

University Library

Brock University Research Data Management Strategy

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Introduction & Background Information

The purpose of Brock University's Research Data Management (RDM) Strategy is to help researchers respond to the [Tri-Agency Research Data Management Policy](#). The Tri-Agency policy requires Brock University, as an institution that administers funding from 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), to develop and publish an RDM Strategy on the Brock University website by March 1, 2023. This strategy document identifies how Brock will support researchers as they engage with the Tri-Agency RDM Policy requirements. This document is an RDM Strategy, in response to the Tri-Agency policy; it is not a policy or an open-science strategy.

Brock University followed a consultative and inclusive process to develop this Strategy (see Appendix A). A list of abbreviations is in Appendix D.

Importance of Research Data and Research Data Management

A key driver of the RDM Strategy is the [Tri-Agency Research Data Management Policy](#) that requires Brock to develop and publish an RDM Strategy by March 1, 2023. An additional benefit of the strategy is that it recognizes the work the researchers are already doing in research data management and provides an opportunity to articulate how the institution will support faculty, early career scholars, and highly qualified personnel (HQP) at all levels through coordinated education, training, support services, technological infrastructure and communication.

RDM practices help researchers:

- Plan effectively for storage, archiving, and appropriate disposal of research materials and [research data](#)
- Comply with Tri-Agency data management plan requirements for grant applications
- Address elements of the [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans](#) (TCPS 2, 2018)
- Fulfill their expectations under the [Responsible Conduct of Research Policy](#) to keep complete and accurate records and to comply with certification requirements
- Share data responsibly, when appropriate
- Comply with data deposit requirements from journals or funders
- Train HQP at all levels (post-graduate, graduate, and undergraduate)

Guiding Principles

1. Data, in their many and varied forms, constitute an important research output.
2. Researchers require support in implementing RDM practices that address ethical, legal, and commercial obligations as well as Tri-Agency requirements.
3. Brock follows the Tri-Agency RDM Policy and the Policy Statement on Ethical Conduct for Research Involving Humans (TCPS2) in respecting a distinction-based approach in managing

data related to research by and with the First Nations, Métis, or Inuit and in accordance with data management principles developed and approved by these communities.

4. RDM is an important aspect of ethical and responsible research practice.
5. RDM practices are important for researchers at all levels of career development.
6. RDM practices help support quality research and can be used to help facilitate Open Science practices.
7. Researchers are encouraged and will be supported to adopt RDM practices regardless of funding source.

Vision

The purpose of this RDM Strategy is:

- To maximize the benefits of RDM practices by supporting researchers in their RDM planning and implementation through education and collaboration.
- To facilitate the adoption of best practices that recognize the complexity and variety of data and implementing data management plans.
- To develop and facilitate access to supportive RDM infrastructure, including repository services and other approaches to the preservation and curation of data.
- To identify the offices of primary responsibility for maintaining and implementing this Strategy, specifically, the Brock University Library and the Office of the Vice-President, Research.

Oversight and Review

This strategy entails the Library and Office of the VPR, with support from Information Technology Services, working together to develop, implement, coordinate, and communicate seamless RDM services. Appropriate members from each of these units will:

- Coordinate and oversee the campus-wide education and implementation plan.
- Articulate and promote an integrated suite of RDM service offerings.
- Liaise, consult, and communicate with all Brock researchers about RDM issues.
- Monitor, advocate, and build capacity in Brock's RDM infrastructure.
- Plan for the implementation of appropriate resources for RDM engagement across RDM supporting units.
- Promote RDM as a collaboration across campus, and facilitate access to expertise and infrastructure.
- Clarify and communicate RDM-related procedures on campus, to help provide a shared understanding of campus activity.
- Track and regularly review the foundational elements of RDM on campus, including the education and implementation strategy.
- Engage with national collaborative efforts on RDM (e.g., Digital Research Alliance of Canada).
- Engage with Tri-Agency consultations about RDM.

Institutional Support

This strategy identifies areas in which Brock University is providing support to help researchers with their RDM needs. Institutional supports include general RDM services, support, and expertise, RDM technology support, teaching and training materials support, communication mechanisms for teaching and training, as well as investment in RDM services and infrastructure as RDM needs grow on campus.

