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Communications Interoperability Technical Report

TR-20-2008

**Setting a Voice Interoperability Roadmap:
Summary Report from the Canadian
Interoperability Technology Interest Group
National Workshop**

March 2008

Prepared by:

Lansdowne Technologies Inc. on behalf of:

For the:

**Communications Interoperability Technology Interest Group
Canadian Police Research Centre**

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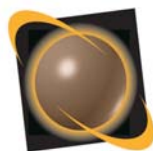
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Setting a Voice Interoperability Roadmap:

Summary Report from The Canadian Interoperability Technology Interest Group Workshop Ottawa, Ontario 27-28 March 2008



*31 March 2008
Final Report*



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Table of Contents

1. INTRODUCTION	1
2. OBJECTIVE OF THE SESSION	1
3. LEADERSHIP, PRIORITIES AND ENABLERS OF VOICE INTEROPERABILITY	2
4. INTENDED OUTCOMES AND BENEFITS	3
4.1 WORKSHOP SESSION QUESTIONS.....	3
5. EMERGENT THEMES	4
5.1 PRIORITIES.....	5
5.2 LEADERSHIP	5
5.3 ENABLERS	6
6. BUILDING A ROADMAP FOR VOICE INTEROPERABILITY... 7	
7. NEXT STEPS	8
8. CONCLUSION	9

Annexes:

Annex A - Setting a Voice Interoperability Roadmap Participant Guide

Annex B – Listing of Setting a Voice Interoperability Roadmap Break-out Session Delegates by Group

Annex C – Summary of Comments Provided by Delegates during the Setting a Voice Interoperability Roadmap Break-out Sessions

Annex D – Setting a Voice Interoperability Roadmap Summary Presentation

Getting to Work – Setting a Voice Interoperability Roadmap: Leadership, Priorities and Enablers

*Summary Report from
The Canadian Interoperability Technology Interest Group Workshop*

1. Introduction

The Canadian Interoperability Technology Interest Group (CITIG) workshop on voice interoperability workshop was held in Ottawa, Ontario, on 27-28 March, 2008, with the support and participation of the Canadian Police Research Centre (CPRC), Canadian Association of the Chiefs of Police (CACP), Emergency Medical Services Chiefs of Canada (EMSCC) and the Canadian Association of Fire Chiefs (CAFC).

The Workshop was attended by 148 or 151 registered delegates. The delegates represented a wide array of first and second responders and public safety policy agencies from across Canada, related organizations in the United States, and representatives from industry.

2. Objective of the Session

The objective of the break-out session was to capture input from delegates on the requirements for “roadmap” to effectively progress the improvement of voice operability across first and second responders. The discussion and input were centered on the principal issues of leadership, priorities and the necessary enablers.

The comments and information collected from the delegates during this session was used to facilitate the shaping of a new roadmap for voice interoperability. Additionally, the feedback will form the foundation for CITIG's recommendations on the way forward for municipal, provincial, national and international stakeholders.

To assist in achieving the objective of the Workshop, the Workshop delegates were divided into five groups. The definition of the groups was initially by region – Atlantic, Quebec, Ontario, Prairies and Territories, and British Columbia – however the predominance of delegates from Ontario resulted in a slight shift in approach. While some regional flavour remained, each group included an Ontario component. The delegates from the United States and from industry were also distributed across each of the five groups.

**CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report**

The delegates in each group were participative and offered valuable and candid comments on their perceptions and experiences of the issues impacting effective voice interoperability, and on necessary actions and requirements for the near-term and longer term in order to achieve greater success in this area.

3. Leadership, Priorities and Enablers of Voice Interoperability

CITIG defines voice interoperability as the ability of emergency response agencies to talk across disciplines and jurisdictions via voice communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized (*adapted from Department of Homeland Security SAFECOM program’s definition for Communications Interoperability*).

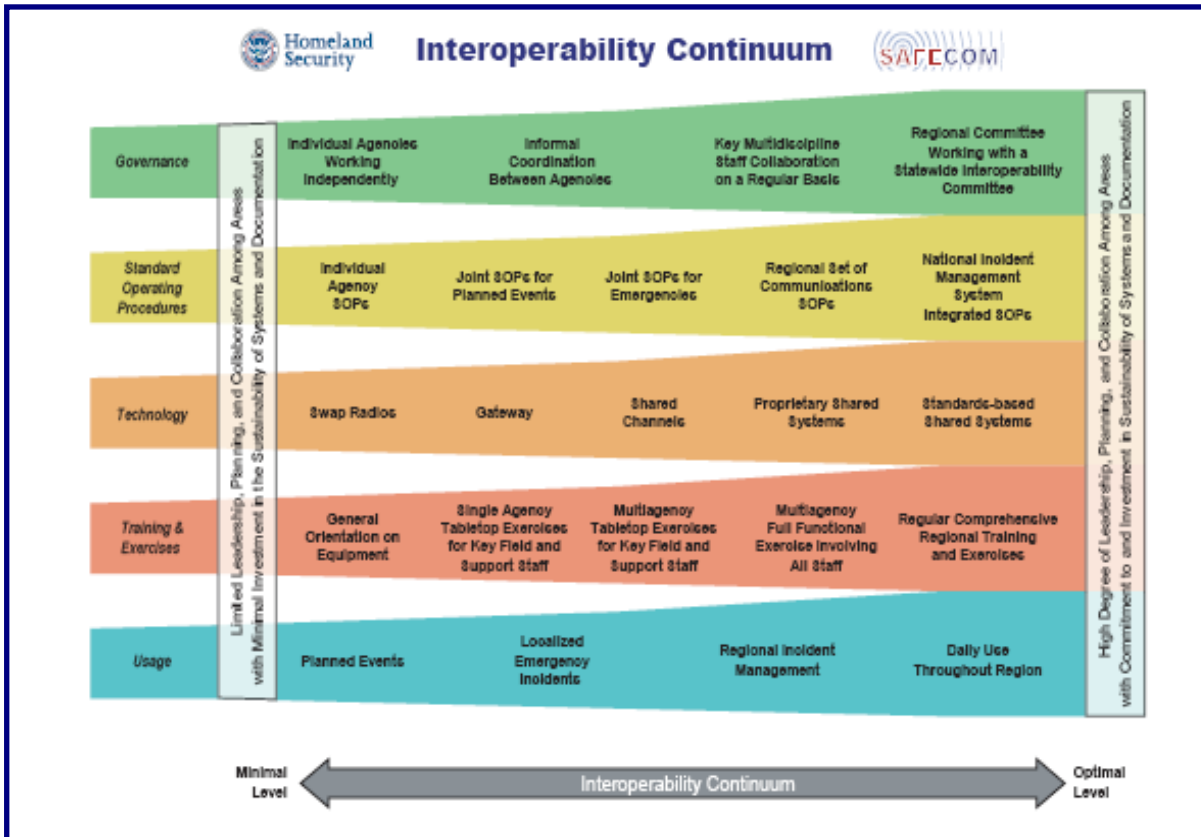


Figure 1 – Interoperability Continuum

To facilitate discussions on voice interoperability with respect to leadership, priorities and enablers, the Interoperability Continuum developed by the Department of Homeland Security in collaboration with local various authorities was used as key reference. The Continuum identifies five critical success factors (or pillars) that communities must consider as they work to improve communications interoperability and provides guidance for increasing frequency

of use of equipment, creating a joint governance structure, developing standard operating procedures, integrating technology solutions with existing systems, and conducting training and exercises.

