

**2018 Colleges/Institutes/Polytechnics
RDM Workshop
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Workshop Notes and Next Steps

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Presentation Decks

1. Mark Leggott. *Background and goals for the Canadian Colleges, Institutes & Polytechnics Research Data Management Workshop*.
<https://doi.org/10.5281/zenodo.2558470>
2. Jeffrey Taylor. *Data, Data Everywhere!* <https://doi.org/10.5281/zenodo.2558493>
3. Kevin Fitzgibbons. *Tri-Agency Research Data Management Policy Development*.
<https://doi.org/10.5281/zenodo.2559257>
4. Jeff Moon. *Canadian Leadership in RDM: Portage Partnerships & Progress*.
<https://doi.org/10.5281/zenodo.2559264>
5. Jim Ghadbane. *Key Issues in the Digital Research Infrastructure Landscape*.
<https://doi.org/10.5281/zenodo.2559288>
6. Ray Hoemsen. *Intellectual Property: (Red River) College Perspective*.
<https://doi.org/10.5281/zenodo.2559299>

Actions and Next Steps

1. Create a College liaison committee so researchers and librarians could talk to each other.
 - a. Do in the context of the CIGan NRAC Committee.
 - b. Could also consider an expansion of the CIGAN copyright network to become library network; RDM info could be sent out via this.
 - c. **In process** - Mark L. to coordinate with CIGan.
2. Invite someone (ie. CIGAN via NRAC) to January meeting regarding a national training approach.
 - a. **Completed**, also included representative from Centre de documentation collégiale - [notes are available online](#).
3. Communicate with regional college library groups to get sense of how to pull additional intersections into NRAC context.
 - a. **In process** - Mark L. to reach out to Jane B. and Catherine D. to facilitate.
4. Consider a meeting with NRAC and library people at the upcoming CARA conference.
 - a. **Status unknown**.
 - b. Piggyback on work CARA is doing – chance to reconvene for college and library people.
5. Use list of participants to update everyone on what will happen next.
 - a. **In process** - Mark L to send an email with material.
6. Find examples in Applied Research context and industry partnerships where there is some element of open sharing of data, with a balance between open data and private sector, and communicate to the group.
 - a. **Status unknown**. Mark L. to work with the CIGan and new WG to gather information.
 - b. Facilitate an ongoing conversation about examples in applied research context; ways institutions in Canadian ecosystem embraced open/accessible data

- approach.
- c. The CEGEP community is developing a survey for individual institutions to get info about open sharing and research outputs - consider doing this for the national community.
 - d. Some recognition of value of data from projects already funded by Tri: consider how to quantify the value of that data and look for specific examples.
 - e. Municipalities: city of Oshawa publishes open data; think about working together with this and similar organizations on data context.

Welcome Remarks (Mark Leggott, RDC)

1. Mark Leggott introduced the goals of the workshop and set the context with regard to the value of more accessible research outputs.

Keynote (Jeffrey Taylor, NSCC)

1. Discussion around upcoming Tri-Agency policy on RDM: and its three main pillars
 - a. institutional data management strategy;
 - b. data management plans;
 - c. data deposit.
2. A key driver of the conversation is the economic value of open data: hundreds of billions into economy based on European data portal research; both indirect and direct benefits.
3. NASA's current earth science mission – valuing transparency of open data; available to dl within 3 hrs of acquiring
4. US attitude: taxpayers owned their data; great culture at NASA to get data out the door quickly. NEON Project was an example of that.
5. 5 challenges and opportunities for colleges re: data sharing:
 - a. Cyberinfrastructure limitations: hardware, do we have resources at our campus to do this? It's achievable but will probably take some resourcing and planning.
 - b. Culture and Resistance: Different communities of practice have different attitudes i.e. meteorology community is very open to data sharing, health community is open but there is also a privacy element.
 - c. Unified framework and model: need to make sure we use the right one.
 - d. Institutional burden: even with a good infrastructure and culture that supports it there are still maintenance fees and other costs; we'll all have to figure how to provide appropriate support.
 - e. Proprietary Industry data: colleges have a unique experience of having proprietary industry data: how do we deal with that.
6. Question: how do we get started? Many different practices right now, moving everything in one direction seems necessary?
 - a. Start with development of institutional strategies, as will drive the rest of the conversation and help to people involved.
7. Comment: There is a sixth challenge: skills and training, getting ppl to understand; lots of opportunity for colleges to develop good curricula and programming.

