McMaster University
Research Data Management (RDM)
Institutional Strategy 2023-2025

Prepared by the McMaster RDM Institutional Strategy Working Group

Version 3

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Data are valuable research outputs. McMaster's RDM Strategy will support our researchers in producing the highest quality research, meeting disciplinary and funder expectations, and leading the adoption of RDM best practices.

1. Introduction

Data are a fundamental element of the research process, as they form the evidentiary basis upon which analyses, syntheses, and creative processes are carried out and knowledge is gained. Research data are used as primary sources to support a wide range of activities, including technical and scientific inquiry, research, scholarship, and creative practice. Good management and stewardship of research data supports research excellence by improving efficiency and integrity, enabling new types of exploration, and supporting research transparency and reproducibility. Research data are an asset to the research enterprise, and their management is important to researchers, institutions, governments, and the public.

What is Research Data Management (RDM)?

Research Data Management (RDM) is a suite of connected processes and practices applied throughout the research lifecycle—i.e., as data are planned for, collected, organized, documented, stored, preserved, shared, and reused—in support of analysis, research, creative works, and dissemination that are beneficial to society. It is a critical component of the Digital Research Infrastructure (DRI) that supports scholarship and innovation within and beyond McMaster University. Applying good RDM practices improves the efficiency and impact of research, increases research visibility, facilitates collaboration, protects intellectual property, enables reuse and verification of research results, and supports a culture of reproducibility. Developing, learning, and implementing good RDM practices are a shared responsibility of researchers (whether faculty, students, staff, or community collaborators), their communities of practice, institutions, and funding agencies.

Why now? Tri-Agency RDM Policy

In March 2021, CIHR, NSERC, and SSHRC released the Tri-Agency Research Data Management Policy to advance Canadian research excellence and ensure that publicly funded research is supported by sound RDM and data stewardship practices. The policy asserts that "… research data collected through the use of public funds should be responsibly and securely managed and be, where ethical, legal and commercial obligations allow, available for reuse by others". Each postsecondary institution eligible to administer Tri-Agency funds is required to develop an institutional RDM strategy that outlines "…how the institution will provide its researchers with an environment that enables and supports RDM."

Aligning with Indigenous self-determination, this policy outlines that "data related to research by and with the First Nations, Métis, or Inuit whose traditional and ancestral territories are in Canada must be managed in accordance with data management principles developed and approved by these communities". In collaboration with McMaster's Indigenous researchers, this strategy document addresses the specific responsibilities for research by and with Indigenous communities, while also integrating principles of Indigenous data sovereignty into general RDM practices.

Expanding outwards from satisfying Tri-Agency Policy requirements, this strategy document is also an opportunity for broad dialogue about RDM needs and challenges across McMaster University. We aim to develop a cooperative and coordinated approach to supporting research and scholarship in alignment with institutional priorities and plans. Our strategy is not a policy; rather, it is a framework within which future collaboration and development can take place. Like the Tri-Agency RDM Policy, our Institutional Strategy is not an open data policy, and recognizes the importance of protecting ethical, legal, and commercial responsibilities and agreements.

RDM - a research community responsibility

Grounded in an extensive research process and informed by broad engagement and consultation with the institution's research stakeholder communities, this strategy has been co-developed by McMaster's Institutional Strategy Working Group (ISWG), with representatives from the faculties, research and IT support units, research centres and institutes, and affiliated research hospitals. This document will be revisited and revised regularly as requirements, needs, services, and associated initiatives evolve.

2. Vision & Principles

McMaster will support our researchers in producing the highest quality research, meeting disciplinary and funder expectations, and leading the adoption of RDM best practices. To do this, McMaster commits to providing a researcher-focused integrated framework of interconnected and complementary services, infrastructure, policies, practices, guidelines, tools, technologies, training, and support. Our vision is to enable McMaster researchers to adapt and thrive in a research environment that places increasing emphasis on data, its good management, and its reuse.

