



Munitions Executive Summit

OSD Perspective

February 8, 2006

Anthony J. Melita

OUSD (Acquisition, Technology & Logistics)

Deputy Director, Defense Systems,

Land Warfare and Munitions

Discussion Topics

- OSD / AT&L Organization
- QDR, DoD Business Processes
- Budget Trends
- Munitions Interest Areas
 - Industrial Policy
 - DOTC and Joint Munitions Program
 - Modeling & Simulation
 - Insensitive Munitions
 - Fuzing Technology
 - Low Collateral Damage

Office of the Secretary of Defense

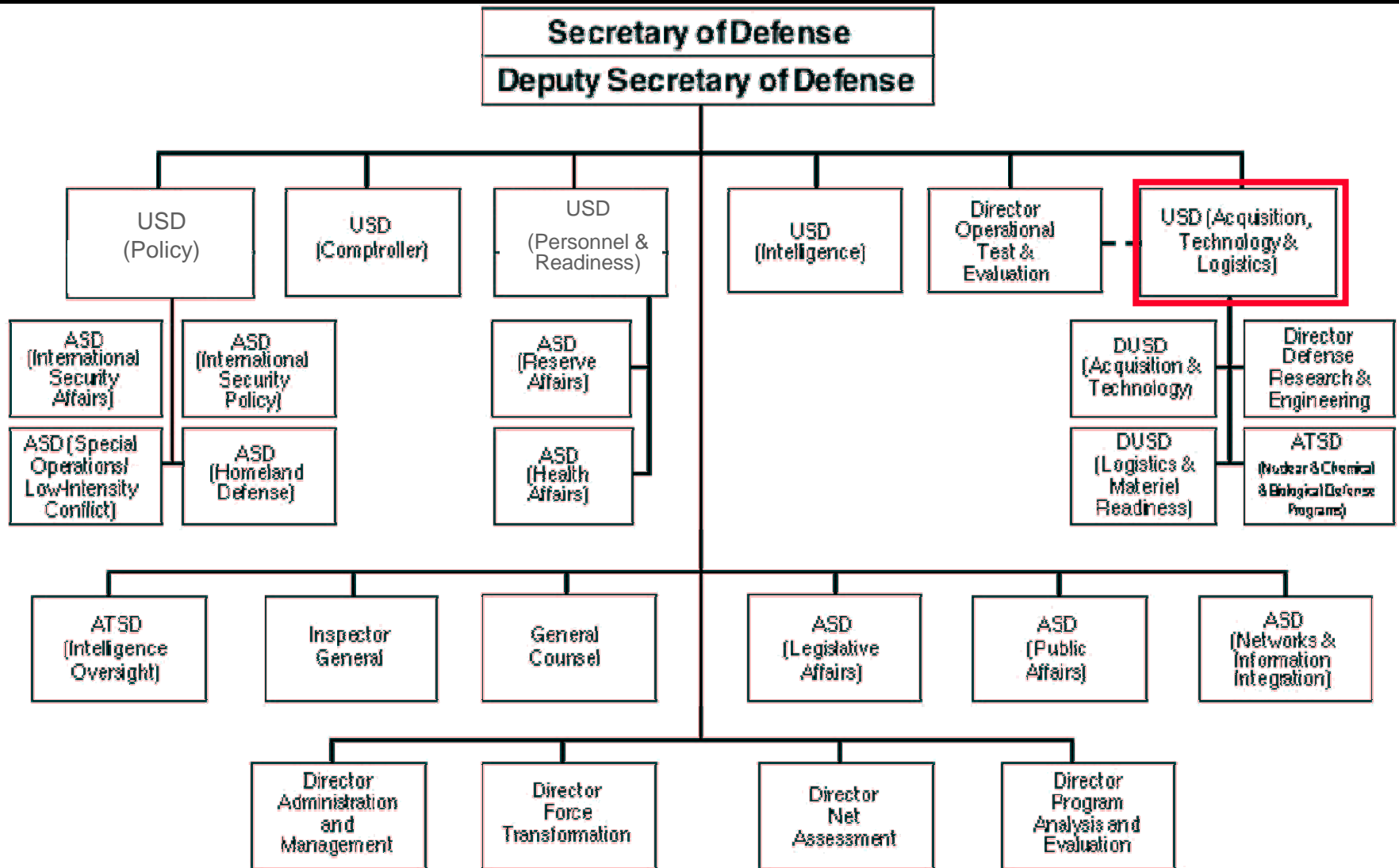


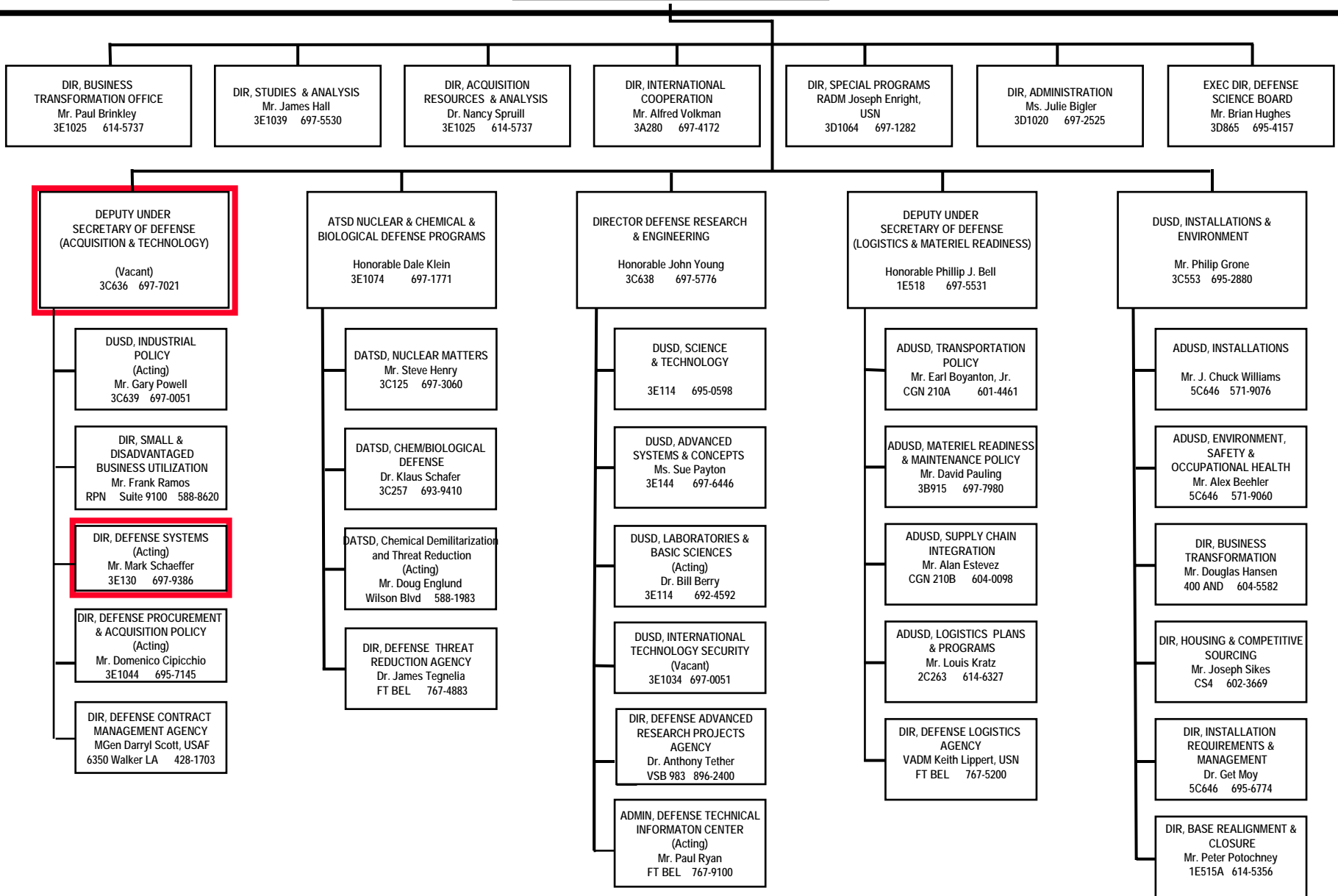
Chart reflects PAS officials and those reporting directly to the Secretary and Deputy Secretary of Defense



