

Western University's Institutional Strategy on Research Data Management

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Land Acknowledgement

Western University is located on the traditional territories of the Anishinaabek, Haudenosaunee, Lunaapeewak, and Chonnonton Nations on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. The local First Nation communities of this area include Chippewas of the Thames First Nation, Oneida Nation of the Thames, and Munsee Delaware Nation. In the region, there are eleven First Nation communities and a growing Indigenous urban population.

Western University recognizes the specific rights, interests, priorities and concerns of all Indigenous peoples with respect to the collection, organization, processing, and preservation of data from or about Indigenous peoples, communities, and lands, and we respect Indigenous Data Sovereignty with respect to the collection, use, ownership, and storage of these data.

Further, we respect the longstanding relationships that Indigenous Nations have to this land, as they are the original caretakers. We acknowledge historical and ongoing injustices that Indigenous Peoples (First Nations, Métis and Inuit) endure in Canada, and we accept responsibility as a public institution to contribute toward revealing and correcting miseducation as well as renewing respectful relationships with Indigenous communities through our teaching, research and community service.

Background

In March 2021, the [Tri-Agency Research Data Management Policy](#)¹ was launched, highlighting the critical role of research data management (RDM). The policy outlines key components such as data management planning, the importance of comprehensive metadata and documentation, adherence to Indigenous Data Sovereignty (IDSov), and the principles of long-term data stewardship.

Broadly defined, RDM refers to the activities researchers perform while working with research data, here defined as data collected and/or used as a part of the research process. It includes activities such as collecting, organizing, documenting and backing up data during a research project, preserving, archiving and sharing data after the research project is completed, and developing plans and processes to carry out these activities. Sound research data management means collecting, documenting, backing up and preserving data in a way that facilitates reproducible research, data security, and long-term usability of data.

Under the new policy, all postsecondary institutions and research hospitals that are eligible to handle Tri-Agency funds must develop an [Institutional Strategy on Research Data Management](#), publicly post the strategy and notify the Tri-Agency when completed. The policy asserts that research data acquired with public funds should be managed responsibly and securely, and where ethical, legal, and commercial constraints permit, should be made accessible for reuse by others.

The goal of this strategy is to provide Western University's researchers with tools, infrastructure, support, and policies that will enable them to conduct research to the "highest professional and disciplinary standards"² across the research life cycle. This includes ensuring that research data is managed in a way that is responsible, secure, allows for replication of research results, and follows the FAIR Guiding Principles³ for scientific data management and stewardship. The FAIR Principles specify that data should be Findable, Accessible, Interoperable, and Reusable, while also acknowledging that data should be "as open as possible and as closed as necessary."

In anticipation of the new policy, Western University assembled a Research Data Infrastructures Working Group that commenced discussion to amend their RDM approaches in the Spring of 2020. The work and consultation with the group led to the development of an initial draft of Western's Institutional RDM Strategy. However, following additional consultations with Indigenous faculty, it became clear that further efforts were needed to ensure the meaningful inclusion of Indigenous perspectives and IDSov within the RDM framework.

This revised RDM strategy was created in collaboration with an external Indigenous consulting firm, who specialize in Indigenous Data Sovereignty and Governance, alongside Indigenous faculty at Western University, to enhance the strategy's alignment with Indigenous RDM practices.

¹ Government of Canada. (2021). Tri-Agency Research Data Management Policy. <https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/tri-agency-research-data-management-policy>.

² Government of Canada. (2021). National Inuit Strategy on Research. <https://www.itk.ca/national-strategy-on-research-launched/>.

