Precision Weapons Procurement

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Agenda

Precision Weapons – An OSD Perspective

- OSD Organization
  - Strategic Guidance
- Precision Weapons
  - Defined
  - Costs / Types / Attributes
  - Programmatic Concerns
- Requirements & Acquisition Process in transition
- Joint Capability Areas
- 2007 Defense Acquisition Reform Proposal
- Final Thoughts
- Q&A’s
OSD Directorate

Precision Weapons – An OSD Perspective

Office of the Secretary of Defense

 Secretary of Defense
     Deputy Secretary of Defense

ATSD (Civil Support) - Inspector General - ATSD (Intelligence Oversight) - General Counsel

USD (Policy) - PDUSD (Policy)

ASD (International Security Affairs) - ASD (Strategy and Threat Reduction) - DUSD (Technology Security Policy)

ASD (Special Operations/Low-Intensity Conflict) - ASD (Policy Support) - Director Program Analysis & Evaluation

PDUSD (Comptroller) - Director Operational Test & Evaluation

ASD (Personnel & Readiness) - ASDF (Force Management Policy)

USD (Personnel & Readiness) - ASD (Personnel & Readiness)

ASD (Health Affairs) - ASD (Health Affairs)

DUSD (Planning) - DUSD (Planning)

ASDF (Program Integration) - ASD (Legislative Affairs)

DUSD (Readiness) - DUSD (Readiness)

ASD (Legislative Affairs) - ASD (Legislative Affairs)

ASD (Public Affairs) - Director Net Assessment

Director Net Assessment - Director Administration and Management

USD (Acquisition Technology & Logistics) - PDUSD (AT&L)

Director Defense Research & Engineering

ATSD (Nuclear & Chemical & Biological Defense Programs) - DUSD (Advanced Systems & Concepts)

DUSD (Logistics & Materiel Readiness) - DUSD (Environmental Security)

DUSD (Industrial Affairs) - DUSD (Environmental Security)

DUSD (Installation) - DUSD (Industrial Affairs)

DUSD (Acquisition Reform) - DUSD (Acquisition Reform)

Dir Small & Disadvantaged Business Utilization - DUSD (Acquisition Reform)
USD(AT&L) Strategic Guidance for 2007

**Precision Weapons – An OSD Perspective**

**The Department must:**

- Be responsive to its stakeholders, including the President, the joint warfighter, and the American taxpayer
- Provide the information and analysis necessary to make timely and well-reasoned decisions
- Undertake reforms to reduce redundancies and ensure the efficient flow of business processes

**Support to the joint warfighter is the primary basis of our effectiveness metrics—and to that end, DoD is integrating capability, analysis, and resource processes that support joint solutions.** Initiatives along these lines include:

- Common databases, analytic methods, and information sources to support decisions
- Early collaboration on investment decisions, between the joint warfighter, acquisition, sustainment, and resource communities
- Resource “break-out” along “joint capability area” lines
- Capital Budgeting for Major Acquisition Programs to increase accountability within the budget allocation process
Precision Weapon - Defined

**Precision Weapons – An OSD Perspective**

- **Precision Weapon (Merriam-Webster)**
  - Precision: The state or quality of being precise; exactness
  - Weapon: An instrument of attack or defense in combat, as a gun, missile, or sword

- Precision Weapons provide the capability of accurately and rapidly engaging (high-value) targets with reliability, from short and long stand-off distances for mission accomplishment, while at the same time minimizing collateral damage. (Defence R&D Canada)

- This article proposes that a *precision weapon* be defined as a tactical capability providing measurable and quantifiable first-order effects and minimal unintended or undesirable effects. The intent is to focus specifically on the preciseness of the effect the weapon achieves and not the precision that relates to its guidance-system accuracy. (Air & Space Power Journal – Spring 2006)
Cost of Precision Weapons

In the summer of 1944, 47 B-29’s raided the Yawata steel works from bases in China; only one plane actually hit the target area, and only with one of its bombs. This single 500 lb. general purpose bomb represented one quarter of one percent of the 376 bombs dropped over Yawata on that mission.

It took 108 B-17 bombers, crewed by 1,080 airmen, dropping 648 bombs to guarantee a 96 percent chance of getting just two hits inside a 400 x 500 ft. German power-generation plant.

In contrast, in the Gulf War, a single strike aircraft with one or two crewmen, dropping two laser-guided bombs, could achieve the same results with essentially a 100 percent expectation of hitting the target, short of a material failure of the bombs themselves.
Types of Precision Weapons

- Bullets
- Magnetic
- Pressure
- Acoustic & Seismic
- Wire-Guided
- Electro-optic
- Infrared
- Laser Guided
- RF Guided
- Home on RF Energy
- RF Controlled
- Internal Navigation System
- Terrain Contour Matching (TERCOM) radar guidance
- Digital Scene Matching Area Correlation (DSMAC)

- Global Positioning System
- Scene matching
- Directed Energy
- Enhanced Sensor Technology
- New / Next Generation?
Precision Weapon System Attributes

*Precision Weapons – An OSD Perspective*

- **Increases / Improves**
  - Accuracy
  - Efficiency
  - Standoff
  - Response time
  - Accessibility
  - Reliability (neutralize target)
  - All weather capability
  - Persistence

- **Reduces**
  - Collateral Damage
  - Footprint
  - Logistics chain
  - Training requirement
  - Redundancy
  - Launch sites / platforms
  - Manpower
  - Firepower required
  - Risk to friendly / attacking forces
  - Costs

Army Tactical Missile System
Precision Weapon System Attributes

- Potential Improvements
  - Multiple mission flexibility
  - Warhead / fuze sensitivity
  - Data transfer / update
  - Speed of decision / delivery
  - Battle Damage Assessment
  - Affordability (weapon vs. platform/system)
  - Weapon speed, range & penetration
  - Loiter
  - Moving target capability
  - Command & Control
  - Interoperability
  - Non-kinetic options
  - Intel Collection / Dissemination

Small Diameter Bomb
Precision Weapons Attack Portfolio

Precision Weapons – An OSD Perspective

- Large Portfolio
- Army, Navy, Marine Corps & Air Force
- Air-, ground-, and sea-launched
- Precision capability (INS/GPS, seekers, etc)
- Direct attack to long range standoff
- Prosecute fixed, relocateable, and moving targets
DoD Cross-Weapon Programmatic Issues

**Precision Weapons – An OSD Perspective**

- GPS upgrades
- Selective Availability Anti-Spoofing Module (SAASM)
- Fuzes
- Anti-tamper
- Sustainment and logistics; identification tags
- Insensitive Munitions (IM)
- Variable warhead/energetics
- Battlespace awareness
- Munitions Requirements Process

- Thermal batteries
- Unexploded ordnance
- Weapons data-links
- Targeting; Battle Damage Assessment (BDA)
- Weapons Operational Test Assessments
- Universal Armament Interface (UAI)
- Test and training ranges
- Industrial base/production strategies
What We Need to Do Better?

**Precision Weapons – An OSD Perspective**

### Requirements
- Adapting to changing conditions
- Matching operational needs with systems solutions
- Overcoming biases/stovepipes
- Moving to transform military

### Acquisition
- Acquiring systems-of-systems
- Making system decisions in a joint, mission context
- Transitioning technology
- Assessing complexity of new work and ability to perform it
- Controlling schedule and cost
- Passing operational tests
- Ensuring a robust industrial base

### Budget/Resources
- Laying analytical foundation for budget
- Aligning budgets with acquisition decisions

### Sustainment
- Controlling Operations & Support costs
- Reducing logistics tails
DOD Requirement to Production Process

Precision Weapons – An OSD Perspective

- Strategic Planning Guidance
- Defense Planning Scenarios
- Family of Concepts
- Transformation

Capabilities Based Assessment

- Capabilities
- Tasks
- Attributes
- Metrics
- Gaps
- Shortfalls
- Redundancies
- Risk areas
- Non-material solutions
- Materiel solutions
- S&T initiatives
- Experimentation

