

Metrics, merit & maximising impact: where next for responsible research evaluation?

James Wilsdon, RoRI & University College London
Science for Society, Masaryk University, 31 May 2023

 @RoRIInstitute @jameswilsdon



HARNESSING THE METRIC TIDE:
indicators, infrastructures and priorities for
responsible research assessment in the UK

Stephen Curry, Elizabeth Gadd and James Wilsdon

Report of *The Metric Tide Revisited* panel
December 2022



What I'll cover:

- The rise of responsible research assessment & evaluation
- Experiments in RRA: some interim results
- Some insights from the UK's REF (Research Excellence Framework)
- 8 priorities for the next decade of RRA in Czechia & beyond

A Celebrates Five Years!

18



Live Monday, May 14 – 10:00 to 10:30 EDT #sfDOR



Sandra Schmid, PhD
Cecil H. Green Distinguished
Professor in Cellular and Molecular
Biology, Chair, Cell Biology
Department, UT Southwestern
Medical Center



Anna Hatch, PhD
DORA Community

declaration was published in 2013, it has collected signature
izations and 12,000 individuals. DORA has increased aware
the Journal Impact Factor and inspired change in the scient
ions have started referencing the declaration in research ass
at guide hiring, promotion, and funding decisions.



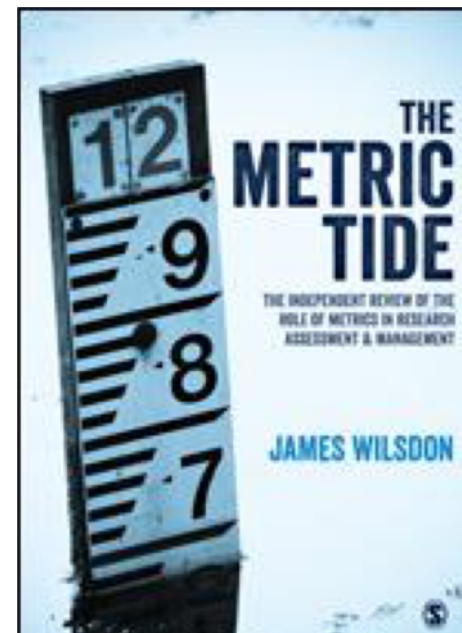
The Leiden Manifesto for research metrics

Use these ten principles to guide research evaluation, urge Diana Hicks, Paul Wouters and colleagues.

Data are increasingly used to govern science. Research evaluations that were once bespoke and performed by peers are now routine and reliant on metrics. The problem is that evaluation is now led by the data rather than by judgement. Metrics have proliferated: usually well intentioned, but always well intended, often ill applied. We risk damaging the system with the very tools designed to improve it, as evaluation is increasingly implemented by organizations without knowledge of, or

advice on, good practice and interpretation. Before 2000, there was the Science Citation Index or ISI from the Institute for Scientific Information (ISI), used by experts for specialist analyses. In 2001, Thomson Reuters launched an integrated web platform, making the Web of Science database widely accessible. Competing citation indices were created: Elsevier's Scopus (released in 2004) and Google Scholar (then version released in 2004). Web-based tools to easily compare institutional research productivity and impact

were introduced, such as InCites (using the Web of Science) and SciVal (using Scopus), as well as software to analyse individual citation profiles using Google Scholar (Publish or Perish, released in 2007). In 2005, Jorge Hirsch, a physicist at the University of California, San Diego, proposed the h-index, popularizing citation counting for individual researchers. Interest in the potential impact factor grew steadily after 1995 (see 'Impact factor obsession'). Later, metrics related to social usage



Expert Group on Altmetrics

NEW: Final Report of the Expert Group on Altmetrics is available

Publication date: 20 March 2017

The Expert Group on Altmetrics outlines in this report how to advance a next-generation metrics in the context of Open Science and delivers an advice corresponding to the following policy lines of the Open Science Agenda: Fostering Open Science, Removing barriers to Open Science, Developing research infrastructures and Embed Open Science in society.

The report will be presented and discussed at the Open Science Policy Platform on 20 March 2017

The report can be downloaded here 796 KB

From responsible metrics....

CASE STUDY REPORT

Reimagining Academic Career Assessment: Stories of innovation and change

Bregt Saenen (EUA), Anna Hatch (DORA), Stephen Curry (DORA), Vanessa Proudman (SPARC Europe) and Ashley Lakoduk (DORA)

January 2021

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:

Responsible Research Assessment

Global Research Council (GRC)
Conference Report 2021

A virtual conference from the
Global Research Council | held in November 2020

...to responsible research assessment

Defining RRA

Responsible research assessment (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.

RRA draws on broader frameworks for responsible research and innovation (RRI) and applies these to the development and application of evaluation, assessment and review processes.

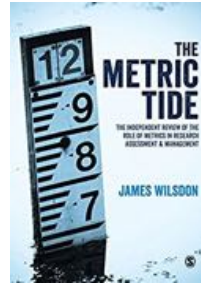
While RRI is commonly used as a broad framework for the governance of research and innovation, and notions of ‘responsible metrics’ can be applied at a micro level to indicators themselves, the idea of RRA encourages funders, research institutions, publishers and others to focus attention on the methodologies, systems and cultures of research assessment.

What's the problem?

Concern has intensified over several long-standing problems linked to research evaluation:

- the **misapplication of narrow criteria and indicators of research quality or impact**, in ways that distort incentives, create unsustainable pressures on researchers, & exacerbate problems with research integrity & reproducibility.
- this narrowing of criteria and indicators has **reduced the diversity of research missions and purposes**, leading institutions and researchers to adopt similar strategic priorities, or to focus on lower-risk, incremental work.
- **systemic biases against those who do not meet—or choose not to prioritise—narrow criteria and indicators** of quality or impact, have reduced the diversity, vitality and representative legitimacy of the research community.
- a **diversion of policy & managerial attention to things that can be measured**, at the expense of less tangible or quantifiable qualities, impacts, assets and values – a trend exacerbated by flawed university league tables.

RRA movers and shapers



Coalition for Advancing Research Assessment

Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

The Agreement

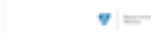
Based on 10 commitments, establishes a common direction for research assessment reform, while respecting organisations' autonomy. The Agreement on Reforming Research Assessment sets a shared direction for changes in assessment practices for research, researchers and research performing organisations, with the overarching goal to maximise the quality and impact of research.





Signatories

The agreement is open for signature to organisations from across the world. As of 29 May 2023, 553 organisations have signed the agreement. This page is updated on a regular basis following signature checks by the CoARA Secretariat.

