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Canada's First National Interoperability Baseline Assessment: CPRC 91052 Project Study

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IDC
Analyze the Future

SURVEY

Canada's First National Interoperability Baseline Assessment
CPRC Project 91052

EXECUTIVE SUMMARY

The purpose of this study was to determine the current and future state of emergency communications interoperability in Canada relative to the Canadian Communications Interoperability Continuum. Key findings include:

Familiarity with the Communication Interoperability Continuum is quite high overall (75%); it should be noted that these results may have been driven higher by the recruitment of CITIG members and event participants. While familiarity with the Continuum is high, familiarity with the Canadian Interoperability Strategy is comparatively low. Almost half of all respondents asked were not familiar with the Communication Interoperability Strategy for Canada.

First Responders believe that the current level of communication interoperability needs to be improved, particularly to respond to complex and disaster / large scale emergencies. Overall, respondents assessed their current level of interoperability as moderate. Moreover, First Responders strongly believe that improvements to emergency communication capabilities would both reduce risk to communities and agencies, and improve public opinions regarding safety.

Significant gaps exist between current and ideal levels of interoperable Governance, SOPs, Technology, Training and Usage. The largest improvements are in the area of Technology (data and voice) and SOPs. Counter to the individual stream gap analysis, respondents universally pointed to Governance as the area that should be focused on.

Challenges did not vary greatly by continuum stream. Funding and resources constraints as well as leadership are the most significant obstacles to improve interoperability. Unsurprisingly, resources required to significantly improve interoperability relate to Funding, People, Time and Leadership.

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IN THIS STUDY

Methodology

This study was based on a web survey of 105 Canadian first responders and emergency management stakeholders, conducted from November to December 2011.

All organizations had a vested interest in public safety and respondents who were knowledgeable about their organization's level of communication interoperability

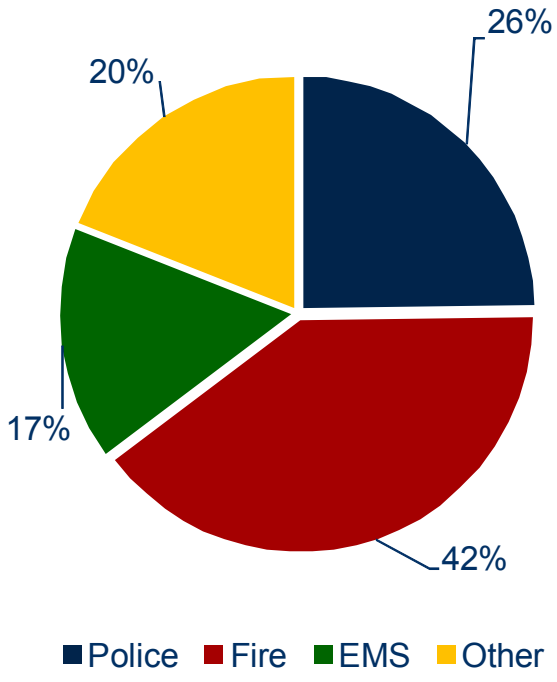
Demographics

- Police and Fire accounted for 68% of respondents.
- 'Other' agencies include: municipal, regional, provincial and federal agencies as well as emergency management and first nations.
- 46% of respondents were from Ontario, 35% from the West & North and 19% from the East (QC & Atlantic).

FIGURE 1

Demographics

Please specify your agency or organization type (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

SITUATION OVERVIEW

The purpose of this study was to determine the current and future state of emergency communications interoperability in Canada relative to the Canadian Communications Interoperability Continuum, seeking to:

- Clearly articulate the current level of Canadian interoperability across each of the 5 Continuum streams by region and first responder group
- Identify differences and similarities across regions and organizations
- Provide a baseline so that progress over time can be assessed
- Identify priority areas
- Identify areas in need of future research

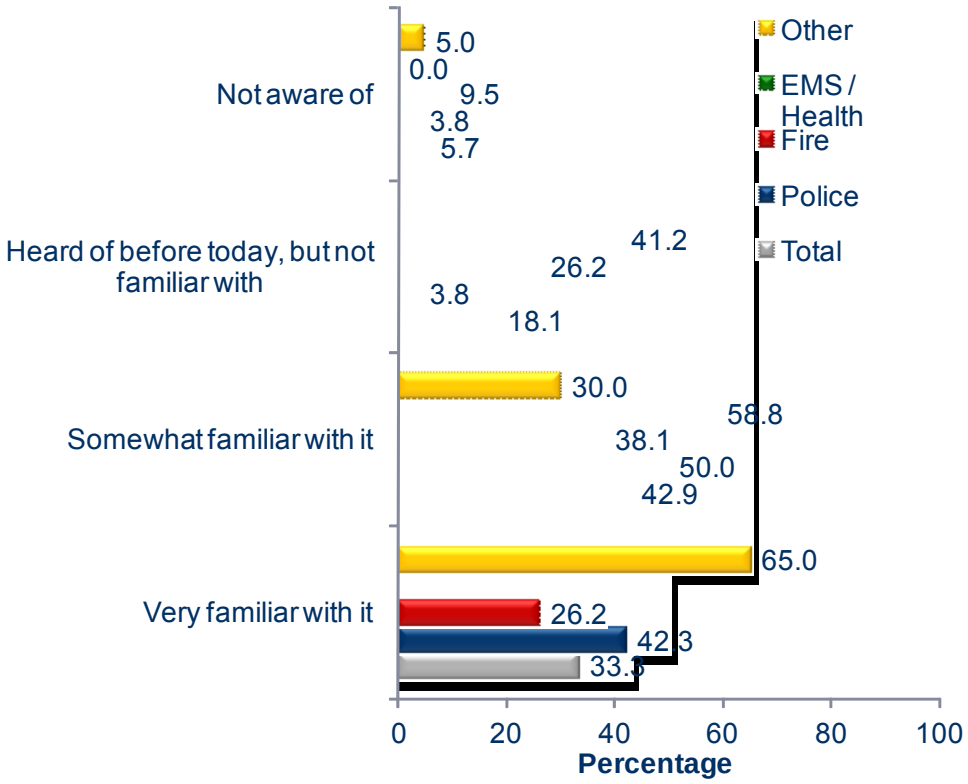
The results will be used to identify priority areas for improvement and also as baseline data against which future progress will be measured.

As mentioned earlier, 75% of respondents were familiar with the Continuum. However, given that many respondents are from Ontario and the study was promoted to CITIG members and attendees, this may be an overstatement of the pan-Canadian level of familiarity. EMS / Health respondents were the least familiar with the continuum. Conversely, almost half of all respondents asked were not familiar with the Communication Interoperability Strategy for Canada.

FIGURE 2

Continuum Familiarity

How familiar are you with the Canadian Communications Interoperability Continuum? (N=105)

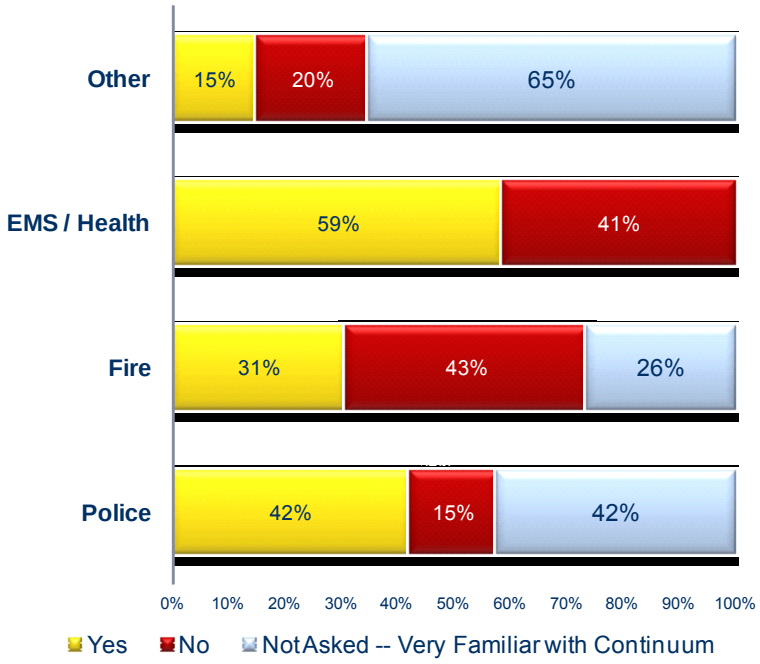


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 3

Strategy Familiarity

Are you aware of the Communication Interoperability Strategy for Canada? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

Current and Ideal Levels of Communication Interoperability

Fire, EMS / Health and other organizations feel that the current state of emergency communication interoperability doesn't prepare them adequately for broad-scale emergencies; only Police feel that the current state of communication interoperability adequately prepares them for routine hazards and emergencies.

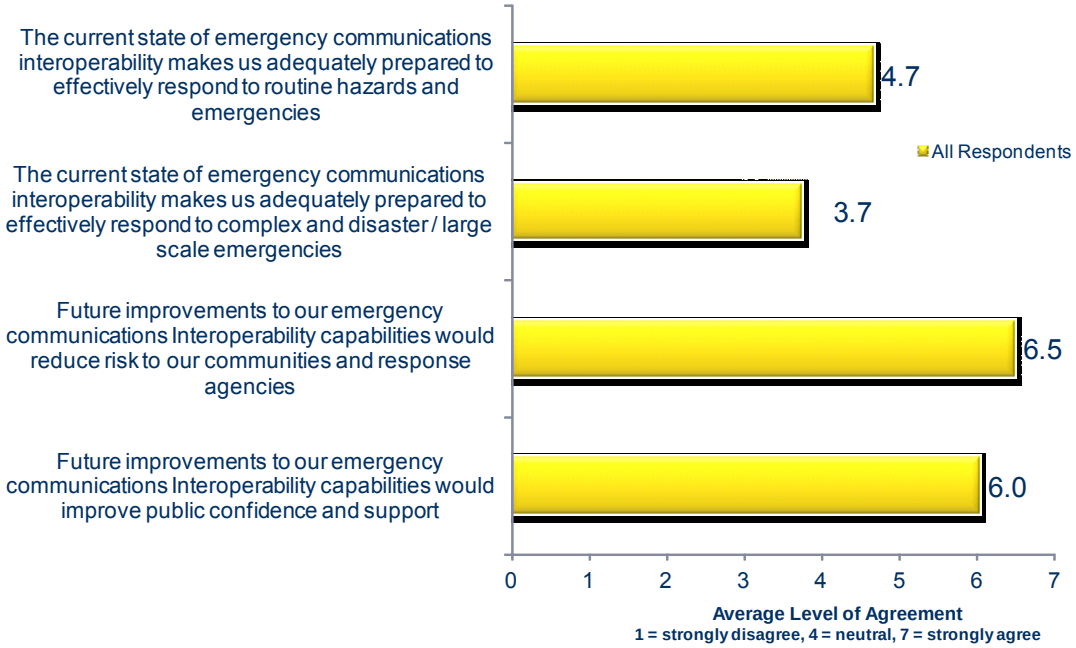
All First Responders – emergency service personnel who respond to emergencies or large scale disasters - that strongly believe that improvements to emergency communication capabilities would both reduce risk to communities and agencies, and improve public opinions regarding safety. Respondents self assess their current level of interoperability with First Responders as 'medium' (3 – 5 on a scale of 7 points).

Police report higher levels of interoperability than other First Responders; almost 60% of EMS organizations surveyed rated their current interoperability levels as low (1-3 on a scale of 7 points).

