



U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND ARMY RESEARCH LABORATORY

Overview

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ARMY FUTURES COMMAND



DEVCOM MET

- LIFE CYCLE ENGINEERING
- APPLIED S&T
- ANALYSIS
- FOUNDATIONAL RESEARCH

PURPOSE

U.S. Army Futures Command (AFC) exists to transform the Army to ensure war-winning future readiness.

FOCUS

AFC currently focuses on three overarching priorities: **prioritizing people, designing Army 2040 and delivering Army 2030.**

IMPACT

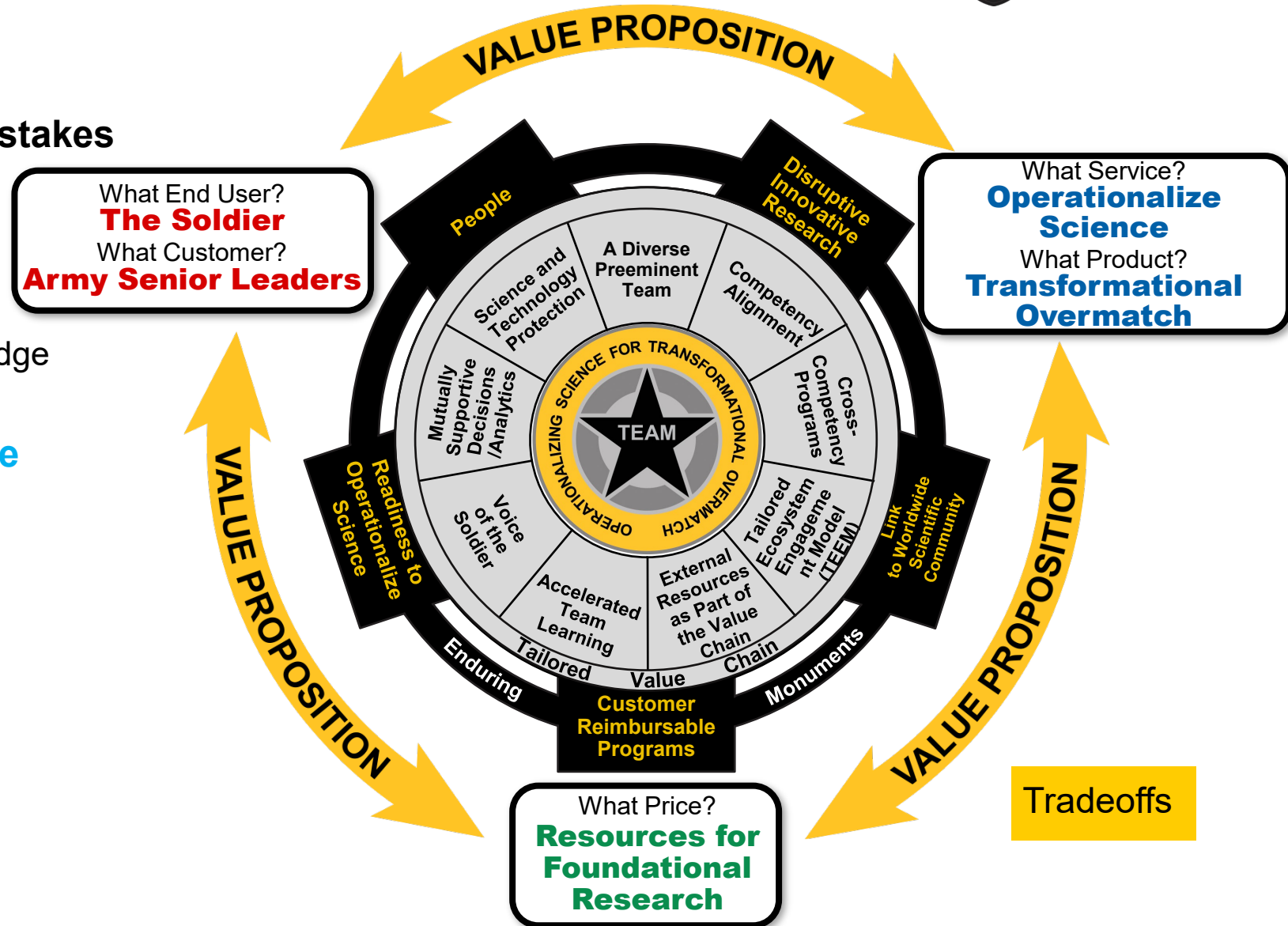
The groundbreaking work of AFC's headquarters directorates, subordinate commands, research laboratories, innovation hubs and Cross-Functional Teams is **advancing the Army's six modernization priorities**: long range precision fires, next generation combat vehicle, future vertical lift, air and missile defense, network and soldier lethality.