Research excellence & integrity

McMaster commits to supporting research excellence by promoting sound RDM and data stewardship practices. We will share emerging best practices and communicate the benefits of applying them. Recognizing that implementing best practices in alignment with emerging institutional, funder, and disciplinary expectations will require varying degrees and types of effort, the University strives to provide sufficient resources to meet the needs of its researchers. We recognize data sharing (in alignment with the FAIR principles) as an important component of scholarship, and we commit to supporting researchers to make their data as open as possible, but as restricted as necessary. McMaster also reaffirms its commitment to research integrity: To the fullest extent possible, we will foster a culture where research data, the methods and computer code that produced them, and the metadata that describes and connects them are compiled, archived, and sharable to allow research verification and reproduction. According to the Tri-Agency (2021), RDM practices support research excellence by "ensuring that research is performed ethically and makes good use of public funds, experiments and studies are replicable, and research results are as accessible as possible. Research data management (RDM) is a necessary part of research excellence" (Tri-agency RDM Policy, Government of Canada).

Institutional strategy alignment: Aligned with Priority 3 and 5 from the McMaster Institutional Priorities and Strategic Framework 2021-2024, priority 3 from the McMaster Strategic Plan for Research 2018-2023, and the McMaster Research Integrity Policy.

Indigenous data sovereignty

McMaster affirms that Indigenous peoples and communities have the right to control data from and about them. According to the Tri-Agency, "data related to research by and with the First Nations, Métis, or Inuit whose traditional and ancestral territories are in Canada must be managed in accordance with data management principles developed and approved by these communities, and on the basis of free, prior and informed consent." McMaster research by and with Indigenous researchers and communities will embody and exemplify Indigenous data management practices that support Indigenous data sovereignty, such as the First Nations Information Governance Centre's OCAP principles, the OCAS principles followed by the Manitoba Metis Federation, the principles of Inuit Qaujimajatuqangit, the Inuit Tapiriit Kanatami National Inuit Strategy on Research, and Global Indigenous Data Alliance's CARE principles.

Institutional strategy alignment: Aligned with priority 4 from the McMaster Institutional Priorities and Strategic Framework 2021-2024 and McMaster Strategic Plan for Research 2018-2023 – Indigenous Knowledge and Research.

Collaboration and coordination

Developing and implementing RDM best practices requires the collective efforts of the researchers and research groups who apply them, as well as the academic and IT units that provide advice and support. McMaster is committed to building a culture that promotes effective and lasting partnerships and knowledge sharing between RDM stakeholders across campus, including researchers, administrators, IT service providers, research ethics boards (REBs), the libraries, research administration offices (ROADS, HRS, MILO), McMaster Indigenous Research Institute (MIRI), Indigenous Health Learning Lodge (IHLL), and other service units that support McMaster's digital research infrastructure.

Institutional strategy alignment: Aligned with priority 5 from the McMaster Institutional Priorities and Strategic Framework 2021-2024.

Researcher-centered support

To meet the emerging and dynamic digital research support needs of McMaster researchers and scholars, a core set of RDM services will be available to all members of the institution who require them, regardless of their role or discipline. Services development and delivery will be guided by and responsive to researcher needs and will be done in concert with a suite of digital research infrastructure services being developed at McMaster. RDM service providers will coordinate to balance consistency of service delivery with the need to be flexible to meet varying disciplinary expectations and needs. McMaster will ensure that services are appropriate for and available to researchers from less traditionally data-intensive disciplines.

Institutional strategy alignment: Aligned with priority 3 and 5 from the [McMaster Institutional Priorities and Strategic Framework 2021-2024](#) and priority 3 from the [McMaster Strategic Plan for Research 2018-2023](#).

Global research leadership and impact

McMaster research places us in the top universities in the world, and the institution is recognized as a global leader in research. Federal funders in Canada, the US, UK, Australia, EU, Japan, and across the world are prioritizing open scholarship, data management planning, and data sharing to support broad reuse of data, and enable increased interdisciplinarity and international collaboration. To ensure McMaster remains a global leader and to support international partnerships, we will strive to be an innovator and leader in RDM practices, support, and training. Our research enterprise will foster a collaborative research data environment that aligns with [Tri-Agency expectations](#) of international best practices; ethical, legal, and commercial obligations; timeliness; findability and accessibility; and acknowledgement and citation.

Institutional strategy alignment: Aligned with priority 3 from the [McMaster Institutional Priorities and Strategic Framework 2021-2024](#) and priority 3 from the [McMaster Strategic Plan for Research 2018-2023](#).