FIGURE 4

Current State Preparedness

Please indicate your level of agreement with the following statements about communications interoperability (N varies)

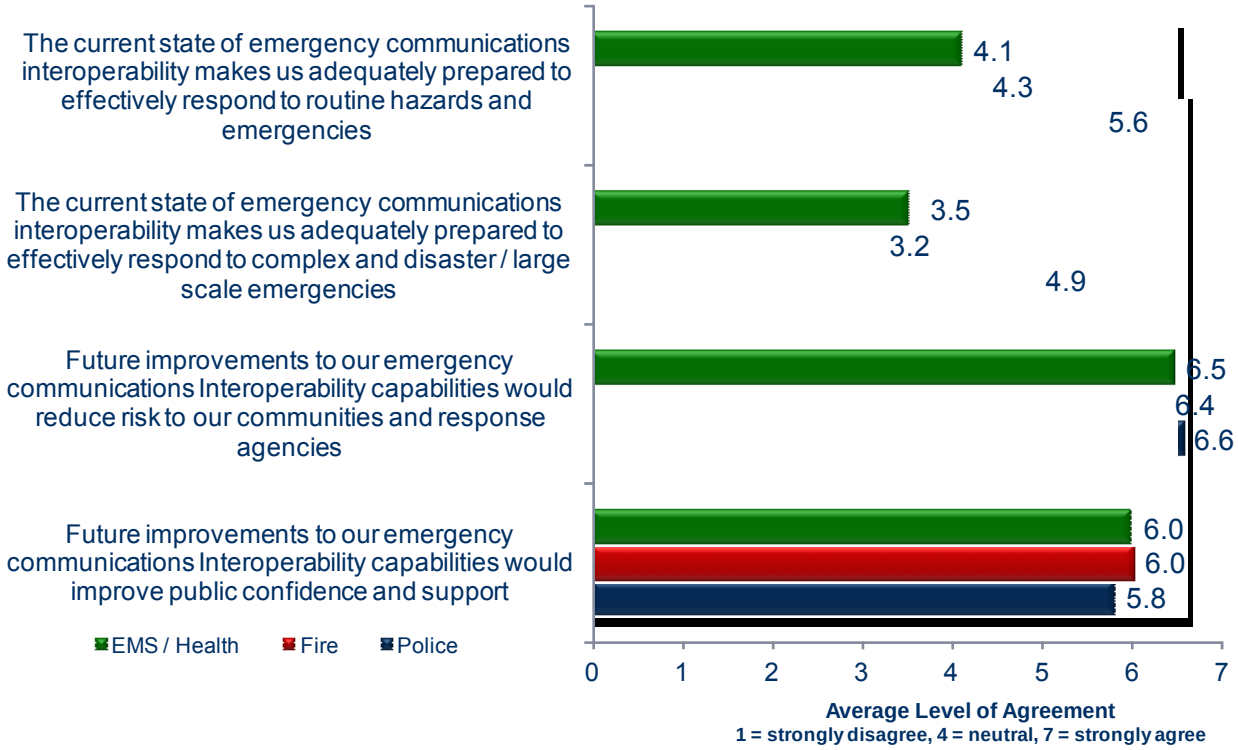


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 5

Current State Interoperability – by First Responder Group

Please indicate your level of agreement with the following statements about communications interoperability (N=105)

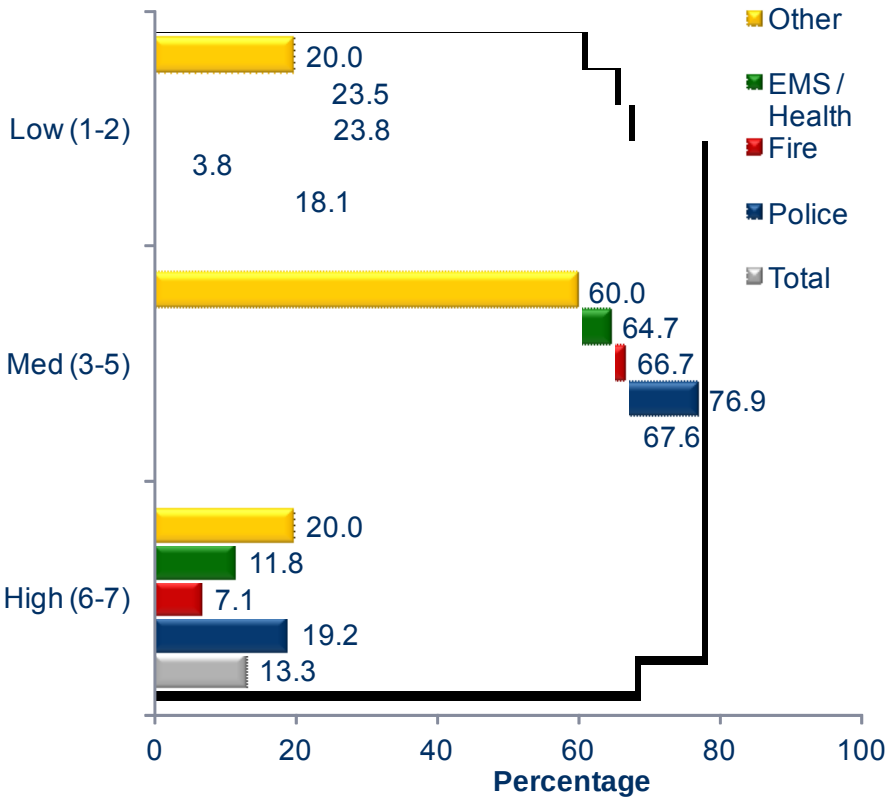


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 6

Current level of Interoperability with other First Responders

Overall, how would you rate your organization's current level of communications interoperability with the following stakeholders? (N=105)

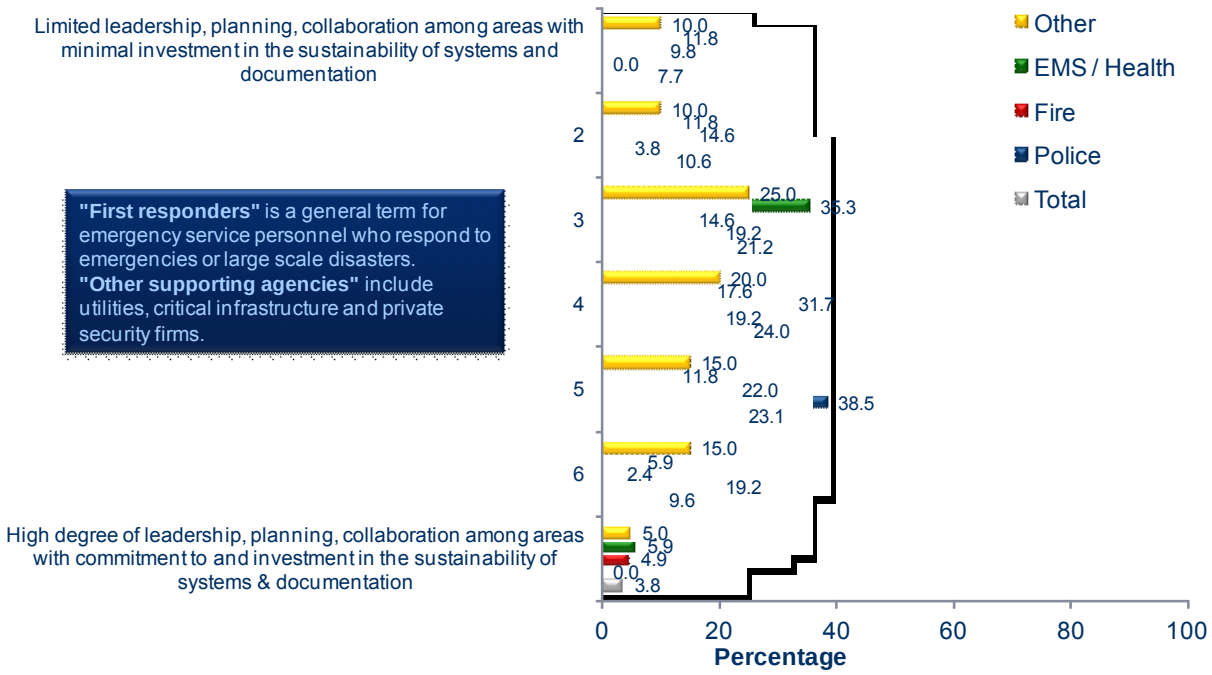


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 7

Interoperability with First Responders

Overall, how would you rate your organization's current level of communications interoperability with the following stakeholders? (N=105)

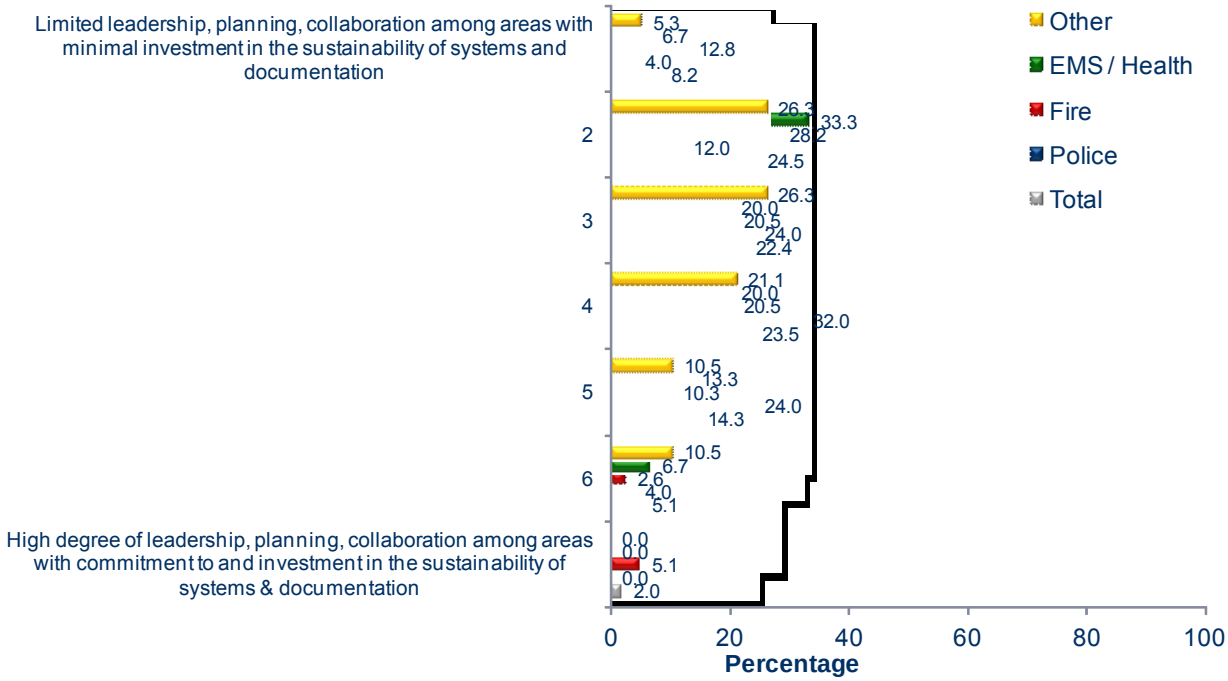


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 8

Interoperability with Supporting Agencies

Overall, how would you rate your organization's current level of communications interoperability with the following stakeholders? (N =98)

