Research evaluation in transition: challenges & opportunities

UIMP, Santander, 6 July 2022

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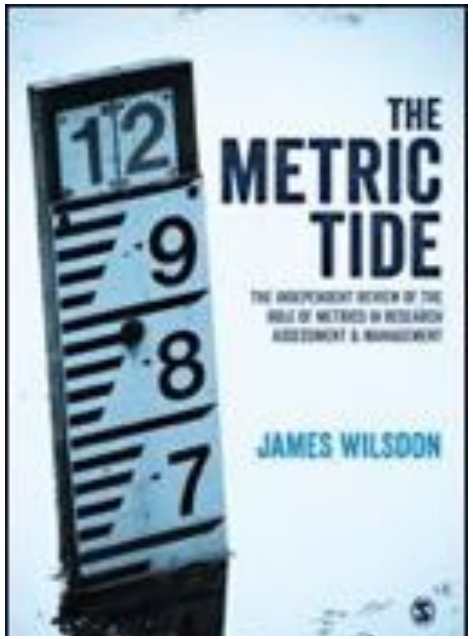
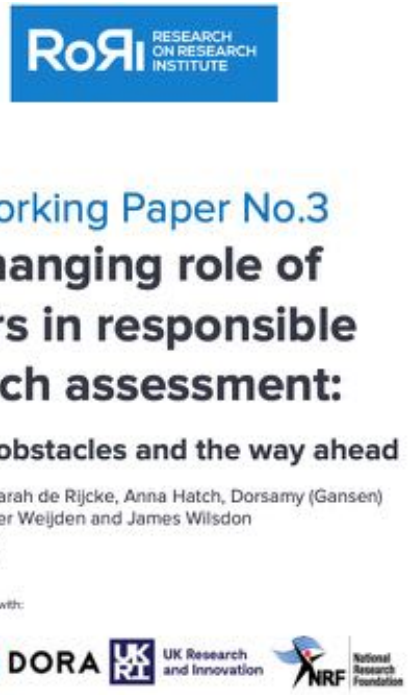
http://www.researchonresearch.org/

What I'll cover:

- From responsible metrics to responsible research assessment
- Movers and shapers
- Experiments in RRA: some interim results
- Global Research Council: funder survey
- Metrics in the UK REF: a case study
- Five priorities for the next five years



From responsible metrics….



…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.

A moment of opportunity?

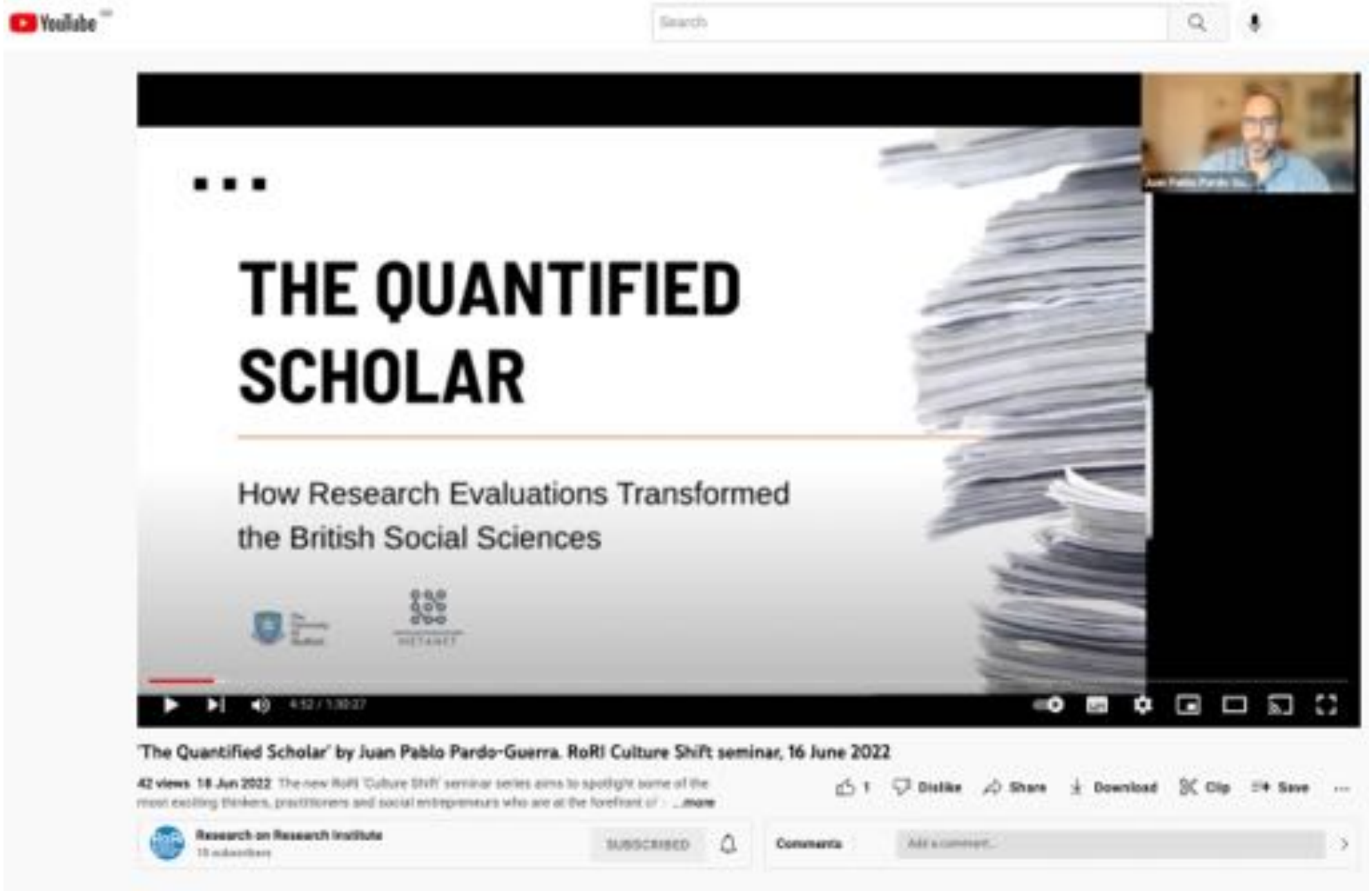
Concern has intensified over several long-standing problems linked to research assessment:

- the **misapplication of narrow criteria and indicators of research quality or impact**, in ways that distort incentives, create unsustainable pressures on researchers, and 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.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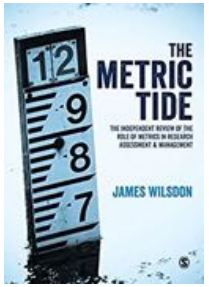
Fifteen movers and shapers

DORA



HuMetricsHSS
HUMANE METRICS INITIATIVE

inorms

SCIENCE GRANTING COUNCILS INITIATIVE SGCI IOSRS INITIATIVE DES ORGANISMES SUBVENTIONNAIRES DE LA RECHERCHE SCIENTIFIQUE

GLOBAL YOUNG ACADEMY

Helsinki Initiative on Multilingualism
Hi!

FOLEC Latin American Forum for Research Assessment
CLACSO

SCIENCE EUROPE
Shaping the future of research

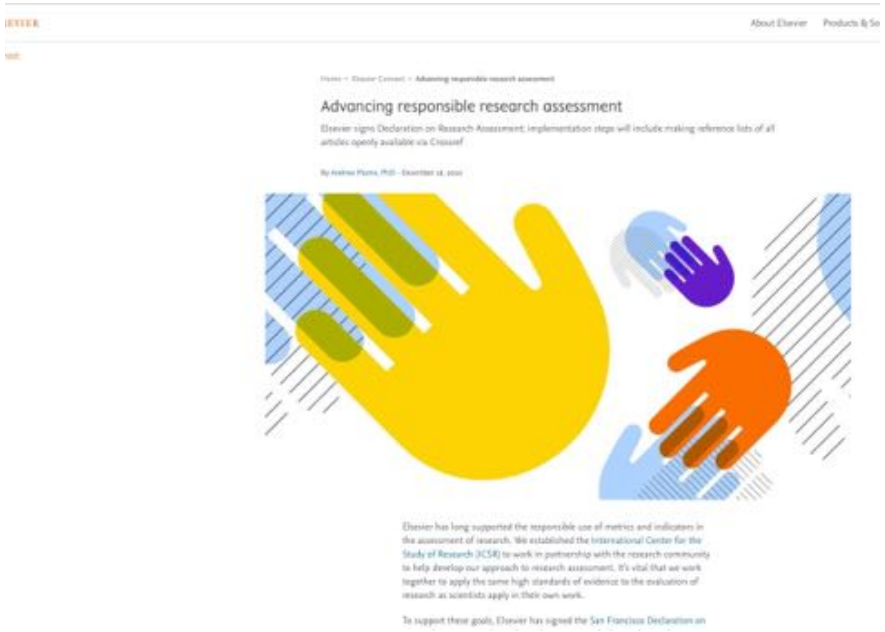
eua EUROPEAN UNIVERSITY ASSOCIATION

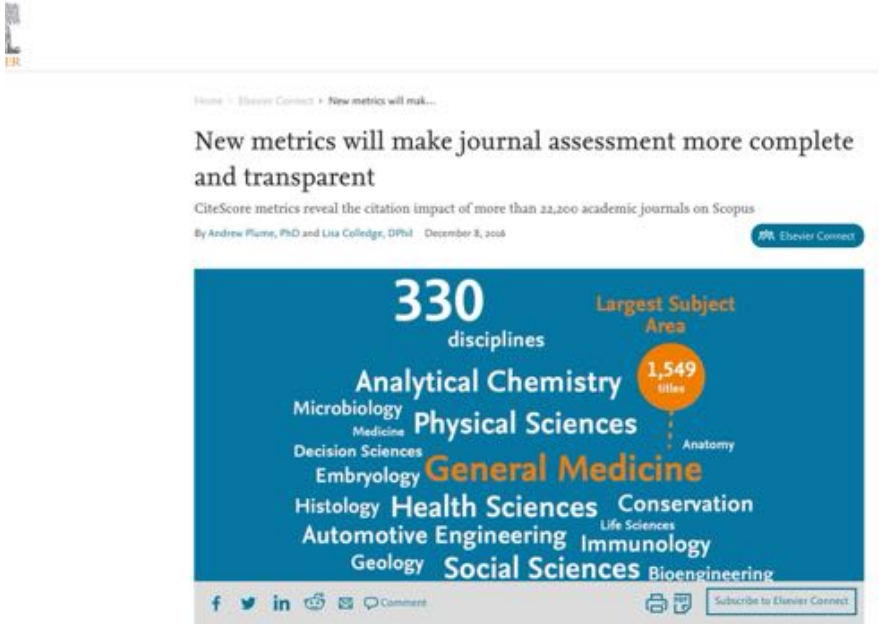
wellcome


CHEERFUL
WHISTLING
PERMITTED

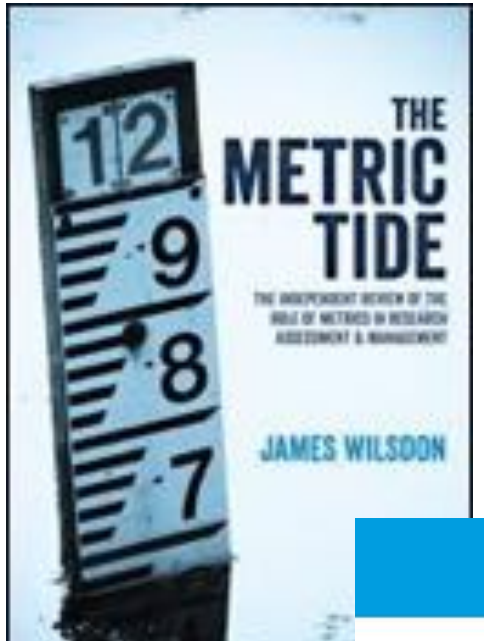
Experiments in RRA: some interim results

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





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.

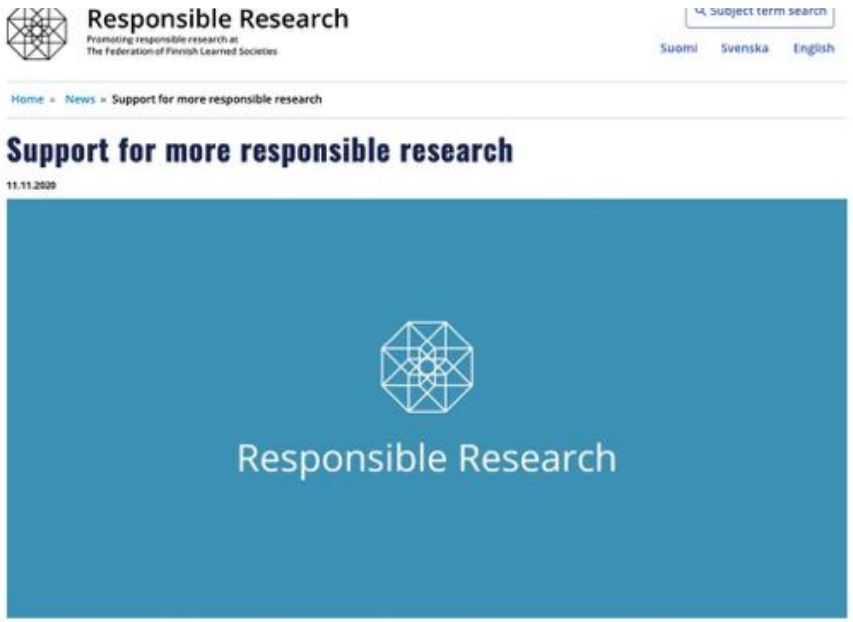
#2: The EC should encourage the development of new indicators, and assess the suitability of existing ones, to measure and support the development of open science.