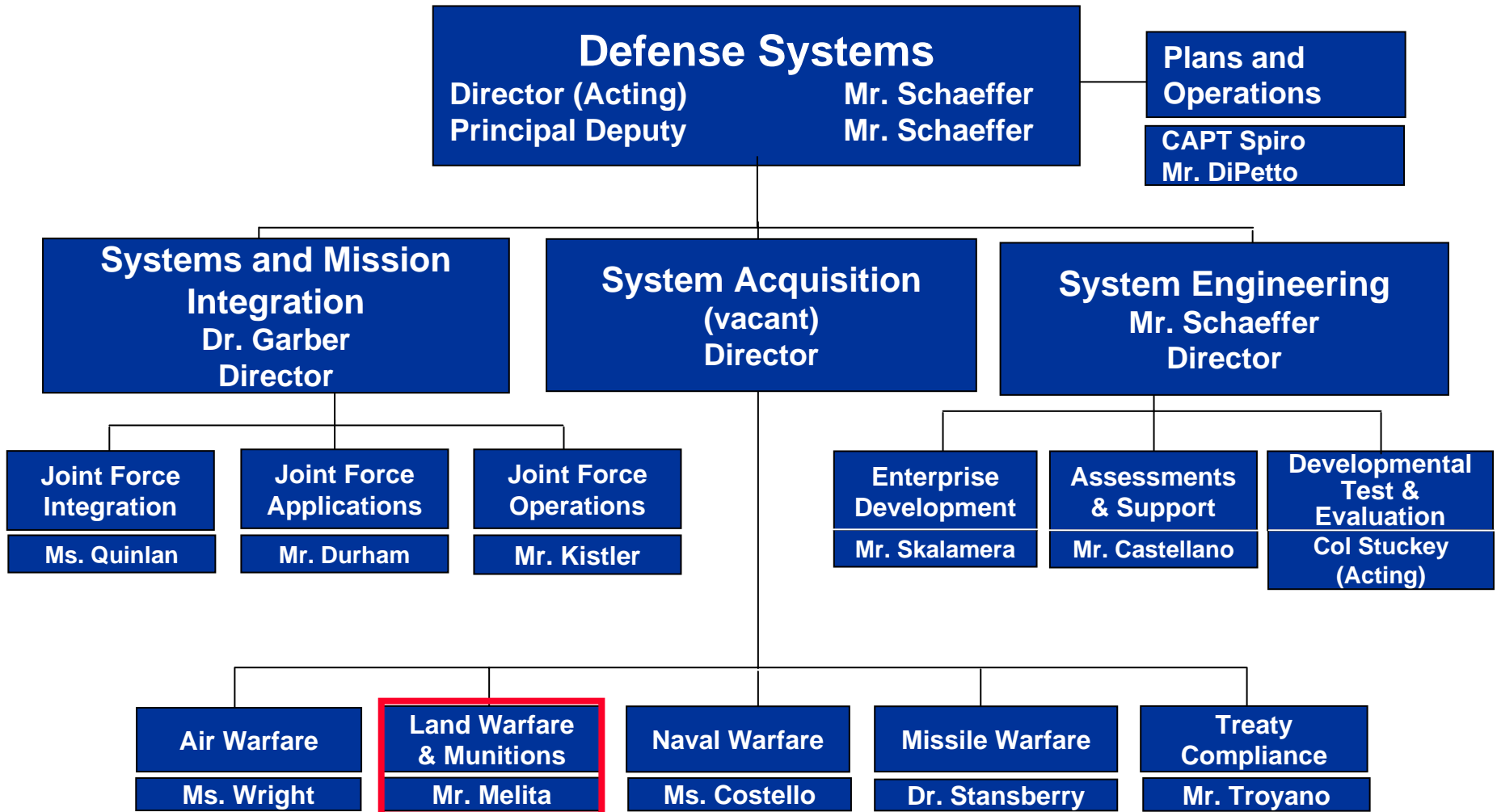
UNDER SECRETARY OF DEFENSE
(ACQUISITION, TECHNOLOGY AND LOGISTICS)
Honorable Kenneth J. Krieg
697-7021 3E673

August 25, 2005

PRINCIPAL DEPUTY
(Vacant)
697-7021 3C636



Defense Systems Organization



USD (AT&L) Goals

Goal 1 - High Performing, Agile and Ethical Workforce

Goal 2 - Strategic and Tactical Acquisition Excellence

Goal 3 - Focused Technology to Meet Warfighting Needs

Goal 4 - Cost-effective Joint Logistics Support for the Warfighter

Goal 5 - Reliable and Cost-effective Industrial Capabilities
Sufficient to Meet Strategic Objectives

Goal 6 - Improved Governance and Decision Processes

Performance Management Hierarchy

- **Goal**

(Azimuth to guide the organization's broad collective efforts, Lead individual and Support Organizations Identified for each)

- **Outcome**

(What's desired and required to support reaching each goal, may be several outcomes underpinning each goal)

