Responsible metrics on the road to REF2021

James Wilsdon @jameswilsdon

Research Impact, 14 September 2017

The University Of Sheffield.

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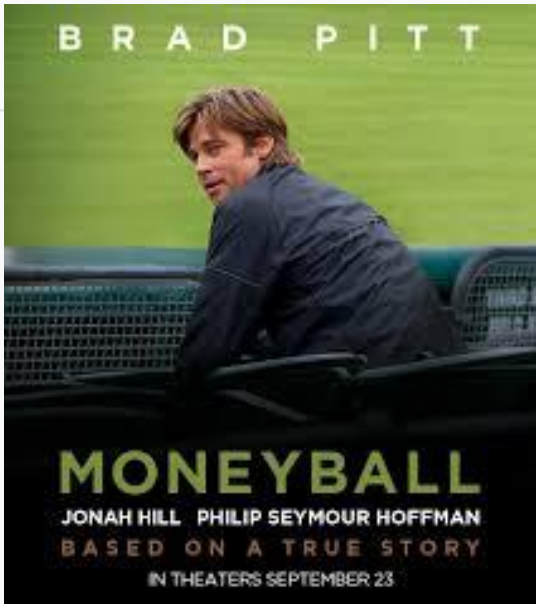
‘Moneyball’ for Professors?

Frontiers • Blog • December 14, 2016 • Reading Time: 5 min

Erik Brynjolfsson and John Silberholz

Using analytics to improve hiring decisions has transformed industries from baseball to investment banking. So why are tenure decisions for professors still made the old-fashioned way?



How can we use information about an employee’s current performance to predict future performance? That’s one of the key questions addressed by the ever-growing use of predictive analytics as a human resources (HR) tool. The application of predictive analytics to the management of baseball teams — brought to life in the book (2003) and then movie (2011) “Moneyball” — made vivid the ways that data-based modeling can be used for more accurate talent acquisition and deployment. The idea that metrics could guide strategy by supporting intuitive decision making has created a boom in the use of predictive analytics in the HR industry.

Ironically, one of the places where predictive analytics hasn’t yet made substantial inroads is in the place of its birth: the halls of academia. Tenure decisions for the scholars of computer science,

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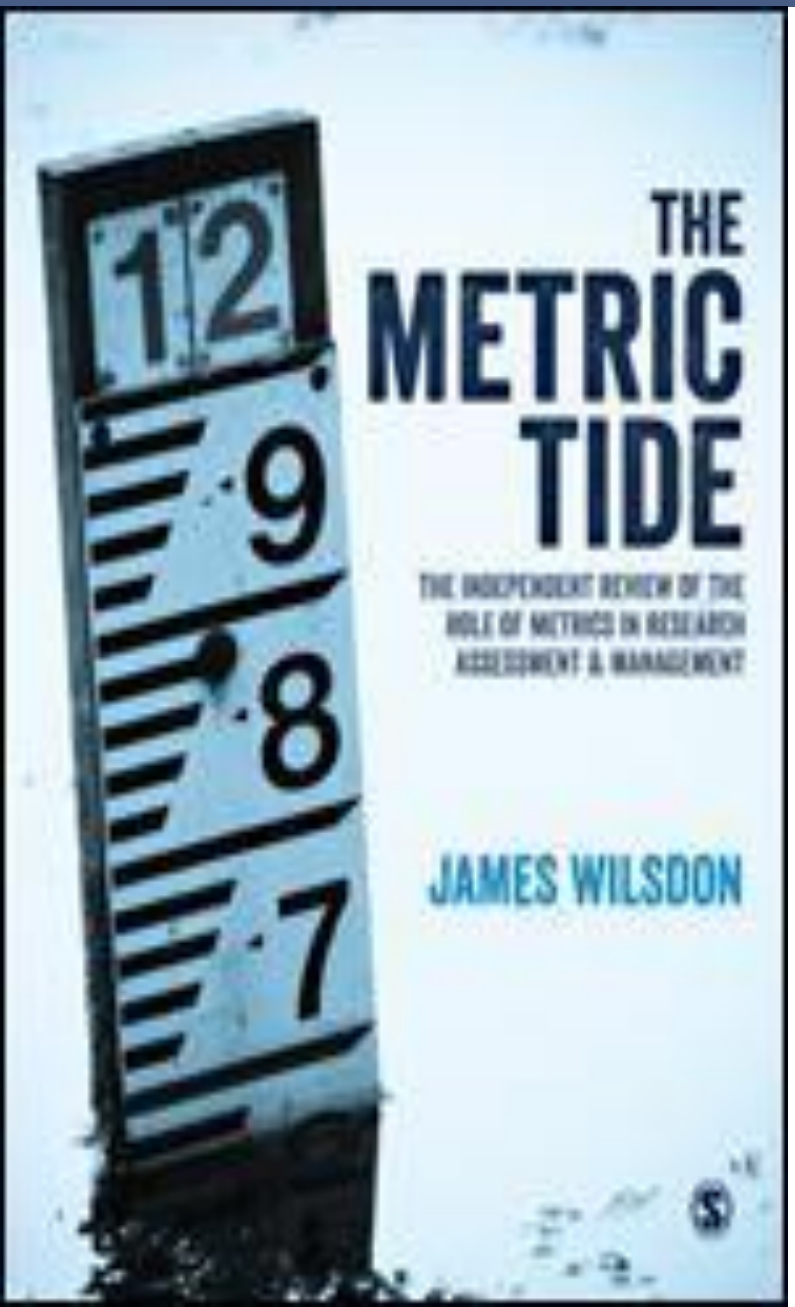

1) Why metrics?
2) The Metric Tide
3) REF 2021
4) Next Generation Metrics (EC)
5) Forum for Responsible Metrics
6) And beyond?

1. COMPETITION

ACADEMIC RANKING OF WORLD UNIVERSITIES SINCE 2003

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Das ARWU 2015 Pressebericht

Das Academic Ranking of World Universities (ARWU) 2015 wird heute durch das Center for World-Class Universitäten (CWCU) der Shanghai Jiao Tong University veröffentlicht. Ab 2003 präsentiert ARWU die besten 500 Universitäten auf der Welt jährlich auf der Grundlage transparenter Methodik und Drittdaten. Es hat sich als Vorläufer der globalen Hochschulrankings und der vertrauenswürdigste anerkannt.....

die 500 besten Universitäten in der Welt

1. Universität Harvard
2. Stanford Universität
3. Institut für Technologie Massachusetts
4. Universität von Kalifornien - Berkeley
5. Universität Cambridge

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die 200 besten Universitäten in der Welt

TIMES HIGHER EDUCATION WORLD UNIVERSITY RANKINGS

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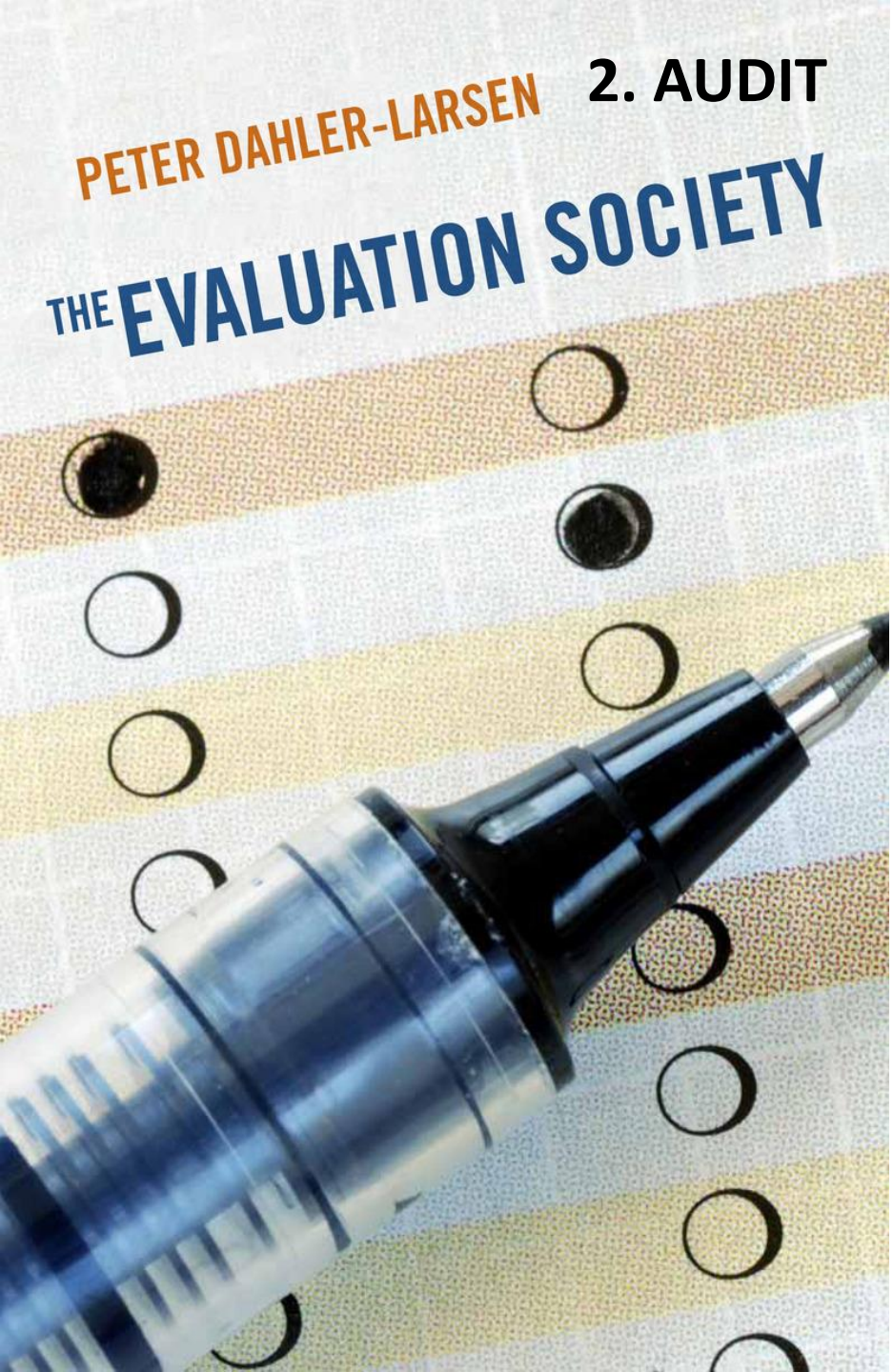
2. AUDIT



The Sociological Review

Living with the h-index? Metric assemblages in the contemporary academy

Roger Burrows

Abstract

This paper examines the relationship between metrics, markets and affect in the contemporary UK academy. It argues that the emergence of a particular structure of feeling amongst academics in the last few years has been closely associated with the growth and development of 'quantified control'. It examines the functioning of a range of metrics: citations; workload models; transparent costing data; research assessments; teaching quality assessments; and commercial university league tables. It argues that these metrics, and others, although still embedded within an audit culture, increasingly function autonomously as a data assemblage able not just to mimic markets but, increasingly, to enact them. It concludes by posing some questions about the possible implications of this for the future of academic practice.