Research security

McMaster recognizes the value of research data and the increased threat environment in which research is conducted, with implications for ethics, intellectual property, and commercial agreements. McMaster will ensure that researchers have access to the knowledge, infrastructure, and support to protect their research instruments and data from unwarranted access, compromise, and loss. Through partnerships between researchers, REBs, IT service providers, MIRI, and IHLL, sensitive data will be managed throughout the research lifecycle to preserve individual and community anonymity, and commercial and intellectual property rights where agreements exist. With support from digital research infrastructure services, and research administration offices (OVPR, ROADS, HRS, MILO), researchers will receive guidance and support to create information security plans that help protect their research infrastructure and data.

Institutional strategy alignment: Aligned with [McMaster Strategic Plan for Research 2018-2023](#) – Major Research Platforms and McMaster's [IT Security Roadmap](#) and [IT Strategic Plan](#).

3. Scope and Stakeholders

This strategy guides the work of the institution in supporting data management best practices and improving McMaster's digital research infrastructure and services; it is relevant to McMaster researchers—whether faculty, students, staff, or community members—as well as the individuals and units who support these efforts.

Implementing this Strategy and realizing its goals requires collaboration between McMaster researchers, university leadership, IT service providers, REBs, the libraries, research administration offices (OVPR, ROADS, HRS, MILO), and other service units that support McMaster's digital research infrastructure, as well as affiliated research hospitals, funding agencies, research communities, community organizations, and industry partners. Building on the responsibilities articulated in the [Tri-Agency Statement of Principles on Digital Data Management](#), each stakeholder group plays an important role in promoting, supporting, and applying best RDM practices.

University leadership

e.g., [Vice-President Research](#), [Chief Technology Officer](#), [University Librarian](#), [IT Executive](#), [Faculty Deans](#)

- **Data Leadership**: Recognizing data as an important research output; incentivizing and fostering excellence in data management.
- **Governance**: Developing policies, procedures, strategies, and assessment to guide RDM; championing the efforts of institutional RDM working groups and committees.
- **Support**: Providing the resources (financial, staffing, infrastructural, cultural, etc.) necessary for sufficient RDM support at McMaster, as identified during strategy implementation.

Researchers, Research Organizations, and Research Communities

e.g., Faculty members, research staff, students, postdoctoral fellows, [Research Centres and Institutes](#), Research Platforms

- **Data Champions**: Promoting and advocating for existing and emerging best practices within the McMaster research community and sharing discipline specific RDM practices.
- **Research Excellence:** Following institutional and funding agency RDM requirements and incorporating data management best practices into their research.
- **Engagement:** Providing feedback related to needs, disciplinary standards, requirements, and practices to inform our evolving institutional RDM strategy and activities that are generated from it.

Research Support

e.g., Research administration offices ([OVPR](#), [ROADS](#), [HRS](#), [MILO](#)), research ethics boards ([MREB](#), [HiREB](#), [AREB](#)), [RHPCS](#), [UTS](#), [RDM Services](#), faculty IT & research offices, McMaster libraries ([MUL](#), [HSL](#)), Indigenous research support ([MIRI](#), [IHLL](#))

- **Internal knowledge transfer**: Participating in knowledge-sharing activities to improve coordination of services, training activities, and resource development.
- **Coordination of Services**: Collaborating to develop and deliver user-centered services and infrastructure that support this strategy and meet the evolving data management needs of researchers.
- **Service Innovation:** Staying abreast of regional and national RDM initiatives, services, and resources with an intention of delivering complementary offerings and growing support models to share with other data services.

For a fuller picture of McMaster's stakeholder network, please see [Appendix 4 in our Current State Document](#).

4. Goals and Objectives

To inform this strategy, McMaster RDM Services (on behalf of the ISWG) conducted an in-depth data collection and consultation process involving researchers, research service providers, and other stakeholders on campus. The consultation process involved 4 major projects: an environmental scan of RDM related services provided by McMaster, an online survey of researchers' RDM needs, a series of focus groups, and a maturity assessment of RDM services.

Together these efforts gathered feedback from over 250 members of the McMaster research community, which has been compiled into two summary documents: *Current State of RDM at McMaster (2022)* and *A Vision for RDM at McMaster (2022)*. The information gathered throughout this process has informed the initial goals and objectives of McMaster's RDM strategy.

To ensure this strategy is co-developed and responsive to researchers, leadership, and research support, these recommendations represent a starting point for supporting RDM at McMaster. More formal and collaborative operational activity development will be carried out during the first year of strategy implementation (see Section 7. Implementation Process and Timelines).