[The Agreement full text](#)[The Commitments](#)[The Timeframe](#)[Signatories](#)

Palacký University Olomouc

[website →](#)

Czech Association of Doctoral
Researchers

[website →](#)

Ministry of Education, Youth
and Sports, Czech Republic

[website →](#)

Czech Academy of Sciences

[website →](#)

Brno University of Technology

[website →](#)

Masaryk University

[website →](#)

National Library of Technology

[website →](#)

University of Chemistry and
Technology Prague

[website →](#)

J. Heyrovský Institute of
Physical Chemistry of the
Czech Academy of Sciences

[website →](#)

Czech Science Foundation

[website →](#)

Charles University

[website →](#)

As of 29 May 2023, 553
organisations have signed the
CoARA agreement; 11 from Czechia



Download PDF →

Sample Web →

CT11131

The Future of Research Evaluation: A Synthesis of Current Debates and Developments

May 2023

LEADING AUTHORIZING INSTITUTION



The Interacademy
Partnership (IAP)



Policy for
Science

SHARE ON



A question widely debated by stakeholders around the world is whether current research evaluation systems are effective in identifying high-quality research and in supporting the advancement of science. Over recent years, concerns have risen about the limitations and potential biases of traditional evaluation metrics which often fail to capture the full range of research impact and quality. Consequently there has been an increased demand by

THE FUTURE OF RESEARCH EVALUATION:

A SYNTHESIS OF CURRENT DEBATES AND DEVELOPMENTS

DISCUSSION PAPER

Building on the past decade of scientific literature and advocacy work, there are five main conclusions.

1. The imperative to rethink the way in which research individuals, institutions and outputs are evaluated is clear and urgent. Maintaining research integrity and quality, maximizing diverse, inclusive and non-discriminatory science, and optimizing science for the global public good are major drivers, set in the context of a fast-changing world.
2. The way in which research is commissioned, funded, delivered and communicated is evolving at pace. Moves towards mission-oriented and transdisciplinary science, open science frameworks, evolving models of peer review, the use of AI and machine learning and the rapid rise of social media are changing traditional ways of doing and communicating research, requiring new thinking on research evaluation systems and the metrics and peer review processes underpinning it. More, and urgent, research is needed to future-proof these systems.
3. There is an imperative for more balanced research evaluation systems with both quantitative and qualitative indicators that value multiple forms of research output, processes and activities. However, stating that qualitative peer review processes are at least as important as bibliometrics is not straightforward and is further complicated by different parts of the world being at different stages in developing their assessment systems: in some, debates on research evaluation reform are quite advanced, in others they are nascent or absent.

THE FUTURE OF RESEARCH EVALUATION:

A SYNTHESIS OF CURRENT DEBATES AND DEVELOPMENTS

DISCUSSION PAPER

4. A concerted and genuinely global and inclusive initiative is required to mobilize key stakeholder communities to develop and implement coherent ways of assessing and funding research; learning from each other and from other sectors (notably the research funders and development agencies). Collective, inclusive action towards transformative change will need to recognize interconnectedness rather than internationalization or universalization, i.e. be context-sensitive, cognizant of different challenges faced by different parts of the world and the rich heterogeneity of research ecosystem, *while at the same time* ensuring sufficient homogeneity to enable compatible research and funding systems and researcher mobility, to minimize divergence and fragmentation. A partial, exclusive conversation risks further biasing and disadvantaging those who have historically been excluded.
5. Change is required at all levels – global, regional, national and institutional – because metrics cascade through the whole research ecosystem and all these levels are interconnected. *All* stakeholders need to play their part as partners not adversaries – including funders, universities, university and research institute associations, intergovernmental organizations (IGOs), governments and government networks, academies, science policy makers, research and innovation managers and individual researchers. The GYA, IAP and ISC membership, collectively, covers a large part of this rich landscape (Figure 1, Appendix C).



**CHEERFUL
WHISTLING
PERMITTED**

Experiments in RRA: some interim results

- Cosmetic appropriation
- Calibrating the machine
- Advocacy coalitions
- Institutional culture change
- System change..?



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:



Home > Elsevier Connect > Advancing responsible research assessment

Advancing responsible research assessment

Elsevier signs Declaration on Research Assessment; implementation steps will include making reference lists of all articles openly available via Crossref

By Andrew Plume, PhD - December 16, 2020



Elsevier has long supported the responsible use of metrics and indicators in the assessment of research. We established the International Center for the Study of Research (ICSR) to work in partnership with the research community to help develop our approach to research assessment. It's vital that we work together to apply the same high standards of evidence to the evaluation of research as scientists apply in their own work.

To support these goals, Elsevier has signed the San Francisco Declaration on

Home > Elsevier Connect > New metrics will mak...

New metrics will make journal assessment more complete and transparent

CiteScore metrics reveal the citation impact of more than 22,200 academic journals on Scopus

By Andrew Plume, PhD and Lisa Colledge, DPhil - December 8, 2016

ELSEVIER Connect



Home > Rankings > Impact Rankings

Impact Rankings 2021

The Times Higher Education Impact Rankings are the only global performance tables that assess universities against the United Nations' Sustainable Development Goals (SDGs). We use carefully calibrated indicators to provide comprehensive and balanced comparison across four broad areas: research, stewardship, outreach and teaching.

The 2021 Impact Rankings is the third edition and the overall ranking includes 1,118 universities from 94 countries/regions.

Read more...

ELSEVIER

VERTIGO VENTURES

2021

How to get your uni ranked

EXPLORE IMPACT RANKINGS FOR INDIVIDUAL SDGs

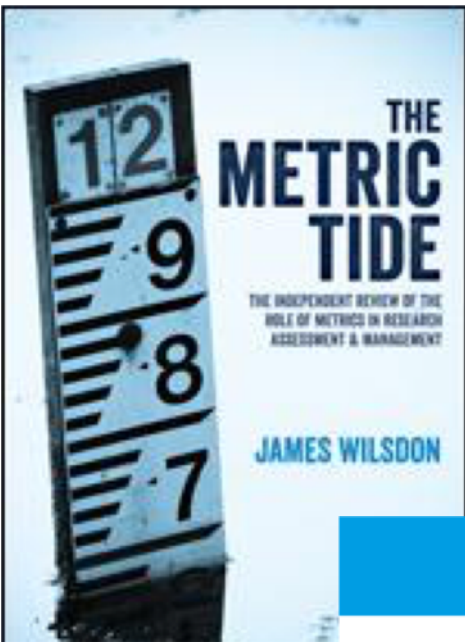


Cosmetic appropriation?

Calibrating the machine

RECOMMENDATIONS from Next-Generation Metrics (2017)

- #1:** Ahead of the launch of its ninth research framework programme (FP9), the EC should provide clear guidelines for the responsible use of metrics in support of open science.
- #2:** The EC should encourage the development of new indicators, and assess the suitability of existing ones, to measure and support the development of open science.
- #3:** Before introducing new metrics into evaluation criteria, the EC needs to assess the likely benefits and consequences as part of a programme of 'meta-research'.
- #4:** The adoption and implementation of open science principles and practices should be recognised and rewarded through the European research system
- #5:** The EC should highlight how the inappropriate use of indicators (whether conventional or altmetrics or next generation metrics) can impede progress towards open science.
- ##10:** The EC should identify mechanisms for promoting best practices, frameworks and standards for responsible use of metrics in support of open science



Next-generation metrics:
Responsible metrics and evaluation for open
science





Support for more responsible research

11.11.2020



Responsible Research

inorms
Research Evaluation Working Group

What makes a fair and responsible university ranking?