Keywords: Metrics, higher education, neoliberalism, UK, quantified control, audit culture

Introduction

Something has changed in the UK academy.[1] Many academics are exhausted, stressed, overloaded, suffering from insomnia, feeling anxious, experiencing feelings of shame, aggression, hurt, guilt and 'out-of-placeness' (Gill, 2010).[2] One can observe it all around; a deep, affective, somatic crisis threatens to overwhelm us (Chow *et al.*, 2010; Evans, 2004; Lynch, 2010; Pelias, 2004; Sparkes, 2007). It is crucial that it does not. We live in a time of exceptional cultural, economic and political crisis and what we are feeling are symptoms of a far broader set of circumstances that demands attention, understanding and, almost certainly, resistance (Boden and Epstein, 2011; De Angelis and Harvie, 2009; Evans, 2004; Gill, 2010; Holmwood, 2010). We know this; yet somehow we feel unable to reassert ourselves. It is crucial that we obtain some sort of

3. COMMERCE

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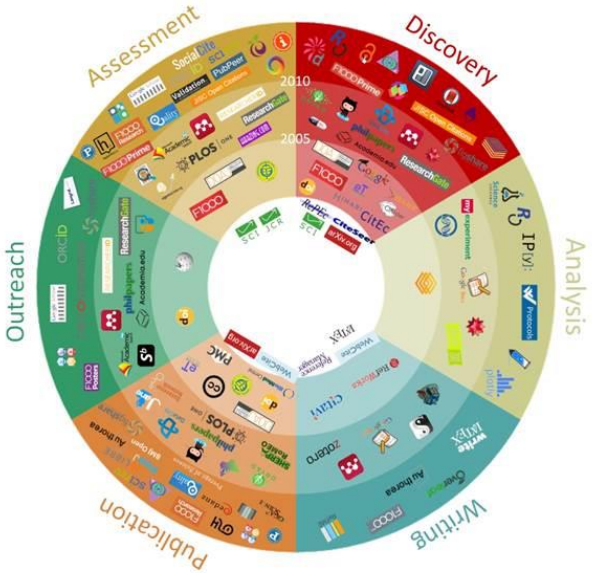

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4. ACCELERATION

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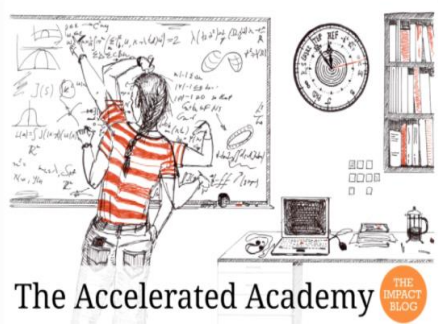
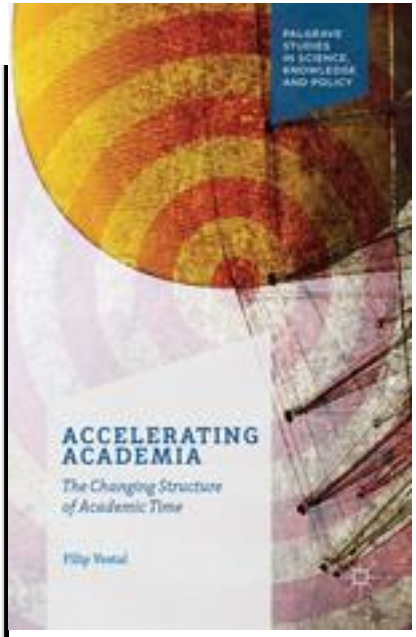
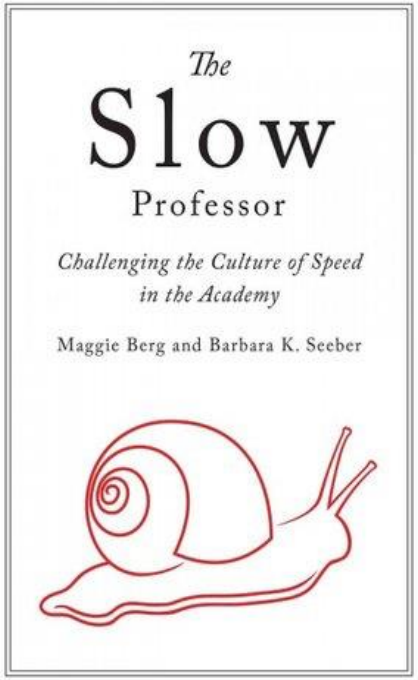
About the Accelerated Academy

The Accelerated Academy is an international series of events, exploring the transformation of higher education through the lens of temporality. The first conference, held in Prague in December 2015 and hosted by the Czech Academy of Sciences, explored power, acceleration and metrics in academic life. The second conference, held in Leiden in December 2016 and hosted by the Centre for Science and Technology Studies (CWTS), investigated temporality, evaluation and politics. We also held a symposium at the University of Warwick on anxiety and work in the accelerated academy.

Attached below is the special section of LSE Impact Blog hosting debate following from our events. We also have podcasts and videocasts hosted at The Sociological Review. You can follow the network on Twitter @AcceleratedUni. Here is the introduction to the second event, given by Mark Carrigan and Filip Vostal who co-founded the network in 2015.







5. MANAGERIAL PRAGMATISM

nature International weekly journal of science

NATURE | RESEARCH HIGHLIGHTS: SOCIAL SELECTION

How to judge scientists' strengths

Institute director's struggle with hundreds of applications triggers online discussion of assessment of researchers.

Dalmeet Singh Chawla

11 November 2015

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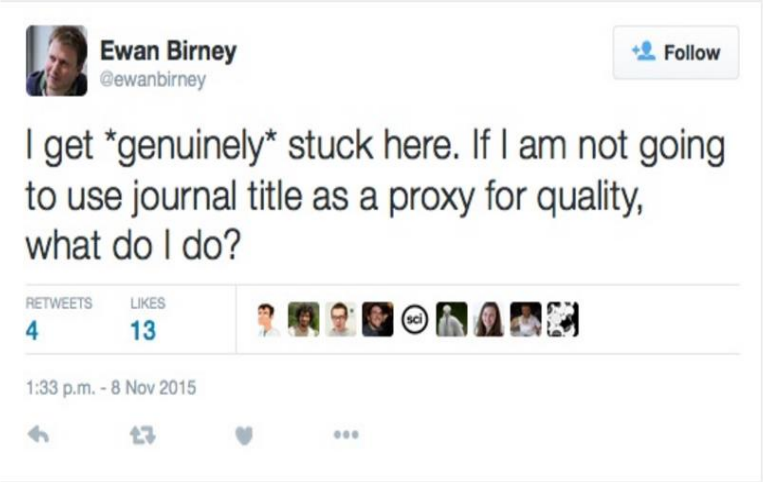
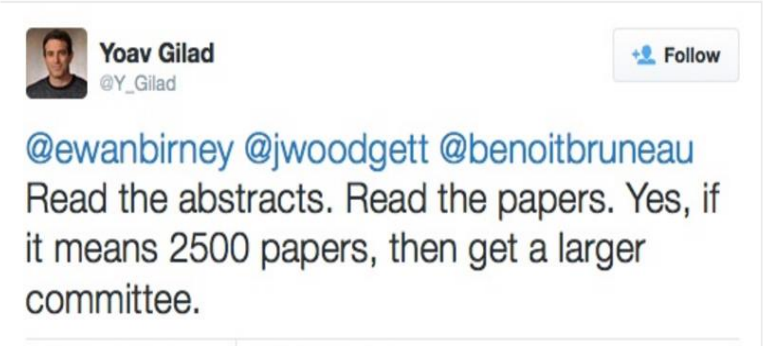
When the director of a research institute asked his Twitter followers for a practical way to dig out promising candidates from the hundreds of applications sitting on his desk, the community responded in spades. An abundance of ideas was produced by an involved online discussion about the measures that are used to evaluate the quality of researchers' work, and how those affect everything from funding to career paths.

