**21st Annual National Defense Industrial Association Systems and Mission Engineering Conference**

# MOSA-Enabling Standards DoD Panel

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Office of the Under Secretary of Defense for Research and Engineering

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# *Modular Open Systems Approach and the National Defense Strategy*



**Remarks by Secretary Mattis
on the National Defense Strategy
January 19, 2018**

"It is incumbent upon us to <u>field a more lethal force</u> if our nation is to retain the ability to defend ourselves and what we stand for."

"We will <u>modernize key capabilities</u>, recognizing we cannot expect success fighting tomorrow's conflicts with yesterday's weapons or equipment. Investments in space and cyberspace, nuclear deterrent forces, missile defense, advanced autonomous systems, and resilient and agile logistics will provide our high-quality troops what they need to win."

"To keep pace with our times, the department will transition to a culture of performance and affordability that operates at the speed of relevance.  <u>Success does not go to the country that develops a new technology first, but rather, to the one that better integrates it and more swiftly adapts its way of fighting.</u>  Our current bureaucratic processes are insufficiently responsive to the department's needs for new equipment.  <u>We will prioritize speed of delivery, continuous adaptation and frequent modular upgrades</u>."

# Defense Standardization Program Goals

| Improve Military Operational Readiness | Reduce Total Ownership Costs | Reduce Cycle Time |
|---|---|---|
| Achieving <u>interoperability of systems, subsystems, and equipment</u> with U.S. allies and among the Military Departments | Optimizing systems engineering requirements by reaching a <u>consensus on requirements</u> | Identifying interchangeability and interoperability requirements to permit <u>rapid introduction of new technologies</u> |
| Reducing the variety of supply items to improve logistics support | Promoting <u>standard commercial processes and practices</u> | Using readily available standard items |
| Improving reliability, maintainability, and safety of systems and supply items | Promoting the <u>use of common processes and open systems</u> | |
| Modernizing existing systems, subsystems, and equipment through the <u>insertion of new technology and parts</u> | Keeping standards current by incorporating cost-saving changes and lessons-learned | |
| <u>Ensuring relevance of standards</u> to the warfighter | Reducing training costs and standardizing best training practices | |
| | Reducing the number of nonstandard parts | |
| | Facilitating competition | Source: DoDM 4120.24 |