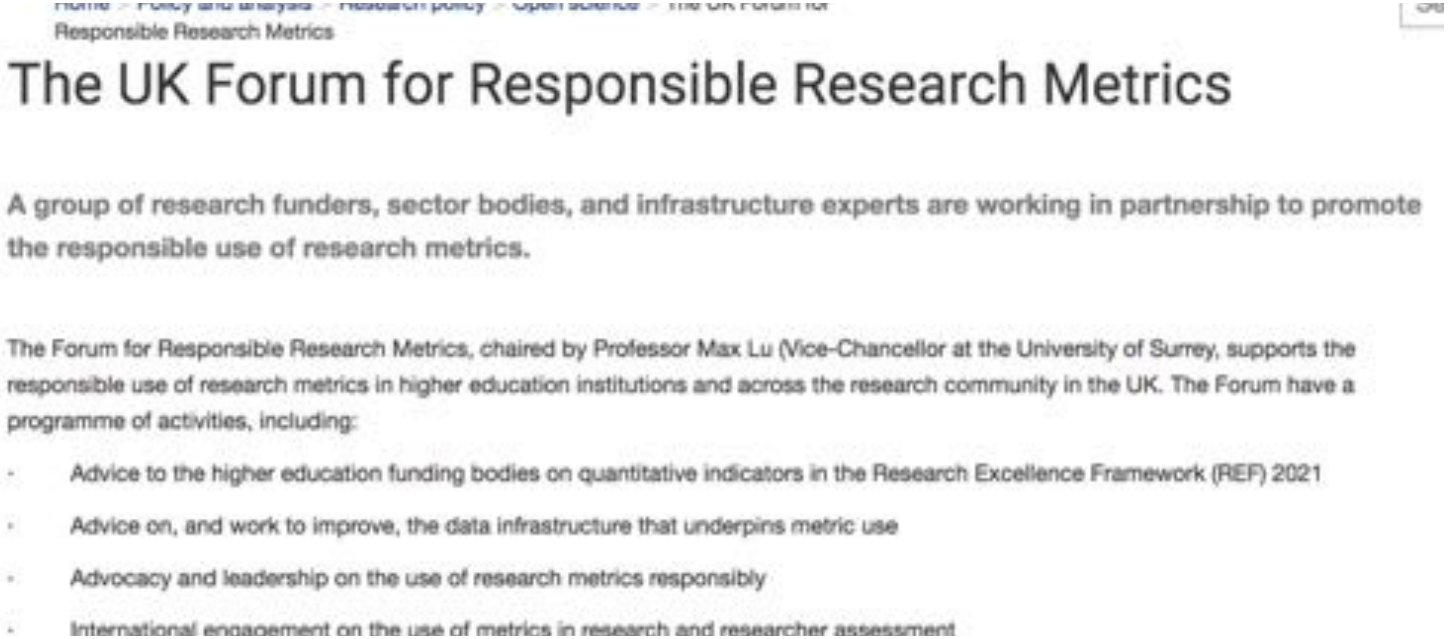
#3: Before introducing new metrics into evaluation criteria, the EC needs to assess the likely benefits and consequences as part of a programme of 'meta-research'.

#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.

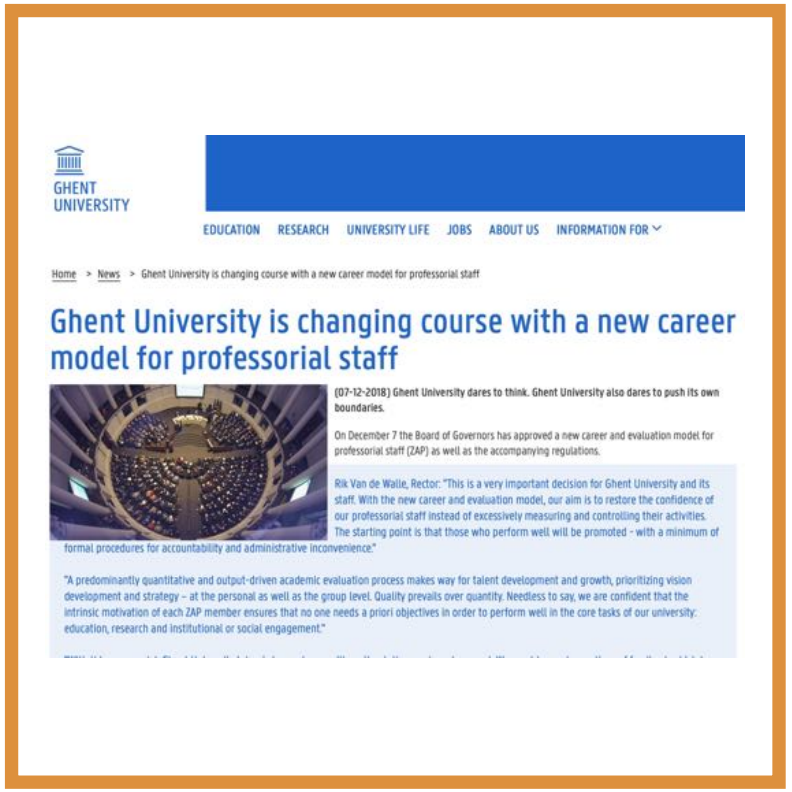
##10: The EC should identify mechanisms for promoting best practices, frameworks and standards for responsible use of metrics in support of open science





Advocacy coalitions

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

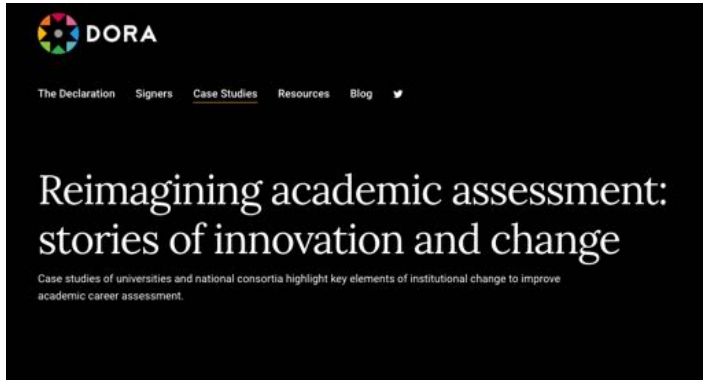
Ghent University is changing course with a new career model for professorial staff

(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."

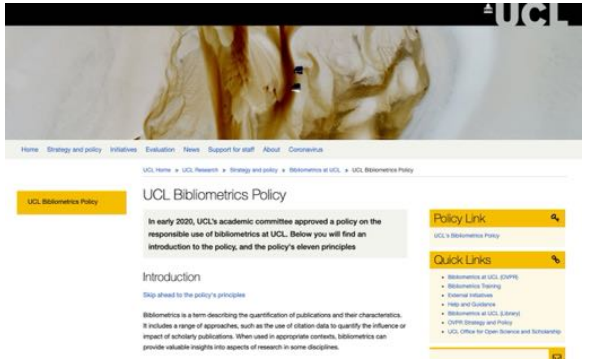
"A predominantly quantitative and output-driven academic evaluation process makes way for talent development and growth, prioritizing vision development and strategy – at the personal as well as the group level. Quality prevails over quantity. Needless to say, we are confident that the intrinsic motivation 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."


DORA

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.


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

Policy Link

Quick Links

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.

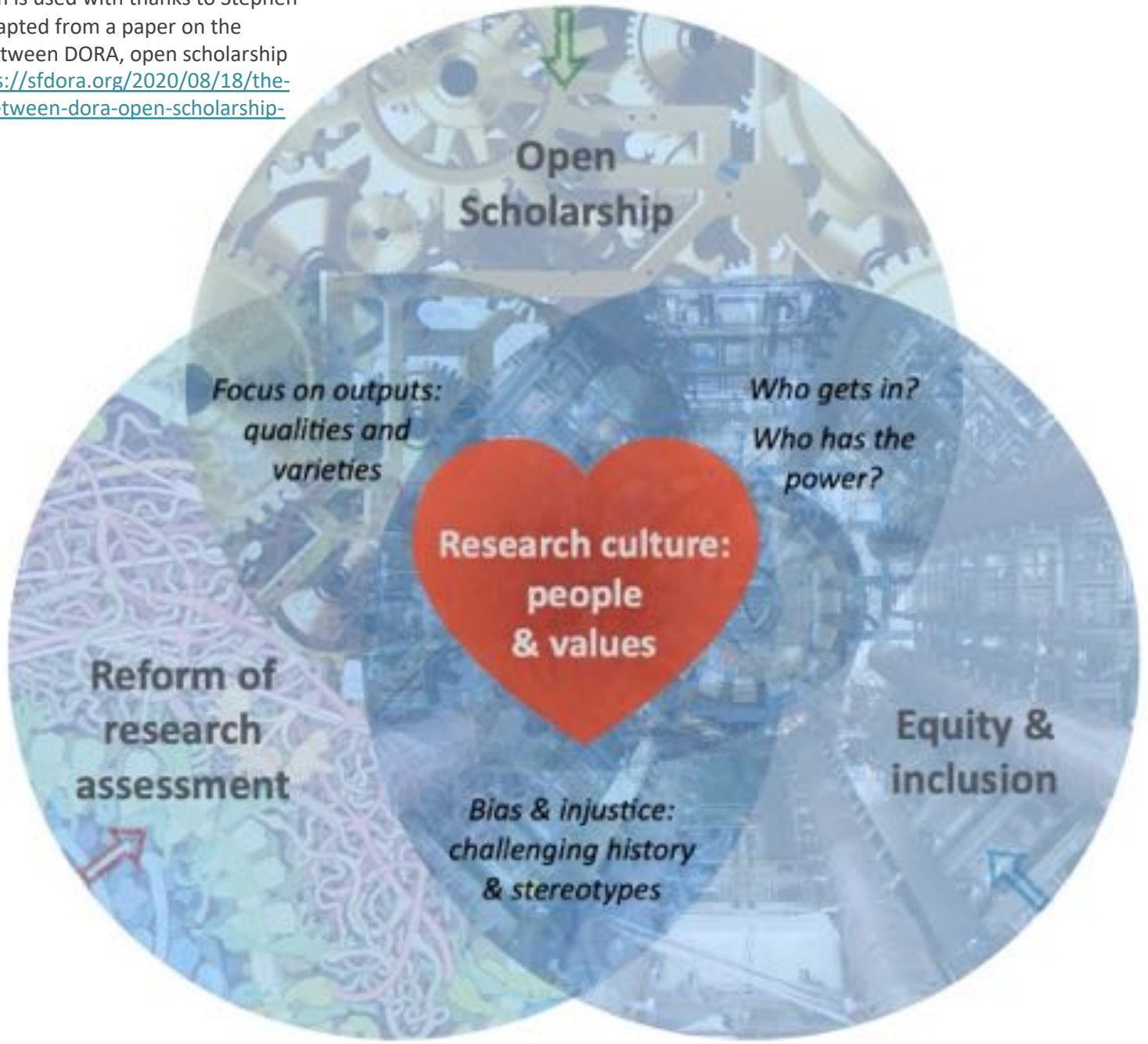
Responsible research assessment

45. Our expectation is the providers we fund will comply with the principles of the San Francisco Declaration on Research Assessment (DORA)[8], Leiden Manifesto[9] 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 principles[10] 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.

