Research Data Management Procedures

INTRODUCTION

The University is committed to providing a research environment that will promote a high standard of professional conduct by its researchers, and a culture of research practice that is ethical, competent, safe and accountable.

To optimise research outcomes and their validity, research data, records and primary research materials must be stored, retained, documented and/or described, made accessible for use and reuse, and/or disposed of, according to legal, statutory, ethical and funding body requirements.

COMPLIANCE

This is a compliance requirement under *the:*

- *Higher Education Standards Framework (Threshold Standards) 2015;*
- *Information Act 2002; and*
- *Australian Code for the Responsible Conduct of Research 2018.*

INTENT

This document outlines the University's requirements for the management of research data, records, and primary research materials according to legal, statutory, ethical and funding body requirements and applies to:

- All researchers and research administrators, who collect, create and/or generate research data, irrespective of work location; and
- All research data, regardless of format, and subject to the provisions of any relevant contracts or funding/collaboration agreements.

RELEVANT DEFINITIONS

In the context of this document

Australian Research Council means the statutory agency within the Australian Government that assesses research quality within Australia's higher education institutions and gives government, industry, business and the wider community assurance of the excellence of research conducted;

Australian Code for the Responsible Conduct of Research means the code developed by the National Health and Medical Research Council   that guides institutions and researchers in responsible research practices and promotes research integrity;

Australian National Data Service means the national service responsible for building the Australian Research Data Commons and Research Data Australia, transforming data into structured collections that are managed, connected, findable and reusable;

Australian Research Data Commons means a cohesive collection of research resources from all research institutions, to make better use of Australia's research data outputs;

Clinical Trial means a trial that evaluates the effectiveness and safety of medications or medical devices by monitoring their effects on groups of people;

Confidential Information means information that is not otherwise available in the public domain. Such information should be labelled confidential, should be disclosed for a specific purpose only (e.g. Assessment of intellectual property). In disclosing the information, recipients must be advised that the information is confidential and they may be required to sign a confidentiality agreement;

Research data, records and primary research materials means data, records and other research materials collected, assembled or created in the course of research and managing research including related plans and agreements;

Research Data management means all the processes and actions required to manage data using good practice throughout the research life-cycle for current and future research purposes and users;

Governance document means a formally approved document that outlines non-discretionary governing principles and intentions, in order to guide University practice. Governance documents are formal statements of intent that mandate principles or standards that apply to the University's governance or operations or to the practice and conduct of its staff members and students. They include the Charles Darwin University Act (2003), by-laws, policies, procedures, guidelines, rules, codes and the Enterprise Agreement;

Metadata means descriptive information about data to enable researchers to find, use and properly cite the data. It includes information such as the dates and location of the creation of the data, data author and the parameters of data creation;

National Health and Medical Research Council means the peak body for Australian health and medical research that managers the complementary functions of funding health and medical research, provides ethical guidance on health and medical research issues, and provides health advice;

Research Data Australia means the Internet-based discovery service designed to provide rich connections between data, projects, researchers and institutions, and promote visibility of Australian research data collections in search engines;

Research Data and Datasets mean the results or outputs of research. Research data can be in the form of objects and specimens, observations, images, computer program results, recordings, measurements or experiences on which an argument, theory, test or hypothesis, or another research output is based. Datasets may be numerical, descriptive, visual or tactile. They may be raw, cleaned or processed, and may be held in any format or media.

Researcher means any staff member, person awarded honorary or academic status by the University, student, or person otherwise associated with the University, who conducts research during employment, study or a formal research affiliation with the University;

Senior Manager means a staff member of the University holding the position of Director or Head of College or equivalent;

Sensitive Information means information or an opinion about an individual's racial or ethnic origin; health or genetic information; political opinion or membership of a political association; religious beliefs or affiliations; philosophical beliefs; membership of a professional or trade association or union; sexual preferences or practices; or criminal record;

Staff member means anyone employed by the University and includes all continuing, fixed-term, casual, adjunct or honorary staff or those holding University offices or who are a member of a University committee;

Student means a person of one of the classes of persons set out in the *Charles Darwin University (Student of the University) By-laws;*

The Cloud means storage capacity outside the control of the University accessed via the internet; and

University community means officials and individuals carrying out University business. This includes, but is not limited to, all staff members, researchers, peer reviewers, students, volunteers, consultants, agents, tenants and contractors.

