DoD Modeling and Simulation
June 17, 2014

Mr. Leigh Yu
Deputy Director,
Modeling and Simulation Coordination Office (M&SCO)
Systems Analysis Directorate
Office of the Deputy Assistant Secretary of Defense for Systems Engineering
 Purpose

To provide an update on

- The strategy and emerging configuration for the DoD Modeling and Simulation Coordination Office (M&SCO) in FY 2015 and beyond, and
- Several success stories of M&SCO funded, DoD Modeling & Simulation Steering Committee endorsed and led, M&S projects that are being completed in FY 2014 or transitioned to other organizations for program management
Modeling and Simulation in the DoD

Strategic Vision:
Empower DoD with modeling and simulation capabilities that effectively and efficiently support the full spectrum of the Department’s activities and operations.

- Policy
- Standards
- Technology
- Collaboration

Fostering development of tools standards and services to enable interoperability and reuse

Technology-watch and advocacy for Component-led M&S Research and Development
Defense M&S is a large and diverse community – the Modeling & Simulation Coordination Office (M&SCO) is the glue that holds it together.

DoD Communities Enabled by M&S
- Spotting trends/gaps across Components;
- foster sharing good ideas, practices, tools & data across Components

Training
T&E
Planning
Intelligence
Experimentation
Analysis
Acquisition
Policy
Standards
Technology
Collaboration

DoD Components
- Army
- Navy
- Marines
- Air Force
- CCMDs
- MDA
- DTRA
- DLA
- DARPA
- Other Agencies

Focal point for DoD M&S

Other Federal Organizations
- Department of Homeland Security
- Department of Energy
- NASA

Academia

Industry

International Partners
- NATO
- OTAN
- TTCP

Coalition Partners
- US Allies

DoD Components
- Determine requirements, fund development
As the Department’s lead for implementing the USD(AT&L)’s role as Principal Staff Assistant for M&S, M&SCO will develop and update Defense-wide policies and guidance to enable interoperability and reuse.
FY 2015 & Beyond Standards

M&SCO is DoD Lead Standardization Activity for Modeling and Simulation Standards Management (LSA MSSM)

- Direct MSSM standardization activities
- MSSM technical focal point
- Implement Defense Standardization Program (DSP) policies
- Approve MSSM standardization projects

Simulation Interoperability Standards Organization (SISO)

- M&SCO is a SISO sponsor through a cooperative agreement
- M&SCO funding goes to the maintenance of SISO operations and not towards conferences
- SISO provides DoD with a mechanism to achieve consensus standards

M&SCO Director is member of DISA-chaired Joint Enterprise Standards Committee (JESC) for IT standards

- M&SCO chairs M&S Technical Working Group to identify and recommend to JESC:
  - New Standards to include in DISR
  - Updates to existing DISR standards
  - DISR Standards that should be “retired”
  - Coordinate Actions with other TWGs
M&SCO will:

- Provide technical expertise and support of DoD M&S Strategic Vision, goals, and objectives
- Identify and assess technology from DoD Communities, Federal Agencies, FFRDCs, Industry, and Academia for application to Defense M&S
M&SCO will:

- Lead DoD M&S technical forums, including Cyber M&S, data standardization, and architecture development; and International M&S technical panels
- Enable asset reuse through information sharing via Defense-wide M&S repositories and catalogs
- Instantiate the M&S Glossary as a dynamic, online resource to improve Defense-wide common understanding and interoperability

Cyber M&S Technical Working Group
RECENT ACCOMPLISHMENTS
**M&S Catalog**

**Purpose:** The DoD M&S Catalog is a web-based discovery service enabling visibility into the resources available across the DoD M&S Enterprise to support the user of models and simulations in a search for tools, data, and services to meet their requirements.

- **Provides Visibility:**
  - M&S Solutions for Discovery and Reuse
  - M&S Data
  - M&S Models

- **Users**
  - DoD
  - Other Modeling and Simulation Practitioners

- **Provides Federated Search**
  - Enterprise Catalog

- **Benefits/Value**
  - Avoid Duplicate Efforts
  - Significant Cost Avoidances
  - Visibility Can Lead to Joint Efforts

http://MSCatalog.mSCO.mil
Rapid Data Generation (RDG)

Purpose
To reduce time and cost to acquire and produce authoritative data supporting simulations, and to enable the discovery, retrieval, enhancement, and reuse of data necessary for M&S applications.