NB. This diagram is used with thanks to Stephen Curry, and is adapted from a paper on the intersections between DORA, open scholarship and equity https://sfdora.org/2020/08/18/the-intersections-between-dora-open-scholarship-and-equity/



Culture & system change

Department for Business, Energy & Industrial Strategy

R&D People and Culture Strategy

People at the heart of R&D

Global Research Council Survey methodology

Online survey: 23 questions

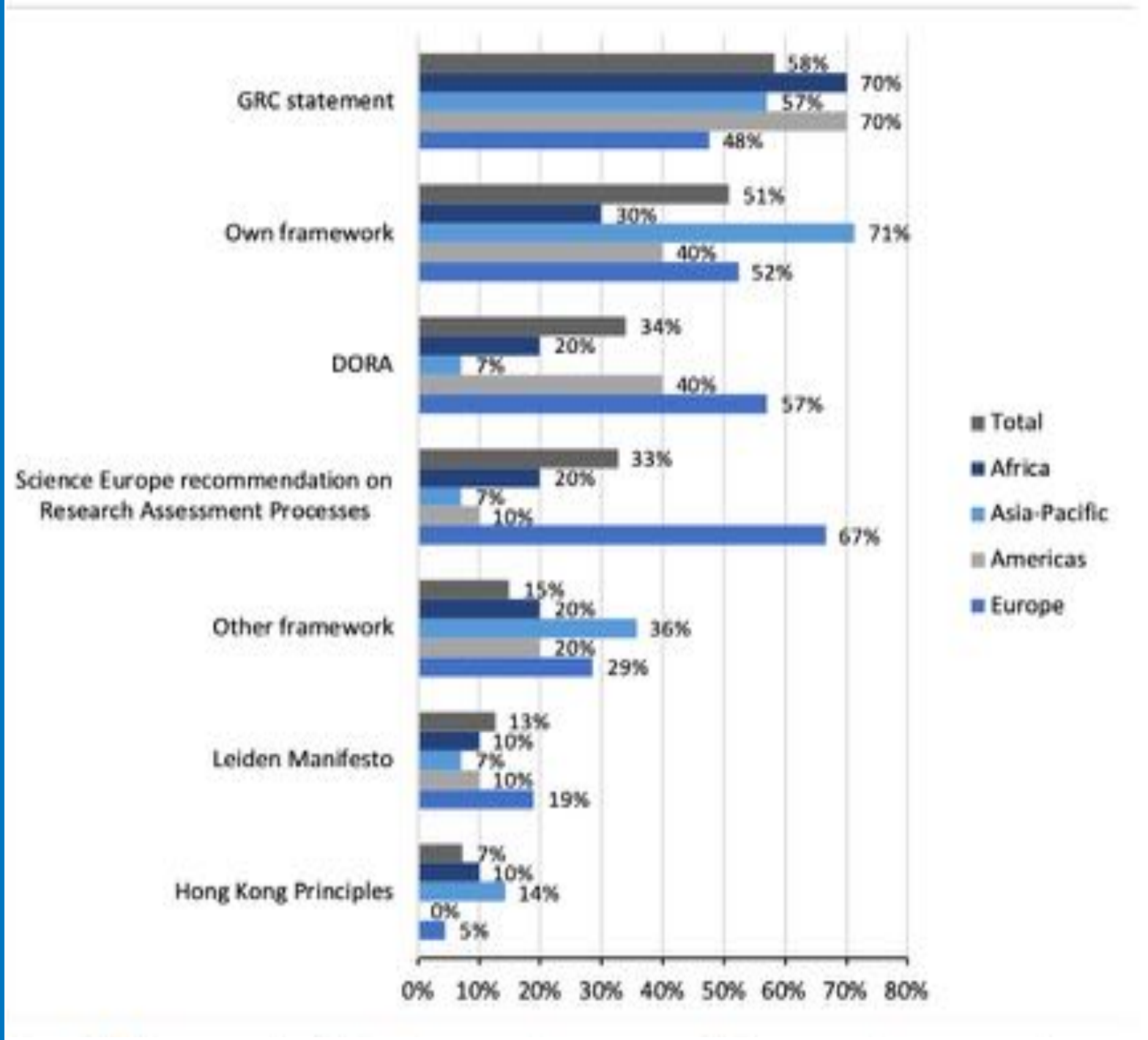
Open from September-October 2020

Completed by 55 organisations / 46% response rate

	N	%
Africa and Middle-East *(Sub-Saharan Africa, North Africa & Middle East)*	10	18.2
Asia-Pacific	14	25.5
Americas	10	18.2
Europe	21	38.2
Total	55	100

Table 1: Respondents by geographical region

Endorsements of existing RRA Frameworks



Research Assessment Indicators

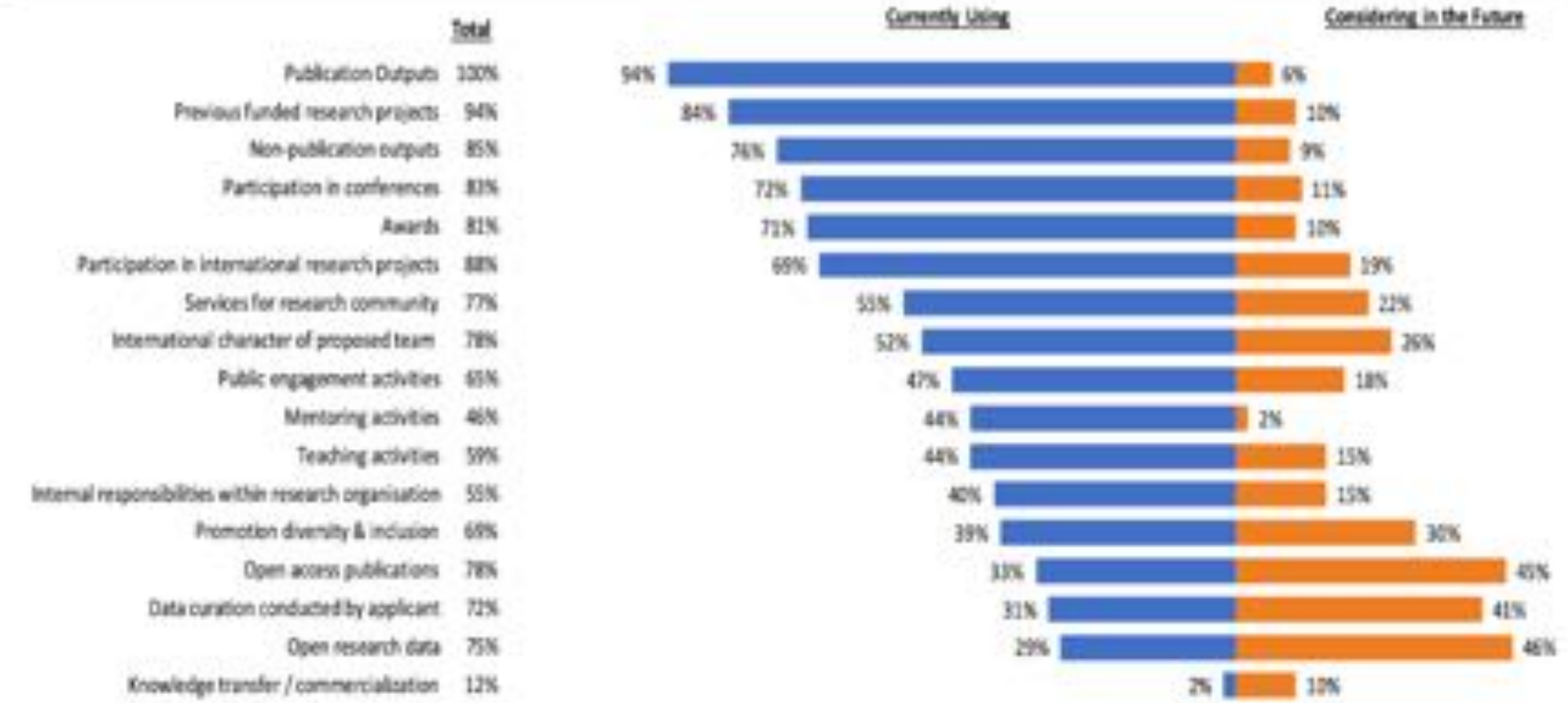
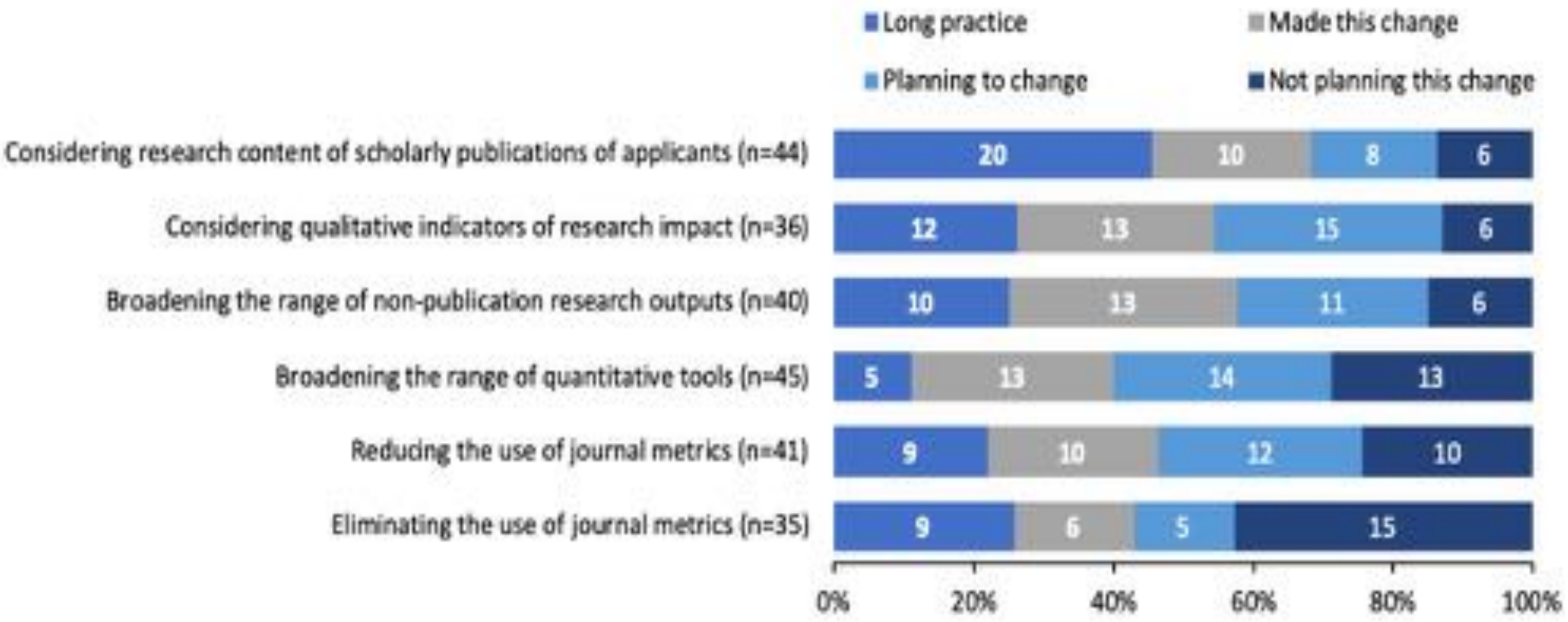
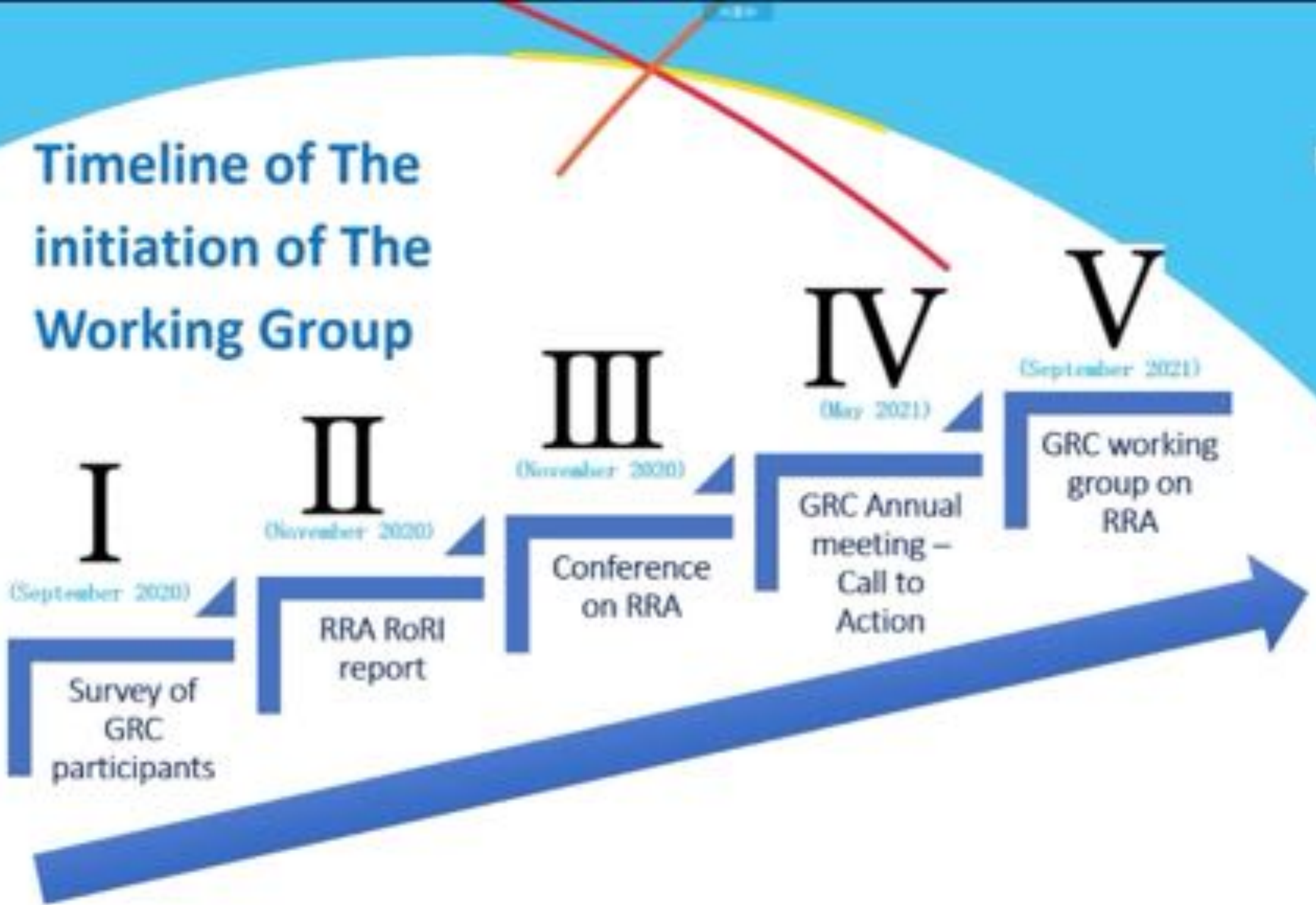


