

# Journey to the Installations of the Future: We Are Here

Moderator: Lance Marrano, USACE

Speakers:

- Lowell Usrey, Chief, Arc Branch, U.S. Air Force AFWERX
- Brandon Cockrell, Deputy Garrison Commander, Ft. Moore, GA

May 14, 2024, 10:30 a.m.



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2024

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TRAINING CONFERENCE  
& EXPO

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# Opening Reception at Universal CityWalk

(Minimum age 18 - No Children)

**ANN**  
Ann McLeod  
SAME

Exhibitor: Dark Blue

**DRINK TICKET - Valid WEDNESDAY Only**  
"Good for One Free Alcoholic Drink"  
**Networking Reception in Exhibit Hall**  
Wednesday, May 3 - 5:00 p.m. - 6:00 p.m.  
Location: Exhibit Hall 4  
Thank you to our Platinum Sponsors!

**Society Ball Dinner & Awards Gala**  
**THIS IS NOT A TICKET - Please exchange this voucher for your seat and drink ticket at the Society Ball Seating Kiosk (West Registration Area) by Wednesday at 12:00 pm.**  
Thursday, May 4: 7:00 pm - 11:00 pm  
Location: HemisFair Ballroom C1-C2  
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beginning at 6:00 p.m.







# MODERATOR



**Lance Marrano**  
USACE Engineering Research and  
Development Center  
Science and Technology Advisor, Tyndall  
AFB

## Fun Facts

- Call sign “Q”
- Changed college major three times **in Grad School**
- Serves on local school board

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AFWERX

# SAME JETC

## Journey to the Installations of the Future: We are Here



Mr. Lowell Usrey  
Arc Branch Chief

Installation of the Future innovations are a cornerstone of Tyndall AFB's \$5 billion reconstruction. Hear from Air Force representatives and other services about their current installation innovation efforts. From master planning to cybersecurity and from robot dogs to public safety, service representatives will deliver updates on their current pilots, collaboration, and future plans.

# AFWERX | SPACEWERX

## MISSION

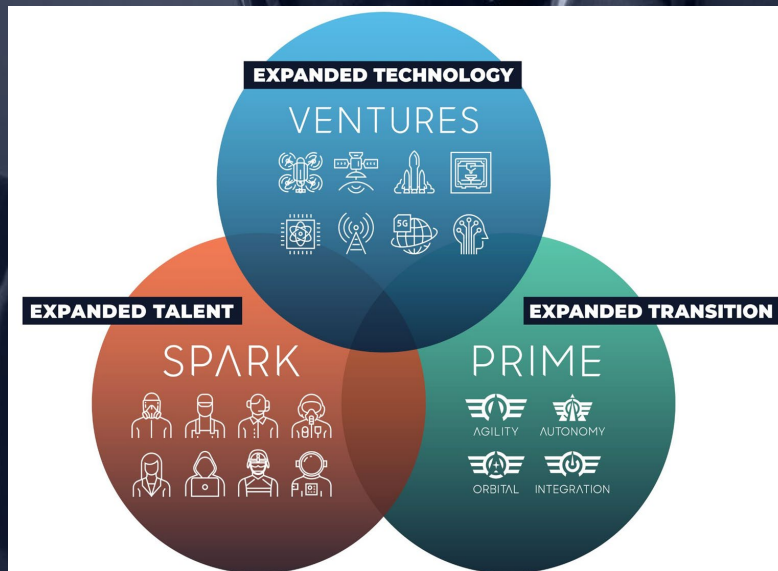
AFWERX accelerates agile and affordable capability transitions by teaming leaders in innovative technology with Airman and Guardian talent.

## VISION

Forge an innovation ecosystem that delivers disruptive Air & Space capabilities.

