Defense Acquisition Guidebook Systems Engineering Chapter Update

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Office of the Deputy Assistant Secretary of Defense for Systems Engineering

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Defense Acquisition Guidebook (DAG) Chapter 4 Revision – A Phased Process

Phase 1 Fact-of-Life: Completed

- Made minimum chapter revisions necessary to align with approved policy/business practice
- Coordinated with other chapter editors
- Established no new policy
- Released October 2012

Phase 2 Update and Restructure: On-going

- Base on other approved policy/business practice
- Re-examine and revise Chapter 4 contents, structure, message

DAG Chapter 4 Phase 1 Update

DAG Chapter 4 Revision Phase 1: "Fact of Life" Update

- **Made minimum chapter revisions necessary to align with approved policy and business practices**
- **Coordinated with other DAG chapter editors**
- **Established no new policy**

Published in October 2012

Key Policy Changes with SE Impact

- **Statute changes since Weapon Systems Acquisition Reform Act (WSARA):**
  - Section 812, Manufacturing
  - Section 805, Government Performance of Critical Acquisition Functions
- **USD (AT&L) Memoranda**
  - WSARA Implementation Directive-Type Memorandum
  - Better Buying Power Memos
  - Should Cost/Will Cost Memos
  - Improving Milestone Process Effectiveness Memo
  - Improving Technology Readiness Assessments Memo
  - Post-CDR Review Reports and Assessments Memo
  - Development Planning Directive Type Memorandum
  - Reliability Directive-Type Memorandum
  - Acquisition Streamlining Memos
    - Revisions to the Acquisition Strategy/Technology Development Strategy/Systems Engineering Plan/Program Protection Plan/Lifecycle Sustainment Plan Outlines
- **DoDI 5134.16, DASD(SE) Authorities and Responsibilities**

Ensured consistency with other guidance changes in other areas

DAG Chapter 4 Phase 2 Update

DAG Chapter 4 Phase 2: Rewrite

- **Add guidance for new policy and DASD(SE) initiatives**
- **Improve currency, consistency, usability, and readability**
- **Focus the content on "Systems Engineering provides a balanced approach (cost, schedule, risk) for delivering needed capability to the war fighter"**

Policy and DASD(SE) Initiatives

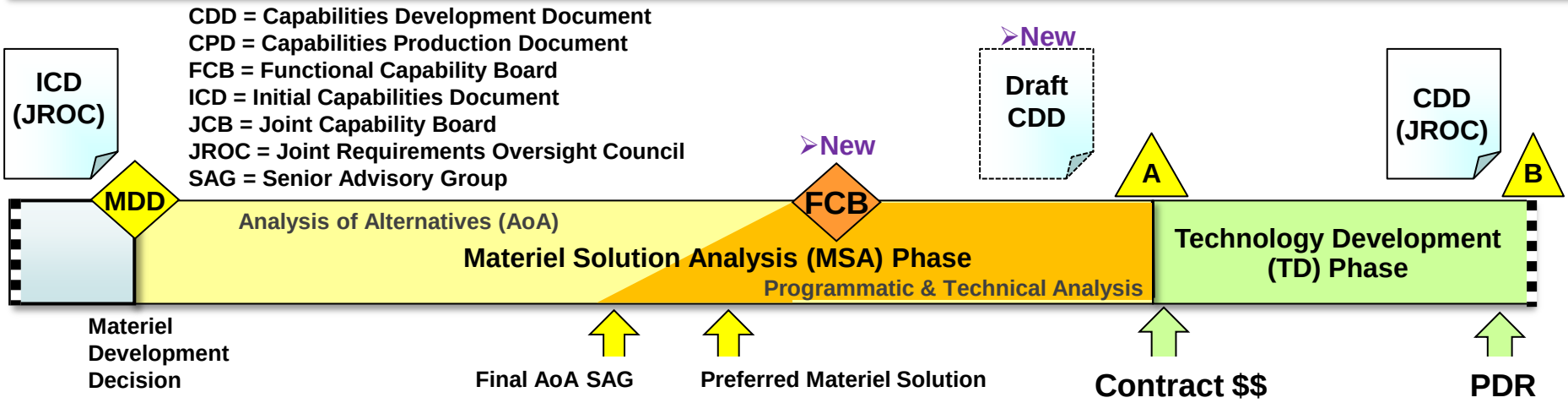
- **Joint Capabilities Integration and Development System (JCIDS) (Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3170.01H)**
- **Overarching DoD Counterfeit Prevention Guidance**
- **Systemic Root Cause Analyses Findings**
- **Systems Engineering Standards Development for Systems Engineering, Technical Reviews & Audits, and Configuration Management**

New CJCSI 3170.01H Requirements

Reference: CJCSI 3170.01H, Enclosure A, 10 January 2012

"(b) Following an AoA on capability requirements in a JROC or JCB Interest ICD, the appropriate FCBs review the AoA and recommended solution, and other (MSA) analyses. Together with the solution sponsor, the FCB Chair briefs the JCB and/or JROC on the AoA recommendations and FCB assessment to facilitate the JCB or JROC providing informed advice to the MDA on the best approach to satisfy the capability requirement(s)."

