NDIA
AT THE HEART OF THE MISSION

22ND ANNUAL SCIENCE AND ENGINEERING TECHNOLOGY CONFERENCE

Technology for the Future Fight – Focusing S&T on Operational Needs

April 26 – 28, 2022 | Miami, FL | NDIA.org/SET22

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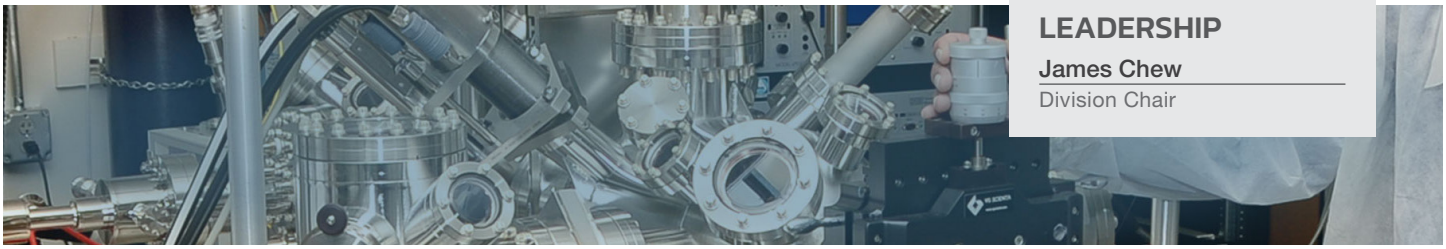
NDIA

WHO WE ARE

The National Defense Industrial Association is the trusted leader in defense and national security associations. As a 501(c)(3) corporate and individual membership association, NDIA engages thoughtful and innovative leaders to exchange ideas, information, and capabilities that lead to the development of the best policies, practices, products, and technologies to ensure the safety and security of our nation. NDIA's membership embodies the full spectrum of corporate, government, academic, and individual stakeholders who form a vigorous, responsive, and collaborative community in support of defense and national security. For more than 100 years, NDIA and its predecessor organizations have been at the heart of the mission by dedicating their time, expertise, and energy to ensuring our warfighters have the best training, equipment, and support. For more information, visit **NDIA.org**

GET INVOLVED

Learn more about NDIA's Divisions and how to join one at **NDIA.org/Divisions**



LEADERSHIP

James Chew

Division Chair

SCIENCE AND ENGINEERING TECHNOLOGY DIVISION

WHO WE ARE

The Science & Engineering Technology Division was formed to examine all aspects of science and technology affecting national defense. The division provides a venue for discussion of the nation's defense needs by examining existing capabilities and suggesting ways to overcome deficiencies in defense research and development (R&D). Individuals from industry, government and academia have the opportunity to examine vital information in an open forum on technical needs and planned efforts. The division is dedicated to raising interest in meeting Department of Defense technology requirements through creative research and advanced development across industry, government and academia.

SCHEDULE AT A GLANCE

MONDAY, APRIL 25

Registration
Royal Poinciana Ballroom Foyer
3:00 – 5:00 pm

TUESDAY, APRIL 26

Registration
Royal Poinciana Ballroom Foyer
8:00 am – 6:45 pm

Networking Breakfast
North Ballroom
8:30 – 9:30 am

Tabletop Displays Open
North Foyer
8:30 am – 6:45 pm

General Session
South Ballroom
9:30 am – 5:20 pm

Networking Lunch
North Ballroom
12:10 – 1:00 pm

Networking Reception
North Foyer
5:30 – 6:45 pm

WEDNESDAY, APRIL 27

Registration
Royal Poinciana Ballroom Foyer
7:30 am – 5:45 pm

Networking Breakfast
North Ballroom
7:30 – 8:30 am

Tabletop Displays Open
North Foyer
7:30 am – 5:45 pm

General Session
South Ballroom
8:30 am – 5:30 pm

Networking Lunch
North Ballroom
12:20 – 1:20 pm

THURSDAY, APRIL 28 (CLASSIFIED)

Shuttle Transportation to SOUTHCOM: Conference Center of the Americas
7:00 am – 4:00 pm

Registration *(Pre-Registration Required)*
CCA Reception Area, SOUTHCOM
7:45 am – 2:00 pm

Networking Breakfast
CCA Reception Area, SOUTHCOM
7:45 – 8:45 am

Classified Session
CCA Auditorium, SOUTHCOM
8:30 am – 3:25 pm

Networking Lunch
CCA Reception Area & Pavillion, SOUTHCOM
12:20 – 12:50 pm

NDIA | CAREER CENTER

Connecting Talent with Great Opportunities

This latest member benefit of the National Defense Industrial Association offers qualified defense and national security professionals and employers an intuitive platform to identify the next best opportunity or candidate. With single-sign-on, quick and advanced searches, job alerts, career resources, pre-screen questionnaires, success tracking, and more, the NDIA Career Center is the defense industry's premier resource for career growth and advancement.

Log in and complete your profile today at Jobs.NDIA.org

EVENT INFORMATION

LOCATION

DoubleTree by Hilton Hotel Miami Airport & Convention Center
711 NW 72nd Avenue, Miami, Fl 33126

MOBILE APP

Make the most of your attendance at the 22nd Annual Science & Engineering Conference with the NDIA Events mobile app, available on the App Store for Apple devices and Google Play for Android devices. Simply search "NDIA Meetings" to find and download the NDIA Events app for free. With it, you will have 24/7 access to an activity feed, speaker listings, sponsor information, and Slido. Be sure to accept push notifications so that you can receive the most up-to-date information regarding any changes to the conference agenda.

REAL-TIME Q&A

Slido is an audience engagement platform that allows users to crowd-source top questions to drive meaningful conversations and increase crowd participation. Participants can up-vote the questions they would most like to hear discussed. Simply tap the thumbs-up button to up-vote a question. Top questions are displayed for the moderator and speaker to answer. Ask your question in sessions by going to Slido! Event code: **SET22**

ATTIRE

Civilian: Business Casual
Military: Uniform of the Day

SURVEY AND PARTICIPANT LIST

You will receive via email a survey and list of participants (name and organization) after the conference. Please complete the survey to make our event even more successful in the future.

EVENT CONTACT

Carizza Gutierrez
Program Manager, Divisions
(703) 247-2599
cgutierrez@NDIA.org

Britt Sullivan, CMP, DES
Senior Director, Divisions
(703) 247-2587
bsullivan@NDIA.org

Kimberly Williams, CMP
Director, Meetings
(703) 247-2578
kwilliams@NDIA.org

SPEAKER GIFTS

In lieu of speaker gifts, a donation is being made to the Fisher House Foundation.

HARASSMENT STATEMENT

NDIA is committed to providing a professional environment free from physical, psychological and verbal harassment. NDIA will not tolerate harassment of any kind, including but not limited to harassment based on ethnicity, religion, disability, physical appearance, gender, or sexual orientation. This policy applies to all participants and attendees at NDIA conferences, meetings and events. Harassment includes offensive gestures and verbal comments, deliberate intimidation, stalking, following, inappropriate photography and recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome attention. Participants requested to cease harassing behavior are expected to comply immediately, and failure will serve as grounds for revoking access to the NDIA event.

EVENT CODE OF CONDUCT

NDIA's Event Code of Conduct applies to all National Defense Industrial Association (NDIA), National Training & Simulation Association (NTSA), and Women In Defense (WID) meeting-related events, whether in person at public or private facilities, online, or during virtual events. NDIA, NTSA, and WID are committed to providing a productive and welcoming environment for all participants. All participants are expected to abide by this code as well as NDIA's ethical principles and practices. Visit NDIA.org/CodeOfConduct to review the full policy.

AGENDA

MONDAY, APRIL 25

3:00 – 5:00 pm

REGISTRATION
ROYAL POINCIANA BALLROOM FOYER

TUESDAY, APRIL 26

8:00 am – 6:45 pm

REGISTRATION
ROYAL POINCIANA BALLROOM FOYER

8:30 – 9:30 am

NETWORKING BREAKFAST
NORTH BALLROOM

8:30 am – 6:45 pm

TABLETOP DISPLAYS OPEN
NORTH FOYER

9:30 – 10:00 am

WELCOME
SOUTH BALLROOM

MG James Boozer, USA (Ret)
Executive Vice President, NDIA

James Chew
Chair, NDIA Science & Engineering Technology Division
Senior Global Group Director, Aerospace and Defense, Cadence Design

10:00 – 11:00 am

IMPORTANCE OF S&ET DEVELOPMENT (J8)

SOUTH BALLROOM

VADM Ronald Boxall, USN
Director of Force Structure, Resources and Assessment, J8

11:00 – 11:30 am

NETWORKING BREAK

NORTH FOYER

11:30 am – 12:10 pm

USSOUTHCOM KEYNOTE ADDRESS

SOUTH BALLROOM

Lt Gen Andrew Croft, USAF
Military Deputy Commander, USSOUTHCOM

12:10 – 1:00 pm

NETWORKING LUNCH

NORTH BALLROOM

1:00 – 1:40 pm

ARMY SCIENCE TECHNOLOGY PROGRAM

SOUTH BALLROOM

Jeffrey Singleton
Acting, Deputy Assistant Secretary of the Army (Research and Technology)

1:45 – 2:25 pm

NAVY WARFIGHTING, SUSTAINMENT, AND MODERNIZATION NEEDS

SOUTH BALLROOM

RADM Lorin Selby, USN
Chief of Naval Research, Office of Naval Research

2:25 – 2:55 pm

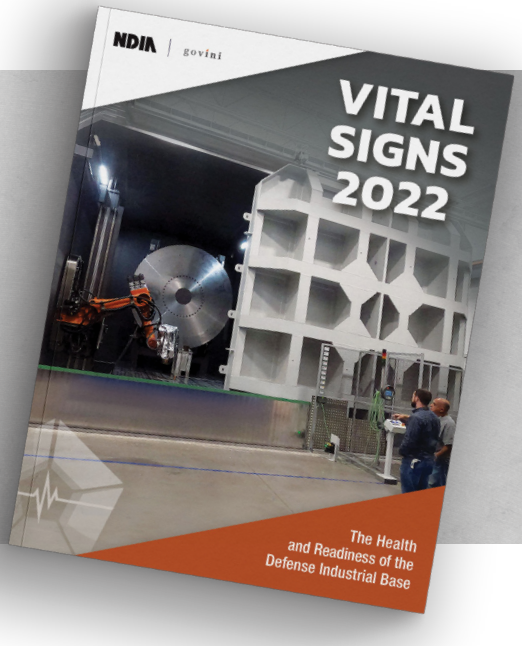
NETWORKING BREAK

NORTH FOYER

VITAL SIGNS 2022

THE HEALTH AND READINESS OF
THE DEFENSE INDUSTRIAL BASE

Download the Free Report
NDIA.org/VitalSigns



2:55 – 3:35 pm

AIR FORCE SCIENCE TECHNOLOGY NEEDS

John Miller, SES
Director, Plans and Programs, AFRL/XP

3:40 – 4:45 pm

PANEL DISCUSSION – BUILDING THE NEXT GENERATION AND ADDING DIVERSITY

SOUTH BALLROOM

Dr. Michelle Atchison
Director, Federal Relations (Washington DC) | Senior National Security Strategist (UTSA)
Moderator

Dr. Norman Fortenberry
Executive Director, American Society of Engineering Education (ASEE)

Katrina Logan
Director, DHRA Enterprise Operations Center (DEOC) at Defense Human Resources Activity (DHRA)

4:45 – 5:15 pm

JOINT CAPABILITY TECHNOLOGY DEMONSTRATION (JCTD) AND THE RAPID DEFENSE EXPERIMENTATION RESERVE (RDER) PROGRAMS

SOUTH BALLROOM

Gerard Tighe
Acting Director, Joint Capability Technology Demonstration Program, Oversight Executive, Weapons, Logistics & Maritime Systems, OUSD Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)

5:15 – 5:20 pm

CLOSING REMARKS

SOUTH BALLROOM

James Chew
Senior Global Group Director, Aerospace and Defense, Cadence Design

5:30 – 6:45 pm

NETWORKING RECEPTION

NORTH FOYER

WEDNESDAY, APRIL 27

7:30 am – 5:45 pm

REGISTRATION

ROYAL POINCIANA BALLROOM FOYER

7:30 – 8:30 am

NETWORKING BREAKFAST

NORTH BALLROOM

7:30 am – 5:45 pm

TABLETOP DISPLAYS OPEN

NORTH FOYER

8:30 – 8:35 am

WELCOME

SOUTH BALLROOM

James Chew
Senior Global Group Director, Aerospace and Defense, Cadence Design

8:35 – 9:20 am

KEYNOTE ADDRESS: THE IMPORTANCE OF ADDRESSING SUSTAINABILITY IN S&T

SOUTH BALLROOM

Dr. Vic Ramdass
Deputy Assistant Secretary of Defense, Material Readiness, Office of the Assistant Secretary of Defense, Sustainment

9:25 – 9:40 am

EMERGING TECHNOLOGY

SOUTH BALLROOM

Arun Seraphin
Deputy Director, Emerging Technologies Institute

9:40 – 10:10 am

NETWORKING BREAK

NORTH FOYER

10:10 – 10:50 am

DEFENSE INNOVATION UNIT

SOUTH BALLROOM

Tex Schenkkhan
Director, National Security Innovation Capital (NSIC)

10:55 – 11:35 am

NAVALX

SOUTH BALLROOM

Diana Teel
Program Manager, Industry Outreach / Director, Central Florida Tech Bridge

11:40 am – 12:20 pm

ARMY TECHNOLOGY MATURATION INITIATIVE

SOUTH BALLROOM

Colin Reese
Director, Army Technology Maturation Initiative

12:20 – 1:20 pm

NETWORKING LUNCH

NORTH BALLROOM

1:20 – 2:00 pm

NAVY ONR FNC PROGRAM ACCOMPLISHMENTS

SOUTH BALLROOM

Dr. Michael Pollock
Head, Information, Cyber and Spectrum Superiority Department

THANK YOU TO OUR SPONSOR

Parallax
ADVANCED RESEARCH

2:05 – 2:45 pm

ARMY GROUND VEHICLES SYSTEM COMMAND ACCOMPLISHMENTS

SOUTH BALLROOM

Al Grein
Executive Director, Research & Technology Integration, USA DEVCOM GVSC

2:50 – 3:30 pm

SOLDIER CENTRIC SCIENCE AND TECHNOLOGY FOR MULTI DOMAIN OPERATIONS (MDO)

SOUTH BALLROOM

Craig Rettie
Director, Research & Technology Integration, USA DEVCOM Soldier Center

3:30 – 4:00 pm

NETWORKING BREAK

NORTH FOYER

4:00 – 4:40 pm

MICROELECTRONICS AND AFSAB COMMUNICATIONS IN A FUTURE OPERATING ENVIRONMENT – STUDY RESULTS

SOUTH BALLROOM

Dr. Yadunath Zambre
Chief Microelectronics Technology Officer, Air Force Research Laboratory

4:45 – 5:25 pm

DRAG REDUCTION, PLANNING SOFTWARE TECHNOLOGIES, ADVANCED PROPULSION, OR UPDATED TO LEGACY AIRCRAFT

SOUTH BALLROOM

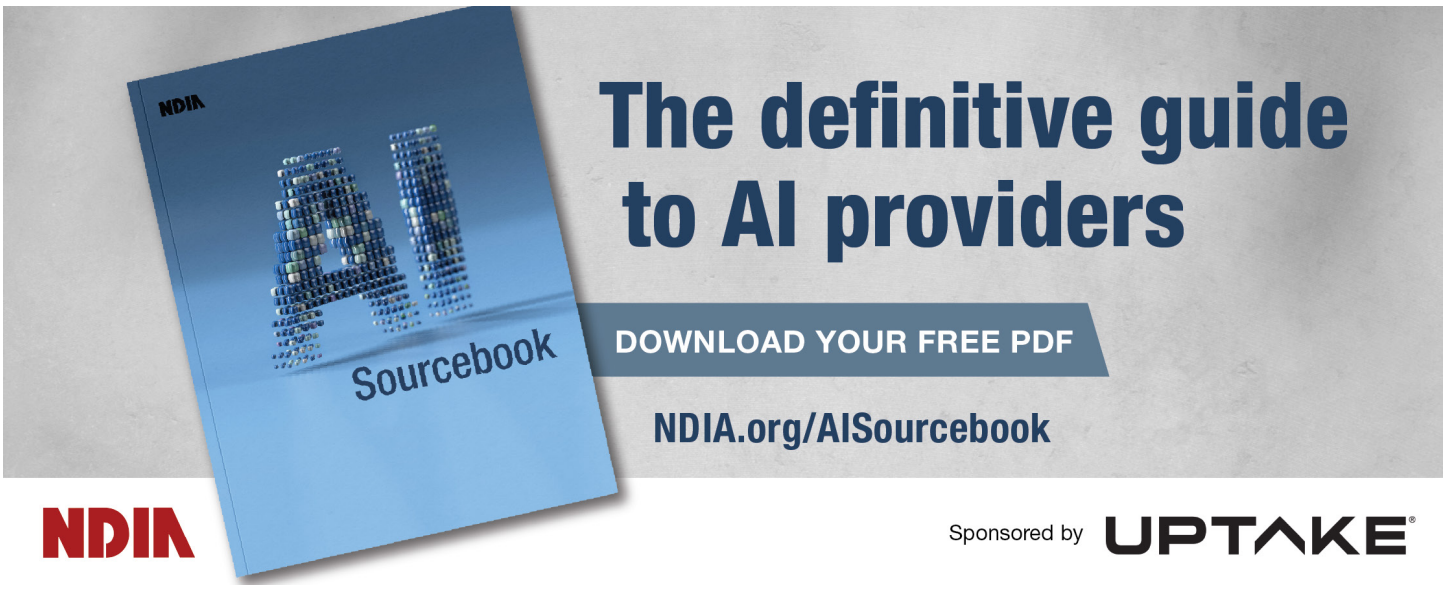
Robert Guerrero
Deputy Assistant Secretary of Air Force Operational Energy

5:25 – 5:30 pm

CLOSING REMARKS

SOUTH BALLROOM

James Chew
Senior Global Group Director, Aerospace and Defense, Cadence Design



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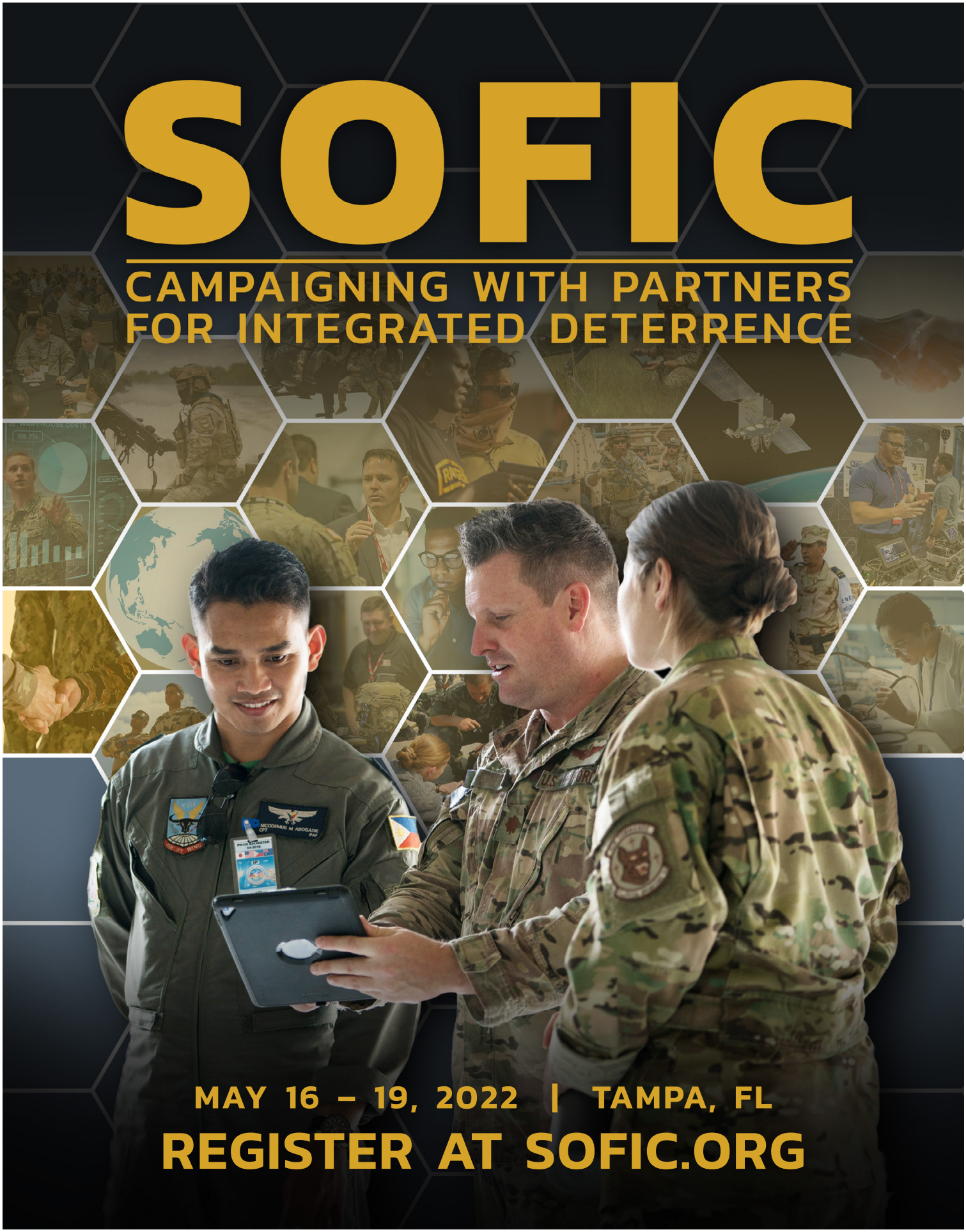

SOFIC
CAMPAIGNING WITH PARTNERS
FOR INTEGRATED DETERRENCE
MAY 16 – 19, 2022 | TAMPA, FL
REGISTER AT SOFIC.ORG

THURSDAY, APRIL 28 (CLASSIFIED)

Overview

The optional classified session on Thursday, April 28, will begin at 8:30 am, and registration will begin at 7:45 am. It will be held at USSOUTHCOM: Conference Center of the Americas. This session will be conducted as SECRET//NOFORN. You must have a secret clearance and be a U.S. citizen to attend this optional session. Pre-registration is required. Please arrive in time to check in and pick up your badge. A photo ID will be required for check-in.

Location

USSOUTHCOM: Conference Center of the Americas
9301 NW 33rd Street
Miami, FL 33172

Shuttle

Complimentary shuttles will be running on a continuous loop from the Doubletree by Hilton Hotel Miami Airport & Convention Center to USSOUTHCOM between 7:00 am and 4:00 pm EDT.
All attendees who **do not** have a CAC-Card are required to ride the shuttle for access onto USSOUTHCOM.

Parking

All USSOUTHCOM visitors must enter through Gate 2. Complimentary parking is available on the property in non-reserved parking spaces.

Prohibited Items

- Attendees will not be allowed to take briefcases, bags, electronic devices, or other personal property into auditoriums with the exception of women's handbags. All items subject to search.
- An electronic device is defined as a cell phone, two-way radio, AM/FM radio, personal digital assistant (PDA) such as a tablet, palm pilot, Fitbit, Smart Watch, and blackberry; laptop computer; camera; video/audio recording equipment, pager, or any other transmitting device.

Do not leave any unattended bags or packages anywhere in the building, including conference spaces. You may check your items at the CCA Reception Desk. A limited number of cell phone lockers are available.

7:45 am – 2:00 pm

REGISTRATION
CCA RECEPTION AREA

7:45 – 8:45 am

NETWORKING BREAKFAST
CCA RECEPTION AREA

8:30 – 8:45 am

WELCOME
CCA AUDITORIUM

Peter Teil
Command Science Advisor, USAFRICOM
Moderator

James Chew
Senior Global Group Director, Aerospace and Defense, Cadence Design

8:45 – 9:35 am

USAFRICOM THREAT OVERVIEW
CCA AUDITORIUM

Dr. Eric Miller
Assistant Director for Analysis, USAFRICOM J2

9:35 – 10:35 am

SOCAF – 'ON THE GROUND' OPERATIONAL REALITIES & REQUIREMENTS AND SPECIAL OPERATIONS SUPPORTING SERVICES

CCA AUDITORIUM (VIRTUAL)

USAFRICOM Representative

10:35 – 11:00 am

NETWORKING BREAK

CCA AUDITORIUM

11:00 – 11:25 am

USNORTHCOM HOMELAND DEFENSE

CCA AUDITORIUM

John Knutson
OUSD R&E Prototyping & Experimentation/ JCTD Liaison, HQ NORAD and USNORTHCOM J8 S&T

11:25 – 11:50 am

USCENTCOM ADDRESS

Eric "Viking" Follstad, DAFC
USCENTCOM J8/Science and Technology Division Transformation & Concept Development

12:20 – 12:50 pm

LUNCHEON SPEAKER

CCA RECEPTION AREA & PAVILLION

Howard Strahan, Jr.
Deputy Director, SOF AT&L Science & Technology Directorate, USSOCOM

12:50 – 1:35 pm

USSOUTHCOM ADDRESS I: JT THREAT, J8

CCA AUDITORIUM

Nathan Voung
J2 Science & Technology, USSOUTHCOM

Eric Moore
J2 Chief TAD, USSOUTHCOM

Julie Rockefeller
J8 Program Analyst, USSOUTHCOM

William Schmidlin
J86 Strategic Analysis, USSOUTHCOM

JOIN THE CONVERSATION

@NDIAToday | @NDIAMembership | NDIA.org/LinkedIn | @NDIAToday | @NDIAToday

1:35 – 2:20 pm

USSOUTHCOM ADDRESS II

CCA AUDITORIUM

Dr. Christopher Heagney
Science Advisor, NAVSOUTH

Jeff Havlicek
Director of Innovation, JIATF-S

2:20 – 3:20 pm

USSOCPAC – USINDOPACOM

CCA AUDITORIUM

Dr. Martin Lindsey
S&T Advisor, USINDOPACOM

3:20 – 3:25 pm

CLOSING REMARKS

CCA AUDITORIUM

James Chew
Senior Global Group Director, Aerospace and Defense, Cadence Design

The NDIA has a policy of strict compliance with federal and state antitrust laws. The antitrust laws prohibit competitors from engaging in actions that could result in an unreasonable restraint of trade. Consequently, NDIA members must avoid discussing certain topics when they are together at formal association membership, board, committee, and other meetings and in informal contacts with other industry members: prices, fees, rates, profit margins, or other terms or conditions of sale (including allowances, credit terms, and warranties); allocation of markets or customers or division of territories; or refusals to deal with or boycotts of suppliers, customers or other third parties, or topics that may lead participants not to deal with a particular supplier, customer or third party.

