Collaborative Risk-Driven Intervention: Technology-Enabled Opportunities in Rural & Remote Communities

A PILOT PROJECT PLAN

Prepared for
Community Safety Knowledge Alliance

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CONTENTS

Chief Executive Officer's Message

Introduction

PART I – UNDERSTANDING THE PROJECT

PART II – LITERATURE REVIEW

PART III – CONSULTATION PROCESS

PART IV – PILOT PROJECT PLAN

Addendum

References

Appendices

CHIEF EXECUTIVE OFFICER'S MESSAGE

The Community Safety Knowledge Alliance is a government-supported non-profit corporation that mobilizes, integrates and facilitates research and new knowledge development to improve professional practices and inform alignment within the community safety sector. Our focus is to foster the necessary relationships between practitioners and scholars, so that their respective work is not only enhanced through collaboration, but contributes to innovation in community safety and well-being.

Since the Hub Model of collaborative risk-driven intervention emerged in 2011, Canada has seen a rapid expansion of multi-sector collaborative initiatives aimed at improving community safety and well-being. Much of the rationale behind this paradigm shift lies in the simple but important notion that, *we must do better*. In that spirit, CSKA and our partners realized the need to make sure that these changes in human service delivery did not exclude vulnerable individuals living in rural and remote communities. With funding from the Canadian Safety and Security Program, and a partnership with the Royal Canadian Mounted Police "F" Division, we were able to begin examining the art of the possible. In particular, we set out to explore how existing and emerging technologies could support collaborative risk-driven intervention in rural and remote communities.

It is with great pleasure that we receive this pilot project plan from the University of Saskatchewan's Centre for Forensic Behavioural Science and Justice Studies. The extensive expertise and work that went into this project will undoubtedly benefit all stakeholders who play a role in improving community safety and well-being. It is our hope that human service professionals, policy leaders, and community safety stakeholders, will use this plan as a guide in the piloting of a *Tech-enabled Hub*, through which the geographic and resource barriers to collaborative risk-driven intervention may be overcome.

Sincerely,

Cal Corley
Chief Executive Officer
Community Safety Knowledge Alliance, Inc.

Collaborative Risk-Driven Intervention: Technology- Enabled Opportunities in Rural & Remote Communities

A PILOT PROJECT PLAN

INTRODUCTION

In 2011, the journey for what has now become known as "Canada's Hub Model", started in Prince Albert, Saskatchewan. In response to a measurable need to mitigate acutely-elevated risk before harm occurs, human service providers embarked upon a new process of risk detection, information sharing, and rapid multi-sector intervention (Nilson, 2014). Since that time, the Hub Model of collaborative risk-driven intervention has been replicated in over 60 communities across the country (Global Network for Community Safety, 2016). Although the model has been applied in some smaller urban (Gray, 2016) and First Nation (Nilson, 2016a) communities, there remain significant resource and geographic barriers to its expansion into rural and remote communities. To overcome these barriers, this document presents a pilot project plan for utilizing information and communication technology (ICT) as a means of risk detection, information sharing, intervention planning, and ongoing service provision.

The purpose of this project is to present a research and consultation-informed opportunity for collaborative risk-driven intervention to benefit rural and remote communities. By design, this pilot project plan intends to deliver a fair and balanced understanding of collaborative risk-driven intervention. It also shares what has been previously learned about the role of ICT in human service delivery. Beyond the scans of various bodies of literature, this entire project has also been shaped by a consultation process with both human service professionals and information and communication technology stakeholders. This ensures that the protocol and guidelines introduced herein, will be applicable to real-world applications of collaborative risk-driven intervention in a tech-enabled environment. Users of this plan will certainly benefit from the mix of implementation tools created in support of a pilot project.

The remainder of this document begins with a background on the project, including the main rationale, key objectives, and activities undertaken to prepare this pilot project plan. The second part outlines some of the key findings of the literature scan on three topics: The Hub Model, adaptations of other human service initiatives, and information and communication technology solutions that best facilitate real-time, cross-sector collaboration. The third part outlines some of the major themes appearing in the consultation process with four key cohorts: Hub practitioners, human service professionals (non-Hub), human service initiative adapters, and information and communication technology stakeholders. The fourth part of this document presents the actual pilot project plan.

Overall, this resource has been designed to provide community stakeholders with evidence-informed understandings of an opportunity to implement a tech-enabled collaborative risk-driven intervention. It

does not answer every question that implementers will have. However, it certainly does provide a solid foundation for future researchers, developers, and community leaders to work from.

PART I – UNDERSTANDING THE PROJECT

1.0 PROJECT BACKGROUND

The purpose of this project is to conduct a feasibility and planning exercise that supports effective operations of technology-enabled collaborative risk-driven intervention in rural and remote communities. The project aims to outline a pilot-ready opportunity for information and communication technologies (ICT) to enable application of collaborative risk-driven intervention (CRDI) in communities that face geographic and resource barriers to conventional human service delivery.

The Hub Model, rapidly expanding across Canada, provides a venue for human service professionals to share limited information in order to plan and deploy an intervention team to mitigate multiple risk factors before crisis occurs. The Hub Model, through a highly-disciplined discussion process, allows for face-to-face collaboration to occur between different sectors of the human service delivery system. In remote communities, however, accessible face-to-face interaction among human service providers is not always an option. When individuals or families are facing situations of acutely-elevated risk, it is critical that support be mobilized to mitigate such risk. Geographic barriers often prevent this type of support from being mobilized effectively.

Finding a way for ICT to enable human service providers to apply the Hub Model in remote communities could improve opportunities for risk reduction. The purpose of this project is to conduct research on ICT options in Saskatchewan, explore adaptations of the Hub Model to fit the needs of remote communities, consult with key ICT and CRDI professionals, and lay out a detailed plan for community safety and well-being stakeholders in Saskatchewan to move forward with technology-enabled Hubs in rural and remote communities.

Overall, this project is driven by the following objectives:

1) Develop understanding for how the Hub Model can be applied in remote communities by intersecting collaborative risk-driven intervention with advanced information and communication technologies.

2) Develop a body of knowledge on information and communication technologies that have enabled similar collaborative interactions in Canada and beyond.

3) Determine how a technological environment for cross-sector collaborative risk-driven intervention can occur in Saskatchewan.

4) Provide a go-forward plan for community safety and well-being stakeholders to consider in piloting a technology-enabled Hub for remote communities.

1.1 PREPARATION ACTIVITIES

Since the start of this project in February 2016, a number of activities have been undertaken to prepare for the development of a pilot project plan that will see ICT enable collaborative risk-driven intervention efforts in rural and remote communities. Although not in the original design of this project, a majority of these activities ended up occurring twice—once in an *exploratory* stage and once again in a *planning* stage. This doubling of activities was the result of a number of dynamics realized during implementation of the original methodology:

- Information and communication technology literature itself is often out-paced by rapid and continuous changes in technology and innovation. This required a brief revisit to key literatures in this field towards the end of the project.

- During consultations with Hub practitioners, it became clear that there was a lot more behind the configuration and design of the Hub itself than originally forecasted. In other words, technology aside, finding the right people from the right areas of the province to work together in a Hub environment required additional consultation and verification from potential partners.

- Both the literature and consultation process highlighted the importance of making sure that services were accessible post-intervention. Otherwise, success would be limited for any efforts to mobilize an intervention without guaranteeing access to services. Therefore, exploratory dialogue with human service professionals identified the willingness of providers to consider providing services to remote clients through various ICT formats. Follow-up verification was required to confirm both capacity and willingness among human service providers to actually provide these services in a technological environment.

In total, 217 individual respondents and 128 literature sources contributed to the development of this pilot project plan. Table 1 provides a summary of the preparation activities undertaken in this project.

Table 1. **Preparation Activities Undertaken in Development of a Pilot Project Plan**

ACTIVITY	DESCRIPTION
Project Planning	• Established project advisory committee involving Community Safety Knowledge Alliance, RCMP "F" Division, and Defence Research and Development Canada. • Identified key project stakeholders who will use the final deliverable in their implementation of a technology-enabled Hub pilot project.
Literature Scan	• Literature scan on the Hub Model, including its formation, process, past evaluation results and adaptations from the original model. • Literature search for other human service model adaptations made to overcome geographic and resource barriers for remote communities. • Review of literature to determine ICT solutions that best facilitate real-time, cross-sector collaboration and human service provision.
Hub Practitioner Consultations	• Consulted with key Hub stakeholders, including: on-reserve and off-reserve Hub discussants, principal architects of the Hub Model, private sector advisors, government advisors, founding practitioners, evaluators, and data analysts.
Technology Expert Consultations	• Consulted with ICT stakeholders, including representatives of the private, government, and non-profit sectors.
Model Adapter Consultations	• Consulted with human service professionals, agency directors, government funders, and community developers with experience and knowledge on existing (non-Hub) model adaptations to remote/rural communities.
Human Service Professional Consultations	• Consulted with human service professionals with little to no experience/familiarity with the Hub Model, yet rich understandings of human service delivery in a rural/remote context.
Data Analysis	• Analyzed consultation data using content/descriptive analysis.
Pilot Project Development	• Examined literature review results and consulting findings to determine best possible structure, design and process for tech-enabled collaborative risk-driven intervention.
Presentation and Feedback	• Presented and discussed pilot project plan with Hub chairs from across Saskatchewan; representatives of RCMP "F" Division; Hub data analysts; Ministry of Justice representatives; key advisors on collaborative risk-driven intervention; Hub supporters; and Hub evaluators. • Used results of stakeholder feedback to shape final pilot project plan.

PART II - LITERATURE REVIEW

2.0 LITERATURE REVIEW

Reviewing what has been learned and experienced in other fields and jurisdictions has helped to provide a solid foundation for this project's development and implementation. The opening section of this review introduces the overall methodology of the literature review process. This methodology explains how the literature was scanned, and presents an organization of the key topics within the literature review. The next section of the review introduces the Hub Model of collaborative risk-driven intervention. While still quite limited, this body of reporting and evaluation-based literature provides a solid understanding of the Hub Model and how it has been applied across Canada. The third section of this literature review explores adaptations of other human service models in remote communities. The final section of this literature review explores the field of information and communication technology, and how various applications of ICT can be used to support the coordination, collaboration and delivery of human services.

2.1 REVIEW METHODOLOGY

This review of research and practice was shaped to identify key themes and lessons learned in three major areas: collaborative risk-driven intervention, adaptations of other human service models in remote communities, and applications of information and communication technology in the human services. Due to the diverse nature of these three topics, a few different search strategies were employed.

Much of the literature on the Hub Model is confined to a few trade journals and direct evaluation reports to government. While conventional web-based searching was also used for researching the Hub Model, most of the available literature was gathered through direct communication with Hub practitioners, evaluators and strategists in the provinces of Saskatchewan, Ontario, and Alberta.

The literature reviewed on past adaptations of other human service models was identified through web-based searches using a number of key terms: 'remote human service options'; 'rural care practices'; 'remote community program adaptations'; and 'adjusting for rural service delivery'. Some reference-based snowballing techniques were used to find additional works cited within the first few resources that were reviewed.

Finally, with respect to identifying relevant literature on information and communication technology, the author focused on web-based searches in peer-reviewed journals, along with scans of government and community-based organization resources. Key search terms included: 'ICT applications in human services'; 'technology solutions in remote communities'; and 'web-based communication'. Once an initial search using these general terms produced a few relevant documents, more specific search terms were applied: 'web-based care'; 'telehealth'; 'videoconferencing'; 'telepsychology'; 'virtual human service delivery'; 'human service teleconferencing'; 'doc-in-a-box'; and 'remote presence technology'.

In reviewing the literature on all three topics, thematic analysis was conducted to highlight major themes and widespread agreement in evidence-based practices concerning both the Hub Model and information and communication technology. Since the literatures on 'remote adaptations of human service models' were used to provide illustrative examples, rather than derive best practices, no specific analyses or sorting technique was used.

2.2   COLLABORATIVE RISK-DRIVEN INTERVENTION

Collaborative risk-driven intervention is the process of risk-detection, which leads to disciplined and limited information sharing, and that is followed by a mobilization of multiple human service providers to intervene and mitigate risk before harm occurs (Nilson, 2016a). The core manifestation of this process in Canada is the *Hub Model*. In short, the Hub is "an evidence-based collaborative problem-solving approach that draws on the combined expertise of relevant community agencies to address complex human and social problems before they become policing problems" (McFee & Taylor, 2014:2). As the first evaluation of the Hub Model in Canada describes:

> *The Hub is structured as a venue for human service professionals from a variety of human service disciplines, to meet and collaborate on interventionist opportunities of addressing situations of acutely-elevated risk. The Hub itself is inherently risk-driven, and lends itself to both secondary and tertiary efforts of prevention. The Hub meets Tuesday and Thursday mornings for up to 90 minutes each day. The focus of these meetings is to identify complex risks of individuals or families that cannot be addressed by a single agency alone. When situations are brought to the table by one of the partner agencies, the appropriate human service professionals become engaged in a discussion, which results in a collaborative intervention to connect services and offer supports where they were not in place before. The goal of the Hub is to connect individuals-in-need to services within 24 to 48 hours.*

(Nilson, 2014a:9)

Formation of the Hub Model

The Hub Model of collaborative risk-driven intervention was designed and first implemented in Prince Albert, SK. Driven by a general consensus among human service providers that "we can do better", a variety of police, health, education, justice, social work, addictions, mental health, and victim support professionals first started exploring their options in 2009 (McFee& Taylor, 2014). During this exploration, findings from the *Institute for Strategic International Studies* (ISIS) revealed that accounting for both risk factors and partnerships can help build capacity in policing (ISIS, 2008; 2009). Similarly, the development of Saskatchewan's *Future of Policing Strategy* also called for a multi-sector alignment, integration, and mobilization of human services (Taylor, 2010). These findings influenced the focus and direction of the Prince Albert partners to explore existing models that relied upon risk detection and partnerships.

In 2010, a group of human service professionals from Prince Albert visited the *Scotland Violence Reduction Unit* to confirm that multiple human service professionals can work together in an effort to reduce harm (McFee & Taylor, 2014). Evidence from Boston's *Operation Ceasefire* (Braga & Wesiburd, 2012) and other applications of the *Pulling Levers Deterrence Strategy* (Engel, 2013; Mcgarrell & Chermak, 2003; Papachristos, Meares & Fagon, 2007)—although quite different than Saskatchewan's Hub Model—did show that multiple human service professionals can reduce harm by mobilizing supports around higher risk individuals.

At the time of these explorations, additional evidence gathered through *Saskatchewan's Police and Partners Strategy* demonstrated that not only was collaborative risk-intervention both promising and possible in Saskatchewan, but there was a clear path forward—should all the appropriate human service providers make that commitment (SPPS Enterprise Group, 2011). The work through this strategy group also initiated the beginning of long-term interest and support by the Government of Saskatchewan (Ministry of Corrections, Public Safety & Policing, 2011).

By 2011, the human service partners in Prince Albert came together and launched the *Prince Albert Hub*, a multi-disciplinary team that met twice weekly for the identification, rapid development, and immediate deployment of real-time interventions (Nilson, 2014a). Early in the process, participants of the Prince Albert Hub saw the benefits of information-sharing, cooperation, and collaborative risk-driven intervention. These observations triggered broad support from police and community leaders alike (Taylor, 2010).

In 2012, members of the Prince Albert Hub met with Saskatchewan's *Information Sharing Issues Working Group*. These meetings helped to refine the discussion process during Hub meetings, and ultimately, better protect the privacy of individuals discussed among Hub participants. Eventually, community partners in Prince Albert prepared and submitted a privacy impact assessment to Saskatchewan's Office of the Privacy Commissioner (Nilson, 2014a).

Finally, in 2014, the University of Saskatchewan released its Preliminary Impact Assessment on the Hub Model in Prince Albert (Nilson, 2014a). That report helped to better articulate, conceptualize, and strengthen understanding and measurement of the Hub Model (Russell & Taylor, 2015). It also laid a foundation for how evaluators in other provinces approached and designed their own program theory and evaluation design (Babayan, Landry-Thompson & Stevens, 2015; Brown & Newberry, 2015; Ng & Nerad, 2015).

Principles of the Hub Model

The Hub Model has grown to become a highly-replicable process for detecting risk, sharing limited information and mobilizing a multi-sector intervention around individuals with composite needs. The continuity and strength of the model lies in four key principles that are the cornerstone of every Saskatchewan-style Hub in Canada.

The first key principle of the Hub Model is the *protection of privacy*. In their extensive examination of privacy and information-sharing within the context of collaborative risk-driven intervention, Russell and Taylor (2014a) highlight that protecting the privacy of individuals is paramount, even during the Hub discussion process. Although the purpose of a Hub is for agencies to share information about clients, there are very strict and inflexible expectations that participants of the Hub will do their absolute best to protect the privacy of individuals. Where certain criteria are met, human service professionals can rely upon the exceptions to information sharing in their respective privacy regulation frameworks to share information with other human service professionals (Nilson, 2016d).

To guide practitioners of collaborative risk-driven community safety and well-being, Russell and Taylor (2014a:8-13) offer eight framing principles of information-sharing within community safety and well-being. These principles are listed and explained in Table 2.

Table 2. **Eight Framing Principles of Information Sharing within Community Safety and Well-being**

PRINCIPLES	DESCRIPTION
Do no Harm	Try your best to help others without harming them through information sharing.
Duty of Care	Sometimes information sharing is required to protect life, safety, property, etc.
Professional Discipline	Work within the given professional regulations of respective professions.
Consistent Purpose	Information should be shared in ways that is consistent with the role of the information holder.
Expressed Versus Implied Consent	Seek expressed consent where possible. However, implied consent is acceptable where there is a deficiency in care or a significant probability of harm that can be remedied through limited information sharing.
Precise Rules are Neither Possible nor Appropriate	It is not possible to design definitive rules on information-sharing. Every situation is different. Therefore, professional judgement and discretion play a significant role.
Due Diligence and Evolving Responsible Practice	Professionals have a responsibility to act, but should also share their decision-making processes to build a stronger and broader base of experience and evidence in information sharing.
Opportunities for Reform do Exist	Most privacy legislation has been crafted over a period of several years. Emerging insights into information sharing may very well shape new practices and policies in the future.

The second principle of the Hub Model is *commitment*. Early on, it became clear through the results of evaluation (Nilson, 2014a) and professional reflection (McFee & Taylor, 2014) that a successful Hub requires a full commitment of human service providers and their agencies. At the table, Hub discussants must be committed to one another, to the client, and to the process of intervention. Agencies who send representatives to the table must show commitment by not only allowing their staff to attend Hub meetings, but to freely participate in the planning and deployment of interventions that happen outside of regular Hub meetings. Lastly, Hub discussants and their agencies must be committed to innovation, to doing things differently, and to striving to meet their shared client's composite needs.

The third principle of the Hub Model is *collaboration*. Belonging to the same Hub and attending the same meetings does not constitute collaboration. As feedback gathered in past evaluations (Nilson, 2014a; Nilson, 2016a) demonstrates, working together across the diverse sectors at the Hub table is absolutely critical. Seeing and understanding the perspectives of others, and being willing to change your own perspective of the world, are critical ingredients to collaboration (Kalinowski, 2016). It is this type of collaboration which allows for innovative, rapid supports to be mobilized.

The fourth principle of the Hub Model is that it is an *action* table. When determining who should sit at the Hub table, whether it be government or community-based organizations, potential participants must accept that the Hub is an action table that requires their full involvement (Kalinowski, 2015). Human service professionals, as well as the communities they serve, must be willing, ready and able to take action to reduce risk. If care and logic are not enough motivation to take action, then privacy and due diligence should be. Identifying personal information is only allowable where the threat of harm is both real and imminent. Therefore, if information is shared, the responding agencies must take action promptly (Russell & Taylor, 2014c).

Process of the Hub Model

The Hub was designed to be a venue for risk detection, limited information sharing, and collaborative intervention planning. It is not an entity or an organization, but simply a forum for multi-sector collaboration (Nilson, 2014a). The Hub was not created to coordinate case management nor provide intensive follow-up to families in need. These are the responsibilities of agencies after a Hub discussion (Russell & Taylor, 2014a). Instead, the Hub Model brings human service providers together in a very efficient, disciplined discussion process to simply identify client risk factors, determine the best possible supports for the client, and plan an intervention that offers these supports. Once an intervention is deployed, the relevant human service agencies involved in the discussion take over outside of Hub (McFee & Taylor, 2014).

Considering this, one of the most important aspects of the Hub Model is process. Within the Hub Model, there are two processes: the *discussion* process and *intervention* process.

i) Discussion Process

One of the key contributors to fidelity of the Hub Model across Canada has been its very disciplined discussion process. Through participation in evaluation, consultations with privacy and information sharing stakeholders, and simple reflection and debrief, Hub practitioners have arrived at an informed, consistent and disciplined discussion process (Nilson, 2016a).

