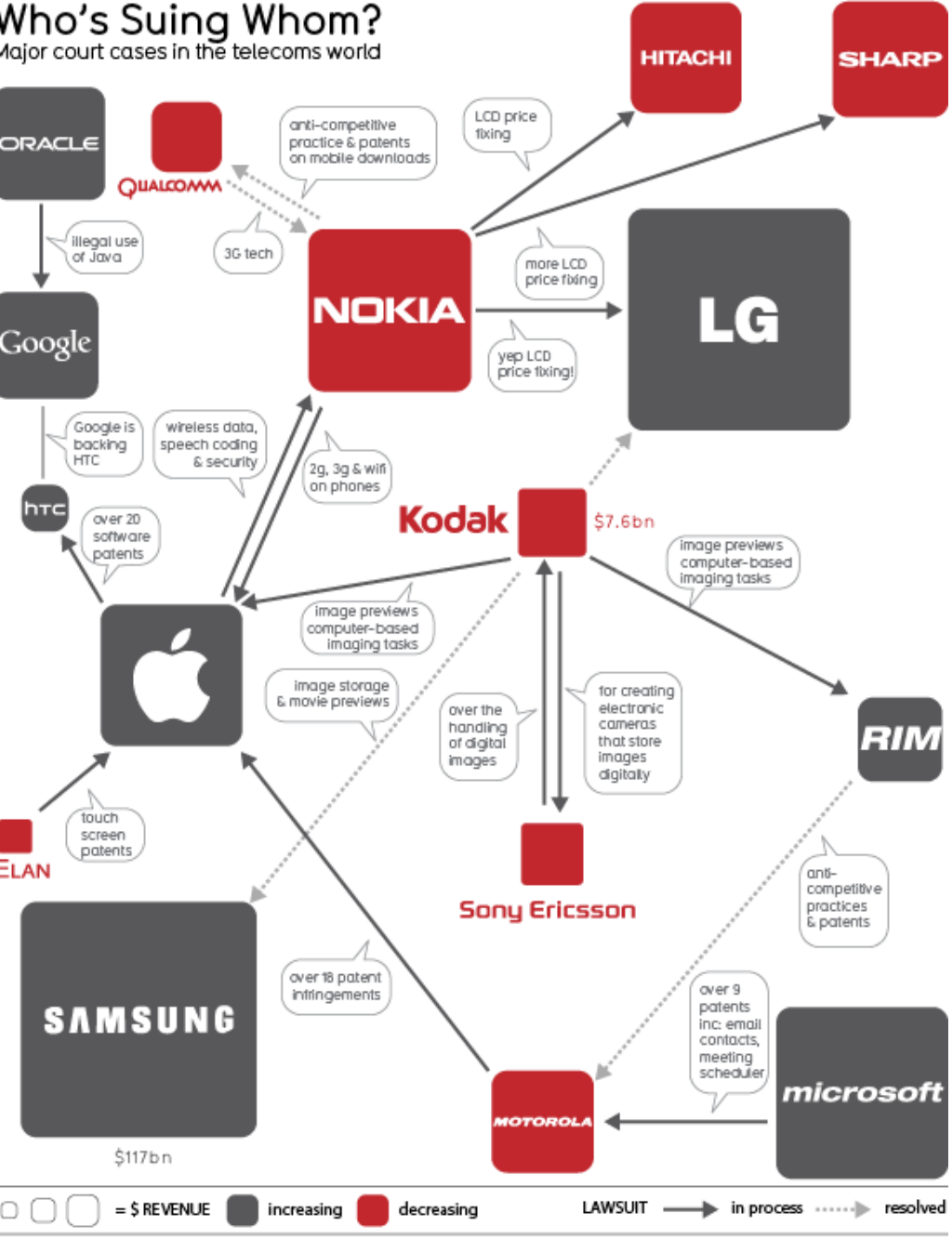
Showing tangible health benefits when taken orally by an adult with a healthy diet



http://www.informationisbeautiful.net/play/snake-oil-supplements/

David McCandless // v2.0 // Oct 2 010
InformationIsBeautiful.net

source: PubMed, Cochrane.org - http://bit.ly/Snakeoil
Only human, randomised placebo-controlled trials used
Complete sources & interactive version: informationisbeautiful.net/2010/snake-oil-supplements