Rating the rankings criteria

Version 2. August 2019

Introduction

The International Network of Research Management Societies (INORMS) established a two-year Research Evaluation Working Group (REWG) in 2018. It consists of representatives from a range of global member research management societies all seeking to work towards better, fairer and more meaningful research evaluation. One of our two areas of focus is the burgeoning influence of University Rankings on the behaviours of universities and often poor methodological approaches and practices. The purpose of this work-package is to consider what an international group of research managers, think the characteristics of a fair and responsible University Ranking should look like. The idea is to then 'turn the tables' on the rankings and rate them against our agreed criteria.

The UK Forum for Responsible Research Metrics

A group of research funders, sector bodies, and infrastructure experts are working in partnership to promote the responsible use of research metrics.

The Forum for Responsible Research Metrics, chaired by Professor Max Lu (Vice-Chancellor at the University of Surrey), supports the responsible use of research metrics in higher education institutions and across the research community in the UK. The Forum have a programme of activities, including:

- Advice to the higher education funding bodies on quantitative indicators in the Research Excellence Framework (REF) 2021
- Advice on, and work to improve, the data infrastructure that underpins metric use
- Advocacy and leadership on the use of research metrics responsibly
- International engagement on the use of metrics in research and researcher assessment

Advocacy coalitions

Institutional culture change



EDUCATION RESEARCH UNIVERSITY LIFE JOBS ABOUT US INFORMATION FOR

Home > News > Ghent University is changing course with a new career model for professorial staff

Ghent University is changing course with a new career model for professorial staff



(07-12-2018) Ghent University dares to think. Ghent University also dares to push its own boundaries.

On December 7 the Board of Governors has approved a new career and evaluation model for professorial staff (ZAP) as well as the accompanying regulations.

Rik Van de Walle, Rector: "This is a very important decision for Ghent University and its staff. With the new career and evaluation model, our aim is to restore the confidence of our professorial staff instead of excessively measuring and controlling their activities. The starting point is that those who perform well will be promoted - with a minimum of formal procedures for accountability and administrative inconvenience."

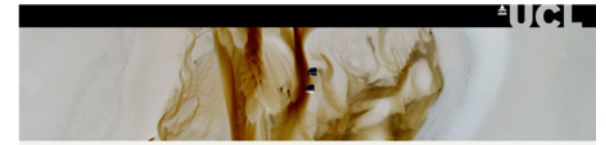
"A predominantly quantitative and output-driven academic evaluation process makes way for talent development and growth, prioritizing vision development and strategy - at the personal as well as the group level. Quality prevails over quantity. Needless to say, we are confident that the intrinsic motivation of each ZAP member ensures that no one needs a priori objectives in order to perform well in the core tasks of our university: education, research and institutional or social engagement."



The Declaration Signers Case Studies Resources Blog

Reimagining academic assessment: stories of innovation and change

Case studies of universities and national consortia highlight key elements of institutional change to improve academic career assessment.



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UCL Home > UCL Research > Strategy and policy > Bibliometrics at UCL > UCL Bibliometrics Policy

UCL Bibliometrics Policy

UCL Bibliometrics Policy

In early 2020, UCL's academic committee approved a policy on the responsible use of bibliometrics at UCL. Below you will find an introduction to the policy, and the policy's eleven principles.

Introduction

Step ahead to the policy's principles

Bibliometrics is a term describing the quantification of publications and their characteristics. It includes a range of approaches, such as the use of citation data to quantify the influence or impact of scholarly publications. When used in appropriate contexts, bibliometrics can provide valuable insights into aspects of research in some disciplines.

Policy Link

UCL's Bibliometrics Policy

Quick Links

- Bibliometrics at UCL: clarity
- Bibliometrics: Training
- External validation
- Help and Guidance
- Bibliometrics at UCL: 5 key points
- UCL's Strategy and Policy
- UCL's Office for Open Science and Scholarship

44. Research England encourages providers to support the principles of open research in their research environment. Most Research England funding is deployed by universities at their discretion and is not intended to lead to specified outputs. In such cases, outputs cannot be attributed directly to Research England funding and no acknowledgement of Research England funding is expected or necessary. Such outputs are therefore out of scope of the UKRI Open Access policy. Where funding is given for particular purposes, and where that funding leads directly to particular research outputs, those outputs will be subject to the UKRI Open Access policy and providers will be required to include acknowledgement of Research England's funding.

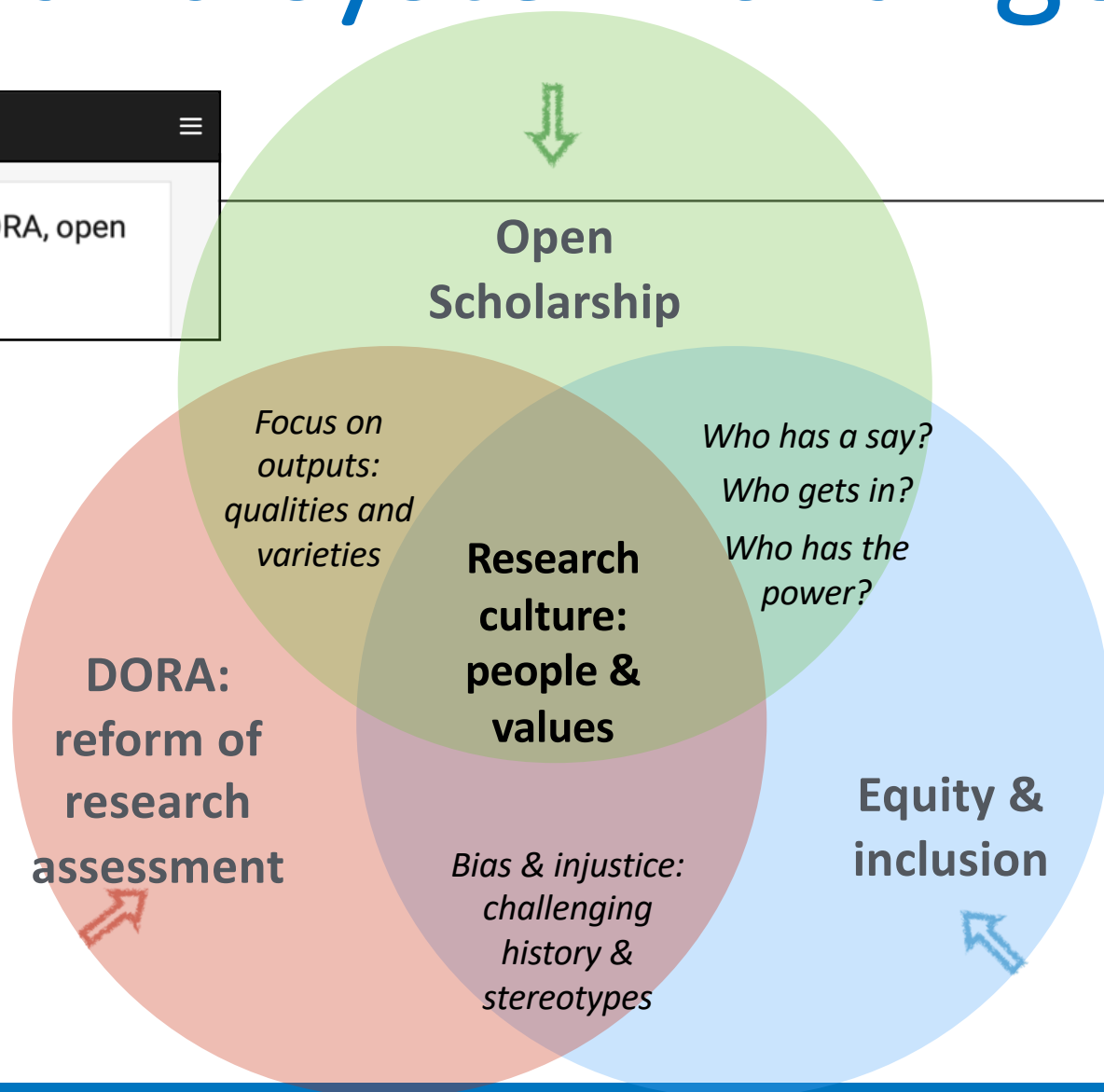
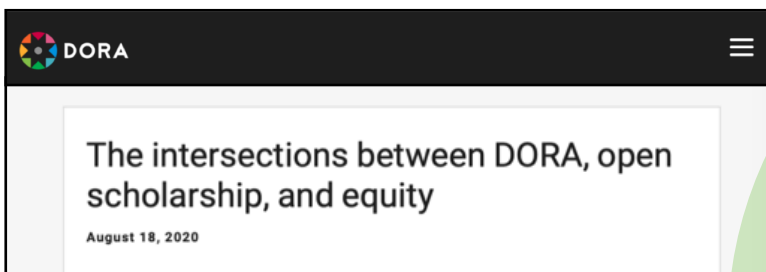
Responsible research assessment