## MANTRA

Unleashing American Ingenuity



**178** Civilians

**18** Military

**176**  
Contractors

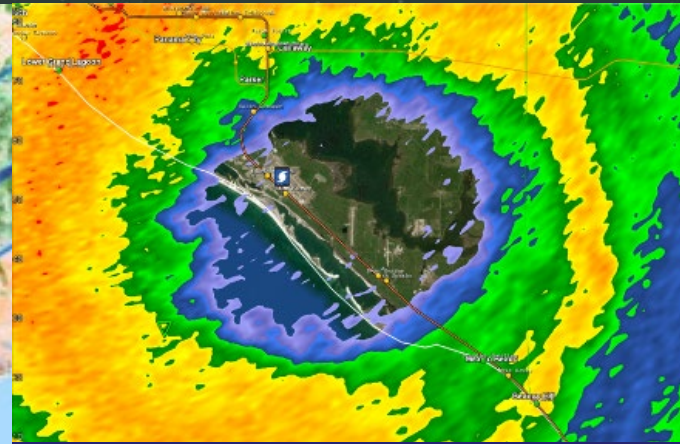
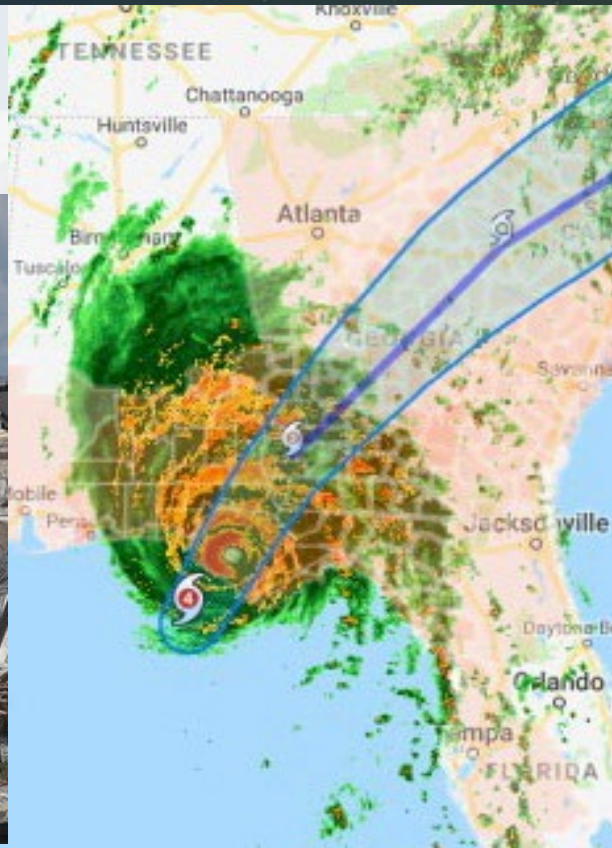
**100** Fellows

**10** Reservists



# Hurricane Michael – 10 Oct 2018

Tyndall Air Force Base was hit with a **category five hurricane** which resulted in **damage to 100% of its assets**.



**12:30 CDT**  
**Category 5 Hurricane Landfall**

**15.55'**  
**Storm Surge at Mexico Beach**  
**155 MPH**  
**Sustained Winds**

# Rebuild TAFB as the “Air Force Installation of the Future”



\$4.9B Program

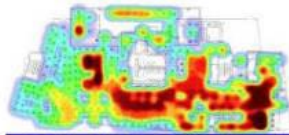


44 Projects = ~120 New



~260 FSRM Projects

## SENSING THE BASE:



### REAL TIME OCCUPANCY



### GUNSHOT DETECTION

Area	Detectors	Status
Building A	10	Active
Building B	15	Active
Building C	20	Active
Building D	25	Active
Building E	30	Active
Building F	35	Active
Building G	40	Active
Building H	45	Active
Building I	50	Active
Building J	55	Active
Building K	60	Active
Building L	65	Active
Building M	70	Active
Building N	75	Active
Building O	80	Active
Building P	85	Active
Building Q	90	Active
Building R	95	Active
Building S	100	Active