The Interoperability Continuum has become recognized by CITIG, participating organizations and individual delegates as the foundation for a roadmap to improve voice interoperability across Canada. As such, the five critical success factors of the Interoperability Continuum become important concepts to assist the articulation of the priorities, the identification of existing or potential leaders and the determination of notional milestones for a roadmap to improve voice interoperability. Although the level of comprehensive of the model varied amongst the delegates, the model was an appropriate anchor for the workshop and the breakout sessions.

4. Intended Outcomes and Benefits

The information provided during the session had importance for two reasons:

1. *First*, significant input was captured from first responders and other stakeholders allowing CITIG to assimilate first hand information on the priorities, enablers and challenges with respect to voice interoperability.
2. *Second*, CITIG was able to provide an executive summary of the emergent themes captured during the breakout sessions back to the delegates as a means of validating the interpretation of the input provided, and to also commence the establishment of a common understanding of the issue and the potential way ahead for the future of voice interoperability.

4.1 Workshop Session Questions

Three questions were developed in consultation with CITIG to guide the groups' discussion and dialogue on specific issues relating to voice interoperability – Priorities – Leadership – Enablers. The table below provides a summary of the central questions covered by all groups.

In terms of Priorities , what should the priorities be in developing a roadmap towards voice interoperability? As a minimum, consider the five critical success factors of the Interoperability Continuum.	En fonction de priorités , que devront être les priorités pour développer un plan ou une direction envers l'interopérabilité vocale ? Au minimum, considérez les cinq critères critiques de succès du continuum d'interopérabilité.
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CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

<p>In terms of Leadership, who is best suited and positioned to lead in developing a roadmap for voice interoperability?</p> <p>Who is currently providing leadership at the municipal, provincial and federal levels?</p> <p>Who is best suited to provide leadership at the municipal, provincial and federal levels? Why?</p>	<p>En fonction de leadership, à qui convient le mieux et qui est le mieux placé pour mener le développement d'un plan ou d'une direction pour l'interopérabilité vocale ?</p> <p>Qui fournit couramment le leadership au niveau municipal, provincial et fédéral ?</p> <p>A qui convient le mieux le rôle de leadership au niveau municipal, provincial et fédéral ?</p>
<p>In terms of Enablers, what are the enablers required to achieve tangible progress towards improved and effective voice interoperability?</p> <p>What (if any) are the key enablers and current initiatives advancing your organization to the next level?</p> <p>What (if any) specifically is hindering your ability to improve voice interoperability? What actions might be taken to overcome these challenges?</p> <p>Are there other enablers that should be considered to facilitate improved and effective voice interoperability?</p>	<p>En fonction d'éléments habilitant, quels éléments sont requis pour réaliser un progrès tangible envers l'interopérabilité vocale améliorée et effective ?</p> <p>Quels (s'il y a lieu) sont les éléments clés et les initiatives courantes qui permettent votre organisation d'atteindre le prochain niveau ?</p> <p>Qu'est-ce qui empêche spécifiquement (s'il y a lieu) votre capacité d'améliorer l'interopérabilité vocale ? Quelles actions peuvent être prises pour adresser ces défis ?</p> <p>Y-a-t'il d'autres éléments qui doivent être considérés pour encourager l'amélioration et l'efficacité de l'interopérabilité vocale ?</p>

Table 1 – Setting A Roadmap for Voice Interoperability Session Questions

5. Emergent Themes

The break-out sessions were host to an excellent discussion and dialogue between delegates and generated a wealth of ideas. The comments recorded from each of the individual groups were combined and reviewed for common and emergent themes were derived under the three topics of priorities, leadership and enablers.

Overall there was no clear consensus on setting a National Voice Interoperability Roadmap however key themes emerged in all groups reflecting a common commitment to developing a practical and achievable roadmap towards improved voice interoperability.

The following is a summary of the emergent themes captured during the breakout sessions. A copy of the complete listing of all comments recorded from each of the five groups is included as Annex C and a copy of the summary briefing provided to the delegates on the morning of 28 March is provided at Annex D.

5.1 Priorities

Based on the input from the various groups the most significant finding is that the “community of stakeholders” lacks a common understanding of the problem and the national vision for enhanced voice interoperability. This overriding consideration had a direct influence of the group discussions and the key themes that emerged. To promote ownership and to remain action oriented, priorities were developed in terms of pressing needs. The consistent priorities or needs expressed by all groups are detailed below:

- We need to have a clear understanding of the problem;
- We need to have a clear vision;
- We need to have a common understanding of Voice Interoperability and our operational requirements/ needs;
- We need an overarching and encompassing Governance model that provides “common (similar) voice(s)” to the issue;
- We need a national model and Standards; and
- We need to provide education and awareness for all stakeholders.

The above list of six clearly defined priorities can provide a foundation for the development of a national roadmap for enhanced voice interoperability.

5.2 Leadership

Credible champions and strong leadership were acknowledged as essential elements of a national strategy on voice interoperability. Although it was acknowledged that credible champions and strong leadership is currently in place to address voice interoperability exists across the stakeholder community, it is

problematic and perhaps unreasonable to identify a clear single champion or leadership element with the primary mandate to address voice interoperability. Conversely, input from all groups reflected an understanding of the complexity of the issue and the need for a robust governance structure with the right representation from all key stakeholders to include international partners and industry.

A summary of the key themes captured during the sessions reflecting group ownership and a focus on a team approach are detailed below:

- Who is here? Who is not here? Are the right people here?;
- It is difficult to define who best to champion or lead in the absence of a clear understanding of the problem and a clear vision – no single/sole champion;
- We need multiple champions/leaders with credibility to achieve tangible progress;
- We have champions and leaders:
 - International – Dept of Homeland Security, SafeCom, NPSTC (through provision of guidance / support to friendly nations)
 - National – CITIG, CACP, CAFC, EMSCC, CPRC and others
 - Federal - PS Canada, Industry Canada
 - Provincial – Solicitor General/Public Safety
 - Municipal – Emergency Management & First Responders
 - Industry – Our sponsors/corporate partners and others

Overall, there is growing commitment on the part of all stakeholders to collaborate and cooperate on central issues associated with voice interoperability. A robust governance structure with representation from all stakeholders appears achievable and will be essential to addressing the priorities identified above.

5.3 Enablers

The final topic addressed in the breakout sessions was Enablers. The focus of discussion was to identify the essential elements (existing or required) to achieve tangible progress towards improved voice interoperability. Based on the input of the groups, five (5) key enablers emerged – governance, education and information sharing, sharing successes and failures, a roadmap, and technology.

These five enablers are articulated in terms of needs below:

- We need effective governance/expanded governance based on CITIG;
- We need to foster further Education and Information Sharing (including academic and technical/industry inputs)
- We need to sharing Successes and Failures (After Action Reviews and Lessons Learned)
- We need a Roadmap based on:
 - A Common Understanding of the Problem
 - A Clear Vision
 - Effective Governance
 - A Model
 - Standards
 - Sustainable Funding
- We need and have the Technology – this can be done!