Goals and objectives have been grouped into two types: those related to organizational frameworks and those pertaining to RDM practices, tools, and infrastructure.

Organizational frameworks

Governance and policy

- Develop easy-to understand McMaster RDM policy documents aligning with the evolving digital research infrastructure landscape, funder/journal requirements, data governance practices, and Indigenous data sovereignty principles.
- Develop and implement a governance framework to oversee the development, provision, and assessment of RDM-supporting infrastructure and services.
- Regularly engage and communicate with the McMaster research community to ensure broad stakeholder input and representation in decisions on governance, policy development, and service and infrastructure provision.
- Initiate and lead conversations examining the intersections of RDM practices with inclusion, diversity, equity, and accessibility principles; make recommendations and implement interventions that reinforce equitable RDM practices.

Funding and support

- Develop and sustain fully provisioned services that provide baseline free-to-use services and equitable access for researchers across all disciplines and levels.
- Research stakeholders will outline a business case to support digital research infrastructure services at McMaster including RDM, Indigenous research training and review, IT security solutions, research computing, and research software.

Culture, community, and collaboration

- Build a culture of good RDM practices through increased communication, training, workshops, events, to make it as easy as possible for researchers to be compliant with funder expectations.
- Build an inclusive community of practice and provide venues/support for campus-wide resources and knowledge sharing around data management principles (technical, operational, organizational, ethical, social, etc.).
- Identify and support "data champions" to help promote RDM principles and best practices in academic units.
- Develop incentives and provide recognition for researchers who exceed expectations by advancing RDM practices and undertaking initiatives that support them.
- Foster a culture of accountability and responsibility for Indigenous data sovereignty.

Services and training

- Build out central services, infrastructure, and tools that are scalable and responsive to the needs of individual researchers and groups. Ensure service offerings are complementary to and coordinated with those offered at provincial/regional and national levels.
- Implement an outreach and engagement program that raises awareness of services and solutions, builds community, and facilitates information and expertise sharing between researchers and service providers.
- Augment training programs into an open McMaster-wide RDM training program for all researchers (students, staff, faculty), which offers sessions on a variety of RDM-related topics—both introductory and specialized, with credentials for completion to incentivize participation. Integrate RDM training into existing academic courses where appropriate.
- Create an asynchronous baseline RDM training course, available to everyone at McMaster through Avenue to Learn. Work with the School of Graduate Studies (SGS), faculties, and departments to provide compulsory baseline RDM training.

RDM practices, tools, and infrastructure
Data management planning

- Provide researchers with the necessary resources, guidelines, training, and support to develop high quality Data Management Plans (DMPs) that meet grant application requirements and facilitate application of best practices throughout their studies.
- Develop specialized resources and rubrics for researchers and REBs, MIRI, IHLL, research administration offices, and digital research infrastructure services to use when creating and evaluating DMPs.
- Incentivize and promote the use of DMPs as a critical part of the research planning process and encourage researchers to use them as 'living documents', which are revisited and revised throughout the study.
- Build connections between DMP tools and existing on-campus digital infrastructure such as REB applications, internal grant forms, other research compliance processes, and computing resource allocation requests. Support and promote machine actionable DMPs that enable automated integrations between DMPs and other systems.

Data storage

- Provide access to data storage solutions (local, networked, cloud), which integrate with tools that provide support through the research data lifecycle (planning, project management, analysis, code versioning, deposit and sharing, archival and preservation).
- Provide tools that support collaboration, secure file transfer, sensitive data management, auditing capabilities, and archiving.
- Provide guidance and resources on data storage best practices to help researchers discover, assess, and choose between the storage options available to them within and beyond McMaster.

Indigenous data

- Develop processes to support Indigenous data sovereignty through systems that reinforce responsibility, reciprocity, and accountability.
- Support the work and capacity of the McMaster Indigenous Research Institute (MIRI), Indigenous Health Learning Lodge (IHLL), McMaster's Indigenous researchers, and Indigenous research partners.
- Sponsor access to external Indigenous data sovereignty training and resources for researchers, support staff, service providers, and Indigenous research partners. Include development of Indigenous research training in RDM business cases.
- Develop solutions/guidance to meet diverse scenarios for data access, ownership, and stewardship.

