



McGill University Research Data Management Strategy - Version 3.0 -

Background

In March 2021, the Tri-Agency¹ launched a [Research Data Management \(RDM\) Policy](#) with the objectives of promoting RDM and data stewardship practices amongst Canadian researchers. The Tri-Agency RDM Policy will be implemented with an incremental approach, in step with continuing development of RDM practices and capacities in Canada and internationally.

[Three key deployment phases](#) have been communicated by the Tri-Agency:

- **Institutional strategies:** By March 1st, 2023, each post-secondary institution and research hospital eligible to administer Tri-Agency funds is required to create an institutional RDM strategy, publicly post the strategy and notify the agencies when completed.
- **Data management plans:** By spring 2022, the agencies will identify an initial set of funding opportunities where researchers will be required to submit a data management plan with their grant proposal.
- **Data deposit:** After reviewing the institutional RDM strategies, and in line with the readiness of the Canadian research community, the agencies will phase in the data deposit requirement. In addition to any existing sponsor requirements, grant recipients will be required to archive all digital research data, metadata and code that directly support research conclusions in journal publications and pre-prints into a digital repository, and “provide appropriate access to the data where ethical, cultural, legal and commercial requirements allow²”. There is no current timeframe for this requirement.

McGill University is committed to meeting these Tri-Agency RDM requirements and supporting its researchers in adopting these practices. McGill therefore aims to provide

¹ The Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC)

² Tri-Agency RDM Policy. https://www.science.gc.ca/eic/site/063.nsf/eng/h_97610.html

researchers with the best possible support in terms of project planning, guidelines, policies, and infrastructure, to foster research excellence across the institution. In 2021, a joint effort from the office of the Vice-President - Research and Innovation (VP-RI), the McGill Library and IT Services led to the creation of the [McGill Digital Research Services Hub \(DRS\)](#). The DRS was an important first step in building capacity to coordinate RDM services across institutional units. The DRS currently offers a broad array of support and guidance services.

The present strategy does not mandate RDM requirements nor policies at McGill, but it outlines the high-level approach McGill will take over the next 3 to 5 years to equip its research community with the knowledge, tools, and support to adopt meaningful and robust RDM practices. The RDM Strategy is intended to be a living document that will be reviewed and adapted in pace with the evolving needs and policies in terms of research data management.

What is Research Data Management (RDM)?

RDM is a framework for actively organizing research data through the life cycle of a research project or program (please see **Appendix A** for a full list of definitions). RDM is both a field within the academic discipline of Information Science and a set of methodological guidelines that involve the planning, organization, description, storage, and sharing of research data in a secure fashion. Good RDM practices are also expected to improve the dissemination and reproducibility of research outcomes.

Why is Research Data Management Important?

Recognizing research data as a major research asset is an important steppingstone in the pursuit of academic excellence. Research activities in many domains create increasingly larger volumes of data that are challenging to manage and analyze effectively. Making research outputs discoverable, reproducible, and reusable, are foundations and principles of modern scholarship. While not all research data are suited to be shared broadly, for ethical, legal, cultural, or commercial reasons, adopting best practices in research data management applicable within and between research units is crucial to maintain and maximize public trust in academic research.

Governments, funders, institutions, and research communities ubiquitously recognize that RDM best practices are essential to raise research standards and increase its potential impact and relevance. Properly managed data have both practical and financial³ benefits

³ European Commission, Directorate-General for Research and Innovation, *Cost-benefit analysis for FAIR research data: cost of not having FAIR research data*, Publications Office, 2019, <https://data.europa.eu/doi/10.2777/02999>

to research, such as reducing research duplication, lowering unnecessary burdens on participants due to repetitive sampling, increasing accountability and transparency, allowing replication of research results, fostering collaborations, and accelerating new discoveries.

RDM is an integral part of research. RDM practices enable compliance with fast evolving ethical, legal, cultural, and commercial requirements and are a key factor in safeguarding research when necessary. Therefore, it is critical to strive to equip researchers, staff, and trainees with sound RDM practices and stewardship to achieve scientific rigor and enable collaboration.

Vision

As part of its strong commitment to research excellence, McGill will lead in the development of tools, support, and guidance to enable researchers to manage their research data to the highest standards across the research data lifecycle. McGill will support researchers in incorporating meaningful RDM practices and stewardship by leveraging relationships with stakeholders at the institutional, provincial, national, and international levels.

