

Minutes of NDIA SE Division Meeting

Date: June 6, 2019

Location: Lockheed Martin, Global Vision Center, Washington, D.C.

Briefings and materials:

NDIA: http://www.ndia.org/Divisions/Divisions/SystemsEngineering/Pages/Past_Projects.aspx

Introductions

- Agenda
- D-Day remembrance
- Introduction of attendees

Digital Engineering Strategy & Implementation Status – Phil Zimmerman, Deputy Director, Engineering Tools & Environments, OUSD (R&E)

- See Digital Engineering Strategy on OUSD (R&E) website. Strategy – not implementation document.
- Mission Engineering: standing up a capability implementation group (analogous to prior Program Support directorate).
- Dr. Griffin is about retaking our technical superiority on the battlefield.
- It is a wash on cost for digital engineering – but it does drive down risk, allowing us to spend more time on testing.
- Modernization priorities: hypersonics; fully network C3; directed energy; cyber; space; machine learning/AI; microelectronics; biotechnology; quantum science. Digital engineering spans these – but doable today, and not precluded by DoD 5000 series.
- Our adversaries' investments in R&D are on pace to surpass U.S.
- Digital Engineering Strategy: https://www.acq.osd.mil/se/initiatives/init_de.html
- 5 goals:
 1. Formalize the use of models.
 2. Provide an Authoritative Source of Truth. – authoritative data available whenever and wherever needed. Capture everything there is to be known, catalogue it, make it available.
 3. Incorporate Technological Innovation – be open to using new tools and methodologies, but don't lock yourself in.
 4. Establish Infrastructure and Environments – give people the environments and tools to enable their work.
 5. Transform Culture and Workforce – "I don't think we have a technical challenge in digital engineering; I think it is a cultural challenge."
- Implementation Plan Guidance: outline provided, 15-30 pages, ensure OSD DE Strategy is addressed in services and on programs.
- Next steps: Digital Engineering policy. Regular monitoring of service implementation plans. Service, industry, academic, and standards organization collaborations to further the Digital Engineering implementations. INCOSE/NDIA Digital Engineering Information Exchange WG to advance concepts. Research areas initiating in curation, credibility, and metrics.
- Add a factor of trust into our models; and get rid of verification or accreditation tasks we no longer need.
- Securing the data: made a conscious effort to stay from this, to advance the technology first. This is on the backlog of things to do.

MBSE Benchmarking Study Proposal: Geoff Draper (Harris), Garry Roedler (Lockheed Martin)

- Propose a collaborative benchmark study of MBSE benefits and quantitative improvement.
- INCOSE and NDIA agreed to facilitate. IEEE (Bob Rassa) also agreed. AIA (Gery Mras) expressed interest, but commitment must be approved by Technical Operations Council and Engineering Management Committee. Phil Zimmerman expressed support from DoD R&E.
- Garry to reach out DoD SERC as honest broker for protecting proprietary data. MITRE could also help.
- SED committees: M&S, SE Effectiveness.
- AIA: what we really need is a roadmap. Bill Lueck (TOC chair); EMC chair: Dr. Peter Pan (NG) – MBE Team Lead.

- Action: Garry Roedler and Geoff Draper to schedule a teleconference with key sponsors to plan the MBSE benchmarking study. Include INCOSE, NDIA, IEEE, AIA, MITRE, John Daly for OSD R&E M&S.

AIA Overview: Gery Mras, Director Lifecycle Management

- AIA Board of Governors Leadership: Bill Brown, Vice Chairman. Eric Fanning, President and CEO.
- Rusty Rentsch, VP, Technical Operations & Standards. Gery Mras, Director Lifecycle Management. Chris Carnahan, Standardization.
- TOC strategic initiatives: Model-Based Engineering. Product Sustainment & Support. High-quality supply chain system efficiency. Standards.
- EMC 2019 projects:
 - Digital Transformation Whitepaper. Lifecycle Benefits of Collaborative MBSE Use for Early Requirements Development.
 - AIA MBE Team Summary: what is the Digital Transformation roadmap?
 - Connected Digital Artifacts. Digital Culture Transformation. IP/Data Rights. Trusted V&V'd Digital Artifacts (Paul Embry, LM)
 - AIA Rapid Response Network (RRN) – Brenda Fukai-Allison, Boeing – chemicals issues.
 - Standardization roadmap: develop MBE transformation standards.
 - Long Term Archiving and Retrieval (LOTAR)
 - STEM – major outreach. Rocketry Challenge. “Half the time, all you have to is help a kid believe.” Project on pause – shift from bottoms-up to legislative approach.
 - AIA Ecosystem Blockchain. A&D Consortium Value.
 - Bob Scheurer – NDIA/AIA Liaison.
- Observations:
 - AIA/NDIA: good partnership.
 - Sustainment: disconnect between industry, associations, and military readiness. (80% of cost)
 - Concept: renting IP in a vending machine concept to sustain aircraft parts.
 - Additive Manufacturing: a competitively sensitive emerging technology. Multiple industry sectors all with different goals. Dependency upon trusted machine and trusted process.
 - Tools: industry should be driving the capabilities, not the tool vendors.

