# DORA and reform of research assessment



Let's change
what we value
in research.

Sign
DORA

## Stephen Curry

Imperial College and DORA

**University of Ljubljana | 27 Nov 2020**

# We have allowed scholarly publishing to come into opposition to the public interest

**Science**
Occam's corner

## Zika virus initiative reveals deeper malady in scientific publishing

Stephen Curry

Moves to speed up the release of Zika virus research in response to the public health crisis highlight a systemic failure in scientific publishing. Help could be at hand at the ASAPbio meeting today in the USA

Contact author

@Stephen_Curry

Tuesday 16 February
2016 11.54 GMT

"our research ecosystem provides **no incentives for publishing reliably, rapidly or openly** – all features that one might hope to see in a system that works effectively. Despite a decade or more of talk about open access, [...] we are still mired in technical and cultural debates that – to our shame – remain largely internal to the ivory tower."

*https://www.theguardian.com/science/occams-corner/2016/feb/16/zika-virus-scientific-publishing-malady*

# Market value in academia

Evaluation based on journal metrics reduces productivity
- Chase for Journal Impact Factors slows publication
- Positive bias in the literature (no place for sharing negative results)

Metric-driven **hyper-competition** in which only the *result* matters:
- incentivises fraud
- devalues other important academic activities – and academics
- undermines reliability & public trust

The *Times Higher Education* World University Rankings

**World University Rankings 2013-2014**

| | | | |
|---|---|---|---|
| 1 | California Institute of Technology (Caltech) | United States | 94.9 |
| 2 | Harvard University | United States | 93.9 |
| 2 | University of Oxford | United Kingdom | 93.9 |
| 4 | Stanford University | United States | 93.8 |
| 5 | Massachusetts Institute of Technology (MIT) | United States | 93.0 |
| 6 | Princeton University | United States | 92.7 |
| 7 | University of Cambridge | United Kingdom | 92.3 |
| 8 | University of California, Berkeley | United States | 89.8 |
| 9 | University of Chicago | United States | 87.8 |
| 10 | Imperial College London | United Kingdom | 87.5 |
| 11 | Yale University | United States | 87.4 |

| Rank | Full Journal Title | Total Cites | Journal Impact |
|---|---|---|---|
| 1 | CA-A CANCER JOURNAL FOR CLINICIANS | 28,839 | 244.585 |
| 2 | NEW ENGLAND JOURNAL OF MEDICINE | 332,830 | 79.258 |
| 3 | LANCET | 233,269 | 53.254 |
| 4 | CHEMICAL REVIEWS | 174,920 | 52.613 |
| 5 | Nature Reviews Materials | 3,218 | 51.941 |
| 6 | NATURE REVIEWS DRUG DISCOVERY | 31,312 | 50.167 |
| 7 | JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION | 148,774 | 47.661 |
| 8 | Nature Energy | 5,072 | 46.859 |
| 9 | NATURE REVIEWS CANCER | 50,407 | 42.784 |
| 10 | NATURE REVIEWS IMMUNOLOGY | 39,215 | 41.982 |
| 11 | NATURE | 710,766 | 41.577 |

# How do we talk about what we *value*?

"We need to begin to tell stories that frame politics around genuine appreciation and social recognition for **contributions to the common life** and to **collective well-being** that go beyond how the market rewards you and how the market defines the **value** of your contribution."
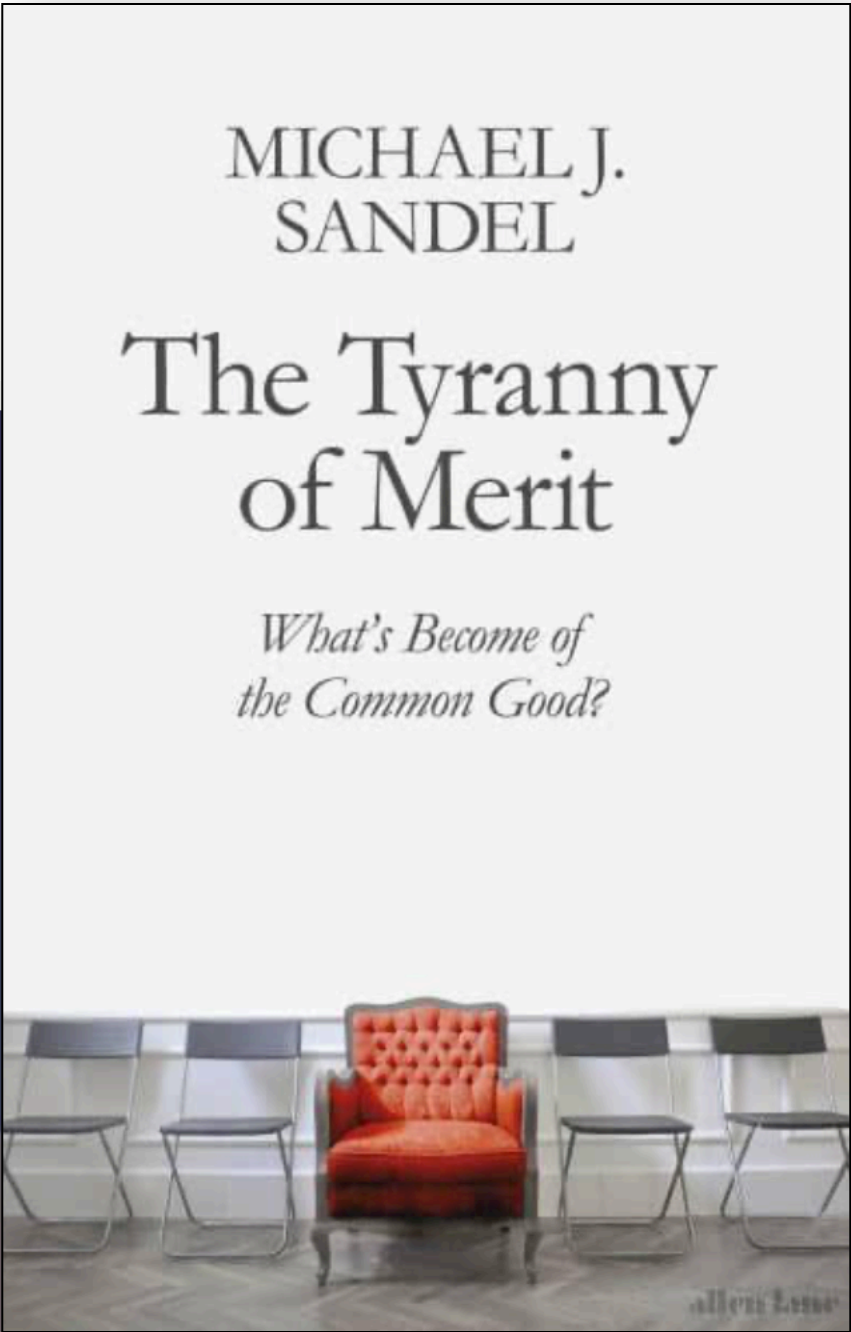
Michael Sandel
Dec 2018

