NORTH ISLAND COLLEGE RESEARCH DATA MANAGEMENT STRATEGY

North Island College's Research Data Management Strategy (RDMS) serves to support research excellence by promoting sound data management and data stewardship practices.

This strategy document was prepared by NIC's Centre for Applied Research, Technology and Innovation (CARTI) and satisfies the first requirement of the Tri-Agency Research Data Management (RDM) policy. The purpose of the strategy is to guide the future of RDM at NIC to ensure researchers have the systems and supports needed to adopt responsible RDM practices. The NIC RDMS is not a policy, nor is it a pathway to open data sharing. It is a commitment to research excellence and a flexible roadmap for achieving sound RDM practices at NIC. We consider this strategy document as iterative and it will be updated as we grow our RDM capacity.

1. BACKGROUND AND PURPOSE

The Tri-Agency Research Data Management Policy[1] was released in 2021. The objective of this policy is to support Canadian research excellence by promoting sound RDM and data stewardship practices. To comply with this policy, North Island College and other Canadian universities and colleges must incorporate supports for data management in the following three ways:

1. Institutions must create an RDM Strategy in order to receive future research funding from the Tri-Agencies (NSERC, SSHRC, and CIHR)[2]. Colleges must notify the Agencies when the Strategy is complete as well as making it publicly available via their institutional website. The Agencies plan to implement their policy incrementally and institutional strategies are required by March 1, 2023.
2. Researchers will be required to incorporate DMPs (Data Management Plan) into Tri-Agency funding applications starting in Spring 2022. NIC will be required to bolster supports and resources to faculty to ensure they remain competitive for funding.
3. Finally, the Tri-Agencies will phase in a requirement for researchers to deposit their data in line with open access policies. This requires that faculty have

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[1] 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 (accessed Feb. 27, 2023)
[2] The Tri-Agencies include the Natural Sciences and Engineering Research Council of Canada (NSERC), the Canadian Institutes of Health Research (CIHR), and the Social Sciences and Humanities Research Council of Canada (SSHRC)

access to systems and services to store, describe, and archive their data in a way that other researchers/students can access and use.

2. IMPORTANCE OF RESEARCH DATA MANAGEMENT

'Research data management' (RDM) encompasses the storage of, access to, and preservation of data produced from research. Research data management practices cover the entire lifecycle of the data, from planning the research project to backing up data as it is created and preserving the data after the research has ended. It also includes data sharing, where applicable[3].

The ability to store, access, reuse and build upon research data is critical to advancing knowledge and innovation. Sound RDM practices make research more transparent and efficient and allow data to be shared effectively (where permitted and appropriate). Sound RDM practices mean that the data follow internationally recognized FAIR Principles[4] and are findable, accessible, interoperable, and reusable. Researchers, institutions, and all Canadians benefit from having research data findable/sharable as it enables collaboration and knowledge sharing within and between academic fields to solve challenges of the moment[5].

3. SCOPE

The RDM Strategy applies to all Tri-Agency grant-funded research projects undertaken by NIC employees and students. Where a research project was not funded by NSERC, SSHRC, or CIHR, this strategy document does not necessarily apply. However, NIC will still encourage all researchers to use RDM best practices.

4. NIC CONTEXT

North Island College is honoured to acknowledge the traditional territories of the combined 35 First Nations of the Nuu-chah-nulth, Kwakwaka'wakw and Coast Salish peoples, on whose traditional and unceded territories the College's campuses are situated.

Grant-funded research at NIC is managed through the Centre for Applied Research, Technology and Innovation (CARTI). All research involving humans must be approved through NIC's Research Ethics Board (REB). Other research activities at

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[3] Social Sciences and Humanities Research Council Definitions of Terms https://www.sshrc-crsh.gc.ca/funding-financement/programs-programmes/definitions-eng.aspx (accessed Feb. 27, 2023)

[4] FAIR Principles https://www.go-fair.org/fair-principles/ (accessed Feb. 27, 2023)

[5] Tri-Agency Statement of Principles on Digital Data Management https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/tri-agency-statement-principles-digital-data-management (accessed Feb. 27, 2023)

NIC that may not fall into these categories include independent research conducted by NIC staff/faculy, institutional research and course-based research.

Like other Canadian colleges, most funded research at NIC is undertaken in partnership with external industry/community partners. The resulting research data may be quantitative or qualitative and is often owned by the external partner(s). However, in accordance with the new Tri-Agency RDM policy, NIC must manage the collection, storage and preservation of all research data, regardless of ownership.

