Dawson Research Data Management FAQs and Resources

- **WHAT IS DATA? RESEARCH DATA? RESEARCH DATA MANAGEMENT?**

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What is Data? Research Data? Research Data Management?

According to the definition used by the Tri-Agency, data "are facts, measurements, recordings, records, or observations collected by researchers and others, with a minimum of contextual interpretation. Data may be in any format or medium taking the form of text, numbers, symbols, images, films, video, sound recordings, pictorial reproductions, drawings, designs or other graphical representations, procedural manuals, forms, diagrams, workflows, equipment descriptions, data files, data processing algorithms, software, programming languages, code, or statistical records".[1]

Summarised from the Tri-Agency, Research Data are primary sources that are used in the research, enquiry, or creative practices. It is the evidence in the research process that is used to validate research findings and results. Research Data may include data derived from a variety of sources and methods, including but not exclusive to: experimental; observational; operational; third party; the public sector data; monitoring; processed, or repurposed data. What is considered to be relevant data is determined by disciplinary norms.

Research materials are used to create research data. It may include, but not limited to, samples, archival sources, or specimen. Research materials are then analysed, sequenced, or collected

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[1] https://www.ic.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a, retrieved 20 July 2021

(among other processes) to produce research data. For example, a collection of texts or bio-matter would be considered to be a researcher's research material. The analysis or sequencing would be the data. In short, the research materials are the object through which research data is created.

Research Data Management (RDM) are essential processes that are used throughout the entire life of the research project, from the "collection, documentation, storage, sharing and preservation of research data".[2] Data management should be implemented throughout "the entire lifecycle of the data, including planning the investigation, conducting the research, backing up data as it is created and used, disseminating data, and preserving data for the long term after the research investigation has concluded".[3] In order to do this, Data Management Plans (DMP) are to be created for every project.

What are Data Management Plans (DMP)?

Data Management Plans (DMP) are living documents associated with a project, and details the practices, processes, and strategies that the researcher will use to effectively and ethically manage their data before, during, and after. A DMP will also identify potential obstacles in data management and will provide solutions before these arises.

Why should I create a DMP?

According to Portage Network, a DMP helps you:

• Meet grant application requirements and/or adhere to institutional data mandates.

• Make it easier for all team members to document, understand, find, and use the data.

• Plan the resources, tools, and expertise needed for data management.

• Identify both strategies and potential challenges in advance; develop sound data practices for your research team; prepare data for effective use during your project

• Identify challenges for storing, handling, and managing the types and volume of data.

• Ensure reliability, authenticity, accuracy, and reproducibility of your data through careful documentation of your data collection, handling and stewardship practices.

• Improve discoverability, accessibility, and reusability of your data by planning for sharing in a repository; increase the potential impact of your research

• Have a detailed account of your data collection, handling, and stewardship practices.

• Plan how to make your data FAIR (findable, accessible, interoperable, and reusable) to maximize the research potential and impact of your data.

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[2] https://www.ic.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a, retrieved 19 July 2021
[3] https://www.ic.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a, retrieved 20 July 2021

Who requires a DMP?

Many funding agencies throughout the world, including in Canada, require a data management plan and/or data sharing as components of an application.

By Spring 2022, the Tri-Agency will have identified a number of programmes that will require a DMP, and this will be required in the grant application.

What is typically included in a DMP?

Each funding agency will have their own set list of requirements, but generally, the following components should be expected and included. For further details, please visit Portage Network

- Data collection: how data will be collected, documented, formatted, protected, and preserved.

- How existing data will be used

- How new data will be created

- Data storage and backup: how and whether data will be shared, and where will the data be deposited

- Data security: including how is responsible for managing data and succession plans

- Data preservation

- Data sharing/reusing (if applicable)

- Ethical, legal or commercial constraints

- Methodological considerations[4]

Data management should be performed in accordance with the requirements of the _Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans--2nd edition._

"For research conducted by and with First Nations, Métis and Inuit communities, collectives and organizations, DMPs must be co-developed with these communities, collectives and organizations, in accordance with RDM principles or DMP formats that they accept. DMPs in the context of research by and with First Nations, Métis and Inuit communities, collectives and organizations should recognize Indigenous data sovereignty and include options for renegotiation of the DMP".[5]

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[4] https://www.ic.gc.ca/eic/site/063.nsf/eng/h_97609.html#4g, retrieved 20 July 2021
[5] https://science.gc.ca/eic/site/063.nsf/eng/h_97610.html, retrieved 12 July 2021

How do I create a DMP? What sort of tools and guidelines are available? What sort of questions should I ask?

Any Data Management Plan should begin by carefully reading both the Tri-Agency Statement of Principles on Digital Data Management and the agency's requirements.

Digital Research Alliance of Canada, in serving Canadian researchers for RDM, offers a number of tools, services, and resources.

Portage Network's DMP Assistant is a free, bilingual data management planning tool developed in collaboration with University of Alberta. While you will need to create an account to use the tools, DMP Assistant provides a number of guides on DMPs and creating an effective DMP.

For American funding agencies, DMPTool is helpful when requesting grants from American funding agencies.

The Digital Curation Centre is particularly useful when requesting grants from U.K. and European funding agencies.

Each of the DMP tool provide templates, often discipline-specific.

Where should I deposit my data?

Until a College recognised digital platform for data deposits has been identified and integrated, it is recommended that Researchers store their data and research onto their secure OneDrive portal, available through Dawson College. Dawson College's OneDrive is secure, complies with strict Canadian regulation, and is readily accessible.

Checklists and self-assessment tools[6]

Questions to ask yourself and general guidelines when writing a data management plan:

- Data Management Plan Self-Assessment Questionnaire (Purdue)
- Data Management Plan Support (University of Nebraska, Lincoln)
- Elements of a DMP: Explains importance of each section and provides example answers (ICPSR)
- Checklist for a Data Management Plan (Digital Curation Centre)

Source: Concordia University Library

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[6] Concordia University Library

For further information:

Tri-Agency Research Data Management Policy
Tri-Agency Statement of Principles on Digital Data Management
Tri-Agency Research Data Management
Frequently Asked Questions Tri-Agency Research Data Management Policy