UNB Research Data Management Strategy (2023-2026)

Background

The University of New Brunswick recognizes that data are valuable research outputs, and that effective research data management (RDM) practices are increasingly important to research and scholarly communications. Research institutions and organizations in Canada and beyond have long recognized the explosive growth of digital research data, as well as the potential risk of loss in the absence of best practices, tools and infrastructure. UNB counts important current work across a diversity of disciplines and fields including material science, engineering, cybersecurity, environmental sciences, and health as vital contributions to public good and to positive change: good RDM practices will help UNB researchers ensure that data are safely and securely stored for reuse by themselves and, where possible, by others, enabling collaboration and transparency for the benefit of the greater research community.

In March 2021, the Canadian Institutes of Health Research (CIHR), Natural Sciences and Engineering Research Council (NSERC), and Social Sciences and Humanities Research Council (SSHRC) released the [Tri-Agency Research Data Management Policy](#) to "support Canadian research excellence by promoting sound RDM and data stewardship practices." The policy applies to all Canadian researchers and institutions which receive or administer Tri-Agency funds, and outlines three fundamental requirements:

For institutions:

> Institutional Strategies: Each institution shall create an institutional strategy outlining available resources for RDM, and identifying challenges and needs for the continued promotion and development of good RDM practice. Institutional strategies are required to be publicly available by **March 1, 2023**.

For researchers:

> Data management plans: grant proposals will be required to submit a data management plan (DMP) for consideration as part of adjudication. The Tri-Agency has begun identifying initial funding opportunities subject to this requirement as of **Spring 2022**.

> Data deposit: grant recipients will be required to deposit into a digital repository any research data, metadata and code that directly supports published research conclusions. It should be noted that the agencies expect that appropriate access to research data will be provided "wherever ethical, cultural, legal and commercial requirements allow," but grant recipients are not required to share data. **Following the review of institutional strategies**, the Tri-Agency will begin phasing in this requirement.

Purpose

The UNB Research Data Management Strategy has been developed to address the Tri-Agencies requirement for an institutional strategy, and to assist University of New Brunswick researchers in meeting the RDM-related requirements of the Tri-Agency, or those of any other funder or publisher.

The document identifies and describes services and resources currently available to the UNB community, as well as objectives to further develop RDM capacity at UNB. It was developed by UNB Libraries using:

- [RDM Maturity Assessment Model in Canada](#) (MAMIC)
- [Institutional RDM Strategy Development Template](#)
- [UNB Research Data Management Survey Report](#)

The services and resources described herein are available in support of any research conducted at UNB, by all members of the UNB community, whether faculty, staff or student.

This Strategy will be used by UNB Libraries Research Data Management Services Team and by other University committees and units to develop and maintain RDM services for the UNB community. As technologies, services, and the needs of researchers continue to evolve, UNB's Research Data Management Strategy will be reviewed and updated as required to foster the continued development of sound, responsible and sustainable data management practices at UNB.

Guiding Principles

UNB is committed to the continued development of skills and resources required to underlay a culture of excellence in research data management. The development UNB's RDM Institutional Strategy has been guided by the following principles:

- **Excellence**: Sound RDM practices help ensure that research "makes good use of public funds, experiments and studies are replicable, and research results are as accessible as possible." ([Tri-Agency RDM Policy](#))
- **Impact**: Good RDM practices serve to enhance research impact and productivity, helping to ensure that UNB research is "recognized nationally and internationally for its quality and impact" (*[UNB Toward 2030](#)*)
- **Engagement**: Research at UNB aims to create positive change regionally, nationally and internationally (*[UNB Toward 2030](#)*). Application of [FAIR Principles](#), ensuring that research data are Findable, Accessible, Interoperable, and Reusable, can help extend the reach and impact of UNB research and researchers.

- **Context**: Scholarly and scientific enquiry supports a wide range of methods, along with different standards and expectations for research data management ([Tri-Agency RDM Policy](#)). Disciplines and projects will vary in their needs and requirements for RDM.
- **Support**: UNB aims to reduce barriers for researchers in pursuit of appropriate RDM practices through a commitment to service and sustainable resources, and participation in the activities and initiatives of the wider RDM community.

Raising Awareness

Raising awareness of available RDM resources and promoting the principles of effective RDM among UNB researchers are essential steps in the development of a community of good RDM practice at UNB.