Data ethics and sensitive data

- Create accessible protocols, resources, training, and support for ethical data management, including clear and consistent guidance for researchers, REBs, and IT service providers for sensitive data storage and management (e.g., de-identification, deposit, controlled access, secondary data analysis, undergraduate research).
- REBs, MIRI, IHLL, research administration offices (ROADS, HRS, MILO), IT units, OVPR, and RDM services will collaborate to align research ethics review with McMaster policies on data management methods and administration, while also developing and sharing coordinated templates, examples, and language that help researchers complete the review process.
- Develop institutionally managed secure storage and deposit solutions with documented information about data privacy, security, and hosting location.

Data documentation, sharing, and access

- Develop appropriate resources, training, infrastructure for metadata creation and data sharing/curation;
- Promote and exhibit the breadth of research datasets that are available for reuse.
- Coordinate between REBs, research administration offices, MIRI, IHLL, and digital research infrastructure services to adopt and develop solutions for sharing sensitive or commercial data including delayed sharing, zero-knowledge encryption, or metadata-only deposit. Ensure that researchers with sensitive data are supported and guided in sharing data securely, in a timely manner, and in compliance with legal, commercial, and ethical requirements.
- Investigate a McMaster licensed Electronic Lab Notebook solution and provide training for electronic lab notebooks and other software to capture and store metadata during data collection and analysis.
- Generate expertise, capacity, and expectations across disciplines for creating and curating datasets that are FAIR (findable, accessible, interoperable, and reusable).
- Expand the definition of Accessibility ('A') in FAIR by developing and sharing guidance for creating, sharing, and depositing accessible datasets, in alignment with the Accessibility for Ontarians with Disabilities Act (AODA) and Web Content Accessibility Guidelines (WCAG) guidelines. Ensure that platforms for data sharing and collaboration are accessible and usable for all users.

Data security

- Coordinate between IT security, IT services, MIRI, IHLL, research administration offices (OVPR, ROADS, HRS, MILO), REBs, and RDM services to co-develop guidance and services for researchers on protecting research data/digital assets and developing Information Security Plans. Provide training for researchers and service providers to align with best practices and meet funder and institutional reporting requirements.
- Develop robust processes to validate the implementation and effectiveness of data security controls for systems, practices, and procedures.
- Maintain infrastructure for identity management and verification, as well as mediated access to research data.

Software & applications

- Build and maintain a consistent, coordinated, and transparent approach to licensing software for research purposes with a centralized research software catalog.
- Provide support for research teams who create their own software, including development, maintenance, patching, updating, curation, archiving, and open licensing and sharing.
- Ensure that researchers have access to software and tools for data collection, analysis, management, description, and deposit that are compliant with data security, licensing, privacy, ethics, and accessibility requirements.

5. Institutional Support

McMaster is committed to supporting the implementation and maturation of this strategy, concordant with development of broader DRI support and services. McMaster made initial investments into RDM support through the establishment of [Research Data Management Services](#) in Fall 2020 and recognizes that the increasing needs of researchers requires additional investments into staffing, infrastructure, training, communications, and services across the institution.

The stakeholder groups identified in [Section 2](#) will work together through the RDM governance processes to develop an operational plan to implement the strategy's goal and objectives. This will also include co-developing a detailed roles and responsibilities document for each stakeholder group as it intersects with RDM.

6. Governance and Assessment

This document was written and developed by McMaster's Institutional Strategy Working Group (ISWG) under the governance of the institution's Research Information Technology Committee (RITC). The strategy is issued by Dr. Karen Mossman, **Vice-President, Research,** and its implementation is a joint venture of the Office of the Vice President, Research, the Office of the Provost and Vice-President (Academic), the Office of the Assistant Vice President and Chief Technology Officer, the University Library, and the Deans of McMaster's faculties.

Responsibility for further developing and working toward the strategy's goals and objectives lies with the institution's **RDM Steering Committee**, the successor to the ISWG. This committee will meet regularly throughout the initial commitment period of 3 years to review and revise the strategy; assess and document progress; identify gaps and resource needs; and prepare reports for co-sponsors.

