

# Research Data Management Institutional Strategy

DRAFT v1.0 for Consultation

## Introduction

Research Data Management (RDM) refers to the “storage, access and preservation of data produced from a given investigation. 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 long term preservation of data deliverables after the research investigation has concluded”<sup>1</sup> (see Appendix A for a full list of definitions and acronyms used in this document).

Adopting best practices in RDM is an integral component of Scholarly, Research, and Creative (SRC) excellence and can improve the discoverability and reproducibility of research outcomes. Additionally, data management plans (DMPs) and deposits in data repositories are increasingly required by research funders and publishers.

In March 2021, the Tri-Agency adopted a policy on research data management. The policy requires each post-secondary institution and research hospital eligible to administer CIHR, NSERC or SSHRC funds to create an institutional RDM strategy and notify the agencies when it has been completed<sup>2</sup>. The strategy must be made publicly available on the institution’s website, with contact information to which inquiries about the strategy can be directed.

The Institutional Research Data Management Strategy Working Group (IRDMSWG) was formed to develop a shared vision for the future state of RDM at Toronto Metropolitan University and draft this strategy document to comply with the Tri-Agency requirement.

This document has been prepared using the template<sup>3</sup> and guidance<sup>4</sup> provided from the Portage Network.

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<sup>1</sup> <https://codata.org/rdm-terminology/research-data-management/>

<sup>2</sup> [https://www.ic.gc.ca/eic/site/063.nsf/eng/h\\_97610.html](https://www.ic.gc.ca/eic/site/063.nsf/eng/h_97610.html)

<sup>3</sup> <https://portagenetwork.ca/wp-content/uploads/2018/03/Portage-Institutional-Strategy-Template-v4-EN.pdf>

<sup>4</sup> <https://portagenetwork.ca/wp-content/uploads/2018/03/Portage-Institutional-Strategy-Guidance-v4-EN.pdf>

# Principles

Toronto Metropolitan University recognizes that research data is an important SRC output and is committed to providing researchers with an environment that empowers them to adopt best practices in RDM throughout the research data lifecycle.

The following principles guide RDM support at Toronto Metropolitan University:

## **Contextual Approach**

- Different disciplines will have different RDM needs and institutional RDM supports must be flexible to adapt to these different needs

## **Data Security**

- Good physical and cyber security practices and infrastructure are essential safeguarding data and protecting research integrity

## **Ethical Data Stewardship**

- Research integrity, ethical use and trust in data depend on conscientious RDM practices

## **Research Excellence**

- Effective RDM practice-based principles in different fields are key to ensuring research quality and advancing research excellence

## **Researcher-Focussed**

- Support for researchers to provide an environment that is conducive to good RDM practices throughout the research data lifecycle

## **Respect for Indigenous Communities**

- Indigenous peoples have the right to control the collection, ownership and application of Indigenous data
- Toronto Metropolitan University will advocate for distinction-based RDM practices to support Indigenous Data Sovereignty

## **Support for Open Data**

- Research data should be as open as possible, and as closed as necessary, to support accessibility to research results and facilitate reuse of data

## Scope

This document is relevant to all Toronto Metropolitan University researchers undertaking SRC activity under the auspices of the University no matter where the research is undertaken. As outlined in the SCHOLARLY, RESEARCH AND CREATIVE ACTIVITY (SRC) INTEGRITY POLICY<sup>5</sup>, this includes, but is not limited to, faculty, career librarians, undergraduate students, graduate students, law students, postdoctoral fellows, research assistants and associates, technical staff, adjunct professors, professors of distinction, distinguished visiting professors, visiting scholars and students, and institutional administrators and officials representing the University.

## Oversight and Review

Associate Chief Librarian, Scholarly, Research and Creative Activities, will oversee the implementation of the strategy in partnership with the Institutional Research Data Management Strategy Working Group (see Appendix C for membership).

The IRDMSWG will meet quarterly to discuss progress and for an annual review of the strategy, which will be presented to the SRC Leaders Group and to Senate for information as appropriate.

