AU Research Data Management Institutional Strategy

Approved by General Faculties Council, May 4, 2023

Introduction

Research data management (RDM) is "the processes applied through the lifecycle of a research project to guide the collection, documentation, storage, sharing and preservation of research data" (CIHR et al., 2021a; see 1d of the Tri-Agency Policy FAQ). Managing data well is an important aspect of rigorous research.

In March of 2021, Tri-Agency Councils adopted a policy on RDM, which has three pillars: institutional RDM strategies, data management plans, and data deposit (CIHR et al., 2021b). Definitions of terms from the policy and other important terms are included in Appendix A. This document is AU's Institutional RDM Strategy Draft for Consultation, which outlines how AU will continue to develop support for its researchers, including support for data management plans and data deposit.

As Canada's only open, online, and digital-by-design institution with geographically distributed students and staff, AU has been developing services and infrastructure to best support its researchers in this type of environment. This strategy document articulates goals for the next five years. Policy, procedures, and business plans will be developed during that time as AU's research support landscape continues to grow and evolve.

The way forward supported by this strategy will also advance, align with, and be shaped by AU's commitments to equity, diversity, and inclusion (EDI) with attention to calls for action in the Scarborough Charter, NSERC Dimensions Charter, United Nations Declaration on the Rights of Indigenous People (UNDRIP), Truth and Reconciliation Commission of Canada: Calls to Action, and other documents that speak to the importance of conciliation and decolonization of the research lifecycle.

Process

AU established a steering committee and working group in 2022 to develop the RDM Institutional Strategy. The strategy development was co-sponsored by the offices of the Associate Vice President of Research and the Associate Vice President of Academic Resources with representatives on the steering committee from Information Technology, Nukskahtowin, the Faculty of Graduate Studies, the Library and Scholarly Resources, and

Associate Vice Presidents of Research. The working group had researcher representatives from each of AU's four faculties as well as representatives from the Office of the Chief Governance Officer and General Counsel, Research Office, Information Technology, and the Library and Scholarly Resources.

Prior to establishing the working group, stakeholders in the Library and Research Office conducted a Digital Research Infrastructure (DRI) and Data Needs Assessment Survey, which collected information on AU researchers' current use of, and needs for, DRI so that those needs can underpin infrastructure, resource planning and allocation, strategic development and deployment, and associated policies related to technology-informed research at AU. The survey had sections on data, software and code, and advanced research computing needs. It was circulated in summer of 2021 and in spring of 2022, with a 29% response rate from faculty. The survey complemented additional engagements with researchers via presentations at faculty councils in 2022. Additional insights into faculty data needs were drawn from digital-first research conducted within IDEA Lab, including researchers from across disciplines, faculties, and the digital literacy spectrum.

The RDM Maturity Assessment Model in Canada (MAMIC) was developed as a way to assess current services and support for RDM and their maturity at Canadian institutions. AU's working group drafted responses to the sections of the model (Institutional Policies and Processes, IT Infrastructure, Support Services, and Financial Support) in June/July of 2022.

The results of the DRI Needs Assessment Survey and the responses to the MAMIC were used to draft a strategy for consultation. A consultation event is being held December 15, 2022 to collect further feedback from the AU community on the strategy. A form is also being made available on the internal SharePoint site for consultation on AU's RDM Institutional Strategy.

Oversight and Review

This strategy will be reviewed every five years. However, AU recognizes that the research data management landscape is evolving, and, as such, this strategy is considered to be a living document and will be reviewed on an incremental basis within that timeframe. During the first five-year period, AU's RDM Institutional Strategy Steering Committee will work to formalize this process with AU's Academic Research Committee, a sub-committee of General Faculties Council, and other stakeholders as business cases and institutional planning further develop.

Principles

AU's RDM Institutional Strategy is guided by the following four principles. AU is currently reviewing and developing its broader institutional strategy and strategic research plan. This RDM strategy will also be aligned with those processes and the strategic documents they produce.

Research Excellence

AU recognizes the importance of research data management and data stewardship as practices that contribute to excellence in research. AU commits to supporting researchers through a vibrant research culture, aligned with the institutional Imagine strategy our identity as an Open institution, with a focus on "Transforming Lives, Transforming Communities" through impactful research. Priorities on research excellence in the present strategy also extend key success indicators and priorities of AU's Strategic Research Plan. For institutional and research plans, equity is understood as essential to success. As such, consideration and principles of EDI are integral to future policies and practices related to RDM.

Context and Collaboration

AU recognizes the importance of context in the application of best practices of RDM. AU will implement a flexible model, rather than a "one-size fits all" approach and seek collaboration across units internally and with external stakeholders to support context-based approaches to RDM. Such collaboration will support multidisciplinary research and community partnerships.

RDM Culture

AU's priority is to advance a research culture aware and active in RDM while respecting disciplinary approaches and equipping researchers with technology, processes, and people to reduce barriers and support best practices in context. AU supports a culture of ethical use and storage of data and integration of ethical principles into research practice. AU will use approaches that embody respect for Indigenous communities and research methodologies, including principles of CARE and OCAP® as appropriate.

Open Institution and Open Practice

AU is an open institution and engages in openness through creating barrier free pathways to being involved in research and accessing knowledge created through research. AU recognizes data as an important component of research and supports making data as open as possible and as closed as necessary through practices that enable good documentation and responsible use and reuse in keeping with FAIR and CARE principles.

Goals

The goals outlined in this strategy are informed by the principles stated above. The goals are separated into three areas: Governance and Policy, Support Services, and Infrastructure. Each area is structured with an overarching goal with a set of actionable activities beneath it. AU will work towards these goals in the next five years.