KEYNOTE BIOGRAPHIES

LIEUTENANT GENERAL ANDREW CROFT, USAF

Military Deputy Commander
U.S. Southern Command (USSOUTHCOM)

Lieutenant General Andrew A. Croft is the Military Deputy Commander, USSOUTHCOM, Doral, Florida. USSOUTHCOM is responsible for all Department of Defense security cooperation in the 45 nations and territories of Central and South America and the Caribbean Sea, an area of 16 million square miles. Southern Command deters aggression, defeats threats, rapidly responds to crises, and builds regional capacity, working with our allies, partner nations, and U.S. government team members to enhance security and defend the U.S. homeland and our national interests.

General Croft received his commission through ROTC at the University of California, Los Angeles, in 1988. Following pilot training at Columbus Air Force Base, Mississippi, he served in six flying assignments in the F-15C and flew in support of operations Southern Watch and Northern Watch. He is a graduate of the U.S. Air Force Weapons School and served as commander of the 12th Air Forces (Air Forces Southern) at Davis-Monthan Air Force Base, A.Z. and commander of 49th Wing at Holloman Air Force Base, N.M. He is a command pilot with more than 3,200 flying hours.

DR. VIC RAMDASS

Deputy Assistant Secretary of Defense, Materiel Readiness
Office of the Assistant Secretary of Defense, Sustainment

Dr. Vic S. Ramdass, a member of the Senior Executive Service since 2009, is the Deputy Assistant Secretary of Defense for Materiel Readiness. In this capacity he serves as the principal advisor to the Assistant Secretary of Defense for Sustainment in the oversight of the DoD's $90 billion maintenance program. He is also responsible for the development of policies and procedures to ensure the DoD meets statutory requirements to provide core depot level maintenance support of major weapon systems, military equipment, and commodities. He assumed his current position in March 2021.

From April 2019 to March 2021 Dr. Ramdass served as the Army's Director of Maintenance Policy and Programs in the Office of the Deputy Chief of Staff G-4, Headquarters Department of the Army, Washington, DC. In this position, Dr. Ramdass was responsible for setting conditions for the Army to achieve sustainment capabilities (national through tactical) that support ready forces through integrated maintenance and life cycle policies, programs and operations.

Dr. Ramdass has served in numerous SES positions to include USSOUTHCOM's Senior DoD Civilian Leader, Director of Exercise and Coalition Affairs Directorate (J7/9), USSOUTHCOM's Director of Partnering (J9), Director of the U.S. Army Logistics Innovation Agency, and Director of the U.S. Army Operational Energy Office. His diverse functional expertise as a senior leader includes leading: synchronization and integration of the Army's strategic Operational Energy policies and programs; Test and Evaluation of ACAT 1 programs; Logistics Science and Technology solutions; Interagency integration, Public-Private Cooperation integration, Humanitarian Assistance and Disaster Relief, Science and Technology programs, Civil Affairs, Training and Exercise at a Combatant Command; and driving innovative sustainment technologies and processes to improve Army logistics. He served as the HQDA G-4's Executive Agent for the Army Integrated Logistics Architecture, Small Business and Innovation Research Program, and related Science and Technology collaborative initiatives.

Dr. Ramdass served over 12 years on active duty, first as an enlisted aircraft crew chief, and then as an Aviation Warrant Officer, in logistics, maintenance, and training positions. He is an Acquisition Corps Member, Level III certified in Test and Evaluation, Program Management and Logistics. He is a Certified Flight Instructor/ Commercial/Instrument/Multi-engine Rated Pilot, and an Airframe and Powerplant (A&P) mechanic. Dr. Ramdass has served as an adjunct Embry-Riddle Aeronautical University Professor for more than 23 years.

Dr. Ramdass holds a PhD, Public Administration, from Auburn University, an MS, Aeronautics, from Embry Riddle Aeronautical University, and a BS, Aeronautics, from Embry Riddle Aeronautical University.

TABLETOP DISPLAY HOURS

TUESDAY, APRIL 26
8:30 am – 6:45 pm

WEDNESDAY, APRIL 27
7:30 am – 5:45 pm

DISPLAYER DESCRIPTIONS

ARNOLD MAGNETIC TECHNOLOGIES 1

Arnold Magnetic Technologies is an engineering solutions provider and leading global manufacturer of high performance permanent magnets, flexible magnets, electromagnetics, magnetic assemblies including full electric motors, and precision thin metal foils. This US-based corporation has provided defense sensitive materials to the U.S. market for over 125 years.

DEFENSE SYSTEMS INFORMATION ANALYSIS CENTER (DSIAC) 2

The Information Analysis Centers (IACs) are a component of the DoD - USD (R&E) and offer free research services to the federal government and contractors - including SME connections, trainings, database access, and more - to foster collaboration and stimulate innovation. Visit our website at www.dsiac.org/.

EDUWORKS 3

Bringing the data revolution to training & talent management. Eduworks' artificial intelligence and machine learning technologies enable scenario-based training, adaptive training systems, and competency management. Our natural language processing technologies provide intelligent search, automated document analysis, and assessment generation. Eduworks allows for organizations to evaluate their people's data in one place.

VIKEN DETECTION CORPORATION 4

Viken Detection provides industry leading instrumentation to Narcotics Interdiction teams around the world. Nighthawk BTX provides 7.5mm of steel or steel equivalent penetration. We are the only company in the world that offers true lead detection, officers using our Nighthawk will not miss concealed loads.

WESTERN GLOBAL 5

Western Global provides a range of transportable fuel tanks for the military and DoD. Currently deployed in CONUS, EUCOM, CENTCOM, AFRICOM and INDO-PACOM our solutions are scalable and fully interoperable with existing systems. Our global hazardous material and transportation certifications negate the need for spill berms and enable multi-modal transportation – mitigating time, cost and risk..

NDIA LEADING THE WAY IN ENGAGEMENT, NETWORKING, AND NATIONAL DEFENSE

PLAN AHEAD FOR SUCCESS | 2022 FEATURED MEETINGS, CONFERENCES, AND EVENTS

INTEGRATED PRECISION WARFARE REVIEW (IPWR-22)

May 4 – 5, 2022 | Arlington, VA

Acquisition and Policy | Precision Capability | Air & Missile Defense

2022 CBRN DEFENSE CONFERENCE AND EXHIBITION

July 26 – 28, 2022 | Baltimore, MD

Combat Architecture | Defensive Measures | Demilitarization | Preparedness | Industrial Base

BREAKTHROUGH ENERGETICS 2022**

May 4 – 5, 2022 | West Lafayette, IN

Science & Engineering Technology | Propellants | Explosives | Modeling & Simulation

2022 SPACE WARFIGHTING INDUSTRY FORUM (SWIF)**

August 17 – 18*, 2022 | Colorado Springs, CO**

Defense Research & Development | Science & Technology

65TH ANNUAL FUZE CONFERENCE

May 10 – 12, 2022 | Renton, WA

Fuze | Missiles | Munitions Technology | Safety & Arming Devices | Warheads

FUTURE FORCE CAPABILITIES CONFERENCE & EXHIBITION

September 19 – 22, 2022 | Austin, TX

Autonomous Systems | GARM | Live Fire | Multi-Domain | Small Arms | EOD

2022 SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE & EXHIBITION (SOFIC)

May 16 – 19, 2022 | Tampa, FL

Communications | Light Vehicles | Small Arms | Special Operations

UNDERSEA WARFARE FALL CONFERENCE*

September 26 – 28, 2022 | Groton, CT

Aviation USW | C4I | Mine Warfare | Undersea Sensors & Vehicles | Warfighter Performance

TRAINING & SIMULATION INDUSTRY SYMPOSIUM (TSIS)

June 15 – 16, 2022 | Orlando, FL

Training | Simulation | Modeling | Acquisition/Funding

25TH ANNUAL SYSTEMS & MISSION ENGINEERING CONFERENCE

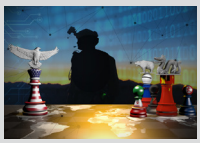
November 1 – 3, 2022 | Orlando, FL

Program management, Security models, Test & evaluation, Manufacturing

2022 HUMAN SYSTEMS CONFERENCE

June 15 – 16, 2022 | Arlington, VA

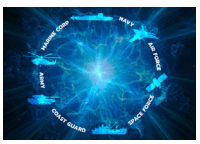
Human Systems | Joint Cognitive Systems | Human Systems Integrations | Artificial Intelligence



33RD ANNUAL NDIA SO/LIC SYMPOSIUM

November 17 – 18, 2022 | Washington, DC

Special Operations Forces | Strategic Competition



2022 JADC2 & ALL DOMAIN WARFARE SYMPOSIUM**

July 11 – 13, 2022 | Mclean, VA

Cyber | Cyber-Augmented Operations | Information Technology | Warfare

I/ITSEC 2022

November 28 – December 2, 2022 | Orlando, FL

Simulation | Training | Virtual Reality

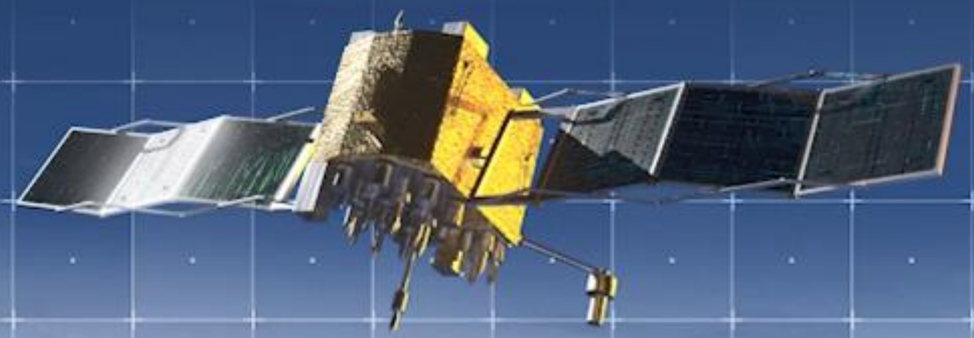
*All Classified | **Partially Classified

VISIT NDIA.ORG FOR MORE INFORMATION ON ALL OF OUR MEETINGS, CONFERENCES, AND EVENTS

AFRL

TECHNOLOGY FOR THE FUTURE FIGHT
FOCUSING S&T ON OPERATIONAL NEEDS

NDIA 2022 ANNUAL SCIENCE & ENGINEERING TECHNOLOGY CONFERENCE
26 APRIL 2022



JOHN MILLER, SES
AFRL/XP

U.S. AIR FORCE

UNITED STATES SPACE FORCE

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INTRODUCTION TO THE AIR FORCE RESEARCH LAB (AFRL)

READ MORE @
AFRESEARCHLAB.COM

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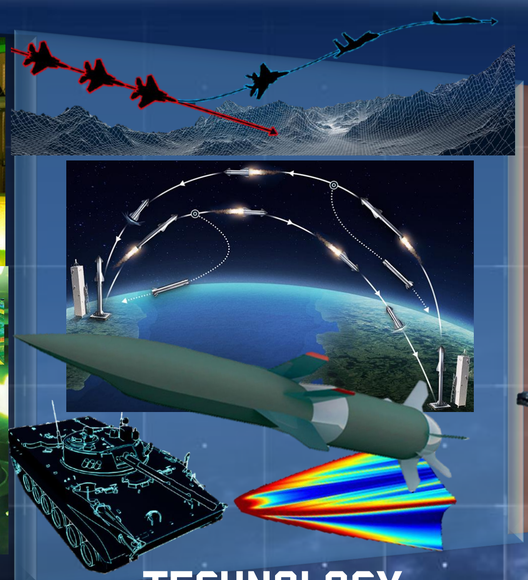
WHAT AFRL IS ALL ABOUT

READ MORE @ AFRESEARCHLAB.COM

VISION: We defend America by unleashing the power of innovative air and space technology.

MISSION: Leading the discovery, development, and integration of affordable warfighting technologies for our air, space, and cyberspace forces.

SCIENCE



TECHNOLOGY

PROTOTYPING & EXPERIMENTATION

WARFIGHTER CAPABILITY

S&T … Enhanced capabilities … Higher mission success rates … Airmen and Guardians return home safely

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COMMANDER'S INTENT & PRIORITIES

1 ACCELERATE S&T

2 ONE AFRL
TWO SERVICES
USSF

3 LEAD THE BEST
AIR FORCE RESEARCH LAB
TEAM

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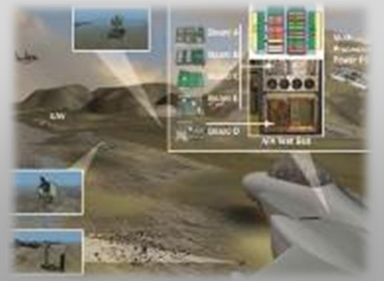
TECHNOLOGY EXAMPLES FROM AFRL AND ITS PREDECESSORS



FREE-FALL PARACHUTE — 1920

EJECTION SEAT — 1940

TURBINE ENGINES — 1960

GUIDED MUNITIONS — 1980

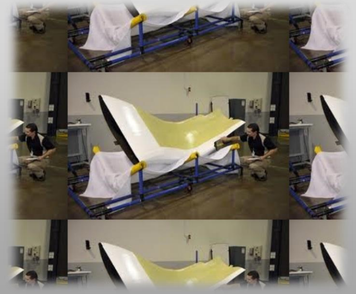
ADVANCED THREAT ALERT SYSTEM — 2000

HYDROCARBON SCRAMJETS — 2020

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020

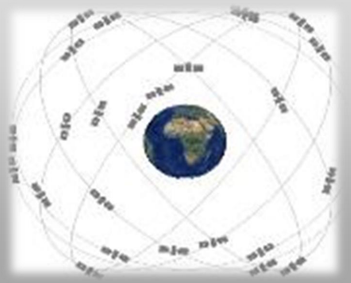
PRESSURE CABIN AIRPLANE — 1930

COMPOSITES — 1950



FLY-BY-WIRE (FBW) — 1970

GPS NAVIGATION — 1990



AUTO GCAS SOFTWARE — 2010

READ MORE ON AFRL HISTORY HERE.

Relentlessly committed to S&T for over 100 years!

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LOCATIONS

OHIO

**HUMAN PERFORMANCE

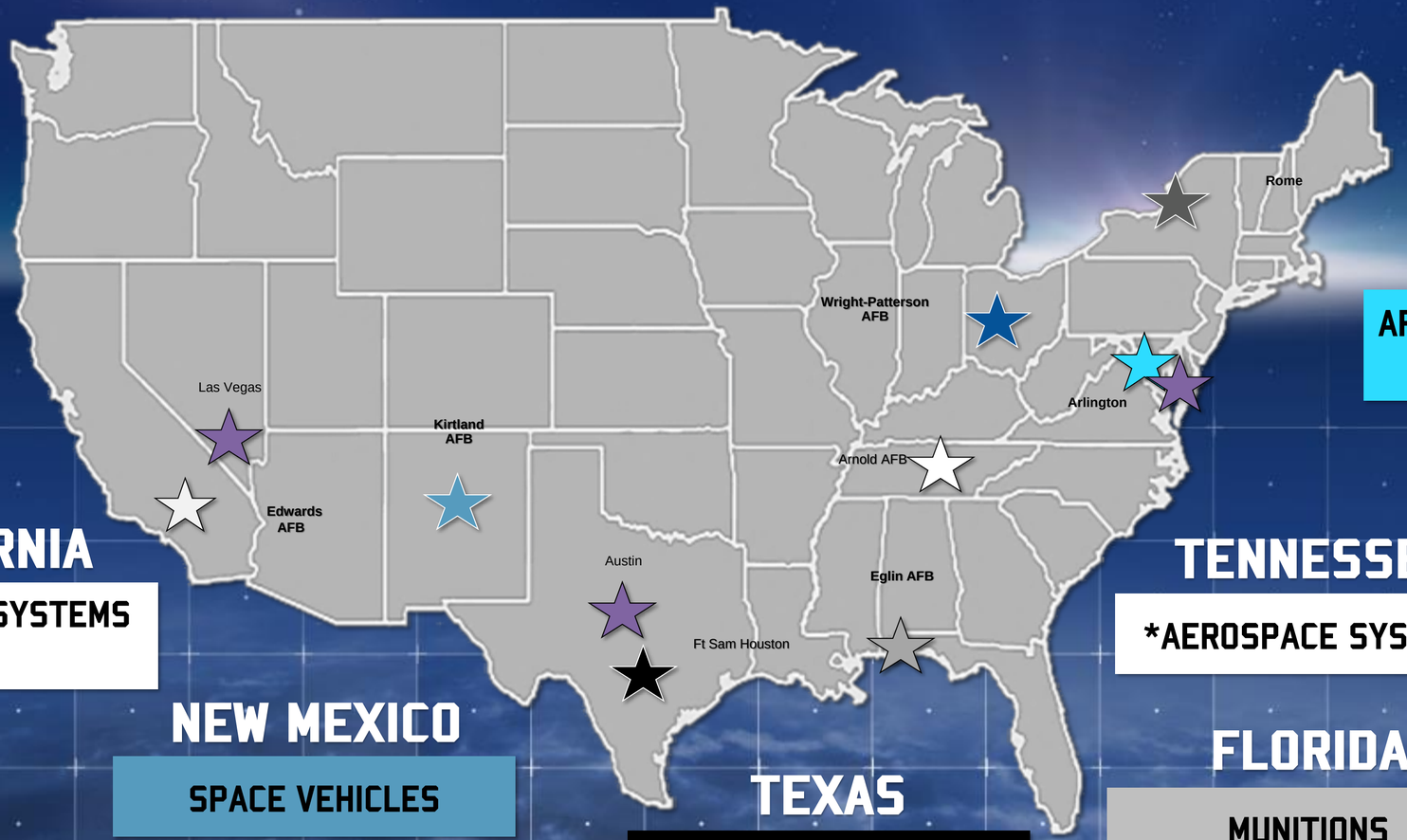
*AEROSPACE SYSTEMS

HEADQUARTERS

MATERIALS & MANUFACTURING

SENSORS

- USAF School of Aerospace Medicine
- *Airman Systems



NEW YORK

INFORMATION

NEVADA

AFWERX

- Las Vegas, NV
- Austin, TX
- Washington D.C

VIRGINIA

AF OFFICE OF SCIENTIFIC RESEARCH

- London, UK
- Tokyo, Japan
- Santiago, Chile

CALIFORNIA

*AEROSPACE SYSTEMS WEST

TENNESSEE

*AEROSPACE SYSTEMS

HAWAII

DIRECTED ENERGY

- Maui Research Site

NEW MEXICO

SPACE VEHICLES

DIRECTED ENERGY

TEXAS

AIRMAN SYSTEMS

**HUMAN PERFORMANCE

FLORIDA

MUNITIONS

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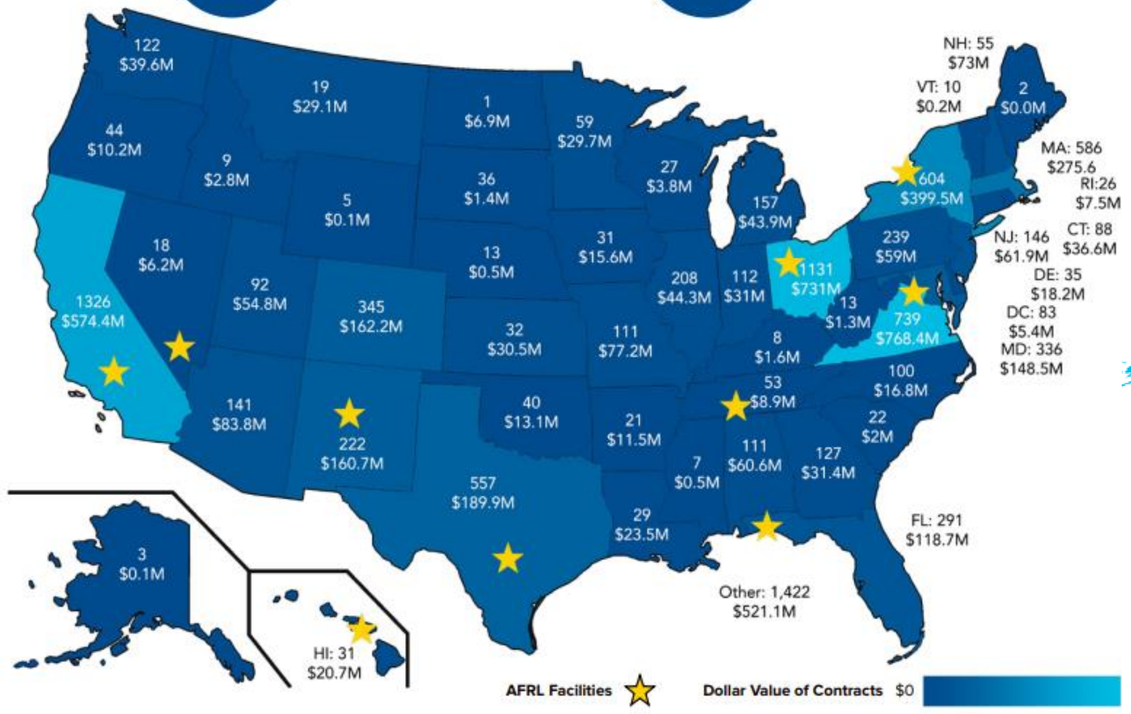
AFRL GLOBAL PARTNERSHIPS

READ MORE ON WAYS TO PARTNER WITH US

AFRL ACROSS THE COUNTRY...

10,056 Contracts with industry, universities, and research institutions

2,284 Agreements to share technologies, data, and discoveries



The map indicates number and total dollar value of active contracts in each state.

....AND AROUND THE WORLD

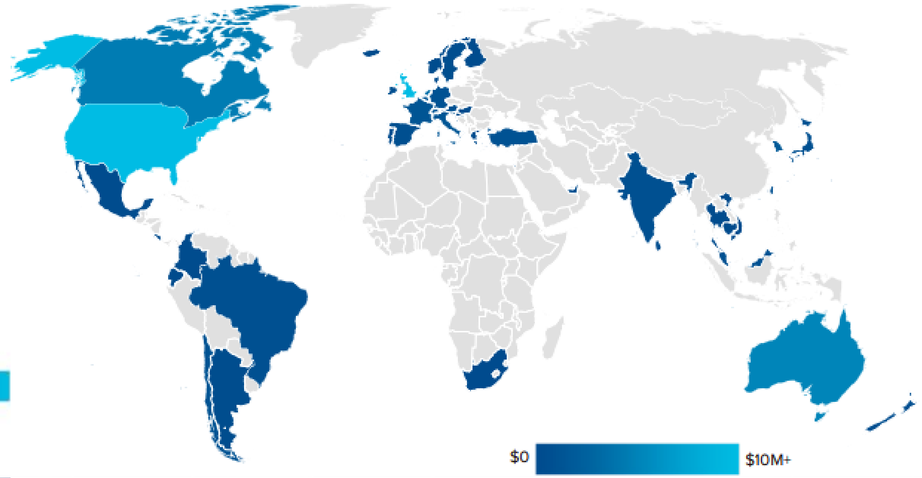
52 Countries

811 Grants & Agreements

363 International Research Agreements

Largest International Partners

Grants/Agreements	
United Kingdom	106
Australia	83
South Korea	37
Italy	27
Canada	26
Israel	18
Malaysia	17
Germany	17
France	16
Chile	16
Brazil	16



WITH OFFICES IN...