Figure 3: Research assessment indicators (to be) used by GRC participating organisations who responded to the survey (n=50, missing n=5)

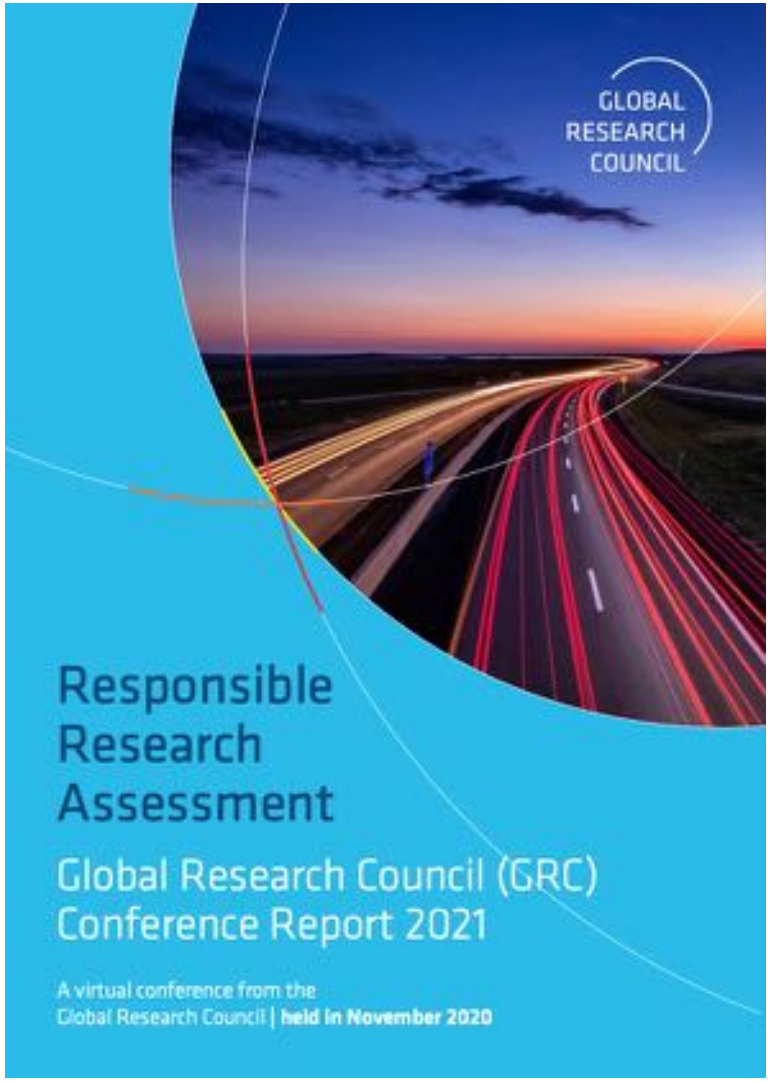
Changes in the way research proposals are assessed



Timeline of The initiation of The Working Group



GLOBAL RESEARCH COUNCIL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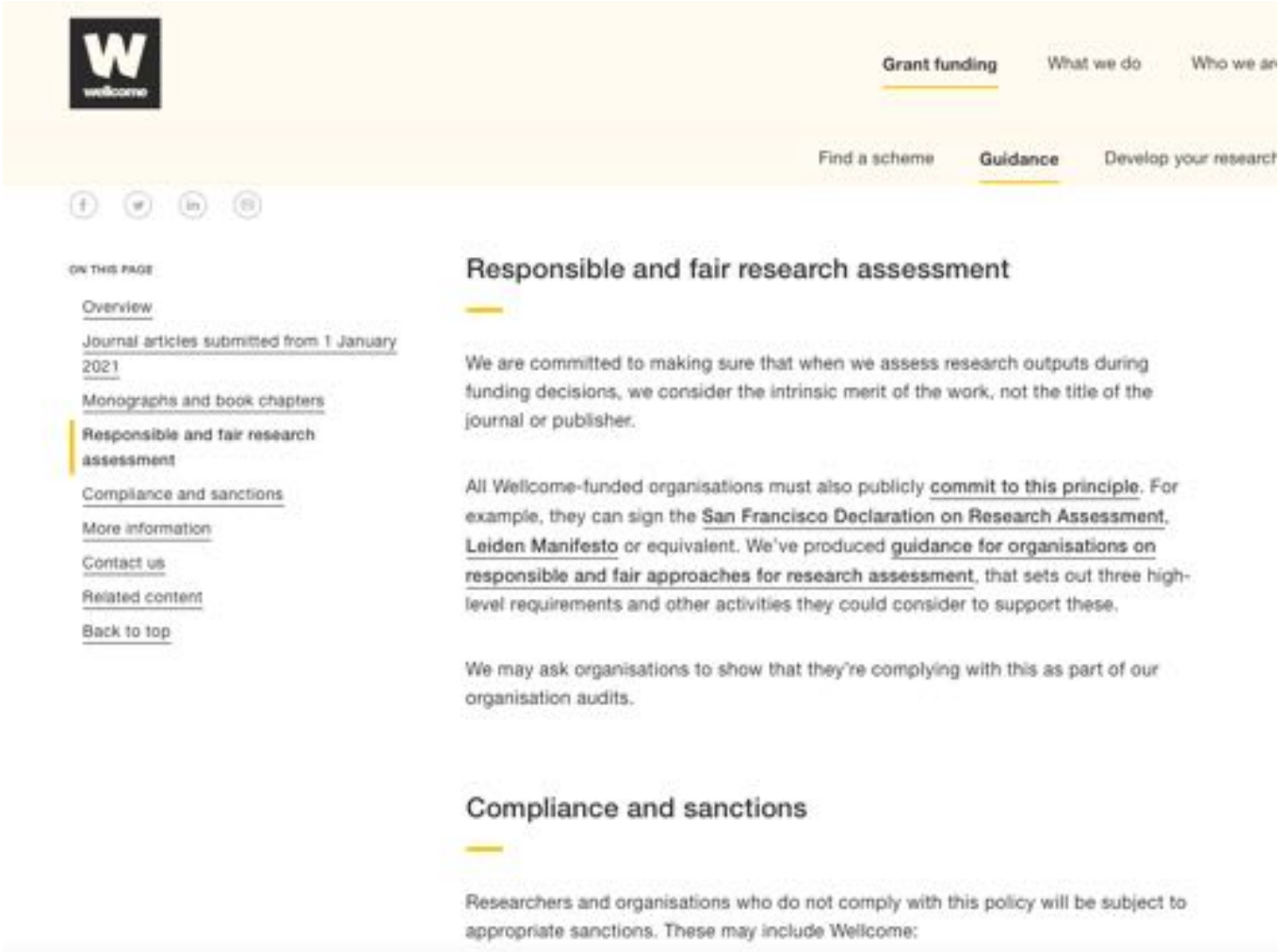
RESEARCH
COUNCIL
Responsible
Research
Assessment
Global Research Council (GRC)
Conference Report 2021
A virtual conference from the
Global Research Council | held in November 2020


Grant funding
What we do
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Guidance
ON THIS PAGE
Overview
Journal articles submitted from 1 January 2021
Monographs and book chapters
Responsible and fair research assessment
Compliance and sanctions
More information
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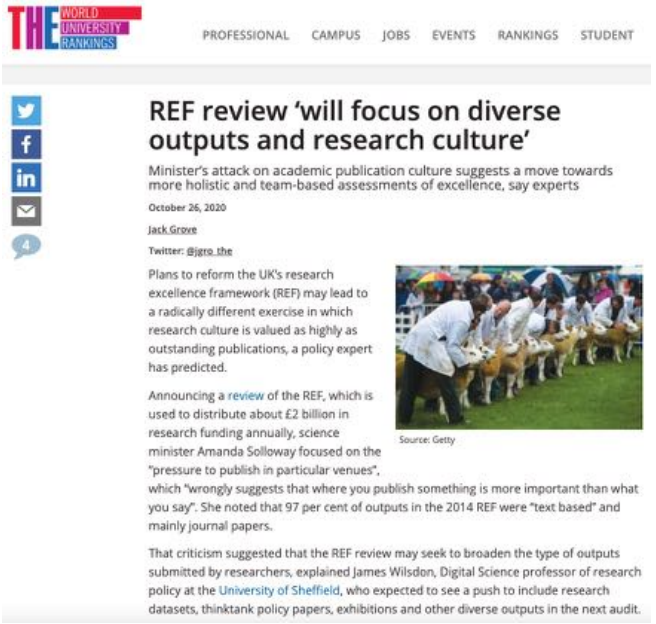
Responsible and fair research assessment
We are committed to making sure that when we assess research outputs during funding decisions, we consider the intrinsic merit of the work, not the title of the journal or publisher.
All Wellcome-funded organisations must also publicly commit to this principle. For example, they can sign the San Francisco Declaration on Research Assessment, Leiden Manifesto or equivalent. We've produced guidance for organisations on responsible and fair approaches for research assessment, that sets out three high-level requirements and other activities they could consider to support these.
We may ask organisations to show that they're complying with this as part of our organisation audits.
Compliance and sanctions
Researchers and organisations who do not comply with this policy will be subject to appropriate sanctions. These may include Wellcome:

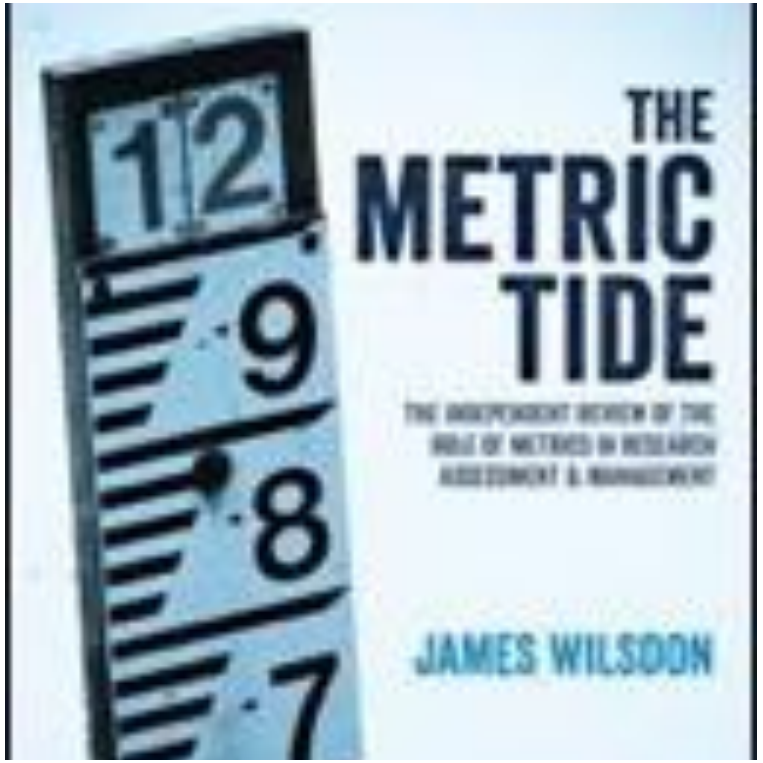
The UK REF: a case study of RRA and responsible metrics

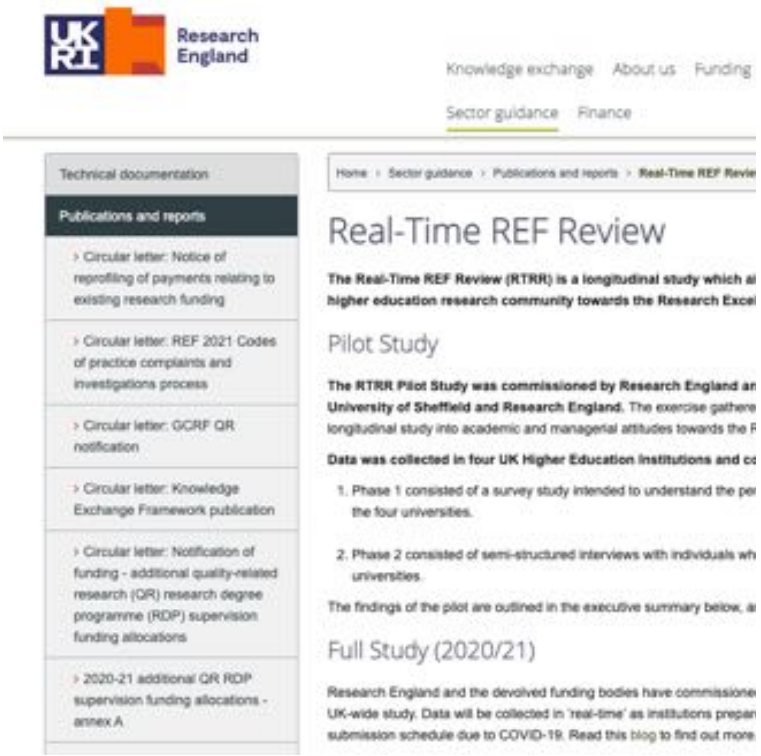
"We must be prepared to look to the future and ask ourselves how the REF can be evolved for the better, so that universities and funders work together to help build the research culture we all aspire to." **Amanda Solloway MP, former UK Minister for Science and Innovation, Oct 2020**