WIN THE COMPETITION TO OPERATIONALIZE SCIENCE



- **Global competition** with global stakes
- Competition today will **define landscape in 2040+**
- **Purpose of a lab**
 - Create / Exploit scientific knowledge
 - Provide expert advice
- **Strategy: Maximize unique value delivered for Army**





WHO WE ARE



#OneTeamARL!



Foundational Research

Army Research Directorate
Ms. Cynthia Bedell

Research Business Directorate
Dr. Jeffrey Zabinski

Army Research Office
Dr. Barton Halpern

Intramural

Biological and Biotechnology Sciences (BBS)
Electromagnetic Spectrum Sciences (EMSS)
Energy Sciences (ES)
Humans in Complex Systems (HCxS)
Mechanical Sciences (MS)
Military Information Sciences (MIS)
Network, Cyber & Computational Sciences (NC&CS)
Photonics, Electronics & Quantum Sciences (PE&QS)
Sciences of Extreme Materials (SEM)
Terminal Effects (TE)
Weapons Sciences (WS)

Future Science Integration
Tech Forecasting
Infrastructure & Equipment
Regional Sites
Cybersecurity / Knowledge Mgmt.
Program, Plans & Budget Sync.
Individual / Team Development

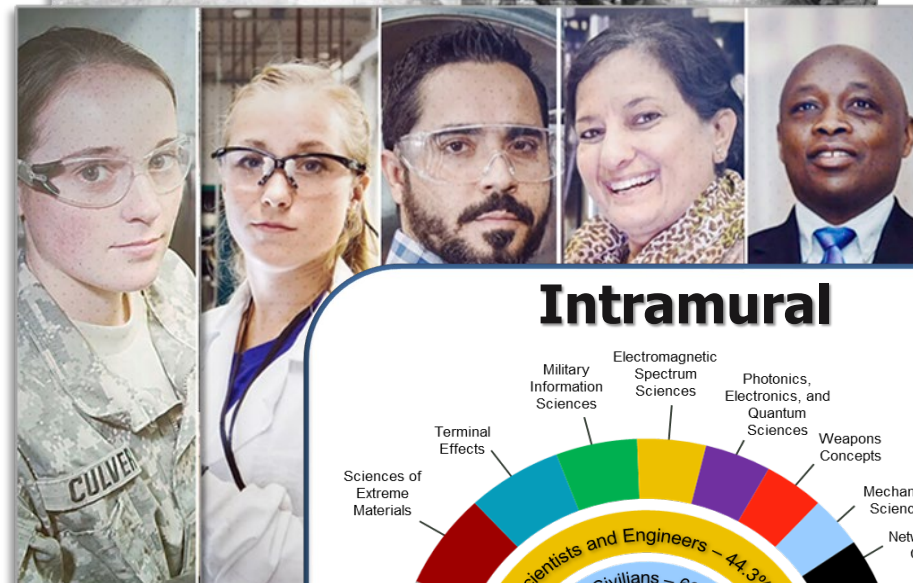
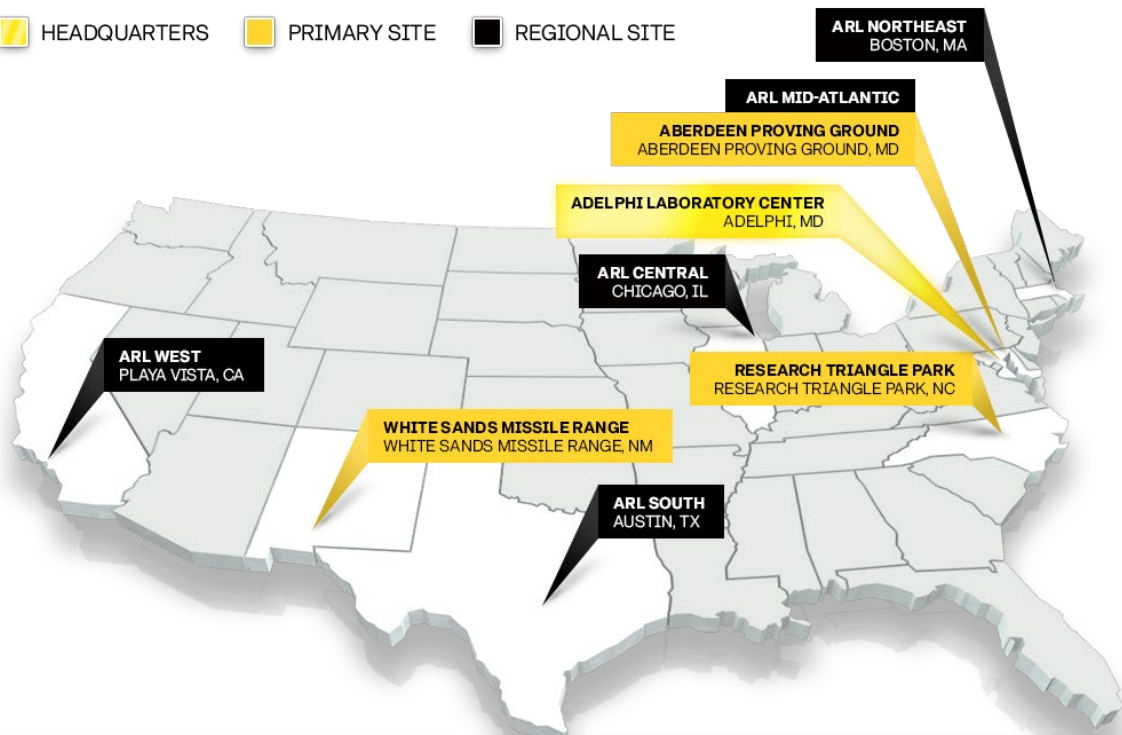
Extramural

