UNIVERSITY OF CALGARY
Institutes for Transdisciplinary Scholarship

Research Data Management, Open Science and Indigenous Data Sovereignty

TD Week

May 1, 2025

The University of Calgary, located in the heart of Southern Alberta, both acknowledges and pays tribute to the traditional territories of the peoples of Treaty 7, which include the Blackfoot Confederacy (comprised of the Siksika, the Piikani, and the Kainai First Nations), the Tsuut'ina First Nation, and the Stoney Nakoda (including Chiniki, Bearspaw, and Goodstoney First Nations). The City of Calgary is also home to the Métis Nation of Alberta (Districts 5 and 6).

Speakers

- Dr. Jennifer Abel, PhD, Research Data Management Librarian
- Dr. Stephanie Warner, PhD, Manager, Knowledge to Impact
- Keeta Gladue, Manager, Indigenous Research Support Team

Research Data Management: What it is and why it Matters in Transdisciplinary Research

Dr. Jennifer Abel, PhD, Research Data Management Librarian

What are Research Data? A Poetic Answer

It depends on who you ask!

"Data may exist only in the eye of the beholder: The recognition that an observation, artifact, or record constitutes data is itself a scholarly act."

(Borgman, Christine L. 2012. "The Conundrum of Sharing Research Data". Journal of the American Society for Information Science and Technology, 63(6): 1061. DOI: 10.1002/asi.22634)

What are Research Data? A Funder Answer

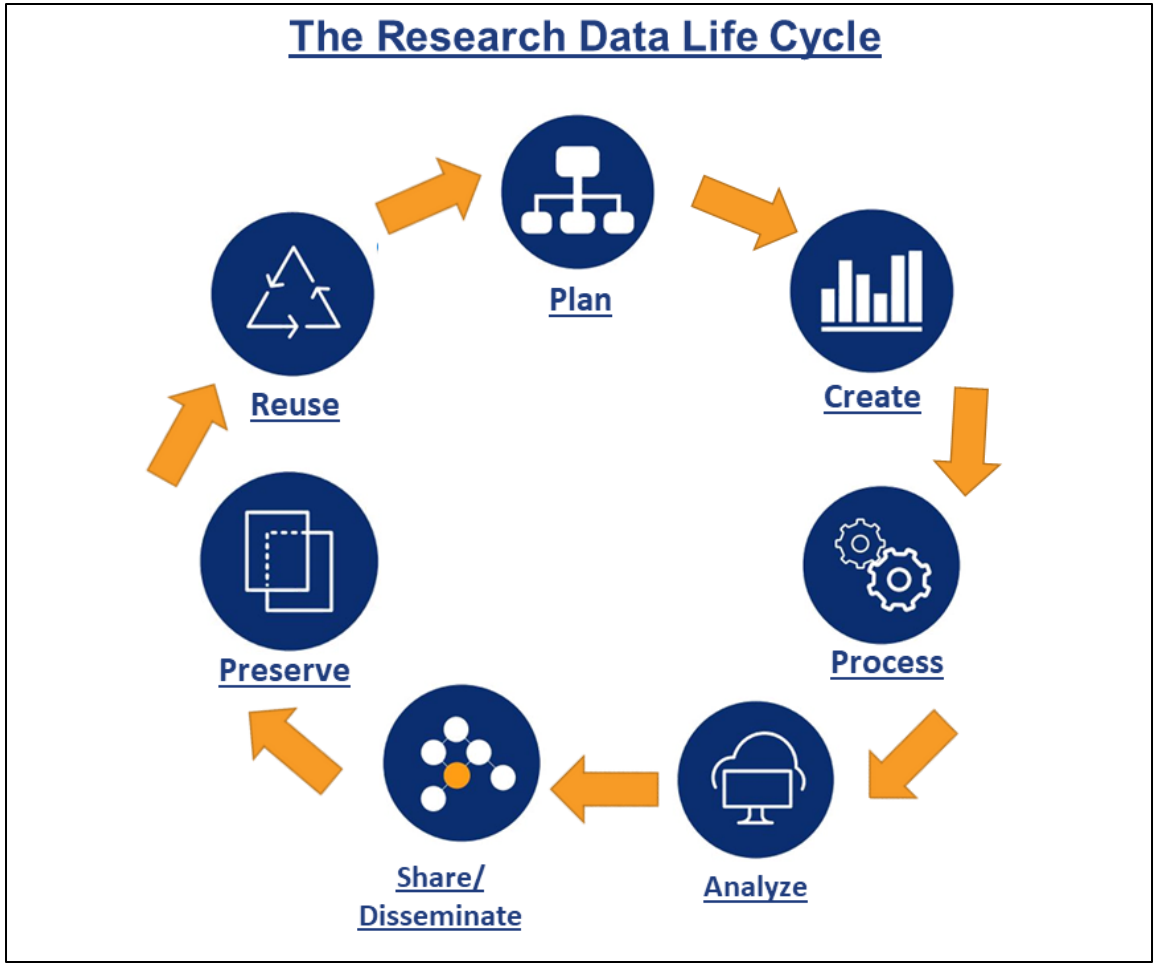
The Tri-Agency definition:

"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."

("1b: What are research data?" Frequently Asked Questions: Tri-Agency Research Data Management Policy, last accessed July 20, 2022 at https://science.gc.ca/eic/site/063.nsf/eng/h_97609.html#1b)

Research Data Management (RDM)

- “the processes applied through the lifecycle of a research project to guide the collection, documentation, storage, sharing and preservation of research data.” (Frequently Asked Questions, Tri-Agency Research Data Management Policy, #1d)
- Applies at all stages of the research data life cycle: before, during, and after the active phases of a research project



Adapted from a graphic by Jeff Moon, Portage Network/Digital Research Alliance of Canada

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Why Does RDM Matter?

- It can make everyday research work more efficient and effective.
- It can help you to meet ethical, legal, funder and/or publisher requirements.
  - E.g., the Tri-Agency RDM Policy ; TCPS2
- It can help to make your research reproducible and show that you've done your research responsibly.
  - By letting others see your underlying data rather than just your conclusions
- It can help to increase the impact and reduce the costs of research.
  - E.g., by making datasets citable; by making data reusable; by helping prevent costly data loss
- It can help facilitate open/transparent research/scholarship/science.

IMPORTANT!!

- RDM **does not mean** “making all of your data open”!
- It **does** mean
  - Planning for how you’ll manage your data before your research project starts (not when everything’s completed!).
  - Making decisions about what you’ll do with your data while your project is underway and after it’s complete.
  - Making decisions about what data you can make available to others if and when it’s appropriate, and about how you’ll do that in an appropriate way.
- Think: As open as possible, as closed as necessary.

Principles of RDM: The FAIR Principles

Originally proposed by Wilkinson et al. (2016)

Research data should be

- Findable
- Accessible
- Interoperable
- and Reusable

by humans and/or machines.

What does FAIR mean in everyday practice?

- Considering what data you can make available to others.
- Getting the data into a state where others can actually use them.
- Putting those data somewhere that they can be found by others.
- Including relevant metadata, documentation and code so that your data can be understood and reused by others.

Wait - how do I make my data findable by others?

- The best way is to put them into a data repository
- Data repositories are online database services that provide long-term preservation for data and make them available for discovery and use
- Two Canadian repositories you might be interested in:
  - UCalgary's Dataverse instance (PRISM Data): https://borealisdata.ca/dataverse/calgary
  - Federated Research Data Repository (FRDR): https://www.frdr-dfdr.ca/repo/

Think about deposit/sharing early!

- You need to think about what you can and can't deposit/share **before** your data collection starts
- Particularly important for sensitive data
  - Personal/personal health information, human participant data, environmentally/ecologically sensitive data, data with research security implications, etc.
- If you're applying for ethics for research with humans, make clear what you intend to deposit/share, and how you'll ask for participants' informed consent to do so
  - Sensitive Data Toolkit that can help with consent language

Remember to discuss these things with your collaborators!

