

Modernizing Installations: Innovation to Application for SMART technologies and AI/ML.

Moderator: Ms. Tamara Sutherland (Director, SI, ASA IE&E)

Panel Members: Mr. Brandon Cockrell, Mr. Lance Marrano,
Ms. Allison Long, Ms. Su Wolters



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- Opening Remarks
- Introductions
- Army Installation Modernization Pilot Program (AIMP2)
- Fort Moore Modernization Efforts
- Tyndall Air Force Base Modernization
- PLANNER Overview
- Panel Questions and Dialogue

Ms. Tamara Sutherland- Office of the Assistant Secretary of the Army (Installations, Energy and Environment, ASA IE&E), Director of Strategic Integration

Mr. Brandon Cockrell- Installation Management Command, Fort Moore Deputy to the Garrison Commander (DGC)

Ms. Allison Long- US Army Corp of Engineers, Engineering Research and Development Center: Program Manager- Army Installation Modernization Pilot Program

Mr. Lance Marrano- US Army Corp of Engineers, Engineering Research and Development Center: Tyndall Air Force Base

Ms. Su Wolters- US Army Corp of Engineers, Engineering Research and Development Center: Program Manager- PLANNER



- 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

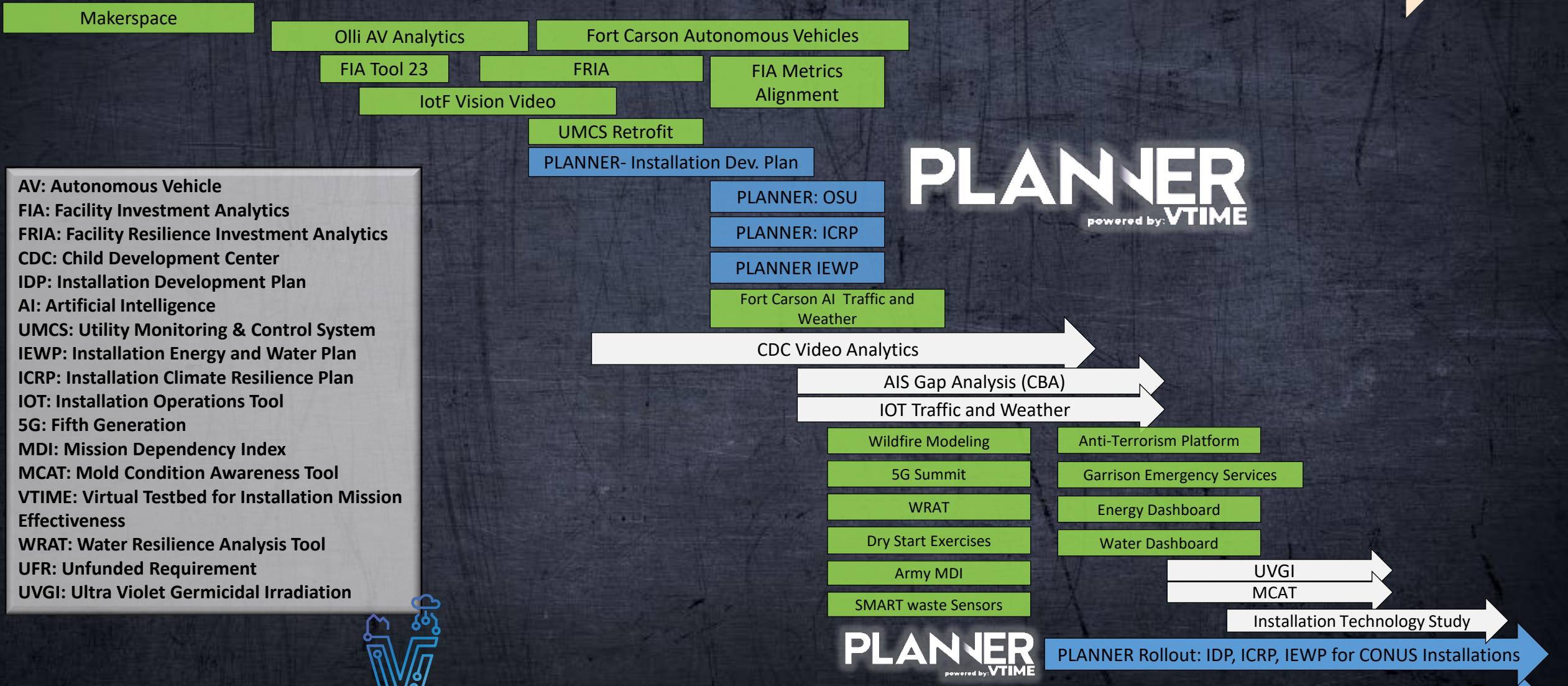


AIMP2 MISSION:

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+