The general discussion process at a Hub table begins with a brief, de-identified (i.e. non-nominal) summary of a situation brought by one of the table discussants. If based upon the risk factors presented, the Hub table feels the situation is one of acutely-elevated risk, the name of the individual is shared and the table pauses for recognition. At this time, other agencies confirm if the person or family is connected to services and whether there still exists a situation of acutely-elevated risk. During this moment, any other agencies with relevant information on the discussion subject are invited to share (very basic information only). Following this, the Hub chair asks the table which agencies would be most appropriate to form an intervention team. After a team is identified, only those relevant agencies meet after the Hub meeting to plan an intervention. Following their intervention, the team briefly reports back to the rest of the table whether they were able to lower acutely-elevated risk or not. If acutely-elevated risk is lowered, they close the discussion. If it is not lowered, they regroup and identify an alternative strategy for moving forward (Nilson, 2014a).

Within the Hub discussion process, there are two key components that truly demand conformity to the Hub Model. The first of these is *The Four Filters*. The Four Filters is a commonly-recognized term for four thresholds of decision-making in the interest of client privacy. These filters largely direct the activity of Hub discussants before and during a Hub discussion. As past observers (Nilson, 2014a; Russell & Taylor, 2014a) note, the Four Filter process is the means by which Hub discussants can share information without violating privacy and information sharing regulations.

According to Nilson (2016a:20),

> *The first filter involves the originating agency exhausting all options currently available within their own agency, to meet the needs of the client. The second filter is the actual consideration of the four factors of acutely-elevated risk* [described below]*. Once acutely-elevated risk is determined, the table moves to filter three. This is where basic identifiable information is shared*

about the individual or family for the purposes of triggering any additional agency involvement. Finally, the fourth filter is a separate discussion among those agencies suggested by the table to participate in the intervention. During this discussion, participants share additional information about the situation and plan their intervention.

As alluded to in the passage above, the second key component of the Hub discussion process is *acutely-elevated risk*. According to Russell and Taylor (2014a), acutely-elevated risk is "deliberately distinct from other operating thresholds that might trigger a much more limited range of unilateral response and enforcement options by one or more of the agencies involved, often characterized by common terms such as crisis, imminent danger, violent threat, or criminal activity in progress" (p.19).

When Prince Albert first implemented the Hub Model, discussants around the table relied upon a shared consensus of what acutely-elevated risk would mean. To develop a more global understanding of that concept, Nilson (2014a) worked with some of the model's original architects to arrive at four criteria of acutely-elevated risk. These include:

- Significant interest at stake
- Probability of harm occurring
- Severe intensity of harm
- Multi-disciplinary nature of elevated risk

Where all four of these criteria are present, a situation is said to be one of acutely-elevated risk. Where uncertainty occurs within the Hub table, each of the four criteria is individually discussed and examined further.

ii) Intervention Process

The second process within the Hub Model is the intervention process. This is where members of the Hub table plan their offering of services and support to the individual or family in a situation of acutely-elevated risk. According to past evaluators of the Hub Model (Brown & Newberry, 2015), the intervention process is a largely non-scripted, custom-made opportunity to offer client supports. In fact, the Hub intervention process offers considerable opportunity for human service providers to work outside of their traditional mandates, in ways that effectively deliver the type of support needed by clients with composite needs.

During the actual intervention (i.e., door knock), members of the Hub approach the client in a non-coercive manner. Typically, the team shares their concerns for this client's risk factors and offers support and service access to reduce those risk factors. Should the client accept services, then those service providers take over from there. If the client refuses services, the team would reassess the level of risk and determine whether they should approach the client a second time (Nilson, 2014a).

With respect to the Hub Model, there are almost no studies on the intervention process to date. One early attempt to capture what goes on during a Hub intervention involved interviews and focus groups with Hub discussants throughout Saskatchewan. Results from that preliminary research identified three stages of the intervention process. As Table 3 illustrates, these include *intervention planning*, *intervention execution* and *intervention assessment*.

Table 3. **The Stages and Components of Hub Intervention**

STAGE	COMPONENTS
Intervention Planning	Assemble the Team
	Share Information
	Determine the Approach
	Prepare for Intervention
	Choose Time/Location
Intervention Execution	Collaborate
	Communicate with the Client
	Identify Concerns
	Offer Services and Supports
	Safety Planning & Motivational Interviewing
	End the Intervention
Intervention Assessment	Post-Intervention Consultation
	Verify Connection/Engagement
	Report Back to Hub

(Source: Nilson, 2014b)

In an effort to support Hub practitioners in the intervention process, a recent scan of collaborative intervention methods elsewhere revealed that participants involved in an intervention should be aware of service options, be flexible in what they expect from the client, and work to the client's needs and at the client's level. Since not all intervention opportunities are alike, participants must take the time to plan strategically and debrief after the intervention (Okanik & Nilson, 2016).

Replication of the Hub Model

Starting back in 2011, community safety and well-being stakeholders from across the country began asking questions about the Prince Albert Hub, its operations, design, function, and purpose. Shortly after its launch, several communities visited the Prince Albert Hub. In fact, a recent analysis of outreach activities at *Community Mobilization Prince Albert* revealed that the COR (Centre of Responsibility) team had hosted 36 communities from across Canada and the United States. In addition to this, the team provided 117 presentations to 128 government officials, 204 agency leaders, 65 community members, 330 potential Hub practitioners, 161 post-secondary students, and 883 frontline workers (Nilson, 2015a).

One of the first replicators of the Prince Albert Hub was an initiative in Toronto known as *FOCUS Rexdale* (Furthering Our Communities, Uniting Our Services). This initiative adapted the Prince Albert model of collaborative risk-driven intervention as a tool in its broader strategy to improve community safety in high risk neighbourhoods of Toronto (Ng & Nerad, 2015).

Another early adapter of the Prince Albert Hub Model was Samson Cree Nation in Alberta. This was a significant move because it was the first Hub mobilized on-reserve in Canada. A recent evaluation of the Samson Cree experience with the Hub Model indicated that the Hub is an effective and appropriate tool for First Nation human service providers to build better relations with one another and with their clients (Nilson, 2016a).

Within Saskatchewan, replication of the Hub Model was supported through the Government of Saskatchewan's *Building Partnerships to Reduce Crime* (BPRC) initiative (BPRC Implementation Team, 2013). Housed within the Ministry of Justice, the BPRC team of consultants helped communities prepare

and develop their application of the Hub Model through onsite visits, online mentoring and ongoing follow-up. By March of 2016, 13 Hubs are operating in Saskatchewan – including Prince Albert (BPRC, 2016)

Just as the Hub Model became heavily replicated in Saskatchewan, the province of Ontario witnessed a dramatic increase in application of the Model between 2013 and 2015. Some early replicators of the model in Toronto, Sudbury, Waterloo and Mississauga, inspired development of the *Ontario Working Group on Collaborative Risk-Driven Community Safety*. This working group received funding from the Ontario Ministry of Community Safety and Correctional Services to further advance and support replication of the Hub Model throughout Ontario (Russell & Taylor, 2014b). As of February 2015, initiatives have begun or were being planned for Amhertsburg, Bancroft, Barrie, Belleville, Brantford, Chatham, Durham region, Fort Frances, Guelph, Haliburton, Kingston, London, Napanee, Port Hope, Cobourg, Niagara Falls, North Bay, Orillia, Ottawa, and York region (Russell & Taylor, 2015).

Outside of Saskatchewan and Ontario, the Hub Model has been replicated in Surrey, BC; Brandon, MB; Thompson, MB; and Ermineskin Cree Nation, AB. Additional efforts are underway to replicate the Hub Model in Nova Scotia and Prince Edward Island (Norm Taylor – personal communication, 2016). Finally, presentations on the model have been provided to Territorial government officials and service providers in Yukon (Shelly Dupont – personal communication, 2017).

Adaptations of the Hub Model

Across Canada, the Hub Model, for the most part, has been implemented as very close replication of the original model in Prince Albert. Much of this continuity has to do with training and mentoring provided by some of the original architects of the Prince Albert Hub (Global Network for Community Safety, 2016). Another catalyst for close replication of the Hub Model has been a series of guides produced for Hub discussants and chairs. These guides facilitate strong discipline to the model by aligning the Hub discussion process with data entry during Hub discussions (Nilson, Winterberger & Young, 2015a; 2015b).

However, despite this consistency, there have been a few minor adaptations to the Hub Model. One example is in Samson Cree Nation, Alberta. Although the discussion process is very similar to the Prince Albert Model, deployment of their interventions are slightly different. While some interventions do involve multiple agencies selected during the discussion process, most start with an Elder approaching the individual or family and asking if they would like a support circle formed around them. Upon acceptance of this offer, the Hub's justice worker organizes a support circle around the individual/family—which may include community members, family, or professionals outside of the Hub table (Nilson, 2016a).

A second adaptation of the Hub Model is in Chatham, Ontario. Stakeholders in Chatham believe that an ad hoc approach would better serve the needs of the community. Whereas the traditional Hub Model brings discussants together once or twice a week, Chatham's *Fast Intervention Risk-Specific Team* will mobilize only if a situation is referred to the chair person. The Hub meeting itself may occur over the phone or in-person (Family Service Kent, 2015).

Two more adaptations of the traditional Hub Model have not necessarily changed the application of the model, but rather, have strategically linked the model to other collaborative initiatives in their community. In Ottawa, the *Multi-Agency Elevated Risk Intervention Team* (MERIT) formed a conceptual and practical relationship with Ottawa's *Multi-Stakeholder Approach to Problem Addresses* (MSAPA).

Fundamentally, where excessive problems linked to a specific address require human service support, the problem address team can refer individuals to MERIT (Hub table) in the hopes of reducing risk. Reversely, when MERIT comes across a problem address that requires ongoing monitoring and support, it can send that situation to the MSAPA team (Nilson & Taylor, 2016).

Finally, Muskoday First Nation in Saskatchewan, developed the concept of the Muskoday Intervention Circle. Members of this circle are human service providers from all of the typical sectors at a Hub table (e.g., police, child and family services, mental health, addictions, education, justice, social welfare). Where there is no consent to share information, the Muskoday Intervention Circle strictly adheres to all principles and practices of the conventional Hub Model. However, where the lead agency is able to secure client consent to share information, a longer-term multi-sector coordinated support process is put in place. In fact, even during a conventional intervention under the Hub Model, if a client were to provide consent, the Hub process would officially end, and Muskoday's multi-sector coordinated support process would take over (Nilson, 2016e).

Evaluation of the Hub Model

Since 2012, a number of evaluations have been completed on the Hub Model. Each evaluation has contributed to a better understanding of the model's application and overall efficiency in mitigating risk. The very first evaluation of the Hub Model was Nilson's (2014a) Preliminary Impact Assessment of the Prince Albert Hub. The main findings of that report indicate that the Hub was effective at breaking down long-standing institutional silos and gaining clients quicker access to services.

In 2015, the Ontario Working Group on Collaborative Risk-Driven Community Safety commissioned the development of an evaluation framework to help support future evaluations of collaborative risk-driven community safety and well-being initiatives in Ontario. In the development of that framework, Nilson (2015b) reached out to the broader evaluation community currently engaged in evaluating applications of the Hub Model. By March of 2015, evaluations were underway in Brantford, Cambridge, Guelph, Halton Region, Port Hope, North Bay, Sudbury, Toronto, Kitchener, and Sault Ste. Marie. Consultations with these evaluators identified a variety of themes, including service access, collaboration, risk mitigation, process, and satisfaction, to name a few.

As other evaluation findings of the Hub Model became available, the literature on collaborative risk-driven intervention became enriched by improved understanding on Hub outputs, outcomes, process, challenges and potential improvements. Table 4 provides some examples of themes covered in past and current evaluations of the Hub Model.

Table 4. **Themes of Past and Current Evaluations of the Hub Model**

COMMUNITY	REFERENCE	THEMES
North Bay, ON	North Bay Parry Sound District Health Unit (2014)	risk factors, agency involvement
Brantford, ON	Babayan, Landry-Thompson & Stevens (2015)	risk mitigation, service provisions, collaboration
Barrie, ON	Nilson (2017)	client satisfaction, stakeholder satisfaction, services mobilized
Toronto, ON	Ng &Nerad (2015)	service connections, reduced harm, removal of communication barriers
Cambridge, ON	Brown & Newberry (2015)	process, benefits to clients, service connections, reduction in police calls
Kitchener, ON		
Samson Cree Nation, AB	Nilson (2016a)	community relationships, client engagement, applicability on-reserve
Guelph, ON	Litchmore (2015)	multi-sector relationships, process, improvements
Chatham-Kent, ON	Nilson (2016c)	stakeholder satisfaction, service mobilization
Prince Albert, SK	Nilson (2014a)	collaboration, service access, process
Ottawa, ON	Clement (2016)	performance, response, target group, risk factors, partnerships, governance

2.3 ADAPTATIONS OF OTHER HUMAN SERVICE MODELS IN RURAL AND REMOTE COMMUNITIES

When it comes to adapting the Hub Model to fit the needs of remote communities in Saskatchewan, there are a couple of lessons we can learn from adaptations of other human service initiatives. Some of the factors to consider in adapting an initiative in a remote community include capacity, resources, language, culture, infrastructure, transport, and technology, to name a few. In some cases, the delivery structure of a program or initiative had to be altered to accommodate adaptation in a remote area. In other cases, local implementers were provided with additional support to achieve their goals and objectives.

The following sub-sections present 5 short case studies on the remote implementation of human service initiatives that were originally designed for more urban environments. Each of these case studies provides a learning opportunity for implementers of the Hub Model in rural/remote Saskatchewan communities.

Mental Health Crisis Intervention

In the United States, Crisis Intervention Teams (CIT) have become an increasingly common tool to address mental health crises in the community. Typically, a CIT will involve police and mental health professionals, who maintain ongoing communication and collaboration before, during, and after police calls for service that involve mental health concerns. These teams require specialized training and continuous dialogue between the partners (Watson, et al., 2008). While past research has examined the application of CITs in several urban environments (Canada et al., 2010; Ritter et al., 2010; Teller et al., 2006), very few (Skubby et al., 2013) have examined CIT in rural areas.

In their examination of CIT applications in rural Ohio, Skubby and colleagues (2013) explored process, challenges and success in several communities. Through focus groups and interviews, the research team learned of a number of barriers that implementers encountered in rural communities. One was a lack of funding and resources to specially train and allocate one or two police officers to the CIT. Another was different perceptions of mental health problems between police and mental health workers. A third problem was the accessibility to training for police in rural areas.

Results of the study revealed that these barriers were overcome in a couple different ways. First, despite these barriers, the community felt that CIT was a major need. This served as a driving force for additional barrier reduction—including increased communication on roles and expectations, shared ownership over the initiative, and increased collaboration around trouble-shooting, planning and leadership. Finally, one logistical move to accommodate CIT implementation in rural communities was a change in training targets. In most urban environments, a smaller number of police officers is specially trained and deployed on the CIT. However, in a rural policing environment, where resources are much more limited, many communities provided a more general training to all of their officers, so that the entire police service had the ability to participate in a CIT deployment (Skubby et al.,2013).

Family Violence Programming

In 2015, the Saskatchewan Ministry of Justice – Victim Services Branch reached out to the Keewatin Yatthé Regional Health Authority (KYRHA) to design and implement programming under the former's Children Exposed to Violence mandate. Typically, when communities receive funds from the Ministry for family violence programming, it is for a single delivery point, to one or two group cohorts a year (Tutty, LeDrew & Abbott, 2008). However, when KYRHA received the funds, they did not feel that a single community application would be fair—for they serve at least four major communities in the North. They also did not receive any more funds to deliver a truly multi-site application of children exposed to violence programming. Determined to provide preventative support to families in different communities throughout the region, KYRHA set out to find a way to make it work (Suadh Abubaker – personal communication, 2015).

Through an extensive community consultation process (Nilson, 2015c), KYRHA learned of the potential assets already existing in the communities of La Loche, Beauval, Buffalo Narrows, and Île-á-la-Crosse. During these consultations, human service professionals at the frontline and management level responded favourably to the notion that the families exposed to violence in their communities, were often simultaneously on the caseload of multiple human service providers. Therefore, from the standpoints of both efficiency and continuity of care, it was believed that human service professionals from multiple agencies could participate in the facilitation of an evidence-supported program—as part of their day to day jobs. This would not only help overcome program resource limitations in northern communities, but it would more deeply imbed human service professionals in the development of protective factors against violence—much of which they do within their existing mandates already.

Backed by considerable research on family-centred, cognitive support programming (Nilson & Okanik, 2015), KYRHA developed and trained human service providers in *The Strength of Our Family: A Home-Based, Family-Centred, Multi-Sector Program for Helping Children and Families Exposed to Violence* (KYRHA, 2015). The uniqueness of the training of course, was that rather than train one or two staff members to implement the program centrally, KYRHA trained human service professionals from several different agencies, in four different communities, to deliver the program to families in need. Ultimately,

this strategy helped catapult what was intended to be a single community resource, to four larger communities throughout the Northeast corner of Saskatchewan (KYRHA, 2015)

Homelessness and Housing

Across Canada, communities are brought together, supported and funded through the *Homelessness Partnering Strategy* (HPS). Administered by Human Resources and Skills Development Canada, HPS funding goes out to communities for the purposes of supporting locally-tailored activities and services under a *Housing First* approach. A Housing First approach generally involves getting people who are homeless a place to live, and then providing the necessary supports to help them stabilize and recover (Economic Action Plan, 2014). Past research (Coleman, 2015; Groton, 2013; Nelson et al., 2015) has shown great success for this model's application in larger urban settings. Less known however, is the extent to which a Housing First approach can be effective in communities where human service providers are either already overworked, stretched across large geographic boundaries, or completely non-existent.

To explore how Housing First has been adapted in rural and remote communities, Waegemakers-Schiff and Turner (2015) conducted case studies of rural housing and homelessness in 22 communities across Canada. A major theme in their work was the feasibility of applying the Housing First model in rural and remote Canada.

Through their research, Waegemakers-Schiff and Turner highlighted a number of challenges with implementing a traditional Housing First approach in rural and remote communities. One challenge is that rural and remote homelessness has several distinct dynamics compared to urban homelessness. Some of these include stigma, lack of privacy, culture, and denial. Another challenge is that the services required to support clients of the Housing First model are often underdeveloped in rural and remote areas, lack stable funding, and are patchy at best. A fourth problem in rural and remote communities is the lack of sufficient housing stock that is accessible and affordable to vulnerable people. Finally, one of the biggest challenges to implementing a Housing First approach in rural and remote communities is the inability to reach efficiencies of scale due to low client density in a large geographic area. This challenge is complicated by the fact that in Canada, many individuals who are at-risk for homelessness, migrate to larger urban centres where they can more easily access services and supports—not to mention better conceal their current situation (Christensen, 2012).

Through an interview process with key community stakeholders, the research team identified a number of ways that rural and remote communities have been able to adapt a Housing First approach. One way is to leverage what resources communities actually do have to support case management, housing location, and rental supports. For example, some communities pooled together resources for a liaison to help the client navigate appropriate services. Other communities trained volunteers to offer a *safe couch* in a separate room within their own home. This reduced the demand for a costly emergency shelter, while giving clients a more humane support network.

Another way is to regionalize implementation of the Housing First approach to expand availability of resources and housing. One community in particular was able to find housing for clients in a separate community down the road. They were able to mobilize volunteer drivers to help clients overcome the transportation barrier to accessing services in their originating community. A different community did not have available housing. Instead of making clients wait for housing to get supports, they put services in place to at least make the clients stable enough to seek support from a friend or family member.

A third way to overcome the challenges associated with resource limitations was communication technology. Based on the Housing First experience in Vermont, USA (Stefancic et al., 2013), Waegemakers-Schiff and Turner recommend that additional services could be mobilized and engaged through the use of web-based videoconferencing, such as *Telehealth*.

Home Visiting

In 2010, the United States Administration for Children and Families provided funding for federally-recognized Native American tribes to become consistent with the requirements of the *Maternal, Infant, and Early Childhood Home Visitor Program*. The goal of the initiative is to strengthen and improve maternal child health programming, improve service coordination for at-risk communities, and provide comprehensive home visiting services to families who live in at-risk communities.

Del Grosso et al., (2011) completed an assessment of evaluation studies focused on the application of the home visitor program in tribes throughout the United States. A major focus of their systematic review was to identify ways in which the base home visitor model was successfully adapted in rural Native American communities. The research team found that there was a clear continuum of adaptations. On one end of that continuum are adaptations that stick to the basic content of the standard program model, but make minor adjustments to the peripheral components of the program so that it is more appealing to the target population. On the other end of the continuum are adaptations that reject standard models in favor of developing, in conjunction with the target population, services that build upon the cultural traditions and knowledge of the community.

To mitigate some of the challenges associated with implementing the standard home visitor program in their community, several tribes included the involvement of tribal leaders, the use of native personnel, and specific efforts to build upon community tradition and strength. Stemming from this, Del Grosso highlights two key lessons: a) culture counts; and b) there is considerable variation in adaptation results across multiple native communities.

Healthy Learning

In an effort to improve health and health literacy among British Columbia school children, *Action Schools! BC* promotes a school-based assortment of activities to increase student engagement in physical, nutritional, and pro-social activities. The model encourages educators to develop a six-part action plan in the following areas: school environment, scheduled physical education, classroom action, family and community, extracurricular, and school spirit. Teachers receive training, ongoing support, and a variety of learning resources and equipment to facilitate action activities (Healthy Families BC, 2016).