In developing this RDM strategy, the ISWG carried out an evaluation of policy, procedure, infrastructure, services, and funding landscape using the [Research Infrastructure Self Evaluation (RISE)](#) (J. Rans & A. Whyte, n.d.) and the [Maturity Assessment Model in Canada (MAMIC)](#) (Fry et al., 2021) frameworks. Because the MAMIC model provides a specific, contextually relevant, and standard tool for evaluating the *maturity* and *scale* of RDM supports within Canadian institutions, it will be used as the basis for annual evaluations of RDM services and support at McMaster by the RDM Steering Committee. Within the first year of implementation, the committee will develop key metrics for annual assessment. A full review of the strategy will be initiated in the third year of implementation.

7. Implementation Process and Timelines

This is a public draft of McMaster's RDM strategy, which will undergo multiple rounds of review and revision with McMaster's research community throughout late 2022 and early 2023 before its publication in March 2023. The published strategy guides our collective work over the subsequent three years, with each year focused on a different primary objective. Specific goals, objectives, and assessment metrics for the implementation period will be co-developed by cross-campus teams early in Year 1. The outcomes of this activity will inform further governance, infrastructure, and service development work during years 1 through 3. A formal, comprehensive assessment and review of the strategy and its initiatives will be carried out in Year 3; results will be combined with feedback obtained through broad re-engagement with McMaster stakeholders to develop an updated strategy for 2026 and beyond. While the primary objective might shift from year to year, governance, services, infrastructure, and communities of practice to support RDM outlined in this strategy will be actively developed and practiced from inception to Year 3.

Milestones and critical activities

Pre-Initiation

Date	Activity
Aug-Sep, 2022	Public release and feedback for Current State and Ideal State documents
Aug-Sep, 2022	Strategy Draft 1 – Working Group development and review
Sep, 2022	Strategy Draft 2 – RITC and OVPR review
Oct, 2022	Public release and feedback for draft Institutional Strategy document
Oct-Dec, 2022	Campus engagement sessions (focus groups, faculty town hall sessions)
Jan, 2023	Strategy Draft 3 – final review (RITC, VPR)
Mar, 2023	Published strategy

Year 1

Date	Activity
Q2, 2023	Assemble RDM Steering Committee
Q2-Q3, 2023	Goals, objectives, assessment metrics co-development
Q4, 2023	Campus – engagement and needs evaluation
Q1, 2024	Annual assessment and report to RDM Governance
Q1, 2024	Campus update

Year 2

Date	Activity
Q4, 2024	Campus – engagement and needs evaluation
Q1, 2025	Annual assessment and report to RDM Governance
Q1, 2025	Campus update

Year 3

Date	Activity
Q2, 2025	Initiate formal strategy review
Q2-Q3, 2025	Campus consultation
Q3-Q4, 2025	New RDM strategy development and community review
Q1, 2026	New RDM strategy released

8. Alignment with Other Relevant Strategies/Policies

This RDM Strategy document is intended to connect with and augment existing strategies and policies. This includes both relevant McMaster internal documents and provincial, federal, and international laws, requirements, and guidance.

Relevant internal strategies and policies
- Data Deposit Guidelines for McMaster Dataverse
- Information Data and Information Classification Policy Matrix for non-research data (2022), Office of the AVP & CTO
- Information Security Policy (2019), Office of the AVP & CTO
- IT Security Roadmap & IT Security Strategy for Researchers, Office of the AVP & CTO
- McMaster Document Storage Guidelines for non-research data (2020)
- McMaster Institutional Priorities and Strategic Framework 2021-2024, Office of the President
- McMaster University Library Strategic Plan 2020-2023 (2020), McMaster University Library
- MREB Data Storage & Security Guide (2020), McMaster Research Ethics Board
- Policy for the Handling of Personal Health Information (2015), University Privacy Officer
- Policy for the Handling of Personal Information (2015), University Privacy Officer
- Policy on Research Ethics at McMaster University (1993), VP Research
- Research Integrity Policy (2017), VP Research
- Strategic Plan for Research 2018-2023 – Office of the VP Research
- University Identity and Access – Password Standard (2019), Chief Information Officer

