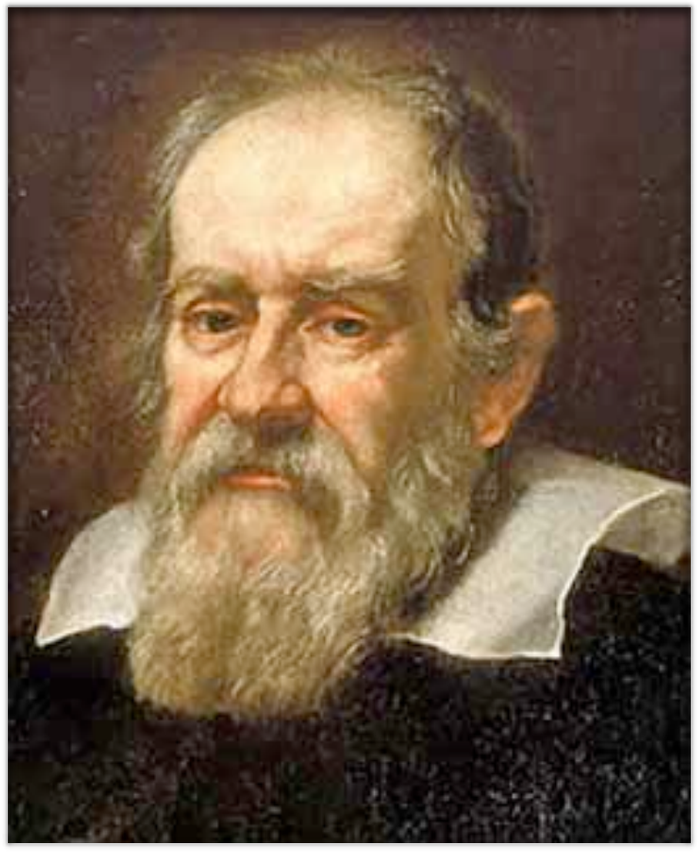
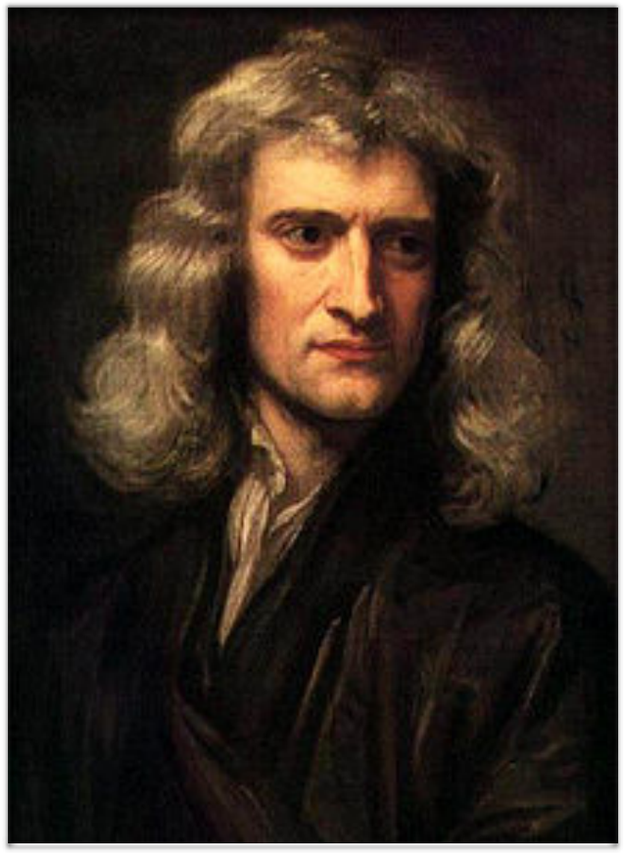
Using visualisation to increase the audience and outreach of Official Statistics

Alan Smith OBE
ONS Data Visualisation Centre

@theboysmithy



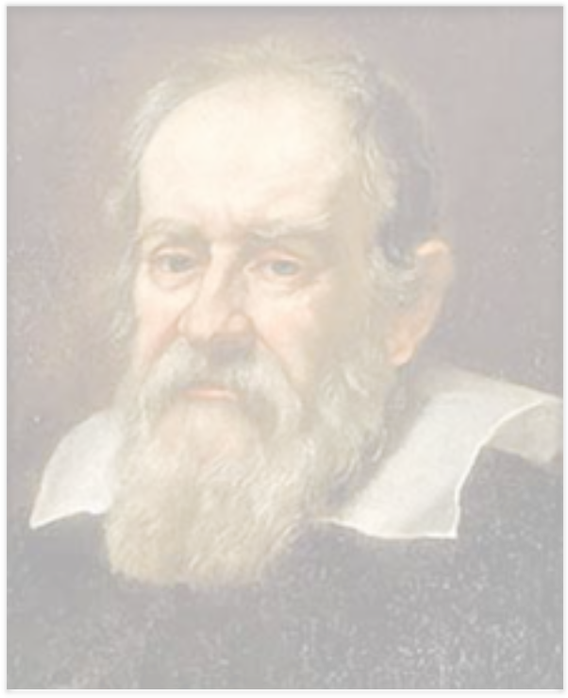


“You complain that your report would be dry [without graphics]...