PROCEDURES

Research Data Management

Research data management is a shared responsibility to implement good practice compatible with the University's commitment to the highest ethical standards in research, protecting the rights, dignity, health, safety and privacy of the community, including research subjects, and with its commitment to the welfare of animals and the integrity of the environment.

All researchers and research administrators, who collect, create and/or generate research data must:

- Document how data will be created, stored and managed, and the provisions for access to data from creation to disposal or permanent preservation;
- Store and maintain data securely in a method appropriate for the format of the data and with appropriate metadata and/or documentation;
- Identify non-digital data that is not suitable for digitisation and organise storage in a secure environment in accordance with the University's *Records Management Policy and Procedures*;
- Store master copies of digital data in a manner that is secure and backed up or ensure that any arrangements for master copies of data stored externally to the University are documented in writing at the commencement of the research and that external storage providers comply with the University's Governing documents;
- Ensure all research data, records and primary research material and sufficient documentation *are stored and managed to allow appropriate access, use and validation of research outcomes.*
- Make data available for use via open or negotiated access, considering constraints which may arise from ethical, privacy, confidentiality, cultural and intellectual property and the requirements of research funding bodies such as the Australian Research Council and the National Health and Medical Research Council; and
- Facilitate long term access and preservation by using durable formats to create and store digital and non-digital data;
- Comply with discipline requirements for quality research, the University's governing documents and relevant legislation in relation to, safety, privacy, risk management, financial management and ethical acceptability;
- Notify the Privacy Officer and appropriate parties if there is a breach of confidentiality or privacy, in accordance with the *Privacy and Confidentiality Policy*;

- Establish detailed Collaborative Research Agreements with for all cross-collaborative projects and research.

The Principal Investigator of a research project has primary responsibility for ensuring that data and materials are managed correctly and appropriate records are maintained for that project.

Senior managers are responsible for the conduct of research within their College, research institute or centre. Senior managers must ensure observance and raise awareness of compliance obligations on the retention of research data relevant to the research discipline(s) and specialisations and provide appropriate access and facilities for the safe and secure storage of primary materials, research data and records.

Library Services, in partnership with Research and Innovation, is responsible for the development and maintenance of the University's online research repository and related software databases. This includes provision of open and/or controlled access to metadata records describing and providing access to the University's collection of research datasets and providing training and support relating to research data management.

Information Technology Management and Support is responsible for the provision of research data management storage infrastructure and services based at the University and for providing support relating to research data storage.

Director of Research is responsible for overseeing the management of research data across the University and compliance with this procedure.

Planning

All researchers and research administrators are required to develop a Research Data Management Plan at the commencement of each research project to formalise decisions relating to ownership, custodianship retention, storage and disposal of research data.

Research Data Management Plans must be kept with and/or clearly linked to other research project documentation and with the primary materials and research data for the future management of the research data. This will ensure that data is only used in accordance with legal and ethical requirements, can be understood during research projects, that researchers continue to understand data in the longer term and that re-users of data are able to interpret the data.

Library Services provides a *Library Guide* on Research Data Management to assist in planning and implementing good research data management practice throughout the research lifecycle.

Ownership, Intellectual Property and Copyright

Researchers must ensure that ownership, and where relevant Intellectual Property and Copyright, of primary materials and research data is identified and documented at the start of a research project and reviewed and updated as appropriate. Research Data Management Plans should detail how ownership and storage of data and materials will be affected by researchers changing institutions, or withdrawing from collaborative projects.

In the absence of any licence agreement governing the use of third-party content, or other express permission, researchers must use third-party research data in accordance with the *Copyright Act*.

Where no licence agreement is in force and the intended use of third-party copyright material extends beyond what the *Copyright Act* allows, researchers must obtain written permission on behalf of the

University from the copyright holder. Researchers must store permission documentation in such a way as to ensure that the University can access that documentation and that any subsequent use of the material complies with the terms and conditions of the permission granted.

