UNIVERSITY OF WOLLONGONG AUSTRALIA

RESEARCH DATA MANAGEMENT GUIDELINES

Date first approved:	**Date of effect:** 6 February, 2017	**Date last amended:** (refer to Version Control Table) 7 August 2023	**Date of Next Review:** 7 August 2023
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Supporting documents, procedures & forms of these guidelines:	Authorship Policy Code of Practice – Responsible Conduct of Research Copyright Policy Appointment of Visiting and Honorary Academics Policy Intellectual Property Policy HDR Supervision and Resources Policy IT Server Security Policy Cyber Security Policy Privacy Policy Records Management Policy Research Data Management Policy Research Integrity and Conduct Policy: Breaches, Concerns and Complaints Open Access Policy Travelling Overseas with Devices Procedure Defence Trade Controls Guideline Data Governance Procedure		
Relevant Legislation & External Documents:	Australian Code for the Responsible Conduct of Research - 2018 NHMRC, ARC & Universities Australia: Management of Data and Information in Research: A Guide Supporting the Australian Code for the Responsible Conduct of Research - 2019 National Statement on Ethical Conduct in Human Research - 2007 (updated 2018) AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research - 2020 OECD Principles and Guidelines for Access to Research Data from Public Funding Principles for accessing and using publicly funded data for health research (2016) Code of Ethics for Aboriginal and Torres Strait Islander Research Copyright Act, 1968 (Commonwealth) Privacy Act, 1988 (Commonwealth) Privacy and Personal Information Protection Act, 1998 (NSW) State Records Act, 1998 (NSW) GA 47 - Higher & further education and research records Higher Education Standards Framework (Threshold Standards) – 2021 (sections 4.1, 5.2 & 6)		
Audience:	Public – accessible to anyone		

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Contents

1. Introduction/Background

1. These guidelines support the University of Wollongong's (UOW) Research Data Management Policy and recognise the need for Researchers and Research Students to manage the increasing volume and complexity of data created at UOW and set out a framework for best practice research data management by:
    - recognising research data as a valuable product;
    - improving the efficiency of research;
    - supporting the evolving global data-intensive research environment;
    - safeguarding against data loss through adequate security, storage and backup provisions;
    - ensuring appropriate data handling by classifying it according to its sensitivity; and
    - making data available for sharing, validation and re-use.
2. UOW also acknowledges that the management of research data and primary materials must be consistent with relevant legislation, codes, policies and guidelines.

2. Definitions

Word/Term	Definition (with examples if required)
Archive space	Secure space for permanent storage after completion of the project.
Data Access Agreement (DAA)	An agreement governing the terms on which access will be granted to data.
Data curation	The ongoing activity of managing the use of data from its point of creation to ensure it is available for discovery and future re-use.
Data licenses	Define the permissions, terms and conditions for reuse of data and allow prospective re-users to understand what they can and cannot do with a dataset. There are several options available that are applicable to both open-access and closed datasets.
Data sharing	Refers to sharing of data sets upon completion of the original project, not sharing between collaborators in the current project.
Dataset	A collection of research data.
Digital Object Identifier (DOI)	A unique string of numbers, letters and symbols used to identify digital objects such as articles, books, reports, data sets and code and assign them with a persistent link to their online location so they can be found easily.
Durable Formats	Digital file formats that will remain readable and usable over time. This has implications for choices relating to both software and hardware.
Geospatial	Pertaining to the geographic location and characteristics of natural or constructed features and boundaries on, above, or below the earth's surface; especially referring to data that is geographic and spatial in nature.
IMTS	UOW's Information Management and Technology Services Division
Indigenous Cultural and Intellectual Property (ICIP)	Indigenous peoples' tangible and intangible cultural heritage as reflected in article 31 of the United Nations Declaration of the Rights of Indigenous Peoples. It includes: • Indigenous Cultural Expression; • Indigenous Biological Resources; and • Indigenous Knowledge.
Indigenous Cultural Expression	Tangible and intangible forms in which Indigenous Knowledge and cultures are expressed, communicated or manifested. This includes but is not limited to: languages; art; stories; photographs, paintings, music, oral histories, games and films that express the collective heritage of the Indigenous clan or community from which it comes.
Indigenous Biological Resources	Genetic resources, organisms, flora, fauna, and seeds used and nurtured by Indigenous people throughout the generations.
Indigenous Knowledge	Understandings, beliefs, and traditions that have been transmitted from generation to generation and has cultural connections to the Indigenous community from which it came. Includes knowledge held by Indigenous people about how to cultivate biological resources, control populations, or otherwise engage in environmental management.
Intellectual Property (IP)	The property of the mind or proprietary knowledge, i.e. productive new ideas. This includes know how, registered and unregistered trademarks, copyright, patents, trade/business or company names, registered and registrable design rights, plant breeder's rights, circuit

