



DoD Modeling & Simulation Management System
M&S Coordination Office (M&SCO)

Mr. Jesse Citizen, Director, DoD Modeling and Simulation
Coordination Office (M&SCO)

September 19, 2011



Agenda



- Authority
- DoD M&S Arena
- M&SCO and SISO Partnership
- DoD M&S Enterprise
- Enabling the DoD M&S Enterprise
- Enterprise Management Activities
- M&S COI
- FY 11-12 Activities
- Contact Information



Authority



- **Lines of Authority**

- **DoDD 5134.01 – Under Secretary of Defense for Acquisition, Technology & Logistics (USD(AT&L))**
- **DoDD 5000.59 – DoD Modeling and Simulation (M&S) Management**
- ***Draft DoDI 5000.ww – Management of DoD Modeling and Simulation Activities***

- **Deliverables**

- **Management/collaboration/governance**
- **Capabilities development (enterprise-wide services, tools, standards, methodologies, and processes)**
- **Sustainment of enterprise-wide services, tools, standards, methodologies, and processes**

DoDD 5134.01



USD(AT&L) shall: **“Establish and maintain the DoD management and administrative structure for M&S...** Sponsor the DoD Executive Council for Modeling and Simulation. **Develop policies, plans, and programs to coordinate, harmonize, and rationalize DoD M&S...** Ensure that DoD M&S investments support operational needs and the acquisition process; the development of common tools, methodologies, and databases; and the establishment of standards and protocols promoting interoperability, data exchange, open system architecture, and software reusability.”

DoDD 5000.59



The M&S SC shall: **“Advise and assist** the USD(AT&L) in all matters related to M&S.”

“M&S tools, data, and services shall be visible and accessible within and across the DoD Components.”

Draft DoDI 5000.ww



“Establishes the Director, DoD Modeling and Simulation Coordination Office (M&S CO) as the focal point for coordinating all matters related to the M&S Enterprise”



DoD M&S Arena *

US Congress
Congressional M&S Caucus

US Government Depts/Labs
DHS State Transportation Energy
Commerce Justice NASA
Sandia Los Alamos Nat'l Academy of Science
Argonne Nat'l Lab L. Livermore Nat'l Lab
Nat'l Science Foundation

Communities
Enabled by M&S
Acquisition
Analysis
Experimentation
Intelligence
Planning
T&E
Training

Academia
Univ of Cent FL
Univ TX at Austin/ARL
Univ of AL, Huntsville
Carnegie Mellon MIT
Johns Hopkins / APL
GA Tech Research Inst
ODU/VMASC, NPS,
Texas A&M

Prof'l Assoc
NDIA/NTSA
ASNE
MORS
ITEA
AUSA
SISO, SCS

Services

Army

- AMSO
- PEO STRI
- Labs

Air Force

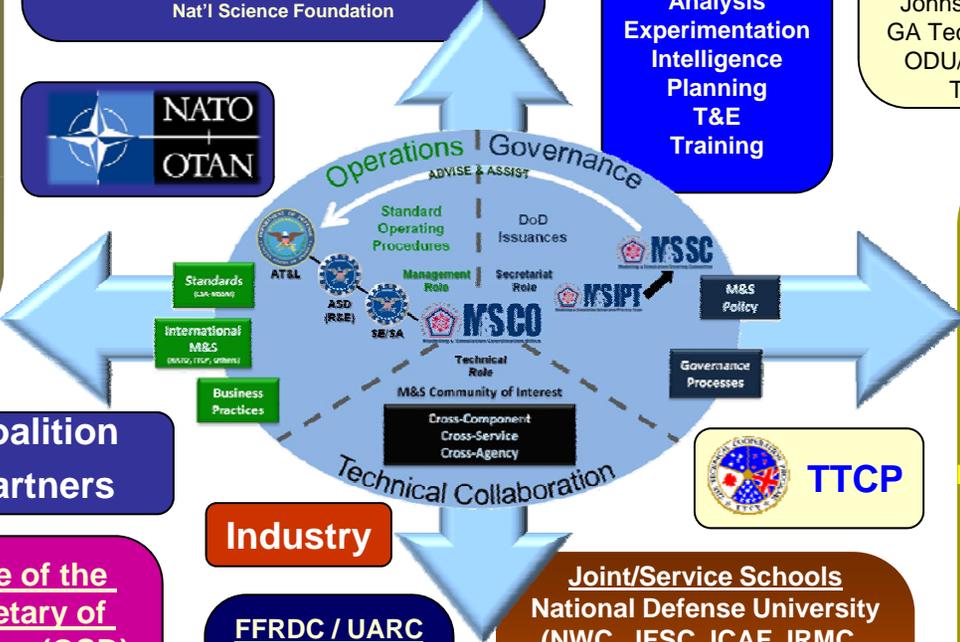
- SAF/A6W
- AFAMS
- Labs

Marines

- MCMSMO
- MCCDC-TECOM
- Labs

Navy

- DASN(RDT&E)
- NMSO
- NAVAIR, NAVSEA, SPAWAR
- Warfare Ctrs, Labs



Joint & Service Warfighting Centers

Joint
Joint Warfighting Center

Army
National Simulation Center
National Training Center
Joint Multinational Training Center
Joint Readiness Training Center
Mission Command Training Centers

Navy
Strike Forces Training PAC/LANT
Strike U.
TACTS Ranges
Naval Submarine School

Air Force
Warrior Prep Center
Air Wargaming Institute
Red/Green/Blue Flag
National Test Facility

Marine Corps
MC Warfighting Lab
Littoral Warfare Center

US Allies

JOINT

CJCS & Joint Staff
USCENTCOM
USEUCOM
USNORTHCOM
USPACOM
USSOCOM
USSOUTHCOM
USAFRICOM
USTRANSCOM
USSTRATCOM
USCYBERCOM

Coalition Partners

Office of the Secretary of Defense (OSD)