Biological and Biotechnology Sciences (BBS)
Electromagnetic Spectrum Sciences (EMSS)
Energy Sciences (ES)
Humans in Complex Systems (HCxS)
Mechanical Sciences (MS)
Military Information Sciences (MIS)
Network, Cyber & Computational Sciences (NC&CS)
Photonics, Electronics & Quantum Sciences (PE&QS)
Sciences of Extreme Materials (SEM)
Terminal Effects (TE)
Weapons Sciences (WS)

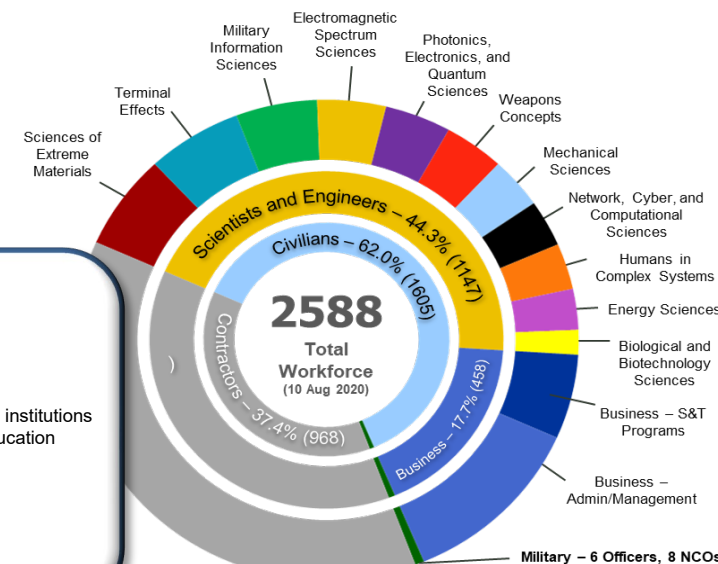
PEOPLE, DIVERSITY AND TALENT DEVELOPMENT



■ HEADQUARTERS
 ■ PRIMARY SITE
 ■ REGIONAL SITE



Intramural



Extramural

249 U.S. institutions of higher education
98 HBCUs/MIs
50 International institutions of higher education
3,596 Faculty and other professionals
3,187 Students supported