...THE DRYER THE BETTER

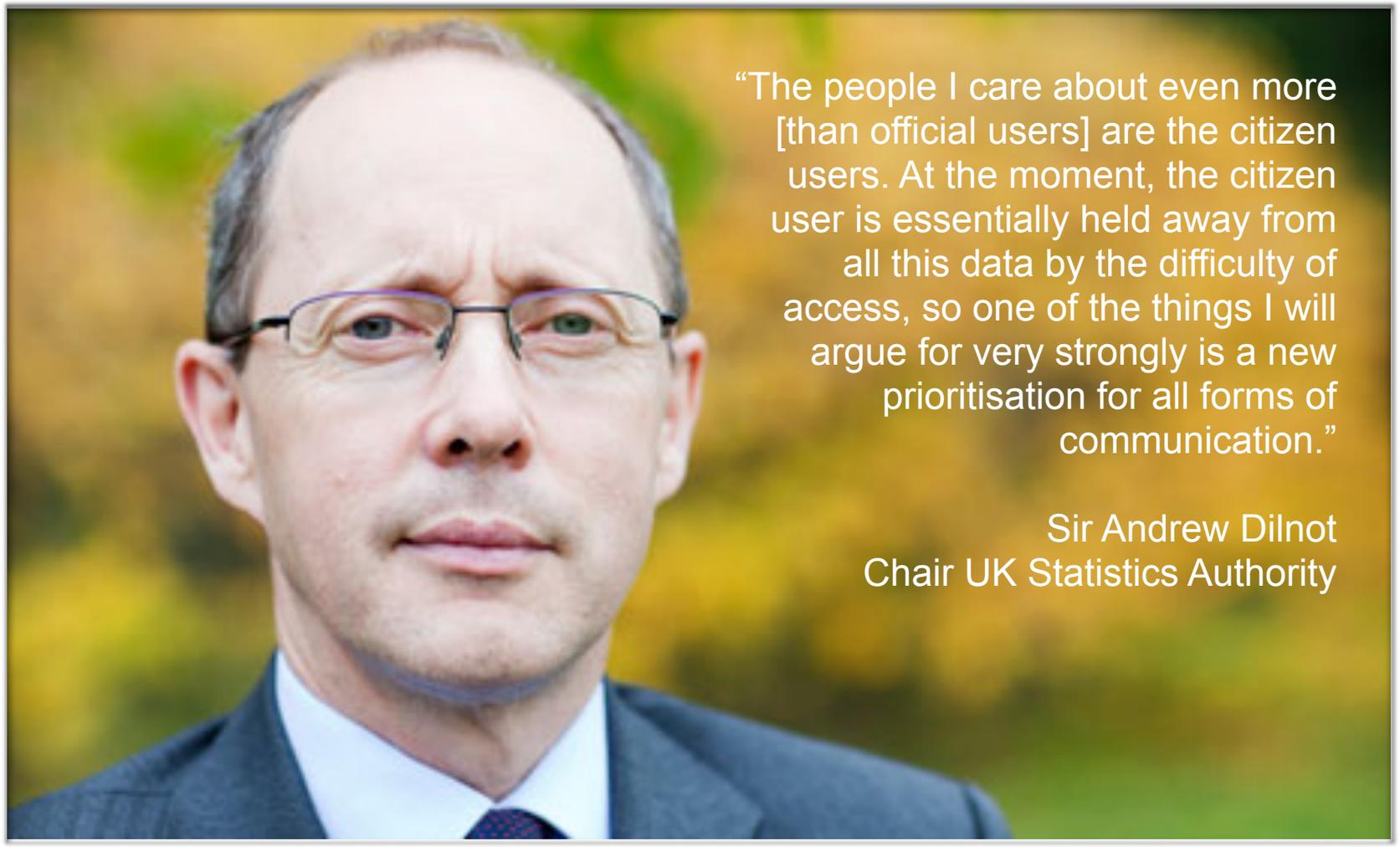
Statistics should be the dryest of all reading.”

Letter to Florence Nightingale



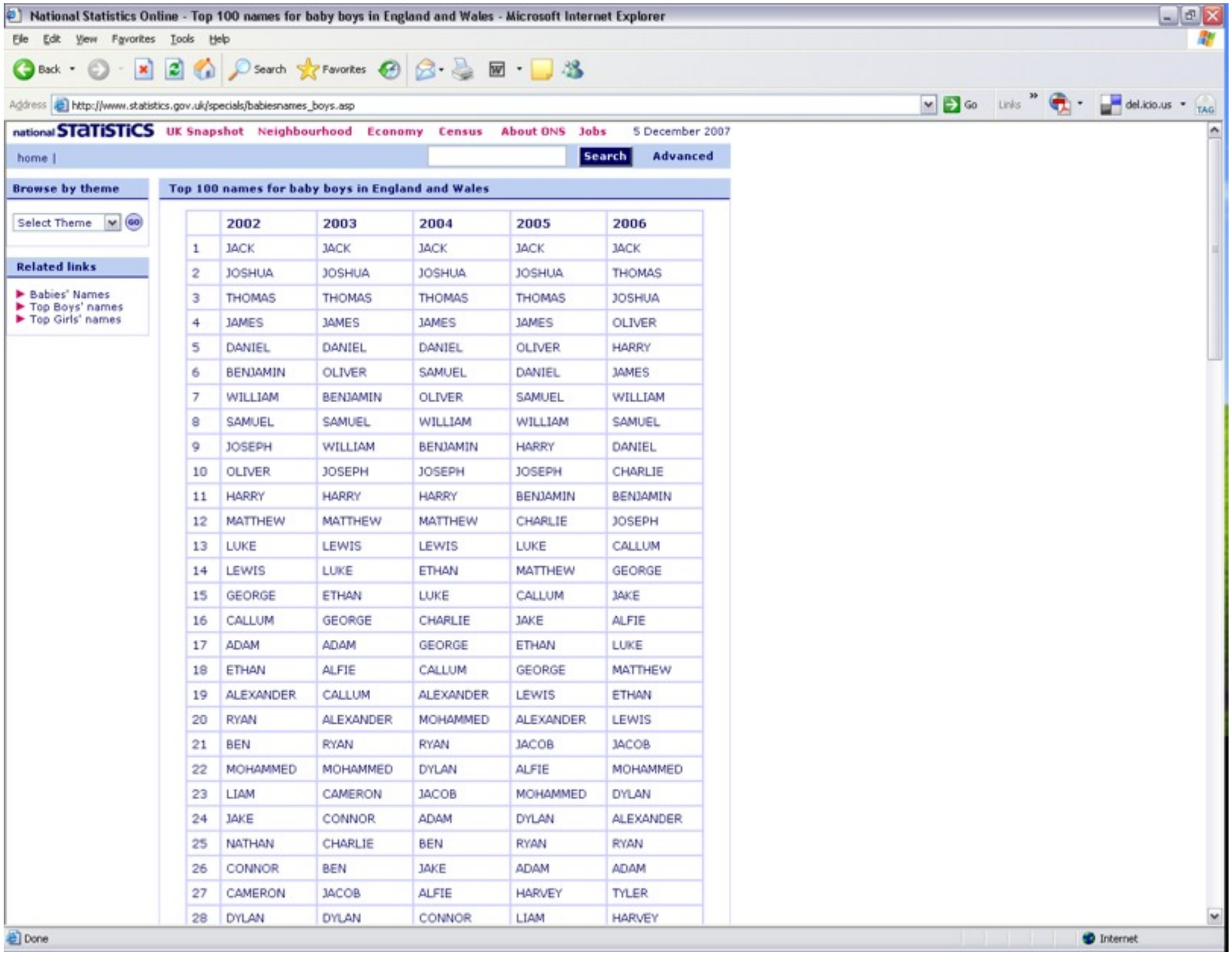
"In the view of the Statistics Authority, **the public has a right to know the statisticians' understanding of the messages from the statistics, just as they have a right to the data itself**. It is common, and proper, for statisticians in government departments to brief policy colleagues on the substance of the statistics. That knowledge should, as a matter of principle, be shared more widely."