**FRCS:**  
EMCS, IDS, BUILDING AUTOMATION,  
MASS NOTIFICATION, FIRE SUPPRESSION

## TYNDALL AFB INSTALLATION OF THE FUTURE



## IROC/BDOC

## RESILIENCE:



### INNOVATIVE INFRASTRUCTURE



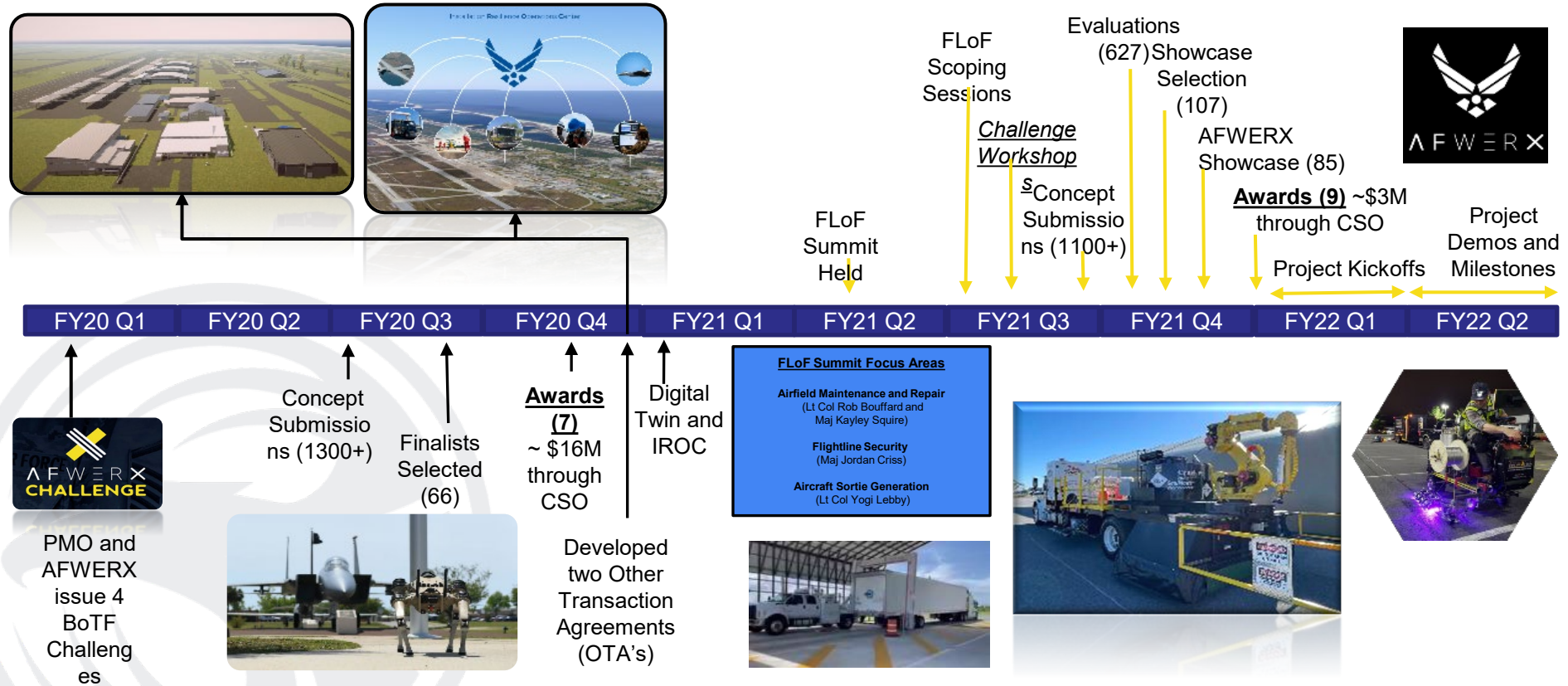
### ENERGY RESILIENCE



### COASTAL RESILIENCY



# AFWERX <-> AFIMSC Partnership



**FLoF Summit Focus Areas**

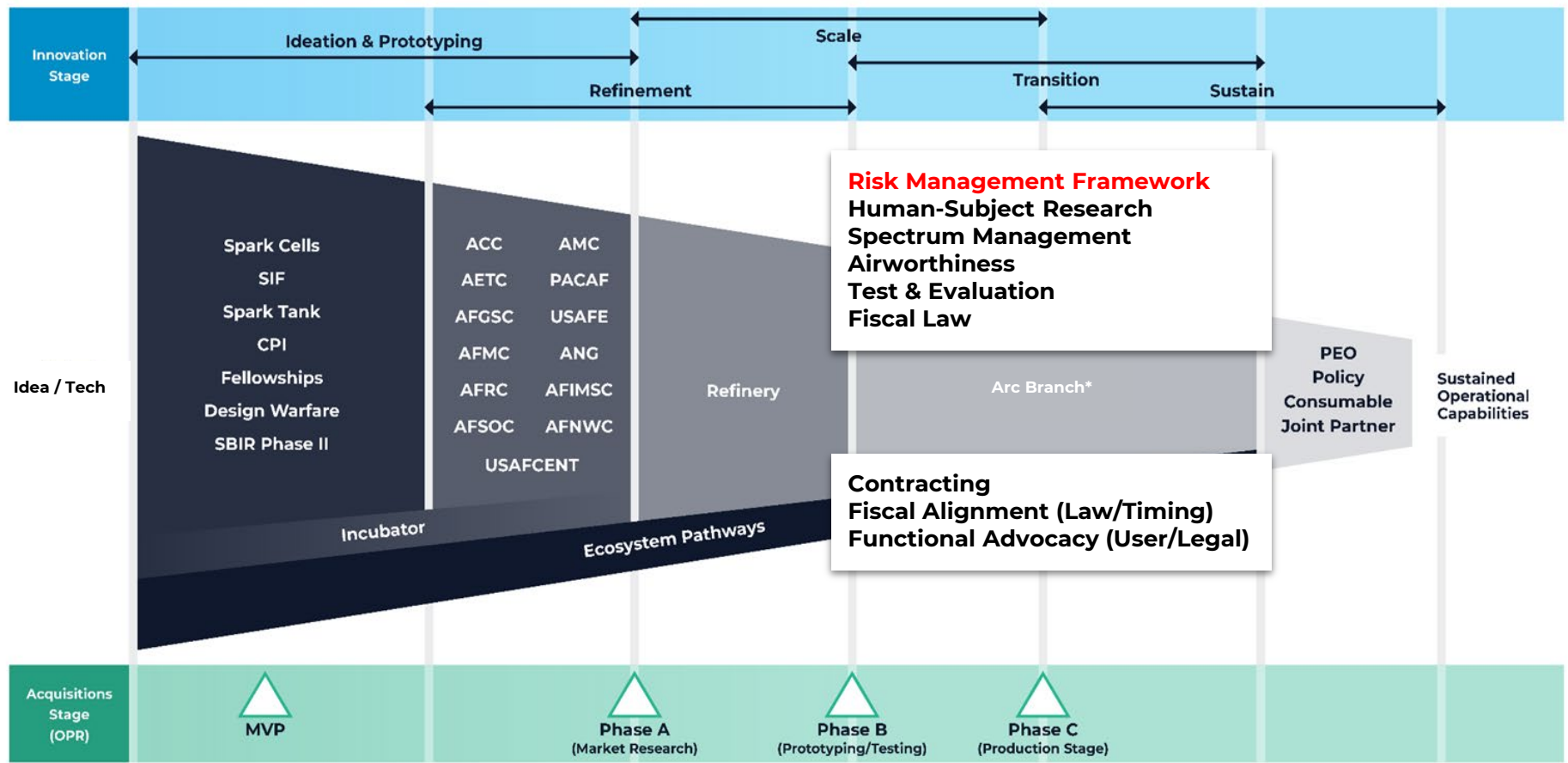
- Airfield Maintenance and Repair (Lt Col Rob Bouffard and Maj Kayley Squire)
- Flightline Security (Maj Jordan Criss)
- Aircraft Sortie Generation (Lt Col Yogi Lebby)