- If you have collaborators (here or elsewhere), community/industry partners, etc., talk with them about things like who ‘owns’ the data, who makes decisions about the data, etc.
- Particularly if you have collaborators who work in different disciplines, the norms and expectations around what to do with data can be very different
- If you don’t have these discussions early, it can cause problems down the road

Principles of RDM: Indigenous Data Sovereignty/ Governance/Management

- Recognizing the right of Indigenous communities to govern the data created by/generated about them
- There must be discussions before a research project starts, between all parties involved, about what will be done with the data.
- Researchers should follow established principles, strategies, guidelines, etc. when doing research with Indigenous communities
  - CARE Principles for Indigenous Data Governance (Collective Benefit, Authority to Control, Responsibility, Ethics), from the Global Indigenous Data Alliance
  - First Nations Principles of OCAP® (Ownership, Control, Access and Possession) for information governance (including data governance)

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How do I keep all these things straight??

- A Data Management Plan (DMP)
  - A formal, living document that details the strategies and tools you'll use to effectively manage data during the active phase of your research.
  - It also documents the mechanisms you'll use for preserving and appropriately sharing data at the end of the project.
- These are increasingly required by funders: e.g., the Tri-Agencies, National Institutes of Health, and others
- They're also an excellent tool for helping manage your own research practice!
  - E.g., making your data FAIR, planning the techniques and resources you'll need to do so, etc.

Areas that should be discussed in a DMP

- Ethical, legal and commercial issues
- Data collection
- Data documentation
- Storing accessing and working with data (during a project)
- Long-term data management, discoverability and access (after a project is complete)

How I can help you with RDM

- Helping you learn more about resources
- Connecting you with the right people on campus to help
- Helping develop DMPs
- Helping with deposit into PRISM Data

To sum up

- Research data management shouldn’t be difficult or onerous
- BUT, you do need to plan for what you’re going to do
  - Use a DMP!
- AND, you need to start early
- IN THE END, the benefits to your work – in efficiency, stress reduction, and relationships with the folks you work with – will be worth the time you put in!

Resources for Further Learning

- LCR Guide: https://libguides.ucalgary.ca/researchdatamanagement
- Illuminating Research Data Management webinar series: https://research.ucalgary.ca/conduct-research/additional-resources/research-data-management/illuminating-research-data-management-webinar-series
- Research Data Management in the Canadian Context: https://ecampusontario.pressbooks.pub/canadardm/

