

Putting the Academy at the heart of Scholarly Publishing

OAI9

June 2015

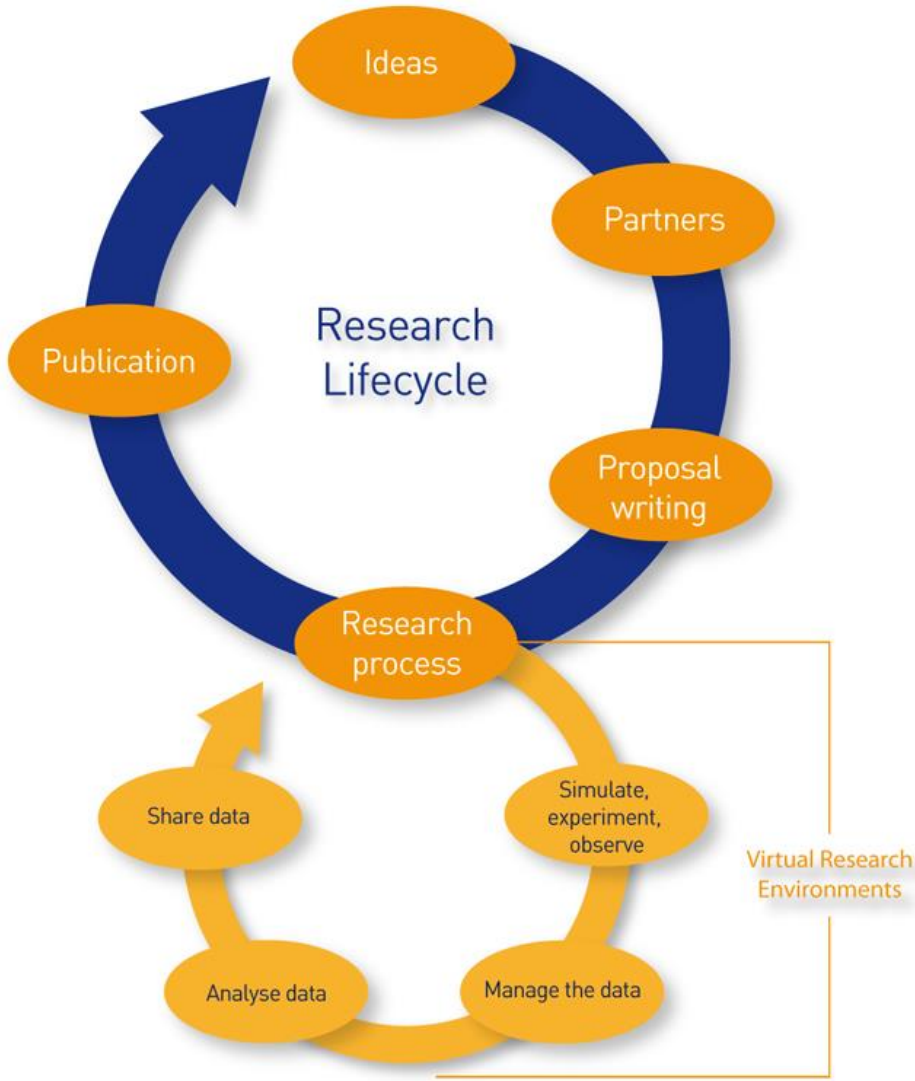
Catriona MacCallum

*PLOS Senior Advocacy Manager
& Consulting Editor (PLOS ONE); OASPA BoD
@catmacOA*

PLOS by numbers

- 7 journals
- 135,000 articles 2003-2014
- 33,000 articles in 2013
- 11.6 million monthly article views (2014)
- 1.9 million monthly article downloads (2014)
- 6,900+ editors (2014)
- 90,000 reviewers (2014)

What is publishing

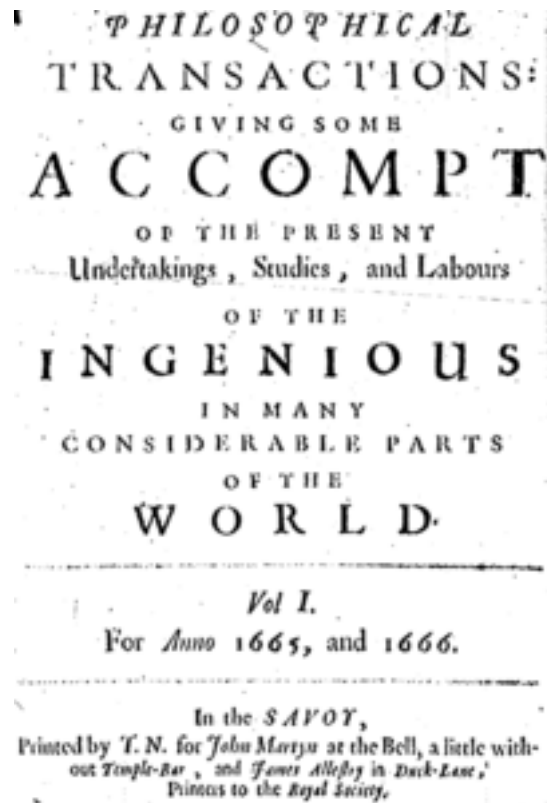


In the beginning (~17th Century)

- Small groups of scholars
- Scholars communicated directly, in person
- Experiments often done openly in public
- Criticism was open and transparent

Neylon, Cameron. *DataONE Webinar: Boyle's Laws in a Networked World: How the Future of Science Lies in Understanding Our Past on Vimeo*. Accessed June 10, 2015. <https://vimeo.com/121809639>.

and then...



