香港浸會大學
HONG KONG BAPTIST UNIVERSITY

新聞系
DEPARTMENT OF JOURNALISM

Introduction to Data-driven Journalism

Lectured by: Dr. Xinzhi ZHANG

Research Assistant Professor, Department of Journalism

Hong Kong Baptist University

12 June, 2018

@CUCN Data-driven Journalism Workshop

Workshop Schedule: Day 1

Date	Time	Content	Venue	Remarks
D1	AM1	Introduction to data-driven Journalism	Hall	Public seminar
D1	AM2	Issues and cases of data-driven journalism	Hall	Public seminar
D1	PM1	News topic brainstorming, news sourcing, preliminary data collection	Classroom	Hands-on tutorial Team-up
	PM2	Data processing: concepts, measurements, coding	Classroom	Workshop + tutorial
	E	Data collection, drafting the outline and preparing texts	Self-organized	Initial draft done (the text part should be completed)

Workshop Schedule: Day 2

Date	Time	Content	Venue	Remarks
D2	AM1	Data analysis • Fundamentals of Excel • Descriptive statistics • Correlation relations of the variables • Pivot Table, OLAP	Classroom	Workshop + tutorial
	AM2	Data Visualization • Basic charts • Multi-dimensional data visualization	Classroom	Workshop + tutorial
	PM	Extended data types and visualization • Network • Map • Text mining	Classroom	Workshop + tutorial
	E	Data analysis and reporting writing	Self-organized	A complete story done

Workshop Schedule: Day 3

Date	Time	Content	Venue	Remarks
D3	AM	Project discussion and consultation	Classroom	Interactive session Camera-ready for presentation
	PM	Project presentation + feedbacks	Hall	Demonstration

Xinzhi ZHANG [張昕之], Ph.D.

- **Current Position**
  - **Research Assistant Professor**, Department of Journalism, Hong Kong Baptist University
  - **Associate Programme Director**, the Data and Media Communication Concentration (DMC)

- **Professional Experience**
  - **Research Assistant Professor**, Department of Journalism, Hong Kong Baptist University (2016 – Present)
  - **Lecturer**, School of Professional Education & Executive Development, The Hong Kong Polytechnic University (2014 – 16)
  - **Postdoctoral Fellow**, Department of Media and Communication, City University of Hong Kong (2013 – 14)

- **Education**
  - **Ph.D.** in Media and Communication, City University of Hong Kong (2009 – 13)
  - **M.A.** with Distinction, in Communication and New Media, City University of Hong Kong (2008 – 09)
  - **B.A.** in Broadcasting Journalism, Guangzhou University, China (2004 – 08)

Agenda

1. What is data-driven journalism
2. Data-driven investigation
3. Data-driven presentation
4. The intellectual origins of data-driven journalism
5. The flow of data-driven news production
6. Major players of data-driven journalism

How to present a story?

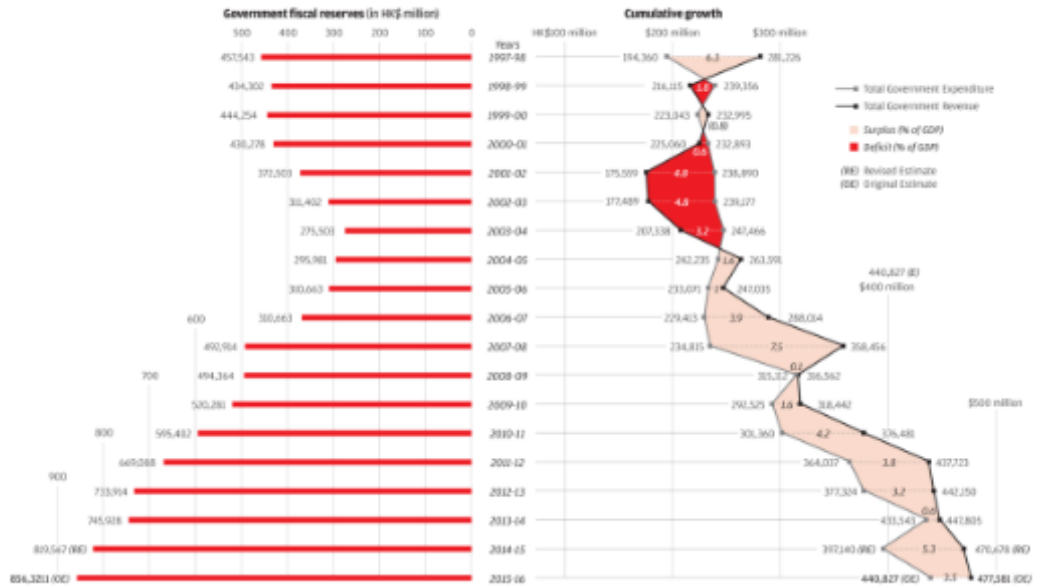
- “In photography, the smallest thing can be a great subject. The little human detail can become a leitmotiv” -- Henri Cartier-Bresson (1952). *The Decisive Moment*.
- The cartoon uses signs, especially symbols, to illustrate the meanings.
- How about data-driven journalism?

