

Responsible Research: Current frameworks and new ideas

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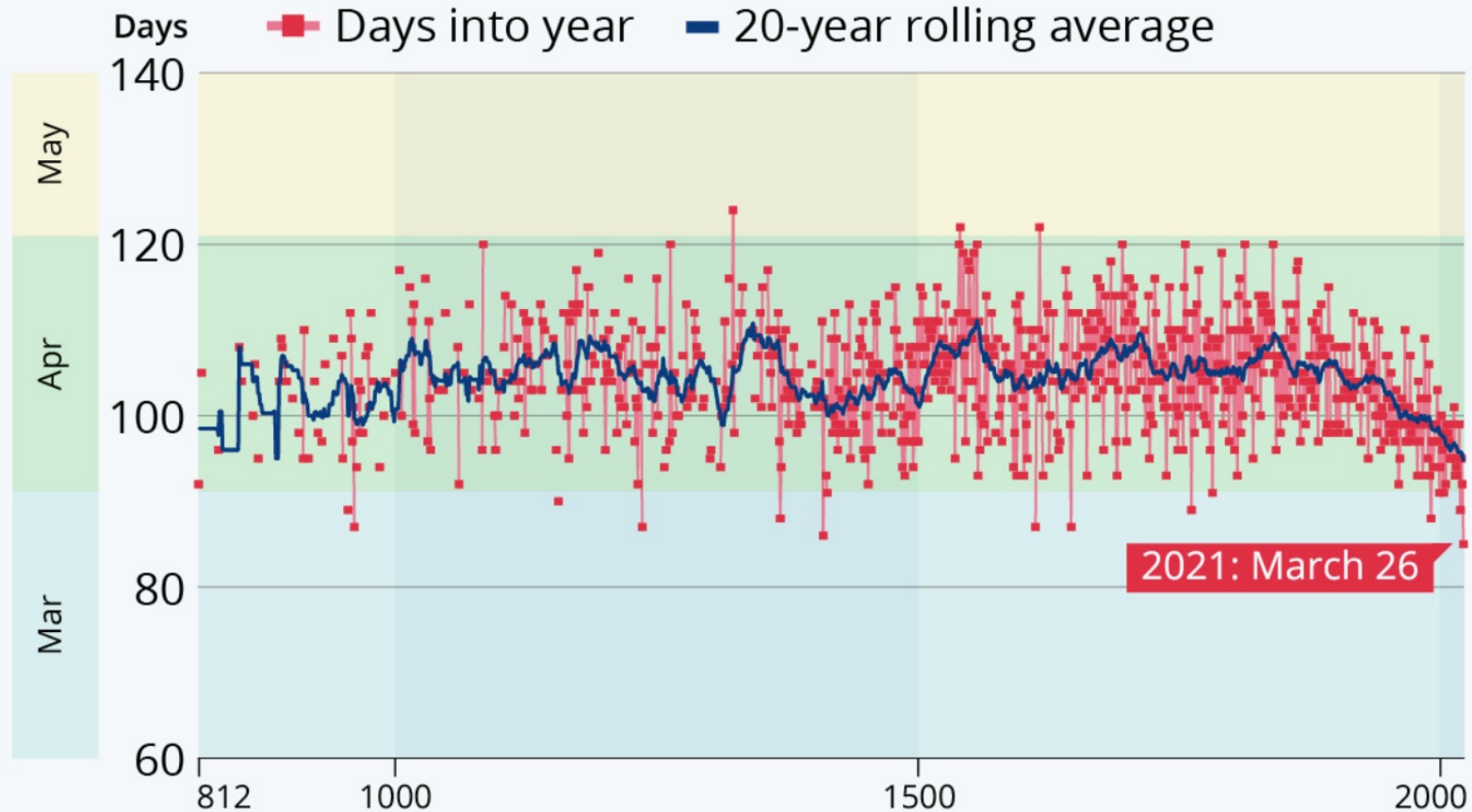
A time of unprecedented danger: It is 90 seconds to midnight

2023 Doomsday Clock Statement

Science and Security Board
Bulletin of the Atomic Scientists



Peak of cherry blossom bloom in Kyoto and 20-year rolling average (812-2021)



Source: Yasuyuki Aono/Osaka Prefecture University

IS THERE A REPRODUCIBILITY CRISIS?

A *Nature* survey lifts the lid on
how researchers view the 'crisis'
rocking science and what they
think will help.