In comparing priorities and enablers, several common themes are emphasized notably the need for effective governance, a national model and standards and the need to effectively communicate the vision for national voice interoperability. The enablers are not unique to any jurisdiction or stakeholder group. Further, it is evident that many of the stakeholders have been very proactive in addressing voice interoperability requirements be it at the municipal, regional, provincial, national or international level. This common commitment to voice interoperability, first responder and public safety was noted in all groups and should be viewed as a significant enabler in addressing national voice interoperability. Further the elements of the current SafeCom Interoperability Continuum Model reflect many of the elements identified as both priorities and enablers.

Ultimately, a clear roadmap on voice interoperability, developed in consultation with stakeholders and based on the key enablers noted above can provide a viable framework for the way ahead on voice interoperability.

6. Building a Roadmap for Voice Interoperability

Setting a Voice Interoperability Roadmap remains a high priority for CITIG and its stakeholders. Although the workshop failed to produce a formal roadmap for national voice interoperability, the input provided by participants will be invaluable

in the identification of tangible short and mid term objectives and contribute to the development of a more formal roadmap.

The Interoperability Continuum was recognized by delegates as the principal foundation for the development of a roadmap to improve voice interoperability in Canada, and internationally. As such much can be learned from various initiatives undertaken by international stakeholders in the United States.

Collectively, participants are committed to supporting CITIG in the development of a Canadian Voice Interoperability Roadmap with due regard to the following considerations:

- Many organizations have or will have their own roadmap and “targets”
- A National Roadmap is welcomed based on a clear vision, effective Governance, a Model, Standards and your respective roadmaps) which establishes “optimal targets”
- Ideally each organizations’ goal should be to reach the “optimal target” appreciating that not all “targets” will be identical and not everyone will hit or needs to hit the “bull's-eye”

7. Next Steps

Based on the results of the breakout sessions, CITIG and its stakeholders are well situated to take concrete and tangible steps towards developing a National Road Map for Voice Interoperability. The open discussion and feedback solicited over the course of the workshop on the central issues of priorities, leadership and enablers provides the basis for identifying the following recommended next steps:

1. Solicit formal endorsement from the CACP, CAFC and EMSCC supporting the fundamentals of the SafeCom Interoperability Continuum;
2. Continue the dialogue with voice interoperability stakeholders to further promote the voice interoperability as a national priority;
3. Develop a Canadian equivalent to the SafeCom model; and
4. Develop a formal National Roadmap based on:
 - a. A Common Understanding of the Problem,
 - b. A Clear Vision,
 - c. Effective Governance,
 - d. A Model,
 - e. Standards, and
 - f. A Sustainable Funding model.

8. Conclusion

The CITIG Workshop on Voice Interoperability and the five concurrent break-out sessions provided an opportunity for representatives from first and second responders and public safety agencies to meet, dialogue, and explore issues relating to voice interoperability in Canada. The groups generated a number of valuable ideas and a viable framework for the development of a roadmap for the future improvement of voice interoperability.

Considerable momentum has been created through the conduct of regional consultations and the CITIG Workshop and this should be exploited to all extents possible as Voice Interoperability stakeholders are actively engaged and committed to addressing the issues and impacts that limited voice interoperability has on public safety.

The requirement now is for organizations in a leadership capacity to harness this awareness and interest and progress the development of a roadmap for the improvement of voice interoperability. The Workshop has identified the central elements and themes needed to develop a formal National Voice Interoperability Roadmap.

Annexes:

Annex A - Setting a Voice Interoperability Roadmap Participant Guide

Annex B – Listing of Setting a Voice Interoperability Roadmap Break-out Session Delegates by Group

Annex C – Summary of Comments Provided by Delegates during the Setting a Voice Interoperability Roadmap Break-out Sessions

Annex D – Setting a Voice Interoperability Roadmap Summary Presentation

Annex A

Setting a Voice Interoperability Roadmap Participant Guide

Annex A - Setting a Voice Interoperability Roadmap Participant Guide

Session Participant Guide

Getting to Work – Setting a Voice Interoperability Roadmap: Leadership, Priorities and Enablers



Introduction

Thank you for participating in the Canadian Interoperability Technology Interest Group (CITIG) workshop on voice interoperability. As part of a National Research Council initiative, this workshop / session has the support of the Canadian Police Research Centre (CPRC), Canadian Association of the Chiefs of Police (CACP), Emergency Medical Services Chiefs of Canada (EMSCC) and the Canadian Association of Fire Chiefs (CAFC).

Objective

The objective of this session is to capture input from participants with an emphasis on leadership, priorities and the enablers required to effectively make progress towards voice interoperability. The comments and information provided by participants during this workshop / session will help shape a new roadmap for voice interoperability and form the foundation for CITIG's recommendations on the way forward for municipal, provincial, national and international stakeholders.

Outcomes and Benefits

The information you provide during this session will benefit you in two ways:

1. *First*, by capturing input from first responders and other stakeholders, CITIG will collect first hand information on the priorities, enablers and challenges with respect to voice interoperability. This information will form the foundation for CITIG's Voice Interoperability Roadmap and associated recommendations to government on this topic.
2. *Second*, CITIG will provide you with an executive summary of the emergent themes captured during the breakout session.

As noted above, this session is designed to provide an opportunity to discuss three dimensions of interoperability – leadership, priorities and enablers with first responders and other stakeholders.

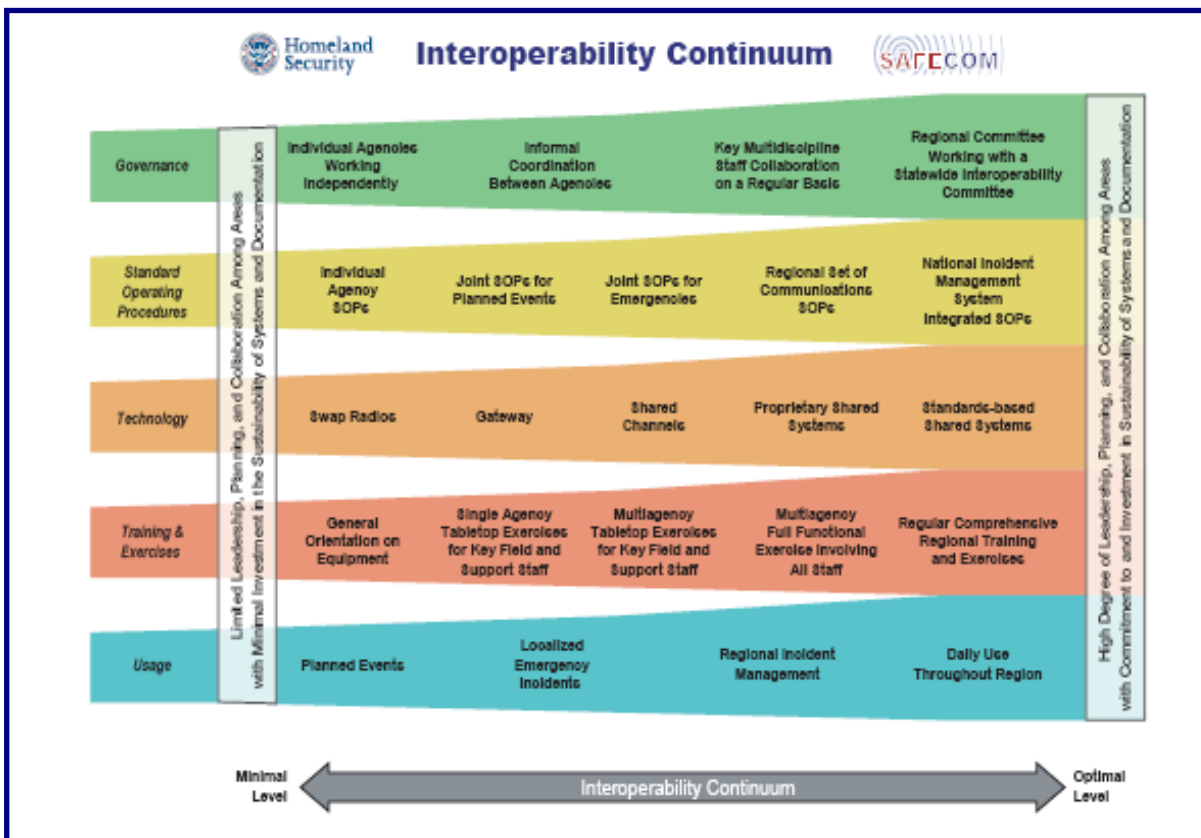
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This session is programmed to run 75 minutes and will focus on the three key areas listed above. The session results will not be attributed specifically; however CITIG will publish the names of those that participated in the Canadian Voice Interoperability Workshop.