³ Ibid. [preamble]

Indigenous Data Sovereignty and Indigenous Data Governance

The Tri-Agency Policy includes recognition of IDSov and Indigenous Data Governance (IDGov) that responds to the needs and values of distinct First Nations, Métis, and Inuit communities, collectives, and organizations, and states:

“In line with the concept of Indigenous self-determination and in an effort to support Indigenous communities to conduct research and partner with the broader research community, the agencies recognize 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, and on the basis of free, prior and informed consent.”⁴

Research involving Indigenous-defined data requires careful and respectful engagement and guidance from Indigenous communities on how data are used, collected, and preserved. Western acknowledges that “universities create, use, and hold enormous amounts of Indigenous data. These data range from old historical records to contemporary large datasets, including Open Data and the data underpinning emerging Artificial Intelligence (AI) Technologies”⁵

Western University also recognizes that data created, collected and/or accessed through research with Indigenous Peoples, communities, collectives, and organizations must be managed according to principles developed in partnership with those very groups. This requires tailored approaches when working with Indigenous research data. It includes a need to establish ethical and Indigenous-led processes for the real and potential applications of Indigenous data across industry sectors, such as machine learning (ML) and AI contexts, biodiversity, and genomic science innovations. This may include but is not limited to determining practices that respectfully establish community-guided descriptors and controlled vocabulary for labelling Indigenous data including provenance and metadata.

Respecting Indigenous RDM, Western’s strategy works to align with initiatives that reflect the Truth and Reconciliation Commission’s Calls to Action, emphasizing reconciliation as a key objective.⁶ Aligning with a reconciliation framework necessitates a critical look at how the university and its research labs operate through a lens that considers important aspects of Indigenous communities such as knowledge systems, cultures, languages, and lands.⁷

Understanding that each Indigenous Nation and community will have different requirements regarding research data generated through partnerships, we honour diverse models of data management. This includes practices such as the First Nations Principles of OCAP®⁸ (Ownership, Control, Access, and

⁴ Ibid. [preamble]

⁵ Jacob Prehn, Riley Taitingfong, Robyn K. Rowe, Ibrahim Garba, Cassandra Price, Maui Hudson, Tahu Kukutai, Stephanie Russo Carroll. (2023). “Indigenous Data Governance and Universities Communiqué.” Global Indigenous Data Alliance. DOI: [10.6084/m9.figshare.24201585](https://doi.org/10.6084/m9.figshare.24201585).

⁶ Government of Canada. (2019). Setting new directions to support Indigenous research and research training in Canada. https://www.canada.ca/content/dam/crc-crc/documents/strategic-plan-2019-2022/sirc_strategic_plan-eng.pdf.

⁷ Ibid.

⁸ First Nations Information Governance Centre. (2022). First Nations Principles of OCAP®. <https://fnigc.ca/ocap-training/>.

Possession), the USAI Research Framework⁹ (Utility, Self-voicing, Access, Inter-relationality), the CARE Principles for Indigenous Data Governance¹⁰, and the National Inuit Strategy on Research¹¹.

The CARE Principles for Indigenous Data Governance developed by Indigenous Peoples from around the world offer one example of a framework that could be considered. The Care Principles emphasize a people and purpose-oriented approach to research. They underscore the critical role that data plays in fostering Indigenous innovation and self-determination¹². The CARE Principles complement the existing FAIR principles by encouraging open data movements to consider both people and purpose in their advocacy and pursuits, thereby reinforcing the importance of respecting and upholding Indigenous rights throughout the research process¹³.

Scope

Western University's Institutional RDM strategy aims to promote excellence in managing research data across all disciplines. This strategy applies to all members of the Western University community engaged in research involving the collection and use of data. It acknowledges the diverse models of research inquiry and recognizes the varying standards and needs for RDM across different fields. Particularly sensitive is the handling of data related to human subjects, where ethical considerations and confidentiality will take precedence in case of conflicts.

Further, we are acutely aware of the colonial history that has shaped and, at times, harmed Indigenous communities through academic research. As such, we are committed to decolonizing research practices, working with Indigenous Peoples to centre reconciliation and Indigenous self-determination¹⁴, ensuring that our approaches reflect Indigenous rights, priorities, and governance¹⁵. In collaboration with the Tri-Agencies, we acknowledge 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."¹⁶ At the same time, we recognize that distinctions-based frameworks, while important in some contexts, can be limiting. They may not fully reflect the lived experiences of people with mixed Indigenous identities or the diverse, self-defined priorities of Nations and communities. For this reason, we also emphasize a holistic approach, guided by the specific needs and self-determined governance of each Nation or Indigenous partner. IDSov is a critical expression of this right, enabling communities to control

⁹ Ontario Federation of Indigenous Friendship Centres. (2012). USAI Research Framework. <https://ofifc.org/wp-content/uploads/2020/03/USAI-Research-Framework-Second-Edition.pdf>.

