NDIA Systems Engineering Division IPMD Meeting

Summary of 2014 Plan and Activities

September 19, 2014

Steve Henry
Chairman NDIA Systems Engineering Division

Introduction

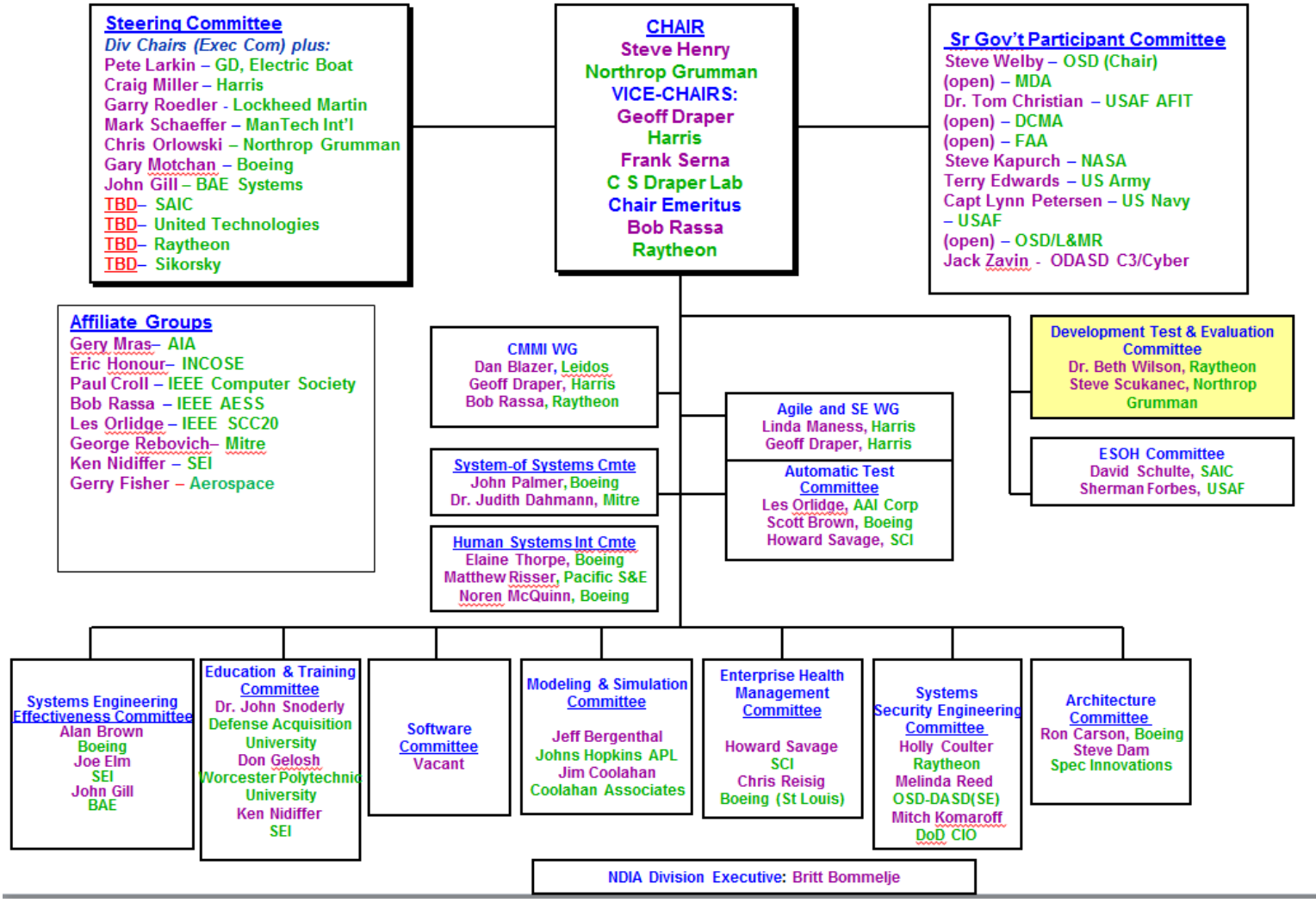
- **NDIA SE Division Focus**
  - NDIA Organization
  - 2014 Focus
- **NDIA Activities**
  - Bi-Monthly Meetings and OSD SE Forums
  - Committees Highlights
  - Conference
  - Workshops

NDIA SE Division Objectives

To promote the widespread use of systems engineering (SE) in the Department of Defense (DoD) acquisition process in order to achieve affordable and supportable weapon systems that meet the needs of the military users. To provide a forum for the open exchange of ideas and concepts between government, industry and academia. To develop a new understanding of a streamlined SE process.

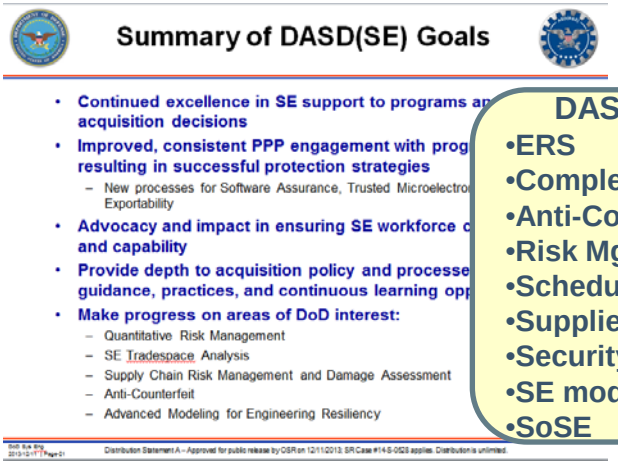
The SE Division seeks to effect good technical and business practices within the aerospace and defense industry. It focuses on improving delivered system performance, including supportability, sustainability, and affordability. The division emphasizes excellence in systems engineering throughout the program life cycle and across all engineering disciplines and support functions.