David McCandless & James Key // v1.2// Oct 10
InformationIsBeautiful.net

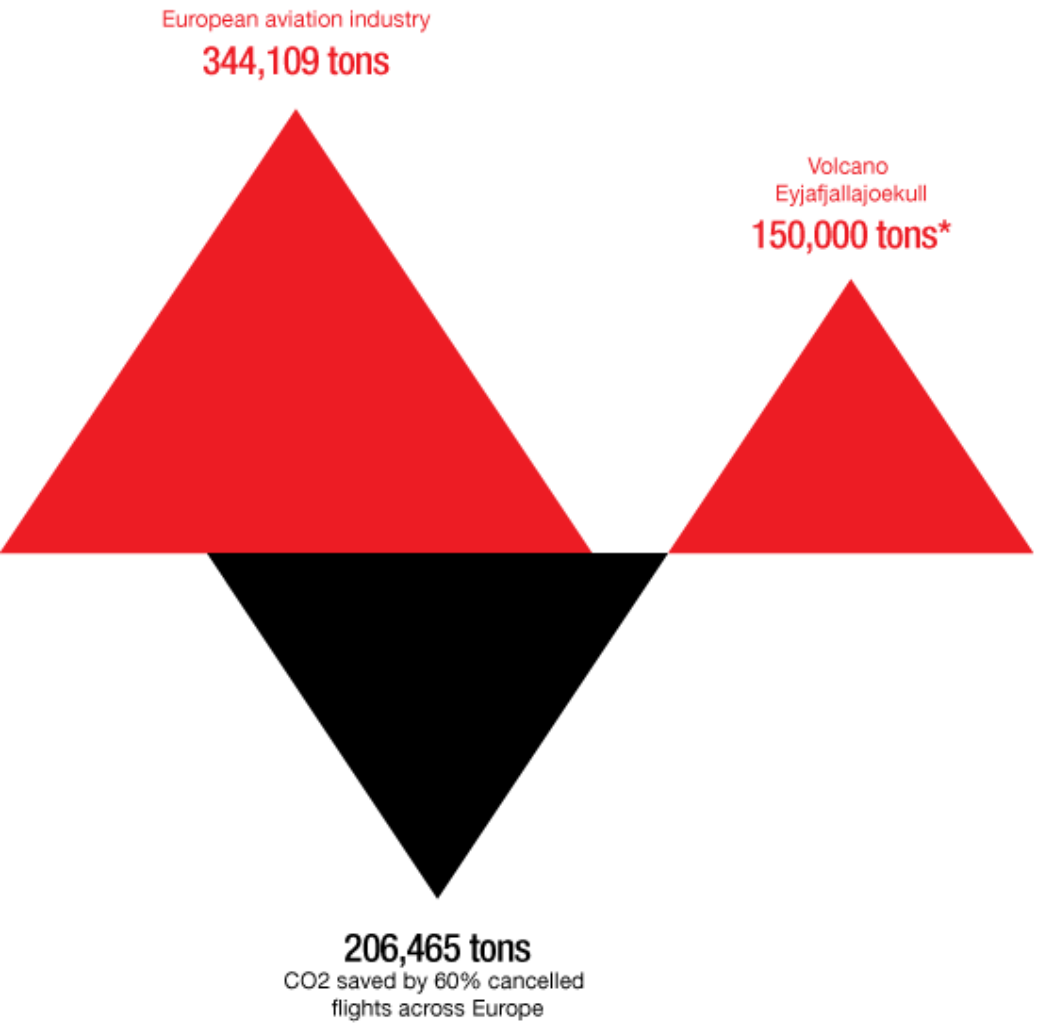
idea: Guardian Tech, NY Times /data: bit.ly/sosueme
source: Bloomberg, BBC, DigitalTrends.com
only highlights or summaries of lawsuits

http://www.informationisbeautiful.net/

Planes or Volcano?

What's emitting the most CO2 per day?

Version III



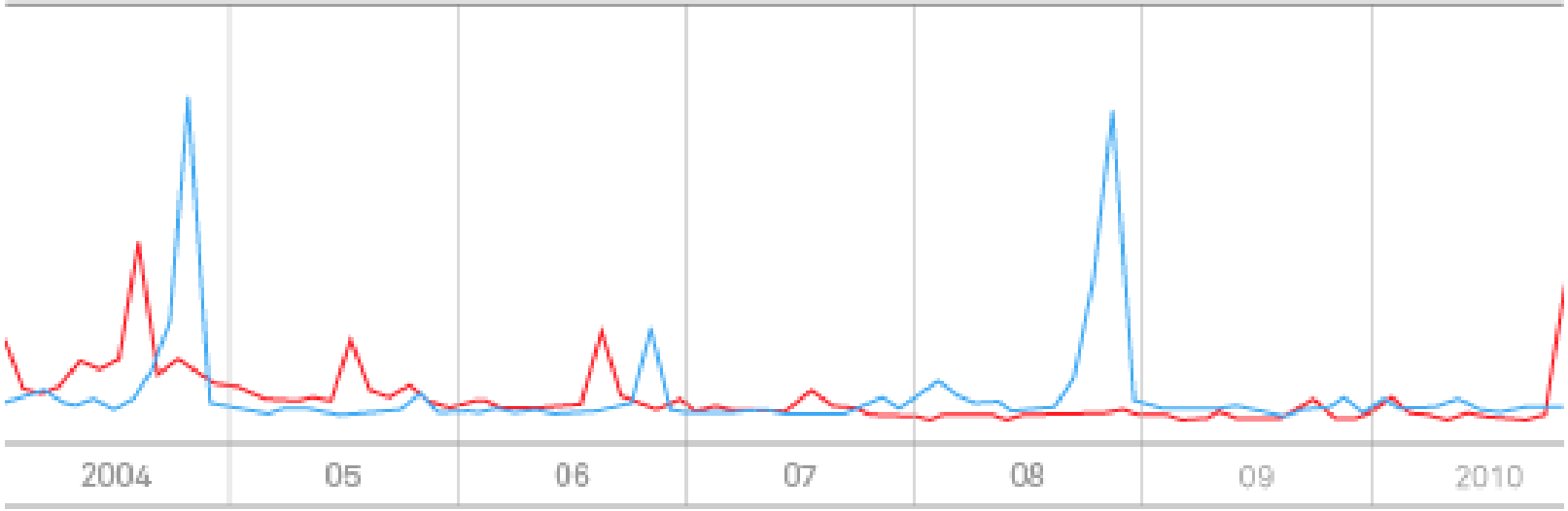
Carbon Neutral Volcano?

