

The Ascent of Open Access

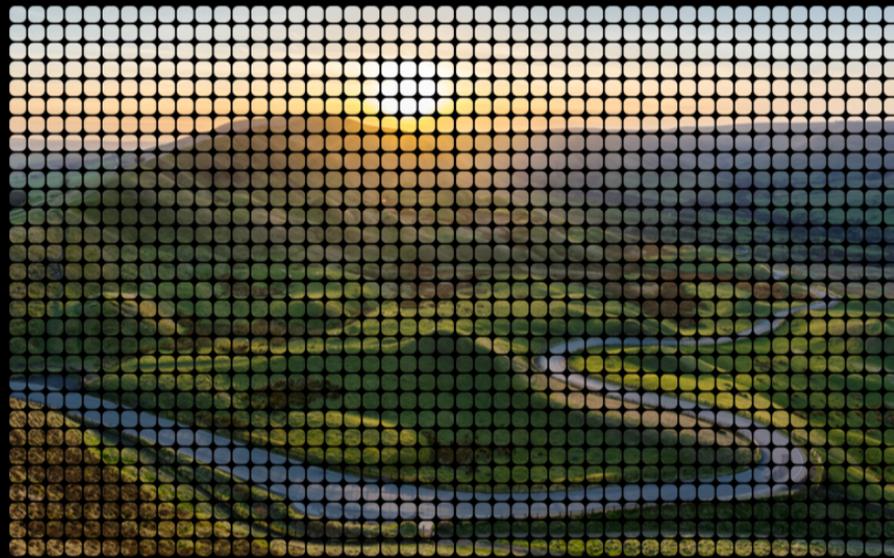
Daniel W. Hook

0000-0001-9746-1193

Focus on Open Science

7th July 2019

<https://doi.org/10.6084/m9.figshare.7618751.v2>



Digital Research Reports

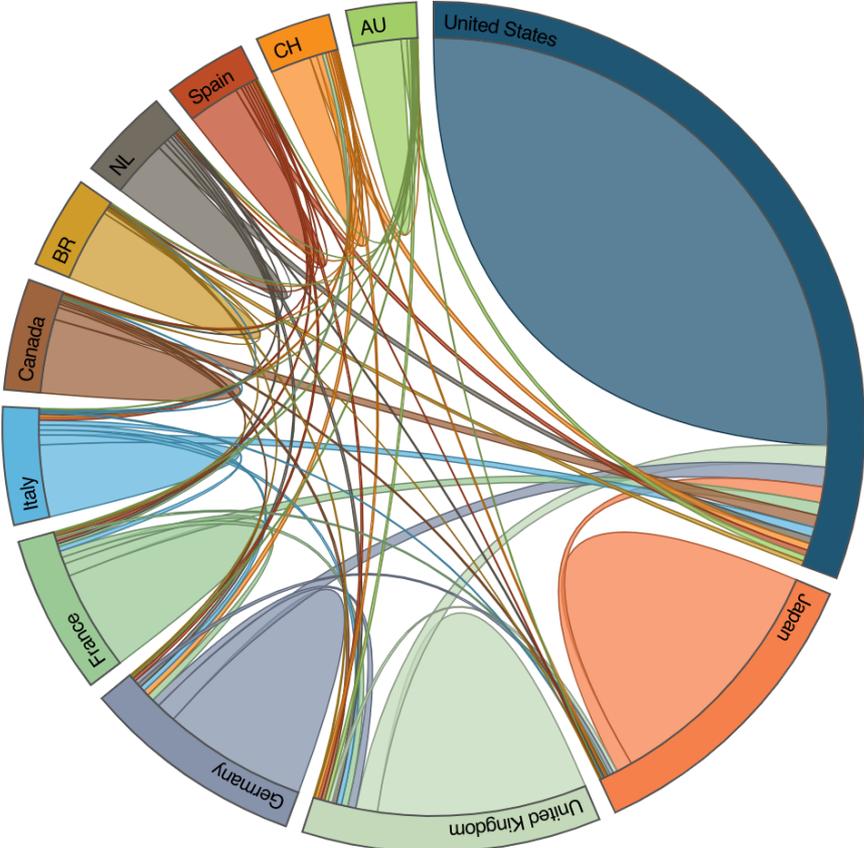
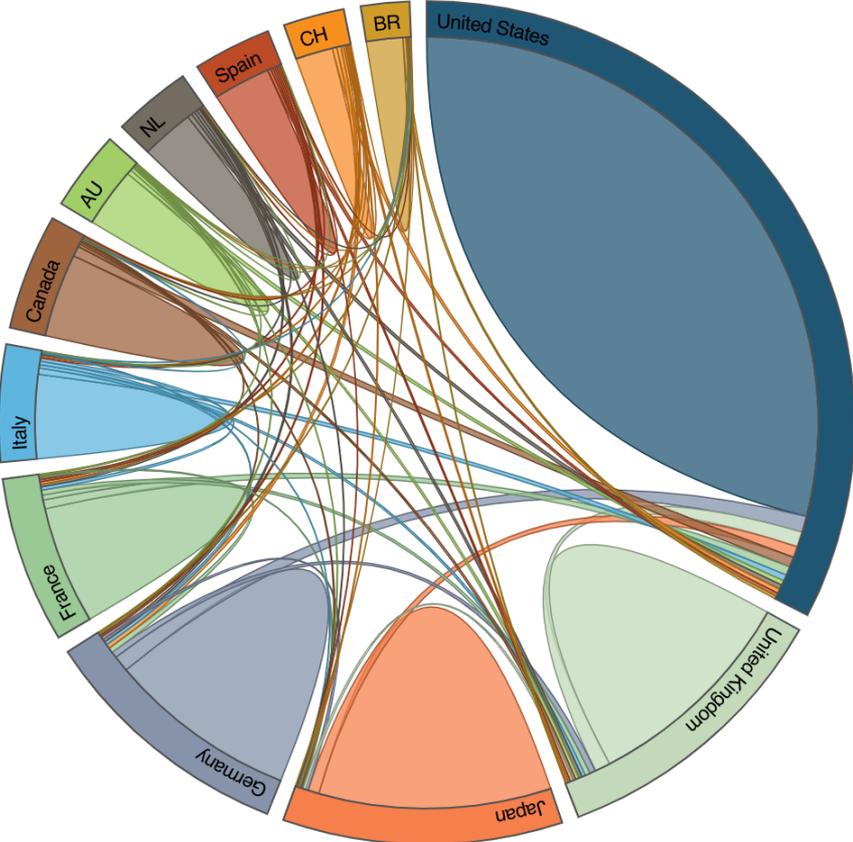
The Ascent of Open Access

