

Driving the Maturity and Evolution of MOSA- Enabling Standards Across the Department of Defense

27th Annual National Defense Industrial Association Systems and Mission Engineering Conference

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Norfolk, Virginia
October 2024



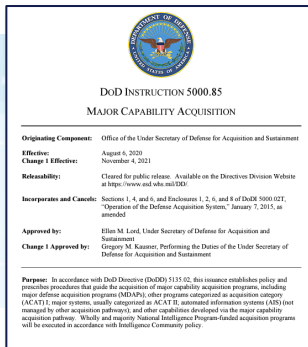
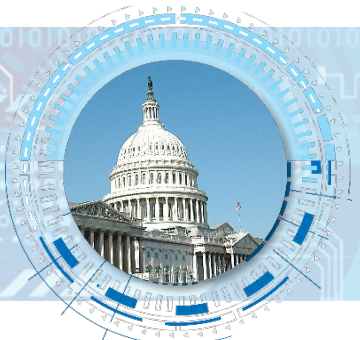


Presentation Outline

- MOSA: Tracing the Requirement
- MOSA: How Standards Fit into the Picture
- Defense Standardization Is Required by Law
 - How Standards Tie into the DoD Framework
- Framework of the Defense Standardization Program (DSP)
- DoD Standardization Is Vital for Military Success
- MOSA: Driving Maturity and Evolution of Standards
- Standardization Product Evolution (Options)
- DSPO: Current Efforts



MOSA: Tracing the Requirement



Statute

Title 10 U.S.C. 4401-4403

- Requirement for Modular Open Systems Approach (MOSA) in all defense acquisition programs to the max extent practicable (4401)
- Address MOSA in program capabilities development and acquisition weapon system design (4402)
- Relating to availability of major system interfaces and support for MOSA (4403)

FY21 NDAA Section 804

- Establish centralized Service modular system interface (MSI) repositories.

DoD Policy & Guidance

- DoDD 5000.01 (Defense Acquisition System)
- DoDI 5000.85 (Major Capabilities Pathway)
- DoDI 5000.88 (Engineering of Defense Systems)
- Tri-Service Memo (*Update Pending*)
- Engineering of Defense Systems Guidebook
- Systems Engineering (SE) Guidebook
- Systems Engineering Plan (SEP)

Office of the Deputy Director for Engineering
Office of the Under Secretary of Defense
for Research and Engineering
Washington, D.C.

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Service Policy & Implementation Guidance

Navy

Army

Air Force

*NDAA – National Defense Authorization Act *DoDD – Department of Defense Directive *DoDI – Department of Defense Instruction



MOSA: How Standards Fit into the Picture

STATUTE

Title 10 U.S.C. 4401-4403

- ✓ Coordinate with other military departments, defense agencies, standards-setting organizations etc. with respect to the specification, identification, development, and maintenance of modular system interfaces and standards.
- ✓ Ensure that modular system interfaces incorporate commercial standards and other widely supported consensus-based standards that are validated, published, and maintained by recognized standards organizations to the max extent practicable.