Ewan Birney, co-director of the European Molecular Biology Laboratory's European Bioinformatics Institute in Hinxton, UK, admitted on Twitter that he was procrastinating over how to prepare a shortlist from the applications, which together listed around 2,500 research papers. (Because the process is ongoing, Birney would not say exactly what the researchers were applying for.) He tweeted:



Yoav Gilad, a human geneticist at the University of Chicago in Illinois, tweeted:



So even though we know they are flawed…

Science
The critical scientist

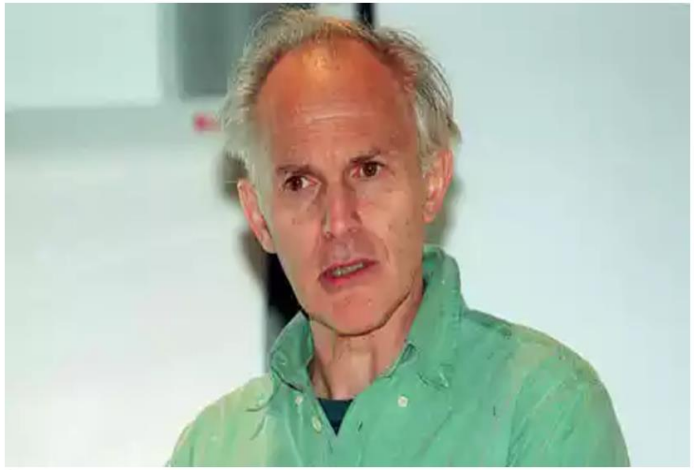
The h-index, or the academic equivalent of the stag's antlers

Philip Ball

It was meant to bring rigour to the tricky question of who deserves a grant or a post, but is the h-index's numerical score simplistic?

9 36

Friday 6 January 2012 23.01 GMT



Nobel laureate chemist Harry Kroto rankls a lowly 264th on the h-index. Photograph: Lehtikuva Oy / Rex Features

Many scientists worry that theirs isn't big enough. Even those who sniff that size isn't everything probably can't resist taking a peek to see how they compare with their rivals. The truly desperate can google for dodgy techniques to make theirs bigger.

Reciprocal Space

← Here goes something: Occam's Typewriter cornered Sick of Impact Factors: Coda →

Sick of Impact Factors

Posted on August 13, 2012 by Stephen

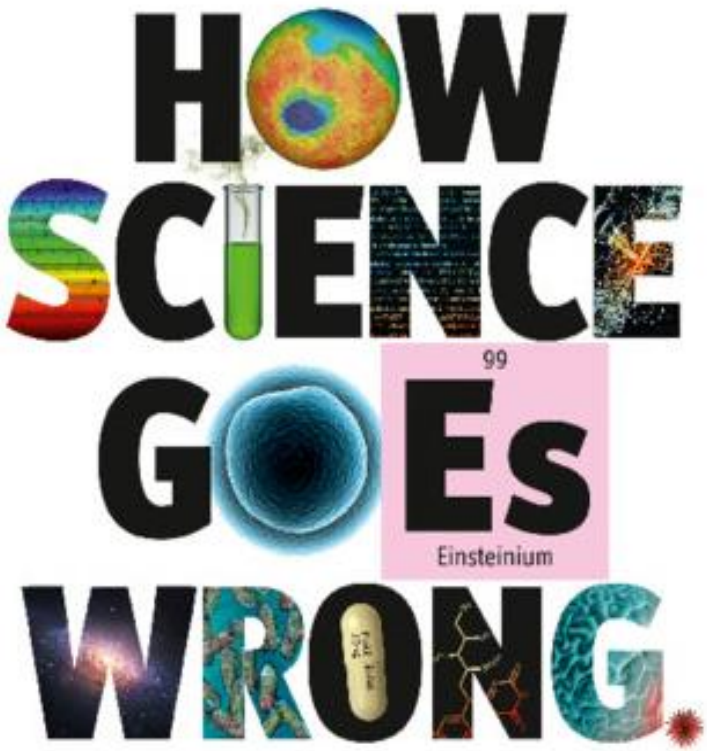
I am sick of impact factors and so is science.

The impact factor might have started out as a good idea, but its time has come and gone. Conceived by Eugene Garfield in the 1970s as a useful tool for research libraries to judge the relative merits of journals when allocating their subscription budgets, the impact factor is calculated annually as the mean number of citations to articles published in any given journal in the two preceding years.

By the early 1990s it was clear that the use of the arithmetic mean in this calculation is problematic because the pattern of citation distribution is so skewed. Analysis by Per Seglen in 1992 showed that typically only 15% of the papers in a journal account for half the total citations. Therefore only this minority of the articles has more than the average number of citations denoted by the journal impact factor. Take a moment to think about what that means: the vast majority of the journal's papers — fully 85% — have *fewer* citations than the average. The impact factor is a statistically indefensible indicator of journal performance; it flatters to deceive, distributing credit that has been earned by only a small fraction of its published papers.

Poorly designed evaluation criteria are "dominating minds, distorting behaviour and determining careers"
Peter Lawrence, 2007

Even though we know they are exacerbating systemic problems in science…



THE NEW ATLANTIS
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Saving Science

Science isn't self-correcting, it's self-destructing. To save the enterprise, argues Daniel Sarewitz, scientists must come out of the lab and into the real world.

SCIENCE, PRIDE OF MODERNITY, our one source of objective knowledge, is in deep trouble. Stoked by fifty years of growing public investments, scientists are more productive than ever, pouring out millions of articles in thousands of journals covering an ever-expanding array of fields and phenomena. But much of this supposed knowledge is turning out to be contestable, unreliable, unusable, or flat-out wrong. From metastatic cancer to climate change to growth economics to dietary standards, science that is supposed to yield clarity and solutions is in many instances leading instead to contradiction, controversy, and confusion. Along the way it is also

And even though we have the solutions in front of us…

San Francisco DORA
Declaration on Research Assessment

DORA
About DORA
Sign The Declaration
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Inspiration and Good Practices
A Letter to Thomson Reuters

The San Francisco Declaration on Research Assessment (DORA), initiated by the American Society for Cell Biology (ASCB) together with a group of editors and publishers of scholarly journals, recognizes the need to improve the ways in which the outputs of scientific research are evaluated. The group met in December 2012 during the ASCB Annual Meeting in San Francisco and subsequently circulated a draft declaration among various stakeholders. DORA as it now stands has benefited from input by many of the original signers listed below. It is a worldwide initiative covering all scholarly disciplines. We encourage individuals and organizations who are concerned about the appropriate assessment of scientific research to sign DORA.

The Declaration

There is a pressing need to improve the ways in which the output of scientific research is evaluated by funding agencies, academic institutions, and other parties. To address this issue, a group of editors and publishers of scholarly journals met during the Annual Meeting of The American Society for Cell Biology (ASCB) in San Francisco, CA, on December 16, 2012. The group developed a set of recommendations, referred to as the San Francisco Declaration on Research Assessment. We invite interested parties across all scientific disciplines to indicate their support by adding their names to this Declaration. The outputs from scientific research are many and varied, including: research articles reporting new knowledge, data, reagents, and software; intellectual property; and highly trained young scientists. Funding agencies, institutions that employ scientists, and scientists themselves, all have a

News About DORA

MRC Preprint Policy Supports Evaluating Research by Content, Not by Where It Is Published.

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COMMENT

SUSTAINABILITY Data needed to drive UN development goals **p.432**

CONSERVATION Economics and environmental catastrophe **p.434**

GEOLOGY Questions raised over proposed Anthropocene dates **p.436**

HISTORY Music inspired Newton to add more colours to the rainbow **p.436**

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[1]. The problem is that evaluation is now led by the data rather than by judgement. Metrics have proliferated: usually well intentioned, not always well informed, 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 on CD-ROM from the Institute for Scientific Information (ISI), used by experts for specialist analyses. In 2002, 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 (beta 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 journal impact factor grew steadily after 1995 (see 'Impact-factor obsession').

Lately, metrics related to social usage ▶

ILLUSTRATION BY DAVID PARKINS

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Metrics continue to be performed on us….

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James Wilsdon

08 July 2015

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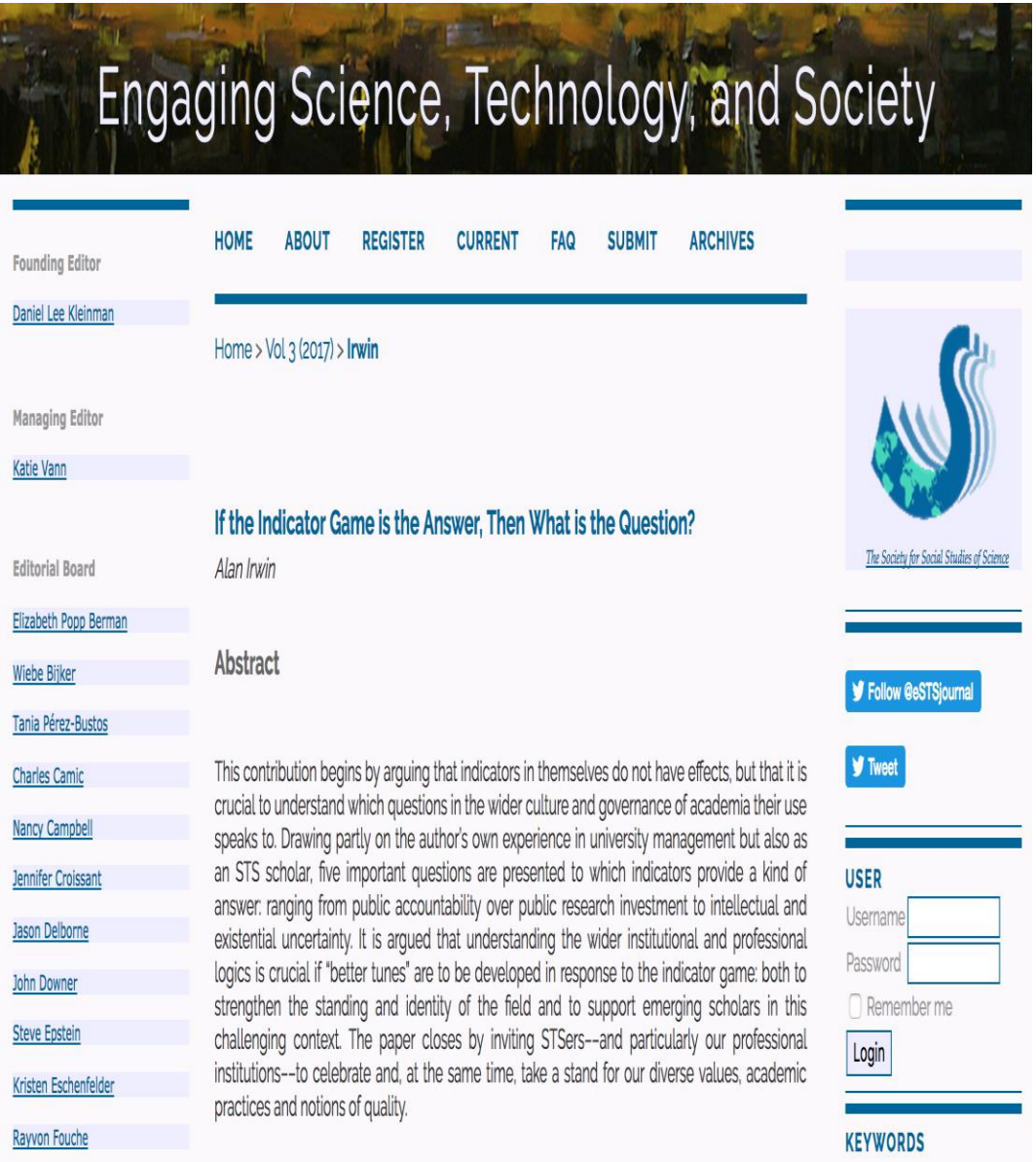
Metrics evoke a mixed reaction from the research community. A commitment to using data and evidence to inform decisions makes many of us sympathetic to, even enthusiastic about, the prospect of granular, real-time analysis of our own activities. If scientists cannot take full

