

Executive Summary

In March 2021, Canada’s Tri-Agencies (NSERC, SSHRC, CIHR) released a research data management policy. Part of this policy requires institutions receiving tri-agency funds to have an institutional research data management strategy that 1) emphasizes the importance of research data management, 2) outlines expectations of researchers when managing research data, 3) outlines institutional support and resources in terms of data management, and 4) will encourage a culture of recognizing data as research output. To this end, Memorial has developed this strategy through the work of the Research Data Management Working Group of the President’s Executive Council (PEC). The aim of the strategy is to encourage the responsible and ethical use of research data through providing direction and support to researchers.

Institutional Research Data Management Strategy

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Definitions and Acronyms

Acronyms and terms used in this strategy are listed below:

The Alliance – Digital Research Alliance of Canada

CARE – Collective Benefit, Authority to Control, Responsibility, Ethics

DMP – Data Management Plan

FAIR – Findable, Accessible, Interoperable, Reusable

FRDR – Federated Research Data Repository

IT Service Providers – Information Technology Service Providers on all campuses and in some faculties/units

OCAP – Ownership, Control, Access, Possession

OCIO – Office of the Chief Information Officer

RDM – Research Data Management

DL – Dean of Libraries

VPR – Vice President (Research)

SGS – School of Graduate Studies

Data Centre – Data centres are centralized locations that contain clusters of servers, storage, security, backup, and network equipment for the purpose of collecting, storing, processing, distributing or allowing access to large amounts of data. These rooms contain supporting components like battery backup infrastructure, fire suppression, generator, and air conditioning.

Research Data – Data that are used as primary sources to support technical or scientific enquiry, research, scholarship, or artistic activity, and that are used as evidence in the research process and/or are commonly accepted in the research community as necessary to validate research findings and results. All other digital and non-digital content have the potential of becoming research data. Research data may be experimental data, observational data, operational data, third party data, public sector data, monitoring data, processed data, or repurposed data.¹

Please note, this is a general definition of Research Data. Research Data at Memorial University of Newfoundland and Labrador are subject to permits, approvals and permissions (e.g., Ethics Boards, Canadian Council on Animal Care², CARE Principles for Indigenous Data Governance³) when appropriate. Research Data at Memorial University include all data that may be used in a research project, whether it is deemed acceptable to share publicly or not.

¹ CASRAI (2015). *Research data*. Retrieved from https://dictionary.casrai.org/Research_data

² Canadian Council on Animal Care (2019). *Standards*. Retrieved from <https://www.ccac.ca/en/standards/>

³ Global Indigenous Data Alliance (2019). *CARE Principles for Indigenous Data Governance*. <https://www.gida-global.org/care>

This strategy applies to digital data only. Physical data, such as physical specimens, rocks, etc., will still need to be managed, but have different considerations.

Introduction/Background

In March 2021, Canada's Tri-Agencies (NSERC, SSHRC, CIHR) released a research data management policy mandating that institutions receiving tri-agency funds have an institutional research data management strategy that:

- emphasizes the importance of RDM
- outlines expectations of researchers when managing research data
- outlines institutional support and resources in terms of data management, and
- will encourage a culture of recognizing data as research output

Research Data Management (RDM) is an important part of the research process. RDM happens at each stage of the research data lifecycle and should be incorporated into each stage as appropriate. Good data management helps to ensure that data are accurate, reliable, comprehensible, and should enhance reproducibility (when appropriate). This in turn leads to more efficiency in research processes, more confidence in research results, and more reliable peer review. Good data management is also necessary to comply with many funding and publishing requirements.

Memorial University is committed to providing an environment of research excellence through supports, resources, and services to enable Memorial's researchers to follow best practices to ensure conscientiousness for ethical, secure, and responsible data management.