- RDM Services, Support, and Expertise
- RDM Technology Support
- Teaching and Training Materials Support
- Use Varied Communication Mechanisms for Teaching and Training
- Investment in RDM Services and Infrastructure

A. RDM Services, Support, and Expertise

Currently, the Library is providing leadership for training and consultations for RDM. RDM can be strengthened with a continued collaborative effort between Library, ITS, and the Research Enterprise. Examples of support provided by these units:

- The Library has a Data Services Librarian whose role includes offering RDM workshops, training, and consultations.
- ITS has expertise available on the use of technology for data analysis and storage.
- The Research Enterprise includes Research Officers who support grant writing attuned to RDM needs. The Office of Research Ethics also plays a role through the REB process (e.g., data access and retention processes).

RDM services and support will be provided by the Library, the Research Enterprise, and ITS. Some specific services include:

- Providing support for repository storage for data deposit
- Providing support for data management planning tools
- Providing support for data curation
- Engaging in outreach to help raise awareness about RDM services and infrastructure
- Training staff in RDM as appropriate
- Promoting and supporting RDM practices

B. RDM Technology Support

This strategy identifies the important role that technology support plays in the research data lifecycle. There are infrastructure elements and services that are available to researchers upon request. ITS provides access to the following: secure data storage, including RBAC (role-based access control); private digital space for researchers to collaborate on research projects; multiple solutions for file transfer service that may be tailored to individual needs. Some infrastructure is still under development or specific to researcher needs (e.g. involves customization with ITS when appropriate). For example, campus high performance computing (HPC) is under development by ITS; however, HPC can be accessed through the two SharcNet representatives on campus (Research Enterprise) and via Compute Canada.

Infrastructure focused on data deposit, preservation, and archival storage also exists and is generally offered through the Library and ITS. Specifically, data repositories are available through OCUL Scholars Portal (Borealis: The Canadian Dataverse Repository), and through Alliance (Federated Research Data Repository, or FRDR). If the data are of a sensitive nature, there are multiple solutions available through ITS that are dependent on requirement/needs. Customized solutions are also possible upon request, although advance planning is needed due to the time and development associated with customized solutions. FRDR can handle some sensitive data (e.g., embargo) but Borealis does not accommodate sensitive data. In terms of preservation and archival storage, the Library has the technical process in place to do archival preservation, but so far this has not been applied to research data. There are also possibilities through the Ontario Library Research Cloud (OLRC) through OCUL Scholars Portal.

C. Teaching and Training Materials Support

An important part of an RDM strategy is the promotion of training materials and resources. These are crucial for an overall understanding and adoption of RDM on campus. See Appendix B for an updated list of resources available.

This strategy recommends that Brock:

1. Continue to evolve and maintain library-related guides, modules, and resources in an easily accessible manner.
2. Ensure that training content is varied and reflects the diverse nature of data and researcher communities.
3. Develop Brock-specific video testimonials, with the support of Marketing and Communications.
4. Leverage existing resources from partners and collaborators (e.g., Alliance).
5. Ensure teaching and training material development is coordinated by Library, ITS, and the Research Enterprise, as appropriate.

D. Communication Mechanisms for Teaching and Training

This strategy recommends deploying a variety of delivery mechanisms for outreach, including various in-person and online resources and events. This may include the following:

Teaching Groups in-Person or Online

- Workshop delivery
- Targeted in-class training (e.g., research methods classes)
- Custom workshops/consultations for researcher teams

RDM Research Guides and Learning Objects

- Maintain one primary website landing point with links to resources to provide one main RDM location so researchers know where to go.
- Develop online RDM modules for classes, electronic learning objects, and research guides

Leverage Research Networks to Share Information

- Participate in Faculty and departmental meetings
- Participate in research-centered units/group meetings
- Participate in appropriate Senate-related meetings

- Lead and facilitate events (e.g., campus-wide Data Day)
- Build an RDM community of practice, considering varied partners and contexts on campus
- Lead and facilitate student RDM contests

Promote and Communicate Events, Workshops, and Innovation in RDM Practices

- Brock Library blog posts
- Social media
- News bulletins or newsletters
- Brock News articles

E. Investment in RDM Services and Infrastructure

This strategy depends upon resource allocation for personnel capacity and resource allocation for infrastructure. Some positions currently touch on RDM in ITS, the Library, and the Research Enterprise. However, we anticipate that the current resources, in their current deployment, are insufficient to support the growing RDM needs given the implications of the [Tri-Agency Research Data Management Policy](#). Additionally, the current expertise is distributed across areas with no formal mechanism connecting them. Each of these areas will require purposeful allocation (and/or addition) of resources, as well as efforts to link the individuals with these responsibilities, to support a successful implementation.

