SECRICOM

Seamless Communication for Crisis Management

Presentation to BAPCO Roadshows 2009

Rich Edwards, Shaun O'Neill

SEVENTH FRAMEWORK PROGRAMME

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Key project facts

- Seventh Framework Programme – FP7
- Wireless Communication for EU Crisis Management
- 13 Partners
- Start date: 1st September 2008
- End date: 30th April 2012
- 44 months duration
- Total cost ~ €12.5M
- EU contribution ~ €8.6M

The Consortium

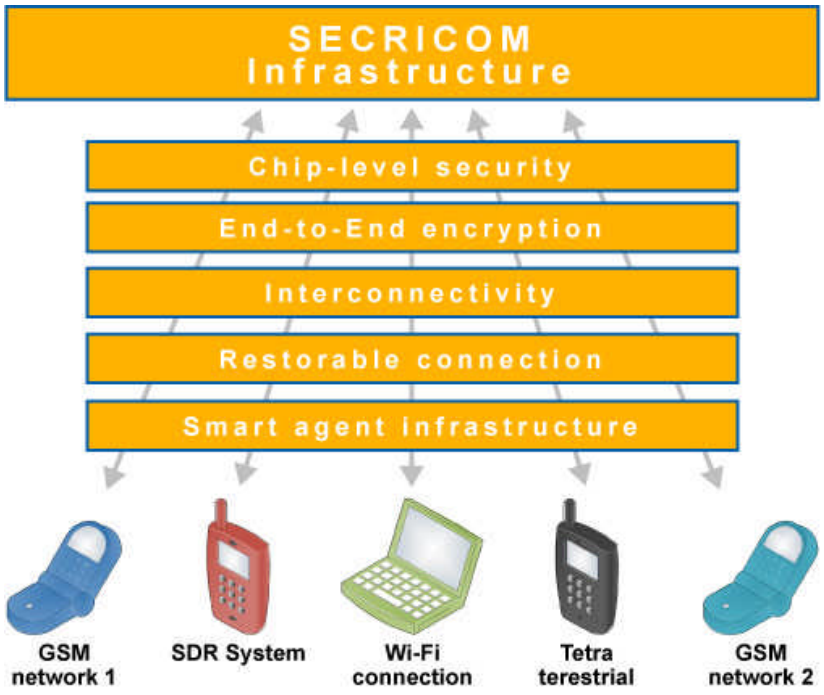
SECRICOM
Seamless Communication for Crisis Management

Manufacturers & NGO | **Research & SMEs** | **Universities**

SEVENTH FRAMEWORK
PROGRAMME

Vision

- Ability for responders to operate across different European emergency services / responder agencies as one cohesive unit at the time of a crisis

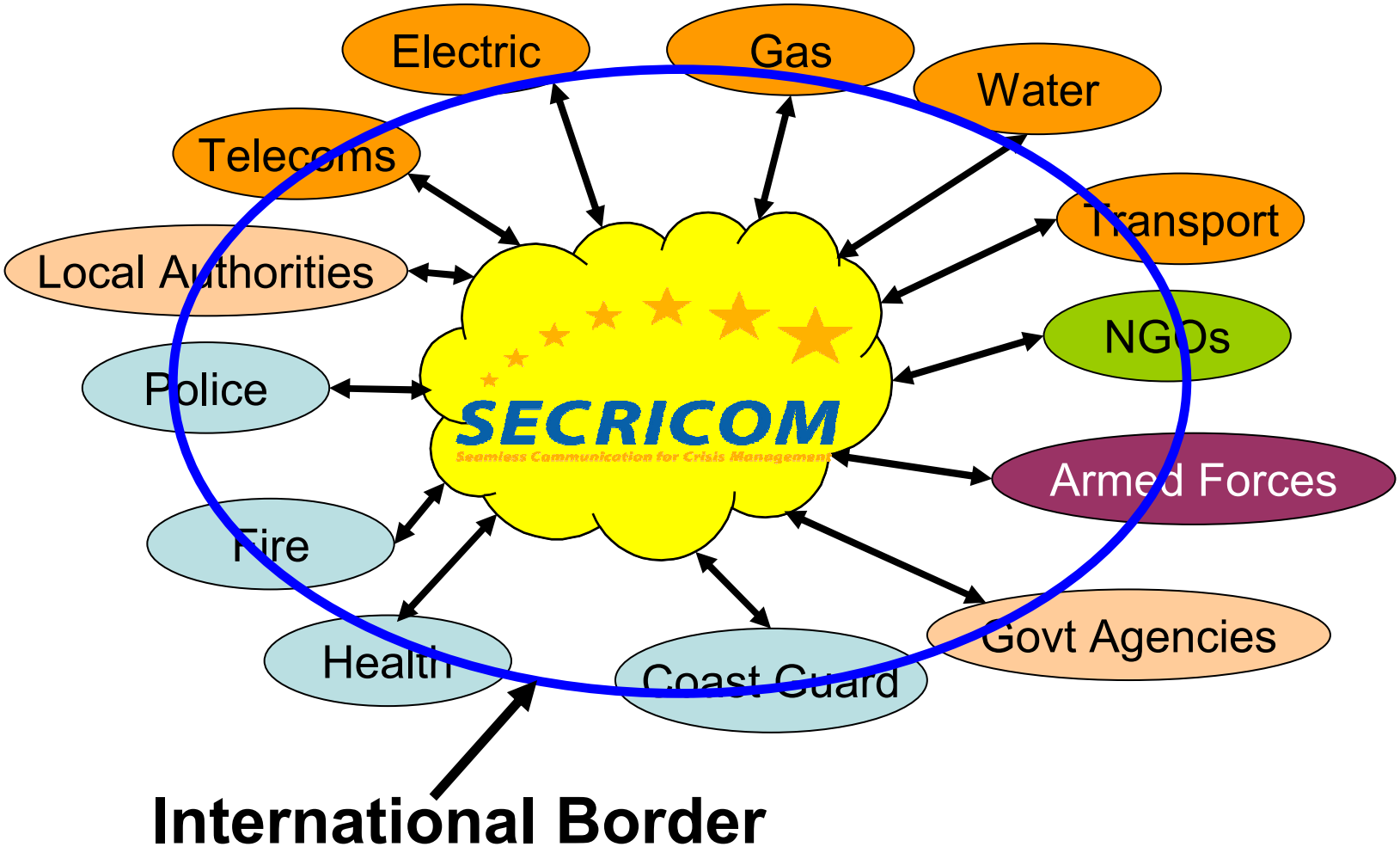


- Secure infrastructure for communication during a crisis with technical interoperability built into the design

Aims

- Exploit existing communication systems
- Enhance interoperability among heterogeneous secure communication systems
- Enhance interconnectivity between different networks and User Access Devices
- Interface towards emerging SDR systems
- Mitigate key capability gaps faced by users of existing systems

Business Stakeholders



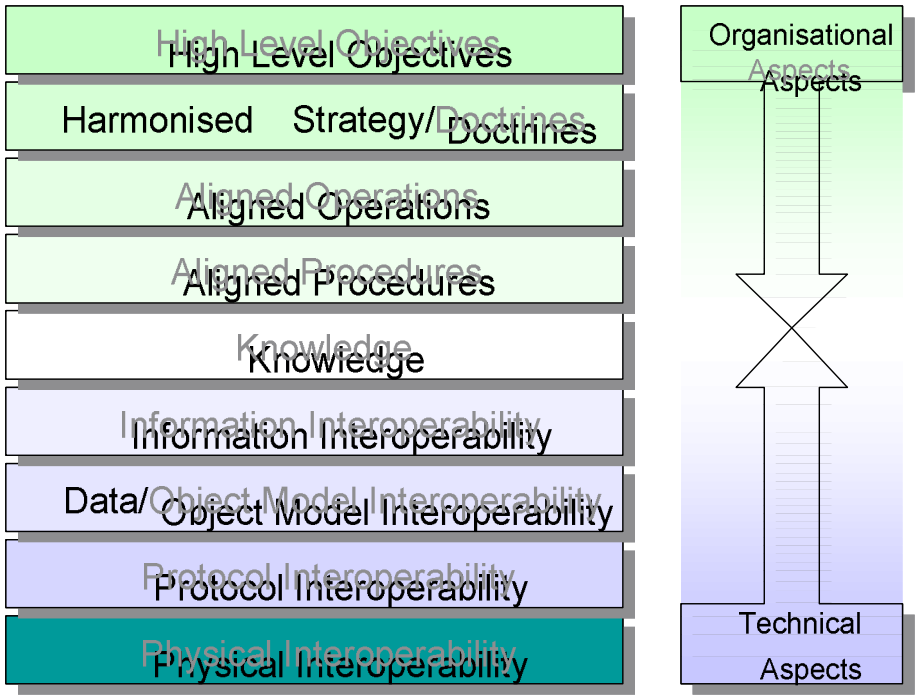
Interoperability

Definition:

The capability of two or more organisations or discrete parts of the same organisation to exchange decision-critical information and to use the information that has been exchanged.

Clearly, interoperability ranges from organisational to technical aspects all of which must be 'harmonised' in order to achieve full interoperability.