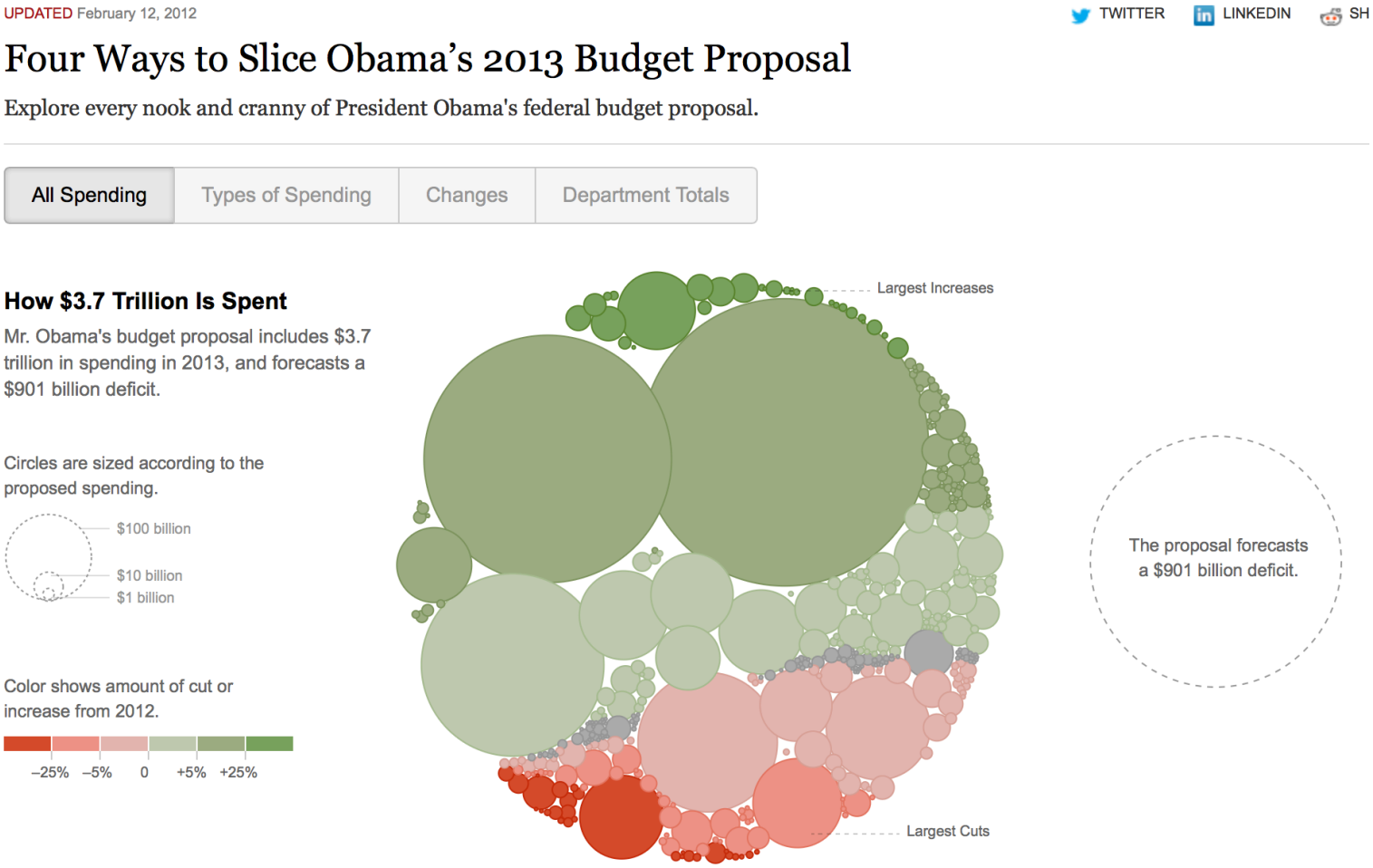
Where the money goes

Health and social welfare get some of the biggest increases in spending this year under the budget plans, with education and the environment also benefiting in the government's push to make Hong Kong "a better place with a brighter future for everyone". Even after the increases the government is predicting a surplus of some HK$37 billion for 2015-2016