"(c) The FCB review of these MSA results shall be completed in sufficient time to permit preparation of a draft CDD, not submitted to JCIDS for validation at this time, to inform the Technology Development Strategy and Request for Proposals for the TD phase.



New CJCSI 3170.01H Requirements

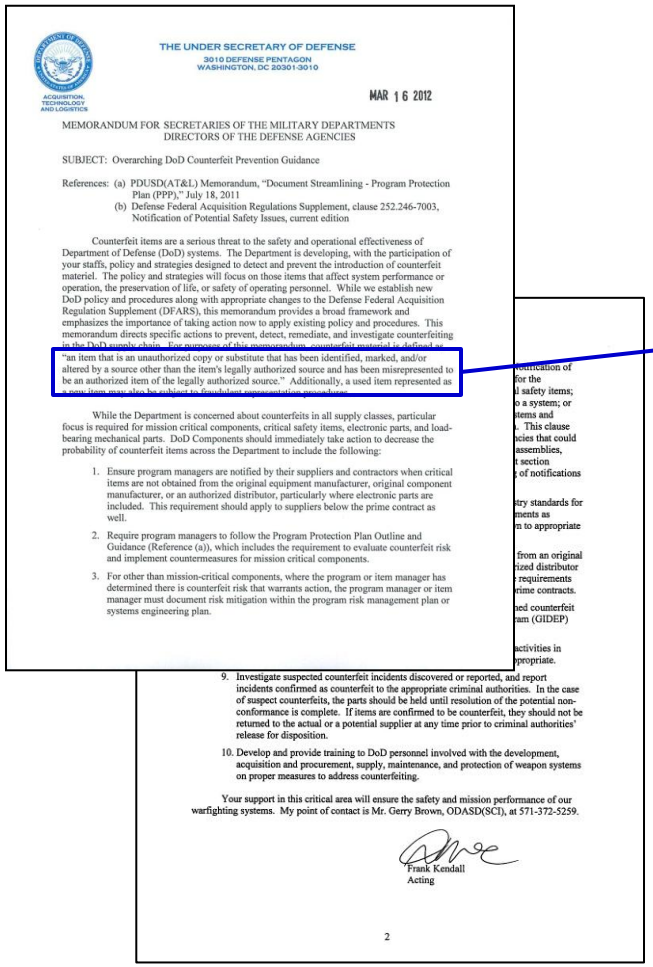
- **Emphasize Milestone A is a critically important synchronization point between the Requirements and the Acquisition Communities**
  - Contract(s) for creating preliminary design awarded based on Milestone A Request For Proposal
  - Preliminary design based on the system specification that is derived from draft CDD and other analysis

- **Joint Staff advice for the Milestone Decision Authority (MDA) considers both AoA results and other MSA analyses**

Reference: DoDI 5134.16, Enclosure 2, 19 August 2011

1.h. [DASD(SE) shall] "Provide input on the inclusion of systems engineering requirements in the process for consideration of joint military requirements by the Joint Requirements Oversight Council (JROC), including specific input relating to each capabilities development document."

USD(AT&L) Memorandum: Overarching Anti-Counterfeit Prevention Guidance



THE UNDER SECRETARY OF DEFENSE
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WASHINGTON, DC 20301-3010

ACQUISITION, TECHNOLOGY AND LOGISTICS

MAR 16 2012

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Overarching DoD Counterfeit Prevention Guidance

References: (a) PDUSD(AT&L) Memorandum, "Document Streamlining - Program Protection Plan (PPP)," July 18, 2011
(b) Defense Federal Acquisition Regulations Supplement, clause 252.246-7003, Notification of Potential Safety Issues, current edition

