AMRDEC Overview

AVIATION DEVELOPMENT DIRECTORATE
- Aviation S&T supports both the current helicopter and future rotorcraft fleets in improving survivability, performance, and affordability
- Current efforts are focused on platforms, power, survivability, vehicle management, and operations support and sustainment
- Future efforts are focused on Future Vertical Lift (FVL)
- Joint Multi-Role (JMR) Technology Demonstrator (TD)
- Focus on Transition to PEO Aviation

SYSTEMS SIMULATION, SOFTWARE, & INTEGRATION DIRECTORATE
- Hardware-In-the-Loop (HWIL) Models and Simulations for Aviation and Missile Systems
- Conduct Performance and Effectiveness Evaluations for Aviation and Missile Systems
- Design and Develop Virtual Prototyping Facilities for User Evaluations of Aviation and Missile Applications
- Define and Develop Modeling and Simulation Methods and Technologies for DoD Applications
- Computer Hardware/Software Technology
- Independent Verification and Validation (IV&V)
- Aviation Flight Safety/Airworthiness Software Assessments
- Software Development and Sustainment
- Information Assurance/Cyber Security
- Interoperability Engineering and Test (IET)
- Software Fielding/New Equipment Training
- Configuration and Data Management
- Software Quality Engineering

AVIATION ENGINEERING DIRECTORATE
- Delegated Airworthiness (AW) Authority
- Systems Engineering
- Aeromechanics
- Propulsion
- Structures and Materials
- Mission Equipment
- Maintenance/Sustainment Engineering
- Foreign Military AW Authority Recognitions

Who We Support
FY15 ($2,782M)
- Army
- Navy
- Air Force
- Marine
- DARPA
- Other DoD Non-Gov't
- Non-Gov't
- Other Fed
- MDA
- Navy
- DARPA
- Army
- SOCOM
- Other Army
- Army
- PEO
- PEO Missiles & Space
- AMCOM
- OMA Mission/OCO (RDECOM)
- PEO Aviation
- Navy
- Army
- Other DoD

S3I
- Joint Research Program Office
- REDSTONE ARSENAL
- Redstone Arsenal

ED
- ADD
- S3I
- AED
- AMRDEC HQ

ADD
- 156, 15, 45
- 12, 0, 17
- 3, 0, 5

AED
- 15, 5, 59
- 6, 1, 112
- 15, 15, 45

ED
- 12, 0, 17
- 15, 5, 59
- 3, 0, 5

Who We Support
FY15 ($2,782M)
- Army
- Navy
- Air Force
- Marine
- DARPA
- Other DoD Non-Gov't
- Non-Gov't
- Other Fed
- MDA
- Navy
- DARPA
- Army
- SOCOM
- Other Army
- Army
- PEO
- PEO Missiles & Space
- AMCOM
- OMA Mission/OCO (RDECOM)
- PEO Aviation
- Navy
- Army
- Other DoD

S3I
- Joint Research Program Office
- REDSTONE ARSENAL
- Redstone Arsenal

ED
- ADD
- S3I
- AED
- AMRDEC HQ

ADD
- 156, 15, 45
- 12, 0, 17
- 3, 0, 5

AED
- 15, 5, 59
- 6, 1, 112
- 15, 15, 45

ED
- 12, 0, 17
- 15, 5, 59
- 3, 0, 5

FY15 Strength = 9,176
Current S&E Personnel
- 81.0% S&E
- Civilian 3,040
- Military 20
- Contractor 6,112
- PhD 6%
- MS 44%
- BS 100%
- Average Age: 46.5 yrs
**Air Defense**

- Protect the force and selected geopolitical assets from aerial attack, missile attack and surveillance
  - Point Defense
  - Area Defense
  - Platform Protection

**Fire Support**

- Destroy, neutralize, or suppress the enemy by cannon, rocket, and missile fire and to help integrate fire support assets into combined arms operations

**Ground Tactical (Close Combat)**

- Direct fire and precision weapons, supported by indirect fire, air-delivered fires, and nonlethal engagement means to decide the outcome of battles and engagements

**Aviation Weapons**

- Find, fix, and destroy the enemy through fire and maneuver; and to provide combat, combat service and combat service support in coordinated operations as an integral member of the combined arms team

