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Part III

Geographic citizen science with indigenous communities

Chapter 10

Developing a referrals management tool with First Nations in northern Canada: an iterative programming approach

Jon Corbett and Aaron Derrickson

Highlights

- There is a need for an open-source digital tool to support Canadian First Nation communities to communicate more effectively with industries in regard to proposed resource extraction projects.
- Gather was the result of an iterative, responsive and ‘just-in-time’ approach to co-design a geographic citizen science data gathering and management tool.
- The Gather software and the latest version of the tool diverged from the programming team’s initial ideas as a result of the co-design process.
- Implementation challenges tended not to be technical or design focused. Rather, they related to the individuals and organisations involved in the project, and the sensitivity of the information being handled.

1. Introduction

All proposed resource development projects in Canada, whether a new mine or a major new piece of infrastructure, are required to consult with the indigenous parties that will be impacted by the work. This referral process has emerged as the result of a series of precedent-setting court

cases which found that the Provincial and Federal Crown¹ have a legal duty to consult and, where necessary, accommodate First Nation² communities (Harris 2006) when development activities are being carried out within their traditional territories (Ecotrust Canada 2017). Regardless of scale, the First Nation who has rights on the land where the development will take place is given the opportunity to examine the proposed project for potential adverse environmental, economic, social, heritage and health impacts that may occur during the project life cycle. The process is rigorous and often involves extensive documentation provided by the proponents, who in turn draw on the expertise of specialist consultants. In British Columbia, once a referral is submitted, the First Nation must respond with written comments within a 20-day period. If the review cannot be completed within this time frame, the government notes that the proponent has fulfilled their obligatory duty to consult with the community.

With the continued and growing presence of large-scale resource development (particularly mining and forestry operations) in northern Canada, First Nation communities are becoming overwhelmed by the obligation to manage, review and respond to these impact assessment proposals (Power 2017). First Nation leaders and community lands departments recognise a clear need to research, design, develop, implement and evaluate affordable tools that could streamline the duty to consult between government, proponents and communities, as well as facilitate community decision making related to the referral process. In 2015, several First Nation communities and their representatives approached the Spatial Information for Community Engagement (SpICE) lab at the University of British Columbia seeking the development of a web-based tool that might be used to improve their capacity to understand the extent of all proposed resource developments, as well as manage and respond to the referrals. The project also involved the co-design, development and implementation of a mobile app to enable community members to collect spatial information on their contemporary use of lands and resources. This information in turn can be accessed and viewed using a map interface by community lands department members and community leaders in order to inform lands-related decision-making processes. This chapter describes the development and initial implementation of 'Gather: The referral management tool' that we co-designed to address these needs.

2. Supporting First Nations' land-management needs

2.1 Context

Speaking in general terms, First Nations throughout Canada have a unique, respectful and stewardship-focused relationship with the lands on which they live (Berkes, Folke and Colding 2000; Turner, Ignace and Ignace 2000). This relationship has developed over millennia. It directly contributes to the social, cultural, economic, subsistence, health and spiritual well-being of First Nation communities throughout the country (Berkes 2017). Traditional knowledge, languages, cultural practices and oral traditions are all connected to the land (Alfred and Cornthassel 2005). European colonisation and settlement in Canada have profoundly challenged this relationship. Over the past 125 years, resource industries have harvested and sold natural resources from First Nation lands (Angell and Parkins 2011). These businesses have become major drivers for the Canadian economy and employment.

The Royal Proclamation, signed in 1763 by King George III, has helped shape the legal relationship between the Crown and First Nations. The Proclamation implicitly recognises First Nations as owners of their lands, and in doing so, it provides the basis of the legal recognition of their rights to land (Borrows 1994). In 1973, the Supreme Court of Canada, through the Calder decision, recognised that aboriginal title existed in law, and therefore could be enforced (Foster, Raven and Webber 2011). That decision was followed in 1997 with the Delgamuukw and Gisdway, as well as Sparrow and Tsilhqot'in, decisions that found that aboriginal title was something substantive and robust and should be considered 'a right to the land itself' (Morse 2017). These court cases are significant because they mean that the provincial and federal governments now have a legal duty to consult and, where necessary, accommodate First Nation groups when development activities are being carried out within their traditional territories.

