



The Weapons Technologies Community of Interest (COI)

Brief to National Defense Industrial Association
19 April 2017

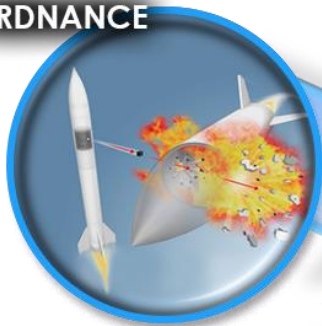
Distribution A: Approved for Public Release, SR Case #17-S-1138.
Distribution is unlimited.

David E. Lambert, ST, PhD
Weapons COI



Weapons COI Areas

ORDNANCE



Common themes across components

- Smaller, lower mass weapons
- Extended stand-off / range
- Survivable
- Reduced Signature
- High Speed / Hypersonics
- Survivable in Extreme Environments
- Prescribed effects
- High Agility
- Denied environments (A2/AD)
- Distributed-Collaborative-Cooperative (DC2)
- Combined Effects – KE / DE / Cyber
- Affordable and sustainable
- Cost imposing Capabilities

HIGH ENERGY LASERS



PROPULSION



RF WEAPONS



GUIDANCE
NAVIGATION &
CONTROL LINKS
(GN&C AND DL)



UNDERSEA
WEAPONS



INTEGRATED
WEAPON
DEMONSTRATION

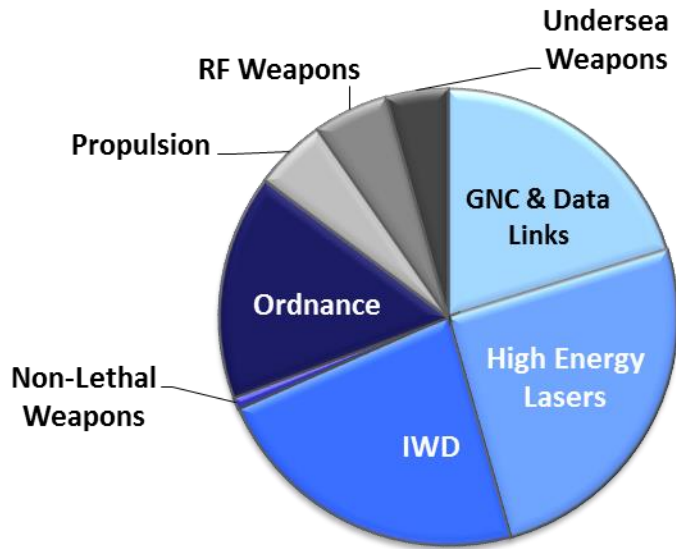


NON-LETHAL
WEAPONS

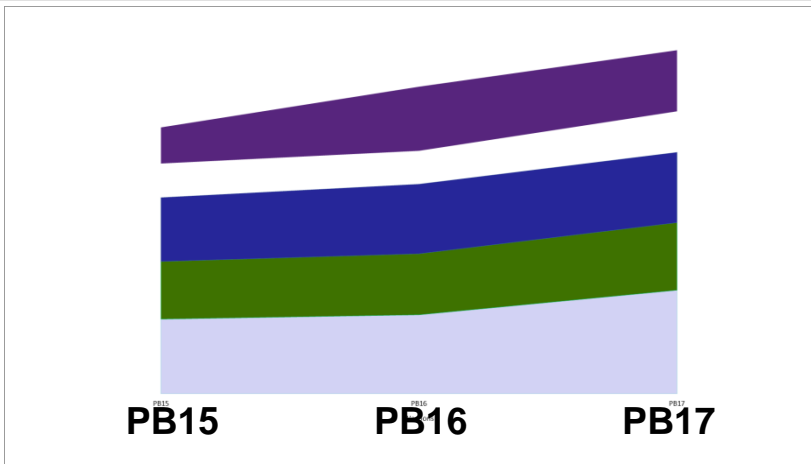
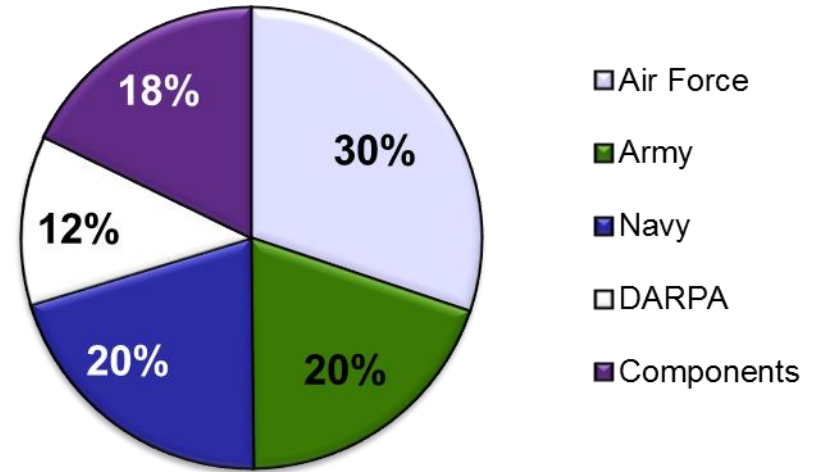




