

### Dr Elizabeth Gadd @lizziegadd

## Responsible metrics: what's the state of the art?



#### **Overview**

- What are responsible metrics?
- Why should we care?
- How to implement a responsible metrics policy
- How to actually do metrics responsibly
- Who is responsible for responsible metrics?
- A call for research evaluation literacy

#### Responsible metrics is what?

 A movement that seeks to ensure that the use of metrics in the evaluation of research is done responsibly mitigating against perverse effects and unintended consequences.

#### WHY BOTHER?



### Metrics can kill people

#### Imperial College professor Stefan Grimm 'was given grant income target'

Emails with manager reveal details of review placed on academic found dead in September

December 3, 2014

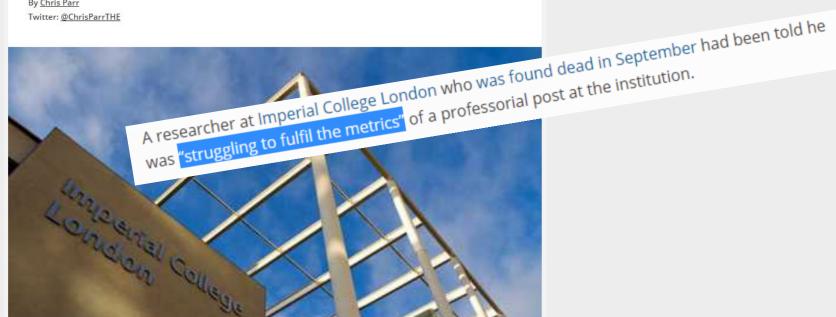








By Chris Parr Twitter: @ChrisParrTHE



#### Why the audit culture made me quit

When Liz Morrish opened up to students about the pressures academics are under, disciplinary proceedings culminated in her resignation. She reflects on why she chose to tackle the failings of the neoliberal academy from the outside

March 2, 2017

By Liz Morrish

Twitter: @lizmorrish

In the UK, much of the rush to management by metrics is in response to shifting government of the rush to management by metrics is in response to shifting government of the rush to management by metrics is in response to shifting government of the rush to management by metrics is in response to shifting government of the rush to management by metrics is in response to shifting government of the rush to management by metrics is in response to shifting government. incentives and policy changes, which, fed through the mechanism of the incentives and policy changes, which requires the resultations and funding levels from other affort inctitutional priorities.

incentives and policy changes, which, red through the methanism of the research was and funding levels. Many of these metrics are framework, affect institutional priorities, reputations and funding levels. Tramework, affect insutunorial priorities, reputations and uniture of the control of academics. Nevertheless, they have been weaponised as moving and the very nature of the control of academics. Nevertheless, they have been weaponised and the very nature of the control of academics and the very nature of the control of academics. performance management, and the very nature of the scrutiny creates a hostile environment and the very nature of the scrutiny creates a hostile environment.

academic freedom.





PROFESSIONAL

JOBS

SUMMITS

RANKINGS

STUE

#### Academics 'face higher mental health risk' than other professions

Lack of job security, limited support from management and weight of work-related demands on time among risk factors

August 22, 2017











By Holly Else Twitter: @HollyElse



## Responsible metrics lead to better decisions

- Comparing SSH with STEM on citation counts...
- Comparing early & late-career academics on hindex...
- Judging anyone by their ResearchGate score...
- ...just isn't going to lead to a sensible decision, let alone a fair one.

### Responsible metrics statements



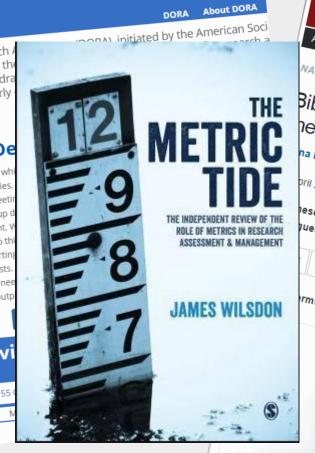
The San Francisco Declaration on Research journals, recognizes the need to improve the Francisco and subsequently circulated a draworldwide initiative covering all scholarly DORA.

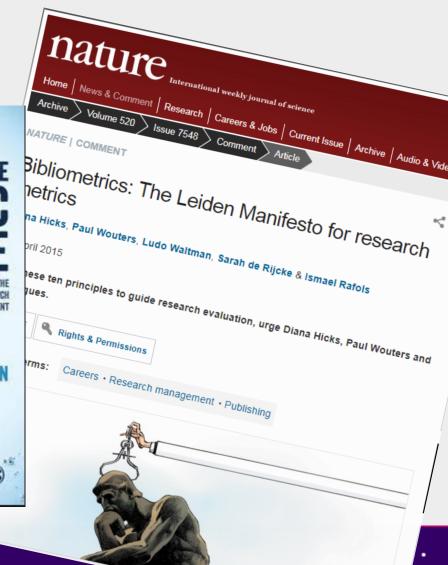
#### The De

There is a pressing need to improve the ways in whi agencies, academic institutions, and other parties, scholarly journals met during the Annual Meetir Francisco, CA, on December 16, 2012. The group of Francisco Declaration on Research Assessment. Windicate their support by adding their names to thi and varied, including: research articles reporting property; and highly trained young scientists, scientists themselves, all have a desire, and nee thus imperative that scientific outp