Relevant external strategies and policies
- Bill C-15: An Act respecting the United Nations Declaration on the Rights of Indigenous Peoples (2020), Government of Canada
- CARE Principles for Indigenous Data Governance (2020), Global Indigenous Data Alliance
- Freedom of Information and Protection of Privacy Act (FIPPA) (2006), Government of Ontario
- Guidance on Depositing Existing Data in Public Repositories (2021), Government of Canada
- Indigenous Health Primer (2019)
- National Inuit Strategy on Research (2018), Inuit Tapiriit Kanatami
- National Security Guidelines for Research Partnerships (2021), Government of Canada
- Ontario Research Fund: Research Infrastructure - McMaster Training
- Principles of Ethical Métis Research (2010), Métis Centre @ NAHO
- The FAIR Guiding Principles for scientific data management and stewardship (2016), Wilkinson, Dumontier, Aalbersberg et al. Sci Data
- SSHRC Research Data Archiving Policy (1990), Government of Canada
- The First Nations Principles of OCAP, First Nations Information Governance Centre
- Tri-Agency Research Data Management Policy (2021), Government of Canada
- Tri-Agency Statement of Principles on Digital Data Management (2016), Government of Canada
- Tri-Agency Framework: Responsible Conduct of Research (2021), Government of Canada
- Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2 (2018), Government of Canada

9. Appendices

Glossary

Building this glossary was influenced by Queen's University's Research Data Management Institutional Strategy and McGill University's RDM Strategy Draft v1.0.

Archiving: "Archiving" refers to "a curation activity that ensures that data are properly selected, stored, and can be accessed, and for which logical and physical integrity are maintained over time, including security and authenticity."
RDM Terminology Working Group. (2021). Research Data Management Terminology. CODATA. Retrieved June 30, 2022, from https://codata.org/initiatives/data-science-and-stewardship/rdm-terminology-wg/rdm-terminology/

Data: "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." Innovation, Science and Economic Development Canada. (2021). Frequently Asked Questions - Tri-Agency Research Data Management Policy—Science.gc.ca. Government of Canada. Retrieved June 30, 2022, from https://science.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a Tri-Agency Definition adapted from CASRAI.

Data Deposit: ""Data deposit" refers to when the research data collected as part of a research project are transferred to a research data repository. The repository should have easily accessible policies describing deposit and user licenses, access control, preservation procedures, storage and backup practices, and sustainability and succession plans. The deposit of research data into appropriate repositories supports ongoing data-retention and, where appropriate, access to the data. Ideally, data deposits will include accompanying documentation, source code, software, metadata, and any supplementary materials that provide additional information about the data, including the context in which it was collected and used to inform the research project. This additional information facilitates curation, discoverability, accessibility and reuse of the data."
Innovation, Science and Economic Development Canada. (2021). Frequently Asked Questions - Tri-Agency Research Data Management Policy—Science.gc.ca. Government of Canada. Retrieved June 30, 2022, from https://science.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a

Data Management Plan (DMP): "A data management plan (DMP) is a living document, typically associated with an individual research project or program that consists of the practices, processes and strategies that pertain to a set of specified topics related to data management and curation. DMPs should be modified throughout the course of a research project to reflect changes in project design, methods, or other considerations. DMPs guide researchers in articulating their plans for managing data; they do not necessarily compel researchers to manage data differently."
Innovation, Science and Economic Development Canada. (2021). Frequently Asked Questions - Tri-Agency Research Data Management Policy—Science.gc.ca. Government of Canada. Retrieved June 30, 2022, from https://science.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a

Data Stewardship: "The process of Data Stewardship involves ensuring effective control and use of data assets and can include creating and managing metadata, applying standards, managing data quality and integrity, and additional data governance activities related to data curation. It also may include creating educational materials, policies, and guidelines around data at an institution."
National Library of Medicine. (n.d.) Data Stewardship. Network of the National Library of Medicine. Retrieved June 30, 2022, from https://nnlm.gov/guides/data-glossary/data-stewardship.

Digital Research Infrastructure: Digital Research Infrastructure describes the suite of interrelated equipment, computer hardware and software, and data collections required to carry out scientific enquiry,

research, scholarship, or creative practice, as well as the complementary expertise, services, and resources that enable their sharing, adoption, use, and reuse.

Adapted from Innovation, Science and Economic Development Canada. (2019). Digital Research Infrastructure Contribution Program: Program guide. Government of Canada. Retrieved September 9, 2022 from https://ised-isde.canada.ca/site/digital-research-infrastructure/en/digital-research-infrastructure-contribution-program-program-guide#1.

Indigenous Research: "Indigenous Research" is "research in any field or discipline that is conducted by, grounded in or engaged with First Nations, Inuit, Métis or other Indigenous nations, communities, societies or individuals, and their wisdom, cultures, experiences or knowledge systems, as expressed in their dynamic forms, past and present."

