



## *Precision Weapons – An OSD Perspective*



# Precision Weapons Procurement

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**CAPT Peter D. Murphy, USN**  
**Deputy Executive Officer for Naval Aviation**  
**and Tactical Air Systems, OUSD(AT&L)A&T**  
**Portfolio Systems Acquisition, Air Warfare**

# Agenda



## *Precision Weapons – An OSD Perspective*

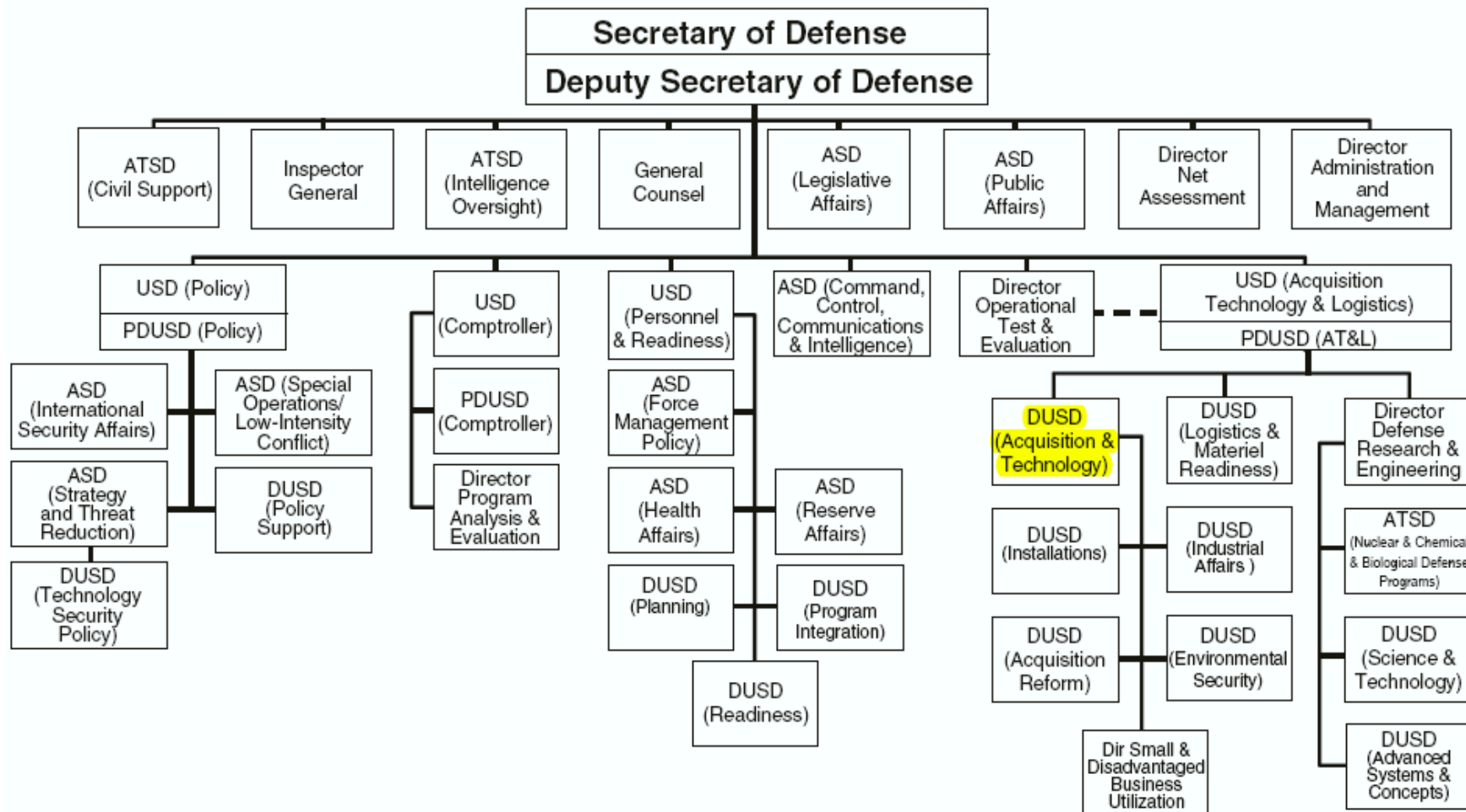
- OSD Organization
  - Strategic Guidance
- Precision Weapons
  - Defined
  - Costs / Types / Attributes
  - Programmatic Concerns
- Requirements & Acquisition Process in transition
- Joint Capability Areas
- 2007 Defense Acquisition Reform Proposal
- Final Thoughts
- Q&A's