# MOSA
## Statute, Policy, and Guidance

| Statute | DoD Policy | Acquisition Strategy | Guidance |
|---|---|---|---|
| **10 USC § 2446a (FY17 NDAA)**<br><br>**MOSA Requirement**:<br><br>•MDAPs are to be designed and developed using a modular open systems approach (MOSA) to enable incremental development and enhance competition, innovation, and interoperability.<br><br>**10 USC § 2446b (FY17 NDAA)**<br><br>•**Program Capability Documents** to describe extent that performance requirements are likely to evolve, why, and values for IOC.<br><br>•**Analysis of Alternatives (AoAs)** for MDAPs must consider evolutionary acquisition, prototyping, and MOSA.<br><br>•**Acquisition Strategy** for MDAPs that use MOSA must: (1) describe the open approach, (2) differentiate between the major system platform and major system components within the MOSA, (3) describe the expected evolution of major system components, (4) describe IP issues & plans, and (6) describe system approach to ensure mission assurance and information assurance.<br><br>•**Milestone B Requirement** for MDA to certify the validity of MOSA, or state why MOSA is not being used.<br><br>•**Request for Proposal (RFP)** includes minimum set of major system components when contracting for design of MDAP.<br><br>**10 USC § 2446c (FY17 NDAA)**<br><br>•**Selected Acquisition Report (SAR) Requirement** for MDAPs to include a MOSA statement.<br><br>**10 USC § 2448a (FY17 NDAA)**<br><br>•Program cost, fielding and performance goals to address a modular open system approach to evolve system capabilities and improve interoperability. | **DoDI 5000.02, Change 4, Updates**<br><br>**Main Body**<br><br>•Para 5.d.(6)(c). MOSA review at Development RFP Release Decision Point<br><br>**DoDI 5000.02, Enclosure 1**<br><br>•Table 5, MOSA in Selected Acquisition Report (SAR)<br><br>**DoDI 5000.02, Enclosure 2**<br><br>•Para 6.(4)(b). Intellectual Property strategy to support MOSA<br><br>•Para 6(5). MOSA in Acquisition Strategy development<br><br>**DoDI 5000.02, Enclosure 3**<br><br>•Para 14. SE considerations for MOSA to include the 5 benefits of MOSA<br><br>**DoDI 5000.02, Enclosure 9**<br><br>•Para 2.(a)(4). MOSA considerations for the AoA | **April 2011 Outline**<br><br>**Paragraph 7**<br><br>•7.6 Technical Data Rights Strategy<br><br>  •7.6.2. Open Architecture data needs<br><br>  •7.6.3. Business Case Analysis and tradeoff analysis outlining approach for open systems architecture and acquiring technical data rights<br><br>**Paragraph 11**<br><br>•11.3. Sustaining Industrial Capabilities.<br><br>  •Make-or-buy approach to establish and maintain access to competitive suppliers for critical areas at system, subsystem, and component level using open systems architecture (addressing product technology obsolescence, replacement of limited-life items, regeneration options for unique manufacturing processes, and conversion to performance specifications at the subsystems, component, and spares levels. | **Defense Acquisition Guidebook - Chapter 3, Systems Engineering Updates**<br><br>•CH 3–3.2.2 Systems Engineering Plan (SEP)<br>•CH 3–2.3.1 Software (SW Trade Studies, Software Architecture and SW Reuse)<br>•CH3–3.2.4.1 Modular Open Systems Approach<br>•CH 3–2.7 SE Role in Contracting<br>•CH 3–3.2.2 Materiel Solution Analysis Phase<br>•CH 3–3.2.3 Technology Maturation and Risk Reduction Phase (Perform System Trade Analysis)<br>•CH 3–4.1.7 Technical Data Management Process (Acquiring Data)<br>•CH 3–4.1.8 Interface Management Process<br>•CH 3–4.2.4 Implementation Process (Design)<br>•CH 3–4.3 Design Considerations (Modular Design)<br>•CH 3–4.3.3 Anti-Counterfeiting (MOSA)<br>•CH 3–4.3.8 Diminishing Manufacturing Sources and Material Shortages (DMSMS)<br>•CH3–3.4.3.15 Modular Design<br><br>**Open Systems Management Plan (OSMP) Data Item Description (DID)** January 2017<br><br>http://quicksearch.dla.mil/Transient/C8EEEC5D14EB4CF6B2D6DE92AA451112.pdf<br>• Describes the developer's modular and open system's approach and support plan to go in in the contract Statement of Work (SOW), Performance Based SOW (PBSOW) or Statements of Objectives (SOO). |

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# MOSA Sta...

| Statute | | | |
|---|---|---|---|
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§ 2446a: "(1) The term '**modular open system approach' means**, with respect to a major defense acquisition program, an integrated business and technical strategy that—
"(A) employs a modular design that uses major system interfaces between a major system platform and a major system component, between major system components, or between major system platforms;
"(B) **is subjected to verification to ensure major system interfaces comply with, if available and suitable, widely supported and consensus-based standards**…"

§ 2446b: "(e) MILESTONE B.—**A major defense acquisition program may not receive Milestone B approval** under section 2366b of this title **until the milestone decision authority determines** in writing that—
"(1) in the case of a program that uses a modular open system approach—
"(A) the program incorporates clearly defined major system interfaces between the major system platform and major system components, between major system components, and between major system platforms;
"(B) such **major system interfaces are consistent with the widely supported and consensus-based standards** that exist at the time of the milestone decision, unless such standards are unavailable or unsuitable for particular major system interfaces…"

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# *Standardization Considerations*

- **Industry involvement is essential**
  - To develop standards for open architectures and to define interfaces
  - To develop MOSA business practices that
    - Protect intellectual property, and
    - Foster a competitive environment

- **Standardization Resources**
  - ASSIST – *New* MOSS Standardization Area
  - DISR – for IT interoperability standards
  - MOSA Framework Guidance – essential elements *coming soon*
  - CLE 019 – DAU Course
  - DSP Case Studies

**MOSA enables flexibility and longevity in our weapon systems**

# Defense Standardization: Critical to Defense Acquisition



## For more information:
### http://www.dsp.dla.mil/