ORGANIZATION HIGHLIGHT:

SYSTEMS ENGINEERING & ARCHITECTURE

SE&A

Role & Responsibilities

The Office of Systems Engineering and Architecture (SE&A) develops and promotes innovative engineering principles and techniques to advance DoD engineering practice. SE&A develops policy, guidance, standards, and best practice resources; manages DoD Standards; facilitates engineering-related communities of practice; and develops the defense engineering workforce by refining competency models and curricula. SE&A applies engineering and risk management expertise to inform decisions and improve system-of-systems architectures to reduce integration risk in mission-enabling systems.

❖ ORGANIZATION FOCUS AREAS

Policy & Workforce (PW): Leads policy, guidance, and workforce development initiatives for the DoD engineering and technical workforce.

Systems Engineering (SE): Focuses on modernizing SE practice, including using modular open systems approaches to build systems that can be upgraded to incorporate new technology and respond to emerging threats.

Digital Engineering Modeling and Simulation (DEM&S): Focuses on digital engineering transformation and implementation, promoting the use of models and simulations across the DoD life cycle.

Software Engineering (SWE): Focuses on adopting modern Agile/DevSecOps software practices and improves cross-organizational collaboration to modernize DoD software processes, capability, and expertise.

Specialty Engineering (SpE): Focuses on improving delivery of advanced capability to warfighters by modernizing reliability and maintainability, manufacturing and quality, system safety, human systems integration, and value engineering practices.

Defense Standardization Program Office (DSPO): Identifies, develops, manages, and provides access to standardization processes and products for the defense community to promote interoperability, reduce cost, and sustain readiness.

Joint Architecture for Capabilities and Systems (JACS): Promotes systems of systems fielded with speed, fidelity, and adaptability to enable continual evolution of U.S. warfighting dominance.

❖ LINES OF EFFORT

SE&A organizes its objectives into six lines of effort, which apply to each focus area in varying degree.

SE&A LINES OF EFFORT

- Advance the Engineering Practice
- Connect & Strengthen the Technical Community
- Develop the Workforce
- Advance & Manage Standards
- Provide Technical Expertise for Independent Engineering Assessments
- Provide Systems of Systems Architectures Guidance

❖ COLLABORATION

SE&A collaborates across the Department, leading or participating in dozens of working groups with topics including digital manufacturing, modular open systems approaches, software modernization, and standardization management. SE&A works with the other OUSD(R&E) offices, the Services, DOT&E, CIO, CDAO, and OUSD(A&S) on policies, guidance, and best practices

Defend the Nation   **Take Care of Our People**   **Succeed Through Teamwork**

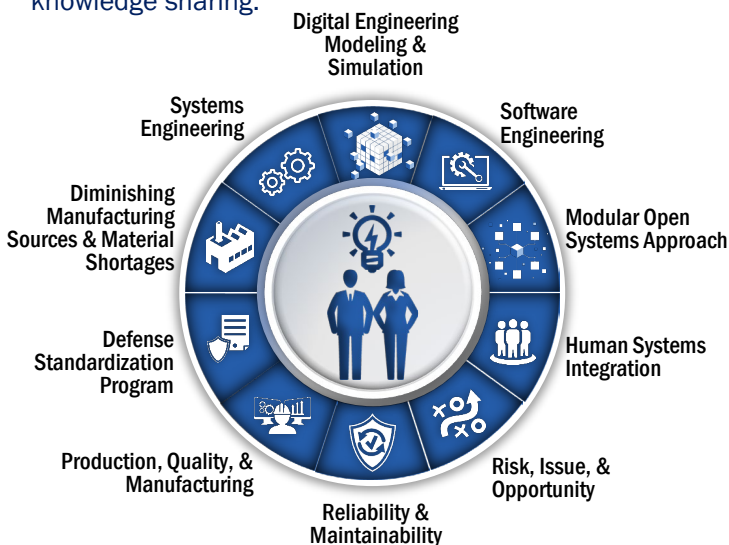**SE&A** promotes innovative engineering principles and techniques to advance DoD engineering practice

ORGANIZATION HIGHLIGHT: SYSTEMS ENGINEERING & ARCHITECTURE

❖ COMMUNITIES OF PRACTICE

SE&A collaborates with organizations across the Department through communities of practice (CoPs). CoPs allow valuable interaction among acquisition professionals to support capability development and knowledge sharing.

Digital Engineering Modeling & Simulation
Systems Engineering
Software Engineering
Diminishing Manufacturing Sources & Material Shortages
Modular Open Systems Approach
Defense Standardization Program
Human Systems Integration
Production, Quality, & Manufacturing
Risk, Issue, & Opportunity
Reliability & Maintainability

❖ WORKFORCE

SE&A partners with the Military Services and defense agencies to identify workforce challenges and champion initiatives to ensure DoD maintains its advantage in warfighter readiness in a rapidly evolving technological environment. Cross-cutting workforce initiatives focus on building technical capability and capacity to support current and future leadership priorities.

The Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) has initiated numerous technical workforce development efforts guided by Secretary of Defense priorities.

❖ RESOURCES

- SE&A - https://ac.cto.mil/engineering/
- ASSIST (Standards) – http://assist.dla.mil
- MOSA CoP – https://www.dau.edu/cop/mosa/
- DEBOK- https://de-bok.org/
- SE&A Workforce Resources - https://ac.cto.mil/workforce/
- Scan the QR code for more information

❖ POLICY & GUIDANCE

SE&A, under the authorities of the USD(R&E) charter (DoDD 5137.02), develops instructions, manuals, and guidance to govern specific engineering activities.

POLICY DOCUMENTS

DoDI 5000.88 Engineering of Defense Systems	**DoDI 5000.61** DoD Modeling & Simulation Verification, Validation, & Accreditation

DoDI 5000.69 Weapon and Laser System Safety	**DoDI 5000.70** Management of Modeling & Simulation	**DoDI 4120.24** Defense Standardization Program

DoDI 5000.95 Human Systems Integration	**DoDI 5200.49** Oversight of the Collection & Exchange of Information Using the Government-Industry Data Exchange Program	…and More!

GUIDEBOOKS

Engineering of Defense Systems Guidebook	Systems Engineering Guidebook	Human Systems Integration Guidebook
Unmanned System Safety Precepts Guide	Early Manufacturing and Quality Engineering Guide	…and More!

BODIES OF KNOWLEDGE

Human Systems Integration	Reliability and Maintainability
Digital Engineering	Manufacturing and Quality
	…and More!

❖ STANDARDS

The Defense Standardization Program Office (DSPO) champions standardization processes, products, and services to provide the warfighter with interoperable, reliable, technologically superior, and affordable equipment. DSPO develops DoD-wide standardization policies and procedures and serves as the DoD representative to Federal agencies, non-Government standards bodies, international organizations, treaty organizations, and industry. DSPO also serves as executive sponsor for Diminishing Manufacturing Sources and Material Shortages (DMSMS) and Government-Industry Data Exchange Program (GIDEP).

SE&A serves as the Lead Standardization Activity for:
- Systems Engineering Standards and Specifications
- Modular and Open Systems Standards and Specs
- Modeling and Simulation Standards and Methodologies

For more information, email osd.r-e.comm@mail.mil, ATTN: SE&A