8. Question: Should we start with the cultural resistance issue instead?
 - a. There is a combination of carrots and sticks; all researchers have to comply to policy, but we can also offer incentives, i.e. kudos from community for sharing data. Also comment that if you can find a champion in different contexts, they can speak to their colleagues.
9. Comment: one institution received positive quotes when consulting community to prepare a brief for NSERC; some researchers looking forward to sharing their data, e.g. "it will be great material to train next generation and train students".
10. Comment: college students are different from university students, so nature/details of the conversation may be different? "How does it look like for colleges and polytechnics?"

Panel Discussion

(Paul Brown/Nityan Khanna (Mohawk College), Anthony Wright (St. Lawrence College), Catherine Davidson (UOIT/Durham College) Trish Weigel Green (Conestoga College)

1. Question: How do you currently store your data and do you feel confident you know the ways you or your researchers store data?
 - a. Anthony: at present responsibility of researcher to store data, we don't do anything.
 - b. Catherine: the Library hosts an institutional repository, research outputs deposited there (papers, dissertations). One big challenge is getting the message out there.
 - c. Trish: researchers have that responsibility and it's everywhere; we can work together to come up with good practices; but that tends to be for articles, not data.
 - d. Paul: in the early days it was just their group, they would host solutions in-house, lately using external repositories.
2. Question: If you receive a Freedom of Information and Privacy Request what do you do?
 - a. Paul: we work indirectly with personal health data info, so do not generally store or have access to it. Feel it is important to put data into funding applications as a reporting requirement so it becomes a normal part of the research process.
 - b. Anthony: need to distinguish between administrative data and research data. With research data there is a social contract with participants, so need to there is proper ethics oversight; originally after analysis and reports ethics board said destroy your data, but this culture is changing with open access and policy.
 - c. Catherine: pivot to deposit of theses and dissertations, and the increasing frequency of embargoes; library is all about open access; but embargoes are used in the context of privacy and monetization of research.
3. Question: If one institution were to share data with another, in the spirit of collaboration how would you accomplish that?
 - a. Paul: they would be directed to the repository, burden is on us to maintain it; contact is mostly person-to-person with collaborators rather than random

- researchers; ad hoc but done within our research group.
- b. Anthony: getting into multi jurisdictions: research operates on a smaller scale than institutional. A lot of institutions are risk-averse; we're at the beginning and this needs to be part of the dialogue that has to happen.
 - c. Mark: the Workshop package includes information on data availability statements, which represent the bare minimum of any data ecosystem: that the existence of the data must be known, details of sharing can be defined from there.
 - d. Catherine: collaboration is key to libraries' approach, and it leads to huge efficiencies. Discoverability is critical: if data is deposited into IR and metadata is adequate it will be discoverable.
4. Question: Do you have a standard metadata template?
 - a. Catherine: No, practice varies across institutions: for theses there is a template.
 - b. Trish: Many good examples in postsecondary contexts where there is a centralized system that allows for sharing, but with flexibility for different institutions and projects. We do have to have some level of agreement on minimum of standards; only way to ensure discoverability.
 5. Question: How far along are standards bodies involved in setting up metadata schemas?
 - a. Mark: there are a number of organizations that create domain standards; ie DarwinCore for biology: implementing them in a "common" software framework can be problematic.
 - b. Nityan: "Why do we have so many systems and standards? How can we make meaningful use of what we have instead of just one more?"
 6. Comment: Important reasons why we need to manage our data: for example, some journals require access to that data before publishing articles to verify accuracy; need quality assurance with data, and make sure it is managed in a secure environment and is shareable where appropriate. There are so many issues researchers need to tackle to make data safe and secure: requires training for other RDM issues.
 7. Question: How do we lower the barrier for our researchers?
 - a. Paul: we're building infrastructure to help reduce the burden from researchers.
 - b. Anthony: one challenge is the new tech a researcher has to learn, a steep learning curve and administrative burden. Researchers feel isolated, the responsibility is on them and they aren't getting institutional support, but if the institution provides more support there will be greater uptake: a catch-22.
 - c. Mark: SSHRC's new capacity building funding initiative might be worth looking into after this conversation.

