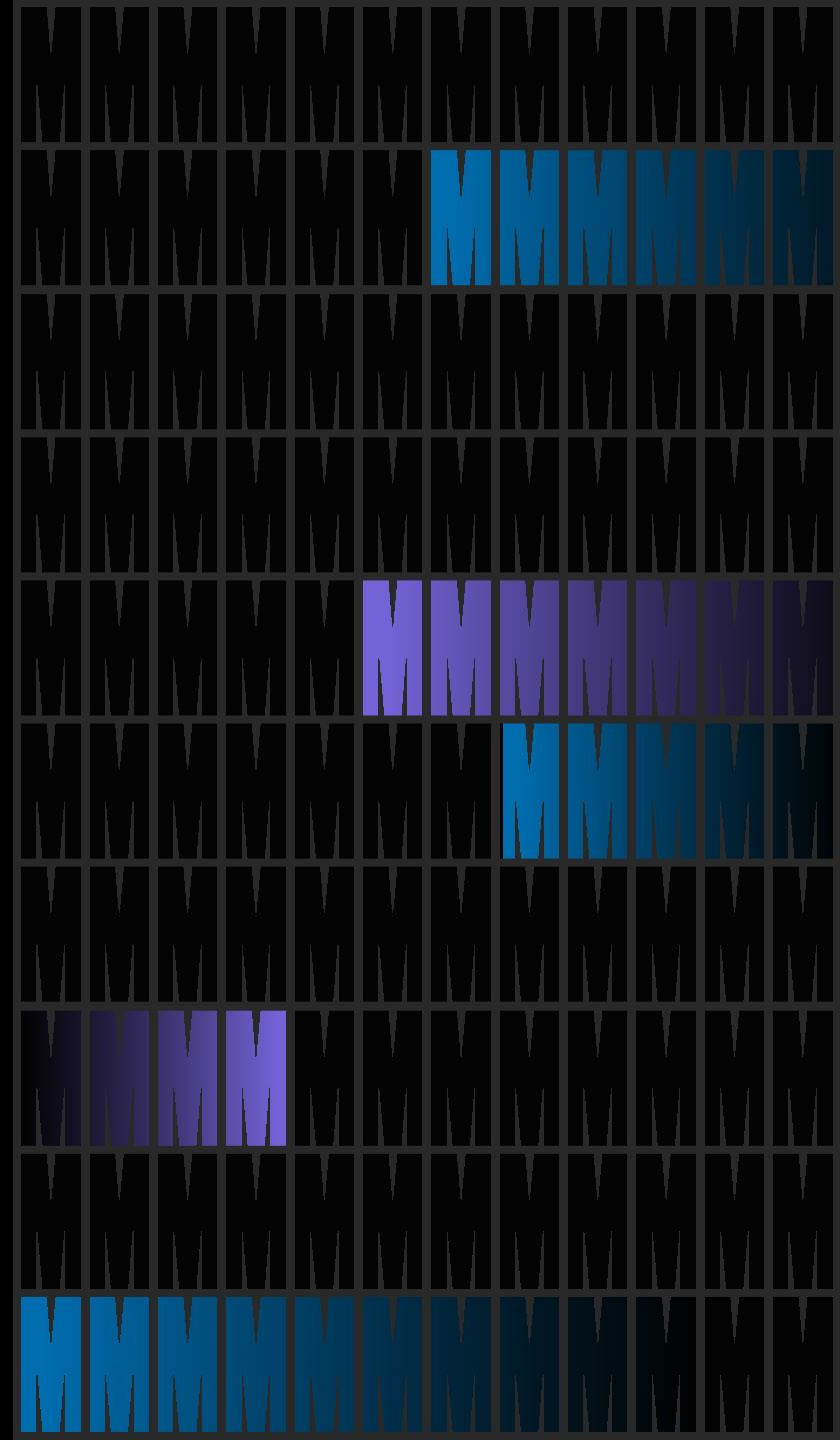


Data Governance for Responsible Research

Date: 18 October 2023

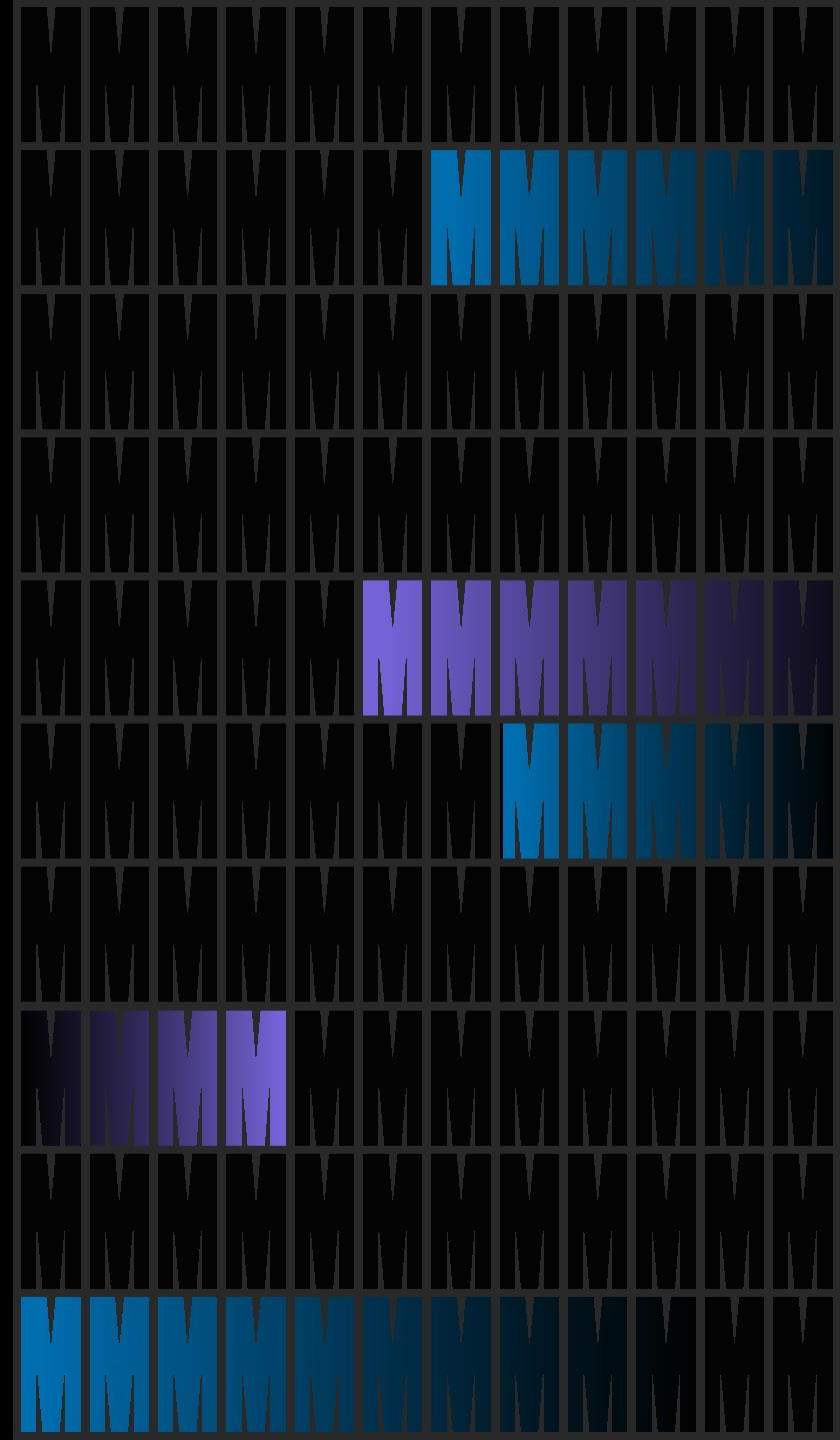
| Authors: Patrick Splawa-Neyman,
Dianne Brown,
Komathy Padmanabhan



Data Governance Responsible Research

Date: 18 October 2023

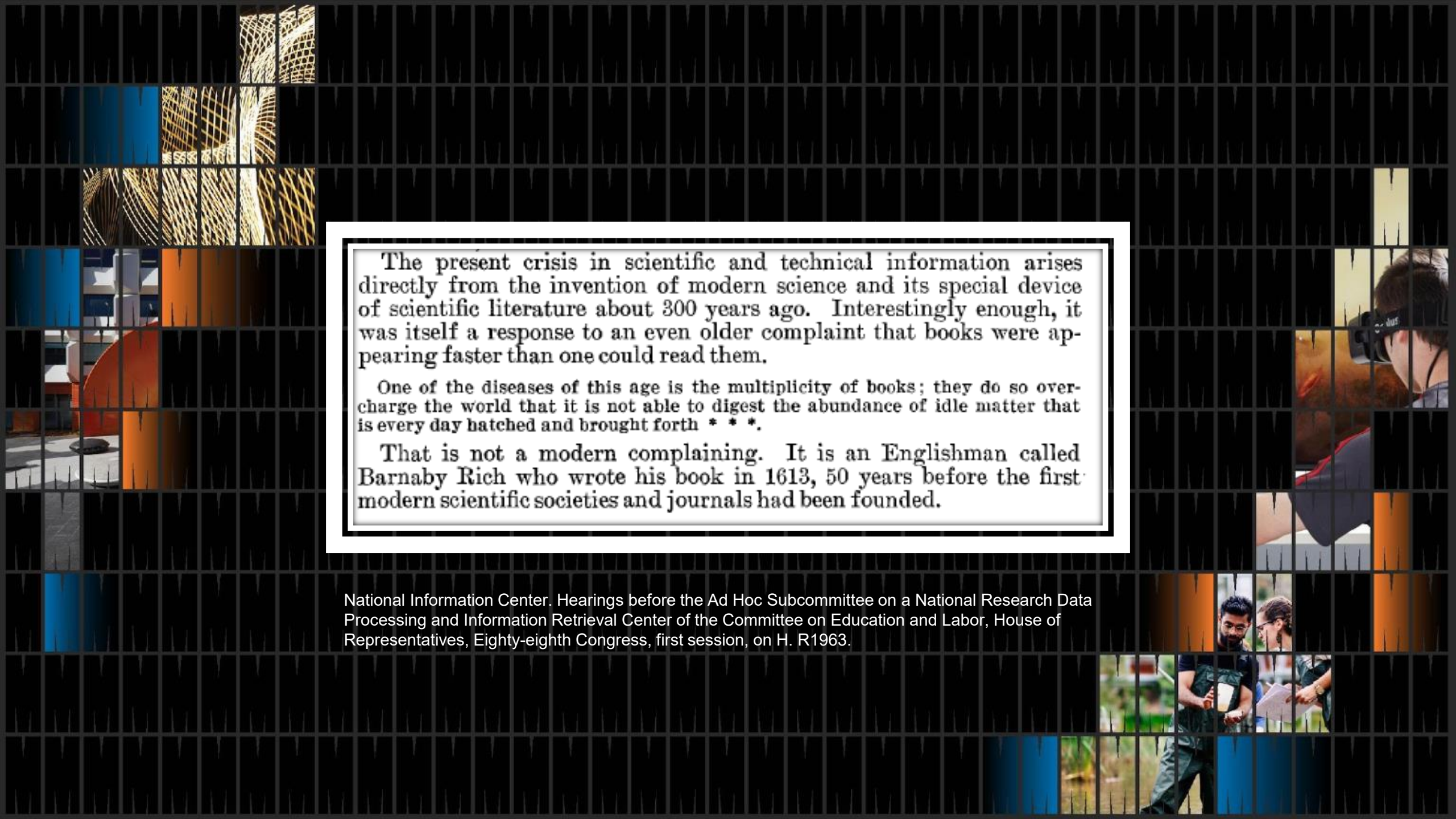
| Authors: Patrick Splawa-Neyman,
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MONASH UNIVERSITY recognises that its Australian campuses are located on the unceded lands of the people of the Kulin nations, and pays its respects to their Elders, past and present.





The present crisis in scientific and technical information arises directly from the invention of modern science and its special device of scientific literature about 300 years ago. Interestingly enough, it was itself a response to an even older complaint that books were appearing faster than one could read them.

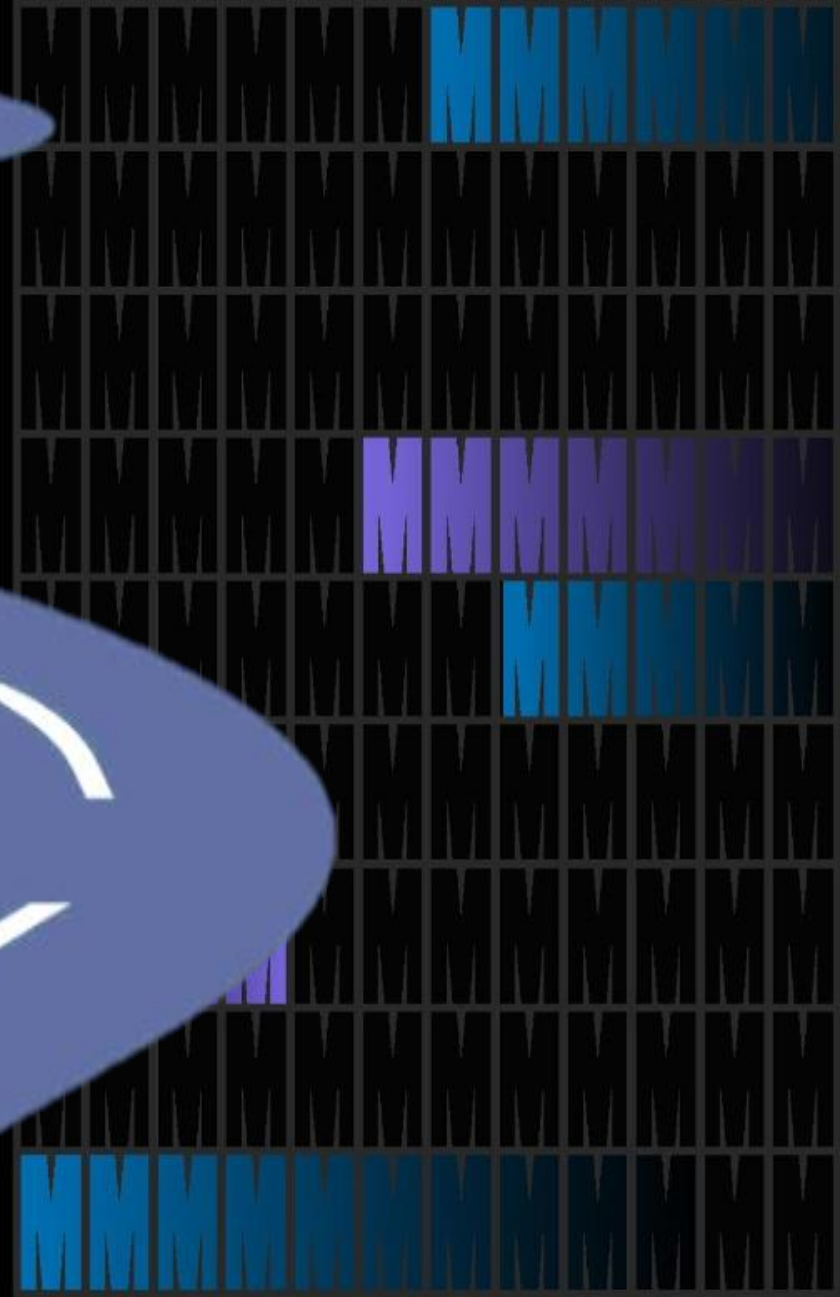
One of the diseases of this age is the multiplicity of books; they do so overcharge the world that it is not able to digest the abundance of idle matter that is every day hatched and brought forth * * *.

That is not a modern complaining. It is an Englishman called Barnaby Rich who wrote his book in 1613, 50 years before the first modern scientific societies and journals had been founded.

National Information Center. Hearings before the Ad Hoc Subcommittee on a National Research Data Processing and Information Retrieval Center of the Committee on Education and Labor, House of Representatives, Eighty-eighth Congress, first session, on H. R1963.



Data is valuable

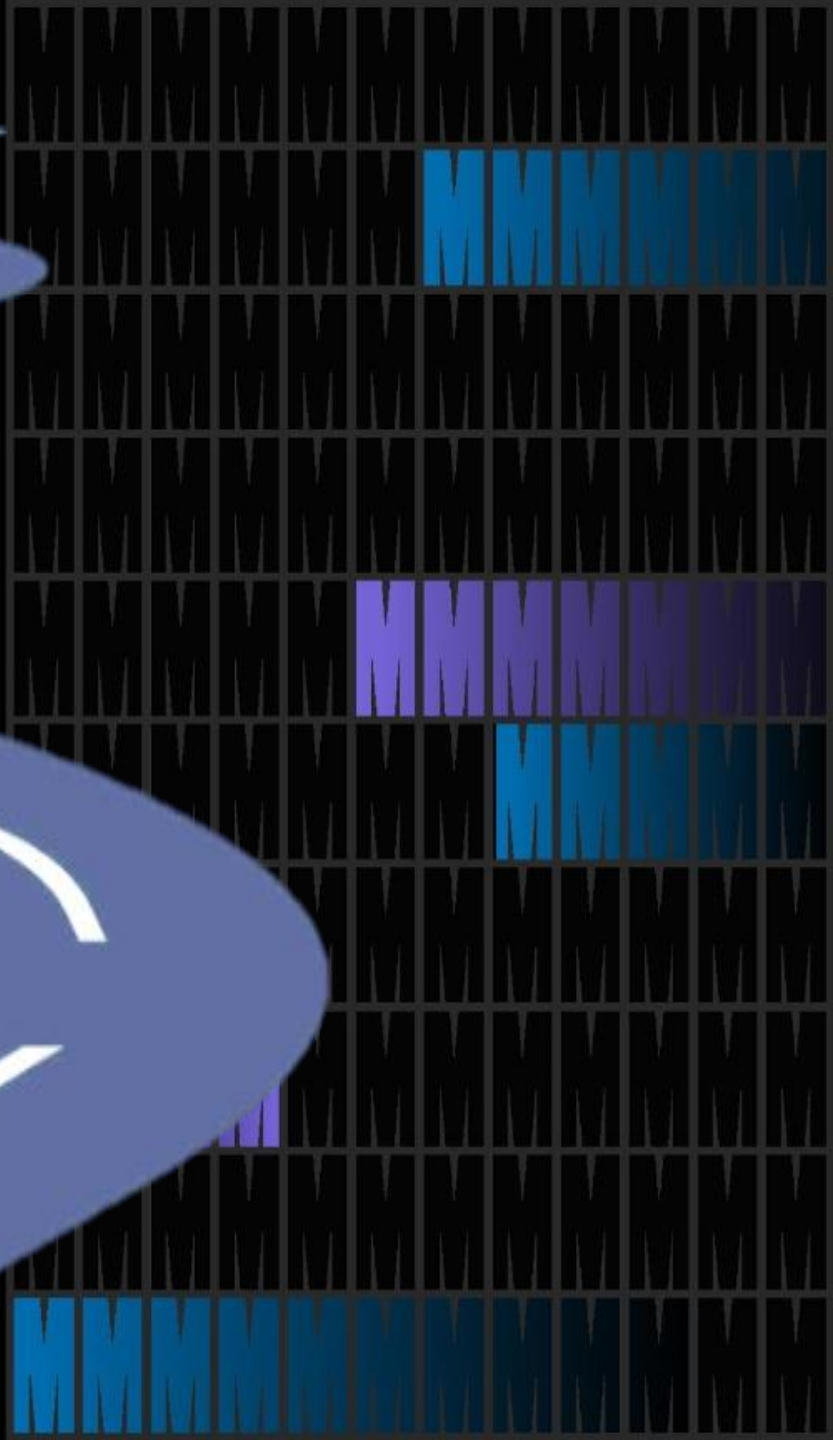




Early 1980s



1989



Early 1980s

1989



2007

AUSTRALIAN CODE FOR THE RESPONSIBLE CONDUCT OF RESEARCH
PART A—PRINCIPLES AND PRACTICES TO ENCOURAGE RESPONSIBLE RESEARCH CONDUCT

2 MANAGEMENT OF RESEARCH DATA AND PRIMARY MATERIALS

INTRODUCTION

Policies are required that address the ownership of research materials and data, their storage, their retention beyond the end of the project, and appropriate access to them by the research community.

The responsible conduct of research includes the proper management and retention of the



Early 1980s

1989



2007

2016

scientific data

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The FAIR Guiding Principles for scientific data management and stewardship

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[Scientific Data](#) **3**, Article number: 160018 (2016) | [Cite this article](#)

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2018

Australian Government
National Health and Medical Research Council
Australian Research Council

UNIVERSITIES AUSTRALIA

Australian Code for the Responsible Conduct of Research

2018

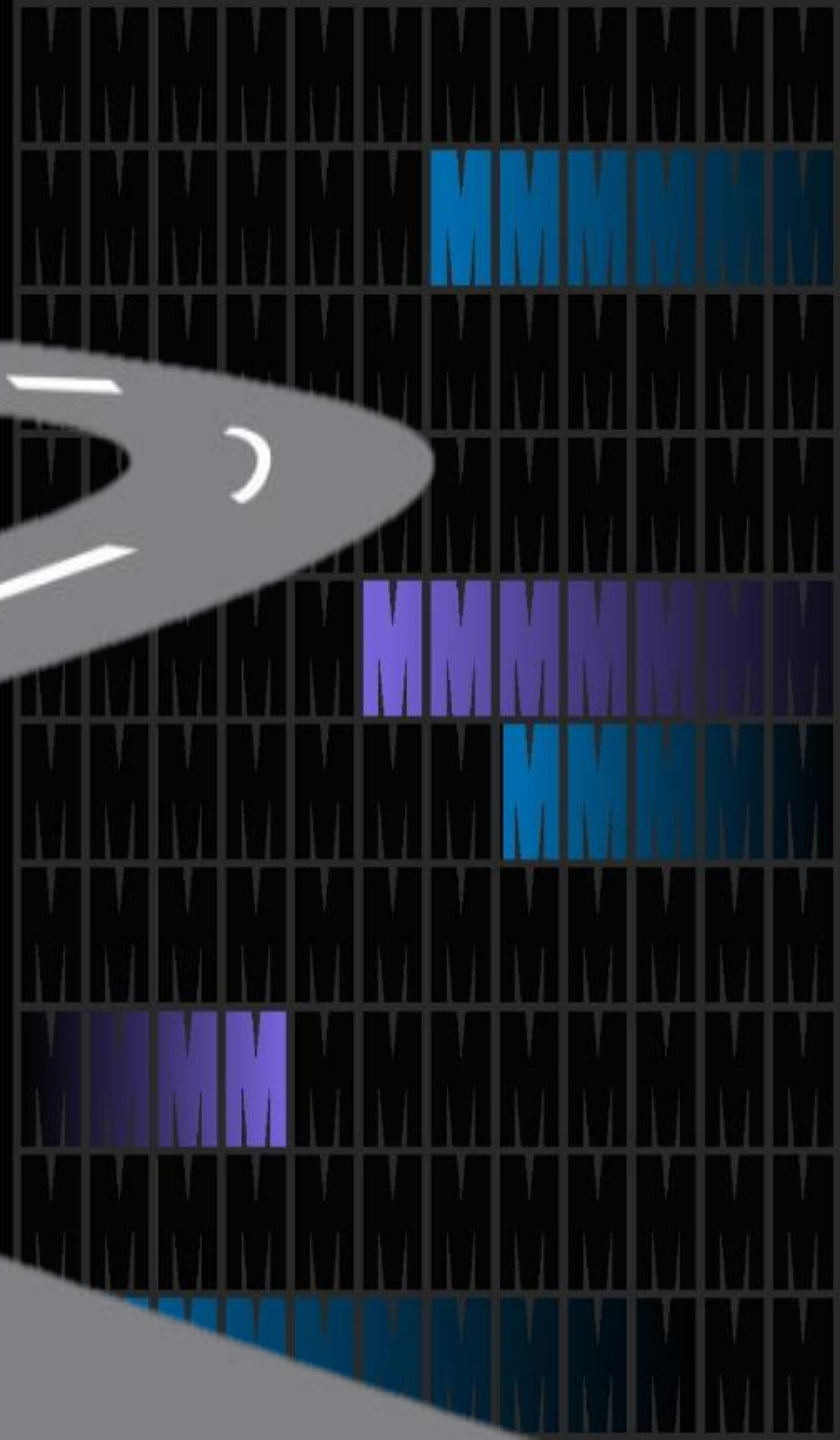
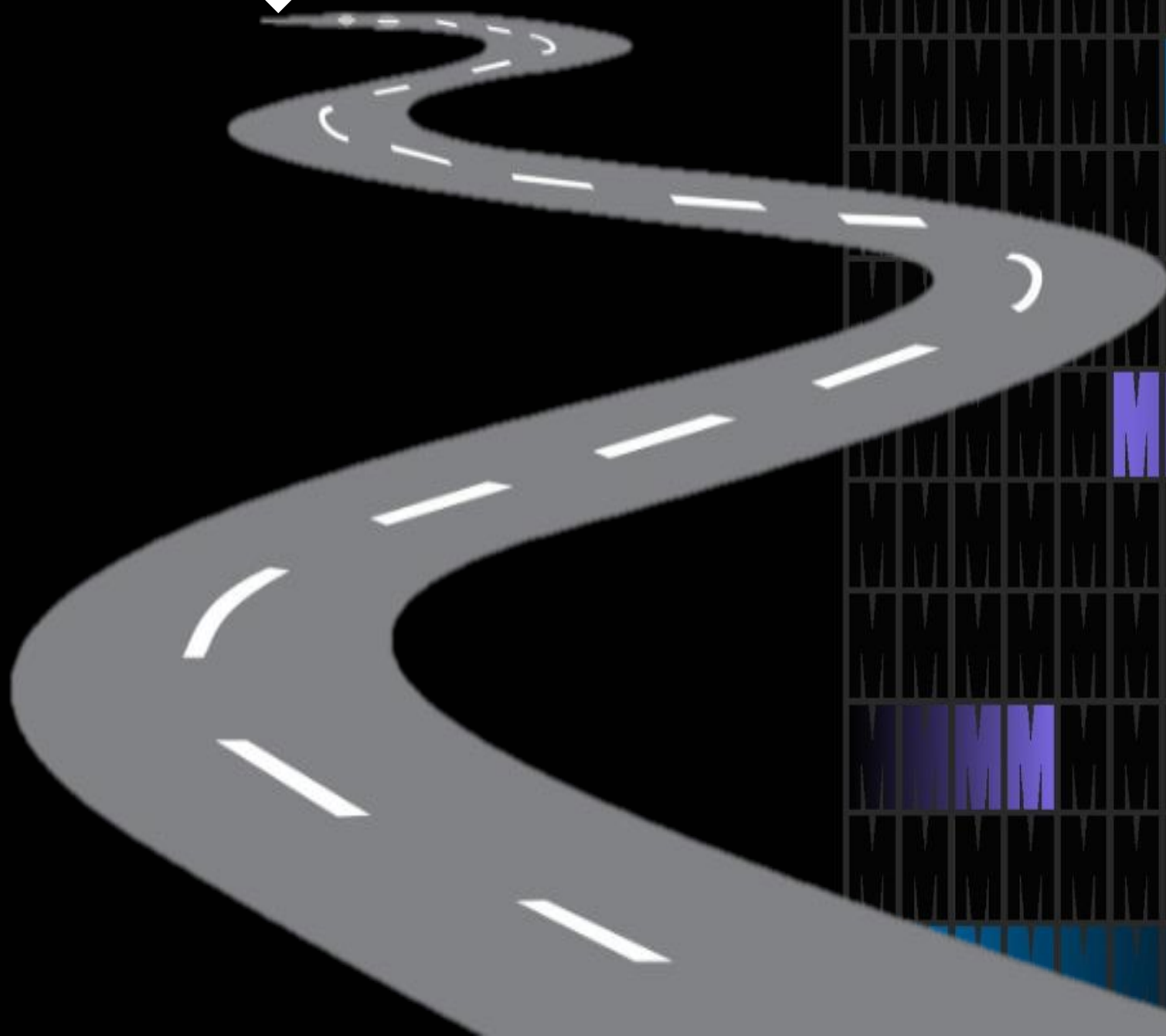
2019

Australian Government
National Health and Medical Research Council
Australian Research Council

UNIVERSITIES AUSTRALIA

Management of Data and Information in Research

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





1980



The Global **Data Management** Community



1980

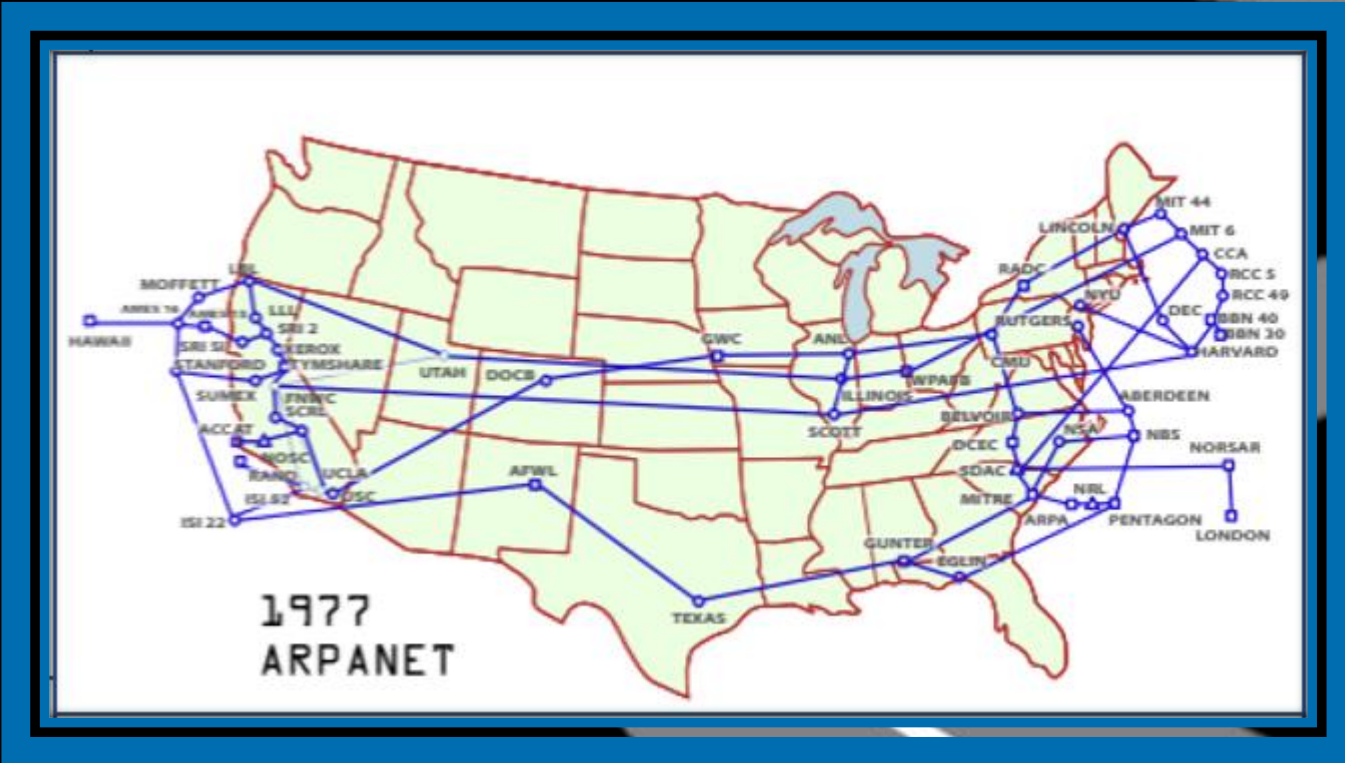


The Global Data Management Community

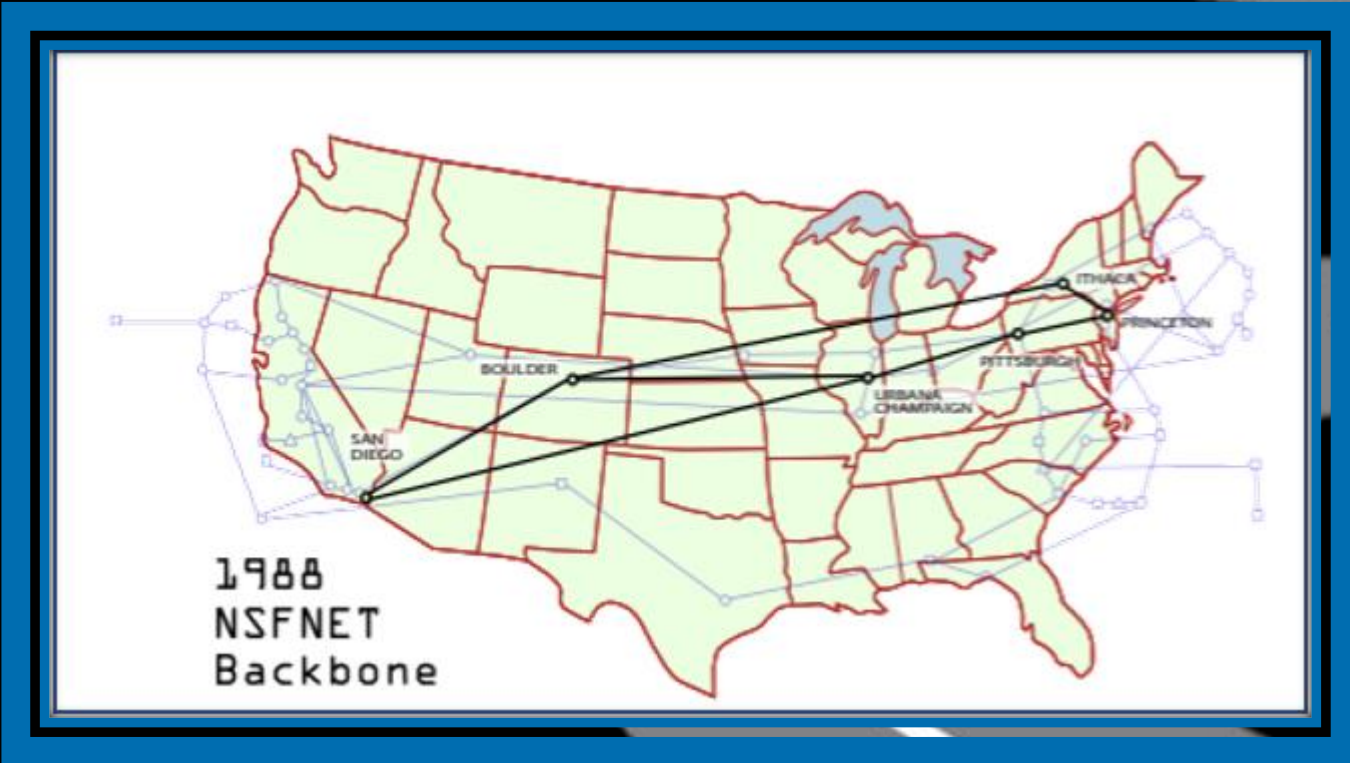
1990s



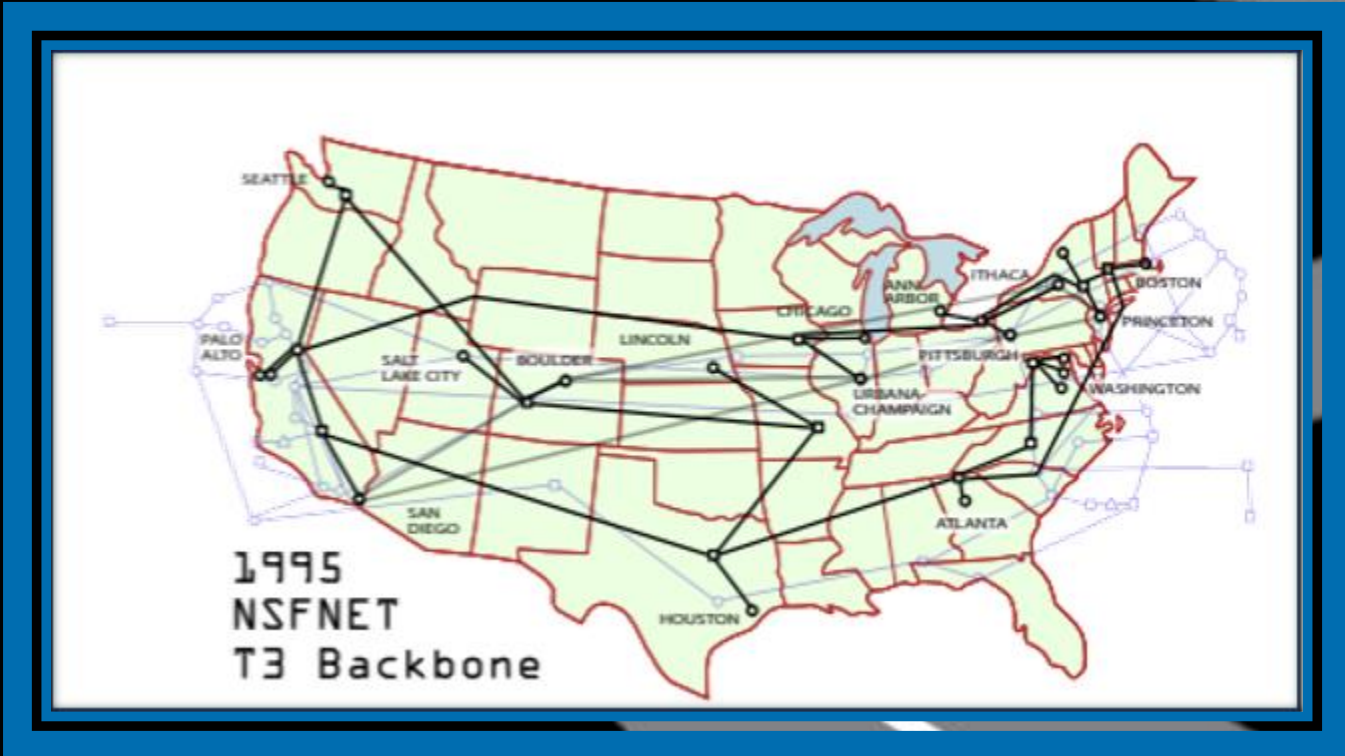
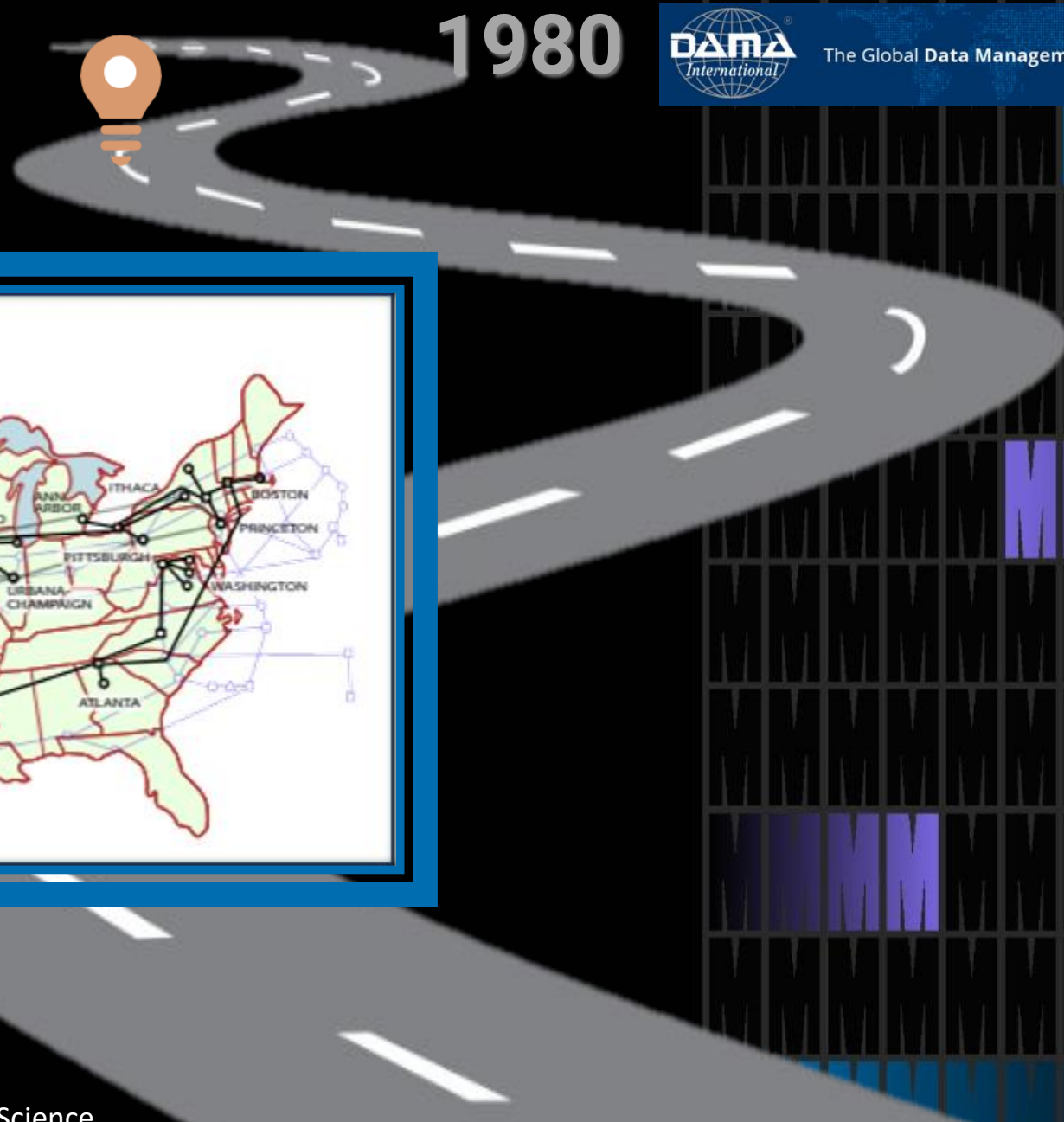
1990s



1990s

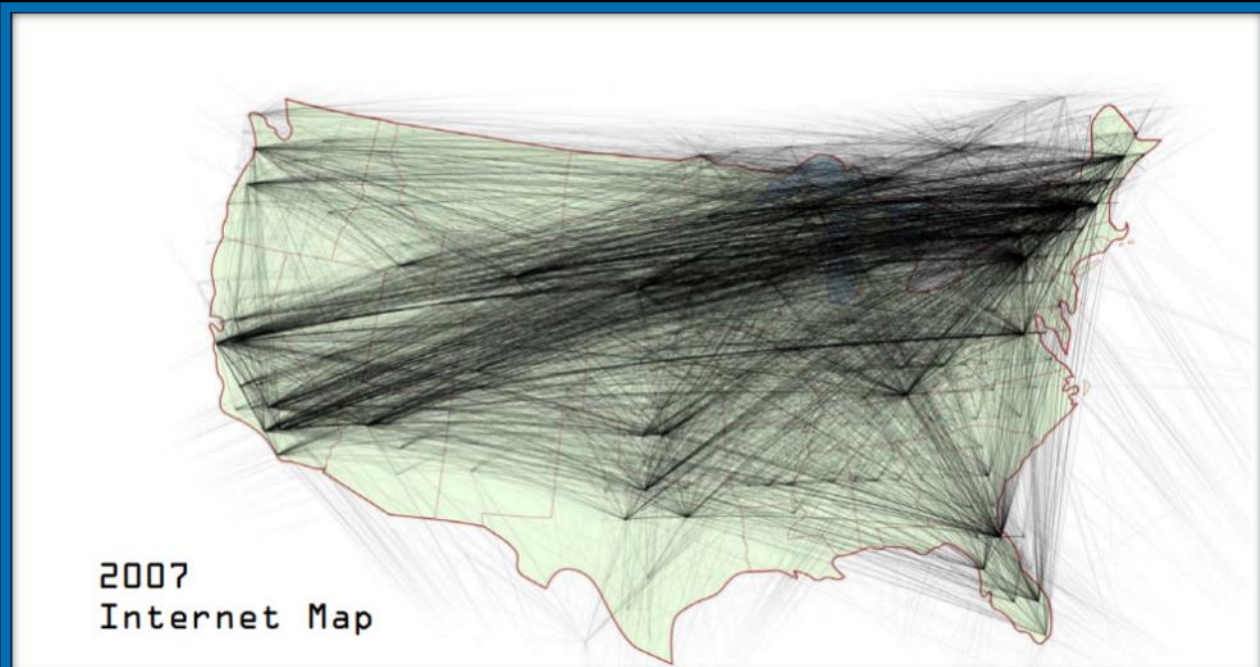


1990s



1980

1990s



1980

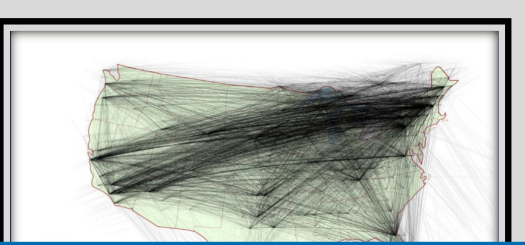


The Global Data Management Community

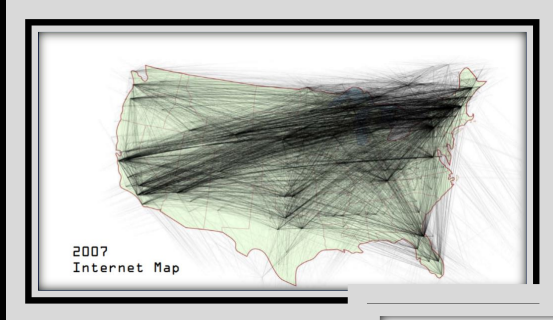
1990s



2000s



Data governance – as part of DQM – addresses these particular issues within corporate structures. Data governance specifies the framework for decision rights and accountabilities to encourage desirable behaviour in the use of data². Academic research on data governance is still in its infancy. DQM approaches, such as Total



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² In the absence of academic definitions of data governance, this definition was adapted from the IT governance definition of (Weill 2004).

1980



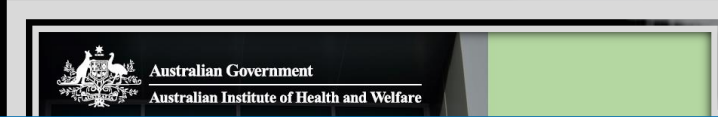
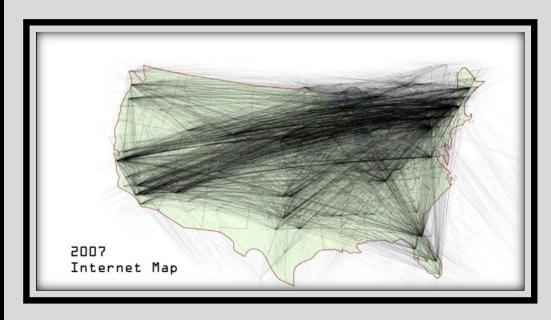
The Global Data Management Community

1990s



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2010s

more rigorous data governance strategies and programs, which can be more complex, but necessary.
The authors' general observation reveals that the area of data governance in general is under researched and not widely practiced by organizations, let alone when it is concerned with cloud computing, where research is really in its infancy and far from reaching maturity. This forms the main motivation

Data governance:
Driving value in
healthcare

development of metadata, ensuring the timely update
ing the linkage of NIDs and other datasets. Given the
entities would have a long track record of trusted data
ocus. It is envisaged that ARAs would also perform an
visory role on technical matters, to the NDC, government, and to the broader
f data custodians.
ers
s would be accredited by ARAs to access data under its control or governance.
y include any individual working in an entity that has in place the necessary data
e requirements to safely handle the datasets in question and a signed legal
r that sets out safeguards for use and recognises relevant privacy requirements.
l relevant Commonwealth and State/Territory government agencies and publicly
e arch bodies should be eligible for accreditation as a trusted user. Private
e should be able to achieve trusted user status, once their employer's commitment to
s standards and approval requirements is evident.

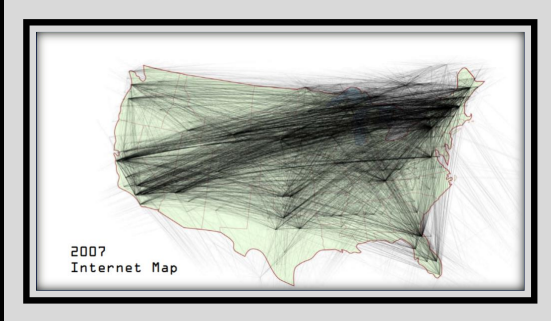
1980



The Global Data Management Community

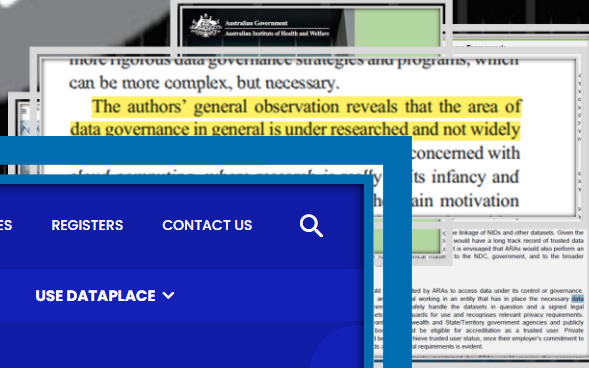
1990s

2000s



Data governance – as part of DQM – addresses these particular issues within corporate structures. Data governance specifies the framework for decision rights and accountabilities to encourage desirable behaviour in the use of data. Academic research on data governance is still in its infancy. DQM approaches, such as Total

2010s



2022

Australian Government Office of the National Data Commissioner | **ONDC** | NEWS & MEDIA HUB | RESOURCES | REGISTERS | CONTACT US

ABOUT US | THE DATA SCHEME | FIND DATA | REQUEST DATA | SHARE DATA | USE DATAPLACE

Introducing the DATA Scheme

THE DATA SCHEME

- Introducing the DATA Scheme
- Consultation and Engagement
- Information Sessions on the

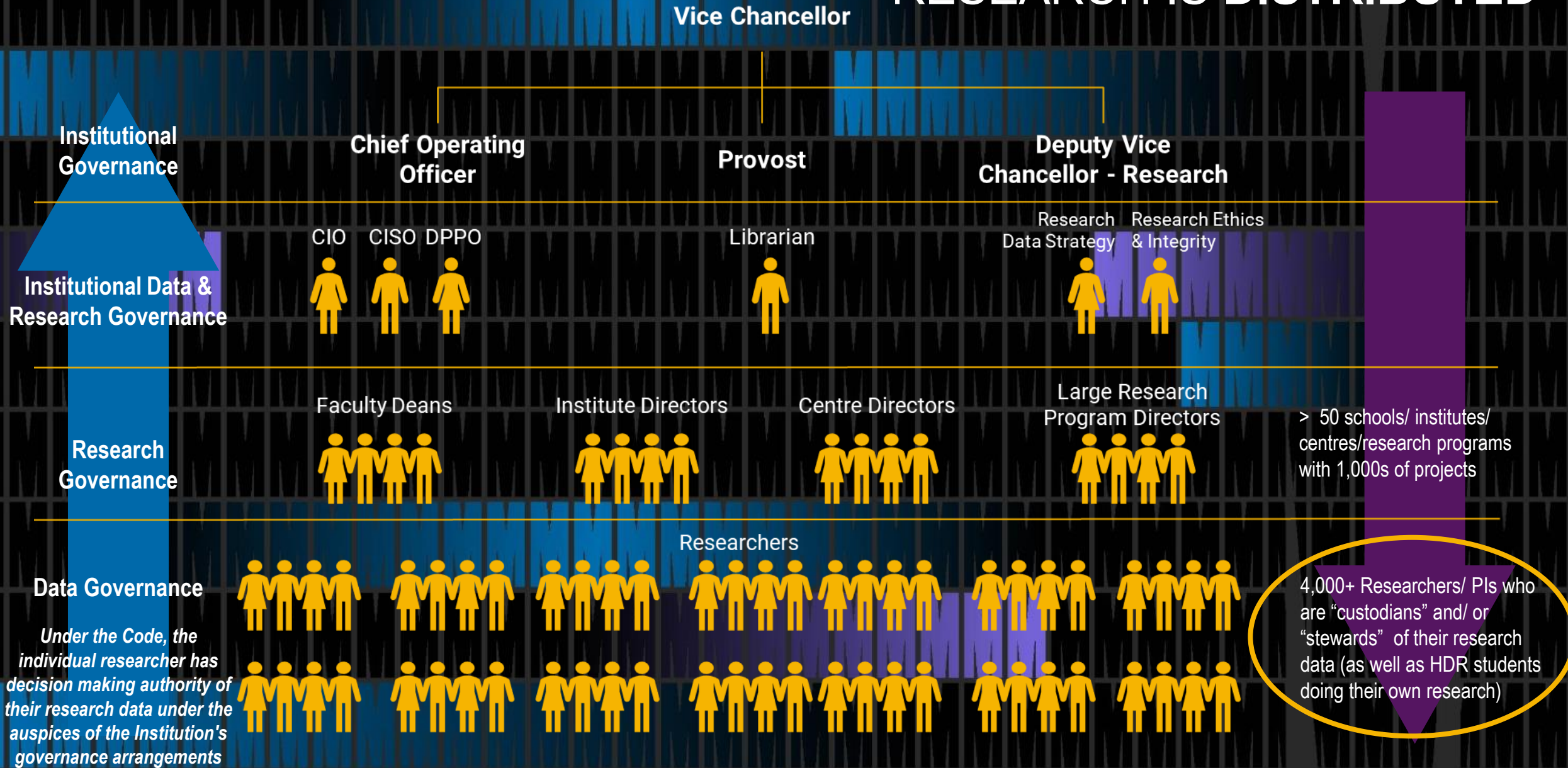
A scheme for sharing Australian Government data

The *Data Availability and Transparency Act 2022* establishes a new, best practice scheme for sharing Australian Government data – the DATA Scheme. The DATA Scheme is underpinned by strong safeguards and consistent, efficient processes. It is focused on increasing the availability and use of Australian Government data to deliver government services that are simple, effective and respectful, inform better government policies and programs, and support world-leading research and development.

DATA SCHEME HAS SEEN
THE INTERSECTION OF
RESPONSIBLE RESEARCH
APPROACH AND **DATA**
GOVERNANCE



DATA GOVERNANCE IN RESEARCH IS DISTRIBUTED



Approach



- Consultations with Faculty staff (ADRs and large school managers) ran from March to May 2023
- 18 consultations (49 staff)

Data Capture



- Semi-structured interviews
- 21 questions with follow up questions as appropriate
- Captured in REDCap, exported to Excel

Data Analysis



- NVivo (Release 1.3)
- > 20,000 words
- Deductive coding,
- inductive coding, final coding

Topics



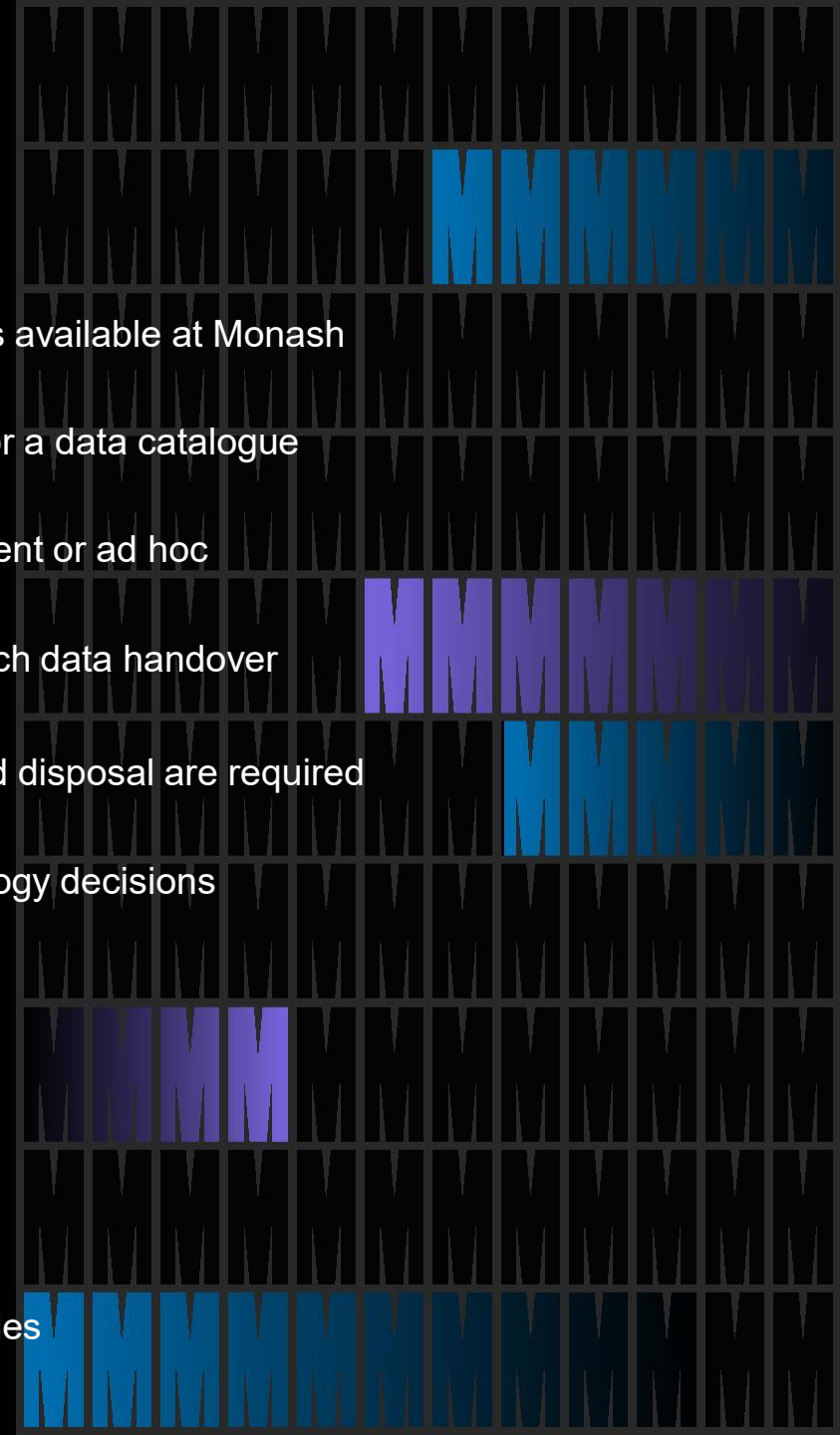
- Definitions
- Challenges, obstacles and difficulties
- Ownership, stewardship and control
- Data systems
- Safety, security and confidentiality
- Access by interested parties
- Ongoing training and education

TO MEET THIS
CHALLENGE
MONASH
UNDERTOOK A **GAP**
ANALYSIS USING
STRUCTURED
CONSULTATIONS

FACULTIES IDENTIFIED

10 CHALLENGES

- 1 Lack of visibility into digital research capabilities & support services available at Monash
- 2 Lack of faculty visibility over researcher projects and data - need for a data catalogue
- 3 Research Data Management and Data Governance training is absent or ad hoc
- 4 Staff and Phd student exit procedures don't clearly address research data handover
- 5 Clear guidelines and assistance in processes on data retention and disposal are required
- 6 Impact on research has not been sufficiently considered in technology decisions
- 7 Growing need for data storage and sharing environments
- 8 Constraints in faculty access to Ethics applications
- 9 Data loss, breach and financial penalties related challenges
- 10 Lack of clarity on research data governance roles and responsibilities



USING THE KEY ASPECTS OF DATA GOVERNANCE...



2. Views data as a strategic asset of the organisation...



1. Acknowledges that data governance must sit across an organisation...



3. Expects it will indicate who gets to set the rules...



4. Expects it will indicate what the rules are...



5. Expects it will indicate how the rules are articulated...

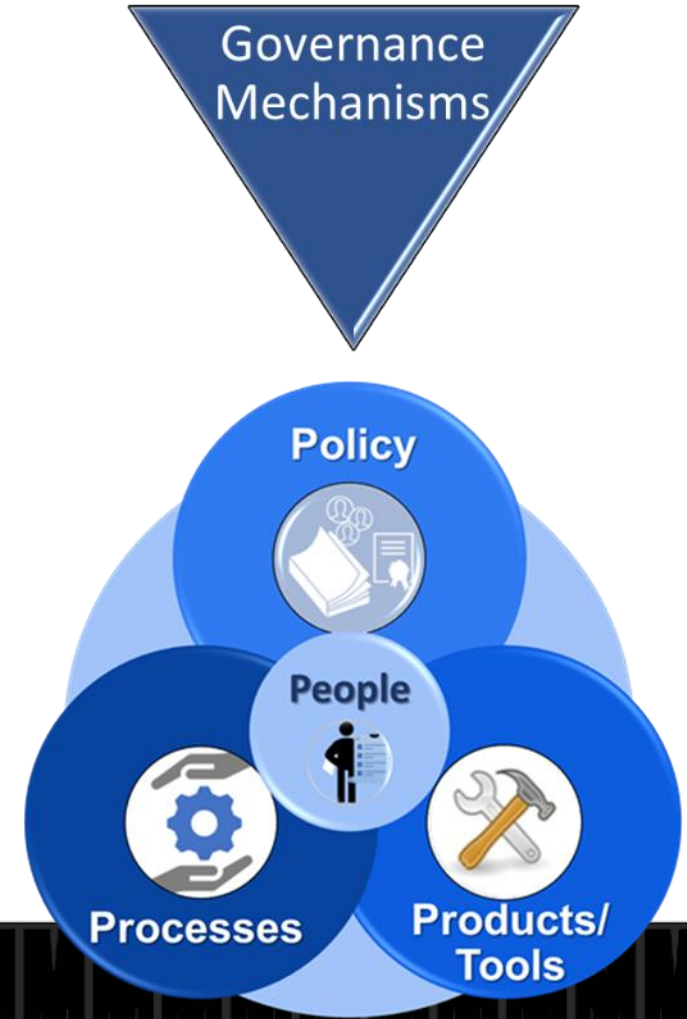
*Data governance specifies a **cross-functional framework for managing data as a strategic enterprise asset.** In doing so, data governance specifies **decision rights and accountabilities** for an organization's decision-making about its data. Furthermore, data governance **formalizes data policies, standards, and procedures and monitors compliance.**¹*



6. Expects it will indicate how the rules will be monitored...

¹ Abraham, Rene, Schneider, Johannes, & vom Brocke, Jan. (2019). Data governance: A conceptual framework, structured review, and research agenda. *International Journal of Information Management*, 49, 424–438. <https://doi.org/10.1016/j.ijinfomgt.2019.07.008>

