



# Acquisition Modeling and Simulation Working Group (AMSWG) Status Brief

**Phil Zimmerman**

**Office of the Deputy Assistant Secretary of Defense  
for Systems Engineering (ODASD(SE))**

**NDIA Modeling & Simulation Committee  
21 February 2012**



# Agenda



- **DASD(SE) Overview**
- **Modeling and Simulation Call for Action**
- **AMSWG Objectives, Core members**
- **AMSWG and Acquisition Process**
- **AMSWG Information Sharing**
- **Acquisition Modeling and Simulation Key Areas of Emphasis for 2012**



# DASD, Systems Engineering




DASD, Systems Engineering  
Stephen Welby

Principal Deputy  
Kristen Baldwin




Systems Analysis  
Kristen Baldwin (Acting)

Addressing Emerging Challenges on the Frontiers of Systems Engineering

Analysis of Complex Systems/Systems of Systems

Program Protection/Acquisition Cyber Security

University and Industry Engineering Research

Modeling and Simulation

Systems Engineering FFRDC Oversight



Major Program Support  
James Thompson

Supporting USD(AT&L) Decisions with Independent Engineering Expertise

Engineering Assessment / Mentoring of Major Defense Programs

Program Support Reviews

OIPT / DAB / ITAB Support

Systems Engineering Plans

Systemic Root Cause Analysis



Mission Assurance  
Nicholas Torelli

Leading Systems Engineering Practice in DoD and Industry

Systems Engineering Policy & Guidance

Development Planning/Early SE

Specialty Engineering (System Safety, Reliability and Maintainability Engineering, Quality, Manufacturing, Producibility, Human Systems Integration (HSI))

Technical Workforce Development

Standardization

Providing technical support and systems engineering leadership and oversight to USD(AT&L) in support of planned and ongoing acquisition programs



# DASD(SE) Top-Level FY12 Goals



## **Strengthen our *program engagement*, across full product spectrum, using expert technical teams to support informed, affordable decisions**

- Increase early engagement in AoA's and RFPs
- Increase use of quantitative data (new SEP format) in program oversight
- Meet commitment to USD(AT&L) to comprehensively support PDR and CDR
- Maintain program support review tempo and quality while using less resources

## **Implement comprehensive *program protection planning***

- As a part of the trusted defense systems strategy

## **Implement clear, effective *reliability and manufacturing policy***

- Establish and promulgate guidance and support for these specialty disciplines

## **Conduct detailed review/update of *SPRDE curriculum***

- Dovetail into DAU statutory requirement to review Acquisition Curriculum

## **Assess and Strengthen *Workforce Systems Engineering Competencies***

## **Measure and improve Department-wide *Systems Engineering performance***

- Establish collection of performance metrics, benchmarking

## **Lead S&T priority to "*Engineered Resilient Systems*"**

- Ensure a successful Systems 2020 program start in FY13



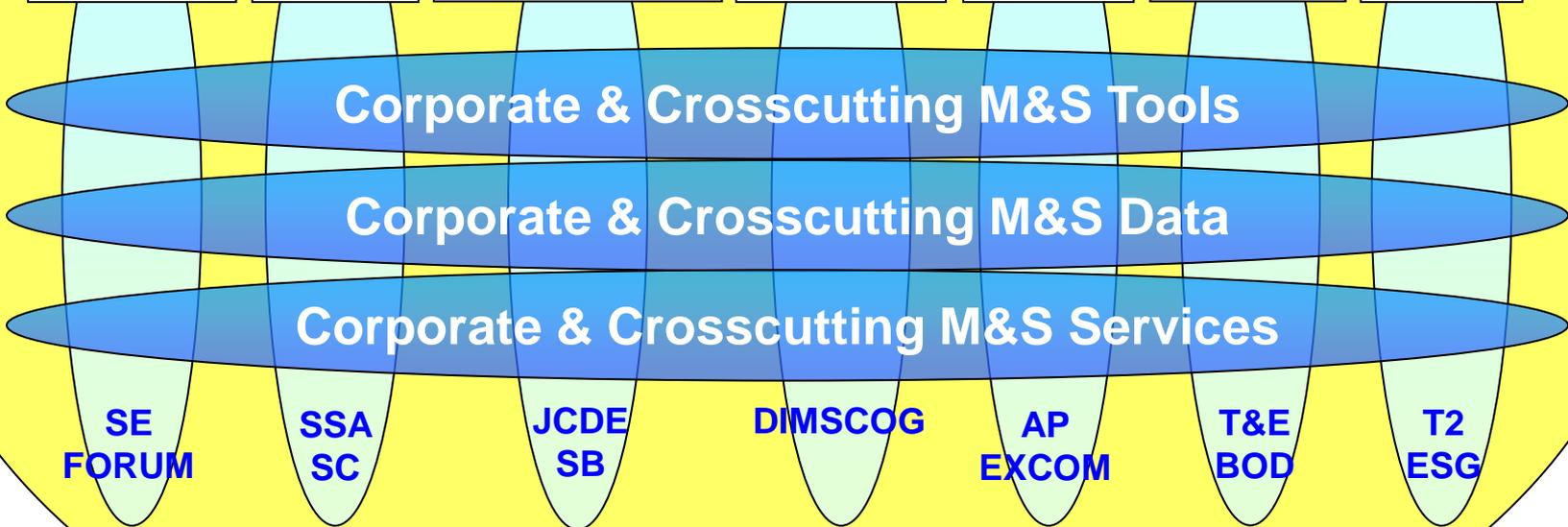
# DoD Modeling and Simulation Governance



**M&S Management Structure Organized by Communities.  
Designed to Support & Integrate M&S Activities across the Department.  
Led by a 1 to 2 Star M&S Steering Committee (M&S SC) to provide governance.**

<u>Acquisition</u> AT&L	<u>Analysis</u> CAPE & JS/J8	<u>Experimentation</u> JS/J-7/JCW	<u>Intelligence</u> USD(I)	<u>Planning</u> JS/J-5 & Policy	<u>Test &amp; Evaluation</u> AT&L	<u>Training</u> P&R
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**M&S Practices**



## Components

OSD, Joint Staff, COCOMs, Services

**Goal:** Establish corporate M&S management to address DoD goals: Leads/guides/shepherds the \$Bs in DoD M&S investments; adds value thru metrics & ROI-driven priorities; and seeks to provide transparency.



# Observations: Call for Action



- **Modeling and Simulation is not consistently applied in the acquisition lifecycle**
  - It is not consistently recognized as a component or enabler of Systems Engineering
  - It is not consistently productive for the program management team
  - It is inconsistently applied in phases of the acquisition lifecycle
- **It is never used as a continuum of tools, or as a supplier in a continuum of rationale and justification for analysis, evaluations, and assessments across the acquisition lifecycle**
  - It is not consistently represented in Service and component organizations
  - It is not, as a community, organized to answer questions, fill SE gaps, or share best practices
- **It has a long-standing strategy, but it does not have a current roadmap for improvement investment**
  - Acquisition modeling and simulation needs, capabilities, messages from PEO, PM not reaching OSD; and vice versa
- **Contemporary example: Mr. Kendall's remarks at CSIS, 6 Feb 2012**



# Simulation Support to Acquisition

## Contemporary Challenges Remain



**“[T]he optimistic predictions, when we started the production of the F-35—that we now had good enough design tools and good enough simulations and modeling that we wouldn’t have to worry about finding problems in the test—was wrong. And now we’re paying the price for being wrong about that...”**

**[W]e’re finding problems with all three of the variants that are the types of things that are historically in a state-of-the-art, next generation, fighter aircraft you’re going to find...where our design tools are not perfect and we didn’t model everything as precisely as we thought we had. So we’re working our way through that.”**

Mr. Kendall remarks at CSIS event “The Acquisition Implications of the DoD Strategic Guidance and the FY13 Budget” (6 Feb 2012)



# AMSWG Objectives

- **To ensure more effective support to the warfighter, reduce risk while minimizing total system life cycle cost through effective application of models, and Simulations.**
- **“Foster a robust discussion within the acquisition community (all stakeholders, not just the Modeling, and Simulation community) to create a robust vision what future modeling, and simulation based acquisition would look like”**
  - Include additional considerations, e.g. JCIDS, PPBE
- **Be user/provider group made up of people doing/using the work**
  - A main mission is communication
    - Among ourselves and our constituents, to share information, lessons learned, good ideas and concerns with peers to educate each other
    - To Identify issues that would benefit from collaboration
    - To identify enterprise items for modeling and simulation
    - Externally, to make sure our needs get pushed ‘up the chain,’ to influence Acquisition Policy and Guidance, and resource decisions
  - Perform studies, contribute to an annual Modeling, and Simulation status report, identify near and far term shortfalls (tools, standards, interfaces, interoperability, etc.)



