CHAPTER 21

Building a Community of Canadian Dataverse Collection Administrators:

Consortial Collaboration and Communities of Practice

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In response to the open science movement and the growth of funder and journal policies, researchers are increasingly looking for support in depositing and sharing their research data. In Canada, academic libraries have provided leadership to support provisioning and coordinating research data management (RDM) support, resources, and infrastructure over the past several decades.[1] As one example of a library-led initiative, Borealis, the Canadian Dataverse Repository (https://borealisdata.ca/), is a national, bilingual, multidisciplinary research data repository, based on the open-source Dataverse software and provided in partnership with regional academic library

consortia and the Digital Research Alliance of Canada. The shared infrastructure supports over seventy-five Canadian institutions and research organizations, each managing their own collection and providing support to their local researchers. The development of the national repository is the direct result of over ten years of collaborative efforts among libraries and librarians across Canada. This chapter situates the development of the national service within the literature around consortial collaboration, communities of practice, and social learning theory. Of importance is the integral, symbiotic relationship between the development of infrastructure and the development of collaborative communities that support the sustainability and viability of the service.

Consortial Collaboration

Library consortia represent a common mode through which libraries pursue strategic goals or provide services in collaboration with their peers. Libraries share the challenge of providing optimized services for a user community with a finite set of resources, which leads them to seek out vehicles for cooperation on an institutional level. Library consortia come in many shapes and sizes. They can include multiple facets or pursue strategic and operational goals at the same time. Machovec lists ten categories of consortial activities, including electronic resource licensing, union catalogs and sharing resources, digital repository services, sharing expertise and best practices, and professional development opportunities.[2] Jones surveyed executive directors of library consortia about their views on the value of consortia. Responses included: "economy of scale, ability to provide infrastructure," "credibility of the collective voice," and "taking a risk together."[3] Examples of consortial projects in Canada have been explored by several authors.[4] Baathuli Nfila and Darko-Ampem provide a historical account of consortium development and describe the creation of the International Coalition of Library Consortia (ICOLC) in 1997.[5] Reporting on a set of recommendations from a recent ICOLC task force, Skog argues for the strategic value of consortia, saying, "Libraries must empower themselves by reestablishing agency and reasserting control over the technical infrastructure critical to libraries' success."[6]

The ability of consortia to address different needs, adapt to changing circumstances, and mitigate risk for their members makes them well-suited for emerging areas of library services, which often involve development of new infrastructure and staff expertise. Barskey and others provide examples of initiatives to coordinate data curation and preservation services across Canada through various collaborations of academic library organizations and consortia.[7] In the previous chapter, Fry and Leahey describe the growth of a data-sharing culture fostered through the Data Liberation Initiative, a partnership focused on improving access to data resources between Canadian academic institutions and Statistics Canada, and Odesi, a social science data repository and online exploration

tool curated by academic libraries in Canada.[8] As another example, Trimble and others describe the long history of the Ontario Council of University Libraries (OCUL) Map Group, established in 1973, and situate it within the emergence of academic map libraries in North America following the Second World War.[9] The group's initial goals focused on sharing resources and expertise, evolved and expanded over time, and came to encompass the pursuit of collective licensing agreements, the development of shared geospatial infrastructure—the Scholars GeoPortal project, launched in 2012—and collaborative map digitization projects. The OCUL Map Group (later renamed the OCUL Geo Community) is not merely illustrative of the type of activity that consortia can support; it represents an immediate predecessor to the Borealis service and community in that it directly shaped the initiative and service model upon which the new national service would be built.

Governance and decision-making arrangements within consortial structures can vary depending on circumstances and goals. Typically, high-level decisions are made by a board of directors representing institutional members, while subcommittees or working groups comprised of volunteers from the institutions carry out specific tasks, as in the example of the Health Science Information Consortium of Toronto (HSICT).[10] When major initiatives emerge from working groups, more complex organizational structures may become necessary. After gaining project approval and funding from OCUL directors for the Scholars GeoPortal project, the OCUL Map Group formed multiple working groups, including a "project management group, a technical standards and collections working group, […] and an external advisory committee."[11] These groups, whose members were drawn from OCUL institutions across the province of Ontario and included staff from Scholars Portal, the service arm of OCUL that provides shared technology infrastructure, met over a period of three years to complete the project, using conference calls to allow remote participation.

