



UNITED STATES ARMY TEST AND EVALUATION COMMAND

# UNMANNED SYSTEMS T&E Challenges & Opportunities

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# Agenda

- ATEC Mission
- Achieving Balance (Traditional & Rapid)
- Common Rapid Acquisition Challenges
- Unmanned Systems – ATEC Involvement
- Unmanned Systems – Unique Challenges
- T&E Opportunities



ATEC Mission:

**Does it Work?**

**...How Do I Know?**

**EFFECTIVENESS**

**SUITABILITY**

**SURVIVABILITY**

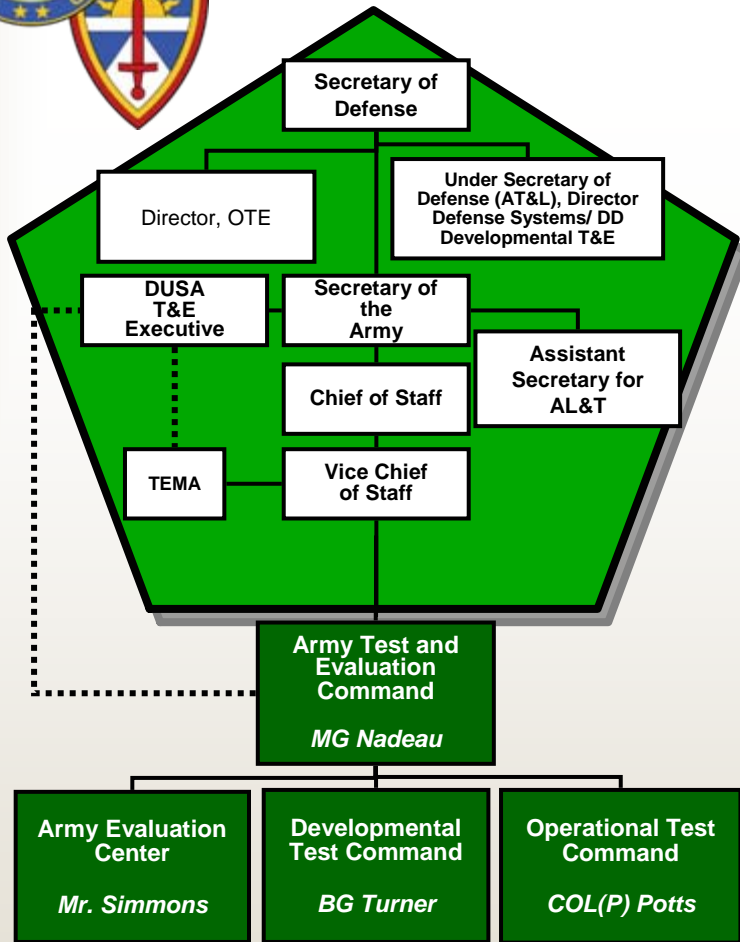


# Mission Statement

- Facilitate equipment procurement/fielding decisions through testing and analysis to ensure our Army's Warfighters have the right capabilities for success across the entire spectrum of operations.
- **Conduct rapid testing in direct support of the Global War on Terror, providing capabilities and limitations analyses of weapon systems to enable employment decisions for rapid fielding to the Combat Soldier.**



# How We Fit



**Legend**  
 ..... T&E Policy and Oversight

**Independent Reporting Mandated by US Code, OMB, and OSD**

# Achieving Balance



## PAST

- Strong methodical testing
- Requires Time/Money

## CURRENT

- Two pronged
  - Continue traditional testing
  - Added rapid testing (Capabilities & Limitations)

## TRADITIONAL ACQUISITION

- Slow, sequential (years)
- Risks Mitigated
- Fully Synchronized
- Bureaucratic
- All data
  - Robust DT
  - Full OT
- Expensive

## RAPID ACQUISITION

- Quick, overlapping (months)
- Higher Risk
- Opportunistic
- Less bureaucratic
- Limited Data
  - Constrained DT
  - Limited OT
  - C&L Report to User
- Less Expensive
- Relatively Fast

## FUTURE

- A different degree of "normalcy"
- What is it?
  - Where does it apply?