South America

Asia

Europe

Oceania

*We must collaborate with higher education, government, and businesses to build upon each other's discoveries to **accelerate** S&T delivering capabilities to the warfighter.*

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IMPACTS OF EMERGING TECHNOLOGY AND SECURITY THREATS

“We must think in terms of tomorrow.”
- General Henry H. “Hap” Arnold

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"THE TIMES, THEY ARE A CHANGING"

READ MORE
AFWERX.COM

AREA	CHANGE	IMPACT
	Adversaries e.g. Whole of Nation National Defense Strategy COVID-19	DoD/AF/USSF Response – Leap Ahead Speed S&T 2030 Strategy – Transformation/ People/ Partnerships Defense Production Act Testing/ Virtual/ Telework/ Limited Travel
USAF	USSF	One AFRL Supporting Two Services
Requirements	AFWIC vs MAJCOMs	Balance, prioritize S&T
AFWERX	Different mission than typical TD	Organize, Train, and Equip

As the globalization of S&T occurs, areas are changing fast- and so are we.
AFRL remains agile in developing technology for the future fight

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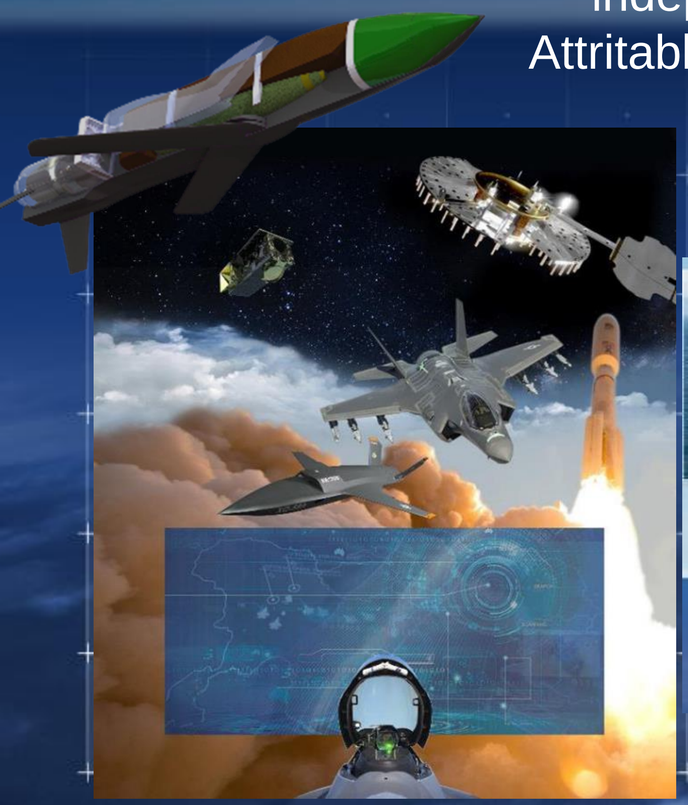
OUR FIGHT IS CHANGING

TECHNOLOGIES FOR THE FUTURE FIGHT

Connected sensing grid…. (ABMS/JADC2)
Effect on target to include left of launch
The tyranny of distance and time
Contested environments - Alt-PNT, runway independent
Attritable, low cost



AF FUTURES PRIORITY LIST

Agile Combat Employment
Family of Unmanned, Autonomous Systems
Base Defense
Palletized Munitions
Airborne AMTI
Alternative PNT
Transition DARPA Program for Munitions
Synthetic OTI
High-Speed Vertical Takeoff and Landing
Advanced Munitions

AFRL is accelerating S&T on multiple fronts:

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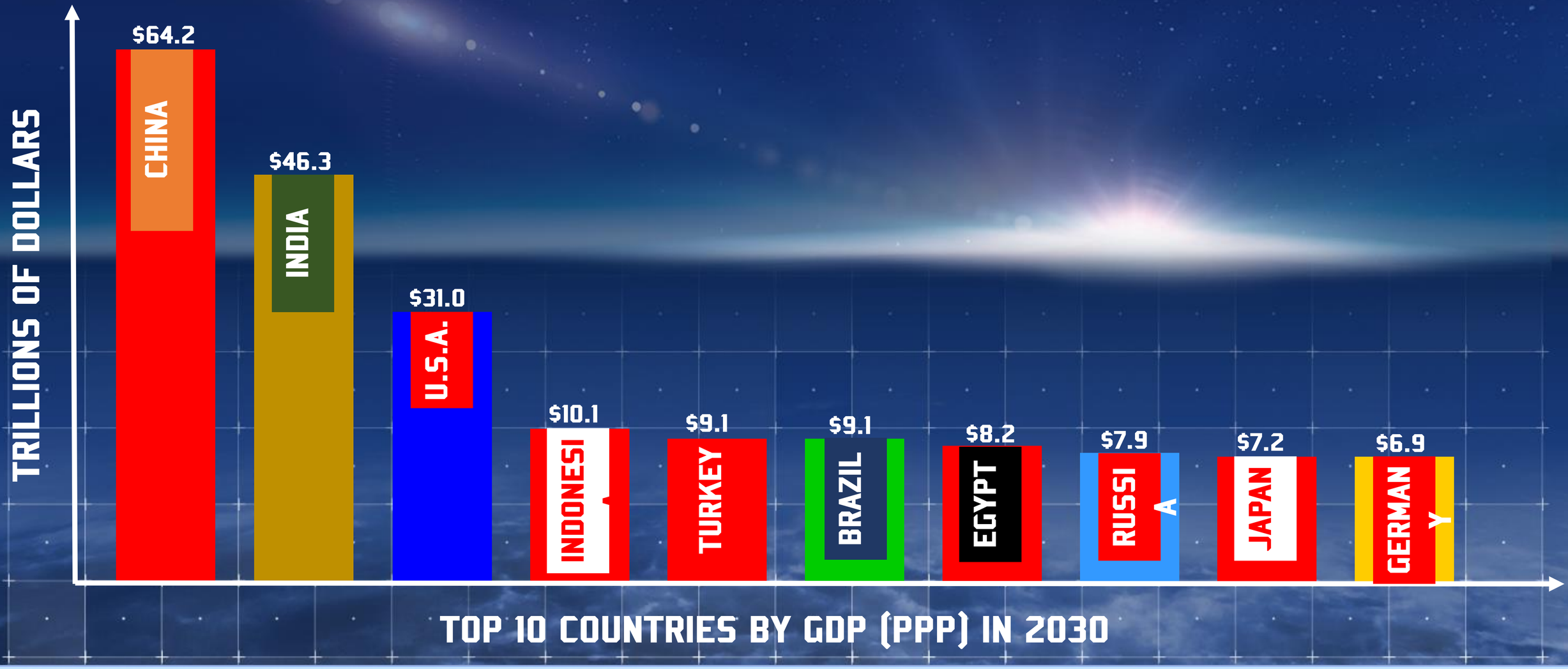
UNCERTAINTY ABOUT OUR FUTURE…



*China's efforts to become the world's leader in S&T by 2050 make it a **growing threat** to the US's ability to maintain superiority in air, space, and cyberspace.*

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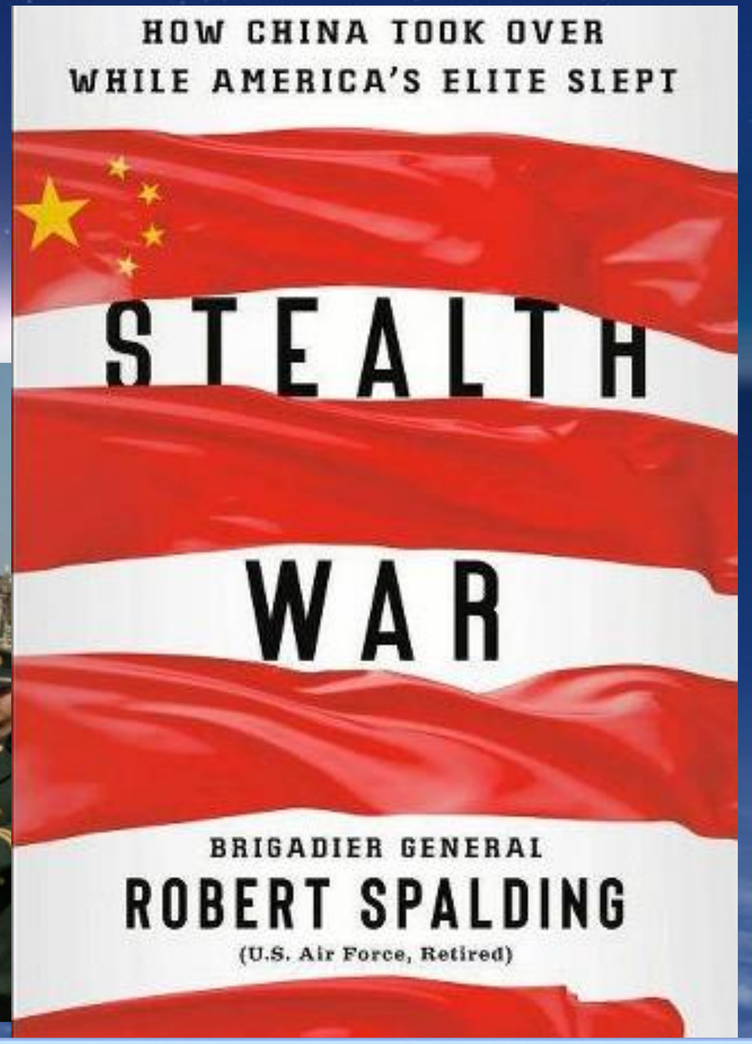
PLAYING BY A DIFFERENT SET OF RULES

"China's defense transformation has been guided by a principle known as "**military-civil fusion**," which aims to allow the state to **seamlessly capitalize on private-sector advances.** Overseen personally by President Xi Jinping, the strategy can **Include exploitation of dual-use products or even forced technology transfers.**"



*Our S&T partnerships make us a stronger force to be reckoned with. We are **diverse.** Diversity fosters innovation…and innovation does not happen in a vacuum!*

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SPACE IS CRITICAL TODAY FOR THE U.S. ECONOMY AND NATIONAL SECURITY

SPACEX x12,000

amazon x3200

Remote Sensing: Communication Banking

GALACTIC

planet. See change. Change the world.

BLACK|SKY Be The First To Know

India Tests Anti-Satellite Weapon, 2019

1969
~ 1500 Objects
~ 7 Nations in Space

2021
~ 10^4 Objects; Human-Operated,
~ 90 Nations; Commercial

Future Exploration

Economic Drivers

DSI DEEP SPACE INDUSTRIES

LUNAR RESOURCES

PLANETARY RESOURCES

Russia and China have weaponized space!

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SPACE AS A PART OF US STRATEGY

READ THE SPACE CAPSTONE PRESENTATION HERE

Military spacepower cannot unilaterally win wars, but like landpower, seapower, airpower, or cyberpower, its success, absence, or failure could prove **catastrophically decisive in war**.

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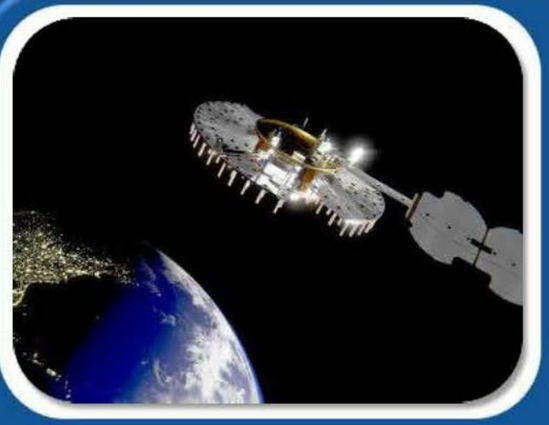
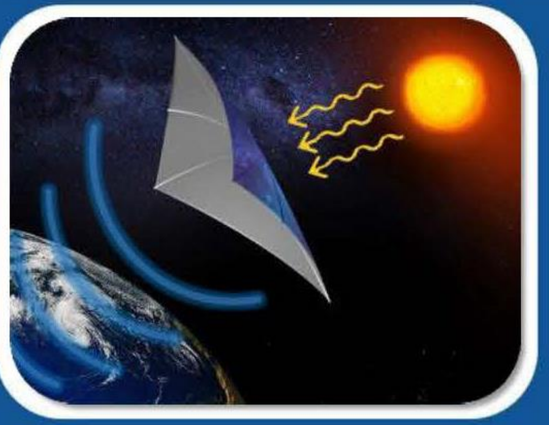
AFRL ON THE FOREFRONT OF SPACE TECHNOLOGY

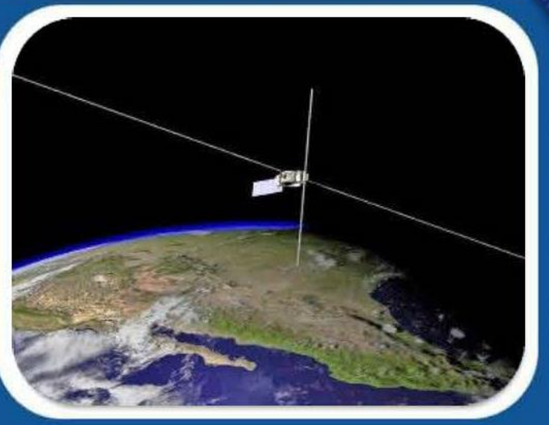


NAVIGATION TECHNOLOGY SATELLITE – 3 (NTS-3)

ADVANCED SPACECRAFT ENERGETIC NON-TOXIC (ASCENT) PROPELLANT

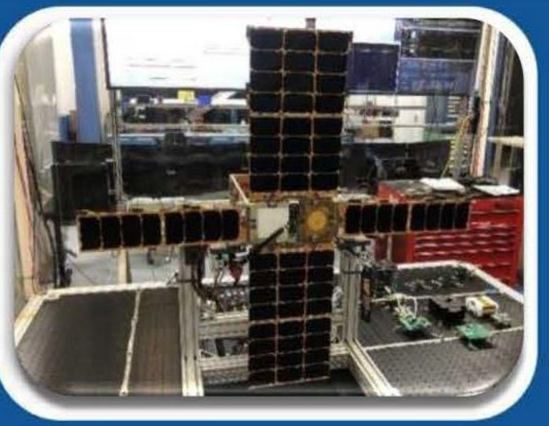


SPACE POWER BEAMING



DEMONSTRATION AND SCIENCE EXPERIMENTS (DSX) SATELLITE

QUANTUM SENSING AND TIMING



SMALL SATS AND HYBRID ARCHITECTUES

SPACE LOGISTICS AND ADVANCED ROBOTICS

SPACE DOMAIN AWARENESS

READ MORE ABOUT AFRL SPACE TECH HERE

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LOOKING FORWARD…COCOM

Innovation does not happen in a vacuum!

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THANK YOU.

Media Inquiries afrl.pa.inquiry@us.af.mil

Business Inquiries afsbirsttr-info@us.af.mil

Higher Education Inquiries collaborate@us.af.mil

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LET'S CONNECT!

As part of the Science and Technology (S&T) 2030 Strategy, the S&T Front Door Service to Connect provides an opportunity to connect potential partners with DAF S&T experts and opportunities at **https://airforcetechconnect.org/.**

Please share and encourage your internal and external network to submit their incredible ideas through the S&T Front Door!

The team has also created a CAC enabled, SME Profile site: **https://smeprofile.usaftechconnect.com/.** You can securely provide your information, to include - organization, knowledge, skills and abilities, resume/CV (please no PII), and military operational experience - and then use a google-like search bar to search for others based on this same information.

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ASEE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

Inspiring Innovation. Advancing Research. Enhancing Education.

Engineering the National Defense Workforce for the 21st Century

22nd NDIA S&T Conference
March 26, 2022

Norman L. Fortenberry, Sc.D., Executive Director

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OUTLINE

- ASEE
- Global Context for 21st Century Engineers
- Finding CLEARABLE Citizens
- With the RIGHT Skills
- Competing for a Shrinking Pool
- A Possible Solution

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ASEE

- Founded in 1893
- All engineering disciplines
- teaching, research, public service, professional practice, and social awareness
- Voice of academic engineering
- Over 13,000 members

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ASEE – Why we exist

The highest potential, career-ready engineering workforce characterized as

- Diverse,
- Enhances our capacity to innovate solutions,
- Understands the impacts of its solutions,
- Adapts to the rapidly evolving technical environments, and
- Plays a leading role in advancing technology.

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ASEE – what we do (thematic)

- Promote excellence;
- Exercise global leadership;
- Provide a forum;
- Foster technological education; and
- Provide high quality programs.

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Global Context of Engineering

- Population Growth ➔ desire for economic development
- Population Contraction ➔ desire to maintain standard of living and level of services
- Global Climate Change, Pollution, Limits to Natural Resources ➔ desire for more efficient and effective products, processes, and services

Engineering drives modern societies forward within the above constraints.

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Context: Common Themes in Intl Rpts

- Concerns about global shortages of engineers and consequent need to engage full population in engineering
- Declining interest in engineering as a career field
- Balancing quality and quantity

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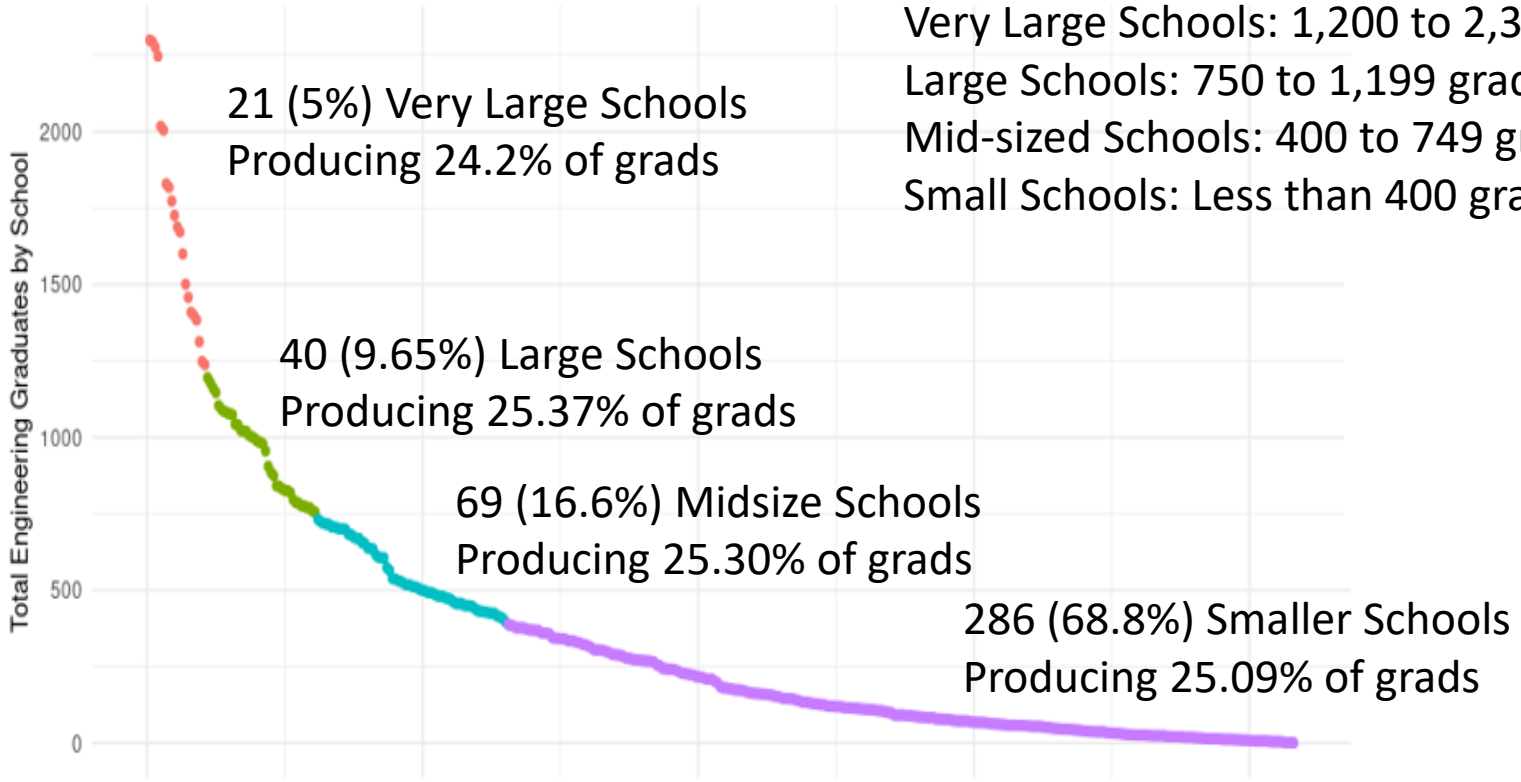
ASEE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

Finding Clearable Citizens

149,314 engineers from 416 schools



Very Large Schools: 1,200 to 2,300 graduates
Large Schools: 750 to 1,199 graduates
Mid-sized Schools: 400 to 749 graduates
Small Schools: Less than 400 graduates

ASEE Data for 2020

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COVID IMPACT

ASEE DATA from survey done in May 2021 – looking at DOMESTIC applicants

- BS Public DOWN 1.4%
- BS Private UP 2.2%
- MASTERS Public DOWN 1.4%
- MASTERS Private Down 9.1%
- DOCTORAL Public DOWN 6.1%
- DOCTORAL Private DOWN 3.7%

- Fewer applicants could mean fewer admits, fewer enrollments, and therefore fewer graduates, OR
- Lower quality of those admitted

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Demographic Challenge - 1

CENSUS DATA BEFORE THE PANDEMIC

- Fewer high school graduates by 2026
- Those students who remain are likely to be
  - more Hispanic,
  - Have fewer high scores on SAT and ACT
  - From families who are economically challenged
- Negative consequences for engineering enrollments.

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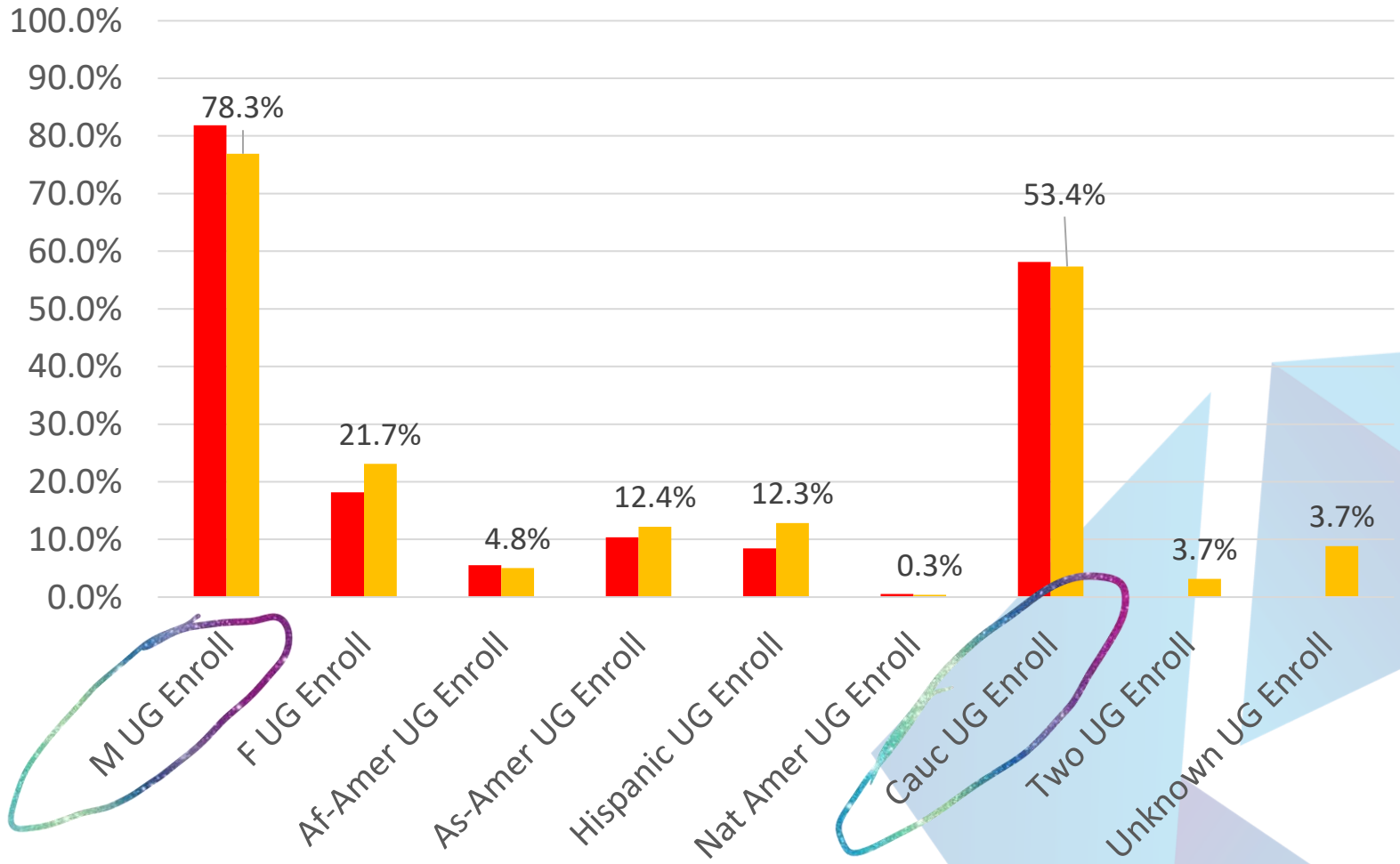
ASEE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

Demographic Challenge - 2

Engineering Enrollment Demographics-percentages (ASEE Data)



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Demographic Challenge - 2

- BS: 133,765 (89.67%) US, of that 39.3% are White Males
- MS: 28,215 (47.0%) are US, of that 40.2% are White Males
- Ph.D: 5141 (41.8%) are US, of that 43.8% are White Males

ASEE 2020 Data

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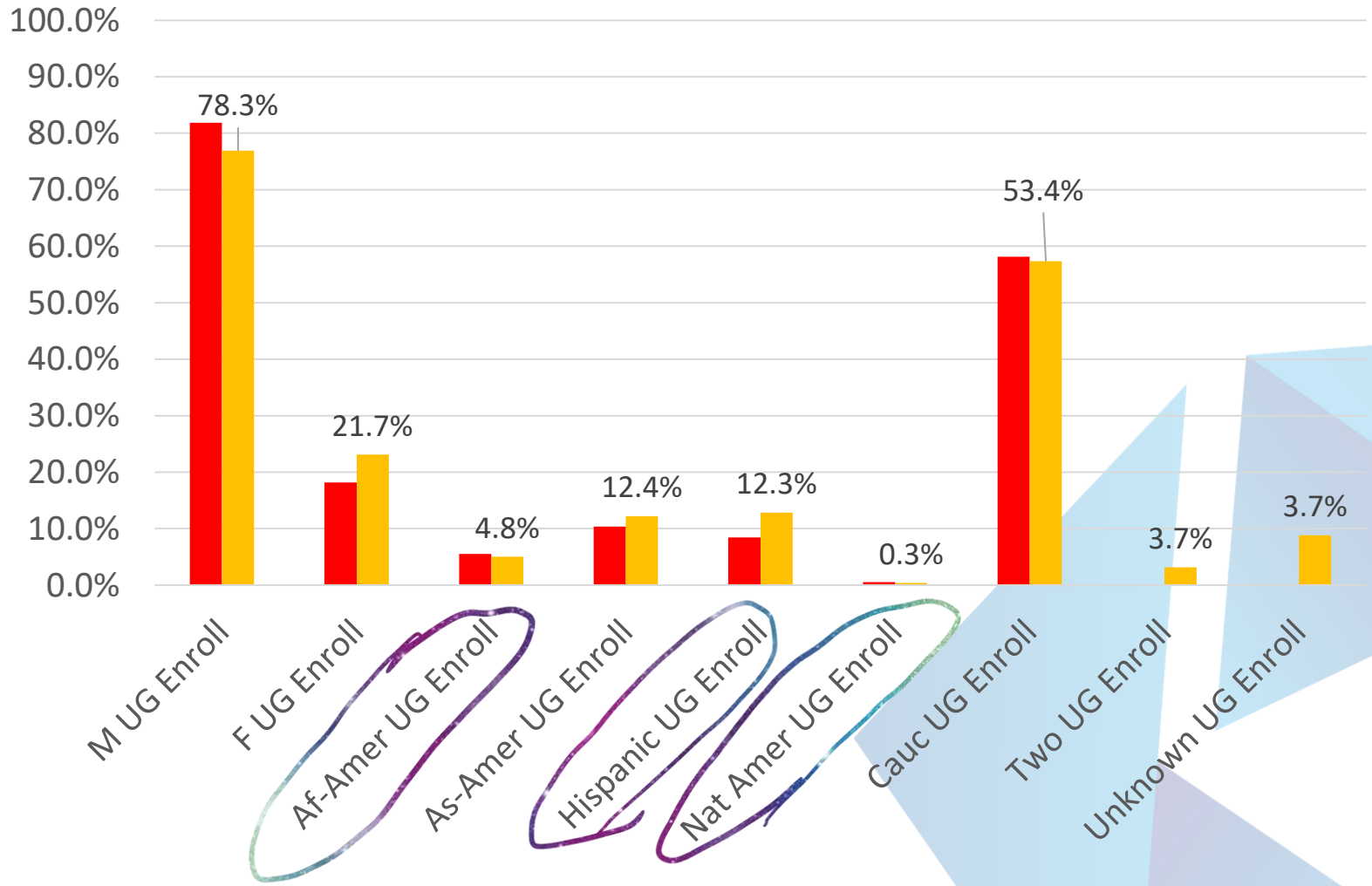
ASEE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

Demographic Challenge - 3

Engineering Enrollment Demographics-percentages (ASEE Data)



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Demographic Challenge - 3

- HISPANICS – 22% of college-age population, but only 13% of college freshman. Gap has expanded by 9% over past 35 years.

