Draft

Data Management Aspirations

LCDRI Summit 2017

Breakout Room 2

Vision

An innovative and coordinated data management community, providing responsive services and resources that support Canada's research community in advancing both basic and applied research for the betterment of all Canadians.

Imperative

In Canada, significant gaps exist in our ability to support effective research data management (RDM) practices. This state of affairs is complicated by research data management (RDM) activities and responsibilities that span several jurisdictions and a diversity of stakeholders. As a consequence, RDM is lacking widespread support for platforms, services, and funding mechanisms. Coordinated action is required to develop a national system of policies, services, platforms, and tools for the stewardship of research data that will enable its continued access and reuse into the future.

The Future We Seek

In ten years, with appropriate strategic planning, coordination, and investment, we see a future in which RDM in Canada will be transformed.

At the *community level*, the transformation will result in:

- A nationally coordinated data management community that provides robust data management services and resources that are operational, offered in both official languages, and internationally recognized as best practices.
- Innovation for local and domain-specific RDM services and resources is supported and encouraged nationally.

- Coordinated RDM services that are offered to researchers on all Canadian campuses as a core service of libraries in collaboration with local research offices and computing services.
- A national network for RDM services being established to support an integrated set of RDM platforms, as well as experts who can help local points of contact at all research institutions.
- Canadian data repositories being developed and interoperating collaboratively in a federated environment, nationally and internationally.
- An environment in which a variety of machine services, such as registries for persistent identifiers, current research information systems (CRIS), and virtual analysis environments, are integrated and supportive of RDM.
- Those who support other aspects of Canada's broader digital research infrastructure ecosystem being supportive partners in RDM service delivery.
- The unique data interests of Indigenous peoples being an integral part of the data management community.
- Research data and metadata being integrated into scholarly communications.
- A sustainable and transparent system for coordinating RDM within Canada's digital research infrastructure being firmly established.

For *researchers*, the transformation will result in:

- Efficiencies in RDM providing researchers with more time and resources.
- Researchers being recognized and rewarded for the curation and sharing of their research data through an evolved academic rewards system (e.g. promotion, tenure, salary, grants and awards).
- Increased domestic and international collaboration among researchers because of greater accessibility and interoperability of each other's research data.
- New connections among researchers that are enabled by improved RDM practices and a rise in interdisciplinary research, leading to unexpected knowledge creation and innovation.
- Early career researchers having greater access to research data and a richer research environment.
- A culture of Open Science and data sharing that is the norm in all disciplines.
- A culture and appreciation of the importance of excellence in data stewardship that is a widely accepted norm.

For the *management of research data*, the transformation will result in:

- RDM practices across disciplines that are based on the FAIR Guiding Principles, making research data Findable, Accessible, Interoperable and Reusable.

- Advances in data documentation and curation practices that make research datasets independently understandable and improve the reproducibility of research findings.
- Improved RDM practices that produce higher quality research data and that increase the analytic value of the data and subsequent outputs.

Principles

The following principles are vital to achieving the vision and desired future state of RDM services and platforms that are developed and delivered locally, regionally, and nationally and that are aligned with international efforts:

- **Responsive** to the needs of the research community;
- **Adaptive** to changes in research and data management;
- **Innovative** through the development of local and domain-specific solutions that are scalable;
- **Coordinated** among key local, regional, and national research service providers;
- **Integrative** by design to facilitate easy incorporation of new and interoperable services and platforms;
- **Collaborative and cooperative** working relationships among the stakeholders of this community of practice;
- **Distributed** to maximize stakeholder cooperation and to leverage their engagement in a community of practice;
- **Well-governed** to be accountable to the research community, to those providing services and resources, and to those funding it; and
- **Sustainable** to allow its ongoing operation.

Goals

To achieve the vision and desired future state, the following goals must be rigorously pursued by the Canadian RDM community:

1. Build innovative services and resources that are distributed across institutions and nationally coordinated, internationally recognized, sustainable, and responsive to the full spectrum of researcher needs. These services and resources should respect discipline-specific, national, and institutional data stewardship policies and be based on best practice standards and protocols.
    1.1. Develop a strategic planning process that is informed by, and responsive to, continual feedback from users across all disciplines, changes in policy,

technology, local innovation, and continuous operational learning and improvement.

1.2. Identify and secure sustained and predictable funding for both operational and capital investment, including an ongoing coordinating body to support a data management community in providing well-managed processes for coordinated and collaborative service delivery across Canada.

1.3. Coordinate local and domain-specific resources and services to align with international RDM standards and protocols.

1.4. Develop institutional strategies for RDM in all Canadian higher education establishments in accordance with Tri-Agency requirements.

1.5. Develop a federated storage network to support Canadian research data repositories that provides both active research storage and archival storage for the re-use and preservation of research data.

2. Advance and adopt RDM processes and procedures that are informed by institutional and discipline-specific needs to improve the overall quality of research data and to adhere to best practices. This will require flexible and adaptive tools and platforms supporting data planning, creation, curation, deposit, access, discovery, and re-use.

2.1. Develop a national software framework that supports the development of innovative local and discipline-specific tools to support Canadian researchers with RDM workflows and that is aligned with similar frameworks internationally.

2.2. Develop and ensure widespread adoption of RDM definitions, taxonomies, and unique identifiers by the broader research community.

2.3. Integrate metadata production into RDM tools at the project level and throughout the research lifecycle to automate its capture and reuse.

3. Establish a community of practice that is supported by a distributed network of specialists who can provide expert advice, support, and training in data management best practices.

3.1. Increase the capacity of Canada’s higher education sector to support RDM services and resources for researchers and organizations supporting research. This includes encouraging collaborative relationships among institutional units, such as libraries, offices of sponsored research, research ethics boards, IT services, and external RDM organizations.

3.2. Continue to strengthen the capacity of libraries to provide front-line support for RDM as key service points and loci of expertise on campus.

3.3. Support at the national and local levels the development of a variety of RDM training resources, such as, online courses, webinars, guides, presentations, and in person workshops.

3.4. Engage Canadian NGO and government RDM agencies as contributing partners in this community of practice.

3.5. Facilitate and encourage Canadian participation in international RDM organizations and the adoption of best practices recognized by the international community.