Systems Engineering Re-Vitalization at the Defense Contract Management Agency

Presented By:

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AGENDA

Charter

Feedback

DCMA Systems Engineering Value to the DoD Acquisition Enterprise

DCMA Systems Engineering Functions and Influence Areas

DCMA Systems Engineering Core Processes

Recommended Path Forward

- **Baseline Skills Assessment**
- **Competency Training**
- **Develop Policy/Tools/Guidance**
- **Recommended Training Track/Curriculum**
- **SE Standard Surveillance Operating Guide (SSOG) Outline**

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Intent is to define expectations and prioritize processes, functions, and efforts of DCMA engineers in providing the best guidance, support, and life-cycle balanced system solutions that satisfy customer needs, goals, objectives, requirements, and specific outcomes in DoD weapon systems acquisition management

Defining the Future of DCMA Systems Engineering!

Feedback

Feedback on our recommendations - provided by OSD (AT&L), PEO, DCMA Division Director, CMO Commander, and CMO Engineers:

"…a sound approach with a great explanation…" - Dr. Don Gelosh, Senior Systems Engineer, OSD (AT&L) SSE / ED

"…you have a good handle on this…" - Col Rich Hoeferkamp, Acting Deputy Director, OSD (AT&L) SSE / ED

"…you are on the right track…" - Alex Levi, PEO Staff Engineer, Space and Missile Systems Center, Los Angeles AFB

"…this initiative is much needed…" - Col Warren Anderson, DCMA Dayton Commander - OSD (AT&L) SE Instructor

"I like the Engineering Core Processes listed…" - Gregory Lehn, P.E., DCMA NASA Product Operations

DCMA Systems Engineering Value to the DoD Acquisition Enterprise

- **Primary Result of OSD (AT&L) Study**
  - **A lack of Systems Engineering process capability and process compliance were primary contributors to poor program performance**
- **Revitalizing DCMA Systems Engineering efforts would help to improve program performance**
- **Aligns with OSD (AT&L) Mission to Revitalize Systems Engineering Throughout the DoD**

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DCMA SYSTEMS ENGINEERING FUNCTIONS AND INFLUENCE AREAS

DCMA Systems Engineers

- Ensure that the contractor has effective processes
- Ensure that the contractor delivers products that meet requirements and are delivered on schedule and within cost
- Track cost, schedule and technical performance, perform risk analysis, perform predictive analysis of program impacts, and recommend improvements to contractor performance
- Influence the contractor to improve performance
- Provide needed recommendations to the PMO

DCMA SYSTEMS ENGINEERING FUNCTIONS AND INFLUENCE AREAS

- **Ensure Products Meeting Customer Requirements in a Timely Manner (Satisfied Customer)**
- **Support Major Program Performance Commitments (PCs)**
- **Perform Mandated DCMA Systems Engineering Activities in Support of Certain MOAs**

These Functions are Implemented via the DCMA Systems Engineering Core Processes

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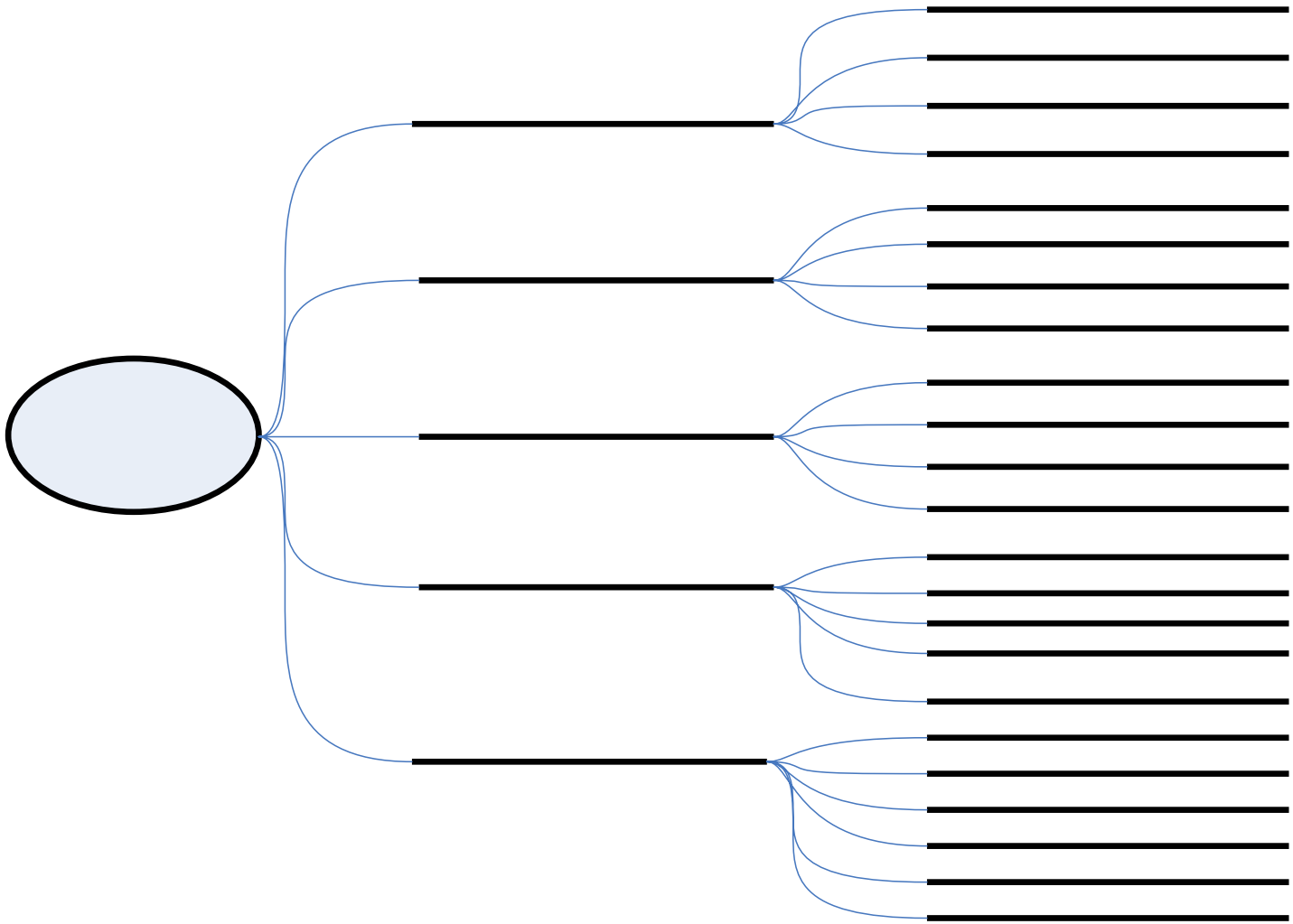
Engineering Core Processes