While library consortia are primarily vehicles for collaboration between institutions, the library staff who join their committees or participate in consortial activities constitute an additional level of collaborative engagement, one centered on individuals as professionals. Several authors have identified networking and professional development for library staff as secondary benefits of library consortia.[12] Similarly, Jones highlights the importance of community within a consortium and the need to "build an engaged, dynamic culture among membership."[13] However, the element of community is broader than simple networking. Machovec assigns the benefit of "sharing expertise and best practices" to institutions, yet one could argue that expertise and professional practice belong to individuals and professional communities.[14]

Communities of Practice

Communities of Practice is an influential social learning theory first elaborated by Jean Lave and Etienne Wenger-Trayner[15] and further developed by Wenger-Trayner with his wife

Beverly Wenger-Trayner[16] that views learning and community as intrinsically linked. As such, it is a useful framework for understanding the professional communities that accompany library consortia. Wenger-Trayner and Wenger-Trayner identify three basic structural elements that must be present to constitute a community of practice (CoP): a domain of activity, a community of interested people, and a practice related to the activity (see table 21.1).[17] They combine these elements in the following definition: "Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly."[18] In this way, a CoP is differentiated from other structures like teams, geographic communities, or professional networks. Recent work has resulted in a more generalized theory of value creation within social learning spaces.[19]

Element	Description
Domain	Area or capability that brings the community together, gives it its identity, and defines the key issues that the members will address together
Community	The group of people involved in the community, and their relationships developed over time
Practice	Members take responsibility for defining the set of challenges they share and for structuring a learning process to address them.

TABLE 21.1. Structural elements of a CoP (adapted from Wenger-Trayner and others).[20]

The theory of CoPs is primarily concerned with describing how learning happens rather than providing a prescription for how to create better communities. CoPs come to exist through the interaction of the three elements rather than through intentional establishment, may exist within organizations or outside of them, and sometimes remain unrecognized. Peripheral participation is recognized as legitimate and voluntary participation is seen as a key driver. Through the interactions of its members, a community comes to recognize itself and thus gains the standing to define competence within a given area of practice. For Etienne Wenger-Trayner, the interaction between learners in a community contributes to the development of the identities of both the group and the individual:

> The theory does not separate learning from the becoming of the learner. That's why identity is such a central concept. If a really important part of learning is the shaping of an identity, then one key implication for education is that you cannot give people knowledge without inviting them into an identity for which this knowledge represents a meaningful way of being.[21]

Moving beyond the theory, practitioners have a strong interest in understanding how to facilitate their CoPs and ensure they remain healthy. This is driven by the same impetus that leads them to engage with these communities in the first place. The Wenger-Trayners have addressed this practical need with workshops and a guidebook.[22]

Applying the notion of CoPs to the examination of library consortia allows us to recognize there is often a mixture of different types of groups or structures co-existing in the same spaces: operational teams, working groups, governance bodies, and CoPs, to name a few. The interaction of these different types of groups has the potential to amplify their respective dynamic energy and activities, as we hope to describe in the rest of this chapter.

Case Study: Building a national repository service and community

In the following case study, we will trace two collaborative initiatives that shaped the development and ongoing sustainability of the Borealis national service—collaboration of academic library consortia and CoPs. An overview of this process can be seen in table 21.2.