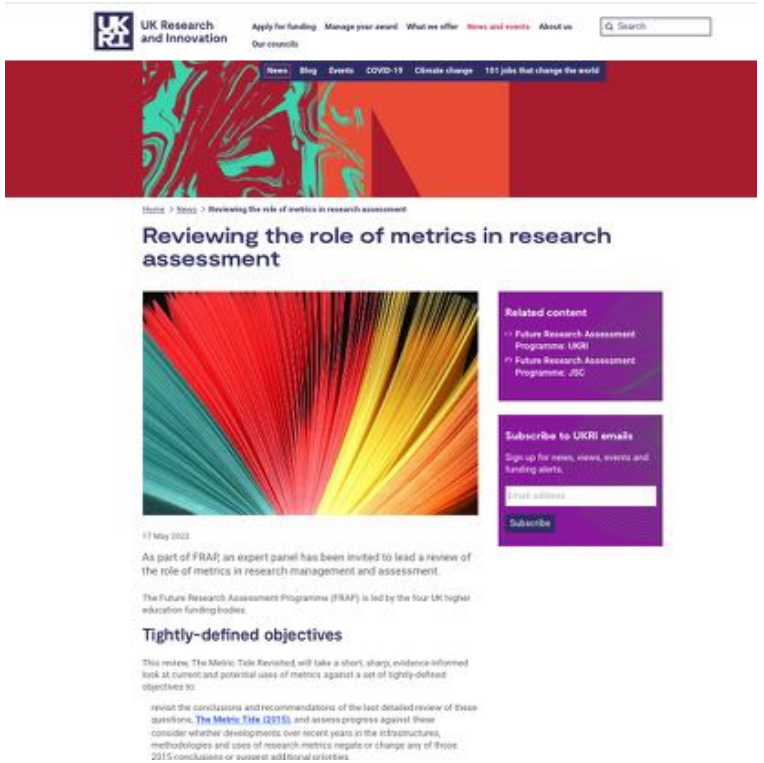


The long road to REF 2021

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.







A few contributions to this debate

Function before form….

Before reforming the REF, we need to be clear about its **purposes.** Lord Stern identified **six purposes** in his 2016 review:

- Supporting the allocation of around £2bn of quality-related research funding each year;
- Informing strategic decision-making about national research priorities;
- Providing an accountability mechanism for public investment in research;
- Creating performance incentives for HE institutions, departments and academics;
- Giving HEIs information to inform decisions on resource allocation;
- Providing a periodically-updated reputational benchmark, that may be especially important for less known institutions.

https://www.gov.uk/government/publications/research-excellence-framework-review

Impact case study database

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.

Impact case study database FAQs

Download all impact case studies (spreadsheet)
REF 2014 impact case study database
Website help
View results
Submitted outputs' details
Environment database

Search and filter

Clear search and filter

Keyword search

Learn more about advanced searching

Clear | Search

Filter by

Higher education institution Select

None selected

Unit of assessment Select

None selected

Continued case study Select

None selected

Rich evidence in REF case studies now published

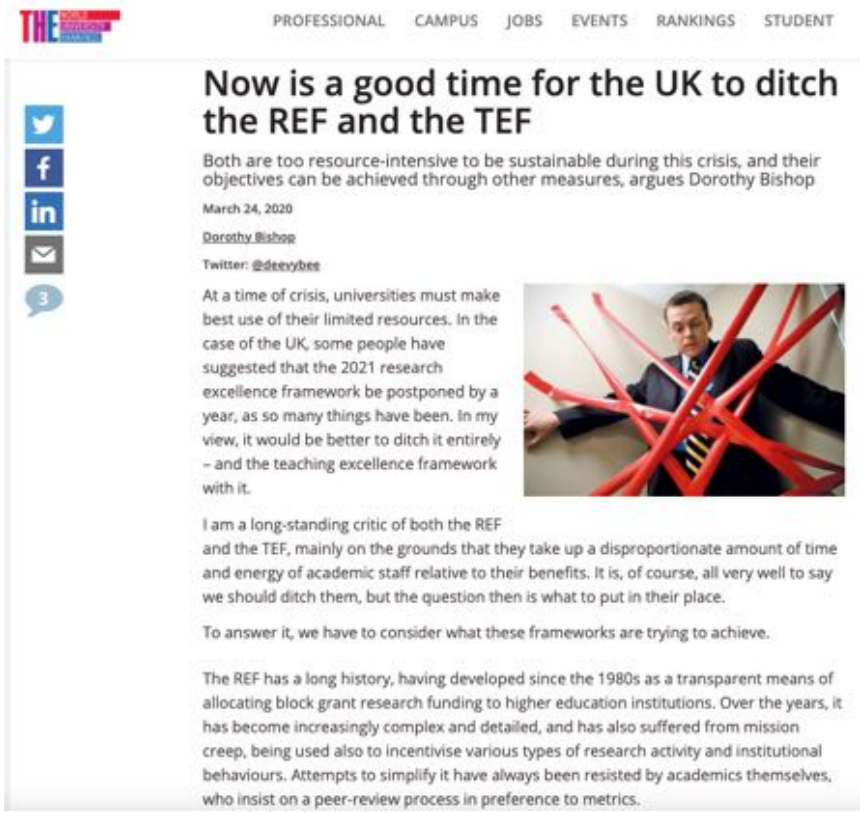
Publication of submissions made to the Research Excellence Framework (REF) 2021 provides rich source of evidence on university research and its wider impact.

157 UK universities made submissions to REF 2021, the UK's framework for assessing the quality of higher education research. In total, they submitted over 185,000 outputs from research and over 6,000 impact case studies detailing where their research had benefitted wider society, across 34 subject-based units of assessment.

This latest publication includes the REF impact case study database, a searchable tool which will support wide-ranging analysis of the manifold contributions made by UK university research to the economy and society, in the UK and worldwide.


OPTION 1
OPTION 2
OPTION 3
OPTION 4

Option 1: Abolish



PROFESSIONAL CAMPUS JOBS EVENTS RANKINGS STUDENT

Now is a good time for the UK to ditch the REF and the TEF

Both are too resource-intensive to be sustainable during this crisis, and their objectives can be achieved through other measures, argues Dorothy Bishop

March 24, 2020

Dorothy Bishop

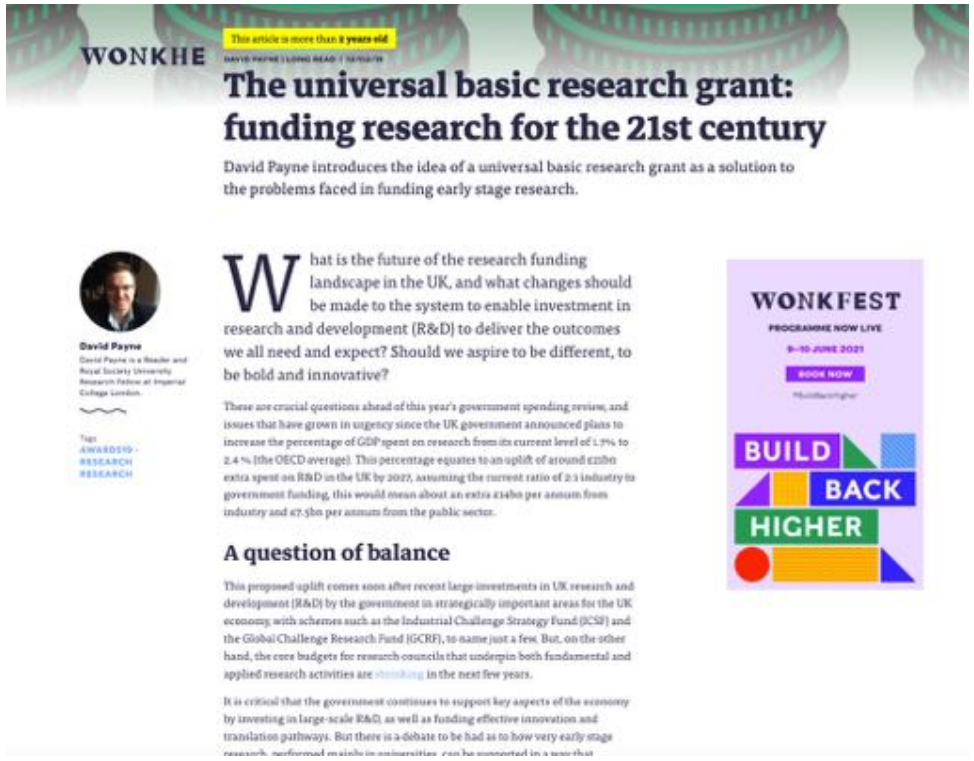
Twitter: @deevybee

At a time of crisis, universities must make best use of their limited resources. In the case of the UK, some people have suggested that the 2021 research excellence framework be postponed by a year, as so many things have been. In my view, it would be better to ditch it entirely – and the teaching excellence framework with it.

I am a long-standing critic of both the REF and the TEF, mainly on the grounds that they take up a disproportionate amount of time and energy of academic staff relative to their benefits. It is, of course, all very well to say we should ditch them, but the question then is what to put in their place.

To answer it, we have to consider what these frameworks are trying to achieve.

The REF has a long history, having developed since the 1980s as a transparent means of allocating block grant research funding to higher education institutions. Over the years, it has become increasingly complex and detailed, and has also suffered from mission creep, being used also to incentivise various types of research activity and institutional behaviours. Attempts to simplify it have always been resisted by academics themselves, who insist on a peer-review process in preference to metrics.



WONKHE

The universal basic research grant: funding research for the 21st century

David Payne introduces the idea of a universal basic research grant as a solution to the problems faced in funding early stage research.

David Payne

What is the future of the research funding landscape in the UK, and what changes should be made to the system to enable investment in research and development (R&D) to deliver the outcomes we all need and expect? Should we aspire to be different, to be bold and innovative?

These are crucial questions ahead of this year's government spending review, and issues that have grown in urgency since the UK government announced plans to increase the percentage of GDP spent on research from its current level of 1.7% to 2.4 % (the OECD average). This percentage equates to an uplift of around £20bn extra spent on R&D in the UK by 2027, assuming the current ratio of 2:1 industry to government funding, this would mean about an extra £14bn per annum from industry and £7.5bn per annum from the public sector.

A question of balance

This proposed uplift comes soon after recent large investments in UK research and development (R&D) by the government in strategically important areas for the UK economy, with schemes such as the Industrial Challenge Strategy Fund (ICSF) and the Global Challenge Research Fund (GCRF), to name just a few. But, on the other hand, the core budgets for research councils that underpin both fundamental and applied research activities are shrinking in the next few years.

It is critical that the government continues to support key aspects of the economy by investing in large-scale R&D, as well as funding effective innovation and translation pathways. But there is a debate to be had as to how very early stage

A: Outputs
Recommendation 1: All research active staff should be returned in the REF.
Recommendation 2: Outputs should be submitted at Unit of Assessment level with a set average number per FTE but with flexibility for some faculty members to submit more and others less than the average.
Recommendation 3: Outputs should not be portable.
Recommendation 4: Panels should continue to assess on the basis of peer review. However, metrics should be provided to support panel members in their assessment, and panels should be transparent about their use.
B: Impact
Recommendation 5: Institutions should be given more flexibility to showcase their interdisciplinary and collaborative impacts by submitting 'institutional' level impact case studies, part of a new institutional level assessment.
Recommendation 6: Impact must be based on research of demonstrable quality. However, case studies could be linked to a research activity and a body of work as well as to a broad range of research outputs.
Recommendation 7: Guidance on the REF should make it clear that impact case studies should not be narrowly interpreted, need not solely focus on socio-economic impacts but should also include impact on government policy, on public engagement and understanding, on cultural life, on academic impacts outside the field, and impacts on teaching.

C: Environment
Recommendation 8: A new, institutional level Environment assessment should include an account of the institution's future research environment strategy, a statement of how it supports high quality research and research-related activities, including its support for interdisciplinary and cross-institutional initiatives and impact. It should form part of the institutional assessment and should be assessed by a specialist, cross-disciplinary panel.
Recommendation 9: That individual Unit of Assessment environment statements are condensed, made complementary to the institutional level environment statement and include those key metrics on research intensity specific to the Unit of Assessment.
D: Wider context
Recommendation 10: Where possible, REF data and metrics should be open, standardised and combinable with other research funders' data collection processes in order to streamline data collection requirements and reduce the cost of compiling and submitting information.
Recommendation 11: That Government, and UKRI, could make more strategic use of REF, to better understand the health of the UK research base, our research resources and areas of high potential for future development, and to build the case for strong investment in research in the UK.
Recommendation 12: Government should ensure that there is no increased administrative burden to Higher Education Institutions from interactions between the TEF and REF, and that they together strengthen the vital relationship between teaching and research in HEIs.

Option 2: Amend

LEARNED PUBLISHING

Industry Update | Free Access

The rise of the machines: Artificial intelligence meets scholarly content

Alex D. Wade, Kuansan Wang

First published: 20 June 2016 | https://doi.org/10.1002/leap.1033 | Citations: 4

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Abstract

Key points

- New forms of human/machine dialogue are emerging as robots understand vast amounts of content rather than simply indexing content as strings of characters.
- Recognizing strings of characters as entities (e.g. = names = authors) allows for meaningful associations between entities and reasoning over these relationships.
- Web-scale adoption of the Semantic Web approach has been slow because it is too complex to implement and does not scale.
- User intent, discovered through conversational models of human–computer interaction, allows for a deeper understanding of exactly what researchers are looking for.
- Personal agents hold the promise of finding information that we will find useful before we have started to look for it.
- Publishers can use Academic Knowledge APIs to interpret academic user

THE

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Radical rethink of UK's excellence frameworks is needed

Merging metrics for the REF, KEF and TEF would free up time for academics to become researchers once again, says Robert MacIntosh

四月 16, 2021

Robert MacIntosh

Twitter: @Rob_MacIntosh

Designing assessments that adequately measure learning outcomes but do not absorb excessive amounts of students' time is always a tricky task for academics. After all, we are the ones required to mark the mountain of exam scripts and essays that follow.

With submissions entered for the research excellence framework (REF) and the results for the first knowledge exchange framework (KEF) due imminently, academia's own outputs are now under scrutiny and many scholars are wondering if the balance between effort expended on assessment versus the insight gained has drifted out of kilter.

Source: iStock/BrianAJackson

Since the first research assessment exercise in 1992, the level of scrutiny applied to UK university sectors has increased exponentially. The original policy intention to improve performance, enhance accountability and, in the case of the REF, to provide a basis for dispersing billions of pounds of research funding, is widely accepted. The teaching excellence framework (TEF) was introduced in 2017 to offer similar insights to current and future students about teaching, while the KEF aims to monitor how universities are addressing real-world problems.

For all their good intentions, however, the cumulative and unintended effect of the REF, TEF and KEF on the sector have been seismic. The main challenge is the amount of effort involved; every hour spent reporting, managing and monitoring performance

Option 3: Automate

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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.

Source: Getty (edited)

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 lectures, public engagement, media appearances, contributions to the discipline, PhD training – the usual jazz – over the past 18 months. To be filled in and returned "if possible" within three weeks.

I mention this not to criticise or poke fun at my own university. Tens of thousands of academic researchers across the UK could share a similar story. And there is, of course, a managerial logic to such efforts. As a former "impact lead" for my faculty, I know the importance of strategies, plans and support structures. And as someone who researches research, I applaud efforts to improve the patchy data and limited understanding we have of so many aspects of research cultures and impacts.

OPINION 12 OCT 2021

The next REF can drive a better research culture

By Tanita Casci, Miles Padgett, Grace Gottlieb and David Price Share

Option 4: Accelerate change

The Metric Tide Revisited Workshops

by Research England

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Register

The Metric Tide Revisited: a series of roundtables to look afresh at the role of metrics in UK research assessment (4 July, 12 July, 19 July

About this event

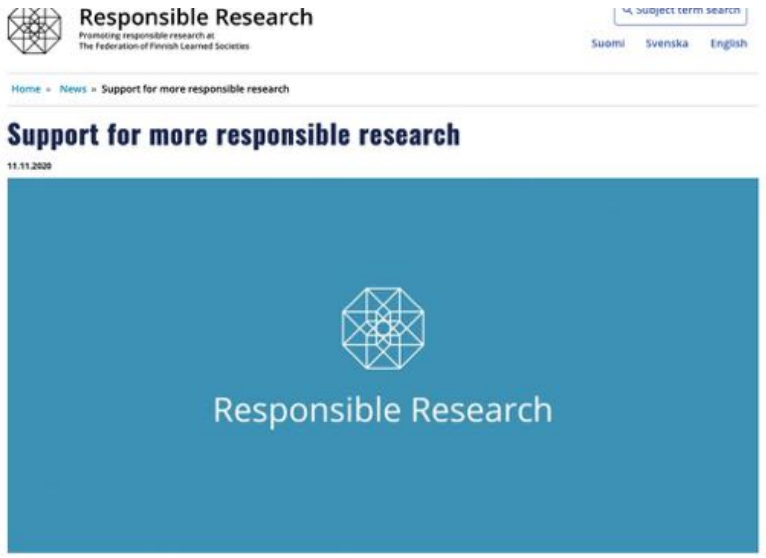
The possibilities and pitfalls of a greater reliance on quantitative indicators

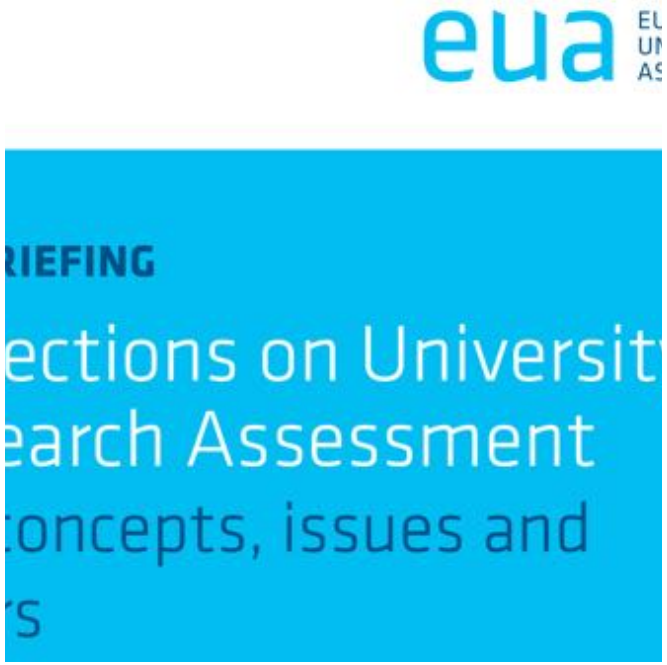
Date and time

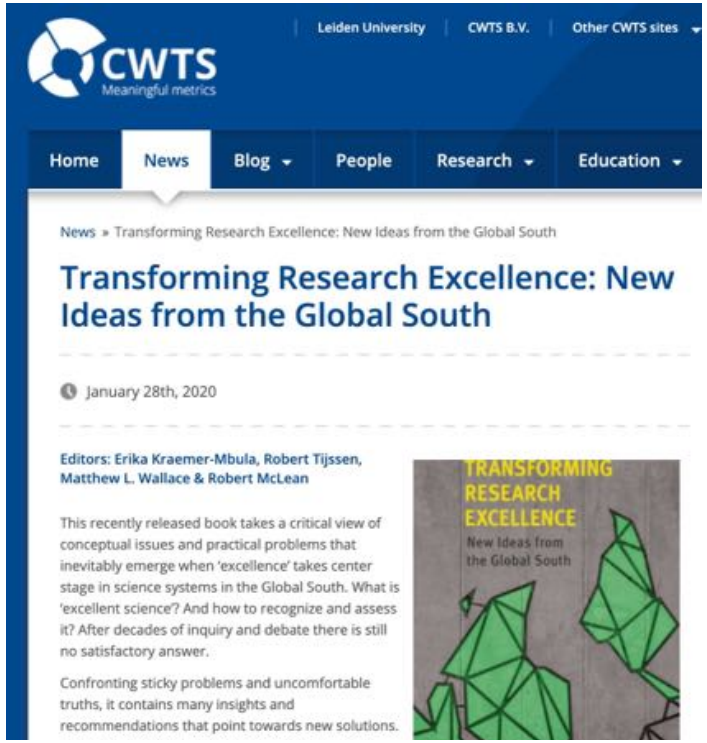
Ends on Mon, 4 Jul 2022, 13:00 BST

Location

Online event







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

Letter: A call for a radical change in research evaluation in Spain

Emilio Delgado-López-Cózar; Ismael Ràfols; Ernest Abadal

Nota: Esta carta se puede leer en español en:
http://www.profesionaldelainformacion.com/contenidos/2021/may/delgado-rafols-abadal_es.pdf

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Abstract

This letter is a call to the Spanish scientific authorities to abandon current research evaluation policies, which are based on an excessive and indiscriminate use of bibliometric indicators for nearly all areas of scientific activity. This narrow evaluation focus is especially applied to assess the individual performance of researchers. To this end, we first describe the contexts in which the journal impact factor (JIF) and other bibliometric indicators are being used. We then consider the toxic effects of this abuse of indicators. Finally, we outline some significant transformations and initiatives being introduced in various academic fields and regions of the world. These international initiatives offer alternatives to bibliometrics that can improve evaluation processes, and we urge political leaders in Spain to adopt and develop them.