Overview of Tri-Agency Draft Policy Pillars (Kevin Fitzgibbons)

8. Tri-Agencies have less involvement with colleges – mostly through NSERC.
9. RDM: why are we doing this in the first place?
 - a. Research excellence: tech tools and availability, growing policy interest at senior

international levels to commit to open government; ability to manage complex research enterprises/networks becoming a huge issue and data availability around that is a crucial issue; reproducibility and making the data available for that is becoming more important; avoiding duplication – increase efficiencies; journals requiring data to verify articles before publishing.

- b. Research dissemination: data sharing – ensure what we're doing is consistent with international best practices and increasing collaboration; citation of data becoming important as it's the raw resource and access facilitates interdisciplinary work; policy impact – ability to advance new findings because of use of new data and connections between data, ability to aggregate data across fields leading to new discoveries.
- c. Research best practice: good data management correlated with success of research and institution; increase in trust between researchers and institutions (ie with ethics board); responsible use of public funds – public access to data supports individuals and communities too, not just institutions.
- d. International developments: Canada is middle of the pack; discussions with research community have really started over the last 2 years.

10. DM Policy Timeline

- a. 2013: Capitalizing on Big Data
- b. 2016: Released statement of principles on DM
- c. 2017-2018: Draft of DM policy

11. Components of the Policy

- a. Institutional Strategy
 - i. Need buy-in from institutions so they have time to ensure a strategy is in place. A useful conversational precursor to other Policy elements.
- b. DMPs
 - i. There is some resistance within some disciplines; it's a cultural and a knowledge shift; already exists in practice in some disciplines i.e. physics
 - ii. Why are we doing this? To facilitate better data management practices for all researchers.
- c. Data deposit:
 - i. Dependent on capacity; if infrastructure isn't in place we need to be mindful when implementing the policy
 - ii. Organizations like Portage and RDC play important role in facilitating this.
- d. General
 - i. Community feedback is key as is stakeholder engagement.
 - ii. Several college orgs provided substantial input
 - iii. Key feedback points: policy is not strong enough, and needs more assertive language; questions about ethics and privacy brought to table – OA has to be within restrictions of legal implications; capacity – not just infrastructure but also learning and skill sets and need for that support.
- e. Working with indigenous communities and their research – values and policies are complex – needs to be respected and brought to table.

12. Question: technology and access centres that use NSERC funds – how would the tech access be affected?
 - a. Could be addressed in DMP; applied research – company is not obligated to have DMPs but researchers need to articulate how data will be collected, analysed and used; in terms of deposit – no requirement for partner/company to do same.
13. Question: what is the role of community in all of this – what makes colleges different is that community partnerships are huge and will be important; have community groups been consulted? Industry?
 - a. Not explicitly, except via events like this, and some details will surface through development of institutional strategies.
14. Question: operational costs – can a researcher put in cost for DMP/deposit/retention in grant applications?
 - a. Would be eligible expenses; colleges don't have a research support fund (unlike universities) which impacts this; resource implications are a big part of this.
15. Comment: resources – smaller institutions don't have enough resources in current landscape, let alone new requirements.
 - a. Mindful of smaller institutions that don't have those resources; goal to build or encourage networks built nationally and regionally – already happening in the university community; there can be ways to share resources and best practices.
16. Comments: CIGan and others have made requests for indirect research support funding; potential for large numbers of users for data that's deposited, applied research involves taking research that's been done and being a translation point to partners, turning it into a tangible solution to a problem; data literacy is an area of opportunity for college community.

Pillar discussion

17. Three offices (IT, Research, Library) working together is key to success.
18. All 3 pillars are connected and necessary for success; logical sequence from institutional strategy to DMP, to data deposit.

Institutional Strategy Pillar

19. It is hard to give a specific timeline for the Policy launch, but likely mid-2018-mid-2019.
20. Key for institutional strategy pillar is the assertive language; regarding having one, but also flexibility in reflecting whatever fits according to the institution
21. For institutions Tri-Council funding likely not the only source of funds; argument for good stewardship of data is still the same; Tri-Council still provides a lens to have the conversation.
22. This is also an opportunity for colleges to communicate other organizations (Portage, RDC, etc) about their needs and issues.
23. Question: Is this a given for universities, as it is new for colleges?
 - a. No, universities are also figuring out the landscape and responding to the policy;

some are well ahead but most are in same boat.