An analysis of the Open Access landscape since the turn of the millennium

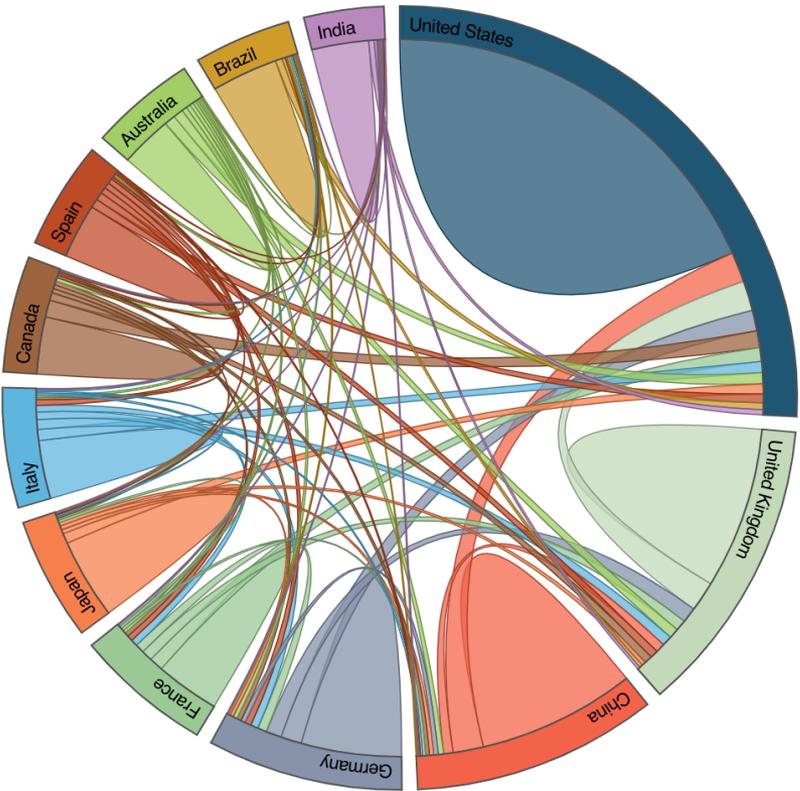
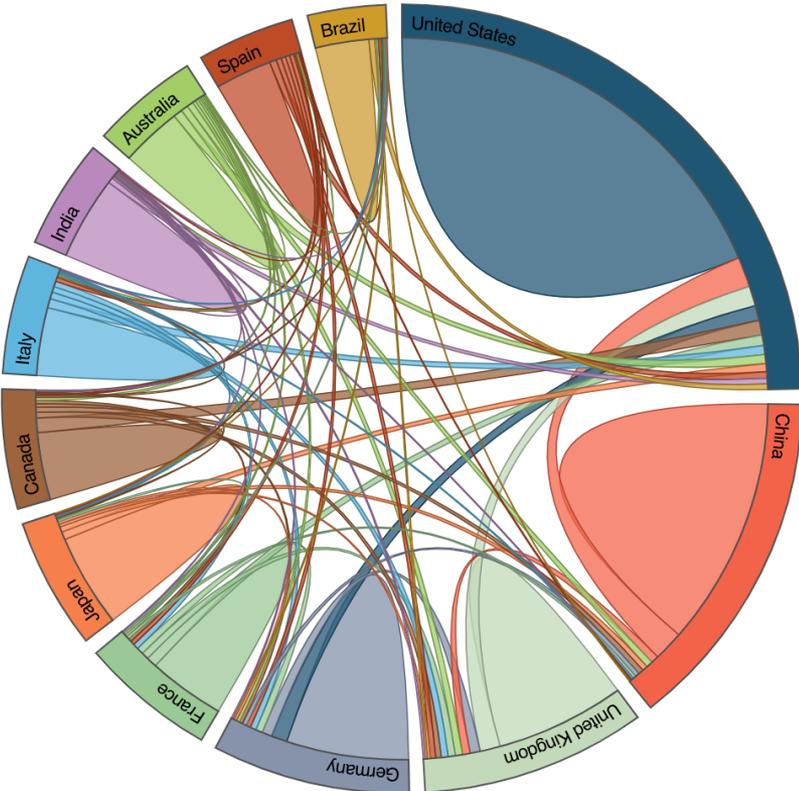
Daniel W Hook, Ian Calvert and Mark Hahnel

