The Weapons Technologies Community of Interest (COI)

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Weapons COI
Common themes across components

- Greater effects at standoff and longer range
- Increased Capacity for greater mission lethality
- Navigate in controlled, degraded and operationally limited environments
- Propulsion solutions for range and end-game maneuver
- Networked and Composable/Fractionable
- Deep magazine
- Combined Effects - Kinetic and Directed Energy
- High Speed Guidance
- Defense Against High Speed Threats
- Weapon Open Architecture with Ensured Cyber-resiliency
Weapons Technologies COI
FY 2018

PB18 FUNDING AND TAXONOMY NOTES

- Total $1.6B (FY18PB) increase from $1.36B (FY17PB)
- Largest change, Ordnance
- GNC-DL: Guidance, Navigation & Control – Data Links
- IWD: Integrated Weapon Demonstrations
- HPM: High Power Microwaves
- HEL: High Energy Lasers
Integrated Systems...

Guidance & Control
- Networked Swarming Weapons
- Low Cost Seekers & All-Weather
- Hypersonic and Extremely Agile Missiles

Ordnance
- Nano-energetics
- Selectable Effects
- High Performance, Affordable Metals

Integration
Integrated Systems
(New Systems & Existing Systems)
Recent Weapons Technologies COI Impact

• **Precise Robust Inertial Guidance for Munitions (PRIGM)**
  – Navigation-grade Inertial Measurement Unit (IMU) performance with microelectromechanical systems (MEMS) cost, size, weight, and power (CSWaP)
  – Prototype sensors delivered and are under test at government lab

• **Navigation for Weapons in Contested Environments**
  – Demonstrated nonlinear estimation (particle filter) and image processing algorithms for single and multiple munitions

• **Joint Insensitive Munitions Technology Program**
  – Advances in JIMTP allow investigation of improved performance (range & lethality) while maintaining IM

• **High Speed Strike Weapon**
  – Successfully conducted S&T demonstration tests of advanced tactical booster technologies

• **Non-Lethal Weapon Technology**
  – Millimeter Wave Active Denial Technology (ADT)
  – High Power Microwave Weapons for Vehicle and Vessel Stopping
The DOTC Enterprise

DoD Ordnance Community

- OUSD (AT&L) LW&M
- Department of the Army
- Department of the Navy
- Department of the Air Force
- Special Operations Command
- Defense Advance Research Projects Agency (DARPA)
- Defense Threat Reduction Agency (DTRA)
- Other Agencies and Departments

Overarching Agreement Section 815 Other Transaction

National Armaments Consortium

- 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

### 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

### Enabling Technologies (ENT)
- 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 and 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

### Rockets, Missiles, and Bombs (RMB)
- Air-to-Air
- Air-to-Surface
- Surface-to-Air
- Surface-to-Surface
- Shoulder Launched
Pathway Forward

• **Focus Going Forward**
  - Propulsion solutions for range and end-game maneuver
  - Networked, scalable and modular technologies
  - Long range effects in controlled, degraded and operationally limited environments
  - Low cost, size, weight
  - Increasing output power DE weapons

• **Engagement Opportunities with Industry**
  - Industry IRAD Technical Interchange Meetings
  - Component BAA’s
  - Component Industry Days
  - Air Force S&T 2030 Strategy Engagement Events
    - [https://www.afresearchlab.com/](https://www.afresearchlab.com/)
  - Army Open Campus Program
    - [https://www.arl.army.mil/opencampus/](https://www.arl.army.mil/opencampus/)
  - DEFENSEWERX: Doolittle Institute, AFWERX, SOFWERX
    - [http://defensewerx.org/](http://defensewerx.org/)
QUESTIONS?