

Institutional Research Data Management Strategy



NorQuest College's Institutional Research Data Management Strategy

Purpose

Per the *Tri-Agency Research Data Management Policy*,¹ all postsecondary institutions and research hospitals eligible to administer Tri-Agency funds from the Canadian Institutes of Health Research (CIHR), Natural Sciences and Engineering Research Council (NSERC), or Social Sciences and Humanities Research Council (SSHRC) are required to create an Institutional Research Data Management Strategy (Strategy) by March 1, 2023. In spring 2023, NorQuest College was given formal permission to submit their Strategy by September 1, 2023 to ensure appropriate consultation was completed in advance of the Strategy's finalization. Funding bodies expect the research they fund to be conducted to the highest professional and disciplinary standards of which effective research data management (RDM) practices are an integral part. NorQuest College (College) is committed to meeting the requirements of the Tri-Agency policy and to supporting research of the highest standard. The College's Strategy will adapt over time as the institution's RDM goals and activities evolve, responding to the need of its community, disciplinary advances, and the wider RDM landscape in Canada.

Introduction

Research data management, or RDM, comprises the practices that guide the collection, documentation, storage, sharing, and preservation of research data throughout the lifecycle of a research project. These practices are

¹ Tri-Agency Research Data Management Policy. (2021). Retrieved on April 25, 2023, from <https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/tri-agency-research-data-management-policy>

enacted in various ways, and with varying levels of formality, by everyone who works with research data. The Strategy represents an effort to recognize the importance of research data as a distinct research product, and to begin the work of identifying, implementing, and supporting best practices in RDM at the College.

Data collected in the research process is an important research output requiring robust and efficient stewardship. It is important to the advancement of knowledge and the public return on investment in research funding that data generated through the research process be preserved, curated, and made accessible to other researchers where ethical, legal, and commercial obligations allow. This promotes transparent, verifiable, and replicable research practices; reduces cost by limiting the collection of redundant and/or overlapping datasets; increases the visibility and impact of research; and stimulates collaboration.

Indigenous Data Sovereignty and Research Involving the First Nations, Métis Peoples, and Inuit of Canada

The *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS 2) provides comprehensive guidelines for researchers working with First Nations, Métis peoples, and Inuit in Canada;² the College adheres to the statement as the *minimum* standard on which to develop ethical practices with Indigenous individuals and communities and acknowledges that the TCPS 2 is not intended to override or replace ethical guidance developed by Indigenous peoples. Research with, by, and for Indigenous

² TCPS 2 (2022) – Chapter 9: Research Involving the First Nations, Inuit, and Métis Peoples of Canada. (2022). Retrieved on May 1, 2023, from https://ethics.gc.ca/eng/tcps2-eptc2_2022_chapter9-chapitre9.html

communities—including research that is grounded in or engaged with Indigenous knowledges, lands, artifacts, and cultures—requires clear recognition of, and action supporting, Indigenous data sovereignty. The College will make this explicit and codify Indigenous data sovereignty in policy, procedure, and process. The College established basic guidelines for researchers working with Indigenous populations, or on Indigenous lands, in its 2022 *NorQuest College Guidelines for Research with Indigenous Peoples in Canada*, which will be further co-developed with Indigenous researchers, rights holders, and communities. This is an on-going conversation about Indigenous research at the College; the Strategy is only one part of that process.

The Strategy has been informed by the OCAP® principles³ (Ownership, Control, Access, and Possession) as outlined by the First Nations Information Governance Council, as well as the CARE principles⁴ (Collective Benefit, Authority to Control, Responsibility, and Ethics) as developed by the Global Indigenous Data Alliance. The College recognizes that these principles are only a starting place for researchers, not a checklist or an approval process. The Strategy is also informed by the guidance for Indigenous research prepared by SSHRC’s Indigenous Advisory Circle.⁵

The College takes a distinctions-based approach to research with Indigenous communities which integrates the legal, ethical, and cultural requirements of each community partner, conducting community-led research that recognizes the unique concerns, priorities, histories, cultures, rights, laws, and desired

³ The First Nations Principles of OCAP®. Retrieved on May 1, 2023, from <https://fnigc.ca/ocap-training/>

⁴ CARE Principles for Indigenous Data Governance. Retrieved on May 1, 2023, from <https://www.gida-global.org/care>

⁵ Social Sciences and Humanities Research Council: Indigenous Research. Retrieved on May 8, 2023, from https://www.sshrc-crsh.gc.ca/society-societe/community-communite/indigenous_research-recherche_autochtone/index-eng.aspx

outcomes of each group. Research is conducted with full engagement and collaboration with the communities involved, recognizing the rights of the community to their own data, and their rights to determine use, access, and preservation of their data. The interpretation and application of research data management principles may vary; the management of research data collected by, with, or about Indigenous peoples and communities or on Indigenous lands, will be governed by principles and practices co-developed with and approved by those communities on the basis of free and informed consent.

