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