



Australian Research Data Commons

Research Data Management: a Shared Responsibility

ARMS 2019 Adelaide

PRESENTED BY
Paul Wong

Australian Research Data Commons

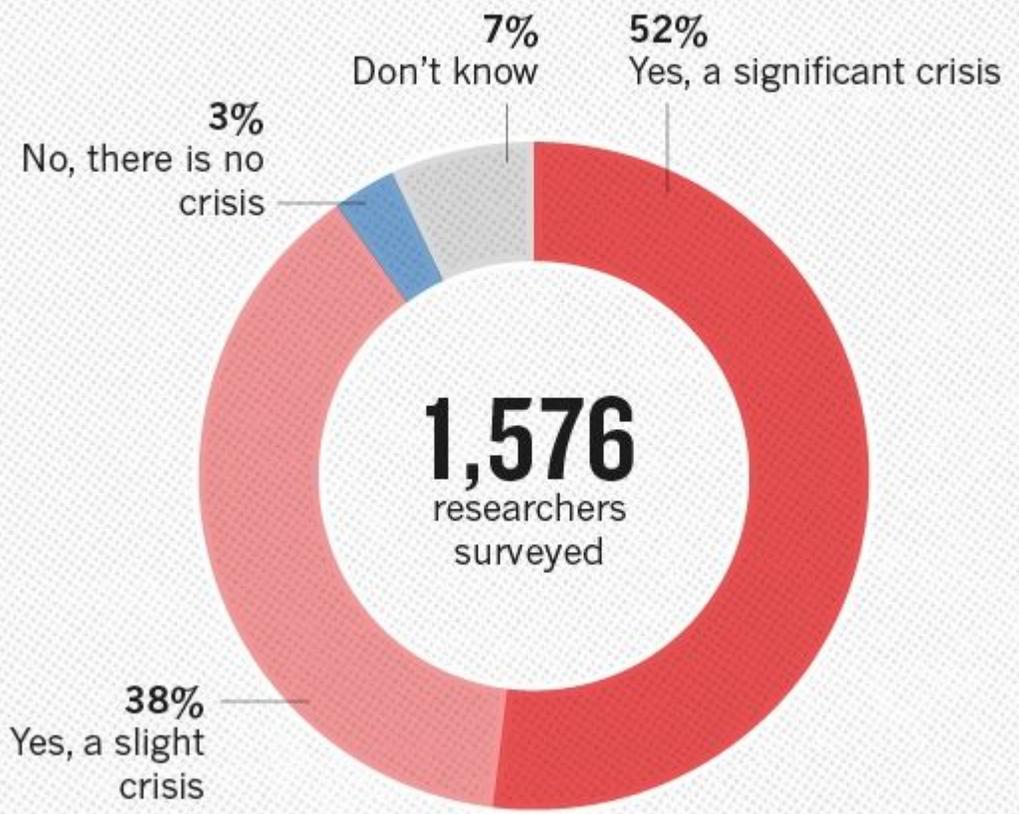
- Established to address the *National Research Infrastructure Roadmap* priority
- A part of National Collaborative Research Infrastructure Strategy (NCRIS)
- Mission to transform the Australian research environment to achieve:
 - A world leading data advantage
 - Accelerated innovation
 - Collaboration for borderless research
 - Enhanced translation of research

<https://ardc.edu.au/>

No advantage, innovation, collaboration and translation without reliability



IS THERE A REPRODUCIBILITY CRISIS?

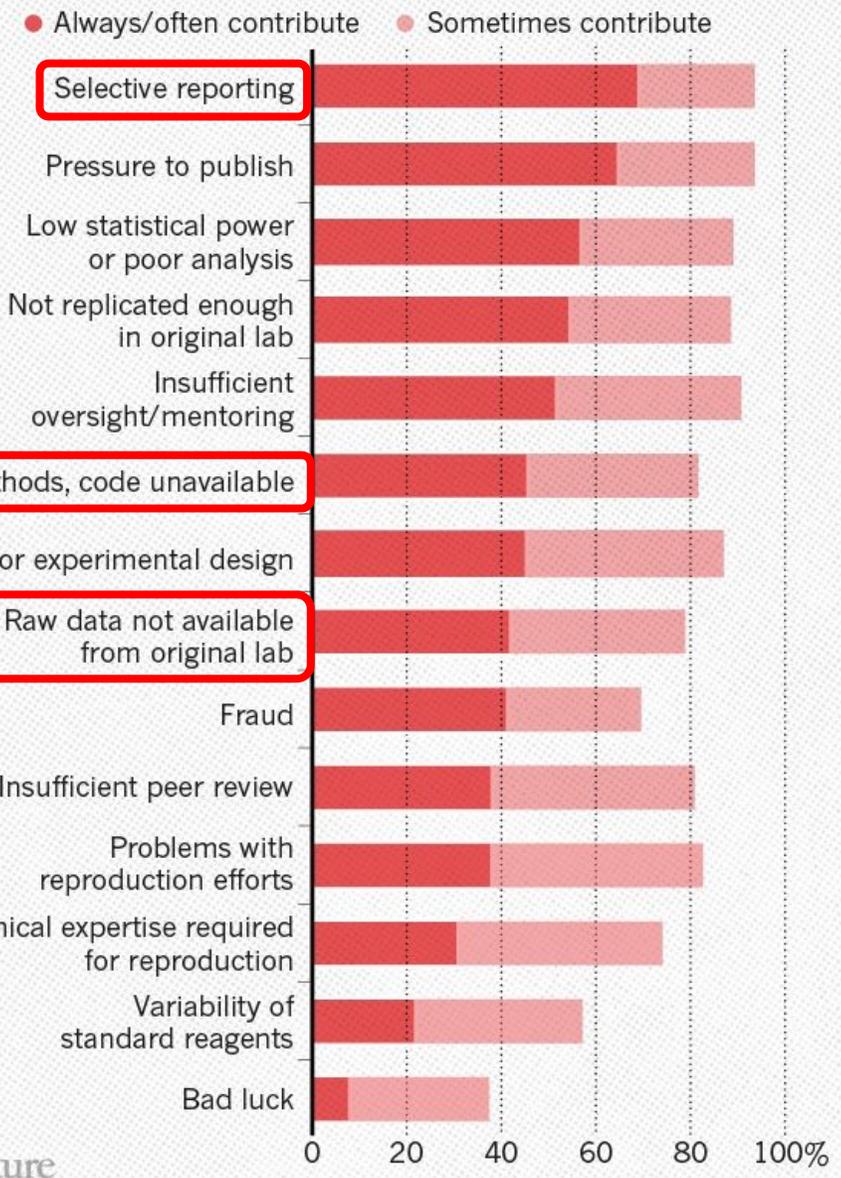


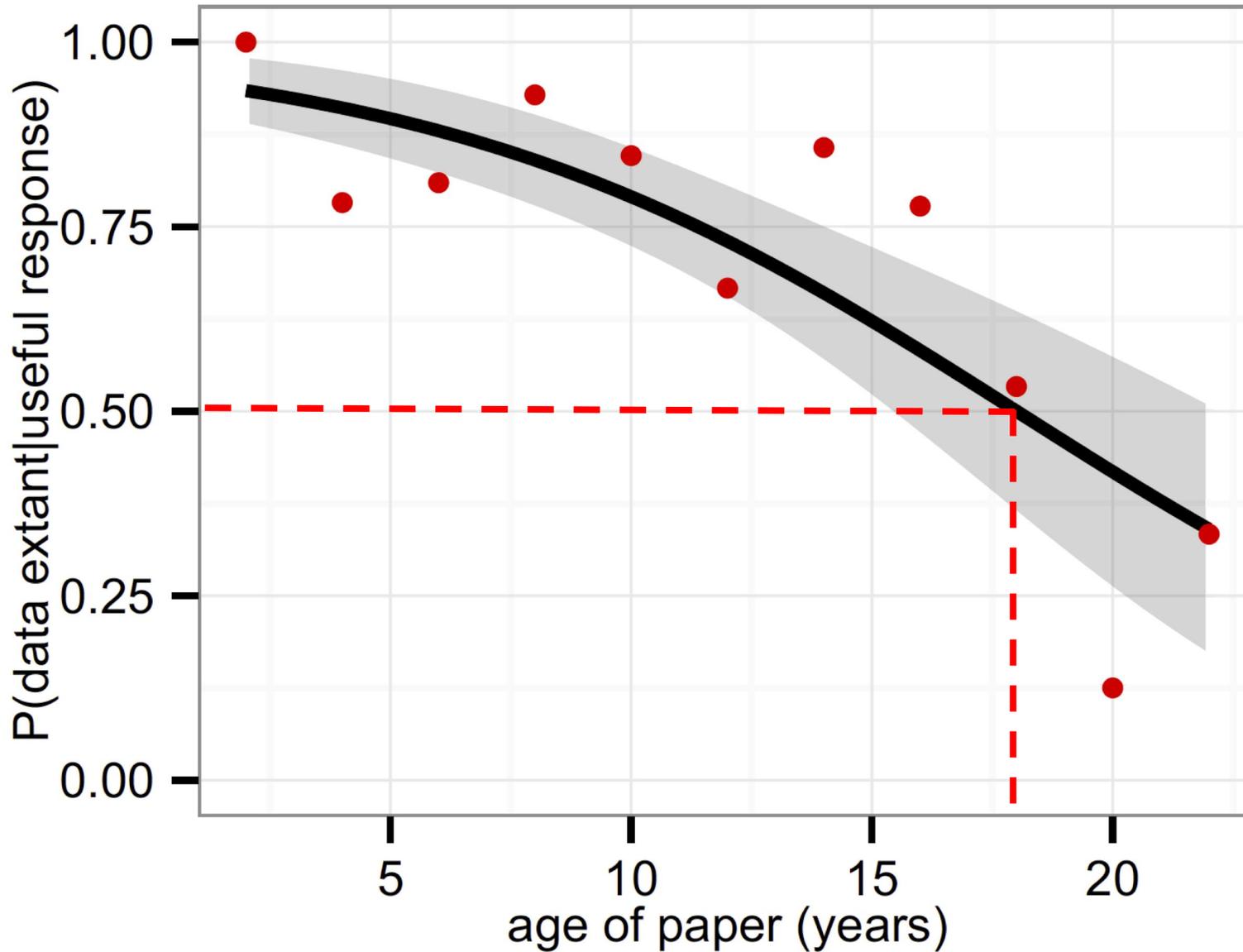
Nature 533, 452–454 (26 May 2016) [doi:10.1038/533452a](https://doi.org/10.1038/533452a).

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WHAT FACTORS CONTRIBUTE TO IRREPRODUCIBLE RESEARCH?

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





“The Availability of Research Data Declines Rapidly with Article Age”, Vine *et al*, *Current Biology*, Volume 24, Issue 1, p94–97, 6 January 2014

“For papers where authors reported the status of their data, the odds of the data being extant decreased by 17% per year...”

The Economics of Reproducibility in Preclinical Research

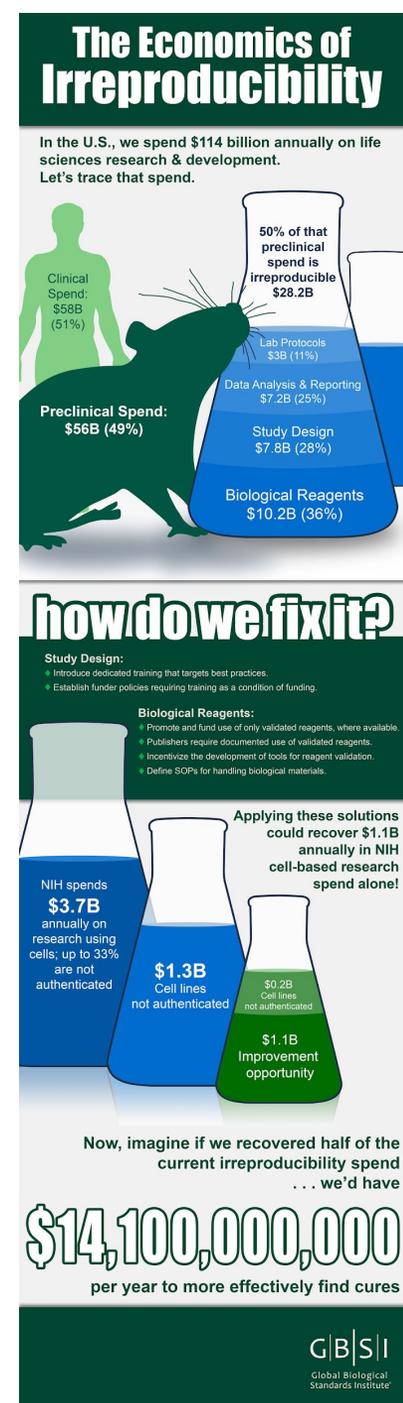
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Abstract

Low reproducibility rates within life science research undermine cumulative knowledge production and contribute to both delays and costs of therapeutic drug development. An analysis of past studies indicates that the cumulative (total) prevalence of irreproducible preclinical research exceeds 50%, resulting in approximately US\$28,000,000,000 (US \$28B)/year spent on preclinical research that is not reproducible—in the United States alone. We outline a framework for solutions and a plan for long-term improvements in reproducibility rates that will help to accelerate the discovery of life-saving therapies and cures.



