

## Brandon University White Paper Submission to NDRIO

December 14, 2020

### Summary

- Brandon University (BU) is in early stages of its digital research infrastructure (DRI) journey, with establishment of an institutional repository, but lacking full governance model and processes for content and data collection.
- BU has a strategic research plan that sets actions to mature its research management practices. As a small institutional, but with unique strengths and requirements, access to share resources and best practices would be of benefit to our institution and would also allow us to share our own research and research practices more easily with the broader community.

### Background

Brandon University (BU) is pleased to present this white paper to NDRIO, outlining our institutional perspective and experience on current digital research infrastructure challenges.

Universities are required to establish research strategies as part of the Tri-Agency framework, and BU has established its [Strategic Research Plan 2021-2025](#) in line with those requirements. Over the past five years, we have looked to strengthen support and recognition for research, promote open and frank discussion of research and its applications, and support access to the tools, services and expertise needed to leverage information in all its forms. To that end we have recently established an institutional repository system with the vision of expanding towards an open access archives to disseminate BU research activities to the wider national community.

BU is now in early-stage development of a new strategic plan, which we anticipate will continue to drive and refine focus of research infrastructure investment.

### Current State

Brandon University has begun establishment of an institutional repository system, which is comprised of four main components: IRBU (Institutional Repository of Brandon University); Dataverse; Archivematica; and WestVault. These databases are overseen by the Digital Asset Management Committee, which is a committee of BU's Library Council.

"IRBU" (Institutional Repository of Brandon University) is the central storage location for research outputs. This database runs on Arca, a shared instance of the open source Islandora Digital Repository

Framework, available through consortia agreement with Council of Prairie and Pacific University Libraries (COPPUL). IRBU provides front-end view to digital content such as theses and audiovisual artifacts not otherwise manageable from BU's Archives database. IRBU is available online and is open access.

IRBU is primarily populated with theses today, but the Scholarly Communications Librarian will continue to promote this tool to the campus community to capture other research outputs, such as concert recordings from the School of Music and non-thesis publications. We use a forms-based system (LibWizard) to obtain licensing rights/copyright from the creator. Artifacts submitted for inclusion in IRBU are then processed by the Metadata and Collection Management Librarian. IRBU artifacts are not yet discoverable in our library catalogue today, this has been flagged as a future improvement.

Dataverse is complementary to IRBU. While IRBU stores content, Dataverse will be used to store structured research data. Our Dataverse instance is hosted by the University of Toronto. This system is not yet populated and metadata standards for the tool have not been fully defined. There is vision in the future to create linkages between Dataverse and IRBU, which would rely on metadata definition and governance. Controlled digital object identifiers and author identifiers are two such metadata elements we require. The Digital Asset Management committee encourages faculty members at BU to obtain ORCID identifications, to that end.

Westvault sits on IRBU as backup. It is procured through our consortia agreement with COPPUL and employs LOCKSS software. Westvault ensures disaster recovery, not long-term preservation.

Archivematica has been procured for long-term digital preservation purposes. It will support content in IRBU as well as the BU Archives database. While the software has been purchased, we do not have staff capacity at present to implement it.

BU is early in its own DRI journey. We are just commencing the development of the research data governance required to use these systems to their proper capacity and are in early stages of promoting the systems to our academic community. At present, most research outputs continue to be managed at the faculty, department, and even individual researcher level rather than through IRBU and Dataverse. This means that we often take a siloed and reactive approach to data management.

As a generalized example: a faculty member contacts the IT HelpDesk with a support question. When attending to their office, the Support Analyst observes a computer system in the faculty researcher's office. Upon further investigation, IT learns that the system is collecting live data feeds from various locations and is being compiled and analyzed by the faculty researcher. That system is connected to a backup drive in the same office, providing some disaster recovery, but which could be compromised in

the event of a physical event in the office. The faculty researcher in turn has no easy way to make the data available to others, and others in the institution and beyond are not aware that such data exists. Better connecting the various parties – IT, the Library, the Faculty Researcher, and the Research Office, through common processes and infrastructure, would help to alleviate inherent risks in this scenario.