MICHAEL J. SANDEL

The Tyranny of Merit

*What's Become of the Common Good?*

A New Politics of Hope | Michael Sandel | RSA Replay

14,126 views

268    10    SHARE    SAVE    ...

16:08 / 1:03:23

*https://www.youtube.com/watch?v=LCZhA-_1n4E*

4

# Shared research values: a proposal



https://en.wikipedia.org/wiki/File:Dr._Sadhna_Joshi_and_Research_Group.jpg



Reliable, rapidly communicated, accessible, high-quality **research** that transforms our understanding of the world and can change it for the better.
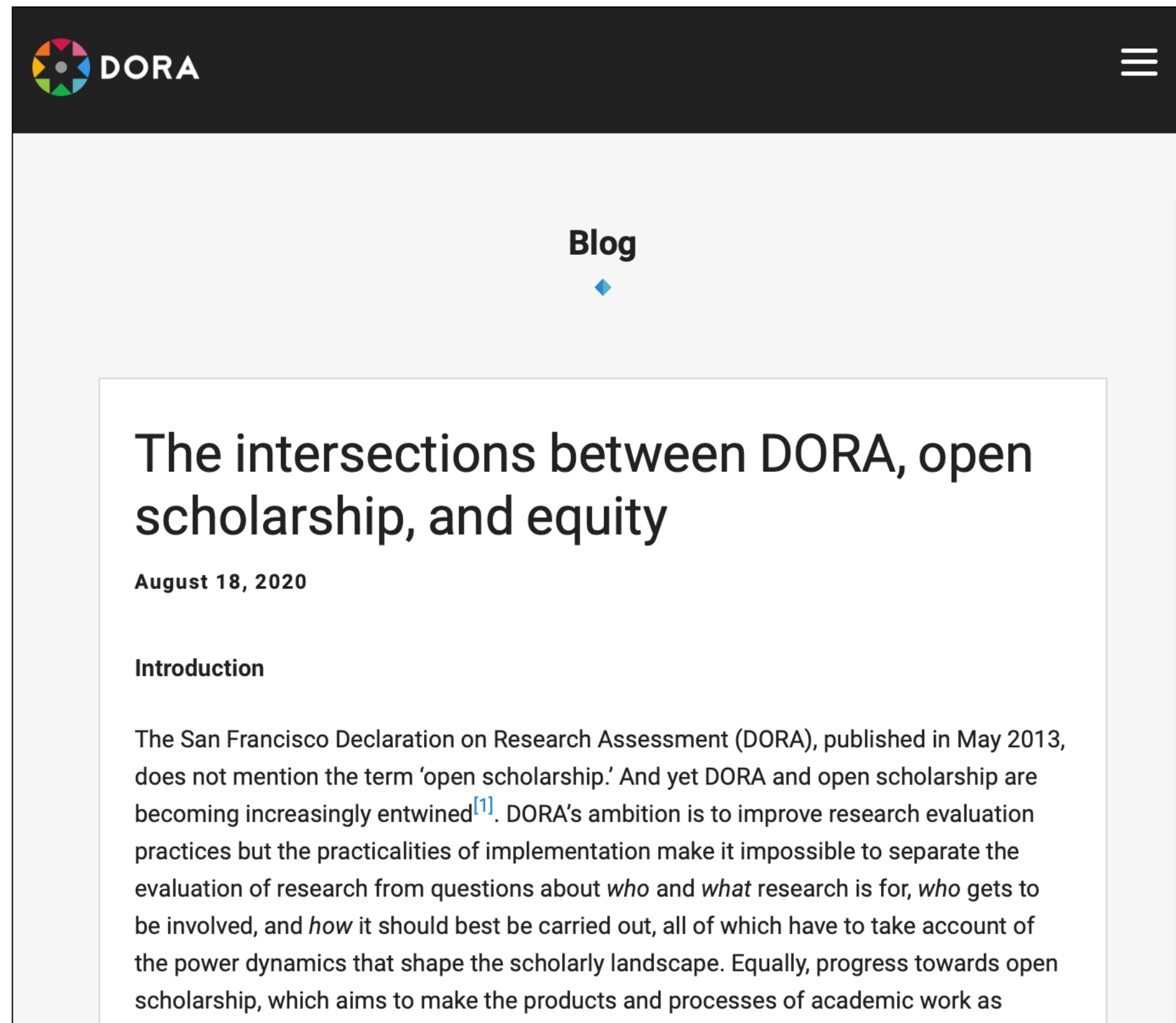
**Researchers** who collaborate, who feel a duty of care to group members & colleagues, and a responsibility to the societies of which they are an integral part.

A **research system** that values the people within it, that cares about their quality of life, and that seeks out the creative vigour of diversity.