(The Value of Statistical Commentary, 23rd July 2010)


“The people I care about even more [than official users] are the citizen users. At the moment, the citizen user is essentially held away from all this data by the difficulty of access, so one of the things I will argue for very strongly is a new prioritisation for all forms of communication.”
Sir Andrew Dilnot
Chair UK Statistics Authority

www.statistics.gov.uk

Joshua?
Charlie?
Kevin?
Thomas?
George?
William?
Oliver?
James?
Jack?
Harry?
Alfie?
http://www.flickr.com/photos/8314403@N03/2620922750/ Happiness



	2002	2003	2004	2005	2006
1	JACK	JACK	JACK	JACK	JACK
2	JOSHUA	JOSHUA	JOSHUA	JOSHUA	THOMAS
3	THOMAS	THOMAS	THOMAS	THOMAS	JOSHUA
4	JAMES	JAMES	JAMES	JAMES	OLIVER
5	DANIEL	DANIEL	DANIEL	OLIVER	HARRY
6	BENJAMIN	OLIVER	SAMUEL	DANIEL	JAMES
7	WILLIAM	BENJAMIN	OLIVER	SAMUEL	WILLIAM
8	SAMUEL	SAMUEL	WILLIAM	WILLIAM	SAMUEL
9	JOSEPH	WILLIAM	BENJAMIN	HARRY	DANIEL
10	OLIVER	JOSEPH	JOSEPH	JOSEPH	CHARLIE
11	HARRY	HARRY	HARRY	BENJAMIN	BENJAMIN
12	MATTHEW	MATTHEW	MATTHEW	CHARLIE	JOSEPH
13	LUKE	LEWIS	LEWIS	LUKE	CALLUM
14	LEWIS	LUKE	ETHAN	MATTHEW	GEORGE
15	GEORGE	ETHAN	LUKE	CALLUM	JAKE
16	CALLUM	GEORGE	CHARLIE	JAKE	ALFIE
17	ADAM	ADAM	GEORGE	ETHAN	LUKE
18	ETHAN	ALFIE	CALLUM	GEORGE	MATTHEW
19	ALEXANDER	CALLUM	ALEXANDER	LEWIS	ETHAN
20	RYAN	ALEXANDER	MOHAMMED	ALEXANDER	LEWIS
21	BEN	RYAN	RYAN	JACOB	JACOB
22	MOHAMMED	MOHAMMED	DYLAN	ALFIE	MOHAMMED
23	LIAM	CAMERON	JACOB	MOHAMMED	DYLAN
24	JAKE	CONNOR	ADAM	DYLAN	ALEXANDER
25	NATHAN	CHARLIE	BEN	RYAN	RYAN
26	CONNOR	BEN	JAKE	ADAM	ADAM
27	CAMERON	JACOB	ALFIE	HARVEY	TYLER
28	DYLAN	DYLAN	CONNOR	LIAM	HARVEY

Vornamenstatistik: Anzahl der zwischen 1987 und 2009 geborenen Kinder im Kanton Zürich.

Nr.	Grafik	Vorname	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	Total
	Sortieren nach Jahr:																									
1.		Leon	1		1	1	3			2	2	7	9	24	12	32	30	35	39	46	41	80	64	83	84	596
2.		Lara	17	12	29	26	38	35	31	37	47	30	54	52	60	56	59	65	65	61	57	52	55	59	77	1074
3.		Tim	12	6	16	20	33	26	28	19	32	33	73	60	58	75	51	63	81	63	80	59	65	57	75	1085
4.		Sophie	10	9	9	10	14	12	16	12	18	20	28	20	20	31	23	20	39	28	32	50	48	48	67	584
5.		Mia		1					1		2	2	6	3	6	10	14	23	27	51	37	45	53	52	66	399
6.		Laura	72	66	64	101	82	80	108	79	104	85	102	115	111	113	94	74	68	60	50	58	51	49	64	1850
7.		Leandro	4	3	3	3	9	9	7	5	14	8	19	13	14	27	31	29	44	39	45	55	62	48	62	553
8.		Julia	29	40	34	48	54	60	51	62	67	57	51	56	60	65	61	59	48	59	48	64	62	45	61	1241
9.		Luca	40	48	64	60	77	69	95	103	119	96	109	115	98	108	67	76	75	71	49	58	60	64	60	1781
10.		David	104	93	101	107	88	82	77	87	74	79	69	85	67	83	69	63	68	82	59	52	71	67	59	1786
11.		Sara	56	56	51	52	50	71	48	55	60	49	60	58	49	71	67	67	55	37	60	62	74	80	57	1345
12.		Anna	48	39	54	37	48	42	57	48	38	43	65	51	62	53	64	69	60	62	53	70	53	63	56	1235
13.		Nico	13	11	15	24	28	33	28	24	54	50	50	43	55	44	48	47	47	44	34	47	62	64	56	921
14.		Nina	34	50	46	44	49	47	43	55	48	41	57	47	61	63	61	60	44	58	72	62	54	59	54	1209
15.		Noah	2	4	2	4	3	4	8	11	17	25	34	28	43	67	72	48	67	70	62	67	66	63	54	821
16.		Gian	14	8	7	13	13	9	9	12	11	8	19	34	30	32	38	35	40	37	37	29	36	46	53	570
17.		Alina	2	7	7	7	15	13	11	15	19	14	21	25	29	40	44	37	31	37	37	43	51	41	52	598
18.		Julian	17	20	18	14	17	24	23	17	17	26	31	21	23	26	34	39	34	29	44	34	49	49	51	657
19.		Alessia	6	5	14	8	22	17	18	24	19	24	21	29	47	36	44	31	36	49	42	46	39	44	50	671
20.		Leonie	4	6	6	5	12	14	12	20	16	19	15	28	26	32	38	27	48	39	45	57	38	48	50	605
21.		Lia	2		2	1	3	3	2	2	3	3	4	11	4	7	4	13	21	22	22	30	39	34	48	280
22.		Sophia	2	6	2	2	7	6	11	9	9	6	15	14	7	14	16	16	23	21	21	32	39	41	48	367
23.		Chiara	1	2	6	5	7	10	25	20	21	24	33	47	39	45	43	57	68	57	54	53	38	44	47	746
24.		Levin			1	1		1	3	3	4	4	1	5	4	10	6	13	13	13	27	16	27	43	47	242
25.		Andrin	2	13	6	8	8	12	10	11	15	22	22	22	15	29	28	26	44	39	24	31	34	33	46	500
26.		Nils	5	4	7	5	12	12	9	16	11	9	13	15	32	28	35	19	38	29	40	46	44	34	46	509
27.		Lena	10	6	7	14	11	10	19	12	14	25	19	24	17	18	23	29	33	35	45	50	55	50	45	571
28.		Matteo	2	3	3	5	9	4	10	4	11	9	10	19	13	27	21	20	18	35	31	36	42	38	45	415
29.		Alexander	46	48	49	34	41	58	46	44	33	56	37	49	38	31	39	38	31	33	42	35	38	31	44	941
30.		Jan	34	43	38	43	44	51	56	46	53	63	73	79	71	68	69	66	60	60	60	43	50	62	44	1276

