Lakehead University Research Data Management (RDM) Institutional Strategy 2023

Prepared by the Lakehead University RDM Advisory Committee

Version 1

Last Revision: February 9, 2023

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Draft Research Data Management (RDM) Strategy

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Introduction:

The Tri-Agencies released a new [Research Data Management (RDM) Policy](#) in March 2021 with the goal of promoting RDM and best practices in data stewardship among Canadian researchers. The policy states 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". To facilitate the RDM policy's implementation, the agencies will take a phased, incremental approach as follows:

- **Institutional strategies:** By March 1st, 2023, each post-secondary institution and research hospital eligible to administer NSERC, SSHRC and CIHR funds is required to create an institutional RDM strategy, publicly post the strategy, and notify the agencies when completed.
- **Data management plans:** In the spring of 2022, the agencies identified a subset of funding opportunities where researchers were required to submit a data management plan as part of the grant application process.
- **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 allow." There is no current timeframe for this requirement.

The Tri-Agency RDM policy commits to supporting Indigenous self-determination and states 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". Lakehead University's RDM Strategy will be implemented in collaboration with Indigenous researchers and will include specific responsibilities for research by and with Indigenous communities, while also connecting principles of Indigenous data sovereignty into general RDM best practices.

Lakehead University is committed to supporting its researchers by promoting best practices in RDM that will enable researchers to manage data within disciplinary contexts across the research data lifecycle. We will support these efforts by implementing a centralized and coordinated approach to delivering RDM support services that enables researchers to confer with RDM experts when they need to, understand best practices in RDM, and access the latest tools and technologies.

In response to the Tri-Agency RDM policy requirements, Lakehead University's Vice-President, Research and Innovation established an RDM Advisory Committee that engaged the university's research community in a consultation about the current and

desired future state of RDM. The research communities' feedback was carefully considered and informed the drafting of Lakehead University's RDM institutional strategy. In addition, a regional Indigenous Research Data Management (IRDM) consortium was established. Work is ongoing and the strategy will be revised on a regular basis to incorporate new developments related to IRDM.

It should be noted that our RDM Strategy is not a policy, but a guiding document within which future RDM strategies can be developed and implemented in a collaborative way. Aligned with the Tri-Agency RDM Policy, Lakehead University's RDM strategy is not an open data policy, and recognizes the importance of protecting ethical, legal, and commercial responsibilities and agreements.

Importance of Research Data and Research Data Management:

As policies and norms shift to make research data more widely accessible to the public, it has never been clearer that effective RDM is integral to producing meaningful research. Effective RDM is complex. RDM tasks span the research lifecycle and require researchers to draw on their disciplinary knowledge, ethical judgement, and technical knowledge to make many decisions. Seemingly small choices in how research is stored and managed can significantly impact the future social and academic benefits of that research. By establishing and promoting best practices guided by the principles listed in this document, Lakehead is committed to supporting our researchers and their partners in their RDM decisions, and this, in turn, allows our researchers to generate high-impact work.

Guiding Principles

Research Excellence and Integrity
Lakehead is committed to research excellence and supporting researchers in the responsible conduct of research. According to the **Tri-Agency RDM policy**, sound 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 key component of research excellence."

Open Science
Research results should be made as "open as possible, and as closed as necessary," in order to maximize access and collaboration, while maintaining respect for privacy, security, ethical considerations, and appropriate intellectual property protection. This requires a commitment to the inclusive use of data management practices, such as the **FAIR** Guiding Principles for data management and stewardship, which strive to make data Findable, Accessible, Interoperable, and Reusable. We acknowledge that we will support the RDM rights of all parties involved in research.

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Responsibility and Collaboration
The collective cooperation of researchers, community partners, and administrative units that provide advice and support, is required to develop and implement RDM best practices effectively. Lakehead University is committed to building a collegial environment that promotes effective and authentic partnerships and knowledge sharing between RDM colleagues across our campuses, including researchers, administrators, IT service providers, Research Ethics Board, the Library, Office of Research Services, Anishinaabe Kendaasiwin Institute (AKI), and other administrative units that support Lakehead University's digital research infrastructure.

Indigenous Data Sovereignty
Lakehead is committed to Indigenous Data Sovereignty and acknowledges that Indigenous peoples have the right to control data collection processes and that they own and control how this information can be used. Lakehead University supports the use of data management practices, such as the **OCAP** and **CARE** Principles, to ensure Indigenous data sovereignty and will ensure that its RDM policies are aligned with these principles.

Context-Based Approach
Given the diversity of research questions, data types, methods of data collection and analysis, disciplinary practices, ethical obligations, legal and regulatory frameworks, and partnership environments that our researchers work in, Lakehead University will support our researchers in implementing the RDM best practices most appropriate to their research context, in accordance with the highest standards possible.