The overarching goal of this document is to encourage and support researchers to adopt data management practices that allow, where appropriate, for the FAIR data principles⁴ of making research data findable, accessible, interoperable, and reusable. This document will also support responsible data management when working with Indigenous data by encouraging the use of OCAP⁵ and CARE⁶ principles. In addition, the document will outline steps Memorial should take to cultivate a rich culture of best practices of data management throughout the research lifecycle for researchers at Memorial University.

⁴ Wilkinson, Mark D., et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific data* 3 160018. [doi:10.1038/sdata.2016.18](https://doi.org/10.1038/sdata.2016.18)

⁵ "OCAP® is a registered trademark of the First Nations Information Governance Centre (FNIGC)" <https://fnigc.ca/ocap-training/>

⁶ Global Indigenous Data Alliance (2019). CARE Principles for Indigenous Data Governance. <https://www.gida-global.org/care>

Goals and Objectives

Keeping the above requirements in mind, fourteen objectives that fall under three goals were developed. Some objectives overlap and will help to accomplish more than one goal.

Goal	Objectives
1. Improve data management resources for Memorial researchers	<ul style="list-style-type: none"> • Improve appropriately secured active data storage • Improve retention and disposal information • Improve and expand options for publishing and preservation • Improve institutional awareness of data management practices at Memorial • Decrease barriers to practicing good research data management
2. Encourage a culture of best practices in research data management	<ul style="list-style-type: none"> • Improve retention and disposal information • Highlight and encourage the use of Memorial’s Institutional Data Repository • Encourage recognition of good research data management practices • Identify interested parties • Develop and deliver communications • Participate in Tri-Agency Consultations • Participate in Local, Regional and National RDM events and communities
3. Expand RDM teaching and awareness resources and services	<ul style="list-style-type: none"> • Highlight and encourage the use of Memorial’s Institutional Data Repository • Expand RDM services • Expand RDM training and awareness materials • Increase Training and Awareness opportunities

	<ul style="list-style-type: none"> • Improve institutional awareness of data management practices at Memorial
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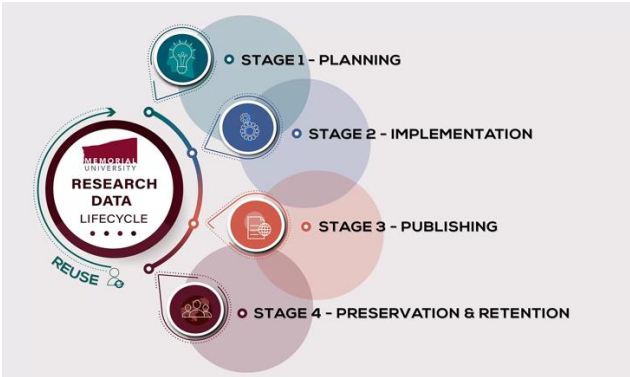
More detail about these objectives as well as steps needed to achieve them can be found in Appendices 1 and 2.

Scope, Roles and Responsibilities

Scope – This document applies to all Memorial Researchers but more specific roles and responsibilities will be on a project-by-project basis and should be outlined in data management plans.

Strategy Responsibility – The implementation and revision of this strategy falls under the responsibility of the Vice President (Research) and should be reviewed every five years. Assessment procedures will be developed to measure progress.

Research Data Lifecycle Diagram – Created to aid in choosing the appropriate resources, the lifecycle diagram connects researchers to data management services, tools, and storage options that are supported by Memorial University.



Research Data Management Working Group – This strategy was drafted by the Research Data Management Working Group, which reports to the President’s Executive Council (PEC). Broad consultations were held when the draft was completed and the finalized version presented to PEC for approval.

Researcher – The Principal Investigator (PI) or head researcher (could be faculty, student or staff) is ultimately responsible for the research data and the management of said data. The researcher responsible for the data should be stated in a Data Management Plan. Researchers

should create Data Management Plans and follow discipline specific best practices, keeping in mind ethical data management and Indigenous data sovereignty.

