



NDIA System Security Engineering Committee

August 2021

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NDIA SSE Committee Chair
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2021 ACTIVITIES

- **Supported development and industry review of PSM CID Measurement Framework Whitepaper Software Assurance section**
- **Held SSE Taxonomy workshop**
 - Continuing development of terms and definitions for wider review and recommendation for use in other standards
- **Reviewed USAF DevSecOps CONOPS**
- **Provided industry perspective on Cybersecurity Legislation**
- **Provided Committee Report on NIST 800-161 Rev 1 to NIST**
- **Provided representative to Cyber Resilient Weapons Systems – Body of Knowledge (CRWS BoK) Review Board**

Projects Aligned with Ms. Geier's DoD SE Modernization Discussion



- **SE Modernization Challenges / Barriers**

- Standards

- Program Protection Implementation Plan (PPIP) Data Item Description (DID) Update (current DID from 1993) – USG Led
- Software Bill of Materials (SBOM) DID creation – Industry Led
- Workshop on limiting flow down of Controlled Technology Information (CTI) to subcontractors – USG/Industry Collaboration

- **Key Elements in future of Systems Engineering / Culture Shift Embracing SE / Collaboration**

- Integration of SSE

- Workshop on integrating Cybersecurity Survivability Endorsement Implementation Guidance (CSEIG) into the SE process – USG/Industry Collaboration
- Defining common taxonomy to be used throughout government, industry, and academia – Industry Led

2021 Projects (crossed out projects are completed)

- **Government Led**
- **PIIP Review (Standards w/ All Participating) –**
 - Goal is to make it more consistent with existing regulations while also being responsive to individual customers; guidance documents in work – awaiting update from USG
- **DoDI/M 8140 Review (Workforce Training/Competencies)**
 - Awaiting implementation of NICE Framework to DoD systems; main clarification is whether or not this applies to DIB and what requirements will flow down - TBD awaiting draft from USG
- **CMMC - Engineering Perspective (Standards)**
 - Provide consolidated industry feedback on SSE impacts of CMMC (i.e. limiting flow to subcontractors, identifying levels as requirements are flowed deeper down the supply chain, etc); On hold awaiting latest review of CMMC path forward
- ~~**NDA FY2021 Sect 9901 – 9908 Creating Helpful Incentives to Produce Semiconductors for America (HwA/SCRM)**~~
- **DoDI 5000.89 T&E Review (CT&E) – ready (Q3)**
- **DoDI 5000.90 Cybersecurity review and comment (Standards)**
 - USG POC identified; ready (Q3)
- **Update DAG to match latest acquisition pathways guidance (Standards w/ All Participating) – awaiting update from USG**
- **DoDI 5200.44 update – integration of zero trust / assured microelectronics**
 - Risked based, not eliminating trusted foundry – awaiting update (TBD)

Committee Led

- ~~**PSM CID Measurement Framework Whitepaper Software Assurance**~~
- ~~**Coordinating with Electronics Division to provide a bridge between control/guidance and supply chain risk – Ongoing (Q2/Q3)**~~
- ~~**Review of Cybersecurity Legislation (Software Assurance) – Ongoing (Q2)**~~
- ~~**NIST 800-161 Rev 1 review and comment**~~
- ~~**DSOP review and comment**~~
- **SSE Taxonomy (w/ INCOSE) (Standards) – Ongoing (Q3)**
 - Caitlin Baummer leading
- **Draft DID Software Bill of Materials (SCRM) – ready (Q3)**
 - Linda Gee leading w/ Bradley Langford support
- **Critical Program Information term and definitions relate to DoDI 5200.39 (AT) – ready (Q3)**
- **Perform assessment of skill gap to determine focus areas to build the bench of SSEs (Education) – ready (Q3)**
- **Zero Trust Program View (led by Electronics Division) (HwA) – ongoing (Q3)**
- **Review effectiveness of Cyber Survivability Endorsement process – ready (Q3)**
 - Plan to include in September Committee Meeting
 - Request USG POC from Joint Staff
- **NIST SP 800-160 Volume 2 Rev 1 Review and Comment – comments due 20 Sept**
- **NIST SP 800-53A Rev 5 Review and Comment – comments due 1 Oct**



