

NATO MSG-079

[dstl]

**Challenges for C2-Simulation
Interoperability**

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Report Documentation Page

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Content

- Background to C2-Simulation Interoperability
- Standardisation of a common approach
- Exploitation
- Acceptance of C-BML

Why C2-Simulation Interoperability?

- The integration of M&S with C2 systems will be key to:
 - “Training as we fight (or command)”, particularly in pre-deployment training in coalition NEC context
 - Planning and Mission Rehearsal
 - Courses of Action analysis
 - Assessing potential casualties, collateral damage etc
 - Supporting decision making and C2 in complex coalition networks of people, systems and information
 - Augmenting real information to enhance situational awareness
 - Supporting the configuration of C2 systems for various types of operations

Why should we standardise the approach to C2-Sim Interoperability?

- Level of effort required to integrate in a be-spoke manner would be too high and may not achieve the required level of interoperability amongst the various C2-Sim systems
- Interoperability issues in the M&S and the C2 domains are addressed but separately
- A common approach will:
 - Be more efficient
 - Ensure C2 and simulation systems interoperate more readily
 - Bring the two communities closer
 - Be exploitable more widely.

Standardisation Challenge

- Challenge 1: Issue an international standard that is acceptable by both the M&S and C2 domains
- Challenge 2: Issue a STANAG for C2-Sim interoperability
- Challenge 3: Test and validate the standard for the various uses

Exploitation

- Exploitation is about reaping the benefits and understanding any weakness of the C2-Sim common approach or standard in applications
 - These benefits should be at national and coalition levels
 - Use cases should be identified and assessed
 - Lessons learned in its use should be shared
 - Any unexpected behaviour and shortfalls should be used to improve or evolve the standard

Exploitation Challenges

- Challenge 4: Eliminate the manpower interface between the training audience and the simulation (i.e. the response cell) in operational training CAXs
- Challenge 5: Transform decision making and collaborative decisions by allowing variations in planning to be tested or COA analysed
- Challenge 6: Make assessment of likely casualties and collateral damage the norm for C2 systems
- Challenge 7: Introduce augmented reality for enhancing shared situational awareness through C2 systems

Acceptance of C-BML standard

- C-BML will only be accepted as the common C2-Sim interoperability standard:
 - If it takes into account how forces use C2 systems
 - If there is confidence in the standard
 - It is readily accessible
 - It is widely recognised
 - It is easy to implement and use
- Claims of use beyond its design or current validation
 - C2-C2 interoperability
 - C2-Robotic Forces or Unmanned Systems

Acceptance Challenges for C-BML

- Challenge 8: Will the structured C2 and C-BML be too great a change to commanders or can C-BML be adopted to interpret free text and voice C2?
- Challenge 9: Validate C-BML for C2-C2 Interoperability
- Challenge 10: Validate C-BML for commanding real robotic or unmanned systems through C2 systems

Questions