Vornamen suchen

Vorname oder Teil davon (mind. 3 Buchstaben):

Suchen

Ranglisten

Knaben →
Mädchen →
Knaben und Mädchen →

Seltene Namen

Vorkommen in 23 Jahren:
3-5 → | 6-10 → | 11-30 →

Kurze Vornamen
2 → bzw. 3 → Buchstaben
Vornamenlänge →

2009er Publikation
Vornamen klingen heute anders als früher →

Jahr 2009

Aaron Adrian Alessandro Alessia Alessio Alexander Alina Andrin Angelina Anna Annika Ben Benjamin Chiara Colin Daniel Dario David Diego Elena Ella Elias Elin Elina Ella Emma Fabian Fabio Felix Finn Fiona Florian Gabriel Gian Giulia Hannah Jan Jana Janis Joel Jonas Julia Julian Kevin Ladina Lara Lars Laura

Vornamen suchen

Vorname oder Teil davon (mind. 3 Buchstaben):

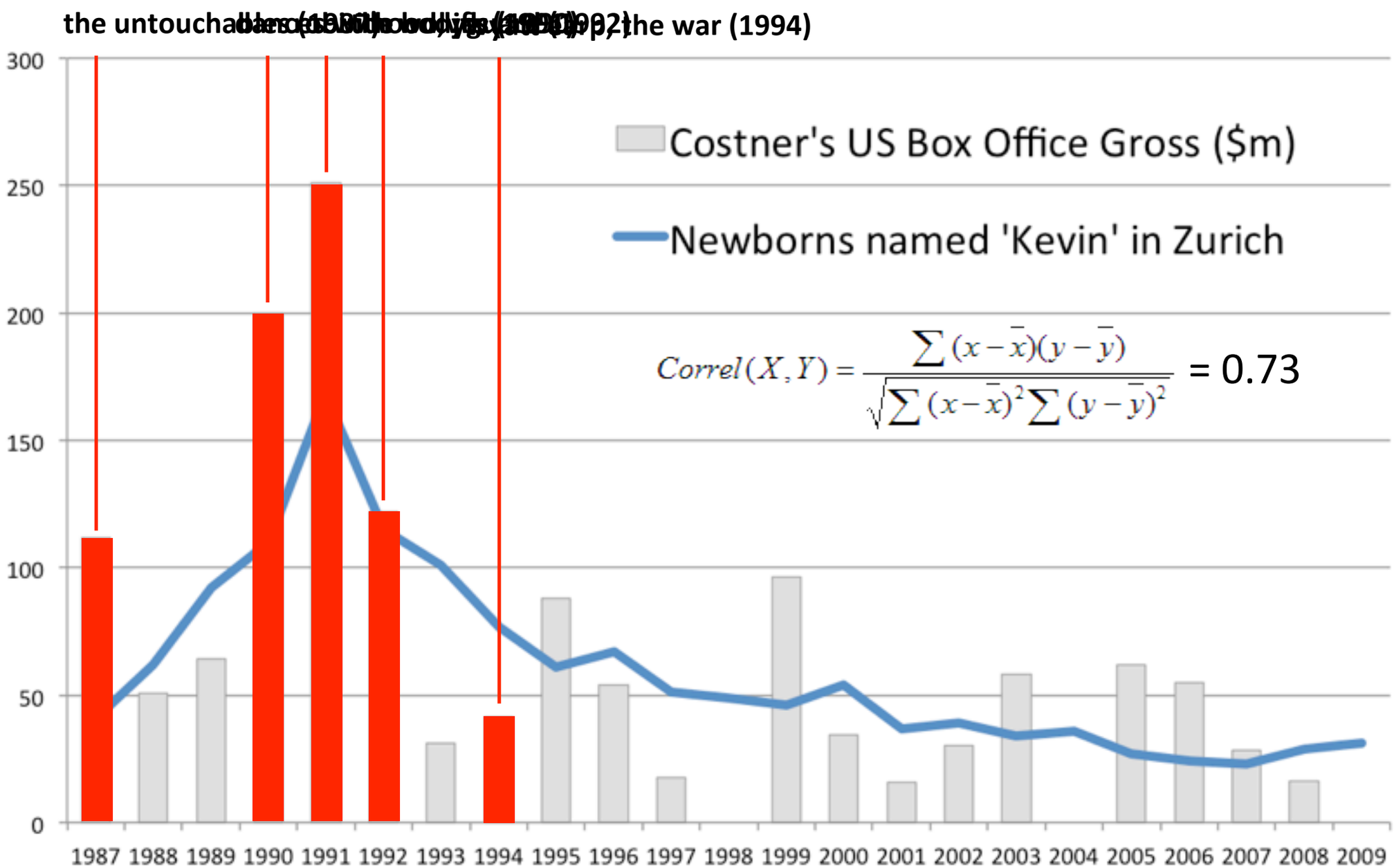
Kevin

Suchen

Vornamenstatistik: Anzahl der zwischen 1987 und 2009 geborenen Kinder im Kanton Zürich.

Grafik	Vorname	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	Total
	Alexandros-Kevin																1								1
	Christoph-Kevin							1																	1
	Kevin	41	62	92	110	168	115	101	77	61	67	51	49	46	54	37	39	34	36	27	24	23	29	31	1374
	Kevine		1																						1
	Kevin-Erich						1																		1
	Kevin-Serge				1																				1

ANALYSIS: Kevin Costner and Babies in Zurich



source: Zurich Canton and the-numbers.com

“Given that Zurich is predominantly German speaking (French is the first language for only 2.1%), one wouldn't expect that parents in Zurich were just being influenced by France. Is this additional evidence of the Costner effect? It is a bit depressing to think that KC could have such an impact.”

Kevin Pickering
Head of Statistics
National Centre for Social Research

Increasing volumes of data

+

Increasing demand for information

+

Low levels of statistical literacy

= **THE** 21st Century problem

Numbers about people not liking numbers*

In 2003, **46.9%** of working age adults in England lacked Level 1 numeracy skills.

In 2011, **49.1%** of working age adults in England lacked Level 1 numeracy skills.