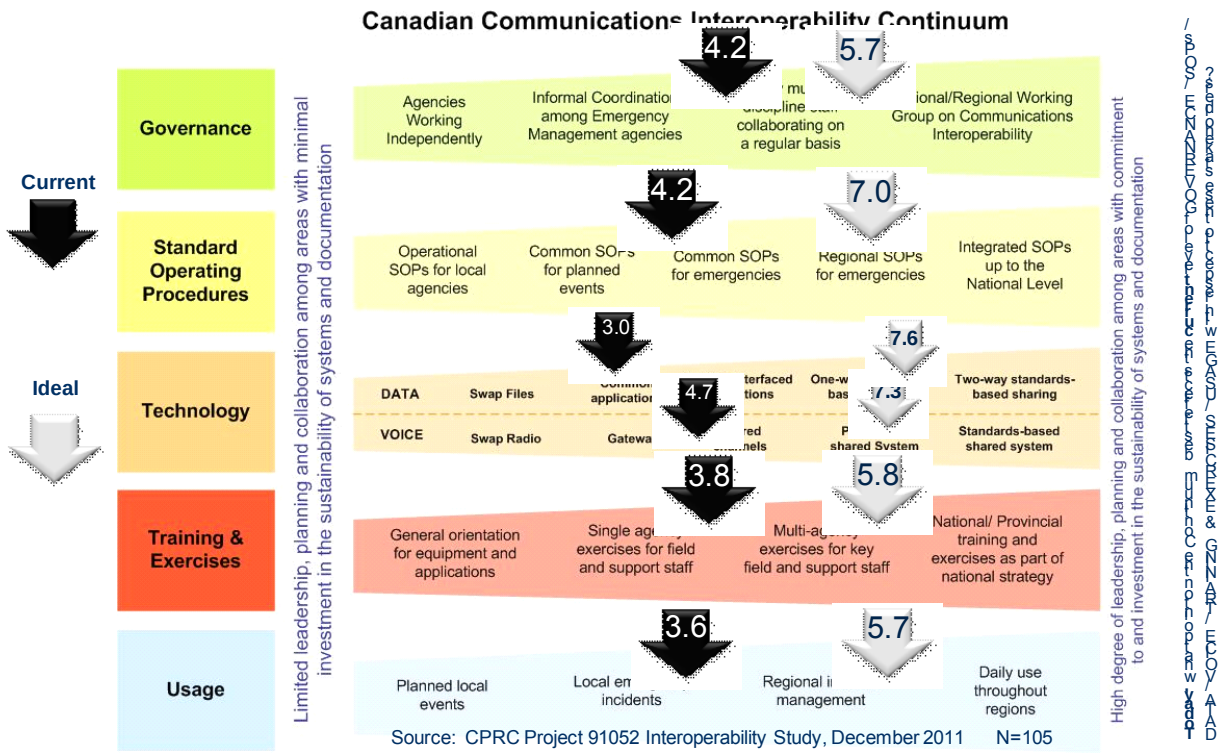


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 9

Continuum Gap with First Responders - Overall

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)

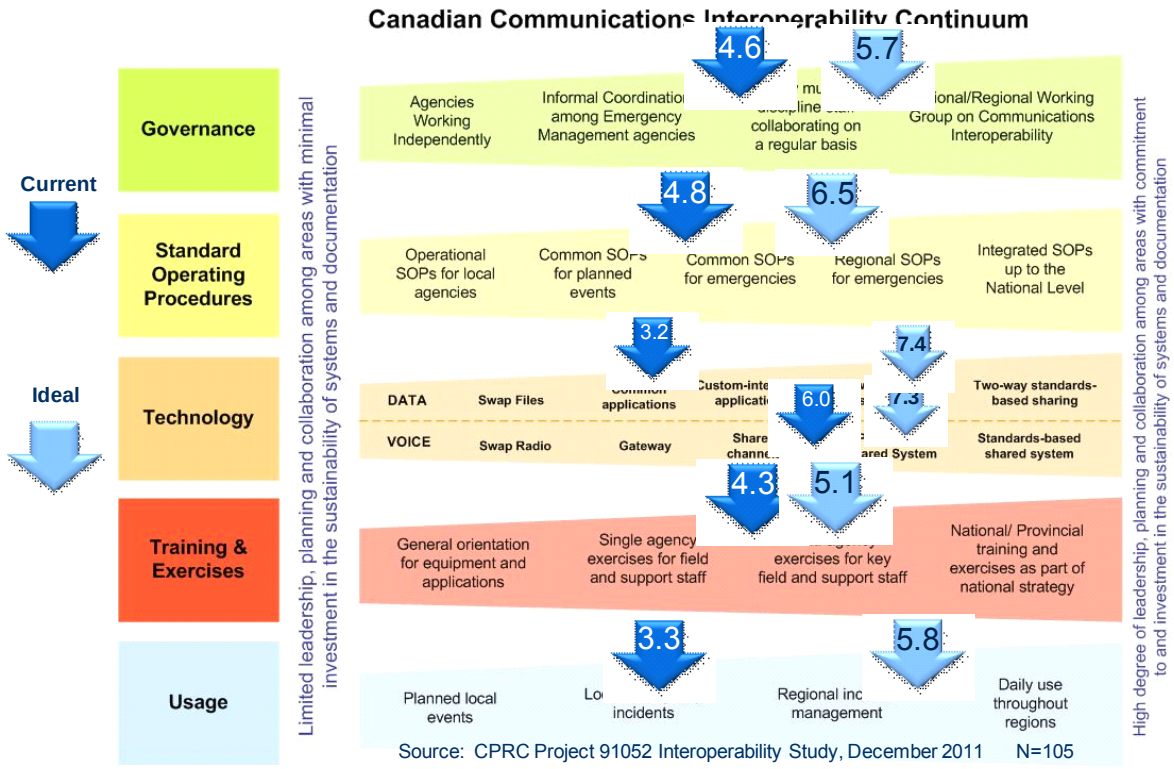


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 10

Continuum Gap with First Responders - Police

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)

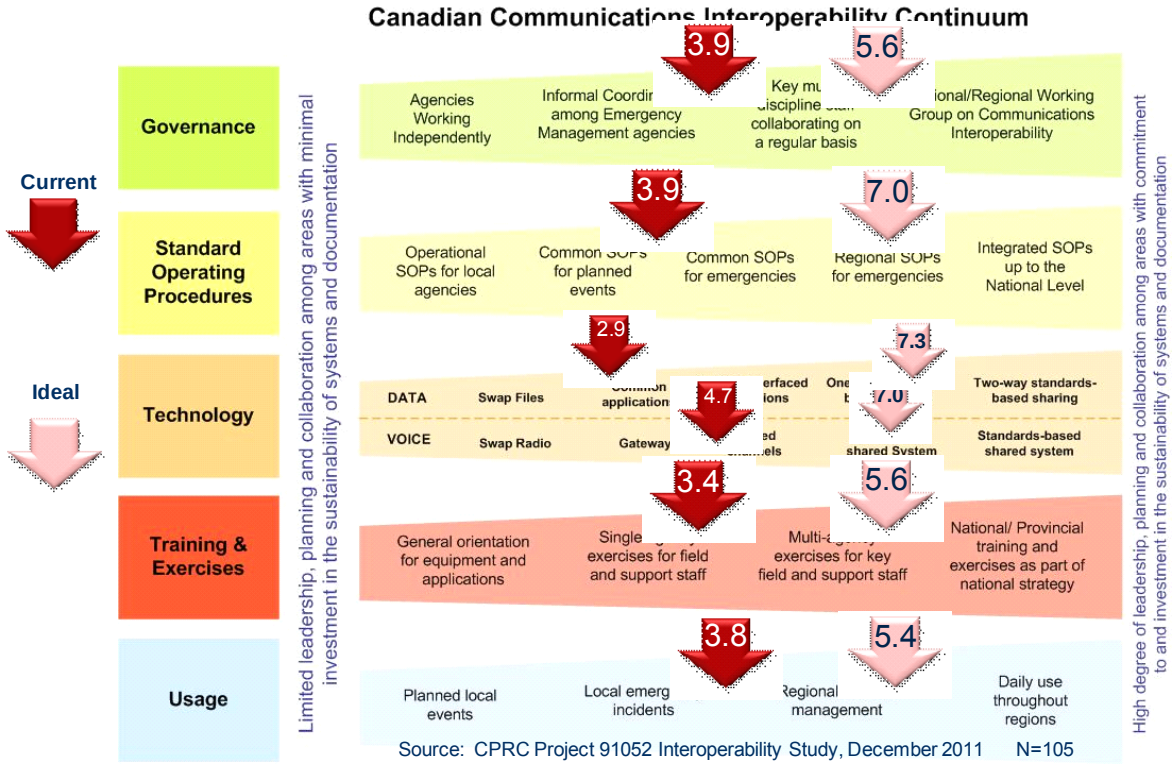


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 11

Continuum Gap with First Responders - Fire

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)

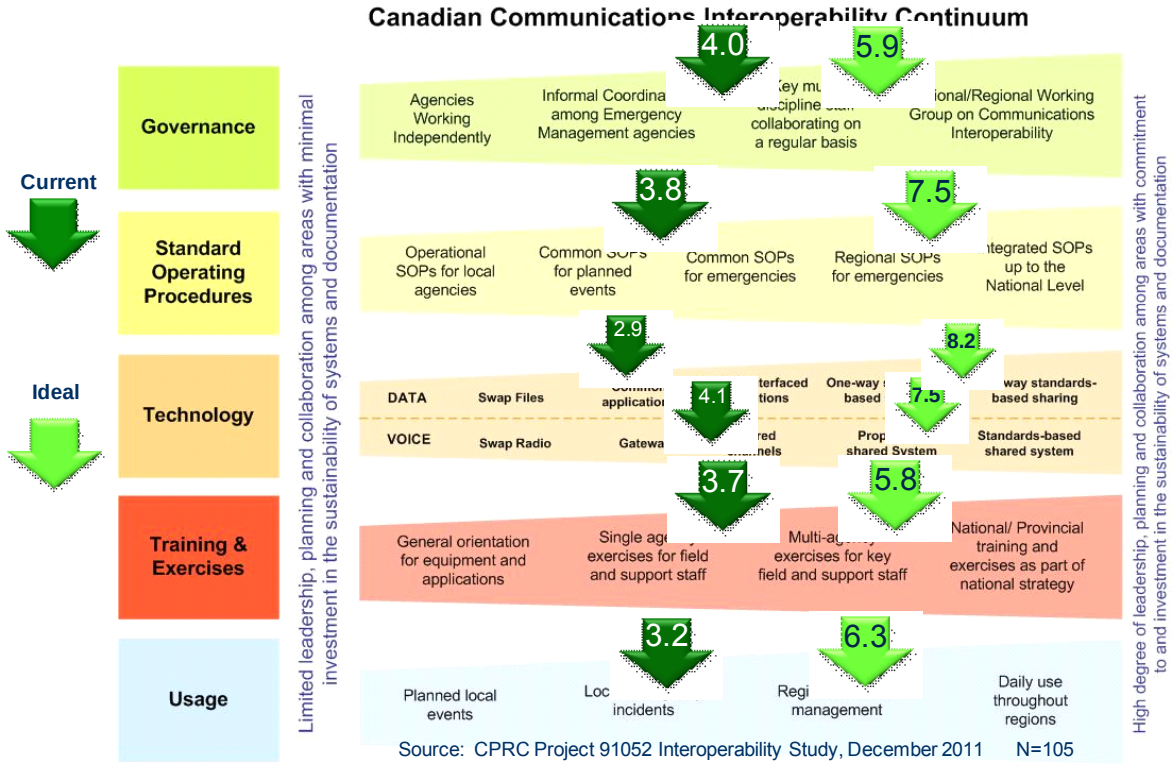


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 12

Continuum Gap with First Responders – EMS/Health

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE?(N=105)