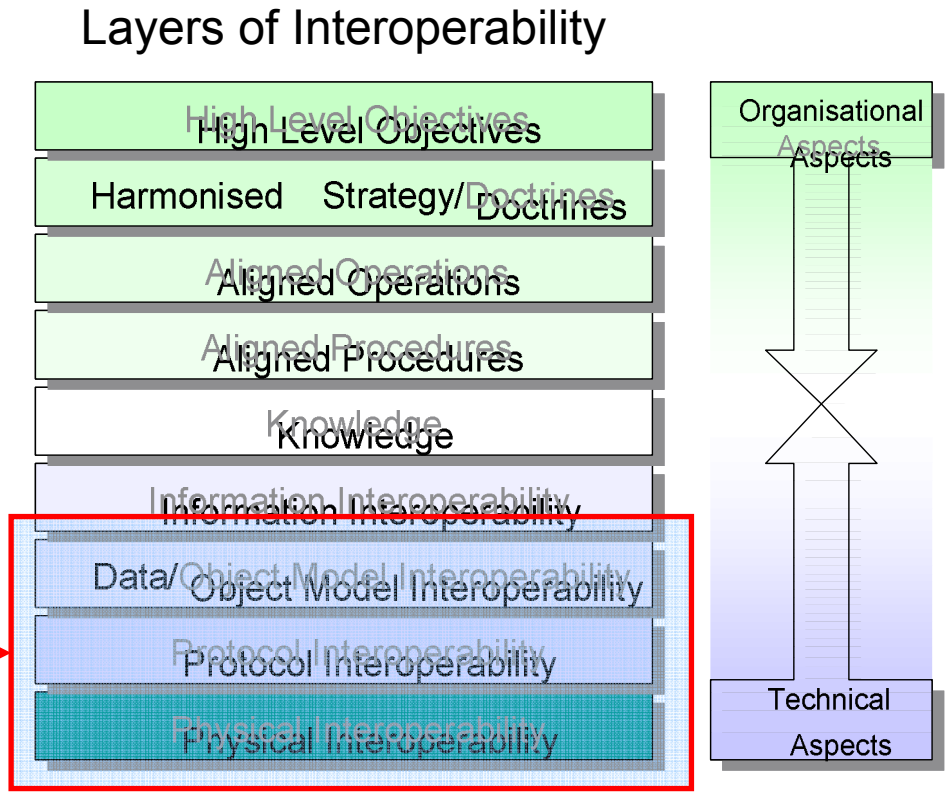
Layers of Interoperability



Interoperability and SECRICOM

Seamless Communication for Crisis Management

Scope: The technical aspects of Interoperability



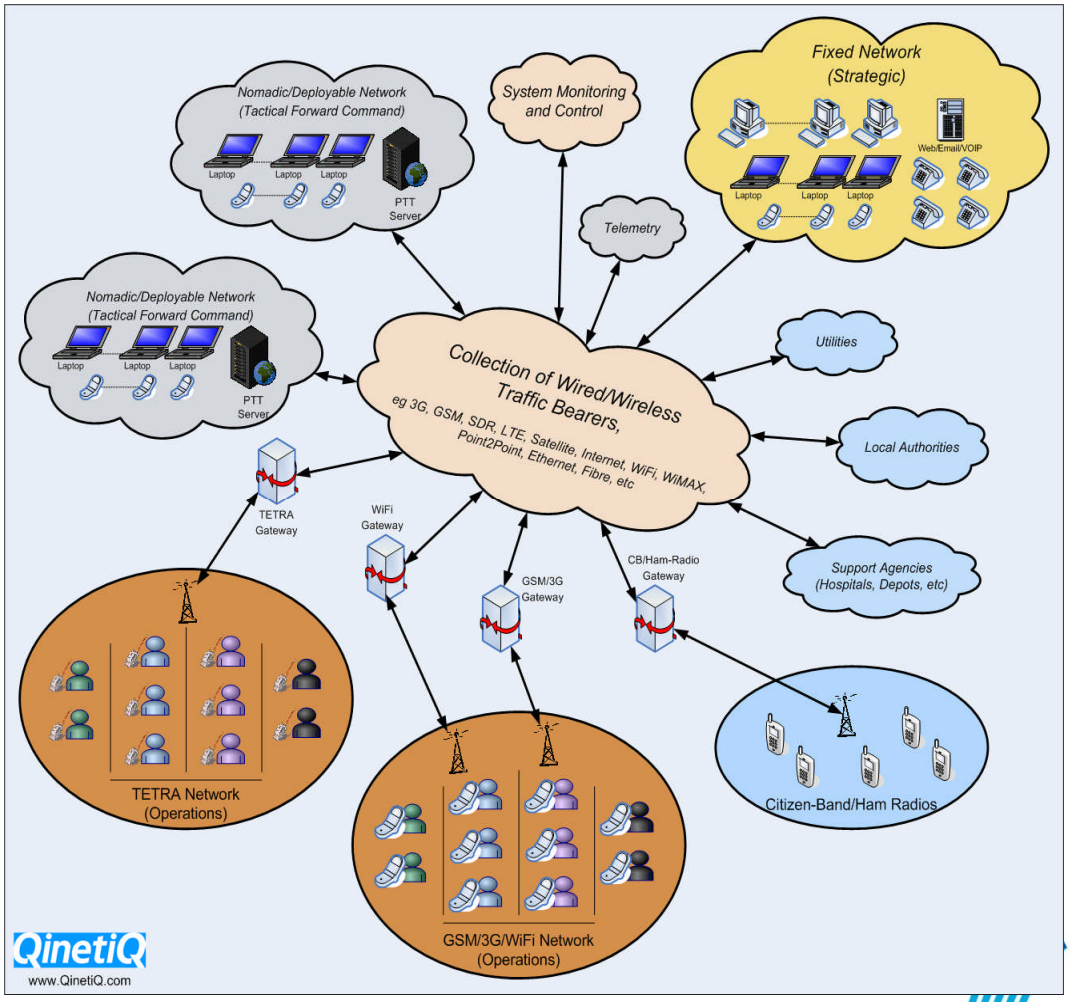
Communications System Architecture

- Ubiquitous communications requires usage of as many communication systems and avoidance of reliance on a single system
  - Make simultaneous use of 3G, GSM, WiFi, WiMax, Satellite, SDR, etc
  - Aim for seamless switch over with minimal impact to user/business
- Interoperable communications requires usage of open/non-proprietary standards for system, hardware and software
  - Network: IPv6 as the principle standard for networking: future-proof
  - Wireless: 3G, GSM, WiFi, WiMax, TETRA, Satellite, etc
  - Fixed: Ethernet

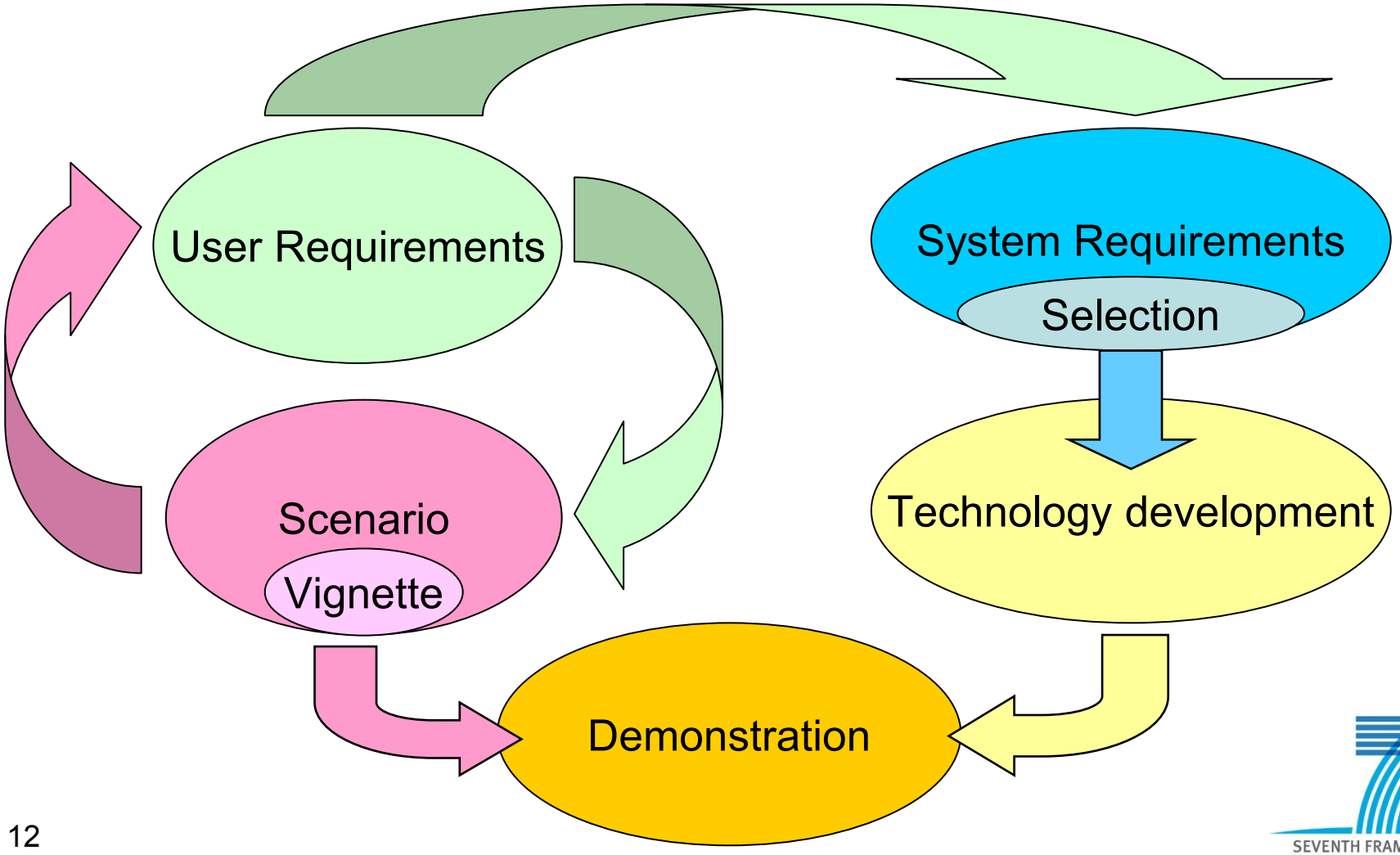
Holistic High Level View

The communications system architecture allows:

- *Technical interoperability:* Able to extend comms across different agencies and countries
- *Service expandability:* Able to extend comms into areas of poor coverage



Project Approach



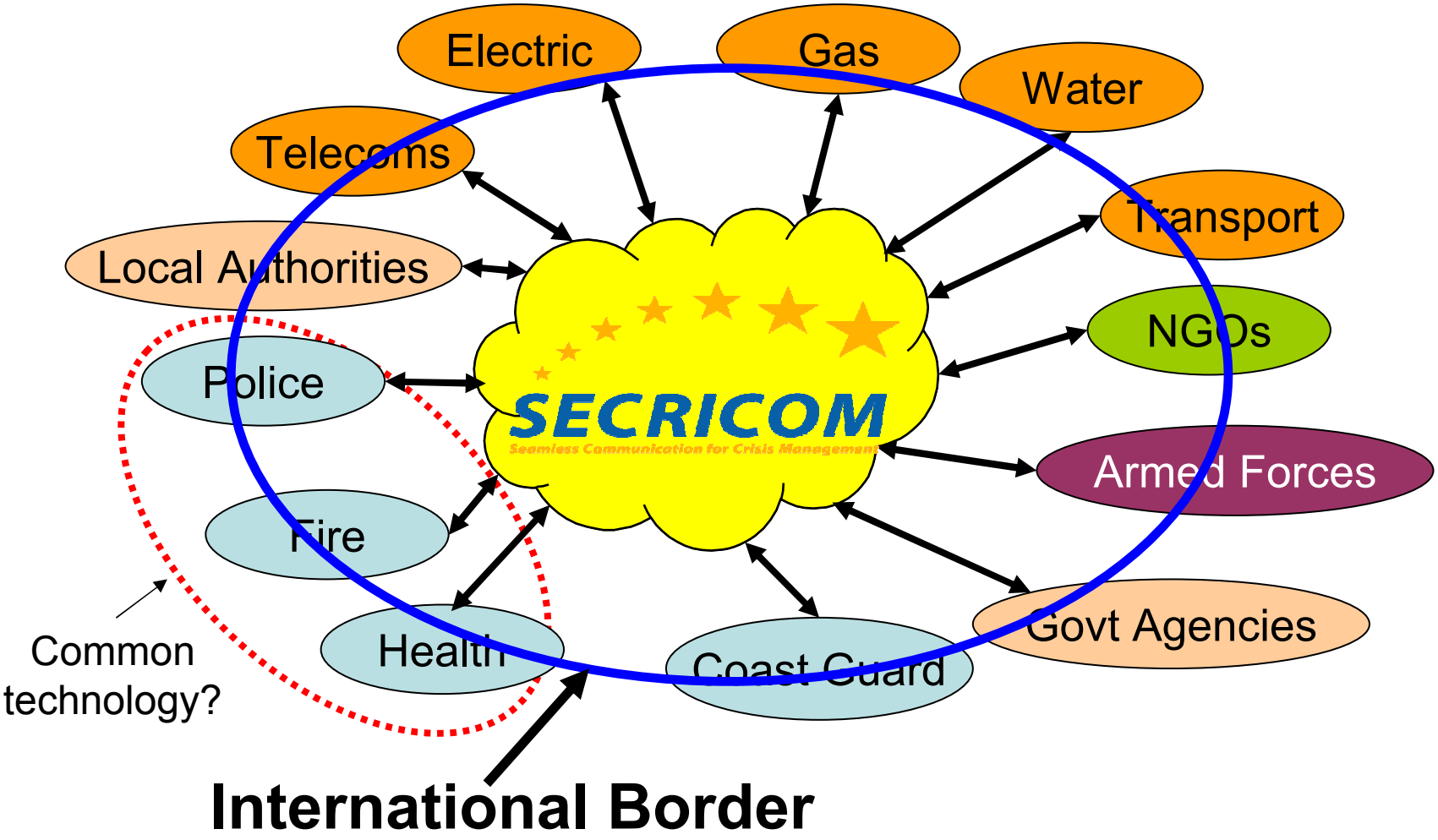
Communication System

Capability Gap and Interoperability Analysis

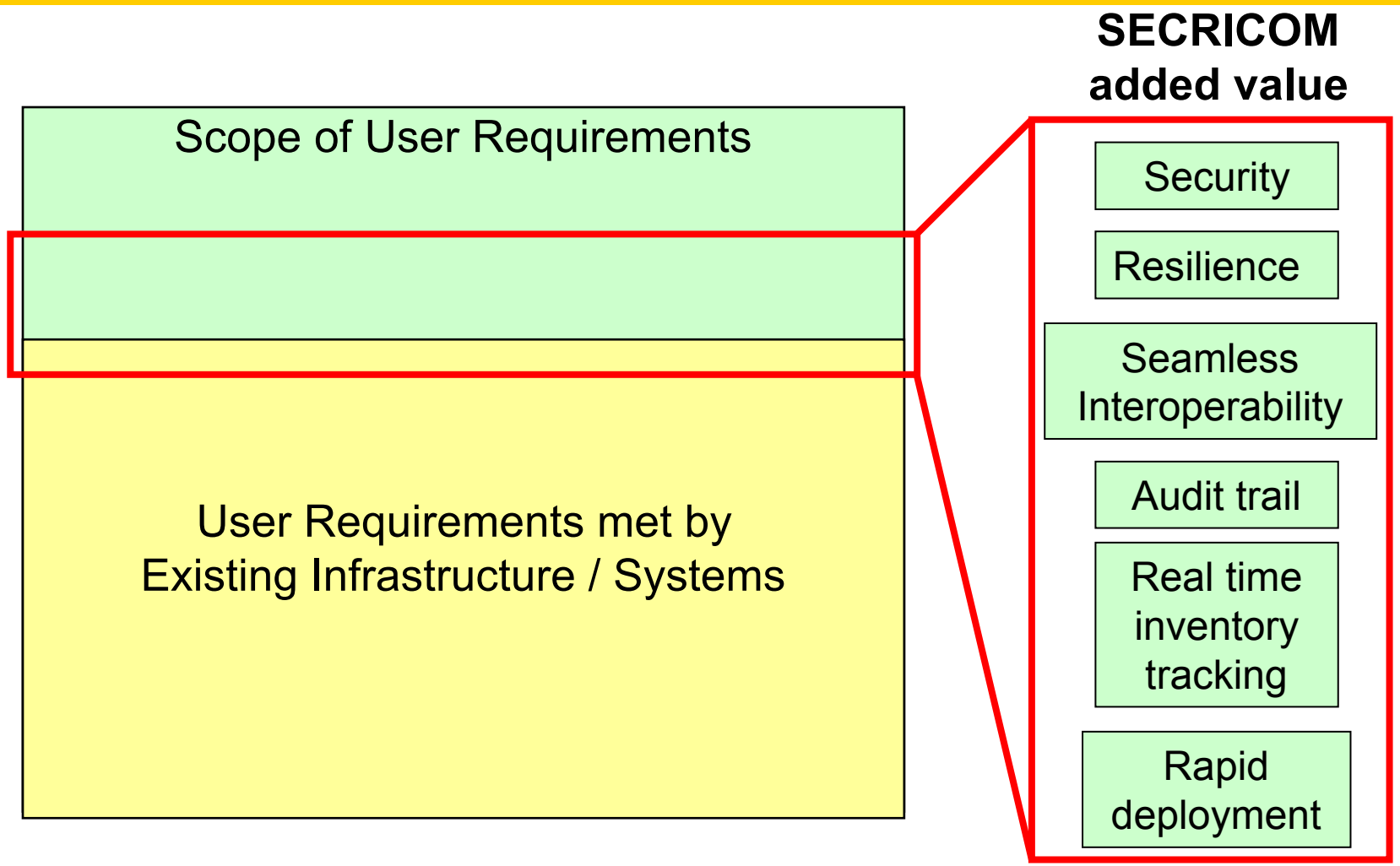
Capability Gaps

- SECRICOM aims to mitigate key capability gaps faced by users of existing systems
- Why do we need to define the gap?
  - Define scope and priorities for SECRICOM
  - Provides focus for demonstration
- How do you compare user requirements against existing infrastructure?