US vaccine researcher sentenced to prison for fraud

The case of Dong-Pyou Han illustrates the uneven

And we continue to perform them on ourselves…



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KEYWORDS

If the Indicator Game is the Answer, Then What is the Question?

Alan Irwin

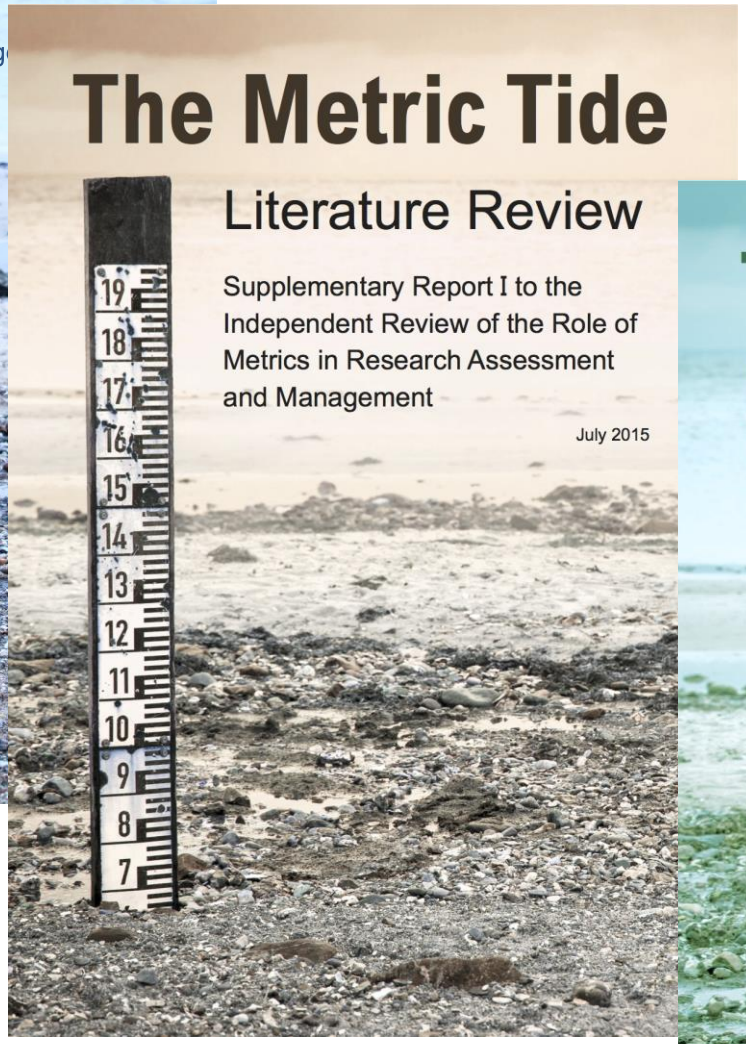
Abstract

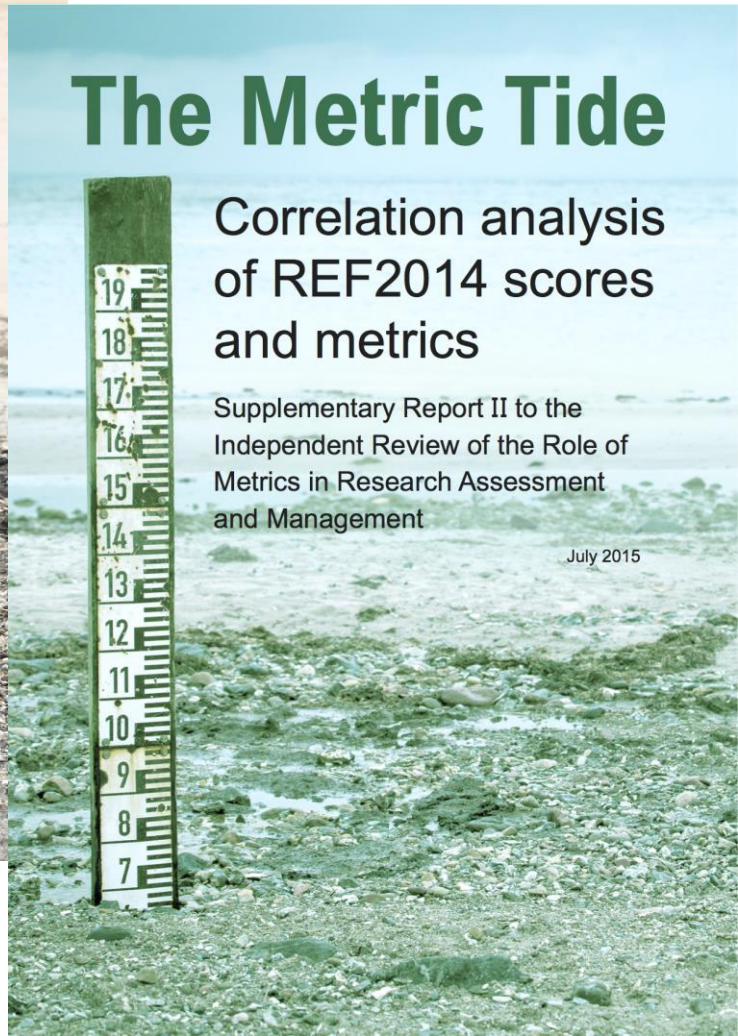
This contribution begins by arguing that indicators in themselves do not have effects, but that it is crucial to understand which questions in the wider culture and governance of academia their use speaks to. Drawing partly on the author's own experience in university management but also as an STS scholar, five important questions are presented to which indicators provide a kind of answer: ranging from public accountability over public research investment to intellectual and existential uncertainty. It is argued that understanding the wider institutional and professional logics is crucial if "better tunes" are to be developed in response to the indicator game: both to strengthen the standing and identity of the field and to support emerging scholars in this challenging context. The paper closes by inviting STSers--and particularly our professional institutions--to celebrate and, at the same time, take a stand for our diverse values, academic practices and notions of quality.

"The indicator game is not solely being imposed upon us from outside the university but is also driven by forces within" Alan Irwin

"Auditors are not aliens: they are a version of ourselves" Marilyn Strathern

http://www.hefce.ac.uk/rsrch/metrics/



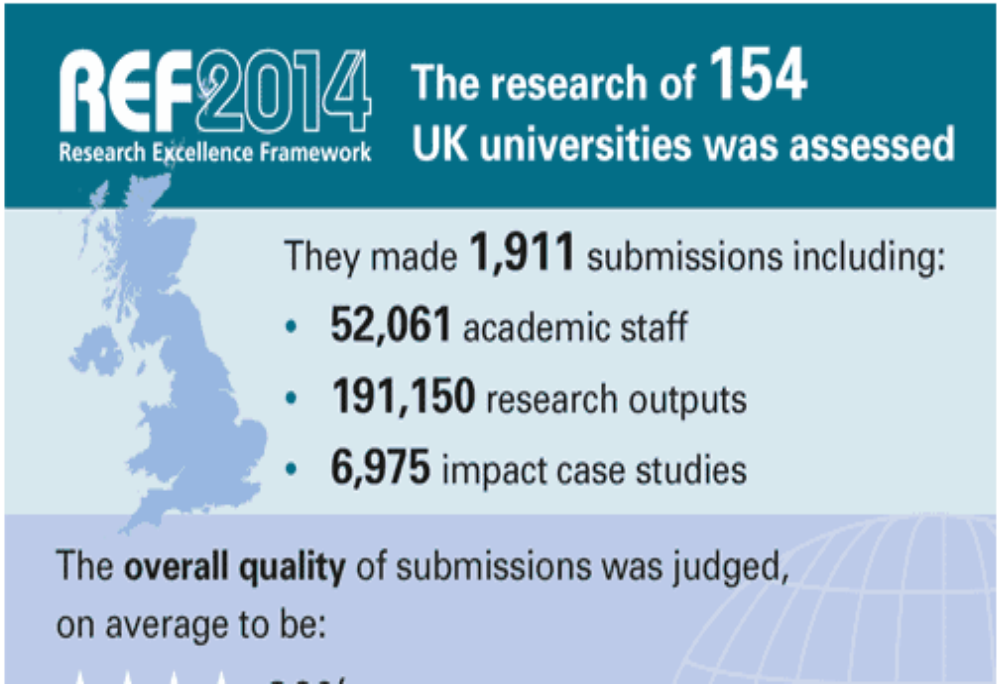


http://www.responsiblemetrics.org

Research Excellence Framework

The Research Excellence Framework (REF) is the new system for assessing the quality of research in UK higher education institutions.