- **Objective**

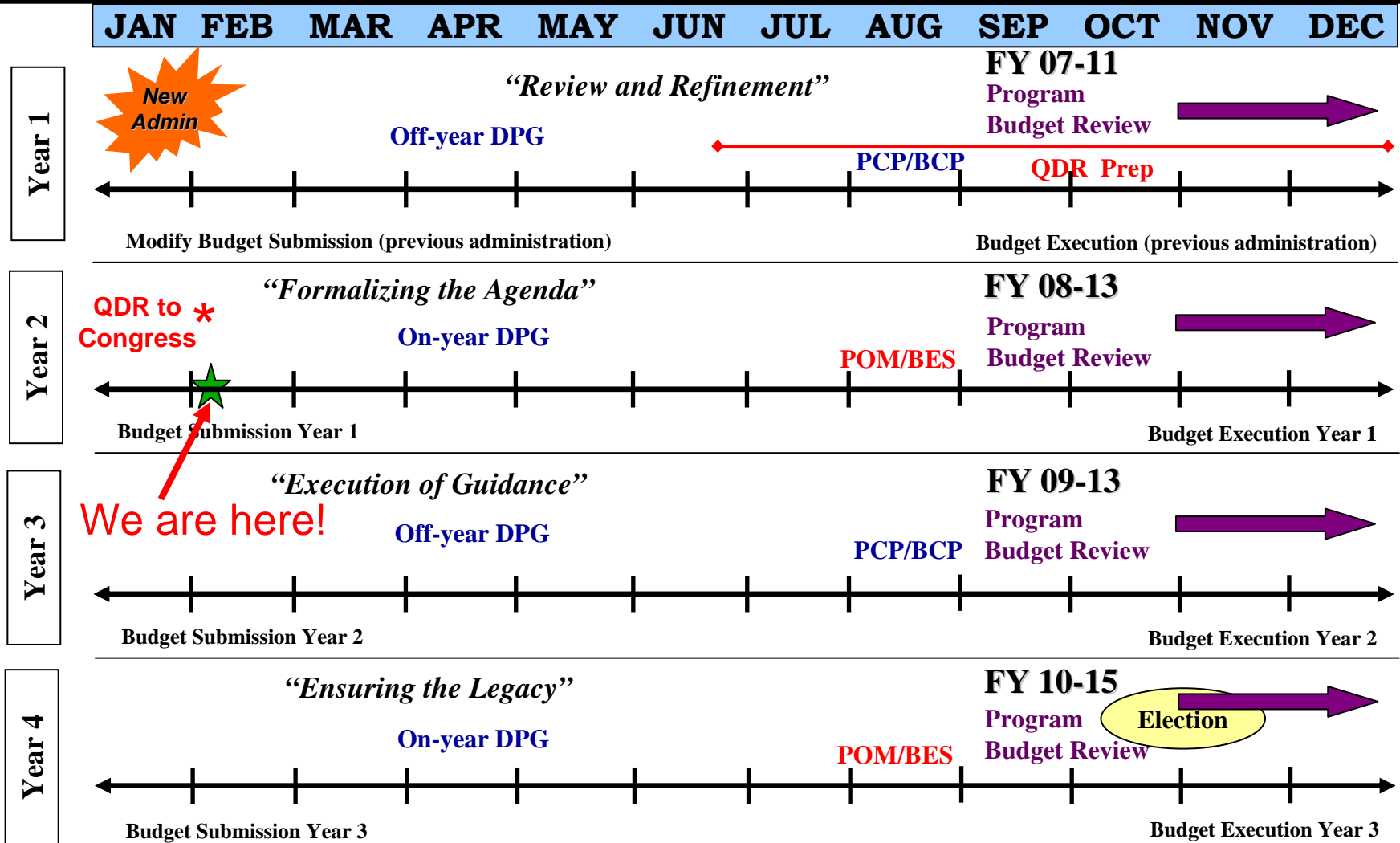
(The “how” of attaining an outcome, measurable with quantifiable metrics, assigned to a responsible and accountable individual, part of their performance plan)

- **Supporting Objective**

(As required to provide sufficient detail)

Quadrennial Defense Review and DoD Business Processes

Planning, Programming, Budgeting, and Execution



4 Administration Years with 2-year PPBE Cycle

2005 Quadrennial Defense Review

- ❑ 20 year look – must prevail in current war and also prepare for wider range of challenges**

- ❑ Twin imperatives of review:**
 - Continue reorientation of capabilities to address asymmetric challenges (more irregular, catastrophic and disruptive in character)...
 - ...while changing the Defense enterprise to support and accelerate that reorientation

Fighting a Long War – Lessons Learned

- ❑ **Capitalized on lessons learned from operational experiences of the past 4 yrs: OIF/OEF; humanitarian responses; Katrina**

- ❑ **Key lessons from these operations informed QDR – importance of:**
 - Building partnership capacity (a more indirect approach to defeat enemy);
 - Early preventive measures;
 - Maintaining and expanding US freedom of action to confront enemies; and
 - Cost-imposing strategies (competitive strategies)

**Continuous change and assessment...inherently interim report
FY07 leading edge investments; FY08-13 Defense Program; Roadmaps**

Security Environment: 4 Challenges

Irregular

- ❑ Unconventional methods adopted by non-state and state actors to counter stronger state opponents.
- ❑ (e.g., terrorism, insurgency, civil war, and emerging concepts like “unrestricted warfare”)

Catastrophic

- ❑ Surreptitious acquisition, possession, and possible employment of WMD or methods producing WMD-like effects against vulnerable, high-profile targets by terrorists and rogue states. (*paralyze our power*)
- ❑ (e.g., homeland missile attack, proliferation from a state to a non-state actor, devastating WMD attack on ally)

Traditional

- ❑ Military capabilities and military forces in long-established, well-known forms of military competition and conflict.
- ❑ (e.g., conventional air, sea, land forces, and nuclear forces of established nuclear powers)

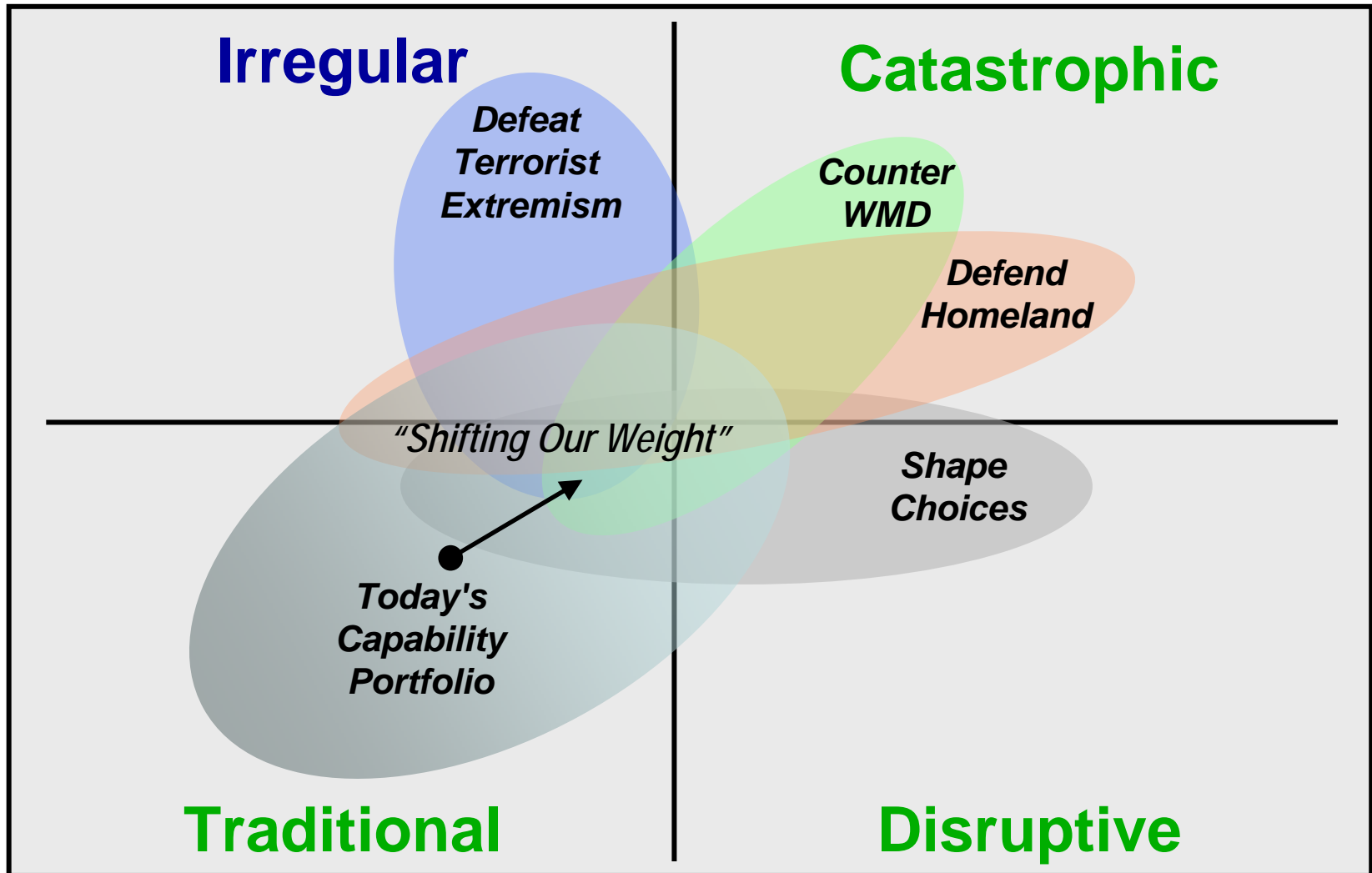
Disruptive

- ❑ International competitors developing and possessing breakthrough technological capabilities intended to supplant U.S. advantages in particular operational domains. (*marginalize our power*)
- ❑ (e.g., sensors, information, bio or cyber war, ultra miniaturization, space, directed-energy, etc)