# OSD Directorate

## Precision Weapons – An OSD Perspective

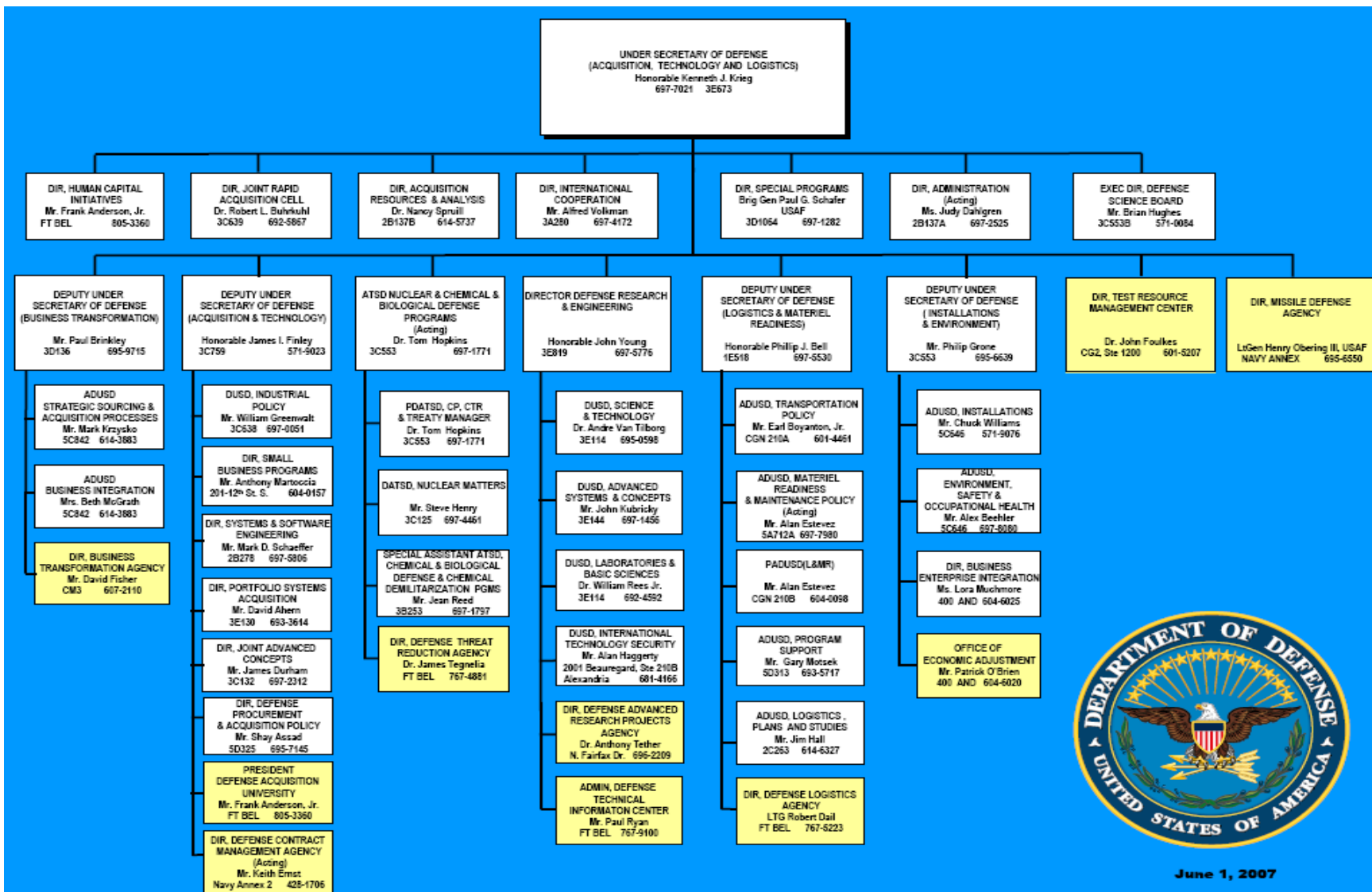
### Office of the Secretary of Defense





# USD(AT&L) Directorate

## Precision Weapons – An OSD Perspective



# 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



## *Precision Weapons – An OSD Perspective*

- 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

## *Precision Weapons – An OSD Perspective*

- 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



## *Precision Weapons – An OSD Perspective*



Small Diameter Bomb

- 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



# 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?



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### Requirements

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

### Budget/Resources

- Laying analytical foundation for budget
- Aligning budgets with acquisition decisions