It is important to note that although the duty to consult can be conflictual in nature (Zietsma et al. 2002; Hayter 2003), most levels of government as well as industry leaders have accepted that consultation with First Nations is a legal, necessary and important aspect of doing business with First Nations (Joseph 2015) on First Nation territory. Furthermore, many businesses conduct their own engagement process with indigenous communities as a part of their project planning before they apply for regulatory approvals (Canadian Chamber of Commerce 2016). This often involves establishing relationships with community decision makers

and including them in initial project planning processes and developing impact and benefit agreements (Gogal, Reigert and Jamieson 2005; Caine and Krogman 2010). This is done to help avoid the delay or cancellation of projects that might occur if consultation only takes place during the formal referral process.

The consequence of this legal requirement to consult is that many small First Nations, often operating with limited staff and resources, have been overwhelmed by the number of referrals that they receive daily. It has proven to be a major logistical and administrative challenge to organise, prioritise, analyse and respond to these referrals in a meaningful and effective way (Ecotrust Canada 2017). This is especially the case in smaller, more geographically remote communities where most resource development projects take place in Canada. For example, in 2014, Saúlteau First Nations (SFN), a community in northern British Columbia, received more than 3,500 applications referred by federal, provincial and local governments. The current procedural requirements within the regulatory process oblige SFN to assign significant resources to manage, review and respond to each referral. This process also necessitates understanding the spatial extent of the proposed development intervention and how it potentially impacts the traditional and contemporary uses of the land. Presently, the capacity for SFN to acknowledge the infringement of their indigenous and treaty rights from a proposed development in an effective and timely way is both limited and costly.

A number of proprietary software tools have been, and continue to be, developed in response to this challenge. A report written in July 2017 by Ecotrust Canada and the Aboriginal Mapping Network identified eight software applications used in 44 different communities around the province of British Columbia. Most of these tools included a mapping component to the software, but none directly linked their software platforms to community-contributed geographic citizen science information. The report further identified several critical challenges to implementing and using this software. These were related to access to training, usability, licensing costs, updates and software bugs. There are currently no open-source tools to facilitate the management of the referral process at the community level, nor are there any examples of where software has been co-developed from inception with the communities who use them.

In 2017, community members from the Wabun Tribal Council (WTC), SFN, the Firelight Group and the SpICE lab began to co-develop a web-based collaborative tool referred to as 'Gather: The referrals management tool' (hereafter 'Gather'). From its inception, we intended Gather to be an open-source, free to implement, easy to set up, intuitive to use,

extendible and integrated contemporary geographic citizen science tool. It was designed to capture data that could provide evidence to the government and industry that community members are still active land stewards and that resource extraction activities would impinge on their current, and not just historical, livelihood activities. At the time of writing this chapter, we have finished an initial draft of Gather and its associated smartphone data-collection applications. Because of this, we can only talk about the development of the tool and share some of the challenges and barriers to the tool's design, development and pilot launch. We do not yet have any specific examples of interaction and uptake in the field.

2.2 Partners

The WTC is the regional representative for the First Nations of Brunswick House, Chapleau Ojibway, Flying Post, Matachewan, Mattagami and Beaverhouse. These communities are located in north-eastern Ontario (see [Figure 10.1](#)). The WTC's Board of Directors comprises the chiefs of the six communities. The WTC work in the fields of health, education, economic development and resource development. WTC staff are responsible for negotiating mining development agreements in collaboration with community leaders and acting as a point of contact for project proponents and as a liaison in communications between government, industry and the communities.

SFN are located in Moberly Lake, northern British Columbia (see [Figure 10.1](#)) and are a Treaty 8 First Nation. Treaty 8 territory covers approximately 840,000 km² in what is now northern Alberta, north-eastern British Columbia, north-western Saskatchewan and the southern-most portion of the Northwest Territories. The Treaty provides the SFN membership with (among other things) the constitutionally protected right to hunt, fish and trap, and to gain a livelihood from the lands and resources within Treaty 8 territory. As SFN notes in its 2015 Comprehensive Community Plan, 'Practicing our Treaty Rights provides our people with the means for a rich spiritual, social, and economic life. The land and the activities carried out upon the land connect our people to their past and provide them with the resources they need to build a healthy, stable, culturally rich future' ([Saulteau First Nations 2015, 7](#)). Although SFN were a key project partner during the initial stages of the project design, staff turnover has meant that they are no longer involved in the ongoing development of Gather.