NDIA SE Division

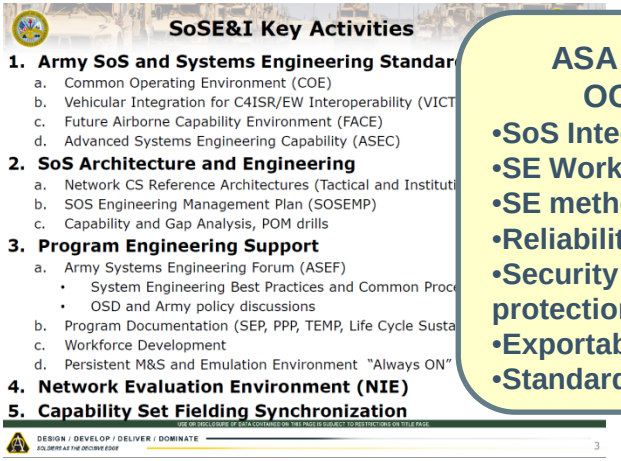


NDIA SED 2014 Tasks

- Derived from DoD/Services Initiatives (Voice of the Customer)



DASD (SE)
- ERS
- Complex Trades
- Anti-Counterfeit
- Risk Mgmt
- Schedule risk
- Supplier risks
- Security design
- SE models (MBx)
- SoSE



ASA (ALT) OCSE
- SoS Integration
- SE Workforce
- SE methods/ tools
- Reliability
- Security protection
- Exportability
- Standards

Verbal Inputs Provided

Industry
- Standards Deployment
- Affordability
- Agile SE
- Risks
- Security
- Affordability

Verbal Inputs Provide

DASN (RDT&E)
- SE Integration
- Process
- Technical Authority
- Affordability
- Specialty Engr
- People / Workforce (specialists vs. generalists)

Bi- Monthly SE Division Meetings Feb 2014

NDIA Systems Engineering M&S Committee Meeting Agenda, 11 February 2014

8:15	Meeting room open; coffee available	
8:40	Welcome, agenda review, self-introductions	
8:55	Committee overview, meeting schedule	Jim Coolahan (JHU)
9:00	**Acquisition Modeling and Simulation Working Group (AMSWG) Update**	Phil Zimmerman (DASD(SE)/SA)
10:00	**Modelica & FMI: Two Disruptive Open Standards for Modeling & Simulation in Systems Engineering**	Hubertus Tummescheit (Modelon)
10:45	Break	
11:00	**Final Report, Identification of Modeling and Simulation Capabilities by Acquisition Life Cycle Phase**	Jeff Bergenthal (JHU/APL), Jim Coolahan
11:45	Lunch (on your own)	
12:45	Upcoming Systems Engineering and M&S Conferences	Jim Coolahan
12:50	**Model-Based Reviews**	Steve Dam (Spec Innovations), Jerry Sellers
13:35	**Subcommittee Meeting, Essential Elements of a System Model**	Jeff Bergenthal
15:00	Adjourn	

CREATE

Computational Research Engineering Acquisition Tools and Environments

DOD HPC MODERNIZATION PROGRAM

Dr. Douglass Post
HPCMP Chief Scientist & Associate Director CREATE
Approved for Public Release, Distribution is unlimited

Final Report on the Identification of Modeling and Simulation Capabilities by Acquisition Life Cycle Phase

Prepared for the
NDIA Systems Engineering Division Meeting
12 February 2014

Jeff Bergenthal
Johns Hopkins University
Applied Physics Laboratory

Jim Coolahan
Coolahan Associates, LLC, &
Johns Hopkins University

Modeling of Life Cycle / Operations & Support Costs

To what degree is commonality achievable?

21 April 2011

Prepared by
Life Cycle Cost Modeling Subcommittee
Modeling and Simulation Committee
Systems Engineering Division
National Defense Industrial Association

Chris R. Price
Chair, Life Cycle Cost Modeling Subcommittee
Chris_R_Price @raytheon.com

Dr. James E. Coolahan
Chair, Modeling and Simulation Committee
James.Coolahan@jhuapl.edu

Bi- Monthly SE Division Meetings April 2014

ODASD(SE) Workforce Efforts

Aileen Sedmak
Deputy Director, SE Policy, Guidance, and Workforce
Office of the Deputy Assistant Secretary of Defense for Systems Engineering (ODASD(SE))

NDIA Systems Engineering Division Meeting
April 9, 2014

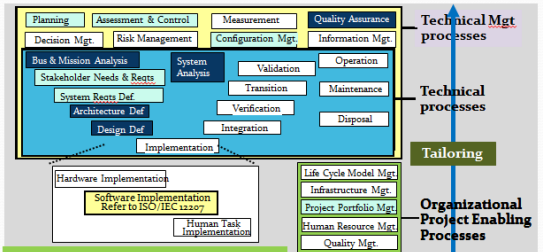
Product Directorate Contingency Base Infrastructure

PdD CBI Briefing to NDIA Systems Engineering Division Meeting 9 April 2014

Kathy Lytle
Product Director
PdD CBI

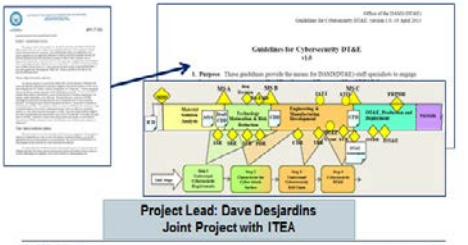
CBI - Enabling the Army to provide Contingency Bases as fully integrated systems - enhancing force effectiveness and quality of life

Revised ISO/IEC/IEEE 15288 Processes and Structure



Cyber DT&E Guidelines Project

Project Name	Activities for 2014	Project Output
Cyber DT&E	Review what industry does for cyber testing, expand focus to include interoperability	• Recommendations for Cyber Testing guidelines • NDIA conference paper & ITEA journal



Project Lead: Dave Desjardins
Joint Project with ITEA

Affordability Analysis: Developing the Process
10-12 March 2014 | Lockheed Martin Global Vision Center, Arlington, VA

