



# **Rapid Reaction Technology Office (RRTO) Overview**

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# RRTO Operating Model

- **RRTO develops prototypes to increase the speed from idea to developed capability, leading to a more lethal, resilient, and rapidly innovating Joint Force**
  - **Technology areas reflect National Defense Strategy and USD(R&E) modernization priorities**
  - **Seeks innovative ideas from small businesses; traditional and non-traditional performers; academia; CCMDs; Services; government labs; FFRDCs & UARCs**
  - **Proposals accepted on a rolling basis**
  - **Streamlined process for funding consideration**
  - **Awards made throughout the year of execution**

## Guiding principles

1. Aligned to DoD modernization priorities
2. Joint
3. Innovative, leap-ahead technologies
4. Co-funding from government stakeholders
5. Clear transfer/transition path

**A culture of innovation delivered at the speed of war**





# RRTO Prototyping Initiatives

## Emerging Capabilities Technology Development (ECTD)

- Conceptual prototypes aligned with the “Road to Dominance” modernization plan
  - Pursues risk-reducing technology prototypes and demonstrations of cutting-edge land, sea, air, and space systems for the Joint Warfighter
  - Demonstrates art of the possible; < 36 months, < \$6M
  - Rolling start during execution year **accelerates cycle of innovation**

## Quick Reaction Special Projects (QRSP)

- Operational prototypes that deliver quick wins to the warfighter
  - Matures emerging technologies for operational use by the Joint Warfighter
  - Delivers innovative prototypes to help address immediate needs; 12-18 months, < \$1M
  - Rolling start during execution year to **increase speed of delivery**

## Rapid Prototyping Program (RPP)

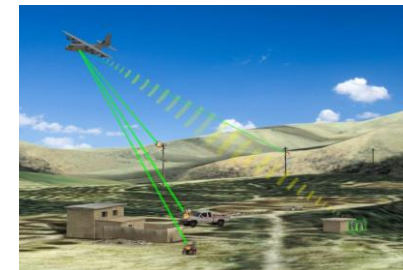
- Operational Prototypes that accelerate innovation within Services’ programs
  - Develops prototypes that drive down risk and **foster creative operating concepts**
  - Anticipate and respond to emergent Service and Agency issues and time-sensitive threats by selecting projects within the year of execution.
  - Annual call for proposals; FY2018 projects averaged <24 months and <\$10M

**Increased emphasis on National Defense Strategy and USD(R&E) modernization areas**



# Example Prototyping Efforts

- **Persistent Aerial Recon. & Communications (PARC)**
  - 24/7 ISR via ultra-lightweight low-tension power/data wire
  - Autonomous launch, flight, and recovery
  - Transitioned to SOCOM, Army Rapid Equipping Force
- **High Accuracy Video Object Classification (HAVOC)**
  - Expeditionary automated target recognition for full motion video
  - New classifiers require 100s or 1000s of samples, not millions
  - End users can create new classifiers and train algorithms in the field
  - Algorithms incorporated into Project Maven
- **AC-130 High Energy Laser (HEL)**
  - OSD risk reduction in key technology areas
  - Work accelerates SOCOM program; foundational for other DE work
  - Overall program completes with operational system in FY 2022
- **Accelerated Nuclear DNA Equipment (ANDE)**
  - Processes DNA samples and matches to terrorist database
  - Replaces expeditionary lab with a fieldable laser printer size device
  - Transitioned to SOCOM, DHS, DoJ





# Demonstration/Experimentation Venues



High Speed, Electronic Keel Marine Testbed



**Stiletto** is a maritime technology demonstration platform with an “electronic keel” that enables rapid integration, demonstration, and experimentation with new technologies. The 88-foot experimental boat provides an authentic military maritime platform with easy access for small businesses and non-traditional performers. In FY 2018, Stiletto demonstrated 68 technologies, including systems from 23 small businesses.



Multi-Intelligence & ISR Technology Demonstration Venue



**Thunderstorm** is an enduring technology demonstration venue open to a wide range of participants, including small businesses, military, and the interagency. New technologies can be integrated, evaluated, and assessed under real world conditions with scripted and unscripted scenarios. In FY 2018, Thunderstorm demonstrated 87 technologies, including systems from 52 small businesses.



Joint Interagency Field Experimentation (JIFX)



**JIFX** demonstrates and evaluates new technologies related to Department of Defense research in an operational field environment. JIFX also provides the operational community an opportunity to experiment with these technologies to better understand their capabilities and how to use them. Together this creates a collaborative, boundary-pushing environment to explore the implications and applications of emerging technology.



Technical Support & Operational Analysis Activity (TSOA)



**TSOA** conducts scenario-based live field experiments and assessments in operationally relevant venues to help identify vulnerabilities and system limitations in new technologies. With a focus on new technologies emerging from Service/DoD labs, TSOA delivers rigorous technology assessments from the perspective of both the operator and the adversary to uncover these vulnerabilities.



# RRTO Prototyping Resources

- **RRTO Proposals**
  - [www.acq.osd.mil/ecp/programs/rrto.html](http://www.acq.osd.mil/ecp/programs/rrto.html)
- **RRTO Demonstration Venues**
  - [thunderstorm@arl.psu.edu](mailto:thunderstorm@arl.psu.edu) (Thunderstorm)
  - [stiletto@navy.mil](mailto:stiletto@navy.mil) (Stiletto)
  - <http://www.nps.edu/web/fx/> (JIFX)
  - <https://uniquemissioncell.org> (TSOA)
  - ...and on [fedbizopps.gov](http://fedbizopps.gov)
- **DoD Prototyping Guidebook**
  - <https://www.dau.mil/tools/t/DoD-Prototyping-Guidebook>
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