18 August 2021

NDIA Systems Engineering Division (SED) Meeting

Systems of Systems and Mission Engineering (SoS ME)

Committee Report

Co-Chairs:

Dr. Judith Dahmann, MITRE

John Daly, Booz Allen Hamilton

Jennie Horne, Raytheon

Richard Poel, Boeing

- **SoS Engineering Collaborators Interchange (SoSECIE)**
 - Upcoming events
 - August 24th
 - **TOPIC:** Communication Oriented Modeling of Evolving Systems of Systems
 - **SPEAKER:** Sean Kristian Remond Harbo
 - Sept 7th
 - **TOPIC:** System of Systems Meta-Architecture Approach to Improve Legacy Metrorails for Enhanced Customer Experience
 - **SPEAKER:** Dr. Cihan Dagli and Maxwell Polley

SoSECIE@mitre.org for more information

<https://mitre.tahoe.appsembler.com/blog> for recording

Updates (2 of 2)

- **Mission Engineering Initiative**

- Kickoff was held on 24 May, 60+ participants
- Follow-up meeting held with R&E SE - Elmer Roman and Marc Goldenberg on June 28th
 - Reviewed the results of the 2019 ME Industry Task Force
 - Follow-up actions focus on SE and ME Conference
 - ME Workshop and ME panels
- ***Need to revisit given changes in Conference***
 - ***Considering idea of possible ME mini-event in near-term if conference is delayed 6 months***
- Elmer Roman presentation on SoSECIE last week
 - Recording will be posted once we receive public release.

ME Initiatives presentation materials are on the SED Website

<https://www.ndia.org/divisions/systems-engineering/committees/systems-of-systems-engineering-committee>



Modeling and Simulation Subcommittee

Joe Backhaus
Lockheed Martin Corp.

David Allsop
The Boeing Co.

Modeling and Simulation subcommittee

- **The mission of the NDIA SE M&S Committee is to advance the understanding and use of modeling and simulation in the practice of systems engineering**
- **2021 meetings (tentative schedule)**
 - August
 - September
 - October (Committee meeting if Conference slides)
 - December (Committee meeting + Planning)
- **All meetings will be virtual until further notice**

August 17, 2021



Start	End	Topic	Presenter/s
1200	1230	Gathering and Meeting Kickoff	Backhaus, Allsop
1230	1300	Overview of 2021 NDIA S&ME Conference	Backhaus
1300	1330	Actions and notes from 2021 Planning Meeting	Backhaus, Allsop
1330	1400	Update on Digital Engineering Metrics Activity	Yeman
1400	1430	Coordination with Architecture Committee	Scheurer
1430	1500	2021 Planning Discussion	Backhaus, Allsop

Focus Areas

- **Strengthening Modeling and Simulation as an enabler to systems engineering refresh**
- **Continue Digital Engineering (DE) Metrics Work**
 - On-going working group across NDIA SED
- **Revector DEIXWG RE: DIDs for DE/MBSE**
 - Needs to cover new deliveries (e.g. better specification of model CDRL for Mission Engineering analyses) as well as existing CDRLs now delivered/generated via models
 - Revector working group to focus on view/viewpoint methodology for DE/MBSE DIDs; publish recommendations on format, content, structure, etc.



NDIA SE Architecture Committee Report

August 18, 2021

Bob Scheurer

Ed Moshinsky

SE Architecture Committee



Mission / Purpose

- Mission: Grow Relevance, Usefulness, and Awareness of System Architecting and Architectures in National Defense Systems and Applications
- Purpose: To Facilitate Acumen and Successful Outcomes from System Architecting and Architectures
- Leadership:
 - Bob Scheurer, Boeing;
 - Ed Moshinsky, OUSD(R&E)

Stakeholders / Sponsors / Collaborators

- Stakeholders: Defense Industrial Base Members, DoD, & Services
- Sponsor: Nadine Geier, OSD R&E
- Collaborators: INCOSE, AIA, DoD MOSWG;
 - Paul Jonas, MOSA Metrics, US Army Research
- Membership: **95+ members** from government, industry, and academia.
- Business Rhythm: Bi-weekly telecons; sub-committee/working groups/focus teams as required.