Infrastructure Development	Year	Community Development
Launch of Scholars Portal Dataverse (SPDV) and other Dataverse installations in Canada	2012+	
	2014	Creation of Portage Network
	2017	Formation of Dataverse North
	2018	Publication of Dataverse North report and recommendations for national service
Launch of bilingual SPDV platform	2019	Initiation of SPDV institutional contacts community
Launch of SPDV as national service	2020	
	2021	Integration of Portage Network into Alliance
Rebranding of SPDV as Borealis	2022	Launch of Borealis Community Facilitation Team

TABLE 21.2. Timeline of the development of the national Dataverse service and the related CoPs.

Early Currents of Community Collaboration

In 2014, the Canadian Association of Research Libraries (CARL) initiated a project to foster a CoP for research data in Canada, which led to the development of the Portage Network, composed of experts from academic libraries and data service providers.[23] During this time, there was a growing interest in the open-source research data repository software Dataverse,[24] and several installations were established at institutions (e.g., University of Alberta and University of Manitoba) and regionally (e.g., Scholars Portal Dataverse for the Ontario Council of University Libraries, Abacus Dataverse for the University

of British Columbia, University of Victoria, and Simon Fraser University). In response, the Dataverse North working group was formed in 2017 under Portage, comprised of stakeholders at several institutions with an aim to investigate opportunities for national coordination.[25] In relation to the concept of a CoP Dataverse North at this stage provided a space for social learning with alignment of the three elements of domain, community, and practice as shown in table 21.3 below.[26]

CoP Elements[27]	**Dataverse North (ca. 2017)**
Domain: What is the community about?	The community members are librarians or other institutional information specialists who administer (or are interested in administering) an institutional Dataverse collection or repository; they are interested in the sustainability of the Dataverse software and national network/service.
Community: Who should be at the table?	The group includes practitioners of librarians or other university staff who administer their institutional Dataverse collection or repository.
Practice: What should they do together? How can they make a difference in practice?	The community shares knowledge and expertise about managing an institutional Dataverse collection or repository, data curation, and experiences using the software; develops resources; and investigates how to establish/maintain a national network or service.

TABLE 21.3. Analysis of the CoP elements evident in Dataverse North at its beginning stages (2017).

At this early stage, Dataverse North relates to the "Establishing Phase" of a CoP,[28] involving building relationships and finding activities to learn and generate value as a community. The community members were engaging in improving their own knowledge and ability to support their own researchers but also advancing the national community and infrastructure collectively.

In 2017, the Dataverse North Business Models sub-working group began studying various repository service models and assessed the landscape, including a survey of Canadian institutions hosting or using a Dataverse repository platform. The results indicated that institutional capacity was limited for local services and there was a strong need for collaborative solutions for support and infrastructure.[29] Based on this research, the sub-working group recommended that Portage engage with key stakeholders, including regional academic library consortia, to establish a robust, scalable, and sustainable national Dataverse service that would provide more equitable access to shared infrastructure for researchers across Canada.[30] The selection of Scholars Portal Dataverse (SPDV) as the proposed national host repository reflected a key benefit in leveraging existing expertise and infrastructure: as the largest Dataverse installation in Canada at the

time, SPDV supported the twenty-one institutions of the Ontario Council of University Libraries (OCUL) and was located at the University of Toronto Libraries data center. Additionally, the group recommended that Dataverse North continue to cultivate the CoP to support capacity-building across institutions and for collaborative development of resources and training materials. As a result, the CoP reflects the next level of maturity of the "Committing Phase" by establishing the value of the collaborative activities and emphasizing the ongoing commitment of the membership.[31]

Building a National Service

In order to respond to the community's recommendation of establishing a national service, Scholars Portal secured federal funding in 2018 through the CANARIE Research Data Management Grant Program to improve the platform's scalability, develop integrations with Canadian cloud storage and authentication providers, and enhance the support for data curation workflows.[32] Additionally, Scholars Portal partnered with the Université de Montréal to release an internationalized version of the Dataverse software code base. As a result of these collaborations, SPDV was able to launch a fully bilingual platform in 2019 to support French-speaking researchers.[33] The same year, Scholars Portal began extending the service outside of OCUL through partnerships with other regional library consortia.[34] In 2020, SPDV was officially launched as a national service, with all four regional academic library consortia agreeing to co-sponsor the service hosted at Scholars Portal and the University of Toronto Libraries.[35] Through national funding, Portage secured over 300 TB of storage to subsidize the cost for subscribing institutions with an aim to reduce barriers to participating in the service. After extensive community consultation and support from the four regional academic library consortia and Dataverse North, Scholars Portal Dataverse was renamed in 2022 to Borealis, the Canadian Dataverse Repository, to better reflect the new identity of a national service.[36]