LIKELIHOOD

Capabilities-based planning should balance risk across challenges

Re-balancing Future Force Capabilities



Continuing the reorientation of military capabilities and implementing enterprise-wide reforms to ensure structures and process support the President and the warfighter

2005 QDR Highlights

- U.S. must continue to adjust to uncertainty and to asymmetric challenges
- We must continue the shift away from size, predictability, and mass toward agility, speed, precision and lethality
- The Global War on Terror requires the U.S. military to adopt unconventional and indirect approaches; we must be prepared to wage this war in many areas around the world for many years to come
- Investments the country has made in conventional forces have created a military without peer in the world; we must continue to organize, train, and equip forces capable of preventing, deterring, or defeating conventional forces of nation-states
- DoD will continue to improve jointness and connectivity within and between the services to provide commanders with the greatest possible number of options

Re-shaping the Defense Enterprise

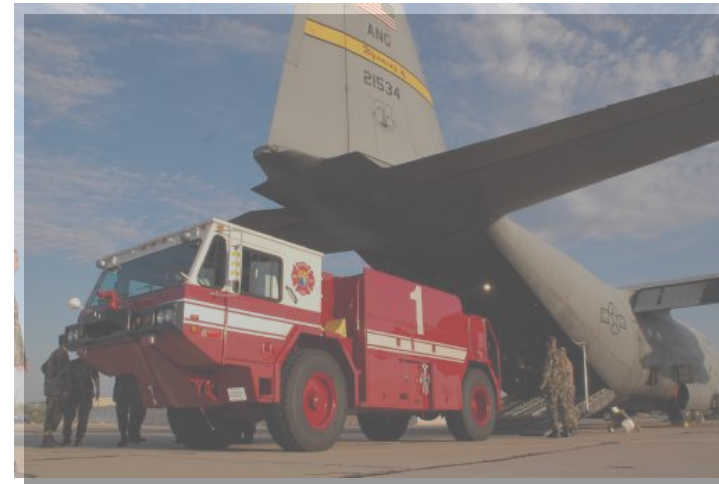
The Department's business practices and processes need to be responsive, agile and flexible to efficiently and effectively meet joint warfighting needs.

- **Current state**

- Decision making processes lack speed, integration and appropriate focus
- Can't rationally allocate resources to capabilities to missions
- Seams among DoD Components and other agencies must be bridged

- **We will manage the future enterprise better by**

- Aligning Department activities through horizontal integration; promote and reward collaboration
- Engaging in a coordinated and portfolio-based approach to planning, programming, and budgeting
- Reforms at three levels: governance, management, and execution
- Governance: strategic direction, identity, acquisition & resource allocation, corporate decision-making, performance assessment, and force employment



Acquisition Decision Support Systems In Transformation

CJCS 3170.01E
11 May 05



**Joint Capabilities
Integration &
Development
System (JCIDS)**
*VCJCS/Service
Chief Oversight*

MID 913 PPBS to PPBE
22 May 03



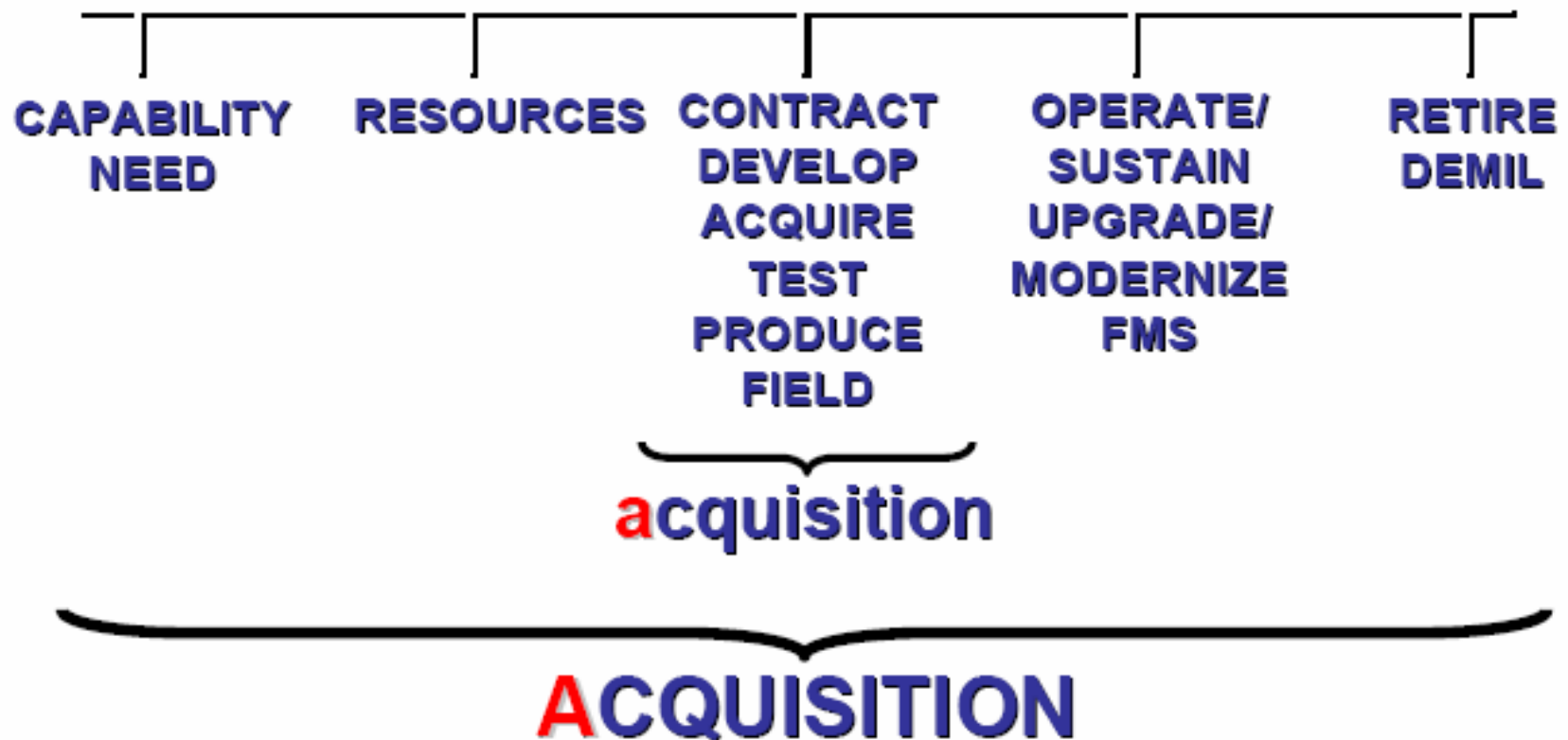
**Defense
Acquisition
System**
*Milestone Decision
Authority (MDA)
Oversight*

