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Session 6: Best practices in science journalism

Data Journalism + Science Reporting

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European Science-Media Hub (ESMH) - Summer School 'Storytelling in Science'
Panel for the Future of Science and Technology (STOA)
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HI, I AM FELIX.



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CFJ



DATA JOURNALISM?

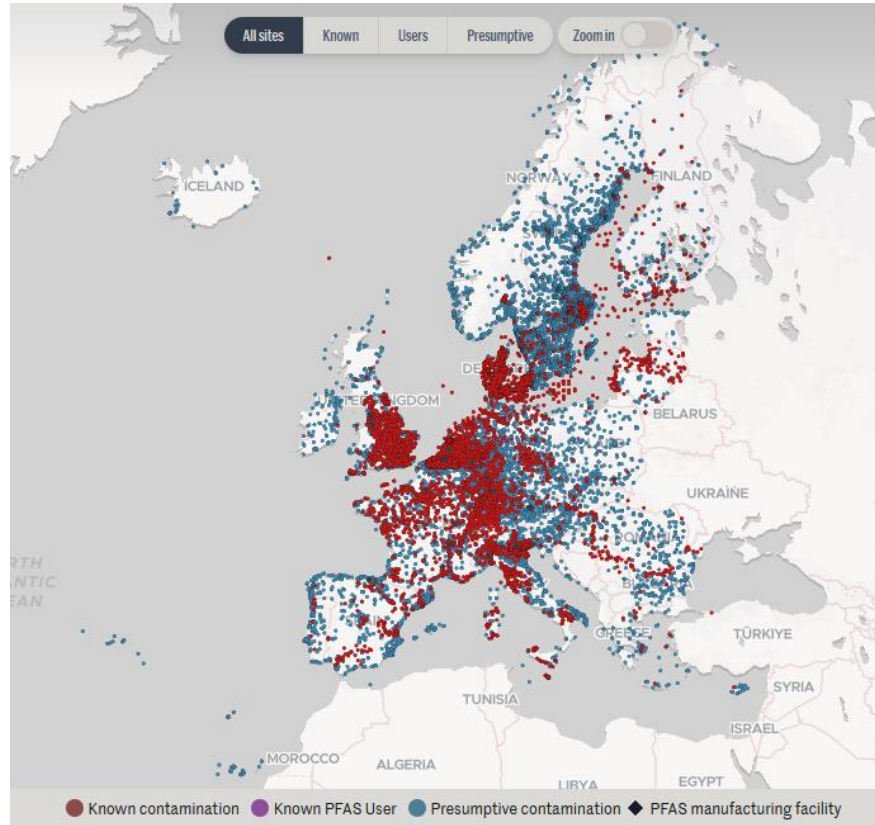
FEBRUARY 2023: LE MONDE + FOREVER POLLUTION PROJECT