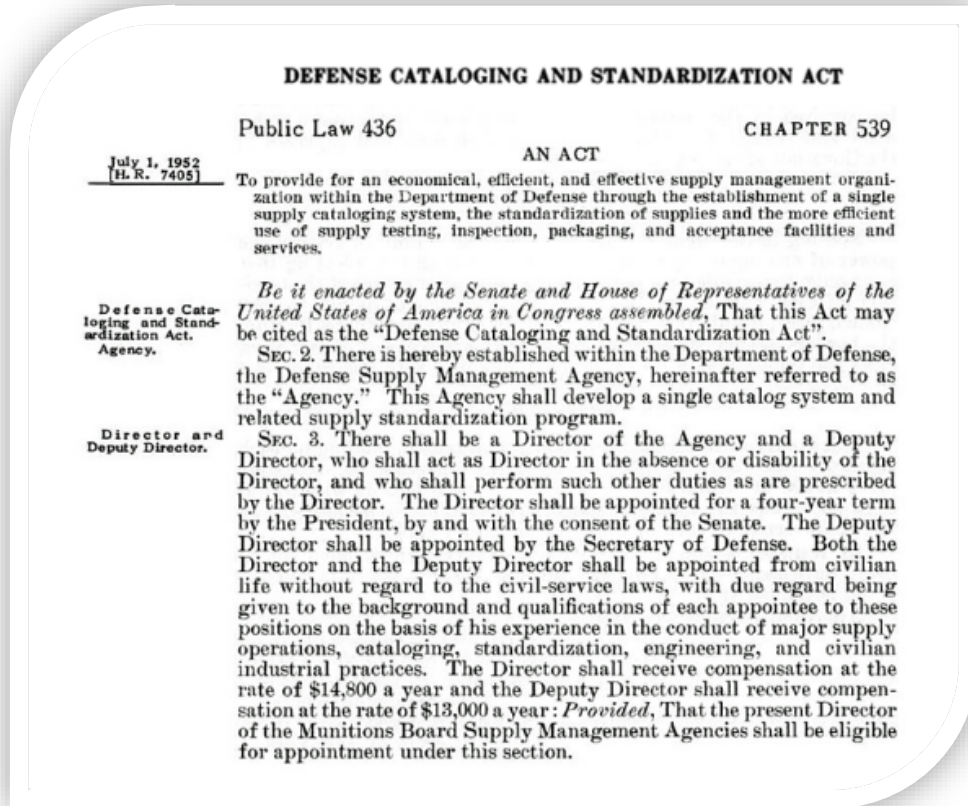
FY21 NDAA Section 804

- ✓ Development of Service Modular System Interface (MSI) Repositories to establish and maintain repositories for interfaces, syntax and properties, documentation, and communication implementations.
- ✓ MSIs comply with, if available and suitable, widely supported and consensus-based standards.

*NDAA – National Defense Authorization Act



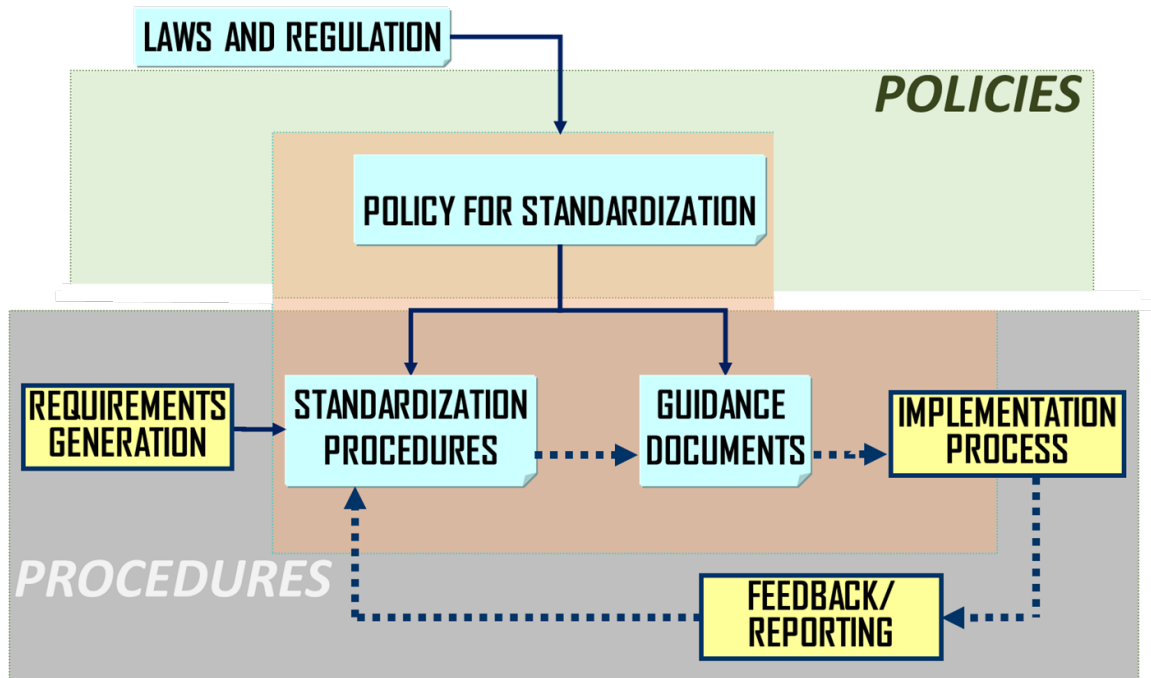
Defense Standardization is Required by Law



- **Defense Cataloging and Standardization Act, Title 10, U.S. Code Chapter 145, Section 2451-2457**
 - Establishes a single, unified standardization program in the Department of Defense (DoD)
 - Requires standardization of items used throughout DoD to the highest degree practicable; and standardization and interoperability of equipment with North Atlantic Treaty Organization members and other countries
- **National Technology Transfer and Advancement Act of 1995, Public Law 104-113**
 - Directs federal agencies to use non-government standards
 - Office of Management and Budget (OMB) Circular A-119, Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities



Framework of the Defense Standardization Program (DSP)



- **Federal Acquisition Regulation (FAR) Part 11**

- DoD Components shall select existing requirements documents or develop new requirements documents that meet the needs of the agency in accordance DoD Manual (DoDM) 4120.24, Defense Standardization Program Procedures (DSP Procedures).
- Identifies ASSIST (<https://assist.dla.mil>) as a source for requirements documents cited in a solicitation.