## Stakeholders

Support and infrastructure for robust RDM services requires collaboration across several units at Toronto Metropolitan University, including, but not limited to:

Toronto Metropolitan University Libraries

<https://library.torontomu.ca/>

The Office of the Vice-President, Research and Innovation (OVPRI)

<https://www.torontomu.ca/research/about/ovpri/>

Computing and Communications Services (CCS)

<https://www.torontomu.ca/ccs/>

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<sup>5</sup> <https://www.torontomu.ca/content/dam/senate/policies/pol118.pdf>

## Current State of RDM: Existing Institutional Supports

This section of the strategy outlines the RDM-related resources, training and support currently offered at Toronto Metropolitan University.

### General RDM Guidance

- [Research Data Management Guide](#) - Library
- RDM workshops - Library

### Data Management Plans (DMPs)

- DMP consultations and reviews - Library
- [DMP Assistant Tool](#) - Library
- DMP workshops (general) - Library
- DMP workshops (graduate students) - Library

### Data Repository Deposit

- [RShare](#) - Library
- [Toronto Metropolitan University Dataverse](#) - Library
- Data repository deposit consultations - Library
- Data repository deposit workshops - Library

### Research Ethics

- Ethics consultations - REB/OVPRI
- Ethics protocol submission and review system - REB/OVPRI
- [Ethics Guidelines and Templates](#) - REB/OVPRI

### IT Infrastructure

- Active Data Storage: [Google Drive](#) and [Chargeback Services](#)- CCS
- Active Storage - Sensitive Data - CCS (on request)
- Collaborative Digital Work Space - CCS
- File Transfer service - CCS

## Future State of RDM: Goals and Recommendations

This section of the strategy outlines the desired near-to-medium-term (e.g., three to five years) future state for RDM at Toronto Metropolitan University and the recommended actions to achieve those goals.

### **Goal #1: Formalized Governance of RDM**

#### *Recommendations:*

- Form a standing advisory RDM committee to the OVPRI to establish roles and responsibilities for compliance with the Tri-Agency RDM policy
- Write an Institutional RDM Policy that outlines the responsibilities of the institution and researchers regarding secure data storage, data deposit, data management planning, data ethics, support for sensitive data and cybersecurity

### **Goal #2: Increased Awareness of Existing RDM Supports**

#### *Recommendations:*

- Consolidate information about RDM supports and services via a single digital hub
- Develop an institutional Communication and Outreach Strategy for RDM
- Provide forums for feedback to improve and advance RDM supports

### **Goal #3: Expanded RDM Supports**

#### *Recommendations:*

- Provide discipline-specific RDM guidance and training programs for researchers
- Create a new institutional template in DMP Assistant to align more closely with the REB Protocol Application Form

### **Goal #4: Data Valued as an Important SRC Output**

#### *Recommendations:*

- Support faculty and student researchers to value data as an important SRC output, data deposit and good RDM practices
- Empower researchers through training and advocacy to make their data as open as possible, when appropriate, via the institutions data repositories
- Provide guidance for best practices in citing data to emphasize the value of data as an important SRC output

### **Goal #5: Increased Support for Indigenous Data Sovereignty**

#### *Recommendations:*

- Guidance provided for distinction-based RDM practices for research conducted by and with First Nations, Métis and Inuit communities, such as co-creation of DMPs, negotiation of DMPs, repatriation of data and exceptions to data deposit requirements

## Ethics Considerations

Toronto Metropolitan University is committed to supporting researchers adopting and complying with ethical, legal and commercial obligations.

Research Ethics are housed within the Office of the Vice-President, Research & Innovation (OVPRI) portfolio and are supported by the Research Ethics Board (REB).

The REB approves, rejects, proposes modifications to, or terminates any proposed or ongoing research involving humans that is conducted by faculty, staff or undergraduate students of the university, so as to protect research subjects and ensure that research is conducted in an ethical manner. No research on humans shall be undertaken without the prior approval of the REB. The REB is responsible for interpreting and applying the Tri-Council Policy Statement and relevant legislation, establishing guidelines and procedures consistent with the Tri-Council Policy Statement and relevant legislation, and facilitating research by consulting with and assisting researchers.

Additional RDM training and consultations on the topics of ethical data deposit and secondary use of research data are available from the Library.

## Indigenous Data Considerations

Toronto Metropolitan University recognizes 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<sup>6</sup>.

