ASA(ALT)
SYSTEM OF SYSTEMS-
SYSTEMS ENGINEERING
(SoS SE)

Robert H. Schwenk
Senior Software Acquisition Manager
Assistant Secretary of the Army for Acquisition, Logistics and Technology
Robert.schwenk@us.army.mil

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Increasingly Complex Systems

- ultra-large, network-centric, real-time, cyber-physical-social systems
  - thousands of platforms, sensors, decision nodes, weapons, and warfighters
  - connected through heterogeneous wired and wireless networks

**Goal: Information Superiority**

- *Transient and enduring resource constraints and failures*
- *Continuous adaptation*
  - changes in mission requirements
  - changes in operating environments
  - changes in force structure
  - perpetual systems’ evolution
  - addition of new systems
- *Sustainable - legally, technically, politically*
Mission & Functions

MISSION

Provide Systems Engineering capability at the System of Systems level across the Army enterprise to deliver integrated and interoperable capability sets that provide optimized and affordable solutions

FUNCTIONS

- Develop, evolve, and maintain a detailed, interoperable SoS design baseline - Enterprise Architecture
- Address technical, operational and cost aspects to frame issues for decision making
- Leverage experimentation and M&S tools as part of engineering analysis/operational assessment
- Establish and evolve an SoS vision over time, and translate into capability attributes
- Translate emerging requirements into implied system attributes for technology insertion solutions
- Lead targeted technical assessments to enable cost/capability trades within and across system boundaries
- Maintain visibility into individual system architectures, specifications & performance
- Coordinate technically with SEs in related programs (Army, Joint)

Serves as the System Architect for the Army
ASA (AL&T) SoS Systems Engineering
- Policy
- Oversight
- Enterprise level system architectures
- Enterprise level analysis, evaluations, trade studies – End-to-end performance
- Synchronize enterprise level development
- Identify and resolve cross-portfolio issues

PEO Portfolio SoS Engineering
- Oversight of POR
- Portfolio level architecture (to include cross-portfolio requirements)
- Portfolio level analysis, evaluations, and trade studies
- SoS responsibilities - Works to resolve cross-domain issues
- PEO - Lead
- RDEC, FFRDC, SETA - Support

COORDINATION/SUPPORT:
- TRADOC
- ARSTAFF
- OSD/Joint Programs
- RDECs
Establishing an Integrator within ASA(ALT)

- **Business**
  - **POM by Capability Pkg**
  - **Design to Cost**
  - **Align Rqmts, S&T, PORs, non-PORs**
  - **Operational Design Reviews**

- **Logistics & Operations**
  - **ASALT System of Systems SE**
  - **Tech Transition Flow & Non PORs**
  - **Synchronize USF – Support Master ARFORGEN schedule**
  - **Deliver time-phased capability sets over time**
  - **RESET**

- **Disciplined Process**
  - **Leadership Tasks**
  - **Functional Tasks**
  - **Specific Tasks**

- **PEOs**
  - **ASA(ALT) PM IBCT**
  - **PM HBCT**
  - **PM SBCT**
  - **PM FBCT**

- **Unit (Bde) Architectures**
  - **Tier 1**
  - **Tier 2**
  - **Tier 3**

- **Non PORs**
  - Tigr
  - BETSS-C

- **S&T RDECs**
  - DARPA
  - UARCs

- **School Houses**
  - Product Based Rqmts
  - CONOPS by Formation

- **Capability Portfolio Managers**
  - ISR, Comms, Mobility, etc.
  - Responsible for System Engineering Products
  - Cuts across PEOs & Units

Build Combat Power by Type Formation Over Time to Cost
Closing

- The need for SoS SE at the Enterprise level is Evident.
- What are the architecture changes that will incorporate the system attributes necessary for SoS integration across the Enterprise?
- Current SE methods, processes, tools do not address the breadth, complexity, and tempo of today’s development environment.