The results of the 2014 REF were published on 18 December 2014.



REF 2014 - key links

2014 REF Results and submissions

Evaluation of the 2014 REF

REF Manager's report (March 2015)

Panel overview reports (Jan 2015)

EDAP's report on equality and diversity (Jan 2015)

Key facts leaflet about the REF

REF impact case studies

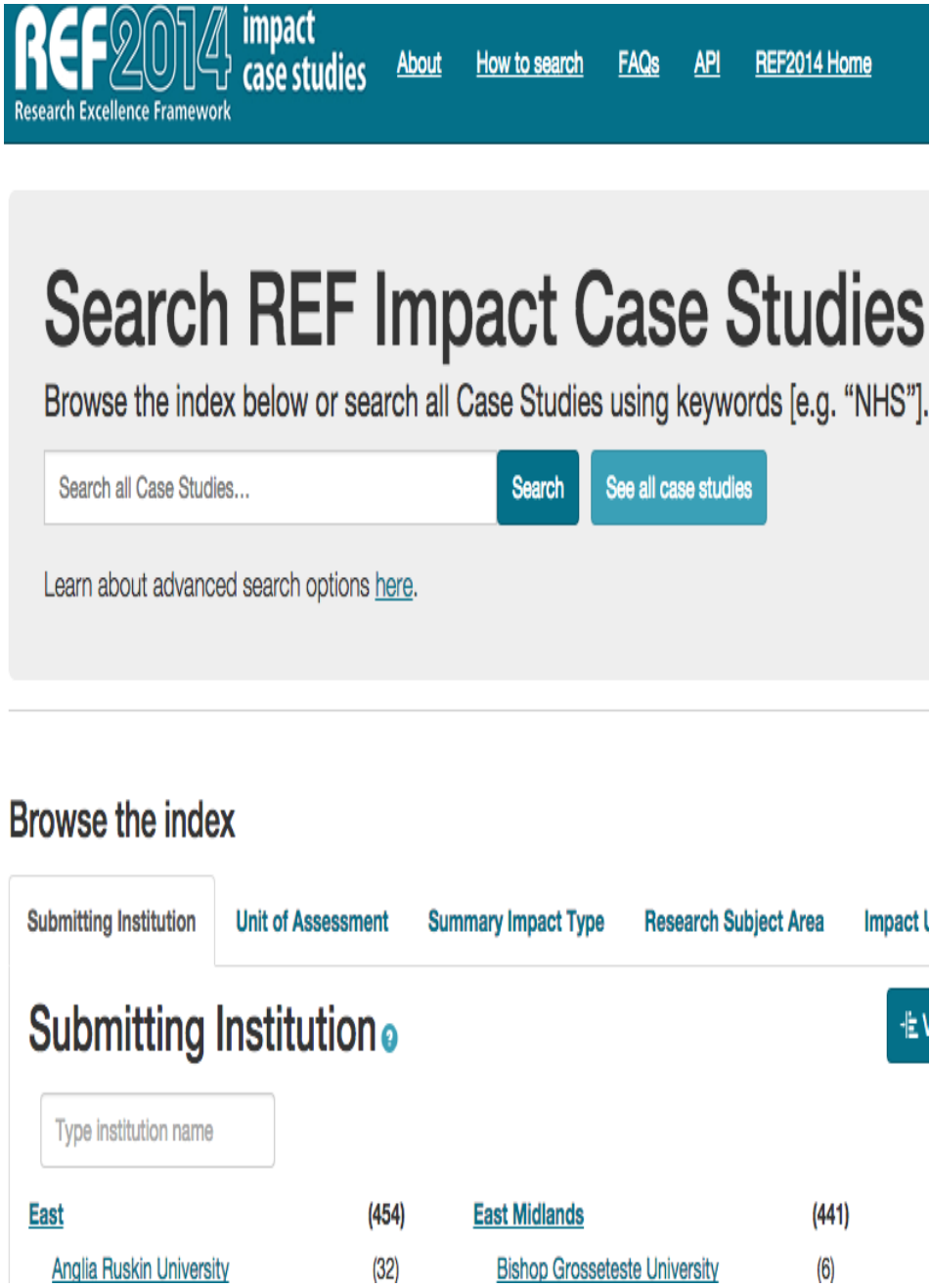
The Metric Tide:

headline findings

HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND

Peer review, despite its flaws and limitations, continues to command widespread support across disciplines. Metrics should support, not supplant expert judgement.

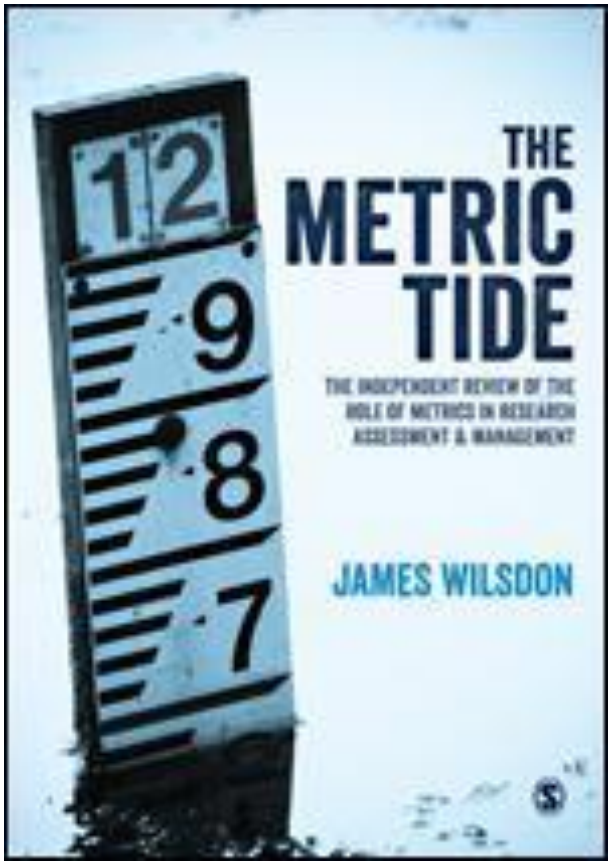
Within the REF, it is not currently feasible to assess the quality of UOAs using quantitative indicators alone, or to replace narrative impact case studies with metrics.



Responsible metrics

Responsible metrics can be understood in terms of:

- **Robustness**: basing metrics on the best possible data in terms of accuracy and scope;
- **Humility**: recognizing that quantitative evaluation should support – but not supplant – qualitative, expert assessment;
- **Transparency**: keeping data collection and analytical processes open and transparent, so that those being evaluated can test and verify the results;
- **Diversity**: accounting for variation by field, using a variety of indicators to reflect and support a plurality of research & researcher career paths;
- **Reflexivity**: recognizing the potential & systemic effects of indicators and updating them in response.



At an institutional level, HEI leaders should develop a clear statement of principles on their approach to research management and assessment, including the role of indicators.

UCL

UCL Home » UCL News » Staff news » UCL signs San Francisco Declaration of Research...

UCL signs San Francisco Declaration of Research Assessment

20 January 2015

UCL has signed the San Francisco Declaration on Research Assessment (DoRA), which acknowledges weaknesses in the use of the Journal Impact Factor (JIF) as a measure of quality, since this measure relates to journals as a whole and not to individual articles. Recognising that research results in outputs other than journal articles, DoRA also attempts to identify new routes to research evaluation.

Universities who sign DoRA should:

- be explicit about the criteria used to reach hiring, tenure and promotion decisions, clearly highlighting, especially for early-stage investigators, that the scientific content of a paper is much more important than publication metrics or the identity of the journal in which it was published
- for the purposes of research assessment, consider the value and impact of all research outputs (including datasets and software) in addition to research publications, and consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.

Researchers should:

- make assessments based on scientific content rather than publication metrics, when involved in committees making decisions about funding, hiring, tenure, or promotion
- wherever appropriate, cite primary literature in which observations are first reported rather than reviews in order to give credit where credit is due
- use a range of article metrics and indicators on personal/supporting statements, as evidence of the impact of individual published articles and other research outputs
- challenge research assessment practices that rely inappropriately on JIF, and promote and teach best practice that focuses on the value and influence of specific research outputs.

For the next REF cycle, in assessing outputs, we recommend that quantitative data is made available to inform peer review judgements of quality, but that use of this data remains optional on a disciplinary basis.

HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND hefce

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RESEARCH FUNDING | July 3rd 2015

The Research Excellence Framework: learning from 2014, planning for the future

Ahead of Research Impacts: Evidencing the REF Dr Steven Hill, Head of Policy Research, HEFCE explores some of the issues raised following the publication of the assessments.

Follow-up, Stern Review & the road to REF 2021

Ensuring a successful UK research endeavour

A Review of the UK Research Councils
by Paul Nurse

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Press release

Government launches review to improve university research funding

From: Department for Business, Innovation & Skills and Jo Johnson MP
First published: 16 December 2015
Part of: Research and development

Universities and Science Minister Jo Johnson has launched a UK-wide review of university research funding.

Universities and Science Minister Jo Johnson today (16 December 2015) launched a UK-wide review of university research funding to cut red tape that universities can focus more on delivering the world-leading research which the UK is renowned.