	layouts and trade secrets, and all other intellectual property as defined by Article 2 of the Convention Establishing the World Intellectual Property Organisation, July 1967.
Lead Researcher	The Researcher responsible for the management and integrity of the design, conduct and reporting of the research project and any collaborative relationships.
License Agreement-Provision of Data	A contract between a Research Student and the University which grants the University the legal right to market sell or otherwise profit from the data.
Managing records	Managing records refers to any action relating to the lifecycle of a record, including the storage, assignment of metadata, retrieval, transfer, preservation, and eventual destruction of records.
Metadata	Information about the context, content, quality, provenance, accessibility and licensing arrangements that describes a research data set. Metadata helps users to identify and retrieve relevant documents without having to read the actual document, to define who is allowed to access the document, to provide contextual information such as who created the document, and to define how long the document needs to be kept.
Metadata Schema	Defines a set of terms that will be used to describe a resource and a set of rules that define the syntax or application and language. Metadata created using an existing schema assists in interoperability and the ability to share data.
Non-disclosure agreement (NDA)	An agreement designed to protect confidential information, trade secrets and expertise (know-how) from being misused by those to whom such information will be or has been disclosed. It should be used in any situation where information that must remain confidential is being disclosed.
Open Access	The immediate, online, free availability of research outputs without restrictions on use commonly imposed by publisher copyright agreements.
Personal Information	Information or an opinion (including information or an opinion forming part of a database and whether or not recorded in a material form) about an individual whose identity is apparent or can reasonably be ascertained from the information or opinion.
Project space	Secure, safe, reliable, accessible storage space used to store data in the shared stage of the project. Access is open but not everything is shared.
Primary materials	Physical objects acquired through a process of scholarly investigation from which research data may be derived. Examples include geological or biological material, artefacts, questionnaires, recordings, photographs, sketch books, log books, creative works, computer software and code, correspondence and documented processes.
Relevant Indigenous Peoples	Australia's Aboriginal and Torres Strait Islander people and in other countries the First Nation people, who are the custodians or who have authority to provide Free, Prior, Informed Consent for the use of ICIP and/or can negotiate IP ownership and benefit sharing arrangements. "Relevant" in this definition requires recognition and identification of the appropriate Indigenous Authority, being the decision-maker or decision-making entity that has cultural authority for the use or treatment of specific ICIP or IP. This may involve consultation with the local Aboriginal Land Council and/or individual Indigenous Knowledge holders, Indigenous organisations, Elders groups, and Traditional Owners groups.

Research data	The data, records, files or other evidence, irrespective of their content or form (e.g. in print, digital, physical or other forms), that comprise research observations, findings or outcomes, including primary materials and analysed data. Indigenous Research Data include data generated by Indigenous Peoples or about Indigenous Peoples and territories. For Indigenous Peoples, collective consent and data privacy protections, supported via community-controlled data infrastructure, are essential to ethical Indigenous data practices.
Research data lifecycle	Describes the different stages research data go through before, during, and after a research project. Each stage of the research data lifecycle entails various data management activities, and the choices made in one phase influence the next one.
Research data management	All the processes and actions required to manage data throughout the research data lifecycle from project inception to permanent disposal or archiving. This includes generation, collection, access, use, analysis, disclosure, storage, retention, disposal, sharing and re-use of data.
Research data management plan	A document that outlines how and when the research data for a specific project will be collected, organised, stored, backed-up, preserved, shared, archived and disposed. Data management plans can be seen as 'living documents' and should be reviewed throughout the duration of the research project and updated as required.
Research data governance	The practice of setting policies, rules and processes that guide the use, development and protection of research data, and ensuring compliance with these regulations.
Research data security	The protection of data from loss, unauthorised access use, disclosure, disruption, modification or destruction. Ensuring data security requires paying attention to physical security, network security and security of computer systems and files. Security must be maintained while data is both at rest and in transit.
Researcher	A person who is involved in conducting research under the auspices of UOW. This includes staff, honorary and visiting researchers and excludes students.
Research Student	An undergraduate or post-graduate student who is undertaking research at UOW as part of their degree.
Sensitive data	Data that can be used to identify an individual, species, object, process, or location that introduces a risk of discrimination, harm, or unwanted attention. UOW's Data Governance Procedure can help to assign an appropriate security classification to a dataset, based on its content and the potential consequences of exposure.
Supported Storage Platforms	Storage recommended by the University for the purpose of supporting research, as described on the Research Data Management website.
Working space	Storage space used for the initial stage of a project. Storage and backup is the responsibility of the researcher. Working space should preference UOW Supported Storage Platform first, with external hard drives, mobile devices, USB thumb drives, laptops, laboratory computer hard drives and other cloud storage used only if absolutely necessary.