Open Science

Dr. Stephanie Warner, PhD, Manager, Knowledge to Impact

Presentation Overview

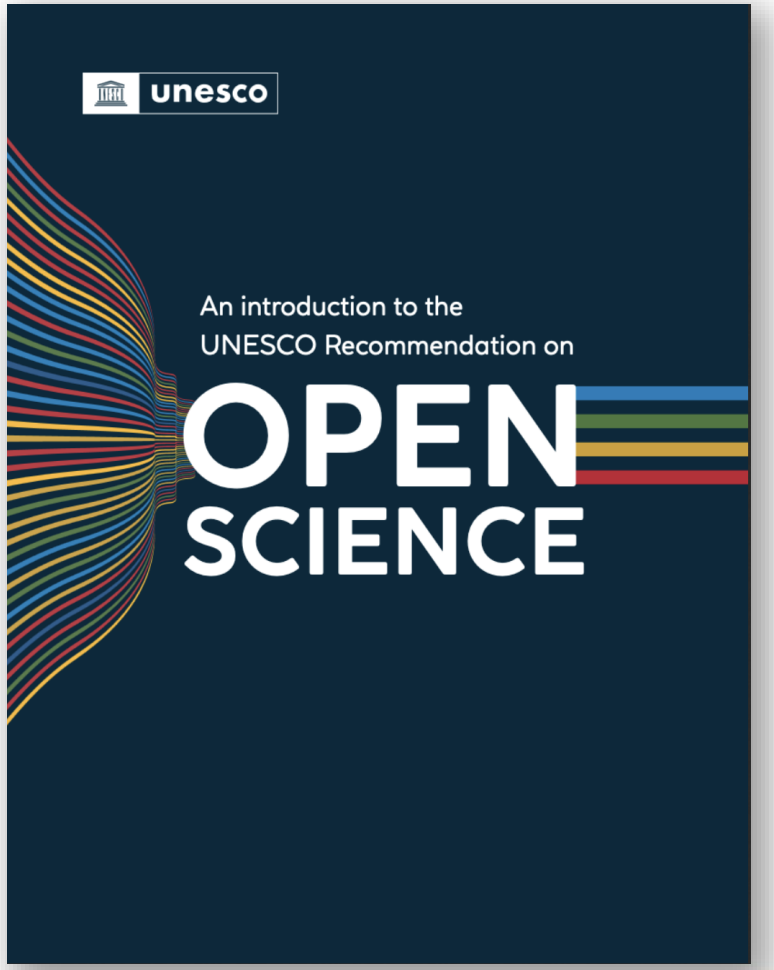
- Background on open science
  - What it is and why it is so important?
- Open data
  - What does open data mean
  - How does transdisciplinary research benefit from open access to data?

Open Science Defined

Open science

(or open scholarship / open research)

is a growing global movement to make scholarly processes and outputs broadly accessible for the benefit of scientists and society as a whole.



Why Open Science is so Important

- Reproducibility Crisis (early 2010)
- COVID-19 and importance of sharing information quickly
- Misinformation and increasing distrust in experts/science
- **Magnitude and complexity of global problems**

UNESCO Recommendation on Open Science (2021)

Values

- Quality and integrity
- Collective benefit
- Equity and fairness
- Diversity and Inclusiveness

Principles

- Transparency, scrutiny, critique & reproducibility
- Equality of opportunities
- Responsibility, respect and accountability
- Collaboration, participation and inclusion
- Flexibility
- Sustainability

UNESCO Recommendation on Open Science (2021)

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Pillars

Open Knowledge

- Open publications
- Open data
- Open educational resources
- Open software & source code
- Open hardware

Open Infrastructure

- Virtual
- Physical

Open engagement of societal actors

- Citizen and participatory science
- Research volunteering
- Crowdsourcing
- Crowdfunding

Open dialogue with other knowledge systems

- Indigenous peoples
- Marginalized scholars
- Local communities

UCalgary Commitment

Through the principles of open science, we are committed “to make UCalgary scholarship more transparent, inclusive, equitable, and sustainable.”

Open Data Defined

Open data and content can be **freely used, modified, and shared** by **anyone** for **any purpose**

Defining Open in Open Data

- As open as possible and as closed as necessary
  - For example, consider research security, privacy, sensitive data, Indigenous data sovereignty, commercialization
- RDM follows FAIR, but does not necessarily mean open

Why Open Data?