¹⁰ Carroll, S., Garba, I., Figueroa-Rodríguez, O., Holbrook, J., Lovett, R., Materechera, S., Parsons, M., Raseroka, K., Rodriguez-Lonebear, D., Rowe, R. and Sara, R. (2020). The CARE Principles for Indigenous Data Governance. *Data Science Journal*, 19, pp. 1–12. DOI: <https://doi.org/10.5334/dsj-2020-043>.

¹¹ Inuit Tapiriit Kanatami. (2018).

¹² Carroll, S., Garba, I., Figueroa-Rodríguez, O., Holbrook, J., Lovett, R., Materechera, S., Parsons, M., Raseroka, K., Rodriguez-Lonebear, D., Rowe, R. and Sara, R. (2020). The CARE Principles for Indigenous Data Governance. *Data Science Journal*, 19, pp. 1–12. DOI: <https://doi.org/10.5334/dsj-2020-043>.

¹³ Hudson, M., Carroll, S. R., Anderson, J., Blackwater, D., Cordova-Marks, F. M., Cummins, J., David-Chavez, D., Fernandez, A., Garba, I., Hiraldo, D., Jäger, M. B., Jennings, L. L., Martinez, A., Sterling, R., Walker, J. D., & Rowe, R. K. (2023). Indigenous Peoples' Rights in Data: a contribution toward Indigenous Research Sovereignty. *Frontiers in research metrics and analytics*, 8, 1173805. <https://doi.org/10.3389/frma.2023.1173805>.

¹⁴ Government of Canada. (2022). TCPS 2 (2022) – Chapter 9: Research involving the First Nations, Inuit, and Métis Peoples of Canada. https://ethics.gc.ca/eng/tcps2-eptc2_2022_chapter9-chapitre9.html#15.

¹⁵ Natural Sciences and Engineering Research Council of Canada. (2024). CCI guide for research involving Indigenous Peoples and communities. https://www.nserc-crsng.gc.ca/Colleges-Colleges/Resources-Ressources/Indigenous-Autochtones_eng.asp.

¹⁶ Government of Canada. (2021).

research and data related to their cultures, histories, languages, knowledge systems, and traditional territories¹⁷.

As such, Western University's Institutional RDM Strategy serves three main purposes:

1. To cultivate an environment that enhances research excellence through the promotion of sound RDM and stewardship practices. By doing so, the strategy ensures that research is conducted ethically and responsibly, aligning with the Tri-Agency Research Data Management Policy and emphasizing the importance of comprehensive data management planning, replicability of research results, and transparency.
2. To establish robust frameworks that facilitate data accessibility, the strategy ensures that well-managed research data is treated as a valuable research output. It aims to document research data with standards-compliant metadata and make it accessible for reuse, fostering further research opportunities and serving as a teaching tool. This approach aligns with the responsible management of publicly funded research data.
3. To support and promote meaningful collaboration with Indigenous communities throughout the research lifecycle. The strategy emphasizes the importance of involving Indigenous communities in the co-development of data management plans and creating agreements that reflect holistic approaches. It aims to minimize harm and uphold IDSov, ensuring that Indigenous perspectives and rights are respected in the research process.

Institutional Support for Research Data Management

Awareness Raising

Outreach to keep Western community members informed on matters relating to RDM will be done through multiple channels to reach and educate as many constituents as possible.

A central web site (rdm.uwo.ca) will be maintained to share the living Institutional Strategy and inform Western community members of their responsibilities under the [Tri-Agency Research Data Management Policy](#). The website will also provide information on research data management best practices, link to local resources to support best practice and allow researchers to book consultations to discuss their data management needs.

