



The Need for Agility in 21st Century Operations:

Understanding the Human Dimension

**Canadian Department of National Defence S&T Symposia
2008 & 2009**

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Defence Research and
Development Canada

Recherche et développement
pour la défense Canada

Canada



C2 and Agility: The Theme of the ICCRTS

- Agility is the ability to cope successfully with changes in the environment (the situation)
- It requires: 1) timely recognition; 2) an appropriate response; and, 3) a timely response.
- For Science and Technology to be effective it must be agile/adaptive and well placed to enable the above.
- The annual Defence S&T Symposia deal with issues related to these kinds of challenges.



Defence S&T Symposium

- The S&T Symposium has been an annual event since the first was held in 2000.
- Now entitled the 'Defence S&T Symposium' the series looks at 'emerging S&T' or trends within the S&T envelope that could impact the military
- Previous Symposia have dealt with such topics as Brain-machine Interface, Law and Ethics with respect to new Technology and Classified subjects like Software Developments in Asia.
- DRDC has recognized the need to discuss 'human sciences'



Defence Science & Technology Symposium 2008

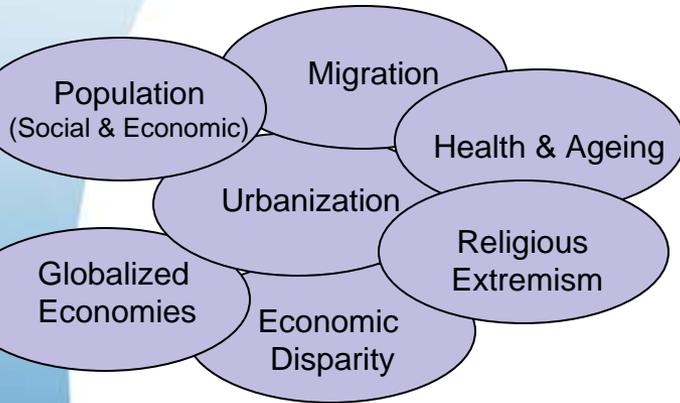
Understanding the Human Dimension in the 21st Century Conflict/Warfare

- Attended by 200 participants on 20-21 May 2008, Hampton Inn, Ottawa
- The purpose of Defence S&T Symposium 2008 - part two of a three year series - was to further explore 'human-centric' conflict. The 2007 Symposium challenged the S&T community to address these issues, which were captured within three conflict domains: *Person-versus-Person*, *Person-versus-Nature*, and *Person-versus-Self*.
- For 2008, we added the domain of *Person-with-Person Partnership* that focuses on a holistic approach to conflict resolution.
- The 2009 Symposium addressed "Taking Care of the Frontline"

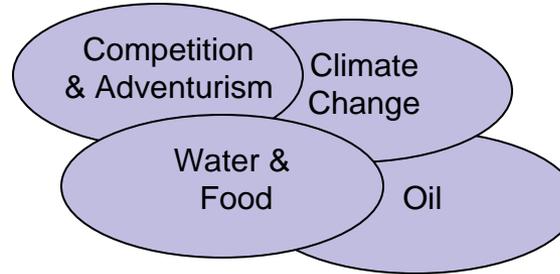


Future Security Environment and the Integrated Capstone Concept: Themes of the Unifying Idea

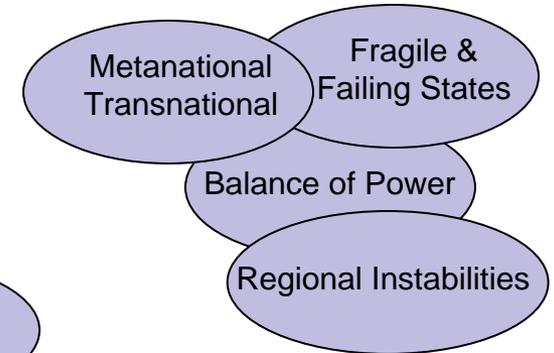
Economic & Social Trends



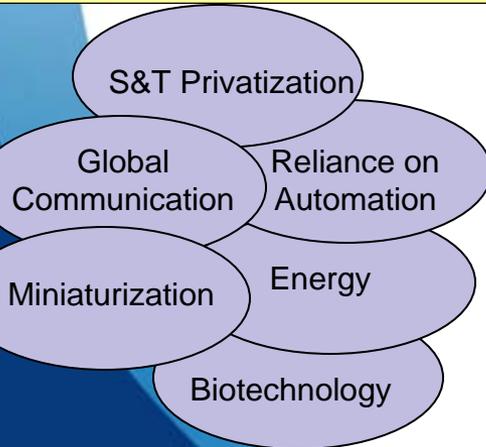
Environmental & Resource



GeoPolitical Trends

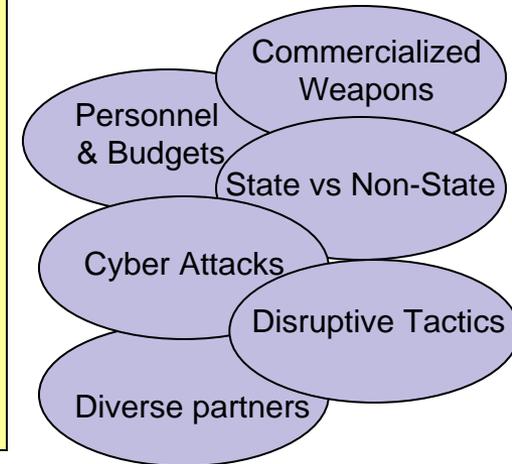


Science & Technology



COMPLEXITY
demands a
COMPREHENSIVE,
INTEGRATED, ADAPTIVE
and
NETWORKED
focus in the application of
national intent.