**Planning, Programming,
Budgeting & Execution
Process (PPBE)**
*DEPSECDEF
Oversight*

DoD 5000 Series
12 May 03 Revision



The Process: Big A, Little a



Defense Acquisition Performance Assessment Project

Major Findings – December 2005

- Strategic technology exploitation is a key U.S. advantage
- The world has changed
 - fewer prime contractors
 - fewer new starts
 - lower production rates
 - need to be agile
- The acquisition system must deal with external instability, a changing security environment and challenging national issues
- DoD management model based on lack of trust - oversight is preferred to accountability
- Oversight is complex, it is program focused - not process focused
- Complex acquisition processes do not promote success – they increase cost and schedule
- DoD elects short term savings and flexibility at the expense of long term cost increases

Defense Acquisition Performance Assessment Project Recommendations – December 2005

- Organization -- Realign authority, accountability and responsibility at the appropriate level and streamline the acquisition oversight process.
- Workforce -- Rebuild and value the acquisition workforce and incentivize leadership.
- Budget -- Transform the budgeting process and establish a distinct Acquisition Stabilization Account to add oversight throughout the process.
- Requirements Process -- Replace JCIDS with COCOM-led requirements procedures in Services, and DoD agencies must compete to provide solutions.

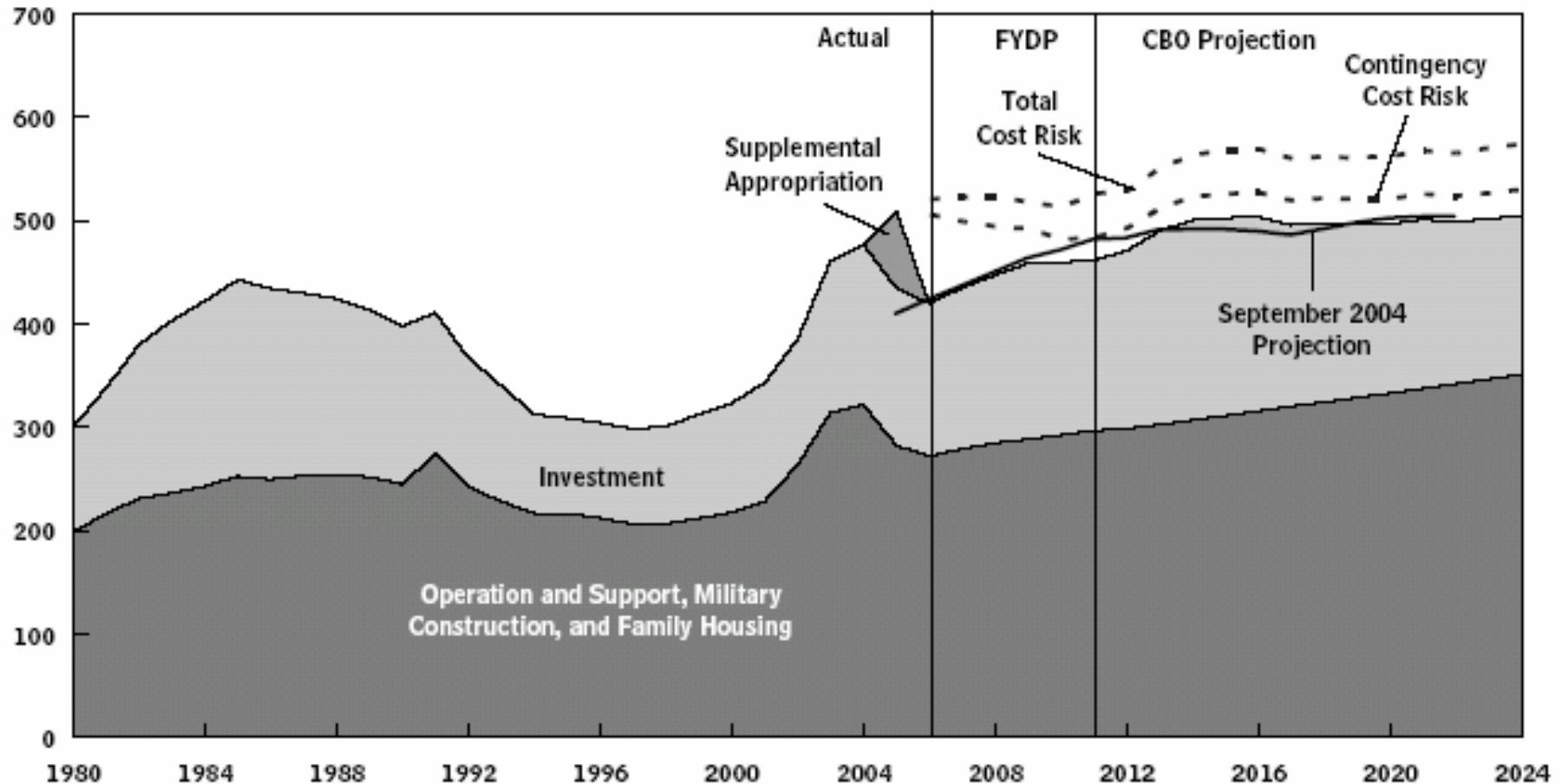
Defense Acquisition Performance Assessment Project Recommendations – December 2005 (continued)

- Management and Operational Test -- Add an “operationally acceptable” test evaluation category. Give program managers explicit authority to defer requirements.
- Acquisition Strategy -- Shift to time-certain development procedures. Adopt a risk-based source selection process.
- Acquisition, Time-Certain Development -- Developmental programs must change from a focus on 100 percent performance in the first production lot to a focus on delivering useful military capability within 6 years of Milestone A.
- Industry -- Overcome the consequences of reduced demand by sharing long range plans and restructuring competitions for new programs with the goal of motivating industry investments in future technology and performance on current programs.