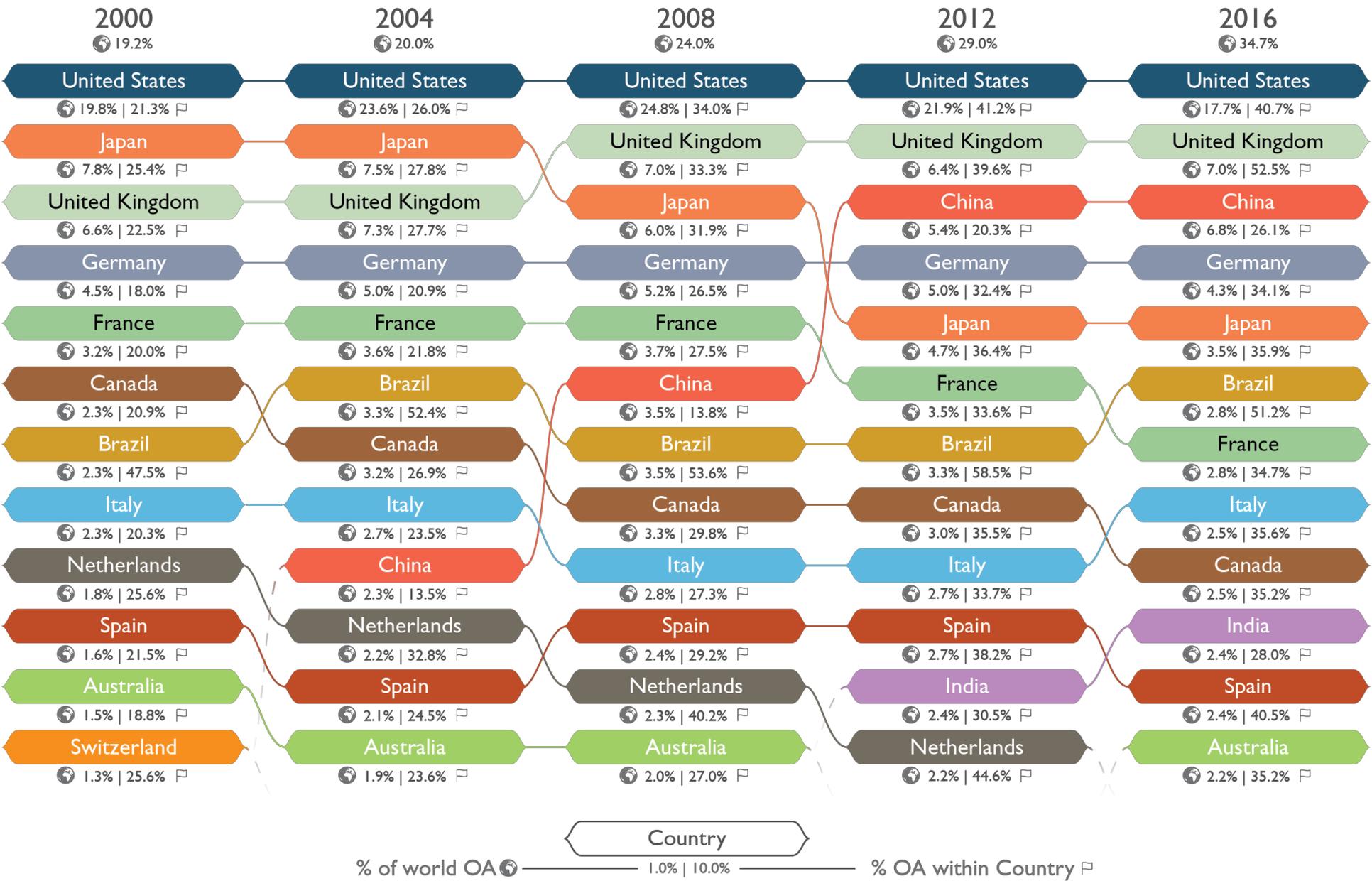
JANUARY 2019

2000



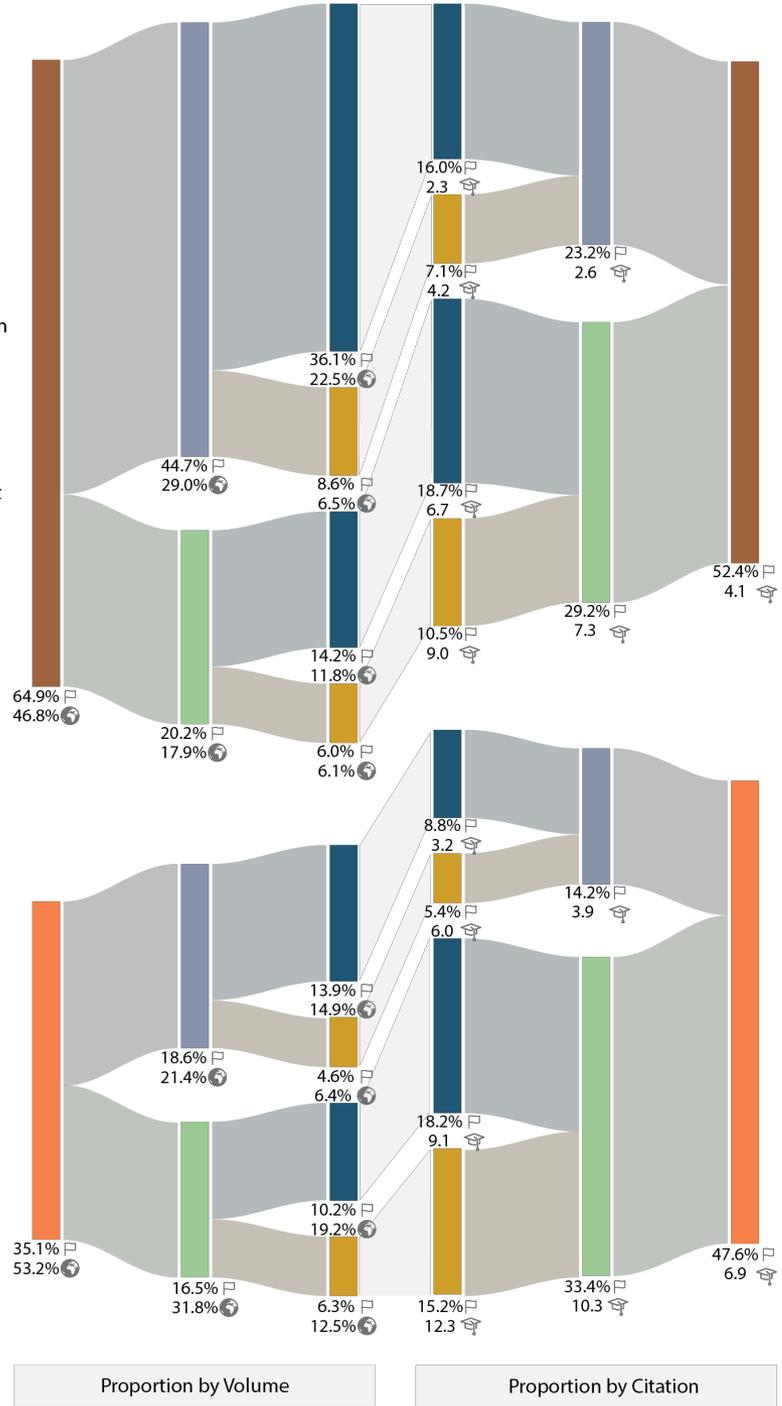
2016

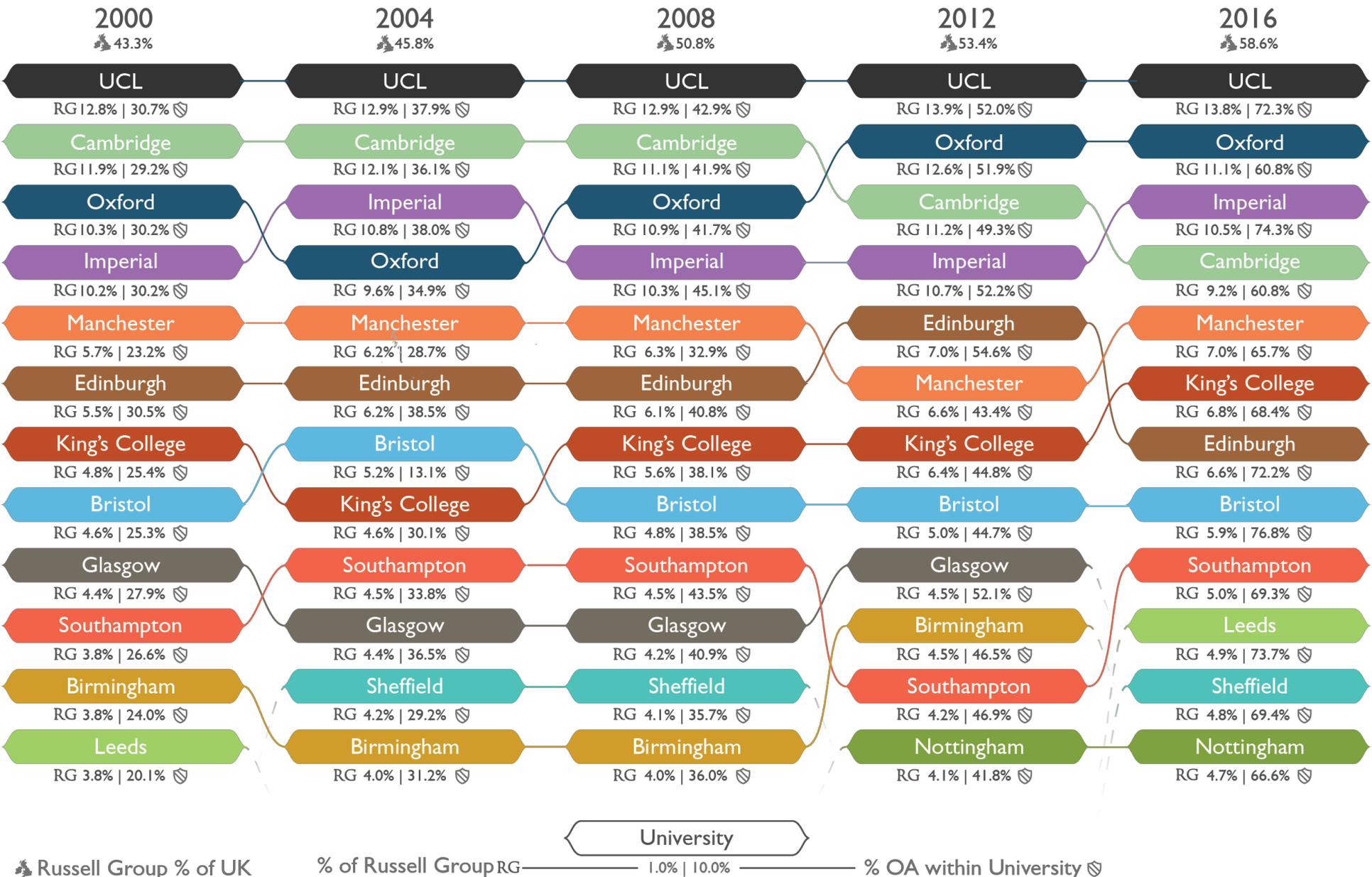


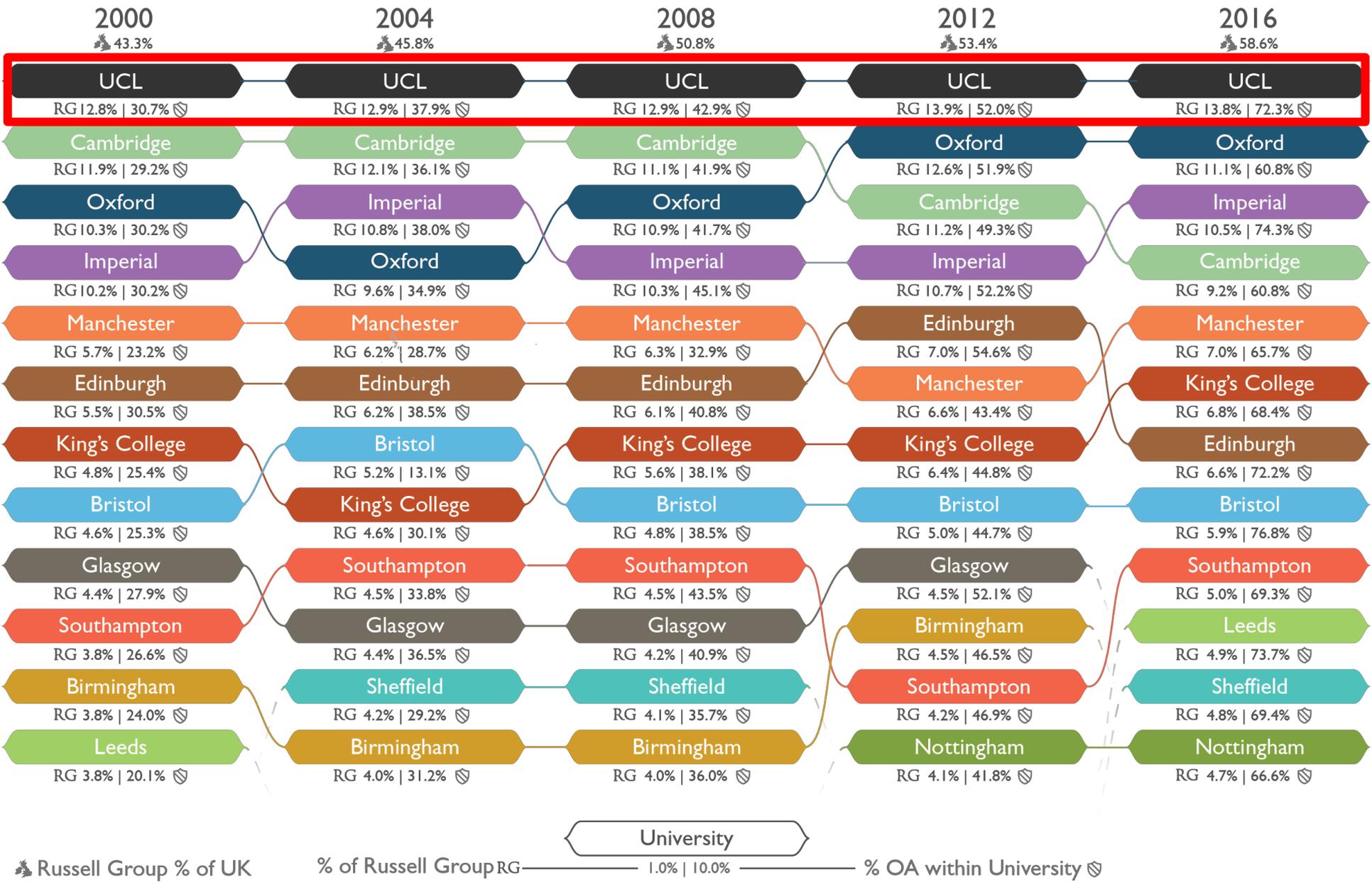


2016

- OA
- Non-OA
- Unfunded
- Funded
- Domestic
- International
- Percentage of articles with Altmetric attention for total cohort