***Philosophical Transactions of
the Royal Society:***

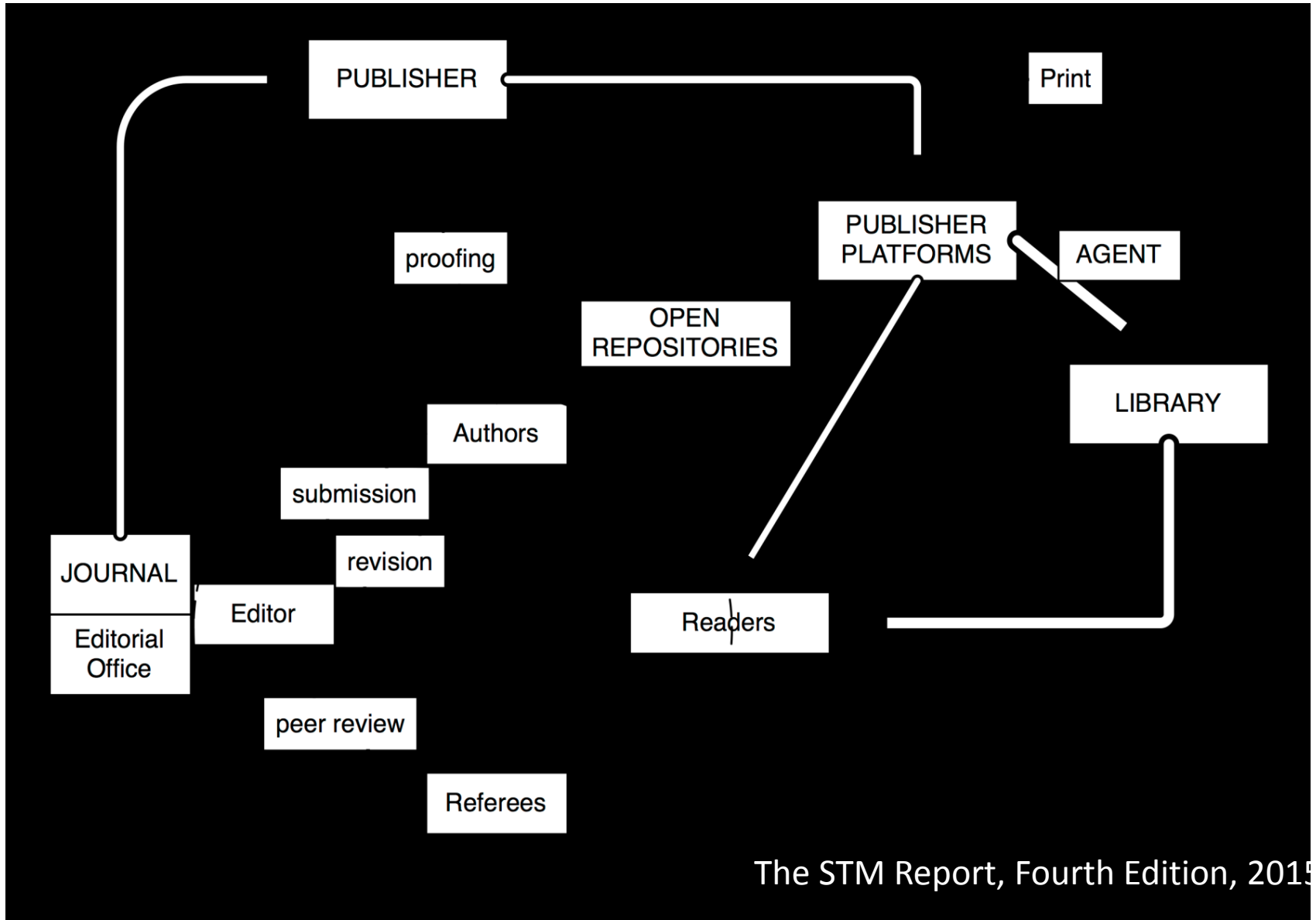
Started in 1665; first journal
devoted exclusively to science
publishing

The Journal

*“Journals form a core part of the process of scholarly communication and are an integral part of scientific research itself. Journals do not just **disseminate information**, they also provide **a mechanism for the registration** of the author’s precedence; maintain **quality through peer review** and provide a **fixed archival version** for future reference.”*

The STM Report, Fourth Edition, 2015

Figure 3: The publishing cycle



Now

- >28, 000 peer-reviewed English language journals (2014)
 - 10,900 in Journal Citation Reports
- 2.5 million articles a year
- 500-10,000 journal publishers
- 7-9 million researchers
- Most publishers have >90% content available online

The STM Report, Fourth Edition, 2015 (and citations within)

The Oligopoly of Academic Publishers in the Digital Era

- In the 19th C, journals became the fastest and most convenient way of disseminating results
- Most were initially published by scientific societies (before the 1940s)
- The digital revolution affected the economic market, while journals remained essentially the same (pdf distribution dominant):

Larivière V, Haustein S, Mongeon P (2015) The Oligopoly of Academic Publishers in the Digital Era. *PLoS ONE* 10(6): e0127502. doi:10.1371/journal.pone.0127502 (and citations within)

Analysis of publisher share of papers 1973-2013

- Thomson Reuter's Web of Science
- >44 million documents published by journals
- Looked at mergers and acquisitions

Larivière V, Haustein S, Mongeon P (2015) The Oligopoly of Academic Publishers in the Digital Era. PLoS ONE 10(6): e0127502. doi:10.1371/journal.pone.0127502
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502>

