Topics

- Systems Engineering
- New – Net-Centric Integration and Interoperability Management Plan
- New - Software Process Improvement Initiatives
- New - Modeling and Simulation
- New - Research and Technology Protection
System Engineering

Requires Alignment of Multiple Processes, Process Owners and Products

Enterprise
- Force Focus
- Translates Operational Concepts → Capabilities
- SoS / FoS
- Platform / Net Centric
- Capability Focus
- Translates Capabilities → System Requirements
- Systems / Components
- Design, Build, Test Focus
- Translates System Requirements → End Items
- NFDS
- NCEP
- SEP

Coalition Force
Joint Force
Naval Force and Platform Systems Engineering
- PDMs, CSEs, CEMs
- Systems, Components, Equipment, Materials, Software, etc.
- TAEs

NFDS: Naval Force Development Systems
NCEP: Naval Capability Evolution Process
SoS: System of Systems
FoS: Family of Systems
Systems Engineering

Naval Systems Engineering Guide

https://ncee.navy.mil/
System Engineering Human Resource Management

- Now the focus
- Roles Based / Right Fit
- Future acquisition processes will impact acquisition workforce business / technical competencies and end strength requirements
- Will manage gaps through professional development, attrition, targeted recruiting
- Ensure workforce and leadership are grounded in principles of System Engineering with continuing education to adapt to new challenges
Net-Centric Integration and Interoperability Management Plan

- Goal is to improve Net-Centric I & I by placing focus on four main areas which impact Navy Programs
  - Net Ready Key Performance Parameters (NR-KPP)
    - Address the technical aspects of NR-KPP's to support operational and requirements communities
  - Capability Assessments
    - Conduct large scale, net-centric SoS evaluations to assess overall mission performance
  - Information Support Plans (ISP)
    - Standardize development, review, approval, and submission as the means to coordinate I&I activity
    - Compliance with standards, consistency with interface systems
  - Architecture
    - Make them more viable and useable products
    - Support ISP development, NR-KPP satisfaction, and mission capability analysis to enable good decision making
- Utilize a centralized planning / decentralized approach to execute
Software Process Improvement Initiatives

- Key focus area for ASN (RDA)
  - Software systems are inherent in the systems we acquire
  - Major impact on cost, schedule, and performance

- ASN (RDA) objectives:
  - Increase leadership awareness and accountability
  - Improve practices and disciplines
    - Critical few
    - Develop a skilled workforce
  - Improve Software Systems Development and Acquisition
    - Maximize software reuse (architectures ↔ code)
    - Reduce cost and schedule impacts
    - Rethink the business of acquiring
      - Open Architectures
      - “Product Line” strategies
Systems Engineering Review Process

https://ncee.navy.mil/
SPII Approach

Phase I: Understand "As Is" Situation
- Lack Of Government SW Expertise
- New Requirements- No New Cost, ASN/RDA Policies
- CMM Level Improvements
- SW Certification
- ASN (RDA) Software Policies
- Non-standard Interfaces
- Resistance To Change
- Immature Costing Models
- External Drivers
- Processes For Requirements/ Budget Determination
- Non-standard Processes
- Enterprise Licenses
- QA & Standards/ IDDs
- Industrial Base Concerns

Phase II: Envision things To change
- New Requirements-No New Cost, ASN/RDA SW Policies
- CMM Level Improvements
- SW Certification
- ASN (RDA) Software Policies
- Non-standard Interfaces
- Resistance To Change
- Immature Costing Models
- External Drivers
- Processes For Requirements/ Budget Determination
- Non-standard Processes
- Enterprise Licenses
- QA & Standards/ IDDs
- Industrial Base Concerns

Phase III: Document changes Establish process
- SAM
- SSE
- SWDEV
- BI
- HR
- NRAC S/W Sub-panel

Phase IV: Exercise Process (Pilot Programs)
- Career requirements for Software Engineering & Acquisition
- Guidebook for Program Managers during full acquisition lifecycle

Phase V: Institutionalization

Outputs
- Centralized Software Policy
- Integration of Software Engineering / Systems Engineering practices

Guidebook for Program Managers during full acquisition lifecycle

Centralized Software Policy
Integration of Software Engineering / Systems Engineering practices
Career requirements for Software Engineering & Acquisition
Guidebook for Program Managers during full acquisition lifecycle
Modeling and Simulation

- Modeling & Simulation Governance Board created to coordinate and resolve issues between and across M&S user communities
- Promote commonality, interoperability, and alignment of M&S capabilities
- Resources used to work across, between, and within M&S user communities
  - M&S QA, M&S guide for Program Managers, Fleet Training, Educating the Workforce, Acquiring Joint Capabilities, Campaign Model, etc
Navy M&S Framework

- Organized by Communities
- Structured to support the Users and Developers

SES M&S Governance Board (M&S GB)
NMSO - the execution arm of the M&S GB

Acq & T+E
ASN(RD&A)
DASN(RDT&E)

Analysis
N8
N81B

Training
FFC
N7B

Common and Cross-Cutting M&S Tools
Common and Cross-Cutting M&S Data
Common and Cross-Cutting M&S Services

Goals:
- Efficiency
- Interoperability
- Reuse

FAMs / Resource Sponsors
N1, N2, N3/5, N4, N6, ONR, Oceanographer
Technology Protection

- Protect our technological edge from potential adversaries
- Safeguard our research and technology interests
- Research and Technology Protection (RTP) Charter was signed in August 2006 by ASN (RDA) and Director, NCIS
- Identify and resolve issues associated with RTP:
  - Between Acquisition / Development, Counter Intelligence and Investigative Security communities
    - Standardization of Policy and Practices
    - Training / Education / Awareness
    - Classification
    - Collective Resource Utilization
    - Information sharing
In Summary

- Technology
- Protection
- Net-Centric I & I
- Modeling & Simulation
- System Engineering
- Software
- Human Resources

System of Systems