45. Our expectation is the providers we fund will comply with the principles of the San Francisco Declaration on Research Assessment (DORA)⁸, Leiden Manifesto⁹ or equivalent. Research England commits to assessing the intrinsic merit of research and will not consider the publication channel, its impact factor (or other journal metrics), or the publisher when assessing quality.

Equality, diversity and inclusion

46. We expect higher education providers to ensure that equality, diversity and inclusion is considered and supported in the use of our funding, taking into account UK Research and Innovation policies and principles¹⁰ for equality, diversity and inclusion. Providers' approaches to supporting equality, diversity and inclusion are expected to exceed all relevant legal obligations, including but not limited to those of the Equality Act 2010.

Culture and system change



Insights from the UK's Research Excellence Framework (REF)





Date	Exercise	Coordinating body	Key features
1986	Research Selectivity Exercise	Universities Grants Committee	37 cost-centres; 4-part questionnaire on research income, expenditure, planning priorities & output
1989	Research Selectivity Exercise	Universities Funding Council	152 units of assessment; 70 peer review panels; 2 outputs per member of staff
1992	Research Assessment Exercise (RAE)	HEFCE	HEIs select which staff to submit; 5-point scale; 2800 submissions to 72 UoAs; introduction of census date
1996	Research Assessment Exercise (RAE)	HEFCE	Up to four outputs per researcher; 69 UoAs
2001	Research Assessment Exercise (RAE)	HEFCE	2600 submissions to 69 units of assessment; 5 umbrella groups of panel chairs for consistency
2008	Research Assessment Exercise (RAE)	HEFCE	67 sub-panels under 15 main panels; results presented as quality profiles
2014	Research Excellence Framework (REF)	HEFCE	4 main panels; 36 sub-panels; introduction of 20% impact element
2021	Research Excellence Framework (REF)	UKRI (Research England + devolved funding councils)	All staff with significant responsibility for research included. Impact 25% weighting. Flexible number of outputs.

Future Research Assessment Programme

This information is hosted by Jisc on behalf of the four UK higher education funding bodies.

About the programme

The Future Research Assessment Programme aims to explore possible approaches to the assessment of UK higher education research performance. It has been initiated at the request of the UK and devolved government ministers and funding bodies. This significant piece of work will be led by the four UK higher education funding bodies:

- [Research England](#)
- [Scottish Funding Council](#)
- [Higher Education Funding Council for Wales](#)

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What the FRAP happens next? Four priorities for reforming the REF

The next exercise should clarify its purpose and language, relax its disciplinary focus and refine research culture, says James Wilsdon

May 26, 2022

[James Wilsdon](#)

Twitter: [@jameswilsdon](#)

There is, it seems, no rest between Research Excellence Frameworks.

Barely 72 hours after the release of the [REF 2021 results](#), the first email landed. Sent on behalf of an anonymous university working group “set up to look specifically at data capture for the next REF cycle”, it linked me to an Excel spreadsheet. This contained 27 columns, each with a detailed question about research collaborations, talks and



Source: Getty (edited)

Harnessing the Metric Tide

indicators, infrastructures and priorities for
responsible research assessment in the UK

STEPHEN CURRY, ELIZABETH GADD AND JAMES
WILSDON

DECEMBER 2022

The Brief

- Revisit the conclusions of The Metric Tide (2015), and assess progress on its recommendations
- Consider the potential of infrastructure, methodological and metric developments since 2015
- Look afresh at the possible roles of metrics in any future REF
- Advise on how best to support uptake of responsible metrics and responsible research assessment



Harnessing the Metric Tide: 10 headline recommendations

- 1: Put principles into practice.
- 2: Evaluate with the evaluated.
- 3: Redefine responsible metrics.
- 4: Revitalise the UK Forum.
- 5: Avoid all-metric approaches to REF.
- 6: Reform the REF over two cycles.
- 7: Simplify the purposes of REF.
- 8: Enhance environment statements.
- 9: Use data for good.
- 10: Rethink university rankings.

1: Put principles into practice



- UK stakeholders should participate in the growing global movement to **implement** responsible research assessment (RRA).
- We strongly encourage participation in the recently formed Coalition for Advancing Research Assessment (**CoARA**).



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EDITORIAL | 27 July 2022

Support Europe's bold vision for responsible research assessment

There have been many initiatives to combat the distorting effect of research assessment exercises. The latest looks like it might work



2: Evaluate with the evaluated

Stakeholders involved in research evaluation should enable and incentivise the **co-design and co-interpretation** of research assessments with research-active and research-enabling staff.



has the real-time REF review taught us about future research assessment?

Blog

What has the real-time REF review taught us about future research assessment?



by Catriona Firth



and Ben Raynor on 2 December 2021

The publication of the [real-time research excellence framework \(REF\) review \(pdf\)](#) provides us with a great opportunity to reflect on REF 2021, how we assess research and how our current system affects individual researchers, institutions, and subject communities.



5: Avoid all-metric approaches

- It is **unlikely** that an all-metric approach **will deliver** what stakeholders need from REF.
- ...particularly with regards to the assessment of **research impacts**.
- Metrics might be more viable, in combination with qualitative modes of assessment, at **higher levels** of assessment in future cycles of the REF.

The screenshot shows the REF 2021 Research Excellence Framework website. The top navigation bar includes links for Home, Results and submissions, Publications and Reports, Panels, Equality and Diversity, and FAQs. The breadcrumb trail indicates the current location: Home / Results and submissions / Impact database. The main heading is 'Impact case study database', followed by a description: 'The impact case study database allows you to browse and search for impact case studies submitted to the REF 2021. Use the search and filters below to find the impact case studies you are looking for.' A link for 'Impact case study database FAQs' is provided. The search and filter section includes a 'Clear search and filter' button, a 'Keyword search' input field, a 'Learn more about advanced searching' link, and 'Clear' and 'Search' buttons. Below this, a 'Filter by' section lists several criteria, each with a 'Select' button and a 'None selected' status: 'Higher education Institution', 'Unit of assessment', 'Continued case study', 'Summary impact type', and 'Impact UK location'.