*estimated

David McCandless & Ben Bartels v 1.3 // InformationIsBeautiful.net
source: USGS, BBC, EEA, Nordic Volcanological Institute, AFP
lower estimates for aviation & volcano used
extra research: James Key, Nicole Keller // data: bit.ly/planevolcano

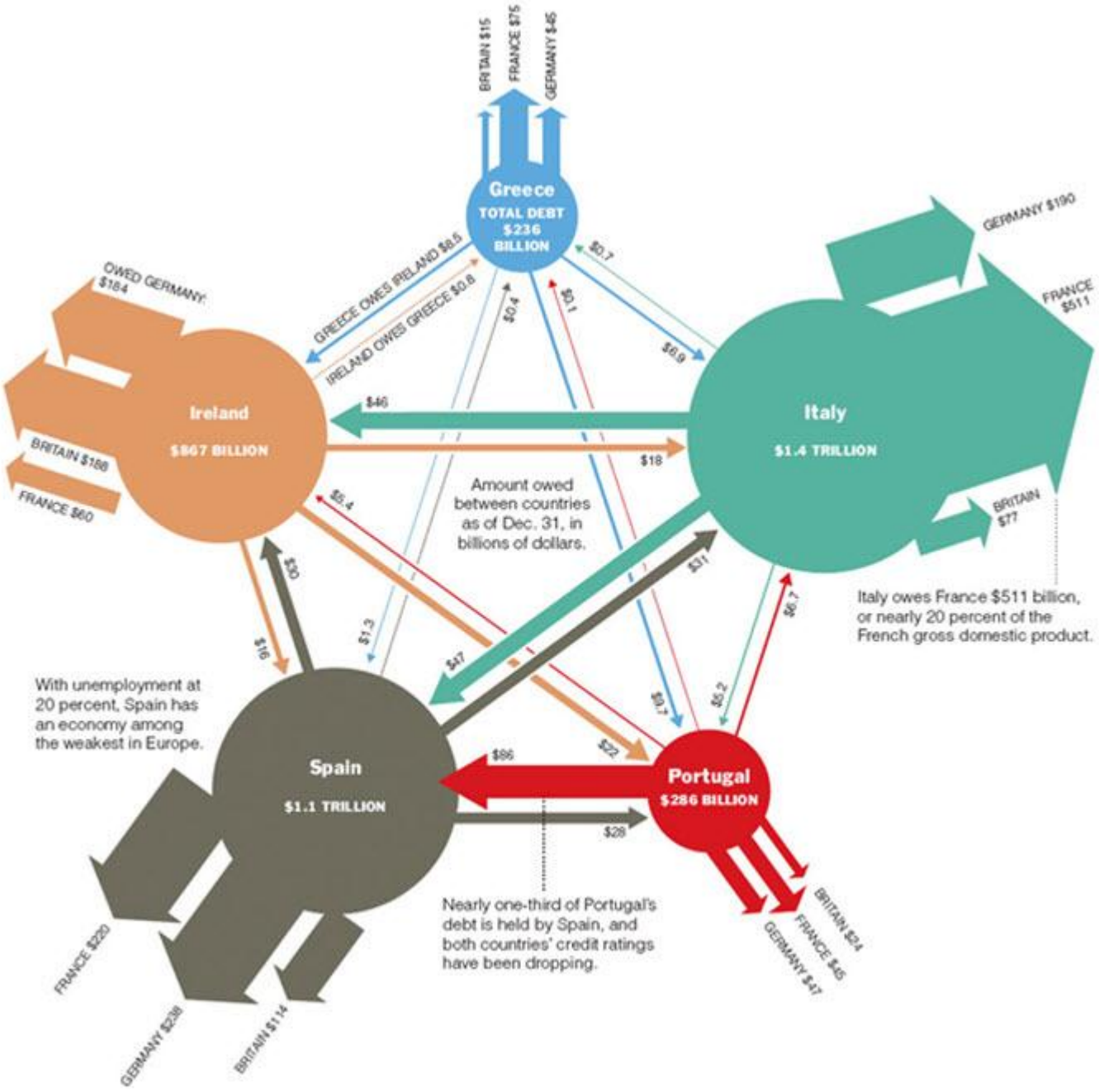
Terror Alert vs. Election Time

Keyword intensity over time (USA)