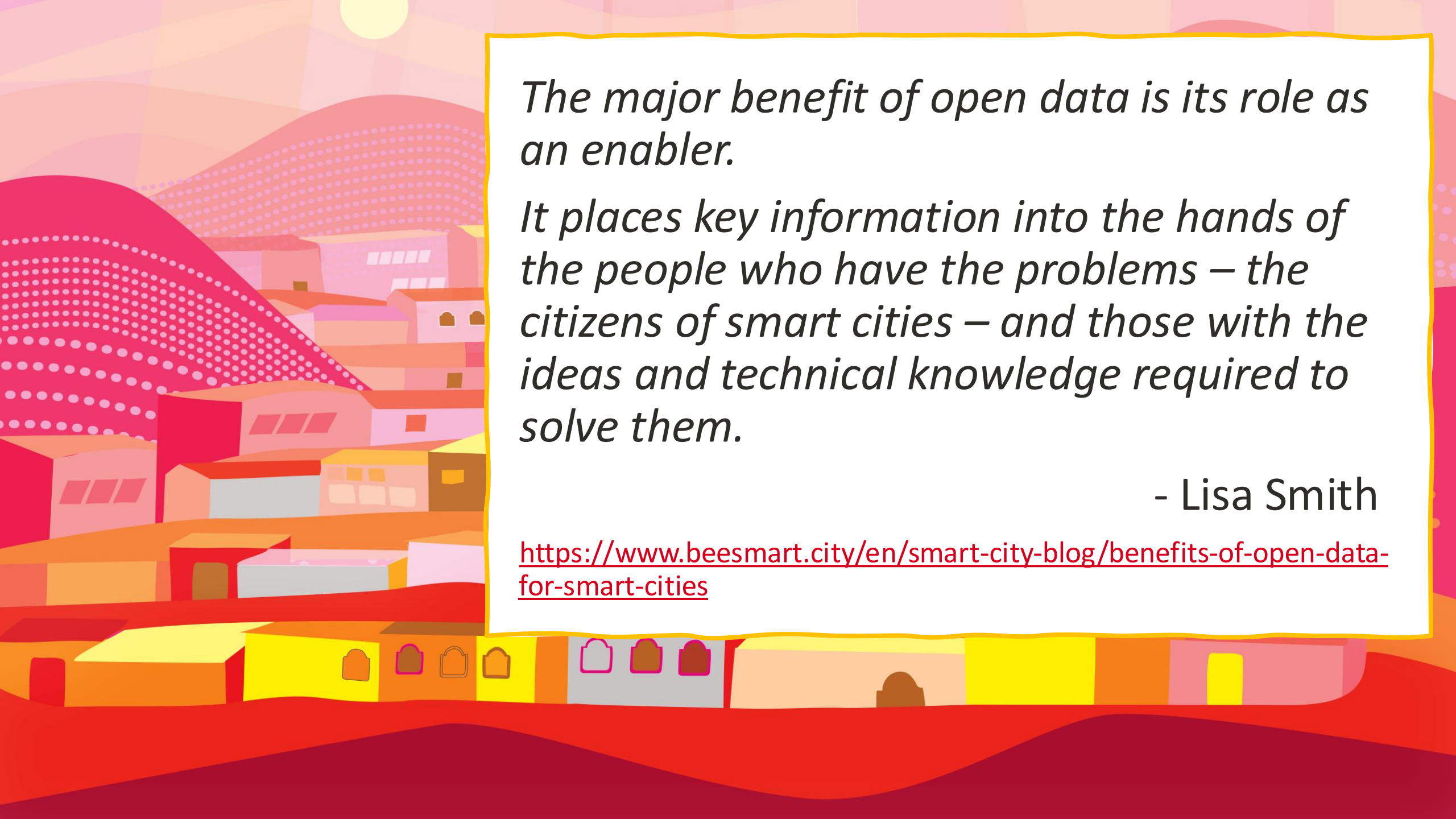
- Funders or publishers require it
- You believe in sharing and in open science, and others may be more interested in being more open with you
- Provides opportunity for validation of your research
- Creates efficiencies, by limiting unnecessary duplication
- Increases visibility of your research

Why Open Data for Transdisciplinary Research?

Open Data is vital in tackling global challenges

Open Data | UNESCO

- Facilitates exchange of ideas, collaboration and innovation amongst various public and academic actors worldwide
- Builds reputation and trusting relationships
- Accelerates discoveries that are more likely to be impactful