The Shared Responsibility Model of Research Integrity

Responsible research conduct requires (P3)

“[t]ransparency in declaring interests and reporting research methodology, data and findings ... [s]hare and communicate research methodology, data and findings openly, responsibly and accurately.”

“The primary responsibility for ensuring the integrity of research lies with individual researchers and institutions. The Code sets out principles and responsibilities that both researchers and institutions are expected to follow when conducting research.”

Australian Code for the Responsible Conduct of Research

Guide to Management of Data and Information in Research (published July 2019)

Institutions

- Provision of training for researchers
- Ownership, stewardship and control of research data and primary materials
- Storage, retention and disposal
- Safety, security and confidentiality
- Access by interested parties
- Facilities

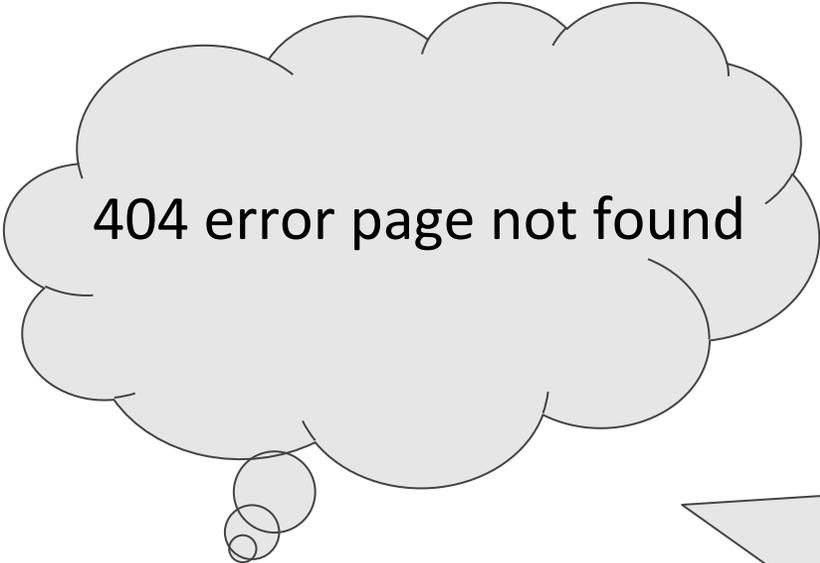
Researchers

- Retention and publication
- Managing confidential and other sensitive information
- Acknowledging the use of others' data
- Engagement with relevant training

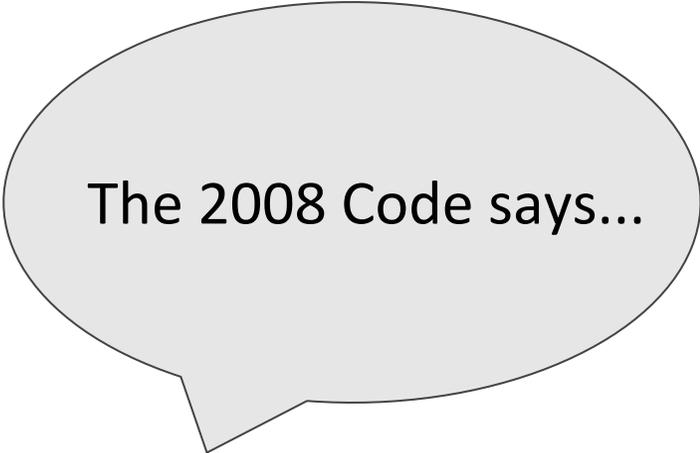
Require defined institutional policies (procedures and guidelines).

Research Data Management Policy Snapshot 2019

42 Australian HEP identified in 2019 Block Grant allocation. Data captured as of 14 Sept 2019



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The 2008 Code says...