Proportion held by the top five publishers

Disciplines	1973	Mid 1990s	2013	Relative Share 2013
Natural and Medical Sciences	20%	30%	53%	<ul style="list-style-type: none"> • 47% by Reed-Elsevier, Springer, Wiley-Blackwell • ~6% T&F and Am. Chem. Society
Social Sciences & Humanities	10%	15%	51%	<ul style="list-style-type: none"> • Elsevier 16.4% • T&F 12.4% • Wiley-Blackwell 12.1% • Springer 7.1% • Sage 6.4%

Larivière V, Haustein S, Mongeon P (2015) The Oligopoly of Academic Publishers in the Digital Era. PLoS ONE 10(6): e0127502.
 doi:10.1371/journal.pone.0127502
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502>

Biomedical papers only	2009	2013
Share of top 5	49%	42%

- Decline mainly result of new OA journals (e.g. PLOS ONE)

Physics	2001	2013
Elsevier	28%	21%
Springer	3%	11%
Societies (APS, AIP, IOP)	~35%*	38%

- field less profitable for commercial publishers?
 - importance of Societies
 - arXiv
 - SCOAP3

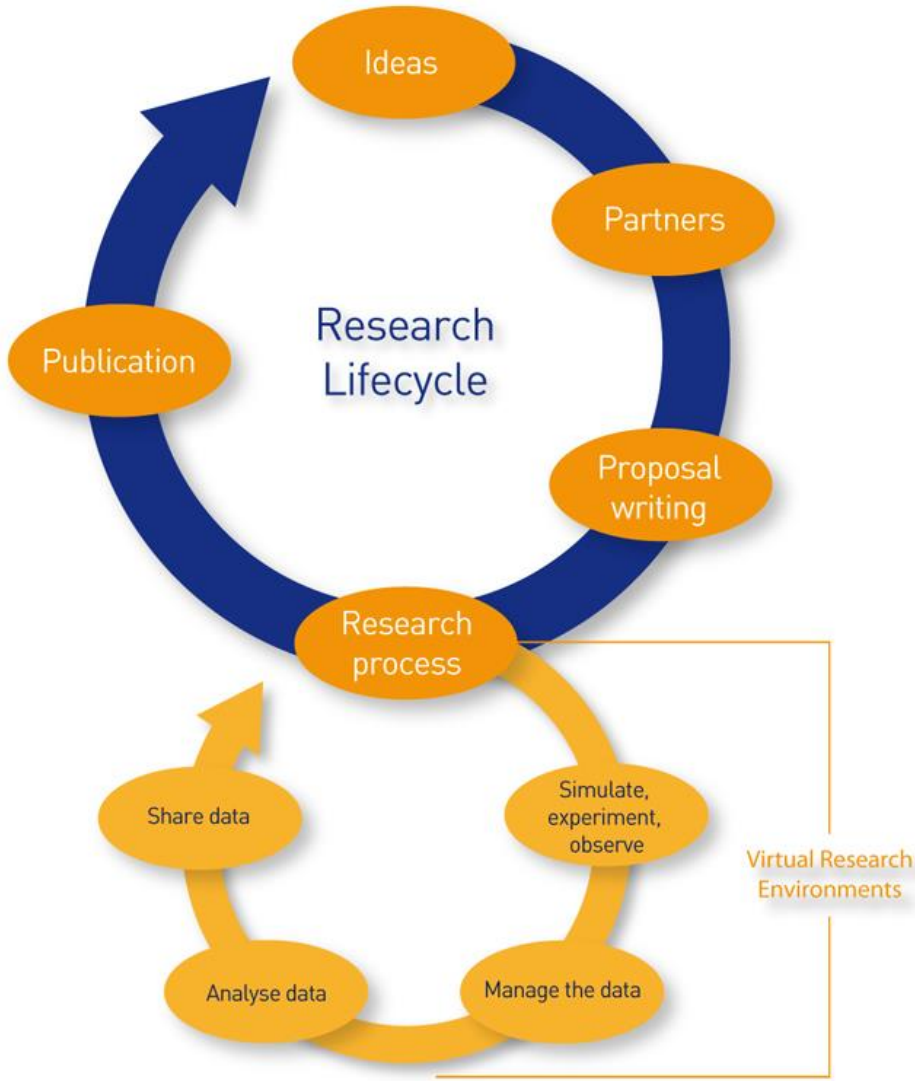
*read from Fig 5

Larivière V, Haustein S, Mongeon P (2015) The Oligopoly of Academic Publishers in the Digital Era. PLoS ONE 10(6): e0127502. doi:10.1371/journal.pone.0127502
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502>

“University presses and disciplinary associations were founded to disseminate research in the original cycle of scholarly communication [...] However, over the past fifty years, as federal research funding has encouraged specialization, journal publishing has become commercialized, and some parts of the scientific and technical literature are now being monopolized by multinational publishing conglomerates.” (p. 89)”

Lyman P, Chodorow S. (1998) The Future of Scholarly Communication. In Hawkins BL, Battin P, editors. The Mirage of Continuity: Reconfiguring Academic Information Resources for the 21st Century. Washington D.C.: CLIR and AAU; 1998. pp. 87–104. Cited in Larivière V, Haustein S, Mongeon P (2015)

What is publishing



It's no longer just about journals or books

it's also this...



and this...



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About bioRxiv

bioRxiv (pronounced "bio-archive") is a free online archive and distribution service for unpublished preprints in the life sciences. It is operated by Cold Spring Harbor Laboratory, a not-for-profit research and educational institution. By posting preprints on bioRxiv, authors are able to make their findings immediately available to the scientific community and receive feedback on draft manuscripts before they are submitted to journals.