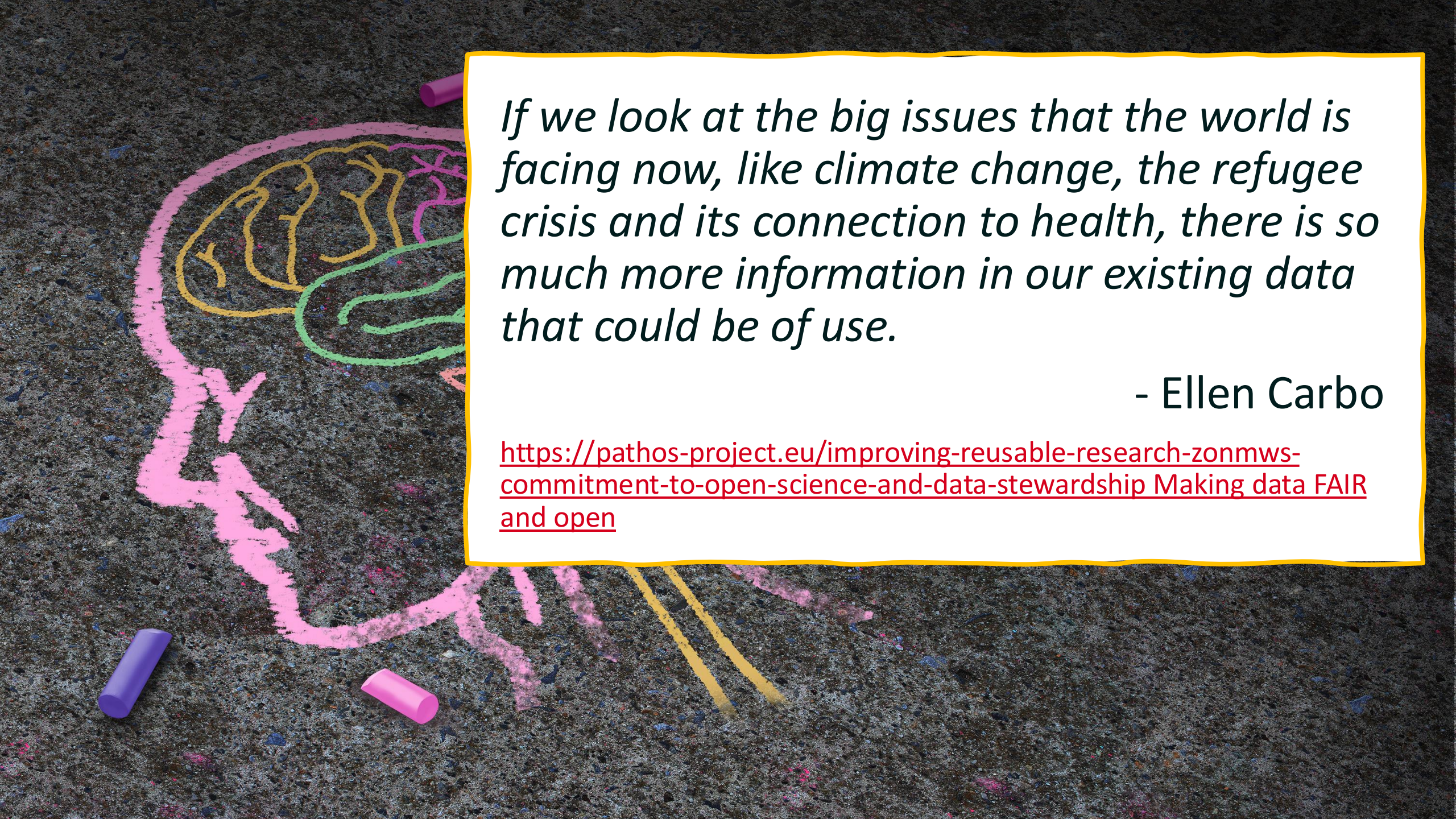


The major benefit of open data is its role as an enabler.

It places key information into the hands of the people who have the problems – the citizens of smart cities – and those with the ideas and technical knowledge required to solve them.

- Lisa Smith

https://www.beesmart.city/en/smart-city-blog/benefits-of-open-data-for-smart-cities



If we look at the big issues that the world is facing now, like climate change, the refugee crisis and its connection to health, there is so much more information in our existing data that could be of use.