How do we realise this in practice?
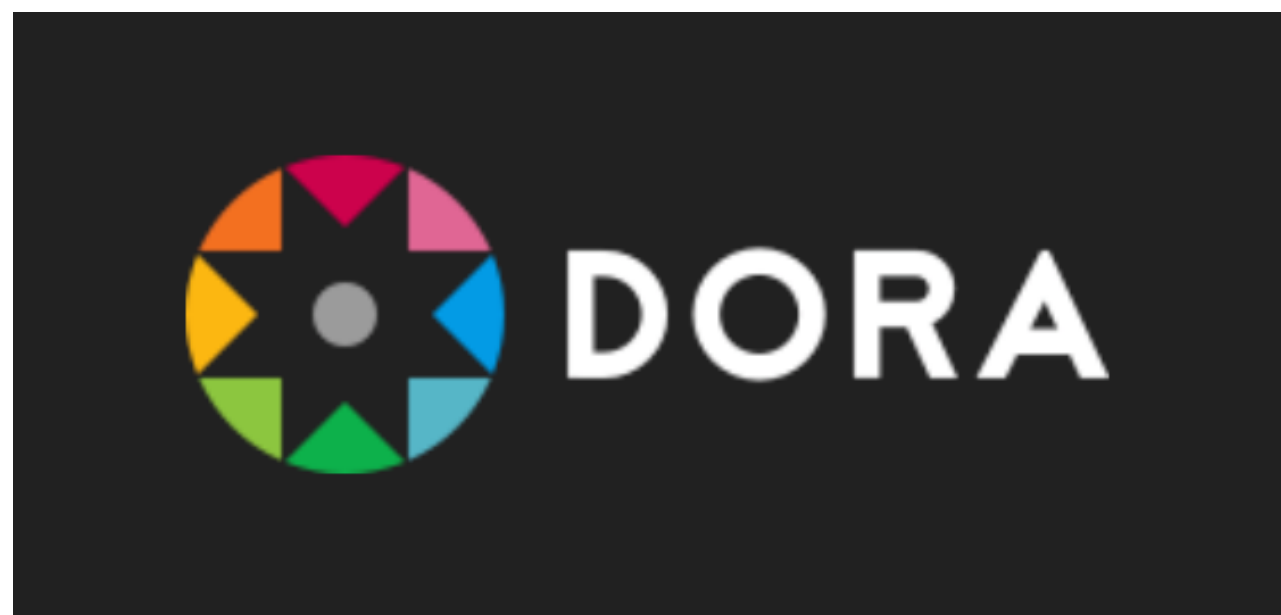
# **DORA:** we are an important part of a bigger picture



The intersections between DORA, open scholarship, and equity

August 18, 2020

Introduction

The San Francisco Declaration on Research Assessment (DORA), published in May 2013, does not mention the term 'open scholarship.' And yet DORA and open scholarship are becoming increasingly entwined[1]. DORA's ambition is to improve research evaluation practices but the practicalities of implementation make it impossible to separate the evaluation of research from questions about *who* and *what* research is for, *who* gets to be involved, and *how* it should best be carried out, all of which have to take account of the power dynamics that shape the scholarly landscape. Equally, progress towards open scholarship, which aims to make the products and processes of academic work as

*https://sfdora.org/2020/08/18/the-intersections-between-dora-open-scholarship-and-equity/*

Open Scholarship

DORA: reform of research assessment

Equity & inclusion

Focus on outputs: qualities and varieties

Who has a say?
Who gets in?
Who has the power?

Research culture: people & values

Bias & injustice: challenging history & stereotypes

# **DORA:** the declaration

One general recommendation:

**Do not** use journal-based metrics, such as Journal Impact Factors, as a **surrogate measure** of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions.

17 **positive** recommendations for different stakeholders:

- funders
- **institutions**
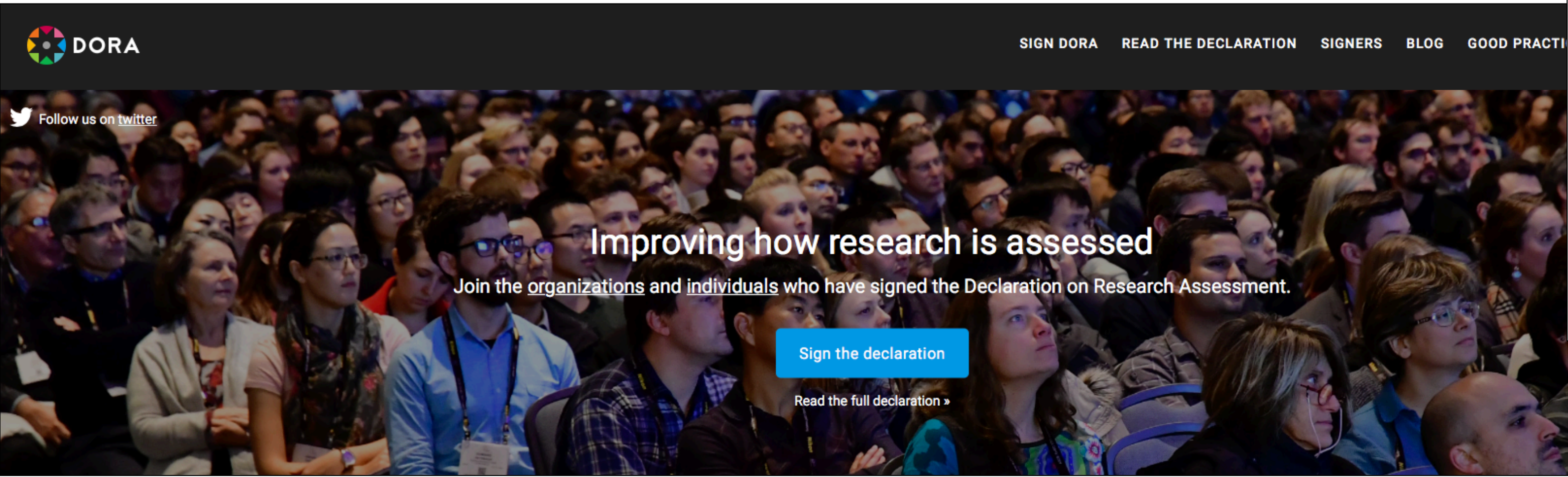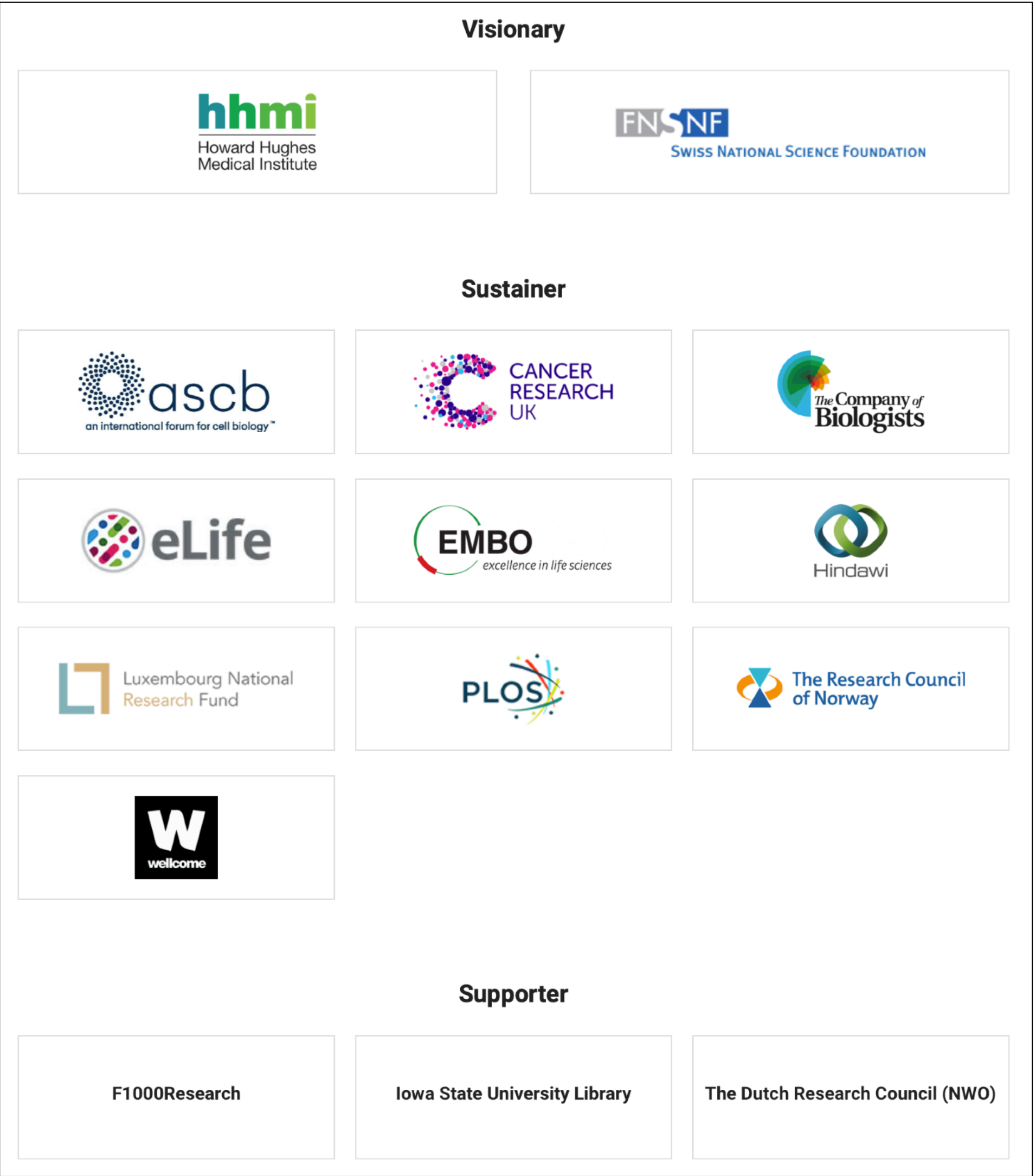- publishers
- data providers
- researchers

**For institutions:**

4. **Be explicit about the criteria** used to reach hiring, tenure, and promotion decisions, clearly highlighting, especially for early-stage investigators, that the **scientific content of a paper is much more important than publication metrics** or the identity of the journal in which it was published.

5. For the purposes of research assessment, **consider the value and impact of all research outputs** (including datasets and software) in addition to research publications, and **consider a broad range of impact measures** including qualitative indicators of research impact, such as influence on policy and practice.

https://sfdora.org/read/

# DORA: the organisation

- *sfdora.org*
- Launched in 2013
- >16,500 individuals and >2,000 organisations have signed
- From 2017: significant new financial support
  - 1.2 members of staff (plus an intern)
  - International steering group & a global advisory board (all volunteers)



**Visionary**

**Sustainer**

**Supporter**

| F1000Research | Iowa State University Library | The Dutch Research Council (NWO) |

# DORA: Steering Committee, Advisory Board and Staff

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Wellcome

**Stephen Curry, Chair**
Imperial College London

**Michael Hill**
Swiss National Science Foundation

**Stuart King**
eLife

**Boyana Konforti**
Howard Hughes Medical Institute
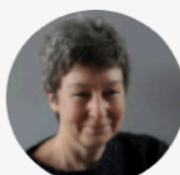
**Catriona MacCallum**
Hindawi

**Erin McKiernan**
National Autonomous University of Mexico

**Dan Morgan**
PLOS

**Claire Moulton**
The Company of Biologists

**Bernd Pulverer**
EMBO

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**Marc Schiltz**
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Uganda