MORS

Unclassified

MORS Affordability Analysis Community of Practice

Affordability Analysis: Developing the Process Outbrief

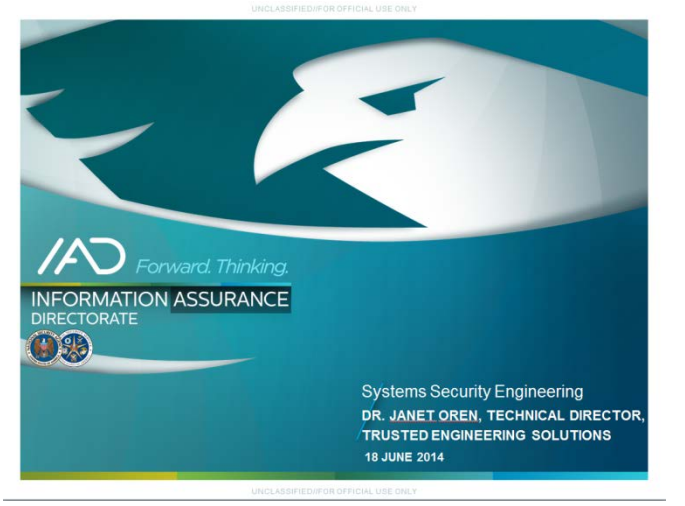
Mr. Kirk Michealson FS, Tackle Solutions LLC
Dr. Lisa Oakley-Bogdewic, MITRE

NDIA INCOSE IEEAA Leanbconsulting

Date: 2 April 2014

Unclassified 1

Bi- Monthly SE Division Meetings Jun 2014



Bi- Monthly SE Division Meetings Aug 2014

How Does Complexity Drive SE?

Critical attributes of DoD Systems Engineering

- Flexible designs that adapt and are resilient to unknown missions and threats
- Ability to quantify cost and affordability attributes of the design trade space
- Systems of Systems, and Enterprise contexts driving requirements from multiple stakeholders
- Responsive, and able to balance agility with rigorous analysis and data
- Safeguarding critical information while designing for interoperability and global markets
- Applied across significantly diverse domains

Balancing these attributes is challenging to SE, drives the state of the practice, and stresses critical workforce capacity

SYSTEMS ENGINEERING Research Center

HELIX

Helix Status

Dr. Art Pyster

August 20, 2014

This material is based upon work supported, in whole or in part, by the U.S. Department of Defense through the Systems Engineering Research Center (SERC) under Contracts H98230-08-D-0171 and HQ0034-13-D-0004 . The SERC is a federally funded University Affiliated Research Center (UARC) managed by Stevens Institute of Technology consisting of a collaborative network of over 20 universities. See www.SERCuarc.org.

DoD Standardization Initiatives

Standard Focus	Responsible SDO	Approach	Expected Publication	Notes
Systems Engineering	IEEE-CS	ISO/IEC/IEEE 15288 (System Life Cycle Processes) will be used as basis for Systems Engineering needs. Project is expected to produce an addendum to 15288 – "Standard for Application of Systems Engineering on Defense Programs".	Dec 2014	Full draft available for review in mid-2014 Increments under review now as drafted. IEEE 15288.1
Technical Reviews and Audits	IEEE-CS	No acceptable industry standard to use as base. New full standard to be developed - "Standard for Application of Technical Reviews and Audits on Defense Programs".	Dec 2014	Full draft available for review in mid-2014 Increments under review now as drafted. IEEE 15288.2
Configuration Management	SAE Intl	EIA-649B will be used as basis for Configuration Mgt needs. Project is expected to produce an addendum to EIA 649B.	Late 2014	
Manufacturing Management	SAE Intl	Project will produce a new standard	Late 2014	Intended to document best manufacturing practices aimed at promoting the timely development, production, modification, fielding, and sustainment of affordable products
Logistics Support	SAE Intl	Revision of MIL-HDBK-502A, which provides application guidance to the TechAmerica Standard 0017	Adopted by DoD in June 2013	
Reliability	TBD	Still under review	TBD	

Each standard is intended to be put on future system contracts

NDIA Systems Engineering
2014 Modeling and Simulation Committee

2014 Tasks

- Complete assessment of M&S capabilities by Acquisition Life Cycle phase (started in 2012); also, determine gaps in capabilities
- Complete study to determine essential elements of a "System Model" that evolves over the life cycle (started in 2013)
- Provide continuing situational awareness for M&S Committee members (ongoing)

Deliverables/Products

- Final report on M&S capabilities by Acquisition Life Cycle phase
- Final report on essential elements of a System Model
- Committee meeting presentations posted on committee web site

Schedule

- Final report on M&S capabilities by Acquisition Life Cycle phase – February 2014
- Final report on essential elements of a System Model – October 2014
- Committee meetings in February, April, June, and August 2014
- M&S track in NDIA SE Conference – October 2014

Stakeholders/Alignment

- Task Liaison: Ms. Philomena Zimmerman, DASD(SE)/SA
- Key Interfaces:
  - Acquisition M&S Working Group
  - NCOIC M&S activities
  - Simulation Interoperability Standards Organization (SISO) standards and Acquisition track
- Task Objective: Focused on M&S issues for engineering, of interest to DASD(SE)/SA

NDIA SE Modeling & Simulation Committee Meetings

NDIA Systems Engineering M&S Committee Meeting Agenda, 11 February 2014

8:15	Meeting room open; coffee available	
8:40	Welcome, agenda review, self-introductions	
8:55	Committee overview, meeting schedule	Jim Coolahan (JHU)
9:00	**Acquisition Modeling and Simulation Working Group (AMSWG) Update**	Phil Zimmerman (DASD(SE)/SA)
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12:50	**Model-Based Reviews**	Steve Dam (Spec Innovations), Jerry Sellers
13:35	**Subcommittee Meeting, Essential Elements of a System Model**	Jeff Bergenthal
15:00	Adjourn	

NDIA Systems Engineering M&S Committee Meeting Agenda, 19 August 2014

8:15	Meeting room open; coffee available	
8:40	Welcome, agenda review, self-introductions	
8:55	Committee overview, meeting schedule	Jim Coolahan (JHU)
9:00	**Architecture Tradespace and Evaluation Methodologies**	Tom Hannon (Lockheed Martin) John Arnold (IBM)
9:45	**Update on Cubesat MBSE Project**	Dave Kaslow
10:30	Break	
10:45	**Advanced Framework for Simulation, Integration, & Modeling (AFSIM)**	Jim Zeh (AFRL/RQQD) Brian Birkmire (AFRL/RQQD)
11:45	**NDIA Systems Engineering Conference -- M&S Track Agenda**	Jeff Bergenthal (JHU/APL)
12:00	Lunch (on your own)	
13:00	**Final Spreadsheet of M&S Capabilities by Acquisition Life Cycle Phase -- Web Posting and Update Process**	Jim Coolahan
13:15	**Subcommittee Meeting, Essential Elements of a System Model**	Jeff Bergenthal
14:45	Adjourn	