**Revealed: The massive
contamination of Europe
by PFAS 'forever
chemicals'**

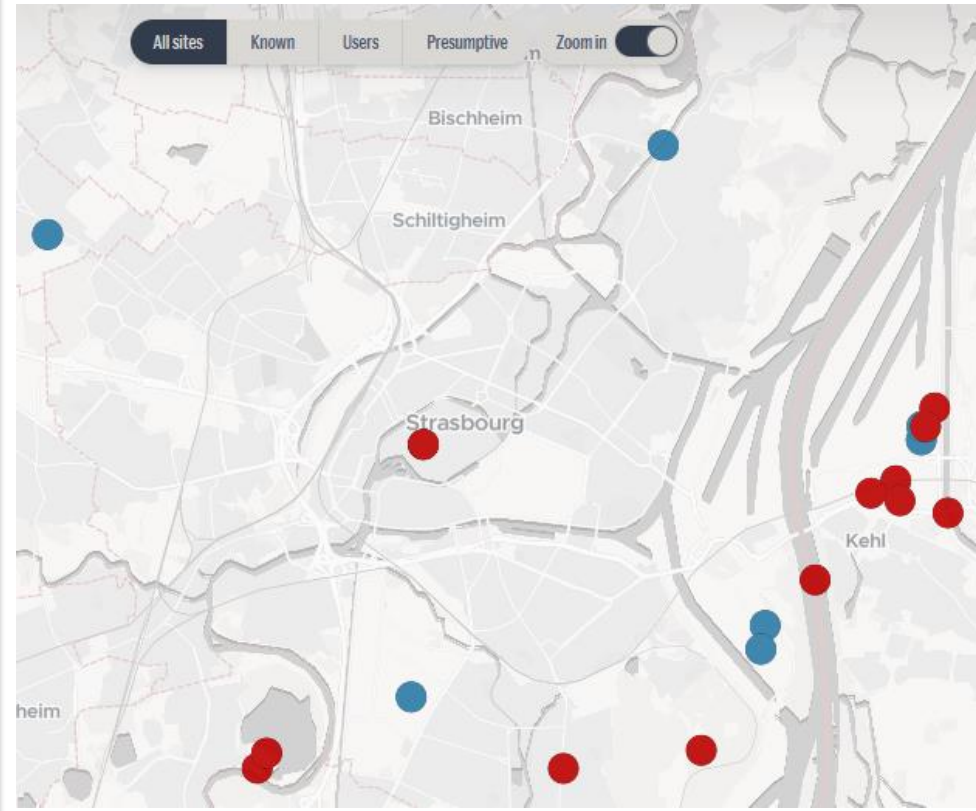
(Horel, 2023b)

**Révélation sur la
contamination massive de
l'Europe par les PFAS, ces
polluants éternels**

(Horel, 2023c)

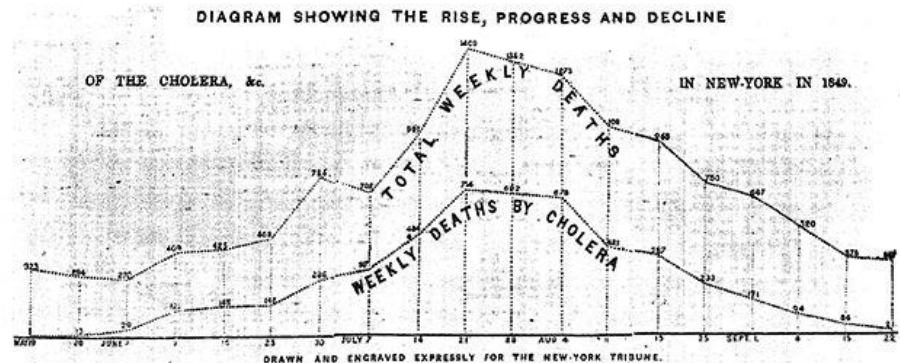


(Horel, 2023b)



(Horel, 2023b)

IS THIS NEW?



The above Diagram, or Graphic Table, (for which we are indebted to Professor GILLESPIE of Union College,) represents to the eye, in a very striking manner, the rise, progress, and decline of the Cholera, and other diseases in our City, during the last four months.

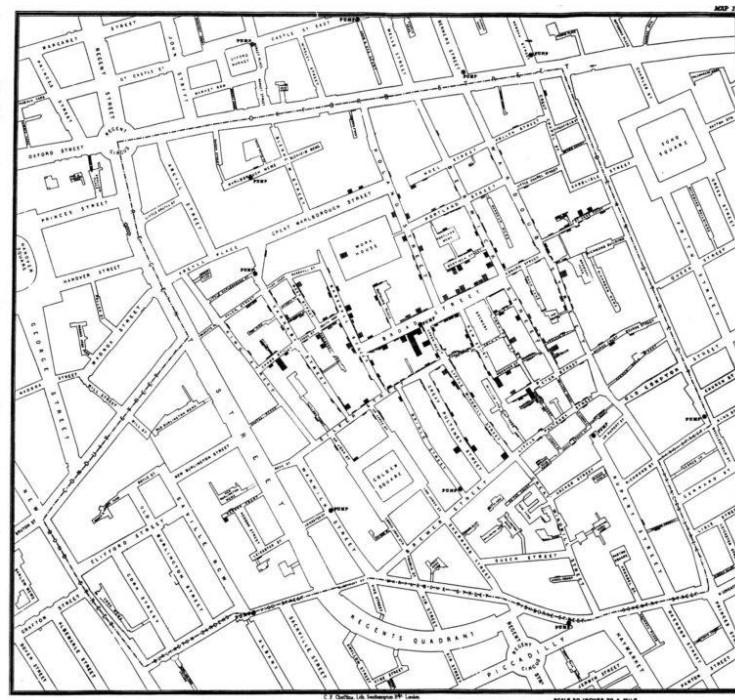
Each half-inch along the bottom line represents a week. The dates are placed under each. At the end of each half-inch, or week, are upright dotted lines, whose various lengths indicate the number of deaths by Cholera, and other causes, during that week; each inch on these upright lines corresponding to 500 deaths. The numbers are placed at the top of each. The zig-zag lines, which join the ends of these lines, show, by their upward or downward slopes, whether the deaths during those weeks have increased or decreased, rapidly or slowly.