- Ellen Carbo

https://pathos-project.eu/improving-reusable-research-zonmws-commitment-to-open-science-and-data-stewardship Making data FAIR and open

Examples

Data from deep onshore hydrocarbon wells is being released on an open access basis to help meet the UK's net zero targets

https://projectopen.io/?s=

Monitoring the West Nile virus outbreaks in Italy using open access data

https://projectopen.io/?s=

Open data for the "Integrating a neonatal healthcare package for Malawi" project

https://borealisdata.ca/file.xhtml?fileId=446760&version=1.0"

Next Steps

- Plan ahead and include your partners
- Work through your data management plan & the FAIR principles
- Cover costs from your funding (if possible)
- Contact librarians, members of the Research Security team, and others as needed
- Use repositories

Engage

Connect knowledge.impact@ucalgary.ca | Knowledge to Impact

Join ucalgary.ca/open-science

The UCalgary open science community & **NEW** Teams Channel

Upcoming Check back on our website for future events

Thank You

Questions?

Visit: ucalgary.ca/open-science

Email: knowledge.impact@ucalgary.ca

Indigenous Research Support Team (IRST)

Indigenous Data Sovereignty

Keeta Gladue
Cree + Métis (she/her)
M.S.W., R.S.W., B.S.W., B.A
Manager, Indigenous Research Support Team

Indigenous Data Sovereignty

Indigenous data governance is decision-making.
It is the power to decide how and when Indigenous data is gathered, analyzed, accessed and used.

Walter et al. 2018, p. 3

Nothing Without Community.

Principles of OCAP®

Ownership, Control, Access, and Possession

Principles of Ethical Métis Research

Currently being updated by Community + Métis Scholars

National Inuit Strategy on Research (NISR)

Inuit Tapiriit Kanatami

CARE Principles for Indigenous Data Governance

Collective Benefit, Authority to control, Responsibility, and Ethics

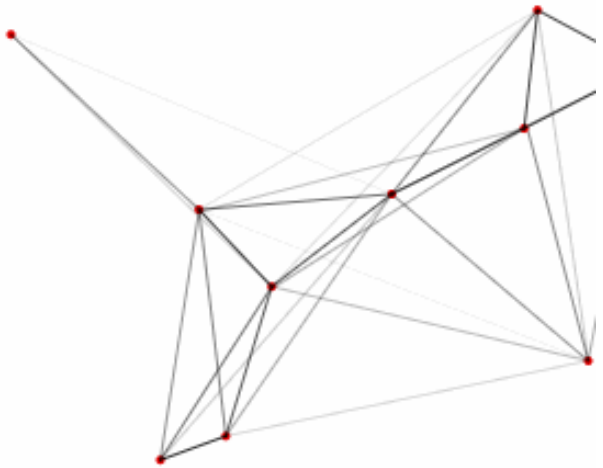
Indigenous Community Principles

Rightsholders

Past, present, and future

"Responsibilities connected to internal cultural imperatives, which include telling the truth, honesty with one another, **mindfulness of impacts on the community**, and **mindfulness of continuity with history and heritage**."

(Younging, 2018, p. 18)