Budget Trends

Past and Projected Resources for Defense

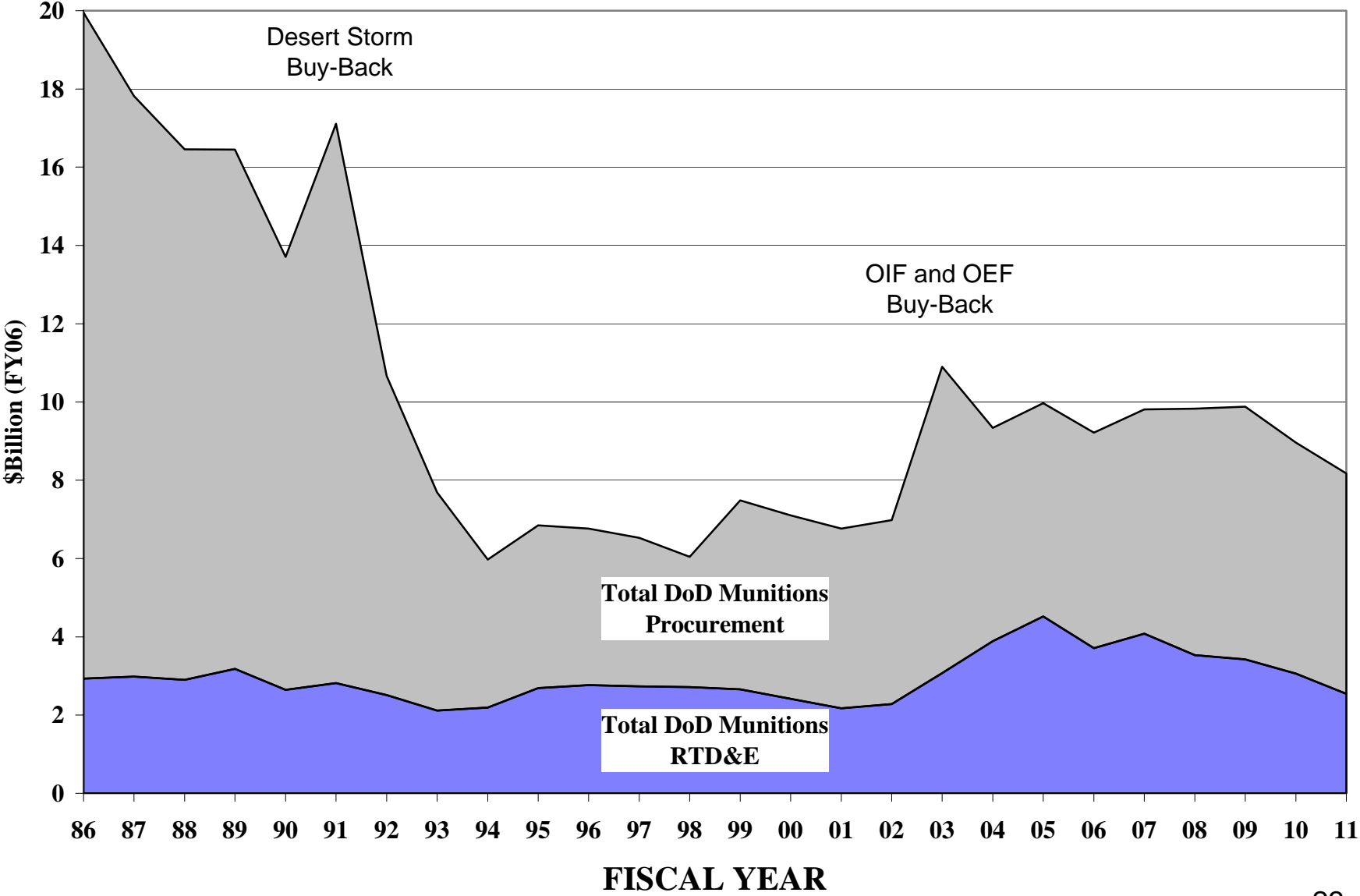
(Billions of 2006 dollars)



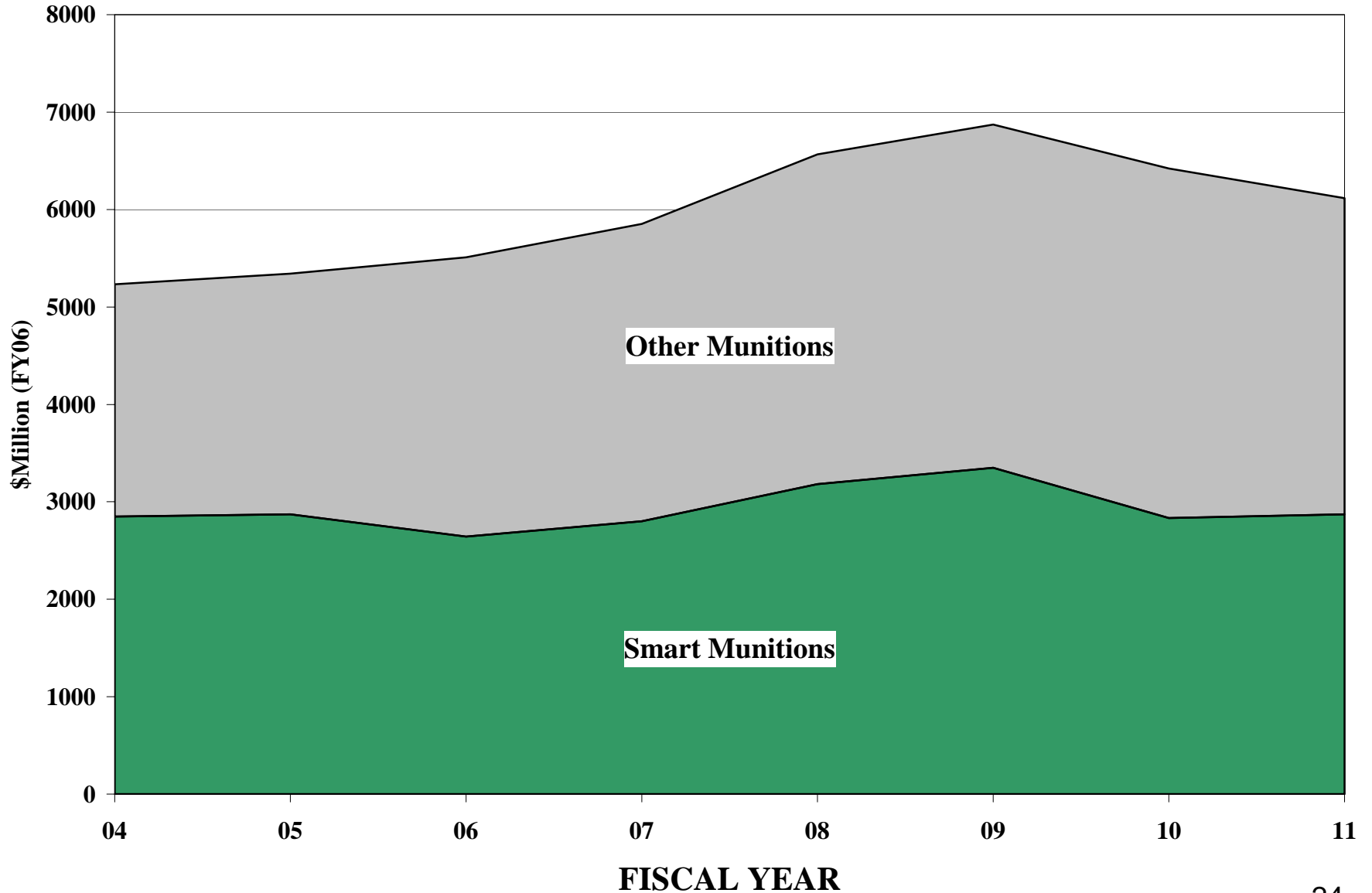
Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program.

