



**DALHOUSIE
UNIVERSITY**

Institutional Research Data Management Strategy

Sponsor:
Vice-President
Research &
Innovation

Approval Date:
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Committee

Responsible Unit:
Dalhousie
University Libraries

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A. Background and Purpose

A Research Data Management (RDM) Advisory Committee was formed in 2017 by the Dean of Libraries to develop an Institutional RDM Strategy, comprised of members from across the University: Dalhousie Libraries including Academic Technology Services, Office of Research Services, faculty members, Dalhousie Analytics, Information Technology Services, and the Legal Counsel Office, along with a representative from Portage (Digital Research Alliance of Canada). Using the template¹ and guidelines² from Portage, the RDM Advisory Committee commissioned a small working group to create the initial draft. From there, the draft received input from the RDM Advisory Committee, DRAC and Deans' Council before receiving final approval from the Provost Committee (in November 2019). The strategy was updated in 2021 in consideration of the requirements outlined in the newly released Tri-Agency Research Data Management Policy. Formatting and style was derived from the University of Bath Roadmap for EPSRC³.

The purpose of the *Institutional Research Data Management (RDM) Strategy* is to foster a culture and develop capacity that supports researchers in adopting responsible RDM practices, following the FAIR Principles⁴ to make research data findable, accessible, interoperable and reusable. The FAIR principles are complemented by the internationally endorsed CARE Principles for Indigenous Data Governance (collective benefit, authority to control, responsibility, and ethics), and by the First Nations principles of OCAP[®] (ownership, control, access, and possession)⁵. With respect to Indigenous data sovereignty, the

¹ Portage Network. (2020). *Institutional research data management strategy template document*. Vol. 2.0. Retrieved from <https://doi.org/10.5281/zenodo.4558230>

² Portage Network. (2020). *Institutional research data management strategy guidance*. Retrieved from <https://doi.org/10.5281/zenodo.4558229>

³ Lyon, L. & Pink, C. (2012). *University of Bath Roadmap for EPSRC: Compliance with research data management expectations*. Retrieved from <https://researchportal.bath.ac.uk/en/publications/university-of-bath-roadmap-for-epsrc-compliance-with-research-dat>

⁴ Wilkinson, M. D. et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, 3, 160018. <https://doi.org/10.1038/sdata.2016.18>

⁵ First Nations Information Governance Centre. *The First Nations Principles of OCAP*. Retrieved from <https://fnigc.ca/ocap-training/>.

Tri-Agency RDM Policy states: “For research conducted by and with First Nations, Métis and Inuit communities, collectives and organizations, these communities, collectives or organizations will guide and ultimately determine how the data are collected, used and preserved, and have the right to repatriate the data.” Dalhousie recognizes these rights and like the agencies also understand that “a distinctions-based approach is needed to ensure that the unique rights, interests and circumstances of the First Nations, Métis and Inuit are acknowledged, affirmed, and implemented.”⁶

This document will be used by the Libraries, specifically the RDM Team, comprising librarians, library staff, archivists, systems developers, and Academic Technology Services (ATS) colleagues, when developing and reviewing services and policies. The Libraries will consult with other units, including ORS, on an as-needed basis to support new or changing services and policies.

The roadmap portion of the document will be reviewed and assessed by the RDM Advisory Committee every two years. Indicators of success will be developed to measure progress, and may include usage statistics, research demand and satisfaction, and more. The RDM Advisory Committee will consult with the Coordinator of Assessment and Portage staff members to assist with developing an assessment plan.

B. Definitions

Abbreviations and terms used in this strategy are listed below.

- ❖ **the Alliance** – Digital Research Alliance of Canada
- ❖ **ATS** – Academic Technology Services, Dalhousie University Libraries
- ❖ **DMP** – Data management plan
- ❖ **DRAC** – Dalhousie Research Advisory Committee
- ❖ **ORS** – Office of Research Services, Dalhousie University
- ❖ **Research Data** – Data that are used as primary sources to support technical or scientific enquiry, research, scholarship, or artistic activity, 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. All other digital and non-digital content have the potential of becoming research data. Research data may be experimental data, observational data, operational data, third party data, public sector data, monitoring data, processed data, or repurposed data⁷.
- ❖ **Research Data Management (RDM)** – Data management refers to the storage, access and preservation of data produced from a given investigation. Data management practices cover the entire lifecycle of the data, from planning the investigation to conducting it, and from backing

⁶ Government of Canada (2021). *Tri-Agency Research Data Management Policy*. Retrieved from http://www.science.gc.ca/eic/site/063.nsf/eng/h_97610.html

⁷ CASRAI. (2015). *Research data*. Retrieved from <https://casrai.org/term/research-data/>

up data as it is created and used to long-term preservation of data deliverables after the research investigation has concluded. Specific activities and issues that fall within the category of data management include file naming conventions; data quality control and quality assurance; data access; data documentation (including levels of uncertainty); metadata creation and controlled vocabularies; data storage, data archiving and preservation; data sharing and reuse; data integrity; data security; data privacy; data rights; and notebook protocols (lab or field)⁸.