The Firelight Group are a consulting group that works with indigenous and local communities throughout Canada and internationally. They



Fig. 10.1 Location of Gather project partners.

Source: author.

work in collaboration with many First Nation communities to provide research, policy, planning, negotiation and advisory services. Their work focuses on culture, health, socio-economics, ecology and governance to support the rights and interests of indigenous communities. Firelight are driven by the principles of participation and capacity building. They funded the initial stages of developing Gather through their Social Return fund.

The SpICE lab, based at the University of British Columbia, Okanagan, partners with Canadian and international communities to co-develop, deploy and evaluate digital participatory mapping tools. The lab's partnerships are framed within the practice of community-based research and represent a collaborative enterprise between researchers and community members. The SpICE lab's research programme explores questions related to how digital mapping technologies and associated processes impact indigenous and vulnerable communities, and whether these tech-

nologies can effectively capture – and add value and authority to – local knowledge.

2.3 Project methodology

Because of the nature of the partners involved, the project is grounded in the paradigms of indigenous methodologies (Kovach 2010; Smith 2013) and community-based research (Israel et al. 2001; Minkler and Wallerstein 2011). This means that all aspects of this project (design, evaluation, extension and outreach) are conducted in a reciprocal and an empowering manner; the outcomes are of tangible benefit to the partnering First Nations; and community members feel a strong sense of ownership over the co-design process and the final technology. In concrete terms, this has meant that the programming team responded directly to the needs and concerns of our community partners. The community partners became the principal architects and designers for Gather. This co-design approach involved all actors in the project. We did not record any of our meetings, as our intent was not for our process to be considered a research exercise. Rather, we focused on the design of the tool itself and its functionality. For this reason, we are not interested in conveying the personal thoughts or details of the meetings, or in the geographic citizen science data gathered using the tool. Once the tool is operational, we will consider evaluating its usefulness, in which case we will be bound by our university's research ethics board requirements. However, we are not yet at that point of deployment in the community.

Over the summer of 2017 (May–August), we co-designed and co-developed the first iteration of Gather with the WTC and the lands managers from the Beaverhouse First Nation, Brunswick House First Nation, Chapleau Ojibway First Nation, Flying Post First Nation and Matachewan First Nation, as well as the referrals team from SFN. We held a five-day workshop in Timmins and a two-day workshop in Chetwynd with representatives from the lands department. We used the materials produced from these sessions to co-design the first draft of Gather. We continued to meet regularly through videoconferencing. We also met for a third one-day workshop in Winnipeg, which was held prior to the Indigenous Mapping Workshop (November 2017). During these community workshops, participants discussed their specific concerns and needs, including how the software should look and function to address the varying requirements of each community.

Our design and development process was based on a 'just-in-time' iterative programming approach (WikiWikiWeb 2005). In other words,

during the workshops, we would focus on developing only the immediate requirements and functionality identified as being important by the participants. This meant that in the mornings, we discussed and planned the application's functionality and workflow. During the afternoon and evenings, the programming and digital design team coded Gather. Each day, the team reported back, were offered additional suggestions and then adapted the draft tool to meet those further recommendations. By the end of the workshops, we had developed a partially functioning version of Gather. As a result of this approach, participants were considerably invested in the design of the tool and continued to work with the programming team on its subsequent (and ongoing) development. Overall, it was a successful and fulfilling – though at times exhausting – experience in community engagement.