- AFRICAN AMERICANS – 15% of college-age population, but only 6% percent of freshmen.

- Trend has been exacerbated by COVID

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With the Right Skill Sets

- We're preparing students for jobs that don't yet exist, using technologies that have not yet been created, to solve problems we don't yet know that we have (in addition to the ones we already know about).
- We must also prepare engineering students to ***lead***
  - Technically,
  - Entrepreneurially,
  - Managerially, and
  - Politically and socially in a technological society.

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Challenges in US Engineering Education

- 1960's – The Soviet "threat"
- 1970's – The Japanese "threat"
- 1980's – The demographic "threat"
- 1990's – The global "threat"
- 2000's – The environmental "threat"
- 2010's – The Chinese "threat"
- 2020'S – The demographic "threat" – again!

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Responses to Challenges in Engineering Education

- 1960's – The scientific engineer
- 1970's – The transactional engineer
- 1980's – The managerial engineer
- 1990's – The global engineer
- 2000's – The holistic engineer
- 2010's – The elite engineer
- 2020's – The "just as good as an" engineer

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Implications for KSAAs

Engineers have to be more agile and facile

- Across engineering, physical science AND social science fields,
- Working with non-engineering professionals,
- Communicating with the general public, and
- Wm Wulf's "macro-ethics" at the level of the profession, not just the individual.
  - Engineers and IT workers are increasingly socially active (e.g., workers at Amazon, Facebook, Google, and Microsoft)

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Challenges for Engineering Schools

- Build better awareness of engineering

(STEM ≠ Engineering).

- Maintain interest in engineering.
- Enroll more students.
- Retain more students.
- Increase relevance.
- Build better on-ramps for veterans, transfers, and returning students.

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Challenges for NDIA Employers

- Potential employees have their own ways of working that may not align with DoD practices.
- Potential employees have their own ethical concerns that may not align with DoD practices (e.g., Google and Amazon).
- COVID isolation has further decreased loyalty and willingness to compromise
- You have to find ways to adjust to them and not just expect them to adjust to you.

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The Competition

Not just

- Lockheed,
- Northrop, and
- Raytheon,

BUT ESPECIALLY

- Facebook,
- Google, and
- Amazon

This is where the cool kids want to work, because the work is cutting edge AND Open source AND they get lots of perks

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How Do You Compete?

Collectively, look at the analogs

- NACME
- GEM

} Private

- Graduate Fellowships for STEM Diversity (NPSC) – National Labs (originally)
- SMART and NREIP/SEAP
- IPERF . . .

} Government

- Overlaps in some of the above

Possible Solution

- Consortia of NDIA members
- Offer undergraduate scholarships, graduate and postdoctoral fellowships to US citizens
- Scholars and Fellows intern at NDIA member firms
- Scholars and Fellows paid salaries while interning; paid stipends & sponsored tuition and fees during academic year
- Seek academic partners willing to reduce tuition and fees

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Thank you

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DMOC - DIVERSITY & INCLUSION

Navigating the Pipeline to Attract S&T Candidates for the Long Term

Ms. Katrina L. Logan

April 26, 2022

DIVERSITY MANAGEMENT OPERATIONS CENTER

MY ABBREVIATED JOURNEY

Katrina L. Logan
Deputy Director
Diversity Management
Operations Center (DMOC)

Beginnings

- Daughter of a Coal Miner and Certified Nurse Aide
- Eldest of Three
- Married for 21 years, 2 Adult Children, 1 Grandson, 1 Fur Pup

Education & Career Highlights

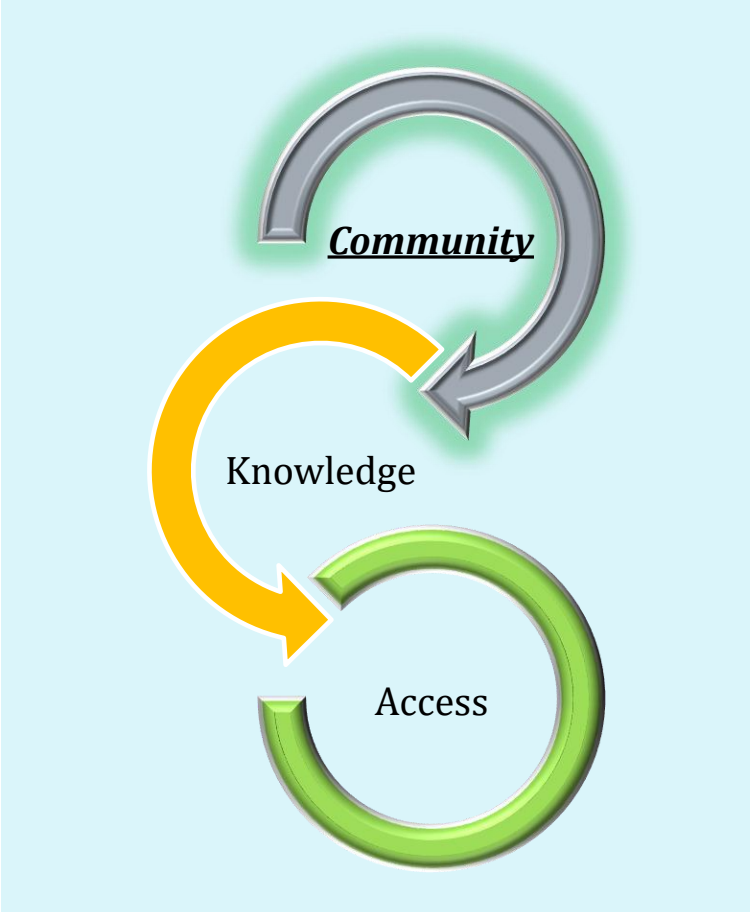
- Began Management Career in Retail
- Attended Computer Trade School (Data Center Management)
- First in family to attend and obtain Undergraduate & Graduate Degrees
- Established and Managed Information Technology Programs in the Non-profit, State and Faith-Based sectors
- Managed Medical Data Centers for several years in DC, Maryland and Virginia
- Worked at a Fortune 500 Consulting Firm supporting Military Health Systems
- Joined Department of Defense leading and overseeing numerous Technology-focused programs, initiatives and large scale efforts
- Promoted to Chief Management Officer (Human Resources Management; Promoted to Chief of Staff; Promoted
- Became Member of DoD's Senior Executive Service as Defense Human Resources Activity (DHRA) Chief Information Officer
- Director, DHRA Enterprise Shared Services Center
- Deputy Director, Diversity Management Operations Center

BIGGEST CHALLENGES IN S&T WORKFORCE NEEDS?

1. Exposure to high-performing students to inform them that DoD as employer of choice
   a) Exposure has social impact outcome

2. Opportunities for high school/ undergraduate/graduate students and veterans
   a) Internships
   b) Fellowships
   c) Scholarships
   d) Apprenticeships
   e) Employment Programs

3. Broaden Internship goals:
   a) To cultivate interest in DoD research and to increase the number of minority scientists/ engineers throughout the DoD
   b) Encourage students in STEM disciplines while guiding them toward advanced studies and careers in science and technology fields



DIVERSITY MANAGEMENT OPERATIONS CENTER

Distribution Statement A

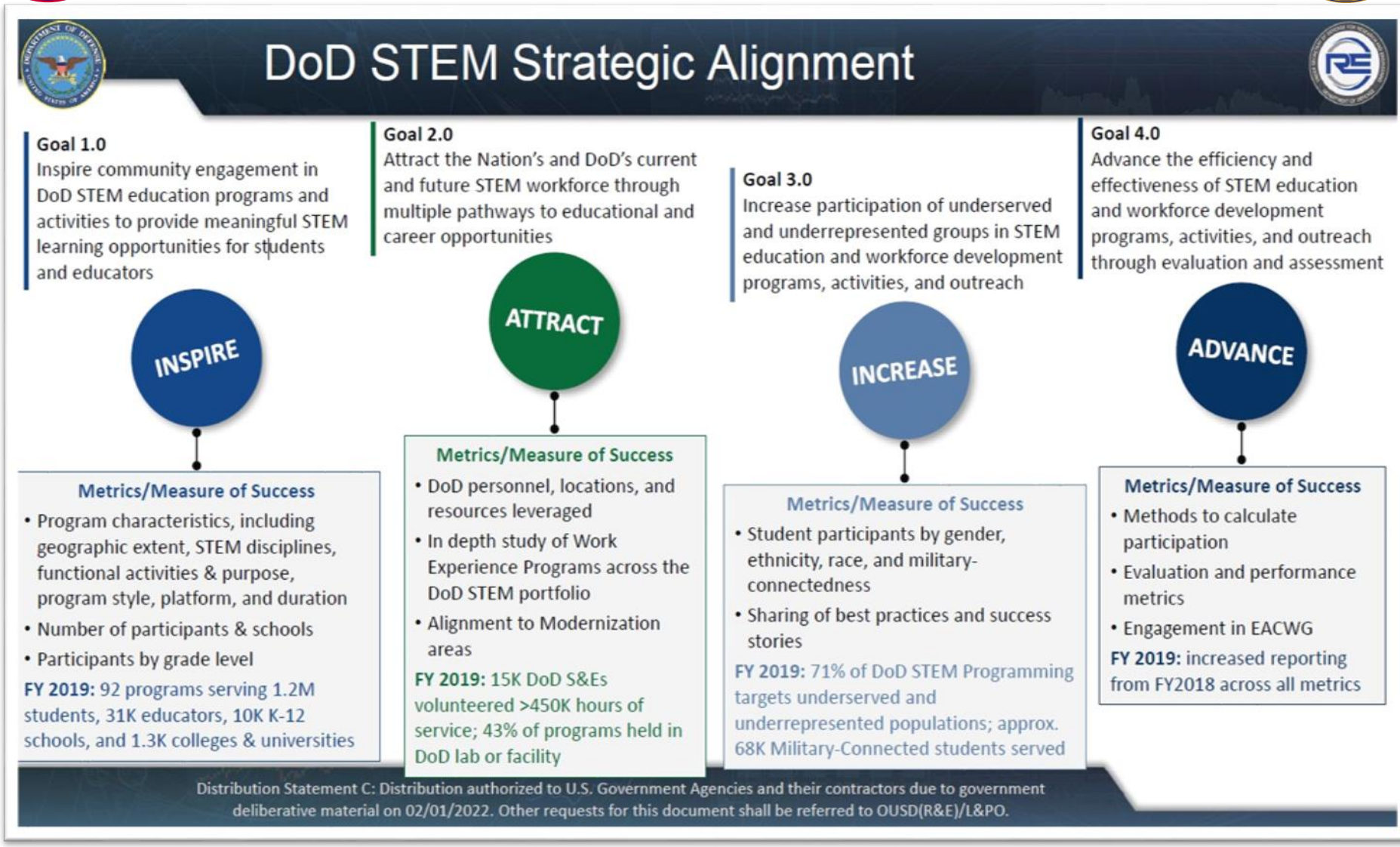
INITIATIVES THAT ARE IN DEVELOPMENT TO HELP ADDRESS GAPS IN THE WORKFORCE

Spread the Word: DoD programs that are in place and available:

1. Internships
   a) Pathways Internship Program
   b) Workforce Recruitment Program
   c) Additional Department of Defense Opportunities for Students
2. Fellowships
3. Scholarships
   a) College Scholarships
   b) High School Scholarships
   c) Fellowships
4. Apprenticeships
5. Employment Programs
6. White House STEM Five-Year Federal STEM Education Strategic Plan

****See Information in Backup*

GREATEST AREA OF TALENT WITHIN DoD FOR THE NEXT 5-15 YEARS



GREATEST AREA OF TALENT WITHIN DoD FOR THE NEXT 5-15 YEARS

1. Continue to showcase DoD student employment programs during DoD-conducted events (i.e., Taking the Pentagon to the People, Presidential Round Tables).

2. Continue to promote and advance DoD student employment opportunities during DoD diversity outreach engagements with affinity groups (i.e., Career Communications Group, Excelencia in Education, Federal Asian Pacific American Council, Great Minds in STEM, League of United Latin American Citizens, Patriots Technology Training Center, others).

WAYS THE DoD ADDRESSES THE COMPETITION WITH INDUSTRY FOR S&T WORKFORCE RECRUITMENT

The DoD is committed and continues to advance in S&T workforce recruitment.

- In 2018 and 2019 DoD engaged with over 31,600 students at 115 HBCUs/MSIs across the nation at campus events and conferences. Hired approximately 13,400 college graduates into STEM-related positions.
- In 2020, 336 students participated in the DoD pathways program; in 2021, 178.
- During the FY20 DoD STEM Education and Outreach Annual Data call, a total of 28 DoD programs reported serving post-secondary students via Internships and Apprenticeships, with a total of 6,775 students served. (Note: not all students in that number represent post-secondary students.)
- Ongoing internship opportunities can be found at:
  - https://dodstem.us/participate/opportunties
  - Air Force Premier College Intern Program (https://afciviliancareers.com/student-roa/)
  - Naval Research Laboratory HBCU/MI/TCU Research Internship Program (https://https://www.nrl.navy.mil/careers/opportunities/)
  - Department of Navy's HBCU/MIs program (https://www.onr.navy.mil/Education-Outreach)
  - Army Internship Programs (https://www.arl.army.mil/careers/students/hbcu-mi/)

BACKUP SLIDES

INTERNSHIPS AND FELLOWSHIPS

Program Name	Program Goal	Audience and POC
Internships and Fellowships		
OSD/R&E - HBCU/MI Program	10-week internship offering is student training, encouraging students in STEM disciplines while guiding them toward advanced studies and careers in science and engineering fields important to the defense mission. Students are placed at DoD laboratories and facilities across the nation to conduct research relevant to the defense mission under the supervision of DoD scientists and engineers.	Students (Undergrad and Grad) Evelyn Kent, evelyn.w.kent.civ@mail.mil
DHRA/DMOC - Workforce Recruitment Program USAJobs.gov	The Workforce Recruitment Program is designed as a pipeline to hire individuals with targeted and reportable disabilities.	Students (Undergrad and Grad) Mr. Sam Drummond, Associate Director, Disability Programs Directorate, (571) 372-1768, samuel.c.drummond.civ@mail.mil
Army - Test Resource Management Center(TRMC) Student Program	Summer internship program to familiarize participants with employment in a test and evaluation setting. (STEM, Test and Evaluation Mission Support (wide range from Operations, Security, IT, HR, Budget, etc)	Students (Undergrad) Teressa Doonan; teresa.doonan.civ@mail.mil
Army - SEAP (Science & Engineering Apprenticeship Program)	Summer Internship Program for High School students (STEM)	Students (K-12) CBC - Casey Weininger, Physical Scientist/STEM Program Manager, casey.p.weininger.civ@mail.mil, 410-436-3332, Nicole Smith, HR Spec, maria.n.smith10.civ@mail.mil; 512-726-4242
Army - College Qualified Leaders (CQL) USAStaffingoffice@opm.gov	Summer Internship Program for Undergraduate students (STEM)	(Undergrad) CBC - Casey Weininger, Physical Scientist/STEM Program Manager, casey.p.weininger.civ@mail.mil, 410-436-3332, Nicole Smith, HR Spec, maria.n.smith10.civ@mail.mil; 512-726-4242
Army - ISIP (Innovative Student Internship Program)	Summer Internship Program for Undergraduate students (STEM)	Recent Grads (Undergrad) CBC - Amanda Ramsel HR Analyst amanda.m.ramsel.civ@mail.mil, Nicole Smith, HR Spec, maria.n.smith10.civ@mail.mil; 512-726-4242

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INTERNSHIPS AND FELLOWSHIPS - CONTINUED

Navy - Student STEM Employment Program (SSEP) https://www.navsea.navy.mil/Home/Warfare-Centers/Career-Opportunities/Internships/	Become a part of the pipeline for the future workforce in the Student STEM Employment Opportunities for BS, MS, and PhD students. (Engineering/Science)	Recent Graduates (Undergrad) NAVSEA Warfare Centers: Ms. Diane Brown, NAVSEA Warfare Centers Personnel Demonstration Project Manager, Naval Surface Warfare Center Philadelphia Division
Navy - Naval Research Enterprise Intern Program – NREIP https://www.navsea.navy.mil/Home/Warfare-Centers/Career-Opportunities/Internships/NREIP	Opportunity for students to participate in research at a Department of Navy (DON) laboratory during the summer. The goals of the NREIP are to encourage college students to pursue science and engineering careers, further education via mentoring by laboratory personnel and participation in research, and raise awareness of DON research and technology efforts, which can lead to employment within the DON. (Engineering/Science)	Students (Undergrad) ONR Program Manager: Dr. Reginald G. Williams Point of contact: Dr. Kristen Mitchell Email: naval_internships@navy.mil
Navy - Naval Research Laboratory (NRL) Post-Doctoral Program https://nrl.asee.org/about	Fellows are competitively selected on the basis of their overall qualifications and technical proposals addressing specific areas defined by the host Navy laboratories. The selected participants will work in a unique Navy laboratory environment, while interacting with senior laboratory scientists and engineers. Used as a pipeline for the future workforce. (Engineering/Science)	Journeyman Level Ms. Erica Deschak Program Coordinator erica.deschak@nrl.navy.mil
Army - Oak Ridge Institute for Science and Education (ORISE) https://orise.orau.gov/internships-fellowships/index.html	Connects the most talented and diverse college students, recent graduates, postdocs, and faculty to STEM internship and fellowship programs closely aligned with the interests of a variety of research facilities, including those managed for the U.S. Department of Energy and more than a dozen other federal agencies.	Recent Grads (Undergrad, Graduate) Nicole Smith, HR Spec, maria.n.smith10.civ@mail.mil; 512-726-4242
Army - Student Internship Program	The Student Internship Program (SIP) exposes current students to the Army Civilian Corps and career opportunities with emphasis on STEM and mission critical occupations. Upon meeting graduation requirements, the program provides an opportunity for participants to be non-competitively converted into permanent full-time employment in the Army.	Students timothy.a.weathersbee.civ@mail.mil; edward.h.david.civ@mail.mil

DIVERSITY MANAGEMENT OPERATIONS CENTER

INTERNSHIPS AND FELLOWSHIPS - CONTINUED

Army - DoD College Acquisition Internship Program (DCAIP)¤	The DoD College Acquisition Internship Program (DCAIP) is an opportunity for Army acquisition organizations to hire eligible college students for a 10-week paid summer internship. Upon a student's successful completion of the internship, the organization may noncompetitively convert the individual to a permanent position in the acquisition workforce through existing hiring authorities.¶ (STEM, Test and Evaluation Mission Support, wide range from Operations, Security, IT, HR, Budget)¤	Students (Undergrad)¤
MDA - Military Academy Internship (MAI) Program¤	The MDA Military Academy Internship Program (MAI), established in 2016, provides military interns (Air Force, Naval Academy, West Pint) the opportunity to develop new technical skills and affords the opportunity to work with Department of Defense (DoD) world-class professionals.¶ (STEM-based career discipline based on student major (Engineering, Science, Math, etc)¤	Undergraduate students from the service academies (Naval Academy, West Point, Air Force)¶ ¶ Jacqueline Martin, STEM Program Office Lead, jacqueline.martin@mda.mil, 256.450.3671¤
Navy - John S. McCain Strategic Defense Fellows Prog¤	High performing and talented individuals with advanced degrees have an opportunity to gain experience and develop their leadership capabilities through challenging opportunities.¤	Recent Graduates (Graduate)¶ ¶ Program Manager Patricia.Campbell@navy.mil, 202-685-6469¤
¶ DeCa - Commissary Management Specialist (CMS) Intern Program¤	A two-year training program that develops the individual's skills needed to become an entry-level department manager¤	Current Commissary Employees and Recent Graduates¶ DeCA, Lana Frederick, lana.frederick@deca.mil, 804-734-8000, ext. 48784¤
DeCa - Produce Intern Program¤	A one-year training program that develops the individual's skills needed to become a Produce Department Manager¤	Current Commissary Employees ¶ ¶ DeCA, Lana Frederick, lana.frederick@deca.mil, 804-734-8000, ext. 48784¤
OUSD/R&E, Center for Excellence in Education (CEE) Rickover Internship¤	Pairs college students with DoD lab internships to nurture careers of excellence and leadership in STEM for academically talented students. Participants increase their knowledge of STEM careers by working side by side with professionals in the field, including select DoD laboratories.¶ ¶ (lab skills, protocols, and techniques, Communications skills, STEM)¤	Undergrad¶ ¶ Louie Lopez, Director DoD STEM, louie.r.lopez.civ@mail.mil, O: 571.372.6715 C: 202.758.5597¤

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INTERNSHIPS AND FELLOWSHIPS - CONTINUED

Air Force - Premier College Intern Program (PCIP)	Increase number of college summer interns to provide "ready to place" graduates with hands-on experience with cutting edge projects/technologies. (STEM, Cyber, Intel, Logistics, Security, Safety, Special Investigations, Audit, Finance and Force Support)	Students (Undergrad) William Cavenaugh, Chief Force Renewal, william.cavenaugh.2@us.af.mil, 210-517-3075
Air Force - Research Lab Scholars Program	Offers stipend-paid summer internship opportunities to undergraduate and graduate level university students pursuing STEM degrees, as well as upper-level high school students; select locations also offer internships to university students pursuing education-related degrees and K-12 professional educators. The selected interns gain valuable hands-on experiences working with full-time AFRL scientists and engineers on cutting-edge research and technology and are able to contribute to unique, research-based projects.	Students (Undergrad/graduate) Bryan Stevens, AFRL/DPDC, bryan.stevens@us.af.mil
Army - Near-peer Mentor Program, Gains in the Education of Mathematics and Science (GEMS)	Near-Peer Mentors (NPMs) are high school and college students enrolled in a science, technology, engineering, or mathematics (STEM) or education based field. NPMs work directly with USAMRDC scientists and engineers to learn STEM focused curriculum and educate students in grades 4-12 in a week-long summer camp environment. Students perform hands-on activities under the instruction of the NPMs. NPMs are provided training prior to the start of the program for students. (STEM, Computer Science, Innovation)	Students (Undergrad) Nicole Smith, HR Spec, maria.n.smith10.civ@mail.mil; 512-726-4242
WHS - Volunteer Student Internship (VSI) Program	Gain unpaid work experience in any field.	Lucius Mapp, Management Analyst, 571-789-0982, lucius.mapp.civ@mail.mil
Army - Pathways in Technology Early College High School (P-TECH) USAJobs.gov	P-Tech is a magnet program in Harford County, MD where students are able to attend high school while earning college credits towards a two-year associates' degree in Information Systems or Cybersecurity within four to six years at no cost. The Army collaborates with the program to provide mentors, host workplace tours, and internship opportunities. (Information Technology, Cybersecurity)	Students (High School) Casi Boyer, CECOM HR Specialist, cassandra.y.boyer.civ@mail.mil, 410-688-3005 Steve Faulker, CECOM HR Specialist, steven.faulkner3.civ@mail.mil, 443-861-7919