- Citations to outputs in segment / Volume of papers in segment
- Percentage volume of total cohort in segment

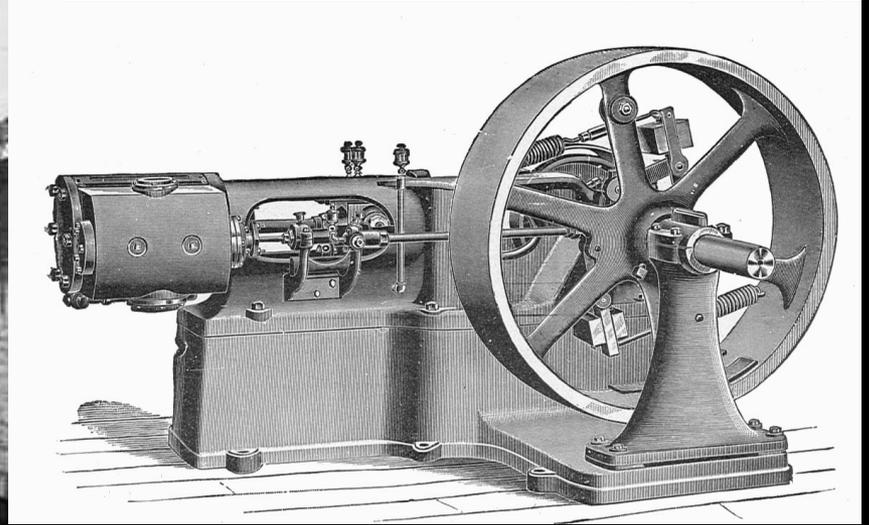
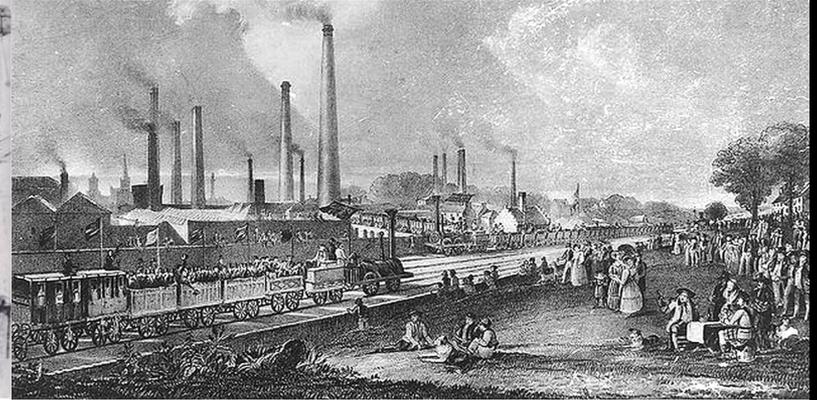
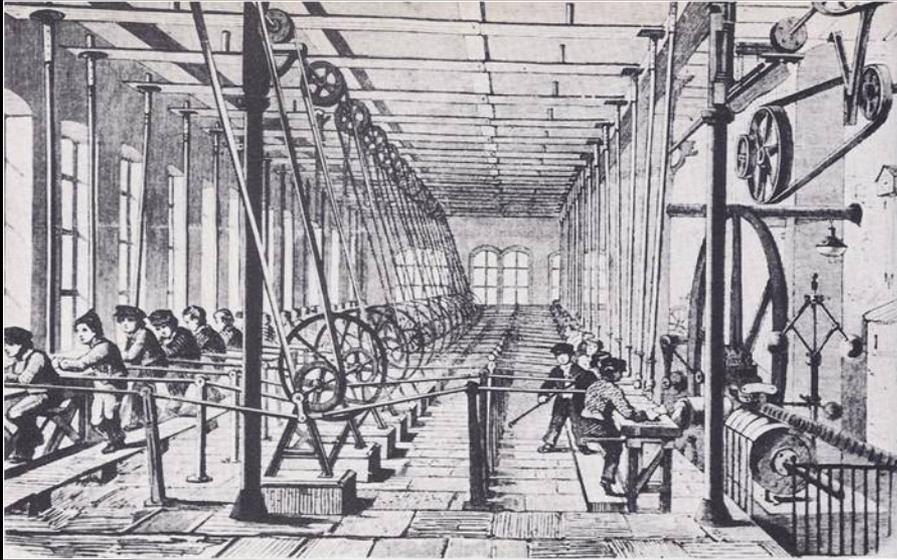








The industrial revolution wasn't only one thing...