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- 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

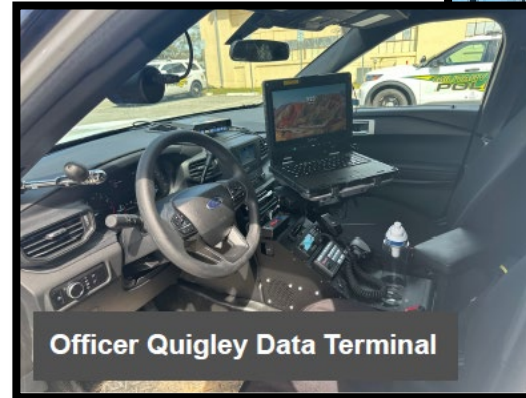


VTIME: Virtual Toolbox For Installation Mission Effectiveness

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FMGA SMART Installation "Musts"

1. We must train and deploy.
2. We must protect the installation from emerging threats.
3. We must ensure rapid interoperability between all systems.
4. We must modernize the workforce to support Multi-Domain Operations who are ready for any physical hardship, danger or uncertainty.
5. We must create efficiencies and improve services and infrastructure while implementing the Army's Climate Strategy.
6. We must create an installation that is attractive to the next generation.



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

Air Force Installation & Mission Support Center



Installation of the Future Introduction Innovations

Mr. Lance Marrano, SSTM
S&T Advisor for Tyndall #lotF
USACE & AFCEC

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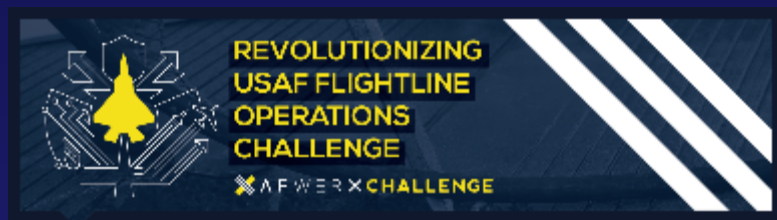
Tyndall Installation of the Future (lotF)

Resilient

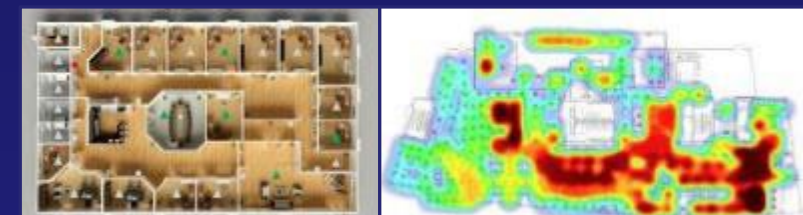
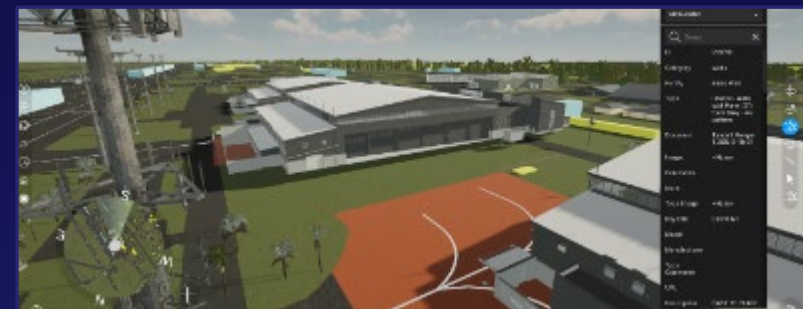
“This guidance...is intended to ensure the design of infrastructure and facilities is more resilient to future severe weather events.”