# Core Members



## PRIMARY:

- **USAF: Col John Simeoni**
- **USMC: Mike O'Neal**
- **USN: Dennis Reed**
- **USA: Monica Farah-Stapleton**
- **MDA: Sandra Veautour**

## ALTERNATE:

- **Ernesto "Ernie" Gonzalez**
- **LtCol Walt Yates**
- **Mike LaMarche**
- **LTC Jon Ellis**
- **Doug Parsons**

Additional Core members may be added at a later date

NDIA: Jim Coolahan/Jeff Bergenthal

INCOSE: Kevin Weinstein/Sandy Friedenthal

As of 1 Feb 2012



# One Year of Focus on the Acquisition Lifecycle



- **May 2011**
- **July 2011**
- **September 2011**
- **November 2011**
- **January 2012**
- **March 2012**
- **May 2012**
- **Development Planning**
- **Materiel Solution Analysis**
- **Technology Development**
- **Eng, Mfg, and Dev**
- **Production and Deployment**
- **Operations and Sustainment**
- **Closeout and Review**

End of Cycle report will be generated with accomplishments and findings.



# Operations and Sustainment



- **Change from the usual AMSWG Core topic selection to focus on follow-on topics from first Cost Mini-Workshop (USA, USMC, OSD)**
- **Suggested areas of concentration for modeling and simulation activity and discovery:**
  - Building credible cost estimation databases and models over time
  - Improving government capability to predict O&S costs for new systems Pre-Milestone A
  - Incentivizing PM and Industry for cost reductions over the system lifecycle
  - Roles and responsibilities for participation in Cost Estimation.
- **Meeting Date: March 22, 2012**



# Information Sharing

- **All meeting announcements will be directly sent to the AMSWG Invitation List, with encouragement to distribute widely within your organizations**
  - To receive a direct invitation to the next AMSWG, please send a request to: [AMSWGSecretariat@osd.mil](mailto:AMSWGSecretariat@osd.mil)
- **For those who can't attend in person, a dial-in number will be used and briefs will be viewable in real-time on Defense Connect Online (DCO)**



# LOCATION: AMSWG Briefings



The AMSWG Charter, and most briefings from AMSWG meetings, are located on the AT&L Portal (requires a CAC).

Contact the AMSWG Secretariat to: gain access to the AT&L portal; request briefs (if you do not have a CAC); request any other information.

**[AMSWGSecretariat@osd.mil](mailto:AMSWGSecretariat@osd.mil)**

## AT&L portal

The screenshot shows the AMSWG AT&L portal interface. The browser address bar displays the URL: [https://portal.acq.osd.mil/portal/server.pt/community/acquisition\\_modeling\\_and\\_simulation\\_working\\_group\\_\(amswg\)/1439](https://portal.acq.osd.mil/portal/server.pt/community/acquisition_modeling_and_simulation_working_group_(amswg)/1439). The page header includes the OUSD logo and the text "Acquisition Modeling and Simulation Working Group (AMSWG) Home Page".

The main content area is divided into several sections:

- Community Projects:** A table with columns for Project Name, Acquisition Modeling and Simulation, and Chair AMSWG. It currently shows "No Rows".
- Community Announcements:** A section for new announcements, currently empty.
- Community Discussions:** A table with columns for Discussion, Project, Messages, and Date Modified. It shows one discussion titled "Test" under the project "Chair AMSWG" with 0 messages and a date of 7/29/11.
- Community Calendar:** A calendar view for February 2012. The calendar shows dates from 29 to 25. The date 10 is highlighted.

On the left side, there are sections for "AMSWG Documents" (listing Briefing, Charter, Misc) and "AMSWG Contact" (listing Donald Newton, Phone: 703-681-6560, Email: [AMSWGSecretariat@osd.mil](mailto:AMSWGSecretariat@osd.mil)).