*Bridging the Valley of Death!*

AFWERX

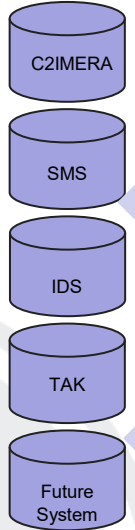
# Innovation is Messy...



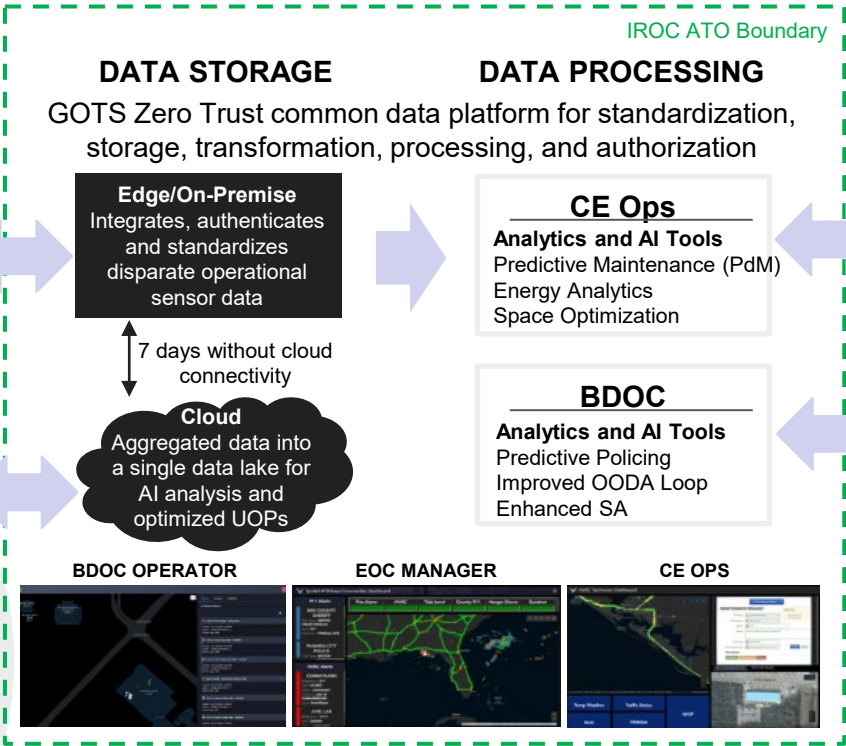
# Installation Resilience Operations C2 - IROC



## Operational Technology



**CE FRCS and SF IDS Data**  
Data is common across entire mission support enterprise and available to those who need it



## Mission Assurance

**Efficient Routine Operations**

**Faster Incident**

**Insight into Hidden Problems**

**User Dashboards**  
Interface fits each user's specific needs to optimize specific QRC or maintenance tasks



# IROC Core Principles

## Data Fusion & DMDC3 are the foundation of IROC:

- Leverage commercial best practices, standards, and technology
- Secure control systems with Zero Trust principles and continuous monitoring
- Unlock formerly siloed data to increase resilience

## Installation Resilience Operations C2:

- Enables Installation C2 with data fusion
- Cloud-native platform (GovCloud)
- Enables rapid deployment of OT systems and sensors with robust cybersecurity framework
- Government Off-the-Shelf (GOTS)