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INTERNSHIPS AND FELLOWSHIPS - CONTINUED

DLA - Pathways Intern Program (PaCE Program) USAJobs.gov early June.	The DLA Pathways Intern Program provides valuable work experience directly related to acquisition, supply chain management, finance, engineering, human resources, information technology, environmental protection, or another professional, administrative, or technological area. After successful completion of education requirements and meeting work/performance requirements, student eligible for noncompetitive conversion to permanent employment.	Students (Undergrad and Grad) Mr. Adarryl M. Roberts, SES, Program Executive Officer, support officer, Dr. Honney Lavern (HL) Barner (Acting) Chief of Staff (CoS) Program Executive Office (J62) Information Operations (J6) HQ Complex Defense Logistics Agency (DLA) hl.barner@dla.mil: (571) 767-3992

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SCHOLARSHIPS

Scholarships		
OSD/R&E, Science, Mathematics, and Research for Transformation (SMART) Scholarship-for-Service Program https://www.smartscholarship.org	The Science, Mathematics, and Research for Transformation (SMART) Program is a Department of Defense (DoD) scholarship-for-service program for Science, Technology, Engineering, and Mathematics (STEM) disciplines critical to national security functions. Upon graduation, students move/return directly into employment of DoD facilities. Awards can be made during any phase of a scholar's education and vary in length from a minimum of one to a maximum of five years. The service commitment is one year of DoD employment for each academic year of SMART funding.	Students (Undergrad) Louie R. Lopez, Director, DoD STEM, Defense Laboratories and Personnel, (202) 758-5597, louie.r.lopez.civ@mail.mil
Navy - Cyber Scholarship Program	Provides scholarships to students in pursuit of cyber-related degree at National Centers of Academic Excellence in Cybersecurity (NCAE-C), Cyber Defense Research (CAE-R) or Cyber Operations (CAE-CO).	Students (Undergrad) Program Manager, aeshaff@nsa.gov, 410-854-6206
DLNSEO - David L. Boren Scholarships and Fellowships https://www.borenawards.org/scholarships/program-basics/boren-scholarship-basics	Foreign Language	Students (Other) Defense Language and National Security Education Office, 1-800-618-NSEP (6737), boren@iie.org

APPRENTICESHIPS

Apprenticeships¤		
Army·-·AMCOM,·U.S.·Army·Test,·Measurement·and·Diagnostic·Equipment·Activity·(USATA)·Calibration·Apprentice·Program¤	Provides·selectees·with·the·knowledge·and·basic·skills·to·prepare·them·for·a·career·as·a·Civilian·Army·Calibrator.¶ ¶ (Calibration·and·Metrology)¤	Veterans·¶ Gary·Davenport,·Supervisory·Equipment·Specialist,·gary.m.davenport.civ@us.army.mil,·256-955-8082¤
Army·-·NRC·Research·Associateship·Program¤	Provides·postdoctoral·and·senior·scientists·and·engineers·of·unusual·promise·and·ability·opportunities·for·research·on·problems,·largely·of·their·own·choice,·that·are·compatible·with·the·interests·of·the·sponsoring·laboratories.·¶ ¶ (STEM·and·Innovation)·¤	Fellowships·Office·recommends·and·makes·NRC·Research·Associateship·awards·to·outstanding·postdoctoral·and·senior·scientists·and·engineers·for·tenure·as·guest·researchers·at·participating·laboratories.·¶ ¶ Nicole·Smith,·HR·Spec,·maria.n.smith10.civ@mail.mil;·512-726-4242¤
Navy·-·China·Lake·Apprentice·Program¤	The·China·Lake·Apprentice·Program·is·a·three·year·education·program·designed·to·guide·students·to·become·skilled·in·technician·and·wage·grade·positions.·The·program·comprises·of·a·three·year·distance·learning·requirement·and·a·DOL·approved·OJT·program.¶ ¶ (Technicians,·Machinists,·Non-metallic)¤	Students·¶ ¶ Angel·Zamarron,·Program·Manager,·angelique.e.zamarron.civ@us.navy.mil,·760-939-2214¤
Navy·-·Shipyards·Apprentice·Program¤	This·four-year·program·features·paid·academic·and·trade·training,·and·on-the-job·training.·Graduates·receive·journey·worker·certificates·from·both·the·Department·of·Labor·and·Department·of·the·Navy,·and·receive·college·credit·towards·an·associate's·degree.¶ ¶ (Production·Machinery·Electrician;·Mechanic,·Non-Destructive·Tester)¤	High·School·or·GED·graduates,·College·graduates,·Veterans,·Journeyman·level·¶ ¶ lizzie.a.arenas-morales.civ@us.navy.mil¤
Navy·-·Fleet·Readiness·Center·South·West·(FRCSW)·Apprenticeship·Program¤	Provides·on·the·job·training·combined·with·related·instruction·to·develop·highly·skilled,·Department·of·the·Navy-oriented,·U.S.·Department·of·Labor·certified·Journeyworker·production·Artisans·to·meet·long-range·needs.¤	Vocational·School/Program¶ ¶ ·Joel·Blaeney,·Apprenticeship·Program·Administrator,··joel.e.blakeney.civ@us.navy.mil,·619-545-2873¤

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APPRENTICESHIPS - CONTINUED

Air Force - LEGACY (Leadership Experience Growing Apprenticeships Committed to Youth): Junior Apprentice¤	The LEGACY program is three phases designed for students from 11 years old to completion of their bachelor's degree. LEGACY is intended to introduce STEM at a young age, continue growing students' interest in STEM, and eventually hire these students into a STEM driven Air Force career. ¤	Students (Undergrad)¶ ¶ Daniel J. Andrews II, AFRL/EN EZE STEM Division Chief & LEGACY Program, daniel.andrews.1@us.af.mil, (937) 938-4859¤
Air Force - LEGACY (Leadership Experience Growing Apprenticeships Committed to Youth): Apprentice¤	The LEGACY program is three phases designed for students from 11 years old to completion of their bachelor's degree. LEGACY is intended to introduce STEM at a young age, continue growing students' interest in STEM, and eventually hire these students into a STEM driven Air Force career.¤	Students (Undergrad)¶ ¶ Daniel J. Andrews II, AFRL/EN EZE STEM Division Chief & LEGACY Program, daniel.andrews.1@us.af.mil, (937) 938-4859¤
¤		

EMPLOYMENT PROGRAMS

Employment Programs		
DLA - Pathways to Career Excellence (PaCE) Program https://www.dla.mil/Careers/Programs/PacePgm/	A 2-year training program designed to train entry-level personnel for subsequent advancement to the journey-level in mission-critical career fields. (Contracting, Supply, Finance, HR, IT, Quality Assurance, Environmental Protection)	Recent Graduates (Undergrad), Veterans, Individuals with Disabilities Lashana Crone, PaCE Program Manager, lashana.crone@dla.mil, 614-692-5966
Naval Facilities Engineering Systems Command (NAVFAC) Professional Development Center (PDC) Program	The program is designed for recent college graduates, veterans or individuals changing careers, and provides a structured, two to three year development program that includes formal education and training, diverse rotational assignments, extensive on-the-job training, and challenging work assignments.	Recent Graduates (Undergrad), Veterans, Individuals changing careers Naval Facilities Institute (NFI) Heather Ulilang, Program Manager heather.ulilang@navy.mil 805-982-4740
Navy – Naval Acquisition Development Program (NADP)	The purpose of the NADP is to develop highly skilled professionals through a two to three year training program. The NADP provides highly qualified and talented entry level employees an opportunity for rapid advancement, regular promotions, systematic development, career broadening assignments and graduate education through a structured, systematic career development process using a career field Master Development Plan (MDP). (Acquisition – Logistics, Engineering, Contracting)	Recent Graduates (Undergrad) Naval Acquisition Career Center (NACC), NACC_Career_Management@navy.mil

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EMPLOYMENT PROGRAMS - CONTINUED

Navy - Engineer & Science Development Program ESDP/New Professional Program https://www.navair.navy.mil/nawcwd/now_hiring	The New Professional (NP) Program provides an excellent developmental curriculum combining rotational assignments, formal classroom training, and on-the-job experiences applying technical knowledge to Department of Defense Programs. Opportunities to work with senior scientists and engineers provide access to a tremendous reservoir of technical talent. Technical mentors are assigned to each new engineer and scientist to provide them with career guidance and technical direction to assist with their career advancement opportunities. (Engineering Science)	Recent Graduates (Undergrad) Gregory McCalester, Engineer, gregory.c.mccaleter.civ@us.navy.mi, 619-545-0782 (FRCSW); Kate George kate.george@navy.mil 760-939-2204 (NAWCWD); Wanda Cricchi, wanda.s.cricchi.civ@us.navy.mil, (240) 808-0561
Air Force - Palace Acquire	Formalized entry-level training and development programs which recruit and select high- caliber candidates with management potential and train them to become competent, effective, and productive employees in approximately 20 career fields. (Cyber, STEM, Logistics)	Recent Graduates (Undergrad) William Cavenaugh, Chief Force Renewal, william.cavenaugh.2@us.af.mil, 210-517-3075
Air Force - Copper Cap	Recruit contracting specialists (1102s)	Recent Graduates (Undergrad) William Cavenaugh, Chief Force Renewal, william.cavenaugh.2@us.af.mil, 210-517-3075
Air Force - DRIVE	Transform medically disqualified trainees and Airmen with unique skill sets into viable civil service applicants with the goal of retaining talent for the DOD.	Veterans William Cavenaugh, Chief Force Renewal, william.cavenaugh.2@us.af.mil, 210-517-3075
DCMA - Keystone Program	The Keystone Program is a 3-year (36 months) entry-level developmental program. The program is comprised of a combination of formal classroom training, computer based training (CBT), on-the-job training (OJT) at the assigned duty station, and rotational assignments. Training requirements are developed by agency subject matter experts based on full-performance level requirements for each acquisition series.	Recent Graduates (Undergrad) Joseph Armata, Workforce Development Program Specialist, joseph.j.armata.civ@mail.mil, (804) 609-4584

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EMPLOYMENT PROGRAMS - CONTINUED

DCMA - Veteran Administration On-the-Job & Apprenticeship Training Programs	DCMA's Keystone Program in conjunction with the Veteran Administration's On-the-Job Training (OJT) Program allows qualified veterans (eligible for the GI Bill) to learn a skill through the Keystone Program and gain journeyworker status upon completion of the program. The OJT starts at a reduced starting wage that is gradually increased commensurate with skill/ability attainment during developmental stages of the training.	Veterans Joseph Armata, Workforce Development Program Specialist, joseph.j.armata.civ@mail.mil, (804) 609-4584
WHS - Operation Warfighter (OWF)	Temporary assignment or internship program: The program provides recuperating service members with meaningful activity outside of the hospital environment and offers a formal means of transition back to the military or civilian workforce.	Tristy Moore, 202-770-8984, tristy.r.moore.civ@mail.mil Lucius Mapp, lucius.mapp.civ@mail.mil and Megan Larson, megan.e.larson10.civ@mail.mil

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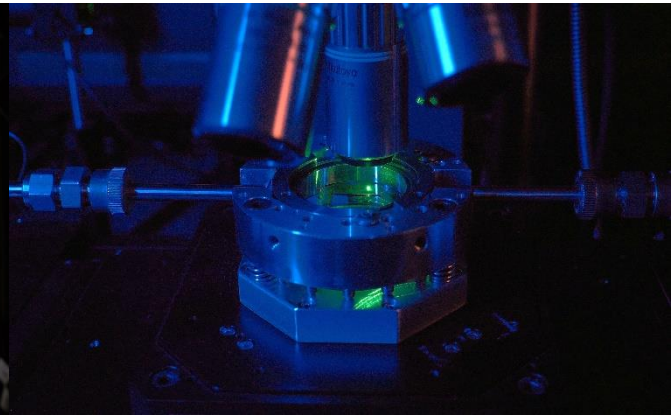
Distribution A: Approved for public release

S&ET Innovation – Driving Next Generation Materiel Readiness

Dr. Vic Ramdass
Deputy Assistant Secretary of Defense for Materiel Readiness

April 27, 2022 – 22nd Annual Science & Engineering Technology Conference
Miami, Florida

ENGAGE. COLLABORATE. INFLUENCE.



Distribution A: Approved for public release

2022 National Defense Strategy Mandates

- **Defending the homeland, paced to the growing multi-domain threat posed by the PRC**
- **Deterring strategic attacks against the United States, Allies, and partners**
- **Deterring aggression, while being prepared to prevail in conflict when necessary, prioritizing the PRC challenge in the Indo-Pacific, then the Russia challenge in Europe**
- **Building a resilient Joint Force and defense ecosystem**

Sustainment Enterprise Scope

Total Budget $687.8B

Logistics $173.0B

Maintenance $93.9B

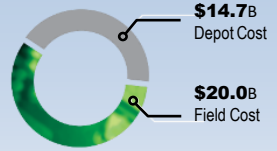
FY19

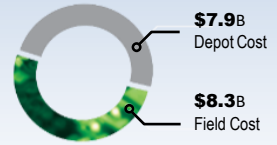
$34.7 BILLION
14,883 AIRCRAFT

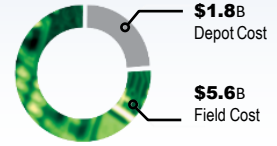
$16.2 BILLION
239 SHIPS & SUBMARINES

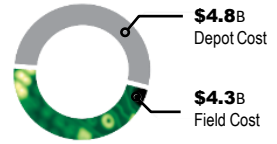
$7.4 BILLION
330,150 VEHICLES

$9.1 BILLION
COMMON EQUIPMENT





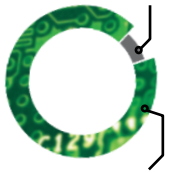




The Maintenance Workforce

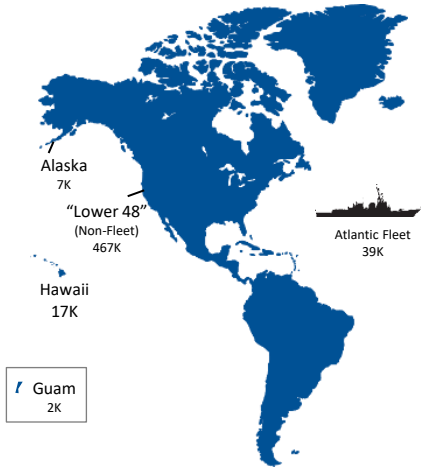
TOTAL DOD MAINTAINERS
620,778
AS OF END FY20

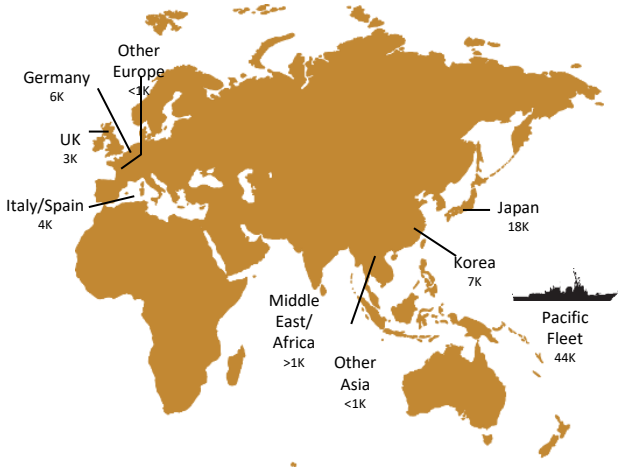
DEPOT MAINTENANCE **8%**
49,507
MAINTAINERS



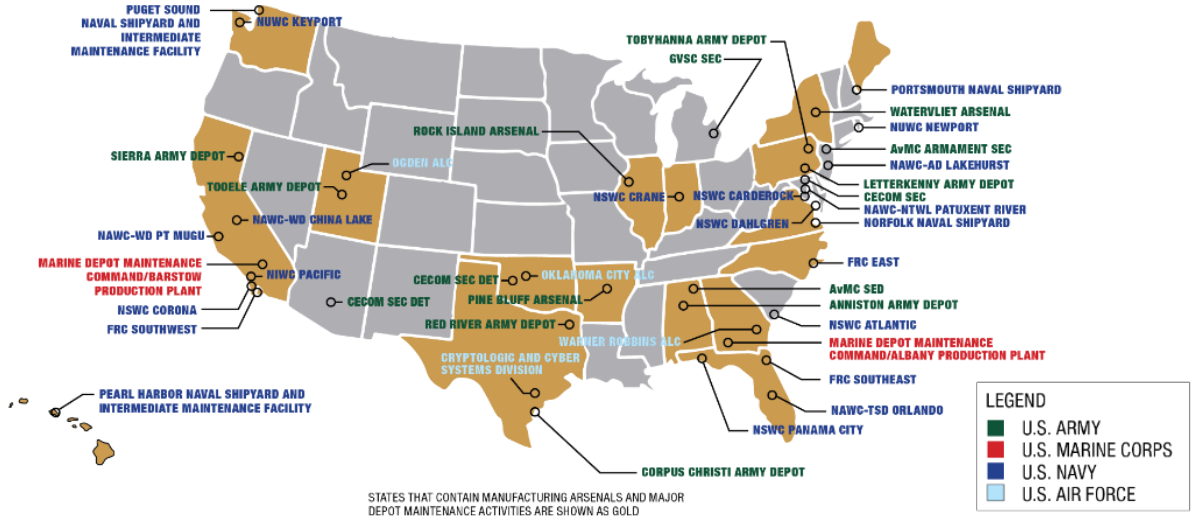
FIELD MAINTENANCE **92%**
571,271
MAINTAINERS

DOD Maintainers Worldwide





Organic Industrial Base Installations and Software Sustainment Activities

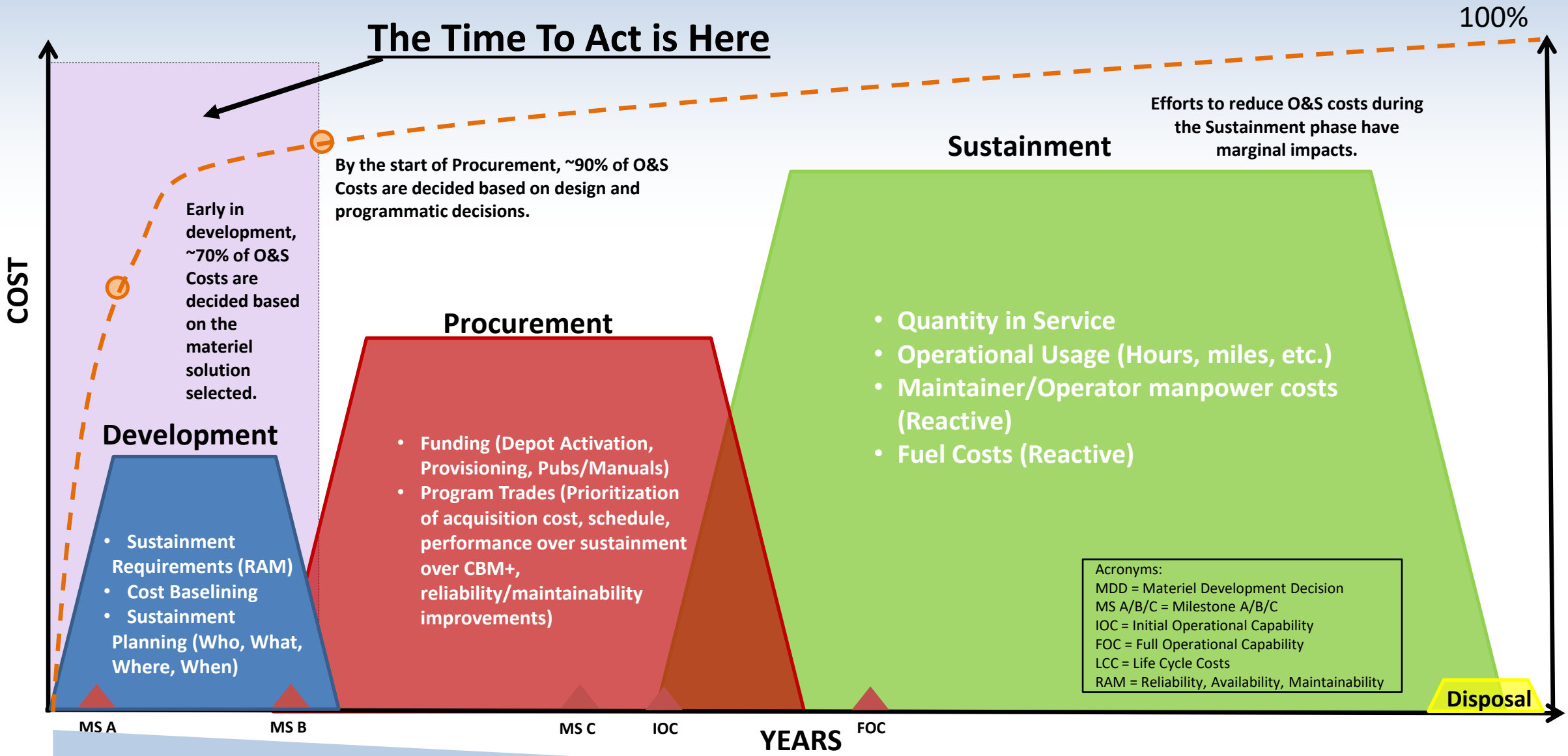


STATES THAT CONTAIN MANUFACTURING ARSENALS AND MAJOR DEPOT MAINTENANCE ACTIVITIES ARE SHOWN AS GOLD

Technology/
Innovation
Maintenance
Transportation/
Supply
Manufacturing
DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

Distribution A: Approved for public release

Why S&ET Is Important Early: I Need Your Help…



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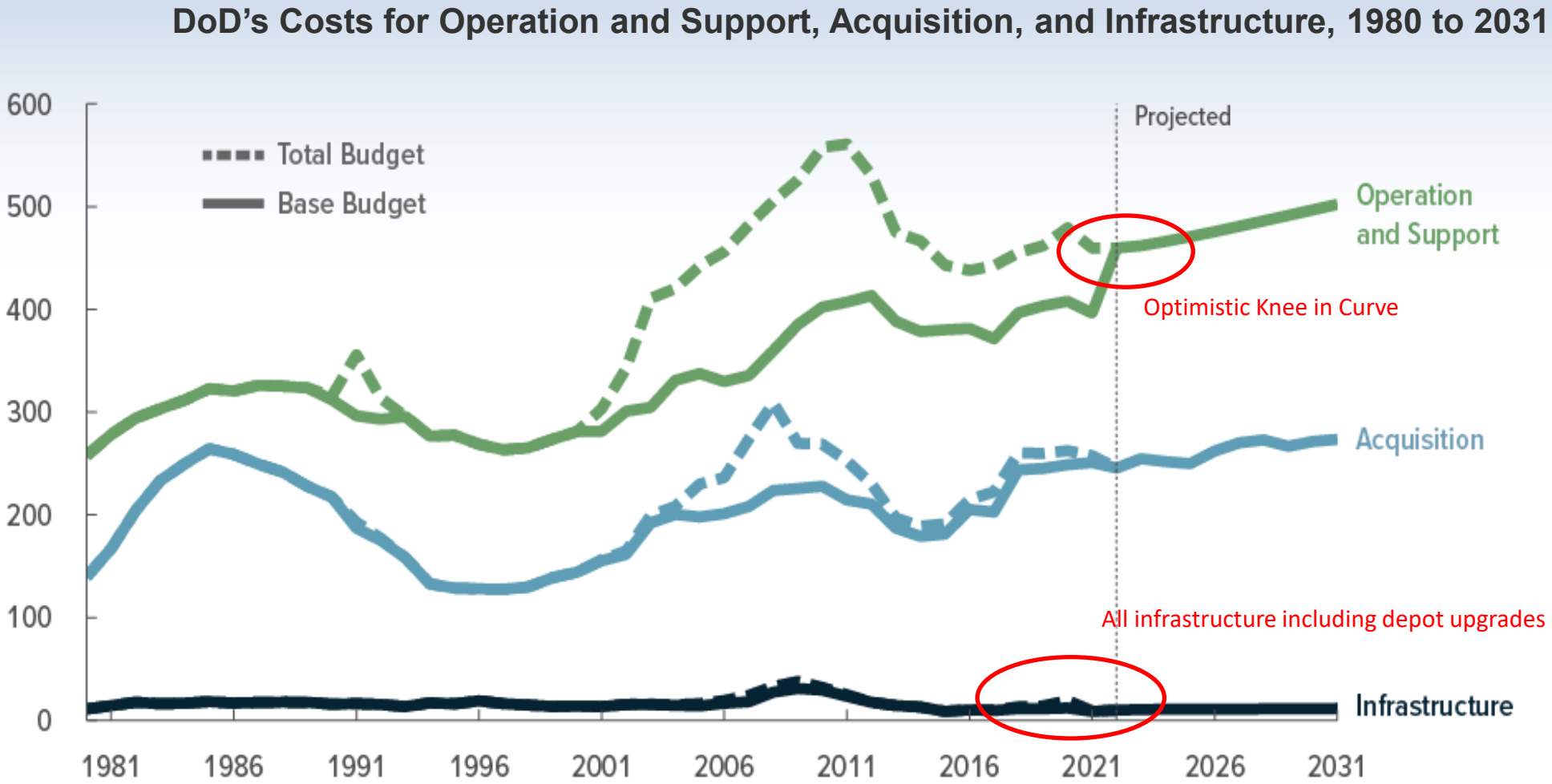
Historical and Projected O&S Costs



Source: CBO Report - Long-Term Costs of the Administration's 2022 Defense Budget

The Future is Unaffordable - We Need to Act Now!