3. Creating Gather

3.1 Initial intent

Prior to commencing the design and development workshops, we envisioned the creation of a web-based platform that would focus on two user groups: members of First Nation lands departments and industry proponents. The tool would allow First Nation lands department members to manage existing community traditional land-use data and also to view the spatial intersection of proposed development projects and traditional and contemporary community land uses. The software and associated databases could sit on University of British Columbia, community-located or cloud-based servers, depending on the server management capacity within the community and the availability of high-bandwidth hardware. Industry proponents would upload all the project proposal documentation, including letters and permits, as well as a SHP (a common spatial file type used by GIS software) or KML (the spatial file type used in Google Maps and other web mapping applications) file delineating the spatial extent of the project. Lands department members would then overlay the industry spatial extent file on top of their traditional use data and thus have a clear visual representation of the impact of proposed projects on the social, cultural, economic, subsistence, health and spiritual well-being of the community and its membership (see [Figure 10.2](#)).

We wanted the user interface (UI) to be straightforward and intuitive, and for the tool itself to facilitate a semi-automated workflow built around a structured set of predetermined steps. As specific steps are completed in the lands department's workflow, automated messages are sent

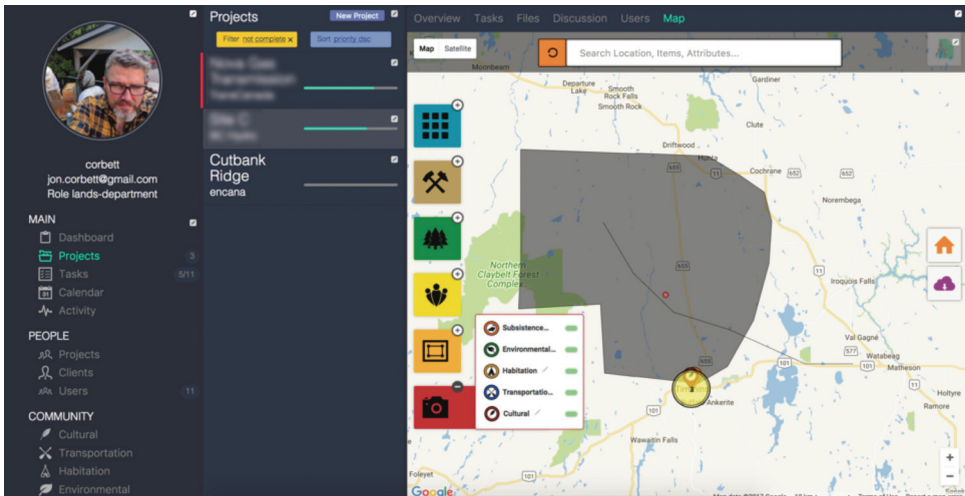


Fig. 10.2 Hypothetical example of the extent of an industry-proposed project, represented by the grey polygon, overlaying community-contributed geographic information.

Source: Gather app. Credit: Spatial Information for Community Engagement Lab (SpICE). Basemap © Google Maps.

to the industry proponent who can monitor their proposed project as it moves through the community decision-making process. Thus, both the lands department – through a more efficient referral management system – and industry – through having an increased ability to monitor their individual proposals – benefit from the tool.

Our design and development workshops largely supported our initial ideas, with one notable exception. Lands department members clearly recognised the need to include all members of the community in the project in order to encourage their engagement in the referrals process and to contribute their own information related to contemporary community use of the lands and resources. This helped to articulate clearly the need for Gather to be usable for three unique user groups, each with their own distinct set of needs and ways in which they interact with the system. In other words, there was a need for Gather to enable:

- Community members to volunteer and selectively share information pertaining to their contemporary use of the land through an intuitive mobile phone-based geographic citizen science data-collection app;

- Community lands department managers and technicians to review, manage, delegate and respond to referrals, and produce reports that help clarify how proposed projects impact both traditional and contemporary land uses; and
- Industry to standardise their referral submission process and track the review of their referrals within the community's workflow.