## Goals:

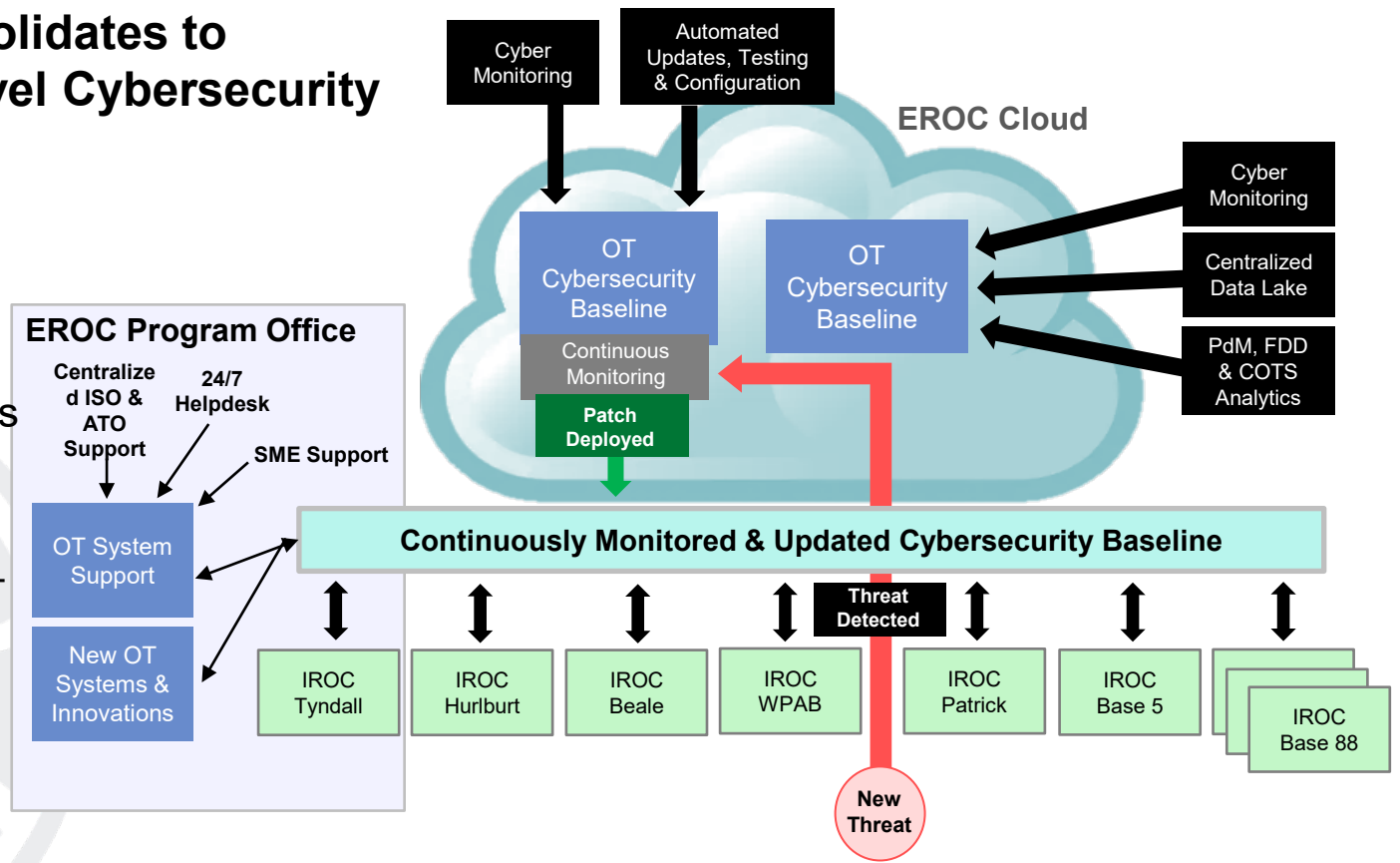
- Centralize and standardize RMF Execution
- Unlock siloed data
- Enable predictive maintenance
- Protect OT systems with ZT principles (EO 14028<sup>1</sup>)
- Connect existing COPs to real-time data (C2IMERA, TAK)
- Authorize information sharing between systems with data standardization through the "data lake"