DoD Munitions RDT&E and Procurement



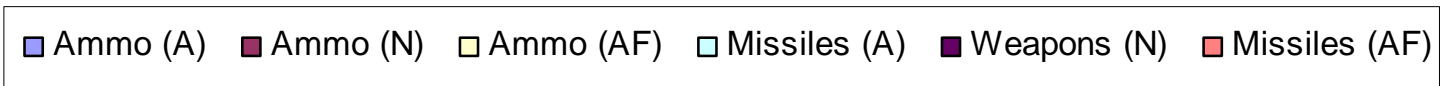
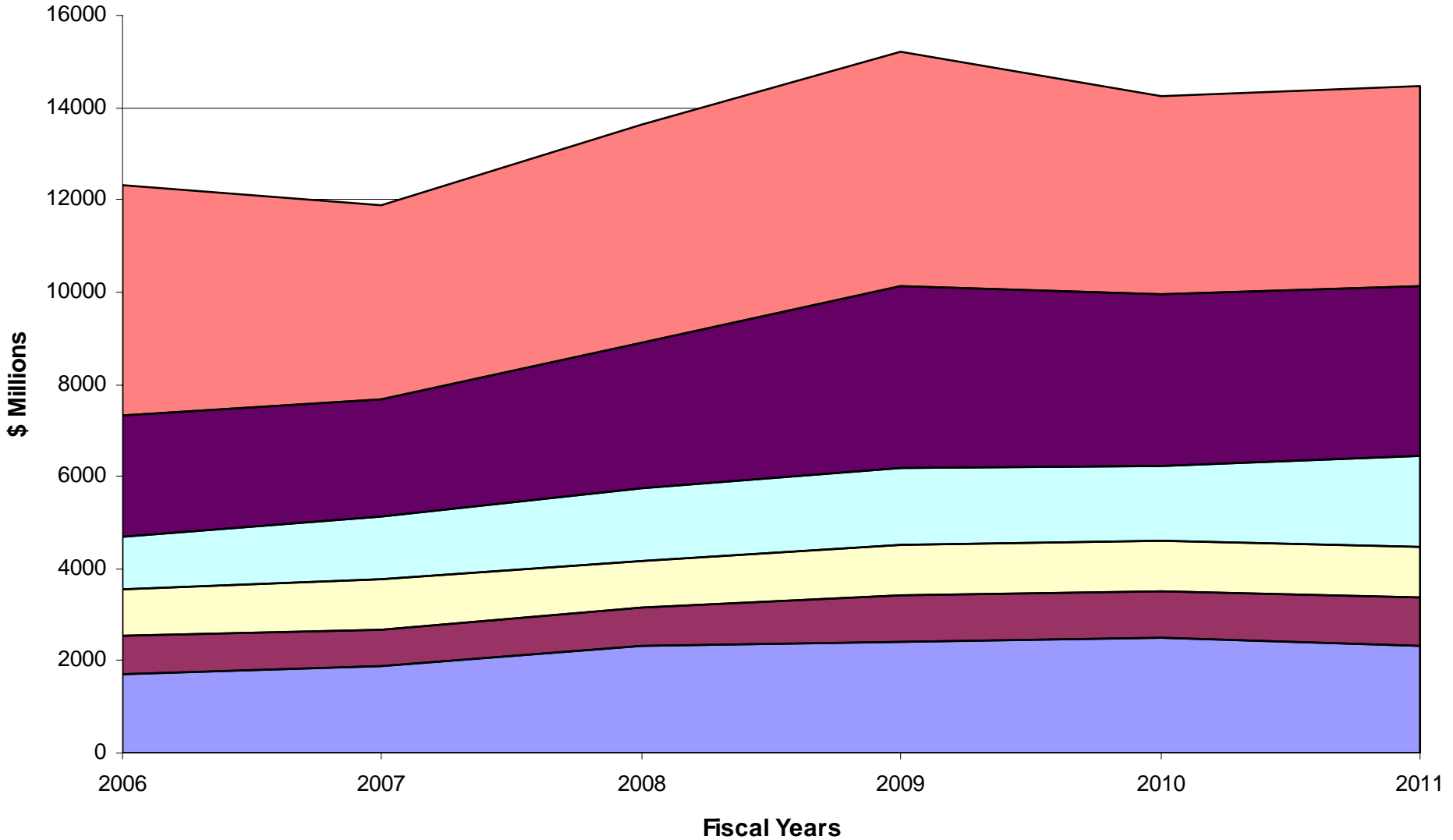
Smart Munitions vs. Other Munitions Procurement Trend



FY 2007 President's Budget Munitions Appropriations

	2006	2007	2008	2009	2010	2011
Ammo (A)	1,709	1,903	2,307	2,416	2,479	2,304
Ammo (N)	840	790	847	1,024	1,034	1,080
Ammo (AF)	1,003	1,072	1,005	1,095	1,075	1,079
Missiles (A)	1,149	1,350	1,599	1,650	1,617	1,978
Missiles (AF)	5,009	4,204	4,752	5,091	4,320	4,353
Weapons (N)	2,624	2,555	3,123	3,936	3,739	3,679
(\$ M)	12,334	11,874	13,633	15,212	14,264	14,473

FY 2007 President's Budget Munitions Appropriations



Munitions Interest Areas

Industrial Policy's Mission

- Sustain an environment that ensures the industrial base on which the Department of Defense (DoD) depends is reliable, cost-effective, and sufficient to meet DoD requirements.
- Specifically, ODUSD(IP) is responsible to ensure that DoD policies, procedures, and actions:
 1. Stimulate and support vigorous competition and innovation in the industrial base supporting defense; and
 2. Establish and sustain industrial and technological capabilities that assure military readiness.

Desired Industry Health Metrics

- **Reliable:** A “reliable” industrial base is one in which suppliers ship contracted products and services on time and to performance specifications.
- **Cost-Effective:** A “cost-effective” industrial base is one in which suppliers deliver contracted products and services at or below cost targets.
- **Sufficient:** A “sufficient” industrial base is one in which suppliers have adequate capability to deliver contracted products and services.

Broad Areas of Interest

- Creating/sustaining competition
- Mobilization/Surge
- Globalization debate dependent on meeting criteria for reliable, cost-effective industry that is sufficient to meet DoD needs, NOT U.S. vice non-U.S. sources
 - Exceptions:
 - Law: Section 806
 - Formal restrictions within DFARS
 - DoD 5000.60-H criteria that preclude non-US sources

DoD 5000.60-H Circumstances that Preclude Non-U.S. Suppliers

- High “market concentration” combined with political or geopolitical vulnerability.
- Suppliers from politically unfriendly or anti-American foreign countries, as defined by statute or U.S. Government policy.
- Suppliers that can not or will not provide products for military applications for political reasons.
- Certain technologies and products that are either classified, offer unique war fighting superiority, or could be used by foreign nations to develop countermeasures.*

* Foreign sources are not automatically excluded on the basis of a need to protect classified or unique technologies or products; this must be determined by individual circumstance. The Department has agreements with many allied and friendly nations for safeguarding classified military information. 31

DoD Ordnance Technology Consortium

DoD Ordnance Laboratory Center



- OUSD (AT&L) DS/LW&M
- Department of The Army
- Department of the Navy
- Department of the Air Force
- Special Operations Command
- Defense Advanced Research Project Agency
- Defense Threat Reduction Agency
- Department of Energy
- Other Agencies and Departments

National Warheads and Energetics Consortium



- Small Businesses
- Defense Contractors
- Academic Institutions
- Non-Profit Organizations
- Not-for-Profits Organizations