3. Scope / Purpose

1. To provide guidance regarding the management of research data and primary materials throughout the research data lifecycle at UOW, in accordance with the Research Data Management Policy, with the objective of:

   1.1. informing Researchers and Research Students about the best-practice management of their research data and primary materials;

   1.2. ensuring efficient and effective long-term management and usability of research data in durable formats;

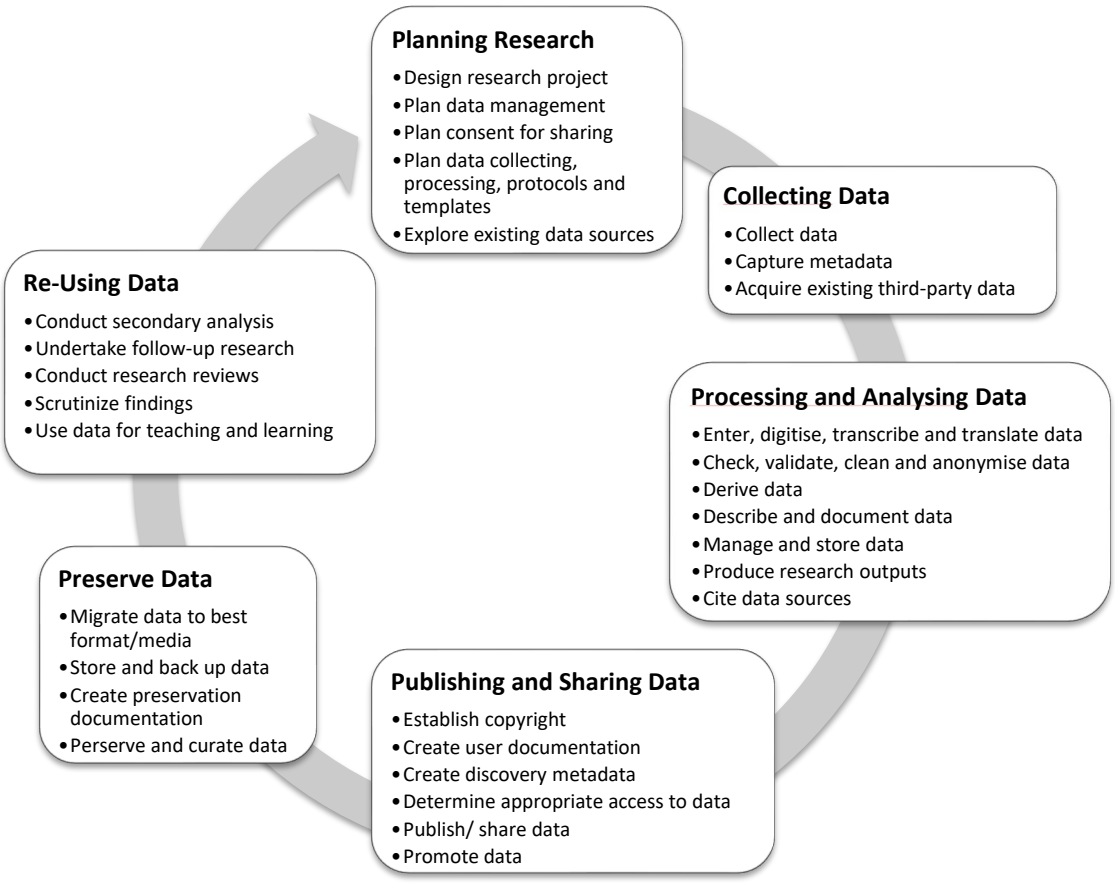
   1.3. establishing research data as a valuable product from the research process. As well as being inefficient to recollect the same type of data in future, it may also be impossible. Good practices will ensure that Researchers and Research Students can meet any obligations related to data retention and reuse by protecting against data loss; and

   1.4. ensuring that research data management practices are in accordance with the Australian Code for the Responsible Conduct of Research – 2008 (updated 2018), hereto referred to as 'The Code' and the FAIR (Findable, Accessible, Interoperable, Reusable) Data Principles and CARE (Collective Benefit, Authority to Control, Responsibility, Ethics) Principles for Indigenous Data Governance.

4. Research Data Lifecycle

1. Research data must be carefully managed throughout the data lifecycle. Data can have a longer lifespan than the original research project that generates them, as they may be used for follow-up projects or for research with an entirely different focus, undertaken by other people.

