



RCCTO

ARMY RAPID CAPABILITIES AND CRITICAL TECHNOLOGIES OFFICE

RCCTO Overview

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RCCTO Chief of Staff

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29 November 2023



Agenda

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- **RCCTO Overview**
- **RCCTO Prototyping Updates**
- **RCCTO “Tomorrow”**



Army Rapid Capabilities & Critical Technologies Office Mission

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Aligned with Army Modernization Priorities



SPEED + RANGE + CONVERGENCE = DECISION DOMINANCE & OVERMATCH

MISSION: The Rapid Capabilities and Critical Technologies Office will rapidly and efficiently research, develop, prototype, test, evaluate, procure, transition, and/or field critical enabling technologies and capabilities that address near-term and mid-term threats. The Rapid Capabilities and Critical Technologies Office will execute this mission consistent with the Army's modernization priorities that maximize Soldiers' capabilities to deploy, fight, and win on future battlefields.

"The world and warfare are changing rapidly; we will stay ahead of our adversaries. And so, continuous transformation means iteratively adapting and evolving how we fight, how we organize, how we train and how we equip."

**- GEN Randy George,
Chief of Staff Army 2023**

Reference: 29 July 2020 Charter



Hypersonics



Mid-Range Capability



Directed Energy



Rapid Acquisition Prototyping



Cyber, Electronic Warfare and Information Dominance

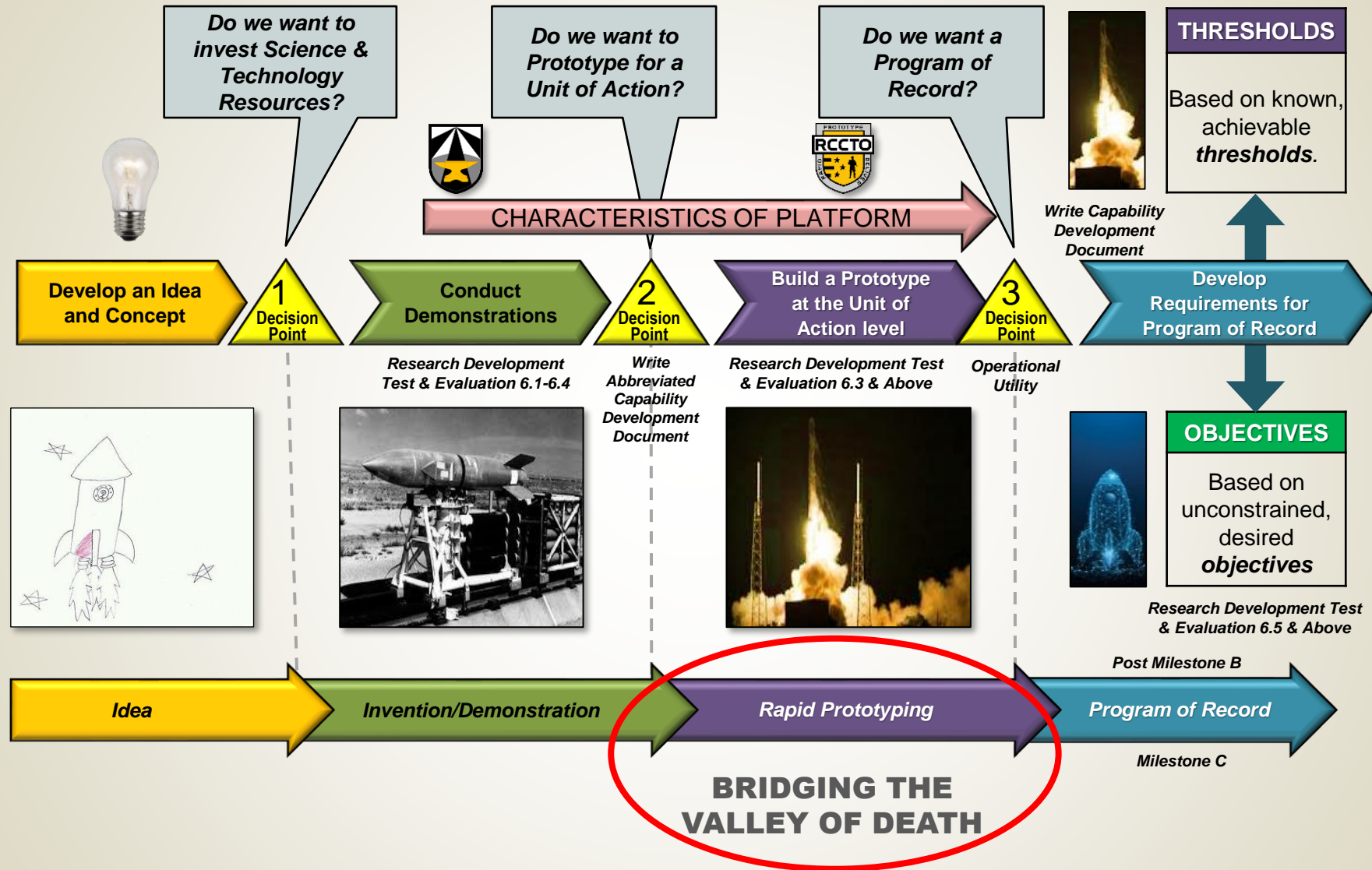


Advanced Concepts Critical Technologies



Counter-small Unmanned Aircraft Systems

Modernization Continuum





Rapid Capabilities & Critical Technologies Office Governance and Relationships

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IN JULY 2020 THE SECRETARY OF THE ARMY SIGNED AN UPDATED CHARTER that affirmed the Army Rapid Capabilities and Critical Technologies Office (RCCTO) as a unique program office and signature modernization asset.

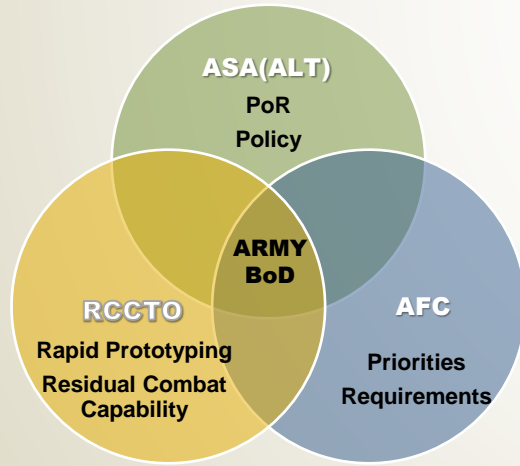


Army Board of Directors	
HON Christine E. Wormuth <i>Secretary of the Army</i>	GEN Randy A. George <i>Chief of Staff of the Army</i>
HON Gabriel O. Camarillo <i>Under Secretary of the Army</i>	GEN Randy A. George <i>Vice Chief of Staff of the Army</i>
HON Douglas R. Bush <i>Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA (ALT))</i>	GEN James E. Rainey <i>Commanding General, Army Futures Command</i>

As of 21 SEP 2023

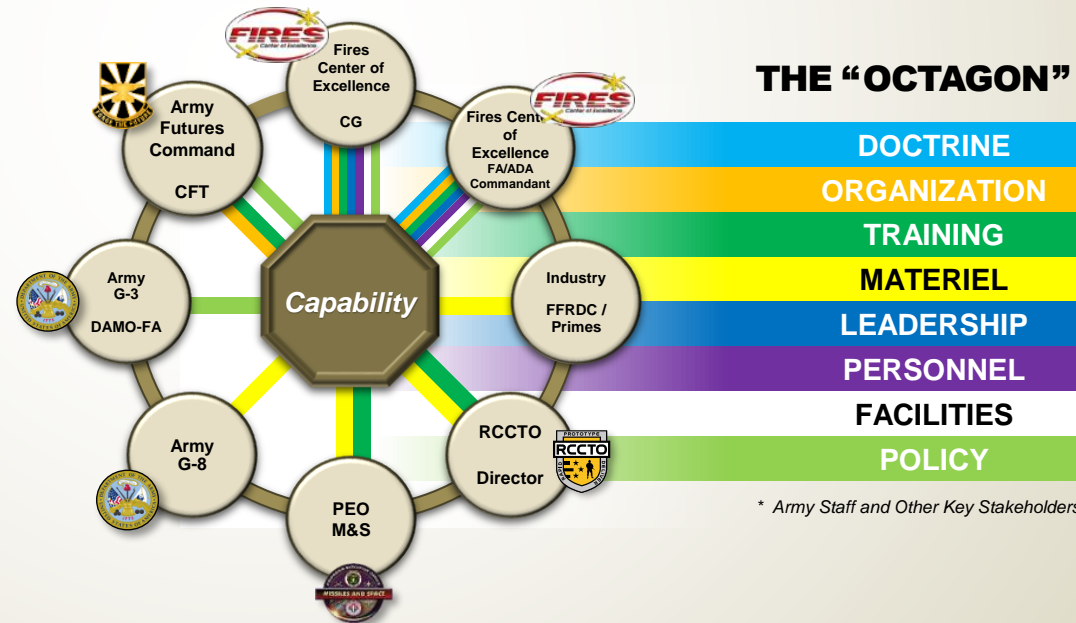
LTG Robert A. Rasch, Jr.
Director

ARMY PARTNERS



Partnership Transition Teams

THE "OCTAGON"



* Army Staff and Other Key Stakeholders



Long Range Hypersonic Weapon



Where we have been:

- Developed, delivered first LRHW Battery's equipment.