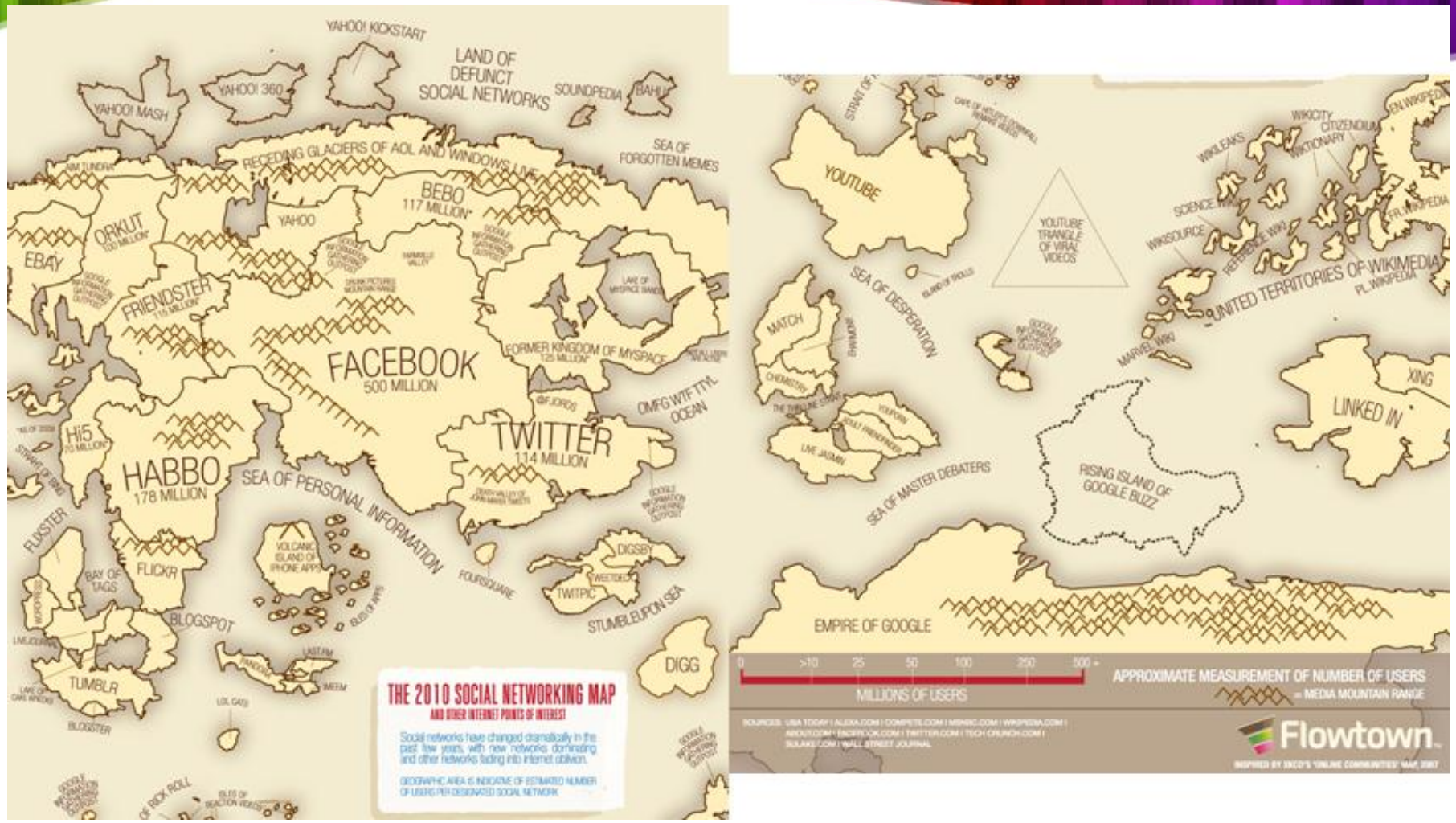


David McCandless // InformationIsBeautiful.net // Oct 10

source: Google Insights


BRITAIN $15
FRANCE $75
GERMANY $45
Greece
TOTAL DEBT
$236
BILLION
GREECE OWES IRELAND $6.5
IRELAND OWES GREECE $0.8
$0.4
$0.1
$0.7
$6.9
OWED GERMANY:
$184
Ireland
$867 BILLION
BRITAIN $186
FRANCE $60
$46
$18
Italy
$1.4 TRILLION
GERMANY $190
FRANCE
$511
BRITAIN
$77
Amount owed
between countries
as of Dec. 31, in
billions of dollars.
$6.4
$30
$16
$1.3
$47
$31
$6.7
$9.7
$5.2
Italy owes France $511 billion,
or nearly 20 percent of the
French gross domestic product.
With unemployment at
20 percent, Spain has
an economy among
the weakest in Europe.
Spain
$1.1 TRILLION
$86
$22
Portugal
$286 BILLION
$28
Nearly one-third of Portugal's
debt is held by Spain, and
both countries' credit ratings
have been dropping.
FRANCE $220
GERMANY $238
BRITAIN $114
BRITAIN $24
FRANCE $45
GERMANY $47