Military & Security





S&T Defence and Security Hard Problems

Defence

- Defeat the “IED System”
- Enhance soldier survivability
- Build an integrated CF C2 system
- Grow the Force (recruit, train, retain, and duty of care)
- Close the gaps in the CF Strategic Capability Roadmap
- Position Defence to exploit emerging/disruptive technologies
- Reduce the costs of defence systems through-life capability management

Defence and Security

- Provide a rigorous foundation for defence and security emerging concepts and doctrine (comprehensive, integrated, adaptive, networked)
- Improve northern and maritime situational awareness and response
- Build a reusable national Major Events Security capability
- Defeat the CBRNE terrorist threat
- Enhance the nation’s cyber-security

Defence and Global Challenges

- Enable the “Green” Canadian Forces
- Find alternative power and energy solutions for the CF



Framework of Understanding

Human Centric Conflict



Source: LGen M Jeffrey



Adversarial Intent

- The post Cold War era has seen a significant rise in transnational violence directed against Western interests.
- A successful strategic response compels us to understand the adversary and their environment. This strategy must not only anticipate the adversary, it must influence their intent.
- The art of influence has evolved over millennia; the science of influence could take us much further. Devising a strategy in the ideological battlespace obliges us to look inward to understand ourselves and our intentions in relation to our adversaries.



Understanding the 'Influence' Battlespace

- There is no more important resource in the profession of arms than the human. Yet, the challenge of recruiting, training, and retaining a professional military is accentuated due to multiple demands.
- Today's military professionals must adapt and perform with multi-functional skills (i.e., from negotiator to applicator of lethal force), in multi-dimensional roles (e.g., 3 block war), and under multiple environmental stressors (both physical and psychological). This challenge is compounded by ensuring moral and ethical decision-making in the face of atrocities and cowardly behaviour (e.g., use of humans as shields).
- The military professional must not only be agile and resilient, but continue to be objectively and emotionally battlespace-mature.



Human Complexity

- There is the need for a non-hierarchical ‘whole of government approach’
- There has been an increasing reliance on multi-national efforts to respond to foreign conflicts.
- While collaborative efforts promote legitimacy and efficiency, there are many obstacles to ensuring effectiveness.
- Creating trust and encouraging decision-sharing among peers, superiors, coalition partners, target populations, other government departments, and non-government organizations is a key challenge.



Overarching Findings

- By the end of the two day symposium, three themes emerged that captured the overarching findings of the presentations. These included the following:
- 1) Human centric conflict requires an **adaptive** military and whole of government approach that can respond to conflict amongst the people;
- 2) A rich set of emerging ideas and concepts emerged that now need to be **operationalized**; and,
- 3) Science and Technology must be part of a **comprehensive approach** to address complex challenges that the human battle space entails.



The Way Ahead: “Taking Care of the Front Line”

- The 2009 Defence S&T Symposium continued to focus on the human dimension of conflict
- It explored ways to operationalize the rich set of concepts and theories identified in the 2008 Symposium
- To truly make a difference to the Canadian Forces in the FSE, two themes from 2008 were explored further: 1) empowering the frontline, and 2) realizing the comprehensive approach through an adaptive military and government.



Taking Care of the Frontline: Elements of Discussion

- Understanding the adversary – the complexities
- Actors in the field – the challenges
- The need for a comprehensive and Whole-of- Government approach.
- The importance of Strategy and Strategic Leadership
- Duty **to** Care – Taking Care of the ‘Frontline’



Areas of Research Identified that Relate to Agility

- Collaborative Partnerships to Achieve Actionable Solutions
- Cultural Awareness
- Human Terrain
- Emergent Behavior
- Influence Psychology
- Forecasting
- Strategic War-gaming
- Future Scenarios
- Determining the next radical shock?



Defence S&T Symposium 2010: Back to the Future - Again An Exploration of Emerging / Potentially Disruptive Technologies

The Defence S&T Symposium series was created to explore new frontiers in science and technology.

In 2010 we will return to exploring emerging and potentially disruptive science and technology in the human, information and cognitive domains.

Expression of Interest:

[http://www.csoconferences.org/ei/getdemo.ei?id=197
&s=_35O0MJMGJ](http://www.csoconferences.org/ei/getdemo.ei?id=197&s=_35O0MJMGJ)



Defence S&T Symposium Report 2008

Available at:

http://candid.drdc-rddc.gc.ca/inbasket/owhite.080826_0858.p529860.pdf

DEFENCE



DÉFENSE

Questions?



Extras



“Trifurcation” of the Front-Line to Front-Lines of Operation

