

Institutional Research Data Management Strategy

King's University College at Western University

Approved by King's Faculty Council 8 February 2023

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1 Introduction

1.1 Background

In March 2021, Canada's federal funding agencies (Tri-Agencies) — 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) — launched the <u>Tri-Agency Research Data Management (RDM) Policy</u>. The Tri-Agency RDM Policy builds on the <u>Tri-Agency Statement of Principles on Digital Data Management</u> and is designed to support Canadian research excellence by fostering sound digital data management and data stewardship practices.

The Tri-Agencies maintain that research data collected using public funds should: (a) be responsibly and securely managed and, (b) where ethical, legal, and commercial obligations allow, be available for reuse by others. The Tri-Agency RDM Policy requires that all institutions eligible to administer Tri-Agency funds create an institutional RDM strategy, publish it on their institutional website, and notify the Tri-Agencies when the strategy is completed, no later than 31 March, 2023.

In August 2022, Dr. Robert Ventresca, Academic Dean (Interim) of King's University College at *Western University* (King's), established the Dean's Working Group on Research Data Management (RDM Working Group) to develop an institutional strategy that aligns with all relevant Tri-Agency policies, reflects King's mission and values, supports the needs of researchers and research staff, and promotes the use of informed and responsible research data management and data stewardship practices.

1.2 Purpose

This strategy is a *living document*, meant to guide the King's research community as it works toward identifying and responding to infrastructure and policy gaps with the aim of ensuring that all research data collected and generated by researchers at King's is securely, efficiently, and ethically managed, and, where appropriate, shared in ways that promote the common good. It is *not a policy document* or set of binding directives related to research data management.

This strategy will be regularly reviewed and revised based on feedback from the King's research community, evolving support systems and best practices, and the emergence of new funder requirements, while also taking into consideration pragmatic concerns related to the size and capacity of the institution.

This strategy ensures that King's maintains its institutional eligibility to administer Tri-Agency grants and awards, and that King's upholds its commitment to supporting researchers by equipping them with appropriate resources to meet developing standards of academic and research excellence. It also acknowledges the ethical duties King's has to a variety of internal and external stakeholders and the broader public by affirming and promoting the importance of responsible data management and data stewardship to the advancement of knowledge and the pursuit of truth.

1.3 Institutional Stakeholders

Responsible data management and data stewardship at King's relies on collaboration between faculty, administration, relevant academic/research committees, staff, and students. This collaboration allows King's to increase its research capacity and successfully implement its Strategic Plan. Furthermore, King's acknowledges its role in upholding the rights of research participants and external stakeholders, and in raising awareness about the responsibilities of researchers and research teams. These goals can only be

achieved by ensuring that King's core constituencies are equitably represented and involved at all stages of the development and implementation of this strategy.

The RDM Working Group membership consists of representatives from:

- Academic Dean's Office
- Faculty
- Research Ethics Review Committee (RERC)
- Research Office
- G. Emmett Cardinal Carter Library
- Information Technology Services (ITS)

The RDM Working Group will ensure that the King's research community is made aware of this strategy, the policies and procedures that will result from this strategy, and the supports and services available to researchers as infrastructure is put in place to comply with relevant policies and procedures.

Community consultation and feedback are key to effective research data management. This strategy is developed after consultations with King's research community including, but not limited to, Research Data Management needs-based survey, PDM Maturity Assessment Model in Canada (MAMIC), and RDM Focus Group to discuss concerns and considerations related to RDM in the social sciences and humanities. Moreover, RDM principles and Tri-Agency requirements were discussed in Faculty Council, comprised of all full-time faculty and executive leadership, small brain-storming sessions, and one-on-one sessions between faculty, ITS, and King's Research Office. The RDM Working Group is committed to soliciting and responding to feedback from institutional stakeholders about their data management and data stewardship practices and needs on an ongoing basis, and to monitoring upcoming trends in the research ecosystem and evolving this strategy with the emerging changes in RDM principles and practices.