In 2009, researchers (Naylor et al., 2009) from the University of British Columbia wanted to determine if the existing Action Schools! BC model was feasible and appropriate for schools and children in rural and remote Aboriginal communities. Through a multi-site focus group process, Naylor et al., revealed a number of challenges with application of the model in First Nation communities. These challenges included lack of time, staff turnover, demanding reporting instruments, student behavior, and low levels of staff knowledge on healthy living practices. Despite these challenges, several communities were able to mitigate negative impact and implement the model effectively.

In reflecting on their implementation of the model in First Nation communities, focus group participants explained that implementation was made easier for three reasons. One, the model was relatively easy to implement. Two, the schools received ongoing support and encouragement from Action Schools! BC staff. Three, cultural adaptations of the model created local ownership, teacher buy-in, and student engagement. In closing, the researchers recommended that to improve application of the model in First Nation communities, Action Schools! BC may wish to consider building community partnerships, offering parent education and adapting the model to have a more First Nations focus (Naylor et al., 2009).

Lessons Learned

These brief case studies provide a number of different lessons to consider in moving forward with adaptation of the Hub Model in remote Saskatchewan communities. While some of these lessons may be more applicable to tech-enabled Hubs than others, they all have significant value for the planning process required to implement a Hub. The following lessons were gleaned from the above case studies:

1) Be prepared to adjust expectations and roles.
2) Strive for equal ownership and a shared value of the initiative among community partners.
3) Allow for more time in the preparation stage than in other less remote environments.
4) Be willing to adjust training and logistical needs to meet service provider capacity and need.
5) Look within the community to find and mobilize what resources are available (as opposed to focusing on resources that are not available).
6) Consider a regional perspective for expanding service access and resource availability.
7) Implement video communication technology to overcome limitations in service access or quality.
8) Incorporate culture and tradition into delivery of the model.
9) Be prepared for variation in the adaptation practices across rural and remote communities.
10) Keep the model simple and easy to implement.
11) Make sure ongoing support is accessible and responsive to community needs.
12) Allowing cultural infusion, which will foster community ownership, stakeholder buy-in, and target group engagement.

In preparing to adapt the Hub Model to fit the needs and capacities of Saskatchewan's remote communities, the preceding review provides some good guidance on careful adaptation practices. One additional way to mitigate some of the pressure of adaptation is through Information and Communication Technology.

2.4   INFORMATION AND COMMUNICATION TECHNOLOGY

The field of Information and Communication Technology (ICT) is complex and ever-changing (Unhelkar, 2011). Early declarations (Masuda, 1980) that the world was entering an *information age*, likely never predicted the pace and expansion of ICT today. In fact, much of the innovations in service delivery and product development can be attributable to communications and sharing made possible through ICT (Nardelli, 2012). Of course, such rapid-changing innovations can put pressure on business and government leaders to invest in ICT development and continue to train their staff so that the positive outcomes of effective ICT applications are sustained (Rehman & Khilji, 2014).

Defining ICT

One of the challenges with understanding ICT is that defining the term *Information Communication Technology* becomes tedious in light of the diverse applications of the term within several different contexts and treatments. Some experts (Rouse, 2005) define ICT as an umbrella term that includes any variety of communication devices such as radio, cellular phones, computers, and videoconferencing. Others (Christensson, 2010) explain ICT as a term that refers to technologies that provide access to information through telecommunications in real-time, such as instant messaging, voice-over-Internet, video conferencing or social media.

Several observers see ICT as a useful tool for education (Trucano, 2005), economic growth (Avgerou, 2003), and social development (Kozma, 2005). In fact, some researchers (Caperna, 2010) argue that ICT is not simply a tool, but a crucial aspect of sustainable policy, that is capable of mitigating various community challenges such as literacy, community involvement in planning, geography, and service access.

Even when discussing applications of ICT, there are differences between use in the business (Akomea-Bonsu, 2012), tourism (Dimitrios & O'Connor, 2005), education (Pelgrum, 2001), adult learning (Selwin et al., 2006), community planning (Silva, 2010), social (Wang et al., 2007), and even technology (Cohen et al., 2004) sectors. Overall, this variation in context and application makes defining ICT a difficult endeavour.

To ease this burden, Zuppo (2012) presents a framework for hierarchical classifications of ICT definitions and terms. Her purpose was to not only highlight the truly multi-disciplinary nature of ICT, but to streamline global definitions and applications of the term to help foster more precise keyword searches, resulting in more efficient and effective gathering of information relating to ICT. Relevant to the current research, two of Zuppo's lower level classifications illustrate the difference between *ICT infrastructure* and *ICT devices*. Whereas the former refers to connectivity, access and signal availability, the latter refers to whether users of technology possess devices such as phones, computers, or tablets.

Considering all of this, for the purposes of this report, ICT refers to a technology with diverse applications, that—via appropriate infrastructure and device(s)—enables real-time communication between two or more recipients through text, voice and/or video signal.

ICT Formats

Much easier than arriving at a commonly accepted definition of ICT is understanding the different types of ICT. Some of the more general formats of ICT used in the human service sector include video-conferencing (Bee et al., 2008), tele-conferencing (Stead et al., 2013), web-based interaction (Alkhaldi et al., 2016), and remote presence technology (Petelin et al., 2007). Some of these forms of ICT can be utilized through existing telephone networks, others through cellular mobility networks, or both. In fact, starting over a decade ago, many traditional forms of ICT that used hardwire telephone lines had already started moving towards wireless and mobile configurations (Tachakra et al., 2004).

In definition, a *teleconference* is a telephone meeting among two or more participants involving technology more sophisticated than a simple two-way phone connection. It often involves a conferencing service hosting the various participants from different locations and different telephones (Rouse, 2008). Similarly, a *videoconference* involves participants from multiple locations and portals,

being able to see one another and communicate through the use of linked cameras and screens (TechTarget, 2007).

Slightly more complicated than teleconferences or videoconferences are communications using the Internet. Known generically as *web-based interactions*, this form of ICT can range from basic text-based messaging (e.g. Blackberry Messenger, Windows Live) to live video-streaming (e.g., Goto, Skype) (Chen &Macredie, 2010). Many web-based interactions are facilitated through downloadable apps that can help streamline communication (McNickle, 2012) or even provide opportunities for augmentative communication to those who have difficulties communicating in more conventional ways (Schectman, 2011). Overall, the massive expansion of the Internet has perpetuated the use of apps in many different professional contexts (Haselmayr, 2014; Roberts, 2013; Smallman, 2012).

One of the latest and more advanced ICT formats being implemented in the human service sector is *remote presence technology* (RPT). The concept behind RPT is very similar to videoconferencing. The difference is that the device on the recipient side of the communication is interactive and controllable by the sender. As Reynolds and colleagues explain (2012:507), "the technology used is a semi-autonomous, Internet-enabled, real-time, two-way audiovisual telecommunications platform that moves about in a wireless environment...The devices are casually referred to as robots providing a remote presence." Robotic remote presence applications are now being used across the world to assist business travellers stay connected, help executives monitor remote employees, engage geographically-distributed teams, and allow healthcare professionals to provide care and treatment from different locations (Double Robotics, 2016; InTouch Health, 2016; Suitabletech, 2016).

Capacity

Two of the most important aspects to consider in applying ICT solutions within a community project are capacity and leadership (Mwawasi, 2014). While markets tend to drive technology, the application of those technologies is dependent upon community leaders to drive change, and ultimately, secure the capacity required for implementing new technologies (Brannigan, 2010).

In their work on ICT strategies in developing nations, Angeleski et al., (2009:266) define the concept of *e-readiness* as "the capacity of a nation to participate in the digital economy or ability of a nation to make connection with the rest of the world." Being e-ready, in this sense, has a significant impact on a nation's ability to benefit from various applications of ICT.

In an effort to measure, monitor and compare developments in information and communication technology, the International Telecommunication Union developed the *ICT Development Index*. This index assesses ICT development through a three-stage model: *readiness*, *intensity*, and *impact*. Out of 152 countries in the index, Canada ranked 26th in 2008 and 2010 (International Telecommunication Union, 2011). By 2015, Canada improved its ranking to 23 (International Telecommunication Union, 2015).

The relevance of the ICT Development Index to the current study is that it encourages us to examine ICT accessibility, development, and use from multiple perspectives. Within the index are measurements of several different per capita indicators, including fixed telephone lines, mobile-cellular subscriptions, bandwidth, households with computers, households with Internet access, Internet use, wired broadband subscriptions, and mobile broadband prescriptions, to name a few (International

Telecommunication Union, 2015). All of these factors will become important to consider in the pilot project that this literature review supports.

Application

The broad application of ICT solutions in the human service field is indicative of utility, benefit and reach of ICT. The purpose of using ICT within the human service field differs per agency and sector. For example, the World Health Organization utilizes ICT for public health surveillance (WHO, 2016); the United States Federal Bureau of Investigation uses ICT as a tool in collecting, storing, analysing and disseminating information in support of its various lines of business (FBI, 2015); and the United Nations Educational, Scientific and Cultural Organization considers ICT a major tool for universal access to education, equity in education, and the delivery of quality learning (UNESCO, 2016).

Within this literature review, four main formats of ICT have been discussed: teleconferencing, videoconferencing, web-based interactions, and remote presence technology. Table 5 provides examples of ways in which ICT applications may be used to support the delivery of human services.

Table 5. **Examples of ICT Applications by Format**

FORMAT	DESCRIPTION	SOURCE
Teleconference	Telephone counselling—in particular—tele-psychotherapy, has become a widely-used practice around the world. Telephone communications provide a sense of client security, reduce anxiety, increase anonymity and avert stigma.	Barnett & Scheetz (2003)
	Crisis hotlines are a phone number that people can reach for emergency telephone counselling and/or intervention. Crisis lines exist for victims of sexual assault, those contemplating suicide, children in trouble, bully victims, and vulnerable adults—to name a few.	Seeley (1996)
Videoconference	In several Canadian provinces, home telehealth provides patients experiencing travel barriers, the opportunity to interact with health care providers from their own home; and allow the latter to monitor vital signs such as pulse, blood pressure, blood sugar and weight.	COACH (2013)
	First Nation communities in Canada are using videoconferencing for more than just healthcare. Applications for civic engagement, education, training, community development and governance are having positive results.	O'Donnell et al. (2013)
Web-Based Interaction	Voice recognition software used by the Florida Department of Children and Families automatically transcribes case interviews conducted with clients; saving time, cost, and putting more attention on the client as opposed to the notebook.	Gill et al. (2014)
	Several U.S. States have a Network Emergency Response Vehicle (NERV) that is a rapidly-deployable mobile command and communications resource that establishes interoperable communications for public safety personnel in mass-emergency situations. It can convert different radio frequencies, facilitate live video conferencing and offer wide-reaching Wi-Fi so that all responders stay connected.	Wyllie (2011)

	Scan of mobile apps in healthcare revealed five uses for apps: secure messaging between patient and doctor; request appointments; share lab results; document personal health information; provide voice communication.	McNickle (2012)
	Several pilot projects in the USA suggest that web-based technologies allow mobile smart-devices to be a more accessible, more affordable, and lower-threshold opportunity for live video interactions between clients and care providers.	Chan et al. (2014)
Remote Presence Technology	Robotic (clinic) and mobile (field) devices are located in several of Saskatchewan's northern communities to facilitate speciality care, emergency consultation and diagnostic testing. Northern care providers can take mobile devices to patient homes for increased access to medical professionals.	Primary Health Care (2014)
	In New Delhi neighbourhoods, where it is difficult to attract quality teachers, RPT has been used to offer quality learning opportunities for students in the classroom.	Mitra (2009)
	To offer nursing education based in northern communities, the University of Saskatchewan provides instruction and mentoring through robotic remote presence platforms. Students in isolated communities are able to receive clinical supervision and support from instructors in Saskatoon.	College of Nursing (2015)
	Florida police are piloting surveillance robots that have facial recognition, can scan 1,500 licence plates per minute, capture audio, tests the air for chemicals and can distinguish suspicious activities from normal activities based on internal data processing.	Gardner (2015)

Evaluating ICT Applications

One of the most objective ways to view ICT applications in the human services is through an evaluative lens. Much of the research on ICT applications to date have been evaluation-focused. The most recurrent themes in these evaluations are that ICT applications in the human services increase client access to service, reduce service provider workload, and bridge geographic distances. Through interviews with over 100 experts involved in human service and technology, researchers (Gill et al., 2014) from Harvard University identified five specific kinds of benefits to ICT applications in the human services. These include automation, integration, empowerment, analysis, and accountability. Table 6 summarizes their findings.

Table 6. **Five Benefits of ICT Applications in Human Service Delivery**

BENEFIT	DESCRIPTION OF ICT BENEFIT
Automation	Allows agencies to remove inefficiencies in workflow, focus on the provision of services, and concentrate on core programmatic functions.
Integration	Increased flow of information provides workers with a more complete picture of a situation, and more in-depth understanding of client needs, and opportunities to improve supports.
Empowerment	Gives clients greater control of managing their own services and benefits, while also providing increased privacy, comfort and ownership over their care.
Analysis	Provides administrators and frontline staff access to data they can use to monitor and evaluate service delivery, while also gaining a more accurate understanding of client needs and progress.
Accountability	Increases transparency around program performance and enhances the scrutiny of decision-makers concerning human service delivery and priority outcomes.

(Source: Gill et al., 2014)

Much of what Gill et al., identify as major benefits to ICT applications in the human services is supported in evaluation of actual applications. Table 7 below summarizes the results of 11 different evaluations of ICT applications. It demonstrates that applications in the four main ICT formats have both merits and challenges for the human service sector. Generally, these findings reveal that access, comfort, control, and efficiency are the major benefits of ICT applications in the human services.

Table 7. **Evaluation Findings of ICT Applications in the Human Services**

FORMAT	EVALUATION FINDING	SOURCE
Teleconference	Randomized control trials on youth in Utah's juvenile justice system showed that youth with ongoing telecommunication with their workers were slightly less likely to commit felonies compared to the control group. Telecommunications provided more frequent and accessible communication between the offender and justice worker.	Fowles (2009)
	Interviews with 186 counselling clients in Texas reported that convenience, accessibility, control, and inhibition were the most attractive attributes of receiving counselling via telephone. Over 95% would seek telephone counselling again while 58% prefer telephone counselling over face-to-face.	Reese et al. (2006)
Videoconference	Examination of public opinion in Montana revealed that although most patients are amenable to applications of telemedicine, they prefer face-to-face care from a physician. Public awareness on the adoption process was identified as a potential opportunity to increase patient buy-in.	Call et al. (2015)
	Systematic review of 29 evaluations on applications of home-based telehealth showed positive outcomes in patient access to care, lower hospital visits, and reduced travel costs.	DelliFraine & Dansky (2007)
	National review of tele-mental health services in Canada demonstrates broad application of videoconferencing for clinical and education purposes. However a lack of local community capacity to operate equipment and sufficient bandwidth have impacted successful implementation.	Health Canada (2004)
Web-Based Interaction	Random control trials on smoking cessation interventions revealed increased success where lung health professionals could facilitate ongoing monitoring and motivational support through client data updates and instant messaging.	Ehrenreich et al. (2011)
	Meta-analysis of past studies on mobile mental health apps showed that web-based interaction can help care providers track client behavior, treatment compliance and their general emotional experience during the therapeutic period. The strength in this approach stems from client comfort and consistency with cell phone use.	Gaggiolo & Riva (2013)
	Studies on the use of mobile phones in mental health therapy show increased engagement of hard-to-reach clients, particularly youth and adults facing anxiety, transportation and economic barriers.	Jones et al. (2014)
Remote Presence Technology	Pilot study involving remote presence robot at an Inuit community in Newfoundland found considerable patient, nurse and physician satisfaction with the application. RPT helped improve patient care, ease workloads and increase job satisfaction.	Mendez et al. (2013)

	Study of paramedics with no experience in performing ultrasounds found that paramedics were able to successfully perform ultrasounds in the field while receiving live instructions from emergency physicians who were monitoring the images remotely.	Boniface et al. (2009)
	Nurse feedback during an experiment of RPT used in after-hour intensive care unit rounds, revealed increased physician availability, reduced delay in physician presence during acute emergencies, and sufficient time to have questions answered by specialists.	Rincon et al. (2012)

Overall, a diverse array of ICT applications have been shown to increase client access to services and supports (Mendez et al., 2012). They've also been shown to provide care providers with better information to help their clients (Gaggiolo & Riva, 2013). However, their effectiveness is limited by a community's capacity to provide and manage these technologies (Brannigan, 2010). Furthermore, ICT can also have an effect on the client-caregiver relationship. Where a care provider may be comfortable with ICT, clients may either not be comfortable with ICT applications, not see the value in ICT applications, or simply not have the capacity to properly make use of ICT applications. This in turn, can negatively impact the client-caregiver relationship (Wald et al., 2007). Considering this, it is important for planners and decision-makers to fully assess community interest, capacity, leadership, and will, before applying information and communication technology in the human services.

2.5   Summary of Literature Review

The literature reviewed in preparation of this project provided a solid foundation of knowledge on three key areas: The Hub Model of collaborative risk-driven intervention, adaptations of other human service initiatives in remote communities, and applications of ICT in the human service sector. The literature in each of these three areas helped to identify concept, definition, practice, and both key ingredients and lessons learned in each respective area. The information gathered through the literature scan helped to formulate the consultation process, and will certainly helped to shape the development of a pilot project being planned through this effort. To summarize the key findings of the literature scan, Table 8 provides the key points offered in each body of literature.

Table 8. **Summary of Literature Findings***

AREA	SUMMARY OF LITERATURE FINDINGS
Collaborative Risk-Driven Intervention	• The Hub Model involves a multi-sector collaborative process of risk detection, disciplined and limited information sharing, and rapid intervention aimed at mitigating risk before harm occurs. • The Hub Model was first launched in Prince Albert, SK in 2011. Since then, it has been replicated nation-wide with very little deviation from the core model. • The Hub Model involves four key principles: protection of privacy, commitment, collaboration and action. • In practice, nearly all Hub tables operate through in-person, regularly-scheduled meetings. • Many Hubs serve a mix of urban and rural areas where services are accessible. • Some adaptations of the model involve single-sector interventions and healing circles; on-demand Hub meetings that may occur over the telephone when the need arises; and linkages between the Hub discussion process on ongoing coordinated case support. • Past evaluations of the Hub Model focused on satisfaction, benefits, impact on service, service access, collaboration, risk mitigation, challenges, successes, and improvements.

Adaptations of other Human Service Initiatives in Remote Communities	• The literature on adaptations of other human service initiatives identified a number of key factors to consider: capacity, resources, language, culture, infrastructure, transport, and technology.
	• Case studies on 5 human service initiatives that were adapted in remote communities revealed a number of key lessons to consider:
	  - Be prepared to adjust expectations and roles.
	  - Strive for equal ownership and a shared value of the initiative among community partners.
	  - Allow for more time in the preparation stage than in other less remote environments.
	  - Be willing to adjust training and logistical needs to meet service provider capacity and need.
	  - Look within the community to find and mobilize what resources are available (as opposed to focusing on resources that are not available).
	  - Consider a regional perspective for expanding service access and resource availability.
	  - Implement video communication technology to overcome limitations in service access or quality.
	  - Incorporate culture and tradition into delivery of the model.
	  - Be prepared for variation in the adaptation practices across rural and remote communities.
	  - Keep the model simple and easy to implement.
	  - Make sure ongoing support is accessible and responsive to community needs.
	  - Allow cultural infusion, which will foster community ownership, stakeholder buy-in, and target group engagement.

Information and Communication Technology	• The field of ICT changes and expands much more rapidly than other fields of science and technology. • ICT is an inherently multi-disciplinary field with very few global definitions or concepts. • The most general consensus is that ICT refers to a technology with diverse applications, that—via appropriate infrastructure and device(s)—enables real-time communication between two or more recipients through text, voice and/or video signal. • The most common applications of ICT in the human service field include video-conferencing, tele-conferencing, text-based interaction, and remote presence technology. • Two of the most important aspects to consider in applying ICT solutions within a community project are capacity and leadership. • The uses of ICT solutions in human services differs per sector and jurisdiction. Some uses include data collection and storage, service provider communication, training, information sharing, client access, and service delivery. • Evaluations of ICT applications in the human services reveal increased client access to service, reduced service provider workload, and bridged geographic distances.

*Literature sources reviewed in this scan are available in appendix.

Overall, the literature review has helped identify some of the key pieces of knowledge required to plan a pilot project involving tech-enabled applications of collaborative risk-driven intervention in remote communities. The key themes of the literature review have not only helped shape the consultation process, but have prompted attention to less obvious but important details in successful applications of ICT solutions within human service delivery.

2.6   KEY LESSONS FROM THE LITERATURE

The research and practice reviewed herein has helped to prepare for the development of a pilot for tech-enabled Hubs in a number of ways. First, we now have a clearer understanding of what the Hub Model is, and what its core components are. Even in existing adaptations of the Hub Model, we can see

that the true discipline around information sharing and intervention planning is intact. Second, we have learned from other human service models, of the challenges and opportunities that await us in adapting the Hub Model for a tech-enabled application. Flexibility, patience, and understanding community interest and need during adaptation planning will certainly help in the process. Finally, we have learned about a number of ways that information and communication technology can increase service access, reduce demands on human service professionals, improve client engagement, maximize efficiencies in service delivery, and reduce geographic barriers. Moving forward with a tech-enabled adaptation of the Hub Model, may certainly benefit with advancements in information and communication technology.

