Industry Executives Panel

How Has Effective Systems Engineering Benefited Our Defense Programs

NDIA Systems Engineering Conference

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Secure the Commons

Assure U.S. Military Dominance

Confront Irregular Challenges

Solving the most challenging, complex problems and delivering innovative and affordable solutions that make our world safer
Increased Complexity in Today’s Systems

• Changing environment and threats
• “Do More With Less”
• More emphasis on multi-mission capability, adaptability and resiliency
• Results in increased complexity in functional architecture and resulting physical solution
• Systems have complex interfaces with numerous components
• An example has been the increase of the electronics footprint
• Demand for effective systems engineering practice
Systems Engineering Best Practices

- IPT-Based Capability
- Systems Engineering Mgmt Planning
- Monitoring and Control
- Risk Management
- Requirements Development and Mgmt
- Trade Studies
- Product Architecture
- Technical Solution
- Product Integration
- Verification
- Validation
- Configuration Management

Higher SE Effectiveness Improves Cost, Schedule, Technical Performance
Configuration Management – Mission Success!

Ensuring Baseline Integrity throughout the Program Life Cycle

1. **Configuration Identification**
   - What are your configurable products?
   - Where are your configurable products managed?

2. **Change Control**
   - What changes your configurable products and how do you control them?
   - How do you communicate changes to your stakeholders?

3. **Status Accounting**
   - What is your current configuration?
   - What changes are planned or were made?

4. **Validation & Verification**
   - Did you design to your requirements?
   - Did you build what was designed?
Innovation for Affordability

• Encouraging diversity of thought (alternative approaches to problem solving on a fundamental level)

• Approaching systems engineering with adaptability and resiliency in mind

• Creating an open innovation environment

• Leverage re-use through model-based practices

• Concept\textsuperscript{1st}
Satisfying the Mission…

…Requires Effective Systems Engineering
THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN