

# **RTN RESEARCH DATA MANAGEMENT AND PLANNING**

**PRE-WORKSHOP READING AND  
RESOURCES**



# LEARNING OBJECTIVES

- **Understand and apply** the research data lifecycle and key concepts to planning and active data management.
- **Identify** and understand research data management requirements and responsibilities at JCU.
- **Locate** and utilize tools and support services.
- **Complete or refine** a Research Data Management Plan (RDMP) for your own project during the workshop.



# **KEY RESEARCH DATA MANAGEMENT TOOLS @ JCU**

Our aim is to give you the tools and support you need to manage your research data effectively - maximizing your project's success and the credibility and impact of your research.

# RESEARCH DATA JCU

Research Data JCU is an integrated research data management platform designed to support the research data lifecycle - from planning research projects (RDMPs), to establishing archival Data Records, and creating Data Publications.

<https://researchdata.jcu.edu.au>

## Welcome to Research Data JCU



Plan

Create Research Data Management Plan (RDMP)  
View & Update RDMP



Archive

Create Data Record  
View & Update Data Record



Publish

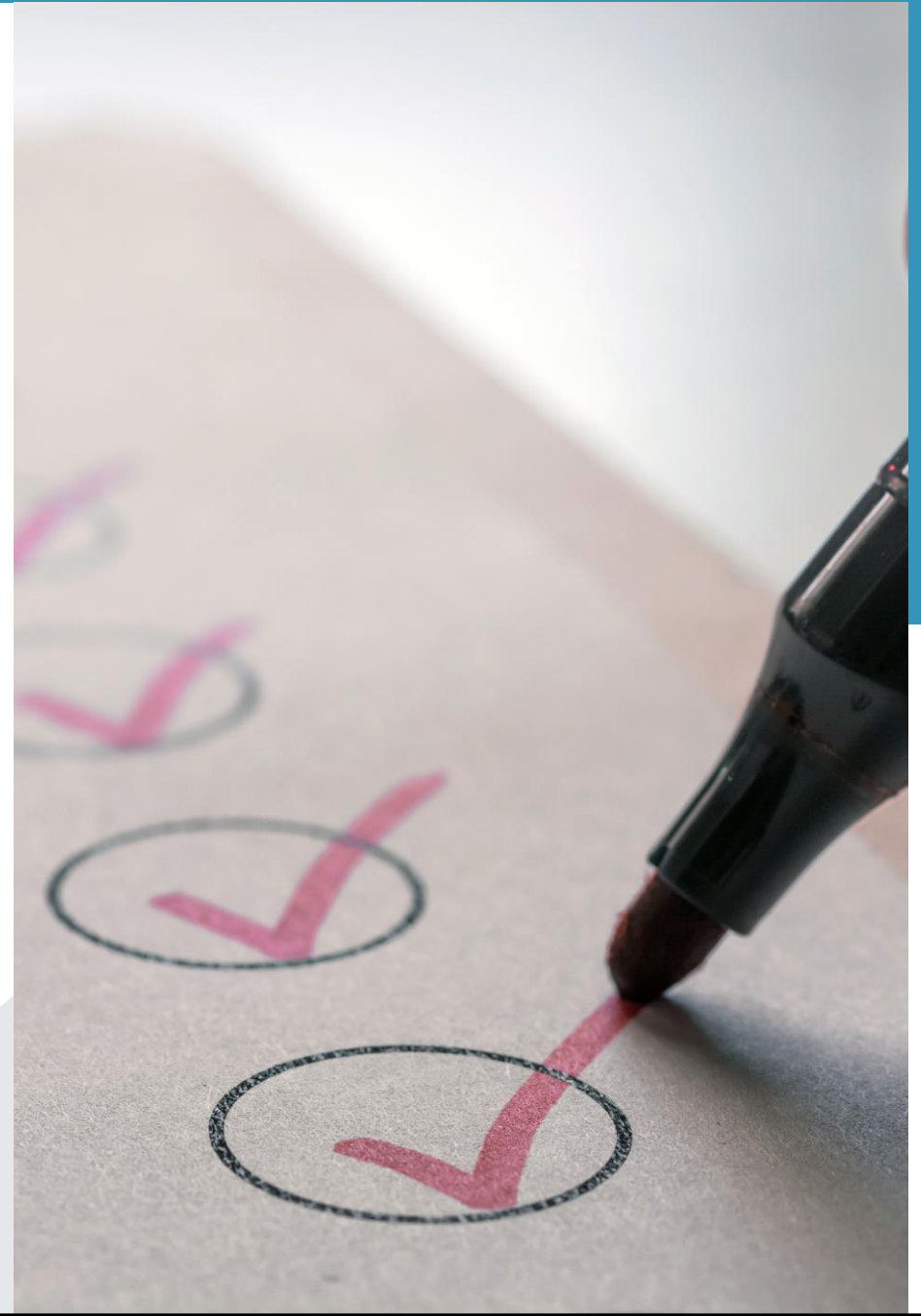
Create Data Publication  
View & Update Data Publication

Research Data JCU is a “self-deposit” system, with extensive help text (?) and prompts to guide you through each record. Some metadata auto-fills subsequent records saving double entry. Data Publications are reviewed by our team.