flowtown

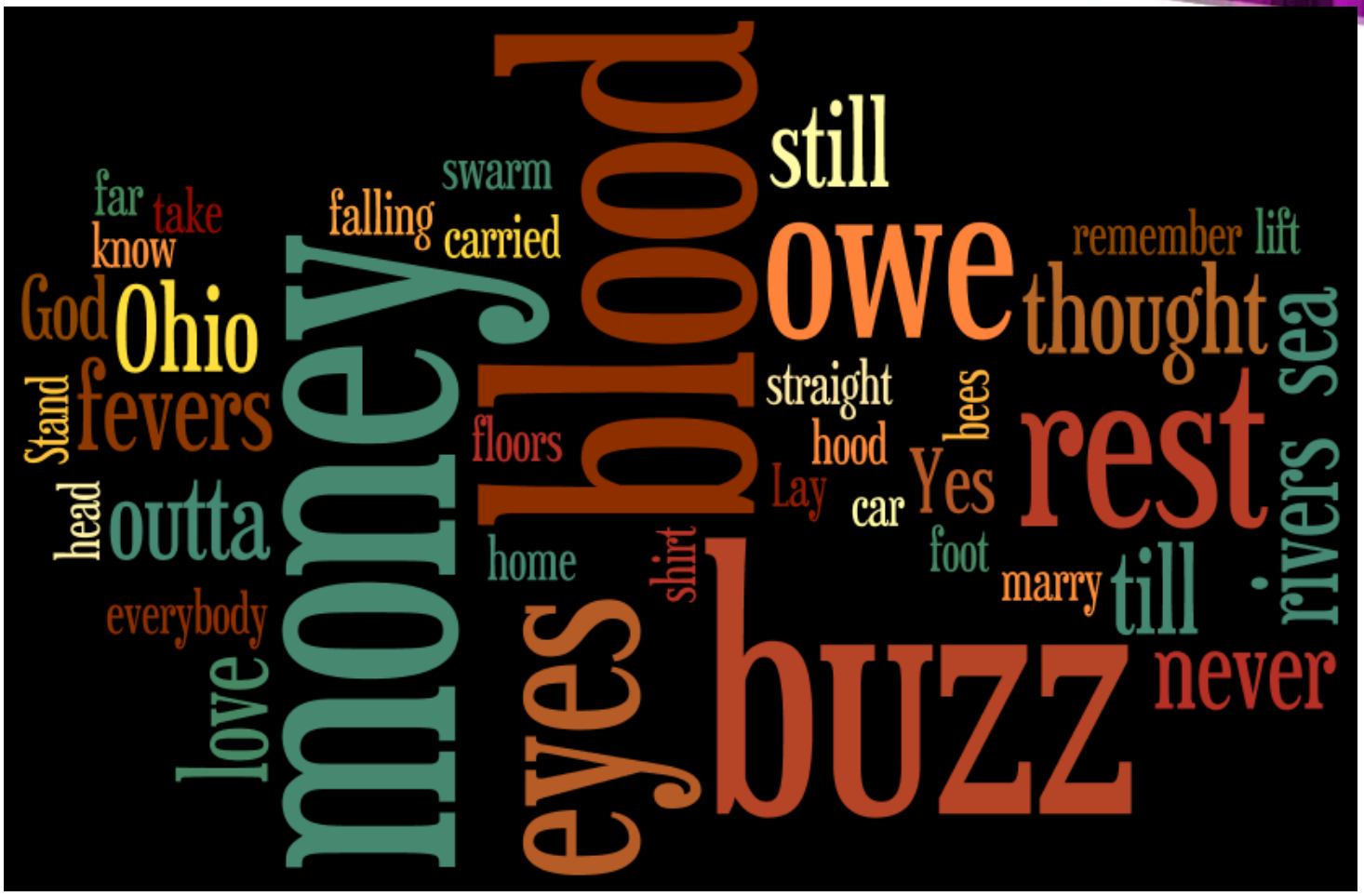

YAHOO! KICKSTART
LAND OF DEFUNCT SOCIAL NETWORKS
YAHOO! 360
YAHOO! MASH
SOUNDPEDIA
BAHU
SEA OF FORGOTTEN MEMES
RECEDING GLACIERS OF AOL AND WINDOWS LIVE
BEBO
117 MILLION*
YAHOO
ORKUT
EBAY
FRIENDSTER
FACEBOOK
500 MILLION
FORMER KINGDOM OF MYSPACE
OMFG WTF TTYL OCEAN
TWITTER
114 MILLION
HABBO
178 MILLION
SEA OF PERSONAL INFORMATION
Hi5
FLICKR
FOURSQUARE
DIGSBY
TWITPIC
STUMBLEUPON SEA
DIGG
BLOGSPOT
TUMBLR
THE 2010 SOCIAL NETWORKING MAP
AND OTHER INTERNET POINTS OF INTEREST
Social networks have changed dramatically in the past few years, with new networks dominating and other networks fading into internet oblivion.
GEOGRAPHIC AREA IS INDICATIVE OF ESTIMATED NUMBER OF USERS PER DESIGNATED SOCIAL NETWORK
YOUTUBE
YOUTUBE TRIANGLE OF VIRAL VIDEOS
SEA OF DESPERATION
UNITED TERRITORIES OF WIKIMEDIA
WIKIBOOKS
WIKICITY
CITIZENDIUM
WIKTIONARY
WIKISOURCE
SCIENCE WIKI
REFERENCE WIKI
MARVEL WIKI
MATCH
CHEMISTRY
LIVE JASMIN
LINKED IN
XING
SEA OF MASTER DEBATERS
RISING ISLAND OF GOOGLE BUZZ
EMPIRE OF GOOGLE
0
>10
25
50
100
250
500 +
MILLIONS OF USERS
APPROXIMATE MEASUREMENT OF NUMBER OF USERS
= MEDIA MOUNTAIN RANGE
Flowtown

in the classroom

Show some of these as in intro
Wordle would be a simple place to start
Use some of these as exercises
Datasets are available from:

- ABS
- BOM
- Local Councils – bike spreadsheet provided

wordle



Lyrics to "Bloodbuzz Ohio" – The National - Wordle.net

Julia Gillard's acceptance Speech

libya


airports
Americans
leader
building
entered
young
tribes
arrest
died
anyone
Now
president
raided
ask
blood
houses
agents
use
taken
radio
destroyed
now
Abdul
preparatory
tablets
tribe
impossible
unity
free
Fallujah
new
Libyans
Africa
water
Libyan
tanks
come
force
Somalia
Moummar
cities
brought
one
rats
committees
tomorrow
lead
group
youth
streets
else
Muammar
women
peaceful
end
blame
defend
America
oil
call
somebody
victory
Benghazi
children
help
air
Nobody
undermines
even
generation
person
another
brothers
authorities
mentioned
armored
security
Iraq
country
challenge
give
like
want
led
youths
authority
behind
something
heads
committee
also
destroy
different
giving
anything
death
people
war
revolution
matter
back
tonight
whatever
millions
go
people's
Libya
left
hear
arms
school
square
demonstrations
just
pills
history
Even
American
nothing
world
media
Qaddafi
must
punished
police
Peaceful
fought
know
apprehend
dealt
men
given
front
Saif-al-Islam
leave
sentence
Fatah
reason
take
foreign
money
anybody
Revolution
safety
People
planes
house
well
fighting
terrorism

