

Communications Interoperability in a Crisis 2: Human Factors and Organisational Processes

The impact of human factors and organisational processes on the use of communications technology during multi-agency operations



Interim Report January 2010

Royal United Services Institute
for Defence and Security Studies

Jennifer Cole
Head of Emergency Management
National Security and Resilience Department

jenniferc@rusi.org
020 7747 4958

This interim report presents the findings from the first part of the research project *Communications Interoperability in a Crisis 2: Human Factors and Organisational Processes*, conducted between September and December 2009. It includes initial analysis and sets out intentions for the future.

This research project is supported by Airwave Solutions Ltd

Jennifer Cole
Head of Emergency Management
National Security and Resilience Department
Royal United Services Institute
Whitehall
London SW15 2DA

Tel: 020 7747 4958
Email: jenniferco@rusi.org

Table of Contents

Background to the Research3
Research Methodology4
Initial Research Findings5
Next Stages of the Research9
ANNEX 1: List of Interviewees10

Background to the Research

In 2005, following the 7 July bombings on the London mass transport system and the report of the 7 July Review Committee,¹ the Royal United Services Institute carried out extensive research into the cultural, political and economic drivers that may limit uptake of available interoperable communications technology within and between Category 1 and 2 responders as defined by the Civil Contingencies Act 2004.

The research findings were published in RUSI Whitehall Report 5-06, *Communications Inter-Operability in a Crisis*² in January 2007. The report made a series of recommendations, including the need for a unified communications policy encompassing all responder communities, and that platforms for multi-agency information flow should be designed for purpose rather than systems being designed for the legacy platforms on which responder agencies currently operate. The first recommendation made by RUSI's original Report was considered to be particularly important when revisiting the research:

It is therefore recommended that there should be a unified communications policy encompassing all responder communities that ensures inter-operability.

In 2005, there was a unified communications policy: that all the emergency services should use the Airwave network. However, not all of them were doing so. The Airwave network had been fully rolled out in May 2005, but on 7 July the Metropolitan Police Service had not yet migrated the service across their entire force area. While the Fire and Rescue Service and the Ambulance Service had been in contract negotiations for some time, neither had, at that point, signed up to the Airwave network.³ In considering this, it becomes apparent that a major problem underlying current interoperability projects and programmes across the Category 1 and Category 2 responder community is that there is no mechanism or framework to ensure that recommendations, policy or guidance are adopted or taken forward. Identifying ways in which this can be improved lies at the heart of this current research project. The project also seeks to identify why organisations may choose not to adopt recommendations and guidance issued from a central point.

Discussions with the Cabinet Office and the National Policing Improvement Agency (NPIA) prior to beginning the research, and during the research process, have indicated that current efforts to improve interoperability are focusing on the human factors and organisational processes rather than on technology: the Airwave network and the National Resilience Extranet provide (or will soon provide) adequate national systems to enable interoperability as long as emergency responder organisations use them. It was therefore decided that the research should focus on exploring what emergency responders think of the current mechanisms and initiatives for enabling interoperability and where they see barriers still existing. This took the project away from its initial focus, instead recognising that interoperability depends on much more than technology alone.

This interim report sets out the findings from the first part of the research project, conducted between September and December 2009. It lists initial analysis and sets out intentions for the future.

¹ See <www.london.gov.uk/assembly/reports/7july/report.pdf>.

² Sandra Bell and Rebecca Cox, *Communications Inter-Operability in a Crisis* (London: Royal United Services Institute, 2007), <www.rusi.org/publication/other/ref:O459D3C8297AAE/>.

³ The Department of Health signed a contract for NHS Ambulance Trusts in England to adopt the same radio communications system (Airwave) as the police in July 2005, shortly after the bombings. The Fire and Rescue Service followed suit in March 2006. Roll-out to all blue light responders is currently expected to be complete by mid-2010. See RUSI, *op. cit.*, pp. 26-29.

Research Methodology

The initial research phase for *Inter-operability in a Crisis 2*, conducted between 10 August and 11 December 2009, consisted of approximately twenty-five unstructured, qualitative interviews with key public safety communication stakeholders from the public and private sectors.

The key questions asked during the interviews were as follows:

- How well do you think interoperability is working at present?
- In what way(s) do you think interoperability has improved in recent years?
- What do you think has enabled interoperability to improve in recent years?
- What do you consider to be the main barriers to improving interoperability further?

