



Weapons Technologies COI



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This COI serves as the mechanism for the Components to understand technical capabilities and roadmap / integrate S&T efforts to address operational challenges, mitigate foreign threats, affordably-extend weapons performance, and develop leap-ahead offsets.

Technology development thrusts (sub-areas) involve guidance navigation & control and data links (GN&C), ordnance, propulsion, undersea weapons, high energy lasers (HEL), radio frequency (RF) weapons, and non-lethal weapons. Advances in technology thrust areas are integrated, prototyped, and demonstrated in the Guided Weapon Demonstrators (GWD) sub-area.

The applications for the technologies in this COI are air, naval, ground, offensive, defensive, tactical, theater, or strategic weapons including missiles (conventional and hypersonic), bombs, rockets, artillery, mortars, torpedoes, mines, guns, launchers, and projectiles.

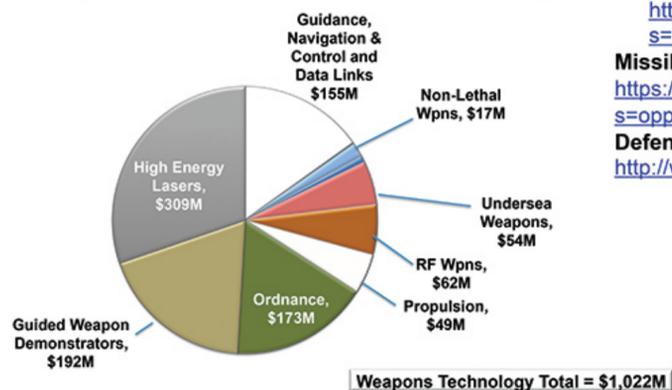
Steering Group

Mike Zoltoski (ARL), Chair **
 Michael Richman (AMRDEC)***
 David Castellano (ARDEC)***
 Richard DeFatta (SMDC)***
 CDR Marcus Lopez (ONR) ***
 John Wilcox (AFRL)

Richard Urban (DARPA)
 Steve Waller (DARPA)
 Steve Dowling (DTRA)
 Dave Burns (MDA)
 Pete Kurzenhauser (DNI)
 Spiro Lekoudis (ASDR&E) *

*Outgoing Chair ** Incoming Chair ***joined in 2014

DoD Investment Profile



Gaps and Opportunities

May have smaller forces and fewer systems – achieve improved lethality using fewer weapons

Smaller, lower mass weapons with at least equivalent lethality needed for compatibility with new aircraft and unmanned systems

Need to integrate and take advantage of synergies between kinetic, laser, radiofrequency, electronic warfare, and cyber effects on targets

Increased speed, maneuvering capability, signature reduction and stand-off/range needed to counter improved threat defenses and also to improve our own defenses

Achieve technology-enabled surprise and assured over match. A number of new technologies are being considered to overcome such challenges by providing offsetting capabilities, including

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|---|---|
| Guidance, Navigation, Control and Datalinks | <ul style="list-style-type: none"> Affordable, robust Non-GPS positioning, navigation and timing (Strategic accuracy at tactical prices) Precision delivery (at longer distances & higher speeds) Distributed and collaborative sensing and direction High assurance positive C2 for pre-emplaced weapons |
| Propulsion | <ul style="list-style-type: none"> Increased range, stand-off, and endurance/loitering Speed and maneuvering advantage – for defenses and for penetration of defenses High-speed/hypersonic propulsion (scramjet/ramjet/combined cycle/boost-glide) |
| Ordnance | <ul style="list-style-type: none"> Weapons for 5th/6th Generation aircraft (smaller internal loads; new flight profiles) and for high-speed/hypersonic platforms Tailored, selectable, and collective effects on target – increased single shot kill probability Highly reliable and safe with more effective results |
| Directed Energy Weapons | <ul style="list-style-type: none"> Counter sensor (laser and RF) Deep magazines Defenses on the correct side of the cost equation |
| Undersea Weapons | <ul style="list-style-type: none"> From smart to brilliant weapons |

Engagement Opportunities

Army

- Army Research Laboratory, Broad Area Announcement for Basic and Applied Scientific Research, http://www.arl.army.mil/www/pages/8/Mod2_ARL_BAA_revsept13.pdf
- Aviation and Missile Research, Development, and Engineering Center, AMRDEC SSDD Broad Agency Announcement to Advance Missile, Aviation and Other Defense Technologies, https://www.fbo.gov/?s=opportunity&mode=form&id=1dd3bcefc402278eddc84a3cf9fbf34f&tab=core&_cview=1

Navy – Office of Naval Research, Long Range Broad Agency Announcement (BAA) for Navy and Marine Corps Science and Technology, <http://www.onr.navy.mil/~media/Files/Funding-Announcements/BAA/2015/15-001-LR.ashx>

Air Force – Air Force Research Laboratory, Armament Technology Broad Agency Announcement, <https://www.fbo.gov/notices/7b39ce8ebdbccbc2be81295c7d48010e>

Defense Advanced Research Projects Agency

- Innovative Systems for Military Missions - Tactical Technology Office (TTO), https://www.fbo.gov/index?s=opportunity&mode=form&id=9dcd4af1ea729fce6c9c98da0342b7c7&tab=core&_cview=1
- Squad X Core Technologies (SXCT), https://www.fbo.gov/index?s=opportunity&mode=form&id=9ebb7959887c09e64c47ad7ab31c638b&tab=core&_cview=1

Missile Defense Agency -

https://www.fbo.gov/index?s=opportunity&mode=form&id=5c4f67ed70440e61067b1b36f79e7a2c&tab=core&_cview=0

Defense Threat Reduction Agency (DTRA) –

<http://www.dtra.mil/Business/CurrentSolicitations.aspx>

As available, opportunities are announced on <https://www.fbo.gov> and www.defenseinnovationmarketplace.mil

Thrust Areas

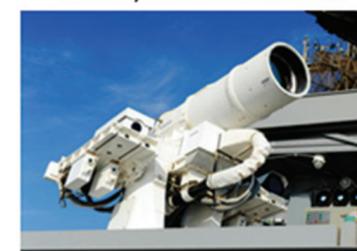
Guidance, Navigation & Control and Data Links - Long Range Anti-Ship Missile (LRASM)



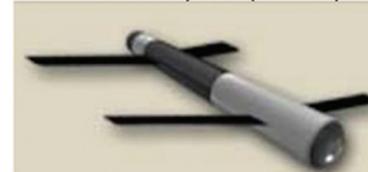
Guided Weapon Demonstrators – EM Railgun Prototype



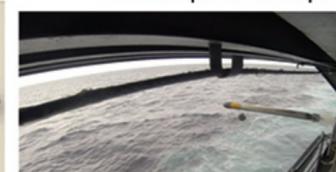
High Energy Laser Weapons – US Navy demo on USS Ponce



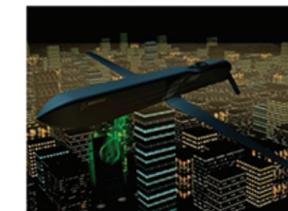
Ordnance – Lethal Miniature Aerial Munition System (LMAMS)



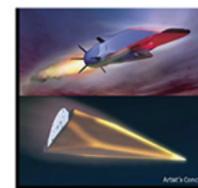
Undersea Weapons – Anti-Torpedo Concept



Radiofrequency Weapons – CHAMP JCTD



Propulsion – Hypersonic Weapons



Non-Lethal Weapons – Active Denial System