1.4 Scope

This strategy applies to all faculty, staff, and students performing and/or involved in research and related activities under the auspices of King's. It recognizes the authority of all relevant Tri-Agency statements, policies, and guidelines. In any instance where this strategy appears to conflict with such policies, the Tri-Agency policy will prevail.

The initial focus of this strategy is to ensure that Tri-Agency-funded researchers at King's have the necessary research tools, technological infrastructure, policies and procedures, and service supports in place to execute responsible data management and data stewardship practices, as they will lead the transition into this new research paradigm.

1.5 Importance of Data Management and Data Stewardship

Responsible data management and data stewardship are important to maximizing the potential for access, use, reuse, correlation, and corroboration of research data. It also enhances the reach, relevance, and impact of research results, and thus contributes to academic excellence.

The use of established best practices in recordkeeping, data stewardship, and data management has many benefits for the primary researcher, others in the field, the public, and posterity. It can, for example, reduce

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¹ Adapted from <u>UBC Research Data Management Survey: Humanities and Social Sciences.</u>

² Digital Research Alliance of Canada - RDM Maturity Assessment Model in Canada (MAMIC)

unnecessary duplication of research and associated expenditures, lower unnecessary burdens on research participants due to repetitive sampling, increase accountability and transparency, and accelerate new discoveries.

In alignment with the belief that "research data collected through the use of public funds should be responsibly and securely managed and be, where ethical, legal and commercial obligations allow, available for reuse by others," King's will follow the recommendation of the Tri-Agencies in adopting the <u>FAIR</u> <u>Principles for scientific data management and stewardship</u> – Findable, Accessible, Interoperable, and Reusable.⁴

The long-term preservation and sharing of research data, where appropriate, is also of critical importance to scholarly inquiry, insofar as it enables the replication and verifiability of results. The Tri-Agency RDM policy, under the pillars of Data management plans (DMPs) and Data deposit, strongly recommends that "all grant proposals should include methodologies that reflect best practices in RDM," ("3.2 Data management plans," *Tri-Agency RDM Policy*) and that grant recipients should, where appropriate, "deposit into a digital repository all digital research data, metadata, and code that directly support that research conclusions in journal and pre-prints" (3.3 Data deposit, *Tri-Agency RDM Policy*). The data management plans will be piloted as a requirement for certain funding opportunities in Fall 2023, and data deposit requirement will be implemented once Tri-Agencies have reviewed "readiness of the Canadian research community" in the published institutional strategies.

Not all research data are suitable for sharing for ethical, legal, privacy, intellectual property, or commercial reasons. Responsible RDM also ensures that adequate safeguards are in place to protect research participants, knowledge keepers, researchers, commercial partners, and institutions.

King's recognizes that RDM is essential for modern research excellence. Strategies are needed to effectively manage and analyze increasingly larger volumes of research data, and to ensure that data is securely preserved. As an institution committed to the open pursuit of truth, and the discovery and sharing of knowledge in service to humanity, King's will:

- adopt established best practices when developing institutional standards and policies related to recordkeeping, data stewardship, and data management;
- equip researchers and research support teams with training in RDM, and;
- provide resources for responsible data management and data stewardship.

2 Indigenous Data Sovereignty

Indigenous data sovereignty refers to Indigenous communities' rights to own, control, and manage data generated from research projects in which they participate and that have implications for Indigenous peoples, lands, and knowledges. There is a long problematic history of research and data collection practices in research projects related to Indigenous issues. During the Tri-Agencies' public consultations regarding data management, Indigenous organizations and leaders highlighted that "Indigenous communities often

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³ Preamble to the *Tri-Agency Research Data Management Policy* (2021-03-15).