Some curious circumstances are apparent, on an inspection of this figure. We see that during the first two weeks of the Cholera, while it was increasing, as shown by

the line sloping upward, the total deaths were decreasing, as shown by the line sloping downward. This was probably caused by the great care in diet, &c. then practiced, on the first alarm. In the week ending July 7, while the Cholera line goes up the "Total deaths" line unaccountably goes down. Thence both lines go on ascending, and the corresponding number of deaths increasing, till in the week ending July 21, they reach their culminating point. Thence there is a constant and quite regular descent, excepting a sudden fall, from Aug. 4 to 11. This may have arisen from the diminution of population, consequent upon the custom of many persons to leave the city at the beginning of that month. The descent keeps on, till it brings up to our present normal condition.

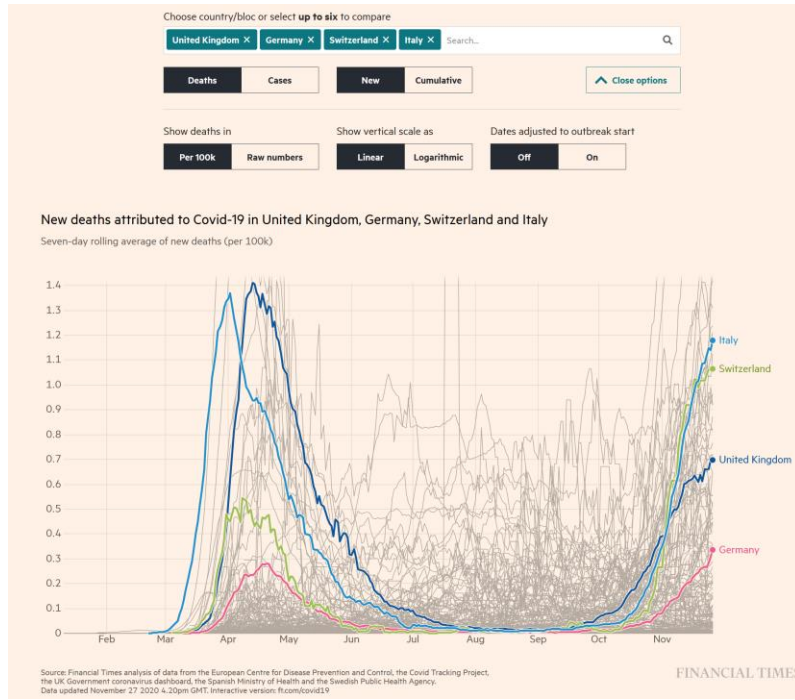
If the average temperature, moisture, electrical state, &c. during these weeks were represented in the same manner, and added to this diagram, their comparison would show at a glance whether there has been any connection between them.