Toronto Metropolitan University supports the principles of Ownership, Control, Access and Possession (OCAP®) for First Nations data governance, but recognizes that these guiding principles do not necessarily respond to the needs and values of distinct First Nations, Métis, and Inuit communities, collectives and organizations.

More consultation is required to understand how Toronto Metropolitan University's RDM-related infrastructure can be adapted or improved to support the storage, curation and dissemination of Indigenous data.

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<sup>6</sup> [https://science.gc.ca/eic/site/063.nsf/eng/h\\_97610.html](https://science.gc.ca/eic/site/063.nsf/eng/h_97610.html)

## Data Security Considerations

Toronto Metropolitan University is committed to safeguarding research and protecting the integrity of research results.

Data Security is housed within the Computing and Communications Services (CCS) portfolio and is supported by the Office of the Chief Information Security Officer (CISO) and the Network & IT-Security team. CCS provides the network infrastructure to the TMU community and maintains the security of the data flowing into this infrastructure. The network is constantly monitored to ensure availability and as well to mitigate against the constant cyber-attacks against TMU's assets.

CCS staff have a wide range of expertise in the field of network design, vulnerability assessments and forensic analysis. They can assist the TMU community in these areas whenever needed, and provide guidance regarding good physical and cyber security practices and infrastructure.

## Looking Ahead

The RDM Strategy is a living document and will be revisited based on Tri-Agency requirements, feedback from researchers and future innovations in RDM practices.

The next phase will be implementing the actions identified to move the institution towards the desired future state of RDM. The IRDMSWG will meet quarterly to discuss progress and will plan an annual review of the strategy, which will be presented to the SRC Leaders Group and to Senate for information as appropriate.

### **For more information, please contact:**

The Institutional Research Data Management Strategy Working Group at  
[rdmstrategy@ryerson.ca](mailto:rdmstrategy@ryerson.ca)

## Appendix A: Glossary

Abbreviations and terms used in this strategy are listed below.

**CCS:** Computing and Communications Services, Toronto Metropolitan University

**Data Management Plan (DMP):** A formal statement describing how research data will be managed and documented throughout a research project and the terms regarding the subsequent deposit of the data with a data repository for long-term management and preservation. (from [CODATA](#))

**Data Repository:** Repositories preserve, manage, and provide access to many types of digital materials in a variety of formats. Materials in online repositories are curated to enable search, discovery, and reuse. There must be sufficient control for the digital material to be authentic, reliable, accessible and usable on a continuing basis. (from [CODATA](#))

**Indigenous Data:** Indigenous data is any information that is from or about any Indigenous person or their community, territory or nation, including but not limited to their languages, Knowledges, customs or traditions, intellectual property and ideas. Indigenous data are also relational and reciprocal, and need to reflect and be held by the community as a collective, and are equally as important to pass down through generations as a part of lifelong journeys of coming to be (from [Nindokiikayencikewin: to seek learning or Knowledges Indigenous Knowledges & Data Governance Protocol](#))

**Indigenous Data Sovereignty:** Indigenous Peoples have always been data collectors and knowledge holders. The rise of national Indigenous Data Sovereignty networks reflects a growing global concern about the need to protect against the misuse of Indigenous data and to ensure Indigenous Peoples are the primary beneficiaries of their data. (from [Global Indigenous Data Alliance \(GIDA\)](#))

**IRDMSWG:** Institutional Research Data Management Strategy Working Group (see Appendix C for membership)

**OVPRI:** The Office of the Vice-President, Research and Innovation, Toronto Metropolitan University

**Research Data:** Data that are used as primary sources to support technical or scientific enquiry, research, scholarship, or artistic activity, and that are used as evidence in the research process and/or are commonly accepted in the research community as necessary to validate research findings and results. All other digital and non-digital content have the potential of becoming research data. (from [CODATA](#))



**Research Data Management:** Data Management refers to the storage, access and preservation of data produced from a given investigation. 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 long term preservation of data deliverables after the research investigation has concluded. (from [CODATA](#))

**REB:** Research Ethics Board, Toronto Metropolitan University

**SRC:** Scholarly, Research and Creative

**Tri-Agency:** Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Social Sciences and Humanities Research Council (SSHRC)

