

16th Annual Research Symposium

Panel #7: Using Technology to Innovate Defense Acquisition



PEO
IEW&S

8 MAY 2019

Program Executive Office
Intelligence, Electronic Warfare & Sensors

MG Kirk F. Vollmecke – PEO IEW&S



PM ASE

Develop and field aircraft survivability systems to maximize survivability of Army aircraft without degrading combat mission effectiveness.



PM DCGS-A

Support the Army's ISR mission for processing, exploitation, and dissemination (PED) of information and intelligence data across echelons.



PM DOD Biometrics

Design, engineer, acquire, deploy, and sustain enterprise biometric solutions in multiple operating environments enabling identity dominance on the battlefield and across the DOD.



PM EW&C

Acquire integrated Intelligence, Electronic and Cyber Warfare capabilities to provide Spectrum and Cyberspace Superiority and enable freedom of maneuver on the Battlefield.



PM PNT

Positioning, Navigation and Timing leads the Army in developing and integrating PNT technology and also collaborates with the other Department of Defense (DoD) Services to deliver interoperable, reliable products.



PM SAI

Develop, acquire, field, and supply life cycle support to modernized, integrated, and tactically relevant aerial ISR sensor and sensor processing payloads.



PM TS

Provide sensors for enhanced situational awareness and decisive action and Integrated Base Defense



PD TENCAP

Enable the Army to rapidly exploit and influence national capabilities and architectures and conduct advanced development and rapid prototyping to enhance and inform Army capabilities and CONOPS to pace the threat.

Sensor and Sensor Processing Systems across the PEO portfolio enable ISR, Intelligence production, Integrated Base Defense, Force Protection

Understanding the IEW&S Portfolio

Deliver the Army and Joint Force Commander with a highly robust and **tactically responsive** suite of **non-kinetic** warfighting and sensing capabilities to address threats and threat vulnerabilities across the Electromagnetic Spectrum (EMS).



Sense Understand Act

Pervasive Sensing

- Identify / Geolocation
- Information via Tactical Network(s)
- Non-Traditional

Commanders

- Situational Awareness
- Actionable Intel
- Synchronize EW Operations

Deliver Non-Kinetic Effects

- Defensive Electronic Attack
- Offensive Operations (*Spectrum-Based*)

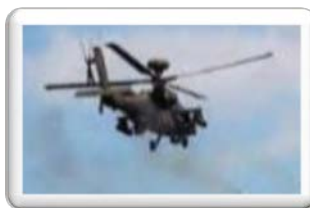
Spans Operational Boundaries Across Air, Ground, Cyber, and Spectrum Domains



- Tactical SIGINT Payload
- Multi-Function Electronic Warfare



- Next-Gen Ground Sensing (SIGINT/EW)
- Integration of INTEL/Cyber/EW in ground platform



- Modernized RADAR Warning Receiver
- Multi-Function Electronic Warfare – Rotary Wing



- Next Generation FLIR
- Improved Detection, Recognition, and Identification



- Cyber Situational Understanding
- Spectrum Planning
- Intelligence Operations

The Multi-Domain Battle Concept

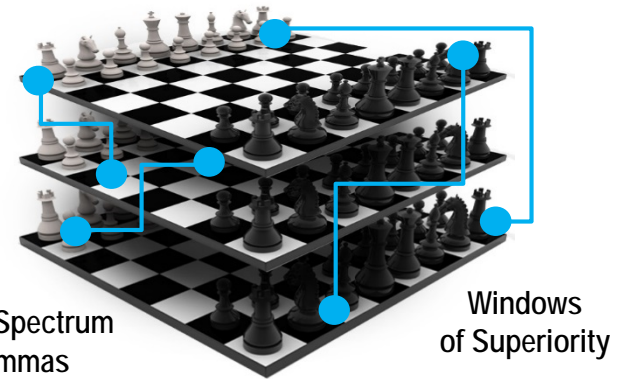
- U.S. supremacy is at risk in the land, air, maritime, space, and cyberspace domains and electro-magnetic spectrum as rivals innovate and leverage technology.
- The Army must be prepared to fight as part of a Joint Force, across multiple domains, to gain the advantage over our enemies and achieve national objectives.
- The Army adapts, evolves and innovates to keep a combat edge by: thinking about future conflict, collaborative learning, analyzing capability gaps, and implementing solutions.

