Testing in a Joint Environment: Implementing the Roadmap

Mr. Mike Crisp
Deputy Director, Air Warfare
Operational Test and Evaluation
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### Report Documentation Page

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Standard Form 298 (Rev. 8-98)  
Prescribed by ANSI Std Z39-18
Inputs Needed From T&E Community
Requested by Director, OT&E at Last Year’s Conference

• A proposal or set of recommendations on how the T&E community can better convey its needs to the M&S community’s requirements process – specifically, what models does the T&E community need and what do we need the models to do for the T&E process?

• A proposal or set of recommendations on how we can respond to Tom Christie’s call to do a better job of getting our operational evaluations to warfighters for operational planning and our actual system performance data to users of high-level models to refine their input data and assumptions.
  – How can we effectively feed back test data to the model developers to validate and upgrade their models?

• A proposal or set of recommendations on what we need to do to get the T&E community involved in the contracting process earlier in order to help guide the preparation of the RFP/RFI and the contract to foster sharing of data and information while affording contractor protection for truly proprietary intellectual property.
Creating Joint Capability
Where We Are Today

Fragmented Infrastructure With Lots Of “Diverse” Initiatives To Link Resources For Joint Capability Assessments

Test Resources

Partial List

Joint Capabilities

Where We Are Today

Test Resources

Fragmented Infrastructure With Lots Of “Diverse” Initiatives To Link Resources For Joint Capability Assessments
Creating Joint Capability
Where We Need To Go

Evolve to an Integrated Federation Of Live, Virtual, HWIL Resources To Develop (SE), Test, & Train In A Network Centric, Joint Capabilities, Information Operations Environment
Testing in a Joint Environment
Vision/Background

• An adaptive, persistent, integrated, distributed, global T&E infrastructure
  – Capable of providing robust and flexible T&E capabilities
  – Supports informative, effective, and timely transition of new capabilities to the warfighter

• Strategic Planning Guidance (SPG), March 2004 – “Joint Testing in Force Transformation”
  – Policy – Developing and fielding joint force capabilities requires adequate, realistic test and evaluation
    in a joint operational context
  – Direction – Department will provide new testing capabilities and institutionalize the evaluation of joint
    system effectiveness
  – Action – DOT&E lead development of a Roadmap to define changes to ensure that T&E is conducted
    in a joint environment and facilitates the fielding of joint capabilities

• DepSecDef approved Testing in a Joint Environment Roadmap, Nov. 12, 2004
  – Validates SPG
    – Programs must demonstrate required joint capability and interoperability/net readiness
    – Department must develop/provide corporate technical approach for distributed T&E
    – Directed development of an Implementation Plan
Testing in a Joint Environment
Joint Mission Environment Test Capability (JMETC)

- **JMETC – a persistent solution for distributed Joint T&E and Training**
  - Common toolset with capability to create the joint mission environment (JME) by integrating live, virtual, and constructive (LVC) components of a test scenario
    - Distributed environments will be customer-defined solutions for their specific need, not a set, prescribed environment
    - Will seamlessly integrate various existing nodes for each test application
      - Platforms, test ranges, laboratories (hardware- or software-in-the-loop), simulations of systems, units, or the geophysical environment, etc.
    - LVC components contribute to the resulting integrated JME, but are not part of JMETC
  - Technology embodied in JMETC already demonstrated
    - JMETC technology in use today by JNTC, IO Range, testers, and private sector

- **JMETC – a corporate test capability – not a network**
  - Does not compete with Department networks, or Global Information Grid (GIG)
    - JMETC solutions run as a customer on existing Department networks
    - Will impose no changes to such network infrastructure
  - Will be IPv6 enabled to migrate to the GIG
  - Compatible with the GIG Evaluation Facility (EF), not duplicative
    - JMETC solutions will be available as a toolset to the GIG developers and GIG-EF

- **System engineering, training, and experimentation will also benefit**
Testing in a Joint Environment
Status