Build 2026 is NIC's strategic plan; it includes 26 commitments and 9 action statements spanning students, employees, college services, and communities. This RDM strategy contributes directly to Build 2026 commitments Strengthening the College and Serving Communities.

- Strengthening the College
    - Developing sound RDM practices at NIC will support research excellence by ensuring we remain competitive for research funding and that our researchers are meeting or exceeding best practices when it comes to research data.
    - RDM increases institutional transparency and accountability by making research data findable, accessible, and shareable when appropriate.
- Serving Communities
    - NIC collaborates with a wide variety of community research partners and is entrusted with the safe storage and preservation of research data. Expanding our RDM capacity will help build trust with our community partners, who will know their data is accurate, secure, and accessible.
    - RDM helps promote and disseminate our research with our communities and fosters new collaborations with other academic institutions, businesses, and community organizations.

5. GUIDING PRINCIPLES
- NIC recognizes OCAP and CARE principles related to Indigenous data and research
- NIC supports FAIR principles and recognizes that data have to be secure and accessible well into the future
- Data management planning represents a significant change for NIC researchers and NIC aims to support researchers and partners to navigate this landscape
- NIC will provide regular communication and encourage collaboration between service areas to best serve our research community

6. STRATEGY DEVELOPMENT TEAM
The RDM strategy implementation and review will be coordinated by CARTI. Our goal is for the RDM Strategy to reflect the needs of NIC specifically – informed by our

size, our scope of research activities, and our local communities and partnerships. To this end, the goals and activities outlined in our Strategy will be updated as we move forward and engage with stakeholders including but not limited to:

- NIC Leadership Team
- Research faculty and staff
- Research Ethics Board (REB)
- Information Technology (IT)
- Indigenous Education
- Institutional Research (IR)
- Library & Learning Commons (LLC)
- Industry/community research partners
- Student research assistants
- Planning and Standards Committee

7. RDM ROADMAP

The RDM Roadmap is divided into three phases:

Phase	Timeline for Completion
Phase 1: RDM Awareness and Engagement	1 year
Phase 2: Assess Existing RDM Supports	1—2 years
Phase 3: Establish RDM Goals and Implement Supports	2—4 years

The following sections present key goals, activities, responsible party(ies), and timelines for each phase. The goals in this strategy reflect the fact that RDM is still a new and evolving practice at NIC.

PHASE 1: RDM AWARENESS AND ENGAGEMENT

Objective	Tasks	Responsible Party(ies)	Timeline
Build RDM awareness and knowledge	- Meet with NIC Library to discuss roles and responsibilities around the RDM Strategy - Inform NIC researchers of the Tri-Agency policy and its current/future implications on research activities - Participate in a Canada-wide college chat group for knowledge sharing around RDM Strategy development - Attend BC Applied Research and Innovation Network (BCAIRN) and discuss RDM strategy development with other research institutions - Attend webinars hosted by the Digital Research Alliance of Canada on RDM strategy development - Create a 'living document' of RDM resources and training material (webinar links, report and policy links, Indigenous data sovereignty resources, etc.) - Set up an administrative account with DMP assistant	CARTI	Complete
Engage with stakeholders	- Create a list of stakeholder groups to engage further about RDM strategy and implementation - Invite stakeholders to focus group discussions and/or reach out to them individually	CARTI	In progress; 2023

Clarify RDM implications for Indigenous-owned data	• Consult with Indigenous Education team members on the Tri-Agency RDM policy as it pertains to research with Indigenous-owned research data • Hold informal discussions with Indigenous research partners about RDM and seek feedback on what NIC should consider when managing Indigenous data in a culturally appropriate way, emphasizing that input is optional and welcome at any time • Encourage OCAP® training for RDM stakeholders • Continue to engage with other colleges regarding best practices for managing Indigenous-owned data • Revise the RDM strategy to clarify implications for Indigenous-owned data and to incorporate feedback/input from stakeholder engagement	CARTI	2023-2024

