



Joint Enhanced Munitions Technology Program Changes and Insensitive Munitions



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Overview

➤ Content

- **JIMTP history and successes**
- **Modifications and new technical strategy**
- **New acquisition strategy**
- **Planned improvements to collaboration and partnering**



Fundamental Premises

NATO STANAG 4439 DEFINITION

Munitions which **reliably fulfill their performance**, readiness and operational requirements on demand and which **minimize** the **probability** of inadvertent initiation and **severity** of subsequent collateral damage to weapon platforms, logistic systems and personnel when subjected to **unplanned stimuli**.

USC, Title 10, Chapter 141, Section 2389 December 2001

“§ 2389. Ensuring safety regarding insensitive munitions. The Secretary of Defense shall ensure, to the extent **practicable**, that insensitive munitions under development or procurement are safe throughout development and fielding when subject to unplanned stimuli.”

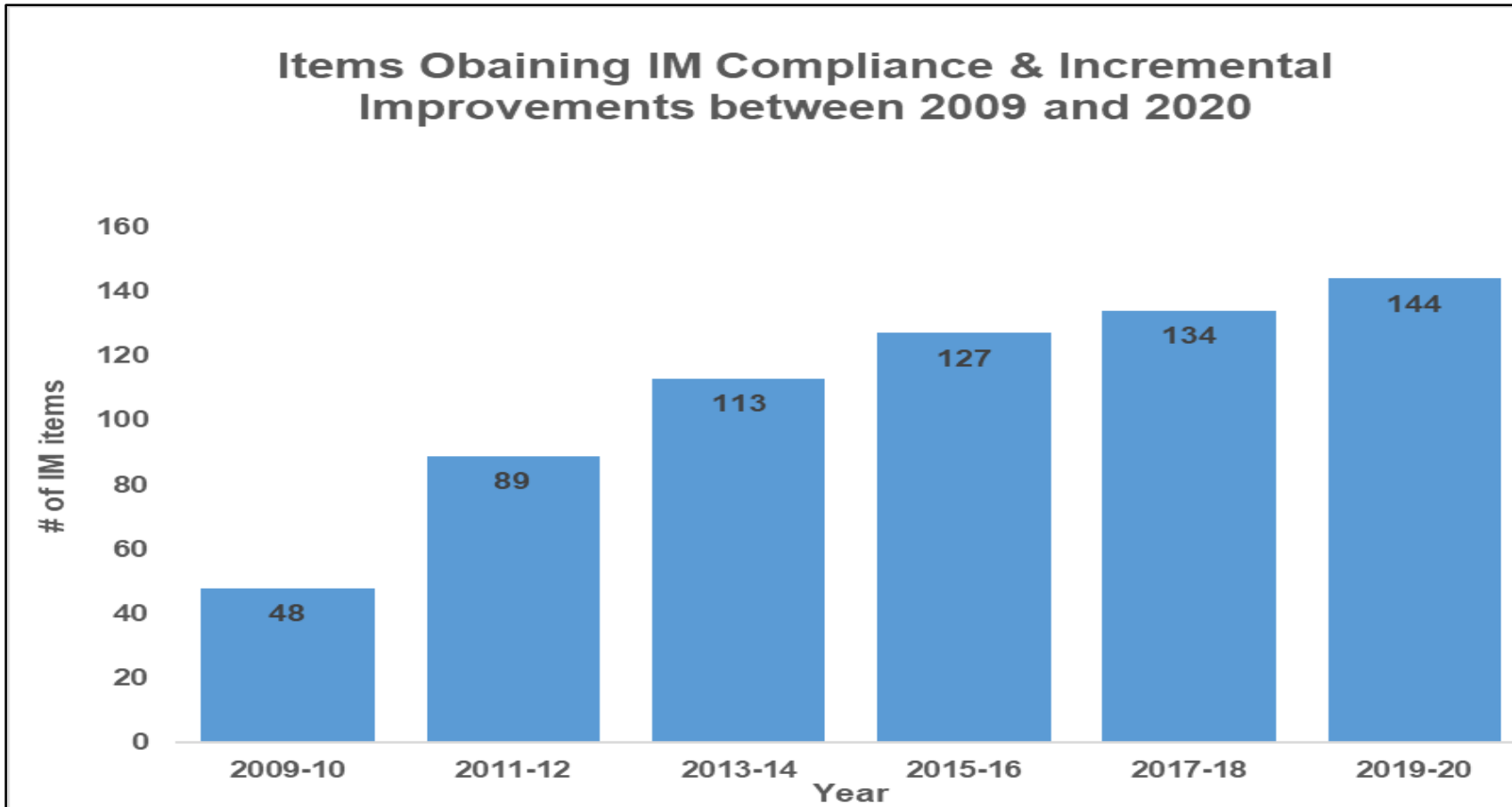
- IM is one important munition attribute
- Sensitivity is one important energetic attribute
- Performance improvement is paramount
- Technology options enable acquisition decisions
- Impact to warfighter and mission is the number one driver