PART III – CONSULTATION PROCESS

3.0   CONSULTATION PROCESS

To develop a well-informed pilot project, key stakeholders were consulted in the development of this plan. Participants to the consultation process are divided into four different groups: Hub practitioners, human service professionals (non-Hub), model adapters, and information and communication technology experts. Dialogue from these four cohorts was captured in a few different ways. A majority of participants were engaged through face-to-face interviews in a group or individual setting. Others were consulted via telephone. A small minority participated through an email exchange. Lastly, in the spirit of information and communication technology, group interviews with members of two separate Hubs were conducted through videoconference[1].

Each stakeholder group was asked a series of different questions. Hub practitioners were asked questions pertaining to adaptation of the Hub Model, requirements for collaborative risk-driven intervention to occur in a technological environment, and potential challenges and barriers to such an approach. Human service professionals not currently involved in Hub were asked to discuss their reaction to providing services to clients in a multi-sector technological environment. Model adapters were asked to share their experience and knowledge of adaptations of existing human service models in rural, remote, or technological communities. Finally, ICT experts were asked questions about current ICT capacity, potential capacity, and key factors to consider in enabling human service collaboration and service provision through a technological environment[2].

The following subsections describe the consultation results for each stakeholder group. Within each subsection, an overview of the participant cohort is provided. Following that, the findings of the consultation dialogue are presented.

3.1   CONSULTATIONS WITH HUB PRACTITIONERS

One of the key stakeholder groups engaged in this consultation process were those directly involved in the Hub Model of collaborative risk-driven intervention. Since 2011, dozens of human service professionals, agency managers, special advisors, key architects, analysts, evaluators, and supporters of the model have become involved. Their expertise, experience, and intimate understanding of the model brought a significant level of richness, insight, and validation to the pilot project being planned. These individual respondents were identified through the emerging network of Hub practitioners in Saskatchewan (and Ontario). With respect to actual Hub tables, the Prince Albert, Lloydminster, and Saskatoon Hubs were selected for this consultation process based upon their differences in size, location, and proximity to rural communities. Similarly, Muskoday First Nation and Ochapowace Nation were involved to provide a First Nation perspective on the combination of collaborative risk-driven intervention with technology. The Weyburn/Estevan/Carlyle and Durham Connect tables were involved because of their use of videoconferencing during the discussion process. As Table 9 shows, the role, location and number of these stakeholders vary.

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[1]The Weyburn/Estevan/Carlyle Hub in Saskatchewan and Durham Connect in Ontario each meet weekly through videoconference. The author was able to facilitate the consultation process remotely from Prince Albert, SK.
[2]See appendices for actual questions posed to each consultation cohort.

Table 9. **Hub Practitioner Consultation Cohort***

DESCRIPTION	N
Hub discussants from Prince Albert	*12*
Hub discussants from Lloydminster	*10*
Hub discussants from Saskatoon	*11*
Hub discussants from Muskoday Intervention Circle	*14*
Hub discussants from Ochapowace Community Intervention and Support Circle	*5*
Hub discussants from Weyburn/Estevan/Carlyle Hub	*12*
Hub discussants from Durham Connect	*9*
Private sector advisors on the Hub Model	*3*
Principal architects of the Hub Model	*2*
Advisors from Building Partnerships to Reduce Crime (Ministry of Justice)	*3*
Saskatchewan supporters of the Hub Model	*5*
Ontario supporters of the Hub Model	*3*
Hub data analysts	*4*
Evaluators of the Hub Model	*4*
TOTAL	**97**

* Sectors represented in the Hub consultations included policing, education, justice, victim services, mental health, addictions, social welfare, child protection, probation, Elders, council, community outreach, housing, family services, and child protection.

Adapting the Model

The first question posed to participants of the Hub practitioner consultant cohort solicited dialogue on ways in which the Hub Model could be adopted to fit an ICT platform. The feedback from this cohort was generally supportive of the concept. Many felt that there could be some real value in enabling collaborative risk-driven intervention to be accessible to rural and remote communities. Most respondents felt that nothing about the Hub Model itself really had to change—so long as the technology allowed for video communication among the service providers, and between the service providers and the client. In fact, some actually felt that the intervention (e.g., door knock) may be even easier as fewer human service professionals would physically be present (i.e., less intimidating).

During this discussion, many members of the Hub practitioner cohort focused on the actual functional design and resourcing of a so-called tech-enabled Hub. Conventional Hubs are community-based and serve clients within their jurisdiction. However, in serving rural and remote communities, the jurisdictional makeup and actual staffing of a tech-enabled Hub would require a different approach. Several respondents from different communities in Saskatchewan suggested that because clients in rural and remote communities may not have service access, those human service professionals involved in the tech-enabled intervention would also have to continue to provide the actual services in a technological environment. As one respondent described, "the only way this will work is if collaboration continues after the initial intervention. A virtual door knock will provide realization that support is needed, but with no services in the area, the virtual team will have to provide those services." Another respondent added that "because the client would be isolated, it is even more critical for the different agencies to work together on the client's ongoing needs."

While discussing the different resourcing requirements of a tech-enabled Hub, a number of respondents suggested that serving as a discussant on the tech-enabled Hub would have to be a full-time position. Close to a dozen respondents felt that due to the technological nature of the interaction, there is a limit to the human touch and rapport that could be built. Because of this, it is even more imperative for the

tech-enabled Hub discussants to continue to provide ongoing coordinated support to that client. In terms of logistics, more than one respondent agreed with the following statement by a Hub practitioner: "with full-time secondments, you could do collaborative risk-driven intervention in the morning, then provide actual service support in the afternoon." Relatedly, several respondents expressed that the isolation of vulnerable individuals would not only require much more intimate communication and support, but continuity in who is providing ongoing care and support.

Finally, one of the other main topics that emerged when this cohort was discussing adaptation of the Hub Model, was the actual physical location of the tech-enabled Hub. Some forecasted a single provincial Hub that would be centrally-located. Others challenged this approach for its lack of community connection. Instead, two alternatives emerged in the dialogue. The first was a tech-enabled Hub made up of discussants located in different regions across the province. This would allow for at least some familiarity and local support in the intervention and ongoing support process. The second alternative is for the province to have 3 regional tech-enabled Hubs (e.g., north, central, south), each with discussants from across the respective regions.

Key Ingredients

The second question asked of the Hub practitioner consultant cohort solicited dialogue on the key ingredients required for a tech-enabled Hub to be successful. As Table 10 shows, the suggestions provided by respondents are grouped into 5 main topics: process, technology, services, team, and resourcing.

Table 10. **Hub Practitioner Suggestions of Key Ingredients for an Effective Tech-Enabled Hub**

TOPIC	SUGGESTED KEY INGREDIENT
Process	• Hub meetings must be focused, and very clear. • Very strong chairperson to keep discipline and maintain respect at the table. • Protocol for how the tech-Hub meetings should work. • Protocol for how the interventions should work. • Demystify the Hub process so it is not so scary (for clients and professionals). • Communities with one service provider will need orientation and support in understanding the concept of a tech-enabled Hub—including their own role.
Technology	• Must be trained in technology so they are comfortable and prepared to use it. • ICT component of the model needs to be airtight. People will immediately lose faith if technology fails them. • Training for this team needs to be tech-oriented, and adjusted for a technological environment. • There must be security and confidence with the technology. • Because we are losing the human contact, we will have to make an extra effort online. • Give clients access to the technology so they can get support when they need it. • Backup plan for tech failure.
Services	• Make sure there are services that clients can access after the intervention. • Language and culture must be appropriate in service delivery. • Due to client isolation, services should be more frequent and consistent. • Communities with limited services need to see this as an opportunity for additional help and support that will essentially ease their caseload. • Need a mechanism of self-referral, so someone in a rural/remote community can reach out and ask for help if they need it.
Team	• Team members must know each other's role very well. • Selecting the right people for the team is critical. • Team members cannot have distractions from the home office. • Must learn how to interact with one another online without losing team synergy
Resourcing	• Make this a position that people apply for…so it is seen as an opportunity, and you have the ability to pick the very best. • Need to be sustainable positions where there is not a lot of turnover. • Must be part of everyone's job. • Government needs to see this as an investment that leads to cost savings in the end.

Quality Traits of Tech-Enabled Hub Discussants

The third topic discussed with Hub practitioners was the traits of actual Hub discussants that would be effective in a technological environment. Many of the suggestions provided were similar to quality traits of convention Hub discussants. However, a few were tailored to the context of a tech-enabled Hub. These include:

- Must have a certain level of decision-making authority without being too far away from frontline work.
- Need to be able to come to the virtual table and make things happen.
- Must have a much higher level of commitment than a conventional Hub discussant.
- Need ability to confront officials when there are systemic issues.
- Willing to be flexible in their mandate, be able to think outside the box.

- Need people who can work in a team environment without disconnecting from their own agency—but also not getting distracted by things at their home agency.
- Must be thorough in intervention, service engagement, report-back, and problem-solving.
- Must be compassionate, tolerant, culturally-informed, solution-focused, and flexible.
- Strong communication and case management skills.
- Respect for the entire collaborative risk-driven intervention process.
- Committed to collaboration, even in a virtual environment.
- Comfortable engaging through a screen all day.
- Effective at engaging clients through non-conventional methods.
- At least 5 to 10 years of frontline experience.
- Must stay in this position for a longer period of time to develop team synergy and client rapport.

Challenges

During the consultation process, respondents were also invited to identify some of the potential challenges that they felt were important to consider. One of the common challenges mentioned was the loss of face-to-face rapport that comes with a technological environment. In fact, most respondents immediately pointed to the lack of opportunity that a tech-enabled Hub provides for in-person encounters. That being said, several admitted that because of geographic and resource barriers, many of these individuals would not have access to services otherwise, so at the very least, they are getting some help.

Another commonly-mentioned challenge concerned the client's perspective of the entire situation. Some felt that clients may not feel that their current situation is not important enough for an in-person visit. Others highlighted that clients may not take the intervention itself seriously, mainly because the technological environment may lack a sense of immediacy or a feeling that something can actually be done. As one respondent described, "clients may doubt that anything can be done, since all we're offering is to Skype in a counsellor or supports."

A third frequently-mentioned challenge during the consultations with Hub practitioners was the concern over local familiarity and capacity for technology. Some respondents were concerned that many clients may not have the necessary comfort level or access to technology required for successful interaction with their service provider. Others pointed out that some communities may not have service providers on the ground who are skilled enough in administering the proper technology required for a tech-based intervention. To illustrate, one Hub practitioner observed that "many communities in the North have telehealth equipment, but nobody knows how to use it. [The equipment] just sits there and collects dust in a closet."

Another challenge brought up in the consultation process was that in many rural and remote communities, the RCMP are often the only human service professionals in the community. As such, the entire engagement of other human service professionals rests on the availability of the RCMP to lead the intervention. Following that, someone will have to provide the client with ongoing access to technology. A related concern is that if the RCMP are the only agency on-the-ground, fear and stigma of police may make their lead in the intervention a bit of a challenge.

Benefits

Just as respondents were asked to identify challenges to a technological application of the Hub Model, they were invited to speak about the benefits they saw in this opportunity. Many of these benefits focused on increased efficiency, access to services, and barrier reduction. The following points highlight the benefits mentioned by the Hub practitioner consultant cohort:

- Can increase overall access and frequency of contact.
- Easier time management for staff (less travel).
- This is a major convenience for clients who face challenges with in-office visits (e.g., travel, childcare).
- This will save government money in the long run.
- If the family's risk elevates, this gives them an option to meet with a team immediately.
- Will cut down on travel, provide more time to serve client needs.
- Will reduce wait lists for care.
- Will be easier to connect with clients.
- So much of our human service delivery system is inefficient, costly, and old school. This approach will expand capacity to those who do not have services.
- This will reduce barriers for rural communities, and increase service access.
- It is actually easier to engage our clients through technology.
- Videoconference has already saved Weyburn/Estevan/Carlyle agencies time and travel costs.
- It allows rapid access to one another, faster than in-person.
- We've seen the benefits of service provision through technology already (e.g., virtual counselling)

3.2   CONSULTATIONS WITH HUMAN SERVICE PROFESSIONALS

Although the Hub practitioner cohort proved to be a valuable source of information and expertise for the consultation process, it was also necessary to consult with other human service professionals who are not currently engaged in the Hub Model. Doing so provided a different perspective on the potential relationship between collaboration and technology—one that is not influenced by past experiences in collaborative risk-driven intervention. In defining this group, the author sought to involve human service professionals who fit into at least one of the following sub-groups: human service sectors, northern or remote communities, on-reserve and off-reserve communities, agencies serving multiple communities, initiatives fostering multi-sector partnerships (not Hub though). The number and types of human service respondents are provided in Table 11.

Table 11. **Human Service Provider Consultation Cohort***

DESCRIPTION	N
The Regina Intersectoral Partnership	12
Community Mobilization Prince Albert's Centre of Responsibility[3]	7
Keewatin Yatthé Regional Health Authority – Community Programs	3
Keewatin Yatthé Regional Health Authority – Mental Health and Addiction Services	16
Meadow Lake Tribal Council – Child and Family Services	2
Meadow Lake Tribal Council – Youth Development	1
English River First Nation Staff	12
English River First Nation Chief and Council	5
First Nation Elders (Muskoday, English River, La Plonge)	3
RCMP Buffalo Narrows Detachment	4
TOTAL	**65**

* Sectors represented in this consultation cohort include policing, education, social services, home care, social welfare, nursing, addictions, corrections, public health, mental health, youth support, and social services.

Initial Reactions

Following a brief overview of the tech-enabled Hub concept, human service professionals were asked to provide their perspectives, reactions, and thoughts. Overall, there was some strong support among respondents. Most felt that this opportunity was very possible, including all three aspects of it: Hub discussion, intervention, and ongoing support. Several respondents pointed to the success in telehealth and other remote presence technology applications in health and human services. Others were quick to ask why this sort of application was not being used already, as many individuals in rural and remote communities currently have no access to services. Additional comments and observations from (non-Hub) human service professionals include:

- This would be a very convenient opportunity that would allow access to supports.
- Although a virtual approach would be impersonal, it's better than what people are going with now…and that is nothing.
- We have defibrillators across the province, why couldn't we have hub-in-a-box across the province? Like a phone booth or shed that you can go in and get help.
- I think this is very possible and we are quite ready for this.
- This makes total sense. Right now, we're responding to crises with services not equipped to do the right job—not to mention driving all over the countryside.
- This would be a good move, as most people are easier to connect through technology nowadays anyway.

Benefits

The second question posed to human service providers asked what the benefits of this approach would be. Several respondents pointed to the immediate service access that this initiative would bring to clients. In reality, there are several barriers to service support in rural and remote communities. One is the fact that there may not be services available locally. The other is that the services that are available,

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[3] Although Prince Albert's Centre of Responsibility is organizationally linked to the Prince Albert Hub, members of this group were asked to speak from their broader systemic issue identification role in Saskatchewan.

still require significant driving for either the service provider or client. According to several respondents, both of these barriers could be overcome through a tech-enabled Hub and ongoing service provision.

Another benefit is that clients themselves would likely respond favourably to the initiative. According to respondents, a growing number of their clients are starting to prefer texting and video conferencing over in-office visits. Other than sheer convenience, being able to access services in the comfort of one's own home brings great value. Others mentioned that many clients from small or remote communities do not want help from local professionals because they know them from growing up in the community. With technology, comes a higher level of anonymity and an opportunity to get support without being seen going into the health centre. One respondent even remarked that "clients may disclose more and reach out for help more in the comfort of their own private home." Another shared that "this will reduce no shows, because we can just engage with the client electronically."

A third group of benefits highlighted by the human service provider consultant cohort concerned efficiency. As several respondents identified, a tech-enabled Hub would increase efficiency of collaboration, intervention, and even ongoing support. As one respondent explained, "this will not only make it much more efficient to serve a single client, but open up opportunities to serve more clients, quicker and more effectively." Another client shared that a so-called tech-enabled Hub could actually provide more immediate service access to the client sooner, therefore reducing downstream problems that require much more work and effort to resolve. A third observed that by being online, Hub discussants could have instant access to client information and files. One other respondent pointed out that a tech-enabled Hub would give the local RCMP access to a variety of tools outside of the enforcement domain.

Challenges

During the discussions with human service providers, respondents were invited to discuss the different challenges they thought may surface in this initiative. Some of the challenges mentioned involved a difficulty for agencies with long legacies of onsite service provision to work in a technological environment. Other challenges focused on the lack relationships or ties that a tech-enabled Hub would have with a community. Not knowing the services, dynamics, or culture of a community may make service provision a challenge. A fourth area of concern was that clients would be better able to hide things from service providers and not be honest in their progress updates. With respect to policy, some respondents explained that the RCMP as an organization is very limited in the technology it can use because of very strict security thresholds.

Key Ingredients

During the consultation process, human service providers were also asked to identify key ingredients that they felt were important for a pilot project of this nature. As Table 12 shares, these suggestions can be grouped into 5 themes. These include resources, preparation, process, team, and technology.

Table 12. Key Ingredients Suggested by Human Service Professionals

THEME	SUGGESTION
Resources	• Someone on the ground who can maintain a connection between the client and the remote presence team. • Full-time commitments to this process. • 24hr cross-trained team that provides support after hours.
Preparation	• Preparation with the family so that they are more willing to accept tech-enabled support. • List of local community assets the team can mobilize. • The team needs to be trained and skilled in remote service delivery. • Local referral sources (e.g., school, nurse, police) will have to be informed of the process, including their own role in the model. • Must secure community buy-in and support.
Process	• Must have a clearly established process for information sharing, communication, etc. • As stewards of shared information, the team needs to protect privacy—especially in a technological environment. • All stakeholders must be ready for growing pains, and not get frustrated. • Make sure the services are lined up before a door knock. If you go in there and they accept services, then nothing is in place, they will give up on you.
Team	• A dedicated team that works together in an ongoing basis. • The team must be made of human service providers who can make decisions. • Team members must be tech savvy and willing to help people online. • We need continuity of the team from door knock to ongoing service provision. • Must have strong generalists who can help in a variety of areas. • Need to have local (or at least regional) representation on the team who know the local assets, people, and culture. • The team itself needs to be very strong and cohesive.
Technology	• Must be videoconference for the Hub meeting—teleconference is not effective. • Access and affordability to technology is important. • Need to demonstrate that the technology will work consistently well. • Need somebody on the ground to coordinate access to the technology and provide personal support to the client.

Comfort Level

During the consultation process, human service professionals were asked their overall comfort level working in a technological environment. While most did not have experience in this setting, a majority felt that they would be comfortable moving to a technology platform—at least in situations where service access was limited by geographic or resource barriers. Some of the feedback from this cohort indicated that they would be comfortable largely because many of their clients already have a comfort level with technology. In fact, as one pointed out, "many of us in the North already collaborate through Skype and teleconference." Another client shared that, "our clients want more home-based and tech-based services at home, so they don't have to travel to the clinic." Several respondents felt that although a technological service environment would take a little adjusting, it would save a lot of time and ultimately, provide better service access to clients.

Optimal Configuration

Near the end of each discussion with human service provider groups, respondents were asked to identify what they felt would be the most optimal configuration for a tech-enabled Hub. As pointed out earlier, a majority of the respondents in this cohort did not have previous experience with the Hub Model[4]. That being said, they were able to share what they felt would be most ideal.

Within their dialogue, all configurations of the model included at least some form of face-to-face contact with the client. This cohort recognized that the purpose behind this model was to overcome geographic and resource barriers to services. Despite this, it was important for occasional onsite visits with the client—where possible. Another key theme in this discussion was that the Hub team itself must be a group of human service professionals who consistently work together, so that they can function as a team. Several respondents even suggested that after the initial intervention, the team should continue to collaborate in ongoing tech-based support. This would maximize the service quality and reduce the challenges presented in a technological environment.

The first configuration suggested in the consultation process was a single location Hub team that remotely connected with the rest of the province. This team would function face-to-face with one another, yet interact with clients remotely. In this configuration, the face-to-face interaction with the client would have to be provided by whatever local supports were available in the area. According to some respondents, while the team members themselves may not have face-to-face interactions with the client, this approach does offer the best teamwork environment.

Another configuration suggested was a central Hub team made up of human service providers from various parts of the province. This configuration would assume that team members would interact with one another and clients remotely. The advantage of being physically located throughout the province is that the team members in each region could serve as a local representative or onsite support for the client. Through a technological environment, other human service providers could be brought into support the client. This configuration would not only offer some onsite face-to-face support, but allow the actual Hub team to serve the entire province.

The third configuration suggested in the consultation process saw the development of three regional tech-enabled Hubs (e.g., South, Central, North) that would provide both face-to-face and tech-based support. These teams would meet remotely for the Hub discussion process, but involve a combination of onsite and tech-based support during actual interventions. The strength of this configuration is that it allows for each region to mobilize a team that is familiar with the cultural and service differences of each community. Yet it also works to overcome many barriers to service for rural and remote communities.

