

Background

In 2018 the Canadian Tri-Agencies released a draft of the Tri-Agency Research Data Management (RDM) Policy for Consultation, which required institutions to create an institutional RDM strategy. This strategy represents Cambrian’s commitment to this work. Additionally, and as noted in Cambrian’s Strategic Plan, the college continues to work toward recognizing and integrating Indigenous awareness and ways of knowing, being mindful of accommodation and accessibility issues, and always working toward promoting and demonstrating equity, diversity, and inclusion in our research efforts.

Since December 2020, Cambrian’s Strategic Enrolment Management Committee developed a sub-committee focused on Data Governance, which continues to build its capacity to provide the College with advice and counsel regarding the management of college data inclusive of the protection of data integrity, accuracy, and distribution. The committee’s mandate is to promote the guiding principles of data governance, support the stewardship roles and responsibilities, and when required, assist to resolve issues relating to data ownership and accountability. The committee is co-chaired by the Dean, Academic Excellence and Innovation and the Registrar, and includes Cambrian’s Manager of Library and Learning Commons, along with the Director of Applied Research, and Directors from six other areas.

In addition to this committee, in 2022 Cambrian established an RDM working group to create the initial draft of the strategy. The RDM Working Group is made up of key stakeholder functions from across Cambrian:

- Applied Research & Innovation
- Library and Learning Commons
- Planning & Institutional Research
- Teaching and Learning Innovation Hub
- Research Ethics Committee

As Cambrian’s RDM strategy progresses, a representative from the college’s IT Services department will be added to the RDM Working Group to assist in the vetting of digital technologies and confirming privacy and data requirements before installing or commissioning software and digital tools. Moreover, given the implications of cybersecurity threats and data breaches, it will be critical to have the IT lens when it comes to research data accessibility, storage, and retention.

Historically, most of the research undertaken at Cambrian College could be classified as applied research, which is broadly focused on using the latest knowledge and technologies to create new products and processes, or to improve existing ones. But as Cambrian continues to add degree programs, which include research as part of the accreditation process, hire more faculty with PhDs and research backgrounds, and continue its journey towards leading in polytechnic education, the timing of the RDM strategy comes at an opportune moment as we continue to grow our academic research and scholarship of teaching and learning.

Increasingly, we understand that research data management is a way to protect against “information entropy”, or “the processes by which information naturally degrades over time as human memory weakens” (Michener, in Burnette et al, 2016, p. 3). Good research data management is crucial to successful project outcomes, as it can reduce time spent searching for specific files, enhance collaboration

and sharing of data, increase visibility of research findings, enable research designs to be reused or reproduced, and ultimately contributes to scientific progress (NDRIO, 2020; Briney et al, 2020; Government of Canada, 2022b).

Research data management can appear to be a complex undertaking, as “the management of this data draws upon a range of infrastructures and skills sets to support its documentation, storage, access, and preservation over the course of a research investigation and following its conclusions” (NDRIO, 2020, p. 3). Further, “good data management requires significant time and effort that researchers may be unwilling to invest without specific mandates... standardization, best practices, and the availability of institutional support for data management help to establish the value of planning” (Burnette et al, 2016, p. 9). It is for these reasons that Cambrian College has developed a collaborative strategy to draw upon the defined skill sets and responsibilities of various departments to develop research data management practices and infrastructure.

Importance of Research Data Management

RDM practices expose researchers, faculty, students, and administrators to a range of benefits including:

- increased competitiveness in research grant implications applications
- impact on academic research (prestige of publishing) and scholarship of teaching learning
- impact on curriculum
- increased accountability and safety measures
- increased accuracy and validity of data
- ensured long-term preservation of data when applicable
- ensured consistency in data depositing and sharing requirements
- clarity in guidelines
- increased credit and impact of the data

Part of the RDM process includes the creation of Data Management Plan (DMP). A DMP is a formal document that details the strategies and tools that will be implemented to effectively manage data during the active phase of ongoing research, and the mechanisms that will be used for preserving and appropriately sharing data at the end of the project. A DMP is “a “living” document that can be modified throughout your project to reflect any changes that have occurred” (Digital Research Alliance of Canada).

A DMP helps:

- Meet grant application requirements and/or adhere to institutional data mandates
- Make it easier for all team members to document, understand, find, and use data
- Plan the resources, tools, and expertise needed for data management
- Identify challenges for storing, handling, and managing the types and volume of data
- Ensure reliability, authenticity, accuracy, and reproducibility of data
- Have a detailed account of data collection, handling, and stewardship practices
- Plan how to make data FAIR (findable, accessible, interoperable, and reusable) to maximize the research potential and impact of data (Digital Research Alliance of Canada)



Research Data Management Strategy	
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Purpose

The purpose of this strategy is to foster a culture of excellence in research data management (RDM) at Cambrian, with consistent requirements and standards for the collection, storage and sharing of research data both within and beyond the organization.

Scope and Objective

This strategy applies to all Cambrian researchers, including students, staff, and faculty in all disciplines and across our Schools and Research groups. For awareness building, we have assumed a broad application of RDM best practices given the diverse nature of Cambrian’s research and innovation ecosystem that extends beyond only Tri-Agency-funded research activities. Our initial focus will be to ensure that our Tri-Agency-funded researchers have the tools, technologies, and service supports in place to aid their work and demonstrate strong data management practices as leaders in this transition in RDM best practices.