Where we are going:

- **Prepare for next Joint Flight Campaign test with Navy Conventional Prompt Strike program.**
- Complete unit certification and flight test activities.
- Provide first combat capability, i.e., Battery #1.
- Complete delivery of missiles for Battery #1.
- Transition to PEO M&S and Program of Record.
- Deliver Battery #2 and Battery #3.
- Technology Insertions (TIs).

Mid-Range Capability

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Where we have been:

- Developed, delivered first MRC Battery's equipment.
- Munitions delivered to Battery #1.

Where we are going:

- Transition to PEO M&S and Program of Record.
- Deliver Batteries #2-5.



Directed Energy Prototypes

Maneuver Air Defense




Directed Energy Maneuver-Short Range Air Defense



50kW-class laser weapon

Maneuver force protection against aerial threats

Threat Set

-  Groups 1-3 Unmanned Aircraft Systems
-  Rotary-Wing
-  Rockets, Artillery, Mortars

Where we have been:

- Delivered 4 systems.

Where we are going:

- Continue iteration 2 Prototyping & CLS
- Conduct User Training & TTP development

Fixed Base Defense






Indirect Fire Protection Capability - High Energy Laser



300kW-class laser weapon

Fixed and semi-fixed site protection against aerial threats

Threat Set

-  Groups 1-3 Unmanned Aircraft Systems
-  Rotary-Wing
-  Fixed Wing
-  Rockets, Artillery, Mortars
-  Cruise Missiles

Where we have been:

- Preliminary Design Review

Where we are going:

- Deliver prototypes


Indirect Fire Protection Capability -High Power Microwave



High power microwave weapon

Fixed site protection against swarming threats

Threat Set

-  Groups 1-2 Unmanned Aircraft Systems and Swarms

Where we have been:

- Completed Government Acceptance Test

Where we are going:

- Deliver systems.



Counter-small Unmanned Aircraft Systems Prototypes

Maneuver / Mobile Air Defense

Army Multi-Purpose High Energy Laser



20kW-class laser weapon

Maneuver force protection against unmanned aerial threats

Threat Set



Groups 1-2 Unmanned Aircraft Systems

Where we have been:

- Preliminary Design Review completed.
- Critical Design Review completed.

Where we are going:

- Design and integration.
- Deliver 4 systems.

Family of Counter Unmanned Aircraft Systems



Passive sensors with weapons

Maneuver force protection against unmanned aerial threats

Threat Set



Groups 1-3 Unmanned Aircraft Systems

Where we have been:

- PC-21 on network, integrated with Firestorm, showed tracks on main network.
- PC-22 sensors tracked class 1 UASs.

Where we are going:

- Deliver 6 systems.
- Transition to PEO MS.

Fixed / Semi-fixed Base Defense

Palletized-High Energy Laser



Palletized 10kW and 20kW laser weapon

Force protection against unmanned aerial threats

Threat Set



Groups 1-2 Unmanned Aircraft Systems

Where we have been:

- Completed New equipment training for P-HEL 2 and 3.
- Successful Live Fire Exercise.

Where we are going:

- Continue Deployment



Hybrid Electric Vehicles (HEVs)

- Increase operational effectiveness through reduced signatures.
- Increase onboard electrical power generation, add off-platform export power capability.
- Increase automotive performance.



M2A2 Bradley Fighting Vehicle



M1151 A1 Up-Armored High Mobility Multipurpose Wheeled Vehicle



M1281 Close Combat Weapons Carrier Joint Light Tactical Vehicle

Where we have been:

- Bradley HEV: 2 x delivered to Government in Q2FY24; Government testing concluded.
- HMMWV HEV: 2 x contracts; 1) Gale Banks Engineering, and 2) Michigan Technological University.
- JLTV HEV: 1 x contract to MATBOCK, first vehicle completed FY24. Contractor testing FY24.

Where we are going:

- Bradley HEV: Transfer knowledge to PEO GCS.
- Prototypes: 1 X HMMWV GBE, 1 X HMMWV MTU, 3 X JLTV HEV, and 4 X Stryker HEV (continue tech maturity).