2588

Total Workforce (10 Aug 2020)



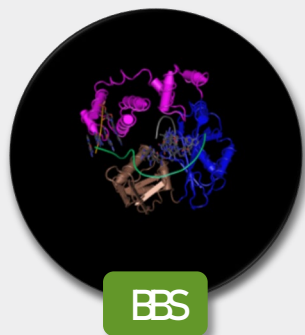
Preeminent diverse Team (Intramural and Extramural) is a strategic advantage over any adversary



WHAT WE DO



ARL FOUNDATIONAL RESEARCH COMPETENCIES



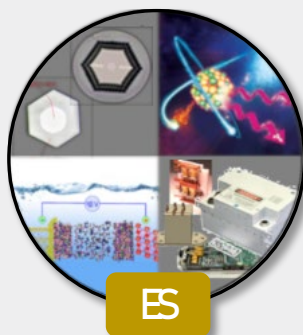
BBS

Biological and
Biotechnology
Sciences



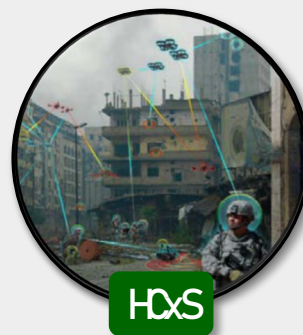
EMSS

Electromagnetic
Spectrum Sciences



ES

Energy
Sciences



HCS

Humans in
Complex Systems



MS

Mechanical
Sciences



MS

Military Information
Sciences

11 Overarching Foundational Research Competencies Integrated Intramural and Extramural Ecosystem



NC&CS

Network, Cyber &
Computational
Sciences



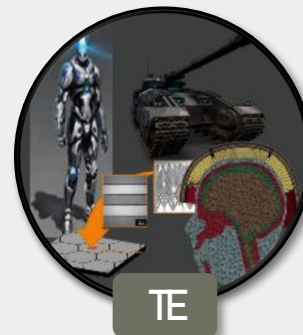
PE&QS

Photonics,
Electronics &
Quantum Sciences



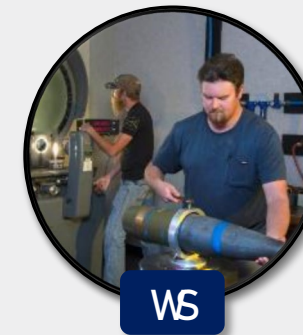
SEM

Sciences of
Extreme Materials



TE

Terminal
Effects



WS

Weapons
Sciences

> 50 Subordinate Core Competencies are building blocks and well-spring of Operationalizing Science

