

# Research Data Management – An Overview

## Research Data Management (RDM)

- RDM refers to the processes applied throughout the lifecycle of a research project to guide the collection, documentation, storage, sharing, and preservation of research data.
- RDM practices are integral to conducting responsible research and can help researchers save resources by ensuring their data is complete, understandable, and secure.
- RDM practices follow institutional and funding agency guidelines that protect their investments.
- The broader research community can derive maximum value from research data that can be accessed, shared, reused and repurposed.

## Defining Research Data

- Primary sources supporting research, scholarship or artistic endeavours
- Can be used as evidence to validate findings and results
- May take the form of experimental data, observational data, operational data, third party data, public sector data, monitoring data, processed data, or repurposed data
- All other digital and non-digital content have the potential to become research data

## Data Management Plans (DMP)

A DMP is a formal document that details the strategies and tools you will implement to effectively manage your data both *during* your research project and *after* its completion. It typically contains the following components:

- *Data collection*: data types, file formats, naming and version control
- *Documentation*: ensure data can be read and interpreted
- *Data storage and backup throughout the research*
- *Data preservation strategy for long-term access*
- *Provisions for sharing and reuse*
- *Data management responsibilities and resources*
- *Ethical and legal compliance*

A DMP:

- helps facilitate efficient and effective collection and use of data;
- helps ensure reliability and accuracy of data through careful documentation of practices;
- improves discoverability, accessibility, reusability and impact of your data by planning for sharing in a repository;
- satisfies compliance requirements that may be established by granting agencies.

# The Research Data Lifecycle



**Plan**



**Create**



**Process**



**Analyze**



**Disseminate**



**Preserve**



**Reuse**

## Plan

Identify the data that will be collected and plan for data management throughout the lifecycle. Create a data management plan, which may be required by funding agencies.

## Create

Carry out your research. Document the data collection methods and instruments necessary to interpret and use the data.

## Process

Process the data that has been collected. This could involve cleaning data, combining data collected from multiple sources, converting data from one format to another, and validating data. These processes need to be documented so results could be replicated from the raw data.

## Analyze

Interrogate the data to produce the findings of your research. Document the instruments and methods used for analysis. Any code written to analyze or visualize data may need to be preserved and made available in support of results.

## Disseminate

Indicate where and by what terms data can be accessed. Consider using a data repository to enable discovery of your data. Funders may require that data be deposited in a publicly accessible repository. Restrictions on access may be imposed where data are of a sensitive or confidential nature.

## Preserve

Prepare data for archiving in a suitable location, locally and/or in a secure repository. This stage may involve quality assurance, file format conversion, creation of metadata records, and licensing datasets for re-use.

## Reuse

Data that are available for discovery and access may be re-used by other researchers. Your data may become the raw material for someone else's research, or may be used for other purposes, e.g. policy-making, development of commercial products, and teaching.

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