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# What should 21<sup>st</sup> century cross-disciplinary research evaluation look like?

*Panel: Evaluating challenge-based research - interdisciplinarity and the value added of research evaluation*

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# Need for a more holistic approach to research evaluation (and peer review) across all parts of the research process & system



Our vision is that the assessment of research, researchers and research organisations **recognises the diverse outputs**, practices and activities that maximise the quality and impact of research.

This requires basing *assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.*

<https://coara.eu/>



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.

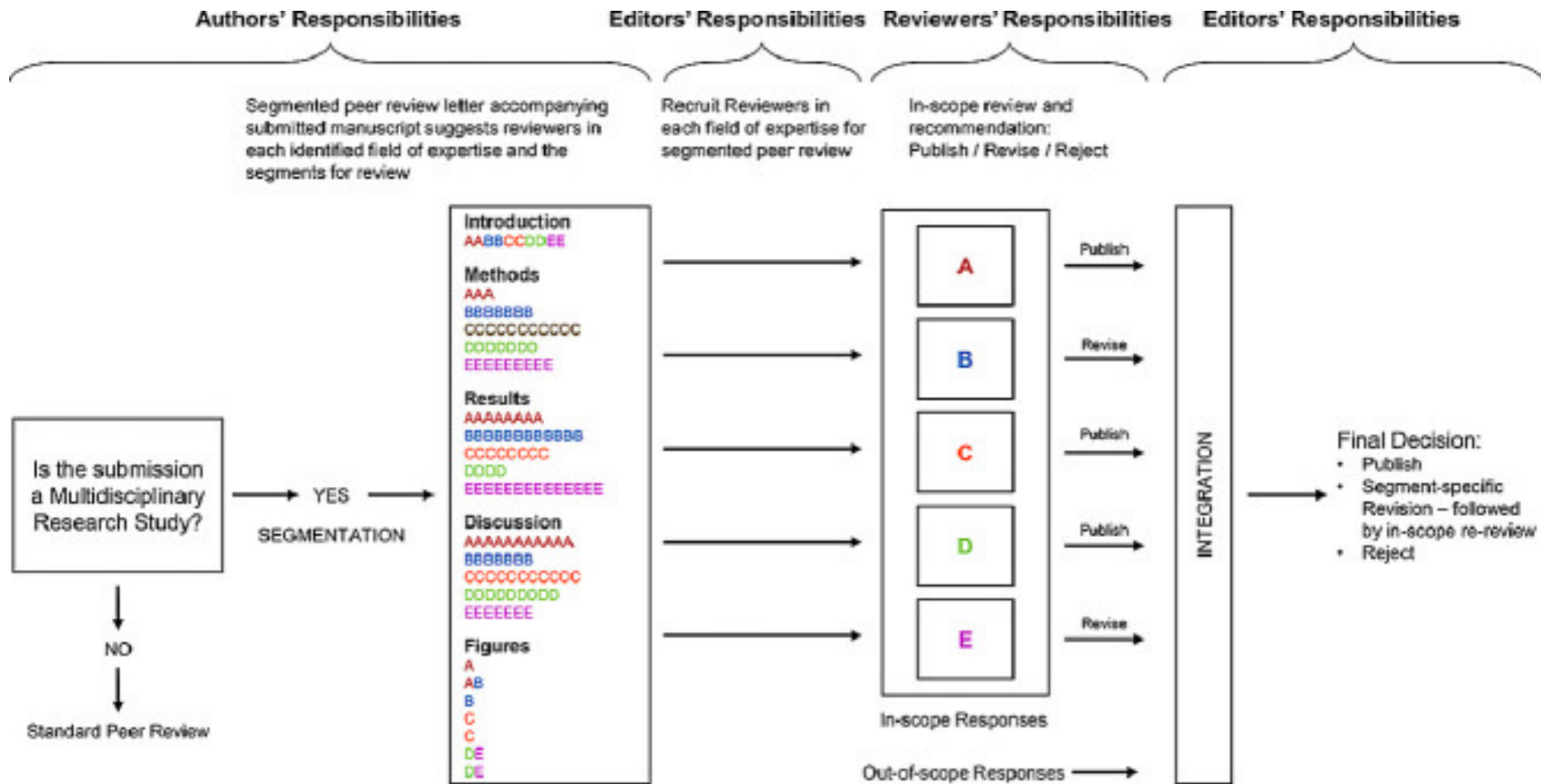
Funding agencies, institutions that employ scientists, and scientists themselves, all have a desire, and need, to assess the quality and impact of scientific outputs. *It is thus imperative that scientific output is measured accurately and evaluated wisely.*