Growing and Formalizing a Community of Canadian Dataverse Administrators

Going hand in hand with the development of national infrastructure, SPDV also made significant efforts to foster the community of institutional Dataverse administrators who subscribed to the shared national service. After officially extending the service outside of Ontario in 2019, the SPDV team created spaces for knowledge exchange for the growing community of administrators. First, a new list-serv provided a forum for answering incoming support emails, sharing announcements, and facilitating discussions among the administrators on topics related to their practice (e.g., data curation processes, permissions, software features, and local policies). Second, the SPDV team began hosting community meetings to provide updates and answer questions but also, importantly, to facilitate

knowledge-sharing among the institutional administrators about the management of their local services. The meetings with the institutional contacts were initially ad-hoc, but soon standardized into regularly scheduled monthly meetings with approximately forty to seventy-five community members in attendance. Third, a new wiki space was developed to post documentation, meeting minutes and slides, and for sharing lessons learned. This administrator CoP gained momentum in the shared goal of improving their individual ability to support local researchers by learning from one another but also learning with each other through an ongoing learning loop. In early meetings, community members brought forward ideas, success stories, and lessons learned, and community relationships were built based on mutual engagement and collective learning.

Throughout the years during the expansion of the national Dataverse service, two distinct CoPs had emerged, with overlapping membership and goals (as shown in figure 21.1): the group of SPDV institutional contacts (which became the group of Borealis Dataverse Administrators) was growing rapidly and Dataverse North continued to create resources to benefit the RDM community supporting Dataverse, including best practices for metadata (e.g., Dataverse Metadata Best Practices Guide, training materials, and templates for creating institutional Dataverse policies).[37]

A period of rapid change transformed the original context that gave rise to Dataverse North, which necessitated revisiting its purpose, even as its original vision of shared Dataverse infrastructure surrounded by a CoP remained relevant.[39] Not only had Dataverse North's sponsoring organization, Portage, amalgamated into a new, larger national organization, the Digital Research Alliance of Canada (the Alliance),[40] but the community of

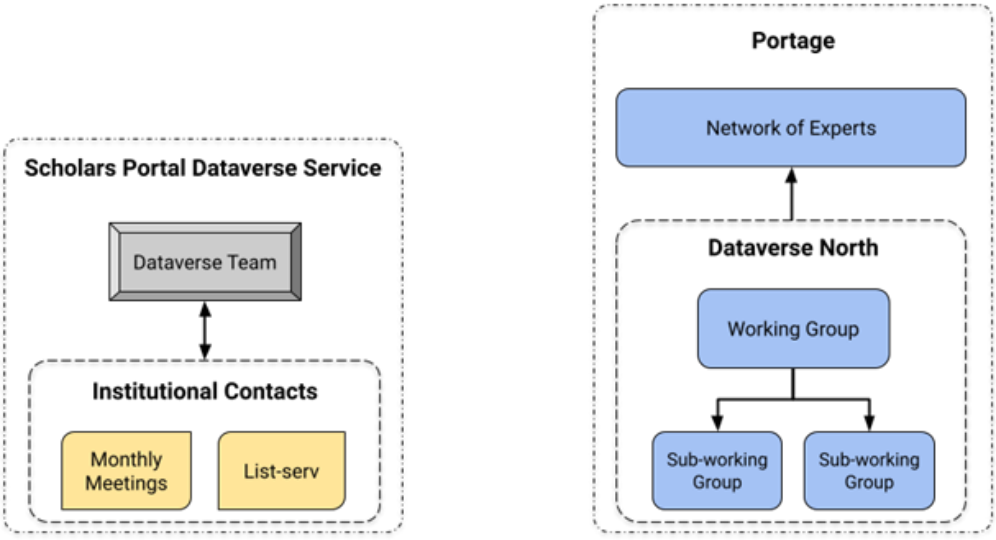

FIGURE 21.1

Separate yet overlapping communities supporting Dataverse in Canada (2019–2021).[38]