# Enterprise Resilience Operations Center

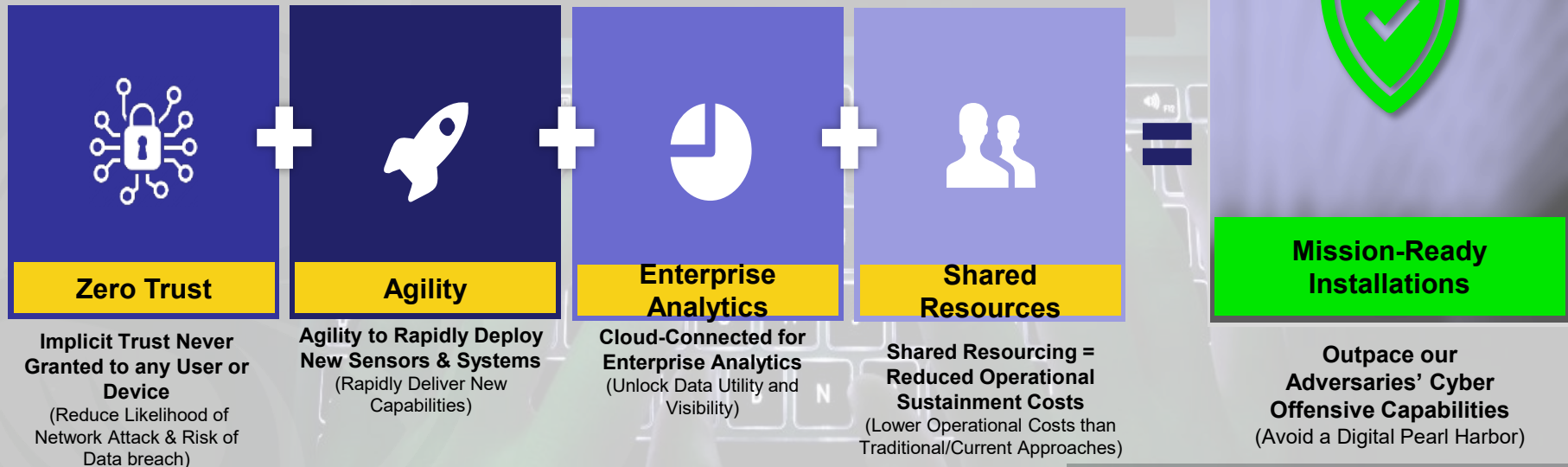
**Centralizes and consolidates to provide enterprise-level Cybersecurity**

- Currently single-person manning at most installations
- Centralization provides greater capability to monitor and spot threats through NOC/SOC
- Addresses need for higher skilled workers – easier to recruit and retain telework or in “tech hubs”



# It's ALL About the (Real-Time, OT) Data...

- Installations serve as power projection platforms <sup>1</sup>
- Homeland is no longer a sanctuary <sup>2</sup>
- Enhanced Situational Awareness enables quick, informed decision making to improve operational outcomes <sup>3</sup>





# The “Valley of Death”



Technology  
Identification and  
Assessment

Long Term  
Capability

The Valley of  
Death

## Challenges:

Risk Management Framework, Human Subject Research, Spectrum Management, Airworthiness, Test and Evaluation, **Fiscal Law**

# APFIT – Procurement Funds

RELEASE  
IMMEDIATE RELEASE

## DOD Announces Next Round of Projects to Receive Funding From Pilot Program to Accelerate the Procurement and Fielding of Innovative Technologies (APFIT)

April 17, 2024

The Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) announced the next round of projects to receive funding via the pilot program to Accelerate the Procurement and Fielding of Innovative Technologies (APFIT). This is the second tranche of projects to be selected during Fiscal Year 2024, and the first tranche awarded after the Department received a full appropriation for FY 2024.

- Communications Mobile Gateway Buoy, \$12.940M, U.S. Navy
- Family of Systems for Assured Movement and Maneuver, \$15.950, U.S. Transportation Command via U.S. Army
- Gladius Micro-High-Altitude Balloon Deployed Glider, \$10.000M, U.S. Army
- High Efficiency Phase Modulator, \$11.000M, Missile Defense Agency
- Installation Resilience Operations Command and Control, \$20.000M, U.S. Air Force
- Majestic Alpha, \$18.500M, U.S. European Command and U.S. Special Operations Command
- Project 711: Containerized Secure Units, \$15.200M, U.S. Marine Corps
- Classified, \$13.650M, U.S. Special Operations Command
- Rack Mounted Optical Clocks, \$22.000M, DARPA and multiple Services
- Radome Operational Performance Evaluation, \$10.000M, U.S. Air Force
- Reducible Height Gunner Protection Kit, \$19.721M, U.S. Marine Corps



# What's Next?

- Scale!
- Move faster AND cheaper
- Improve data visibility
- Improve cybersecurity
- Integrations, integrations, integrations!!!
  - Base Orchestrated Autonomous Response (BOAR)
  - AI-systems (e.g.: ZeroEyes)
  - Others??



# SPEAKER



**Brandon Cockrell**  
US Army / AMC / IMCOM  
Deputy to the Garrison Commander  
Fort Moore, GA

## Fun Facts

- Auburn University Graduate & fan.
- I'd rather be on a boat than a golf course.
- Pickle ball survivor.

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# U.S. ARMY



## AIMP2 Overview

Installation Modernization



UNCLASSIFIED



- The Army Installation Modernization Pilot Program (**AIMP2**) is the Army's Installation's of the Future Program.
- Funded annually from the Office of the Assistant Secretary of the Army for Installations, Energy and Environment (**ASA IE&E**), Supported through the US Army Corp of Engineers Engineer Research and Development Center (**ERDC**).
- Identify current projects within industry, partner cities or installations that are showing benefits, fund to expand proof of concept project while looking at long term implementation.