(Recently Revised)

- **Federal and National Strategic Direction**

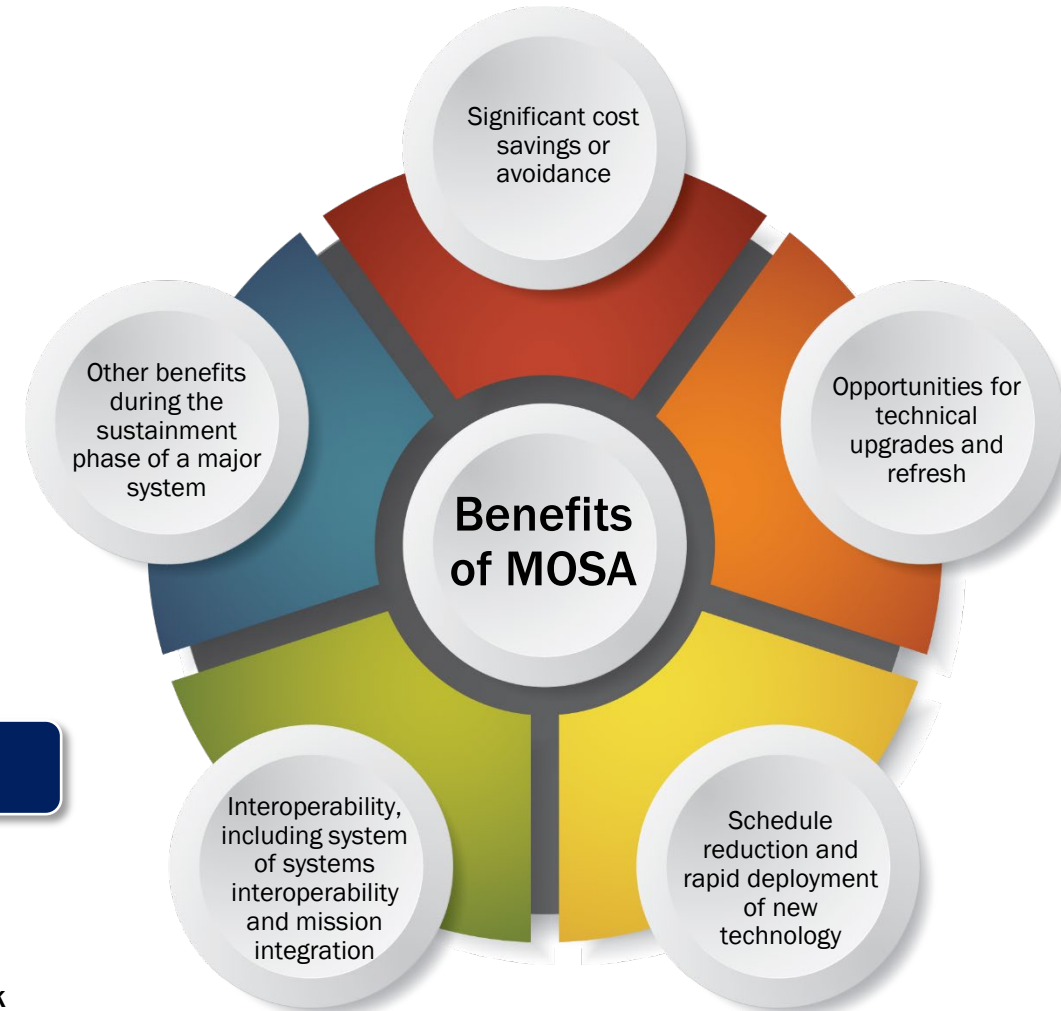
- Administration-led efforts – e.g., National Security Strategy, National Standards Strategy for Critical and Emerging Technology
- Congressional direction – e.g. FY21 National Defense Authorization Act (NDAA) Sec. 804, Modular System Interface (MSI) Repositories; FY20 NDAA Sec. 204, Trusted Supply Chain for Microelectronics
- Secretary of Defense Lines of Effort
- Guidance – e.g., American National Standards Institute (ANSI) U.S. Standards Strategy (USSS)