3.3   CONSULTATIONS WITH MODEL ADAPTERS

Just as we were able to gather useful insight from non-Hub human service professionals, there was also some good promise in consulting with human service planners, agency directors, government funders and community developers who have experience and knowledge in adapting existing models to rural or remote communities. Through snowball sampling, a number of different respondents were engaged in a

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[4] As noted earlier, the 7 respondents from the Centre of Responsibility were asked to speak from a more global perspective (beyond Hub). The remaining 58 respondents had not been previously engaged in the Hub Model.

consultation process that inquired about the successes and challenges of other models being adopted in a rural/remote context. More so, this consultation group was asked to describe what knowledge they had of ICT being used to overcome barriers in geography and human resources (see Table 13).

Table 13. **Model Adapters Consultation Cohort[5]**

DESCRIPTION	N
Saskatchewan Ministry of Justice – Research & Evidence-Based Excellence	3
Saskatchewan Ministry of Justice – Victim Services Branch	2
RCMP "F" Division	3
Northern Sport Culture and Recreation District	1
University of Regina	2
Public Safety Canada	2
John Howard Society	1
Catholic Family Services of Prince Albert	2
TOTAL	16

Key Questions

In gathering feedback from others who have participated in or observed the adaption of other human service models, there emerged a few key questions that were important to answer moving forward. Some of these questions focused on identifying lessons learned, proper preparation, community buy-in, and relationships. Others focused on the model itself, and flexibility during adaptation. The following questions highlight what other model adapters felt were critical to answer in preparing for a pilot project:

- Can this model be adapted to meet community needs?
- Have others gone down that path of innovation with this community before?
- What was the result of past adaptations of this model?
- How does the model need to be changed to meet rural or northern needs?
- What are common barriers to implementing this model?
- Who are the movers and shakers of the community?
- Who are the formal and informal leaders in the community?
- What are the implications of culture, religion, or spirituality in the community?
- Do you have a champion who knows about the model and is willing to lead it?
- Does the community actually want this and are they willing to make it work?
- Are the right resources and relationships available to get this done?
- What external partners are willing to make a commitment to adapting this model?
- What supports are in place to support the community when things get difficult?

Challenges

Another topic discussed with the model adapter consultation cohort was the challenges they commonly experienced or observed in adapting existing models to fit local needs. Some of the challenges mentioned included the difficulty of rural and remote communities overcoming limitations in access to

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[5] Although Prince Albert's Centre of Responsibility is organizationally linked to the Prince Albert Hub, members of this group were asked to speak from their broader systemic issue identification role in Saskatchewan.

technology, strong partnerships, service resources, and local ownership of the model. Other challenges involve a disconnect between the needs of families in rural/remote communities and the programs designed to help them; a misunderstanding of the model and how it is supposed to function; and capacity to learn and implement new models. Several respondents in this cohort identified that one of the biggest challenges in northern communities is staff turnover. Another challenge is getting leadership to focus their attention on the model long enough to solicit the level of support required to effectively implement the model. Finally, with respect to the technological aspects of this particular project, one respondent shared that "arranging for conference calls and video-calls in rural or remote communities is often a challenge because you have to round everyone up to make sure they make it on the call. It almost turns into twice the work."

Key Ingredients

Similar to the other consultation cohorts, model adapters were asked to identify some key ingredients in successful adaptations of existing human service models. The following points summarize their contributions to the discussion:

- It is important to try and fit models to meet local needs without sacrificing the integrity of the model.
- Take advantage of the fact that most disposable time for people nowadays is spent online— therefore tech-enabled models have potential.
- You must have active buy-in and support of local leaders to champion the initiative.
- Your team must understand the community's systemic, jurisdictional, financial, and capacity dynamics to understand their readiness, hopefulness, and eagerness.
- Do not rush, panic, or expect results immediately. You need to measure and celebrate small successes along the way.
- The community must have the perception that this is a locally-desired and locally-owned initiative. It cannot in anyway appear to be something that the province or federal government is expecting them to replicate.
- There needs to be ongoing support from experts to troubleshoot and re-energize the team.
- There must be a lot of upfront listening and communication, to make them feel that they have ownership and support.
- It is important to make sure everyone is in the loop and knows what is going on.
- You must tie the key tenets of the model to local needs and community priorities.
- Show how the model has been effective in other rural, remote, or northern communities.

Lessons Learned

One of the most important benefits of involving this cohort in the consultation process is to learn from their past experiences in adapting existing human service models. As such, the following bullets summarize some of the key lessons learned from respondents in this cohort:

- High-end, complicated, prescriptive models don't really work in northern or remote communities.
- Challenges in capacity make fidelity of some models difficult to achieve without ongoing support.
- Many communities with the highest risks usually lack continuity in leadership, volunteerism, capacity, and ability to sustain initiatives.

- Start small and manageable—smooth out the wrinkles before going too big.
- Make sure that the challenges which come up, are addressed fairly and thoroughly.
- Treat the pilot like a prototype and try to engage people who do not get too upset if things come up that are unexpected.
- The scale and complexity of the initiative must fit within the abilities of the locals.
- Try to link the initiative to where the community wants to be in 5 years.
- You must continuously engage and re-engage.
- There has to be clear expectations of what could go wrong, and how to fix it.
- Know that success looks different in each community.
- You must allow for enough time to iron out the wrinkles and get it working right.

Conditions Pertaining to Saskatchewan

Considering the collective experience of the model adapter consultation cohort, there was also a good opportunity to learn about specific conditions in Saskatchewan that may support/challenge model implementation in rural or remote communities. One of the areas discussed by this cohort was the difficulty for some communities to adopt a model without localization to cultural appropriateness. As one respondent explained, "there are significant differences among our First Nation communities between the North and South in Saskatchewan…so making it more culturally-appropriate with paying attention to local cultural traditions is really difficult." Complicating this challenge is that even within single communities, there are clear divides along lines of religion and spirituality. As one respondent observed, "this makes problem-solving and model adaptation very difficult." Similarly, according to several respondents, local histories, politics, and interpersonal relations may also affect model implementations. To mitigate this, one respondent suggested that "getting projects rolling up North takes a lot more handshakes, relationship-building, and encouragement than in the South…these people are consistently bombarded with new ideas that will supposedly work."

Another factor to consider in working specifically with northern communities is that there is a significant level of distrust for government agencies. As one respondent recalls, "sometimes our northern communities have so many people coming in and out that they never establish relations, nor develop trust." Another respondent shared that "a lot of communities suffer from a lack of trust with provincial or federal government, and even their own government".

A third challenge specific to smaller communities in Saskatchewan is that there is a considerable lack of anonymity. According to several respondents, in these communities, everyone knows everyone. As such, seeking help is a real challenge because there is no trust that anonymity and confidentially will be secured. The result, as one respondent observed, is that "people end up either refusing services or going down south to get the help they need…regardless, it doesn't make for successful initiatives and buy-in."

ICT Applications in Overcoming Geographic Barriers

During the consultation process, model adapters were asked to identify programs or initiatives that used information and communication technology to overcome geographic barriers to services. For the most part, the examples provided by this cohort highlighted the use of remote presence technology and videoconferencing in the health sector. One example given was the use of web-based video interaction between mental health clients and counselors at the University of Regina. Another common example was the University of Saskatchewan's use of remote presence technology (e.g., *doc-in-a-box*) in the

delivery of primary healthcare to northern communities. A final application explained was the extensive telehealth system setup in many on-reserve communities across the province.

Traits of an Ideal Pilot Site

The final question asked of model adapters inquired about community traits that make for a good pilot site. The following bullets summarize the feedback given by the model adapter consultation cohort:

- A community that has calm waters to start…not a place of chaos and high needs.
- A community that is willing to not only try new things, but stick to it for a while.
- A community where the partners share a vision for the future and how to get there.
- A community with identifiable champions that are not over-burdened by other initiatives/issues.
- A community that has balance between operating smoothly with few problems, and operating poorly with lots of problems.
- A community that has a strong relationship with RCMP is critical.
- A community that has readiness yet is still struggling to access human services.
- A community that is strong, so that you can focus on testing and refining the technological aspects, as opposed to struggling with the Hub Model.
- A community that does not suffer from massive turnover in local resources.

3.4 CONSULTATIONS WITH INFORMATION AND COMMUNICATION TECHNOLOGY EXPERTS

The final consultation group involved in this project are those stakeholders engaged in the information and communication technology sector. The respondents in this cohort were selected for a few different reasons. Some were contacted because of their involvement in the role of technology with community safety. Others were contacted because of their work related to technology and rural or remote communities. Finally, several were contacted because their organization was identified (through snowball sampling) as a leader in information and communication technology development and innovation. Table 14 illustrates the diversity of the ICT consultation cohort.

Table 14. **Information and Communication Technology Consultation Cohort**

DESCRIPTION	N
Canadian Association of Chiefs of Police – ICT Committee	1
Suitable Technologies	1
Saskatchewan Ministry of Justice	1
Health Canada	1
Cameco Corporation	2
Northern Inter-Tribal Health Authority	1
SaskTel	2
InTouch Health	2
IMS (IBM) Solutions	3
Canadian Advanced Technology Alliance	2
Motorola Solutions	3
University of Saskatchewan – College of Medicine	1
University of Saskatchewan – Northern Medical Services	1
TOTAL	**21**

Key Questions

The first topic discussed with the ICT consultation cohort concerned the types of questions that should be answered prior to implementing a pilot project. Many of these questions focused on local technological capacity, comfort level with technology, reliability of technology, and appropriateness of technology for the application (i.e., Hub Model). The following questions highlight some of the suggestions offered by respondents:

- What ICT solutions are available for application now?
- What ICT solutions can be custom built for this application in the future?
- What format has the least interruptions and is most reliable?
- How well will these technologies be received by different cohorts?
- Who from the local community can help facilitate access to the technology and minimize interruptions?
- How will people react to the technology and what are the best ways to increase their comfort level?
- How can you demonstrate that an ICT application will provide a cost-effective solution for multiple services?
- What is the lowest threshold technology to support the largest group of people?

Barriers to Expect

Another topic covered with the ICT consultation cohort was the barriers that may be expected in implementing a project through the use of technology. Many of the barriers mentioned concerned actual ICT infrastructure in rural and remote communities. Just as many of these communities lack access to human services, many also have limited access to high speed data connections required for many technological applications. Beyond this, even if communities may have access to sufficient ICT infrastructure, there is often a skill deficit in using the technology. As one respondent explained, "Most communities have telehealth. However, getting them to use it is a real challenge, as there is a lack of familiarity and knowledge in using the application."

Another potential area of challenge identified by the ICT consultation cohort is the ownership of IT infrastructures across multiple jurisdictions. As one respondent described, "there is often arguments over the ownership of technology and no willingness to share". This becomes a challenge, as engaging multiple human services in a tech-enabled Hub will require an amalgamation—or at the very least, a connection—of IT infrastructure from various ministries and organizations. Accomplishing this task is further complicated by the fact that no application of technology works identically across all communities. Variables such as local skills, capacity, interest, buy-in, infrastructure, and accessibility present challenges in implementation.

The final challenge identified by ICT respondents concerned the government's tendency in the ICT sector to roll out a full province-wide delivery of the application instead of a proper pilot to confirm the application works properly. With the rapid replication of the Hub Model across Canada, there will be added pressure for the ICT sector to help facilitate collaborative risk-driven intervention in rural and remote communities—potentially before their appropriate readiness.

Key Ingredients

In discussing the role of technology in carrying out human service delivery, the ICT cohort was able to share some important insights from past collaborative initiatives. These insights led to an understanding of key ingredients to consider in implementing a tech-enabled Hub:

- You will need a single leader from ICT (vendor or government) who will provide the system and support. It cannot be a fragmented attempt involving separate infrastructures.
- There needs to be a willingness of agencies to own this and make it happen.
- Local champions who are dedicated and willing to put time/effort in to making this work.
- Access to electronic client files—which assumes everyone has their files uploaded.
- Keep the pilot project small and manageable so that you can roll out changes/updates/solutions quickly.
- Give people a chance to provide feedback so that challenges or struggles can be addressed early on.
- In most scenarios the technology will work, it's just a matter of getting the process and criteria straightened out for all those involved.
- Technology must support the service, not become the service.
- Realize that technology is a powerful tool, but humanity is vital in human service.

Key Factors in Technology

In addition to key ingredients for implementing a tech-enabled human service initiative, the key factors for selecting a technology format are also important. In providing feedback on this topic, the ICT consultation cohort identified a number of key factors to consider. These include:

- bandwidth and communications infrastructure
- accessible data coverage
- available mobile connection
- technology toughness (e.g., tolerate moderate abuse and cold weather)
- portability and easy connection
- user-friendliness
- battery-life
- proven track-record for reliability
- affordability
- lifespan

Appropriate Formats

The final topic covered with the ICT consultation cohort focused on forms of technology that could be appropriate for a Hub Model application in rural and remote communities. During the consultation process, a brief description of the technology need in the Hub Model was described (e.g., group meetings, onsite interventions, ongoing service delivery). Following this, respondents were asked to identify what formats they thought were currently possible, as well as what formats could be possible moving into the future. These suggestions are summarized in Table 15 below.

Table 15. **ICT Consultation Cohort Suggestions of Technology Format by Possibility Type**

POSSIBLE NOW	POSSIBLE IN THE FUTURE
• web applications on 4G/LTE wireless network	• body-worn video devices
• stationary videoconference	• mobile satellite-connected video interface
• multi-site video meeting rooms	• publicly available 4G/LTE tablets
• remote presence technology devices	• virtual reality goggle platforms

3.5   SUCCESSES AND CHALLENGES IN CONSULTATION PROCESS

Throughout this project, a number of successes and challenges have been presented. While none of these have a tremendous impact on the project, good or bad, they are certainly worth sharing with key stakeholders, funders, and interested parties reading this report. Table 16 summarizes the successes and challenges encountered during the consultation process.

Table 16. **Successes and Challenges of Consultation Process**

SUCCESSES	CHALLENGES
• Strong interest among Hub practitioners to participate in the consultation process.	• Getting Hub practitioners to think outside the table concept of the conventional Hub Model.
• Access to comprehensive information and expertise on the Hub Model.	• Identifying relevant non-sales oriented ICT professionals to include in the consultation process.
• Interest among northern stakeholders to participate in the consultation process.	• Connecting with higher level government officials.
• Growing application of ICT in other human service fields across Canada/United States.	• Respondents tend to concentrate on ongoing logistics of resourcing a tech-enabled Hub and securing service access post-intervention.
• Wide enthusiasm for the intent of the project.	• By starting with no pre-conceived notions of an optimal ICT format, the process of identifying a preferred format took longer than expected.
• Energization of respondents following participation in the consultation process.	

3.6   SUMMARY OF CONSULTATION PROCESS FINDINGS

Throughout the consultation process, a number of key themes and questions were pursued with each of the respondent cohorts. These include adaptability, key ingredients, potential barriers, technology considerations, appropriate ICT formats, and tech-enabled Hub discussant qualities. In addition to these themes, three main concerns were highlighted by several consultation respondents.

First, many of the Hub practitioners were initially resistant to the idea of a tech-enabled Hub, simply because it lacks *conventional human interaction*. However, when confronted with the reality that some communities literally have no services, many respondents were quick to realize the utility of a tech-enabled Hub. In the end, there grew considerable enthusiasm and support for the concept of a tech-enabled Hub among consultation respondents.

Another major concern during the consultation process was the fact that not only are rural and remote communities lacking resources for a proper onsite intervention, but they have no services for ongoing support post-intervention. As a result, a lot of dialogue during the consultation process focused on the actual day-to-day service provision to clients engaged through a tech-enabled Hub. Overall, many of the

consultation respondents were favorable to exploring ways in which they could provide services to rural and remote clients in an ongoing tech-enabled capacity.

A third major concern among consultation respondents was the resource makeup of a so-called tech-enabled Hub. Assumingly regional and/or provincial in nature, there were numerous questions around who would make up the tech-enabled Hub, and more significantly, who would fund it. This sparked conversation around a number of different options, designs, locations and governance structures. Ultimately, several consultation respondents favoured a purely tech-enabled Hub with discussants located in different parts of the region (or province). This allows for more physical coverage of at least one team member, to be accompanied by a local human service provider (e.g., referring agent), and the rest of the tech-enabled intervention team.

Overall, there was a variety of suggestions and ideas provided during the consultation process. These suggestions provide a lot of new questions to consider in planning a pilot project. In aggregate form, feedback from respondents in the Hub discussant, human service provider, model adopter, and ICT expert consultation cohorts is summarized within Table 17.

Table 17. **Summary of Consultation Findings by Theme**

THEME	FEEDBACK FROM CONSULTATION RESPONDENTS
Adaptability	• The risk detection process will require additional community outreach/support • Resourcing of the Hub with full time positions will be required • The discussion process (and Four Filters) will remain the same • The intervention will have to be supported by onsite and remote presence discussants • Collaboration and integrated supports will have to continue after the intervention • Service providers involved in the intervention should also provide the ongoing services • The tech Hub should be structured to meet regional/provincial needs (not just local)
Key Ingredients	• Clear cost-effectiveness • Local champions • Effective communication • Fidelity to the original Hub Model (i.e., Four Filters) • Supportive and flexible coordination • Community ownership • Protocol and structure within a technological environment • Dedicated positions for Hub discussants • Proper skillset in intervention and comfort with technology • Roll out of pilot must be slow-paced and supported • Security and confidence with the technology • Mechanism of self-referral and/or community referral • Someone onsite to provide ICT access to clients • Guaranteed access to human service supports
Potential Barriers	• Limited risk detectors in rural/remote communities • Staff/leadership turnover • Limited anonymity/confidentiality in rural/remote communities • Attention drift to other priorities • Historical distrust for government agencies • Loss of face-to-face client interaction • Limited skills/knowledge/comfort with ICT • Limited access to reliable technology • Long institutional legacies of face-to-face service provision • Loss of cultural/community familiarity with regional/provincial approach
Technology Considerations	• Technological connectivity, access, strength, reliability, capacity, acceptance, affordability • Local bandwidth, data coverage, network access • Single provider of ICT solutions • Local knowledge on operating ICT solutions • Support for clients in using the ICT • Video-based solutions are preferred over text or voice-based solutions • Mobile video devices are critical for the intervention • Stationary video solutions could be used for discussion process and ongoing support
Appropriate Technology Formats	• Stationary video-solution (discussion process) • Mobile video-solution (interventions and ongoing service provision) • 4G/LTE wireless, satellite signal, fiber optics
Tech-Enabled Hub Discussant Qualities	• Must be experienced human service professionals • Must be adaptive, flexible, and innovative in their solutions • Must have some level of decision-making authority • Comfortable in a technological environment • Committed to position for longer period of time (low turnover)

PART IV – PILOT PROJECT PLAN

4.0   PILOT PROJECT DESCRIPTION

Arriving at the true purpose of this document, this part introduces the pilot plan for a project that would allow rural/remote communities to overcome common geographic and resource barriers to collaborative risk-driven intervention. The project plan presented in this part has three main influences. The first is the growing bodies of literature on the Hub Model and the use of ICT in human service delivery. The second is feedback gathered from four different stakeholder groups during the consultation process: Hub practitioners, human service providers (non-Hub), other model adapters, and ICT stakeholders. The third is additional follow-up feedback from key Hub stakeholders following their own initial assessment of the way this project is shaping up.

In an effort to fulfill the main goal of this project, the following subsections present the different components of the overall pilot project plan. The first component is the project's logic model. This is followed by an overview of key risks and assumptions for the actual implementation. The fourth sub-section within this plan presents some design options for the actual structure of a tech-enabled Hub within the province of Saskatchewan. Following this are sub-sections on appropriate technology formats and resource requirements. The remaining sub-sections provide a series of tools to help during the implementation process. These include a *Tech-Enabled Hub Information Sharing and Privacy Protection Protocol*; and guidelines for a tech-enabled discussion process, intervention deployment, and integrated service provision. The final section presents a 30-month work plan to implement the pilot project described herein.

4.1   THEORY OF CHANGE

The design of the Hub Model, including a tech-enabled application, is to contribute towards community safety and well-being. To achieve this, a number of key activities are undertaken to better inform and engage appropriate human service providers—thereby improving human services and reducing risk.

To conceptually map this process, a logic model is illustrated in Figure 1. The theory of change for a tech-enabled Hub suggests that risk detection by local assets (e.g., RCMP, community health worker) triggers a referral to the so-called tech-enabled Hub. This team then begins the tech-enabled discussion process, where they share limited information and begin planning a tech-based intervention. During the intervention (and with the help of a local technology access coordinator), services become mobilized, which triggers integrated service delivery from relevant human service professionals. As a result of these activities, there occurs an increase in multi-agency awareness of risk factors and client needs become addressed. The resulting human service improvement and risk reduction contributes towards improved community safety and well-being.