Open Science

Encourages Open Access and Data Sharing

Canadian Governments

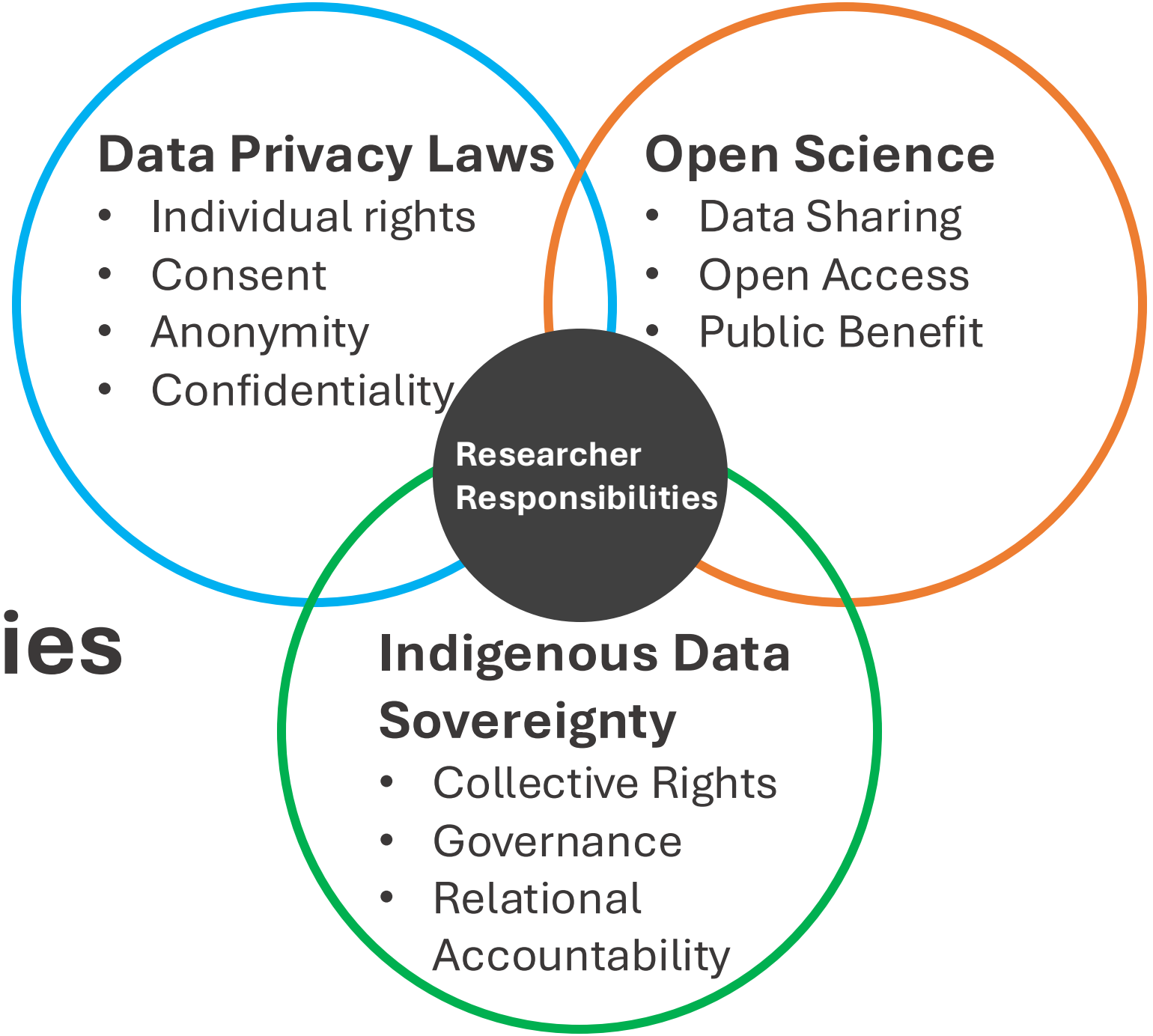
Protect Individual rights to data

Indigenous Data Sovereignty and Governance

Protect Community Data Rights

Data Conversations

Data Complexities



Indigenous Research Support Team (IRST)

IRST develops resources, provides consultations to university researchers, and works to build a more collaborative, reciprocal, and culturally responsive approach to Indigenous research.

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Indigenous Research Support Team

Team IRST

Maria Duarte

Robyn Giffen

Keeta Gladue

Melanie Grier

Cheyanne Lemaire

IRST Booking Page

How to Connect Indigenous Research Support Team

irst@ucalgary.ca

https://research.ucalgary.ca/engage-research/irst

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Indigenous Research Support Team

Thank You!

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Contact us: **transdisciplinary@ucalgary.ca**

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