24. Question: What does Portage offer for colleges?
 - a. Portage is interested in college-specific templates for the DMP Assistant; a couple of complimentary national deposit options will be available soon, by the time the Tri-Council data deposit policy rolls out.
 - b. Some of the CANARIE RDM funding call project proposals were from colleges and some of the ones that are going ahead are accessible to the colleges; CANARIE's funding is also accessible to colleges.
 - c. Colleges that have institutional strategies/policies? No one knows of any at this point.
 - d. Reciprocal benefit of institutional strategies as they're published, it is an opportunity for the Tri-Councils to gauge readiness of the postsecondary community in handling the rollout of the Tri policy.
25. Question: international connections – how are other organizations in other countries dealing with this?
26. World Federation of Colleges and Polytechnics – Canada is well represented.
27. Australia has a well-structured data management framework surrounding applied research.
28. Canada is seen as one of the leading countries in applied research, so this may present an opportunity for leadership.

DMP Pillar

29. Policy is likely to be rolled out in phases; good way to start conversation – what is your capacity now, what kind of response would you consider going forward.
30. About the internal conversation in your institution regarding the needs of your community.
31. Concept of DMP not new; don't think about it as a form that needs to be filled out – makes researchers confused and more resistant. Consider instead face-to-face conversations with researchers to find out how to best meet their needs, while that conversation is happening fill out the DMP for them.
32. Figure out your approach and tools – ie Portage DMP assistant; even non-researchers in the offices or research, computing, and library should look at the form to understand it.
33. Consider what committees need to be involved; some institutions go through the ethics board; may also want to create new committee to discuss DMPs; get some examples together; consider what kinds of services you'll offer vs. what services an external organization would offer.
34. Deployment happens locally; consider consortia for service delivery and collaboration.
35. Start convo now, draft rollout may be late 2019.
36. Key consideration for DMP is to make intent clear regarding if and how the data can be shared, rather than making open data.
37. Seen as a 'stick' by researchers more than the other two pillars; framing DMP as a conversation is thus important as way to help researcher see the value.

38. Also recognition that a DMP document is a living document and will be changed over time.
39. Portage is partnering with CASRAI to develop an approach that ensures researchers will “enter once, use many” to prevent having to submit the same information multiple times.
40. Question: Who are DMPs being submitted to?
 - a. No final decision yet, but probably peer review groups.
41. Question: There was at one point a plan to have them submitted to offices of research at the institution rather than Tri-Councils?
 - a. Seemed more logical to have it sent in upfront, but still an ongoing conversation.
 - b. Need to look at policy as flexible enough to adapt; don't want to get too specific.
 - c. Sheridan Library is recommending researchers fill out DMPs, but it is not required; launched a new service called Data Connection to help researchers working with data to provide resources for finding/using/storing.
 - d. A lot of good research already going on in colleges – these researchers could be early onboarders and champions of good DM practices.
 - e. Libraries already have expertise in DM, but also have people willing to start working on DM.
42. Question: If we're recognizing value of data, could DMPs become critical enough that they require review boards?
 - a. Haven't seen this yet for DMPs.
 - b. Has been interest from researchers in DMPs once they get rolled out as a way to think about their research; conversation about DMPs could be positioned as a way to help researchers do research more effectively.
43. Question: Anyone looking at education needed for groups of people who might have a related role in an institution?
 - a. Funding initiatives have been discussed, and some Tri-Council announcements are coming.
 - b. Mark is facilitating a meeting in January to discuss training and capacity building.
 - c. A national train the trainer approach would be great
 - d. Delegation of responsibility might be more acceptable to research ethics board
 - e. On-demand webinars are another opportunity for training.

