

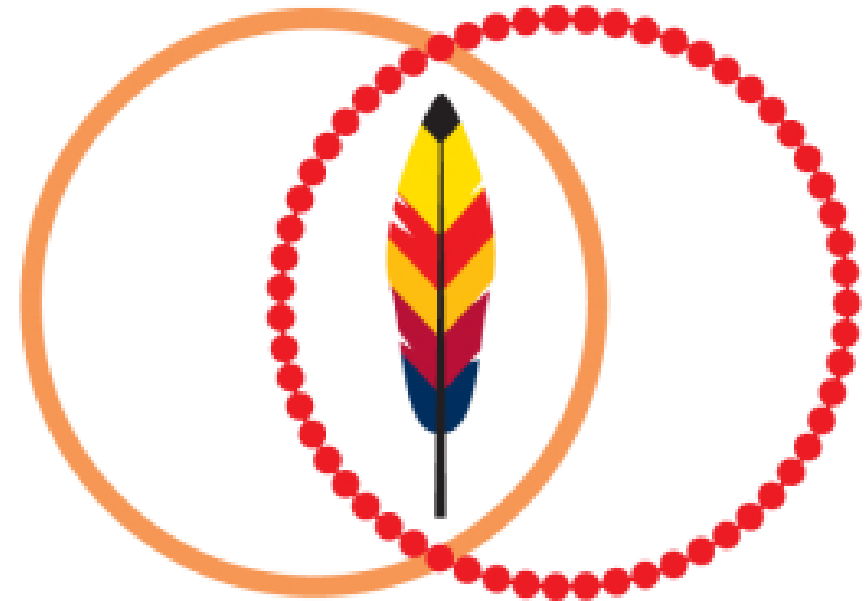
Research Data Management (RDM) Brown Bag Information Series

Research Data Management (RDM) and You

November 2, 2022

Land acknowledgement

"To begin, I would like to acknowledge that Queen's University is situated on traditional Anishinaabe and Haudenosaunee Territory. I am grateful to live, learn and play on these lands. I acknowledge and respect, the Anishinaabe and Haudenosaunee peoples and I am committed to taking responsibility for redressing the injustices that enabled me to be here today."



Hello! Meet the Queen's Data Champions



Alicia Cappello

Research Data Librarian,
Queen's University
Library



Elise Degen

Communications &
Relations, Centre for
Advanced Computing



Matt Clapp

Manager, Data Platform
Services, Information
Technology Services



Meghan Goodchild

Research Data
Management Systems Librarian,
Queen's University Library



Rebecca Pero

Information and Project
Coordinator, Vice-Principal
Research Portfolio

Agenda


- Overview of Research Data Management
- Tri-Agency RDM Policy
- **Pillar 1:** Institutional Strategy
- **Pillar 2:** Data Management Plans
- **Pillar 3:** Data Deposit
- Resources
- Q&A

Overview of Research Data Management

What are research data?

Research data may include:

- experimental
- observational
- operational
- third party data
- public sector data
- monitoring
- processed; or
- repurposed 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."

[CODATA Research Data Management Terminology, 2022](#)

Research data are **contextual** and **discipline specific**

What is research data management (RDM)?

Processes applied throughout the **lifecycle of a research project** to guide the collection, documentation, storage, sharing, and preservation of research data.



Why is RDM important?

RDM practices are **integral to conducting responsible research** and can help you save resources by **ensuring your data are complete, understandable, and secure**.

(Source: [Portage DMP Primer](#))

What are the benefits of RDM?

For researchers

- **Efficiency** – minimizes waste and expense
- **Protection** – protect valuable data
- **Quality** – improves data excellence (e.g., reliability)
- **Impact** – increases visibility and effect of research
- **Compliance** – with ethics, journal requirements, funder policies, and legal, commercial and other obligations

...and beyond

- Accelerates research discovery and innovation
- Maximizes public investment
- Enhances collaboration and partnerships
- Increases ability to reproduce and validate research results

([Bishop, 2015](#); [Alliance Research Data Management Working Group, 2020](#))

Tri-Agency RDM Policy

Tri-Agency Research Data Management (RDM) Policy (2021)

The Tri-Agency released their [policy on Research Data Management](#), March 2021.