### 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

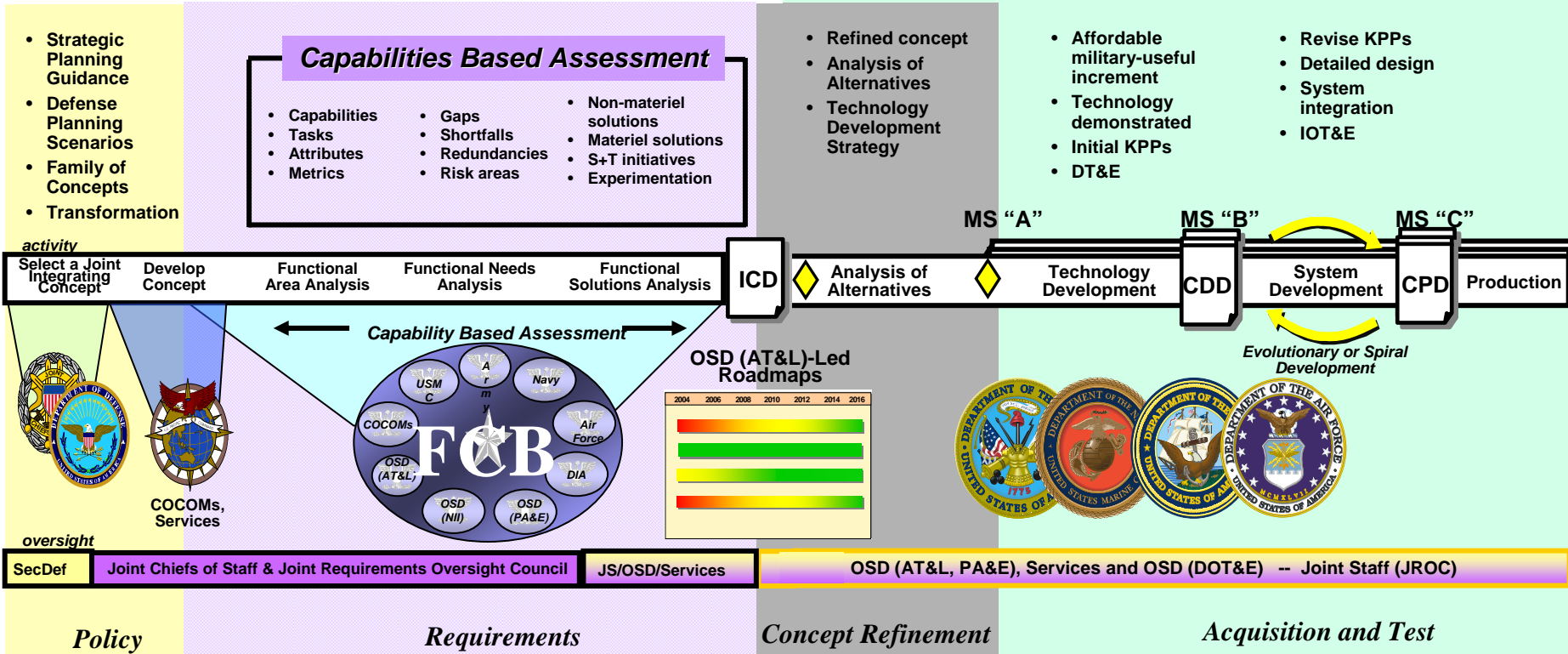
### Sustainment

- **Controlling Operations & Support costs**
- **Reducing logistics tails**

# DOD Requirement to Production Process



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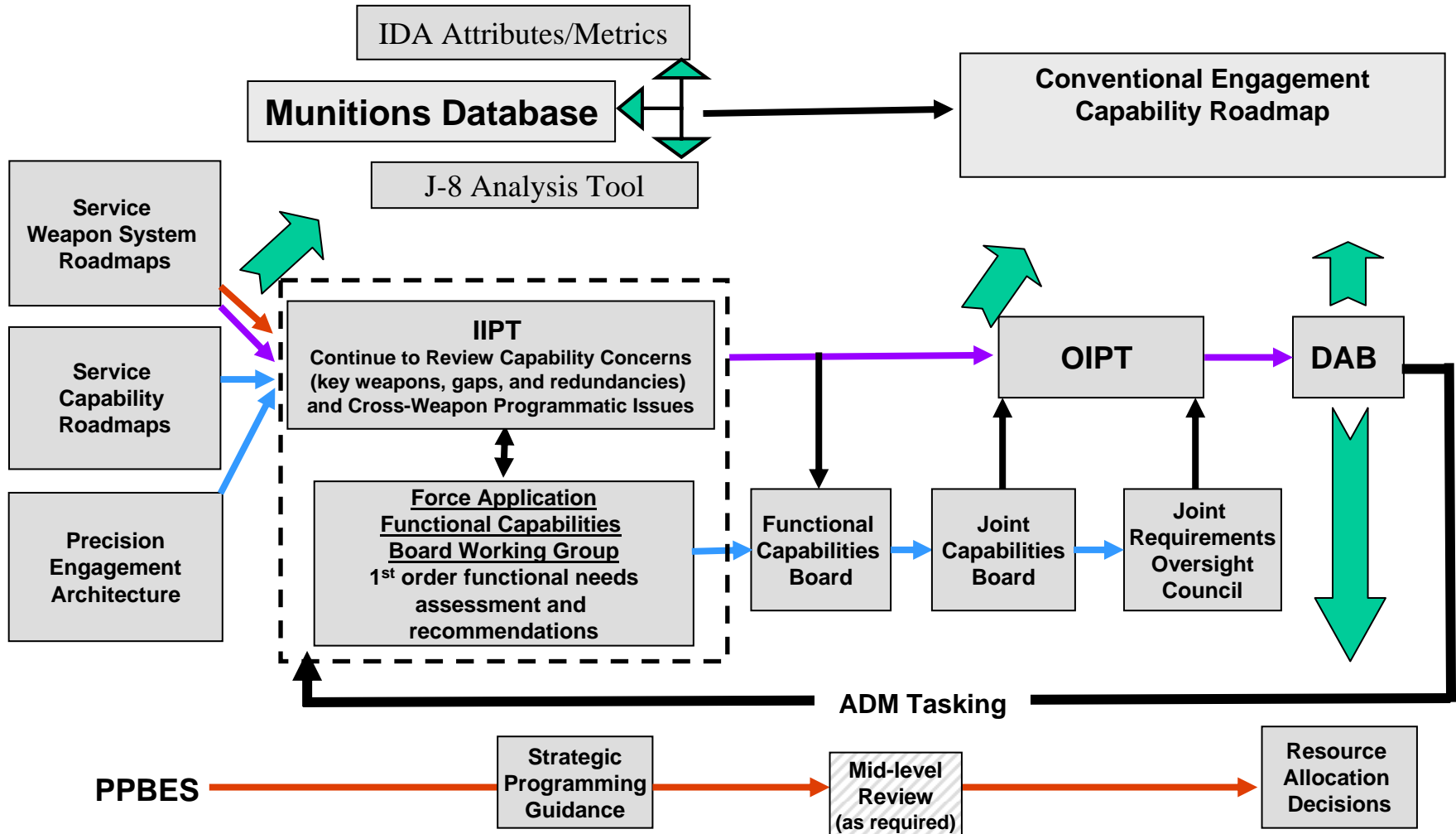