Counterfeit items are a serious threat to the safety and operational effectiveness of Department of Defense (DoD) systems. The Department is developing, with the participation of your staffs, policy and strategies designed to detect and prevent the introduction of counterfeit materiel. The policy and strategies will focus on those items that affect system performance or operation, the preservation of life, or safety of operating personnel. While we establish new DoD policy and procedures along with appropriate changes to the Defense Federal Acquisition Regulation Supplement (DFARS), this memorandum provides a broad framework and emphasizes the importance of taking action now to apply existing policy and procedures. This memorandum directs specific actions to prevent, detect, remediate, and investigate counterfeiting in the DoD supply chain. For purposes of this memorandum, counterfeit material is defined as "an item that is an unauthorized copy or substitute that has been identified, marked, and/or altered by a source other than the item's legally authorized source and has been misrepresented to be an authorized item of the legally authorized source." Additionally, a used item represented as a new item may also be subject to fraudulent representation procedures.

While the Department is concerned about counterfeits in all supply classes, particular focus is required for mission critical components, critical safety items, electronic parts, and load-bearing mechanical parts. DoD Components should immediately take action to decrease the probability of counterfeit items across the Department to include the following:

1. Ensure program managers are notified by their suppliers and contractors when critical items are not obtained from the original equipment manufacturer, original component manufacturer, or an authorized distributor, particularly where electronic parts are included. This requirement should apply to suppliers below the prime contract as well.
2. Require program managers to follow the Program Protection Plan Outline and Guidance (Reference (a)), which includes the requirement to evaluate counterfeit risk and implement countermeasures for mission critical components.
3. For other than mission-critical components, where the program or item manager has determined there is counterfeit risk that warrants action, the program manager or item manager must document risk mitigation within the program risk management plan or systems engineering plan.

9. Investigate suspected counterfeit incidents discovered or reported, and report incidents confirmed as counterfeit to the appropriate criminal authorities. In the case of suspect counterfeits, the parts should be held until resolution of the potential non-conformance is complete. If items are confirmed to be counterfeit, they should not be returned to the actual or a potential supplier at any time prior to criminal authorities' release for disposition.
10. Develop and provide training to DoD personnel involved with the development, acquisition and procurement, supply, maintenance, and protection of weapon systems on proper measures to address counterfeiting.

Your support in this critical area will ensure the safety and mission performance of our warfighting systems. My point of contact is Mr. Gerry Brown, ODASD(SCI), at 571-372-5259.

Frank Kendall
Acting

2

- **Addresses an area of critical concern while Department policy is in coordination**
- **Provides definition**
  - "an item that is an unauthorized copy or substitute that has been identified, marked, and/or altered by a source other than the item's legally authorized source and has been misrepresented to be an authorized item of the legally authorized source."
- **Emphasizes**
  - Risk-based approach
  - Leverages Program Protection Plan and non-conforming processes
  - Directs use of existing contracting clauses and data elements to ensure traceability and reporting on critical items for contractors and subcontractors
  - Use of anti-counterfeiting standards
  - Disposal of counterfeit items
  - Training

Adding new section on mitigating the effect of counterfeit parts

Systemic Root Cause Analyses (SRCA)

- **Using SRCA findings as inputs for DAG Chapter 4 updates**
- **NDIA SRCA Report (December 2008) identified 28 actions grouped into three recommendation areas**
  - Acquisition Strategy and Planning
  - Decision Gate Review
  - Enhanced Staff Capability
- **DASD(SE) FY2011 SRCA identified 52 negative findings associated with 5 of the 6 Defense Acquisition Program Support (DAPS) areas**
  - Many findings align to NDIA SRCA Report (2008)
  - Findings provide detailed insight into:
    - SE Processes
    - Baseline Management
    - Software
    - Design Verification
    - Reliability Assessment
    - Production

Incorporate to improve DAG currency and usability

Standards Development

- **Defense Standardization Council (DSC) recognized that enterprise-wide approaches were needed for certain systems engineering disciplines**
- **Working groups focused on standards for specific areas:**
  - Systems Engineering
  - Technical Reviews and Audits
  - Configuration Management
  - Logistics Support Analysis
- **DSC direction to the working groups**
  - Adopt existing voluntary standards, to the greatest extent possible, to leverage industry best practices for DoD
  - If necessary, supplement existing voluntary standards with appropriate direction unique to DoD to provide contractually applicable/enforceable language
  - Develop Military Standards only when all other options have been explored and determined to be unworkable

Incorporate in DAG once each activity is complete

Analyzed Current DAG

- **Determined audience by identifying current and future users**
- **Identified users' perspectives**
- **Assessed the applicability and usefulness of the content**
- **Recognized strengths and limitations / gaps**