Our overall success should be measured by providing solutions to the field, water, or air



JIMTP History

❖ FY2009-10 to present, 33 munitions have obtained IM compliance and 111 have achieved incremental improvements





JIMTP Impact and current solutions

➤ **FY09-10 IMSP**

- 143 total munitions
- 107 applicable JIMTP
- 39% impacted by JIMTP effort

➤ **FY19-20 IMSP**

- 80 total munitions
- 68 applicable to JIMTP
- 46% impacted or solution generated
- 37% currently funded


➤ **Solutions**

- Air-to-air
- General Purpose and Penetrator Bombs
- Shoulder Launch weapons
- Rocket Artillery
- Direct Fire AGM
- Navy and Army Indirect fire
- Grenades and medium caliber



OUSD R&E Memo 5 Mar 2019

- “there is an urgent need to provide our warfighters with increased or new capabilities.”
- “IM compliance requirements remain an important aspect of munitions reliability and readiness and thus will remain a critical characteristic of the program. However, specific weapon systems' IM requirements,will be the responsibility of the Services procuring and maintaining those weapons.”

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3030 DEFENSE PENTAGON
WASHINGTON, DC 20301-3030

NAR - 3 2019

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE, ACQUISITION AND SUSTAINMENT
ASSISTANT SECRETARY OF DEFENSE, ACQUISITION
DEPUTY ASSISTANT SECRETARY OF THE ARMY
(RESEARCH AND TECHNOLOGY)
ARMY CHIEF SCIENTIST
DEPUTY ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT, TESTING AND EVALUATION)
DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE
(SCIENCE, TECHNOLOGY AND ENGINEERING)
DIRECTOR OF SCIENCE AND TECHNOLOGY, SPECIAL OPERATIONS COMMAND
SERVICE ACQUISITION EXECUTIVE, ARMY
SERVICE ACQUISITION EXECUTIVE, NAVY
SERVICE ACQUISITION EXECUTIVE, AIR FORCE
SERVICE ACQUISITION EXECUTIVE, SPECIAL OPERATIONS COMMAND

SUBJECT: Joint Enhanced Munitions Technology Program

The Joint Insensitive Munitions Technology Program (JIMTP) was established in 2007 to develop technological solutions that enable existing and future weapon systems to meet Insensitive Munitions (IM) requirements in accordance with 10 U.S.C. § 2389, Chapter 141, December 2001 Department of Defense (DoD) Directive 5000.01. The JIMTP has worked closely with the Service Acquisition Executives, DoD Insensitive Munitions Integrated Product Team, and the Joint Services Insensitive Munitions Technical Panel over the last thirteen years to develop and transition technologies that help the Department's munitions respond predictably to unplanned stimuli, improving warfighter safety. Through its efforts and close coordination with the Services' science and technology (S&T) and acquisition professionals, over 150 weapons systems are now fully or partially IM compliant, legacy munitions systems are demonstrably safer, and the Department has built an extensive toolbox of technology solutions to mitigate unplanned reactions for systems containing energetic materials.

While this emphasis on munitions safety was appropriate and expansive improvements have been made throughout the Department's munitions portfolio, it is now necessary to change the focus of this munitions based S&T program to enhancements in weapon speed, range, and lethality, while utilizing existing advanced IM technology to maximize weapon safety. As we consider our power projection capabilities related to near peer competition, there is an urgent need to provide our warfighters with increased or new capabilities. We are committed to developing the most lethal weapons possible and communicating associated risks intelligently, so our

on systems capabilities and safe

the JIMTP will be renamed as the compliance requirements remain and thus will remain a critical as' IM requirements, as described for Non-Nuclear Munitions," will those weapons. OUSD(R&E) will rt of weapons safety on existing rise on existing IM technologies closely with the Office of the convey recommended solutions to

Service relevant explosives and a list of weapon system speed, ears. The JEMTP team will work and identify technology objectives

ony Di Stasio, JEMTP Program rch 15, 2019.