Leadership, Priorities and Enablers of Voice Interoperability

CITIG defines voice interoperability as the ability of emergency response agencies to talk across disciplines and jurisdictions via voice communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized (adapted from Department of Homeland Security SAFECOM program's definition for Communications Interoperability).

To facilitate discussions on voice interoperability with respect to leadership, priorities and enablers, we propose using the Interoperability Continuum developed by the Department of Homeland Security in collaboration with local various authorities. The Continuum identifies five critical success factors (or pillars) that communities must consider as they work to improve communications interoperability and provides guidance for increasing frequency of use of equipment, creating a joint governance structure, developing standard operating procedures, integrating technology solutions with existing systems, and conducting training and exercises.



Workshop Session Questions

1. In terms of **Priorities**, what should the priorities be in developing a roadmap towards voice interoperability? As a minimum, consider the five critical success factors of the Interoperability Continuum.

2. In terms of **Leadership**, who is best suited and positioned to lead in developing a roadmap for voice interoperability?
 - 2a. Who is currently providing leadership at the municipal, provincial and federal levels?

 - 2b. Who is best suited to provide leadership at the municipal, provincial and federal levels? Why?

3. In terms of **Enablers**, what are the enablers required to achieve tangible progress towards improved and effective voice interoperability?
 - 3a. What (if any) are the key enablers and current initiatives advancing your organization to the next level?

 - 3b. What (if any) specifically is hindering your ability to improve voice interoperability? What actions might be taken to overcome these challenges?

 - 3c. Are there other enablers that should be considered to facilitate improved and effective voice interoperability?

Closing

Thank you for your time and participation in this workshop session. A brief summary of session results will be presented on March 28, 2008.

Questions pour l'atelier

1. En fonction de **priorités**, que devront être les priorités pour développer un plan ou une direction envers l'interopérabilité vocale ? Au minimum, considérez les cinq critères critiques de succès du continuum d'interopérabilité.

2. En fonction de **leadership**, à qui convient le mieux et qui est le mieux placé pour mener le développement d'un plan ou d'une direction pour l'interopérabilité vocale ?
 - 2.a. Qui fournit couramment le leadership au niveau municipal, provincial et fédéral ?
 - 2.b. A qui convient le mieux le rôle de leadership au niveau municipal, provincial et fédéral ?

3. En fonction **d'éléments habilitant**, quels éléments sont requis pour réaliser un progrès tangible envers l'interopérabilité vocale améliorée et effective ?
 - 3.a. Quels (s'il y a lieu) sont les éléments clés et les initiatives courantes qui permettent votre organisation d'atteindre le prochain niveau ?
 - 3.b. Qu'est-ce qui empêche spécifiquement (s'il y a lieu) votre capacité d'améliorer l'interopérabilité vocale ? Quelles actions peuvent être prises pour adresser ces défis ?
 - 3.c. Y-a-t'il d'autres éléments qui doivent être considérés pour encourager l'amélioration et l'efficacité de l'interopérabilité vocale ?

Conclusion

Nous vous remercions de votre temps et de votre participation à cet atelier. Un bref sommaire des résultats de l'atelier sera présenté le 28 mars 2008.

Annex B

Listing of Setting a Voice Interoperability Roadmap Break-out Session Delegates by Group

**Annex B – Listing of Setting a Voice Interoperability Roadmap
Break-out Session Delegates by Group**

Group 1			
Name	Company	Company	Province
Jean-Marc Trottier	SAR Senior Coordinator	Canadian Coast Guard	Ottawa, ON
Steve Palmer	Executive Director	Canadian Police Research Centre	Ottawa, ON
Derek Brackley	BSO	CBSA - Canada Border Services Agency	Halifax, NS
J. Steven MacLellan	CP02	CF - Maritime Forces Atlantic	Halifax, NS
Heather Harrison	Director of NB911	Department of Public Safety	Fredericton, NB
Allan Douglas	Security Operations Research Analyst	DRDC/CSS	Ottawa, ON
Deborah MacKay	Director, Communications & Dispatch Services	Emergency Health Services	Halifax, NS
Diane Bishop	PM - Provincial Wireless Initiative	Government of New Brunswick	Marysville, NB
Douglas Sward	A/Senior Director	Industry Canada	Ottawa, ON
Bill Hall	Area Sales Manager	M/A-COM PRS Canada Corp	Ottawa, ON
Paul Frew		Motorola Canada	Markham, ON
David Eaton	Manager, Strategic Sales	Motorola Canada Limited	Markham, ON
John Petrou		Motorola Canada Limited	Markham, ON
Andy McGregor		Nortel	Ottawa, ON
Claudia Wayne		Office of Emergency Communications, Department of Homeland Security	Washington, DC
Peter Wells	Human Factors Consultant	Performance by Design	Ottawa, ON
Michael Raz		Procity Corporation	Ottawa, ON
Terry Canning	Emergency Communications Coordinator	Public Safety Communications	Shubenacadie, NS
Ron Dingwell	Dir.-Atl. Region Comm. Technology	RCMP	Halifax, NS
Tony Norman	Manager IT Ops	RCMP	St. John's, NF
William Hillier	Sergeant	RCMP	Ottawa, ON
Don Anderson		RCMP	Ottawa, ON
Alex Bechstead		RCMP	Ottawa, ON
Kimberly Chastellaine		RCMP	Ottawa, ON
Ross Walker	Manager	Thales Canada	Ottawa, ON
Mark Toman	Supervisor, System Operations Support	Toronto EMS	Toronto, ON
Matthew Smith		Valley Associates Inc.	Orleans, ON
Shawn Williams	President/Senior Engineer	Williance Resources Inc.	St. John's, NF
Todd Brown	Nova Scotia		
Peggy Fitzpatrick			

CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

Group 2			
Name	Company	Company	Province
Gilbert Coutu	Directeur des services de communications mobiles	Centre de services partagés du Québec	Québec, QC
Jack Pagotto	Emergency Mgmt & Systems Integration - Portfolio Mgr	Centre for Security Sciences	Ottawa, ON
Paul Martin	National Director	EADS Secure Networks North America	Ottawa, ON
John Janusz	Director	House of Commons Security Services	Ottawa, ON
Michel Denault	Program Officer	House of Commons Security Services	Ottawa, ON
Eric Trembley	Program Officer	House of Commons Security Services	Ottawa, ON
David Deriger		House of Commons Security Services	Ottawa, ON
Chantal Davis	Senior Spectrum Engineer	Industry Canada	Ottawa, ON
Joanne Poulin	Spectrum Management Officer	Industry Canada	Ottawa, ON
Rock Lavigne	S/Sgt	Ottawa Police Service	Ottawa,
Charles Bordeleau	Superintendent	Ottawa Police Service	Ottawa, ON
Roger Poirier	General Manager	RABC	Ottawa, ON
Luc Filion	Director, MCS	RCMP	Ottawa, ON
Francine Boucher	Manager, RSMS	RCMP	Ottawa, ON
Pauline Martin	OIC	RCMP	Ottawa, ON
Joanne Robineau	Sergeant	RCMP	Ottawa, ON
Joffré St-Martin	Insp	Senate Protective Service	Ottawa, ON
Robert Klotz	Supt.	Senate Protective Service	Ottawa, ON
Alain Laniel	Supt.	Senate Protective Service	Ottawa, ON
Marc Godin	Chef aux opérations	Service de sécurité incendie de Montréal	Montréal, QC
Daniel Tetu	Assistant-directeur	SPVM	Montreal, QC
Sylvain Audette	Captain - assistant-chief of radiocommunications	Sûreté du Québec	Montreal, QC
Sylvain Proulx	Inspector - Chief of radiocommunications	Sûreté du Québec	Montreal, QC
Claude Levesque	Director	Technopole Defence & Security	Quebec, QC
Jean-Guy Joubert	Area Sales Manager	Tyco Electronics M/A-COM	Ville Mont-Royal, QC
Jean Baraby			

CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

Group 3			
Name	Company	Company	Province
Vafa Hashemi	Engineer	CBSA	Ottawa, ON
Mike Oster	Director, Business Development	Cisco Systems Canada Co.	Ottawa, ON
Todd Allinotte	Coordinator, By-law Services	City of Ottawa	Ottawa, ON
Kevin Nauss	Manager, Corporate Radio System	City of Ottawa	Ottawa, ON
John Ash	Manager, OEM	City of Ottawa	Ottawa, ON
John Kibsey	Operations Coordinator	City of Ottawa-OPS-Communications Div	Ottawa, ON
Gary Symonds	Co-ordinator	City of Toronto	Toronto, ON
John Cunnane	Director	Emergency Services Division, Region of Niagara	Niagara on the Lake, ON
Gavin Hayes	Staff Sergeant	Halton Regional Police Service	Oakville, ON
Phil Thorburn	Assistant Deputy Chief	Hamilton Emergency Services	Hamilton, ON
Bill Bouwhuis	Trunk Radio Administrator	Hamilton Emergency Services	Hamilton, ON
Peter Glen		London Police Service	London, ON
Brad Taylor	Ministry Emergency Management and Security Coordinator	Ministry of Community Safety and Correctional Services	Toronto, ON
Frank Grimaldi	Manager	OPP	Orillia, ON
Mike Harrington	Manager, Operations	OPP	Orillia, ON
Livia Brandon	Director, Information & Technology Services	Ottawa Police Service	Ottawa, ON
Jennifer Evans	Superintendent	Peel Regional Police	Brampton, ON
Lloyd Addis		Peel Regional Police	Brampton, ON
Andrew Ward		RCMP	Ottawa, ON
Rick Shirran	Territorial Emergency Disaster Services Director	The Salvation Army Canada & Bermuda	Toronto, ON
Kim DERRY	Deputy Chief	Toronto Police Service	Toronto, ON
Cel Giannotta	Director	Toronto Police Service	Toronto,
Clay Beers	Manager	Toronto Police Service	Toronto, ON
Greg FISS	Communications Supervisor	Waterloo Regional Police Service	Cambridge, ON
George McPhee	Inspector	Windsor Police Service	Windsor,
Richard Finn	Superintendent	York Regional Police	Newmarket, ON
Greg Collins	USA		
Matthew Boudreau			
Rick Good			
Michel Vallee			

CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

Group 4			
Name	Company	Company	Province
Bill Meade	Special Projects	Alberta Solicitor General and Public Security	Edmonton, AB
John Walker	Manager	Bearing Point Inc.	McLean, VA
John Evans	Project Manager	Canadian Police Research Centre	Cardiff, AB
Chris Kearns	Manager Public Safety Communications	City of Lethbridge	Alberta, AB
Carol WAGAR	Advisory Board Member	CPRC	Edmonton, AB
Rick Nicholls	J6 Plans/Projects	DND	Ottawa, ON
Michael Johnson	Business Development Consultant	General Dynamics C4 Systems	Orleans, ON
Stephen Ayliffe		General Dynamics Canada	Calgary, AB
Jennifer Wharram	Senior Spectrum Engineer	Industry Canada	Ottawa, ON
Dave Egilo		Industry Canada	Kitchener, ON
Brian Leger		MIA-COM Prs Canada Corp.	Ottawa, ON
Gary Bauer	President	Mobile Innovations Corp.	Niagara Falls, ON
Julien Cameron		Mobile Satellite Ventures	Ottawa, ON
Merrilee Ashworth	General Manager	Motorola	Calgary, AB
Sterling Hartley	Inspector	Ottawa Police Service	Ottawa, ON
Shaun Brabazon	Staff Sergeant	Ottawa Police Service	Ottawa, ON
Lynda Gibson	Superintendent	Ottawa Police Service	Ottawa, ON
Alan Melenka	Director	Provincial Government	Edmonton, AB
Richard Nowakowski	Regional Sales Manager	Raytheon JPS Communications	Chicago, IL
Dale McGee	Corporal	RCMP	Ottawa, ON
Paul Teeple	Director General IE&D	RCMP	Ottawa, ON
Kevin Whynot	OIC Applied Tech	RCMP	Regina, SK
Ken Luciak	Director	Regina Qu'Appelle Health Region - EMS	Regina, SK
Bernie Pannell	Deputy Chief	Saskatoon Police Service	Saskatoon, SK
Tom Johnson	Statewide Interoperability Program Manager	State of Minnesota Department of Public Safety	St Paul, MN
Curtis Brochu		The City of Calgary - Public Safety Communications	Calgary, AB
Don Speights		US DHS Office of Emergency Communications	Severna Park, MD
Tom McEwen	Director of Product Development	Versaterm	Ottawa, ON
Scott Bradford	Montana		
Geoff Blair			
Steve Nichols			

CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

Group 5			
Name	Company	Company	Province
M.C. (Mike) Dubé	Assistant Chief	Port Moody Fire Rescue	Port Moody, BC
Wes Shoemaker	Associate Deputy Minister	Emergency Management BC - Ministry of Public Safety and Solicitor General	Victoria, BC
Douglas Bigrigg	Canadian Sales Representative	Daniels Electronics Ltd.	Victoria, BC
Kevin Wallinger	Director Integrated Public Safety	Ministry of Public Safety and Solicitor General	Richmond, BC
Colin Murray	Luitenant Colonel	DND DRDC CSS	Orleans, ON
Doug Joinson	Manager of Communications & Information Services	Fraser Valley Regional District	Chilliwack, BC
Mike Webb	Manager Telecommunications Systems	Ministry of Public Safety and Solicitor General	Richmond, BC
Allan Suckling	Manager, Communication Systems - "E" Division	Royal Canadian Mounted Police	Vancouver, BC
Del Smith	Operations Manager	Alaska Land Mobile Radio	Anchorage, AK
Brock Smith	Partner	Clark Wilson LLP	Vancouver, BC
Robert Small	President	Daniels Electronics	Victoria, BC
Brian Thiessen	Project Manager	Canadian Police Research Centre	New Westminster, BC
Dan Froom	Projects Director - Operations	BC AMBULANCE SERVICES	SAANICHTON, BC
Dave Thompson	Sergeant	Vancouver Police Dept	Vancouver, BC
Al Ittner	Spectrum & Regulatory Strategy Mgr.	Motorola	Schaumburg, IL
Muna Hussein	Spectrum Management Officer	Industry Canada - SITT Sector	Ottawa, ON
Caroline O'Farrell	Staff Sergeant	RCMP	Ottawa, ON
Rick Ruppenthal	Superintendent	BCAS	Parksville, BC
R. David Valentine	Superintendent	British Columbia Ambulance Service	Victoria, BC
Pascal Rodier	Superintendent	Emergency and Health Services Commission	Vancouver, BC
George Hawkins	Systems Project Manager	RCMP	Ottawa, ON
Randall Sheppard	Vice President & General Manager	Valley Associates Inc.	Orleans, ON
Wayne Plamondon		Abbotsford Police Department	Abbotsford, BC
Jana Schillings		Abbotsford Police Department	Abbotsford, BC
Peter Gauthier		E-Comm 911	Vancouver, BC
Murray Day		Justice Institute of BC	New Westminster, BC
Robert Walker		Justice Institute of BC	New Westminster, BC
Tracey Lorenson		Paragon Strategic Services Ltd.	Maple Ridge, BC
Tom Black		Public Safety Canada	Ottawa, ON
John Edwards		Valley Associates Inc.	Victoria, BC
Bill Kennedy			

Annex C

Summary of Comments Provided during the Setting a Voice Interoperability Roadmap Break-out Sessions, by Group

Annex C – Summary of Comments Provided by Delegates during the Setting a Voice Interoperability Roadmap Break-out Sessions, by Group

	Priorities	Leadership	Enablers
Questions	<p>In terms of Priorities, what should the priorities be in developing a roadmap towards voice interoperability?</p> <p>En fonction de priorités, que devront être les priorités pour développer un plan ou une direction envers l’interopérabilité vocale ?</p>	<p>In terms of Leadership, who is best suited and positioned to lead in developing a roadmap for voice interoperability?</p> <p>En fonction de leadership, à qui convient le mieux et qui est le mieux placé pour mener le développement d’un plan ou d’une direction pour l’interopérabilité vocale ?</p>	<p>In terms of Enablers, what are the enablers required to achieve tangible progress towards improved and effective voice interoperability?</p> <p>En fonction d’éléments habilitant, quels éléments sont requis pour réaliser un progrès tangible envers l’interopérabilité vocale améliorée et effective ?</p>
Group 1	<ol style="list-style-type: none"> 1. Need for Awareness of requirement for voice interoperability by Federal/Provincial/Municipal stakeholders. <ul style="list-style-type: none"> ▪ Some participants observe a disturbing lack of awareness, understanding or sensitivity to the need for voice interoperability, in some cases even by first responder agencies 2. Need for a national radio communications strategy (voice talkability). 	<ol style="list-style-type: none"> 1. Consensus that the key priority for leadership is at the Provincial level. <ul style="list-style-type: none"> ▪ For 1st. responders, municipal level and people on the ground ▪ Thinking is that because the Provinces are generally responsible for setting governance models and statutory obligations of municipalities, they must provide the appropriate leadership to make the model work ▪ Provinces are responsible for most of the agencies and sub-agencies that are involved with 	<ol style="list-style-type: none"> 1. There is a need for more visibility on this issue; a need to “get the message out”. <ul style="list-style-type: none"> ▪ Have a spokesperson, an advocate with expert knowledge, recognition, and credibility ▪ Perhaps a Canadian equivalent to NPSTC (CITIG?) ▪ The advocacy group needs a high profile, visibility and funding 2. There is a need for standards for voice interoperability; radio communications.

CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

Priorities	Leadership	Enablers
<ul style="list-style-type: none"> ▪ Common radio systems for interface at domestic and international points ▪ Suggested 700 mhz band <ol style="list-style-type: none"> 3. Need for Governance structure including incident command system. 4. Need for SOP's that are simple to understand and follow (not hyper complex) and thoroughly tested. 5. Need for planning and training; training should be intuitive and include exercises, both local and cross jurisdictional. 	<p>emergency services (first responders)</p> <ul style="list-style-type: none"> ▪ Municipal first responders are the first ones to become involved in emergency situations and therefore require the necessary support system to successfully complete the task ▪ Provinces set the structure and essentially control the funding model for municipal levels and therefore are the logical starting point to provide leadership for (awareness, resource support, etc.) for voice interoperability <ol style="list-style-type: none"> 2. At the Federal level consensus is that Public Safety Canada is the natural lead agency. <ul style="list-style-type: none"> ▪ There is a concern about the apparent lack of authority for PSC to act (demonstrate leadership) in this area ▪ Feeling is that PSC representatives currently involved, while knowledgeable and supportive, are too low in the organization structure, to bring the necessary leadership and support that is required. ▪ Somehow must capture the awareness and attention of senior people within PSC 	<ul style="list-style-type: none"> ▪ It must be an open systems architecture ▪ It must be non proprietary technology ▪ Must be common standards developed with input from the operators/users <ol style="list-style-type: none"> 3. There is a need for urgency; timing is of the essence. <ul style="list-style-type: none"> ▪ There is a regional coordination effort underway in NS, NB, PEI and Maine. Over the next two years they will synchronize and implement their plans for interoperability. After that point their decisions will have been made for radio strategy, communication system standards, equipment selection and program implementation 4. Funding is a definite enabler; the feeling is that funding commitments need to be made first at the Federal level and then the Provinces will follow. Provinces tend to not want to be the first ones to commit to funding in joint/shared programs.