[https://portal.acq.osd.mil/portal/server.pt/community/acquisition\\_modeling\\_and\\_simulation\\_working\\_group\\_%28amswg%29/](https://portal.acq.osd.mil/portal/server.pt/community/acquisition_modeling_and_simulation_working_group_%28amswg%29/)



# Key Areas of Emphasis for 2012



- **Acquisition Modeling and Simulation Fundamentals**
- **Significant engagement with major ACAT programs, DAPS and DAG updates**
- **DoD Acquisition Community Action / Implementation Plan**
- **State of Acquisition Modeling and Simulation (SAMS)**
- **Plans for upcoming AMSWGs will depend on end of cycle report, and emphasis areas of OSD, and the AMSWG Core**



# Acquisition M&S Fundamentals (AMSWG coordination draft)



- **The purpose of the Modeling and Simulation Fundamentals is to provide a high-level and concise, but comprehensive set of characteristics against which a program manager can assess the balance, coherence, and completeness of the stewardship & credibility of this area of technical activity within a given program. The ultimate objective of such a set of technical activities is to ensure that Modeling, Simulation, & Analysis activities needed by the Department is both available & sufficient when needed to support acquisition and other investment decisions.**
- **Key Topic Areas:**
  - Responsibility & Requirements for success
  - Relationship to Systems Engineering & other functions / disciplines
  - Practical Uses of Modeling & Simulation
  - Expectations for investments in people, processes & products



# Program Engagement

- Major ACAT Programs:

- SE Cognizance of 250 programs (1C, 1D, 1AM, Special Interest)
- In 2011, SE engagement with over 100 programs, and Congressional reporting on over 40
  - Modeling and Simulation engagement with programs increasing through involvement with SE technical leads (PSTLs) and their review teams

- DAPS Methodology developed to support assessment

- Ensures consistent and tailorable criteria for both comprehensive, and quick look reviews
  - [http://www.acq.osd.mil/se/docs/DAPS\\_V2.0\\_Methodology.pdf](http://www.acq.osd.mil/se/docs/DAPS_V2.0_Methodology.pdf)
- Addresses programmatic and technical areas; applicable to all program types
  - Performing a matrixed review for consistency of modeling and simulation within areas (across all phases), and within a phase (across all areas)

- Defense Acquisition Guidebook

- The Defense Acquisition Guidebook is designed to complement DoDD 5000.01 and DoDI 5000.02 by providing the acquisition workforce with discretionary best practice that should be tailored to the needs of each program.
- Acquisition professionals should use this Guidebook as a reference source supporting their management responsibilities.
  - Modeling and simulation currently in chapter 11, and sporadically throughout other areas. It will be properly infused in System Engineering (Chapter 4), and elsewhere as time permits, and best practices are identified



# Acquisition Community Modeling and Simulation Action Plan (AC M&S Action Plan)



## Key objectives

- Prepare a draft of an Acquisition Community Modeling and Simulation Action Plan for use by DUSD (AT&L)/SE in satisfying the Business Planning guidance resulting from the DOD Modeling and Simulation Steering Committee (SC),
- Incorporate findings from 2010 Summer Study on Acquisition Modeling and Simulation, and community feedback
  - Include recent industry (NDIA and INCOSE) studies and projects related to Model Based Systems Engineering (MBSE)
  - Include findings from the AMSWG as appropriate
- Work collaboratively with the AMSWG Core stakeholders to build a community consensus on path forward

## Current Status

- AMSWG Core stakeholder comments under review now



# Status of Acquisition Modeling and Simulation (SAMS) Study



## The Objective

Ensure that Modeling, Simulation & Analysis capability needed by the Department is both available & sufficient to support acquisition and other investment decisions.

## The Strategy – Partitioning the Problem & Capabilities Centered

- Services & Missile Defense Agency AMSWG reps agree to assist and divide the work; Exploit open & available info
- Employ top-down “Strategy to Task to Need to Technology”
- Employ the Acquisition Key Events / Milestones to support decision events that drive “Expression of Capability Needs”
- Employ existing Major Program Support “bins” to group domain types (e.g. fixed wing air) and capability needs
- Work to influence requirements for M&S Enterprise knowledge discovery tools so these investments can be leveraged in practice by multiple users, including users outside the traditional modeling and simulation community



# Questions?



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