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and this...

Science. Set free.

11,534,086 publications and 7,874 datasets from 5,869 repositories and OA journals



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Researchers

- > Deposit publications & data
- > Link research to funder/project



Data Providers

- > Register & validate content
- > Get guidelines for interoperability



Research Managers

- > Learn about EC & national policies
- > Create project reports



Funding Agencies

- > Learn how to embrace OA
- > Participate in OpenAIRE

COMMONS

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A forum for scientific discourse



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- Get Started
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Top comments now - [more about this](#)

Saving lives with high-flow nasal oxygen.

Matthay MA. N Engl J Med. 2015. [1 comment](#)

[Preben Berthelsen](#) 2015 Jun 14 06:53 a.m. (3 days ago)

In this editorial, Prof Matthay contends that the paper by Blodgett: The continuous inhalation of oxygen in cases of pneumonia otherwise fatal, and in other diseases. (Boston M ... more

[Permalink](#) [Share](#)

Self-splicing RNA: autoexcision and autocyclization of the ribosomal RNA intervening sequence of Tetrahymena.

Kruger K. Cell. 1982. [1 comment](#)

[Salzman Lab Journal Club](#) 2015 Jun 15 7:23 p.m. (yesterday) 2 of 2 people found this helpful

This of course is a landmark paper, clearly and concisely demonstrating that RNA alone can catalyze reactions. A finding that is a bit obscure here is that nicked circle IVS has ... more

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Age-dependent decline of association between obesity and mortality: a systematic review and

PubMed Commons Blog

Signposts from research to resources

May 6, 2015

From repositories to blogs, the web has expanded means to share information and resources widely. PubMed Commons members are tying data, code, and more back to publications by adding external links to PubMed records.

[See full blog post](#)



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What people are reading

Trending articles - those with recent increase in views

Last updated: June 17 09:06 a.m.

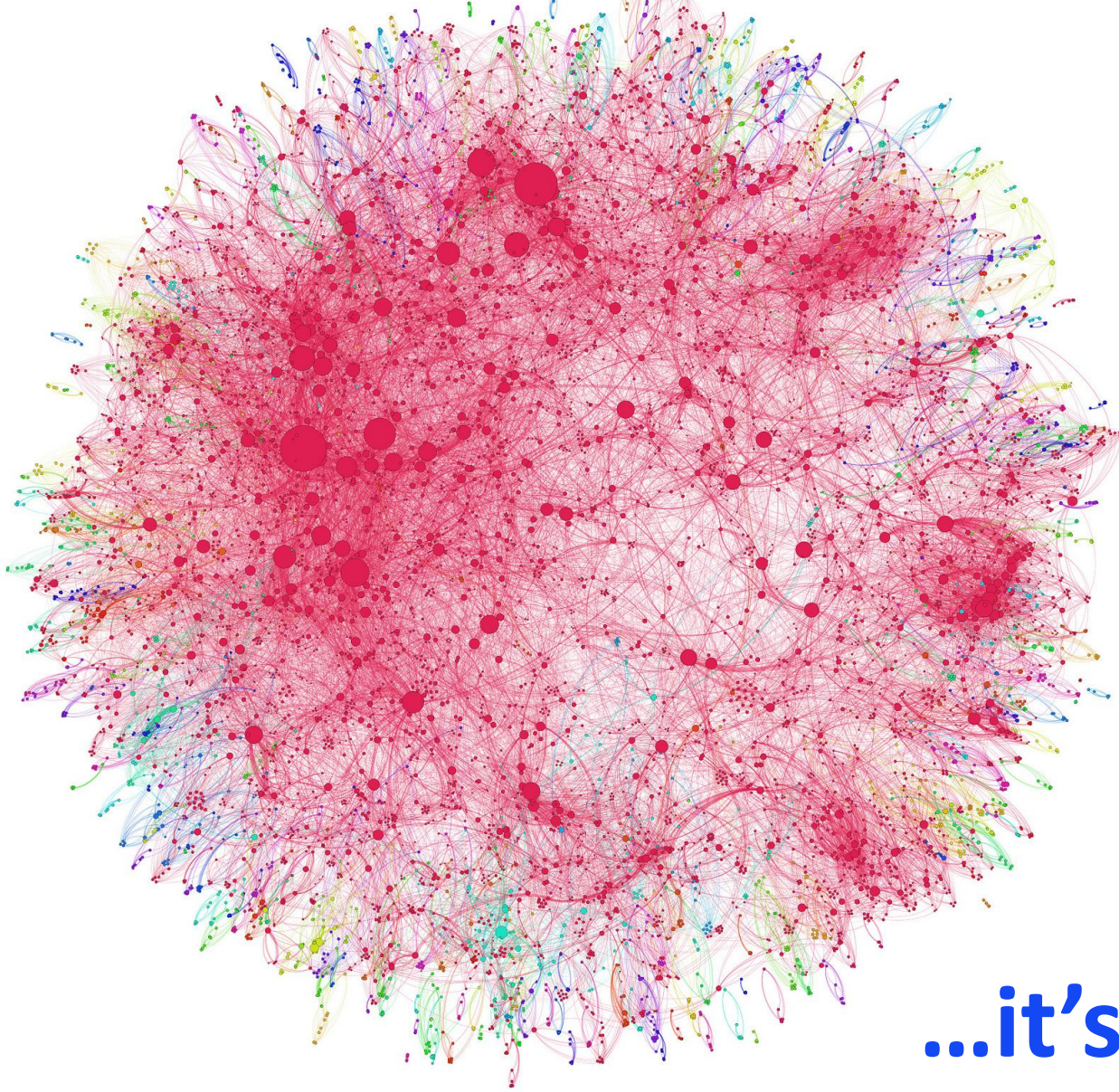
Beta-keratin specific immunological reactions in the skin: structures of the cretaceous alvarezsaurid *Archaeopteryx lithuanica*. *J Exp Zool.* 1999.