in the classroom

Upfield Corridor Bike Survey

Bike Path and Park Street

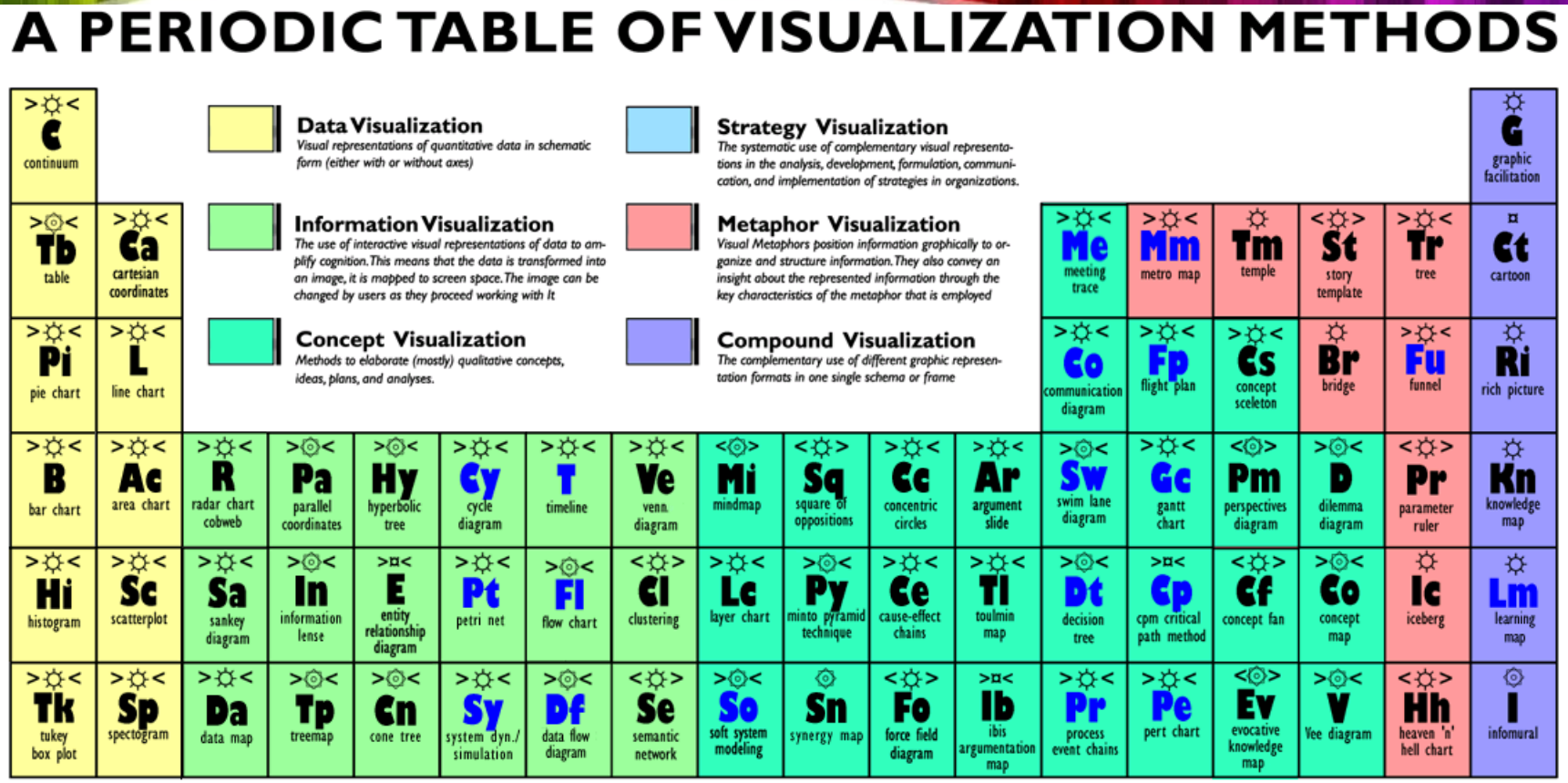
Thursday, 2 April 2009

Trans Traffic BVY Traffic Survey