Policy 'pillars' assist with:



The responsible and
secure management of
research data collected via
public funds



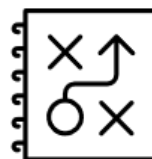
Where possible, the
sharing of data for reuse.

Tri-Agency RDM Policy Pillars



Institutional Strategy

Completed by
March 2023



Data Management Plans

Implementation
begins Spring 2022



Data deposit

Phased
implementation
beginning March
2023



Queen's University
Dataverse Collection

Pillar 1: Institutional Strategy

What is an Institutional Strategy?

An Institutional Strategy is meant to

"outline how the institution will provide its researchers with *an environment that enables and supports RDM*" (Tri-agency RDM Policy 2021, emphasis added).

What is required?

Each eligible institution and hospital is required to:

- create a high-quality institutional RDM strategy;
- publicly post the strategy; and
- notify the agencies when completed.



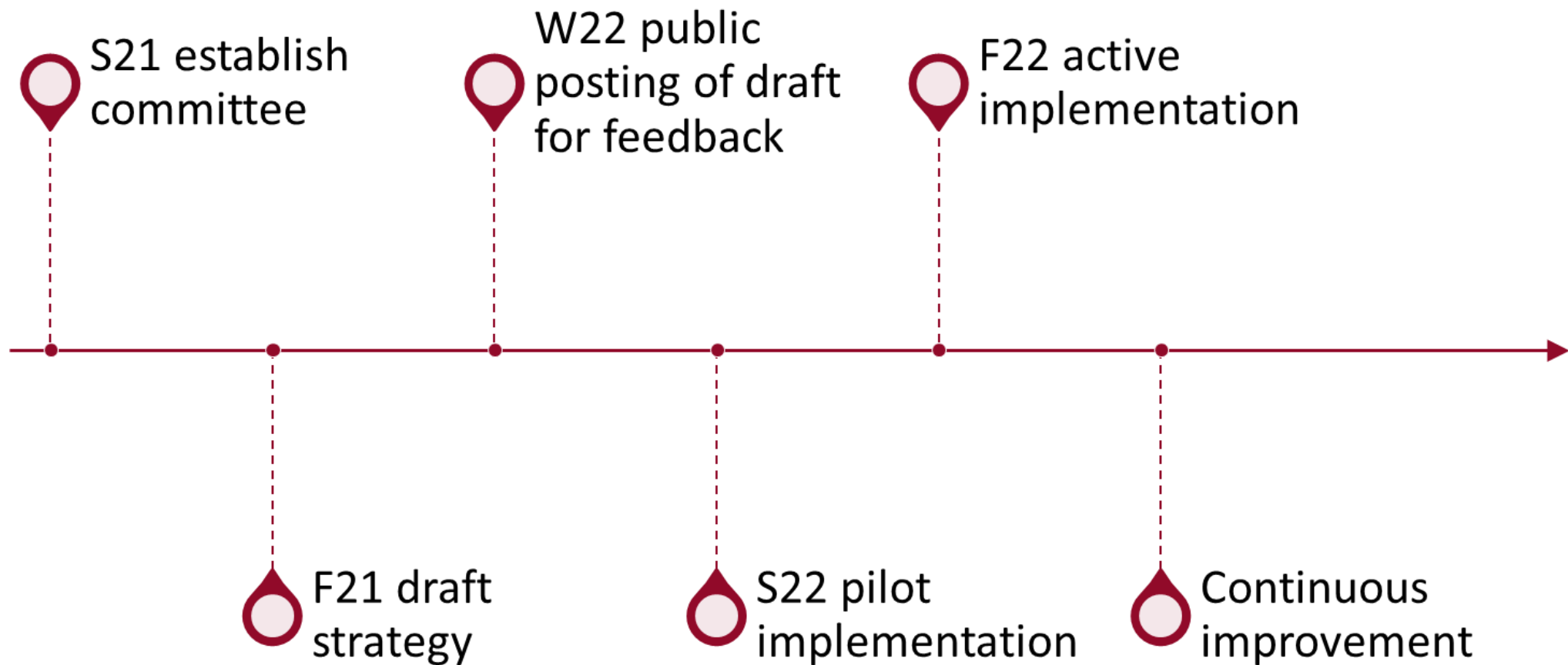
The agencies recognize that each strategy will reflect the institution's particular circumstances—for example, institution size, research intensity, and existing RDM capacity.