2. These guidelines provide advice on how to effectively manage data at each stage to ensure that Researchers and Research Students can maximise opportunities for learning and innovation.



Adapted from *Research Data Lifecycle*, UK Data Service

5. Ownership of Research Data and Primary Materials

1. Research Data and Primary Materials will be owned in accordance with UOW's Research Data Management Policy, Copyright Policy, Intellectual Property Policy, and relevant Commercialisation and Funding Agreements.
2. In general, UOW owns the Research Data, Primary Materials and any associated Intellectual Property and copyright produced by Staff and Affiliates, (see sections 5 and 6 of the Intellectual Property Policy).
3. Research Students own the Research Data, Primary Materials and any associated Intellectual Property and copyright created in their capacity as a Student, unless specified otherwise, (see section 8 of the Intellectual Property Policy).
4. Where research is conducted in collaboration with partners outside of UOW, ownership of Research Data, Primary Materials, copyright and other Intellectual Property must be explicitly agreed to, in writing, by all parties. These arrangements must also be documented in the research data management plan, prior to the commencement of the project.
5. For research involving Indigenous Cultural and Intellectual Property (ICIP), UOW will take all reasonable steps to negotiate with Relevant Indigenous Peoples, benefit sharing arrangements (monetary and non-monetary), IP ownership, and commercialisation rights for IP developed by the University.

6. Research Data Management Planning

1. Data management planning is an important component of responsible research conduct. Thorough planning from the outset of a project helps to:
    - establish the availability of required resources and services;
    - minimise the risk of accidental loss, destruction or theft of data;
    - enhance data security and integrity;
    - ensure that data is suitable for reuse by others where appropriate;
    - protect the rights of research participants; and
    - protect the intellectual property owned by Researchers, Research Students, the University and commercial partners.

Research Data Management Plans (RDMP)

1. An RDMP outlines how research data will be managed, documented, stored, secured and accessed both throughout the project and after completion.
2. The UOW Research Data Management Policy requires that an RDMP accompany every new research project. UOW's Research Data Management Platform *ReDBox*, simplifies the process of creating an RDMP by guiding Researchers and/or Research Students through a set of questions and generating a detailed plan based on their responses. Generally the Lead Researcher is responsible for creating the plan and updating it to reflect any significant changes.
3. RDMPs are increasingly required by Australian funding providers, such as the Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC) to support applications for competitive funding schemes.
4. The content and detail required for a data management plan varies significantly depending upon:
    - the type of research being undertaken;
    - the type and number of participants;
    - the research ethics approval required for the project;
    - whether data will be shared, and with whom;
    - whether the data will be published or otherwise made available to third parties;

- the legal jurisdictions under which data is held or used; and
- the geographic locations and countries involved in the research project (in some cases).

5. Examples of projects that require particularly careful data management planning include:
    - patient records or health-related data;
    - data relating to children;
    - data relating to Indigenous Cultural and Intellectual Property;
    - data with ethno-cultural sensitivity; or
    - data considered sensitive to national security or the operations of the Australian Defence Force.

Support for Research Data Planning

1. In partnership with IMTS and UOW Library, the Research Services Office and the Researcher Development and Integrity Unit provide support for research data management activities. These include advice on data planning, recommendations and referrals for data management tools, storage and infrastructure, and a review service for draft Data Management Plans. Email research-services@uow.edu.au or research-integrity@uow.edu.au for further information.
2. Expertise is also available within faculties, schools and research groups. Contact research-operations@uow.edu.au for information about the support available within each faculty.
3. Additionally, the Australian Research Data Commons (ARDC) runs a range of training, workshops, webinars and outreach events throughout the year for Researchers, Research Students and support staff. Visit https://ardc.edu.au/researcher/ and https://ardc.edu.au/news-and-events/ for more information.

7. Research Data Storage and Preservation

1. As per The Code, the central aim in the management of research data is that sufficient data and primary materials be retained to justify and replicate the outcomes of the research and to defend them if they are challenged. The potential value of the material for further research should also be considered, particularly where the research would be difficult to repeat.
2. As such, all Researchers and Research Students must manage research data and primary materials in accordance with the UOW Research Data Management Policy and retain research data in a durable, indexed and retrievable form for the duration of the retention period, or longer if required.