\* Per DoDI 5000 and CJCSI 3170

# Weapon Review Process Flow



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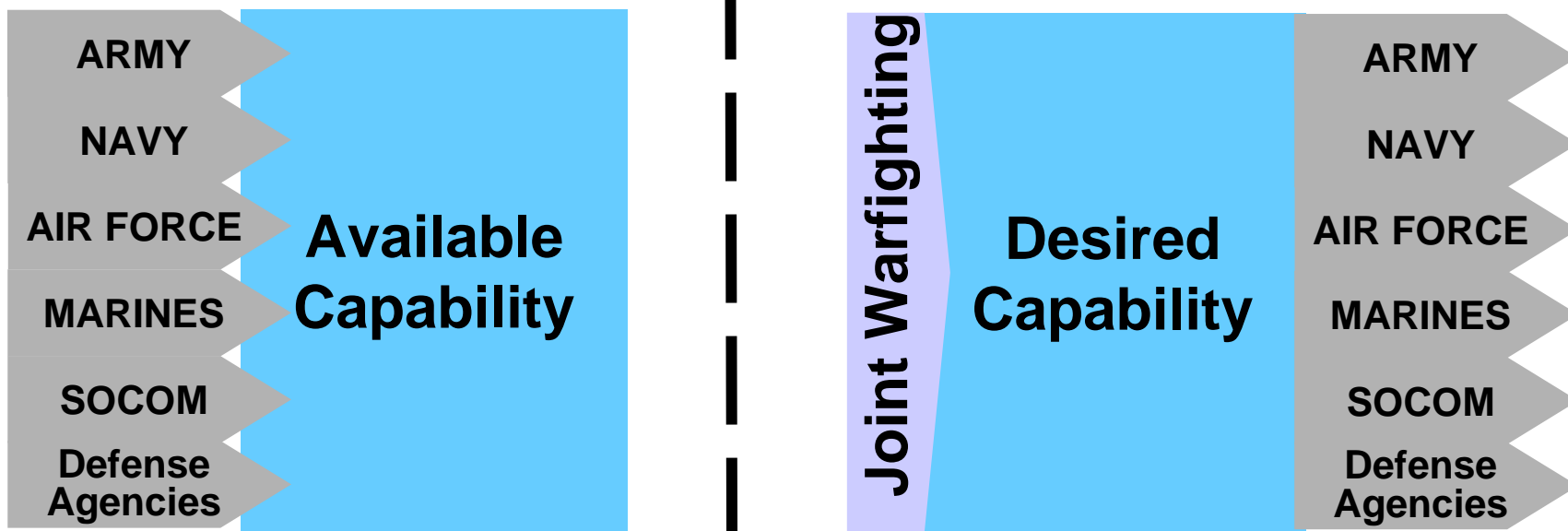




# Customer Driven Enterprise

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Supply Driven  $\longrightarrow$  Market Driven



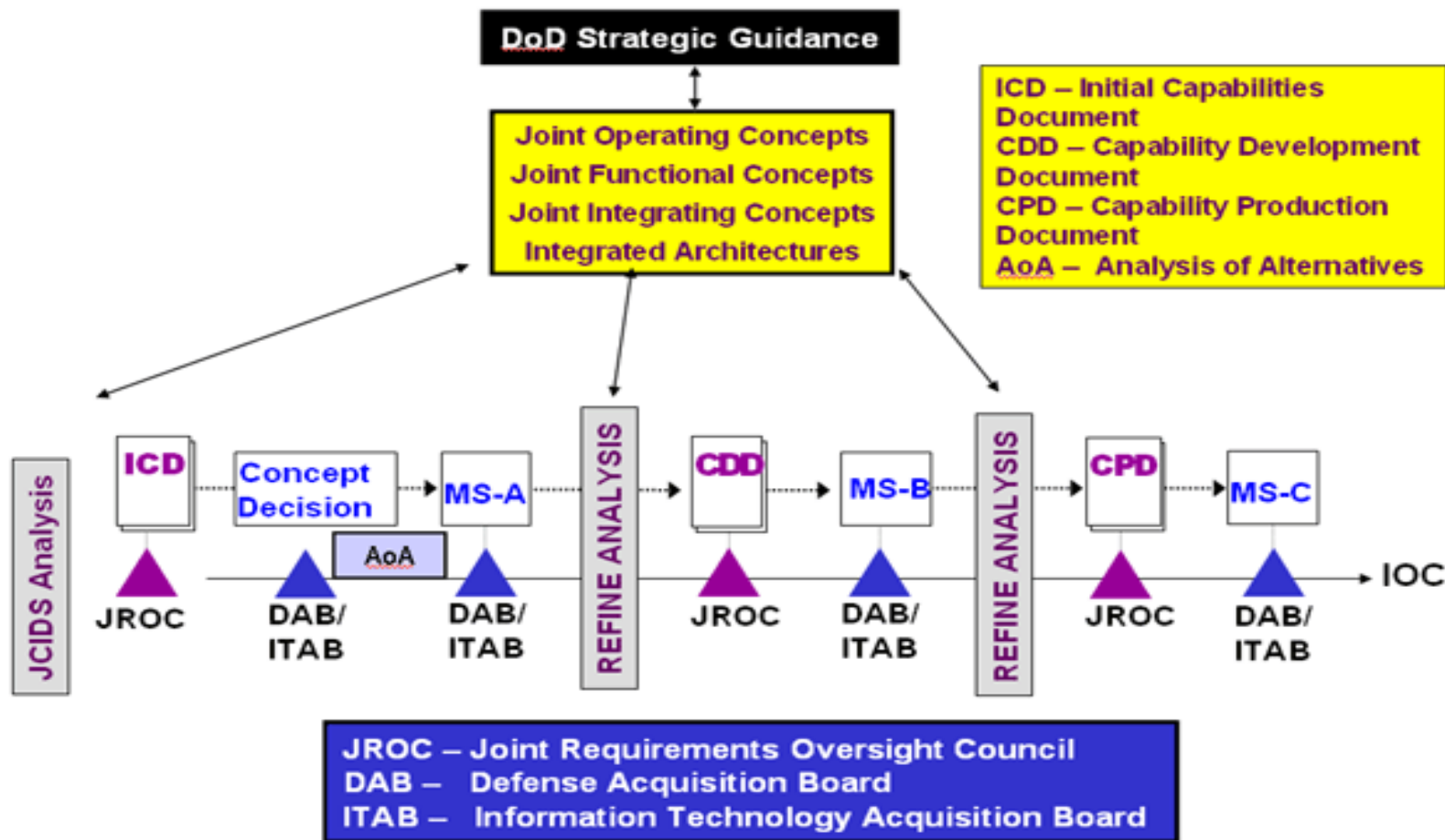
**Maximize warfighting effectiveness through  
TJS and OSD synergy**