Context


Electric
Gas
Water
Telecoms
Transport
Local Authorities
NGOs
Police
SECRICOM
Seamless Communication for Crisis Management
Armed Forces
Fire
Govt Agencies
Health
Coast Guard
Common technology?
International Border

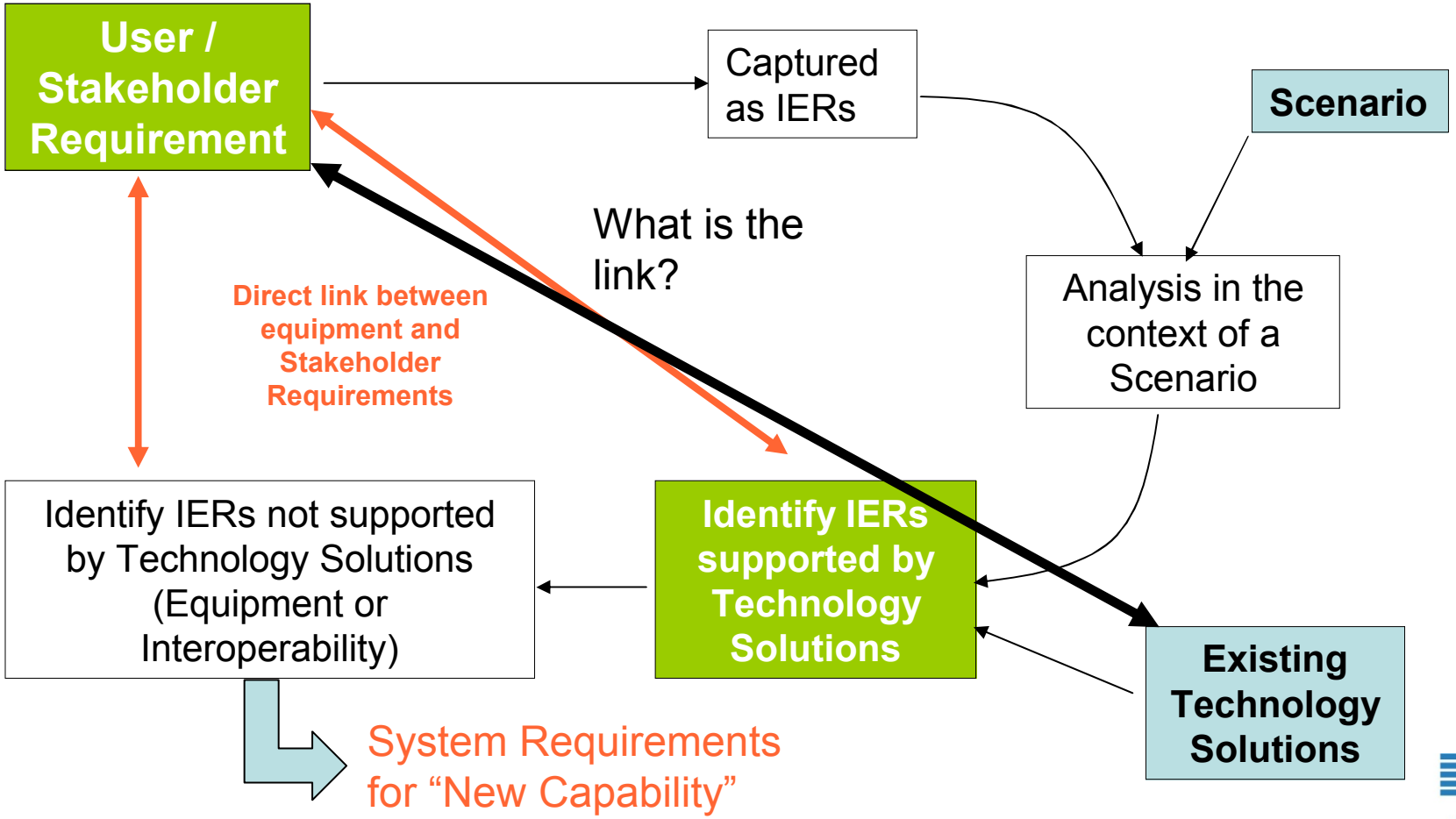
Capability Gaps - illustrative



Outline Process

- Develop Information Exchange Requirements (IERs) from the User Requirements;
- Analyse IERs in the context of a scenario;
- Model existing communications architecture;
- Identify which IERs would be supported by the current architecture;
- Non supported IERs indicate Capability / Interoperability shortfall.

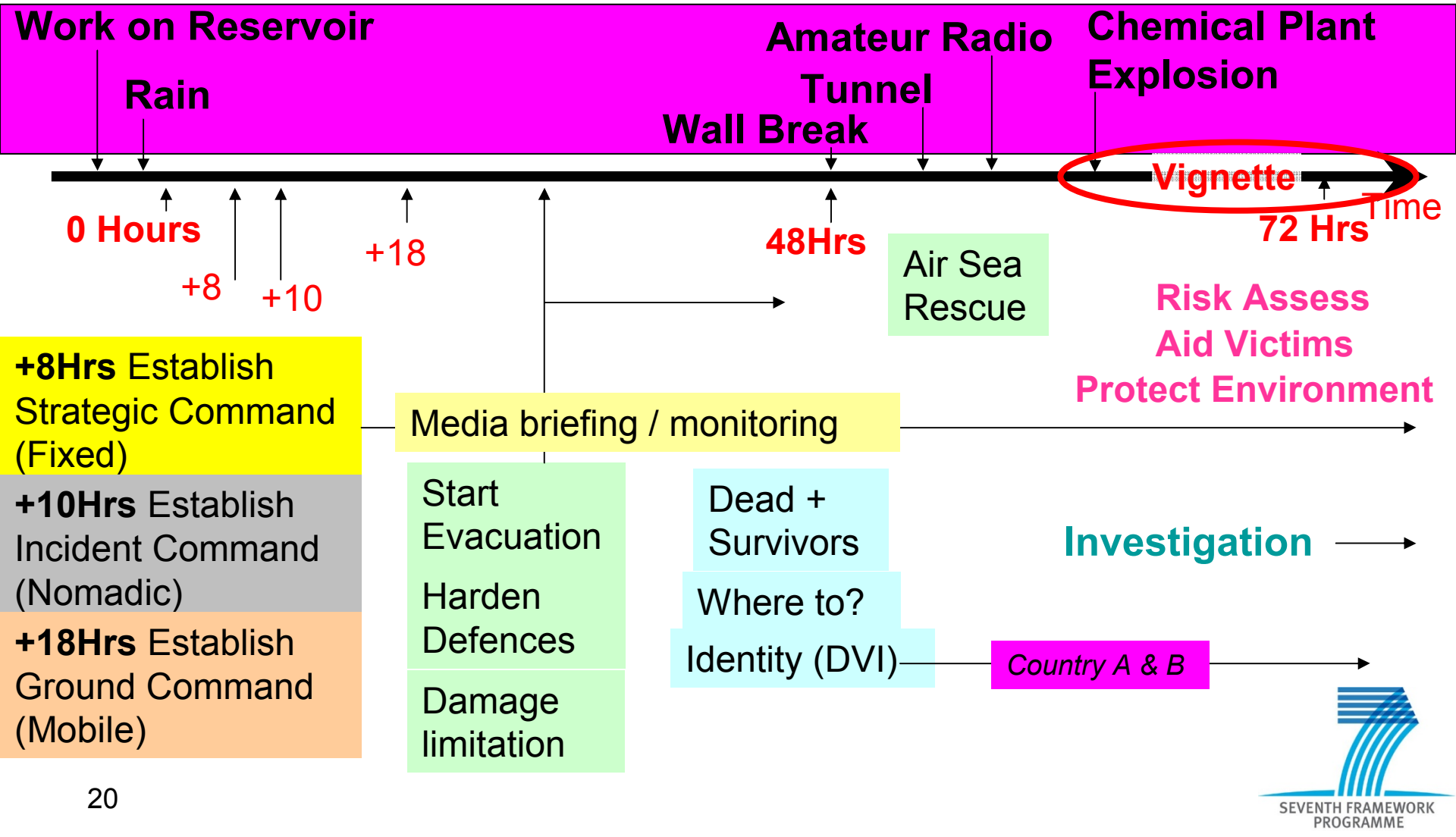
Capability Gap Analysis



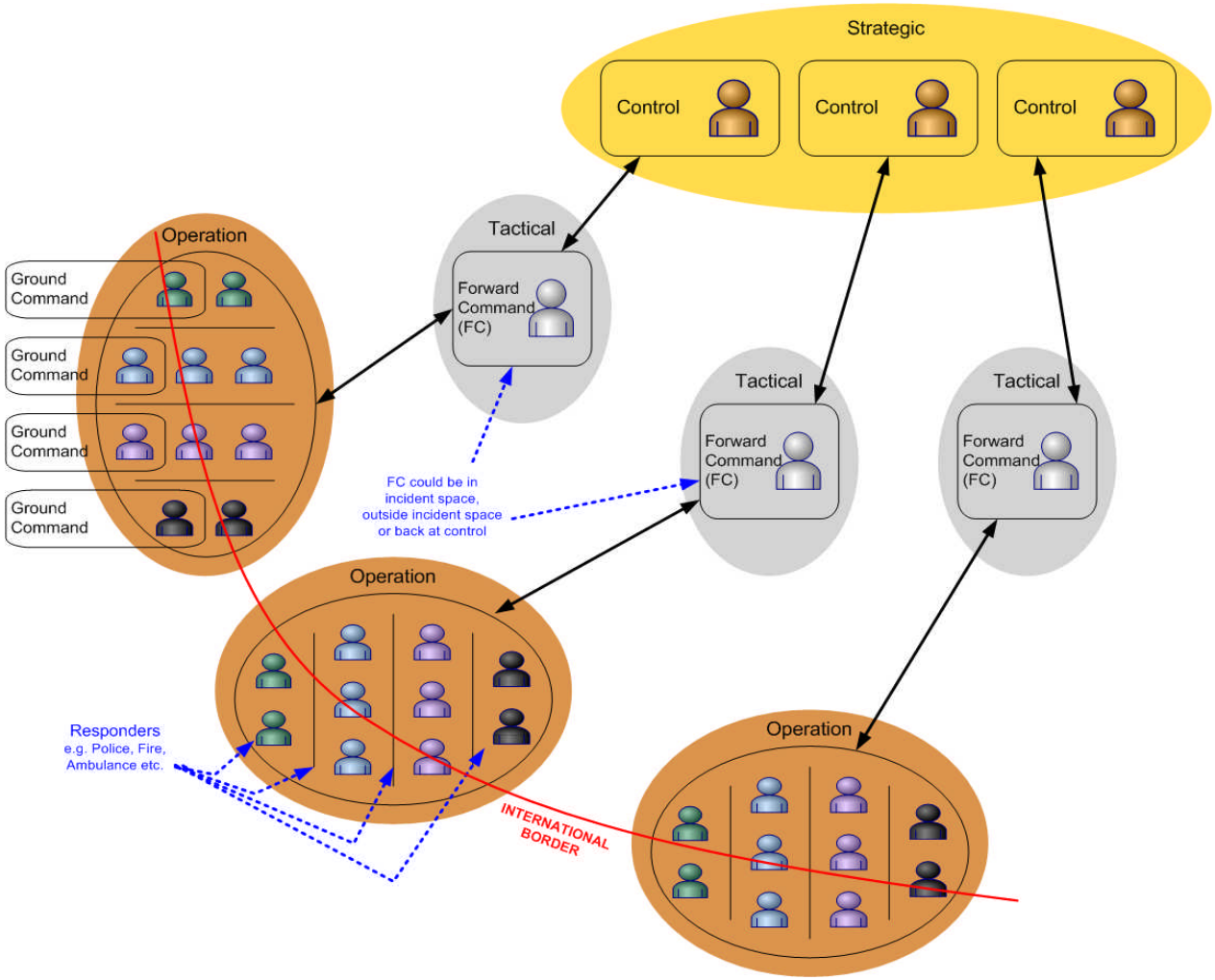
Scenario outline

- Country ‘A’ reservoir (close to state border with country ‘B’) is under repair
- Heavy rain causes water level to rise
- Expert advice – wall collapse in 72 Hours
- Threat to:
  - Urban environment
  - Chemical plant
  - Power plant
  - Transport / Communications Infrastructure

SCENARIO


Work on Reservoir
Rain
Wall Break
Amateur Radio
Tunnel
Chemical Plant
Explosion
Vignette
Time
0 Hours
+8
+10
+18
48Hrs
72 Hrs
Air Sea
Rescue
Risk Assess
Aid Victims
Protect Environment
+8Hrs Establish
Strategic Command
(Fixed)
+10Hrs Establish
Incident Command
(Nomadic)
+18Hrs Establish
Ground Command
(Mobile)
Media briefing / monitoring
Start
Evacuation
Harden
Defences
Damage
limitation
Dead +
Survivors
Where to?
Identity (DVI)
Country A & B
Investigation