Storage

1. Researchers and Research Students must decide which data and materials should be retained, although in some cases this is determined by law, funding agency, publisher or by convention in the discipline. Research data must be stored securely with appropriate back-up facilities in place.
2. In general:
    - during the initial stages of the project, it is anticipated that Researchers and Research Students will use working spaces for storage. They are responsible for protecting data stored in these spaces;
    - secure data storage and archive spaces are also provided on the UOW network drive. Contact the IMTS Helpdesk on x3000 for guidance regarding storage space for exceptionally large datasets.
3. The nature of the research data collected dictates the appropriate storage solution to use. Researchers and Research Students are encouraged to select the appropriate storage solution prior to data collection to ensure proper management of the data and avoid potential data loss or security breaches.

Selecting a Storage Solution

1. To ensure the security and preservation of digital Research Data, it should be stored on a Supported Storage Platform. The various storage solutions can be compared against two main criteria:
    - The value of the data and its potential for re-use; and
    - The storage components which give value to data, such as enabling discoverability, curation, reuse and whether the storage is reliable, adequate, sustainable and secure.
2. Researchers and Research Students must consider appropriate data storage at the beginning of the project and document storage locations in their research data management plan in *ReDBox*.

Back-ups

1. Researchers and Research Students are responsible for ensuring that their digital and non-digital research data is backed up regularly. In general:
    - during and upon completion of a project and/or thesis, research data should be saved in a secure manner;
    - regular back-ups of files in working spaces should be made to protect against accidental or malicious data loss;
    - back-up copies of data must be stored in a different location from the original;
    - data in central University storage will be secure and backed up on a regular basis;
    - the integrity of stored data files should be checked at regular intervals;
    - data files stored on optical or magnetic media should be copied or migrated to new media between two and five years after they were first created, since these media are subject to physical degradation; and
    - storage areas for digital data should have suitable temperature, lighting and humidity conditions.

Data Formats

1. It is important that research data is saved in a durable format. Durable formats are those that will be usable for the lifetime of the project and the duration of any statutory, convention and/or legislative retention periods. In general:
    - research data should be saved in formats that will permit long-term readability and usability of the data and will last the statutory retention period;
    - to avoid the risk of obsolescence of any software, it is safer to use standard interchangeable formats that most software is capable of interpreting;
    - open (non-proprietary) formats are preferable so that data is not lost in conversion.
2. There are many acceptable formats and the judgement of what is acceptable lies with the Researcher or Research Student. The UK Data Service provides guidance on recommended file formats for data sharing, reuse and preservation.

File Naming and Organisation

1. File naming conventions should be developed in the data management planning stage. The conventions should be agreed upon between Researchers, Research Students and collaborators before data is created and will differ depending on the nature and size of the research project.
2. To maintain best practice in file naming:
    - avoid punctuation and special characters;
    - file names should be unique, persistent and consistently applied;

- use hyphens and underscores rather than spaces, especially where files may be accessed using a web browser;
- when recording dates in file names, use a format of YYYYMMDD to ensure files remain in chronological order, even over the span of many years;
- avoid lengthy file names as they may not function properly with certain types of software; and
- consider including version numbers (e.g. 'v1.2') or status information (e.g. 'draft', 'final') if there are likely to be multiple versions.

3. Researchers and Research Students should ensure that documents always contain titles, project name, author names, and contact details including university/agency affiliation, dates, and version information. Spreadsheets should always use unambiguous column and row labels.

8. Data Classification and Security

Data Classification

1. Upon its creation, research data must be assigned one of the security classifications specified in the UOW Data Governance Procedure, based on the likely consequences to an individual and/or the University's activities, objectives and reputation resulting from the confidentiality of the data being compromised. The relevant classification should be recorded in the Research Data Management Plan.
2. Collections of diverse information should all be assigned the highest classification of any individual information component within the aggregated information.
3. The ARDC website also provides some helpful recommendations about working with Sensitive Data and Identifiable Data.

Data Security

1. In order for research data to be secure, Researchers and Research Students must:
    - store Sensitive data and confidential agreements in a secure place (refer to UOW's Supported Storage Platforms);
    - securely protect Intellectual Property and ICIP rights;
    - back up data regularly and store it in a different location from the original data; and
    - ensure data is adequately protected prior to transmitting to another authorised person, such as protecting files and folders with passwords, data encryption, de-identification, saving in "read only" formats, and keeping portable storage devices locked away when not in use.
2. The same level of care and protection must be provided to non-digital research data and Primary Materials.
3. It is the University's responsibility, as per the IT Server Security Policy and the Cyber Security Policy to ensure that all computer systems are secure.
4. Researchers and Research Students are responsible for reporting circumstances where a suspected or known security breach may have resulted in the unauthorised access, unintended disclosure, loss, theft, destruction or alteration of data, in accordance with UOW's Data Breach Response Plan.
5. For further information about keeping research data secure, visit the UOW Cyber Security website.