7: Simplify the purposes of REF



- UK research funding bodies should **agree on a simplified statement of REF purposes.**
- We propose **renaming the REF**—for example as the ‘Research Qualities Framework (RQF)’—in order to **replace the contested and ill-defined term 'excellence'.**

8: Enhance focus on research environment

- There should be **greater weight** overall on research environments.
- Statements should reflect additional dimensions of **research culture**, and to draw responsibly on data, indicators and other evidence.
- Replace 'environment statements' with '**people and culture statements**' to capture important aspects of research activity that can be assessed in a size-independent way.



Overall profile

Outputs

60% of overall

[Learn about outputs](#)

Impact

25% of overall

[Learn about impact](#)

Environment

15% of overall

[Learn about environment](#)

9: Use data for good

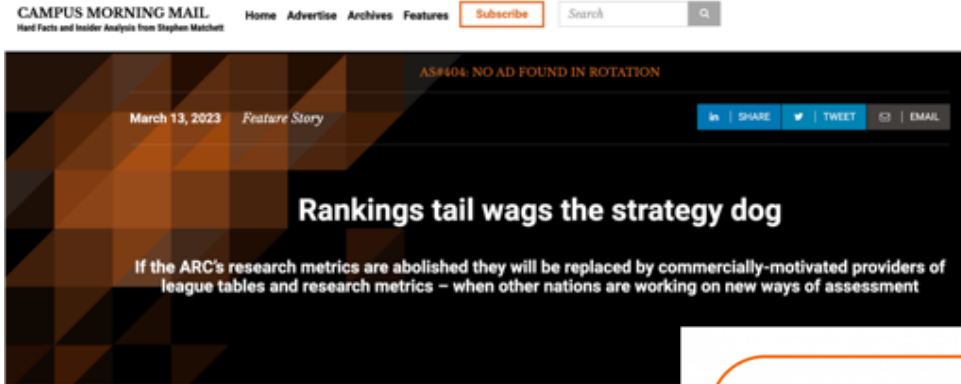


**imagine there's new
metrics (it's easy if you try)**

DATA FOR GOOD

- Gender pay gaps for research staff;
- % of research staff on short term contracts;
- Measures of research staff wellbeing and contentment in surveys of workplace culture
- Volume of teamwork; collaborations; co-produced research (with users);
- Open research indicators;
- Policy impacts e.g. via citations in policy literatures;
- Peer review work;
- Citizenship contributions (from workload models);
- Measures of support for EDI;
- Effective measures for dealing with bullying and harassment.

10: Rethink university rankings



an inorms initiative

How to protect the ‘national interest’ at a systemic level and not surrender measures of value, quality or impact to unaccountable data and league table providers?

HEIs should be encouraged to take a more responsible approach to their engagement with and promotion of university **league tables**. This may include becoming a signatory to the **INORMS More Than Our Rank** initiative.

From declaration to global initiative: a decade of DORA

MAY 18, 2023

As we wind down our tenth anniversary celebration this May 2023, we're taking a look back at our evolution from a statement of principles to a global initiative for responsible research assessment, and the wider issues in research assessment that DORA has sought to address.

From our Blog

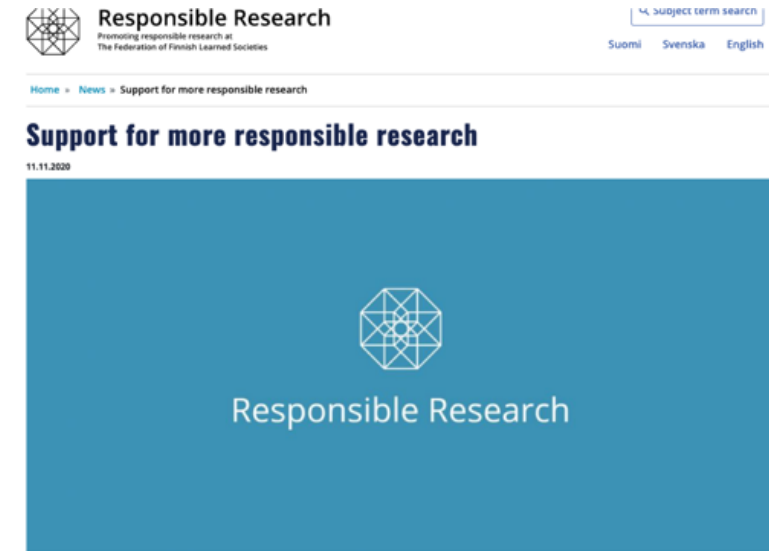
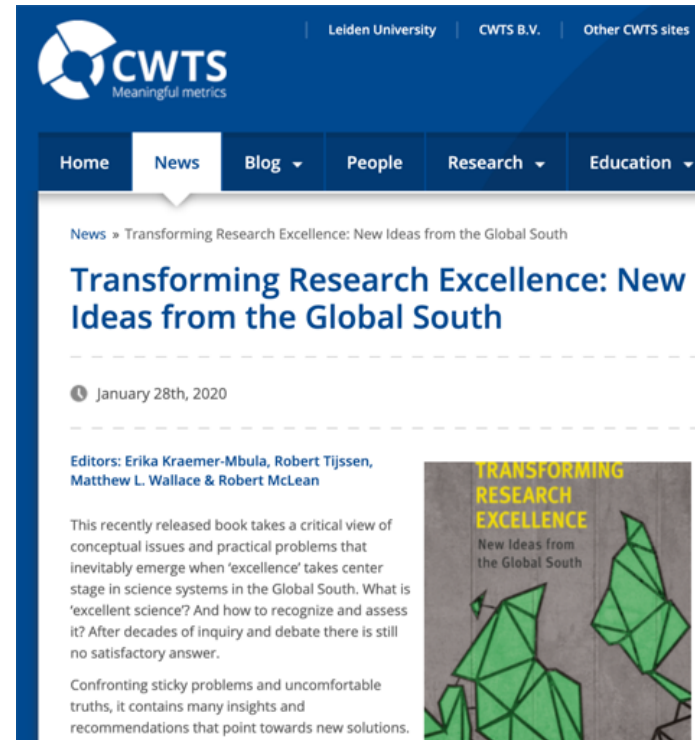
From declaration to global initiative: a decade of DORA

MAY 18, 2023

Priorities for the next decade of RRA in Czechia & beyond

Coalition for Advancing Research Assessment

Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.



Priority 1: Continue to build national and international coalitions for responsible research assessment

Priority 2: Implement & translate principles to institutional policy & practices



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Sign DORA

RESOURCE


SPACE to evolve academic assessment: A rubric for analyzing institutional conditions and progress indicators

ADVOCACY RESOURCES TOOLS FOR RESEARCH INSTITUTES

This is part of DORA's toolkit of resources to support academic institutions that are improving their policies and practices. Find the other resources in the toolkit [here](#).