DoD Agencies
DARPA DIA
DISA DTRA
MDA NGA
NSA

Industry

FFRDC / UARC
Aerospace
CNA IDA
Lincoln Labs
MITRE RAND
SEI
Un of Texas
JHU/APL
Un of S. Carolina

Joint/Service Schools
National Defense University
(NWC, JFSC, ICAF, IRMC, DLAMP)
USAWC, USACGSC, DAU, CNW, CNCS
AF/AWC, ACSC
MCWAR, MCCSC
DSMC
Service Academies
NPS

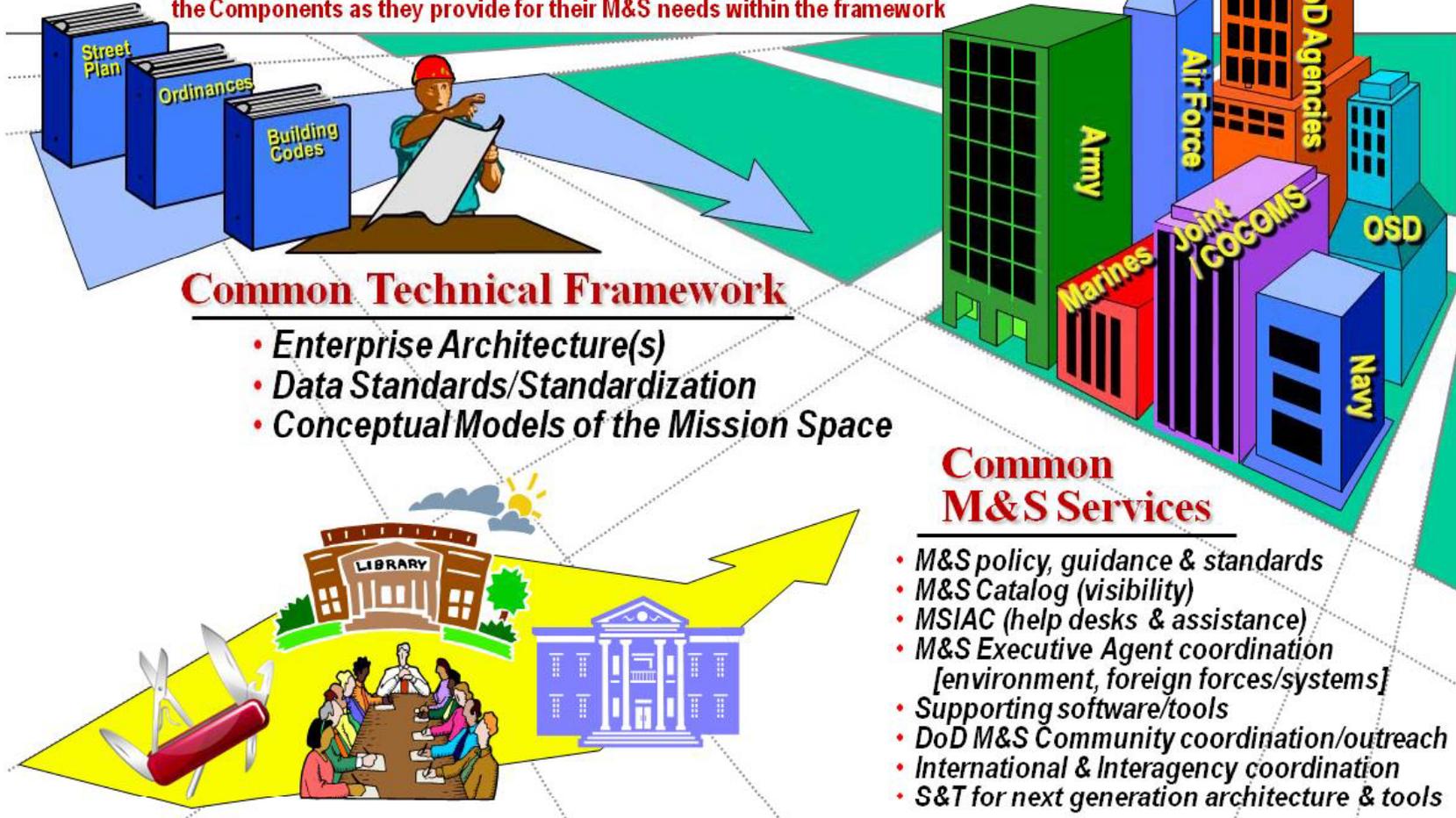




Enabling the DoD M&S Enterprise

The "City Planning" Analogy

USD(AT&L), by charter, provides the "city" framework & services that guide & assist the Components as they provide for their M&S needs within the framework



Common Technical Framework

- Enterprise Architecture(s)
- Data Standards/Standardization
- Conceptual Models of the Mission Space

Common M&S Services

- M&S policy, guidance & standards
- M&S Catalog (visibility)
- MSIAC (help desks & assistance)
- M&S Executive Agent coordination [environment, foreign forces/systems]
- Supporting software/tools
- DoD M&S Community coordination/outreach
- International & Interagency coordination
- S&T for next generation architecture & tools

Payoff: Interoperability & Reuse = Capability & Cost-effectiveness



Influencing the \$Billions Spent by DoD on M&S



- How the PE influences Department M&S -

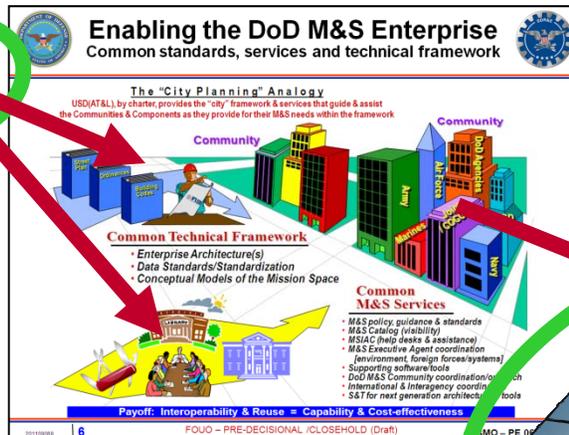
Leveraging the DoD M&S Management Office Program Element (PE) to influence the Enterprise

E.g., The annual simulation, training and education system expenditures just within partners comprising "Team Orlando" are in excess of \$5B per year



DoD M&S Enterprise
"The \$Billions"

DoD M&S Management Office PE
"The \$Millions"



DoD M&S Enterprise
"The \$Billions"

While MSMO PE funds spent on enabling the M&S Enterprise are a very small percentage of the \$Bs spent across DoD, they guide and influence those \$Bs to be spent on interoperable & reusable M&S tools, data and services that contribute to a trained, equipped and ready force for the National defense.