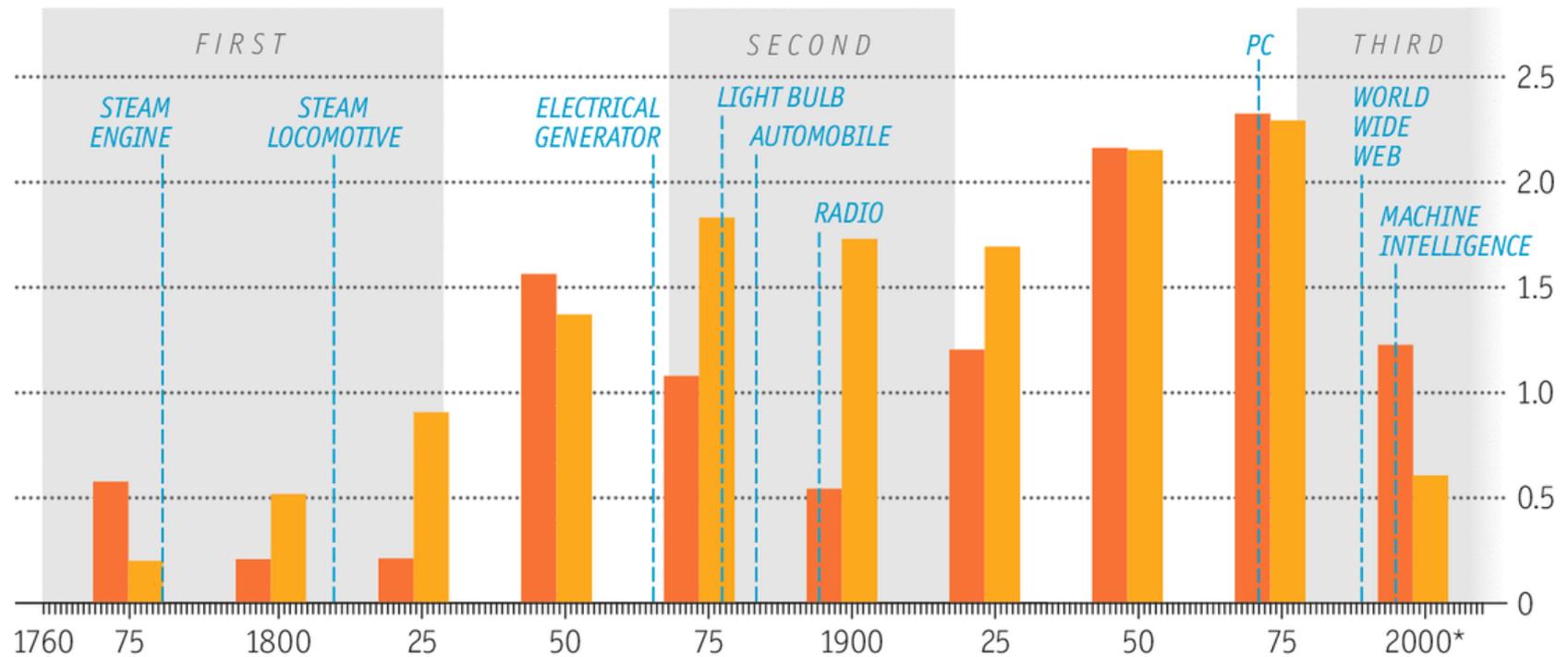


...and the open revolution won't be either

For richer, for poorer

GDP per person, average annual % change over 25-year periods

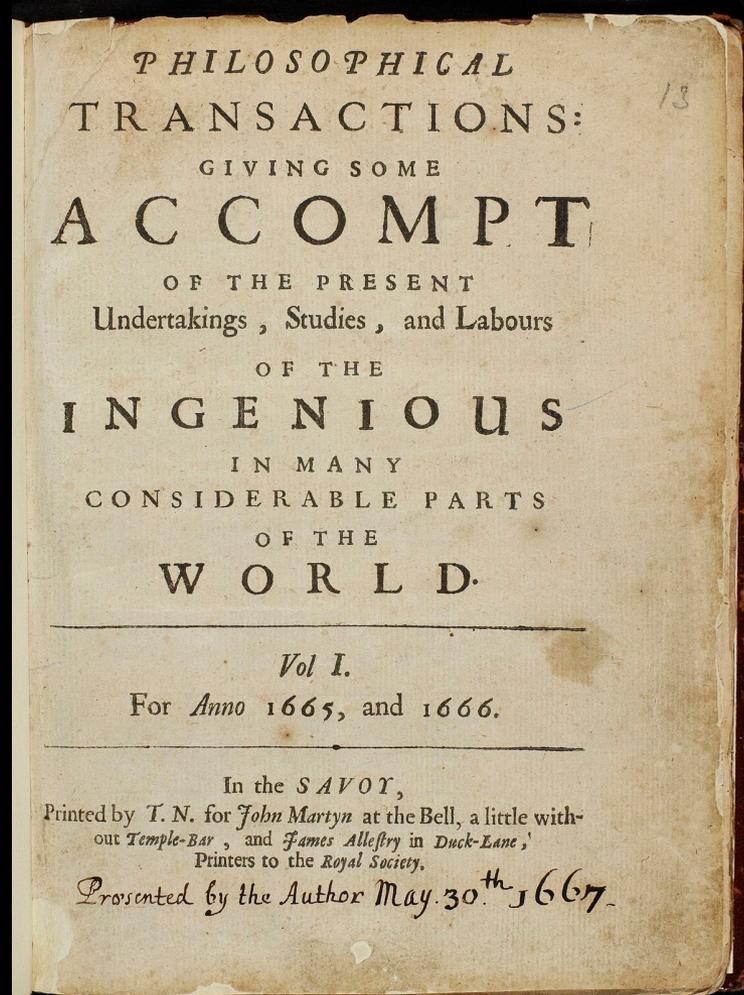
■ Britain
 ■ United States
 Industrial revolutions



Sources: Maddison Project; *The Economist*

*To 2010

The Web's 2.0 was Research's 1.0



What are we aiming for?