Promoting and Supporting RDM Practices

RDM support is provided by multiple groups across campus, including Western Libraries, Western Research, Research Officers in faculties and research institutes, Western Technology Services and the office of the Chief Data Officer. To coordinate these groups and to build on and continue the relationships we have developed, we are forming a Community of Practice on RDM at Western University with leadership from Western Libraries. The Community of Practice will provide a forum for sharing information on emerging RDM needs and practices and will advise on and help direct the development and deployment of RDM supports, including:

- Support for writing Data Management Plans will be provided to researchers through [DMP Assistant](#), with consultation and administrative support from Western Libraries. Templates

¹⁷ Government of Canada. (2019).

providing Western-specific guidance to help researchers find appropriate local resources to manage their data are being developed and will be reviewed and updated regularly based on feedback from stakeholders.

- Support for sharing and archiving non-sensitive data is offered through our institutional data archive [Borealis](#), hosted on Canadian servers at Scholar's Portal. Western Libraries will consult on and refer researchers to other options which may better accommodate specific types of data as needed, such as the Federated Research Data Repository for larger datasets ("big data").
- In consultation with Research Ethics, Western Libraries has approved a pilot project to provide local storage for data that needs to be archived without sharing and will develop procedures to provide secure space for long term archiving of sensitive data.
- Infrastructure and support for active data management will be implemented by Western Technology Services under the direction of the Chief Technology Officer.
- There is an acknowledgment of barriers, including financial challenges faced by Indigenous communities regarding data access and management. Steps will be taken to identify and remove these barriers to promote equitable RDM practices for all researchers.

Staffing

A Research Data Management Librarian role was created and filled to provide leadership within Western Libraries in support of RDM. As demand for data management support grows, staffing needs will be assessed to ensure adequate resources, including individuals with expertise in Indigenous RDM practices.

Training

Western Libraries provides training and support for RDM through workshops and consultation. Introductory workshops are aimed at newer faculty and graduate students, covering the fundamentals of RDM, Tri-Agency policy requirements, and available tools and resources at Western. Specialized workshops on topics such as Data Management Plans, Data Archiving, and Active Data Management are offered on a rotating basis, with consultations available by appointment.

Online, self-paced training modules will be developed to offer insights on subjects, such as the use of tools like DMP Assistant and Borealis. We will develop guidelines, resources, curriculum, and workshops for the research community to support the appropriate inclusion of IDSov and IDGov throughout the research lifecycle. Additionally, we will make resources available such as the forthcoming Allyship in Research Guide and community partnership modules.

Indigenous Data Considerations

Indigenous research must be grounded in relationships with Indigenous communities and peoples, who have been researchers since time immemorial. We acknowledge the validity of Indigenous epistemologies and ontologies, as well as the leadership of Indigenous researchers in conducting studies related to Indigenous peoples. Western University also recognizes the significant role of Indigenous Elders and Knowledge Keepers in bringing Indigenous perspectives and ways of knowing into the academic learning and research environment. Recognizing the diversity among Indigenous communities, cultures, languages, and protocols, we understand that there is no singular approach applicable to all.

We commit to honouring IDSov, emphasizing that each researcher holds an individual responsibility to respect and adhere to the specific protocols of Indigenous nations and communities. Western University acknowledges its institutional duty to respect Indigenous knowledge and data while building capacity to effectively support this work. We recognize the specific rights, interests, priorities, and concerns of all Indigenous peoples regarding the collection, organization, processing, and preservation of data related to Indigenous communities and lands. Indigenous peoples and communities possess the right to reclaim, retain, and preserve data, labels, and outputs collected about them. They also have the authority to govern, lead, and collaborate in the development of research protocols and the right to refuse certain uses of their data.¹⁸

Ethical and Legal Considerations

Western University's two Research Ethics Boards, advised as needed by the Research Data Management Librarian, will continue to oversee all aspects of ethics as they relate to research data. Western Research will advise on commercial obligations and any legal questions will be referred to the Office of the University Legal Counsel.