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Logistics and Materiel Readiness Strategic Plan 2022–2028

Vision: Military Operations Empowered through Logistics

Mission: Provide Logistics and Materiel Readiness to Deliver Military Capability for the Nation

USD(A&S) Goals & Priorities

- Shape a 21st Century DIB
- Enhance Global Partnerships
- Cultivate Our Human Capital
- Drive Competitive Advantage
- Fortify & Protect DoD Installations
- Modernize & Sustain Nuclear Deterrent

SecDef Priorities

- Defend the Nation
- Take Care of Our People
- Succeed Through Teamwork

Goals	Objectives (2–6 years)	Outcomes
G1: Deliver sustainable Logistics to support DoD mission requirements	❑ 1.1 Provide effective Logistics capability for DoD mission ops ❑ 1.2 Improve Logistics processes that enhance mission ops ❑ 1.3 Develop Logistics enhancements and improve mission enablers **Goal Champion: DASD (Log); OCRs J4/DLA/TRANSCOM**	❑ Responsive end-to-end Log processes ❑ Effective Log IT enterprise meeting mission needs
G2: Deliver cost effective materiel readiness to meet the DoD's Warfighting requirements	❑ 2.1 Expand and optimize Sustainment data integration ❑ 2.2 Ensure a resilient and responsive Organic Industrial Base ❑ 2.3 Drive adoption of Sustainment innovations to improve Materiel Readiness ❑ 2.4 Improve explosives safety and munitions risk integration **Goal Champion: DASD (MR); OCRs DASD (PS)/J4**	❑ Balanced and optimized OIB ❑ A_O meeting Warfighter requirements
G3: Enable effective, affordable and sustainable Warfighting capability	❑ 3.1 Provide policy, processes, and guidance that foster effective Product Support (PS) ❑ 3.2 Provide DoD decision-makers with comprehensive, timely, and actionable program sustainment assessments in order to develop affordable PS ❑ 3.3 Develop and lead civilian logistics workforce policy, training, and recognition ❑ 3.4 Develop and synchronize strategic and operational logistics initiatives with international allies/partners **Goal Champion: DASD(PS); OCRs DASD(MR)/J4**	❑ Early integration of sustainment & product support ❑ Minimized life-cycle costs
G4: Transform global Logistics to deliver readiness and lethality	❑ 4.1 Provide Sustainment solutions for competitive and contested logistics environments ❑ 4.2 Build supply chain transparency, accountability, and customer-centricity ❑ 4.3 Expand industry engagement and market intelligence to foster innovation and manage risk **Goal Champion: DLA(J3); OCRs DASDs (Log, MR, PS)/J4**	❑ Tailored Logistics solutions for contested requirements ❑ Mission-driven Logistics innovation

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DASD(MR) S&ET "Customer Priorities"

Enterprise Data Management

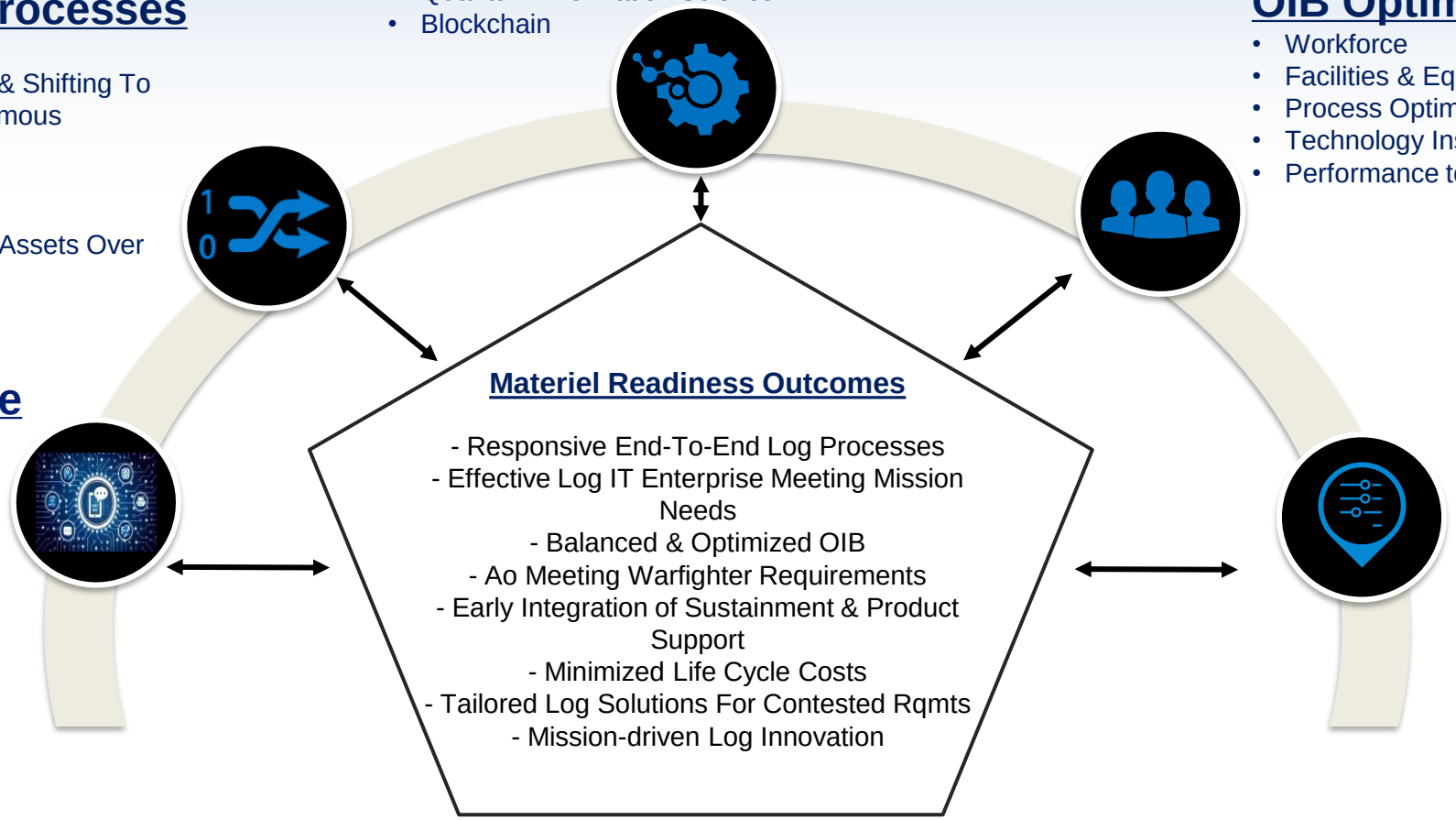
- Advanced Computing & Software
- Advanced Analytics & Decision Support
- Integrated Network Systems-of-Systems
- Quantum Information Science
- Blockchain

Machine Enabled Processes

- Troubleshooting
- Automating Support Processes & Shifting To High Value Work – e.g., Autonomous Maintenance & Sustainment
- Digital Twin
- Human-Machine Interfaces
- Functional Improvement of Key Assets Over Time (Self Repair)
- Corrosion Prevention & Control

OIB Optimization

- Workforce
- Facilities & Equipment Modernization
- Process Optimization
- Technology Insertion (Cold Spray)
- Performance to Plan



Artificial Intelligence (IOT-enabled)

- Natural Language Processing
- Data Decision Tool To Support Sustainment
- Machine Learning
- Unmanned and Augmented-Manned Rapid Capability Development
- Integrated Sensors & Cyber
- Microelectronics
- Remote Sustainment

DIB Resilience & Growth

- Robotics
- Renewable Energy Generation & Storage
- Future Generation Wireless (Future G)
- Digital MRO
- Industry 4.0

Earlier S&ET Involvement Will Drive Enduring, NEXTGEN Capability To Support Materiel Readiness Outcomes

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EMERGING TECHNOLOGIES INSTITUTE

NDIA Emerging Technologies Institute

Dr. Arun Seraphin

Deputy Director

ETI@NDIA.org

ASeraphin@NDIA.org (703) 247-9489

NDIA S&ET Conference
April 27, 2022

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NDIA has established the ETI

EMERGING TECHNOLOGIES INSTITUTE

- **Director Dr. Mark Lewis (former USD(R&E) Director of Modernization)**
- **An in-house research team (full- and part-time) with expertise in select emerging defense technologies and related policy**
  - Building on the 2018 NDS: AI, autonomy, biotech, cyber, directed energy, FNC3, hypersonics, microelectronics, quantum, space
  - Other issues: barriers to entry, innovation, bridging the “valley of death,” etc.
- **Build teams of experts from industry and academia to tackle defense technology issues**
  - Leverage expertise of member companies and individuals in NDIA
  - But…ETI is *independent* and *objective*
- **Produce high-quality reports that will meet the needs of government and industry decision makers**
- **Convene panels, workshops, and other forums for the discussion of emerging technology issues**
- **Meet directly with key stakeholders to present findings and results, as well as use latest tools (podcasts, social media) to engage the broader community**
- **Mentor early career scholars on defense technology issues**

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NDIA BY THE NUMBERS

6 STRATEGIC PRIORITIES

- Educate and Promote Budget Stability
- Foster Small Business Success
- Gain Acquisition Agility and Regulatory Modernization
- Promote Innovation in Technology and Process
- Expand Security Cooperation and Interoperability
- Act as a Thought Leader to Strengthen the DIB and Workforce

27
DIVISIONS
Provide Functional Focus

19
INTERNATIONAL PARTNERSHIPS

GOVERNMENT • ACADEMIA • INDUSTRY

1,300
Exhibitors, Sponsors, & Advertisers

100
MEETINGS & EVENTS

IN SUPPORT OF THE WARFIGHTER

8,600
of NDIA's individual members are **Military or Government**

53,500
of NDIA's individual members are **Industry**

79% of NDIA's corporate members are **Small Businesses***

*$25 million or less in defense revenue annually

NDIA engages all **3** branches of government

AWARD WINNING
National DEFENSE MAGAZINE
in print and online

1 MILLION
PAGE VIEWS ANNUALLY

3 AFFILIATE ORGANIZATIONS

- ETI — Emerging Technologies Institute
- NTSA — National Training and Simulation Association
- WID — Women in Defense

AT THE HEART OF THE MISSION SINCE 1919

As of September 2021

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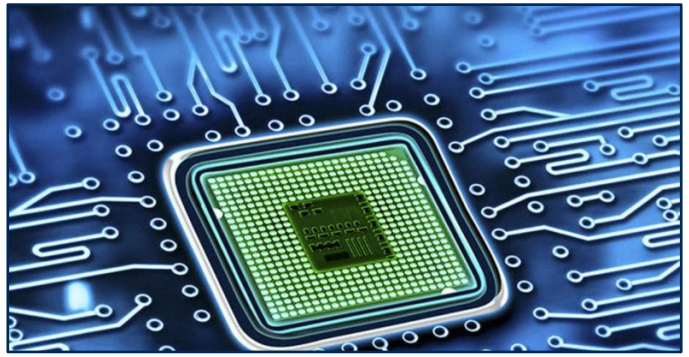
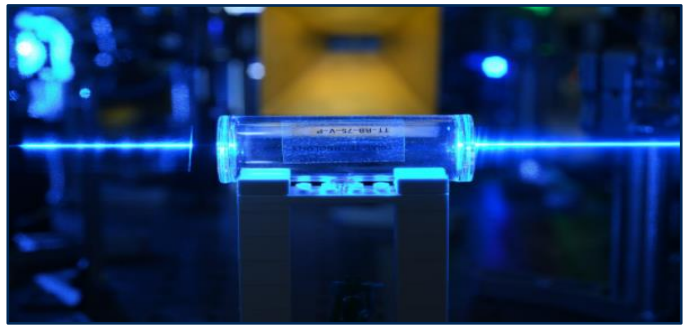
R&E Critical Technology Areas

EMERGING TECHNOLOGIES INSTITUTE

- **Seed Areas of Emerging Opportunity**
  - Biotechnology
  - Quantum Science
  - FutureG
  - Advanced Materials
- **Effective Adoption Areas**
  - Trusted AI and Autonomy
  - Integrated Network System of Systems
  - Microelectronics
  - Space Technology
  - Renewable Energy Generation and Storage
  - Advanced Computing and Software
  - Human Machine Interfaces
- **Defense-Specific Areas**
  - Directed Energy
  - Hypersonics
  - Integrated Sensing and Cyber





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Other Topics of Interest to ETI

EMERGING TECHNOLOGIES INSTITUTE

- *Defense Industrial Base/Supply Chain*
- *Acquisition timelines, transition, budget constraints*
- *Legislative and policy context*
- *International partnerships*
- *Test and Evaluation*
- *Digital Engineering/M&S*
- *Workforce*
- *Academic-Industry partnerships*
- *Whole of government research and engineering initiatives*

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Progress so far…

EMERGING TECHNOLOGIES INSTITUTE

- Staffing
- Emerging Tech Horizons podcast
- Reports (The Modernization Quandary, Digital Engineering, Vital Signs)
- "Enabling the Joint Warfight" webinar series
- DOD Webinars: PB23 S&T Budget Rollout Event, Working with DIU
- Workshops on modernization areas (hypersonics, microelectronics, …)
- Emerging Technologies Supply Chain study
- Launching educational series on tech for NDIA members in May
- Meeting with member companies, Divisions, and Chapters

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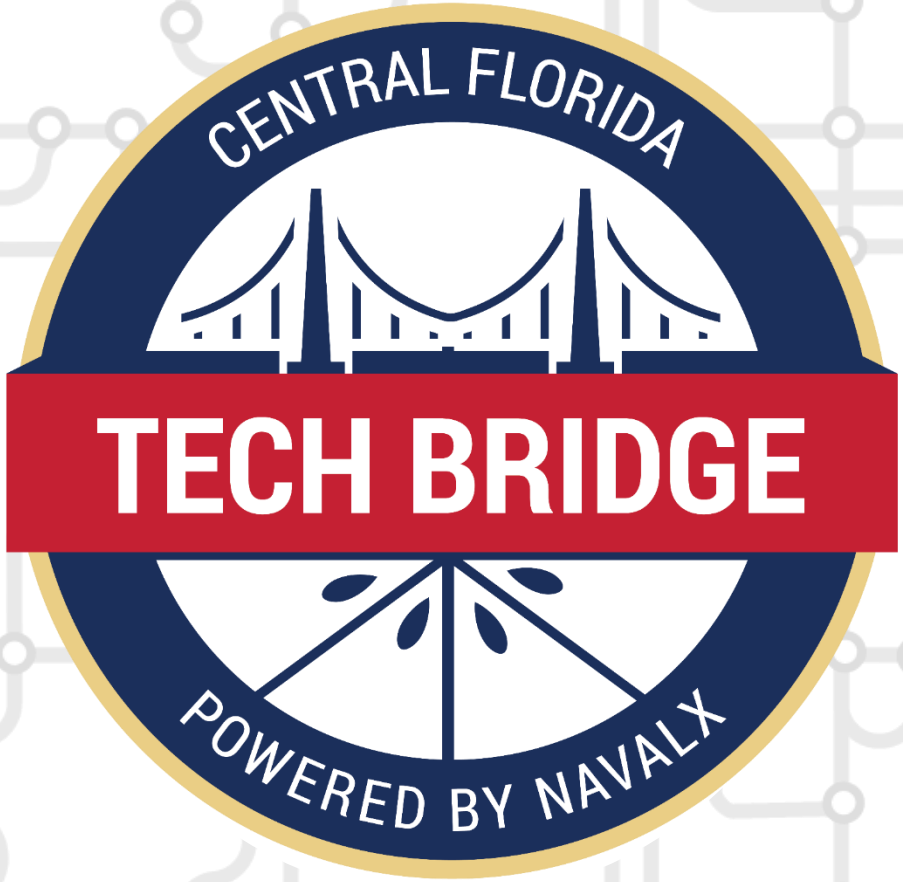
Good News Stories

EMERGING TECHNOLOGIES INSTITUTE

- **Bad news seems to travel much faster than good news**
- **ETI/S&ET Division can work together to capture and disseminate good news stories**
- **Audience**
  - People who can help with funding and policy challenges
    - Senior leaders in Pentagon (uniformed and civilian)
    - Congress, including GAO
    - Outside advocacy groups (industry, academia, think tanks)
  - Potential Industry and Academic R&D Performers
    - Quality research
    - Transition into development activities
    - Transition into defense and commercial sales
  - Future workforce
    - Excitement of the work and success
    - Not just “service”
- **Methodologies**



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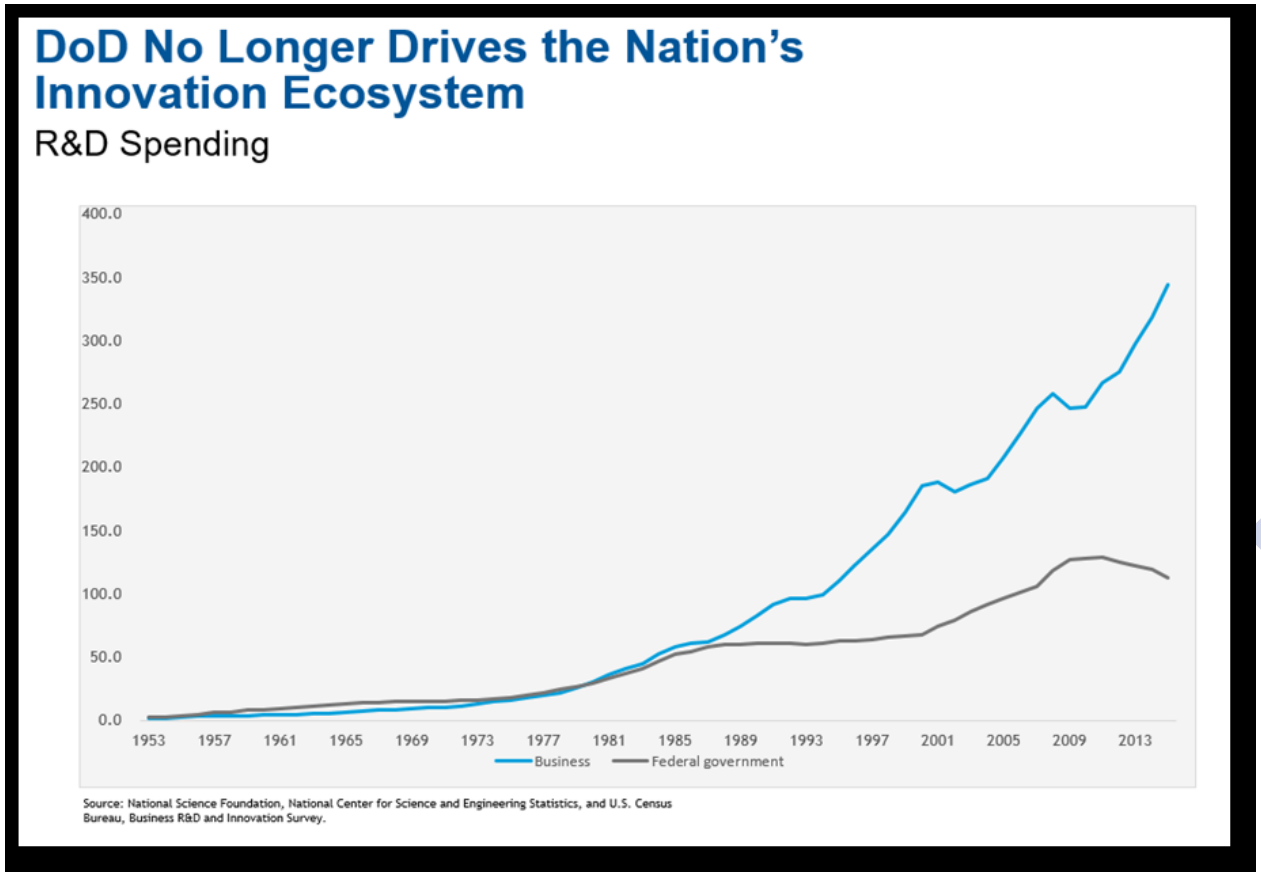
More Agile Innovation is Critical



"I realize that doing business with DOD is not always easy."
Deputy Secretary of Defense Kathleen Hicks

- Keep Pace with the Speed of Innovation
- Rapidly Changing Combat Environment
- Regain Ground on Fielding Technology
- Leverage Commercial Applications

Central Florida Ecosystem

Community (DoD lead)

- Governed by Charter and CONOPS
- Collaborating and sharing Government focused information and ideas at the executive and senior leader level

Capability

- Governed by PIA and CONOPS
- Physical and virtual environment
- Collaborating at a tech innovation level

Enabler

- Governed by NavalX – ASN RD&A
- Provides connectivity/support to other Navy ecosystems, SMEs and barrier removers
- Node on the Network

Southern Maryland Ecosystem

Community (DoD lead)

- Collaborate, share Government focused information & ideas at the executive and senior leader level

Capability

- Governed by PIA and CONOPS
- Southern MD TechPort
- Industry/academia engagement
- Physical and virtual environment collaborating at a tech innovation level

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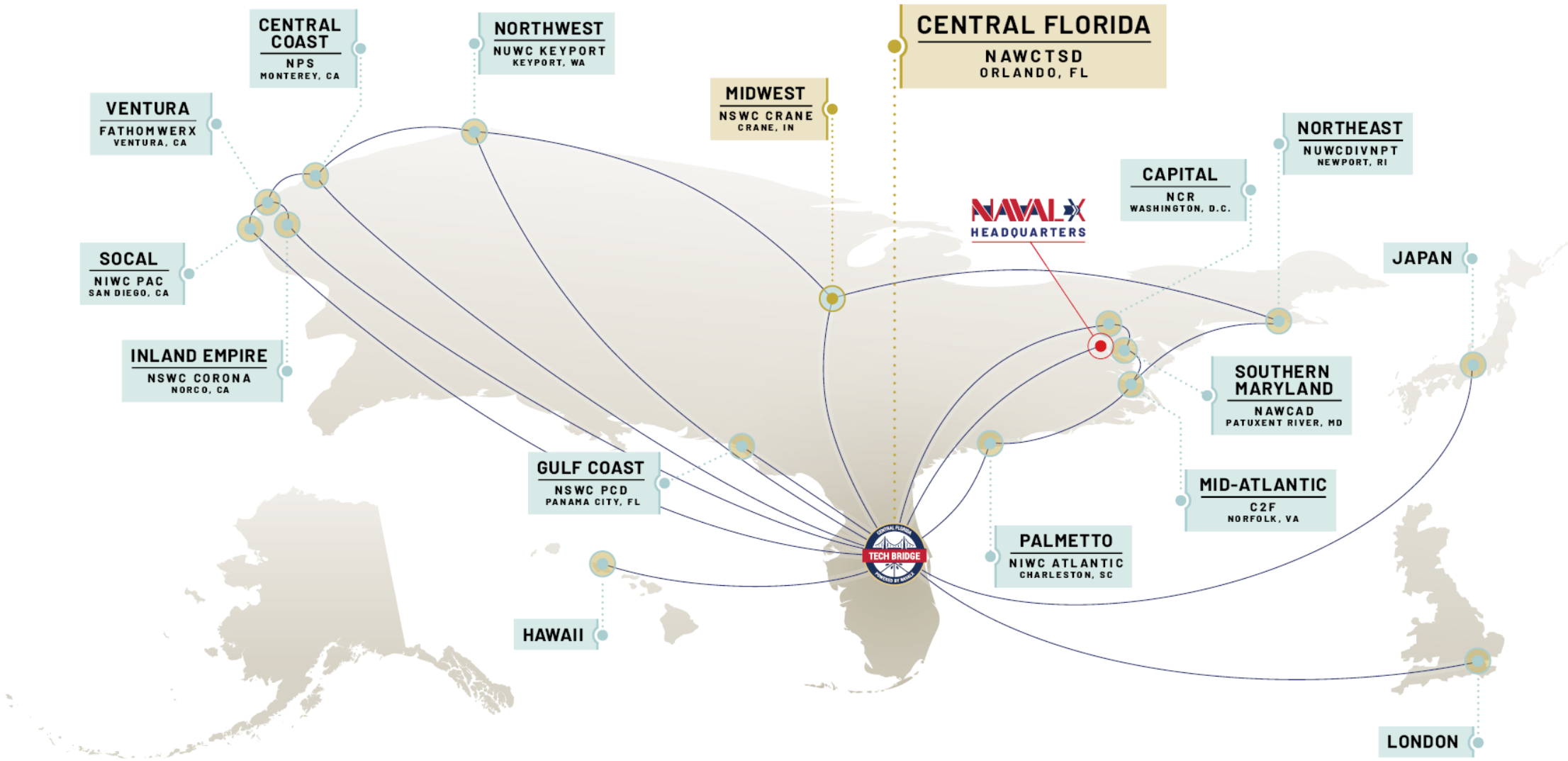

TECH BRIDGE
POWERED BY NAVALX

NavalX TECH BRIDGE

LOCATIONS

SUSTAIN
Provide support as requested by sponsor and capture best practices

REINFORCE
Integrate existing ecosystem into Tech Bridge model

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Central Florida Tech Grove

An innovation partnership specifically created to foster collaboration and acceleration of novel Modeling, Simulation, Training & Human Performance technology transfer solutions for our national security members and increase the Defense Industry Base (DIB)

UCF Research Foundation
UNIVERSITY OF CENTRAL FLORIDA

NAWC Training Systems Division
NAVAL AIR WARFARE CENTER

PEO STRI

AGENCY FOR MODELING & SIMULATION

PM TRAINING SYSTEMS
MARCORSYSCOM

ARMY FUTURES COMMAND

Innovate. Collaborate. Accelerate.

