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14. ABSTRACT  The events of September 11, 2001 moved the issues of anti- and counter-terrorism, national/public security, and collective emergency response (both crisis and consequence management) to the fore of concerns of many nations. Critical infrastructures, major events (e.g. Olympics), harbours and airports protection against terrorist attack are examples of kinds of complex situations typical of the post 9/11 new security paradigm. The military viewpoint alone is not sufficient to meet the increase in terrorist threat that is diverse and unpredictable; as such threat requires a consideration of collective security that expands to cooperation with multiple non-military organisations. This Symposium addresses key issues and concepts to help military organisations working together effectively with other civil authorities at all levels, National and International allies for the management of a Collective Response to a Crisis/Emergency. Topics covered are: decision-support, information management, human systems integration, knowledge management in crisis and emergency situations, distributed collaborative planning. The Symposium addresses a number of current NATO priorities, including NATO Rapid Response, and Defence against terrorism (DAT).					
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**RTO MEETING PROCEEDINGS**

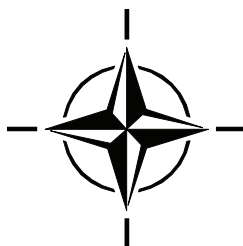
**MP-IST-086**

# **C3I for Crisis, Emergency and Consequence Management**

(C3I pour la gestion des crises, des urgences  
et de leurs conséquences)

Papers presented at the Information Systems and Technology Panel (IST)

Symposium held in Bucharest, Romania 11 May to 12 May 2009.



Published May 2009

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# **C3I for Crisis, Emergency and Consequence Management**

## **(RTO-MP-IST-086)**

### **Executive Summary**

The events of September 11, 2001 moved the issues of anti- and counter-terrorism, national/public security, and collective emergency response (both crisis and consequence management) to the fore of concerns of many nations. Critical infrastructures, major events (e.g. Olympics), harbours and airports protection against terrorist attack are examples of kinds of complex situations typical of the post 9/11 new security paradigm. The military viewpoint alone is not sufficient to meet the increase in terrorist threat that is diverse and unpredictable; as such threat requires a consideration of collective security that expands to cooperation with multiple non-military organisations.

In the event of a large-scale terrorist emergency situation, that would necessitate the ability to coordinate multi-agency and multi-national operations, advanced decision support, knowledge exploitation, information fusion and knowledge management tools can significantly improve the ability to respond to such emergency.

This Symposium addressed key issues and concepts to help military organisations working together effectively with other civil authorities at all levels, National and International allies for the management of a Collective Response to a Crisis/Emergency. This symposium provided a forum for the exchange of relevant state-of-the-art knowledge organized into five (5) sessions as follows:

- SESSION 1 – Communications Strategies and infrastructures
- SESSION 2 – Information and Knowledge Management
- SESSION 3 – Situational Awareness
- SESSION 4 – Decision Support
- SESSION 5 – Information Fusion and Sensor Networks

The Symposium program comprised four (4) non-NATO contributions from (China, Singapore, Russia, Israel). Unfortunately, the paper from Russia was received too late to be included in the proceedings.

The round table discussion has been replaced by an expert answer-question monologues where several interesting issues have been brought to conclude the symposium such as: partition the problem space, define standards for decision support, common data sets or benchmarks, common metrics, suggest inter-panels events.

Decision support in any context is achieved through an in-depth analysis of three (3) important interrelated aspects, namely Process, Organization and Technology. The IST-086 was mainly focused on the technology (IST focus is technology) aspect of crisis, emergency and consequence management, while the process and organization aspects were very slightly mentioned by a few presenters. An important suggestion was to organize an inter-domain inter-jurisdictional event with the “users of the technologies”, domain personnel from many agencies and organizations who are responsible to provide crisis, emergency and consequence management together with technology experts to help the technologists better appreciate the process and organizational aspects and the users of this technologies develop a better understanding of how technologies can enhance their ability to provide crisis, emergency and consequence management.



# **C3I pour la gestion des crises, des urgences et de leurs conséquences**

**(RTO-MP-IST-086)**

## **Synthèse**

Les événements du 11 septembre 2001 ont placé au premier plan des préoccupations de nombreuses nations les questions d'anti-terrorisme et de contre-terrorisme, de sécurité nationale/publique et de réponse collective face aux situations d'urgence (à la fois gestion des crises et gestion de leurs conséquences). Les infrastructures critiques, les événements majeurs (par exemple les jeux olympiques), la protection des ports et des aéroports contre les attaques terroristes sont des exemples de ce genre de situations complexes typiques des nouveaux défis à la sécurité après le 11 septembre. Face à une menace terroriste croissante qui se présente sous des formes diverses et imprévisibles, le traitement militaire seul ne suffit pas. Ce type de menace, nécessite en effet d'adopter une approche collective de la sécurité étendue à une coopération avec de multiples organisations civiles.

Dans le cas d'une situation d'urgence terroriste à grande échelle qui nécessiterait la capacité de coordonner des opérations multinationales et multi-agences, un support décisionnel avancé, l'exploitation des connaissances, la fusion des informations et des outils de gestion de la connaissance peuvent améliorer de façon significative la capacité de réponse.

Ce symposium a abordé les points clés et les concepts susceptibles d'aider les organismes militaires à travailler efficacement avec les autorités civiles à tous les niveaux, nationaux et internationaux pour la gestion d'une réponse collective à la crise/à l'urgence. Pour échanger les connaissances sur l'état de l'art en ce domaine, ce symposium a proposé un forum organisé en cinq (5) sessions :

- SESSION 1 – Stratégies de communication et infrastructures
- SESSION 2 – Information et gestion du savoir
- SESSION 3 – Connaissance de la situation
- SESSION 4 – Aide à la décision
- SESSION 5 – Fusion des informations et réseaux de capteurs

Le programme du symposium comprenait quatre (4) contributions extérieures à l'OTAN (Chine, Singapour, Russie, Israël). Malheureusement, l'article de la Russie a été reçu trop tard pour être inclus dans les rapports.

La table ronde a été remplacée par des monologues questions-réponses d'experts où différents sujets intéressants ont été soulevés pour conclure le symposium comme, par exemple : la partition de l'espace incriminé, la définition des normes d'aide à la décision, les ensembles de données ou d'analyses comparatives communes, des valeurs métriques communes, la suggestion d'organiser des événements inter-panels.

Quelque soit le contexte, l'aide à la décision passe par une analyse en profondeur de trois (3) aspects importants interdépendants, à savoir le Processus, l'Organisation et la Technologie. L'IST-086 s'est principalement intéressé à l'aspect technologique de la crise (l'orientation IST est technologique), et à la gestion des urgences et de leurs conséquences, alors que les aspects liés au processus et à l'organisation ont été très peu mentionnés par seulement quelques intervenants. Une suggestion importante a été faite : l'organisation d'un événement inter-domaines et inter-compétences avec des personnels « utilisateurs des technologies », venant de plusieurs agences et organisations responsables de la gestion des crises, des urgences et de leurs conséquences réunis avec des experts en technologie. Ceci permettrait aux technologues de mieux apprécier les aspects du processus et de l'organisation et aux utilisateurs des technologies de mieux comprendre comment ces dernières peuvent améliorer leur capacité à gérer les crises, les urgences et leurs conséquences.