Office of the Chief Information Officer – The OCIO is responsible to provide support to the VPR in fulfilling their mandate. The OCIO’s IT Governance & Collaboration Framework encompasses all campuses and provides an avenue for IT related research strategies and services to be developed, reviewed, and prioritized.

Dean of Libraries – The DL is responsible to provide reasonable and appropriate processes, supports, and services across all Memorial campuses and departments to enable researchers to follow best practices in RDM.

Vice President (Research) – The VPR is responsible to provide oversight of the reasonable and appropriate processes, supports, and services across all Memorial campuses and departments to enable researchers to follow best practices in RDM, and will update the President’s Executive Council (PEC).

Related Policies

The following is a list of policies that should be consulted when dealing with research data. This is not an exhaustive list and other policies may also need to be consulted, depending on the nature of the research.

Research Data Management (currently being drafted) – this policy aligns with the Tri-Agency policy and aims to support best practices in data management to support and promote the work of our researchers.

[Research Impacting Indigenous Groups](#) – this policy must be referred to if planning to use data about or with Indigenous groups.

[Ethics of Research Involving Human Participants](#) – research data may be subject to relevant ethics protocols and therefore this policy may need to be considered when deciding on data management practices.

[Intellectual Property](#) – some research agreements lay out specific circumstances around data ownership and intellectual property.

Institutional Support

Found in Appendices 1 and 2, the charts outline supports, services, and resources that are currently in place as well as steps Memorial should take to promote and advance a rich culture of best practices of data management throughout the research lifecycle for researchers.

Supports and Services

Found in Appendix 1, this table outlines RDM supports and services available at Memorial University. Anticipated activities that will allow a response to the diverse and changing needs of our researchers as well as funding and journal requirements are also included.

Promotion and Advancement of RDM

As researchers and research data vary drastically, it is necessary to provide communication around RDM in multiple ways and with multiple messages. Not only is it essential for researchers to understand the importance of sound RDM practices, it is important for them to know what services and resources are available to them and how to access these services. Sound RDM practices will become increasingly vital as funding and journal requirements become more stringent.

The table found in Appendix 2 outlines the actions currently underway as well as actions that will be needed in the future to ensure that the Memorial University community is aware of the value of RDM and exists within a culture of sound and appropriate RDM practices.

Interested Parties

Interested parties for this strategy include researchers, grants facilitators, librarians, administrative staff, and others. Actions taken to ensure that Interested parties are aware of this strategy and the associated actions, services, and supports are outlined in Appendices 1 and 2.

Personal Health Information Act

If engaging in research that will involve personal health information, researchers must consult with the [personal health information act](#).

Indigenous Data Considerations

Memorial University strongly encourages researchers to become familiar with OCAP and CARE principles if engaging in research involving Indigenous partners. In addition to the Research Impacting Indigenous Groups policy, researchers should consult any community specific protocols or guidelines that may exist. Researchers should also consult the Indigenous Research Agreement tool when planning to work with Indigenous communities.

Memorial's position on Indigenous data sovereignty aligns with that of OCAP.

Intellectual property from derivative findings of the data may belong to the researcher or sponsor depending on contract language.

Appendix 1

Supports and Services

Objective	Current Practice/Supports	Gaps and Resources Required	Timeline	Responsibility
1. Improve Active Data Storage	Public facing information resource for all active data storage options	Every researcher to have a base amount of secure, backed up space for research data Ensure Terms of Use are developed and available for any newly developed data services	Medium Term	OCIO IT Service Providers VPR
2. Improve Retention/Disposal information	Public facing information resource for all Retention/Disposal options	Develop policy for retention of abandoned data	Medium Term	OCIO VPR
3. Improve and expand options for Publishing/Preservation	Public facing information resource for all preservation/publishing options	Trusted Digital Repository for preservation Leverage tools and expertise that currently exist to develop/expand preservation services Leverage CAIR for long term preservation of sensitive data	Short and Medium Term	DL OCIO IT Service Providers VPR