9. Ethical Requirements and Privacy

Ethical Requirements

1. Research involving humans, animals or gene technology must be reviewed by the appropriate ethics committee and conducted in accordance with relevant legislation, such as:
    1.1. The National Statement on Ethical Conduct in Human Research;

1.2. The NHMRC's Ethical conduct in research with Aboriginal and Torres Strait Islander Peoples and communities: Guidelines for researchers and stakeholders;

1.3. The AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research;

1.4. The Australia Council for the Arts, Indigenous Cultural Protocols for Producing Indigenous Australian Music, Writing, Visual Arts, Media Arts and Performing Arts; and

1.5. The Australian Code for the Care and Use of Animals for Scientific Purposes.

2. Where data is identifiable or reasonably re-identifiable, the conditions of the consent provided by participants in relation to data retention, confidentiality, access and re-use must be complied with.

3. At UOW, the Research Data Management Plan (created in *ReDBox*) is an important component of the ethics application. Information about plans for data storage, security, retention, disposal, publication, ownership, access and sharing, must be submitted with the application.

4. UOW Forms, Policies and Guidelines relating to Research Ethics and Integrity are available here. An example Research Data Management Planning form is available here.

Privacy

In accordance with the UOW Privacy Policy:

1. the University is committed to ensuring the protection of the privacy of individuals pursuant to the Privacy and Personal Information Protection Act, 1998, the Health Records and Information Privacy Act, 2002 and the Privacy Amendment (Private Sector) Act, 2000 (Commonwealth); and

2. the University adheres to the National Privacy Principles and, as part of the University's commitment to comply with the Privacy and Personal Information Protection Act (NSW), a privacy management plan details the steps to be taken.

3. when the University is engaged in collaborative research with the private sector, the federal public sector or with research projects in other jurisdictions, it is necessary to comply with the requirements of the Privacy Act 1988 (Commonwealth), as well as the legal and administrative privacy protections of NSW and the University.

4. Before Personal Information can be used for research, it may be necessary to:

    - seek consent from the person to whom it relates; and/or
    - de-identify data so that it no longer reveals a person's identity or compromises their privacy.

5. Ensure that confidential or Sensitive data is not stored on offshore cloud storage services to prevent any data sovereignty issues. Refer to the Australian Privacy Principles (Section 8) for further information about "Cross-border disclosure of personal information".

10. Documentation and Metadata

1. Metadata is recorded in *ReDBox* to simplify the process of finding, re-using, reviewing, sharing and publishing datasets.

2. Metadata is a set of data that describes and gives information about other data. Metadata summarizes the basic information, which can make finding and working with particular instances of data much easier. In some cases, metadata can be generated or extracted from digital files automatically, in other cases, human effort will be required to create it.

3. Metadata describes the attributes of an item or resource that enables it to be identified, retrieved and managed over time.

    - **Administrative metadata** may consist of dates, file size, type, creator details, location, licensing information and retention periods to assist with the management of the dataset.

- **Descriptive metadata** provides information for ease of discovery and retrieval such as an abstract, title, keywords, categories, versions and unique identifiers. Supplementary contextual information should be captured to enable the reuse and interpretation of the data.
- **Structural metadata** explains how the data organised and how it relates to other collections, for example, indexes, chapters, database fields, page numbers and XML schemas.

For example, a digital image may include metadata that describe how large the picture is, the colour depth, the image resolution, when the image was created, and other data. A text document's metadata may contain information about how long the document is, who the author is, when the document was written, and a short summary of the document.

4. Simple templates allow metadata elements to be easily added or removed. When groups of metadata elements are required for specific purposes, these groups of elements are called schemas or standards.

Contacts for Metadata queries:

- For information about UOW's Institutional Repository and Research Data Australia, contact the UOW Library: research-pubs@uow.edu.au.
- For information about the SMART Metadata System, email: smart-data@uow.edu.au.
- For information about the SAL Spatial Data Repository and Metadata, email: spatial_analysis_labs@uow.edu.au.

11. Access, Re-use, Sharing, and Licensing of Research Data

Benefits of sharing data

1. Research data are a valuable resource that can have significant value beyond their original use. There are many benefits of sharing research data.
2. The open sharing of research data significantly supports **research communities** by:
    - supporting and verifying research claims;
    - avoiding duplication of research effort;
    - advancing academic discovery;
    - encouraging open and constructive academic discourse;
    - combining datasets to create new data; and
    - re-purposing data to enable exploration of topics not envisioned by initial investigators.
3. The open sharing of research data can benefit **Researchers and Research Students** by:
    - increased publication citations;
    - reduced costs associated with collecting data;
    - more competitive applications for promotion and tenure;
    - further opportunities for collaboration with industry partners;
    - successful research grant applications;
    - new discoveries and publications arising from the combination of datasets;
    - fulfilling obligations to funding bodies.

