

Managing Digital Research Data at ANU



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ANU Acknowledgment of Country:

We acknowledge and celebrate the First Australians on whose traditional lands we meet, and pay our respect to the elders past and present.



ANU Open Research Repository

The screenshot shows the top portion of the ANU Open Research Repository website. At the top, there is a browser address bar with the text 'ne'. Below it is a navigation bar with several menu items: 'Data Commons', 'Electronic Records...', 'Research Data Man...', 'Imported', 'Open Access', 'Open Research_bro...', and 'EDIT Walk - DRAFT...'. The main header area features the 'Australian National University' logo on the left and the text 'OPEN RESEARCH REPOSITORY Library' on the right. A secondary navigation bar contains the following items: 'Collections', 'Browse Open Research', 'Statistics', 'About', 'Contribute', and 'Related Links'. Below this is a large photograph of two women walking down a modern staircase. A black text box is overlaid on the bottom left of the photo, containing the text: 'Research Repository is the online open access repository for maintaining and disseminating output of the University.' At the bottom of the page, there is a search bar with the placeholder text 'Search the repository ...'.

- Meets open access requirements for ARC/NHMRC grants
- Mandated location for these



ANU Research Data Management

Contents:

- Definitions of Data and Data Management
- Data Management Life Cycle
- Benefits & Requirements
- Methods of Data Management
- ANU's Data Management Services
- Writing a Data Management Plan



Digital Research Data

Any data that is created during research that can be stored on a computer.

This includes field notes and non-digital images as they can be converted to digital images

It is not:

- physical data such as biological specimens, soil samples etc.
- *Admin data: student enrolments, assessments, research publications, course resources etc.*
- Electronic Records Management System (ERMS)



Data Management

Organisation

- Bibliography Management
- File transfers & remote access
- Synchronisation
- Collaboration
- Version Control

