

Research Data Management Principles

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Context for Shared Research Data Management Principles

The **Research Data Management Principles** are the values related to research data shared between the University of Toronto and its affiliated institutions. These values guide institutional strategic directions and form the foundation for responsible research data practices.

The research data management (RDM) landscape is dynamic with many considerations needed for researchers to adapt to rapidly evolving and interconnected practices and ideas. A supportive environment for researchers ensures access to coordinated and continuous RDM supports needed to navigate change.

The Research Data Management Principles seek to guide the balance, alignment, and integration of research data management practices that will:

Promote Research Integrity and Excellence

Providing support that promotes and integrates the responsible conduct of research is essential to building and maintaining an environment that fosters research and innovation excellence. Well-managed data is fundamental to the research process and advances discovery and knowledge mobilization. Responsible research data management actions align with the objectives of institutional, national, and international strategic directions for research. RDM practices should foster equity, diversity, and inclusiveness, and provide flexibility for distinction-based approaches. Research data managed with integrity and in an ethical and transparent manner strengthens outputs, facilitates excellence and innovation, and increases our global impact in both scholarship and society beyond academia.

Recognize the Value of Data

Research data underpins institutional knowledge building. There is value in data as a distinct research output. Proper documentation and stewardship of data results in the ability to validate results and the replication of studies to support research findings. Well-managed data enables data sharing and reuse, which increases access to results (including the reporting of negative results) and can lead to further discovery and greater reach and impact. In pursuit of research and scholarship variation in the interpretation of data between researchers is expected.

Encourage the Implementation of Data Management Plans

A data management plan (DMP) is an essential part of designing and executing effective research approaches, from the inception to completion of a project. Proper planning improves data stewardship. A DMP provides direction and guidance for consistent actions across a project, increasing the reproducibility, visibility, and reuse of the research outputs. The creation and maintenance of DMPs should reflect best practices for managing data, improving project efficiencies, and mitigating risk.

Facilitate Long-Term Access Through Data Deposit

There is value in maintaining long-term access to data which supports research findings and serves as the basis for further inquiry. Data should be properly prepared, documented, and retained with assigned custodianship and, when possible, under the care of a designated repository. This facilitates the availability of results, and that data should be ‘as open as possible, and as closed as necessary’.

Reflect Institutional Practices and Standards

It is essential that data practices abide by legal and ethical frameworks, adhere to institutional policies and procedures, and consider expectations of sponsors and research partners. Approaches to RDM will be diverse and should reflect the distinct needs and practices required for different types of data and projects. This involves reflecting institutional guidance, ethical standards, community principles, disciplinary standards, and established best practices in RDM decisions.

Honour Indigenous Community-Driven Principles

Meaningful and respectful research honours Indigenous cultures and knowledge and data should be managed in a way that leads to beneficial change and the rebuilding of trust. All research developed and conducted should support Indigenous data sovereignty and be in alignment with community-driven principles (such as CARE and OCAP® principles). There is recognition that each community is distinct, and relationships and research approaches will reflect these differences. Approaches should promote Indigenous perspectives, incorporate more holistic Indigenous methodologies, give special concern to artefacts, and minimize bias stemming from other cultural frameworks. The outcomes of such research should enable capacity development and community empowerment. Developing institutional direction and guidance requires engagement with Indigenous leaders, researchers, and communities.

Foster a Culture of Inclusive Representation and Public Trust

The analysis and use of data can be influential and impactful. Public trust is built through engagement and through the assurance that data has been collected, analyzed, and reported in an ethical, unbiased, and transparent manner. There is a social responsibility to ensure representation and engagement with equity seeking-communities. Principles of equity, diversity, and inclusion should be incorporated into data collection, analysis, and dissemination to prevent bias, discrimination, and harm and ensure representation in research design.

Observe Jurisdiction and Legalities

Data is subject to legal and organizational frameworks. It is important that data management actions ensure that data adheres to the conditions to which it is subject. It is acknowledged that laws and regulations will differ by region and country and could govern data that crosses jurisdictional boundaries. Data that falls under organizational and governance structures may also be subject to policies and standards that outline acceptable actions. In research, the reuse of

third-party data must respect intellectual property right and contractual provisions outlined in licenses, agreements, and terms of use.