Lost in action

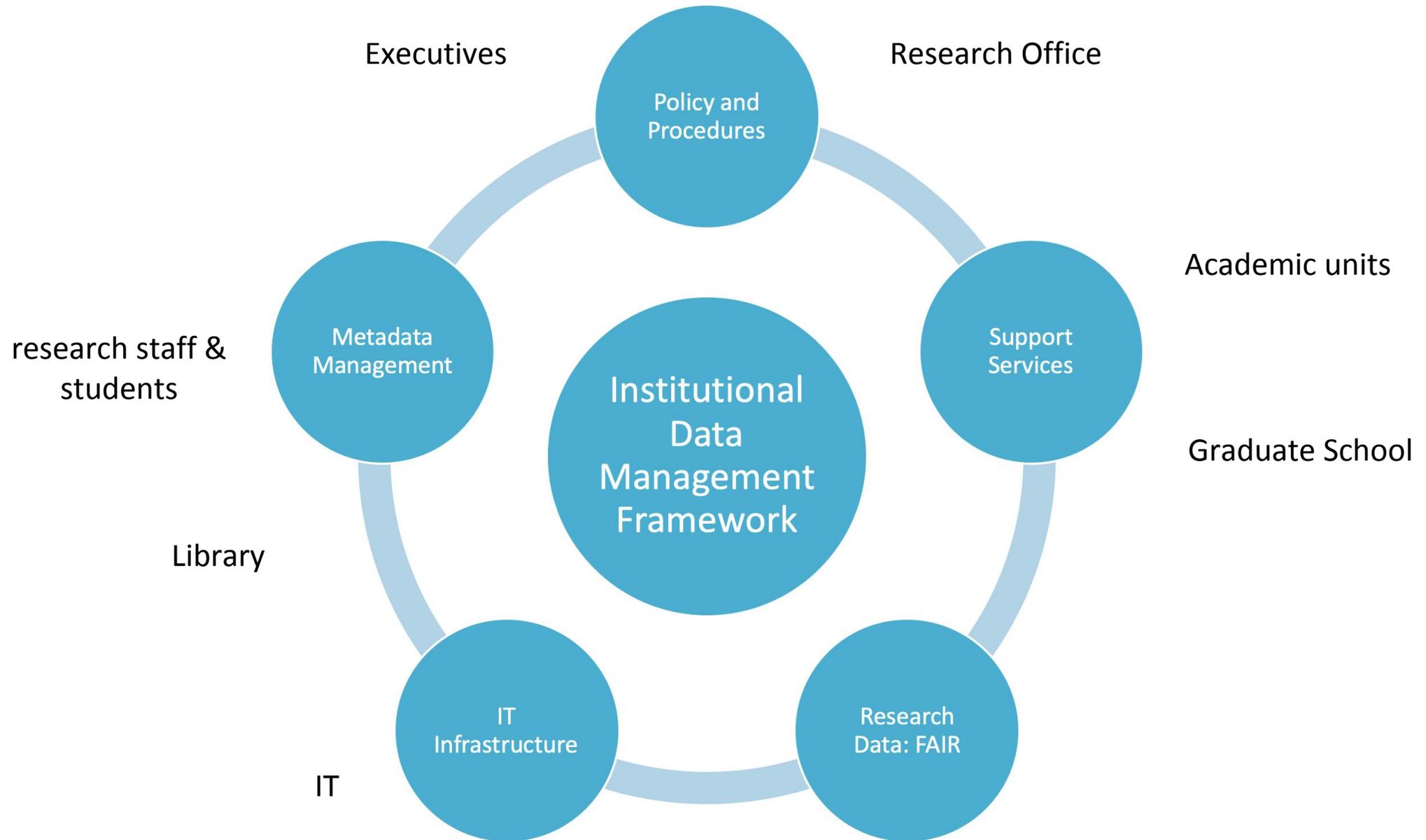
Research Data Management Policy Snapshot 2019

Updated in accordance with the 2018 Code	Data Management Plan mentioned	Data Management Plan collected by Uni	Data Policy Distinct from the 2018 Code
No	Yes	No	No
No	Yes	No	Yes
Yes	Yes	No	Yes
Yes	No	No	Yes
Yes	No	No	No
Yes	No	No	Yes
No	Yes	No	Yes
Yes	Yes	No	No
No	Yes	Yes	Yes
Yes	Yes	Yes	No
Yes	Yes	Yes	Yes
Yes	Yes	No	Yes
N/A	N/A	N/A	N/A
Yes	Yes	Yes	No
No	Yes	Yes	Yes
Yes	No	No	Yes

Research Data Management Policy Snapshot 2019

<i>COUNT of Updated in accordance with the 2018 Code Data Policy Distinct from the 2018 Code</i>	<i>Updated in accordance with the 2018 Code</i>			
	N/A	No	Yes	Grand Total
N/A	3			3
No		6	8	14
Yes		14	11	25
Grand Total	3	20	19	42

Note: 42 Australian HEP identified by 2019 Block Grant funding allocation. Data collected as of 14 Sept 2019.