INCOSE Initiatives, projects, and Collaboration Opportunities: Garry Roedler

- Value Streams: products, conferences, certification, membership
- Industry outreach: collaboration w/ industry associations and domains.
- Technical program: over 50 WGs. Analytic enablers; application domains; process enablers; transformation enablers. POC: Technical Director. SMEs: POC Lin Yi (JPL).
- Key areas of interest: SE Vision 2025, evolving the discipline to keep up with change, doing things differently. Transformations: MBSE, digital engineering; SoS, Agile; product line engineering, etc.
- Future of System Engineering (FuSE) – Bill Miller. SE Roadmap.
- Foundations: 15 SE Principles, 3 SE Hypotheses. Develop SEBoK articles. Broadened SE definition.
- Challenges of Digital Engineering: transform practice; data & artifacts; integration of models, across disciplines; response to change. Manage data as an asset, consistency, integrity.
- SE transformation, strategy, objectives, path forward.
- 2018 MBSE Survey: what’s the uptake on MBSE? 661 responses, 27 countries, INCOSE/OMG, various domains. Significant uptake in architecture and requirement (front end).
- Digital Engineering Information Exchange (DEIX) WG: goal to establish a finite set of digital artifacts for exchange of digital information. Project: DEIX Primer; DEIX Model; Digital Viewpoint Model; DEIX Standards Framework.
- INCOSE/NAFIMS trifold, “What is Systems Modeling and Simulation?”. Published on INCOSE website.
- MBSE Patterns WG: reconceptualizing SE, trusted shared model-based patterns.
- SysML V2: improve interoperability w/ other tools, visualization, ease of use.
- OPM: Object-Process Methodology. Dov Dori (MIT).
- SoS: security, data, regulation/standards; life cycle sustainment. SoS Primer – launched at IS2018 (8 pages). Also an online video.

- SE and SoSE Standards: 15288 and DoD extensions. SoSE: ISO/IEC/IEEE 21839 (life cycle stages), 21840 (SoS to set of systems), 21841 (taxonomies).
- GRCSE: graduate reference curriculum for SE.
- 2019 Professional Development Portal Plan – quarterly incremental prototypes.
- SE Proficiency – competency framework, Helix Atlas proficiency model.
- Events: IS Jul 22-25; IW 25-28 Jan; System Security Symposium 6-9 April 2020.
- Grand challenges: Sustainable Development Goals (SDGs)

Critical Program Information (CPI) Guide Workshop: Holly Dunlap (Raytheon), Geoff “Ninja” Donatelli (Raytheon)

- CPI: critical technology data in DoD programs. Workshop yesterday w/ Melissa Reed. How do we identify CPI? There were disagreements, as anticipated. All parties must protect it equally. Updated CPI definition in DODD 5200.39, May 2015.
- Develop a tailorable guide providing consistent process. First “CPI/LO/CLO Workbook”, then “CPI Assessment and Identification Guide (CAIG)”. Engagement from government and industry stakeholders, positive feedback.
- Process flow: C-CPI Identification > SSE Assessment. Use CPI definition to filter out other items not applicable. Document why something is CPI – and more importantly, why is something not CPI.
- DoD ATEA website will maintain latest versions, <https://at.dod.mil/>. Updated by Raytheon and cabal. Classified tabs in the workbook.
- Recommend DSP endorse/issue Memo for CAIG and Workbook as best practice.

Conferences:

- NDIA SE: 151 abstracts and counting (seeking 225+). Paper selection on Fri June 14. OSD supporting the conference; inviting Dr. Michael Griffin or Dr. Lisa Porter. Request we also engage A&S, e.g., Jeff Boleng.
- IEEE Systems Security Symposium – with NDIA Systems Engineering Division. April 6-9, 2020.

Action Items:

(See Division Action Item List for more detail)

ID	Description	Responsible	Status	Notes
2018-02	SE gaps and issues for DHS	Rassa, SEE, T&E Division	On-going	
2018-06	INCOSE and NDIA SE Collaboration	Elm & Roedler	On-going	
2018-07	Push for more interdivisional activity	Serna, Rassa, Elm	On-going	
2018-12	Plan an Autonomous Systems and SE challenges workshop (reach out to NASA Armstrong, FAA)	Serna, T&E Division, Ed Kraft, Roedler, Robotics Div.	OBE	10-Apr: On hold for further evaluation
2019-01	Develop a response to the USAF (Col. Abbott) request for help with Virtual Technical Reviews	Schreiber	Open	03-Jun: JPE contacted Rick Ulrich (abbot replacement), who acknowledged continuing interest. JPE requested PoC for coordination. Awaiting response 10-Apr: Discussed with committee 09-Apr. Drafting response for approval
2019-02	Develop a response to the USAF (Col. Abbott) request for help with developing the Engineering Workforce	Gelosh	Open	03-Jun: JPE contacted Rick Ulrich (abbot replacement), who acknowledged continuing interest. JPE requested PoC for coordination. Awaiting response 10-Apr: Don G. awaiting response from gov't PoCs
2019-04	Develop a response to USN (Michael Doctor) request for an affordability workshop	Henry	Closed	07-Jun: JPE provided info to USN. Michael Doctor will review and specify future action, if needed. 10-Apr: SH to provide a summary of prior NDIA affordability workshop results and white paper to USN Determine if additional follow-up is needed

