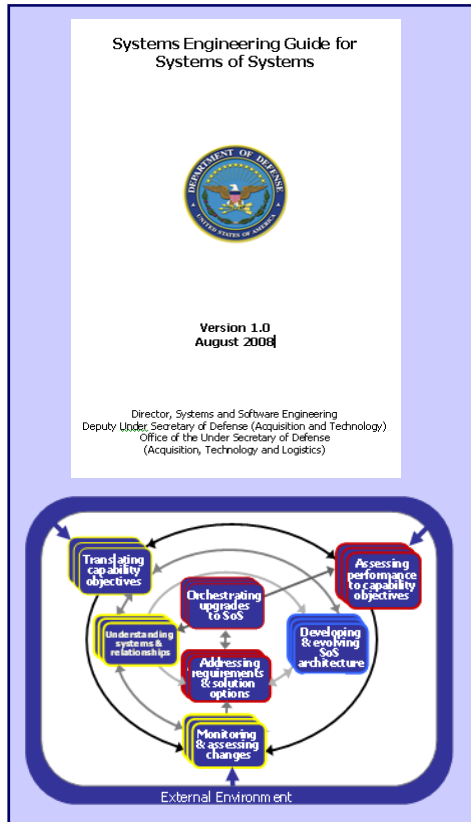


Update on
Survey on Modeling and Simulation
Support for the
Systems Engineering of Systems of
Systems

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Systems Engineering for Systems of Systems



- AT&L Released “Systems Engineering for Systems of Systems” Version 1.0 in August 2008
 - Characterizes SoS in the DoD Today
 - Identifies core elements of SoS SE
 - Discusses application of SE processes to SoS SE core elements
 - Highlights ‘emerging principles’
 - Briefly addresses M&S
- Requested M&S Committee provide input on use of M&S to support SE for SoS
- Purpose of this presentation is to
 - Summarize the response to date
 - Outline plans for next steps
 - Solicit additional input from community

SoS: A set or arrangement of systems that results when independent and useful systems are integrated into a larger system that delivers unique capabilities

Modeling and Simulation?

- How does the SoS SE Guide address M&S?
 - Initial .9 Version included M&S throughout the draft
 - The practitioner reviews indicate limited use of M&S
 - Main place where M&S was cited is in the emulation of systems not otherwise available for testing
 - Consequently the 1.0 Working Draft limited M&S to this area
 - Comments on the draft identified more uses of M&S
 - The final 1.0 Version has an M&S section and added places where M&S is discussed

Specific Request

- For each of the seven core elements of SoS systems engineering (SE) listed on the following pages, please share your views on:
 - The **potential** for applying modeling and simulation, including why M&S has potential value
 - Your **experience** using M&S for this SoS SE element, including the context of the application, the ways M&S was applied, the products produced, how they were used, and the value added by M&S
 - The **enablers** for use of M&S in this element, including what attributes made successful use of M&S possible (in cases where it was applied) and **barriers** that inhibited use of M&S (in cases where the potential is not being realized).

Timeline

- Pre-Release version of SoS SEG released in May 2008
- Dahmann briefed NDIA M&S Committee at June 2008 meeting
- June letter from Kristen Baldwin (then Acting Director for Systems and Software Engineering) requesting committee input
- Survey was sent out by Hollenbach in early July
- Responses were received in September
- Next steps outlined here

How did we get here?

Summary of Responses

- 19 Responses from 14 organizations
- 10 volunteers to help to synthesize the report on survey results
- Responses were of several types
 - Views and specific experiences
 - Perspective on issues
 - Views based on M&S for SE
 - Organizational experience
- 8 responses include descriptions of specific activities which are candidates for follow-up

Responses Overview

Name	Organization	Indiv or Org input?	Response Type	Example	Help
LTC Favio Lopez	3CE	Org	Views and specific experiences	X	X
David Dubuque	Aegis Technologies	Indiv	Perspective on issues		
Danny Thomas	Aegis Technologies	Indiv	Perspective on issues		
Robert Upchurch	Aegis Technologies	Org	Perspective on issues		
Hugh Griffis	Air Force Aeronautical Sys Ctr (ASC/END)	Org	Organizational experience		X
Terry Christian	Air Force Research Lab (AFRL/XPT)	Indiv	Organizational experience		
Pin Chen	Australia DSTO (Maritime Ops)	Indiv	Views based on M&S for SE		
William Tucker	Boeing Company	Org	Views and specific experiences	X	X
Frank Grange	Lockheed Martin	Indiv	Views and specific experiences	X	X
Steve Hall	Lockheed Martin	Indiv	Views and specific experiences	X	
Chett Harris	Lockheed Martin (IS&GS)	Indiv	Perspective on issues		X
Koury, Polzer, et. al.	Lockheed Martin	Indiv but...	Views and specific experiences	X	X
Lan-Thau McGough	Marine Corps Systems Command	Org	Views and specific experiences	X	X
Dave Prochnow	MITRE	Indiv	Views and specific experiences	X	X
George Hazelrig	National Science Foundation	Indiv	Views based on M&S for SE		~
Steve Lyda	Naval Air Systems Command (Air 4.7)	Indiv	Views based on M&S for SE		
Kenneth Small	Naval Surface Warfare Cntr Dahlgren	Indiv	Perspective on issues		
Thomas Haley	Naval Undersea Warfare Center	Indiv	Views based on M&S for SE		X
Emily Andrew	Raytheon	Org	Views and specific experiences	X	X

Government, industry, and FFRDC responses

Proposed Next Steps

- Convene team of volunteers to begin synthesis processes
 - Evening meeting during SE Conference to get started (Wed 5:30-6:30 pm in this room)
- Target February M&S Committee meeting in DC for brief-out of draft results
- Follow-up with
 - Written report
 - More in-depth look at specific activities which could serve as examples

Added inputs are welcome
Need these as soon as possible