The interviews were, however, deliberately unstructured to enable interviewees' impressions of interoperability, and particularly with the ICT used to enable interoperability, to rise naturally to the surface. RUSI did not seek to influence the interviewees towards any one particular area of interest or any particular issue(s). In particular, interviewees were not guided towards discussing the impact of technology rather than operational procedure on interoperability, or vice versa.

Interviewees were drawn from Category 1 and 2 responders as defined by the Civil Contingencies Act 2004; organisations that support C1 and C2 responders; policy-makers within the Civil Contingencies Secretariat, Department for Business, Innovation and Skills (BIS) and Association of Chief Police Officers (ACPO); industry bodies such as BAPCO;⁴ the military; and private sector contractors who have worked to deliver public sector ICT projects.

Some of these interviews were conducted purely for this research project, other interviewees were questioned during preparations for RUSI's 'Emergency Response 2009: Communicating in a Crisis' workshop, which was held at RUSI on 7 December 2009. Additional points came from observations made at multi-agency workshops and events attended by RUSI staff during the research period. A list of all interviewees, and events that were attended during the research process, can be found in Annex 1.

A number of broad themes emerged during the initial research phase. These are summarised on the following pages. The initial findings were then discussed with the Civil Contingencies Secretariat, Airwave Solutions Ltd and the NPIA in order to formulate a questionnaire for a secondary, quantitative stage of research. This will be conducted between December 2009 and February 2010.

The questionnaire is online at www.rusi.org/communicationsinterop and the link is being publicised via key stakeholder databases (in particular, RUSI's own databases, the Airwave Sharer List and by BAPCO) and in appropriate magazines and newsletters, including *The BAPCO Journal*, *Resilience* (the magazine of the Emergency Planning Society), *Monitor* (RUSI), *Focus* (RUSI e-newsletter), *Contingency Today* and *Emergency Services Times*.

The initial themes that emerged from the research are summarised below and on the following pages.

⁴ BAPCO – Integrated ICT for Civil Contingency Responders, formerly the British Association of Public Safety Communications Officials.

Initial Research Findings

1. Fragmentation of the emergency response community

The fragmentation of the emergency response community is the 'golden thread' underlying all other issues that emerged during the research. The blue light services sit under different government departments (police under the Home Office, Fire and Rescue under the Department of Communities and Local Government, the Ambulance Service under the Department of Health and the Maritime and Coastguard Agency under the Department for Transport). Further to this, within each organisation forces are regionalised with no single national legislative body. For example, there are more than forty fire services and forty police services in England alone. The other Category 1 responders named in the Civil Contingencies Act 2004, such as the Environment Agency, sit under additional government departments, and Category 2 responders may be entirely within the private sector.

This results in an extremely fragmented emergency response sector that hinders co-ordination and interoperability. There is no single strategic or management organisation able to take a top-down approach across the entire community, nor that can speak to central government with a single voice representing the emergency services. Strategic bodies that do exist, such as ACPO, NPFA, CFA (the Chief Fire Officers Association), the LGA (Local Government Association) and the Civil Contingencies Secretariat within the Cabinet Office, can set policy and issue guidance but often have little real power to push through change or legislation.

This affects ownership and governance of emergency response, as well as research and development of new technology or operational guidelines, budgets, training, procurement, use of available technology and systems, end-to-end ownership of projects and many other issues.

The lack of a single start (or end) point for any decision or action affecting the entire emergency response community also results in any initiative that seeks to improve the situation being perceived as partial: projects have to be initiated from within one of the stakeholder organisations, rather than from a neutral platform. As a result, interoperability programmes and projects tend to be accused of bias toward the initiator organisation, with the needs of its own members prioritised at the expense of equal consideration for all end-users. This creates a barrier to full engagement by all end-users; however at present the situation is largely inevitable as there is no genuinely neutral point from which such projects can start, nor any genuinely strategic overview.

The early research identified a number of models that might facilitate better joining-up of the emergency response community. These included hard join-ups (where existing emergency response organisations would be restructured under a single central agency, such as the Federal Emergency Management Agency in the United States), and soft-join ups, in which each agency retains its legislative independence but a stronger framework is developed for joint working; an example of a soft join-up would be Local Resilience Forums, which could be strengthened by permanent staff, increased budgets and powers to mandate certain training or equipment standards.

Stage Two Objective

The quantitative research carried out in the second stage of the research will seek to canvass opinion on international models of both hard and soft join-ups, and also to gauge opinion on the usefulness of existing

soft join-up initiatives such as the NPIA Interoperability Project, Local Resilience Forums and multi-agency training exercises, to see where future efforts should be best focused.