**Pervasive Technology**

- Proponent for 6.2 programs that are deemed too immature to transition to one of the four capability areas, are pervasive across two or more of the capability areas, or are core competencies
AMRDEC Technology Area Leads

AMRDEC

Cyber

Sensor

Missile Electronics

Guidance

Lethality

Radar

Propulsion

Reliability/Maintainability

Affordability/Manufacturing Technology

Launcher

Datalink & Communication

Materials & Structures

Power

Aerodynamics

Warhead/Fuze

Navigation Systems

Model & Simulation

Control Systems

Technology Driven. Warfighter Focused.
AMRDEC S&T Initiation and Transition to PEO MS

Initiate S&T Program

- User Needs
- Technology Opportunities
- Resources

Need to Collaborate Earlier and Often

Gaps/Threats PM Need

Technology Dev Strategy

6.2 Technology Development

6.3 Major S&T Program Defined

Feasible

PROTOTYPE DESIGN

FAB, INTEG, & TEST

EXPERIMENTATION and TESTING in RELEVANT ENVIRONMENT

SYSTEM ANALYSIS/CONCEPT DEVELOPMENT

CRITICAL COMPONENT TECHNOLOGY MATURATION

USER NEEDS, CAPABILITY GAPS

Inform Requirements and AoA

Infome Tech

Materiel Solution Analysis

Materiel Development Decision

Technology Maturation and Risk Reduction

PDR

Establish PM (MDA) Program Funding

PM Acquisition Strategy Requirements/KPPs

S&T CAL and PM Collaboration

Technology DRIVEN. WARFIGHTER FOCUSED.
Missile S&T Investment Process

PROPOSED TIMELINE

Missile S&T Process

- Capability Area Leads (CALs) are responsible for developing S&T roadmaps based on strong understanding of User’s needs and Acquisition partner’s requirements.
- Technical Area Leads (TALs) maintain knowledge of the current state of the art of each missile technology area.
- Principle Investigators (PIs) execute the individual S&T efforts.
- The PIs “compete” for funding by soliciting interest and endorsement in their proposals from the CALs and TALs.
- Each proposal is assessed for technical feasibility and for applicability to needs/gaps prior to receiving funding or being added to the S&T roadmap.
AMRDEC Missile S&T Enterprise

**CAPABILITY AREA**

**GROUND TACTICAL**
- LMAMS Enhancements
- Precision Shoulder-Released Launched Missile (PSLM)
- Next Generation Close Combat Missile(s)
- Single Multi-Mission Attack Missile (SMAM)
- Maneuver Air Defense Technologies
- Next Generation Lower Tier Missile Technologies

**AERIAL DEFENSE**
- CUAS at the Tactical Edge
- Low-Cost Extended Range Air Defense (Lower AD)
- Digital Array Radar Testbed (DART)
- Maneuver Air Defense Technologies
- Next Generation Lower Tier Missile Technologies

**FIRE SUPPORT**
- Tail Controlled GMLRS (TCG) Tech Insertion
- Low-Cost Tactical Extended Range Missile (LC-TERM)
- Land-Based Anti-Ship Missile (LBASM)
- Long Range Maneuverable Fires
- GMLRS Lite

**AVIATION MISSILES**
- Modular Missile Technologies
  - Open Systems Architecture
  - Rocket Propelled and Drop/Glide
- Multi-Role Small Guided Missile (MRSGM)
- Next Generation Air-to-Ground Missiles

* Transition

**CURRENT/POM (FY19-23)**

**FUTURE (FY24-50)**
“ESAD Design for Modular Missile Technology”

Wayne Eads
Session IVA, Open Session
Thursday, 8:00 AM

“Hardened Selectable Multipoint Fuze”

Michael Connolly
Session IVB, Closed Session
Thursday, 9:00 AM
“Fuze Setting Technologies for Rockets & Missiles”

Gene Henderson
Session VB, Closed Session
Thursday, 2:00 PM

“Integration of Fire Set Structures Using Additive Manufacturing”

Daniel Pitts
Session VA, Open Session
Thursday, 2:20 PM
AMRDEC Web Site
www.amrdec.army.mil

Facebook
www.facebook.com/rdecom.amrdec

YouTube
www.youtube.com/user/AMRDEC

Twitter
@usarmyamrdec

Public Affairs
AMRDEC-PAO@amrdec.army.mil