3.2 UI design

Gather's initial UI design was loosely built around previous online participatory geographic applications developed over the past 12 years in the SpICE lab. The referrals document management functionality was built directly into a map interface and made accessible through a single web page view (see [Figure 10.3](#)). The specific interactive functions available through the UI varied according to the three unique user groups (lands department, community member and industry). At its most basic level, this meant that lands department members would see and interact with a set of controls, queries and functions that supported the management and response to referrals; these controls were not visible to the other two user groups. Lands department members could also view commu-

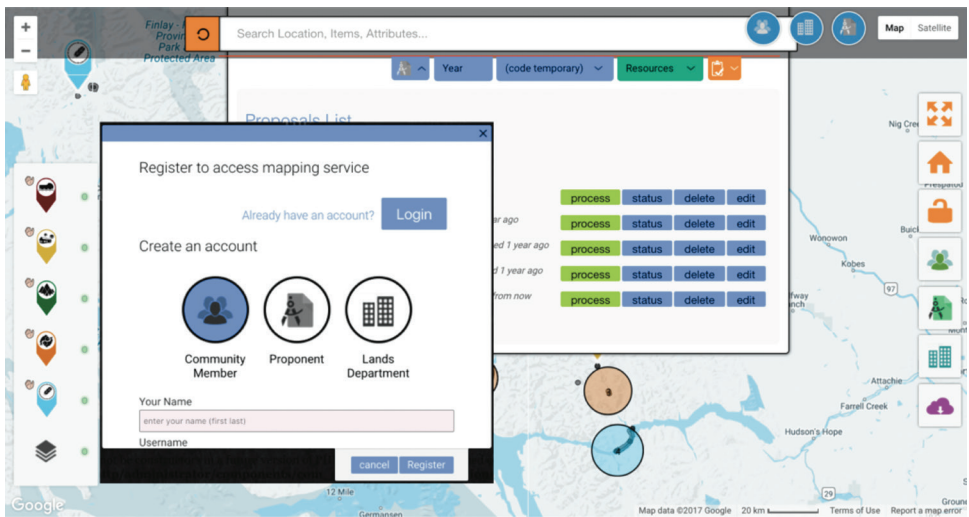


Fig. 10.3 Referrals management tool – initial map-centric information management interface.

Source: Gather app. Credit: SpICE. Basemap © Google Maps.

nity geographic citizen science contributions. Community members could see and comment on their own and other community member contributions, but they could not interact with the referral data. Industry could only view their own referrals and no other information.

The programming team's prior experience developing online mapping tools meant that our initial draft of Gather was map-centric. Referral data were managed entirely through the map interface, and data-management tools were associated with icons and drop-down menus built around the outside edges of the map (see [Figure 10.3](#)). After the community co-design workshops, the UI was redesigned to focus on projects, tasks and deadlines (see [Figure 10.4](#)). The map still plays an important role, but its significance is muted, and it is only accessible when viewing information about a specific project. This change was made because of the limitations of the map interface for filtering and viewing large numbers of proposed projects (sometimes in the thousands).

3.3 Mobile app

At the outset of the project, the programming team were focused on developing a tool that would be exclusively browser based and used primarily by lands department members and secondarily by industry and government proponents. This browser-based approach meant that the tool would function on any operating system and not require any specialised software, and that it would support the ability to share the same information seamlessly between different user groups, as well as have a low entry cost. After working directly with the lands managers, we modified the system to include the development and integration of a mobile geographic citizen science app to enable community members to volunteer (i.e. capture and share) examples of contemporary land use from the territory using their own smartphones. Data could be collected by community members at any time of the year and act as a repository of current and relevant community land-use practices. This required developing both iOS and Android apps that could be used by resource managers, hunters and community members to record and share their activities.

Lands managers considered this to be of the utmost importance because the data could be used to provide evidence to the government and industry that community members are still active land stewards and that any resource extraction activity would impinge on their current, not just historical, livelihood activities. However, the design, development and use of a geographic citizen science app to support data collection in northern Canada present their own sets of challenges. These include



Fig. 10.4 Redesigned referrals management tool interface.

Source: Gather app. Credit: SpICE.

limited (and largely non-existent) connectivity, the need to program for a broad range of devices (due to both the age of the devices and the presence of multiple operating system versions) and issues related to testing, training and app distribution. We recognise that these are common issues in information and communications technology for development projects around the world (Rashid and Elder 2009; Aker and Mbiti 2010) that have been addressed through the development of tools, such as Sapelli or ODK (Open Data Kit), which are open source, offer mobile data collection and can operate offline. However, we chose to develop our own suite of apps, partially to develop the long-term skills and capacity in the SpICE lab to offer these services to our partners, but also to ensure data consistency and interoperability with our project servers, databases and design components.