Attention to Indigenous Data Governance and Sovereignty

"Data created in the context of research by and with First Nations, Métis, and Inuit communities, collectives and organizations will be managed according to principles developed and approved by those communities, collectives and organizations, and in partnership with them" (Tri-Agency RDM Policy, 2021).



Queen's Institutional Strategy Development



Shared Vision for RDM at Queen's

"Queen's University will provide a range of clear and accessible tools, technologies and support services to meet the needs of researchers throughout the research data life cycle. Our research-centered approach means we will promote wise practices around data management planning and data deposit, preservation and disposal. Our aim is to identify pathways to research data management, to build on areas of strength and expertise and improve on tools, technologies and service supports that allow Queen's to enhance research excellence and adapt to the research ecosystem."



Components of Queen's Institutional Strategy

The Queen's Strategy aligns with the [Digital Research Alliance of Canada's template for Institutional Strategies](#). This template was developed by a group of experts. Sections of the Strategy include, Scope, Institutional Support and Ethical, Legal and Commercial Considerations.

Special consideration, the [Guiding Principles section](#).



**Research
excellence**



**Open dissemination
of research results**



**Respect for
Indigenous
communities**



**Institutional support
for researchers**



**Strong
collaborations**

We want to hear from you!

The first draft of Queen's Institutional Strategy is now available, and we invite feedback from the research community.



www.queensu.ca/vpr/resources/RDM/strategy

Pillar 2: Data Management Plans

Grants Requiring a Data Management Plan (DMP)

Data management plans (DMPs) will be required for applications to the following Tri-Agency grants, starting in late 2022:

CIHR

- Network Grants in Skin Health and Muscular Dystrophy (late 2022, early 2023)
- Virtual Care/Digital Health Team Grants (late 2022, early 2023)
- Data Science for Equity (late 2022, early 2023)

NSERC

- Subatomic Physics Discovery Grants (individual and project) (summer 2023)

SSHRC

- Partnership Grants Stage 2 (summer 2023)

Data Management Plans - Lifecycle




What is a **Data Management Plan** or DMP?

- It's a formal, but living*, document that outlines the strategies and tools being used to manage data during the active phases of research, AND
- The mechanisms to be used to preserve and share research data once the project is completed.

The DMP is considered a **living** document because it can, and should, be modified throughout the life a project when changes occur. It is **not** set in stone.

Data Management Plans – Benefits/Considerations



BENEFITS

- Compliance with policy
- Proactive / Forward-thinking
- Identify opportunities & challenges
- Easily adapt to unanticipated obstacles
- Engage partners
- Improved efficiency / increased productivity
- Everyone is on the same page



CONSIDERATIONS

- Time consuming up front (but saves time later)
- Review of DMP throughout project
- “Administrative” exercise
- No guarantee of good data management
- Not required after funding

Data Management Plans – Components

What are the components of a Data Management Plan (DMP)?

1. Data Collection

2. Documentation and Metadata

3. Storage and Backup

4. Preservation

5. Sharing and Reuse

6. Responsibilities and Resources

7. Ethical and Legal Compliance

Data Management Plans – Components

1. Data Collection

- Types of data being collected or created
- File formats being saved/used
- Naming conventions for files
- Folder structures
- Versioning

2. Documentation and Metadata

- README files and other docs
- Updates to documentation
- Metadata standard

Data Management Plans – Components

3. Storage and Backup

- Storage requirements
- Storage location during project
- Data backup plan
- Data access

4. Preservation

- Data deposit after project
- Long-term accessibility
- De-identification

Data Management Plans – Components

5. Sharing and Reuse

- Data sharing or data transfer agreements
- End user licenses for data deposit
- Notifying community of data availability

