

TRIUMF Institutional Research Data Management Strategy

March 1, 2023

BACKGROUND

In March 2021, 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 of Canada \(SSHRC\)](#) (the “**Agencies**” or “**Tri-Agency**”) released their [Research Data Management \(RDM\) Policy](#) (the “**Tri-Agency Policy**”), with the objective of supporting Canadian research excellence by “promoting sound RDM and data stewardship practices”. The Agencies expect the research they fund to be “conducted to the highest professional and disciplinary standards, domestically and internationally” and believe that research data collected through the use of these funds should be “responsibly and securely managed” and be “available for reuse by others” where ethical, legal and commercial obligations permit.

The Agencies require each post-secondary institution and research hospital eligible to administer CIHR, NSERC or SSHRC funds to implement the Tri-Agency Policy incrementally in three steps:

1. **Institutional Strategy:** Institutions are to create an institutional RDM Strategy, post it and notify the Agencies when it has been completed.
2. **Data Management Plans (DMP):** The Agencies will identify the initial set of funding opportunities subject to the DMP requirement.
3. **Data Deposit:** The Agencies will phase in the deposit requirement after reviewing the institutional strategies and in line with the readiness of the Canadian research community.

Representatives from the Office of Research Services (ORS), Information Systems and Technology Department (IS&T) and the Quality Department (document control) met with Division Directors (equivalent to faculty deans), the Head Scientific Computing and the Deputy Director of Research (equivalent to VP Research) initially in 2021 to assess institutional RDM. Prior to this meeting, the Quality Department, through Divisional representatives, had solicited feedback on identifying files and systems that are important and embarked on an exercise to categorize information, based on sensitivity and security levels in TRIUMF’s information storage and retrieval system, Docushare. A number of gaps were identified, including identifying all platforms where data are being stored, cataloguing and categorizing the data on these platforms, and assessing whether or not those platforms are secure.

GUIDING PRINCIPLES

TRIUMF, as a research-intensive institution, generates research data on a daily basis and values data as strategic assets. It collaborates with universities and institutions across Canada and around the world on projects ranging from particle and nuclear physics to materials science to life sciences, and participates in international experiments. As an NSERC-eligible institution, it has established institutional policies that comply with the [Tri-Agency Framework: Responsible Conduct of Research](#) (2021), the [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans](#) (2022), and other applicable policies

and procedures, such as the TRIUMF Controlled Goods Program, Trade Compliance Policy, Intellectual Property Policy, Information Security Categorization, Acceptable Use Policy and the TRIUMF Security Policy.

The purpose of this TRIUMF RDM Strategy (the “**Strategy**”) is not only to comply with the Tri-Agency Policy but also to foster a culture of, and develop capacity that supports researchers in, adopting responsible data stewardship practices that make research data findable, accessible, interoperable and reusable, leveraging [FAIR principles](#).

As part of the Strategy, TRIUMF will continue to develop its research data governance policies and program, which will provide clear guidance on data definition, stewardship, management, use, access and retention. These policies will consider current best practices and be reviewed on a regular basis. TRIUMF will also continue to encourage all researchers to incorporate RDM practices into their programs of research in accordance with the principles outlined in the [Tri-Agency Statement of Principles on Digital Data Management](#), by promoting the importance of RDM and providing support through training and services.

This Strategy document has been developed using the [Portage Institutional Research Data Management Strategy Template](#) (now fully integrated into the operations of [Digital Research Alliance of Canada](#)).

RDM STRATEGY

I. Awareness

TRIUMF is a small institution by university standards, with about 65 eligible principal investigators (equivalent to university faculty) out of 600 employees. There are three science divisions, each with varying data management needs, and identifying the appropriate stakeholder groups is essential in delivering effective RDM services. The implementation of this Strategy needs to go through the TRIUMF project governance process (TSOP-15) as an operational commitment, and an official task force shall be struck, comprising a project sponsor (one of the science division directors), a project manager, representatives from Information Systems and Technology and Office of Research Services, the Head of Scientific Computing and the Senior Document Controller (the “**RDM Task Force**”).

Once the RDM Task Force is in place, RDM champions in each science division will be recruited and together, materials and resources for different stakeholder groups will be developed with the assistance of the Communications department, and the delivery mechanisms determined.

It is anticipated that a new Data Governance Lead will be appointed to take ownership of reviewing the Strategy on an ongoing basis, including developing implementation plans as well as communicating to the entire TRIUMF community on ongoing RDM developments. This individual will also seek opportunities to participate in Tri-Agency consultations that are offered.