• Change Proposal to fund development of JMETC was approved on November 30, 2005 – (Program Decisional Memorandum II - Pre-decisional)
  – Fund a JMETC program beginning in FY 2007 with limited funding; Return in POM 2008 for enhancement to funding
  – Create and demonstrate a prototype JMETC capability during FY 2006
    • Identify the elements within JMETC concept to be illustrated; Establish prototype JMETC capabilities
    • Select 1-2 vignettes that illustrate JMETC capability - On-going activities under consideration include, but not limited to):
      – Army Cross-Command Collaborative Environment (3CE) events – Support to FCS
      – InterTEC Spiral One – Support to JSF
      – Missile Defense Lab integration – Support to MDA
      – JDEP Integrated Air & Missile Defense – Support to JTAMDO
      – JBMC2 thread event – Support to JFCOM
      – T&E participation in JNTC event, such as Weapons Tactics Instructor (WTI)
        » Improve Test & Training Collaboration and JNTC Working Relationship
      – IO Range/Navy Use Case for Joint T&E – Support to USD(I)

• In transition from DOT&E to TRMC; FY06 cross-cutting enterprise effort
Testing in a Joint Environment
Re-evaluating/Revitalizing M&S

• 2007 Program Review Evaluating M&S Management DoD Wide
  – Task AT&L and PA&E in coordination with Components, to develop recommendations for DoD-level M&S Management. Due NLT Feb, 2006:
    • Review DoDD 5000.59
    • Identify objectives, strategy, resources, and framework for metrics
    • Strategize M&S coordination
      – Currently, Acquisition, Training, and Analysis all have M&S working groups
    • Strategize centralized planning
      – OTICC, JT&E model
    • Following re-issuance of DoDD 5000.59, the "New" Executive Committee will address M&S-related requirements reflected in the current change proposals
      – Create an Interim Executive Committee to manage FY06 execution pending DoDD 5000.59 revision:
        • AT&L (Chair), OT&E, PA&E, P&R, Policy, and Joint Staff
        • DMSO funded at current levels
# DoD M&S Related Activities

## Substantial Investment

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<tr>
<th>Category</th>
<th>FY05 $B</th>
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<tr>
<td>Modeling, Simulation, and Wargaming*</td>
<td>$0.500</td>
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<tr>
<td>Simulators</td>
<td>$3.196</td>
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<tr>
<td>Identified Use of M&amp;S Tools</td>
<td>$3.808</td>
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<tr>
<td>Systems Engineering</td>
<td>$1.679</td>
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<td>NSBA (Navy Simulation Baseline Assessment) Identified PEs</td>
<td>$0.178</td>
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<td><strong>Total</strong></td>
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*Assumes FY05 Navy = 2/3 of FY03 Navy Baseline Assessment

Source: IDA Cost Analysis Research Division (CARD)
Identified Use of M&S Tools

42%

Simulators
36%

Wargaming
1%

Simulation 1%

Modeling 1%

"Systems Engineering" Activities
19%

Source: IDA Cost Analysis Research Division (CARD)
• A proposal or set of recommendations on how the T&E community can better convey its needs to the M&S community’s requirements process – specifically, what models does the T&E community need and what do we need the models to do for the T&E process?

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Back-Up Slides
Data represents identifiable FYDP Program Elements in PB05 judged to represent activities primarily associated with modeling and simulation.

Army

Air Force

JCS

DARPA

Defense-Wide

Navy: Only explicitly identifiable Navy spending is shown here [FY03 ~$10M]. The 30 Apr 03 Navy Simulation Baseline Assessment estimated Navy simulation spending for FY03 at $369M.

Source: IDA Cost Analysis Research Division (CARD)
Simulators

Represents the FY05 TOA associated with Program Element whose definitions make reference to "Simulators" [excluding electronic warfare "threat simulators"] used as training devices.

Source: IDA Cost Analysis Research Division (CARD)
Identified Use of M&S or “Systems Engineering” Methodologies

Data represents FY05 budgets associated with Program Element whose definitions make reference to use of Systems Engineering methodology or modeling, simulation or wargaming techniques as part of their activities

Source: IDA Cost Analysis Research Division (CARD)