("Diagram Showing the Rise, Progress and Decline," 1849)

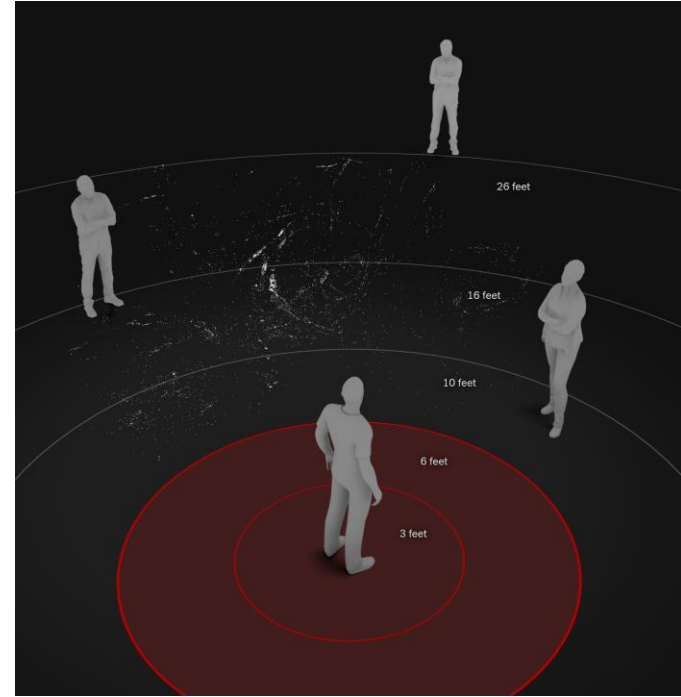


(Snow, 1855)

TODAY: DIGITAL JOURNALISM



(FT Visual & Data Journalism team, 2020)



(Parshina-Kottas et al., 2020)

TODAY: DATAFICATION

The scale of the leak

Volume of data compared to previous leaks

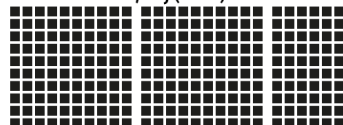
1,7 GB

Cablegate/Wikileaks (2010)

■ ■

260 GB

Offshore Leaks/ICIJ (2013)



4 GB

Luxemburg Leaks/ICIJ (2014)

■ ■ ■ ■

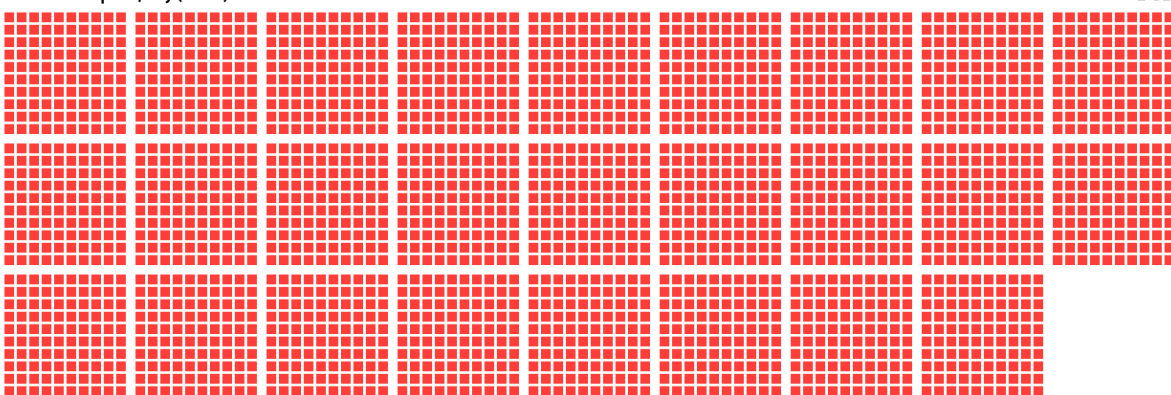
3,3 GB

Swiss Leaks/ICIJ (2015)

■ ■ ■ ■ ■

≈ 2,6 TB

Panama Papers/ICIJ (2016)



