NDIA

Systems Engineering Division

Recap of 05-Dec-2019
Annual Division Planning Meeting

Highlights

58 in attendance

Speakers from major DoD organizations addressed the group to discuss needs of DoD and interactions with NDIA SE Division

Jeff Stanley	USAF Deputy Assistant Secretary (ST&E)
Tom Simms	Acting Director, Engineering Policy & Systems OUSD Research & Engineering (AC)
Dr, Jeff Boleng	Special Assistant for Software Acquisition OUSD(A&S)
Melinda Reed	Director, Resilient Systems OSD(R&E) Advanced Capabilities
David Crim	Mission Engineering and Integration OUSD (A&S) /ASD (ACQUISITION)
Michael Doctor	DASN RDT&E (SE)

Jeff Stanley - USAF Interests

Outreach to Defense industrial base
- Expand partnerships with commercial industry and research organizations to operate faster and with agility

"Pitch Day" for Digital Engineering
- USAF defines use cases; companies pitch ideas; USAF awards (small) contracts on the spot
- Seeking collaboration with SE Division at 2020 SE Conference
- Desire to engage larger suppliers, not just Small Business

Inserting MBSE into USAF contracts
- M&S Committee will engage
- Reach out to IPM Division for Business Case support

Tom Simms – OSD(R&E) Interests [1]

2020 Modernization Priorities

- 5G
- Autonomy
- Biotechnology
- Cyber

- Directed energy
- Fully networked C3
- Hypersonics
- ML/AI

- Microelectronics
- Quantum science
- Space

Objectives

– Balance Priorities

– Engineering Policy and Implementation

– Increase working-level exchanges between industry and government

Tom Simms – OSD(R&E) Interests

Potential areas for NDIA support

- Digital engineering, mission engineering
- Provide input to guidance for mission engineering, acquisition pathways
- Focal point for interaction with industry on mission engineering
- Provide input to IP strategies

Jeff Boleng - OSD(A&S) Software Acq.

- **Interested in reaching SB and non-traditional suppliers**
- **Working to implement recommendations of DSB and DIB**
- **Implement Software Acquisition Pathway**
- **Piloting Single software acquisition (single color of money) in 2020**
- **Pushing to define metrics for modern software development**
- **MBSE can only go so far; eventually, hand coding is required. Only code is maintained. When code is changed, coherence to model is degraded. Need way of updating models to drive/support code changes.**
- **Need open standards for M&S interoperability. Can NDIA help?**
- **Automated DT and OT is needed to accelerate acquisition. Can AT test results be used in place of formal reviews (which slow down acquisition). Current AT focused on speed and cycle time. Need to refocus on quality**

Melinda Reed – OSD(R&E) Interests

Wants

- Standards for HW Assurance
- SW Assurance metrics
- Need help with SW Assurance (and System Assurance) requirement beyond process orientation

5000.02 – new standalone DODI for technology and program protection, Technology Area Protection Plans (TAPP) – while maintaining current program protection policy in 5000.02 enclosures

David Crim - OSD(A&S) ME&I Interests [1]

Mission engineering activities:

- Managing and analyzing capability portfolios across DoD
- Adopting a mission engineering framework – common
- Reinvigoration of Functional Capability Board (FCB)
- Quantifying measures of cost, schedule, performance at portfolio level.
- Challenges: Complexity of ME analysis; Current limitations in automation tools; Availability of and the ability to sort through data needed for analysis; Recent delegations of programs & authorities
- Portfolio management: evolve from system focus to mission areas (mission threads

Wants

- Method standards for ME
- Industry forum to discuss ME (R&E is currently visiting individual defense contractors)

Potential areas for NDIA support

- Promulgation of ME principles to enable assessment of joint warfighting mission effects
  - *A&S needs Mission Engineering principles promulgated to enable assessment of Joint warfighting mission effects*
- Development of detailed mission architectures and common frameworks to identify capability gaps and inform investment decisions
  - *Development of detailed mission architectures will foster resilience, adaptability, and rapid insertion of new technologies, to identify capability gaps and inform investment decisions – but no appetite for a "chief joint architect"*
  - *Common frameworks would allow us to efficiently evaluate mission execution approaches*

Michael Doctor – USN Interests [1]

- **Navy emphasis on ME, DE, digital warfare to deliver domain-based effects**

- **Design and implement comprehensive Naval Operational Architecture**

- **Digital Integration Support Cell aligned and integrated with Digital Warfare Office to support all major sections of Naval Digital Blueprint. Project Integration Offices coordinate directly with combat areas**

- **Digital Development Environment: operational architecture; integrated modeling environment; digital twin; DevSecOps; data processing/analytics; AI/ML lab**

- **Agility – experimentation and prototyping, digital models, iterative dev't to get early feedback and assessment of minimum viable products. Transforming and streamlining SE through Data Engineering, DevSecOps, MBSE**

- **SW Factory, DevSecOps; CI/CD. Compile to Combat in 24 Hours (C2C24)**

- **Common services (track management, timing, navigation, user interface)**

Potential Areas for NDIA Support

– Please tell us how to better partner with industry on how to acquire for digital engineering – asking for the right info and the right format

– How do we scale up or scale out? How to leverage industry best practices for scaling up.

– Help with merging partners (AWS, …) to share data across systems, best practices for sharing and scaling.

– Interest in demonstrating DevSecOps and SE transformation (MBSE, HSI)

Resulting Actions

Action	Assignment
NDIA and M&S Committee to partner with USAF SAF/AQR on MBSE/Digital Engineering "Pitch Day", targeting ~Fall 2020.	Chris Schreiber (NDIA M&S) Jeff Stanley, Matt Ratcliffe (USAF)
SoS Committee to collaborate with R&E/A&S as focal point for mission engineering and industry collaboration. Consider NDIA industry workshop on mission engineering	Judith Dahmann, Tom Simms
NDIA to collaborate with OUSD A&S on source selection criteria for software.	Elm, Draper, Roedler, Boleng
NDIA consider an organizational focus on SW quality	
NDIA to work with PSM on enhancing consensus measures for cybersecurity, TPM	Draper, Roedler, Cheryl Jones
NDIA SED set up meeting with Dr. Magnus to establish relationships, outreach, and best alignment of NDIA resources	Joe Elm, Annette Beacham
Review attendance from NDIA S&ME tracks to gauge interest in committees and initiatives.	NDIA SE&ME Conference Committee
Industry steering committee to reach out to their companies and encourage engagement in certain committees (e.g., ESOH, HSI)	All
Hold a separate session to consider how to address all aspects of software and assurance.	SED leadership team; SW Committee; DT&E
NDIA support OUSD R&E in developing weapon system technical requirements for Cyber Survivability Endorsement (CSE) Guide and cyber TPMs. Evaluate processes and spec requirements from services and identify conflicts.	NDIA SED SSE Committee
NDIA support DASN RDT&E (and potentially OSD/services) in the use of digital engineering for acquisition.	M&S
NDIA consider how to best get emphasis on automated software test and quality across NDIA SE and T&E divisions. Engage multiple SED committees as needed.	SW Committee; DT&E Committee.