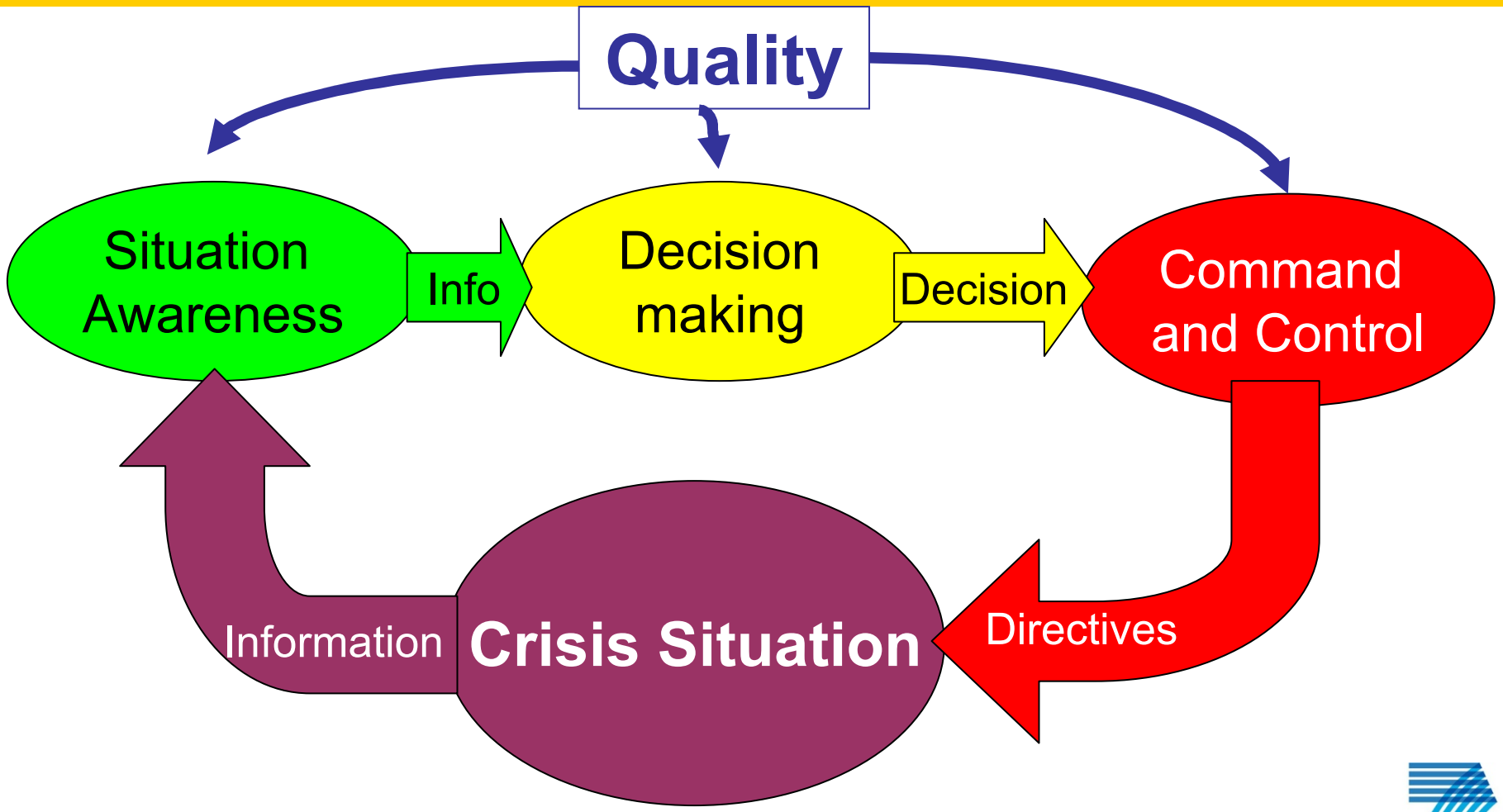
Typical C2 for Crisis Management



Extends across international borders

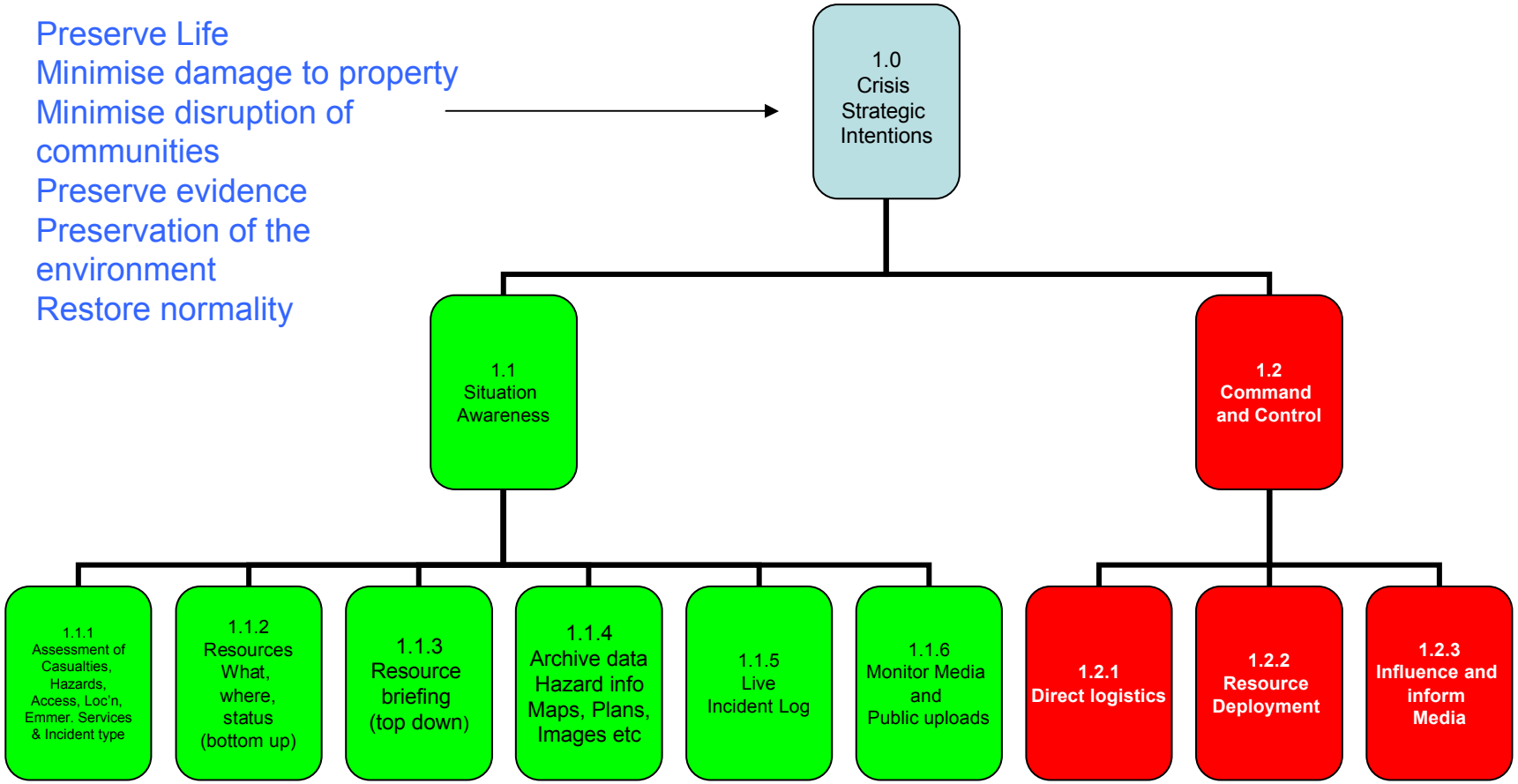
Extends across different agencies

Principle of Crisis Management

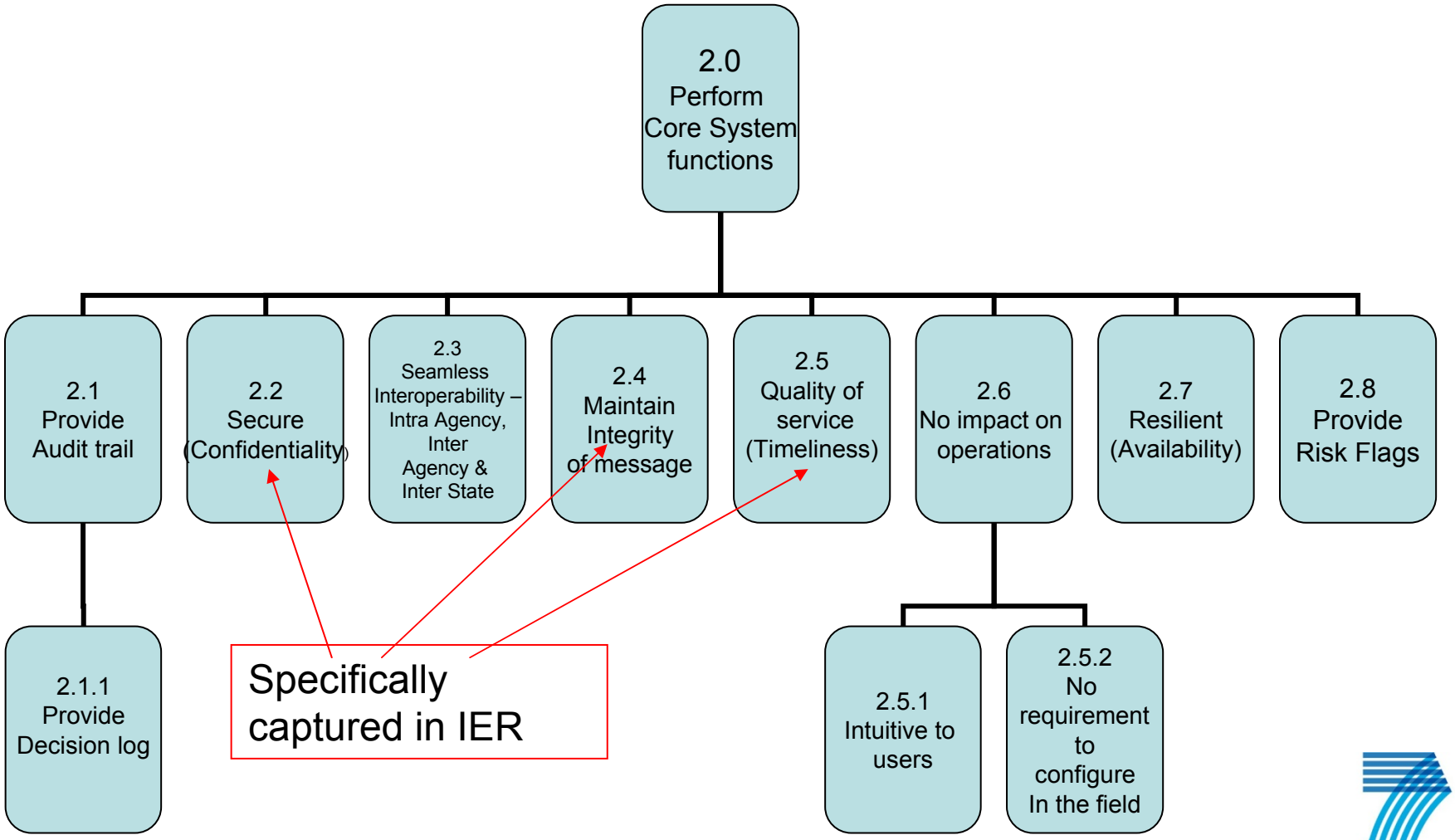


Top level User Requirements

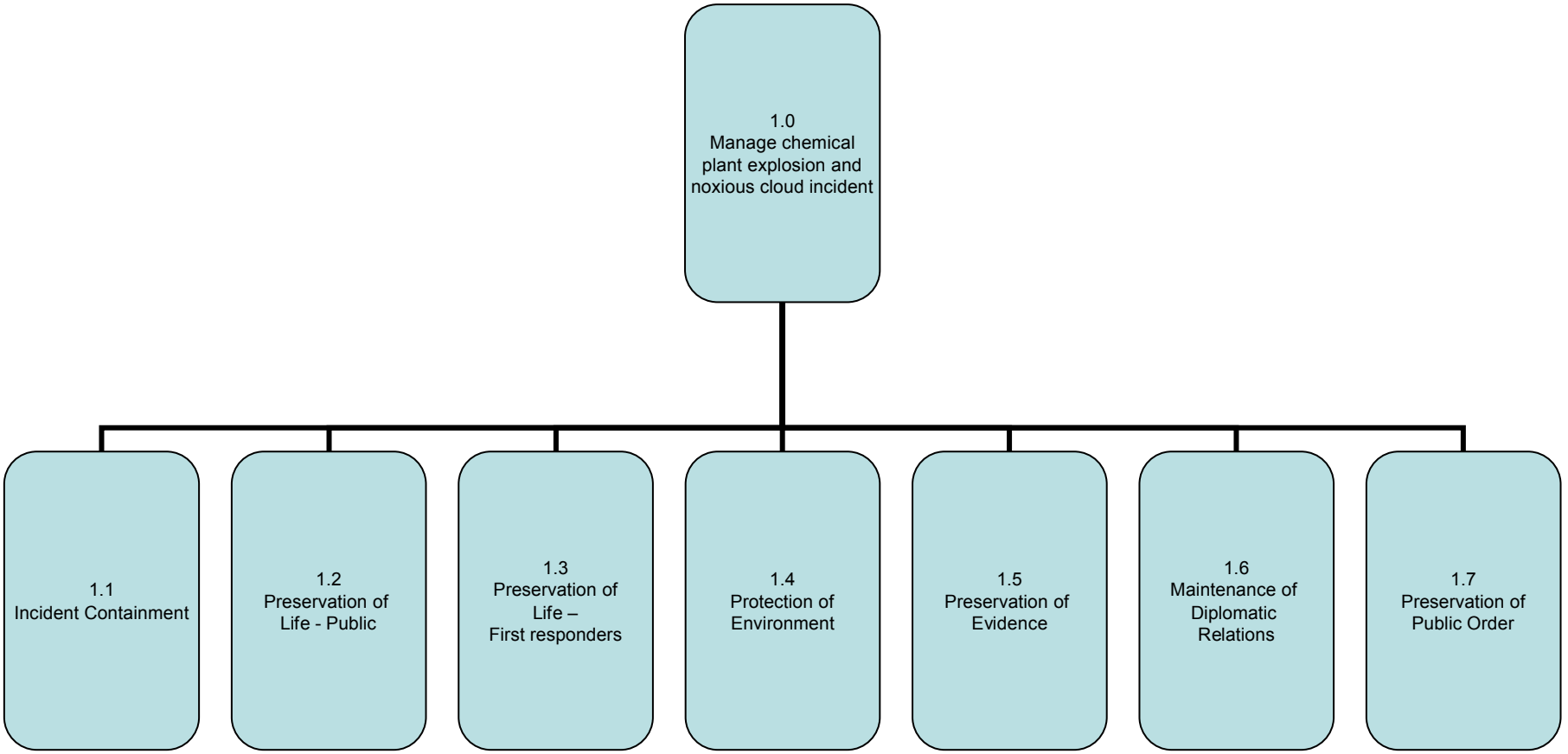
Preserve Life
Minimise damage to property
Minimise disruption of communities
Preserve evidence
Preservation of the environment
Restore normality