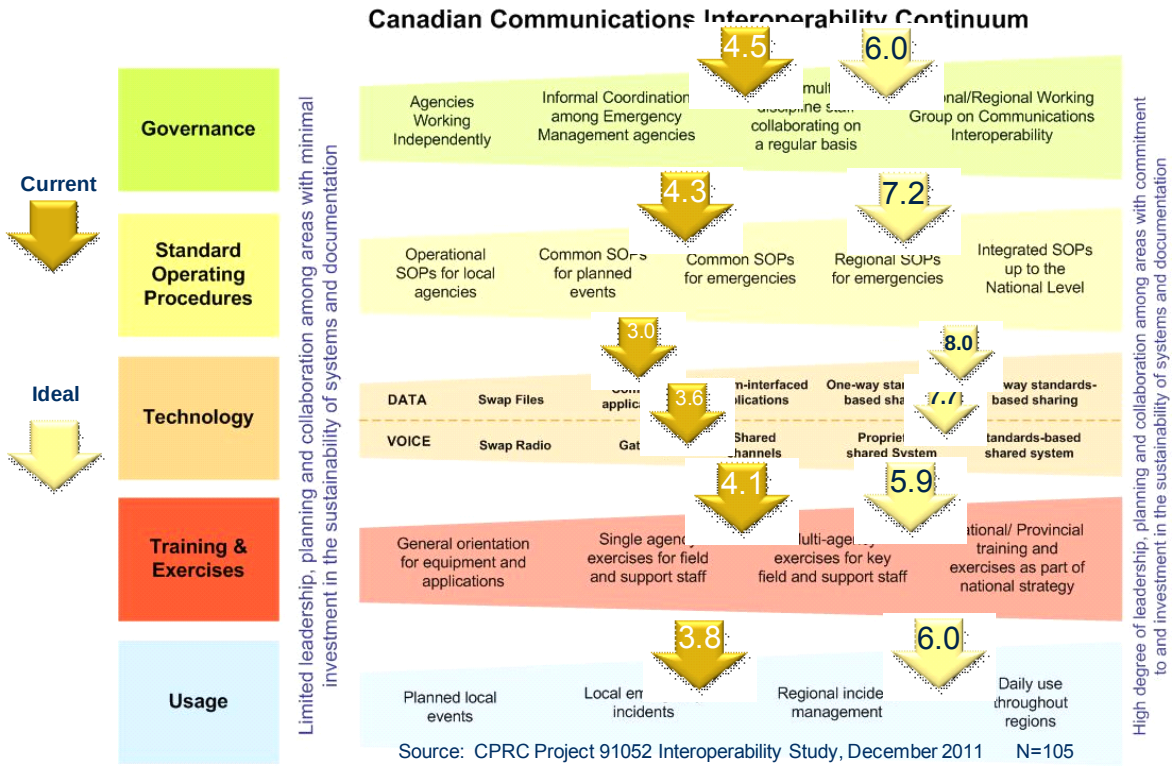


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 13

Continuum Gap with First Responders - Other

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)

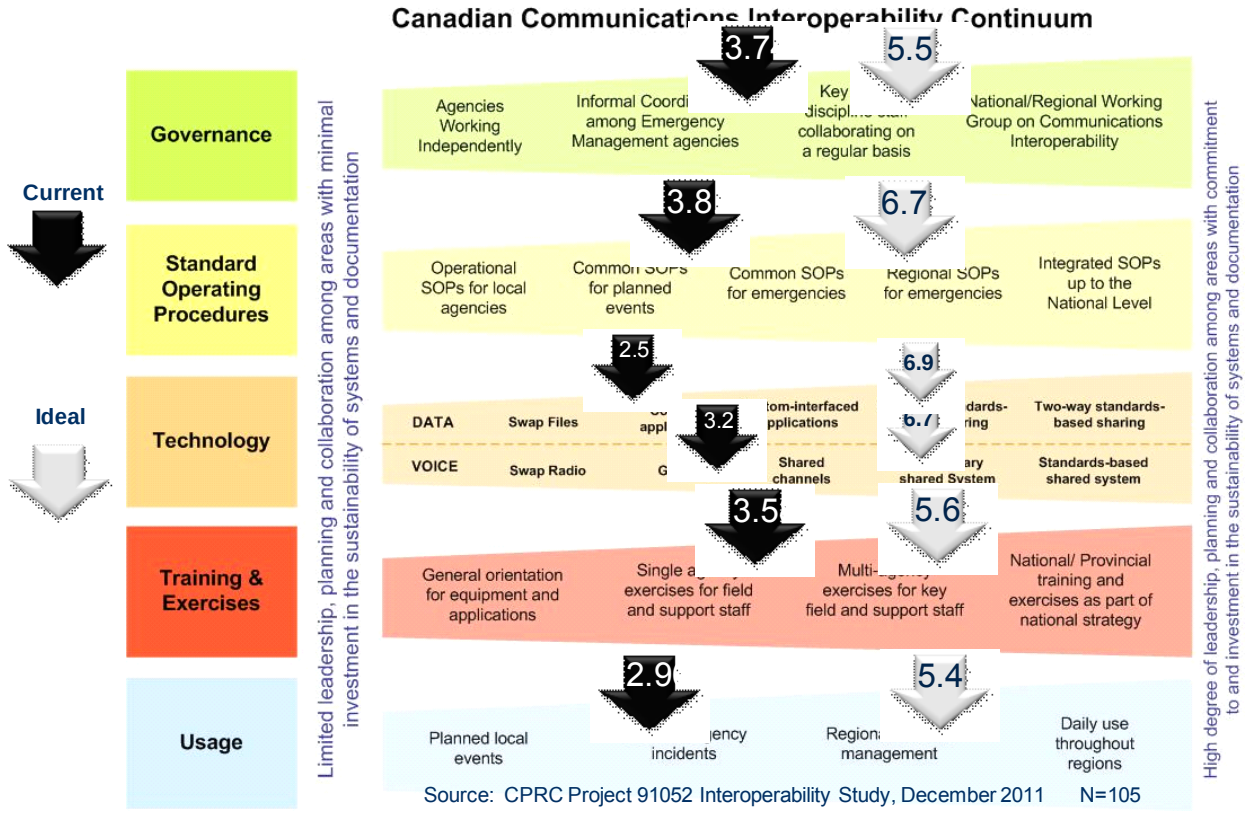


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 14

Continuum Gap with Supporting Agencies- Overall

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)

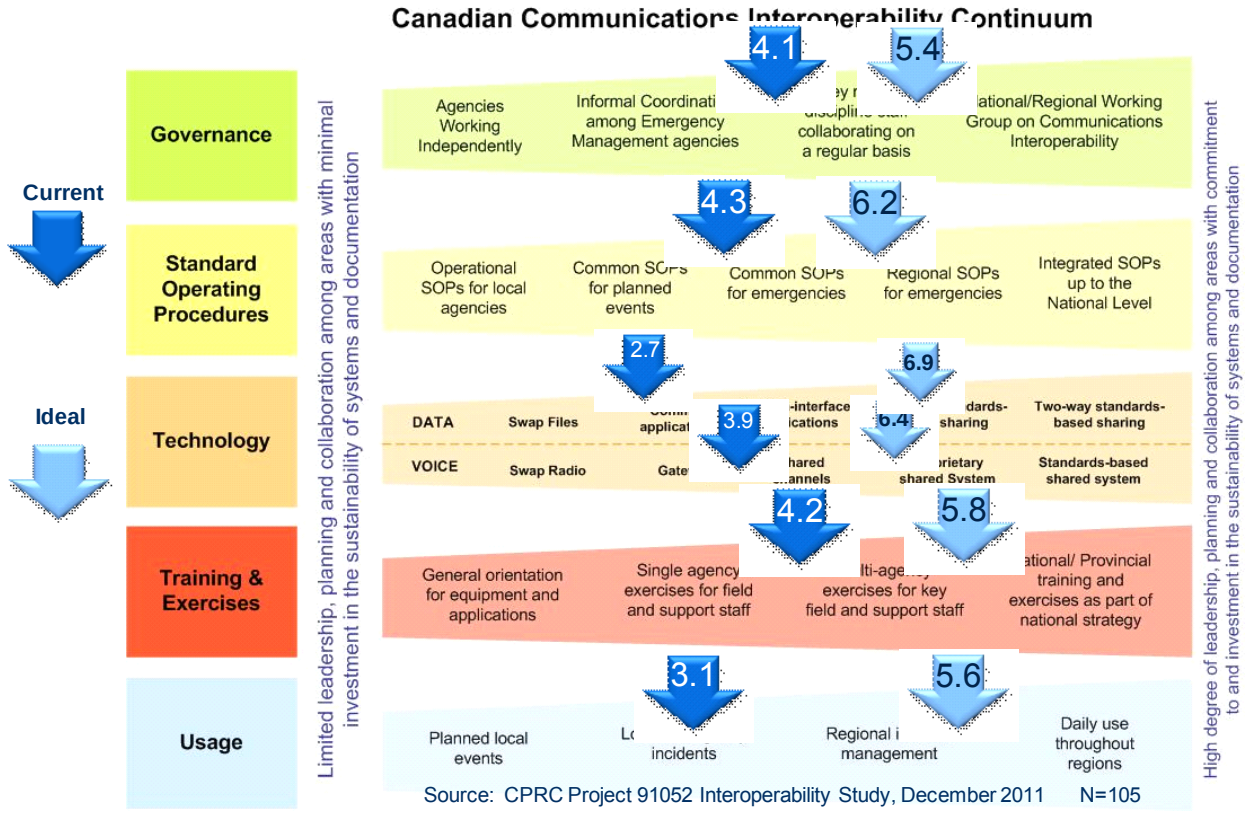


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 15

Continuum Gap with Supporting Agencies- Police

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE?(N=105)

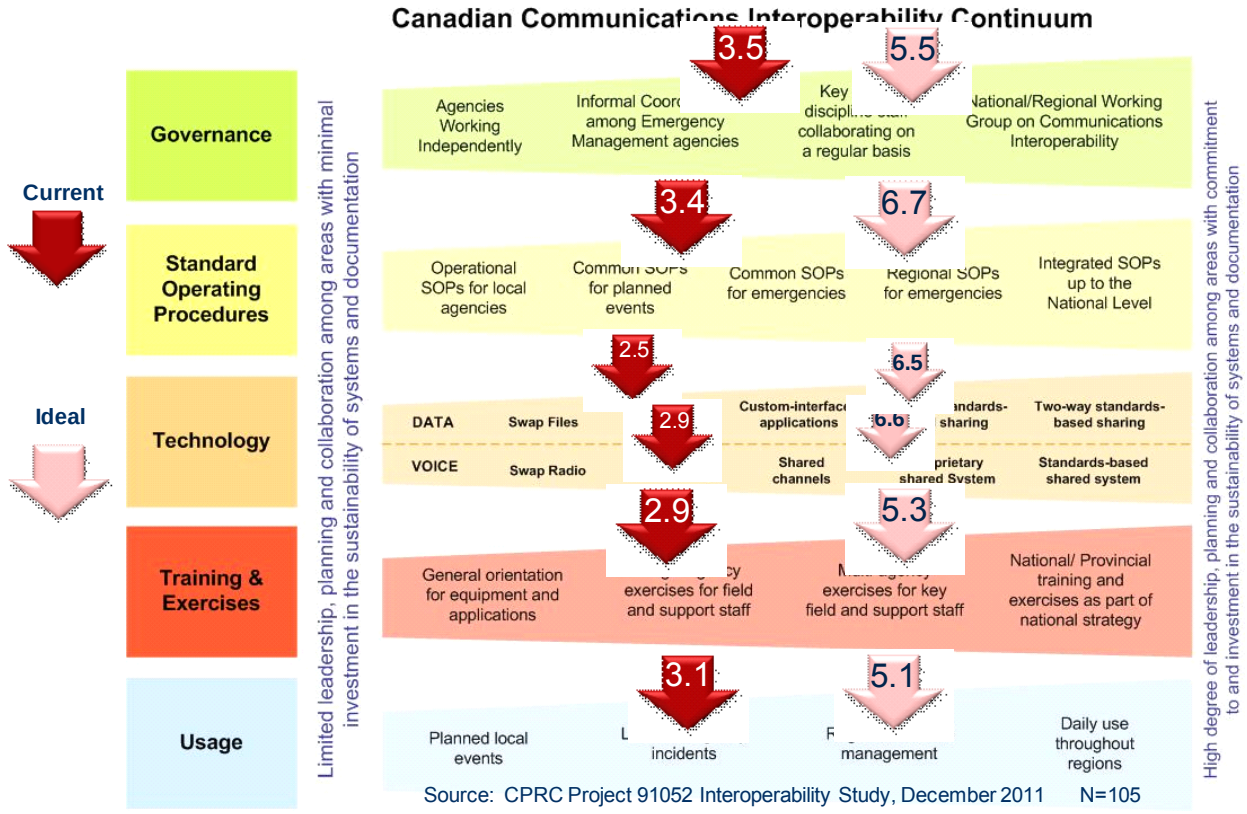


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 16

Continuum Gap with Supporting Agencies- Fire

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)