Innovative



Digital



Gunshot Detection & Real-Time Occupancy

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IoT Cornerstones



Installation Resilience Operations Command & Control (IROC)

- Next-Generation, Zero-Trust Facility Controls Cybersecurity Architecture
- Rapidly (2-3 months) support new systems and capabilities
- Enables data sharing with multiple Common Operating Pictures (COPs) and Cloud



Digital Twin (DT)

- First-of-its-kind Installation-scale Digital Twin *platform*
- Currently supports facility planning, design, O&M, and safety use cases, extensible to unlimited number of stakeholders/missions
- Pathfinder for next-generation installation and infrastructure geospatial intelligence
- ATO to be completed in FY24

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PLANNER Overview

Powered by VTIME.
Funded by AIMP2.



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U.S. Army Engineer Research and Development Center (ERDC)

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PLANNER powered by: VTIME as a solution

PLANNER is designed to help Army planners provide the excellence in mission support that will adapt to changing requirements at the speed of relevance – aligning installations with the Army Strategies for Installations and Climate and the National Defense Strategy

RETURN TO THE WARFIGHTER

Based on Fort Carson and Army data, findings show reduced level of effort associated with developing various installation plans – cutting the costs associated with each by more than 50%.

Offsetting manpower requirements with anticipated payback within 1st year

PLANNER
powered by: VTIME



Codify UFC 2-100-01 Installation Master Planning to standardize DoD criteria and Integrated Installation Planning



Provide COP for each Installation as well as a single pane of glass to view the entire Army constellation



Maximize value of Army Systems of Record by integrating data to support continuous planning



Avoid recurring data baselining (schedule and monetary) costs to enable planning at mission speed