r
chnology, and Laboratories



JIMTP → JEMTP

➤ **Joint Insensitive Munitions Technology Program (JIMTP)**

- Executed by USD (AT&L) Land Warfare & Munitions
- Focus on specific weapon systems IM compliance
- Prioritize common IM solutions for all services
- Requirements driven by IM Strategic Plans
- Delivered solutions reduce risk in the field/fleet
- Emphasis on acquisition deliverables and actual weapon demonstrations

➤ **Joint Enhanced Munitions Technology Program (JEMTP)**

- Executed by OUSD (R&E) Research, Technology and Laboratories
- Focus on enabling technologies for munitions
- Requirements driven by PM/PEO interaction and capability gap analysis
- Prioritize common technology gaps across services for increased performance, range, and lethality of weapons systems
- Utilize developed IM technologies from JIMTP for risk mitigation
- Responsibly communicate capability vs. risk for warfighter
- Emphasis on technology development and relevant capability demonstrations



Joint Enhanced Munitions Technology Program

Mission - Advance ordnance science and technology to deliver Joint Service solutions that enhance performance and readiness of DoD munitions ensuring Warfighter superiority.

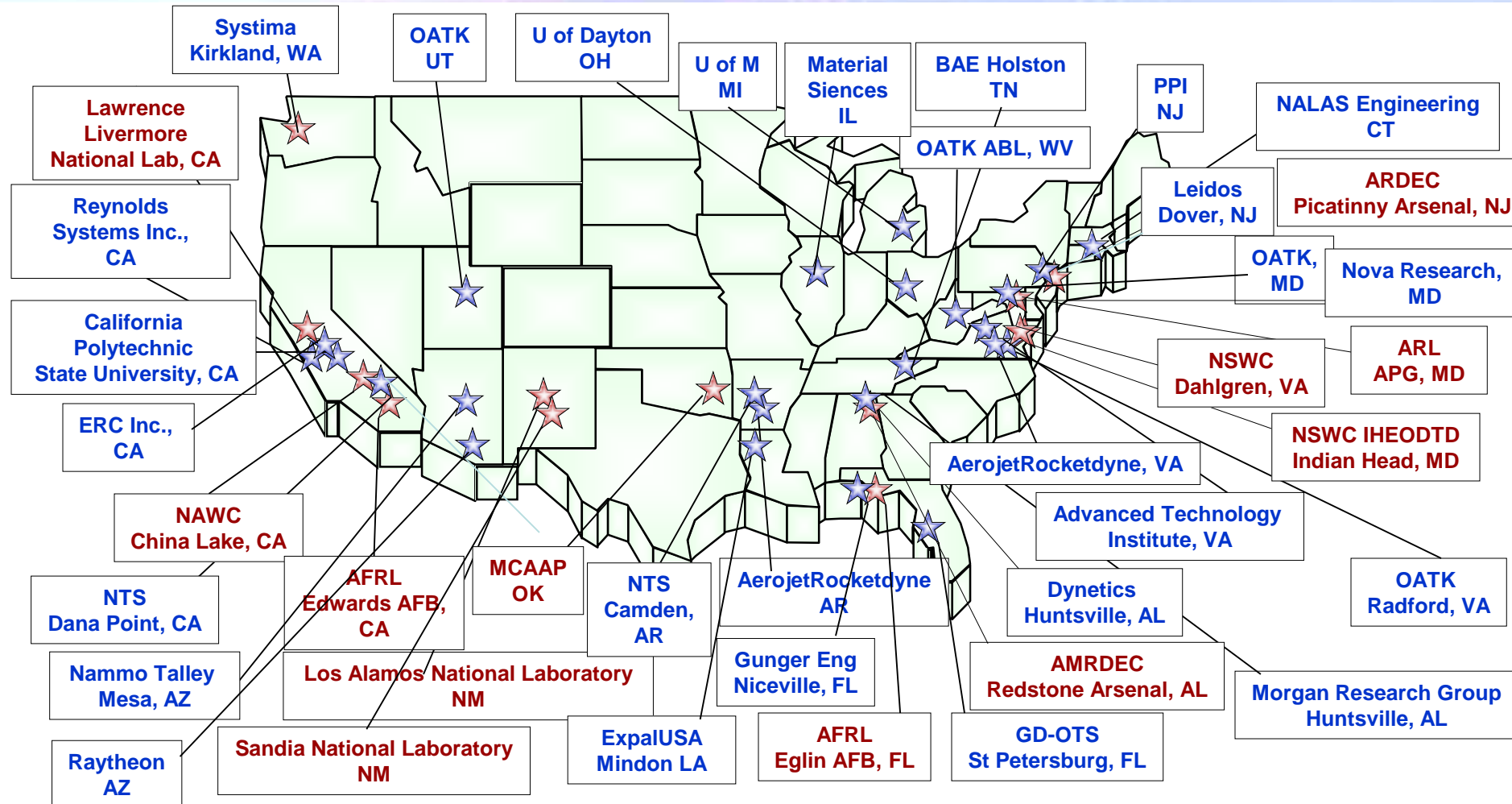
Purpose - Accelerate technology development and push the state of the art to establish and maintain the munitions technology strategy by leveraging the DoD and partner networks.