Research Partnerships and Applied Research

The College is a publicly funded post-secondary institution that undertakes a range of applied research in partnership with business, industry, government, and communities. Our applied research is community-engaged and partner-driven. We recognize that the data created through our research is important and may face unique requirements and complex considerations for determining its safe, ethical, and appropriate management. This includes consideration of:

- Research data collected with or about Indigenous persons, lands, and communities,
- With or about other equity-deserving populations,
- In partnership with community,
- On behalf of government,
- On behalf of business, industry, and not-for-profit organizations, and/or
- For the purposes of college or industry commercialization.

The management of the collection, use, disclosure, and security of research data will be governed by applicable provincial and federal legislation as a starting point, such as Alberta's *Freedom of Information and Protection of*

*Privacy (FOIP) Act*⁶ and Canada’s Anti-Spam Legislation.⁷ Additional guidelines and requirements may be agreed upon in conversation with partners, funders, and communities. These will be made clear at the earliest stage of the research possible, likely as a part of the research design process, and adhered to in every part of the research lifecycle thereafter. Indigenous research will require a different set of regulations—arrived at through collaboration with Indigenous partners and rights holders—to ensure their knowledge and data is properly respected, protected, and stewarded. Institutional data is not always considered research data (e.g., data collected during quality assurance (QA) and quality improvement (QI) projects), and may have different regulations regarding its collection and use.⁸ Even when ethics approval is not formally required for a QA/QI project, it is always important to establish and provide consistent and clear guidance around creating, accessing, and using data, while managing the associated risks, responsibilities, and legal obligations. This may include obligations imposed by research partners and interest holders. In the case of projects grounded in or engaged with Indigenous peoples, artifacts, cultures, lands, knowledges, etc., rights holders may require approval by an Indigenous research ethics board—or other approval processes—even when the project is considered a QA/QI/institutional project and would not traditionally require approval from an ethics board.

On occasion, applied research projects evolve from institutional research, QA/QI projects, or institutional datasets. When institutional data is used/

⁶ Retrieved on June 1, 2023, from <https://open.alberta.ca/publications/f25>

⁷ Retrieved on June 1, 2023, from <https://laws-lois.justice.gc.ca/eng/acts/E-1.6/index.html>

⁸ “Quality assurance and quality improvement studies, program evaluation activities, and performance reviews, or testing within normal educational requirements when used exclusively for assessment, management or improvement purposes, do not constitute research for the purposes of this Policy, and do not fall within the scope of REB review.” Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2. (2022). Retrieved on April 25, 2023, from https://ethics.gc.ca/eng/tcps2-eptc2_2022_chapter2-chapitre2.html#5

planned to be used in research, it becomes research data. The researcher then becomes subject to all the normal obligations of research, and the now-research data falls into scope of this Strategy, with the possibility of increased RDM obligations as discussed throughout the Strategy.

Consultations, Development, and Implementation of the Strategy

Like many post-secondary institutions with smaller research programs, NorQuest College recognizes that its RDM capacity and implementation is at the developmental stage. Current RDM practices are guided by the College's records storage requirements and the ethical data handling practices required by the Research Ethics Board (REB). Integrating RDM-specific best practices into the College's approach will require skill development, modifications of existing policies, procedures, and practices, development of new policies and processes, and strategic investment in institutional capacity and infrastructure. Long-term support to implement RDM best practices and ensure ongoing adherence to the Tri-Agency's RDM Policy will be maintained through the resources provided to the College's Research Office through college-provided funding and the federal Research Support Fund. Identifying, implementing, and supporting RDM best practices is a shared responsibility which involves people and departments from across campus. Key players who will be engaged with the Strategy on an on-going basis include but are not limited to: Research Office; Applied Research; Institutional Research; Business Intelligence; Business Technology Services; Information, Risk and Compliance (IRC); Office of Equity; Indigenous Student Services; Indigenous House of Learning; Alberta Indigenous Construction Career Centre (AICCC); Faculty members; and the Library.