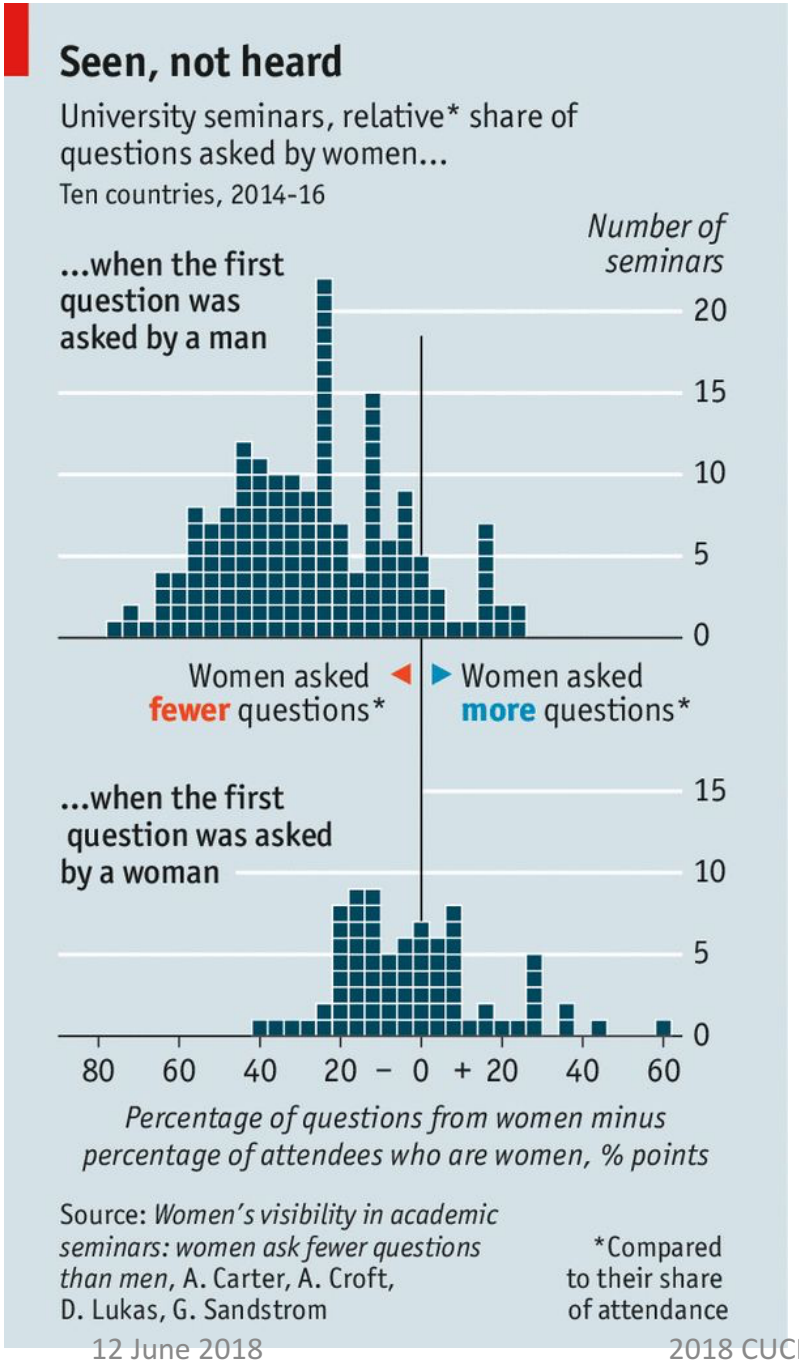
Financial Statistics

The surplus this year is HK$63.8 billion, six times higher than originally projected. The financial secretary said that by the end of March, Hong Kong will have HK$809.5 billion in its fiscal reserves, which have grown continuously since 2003



