Weapons Capability Portfolio

Chuck Kelly
OUSD(AT&L)
Land Warfare & Munitions
10 June 2008

OUSD(AT&L)/A&T/PSA/LW&M
Room 5C756
3090 Defense Pentagon
Washington, DC 20301-3090

(703) 695-1772
DSN 225-1772
charles.kelly@osd.mil
What’s In the Portfolio?

- Highly Precise Munitions
- Not so Precise Munitions
- “Volume Fire” Munitions
Assessing the Portfolio
Agenda

- AT&L Perspective
- Budget Trends
- Assessing the Portfolio
  - Proficiency
  - Sufficiency
- Road Ahead
**USD (AT&L) Strategic Thrusts**

**Strategic Thrust 1** – Define Effective and Affordable Tools for the Joint Warfighter

**Strategic Thrust 2** – Responsibly Spend Every Single Tax Dollar

**Strategic Thrust 3** – Take care of our people

**Strategic Thrust 4** – DoD Transformation Priorities

**Warfighter is #1 Focus** – Need to Understand Operational Concepts & Needs to:
• Guide Technology
• Design Effective Systems
• Provide Logistics and Facility Support
Strategic Thrust 1

• Outcomes
  – New programs are born joint, interoperable, and affordable

  – Opportunities are constantly identified to deliver greater enterprise efficiencies

  – Roadmaps guide development and integration of programs in portfolio areas

  – Cost to the Defense Enterprise is continuously reduced
• Initiate a Joint Weapons JAT and develop Joint Weapons Roadmap Version 1.0 focused on weapons capability investment strategies beyond POM10.

• Initiate an Electronic Warfare JAT … focus coordinating EW investment options for POM 10.

• Initiate Directed Energy JAT and deliver Roadmap Version 1.0.
Budget Trends
Figure 3-1 Updated

Funding for Investment, by Budget Account and Weapon Type

(Billions of 2008 Dollars of Total Obligational Authority)
FY 2009
Strategic Modernization Breakdown

Total Budget $183.8B
DoD Munitions RDT&E and Procurement

Desert Storm Buy-Back

OIF and OEF Buy-Back

Total DoD Munitions Procurement

Total DoD Munitions RDT&E

FISCAL YEAR
Smart Munitions vs. Other Munitions
Procurement Trend

General Purpose Bombs

GPS Guided Munitions

Fiscal Year

FY08 $M CONSTANT
Move to Precision

- **AIR**
  - Dumb bombs to smart bombs
  - Unguided rockets to guided rockets
  - Single mode seekers to multi-mode seekers

- **Ground**
  - Ballistic artillery to guided artillery
  - Unguided rockets to guided rockets
  - Precision mortars

- **Maritime**
  - Unguided surface fires to guided fires

What / How Much Do We Buy?
Two Munitions Processes

Proficiency

“WHAT DO WE BUY?”

JCIDS

3170.1C

Capability Based

Sufficiency

“HOW MUCH OF EACH DO WE BUY?”

Driver

PPBES

Implementing Doc

Basis

Sufficiency

”Threat Based

Driver

PPBES

Implementing Doc

Basis

Threat Based
Proficiency Factors

- Targets Effects Desired
- Threat Environment
- Domain Requirements
- Target Environment
IDENTIFY TARGETS

SMALLER YET COMPREHENSIVE LIST TO ASSESS GAPS
Traditional Target Vulnerabilities

Desired Effects:
- Blast
- Frag
- Crater
- Structure
Non-Traditional Target Effects

- Non-Kinetic – I/O & EW
- Non-Lethal

Layered Capabilities & Confidence Factor?

<table>
<thead>
<tr>
<th>CP Tasks</th>
<th>CM Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Deny Access Into/Out of an Area to Individuals</td>
<td>- Stop Vehicle</td>
</tr>
<tr>
<td>- Move Individuals Through an Area</td>
<td>- Disable Vehicle</td>
</tr>
<tr>
<td>- Disable Individuals</td>
<td>- Stop Vessel</td>
</tr>
<tr>
<td>- Suppress Individuals</td>
<td>- Disable Vessel</td>
</tr>
<tr>
<td></td>
<td>- Stop Fixed-Wing Aircraft on the Ground</td>
</tr>
<tr>
<td></td>
<td>- Disable Aircraft on the Ground</td>
</tr>
<tr>
<td></td>
<td>- Divert Aircraft in the Air</td>
</tr>
<tr>
<td></td>
<td>- Deny Access to Facility</td>
</tr>
</tbody>
</table>
Threat Environment

Direct Attack

In Close

Outside Point Defense

Outside Area Defense

Outside Theater Defense

LOS  BLOS
Domain Requirements

- **Air**
  - Bomber
  - TacAir
  - Helo
- **Ground**
  - Direct Fire
  - Indirect Fire
- **Maritime**
  - Surface
  - Subsurface
- **Cyber??**
Target Environment

- Enemies
- Friendlies
- Non Combatants
- Infrastructure
  - Power
  - Water
  - Transportation
  - Hospitals
- Effects – Desired / Undesired
Target Environment