Indivi

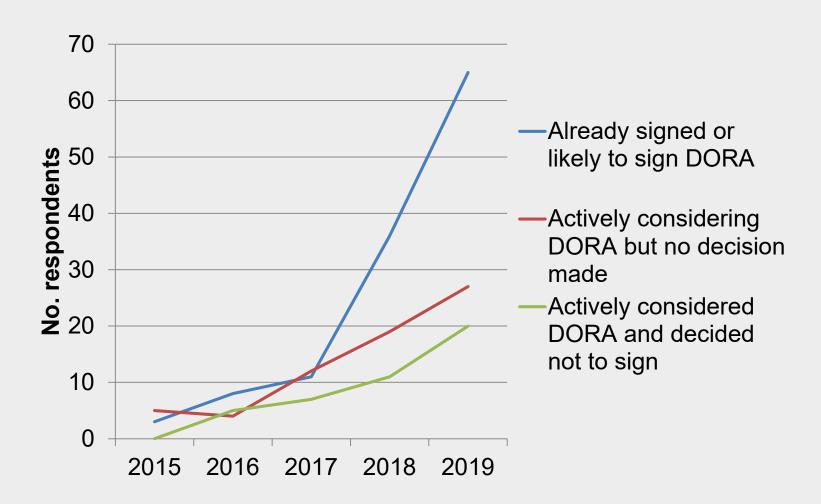
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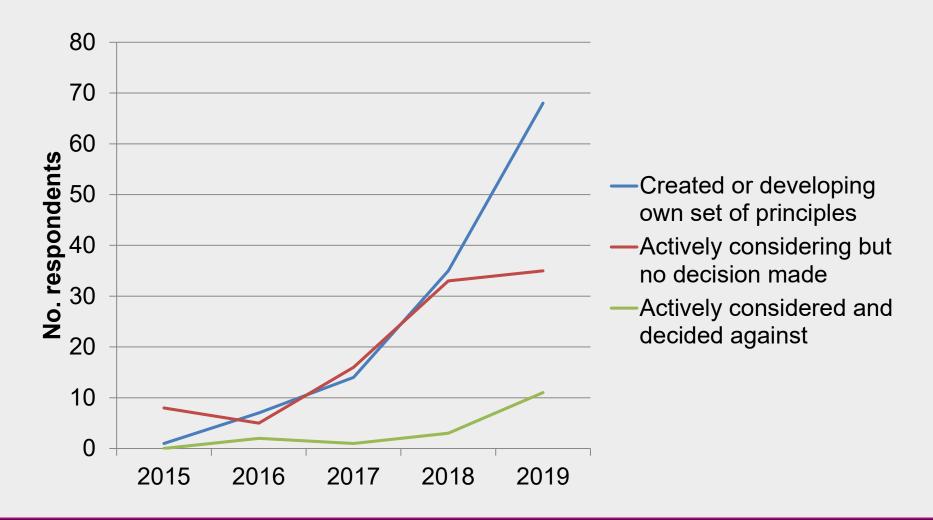
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#### Response to DORA