Weapons COI FY 2017



Component Investment



PB17 FUNDING AND TAXONOMY NOTES

- 12% increase from PB16
- GNC & Data Links Increased
- IWD Increased

- GNC: Guidance, Navigation & Control
- IWD: Integrated Weapon Demonstrators



Weapons COI Accomplishments 6.2 FY16



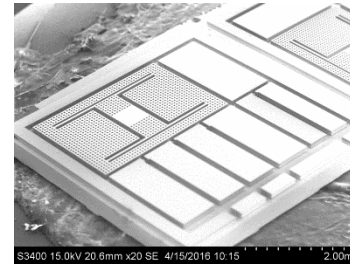
Ordnance:

- Low Cost Steel Alloy AF96
- Stronger and tougher than legacy hard-target munitions steels
- Available for transition to penetrator warhead program, Advanced 2,000lb Penetrator



Guidance, Navigation, Control & Datalinks:

- Demonstrated optical sensing of a Micro-Electro-Mechanical Systems (MEMS) Accelerometer
- Demonstrated fabrication of concave reflector in the sidewall of a MEMS device



High Energy Lasers (HEL):

- Integrated 150kW-class laser with state-of-the-art beam control
- Demonstrated laser against variety against of airborne and ground targets
- Offers silent invisible engagements at long standoff ranges





Weapons COI Accomplishments 6.3 FY16



Integrated Weapon Demonstrator:

- Selectable Effects Munition
- Demonstrated customizable blast/frag effects for area attack targets and low-collateral damage situations
- Allows warfighter to put the appropriate effect on target with a single weapon



Propulsion:

- System Mission Optimized Kinematic Enhancement
- Maturing highly loaded grain technologies to increase tactical solid propellant rocket motor performance
- Demonstrated ballistic performance at tactical operational temperatures



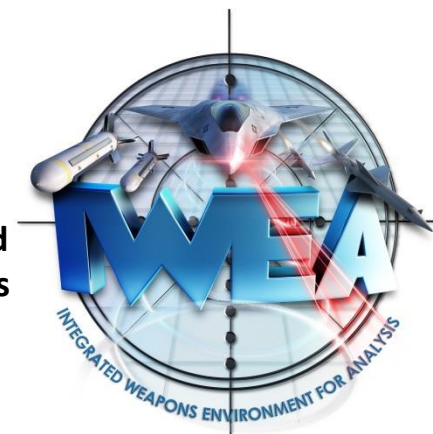
Non-Lethal Weapons:

- Millimeter wave Active Denial Technology (ADT)
- Solid State ADT
- Significant reduction size and weight



Multiple:

- Integrated Weapons Environment for Analysis
- Common environment of analysis tools used to evaluate kinetic and directed energy weapon effectiveness
- The first users class given in 2016