SDB-FLM

MK-82-FLM

Low Collateral & MK-82

Practice Bombs

Dial A Yield

How Do We Capture Needs / Desires?
Weapon Attributes

Capabilities

Attributes

Metrics

Effective

Collateral Damage

Human Damage Radius

Guidance Robustness

IM

Lingering Effects

SSPK

Suppressive Effects

Persistent

Time On Station

Responsive

Operational Flex

Range

Employment

Weapon

Engage Target X

Responsive Guidance

Robustness

Time On Station

Environment Ability

Operational Flex

Weapon

Effective

Survivable

Agile

Suppressive Effects

Collateral Damage

Lingering Effects

Effective Collateral Damage

Survivable Agile

Responsive

Operational Flex

Weapon
Measures of Effectiveness

Capabilities

Attributes

Effective  Collateral Damage  Persistence  Agile  Survivable

Metrics

MOEs

Day  Day/Night  Through Wx  Adverse Wx

Direct Attack  SO In-Close  SOPD  SOAD  SOTD
Domains

FA1 Forces in Contact  FA2 Land Forces Freedom of Maneuver  FA3 Air Forces Freedom of Maneuver  FA4 Independent of Maneuver
Capability - Environment
Sufficiency
DoD Munitions Requirements Process

- Combat Requirement
- Strategic Readiness Requirement
- Current Operations/Forward Presence Requirement
- Test & Training Requirement

Threat Report
- Maneuver Forces
- Air
- Maritime
- IADS
- Infrastructure
- Strategic

Phased Threat Distribution
- Allies
- SOCOM
- USMC (Air & Ground)
- USA
- USN
- USAF
  - Phase I: \( w \% \)
  - Phase II: \( x \% \)
  - Phase III: \( y \% \)
  - Phase IV: \( z \% \)

Total Munitions Requirement
- Combat Requirement
- Strategic Readiness Requirement
- Current Operations/Forward Presence Requirement
- Test & Training Requirement

Service Processes
- NNOR
- NCAA
- QWARRM

Services
Force Planning Construct – 2006 QDR

Diagram showing the Force Planning Construct with layers for Steady State and Surge, focusing on Homeland Defense, War on Terror / Irregular Warfare, and Conventional Campaign(s), with specific actions and strategies outlined for each layer.
Danger
Road Ahead – The Challenges

• Build & Update Roadmaps
  – Weapons
  – Directed Energy
  – Electronic Warfare
  – Non Lethal Weapons

• Improve Munitions Requirements Process
  – Incorporate Increased Transparency, Visibility, and Collaboration into DoD Instruction 3000.4 (MRP)
  – Ensure Credible Guidance (Policy and Joint Staff Collaboration)

• Maintain Visibility into Munitions Budgets
  – Address Priority Capabilities
    • Identify Gaps
    • Identify Redundancies
  – Address Capability “Balance” (Across Sensors, Platforms, & Munitions)
Questions?
Hard Target Fuzing Challenges

Need to address HT related M&S, material properties, & testing

**Issues:**

- Harder Targets
- Weapon Response & Survivability
- Material Properties
  - Filler & Explosives

Fuze Well from Characterization Tests
Need for MRP

– Provides the foundation for credible Service inventory numbers.
  • Near Year requirement provides sanity check for stockpile positioning
  • Out Year requirement “sets the bar” for inventory build
    – Requirement is the driver for weapon purchases in FYDP
    – Requirement is the driver for establishing new weapon system acquisition programs
– Ensures the equities of all participants are addressed, i.e. CoCOMs, Joint Staff, Services, and OSD.
– Prevents multiple requirements from being generated, i.e. a separate CoCOM and Service munitions requirement (ensures BOTH requirements will be discredited).
FA Assessment—Scoping

- No Joint Fires ⇒ Engagement - Kinetic – Lethal – EFFECTS

- Integrated Systems - Required
  - F2T2EA Chain

Need all 3 to engage—Following assessment is scoped to weapon only
Cost-Benefit Analysis
Questions/Comments????
DoD MRP Products

- Combat Requirement (CR)
- Current Operation/Forward Presence Requirement (CO/FPR)
- Strategic Readiness Requirement (SRR)
- War Reserve Munitions Requirement (WRMR)
- Training & Testing Requirement (TTR)
- Total Munitions Requirement (TMR)
**Effective** – Able to precisely generate desired effects through a variety of kinetic and non-kinetic means in all environments.

**Discriminating** – Able to limit collateral damage and second order consequences of engagement.

**Agile** – Able to rapidly maneuver forces throughout all domains of the battlespace in all environments.

**Survivability** – Able to effectively maneuver and engage in a dynamic and uncertain threat environment.

**Persistent** – Able to apply the necessary force continuously and sustain those operations as required to meet mission objectives.
Terminology - Mission Context

- Fires in Support of Forces In Contact
- Fires to Enable Freedom of Ground Maneuver
- Fires to Enable Freedom of Air Maneuver
- Offensive Fires (Fires Independent of Maneuver/Contact)
Smart Munitions vs. Other Munitions
Procurement Trend
Past and Projected Resources for Defense

(Billions of 2007 dollars)

Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program; OMB = Office of Management and Budget.
Past and Projected Resources for Investment

(Billions of 2007 dollars)

Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.