

 DALHOUSIE UNIVERSITY Institutional Research Data Management Strategy	Sponsor: Vice-President Research & Innovation	Approval Date: November 26, 2019 by Provost's Committee
	Responsible Unit: Dalhousie University Libraries	Revisions: Version 6, November 26, 2019.

A. Purpose

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 Principles¹ to make research data findable, accessible, interoperable and reusable. The FAIR principles are balanced by the CARE Principles for Indigenous Data Governance² with considerations for collective benefit, authority to control, responsibility, and ethics.

In 2018 the Canadian Tri-Agencies released a draft of the *Tri-Agency Research Data Management Policy for Consultation*, which will require institutions to create an institutional RDM strategy³. This strategy complies with that requirement.

In 2017, an RDM Advisory Committee was formed by the University Librarian to develop an Institutional RDM Strategy, comprised of members from across the University including: 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 the Portage Network. Using the template⁴ and guidelines⁵ from the Portage Network, the RDM Advisory

¹ Wilkinson, M. D. et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, 3, 160018. doi:10.1038/sdata.2016.18

² Global Indigenous Data Alliance (2019). *CARE Principles for Indigenous Data Governance*. Retrieved from <https://www.gida-global.org/care>

³ Government of Canada (2018). *Draft tri-agency research data management policy for consultation*. Retrieved from http://www.science.gc.ca/eic/site/063.nsf/eng/h_97610.html

⁴ Portage Network. (2018). *Institutional research data management strategy guidance document*. Retrieved from <https://portagenetwork.ca/wp-content/uploads/2018/03/Portage-Institutional-Strategy-Guidance-v4-EN.pdf>

⁵ Portage Network. (2018). *Template – institutional research data management strategy*. Retrieved from <https://portagenetwork.ca/wp-content/uploads/2018/03/Portage-Institutional-Strategy-Template-v4-EN.pdf>

Committee commissioned a small working group to create the initial draft. From there, it received input from the RDM Advisory Committee, DRAC and Deans' Council before receiving final approval from the Provost Committee [anticipated in the fall of 2019]. Formatting and style for the final version was derived from the University of Bath Roadmap for EPSRC⁶.

This document will be used by the Libraries RDM team, comprising librarians, archivists, systems developers, other Academic Technology Services (ATS) colleagues, and various Libraries staff members, when developing and reviewing 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 engage the services of the Assessment Librarian and Portage staff members to assist with developing an assessment plan.

B. Definitions

Abbreviations and terms used in this strategy are listed below.

- ❖ **ATS** – Academic Technology Services, Dalhousie University Libraries
- ❖ **DMP** – Data management plan
- ❖ **DRAC** – Dalhousie's 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 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

⁶ 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>

⁷ CASRAI. (2015). *Research data*. Retrieved from https://dictionary.casrai.org/Research_data

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 Office of Research Services. The Dal 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 is also involved in national and international RDM initiatives, linking Dalhousie to international standards and best practices.

Raise awareness				
Objectives	Current Practices & Supports	Gaps & Resources Required	Timeline	Responsibility
1.1 Identify stakeholder communities on campus	RDM Advisory Committee formed in 2017, with stakeholders from across the university to ensure representation including Dalhousie Legal Services, Libraries, ATS, ITS, Analytics, ORS and faculty representatives. The Libraries also have an RDM team.	The RDM Advisory Committee should include a representative from Graduate Studies.	Ongoing advisory committee chaired by University Librarian	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 the Dal Libraries including a faculty and a staff member who are RDM champions and sit on the RDM Advisory Committee. Provided a liaison librarian training session in 2019 to assist in outreach.	Need more representation from the various Dal faculties.	Short term (1 year); ongoing recruitment	Libraries, ORS
1.3 Develop awareness materials and resources for	RDM website and subject guide available with links to Portage resources, video for the DMP Assistant, Dataverse resources.	A consolidated location that contains resources for "local" data sharing	Short term (1 year)	Libraries including ATS