Another element of successful implementation will be investment in RDM infrastructure. This may include investment in areas such as service development, training, and specific infrastructure related to storage (e.g. cost for storage, including post project long term storage), necessary software, and data security. Supportive infrastructure is essential to successful implementation of an RDM strategy in the long term; however, specific needs must be identified on an ongoing basis, through active implementation, in order to be sensitive to local practices, existing strengths and weaknesses, and the evolving make-up of the Brock research community.

Stakeholders

Anyone who does research at Brock has a stake in RDM on campus. In this section, our strategy highlights that we target relevant audiences, identify stakeholder communities, and find and work with RDM champions.

A. Target Relevant Audiences

Core to this strategy is to respect and understand Brock's unique researcher needs, including varied research paradigms, disciplines, and groups. We strive to ensure custom research support materials and workshops. Relevant audiences include:

- Specific Faculties/departments
- Early-career researchers
- New faculty orientation
- Adjunct professors
- Research collaborators outside Brock

- Postdoctoral fellows
- Graduate student populations
- Senior undergraduate populations
- Research officers
- Research centres and institutes
- Indigenous researchers

B. Identify Stakeholder Communities

This strategy identifies researchers who directly engage in research and who support the research enterprise and/or academic mission of the university. We have identified several stakeholder communities within Brock and the current research support and infrastructure in place. By identifying specific groups of researchers, we can better target communication, workshops, presentations, and consultation activities regarding RDM services and infrastructure.

- Researchers:
 - Researchers within Brock (e.g., Faculty, Research-Active Retirees, Adjunct, Librarians)
 - Research collaborators outside Brock
 - Highly Qualified Personnel (HQP – postdoctoral fellows, graduate students, undergraduate students)
 - Indigenous researchers
- Research and Education Support:
 - Brock University Library
 - Office of the Vice-President Research
 - Associate Deans, Research
 - Office of Research Services
 - Office of Research Ethics
 - Senate Research and Scholarship Policy Committee
 - Senate Information Technology and Infrastructure Committee
 - Information Technology Services
 - Faculty of Graduate Studies
 - Brock LINC
 - Centre for Pedagogical Innovation
 - Two Row Council of Senate
 - Aboriginal Education Council (AEC)
 - Hadiya'dagénhahs First Nations, Métis and Inuit Student Centre
 - Animal Care Services
 - Brock University Student Union
 - Graduate Students' Association

C. Develop and Work with RDM Champions

It is important to identify, develop, and work with RDM champions from across campus. By leveraging existing expertise, we can learn from each other and develop a campus-wide understanding of RDM services and infrastructure.

1. Researchers from different disciplines engage with RDM in distinctive ways, and RDM infrastructure and services are offered by multiple units across campus. Developing a culture of Research Data Management within Faculties and specialized research groups is a key means of supporting the broadest range of researchers.
2. Provide dedicated RDM support and training for individuals who support research activity on campus. Ensure all the individuals supporting research and associated infrastructure on campus (e.g., research officers, library staff) are appropriately trained and confident in communicating RDM processes and resources.
3. Encourage RDM leaders to help in communication of RDM and this strategy.

Ethics Considerations

The Research Enterprise is available to assist researchers in being aware of their ethical responsibilities and ensuring that they adhere to the [Responsible Conduct of Research Policy](#) and the [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans](#).

In addition, it will be important to work with the Brock Research Ethics Boards and Animal Care Committee, through the Office of Research Ethics and Animal Care Services, respectively, to review research application forms for the appropriate integration of RDM information and strategies. This review may generate recommendations on how to effectively support researchers in incorporating RDM information and strategies in the early stages of their research preparation.

Indigenous Data Considerations

Brock recognizes data as an important research output and is committed to supporting researchers in the establishment and implementation of RDM practices. The federal Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2018) stipulates that any research data, including artefacts, resulting from or associated with research by and with First Nations, Métis, and Inuit communities, collectives and organizations, shall be managed through engagement and partnership with those communities, collectives, and organizations, and with respect for the appropriate authority of those groups. Brock is committed to working in partnership with Indigenous stakeholders to implement a distinctions-based approach to ensure that the unique rights, interests, and circumstances of First Nations, Métis, and Inuit peoples are acknowledged, affirmed, and implemented. The Office of the Vice-Provost, Indigenous Engagement, is a key resource in ensuring appropriate and meaningful application of RDM principles and strategies to Indigenous data.

Other Relevant Strategies, Policies, and Procedures

For this strategy to be successfully implemented, it needs to exist within the framework of existing strategies, policies, and procedures. See Appendix C for a list of relevant strategies, policies, and procedures internal and external to Brock.