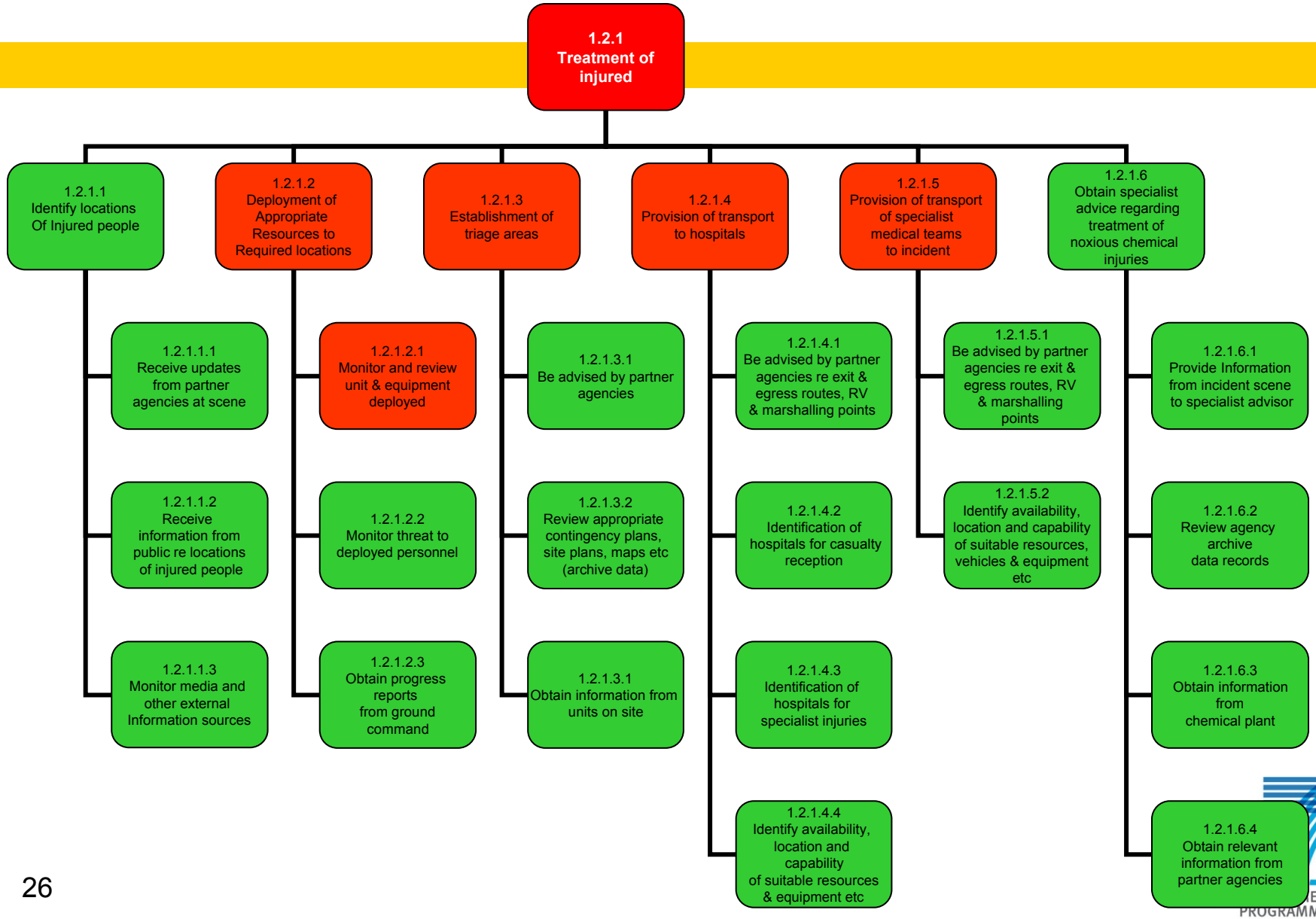
Core Functions



Use Case (Vignette Example)

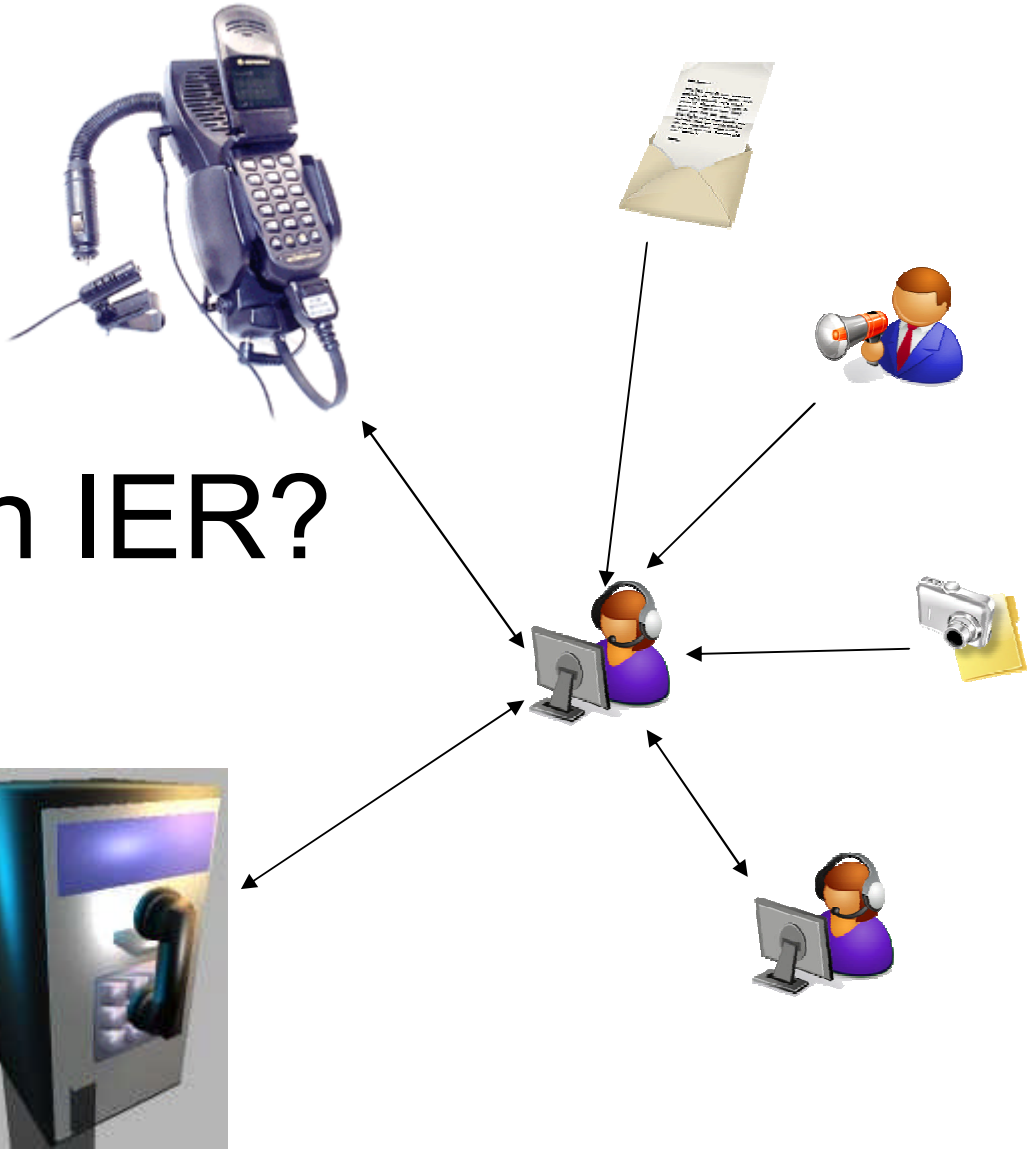


Use Case (Vignette Example) – Preservation of Life (Public) – Treatment of Injured



Use Case (Vignette Example)

What is an IER?