Following the decision to protect the £4.7 billion annual science and research budget in real terms during this Parliament, the Research Excellence Framework (REF) review will help ensure the government ge the most return from its investment.

Wilsdon review group reconvenes as BIS asks for publishing data

The metrics review group chaired by James Wilsdon is preparing its response to the higher education green paper, as government looks to companies to gather citation data.

18 Nov 15, 12:43

By Cristina Gallardo

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Metrics-based REF looks more likely

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Headlines "should be taken as a complementary package where the logic of one depends on and is strengthened by the others."

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.

Report

Initial decisions on the Research Excellence Framework 2021

This document sets out the first set of the funding bodies' initial decisions on the Research Excellence Framework following the recent consultation. A further set of decisions will be taken on the remaining aspects of the framework in the autumn, incorporating further consultation activity.

Executive summary

Purpose and key points

1. This document sets out the funding bodies' decisions on several aspects of the 2021 Research Excellence Framework (REF). Our letter accompanying these decisions 'Initial

Report

Download the Initial decisions on the Research Excellence Framework 2021 as PDF (405 KB)

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Analysis

REF just got real: mist now clearing on the road to 2021

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AUTHOR

James Wilsdon

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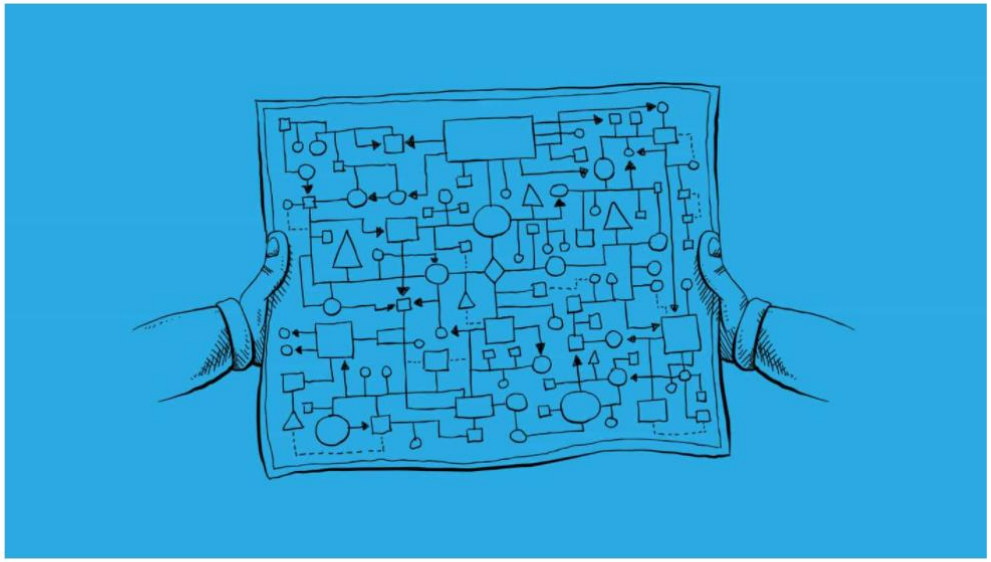

For some of us, summer ended rather abruptly at midday on 1 September with the release by HEFCE of its initial decisions on the design of REF 2021, the latest instalment in the thirty-year saga of UK research assessment.

There's nothing like an eleven-page missive to the vice-chancellor, buttressed by twenty-five pages of technical guidance, to make one's memories of the beach fade fast. Having

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Next Generation Metrics

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

DG Research and Innovation has established an Expert Group on Altmetrics which will conduct its work over the whole of 2016.

The Expert Group will, among other:

- Categorise and review different altmetrics and their relationship to more established scientometrics
- Define the features of a 'responsible metrics' aimed at a responsible use of altmetrics to advance open science, able to track desirable impacts, and qualities of scientific research
- Develop an agenda for the development of such a 'responsible metrics'

Social Corner

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#1 An open science system should be grounded in a mix of expert judgement, quantitative and qualitative measures.

#2 Transparency and accuracy are crucial

#3 Make better use of existing metrics for open science.

#4 Measure what matters

RECOMMENDATION #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.

RECOMMENDATION #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.

RECOMMENDATION #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'.

RECOMMENDATION #4:

The adoption and implementation of open science principles and practices should be recognised and rewarded through the European research system

RECOMMENDATION #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.

RECOMMENDATION #6:

In EU research policymaking, funding and evaluation, metrics derived from private platforms should always be accompanied by open metrics to enable proper validation.

RECOMMENDATION #7:

Realising the vision for the European Open Science Cloud (EOSC) will rely on linked meta-data that can become the basis for open, publicly available data infrastructure.

RECOMMENDATION #10:

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

Forum for Responsible Research Metrics

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News

New forum for responsible research metrics launched

15 September 2016

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

The 2015 independent report The Metric Tide[1] highlighted growing pressure on higher education institutions, researchers, funders and policymakers to use metrics in managing and assessing research. Metrics form part of an evolving and increasingly digital research environment, where data and analysis are playing an ever greater role. However, the current description, production and use of these metrics are at best experimental and open to misunderstanding, and can lead to negative effects and behaviours as well as positive ones.

A new forum for responsible metrics is being set up as a partnership between Higher Education Funding Council for England (HEFCE), Research Councils UK (RCUK).

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Priority 1: Championing responsible uses of metrics in the UK HE & research community e.g. via DORA or a new UK Concordat?

uk arma Association of Research Managers and Administrators

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301: Riding the wave: Implementing the metric tide recommendations

Register for Session

15:45 - 14:00
7th Jun 2016

Room: London

This workshop will focus on the University of Birmingham's approach to implementing recommendations in the Metric Tide report. Following its publication in July 2015, a Responsible Metrics Group was convened with the remit to review the recommendations and develop a programme of change within the institution. The report traces the history of metrics in research management and assessment, and considers how a balance can be struck between peer review and metric based alternatives. The report recognises the considerable concern among researchers, universities and representative bodies about the broader use of metrics in research assessment and management, offering a range of recommendations to ensure best use of metrics across the sector. The group, comprising of representatives from Strategic Planning, the Library and academics from a range disciplines, recognises that metrics were used extensively, but also inconsistently, across the institution. Their work is focusing on building an understanding of "responsible metrics", developing tools to support good practice and embedding responsible activity from institutional level KPIs

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UK university launches responsible metrics guide

New document sets 'benchmark' for others to follow, according to research policy expert

February 23, 2017

By Holly Else
Twitter: @HollyElse

Source: Getty

Measured response: Loughborough's new policy on metrics 'sets a new benchmark'

Loughborough University has launched a formal policy on the responsible use of research metrics.

The statement, which includes 10 elements to consider when evaluating research, looks at how the university can use metrics data sensibly.

Priority 2: Keeping abreast of developments in scientometrics & altmetrics, and providing impartial advice to UK HEIs and funders

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CiteScore: a new metric to help you track journal performance and make decisions

Elsevier's new metrics provide comprehensive, transparent, current insights into journal impact

By Hans Zijlstra and Rachel McCullough December 8, 2016

NEWS IN FOCUS

BIBLIOMETRICS

The quiet rise of the NIH's hot new metric

Biomedical funders worldwide are adopting the US agency's free Relative Citation Ratio to analyse grant outcomes.

BY GAUTAM NAIK

A little-known algorithm that scores the influence of research articles has become an important grant-management tool at the world's largest biomedical funding agency, the US National Institutes of Health (NIH).

In 2015, the NIH's Office for Portfolio Analysis (OPA) in Bethesda, Maryland, devised the tool to compare the performance of articles from different fields more fairly. Now, one of the NIH's biggest institutes is using the metric — the Relative Citation Ratio, or RCR — to identify whether some types of grant deliver more bang for their buck. Other funders have adopted the RCR, which the agency offers freely online. In the United Kingdom, biomedical charity the Wellcome Trust is using the RCR to analyse its grant outcomes; in Italy, Fondazione Telethon, a charity that supports research into genetic diseases, is testing the RCR as a way to evaluate its funding initiatives

they were published. That approach gives articles in highly cited journals higher scores, but it has acknowledged flaws. An important study might be underestimated because it was not published in an elite journal, for instance. Simply counting citations, meanwhile, fails to capture the idea that articles should be judged relative to similar papers: an algebra paper with a few dozen citations, for example, may have a greater impact in mathematics than a widely cited cancer study would have in oncology.

Algorithms that compare articles with others in their field are offered by commercial analysis firms such as Elsevier, but Santangelo's team argue that its metric is technically as good, if not superior — and, importantly, more accessible. (The NIH has posted help files and its full code online.) "No other metric we've seen is as transparent as RCR," Santangelo says.

The algorithm is complex. It defines an article's research 'field' as the cluster of papers that it has been co-cited with: a dynamic cohort that grows all the time. It then calculates the

2016). This boils everything down to a simple number, the RCR. An RCR of 1.0 means that an article has had exactly as much influence as the median NIH-funded paper in the same year and field; 2.0 means a paper has had twice as much influence, and so on (see 'A measure of influence'). Anyone can upload PubMed papers at a website called iCite to find out their RCR score (https://icite.od.nih.gov).

The new metric has critics. "Our analysis shows that it is not better than other indicators," says Lutz Bornmann, a bibliometric specialist at Germany's Max Planck Society in Munich. The society has been using at least three other field-normalized metrics for several years to evaluate its institutions, but has no plans to adopt the RCR. It says that the metric is too complicated and too restrictive because it has been applied only to the PubMed database, which contains largely biomedical papers, so doesn't work for physical-sciences analysis.

The RCR, however, is starting to gain ground as an analysis tool. At the US National Institute of General Medical Sciences (NIGMS) in Bethesda, a team used the metric to compare the impact of large, multimillion-dollar 'programme project' grants — which fund teams of researchers — with smaller grants for individual principal researchers. Papers produced by both grants had similar scores. "It has helped us take a very hard look at our support for team science," says NIGMS director Jon Lorsch.