Individual departments or programs may also provide relevant disciplinary or programmatic guidance (e.g., graduate program handbooks).

The Brock Library, Research Enterprise, and Information Technology Services commit to supporting researcher awareness and understanding of the strategy, policy, and procedure environment. They will collectively be responsible for staying up to date on this evolving landscape.

Appendix A: Process for Building the RDM Strategy

1. Group Membership & Governance

Reporting to the Research and Scholarship Policy Senate Committee, the RDM Strategy Working Group is a diverse team responsible for leading the development of Brock's RDM Strategy. This Working Group was formed on October 2020. This team included the following members:

1. Vincent Annibale – Research Officer, Office of Research Services
2. Jeffrey Boggs – Associate Professor, Geography & Tourism Studies
3. Robyn Bourgeois – Vice-Provost, Indigenous Engagement
4. Danusha Kalinga – Research Officer, Office of Research Services
5. Sinéad McElhone – Niagara Region Public Health
6. Michelle McGinn – Associate Vice-President, Research
7. Sam Montana – IT Manager, Data Architect
8. Nicole Nolan – Associate University Librarian, Research (Co-Chair)
9. Randy Peterson – Business Development Officer, Innovation & Commercialization (ORS)
10. Tim Ribaric – Digital Scholarship Librarian
11. Mark Robertson – University Librarian
12. Valdeep Saini – Assistant Professor, Applied Disability Studies
13. Liette Vasseur – Professor, Department of Biological Sciences
14. Lori Walker – Manager, Research Ethics
15. Shiloh Williams – GIS and Data Services Librarian
16. Dawn Zinga – Associate Dean, Faculty of Social Science (Co-Chair)

2. Reviewed Support Materials from the Digital Research Alliance of Canada

The [Digital Research Alliance of Canada](#) provides services including a Federated Research Data Repository ([FRDR](#)), the Data Management Plan ([DMP](#)) Assistant, [learning and training materials](#), and [various publications](#).

Our group process included reviewing materials so we could as a team, build a shared understanding of research data management. Early on, we used the [Institutional RDM Strategy Development Template](#) that helped give our working group some structure and guidance as we grappled with understanding what RDM means for Brock University.

3. Workshop Attendance

Several Brock University RDM Strategy Working Group members attended an RDM Workshop led by the Digital Research Alliance of Canada. This workshop, "Putting the Policy into Practice" was on the Institutional Strategies requirement of the Tri-Agency RDM policy. This workshop was helpful as it gave our Working Group some more guidance, an opportunity to ask more questions, and to meet with others across the country who are working on their own strategies.

4. Reviewed DMP Examples

Our Working Group reviewed the DMP tool for a variety of different subject areas. We also invited two research labs to fully utilize the DMP, and debrief our working group on the process. This gave the

working group the opportunity to ask questions and get a better understanding of the challenges and opportunities involved with using the DMP.

5. Survey

Led by Brock's Data Librarian Heather Whipple, the RDM Strategy Working Group conducted a Research Data Management Faculty & Postdoctoral Survey in 2020. We used an [existing survey tool](#) developed by the Canadian RDM Survey Consortium, that looks at RDM practices on campus.

There were 56 individuals who participated in the survey. These individuals included representation from faculty members (50), instructors (2) librarians (1), postdoctoral fellows (1), professor emeriti (1), and research centre coordinators (1). Each of the Faculties were also represented (Goodman School of Business, 9; Faculty of Applied Health Science, 8; Faculty of Education, 1; Faculty of Humanities, 9; Faculty of Math and Sciences, 7; Faculty of Social Sciences, 22). There was also representation from the following research centres and institutes: Advanced Biomanufacturing Centre, Centre for Digital Humanities, Centre for Sport Capacity, Cool Climate and Viticulture Institute, Environmental Sustainability Research Centre, Humanities Research Institute, Lifespan Development Research Institute, Niagara Community Observatory, Posthumanism Research Institute, and Social Justice Research Institute. Collectively, those who participated had experience with a broad range of funding agencies and research programs, including at the Tri-Agency level, other federal, national and local funding avenues as well as the Ontario Early Researcher Award program, the Canada Research Chairs program, and the Chancellor's Chairs program.