⁴ Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. 2016. The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data* 3, 160018. https://doi.org/10.1038/sdata.2016.18. https://www.nature.com/articles/sdata201618

have difficulty accessing research data and, as a result, are unable to use and benefit from them."⁵ The Tri-Agencies emphasize that "data related to research by and with First Nations, Métis, or Inuit whose traditional and ancestral territories are in Canada must be managed in accordance with data management principles developed and approved by these communities, and on the basis of free, prior and informed consent."⁶ King's acknowledges that Indigenous research is not just about digital data but also comprises traditional knowledges and relationality associated with protocols and shapes ethical stewardship. Traditional knowledge can be defined as "knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural identity." Indigenous data might be derived from projects on Indigenous social data, demographics, ecological data, land histories, traditional and cultural data, archival data, community stories, ancestral knowledge, oral traditions, and many more.

Amidst this context, King's is continuing to collaborate with local Indigenous community partners, Western University's Office of Indigenous Initiatives, and Non-Medical Research Ethics Board and the Research Data Management Working Groups of Western's affiliates, as part of developing its institutional strategy on research data management. Discussions concluded that the institutions should focus on co-creation with the Indigenous communities. Main recommendations from these collaborations can be summarized as:

- Relationships with the Indigenous communities and people must centre Indigenous research.
- The institutions and researchers must acknowledge the validity of Indigenous epistemologies and ontologies.
- Commitment to Indigenous data sovereignty and responsibility for respecting and adhering to nation/community specific protocols.

King's joined Huron University College and Brescia University College in establishing the role of Indigenous Initiatives Coordinator, to "develop relationships with local Indigenous communities, create inclusive spaces, and decolonize curriculum practices." In terms of Indigenous research and data stewardship, there is a need to map barriers and challenges that researchers and research participants face and to develop internal capacity for building institutional policies and resources and assessing data management plans.

In addition to incorporating the Tri-Agencies' Indigenous data management principles, King's University College takes a distinctions-based approach, recogning that First Nations, Métis, and Inuit are rights-bearing and self-governing, with their own Indigenous governance systems as well as diverse histories, territories, communities, languages, cultures, and knowledges.

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⁵ "Policy treatment of data in the context of Indigenous research," *Public Consultation Summary*. https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/public-consultation-summary.

⁶ Tri-Agency Research Data Management Policy https://science.gc.ca/site/science/en/interagency-research-funding/policies-and-guidelines/research-data-management/tri-agency-research-data-management-policy

⁷ "Traditional Knowledge" WIPO https://www.wipo.int/tk/en/tk/

^{8 &}quot;Brescia, Huron and King's University Colleges hire Indigenous Initiatives Coordinator."

https://brescia.uwo.ca/communications/media_relations/media_releases/2022/brescia_huron_and_kings_university_colleges_hire_indigenous_initiatives_coordinator.php

2.1 CARE Principles

The Global Indigenous Data Alliance (GIDA) has developed <u>CARE</u> principles aligned with the open data FAIR principles and emphasizes that Indigenous research should "Be FAIR and CARE." CARE is defined as:

- Collective Benefit Indigenous peoples and communities should be enabled to derive benefits from data
- **Authority to Control** Recognition of Indigenous people's rights and interests and their ability to determine how Indigenous peoples and related key indicators are represented and identified.
- **Responsibility** Researchers have a responsibility to share how data are used to support Indigenous peoples' self-determination and collective benefit.
- Ethics Indigenous peoples' rights and wellbeing should be a primary concern at all stages.

2.2 The First Nations Principles

The First Nations Communities have developed <u>First Nations Principles of OCAP</u> with a focus on realization of data sovereignty aligned with First Nations' worldviews. OCAP "asserts that First Nations alone have control over data collection processes of their communities, and that they own and control how this information can be stored, interpreted, or shared." OCAP stands for:

- Ownership Relationship of First Nations to their cultural knowledge, data, and information. A community/group owns information collectively.
- Control First Nations communities, and representative bodies have rights to seek control over all
 aspects of research and information management processes that impact them during all stages of a
 particular research project. The principle extends to the control of resources and review processes,
 the planning process, management of the information and so on.
- Access The principle of access also refers to the right of First Nations' communities and organizations to manage and make decisions regarding access to their collective data about themselves and their communities regardless of where it is held.
- **Possession** While ownership identifies the relationship between a people and their information in principle, possession or stewardship is more concrete: it refers to the physical control of data.