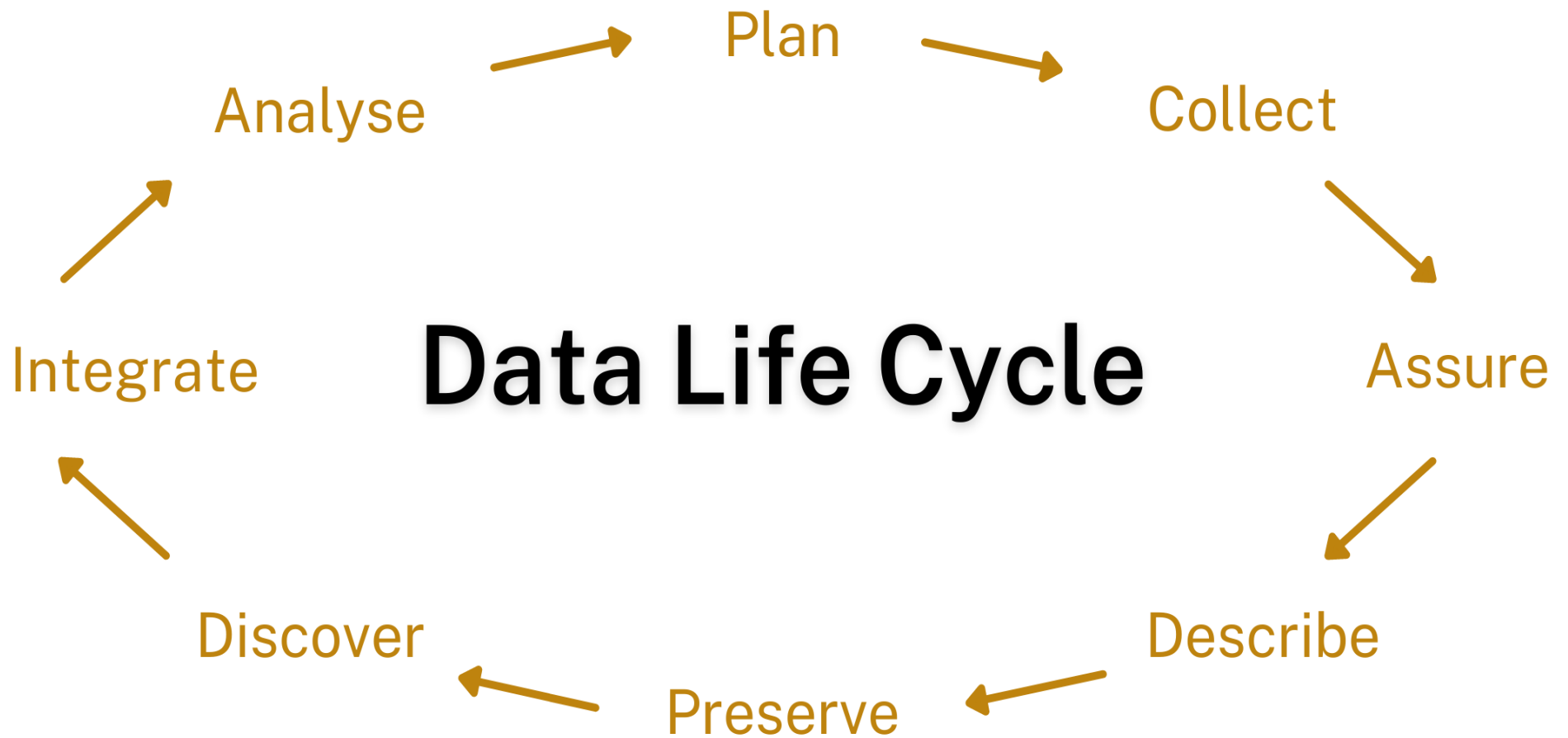
Administration

- Backups
- Validation & Authentication
- Documentation
- Access Control
- Security

Archiving

- Sharing Methods
- Licensing
- Formats & Standards
- Access Restrictions
- Metadata
- Archiving
- FAIR Principles





(DataOne Primer)



Why data management? – the future self

- Work more efficiently with data
- Protect data against loss or improper access
- Greater exposure, enhanced reputation and prestige
 - Piwowar HA and Vision TJ (2013) **Data reuse and the open data citation advantage**. *PeerJ*, 1: e175. <http://dx.doi.org/10.7717/peerj.175>
 - Cousijn, H, et al. 2019. **Bringing Citations and Usage Metrics Together to Make Data Count**. *Data Science Journal*, 18: 9, pp. 1–7. DOI: <https://doi.org/10.5334/dsj-2019-009>
- Reproducibility



Why data management?

- ANU Policy: Responsible Conduct of Research
- Comply with ethical and privacy regulations
- Funding agencies
 - Data relating to publications must be kept for at least 5 years
- Journals require sharing of data, e.g. Nature, Science, PLoS, etc.



Methods of Data Management

- Data organisation
 - Bibliography management: EndNote, RefWorks, Mendeley, Zotero
 - Version control & file naming: TortoiseSVN, GitHub, BitBucket
 - File transfers: FileSender (CloudStor), OneDrive, SharePoint,
File storage: OneDrive, OneNote, ANU eNotebooks, SharePoint,
NCI, [ANU SafeShare](#)
- Data administration
 - Backups: frequency etc
 - access control
- Data archiving and sharing
 - creative or science commons licenses



ANU's Data Management Services

- Local IT Support Staff (LITSS)
- Information Technology Services (ITS)
 - OneDrive, SharePoint
- ANU Library (Digital Literacy Training, Open Research)
- Statistical Support Network
- Archives: Data Commons, Open Research, ADA
- Supercomputer (NCI)



ANU Data Storage

- OneDrive
- OneNote
- ANU eNotebooks
- National Computation Infrastructure (NCI)



ANU Data Archives

- Open Research – ANU's institutional repository. Good for publications, theses, images
- ADA – Australian Data Archive. Social-science, medical, and economics datasets. Analyse datasets online with the NESSTAR webapp
- Data Commons – ANU data archiving service



Australian Data Archive



The screenshot shows the homepage of the Australian Data Archive. At the top, there is a navigation bar with the ADA logo and the text "AUSTRALIAN DATA ARCHIVE". To the right of the logo, there are links for "Accessing Data", "Depositing Data", "Popular Data", "News", and "User Guides". Below the navigation bar is a large banner image of a modern building with glass windows and greenery. Overlaid on the banner is the text "THE AUSTRALIAN DATA ARCHIVE" and a description: "The Australian Data Archive (ADA) provides a national service for the collection and preservation of digital research data. ADA disseminates this data for secondary analysis by academic researchers and other users. The archive is based in the ANU Centre for Social Research and Methods (CSRМ) at the Australian National University (ANU)." Below the banner is a search bar with the text "Search our Dataverse catalogue:" and a "Find" button. At the bottom of the page, there is a welcome message and a list of three ways to access the archive.

Go to: ADA Dataverse Catalogue

ADA AUSTRALIAN DATA ARCHIVE

Accessing Data Depositing Data Popular Data News User Guides

THE AUSTRALIAN DATA ARCHIVE

The [Australian Data Archive \(ADA\)](#) provides a national service for the collection and preservation of digital research data. ADA disseminates this data for secondary analysis by academic researchers and other users.

The archive is based in the [ANU Centre for Social Research and Methods \(CSRМ\)](#) at the Australian National University (ANU).

[Learn More](#)

Search our Dataverse catalogue:

Welcome to the new homepage for the Australian Data Archive. Here you can access ADA datasets, and find out more about accessing ADA data, depositing data with the Archive, and research data management.