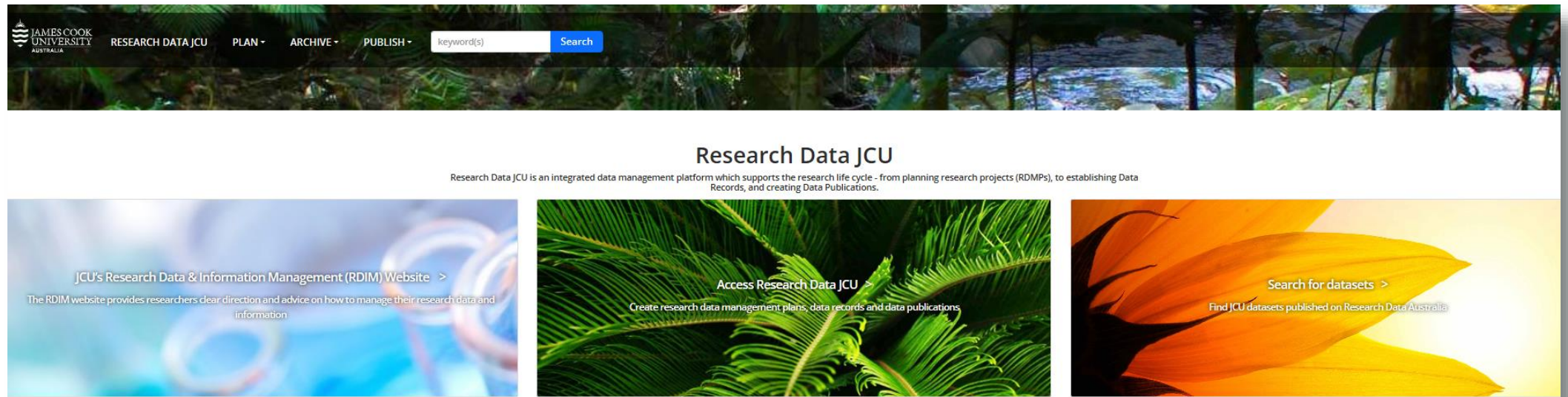
# RESEARCH DATA JCU

Research Data JCU was built to meet the requirements of the [Code for the Responsible Conduct of Research](#), the [National Statement on Ethical Conduct in Human Research](#), and to uphold the [FAIR principles](#) by ensuring your data is secure, accessible and reusable.

As we step through the research data lifecycle, you'll see how these guiding documents and principles align with the three metadata records in Research Data JCU.



# RESEARCH DATA JCU



The screenshot shows the Research Data JCU website interface. At the top left is the James Cook University Australia logo. The navigation menu includes 'RESEARCH DATA JCU', 'PLAN -', 'ARCHIVE -', and 'PUBLISH -'. A search bar contains the text 'keyword(s)' and a 'Search' button. Below the navigation is a banner image of a tropical forest. The main heading is 'Research Data JCU'. Below this is a descriptive sentence: 'Research Data JCU is an integrated data management platform which supports the research life cycle - from planning research projects (RDMPs), to establishing Data Records, and creating Data Publications.' There are three main content tiles: 1. 'JCU's Research Data & Information Management (RDIM) Website >' with a sub-description: 'The RDIM website provides researchers clear direction and advice on how to manage their research data and information'. 2. 'Access Research Data JCU >' with a sub-description: 'Create research data management plans, data records and data publications'. 3. 'Search for datasets >' with a sub-description: 'Find JCU datasets published on Research Data Australia'.

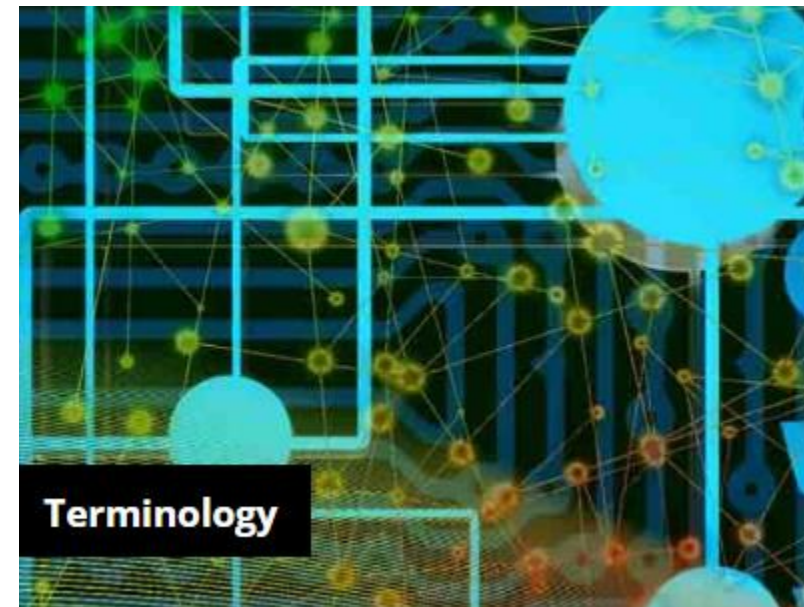
Research Data JCU includes tiles linking to the [website](#) and to JCU datasets on [Research Data Australia](#). Data Publications are also harvested by Google Dataset Search and other services, including JCU's Researcher Portfolio.