Development of the Strategy began with several internal consultations. Starting in summer 2022, interest and rights holders gathered to identify and discuss the current state of RDM and RDM practices at the College, the changes necessary to align with the Tri-Agency requirements, and the

possibilities for building RDM capacity.⁹ Representatives self-assigned into three groups, representing those who create data, those who manage data policy and procedures, and those involved in technical operationalization and support. Using the MAMIC RDM assessment model,¹⁰ each group worked through the identified components to assess the College's current standing in key areas supporting RDM, including a range of specific features covering Institutional Policies and Processes, IT Infrastructure, and Support Services.¹¹ The current state and readiness of the College for embarking on the RDM Strategy was assessed and recorded across the MAMIC dimensions, setting a foundational level from which to build the plans to achieve the goals set out below.

Small group conversations continued through the fall and winter 2022, as specific requirements were identified. This included in-depth conversations with areas of the college that will be most impacted (e.g., Applied Research, the Research Office, IRC), and engagement in external institutional RDM strategy workshops and training sessions offered by ARMIN, the Tri-Agency, Portage, and the Digital Research Alliance of Canada, as well as conversations with data repositories. Drafts of the Strategy were circulated for internal review. Conversations and consultations continued throughout 2023,¹² and will continue, as the College refines understanding of the current

⁹ The following business areas were represented in this initial assessment activity: Applied Research; Institutional Research; Business Intelligence; Business Technology Services; Information, Risk, and Compliance; Office of Equity; Indigenous Student Services; Library; and Alberta Indigenous Construction Career Centre

¹⁰ Fry, Jane, et al., 2021. *RDM Maturity Assessment Model in Canada (MAMIC) Version 1.0*. Accessed electronically at: <https://zenodo.org/badge/DOI/10.5281/zenodo.5745493.svg>

¹¹ A fourth component of MAMIC—Financial Support—was assessed as part of research support services

¹² Further business areas were consulted, including the Indigenous House of Learning, and additional representatives from previous business areas were engaged with throughout the 2023 consultation process.

state of RDM, identifies opportunity for capacity building, determines priorities, and begins implementing the Strategy.

The College acknowledges that the Strategy is a living document that will continue to be assessed, evaluated, and modified in response to the changing landscape of RDM in Canada’s research community, changes to the Tri-Agency’s and funders’ expectations, and the College’s community, resources, and priorities. The Research Office will partner with relevant parties, including those mentioned above, to bring the Strategy to life through the ongoing implementation phase. A timeline will be built from an honest discussion about what is realistically possible for the College. Interest and rights holders will form working groups to achieve specific RDM goals through collaboration and to ensure the entire College is engaged as we bring the Strategy to life, together.

RDM Goals

The following sections should be interpreted as broadly stated goals for the College: they are signposts on the journey to developing and implementing RDM best practices and robust RDM supports across campus for the long term. The path to achieving these goals may vary. For some, a single department may take the lead. Others may require consultation of, or participation from, various interest and rights holders. The goals may shift over time as conditions change: this Strategy is only the beginning of the conversation about RDM’s role in research excellence at the College, and beyond.

PART A: RDM Awareness & Training

Objective	Current State	Goals
A.1 <i>Communication Strategy</i>	Data management communication and research communication is unified, but the college lacks a unified RDM communication as it	<ul style="list-style-type: none">Collaborate with relevant parties to create and implement a communication plan that guides information dissemination regarding RDM at the College

	is a new requirement	<ul style="list-style-type: none"> • Ensure the communication plan includes a significant advocacy component
A.2 RDM Policies & Procedures	Existing policies and procedures address research data handling and college data management, but no specific RDM-specific policies or procedures currently exist. Further, research policies and procedures are in the process of being updated.	<ul style="list-style-type: none"> • Complete research policy and procedure review, ensuring existing documents acknowledge RDM as a component of research excellence, and expanding the scope of existing documents to cover RDM-related topics where relevant and necessary • Collaborate with Indigenous rights holders on an ongoing basis to guide the codification of Indigenous data sovereignty at the College • Update the College’s <i>Guidelines for Research Involving Indigenous Persons in Canada</i> • Update data management policies and procedures and, where necessary create new RDM-related workflows, guidelines/protocols, policies, and procedures, following established processes, and in consultation with IRC and other interest and rights holders
A.3 RDM Education	RDM-related education is ad hoc and embedded within existing research training requirements (e.g., TCPS2 Core training)	<ul style="list-style-type: none"> • Identify training needs, desired learning outcomes, and timetables for staff, students, and faculty alike, including training needs around existing governance (e.g., data retention, disposal, archiving, etc.) • Assess existing RDM education resources, promote suitable materials according to the communication strategy, and identify gaps and/or additional needs • Create, promote, and/or deliver college-specific RDM resources, both in-person and asynchronous, which fill education gaps and affirm the importance of RDM