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Program Director

**Ashley Lakoduk**
Policy Intern

**Helen Sitar**
Community Coordinator

# **DORA:** our roadmap for action

- Recruit more signatories
- Extend the global and disciplinary impact of DORA
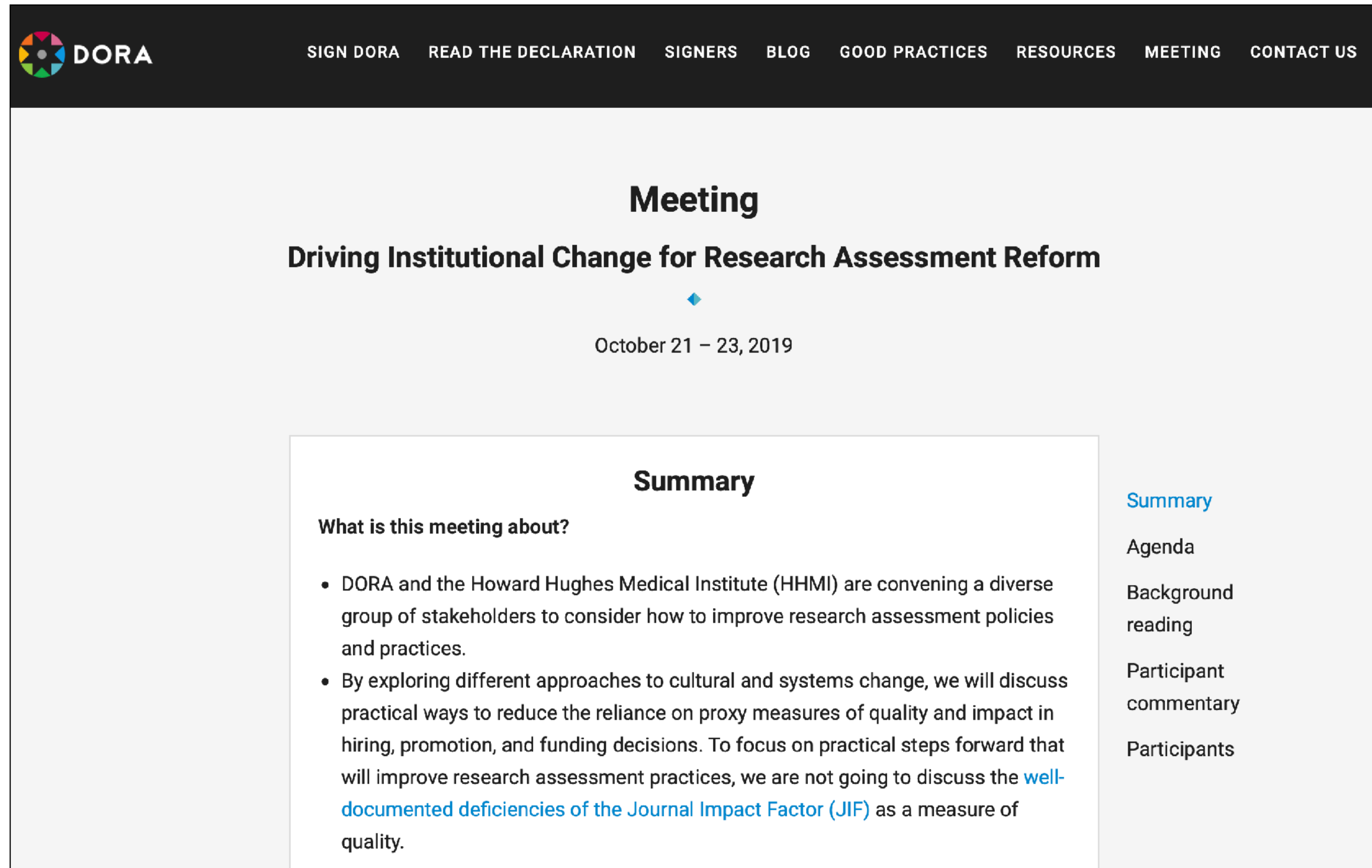- Develop and promote best practice in research assessment
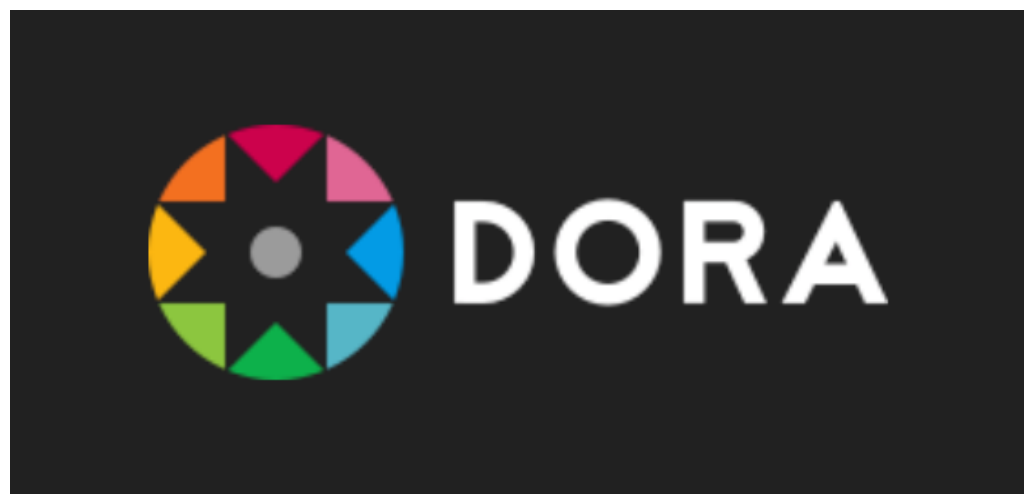


DORA session at ASCB|EMBO (Dec 2018)



https://elifesciences.org/inside-elife/1fd1018c/research-assessment-reducing-bias-in-the-evaluation-of-researchers