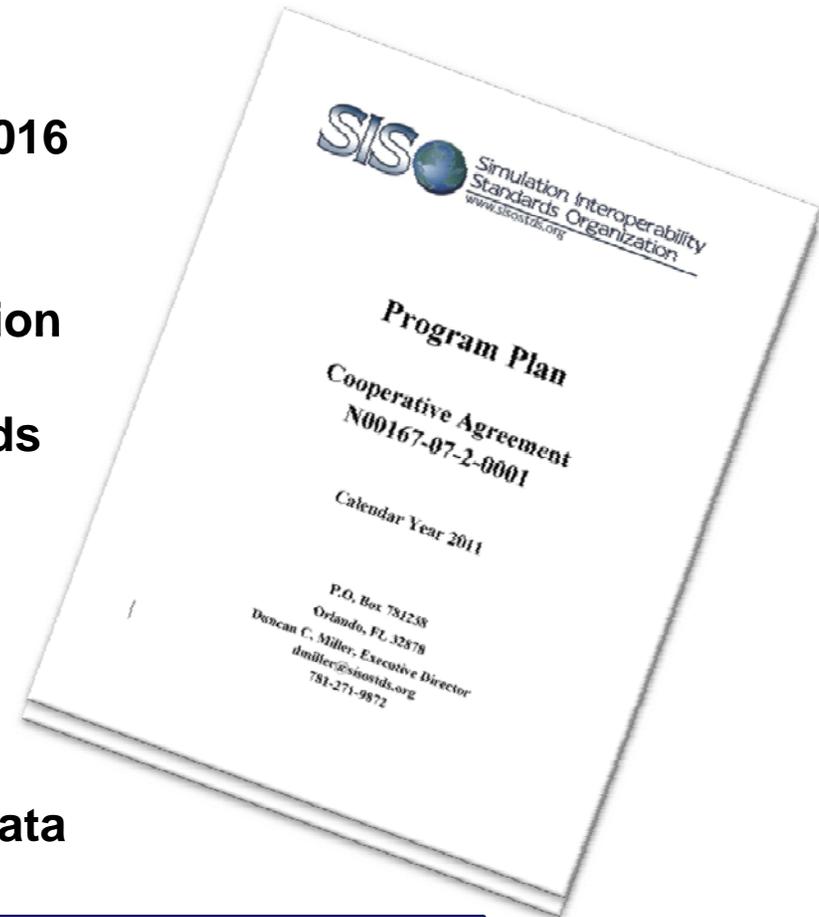




DoD and SISO Agreement



- **Contract:**
 - Signed Mar. 14, 2007
 - SISO Cooperative Agreement 2012-2016 in final approval phase
- **Deliverables:** SISO shall provide the following activities in support of simulation interoperability standards development; interoperability workshops, and standards development oversight and support
 - Develop and sustain M&S Standards
 - M&S Interoperability Workshops
 - Oversight support of M&S standards revisions
 - Conference and standards support data and statistics



A strong M&SCO – SISO partnership is a key part of the evolving DoD M&S Enterprise Strategy



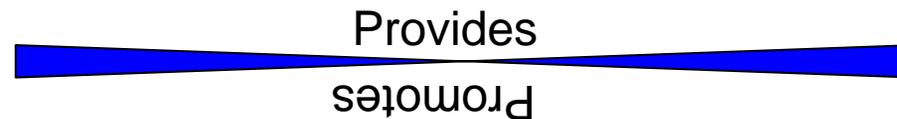
Complementary Goals



DoD M&S Goals

DoD M&S works to provide standards, architectures and environments that promote the sharing of tools, data and information across the Enterprise.

DoD M&S provides policies that promote interoperability and the use of common, compatible, and joint M&S capabilities.