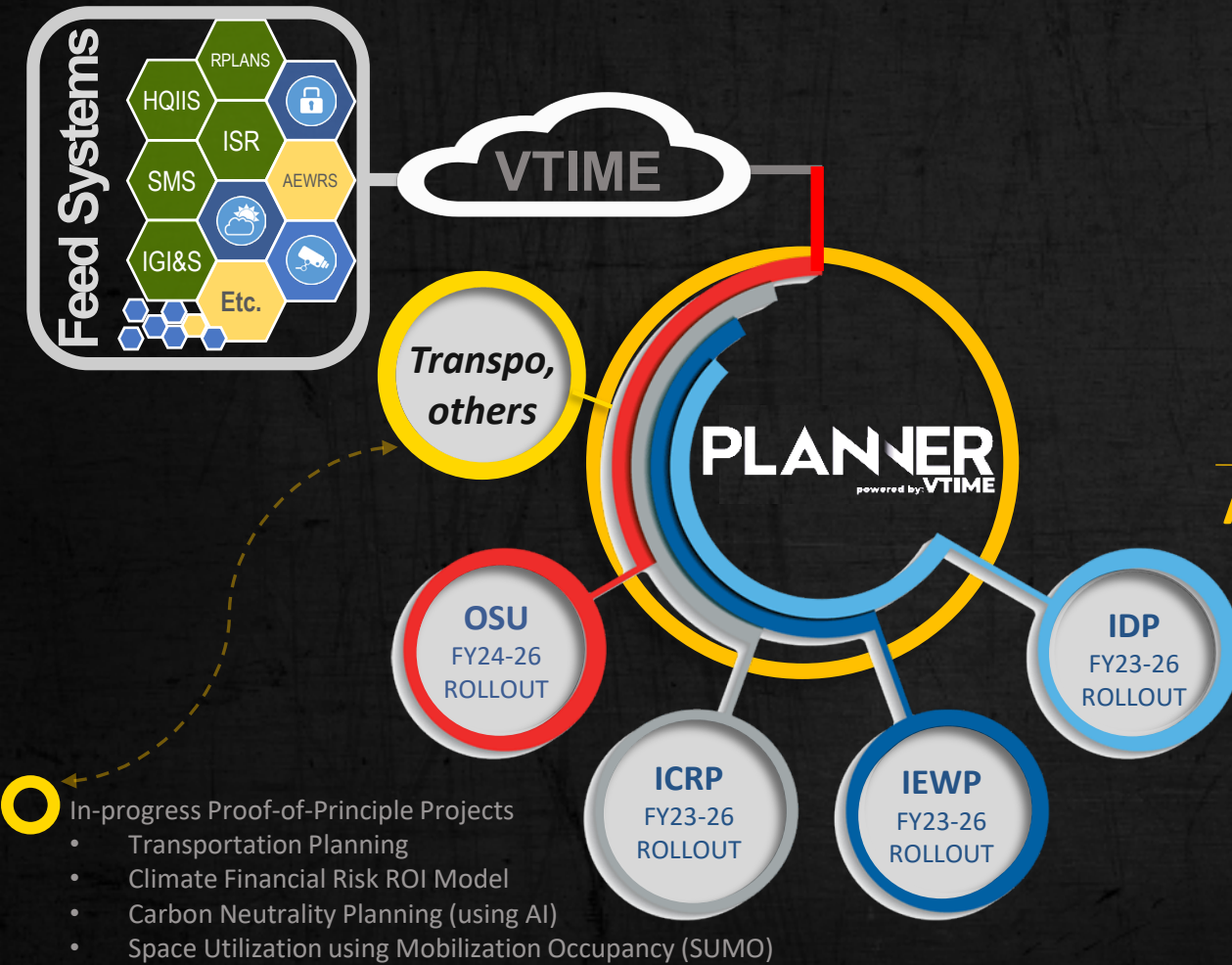
Track progress towards meeting Army Installations Strategic Objectives across the Enterprise



Leverage a federated VTIME capability to integrate w/ other IoT initiatives & achieve readiness for 2035's Army

PLANNER Overview

Milestones & Strategic Alignment



FY23-FY26 Milestones

FY23-FY24 Pilot PLANNER – 12 pilot installations

- Installation Development Planning (IDP)
- Installation Energy and Water Planning (IEWP)
- Installation Climate Resilience Planning (ICRP)

FY24-25 PLANNER Rollout – 12 pilot installations

- 2nd Year PLANNER Pilot expands with Optimization of Space Utilization (OSU)