# RDIM WEBSITE

The website provides comprehensive guidance on research data and information management (RDIM) practices and introduces you to Research Data JCU.

It includes a terminology section or “glossary” with over 70 topics!


<https://jcu.edu.au/rdim>






# **RESEARCH DATA LIFECYCLE**


Start Here



**Discover and reuse data:** ethical or IP obligations may apply for data inputs



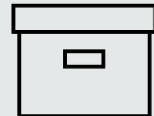
**PLAN:** consider project aims, personnel, methods, software & equipment, data organization & documentation, storage, retention, rights, and ethics



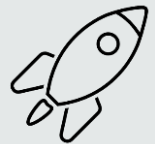
**Manage active data:** data collection, storage, folder structures, file names & formats, data wrangling, de-identification, data documentation, data analysis & visualization



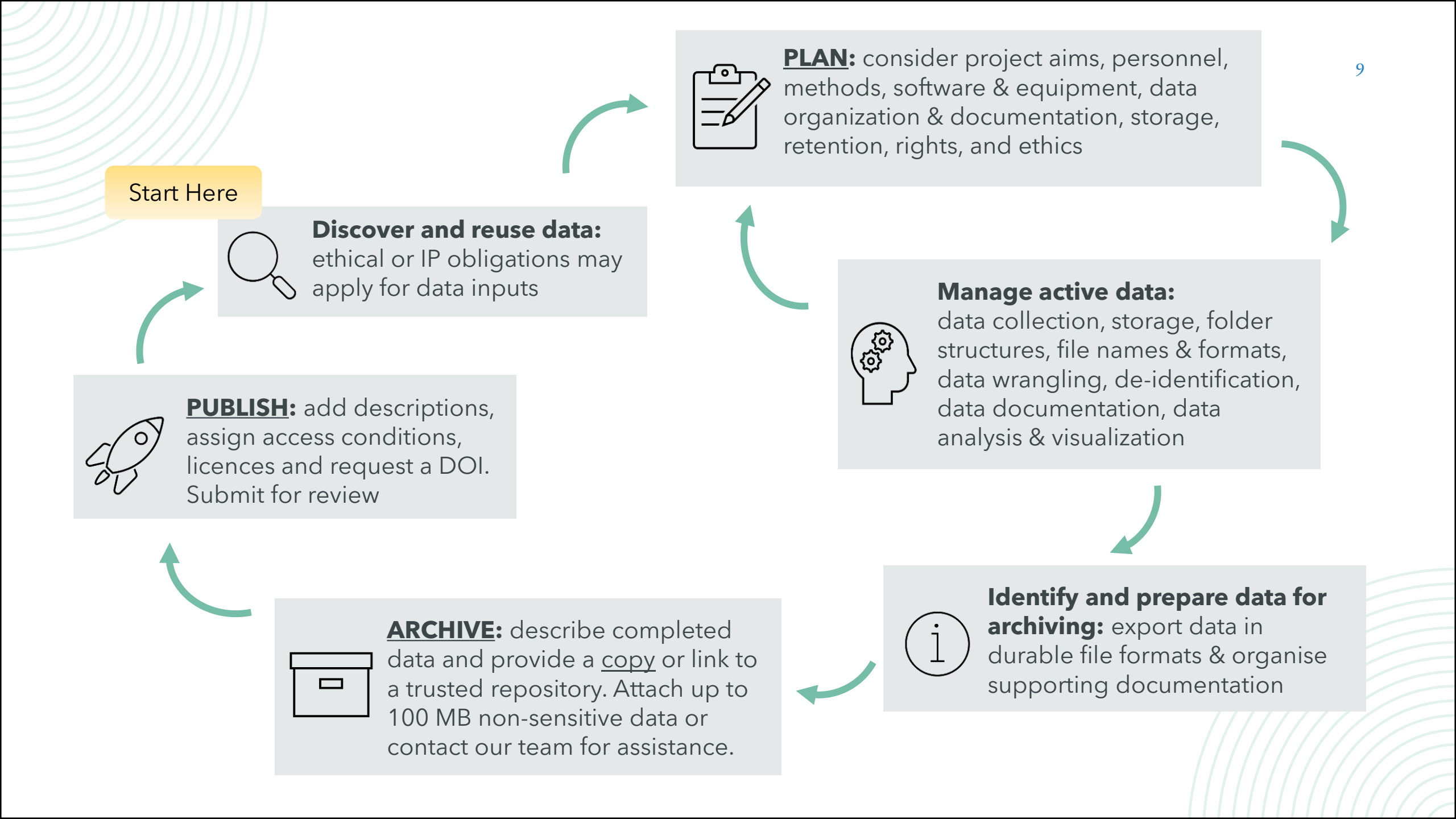
**Identify and prepare data for archiving:** export data in durable file formats & organise supporting documentation



**ARCHIVE:** describe completed data and provide a copy or link to a trusted repository. Attach up to 100 MB non-sensitive data or contact our team for assistance.