Over the months to come, BU will look to other institutions, such as University of Alberta and University of Toronto, for best practices for raising awareness and governing our systems and processes. We remain mindful that these are much larger institutions than ours, and every institution has its unique aspects. It would be naïve to “lift and shift” another institution’s model without some tailoring to our unique institutional strengths. These strengths include our diverse student population, inclusion of Indigenous worldviews and methodologies in research, global perspectives and ongoing internationalization efforts, close connections with faculty and our rural Manitoba location, and engagement of students in dynamic research opportunities from their first year as undergraduates through to graduate studies. Recognizing that funding is limited for smaller institutions, so we know that leveraging and tailoring common frameworks provide a savings in time and effort over developing practices from scratch.

### **Future DRI State**

In addition to the visionary elements we describe above, which are internally focused, BU would be eager to leverage resources from a cohesive Canadian DRI ecosystem. As a small institution, opportunity exists to tailor solutions and standards to our needs where there is a clear benefit in that investment. Other opportunity exists to leverage shared resources to the benefit of the collective research community. Such benefits can include:

- Speeding up the time it takes to do research, through efficient process and easier access to supporting resources, in turn speeding up release of discoveries and innovations (for example, effective medical treatments)
- Providing all Canadian researchers with equitable access to quality infrastructure
- Greater conformance to Tri-Agency requirements
- Greater visibility of Canadian research
- More opportunities to collaborate with other researchers across institutions and provinces
- More opportunities to share tools, equipment and computing resources within and across institutions

We envision that a national DRI ecosystem would include the following attributes:

- Interoperability (aiding with sharing of data from other open data sources)
- An equitable fee model reflective of different sizes and scope of institutions

- Long-term preservation of data as guided by experts in digital archiving (not just a software solution)
- Supercomputing infrastructure, software, and analytics capabilities (both tool based, and human expertise) to aid with the examination of big data

### **How to Bridge the Gap**

BU has set out the following actions in our Strategic Research Plan:

- Develop a University policy to guide data management throughout all stages of the research project life cycle
- Develop a researcher Data Management Plan Template
- The Library will assist researchers with the creation of Data Management Plans to meet Tri-Agency requirements. These Plans allow researchers to store and, if possible, allow access to the data.
- Promote research data and document deposit through IRBU
- Promote storage and provisions of access to numerical data generated by university researchers through Dataverse
- Investigate research and data management infrastructure and software, such as ORCID that may aid collaboration and dissemination of research
- Promote and facilitate the use of research publication and data deposit by researchers
- Investigate avenues of support for Open Access publishing
- Expand library resources for computer networks, journals, software licenses, and data collection equipment
- Provide workshops for use of qualitative and quantitative data analysis software
- Expand the collaboration between Statistics Canada, SSHRC, CIHR, NSERC, CFI, and BU researchers

We feel that there is opportunity to leverage resources from a national network such as NDRIO for these actions. Some resources that might assist us in furthering these actions could include:

- Access to a Catalogue of Software/Tools
- Access to additional Data Storage repositories for both short-term (working) data, and long-term (published/archived data)
- Access to data governance standards, including metadata management practice
- Access to advanced research computing resources that are otherwise cost-prohibitive for small institutions
- Access to security resources/best practices/tools/software to secure research data
- Guides for management of on-premises data and equipment storage
- Guides for management of cloud-hosted data

- Access to experts
- Human Resource allocation Best Practices and Process Guidance
  - What tasks should be handled by the researcher
  - What tasks should be handled by the academic library
  - What tasks should be handled by Administration
  - What tasks should be handled by NDRIO
- A clear roadmap of what is to come for NDRIO

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**Please see also**

Brandon University Submission to NDRIO – Call for Documentation