Social Sciences and Humanities Research Council. (2021, May 4). Definitions of Terms. Government of Canada. Retrieved June 30, 2022, from https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx

Industry Partner Organization: "A for-profit organization, or an organization that assists, supports, connects and/or represents the common interests of a group of for-profit, incorporated organizations, such as an industry association or a formal or informal consortium."

Social Sciences and Humanities Research Council. (2021, May 4). Definitions of Terms. Government of Canada. Retrieved June 30, 2022, from https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx

Intellectual Property: ""Intellectual Property" means databases, audio-visual material, electronic circuitry, biotechnology and genetic engineering products, computer software recorded in any format, inventions, discoveries and all other products of research (which inventions, discoveries or other products are capable of protection pursuant to any law of Canada or any other country or which may be otherwise licensable) where any of the foregoing are created, whether by discovery, invention or otherwise by an IP Creator as hereinafter defined."

University Secretariat. (2018). Joint Intellectual Property Policy. McMaster University. Retrieved June 30, 2022, from https://secretariat.mcmaster.ca/app/uploads/Joint-Intellectual-Property.pdf.

Persistent Unique Identifier: "A Persistent Unique Identifier (PID) is a string of letters and numbers used to distinguish between and locate different objects, people, or concepts. A well-known example of a PID is a Digital Object Identifier (DOI) which is used to locate specific digital objects, frequently a journal article. Another example is ORCiD, a PID for researchers."

National Library of Medicine. (n.d.) Persistent Unique Identifier. Network of the National Library of Medicine. Retrieved June 30, 2022, from https://nnlm.gov/guides/data-glossary/persistent-unique-identifier.

Preservation: "An activity within archiving in which specific items of data are maintained over time so that they can still be accessed and understood through changes in technology."

RDM Terminology Working Group. (2021). Research Data Management Terminology. CODATA. Retrieved June 30, 2022, from https://codata.org/initiatives/data-science-and-stewardship/rdm-terminology-wg/rdm-terminology/

Researcher: "A Researcher is involved in an undertaking to extend knowledge through a disciplined inquiry or systematic investigation."

University Secretariat. (2017). Research Integrity Policy. McMaster University. Retrieved June 30, 2022, from https://secretariat.mcmaster.ca/app/uploads/Research-Integrity-Policy.pdf.

Research Data: "Research data are data that are used as primary sources to support technical or scientific enquiry, research, scholarship, or creative practice, 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. Research data may be experimental data, observational data, operational data, third party data,

public sector data, monitoring data, processed data, or repurposed data. What is considered relevant research data is often highly contextual, and determining what counts as such should be guided by disciplinary norms."

Innovation, Science and Economic Development Canada. (2021). Frequently Asked Questions - Tri-Agency Research Data Management Policy. Government of Canada. Retrieved June 30, 2022, from https://science.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a

Research Data Management: "Research Data Management" is "the storage of, access to and preservation of data produced from one or more investigations, or from a program of research. Research data management practices cover the entire lifecycle of the data, from planning the investigation to conducting it, and from backing up data as it is created and used to preserving data for the long term after the research has concluded. It also includes data-sharing, where applicable." Social Sciences and Humanities Research Council. (2021, May 4). Definitions of Terms. Government of Canada. Retrieved June 30, 2022, from https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx

Research Institution: "An institution with a research mandate and qualified research staff and/or research facilities." Social Sciences and Humanities Research Council. (2021, May 4). Definitions of Terms. Government of Canada. Retrieved June 30, 2022, from https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx

Institutional acronyms

ADR	Associate Dean, Research
AVP & CTO	Assistant Vice President & Chief Technology Officer
HiREB	Hamilton Integrated Research Ethics Board
HRS	Health Research Services
HSL	Health Sciences Library
IHLL	Indigenous Health Learning Lodge
MILO	McMaster Industry Liaison Office
MIRI	McMaster Indigenous Research Institute
MREB	McMaster Research Ethics Board
MUL	McMaster University Library
OVPR	Office of the Vice President, Research
RHPCS	Research & High-Performance Computing Support
ROADS	Research Office for Administration, Development & Support
UL	University Librarian
UTS	University Technology Services
VPR	Vice President, Research