Figure 1. **Tech-Enabled Hub Theory of Change**
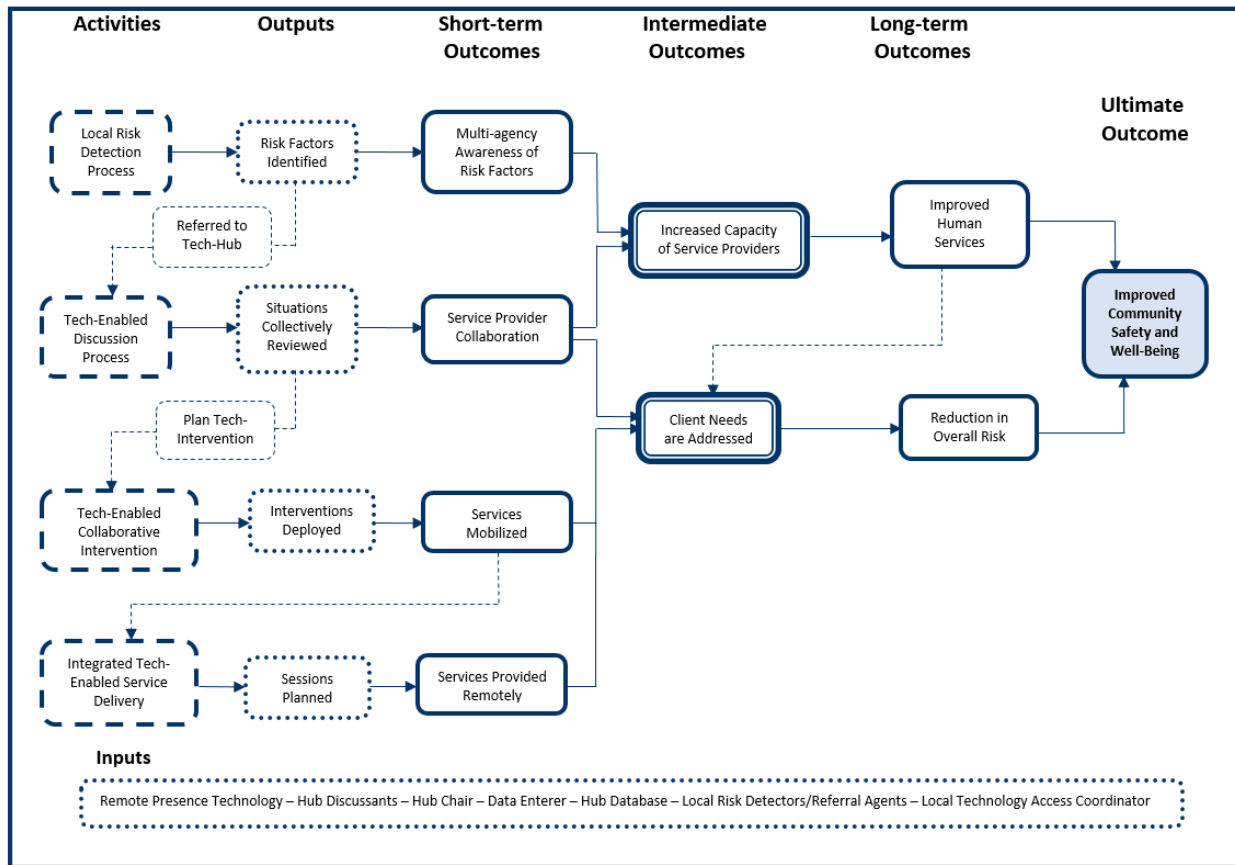
4.2 RISKS TO CONSIDER

Throughout the implementation of this pilot project, there are a number of risks that the implementation team should be aware of. Having a plan to overcome these risks will be critical to the success of the pilot project. The risks shown in Table 18 have been identified through research on collaboration-based human service models, a review of adaptations of other models, and consultations with key stakeholders. This list is not comprehensive and should only be used as a starting point to provide some idea of potential risks to consider in the implementation process. Furthermore, the strategies to overcome these risks are also limited and should very well be expanded.

Table 18. **Risks and Strategies for Overcoming Risk in Tech Hub Pilot Project**

RISKS	STRATEGIES FOR OVERCOMING RISK
Inadequate access to appropriate technology.	Confirm key components of ICT in communities that will be part of the pilot project.
Lack of community buy-in.	Spend time working with community leaders to build buy-in and support.
Low levels of risk detection at the local level.	Educate and raise local awareness of the utility found in early risk detection and intervention.
Failure to secure full-time Hub discussants.	Work with multiple levels of government and service organizations to secure a proper commitment.
Low client comfort level with technology.	Assist clients in exploring the user-friendliness of the technology with onsite support.
Hub discussants will not be able to create team synergy in a tech-enabled environment.	Provide opportunities for daily interaction and exchange among the Hub discussants.
Some agencies may not be able to participate in a tech-enabled environment.	Work with agency leaders and funding organizations to open up opportunities for full participation.
Conflict and confusion over jurisdictional authority and responsibility of service provision.	Hold planning sessions early on with the appropriate service providers to sort out jurisdictional questions and potential problems.
Geographic and resource barriers to ICT specialists who can service, troubleshoot, and repair ICT solutions onsite.	Identify local or regional ICT resources who can work remotely with central ICT vendor to implement immediate solutions.

4.3   KEY ASSUMPTIONS

Moving forward with a tech-enabled Hub requires a few key assumptions to be met. Making sure these assumptions are true will improve the probability of success for the implementation of a tech-enabled Hub. Where any of these assumptions are not true, the implementation team must work together to identify a solution.

- There is a group of motivated and experienced human service professionals who are interested and available to be part of this project.
- There is support from various levels of government (e.g., local, provincial, Aboriginal, federal).
- As a collective, the membership organizations will work together to secure appropriate technology access.
- Accessible, user-friendly, and reliable technology is available to all project partners.
- Local human service professionals will identify risk and make referrals to the virtual Hub.
- There is a source or provider of mobile technology made available to clients.
- There are locally-based coordinators of technology access and onsite support to clients.
- There is a set review period that will allow for reflection, trouble-shooting, and improvement.

4.4   TEAM CONFIGURATION OPTIONS

Throughout the consultation process, a number of different team configurations emerged. For the most part, there was usually consistency in the delivery of service post-intervention. That almost always involved a human service provider continuing the client-care provider relationship using an ICT solution. Where differences emerged was in the actual structure, resourcing, and location of the Hub team itself.

As Table 19 illustrates, there are three different models under which a tech-enabled Hub is proposed to operate in Saskatchewan.

Table 19. **Potential Team Configurations of the Tech-Enabled Hub Concept**

CONFIGURATION	DESCRIPTION
Single Location Tech-Enabled Hub	The Hub team may be comprised of human service providers located in a single community, where they can work together in-person, but serve clients remotely. The benefit of this is strong team synergy. The challenge with this is lack of client contact and a threat of low risk detection. Depending on the number of new discussions, this design may require full-time resources to the Hub table.
Regional Tech-Enabled Hub	The Hub team is comprised of human service providers from different locations within a specific region of the province. Each Hub discussant may play the lead role in interventions within their service area, while also being supported remotely by the remaining Hub discussants. This design may allow for home agency responsibilities as well as Hub duties.
Provincial Tech-Enabled Hub	The Hub team is comprised of human service providers from different locations throughout the province. Each Hub discussant may play the lead role in interventions within their service area, while also being supported remotely by the remaining Hub discussants. Depending on the number of new discussions, this design may require full-time resources to the Hub table.

As Table 19 describes, each of the team configurations presents its own strengths and weaknesses. In many ways, there is a trade off for one configuration over another. For example, in the regional or provincial configuration, there is a greater opportunity for at least one member of the team accompany local human service professionals on the initial intervention (while the others join remotely). Unfortunately, this does not allow the team very much face-to-face time with one another. In contrast, the single location tech-enabled Hub provides an opportunity for Hub discussants to build rich, strong personal working relationships. This, of course, comes at the expense of opportunities for at least one member of the team to attend the actual intervention door knock with local service providers (and/or the technology access coordinator). To illustrate the reach of each proposed team configuration, Figures 2, 3, and 4 show how a tech-enabled Hub could be resourced and deployed across Saskatchewan.

Figure 2. **Intervention Deployment Map of a Single Location Tech-Enabled Hub Configuration**
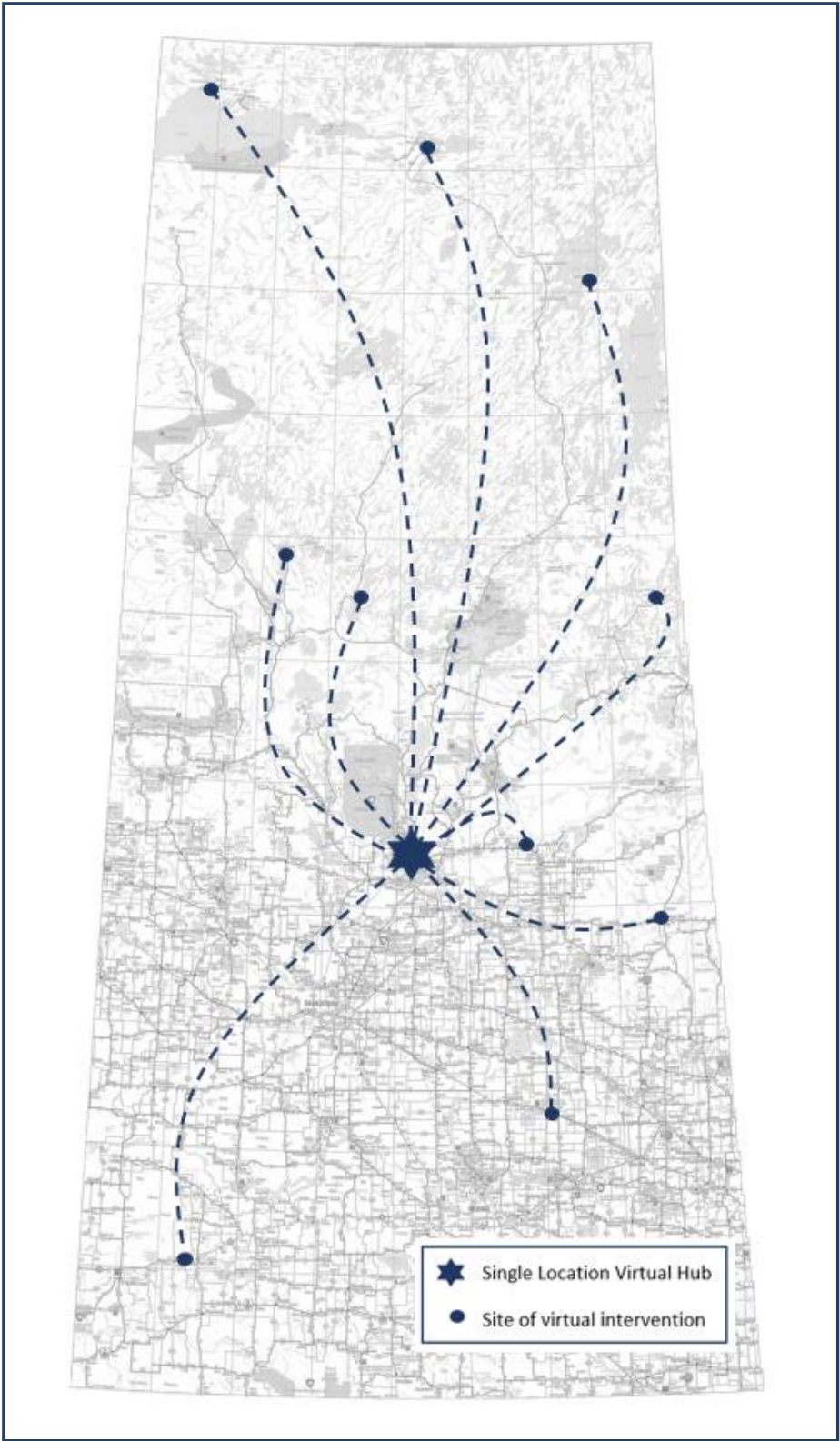

Single Location Virtual Hub
Site of virtual intervention

Figure 3. **Intervention Deployment Map of a Regional Tech-Enabled Hub Configuration**
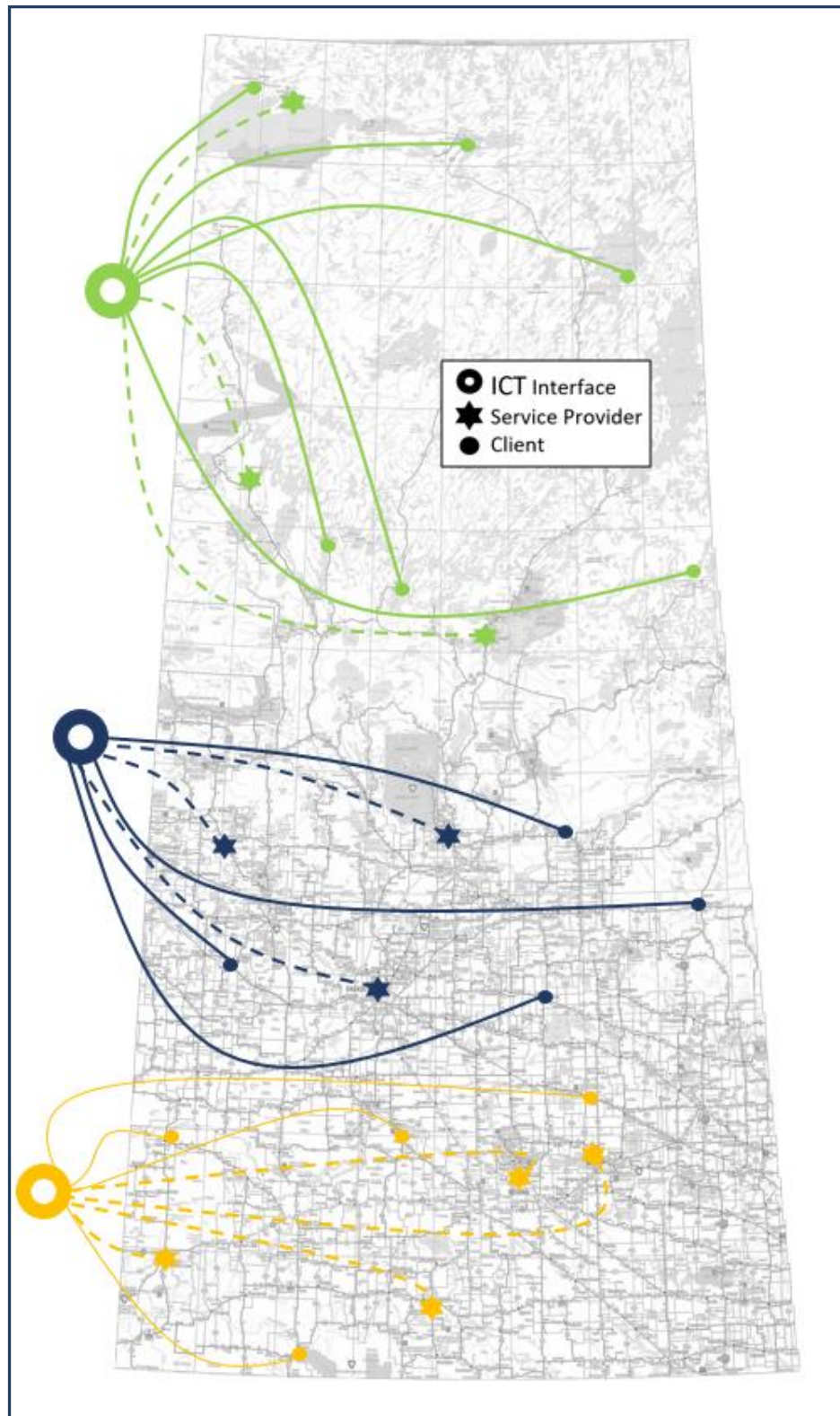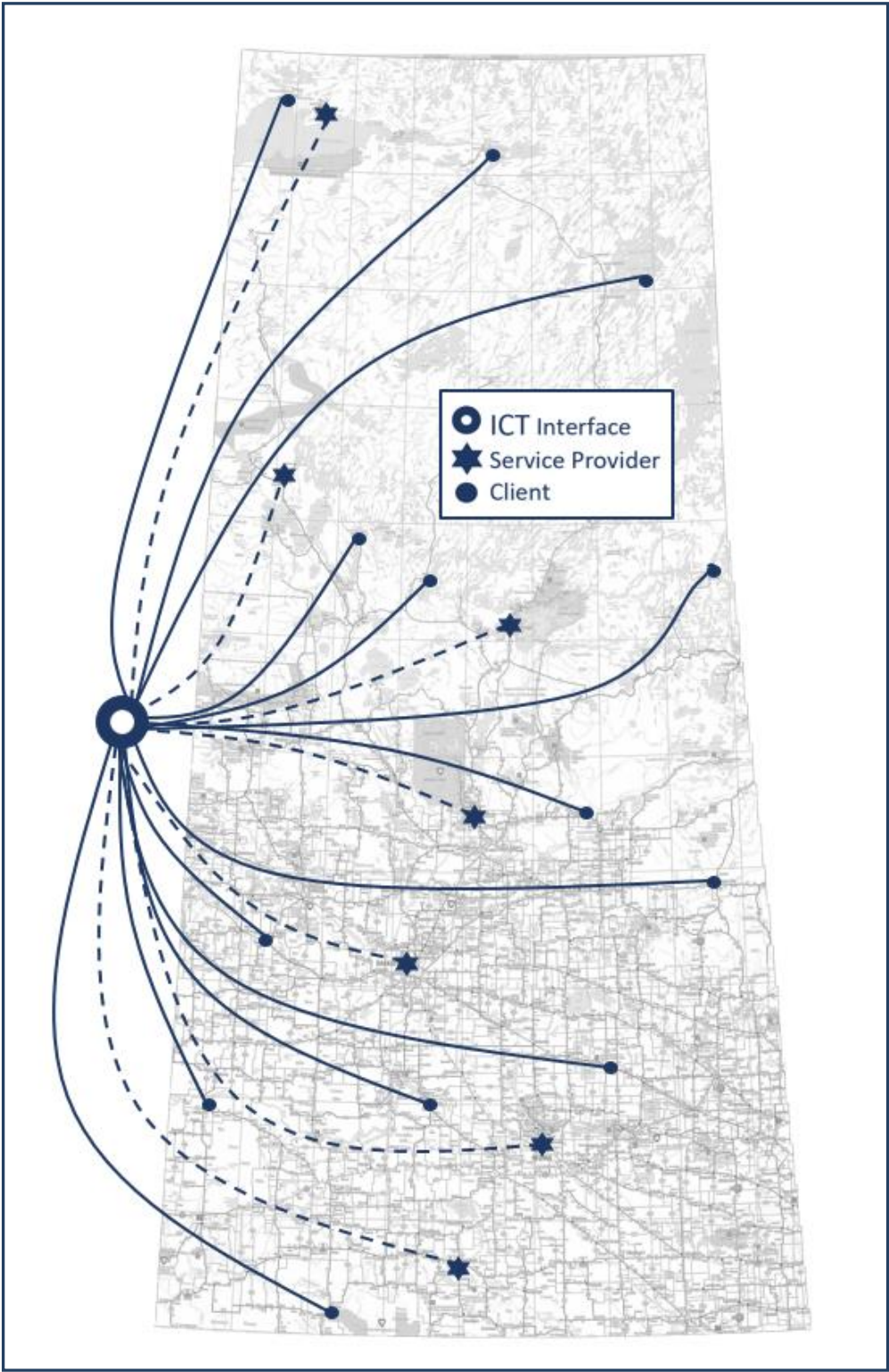
Figure 4. **Intervention Deployment Map of a Provincial Tech-Enabled Hub Configuration**

4.5   APPROPRIATE ICT SOLUTIONS

Beyond the configuration of the tech-enabled Hub, a number of suggestions for a technological format have also been offered. Many of the consultation respondents converged around the notion that the ICT solution can differ depending upon the stage of collaborative risk-driven intervention. As Table 20 illustrates, actual Hub meetings would be suitable in stationary videoconferencing environments like Telehealth, GoTo, or Skype. Actual interventions, however, must be done using mobile telepresence technologies on a satellite or 4G/LTE Internet platform. The actual post-intervention service provisions could be done using a variety of formats—depending upon client comfort, interest, and capacity.

Table 20. **Appropriate Technology Formats for Each Stage of Collaborative Risk-Driven Intervention**

STAGE	FORMAT(S)
Hub Discussion Process	Stationary web-based videoconferencing (e.g. Skype, GoTo, WebEx, or various Wi-Fi telepresence devices)
Intervention Planning	Stationary web-based videoconferencing (e.g. Skype, GoTo, WebEx, or various Wi-Fi telepresence devices)
Intervention Deployment	Remote presence technology/mobile video solutions (e.g. satellite video conferencing, mobile telepresence device; 4G/LTE tablet)
Post-Intervention Service Provision	Combination of stationary web-based videoconferencing (e.g. Skype, GoTo, WebEx); mobile video solutions (e.g. satellite video conferencing, mobile telepresence device, 4G/LTE tablet); or text-based communication (e.g. cell phone)

4.6   FEEDBACK FROM STAKEHOLDERS

During development of the pilot project plan, a second wave of feedback was requested from 27 key stakeholders involved in the Hub Model. This follow-up cohort included 8 Hub chairs from across Saskatchewan; 1 Hub Chair from Ontario; 3 representatives of RCMP "F" Division; 2 Hub data analysts; 4 Ministry of Justice representatives; 4 key advisors on collaborative risk-driven intervention; 2 Hub supporters; and 3 Hub evaluators. The purpose of this follow-up was to present some basic principles of the emerging pilot project and seek their observations and feedback. This feedback was used to fine-tune, adjust, and focus the final project plan presented herein.