## The Army Strategy

- The Army of 2030
- Looking to 2040

## Army Modernization Strategy

- How we Fight
- What we Fight With
- Who We are

## Army Installations Strategy

- Take care of People
- Strengthen Readiness and Resilience
- Modernize and Innovate
- Promote Stewardship

## Army Climate Strategy

- Installations
- Acquisition and Logistics
- Training

## Army People Strategy

## Army Arctic Strategy

## Army Medical Modernization Strategy

## Army Multi Domain Transformation

## Quality of Life Initiatives



### AIMP2 MISSION:

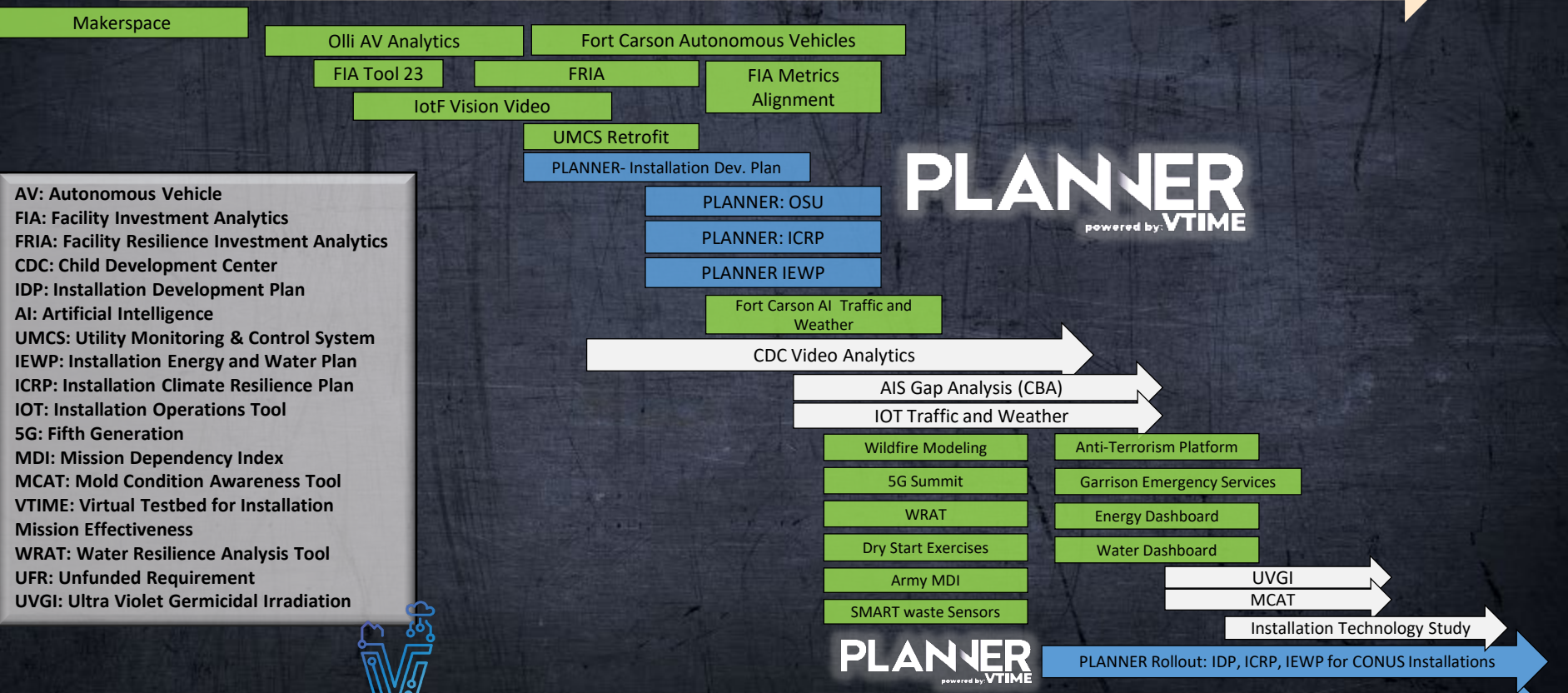
Inform and enable swift Installation Modernization through emerging and established technology pilots

### AIMP2 GOALS:

1. **Synchronize** use cases with operational Army modernization and resilience needs
2. **Increased investment** in installation modernization with considerations for ROI, sustainment, workload, training (OP\$)
3. **“Single pane of glass”- Sensor to alert/action** integration; data-centralized, cyber secure, decision tools
4. **Create** designated installation **testbeds** +1 outlier
5. **Increase RDT&E** for Army Installations of 2040+



# AIMP2– Road to War (Timeline)



- AV: Autonomous Vehicle**
- FIA: Facility Investment Analytics**
- FRIA: Facility Resilience Investment Analytics**
- CDC: Child Development Center**
- IDP: Installation Development Plan**
- AI: Artificial Intelligence**
- UMCS: Utility Monitoring & Control System**
- IEWP: Installation Energy and Water Plan**
- ICRP: Installation Climate Resilience Plan**
- IOT: Installation Operations Tool**
- 5G: Fifth Generation**
- MDI: Mission Dependency Index**
- MCAT: Mold Condition Awareness Tool**
- VTIME: Virtual Testbed for Installation Mission Effectiveness**
- WRAT: Water Resilience Analysis Tool**
- UFR: Unfunded Requirement**
- UVGI: Ultra Violet Germicidal Irradiation**