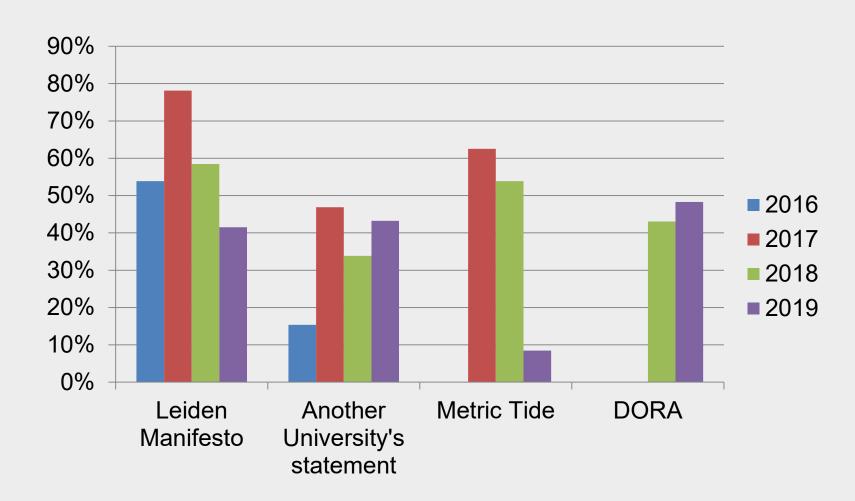




#### Own responsible metrics principles



#### Inspiration for RM statements

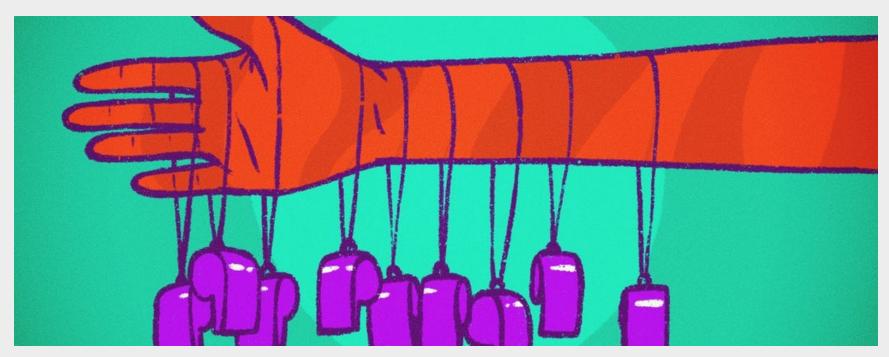




# How to implement a responsible metrics policy



# The need to accept your policy is just the beginning



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# The need to consider the advise-police-judge spectrum



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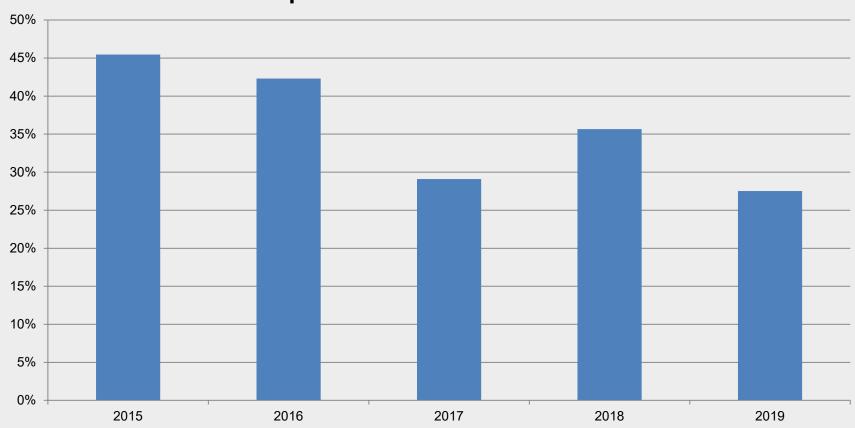
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## The need for ownership at senior level

Senior University Managers involved in developing responsible metrics statements



#### The need to manage upwards

#### From a mailing list:



# How do you actually DO metrics responsibly?



#### One concept, many interpretations

## Q: How has your policy affected your use of metrics in practice?

- Avoid ALL metrics
- Ban certain metrics
- Reduce use of metrics
- Use metrics in line with policy
- Use metrics alongside peer review
- Use metrics in context
- Develop new metrics
- Use a wider range of metrics

#### Introducing the MOMMS SCOPE model





- Start with your values
  - Context
    - **Options** 3
  - Probe
- **Evaluate** 5

### START with what you value



### START with what you value

- Not with the data you have available
  - The Streetlight Effect
- Not what others value
- University autonomy: use it or lose it

"If my h-index is the answer, what is the question?"

### The streetlight effect



### START with what you value

- Not with the data you have available
  - The Streetlight Effect
- Not what others value
- University autonomy: use it or lose it

"If my h-index is the answer, what is the question?"

#### CONTEXT



## Understand who & why you're evaluating

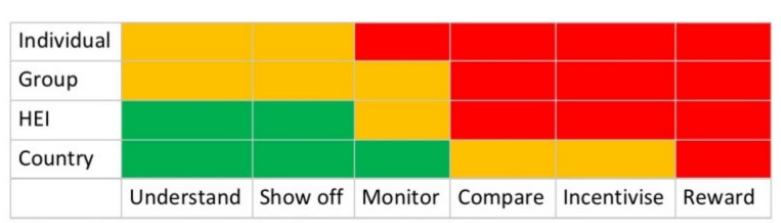
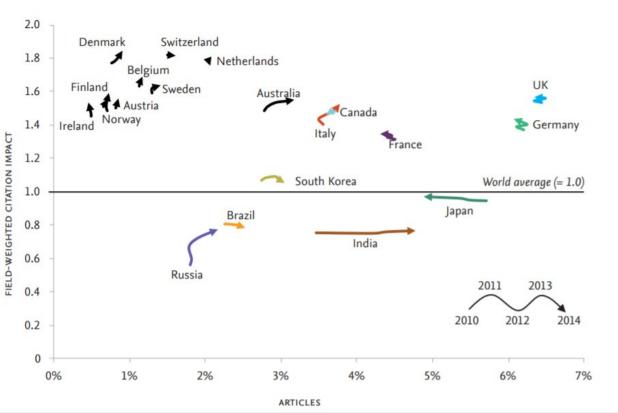