Impact
- Provides Defense-wide approaches for reusing data.
- Offers integration in the Joint Information Environment with Joint Live Virtual Constructive 2020 widgets.
- Scalable to incorporate integration of additional data sources.

RDG Applications:
- Improved discovery and access to unclassified blue and red force Order of Battle and Environmental Representation providers.
- User selection of 14 data providers, including the Army’s Training Brain Operations Center, the USAF Simulator Database Facility, and the Joint Training Data Services agency; more providers soon.

**Transitioned to JS J7**
Environmental Data Cube Support System (EDCSS)

Value:
• Provides ready access to authoritative data & products
• Enhances representations of the environment in M&S
• Allows warfighters to train like they fight

Description:
• Provides correlated, realistic environmental products & data for M&S

Status:
• Successful space, weather, ocean & terrain effects prototype demonstration

Impact:
• Reduces resources required for supporting M&S events
• Improves interoperability, credibility & reuse of data

**Transitioned to Naval Warfare Development Command (NWDC) & AF Weather Agency**
**Cyber Operations Research and Network Analysis (CORONA)**

**Purpose**
- Promote uniform test/experiment design, control, and analysis in a distributed simulation environment
- Reduce overall sustainment and O&M requirements
- Leverage existing TRMC investments in models

**Impact**
- Robust offensive & defensive assessment can be rapidly executed
- Persistent advanced representation of cyber threats and LVC capabilities
- Increases use of higher fidelity models and weapon system representation to meet realistic test requirements

**CORONA capabilities provides Services/COCOMs**
- Reduce time required to design, integrate, and conduct analysis in a simulated cyber environment
- Enable distributed, Live-Virtual-Constructive components to be rapidly integrated
- Provides common test & experiment tools and applications
- Delivers uniform simulation standards to promote real world test scenarios

---

**Transitioned to TRMC**
Integrated Threat Analysis Simulation Environment (ITASE)

**ITASE capabilities provides Services/CCMDs**
- Authoritative, integrated threat simulation & kill chain analysis
- Enhanced threat analysis capability to support pivot to Pacific
- Uniform simulation standards to promote real world scenarios
- Credibility, consistency, cost savings to threat representations

**Purpose**
- Represent the variety, integration and scalability of complex threat “systems-of-systems” (SoS) in the Anti-Access/Area Denial (A2/AD) environment
- Support Red and Blue analysis through well-defined interface (standards)
- Leverage existing Intelligence Production Center’s investments in threat weapon system M&S

**Impact**
- Red and Blue analysis can be consistently executed
- High fidelity mission and engineering level analysis
- Improved Best Practices to rapidly update threat data (Threat Modeling & Analysis Program, TMAP) used by:
  - DIA (MSIC)
  - USAF (NASIC)
  - USN (ONI)
  - USA (NGIC)

**Transitioned to MSIC/NGIC/NASIC/ONI**
Way Forward in FY15

• Bottom Line: Continue publishing M&S articles and information

• M&S Journal currently published quarterly & guided by an Editorial Board
  – Two more FY14 issues – Spring and Summer

• M&SCO working with Cyber Security & Information Systems Information Analysis Center (CSIAC) to:
  – Include M&S articles and information in each CSIAC Journal issue
  – Publish an annual Journal dedicated solely to M&S
  – Incorporate interested M&S Journal Editorial Board members into CSIAC Journal Editorial Board

https://www.csiac.org
Summary

• The Department:
  – Is committed to improving and increasing M&S capabilities
  – Must maintain emphasis/focus on Defense-wide M&S interoperability and reuse through the M&SCO

• The planned funding provides M&SCO the ability to maintain USD(AT&L)’s commitment to DoD M&S and execute chartered duties with specialized expertise sufficient to:
  – Act as the focal point for Defense M&S
  – Address the enduring interoperability and reuse needs of the Department through policy, standards, technology, and collaboration
  – Identify and assess technology for application to Defense M&S
For More Information…

- Visit the M&SCO Website at [www.msco.mil](http://www.msco.mil)
- Send your e-mail inquiries to [osd.pentagon.ousd-atl.list.msco-ask-msco@mail.mil](mailto:osd.pentagon.ousd-atl.list.msco-ask-msco@mail.mil)