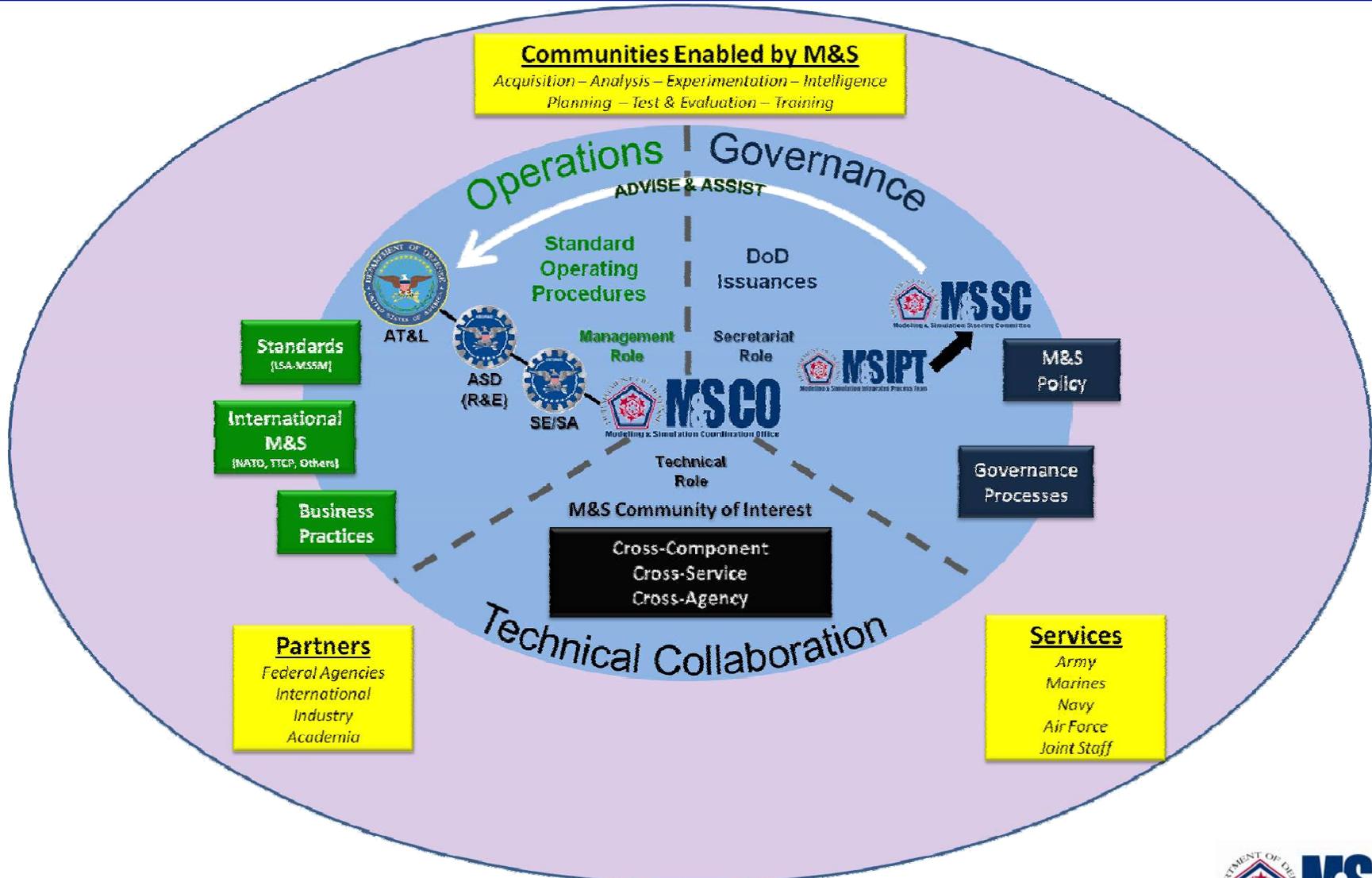
SISO Goals

SISO is an international organization dedicated to the promotion of modeling and simulation interoperability and reuse for the benefit of a broad range of M&S communities.

SISO is dedicated to the promotion of modeling and simulation interoperability and reuse for the benefit of diverse M&S communities, including developers, procurers, and users world-wide.



DoD M&S Enterprise

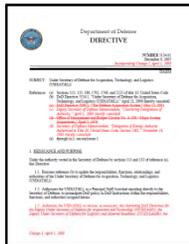




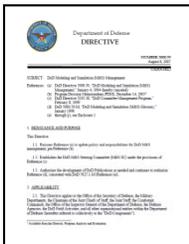
Operations



- **Authority**
 - DoD Directives establish AT&L authority and establish M&S management responsibilities
- **Value Added**
 - Provide continuous oversight and coordinated management to the DoD M&S Enterprise
 - Act as single point of convergence for national and international M&S standards, interoperability, policy, and management efforts – with a primary focus on reducing duplicated efforts
 - Provide business / financial management support for development, sustainment, collaboration investments
- **Major Thrusts**
 - Management – Development – Sustainment



DoDD 5134.01
Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L))