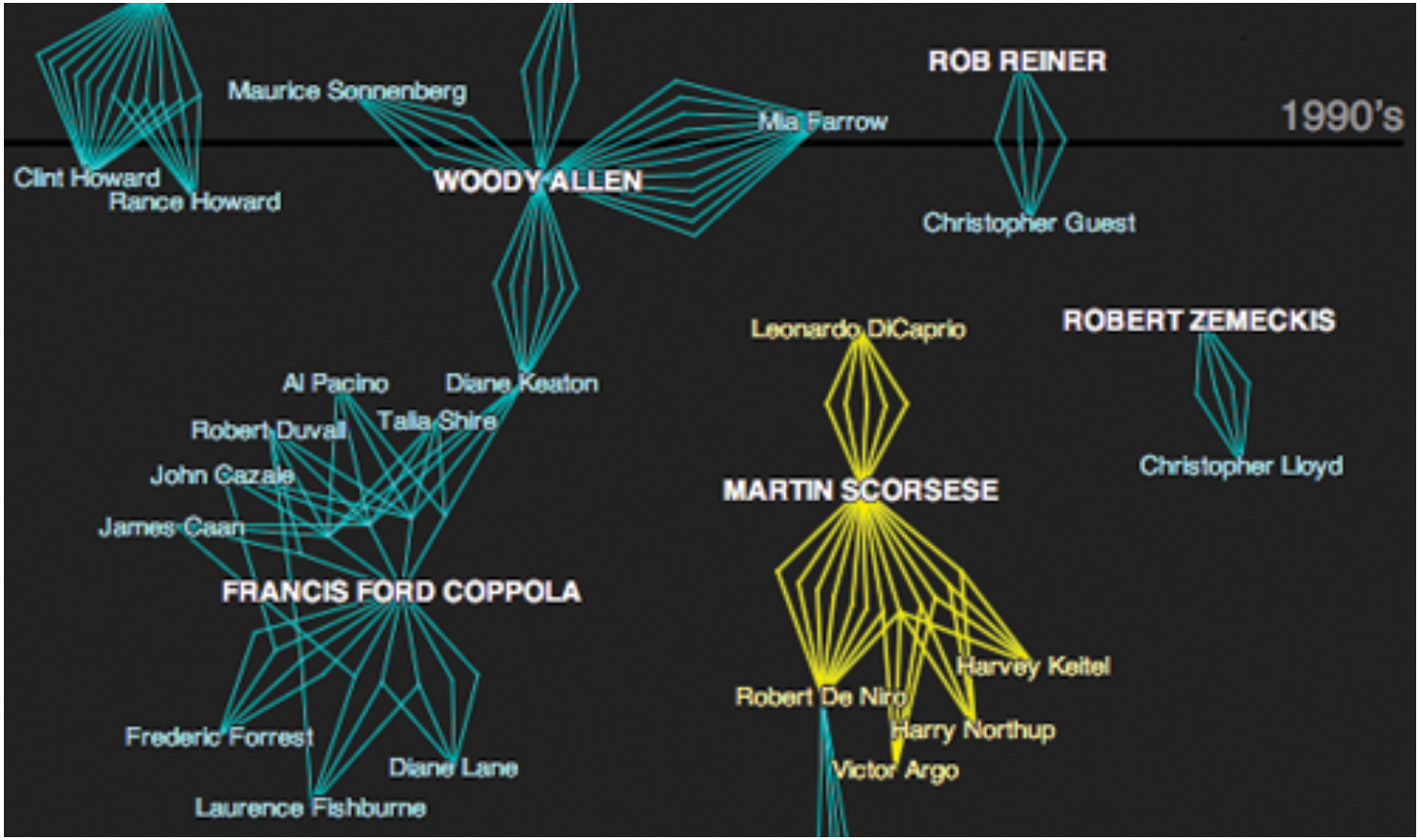


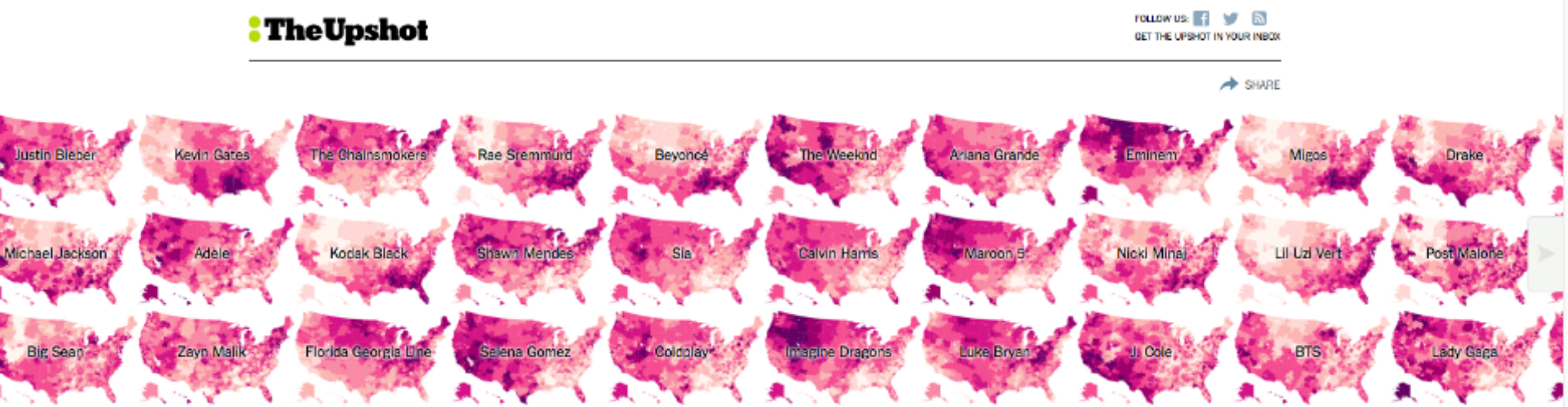
Obama's 2013 Budget Proposal – by New York Times [Link]



- *The Economist* 经济学人
- Observers counted the attendees, and the questions they asked, at 247 departmental talks and seminars in biology, psychology and philosophy that took place at 35 universities in ten countries.
- On average, half of each seminar's audience was female.
- Men, however, were over 2.5 times more likely to pose questions to the speakers—an action that may be viewed (rightly or wrongly) as a sign of greater competence.
- This male skew in question-asking was observable, however, only in those seminars in which a man asked the first question. When a woman did so, the gender split in question-asking was, on average, proportional to that of the audience. [Link]

- *The New York Times* (2013). *Constellations of Directors and Their Stars* [Link]
- "A long-running relationship between an actor and a director can indicate an artistic understanding, a functional routine or even a marketing strategy. Here, a selection of notable directors are shown with actors they cast in at least four films."





