AI & machine learning in research assessment: can we draw lessons from debates over responsible metrics?

RoRI & RCN workshop, Act One, 11 January 2021

James Wilsdon. j.wilsdon@sheffield.ac.uk; @jameswilsdon

Our five aims for the pilot phase (2020-2021)

To support and build capacity for interdisciplinary, mixed-method and translational RoR in and across research systems worldwide **(research role)**

To connect academic RoR capabilities to the data and analytical resources of our founding and strategic partners (**translation role**)
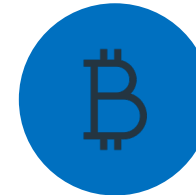
With these partners, to experiment, coproduce and test new tools, indicators, funding modes, decision and evaluation frameworks (**innovation role**)
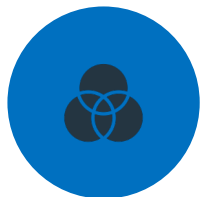
To critically evaluate RoR methods and support engagement with RoR data and evidence by decision makers and wider society (**brokerage role**)

To create an independent space for RoR learning, networking and collaboration between researchers, policymakers, funders and technologists (**facilitator role**)

Our consortium

Founding partners:

Wellcome Trust
Digital Science
University of Sheffield
CWTS, Leiden University

Strategic partners *(for pilot phase, 17 partners from 13 countries and regions):*

African Academy of Sciences

Australian Research Council (ARC)

Austrian Science Fund (FWF)

Canadian Institutes of Health Research (CIHR)

Chan Zuckerberg Initiative (CZI)

European Molecular Biology Organization

Fondazione Telethon

Howard Hughes Medical Institute (HHMI)

DBT/Wellcome Trust India Alliance

Michael Smith Foundation for Health Research (MSFHR)

National Institute for Health Research (NIHR)

Novo Nordisk Foundation

Research Council Norway (RCN)

Alfred P. Sloan Foundation

Swiss National Science Foundation (SNSF)

UK Research and Innovation (UKRI)

Volkswagen Foundation

RoRI consortium partners as co-designers and co-producers
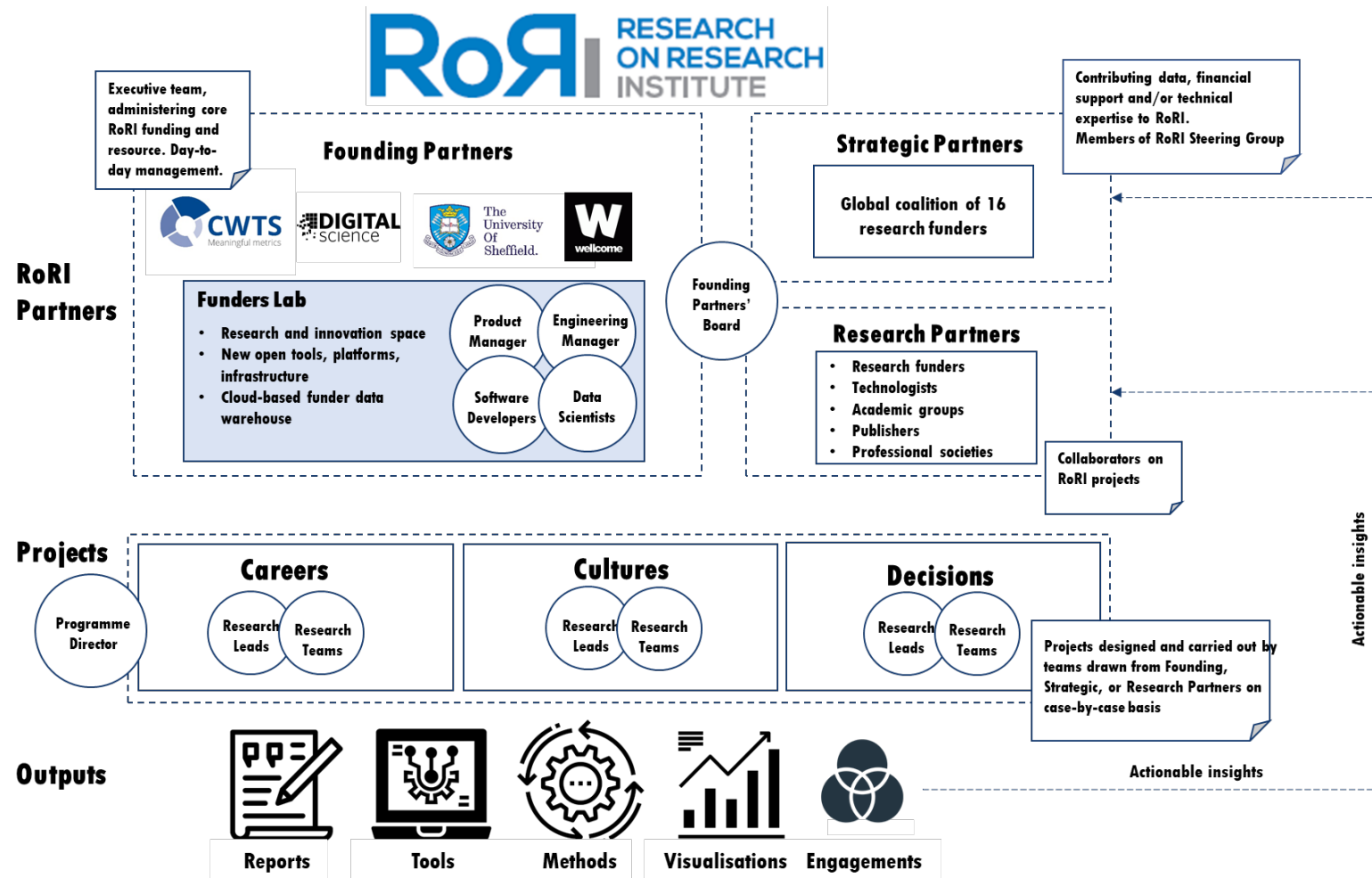
RoRI first-wave projects (2020/21)
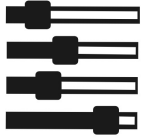
CRITERIA