Dataverse administrators had grown rapidly. Without the responsibility of operating or governing the Borealis service, Dataverse North was well-placed to focus on the community aspect of its vision, but this required a change in perspective to a view where the group's role would be to support a CoP without necessarily being that community itself. In 2021, Dataverse North renewed its mandate to steward the Dataverse community in Canada and became an Expert Group (a type of permanent working group within the Alliance's RDM Network of Experts). As the number of institutions subscribing to Borealis grew, the center of gravity of the CoP shifted to the monthly meetings of the Borealis Dataverse Collection administrators. This shift placed new pressures on the Borealis team (formerly known as the Scholars Portal Dataverse team) to facilitate the community, which cast closer collaboration with Dataverse North in a positive light. Dataverse North and the Borealis team recognized the need for more formal collaboration and participated in discussions to conceptualize how these separate yet overlapping groups and elements of the national Dataverse communities (broadly defined) could be better integrated and supported.

As a result of a formal collaboration between the Borealis team, Dataverse North, and the Alliance, the Borealis Dataverse Community Facilitation Team was launched in 2022. Operating as a Dataverse North Working Group (see figure 21.2), the team coordinates and harmonizes the structural elements of the community. A major focus is providing collaborative oversight for the community meetings, events, and listserv discussions, channeling feedback where needed to the Borealis team, to Dataverse North, and to the Alliance. Recognizing the importance of the community and the development of inclusive spaces and support, Borealis hired a new RDM position to provide bilingual support to the community and to participate on the Community Facilitation Team. Additionally, the Alliance hired a bilingual data curation officer to support the community and facilitate meetings. Through the lens of a CoP, the Facilitation Team could be viewed as operating as "community leaders" by running the ongoing functions of the community, keeping the membership engaged, and welcoming new members.[41] It is encouraging to see the emergence of "core group" members, volunteers who are dedicated to the community's success, particularly in sharing their knowledge and experience, participating in Dataverse North subgroups, and shaping the collective learning process. With these milestones reached, the broadly defined CoP relates to the "evolving phase," with ongoing stewardship and renewing relevance of the community.[42]

Ongoing Initiatives and Future Plans—Sustainability and Facilitating the Learning Process of the Community

There are ongoing challenges in sustaining the Canadian Dataverse Administrator Community. As outlined by Wenger-Trayner and others, CoPs and their initiatives can