# Joint Capabilities Integration and Development System (JCIDS)



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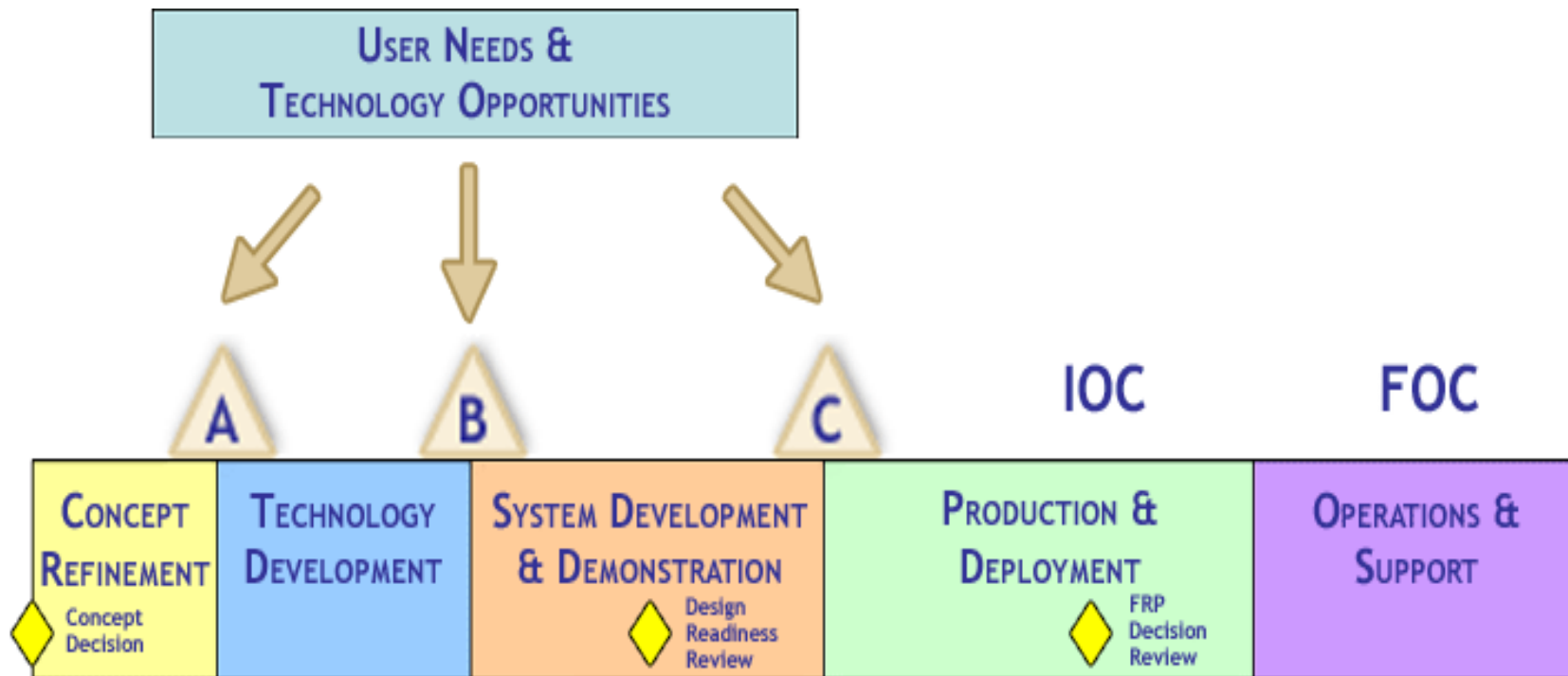
### JCIDS AND DEFENSE ACQUISITION





# Defense Acquisition Management Framework

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- Process entry at Milestone A, B or C
- Entrance criteria meet before entering phase
- Evolutionary Acquisition or Single Step to Full Capability