NDIA Systems Engineering M&S Committee Meeting Agenda, 17 June 2014

8:15	0:25	Meeting room open; coffee available	
8:40	0:15	Welcome, agenda review, self-introductions	
8:55	0:05	Committee overview, meeting schedule	Jim Coolahan (JHU)
9:00	0:45	**The DoD Modeling and Simulation Coordination Office's FY 15 Strategy**	Leigh Yu (M&SCO)
9:45	0:45	**NASA's Integrated Model Centric Architecture (NIMA) Initiative Overview**	Joe Hale (NASA/MSFC)
10:30	0:15	Break; Adjourn full committee meeting	
10:45		**Subcommittee Meeting, Essential Elements of a System Model**	Jeff Bergenthal (JHU/APL)
10:45	0:15	Status review, by acquisition life cycle phase	Phase leads
11:00	0:30	**Innoslate demo**	Steve Dam (Spec Innovations)
11:30		Lunch break (as desired)	
	1:30	Breakout sessions	
	0:10	Breakout session reports	
	0:05	Next steps	
		Adjourn	

System of System Webinars

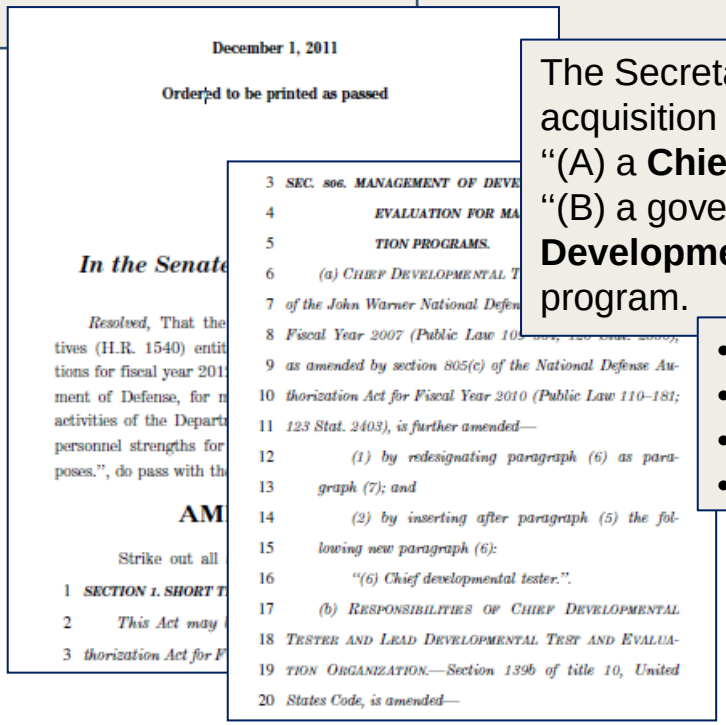
•SoSECIE* Webinar: Always on Demand: Supporting the Development, Test, and Training of Operational Networks & Net-Centric Systems
September 16, 2014
•SoSECIE* Webinar: Test and Evaluation of Autonomous Multi-Robot Systems
September 23, 2014
•SoSECIE* Webinar: DANSE – An Effective, Tool-Supported Methodology for Systems of Systems Engineering in Europe
October 7, 2014
•SoSECIE* Webinar: Results from Applying a Modeling and Analysis Framework to an FAA NextGen System of Systems Program
October 21, 2014
•17th Annual NDIA Systems Engineering Conference
October 27–30, 2014
•SoSECIE* Webinar: A Fuzzy Evaluation Method for System of Systems Meta-architectures
November 4, 2014
•Diminishing Manufacturing Sources and Material Shortages (DMSMS) 2014 Conference/Defense Manufacturing Conference (DMC) 2014
December 1–4, 2014
•SoSECIE* Webinar: Designing Resiliency into a System of Systems
December 2, 2014
•SoSECIE* Webinar: Identification of Critical Integration Points using Multi-Dimensional Dependency Analysis
December 16, 2014

Summary of DT&E Committee 2013 Results/2014 Plans

	Topic	Activity
T&E	**Test Optimization**	2013: Scientific Test and Analysis Techniques report/articles
	Cyber Testing	2013-2014: Industry recommendations for cyber testing
	Chief Developmental Tester	2013-2014: Industry interaction with new role
SE	**Performance Measurement**	2013: Requirements Verification leading indicators report
	Reliability	2013-2014: Recommendations for better reliability testing
	Modeling and Simulation	2014: T&E Perspective for Modeling/Simulation products
	Architecture	2014: T&E Perspective for Architecture views
	Education and Training	2014: Chief Developmental Tester role
	Systems Security Engineering	2014: Cyber testing guidelines connections to Program Protection Planning

Chief Developmental Tester Project

Project Name	Activities 2014	Project Output
Chief Developmental Tester	Review service policies for new role and industry implementations	• Propose model for industry interaction White paper • T&E/SE conference presentations



December 1, 2011

Ordered to be printed as passed

In the Senate

Resolved, That the
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personnel strengths for
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AM

Strike out all

SECTION 1. SHORT T

This Act may

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SEC. 806. MANAGEMENT OF DEVE
EVALUATION FOR MA
TION PROGRAMS.

(a) CHIEF DEVELOPMENTAL T

of the John Warner National Defen
Fiscal Year 2007 (Public Law 109
as amended by section 805(c) of the National Defense Au-
thorization Act for Fiscal Year 2010 (Public Law 110–181;
123 Stat. 2403), is further amended—

(1) by redesignating paragraph (6) as paragraph (7); and

(2) by inserting after paragraph (5) the following new paragraph (6):

"(6) Chief developmental tester.".

(b) RESPONSIBILITIES OF CHIEF DEVELOPMENTAL TESTER AND LEAD DEVELOPMENTAL TEST AND EVALUATION ORGANIZATION.—Section 139b of title 10, United States Code, is amended—

The Secretary of Defense shall require that each major defense acquisition program be supported by—
"(A) a **Chief Developmental Tester**; and
"(B) a governmental test agency, serving as L**ead Developmental Test and Evaluation organization** for the program.