6. Responsibilities and Resources

- Data manager / steward
- Data management tasks required
- Transfer of responsibilities, if needed
- Resources needs for DMP implementation
- Costs of DMP activities

Data Management Plans – Components

7. Ethical and Legal Compliance

- Sensitive data storage and access
- Data sharing and data transfer agreements
- Ethics application
- Data ownership
- Data security and insurance coverage

Data Management Plans – Tools



DMP Assistant – Canadian tool:

- Free and easy to use
- Uses Canadian terminology
- Maintained by University of Alberta
- Can share with others
- Export options
- Can access anywhere
- Public DMPs & templates

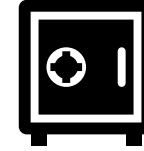
Pillar 3: Data Deposit

Data deposit – Part of the research lifecycle



- Data deposit intersects with the final stages of a research lifecycle where research data can be shared, preserved, and reused.
- “Research data are **valuable assets**, which when properly managed, have the potential to be **reused and recombined in innovative ways** to derive greater value and advance research and scholarship.” ([Current State of Research Data Management in Canada](#), 2020)
- In order to share, preserve, and reuse research data, appropriate steps must be built into the planning process (e.g., ethics approval, consent from participants, appropriate data management and storage).

Data Deposit – Tri-Agency RDM Policy



What is the Data Deposit requirement?

- Grant recipients are required to **deposit into a digital repository** all digital research data, metadata and code that directly support the research conclusions in journal publications and pre-prints that arise from agency-supported research.

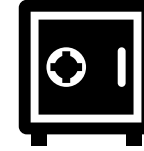
Do I need to deposit everything?

- Determining what counts as relevant research data ... is often highly contextual and should be guided by disciplinary norms.

When do I need to deposit?

- The deposit must be made by the **time of publication**.

Data Deposit – Tri-Agency RDM Policy



Am I obligated to share my data?

- Grant recipients are not required to share their data. However, the agencies expect researchers to provide appropriate access to the data where **ethical, cultural, legal and commercial requirements allow**, and in accordance with the FAIR principles and the standards of their disciplines.

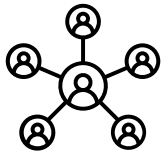
Are there exceptions?

- For research conducted by and with **First Nations, Métis and Inuit communities, collectives and organizations**, these communities, collectives or organizations will guide and ultimately determine how the data are collected, used and preserved, and have the right to repatriate the data. This could result in exceptions to the data deposit requirement.

What is the timeline for this requirement?

- **Phased implementation** beginning after review in March 2023

Data deposit – Why deposit in a repository?



Sharing data by request has many downfalls (discoverability, long-term storage, transfer mechanism, license/citation)