Summary

Funders need their proposal selection processes to do one thing: select the proposals most likely to meet their objectives. Various inequalities in funding rates may exist, such as gender or field inequalities. The selection process a funder uses may mitigate or exacerbate these inequalities. The project will use data from many funders who each use different selection processes in different contexts. The outputs will help funders understand the potential drivers of inequalities in research funding and identify where mitigation is possible.

Partners: Australian Research Council; Canadian Institutes of Health Research; Chan Zuckerberg Initiative; EMBO; Austrian Science Fund (FWF); Michael Smith Foundation for Health Research; Novo Nordisk Fonden; Research Council Norway; W/DBT India Alliance; UKRI; Wellcome Trust

EXCELLENCE

Summary

Initiatives like the UK's REF, Germany's Exzellenzinitiative and Switzerland's Eccellenza grants have put excellence at the centre of research policy and evaluation. This project will assess the ways in which the idea of excellence is currently used by key actors in the research ecosystem and the functions it serves in specific practices in order to explore its possible futures. It will include detailed case studies of 10 funders.

Partners: African Academy of Sciences; Australian Research Council; Canadian Institutes of Health Research; Austrian Science Fund (FWF); Michael Smith Foundation for Health Research; National Institute for Health Research (UK); Swiss National Science Foundation; Wellcome Trust.

FAIRware

Summary

This project aims to build open source software tool(s) to allow researchers, institutions and funders to assess and improve the 'FAIRness' of the research outputs they produce. Over recent years, the FAIR principles (Findability, Accessibility, Interoperability, Reusability) have gained considerable traction as a basis for describing how research data, and potentially other research outputs, should be documented and shared to ensure that they can be discovered, accessed and used effectively, such that their value is maximised.

Partners: Canadian Institutes of Health Research; National Institute for Health Research (UK); Swiss National Science Foundation; Wellcome Trust.

PATHWAYS

Summary

The scope of this work is careers in research, broadly defined, with an empirical and policy focus on six countries: Austria, Canada, Denmark, Germany, UK and USA. The project will be designed and delivered by a team drawn from RoRI strategic partners in these countries, and a wider network of data, research and policy partners.