Guiding Principles

- **Research Excellence**
 - Advance impactful RDM practices as an integral part of cultivating research excellence.
- **Researcher-oriented**
 - Support all researchers towards the adoption of RDM practices by leveraging the best possible services and tools.
 - Focus on reducing barriers throughout the research data lifecycle.
- **Context-based Approach**
 - Recognize that different domains have different needs.
 - Promote a flexible RDM model that is adaptable to all research domains.
 - Align the institutional approach with recognized frameworks such as the FAIR Principles⁴ (Findable, Accessible, Interoperable, and Reusable).
 - Ensure that the unique rights, interests and circumstances of First Nations, the Métis Nation and Inuit are respected by adopting a distinction based RDM approach for research involving First Nations, the Métis Nation and

⁴ Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., ... & Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific data*, 3(1), 1-9. <https://doi.org/10.1038/sdata.2016.18>.

Inuit communities and their data, such as OCAP⁵ (Ownership, Control, Access, and Possession) and CARE⁶ (Collective benefit, Authority to control, Responsibility, and Ethics).

Scope

The RDM Strategy is relevant to all McGill researchers, as defined in the [McGill Regulation On The Conduct Of Research](#). McGill University will take reasonable measures to ensure that researchers are made aware of this strategy and kept informed of changes to it.

Oversight and Review

- The Office of the Vice-President - Research and Innovation (VP-RI) is responsible for overseeing the creation of the McGill Institutional RDM Strategy.
- Spearheaded by the DRS Team, the [RDM Working Group](#) is leading the writing and consultation efforts for the McGill Institutional RDM Strategy.

Existing Institutional Support for RDM

Recognizing the significance and value of research data, the [McGill Digital Research Services \(DRS\) Hub](#) was formed in 2021 as a unified effort to streamline RDM support for researchers. The mission of the McGill DRS Hub is to provide a “one-stop shop” for RDM services. The McGill DRS Hub is a collaboration between VP-RI, McGill Library, and IT Services. A portfolio of training and consultations on a variety of RDM-related topics, including data curation, RDM-related research software, software development and sharing, and Advanced Research Computing (ARC) use, is offered and organized by McGill Library, DRS Hub and by the National ARC Platform in collaboration with Calcul Québec (CQ).

New events are added regularly based on researchers’ needs (see **Appendix B** for a full list of current RDM services and support provided by DRS, Library, and IT services). In alignment with the Tri-Agency RDM Policy priorities, Data Management Plan (DMP) guidance is a key focus of current institutional training and support. In addition, the McGill Library partners with national RDM service providers to offer researchers an institutional data repository ([McGill University Dataverse](#)), which facilitates making research data FAIR.

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

⁶ Research Data Alliance International Indigenous Data Sovereignty Interest Group. (September 2019). *CARE Principles for Indigenous Data Governance*. The Global Indigenous Data Alliance. <https://www.gida-global.org/care>

Goals and Objectives

Goal #1: Increase Awareness

- **Obj. 1.1:** Promote McGill's Institutional RDM Strategy to research community members
- **Obj. 1.2:** Provide forums for feedback to advance RDM efforts at McGill
- **Obj. 1.3:** Empower researchers to adopt robust RDM practices by leveraging existing institutional resources
- **Obj. 1.4:** Foster domain-specific communities of practice through symposia, workshops, targeted outreach, and partnerships

Goal #2: Expand RDM Support and Training

- **Obj. 2.1:** Provide RDM training programs for researchers and students aligning with collaborative efforts both nationally and internationally
- **Obj. 2.2:** Work with the research community and key stakeholders (e.g., ethics, IT services, procurement, and legal) to improve the following core RDM service domains:
 - **Obj. 2.2.1:** Data management plans (DMPs)
 - **Obj. 2.2.2:** Data sharing, deposit, and preservation
- **Obj. 2.3:** Leverage existing networks of research support professionals, including the McGill [DRS Hub](#), [liaison librarians](#), and the [Digital Research Alliance of Canada](#) (the Alliance), to expand frontline RDM consultation capacity
- **Obj. 2.4:** Expand and improve support and training services using evidence-based evaluations and reviews
- **Obj. 2.5:** Increase numbers of staff with expertise to provide RDM-related support and services to advise researchers in RDM best practices
- **Obj. 2.6:** Increase RDM skills and competencies training across the academic curriculum