..AND REQUIRED GOVERNANCE MECHANISMS





Research Data
Catalogue



Catalogue of Research
Data Systems &
Services



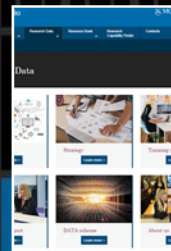
Plan for Research Data



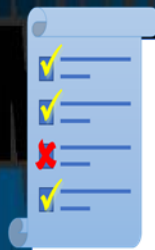
Research Data
Classification Tool



Research Data Solution
Tool



Research Data Website



Policy Uplift

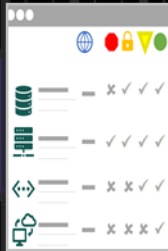
GAPS WERE IDENTIFIED



PRIORITY WAS ENABLERS FOR RESEARCHERS



Research Data
Classification Tool



Research Data
Solution Tool



Plan for Research Data



Research Data
Website

Responsibilities of researchers

Researchers will uphold the principles of responsible research conduct in all aspects of their research. To this end, researchers will:

- R14 Support a culture of responsible research conduct at their institution and in their field of practice.
- R15 Provide guidance and mentorship on responsible research conduct to other researchers or research trainees under their supervision and, where appropriate, monitor their conduct.
- R16 Undertake and promote education and training in responsible research conduct.
- R17 Comply with the relevant laws, regulations, disciplinary standards, ethics guidelines and institutional policies related to responsible research conduct. Ensure that appropriate approvals are obtained prior to the commencement of research, and that conditions of any approvals are adhered to during the course of research.
- R18 Ensure that the ethics principles of research merit and integrity, justice, beneficence and respect are applied to human research.
- R19 Engage with Aboriginal and Torres Strait Islander peoples and respect their legal rights and local laws, customs and protocols.
- R20 Ensure that the 3Rs (Replacement, Reduction and Refinement) are considered at all stages of research involving animals and minimise the impacts on animals used in research and in so doing support the welfare and wellbeing of these animals.
- R21 Adopt methods appropriate to the aims of the research and ensure that conclusions are justified by the results.
- R22 Retain clear, accurate, secure and complete records of all research including research data and primary materials. Where possible and appropriate, allow access and reference to these by interested parties.

Code (R22) Retain clear, accurate, secure and complete records of all research including research data and primary materials. Where possible and appropriate, allow access and reference to these by interested parties.

- R27 Cite and acknowledge other relevant work appropriately and accurately.
- R28 Participate in peer review in a way that is fair, rigorous and timely and maintains the confidentiality of the content.
- R29 Report suspected breaches of the Code to the relevant institution and/or authority.



Select requirement

Select solution

- Select a requirement
- Select a requirement
- Store my data
- Share my data and keep control over it
- Collect data
- Transfer copies of my data
- Publish my data

Solutions to meet your specific research data requirements.
Below to find the most suitable solution available. The list will update as you select your requirements.

Share my data and keep control over it

Public Restricted Sensitive **Very sensitive**

What's the classification of your data? (Monash guidelines)

Any geographic restrictions on where data is located?

No restrictions **Stored in Australia** Stored at Monash

Do you need multi-factor authentication?

Yes **No**

How much data do you expect to have over time?

Up to 100GB

How long do you require access to backups of your data?

30 days **30+ days**

Will you be using Commonwealth Govt data under the DATA Scheme?

Yes **No**

- Select a data amount
- Select a data amount
- Up to 100GB
- 100GB to 1TB
- 1TB to 1 PB
- 1PB+

Start over

Select requirement

Select solution

Select a solution to learn more about its capabilities.

Available solutions

Monash laptop

Start over

Store data

Monash laptop (With Monash SOE (Standard Operating Environment))

Storage of 200GB+ is not possible

Geographic restrictions can't apply

Only Documents, Pictures, Favourites and Desktop folders are automatically backed up when in the Monash Environment or VPN

More details

Supports these data classifications

Public

Restricted

Sensitive

Supports these geographic restrictions


No restriction

Supports these data sizes


100GB

Snarepoint
Microsoft Teams

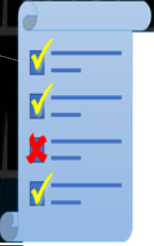
...THEN STRENGTHENING THE INSTITUTIONAL LAYER




Research Data
Catalogue




Catalogue of Research
Data Systems &
Services




Policy Uplift




Research Data
Classification Tool



Research Data
Solution Tool

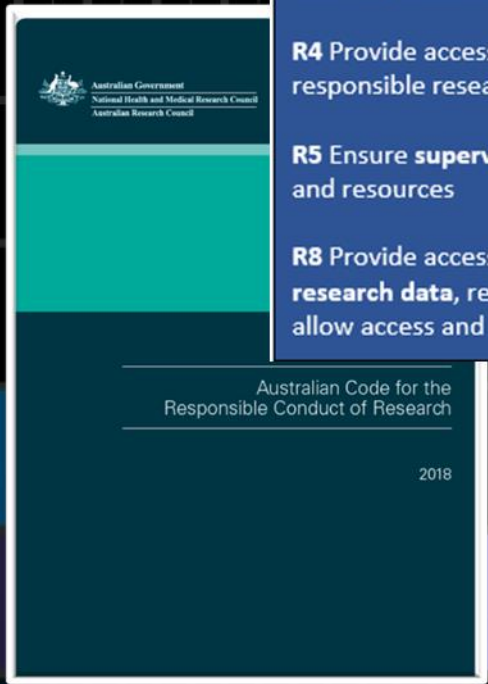


Plan for Research
Data



Research Data
Website

- R3** Develop and maintain the currency and ready availability of a **suite of policies and procedures** which ensure that institutional practices are consistent with the principles and responsibilities of the Code.
- R4** Provide access to **ongoing training and education** that promotes and supports responsible research
- R5** Ensure **supervisors** of research trainees have the appropriate skills, qualifications and resources
- R8** Provide access to **facilities** for the safe and secure storage and management of **research data**, records and primary materials and, where possible and appropriate, allow access and reference



R8	Provide access to facilities for the safe and secure storage and management of research data, records and primary materials and, where possible and appropriate, allow access and reference.
R9	Facilitate the prevention and detection of potential breaches of the Code.
R10	Provide mechanisms to receive concerns or complaints about potential breaches of the Code. Investigate and resolve potential breaches of the Code.
R11	Ensure that the process for managing and investigating concerns or complaints about potential breaches of the Code is timely, effective and in accord with procedural fairness.
R12	Support the welfare of all parties involved in an investigation of a potential breach of the Code.
R13	Base findings of investigations on the balance of probabilities and ensure any actions are commensurate with the seriousness of the breach.

TO ULTIMATELY FOCUS ON MONITORING



Research Data Classification Tool

Research Data Catalogue

Research Data Solution Tool

Catalogue of Research Data Systems & Services

Plan for Research Data

Research Data Website

1. Purpose of Data

Search by Identifiers

Title of Project: [Dropdown] RAID: [Dropdown]

PURE ID: [Dropdown] CrossRef/ DataCite: [Dropdown]

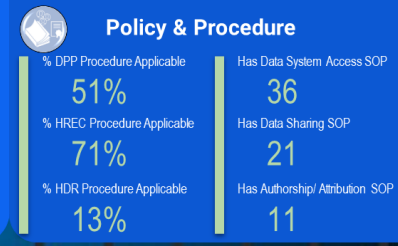
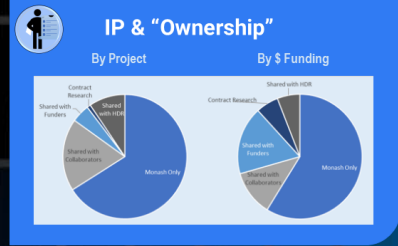
Chief Investigator: [Dropdown] ORCID: [Dropdown]

Faculty/School_Dept: [Dropdown]

Other Search

Start Date: [Dropdown] End Date: [Dropdown]

Ethics Type: [Dropdown] Data Type: [Dropdown]



2. Data Element Management | # Missing Data Dictionary: 12

3. Data Capture | **5. Data Repository Management** | # BackUp Routine Unknown: 8 | # Data Retention Unknown: 14

Data Classification

Category	By Project	By \$ Funding
Very Sensitive	24%	56%
Sensitive	21%	24%
Restricted	48%	21%
Public	0%	0%

Data Form

Category	By Project	By \$ Funding
Digital	92%	81%
Physical/ Analogue	8%	19%

Data Type

Category	By Project	By \$ Funding
Primary	78%	58%
Secondary	22%	42%

Source of Data

Systems/ Services Used

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- R18 Ensure that the ethics principles of research merit and integrity, justice, beneficence and respect are applied to human research.
- R19 Engage with Aboriginal and Torres Strait Islander peoples and respect their legal rights and



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Australian Code for the Responsible Conduct of Research 2018

R0 Provide access to facilities for the safe and secure storage and management of research data, records and primary materials and, where possible and appropriate, allow access and reference.

R01 Facilitate the prevention and detection of potential breaches of the Code.

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R11 Ensure that the process for managing and investigating concerns or complaints about potential breaches of the Code is timely, effective and in accord with procedural fairness.

R12 Support the welfare of all parties involved in an investigation of a potential breach of the Code.

R13 Base findings of investigations on the balance of probabilities and ensure any actions are commensurate with the seriousness of the breach.

Acknowledgements:



Stephen Dart,
Research Storage Manager, eResearch, Monash University

**Members of the Monash University
Research Data Governance Working Group**

**Members of the Monash DATA Scheme
Accreditation Committee**