Findings From Current DAG Review

- **Need to update basic framework and account for multiple domain areas**
  - Support different functions and roles, Program Manager and Systems Engineer
  - Be flexible to support different acquisition models
  - Take into account others affected (e.g. INCOSE CSEP and DAU)
- **Should be an SE primer and reference document**
  - Provide consistent overarching guidance and top level information, with linkages to relevant policy and detailed guidance
  - Keep abreast of DoD Instruction 5000.02 update and Standards efforts
- **Need to improve readability and usability**
  - Improve usefulness to target user (PM and SE) based primarily on content, readability and clarity
  - Need to reflect relevant, current policy and guidance

DASD(SE) Direction on Phase 2

- **Use a product-centered approach, where the product is the weapon system or capability under development**
- **Thread policy, activities/processes, and product together**

  Policy (Direction / Requirement) → Process (How) → Product (What)
- **Do not restate policy, rather clarify intent of policy and identify expectations**
- **Do not invent guidance to fill a gap in policy and remove preferences**
- **Map to Services' practices**
- **Minimal links**
- **Include the emerging acquisition models**

Provide the thinnest layer of guidance to get the job done

New DAGC4 Phase 2 Framework

Overarching Themes:

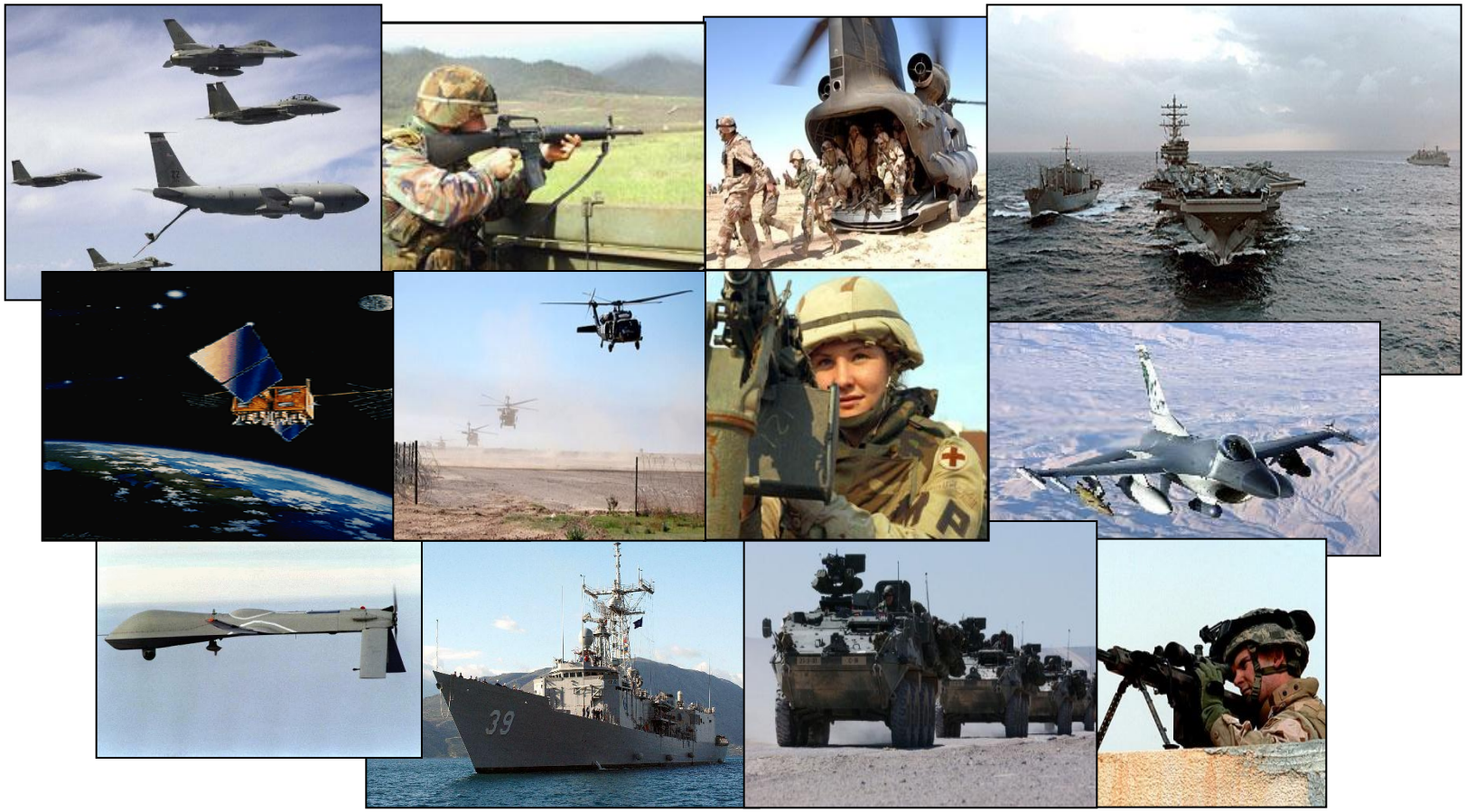
- **Provide balanced approach in delivering a capability to the war fighter**
- **Support program success through systematically increasing maturity and reducing risk over the acquisition lifecycle**