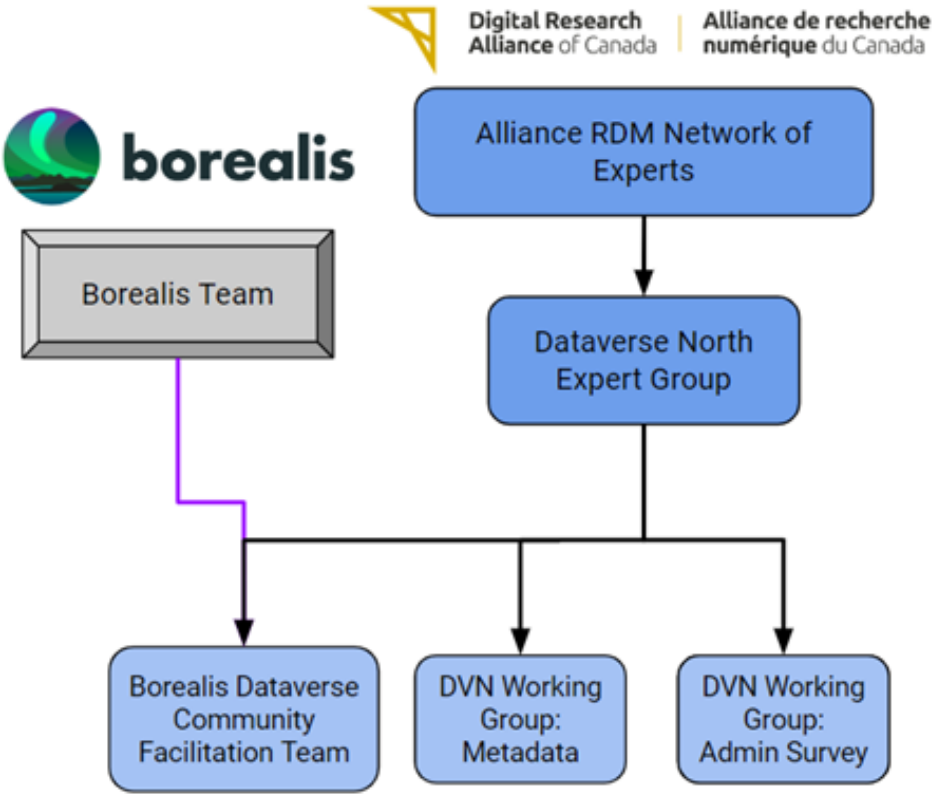

FIGURE 21.2

Collaborative community space (2022) showing the Dataverse North working groups, including the Borealis Dataverse Community Facilitation team and the Dataverse Administrator Survey working group.

face a number of challenges and risks that can affect their long-term viability.[43] Of particular concern is adding additional burdens and workload to volunteers who are already overwhelmed by the demands of their portfolios, with limited capacity for additional learning. For sustainability, the key will be to demonstrate that the collaborative activities of the community are mutually beneficial and that participation will energize the community members rather than overload them. Additionally, Wenger-Trayner and others detail several key factors that can contribute to the success and sustainability of CoPs.[44] Ensuring community members have a voice by providing opportunities to ask questions, share ideas, and participate in strategic discussions will be an important area of focus for the Borealis Dataverse Community Facilitation Team. Feedback mechanisms must be in place to continually evaluate the needs of the community and respond to these needs through new initiatives.

One feedback mechanism is building in sufficient time at the monthly community meetings for discussion, which is crucial to give the community a voice to share experiences and participate in the strategic learning direction of the community by surfacing topics of mutual interest.[45] These discussions have led the facilitation team and community members to explore other venues for learning and upskilling. For example, as a result of lively discussions and questions about Creative Commons dataset licensing over two monthly Borealis community meetings, community members brought forward the idea of a separate community event organized by the newly formed Curation Events Working Group (CEWG), part of the Curation Expert Group of the Alliance. Given that the community was interested in collaboratively learning about an important aspect of their roles as dataset curators, the CEWG's mandate to organize a series of bilingual data curation-related events for skill-building and knowledge-sharing was an excellent fit.

Another example of developing feedback mechanisms is the establishment of a community-led working group to design and implement a survey of Canadian Dataverse collection or repository administrators (part of Dataverse North, as shown in figure 21.2 above). Comprised of a variety of stakeholders, including members of the community and the Borealis team, the working group aims to develop a better understanding of this community—the demographics of the admins, their institutional contexts, the service models they support, their experiences using the Dataverse software, the challenges they face as admins, and their perceptions of the growing national community of Dataverse administrators.[46] These results would inform the development of community-led initiatives to investigate barriers and challenges and to develop solutions collaboratively. After forming the working group in the summer of 2022, the working group members conducted background research, reviewed survey instruments of related surveys, and designed the survey to cover questions related to administering the Dataverse collection, Dataverse collection policies and procedures, Dataverse software features, RDM services at the institution, and perceptions of the national community of administrators.[47] Beginning in late fall of 2022, they conducted qualitative pre-testing with cognitive interviews of a small sample of Canadian Dataverse community members to validate the survey instrument in English and French.[48] After receiving ethics clearance from Queen's University, the working group launched an institutional survey (one response per institution) in April 2023 and an individual survey in May 2023.[49]