BY MONYA BAKER

52%
Yes, a significant
crisis

38%
Yes, a slight
crisis

7%
Don't know

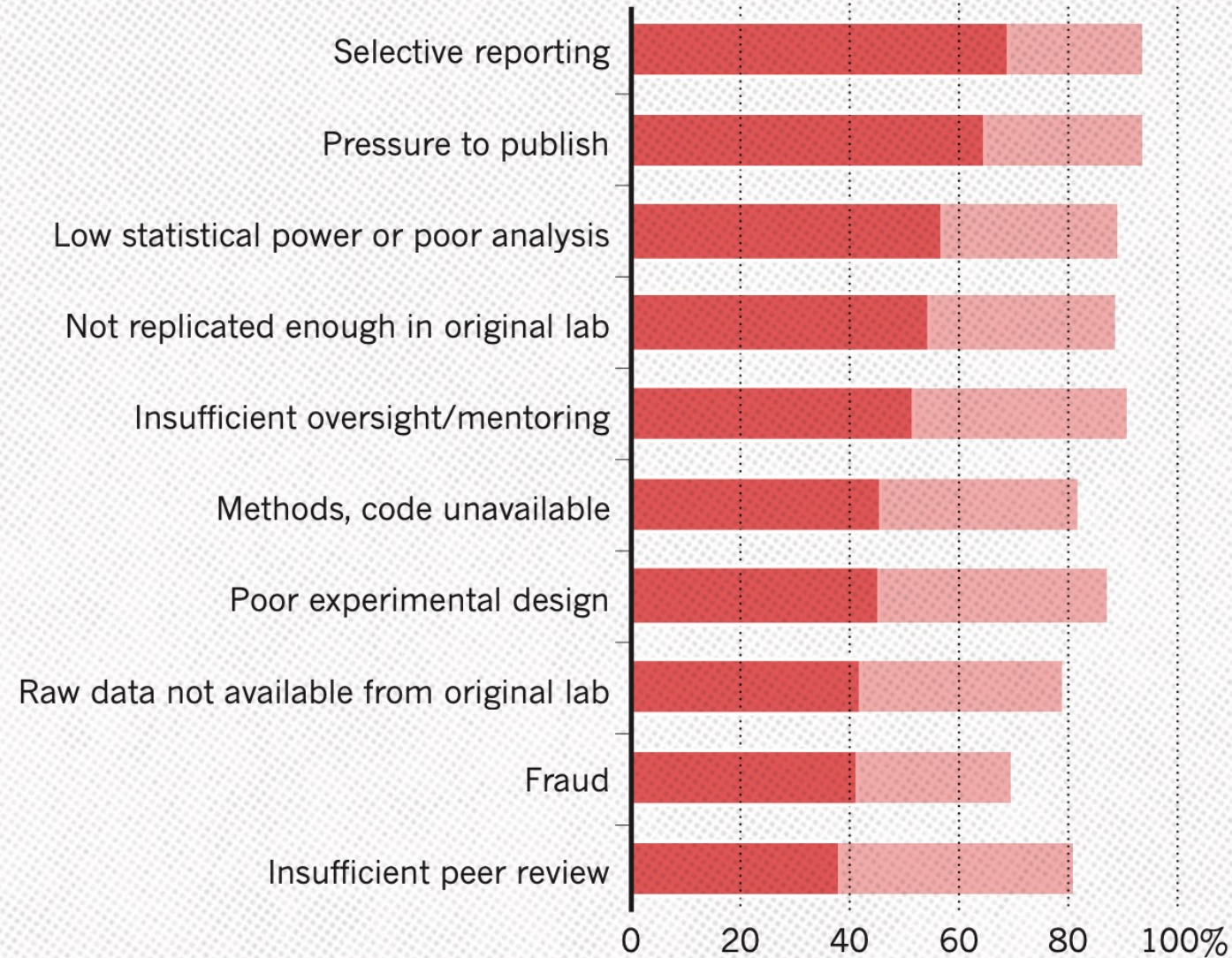
3%
No, there is no crisis

1,576
RESEARCHERS SURVEYED

WHAT FACTORS CONTRIBUTE TO IRREPRODUCIBLE RESEARCH?

Many top-rated factors relate to intense competition and time pressure.

● Always/often contribute ● Sometimes contribute





**Responsible
Research!**

Policy and
governance

Responsibility

Innovation

Community
engagement

Diplomacy
and
collaboration

What *is* responsible research?

- Research **ethics** and **integrity**
- **Accountability** to society and environment
- Weighing **benefits** and **harms** of research
- Holistic

Existing Frameworks

WCRI Statements

- Singapore (2010)
- Montreal (2013)

UKRI

- Anticipate, reflect, engage, act (AREA)

WCRI's Singapore Statement 2010

- Adherence to regulations
- Research records
- Publication
acknowledgement
- Conflict of interest

WCRI's Montréal Statement 2013

- Goals
- Accountability
- Authority of representation
- Trust

Anticipate, reflect, engage, act (AREA)

Anticipate

Describe and analyse the impacts, intended or otherwise, that might arise. Do not seek to predict but rather support the exploration of possible impacts (such as economic, social and environmental) and implications that may otherwise remain uncovered and little discussed.