Open: As open as possible, as closed as context demands

Reproducible: By design (versioned)

Contextualised: Discoverable and accessible

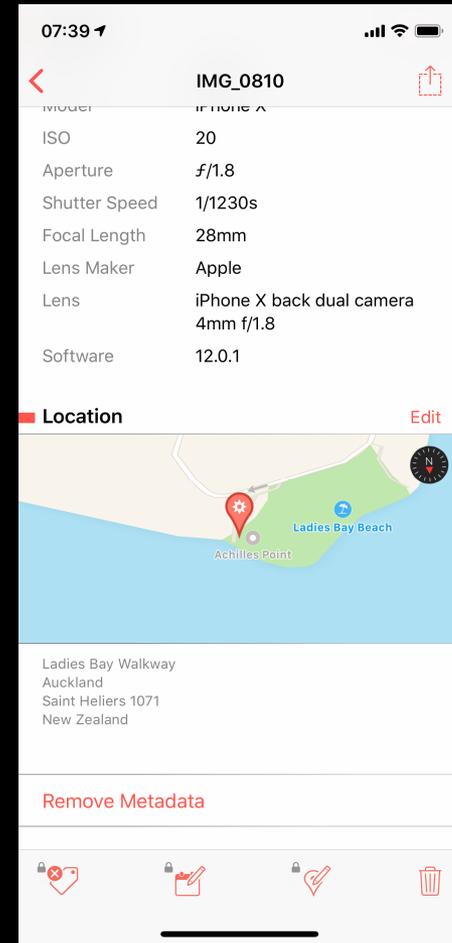
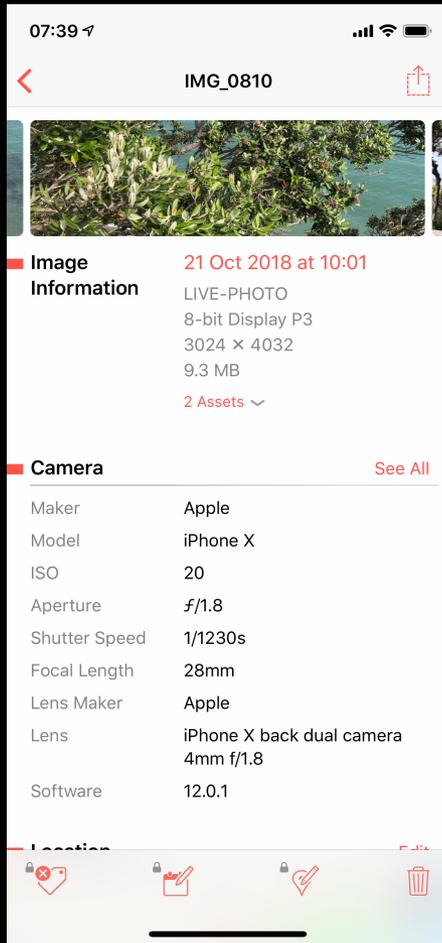
Elegant: Invisible Infrastructure

Trusted: Open basis for evaluation

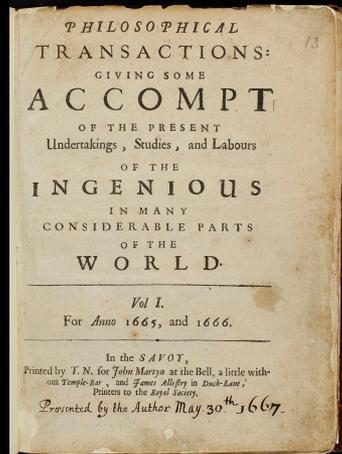
Designing Reproducibility



Invisible infrastructure



A Fundamental Shift...

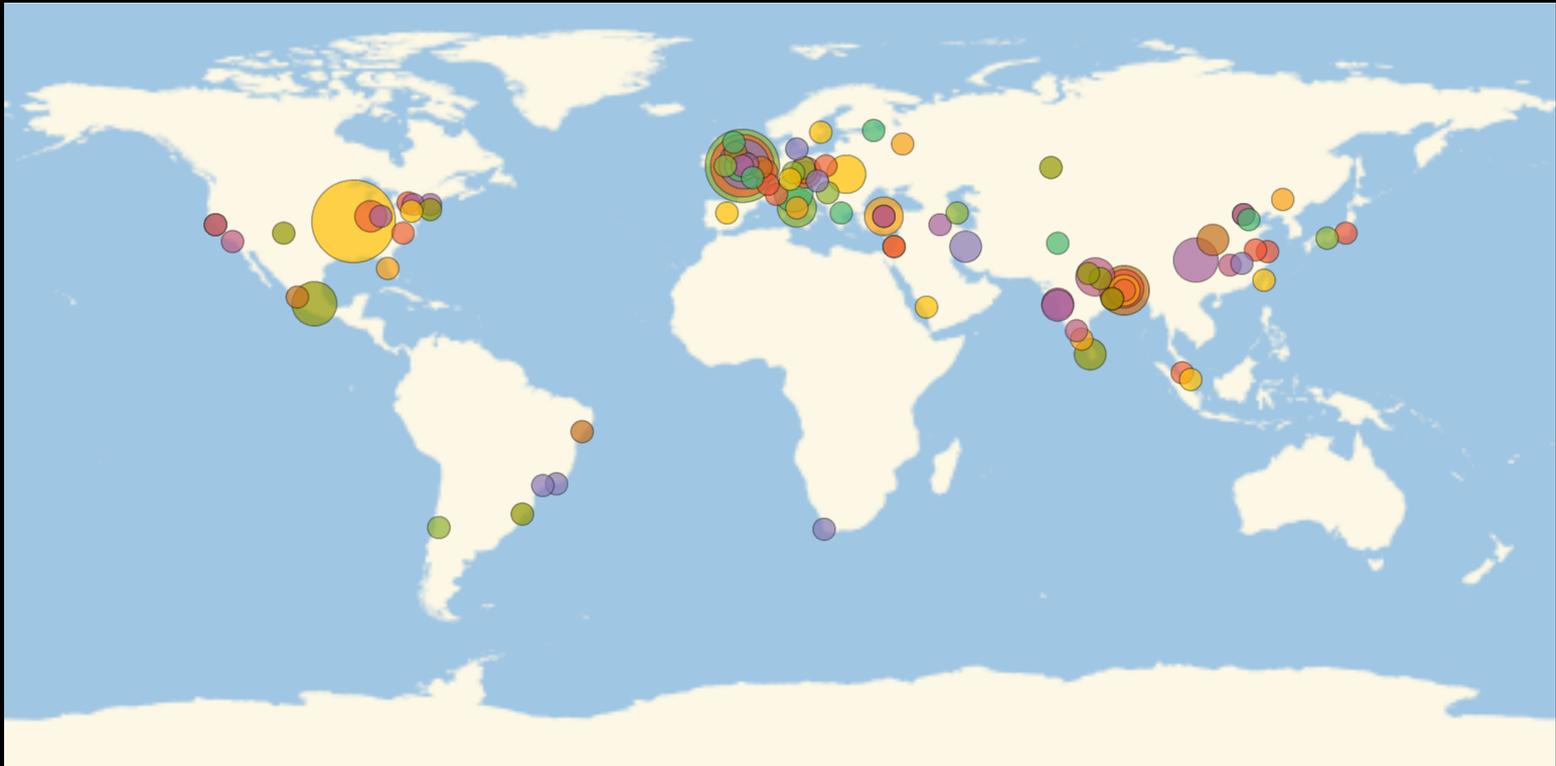


Reproducible by design

As open as possible, as closed as context demands

Invisible Infrastructure

Bursting the bubble...