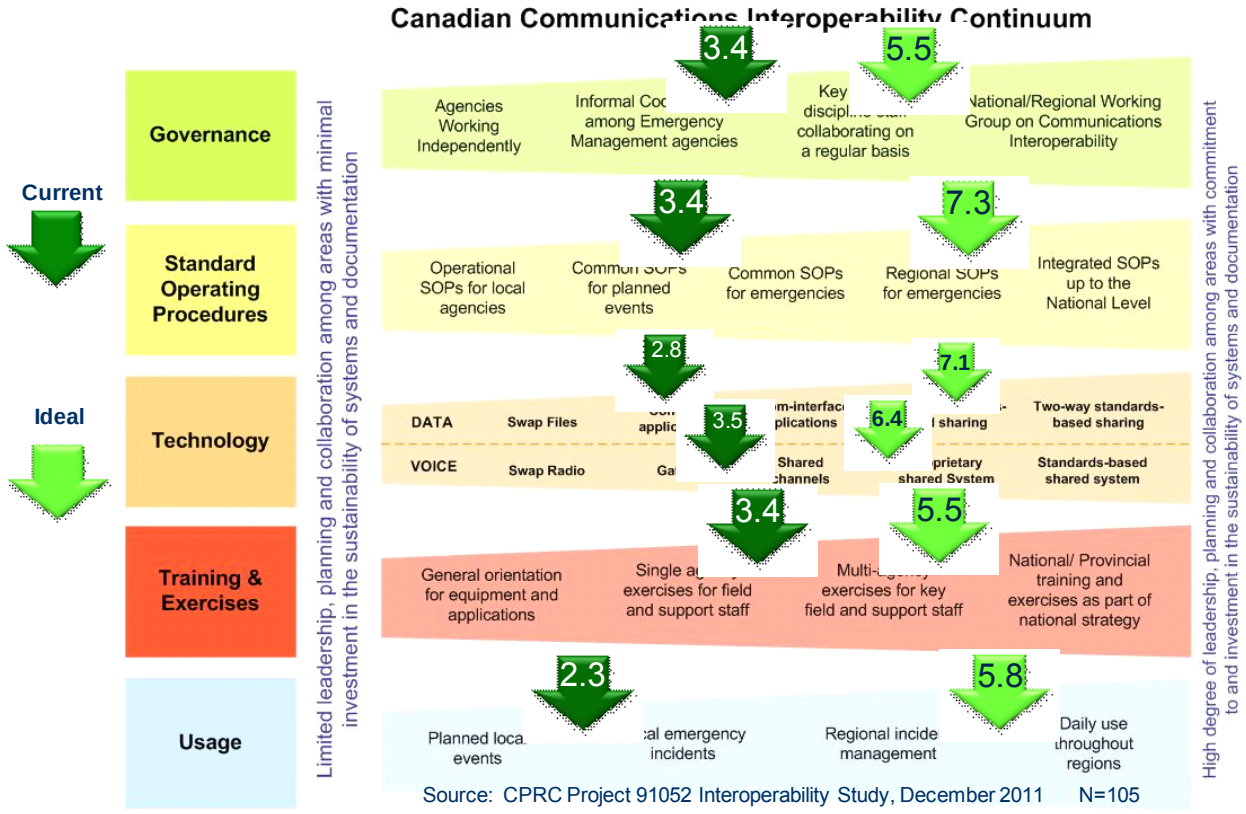


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 17

Continuum Gap with Supporting Agencies- EMS/Health

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)

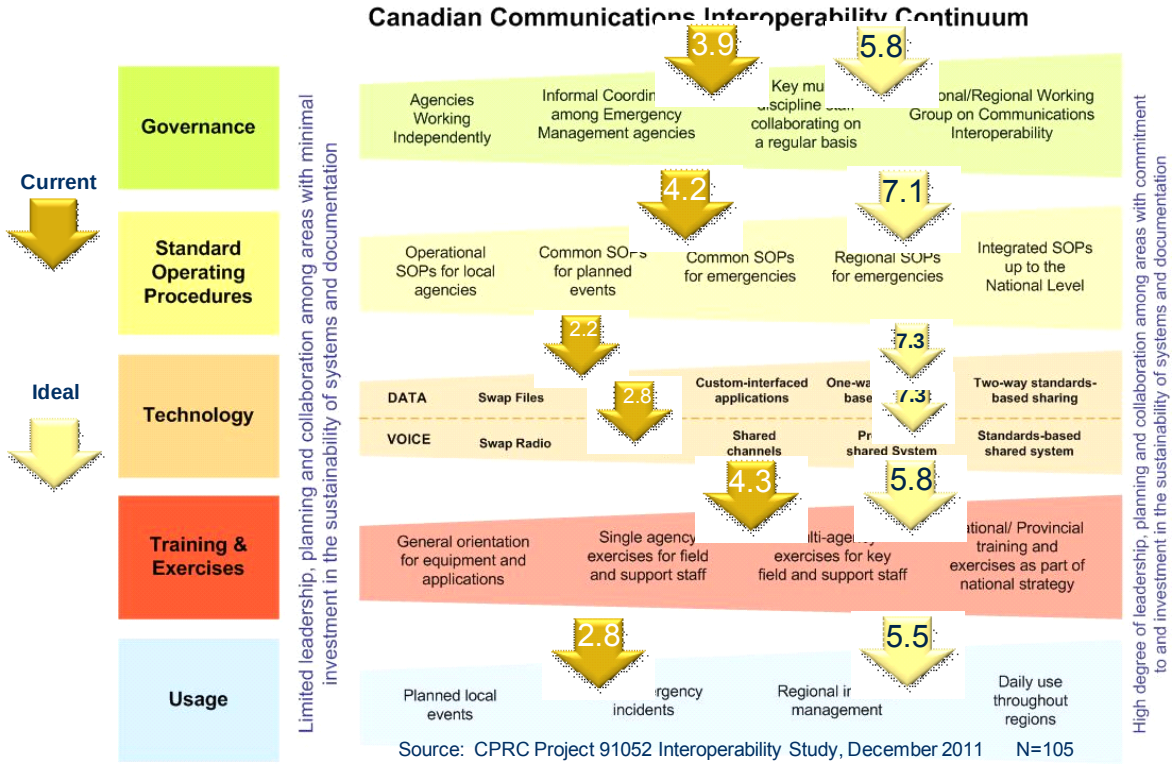


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 18

Continuum Gap with Supporting Agencies- Other

What point on the Continuum best reflects the current and future levels of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FUTURE OUTLOOK

Communication Interoperability Gaps and Priorities

Communication interoperability improvements are required for every stream of the continuum, province and organizational type; however it is not the case that everyone is trying to achieve the highest level of interoperability.

For all First Responder groups, the biggest gap between the current and ideal states is with regard to data interoperability; they seek to move from common applications to shared standards-based systems.

EMS and 'Other' organizations report the largest improvement necessary to achieve the ideal state; Police are closer to their ideal state than other first responders.

Interoperability levels (current and ideal) are slightly lower for supporting agencies than first responders – interoperability with first responders should be the priority followed by supporting agencies.

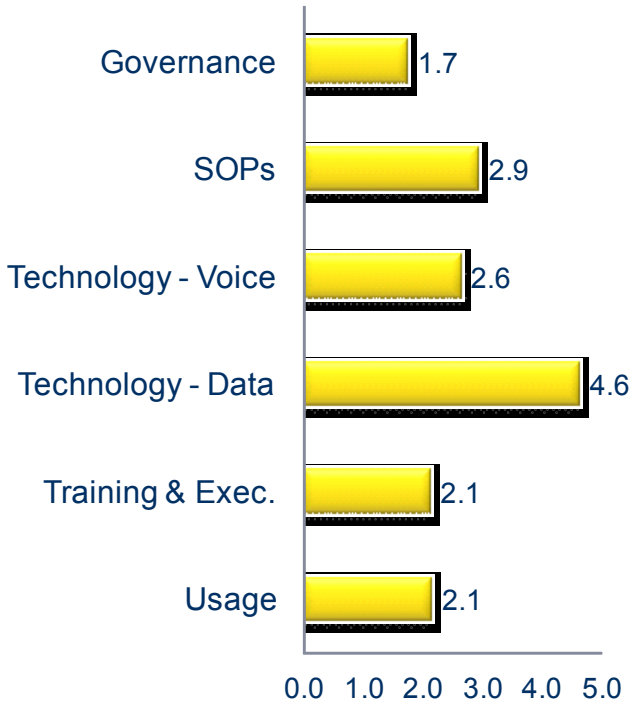
In contradiction to the gap analysis by continuum stream, two-thirds of all respondents cited Governance as the top priority area for improvement.

FIGURE 19

Gaps in Current and Future Interoperability – First Responders

Today, what point on the Continuum best reflects the current level of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE with respect to these stakeholders?

In the future, what would you consider the ideal level of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE to be with respect to each of these stakeholders? (N=105)



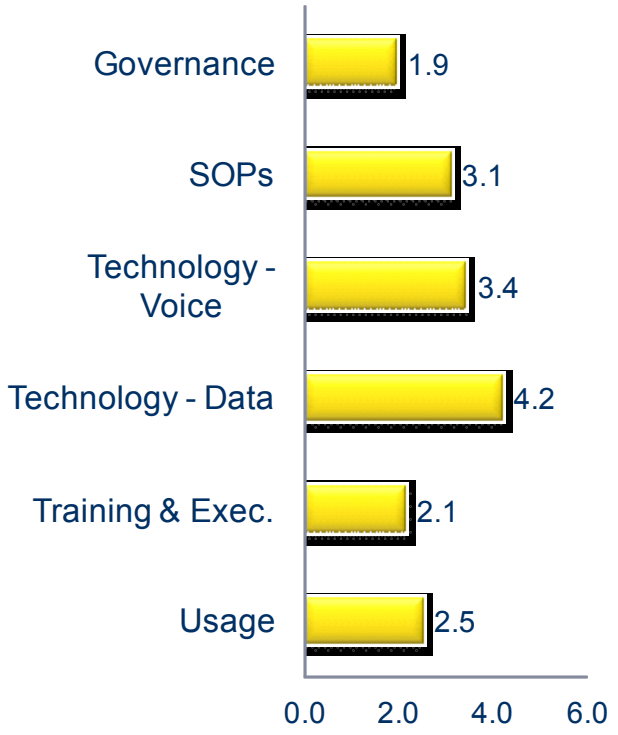
Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 20

Gaps in Current and Future Interoperability – Supporting Agencies

Today, what point on the Continuum best reflects the current level of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE with respect to these stakeholders?