# Defense Acquisition Functional/Topic View



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# Joint Capability Areas (JCAs) – Tier 1



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- 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



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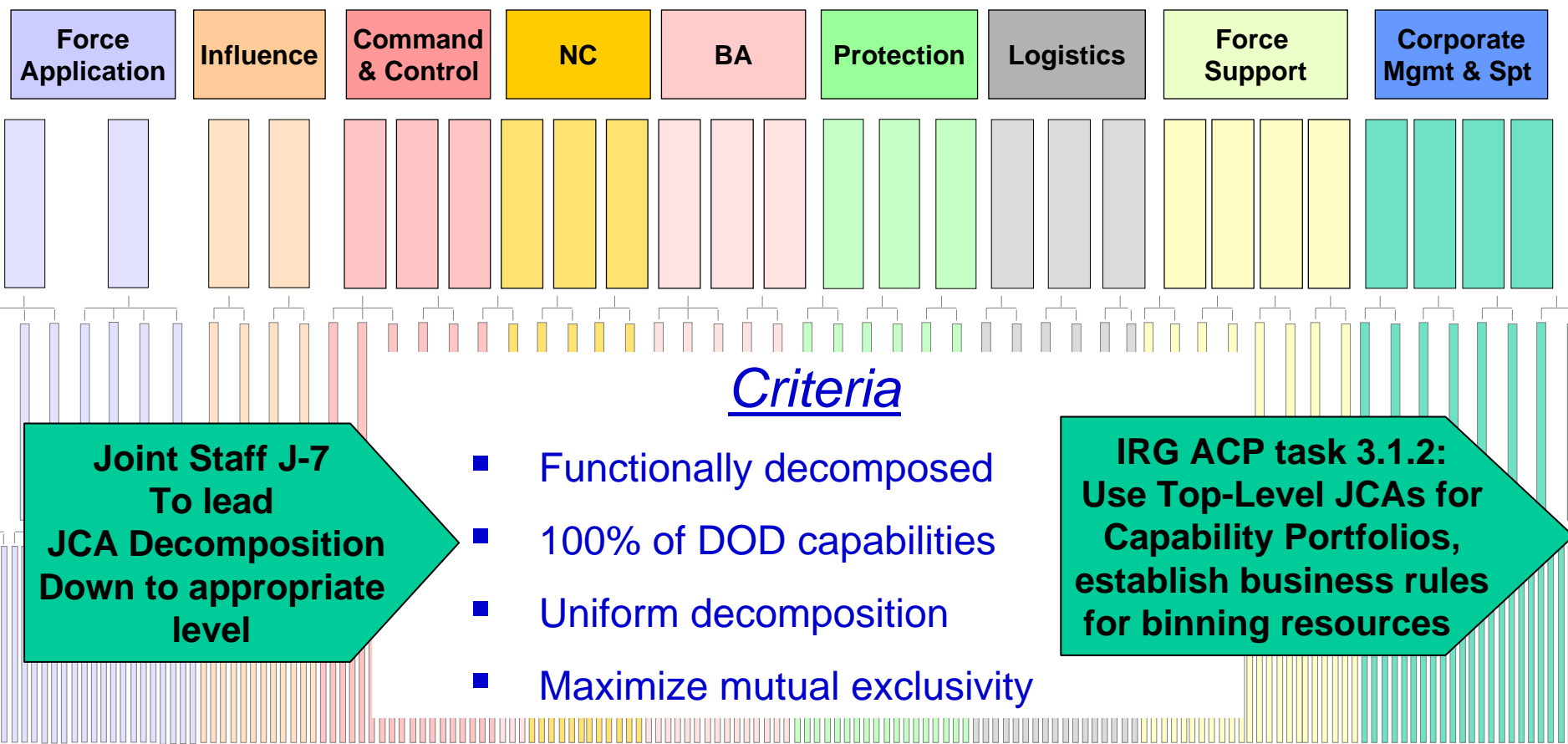
<b>Force Application</b>	<b>Definition:</b> The ability to maneuver and engage the enemy to create the effects necessary to achieve mission objectives.
<b>Influence</b>	<b>Definition:</b> The ability to shape the decisions, actions, and/or perceptions of key foreign leaders & populations by delivering thematic messages & conducting activities to advance the interests of the USG and its key partners, while strengthening key U.S. international relationships.
<b>Command &amp; Control</b>	<b>Definition:</b> The ability to exercise authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission.
<b>Net-centric</b>	<b>Definition:</b> 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.
<b>Battlespace Awareness</b>	<b>Definition:</b> The ability to develop and share situational awareness and to produce intelligence through persistent and pervasive observation of all domains.
<b>Protection</b>	<b>Definition:</b> The ability to prevent/mitigate adverse effects of attacks on personnel (combatant/non-combatant) and physical assets of the United States, allies and friends.
<b>Logistics</b>	<b>Definition:</b> The ability to project & 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.
<b>Force Support</b>	<b>Definition:</b> 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.
<b>Corporate Mgmt &amp; Support</b>	<b>Definition:</b> The ability to govern and administer the Department's activities which establish strategic direction and provide common support to force employers, managers and developers.





