Pacific Operational Science and Technology Conference

The Art and Science of the Joint Warfight

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Joint Warfighting

- Jointness is not a natural state – Deserves our best effort
- Our enemy means every word it says
- We will fight future wars with partners
- Our military must improve capability in the irregular fight
- Maintain our conventional dominance
- Design integrated, properly structured joint command and control

Joint Warfighting is Human Endeavor;
Technology is a Key Enabler but Not a Silver Bullet
“Command and Control (C2) is first and foremost a human endeavor... While materiel solutions, processes, and engineering can enable decision making, command and control is not synonymous with network operations or the employment of advanced technology, rather it maintains the flexibility to exploit both.” — Gen Mattis’ C2 Vision

Who’s Serving Who?

Key to Success...
Achieving the Balance between Leader Requirements & Technology
The Art and Science of War
... Analyzing the Operating Space

Targets at the "Edge"

Tactical

Operational

Strategic
The Science

Presumes Certainty

- Engineers Solution
- Improves Analysis
- Expedites Information Processing

Targets at the "Edge"

- Emphasizes Technology
- Enables Planned Execution
- Promotes Machine-to-Machine Opns

Cyber Power

Space Power

Sea Power

Tactical

Operational

Strategic

Land Power

Air Power
The Science

Presumes Certainty

Space Power

Cyber Power

TARGETS
Military Capabilities
Causes of Instability
Enabling Networks
Bad Actors

Land Power

Sea

Tactical

Operational

Strategic

Life at the "Edge"
The Science

Presumes Certainty

Space Power

Cyber Power

The Art

Accounts for Uncertainty

Land Power

C2

Tactical

Leverages Strengths

Exploits Opportunities

Advantages Initiative

Operational

Strategic

C2

C2

C2

C2

C2

Sea Power

Air Power

Emphasizes Human Factors

Decentralizes Execution

Promotes Collaborative Partnerships

Unclassified
The Science

Presumes Certainty

Space Power

Cyber Power

The Art

Accounts for Uncertainty

Land Power

Tactical

Operational

Sea

Strategic

Air

Dominance Across All Domains with Correct Mix of Science and Technology

Find

... Fix

...... Finish
The Science

Presumes Certainty

Cyber Power

The Art

accounts for Uncertainty

Space Power

Industry

US Government

Coalition & Allies

Land Power

Leveraging All Elements of National Power

Tactical

Operational

Strategic
Warfighting is fundamentally a Human Endeavour ...
Don’t get lost in the Science when we must execute the Art
CENTCOM C2 Best of Breed Project

Over 4000 Systems/Applications in AOR
— over 1000 considered “C2”

— Continued delays in development/fielding joint programs of record result in continued proliferation of ‘niche’ applications, and there’s no limit to vendors willing to help.
— Each operational rotation of forces results in technical integration challenges as they bring their own unique applications.

System/Application proliferation leads to:
• Poor network situational awareness
• Lack of interoperability
• Network inefficiencies
• Supportability issues
• Network vulnerabilities
Global Map of DOD Interoperability-Related Policy Documents

Current Assessment: Excessive Complexity Among Policy Inhibits Effective Interoperability
The JC2 Domain

Strategic

Joint Force Commander

Interagency/NGO

Coalition / Allies

Components

CFLCC
CFACC
CFMCC
CJSOTF
JFCC(s)
24 JTFs and Counting...
Plus Variants

TF ODIN

ISAF

MNF-I

JTF 519

TF PALADIN

JTCHOA

JIACG-CT

JCC - I/A

JTF TROY

CJSOTF

FIMCC
Battle Command Information Challenges
XVIII ABC (MNC-I)

- 300+ Data Bases
- Spectrum Availability
- 82k Freq’s Managed

- Multiple databases not interoperable
- Multiple Common Operating Picture Tools
- Multiple Active Directory Domains
- Multiple Security Domains

- 40+ Domains

- ABCS
  - Web Portal
  - MEF CMD Jour
  - Digital Battle Cpt
  - Spreadsheets
  - IED Databases
  - CPOF
  - Misc. Databases

- SIIPR NFOFN
  - SIIPR Rel. A
  - CENTRIXS
  - NIPR
  - TS
  - MTS
  - .GOV
  - .AIRFORCE.MIL
  - .MARINE.MIL
  - .ARMY.MIL
  - INFO ASSURE

- UAS Counter IED Communications
  - Finite Resource
  - HN Approval
COCOM Science and Technology Challenge

CENTCOM C2 Best of Breed Project

Over 4000 Systems/Applications in AOR
– over 1000 considered "C2"

- Continued delays in development/delivery joint programs/efforts/standards adoption and proliferation of "white" applications, and there's no lead to vendors willing to help.
- Each separate and isolated of others results in inefficient command/communication channels in today's joint joint environments.

System/Application proliferation leads to:
- Poor network logical/logical awareness
- Lack of interoperability
- Network inefficiencies
- Unavailability issues
- Network vulnerability

COCOM Management Challenge
Assess, Coordinate, Manage, & Integrate

24 JTFs and Counting…
Plus Variants

Battle Command Information Challenges
XVI ABC (MNC-I)

JCIDS  S&T  PPBE
DAS (BRITE-EIL)
Alternative Business Models

[Reference: The Innovator’s Dilemma by Clayton M. Christensen]
Alternative Business Models

Examples

[Reference: The Innovator’s Dilemma by Clayton M. Christensen]
Alternative Business Models

DoD Acquisition

ROI: Precision Effect
Minimize Casualties

ROI: Mass Effects
Indifferent to Casualties

Period of Sustaining Technology

Period of Disruptive Technology

Performance

Time

Reference: The Innovator’s Dilemma by Clayton M. Christensen
Final Thoughts

• Must build to the Joint capability requirements of both irregular war and the conventional fight
• One aspect of our future we can’t overlook or underemphasize is our own human capital situation and solutions

Time Dilemma

• COCOMs are in the here and now; S&T is predominately in the future
• Must recognize/exploit S&T opportunities early vice reliance on long term research
• Future may be now, more than we care to admit it

An Art and Science imbalance exists by the lack of COCOMs authorities and resources to direct S&T

S&T and Warfighters need Rosetta Stone

• Adopt the right lexicon -- a capabilities-based language
• Need better exposure of S&T to exploit the realm of technology
• Technologies don’t emerge; they’re made to emerge

Technology Dominance is not a Privileged U.S. Domain … A Clever and Adaptive Enemy Can Prevail