		<ul style="list-style-type: none"> Consider how RDM practices might be usefully integrated into curriculum, as appropriate and in support of applied research opportunities in programming
A.4 Indigenous RDM (I-RDM) Training	OCAP® course and other Indigenous-specific RDM training has been taken on an ad-hoc basis by researchers	<ul style="list-style-type: none"> In partnership with Indigenous rights holders, identify relevant and appropriate I-RDM training needs for groups including students, staff, faculty, researchers, and the larger community (e.g., external researchers wanting to conduct research at the college). Consider the need for obligatory training activities and/or review processes for researchers who may be working with, or who may want to work with, Indigenous communities or on Indigenous land Fulfill educational needs through the delivery and/or promotion of existing I-RDM training materials, or by developing new ones through appropriate partnerships

PART B: RDM Infrastructure & Support

Objective	Current State	Goals
B.1 RDM integration in REB application and approvals	Descriptions of proposed project DMPs are required in REB applications. RDM best practices are touched-on in REB review and approval process but are not yet formalized	<ul style="list-style-type: none"> Work with the College’s REB to ensure RDM is considered during the approval process and that researchers are expected to adhere to best practices Leverage the ethics approval process as an education opportunity for researchers, support staff, and others

<p>B.2 Data Management Plans (DMPs)</p>	<p>DMPs are not currently an internal or external requirement, except for select grant funding calls; ad hoc support is available for researchers upon request</p>	<ul style="list-style-type: none"> • Consider acquiring an institutional account on the DMP Assistant should DMPs become common proposal requirements • Evaluate the need for institutional templates for DMPs, especially in the case of Indigenous research projects • Ensure training needs are met regarding DMPs and funder requirements • Liaise with the College’s REB to determine whether DMPs will become an internal requirement for REB review, internal funding, etc.
<p>B.3 Access to Research Data Repositories</p>	<p>Research data is centrally stored as per the Records and Information Management Policy and associated procedures, but access to the data is extremely limited. Currently, the College does not have an approved institutional research data repository; guidance for researchers</p>	<ul style="list-style-type: none"> • Update policies and procedures, and create appropriate guidelines and/or workflows for data deposit to internal and external research data repositories which adhere to the FAIR principles¹³ • Acquire access to an existing research data repository, e.g., Borealis • Determine the need for alternative guidelines about the deposit of Indigenous research data, including the need for alternate repositories¹⁴

¹³ FAIR Principles. Retrieved on May 1, 2023, from <https://www.go-fair.org/fair-principles/>

¹⁴ For research conducted by and with the communities, collectives, and organizations of First Nations, Métis Peoples, and Inuit, these communities, collectives, or organizations will guide and ultimately determine how data is collected, used, and preserved, and have the right to repatriate their data. This could result in alterations to any data deposit guidelines/workflows, or a full exception to the data deposit requirement

	looking to deposit data is provided upon request.	<ul style="list-style-type: none"> • Evaluate the need for data curation support services beyond those provided by the contracted repository • Consider whether there is a need for a NorQuest-managed institutional repository
B.4 Data Security, Privacy, and Protection	There are established practices and processes governing data security, storage, and recovery	<ul style="list-style-type: none"> • Collaborate with Information, Risk, and Compliance Services (IRC), Business Technology Services (BTS), and others to review existing practices and identify any gaps pertaining to implementing RDM requirements and best practices, e.g., guidelines for data deposit • Continue to ensure that FOIP is followed in all cases regarding the collection, use, disclosure, and security of personal information • Support requests for legal review when required or necessary • Review Legislative Compliance requirements as part of the college's annual LC process • Use the College's Enterprise Risk Management (ERM) when appropriate
B.5 RDM Support(s) and Services	Various departments provide	<ul style="list-style-type: none"> • Continue the collaborative efforts between people and departments at the College, including the possible establishment of working groups to tackle RDM goals • Continue to work with Records to assist in following applicable policy and procedures • Evaluate the need for roadmaps that guide researchers and projects through the research lifecycle,

	RDM-related input and support ¹⁵	highlighting what supports are available throughout the process
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¹⁵ This list includes, but is not limited to, the Research Office, Applied Research, Institutional Research, Business Intelligence, Business Technology Services, Information, Risk and Compliance, Office of Equity, Indigenous Student Services, Indigenous House of Learning, Library, and Alberta Indigenous Construction Career Centre.