Improving research and scholarship assessment practices requires the ability to analyze the outcomes of efforts and interventions. However, when conducted only at the unit level of individual interventions, these evaluations and reflections miss opportunities to understand how institutional conditions themselves set the table for the success of new efforts, or how developing institutional capabilities might improve the effectiveness and impact of these new practices at greater scale. The SPACE rubric was developed to help institutions at any stage of academic assessment reform gauge their institutional ability to support interventions and set them up for success.

RETHINKING RESEARCH ASSESSMENT
SPACE TO EVOLVE ACADEMIC ASSESSMENT
A RUBRIC FOR ANALYZING INSTITUTIONAL PROGRESS INDICATORS AND CONDITIONS FOR SUCCESS



Research and researcher assessment is a systems challenge, suggesting that institutions that prioritize developing infrastructures to support their efforts may be better positioned to achieve their goals than those focused only on individual solutions.

FROM FOUNDATION... Core definitions and shared clarity of purpose	TO EXPANSION... Increased traction and capability development	TO SCALING Accelerated uptake and continuous improvement
STANDARDS FOR SCHOLARSHIP How are new definitions of "quality scholarship" formulated and applied? Standards are explicitly designed and articulated to align with institutional mission and values, such as increasing equity and support for traditionally underrepresented, marginalized groups New standards for scholarship consider the balance across research, teaching, and service contributions including training, mentoring and good citizenship Specify definitions and standards of "quality" with regard to scholarship are articulated and shared across disciplines and review/promotion committees	PROCESS MECHANICS AND POLICIES How are new practices incorporated into review structures, processes, and institutional policies? Meaningful and appropriately rigorous qualitative structures for academic assessment, such as narrative CVs, are given due weight Structures and processes are applied consistently across assessment activities, taking into consideration alternate paths and starting points Use of new assessment mechanics extend beyond traditional evaluative contexts into ensuring equitable opportunities, mentoring, and retention to increase research and researcher diversity	ACCOUNTABILITY How are individuals and institutions held liable for executing on new assessment practices? The goals, principles, and practices of academic assessment and review, promotion, and tenure (RPT) activities are transparent and clearly articulated, and agreed upon by all participants Institutions have clearly defined expectations for adherence to academic assessment practices Examples of "what good looks like" are collected and shared to more concretely illustrate target outcomes and behaviors

RETHINKING RESEARCH ASSESSMENT
SPACE TO EVOLVE ACADEMIC ASSESSMENT
A RUBRIC FOR ANALYZING INSTITUTIONAL PROGRESS INDICATORS AND CONDITIONS FOR SUCCESS



Research and researcher assessment is a systems challenge, suggesting that institutions that prioritize developing infrastructures to support their efforts may be better positioned to achieve their goals than those focused only on individual solutions.

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Responsible assessment faces the acid test

The University of Liverpool is planning lay-offs using controversial measures. How should the movement for responsible research respond?

A leading UK university has become mired in a public dispute over how it is assessing researchers' performance. The evolving situation at the University of Liverpool is being watched closely by concerned academics around the world – and is raising questions about whether more needs to be done to ensure that universities assess their researchers equitably. At the end of last month, the leaders of some of the world's foremost responsible-research initiatives – the Hong Kong Principles, the INORMS Research Evaluation Group, the Leiden Manifesto and the Metric Tide – wrote a strongly worded letter arguing that the University of Liverpool's proposals remain

“Does the research community need a body with the

redundancy. In response to the threat of redundancies, researchers took industrial action during May, June and July.

One influential initiative is choosing to negotiate privately with the university. This is the organization behind the San Francisco Declaration on Research Assessment (DORA), an international voluntary agreement through which research organizations vow to conduct research assessment responsibly.

DORA's signatories pledge not to use metrics such as the Journal Impact Factor to evaluate researchers, and to be transparent in the criteria used to make decisions on matters such as hiring and promotion. Liverpool is one of some 2,200 organizations that have signed the declaration. DORA is in talks with the university, but choosing not to reveal further details. A statement on DORA's website says that it expects signatories to abide by their pledges, while also reiterating that it is not a regulatory body.

DORA's approach – to resolve disputes constructively but without publicity – has had some effect. Liverpool initially included the field-weighted citation metric on its criteria for redundancies, but dropped that after consultation with DORA. However, there are conflicting views of whether this puts Liverpool in the clear. The university told *Nature* its amended criteria are “in keeping with the principles of DORA”. In response, a DORA spokesperson said there are “ongoing concerns”. Such mixed messages show

USING ELSEVIER'S FIELD WEIGHTED CITATION INDEX SCORE FOR REDUNDANCY SELECTION AT THE UNIVERSITY OF LIVERPOOL

Executive summary

Senior management at the University of Liverpool intend to make 47 academic staff members in the Faculty of Health and Life Sciences redundant as part of a restructure titled 'Project SHAPE'. One of the two criteria it has used to select staff for redundancy is an Elsevier metric called the 'Field Weighted Citation Impact' (FWCI). The University of Liverpool has defined an FWCI score of < 2 as the threshold for redundancy selection.

The UCU University of Liverpool branch has consistently warned, in public and in negotiations with the University, that the FWCI contains very significant errors in its methodology and corruptions in the algorithms it employs. We have also cited peer assessments and warnings by Elsevier's own data scientists that the FWCI is meaningless when it is applied to individual research profiles. Those warnings have been consistently ignored.

Initial evidence shows no correlation between the University of Liverpool's minimum individual FWCI score and academic excellence.

- We ran all of the 127 government SAGE advisers who are affiliated to universities through SciVal to generate FWCI scores for the period 2015-2020 (the same period the University of Liverpool used). We found that more than half of this group had individual scores of < 2.
- We ran all Nobel Prize Winners between 2018 and 2020 (a total of 25) through SciVal to generate FWCI scores for the period 2015-2020. We found that 10 of those 25 Nobel Prize winners (or 40%) had SciVal scores of < 2.

Analysis of empirical evidence from a sample of researchers at the University of Liverpool reveals serious unexplained errors in the algorithms.

- FWCI is fundamentally unstable over time. Some researchers scores can be exponentially increased or decreased with very small variations in the time period used for analysis.
- Coding errors in SciVal tend to exclude a large number of high-quality publications, and, at the same time, include low-quality publications. This significantly distorts the FWCI score of the

How should Dora be enforced?

By Stephen Curry

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Image: Sherez (CC BY-SA 4.0) via Wikimedia Commons

Dispute over Liverpool's use of metrics is best resolved through dialogue, says Stephen Curry

This January, reports emerged that the University of Liverpool was using research metrics to identify academic staff at risk of redundancy in its restructuring of the Faculty of Health and Life Sciences. Such processes are always painful, but Liverpool's methods—notably its use of the field-weighted citation index (FWCI) and grant income targets—saw the issues spill beyond the normal boundaries of industrial disputes.