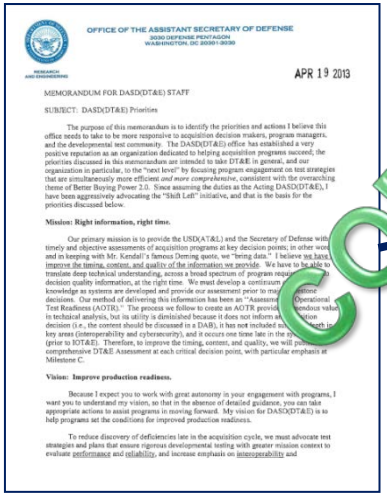
- Coordinating DT&E activities
- Insight into Contractor activities
- Oversee T&E activities
- Inform government PM about contractor DT&E results

Project Lead:
Joe Manas

Cyber DT&E Guidelines Project

Project Name	Activities for 2014	Project Output
Cyber DT&E	Review what industry does for cyber testing, expand focus to include interoperability	• Recommendations for Cyber Testing guidelines • NDIA conference paper & ITEA journal

COMPLETED



OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3030 DEFENSE PENTAGON
WASHINGTON, DC 20301-3030

APR 19 2013

MEMORANDUM FOR DASD(DT&E) STAFF

SUBJECT: DASD(DT&E) Priorities

The purpose of this memorandum is to identify the priorities and actions I believe this office needs to take to be more responsive to acquisition decision makers, program managers, and the developmental test community. The DASD(DT&E) office has established a very positive reputation as an organization dedicated to helping acquisition programs succeed; the priorities discussed in this memorandum are intended to take DT&E in general, and our organization in particular, to the "next level" by focusing program engagement on test strategies that are simultaneously more efficient *and more comprehensive*, consistent with the overarching theme of Better Buying Power 2.0. Since assuming the duties as the Acting DASD(DT&E), I have been aggressively advocating the "Shift Left" initiative, and that is the basis for the priorities discussed below.

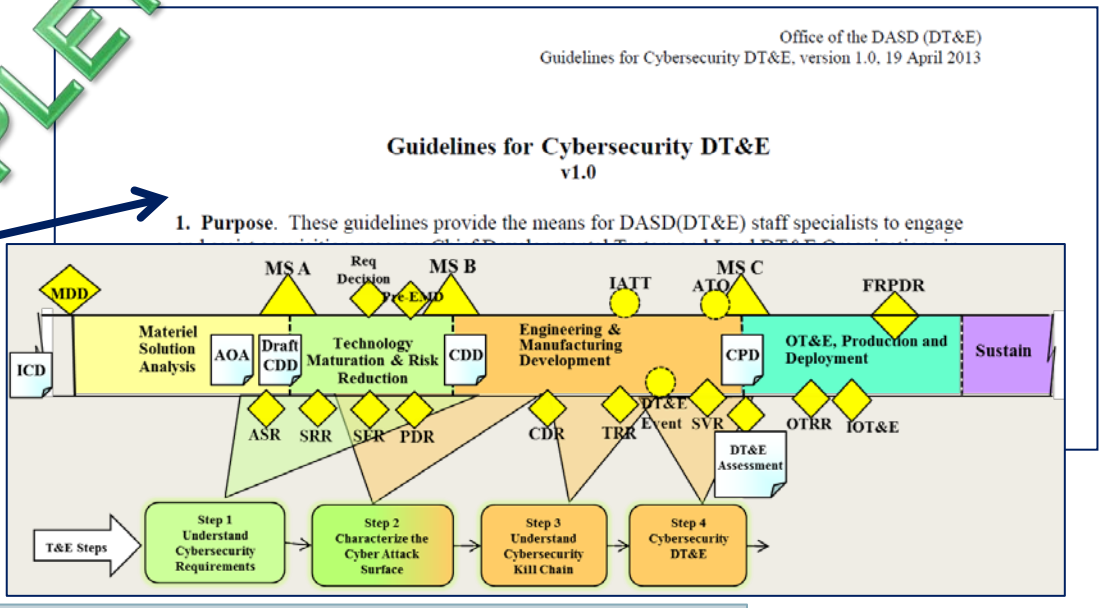
Mission: Right information, right time.

Our primary mission is to provide the USD(AT&L) and the Secretary of Defense with timely and objective assessments of acquisition programs at key decision points; in other words, and in keeping with Mr. Kendall's famous Deming quote, we "bring data." I believe we have to improve the timing, content, and quality of the information we provide. We have to be able to translate deep technical understanding, across a broad spectrum of program requirements, into decision quality information, at the right time. We must develop a continuum of knowledge as systems are developed and provide our assessment prior to major decisions. Our method of delivering this information has been an "Assessment of Operational Test Readiness (AOTR)." The process we follow to create an AOTR provides tremendous value to technical analysis, but its utility is diminished because it does not inform a decision (i.e., the content should be discussed in a DAB). In fact we have identified [illegible] key areas (interoperability and cybersecurity), and it occurs one time late in the [illegible] (prior to IOT&E). Therefore, to improve the timing, content, and quality, we will provide a comprehensive DT&E Assessment at each critical decision point, with particular emphasis at Milestone C.

Vision: Improve production readiness.

Because I expect you to work with great autonomy in your engagement with programs, I want you to understand my vision, so that in the absence of detailed guidance, you can take appropriate actions to assist programs in moving forward. My vision for DASD(DT&E) is to help programs set the conditions for improved production readiness.