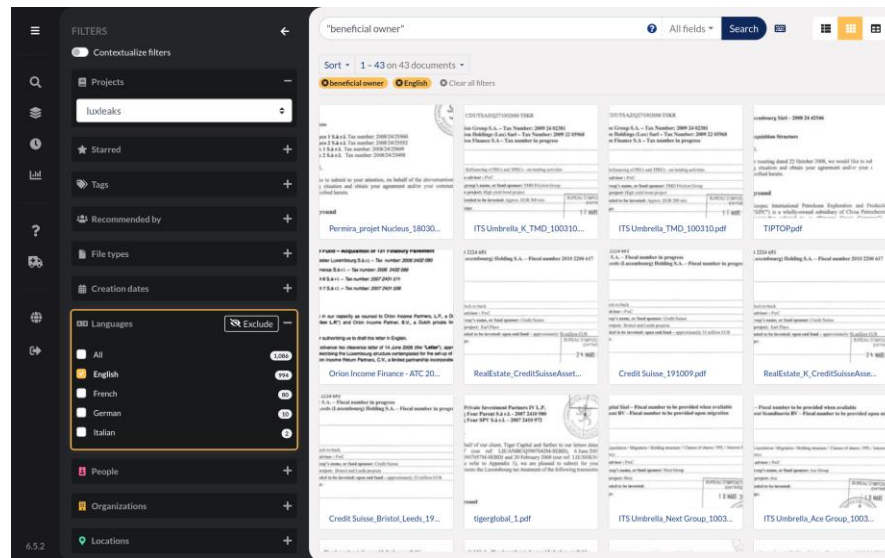
■ = 1 GB

(Obermaier et al., 2016)

TODAY: COMPUTATIONAL METHODS

A	B	C	D	E	F	G	H	I
Country	Region	Year	A - Legal	B - Political	C - Economic	SCORE	Rating	Year Date
Afghanistan	Asia	2002	24	30	20	74	Not Free	1/1/2002
Afghanistan	Asia	2003	24	28	20	72	Not Free	1/1/2003
Afghanistan	Asia	2004	21	27	20	68	Not Free	1/1/2004
Afghanistan	Asia	2005	21	28	20	69	Not Free	1/1/2005
Afghanistan	Asia	2006	21	28	20	69	Not Free	1/1/2006
Afghanistan	Asia	2007	21	30	20	71	Not Free	1/1/2007
Afghanistan	Asia	2008	22	32	20	74	Not Free	1/1/2008
Afghanistan	Asia	2009	22	33	21	76	Not Free	1/1/2009
Afghanistan	Asia	2010	22	33	20	75	Not Free	1/1/2010
Afghanistan	Asia	2011	22	32	20	74	Not Free	1/1/2011
Afghanistan	Asia	2012	20	28	19	67	Not Free	1/1/2012
Afghanistan	Asia	2013	20	27	19	66	Not Free	1/1/2013
Albania	Europe	2001	24	12	12	48	Partly Free	1/1/2001
Albania	Europe	2002	20	18	12	50	Partly Free	1/1/2002
Albania	Europe	2003	17	18	14	49	Partly Free	1/1/2003
Albania	Europe	2004	18	17	16	51	Partly Free	1/1/2004
Albania	Europe	2005	17	17	16	50	Partly Free	1/1/2005
Albania	Europe	2006	17	16	17	50	Partly Free	1/1/2006
Albania	Europe	2007	16	16	18	50	Partly Free	1/1/2007
Albania	Europe	2008	16	16	18	50	Partly Free	1/1/2008
Albania	Europe	2009	16	16	18	50	Partly Free	1/1/2009
Albania	Europe	2010	16	17	17	50	Partly Free	1/1/2010
Albania	Europe	2011	16	18	17	51	Partly Free	1/1/2011
Albania	Europe	2012	15	17	17	49	Partly Free	1/1/2012
Albania	Europe	2013	15	17	17	49	Partly Free	1/1/2013
Algeria	Africa	2001	21	26	15	62	Not Free	1/1/2001

(Freedom House, 2013)



(The International Consortium of Investigative Journalists, 2019)

TODAY: OPEN DATA

- **Open and reusable data**

You can [download the dataset](#) we have put together to develop the map.
The spreadsheet includes all geolocation coordinates and sources.