Section 845
Other Transaction

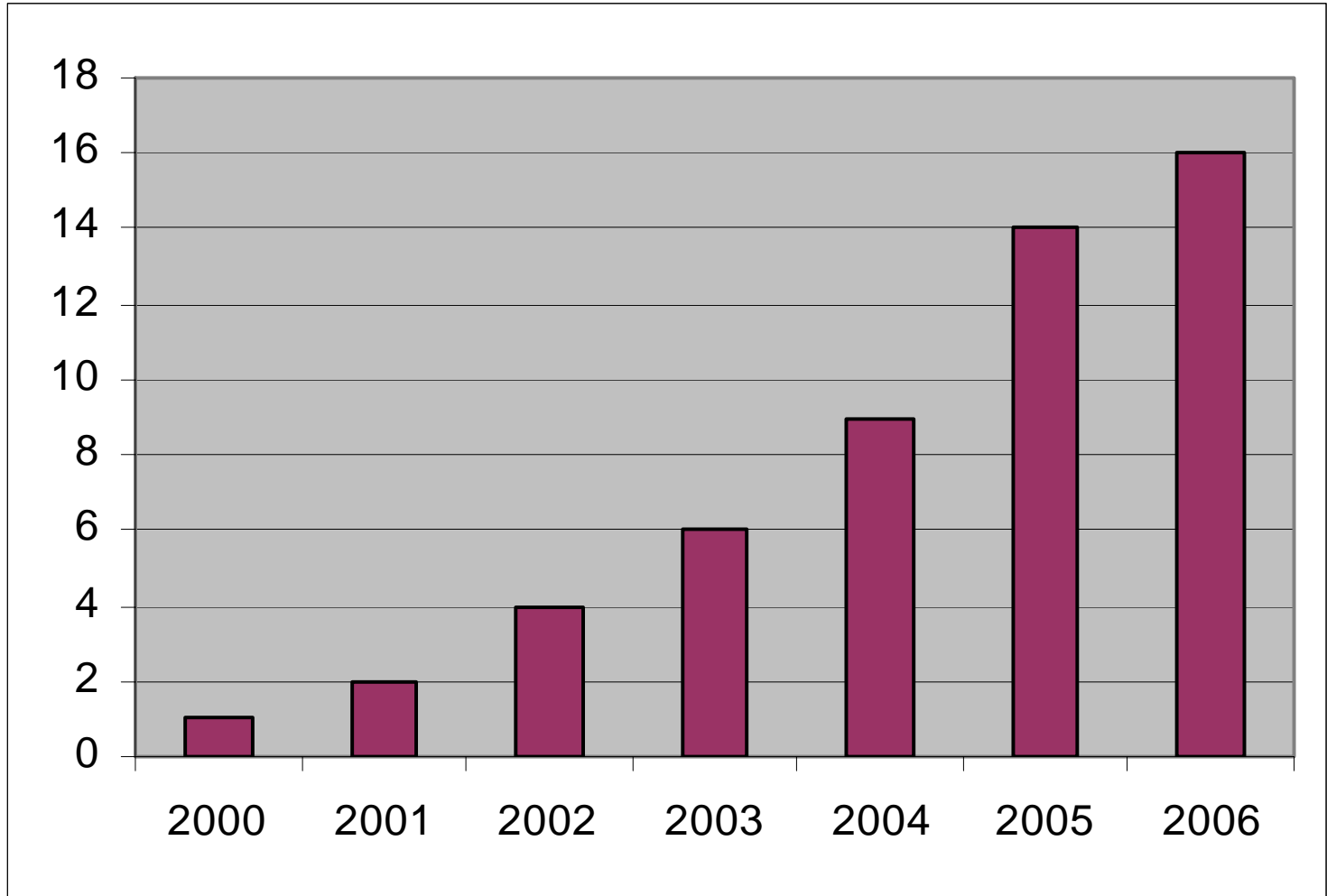
Task Order Sub Agreements
CRADAs
DEAs
Contracts
Test Service Agreements

DoD and NWECC... Partnering to Leverage Capabilities and Investment

DOTC VISION

An integration of Government , Industry, and Academia into a single enterprise executing co-funded initiatives, sharing and developing goals and objectives, resources and assets, and utilizing existing personnel, facilities and equipment.

DOTC JOINT & CO-FUNDED PROJECTS



Joint DoD/DOE Munitions Program Background

- DoD/DOE Memorandum of Understanding – Approved 1985
 - Established a cooperative program of R&D in munitions technology
 - Technologies & problems of mutual interest
 - Jointly funded
 - Work performed at DOE nuclear weapons laboratories: Lawrence Livermore, Los Alamos, and Sandia National Laboratories
- Program Goals
 - Effect major improvements in munitions performance and affordability
 - Utilize and adapt specialized DOE skills, facilities, and computational tools
- Approach
 - Labs' Five Year Plans presented annually for approval to DoD & DOE executive-level Technical Advisory Committee (TAC)
 - Semi-annual Technical Coordinating Group (TCG) meetings provide peer review, assessment, and guidance by DoD personnel
 - Technology transitions to DoD & industry coordinated with DOTC

Joint DoD/DOE Munitions Program

Scope & Accomplishments

Scope

- More than 50 projects active in 10 Technology Coordinating Groups encompassing 5 focus areas (modeling & simulation; energetic materials; initiation, fuzing & sensors; warhead tech; munitions lifecycle)
- FY06 total JMP funding ~\$50M—DoD & DOE combined

Recent Accomplishments

- ARDEC used CTH & ALE3D models to design shaped charge warheads realizing **3-6 months time savings** and **\$5M cost savings**
 - Gun Barrel Chromium elimination » NLOS-LS
 - MRM » Excalibur
 - 120mm mortar development
- Four special-purpose shaped charge munitions deployed by SOCOM for WMD-defeat supporting the GWOT
- TACMS-P penetrator design completed & successfully flown
- Ladar Scannerless Range Imager used by NASA Shuttle Inspection System for recent Discovery flight to ensure safe return to earth
- Rhenium metallurgy & modeling for SM-3 SDACS transferred to NSWC-Dahlgren to resolve design problem

Predictive Modeling and Simulation (M&S) tool development is a priority

- Establish DoD M&S capability (tools) focused on munitions performance applicable to system level design
- Enable system level physics/chemistry-based design from weapons S&T through acquisition
 - Address Multiphase Blast Munitions
 - Build initial capability to support IM thrust (tools in common with Blast)
 - Address violence of response of large rocket motors to bullet/fragment impact
 - Use M&S tools to perform sensitivity/performance tradeoffs
- M&S Initiative comprised of four elements
 - Joint DoD/DOE Munitions Technology Program (TCG I)
 - Multiphase flow, target interaction portfolio (HPCMO)
 - IM Hazards Analysis Project Arrangement
 - Large Rocket Motor toolset

Get M&S tools into hands of DoD and contractors

Insensitive Munitions (IM) Update

- **IM Technology Roadmap**

- Manage a joint, focused S&T Strategy with the goal of developing the required technologies so that future weapon systems can become IM compliant.
- *STATUS: 6.2 Program start in FY06. 6.3; Follow-on Program under review. IM S&T Program will be coordinated with IM M&S program.*

- **IM Strategic Planning**

- Provide a management (PEO) and oversight (JROC) tool that will provide a comprehensive picture of the IM status and plans for each weapon system.
- *STATUS: FY05/6 Plans approved by JROC. JROC review process refined data requirements for FY07 Plans which are due Feb 15 2006. Technology needs identified by programs will feed IM S&T program.*

- **IM Certification**

- CJCSI requires all capability documents (ICD, CDD, CPD, ORD, MNS) to incorporate IM as a required certification.
- *STATUS: M/S C decisions now require JCIDS review of IM status of munitions.*

DoD Fuze IPT Activities

- Fuze Industrial Base Policy in draft
 - encourage smarter acquisition practices
 - maintain Government involvement
 - maintain Govt's responsibility for safety and suitability for Service use
- Align policy with USD(AT&L) Goals
- Developed an acquisition roadmap and analysis tool to assist and inform acquisition managers of potential impacts on the Industrial Base
- Pursuing \$6-12M/yr S&T program for 10 years

Low Collateral Damage (LCD) Munition

- Urban operations, mixed friendly/hostiles form the ubiquitous battlefield in GWOT
- Prosecution of targets requires prior assessment of collateral damage
- A certifiable LCD weapon can shorten decision timeline and increase # targets engaged
- Specifications for LCD capability need to be developed – ($P_k = 0$ beyond ? range)

Low Collateral Damage Concept

- Fragments from steel-cased bombs have 1000s ft. lethal range – limits utility
- Elimination of steel case eliminates far-field personnel lethality
- Weapon concepts utilizing a composite case can provide a viable option in GWOT
- Initial composite case Mk-82 concept demonstration encouraging
 - greatly reduced far-field lethality
 - some increase in near-field lethality



Questions?