To reduce discovery of deficiencies late in the acquisition cycle, we must advocate test strategies and plans that ensure rigorous developmental testing with greater mission context to evaluate performance and reliability, and increase emphasis on interoperability and



Office of the DASD (DT&E)
Guidelines for Cybersecurity DT&E, version 1.0, 19 April 2013

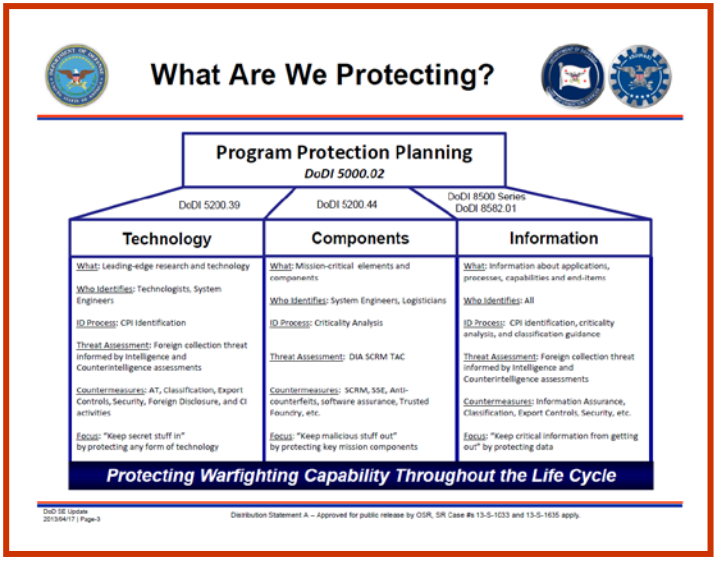
Guidelines for Cybersecurity DT&E
v1.0

1. Purpose. These guidelines provide the means for DASD(DT&E) staff specialists to engage

Project Lead: Dave Desjardins
Joint Project with ITEA

Systems Security Engineering

- **Restart Former Systems Assurance Committee**
- **New Systems Security Engineering Committee**
  - Kick-off June 18th
  - Track at SE Symposium
  - Planning follow-on workshop in 2014 on Program Protection Plan



What Are We Protecting?

Program Protection Planning
DoDI 5000.02

DoDI 5200.39	DoDI 5200.44	DoDI 8500 Series DoDI 8582.01
Technology	**Components**	**Information**
What: Leading-edge research and technology Who Identifies: Technologists, System Engineers ID Process: CPI Identification Threat Assessment: Foreign collection threat informed by Intelligence and Counterintelligence assessments Countermeasures: AT, Classification, Export Controls, Security, Foreign Disclosure, and CI activities Focus: "Keep secret stuff in" by protecting any form of technology	What: Mission-critical elements and components Who Identifies: System Engineers, Logisticians ID Process: Criticality Analysis Threat Assessment: DIA SCRM TAC Countermeasures: SCRM, SSE, Anti-counterfeits, software assurance, Trusted Foundry, etc. Focus: "Keep malicious stuff out" by protecting key mission components	What: Information about applications, processes, capabilities and end-items Who Identifies: All ID Process: CPI identification, criticality analysis, and classification guidance Threat Assessment: Foreign collection threat informed by Intelligence and Counterintelligence assessments Countermeasures: Information Assurance, Classification, Export Controls, Security, etc. Focus: "Keep critical information from getting out" by protecting data

Protecting Warfighting Capability Throughout the Life Cycle

NDIA SE Division May 2012
Program Protection Workshop

- **System Assurance Committee-led Workshop:**
  - Reviewed threat and policy related to trusted defense systems
  - Identified issues for specific areas of PP via 3 focus groups
  - Voted on the Top 5 issues regarding Program Protection

Rank	Group	Issue
1	3	**Taxonomy** Integration of the DoD security disciplines is hampered by terms of reference that have different meanings depending on the discipline or the context.
2	2	**Limited Security Performance Metrics are available** Lack of performance metrics to ensure program protection requirements.
3	1	**Satisfying PPP Objectives through Improved Contract / Acquisition Strategy**
4	2	**Lack of well defined threat and attack vectors for SE community in Acquisition and Industry**
5	2, 3	**Lack of education across the acquisition and industry communities with regards to SSE**

Summary of SSE Committee 2014 Plans

	Topic	Activity
SSE	**PPP Workshop**	2014: Follow-on to 2012 Workshop Focus on Taxonomy and Metrics May 20-22: MITRE facility in McLean, VA
	Industry Inputs	Comments on guideline documents Inputs into PPP implementation
SED	**Systems of Systems**	2014: PPP leverage points in the SoS Wave Model
	Developmental Test and Evaluation	2014: Cyber testing guidelines connections to Program Protection Planning

17th Annual SE Conference 27-30 October 2014

- New venue – Waterford, Springfield, VA
  - Author notifications began15 August
  - Submission stats
    - 233 Abstracts submitted 162 accepted (12 tutorials, 2 panels, 148 papers)
    - In 2013, 242 submitted with 196 accepted

Track 1	Track 2	Track 3	Track 4	Track 5	Track 6
3A1	3A2	3A3	3A4	3A5	3A6
SSE	ERS	SE Effectiveness	M&S - Transitioning to MBSE	Agile	Net Ops/Interoperability
3B1	3B2	3B3	3B4	3B5	3B6
SSE	ERS	SE Effectiveness	M&S - MBSD/MBSE Applications	Agile	Net Ops/Interoperability
3C1	3C2	3C3	3C4	3C5	3C6
SSE	ERS	SE Effectiveness	M&S - M&S in Concept Maturation	DT&E	Net Ops/Interoperability
3D1	3D2	3D3	3D4	3D5	3D6
SSE	ERS	SE Effectiveness	M&S - Integrated SE Environments	DT&E	Affordability
Track 1	Track 2	Track 3	Track 4	Track 5	Track 6
4A1	4A2	4A3	4A4	4A5	4A6
ESOH	ERS	DOD Standards and "HSI" (starts at 8:35)	Joint SEE & M&S - Building the System Model	DT&E	Architecture & Strategy
4B1	4B2	4B3	4B4	4B5	4B6
ESOH	SoS - Engineering Approaches for SoS	"HSI"	M&S - M&S Data & Tools	DT&E	Joint Arch & SEE
4C1	4C2	4C3	4C4	4C5	4C6
ESOH	SoS - Applications of SoS SE	SE Effectiveness	Joint DT&E, M&S, & NCO/Interoperability	E&T	Architecture & Requirements
4D1	4D2	4D3	4D4	4D5	4D6
ESOH	SoS - Tools and Approach to SoS Engineering and Analysis	SE Effectiveness	M&S - M&S in Decision Analysis	E&T	Architecture Applications

Security Engineering Workshop Challenges

Incorporation of security engineering as a discipline of systems engineering

- Engineering methodology, processes, and practices
- System security engineering workforce

Quantification of security risks

- Vulnerability detection, and validated mitigation

Articulation of security requirements

- Threat-driven, evolving over time
- Risk-based affordable trade off analysis; Measurable, testable system specifications

Protection of technical data

- Consequences of unclassified controlled technical information losses
- Government and Industry mitigation of supply chain exploitation