Human-Machine Integrated Formations (H-MIF): Leadership Intent

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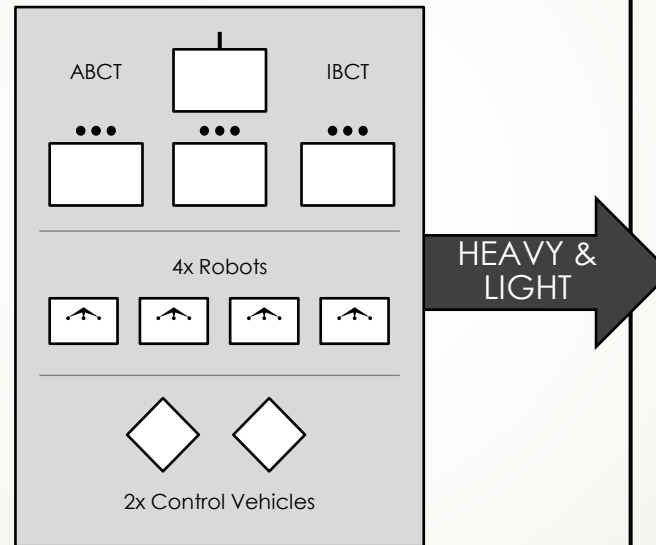


Task: Develop a RCCTO-led, total Army Integrated Solutions Team (IST) developing Human-Machine Integrated Formations (H-MIF), integrating cross-Army autonomous and robotics initiatives into operationally deployable prototypes.

Intent

- Focus on Human-Machine Integration, not Human-Machine Teaming
- Optimize capabilities of both Human and Machine
- Formation-based Thinking
- Place into the hands of Soldiers to receive innovation feedback
- Start small (1-2 PLTs) of Mechanized and Light, then scale to other formations

Initial Formation(s)



Deliverables

Pull From Enterprise:

- Initial platform(s)
- Initial payload(s)
- Autonomous behaviors

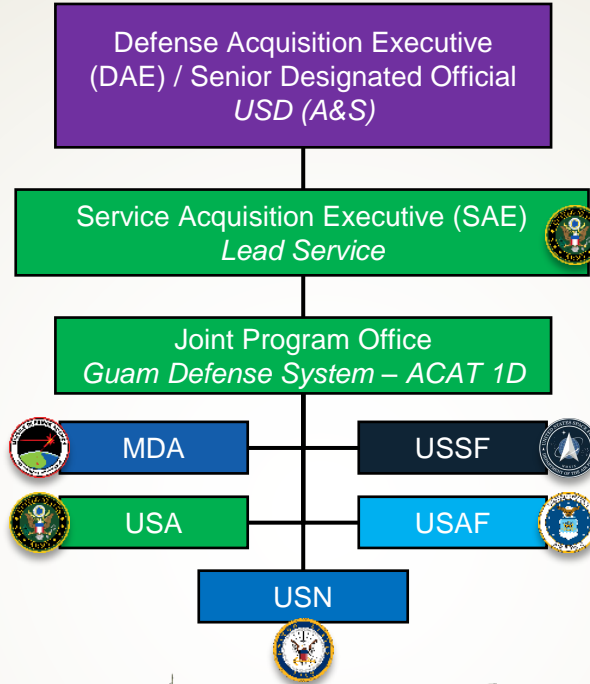
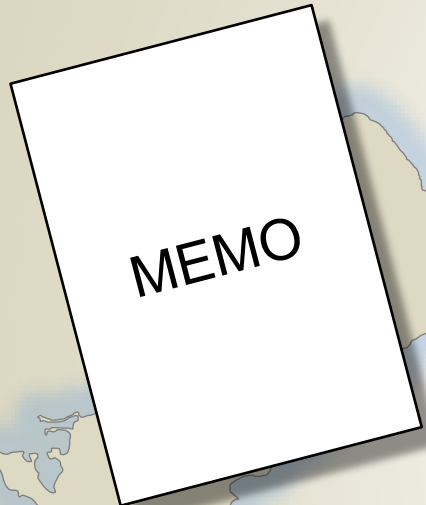
Rapid Prototyping:

- Additional platforms
- H-MIF architecture
- Resilient network/enablers
- Integrated formation capabilities
- Enhanced platforms, payloads, behaviors

“Think big, start small, go fast!”



Guam Defense System (GDS)



- GDS is a Joint Special Interest ACAT 1D program.
- USD(A&S) is the senior DoD official responsible for GDS.
- USD(A&S) will designate the Army as the Service Acquisition Executive managing the program.





GDS Joint Program Office Mission

MISSION: Integrate Service and Agency elements into a unified air and missile defense capability to defeat hypersonic, ballistic, cruise missiles, and aerial threats.