The Archive is in the process of a major upgrade to its archive and catalogue systems. Part of this upgrade is the move of our archive systems from the existing Nesstar platform to the new ADA Dataverse platform. You can try our new system in three ways:

- Visiting the **ADA Dataverse**
- **Searching** using the search box above
- Viewing a **list of all the datasets** currently available in the new Dataverse system



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ANU Data Commons

- Users can deposit data for long term storage
- Can mint DOIs for datasets
- Users can self archive via web interface
- Data can be restricted or open
- Metadata can be restricted or open



ANU Data Commons (cont.)

- As long as storage is accessible via URL, Data Commons can link to it – create a reference
- Data for work in progress can be stored



Office 365/SharePoint

- A web-based collaborative platform, available on MS Office 365, used to co-author documents; Manage versions; Apply workflows; Discover and share information
- OneDrive stores your personal documents



Digital Literacy Training & Support

- Research Skills 101
- Word for academic writing workshops
- Research data management
- NVivo

Book online at ANU Library: anu.libcal.com/calendar/training

- Digital Essentials
- EndNote
- SPSS
- Publishing with LaTeX
- Working with data in Excel

Online recordings and support: anulib.anu.edu.au/research-learn



The National Computational Infrastructure

- Fastest Supercomputer in Australia
- All staff/students can apply for access
- For complex computational or large data projects
- Dataset hosting for every large datasets of national significance



Benefits of Digital Archiving

- Long term storage of end-of-life data
- Converted to formats that are durable and free
- Owner sets Access Restrictions
 - Unrestricted: anyone can download
 - Registered: requires name and affiliation
 - Requested: users submit a request for data
 - Closed: no access



Let's avoid this...

Data Sharing and Management Snafu in 3 Short Acts

By Karen Hansen, Alisa Surkis & Karen Yacobucci
NYU Health Sciences Libraries

[youtube.com/watch?v=66oNv_DJuPc](https://www.youtube.com/watch?v=66oNv_DJuPc)



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Additional information: Your ORCID iD and ANU
anulib.anu.edu.au/howto

Writing a Data Management Plan

The Australian National University is a participating institution of the DMPTool service* ANU recommends the use of the default DMPTool template.

To complete a plan, you will need to consider the following:

Data Collection

- ⑩ What data will you collect or create?
- ⑩ How will the data be collected or created?

Documentation and Metadata

- ⑩ What documentation and metadata will accompany the data?

Ethics and Legal Compliance

- ⑩ How will you manage any ethical issues?
- ⑩ How will you manage copyright and Intellectual Property Rights issues?

Storage and Backup

- ⑩ How will the data be stored and backed up during the research?
- ⑩ How will you manage access and security?

Selection and Preservation

- ⑩ Which data are of long-term value and should be retained, shared, and/or preserved?
- ⑩ What is the long-term preservation plan for the dataset?

Data Sharing

- ⑩ How will you share the data?
- ⑩ Are any restrictions on data sharing required?

Responsibilities and Resources

- ⑩ Who will be responsible for data management?
- ⑩ What resources will you require to deliver your plan?

*provided by the California Curation Centre of the California Digital Library



Data Management Plan

- From 2020 ARC will require that data management plans are in place prior to the commencement of the project.

arc.gov.au/research-data-management

- ANU recommends DMPTool: dmptool.org

Using DMPTool to create a plan

- ✓ Video 1 - youtu.be/90x6QRpehQw
- ✓ Video 2 - youtu.be/VBRuCC7y1no



Metadata

Metadata is "data that provides information about other data"

- Descriptive
 - What is it about?
 - Title, time, author, keywords
 - Relations to other data objects
- Administrative (Access & Rights)
 - Ownership and use permissions
- Provenance
 - Where does it come from?
 - History of changes to the data, versions
- Standards/Schemas



Example of Metadata

- Records from Research Data Australia:
 - researchdata.ands.org.au/measuring-effects-human-leptonychotes-weddellii/640511
- A record from OpenResearch@ANU
 - openresearch-repository.anu.edu.au/handle/1885/138114?mode=full
- The Pacific and Regional Archive for Digital Sources in Endangered Cultures (PARADISEC)
paradisec.org.au/deposit/metadata/



Resources

LibGuide Data Management: ql.anu.edu.au/data

ANU Research Data Management Manual ql.anu.edu.au/cc09

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

RE3Data.org: re3data.org

ANU Research data management resources:

anulib.anu.edu.au/research-learn/research-data-management

ANU Talk data to me: anulib.anu.edu.au/publishing

Data Repositories: journals.plos.org/plosone/s/data-availability

FAIR self-assessment tool: [FAIR Data Self Assessment Tool](#)

Google Dataset Search: <https://datasetsearch.research.google.com/>



Top Tips

- ✓ Have a Data Management Plan
- ✓ Back up your data
- ✓ Register an ORCID



MOST IMPORTANT

BACK UP YOUR DATA

You can't create a data management plan, share or reproduce your results if you have lost your data!



We love your feedback

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THANK YOU

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