In the future, what would you consider the ideal level of GOVERNANCE / SOPs / DATA / VOICE / TRAINING & EXERCISES / USAGE to be with respect to each of these stakeholders? (N=105)

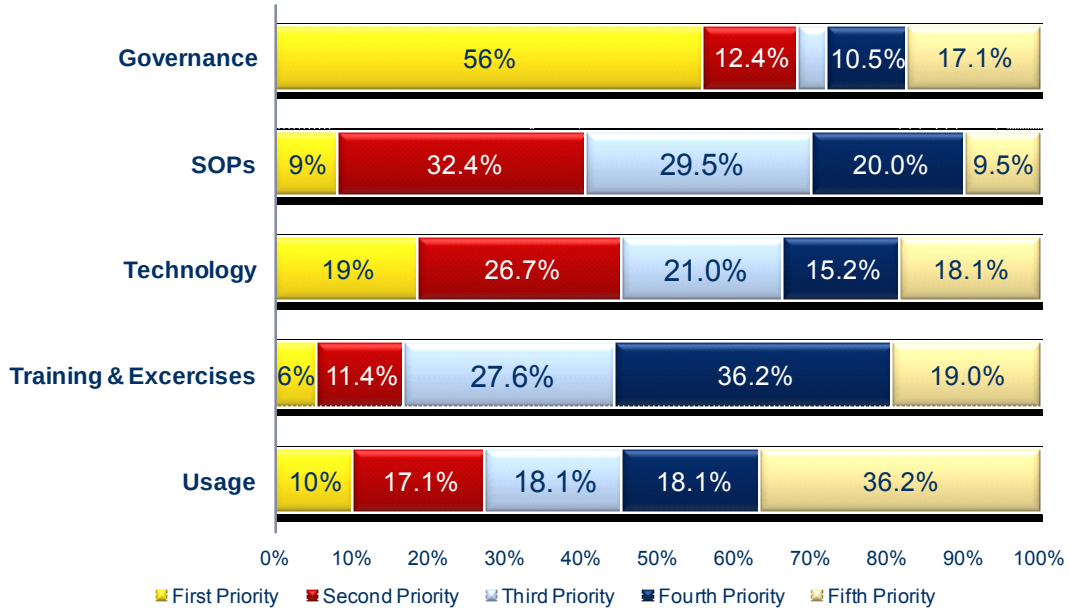


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 21

Priority Areas of Improvement

Which streams of the continuum need to be prioritized in order to improve first responder communications most efficiently? (N=105)

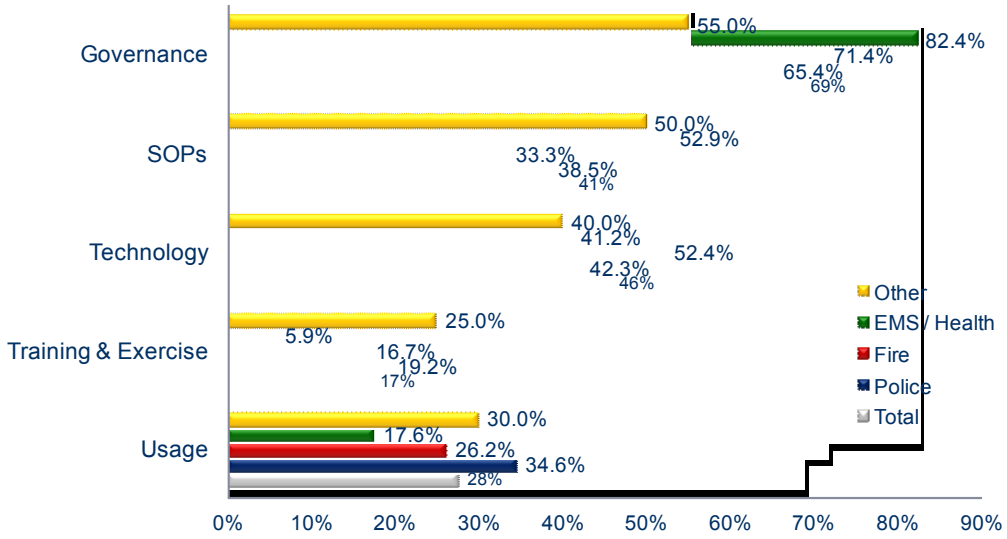


Source: IDC, 2012

FIGURE 22

Combined Percent of Respondents that Ranked the Stream as One of Top Two Focus Areas – By First Responder Type

Which streams of the continuum need to be prioritized in order to improve first responder communications most efficiently? (N=105)

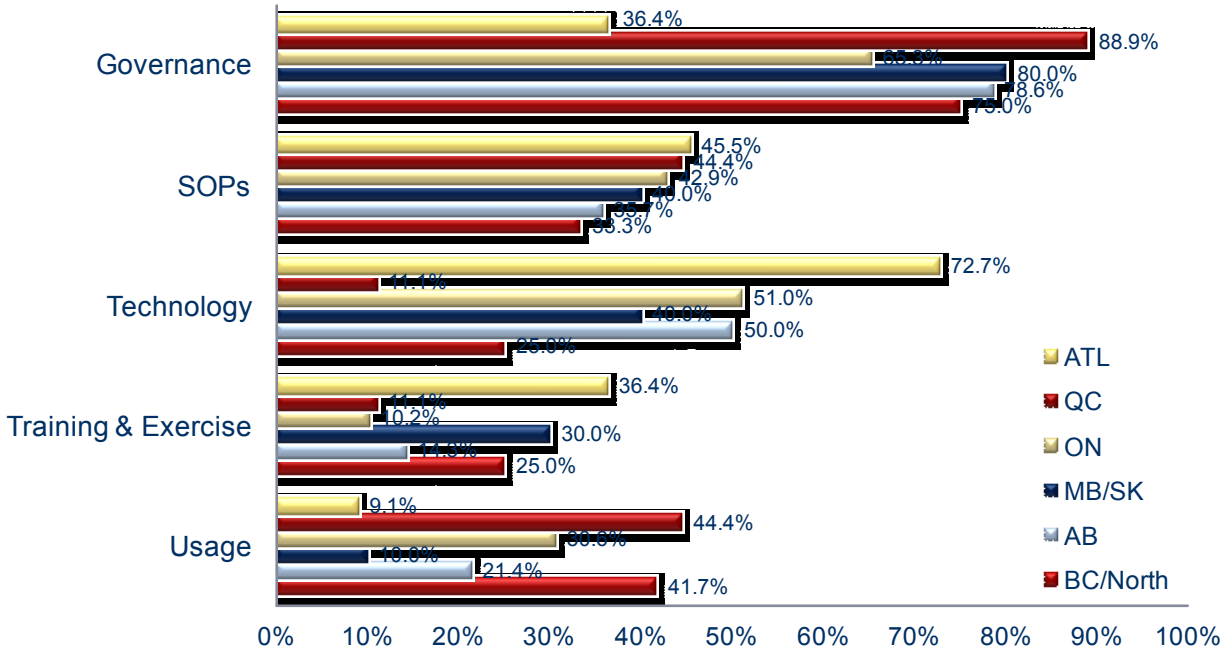


Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

FIGURE 23

Combined Percent of Respondents that Ranked the Stream as One of Top Two Focus Areas – By Region

Which streams of the continuum need to be prioritized in order to improve first responder communications most efficiently? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

Challenges and Resource Requirements

Challenges

Funding shortages and resource needs are perennial scarcity issues in public safety that are repeated as challenges for each stream of the Continuum. EMS sites a lack of willingness to coordinate as a more significant challenge than other organizations. Lack of provincial policy and legislation are noted as the biggest hurdles to improved governance.

Regarding Data, EMS and other organizations also identified lack of data equipment standards and consensus on equipment features and functions as significant challenges, whereas Fire and 'Other' organizations identified lack of knowledgeable resources to select and implement solutions. Training and Exercises are thwarted by time, staffing levels and willingness to participate.

Resource Requirements

Dedicated funding, resources and national standards are viewed as the items that would be most helpful for data interoperability

Standards and training are seen to be the most useful aids, in addition to funding and resources

Dedicated time to conduct exercises, access to expertise, and dedicated training materials are noted as the most important aids to improving training.

Governance Challenges

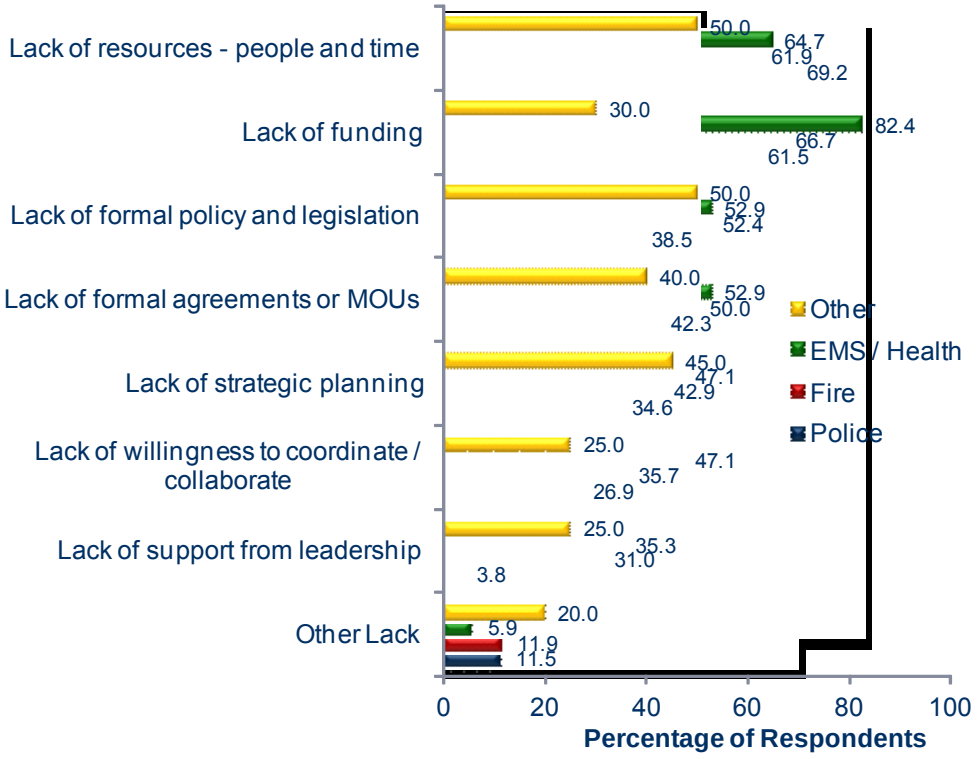
Funding and Resources are perennial scarcity issues in public safety that are repeated in each stream of our questions on the Continuum. Lack of funding is a particularly acute issue for Emergency Management. EMS sights a lack of willingness to coordinate as a more significant challenge than other organizations.

Lack of provincial policy and legislation are noted as the biggest hurdles (and most need help) to improved governance.