Strengthen Partnership and Collaboration

Tremendous value is placed in fostering meaningful collaborations and research partnerships. Research is strengthened through relationships and engagement with communities, not-for-profits, government entities, the private sector, and academic researchers, local and global. Mutually beneficial research relationships outline the division of responsibilities related to data actions and ownership.

Mitigate Risk Related to Confidential Data

Confidential data are those which have the potential to cause harm due to unintended access or release. This can include data that may have geopolitical or economic implications or that may compromise research endeavours if released prior to publication. The protection of research includes assessing the level of risk associated with data in order to make appropriate data management decisions and to secure the data from unauthorized access and modification.

Safeguard Sensitive Data

Sensitive data, including information about individuals, communities, and groups, are subject to specific ethical, legal, and contractual obligations. Research conducted must be aligned with the [Tri-Council Responsible Conduct of Research \(RCR\)](#) and the [Policy Statement on Ethical Conduct for Research Involving Human \(TCPS 2\)](#) including core principles of respect for persons, concern for welfare, and justice. There must be adequate levels of infrastructure, security, and guidance in place to assist in mitigating any risk of harm and ensure the ethical treatment of data.

Integrate Excellence in all Disciplinary Approaches

Scholars engage in diverse research and scholarly endeavours which represent a variety of subject areas and research methodologies. Decisions around the treatment of data should reflect the best practices and standards appropriate for the types of data that a project includes. Flexibility in distinct approaches to data should be recognized and supported, and that research both benefits from and contributes to disciplinary communities of practice.

Connect through Communication and Engagement Opportunities

The research data landscape is dynamic and constantly evolving. There is a commitment to continuous engagement and communication with both our research community and external stakeholders. Ongoing learning from research communities will inform supports that are representative of diverse needs and practices. It is a priority to raise awareness and increase researcher knowledge of the evolving expectations of research data management practices.

Provide Infrastructure that Supports Diverse and Complex Programs of Research

Robust and coordinated infrastructure is vital to practices throughout the research data lifecycle and should be secure and bring consistency, interoperability, and equitable access. Infrastructure

resources should be reflective of needs, scalable to meeting growth efficiently, and evolve in response to engagement with stakeholders.

Ensure Support Services are Available

There is a commitment to provide comprehensive and coordinated support services for data management. These services aim to increase the implementation of best practices for conducting effective research by engaging researchers and enhancing organizational expertise.

Commit to Advocacy and Support for Researchers' Needs

The institution should be a voice representing the needs and values of the research community as well as advocating to protect the rights of individual researchers and those participating in research. This involves a commitment to the betterment of research practices through continuous reflection, acting as leaders to influence change, and building mechanisms to assist researchers to practice standards and meet obligations.

Oversight

Document Administration

This document was created under the oversight of the [Digital Research Infrastructure \(DRI\) Advisory Committee and Researcher Council](#) and the Toronto Academic Health Science Network Research Committee RDM Policy Table. These committees seek to create and sustain a coordinated, agile, rich, diverse, effective, efficient, and secure collection of digital research infrastructure and services that meet the complex and varied needs of our research community.

Version Information

Date	Version Code	Description
March 1, 2023	Version 1.0	<i>University of Toronto Institutional Research Data Management Principles</i>
January 30, 2023	Draft 3.0	<i>Draft University of Toronto Institutional Research Data Management Principles Version 3.0, 2023-01-30</i>
October 24, 2022	Draft 2.0	<i>Draft University of Toronto Institutional Research Data Management Principles Version 2.0, 2022-10-24</i>
August 17, 2022	Draft 1.0	<i>Draft University of Toronto Institutional Research Data Management Principles Version 1.0, 2022-08-17</i>
May 31, 2022	Draft 0.1	<i>Draft University of Toronto Approach for Research Data Management Strategy Version 0.1, 2022-05-31</i>