Figure 1. Risks associated with metric use in various settings



#### Use of FWCI in measuring to understand

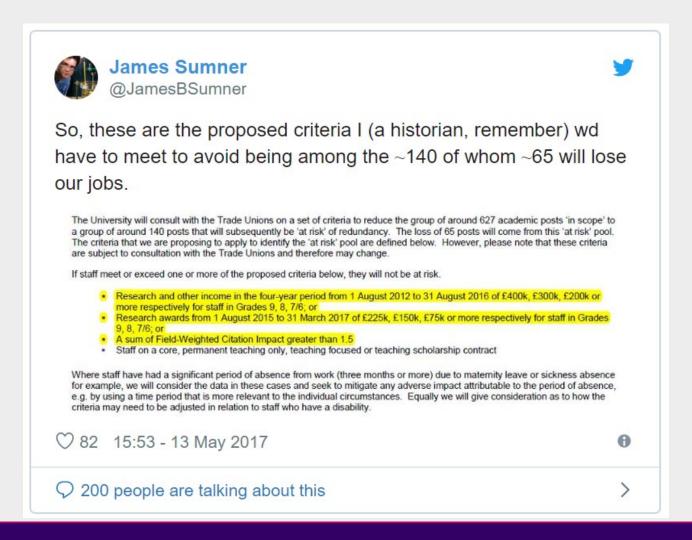
**Panel A(2):** The UK and comparator countries plus top ten countries with the highest field-weighted citation impact in 2014 among OECD countries with at least 5,000 publications in 2014 (excluding the US and China).



International Comparative Performance of UK Research Base – 2016 report on 2011-2014 data <a href="https://www.elsevier.com/">https://www.elsevier.com/</a> data/assets/pdf file/0018/507321/ELS-BEIS-Web.pdf



#### Use of FWCI to identify staff for redundancy...





#### Do we need to evaluate at all?

- Huge growth in incentivising behaviour through measurement
- Campbell's Law: "The way you measure me is the way I'll behave"
- Measuring is not always the best way to incentivise behaviour





ADVICE PAPER No.24 - MAY 2018

ble in universities

## Open Science and its role in universities:

research. In order for these goals to be achieved, universities should align their assessment, reward and evaluation systems with Open Science developments.<sup>9</sup>

### The Hong Kong Manifesto for Assessing Researchers: Fostering Research Integrity

David Moher<sup>1</sup>, Lex Bouter<sup>2</sup>, Sabine Kleinert<sup>3</sup>, Paul Glasziou<sup>4</sup>, Mai Har Sham<sup>5</sup>

<sup>1</sup>Centre for Journalology, Clinical Epidemiology Program, Ottawa Hospital Research Institute; School of Epidemiology and Public Health, University of Ottawa, Ottawa, Canada; <sup>2</sup>Department of Epidemiology and Biostatistics, Amsterdam University Medical Centers, location VUmc, and Department of Philosophy, Faculty of Humanities, Vrije Universiteit, Amsterdam, The Netherlands; <sup>3</sup>*The Lancet*, London Wall Office, London, UK; <sup>4</sup>Centre for Research in Evidence-Based Practice, Bond University, Gold Coast, Qld, Australia; and <sup>5</sup>School of Biomedical Sciences, LKS Faculty of Medicine, The University of Hong Kong, Pokfulam, Hong Kong SAR, China



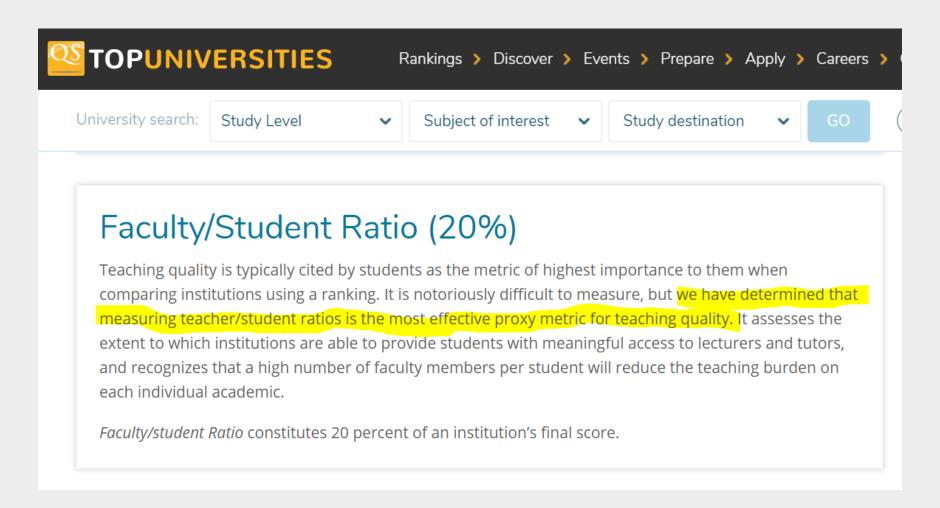
#### **OPTIONS**



#### **Options**

- Is your measure a suitable proxy for what you're measuring?
- Quantitative measures are for quantifiable things...
  - Citations, publications, money, students
- Qualitative measures for qualifiable things...
  - Quality, diversity, excellence, value
- Beware using quantitative indicators as a proxy for qualitative things
  - Citations ≠ quality
  - Ranking position ≠ excellence

