U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND – AVIATION & MISSILE CENTER

Overview Brief

Name of Presenter
Rank/Title
Directorate/Organization
CCDC VISION AND MISSION

VISION
To be the scientific and technological foundation of the Future Force Modernization Enterprise through world-leading research, development, engineering and analysis.

MISSION
To provide the research, engineering, and analytical expertise to deliver capabilities that enable the Army to deter and, when necessary, decisively defeat any adversary now and in the future.
ORGANIZATION

U.S. ARMY FUTURES COMMAND

CG CCDC
MG John A. George

CSM CCDC
CSM Jon R. Stanley

DCG CCDC
BG Vincent F. Malone II

DtCG CCDC
Mr. John S. Willison

CCDC AMERICAS
Forward Element Center
Ft. Sam Houston, TX

CCDC ATLANTIC
Forward Element Center
Stuttgart, Germany

CCDC PACIFIC
Forward Element Center
Ft. Shafter, HI

Dr. Phil Perconti
CCDC – Army Research Lab Director

Mr. John Hedderich
CCDC – Armaments Center Director

Dr. Juanita Christensen
CCDC – Aviation & Missile Center Director

Mr. Patrick O’Neill
CCDC – CSISR Center Director

Dr. Eric Moore
CCDC – Chemical Biological Center Director

Mr. Douglas Tamilio
CCDC – Soldier Center Director

Mr. Jeffery Langhout
CCDC – Ground Vehicle Systems Center Director

Mr. James Amato
CCDC – Data & Analysis Center Director

PREEMINENT LEADERS IN RESEARCH, DEVELOPMENT AND ENGINEERING
Deliver collaborative and innovative aviation and missile capabilities for responsive and cost-effective research, development and life cycle engineering solutions.
BY THE NUMBERS

12,054
FY19 Strength

3,036
Civilian

23
Military

~8,995
Contractor

Core Competencies

Technical Domain:
- Active and Passive Air Defense Sensor Technology (S&T)
- Aerial Autonomy
- Aerospace and Aerodynamics
- Capabilities Engineering
- Materials and Structures
- Fuzing, Guidance, Controls and Seekers
- Propulsion, Explosives, Energetics, Warheads

Capabilities Engineering:
- Software Engineering
- Weapons Assurance
- Modeling and Sim Design, Dev, VV&A
- Configuration Management
- Engineering Prototype Design and Dev
- Maintenance, Life Cycle Cost Reduction, and Logistics Engineering
- Manufacturing Tech and Production Support
- Multidiscipline Acquisition and Project Engineering
- Quality Engineering and Management
- Reliability, Availability, and Maintainability
- Sustainment, Industrial Base, and Obsolescence
- Systems Engineering, Integration, and Interoperability
- Test and Evaluation
- Air Defense Radar (Reimbursable)
- Airworthiness

FY19 Funding

$3.8B

6%
Aviation S&T

7%
Missile S&T

59%
Army

28%
Other
#1: People
People are the Army’s greatest strength and its most important weapon system.

#2: Readiness
The Army must be ready to defeat any adversary, anywhere, whenever called upon, under any condition.

#3: Modernization
The Army must modernize to remain lethal and ready to fight tomorrow, against increasingly capable adversaries and near-peer competitors.

#4: Reform
The Army will improve the way we do business, including how we implement our top priorities, to make the Army more lethal, capable, and efficient.
FY19 TOTAL REVENUE ($3.8B)

- **Army, $363M**
- **MDA, $395M**
- **Air Force, $257M**
- **Navy, $153M**
- **Marines, $16M**
- **SOCOM, $13M**
- **Non-S&T RDTE, $45M**
- **Procurement Mission, $3M**
- **OMA Mission/OCO (CCDC), $45M**
- **AMCOM, $230M**
- **PEO AVN, $797M**
- **Aviation S&T, $239M**
- **Missile S&T, $262M**
- **DARPA, $19M**
- **Non Govt, $3M**
- **Other Fed Gov, $10M**
- **Other DoD, $193M**

**Vast majority:** Aviation and Missile Work

**ARMY** $2.7B (72%)
S&T PRIORITIES ALIGNED WITH THE ARMY MODERNIZATION STRATEGY

Supporting Army and Joint Readiness now and in the Future MDO Environment

**RESEARCH ISO FUTURE FORCE**
Driving the discoveries and innovations which will be critical to realizing new capabilities for the Army of 2030 and beyond.

**ANALYSIS**
Conducting objective experimentation and systems analysis to support the equipping and sustaining of our Warfighters.