<https://sfdora.org>

# Evaluation & review is not an exact (social) science

1. **Evaluators & evaluation is subjective**
2. **Evaluation is everywhere** - *grant submissions, impact of grants, research article submissions, of research article output*
3. **Evaluation goes largely 'unevaluated'** - *evaluators can only assess what they are instructed to do, what they have expertise in, and this is often not validated in systematic ways*
4. **Complex, multi-disciplinary research can be hard to evaluate across all its dimensions** – *and getting hard(er) to secure evaluators and be sure that you have all 'right' expertise*
5. **Evaluation is a blunt instrument** - *different funding agencies AND grant calls have different foci but peer review still traditionally applied in the same way regardless of focus.*
6. **Training to evaluate grants/articles remains limited**
7. **Evaluators & reviewers have increasingly limited time**

# Segmented peer review?



Interesting in theory but ...

- Burdensome
- Hard to implement
- Still face the same challenges of deciding 'who' is best placed

# Need for a pragmatic approach

1. **Training & capacity building in e&r** - *grants & articles; giving constructive feedback; bias awareness training; adapting focus depending on use cases; mentoring & co-reviewing*
2. **Expanding our reviewer pools** - *bringing in non-academic experts where needed (e.g. public; patients; policy makers; library & information scientists etc)*
3. **Tailored guidance on the evaluation task** - *what to look out for, what has potential, what has most value to the specific call/journal ...*
4. **Segmented peer review** – *assignment of reviewers to specific tasks based on expertise*
5. **Experiment/efficiencies in grant-output-publishing evaluation & peer review** – *continuity of reviewers to reduce burden and build knowledge?*
6. **Build transparency & honesty into the evaluation & review process** - *capture statements of specialisms and 'declarations' on what reviewers can't review/aren't qualified to review*
7. **Incentivisation, recognition & reward** - *make e&r part of the conversation and visible (e.g. ORCID)*