**YSGS:** Yeates School of Graduate Studies, Toronto Metropolitan University

## Appendix B: Relevant Policies

### External Policies

Tri-Agency Research Data Management Policy  
[https://science.gc.ca/eic/site/063.nsf/eng/h\\_97610.html](https://science.gc.ca/eic/site/063.nsf/eng/h_97610.html)

Tri-Agency Statement of Principles on Digital Data Management  
[https://science.gc.ca/eic/site/063.nsf/eng/h\\_83F7624E.html](https://science.gc.ca/eic/site/063.nsf/eng/h_83F7624E.html)

Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2  
[https://ethics.gc.ca/eng/policy-politique\\_tcps2-eptc2\\_2018.html](https://ethics.gc.ca/eng/policy-politique_tcps2-eptc2_2018.html)

Tri-Agency Framework: Responsible Conduct of Research  
<https://rcr.ethics.gc.ca/eng/framework-cadre-2021.html>

Tri-Agency Open Access Policy on Publications  
[https://science.gc.ca/eic/site/063.nsf/eng/h\\_F6765465.html](https://science.gc.ca/eic/site/063.nsf/eng/h_F6765465.html)

Tri-Agency New Directions to Support Indigenous Research and Research Training in Canada  
2019-2022 Strategic Plan

<https://www.canada.ca/en/research-coordinating-committee/priorities/indigenous-research/strategic-plan-2019-2022.html>

## Toronto Metropolitan University Policies

Ethical Conduct for Research Involving Human Participants - Senate Policy 51

<https://www.torontomu.ca/content/dam/senate/policies/pol51.pdf>

Publication of Research Results - Senate Policy 56

<https://www.torontomu.ca/content/dam/senate/policies/pol56.pdf>

SRC Integrity Policy - Senate Policy 118

<https://www.torontomu.ca/content/dam/senate/policies/pol118.pdf>

Policy on the Indirect Costs Associated with Scholarly, Research and Creative (SRC) Funding - Senate Policy 143

<https://www.torontomu.ca/content/dam/senate/policies/pol143.pdf>

Scholarly Research and Creative Activity (SRC) Intellectual Property - Senate Policy 171

<https://www.torontomu.ca/content/dam/senate/policies/pol171.pdf>

Information Protection and Access - Restricted Information Policy (Privacy Policy) - General Counsel and Secretary of the Board of Governors

<https://www.torontomu.ca/policies/policy-list/information-protection-access-policy/>

Network and Server Security Management Policy - Computing and Communications Services (CCS)

<https://www.torontomu.ca/policies/policy-list/network-server-security-mgmt-policy/>

Acceptable Use of Information Technology Policy - Chief Information Officer

<https://www.torontomu.ca/policies/policy-list/acceptable-use-policy/>

Information Classification Standard and Handling Guidelines - Chief Information Officer; Privacy Officer

<https://www.torontomu.ca/policies/policy-list/information-classification-standard-guideline/>

## Appendix C: Members of the Institutional Research Data Management Strategy Working Group

Dr. Naomi Adelson, Associate Vice President, Research & Innovation  
Dr. Asher Alkoby, Chair, Research Ethics Board  
Zakiya Atcha, Research Ethics Manager  
Casey Carvalho, Director, Computing Infrastructure  
Roland Chan, Chief Information Security Officer  
Dr. Greg Elmer, The Creative School  
Dr. Hilary Evans Cameron, Lincoln Alexander School of Law  
Dr. Songnian Li, Faculty of Engineering and Architectural Science  
Dr. Eric Liberda, Faculty of Community Services  
Dr. Catherine Middleton, Ted Rogers School of Management  
Dr. Jas Morgan, Faculty of Arts  
Faheem Mosam, Graduate Student, Physics  
Nora Mulvaney, Research Data Management Librarian (co-chair)  
Dr. Mojca Usaj, Faculty of Science  
Silvia Vong, Associate Chief Librarian, Scholarly, Research and Creative Activities (co-chair)  
Dr. Nancy Walton, Yeates School of Graduate Studies

## Appendix D: RDM Maturity Assessment Model in Canada (MAMIC)

The RDM Maturity Assessment Model in Canada (MAMIC) is based on the RISE and SPARC assessment models and has been adapted to fit the Canadian institutional context. This tool is designed to help evaluate the current state of institutional RDM services and supports as part of an institutional RDM strategy development process. It focuses on four areas of service and support - Institutional Policies and Processes, IT Infrastructure, Support Services, and Financial Support.