DoDD 5000.59
DoD Modeling and Simulation (M&S) Management



Enterprise Management Activities

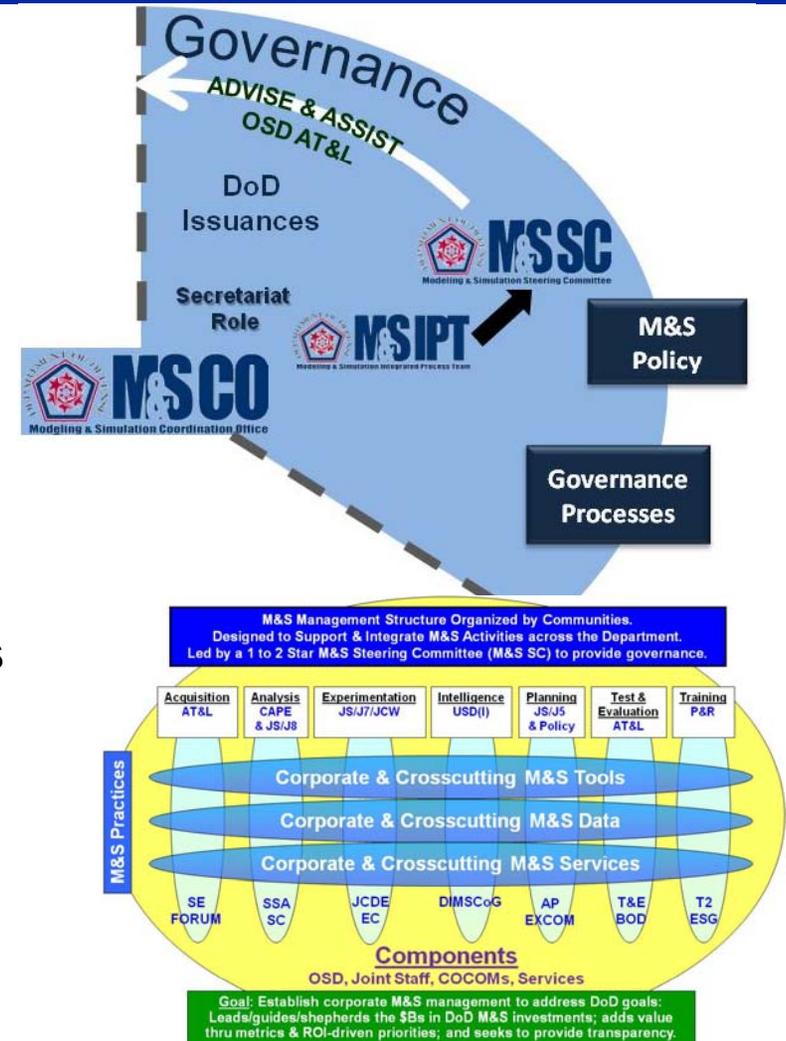


- **Serve as the DoD focal point for M&S activities and standards:**
 - Within the DoD and with non-DoD federal agencies
 - With industry, academia and regional/state/local agencies
 - With international partners including NATO, Partnership for Peace (PfP) nations, The Technical Cooperation Program (TTCP), RoK, and other Allies
- **Develop and publish policy / guidance:**
 - DoD Issuances providing direction and guidance for DoD M&S
 - M&S Management Policy (DoDD 5000.59 and Draft DoDI 5000.ww)
 - VV&A policy (DoDI 5000.61), instructions and guidance (MIL-STD-3022)
 - M&S Glossary for standardization of terminology (DoDM 5000.59M)
 - DoD M&S Enterprise Strategic Plan for FY12-FY16
 - DoD M&S Tools, Data and Services Strategic Plans for FY12-FY16
 - DoD M&S Tools, Data and Services Action Roadmaps
- **Serve as the DoD Lead Standardization Activity (LSA) for managing M&S standards and methodologies to improve the interoperability and reuse of M&S**
- **Manage the M&S Core Program to maintain and sustain M&S tools, data and services vital to the long term success of the DoD M&S Enterprise**
- **Manage the M&S Community of Interest (M&S COI) activities for integrating and coordinating technical M&S Enterprise requirements**
- **Provide functional oversight and technical direction to AT&L/DTIC's Modeling & Simulation Information Analysis Center (MSIAC)**



Governance

- Authority
 - DoD Directive 5000.59 and *draft* DoD Instruction 5000.ww
- Value Added
 - Synchronize activities of communities, components, COCOMs, and other participating agencies and organizations in providing advice and assistance to AT&L on M&S policies, investments, and strategic focus
 - Harmonize DoD M&S Enterprise efforts to promote interoperability and re-use
 - Rationalize investments across the DoD M&S Enterprise to improve the effectiveness and cost-effectiveness of DoD M&S
- Major Thrusts
 - Management – Development