Industry Defense System Integrators Cross Industry Collaboration

Paul Ferraro

Raytheon
Vice President
Integrated Defense Systems
Advance Technology Programs

Michael Papay

Northrop Grumman
Vice President &
Chief Security Officer

Thomas Rodgers

Lockheed Martin
Vice President &
Chief Engineer for MST
Ship & Aviation Systems
Technical Operations

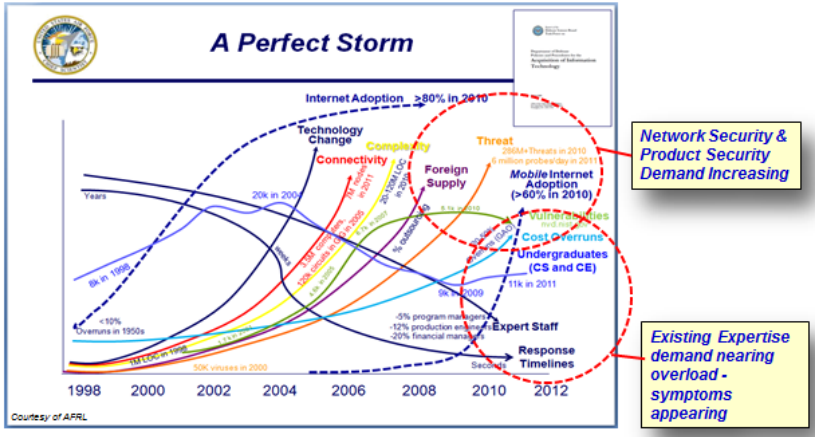
Nancy R. Anderson

Director of Engineering
Chief Engineer Boeing
Military Aircraft
Digital Ecosystem and Avionics

Industry Defense System Integrators

BOEING

Cyber Talent Management – can we recover?



Network Security & Product Security Demand Increasing

Existing Expertise demand nearing overload - symptoms appearing

Increasing Need for Enterprise Cyber Expertise – Industry and USG

Evangelize

NORTHROP GRUMMAN

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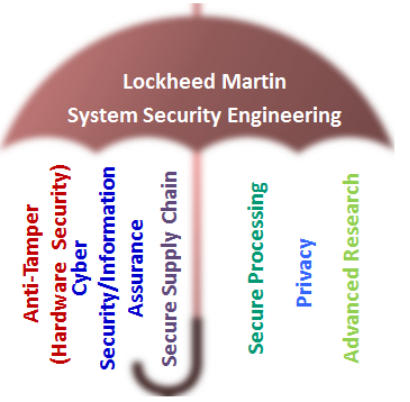
- Changing the culture of decades of Systems Engineering is hard work, and requires a dedicated evangelist
- Convincing engineers that spending time and money building more secure systems, instead of making the aircraft fly further, is an uphill battle. especially when their customers haven't expressed an interest in security
- Grow your own minions!

Security is an Enterprise-Wide Concern

LOCKHEED MARTIN



Systems security engineering is comprised of the following sub disciplines:

- Operations Security
- Information Security
- Network Security
- Physical Security
- Personnel Security
- Administrative Security
- Communications Security
- Emanation Security
- Computer Security
- ISO/IEC 21827

LM has developed a strong, multi-disciplinary approach

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Program Protection Plan Implementation Raytheon Investments

Raytheon

	Activity	Purpose
Internal	Discipline Councils	Process direction and SSE proficiency
	Cyber Security Learning Center	General: online awareness modules SMEs: Cyber security boot camps
	Corporate Projects	Cyber testing capability for PPP validation
	PPP Community of Practice	Grass roots awareness and information sharing
	Cross-Company Workshops and Symposia	Assess current and future state, identify gaps, recommend improvements
	Business Level Initiatives	Develop domain specific enablers for effective PPP implementation practices
External	NDIA Systems Security Engineering Committee (Raytheon Co-Chairs)	Industry perspective and recommendations for PPP implementation
	INCOSE Systems Security Engineering Working Group (Raytheon Co-Chair)	Address systems security engineering as a discipline and practice

SSE Workshop Top 5 Issues

	No	Topic	ISSUE
1	1	1	**METRICS PROJECT LAUNCH**
	2	2	Lack of Authority for SSE
2	3	2	**Balance risk and solutions** **Address cost vs capability**
3	4	2	**Ill-Defined SSE in SOW & Prog Planning** **RFP Consistency & detail of SOW template**
4	5	2	**Absence of Defined SSE Competencies**
	6	2	Conflict Between Security Specialties
	7	3	RFP Consistency & detail of SOW template
5	8	3	**Shared Liability & Risk Boundary**
	9	3	Increase Threat information sharing between Government & Industry • To be flushed out over the next 4 weeks……
	10	3	Address cost vs capability Recommendation 1 – Establish a set of TPM's for negotiations • Leverage Metric working group efforts Recommendation 2 – Address verification and DTE capabilities Recommendation 3 – Create a value based engineering baseline for SSE Recommendation 4 – Actively enforce Risk Management

Metrics Project

Goal 1- Create balanced solutions in support PPP development

Objective 1-1 Determine What to Measure (What is the intent of the measure?)

- Drive toward holistic integrated and normalized measure of merit across the pillars
- Integrate process with the sub specialties to federate the disciplines
- Compare systems with normalized figure of merit

Objective 1-2 Coordinate, collaborate with other approval authorities in the process to develop metrics

- Develop Metrics by level
- **Create metrics that show that security is being addressed (e.g., Risk)**
- Create metrics that show the quality of SSE
- Integrate security specialties

Objective 1-3 Determine Approach for Measurement

Define the context within evaluating risk

Metrics Project

Goal 2- Hygiene Security Programmatic Assessment Metrics

- Develop short list of questions to answer by discipline (Programmatic Maturity)
- Categorize level of metric (consider stakeholders, SH, metrics, measurements, and analyze measures against metrics)

SSE Committee will be meeting this afternoon in the room hosting the morning SED meeting. (This room) Please join us!!

Submit an abstract for presentation at the 17th Annual Systems Engineering Conference ~~**May 30, 2014**~~ **as soon as possible** to the following link: http://application.ndia.org/abstracts/5870.