**PUBLISH:** add descriptions, assign access conditions, licences and request a DOI. Submit for review



# FROM WHAT TO DO ... TO WHEN AND WHY

Let's break the lifecycle down and address the when and why questions for each of the three metadata records in Research Data JCU.



**WHEN** do I complete the RDMP, Data Record and Data Publication?



**WHY** complete these records?  
How will it support my research...and beyond?

# PROJECT DESIGN PHASE



## Discover and reuse data:

ethical or IP obligations may apply for data inputs



**PLAN:** consider project aims, personnel, methods, software & equipment, data organization & documentation, storage, retention, rights, and ethics

## Research Data Management Plan (RDMP)



Establishes a link between your project and the data.



Is required by the National Statement & JCU HREC and most funders e.g., ARC by project commencement.



Mitigates the risk of data loss and misuse by addressing storage and legal/ethical obligations for retention, access & sharing.



Saves research time and supports data integrity and re-use i.e., helps you organize & document your data systematically and avoid file/software obsolescence.


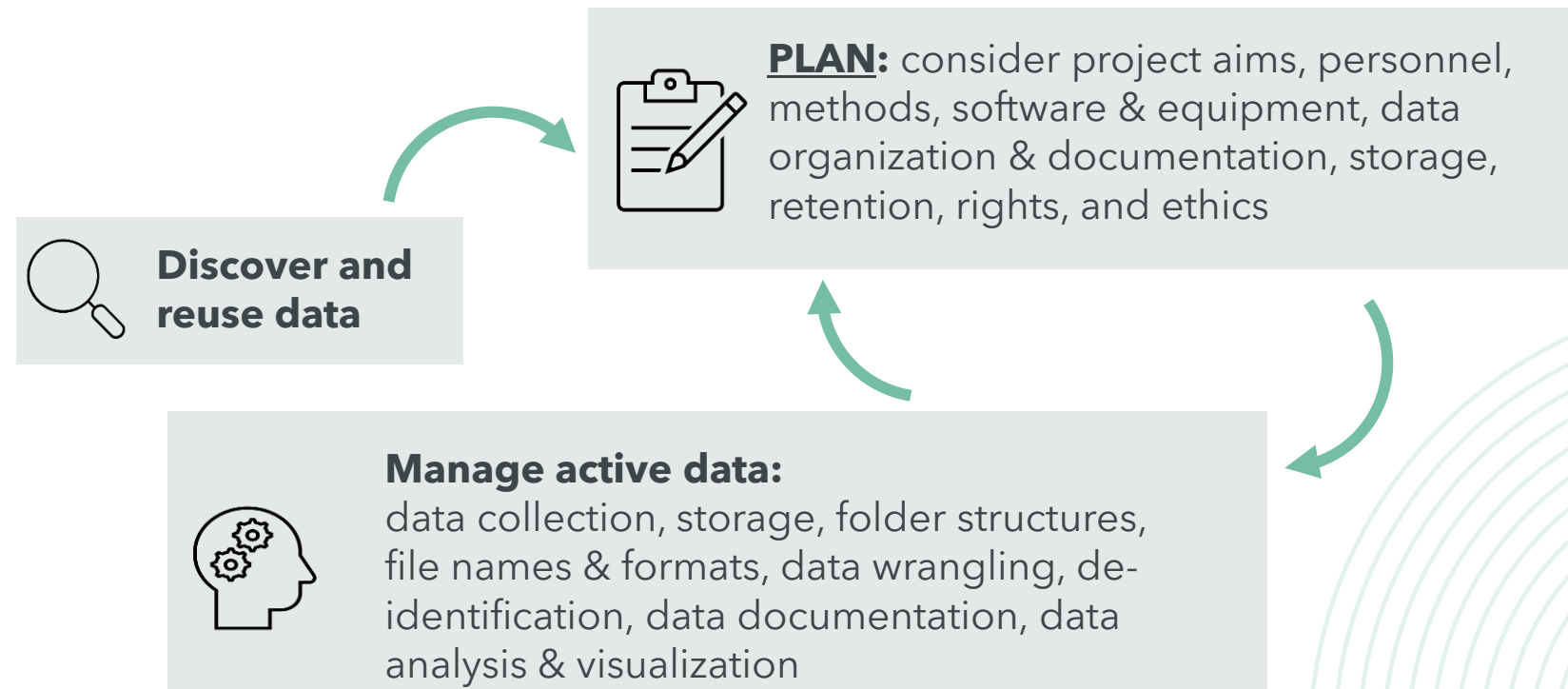


Create a plan and discuss with advisors **prior to Confirmation of Candidature**

Attach PDF to grant applications, ethics applications or protocols

# ONGOING PLANNING & ACTIVE DATA MANAGEMENT

Note: Your RDMP is a tool to help you, and your research team navigate your project. As you progress, revisit and refine the RDMP to reflect changes, such as updates to personnel, methods, or other aspects of your work.



Refine your plan and get help **any time** during your project.