lat	lon	name	city	country	type	sector	matrix	pfos	pfoa
4.855.738.814.077.470	7.743.316.032.882.550	ADIENT	Strasbourg	9.0	0	13			
4.856.449	779.649	BLUE PAPER	Strasbourg	9.0	0	7			
486.355	783.348	STATION D'Ã%PURATION DES EAUX	Strasbourg	9.0	1	27			
485.184	778.884	SÃ%NERVAL UVE	Strasbourg	9.0	1	27			
4.863.255.707.291.560	78.325.217.513.504.900	STATION D'Ã%PURATION DES EAUX	Strasbourg	9.0	1	27			
4.853.829.956.054.680	7.628.230.094.909.660	Strasbourg Airport	Strasbourg	9.0	2				
4.861.214.469.999.990	77.811.679	Lana Papiers SpÃ%ciaux II	Strasbourg Cedex	9.0	0	7			
485.621.138	7.795.845.699.999.990	Blue Paper	Strasbourg	9.0	0	7			
485.148.202.427.979	778.357.115.183.869	Point d'eau (forage)	Strasbourg	9.0	4		2		2.0
48.514.428.897.398.600	7.782.625.832.042.250		Strasbourg	9.0	4		2	5.0	2.0
48.552.077.498.840.800	7.786.874.133.605.320		Strasbourg	9.0	4		2	2.0	
4.858.245.012.077.530	7.745.126.501.015.960		Strasbourg	9.0	4		2	6.0	3.0
485.824.764.837.446	774.516.077.751.839	Point d'eau (forage)	Strasbourg	9.0	4		2		3.0
486.320.450.331.654	78.318.800.693.278	Point d'eau (forage)	Strasbourg	9.0	4		2		13.0

(Horel, 2023b)

TODAY: OPEN METHODOLOGY

5. Research methodology

5.1 Known contamination sites

5.1.1 Sites where PFAS have been detected

5.1.1.1 Research

PFAS monitoring datasets were proactively collected from national and local authorities, regulatory agencies, national and regional databases (with data collected by 136 organisations in total), research institutes, universities, scientific research teams, and freedom of information requests across Europe.

Precisely 100 datasets were collected, harmonised and used in total.

– Scientific studies

We contacted scientists participating in the European research projects PROMISCES³¹, Perforce³², NORMAN network³³, Zero PM³⁴ to ask them for dataset sources, namely Martin Scheringer (ETH Zürich), Ian Cousins (Stockholm University) and Hans Peter Arp (Norwegian Geotechnical Institute).

Luc Miaz (Stockholm University) provided data from a database of published background PFAS concentrations in surface water across Europe used by Muir, D. and Miaz, LC. (2021).³⁵

(Horel, 2023a)

DATA JOURNALISM PROCESS

Data
Compilation

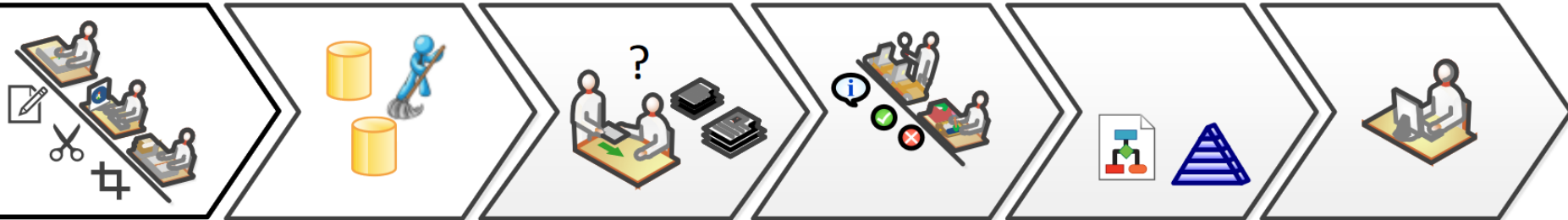
Data
Cleaning

Data
Understanding

Data
Validation

Data
Visualization

Article
Writing



(Veglis & Bratsas, 2017, p.111)

DATA JOURNALISM + SCIENCE REPORTING

SCIENTISTS

- ... sit on a lot of data
- ... publish increasingly open access / open science
- ... prefer expert conversations

DATA JOURNALISM...