The MAMIC was completed in Fall 2021 by the RDM Librarian with additional input from colleagues in CCS and OVPRI. It was presented to the SRC Leaders Group in November 2021 and has informed the work of the Institutional Research Data Management Strategy Working Group.

See below for a summary of the assessment.

### Category 1: Institutional Policies and Processes

This area of activity covers the development and maintenance of policies related to RDM, and relevant processes that are related to supporting RDM services.

Element	Maturity Level	Comments
1. Institutional RDM Strategy	2 - Element is under development	In progress
2. Institutional RDM-related Policies	1 - Element is not formalized	Many policies that are related to RDM, but not formalized
3. Data Management Planning-related Procedures and Guidelines	1 - Element is not formalized	Support for DMPs provided by the Library, but not formalized at the institutional level
4. Security and Risk Assessment Policies and Procedures	1 - Element is not formalized	Related policies exist, such as Information Protection Policy
5. Communication and Outreach Plan	1 - Element is not formalized	No formal communications or outreach plan in place at the institutional level

### Category 2: IT Infrastructure

This section covers the breadth of an institution's RDM infrastructure. It includes infrastructure provision, file storage, synchronization, and authentication and access

Element	Maturity Level	Comments
1. Access/Authentication/Authorization	3- Element is operationalized and launched	Provided by CCS
2. High Performance Computing	1- Element is not formalized	Provided by some departments
3. Active Storage	3- Element is operationalized and launched	Provided by CCS
4. Active Storage - Sensitive Data	3- Element is operationalized and launched	Provided by CCS
5. Collaborative Digital Work Space	3- Element is operationalized and launched	Provided by CCS (Google Drive) and the Library (Project feature in RShare)

6. File Transfer service	1- Element is not formalized	Provided by CCS
7. Repository for Data Deposit	3- Element is operationalized and launched	Provided by the Library ( <a href="#">RShare</a> and <a href="#">Toronto Metropolitan University Dataverse</a> )
8. Sensitive Data Deposit	0- Does not exist	Gap in the existing RDM environment
9. Preservation / Archival Storage	0- Does not exist	Gap in the existing RDM environment
10. Governance of Enterprise Software	3- Element is operationalized and launched	Provided by CCS
11. Indigenous Data Storage and Deposit *	0- Does not exist	Gap in the existing RDM environment

### Category 3: Service and Support

This section looks at support and advisory services around training and consultation for RDM, Data Management Plans (DMPs), and data curation. It includes in-person and online advice for researchers needing support in the different areas of RDM.

Element	Maturity Level	Comments
1. General RDM Training	3- Element is operationalized and launched	Provided by the Library
2. General RDM Consultation	3- Element is operationalized and launched	Provided by the Library
3. DMP Training	3- Element is operationalized and launched	Provided by the Library
4. DMP Consultation	3- Element is operationalized and launched	Provided by the Library
5. Data Curation Training	0- Does not exist	Gap in the existing RDM environment
6. Data Curation Consultation	3- Element is operationalized and launched	Provided by the Library
7. RDM-related Software Training	1- Element is not formalized	Support not centralized or formalized
8. RDM-related Software	1- Element is not formalized	Support not centralized or

Consultation		formalized
9. Research Ethics Training*	3- Element is operationalized and launched	Provided by OVPRI
10. Research Ethics Consultation*	3- Element is operationalized and launched	Provided by OVPRI

**Category 4: Financial Support**

This section is looking at the RDM business plan, capacity and sustainability. It lists considerations that will secure the sustainability of RDM services.

<b>Element</b>	<b>Maturity Level</b>	<b>Comments</b>
1. Resource Allocation for HR Capacity	1- Element is not formalized	Library, OVPRI and CCS currently allocating resources to support RDM HR capacity, but this is not formalized under institutional policies
2. Resource Allocation for Infrastructure	1- Element is not formalized	Library, OVPRI and CCS currently allocating resources to support RDM infrastructure, but this is not formalized under institutional policies