# JCA Decomposition - Team Effort

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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



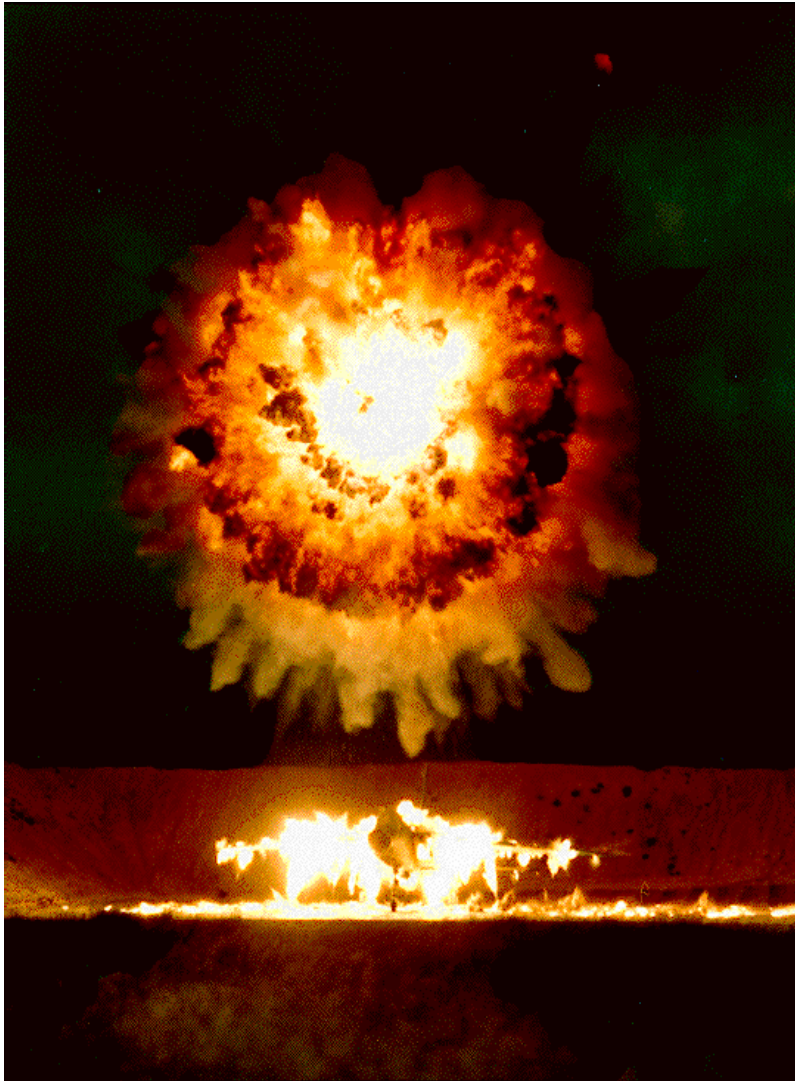
## *Precision Weapons – An OSD Perspective*

- 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

# Q&A's / Contact Information



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Questions?

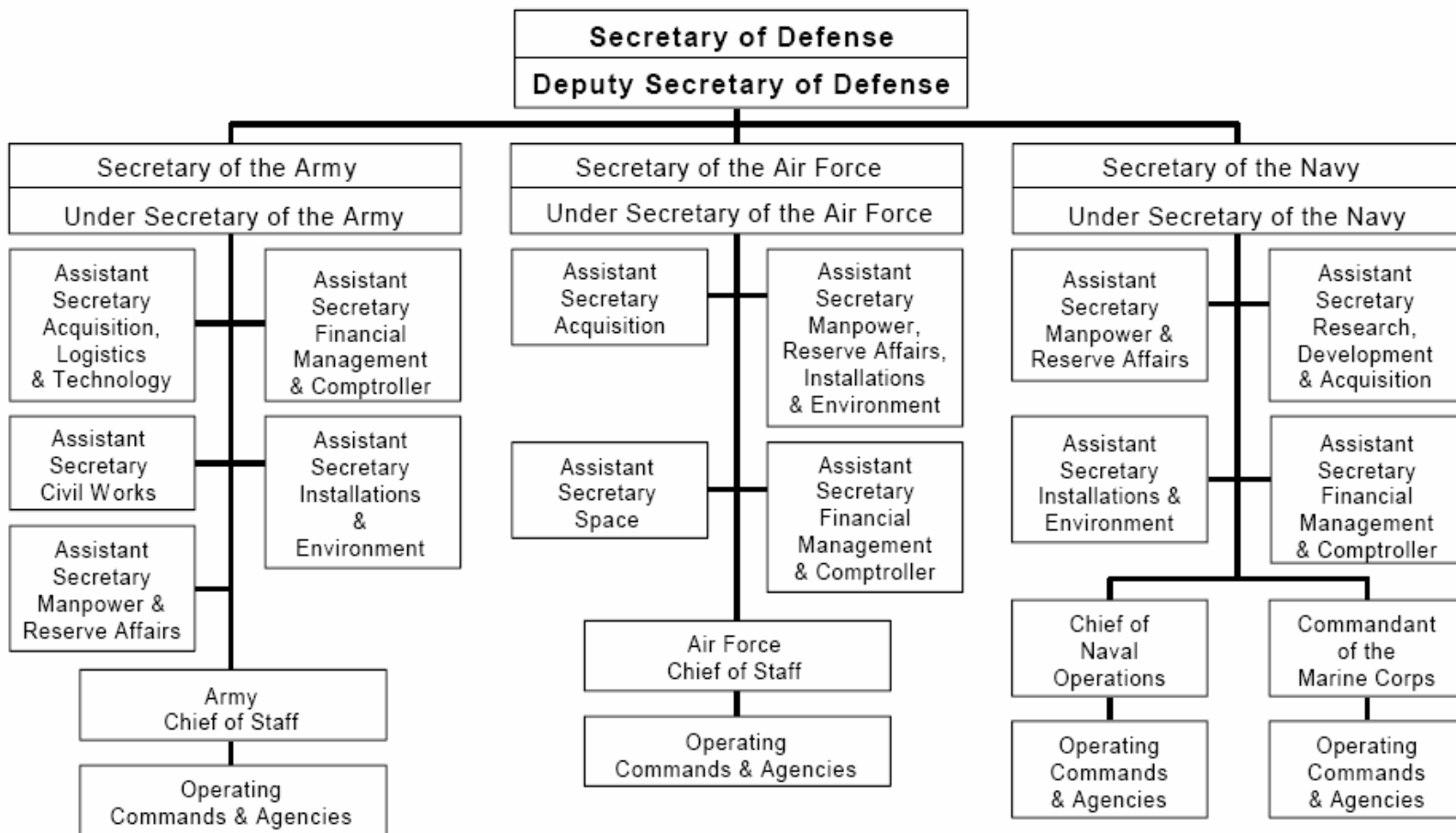
CAPT Pete Murphy, USN  
Pentagon Office: 3E1081  
Peter.Murphy@osd.mil  
(703) 695-3015