2. There is a need for a stronger framework for national resilience in England

Recognising that a complete restructure of the emergency services is unlikely in the near future, even if the forthcoming general election results in a change of government, a strengthening of national frameworks for resilience projects – both within regional forces of the same agency, and between one organisation and another – is a more likely and more achievable aim.

The research highlighted a number of projects which have been successfully introduced in recent years that have helped to facilitate national co-ordination and capability both within and between emergency agencies. These included programmes such as the Department of Health's HART (Hazardous Area Response Team) programme; the Fire and Rescue Service's New Dimension programme, including the Fire and Rescue Service National Co-ordination Centre (FRSNCC) in West Yorkshire; and multi-agency CBRN training at the Police National CBRN Centre (PN-CBRN-C) at Ryton.

However, while individually many projects were praised, there is still a lack of an overall framework for resilience projects and joint working in England compared to, for example, that provided by Scottish Resilience in Scotland. Projects often only focus on one area of response (such as Urban Search and Rescue, or CBRN) leading to silos and duplication. This is often a result of such projects being developed in isolation, from the bottom up rather than the top down, or from within one responder organisation, largely due to the issues highlighted in Research Finding 1 above.

A stronger framework which might include, for example, a single budget for some resilience activities, national standards for training and exercising, or legislation, standards and compliance to govern certain activities might help to strengthen the existing links and build on the good work that already exists.

Concerns over budget cuts or restrictions due to the current economic climate would appear to be a potential driver for encouraging a more joined-up approach to some activities in future, as organisations look for ways to use increasingly limited funds and resources more efficiently. This will be explored further in later stages of the research.

Stage Two Objective

The quantitative research will canvass opinion on how responders see this framework operating: for example, through centralised budgets, mandated training, centralised administration for some resilience activities or national qualifications. This will help to determine which initiatives would be welcomed and which might be resisted, or need more careful introduction.

3. The needs of different emergency responders must be recognised

The research highlighted that there has been a tendency to look for 'one size fits all' solutions to interoperability enablers (in terms of both technology and operational procedures), which perhaps does not sufficiently consider that different responder agencies have genuinely different needs, both in their day-to-day operations and also during multi-agency responses. Examples of this would be an insufficient consideration of the needs of organisations for which emergency response is their primary core business

(such as Fire and Rescue services) compared to those for whom it is only one, perhaps relatively minor, facet of their overall operations (such as Local Authorities); the needs of responders who are always deployed to an incident in specialist vehicles compared to those who are more likely to arrive on foot or in private cars; the levels of security clearance that staff are likely to hold; and their approaches to training and exercising. The relative seniority within their own organisations of representatives to Local Resilience Forums can also present a barrier, as the most senior manager(s) present will inevitably have a louder voice.

Interoperability is not at present considered to be a 'parliament of equals', where all the potential players' needs are considered equally. Some interoperability initiatives focus primarily on tri-service working between the three blue light services (fire, police and ambulance) only; some between all Category 1 responders, including local and national government agencies as well as the blue lights; and some reach more widely, including Category 2 responders and others such as volunteers and Third Sector responders. During planning, training and exercising, different organisations may be unable to engage to the same degree due to time and budgetary constraints even if they are invited to participate equally, which is not always perceived to be the case. Differing regional structures or the lack thereof can also be a barrier, particularly in the case of C2 responders.

This inequality of engagement would appear to be at least partly due to incomplete understanding of the needs of one responder organisation by others and could perhaps be improved by initiatives that would enable different responders not only to train and exercise together but to learn about how each of the others operates, including the skills and equipment they have (and, just as importantly, do not have), their operational and management structures, their roles during the response, and their place in the wider picture. Organisations that better understand one another will be able to work together more easily.

Stage Two Objective

The quantitative research will canvass opinion on how a better understanding of other organisations can be achieved and how existing initiatives are perceived. This will enable future efforts to be focused on preferred mechanisms to develop and enhance understanding.

4. Responder organisations need to be more aware of developments made by others

The discussions undertaken during the first stage of the research revealed that responders' knowledge and awareness of advances in interoperability is not always up to date. A number of criticisms that were levelled at organisations related to issues that, while they have caused problems in the past, have since been addressed or are in the process of being addressed. An example that can be cited here is the FRS National Co-ordination and Advisory Framework,⁵ published in September 2009, which should have been 'in the news' during the period of this research. It was mentioned by interviewees from the Fire and Rescue Service but not by anyone from other responder organisations. This suggests that there could be better channels for disseminating information on current interoperability programmes and policy. It should also be acknowledged, however, that this is another symptom of the lack of a real 'top' to emergency response management, meaning that while guidelines and policy can be issued, there may be no requirement to

⁵ The FRS National Co-ordination and Advisory Framework (NCAF) is an outcome of the FRS New Dimension Programme and sits within the responsibility of the Chief Fire and Rescue Advisor. It outlines a framework for an enhanced level of support and provision for the Fire and Rescue Service in responding to incidents that are of national significance or which require national co-ordination. It was published in September 2009.

even read, let alone to implement, that guidance, particularly across more than one agency. Mandating compliance with interoperability guidelines would also help to ensure that all responders are made aware of changes and advances.

Stage Two Objective

The quantitative research will canvass opinion on how a better understanding of other agencies can be facilitated.

Next Stages of the Research

Stage 2: Quantitative Research

The quantitative questionnaire has been sent out to individuals in Category 1 and 2 responders and supporting organisations via RUSI's own database and the databases of stakeholder organisations including the Airwave Sharer's List and the membership of BAPCO. It is being publicised on the RUSI website and in trade press publications and websites including *The Emergency Services Times*, the *BAPCO Journal*, *Fire Magazine*, *Contingency Today*, *Resilience* (the magazine of the Emergency Planning Society) and *Emergency Global*. The questionnaire survey will remain open until 28 February 2010, after which the results will be collated and analysed.

Stage 3: Qualitative Interviews

Issues raised by the responses to the questionnaire will be followed up via a series of qualitative interviews with key stakeholders, to be conducted between March and May 2010.

Stage 4: Publication of Final Report

The final report will be published on 1 June 2010.

Review of Delivery Plan

Fields containing an asterisk (*) indicate that work has been completed.

	Week	2	4	6	8	10	12	14	16	18	20	22	24
Milestone	Activity												
Set-up interviews		*											
Project start: 01/10/09		*											
	Fieldwork	*	*	*	*	*							
	Interim report writing				*	*							
Interim report: 01/12/09						*							
	Transcription/ Analysis		*	*	*	*							
	Draft report writing			*	*								
Workshop: 07/12/09						*							
	Additional fieldwork						*	*					
Conference: 30-31/03/10													
	Final report writing												
Final report: 01/04/10													

Annex 1: List of Interviewees

10 August 2009	David Cloake	Head of Emergency Planning, Kent County Council
26 August 2009	Robert Morgan	Airwave SO2, 2 Signal Brigade
27 August 2009	Ian Cameron	News Editor, BBC Nations and Regions
27 August 2009	Ray Trotter	Executive Director, BAPCO
1 September 2009	Jason Bricknell	6pm Management Consultancy (UK) Ltd (formerly SunGard)
5 September 2009	Paul Hayden	CFO, Hereford & Worcester Fire and Rescue Service
28 September 2009	Wg Cmdr Richard Garston	SO1 J5 HQ SJC (UK)
28 September 2009	Col Nik Chapman	HQ SJC (UK)
2 October 2009	Rob Walley	Co-Chair, Multi-Agency Airwave User Group; Brent Council
2 October 2009	Siobhan Scott	Airwave Solutions Ltd
2 October 2009	Rupert Cazalet	Airwave Solutions Ltd
2 November	Siobhan Scott	Airwave Solutions Ltd
11 November 2009	Rupert Cazalet	Airwave Solutions Ltd
23 November 2009	Peter House	Fire and Rescue National Resilience Assurance Team
23 November 2009	Kim Robinson	Chief Executive, Fire Service College
26 November 2009	Geoff Lowe	National Inter-operability Manager, NPIA

A further nine interviews were carried out with interviewees who did not reply with permission to be named by the deadline given for publication of the interim report.

Workshops/events attended during the course of the research

8 September	Airwave Sharer Seminar	Hillmorton, Rugby
18 September	Airwave Sharer Seminar	London
21 September 2009	FloodEx 2009	Fire Service College, Moreton-in-Marsh
24 September 2009	NPIA, DEIT Workshop	London
7 October	BAPCO Roadshow	Newcastle
4 November	BAPCO Roadshow	Coventry
13 November	Olympic Security	RUSI, London
24-26 November	Emergency Services Show	Coventry
30 November	BAPCO Round Table	RUSI, London
7 December	Communicating in a Crisis	RUSI, London