Why DoD Standardizes: Standardization is Vital to Military Success



Pictured: U.S. F/A-18 Hornets received fuel from British VC-10 tanker due in part to STANAG 3447, "Aerial Refueling Equipment"



Improve Operational Capabilities

- Joint Service Operations
- Coalition Warfare
- Readily Available Parts & Supplies
- New Technology Insertion

Reduce Total Ownership Costs

- Larger Economical Buys
- Less Inventory
- Reduce Development Costs
- Reduced Maintenance Costs

Other Reasons

- Competition
- Less Misunderstanding between Government & Contractor
- Reduce Development Risk
- Support U.S. Industrial Base



MOSA: Driving Maturity and Evolution of Standards

Considerations

1. Understand the Current Landscape of MOSA-Enabling Standards

- The growing trend of ‘non-traditional’ standards bodies for the development of standards
 - EX: Consortia, Ad-Hoc Working Groups
 - Benefits: Agile development, limited instantiation cost
 - Challenges: Lack of compliance to DSP

2. Adapt DSP Policy & Procedures to Support Current and Future Opportunities

- Look for opportunities to adopt standards across a portfolio/Service.

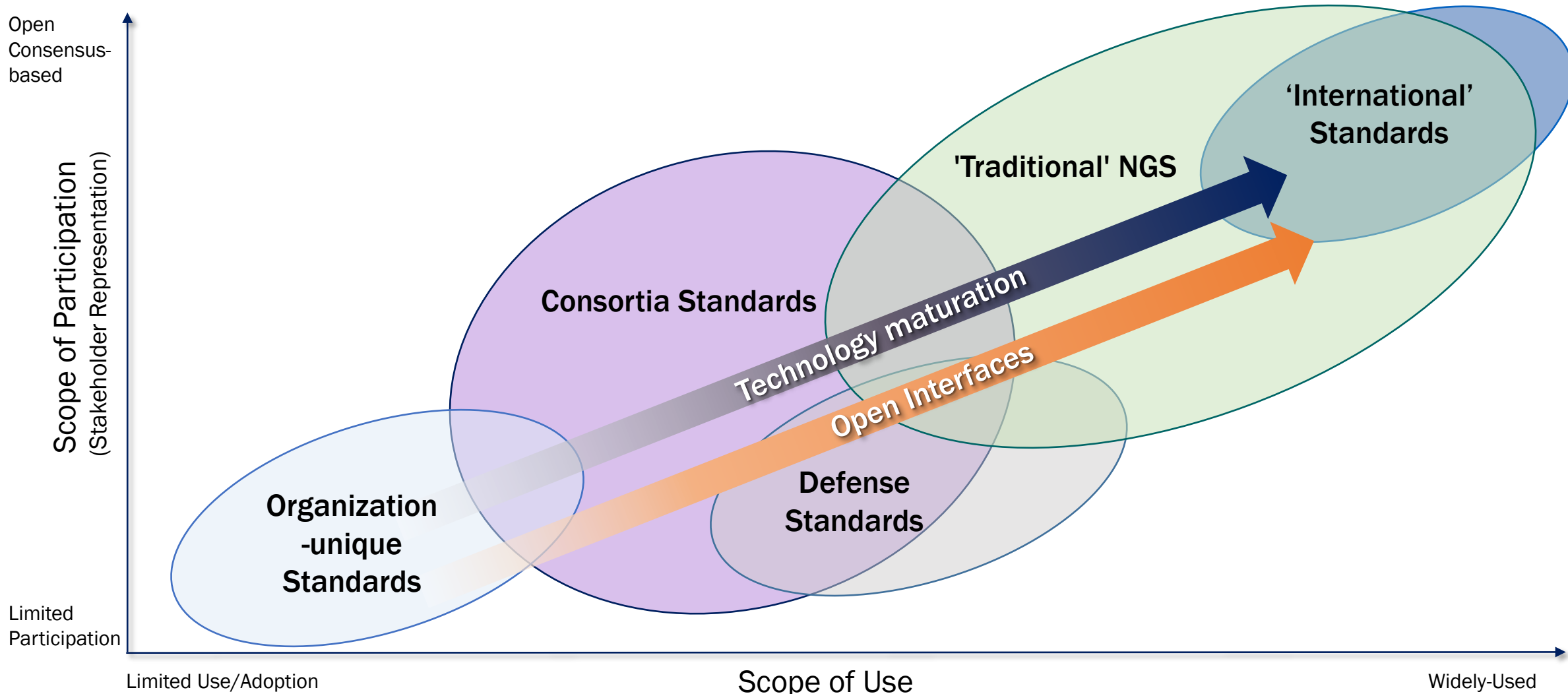
3. Continued Outreach

- Reach out to program offices to encourage evaluation of standards and standardization approaches early **AND** often to achieve program goals and maximize the benefit of standardization.