Please make it obvious that it is in reference to SSE and or PPP. This will help me to select your abstract among the sea of all abstracts for the conference. :)

NDIA Systems Engineering Division
Systems Security Engineering Committee

Security Effectiveness & Programmatic Progress Metrics Project Workshop

27 October 2014 (9:00-4:00)

Location:

National Defense Industrial Association
2111 Wilson Boulevard
Suite 400
Arlington, Virginia 22201-3061
Telephone: (703) 522-1820 | FAX: (703) 522-1885

Standards Transition Agenda Topics

- **IEEE 15288 Overview with DoD extensions**
  - 15288.1 Systems Engineering
  - 15288.2 Technical Reviews and Audits
  - Normative vs. informative content

- **Transition to acquisition contracts**
  - Tailoring for an acquisition
  - RFP language
  - Conformance and compliance approaches

- **Issues and Recommendations**
  - Path forward, next steps

Tailoring 15288.1

ISO/IEC/IEEE DIS 15288:201x(E)

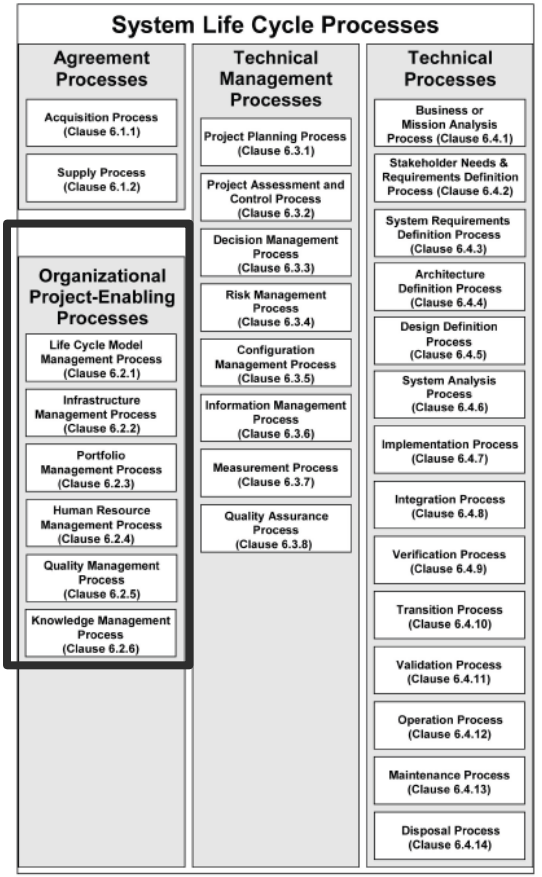

Figure 4 — System life cycle processes

No 15288.1 tailoring

- **DoD-specific considerations are tailored as additions to the base 15288 standard**
- **Applies to all processes, except the Organizational Project-Enabling Processes (org-specific)**
  - The base 15288 organizational processes apply, but are outside the scope of a single contract
  - May still be subject to compliance audits
- **Program offices should tailor the 15288.1 standard for each acquisition**
  - Exclude processes, activities, and tasks not applicable to the supplier or contract (e.g., pre-MS A, acquirer tasks, post-delivery processes outside contract scope)
  - Adapt program-specific emphasis
- **Candidate recommendations:**
  - Provide program offices with tailoring guidance, work aids, training
  - Consider piloting on selected acquisitions prior to full DoD deployment

Tailoring 15288.2

- **Program offices should tailor the 15288.2 standard for each acquisition**
  - Adapt the set of technical reviews and audits to the acquisition (add, combine, delete)
  - Adapt the review/audit requirements, content (criteria,
- **Other… TBD**
- **Candidate recommendations:**
  - Consider standard DoD tailoring of clause 6 details as informative guidance (too overwhelming, procedural, prescriptive); levied only if supplier existing processes are deemed inadequate
  - Provide program offices with tailoring guidance, work aids, training
  - Consider piloting on selected acquisitions prior to full DoD deployment

System Root Cause Workshop

First SRCA conducted by NDIA SE Division, in collaboration with OUSD(AT&L in 2007-2008

- Gathered data from DoD acquisition programs derived from Program Support Reviews (PSRs)
- Identified and categorized systemic issues
- Used focused workshops attended by government, industry, and academia to analyze issues and identify root causes
- Developed recommendations to address root causes
  - see http://www.ndia.org/Divisions/Divisions/SystemsEngineering/Documents/Studies/NDIASRCAReportFINA18Dec2008.pdf

Since then …

… DoD has made significant progress in addressing acquisition issues

… Policies have changed, technology has changed, the world has changed

The NDIA SED plans to conduct a follow-on SRCA study, in collaboration with the Office of the Deputy Assistant Secretary of Defense for Systems Engineering (ODASD(SE))

- Obtain project data from ODASD(SE) and other sources
- Obtain project data from industry
- Analyze data to assess
  - Assess current state of observed systemic issues
  - Asses progress achieved toward improvement objectives
  - Provide recommendations for further improvement.

Objectives

Collect and analyze quantitative measures of acquisition program performance

- gathered from Program Support Reviews (PSRs) and other government sources
- data edited to remove attribution to programs, companies, or services.

Categorize issues against a standard taxonomy.

Conduct data analysis to identify root causes of systemic program performance issues.

Develop recommendations for improvement of systemic issues, for delivery to ODASD(SE)

Milestones

Planned Activity	Timetable	Description
Task Group planning workshop	August 21, 2014	Task group formation and kickoff. Initial data gathering. Invite overview briefings from participants. Consider study logistics (e.g., resources, schedules, analysis approach) and team norms. Plan follow-on objectives and tasks. Assign and coordinate actions for work.
Preliminary data analysis workshop	October-November 2014 (TBD) Washington, D.C. area. Est. 2 days	Analysis data and findings from sources. Categorize data. Identify common issues or themes. Conduct breakout sessions for related issues to identify preliminary root causes. Assign actions to subgroups for further study and analysis.
Preliminary findings workshop	February-March 2015 (TBD) Washington, D.C. area. Est. 2 days	Review subgroup analyses of systemic issues and root causes. Identify common themes or trends in the data collected. Integrate and refine preliminary findings. Generate outline for content of the final report.
Final report	June 2015 (TBD)	Editing and reviews of report drafts coordinated via email and teleconferences. Final report delivered by NDIA to DASD(SE).

Questions?