Photoactivatable CRISPR-Cas9 for optogenetic control of gene expression. *Nat Biotechnol.* 2015.

A game of thrones: neural plasticity in mammalian social hierarchies. *Soc Neurosci.* 2014.

Sleep Facilitates Memory by Blocking Default Mode Network Forgetting. *Cell.* 2015.

It's not a cycle...



...it's a Network

Image: Andy Lamb, CC BY <https://www.flickr.com/photos/speedoflife/8273922515/in/photostream/>

the increasing interconnection of networks is an important phenomenon.

increased connectivity *itself* leads to changes

Implications of increased connectivity

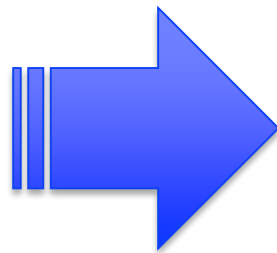
- Increased global collaboration
 - potential for new areas of research that would not otherwise be addressed
 - research questions that could not previously be tackled
- Increased local engagement
 - Opportunity for engagement and collaboration beyond the traditional research community, driven by a more highly connected network
 - potential to enhance the application of research to local problems

Facilitating the network...

- Ensure scholarship *can* be used
- Ensure scholarship *is* re-used

Application
Commercialisation
Education
Engagement

Citation
Download
Tweet
etc



RE-USE = IMPACT

...ensure scholarship is **re-usable**

How?

- Build scale
 - interoperable platforms and infrastructure
- Ease Connections
 - remove access barriers (e.g. paywalls, permissions)
 - remove re-use barriers
 - Technical (metadata, DOIs, NISO, etc)
 - Cultural (quality assurance, 'reproducibility', transparency,)
- Maximise network effects
 - incentivise players (technicians, researchers, institutions, publishers, funders, citizen scientists)
- Monitor progress
 - Create an 'observatory'

**Making something available on the web is the
least interesting thing you can do**

**‘Publishing’ is not [just] about content
provision....**

it's about connections...

People

Organisations

Objects, facts, ideas

Events

and relationships...

People

Organisations

Objects, facts, ideas

Events

and discovery...

People

Organisations

Objects, facts, ideas

Events

and reliability....

People

Organisations

Objects, facts, ideas

Events

... it's about services

➤ **servicing the scholarly communications network**

The Institution as a Service Provider

Services

- Open Access (CC BY)
 - Data, text
- Content to build the network
 - OA presses (e.g. UCL)
 - Repositories
 - New authoring and reviewing tools
- Global interoperable, sustainable infrastructure
- Transparency (intelligent Openness)
 - Open Peer review
 - Pricing
 - Workflows (e.g. APC management)
- Assessment
 - Alternative metrics
- Rewards and 'Incentives'
 - Rewarding Open/networked behaviour

Services: information that is machine readable



<http://dmtrk.com/2PXJ-HVU-9FNJFS36A/cr.aspx> and

<http://www.slideshare.net/ORCIDSlides/orcid-adoption-and-use>

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LATEST NEWS

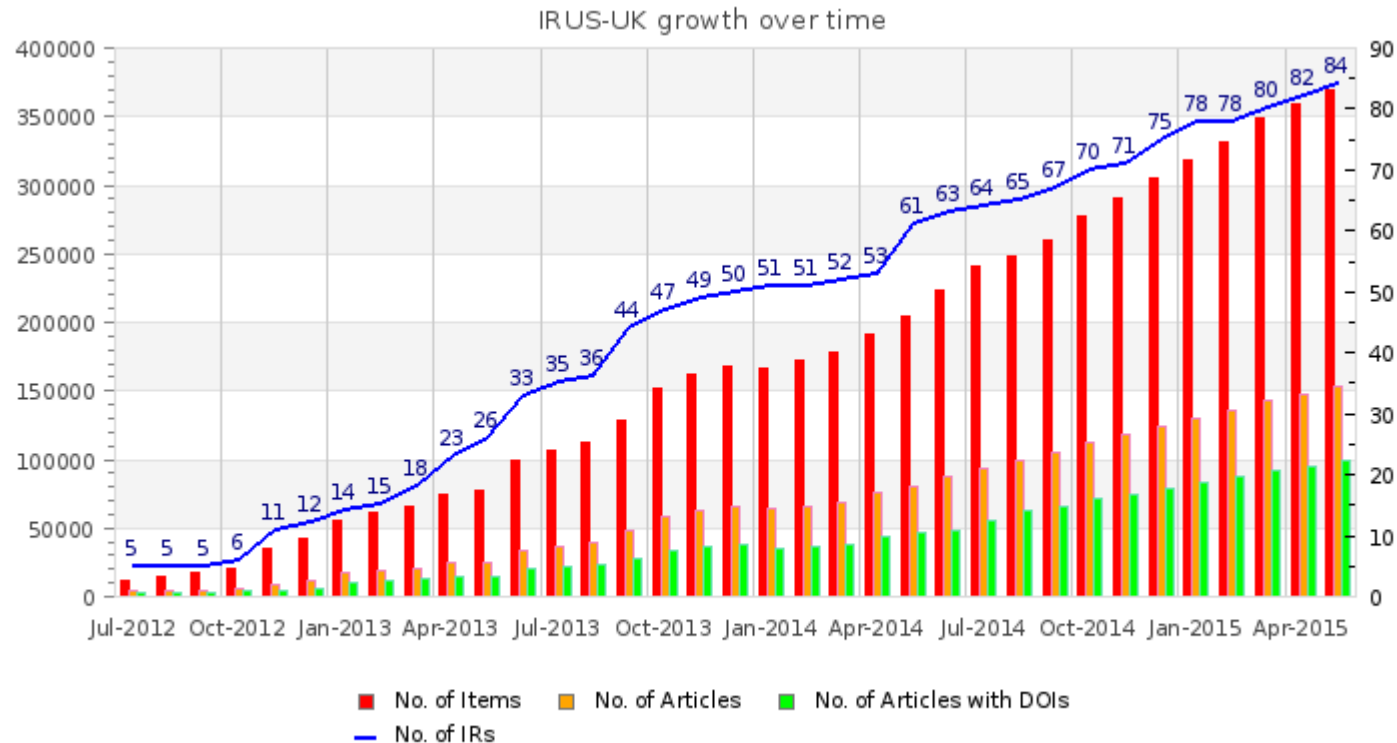
Fri, 2015-06-05
[ORCID-CASRAI Codefest 2015](#)