Overall, the feedback from the follow-up stakeholder group was quite positive. Most of the respondents were very supportive of the direction of the pilot project plan and offered only encouraging words. Others, while very supportive, did offer some helpful constructive points for consideration.

The main theme of the feedback was to "get the technology right." In other words, they felt that there was not a lot to change with respect to the actual Hub Model itself. However, the solution chosen to connect Hub practitioners and clients remotely must be perfect. Another theme in the feedback was that there must be a commitment among human service providers to support clients beyond the initial door knock. In a conventional Hub Model application, many Hub discussants connect/refer Hub subjects to other service providers. According to several respondents, that may not be an ideal configuration for this model—as the use of technology is a big enough barrier to rapport, let alone have 2 or 3 different service providers from the same agency. The third major theme was that members of the so-called tech-enabled Hub team must be completely comfortable with working in a technological environment. Furthermore, they must be particularly effective at overcoming the human-element lost in a technological environment.

In addition to these main themes, the follow-up stakeholder group offered a few additional suggestions and observations:

- The technology used must offer a reliable, clear, and secure connection.
- The Four Filter process will be able to endure a tech application. Door knocks are individualized anyway, so nothing much should change on the intervention front.
- A regional approach offers a balance of local onsite human service providers with remote professionals.
- There is real merit to incorporating technology not only in the discussion process, but both the interventions and ongoing service supports.
- This approach will offer considerable accessibility to services—which continues to be a major burden, even in larger urban environments.
- The concept is a major win for remote locations that face geographic barriers. However, it could easily become an opt-out of face-to-face service provision in urban environments.
- In structuring the service areas, it is important to pay attention to jurisdiction, overlap, and even service competition.
- The key to this will be a mechanism of early risk detection and referral from local human service professionals or community members who are not all that familiar with the Hub Model.
- The only way this approach becomes worthwhile is if service provision is guaranteed after the intervention—even it is done remotely.
- It will be critical to have at least one person on the ground to coordinate access to the technology solution that this approach requires.

4.7 RESOURCE REQUIREMENTS

In preparing to implement this pilot project, it will be important to budget for a number of key resources. These resources are the basic requirements for launching a tech-enabled Hub. As the implementation team begins their work, they may find additional resources that are needed. For now, however, some of the major resource requirements for a tech-enabled Hub are described in Table 21.

Table 21. **Suggested Resource Requirements of a Tech-Enabled Hub**

RESOURCE TYPE	DESCRIPTION
Personnel	• Hub discussants from multiple sectors who are comfortable and committed to collaboration and ongoing service provision in a technological environment. • Hub chairperson who can steer the meetings (e.g., 2 discussants serving as co-chairs). • Data recorder (could be a Hub discussant as well). • Onsite technology access coordinator.
Technology	• Diverse ICT solution that allows multi-site stationary video communication. • Reliable ICT solution that allows multi-site mobile video communication. • Access to sufficient 4G, LTE, or satellite networks. • Individual devices (e.g., desktop, tablet) exclusive to Hub discussants.
Training & Awareness	• Training for Hub discussants on effective communication in a technological environment. • Local human service provider awareness on risk detection and referring to Hub. • Training for technology access coordinator to become familiar with the Hub Model, as well as leading practices is supporting client engagement in services.

4.8   INFORMATION SHARING AND PRIVACY PROTECTION

Just as the conventional Hub Model demands protections for privacy, a technological application of the Hub Model must also include efforts to protect the information and privacy of individuals. In fact, because a tech-enabled Hub is implemented remotely, it is even more critical to have clear guidelines on how to properly share information while still protecting privacy.

Prior to implementing a tech-enabled Hub, partner agencies should enter a discussion around information sharing and privacy protection. Knowing the limitations and expectations of each sector involved in the tech-enabled Hub, will create a better environment for collaborative risk-driven intervention that is comfortable for all parties. That discussion should not only include general aspects of the Hub Model, but in particular, cover the technological aspects of communication among Hub discussants, and between Hub discussants and discussion subjects (i.e., clients).

There are a number of different tools that partner agencies may want to consider developing for use in a tech-enabled Hub. These tools include:

- information sharing guidelines
- principles of confidentiality
- duty of care statement
- client suitability criteria
- code of ethics
- informed consent
- data collection and storage standards
- privacy regulations and codes for ICT applications (e.g., FOIPPA)

One of the most important tools for tech-enabled Hub partners to create is an information sharing protocol. This tool spells out the expectations and guidelines for how members of the team are expected to operate. To illustrate what a potential set of information sharing and privacy protection

guidelines could look like, Table 22 shares the *Muskoday Intervention Circle Information Sharing Protocol*.

Table 22. **Example of Information Sharing Protocol**[6]

MUSKODAY INTERVENTION CIRCLE INFORMATION SHARING PROTOCOL	
General	a) Have clear internal understandings of privacy and information sharing frameworks. b) Act within the limits of your respective privacy regulations. c) Articulate internally, the value, importance, and sensitivity of information sharing. d) Be an effective steward of disciplined information sharing.
Before Sharing	e) Limit information sharing to a 'need to know' basis. f) Differentiate between what could, should, and must be shared. g) Be able to identify information that should not be shared. h) Identify a reference point for their decision (e.g., policy, legislation, logic). i) Demonstrate that the safety and well-being of a client is better-served by sharing information. j) Confirm that those you share information with, follow a disciplined information sharing process. k) Verify that you have consent to share information with that particular recipient. l) Confirm that the venue and method of sharing information is appropriate and secure.
After Receiving	m) Maintain proper possession of information shared with you. n) Ensure that information is limited to supporting the client in question. o) Be able to account for when and how the information is used. p) Maintain proper documentation and secure storage of the information. q) Identify when to terminate the information you received.

Just as an information sharing protocol is important for implementation of a tech-enabled Hub, so is a balanced set of guidelines for protecting privacy in a technological environment. The following examples illustrate the types of guidelines which may be ideal for protecting privacy in a technological human service environment:

- Ensure everyone involved has a through understanding of and respect for the importance of confidentiality and privacy (e.g., technology access coordinator, local community assets).
- Make sure that discussion subjects understand that information shared during a tech-based exchange will be kept confidential.
- While engaged in a Hub discussion or ongoing service provision, discussants must ensure that they have privacy on their end of the call (e.g., sign on door, soundproof room, headphones).
- Allow an opportunity for all cameras/devices to pan the room and see who is participating or observing the discussion process.
- Provide the client a right of refusing individuals or agencies from participating in the session.
- Keep a record of discussions, client-service provider sessions, and who was involved.

4.9 TECH-ENABLED HUB DISCUSSION GUIDELINES

When the original Hub Model launched in Prince Albert in 2011, there was only a very loose framework for the discussion process. With involvement of the Saskatchewan Information Sharing Issues Working Group, Community Mobilization Prince Albert started to fine-tune a Four Filter Process that now shapes Hub discussions across Canada. Adding to this rigour, Nilson, Winterberger and Young (2015a) created a

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[6] Cite: Muskoday Intervention Circle. (2016). *Muskoday Intervention Circle: Information Sharing Protocol.* Prince Albert, SK: Living Skies Centre for Social Inquiry.

data-friendly discussion process that not only allowed for efficient data collection, but further protected the privacy of individuals discussed at the Hub Table.

Although consultation results from this project indicate that a tech-enabled Hub should not require severe adaptation of the conventional Hub Model, there will be a learning curve for Hub discussants working in a technological environment. To help with this adjustment, some guidelines for running a tech-enabled Hub discussion process are offered in Table 23.

Table 23. **Suggested Guidelines for Tech-enabled Hub Discussions**

THEME	SUGGESTED DISCUSSION GUIDELINES
General Approach	• Approach the interaction as if technology is not the outlier. • Do not let technology force the interaction to be "cold" and "too professional." Be human. • Recognize the important and inherent purpose behind the meeting—mitigating risk. • Be flexible, tolerant, and prepared to climb the learning curve associated with a tech-based discussion process.
Meeting Logistics	• Establish a discussion queue process so discussants are not talking over one another. • Ensure proper lighting in your room and minimize any extra noise. • Use a quality pair of noise-dampening headphones to increase sound quality and minimize distractions from your office environment. • Do not have side chatter if physically in the same room as other participants. • Do not busy yourself with other things (people know when you're not paying attention). • Mute microphone when not speaking. • Position camera at eye level. • Use hand gestures to signify a desire to speak. • Have the Hub database appear on some aspect of the screen without blocking other participants. • Access home agency databases without interrupting the video stream (e.g., second computer).
Discussion Process	• Run meetings consistently so participants can predict what's coming next. • Allow the chair person to guide the meeting and maintain flow (use the guides[7]). • During the update stage of meeting, verify that assisting agencies having nothing else to offer. • While identifying assisting agencies at Filter Three, complete a roll call to determine interest (as a technological environment will not show the body language used to interpret interest in convention in-person Hub meetings). • Run separate yet subsequently-scheduled meetings for the Filter Four planning.

4.10   TECH-ENABLED HUB INTERVENTION GUIDELINES

One of the more unique aspects of the tech-enabled Hub will be the intervention itself. Within the field of collaborative risk-driven intervention we are still learning the best ways to deploy a fully in-person door knock. Moving towards a remote presence approach to door knocks will be a challenge, largely because no one else has done that before. Just as discussants in the initial Prince Albert Hub learned their way forward, discussants in a tech-enabled Hub should also expect to learn new things along the way. Table 24 offers some preliminary guidelines for deploying interventions in a technological environment.

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[7] See Nilson, Winterberger & Young (2015a).

Table 24. **Suggested Guidelines for Tech-Enabled Interventions**

THEME	SUGGESTED INTERVENTION GUIDELINES
Technology Logistics	• Have a reliable and well-trained technology access coordinator onsite to facilitate the intervention properly (could be a local health worker, victim support, school official, etc). • Ensure a solid data/satellite connection before the intervention. • Politely find a way to minimize background noise in the client's home. • Verify battery/power sources to avoid awkward technology failures.
Client-Focused	• Assist the client in becoming comfortable with the technology solution by ensuring confidentiality and by describing the device as a tool in helping individuals/families strengthen. • Explain the value and utility of the technology over extensive travel. • Always focus on communicating with the client, as opposed to with one another. • Allow each member of the team to introduce themselves and what they can offer. • Allow the client to speak and feel like they have been heard. • Before ending the intervention, summarize client needs and proposed solutions. • Ensure that the client understands there will be continued tech-enabled service provisions following the intervention (this is not a one-shot deal).
Team Approach	• As a team, be prepared before you go into the intervention. • Have a speaking order for the initial stages of the intervention so there is no overlap in talking. • Approach the intervention as a collaborative team, with one member emerging as a lead in guiding the conversation and soliciting feedback from the client. • Demonstrate shared ownership and interest in the client's safety and well-being.

4.11   TECH-ENABLED HUB INTEGRATED SERVICE PROVISION GUIDELINES

Aside from the technological aspects of this project plan, one major addition to the Hub Model stemming from this exercise is ongoing integrated service provision. According to consultation feedback, because individuals in rural/remote communities already struggle with service access, it is extra important for human service providers to continue collaboration in their provision of services beyond the initial door knock. The conventional Hub approach of referring clients to other human service providers in the home agency is insufficient for meeting the needs of rural/remote clients. The fact is, because the client already has to become familiar with technology, and faces significant resource barriers in his/her community, the last thing we would want to do is force them to build rapport with a different service provider after they may have already established a secure connection with the Hub discussant.

In determining how to provide ongoing integrated supports, Hub discussants need look no further than the scores of leading practices in case management, healing circles, collaborative support, wraparound, and other multi-sector coordinated support literature (Pauze, Gagne & Pautler, 2005). Some of the basic approaches to integrated support call for shared identification of client needs, goal-setting, assessment of solutions, implementation, collective follow-up, continuous communication, and progress monitoring (Nilson, 2016f). When applying these tactics in a technological setting, there are a few lessons we can learn from telemedicine and chronic disease management. One of these, in particular, is that service provision, including the ICT solution used to provide those services, must be individually tailored to each client's needs and capacities (Park, 2006).

Overall, accounting for all of the many possible guidelines in tech-enabled integrated support falls outside the scope of this pilot project plan. However, to provide a base understanding, the following

guidelines are offered to assist tech-enabled Hub discussants begin their journey down the path of integrated service provision within a technology environment:

- Have role clarity and understanding within the team, what each member does.
- Maintain constant contact with other members of the team concerning your shared client's progress, challenges, and developments.
- Updates on client status should be brief and to the point, yet consistent and timely.
- Ensure that the client feels they are being supported by an actual team—not just a group of individual service providers who happen to know one another.
- Establish a low-threshold regular reporting structure that allows each team member to build upon the case file.
- Hold regular video interactions among team members and with the client, to monitor changes and improvements.
- Be prepared and able to call in additional assets and supports if the client's needs change or become elevated.
- Realize that integrated service supports are not a quick fix. It may take several months until the client is stabilized and no longer needs this level of care. In fact, stabilization may take even longer in rural and remote communities with no accessible services.
- Create a working relationship with the client that is positive and strong—despite being technology-based.
- Despite interacting within a technology environment, maintain shared ownership and interest in the integrated support plan for your shared client.

4.12   TECH-ENABLED HUB WORK PLAN

To help the implementation team begin planning for the launch of this pilot project, a work plan is offered in Table 25. The work plan spans a 3-year time period. It includes the development and planning portions of the pilot, launch and implementation, and evaluation and ongoing performance monitoring. As the various human service partners begin to plan for this pilot project, adjustments to this work plan may be required. However, based upon the research and consultation process supporting this pilot project plan, the following work plan has considerable merit.

Table 25. **Tech-Enabled Hub Pilot Project Work Plan**

PHASE	ACTIVITY	TIME PERIOD
Mobilization	mobilize partner agencies	months 1 - 6
	form a steering body	
	determine assets/affordability	
	explore ICT options	
	determine e-Hub configuration	
	identify/engage pilot communities	
	confirm ICT solution	
Preparation	build community interest/support	months 6 - 12
	identify Hub discussants	
	identify local technology access coordinators	
	identify e-Hub chair/data recorder	
	define schedule (e.g., tues/discussion; wed/intervention; thurs/support)	
	e-Hub training and team building	
	educate community assets on referral process	
Implementation	launch e-Hub pilot (risk detection, discussion, intervention, service provision)	months 12 - 24
	implement data collection and performance monitoring	
	analyze incoming data	
	assess client progress	
Evaluation & Adjustments	track e-Hub outputs and outcomes	months 12 - 30
	allow for interim updates (including lessons learned/troubleshooting)	
	disseminate evaluation results	
	adjust and improve e-Hub model based upon evaluation results	
	plan expansion of model to other communities	

A.1   FIELD/REMOTE VISIT INTERACTIONS

During the development of this pilot project plan, the author was able to explore discussion phase of tech-enabled Hubs first hand. One of these included interacting with two separate tech-enabled Hubs—one in Saskatchewan and the other in Ontario. These interactions occurred online, via video conferencing with single Hubs that spanned two different locations. The first involved the Saskatchewan communities of Weyburn, Estevan and Carlyle. The second involved Durham and North Durham in Ontario (photo 1 & 2).

Another aspect explored first hand was the use of telepresence technology in the English River First Nation Health Centre. There, the clinic has an *Intouch RP-Xpress* used to connect patients to physicians down south. This device is portable, and can be connected to a cellular network or WiFi (photo 3).

While visiting the *ISM Centre of Excellence* in Regina, the author was able to see the diverse utility of remote presence collaboration using various Cisco applications. The telepresence facility at ISM not only brings people together, but has significant data analysis capabilities (photo 4 & 5).

Photo 1. **Weyburn-Estevan-Carlyle Tech-Enabled Hub**

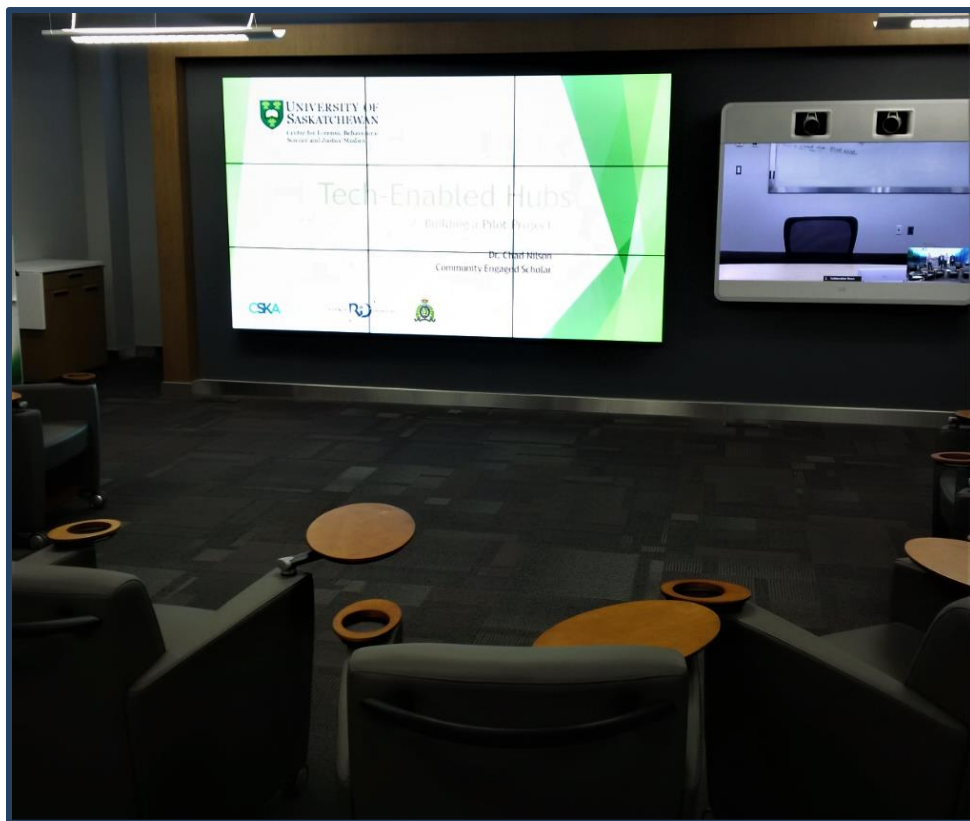Photo 2. **Durham Connect Tech-Enabled Situation Table**

Photo 3. **InTouch RP-Xpress at English River Health Clinic**

Photo 4. **Telepresence Facility at ISM Centre of Excellence in Regina**

Photo 5. **Collaboration Room at ISM Centre of Excellence in Regina**

A.2 ESTIMATED COST COMPARISONS FOR ICT SOLUTIONS

To offer an overview of the cost differences between some available solutions, the author conducted outreach to different suppliers. This preliminary outreach revealed the costing structure and accessibility of technology to rural and remote communities. As Table 26 outlines, the costs of each solution vary considerably. With differences in cost, however, come differences in the quality and potential of each solution.

Table 26. **Cost Comparisons of Different ITC Solutions for Tech-enabled Hubs (Single Unit)**

SOLUTION (single unit)	PRODUCT COST	NETWORK COST	ADVANTAGES	DISADVANTAGES
Mobile Telepresence Device	$25,000 + $600/year service fees	$160/month for 50GB*	- secured communication - diagnostic features - medical device connections - pan-tilt-zoom camera system that can be controlled remotely - rugged and durable	- 2hr battery life - expensive - paying for features not required by Hub - requires technical training and oversight
Commercial Grade Tablet (with SIM card)	$700	$160/month 50GB*	- cost effective - user friendly - multiple applications - 8hr battery life - easily replaceable	- less secure connection - less durable - camera is fixed - care provider cannot control camera angle

* The average cellular data packaged includes only 5GB per month.

A.3   COST SIMULATION: RETURN ON INVESTMENT

The main reason for developing this pilot project, is to identify an opportunity for individuals in rural/remote communities to overcome the geographic and resource barriers to collaborative risk-driven intervention (and other service provisions). The fact of the matter is, some communities simply do not and will not have onsite access to all required services. Considering this, four models are presented.

The first involves all onsite support to the client. The second involves a local technology access coordinator taking a mobile telepresence device to the client's home for each session. The third involves a local technology access coordinator taking a commercial grade tablet to the client's home for each session. Finally, the fourth involves a local technology access coordinator limiting their visits with the client to 3—only to support them in using the tablet (which will be left with the client).

This cost simulation assumes that any single client who faces a situation of acutely-elevated risk will require a single intervention involving 4 sectors. During the onsite intervention, all 4 relevant Hub discussants will attend the intervention in-person, whereas in the tech-enabled interventions, only 1 Hub discussant will attend the intervention in-person (the rest online). Following the intervention, the client will require multiple services by 4 different professionals, in 8 sessions, over a 1 year period. The client is located 200km from the nearest service delivery centre. In the tech-enabled models, a technology access coordinator from the local community will bring the device to the client for tech-enabled sessions. In the onsite model, the 4 human service professionals will each visit the client at their home (200km away).

As Table 26 shows, there are some tremendous cost differences between onsite support and tech-enabled support. In fact, all three tech-enabled solutions are considerably more cost-effective than complete onsite service provision. Among the tech-enabled solutions, the difference in costs decreases with higher volumes of clients served. In other words, there is a base rate to acquire the technology, but after that, costs for implementing each solution are relatively similar.