2.3 Métis-specific principles (OCAS)

Métis-specific means that "the focus of an activity or program is on Métis communities, and is consistent with the needs and unique cultural perspective of Métis." The Manitoba Métis Federation subscribes to OCAS principles – Ownership, Control, Access, and Stewardship. The stewardship refers to Métis' responsibility "to ensure that research that is completed in their best interests, will result in positive changes [...], and is done in as rigorous and ethical manner as possible." 12

¹⁰ The First Nations Principles of OCAP https://fnigc.ca/ocap-training/

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⁹ #Be FAIR and CARE https://www.gida-global.org/care

¹¹ Principles of Ethical Métis Research. https://achh.ca/wp-content/uploads/2018/07/Guide Ethics NAHOMetisCentre.pdf

¹² Framework for Research Engagement with First Nation, Métis, and Inuit Peoples https://umanitoba.ca/health-sciences/files/2021-01/framework-research-report-fnmip.pdf

2.4 Inuit Research Principles

Inuit Tapiriit Kanatami (ITK) in its <u>National Inuit Strategy on Research</u> emphasizes that Inuit have the right to self-determination in the area of research. This means that "research and research institutions must acquire free, prior and informed consent of Inuit prior to research activity being undertaken"¹³ in Inuit homelands and communities. One of the five priority areas of National Inuit Strategy, "Respectful and Beneficial Research for all Inuit" emphasizes ensuring Inuit access, ownership and control over data and information that is generated from the research conducted in Inuit communities.

3 Guiding Principles

The development and implementation of RDM related decision-making at King's is guided by the following overarching principles:

3.1 Ethical and Responsible

- o Recognize that researchers and institutions are data stewards with shared responsibilities.
- Recognize that institutions have a duty to respect academic freedom but also to take appropriate steps to ensure, to the extent that it is reasonably possible, that research carried out under their auspices is conducted in an ethical and legal manner.
- Ensure research participants and collaborators are treated with dignity and retain appropriate levels of ongoing authority over the data they share with researchers.
- o Ensure that prior, informed, and ongoing consent is obtained concerning how data are managed.
- o Ensure that appropriate safeguards are in place to protect confidentiality of data and minimize risks of accidental loss, corruption, destruction, and disclosure.
- o Ensure that data are responsibly shared, preserved, and destroyed when appropriate.

3.2 Researcher Focused and Context Dependent

- o Advance RDM practices that are effective and efficient, easy to understand and follow, foster research excellence, and promote data integrity.
- Recognize there is no one-size-fits-all when it comes to RDM practices. Determining how data ought to be managed requires ongoing review by the researcher that considers the nature of the research and data.
- Respect discipline specific standards. Best practices in one field may not be relevant or appropriate to others.
- o Balance ethical obligations and safety concerns against the scholarly integrity and potential academic and societal benefits of the research and related activities.
- o Balance obligations to research participants, the public, and the scholarly community, while respecting the academic freedom and rights and responsibilities of faculty.

3.3 As Open as Possible, as Closed as Needed

Recognize that not all research data can or should be shared. Researchers have an obligation to make informed decisions about whether data related to their research activities are suitable for sharing, to provide appropriate access to data where it is safe and possible to do so, and to ensure prior, informed, and ongoing consent related to data sharing is obtained.

¹³ National Inuit Strategy on Research https://www.itk.ca/wp-content/uploads/2018/04/ITK NISR-Report English low res.pdf

o Balance commitments the open pursuit of truth, and the discovery and sharing of knowledge in service to humanity with ethical, legal and professional obligations and codes of conduct.

3.4 Reciprocal benefits for research participants

- Promote reciprocal benefits to the communities and groups from which data is collected as well as the public.
- Give special consideration when research involves vulnerable, marginalized and historically disadvantaged research participants and their communities.

4 Institutional support

King's is committed to promoting the importance of responsible data management and data stewardship to researchers, staff, and students.

The Research Office, G. Emmett Cardinal Carter Library, and ITS will support King's research community in their efforts to become better educated about RDM best practices, and to implement these practices in ways that are consistent with ethical, legal, and commercial obligations, Tri-Agency requirements, and other relevant policies.

To this end, King's will provide guidance workshops on how to manage data in accordance with the principles outlined in the *Tri-Agency Statement of Principles of Digital Data Management*, including building and managing of data management plans (DMPs), using templates developed by the Digital Research Alliance of Canada (the Alliance).

5 Oversight and review

5.1 RDM Strategy review process

Primary oversight of this institutional strategy rests with the Academic Dean and Faculty Council. King's will ensure that the strategy is regularly reviewed and revised where appropriate, for instance, as RDM services, infrastructure and practices evolve.

The Academic Dean will re-institute the RDM Working Group as a standing committee with revised Terms of Reference no later than April 30, 2023. At the discretion of the Academic Dean, this committee will be convened no less than once a year.

The King's Research Office will convene with the RDM Working Group regarding implementation and review of the strategy. The RDM Working Group is composed of various institutional stakeholders who will continue reviewing and consulting with other stakeholders, as needed. As this Strategy is in its initial stages, it will be reviewed after the first year of implementation to ensure that it continues to meet the needs of King's researchers, funders, and external stakeholders. The RDM Working Group will determine the appropriate implementation framework and timelines. The RDM Working Group will be responsible for bringing policy recommendations related to RDM to relevant administrative units at King's and for reviewing such policies prior to their adoption.

5.2 Duties and obligations of administration and researchers

In alignment with emerging trends in the Tri-Agencies' data management policies and principles, King's Research Office will continue soliciting feedback and recommendations from its core constituencies, such as research participants, collaborators, and the RERC, as well as other relevant committees to incorporate best practices of data deposit, stewardship, and management. Members of the RDM Working Group will be responsible for deliberating on the feedback and advocating for data management needs on behalf of the relevant stakeholder groups they represent.

5.3 Monitoring and compliance

By accepting Tri-Agency funds, institutions and researchers accept the terms and conditions as set out in the Tri-Agencies' policies, agreements and guidelines. In the event of an alleged breach of Tri-Agency policy, agreement or guideline, the agency may take steps outlined in accordance with Section 3 of the *Tri-Agency Framework: Responsible Conduct of Research*¹⁴ to deal with the allegation.

6 Priorities and Goals

6.1 Building internal capacity

Under the guidance of Academic Dean and the RERC, King's Research Office will foster professional development opportunities on data management and stewardship strategies, including the following topics:

- Best practices on data management
- Data Management Plans (DMP)
- Digitization of physical records
- Metadata
- Data management and stewardship in qualitative research
- Ethical issues related to data preservation and sharing
- Data repositories and data deposit
- Data storage and backup during active research projects
- Permanent digital object identifiers (DOIs) for datasets
- Finding and accessing data sources

Additionally, the Research Office will offer personalised consultation and one-on-one mentoring, when possible, related to data management and stewardship.

6.2 Network of Data Champions

King's University College will develop a network of Data Champions, comprised of researchers, students, and staff who will promote and demonstrate the Tri-Agency research data management principles and the significance of data stewardship and management. Data Champions will advise and educate King's community on responsible data management and stewardship, complementing the official activities of the RDM Working Group.