*Skills for Life Survey

Evidence of people not liking numbers

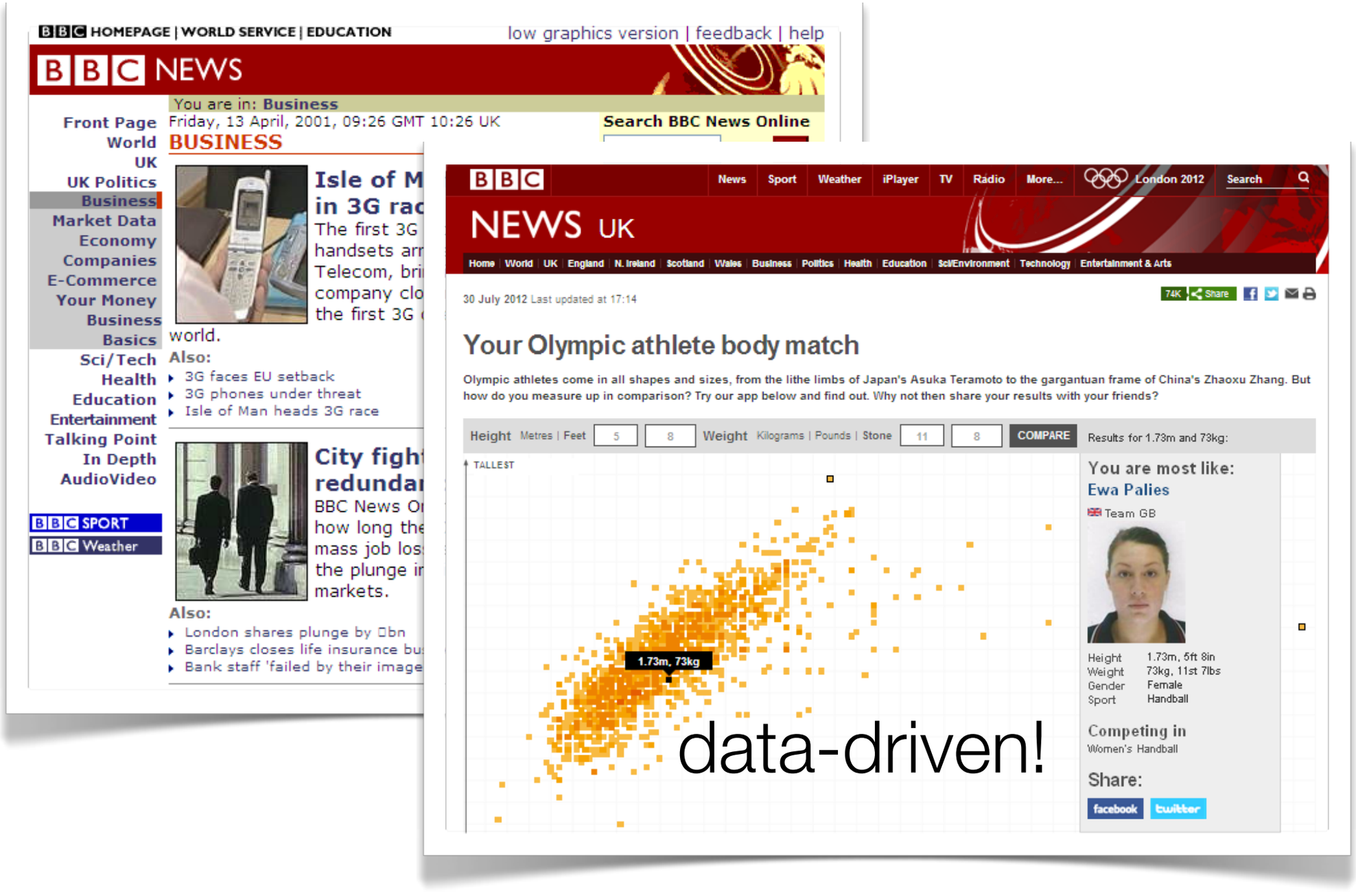
"I phoned Camelot and they fobbed me off with some story that -6 is higher, not lower, than -8, but I'm not having it"

Tina Farrel, 23, Manchester

100 represents the peak search interest
100
80
60
"infographic"
on"
2009
U.S. DATA CONSUMPTION IN ONE DAY
TOTAL CONSUMPTION:
3.6 ZETTABYTES
5.1 TRILLION HARD DRIVES (AVERAGE PC SIZE) WORTH OF DATA – MORE THAN 16 HARD DRIVES FOR EVERY MAN, WOMAN, AND CHILD IN THE U.S.
OR
4.5 HRS OF TV OR ALMOST THE ENTIRE SEASON OF "CURB YOUR ENTHUSIASM"
1.1 HRS OF READING (MAGAZINES, BOOKS, NEWSPAPERS) OR ONE "GOING ROGUE"-LENGTH BOOK A WEEK
5 HRS OF RADIO (SATELLITE AND TERRESTRIAL) OR THE ENTIRE DAILY HOWARD STERN SHOW, PLUS WRAP UP
2 HRS OF COMPUTER INTERACTION OR 61 VIEWS OF "CHARLIE BIT MY FINGER AGAIN" + 18 VIEWS OF BEYONCE'S "SINGLE LADIES" + 60 VIEWS OF THE "TWILIGHT" TEASER TRAILER + 22 VIEWS OF SOULJA BOY'S "CRANK THAT" ON YOUTUBE
5 HRS OTHER (HANDHELD, CONSOLE, AND PC) OR EARN A VIRTUAL T-SHIRT FOR 10,000 ZOMBIE KILLS IN "LEFT 4 DEAD 2"
1.13 HRS ON THE PHONE (MOBILE, LAND LINES) OR ONE CALL TO AT&T CUSTOMER SERVICE
FASTCOMPANY.COM
SOURCE: University of California, San Diego
Not so cut & dried
In 1951, two years after haircuts were added to the consumers price index (CPI) basket, a men's dry cut cost a couple of shillings and a women's cut cost half as much again. If these prices had increased in line with the overall CPI, they would have reached $6 and $8 by 2011 – a snip, compared with prices today. However, times and hairstyles have changed, and people today have the choice of a diverse range of hairdressing services. While some men choose dry clipper cuts, others choose to have stylish wet cuts, which averaged $38 in 2011. Women's wet cuts averaged $63 in 2011.
1951
2 SHILLINGS $6
PRICE AT THE TIME
IN TODAY'S DOLLARS
3 SHILLINGS $8
1981
$4 PRICE AT THE TIME $13
$15 IN TODAY'S DOLLARS $46
2011
$38 $63

dumb things down?

The web is now more visual, personal, social...