The DOTC Enterprise

DoD Ordnance Community



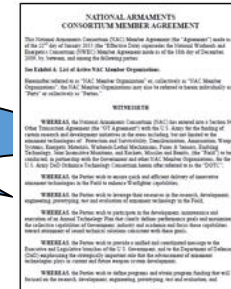
OSD Charter

**Overarching Agreement
Section 815
Other Transaction**



DOTC OTA

National Armaments Consortium



NAC CMA

- OUSD (AT&L) LW&M
- Department of The Army
- Department of the Navy
- Department of the Air Force
- Special Operations Command
- DARPA
- DTRA
- Other Agencies and Departments



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

The DOTC Consortium... Partnership to Accelerate Warfighter Superiority



DOTC Objective Areas – FY18

Ammunition (AMM)

- Small Caliber
- Medium Caliber
- Large Caliber
- Non-Lethal Ammo
- Mortars
- Grenades
- Logistics

Joint Insensitive Munitions (JIM)

- High Performance Missile Propulsion
- Minimum Signature Missile Propulsion
- Blast Fragment Warheads
- Anti-Armor Warheads
- Gun Propulsion
- System Level Demonstration

Demilitarization (DEM)

- Disassembly of Munitions
- Munitions Recycle, Recovery, and Re-Use
- Munitions Destruction and Final Disposition
- Removal of Energetic Materials from Munitions
- Waste Stream Treatment
- Disposal Logistics

Protection & Survivability (PAS)

- Threat Detection and Tracking
- Countermeasures, Counter Countermeasures & Anti-Tamper
- IED Detection and Destruction Technology
- Explosive Ordnance Disposal
- Armament Survivability
- Equipment Survivability
- Demolitions
- Active and Passive Armors

Directed Energy Warfare (DEW)

- High Energy Lasers
- Electro-optic
- Radio Frequency
- Multispectral
- Magnetism
- Acoustic
- Particle Beam, Thermal and other Energy modalities
- Prime/Pulse Power
- Beam Forming
- Directed Energy Weaponization

Rockets, Missiles, and Bombs (RMB)

- Air-to-Air
- Air-to-Surface
- Surface-to-Air
- Surface-to-Surface
- Shoulder Launched

Enabling Technologies (ENT)

- Materials
- Manufacturing and Process Technologies
- Modeling and Simulation and Virtual Prototyping
- Precision Guidance
- Power Sources
- Weaponization
- Autonomous Systems
- Soldier and Soldier Weapon Performance

Sensors & Sensor Systems (SSS)

- Multispectral
- Data Processing and Data Links
- Tactical Cyber
- Electronic Warfare
- GPS Denied
- Intelligence, Surveillance and Reconnaissance
- Command, Control and Networking

Energetic Materials (ENR)

- Explosives
- Propellants
- Pyrotechnics
- Ingredients
- Additive Manufacturing for Energetic Materials

Warheads/Lethal Mechanisms (WLM)

- Shaped Charge/Explosively Formed Penetrator
- Kinetic Energy
- Multipurpose
- Unitary

Fuzes (FUZ)

- Hard Target Fuzing Technologies
- Tailorable Effects Fuze Technologies
- High Reliability Fuze Technologies
- Enabling Fuze Technologies
- Safe & Arm Fuzes
- MEMS
- Fuze Producibility
- High G-Force
- Fuze Sensors

Weapon Systems (WPN)

- Small Caliber
- Grenade Launchers
- Medium Caliber Cannons
- Mortars
- Large Caliber Artillery
- Non-lethal Weapons
- Mechanisms & Effects
- Fire Control
- Accessories
- Electric Weapons
- Area Denial



Pathway Forward

- **Focus Going Forward**

- Distributed, collaborative and coordinated weapons for multi-domain effects
- Affordably enable high-capacity systems
- Long-range, high speed, and extreme agility response
- Increased experimentation and demonstrations

- **Engagement Opportunities with Industry**

- IR&D Technical Interchange Meetings
- Technically focused symposia and forums
- Traditional Acquisitions and Other Transaction Authority
 - National Armaments Consortium