



Innovation & Modernization Office

[formerly the Rapid Reaction Technology Office]

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Innovation & Modernization

<https://ac.cto.mil/pe/IM>

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Innovation & Modernization (I&M)

Our Mission

Accelerate defense innovation through prototyping to rapidly mature and transition capabilities aligned to DoD's strategic imperatives

Vision

Be an innovation leader for DoD modernization

Established in 2003 as the Rapid Reaction Technology Office (RRTO), our strength is the ability to discover innovative and emerging ideas, turn them into executable projects, and quickly transition them to the Services and warfighter

I&M Innovation Activities



Innovative Prototyping Investments

Prototyping programs that emphasize lightweight processes and agile execution to **develop novel capabilities and transition them to acquisition markets**

Annual Program Numbers

- FY23:
- 80+ active projects
 - 93% transition rate to Service or warfighter
 - \$80M in prototyping investments



Innovation Outreach

Business-friendly matchmaking service that **helps DoD find innovative solutions**. Discovers new technologies, and connects performers with Services and others with technology needs

- FY23:
- 495 companies or universities
 - 83 tech presentations
 - 25+ follow-on negotiations



Innovation Discovery Venues

Three agile venues that **discover new technologies**, and enable innovators through hands-on understanding of DoD needs

- FY23:
- 14 multi-day events
 - 830 technologies showcased
 - 110+ transitions/transfers
 - 281 small/non-traditional performers

Multiple opportunities for innovative performers to mature their ideas and transition their capabilities



Operating Model Encourages Innovation

- **Emphasis on innovative concepts, particularly from small businesses and non-traditional performers**
- **Iterative proposal review and selection process**
- **Low barrier to entry; three-page white paper and quad**
- **Streamlined process for accelerated decisions**
- **Awards made in the year of execution**
- **Execute through partnership with transition offices**

Guiding principles

1. Emphasis on **innovative**, leap-ahead capabilities
2. **Co-funding** from other government stakeholders
3. Clear **transition** path to programs or people
4. **Jointness**
5. Closely aligned with the Department's **strategic guidance**

A deep-rooted culture of agility and innovation





Example Prototypes

NIGHT

- An advanced scramjet engine that can exploit targeted energy deposition with novel plasma techniques to improve performance and operability of air-breathing hypersonic missiles
- Partnered with Spectre Aerospace, formerly FGC Plasma, a small business looking to build the next generation of hypersonic vehicles
- Transitioned to the Air Force Life Cycle Management Center (AFLCMC) Armament Directorate, the acquisition office for the Hypersonic Attack Cruise Missile



Chariot

- A novel DevOps approach to AI/ML that reduces the time and cost to build, deploy, retrain, and redeploy models, delivering agile AI/ML capabilities that can quickly flex in response to changing operational conditions
- Partnered with Striveworks Inc., a small business transforming data by building and deploying models rapidly at scale
- Transitioned to five USSOCOM applications in FY 2022



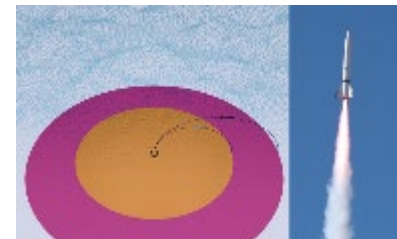
Vanilla

- A low-cost, ultra-long endurance unmanned aerial vehicle supporting multiple payloads
- Partnered with Vanilla Unmanned, a small business challenging the vendor lock of special-use, high-cost UAVs developed by traditional industry aerospace giants
- Vanilla successfully demonstrated world-record endurance and is capable of multi-mission beyond visual line of sight operations providing days of time-on-target or thousands of miles of search capacity on a single flight



ALITEC: High Performance Solid Rocket Propellant

- Novel solid rocket propellant formulation incorporating Al-Li alloy to provide significantly higher performance than traditional state-of-the-art solid rocket propellants
- Partnered with Adranos, Inc., the winner of the U.S. Army's inaugural xTechSearch Competition
- Transitioned to Industry and JPEO(A&A) in FY 2022