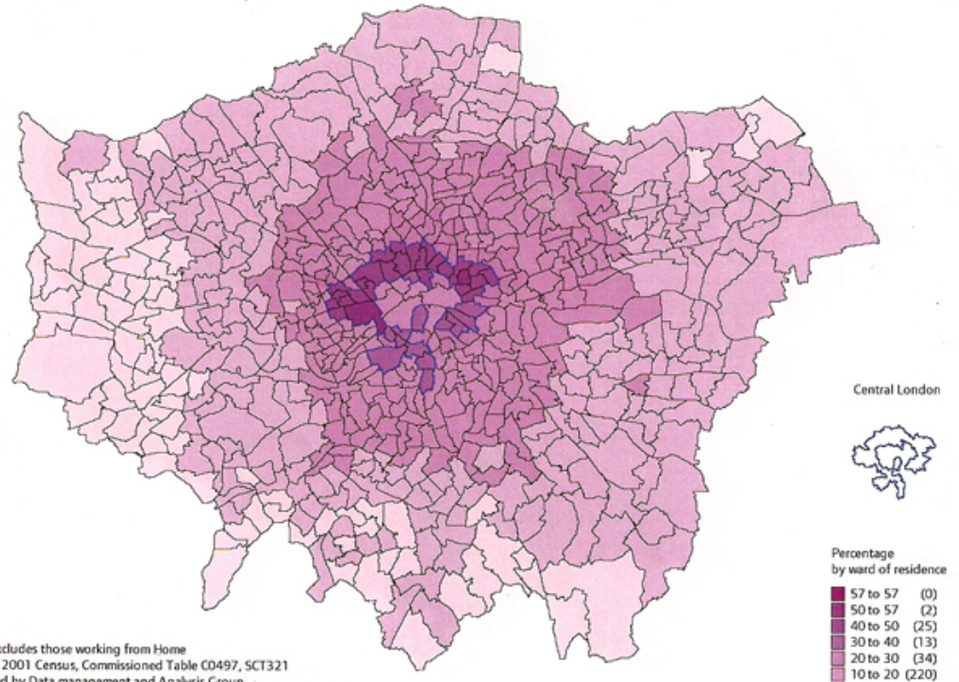


To engage, content must be engaging

3 observations from the Data Visualisation Centre

1. A question of symbology

People working in Central London by where they live



Note: Excludes those working from Home
Source: 2001 Census, Commissioned Table C0497, SCT321
Produced by Data management and Analysis Group
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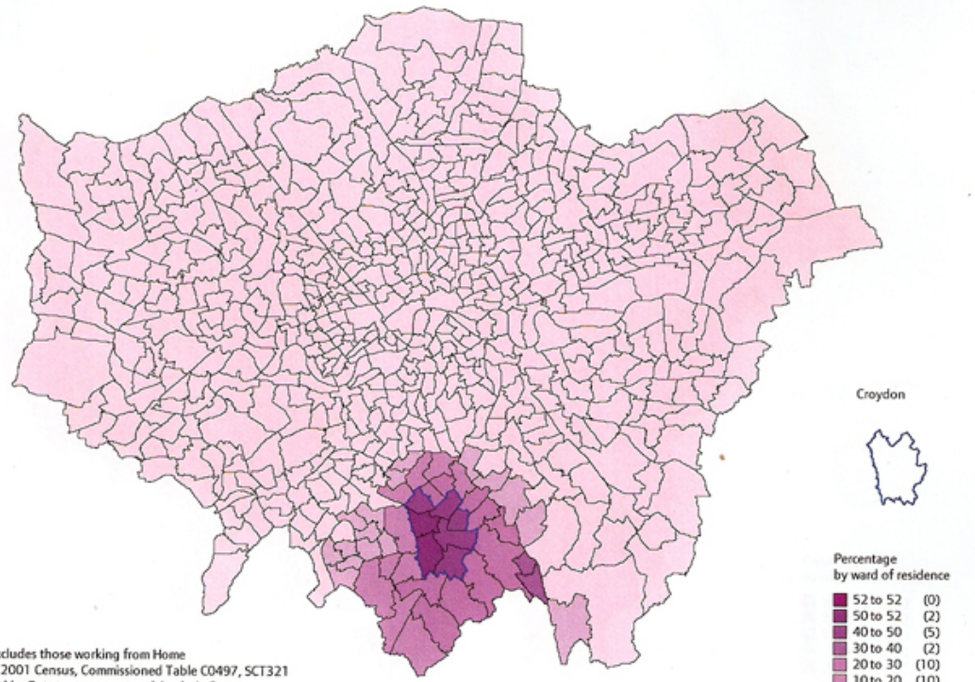
People working in Croydon by where they live



Note: Excludes those working from Home
Source: 2001 Census, Commissioned Table C0497, SCT321
Produced by Data management and Analysis Group
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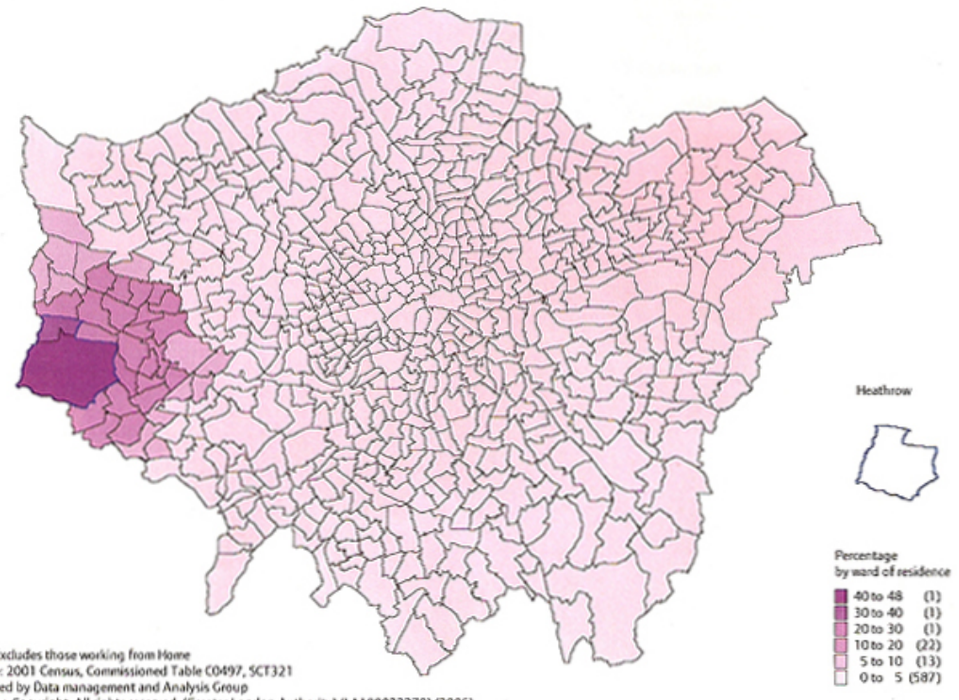
People working in Heathrow by where they live