**ENGINEERING**
Providing lifecycle engineering expertise to support fleet development and readiness across warfighting battlefield operating systems.
TOP AVIATION S&T INITIATIVES

**PLATTFORMS**
- Structures
- Sustainment
- Concept Design & Assessment

**MISSION SYSTEMS**
- Survivability
- Avionics & Networks

**VEHICLE MANAGEMENT & CONTROL AND ROTORS**
- Rotors
- Vehicle Management & Control

**MAJOR PROGRAM AREAS**
- Joint Multi-Role Technology Demonstration
- Degraded Visual Environment – Mitigation
- Next Generation Tactical UAS Technology Demonstration

**POWER**
- Engines & Other Power Sources
- Drives

**BASIC RESEARCH**
- Computational Aeromechanics
- Experimental Aeromechanics
Army Aviation is committed to maintaining vertical lift dominance with the development of critical combat systems enabling the joint force to operate dispersed over wide areas with the ability to rapidly converge in order to penetrate the multiple layers of stand-off employed by the threat, dis-integrate A2/AD systems, and exploit this advantage with enhanced Attack/Reconnaissance, Air Assault and MEDEVAC capabilities.

**FARA Capability Set 1**

**Future Attack Reconnaissance Aircraft:** Critical combat system needed to prevail in future wars by enabling Army Aviation to achieve a “leap-ahead” in lethality, survivability, and reach to find, fix, and finish our pacing threats.

**FUAS & AUAS**

**Future & Advanced Unmanned Aircraft Systems:** Advanced teaming FVL with next generation UAS delivering lethal and non-lethal air launched effects enables cross-domain fires to penetrate and dis-integrate enemy A2AD systems and exploit expanded maneuver to overmatch peer adversaries.

**FLRAA Capability Set 3**

**Future Long Range Assault Aircraft:** Essential to exploit the windows of opportunity created by FARA and advanced teaming with UAS/ALE with its increased speed and reach providing significantly more lethal and effective Air Assault and MEDEVAC capabilities on the future battlefield.

**MOSA**

**Modular Open Systems Architecture:** The government defined Modular Open System Approach will establish the digital backbone of FVL aircraft allowing for rapid and affordable integration of innovative avionics and mission equipment technologies into our platforms.
**LONG RANGE PRECISION FIRES**

Technologies for the development, integration and delivery of long range fires at the tactical, operational, and strategic echelons to restore overmatch, improve deterrence, and disrupt A2AD on a complex, contested and expanded battlefield.

**AIR & MISSILE DEFENSE**

Technologies for the development of mobile air defense systems that reduce the cost curve of missile defense, restore overmatch, survive volley-fire attacks, and operate within sophisticated A2AD and contested domains.

**NEXT GENERATION COMBAT VEHICLE**

Technologies for active protection systems and enhanced lethal effects that will increase our ability to survive and win in the complex and densely urbanized terrain of an intensely lethal and distributed battlefield where all domains are continually contested.

**FUTURE VERTICAL LIFT**

Technologies for the development, integration, and delivery of aviation launched air-to-ground and air-to-air missile systems to restore overmatch within sophisticated A2AD and contested domains.

**ENGAGE FIRST**

**EXPAND THE DOME**

**ON THE MOVE**
CCDC AVIATION & MISSILE CENTER
MISSILE S&T ALIGNED TO ARMY PRIORITIES

LONG RANGE PRECISION FIRES
- Tail-Controlled GMLRS (TCG) Technology Insertion
- Low-Cost Tactical Extended Range Missile (LC-TERM)
- Land-Based Anti-Ship Missile (LBASM)

NEXT GENERATION COMBAT VEHICLE
- Hard Kill Active Protection System (APS)
- Next Generation Close Combat Missile Tech Maturation (NGCCM TMI)

FUTURE VERTICAL LIFT
- Modular Missle Technologies (MMT)
  Modular Open System Architecture for Missiles
- Single Multi-Mission Attack Missile (SMAM) Technologies

AIR & MISSILE DEFENSE
- Multi-Role Guided Missile - Extended Range (MRGM-ER)
- Multiple Simultaneous Engagement Technologies (MSET)
- Maneuver Air Defense Tech (MADT)
- Digital Array Radar Testbed (DART)
- Low-Cost Extended Range Air Defense (LOWER AD)
- MAN-Portable Air-Defense System (MANPADS)
- NexGen Lower Tier Missile Technologies
“Through teamwork, the U.S. Army will remain the most lethal, modern fighting force in the world.”

Ryan D. McCarthy, Secretary of the Army