#### "Never mind the quality, feel the width"



# PEER REVIEW WATCH

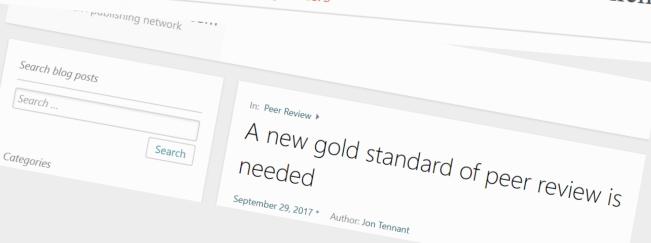
Peer-review is the gold standard of science. But an increasing number of retractions has made academics and journalists alike start questioning the peer-review process. This blog gets underneath the skin of peerreview and takes a look at the issues the process is facing today.







When is Peer Review the Gold Standard, and When is it Only Tin? Published on October 22, 2016 by Tony Waters







#### Alan Dix

University of Birmingham and Talis

http://alandix.com/ref2014/

## **PROBE**



## Probe for potential negative impacts

- 1. Who does this discriminate against?
- 2. How could this be gamed?
- 3. What might the perverse incentives and consequences be?
- 4. Do the benefits of measuring outweigh the cost of measuring?
- 5. Is evaluating research actually going to make it any better?





PROFESSIONAL JOBS

SUMMITS

RANKINGS

STU

#### REF 2014 cost almost £250 million

Accountability review finds cost of assessment equates to 2.4 per cent of funding bodies' expected spend over next six years

July 13, 2015







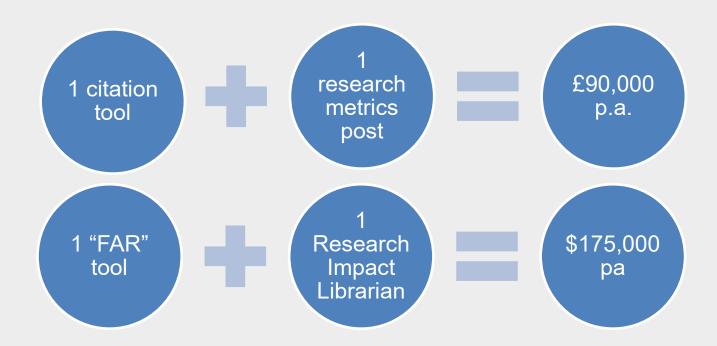


By Holly Else

Twitter: @HollyElse



#### Does the cost outweigh the benefit?



## Probe for potential negative impacts

- 1. Who does this discriminate against?
- 2. How could this be gamed?
- 3. What might the perverse incentives and consequences be?
- 4. Do the benefits of measuring outweigh the cost of measuring?
- 5. Is evaluating research actually going to make it any better?



## You don't fatten a pig by weighing it



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## **EVALUATE** your evaluation...



That's how we can evaluate responsibly.
But who's 'we'?
Who's responsible for responsible metrics?



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The research evaluation food chain









Governments

Funders <del>-</del>





Universities

Researchers in







"nothing will do more to foster change in accordance with the principles set out in this report than concerted work and institutional change in the area of rewards and incentives"



DOI: 10.2777/836532

## Use of the Journal Impact Factor in academic review, promotion, and tenure evaluations

Erin C. McKiernan<sup>1,\*</sup>, Lesley A. Schimanski<sup>2</sup>, Carol Muñoz Nieves<sup>2</sup>, Lisa Matthias<sup>3</sup>, Meredith T. Niles<sup>4</sup>, and Juan Pablo Alperin<sup>2,5\*\*</sup>

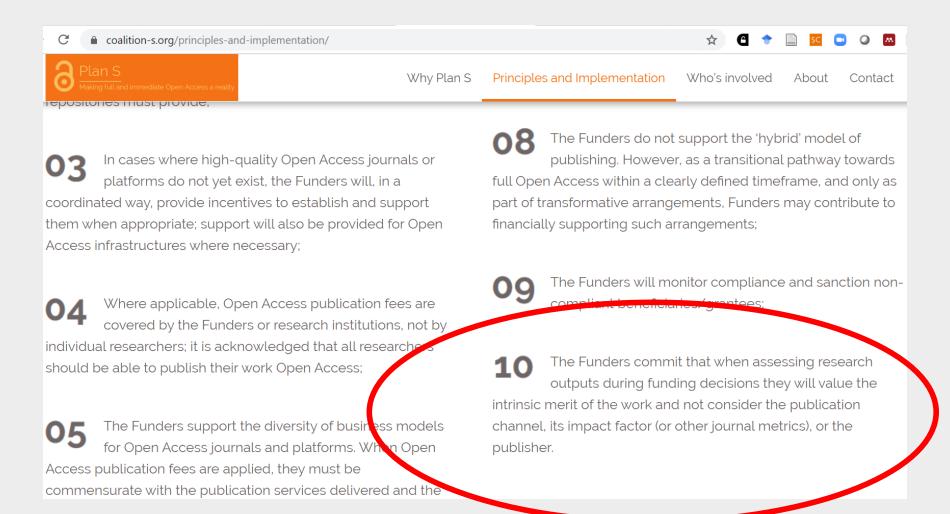
Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México
 <sup>2</sup>Scholarly Communications Lab, Simon Fraser University
 <sup>3</sup>John F. Kennedy Institute, Freie Universität Berlin
 <sup>4</sup>Department of Nutrition and Food Sciences, Food Systems Program, University of Vermont
 <sup>5</sup>School of Publishing, Simon Fraser University
 \*Corresponding author: emckiernan@ciencias.unam.mx
 \*\*Corresponding author: juan@alperin.ca