Another question that the NIGMS asked was whether scientists who get more money produce better outcomes than those who get less funding. Again, when the RCR numbers were tallied, it turned out that more NIH money

Priority 3:Working with others to realise the vision for a next-generation National Research Information Infrastructure

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Recent Research Policy Developments

- Open Access (Finch, Tickell)
- Metrics Tide (Wilsdon)
- Research Councils (Nurse)
- REF Review (Stern)
- Higher Education and Research Bill

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Where are we now – joining the dots?

- Most universities have research output repositories, Current Research Information Systems (CRIS) and databases of staff, research students, finance information systems *etc*
- Research Councils and grant holders record information about grants and outputs using systems such as ResearchFish and Gateway to Research (GtR) as well as in subject specific repositories
- Various organisations maintain regional/national systems of equipment (eg Kit-Catalogue), people (HESA HEIDI), and expertise (NCUB Konfer)
- There is widespread adoption of open access publication and a searchable repository system is in full operation (Jisc CORE [COnnecting REpositories])
- There is a varied array of metrics for performance measurement (but many are proprietary, and there are concerns about uncertain definitions and their utility as alternatives to expensive peer review)
- Piecemeal adoption of standards and identifiers which is enabling more automation eg ORCID, DOIs, RIOXX,

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Vision for a NRII

Analysis

0%

AUTHOR

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James Wilsdon is professor of research policy and director of impact and engagement in the Faculty of Social Sciences at the University of Sheffield.

PUBLISHED

Jul 3rd 2017

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Nine brains or megabrain: who's making UKRI?

Image: IKON

On the fourth floor of London's 1 Victoria Street, a science-based start-up is in the throes of being born. Under the watchful eye of Sir Mark Walport, its CEO-designate, and Rebecca Endean, its strategy director, a twenty-strong team of BEIS officials and secondees from existing funding agencies are hard at work translating part three of the freshly-minted Higher Education &

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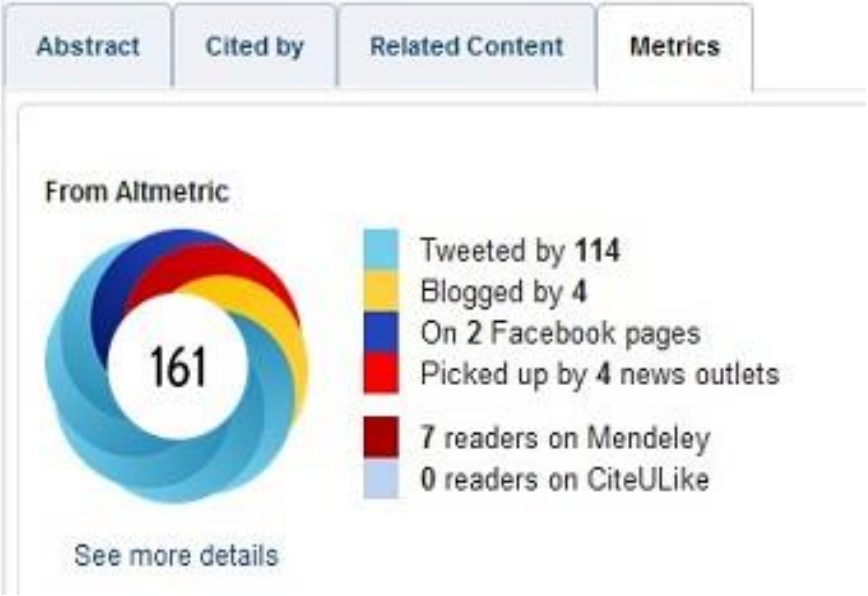
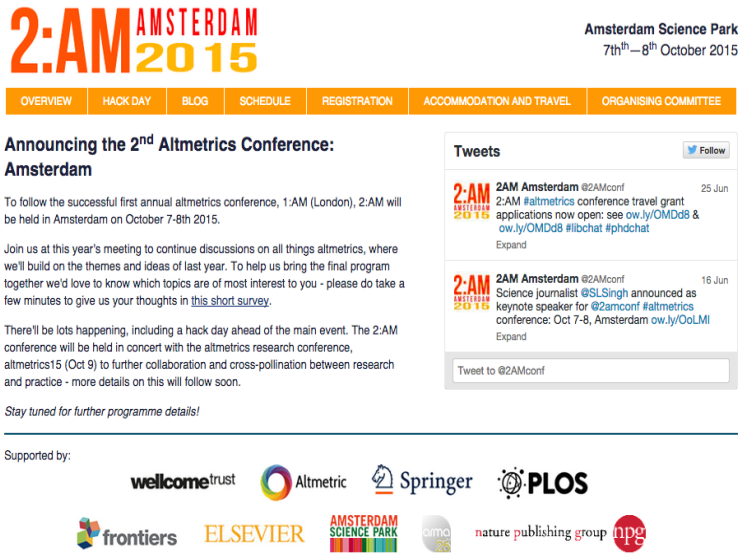
And beyond?

“Indicators in themselves do not have effects…We should be careful when making universalized claims about ‘indicator culture’.” Alan Irwin

Opportunities of new platforms, tools, metrics and indicators – especially of impact…





…but concerns over extra burden of altmetrics, new incentives for gaming, irresponsible metrics & narcissism.edu

Maximising the impact of academic research

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The ResearchGate Score: a good example of a bad metric

356 122

According to ResearchGate, the academic social networking site, their RG Score is "a new way to measure your scientific reputation". With such high aims, **Peter Kraker, Katy Jordan** *and* **Elisabeth Lex** *take a closer look at the opaque metric. By reverse engineering the score, they find that a significant weight is linked to 'impact points' – a similar metric to the widely discredited journal impact factor. Transparency in metrics is the only way scholarly measures can be put into context and the only way biases – which are inherent in all socially created metrics – can be uncovered.*

Launched in 2008, ResearchGate was one of the earlier academic social networks on the Web. The platform revolves around research papers, a question and answering system, and a job board. Researchers are able to create a profile that showcases their publication record and their academic expertise. Other users are then able to follow these profiles and are notified of any updates. In recent years, ResearchGate has become more aggressive in marketing its platform via e-mail. In default settings, ResearchGate sends between 4 and 10 emails per week, depending on the activity in your network. The high number of messages prove to be very successful for ResearchGate: according to a study by Nature from 2014, ResearchGate is the most well known social network among researchers; 35% of surveyed researchers say that they signed up for ResearchGate "because they received an e-mail". It may come as no surprise that this strategy has since been adopted by many of ResearchGate's competitors, including Academia.edu and Mendeley.

One of the focal points in ResearchGate's e-mails is a researcher's latest ResearchGate Score (RG Score). Updated weekly, the RG Score is a single number that is attached to a researcher's profile. According to ResearchGate, the score includes the research outcomes that you share on the platform, your interactions with other members, and the reputation of your peers (i.e., it takes into consideration publications, questions, answers, followers). The RG Score is displayed on every profile alongside the basic information about a researcher. ResearchGate has received substantial financial backing from venture capitalists and Bill Gates, but it is not clear how the platform will generate revenue; the possibility of the score being linked to financial value warrants further exploration and critical assessment.

Image credit: Blackbox **public domain**

The results of our our evaluation of the RG Score were rather discouraging: while there are some innovative

James Wilsdon

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Need to build links, deepen & extend the international debate about responsible metrics

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San Francisco Declaration on Research Assessment

MAY 16, 2013—An ad hoc coalition of unlikely insurgents—scientists, journal editors and publishers, scholarly societies, and research funders across many scientific disciplines—today posted an international declaration calling on the world scientific community to eliminate the role of the journal impact factor (JIF) in evaluating research for funding, hiring, promotion, or institutional effectiveness.

The *San Francisco Declaration on Research Assessment*, or DORA,was framed by a group of journal editors, publishers, and others convened by the American Society for Cell Biology (ASCB) last December in San Francisco, during the Society's Annual Meeting. The San Francisco group agreed that the JIF, which ranks scholarly journals by the average number of citations their articles attract in a set period, has become an obsession in world science. Impact factors warp the way that research is conducted, reported, and funded. Over five months of discussion, the San Francisco declaration group moved from an "insurrection," in the words of one publisher, against the use of the prominent two-year JIF to a wider reconsideration of scientific assessment. The DORA statement posted today makes 18 recommendations for change in the scientific culture at all levels—individual scientists, publishers, institutions, funding agencies, and the bibliometric services themselves—to reduce the dominant role of the JIF in evaluating research and researchers and instead to focus on the content of primary research papers, regardless of publication venue. The DORA coalition calls on all individuals and

San Francisco DORA Declaration on Research Assessment

RELATED LINKS

The complete "San Francisco Declaration on Research Assessment" and an updated list of signees

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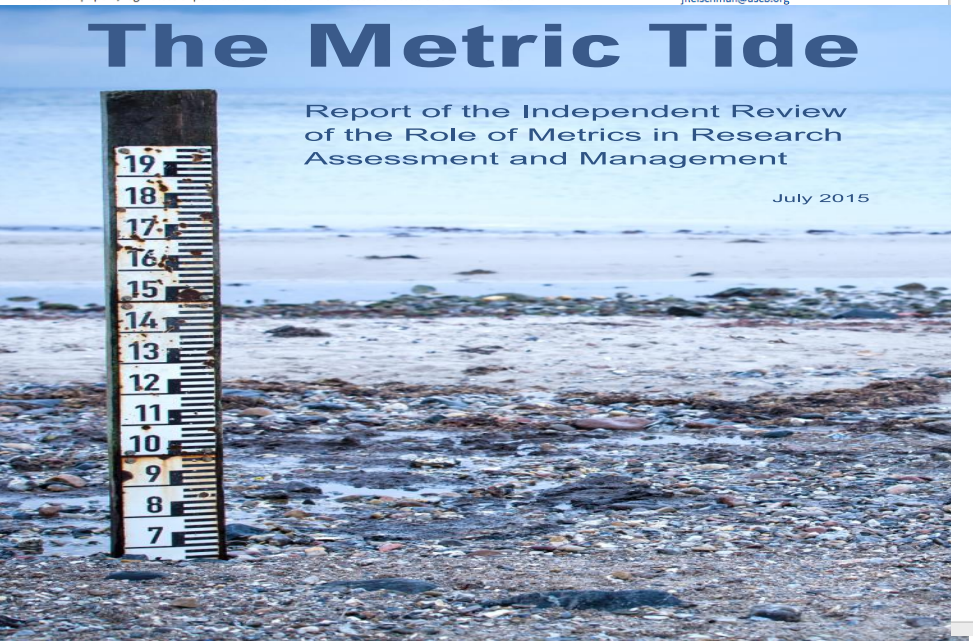