Reflect

Reflect on the purposes of, motivations for and potential implications of the research, together with the associated uncertainties, areas of ignorance, assumptions, framings, questions, dilemmas and social transformations these may bring.

Engage

Open up such visions, impacts and questioning to broader deliberation, dialogue, engagement and debate in an inclusive way.

Act

Use these processes to influence the direction and trajectory of the research and innovation process itself.

Limitations

Outdated

- Research practice standards have shifted
- Technology is advancing

Vague

- Necessary!
- Not easily applicable

Updates

1. Public engagement
2. Accountability

Public Engagement

- Indigenous, gene and nanotech research
- Getting people involved
 - Enriches the community
 - Enhances the research
 - Minimizes harms
- Should require training

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Such an approach entails building collaborative relationships between researchers and descendant communities, in which both scientists and knowledge keepers are both valued as authorities in their respective realms of knowl-

institutional REB review process. There is variance in how researchers engage with communities and their approvals processes, and with institutional REBs. However, no researcher should seek (or be granted) institutional REB clearance without having first spent considerable time building relationships with the community; finding out who can speak on behalf of the community as a nation; developing a research design and contract, including a data sharing agreement, with the community; and obtaining necessary

Participatory technology assessment is essential to responsible nanotechnology development. It has been proposed to establish a network to conduct participatory technology assessment activities that:

- Harness education, deliberation, and reflection to give a voice to everyday citizens who otherwise have minimal representation in the politics of science and technology
- Enable decision makers to take into account the informed views of their constituents regarding emerging developments in science and technology

tion and that the information

scholars have recently moved
age Native American commu-
ods such as participatory ac-

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Accountability

- Indigenous and environmental research
- Accountability
 - Active process
 - Requires humility and maintenance

3.2. Address past and present harms as an essential part of building accountable relationships

Be aware of and actively address past and ongoing injustices faced by

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According to the majority of the participants, trust is crucial in contemporary research with (inter)national and interdisciplinary collaborations. However, participants noted that trust is not sitting back and blindly relying on one's peers. Instead, trust has to be sustained by actively holding each other accountable. One way to do this is through actively checking-in with peers and collaborators on how their work is going. This way, researchers can collectively hold expectations of good research practices in high regard. Senior researchers emphasized that in a responsible research climate, they should be able to trust those working below them to do their work with utmost care. Likewise, junior researchers stressed that they needed to trust that their supervisors know where the research projects are going.

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3.7. Make a plan for identifying and protecting sensitive Indigenous data

Indigenous data sovereignty is a critical issue to which tribes, scholars, Indigenous leaders, policy-makers, and regulatory agencies are

In sum...

- RR is
 - **Dynamic**
 - **context- and discipline-dependent**
- Frameworks need to be **updated**
- Emphasis on
 - **Human-science intersection**
 - **Practical** application

References

- Assen**, L. S., Jongsma, K. R., Isasi, R., Tryfonidou, M. A., & Bredenoord, A. L. (2022). Roles and responsibilities in stem cell research: a focus group study with stem cell researchers and patients. *Regenerative Medicine*, 17(7), 445-459.
- Bull**, J., Beazley, K., Shea, J., MacQuarrie, C., Hudson, A., Shaw, K., ... & Gagne, B. (2019). Shifting practise: Recognizing Indigenous rights holders in research ethics review. *Qualitative Research in Organizations and Management: An International Journal*, 15(1), 21-35.
- Fisher**, E., & Mahajan, R. L. (2006, November). Midstream modulation of nanotechnology research in an academic laboratory. In *American Society of Mechanical Engineers International Mechanical Engineering Congress and Exposition, Chicago*.
- Haven**, T., Pasman, H. R., Widdershoven, G., Bouter, L., & Tjldink, J. (2020). Researchers' perceptions of a responsible research climate: A multi focus group study. *Science and Engineering Ethics*, 26, 3017-3036.
- Matson**, L., Ng, G. H. C., Dockry, M., Nyblade, M., King, H. J., Bellcourt, M., ... & Waheed, A. (2021). Transforming research and relationships through collaborative tribal-university partnerships on Manoomin (wild rice). *Environmental Science & Policy*, 115, 108-115.
- McLeod**, C. (2015). Adding RRI to the 3Rs: What could Responsible Research and Innovation offer animal research governance. *Available at SSRN 2706527*.
- Roco**, M. C., Hersam, M. C., Mirkin, C. A., Roco, M. C., Harthorn, B., Guston, D., & Shapira, P. (2011). Innovative and responsible governance of nanotechnology for societal development. *Nanotechnology Research Directions for Societal Needs in 2020: Retrospective and Outlook*, 561-617.
- Wagner**, J. K., Colwell, C., Claw, K. G., Stone, A. C., Bolnick, D. A., Hawks, J., ... & Nanibaa'A, G. (2020). Fostering responsible research on ancient DNA. *The American Journal of Human Genetics*, 107(2), 183-195.