Goal #3: Establish a formal governance structure for research data at McGill

- **Obj. 3.1:** Form an advisory research data committee to the VP-RI, comprised primarily of faculty members with representatives from key stakeholders (e.g., IT, Library, VP-RI, Provost, Research Ethics Boards, etc.) to:
 - **Obj. 3.1.1:** Complete an analysis of relevant policies to ensure our institutional RDM framework is both coherent and in compliance with applicable laws and regulations
 - **Obj. 3.1.2:** Establish roles and responsibilities for compliance with the Tri-Agency RDM policy
 - **Obj. 3.1.3:** Propose revisions to, and updates of, existing research data-related policies
 - **Obj. 3.1.4:** Support departments and faculties in recognizing and rewarding efforts to value good RDM practices and ethical data sharing when possible

- **Obj. 3.2:** Strengthen communication and coordination with Affiliated Hospitals and research institutes in establishing more streamlined RDM workflows and processes
- **Obj. 3.3:** Pursue a research data stewardship model that positions McGill as a leader within the larger ecosystem of national and international RDM organizations
 - **Obj. 3.3.1:** Recommend the hiring of a research data privacy officer to oversee institutional capacity in accordance with applicable privacy laws and regulations

Goal #4: Develop RDM Services Through Partnerships

- **Obj. 4.1:** Seek commitments and investments from RDM service providers, funders, and governmental agencies, to ensure the long-term sustainability of institutional RDM support
- **Obj. 4.2:** Establish long-term partnerships
 - **Obj. 4.2.1:** Partner with provincial and national RDM infrastructure providers (e.g., [Calcul Québec](#), [the Alliance](#) and its [FRDR](#) repository, [Scholars Portal](#), etc.) and existing research community platforms to address gaps in repository technologies for managing, sharing, depositing, and archiving sensitive data and large data
- **Obj. 4.3:** Grow institutional RDM capacity
 - **Obj. 4.3.1:** Develop expertise in RDM amongst research support staff (e.g., grant officers and IT support staff), REB staff and members, and librarians
 - **Obj. 4.3.2:** Promote integrated interoperable systems for research-related records (e.g., DMPs, REB protocols, and institutional grant management)
 - **Obj. 4.3.3:** Focus on ensuring equitable, diverse, and inclusive representation in RDM-related roles

Looking Ahead

Digital technologies are profoundly transforming academic research across all disciplines. The McGill RDM Strategy will remain a living document subject to recurring evaluation and reviews. With the involvement of key stakeholders, the Digital Research Services Hub (DRS) will spearhead new initiatives and efforts to enhance McGill researchers' knowledge and skills in RDM, while adapting to the evolving requirements and legislations in Quebec, Canada and internationally.

Building on existing initiatives, McGill will continue to lead in developing and leveraging national and international RDM resources to broaden the global impact of its research. We will strengthen our collaborative efforts with recognized RDM organizations and service providers through the DRS to expand McGill's portfolio of RDM resources. The DRS will also lead the efforts to develop an implementation plan for this institutional strategy with the goal of augmenting RDM support resources and staff at McGill over the next 3 to 5

years. We will focus our initial efforts in raising awareness of RDM best practices through [Library workshops](#), the [McGill RDM Online Learning Program](#) and the regular “DRS Drop-in Sessions” to provide training, resources and forums for researchers to connect with subject matter experts from Library, IT and Ethics.

McGill is committed to working in partnership with the Tri-Agency, the Digital Research Alliance of Canada, Canadian Universities, and other stakeholders to ensure the success in adopting innovative RDM practices at the institutional level and beyond.