Refined concept
- Analysis of Alternatives
- Technology Development Strategy

Affordable military-useful increment
- Technology demonstrated
- Initial KPPs
- DT&E

Revise KPPs
- Detailed design
- System integration
- IOT&E

Select a Joint Integrating Concept

Develop Concept

Functional Area Analysis

Function Needs Analysis

Functional Solutions Analysis

ICD

Analysis of Alternatives

Technology Development

CDD

System Development

CPD

Production

Evolutionary or Spiral Development

COCOMs, Services

CJCS, Services

Overseas COCOMs

FEDS

CJCS

OSS

OSD

OSD (PA&E)

OSD (AT&L)

CJCS

OSD

USMC

Navy

Air Force

Army

ICD

OSD (AT&L)-Led Roadmaps

2016

2018

2020

2022

2024

2026

Concept Refinement

Acquisition and Test

Policy Requirements

JS/OSD/Services

OSD (AT&L, PA&E), Services and OSD (DOT&E) → Joint Staff (JROC)

* Per DoDI 5000 and CJCSI 3170
Weapon Review Process Flow

Precision Weapons – An OSD Perspective

IDA Attributes/Metrics

Munitions Database

J-8 Analysis Tool

Conventional Engagement Capability Roadmap

Service Weapon System Roadmaps

Service Capability Roadmaps

Precision Engagement Architecture

I IPT
Continue to Review Capability Concerns (key weapons, gaps, and redundancies) and Cross-Weapon Programmatic Issues

Force Application
Functional Capabilities
Board Working Group
1st order functional needs assessment and recommendations

IIPT

OIPT

DAB

ADM Tasking

PPBES

Strategic Programming Guidance

Mid-level Review (as required)

Resource Allocation Decisions

Budget
Acquisition
Requirements
Customer Driven Enterprise

Precision Weapons – An OSD Perspective

Supply Driven → Market Driven

Available Capability

Desired Capability

Maximize warfighting effectiveness through TJS and OSD synergy
Joint Capabilities Integration and Development System (JCIDS)

Precision Weapons – An OSD Perspective

JCIDS AND DEFENSE ACQUISITION

DoD Strategic Guidance

Joint Operating Concepts
Joint Functional Concepts
Joint Integrating Concepts
Integrated Architectures

ICD – Initial Capabilities Document
CDD – Capability Development Document
CPD – Capability Production Document
AoA – Analysis of Alternatives

JCIDS Analysis

ICD

Concept Decision

MS-A

REFINE ANALYSIS

CDD

MS-B

REFINE ANALYSIS

CPD

MS-C

JROC

DAB/ITAB

DAB/ITAB

DAB/ITAB

DAB/ITAB

IOC

JROC – Joint Requirements Oversight Council
DAB – Defense Acquisition Board
ITAB – Information Technology Acquisition Board
Defense Acquisition Management Framework

**Precision Weapons – An OSD Perspective**

- Process entry at Milestone A, B or C
- Entrance criteria meet before entering phase
- Evolutionary Acquisition or Single Step to Full Capability
Joint Capability Areas (JCAs) – Tier 1

Precision Weapons – An OSD Perspective

- Joint Force Generation
- Joint Force Management
- Joint Battlespace Awareness
- Joint Command and Control
- Joint Net-Centric Operations
- Joint Public Affairs Coordination
- Joint Interagency / ICO / NGO Coordination
- Joint Protection
- Joint Logistics
- Defense Support of Civil Authorities
- Joint Homeland Defense
- Joint Global Deterrence
- Joint Shaping
- Joint Stability Operations
- Joint Information Operations
- Joint Access & Access Denial Ops
- Joint Special Operations & Irregular Operations
- Joint Land Operations
- Joint Maritime / Littoral Operations
- Joint Air Operations
- Joint Space Operations
# New Top Level JCAs & Definitions