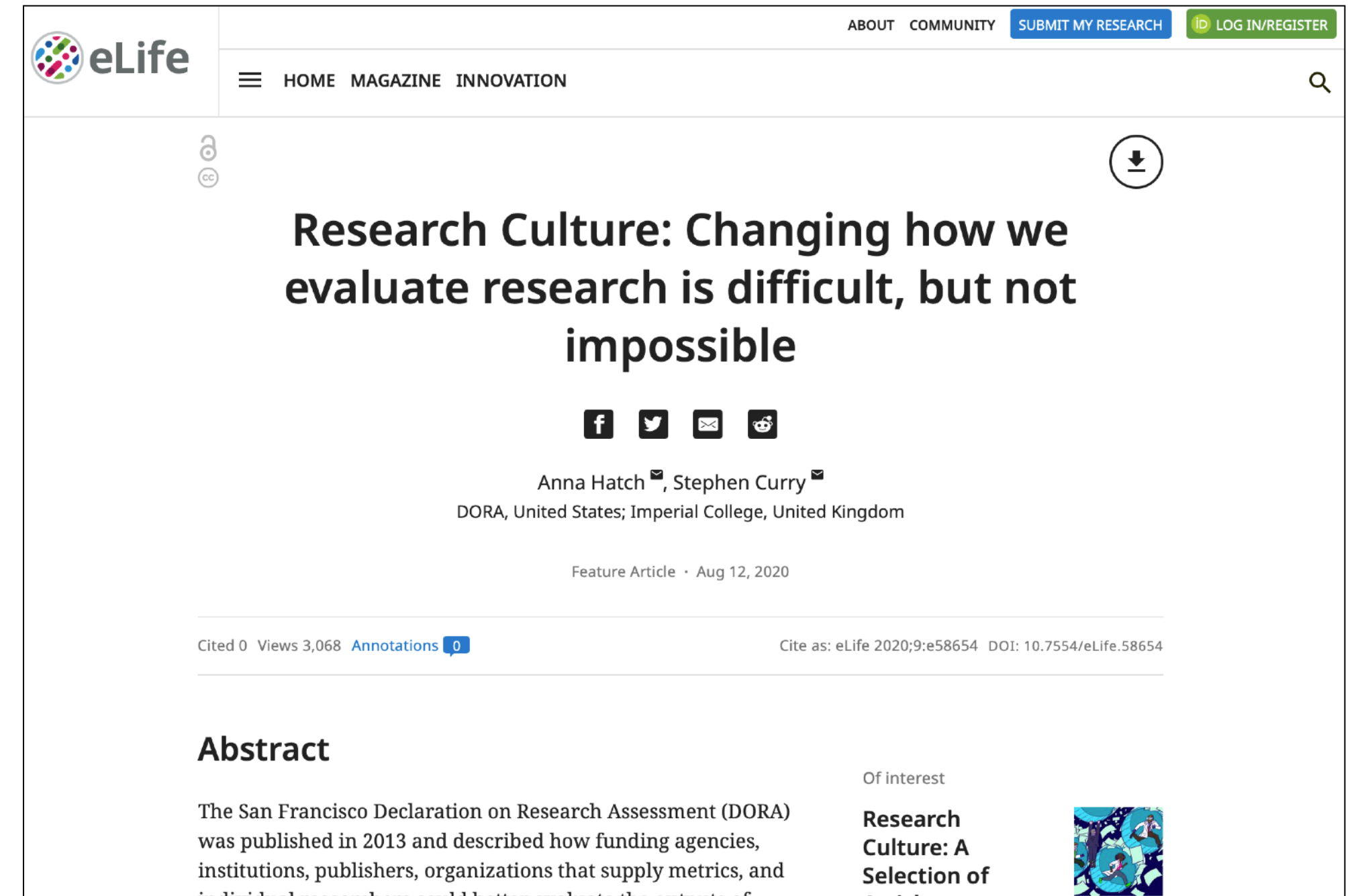# **DORA:** developing and promoting best practice

## DORA/HHMI joint meeting (Oct 2019)



*https://sfdora.org/assessingresearch/*



*https://elifesciences.org/articles/58654*

**Framework for action:**

- **understand** the obstacles to changes in the way research is assessed

- **experiment** with different approaches

- **create a shared vision** when revising policies and practices

- **communicate that vision** on campus and beyond

More info, ideas & resources at: *https://sfdora.org/*

# DORA: we collaborate

**Royal Society - Resumé for Researchers**



## THE ROYAL SOCIETY

Home    Fellows    Events    Grants, Schemes & Awards    Topics & policy    Journals

### Résumé for Researchers

Opening up conversations about researcher evaluation

Résumé for Researchers has been created to support the evaluation of individuals' varied contributions to research. Find out more about the background to the tool in our blog.

**Module 1 – How have you contributed to the generation of knowledge?**

*This module can be used to explain how you have contributed to the generation of new ideas and hypotheses and which key skills you have used to develop ideas and test hypotheses. It can be used to highlight how you have communicated on your ideas and research results, both written and verbally, the funding you have won and any awards that you have received. It can include a small selection of outputs, with a description of why they are of particular relevance and why they are considered in the context of knowledge generation. Outputs can include open data sets, software, publications, commercial, entrepreneurial or industrial products, clinical practice developments, educational products, policy publications, evidence synthesis pieces and conference publications that you have generated. Where outputs have a DOI please only include this.*

**Module 2** - How have you contributed to the development of individuals?

**Module 3** - How have you contributed to the wider research community?

**Module 4** - How have you contributed to broader society?

*https://royalsociety.org/topics-policy/projects/research-culture/tools-for-support/resume-for-researchers/*

12

# **DORA:** we are helping to create new tools and processes for evaluation



RETHINKING RESEARCH ASSESSMENT
## IDEAS FOR ACTION

### 5 COMMON MYTHS ABOUT EVALUATION

Assessing research and researchers, especially in research-intensive institutions, frequently relies on indicators like Journal Impact Factor (JIF) and similar measures as proxies for quality in research, promotion, and tenure (RPT) decisions. But a closer examination indicates that the perceived value of JIF is often grounded in five common myths:

**Hiring, promotion, and tenure decisions are largely made on "merit."**

Large volumes of applications for faculty searches make it difficult for evaluators to distinguish between top-tier candidates, and unintended biases—like the halo effect, availability, and confirmation bias—influence decision making.

**Quality research is easy to recognize and rises to the top**

Novel research, including breakthrough Nobel-prize winning work[2], often becomes influential (and cited) outside of the JIF measurement window[3], and findings with significant societal impact are not always published in journals with a high JIF.