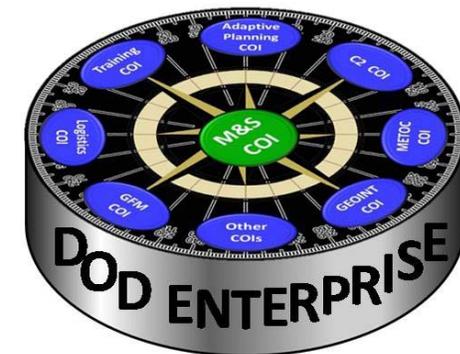




Technical Collaboration

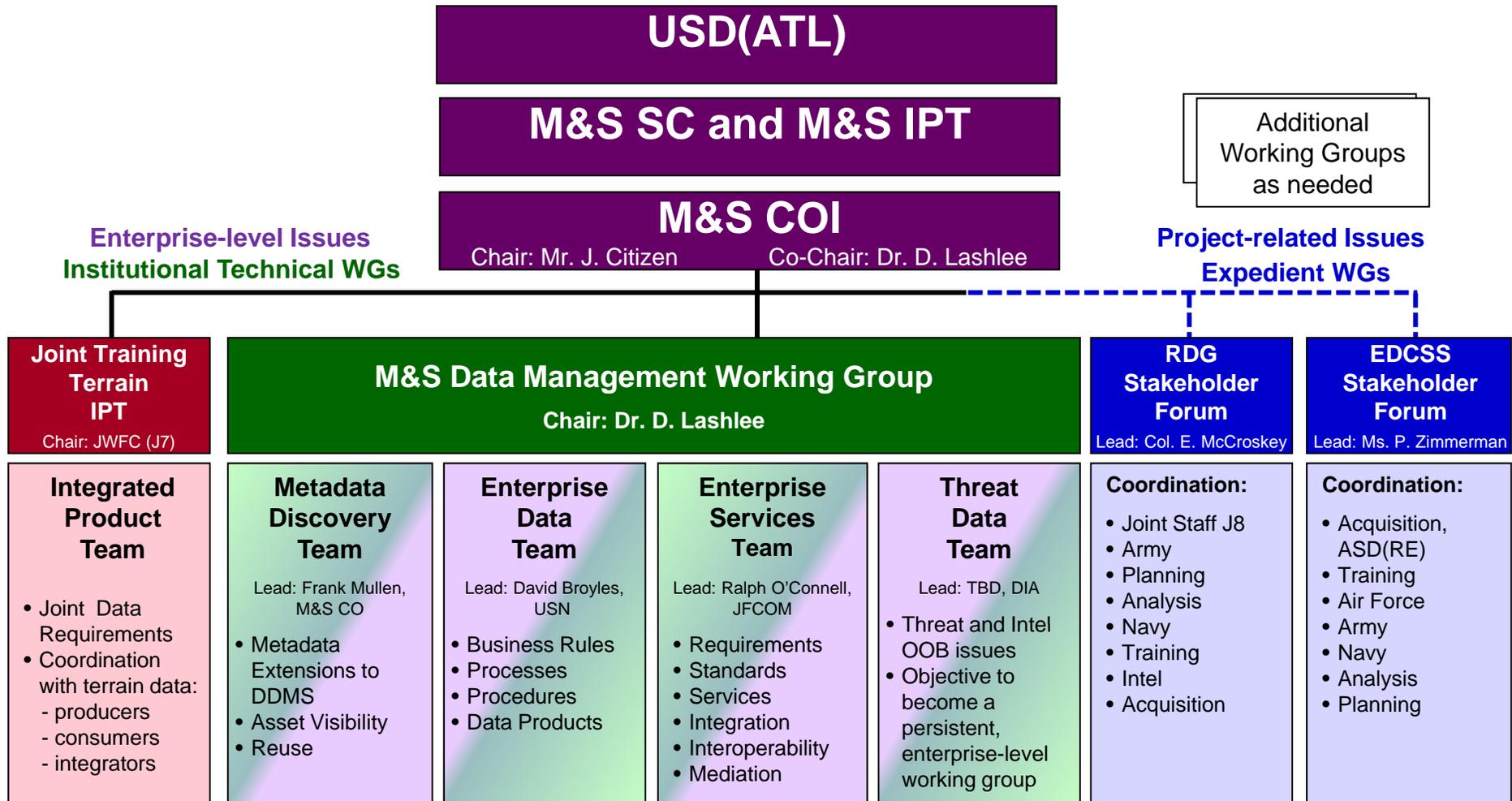


- **Authority**
 - DoDD 8320.02, DoDD 5000.59, *draft* DODI 5000.ww
- **Value Added**
 - Synchronize tools, data, and services technical approaches via a Community of Interest (COI)
 - Plan, execute, guide and transition vital M&S Enterprise capabilities to DoD
 - Sustain, manage and operate enterprise-wide tools, data, and services investments
- **Major Thrusts**
 - Management – Development – Sustainment





M&S COI Structure



Technical Collaboration to Support M&S Data Interoperability and Reuse



M&S COI Leadership

Appointment and Responsibilities



M&S COI Chair

- Appointed by USD(AT&L)
- Informs the M&S IPT and M&S SC
- Integrates M&S COI activities with the DoD Enterprise

M&S DMWG Chair

- Appointed by, reports to, and represents M&S COI Chair on the M&S DMWG
- Plans, conducts and reports DMWG technical activities

M&S DMWG Technical Team Leads

- Appointed by the DMWG Chair and endorsed by the M&S COI Chair
- Review technical issues, recommend approaches, and produce technical artifacts

Joint Training Terrain IPT Chair

- Appointed by JWFC (J7) and endorsed by the M&S COI Chair
- Identify Joint terrain data requirements for training applications

HLT Stakeholder Forum Leads

- Appointed by respective M&S SC Project Leads
- Provide technical requirements to and review technical recommendations from the M&S COI

*Generally, the organization leading the COI activity has committed to driving the COI to a data sharing solution.
(DoD 8320.02-G Guidance for Implementing Net-Centric Data Sharing)*



FY 11-12 Overview



Standards

- M&S CO Serve as Lead Standardization Activity
- Manage existing and emerging standards
 - Coordination
 - Evaluation
 - Lifecycle sustainment
- Develop supporting tools/methodologies

Strategic Analytical Capabilities

- Enhance analytical capabilities (per QDR)
- Coordinate development and dissemination of M&S tools for:
 - Irregular Warfare (IW)
 - Behavior Representation
 - Cyber Operations
 - Counter-WMD (Weapons of Mass Destruction)

Education and Outreach

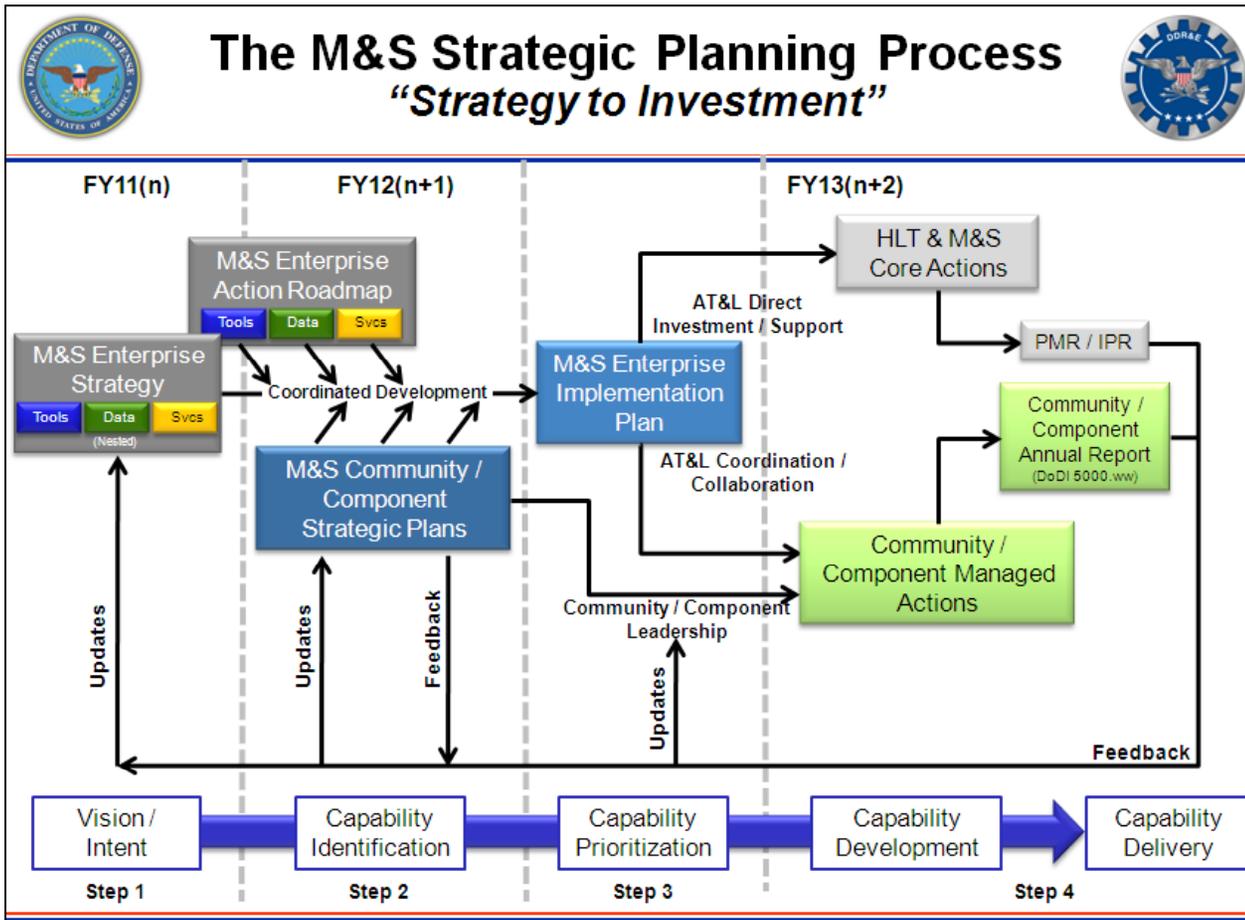
- Sustain current M&S education courses and workforce
- Serve as focal point for coordinating:
 - DoD M&S outreach activities
 - Federal agencies and other M&S agencies including NATO and Partnership for Peace (PfP) nations, The Technical Cooperation Program (TTCP), and other Allies