The Upshot

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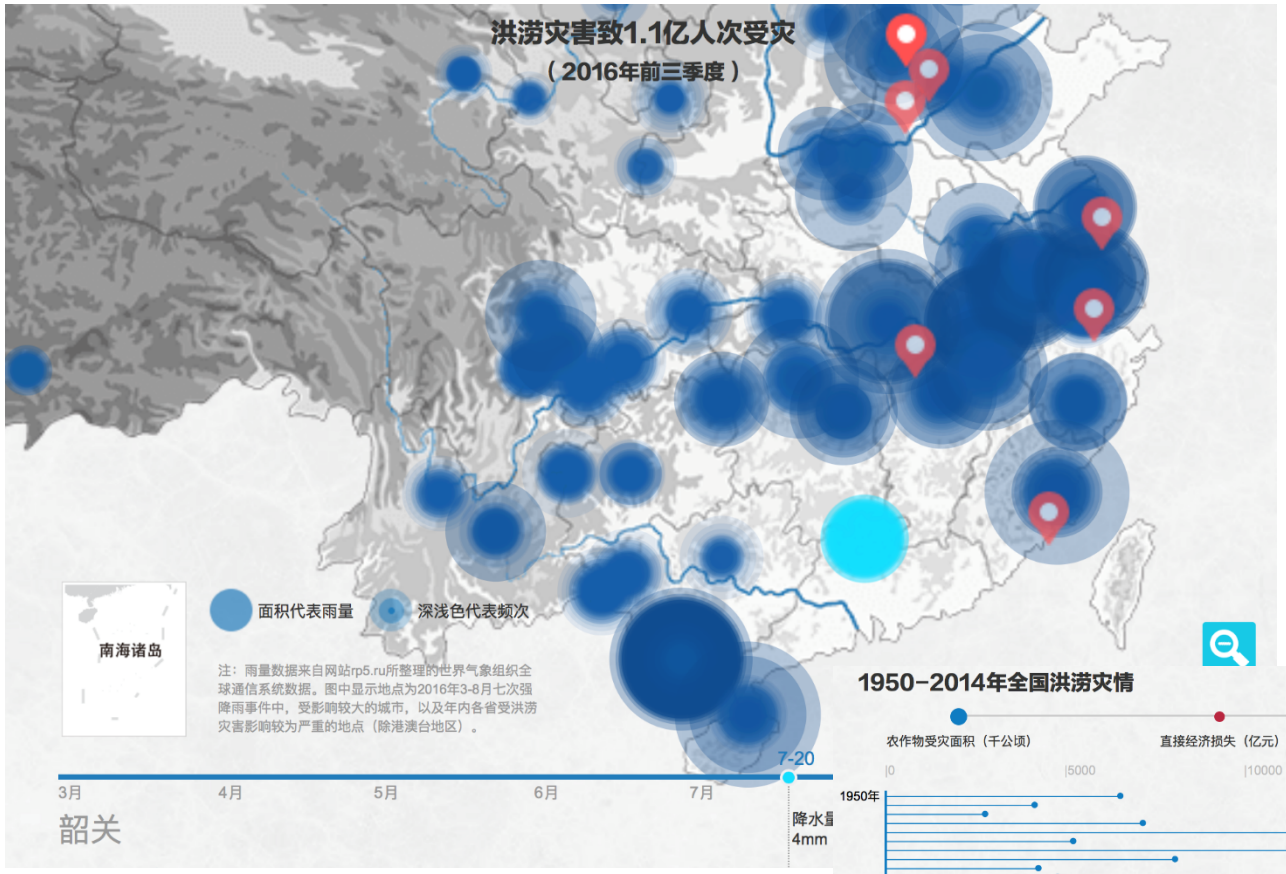
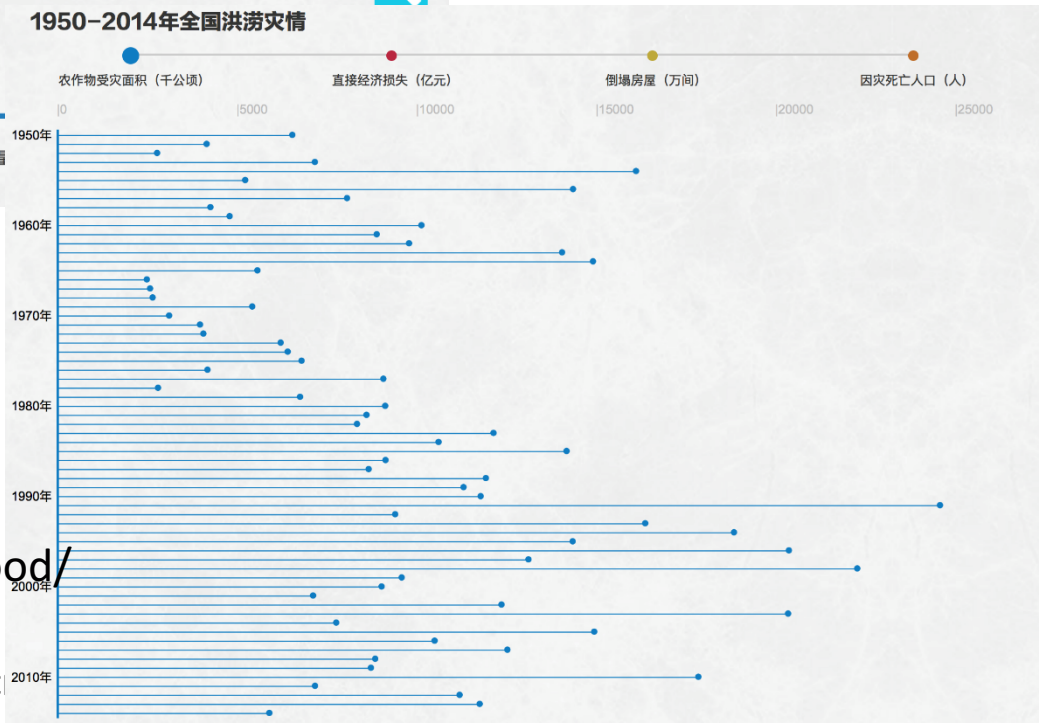
What Music Do Americans Love the Most? 50 Detailed Fan Maps

By JOSH KATZ AUG. 7, 2017

YouTube has become a dominant force in the music industry in





http://datanews.caixin.com/mobile/flood/

What is data-driven journalism?