**PLAN:** consider project aims, personnel, methods, software & equipment, data organization & documentation, **storage**, retention, rights, and ethics

We'll walk through an RDMP together during the workshop, but we can't stress enough the importance of proper data storage!

**DO** keep three copies in separate places i.e., on at least two different types of media (physical device or cloud) and in another location (physical location or cloud)  
Ensure at least one copy is stored on a JCU approved solution like OneDrive or QRISCloud

**DON'T** keep the only copy of your research data on a physical device e.g., hard drive (PC, laptop or external HDD) or USB key.  
These can easily be lost, damaged or fail.

<https://www.jcu.edu.au/rdim/terminology/data-storage>



**PLAN:** consider project aims, personnel, methods, software & equipment, data organization & documentation, storage, retention, rights, and ethics

We'll also discuss file formats, data organization, and documentation in the workshop. Check out this short *Data Sharing and Management Snafu* video to see what happens when good practices are ignored.



take a break!



[https://youtu.be/66oNv\\_DJuPc?si=E-pnddgqJLcV9kcd](https://youtu.be/66oNv_DJuPc?si=E-pnddgqJLcV9kcd)



**PLAN:** consider project aims, personnel, methods, software & equipment, data organization & documentation, storage, retention, rights, and ethics

The RDIM website, and contextual help text in the RDMP can help you avoid some of these pitfalls and keep your research project on track:

Durable file formats

<https://www.jcu.edu.au/rdim/terminology/file-formats>

File names:

<https://www.jcu.edu.au/rdim/terminology/file-names>

Folder structures:

<https://www.jcu.edu.au/rdim/terminology/folder-structures>

Data documentation (includes metadata):

<https://www.jcu.edu.au/rdim/terminology/metadata>





The workshop will focus on the planning and active data management phase of your project.

However, it's very important to keep data archiving and sharing in mind, as these elements are integral to effective planning and data management throughout the entire lifecycle.

# ARCHIVING PHASE

## Non-public, archival Data Record



Satisfies the requirements of the Code by retaining well-documented data that can validate your research findings if challenged.



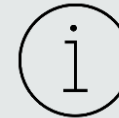
Helps you and your advisors track and re-use data in the future.



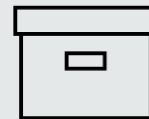
Is needed to create one or more Data Publications!



**Manage active data**



**Identify and prepare data for archiving:** export data in durable file formats & organise supporting documentation



**ARCHIVE:** describe completed data and provide a copy or link to a trusted repository. Attach up to 100 MB non-sensitive data or contact our team for assistance.






## Finalise **prior to Completion**

Archive during or post-project for any data associated with research outputs e.g., papers, thesis chapters, or final thesis.



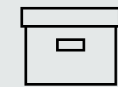
# DATA SHARING PHASE

## Data Publication

-  Meets journal and funder requirements aimed at promoting more open and reproducible research.
-  Enhances the visibility and credibility of your work i.e., ensures data is findable, citable and included in researcher profiles and ORCIDs.
-  Improves citation rates i.e., by including DOIs for published data in papers
-  May attract future collaboration and funding opportunities.
-  Upholds the FAIR principles by ensuring data is Findable, Accessible, Interoperable and Re-usable



**Discover and Reuse data**



**ARCHIVE**



**PUBLISH:** add descriptions, assign access conditions, licences and request a DOI. Submit for review

Data should be shared as openly as possible, but can be made as closed as necessary

**Submit for review anytime**

Manuscript submission support (DOIs, embargoes, peer review) available.



# **DEFINING RESEARCH DATA AND DATA OWNERSHIP**

# WHY BEGIN WITH THESE CONCEPTS?

Research data is complex and diverse:

- Multiple definitions, formats, media, types of data and different lifecycle stages
- Various ownership implications
- Different management requirements

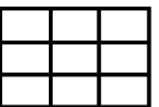
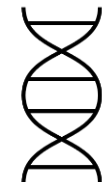
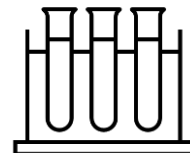
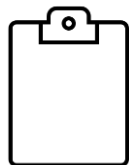
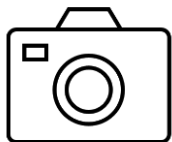
Early understanding enables:

- Effective planning from day one
- Sound documentation throughout
- Compliance with requirements
- Clear ownership arrangements

# WHAT RESEARCH DATA?

Some examples -what about your project?

- spreadsheets, documents
- notes and photographs of materials held in galleries, libraries, archives or museums (GLAM) or private collections
- codebooks, data dictionaries, README.txt
- laboratory and field notebooks
- test responses and surveys
- interview recordings and transcripts
- tweets, blogposts
- slides, artefacts, specimens, samples
- images, photographs, videos
- sensor readings
- models, algorithms, scripts
- contents of an application (input, output, log files for analysis or simulation software, schemas)
- methods and workflows
- original texts



# WHAT RESEARCH DATA?

**Research data = raw data:** Unprocessed data collected directly from its source

- Sensor readings
- Interview recordings
- Survey responses
- Social media scrapes (tweets, blog posts)

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**Research information = derived data:** Data that has been processed, analyzed, or transformed to provide meaningful insights

- Interpreted sensor data
- Coded interview transcripts
- Aggregated survey results
- Statistical analyses

Key guiding documents for conducting research in Australia i.e., the [Code](#); the [Management of Data and Information in Research](#) supporting guide; and the [National Statement on Ethical Conduct in Human Research](#) refer to “**research data and information**”



# WHAT RESEARCH DATA?

**Primary materials:** Physical or digital objects that serve as first-hand sources for research. These include original source materials and researcher-generated content, in raw or processed form i.e., research data or information.