Legal, Contractual and Ethical Requirements

Access to research data should be considered in the context of ethical, privacy, confidentiality, cultural and intellectual property requirements. Confidential research data must be managed in accordance with any contractual or funding agreements and legislation such as the *Privacy Act* and *Information Act*.

It is the responsibility of all researchers and research administrators to ascertain and comply with any legal, ethical or contractual confidentiality conditions relating to the primary materials and research data and related records, such as:

- Respecting any confidentiality agreement about stored data that has been made with participants and ensure documentation of same for the awareness of future users;
- Considering appropriate ways of collecting, storing and accessing data, and communicating with research participants about these issues;
- Establishing consent processes that include information about the form in which the data will be stored, indexed and the purposes for which the data will be used and/or disclosed;
- Retaining records of confidentiality agreements and consents;
- Securing data so that it is not available for uses to which subjects did not consent;
- Applying the AIATSIS Guidelines for Ethical Research in Indigenous Studies and NHMRC's Ethical conduct in research with Aboriginal and Torres Strait Islander Peoples and communities: Guidelines for researchers and stakeholders or any equivalent guidelines in local jurisdictions when conducting research involving Indigenous people;
- Considering Indigenous intellectual and cultural property rights, in addition to other copyright and intellectual property requirements; and
- Documenting any special data management arrangements made with other types of communities that are participating in research, in accordance with approved human research ethics protocols, research agreements and research data management plans.

If there is any doubt about confidentiality and consent, researchers must consult the NHMRC's *National Statement on Ethical Conduct in Human Research*, particularly Section 2: *Themes in research ethics: Risk and benefit, consent* and Section3: *Ethical considerations in the design, development, review and conduct of research*, and seek advice from the University's Human Research Ethics Committee.

Funding agencies and other stakeholders, for example, research collaborators and research participants, may also have intellectual property requirements and these must be considered when drawing up a Research Data Management Plan. All collaborative research projects that engage personnel external to the University are required to establish a collaborative research agreement in accordance with the University's *Responsible Conduct of Research Policy*

Intellectual property must be managed in accordance with the University's *Intellectual Property Policy*.

Retention and Transfer

Research data, primary materials and associated records are considered University records and must be stored, retained, disposed of or transferred in accordance with the University's *Records Management*

Policy, *Records Management - Retention and Disposal of University Records Procedures*, *Responsible Conduct of Research Policy* and any additional legislative or contractual requirements.

Decisions on retention, transfer and disposal must be incorporated into the Research Data Management Plan for the research project

The University's *Responsible Conduct of Research Policy* states the general minimum retention period for research is five (5) years after completion or five (5) years after publication, whichever the latest is; however, retention periods should be determined by the specific type of research. For example:

- Short-term research projects that are for assessment purposes only, such as research projects completed by students, retaining research data for twelve (12) months after the completion of the project will normally be sufficient;
- Clinical trials where research involves humans, research data must be retained for a minimum of fifteen (15) years after publication;
- Areas such as gene therapy, research data such as patient records, must be retained permanently; and
- If the work has significant community or heritage value, research data should be kept permanently.

Specified periods may vary depending upon the local jurisdiction, the discipline and type of research, other governing documents, and the requirements of bodies such as funding agencies and commercial sponsors.

Longer term and permanent retention of data is recommended where the outcomes of research may be of high public interest or contention may substantially shift the paradigm for the field of enquiry or may have resulted in the identification, registration and use of intellectual property.

In the event that results from research are challenged, all associated research data and materials and related records must be retained until the matter is resolved. Research data and materials and related records that may be subject to allegations of research misconduct must not be destroyed.

Data Storage

All primary materials, research data and records must be stored in an institutional repository or archive for the for the long-term storage period for purposes of validating the research, furthering knowledge and to aid preservation and access. It may be necessary to convert data into newer or more accessible formats over time, therefor researchers and research administrators must ensure data is appropriately stored in either:

- A College centre or institute, data storage facility provided by the University; or
- A central University institutional repository; or
- During the active research phase, a research support partner's institutional repository.

