Workshop on “Simulation to Support C4ISR Acquisition & Transformation”

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Agenda

• Context
• Results
• Summary
Background

• An Information Superiority Modeling & Simulation Master Plan (IS M&S MP) is in coordination, addressing application of M&S to all areas; e.g.,
  – Training
  – Support to operations
  – Acquisition
• In the area of acquisition, the IS M&S MP calls for the following actions:
  – Recommend and outline methods for providing improved M&S support to C4ISR acquisition
  – Provide recommendations of desirable policy changes and initiatives…, along with metrics…
Essential Workshop Facts (1 of 2)

• Why?
  – Identify high priority M&S needs and recommend policy changes, initiatives
  – Provide input to *investment plan* for M&S to support the acquisition and transformation of C4ISR systems

• Where & When?
  – The MITRE Corporation, McLean, VA
  – 2 - 4 April 2002
Essential Workshop Facts (2 of 2)

• Who?
  – Sponsors
    • ASD(C3I)
    • OUSD(AT&L) {IO, DMSO}
  – Participants
    • 44 experts from government, industry, FFRDCs
    • ~25% provided by AIAA TC on Information & C2 Systems
Recruiting Was Tough….

“But I don’t give a damn about M&S, acquisition or C4ISR!”
Break-out Group Leadership

- **Sensors**
  - Chair: Joe Manzo (BAE Systems)
  - MITRE Support: Norm Stewart

- **Communications**
  - Co-Chairs: Bradd Stubbs (DISA)/ Leland Joe (RAND)
  - MITRE Support: John Stine

- **C2/Information Processing:**
  - Chair: Chuck Burdick (LMCO)
  - MITRE Support: Zach Furness

- **System of Systems**
  - Co-Chairs: Col Russ Peter (OSD)/ Ken Konwin (BAH)
  - MITRE Support: John Roberts

- **Synthesis**
  - Co-Chairs: Stuart Starr (MITRE)/Phil Zimmerman (DMSO)
  - MITRE Support: Judith Dahmann
Setting the Stage -- Plenary Speakers

- Sponsors charge to workshop
  - V. Garber/J. Dahmann, USD(AT&L)
  - O. Wormser, ASD(C3I)
  - M. Lilienthal, DMSO
- Institutional Perspectives
  - S. Kissin, IS M&S MP
  - S. Hawthorne, DoDD 5000
- Service Perspectives
  - P. Faye/J. Roberts, USAF, JSB
  - H. Crisp, USN, CEE
  - K. Pickett, USA, FCS/JVB
Workshop Process

• Working Groups organized by:
  – System type (Communications, Sensors, C2/Information Processing)
  – Systems-of-systems

• Working Groups addressed M&S needs by phases of acquisition process
  – Began with list of strawman M&S capability objectives
  – Evaluated M&S needs
  – Identified highest priority M&S shortfalls, options to ameliorate them

• Synthesis Group
  – Formulated a synthesis framework
  – Identified similarities and differences in Working Groups’ findings, recommendations
# Synthesis Framework: Highest Priority Needs

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<th>C2/IP</th>
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Highest Priority Needs: Policy, Management/Process

- **Policy**
  - Broaden DoDD 5000 to address critical System-of-System (S-o-S) issues
  - Provide enhanced government and contractor access to key information

- **Management/Process**
  - Establish mechanisms to capture insights from S-o-S events
Highest Priority Needs: Environments, M&S

- Environments
  - Create standards-based, distributed, collaborative engineering environments with appropriate levels of security, scalability, responsiveness
  - Improve government/industry interoperability
  - Maintain evolving interfaces with M&S throughout the acquisition process
  - Provide interfaces, access to real, simulated systems

- Models and Simulations
  - Create linked families of M&S including
    - A meta-reference model
    - High-level, quick turn around assessment tools
    - Modeling of information infrastructure
    - Communications models
    - Better representation of decision-making processes
Highest Priority Needs: MoMs, Support Tools, Foundation Data/Info

- Measures of Merit (MoMs)
  - Develop and evolve a family of MoMs that link systems, functions, missions, campaign, policy

- Support Tools
  - Create scenario generation tools that are reusable, tailorable (subsuming Blue force laydowns)
  - Create common environmental representations

- Foundation Data/Information
  - Assemble system performance data (current, near-term, long term)
  - Develop common standards for inputs to drive models
  - Develop architectural data (linked to executable simulations)
Summary of Major Recommendations

• Policy and Management/Processes:
  – Revise DoDD 5000 to clarify the acquisition of a system-of-systems
  – Focus acquisition process on achieving mission capability

• Environments and M&S products:
  – Create shared collaborative environments in which to address interoperability issues
  – Develop a reference model of cross-functional, cross-hierarchy M&S

• MoMs:
  – Develop sets of measures of system performance linked to measures of mission effectiveness

• Support Tools and Foundation Data/Information:
  – Create common environmental representations and libraries of reusable scenarios
  – Create easily accessible, broadly available data on architectures, systems performance, organizational behavior
Recommended Actions

• **USD(AT&L)**
  – Revise DoDD 5000 to address S-o-S more completely

• **ASD(C3I)**
  – Implement Workshop recommendations in the next version of the C4ISR IS M&S MP

• **Director, DMSO**
  – Ensure that emerging Service environments are composed of common/interoperable components

• **Director, Interoperability**
  – Establish and champion policy and an associated process to employ common/interoperable components in emerging acquisition environments
Next Steps

- Dissemination of the findings and recommendations to the key communities; e.g.,
  - Acquisition (NDIA Conference in June)
  - C4ISR (International C2 Conference in September)
  - M&S (NATO M&S Conference in October)

- Explore potential follow-on efforts; e.g.,
  - Assist in the development of an investment strategy to respond to the highest priority needs
  - Convene future workshops to explore options to ameliorate shortfalls