FY24-26 PLANNER Rollout – All Active-duty CONUS installations

- Migration to Army production environment cArmy

Aligning Installations with Army Strategy



LOE3 Modernize and Innovate
Strategic Obj: Transform Installation Operations



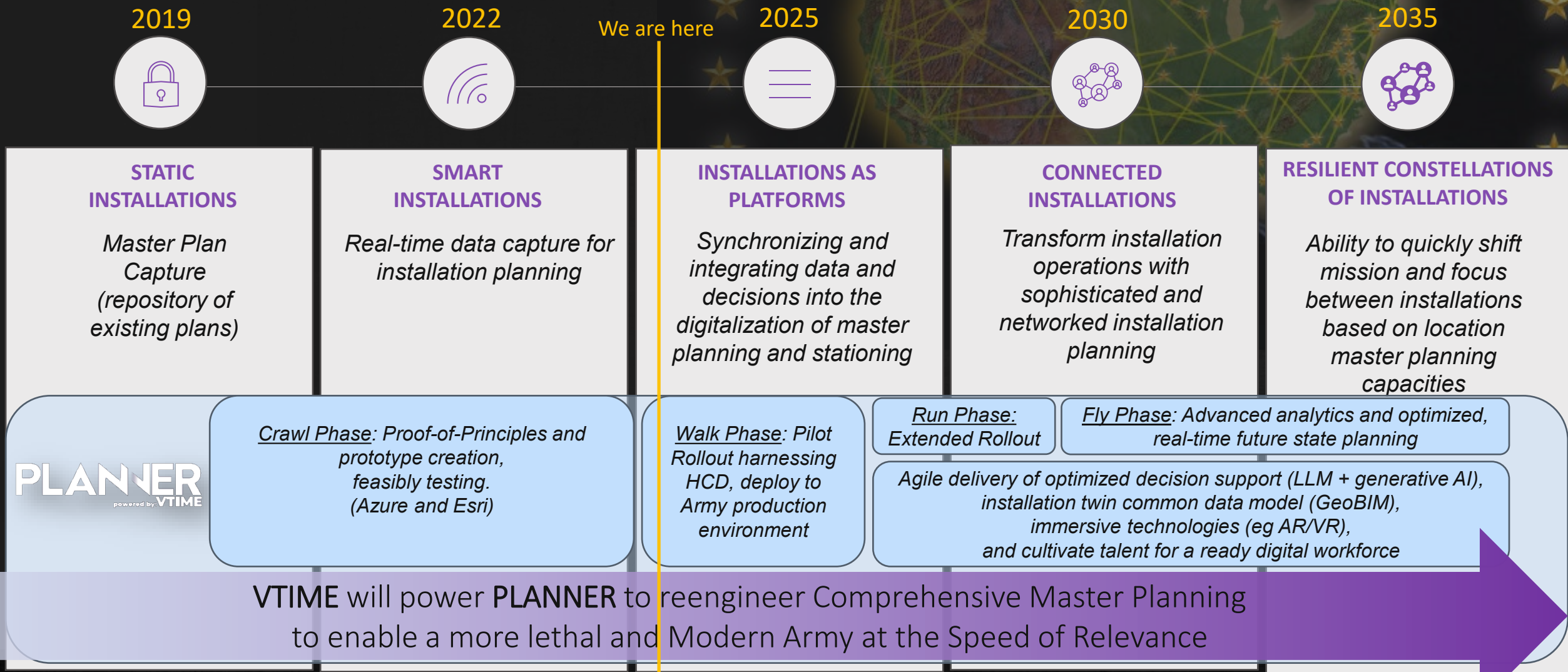
LOE2 Strengthen Readiness and Resilience
Strategic Obj: Adopt Resilience Systems



LOE1 Installations
Objective: Climate change threat mitigation to incorporate carbon sequestration considerations

PLANNER Roadmap

Aligning Installation Planning Transformation with a maturity continuum towards Army 2035





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What are the key challenges in integrating new smart city technologies into existing infrastructure on installations, and how can these challenges be overcome?



How can we ensure that the deployment of smart city technologies installations maintains the highest levels of security?



What role do new smart city technologies play in promoting sustainability and reducing the environmental impact of Army installations?



Can you discuss the cost-benefit analysis of implementing smart city technologies on Army installations? How do these technologies improve operational efficiency and cost-effectiveness?



How do new smart city initiatives on Army installations impact the surrounding civilian communities, and how can we foster positive relationships and mutual benefits?