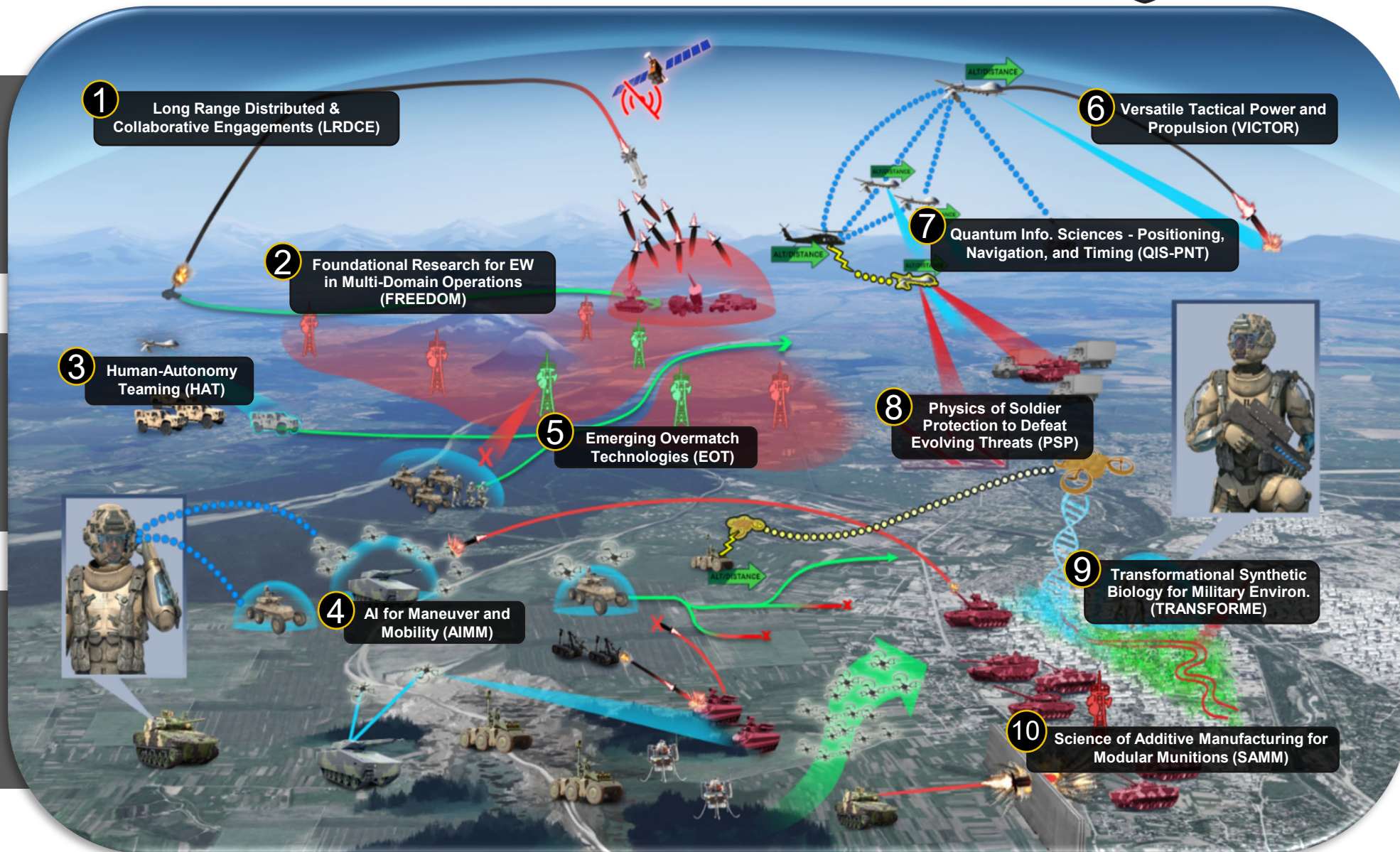
ESSENTIAL RESEARCH PROGRAMS



Cross-competency programs designed to operationalize science

Leading to transformational overmatch at the speed of relevance

Leveraging tailored engagements across the ecosystem





HOW WE TEAM



MECHANISMS FOR DIRECT OPERATOR FEEDBACK ON S&T



TECH



XTECH (75th IC)

The **xTech Search** competition was launched to revolutionize the way the Army attracts and encourages innovation.

Customer Programs (SOCOM, Maven)

Army scientists and engineers work directly with combat arms units to solve needs.

Collaborations (USMA)

DEVCOM ARL USMA Technical Symposium (AUTS)

Partnerships (NTC)

Army scientists and engineers partnered with combat arms units to create closer working relationships.

Concepts (Focused Excursions)

A systematic, continuous and iterative process of shaping concepts and capabilities for future warfighting.

Catalyst Pathfinder

Brings Soldiers, academia together to solve military challenges.

Hands-on / In Lab Demos (Informs)

Army scientists and engineers provide in-house demos for testing of systems before transitioning technology.

Exercises (Edge, PC, Scarlet Dragon)

Joint Force experimenting with speed, range, and decision dominance to achieve overmatch.



PROJECT CONVERGENCE

PATHFINDER

APPROVED FOR PUBLIC RELEASE



FOCUSED EXCURSION

TAILORED ECOSYSTEM ENGAGEMENT MODEL (TEEM)



Researcher to
Researcher



Researcher to
Soldier



Researcher to
Business



#ONETeamARL

- **Tailor teams to deliver** science-driven, commercially viable, operationalized outcomes at speed of relevance
- **Leverage unique skillsets and resources** across academia, government, and industry
- **Benefit from trusted partners** as innovation-multipliers, team-extendors, and risk-reducers for operationalizing science

**Winning Requires a
21ST Century Engagement Model**

