Research Data Management Procedure

1 Purpose

To establish the responsibilities and processes for the management of Research Data at the University.

This procedure is to be used, along with other applicable procedures, from initial research project conceptualisation through to research project conclusion. The procedure:

- expands on the Research Code of Conduct Policy (The Code) in relation to specific aspects of Research Data Management;
- outlines practical steps that Research Workers can take;
- aligns with the University's ethics requirements; and
- highlights enabling technology and advisory services available at the University.

2 Scope

This procedure applies to all Research Workers and all Research Data.

Exclusions:

This procedure does not apply to the management of Primary Materials.

3 Procedure Overview

This procedure establishes the responsibilities and processes for management of Research Data at the University.

4 Procedures

Research Workers are required to manage Research Data arising from their Research Activities using methods appropriate to the discipline and to the nature of the Research Data to appropriate standards.

These standards include legislation, policies, funding agency requirements, technical protocols, audit and accreditation processes, discipline norms and the expectations of the broader Complying with the law and observing Policy and Procedure is a condition of working and/or studying at the University. A hard copy of this electronic document is uncontrolled and may not be current as the University regularly reviews and updates its Policies and Policy Instruments. The latest controlled version can be found in the University’s Policy and Procedure Library.
community.

4.1 Rationale

Good Research Data Management practices ensure that Research Workers and the University are able to meet their obligations to funders of Research Activities, improve the efficiency of research, and make Research Data available for sharing, validation and re-use.

To support these goals, it is imperative that effective Research Data Management practices are applied appropriately from the outset; through the stages of planning, storage, description, sharing, and preservation.

4.2 Plan

4.2.1 Regulatory requirements

All research conducted at the University is subject to the Australian Code for the Responsible Conduct of Research, Section 2 'Management of Research Data and Primary Materials'. The Australian Code for the Responsible Conduct of Research requires Research Workers to:

- responsibly retain Research Data and Primary Materials;
- manage storage of Research Data and Primary Materials; and
- maintain confidentiality of Research Data and Primary Materials.

Funders of Research Activities increasingly require Research Workers to develop and implement Research Data Management Plans for the conduct of their projects. The University encourages the use of such plans by all Research Workers for all research.

4.2.2 Responsibilities

Responsibility for Research Data Management resides with the Principal Investigator of a research project. In the case of a Student research project, responsibility for Research Data Management resides with the Principal Higher Degree by Research (HDR) Supervisor.

For collaborative research projects that span more than one institution, an agreement should be reached by project commencement describing the Research Data Management within each institution.

4.2.3 Research Data Management Plan

Planning ahead for potential Research Data Management needs will help ensure that research projects are supported by:
- adequate technological resources (e.g. storage space, support staff time);

- Research Data that is robust and free from versioning errors and gaps in documentation, etc.;

- Research Data that is backed up and safe from sudden loss or corruption;

- compliance with legal and ethical requirements;

- Research Data that is able to be shared publicly; and

- Research Data that will remain accessible and comprehensible in the near, middle, and distant future.

All research projects should be supported by a detailed Research Data Management Plan (RDMP). The University provides a RDMP template to guide Research Workers in their planning process.

A RDMP will describe:

- what Research Data will be created;

- what legislation, regulations, codes, policies and standards etc. (funding, institutional, ethical, and legal etc.) will apply to the Research Data;

- ownership, access and protection of Intellectual Property;

- how the Research Data will be described and possibly shared and/or reused;

- what Research Data Management practices (backups, access control, preservation and archiving) will be used;

- what facilities and equipment (hard-disk space, backup server, repository) will be required; and

- who will be responsible for each of these activities.

**4.3 Store**

Through the course of a research project all Research Data, regardless of format, should be stored securely and backed up or copied regularly. It is strongly recommended that Research Workers keep at least three copies of all Research Data, for example, original, external - local, and external - remote, and maintain a plan for regular backups.
4.3.1 Durable formats

Durable file formats should be selected for use during the conduct of research, considering the following factors:

- endorsed and published by standards agencies such as Standards Australia or the International Organization for Standardization (ISO);
- publicly documented, i.e. complete authoritative specifications are available;
- the product of collaborative development and consultative processes; and
- widely used and accepted as best practice within a discipline or other user communities.

