Meeting C4ISTAR Challenges

QinetiQ

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See also ADM001711 Meeting C4ISTAR Requirements: Implementing and Exploiting Technology Solutions., The original document contains color images.

The C4ISTAR Challenge is a problem-solving initiative aimed at developing innovative and effective solutions for enhancing command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR) capabilities. This meeting brings together experts from various fields to address the challenges and explore new technologies and strategies to improve C4ISR systems.

The presentation at the meeting focuses on the key components of the C4ISTAR Challenge and how technology solutions can be implemented and exploited to solve these problems. It highlights the importance of collaboration and innovation in addressing the complex issues that arise in C4ISR operations.

The original document contains color images, which provide visual insights into the C4ISTAR Challenge and the various technologies and solutions that are being developed to address these challenges. The document is approved for public release, allowing for widespread dissemination and discussion of the ideas presented.

This meeting is part of a series of events dedicated to advancing the field of C4ISR and fostering collaboration among experts in the area. The original document and other related materials are designed to support ongoing discussions and initiatives aimed at improving the effectiveness and efficiency of C4ISR systems.

The meeting is sponsored by QinetiQ, a leading defense technology company, and is organized to provide a platform for sharing knowledge, experiences, and innovative ideas related to C4ISR challenges. The original document is the result of this collaborative effort and is intended to facilitate further discussions and collaborations in the field of C4ISR technology.
Meeting C4ISTAR Challenges

Andrew Sleigh
RUSI C4ISTAR Conference, Malvern September 2002
25.09.2002
Meeting the NCC challenge
“making network centric capability real”

• I will cover two aspects

  – Where the opportunities lie

  – Steps to realise the outcomes - a personal view
Meeting the NCC challenge
“making network centric capability real”

• “Network Centricity” has been a concept in development for more than 5 years
  - US presentation on NCW to UK Chiefs of Staff in 1998

Slide from a US NCW Presentation from July 1998

-IS Strategy
-Information Grid

Increased Velocity of Information

Capacity
Nodality
Interoperability
Security
Linking
Internetworking
Meeting the NCC challenge
“making network centric capability real”

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• SDR98 referenced the underpinning ideas:
  – “Although not new, Joint Operations are now more critical than ever”
  – “Success demands Joint Teamwork supporting shared military objectives”
  – “Fighting forces need the Single Service ethos, but force success demands effective orchestration of individual components”
  – “A Joint approach is central to defence activity and requires closer integration across the full spectrum of activity”
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• The New Chapter raises the priority to realise these objectives
Section 1
Where the NCC opportunities lie
Where NCC opportunities lie

• **Information coherence**
  – Shifting the right information between sensors, deciders and effectors

• **Capability Integration**
  – New concepts in military effect born from network enabled ways of marshalling capabilities

• **Orchestration**
  – Radical developments in command doctrine
Information coherence

• Flexibility in moving data rapidly and securely

• Effective assembling of information to be readily usable by the right deciders and effectors

• Human interfaces that enhance cognition
Capability integration

• New capabilities by inter-linking existing equipment and force elements (meta-capabilities)

• Rationalisation of inventory to optimise capability overlaps and logistics

• Tying together diplomatic, defence, civil agency and public awareness operations
Orchestration

• New models for command structures

• Command organised by meta-capability?

• Different styles of command decision engaging more inputs
Section 2
The route to realising NCC opportunities
The route to NCC: Information coherence

• Comms plumbing broadly OK
  – providing current projects enter service successfully

• Solve the issues in the interstices between systems
  – Quick fixes drawn from experimentation

• Need for substantial progress on techniques and doctrine for secure sharing

• Information management
  – people who prepare information, manage search/mining tools, steering information between sensors and effectors in military networks
The route to NCC: Capability integration

• Need to reinvent Capability Working Groups to innovate high level capabilities “on top of” current concepts

• The Three ‘E’s
  – Explore the concepts
  – Rapid development through Experimentation
  – Early Exploitation
The route to NCC: Orchestration

• Create a “Doctrine Laboratory”, bringing together
  – Best thinkers in how to manage crises in the round
  – Incisive analysis of implications of science and technology
  – Methods and tools to experiment with high level command issues
  – Simulation and battlelabs to experiment with details in operational command

• Establish “Information Doctrine” as a recognised sub-discipline
“Information doctrine”

- That sub-set of joint doctrine and operating procedures which define how information is exploited & managed eg:
  - how secure information domains are mapped to force structure
  - processes for releasing information to coalition partners
  - processes for developing and disseminating operational estimates
  - forming joint recognised picture
  - which functions are enabled to whom
  - tactics for pushing and pulling information
  - responses to cyber-attack
  - approach to tactical interoperability between environments or nations
A Joint Experimentation Plan

a plank that supports a major part of the NCC waterfront

• Define the concepts to be explored, the supporting experiments, the facilities required and the players

• Illustrative classes of problems to be addressed
  – How must the infrastructure be adapted to allow information to be exchanged horizontally across the battlespace?
  – How to enable data exchanges to ensure that information is accessible at the right place at the right time to the right people?
  – How to re-engineer HQ organisations and platforms to take advantage of new ways of working

• Held as a central part of MoD’s capability strategy, tied into capability development and IPTs,
  funded by bringing forward Equipment Programme funding assuming
Closing points

• Focus the *Capability Opportunities* of NCC, not solutions

• *Experimentation* is the key technique to discover and implement capability opportunities

• Equipment implications largely to do with *interstices*, will be defined by experimentation

• Critical gaps needing a shift in investment:
  - Security
  - Human interfaces
What we must all do...

NCC will become a reality only by a new model for working emerging between and within:

- DECs
- IPTs
- Customer 2s
- Doctrine and policy
- Industry manufacturers and solutions generators
- Independent defence analysts

The key step now is to establish a new modus operandi that enables these communities to interact in a creative and focused way