Thu, 2015-06-04
[ORCID in Barcelona – Spring 2015 Outreach Meeting Highlights](#)

Wed, 2015-05-20
[Announcing Alice Meadows: ORCID's](#)

<http://orcid.org/>

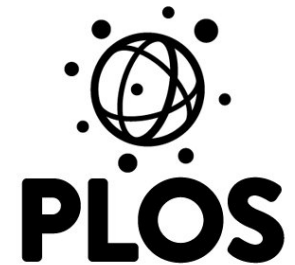
IRUS-UK growth over time



<http://www.irus.mimas.ac.uk/> IRUS-UK (Institutional Repository Usage Statistics UK) is a Jisc-funded national aggregation service, which provides COUNTER-compliant usage statistics for all content downloaded from participating UK institutional repositories (IRs). - See more at: <http://www.irus.mimas.ac.uk/#sthash.VGOZ4MFd.dpuf>

CrossRef DET pilot (Data Event Tracker)

- Provides a way to track activities – ‘events’ – around DOIs
- Crossref acts as a hub
- The data are openly available from CrossRef
- Requires ‘Lagotto’ - Open Source Software from PLOS (used to retrieve data on Article Level Metrics)
- Collaboration of publishers
 - Co-Action, eLife, BMC, Elsevier, OUP, PLOS, W
 - University of Wolverhampton, Wellcome, Mendeley, CrossRef



Services: Access to original datasets

PLOS Policy Effective March 1, 2014:

- All data underlying the findings must be deposited in field-standard repository upon submission.
- Must be available without restriction, with rare exception.
- Data Availability Statement is published with accepted article

Compliance?

Acceptable data-sharing methods:

- Data deposition (*recommended; must include DOIs or accession numbers*)
- Data in supporting information files (*in file format from which data can be efficiently extracted*)

Compliance

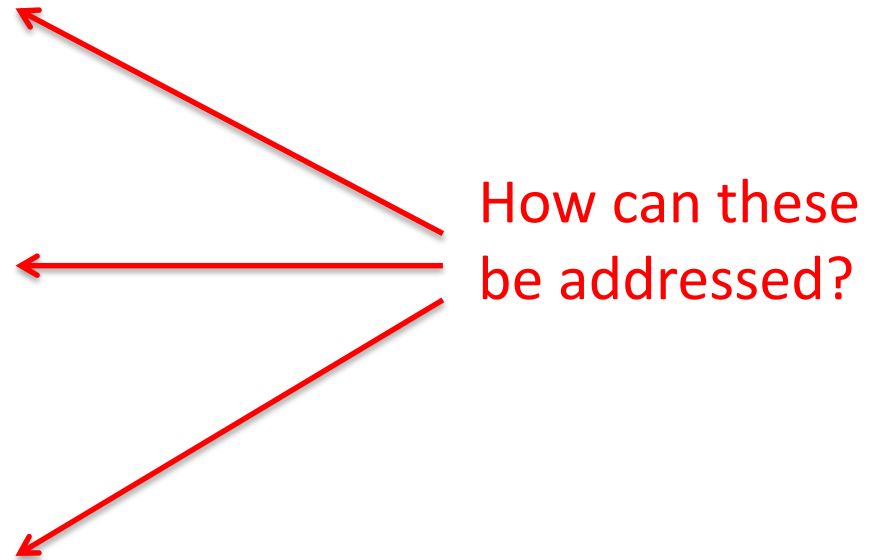
- How to enforce?
- Currently monitoring
- Policy will evolve to reflect this
- Independent assessment (one subject area) showed that data availability increased from 12%- 40% from March-Nov 2014*
- If representative (unlikely):
 - PLOS ONE publishes ~33000 paper in 2013
 - So, 13,200 papers where the data in a paper can be reused compared with 3960 before policy

*Van Noorden, Richard. *Nature* 515, no. 7528 (November 26, 2014): 478–478. doi:10.1038/515478a.