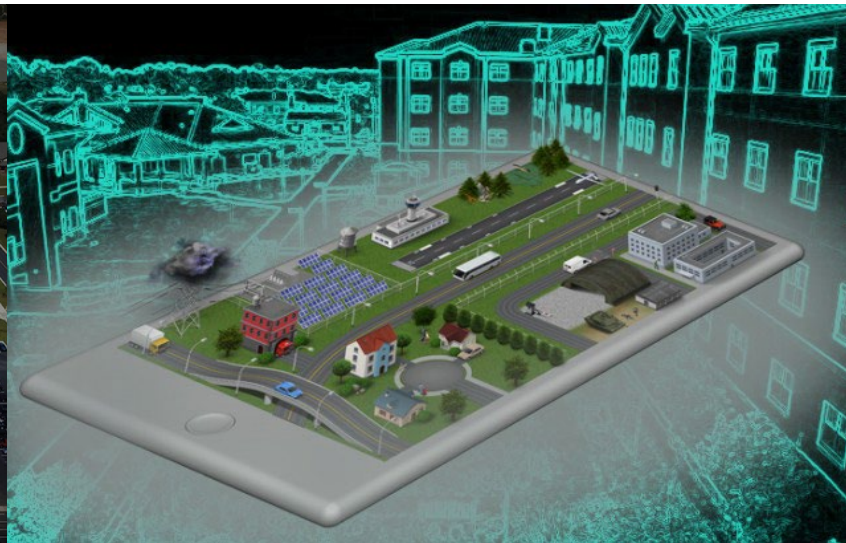
What are the most promising smart city technologies on the horizon that could significantly impact installations, and how are installations preparing for their integration?



What training and skill development programs are necessary to equip Army personnel with the expertise to manage and operate smart city technologies effectively?



How is data from smart city technologies managed, analyzed, and used to improve decision-making and operations on installations?



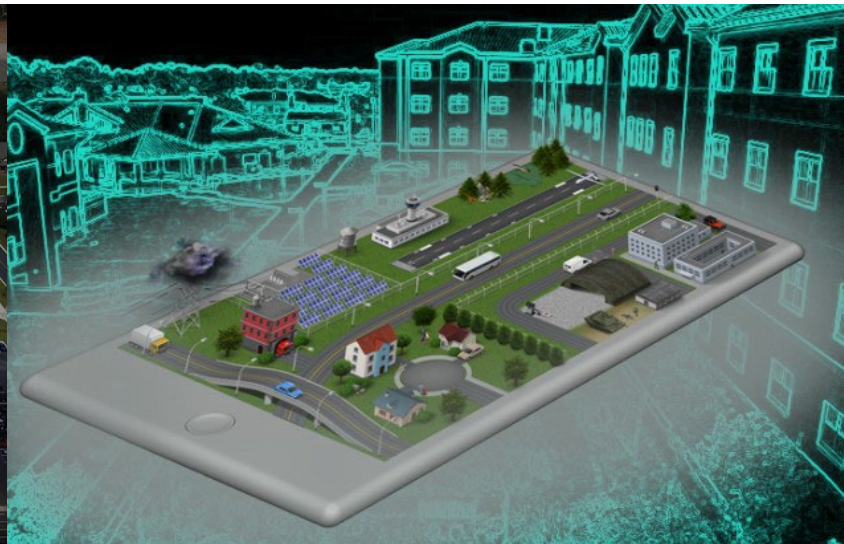
What opportunities exist for partnerships between the Army, private sector, and academic institutions in developing and implementing smart city technologies on installations?



What are the key regulatory, process and policy considerations that need to be addressed when introducing PLANNER on Army installations?



Questions?



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Civil Engineering Innovations

1. Renu Autonomous Mowers

Autonomous mower system for vegetation management and BASH mitigation for the airfield on an Air Force installation and other applicable areas



2. Easy Aerial

Tethered drone system enhancing situational awareness for decision makers from airfield lighting to monitoring installation infrastructure



3. JARVIS

Data integration and analysis solution for BUILDER, PAVR, and CMMS (Tririga) that assists Civil Engineers with spotting trends and schedule optimization



4. NecoPave

Automatic asphalt fill and repair machine for use on existing roadways; increasing the efficiency and speed of pavement repairs



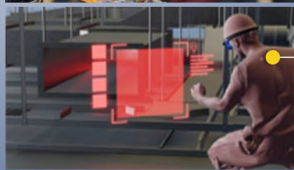
5. Sensytec

Sensor that monitors temperature and electrical resistivity to determine soil type, moisture content variation, temperature variation, level of contaminants such as oil or salts in the soil