LEIDEN MANIFESTO FOR RESEARCH METRICS

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10 principles to guide research evaluation with 9 translations & a video

Research evaluation has become routine and often relies on metrics. But it is increasingly driven by data and not by expert judgement. As a result, the procedures that were designed to increase the quality of research are now threatening to damage the scientific system. To support researchers and managers, five experts led by Diana Hicks, professor in the School of Public Policy at Georgia Institute of Technology, and Paul Wouters, director of CWTS at Leiden University, have proposed ten principles for the measurement of research performance: the Leiden Manifesto for Research Metrics published as a comment in Nature.

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Expert Group on Altmetrics

DG Research and Innovation has established an Expert Group on Altmetrics which will conduct its work over the whole of 2016.

The Expert Group will, among other:

- Categorise and review different altmetrics and their relationship to more established scientometrics
- Define the features of a 'responsible metrics' aimed at a responsible use of altmetrics to advance open science, able to track desirable impacts, and qualities of scientific research
- Develop an agenda for the development of such a 'responsible metrics'

The Expert Group on Altmetrics advices DG Research and Innovation. Altmetrics is a main topic of the European Open Science Agenda which will be further developed and implemented with support of the Open Science Policy Platform (see **Open Science Policy Platform**)

Call for Evidence

Please send responses to **RTD-Open-Science@ec.europa.eu** by **16:00 on 13 July 2016**

A Vision for Europe

- Open Innovation
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Social Corner

Tweets (#eosc and #opensciencecloud)

Need to link these debates to wider developments in 'meta-research' & 'science of science policy'

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Meta-research: Evaluation and Improvement of Research Methods and Practices

John P. A. Ioannidis*, Daniele Fanelli, Debbie Drake Dunne, Steven N. Goodman

Meta-Research Innovation Center at Stanford (METRICS), Stanford University, Stanford, California, United States of America

* jioannid@stanford.edu

Abstract

As the scientific enterprise has grown in size and diversity, we need empirical evidence on the research process to test and apply interventions that make it more efficient and its results more reliable. Meta-research is an evolving scientific discipline that aims to evaluate and improve research practices. It includes thematic areas of methods, reporting, reproducibility, evaluation, and incentives (how to do, report, verify, correct, and reward science). Much work is already done in this growing field, but efforts to-date are fragmented. We provide a map of ongoing efforts and discuss plans for connecting the multiple meta-research efforts across science worldwide.

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OPEN ACCESS

Citation: Ioannidis JPA, Fanelli D, Dunne DD, Goodman SN (2015) Meta-research: Evaluation and

Why Perform Research on Research?

Throughout the history of science, leading scientists have endeavoured to theorize and conduct research on fundamental aspects of the scientific method and to identify ways to implement it most efficiently. While focused subject matter questions and discoveries attract attention and

Need to join dots across research, teaching & learning & links to wider work on algorithmic accountability

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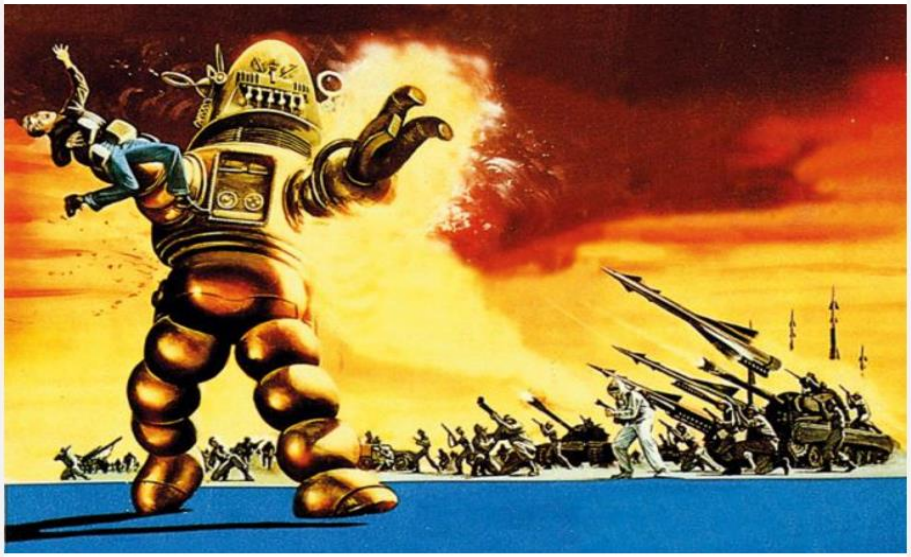
The robots are coming for the professionals

Do universities need to rethink what they do and how they do it now that artificial intelligence is beginning to take over graduate-level roles?

July 28, 2016

By David Matthews
Twitter: @DavidMJourno



Source: Alamy

Who do you think wrote the following? "Globally, stocks delivered positive absolute returns in the second quarter. Those positive returns followed a broader trend of economic strength as two of the fund's key indicators, MSCI World Index and China PMI, trended positively in the same period."

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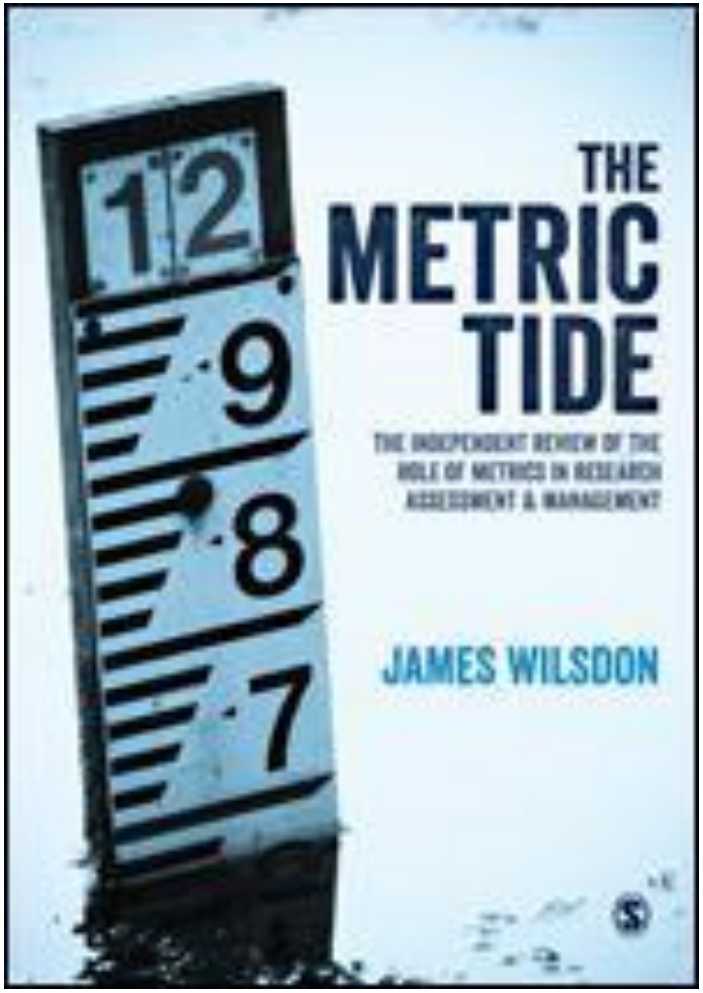
Algorithmic Accountability, Trustworthiness and the Need to Develop new Frameworks

Farida Vis, Research Fellow in the Information School at the University of Sheffield, investigates the issue of trust in the debate about algorithmic accountability, arguing that we should instead focus on 'trustworthiness' and that now is the time for a considered debate about algorithmic governance and accountability frameworks.

For 2016 the Oxford English Dictionary word of the year may very well turn out to be 'algorithm'. I have, along with many others, noticed how this word had started to seep into everyday language more and more, but this year feels like a turning point (see for example this recent article in Slate). Think of the furore over the introduction of an algorithmic timeline on Twitter, which will no longer be organised chronologically, but rather by 'importance' of content. Somehow it felt that this concept now needed less explanation than it might have done a year ago. From looking at some of the comments on #RIPTwitter, where users discussed the rumour before the confirmation a few days later, the news was dominantly interpreted along these lines: Twitter would become more like Facebook, which in the opinion of this vocal group, should be avoided. There are also concerns for research associated with this recent development, but in the context of algorithmic accountability, the way in which Facebook content is shown in user's feed is a longstanding example of why there is a need for more accountability on social media platforms. This issue will serve as the focus of this post.

As a company, Facebook is not well trusted, something highlighted in a recent write up of Prophet's new 'Brand Relevance Index'. The index, recently reviewed by Adweek, captured just how lowly users rate Facebook in terms of trust. 'Asked to rate Facebook as "a brand I can depend on," respondents ranked it at 133. And as "a brand I can trust," Facebook fell lower still, to 200'. But when it comes to writing about algorithmic accountability, academics and advocates often cite trust as a key pillar of focus: one should



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