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¹⁴ https://rcr.ethics.gc.ca/eng/framework-cadre-2021.html#a3

6.3 Institutional Services and Supports

Academic Dean's Office and Research Office

The Academic Dean's Office will provide resources, tools, and training to support the RDM needs of researchers, students, and staff, as well as engage in awareness raising, through the Research Office. Under the guidance of the Academic Dean, the Research Office will develop guides and templates on research data management procedures and tools and host them on an appropriate King's webpage. This institutional strategy will be hosted on the Research Office webpage and campus-wide feedback will be solicited through a web form. Additionally, it will continue to collaborate with Western and its affiliate, and the Digital Research Alliance of Canada's Network of Experts in building and improving resources on data management and stewardship. The Research Office will work with the Indigenous Coordinator at King's to engage with the local Indigenous communities to build relationships and collaborate to cultivate resources and supports for data needs related to traditional knowledge systems.

Information Technology Services (ITS)

The Information Technology Services Department will provide guidance on, and implement as necessary, storage and preservation resources and best practices for research data as well as support the establishment of a data repository for the archiving of and long-term access to research data at King's. Access to the data repository will be managed to reflect the intentions of the RDM Strategy especially those noted in Article 3, *Guiding Principles*. The ITS Department will work with the Research Office and the Cardinal Carter Library on designing processes for the appropriate access of research data and necessary data backups. When appropriate the ITS Department will work with specific departments in relation to their departmental data access and backup needs though the intention is to provide campus-wide policies and procedures relating to research data.

G. Emmett Cardinal Carter Library

The Library will offer services and support in relation to the search, capture and use of internal and external data while advocating for open access sources. These services and supports may include:

- embedded or support roles conducting literature reviews or current awareness alerts for research projects or groups;
- bibliometrics and impact measurement;
- bibliographic software training;
- advocacy for open access/ institutional repository;
- data analysis advice;
- advice on copyright issues;
- advice on archiving of research records (such as correspondence);
- research data licensing;
- role of library as point of enquiry and the reference interview;
- promote data reuse by making known what is available internally and externally;
- explaining data citation;
- documentation and metadata tagging

7 Definitions¹⁵

Research data management (RDM) refers to a set of practices for actively organizing and securing research data throughout the life cycle of a research project, from project planning through the collection, storage, processing, analyzing, sharing, preservation, and reuse of research data. The Tri-Agencies encourage researchers to comply with the *Tri-Agency Statement of Principles on Digital Data Management* by applying best data management and stewardship practices and procedures to their research data in conjunction with all relevant legal and ethical considerations and embargoes. The evolving research landscape emphasizes transparency, accountability, and replicability of research findings, while acknowledging that concerns over privacy, confidentiality, and data security are real. Mitigating these concerns impacts the cost of research projects.

Research data are facts, measurements, records, or observations, collected or gathered by researchers with minimal contextual or interpretive input, and may be in any format or medium; are the result of taking raw information from any source (informants/survey respondents, archival or bibliographic data, social media, scientific instruments, document text) and collecting, assembling, or otherwise transforming that information for the purpose of having it serve as input for further research.

Research data include observations about the world that are used as primary sources to support scholarly inquiry, creativity, and research-creation, and as evidence in the research process. Research data are an important research output, including data that are not ultimately published by the researcher as part of the final results of their project. The Tri-Agencies categorize research data into "experimental data, observational data, operational data, third party data, public sector data, monitoring data, processed data, or repurposed data" and emphasize that the definition of research data is "often highly contextual," and its determination "should be guided by disciplinary norms" (*Tri-Agency RDM Policy*). Research data are gathered through a variety of methods, including experimentation, analysis, sampling and repurposing of existing data.

Research materials are the object of an investigation, whether scientific, scholarly, literary or artistic, and are used to create research data. Research materials are transformed into research data through method or practice.

8 Resources

 European Commission. 2018. Cost-Benefit analysis for FAIR research data - Cost of not having FAIR research data. DOI: 10.2777/02999. https://op.europa.eu/en/publication-detail/-/publication/d375368c-1a0a-11e9-8d04-01aa75ed71a1

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¹⁵ Definitions of "research data" and "research data management" are adapted from the Preamble to the *Tri-Agency Research Data Management Policy – Frequently Asked Questions.* See also Kellam and Thompson 2016, p. 3.

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