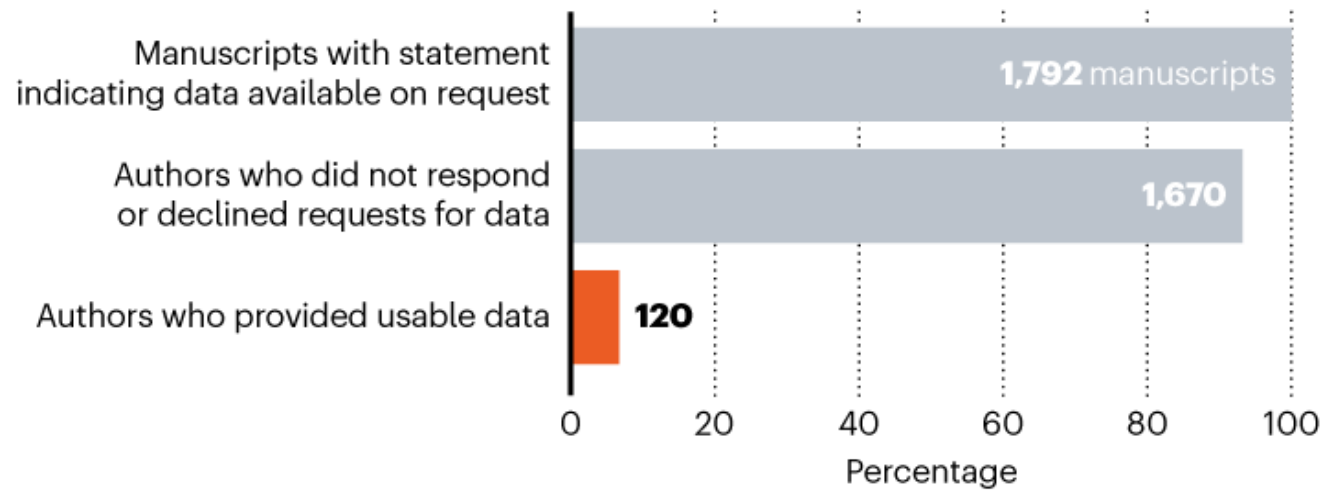
Personal websites are ephemeral



Journal supplementary material is not easily discoverable and can be paywalled

DATA-SHARING BEHAVIOUR

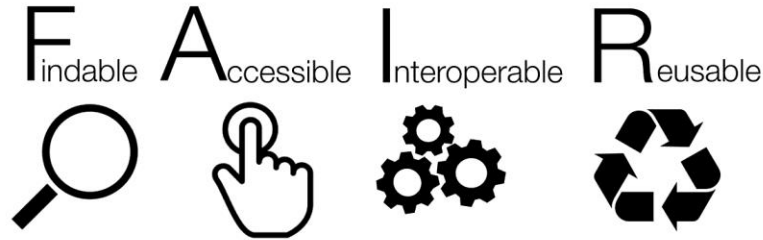
Of almost 1,800 manuscripts for which the authors stated they were willing to share their data, more than 90% of corresponding authors either declined or did not respond to requests for data. Only about 7% of authors actually handed over data.



©nature

(Source: [Watson, 2022](#))

Data Deposit – Why deposit in a repository?



<https://www.go-fair.org/fair-principles/>

Findable

- Digital Object Identifier (DOI)
- Indexed in a searchable resource

Accessible

- Ensure controlled access, where appropriate

Interoperable

- Integrate with other data (metadata standards)

Reusable

- Clear and accessible data usage license
- Data are well-described

Repositories
also offer
secure
storage and
long-term
stewardship

Data Deposit – Which repository?

Disciplinary Repository

- Built to handle specialized datasets
- Storage likely outside of Canada
- Eligibility, pricing, repository functionality vary
- May only accept certain file types



Queen's Dataverse Collection

- Multi-disciplinary
- Canadian storage
- File size <3 GB
- Open to Queen's researchers
- File-level restrictions possible
- Supports versioning



borealis
The Canadian Dataverse Repository
Le dépôt Dataverse canadien

Federated Research Data Repository (FRDR)

- Multi-disciplinary
- Canadian storage
- Big data support
- Open to faculty at Canadian institutions
- No file restrictions
- Limited versioning



Data Deposit – What is Borealis?

- **Borealis, the Canadian Dataverse Repository**, is a bilingual, multidisciplinary, secure, Canadian research data repository
- Shared service provided in partnership with Canadian regional academic library consortia, institutions, research organizations, and the Digital Research Alliance of Canada
- 65+ subscribing institutions across Canada
- Technical infrastructure hosted by Scholars Portal and the University of Toronto Libraries.
- Data stored on the Ontario Library Research Cloud (OLRC)
- Indexed in Datacite search, Google dataset search, FRDR for discoverability



Production: <https://borealisdata.ca>

Demo: <https://demo.borealisdata.ca>

Data Deposit – What is Queen's Dataverse Collection?

