

Systems Engineering Challenges

- Create the tools to enable Rapid Capability Delivery
 - Shorten the time to deliver life-saving and war-winning technologies – without compromising product integrity
- Expand the aperture of DoD Engineering practice to address 21st century technical challenges
 - Security, software-intensive, etc...
- Embrace complexity
 - Systems of Systems / Complex Adaptive Systems / Emergent behaviors
- Expand the human capital resource base
 - Reflect new insights in curricula to grow the next “crop” of technical leaders

Emerging Challenges

- Complex Systems/Systems of Systems
- Program Protection/Acquisition Cyber-Security
- Integrating University and Industry Engineering Research
- Modeling and Simulation Support to Acquisition
- Getting the Engineering Basics right under Pressure

Our Focus: Policy, People and Practice

Systems Engineering Workforce

● Breadth

- Awareness of and appreciation for other functional areas
- Understanding of system lifecycle and processes
- Knowledge of other engineering disciplines and how they integrate into a system solution
- Knowledge of product domains

● Depth

- Extensive expertise and experience in one or more engineering disciplines and in one or more product domains

● Leadership

- Ability to motivate and inspire individuals and teams
- Comfort in dealing with complexity
- Focus on underpinning decisions with data
- Capability to make tough technical decisions

Major Initiatives:

Systems 2020 Research Areas

**Model
Based
Engineering**

Modeling and simulation tools for concurrent design, development and manufacture

**Platform
Based
Engineering**

Architectural and automated design tools to rapidly insert new capabilities

**Capability
on Demand**

Systems embedded with organic adaptation capabilities

**Trusted
Systems
Design**

Design methods and tools for system assurance that detect malice or enable self-awareness