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Information Exchange Requirements

An IER is the

“Unconstrained User Requirement for Information Exchange”

e.g. Crisis M
Planning, Ta

e.g. Confe

ng

s of all

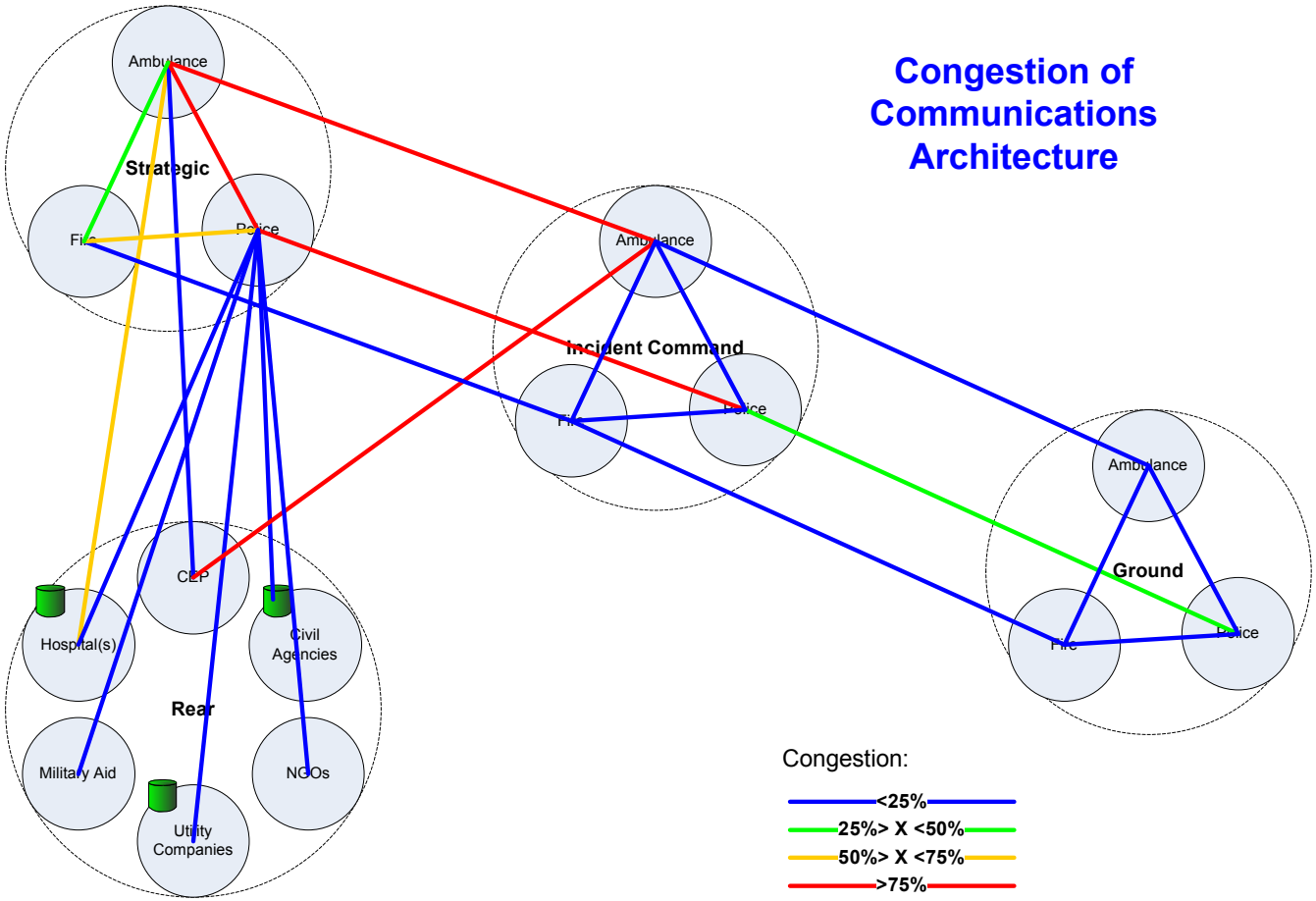
these Information Exchange
Requirements within a context (e.g.
Scenario(s), Solutions, etc)

e.g. Information Dissemination –
email, letter, messaging

Information Exchange Requirements

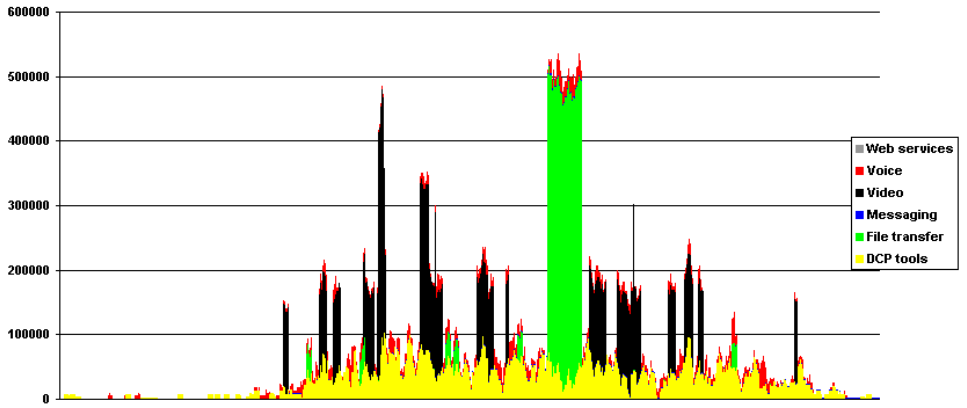
- Key Information required:
  - Source & Destination
  - Information Type (e.g. Voice, Data)
  - Size (linked to Information Type)
  - Timeliness ("worst case time to delivery")
- Additional Information required:
  - Criticality
  - Other analysis attributes

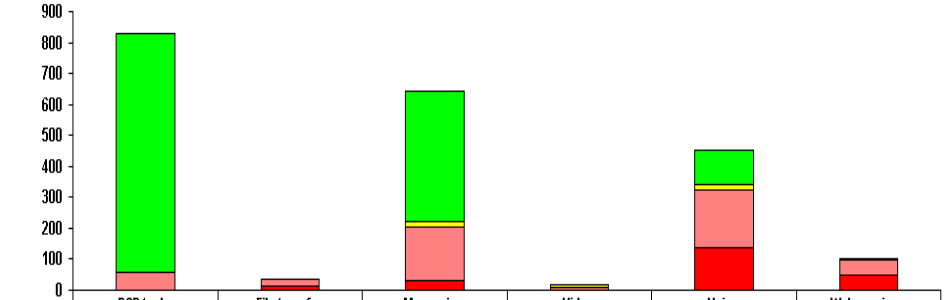
IER Analysis



IER Analysis (cont.)

- Numerous results types available, including:
  - 24-hour Traffic Profiles
  - Average Network / Comms loadings
  - Breakdowns of traffic types over links or sourced / sinked at Nodes





	DCP tools	File transfer	Messaging	Video	Voice	Web services
Medium	771		423.5	3	109	
Low			15.75	7	18	3
High	56	23.2	174.5	9.1	187.3666667	49.2
Essential	0.5	12	31		136	50

Role: Operational Tasks					JFHQ			MOD (UK)			PJHQ		
Location		Network service	Communications service	Qualifier	Above Restricted Throughput	Restricted & Below Throughput	Value	Above Restricted Throughput	Restricted & Below Throughput	Value	Above Restricted Throughput	Restricted & Below Throughput	Value
Reachback	Allied	Circuit Switch	Video	Non-real time									
				Real time									
			Voice	Full duplex									
		IP Data	DCP tools										
			Fax										
			File transfer		L		H						
			Messaging	Formal	L		M		L	L			
				Informal									
			Network Config										
			Web services										
	Civil	Circuit Switch	Video	Broadcast									
				Non-real time									
				Real time									
			Voice	Full duplex		L	M						
		IP Data	DCP tools										
			Fax										
			File transfer										
			Messaging	Formal					L	L	L		H
				Informal		L	L						
			Network Config										
			Web services										
	UK	Circuit Switch	Video	Broadcast	L		H				M		H
				Non-real time									L
				Real time	L		M				L		M
			Voice	Full duplex	L	L	M	L	L	L	L	L	M
		IP Data	DCP tools		L	L	L	L	M	L	L	L	
			Fax										
			File transfer		H		M	L		M	M		H
			Messaging	Formal	H	L	M	L	L	L	H	L	M
				Informal	L	L	L	L		L	L	L	M
			Network Config										
			Web services		M	M	M				L		VH

Benefits to the Stakeholder

- User driven process for IER capture and update
- IERs are derived from Stakeholder Needs and Requirements
- Captured IERs are automatically available for future use
- Modular IERs reusable across multiple scenarios
- Structured Systems analysis maps IERs to user systems and applications
- Can be used to quantify the Capability Gap

Where are we?

- User Workshop to define IERs September 2009 in London – with thanks to BAPCO members:
  - Jim A'Court - London Fire Brigade
  - Aaron Goddard - Northamptonshire County Council
  - Peter Kendall - Dept of Health
  - Simon Moase - Hampshire Constabulary
  - Ken Mott
  - Ray Trotter
  - Shaun O'Neill
- IER Flow diagrams for captured IERs for Scenario Use Case
- Defined Scenario C2 and Players
- Initial identification of System Solutions

Thank you for your attention

SECRICOM Website (www.secricom.eu)

Rich Edwards
Tel: +44 (0) 2392 31 2259
Fax: +44 (0) 2392 31 2852
Mobile: +44 (0) 778 6321030
E-mail: raedwards1@qinetiq.com

John Stoodley
Tel: +44 (0) 2392 31 2493
Fax: +44 (0) 2392 31 2240
Mobile: +44 (0) 792 0531020
E-mail: jastoodley@qinetiq.com

Shaun O'Neill
Mobile: +44 (0) 785 925450
E-mail: euprojectofficer@bapco.org.uk
E-mail: shaunoneill403@hotmail.co.uk