- **Queen's Dataverse Collection** is managed by your library!
- We provide data curation services to support dataset deposit and sharing
- Check it out at <https://borealisdata.ca/dataverse/queens>

The screenshot shows the Borealis website interface for the Queen's University Dataverse Collection. At the top, the Borealis logo is on the left, and navigation links for Search, User Guide, Support, English, and Log In are on the right. Below the Borealis logo is the Queen's University crest and name. The main heading is "Queen's University Collection (Queen's University)". Below this is a "Borealis >" link. On the right side, there are links for "Contact" and "Share". A paragraph of text describes the repository: "The Queen's University Dataverse is a research data repository for our faculty, students, and staff. Files are held in a secure environment on Canadian servers. Researchers can choose to make content available publicly, to specific individuals, or to keep it locked." Below this is a link to "Dataverse Data Deposit Guidelines" and another link to "Research Data Management guide". A "Need assistance? Contact us." link is also present. A carousel of featured datasets is shown below, with four items visible: "Queen's University Biological Station Queen's University Biological Station Data Archive Dataverse", "Laboratoire sur les élections et la démocratie / Elections and Democracy Laboratory", "Culture and Cognition Lab", and "Environmental Fluid Dynamics Laboratory". At the bottom, there is a search bar with the text "Search this dataverse...", a magnifying glass icon, and a link to "Advanced Search". To the right of the search bar is a "+ Add Data" button. Below the search bar, there are filters for "Dataverses (21)", "Datasets (153)", and "Files (4,652)". A "Dataverse Category" section lists "Researcher (7)" and "Laboratory (3)". The main results area shows "1 to 10 of 174 Results" and a "Sort" button. The first result is for the "Culture and Cognition Lab (Queen's University. Department of Psychology)" dated "Oct 7, 2022". The description for this result is: "The Culture and Cognition Lab investigates cultural differences between European North Americans and East Asians in perception, memory, categorization, prediction, judgment and decision making. Current research focuses on cultural differences in lay theories of change, and their..."

borealis

Search User Guide Support English Log In

Queen's UNIVERSITY

Queen's University Collection (Queen's University)

Borealis >

Contact Share

The Queen's University Dataverse is a research data repository for our faculty, students, and staff. Files are held in a secure environment on Canadian servers. Researchers can choose to make content available publicly, to specific individuals, or to keep it locked.

Before starting, please review our [Dataverse Data Deposit Guidelines](#).

For more information on best practices for research data management, consult our [Research Data Management guide](#).

Need assistance? [Contact us](#).

Queen's University Biological Station Queen's University Biological Station Data Archive Dataverse

Laboratoire sur les élections et la démocratie / Elections and Democracy Laboratory

Culture and Cognition Lab

Environmental Fluid Dynamics Laboratory

Search this dataverse... Advanced Search + Add Data

Dataverses (21) Datasets (153) Files (4,652)

Dataverse Category Researcher (7) Laboratory (3)

1 to 10 of 174 Results Sort

Culture and Cognition Lab (Queen's University. Department of Psychology) Oct 7, 2022

The Culture and Cognition Lab investigates cultural differences between European North Americans and East Asians in perception, memory, categorization, prediction, judgment and decision making. Current research focuses on cultural differences in lay theories of change, and their...

Data Deposit – What is Queen's Dataverse Collection?