This is accomplished by working toward the technology gaps identified by PEOs/PM and continuous communication between the JEMTP, and the S&T and acquisition communities.

Citius, Altius, Fortius



FY19 Joint Munitions Technology - Performers -



JIMTP is strengthening government-industry partnerships



JEMTP New Acquisition Strategy

- Acquisition team initial assessment indicates that the following acquisition strategy would increase efficiency, effectiveness, and cost-savings
 - Long-Term Solicitation Method: Broad Agency Announcement (BAA) or a BAA-like tool (i.e., Annual JEMTP Request Announcement) issued annually to solicit New Idea White Papers and, ultimately, meaningful New Idea Proposals in sync with the JEMTP battle rhythm
 - Addresses challenges brought about by DOTC's cycle not being aligned with JEMTP's cycle
 - Tool to Award Selected Projects: Other Transactions executed by Washington Headquarters Services (WHS)
 - Changes:
 - Ability to create and maintain OUSD battle rhythm
 - Ability to rapidly (<6 months) make new awards

Ability for direct contracts with foreign companies



Program Partners...PLUS

Department of Energy (DOE) National Laboratories – JMP	Action: Expand to include other teams, capabilities in the DOE to benefit higher TRL demonstrations (GBSD, Hypersonics etc.)
JFTP	Action: Modify to establish trade space for next gen weapons.
Academia	Action: Expand utility using new consortium acquisition strategy
SERDP/ESTCP	Action: None - Sister OUSD portfolio to evaluate and gage environmental impact
Industry	Action: Disseminate new ACQ plan - contribute TRL 2-7 at different points and act as transition partner (weapon owners)
Navy, Army, AF IM teams	Action: Disseminate Compendium - Service BA 4-6 lines for transition of technology to PEOs/PMs
PEOs / PMs	Action: Requirements collection - Requirements driver as well as transition partners
RP-21/COIs	Action: Increase Participation – Sounding board for performance requirements and leveraged work
TTCP	Action: None – FVEY participation and excellent leveraging for mutual reliance



International Partners

➤ Partnering

▪ International

- Actively engaged with The Technology Coordination Program (TTCP)
- IM-Project Agreement (UK)
- CRADA with Brazil (IMBEL) on direct/indirect fire
- RDTE-US-SW-AF-16-02 (Sweden)
- DEA-A-2017-AT-0655 (Australia)
- A-IEA-UK-2007-1781 (UK)

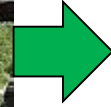
➤ Goal to expand greatly through new Acquisition Strategy



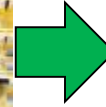
JEMTP Long Term Investment Strategy



- **Fundamental Research (discovery)**
 - University investment and DOE
 - Well funded in energetic materials across the Army
 - New ingredients and art of the possible



- **Investigate Technology (Innovation)**
 - Better understanding of ingredients
 - Initial ingredient interaction
 - Planned end item or family



- **Innovate Technology Options (Engineering)**
 - Best combination of ingredients for systems
 - Complimentary technologies from others
 - Repeatable and scalable