As MOSA standardization products evolve and mature, fold them into the DSP accordingly.



Standardization Product Evolution (Options)





DSPO: Current Efforts

#1

Curate an Authoritative Source Repository of DoD MOSA-Enabling Standards in the ASSIST Database

- Purpose: Help programs search and identify standards that support MOSA development. Increase visibility and adoption (use) of MOSA-enabling standards.
- Adoption of Non-Government MOSA-Enabling Standards
 - CoPAIS Interface Standard – Command and Data Handling
 - MOSA Payload Manager Interface Standard
 - Future Airborne Capability Environment (FACE) - Ed 3.2
 - Open Universal Domain Description Language (OpenUDDL) - Ed 1.0
 - Sensor Open Systems Architecture (SOSA) - Ed 2.0 (SNAPSHOT 2)

#2

Drive DSP Policy & Procedures Changes

- Update DoDM 4120.24 (DSP Policy & Procedures) to support adoption of standards developed by Government **AND** Industry-Led Consortia
- Modernize ASSIST database to support digital standardization products/formats (SysML, CAD/CAM, XML)



<https://www.assist.dla.mil>



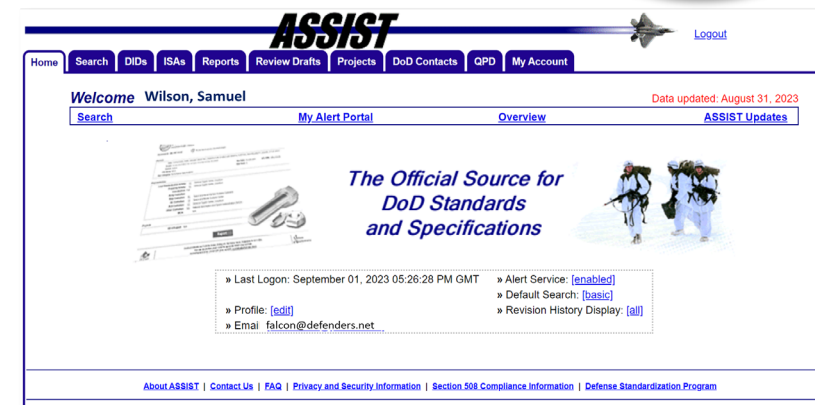
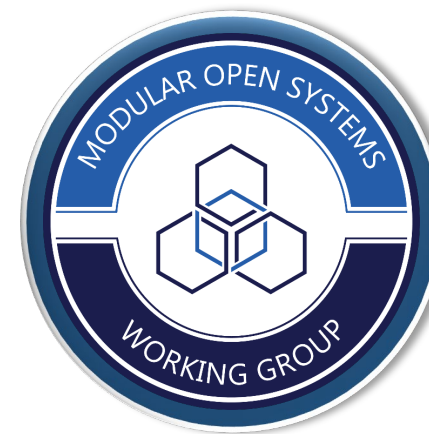


DSPO: Current Efforts (Continued)

#3

Utilize the MOSWG Standards Tiger Team to Forge Future Adoption and Use of MOSA-Enabling Standards

- Goals
 - Define refined criteria for MOSA-enabling standards
 - Update definitions related to standards/specifications
 - Improving on concepts related to MOSA
 - What does 'Open' mean for MOSA?
 - The spectrum of 'open' for standards and specifications
 - Update and validate current portfolio of MOSA-enabling standards
 - Continued recognition and adoption of standards being developed and adopted by the Services for MOSA implementation.
- Deliverables
 - Guidance will feed into the next updates of the OUSD(R&E) MOSA Guidebook
 - Definitions will be updated in the DAU Glossary, as appropriate
 - Development of a standardization document for best practices regarding standardization decisions to support a MOSA





Contact

Office of Systems Engineering and Architecture
Defense Standardization Program Office

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