- Panel -

Systems Engineering and DT&E for Systems Suitability

Colonel Rich Stuckey
Principal Assistant for DT&E
OUSD(AT&L) Systems and Software Engineering
DT&E and suitability...do we have a problem?
Systemic DT&E Findings
OSD Program Support Reviews

• Maturing suitability in SDD is not a priority
  – Few efforts observed to design-in reliability
  – Many reliability requirements lack a mission context
  – Maturation timeframes or maturity at IOC not defined in requirements
  – Log Demos to evaluate IETMs and diagnostics effectiveness rarely held
    • Log demos in PD phase are conducted too close to IOT&E

• Most programs lack quantifiable MS C entrance criteria
  – Don’t address R&M, manufacturing, integration, Net Ready, etc.

• Many programs downgraded ACAT ID to ACAT IC at MS C
  – Not supported by demonstration of full capabilities, including suitability
SE, DT&E and Suitability

Early T&E involvement

Concepts for Suitability
- Start early
- Focus continuously
- Add operational realism
- Raise issues early

Evidence of...system reliability based on demonstrated reliability rates
DOD Guide for Achieving Reliability, Availability, and Maintainability

Panel Format

1. Initial remarks by each panelist

2. Panel Q&A
   • Moderator asks Q
   • 1 panelist takes initial A - no time limit
   • Panelist fire-at-will after initial A
   • Moderator calls time at ~8 minutes
Panelists

• **Dr. David M. Jerome**
  Deputy Director of Air, Space and Information Operations
  Headquarters, Air Force Materiel Command

• **Mr. Richard L. Schubert**
  Vice President and Chief Engineer
  Lockheed Martin's Integrated Systems and Solutions

• **Mr. Brian M. Simmons**
  Director, US Army Evaluation Center

• **Mr. Ray Lytle**
  Director of Life Cycle Engineering
  Raytheon Missile Systems
Question 1

How well do the systems being fielded in Iraq meet their sustainability expectations?
Question 2

How do we resolve the conundrum:

- The user drives rapid fielding ("tyranny of the urgent");

- But DOT&E raises the issue of sustainability, while rapid fielding bypasses a disciplined approach to suitability.
Question 3

Do system requirements sufficiently address sustainment?
Question 4

How could we modify traditional DT & OT processes to improve sustainment? (and, how to evolve DT/OT to fit the rapid fielding process)?
Question 5

How is DT&E for software different from hardware for the suitability, effectiveness and sustainability arena?
Question 6

Can we link M&S used in suitability analyses, with M&S used in system performance analyses, so more complete and early decisions can be made for systems engineering?
Do system development contracts instruct industry sufficiently to design & deliver sustainability?