Data deposit pillar

44. Start conversations with the researcher with data availability: think about what you want to do, or think what is appropriate for each research project. For example, making data/code accessible via github.
45. Increasingly if you publish, journals require a data availability statement before they will accept a manuscript.
46. Data deposit will likely roll out later, so there is time to consider the best approach for each institution.
47. Enable a discussion of what it means in your context; what team is involved in RDM; communication of the policy; understanding domains of practice; offices of research,

- deans and researchers all need to understand the details.
48. Data deposit is more embedded in the different domains/disciplines; should roll out in context of disciplines.
 49. There are a number of Canadian repositories that are domain-specific; how do we ensure sustainability of these repos over time?
 50. Publishers are increasingly responding to funders and their community on what it means to be a responsible researcher in that discipline.
 - a. Springer's recommended data repositories facilitate peer review of datasets
 51. Need to respect that outputs (such as code) may be proprietary; there may be a mixture of open and proprietary data/outputs.
 52. There are data anonymization tools that can be useful in dealing with private data

Canadian leadership in RDM (Jeff Moon)

53. Within the context of RDM lifecycle, Portage collaboratively builds capacity for RDM across the country.
54. A lot of external factors (not just Tri-Councils) making RDM important.
55. There is a growing public awareness of RDM and the value of data.
56. Recognition of value of data between and within disciplines – data across disciplines can be used for new research.
57. Addressing fake data and data quality/verification.
58. Portage is also addressing pressure from commercial concerns: some publishers want to charge for the easy data services, want to sell back data as they do with articles.
59. Google's new data search is a good indication of the growing demand for data.
60. Government funding: budget 2018 announced \$572.5 mill for DRI infrastructure – this includes RDM.
61. Portage building a community of practice that includes institutions, a networks of experts, and working groups that work on specific services and resources.
62. There is a high level of stakeholder engagement – local (libraries, IT, etc), regional (consortiums), and national (national organizations, government).
63. Focusing on Tri policy for specific supports and outputs.
 - a. Institutional Strategy template: components are flexible and can be changed/adapted by institution; guidance doc that helps with components and how to approach them.
 - b. DMPs: 3 active groups: DMP, training, research intelligence; built DMP tool and template, in english and french; moving to make it more interoperable/cooperative with other documentation requirements; opt-in to share your DMP
 - c. Data Deposit: national repository options (FRDR, Dataverse); Canadian repository landscape: general (IRs); government (Open Data Canada); domain-specific (astronomy); all indexed in re3data.org.
64. FRDR and Dataverse North: fill in gaps left by the above 3
 - a. FRDR: partnership with Compute Canada.

- i. Can handle big data; maintains file hierarchies; scalable.
 - ii. FRDR is also harvesting and normalizing metadata from Canadian repos and creating a national discovery layer.
 - iii. Preservation processing via Archivematica (converts to future friendly formats -> generates archival information packages -> stores in a network of preservation service providers).
 - iv. Full production in 2019
 - b. Dataverse North.
 - i. Mature platform; widely adopted; user friendly; brandable; national repository option for long tail of data
 - ii. Offers national option.
- 65. Trying to think about facilitating and providing leadership in the development of RDM infrastructure in the broader context.
- 66. Developing shared vision for RDM storage/preservation in Canada via active (current research), repository (5-10yrs; goal is discovery and access), and archival storage (copy of last resort, long term access).
- 67. Data storage continuum is a good way to frame storage picture of RDM
- 68. Another Portage initiative: sensitive data WG with four outcomes:
 - a. deposit-friendly text for ethics apps and informed consent;
 - b. data access agreements;
 - c. training materials;
 - d. environmental scan for best practices of indigenous data.
- 69. Question: is research data normally stored separately from informed consent?
 - a. They go hand-in-hand.
- 70. Question: Is a data curator similar to a data custodian/steward?
 - a. Curation is more of a process to make data FAIR; custodian should have clear instructions on how to work with specific datasets.
- 71. -Question: are there plans to bring more college representation into Portage?
 - a. Jane is involved; open to bringing in more colleges; CARL directors paying for Portage to happen so details need to be worked out; a new funding model would see a better chance of involving college stakeholders.