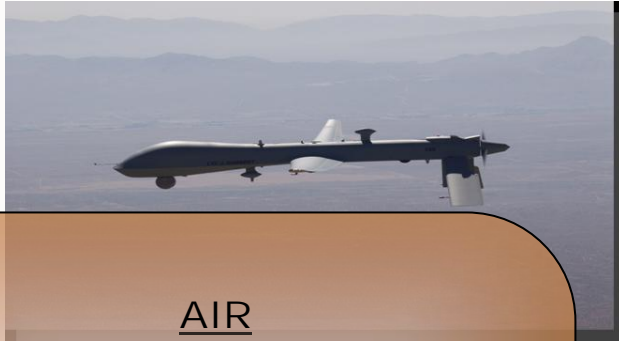
# Common Rapid Acquisition Challenges

- **Requirements are technology-driven vice user-driven**
  - Often unclear concept of operations
- **Reliance on contractor test data and informal unit feedback**
  - Unknown COTS suitability for operational environmental conditions
- **Immature system supportability considerations prior to deployment**
  - Indefinite contractor logistics support



# Unmanned Systems

## Wide ATEC Involvement



### AIR

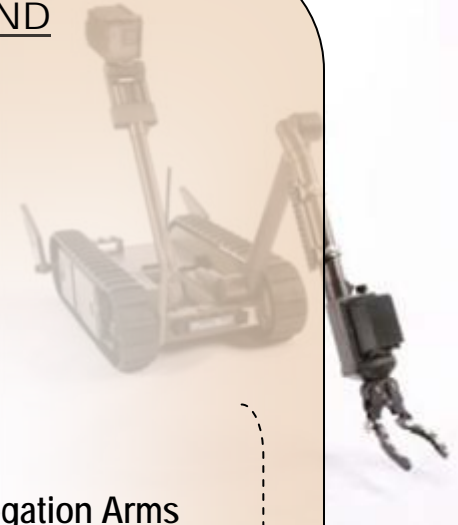
- ER/MP (Extended Range/Multi-Purpose)
- FCS Class I (MAV Heavy Fuel)
- FCS Class IV (Fire Scout)
- Joint Tactical UAS (Hunter)
- Small UAS (Raven)
- Tactical UAS (Shadow)
- Warrior A
- GMAV (Gas Micro Air Vehicle)
- Telluride

*Rapid Acquisition*



### GROUND

- FCS Small UGV
- IMS
- LKMD
- MDAR
- Outpost
- SWORDS
- Spider NMS
- ANDROS Robot
- Concorde
- Husky & RG-31 Interrogation Arms
- MV-4 Mine Roller
- LVUSS Robot
- MARC Bot
- Mini-EOD Robot
- ODIS
- Pipe Robots
- Rabbit
- Routerunner
- Talon 3B
- Tactibot / Throwbot / Toughbot
- xBot (PackBot FasTac)



*Rapid Acquisition*







# Unmanned Systems

## Unique Challenges

- **Increased operator workload**
  - Manning & organization considerations
  - Balancing manned and unmanned system tasks
  - Remote spatial orientation
- **Complex supportability considerations**
  - Remote condition monitoring
  - Self-recovery and transportability
  - Mission creep increases logistics burden



# Unmanned Systems

## Unique Challenges

- **Weaponized robots**
  - “Fail-safe” design required for system safety
  - Reliability dependent on software & command link
  - Rapid target detection/identification needed
- **System-of-system interoperability**
  - Airspace management
  - Spectrum management
  - Network management



# T&E Opportunities

- **Aid requirements and system development**
  - T&E community has enduring, diverse knowledge
- **Integrated contractor/government testing**
  - Learn early; test within operational context; minimize duplication
- **Forward Operational Assessment Team**
  - Feedback loop for system changes or updates to employment considerations & TTPs
- **Mission-based T&E**
  - System contribution to mission accomplishment

# TEST & EVALUATION

## A Critical Enabler to Capabilities-Based Acquisition



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