Where University researchers collaborate with researchers from other institutions, it is expected that the College, centre or institute data storage facility would normally house a copy of the portions of research data created by the University or using University resources.

Other storage options include:

- University provided data storage facility - University supplied data storage services and servers must be used for University related data storage. The University provides personal file storage

space on the network file server. Staff members and students are allocated approximately 500mb of hard disk space, and additional space may be assigned to researchers or access provided to College specific research storage drives;

- Research data repositories - including the University's Research Information System; or
- Cloud data storage services - These services are becoming increasingly available; however, there are issues of concern relating to security, reliability and data ownership. In relation to data ownership, a service may advertise as being in a specific country but the reality is that data may be stored anywhere in the world which creates the problem of data ownership and privacy laws and protection in those countries. If researchers are considering using these services, the End User License Agreement needs to be read carefully and understood.

Portable media such as external hard drives, CDs, DVDs, and USB devices are not suitable for long term storage of primary materials, research data and records as they can be easily misplaced or corrupted due to damage.

Backup

Researchers and research administrators must have a backup strategy to recover data after loss and/or to recover data from a particular time. Backups of more than one (1) copy should be performed regularly, and should be housed remotely from the main data storage. The backups should be labelled and well organised to facilitate any data restoration process.

Metadata and Recordkeeping

Metadata or data documentation is critical to every research project. Appropriate records must accompany all data throughout the research cycle, continuing into the inactive storage stage, and be included in the metadata.

Data documentation explains how data was created or digitised, what data means, what its content and structure is, and any manipulations that may have taken place. This ensures that data can be understood during research projects, that researchers continue to understand data in the longer term and that re-users of data are able to interpret the data. Good documentation is also vital for successful data preservation.

Metadata is typically used for resource discovery, providing searchable information that helps users to find existing data, as a bibliographic record for citation, or for online data browsing.

Researchers and research administrators must plan and record a process for recording data in the Data Management Plan before data collection begins. This will make data documentation easier and reduce the likelihood that aspects of the data are forgotten later in the research project.

Destruction

Researchers must establish data ownership and destruction requirements, including methods, timelines and decision-making processes in the planning stage of the project. Projects using third-party data must be established and provide a process for individuals (or groups) to exit. These must be documented in the researchers Research Data Management Plan, and stored with other project documentation such as initial agreements on the use of the data.

Researchers who leave the University during the retention period of data and materials for which they are responsible and to which they have intellectual property rights, unless otherwise specified by contract, may transfer a copy of the materials or data to a new secure storage location for their own use.

The destruction of primary materials, research data and records must be planned and deliberate and may only be destroyed according to the University's *Records Management – Retention and Disposal of University Records Procedures* and Commonwealth and Northern Territory Government legislation using appropriate disposal mechanisms such as using a professional data erasing service to remove data on hard disk drives, must be used to prevent unauthorised re-use.

Research data that is scheduled to be destroyed must be reviewed and authorised for destruction by the data owner, where the data is not owned by the University or the relevant Senior Manager (or delegate) responsible for managing the data. Data must not be destroyed without written authorisation and documentation of the data and the destruction processes used.

The reviewer of the data must confirm that the data is not:

- Of archival value and does not need to be permanently retained;
- Required to carry out the business of the College, centre or institute; and
- Subject to any outstanding legal or ethical requirements, challenges of the research results or allegations of research misconduct.

In the event of research being challenged or of an allegation of research misconduct, all research data must be retained until the matter is resolved.

Students

Students and research candidates and their supervisors are responsible, for the collection, storage, security and use of research data and records including confidential research data and records. Candidates must establish collection and storage procedures for research data and records that are acceptable to the supervisor and recorded in a Research Data Management Plan.

Appropriate arrangements must be negotiated with the supervisor for the security of research data and records involving human participants. These arrangements must be outlined in the candidate's application for ethics clearance.

Upon submission of thesis, candidates must deposit research data and records associated with the thesis with the relevant College research institute or centre and provide the supervisor with full details regarding the location to ensure they are managed appropriately over time.