ABN 18 434 565 435 – 3 Hepburn Way Caroline Springs Ph 03 8337 3238

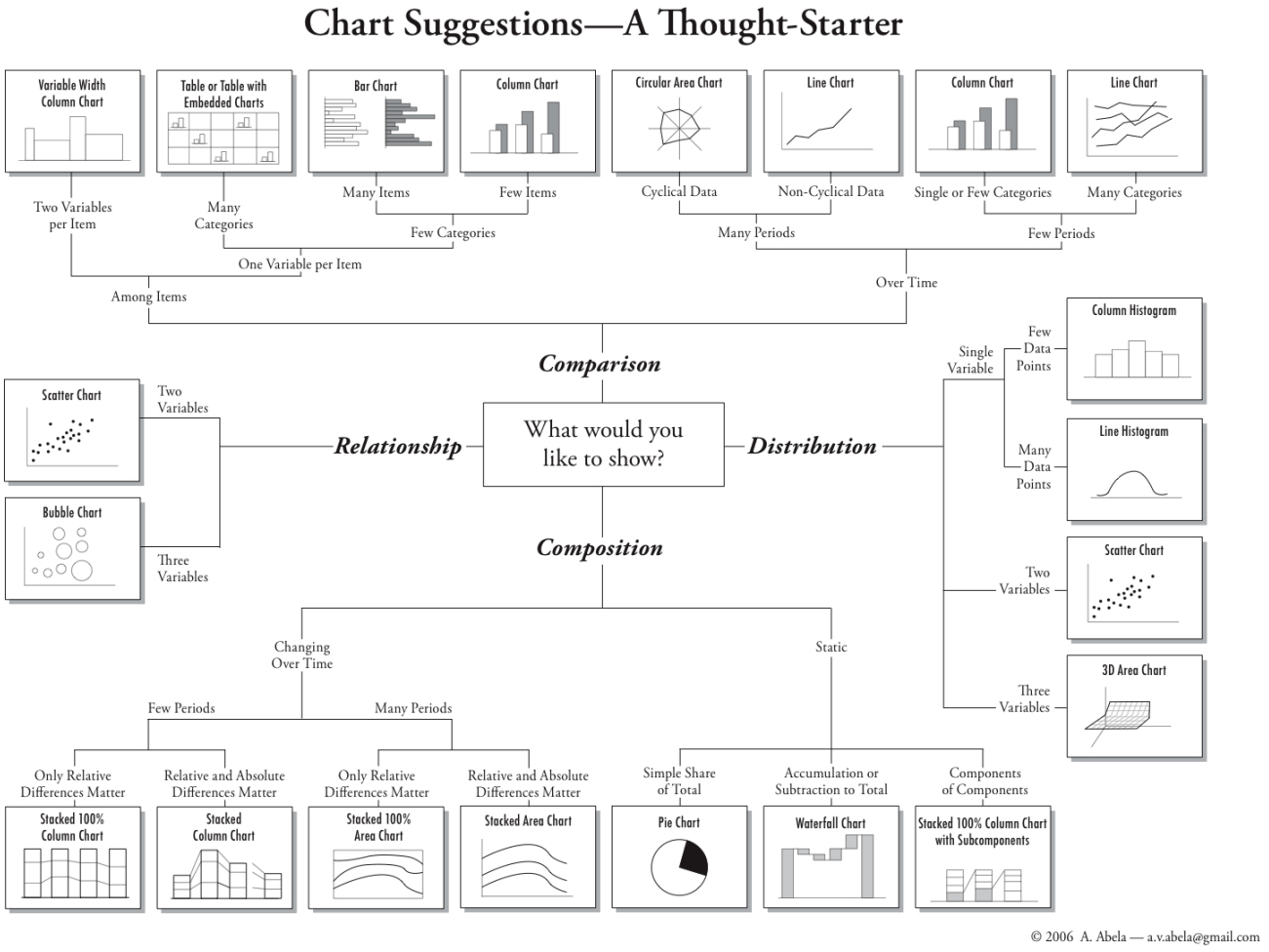
N-North *S-South* *E-East* *W-West* *M-Male* *F-Female*