Scope:

This RDM Strategy applies to anyone who conducts research at Lakehead University (including but not limited to, faculty members, Adjunct Professors, postdoctoral fellows, students, research employees, etc.), whether the research is funded or non-funded, and as defined in the Lakehead University *Research Integrity Policy and Tri-Agency Framework: Responsible Conduct of Research*. This document describes institutional strategies to enhance supports required for Lakehead University researchers to develop and execute research data management plans as required to meet the Tri-Agency RDM requirements or other research agreements, ethics requirements, including Indigenous data sovereignty considerations, or data retention requirements.

Lakehead University will ensure that researchers are made aware of the Tri-Agency RDM policy, this Strategy, and any changes to it. This Lakehead University RDM Strategy is a living document and will be updated as necessary to reflect changes to RDM best practices in Canada and elsewhere.

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This Strategy applies to digital research data management, as well as any research data deposited in Lakehead's institutional repositories or archives.

Oversight and Review:

Lakehead University's Vice-President Research and Innovation has overall responsibility for the development and implementation of the RDM Strategy. Lakehead University's RDM Advisory Committee will be responsible for leading the implementation of the Strategy, monitoring progress towards meeting the objectives of the Strategy, and reporting milestones achieved and reporting back to the Vice-President Research and Innovation and collaborators. The RDM Advisory Committee includes representatives from the Office of Research Services (ORS), including the Research Ethics Board (REB); Library; Technology Services Centre (TSC); the Faculty of Graduate Studies; faculty members, students, and the Chair of the Lakehead University IRDM Committee.

There are distinct considerations for the implementation and governance of Indigenous research and data management. The principle of Indigenous self-determination will inform the development and oversight of IRDM strategies at Lakehead University.

The RDM strategy will be implemented on a five-year timeline, with a mid-term review, and will be revised as necessary to ensure that it continues to meet the needs of our researchers and partners.

Institutional Support:

The Lakehead University RDM Advisory Committee identified the following goals and objectives to support strategy adoption and continued use of best practices in RDM among its researchers.

Goal 1: Establish a formal RDM governance structure.

Establish a standing RDM Advisory Committee that would continue to report to the Vice-President Research and Innovation. The RDM Advisory Committee will have representation from: the Office of Research Services, Library, Research Ethics Board, Technology Services Centre, and researchers from diverse disciplines who will be responsible for developing an implementation plan to execute RDM strategies outlined in this document.
- Aligned with the principle of Indigenous self-determination, an Indigenous-led RDM Committee with knowledge of, and understanding of, Indigenous data

sovereignty principles will lead the implementation of Lakehead University's IRDM strategy.
- Clarify roles and responsibilities for coordinated delivery of RDM support services.
- Create a Lakehead University RDM Services Portal that is jointly supported and coordinated by the Office of Research Services, Library, and the Technology Services Centre that would provide a centralized hub for researchers to access RDM services.
- Increase the REB's capacity to review research data management plans within REB protocols for research, to ensure the ethical and secure storage of active data and long-term data in repositories.

Goal 2: Review and Develop Institutional RDM Policies and Processes.

- Complete a thorough analysis of RDM related policies to ensure compliance with the Tri-Agency RDM policy, Indigenous data sovereignty principles, and applicable laws and regulations.
- Review and recommend revisions to RDM related policies to ensure they represent current best practices and are compliant with applicable laws and regulations, including Indigenous data sovereignty principles, as set out in the RDM institutional strategy.
- Develop the following new RDM guidelines, policies and procedures: Data Classification and Guidelines for Assessing Risk, Data Deposit Policy, Guidelines for Research Involving Indigenous Peoples; Guide for Graduate Research and Supervision; Data Retention and Destruction Policy; and Cybersecurity Best Practices for Working Remotely.
- Work with the Research Ethics Board, affiliated institutions (Thunder Bay Regional Health Research Institute), the Northern Ontario School of Medicine University (NOSMU), and Indigenous communities and organizations with research protocols and ethics boards to ensure RDM policies/procedures are harmonized to reduce redundancy in workflows for researchers.

Goal 3: Increase Awareness of RDM best practices among researchers.

- Provide a resources webpage/portal which includes best practice guidelines and information related to topics such as data types, risk mitigation, archiving, open access, and appropriate data repository use.
- Develop and provide resources and training to support awareness and implementation of Indigenous data sovereignty by Indigenous partners and communities.
- Create RDM success stories via social media, video, blogs to bring relatable content to researchers to increase engagement including the types of data that could be archived/available through open access for use by other researchers.