4.3.2 Secure storage - digital Research Data

The University recommends that digital Research Data is stored on University approved systems that are backed up regularly.

The University, through Academic Services Division and the Research and Innovation Division provides access to eResearch advice and services to guide Research Workers in selection of appropriate storage.

4.3.3 Safe and secure Research Data transfer

The University recommends that Research Data is transferred using safe and secure protocols that feature data encryption. The University provides Research Workers with a fast and secure direct link between its campuses and Queensland Cyber Infrastructure Foundation (QCIF) data centres to enable reliable data transfers for large files. Research Workers can use secure protocols and services such as CloudStor for small file transfers.

4.4 Describe

Research Workers should create and maintain sufficient documentation or Metadata (i.e. structured information about the data) to enable Research Data to be identified, discovered, associated with its owners and creators, linked to other related data or publications, contextualised in time and space, and to have the quality of the data assessed and research results validated.

The University has a curatorial responsibility for Research Data created by Research Workers. The University is committed to developing resources and processes to support research integrity and discoverability through description, harvesting and appropriate exposure of Research Data.

Describing Research Data enables:
• sharing of data, helping to raise research profiles;
• increased impact and recognition;
• increased citation of Research Data, acknowledging individual contributions;
• the creation of new opportunities for collaboration and exchange;
• future research to build on existing Research Data;
• transparency and supports research integrity;
• recording of Research Data collected at a specific point of time that cannot be repeated;
• validation of findings by others;
• support for the responsible communication of research results; and
• re-use of the Research Data by researchers in other fields for different purposes.

4.5 Share

Sharing Research Data ensures that it can be discovered, accessed and cited in the long term. Sharing of Research Data is often a requirement of funding bodies and publishers. Providing open access to Research Data has the potential to result in significant research impact and is increasingly considered a major element in the publishing process.

Sharing some or all of the Research Data resulting from Research Activities may not always be possible due to characteristics including, but not limited to:

• confidentiality and privacy;
• legal issues;
• ethics;
• sensitivity issues; and
• protecting future publication of results.

4.5.1 Ownership of Research Data

Decisions about sharing Research Data should consider any relevant obligations with regard to Intellectual Property including:
• determining what rights, including Copyright, will subsist in the Research Data produced by the project; and

• consideration of ownership in accordance with the University’s policies on Intellectual Property.

4.5.2 Ethics and consent

Research ethics applications should consider Research Data Management and, in particular, data sharing and re-use in the context of privacy, confidentiality and consent, cultural sensitivity, and community-based research.

Ethics applications should be completed in accordance with relevant University Policy and Procedure and be explicit about any plans to make data available to other researchers or more broadly, and describe strategies for protecting privacy and confidentiality, e.g. by ensuring that participants will not be identifiable, informed consent will be sought from participants for the proposed Research Data re-use or access controls or re-use agreements will be in place.

Consent forms should be explicit about any plans to make Research Data available, who will be able to access the Research Data, and how the Research Data will be accessed and potentially re-used.

4.6 Preserve

Preserving Research Data helps to keep it accessible and usable into the future, despite changes in technology and possible hardware failures. Preservation of Research Data should include the datasets and any related files providing the datasets context; for example, email discussions, methods of analysis, research parameters.

4.6.1 Retention

Research Data should be retained in accordance with the Australian Code for the Responsible Conduct of Research (2007), Section 2; the Queensland University Sector Retention and Disposal Schedule and the University’s Records and Information Management Policy.

To determine the maximum retention period for Research Data, the longer-term value of the Research Data in light of the potential research impact and other factors must be considered, including:

• the research would be difficult or impossible to repeat;

• repeating the research would be burdensome for human participants or Animals;

• the results are of high public interest or contention;
• methods or results constitute a paradigm shift for the field of inquiry; or
• the research will result in notifiable Intellectual Property (e.g. a patent application).

In addition to the Research Data itself, Research Workers need to retain any corporate records related to the Research Data that are generated.

4.6.2 Secure destruction

When the required retention period for the Research Data has come to an end, there may be a need to destroy the Research Data to meet ethical requirements or because it has been determined that the data no longer has any value. Research Workers are responsible for this process.