FIGURE 24

Top Interoperability Challenges - Governance

In your opinion, which of the following areas represent a MAJOR CHALLENGE to improving communication interoperability? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

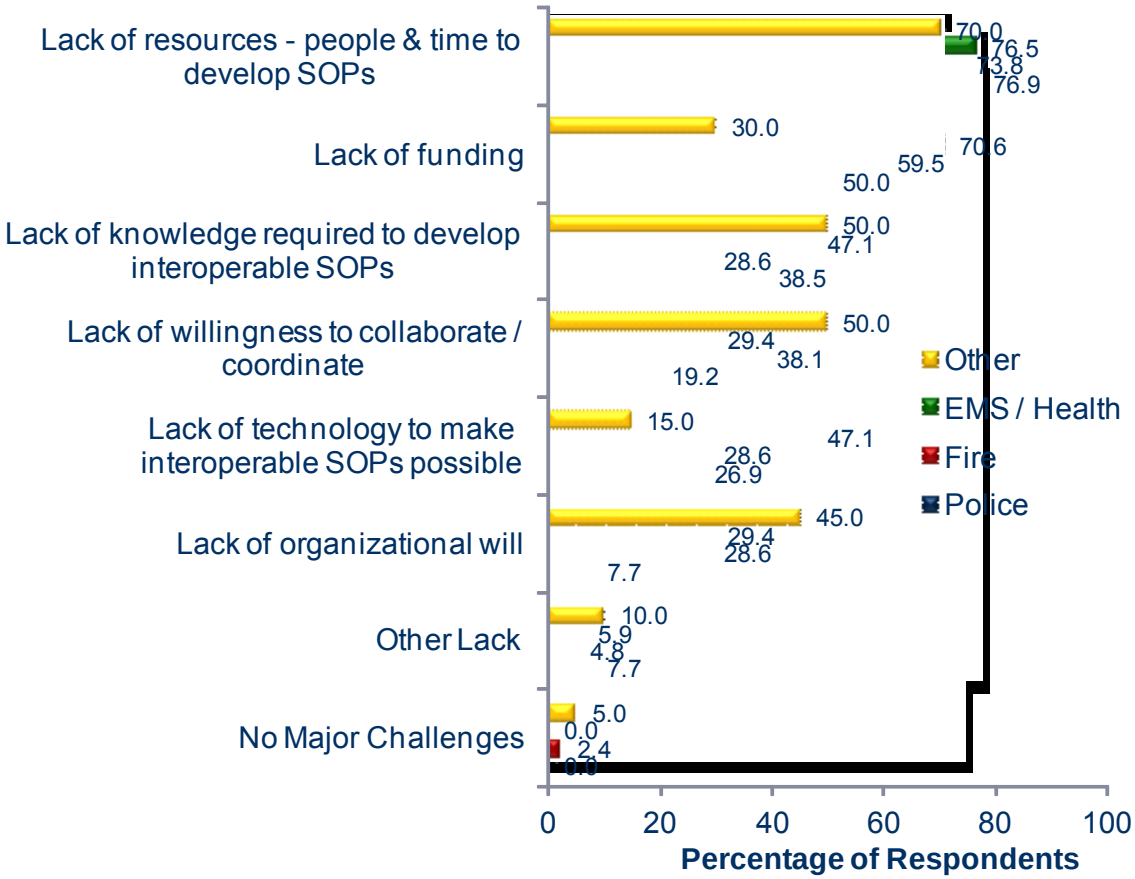
SOP Challenges

Generally resources & funding are top two challenges. However, 'Other' organizations have significantly less of a challenge securing funding than First Responders. Lack of knowledge is a key inhibitor for EMS and Other organizations. Re-usable SOP templates are needed by all first responders. Lack of organizational will is an issue for 'Other' organizations. Lack of technology is identified as a significant challenge for EMS.

FIGURE 25

Top Interoperability Challenges- SOPs

In your opinion, which of the following areas represent a MAJOR CHALLENGE to improving communication interoperability? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

Data Interoperability Challenges

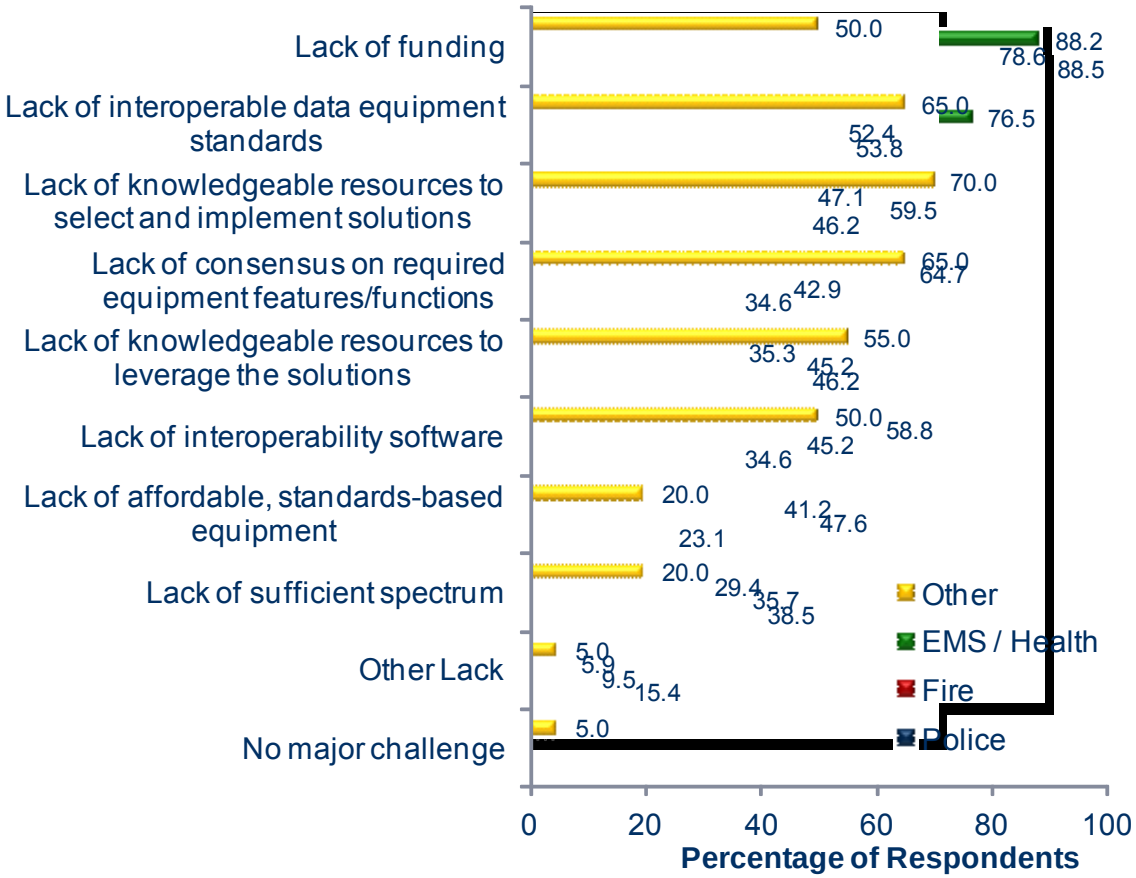
Lack of funding is the most significant challenge identified with respect to data interoperability by first responders. EMS and other organizations also identified lack of data equipment standards and consensus on equipment features and functions as significant challenges.

Fire and other organizations identified lack of knowledgeable resources to select and implement solutions. EMS and other and Fire all identified interoperable software as a significant challenge. 'Other' first responders appear to need the most help regarding data interoperability. Spectrum is not perceived to be one of the top challenges to data interoperability.

FIGURE 26

Top Interoperability Challenges- Data

In your opinion, which of the following areas represent a MAJOR CHALLENGE to improving DATA communication interoperability? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

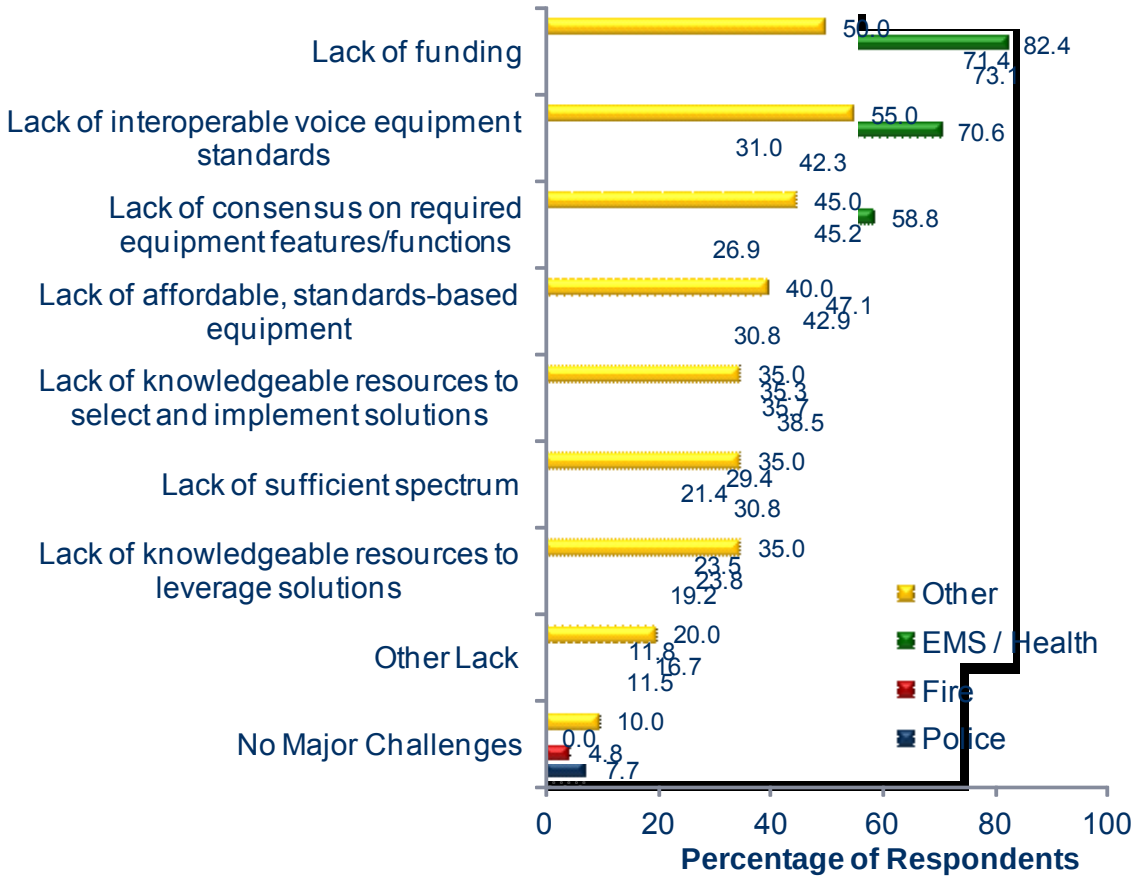
Voice Interoperability Challenges

Lack of funding is the most significant challenge identified with respect to voice interoperability by first responders. EMS and other identified lack of voice equipment standards and lack of consensus on required equipment features / functions as significant challenges for voice interoperability. Spectrum is not perceived to be one of the top challenges to voice interoperability.