- Train RDM experienced researchers to act as mentors for new and emerging scholars.
- Develop training to inform researchers about the [Tri-Agencies National Security Guidelines for Research Partnerships](#) and their obligations to undertake consistent, risk-targeted due diligence of potential risks to research security.
- Host events annually during RDM Week in May.
- Training and awareness raising as to specific ethical concerns in human data management and data storage, such as ongoing consent and the lifecycle of data.
- Promote integrated and harmonized procedures for research-related protocols/documents (e.g., REB protocols, DMPs).
- Training researchers to determine appropriate retention periods for various types of research data and physical materials, with guidance on selecting appropriate repositories and conditions of preservation for these materials.
- Create best practices guidelines that include close guidance on topics of concern.

Goal 4: Expand RDM Support and Training

- Develop a training program for all researchers (students, staff, faculty), which offers sessions delivered in various formats on a variety of RDM-related topics. Integrate RDM training into existing academic courses where appropriate.
- Provide support services for researchers through cross-departmental collaboration between the Library, Office of Research Services, and Technology Services Centre.
- Ensure that staff (Research Facilitators, Liaison Librarians, TSC) who are supporting RDM have access to appropriate professional development opportunities to support institutional excellence in RDM.
- Training support for researchers and staff in best practices related to storage of sensitive data; Library (or specific Data Archive Committee) will develop materials in collaboration with the REB, TSC and the Office of Research Services.
- Promote RDM excellence through the inclusion of stated RDM principles in relevant processes such as award and research grant selection and hiring.

Goal 5: Provide and support access to RDM tools, resources, and infrastructure.

- Resources developed or implemented for RDM will be evaluated for sustainability, risk mitigation, and priority for support.
- Develop resources to implement, process, monitor, support and test any existing or future tools, infrastructure, and the applications supporting research data.

- Retain external data security expertise utilizing federal RSF Research Data Security grant to develop a Research Data Risk Assessment Framework with accompanying training for researchers, staff and the Research Ethics Board.
- Expand Library RDM consultation and training services capacity. This may be implemented by increased training of existing staff in both Library and Research Office, and/or expanding existing human resources in the Library.
- Continue to maintain and develop Lakehead Dataverse, Lakehead's open access repository, infrastructure hosted by Borealis, the Canadian Dataverse Repository.
- Evaluate additional data deposit repositories services available to researchers to ensure that they meet the needs of researchers; provide guidance as to their appropriateness for various projects. Factors including data curation, data security, and long-term preservation practices will be components of this evaluation.
- Renovate the University Archives and ensure it has adequate resources to manage transfers of physical materials (including print-based research data) from researchers and departments.
- Develop infrastructure and commit resources to enable the full expression of Indigenous data sovereignty.

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Appendix A: Definitions

Data (Tri-Agency Data Governance)

Facts, measurements, recordings, records, or observations about the world collected by researchers and others, with a minimum of contextual interpretation. Data may be any format or medium taking the form of writings, notes, numbers, symbols, text, images, films, video, sound recordings, pictorial reproductions, drawings, designs or other graphical representations, procedural manuals, forms, diagrams, work flow charts, equipment descriptions, data files, data processing algorithms, or statistical records. [1]

Data (Indigenous Data Governance)

"We consider Indigenous data to be "any past, present and future facts, knowledges, or information about an Indigenous nation and its citizens, lands, resources, cultures, and communities. This can include information about populations such as community profiles or graduation rates, land use management, maps of sacred lands and place names, songs, cultural teachings, digital media, and social media activities," (Rainie et al. 2017b, p. 1) among others.

The definition encompasses both collective and individual level data. It also highlights that the concrete boundaries between data, information, and knowledge as defined in Western contexts are more fluid in an Indigenous context; Indigenous data extend far beyond bits and bytes (De Beer 2016) and have implications for the governance of both data born digital and that which emerges from knowledge, language, and information." [2]

Data Lifecycle

Refers to all the stages in the existence of digital information from creation to destruction. A lifecycle view is used to enable active management of the data objects and resources over time, thus maintaining accessibility and usability. [3]

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." [4]

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Research Data Management (RDM)
RDM refers to the processes applied throughout the lifecycle of a research project to guide the collection, documentation, storage, sharing, and preservation of research data. [5]

Research
An undertaking intended to extend knowledge through a disciplined inquiry or systematic investigation. [6]

Researcher
Anyone who conducts research. [6]

Data classification
Data classification, in the context of information security, is the classification of data based on its level of sensitivity and the impact on the University should that data be disclosed, altered, or destroyed without authorization. Data classification helps determine what baseline security controls are appropriate for safeguarding that data. [7]

References:

1. Government of Canada. 2021. "Frequently Asked Questions Tri-Agency Research Data Management Policy." Retrieved February 22, 2022 (https://www.ic.gc.ca/eic/site/063.nsf/eng/h_97609.html#1a)
2. Carroll, Stephanie Russo, Desi Rodriguez-Lonebear, and Andrew Martinez. 2019. "Indigenous Data Governance: Strategies from United States Native Nations." *Data Science Journal*, 18, 31. https://doi.org/10.5334/dsj-2019-031
3. Committee on Data International Science Council. (n.d.) "Data lifecycle." Retrieved December 20, 2022 (https://codata.org/rdm-terminology/data-lifecycle/)
4. National Library of Medicine. (n.d.) *"Data Stewardship." Network of the National Library of Medicine*. Retrieved June 30, 2022 (https://nnlm.gov/guides/data-glossary/data-stewardship)
5. Digital Research Alliance of Canada. 2022. "Research Data Management." Retrieved December 20, 2022 (https://alliancecan.ca/en/services/research-data-management)
6. Government of Canada. 2022. "Tri-Agency Framework: Responsible Conduct of Research (2021)." Retrieved December 20, 2022 (https://rcr.ethics.gc.ca/eng/framework-cadre-2021.html)
7. Carnegie Melon University Office of the CIO. "Guidelines for Data Classification." Retrieved January 24, 2023 (https://www.cmu.edu/data/guidelines/data-classification.html#:~:text=Data%20classification%2C%20in%20the%20context,altered%2C%20or%20destroyed%20without%20authorization.)

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Appendix B: RDM Advisory Committee Terms of Reference

Mandate

The Research Data Management Advisory Committee was established by the Vice-President Research and Innovation to develop an RDM institutional strategy for Lakehead University. The RDM Strategy will outline how Lakehead University will support its researchers with an environment that enables and supports RDM.

Composition

1. University Librarian (Co-Chair) – Robin Canuel
2. Director, Research Services (Co-Chair) – Anne Klymenko
3. Chief Information Officer or delegate – Andrew Brigham
4. Scholarly Communications & Data Services Librarian - Nicole Stradiotto
5. SSHRC Leader – Dr. Batia Stolar
6. CIHR Representative – Dr. Vicki Kristman
7. NSERC Representative – Dr. Shannon Zurevinski
8. Lakehead University Research Chair in Decolonial Futures – Dr. Lana Ray
9. Chair, Research Ethics Board - Dr. Claudio Pousa
10. Manager, Research Ethics and Contracts – Sue Wright
11. Dean, Faculty of Graduate Studies - Dr. Chander Shahi
12. RDM Champions - Dr. Monica Flegel
13. University Archivist - Sara Janes
14. Research Staff - Mannila Sandhu
15. Graduate Students - Andrew Ault and Alexandra Stargratt

Secretary: Research Ethics and Events Coordinator

Administrative Office: Office of Research Services

Terms of Reference

In accordance with the Tri-Agency Research Data Management Policy, institutional strategies should include items such as:

- recognizing data as an important research output;

- supporting researchers in their efforts to establish and implement data management practices that are consistent with ethical, legal and commercial obligations, as well as tri-agency requirements, including the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – 2nd edition, the Tri-Agency Framework: Responsible Conduct of Research, and other relevant policies;

- promoting the importance of data management to researchers, staff and students;

- guiding researchers on how to properly manage data in accordance with the principles outlined in the Tri-Agency Statement of Principles on Digital Data Management, including the development of data management plans;

- committing to the adoption of established best practices when developing institutional standards and policies for data management plans;

- providing, or supporting access to, repository services or other platforms that securely preserve, curate and provide appropriate access to research data;

- recognizing that data created in the context of research by and with First Nations, Métis, and Inuit communities, collectives and organizations will be managed according to principles developed and approved by those communities, collectives and organizations, and in partnership with them; and

- recognizing that a distinctions-based approach is needed to ensure that the unique rights, interests and circumstances of the First Nations, Métis, and Inuit are acknowledged, affirmed, and implemented; consider an Indigenous specific research data management strategy.

It is recommended that Lakehead University's RDM Strategy follow the framework and pillars outlined in the ***Portage Institutional RDM Strategy Development Template (updated November 2021***): https://portagenetwork.ca/tools-and-resources/institutional-strategies/. The institutional RDM Strategy will be submitted to the Vice-President Research and Innovation by November 1, 2022.

Once approved, the Strategy will be publicly posted on Lakehead University's Research and Innovation website no later than March 2023 and is expected to be a living document that is reviewed and revised where appropriate (i.e., as RDM services, infrastructure and practices evolve, etc.).