The Current International Best Practice: FAIR

Findable, **A**ccessible, **I**nteroperable, **R**eusable

15 principles to ensure research data is FAIR

Mark D. Wilkinson et al. The FAIR Guiding Principles for scientific data management and stewardship, *Scientific Data* (2016). DOI: [10.1038/sdata.2016.18](https://doi.org/10.1038/sdata.2016.18)

“FAIRness is a prerequisite for proper data management and data stewardship”

Data Accessibility

<https://ada.edu.au/accessing-data/>

Access Categories

Data from the Australian Data Archive is made available under four broad categories of access. The choice of access category is made by the depositor of the data:

- **OPEN ACCESS:** studies where there are no restrictions on access
- **GENERAL ACCESS:** studies with controlled data access managed by the ADA on behalf of the depositor
- **RESTRICTED ACCESS:** studies where the depositor, or an authorised representative, wishes to be informed by the Archive of each request to use the data in order to give or withhold permission.
- **SPECIAL ACCESS:** studies where the depositor has included additional special access conditions. For example, the user may be required to obtain the permission in writing of the original depositor of the data, or an authorised representative, before publishing any interpretation of such materials.

Access to data at each of these levels has an associated user undertaking that you must complete in order to be granted access (see further below).

Funders' Requirements

Authorship: A guide supporting the Australian Code for the Responsible Conduct of Research

7. Definitions

Author

An individual who has made a significant intellectual or scholarly contribution to research and its output and who has agreed to be listed as an author.

Corresponding author

The author who is, as agreed by all co-authors, responsible for communication between the publishers, managing communication between the co-authors and maintaining records of the authorship agreement.

Research Output

A research output communicates or makes available the findings of research that may be in hardcopy, electronic or other form. Examples of research outputs include journal articles, book chapters, books, conference papers, reports, **datasets**, patents and patent applications, performances, videos and exhibitions.

Funders' Requirements

https://www.arc.gov.au/sites/g/files/net4646/f/media-assets/ncgp_final_reports_instructions_second_release.pdf

Final Reports - Second Release: RMS user guide and Instructions

Part C – Project Outputs

Investigators are requested to detail the project outputs achieved as a result of ARC funding including; research outputs (C1), data outputs (C2) and commercialisation outputs (C3 and C4).

RMS has the functionality to auto-populate outputs from Cross-ref to reduce the manual entry of outputs. This is available on the [Crossref website](http://search.crossref.org) (<http://search.crossref.org>) by identifying outputs that have a Digital Object Identifier (DOI)

<http://search.crossref.org/>

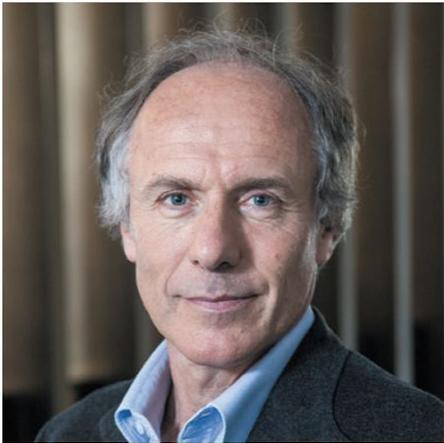
Definition: A digital object identifier (DOI) is a unique alphanumeric string assigned by a registration agency (the International DOI Foundation) to identify content and provide a persistent link to its location on the Internet. The publisher assigns a DOI when your article is published and made available electronically.

The Chief Scientist Call

WORLD VIEW

A personal take on events

OFFICE OF THE CHIEF SCIENTIST



The road to bad research is paved with good intentions

Australian chief scientist Alan Finkel calls for formal action to bake in better research practices.

“there is a growing rumble of concern about the rigour and reproducibility of published research...our focus has to shift from quantity to quality if we are to safeguard against shoddy work



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