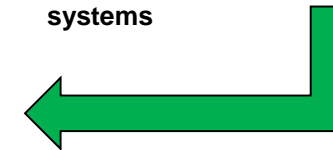


- **Technology pull only (less innovation)**
- **User requirements driven**



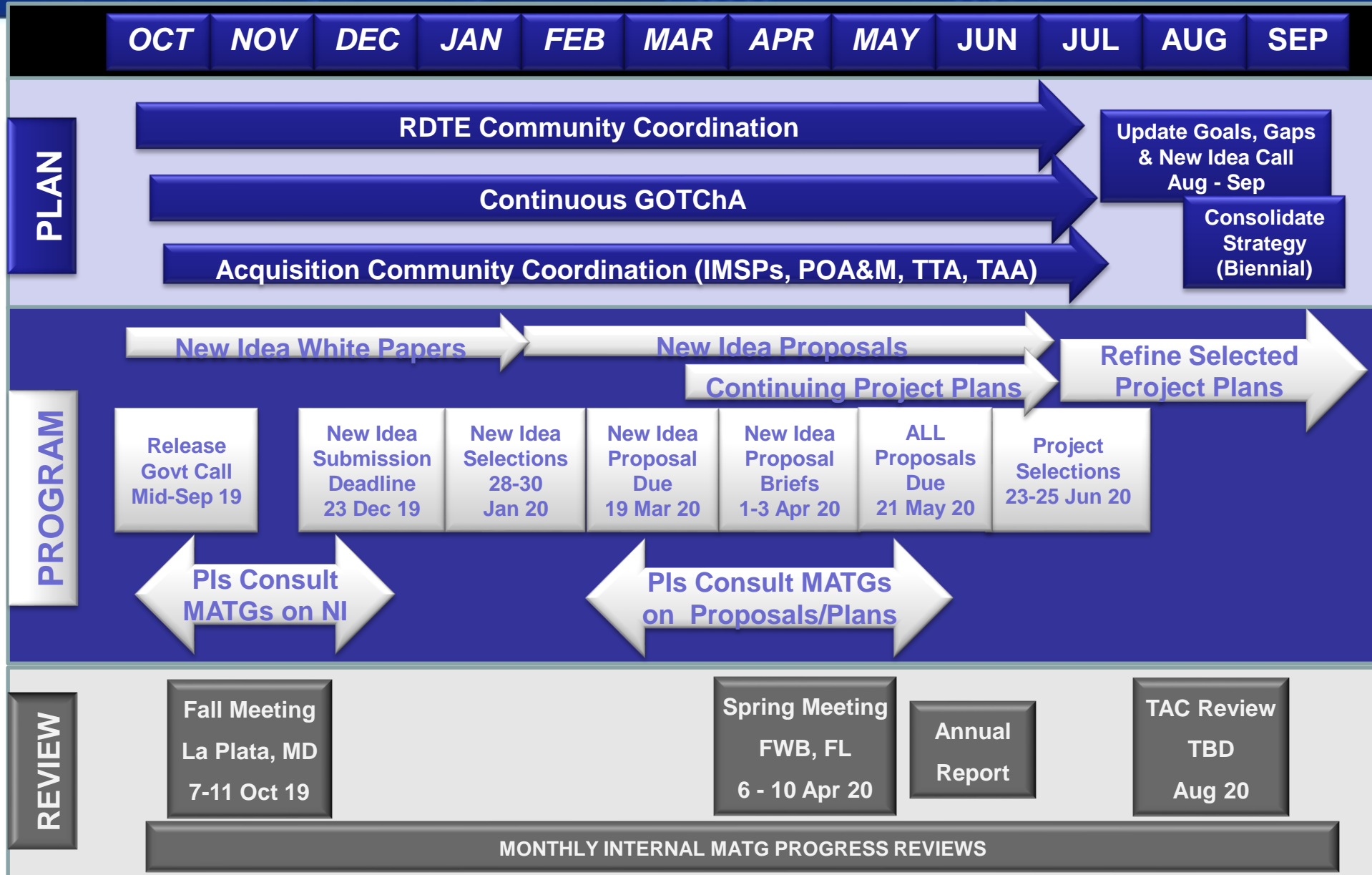
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- **R&D cycle can lead to unique, innovative solutions for multiple systems**





JEMTP Battle Rhythm





FY20 6.2 Investments

- **High Performance Rocket Propulsion (HPP) – MATG I (61% investment in Hypersonic tech)**
 - Novel ingredients and propulsion systems
- **Minimum Signature Rocket Propulsion (MSP) – MATG II (66.2% investment in higher energy materials)**
 - Clean burning new molecules
 - Increased speed and range concepts
- **Blast Fragment Warheads (BFW) – MATG III (71.4% investment in increased lethality)**
 - Additive Manufactured (3D printed) fragmentation for improved lethality in soft targets
 - Improved mechanical strength/thermal survivability
 - Initiation train design for precision/directional lethality



FY20 6.2 Investments

- **Anti-Armor Warheads (AAW) – MATG IV (60.4% investment in improved performance)**
 - Scale up of CL-20 for AAW demonstratins
 - Metal/polymer reactions for increased lethality
- **Gun Propulsion (GP) – MATG V (67% investment in extended range technology)**
 - Processing technologies for longer range projectiles
 - Novel ingredients for reduced barrel erosion



?? Burning Questions??



Distribution A: Public Release