6. Spector

Digital maintenance solution providing instruction/checklists with hands-free access via AR device (Hololens)



Security Forces Innovations

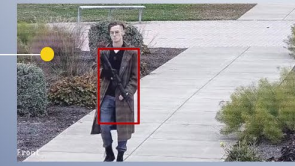
1. Valitus Mobile Camera Sensors

Modular LED streetlight with five 4K cameras originally purchased to detect unauthorized flight line access.



2. ZeroEyes DeepZero

Firearm detection software that integrates with existing security cameras



3. Anduril WISP (Wide-Area Infrared System)

Detects, tracks, and displays all moving objects in the air and on the ground in the surveilled location



4. Ghost Robotics Q-UGV (Quadrupedal-Unmanned Ground Vehicle)

Mobile sensing platform that enables Security Forces to patrol remote locations on base and austere environments to provide perimeter surveillance and building clearing



5. DFT AF-FPK (AF-Force Protection Kit)

Perimeter surveillance security utilizing slew-to-cue camera system and ground-based radar



6. ARES AVERT

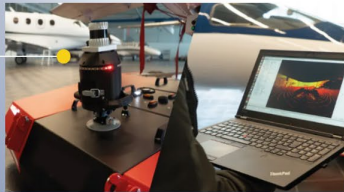
Modeling and simulation tool that performs defense-in-depth and sensitivity analysis



Air Field Operations Innovations

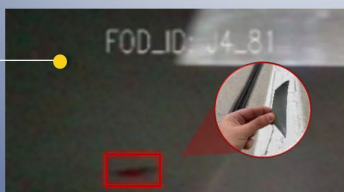
1. Evitado

Parking/3D Ground Collision Avoidance system that uses LIDAR to create a 3D "bubble" around aircraft during taxiing



2. Oreyeon

Truck mounted FOD and pavement detection equipment that captures FOD and pavement deformation locations on the airfield



3. Grey Gecko

Handheld scanning tool that detects corrosion through legacy coating; expected to reduce aircraft downtime caused by corrosion



4. TRAXyL

Rapid, low-cost optical fiber deployment; allows the ability to place connection on the flight line without trenching ("paintable")