Table 26. **Cost Simulation Comparison of Hub Solutions for One Year**

SOLUTION	COST DESCRIPTION	1 CLIENT	10 CLIENTS	30 CLIENTS	50 CLIENTS
In-person Visits (with all staff doing in-person visits)	**Intervention** (4 staff x 1 visit) - travel ($0.45 x 400km x 4) - meals ($25 x 4 x 1) - pay ($35/hr x 5hrs x 4)	$1,520	$15,200	$45,600	$76,000
	Ongoing Support (4 staff x 8 visits) - travel ($0.45 x 400km x 4 x 8) - meals ($25 x 4 x 8) - pay ($35/hr x 5hrs x 4 x 8)	$12,160	$121,600	$364,800	$608,000
In-Person Visit Total		**$13,680**	**$136,800**	**$410,400**	**$684,000**
Mobile Telepresence Device (with technology access coordinator attending every session)	**Product** (1 device) - unit cost ($25,000) - service fees ($600) - network costs ($1,920)	$27,520	$27,520	$27,520	$27,520
	Intervention (1 staff x 1 visit) - travel ($0.45 x 400km x 1) - meals ($25 x 1) - pay ($35/hr x 5hrs x 1)	$380	$3,800	$11,400	$19,000
	Technology Access Coordinator (onsite) - travel ($0.45 x 5km x 1 x 32) - pay ($35/hr x 1hrs x 32)	$1,192	$11,920	$35,760	$59,600
	Ongoing Support (remotely) - pay ($35/hr x 1hr x 4 x 8)	$1,120	$11,200	$33,600	$56,000
Mobile Telepresence Total		**$30,212**	**$54,440**	**$108,280**	**$162,120**
Commercial Grade Tablet (with technology access coordinator attending every session)	**Product** (1 device) - unit cost ($700) - network costs ($1,920)	$2,620	$2,620	$2,620	$2,620
	Intervention (1 staff x 1 visit) - travel ($0.45 x 400km x 1) - meals ($25 x 1) - pay ($35/hr x 5hrs x 1)	$380	$3,800	$11,400	$19,000
	Technology Access Coordinator (onsite) - travel ($0.45 x 5km x 1 x 32) - pay ($35/hr x 1hrs x 32)	$1,192	$11,920	$35,760	$59,600
	Ongoing Support (remotely) - pay ($35/hr x 1hr x 4 x 8)	$1,120	$11,200	$33,600	$56,000
Commercial Grade Tablet (full TAC) Total		**$5,312**	**$29,520**	**$83,380**	**$137,220**
Commercial Grade Tablet (with technology access coordinator attending only 3 sessions)	**Product** (1 device) - unit cost ($700) - network costs ($1,920)	$2,620	$2,620	$2,620	$2,620
	Intervention (1 staff x 1 visit) - travel ($0.45 x 400km x 1) - meals ($25 x 1) - pay ($35/hr x 5hrs x 1)	$380	$3,800	$11,400	$19,000
	Technology Access Coordinator (onsite) - travel ($0.45 x 5km x 1 x 3) - pay ($35/hr x 1hrs x 3)	$112	$1,120	$3,360	$5,600
	Ongoing Support (remotely) - pay ($35/hr x 1hr x 4 x 8)	$1,120	$11,200	$33,600	$56,000
Commercial Grade Tablet (partial TAC) Total		**$4,232**	**$18,740**	**$50,980**	**$83,220**

A.4   Wireless Data Coverage Required for Video Streaming

To provide an overview of wireless data coverage required for video-based mobile technology, three maps are provided. As Figure 5 illustrates, rural areas in southern Saskatchewan have fairly solid service access at the 4G/LTE level. Figures 6 and 7 show that the northern communities with moderate populations have access to 4G wireless data coverage, however remote and isolated areas of the province do not.

Figure 5. **Wireless Data Coverage in Southern Saskatchewan***
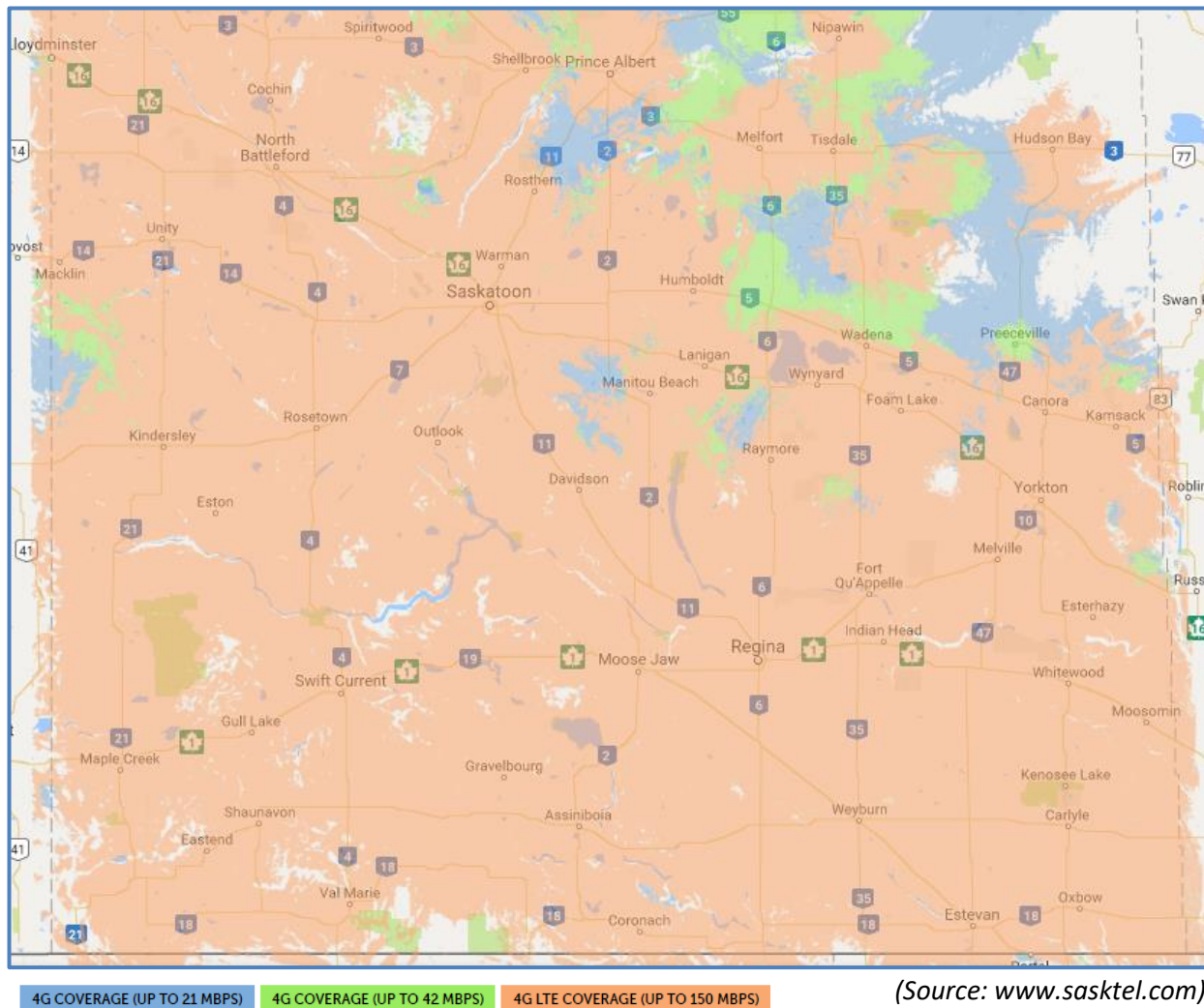
4G COVERAGE (UP TO 21 MBPS)   4G COVERAGE (UP TO 42 MBPS)   4G LTE COVERAGE (UP TO 150 MBPS)

(Source: www.sasktel.com)

SaskTel Disclaimer: "*The coverage areas shown are approximate. SaskTel cannot guarantee that coverage will be exactly as shown since factors beyond our control also affect coverage. These include weather conditions, terrain, your distance from a cell tower, and whether the cell is being used indoors or outdoors. Coverage is as of September 30, 2016".*

* Reproduced with permission of SaskTel.

Figure 6. **Wireless Data Coverage in (Lower) Northern Saskatchewan***
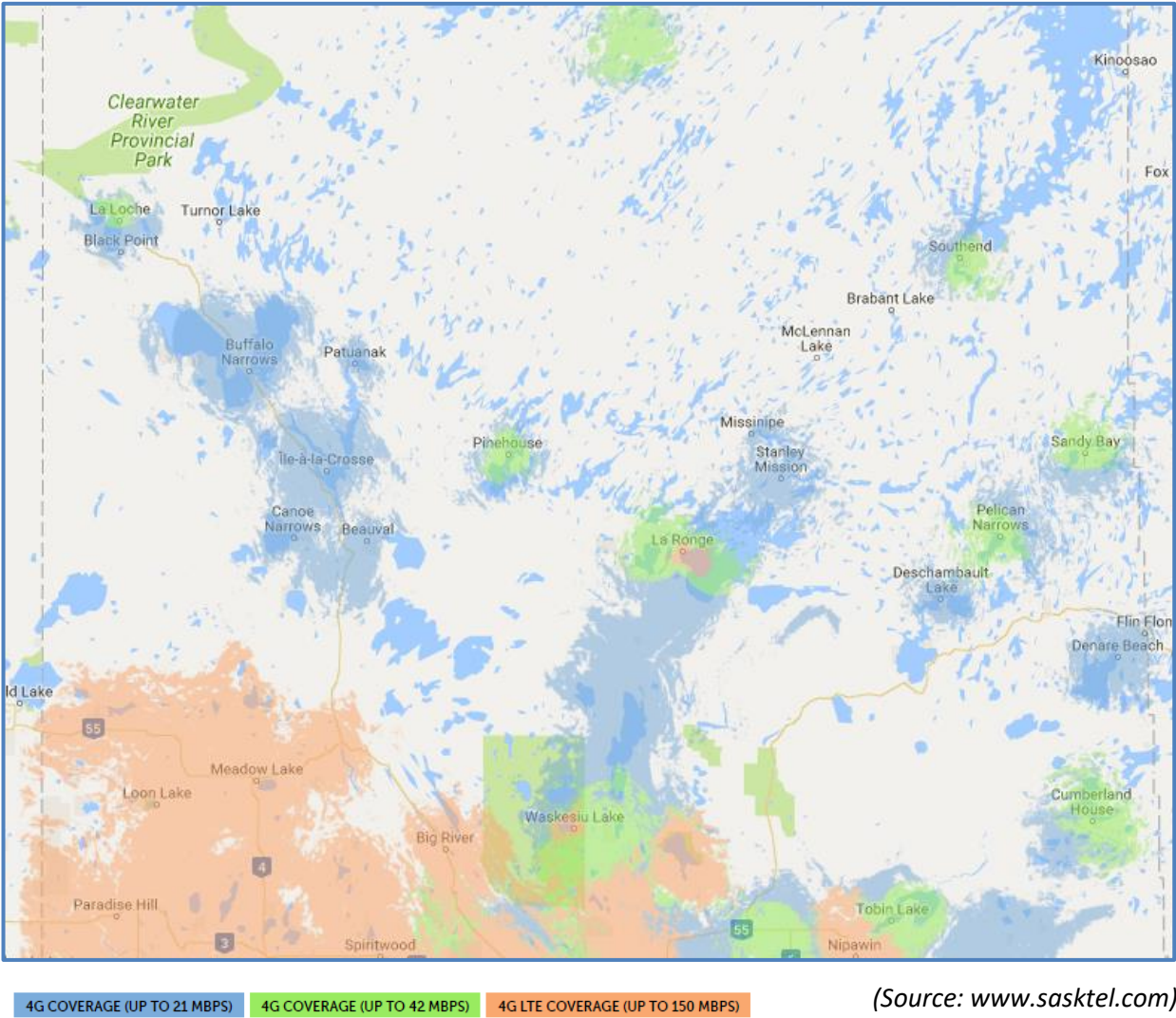
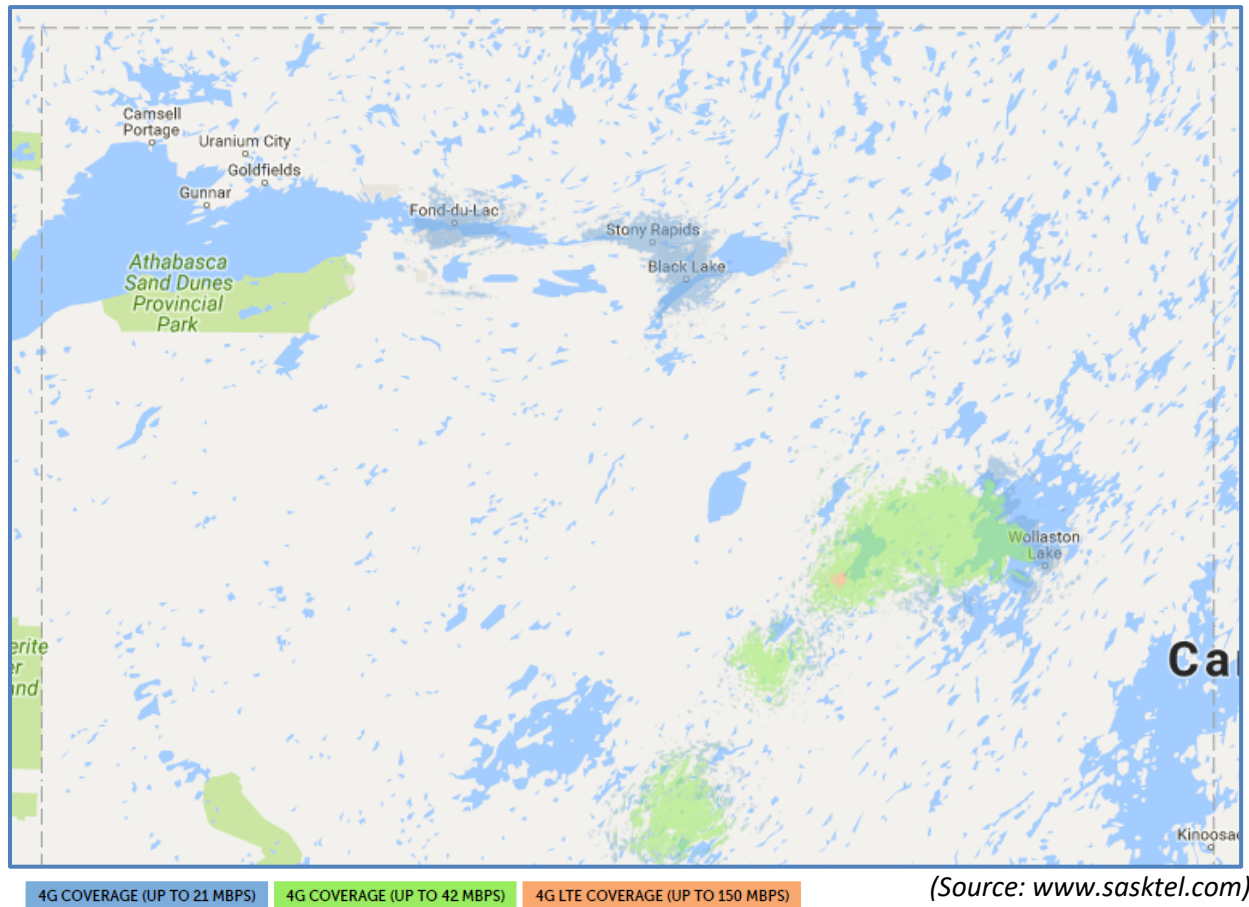| 4G COVERAGE (UP TO 21 MBPS) | 4G COVERAGE (UP TO 42 MBPS) | 4G LTE COVERAGE (UP TO 150 MBPS) |

(Source: www.sasktel.com)

SaskTel Disclaimer: *"The coverage areas shown are approximate. SaskTel cannot guarantee that coverage will be exactly as shown since factors beyond our control also affect coverage. These include weather conditions, terrain, your distance from a cell tower, and whether the cell is being used indoors or outdoors. Coverage is as of September 30, 2016".*

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Figure 7. **Wireless Data Coverage in (Upper) Northern Saskatchewan***

(Source: www.sasktel.com)

| 4G COVERAGE (UP TO 21 MBPS) | 4G COVERAGE (UP TO 42 MBPS) | 4G LTE COVERAGE (UP TO 150 MBPS) |

SaskTel Disclaimer: "*The coverage areas shown are approximate. SaskTel cannot guarantee that coverage will be exactly as shown since factors beyond our control also affect coverage. These include weather conditions, terrain, your distance from a cell tower, and whether the cell is being used indoors or outdoors. Coverage is as of September 30, 2016*".

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APPENDICES

As per our discussion, the Centre for Forensic Behavioural Science and Justice Studies, on behalf of Community Safety Knowledge Alliance, has received funding to complete a pilot-ready research and consultation initiative that explores the opportunity to expand collaborative risk-driven intervention to rural and remote communities through the use of information and communication technology. We would appreciate your participation in this consultation process. If you decide to participate, your participation is voluntary, and in no way, will we attribute your comments directly to your organization or you as an individual. Rather, your feedback will be rolled up with other dialogue I receive from other participants.

A. Questions for ICT Stakeholders

When attempting to plan a multi-sector collaborative initiative that involves multiple partners in rural and remote settings…

1) What should we be thinking about?
2) What questions should we ask?
3) What barriers should we expect to encounter?
4) What ingredients are necessary for successful implementation of ICT?
5) What key factors should be considered in determining a suitable technology format?
6) What formats do you feel are most appropriate?
7) What ICT innovation could be developed to best fit this application?

B. Questions for Hub Practitioners

Concerning the value of information and communication technology in human services delivery…

1) How can Hub be adapted to overcome geographic and resource barriers of remote communities?
2) What do you feel are the key ingredients for Hub to work in a technological environment?
3) What are foreseen challenges of adapting Hub Model to fit the needs of rural/remote communities?
4) What do you feel the benefits of such an approach would be?
5) What options for collaborative risk-driven intervention are available to communities with only one service provider?

C. Questions for Adapters of Other Models

When adapting a human service model or social project in rural and remote communities…

1) What are the key questions planners should answer?
2) What are some of the key challenges?
3) What are the key ingredients for success?
4) What are some of the key lessons learned by other adopters of existing models or projects?
5) Are there any conditions or circumstances specific to SK that are important to note?
6) Can you speak to any examples of how geographic or resource barriers were overcome through ICT?
7) What are some traits of communities that would make for a good pilot site?

D. Questions for Human Service Providers

1) What are your initial thoughts on the concept of multiple human service professionals converging remotely over the need of a single client located in a rural/remote community?
2) What do you feel some of the main benefits of this approach are?
3) What do you feel would be some key ingredients in such an approach?
4) What do you foresee as major challenges or risks with this approach?
5) Would you be comfortable providing professional services to rural/remote clients in a technological environment?
6) What do you feel would be the most optimal configuration for human service providers from multiple sectors to use technology as a tool in collaborating to address the composite risks of clients?

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Dr. Chad Nilson is Inaugural Research Fellow and Community-Engaged Scholar at the University of Saskatchewan's Centre for Forensic Behavioural Science and Justice Studies. In that role, he serves as a community-based researcher, community developer and evaluator. Chad is a long-time advisor to various organizations and government agencies in municipal, provincial, federal, and Aboriginal jurisdictions. Over the years, he has provided support in the areas of criminal justice, public health, education, homelessness, addictions, social work, and harm reduction.
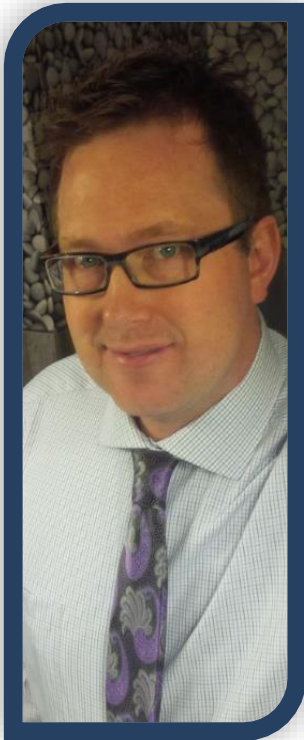
Chad is known as one of the leading experts in community safety and well-being. In fact, Chad was the first evaluator in Canada to be immersed in the original *Hub Model of Collaborative Risk-Driven Intervention* (Prince Albert, SK). In this capacity, he shaped much of the conceptualization, discipline and language now used in implementation of the Hub Model. In addition, he led the development of a *Hub Database* and *Hub Participant/Chair Guides* that are now used in over 60 Hub Tables across Canada.

Particular to rural and remote communities, Chad has spent many years helping isolated communities build capacity for service improvement, outcome measurement, and both growth and sustainability. He has built a reputation around helping communities construct innovations that are ideal for their own people, customs and traditions. For example, he helped Muskoday become the first community in Canada to bridge the conventional Hub Model with an enhancement of Multi-Sector Coordinated Support. Similarly, Chad was the key architect in mapping a framework for existing community safety initiatives to integrate with the emerging Hub Model in the city of Ottawa.

As Vice-President of Global Network for Community Safety, and as the primary investigator at the Living Skies Centre for Social Inquiry, Chad has been invited to lead and mentor the measurement and development of community safety and well-being in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Prince Edward Island.

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