Time Starting	Bikes																
	E→N		E→W		E→S		S→E		S→N		S→W		W→S		W→E		W-
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
7am	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0
7.15am	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	1	0
7.30am	0	1	1	0	0	0	0	0	3	0	1	0	0	0	6	3	2
7.45am	2	2	0	0	0	0	0	0	1	0	0	0	1	0	1	3	0
8am	0	0	3	0	0	0	0	0	7	1	0	0	1	0	5	4	3
8.15am	3	0	2	0	0	0	0	0	0	1	0	0	3	1	4	0	0
8.30am	3	1	2	1	0	0	0	0	2	0	0	0	2	0	8	4	0
8.45am	1	1	3	1	0	1	0	0	5	2	0	0	2	0	13	3	1
9am	4	0	0	1	0	0	0	0	2	0	0	1	0	2	6	1	0
9.15am	0	4	3	2	0	0	0	0	0	4	0	0	1	0	2	3	0
9.30am	0	1	1	1	0	0	0	0	1	2	0	0	1	0	1	2	0
9.45am	1	1	1	1	0	0	0	0	2	0	0	0	0	0	3	1	0
10am	0	2	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
10.15am	1	0	0	0	0	0	0	0	4	0	1	0	0	1	1	1	0
10.30am	1	0	1	1	0	0	0	0	2	0	0	0	0	0	3	0	0
10.45am	2	0	2	0	0	0	0	0	0	3	1	0	0	0	2	0	0
11am	2	0	2	1	0	0	0	0	1	0	1	0	1	0	1	0	0
11.15am	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0
11.30am	3	0	0	0	0	0	0	0	2	0	0	0	1	0	1	1	0
11.45am	2	1	1	1	0	0	0	0	0	0	0	0	0	0	2	1	0
12noon	2	0	1	2	0	0	0	0	0	3	1	0	0	0	3	0	0
12.15pm	3	0	3	0	0	0	0	0	3	1	1	0	0	0	0	0	0
12.30pm	1	3	0	2	0	0	0	0	0	1	0	0	1	0	0	1	0
12.45pm	2	0	2	0	0	0	0	0	0	1	1	0	0	0	1	0	0
1pm	1	1	1	1	1	1	0	0	0	1	1	0	0	0	3	1	0

how to visualise



how to visualise



http://www.extremepresentation.com/uploads/images/choosing_a_good_chart.jpg

how to visualise

David McCandless

TED Ideas worth spreading

http://www.ted.com/talks/view/id/937

resources

http://www.ted.com/talks/view/id/937 - presentation by David McCandless

www.informationisbeautiful.net – Amazing Visualisations

http://www.maximized.co.uk/ - Game Stats Example

www.wordle.com – Word Clouds

http://neoformix.com/2009/TimeOfDayWordCorrelations.html - twitter words

http://community.livejournal.com/charts_and_maps

http://www.visual-literacy.org

http://www.smashingmagazine.com/2007/08/02/data-visualization-modern-approaches/ - data visualisation techniques

http://tiny.cc/shy4p this presentation on drop box plus other resources

http://www.vizworld.com/2010/05/infographic-music-piracy/

http://www.flowtown.com/