Data Availability Options

1. Funding agencies in Australia are increasingly encouraging the sharing and re-use of data to ensure ongoing return on their investment. Prior to sharing their data, Researchers and/or Research Students should consider whether any access restrictions apply. Levels of access include:
    - open access (for data that can be publicly available for access, use, reuse and redistribution);
    - embargo (open access, upon conclusion of the embargo period);
    - mediated (access to this data must be approved by the researcher before being used by others. It enables data to be used correctly, and in accordance with ethics requirements or other contextual conditions);
    - Closed (for data that is not suitable for sharing. Closed data should be archived in an appropriate facility rather than published. Consider whether the data can be desensitised before selecting closed access).
2. In accordance with The Code, Researchers and institutions must support and maintain research data. Funding agencies strongly encourage the depositing of data arising from a project in an appropriate publicly accessible repository.
3. Journals may ask for a 'data availability statement' to accompany a manuscript. Authors should provide details of how the data can be accessed (via DOI) and where it is preserved (repository). Example statements are available online.

Data Licensing

1. The UOW Research Data Management Policy encourages Researchers and Research Students to make their data available under open licence for use by others. A licence specifies how the data may be used and provides clarity around permissions, terms and conditions.
2. The ARDC website features helpful information about enabling data reuse and a series of webinars providing comprehensive information about data licensing is also available. The ARDC's comprehensive Research Data Rights Management Guide, provides information relevant to data owners, users and suppliers. It includes flowcharts to guide decision making about data licensing and data reuse.
3. There are several ways to apply a licence to a dataset. Ideally, a rights statement should be included in the RDMP, a prominent place within the dataset, as well as at the location where the data will be hosted. The statement should specify the type of license chosen and the URL where the full text of the licence can be found.

Creative Commons Licenses

- These six licenses are the preferred options for providing access to publicly funded information. They provide varying degrees of flexibility in the way that others may reuse data. The Creative Commons website features a "License Chooser" that recommends an appropriate license for a dataset, based on answers to some simple questions.
- A summary of the conditions of each of the different licenses is available here.

Software Licenses

- A list of software licenses is located on the Open Source Initiative website. Google recommends the following licenses (i.e. Apache, Artistic, BSD, GPLv2, GPLv3, LGPL, MIT, MPL, and EPL).

Indigenous Data Sovereignty

In accordance with Indigenous Data Sovereignty Principles, Indigenous peoples have the right to:

1. Exercise control of the data ecosystem including creation, development, stewardship, analysis, dissemination and infrastructure.

2. Data that is contextual and disaggregated (available and accessible at individual and community levels, and by Aboriginality).
3. Data that is relevant and empowers sustainable self-determination and effective self-governance.
4. Data structures that are accountable to Indigenous peoples and Aboriginal peoples.
5. Data that is protective and respects their individual and collective interests.

12. Publication and Dissemination of Research Data

1. Publishing research data promotes transparency, reproducibility, and the validation of research methods. There are increasing expectations for Researchers and Research Students to publish their research data. For example,
    - The Australian Code for Responsible Conduct of Research encourages Researchers to share research data whenever possible.
    - The National Health and Medical Research Council Open Access Policy strongly encourages Researchers to consider the reuse value of their research data and to take reasonable steps to share research data and associated metadata arising from NHMRC-funded research.
2. Use the Publisher Data Availability Policies Index to learn more about individual publisher policies.
3. Open data also benefits the research community, by encouraging new lines of enquiry and collaborations, and the general public as it helps educate and guide policies.
4. Openly sharing supporting data and other research materials can increases engagement with research, when it is well described and actively promoted.
5. Data repositories or archives are usually the best option for storing and sharing research data over the long term. Depending on the discipline or research area, there may be several options available for publishing research data.

13. Retention, Archiving and Disposal of Research Data

1. Researchers and Research Students have a responsibility to retain research data in accordance with The Code, the UOW Code of Practice – Research, the State Records Act, 1998 (NSW), the General Retention and Disposal Authority – Education: Higher & further education and research records (GA-47), associated policies, legislation and contractual arrangements.