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Modeling, Simulation & Training Focus

HUMAN PERFORMANCE

CYBERSECURITY

AI - HMI

Uncovering and adapting Artificial Intelligence (AI) innovations that unlock and enhance human-machine interactions

XR – VR/AR

Improving human performance with use of advanced XR technology, 5G networking & enhancing integration of systems

LVC - STE

Expanding the adoption of Live, Virtual & Constructive (LVC) and Synthetic Training Environment (STE) tools and solutions

Virtual, Augmented & Mixed Reality	Optics & Photonics	Sensors	Game development	Human Performance
AI/Machine Learning	Autonomous Systems	Data Sciences	Medical simulation	Psychology
Cyber Security	Systems Engineering	5G Applications	Learning sciences	Computer Science
Instructional Systems Design	Human Factors	Team Performance	Cognitive Sciences	All Engineering areas

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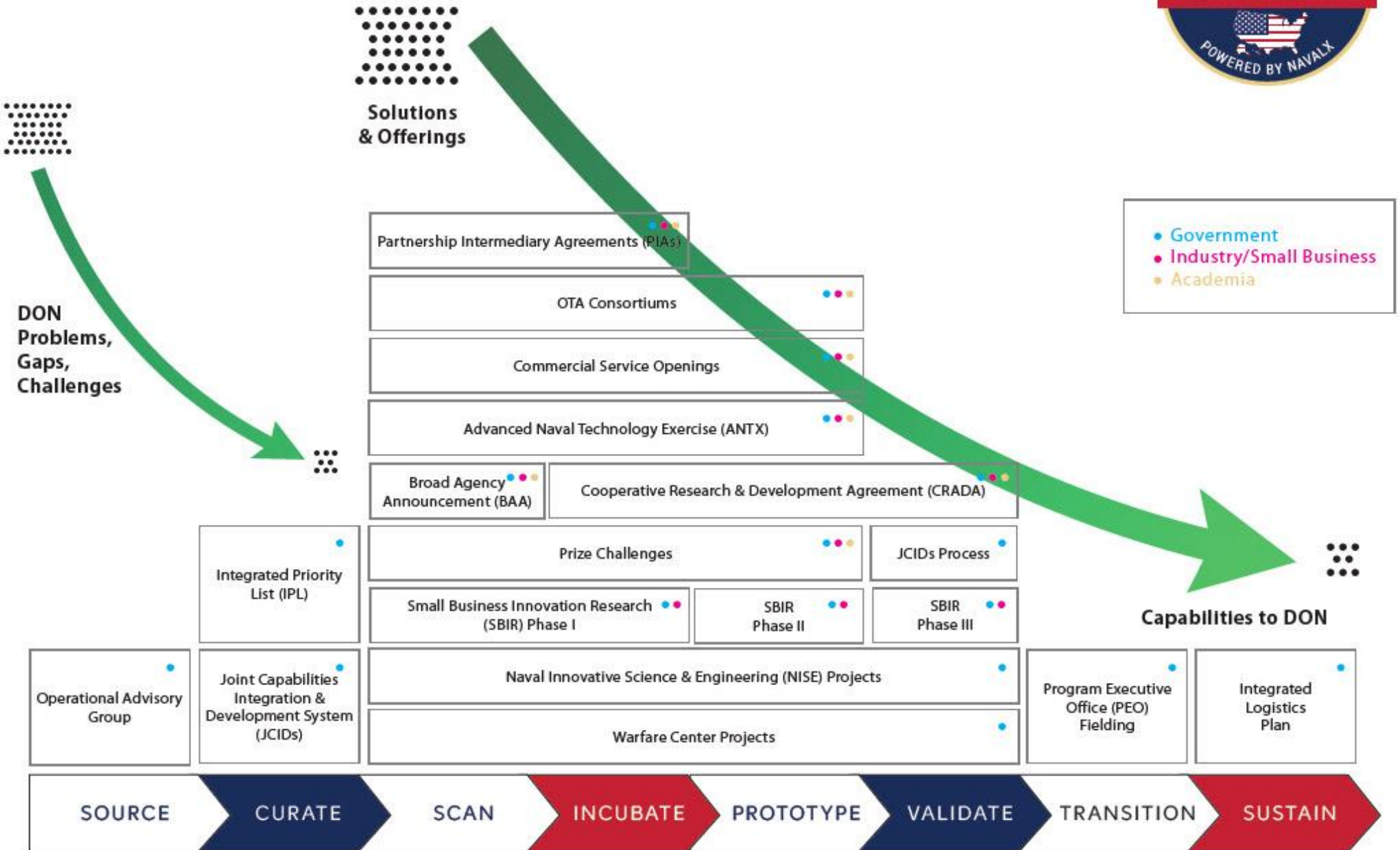
Innovation Pipeline Vehicles



Example of Accelerating Capabilities

Curate Problem set from Fleet customer	Technology Scan and Industry Day	Experimentation or Prize Challenge	NASC OT Prototyping Effort	Fleet Experimentation or Evaluation	NAVAIR Program Office fields capability and sustainment

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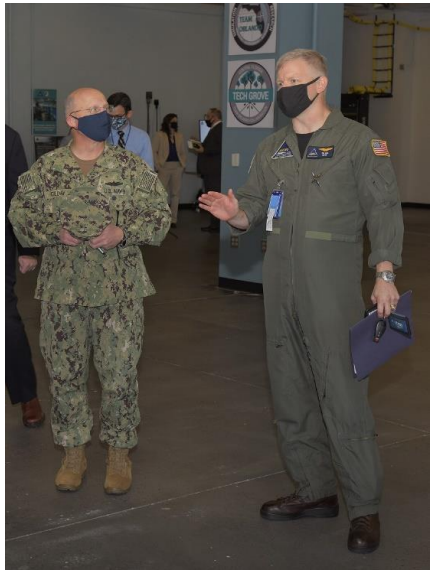
Team Orlando Successes

- Increase the DIB – Events, Comms & Colab
  - Connect Webinar Series
  - Juice Bar – Small Business Topics
  - SBIR Partnership Showcase
  - Game Jam
  - STARBASE Central Florida
- T2 - Innovation Cells
  - LVCDOC
  - Cyber Red Zone Range
  - AR/VR Buffet
  - Pilot Training Next (PTN)
  - MRTS 3D®
- Hard Problems – Problem Grove
  - Hacking 4 Defense
  - NSIN (internships, problem solving, hire-a-thon
  - Armed Forces Jam
  - Workforce Development
  - Collaborative Project Orders



Workforce Development

- TOPS– Design Thinking Events
- APx – Cultivate, Learn, Identify, Broaden
- Other Transaction Authority (OTA)

Talent Pipeline

- Team Orlando STEM
- Gains in Education and Math (GEMs) Camp
- STARBASE Central Florida

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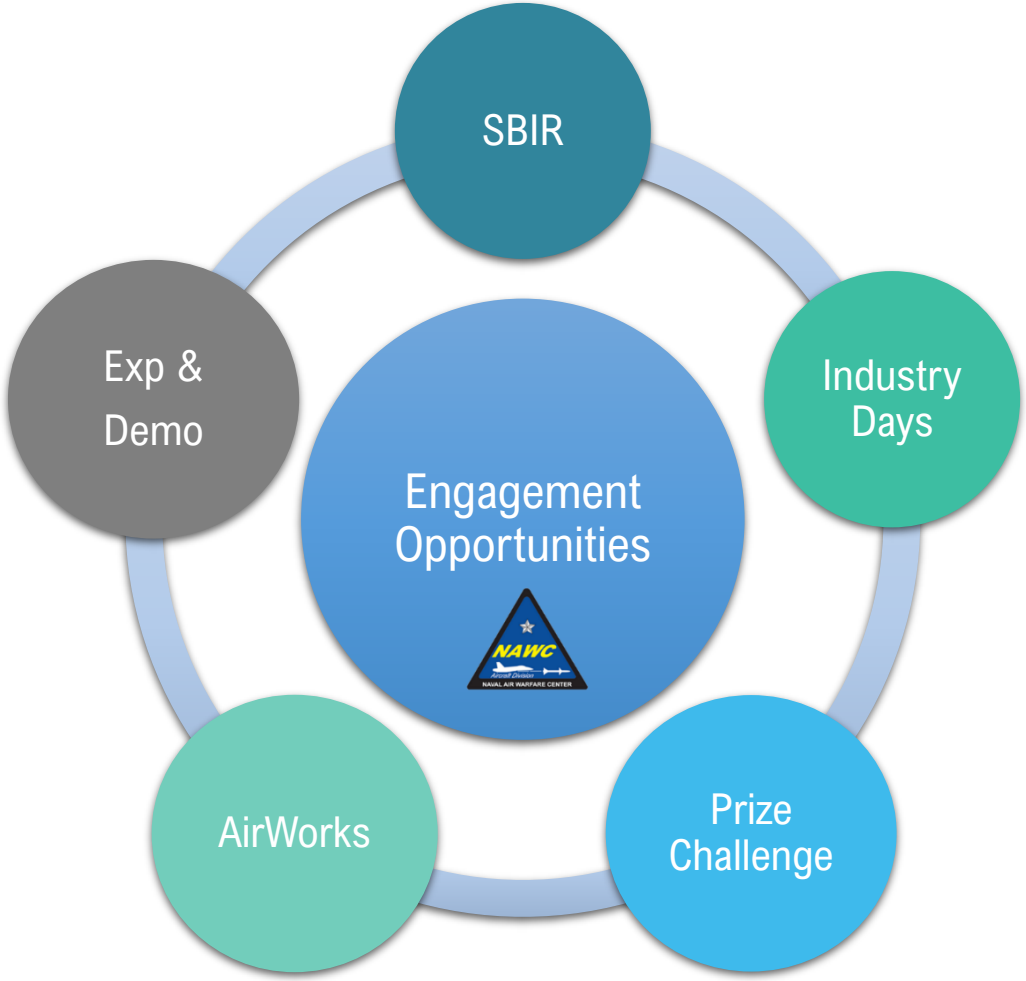
Opportunities to Engage in Southern Maryland

TB Network Industry Days	• NAWCAD Industry Day 4/20 • Eastern NC Industry Day – 4/27
AirWorks	• Maritime Search & Rescue UAS Challenge
Prize Challenges	• Upcoming helmet related technologies – Summer 2022
SBIR 22.2 Topics	• SBIR : 25+ - Pre-Release 4/20/22 • STTR : 8 – Pre-Release 4/20/22 • www.NAVYSBIR.com
Experimentation & Demonstration	• ANTEX 22 BWUAS Challenge https://IMPAX.tech



Check out NAWCAD's Patent Portfolio

TechLink

Opportunities to Engage in Central Florida

TSIS — Training and Simulation Industry Symposium

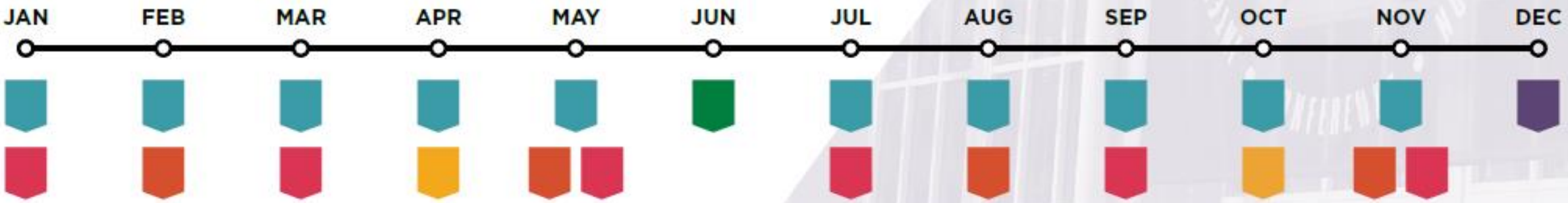
PALT — Procurement Administrative Lead Time — GS15

TOSBRT — Team Orlando Small Business Roundtable — GS14

APx — Acquisition Process Exchange

I/ITSEC — Interservice/Industry Training Simulation and Education Conference

ICD — Industry Capability Day



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Opportunities to Engage in Central Florida

Monthly:

- 2nd Wed: Project 160/Tech Grove Juice Bar
- 2nd Thurs: NTSA/Tech Grove Connect Webinar

Quarterly:

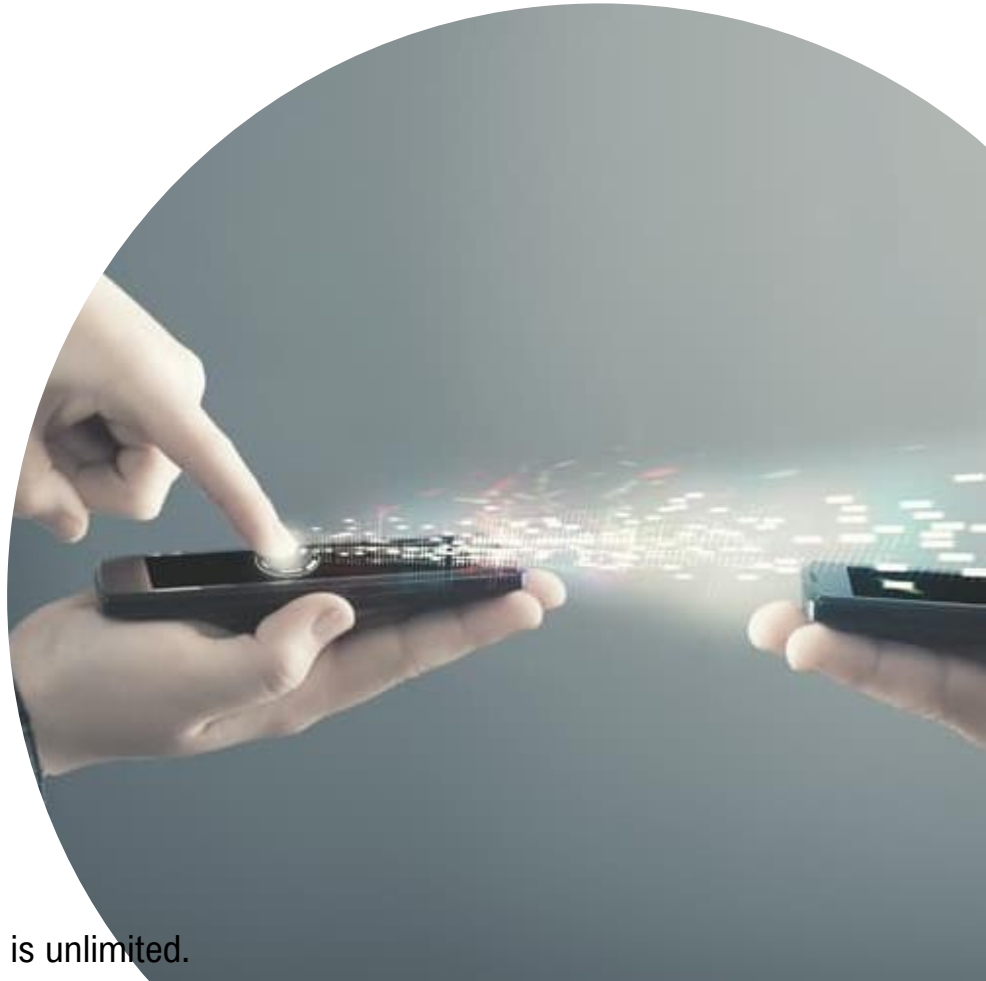
- 28 Apr - Tech Grove Mixology – “AI in Training”
- 25 May - Innovation Showcase Day – “AI in Training”

Semi-annual:

- 27 Jul - University DOD IP Showcase
- 3 Aug - Project 160 Lab Expo

Annual:

- 23 Jun - Team Orlando SBIR/STTR Partnership Day
- Sept – Armed Forces Jam



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Let's Connect!

Diana Teel

- www.linkedin.com/company/cftechgrove
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Richard Tarr

- richard.p.tarr2.civ@us.navy.mil

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Back-up

NAWCAD Technology Partnership Ecosystem

PAX Tech Transfer Office

ORL Tech Transfer Rep

LKE Tech Transfer Rep

Enterprise-wide resources providing rapid technology development, prototyping, experimentation

Provider of expertise, facilities, equipment, and technologies at the speed of need

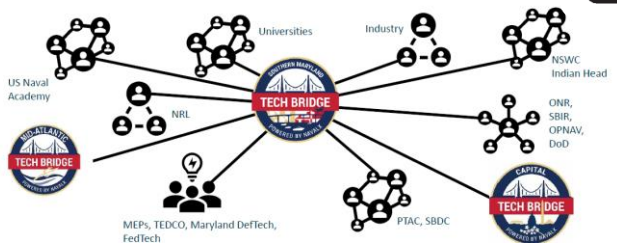
NAWC Aircraft Division

NAVAL AIR WARFARE CENTER

Relationships

Products - Services - Resources

Outreach/Connections

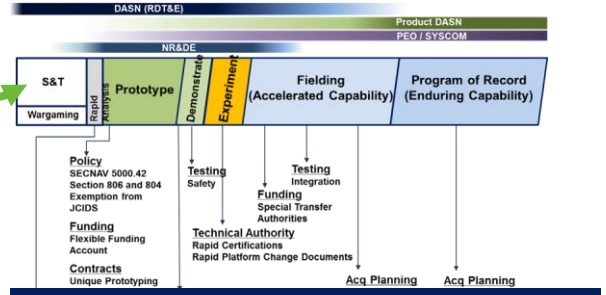


Expanding our network to boost collaboration between Naval Labs, Industry, Academia, and other military branches in order to accelerate technology innovation.

Delivering Capabilities

Tools in the Toolbox

- Experimentation Environment (ANTX)
- IMPAX & TPP Partnership Intermediary Agreements (PIAs)
- The Naval Aviation Systems Consortium (NASC)
- Small Business Innovation Research (SBIR) and Small Business Technology Transfer Research (STTR)
- Cooperative Research & Development Agreements (CRADA)
- Commercial Service Agreements (CSAs)



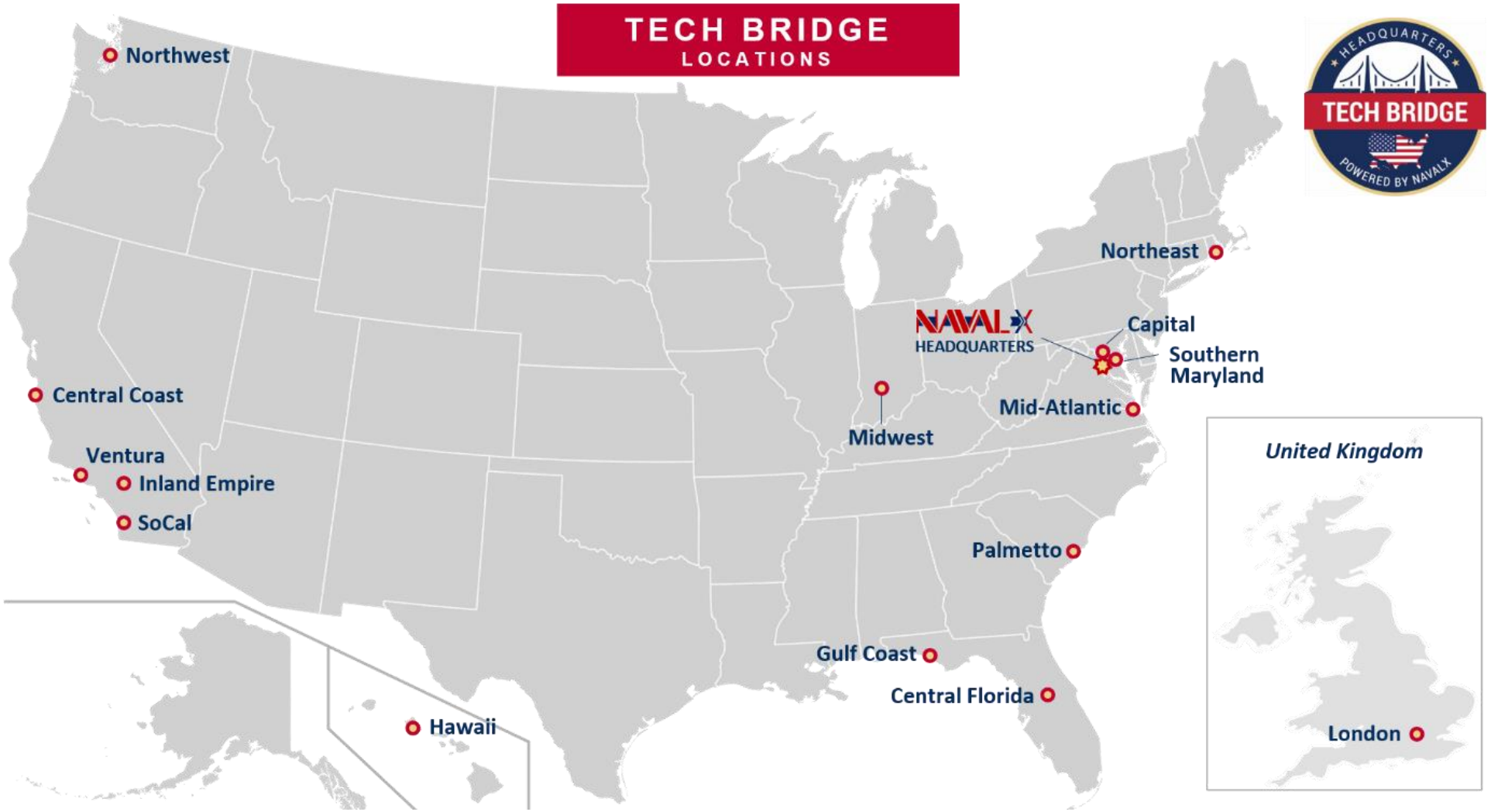
NAWCAD working w/ Industry & Academia through partnerships

Enablers to deliver capabilities at the pace of need (Non-FAR, Agile Acquisition Methods)

Impacting Fight Tonight & Future Fight

NAVAIR

NavalX Tech Bridges
Ecosystem of Ecosystems



NavalX Tech Bridge network- a 15 node ecosystem of ecosystems (and growing)

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Innovate. Collaborate. Accelerate

Innovation Grows Here!