⁸ CASRAI (2015). *Research data management*. Retrieved from https://dictionary.casrai.org/Research_data_management

different communities	The Libraries does a variety of outreach including individual consultations, online webinars, in-person class/group instruction and Research Bootcamp for graduate students/RAs.	and storage options at Dalhousie University. Human resources to develop and review materials.		
1.4 Determine and apply the appropriate delivery mechanisms for outreach	Currently provide outreach when requested and during regular events held by the Libraries. Try to incorporate online options and recording of sessions to extend reach as much as possible. Events and information are also communicated through monthly RDM team meetings.	No formal outreach/communications plan or awareness of outreach preferences. Human resources to develop communications plan.	Medium term (1–2 years)	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 the Tri-Agency consultations around RDM	Participated in the Feb.15 th 2018 Tri-Agency consultations, representatives met with ORS and the Libraries. They also made a presentation to the University. The University submitted a response to the draft policy.	Human resources and financial resources to organize event.	Completed and Ongoing as required	Libraries, ORS
1.6 Participate in national RDM consultations and events	VPRI and Associate VPRI, University Librarian, and various faculty members and Associate Deans Research attended national fora, ISED consultations, etc. in 2018-19.		Ongoing	ORS, Libraries, Faculties

2. Assess Institutional Readiness and ideal state for RDM

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
2.1 Undertake a survey of institutional data assets and data management practices on campus	Data management practices vary widely across campus. Institutional data assets include: infrastructure (Dataverse, DMP Assistant, DalSpace, Archivematica), consulting & training services (Dalhousie Libraries).	There is research on RDM practices at Dalhousie University being conducted by two librarians. Additional human resources will be required to conduct research.	Medium term (1–2 years)	Libraries
Objectives	Current Practices & Supports	Gaps & Resources Required	Timeline	Responsibility

2.2 Evaluate existing RDM services

2.2.1 Data Management Plans	The Libraries have adopted Portage’s DMP Assistant tool. Created short training video now used by Portage. Conduct regular training sessions on RDM & DMP Assistant at events like Scholarship @ Dal, Research Bootcamp.	DMPs are not currently required by Dalhousie or the Tri-Agency. Human resources are required to develop incentives and policy/ procedures to encourage RDM. Human resources are required to develop custom guidance on DMP Assistant.	Ongoing	Libraries (including ATS), ORS
2.2.2 Institutional support and training	The Libraries is a member of regional and national groups such as CAUL, Portage and RDC, and internationally involved with RDA, which develop resources and opportunities for training. The Libraries provides training in regularly scheduled events such as Open Access Week, Research Bootcamp and Scholarship @ Dal. It also provides 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 University also has	More human resources are required to continue to develop training materials and participate in regional and national organizations. Financial resources may be required to hire and/or train in the areas of metadata and data anonymization.	Ongoing	Libraries, ORS

	expertise in legal, ethical and intellectual property.			
2.2.3 Data repositories and archiving	<p>The Libraries hosts a data repository (Dataverse) and institutional repository (DalSpace).</p> <p>Dalhousie University has access to FRDR for large data hosting.</p> <p>Dalhousie University has access to subject repositories and other data repositories.</p> <p>A national data repository (Dataverse North) is under development with Portage.</p>	<p>Human resources needed to manage repository upgrades — can be time consuming and frequent.</p> <p>Human resources to train people in using data repository.</p> <p>Unknown financial resources for data storage requirements and DOI minting.</p> <p>Technology to connect Dataverse and Archivematica is still in beta mode (2019). -</p> <p>Human resources needed to develop policies for using repositories.</p>	Medium term (1–2 years)	Libraries (specifically ATS)
2.2.4 Institutional policies, guidelines and/or procedures	<p>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></p> <p>Application of the CARE Principles for Indigenous Data Governance requires consultation and consideration in relation to existing policies.</p>	<p>Human resources required to develop policies for data repository (i.e. data collection, long term data preservation, etc).</p> <p>The RDM Librarian is a member of Portage’s Dataverse North Policy Working Group, working on policies for a national Dataverse that can be adopted.</p> <p>Human resources required for consultation process with Indigenous researchers and the Indigenous Community, and with the Indigenous Advisory Council specifically.</p>	Long term (2–3 years or more)	RDM Advisory Committee

3. Formalize RDM practices

The *Draft Tri-Agency Research Data Management Policy (for Consultation)*³ will be formalized. RDM is required by some journals and funding agencies. In addition, Research Ethics applications require some components of RDM. Dalhousie University has policies that may contain aspects related to RDM, but none specific to RDM. These policies include: *Records Management Policy*, *Ethical Conduct of Research Involving Humans Policy* and the *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. A data governance policy, while not specific to RDM, is being considered at Dalhousie and would inform RDM practices.

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 led by the RDM Advisory Committee.

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

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