Innovation Outreach

- Innovation Outreach engages widely across the innovation ecosystem to quickly find innovative solutions relevant to DoD
- 3-4 topics per year posted as SAM.gov “Solutions Meeting”
- Ultra-lightweight process fosters high levels of industry participation through 100-word applications and a network of 70 venture capitalists

<u>2023 Numbers</u>	<u>2023 Activities</u>	<u>2024 Activities</u>
<ul style="list-style-type: none"> • <u>495</u> Companies applied to participate • <u>83</u> Companies presented to the requesting government audience • <u>25+</u> companies in follow-on discussions/ negotiations 	<ul style="list-style-type: none"> • Fog and Edge Computing • Commanding Energy • Counter AI/Autonomy Enhanced Multi-Domain Uncrewed Systems 	<ul style="list-style-type: none"> • Data Over the Horizon • AI/ML for Mission Critical Applications • Breaking the Kill Chain • Emerging Technologies

Diamond Unclonable Security Tag (DUST)

- DUST Identity, a small business, originally focused on preventing counterfeiting of luxury commercial goods (e.g., watches)
- Received DoD funding to develop their nano-material to mark, scan, and catalog critical military components to detect tampering
- In FY23, DUST Identity transitioned their solution to the Navy, and partnered with Parker Aerospace to incorporate DUST on the F-35





Innovation Discovery Venues



Multi-Intelligence & ISR Technology Discovery Venue

Thunderstorm is a campaign of land-based innovation discovery events that provides performers the opportunity to showcase new technologies in the field and collaborate with DoD stakeholders and other businesses. Prototypes are showcased in various settings depending on the technology focus area, such as autonomy, and Joint All-Domain Command and Control. In FY 2023, Thunderstorm showcased 653 technologies, including systems from 185 small businesses.



Multi-domain Technology Discovery Venue

Joint Prototyping & Experimentation - Multidomain (JPEM) enables rapid integration of technologies on an authentic military maritime platform. JPEM's mobility enables showcasing joint and multi-domain technologies that are difficult to observe outside of DoD test ranges or laboratories, including electronic warfare, communications systems, and novel sensors. In FY 2023, JPEM showcased 72 technologies for DoD representatives, including prototypes developed by 19 small businesses.



Joint Interagency Technology Discovery

JIFX leverages its rich Naval Postgraduate School academic expertise and west coast location to extend the ID program's reach to more small businesses and non-traditional performers. In partnership with the CA National Guard at Camp Roberts, JIFX provides a flexible flight range for unmanned aerial systems. Recent events focused on autonomous systems and data visualization. In FY 2023, JIFX introduced the DoD to 105 prototype technologies, including 77 from small businesses.

FY23:	110+	Technologies Transitioned	281	Small Businesses Mentored	830	Technologies Showcased	950+	DoD/Government Attendees
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I&M Opportunities for Engagement

FY 2024 Events

December 2023: JPEM 'Information Dominance & Advantage' Capability Discovery (Fort Story, VA)

05-09 February 2024: JIFX 24-2 'Multi-domain UxS and Countermeasures' (Camp Roberts, CA)

08-16 March 2024: SxSW 2024 outreach to innovative small businesses and non-traditional performers (Austin, TX)

02-03 April 2024: 'AI-Enhancing the Battlespace' Solutions Meeting (McLean, VA)

08-10 April 2024: Thunderstorm 'SOF Lethality' (Nellis AFB, NV)

06-10 May 2024: JIFX 24-3 'C5ISR and Countermeasures' (Camp Roberts, CA)

05-09 August 2024: JIFX 24-4 'Non-Standard Communications and Navigation' (Camp Roberts, CA)

22-24 August 2024: Fed SuperNova outreach to innovative small businesses and non-traditional performers (Austin, TX)

August 2024: Mission Capabilities Industry Technical Exchange Meeting (Laurel, MD)

Visit our Innovation & Modernization website <https://ac.cto.mil/pe/IM> for the latest schedule or to join our mailing list



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