PHASE 2: ASSESS EXISTING RDM SUPPORTS

Objective	Tasks	Responsible Party(ies)	Timeline
Assess current IT infrastructure	• Determine what IT services and infrastructure are available to NIC researchers related to data collection, storage, and preservation • Scan the RDM-related IT infrastructure being used at other colleges	CARTI, IT	2023-2024
Determine what data is being collected and how it is being stored	• Survey researchers (e.g. using a short anonymous online survey) to determine their current data collection/storage practices • Host informal discussions (e.g. lunch-and-learn sessions) about research data and RDM practices • Learn if/how NIC researchers are utilizing the available institutional supports	CARTI, research faculty, teaching faculty	2023-2024

| Scan existing NIC data policies and procedures | • Determine if/where the RDM Strategy fits within NIC's policy framework
• Consider whether RDM ought to fit within a larger Data Governance Policy for NIC | CARTI, IR, Planning and Standards Committee | 2023-2024 |

PHASE 3: ESTABLISH RDM GOALS AND IMPLEMENT SUPPORTS

Objective	Tasks	Responsible Party(ies)	Timeline
Establish goals for data collection, storage, and access	• Determine what 'goal state' RDM looks like for data collection and storage leading up to and during a research project • Determine what 'goal state' RDM looks like for data storage and accessibility after a research project is completed	CARTI and interested stakeholders	2024
Allocate resources to support RDM	• Seek internal or external funding/resources, as applicable, to support the implementation of RDM training, policy development, and IT upgrades	CARTI, Leadership Team	Ongoing
Upgrade IT supports	• Acquire and launch IT supports for RDM • Provide specific training for researchers on any new IT supports	IT	2024-2026
Provide ongoing RDM training for researchers and staff	• Provide training resources/coaching to researchers on DMPs for grant applications (e.g. through template documents, how-to videos, etc.) • Facilitate professional development opportunities by circulating RDM training courses and other offerings to NIC researchers • Support ongoing learning and discussion of RDM through open communication with stakeholders	CARTI	Ongoing

Establish institutional templates, procedures and best practices	• Create a DMP template specifically for NIC • Incorporate RDM and Data Management Planning into the REB application process • Establish Best Practices for data collection, storage, and preservation for researchers, with separate and specific reference to research with Indigenous partners and Indigenous-owned research data • If needed, position RDM Strategy within a broader Data Governance Policy for NIC	REB, CARTI	2024-2026

9. REVIEW

As the strategy tasks in the above tables are completed and/or revised, their status will be updated in this document. The revised strategy will be re-uploaded to the NIC website annually until 2025. In 2025, CARTI (in consultation with stakeholders) will reassess the review interval based on the state of RDM at that time.

APPENDIX A. DEFINITIONS

Agencies/Tri-Agency: The Tri-Agency is made up of the 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). They are a major source of research funding for post-secondary institutions across Canada.

Data Management Plan: A '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" (Tri-Agency Research Data Management Policy, Frequently Asked Questions, Government of Canada 2021).

Metadata: Metadata is data about data and is the information needed to make a dataset discoverable, citable, and usable by others.

Research: Research is creative and systematic work that is undertaken to increase knowledge in a particular area or discipline. It involves the collection, organization and analysis of information to increase understanding of a topic or issue.

Research Data: 'Research data' are data that are used as primary sources to support technical or scientific enquiry, research, scholarship, or creative practice, 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. Research data may be experimental data, observational data, operational data, third party data, public sector data, monitoring data, processed data, or repurposed data. What is considered relevant research data is often highly contextual, and determining what counts as such should be guided by disciplinary norms." (Tri-Agency Research Data Management Policy, Frequently Asked Questions, Government of Canada 2021).

Research Data Lifecycle: The points throughout the research process where data is conceived, created, collected, manipulated, stored, shared, archived and destroyed where Research data management practices must be considered and implemented.

Research Data Management: '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" (Social Sciences and Humanities Research Council Definition of Terms, Government of Canada 2021).

Data Deposit: 'Data deposit' refers to when the research data collected as part of a research project are transferred to a research data repository. The repository should

have easily accessible policies describing deposit and user licenses, access control, preservation procedures, storage and backup practices, and sustainability and succession plans. The deposit of research data into appropriate repositories supports ongoing data-retention and, where appropriate, access to the data. Ideally, data deposits will include accompanying documentation, source code, software, metadata, and any supplementary materials that provide additional information about the data, including the context in which it was collected and used to inform the research project. This additional information facilitates curation, discoverability, accessibility and reuse of the data.

Institutional Data: Institutional data refers to the personal data that students provide to North Island College (NIC) as well as program and course data. Personal data is collected under the authority of the College and Institute Act and section 26 of the Freedom of Information and Protection of Privacy Act (FOIPPA). Institutional data is used for the purpose of admission, registration, graduation, alumni development, research and other activities consistent with the mandate of the institution.