# DoD - Military Department Structure

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### Military Departments

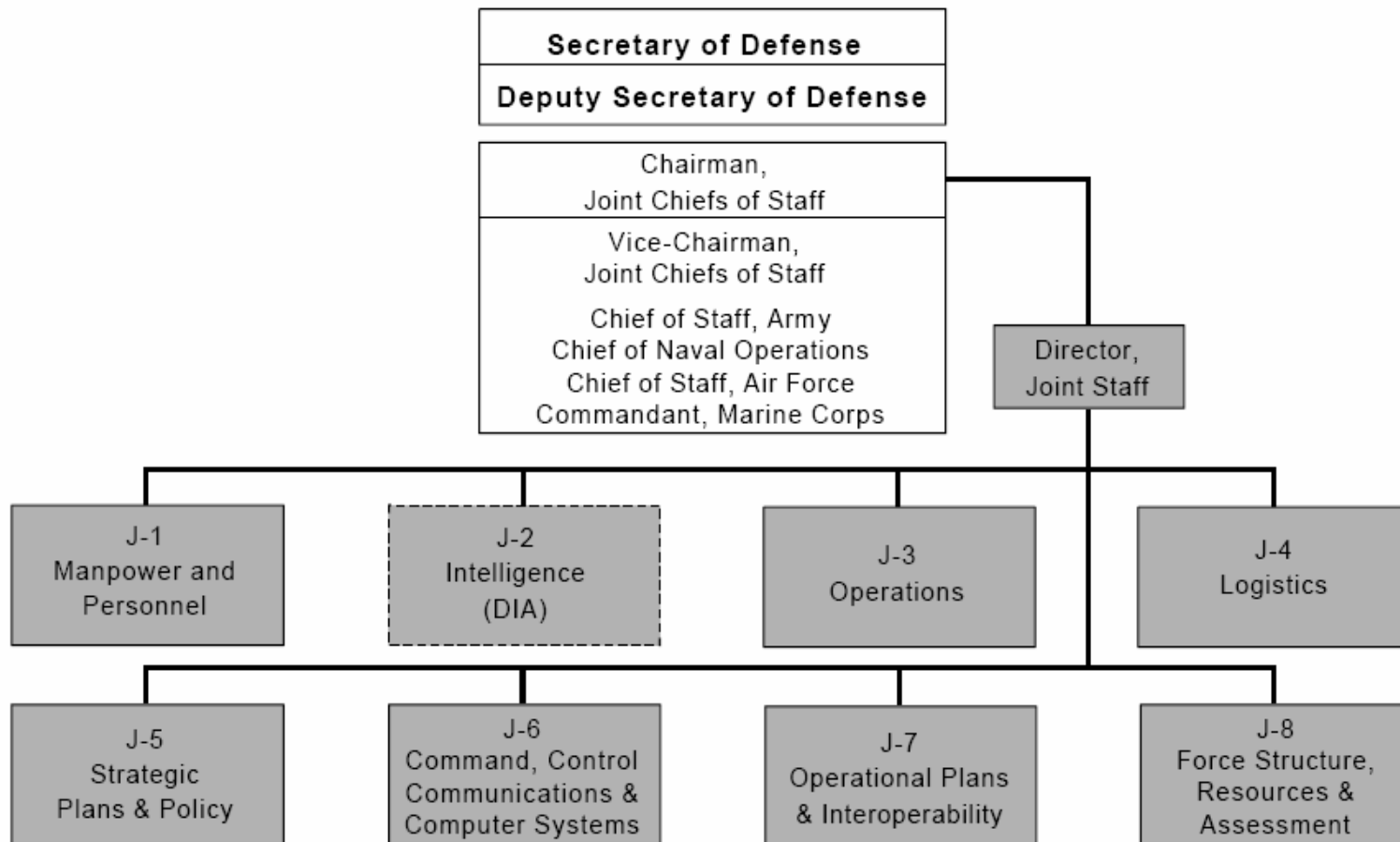




# DoD - Joint Staff Structure

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### Joint Chiefs of Staff



# DoD - Unified Combatant Command Structure



## *Precision Weapons – An OSD Perspective*

### Unified Combatant Commands