Intellectual Underpinnings

- Our capabilities must “Preserve” the Freedom of Maneuver ... for the Commander
- Use of Cyberspace as a tool of National Security
- **Integrated** Electronic Warfare, Signals Intelligence and Cyber capabilities must present the adversaries with **multiple dilemmas**...
...in spectrum, time/space, intensity and duration

Gaining Understanding of the Environment we are faced with...

Dimensional Effect



Impose Spectrum Dilemmas

Windows of Superiority

- Define overmatch differently with imperative to impose multiple dilemmas
- Confront technology diffusion and mass surveillance with integrated EW, SIGINT, and Cyber convergence
- Enable a cooperative development environment
- Leverage a Joint Combined Arms & Enterprise battle approach

Foster Open and Adaptable Programs to Deliver Now

Rapid Acquisition Enabled by Open, Adaptable Programs Combat Complexity

- PEO IEW&S Leading Threat, Agile Solutions
- Streamlined Acquisition Process Focused on Small, Frequent Releases of Capability
- Early and Frequent Involvement with System Users and Small, Qualified, Dynamic Teams will be critical components to rapid acquisitions of complex systems
- Increased Accountability for both Government Acquisition Workforce and Industry Partners

JUONS/ONS

EW & Offensive Cyber

Space

Aerial ISR

Aircraft Survivability



A shift toward Rapid Acquisition is required to keep pace with the threat and enable relevant technologies in complex systems.

Evolution of Priorities



2016

Today

- *Support & Equip Regionally Aligned Forces, Global Response Force, Army Contingency Response Force and Rotational Forces*
- *Posture Programs For Future*
 - *Develop an Agile and Adaptable Acquisition Model for ASE, ISR, EW, Space, and Offensive Cyber*
 - *Enable Long-Term Generation of Capabilities by more integrated S&T across LCM*
- *Conduct Effective Procurement Planning*
- *Effectively Plan & Manage End-of-Life Sustainment Factors*

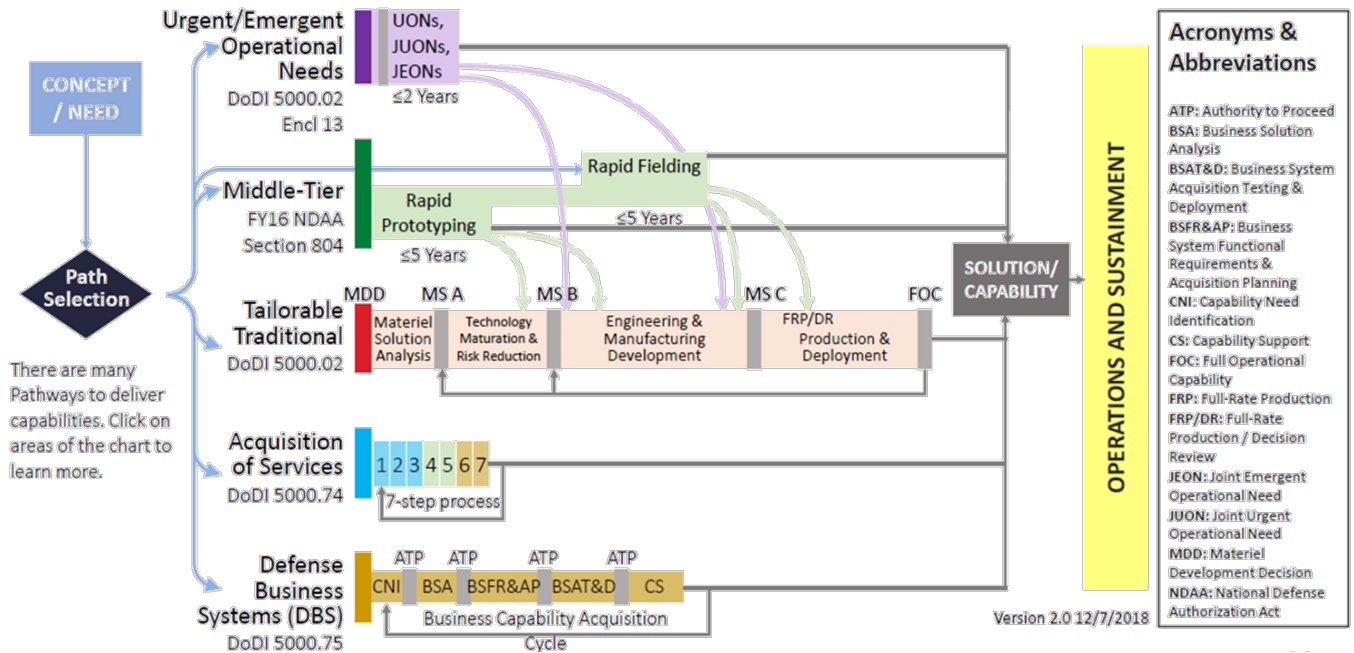
- *Sustain Adaptable Programs and Pace the Threat*
- *Transition to Sustainment faster*
- *Better leverage the Intelligence Community*
- *Continue to reduce PALT by Innovative Contract Management Practices*
 - *“Smart” Contracts Leveraging Blockchain*
 - *Automatic Generation of Requirements*
- *Sustain GFP Accountability Improvements*
- *Improve Program Protection & Supply Chain Management*
 - *Similar to data protection needs in procurement transactions*