#### Abstract

The Journal Impact Factor (JIF) was originally designed to aid libraries in deciding which journals to index and purchase for their collections. Over the past few decades, however, it has become a relied upon metric used to evaluate research articles based on journal rank. Surveyed faculty often report feeling pressure to publish in journals with high JIFs and mention reliance on the JIF as one problem with current academic evaluation systems. While faculty reports are useful, information is lacking on how often and in what ways the JIF is currently used for review, promotion, and tenure (RPT). We therefore collected and analyzed RPT documents from a representative sample of 129 universities from the United States and Canada and 381 of their academic units. We found that 40% of doctoral, research-intensive (R-type) institutions and 18% of master's, or comprehensive (M-type) institutions explicitly mentioned the JIF, or closely related terms, in their RPT documents. Undergraduate, or baccalaureate (B-type) institutions did not mention it at all. A detailed reading of these documents suggests that institutions may also be using a variety of terms to indirectly refer to the JIF. Our qualitative analysis shows that 87% of the institutions that mentioned the JIF supported the metric's use



## Funders – Plan S



#### **Funders**

#### What is the level of understanding of bibliometrics within the panels?

I am not at all an expert in bibliometrics; I just have a general idea of what it is.

Half of the interviewees reported previously sitting on selection panels that used bibliometrics (some of these were in panel settings beyond NIHR). One panel member noted that the experience gained through selection panels over a number of years, had improved their understanding of bibliometrics data and consequently they were able to "make better use of it" during the selection process. The remaining interviewees had never encountered the use of bibliometrics on selection panels prior to being involved with these competitions. These panel members described their understanding of bibliometrics as "rudimentary", "cursory", and "limited". These members recognised that, at best, their understanding of bibliometrics was at a basic level, and certainly not at the detailed statistical level. Some of them were unsure about the details of the normalisation procedure and the comparability of applicants across different research fields. Overall, levels of expertise varied considerably, so some form of introduction or briefing is required to make sure that the information is accessible and useful to all panel members.

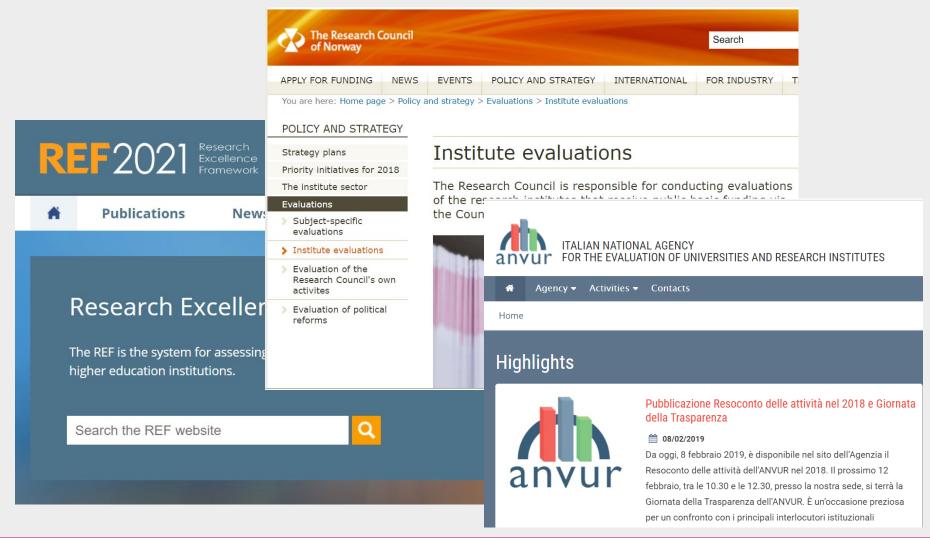
Gunashekar, S., Wooding, S. & Guthrie, S., 2017. How do NIHR peer review panels use bibliometric information to support their decisions? *Scientometrics*, 112(3), pp.1813–1835.

# Wellcome Trust OA policy



■ Wellcome-funded organisations must sign or publicly commit to the San Francisco Declaration on Research Assessment ( (DORA), or an equivalent. We may ask organisations to show that they're complying with this as part of our organisation audits. This is a new requirement to encourage organisations to consider the intrinsic merit of the work when making promotion and tenure decisions, not just the title of the journal or publisher.