Recent Accomplishments

- On-Going Bi-Weekly Full Committee Meetings
- On-Going Bi-Weekly Sub-Committee Meetings (e.g., MOSA Metrics) and Special Meetings, as Needed
- Participating with NDIA Manufacturing Division / Supply Chain Network Committee: Ethan Plotkin, Chair, “Helping OSD Do Sustainment Better”
- Participating in DoD’s MOSA (MOSWG) and Tiger Team(s)
- Participating in PSM’s Digital Engineering (DEWG) Working Group: Functional Completeness and Volatility Metric
- Participating in Paul Jonas Army MOSA Metrics Working Group Activities/Surveys (They are now also participating in our NDIA SE Architecture Committee metrics work) – **Current Jonas status unclear**
- [MOSA White Paper](#) and Supporting Briefings

2021 Plans / Events / Milestones

- Focus on MOSA Metrics / Metrics Sub-Committee
 - **MOSA Terms/Definitions (Initiating Reviews)**
 - Metrics (On-Going)
 - Contracting Language (**Q4/2021 Initiation**)
- 2021 S&ME Conf. Track on System Architecture (Tentative)
- MOSWG & Tiger Teams Support: MOSA Outreach, et
- Digital Engineering Working Group Support
- Joint Effort w/NDIA Mfg Division/Ethan Plotkin: Better OSD Sustainment - SD-22 Guidebook Update: Data gathering phase underway
- Mission Engineering Working Group activity
- Other Relevant Plans/Support Areas
 - SE Modernization w/Nadine Geier, OUSD(R&E) SE Director
 - Reference Architectures (**Q4/2021 initiation**)
 - Modularity & Openness Partitioning and Representations in Architecture Models

8/18/2021

DoD Initiatives Support by NDIA Architecture Committee



DoD Initiative	Prime DoD Objectives	NDIA Architecture Committee
Modular Open Systems Approach (MOSA)	<ul style="list-style-type: none"> Enduring Platform Relevance Improved Capabilities 	<ul style="list-style-type: none"> MOSA White Paper: Acquirer and Supplier Recommendations MOSA Metrics / Application Guidance Joint Approach Definition w/DoD
Digital Engineering (DE)	<ul style="list-style-type: none"> Accelerate Developments Generate Cost/Schedule Efficiencies 	<ul style="list-style-type: none"> DE Metrics Initiative
Mission Engineering (ME)	<ul style="list-style-type: none"> Optimize Mission Outcomes of SoS Identify Capability Gaps 	<ul style="list-style-type: none"> Contributor to ME Phase II Study (2019) Monitoring Aligning Focus: SoS Architectures
Systems Engineering (SE) Modernization	<ul style="list-style-type: none"> TBD 	<ul style="list-style-type: none"> Monitoring Collaborating

MOSA Implementation Recommendations*

(Items Underlined and Marked in Green Represent Current Follow-On Focus Efforts)



- 1) Develop MOSA strategy and objectives early in the acquisition process
- 2) Define MOSA implementation approach (acquirer and supplier roles)
- 3) Define interfaces within the System of Systems in terms of MIL-STD-881D Taxonomy Levels of Detail and leverage existing Open System Architectures for lower levels of detail
- 4) Apply MOSA in software architectures at appropriate levels of abstraction and complexity
- 5) Implement MOSA as part of a larger and more robust Digital Engineering strategy
- 6) Incorporate cybersecurity strategy in a MOSA application at the time of initial design, not as a later addition
- 7) DOD and industry work together to define how to evaluate MOSA
- 8) Develop and implement enablers with appropriate investment to affect culture change required for successful widespread adoption of MOSA
- 9) Create Library of MOSA Systems and Interfaces
- 10) Define a means for comparing and specifying standards and interfaces for a MOSA-enabled environment.

* From [NDIA Systems Engineering Division Architecture Committee White Paper](#) Dated July 1, 2020

Architecture Committee Products

- [MOSA Recommendations & White Paper](#) Folder on Committee's Collaboration Site hosted by Mitre
- **External Links to MOSA White Paper Public Resources**
 - [White Paper](#)
 - [Presentation](#)
 - [Briefing to INCOSE](#)