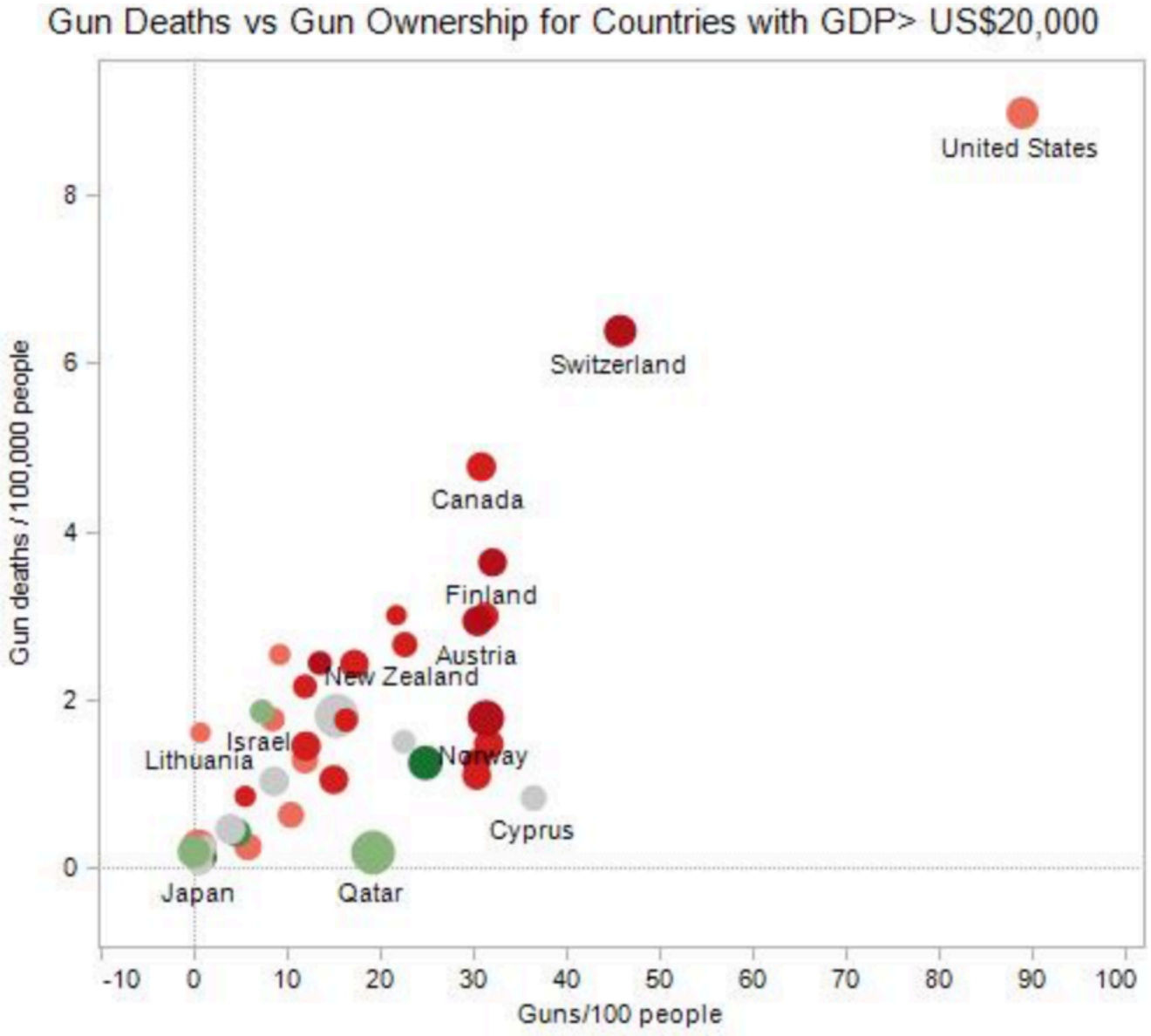
- Data-driven journalism (data journalism) is the journalistic practice of obtaining, reporting on, organizing, editing, and publishing data in the public interest via collaboration related to the techniques of statistics, computer science, visualization, designing, and news reporting (Coddington, 2015).
- Broadly defined, it can involve changing how stories are discovered, presented, aggregated, monetized, and archived. Computation can advance journalism by drawing on innovations in topic detection, video analysis, personalization, aggregation, visualization, and sense-making" (Cohen, Hamilton, Turner (2011). Computational Journalism)

Data science + Journalism = ?

- Data-driven investigation
  - identifying news sources
  - exploring the hidden stories
  - revealing patterns from the data: trend/outliers/correlations (Stray, 2017)
- Data-driven presentation
  - presentation and manifestation
  - data visualization and interactive functions
  - “有图有真相” “一图胜千言”
- Data-driven news filtering
- Data-driven post-product tracking

Data-driven investigating

- Philip Meyer (1967) at *Detroit Free Press*, the forerunner of computer-assisted reporting and precision journalism. [Link]
- *The People Beyond 12th street: A Survey of Attitudes of Detroit Negroes After the Riot of 1967*
- Not like popular belief, there was no correlation between economic status or educational levels and propensity to riot. Nor had the riots been the work of recent immigrants from the south. The main grievances were police brutality, overcrowded living conditions, poor housing, and lack of jobs.



https://www.kdnuggets.com/2012/12/new-poll-gun-violence-vs-gun-ownership.html

”Spotlight” [Link]

Data sources and data access

Table 3. Data source (multiple coding possible, *n* = 225).