Continuously Drive Process Change to Reduce Cost of Doing Business and Find Efficiencies

- Commercial industry drives innovation
- Other Transaction Authority (OTA), 10 U.S.C. §2371
 - Reach non-traditional state-of-the-art companies whom typically do not work with the DoD
 - For certain prototype, research, and production projects
 - Provides DoD flexibility to adopt commercial industry standards and best practices into its award instruments
- PEO IEW&S is leveraging the authority smartly to prototype, reduce risk, and inform requirements in order to better tailor and accelerate program activities
 - The Acquisition Strategy should provide a clear path and plan with its usage nested into the broader plan
 - PEO IEW&S has realized reduction in procurement action lead time from fourteen (14) months on average for a traditional procurement to about eight (8) months on average for an OTA
- OTAs incorporate good business sense and appropriate safeguards to protect the Government's interest
- Our PMs have utilized a phased approach which has fostered increased competition as well as the ability to:
 - Evaluate the technical feasibility more quickly
 - Interact with actual users earlier to understand the military utility
 - Implement a "buy", "try", "decide" approach
 - Introduce a "test," "fix," "test" process that allows for an agile modification activity
 - Integrate the prototypes on different platforms and into systems earlier in the process
 - Award of a follow-on production contract or transaction without the use of competitive procedures



- The Army is successfully adapting its acquisition processes, but is that enough?
- Where can we better leverage technology innovation (Blockchain, Model-Based Acquisition, Automation, Cloud Computing, etc.) to improve and modernize our acquisition processes?
- How will Data Analytics centralized in the Cloud support Tactical Reporting and Warfighters at the Edge?
- How will COTS Analytics continue to evolve with Military-specific enemy tactics?



Combine Adaptive Acquisition and Innovation to Deliver Better, Faster

- **Smart Contracts in the Federal Government - Leveraging Blockchain Technology to Revolutionize Acquisition,**
Michael Arendt, The MITRE Corporation
 - How to greatly improve the traditional government contracting process via the use of blockchain enabled, smart contracts.
 - Can we go from a serial process of updating Word documents with cumbersome signature gates to Blockchain-based smart contracts to enable automation of routine COTS procurement contracts?
- **Automatic Generation of Contractual Requirements from MBSE Artifacts,**
Alejandro Salado, Virginia Tech
 - Since many of the issues of a challenged acquisition program stem from poor requirements definition and management, it's critical to explore innovative ideas like automatically generated, model-based requirements.
- **Computing without Revealing: A Cryptographic Approach to eProcurement,**
Siva Chaduvula, Purdue University
 - In typical eProcurement, sensitive data often flow across enterprise boundaries without the proper cyber protections causing enterprises to hesitate from sharing sensitive data thereby limiting the effectiveness of the eProcurement process. How can procurers and suppliers securely conduct their business transactions without revealing their confidential information?