Priority 3: Develop more sophisticated frameworks for compliance, accountability & enforcement

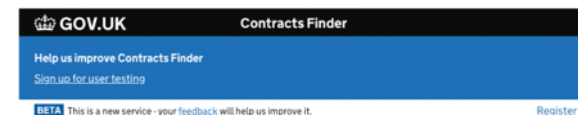
Priority 4: RRA needs to anticipate and keep pace with new tools and technologies of assessment and evaluation



ARTICLE AI-assisted peer review

Alessandro Checchi¹, Lorenzo Bracciale², Pierpaolo Loreti³, Stephen Profield⁴ & Giuseppe Bianchi⁵

The scientific literature peer review workflow is under strain because of the constant growth of submission volume. One response to this is to make initial screening of submissions less time intensive. Reducing screening and review time would save millions of working hours and potentially boost academic productivity. Many platforms have already started to use automated screening tools to prevent plagiarism and failure to respect formal requirements. Some tools even attempt to flag the quality of a study or summarize its content, to reduce reviewer load. The recent advances in artificial intelligence (AI) create the potential for (semi) automated peer review systems, where potentially low-quality or controversial studies could be flagged, and reviewer-document matching could be performed in an automated manner. However, there are ethical concerns, which arise from such approaches, particularly associated with bias and the extent to which AI systems may replicate bias. Our main goal in this study is to discuss the potential, pitfalls, and uncertainties of the use of AI to approximate or assist human decisions in the quality assurance and peer-review process associated with research outputs. We design an AI tool and train it with 2003 papers from three conferences, together with their review evaluations. We then test the ability of the AI in predicting the review score of a new, unreviewed manuscript, only using its textual content. We show that such techniques can reveal correlations between the decision process and other quality proxy measures, uncovering potential biases of the review process. Finally, we discuss the opportunities, but also the potential unintended consequences of these techniques in terms of algorithmic bias and ethical concerns.



The Responsible use of Technology-Assisted Research Assessment

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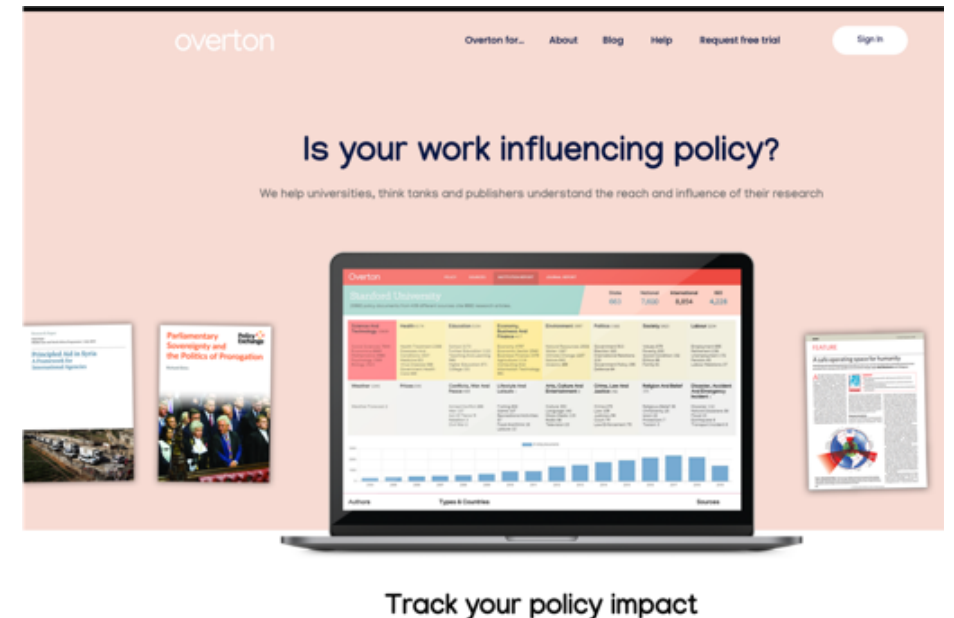
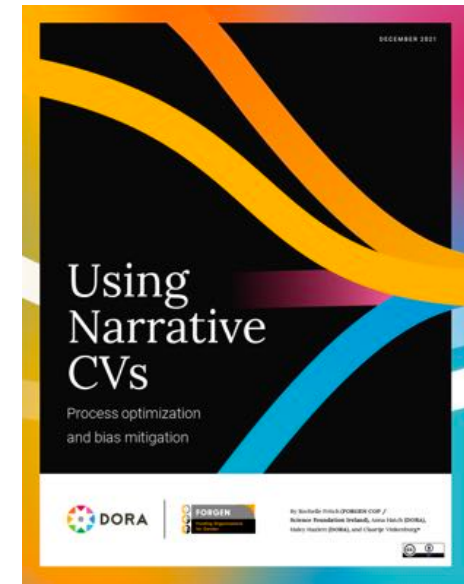
Value of contract

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Procurement reference

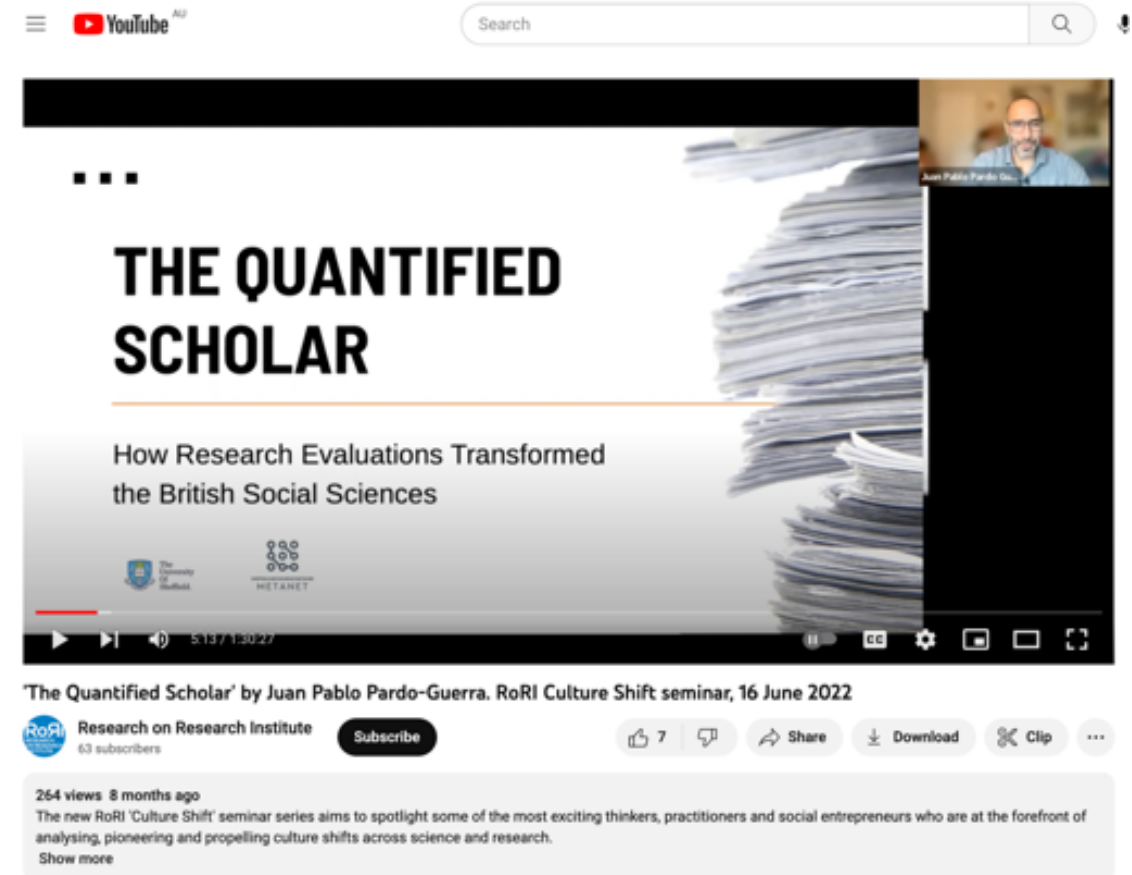
Priority 5: Strengthen weak proxies

More work is needed to overcome the significant methodological limitations of metrics for impact, and to embrace more creative mixed methods approaches.