Priorities	Leadership	Enablers
	<p>3. At the Governance level there is a need for an Emergency Management Memorandum of Understanding (EMMOU) between jurisdictions that may be required to respond and/or work together in an emergency situation.</p> <ul style="list-style-type: none"> ▪ Should include sharing resources, equipment and technology ▪ Should offer training opportunities, both pre-event and post-event ▪ Should share information, as much as possible, including lessons learned & experiences <p>4. Need for champions, someone to lead the cause, within every agency and organization.</p> <ul style="list-style-type: none"> ▪ Someone to keep the focus on the need for voice interoperability ▪ Concentrate constant (full time) effort ▪ Assign resources to the champion ▪ One person nominated in each organization would be a great starting point; right now many have no one assigned or interested in doing this <p>5. There is a need for dedicated</p>	

	Priorities	Leadership	Enablers
		<p>resources to voice interoperability, for all jurisdictions.</p> <p>6. There is a need to increase awareness within the stakeholders community; operators and users, agencies, organizations, and the public community</p>	
Group 2	<ul style="list-style-type: none"> • Identification des solutions techniques; • Structure et gouvernance; • Impliquer les regroupements d'associations; • Établir des groupes de travail et s'assurer que les représentants aient un pouvoir décisionnel; • Établir un plan tel que : qui veut parler à qui, quoi doit parler à qui et quelles sont les circonstances pourquoi on doit parler; • Établir une terminologie commune et des fréquences communes pour les communications entre les agences; • Établir des procédures vocales en termes 	<ul style="list-style-type: none"> • Gouvernance; • Organisation au centre, la pierre angulaire; • Besoin d'un plan national de la part de la sécurité publique; • Besoin de l'interopérabilité des intervenants; • Au Québec, le Ministère de la Sécurité Publique a mis en place un plan national de la sécurité publique; • Impliqués l'industrie et les organismes à buts non lucratifs; • Établir des processus organisationnels; • Besoin de l'implication de la Sécurité Publique National; • Besoin d'identifier un champion à l'échelle national tout comme cela a été fait à l'É.-U.; • Une préoccupation au niveau 	<ul style="list-style-type: none"> • Besoin de sensibilisation politique; • Regarder les problèmes passés dans les activités d'envergures et établir un processus pour ne pas répéter les problèmes du passés vers l'avenir; • Définir la problématique; • Financement – un facteur important à considérer; • Faire de la promotion auprès des organismes d'incendies et de la santé publique (pompiers et ambulances) afin d'impliquer un plus grand nombre de partenaires; • Implication interprovincial et des villes; • Établir un groupe de travail interministériel au sein des provinces;

	Priorities	Leadership	Enablers
	<p>d'opérations standardisés pour les communications entre les agences;</p> <ul style="list-style-type: none"> • Établir des protocoles d'ententes (MOUs); • Identification du partage des ressources; • Établir des nouvelles méthodes d'opérations (innovation) pour les équipes opérationnelles; • Partager la technologie avec les usagers; • Identification et le groupement des groupes d'appels (Call Groups); • Faire l'harmonisation entre les structures de commandement et l'harmonisation des procédures; • Établir les niveaux de communication et les intervenants, par exemple le Ministère du Transport avec la SQ; • Identification du besoin des 	<p>fédéral : assurer la continuité du personnel de la Sécurité publique en raison des retraites et du changement du personnel;</p> <ul style="list-style-type: none"> • Besoins d'une voix non seulement au niveau de la Direction générale mais aussi au niveau opérationnel; • Établir qui doit faire quoi et de prendre action pour aller de l'avant; • Implication des manufacturiers et du regroupement des associations; • Multi-layered leadership. 	<ul style="list-style-type: none"> • Par le leadership, impliquer les « stakeholders » qui ne sont pas présent. Aller les chercher; • Établir un plan de vol ou une feuille de route vers le futur; • Dire à l'industrie quels sont les besoins, afin qu'ils puissent établis ou développer la technologie. (Conduct a statement of requirement, tell the industry what we want, they will provide the business solutions).

**CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report**

	Priorities	Leadership	Enablers
	<p>participants;</p> <ul style="list-style-type: none"> • Établir le mandat clair des intervenants; • Assurer l’engagement des organismes individuels et collectifs; • Établir les plans d’actions des premiers répondants; • S’assurer que les outils utilisés ne sont pas restreints aux urgences seulement mais qu’ils soient utilisés quotidiennement. 		
Group 3	<ul style="list-style-type: none"> • We need to have a clear understanding of the problem • We need to have a clear vision • We need to have a common understanding of Voice Interoperability and our operational requirements/ needs. • We need an overarching and encompassing Governance model that provides “common (similar) voice(s)” to the issue 	<ul style="list-style-type: none"> • Difficult to define who best to champion or lead in the absence of a clear understanding of the problem and a clear vision – no single/sole champion • Need multiple champions/leaders with credibility to achieve tangible progress • We have champions and leaders <ul style="list-style-type: none"> • National – CITIG, CACP, CAFC, EMSCC, CPRC and others • Federal - PS Canada, Industry 	<ul style="list-style-type: none"> • Effective governance/expanded governance based on • CITIG • Education and Information Sharing (including academic and technical/industry inputs) • Sharing Successes and Failures (After Action Reviews and Lessons Learned) • A Roadmap based on: <ul style="list-style-type: none"> • A Common Understanding of

CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

	Priorities	Leadership	Enablers
	<ul style="list-style-type: none"> • We need a national model and Standards • We need to provide education and awareness for all stakeholders 	<p>Canada</p> <ul style="list-style-type: none"> • Provincial – Solicitor General/Public Safety • Municipal – Emergency Management & First Responders • Industry – Our sponsors/corporate partners and others 	<p>the Problem</p> <ul style="list-style-type: none"> • A Clear Vision • Effective Governance • A Model • Standards • Sustainable Funding • Technology – this can be done!
Group 4	<p><u>Short Term</u></p> <ul style="list-style-type: none"> • There is the need to develop a clear definition of what is meant by voice interoperability. For them moment focus on voice. Data will come a natural 2nd. • In order to develop a roadmap, the start point needs to be established. The baseline of where everyone is needs to be determined. • The participants felt it would be important to identify who the stakeholders are. <p><u>Medium Term</u></p> <ul style="list-style-type: none"> • At a certain stage, all manner 	<ul style="list-style-type: none"> • Whoever assumes roles of leadership, they need to have credibility and respect from the stakeholder community. They need to understand the vision and how to get there. First responder experience would be an asset. • First responders own the role to push this agenda forward (if they don't do, in the absence of any real leadership from elsewhere, no one will). • What leadership is needed should be defined. Different levels of government might need to demonstrate leadership in different ways. There was consensus that at the federal level, Public Safety 	<ul style="list-style-type: none"> • Funding. • Having a plan/roadmap is in itself an important enabler. • Technology. • Clear messages from the leadership based on the established priorities are needed. • Buy-in/support from the user groups in necessary. • An ongoing communications strategy/plan is required. • Moving voice interoperability to the top (top 3 list) of organization's and politician's agendas is also seen as a key success factor. • Enablers (people who can make this happen) need to be targeted

**CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report**

Priorities	Leadership	Enablers
<p>of requirements (user, technical and functional) need to defined. This needs to be addressed by the front line or using a bottom up approach. The five elements of SafeCom model should be used (not certain if they were referring to Interoperability Continuum)</p> <ul style="list-style-type: none"> • It will be important to develop a strategy that outlines clear goals, objectives and timelines (see enablers for an associated point on having a plan/roadmap). • Who will take the lead/provide the governance at the different levels needs to determined. • What role CITIG can and needs to play at the federal, provincial and municipal levels need to be defined. Who should be the Canadian equivalent of NPSTC? • Who needs to speak to whom and under what circumstances needs to be defined. How are these consultation initiated and by whom should also be considered as part of this priority. 	<p>Canada was the logical entity. At the provincial level, leadership was expected to come from Sol Gen and Public Safety ministries.</p> <ul style="list-style-type: none"> • A champion needs to be identified. • CITIG can and should play a leadership role in developing the roadmap or high level framework. They can play other roles such as facilitators and ensuring common messages are communicated to stakeholders. They can provide the national level governance and contribute to a national level strategy. 	<p>in any communications activities.</p> <ul style="list-style-type: none"> • As part of the communications strategy/plan, a succinct “30 seconds” message that conveys the vision and the plan needs to be developed. • Those who blocking progress or are nay sayers need to be identified and strategies to deal with them developed. • As part of the communications plan/strategy, it is important to link the importance of interoperability to “failures” and successes. The negative impacts on cross border initiatives, economic impacts and crisis situations are all valid issues to raise when discussing the lack of voice interoperability. Voice interoperability needs to become the burning platform for politicians and “funders”. The “what’s in it for them” needs to be addressed. • The opportunity to gain efficiencies, effectiveness and cost/benefits need to be promoted. This approach can demonstrate good fiscal responsibility. • Continued industry support needs to be leveraged.

**CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report**

	Priorities	Leadership	Enablers
	<p><u>Others</u></p> <ul style="list-style-type: none"> On an ongoing basis, a priority should be to educate stakeholder that include the politicians, end users, administrators and industry. Related to this point is the need for a public outreach strategy to raise their awareness. 		<ul style="list-style-type: none"> There are already other examples both here in Canada and in the US that can be used as case studies to demonstrate the value of better voice interoperability. These examples need to be leveraged and built upon.
Group 5	<p>The group identified 7 priority activities:</p> <ol style="list-style-type: none"> 1) to communicate effectively to coordinate response and to ensure the safety of the public and responders; 2) To Identify and define stakeholders, their roles, responsibilities and their needs; 3) to define VIO and operational requirements; 4) to identify current VIO capabilities and gaps related to identified operational requirements; 	<p>The group identified 9 leadership activities:</p> <ol style="list-style-type: none"> 1) to establish a clear VIO vision and communications strategy; 2) to engage stakeholders at all levels; 3) to identify and engage champion(s) and funding sponsors; 4) to establish lines of authority and accountability and funding (vertically and horizontally across the stakeholders); 5) Advise Feds on common communications resources and requirements; 6) to promote awareness and 	<p>The group identified 8 significant enablers:</p> <ol style="list-style-type: none"> 1) employ CITIG as a forum to develop and advocate on behalf of the Public Safety Community for VIO; 2) Improve awareness of the importance and value of VIO; 3) establish and support Regional Working Groups; 4) Use the forum to disseminate practice and guidance documents as examples for others to follow; 5) Use the forum to share case examples and to communicate the VIO vision;

CITIG The Canadian Voice Interoperability Workshop
Setting a Voice Interoperability Roadmap Summary Report

	Priorities	Leadership	Enablers
	<p>5) to provide shared situational awareness;</p> <p>6) to provide cross border VIO at every level;</p> <p>7) to manage evolving systems of systems with incremental capabilities.</p>	<p>understanding of the need for VIO;</p> <p>7) to establish long term funding arrangements;</p> <p>8) to do cost-benefit analysis of current and future capabilities;</p> <p>9) to employ and develop bottom-up leadership.</p>	<p>6) Promote and support the development of cost-effective and consistent training programs and materials;</p> <p>7) Engage industry to identify technical possibilities and technical standards;</p> <p>8) support the establishment of interoperability User Groups.</p>

Annex D

Setting a Voice Interoperability Roadmap Summary Presentation



Setting a Voice Interoperability Roadmap: Leadership, Priorities and Enablers

Summary of Emergent Themes

Résumé des thèmes émergents

March 28, 2008

CITIG The Canadian Voice Interoperability Workshop

Getting to Work – Setting a Voice Interoperability Roadmap

Approach / Approche

- **Workshop groups determined by region;**
 - **Wide ranging, candid discussions on the issues impacting effective voice interoperability;**
 - **Excellent input for development of a roadmap to facilitate and improve voice interoperability;**
 - **Top three to four common themes highlighted in summary.**
-
- **Groupes d'atelier établis selon les régions ;**
 - **Discussions étendues sur les questions touchant l'interopérabilité vocale efficace ;**
 - **Des intrants menant au développement d'un plan ;**
 - **Les trois ou quatre thèmes les plus communs sont dénotés dans le résumé .**

CITIG The Canadian Voice Interoperability Workshop

Getting to Work – Setting a Voice Interoperability Roadmap

Roadmaps 101

If you do not know where you are going any road will get you there

Even if you know where you are going, if you do not know where you are you may not be able to get there from here

Even if we know where we are and where we are going we may not all get there at the same time

CITIG The Canadian Voice Interoperability Workshop
Getting to Work – Setting a Voice Interoperability Roadmap

Emergent Themes - Priorities

- We need to have a clear **understanding of the problem**
- We need to have a **clear vision**
- We need to have a common **understanding of Voice Interoperability** and our operational requirements/ needs.
- We need an **overarching and encompassing Governance** model that provides “common (similar) voice(s)” to the issue
- We need a national **model and Standards**
- We need to provide **education and awareness** for all stakeholders
- **The Motivator: Responder Safety and Public Safety**

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Getting to Work – Setting a Voice Interoperability Roadmap

Emergent Themes - Leadership

- Who is here? Who is not here? **Are the right people here?**
- Difficult to define who best to champion or lead in the absence of a clear understanding of the problem and a clear vision – **no single/sole champion**
- Need **multiple champions/leaders with credibility to achieve tangible progress**
- **We have champions and leaders**
 - National – CITIG, CACP, CAFC, EMSCC, CPRC and others
 - Federal - PS Canada, Industry Canada
 - Provincial – Solicitor General/Public Safety
 - Municipal – Emergency Management & First Responders
 - Industry – Our sponsors/corporate partners and others

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Getting to Work – Setting a Voice Interoperability Roadmap

Emergent Themes - Enablers

- **Effective governance/expanded governance** based on CITIG
- **Education and Information Sharing** (including academic and technical/industry inputs)
- **Sharing Successes and Failures** (After Action Reviews and Lessons Learned)
- **A Roadmap based on:**
 - A Common Understanding of the Problem
 - A Clear Vision
 - Effective Governance
 - A Model
 - Standards
 - Sustainable Funding
- **Technology – this can be done!**

CITIG The Canadian Voice Interoperability Workshop

Getting to Work – Setting a Voice Interoperability Roadmap

Roadmap - General

- Many of you have or will have **your own roadmap** and “targets”
- **National Roadmap** based on a clear vision, effective Governance, a Model, Standards and your respective roadmaps) should establish the “**optimal target**”
- Your goal should be to **reach the “optimal target”** – not everyone will hit or needs to hit the bull's-eye
- Recall “**The Motivator**”: **Responder Safety and Public Safety**

CITIG The Canadian Voice Interoperability Workshop

Getting to Work – Setting a Voice Interoperability Roadmap

Next Steps – *The Roadmap*

- Summary report of the discussions and themes for each of the five breakout sessions to be submitted by March 31st;
 - Report will include recommendations on requirements and enablers to improve voice interoperability.
-
- Compte rendu des discussions et des thèmes pour chacune des cinq sessions est à soumettre pour le 31 mars ;
 - Le rapport compendra les recommandations concernant les conditions et les éléments habilitants pour améliorer l'interopérabilité vocale.

CITIG The Canadian Voice Interoperability Workshop

Getting to Work – Setting a Voice Interoperability Roadmap



Setting a Voice Interoperability Roadmap: Leadership, Priorities and Enablers

Questions

March 28, 2008

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Getting to Work – Setting a Voice Interoperability Roadmap