**JIF and other similar journal-based indicators measure research quality**

JIFs are intended to reflect overall journal measures, and do not provide reliable or scientifically sound information about individual articles or researchers[5].
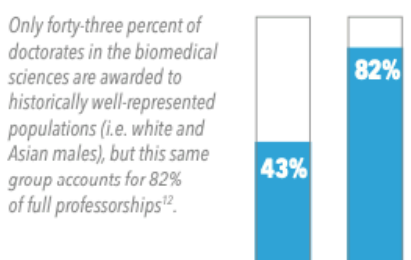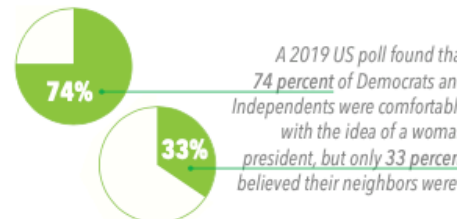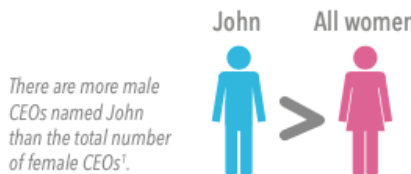Forty percent of research-intensive institutions in North America mention JIF in RPT documents, but interpret it inconsistently to mean quality, importance, or prestige[6].

**Researchers mostly care about journal reputation**

Faculty members claim to prioritize peer readership when publishing, yet the perception that their peers value prestige and a reliance on university rankings puts pressure on researchers to publish their work in high impact factor journals[7].

**Assessment practices will naturally improve over time**

"Invisible work" like service is typically not valued in RPT, yet disproportionately falls on women and other scholars historically excluded from research[9,10].
Based on a model of current post-doc to faculty transitions, faculty diversity will not significantly increase until 2080 without active intervention[11].

Analogous examples of these myths exist, both inside and outside of science:

John > All women

There are more male CEOs named John than the total number of female CEOs[1].

Low-profile, high impact research on extending the life of mangoes transformed the industry, where transportation damage had historically reduced yield by 40% and incurred $1 billion in losses[4].

Brand name medications are often preferred to generics, even if they are the same formulation.

Generic Rx / Best Brand Rx

74% / 33%

A 2019 US poll found that 74 percent of Democrats and Independents were comfortable with the idea of a woman president, but only 33 percent believed their neighbors were[8].

Only forty-three percent of doctorates in the biomedical sciences are awarded to historically well-represented populations (i.e. white and Asian males), but this same group accounts for 82% of full professorships[12].

43% / 82%

### 5 DESIGN PRINCIPLES

to help institutions experiment with and develop better research assessment practices

**Instill standards and structure into research assessment processes**

*This might look like…*

Tools like **narrative CVs** and **assessment matrices**[13] provide standards to increase consistency in decision-making.

Discussion amongst evaluators can be used to **define expectations and identify desirable qualities** before any assessment takes place.

**Foster a sense of personal accountability in faculty and staff**

*This might look like…*

The Universitat Oberta de Catalyuna established a **working group**[15] to **develop and implement an action plan** for responsible research assessment.

The University of Utrecht hosted a **series of town halls**[16] to collect feedback before revising their policies.

Make it explicit that it's **everyone's responsibility to "stop the line"** in the face of suspected bias at the beginning of every decision-making situation.

References:
1. https://www.spglobal.com/marketintelligence/en/news-insights/

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RETHINKING RESEARCH ASSESSMENT
## UNINTENDED COGNITIVE & SYSTEM BIASES

Judgment and decision-making biases that impact how we weigh options and make choices have been shown to result in inequitable review, promotion, and hiring practices. **While recognizing these biases at a personal level is important, creating new structural and institutional conditions to reduce bias can be even more valuable.**

**People tend to dismiss evidence that doesn't fit their initial judgments or preconceptions**

**Example:** Cherry-picking information from a CV to confirm the view one already has, or dismissing potential warning signs because a candidate has already been accepted as a good fit.

**Why it's problematic:** Our initial conceptions are often based on subjective experiences and limited data. Failing to gather and consider counter-evidence makes us more likely to fall into old ways of thinking.

**We often take the path of least resistance unless there are strong reasons not to**

**Example:** Continuing to use citations from academic journals as a primary indicator of impact or quality, rather than considering alternate quantitative indicators of real-world value.

**Why it's problematic:** People often stick with recognizably flawed processes because the effort to fix them or adopt new ones is perceived as too much effort.

**Resources often flow to those who already have them**

**Examples:** Highly cited references may be more cited in part *because* researchers see that they're highly cited. Researchers with a long track record of grants receive a disproportionate amount of new funding.

**Why it's problematic:** When people lack the time or motivation to vet results, this can make access to resources even less equitable.

**Once metrics are accepted as a way to gauge value, they start to lose meaning as objective measures**

**Example:** Reward systems that rely on easily measurable qualities—like citations and publishing in high-JIF publications—can lead people to "game" the system.

**Why it's problematic:** When quantitative measures have an outsize impact on how people are rewarded, it can increase the temptation to focus on a narrow set of activities and reduce investment in other meaningful, but less rewarded, achievements.

*Tackling these infrastructural and institutional implications of common biases can help promote and support more equitable practices:*

**Incumbent processes and perceptions have the advantage**

Many institutions have deep legacy traditions that become normalized over time, but these organizational habits can also keep new ideas and people out.
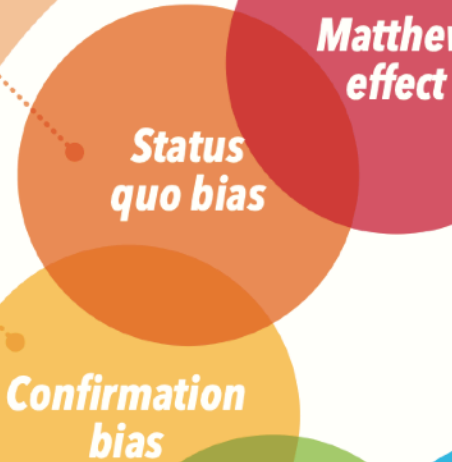
*What can institutions do?*
- Make the benefits of new behaviors concrete, salient, and easy to grasp
- Recognize where old assumptions may overly reward those who are more traditionally successful, at the expense of new or more diverse talent
- Set, publicize, and adhere to measurable goals that look beyond traditional norms of success when reviewing potential candidates to broaden the pool of

**"Objective" comparisons are not necessarily equitable**

Qualities that can be measured or ranked are tempting because they feel less subjective, but can feed a false sense of precision.