II. Institutional Readiness

Several TRIUMF researchers are part of collaborations which have sound RDM strategies in place, including open data policies. However, TRIUMF is at the very early stages of implementing this Strategy. An ideal state for TRIUMF will be to establish a full data life cycle management program.

To start, a proper identification and review of the research data landscape and management practices at TRIUMF needs to be performed, as well as an assessment of RDM capacity. This includes the need to address and determine the following: more comprehensive data categorization and their definitions, source of truth of each category, data literacy, data ownership, access and use rights, management and retention, sensitivity of the data and the level of protection required. It needs to also include a review of and decision on device and software management. The RDM Task Force may elect to use the [RDM Maturity Assessment Model in Canada \(MAMIC\)](#) as a tool.

Concurrently, the RDM Task Force will need to assess the applicable legal and regulatory requirements, policies, processes and resources required to comply with the Tri-Agency Policy, and make a recommendation to the TRIUMF Leadership Team on the Road Map as outlined in Section IV. The foregoing assessment will include an evaluation of: the resources required to provide institutional support and training for adopting RDM best practices and developing data management plans; data repository services; data management infrastructure; the responsibilities for developing additional institutional policies and procedures; and a budget.

In consultation with the Manager, Training and Development, the Data Governance Lead will propose either developing training modules in-house or outsourced to service providers, or a combination of both. Member Universities will also be consulted to see if their training resources can be leveraged.

In addition to the above, it is acknowledged that each area of research will have unique and independent requirements in regards to identifying, categorizing and managing research data. To help implement the Strategy and comply with the Tri-Agency Policy, it would be necessary to ensure each area designates individuals (“**data stewards**”) to monitor and manage the data life cycle at a localized level while also engaging in, informing and complying to institutional data governance policies and procedures.

III. Formalizing RDM Practices

The Data Governance Lead will take ownership of formalizing RDM practices at TRIUMF. As provided in Section II above, as gaps are identified and captured, a formal data governance policy, as well as procedures identified by champions and data stewards, will likely have to be developed. These would address data quality and standards, data literacy, data access and sharing, data management, retention and long-term preservation, repository requirements and selection, data sovereignty (including indigenous consultation requirements, as applicable) and considerations for local versus cloud hosting. These will take into consideration existing privacy, ethics, intellectual property, security and other policies and the Data Governance Lead will ensure alignment with those policies.

RDM practices will need to be further formalized through the integration of supports and incorporation into the workflow of researchers and service areas. Service area workflows will be addressed by IS&T and ORS.

Regarding the development of data management plans, the ORS will document RDM supports available for researchers, such as the training modules mentioned in Section II above, and the process researchers need to follow in order to confirm funding agency RDM requirements have been met.

IV. Roadmap

Prior to the appointment of a Data Governance Lead, the CIO will be responsible for IS&T responsibilities. The dates provided in the table below are current best estimates, and the roadmap will be assessed and re-evaluated on an annual basis. Success will be measured by way of:

- Establishing data quality scores and tracking improvement over time
- Awareness of developed data governance policies, procedures and guidelines via training programs
- Adherence to data governance policies, procedures and guidelines
- Identification of risk events related to RDM and reduction in events over time

DATE	ACTIVITY	RESPONSIBILITY
Apr 2023	RDM Task Force established with terms of reference.	CAO, with CIO and Head ORS
May 2023 to Apr 2024	<ul style="list-style-type: none"> • Assess current practices, current supports, and consult with stakeholder groups to identify gaps and possible solutions. • Appoint Data Governance Lead 	<ul style="list-style-type: none"> • RDM Task Force • CAO, with CIO and Head ORS
Jun 2024	Present to Leadership Team more detailed Roadmap with proposed solutions, including budget for resources and proposed owners of activities	RDM Task Force and Data Governance Lead
Aug 2024	Approval of detailed Roadmap	Leadership Team
Oct 2024	<ul style="list-style-type: none"> • Begin implementing RDM Roadmap • Begin drafting data governance policy • Source financial and other supports for RDM and training 	<ul style="list-style-type: none"> • Data Governance Lead, IS&T, ORS, Quality • Data Governance Lead, CIO, Technical Policy Writer • ORS
Oct 2025	Review of RDM Roadmap – assess gaps and update Roadmap.	RDM Task Force and Data Governance Lead
Annual	Ongoing review of RDM practices	Data Governance Lead