Key issues and opportunities in DRI landscape (Jim Ghadbane)

- 72. CANARIE: best known for NREN, aim to connect people to solve global issues.
- 73. Translating technical/emerging needs from IT perspective to that of government.
- 74. From CANARIE's perspective, DRI is foundational infrastructure, and there are 4 pillars of DRI: network, computing, storage, software, all supported by HQP.
- 75. CANARIE's vision for integrated DRI ecosystem – research can be pursued without worrying about DRI.
- 76. There are a number of organizations involved in DRI ecosystem – national, provincial, etc.
- 77. DRI supports research workflow: thinking about research workflow in IT terms helps

optimize research

78. DRI needs to be researcher-centric: they have the tools they need, support for when tools don't work; they shouldn't be building their own tools; money should be spent on research.
79. Budget 2018 and announcement of \$572 million.
 - a. Decision on delivery mechanisms likely spring 2019
80. NREN
 - a. CANARIE runs national network and makes sure all regionals connect together.
 - b. Canada needs world class infrastructure in order to communicate w global research community.
 - c. Canada's NREN when compared to other models is world class.
81. CANARIE Research Software Program
 - a. tools created to support research
 - b. RDM tools will also be available
 - c. Developing community of best practices for software; generic platform to support many research disciplines; local support initiative.
82. Two data challenges from IT perspective:
 - a. funding for long term data preservation: need to think about sustainable funding, who pays for what.
 - b. balancing and coordinating institutional, provincial, federal roles and contributions
83. National and global data discovery requirements: accessibility rights, data security - IT has to respond to these kinds of needs and policies.
84. Cybersecurity
 - a. Threats are external and internal: network is front door to institution.
85. CANARIE strategy
 - a. R&E cybersecurity ecosystem: people, processes and technology.
 - b. What are we doing about growing talent, technology, and evolving our processes?
 - c. Securing NREN – Security Information and Event Management Deployment; greater visibility in what's coming into country and happening with-in the country; joint procurement with provinces and territories.
 - d. Secure network, monitor endpoints.
 - e. Joint Security Project – colleges involved; higher ed community collaboration on cybersecurity.
 - f. CANARIE coordinating and provided funding, technology
 - g. Successful pilot: some interested participants involved paying for themselves; build trust between institutions regarding sharing of security data
 - h. Proof of Concept Canadian Shared SOC: six universities, CANARIE facilitating and leveraging international community.
 - i. ultimately, in a position to build up national cybersecurity network, build up the talent for it.

Intellectual Property Perspective (Ray Hoemsen)

86. College-based research and innovation supports community economic development
87. Companies benefit from working with colleges – customized training, prototype development, technology integration, access to specialized research and equipment, leverage of company partner contributions with funding agencies, etc.
88. IP policy development considerations:
 - a. disclosure – mandatory is best
 - b. ownership – institution is best: gives clarity, credibility
 - c. research integrity
 - d. conflict of interest
 - e. revenue: equitable, rewarding the risk taker
 - f. If students are employed by RRC it's RRC's, if it's a capstone project, it's the student's.
89. IP lessons learned
 - a. economic development key driver for applied research
 - b. mutual benefits for all parties
 - c. students must be able to cite their participation in AR projects; exception – contract that supersedes policy
 - d. odds of a “home run” from academic IP relatively low
 - e. institutional ownership provides clarity
 - f. flexibility important
 - g. industry-friendly IP approach maximizes commercialization
90. RRC research management IP office:
 - a. contract, grant & IP management, outreach, research & partnership development, engagement
 - b. challenge of sharing info: system is stronger if more people are involved in sharing
91. Question: has IP ever been an issue in faculty bargaining?
 - a. No. RRC has one union for everyone, which might make a difference.
92. -Question: Curious about relationships with municipalities, indigenous community re the ownership and control of data?
 - a. Indigenous: has not come up yet but is probably coming
 - b. Municipalities: some relationships that are working so far
93. -Question: regarding curriculum development, are there courses on IP management?
 - a. Some workshops but no formal training
 - b. In the future: growing demand for better training
 - c. Programs would benefit from data wrangling education
 - d. Library tech programs in colleges would be a good place for this.

Wrap-Up

94. Educational opportunities:

- a. How can colleges participate in an initiative to facilitate national approach to RDM training?
- b. Participate in the Jan meeting to discuss this (CICan and Quebec representative will be attending).
- c. Opportunity for universities and colleges to collaborate on joint degree/diploma programs?

95. Collaboration Opportunities

- a. College representation in CARL
- b. Some college representation in provincial/regional organizations especially college librarians.
- c. Go through regional library consortia to be more inclusive of college communities.
- d. College context is so different than university, we still need to have conversations about this before how to best collaborate with universities.
- e. College needs might not get met under universities.