



Why Systems Engineering?

- What is clear is the important role that Systems Engineering plays in making an acquisition program run smoothly, effectively, and efficiently
- As well as the contrary—where the lack of Systems Engineering, and the discipline that comes with its proper implementation, can cause tremendous problems



SE Education and Training Summit (October 2003)

- Brainstorming session
 - What's working
 - What needs to be fixed
 - Significant barriers
 - Required actions
- Participants
 - Services
 - Academia
 - Industry
 - Associations (NDIA, AIA, EIA, GEIA, INCOSE)
- Formed five working groups, assigned leads
 - Policy
 - Processes
 - Tools and guides
 - Resources
 - Education and training



“What We Found” Lack of Uniform Understanding of SE at the Department Level

- Lack of coherent SE policy
- Lack of effective SE implementation—no “forcing function” for PM or contractor SE activities
- Program teams incentivized by cost and schedule, not execution of disciplined SE
- Products and processes not in balance (emphasis on speed; fix it in the next spiral)
- Inconsistent focus across life-cycle, particularly prior to Milestone B
- SE inadequately considered in program life cycle decisions



“What We Found”

Lack of Uniform Understanding of SE in the Community-at-Large

- No single definition or agreement on the scope of SE
- Lack of common understanding of how SE is implemented on programs
 - Is SE done by the systems engineer?
 - Does the systems engineer lead the SE effort?
- No uniform understanding of what makes a good systems engineer
- No consistent set of metrics or measures to quantify the value of SE
- Cost and schedule estimation and risk management processes inconsistently aligned with SE processes
- Resistance to harmonization of multiple standards and models
- Multiple practitioner communities not aligned
 - Software
 - Information Technology
 - Telecommunications
 - Hardware
 - Aircraft vs. Rocket Developers
 - Submarine Propulsion vs. Ship Designers



“What We Have Done” To Support SE Revitalization

- Formed Systems Engineering Directorate with three Deputy Directorates
 - Enterprise Development
 - Developmental Test and Evaluation
 - Assessments and Support
- Established SE Forum to ensure senior-level focus
 - Meets monthly to work SE revitalization
- Issued Department-wide SE policy and provided implementation guidance
- Instituted “context” briefings as part of Milestone reviews



“What We Have Done” To Support SE Revitalization

- Instituted system-level assessments as an aid to program managers
- Working with Defense Acquisition University to revise curricula
 - Career fields with large populations (viz., SPRDE)
 - Courses mandated for all Corps members (e.g., ACQ/PMT/CM)
 - Prioritized, focused continuous learning courses (e.g., R&M, Technical Reviews, System Safety, SEP Preparation)
- Leveraging close working relationships with industry (e.g., NDIA, INCOSE, GEIA, AIA, LAI) and academia (e.g., Stevens Institute of Technology, AFIT, NPGS)

<http://www.acq.osd.mil/ds/se/publications.htm>



SYSCOMCDRS Panel

“Supporting Revitalization of Government SE”

- Vice Admiral Walter Massenburg, Commander, Naval Air Systems Command
- Lieutenant General Joseph Yakovac, Jr., Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology
- Mr. Dennis Cassette, Director of Engineering, Aeronautical Systems Center, United States Air Force