Access and re-use

Appropriate access to research data should be considered within the Research Data Management Plan. Research data where permitted must be made available under open access licence (such as a Creative Commons licence) or by negotiated or controlled access through a system of permissions and authentication in accordance with any legal, contractual or ethical requirements.

Research data from publicly funded research projects such as by the ARC or the NHMRC must be placed into an institutional repository managed by Library Services, within six (6) months of publication.

When using or re-using research data made available by other researchers, University researchers must comply with copyright, moral rights and licence requirements. Where appropriate, the dataset should be cited in the same way as researchers routinely provide bibliographic references. *Citation of datasets* promotes recognition of the value as research outputs as well as greater re-use.

Research datasets must be made available via open access or controlled access with research partners, collaborators or requestors, for re-use by other researchers, unless a case based on specific and valid reasons is made for not doing so.

Research Data Australia

Unless otherwise consented, notice of the existence, location and relevant contacts for all publicly funded University datasets, collected and managed by both students and staff members, must be made available nationally and internationally via the Australian Research Data Commons and Research Data Australia.

Library Services will gather information regarding the researcher from the researcher and/or the researchers' College, research institute or centre and facilitate the import of this information into Research Data Australia.

Non-Compliance

Failure to adhere to these procedures, the *Responsible Conduct of Research Policy* and *the Australian Code for the Responsible Conduct of Research* is a serious matter that may be grounds for disciplinary action. The University's *Research Misconduct Allegation Procedures* outlines how to make, receive and report allegations and complaints about suspected research breaches or misconduct.

ESSENTIAL SUPPORTING INFORMATION

Internal

Code of Conduct

Intellectual Property Policy

Privacy and Confidentiality Policy

Records Management Policy

Records Management - Capturing University Records Procedures

Records Management - Discovery of University Records Procedures

Records Management - Retention and Disposal of University Records Procedures

Records Management - Security of University Records Procedures

Responsible Conduct of Research Policy

Research Misconduct Allegation Procedures

External

Australian Code for the Responsible Conduct of Research 2018 (Commonwealth)

Australian Institute of Aboriginal and Torres Strait Islander Studies Guidelines for Ethical Research in Indigenous Studies (under review)

Australian Research Council – Open access Policy

Copyright Act 1968 (Commonwealth)

Ethical research: Review of Guidelines for Ethical Research in Australian Indigenous Studies

Higher Education Standards Framework (Threshold Standards) 2015 (Commonwealth)

Information Act 2002 (NT)

National Health and Medical Research Council Act 1992 (Commonwealth)

National Health and Medical Research Council – Ethical conduct in research with Aboriginal and Torres Strait Islander Peoples and Communities: Guidelines for researchers and stakeholders.

National Health and Medical Research Council – Open Access Policy

National Statement on the Ethical Conduct in Human Research 2007 (Updated 2018)

Privacy Act 1988 (Commonwealth)

Document History and Version Control

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1.00	30 Jul 2010	Academic Board	Creation of original document and upload to CDU website.
1.01	9 Apr 2013	Governance	• Converted document to current template • Minor changes to wording, grammar and formatting • Assigned document number • Updated and added hyperlinks
2.00	1 Oct 2014	Academic Board	Major review including the development of Research Data Management Policy and Procedure to replace Research Data Management Guidelines
2.01	4 Sep 2015	Governance	Minor amendment to correct version number in footer
2.02	15 Dec 2017	Governance	• Converted document into new template • Updated definitions senior manager, staff member and university community • Updated hyperlinks • Updated list of Essential Supporting Documentation to include Intellectual Property Policy and Privacy Act 1988 • Added a Sponsor, Deputy Vice-Chancellor, Research and Research Training
3.00	11 Dec 2019	Vice-Chancellor	• Complete review of Procedures • Amended DVCRRT to DVC Research & Innovation • New compliance to ensure all research data, records and primary research material and sufficient documentation are stored and managed to allow appropriate access and validation of research outcomes • Non-compliance has been added to avoid potential Breaches of Responsible conduct of Research Policy