Partners: Canadian Institutes of Health Research; Austrian Science Fund (FWF); Howard Hughes Medical Institute; Michael Smith Foundation for Health Research; National Institute of Health Research (UK).
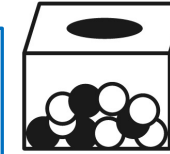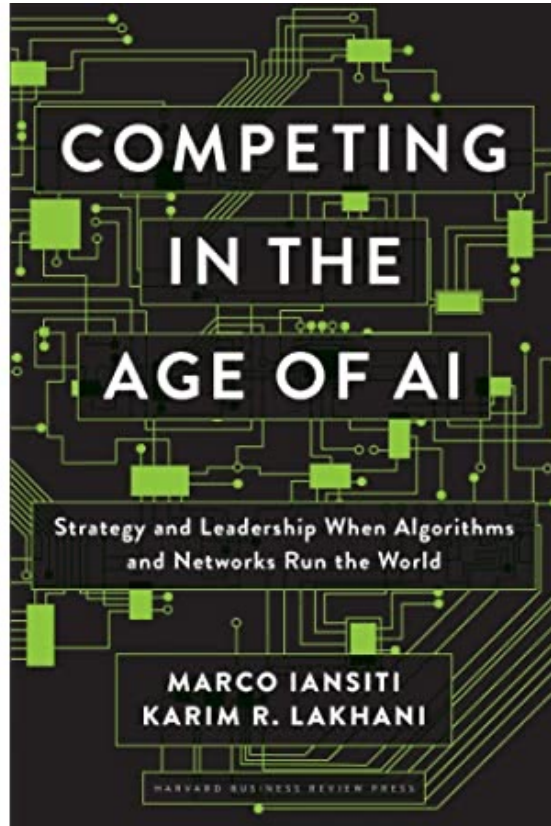
RANDOMISATION

Summary

There is growing interest in the use of randomisation and lottery-type mechanisms in grant funding. By linking and supporting a series of linked and phased experiments with uses of focal, or targeted randomisation in funding processes (our preferred term to the sometimes misleading "lotteries"), and facilitating closer alignment and learning between these, the RoRI consortium could effectively undertake the largest multi-funder, cross-country trial and analysis of these techniques.

Partners: National Institute of Health Research (UK); Novo Nordisk Fonden; Swiss National Science Foundation.

RoRI RESEARCH ON RESEARCH INSTITUTE

Good practices in uses of ML/AI by research funders

A few funders at the forefront

nature

View all Nature Research journals | Search

Explore our content ⌄ | Journal information ⌄ | Publish with us ⌄ | Subscribe | Sign up for alerts 🔔

nature > news > article

NEWS · 14 MAY 2019

Artificial intelligence is selecting grant reviewers in China

The country's major funding agency says the tool reduces the time it takes to find referees.

David Cyranoski

🐦 f ✉

🔗

China's largest funder of basic science is piloting an artificial intelligence 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 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 artificial intelligence (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 tools to identify potential reviewers. Some of these systems match keywords in grant applications to those in publications of other scientists.

The National Natural Science Foundation of China (NSFC) is building a more sophisticated system that will crawl online scientific-literature databases and

⬇ PDF version

RELATED ARTICLES

AI peer reviewers unleashed to ease publishing grind

Male researchers' 'vague' language more likely to win grants

How machine learning could keep dangerous DNA out of terrorists' hands

SUBJECTS

РНФ Российский научный фонд

Конкурсы ⌄ | О Фонде ⌄ | Новости ⌄ | Документы ⌄ | Контакты ⌄ | ИАС

Новости
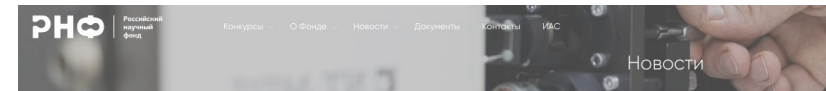
27 ноября, 2019 — 14:23

No jumps to the "kings row": RSF pushes the new AI-based system of finding reviewers

Источник: Indicator.ru

Indicator.Ru describes who in the Russian Science Foundation will benefit from the automatic tool of finding reviewers, what problems it will help to solve, and which not, how to resist incompetence and to avoid potential biases from assigning "negative" and "positive" reviewers.

Поделиться ⌖

What is new, what remains the same?