Services: Reliability (Reproducibility)

It's not just access to data that's a problem

- Bias (*common*)
- Misreporting (*common*)
- Spin (*common*)
- Misconduct (*on the increase?*)
 - Falsification
 - Fabrication
 - Plagiarism
 - Violation of ethical standards
 - Other types of misconduct



Potential solutions



- Raise reporting standards
 - CONSORT, ARRIVE (EQUATOR)
- Improve access to original datasets
- Ensure access to historical documents eg protocols – ensure what has been reported can be compared against what was planned
- Incentivise reproducibility/reliability of original studies
- Open continuous peer review



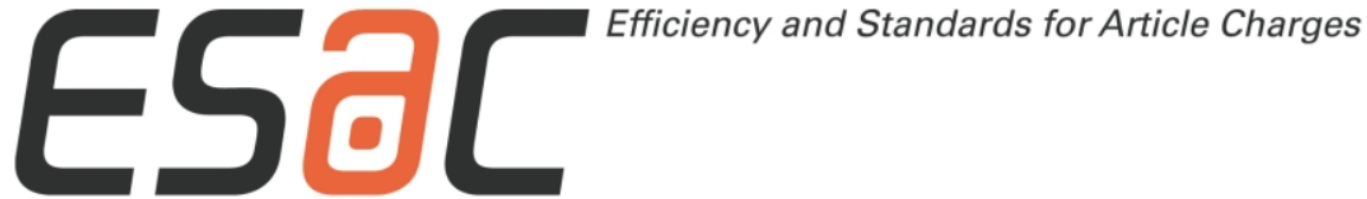
Transparency



- Eisen JA, Ganley E, MacCallum CJ (2014) **Open Science and Reporting Animal Studies: Who's Accountable?** PLoS Biol 12(1): e1001757. doi:10.1371/journal.pbio.1001757
- The PLOS Medicine Editors (2013) **Better Reporting of Scientific Studies: Why It Matters.** PLoS Med 10(8): e1001504. doi:10.1371/journal.pmed.1001504



Services: transparent and competitive market



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[APC WORKSHOP 2013](#)

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ABOUT

WHAT IS ESAC?

ESAC stands for "Efficiency and Standards for Article Charges". ESAC is an initiative originated to

- address the challenges associated with the management of Open Access article charges (alias: APCs, article processing charges, article page charges, article fee etc.);
- start the discussion on efficient workflows involving all parties such as funders, libraries, authors, standardization initiatives, and publishers;
- propose good practices and proven workflows.

<http://esac-initiative.org/about/>

APC Workflow Assessment Quiz

In which stage are you regarding APC management and open access transition? Try out our [APC Workflow "Quiz"](#) (beta version)

Datasets on fee-based Open Access Publishing

- [Ruhr Universität Bochum joins openapc.github.io!](#)
June 1, 2015

Objectives of ESAC

- To keep transaction costs for Open Access article charges at a minimum level.
 - To support and contribute to the development of a transparent and efficient APC market.
- **Signing non-disclosure agreements is NOT a service**

Transparency – Intelligent Openness

- Greater transparency can improve on the reproducibility and reliability of research results.
- Greater transparency can enable independent experts to assess the effectiveness of different services themselves (e.g. peer review)
 - Needs to be balanced against the need for “privacy of thought” which allows researchers to work through to an understanding of their results.
 - Needs to take account of confidentiality (patient, endangered species etc)

Services: Incentives

Research Assessment

- Prestige dominates
- Decisions generally not transparent
- Researchers are risk-averse
- Institutions are risk-averse