*What can institutions do?*
- Balance the use of quantitative metrics with qualitative inputs, like narrative CVs, that capture more intangible qualities
- Select standards based on a wide set of inputs rather than a narrow or anecdotal set
- Recognize where setting specific, quantifiable goals may be reinforcing some behaviors at the expense of others

Matthew effect
Status quo bias
Campbell's law
Confirmation bias
Anchoring

*https://sfdora.org/resources/*

# **DORA** and Responsible Research Assessment (RRA)



RoRI RESEARCH ON RESEARCH INSTITUTE

## RoRI Working Paper No.3
# The changing role of funders in responsible research assessment:
## progress, obstacles and the way ahead

Stephen Curry, Sarah de Rijcke, Anna Hatch, Dorsamy (Gansen) Pillay, Inge van der Weijden and James Wilsdon

November 2020

Produced in partnership with:

GLOBAL RESEARCH COUNCIL · DORA · UKRI UK Research and Innovation · NRF National Research Foundation

https://rori.figshare.com/articles/report/ The_changing_role_of_funders_in_responsible_research _assessment_progress_obstacles_and_the_way_ahead/ 13227914

## **Responsible Research Assessment** – a virtual conference from the Global Research Council

### November 23 - 27, 2020

https://web-eur.cvent.com/event/7ca86a3d-6e6f-4d11-98e9-f01fe69fdf46

"the purpose of RRA is to **improve research**, in cultures, in practices and in products."

RRA is "an umbrella term for approaches to assessment which incentivise, **reflect and reward the plural characteristics** of high-quality research, in support of diverse and inclusive research cultures."

"Opening up the **range of contributions** that are recognised as valuable will also be an important step towards **detoxifying the hyper-competitive culture** which, by fixating on stunted measures and proxies for success, is **eroding the sustainability of research systems**, degrading researcher wellbeing, and maintaining barriers that exclude women and other under-represented groups."

# Thank you

s.curry@imperial.ac.uk
@Stephen_Curry
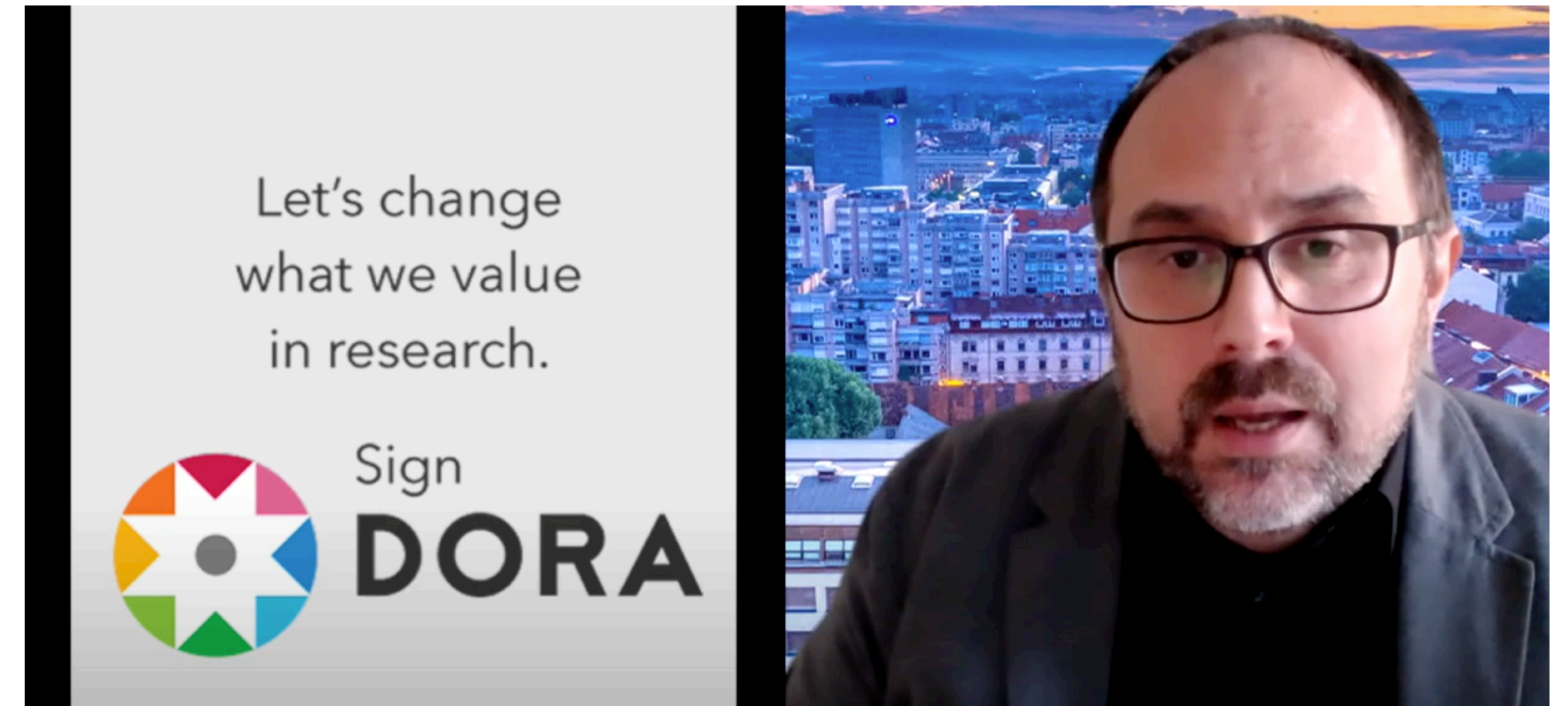


**Prof Roman Kuhar**
*Dean of the Faculty of Arts of the University of Ljubljana*

"We all agree that bibliometrics is not the right way, yet it is still predominantly used in research assessment for tenure, promotion and funding allocation. Nobody can or wants to step out, although we know that the emperor is naked.

With much regret I discovered yesterday that the University of Ljubljana still did not sign the DORA Declaration. Consultations like this are important, but solutions are known already, we do not have to invent them. DORA describes Good Practices."