Data source	%
Official institution	68.4
Other non-commercial organisation	41.8
Own source	20.4
Private company	20.4
Not indicated	7.1

Source: Loosen et al. (2017). page 10. Based on 225 DJA DDJ works

Table3. Data source: a sample of DDJ works of mainland China news agencies (n=137)

Data source	Freq.	%
No mention	38	27.7%
Public data	51	37.2%
Scholar research	3	2.2%
Company database	50	36.5%
Other news reports	35	25.5%

Source: Wang (2018). Unpublished Dissertation. Hong Kong Baptist University.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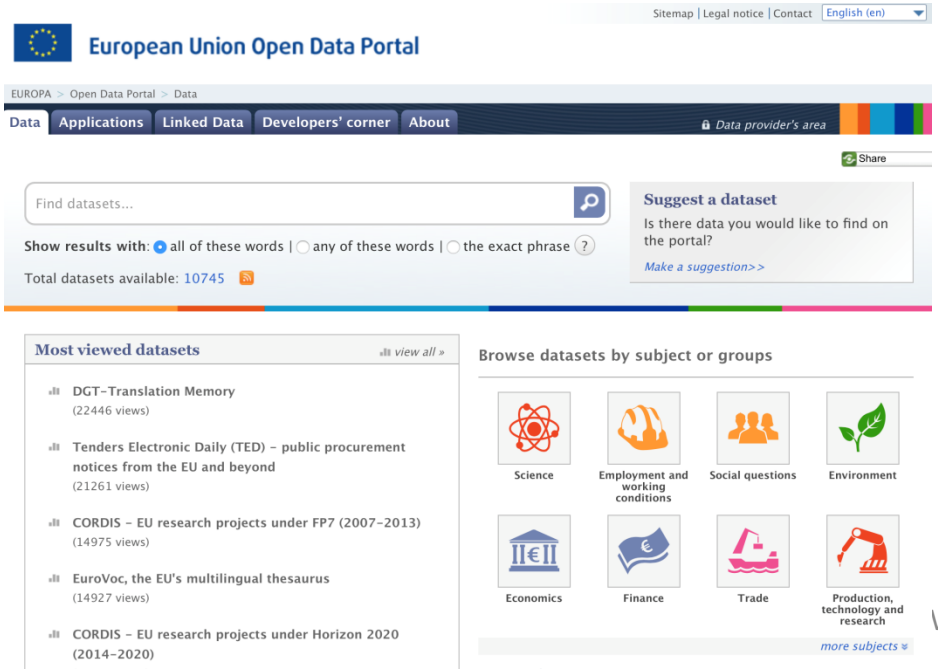
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Presentation

- “Unfounded” - The Global and Mail, 2017 [Data Journalism Award, 2017, Investigation of the Year] [Link]
- The cases of Caixin Media (DJA 2018 Best data journalism team) [Link]

Visualization technics

Table 5. Visualisation (multiple coding possible, $n = 225$).

Visualisation	%
Image	66.7
Simple static chart	60.0
Map	49.8
Table	31.6
Combined static chart	27.1
Animated visualisation	18.7
Other visualisation	3.1
No visualisation	0.9

Source: Loosen et al. (2017). page 12. Based on 225 DJA award-winning DDJ works

Table 6. Interactive functions (multiple coding possible, $n = 224$).

Interactive function	%
Zoom/details on demand	63.8
Filtering	52.7
Search	28.1
Personalisation	16.5
Gamified interaction	4.0
Other interactive feature	1.3
No interactive feature	17.0

Source: Loosen et al. (2017). page 13. Based on 225 DJA award-winning DDJ works

Table 4. Interaction functions (n=137)

Interaction operations	Frequency	%
None	126	92
Search/Select	10	7.3
Filter	3	2.2
Zoom in/out	0	0
Highlight	6	4.4
Navigation	4	2.9
Text input	3	2.2

Source: Wang (2018). Unpublished Dissertation. Hong Kong Baptist University.

The intellectual origins of data-driven journalism

Origins and domain knowledge	Terms and "Catchphrases"	Contributions to the DDJ
Social science research (theories and methods, especially quantitative research methods)	"Precision journalism" "How to lie with statistics" (n, M, SD)	Concepts, measurements, interpreting quantitative data; unidimensional analysis (pie chart, bar charts), bi-variate relationships (lines, scatterplots, bar charts)
Investigative reporting	"News labs" "The social/public goods"	FOIA, interviewing technics
The open-source software movement, open data, data scientists	"The Digital Robin Hood" "Hacks/hackers"	Data science and technologies, open source projects, open data applications, collaborative projects, accountability

The intellectual origins of data-driven journalism

- The National Institute for Computer-Assisted Reporting hosts the annual Philip Meyer Journalism Award, which "recognize excellent journalism done using social science research methods"
- An investigation often arises when a reporter perceives a difference between what is (the observed reality) and what should be (as articulated in law or policy). A high-impact investigative story looks at a situation where what is differs from what should be, and explains why (Broussard, 2015).
- *Scraping for Journalists* (Bradshaw, 2014) - Coders, designers, and full-stack applications in the newsrooms