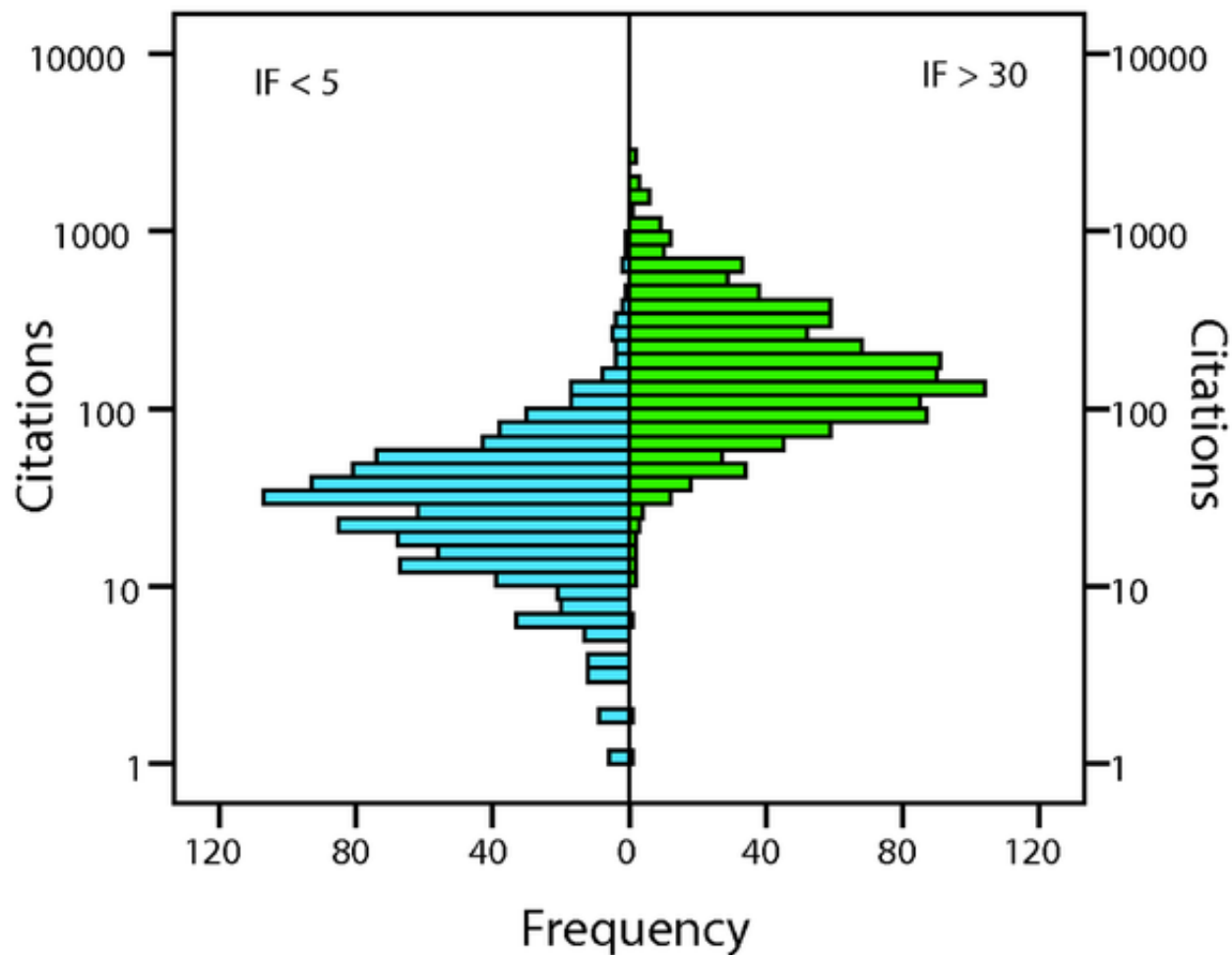
Impact Factor – perverse incentive

- Researchers & institutions unable to ‘wean themselves’ off impact factor
- Impact factor ‘propping up’ subscription model (Claudio Aspesi, Business analyst)

➤ **Research assessment isn't linear**



Figure 5. The distribution of the number of citations in journals with $IF < 5$ and $IF > 30$ in the F1000 dataset.



Eyre-Walker A, Stoletzki N (2013) The Assessment of Science: The Relative Merits of Post-Publication Review, the Impact Factor, and the Number of Citations. *PLoS Biol* 11(10): e1001675. doi:10.1371/journal.pbio.1001675

See also: Eisen JA, MacCallum CJ, Neylon C (2013) Expert Failure: Re-evaluating Research Assessment. *PLoS Biol* 11(10): e1001677. doi:10.1371/journal.pbio.1001677

A close-up photograph of a rose, showing the intricate layers of its petals. The color of the petals transitions from a warm yellow on the left to a vibrant blue on the right, creating a striking gradient. The text 'qualities...' is overlaid in the center-right of the image.

‘qualities...’



not 'quality'



PLOS Article-Level Metrics (ALMs): measuring the impact of research

ALMs provide a suite of established metrics that measure the overall performance and reach of published research articles.

[Learn More!](#)

[Get the App](#)

[Get the Data](#)

Researchers

Maximize the impact of your research

Publishers

Enhance publication value through real-time views of reach and influence

Institutions

Capture researcher impact for hiring, tenure, and promotion decisions

Funders

Track the performance and impact of research funding

Videos and Presentations



Article-Level Metrics at PLoS & Beyond

Latest News

■ 30 July, 2013

The Summer issue of Information Standards Quarterly (ISO).

<http://article-level-metrics.PLOS.org>

Networked scholarship requires network incentives

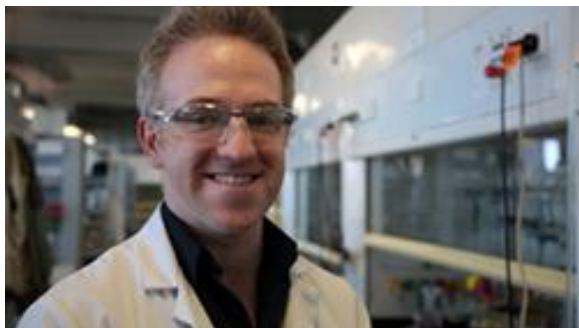
1. Mechanisms and frameworks that drive directional change at the system level rather than highly targeted interventions with specific goals.
2. Policy interventions focussed on the creation of frameworks and mechanisms that drive directional change and through the monitoring of implementation
 - e.g. rewards for ‘networked’ behaviour
 - A system of hiring and firing that moves the culture away from journals and impact factors

Rewarding open behaviour

Accelerating Science Awards Program (ASAP)

Global Collaboration to Fight Malaria

Matthew Todd, PhD



HIV Self-Test Empowers Patients

Nitika Pant Pai, MD, MPH, PhD,
Caroline Vadnais, Roni Deli-Houssein



Visualizing Complex Science

Daniel Mietchen, PhD, Raphael Wimmer
and Nils Dagsson Moskopp



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<http://asap.plos.org>

Putting the Academy at the heart of Scholarly

~~Communication~~

we need a new word

The Institution as a Service Provider

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VHF COMMUNICATIONS JUNCTION BOX



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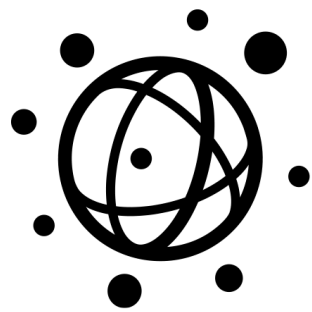
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PLOS

**Open for
Discovery**

Thank you