**Evaluation is not an exact (social) science** - *perfection can be the enemy of the good and/or Goodhart's Law (ish)*

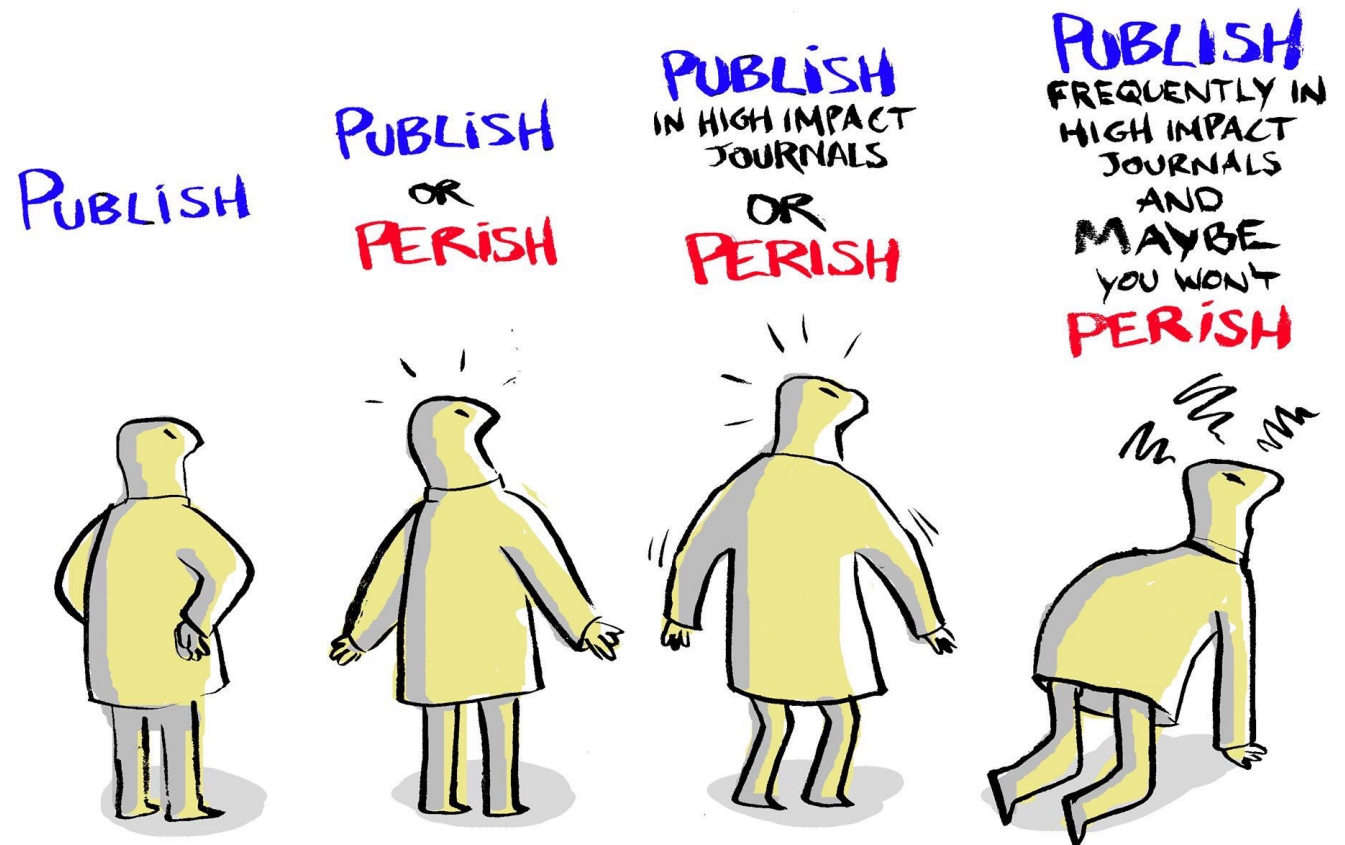
# Goodhart's Law in practice

*“When a measure becomes a target, it ceases to be a good measure.”*

The key principle of Goodhart's Law is that using a metric as a target can lead to unintended consequences.

**BUT in practice we just need to be mindful of the risks and potential biases.**

## THE EVOLUTION OF ACADEMIA





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**Thanks!**

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# Related reading: publishing peer review perspectives

1. el-Guebaly N, Foster J, Bahji A, Hellman M. **The critical role of peer reviewers: Challenges and future steps.** *Nordic Studies on Alcohol and Drugs*. 2023;40(1):14-21. doi:[10.1177/14550725221092862](https://doi.org/10.1177/14550725221092862)
2. Grönqvist H, Olsson EMG, Johansson B, Held C, Sjöström J, Lindahl Norberg A, Hovén E, Sanderman R, van Achterberg T, von Essen L. **Fifteen Challenges in Establishing a Multidisciplinary Research Program on eHealth Research in a University Setting: A Case Study.** *J Med Internet Res*. 2017 May 23;19(5):e173. doi: 10.2196/jmir.7310. PMID: 28536090; PMCID: PMC5461416.
3. Daniel KL, McConnell M, Schuchardt A, Peffer ME. **Challenges facing interdisciplinary researchers: Findings from a professional development workshop.** *PLoS One*. 2022 Apr 19;17(4):e0267234. doi: 10.1371/journal.pone.0267234. PMID: 35439277; PMCID: PMC9017902.
4. Dinakaran D, Anaka M, Mackey JR. **Proposal for 'segmented peer review' of multidisciplinary papers.** *Transl Oncol*. 2021 Feb;14(2):100985. doi: 10.1016/j.tranon.2020.100985. Epub 2020 Dec 14. PMID: 33333371; PMCID: PMC7736718.
5. Nyhan K, Nardini HKG. **Evidence synthesis papers would benefit from segmented peer review.** *Transl Oncol*. 2021 May;14(5):101060. doi: 10.1016/j.tranon.2021.101060. Epub 2021 Mar 8. PMID: 33706230; PMCID: PMC7944096.
6. Thelwall, M. (2023). **Journal and disciplinary variations in academic open peer review anonymity, outcomes, and length.** *Journal of Librarianship and Information Science*, 55(2), 299-312. <https://doi.org/10.1177/09610006221079345>
7. Ibragimova I, Fulbright H. **Librarians and information specialists as methodological peer-reviewers: a case-study of the International Journal of Health Governance.** *Res Integr Peer Rev*. 2024 Jan 19;9(1):1. doi: 10.1186/s41073-023-00142-4. PMID: 38238865; PMCID: PMC10797710.
8. <https://everyone.plos.org/2019/09/16/multidisciplinary-peer-review-at-plos-one-improving-the-quality-of-peer-review-for-interdisciplinary-research/>