When conducting research with Indigenous peoples, communities, or on Indigenous land, it is essential to strengthen processes that ensure ethical practices. This includes adhering to the Tri-Council Policy Statement 2, Chapter 9: Research Involving the First Nations, Inuit, and Métis of Canada, which serves as a guide for ethical collaboration and engagement with Indigenous communities.

To respect Indigenous data, researchers must receive appropriate training and support. Understand the importance of using relational approaches to consent by engaging with communities and building relationships; while also recognizing that for Indigenous Peoples, individual consent cannot be obtained in isolation from community. Community consent is a vital component of respectful and mutually beneficial research, relying on trust, transparency, and ongoing self-reflection. Engaging with communities is crucial to ensure their voices are heard and respected. Building genuine relationships and maintaining open communication fosters a collaborative environment that honours Indigenous knowledge and perspectives.

Looking Ahead

This Institutional Strategy is a living document and will be reviewed and updated regularly to reflect changes in institutional policy, technological standards, funding requirements, and ethical best practices. At a minimum, the document will be reviewed every three years, or earlier if significant developments arise.

Where updates relate to Indigenous Peoples, communities, or data, revisions will be guided by ongoing engagement with Indigenous partners and aligned with principles of IDSov and IDGov.

Oversight of this strategy will ultimately rest with both the Vice-President (Research) and the Provost & Vice-President (Academic).

¹⁸ Hudson et al. (2023).

Appendices

Appendix A: Definitions

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.”¹⁹

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.”²⁰

Indigenous Data “is defined as “information and knowledge about individuals, groups, organizations, ways of knowing and living, languages, cultures, land, and natural resources. It exists in many formats, including **Traditional Knowledge**, which is defined as information that is passed down between generations. Traditional knowledge includes languages, stories, ceremonies, dance, song, arts, hunting, trapping, gathering, food and medicine preparation and storage, spirituality, beliefs, and world views. Indigenous data also include born-digital and digitized data collected by researchers, governments, and non-governmental institutions.”²¹

According to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), Article 31 (1) states: “Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.”²²

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. Indigenous research can embrace the intellectual, physical, emotional and/or spiritual dimensions of knowledge in creative and interconnected relationships with people, places and the natural environment. Whatever the methodologies or perspectives that apply in a given context, researchers who conduct Indigenous research, whether they are Indigenous or non-Indigenous themselves, commit to

¹⁹ Government of Canada. (2022). Tri-Agency Research Data Management Policy - Frequently Asked Questions. <https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/tri-agency-research-data-management-policy-frequently-asked-questions>.

²⁰ Ibid.

²¹ Carlisle-Johnston, E., Dennie, D., Fortin, É., Hill, E., & Thompson, K. (2024). *Research Data Management in the Canadian Context*. Western University. <https://ecampusontario.pressbooks.pub/canadardm/>. (p.49).

²² General Assembly Resolution 61/295. 2007. United Nations Declaration on the Rights of Indigenous Peoples A/RES/61/295. <https://www.undocs.org/A/RES/61/295>.

respectful relationships with all Indigenous peoples and communities.”²³

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.”²⁴

²³ Social Sciences and Humanities Research Council. (2021). Definition of terms. <https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx>.

²⁴ Ibid.

Appendix B: Additional Resources

- [Bill C-15: An Act respecting the United Nations Declaration on the Rights of Indigenous Peoples](#)
- [CARE Principles for Indigenous Data Governance](#)
- [Indigenous Health Primer](#)
- [Indigenous Peoples and Intellectual Property](#)
- [Government of Canada Intellectual Property Strategy](#)
- [Introduction to Intellectual Property Rights and the Protection of Indigenous Knowledge and Cultural Expressions in Canada](#)
- [National Inuit Strategy on Research](#)
- [Principles of Ethical Métis Research](#)
- [Setting New Directions to Support Indigenous Research and Research Training in Canada](#)
- [The FAIR Guiding Principles for scientific data management and stewardship](#)
- [The First Nations Principles of OCAP®](#)