FIGURE 27

Top Interoperability Challenges- Voice

In your opinion, which of the following areas represent a MAJOR CHALLENGE to improving VOICE communication interoperability? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

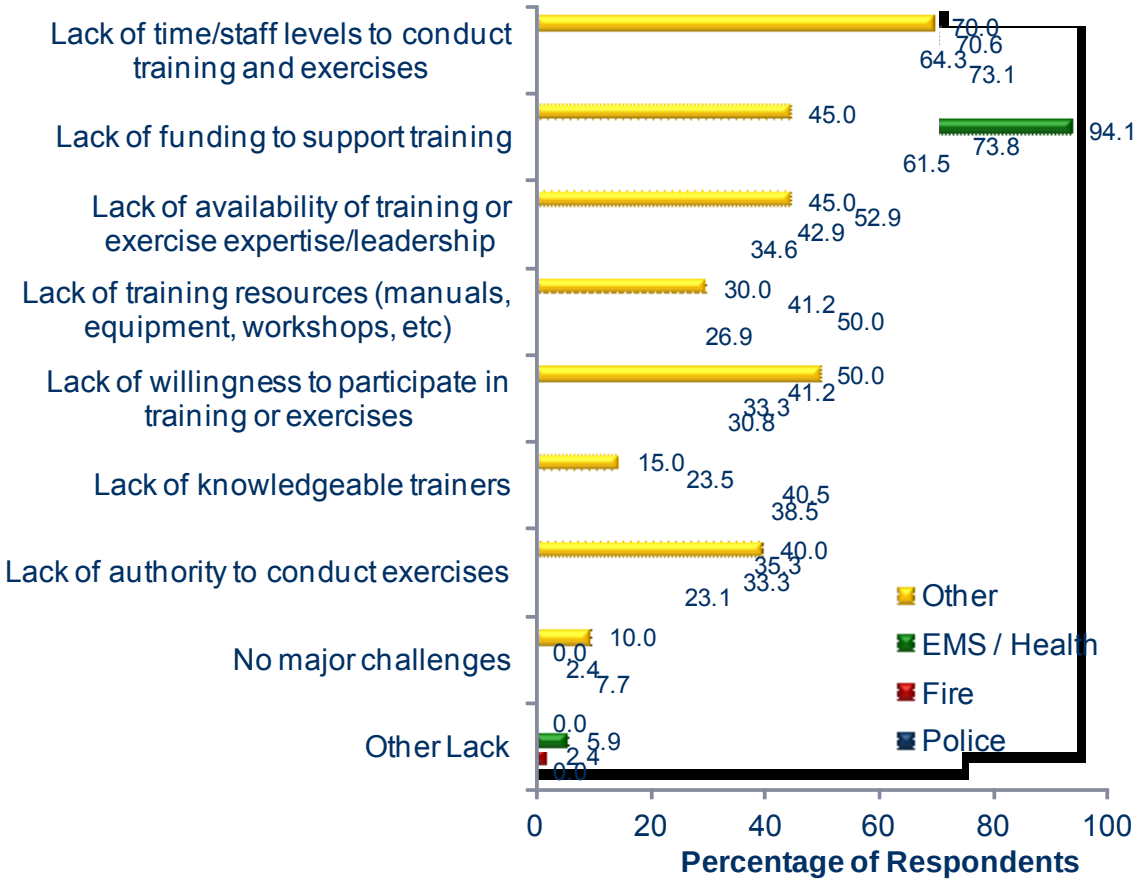
Training and Exercises

Lack of time and staff levels to conduct training and exercises is the largest challenge for Police and other organizations. EMS and Fire identified lack of funding as the primary challenge to improving interoperability training and exercises. Availability of expertise and resources are also significant challenges for many organizations. 'Other' organizations indicated that lack of willingness to participate in training or exercise is a significant challenge.

FIGURE 28

Top Interoperability Challenges - Training and Exercises

In your opinion, which of the following areas represent a MAJOR CHALLENGE to improving VOICE communication interoperability? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

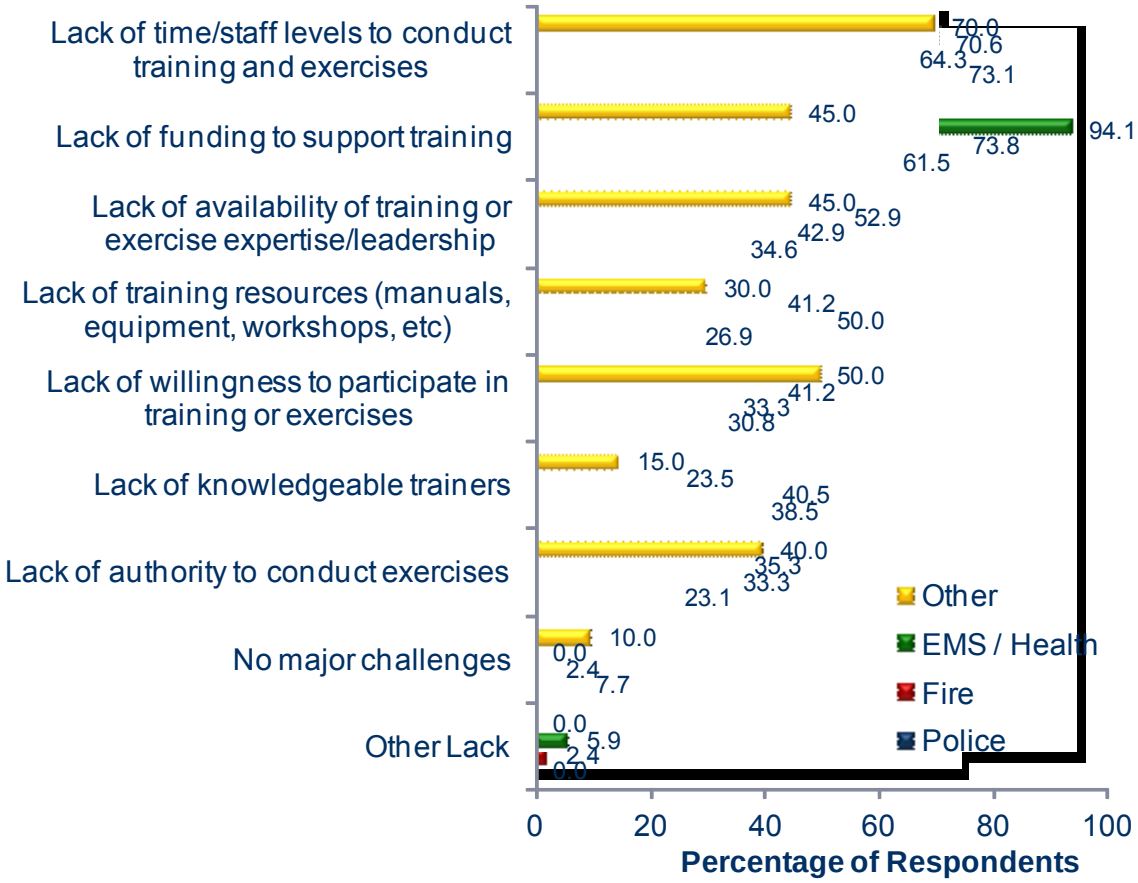
Usage

Police indicate that funding and time to implement and training are major challenges in improving interoperability usage. EMS and Fire identified funding, technology, lack of coordination and willingness between first responders as major challenges.

FIGURE 29

Top Interoperability Challenges - Usage

In your opinion, which of the following areas represent a MAJOR CHALLENGE to improving the USAGE stream of communication interoperability? (N=105)



Source: Canada's First National Interoperability Baseline Assessment CPRC Project 91052

ESSENTIAL GUIDANCE

IDC offers the following essential guidance for first responders, supporting agencies and other involved stakeholders:

- CPRC should continue to raise awareness of the continuum within the First Responder community. A concerted effort should be made to improve familiarity within the EMS community.

- The Communication Interoperability Strategy for Canada is newer and is less well known than the Continuum. The Strategy needs to be actively promoted within the First Responder community.

- Current Levels of Interoperability are moderate. Significant investments are required to improve interoperability to the point where First Responders feel that they can adequately address larger scale emergencies or disasters. In order to secure investments prior to a large scale event, Responders should consider demonstrating the risk / impact of limited interoperability to the government and public in training exercises. These demonstrations could be leveraged to calculate the risks to the community given the current state of interoperability.

- A significant amount of attention has been given to Voice communication but relatively little to Data interoperability. Data is perceived by the community as of critical importance. More research, guidance and collaboration is required to ensure that emerging Data communications are interoperable. The Police Information Portal (PIP) provided investigative data interoperability. We firmly believe that the combination of 700 MHZ and LTE will provide a platform for data interoperability. Also, the Law Enforcement Information Data Standards (LEIDS) project will provide a data exchange standard for Canada.

- Governance is a necessary component for interagency cooperation. However, the emphasis on Governance as a focus area seems to contradict the gap analysis conducted for each stream of the Continuum. Once Governance is in place then SOP's and Training & Usage plans can be developed; often without major cost. Focusing on these areas after sufficient governance has been established may be the fastest way to make improvements given limited funding, resources and leadership – challenges that have been identified for all streams of the Continuum.

- The identified challenges align directly with the resources required to improved interoperability. However, these issues are not unknown or easily overcome. Continued lobbying for specific funding for interoperable training and exercises would help improve the overall level of interoperability. Because resources will continue to be scarce, it is critical that organizations like CPRC and CITIG provide guidance, support, facilitate knowledge transfer and ensure connections can be made between individuals willing to take on a leadership role in their organization. IDC would encourage CPRC and CITIG to formalize their approach to supporting the development of:

    - interoperability practice leaders for each stream of the continuum

- an interoperability knowledge warehouse that provides ready access to all research on the topic, provides model Governance and SOP documents and encourages the development of best practice case studies, blogs and communities
- a contact database to assist the community communicate ideas broadly or reach out to specific individuals for support and insight.

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The purpose of this study was to determine the current and future state of emergency communications interoperability in Canada relative to the Canadian Communications Interoperability Continuum. Key findings include:
Familiarity with the Communication Interoperability Continuum is quite high overall (75%); it should be noted that these results may have been driven higher by the recruitment of CITIG members and event participants. While familiarity with the Continuum is high, familiarity with the Canadian Interoperability Strategy is comparatively low. Almost half of all respondents asked were not familiar with the Communication Interoperability Strategy for Canada.
First Responders believe that the current level of communication interoperability needs to be improved, particularly to respond to complex and disaster / large scale emergencies. Overall, respondents assessed their current level of interoperability as moderate. Moreover, First Responders strongly believe that improvements to emergency communication capabilities would both reduce risk to communities and agencies, and improve public opinions regarding safety.
Significant gaps exist between current and ideal levels of interoperable Governance, SOPs, Technology, Training and Usage. The largest improvements are in the area of Technology (data and voice) and SOPs. Counter to the individual stream gap analysis, respondents universally pointed to Governance as the area that should be focused on.
Challenges did not vary greatly by continuum stream. Funding and resources constraints as well as leadership are the most significant obstacles to improve interoperability. Unsurprisingly, resources required to significantly improve interoperability relate to Funding, People, Time and Leadership.

Le présent rapport explique les stratégies de formulation et de résolution du problème du projet collaboratif de RDDC et d'EMBC visant à améliorer les programmes d'analyse des dangers, des risques et de la vulnérabilité (ADRV) et d'infrastructures essentielles (IE). On y décrit la méthodologie employée, qui se résume à ceci : utilisation d'une approche de recherche opérationnelle souple et application des principes du Code des pratiques exemplaires d'évaluation du C2 de l'OTAN à divers aspects de la planification axée sur les capacités, à l'ingénierie des systèmes et à la gestion des risques. Les recherches documentaires préliminaires sont aussi décrites dans le présent rapport. On y présente les groupes d'intervenants consultés et les questions qui leur ont été posées afin de recueillir leurs points de vue au sujet des programmes à l'étude et des problèmes connexes. L'analyse a permis de cerner les besoins et les lacunes des programmes et de proposer des projets de RDDC en vue de combler les lacunes en question. Parmi ces propositions, on trouve notamment l'adaptation du Cadre de sécurité des grands événements pour les besoins d'EMBC, le développement d'un outil d'évaluation des infrastructures essentielles dans le cadre de divers projets pilotes, et l'octroi de contrats pour l'établissement d'un cadre de résilience communautaire et l'élaboration de modèles de synthèse mission-tâches. Ces projets sont déjà en cours.

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