## Governments





#### Indonesia's scientists voice concerns about the country's researcher ranking system

Critics flag unclear methodology, lack of credit for research contributions other than publications

by Dalmeet Singh Chawla

**DECEMBER 31, 2018** 

Technology Index (SINTA), are unclear. SINTA takes into account the number of journal and non-journal articles indexed in the database Scopus, the number of citations these documents accumulate in Scopus and Google Scholar, and researchers' h-index. The h-index is another controversial metric that is designed to measure researchers' productivity and the impact of their publications.





#### SUHARYO SUMOWIDAGDO

Lembaga Ilmu Pengetahuan Indonesia

NIDN /NIP/NIDK:

Scopus' H-Index : 91 | Google H-Index : 134 | =

Experimental Particle Physics High Performance Computing



#### INDAH SUCI WIDYAHENING

Universitas Indonesia

NIDN /NIP/NIDK: 0311107303

Scopus' H-Index : 7 | Google H-Index : 11 |

Family Medicine Primary Health Care Evidence based Medicine Community Medicine



#### RIYANARTO SARNO

Institut Teknologi Sepuluh Nopember

NIDN /NIP/NIDK: 0003085905

Scopus' H-Index: 17 | Google H-Index: 20 |

Internet of Things | Business Process Management | Process Aware Information Systems | Knowledge Eng

Smart Grids



#### I GEDE WENTEN

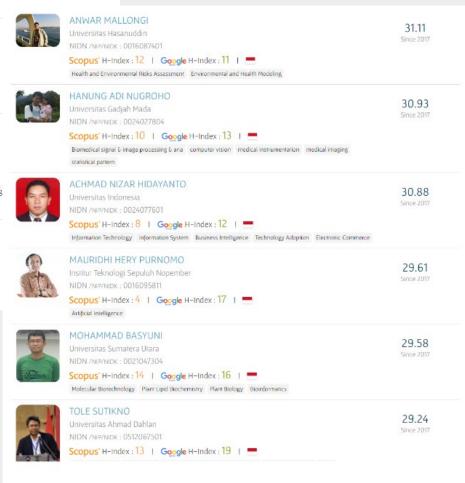
Institut Teknologi Bandung NIDN /NIP/NIDK : 0015026202

Scopus' H-Index : 21 | Google H-Index : 30 | =

Membrane Technology

52.84 Since 2017

## **Top Ten**





# University rankings

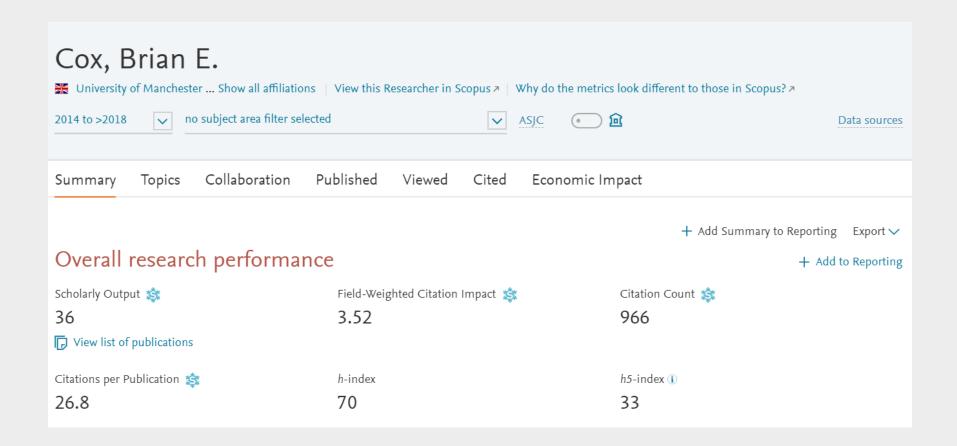


Criteria	Indicator	Code	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	Alumni	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	Award	20%
	Highly cited researchers in 21 broad subject categories	HiCi	20%
Research Output	Papers published in Nature and Science*	N&S	20%
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	PUB	20%
Per Capita Performance	Per capita academic performance of an institution	PCP	10%
Total			100%

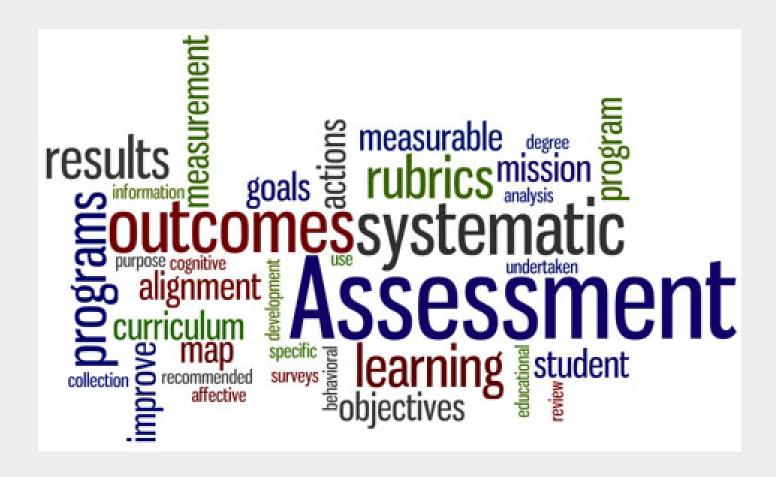
<sup>\*</sup> For institutions specialized in humanities and social sciences such as London School of Economics, N&S is not considered, and the weight of N&S is relocated to other indicators.