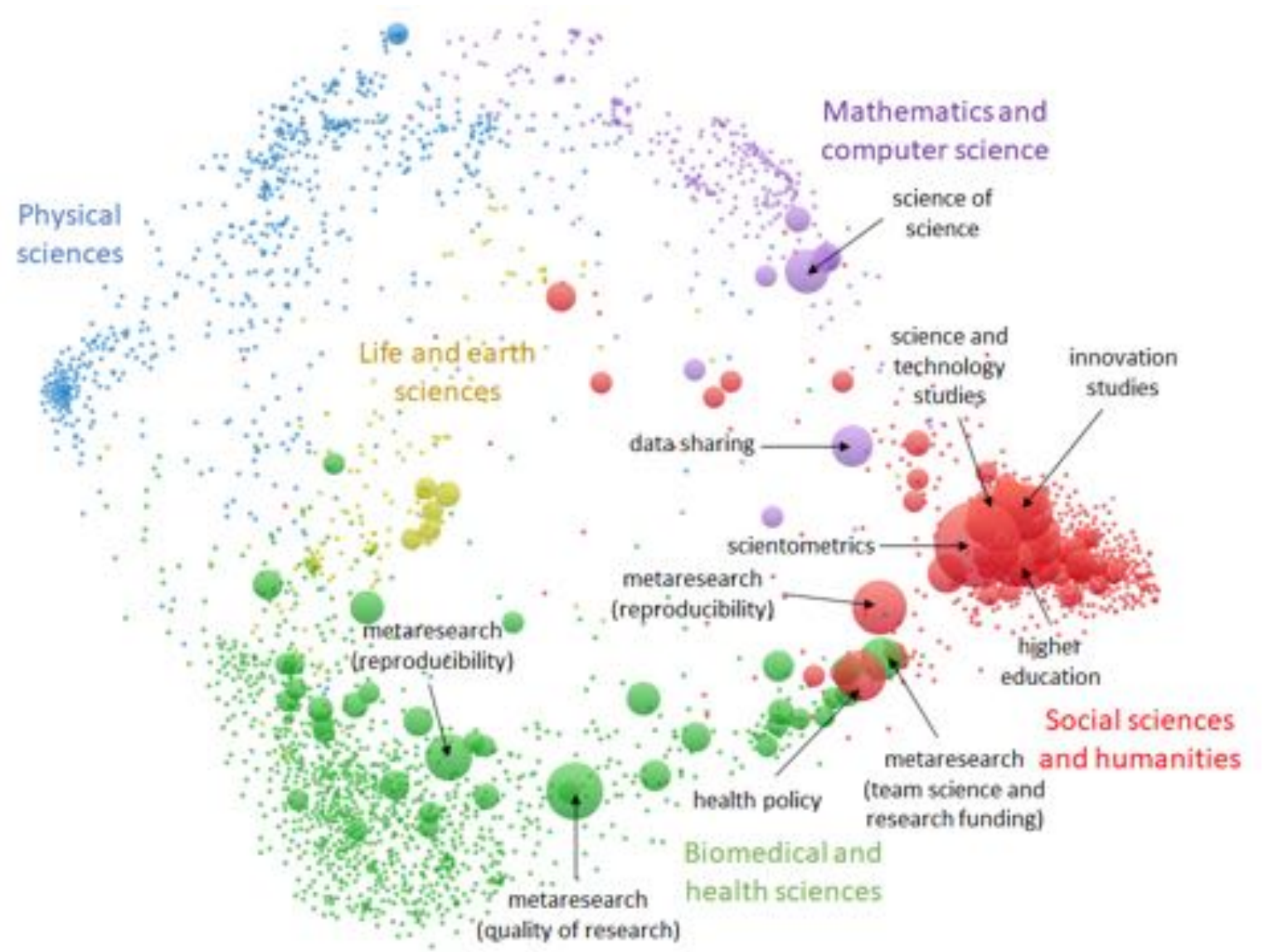
Priority 6: Move RRA 'upstream'

We need to better understand and manage unintended shaping effects of assessment regimes on more fundamental priorities and hierarchies of knowledge production



Priority 7: Harness collective intelligence

We need to get smarter at tapping into distributed data and insight into research system design, measurement and management



Priority 8: Invest & build capacity for metascience

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Research on research

Research on research (also known as meta-research, the science of science and meta-science) is the study of research itself.

It's an evolving discipline that aims to produce evidence on how to improve the efficiency, effectiveness, fairness and impact of research.

ON THIS PAGE

[Why it's important to us](#)

[What we're doing](#)

[More information](#)

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[Back to top](#)

Why it's important to us

Welcome, and the research we support, aims to be a social good. We're acutely aware of the influence we have on research culture and systems. This influence can be used positively to drive change, and we want to help [build a better research culture](#) – one that is creative, inclusive and honest.

However, our own systems can have unintended consequences – such as sometimes creating a focus on outputs and increased productivity at the expense of how research is achieved. This is often underpinned by the decisions we make and how we make them at the strategic and individual funding level.

Research on research is important to help us better understand and improve our own funding practices and policies, and those of other funders.

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Research on research gains steam

New metascience institute aims for larger studies

by Delmeek Singh Chawla, special to c&en

OCTOBER 1, 2019

In 2005, John Ioannidis, a professor of medicine at Stanford University, opened a can of worms. In a paper published in *PLOS Medicine*, he argued that most published scholarly literature is false ([DOI: 10.1371/journal.pmed.0020124](#)).

To date, Ioannidis's "landmark study" has attracted thousands of citations and helped solidify a whole field in its own right, says Jelte Wicherts, who studies research methodology at Tilburg University.

The use of scientific methodology to study science itself is called metascience. The discipline has become mainstream in recent years, tackling some of the thorniest problems science faces, including a lack of reproducibility of academic literature, biases in peer review, and the fair allocation of research funding. "Metascience is now a distinct species," although it has ancestors in medical science, psychology, and other disciplines, Wicherts says.

Ioannidis, who launched the [Meta-Research Innovation Center at Stanford \(METRICS\)](#) in 2014, however, is hesitant to frame meta-research as a separate field. "In a way, every researcher is a meta-researcher, since the issues involved are at the core of how to do science and apply the scientific method and maximize the yield of reproducible and useful information," he says.



Credit: Courtesy of James Wilson
James Wilson, founding director of the Research on Research Institute



Research on research (RoRI)—also known as meta-research, meta-science or the science of science—uses a rich blend of old and new disciplinary and methodological approaches to test, evaluate and experiment with different aspects of research systems, cultures and decision-making.

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