DoD Enterprise Activities

- Improve M&S tools, data and services:
 - Environmental Data Cube Support System (EDCSS)
 - Rapid Data Generation (RDG)
 - LVC Architecture Roadmap (LV CAR) Implementation and Net-Centric Environment Implications
 - VV&A capabilities



Strategic Planning Process



- **Management**
 - Provide vision and intent for the M&S Enterprise
 - Identify capabilities for re-use across the M&S Enterprise
 - Prioritize PE investments for the M&S Enterprise

- **Development**
 - Fund enterprise-level capabilities to support M&S Community and Component investments

- **Sustainment**
 - Sustain and operate M&S data, tools, and services

- **Five-year plan – Three-year cycle**
 - Strategies – Implementation – Investment
- **Continuous feedback**



2011 DoD M&S Enterprise Strategy



•Purpose:

•To provide a way forward for the Department towards achieving the “**Strategic Vision and Goals for DoD M&S**” **Strategic Vision for DoD Modeling and Simulation, August 24, 2007,**” over the next five years.

•Method:

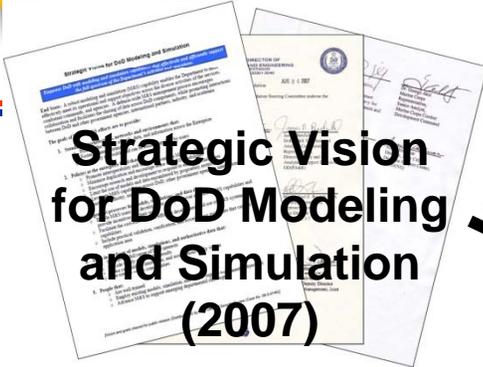
• The basis of the Enterprise Strategy is the 2010 C&CC Business Plan with inputs and adjustments contributed within past 6 to 9 months from:

- Draft DoD Instruction 5000.59 and the DoD Manual 5000.59-M
- IPT Wargame and SC Off-site
- Draft M&S Enterprise Data Strategy
- Family of Best Practices Guides – contracting for M&S, tools, standards
- Standards Management Plan
- Tools Study
- HLT & M&S Core Plans and Deliverables
- DoD Directives and Efficiencies guidance
- DoD Enterprise and COI guidance, updates
- M&S COI and DMWG charters

One Strategy – Many Parts



M&S Enterprise Strategy



Strategic Vision for DoD Modeling and Simulation (2007)

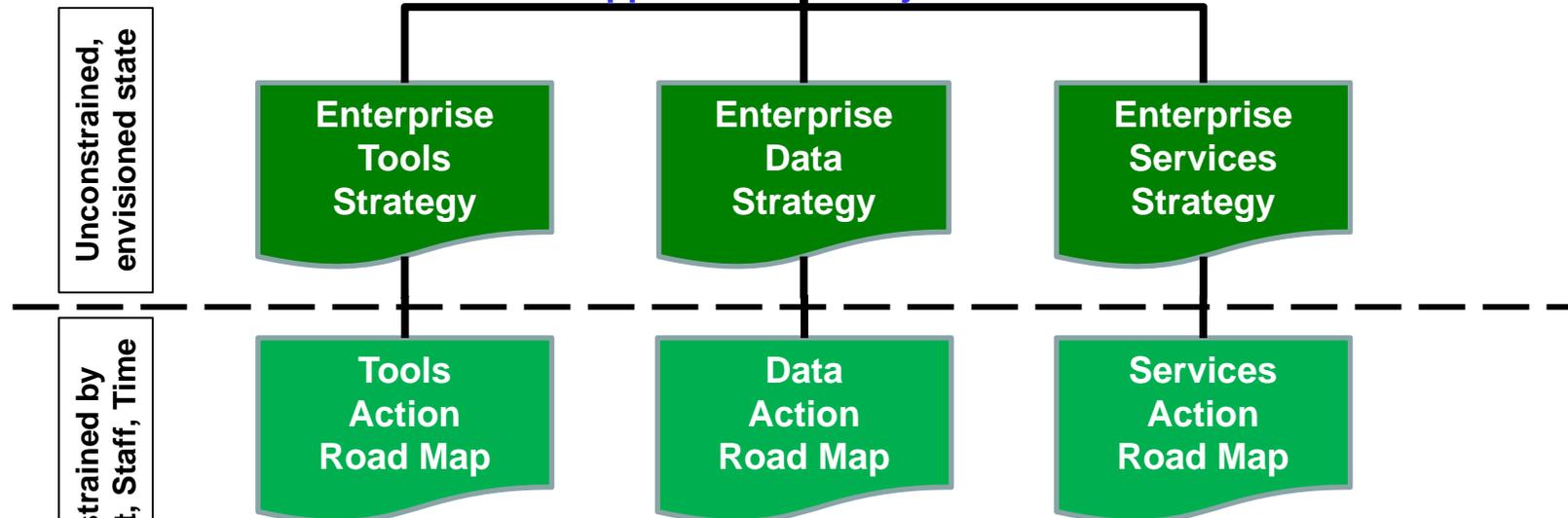
Goals from



DoD M&S Enterprise Strategy

Implements 2007 goals into objectives & actions

Goals apportioned to objectives



End State: Enterprise Strategy for "Distribution A" to wide audience (government, industry, academia)