**VTIME: Virtual Toolbox For Installation Mission Effectiveness**

UNCLASSIFIED

*The two visions were compelling and well-received, but the positive reception was balanced by a sense that it was unclear how the Army could evolve over time. Mapping that journey became our focus, culminating in this initial model.*

**INCREASING CONNECTIVITY, MATURITY, GOVERNANCE, AND RESILIENCE**



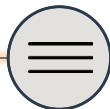
**STATIC INSTALLATIONS**

May have aspects of resilience but cannot achieve enterprise resilience and are generally static in form and function.



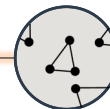
**SMART INSTALLATIONS**

Installations feature some automated processes to collect and visualize data within the installation. Installation commanders utilize this information in decision-making.



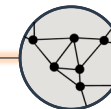
**INSTALLATIONS AS PLATFORMS**

Installations have facilities that are flexible and capable of adapting to meet new mission needs. Installations can shift resources and mission to improve individual post resilience.



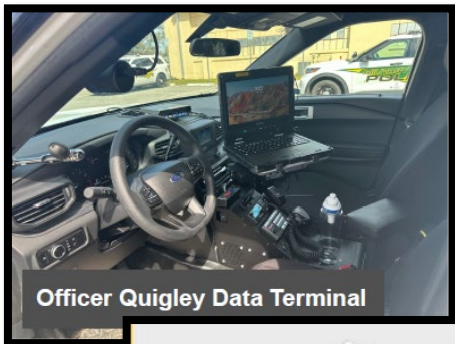
**CONNECTED INSTALLATIONS**

Multiple installations are connected to share relevant mission related data on status of forces, equipment, personnel, and facilities. Data is not fused and leveraged for enterprise-level insights.



**RESILIENT INSTALLATION ECOSYSTEMS**

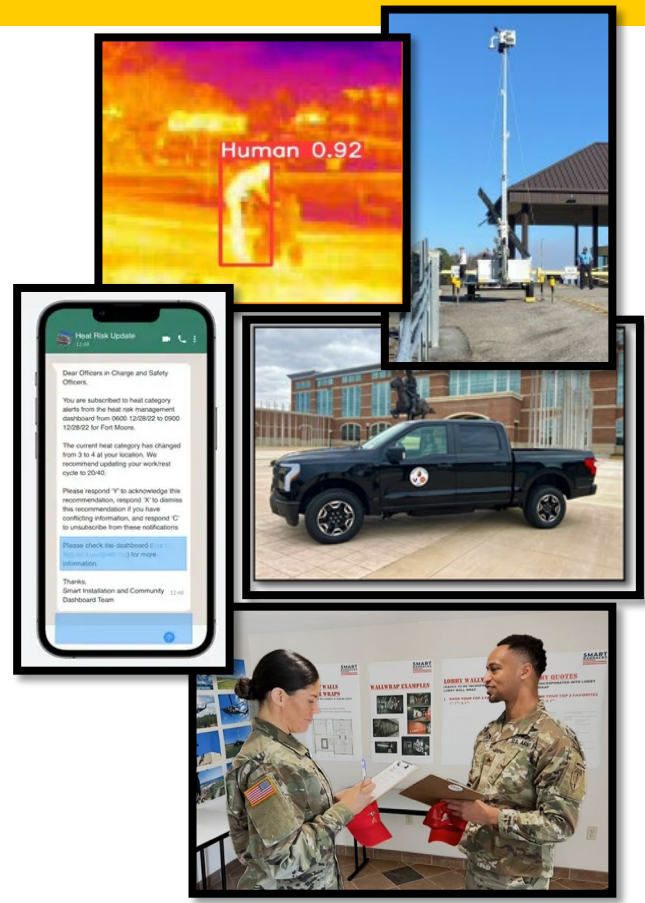
Ecosystems form and reform quickly shifting mission and focus between installations based on function, contingency, and local conditions. This creates adaptability, ability to deliver capability, and mission resilience across the Army enterprise.



Officer Quigley Data Terminal



- ### Current Pilots / Projects
1. Emergency Services Operational Enhancements
  2. Remote Surveillance
  3. Heat Risk Management
  4. Building Fault Detection
  5. Installation Operations Tool
  6. Space Utilization using Mobile Occupancy
  7. Energy Waste Savings
  8. SMART Barracks
  9. Food Waste to Energy





*Live Content Slide*

**Poll: Are you looking at implementing any of these technologies?**

Journey to the Installations of the Future: We Are Here

# THANK YOU

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## Cutting Edge: Digital Twinning Installation Operations



- Lance Marrano  
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# Q&A