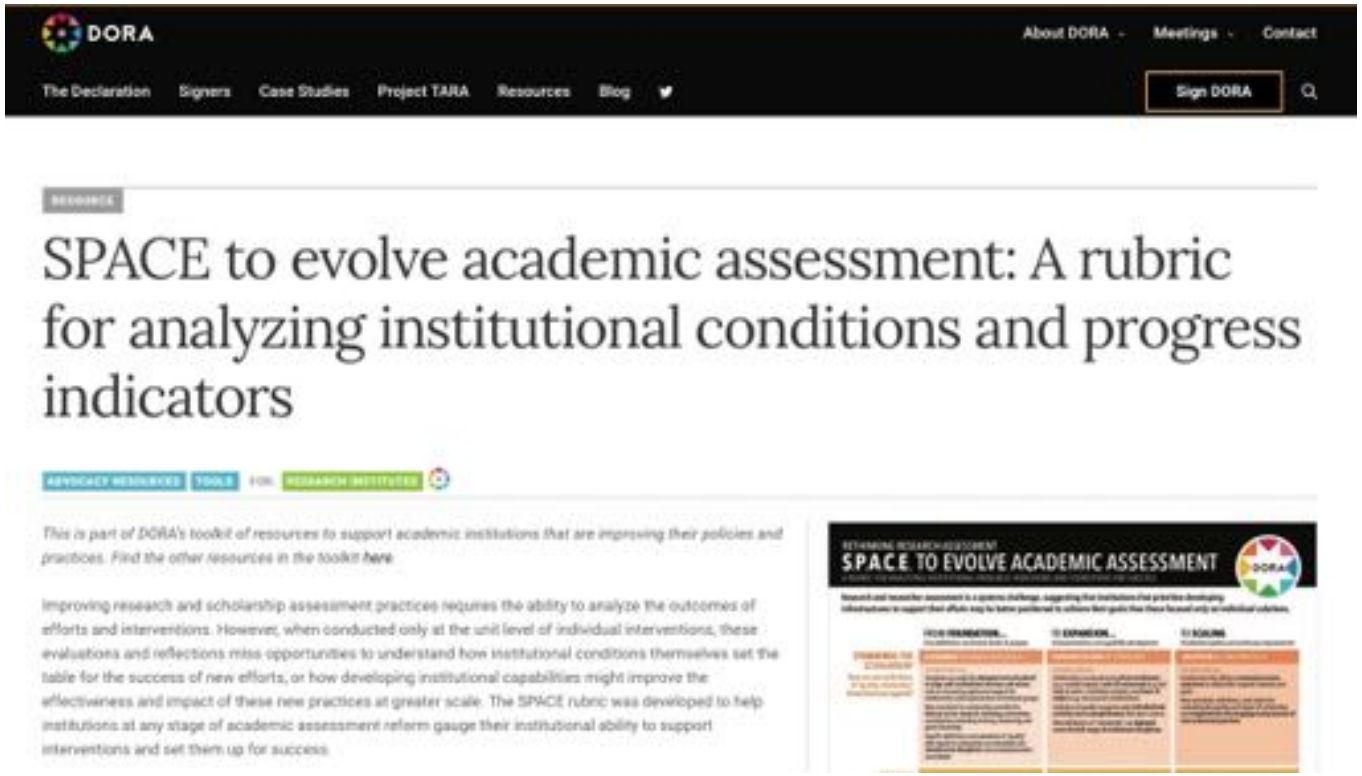
Keywords

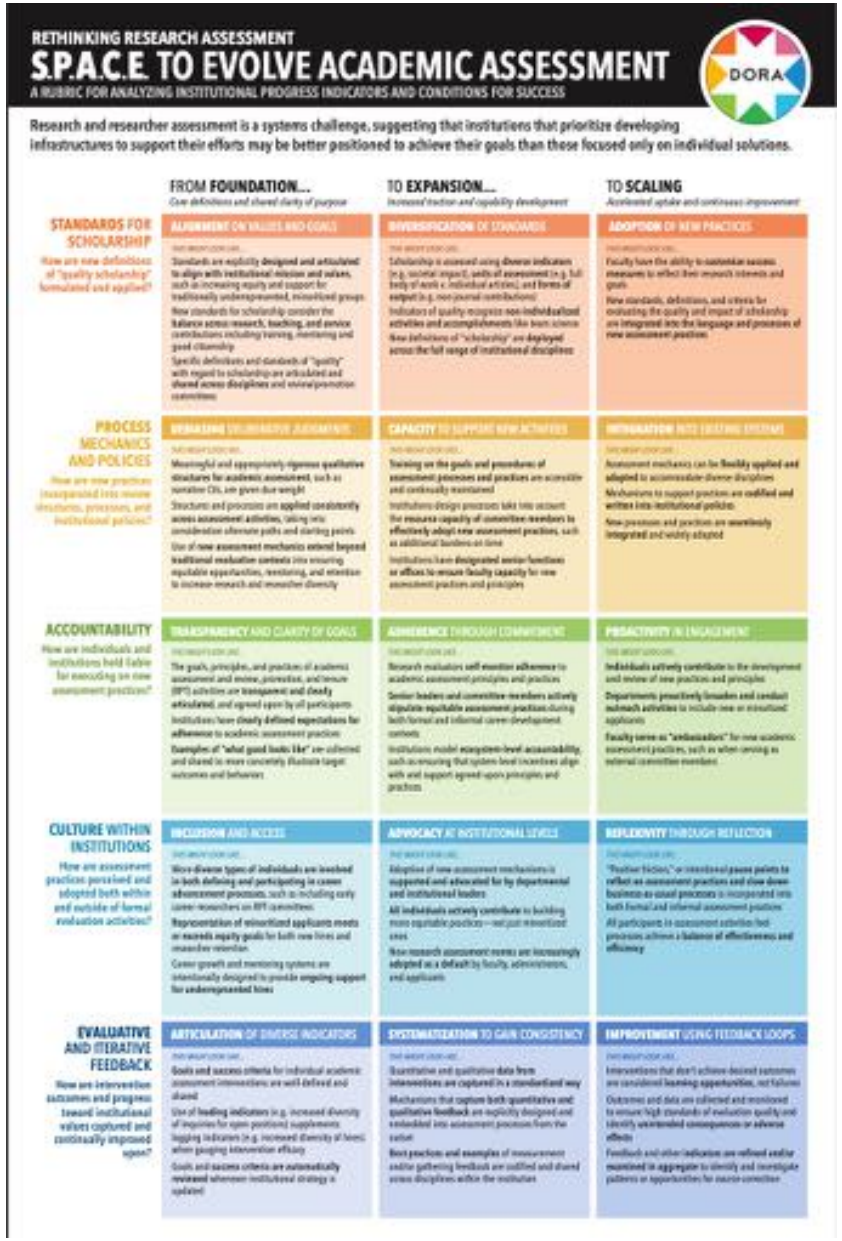
Research evaluation; Performance assessment of researchers; Research policy; Bibliometric indicators; *San Francisco Declaration on Research and Assessment*; *DORA*, *Leiden Manifesto*; *Journal Impact Factor*; Journal level metrics; Citation counts; Scientific journals; Scholarly publishing; Scientific ethics.

1. Spain: the kingdom of the impact factor

In Spain today, it is impossible to enter, advance, or succeed in any field of scientific research without publishing a substantial number of articles in journals with a high impact factor in the *Journal Citation Reports* (JCR) or other rankings of a similar nature, such as the *SCImago Journal Rank* (SJR) or *Spanish Foundation for Science and Technology* (Fecyt) journal ranking. No academic field is immune to the domination of the impact factor, which is the standard for scientific evaluation in the country.

Priority 2: Strengthen guidance & templates to translate principles into institutional policies & practices





The international journal of science / 22 July 2021

nature

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

LEIDEN MANIFESTO FOR RESEARCH METRICS

inorms

THE HONG KONG PRINCIPLES

THE METRIC TIDE

About the INORMS Research Evaluation Group

To:

Professor Dame Janet Beer, Vice-Chancellor of the University of Liverpool.

cc: Professor Anthony Hollander, Pro-VC for Research, University of Liverpool
Professor Louise Kenny, Executive Pro-VC for Research, Faculty of Health and Life Sciences, University of Liverpool
All members of the Senate of the University of Liverpool.

25th June, 2021.

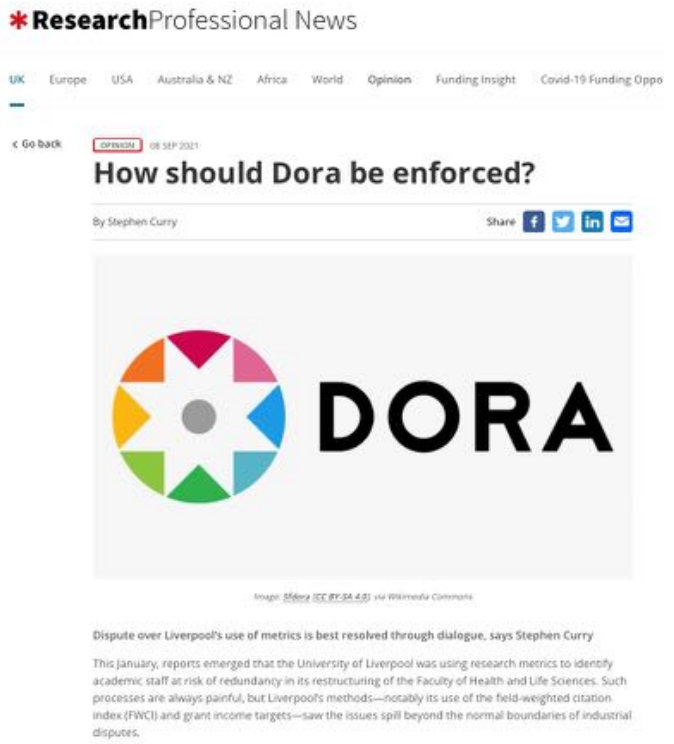
Dear Professor Dame Janet Beer,

We write as recognised experts in the responsible use of research metrics.

We note from the published document 'Managing Change: Project SHAPE Phase 2 Amended Proposals', that the primary metric used by the University of Liverpool in the 'rounded assessment' used for redundancy selection is research grant income. We further note that a range of other qualitative metrics are used in the selection process, along with some broader categories such as "evidence of significant non-research income."

However, we remain highly concerned that those proposals remain very squarely out of line with accepted practice in the sector.

First, we do not see it as acceptable that a University can remove staff *en masse* primarily because of a failure to meet a specified research income threshold. We believe that any issue of research performance must be dealt with using established procedures that have broad support of academic staff, and that those procedures should take into account the full range of contributions to research. We note, in particular, that none of the published criteria recognise essential research tasks like peer review, supervision and mentoring. This narrow view of research contribution does not address the need for humility and diversity, set out in *The Metric Tide*, and is in breach of principle 5 of the *Hong Kong Principles for Assessing Researchers* and principle 2 of the *Leiden Manifesto*.



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OPINION 08 SEP 2021

How should Dora be enforced?

By Stephen Curry

Share

DORA

Image: Sfdora (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

THE ROYAL SOCIETY

The Alan Turing Institute

The AI revolution in scientific research

The Royal Society and The Alan Turing Institute

The Royal Society is the UK's national academy of sciences. The Society's fundamental purpose, reflected in its founding Charters of the 1660s, is to recognise, promote, and support excellence in science and to encourage the development and use of science for the benefit of humanity.

The Alan Turing Institute is the UK's national institute for data science and artificial intelligence. Its mission is to make great leaps in research in order to change the world for the better.

In April 2017, the Royal Society published the results of a major policy study on machine learning. This report considered the potential of machine learning in the next 5 – 10 years, and the actions required to build an environment of careful stewardship that can help realise its potential. Its publication set the direction for a wider programme of Royal Society policy and public engagement on artificial intelligence (AI), which seeks to create the conditions in which the benefits of these technologies can be brought into being safely and rapidly.

As part of this programme, in February 2019 the Society convened a workshop on the application of AI in science. By processing the large amounts of data now being generated in fields such as the life sciences, particle physics, astronomy, the social sciences, and more, machine learning

Data in science: from the t-test to the frontiers of AI

Scientists aspire to understand the workings of nature, people, and society. To do so, they formulate hypotheses, design experiments, and collect data, with the aim of analysing and better understanding natural, physical, and social phenomena.

Data collection and analysis is a core element of the scientific method, and scientists have long used statistical techniques to aid their work. In the early 1900s, for example, the development of the t-test gave researchers a new tool to extract insights from data in order to test the veracity of their hypotheses. Such mathematical frameworks were vital in extracting as much information as possible from data that had often taken significant time and money to generate and collect.

Examples of the application of statistical methods to scientific challenges can be seen throughout history, often leading to discoveries or methods that underpin the fundamentals of science today, for example:

- The analysis by Johannes Kepler of the astronomic measurements of Tycho Brahe in the early seventeenth century led to his formulation of the laws of planetary motion, which subsequently enabled Isaac Newton FRS (and others) to formulate the law of universal gravitation.

Humanities & Social Sciences Communications

ARTICLE

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AI-assisted peer review

Alessandro Checco[1,2], Lorenzo Bracciale[2,3], Pierpaolo Loreti[2], Stephen Pinfield[3,4] & Giuseppe Bianchi[2]

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 format requirements. Some tools even attempt to flag the quality of a study or summarise its content, to reduce reviewers' 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 3300 papers from three conferences, together with their reviews evaluations. We then test the ability of the AI in predicting the review score of a new, unobserved 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.

GRANTS

AI is selecting reviewers in China

The tool is already saving time for the country's major grant funding agency.

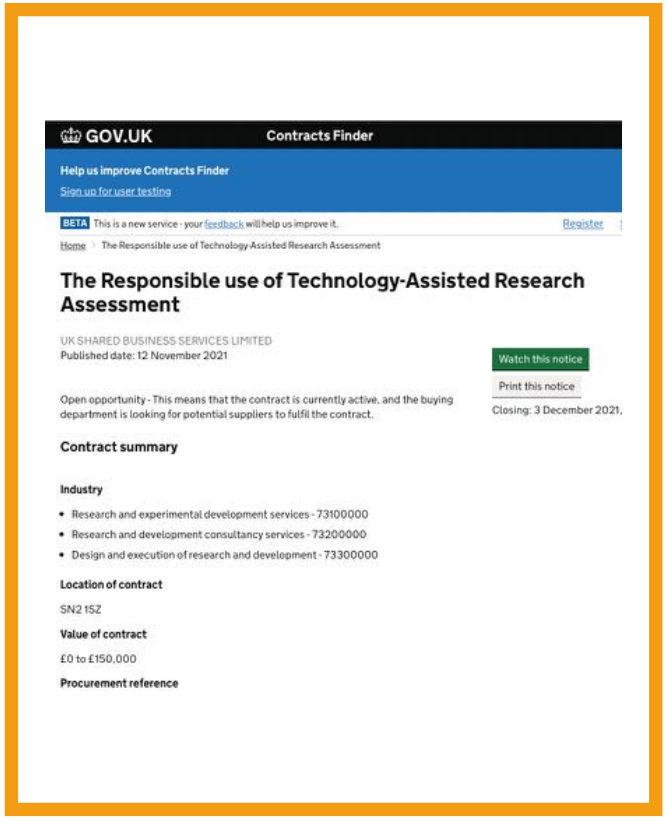
BY DAVID CYRANOSKI

China's largest funder of basic science is piloting an artificial intelligence (AI) tool that selects researchers to review grant applications, in an attempt to make the process more efficient, faster and fairer. Some researchers say the approach by the National Natural Science Foundation of China (NSFC) is world-leading, but others are sceptical about whether AI can improve the process.

Choosing researchers to peer review project proposals or publications is time-consuming and prone to bias. Several academic publishers are experimenting with AI tools to select reviewers and carry out other tasks. And a few funding agencies, including some in North America and Europe, have trialled simple AI systems, some of which match keywords in grant applications to those in publications of other scientists to identify potential reviewers.