Initial results of the institutional survey reveal a range of experiences and challenges based on institutional size and context as well as individual expertise and capacity.[50] However, many commonalities emerged that could be tackled collaboratively—for example, addressing the top challenges faced by the admins, including researcher awareness (89 percent of responses) and lack of incentives/rewards for data deposit/sharing (63 percent of responses).[51] When asked about the importance of participating in a community of Canadian Dataverse administrators, 91 percent selected "very important" or "extremely important" across a range of institutional sizes and contexts. The qualitative responses also

indicate that institutional admins are eager to learn from one another and work together to solve issues faced in several contexts. The working group continues to analyze the datasets of the two surveys and is planning community engagement activities to share the results and facilitate discussions to channel feedback into recommendations for initiatives and software development projects. The de-identified datasets will be shared openly and can be used for institutional benchmarking of service offerings.[52] Additionally, the working group proposes that the community re-administer the survey on an ongoing basis in order to track responses and adapt to changes in administrator and researcher needs.

Another ongoing initiative is the development of a collegial governance structure for the Borealis service, which relies on the ongoing partnership of library consortia and advisory mechanisms of stakeholders, including community members. The establishment of a national Dataverse service in 2020 was made possible by initial agreements reached between Scholars Portal, the University of Toronto, and the four regional academic library consortia in Canada. Work to develop a formal governance structure for the service has been ongoing since that time. The inaugural Borealis steering committee was established in 2024 with representation from each of the four regional academic library consortia. The establishment of an expert advisory council is forthcoming and would provide expertise and advice to the steering committee. As such, management of the national service will be informed by community feedback without interfering with the ongoing evolution of the self-determined community structures and activities.

Conclusion

In this chapter, we examined a case study that explores the interactions between two frameworks for collaboration: academic library consortia and social learning through CoPs. Through these lenses, we traced the development of the national research data repository service, Borealis, and highlighted how collaboration in academic libraries can foster an open, inclusive, and collaborative data-sharing culture and national digital research infrastructure. In conclusion, we offer a few takeaways for consortial initiatives and community development more generally.

Branding and name recognition have been important in the development of the community and repository ecosystem. "Dataverse" was a recognizable brand to many in the RDM community in Canada and already a mature repository platform when Dataverse North was formed in 2017. It is likely that this familiarity helped accelerate the emergence of a community interested in adopting and supporting this software platform. Likewise, the name Borealis for the national service was chosen through a careful process of deliberation and community consultation that considered multiple factors, including whether the name would be meaningful in both French and English. In turn, creating a brand for the national service made it possible to name the community around the service as well as the community facilitation team.

Ensuring that the community is adequately resourced is another key factor for success, especially for a community of volunteers. Having dedicated staff to support a community ensures continuity within groups over time and provides channels for communication between different groups or different parts of very large organizations, like the Alliance. In the Canadian context, access to professional translation services and bilingual community support staff have been critical for the establishment of inclusive and truly national spaces and collaborations. For the repository service provider, supporting the community of institutional collection administrators contributes to the overall sustainability of the platform. By establishing effective feedback mechanisms, the Borealis team can ensure that the management of the service and development efforts for software features and functionality will continue to meet the needs of the broader research community in an ongoing way.

When academic libraries and librarians collaborate on a national level to provide access to data repository services, they are modeling a culture of knowledge exchange and care for data that speaks to long-term commitment and community learning. Collaboration on a national level also enables alignment with national data strategies and provides the opportunity to engage with national funding bodies. Active communities of RDM professionals can access the power of collective voice when advocating for data services, whether the audience is funders or researchers. Yet the capacity to influence their own development and organization remains their core strength.

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