Note: Excludes those working from Home
Source: 2001 Census, Commissioned Table C0497, SCT321
Produced by Data management and Analysis Group
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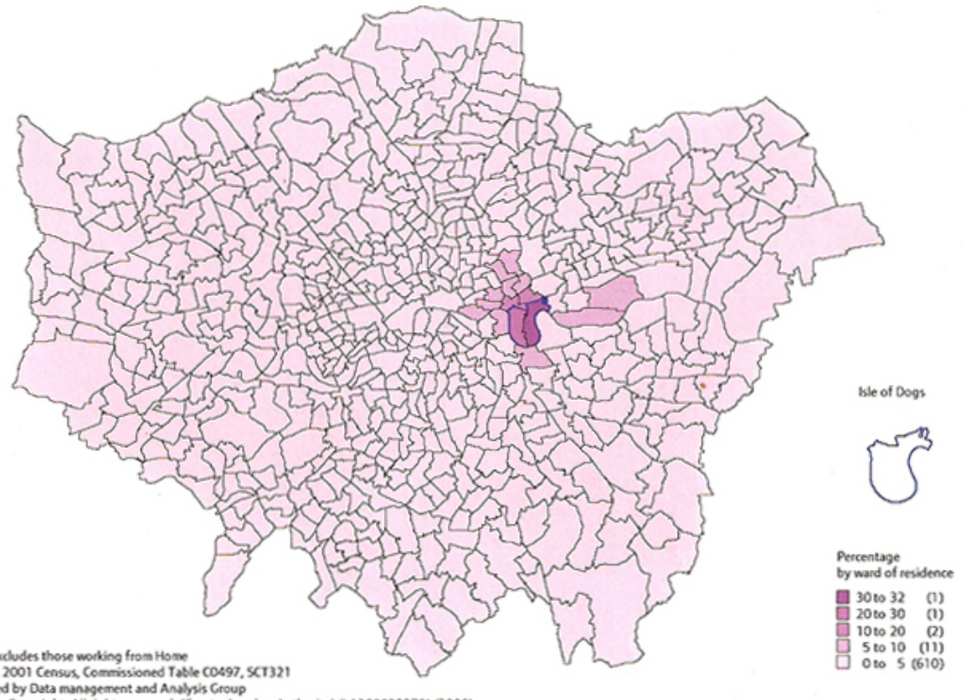
People working in the Isle of Dogs by where they live



Note: Excludes those working from Home
Source: 2001 Census, Commissioned Table C0497, SCT321
Produced by Data management and Analysis Group
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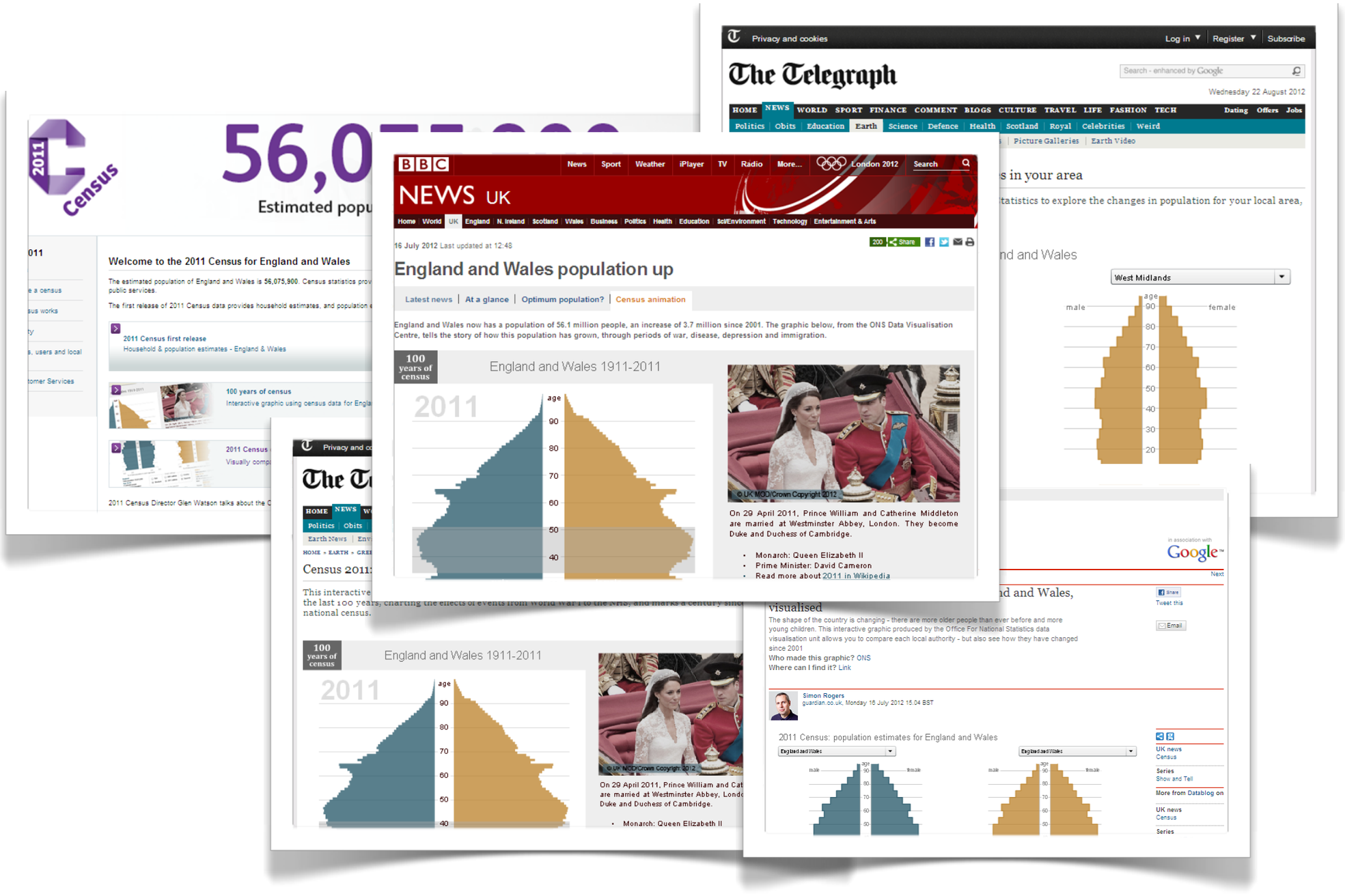
2. Using animated transitions