C. Strategy and Roadmap

1. Raise awareness

Identifying stakeholders and providing appropriate resources and materials is essential in delivering effective RDM services. Local RDM champions at Dalhousie University, such as researchers and staff, are instrumental in helping to promote the value of RDM and can assist in outreach and communication. Examples at Dalhousie University may include the School of Information Management, the Faculty of Computer Science and the ORS. The Dalhousie Libraries is the coordinating unit for RDM services and infrastructure because there are librarians and staff with skills and responsibilities in copyright, data, scholarly communications, RDM, and storage and preservation technologies. The Libraries are also involved in national and international RDM initiatives, linking Dalhousie to international standards and best practices.

Raise Awareness				
Objectives	Ongoing Practices & Supports	Gaps & Resources Required	Timeline	Responsibility
1.1 Identify stakeholder communities on campus	The RDM Advisory Committee was formed in 2017, with stakeholders from across the University. Members include faculty, Dalhousie Legal Services, Libraries, ATS, ITS, Analytics, and ORS. The Libraries also have an RDM Team.	The RDM Advisory Committee should include a representative from Graduate Studies.	Ongoing	Libraries, ORS (supporting the RDM messaging, and directing researchers to the resources available at the Libraries)
1.2 Recruit local champions to help promote the value of RDM and engage with various communities	The RDM Team has representatives from various offices (ORS, ATS), and includes a faculty and a staff member who are RDM champions and sit on the RDM Advisory Committee. The Team is working with units across the University to champion RDM and continues to seek out partners.	Need to ensure continued consultation and communication with the faculties.	Ongoing consultation	Libraries, ORS

⁸ CASRAI (2015). *Research data management*. Retrieved from <https://casrai-test.evision.ca/glossary-term/research-data-management/>

	The RDM Team provides RDM liaison librarian training sessions to assist in outreach and 2 librarians sit on the Ethics Board.			
1.3 Develop awareness materials and resources for different communities	The Libraries host an RDM website and subject guide with links to Portage resources, video for the DMP Assistant, and Dataverse resources. The Libraries do a variety of outreach including individual consultations, online webinars, in-person class/group instruction and Research Bootcamp for graduate students/RAs.	A consolidated location that contains resources for “local” data sharing and storage options at Dalhousie University. Human resources to develop and review materials.	Short term for initial material development (1 year) Ongoing	Libraries including ATS
1.4 Determine and apply the appropriate delivery mechanisms for outreach	The RDM Team provides outreach on request and during events held by the Libraries. Online options and recording of sessions extend the Team’s reach. Events and information are also communicated through bimonthly RDM Team meetings, social media and the ORS Newsletter.	No formal outreach/communications plan or awareness of outreach preferences. The RDM Team is developing an events calendar and additional communication mechanisms continue to be explored.	Ongoing	Libraries, ORS (posting RDM info in the ORS Newsletter linking to RDM resources on the ORS website. Also adding an RDM question to the electronic Checklist)
1.5 Participate in any future Tri-Agency consultations around RDM	Participated in the Feb.15 th 2018 Tri-Agency consultations, representatives met with ORS and the Libraries. The agencies also made a presentation to the University and the University submitted a response to the draft policy. The RDM Team is monitoring Tri-Agency announcements, and will participate in consultations as opportunities become available.	Will require cooperation among Libraries, ORS, and researchers.	Ongoing. Waiting on Tri-Agency pilot project as of October 2021	Libraries, ORS
1.6 Participate in national RDM consultations and events	VPRI and Associate VPRI, Dean of Libraries, faculty members and Associate Deans attend national fora, and ISED consultations.		Ongoing	ORS, Libraries, Faculties

2. Assess Institutional Readiness and define the ideal state for RDM

2.1 An institutional RDM strategy includes an assessment of institutional readiness. This includes identifying and reviewing the data landscape at Dalhousie University and assessing existing capacity for RDM. It is also important to define the ideal state for RDM at Dalhousie University. An ideal state for RDM at Dalhousie is defined as: At Dalhousie University, researchers will be aware of the supports available to assist them in best data management practices and planning. Researchers will be aware and know how to access appropriate data management planning tools, repositories, and resources.