The destruction process must be irreversible, meaning that there is no reasonable risk that any information may be recovered later. Extra care should be taken when dealing with records that contain sensitive information.

All materials must be destroyed in accordance with the University's Records' Management Governance Policy and Procedure and the Records and Information Management Procedure.

4.6.3 Exit planning

Master copies of any working data that belongs to the University or to a third party with which the University has an agreement should not be deleted. The University's Intellectual Property Policy allows Research Workers to retain a copy for teaching and research purposes.

5 References


6 Schedules

This procedure must be read in conjunction with its subordinate schedules as provided in the table below.

7 Procedure Information

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Animal Ethics Committee Procedure

Cloud Computing Procedure (under development)

Engagement of Cloud Computing Services Procedure

Information Asset and Security Classification Procedure

Records and Information Management Procedure

Right to Information Procedure

Related forms, publications and websites

OECD Principles and Guidelines for Access to Research Data from Public Funding

Research Data Management Plan Template

IMS Global

Metadata standards:

Humanities data - The Text encoding initiative, The Visual Resources Association Core, Dublin Core, Functional Requirements for Bibliographic Records (FRBR)


Social Sciences Data - Data Documentation Initiative (DDI)

Scientific Data - CCLRC Scientific Data Model


Definitions

Terms defined in the Definitions Dictionary

Animal

Any live non-human vertebrate (that is, fish, amphibians, reptiles, birds and mammals, encompassing domestic Animals, purpose-bred Animals, livestock, wildlife) and cephalopods.

Copyright (under development)

Data Security

The protection of data from unauthorised use, access disclosure and
destruction, as well as the prevention of unwanted changes that can affect the integrity of data. Ensuring data security requires paying attention to physical security, network security and security of computer systems and files.

Higher Degree by Research (HDR)

A Research Doctorate or Research Masters program for which at least two-thirds of the Student load for the program is required as research work.

Intellectual Property (under development)

Metadata

Identifying information collected with the data to enable cataloguing and searching. It can be used to describe physical items as well as digital items. Metadata is a standard machine and human-readable format for representing project and data documentation.

Primary Materials

Physical objects acquired through a process of scholarly investigation from which Research Data may be derived. Includes, but is not limited to, ore, biological material, questionnaires, or recordings, artwork and photographs.

Principal HDR Supervisor (under development)

Research Activities

Refers to activities that result in the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings. This could include synthesis and analysis of previous research to the extent that it leads to new and creative outcomes.

Research Data

Facts, observations, measurements or experiences on which an argument, theory or test is based. Research Data may be numerical, descriptive or visual. Research Data may be raw or analysed, experimental or observational. Examples include, but are not limited to, laboratory notebooks, field notebooks, primary Research Data, questionnaires, audio and video recordings, photographs, films, test responses, and any other records that are necessary for the reconstruction and evaluation of the reported results of research.
**Research Data Management**

All the processes and actions required to manage data throughout the research lifecycle to enable it to be preserved and accessible by a controlled audience for current and future research. Examples include: data storage and backup, organising data into directories/folders and using meaningful file names, archiving final state data for long-term preservation, describing datasets for future reuse and discovery, data sharing or publishing collaboratively, creating and using data with other researchers to ensure the security of confidential data, and synchronising data between desktop, laptop, USB key, cloud storage, etc.

**Research Worker**

Any person/s involved in Research Activities at, or on behalf of the University. This includes, but is not limited to Employees, Students, visiting scholars, research partners, research affiliates, holders of Honorary or Adjunct positions, and research ethics committee members.

**Student**

A person who: has been Admitted or Enrolled in an Academic Program at the University, but has not yet graduated from the program; or has been Enrolled in a Course at the University but has not yet completed the Course.

**University**

The term ‘University’ or ‘USQ’ means the University of Southern Queensland.

**Definitions that relate to this procedure only**

**Principal Investigator**

The person appointed to the role of Principal Investigator as per the approved ethics application. This person may also be known as the chief or lead researcher or investigator. The Principal Investigator is the person who is responsible for the overall management and conduct of an individual project, and for ensuring that clear lines of responsibility, communication, and accountability regarding the care and use of Animals are identified and upheld.

Adapted from the *Australian code for the care and use of animals for scientific purposes. 8th Edn* (2013).

**Keywords**