UNB's Stakeholder Communities

UNB Libraries coordinates and provides RDM services and infrastructure for UNB, led by an RDM Services Team of librarians and staff with experience in data management, repository systems and digital preservation, and with representation on both campuses. A Research Data Management Advisory Group, chaired by the Dean of Libraries, and comprised of members from stakeholder groups from across the university shall be formed to help inform the maintenance and development of RDM capacity at UNB, and to help promote the value of data management within the university.

RDM Community Involvement

Members of the RDM Services Team and ORS have attended Tri-Agency hosted RDM consultations and events, and members of the RDM Services Team are members of several RDM "expert groups" based within the Digital Research Alliance of Canada. Members of these units will continue to seek opportunities to engage with the Alliance, Tri-Agencies, and the greater RDM community as they arise.

Indigenous Data

Over the past few years, Indigenous Data Sovereignty has become an important topic raising fundamental questions about assumptions of ownership, representation, and control. First Nations, as sovereign nations and rights holders, have an inherent right to govern their peoples, lands, and resources. First Nations data sovereignty means First Nations data are governed by First Nations laws, protocols and policies. The [OCAP Principles](#) provide one possible framework for the RDM community to understand and respect First Nations collective rights to their data.

UNB acknowledges that data generated through research by and with First Nations, Métis or Inuit communities must be managed in accordance with data management principles and practices developed and approved by these communities. As recommended by the Tri-Agency RDM Policy, DMPs must be co-developed with these communities in accordance with RDM principles and DMP formats acceptable to them. Likewise, these communities will be asked to

guide and determine how data are collected, accessed, used and preserved, and will ultimately retain the right to repatriate them

The RDM Services Team and RDM Advisory will work with the Piluwitahasuwin (Assistant Vice-President Indigenous Engagement) to better understand and address the requirements for Indigenous knowledge, data, and information in the context of research data management.

Institutional Readiness

Institutional Support and Training

UNB Libraries host an RDM Services website, and members of the RDM Services Team have developed [guides and information pages](#) intended to introduce critical concepts, services and resources for RDM. Members of the RDM Services Team also regularly offer workshops and training events for faculty, staff and students within the UNB community. These resources will help guide UNB researchers on good data management practice in accordance with Tri-Agency principles, and aligned with emerging standards from the greater RDM community.

Data Management Planning

Data management plans (DMPs) describe how data will be collected and documented, as well as how they will be analyzed, stored, and disseminated, and possibly plans for preservation and sharing with others. The creation of a DMP is considered a best practice and can help researchers organize processes, respond to administrative needs (such as ethics approval), and fulfill requirements from funding agencies, including the Tri-Agencies.

The Digital Research Alliance of Canada provides access to the [DMP Assistant](#), an online data management planning tool developed by the Alliance, and designed in collaboration with the Canadian research community to address the needs of institutions and funders. UNB strongly encourages the use the DMP Assistant, and of the Alliance's associated guides and training resources. UNB Libraries will provide training and support in the use of the DMP Assistant, and will work with teaching faculty to provide training opportunities for students. Further guidance is available from UNB Libraries guide to [Data Management Planning](#).

Data Repositories

Research data should be deposited into a recognized digital repository, whether institutional, general, or community- or discipline-specific. Funding agencies and many publishers require deposit of research data, metadata and code that directly support the research conclusions in publications and pre-prints, normally by the time of publication. Disciplinary norms or researcher preferences may determine the choice of repository, but the repository must ensure "safe storage, preservation, and curation of the data."

It should be noted that grant recipients are not required to share data, and that data deposit does not preclude access to data from remaining restricted. Tri-Agency policy expects that researchers provide appropriate access wherever ethical, cultural, legal and commercial

requirements allow, and that data deposits should be linked to associated publications via a persistent identifier.

UNB provides access to a local data repository, UNB Dataverse, hosted by UNB Libraries and available to all UNB researchers. The UNB Dataverse repository provides controlled access to published datasets, robust descriptive metadata, and DOI registration provided by DataCite Canada through association with The Alliance. For large datasets, the Alliance-supported Federated Research Data Repository (FRDR) is available to affiliated researchers.

UNB researchers are not required to use either of these repositories. Where required, UNB Libraries will provide assistance in identifying and selecting appropriate alternative repositories, and will provide assistance with data deposit. Further guidance is available from UNB Libraries guide to Storing & Sharing your Data.