Retention

1. As a minimum, sufficient data must be retained in order to support the research outcomes in situations where an investigation is required.
2. Researchers and/or Research Students given access to confidential information have a responsibility to maintain confidentiality and may only use such information in ways agreed with those who provided it.
3. Wherever possible, a copy of the original data is to be kept in the department or research unit in which it was generated, for the duration of the minimum retention period.
4. Where it is feasible to retain primary materials, sufficient materials should be kept to justify research outcomes, in accordance with the recommended timeframes.
5. If a Researcher or Research Student leaves UOW they should provide access to their data and relevant documentation to at least one other UOW Researcher or to their supervisor. Master copies of working data owned by UOW, or a third party with an agreement with UOW, must remain at the University.
6. For minimum retention periods, refer to the Schedule at ***Appendix 1***.

Archiving

1. When important or valuable research data has reached the end of its retention period and is no longer actively being used by the original Researchers, it may be archived to ensure long term preservation. Archiving should be undertaken in accordance with the UOW Records Management Policy.
2. Consideration should be given to the location in which the data will be permanently archived and the format used to ensure that it will be accessible in the future. Refer to refer to the Research Data Storage website to determine an appropriate storage solution.

Disposal of Research Data

1. Once the data retention period has passed and ethical requirements specify that data must be destroyed, or the data is no longer likely to be of value to others, it should be securely and permanently disposed of in accordance with the UOW Records Management Policy.
2. Digital data can be disposed of by overwriting or deleting information, utilising permanent erasing software, destroying the physical media or degaussing (exposing to a strong magnetic field). Paper records should be shredded or discarded in a confidential waste bin. Keep track of the disposal date and ensure that all copies of the data are also securely disposed of.
3. Further information about destruction methods is available in the NSW State Records Destruction of Records Guidelines.

14. Roles and Responsibilities

1. In addition to the responsibilities detailed throughout these Guidelines, Researchers and Research Students must act in accordance with the Roles and Responsibilities specified in the Research Data Management Policy (see Section 11).

15. Version Control and Change History

Version Control	Date Effective	Approved By	Amendment
1	6 February 2017	Deputy Vice-Chancellor (Research and Innovation)	First version.
2	7 August 2023	Deputy Vice-Chancellor (Research and Sustainable Futures)	Updated to align with revised Research Data Management Policy, new processes associated with the implementation of UOW's Research Data Management Platform, ReDBox and new legislation. Incorporated FAIR and CARE Data Principles. Alignment with the AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research and Indigenous Data Sovereignty Principles.

16. Appendix 1: Minimum Retention Periods Schedule

Minimum retention periods:

The NSW State Records Authority's *General Retention and Disposal Authority: higher and further education (2019)* specifies the following minimum retention periods for Research data:

GA-47 – General retention and disposal authority: higher and further education and research		
3.5.0	**Research Data definition:** Records generated in the conduct of the research project where the university is entitled to control or ownership of research data. Note: For research involving human subjects this includes de-identification records, subject consent forms, and participant information letters specifying conditions of research.	
Ref No.	**Description**	**Disposal Action**
3.5.1	Data and datasets created as part of research activities within the institution, which are of regulatory or community significance. **Note**: in assessing whether the data and datasets are of regulatory or community significance, consideration should be given to data created that is: • part of genetic research, including gene therapy • controversial or of high public interest, or has influence in the research domain • costly or impossible to reproduce or substitute (ie with an alternative data set of acceptable quality and useability) if the primary data is not available • relates to the use of an innovative technique.	**Required permanently** as State archives
3.5.2[1]	Data and datasets created from clinical trials, or research with potential long term effects on humans, as part of research activities within the institution, which are **not of regulatory or community significance.** Includes animal testing for human products.	**Retain for minimum of 15 years** after completion of research activity, or **after research subjects have reached the age of 25 years**, whichever is longer, then destroy.
3.5.3[2]	Data and datasets created as part of research activities within the institution which do not involve clinical trials, research with potential long term effects on humans, gene therapy or which are not of regulatory or community significance.	**Retain for minimum of 5 years** after project completed, then destroy.
From ACRCR	Short-term research projects that are used for assessment purposes only, such as research projects completed by students.	**Retain research data for 12 months** after project completion.

https://www.records.nsw.gov.au/sites/default/files/Recordkeeping/GDA23.pdf

[1] Note: this retention period has factored in the recommendations of the joint statement of the National Health and Medical Research Council (NHMRC) and Australian Vice-Chancellors' Committee (AVCC). However, other considerations affecting retention may need to be taken into account. For example, workers compensation regulations allow for a claimant to reopen a case at any time during the lifetime of the claimant, which may necessitate records to be retained for up to approximately 70 years after the research project is completed.
[2] Note: Retention periods for these records may need to also take into account other legislative or regulatory requirements such as the Environmentally Hazardous Chemicals Act (1985) and the Contaminated Land Management Act (1997).