Assess Institutional Readiness				
Objectives	Current Practices & Supports	Gaps & Resources Required	Timeline	Responsibility
2.2 Undertake a survey of institutional data assets and data management practices on campus	The RDM Team completed a survey on RDM practices at Dalhousie University in 2019. Survey results are being used to shape future services and supports. Data management practices vary widely across campus. Institutional data assets include: infrastructure (Dataverse, DMP Assistant, DalSpace, Archivematica), consulting & training services (Dalhousie Libraries). The Libraries are involved with other University wide initiatives to better understand Dalhousie's data assets and practices (e.g. Core Facilities Project, Digital Strategy).	Users' needs change; additional capacity will be required to continue to conduct research.	Medium term (1–2 years)	Libraries
Objectives	Current Practices & Supports	Gaps & Resources Required	Timeline	Responsibility
2.3 Evaluate existing RDM services				
2.3.1 Data Management Plans	Created a short training video now used by Portage. The Libraries have adopted Portage's DMP Assistant tool and developed custom templates. Conduct regular training sessions on RDM & DMP Assistant at events like Scholarship @ Dalhousie, Research Bootcamp. ORS's Researcher Checklist asks if researchers have DMPs and contains links to resources. This can be used for assessment (ie. How many grants were submitted with DMPs) and as a referral mechanism to library supports.	All grant proposals submitted to the Tri-Agency should include methodologies that reflect best practices in RDM and DMPs will be required by spring 2022. Dedicated personnel are required to develop incentives and policy/procedures, to encourage RDM best practices and to develop custom guidance on DMP Assistant.	Ongoing	Libraries (including ATS), ORS
2.3.2 Institutional support and training	RDM Team members participate in regional and national groups such as CAUL, Portage, the Alliance, and CARA, and are internationally involved with RDA, and IASSIST. The Libraries provide training in regularly scheduled events such as Open Access Week, Research Bootcamp and Scholarship @ Dal. They also provide training upon request and during information literacy sessions and special events such as the CAUL RDM Forum. There is expertise in the areas of copyright, scholarly communications, data, GIS and academic technology. The	Dedicated personnel are required to continue to develop and deliver training materials and participate in regional and national organizations. Financial resources may be required to fund permanent positions and train in the areas of metadata and data anonymization.	Ongoing	Libraries, ORS

	University also has expertise in legal, ethical and intellectual property.			
2.3.3 Data repositories and archiving	Dalhousie University is a participating member of Scholars Portal Dataverse and hosts an institutional repository (DalSpace). Dalhousie University has access to FRDR for large data hosting, and offer guidance on selecting subject specific repositories.	Additional capacity needed to manage repository upgrades — can be time consuming and frequent, and to train people in using data repository. Dedicated personnel and technology to implement connection between Dataverse and Archivematica (in development as of October 2021). Dedicated personnel needed to develop policies for using repositories. Financial resources required for Dataverse and other software.	Medium term (1–2 years)	Libraries (specifically ATS)
2.3.4 Institutional policies, guidelines and/or procedures	The RDM Team have created internal procedures related to graduate students’ use of Dataverse and adopted Quick Guide Guidance prepared by UBC. Currently have policies related to RDM, but none specific to RDM. Examples include: <i>Records Management Policy, Ethical Conduct of Research Involving Humans Policy, Scholarly Misconduct Policy, Dalhousie Fair Dealing Guidelines, Dalhousie Dataverse Terms of Use</i> . Application of the CARE Principles for Indigenous Data Governance and the First Nations Principles of OCAP require consultation and consideration in relation to existing policies.	Additional capacity required to develop policies for data repository (i.e. data collection, long term data preservation, etc). RDM Team members are part of various Portage working groups. Additional capacity required for consultation process with Indigenous researchers, Indigenous communities, and with the Indigenous Advisory Council specifically.	Long term (2–3 years or more)	RDM Advisory Committee
2.4 Identifying gaps in the existing RDM environment	The RDM Team’s University wide RDM survey identified strengths as well as gaps. Additional gaps to be identified through consultation with stakeholders	Awareness of active storage solutions. Formal procedures for DMP submission with Tri-Agency funding applications needs to be determined.	Ongoing	ORS, ITS, Libraries

3. Formalize RDM practices

The *Tri-Agency RDM Policy* is not an open data policy⁹. However, it does require formalized RDM practices, as do other funding agencies, publishers and some Research Ethics applications. Dalhousie University has policies that may contain aspects related to RDM, including: *Data Access Policy*, *Records Management Policy*, *Ethical Conduct of Research Involving Humans Policy*, and *Scholarly Misconduct Policy*.

In order to formalize responsible RDM practices, Dalhousie University may want to develop additional policies related to RDM. Some of these policies may be related to the data repository and include data quality and standards, data retention, and long-term data preservation. With respect to creating data management plans, Dalhousie University through the ORS and Libraries will document RDM supports available for researchers and the process researchers need to follow in an effort to confirm funding agency RDM requirements have been met. In addition, Dalhousie University may wish to develop policies related to unfunded research and student research, including undergraduate and graduate. As an outcome of Dalhousie's new Digital Strategy, the University's digital governance is being reviewed and updated. It is likely that there will be a data governance policy created, or the current Data Access Policy will be expanded beyond the current scope – limited to institutional administrative data -- to consider RDM and other data management roles and responsibilities.

Some gaps in policy can be filled by continuing to work with regional and national groups who are collaboratively developing resources, services, infrastructure and policy related to RDM, and with those leading Indigenous Data Governance initiatives. Policy development is a long-term goal that will be developed in partnership with various groups across campus.

V.5 approved by DRAC and Deans' Council, October/November 2019

V.6 approved by Provost's Committee, November 26, 2019

V.7 minor revisions approved by RDM Advisory Committee, October 2021

⁹ Government of Canada (2021). *Tri-Agency Research Data Management Policy*. Retrieved from http://www.science.gc.ca/eic/site/063.nsf/eng/h_97610.html