Digital Twin





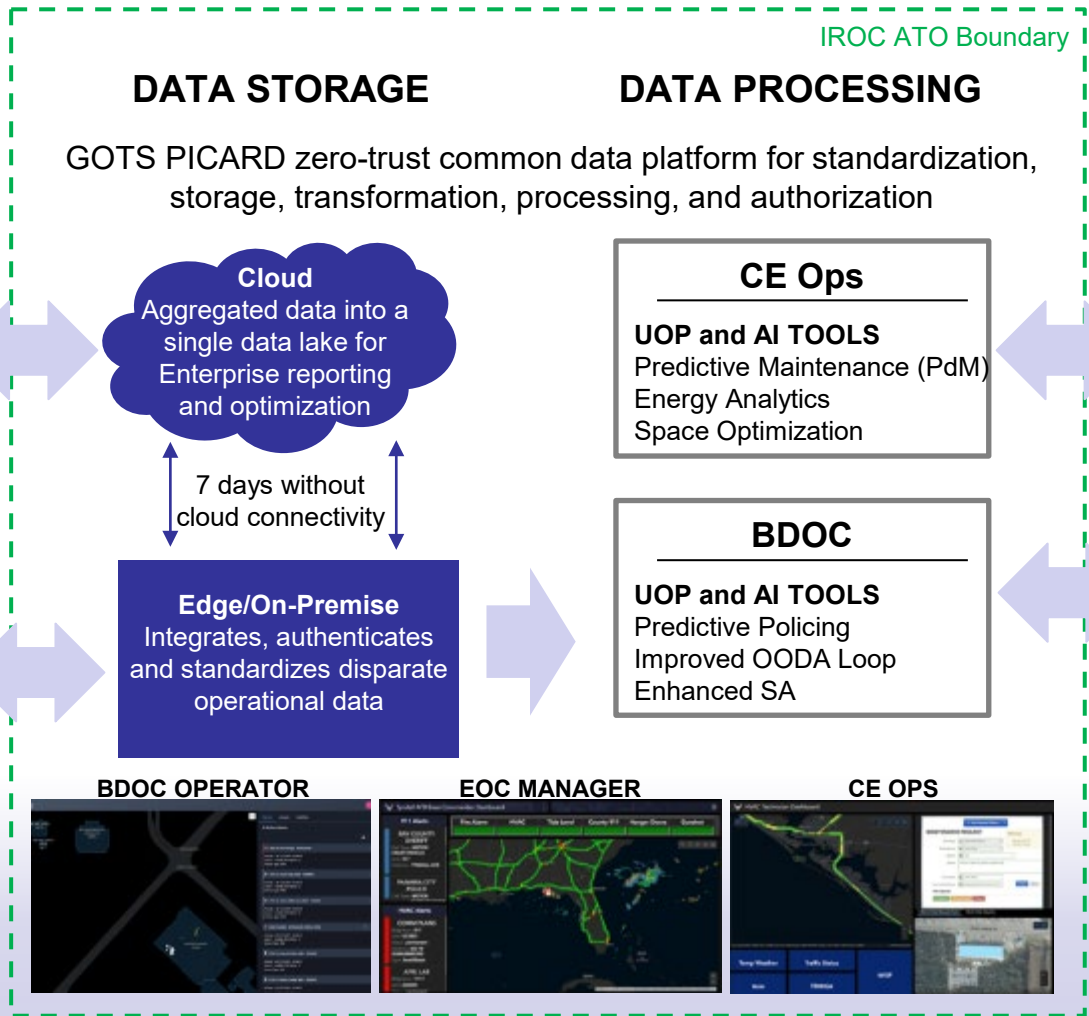
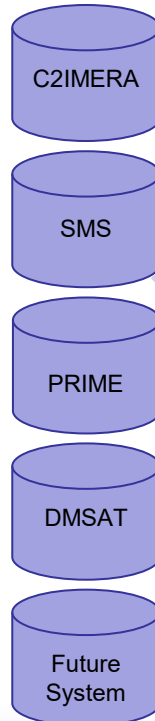
IROC – Data Brokerage for OT Systems



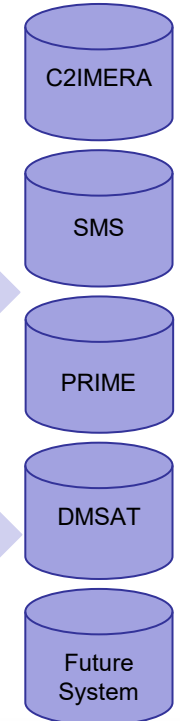
Operational Sensor Technology



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



Mission Assurance



Predictive Analytics



Faster Incident Response



Insight into Hidden Problems

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



Tyndall Digital Twin



Near life-like virtual representation of the physical world

- Accelerate **data-driven** decision-making with **intuitive visualization**
- Empower organizations through **modeling and simulation** capabilities



DIGITIZE



- Reality capture of assets through multiple sensor and scanning platforms.

CENTRALIZE



- Connect and explore diverse, interrelated datasets, from SMS to BIM to geospatial.

DEMOCRATIZE



- Intuitive platform makes data available to both technical and non-technical users across the Air Force enterprise.

UTILIZE



- Flexible, scalable model enables countless use cases across many installation and mission stakeholders.

STATUS



- 77 existing facilities; 105 new facilities
- FY24 priorities: Authority to Operate (ATO); Expand CE support use cases

Same Tools as other USAF Communities - supports **Future Collaboration and Integration**

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