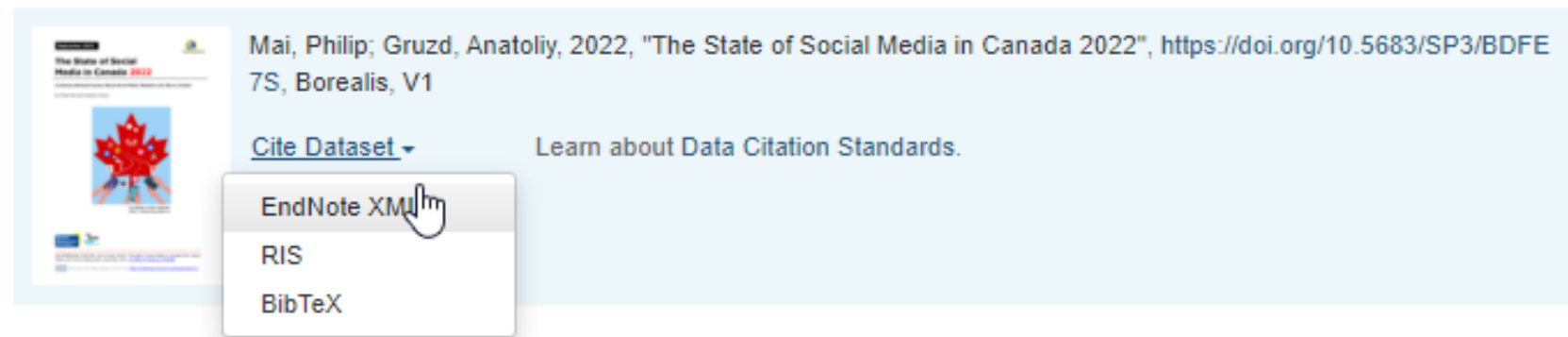
Data Citation

- Automatic DataCite Canada DOI reservation and minting
- DOI used in standard data citations
- Cross-reference research outputs
 - Establish unbreakable links between scholarly output and associated data

[Borealis](#) > [Toronto Metropolitan University Dataverse](#) > [Social Media Lab](#) >

The State of Social Media in Canada 2022

Version 1.0



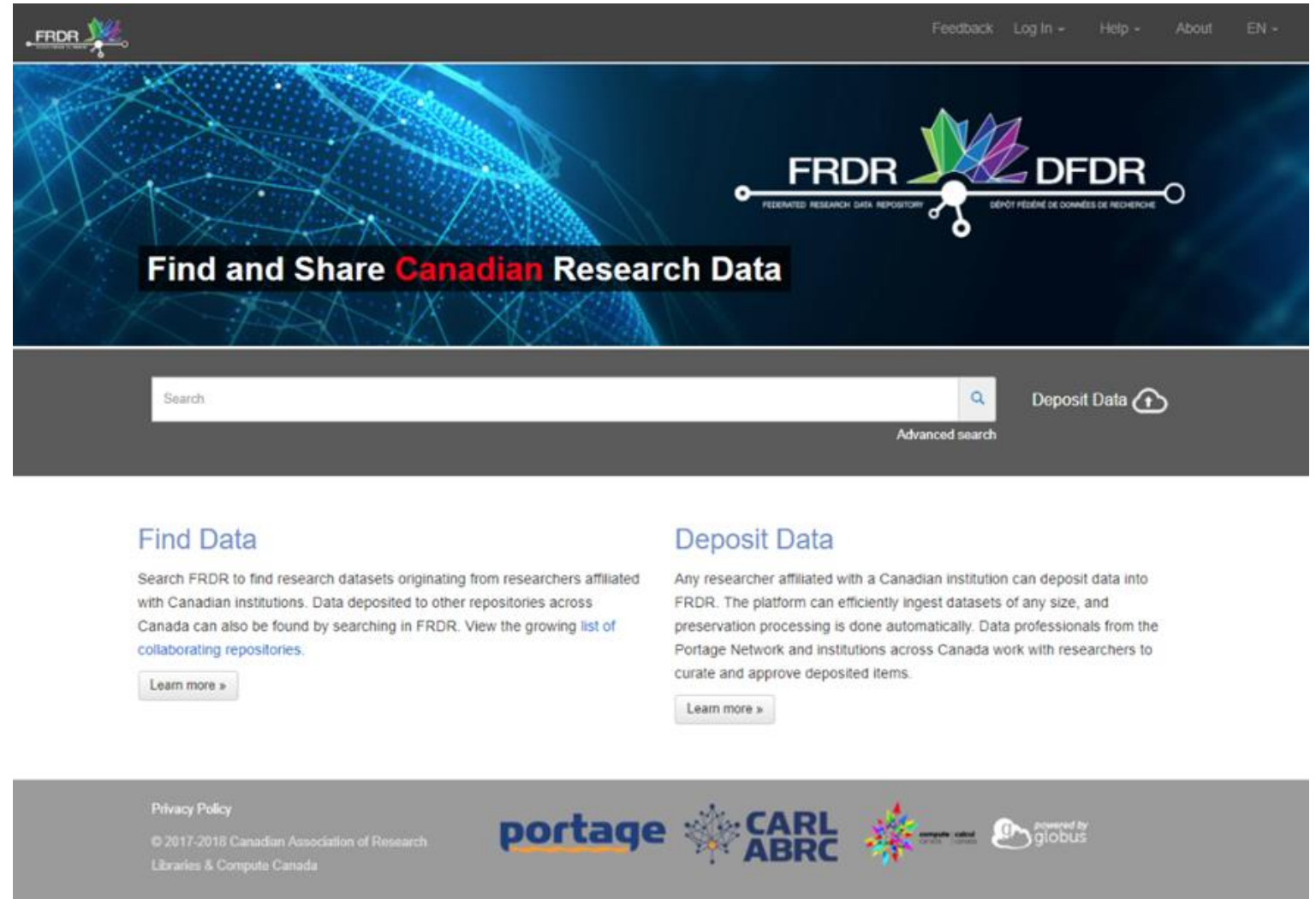
The screenshot shows a DataCite dataset page. On the left is a thumbnail of the dataset cover, which features a red maple leaf. To the right of the thumbnail, the text reads: 'Mai, Philip; Gruz, Anatoliy, 2022, "The State of Social Media in Canada 2022", <https://doi.org/10.5683/SP3/BDFE7S>, Borealis, V1'. Below this text is a 'Cite Dataset' button with a dropdown arrow. A mouse cursor is clicking on the dropdown, which has opened to show three options: 'EndNote XML', 'RIS', and 'BibTeX'. To the right of the dropdown, there is a link that says 'Learn about Data Citation Standards.'