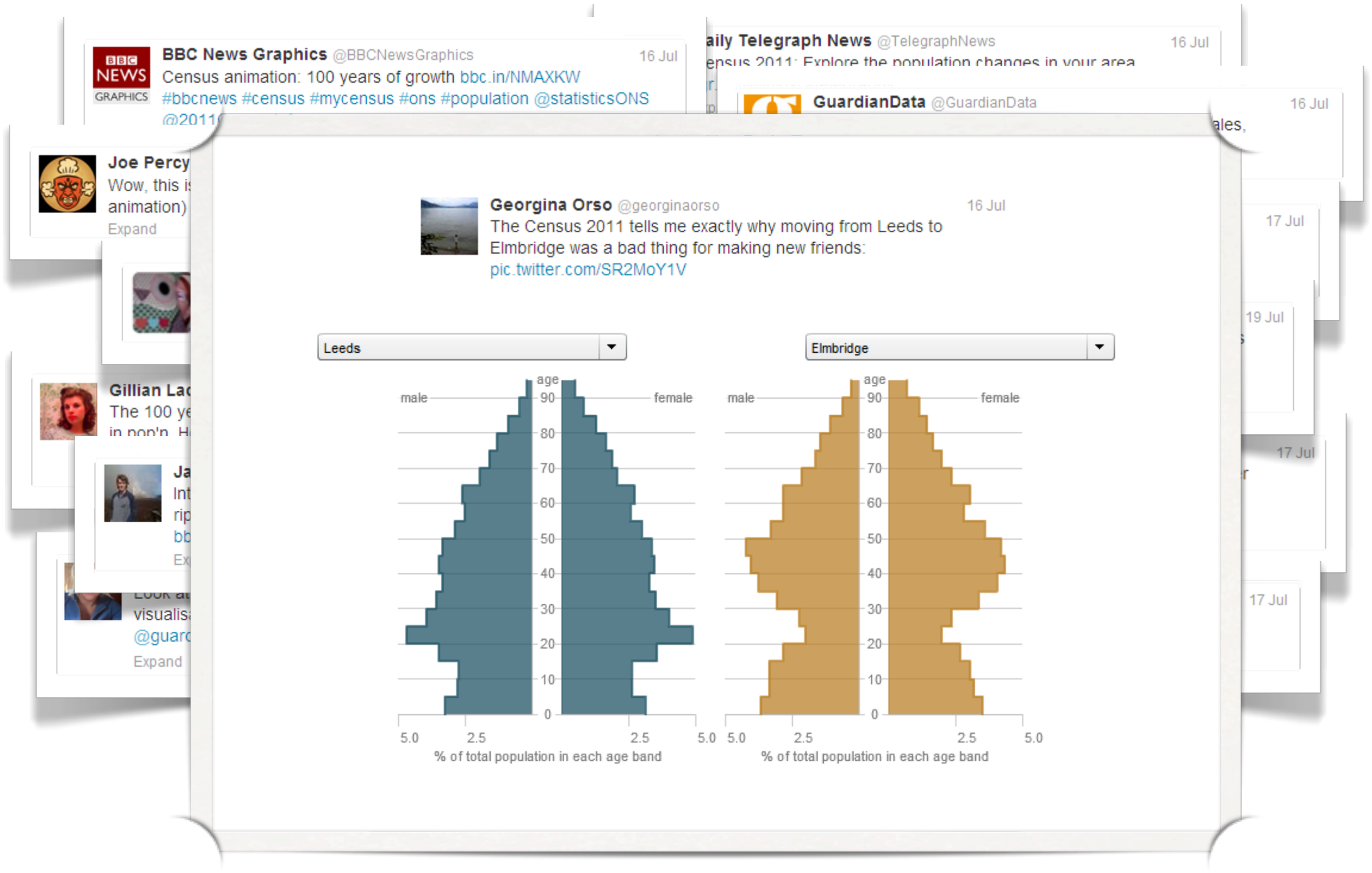
3. Syndication to increase outreach



2011 Census
56,0
Estimated popu
Welcome to the 2011 Census for England and Wales
2011 Census first release
Household & population estimates - England & Wales
100 years of census
Interactive graphic using census data for Engla
2011 Census Director Glen Watson talks about the C
BBC
News Sport Weather iPlayer TV Radio More... London 2012 Search
NEWS UK
Home World UK England N. Ireland Scotland Wales Business Politics Health Education Sci/Environment Technology Entertainment & Arts
16 July 2012 Last updated at 12:48
England and Wales population up
Latest news | At a glance | Optimum population? | Census animation
England and Wales now has a population of 56.1 million people, an increase of 3.7 million since 2001. The graphic below, from the ONS Data Visualisation Centre, tells the story of how this population has grown, through periods of war, disease, depression and immigration.
100 years of census
England and Wales 1911-2011
2011
age
90
80
70
60
50
40
© UK MOD/Crown Copyright 2012
On 29 April 2011, Prince William and Catherine Middleton are married at Westminster Abbey, London. They become Duke and Duchess of Cambridge.
Monarch: Queen Elizabeth II
Prime Minister: David Cameron
Read more about 2011 in Wikipedia
Privacy and cookies
Log in Register Subscribe
The Telegraph
Search - enhanced by Google
Wednesday 22 August 2012
HOME NEWS WORLD SPORT FINANCE COMMENT BLOGS CULTURE TRAVEL LIFE FASHION TECH Dating Offers Jobs
Politics Obits Education Earth Science Defence Health Scotland Royal Celebrities Weird
Picture Galleries Earth Video
s in your area
tatistics to explore the changes in population for your local area,
nd and Wales
West Midlands
male
female
age
90
80
70
60
50
40
30
20
Census 2011
This interactive
the last 100 years, charting the effects of events from World War I to the NHS, and marks a century since
national census.
100 years of census
England and Wales 1911-2011
2011
age
90
80
70
60
50
40
© UK MOD/Crown Copyright 2012
On 29 April 2011, Prince William and Cat
are married at Westminster Abbey, Londo
Duke and Duchess of Cambridge.
Monarch: Queen Elizabeth II
in association with Google
Next
nd and Wales,
visualised
The shape of the country is changing - there are more older people than ever before and more young children. This interactive graphic produced by the Office For National Statistics data visualisation unit allows you to compare each local authority - but also see how they have changed since 2001
Who made this graphic? ONS
Where can I find it? Link
Share
Tweet this
Email
Simon Rogers
guardian.co.uk, Monday 16 July 2012 15.04 BST
2011 Census: population estimates for England and Wales
England and Wales
UK news
Census
Series
Show and Tell
More from Datablog on
UK news
Census
Series

+1,000%

“Visual, personal, social...”



Thank you

Alan Smith OBE
ONS Data Visualisation Centre

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