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U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND – GROUND VEHICLE SYSTEMS CENTER

Transitioning S&T Successfully

Mr. Alfred J. Grein

Executive Director, Research & Technology Integration

U.S. Army DEVCOM Ground Vehicle Systems Center

26 APR 2022

DISTRIBUTION A. Approved for public release; distribution unlimited. OPSEC #: *PENDING*

AGENDA

TRANSITIONING

- Purpose & Challenges
- Implementation
- Recent Examples
- Path Forward

PARTNERING

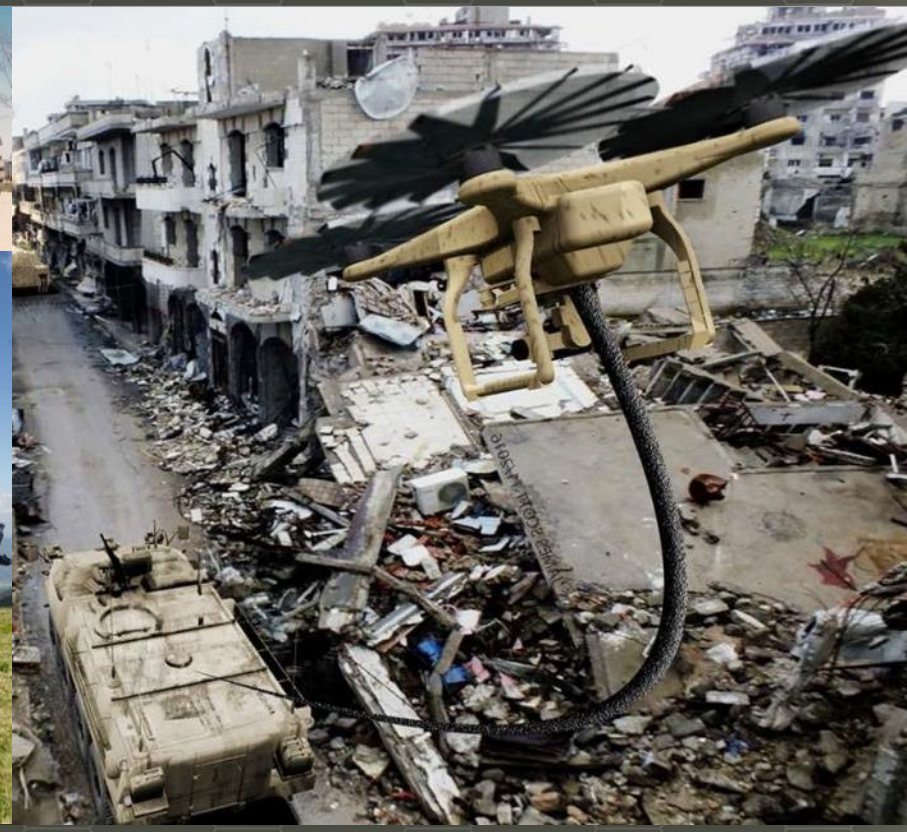
TRANSITIONING TECHNOLOGY: PURPOSE

- **Increase transition of technology from Science and Technology to the Warfighter to improve Mission Effectiveness by increasing Capabilities**

- **What does successful transition entail?**
  - **Transition Products (Program of Record or Industry)**
  - **Transition Knowledge (Requirements/Specifications)**

TRANSITIONING TECHNOLOGY: CHALLENGES

- **Investing in the Right Technologies**
  - User/Warfighter Needs
  - Industry investment Gaps
- **Situational Awareness & Understanding**
  - Deliverables
  - Remaining Gaps (what hasn't been done yet)
  - Supportable Acquisition Strategies
- **Programmatic Alignment**
  - S&T deliverables aligned with Program Schedule and Resources



TRANSITIONING TECHNOLOGY: CHALLENGES

- **Preserving Program Manager Contracting Options**
  - **Intellectual Property Rights**
  - **Multiple potential vendors (Open Competition)**
- **Stakeholders**
  - **Participation of Key Stakeholders throughout technology development process**
- **Metrics**
  - **Defining the right metrics to deliver required capability to users**

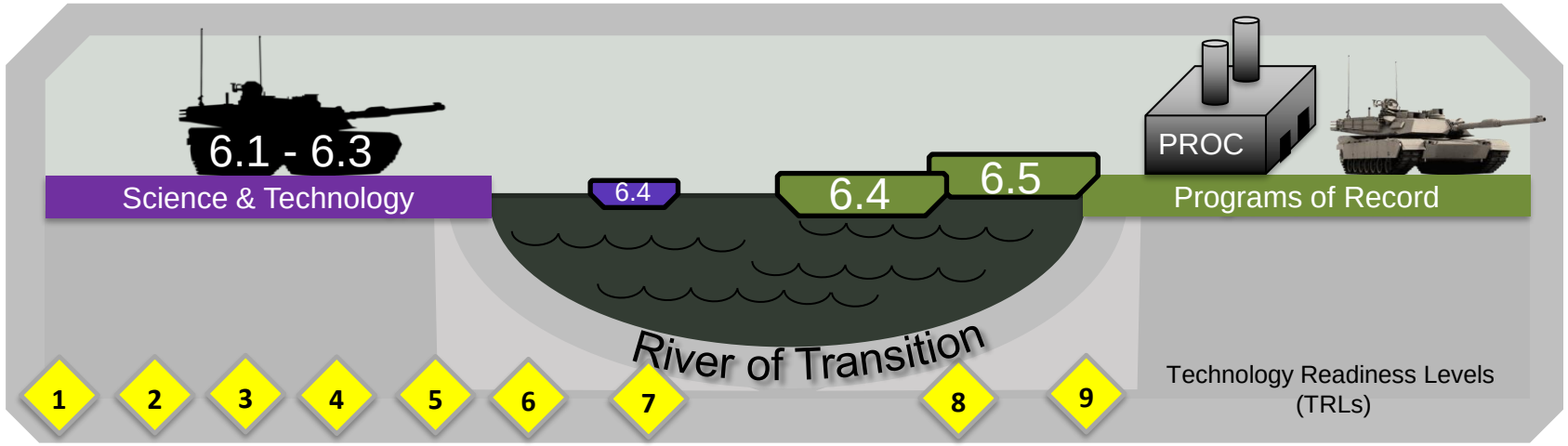
TRANSITIONING TECHNOLOGY: THE RIVER OF TRANSITION

S&T has majority of <u>early</u> Army Research, Development, Test & Evaluation (RDTE) Funding:

6.1 – Basic Research
6.2 – Applied Research
6.3 – Advanced Technology Development
6.4 – Advanced Component Development and Prototypes (Limited)

Program Executive Offices (PEO) control majority of Army RDTE Funding after TRL6:

6.4 – Advanced Component Development and Prototypes
6.5 – System Development and Demonstration
6.6 – Operational System Development



TRANSITIONING TECHNOLOGY: IMPLEMENTATION

- **Alignment of S&T with Next Generation Combat Vehicle Cross Functional Team (NGCV CFT) and Army Modernization Priorities**
- **Annual call for PEO/PM Needs & Gaps**
- **Synchronization with PEO Integration Offices**
  - **Support PEO Council of Colonels/Board of Directors Process for 6.4 Allocation**
  - **Support PEO Integration Integrated Product Teams (IPT)**
  - **Technology Transition Agreements**

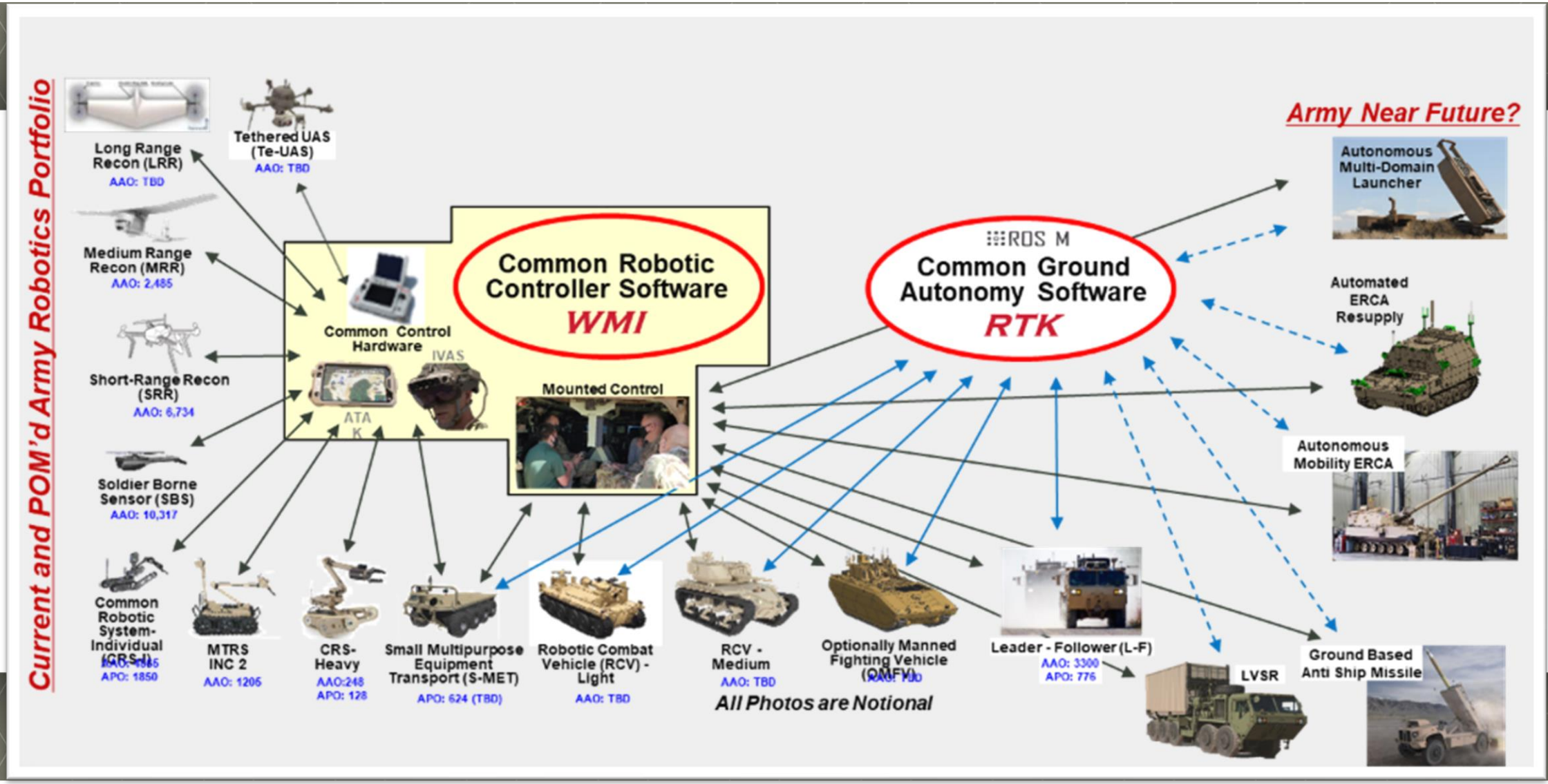
TRANSITIONING TECHNOLOGY: IMPLEMENTATION

- **Quarterly S&T Programmatic Reviews with Stakeholders**
- **Technical Exchange Meetings with Industry**
- **Soldier Touchpoints**
  - **Soldier Innovation Workshops**
  - **Virtual Experiments**
  - **Operational Assessments**
- **Early Army Testing and Evaluation Center Involvement**

RECENT SUCCESSES: AUTONOMY & ROBOTICS

- **Autonomous Ground Resupply:**
  - **Project Convergence 2021,**
  - **Joint Warfighter Experiment at Yuma Proving Ground**
  - **Operational Technology Demonstration at Fort Polk, Louisiana**
  - **National Training Center Rotation in APR 22**
  - **Transitions: Knowledge/Specifications, Software Architecture, Software, Hardware, By-Wire Active Safety Kit (BWASK)**
  - **Transitioned to: PdM RAS and PdM HTV**
  - **Transition enabler: MOSA-based architecture**

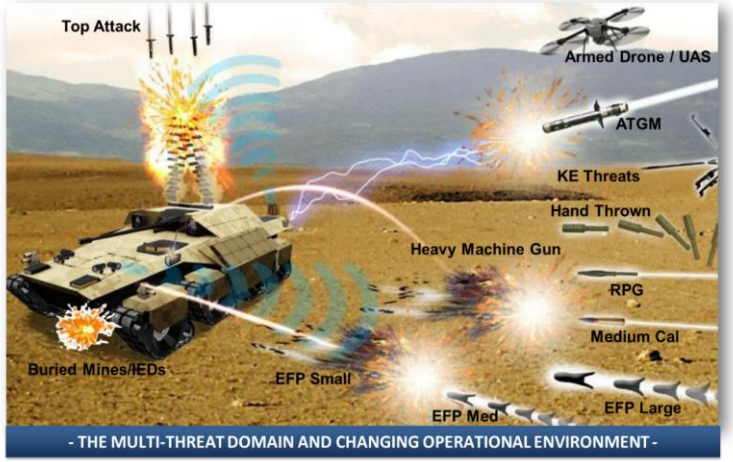
MOSA-BASED ARCHITECTURE



RECENT SUCCESSES: SURVIVABILITY & PROTECTION

- **Survivability System Controls**
  - **Transitioned to PdM Vehicle Protection Systems, JAN 2022:**
    - **Enhanced Modular Active Protection System (MAPS) Framework**
    - **Vehicle Base Kit Components**

- **Ground System Active Defense**
  - **Transitioned Top and Bottom Attack Protection to PdM VPS, MAR 2022.**
    - **Technical Data Package for Top Attack protection, Bottom (Underbody Kit) protection, and Occupant protection (Roof Liner, Floor, Cushion)**
  - **Transitioned Layered Soft Kill System performance specification to PdM VPS, SEP 2021**
    - **Performance Specification delivered to support PdM VPS acquisition timeline**



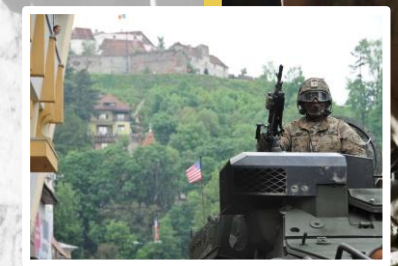
SUCCESSES: FUELS & LUBRICANTS

- **Recent transitions:**
  - **Brake Fluid – collaboration with JPO JLTV and PD LTV (HMMWV) for adoption**
    - **Delivery of MIL-PRF-32701, Brake Fluid, Polyglycol, Automotive, All-Weather, Operational and Preservative**
    - **Establishment of Qualified Products List**
  - **Gear Oil**
    - **Update to commercial specification SAE J2360, Oil, Lubricating, Gear Multipurpose (Metric) Military use, with Army fuel efficiency requirements**
    - **Establishment of Qualified Products List**
- **Planned:**
  - **Reduce particle contamination limits of Army fuels in MIL-STD-3004-1A to protect vehicle fuel systems**

TRANSITIONING TECHNOLOGY: PLANNED TRANSITIONS

- **Ground System Active Defense**
  - Transition to Product Manager, Vehicle Protection Systems (PdM VPS)
  - Soft Kill & Hard Kill APS Incremental capabilities
- **Combat Vehicle Robotics**
  - Transition to PEO GCS and CS&CSS
  - Autonomous behaviors and architecture
- **Advanced Ground Vehicle Power**
  - Transition to PEO GCS
  - Advanced Powertrain (engine, transmission, starter generator, controls)
- **Platform Electrification & Mobility**
  - Transition to PEO GCS and CS&CSS
  - Track & Suspension advancements
  - Electrification technologies; Tactical Vehicle Electrification Kit (TVEK)
- **Enhanced VETRONICS**
  - Transition to PEO GCS
  - Advanced slip ring capability
  - Ground Combat Systems Common Infrastructure Architecture (GCIA)

IT'S ALL ABOUT THE WARFIGHTER



CONTACT INFORMATION

CONTACTS

US Army Ground Vehicle System Center
https://www.usarmygvsc.com

Official US Government Contract Opportunities
https://sam.gov/content/home

Other Transactional Agreement Consortiums
https://www.namconsortium.org/
https://datc.sae-itc.com/

Small Business Innovation Research
https://www.sbir.gov

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U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND (DEVCOM) SOLDIER CENTER

Soldier Centric S&T for Multi-Domain Operations

Craig Rettie; Director, Research & Technology Integration; DEVCOM-SC

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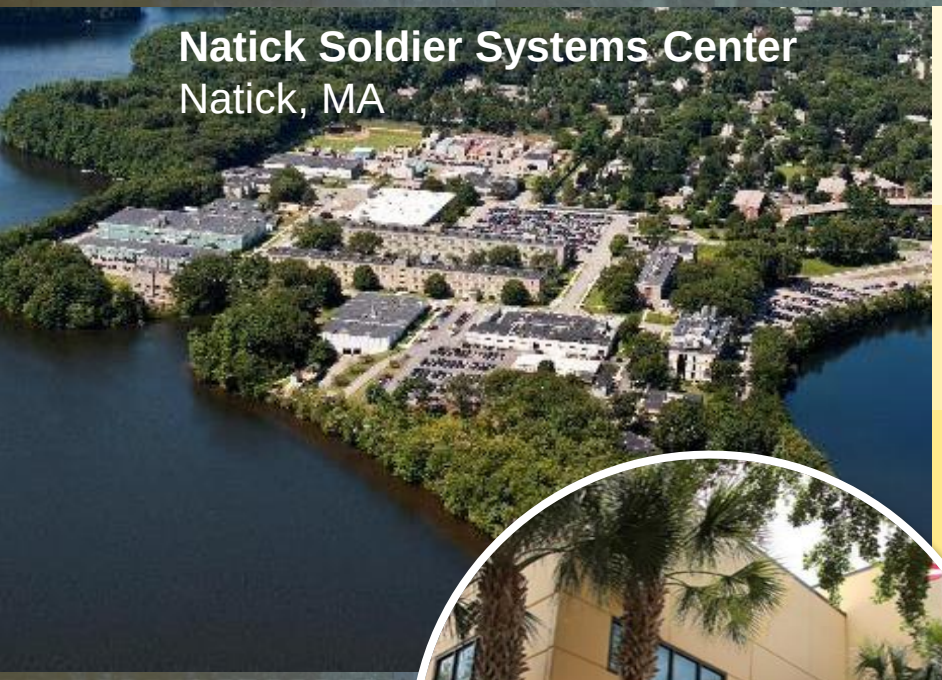
DEVCOM SOLDIER CENTER: WHO WE ARE



Natick Soldier Systems Center
Natick, MA

Central Florida Research Park
Orlando, FL

MILITARY EMPLOYEES
17

GOVT. CIVILIAN EMPLOYEES
697

CONTRACTORS
126

TOTAL EMPLOYEES
840

765 Natick, 75 Orlando

MISSION

To provide the Army with innovative science and technology solutions to optimize the performance of our Soldiers.

VISION

The DEVCOM Soldier Center is the Soldier's research center – Ensuring dominance through superior scientific and engineering expertise.

Information current as of 03/01/2022

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DEVCOM SOLDIER CENTER: WHAT WE DO

SOLDIER PROTECTION

Materials

- Multifunctional Materials
  - FR, EMI Shielding, Vector Protection, Thermal Management
- Protective Materials & Systems
  - Ballistic, Chem-Bio, Signature Management
- Composite Materials
- Helmet Prototyping & Testing
- Ballistic Material Development, Testing & Integration

Equipment

- Combat Clothing & Individual Equipment
- Dress Clothing
- Chemical/Biological Protective Materials & Ensembles
- Load Carriage Systems
- Textile Prototyping & Testing
- Individual Hydration
- Cold Weather Clothing & Individual Equipment

SOLDIER CENTRIC DESIGN

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DEVCOM SOLDIER CENTER: WHAT WE DO

SOLDIER SUSTAINMENT

Combat Feeding

Food Engineering and Nutrition:
- Food preservation & stabilization
- Novel food processing technology
- Functional food prototyping

Food Protection and Packaging:
- Food contamination mitigation
- CBRN packaging solutions
- Microbiological testing of foods

Food Service Logistics:
- Innovative Military Ration Engineering & Food Processing Technologies
- Mechanical & Chemical Engineering for Refrigeration, Combustion and Sanitation

Cargo and Personnel Delivery

- GN&C technology for GPS denied/degraded environment
- Novel multi-use aerial dispersion systems
- Sensor development for safety devices
- Powered payload delivery system design

Material Development

Material Development and Optimization:
- Support and guidance for Electromagnetic Interference (EMI) and X-ray Shielding
- Designs and build systems for unique customer applications
- Design for energy efficiency

Additive Manufacturing:
- Additive Manufacturing Design and Fabrication
- Complete Machining and Welding Facility
- Heavy Textile Design and Fabrication Facility

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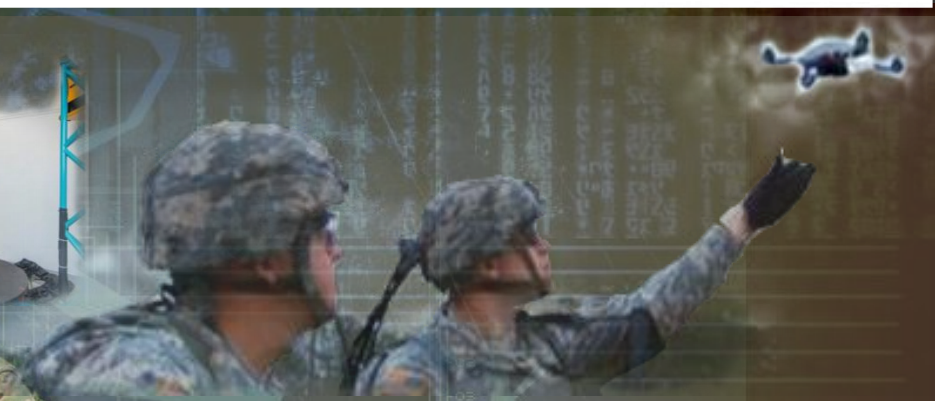
DEVCOM SOLDIER CENTER: WHAT WE DO

SOLDIER EFFECTIVENESS



Training, Simulation and Learning Technologies

- Mixed and Augmented Reality Technologies for Training
- Synthetic Natural Environments
- Live Training Technologies
- Medical Training Technologies
- Artificial Intelligence and Machine Learning
- Adaptive Training
- Distributed Simulation
- Training Effectiveness
- Cyber Training Simulations
- Data at the Point of Impact
- Quantitative and Qualitative Analysis

Physical/Cognitive/ Biological

- State Assessment
- Quantification of Close Combat Task Performance
- Predictive Performance Models
- Neuromodulation
- Exoskeleton
- Gut Microbiome
- Anthropometric Modeling
- Human Factors Product Test and Evaluation
- Soldier-Centric Design
- Muscle & Immune Cell Model & Nutritional Intervention

Soldier & Technology Integration

- Sensors and situational awareness
- Leader Planning & Decision Tools
- Network and the “right” information

Performance Enablers

- Efficient Power & Energy Solutions
- Climate Conditioning For Extremes
- Robotics for Soldier and Squad

SOLDIERS: OUR CREDENTIALS

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DEVCOM SOLDIER CENTER: WHAT WE HAVE DELIVERED 2010-2020

Combat Focus: OIF/OEF/OND | **Readiness Focus: Multi-Domain Operations (MDO)**

2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020

• Army Face Covering Effort • Next Generation Improved Bomb Suit (NGABS)
• Custom Fitted Flag for Human Remains Transfer Case Army • Fuel Handler Coverall (FHC)
• T-11 Reserve Automatic Activation Device (T-11 RAAD) • A-22 Mobile App
• Women's Shirt with Covered Button Placket (optional item) Army Food Service Uniform (FSU)
• Re-Design Jungle Fabric and Architecture Development Effort (JFADE) to Improved Hot Weather Combat Uniform (IHWCU) • Prototype Ankle Exoskeleton
• Improved Soldier Plate Carrier System (SPCS) • Female Improved Outer Tactical Vest (FIOTV) • Chemical Biological Aircraft Survivability Barrier (CASB)
• Blast Pelvic Protector Integrated Protective Fabric System/Chemical Biological Lightweight Improved Thermal Ensemble • Contaminated Human Remains Transfer Case (CHRT)
• Joint Biological Agent Decontamination Systems (JBADS) • Chemical Biological Protective Shelter (CBPS) • Next Gen Rifle Helmet • Joint Precision Airdrop System Micro Lightweight (MLW)
• Adaptable Testing & Load Assessment System for Helmets Integrated Eye & Ear Protection Advanced Blast Overpressure System for Headborne Equipment

Joint Precision Airdrop System (JPADS)

• Improved General Purpose Fabric EMI Liner Biomimetic Materials Camouflage Expeditionary Shelter Protection System (ESPS)
• Fragmentation Rapid Analysis Generator using Computed Tomography (FRAG-CT) Rapid Rigging and Derigging Airdrop System (RRDAS)
• Smart Universal Snap Hook (SUSH) • High Altitude Aerial Resupply System 2,000lbs (HAARS 2K) • Joint Precision Airdrop System - Autonomous Payload Release • Joint Precision Airdrop System - Bleed Air Actuator
• Joint Precision Airdrop System - Vision Navigation Joint Precision Airdrop System Ultra Lightweight (ULW RA-1) • Joint Precision Airdrop System Ultra Lightweight (ULW MC-4/5)
• Joint Precision Airdrop System 4,000lbs (JPADS 4K) Enhanced Speed Bag (ESB) Low Cost Ground Release • Hoverfly UI/UAS Tool • Haptic Enabled TC3 Prototype
• Cold Temperature and Artic Protection System (CTAPS) • Jungle/Sun Hat • Jungle Combat Boots • Army Combat Boots – Improved • Cold Weather Combat Boots
• Athletic Footwear for Initial Entry Training • Army Green Service Uniform • Advance Combat Pant with Integrated Knee Pad • Initial OWT data schema
• Modular Lightweight Load-Carrying Equipment (MOLLE) 4000 • Advanced Tactical Assault Panel (ATAP) • Modular Handgun Holster (MHH)
• CCAR Macronutrient Profile • Electrolyte Beverage Prototypes • MRE Fruit-Vegetable Puree Prototypes • CCAR Component Prototypes
• UGR-E Self-Heating Group Ration • UGR-M Marine Corps Ration • Performance Readiness Bar • AFRS recipes and guideline cards
• Unitized Group Ration • Meals Ready to Eat (MRE) • Universal Enrichment Broth • Ethylene Control Devices • Containerized Ice Maker

Soldier Borne Intelligence, Surveillance, Reconnaissance (ISR)

Female Body Armor

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DEVCOM SOLDIER CENTER: OUR FOCUS ON THE FUTURE

Soldier/Squad Impacts of Multi-Domain Operations

- Soldier/Squad fundamentals remain shoot, move, communicate
- Context is vastly different:
  - Highly dynamic
  - Highly lethal/kinetic
  - Highly distributed
  - Highly contested (all domains)
  - Highly consequential
  - Cross domain
- Echeloned fight-Corps to Squad
- Training and soldier readiness are key enablers during the compete phase of MDO
- Soldiers are also a “prime mover” of sensors in the battlespace
- Decision making speed and quality is a force multiplier
- Small unit leadership is a competitive advantage
- Terrain complexity and distance factors make even squad operations more complicated
- Parity in dealing with all this means it all goes back to who has the best Soldiers & Leaders

Implications for Science and Technology:

- Sustainment: 7 days of continuous operations without *routine* resupply
  - Nutritional density/compact rations
  - Small format portable energy storage/sources
  - Far-reaching *nonroutine* resupply capability as a backstop
  - Near deterministic *routine* resupply
- Protection: Full spectrum, multi-threat, equator to both poles
  - Extreme cold weather operations=protection from elements
  - Ballistic protection at a lower weight penalty=mobility=survivability
  - Signature management in almost all sections of electromagnetic spectrum
- Effectiveness: Training is a game changer, human performance is paramount
  - Immersive training systems that are robust, portable, affordable
  - Near professional athlete level of emphasis on individual physical and cognitive health state and resilience (states AND traits)

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DEVCOM SOLDIER CENTER: QUESTIONS/DISCUSSION

DEVCOM Soldier Center Google search

https://ccdcsoldiercenter.army.mil

https://www.facebook.com/devcom.SoldierCenter

https://www.linkedin.com/company/us-army-devcom-soldier-center/

https://twitter.com/devcom_sc?lang=en

DEVCOM Soldier Center Broad Agency Announcement (BAA) notice ID: W911QY20R0022

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