Cambrian’s Research Data Management Plan

To support the adoption of Cambrian’s RDM Strategy and the ongoing implementation of RDM practices among researchers, Cambrian will continue to build on the work already completed or in process as we move to expand our RDM practices.

Over the next three years (until March 2026) we have committed to focus on the following priorities and activities:

- 1. Compile Scope of Research at Cambrian:**
 - a. Audit research activities in Academic programs/courses within IR and AR to identify the full scope of research activities and related data management needs
 - b. Ensure Research Ethics is obtained where needed and appropriate as determined by Research Ethics Committee (REC)
 - c. Revise research and data management policies and procedures as required to ensure compliance with Tri-Council research standards and expectations

- 2. Promote and Build Capacity for Research Activities at Cambrian:**
 - a. Develop and promote definitions of research to ensure compliance and consistency of research practice
 - b. Offer sessions on research to support the promotion of shared practice, with an emphasis on capacity building to support course-based research and Scholarship of Teaching and Learning as examples

- 3. Review Current State of RDM at Cambrian:**
 - a. Identify and review the data landscape at Cambrian and assess existing capacity for RDM
 - b. Undertake a survey of institutional data assets and data management practices on campus
 - c. Evaluate existing RDM services and data management plans and provide institutional support and training

4. Build/expand institutional RDM supports/resources at Cambrian:

- a. Continue implementation of communications plan, and develop and disseminate RDM educational tools to Cambrian community
- b. Explore building discipline-specific communities of practice to support our diverse research communities understand and embrace RDM
- c. Audit existing resources with an eye to adopt external resources as appropriate and required, such as the introduction of a data portal and research repository for faculty and researchers

5. Promote and foster a culture of RDM at the College:

- a. Promote a culture of sound research data management
- b. Develop training resources and plan workshops or other events designed for faculty, staff, and students to increase their RDM knowledge
- c. Build access to tools and supports to enhance strong data management practice

6. Support and encourage appropriate Indigenous RDM process and activities:

- a. Consult with the Wabnode Centre for Indigenous Services in all matters that involve or could potentially involve members of our Indigenous communities, both internally and externally to ensure we are adhering to cultural practices and way of knowing
- b. Comply with the OCAP principles (Ownership, Control, Access, Possession). The First Nations principles of OCAP establish how First Nations' data and information will be collected, protected, used, or shared
- c. Engage in ongoing conversations with Indigenous partners
- d. Liaise with appropriate partners to further develop RDM capacity for Indigenous research within Cambrian

7. Strengthen RDM governance:

- a. Evolve current RDM Working Group to formalize implementation of Cambrian's RDM Strategy, including engagement with other stakeholders across the college
- b. Work toward updating intersecting/supporting Cambrian policies as required to reflect RDM practices
- c. Establish more streamlined RDM communications and processes with external research partners
- d. Consider dedicated resources to support RDM in accordance with data privacy legislation

Ethics consideration

Research projects involving human participants are reviewed by Cambrian's Research Ethics Committee (REC), a team of talented faculty and staff trained and experienced in ensuring that research conducted at the College involving human participants, adheres to the guidelines and data management requirements set out by the Tri-Agency's Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans - TCPS2 (2018). As part of Cambrian's REC requirements, researchers are also required to complete the TCPS2 training module in order to conduct research involving human participants at



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Cambrian and those within the research enterprise at Cambrian who are engaging in research outside of the college.

Next steps

This Strategy outlines planned activities over the next three years to continue Cambrian’s journey to foster a culture of excellence in RDM. Moving forward, Cambrian College and its RDM Working Group will work on developing a comprehensive work plan that will help to move the identified goals forward. Cambrian will continue to build and expand on RDM practices as this process remains iterative and ever evolving. While this Strategy identified the beginning components of our work as a college, it is the basis of our work in moving forward and will be a living document. We will plan future areas to address based on evolving requirements from the Tri-Agency, the needs of Cambrian researchers, and the type of research that is undertaken at the college.

Responsibilities and Accountability

This strategy will be monitored regularly by the RDM Working Group and updated on an annual basis.

All members of the Cambrian College community are responsible for ensuring compliance and adherence to the RDM strategy, particularly those who are involved in the college’s research enterprise. Faculty, staff, and all researchers must comply with appropriate Tri-Council RDM requirements, particularly when it comes to ethical and data considerations. Beyond the collective obligations, the Vice President, International, Finance, and Administration will oversee the implementation and adoption of Cambrian’s RDM strategy, while the Vice President, Academic will uphold and champion the principles of RDM to all faculty, staff, and students engaged in research and scholarship of teaching and learning.



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Related Policies/ Directives/ Regulations

- Cambrian Code of Conduct Policy
- Conflict of Interest Policy
- Contract Management Policy
- Ethical Conduct for Research Involving Humans Policy
- Intellectual Property Policy
- Commercialization Policy
- Internal Privacy Policy
- Records Retention Policy
- Responsible Conduct of Research Policy

Definitions

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, repurposed data, and may include stories that are told (images, recordings, artifacts) that are collected through the process of storytelling. Raw data that is not necessarily published but needs to be managed and/or organized also falls under the umbrella of research data.

Research data lifecycle: The points throughout the research process where data is conceived, created, collected, manipulated, stored, shared, archived, and destroyed where Research Data Management practices must be considered and implemented.

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.

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