Over recent years, 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.
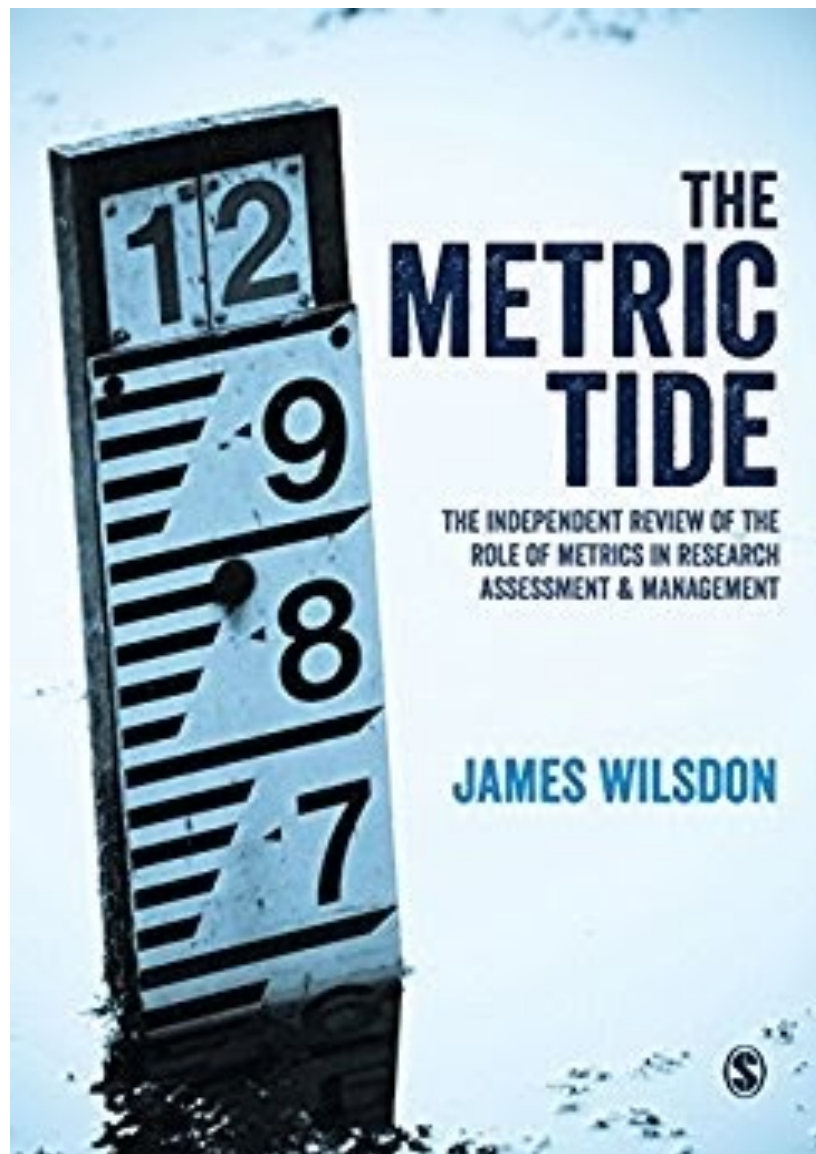
➢ this narrowing of criteria and indicators has **reduced the diversity of research missions and purposes**, leading institutions and researchers to adopt similar strategic priorities, or to focus on lower-risk, incremental work.

➢ **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.

THE METRIC TIDE

12
9
8
7

THE INDEPENDENT REVIEW OF THE ROLE OF METRICS IN RESEARCH ASSESSMENT & MANAGEMENT

JAMES WILSDON

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

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

November 2020

Produced in partnership with:

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

Aims of this series

To date, there has been less discussion of applications of ML/AI in the design and management of the research system itself – and to processes of peer review, evaluation, synthesis and assessment – although a handful of funders are starting to experiment with this in various ways. As with all uses of ML/AI, enthusiasm about technological possibilities is tempered with concern about inbuilt biases, blind spots and unintended consequences. These workshops will bring together a select group of research funders to share insights by:

- Creating an arena for funders to share evidence and experiences with ML/AI applications and techniques;
- Discussing and disseminating 'good practice' in emerging uses of ML/AI among RoRI partners;
- Exploring what responsible uses of ML/AI would look like in the context of research management and assessment;
- Identifying an agenda for further work through RoRI on these issues, linked to our broader work-stream on randomisation and experimentation.