- Physical: specimens, artifacts, slides, samples
- Digital: scanned historical documents, digitized artifacts
- Derived: processed microscopy images, cleaned genetic sequences

They also refer to  
**“primary materials”**



# WHAT RESEARCH DATA?

Knowing what counts as “research data” (from raw inputs to supporting documentation) enables a practical approach to data management

## Data sources/inputs

Self-generated/collected data  
Third-party data  
Existing datasets

## Active or inactive working data

Intermediate results  
Temporary files  
Work-in-progress analyses

## Supporting documentation

Scripts & code  
Lab notebooks  
Data dictionaries  
Methods & workflow documentation

## Completed data

Final datasets  
Processed results  
Validated outputs  
Publication-ready data

# WHAT RESEARCH DATA?

Data archiving: a cornerstone of research integrity

## Data to archive via Research Data JCU

- Research data generated during a study that is required to support or validate findings or enable reproduction of the research.
  - This generally includes raw and completed data and any supporting documentation.

## Data to manage during the project (archiving not required)

- Working data and third-party data (unless you are assigned IP)

Creating a robust RDMP will help you manage all of your data through the entire research data lifecycle!

## WHO OWNS IT?

- Research data itself cannot be 'owned' as property, but the **intellectual property rights** associated with it, such as copyright, can be owned.
- These IP rights may belong to the researcher who generated the data, their employer (e.g., university or research institution), or a third party - in which case permission for use may be required.
- The ownership of IP rights is typically governed by contracts, agreements, and institutional policies.

# WHO OWNS IT?

## Raw data and copyright: a grey area

In most jurisdictions, including Australia, copyright protection applies to the expression of ideas rather than the ideas or facts themselves.

Datasets are protected by copyright only if they meet certain threshold criteria of human authorship, originality, or creativity.

Relatively minor acts of “authorship” such as compiling and presenting raw data (e.g., correcting errors, adding labels, units, performing calculations etc.) are often sufficient to attract copyright protection.

<https://www.jcu.edu.au/rdim/terminology/copyright>



Even if your data does not meet the threshold there is no harm in applying a Creative Commons license when publishing data. It lets others know how you would like to be attributed and applies a limitation of liability and warranty clause to the data.

# WHO OWNS IT?

## Licenses or terms & conditions: an example

Raw environmental data, such as water quality measurements from a data logger, are unlikely to attract copyright protection, even if collecting it involved considerable skill, effort or expertise.

However, when the data is analyzed, transformed, or structured (e.g., through statistical analysis or visualization) the resulting data will be protected, and others would need permission to use it - unless it is licensed for reuse.



When publishing your data, it's important to make reuse conditions explicit by providing a licence or terms of use. Creative Commons licences are an easy way to allow others to use your data under specified conditions:

<https://www.jcu.edu.au/rdim/terminology/creative-commons-licence>

# WHO OWNS IT?

## Compilation and meta-analysis

If you are compiling facts/raw data from multiple sources into a table or spreadsheet it is often sufficient to embed standard references in your dataset. Once you add your own coding or categories your new dataset will be protected by copyright.


This is a standard format for publishing meta-analyses.



The No Derivatives condition in Creative Commons licenses (e.g., CC BY-ND or CC BY-NC-ND) prevents the distribution of modified material, including meta-analyses. For this reason, publishers like PLoS journals require more open licenses.

# WHO OWNS IT?

	HDR Candidates	JCU staff
JCU typically owns copyright/other intellectual property (IP) rights	<p><b>X</b> Before Dec 2024</p> <p>✓ From Dec 2024</p>	✓
Agreements with funders or research collaborators may result in alternative ownership arrangements	✓	✓
You always retain moral rights over the data	✓	✓
You can usually keep a copy for continuing research	✓	✓
You must create a Data Record in Research Data JCU and archive your data	✓	✓

 Note: See the next slide for more on the 2024 IP Policy change affecting HDR candidates.

# WHO OWNS IT?

## JCU's new Intellectual Property Policy

*Effective 11 December 2024*

JCU now asserts ownership of IP created by HDR candidates—including data—in line with its commercialization frameworks. HDR Candidates enrolled before Dec 2024 held copyright or other intellectual property (IP) rights, in most cases.

**Staff and students retain moral rights and can use their data for research outputs** (including theses) so for most HDR candidates, this won't impact day-to-day research or publication.

📌 Note: If your data has commercialization potential, you likely have already assigned IP to JCU, even if you were enrolled before December 2024. Regardless of when you transfer (as a student or staff), the data will be considered background IP if you move to a new institution, and an agreement with JCU will be required to reuse it for commercialization.