<p>4. Highlight and encourage the use of Memorial’s Institutional Data Repository and other appropriate data repositories</p>	<p>Dataverse FRDR</p>		<p>Complete</p>	<p>DL</p>
<p>5. Expand RDM Services</p>	<p>DMP assistant branded with MEMORIAL colours and guidance</p> <p>The library provides workshops and consultations on RDM best practices</p>	<p>Continue and expand RDM services</p>	<p>Medium Term</p>	<p>OCIO DL IT Service Providers VPR</p>
<p>6. Expand RDM training and awareness materials</p>	<p>RDM subject guide with educational material as well as links to various RDM tools, including links to the Alliance RDM team tools</p> <p>Research Data Lifecycle Diagram and associated services to allow researchers to find all RDM supports in one place (Library, OCIO, and Research services)</p>	<p>Will continue to update subject guide and Research Data Lifecycle page as new supports become available</p>	<p>Ongoing</p>	<p>DL OCIO VPR</p>

Appendix 2

Promotion and Advancement of RDM at Memorial

Objective	Current Practice/Supports	Gaps and Resources Required	Timeline	Responsibility
7. Encourage recognition of good RDM practices		<p>Development of RDM policy – will include necessary amendments to related policies.</p> <p>Develop/Revise Research Impacting Indigenous groups policy</p> <p>Recognition of published research datasets in the P&T process</p> <p>Meet with Faculty Relations and MUNFA to discuss RDM</p>	Short	VPR
8. Identify interested parties in the research community	<p>Creation of RDM Working Group consisting of representatives from across Memorial University</p> <p>Creation of network of communication among those who support RDM (informal RDM group)</p>	<p>Identify data champions</p> <p>Identify all other interested parties in the research community</p>	Ongoing	<p>MUN RDM Working Group</p> <p>VPR</p> <p>DL</p> <p>OCIO</p>

<p>9. Increase Training and Awareness opportunities</p>	<p>Presentations to raise awareness to faculty councils/department meetings, etc.</p> <p>Presentations to raise awareness to Graduate students</p>	<p>Provide training opportunities around research policies to grants facilitators, senior admin and supervisors</p> <p>Include policy education and RDM education in new faculty orientations</p> <p>Develop more discipline specific training</p> <p>RDM module on Brightspace to be incorporated into Researcher Portal</p> <p>RDM to be incorporated into Research Methodology courses for graduate students</p>	<p>Ongoing</p>	<p>DL OCIO VPR Dean - SGS Deans</p>
<p>10. Develop and deliver Communications</p>		<p>Communications plan to raise awareness of IS, RDM policy, and advisory services</p> <p>Use local data champions to showcase the</p>	<p>Medium Term</p>	<p>DL MUN RDM Working Group VPR OCIO Dean - SGS</p>

		importance of good RDM Ongoing discussion of existing compliance requirements at various levels of the institution		
11. Improve institutional awareness of data management practices at Memorial	Surveys assessing data management practices at Memorial - data has been shared in Memorial's Institutional Data Repository: Dataverse	Complete follow up survey to assess differences	Completed Long term	DL
12. Participate in Tri-Agency Consultations	Memorial provided detailed feedback on the draft Tri-Agency Research Data Management Policy for Consultation	Share feedback when asked	Ongoing	VPR
13. Participate in Local, Regional and National RDM events and communities	RDM Librarian participates in working groups of the Alliance RDM team Representatives from the Library, ITS, and VPR attended an IS workshop series by the Alliance	Attend town halls and other events designed to inform the development of RDM in Canada Participate in various national and regional committees	Ongoing	DL VPR OCIO

		Continue to expand collaboration between units that offer RDM training; locally, regionally and nationally.		
14. Decrease barriers to practicing good RDM		Issue of research hardware to be brought to the Research IT governance committee Develop easier methods for procuring research infrastructure	Medium	OCIO Research IT Governance Committee