Systems Engineering
Workforce Evolution

2013 NDIA Systems Engineering Conference
Industry Panel: Best Practices for Systems Engineering Workforce Development

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New complexity a consequence of networking many systems to achieve a collaborative advantage
- Systems each individually adapting to rapid technology/mission changes
- People are part of the enterprise
- Environment for any one system becomes unpredictable

Systems engineering in the face of complexity
- Engineer the enterprise and the systems that enable it
- Engineer adaptability of individual systems
- Engineer adaptability of the network of constantly changing systems

Requires a spectrum of systems engineering techniques
- Disciplined methods of traditional forms
- Big-picture systems thinking
- Enterprise methods for harnessing and managing uncertainty
- All required to achieve success
Define and Codify Attributes of Successful Systems Engineering

- Defines the problem or opportunity from a comprehensive, integrated perspective
- Applies systems thinking to create strategies, anticipate problems, and provide short- and long-term solutions
- Proposes a comprehensive, integrated solution or approach that:
  - Contributes to achieving the strategic mission objectives in a changing environment
  - Can be feasibly implemented within the political, organizational, operational, economic and technical context
  - Addresses interoperability and integration challenges across organizations
- Adapts to change and uncertainty in the program environment, and assists others in adapting
- Cultivates partnerships
- Brings their own and others’ expertise to provide sound, objective evidence and advice to achieve a successful outcome

Leads to a SE Competency Model that can drive actions
Align Processes and Programs with SE Accession & Development

- Job Descriptions
- Sourcing
- Interviewing & Selection
- Orientation/Assimilation

- Promotion Criteria & Decision-making
- Talent Reviews
- Career Planning

- Individual Assessment
- Needs Analysis
- Certification

- Conferences
- Degree Programs
- In-house Classroom Training
- On-the-Job Training
- Technical Exchange Meetings
- Stretch Assignments
- Mentoring
- Communities of Practice
- Job Rotation
- Peer Reviews

- Recognition Programs
- Pay for Performance and/or Knowledge & Skills

- Recruitment & On-boarding
- SE Competencies
- Assessment
- Development

- Performance Management
- Performance Management & Feedback
Skill Currency & Evolution

- **Hire individuals with strong academic foundation**
  - Education aligned with organizational needs

- **Staying technically current – continuing education**
  - Graduate-level university education in SE
  - 3-level in-house career competency training
  - Focused technical courses

- **Staying technically current – not just education**
  - Assignment rotation
  - Embedding in different locations
  - Mentoring
  - Opportunities to interact with operational users
  - Enable, facilitate career development opportunities across organizational lines

  - Ensure that organizational transfers don’t break career mentoring
Make Available Other Knowledge Resources
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