See the IP Policy and Procedure for further guidance:

<https://www.jcu.edu.au/policy/research-management/intellectual-property-policy-and-procedure>

# WHO OWNS IT?

## Contractual agreements – some examples

**Funders:** may have ownership of IP rights. Alternatively, the agreement may grant them specific license rights to use, share or commercialize the data.

### **Collaborators:**

Research Collaboration Agreements (RCAs): need to clearly articulate ownership and the rights granted to each collaborator;

Indigenous Culture and IP (ICIP) Agreements: often prioritize community rights and control over the data.

# WHO OWNS IT?

## Contractual agreements - some more examples

Data providers:

Data Transfer Agreements (DTAs): may grant the recipient certain rights to use the data for the intended purpose but restrict further dissemination or commercialization without explicit permission.



Make sure that any agreement you enter makes the conditions for storing and sharing your derived data clear and always consult [contractsconnect@jcu.edu.au](mailto:contractsconnect@jcu.edu.au) for specific advice.



# **ROLES & RESPONSIBILITIES**

## **SUPPORT @ JCU**

## **RESOURCES**

# ROLES & RESPONSIBILITIES

## HDR Candidates

- are CIs (Lead Investigators) for their projects
- complete the metadata records in Research Data JCU
- discuss progress with their advisors during the project and as prompted by the GRS (milestones and forms)

## JCU staff

- Primary Advisors are usually Data Managers
- have read-write access
- review and monitor progress
- because responsibilities extend beyond the life of the project, the role must be assumed by a JCU staff member, and reassigned when staff leave.

# ROLES & RESPONSIBILITIES

## Data Manager (\*) ⓘ

JCU staff members only. HDR candidates please nominate your Primary Advisor.

Prof	Name	Ian Atkinson	Email	ian.atkinson@jcu.edu.au	ORCID	0000-0002-2295-68
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## Data Manager (\*) ⓘ

Use the lookup function to find and select the name of the **JCU Data Manager** associated with this research data.

The Data Manager:

- provides guidance or supervision for data management during the research project
- reviews (spot checks) the veracity of the research project's data
- secures data against unauthorized access and misuse and manages archiving (record keeping) and disposal post project
- grants or denies access to published data where conditional access applies.

Because responsibilities for data and information extend past the life of the research project (e.g. after the HDR candidate has completed), the role of the Data Manager must be assumed by a **JCU staff member**, and reassigned when staff leave.

### Note:

- **HDR candidates or Honours students** should nominate their Primary Advisor as Data Manager
- **Undergraduate or postgraduate coursework students** should name their research project supervisor
- For **staff research projects**, the Lead Investigator will generally fill this role.

*The Data Manager has read and write access to this record.*



Screenshots from Research Data JCU - People tab (all records)

# SUPPORT @ JCU

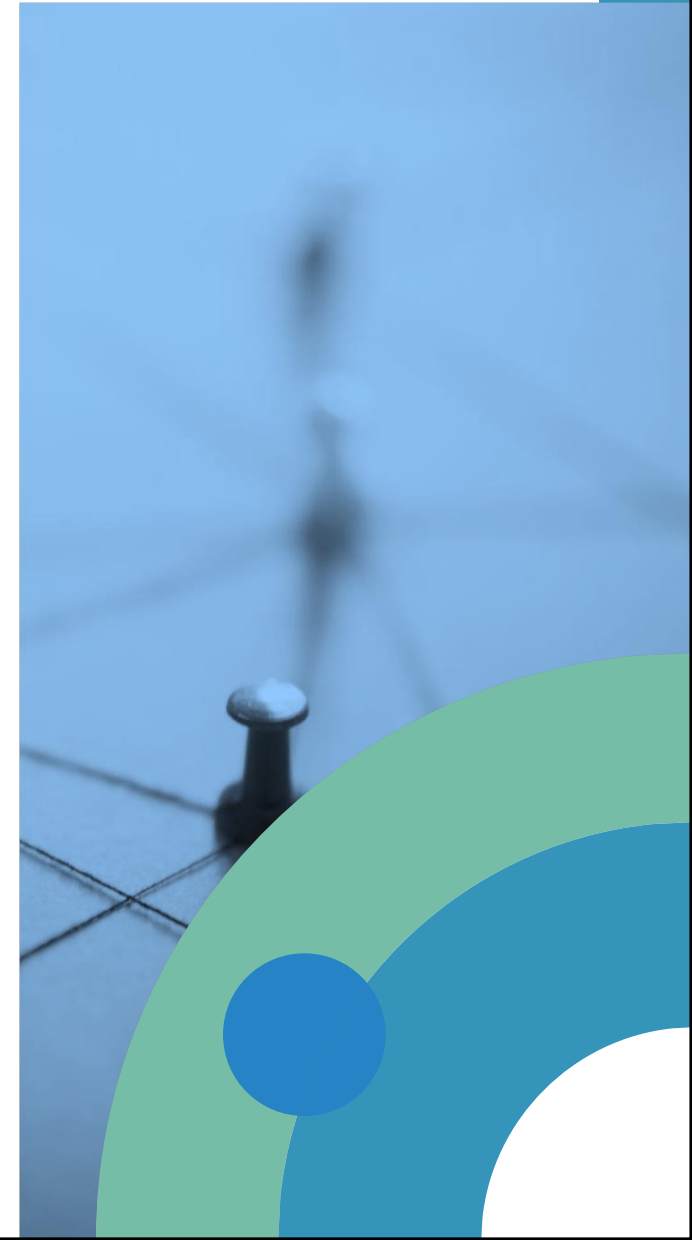
## Research Data Services

<https://www.jcu.edu.au/rdim/contact-us>

Project-specific advice and technical support for RDIM activities and Research Data JCU