Appendix A: Definitions

- **CARE Principles** were developed by the Global Indigenous Data Alliance. CARE refers to Collective Benefit, Authority to Control, Responsibility and Ethics. “The CARE Principles for Indigenous Data Governance are people and purpose oriented, reflecting the crucial role of data in advancing Indigenous innovation and self-determination.” (Based on [CARE Principles for Indigenous Data Governance](#)).
- **Community of Practice (CoP)** refers to a group of people who share a common concern, a set of problems, or an interest in a topic and who come together to fulfill both individual and group goals. CoP often focuses on sharing best practices and creating new knowledge with ongoing interactions in meetings or collaborative platforms to communicate, connect and conduct community activities. (Adapted from: [Community of Practice](#))
- **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. (Adapted from: [Tri-Agency RDM Policy FAQ](#))
- **Data Lifecycle** refers to all the stages in the existence of data from creation to destruction. The data lifecycle provides a high-level overview of the stages involved in successful management and preservation of data for use and reuse. This broadly includes the following stages: Plan, Create, Process, Analyze, Disseminate, Preserve and Reuse. (Adapted from: CASRAI [Definition of Data Lifecycle](#), [DataOne](#), & [Alliance-Portage](#))
- **Data Stewardship** refers to knowledge and skills required to effectively manage data assets. Data stewardship is often described as data governance in action. This includes the oversight of data to ensure fitness for use, the accessibility of the data, and compliance with policies, directives and regulations. (Adapted from: [Statistics Canada Data Literacy Training](#))
- **Distinctions-based** [refers to] the three federally recognized Indigenous groupings in Canada: First Nations, Métis, and Inuit. A distinctions-based approach [is] intended to remedy the previous "pan-Aboriginal" or "one size fits all" approach to Indigenous policy and decision making, in which the unique rights, interests and circumstance of First Nations, the Métis Nation and Inuit are acknowledged, affirmed, and implemented. (Adapted from: [The Government of Canada's terminology and linguistic bank](#) and [Principles respecting the Government of Canada' relationship with Indigenous peoples](#))

- **FAIR Principles** for scientific data management and stewardship are international best practice for improving findability, accessibility, interoperability and reuse of research data. (Adapted from: [Tri-Agency RDM Policy FAQ](#))
- **OCAP[®]** is a registered trademark of the First Nations Information Governance Centre (FNIGC). It refers to Ownership, Control, Access and Possession. (Adapted from: [First Nations Information Governance Centre Understanding OCAP[®]](#)).
- **Research Data Management** refers to the processes applied through the lifecycle of a research project to guide the collection, documentation, storage, sharing and preservation of research data. (Adapted from: [Tri-Agency RDM Policy FAQ](#) and [Alliance-Portage Definition](#))
- **Researcher** means any member of the University community who engages in or supervises research. (Adapted from: [Regulations on Conduct of Research at McGill](#))

Appendix B: Currently Available Services and Support

- **General Guidance and Questions**
 - [McGill Digital Research Services Hub](#)
- **RDM Training and Support**
 - RDM guidance: [Library RDM Web Guide](#) & [DRS FAQ](#)
 - McGill [RDM Learning Program](#) – DRS & Library
 - RDM [instructional videos](#) in English and French – DRS & Library
 - RDM, RS & ARC general consultations – DRS Helpdesk via drs@mcgill.ca and Library via rdm.library@mcgill.ca
 - DRS [drop-in sessions](#) – DRS, Library, IT Services, Ethics
 - OCAP® workshop training, in partnership with [First Nations Information Governance Centre](#)
- **Data Management Plan (DMP) Resources and Support**
 - DMP reviews – Library & DRS
 - DMP consultation for grants and research contracts – DRS
 - [DMP Assistant Tool](#) – Library
 - DMP workshops – Library
- **Data Deposit Resources and Support**
 - [McGill University Dataverse](#) – Library
 - Data deposit and preservation consultations – Library
 - Data deposit workshops – Library
- **Ethics**
 - [Forms and Guidelines](#) - McGill Research Ethics Board (REB) Office
 - [Submission Process](#) - McGill Research Ethics Board (REB) Office
 - [Medicine REB](#) - [Medicine IRB](#) - Research Ethics Office (Institutional Review Board)
- **Cybersecurity**
 - [Cloud Directive](#) – IT Services
 - [Secure Your Journey](#) – IT Services
 - Cybersecurity plan consultation for large grants – DRS
 - Enterprise [software for secure data storage](#) – IT Services
 - [Available software at McGill](#) – IT Services
- **Advanced Research Computing**
 - [Infrastructure and Services](#) - Calcul Québec
 - [User Support](#) – Calcul Québec
 - [Training](#) – Calcul Québec
 - [RDM](#) – The Digital Research Alliance of Canada
 - [Advanced Research Computing Services](#) – The Digital Research Alliance of Canada
- **Community Resources**

- [Canadian Research Data Centre Network](#)
- [Computational and Data Systems Initiative](#) – Faculty of Science
- [McGill-Concordia Laboratory of the Quebec Inter-University Centre for Social Statistics - QICSS](#)
- [NeuroHub](#)

Resources

European Commission, Directorate-General for Research and Innovation, (2016). *H2020 programme guidelines on FAIR data management in Horizon 2020*. Retrieved from https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

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