4. Challenges to the community's interaction with the tool

Throughout the design, development and initial implementation stages of Gather, we have both realised and constantly been reminded of the needs and challenges of working with multiple users handling sensitive indigenous information in digital form in a politically contentious environment. It should be further noted that each community partner has differing experiences with industry proponents, which in turn means that each partner has a specific set of needs; this is reflected in the variations in functionality required for the tool. We discuss these barriers and challenges in this section.

4.1 The challenge of getting people to use the software

The project has benefitted from a high level of participation by First Nation land managers and community leaders. These groups were closely involved in the co-design of both the overall project as well as the specific software functionality. They are champions of the software both within the community as well as in other indigenous communities in Canada through presenting the tool at gatherings, such as the Indigenous Mapping Workshop. However, anecdotal evidence shows that it is hard for them to introduce and encourage the use of mobile geographic citizen science apps within their own communities. This is partially due to limited connectivity and many people in remote areas not having access to high-speed mobile Internet. However, it is also difficult to persuade

people that their contributions are important and useful for lands department managers and can be used to inform community decision making. This remains a constant challenge. Furthermore, many of the community members that continue to use the land for hunting, fishing and medicine gathering tend to be older and are often less likely to use a mobile phone. There is a need for the champions to communicate better the purpose of data gathering to community members, as well as to express the importance of the community's contributions and how their data will be used.

4.2 Tension with commercial operations

One of the challenges we had not anticipated at the beginning of the project was the tensions that emerged between our development team and commercial referral management software providers. One business contacted us several times about Gather's functionality, and expressed concern about the composition of our project partnerships. They were especially uneasy about the role of the Firelight Group in the project, who they felt had a conflict of interest and an unfair business advantage through their involvement with our university-based programming team. This did help us understand that within the university, we have advantages regarding institutional support and access to resources that are not available to many small businesses. The business was also concerned that the software being made available as an open-source product that is freely available might undermine the business model of small companies offering referral management tools to other First Nation communities. This tension is hard for us to reconcile. On one hand, we understand the importance of not undermining small business, but on the other, we recognise that many small rural First Nations are overwhelmed with the number of referrals, and they lack the financial and human resources to respond effectively to this challenge. After discussions between project partners and the university, we held true to our original objectives of making Gather open source and freely available. We also invited the concerned business to examine and use our open-source software to augment their own offerings.

4.3 Difficulty of creating generic software applications

Given the varying histories of the relationships between indigenous peoples, industry and the Crown, as well as the nature and/or scope of differing proposed projects, it is unrealistic to expect that the referrals process will be same for First Nations throughout Canada. The WTC, for exam-

ple, had a close and long-term working relationship with several mining interests in their region. Therefore, they expected Gather to be a useful tool to store and access existing project referral documentation and engage community members through the mobile app. They did not view Gather as a tool to structure their relationship with existing partnering industries. In contrast, SFN deals with a far greater number of industry proponents, many of whom they do not have a relationship with. They hoped that Gather would provide a structured approach to dealing with industry. The SFN Lands Department already had a clear set of regulations and protocols which systematised the ways in which they managed and responded to referrals. SFN wanted Gather to emulate these protocols in order to create greater efficiencies in their dealings with industry proposals and the Crown.

In past projects, the SpICE lab has focused on custom code design for projects that involve a limited number of partners. However, because of the varying circumstances and different needs within different communities involved in this project, there was limited agreement about the specific functions required to manage large numbers of referrals. For some of our project partners, Gather provides a rudimentary set of limited functions; for others, the software provides too many functions, making it overly complicated and difficult to implement. It has become important to be able to articulate and communicate clearly who the software is targeting and how they might use it. We decided it should be aimed at small communities with limited resources; it is not designed for large communities that receive many thousands of referrals a year.

4.4 Mistrust between representatives and communities

There is often a naivety among university researchers working with First Nations, particularly in regards to understanding ongoing community–government tensions, such as those found when addressing issues of land claims and land-use studies, as well as internal community tensions related to the identification of community priorities through to the nature of the information that members should be volunteering. This complexity increases as more communities become involved in the design and development of the technology. The programming team did not have the luxury of remaining uninvolved in these tensions. We often had to engage in soft mediation during decision-making sessions, which usually involved offering technical solutions to human concerns. This was particularly the case around how community information is managed and accessed and by whom.