- ... can create common ground for an eye-level conversation
- ... forces you to dive deep into the data of a scientific discourse
- ... strives for scientific ideals: Transparency and reproducibility
- ... prepares you for an expert conversation

SCIENCE JOURNALISM: DATA REPORTING AS SUPPLEMENT

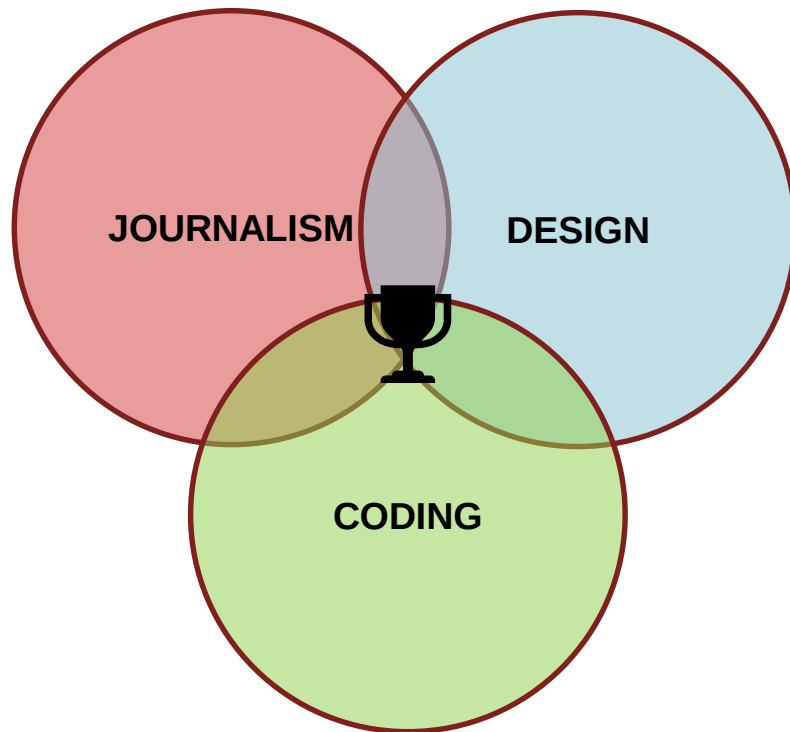
Support or drive an investigation by:

- Probing datasets for journalistic stories
 - Making the findings tangible by visualizations
 - Personalizing findings: Explorable datasets
 - Starting a collaboration with researchers
-
- Ideally a win – win situation:
 - Data journalistic approach to enable the inquiry
 - Gateway into meaningful exchange with scientists
 - Knowledge transfer & Knowledge creation

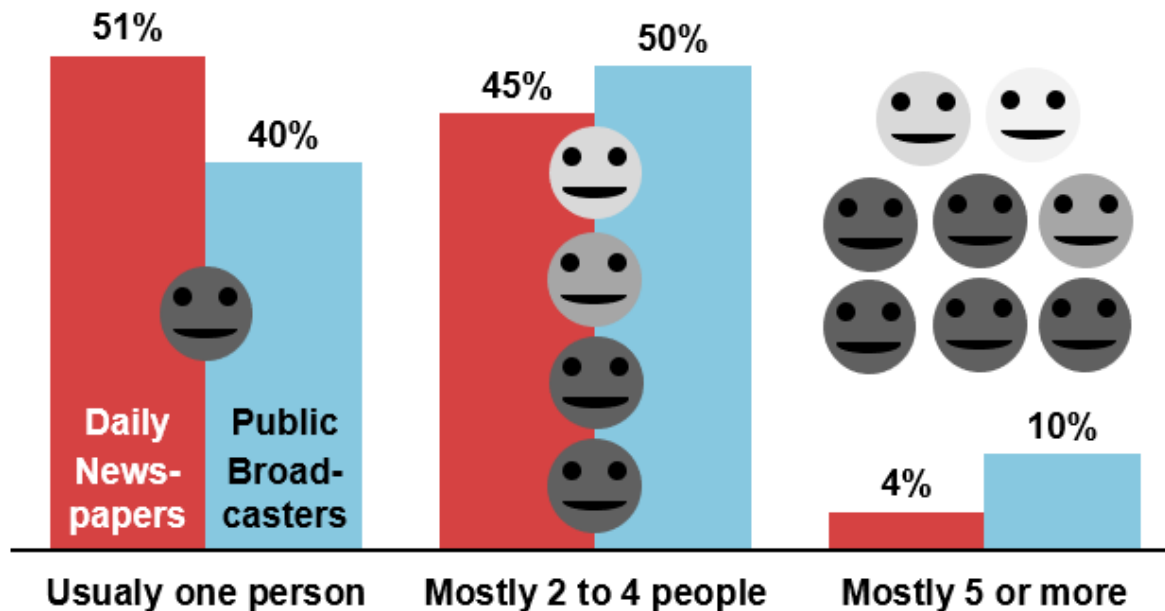
Ways into Data Journalism...