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Recommended Path Forward

Establish DCMA HQ Sys Eng Competency Team

- Baseline Skills Assessment
  - Assess Core Processes, roles and responsibilities - continuously review for modifications
    - Baseline core competency skills needed by commodity
    - Identify skills needed to implement new technology in future programs
    - Identify skills needed to sustain legacy systems
  - Align with AT&L Competency Assessment Efforts

Engineering Disciplines are Unique

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Recommended Path Forward

Establish DCMA HQ Sys Eng Competency Team

- Develop Competency Training Program
  - Consolidate and prioritize Division training inputs
  - Secure Systems Engineering training funding
  - Execute Systems Engineering training
  - Define training standards and timelines
  - Measure Agency training success (Metrics)
- Develop measures of success to achieve core competencies
- Integrate results with the following recommended training path/curriculum:

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Recommended Training Path/Curriculum

Training Type	Course(s)
Education	Appropriate ABET Accredited Degree
DAWIA	Level II in appropriate field Level III in appropriate field for CMO Engineer Lead
Core	DCMA New/Advanced Engineering Courses
Commodity	Appropriate Licenses or Certifications for Commodity (e.g. Airframe Powerplant (A&P) License for Aero Work)
Specialty	As needed (e.g. EMI)

Recommended Training Path/Curriculum

Training Type	Course(s)
Developmental	**Leadership, PBM, Six Sigma, Predictive Analysis**
Professional Certification	**Certified by Professional Society Aligned with the Individual's Career Field (as desired)**
Additional Recommended Training	**<u>Acquisition:</u>** **DCMA Integrated Master Schedule Class** **DCMA Systems Engineering Course** **BCF 102,203 (Earned Value)** **LOG 101, 204** **PQM 101, 201** **TST 102** **<u>Engineering:</u> e.g., TSNs, NDT, ANSI Y-14.5M Geometric Dimensioning & Tolerancing (all as needed)** **<u>Product Specific</u>: Determined by DCMA Divisions Based on Knowledge Gap Analysis**

Recommended Path Forward

Establish DCMA HQ Sys Eng Competency Team

- Develop Policy/Tools/Guidance
  - Perform/Evaluate Enterprise Planning to include:
    - Staffing/Organization
    - Succession Planning
    - Appropriate Skills Matching
    - Policy and Tools
    - Training
  - System Engineering Guide Development
    - Develop Standard Surveillance Operating Guide (SSOG)
    - Develop Systems Engineering Influence Guide
    - Develop Systems Engineering Evaluation Guide and associated metrics

Standard Systems Operating Guide (SSOG) Outline

Chapter 1: Concept Development Phase

- **Perform Program Management Oversight**
- **Perform Engineering Process Reviews**
- **Evaluate Engineering/Resource Schedule Estimates**
- **Evaluate Program Performance**
- **Perform Engineering Product Examinations**

Chapter 2: Technology Development Phase

- **Perform Program Management Oversight**
- **Perform Engineering Process Reviews**
- **Evaluate Engineering/Resource Schedule Estimates**
- **Evaluate Program Performance**
- **Perform Engineering Product Examinations**

Standard Systems Operating Guide (SSOG) Outline

Chapter 3: System Development and Demonstration Phase

- **Perform Program Management Oversight**
- **Perform Engineering Process Reviews**
- **Evaluate Engineering/Resource Schedule Estimates**
- **Evaluate Program Performance**
- **Perform Engineering Product Examinations**

Chapter 4: Production and Deployment Phase

- **Perform Program Management Oversight**
- **Perform Engineering Process Reviews**
- **Evaluate Engineering/Resource Schedule Estimates**
- **Evaluate Program Performance**
- **Perform Engineering Product Examinations**

Standard Systems Operating Guide (SSOG) Outline

Chapter 5: <u>Operations and Support Phase</u>

Perform Program Management Oversight

Perform Engineering Process Reviews

Evaluate Engineering/Resource Schedule Estimates

Evaluate Program Performance

Perform Engineering Product Examinations

<u>Appendices</u>: DCMA Systems Engineering Influence Guide, Surveillance Plan Template, Report Results and Recommendations, Metrics, and Test and Evaluation

Engineering Core Process IPT - Membership

Shaun Lanham	**DCMAG-OCT**
Larry Cianciolo	**DCMAM-OCT**
Thuyhong Tran	**DCMAS-OCT**
David Kiewit, P.E., JD	**DCMAM-OCT**
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Bruce Heim	**DCMA Boeing LB**
Terry Taylor	**DCMA AIMO**
Capt Mark Fienhold	**DCMA SSO Sunnyvale**
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