#### **Data vendors**



## The need for Evaluation Literacy



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# Responsible metrics requires responsible people

- Robust
- Humble
- Transparent
- Diverse
- Reflexive



#### **Universities**

29%

The proportion of Librarians surveyed whose LIS degree included bibliometrics



## **Bibliometric Competencies**

#### Competency model for bibliometric work (version 1.1; July 2017) Based on Cox, Gadd, Petersohn, Sbaffi (2017) Competencies for bibliometrics. JOLIS. http://journals.sagepub.com/doi/abs/10.1177/0961000617728111. Project sponsored by Elsevier Research Intelligence. **Specialist Entry Level** Core I) Uses bibliometric knowledge to recommend where to publish and I) Uses bibliometric knowledge to evaluate departmental/research what to read; to increase academic staff bibliometric literacy; to centre performance; to evaluate institutional performance; and to support annual reporting by academic departments; to support support academic bibliometric research. grant capture; and to guide library collection and evaluate repository coverage. II) May undertake charged-for consultancy. I) Explains effectively the concept, potential uses and limitations of I) Advises on which are the appropriate tools to calculate a I) Monitors national policy changes around research evaluation and bibliometrics to a range of stakeholders. particular metric and explains differences in results between metrics advises on institutional responses. produced by different tools.

these principles to specific requests/cases. For example, advises on

the applicability of metrics and tools to particular disciplines.

II) Explains responsible use as a general set of principles, and applies II) Advises on decisions about how the institution should use specific

to stakeholders.

II) Explains the concept, potential uses and limitations of altmetrics

tools and on decisions about institutional Key Performance

## Statistics for responsible bibliometrics







Responsible Bibliometrics Analysis, Interpretation, and Reporting – A Statistics Approach

#### **Presenters**

Mike Thelwall

Professor of Data Science, University of Wolverhampton

#### Registration

11th October 2019 9:30 am

#### Venue

Room Met 2, The Met Hotel Leeds, King Street, Leeds, UK View map ♥ Dr Abigail McBirnie

**UK-based Information Specialist** 

#### Finish

11th October 2019 4:00 pm

#### Phone

0131 357 9854





Meaningful, responsible & effective research evaluation

Dr Elizabeth Gadd



## Workpackage 1: Rating the rankers



- What if Rankers are no longer at the top of the food chain?
- Rate the rankers criteria: https://inorms.net/activities/resea rch-evaluation-working-group/
- Key themes:
  - Responsibility
  - Transparency
  - Measuring what matters
  - Rigour



What makes a fair and responsible university ranking? Draft criteria for comment

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

1) Whether the characteristics, as written, make sense to you

2) Are there any characteristics you think are missing

Please note that at this stage, we are not considering how these characteristics might be assessed, only whether they are desirable. The references in brackets lead to texts that inspired these principles, they are not

The consultation is open until Monday 10 June and feedback can be emailed to either INORMS-RES-EVAL (@jiscmail.ac.uk (if you are a member) or directly to the Rankings Sub-Group leader, Justin Shearer, or

We look forward to hearing from you

Lizzie Gadd. INORMS REWG Chair

- . Profiles not rankings. Accepts that higher education and research organisation are complex, multi-faceted
- entities and provide a facility by which their range of strengths can be displayed. (BP) Measure against mission. Accepts that different universities have different missions and provides a facility by
- which universities can be assessed against their own goals. (LM, BP, Blank, Shen) One thing at a time. Does not combine indicators to create a composite metric. (YG1) (CWTS)
- Provides context. Provides a link out to further qualitative and contextual information about the university
- . Damage limitation activity. Recognises and proactively seeks to limit the systemic effects of rankings. (LM,
- No unfair advantage. Makes every effort to ensure the approach taken does not discriminate agains organisations by size, disciplinary mix, language, wealth, age and geography



# Workpackage 2: Briefing materials for senior managers



- Set of powerpoint slides with notes to brief senior leaders on responsible research evaluation
- Based on SCOPE model
- Adapted to different settings (CC-BY)
- Translated into many different languages

## Join the conversation!

- Start a conversation about responsible metrics in your own setting
- Start with what you/your institution values
- Join the broader conversation:
  - INORMS-RES-EVAL@jiscmail.ac.uk
     discussion list
  - <u>Lis-Bibliometrics@jiscmail.ac.uk</u> discussion list



# Better to light a candle than curse the darkness.



## Thank you for listening

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