Data curation, publication and harvesting services including support for manuscript submissions i.e.,

- curate high quality Data Publications
- mint DOIs
- manage embargoes
- arrange anonymous peer review or data on request
- expose very large datasets if required

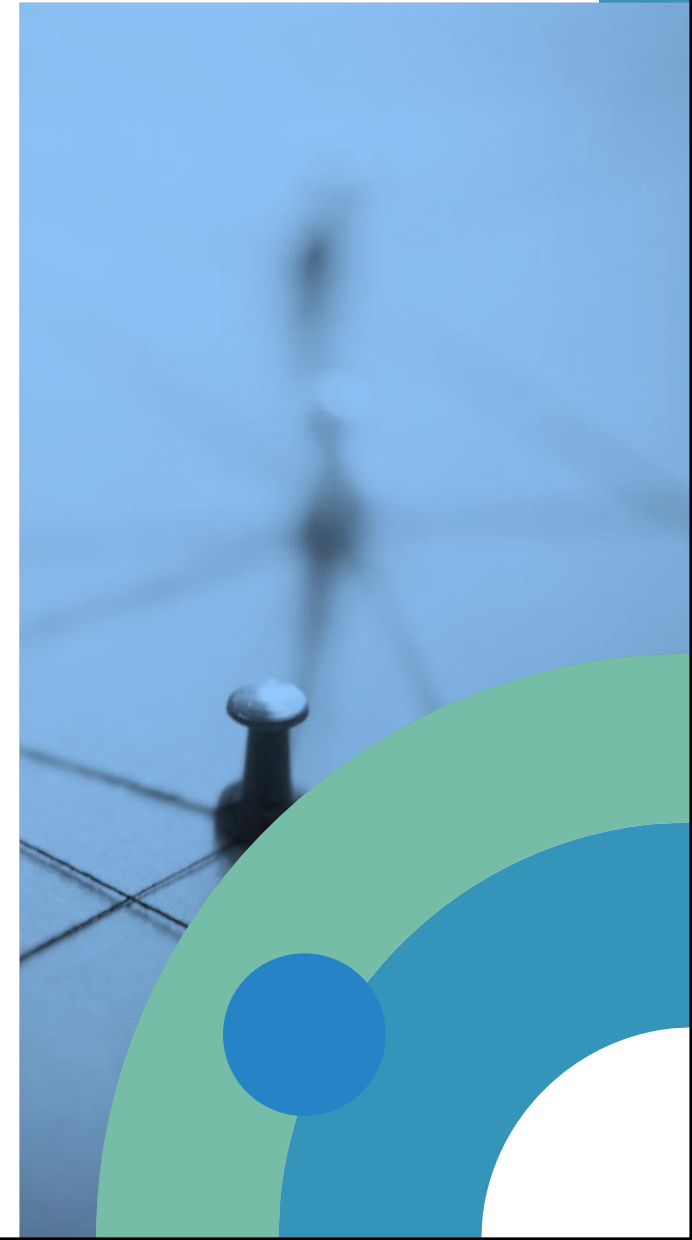


# SUPPORT @ JCU

## Research Data Services

- Individual and project-specific consultations (F2F in Townsville or Cairns, Zoom, Teams)
- College/Centre, discipline, small group or lab-based training
- Email [researchdata@jcu.edu.au](mailto:researchdata@jcu.edu.au)
- Research Hour - [Zoom](#) drop-in on Wednesdays, 10-11 am
- ServiceNow [Research Enquiries form](#) & Knowledge Base articles

We're here to help! 😊



# RESOURCES

## Research Data & Information Management (RDIM) website

<https://www.jcu.edu.au/rdim>

Key pages include:

[The WHY - benefits of data management and sharing](#)

Research Data Lifecycle Steps 1 -4

[Step 1 - Plan](#); [Step 2 - Manage](#); [Step 3 - Archive](#); [Step 4 - Publish](#)

 **New!** 2 x practical web-based guides for [Creating RDMPs](#) and [Archiving & Publishing Your Data](#)

[Governance and Compliance](#) - includes JCU's Management of Data and Information in Research Procedure and the [Custodianship Model](#)



## Australian Research Data Commons (ARDC)

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

Accelerating research and innovation by driving excellence in the creation, analysis and retention of high-quality data assets.



Extensive resources for researchers including best-practice guides: [Good Data Practices](#); [Making Data FAIR](#); [Working with Sensitive Data](#)