QUESTIONS



Program Executive Office
Intelligence, Electronic Warfare & Sensors

- 16th Annual Acquisition Research Symposium: Creating Synergy for Informed Change
- <https://www.researchsymposium.com/conf/app/researchsymposium/home#!/page/103>
- Panel #7: Using Technology to Innovative Defense Acquisition
 - Wed., 8 May 2019 - 12:45 pm - 2:00 pm
- Chair: Major General Kirk Vollmecke, PEO IEW&S
- Time and Presentation Guidelines — 75 minute Session
 - Chair's Introductions of Presenters: 2 – 3 minutes
 - Chair's Remarks: 10 – 12 minutes
 - Presentations: 12 – 15 minutes each
 - Q&A: 15 – 20 minutes
- Panel Topics and Contributors:
 - Leveraging Blockchain Technology to Revolutionize Acquisition
 - By Michael Arendt, Patrick Staresina, Kenyon Doyle and Dave Bryson, The MITRE Corporation
 - Automatic Generation of Contractual Requirements from MBSE Artifacts
 - By Alejandro Salado, Paul Wach, Virginia Tech
 - Computing without Revealing: A Cryptographic Approach to eProcurement
 - By Siva Chaduvula, Jitesh Panchal, Ashish Chaudhari and Mikhail Atallah, Purdue University

- Broaden the technology base by reaching innovators not readily available to the DoD
- Faster award of prototype project contracts
- Offer seamless transition from prototype through production
- Open to both large and small businesses
- Offer flexibility in treatment of Intellectual Property provisions
- Promote public/private collaboration
- Accept all “colors” of funding
- Allow Government program managers to maintain project control
- Progress payments made only after milestone achievement
- Project awards cannot be protested

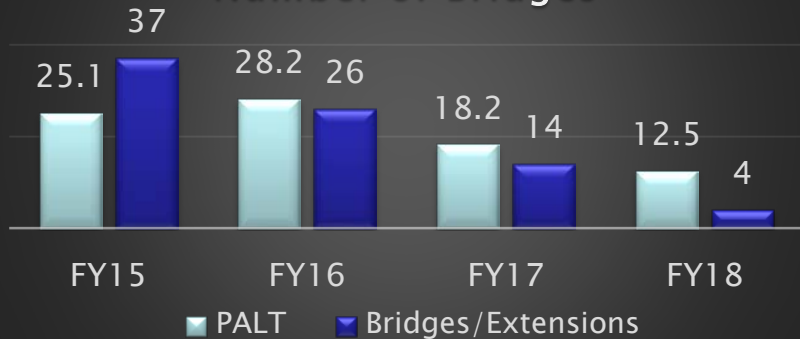


- PEO IEW&S Reduced Average Procurement Administrative Lead-Time (PALT) from Initiation of Requirement to Contract Award for their Major Procurements by 31% (18.2 months in FY17 to 12.5 months in FY18) by instituting:
 - Leading Indicators/Contract Management Review Boards used on all major procurements
 - Stakeholders Early Buy-In
 - Use of Pre-Existing Multiple Award IDIQ Contracts
 - Modified Evaluation Criteria

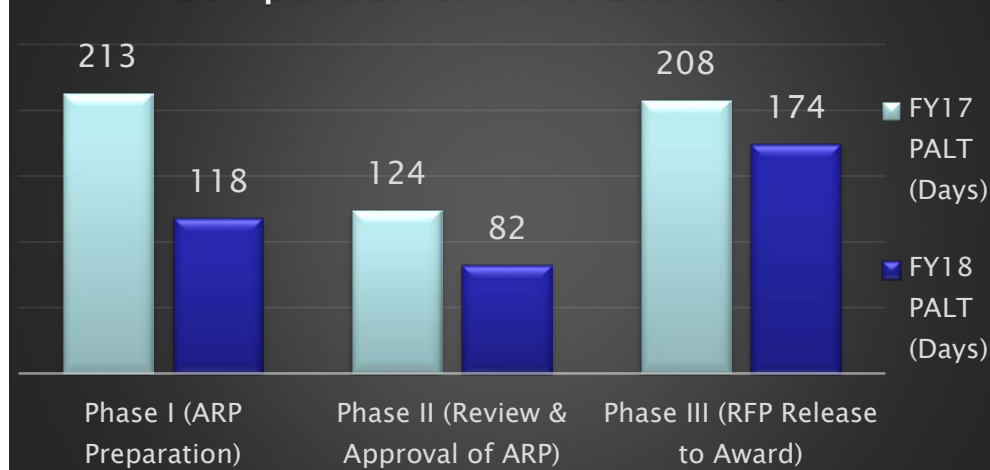
Innovative Approaches in Pre-Award Status:

- Combining Like Activities into one Program
- Increased Use of OTAs
- Tailored PWS/SOW/SSP

Comparison of PALT (Months) & Number of Bridges



Comparison of FY17 and FY18



- **Increase the Effectiveness of Planning**

- Identify the Correct Contract Type Upfront. Use Cost Reimbursement Cost-Plus-Fixed-Fee Completion type of contracts rather than Level of Effort Term.
- Identify contingency planning when getting contract strategy approved to prevent last minute solutions.
- Manage program through use of Integrated Master Schedules, Procurement Planning Management Tool and Metrics Measures.

- **Reduce Cost and PALT**

- Get tougher during negotiations.
- Use DCMA more frequently for Should Cost
- Go back to the use of Alpha Contracting/Negotiations

- Purpose: To provide insights on contractor/PMO accountability to improve acquisition and contracting efficiencies from a PEO perspective

Contractors/Industry

Methods of Monitoring

- Kick-off meetings
- Contractor Performance Assessment Reports
- Contractor Data Requirements Lists
- Data Accession List
- Leading Performance Indicators

Accountability Tools

- Letter of Concern
- Delinquency Notices
- Show Cause, Cure Notice
- Monetary/Nonmonetary considerations
- Liquidated damages






Methods of Monitoring

- Program Guidance
- Funding Decisions/Budget Reviews
- Contract Execution Reviews
- Quarterly Performance Reviews
- LPI Assessment

CONTRACTORS AND PROGRAM OFFICES ALL ENCOMPASS PERSONAL AND PROFESSIONAL ACCOUNTABILITY

- **Mission:** Deliver the Army and Joint Force Commander with a highly robust and tactically responsive suite of non-kinetic warfighting capabilities (sense, EMS, intelligence) to address threats and threat vulnerabilities enabling operational effectiveness.

- **PEO IEW&S directly aligns & supports CFTs**

-  - APNT CFT - Directly Supporting all 3 Lines of Effort – Assured Position Navigation and Timing, NAVWAR, and Space Strategy
-  - Network CFT - Directly Supporting Lines of Effort to Dominate the Cyber Electromagnetic Environment and Common Operating Environment as the Intelligence Component
-  - LRPF CFT - Long Range Fires requires Long Range sensing – TITAN support Targeting including Long Range RADAR and Multi-Domain Sensing System
-  - NGCV CFT - Directly supporting OMFV with the next generation sensors: 3rd Generation FLIR and Mounted PNT
-  - FVL CFT - Directly supporting all FVL LOEs with next generation Air for Missile Warning, Missile Defeat, and Intelligence/EW sensors



(APG, Fort Belvoir, Huntsville)

- ISR Task Force** - ISR TF - Directly supporting all ISR Task Force LOEs for ISR Machine Learning, Next Generation ISR Ground Station, and Sensors

- **Major Programs aligned to Modernization Priorities**

| | | | | |
|---|--------------------------|-------------------------------------|----------------------|---------------------------|
| <i>3rd GEN FLIR (NGCV CFT)</i> | <i>MRWR (FVL CFT)</i> | <i>DAPS (APNT, SL CFTs)</i> | <i>EWPMT (N-CFT)</i> | <i>MFEW –AL (ISR TF)</i> |
| <i>MAPS (NGCV, APNT CFTs)</i> | <i>ALTNAV (APNT CFT)</i> | <i>TITAN (APNT, LRPF CFTs)</i> | <i>MDSS (ISR TF)</i> | <i>OCO Cyber (ISR TF)</i> |
| <i>CIRCM (FVL CFT)</i> | <i>DAPS (APNT CFT)</i> | <i>Intelligence CD1/CD2 (N-CFT)</i> | <i>TLS – (N-CFT)</i> | |

Supporting ongoing operations (QRCs) and aligned with CFTs