HOW TO GET STARTED?

HOW IS DATA JOURNALISM DONE: SKILLS



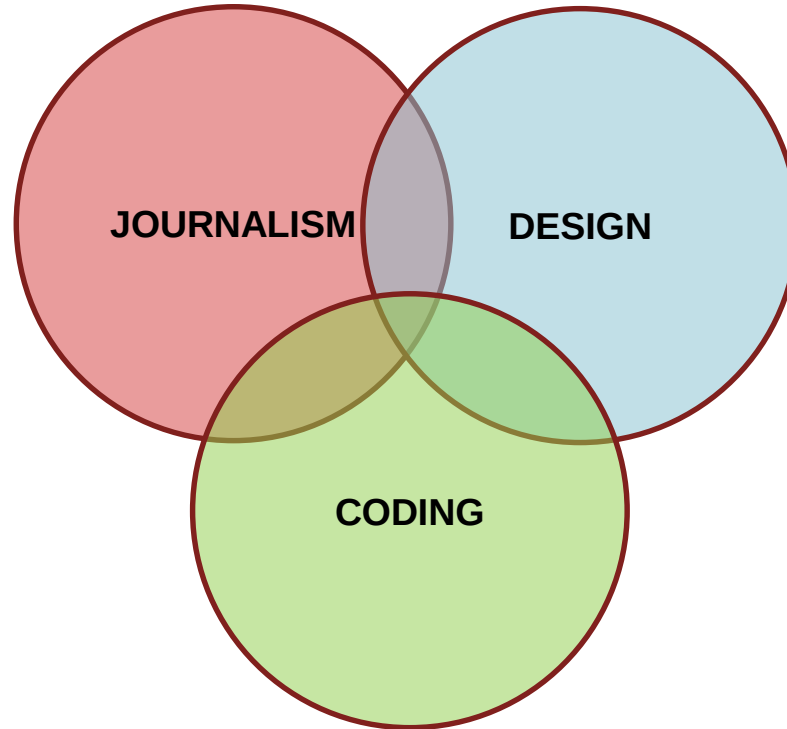
DONE BY LONE WOLVES AND SMALL TEAMS



N = 78 daily newspapers, 10 public broadcasters

(based on Beiler et al., 2020, p.1578)

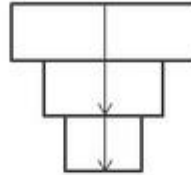
WHAT'S YOUR PROFILE?



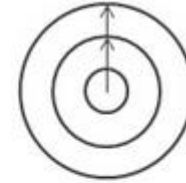
The New York Times DATA STORY TYPES



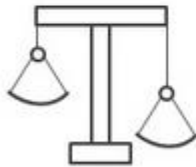
Change Over Time



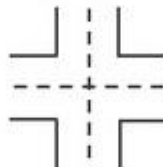
Drill Down



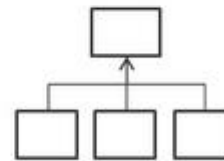
Zoom Out



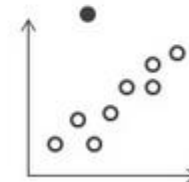
Contrast



Intersections



Factors



Outliers

(based on Cook, 2019)

RECOMMENDATIONS



Don't be intimidated.
Data reporting can be a
complex field.



Get familiar with Excel,
Google Sheets etc. and
use it regularly.



Pick a project and work
on it.



Work in a team: Co-
Learning and support.



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THANK YOU!

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www.kmw.uni-leipzig.de/datenjournalismus

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