## Precision Weapons – An OSD Perspective

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Force Application</td>
<td>The ability to maneuver and engage the enemy to create the effects necessary to achieve mission objectives.</td>
</tr>
<tr>
<td>Influence</td>
<td>The ability to shape the decisions, actions, and/or perceptions of key foreign leaders &amp; populations by delivering thematic messages &amp; conducting activities to advance the interests of the USG and its key partners, while strengthening key U.S. international relationships.</td>
</tr>
<tr>
<td>Command &amp; Control</td>
<td>The ability to exercise authority and direct by a properly designated commander over assigned and attached forces in the accomplishment of the mission.</td>
</tr>
<tr>
<td>Net-centric</td>
<td>The ability to exploit all human and technical elements of the joint force and its mission partners by fully integrating collected information, awareness, knowledge, experience, and decision making, enabled by secure access and distribution.</td>
</tr>
<tr>
<td>Battlespace Awareness</td>
<td>The ability to develop and share situational awareness and to produce intelligence through persistent and pervasive observation of all domains.</td>
</tr>
<tr>
<td>Protection</td>
<td>The ability to prevent/mitigate adverse effects of attacks on personnel (combatant/non-combatant) and physical assets of the United States, allies and friends.</td>
</tr>
<tr>
<td>Logistics</td>
<td>The ability to project &amp; sustain the operational readiness of the joint force through deliberate sharing of National and multi-national resources to support operations, extend operational reach and provide the joint force commander freedom of action necessary to meet mission objectives.</td>
</tr>
<tr>
<td>Force Support</td>
<td>The ability to maintain personnel readiness, establish and field mission ready joint organizations, and provide, operate, and maintain capable installation assets across the total force to ensure needed capabilities are available to enable the National Defense Strategy.</td>
</tr>
<tr>
<td>Corporate Mgmt &amp; Support</td>
<td>The ability to govern and administer the Department’s activities which establish strategic direction and provide common support to force employers, managers and developers.</td>
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JCA Decomposition - Team Effort

Precision Weapons – An OSD Perspective

**Criteria**
- Functionally decomposed
- 100% of DOD capabilities
- Uniform decomposition
- Maximize mutual exclusivity

Joint Staff J-7
To lead
JCA Decomposition
Down to appropriate level

IRG ACP task 3.1.2:
Use Top-Level JCAs for
Capability Portfolios,
establish business rules
for binning resources

Capability based approach to manage risk, conduct trades and better enable strategic choice across the enterprise.
Defense Acquisition Reform Act 2007

Precision Weapons – An OSD Perspective

- Senator McCain: “despite the lessons of the past, the acquisition process continues to be dysfunctional”
- Submitted to the Senate Armed Services Committee
  - Expand membership of the Joint Requirement Oversight Council (JROC)
    - Undersecretary of Defense for Acquisition, Technology & Logistics, and Undersecretary of Defense (Comptroller)
    - Include Director of Program Analysis & Evaluation as an advisor
  - Forbids Service Secretaries from reprogramming funds into Major Defense Acquisition Programs (MDAPs) without JROC assessment
  - Comptroller General to establish a new Office of Independent Assessment (cost estimates & new MDAP milestone system)
Final Thoughts

Precision Weapons – An OSD Perspective

- Precision Strike isn’t platform dependent
  - Aircraft, Helicopter, UAS, ship, submarine, tank & artillery, etc..
- Precision Strike isn’t launch environment dependent
  - Air, surface(dry/wet) or subsurface
- Must complete detailed capability assessment
  - Collateral Damage, Guidance, Networked, Environment, Flight Out Profile, Countermeasures, Operational Flexibility, Responsiveness, Maximum Effective Range, Employment Means, Internal Carriage, Single Shot Probability of Kill (SSpk)
- Need more options
  - Fuzing, seeker, sensing, range, variable speed, loiter, size, multi-service command & control, multi-environment capable, damage assessment
- JCIDS process, JCA developments & 2007 Defense Acquisition Reform proposal are progressive and necessary
  - Must become more Joint / Combatant Commander centric and less Service focused
Questions?

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Unified Combatant Commands

Secretary of Defense
  Deputy Secretary of Defense

Central Command
  Southern Command

European Command
  Special Operations Command

Pacific Command
  Strategic Command

Joint Forces Command
  Space Command

Transportation Command