1. **Introduction (Overview)**
   - **Systems Engineering Definition**
   - **Why it's important**
2. **Systems Engineering Activities in the Life Cycle**
   - **By phase description of key activities**
   - **Technical Reviews**
   - **Emerging Acquisition Models**
3. **Systems Engineering Processes**
   - **Description of each Process**
   - **Design Considerations**
   - **Specialty Engineering**

Plan Forward

- **Revise to update content, usefulness, and readability**
- **Coordinate with Stakeholders (including NDIA)**
- **Review and approve update**
- **Submit to policy office for publishing**

Systems Engineering: Critical to Program Success



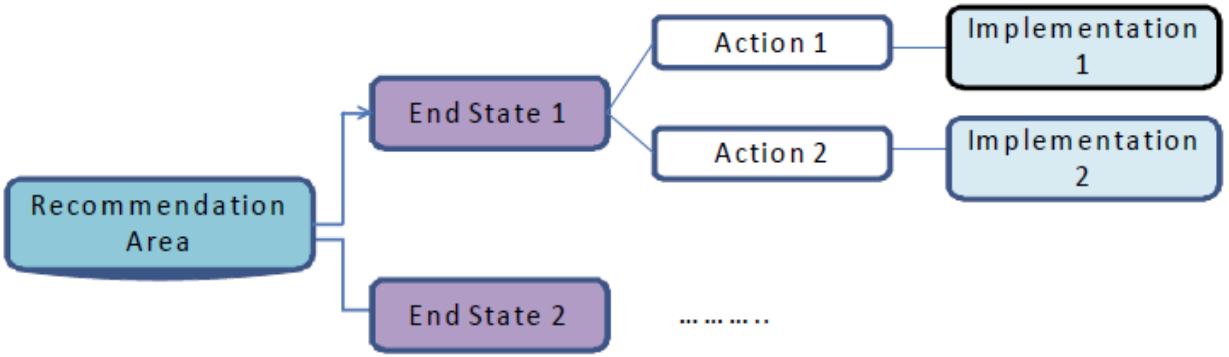
Innovation, Speed, and Agility

http://www.acq.osd.mil/se

Additional References

NDIA SRCA Report (December 2008)

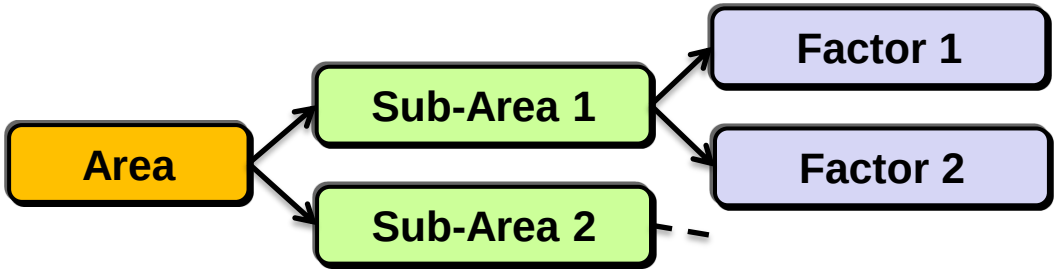
- **The NDIA SRCA Report identified three recommendation areas:**
  - Acquisition Strategy and Planning
  - Decision Gate Review
  - Enhanced Staff Capability
- **Each recommendation area identified several end states with associated actions and implementations**



- **Not all actions or implementations are associated with systems engineering**

Defense Acquisition Program Support (DAPS) Methodology

- **The DAPS methodology is composed of 6 areas**
  - Mission Capabilities
  - Resources
  - Management
  - Technical Process
  - Performance
  - Special Interest Areas
- **Each area has various sub-areas and factors**



Area = A mutually exclusive and distinct category or programmatic activity or focus

Sub-Area = A division of the Area into related subject matter components

Factor = Condition or fact that actively contributes to an accomplishment, result or process