The “atom” of communication is changing



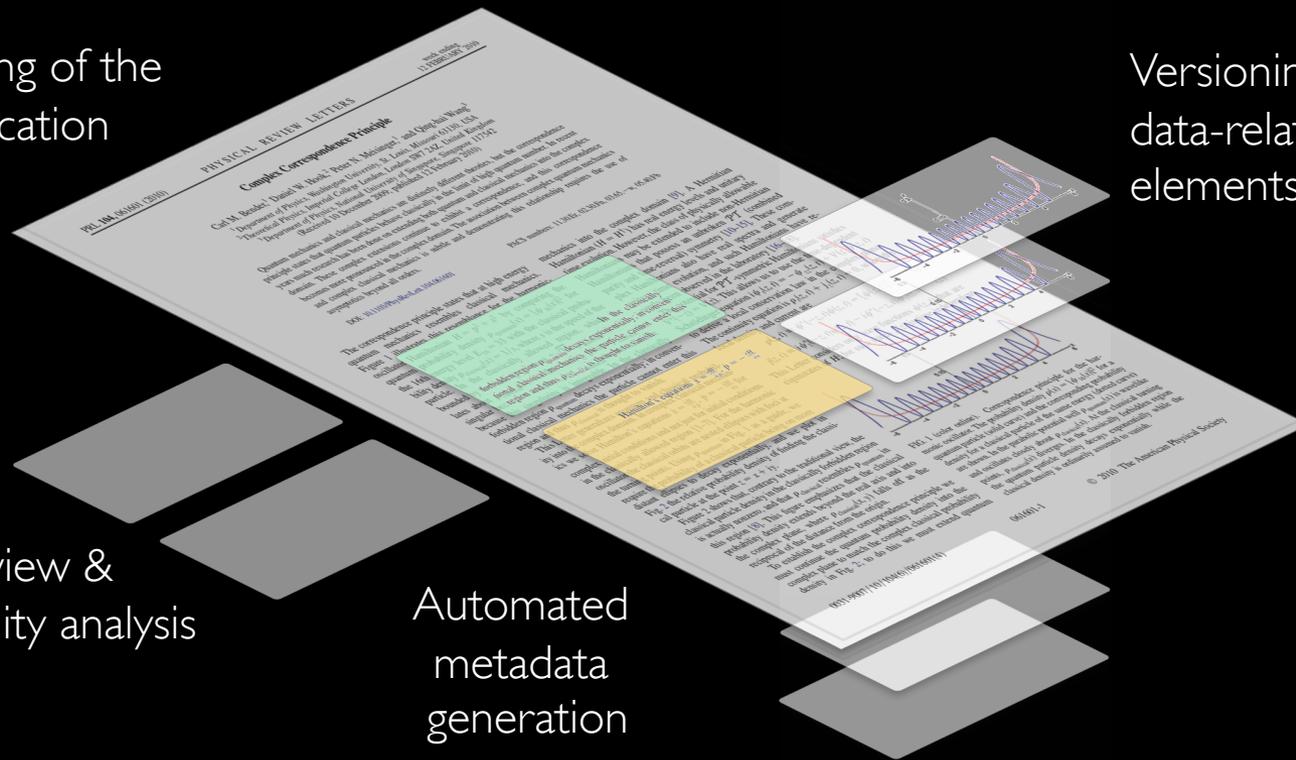
The presentation of research is becoming disaggregated...

Versioning of the publication

Versioning of data-related elements

Peer Review & Reproducibility analysis

Automated metadata generation



What should discovery and access look like in a world where research is layered?



Well, we need to shift away from publications...

 Dimensions

[Workflow](#) [Support](#) Daniel Ho...

e.g. plastic AND instrument
Save / Export

	PUBLICATIONS	GRANTS	PATENTS	CLINICAL TRIALS	POLICY DOCUMENTS
	98,216,711	4,333,072	37,805,641	445,528	384,935

FILTERS

FAVORITES

MY GROUPS

- C9
- EU-27
- Go8
- Ivy League
- Ivy Plus
- OA Producers
- Russell Group
- Top

START YEAR

ACTIVE YEAR

RESEARCHER

FUNDER

FUNDER GROUP

COUNTRY OF FUNDER

RESEARCH ORGANIZATION

COUNTRY

STATE/REGION

Sort by: Start Date

Title, Funder, Researcher	Funding amount (GBP), period
Sensing alarm responses of ungulate herds to prevent poaching of endangered megafauna. Netherlands Organisation for Scientific Research to M.J.A. Weterings	2021 -
Impact of deep subglacial groundwater on ice stream flow in West Antarctica (IGIS) Natural Environment Research Council to Bernd Kulesa, Poul Christoffersen, Andrew Mark Smith, Alexander Mark Bris...	610,107 2021 - 2024
Finding the most distant galaxies with NIRSpec guaranteed time on the James Webb Space Telescope European Research Council	1,811,788 2020 - 2025
Interactive effects of land-use related disturbances on the community composition, function and stability of AM fungal communities Estonian Research Council to Kadri Koorem	76,100 2020 - 2022
Centre for Competitive Advantage in the Global Economy (CAGE) Economic and Social Research Council to Sascha O Becker, Arun Advani, Robert Akerlof, Vera Eva Troeger, Sharun Muk...	920,835 2020 - 2025
Quantifying the contribution of sympagic versus pelagic diatoms to Arctic food webs and biogeochemical fluxes (SYM-PFI)	129,394 2020 - 2022

ANALYTICAL VIEWS

RESEARCH CATEGORIES

- 0601 Biochemistry and Cell Biology 305,773
- 0604 Genetics 218,851
- 0306 Physical Chemistry (incl. Structural) 173,935
- 0912 Materials Engineering 172,902
- 1117 Public Health and Health Services 156,997

OVERVIEW

Aggregated funding amount **GBP 852.3 B**

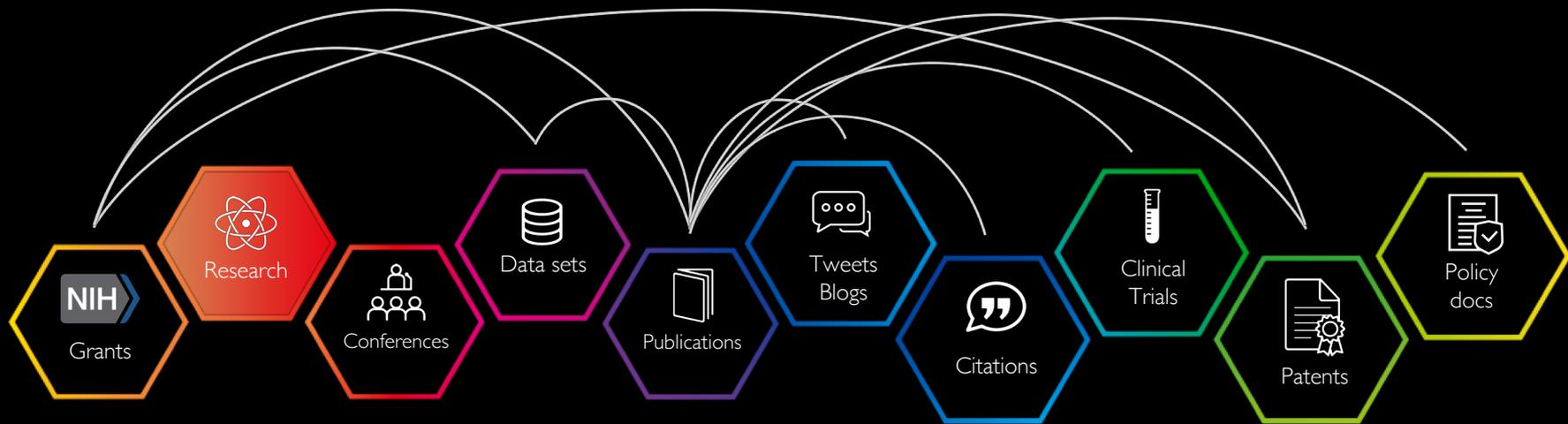
Average funding amount **GBP 244 K**

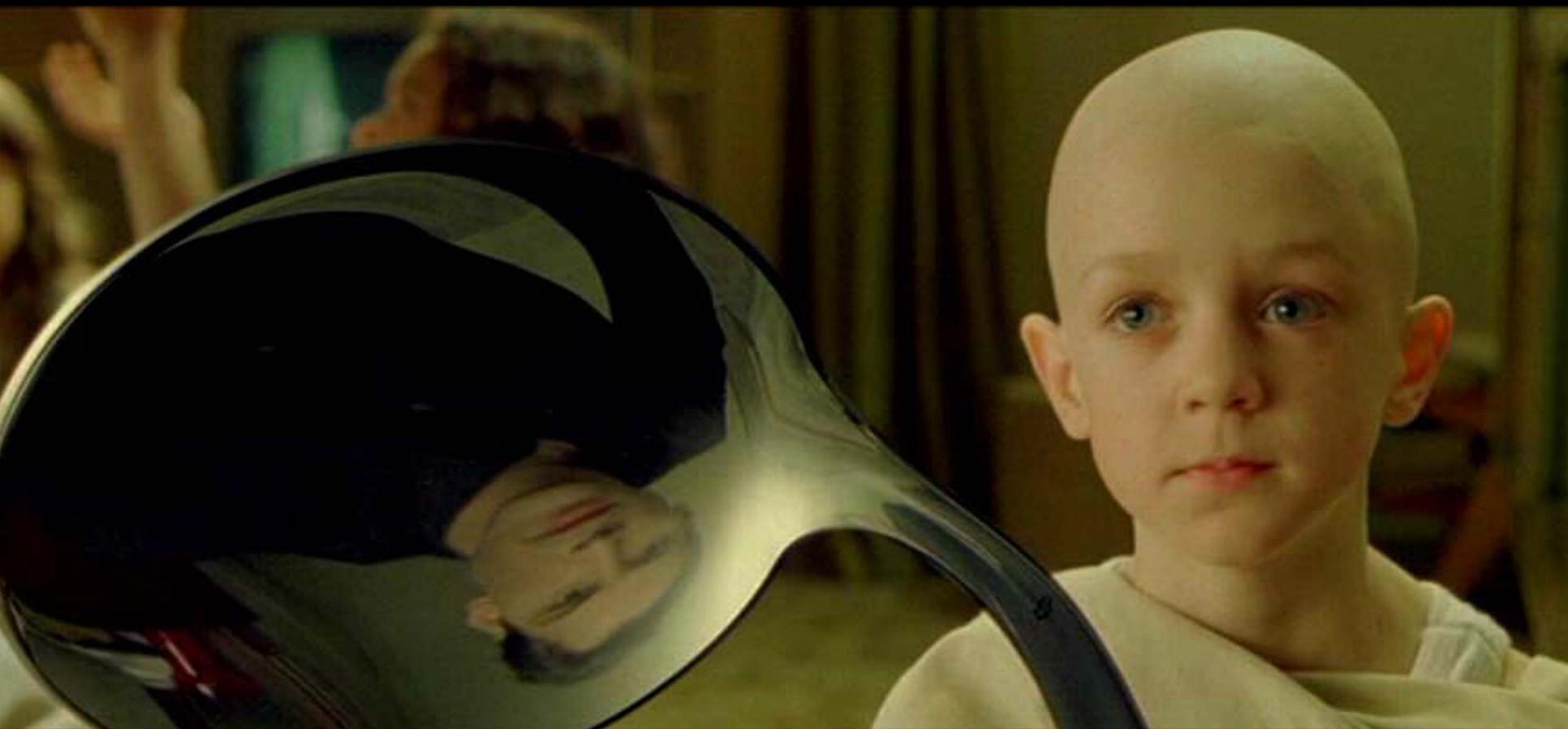


Starting grants (blue line) and Active grants (green line) over time (2010-2019).

RESEARCHERS

- Betsy L Humphreys GBP 1.6 B
United States National Library of Medicine, U...
- Andrea Barnes GBP 1.3 B





Evaluation = Trust

THIS WEEK

EDITORIALS

WORLD VIEW Ahmed Zewail explains why scientists should not be managed **p.347**

DRONGOS Bird study shows crime does pay – for victims **p.349**

SUPER DUPER New computer means no more slow bytes from China **p.351**



Closing the Climategate

The official inquiry might have exonerated scientists, but attitude changes are needed for science to ensure it holds the public's trust.

This week marks the first anniversary of the worldwide scandal over the release of e-mails stolen from a computer server at the University of East Anglia (UEA) in Norwich, UK. The server was in the university's Climatic Research Unit (CRU), most of the correspondents involved were climate scientists and the affair will be forever known as Climategate. The scientist at the centre of the storm, Phil Jones, the head of CRU, tells *Nature* on page 362 that he feels the worst is behind him.

It would be naive for Jones and other scientists to assume that the fuss has passed into history. Never mind that almost all of the accusations thrown at the researchers involved have been proven baseless. Never mind that much of the media has retreated from the aggressive stance it adopted during its 'comment first, ask questions later' approach to the content of the e-mails. And never mind that the scientific basis for the global-warming problem remains as solid as it was a year ago. Huge damage has been done to the reputation of climate science, and arguably to science as a whole. That impact deserves to be assessed and the necessary lessons need to be learned.

Take the name Climategate itself. The 'gate' suffix, now routinely

may routinely complain about the shortcomings of peer review to other scientists, but they often unite behind it in the face of criticism from outside the scientific sphere. That a study has been through peer review is used too often as a universal defence of its quality. If more scientists were more forthcoming about the flaws in their quality-control system, then commentators and the wider public may have been more willing to accept that scientists engaged in it do not always act as the public would expect.

"Climate scientists have to accept that they are in a street fight. They should expect a few low blows."

With the official inquiry clearing the CRU scientists of fudging data and of abusing the peer-review process, most of the more informed criticism has now settled on the fuzzy notion of the need for greater transparency and openness. Calls for full release of computer code written by climate researchers seem driven more by the fact that it is not routinely made available rather than because it is particularly useful, but it is clear that the CRU scientists did not cooperate fully with all requests for data and other information.

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Theoretical/research paper



When science becomes too easy: Science popularization inclines laypeople to underrate their dependence on experts

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and Rainer Bromme**

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Abstract

Science popularization fulfills the important task of making scientific knowledge understandable and accessible for the lay public. However, the simplification of information required to achieve this accessibility may lead to the risk of audiences relying overly strongly on their own epistemic capabilities when making judgments about scientific claims. Moreover, they may underestimate how the division of cognitive labor makes them dependent on experts. This article reports an empirical study demonstrating that this “easiness effect of science popularization” occurs when laypeople read authentic popularized science depictions. After reading popularized articles addressed to a lay audience, laypeople agreed more with the knowledge claims they contained and were more confident in their claim judgments than after reading articles addressed to expert audiences. Implications for communicating scientific knowledge to the general public are discussed.

Evaluation = Trust

Peer review

Incentives

Methodology

Data

Evaluation = Trust

Open | Peer review

Open | Incentives

Open | Methodology

Open | Data

Thank you

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