Enterprise Development Deliverables High Level Tasks (HLTs)



Accomplishment	Performer	Technical Oversight
Rapid Data Generation (RDG) & Common Data Product Environment (CDPE) *	ARL/UT, GDIT, MITRE, DOE/ORNL	Joint Staff
Environmental Data Cube Support System (EDCSS)	AER, Navy (CMOC & NRL), Army (ERDC), ARA	Acquisition
Irregular Warfare (IW) Modeling & Simulation	TRAC, NPS, IDA, Rand, SAIC, Group W	Analysis
Cyber Operations Research & Network Analysis (CORONA)	DOE/SNL, DIA/MSIC, USAF/90 th IOS	Test & Evaluation, Intelligence
LVC-AR Implementation & Net-Centric Environment Implications *	JHU, MITRE, Simventions	Training

* Team Orlando/JTIEC provides project management for these tasks



Enterprise Sustainment Deliverables M&S Core



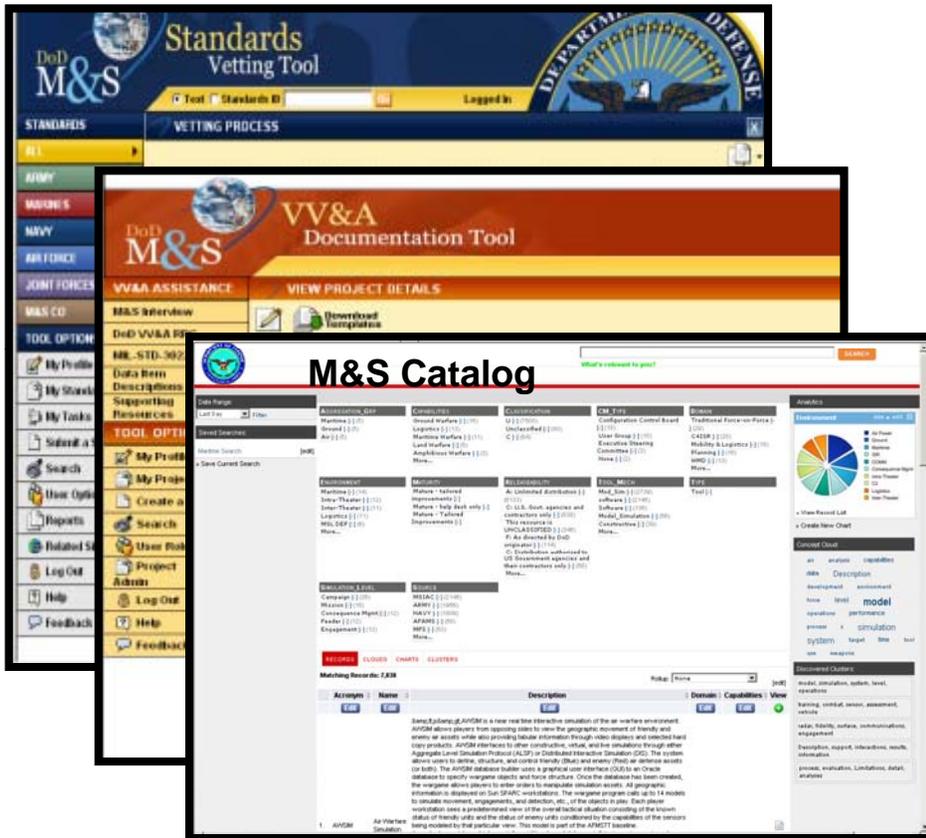
Accomplishment	Performer	Technical Oversight
DoD M&S Enterprise Catalog *	Alion, OSD/CAPE, SPAWAR	M&SCO
MSC-DMS v1.4 *	SimVentions	M&SCO
Standards Vetting Tool (SVT) *	UCF-IST	M&SCO
VV&A Documentation Tool (VDT) *	UCF-IST	M&SCO
VV&A Recommended Practices Guide *	JHU/APL	M&SCO
HLA Federate Testing *	JHU-APL, Alion	M&SCO
RTI Verification *	JHU-APL, Alion	M&SCO
SEDRIS *	Abamis	M&SCO, USA
M&S Standards Profile & Data Warehouse *	AEgis	M&SCO
M&S Standards Process	SISO, ISO/INCITS	M&SCO

* Team Orlando/JTIEC provides project management for these tasks



DoD M&S Core – Enterprise Tools

** On display at the M&SCO Booth **



DoD Standards Vetting Tool
DoD VV&A Documentation Tool
DoD M&S Catalog

Value:

- Enhances effective development of credible M&S tools through visibility, standards and reuse

Description:

- Facilitates more effective VV&A
- Improves re-use through consistent and standardized documentation
- Increases collaboration for standards
- Provides a “Google-like” search across DoD's multiple resource repositories and a net-centric consistent architecture
- Leverages the investments in legacy M&S repositories

Status:

- Available on the internet for .mil users

Impact:

- Increases stakeholder involvement / better products
- Better, consistent documentation supporting reuse
- One-stop shopping / saves time and resources



Sustaining the Partnership

A key element of the DOD M&S Enterprise Strategy



- **M&S Standards support the M&S Enterprise**
- **M&SCO/SISO partnership promotes dialog throughout the M&S Enterprise about standards processes and practices**
- **M&SCO/SISO partnership leverages DoD's collaborative/volunteer input to standards**
- **M&SCO is guiding the DoD M&S Enterprise with its forthcoming M&S Enterprise Strategy document(s).**





For More Information



- Visit the M&S CO website at www.msco.mil
- Send your e-mail inquiries to ask.msco@osd.mil
- Come see us at the M&SCO booth in the Exhibit Hall