Communication and raising awareness will be key aspects in advancing RDM as an element of research culture at AU encompassing staff and student researchers. As such, each of the three areas below includes goals or sub-goals that emphasize the importance of continued focus on communication and on-going consultation with the AU research community.

Governance and Policy

Goal: Develop and maintain policies and procedures to support research data management.

- Conduct a review of existing policies and develop policies and procedures to support RDM.
  - Revisit the current Open Access to Research Outputs Policy to ensure alignment with best practices in RDM.
  - Develop policies and procedures to support preservation and stewardship of research data.
  - Create a mobilization plan to raise awareness in the AU community as policies and procedures are reviewed, developed, and implemented.
    - Raise awareness about how ethics policies and procedures are integrated with good data management practices and planning.
- Ensure alignment between policy and practice through ongoing review as AU's support services and infrastructure develop.

Support Services

Goal: Provide services that support awareness and application of RDM best practices.

- Continue raising awareness of what RDM is, what requirements exist, and tools and supports that are available.
  - Develop a redundancy-free central location in which community members can find the RDM related resources they require easily.
  - Create and formalize a communication plan and channels for keeping researchers up to date on developments and opportunities in the RDM landscape.
- Provide expanded education, tools, and training.
  - Increase the number and range of RDM capacity-building opportunities.

- Develop more training in a variety of formats suitable to AU's context as a distance learning institution.
- Evaluate current offerings and expand support for data management planning.
  - Align support with available infrastructure and documentation.
  - Increase support for [DMP Assistant](#).
- Develop support for data curation and data deposit.
- Consult with the Faculty of Graduate Studies and programs within faculties to continue to develop support for graduate students.
- Enable those who support RDM to build capacity and enhance the level of service they provide.
  - Provide RDM training and cross-training for staff who support research.
  - Define roles and responsibilities for those supporting RDM within and across units.
  - Define roles and responsibilities for researchers and departments implementing RDM.

Infrastructure

Goal: Continue to pilot and scale up secure and sustainable digital research infrastructure to support excellence in RDM practices, including pathways from active research storage through to long-term storage and deposit.

- Continue development of infrastructure for active storage and handling of data.
  - Develop researcher facing documentation of available research computing infrastructure.
  - Ensure funding models for digital research infrastructure and storage are discussed and approved by relevant leadership/committees.
- Promote access to existing sources of secondary data (licenses, subscriptions, etc.) for faculty/staff.
- Provide infrastructure for data deposit.
  - Establish an institutional data repository and an appropriate preservation strategy and infrastructure.
  - Ensure infrastructure is sustainable, functional, efficient, and up to date (software and hardware).
- Ensure alignment between evolution of IT infrastructure and RDM policy development.
  - Continue to architect AU's research cloud environment with upcoming RDM policies in mind.
  - Ensure different levels of data privacy and storage requirements are documented and those requirements are captured in the research cloud architecture.

- Build collaboration with partners (e.g., the [Digital Research Alliance of Canada](#), the [Federated Research Data Repository](#)) where appropriate to maximize the digital research infrastructure available to researchers.

References

Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, & Social Sciences and Humanities Research Council. (2021a, October 29). Tri-Agency research data management policy—Frequently asked questions. Innovation, Science and Economic Development, Government of Canada; Innovation, Science and Economic Development Canada. https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/tri-agency-research-data-management-policy-frequently-asked-questions

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Appendix A – Definitions

Data Deposit
"'Data deposit' refers to when the research data collected as part of a research project are transferred to a research data repository. The repository should have easily accessible policies describing deposit and user licenses, access control, preservation procedures, storage and backup practices, and sustainability and succession plans. The deposit of research data into appropriate repositories supports ongoing data-retention and, where appropriate, access to the data" (CIHR et al., 2021a; see 4i in the Tri-Agency Policy FAQ).

Data Management Plan
"A data management plan (DMP) is a living document, typically associated with an individual research project or program that consists of the practices, processes and strategies that pertain to a set of specified topics related to data management and curation" (CIHR et al., 2021a; see 4e in the Tri-Agency Policy FAQ).

CARE Principles
The CARE Principles of Indigenous Data Governance include: Collective Benefit, Authority to Control, Responsibility, and Ethics (RDA International Indigenous Data Sovereignty Interest Group, 2019). They are broad principles that support Indigenous data sovereignty. For more information on the CARE Principles, please see the Global Indigenous Data Alliance website: https://www.gida-global.org/care.

FAIR Principles
The FAIR Principles include: findable, accessible, interoperable, and reusable. They emphasize the machine-actionability of data. For more information, please see the GO FAIR website: https://www.go-fair.org/.

Principles of OCAP®
The Principles of OCAP® include: Ownership, Control, Access, and Possession (FNIGC, n.d.) The principles support First Nations data sovereignty. For more information, and opportunities for training on OCAP®, please see the website and training offered by the First Nations Information Governance Centre at https://fnigc.ca/ocap-training/.

Research Data
"Research data are data that are used as primary sources to support technical or scientific enquiry, research, scholarship, or creative practice, 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… What is considered relevant research data is often highly contextual, and determining what counts as such should be guided by disciplinary norms" (CIHR et al., 2021a; see 1b in the Tri-Agency Policy FAQ).

Research Data Management
"Research data management (RDM) refers to the processes applied through the lifecycle of a research project to guide the collection, documentation, storage, sharing and preservation of research data" (CIHR et al., 2021a; see 1d of the Tri-Agency Policy FAQ).