2019-05	Develop a response to JFAC (Tom Hurt) request for SwA workshop(s)	Nidiffer / Daly	Open	10-Apr: On hold pending discussions with Tom Hurt
2019-09	Work with NDIA HQ to advance NDIA file sharing and remote conferencing services	Elm	Closed	
2019-10	Architecture Committee to engage with Dwayne Hynes to plan on-going collaboration between S&ME Division and Acquisition Intelligence Requirements Task Force	Scheurer	Open	
2019-11	Modeling & Simulation Committee to engage with Dwayne Hynes to plan on-going collaboration between S&ME Division and Acquisition Intelligence Requirements Task Force	Schreiber	Open	
2019-12	Provide a written concept to Dona for socialization through R&E addressing the idea of an periodic NDIA-hosted SE forum on technology topics of interest.	Elm, Daly, Dunlap	Open	
2019-13	Develop a proposal on a study, workshop, or benchmarking to quantify the benefits/ROI for DevOps and MBSE. Brief concept at next NDIA meeting June '19.	Draper	Closed	06-Jun: GD presented proposal at Div meeting. GD/GR will meet for initial planning.
2019-14	Consider M&S topics for NDIA SED meeting (model-based acquisition virtual technical reviews and source selection).	Elm	Open	

- AI 2018-12: Plan an “Autonomous Systems and SE Challenges” Workshop
 - No apparent sponsor for this activity.
 - Close AI as OBE
- AI 2019-01: Develop a response to the USAF (Col. Abbott) request for help with Virtual Technical Reviews
 - Rick Ulrich SAF/AQRE is acting replacement for Col. Abbott
 - Elm contacted Ulrich, requested PoC to sponsor and coordinate this response; awaiting response
- AI 2019-02: Develop a response to the USAF (Col. Abbott) request for help with developing the Engineering Workforce
 - Rick Ulrich SAF/AQRE is acting replacement for Col. Abbott
 - Elm contacted Ulrich, requested PoC to sponsor and coordinate this response; awaiting response
- AI 2019-04: Develop a response to USN (Michael Doctor) request for an affordability workshop
 - Steve Henry provided a summary of prior NDIA affordability workshop results and white paper to USN.
 - Joe Elm confirmed satisfaction of need with Michael Doctor
 - Close AI
- AI 2019-09: Work with NDIA HQ to advance NDIA file sharing and remote conferencing services
 - NDIA rolling out NDIA CONNECT. SE Division will beta-test; Close AI
- AI 2019-13: Develop a proposal on a study, workshop, or benchmarking to quantify the benefits/ROI for DevOps and MBSE. Brief concept at next NDIA meeting June '19.
 - Geoff presented proposal at this meeting. Geoff and Garry will meet to initiate planning; Close AI

Committee Reports:

- Architecture: MOSA, architectures, architecting.
- Automatic Test: Pat Griffin. Issue: LabView default password, security hole.
- ESOH: Karen Gill. MIL-STD-882E, ESOH definition affected by OSD reorg, working with A&S to ensure coverage. Integrating ESOH into digital engineering.
- SSE: Holly Dunlap (Raytheon). SSE committee meeting this afternoon. CPI workshop 6/5/19. AF SSE Acquisition Guidance v1.4 – delivered comments to USAF. Cyber Secure & Resilient Approaches for Feature Based Variation Management (SSE in Product Line Management). DOD CIO Cyber Workforce Management (transitioning to 8140 DCWF lexicon for cyber work; assessing industry impact). MOSA support to Architecture committee. Verbal – non-attribution engineering focused discussion on DFARS 7012 – overflow of protection requirements.

Old and New Business

- Next events:
 - 08 Aug: SE Division Meeting
 - 21-24 Oct: NDIA SE Conference
 - 05-Dec SE Division Annual Planning meeting
- Committee Meetings
 - Architecture – LM GVC, 1330-1500
 - ESOH – BAH, 1430-1600
 - Systems Security Eng'g – LMGVC 1400-1700
- NDIA News
 - Updating charters for conformance to NDIA bylaws
 - Ensuring elections at least every three years
 - Creating new online collaborative community
- Elections
 - Vice Chair
 - Nominating Committee appointed – Ed Moshinsky, Bob Scheurer
 - Committee nominated Garry Roedler for position as Vice Chair
 - Roedler accepted nomination
 - Voice vote held – Roedler elected.

Adjourn