"New" ways of storytelling

- Several terms
  - computer-assisted reporting
  - data-driven journalism
  - computational journalism
  - programmer journalism
  - open-source journalism
  - algorithmic journalism
  - robot journalism
  - automated journalism
  - …
- Coddington (2015): three types of quantitative journalism practice:
  - computer-assisted reporting
  - data-driven journalism
  - computational journalism

The flow of production

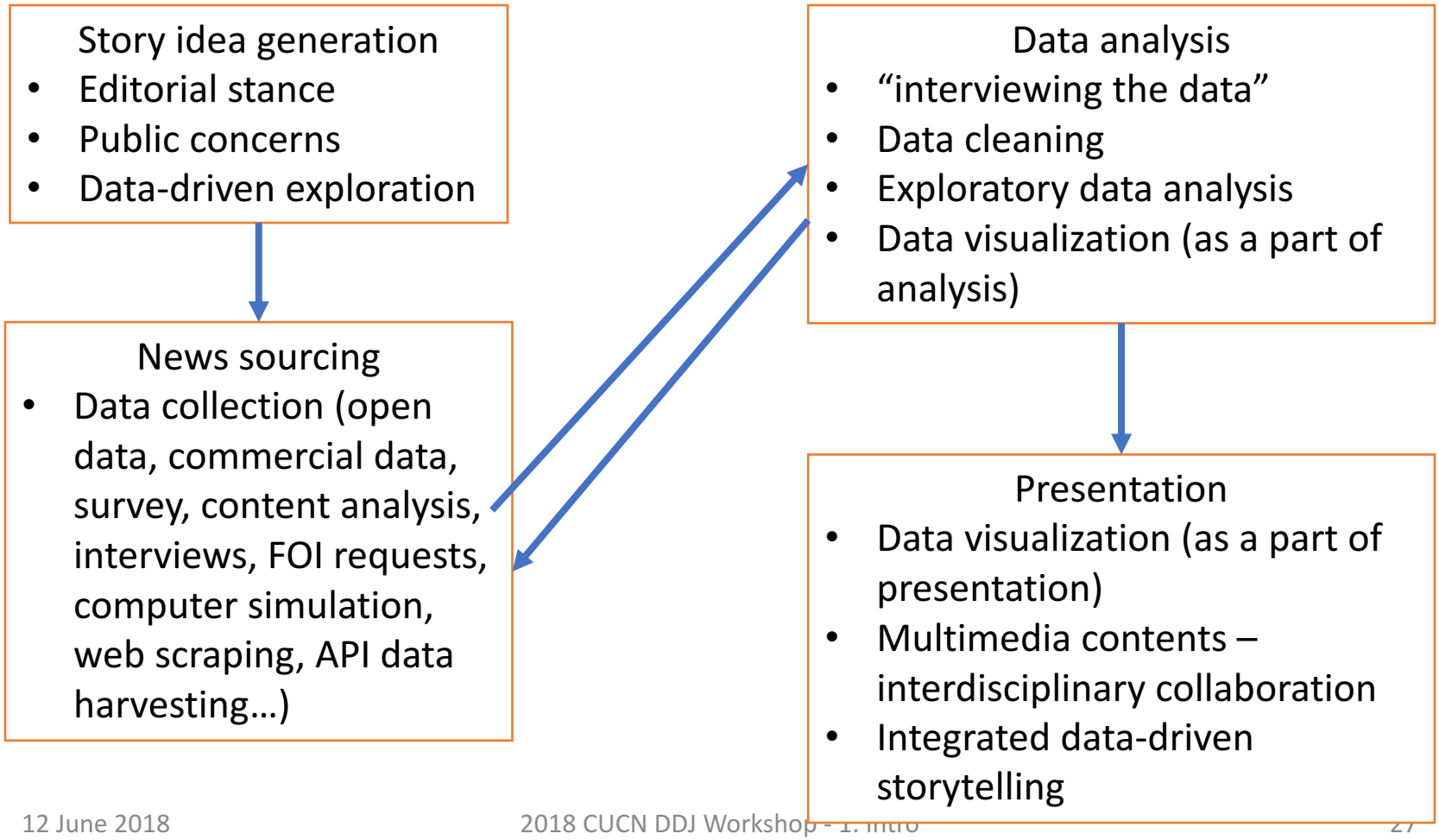

Table 6. Professional labelling from the bylines (n=137)

Professional labelling	Frequency	%
No mention	31	22.6
Content	21	15.3
Editor	84	61.3
Reporter	9	6.5
Designer	67	48.9
Supervisor	20	14.6
Programmer	5	3.6
Other position	5	3.6

Source: Wang (2018). Unpublished Dissertation. Hong Kong Baptist University.


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Los Angeles Times

Major Players

- Ausserhofer, J., Gutounig, R., Oppermann, M., Matiasek, S., & Goldgruber, E. (2017). The datafication of data journalism scholarship: Focal points, methods, and research propositions for the investigation of data-intensive newswork. Journalism. page 16.

- - The end of session -