Data Deposit – How do I find research data?

Search for data in the national discovery tool and repository

- Federated Research Data Repository (FRDR)
- Consult FRDR for an ever-expanding source of Canadian research data



<https://www.frdr-dfdr.ca/>

Resources

RDM Resources @ Queen's

| Policies | Tools | Resources |
|---|--|---|
| <ul style="list-style-type: none">• Tri-Agency Research Data Management Policy (2021)• Tri-Agency RDM Policy FAQs• Tri-Agency Statement of Principles on Digital Data Management (2016) | <ul style="list-style-type: none">• DMP Assistant• re3data.org• Queen's Dataverse Collection in Borealis• Borealis Demo– Try it out!• FRDR | <ul style="list-style-type: none">• Queen's Library RDM Guide• FAIR principles• The First Nations Principles of OCAP®• The CARE Principles for Indigenous Data Governance• CARL YouTube Channel |

Summary resource document:
<https://guides.library.queensu.ca/rdm/>

Key Takeaways

Institutional Strategy

- Feedback on Queen's draft RDM Strategy currently being accepted: www.queensu.ca/vpr/resources/RDM/strategy

Support for RDM at Queen's

- Data Management Plans
- Data Deposit
- Training, workshops, and consultations:
 - [VPR Portfolio](#)
 - [Queen's Library](#)
 - [Centre for Advanced Computing](#)

Next in series...

Don't miss the opportunity to join the [Queen's Data Champions](#) (qDC) for sessions 2 and 3 of the RDM brown bag informational series.

Register in advance to secure your spot in-person or online:

Session 2: [Developing a Data Management Plan](#) (Nov 23, 12:00-1:00PM)

Get the tools and knowledge you will need to create and maintain a data management plan.

Session 3: [Deposit Your Research Data in a Repository](#) (Dec 14, 12:00-1:00PM)

Learn about the benefits and considerations around depositing your research data into a repository.

Questions?



Please feel free to contact us if you have additional questions

Rebecca Pero, Information & Project Coordinator – pero.rebecca@queensu.ca

Alicia Cappello, Research Data Librarian – alicia.cappello@queensu.ca

Meghan Goodchild, RDM Systems Librarian – meghan.goodchild@queensu.ca

Elise Degen, Communications & Relations – elise.degen@queensu.ca

Matt Clapp, Manager, Data Platform Service – mjpc@queensu.ca

Feedback form

<https://tinyurl.com/qDC-RDM>



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**Digital Research
Alliance** of Canada

**Alliance de recherche
numérique** du Canada

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