



# **Defense Acquisition Guidebook Systems Engineering Chapter Update**

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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



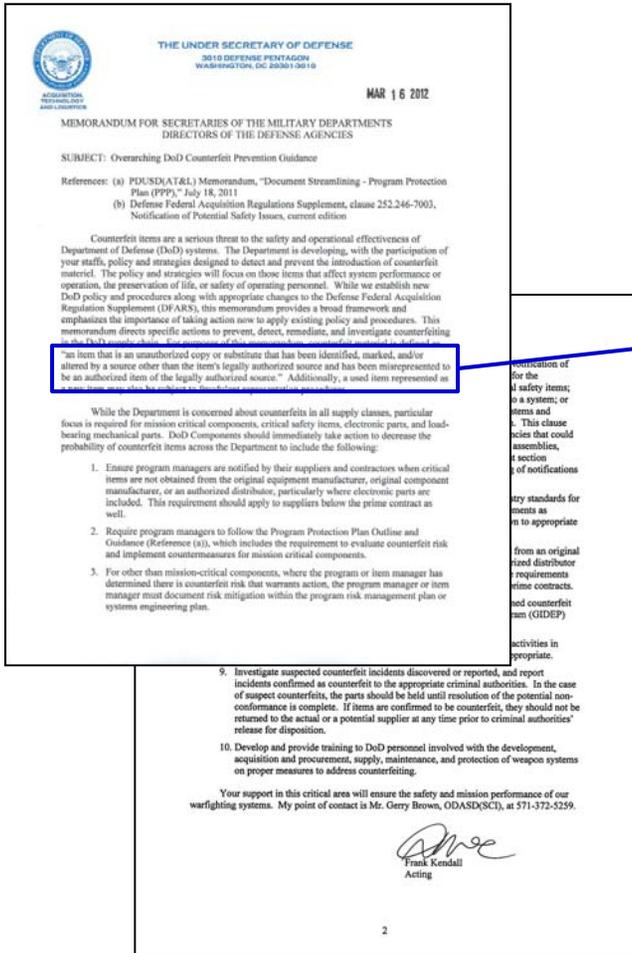
- **Emphasize Milestone A is a critically important synchronization point between the Requirements and the Acquisition Communities**
  - Contract(s) for creating preliminary design awarded based on Milestone A Request For Proposal
  - Preliminary design based on the system specification that is derived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



- 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



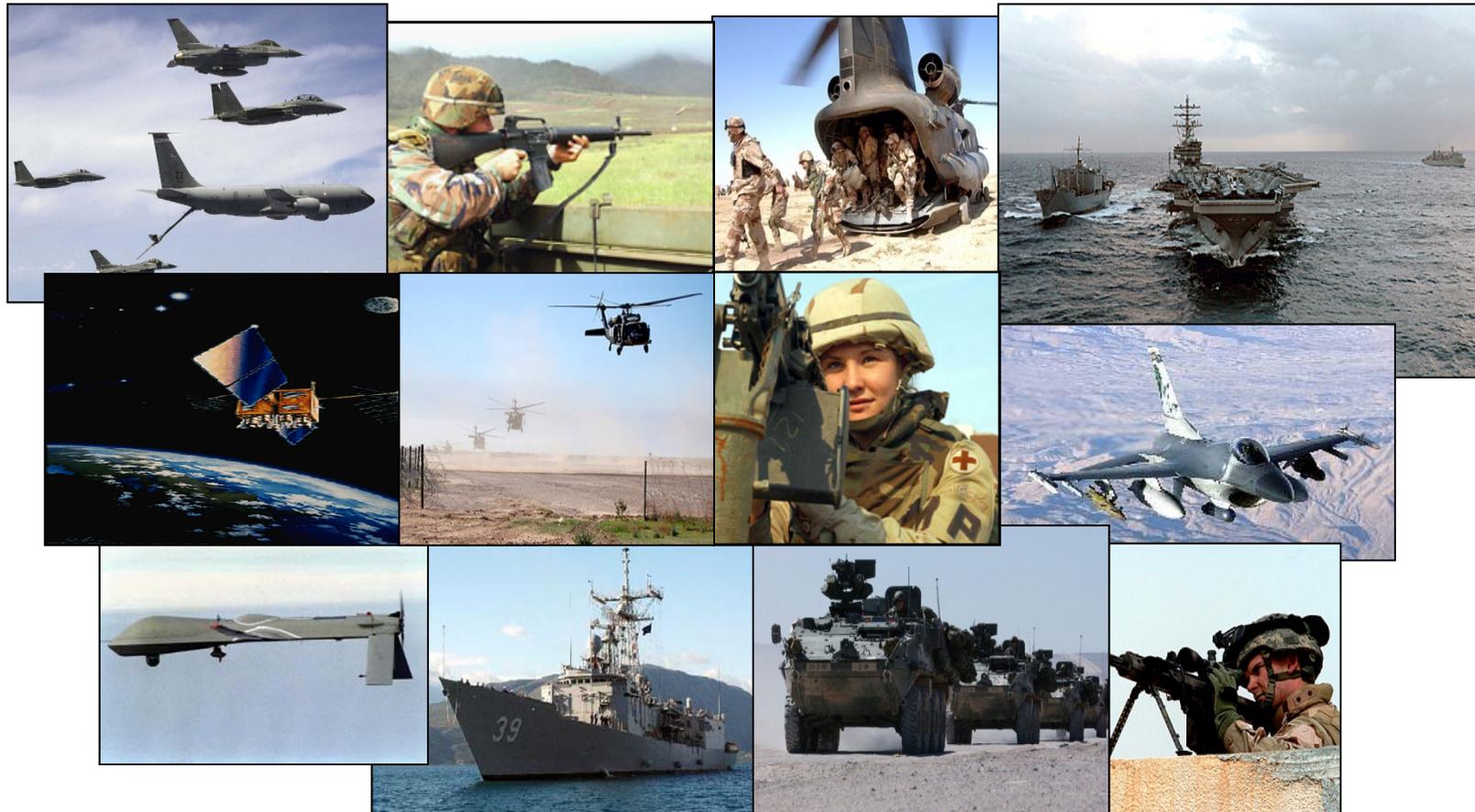
# Plan Forward



- **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>