4.5 Limitations of our map-centric approach

As noted above, this project required us to rethink our cartographic perspective. The referrals management tools were originally built directly into a map interface and made accessible through a single web page view, but the space constraints of this UI were too limiting. Nor did the tight UI allow for the management of specific tasks related to projects. Our redesigned UI tried to mimic the steps of the SFN's existing workflow and tasks associated with managing each referral using a series of tabs with the addition of a task management tool (see [Figure 10.4](#)). Ultimately, this meant that the interface was considerably more textual in nature, and the role of the map was diminished. This forced us to rethink our approach to the significance of the geographic component and the geographic citizen science data. This has also helped us to increase the range of software services that we can offer in other community-engaged research projects.

4.6 Challenges of including government and industry

At the beginning of the project, we envisioned that Gather would be as useful for government and industry proponents as for First Nations. The tool currently supports the uploading of industry referrals as both digital text documents and spatial files (SHP and KML). However, we have found it difficult to secure the participation of government and industry in the project. Often, these actors are innovation averse and tied into their own existing data-management systems. However, perhaps the explicit role reversal of Gather – in other words, First Nations taking control of the means and processes by which information is shared – might act as a further challenge to these proponents' involvement. In the next phase, we will more directly consult industry and develop strategic partnerships to ensure that the interface and workflow align with their existing data protocols and processes.

5. Conclusions

When we set out to design Gather, we did not intend that this would be a commercial undertaking. Our motivations were driven by the clear need to develop open-source software that can be used in small rural First Nation communities to help them address the overwhelming nature of the referrals process. Many of these communities do not have either the financial or human resources to be able to deploy and use often complex

proprietary software. Our community partners also clearly recognised the need for innovative approaches to include their membership base in contributing information about how they currently use their lands and resources. This was a vital step in informing referral decision making, but also served to include the broader community in land-management processes. We therefore feel that the components of Gather, including an intuitive interface, the associated mobile apps and an industry upload section, mean that the tool is relatively easy to use once it is set up. However, we recognise that several critical obstacles to successful and long-term usability remain. The principal issue is that of connectivity. Many areas in northern Canada remain outside of mobile phone coverage. Many communities find it hard to maintain servers and server architecture within the community. Therefore, if communities want to manage the referrals effectively, they have often turned to commercial solutions. However, the cost of these solutions, as well as other challenges related to usability, make it a difficult choice for many small communities to make.

Despite the barriers identified, the project has drawn considerable interest among our project partners, as well as other First Nation communities throughout Canada. We anticipate having an operational version of the software available to communities by mid-2020 using an open-source licence. We continue to be somewhat concerned about the ongoing sustainability of the software because, as with any open-source project, there will be a need to update both the usability as well as the security required by the software in the future. We will therefore likely consider some form of donation model from our users. However, this will not be obligatory. In the meantime, we have secured grant funding for the next three years (until 2022) and will continue to improve functionality and scale up and make Gather available to whomever might want to use the software.

6. Lessons learned

- Be prepared to let go of your preconceived notions of what is needed. Just because it worked in the past or in another community does not mean that it will work in new contexts.
- Be sufficiently agile to develop tools that suit the needs, capacity and limitations of the community with whom you work and regions in which you are based.
- Try to remain separated from enduring and embedded politics, recognising the need to seek to develop relationships with all potential actors, not just the easy ones.

- Ensure that all partners have a collective and common understanding of the purpose(s) of the project. Sometimes, it is useful to document this in a project charter so that if there are disruptions in the project, this road map may help reorient and reinvigorate your efforts.

Acknowledgements

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Notes

- 1 In Canada, the Crown is the source of sovereign authority and a part of the legislative, executive and judicial powers that govern the country (Harris 2006). The term is commonly used to refer to the functions of the government.
- 2 First Nations is a term used to describe the indigenous peoples of Canada. They have been present on the land since time immemorial. There are more than 600 First Nations communities in Canada, speaking more than 100 distinct languages.

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