The NSFC is building a more sophisticated system that will crawl online scientific-literature databases and scientists' personal

316 | NATURE | VOL 569 | 16 MAY 2019



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The Responsible use of Technology-Assisted Research Assessment

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Published date: 12 November 2021

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- Design and execution of research and development - 73300000

Location of contract

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Value of contract

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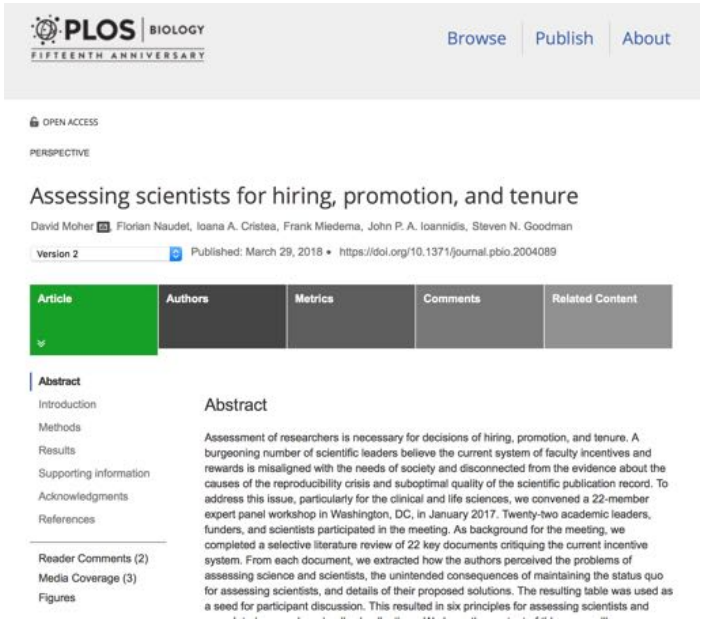
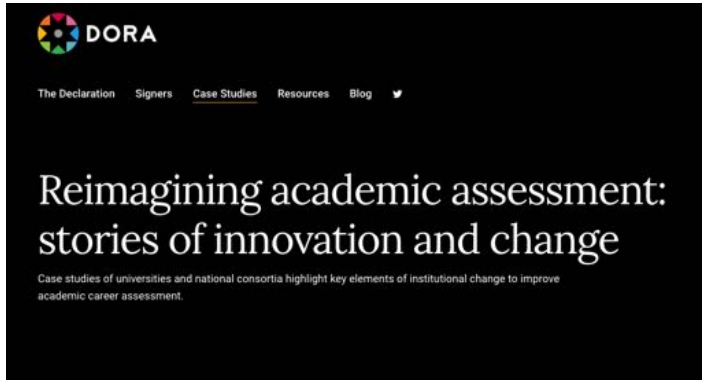
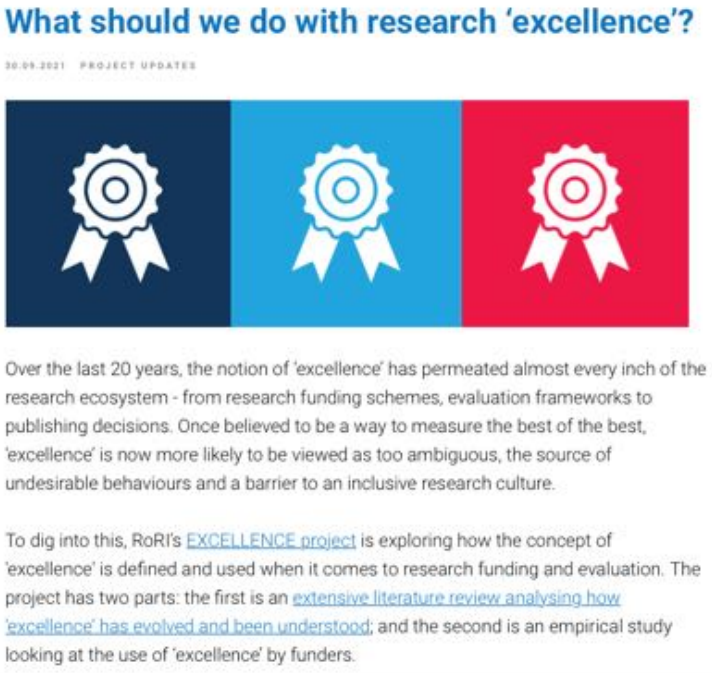
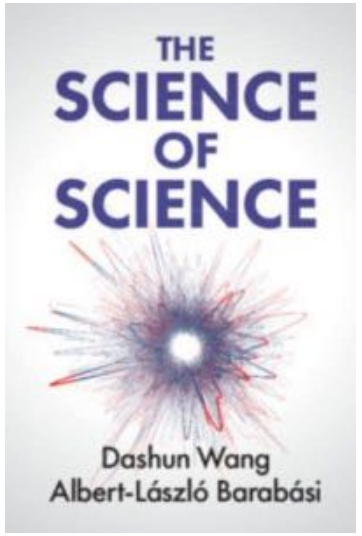


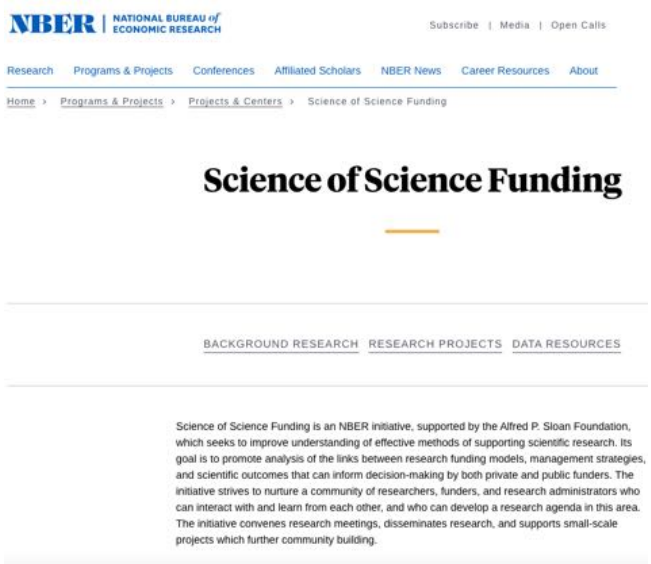


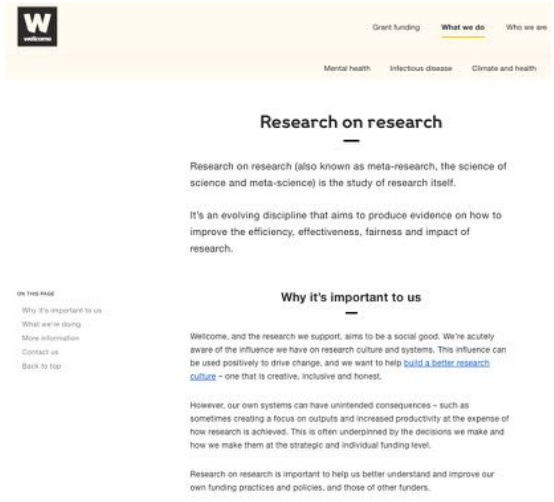


Priority 5: Experiment, evaluate & amplify what works

An explosion of engagement in research on research







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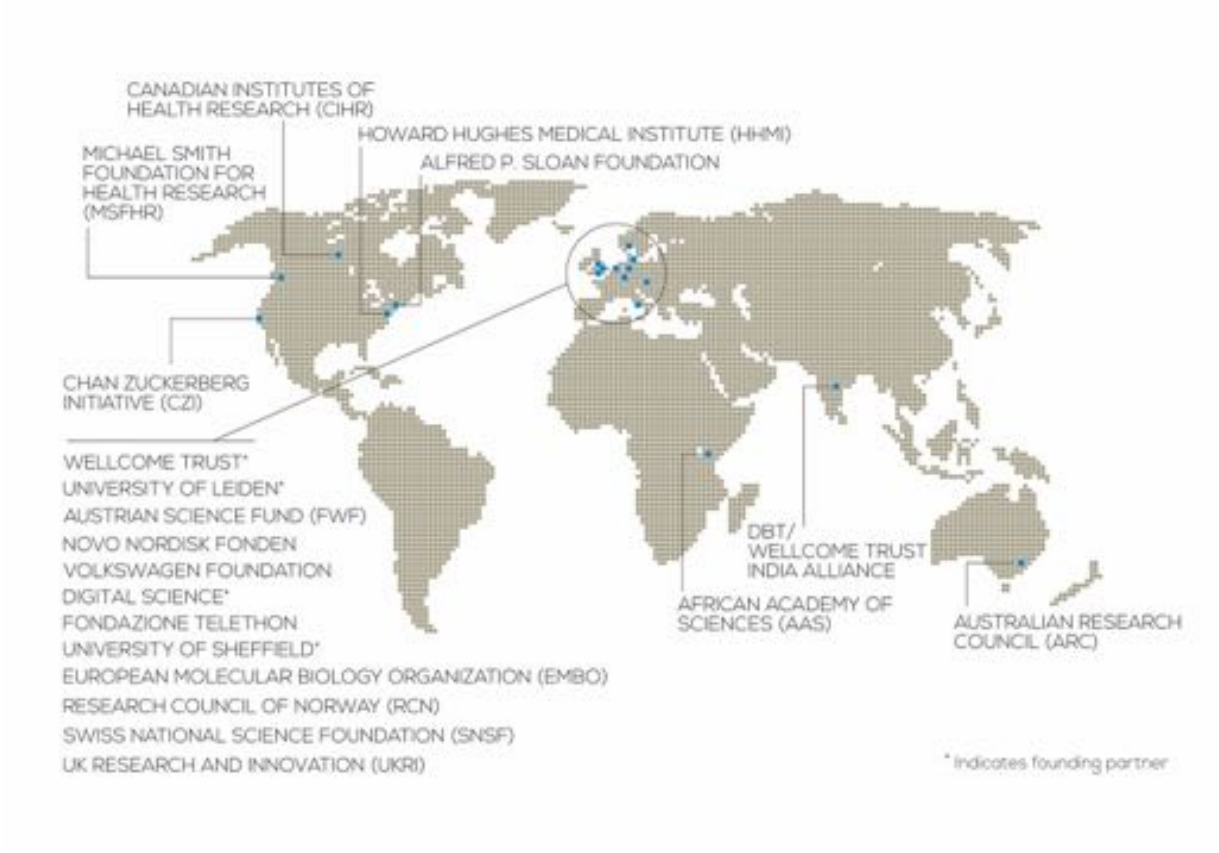


RoRI RESEARCH ON RESEARCH INSTITUTE

New partners, new projects and a new nonprofit: RoRI embarks on its next five years of research on research

20.06.2022 RORI UPDATES

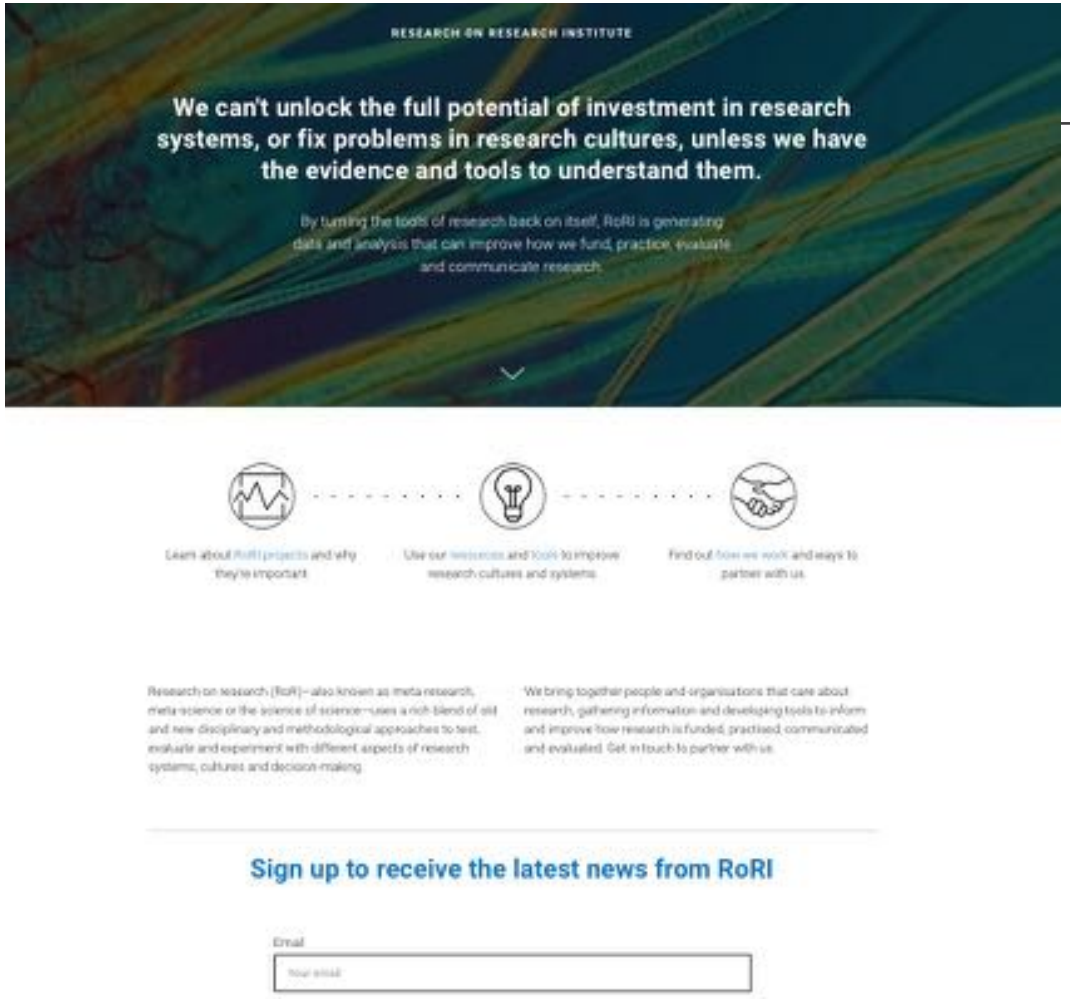
Full information in this update is under embargo until 2pm BST/3pm CET Monday 20th June 2022.

Today marks the start of RoRI's Phase 2. With our international consortium of partners, we're excited to launch another five years of generating, synthesising and translating ideas and evidence into practical solutions to improve research.

Launched in 2019 by the universities of Sheffield and Leiden, Wellcome Trust, and Digital Science, the Research on Research Institute (RoRI) has grown into one of the world's largest platforms for meta-research collaboration. Today marks the start of our second phase, which will run until 2027.

The RoRI consortium

RoRI RESEARCH ON RESEARCH INSTITUTE



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