Data Archiving & Preservation

Digital preservation refers to the activities necessary to ensure continued access to digital materials "beyond the limits of media failure or technological change" (CODATA). Data deposit is not equivalent to digital preservation, but long-term preservation of digital research data may not be required or even desirable in all cases.

UNB Libraries and UNB Archives & Special Collections have adopted Archivematica for processing digital objects for long term local storage and preservation. UNB Libraries will develop policies and capacity for long-term preservation of research data for the UNB community.

Active Data Storage

During active or working stages of a project, researchers may require secure, accessible storage and backup solutions. Data management plans can be strengthened through careful consideration of storage requirements (space, length of time), where data will be stored, and how researchers and collaborators will be able to access them.

UNB Researchers employ a wide range of solutions, from peripheral devices to commercial services, to store and access research data during working stages. RDM Services Team will collaborate with ITS to develop institutional resources for active data storage.

Sensitive Data

Sensitive data refers to data that may be used to identify an individual, species, object, process, or location at risk of discrimination, harm, or unwanted attention. This may include personal data, proprietary data, and other restricted or confidential information that must be protected from unauthorized access. Most sensitive data cannot be shared, but there are exceptions.

When dealing with sensitive data, researchers may need to take additional measures to balance the need for data-sharing and access with that for protection from threats. See "Working with

[Sensitive Data](#),” from UNB Libraries, for a brief guide to some important considerations and strategies.

Objectives: Roadmap 2023-2026

While RDM support and infrastructure has been available to the UNB community for several years, UNB recognizes that these supports require attention and resources to continue to serve the research community. Further, important services and expertise will need to be developed as technology, community practice and the needs of researchers evolve. The following section identifies key areas and actions for the ongoing development of RDM services at UNB

Increase Awareness and Engagement with RDM at UNB
1. Establish a Research Data Management Advisory Committee, with due representation from stakeholders on both UNB campuses
2. Engage the Piluwitahasuwin (Assistant Vice-President Indigenous Engagement) to better understand and address the requirements for Indigenous knowledge, data, and information in the context of research data management.
3. Offer regular RDM workshops and training events for faculty, staff and students within the UNB community

Continue to develop and improve RDM services and infrastructure at UNB
1. Develop resources and strategy for long term preservation of UNB research data
2. Develop strategies for retention and disposition of sensitive data
3. Review and develop policies for the UNB Scholar and UNB Dataverse repositories, for the digital research outputs of the UNB community.
4. Pursue CoreTrustSeal certification for the UNB Dataverse repository
5. Explore solutions for working/active data storage for UNB researchers

Integrate RDM expertise in research initiatives and programs across UNB
1. Integrate research data management practices, especially data management planning, with appropriate forms, policies and procedures of UNB's Research Ethics Board
2. Develop closer collaboration between the RDM Services Team and the Office of Research Services to provide RDM-related guidance and support for grant applications.
3. Provide consultation services to UNB researchers for data management planning and deposit

Share, promote and preserve the university's research output
1. Develop processes for review and quality assurance to improve metadata accompanying deposits to the UNB Dataverse repository
2. Develop services for scholar profiles (ORCID) to better facilitate the sharing of scholarly research and publication metadata
3. Engage in efforts to connect our repositories to national/international initiatives and expose UNB's research data to a global audience

Oversight and Review

The UNB Research Data Management Strategy presents objectives for RDM services and infrastructure over a three-year period. During this time, UNB Libraries RDM Services Team, working in collaboration with the RDM Advisory Committee and other stakeholders, and reporting to the Dean of Libraries and the Vice President, Research, will be responsible for these objectives. This strategy is a living document and may be reviewed and updated as needed.

Resources

Tri-Agency RDM Policy: https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/tri-agency-research-data-management-policy

Federated Research Data Repository: https://www.frdr-dfdr.ca/repo/

FAIR Principles: https://www.go-fair.org/fair-principles/

First Nations Principles of OCAP: https://fnigc.ca/ocap-training/

UNB Dataverse Repository: https://dataverse.lib.unb.ca/

DMP Assistant: https://assistant.portagenetwork.ca/

UNB Libraries' Research Data Management Services: https://lib.unb.ca/rdm