The survey was designed to provide a snapshot of where Brock researchers were in terms of their knowledge and understanding of RDM practices. The survey results provide insight into how researchers are handling RDM-associated tasks and their overall knowledge and contributions to training in the area. It also included information about researchers' understandings of and attitudes towards open science and data sharing. It is interesting to note that half of the participants indicated that although they felt able to complete DMPs as part of grant applications, they would prefer being able to access assistance or guided documentation to support the success of that part of their application. The other half of the participants indicated that they would need to access assistance or guided documentation to appropriately complete DMP sections. This points to a clear need for resources and supports around the development of DMPs. The survey results also pointed to a need for DMP education for HQP as none of the respondents indicated that they taught any material related to DMP. Although the survey did not address in-lab or research-oriented training around DMPs, there is clearly room within the academic mission of the university to include DMP content at the graduate and undergraduate levels.

6. Indigenous Data

The RDM Strategy Working Group learned from Robyn Bourgeois, Vice-Provost Indigenous Engagement, about the complexities of RDM associated with research and the resulting data when working with Indigenous individuals and communities. The committee continued to have discussions about sensitive data throughout the process.

7. RDM Maturity Assessment Tool in Canada (MAMIC) Tool

Our working group used the [MAMIC tool](#) to help inform Brock's state of readiness for implementing an RDM program that appropriately supports researchers. Each member of the working group reviewed and contributed to a shared document, independently. We then spent time over the course of four meetings, reviewing each of the four categories (Institutional Policies and Process, IT Infrastructure, Support Services, Financial Support) as a group. Others across the country who are working on their own strategies.

8. Environmental Scan of Strategies

Although our RDM Strategy is meant to be customized to the Brock Context, our working group found it helpful to review other institutions' RDM Strategies.

9. Communication & Consultation

- This strategy was collaboratively written and reviewed by the RDM Strategy Working Group
- Individuals from the RDM Strategy Working Group shared the Draft Strategy to their colleagues in their own units.
- Updates throughout the process were given to Research & Scholarship Policy
- Research and Scholarship Policy Senate Committee reviewed the Draft Strategy in November 2022.
- Two public consultation sessions were advertised, promoted, and facilitated on two different days. The entire Brock community, targeting researchers, was given an opportunity to attend a session to learn more about the strategy, ask questions, and provide comments
- The Draft Strategy and a feedback form was posted on the Brock Library Research Data Management website, and the Brock research community was invited to provide comments and ask questions.
- The Draft Strategy was shared for consultation with the Research Strategy and Operations Group, reaching Associate Deans of Research and Directors of Research Institutes.
- RDM was presented at a Library Representatives meeting. Each program has a faculty member as a library representative, and they were in attendance and given an opportunity to ask questions. A link to the Draft Strategy and feedback form was shared.

10. WG Closure & Recommendations for Implementation

A final round of requests for feedback is anticipated early in 2023, before a completed draft is presented to the University Librarian and Vice-President, Research for review and posting before March 1, 2023, in accordance with the Tri-Agency RDM Policy.

Appendix B: Resources Available

[Brock Library Research Guide on RDM](#)

[DMP Assistant](#)

[Definition of Data](#)

[Digital Research Alliance of Canada Training Resources](#)

Appendix C: Relevant Policies and Processes

Internal Policies and Processes

[Responsible Conduct of Research](#)

[Brock Faculty Handbook 3C: Responsible Conduct of Research](#)

[The Health Science Research Ethics Board \(HREB\)](#)

[The Social Science Research Ethics Board \(SREB\)](#)

[Brock Faculty Handbook 3C4: Ownership of Student-Created Intellectual Property](#)

[Graduate Studies Intellectual Property \(Ownership of Data\)](#)

[Brock University Policies](#)

External Policies and Processes

[Tri-Agency Research Data Management Policy](#)

[Tri-Agency Statement of Principles on Digital Data Management](#)

[Tri-Agency Framework: Responsible Conduct of Research](#)

[Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans](#)

[FAIR Principles](#)

[OCAP Principles](#)

[CARE Principles](#)

[Safeguarding Your Research Portal](#)

Appendix D: Abbreviations

BUSU – Brock University Student Union

CIHR – Canadian Institutes of Health Research

DMP – Data Management Plan

FRDR – Federated Research Data Repository

GSA – Graduate Student Association

HQP – Highly Qualified Personnel

ITS – Information and Technology Services

MAMIC - RDM Maturity Assessment Model in Canada

NSERC – Natural Sciences and Engineering Research Council of Canada

OCUL – Ontario Council of University Libraries

OLRC - Ontario Library Research Cloud

RDM – Research Data Management

SSHRC – Social Sciences and Humanities Council of Canada

WG – Working Group