



Developing an AI/ML Operations Pipeline: Project Linchpin



PEO
IEW&S

Program Executive Office
Intelligence, Electronic Warfare & Sensors

30 AUGUST 2023

PEO IEW&S

Vision

Deliver trusted AI/ML capabilities to PEO IEW&S programs

Mission

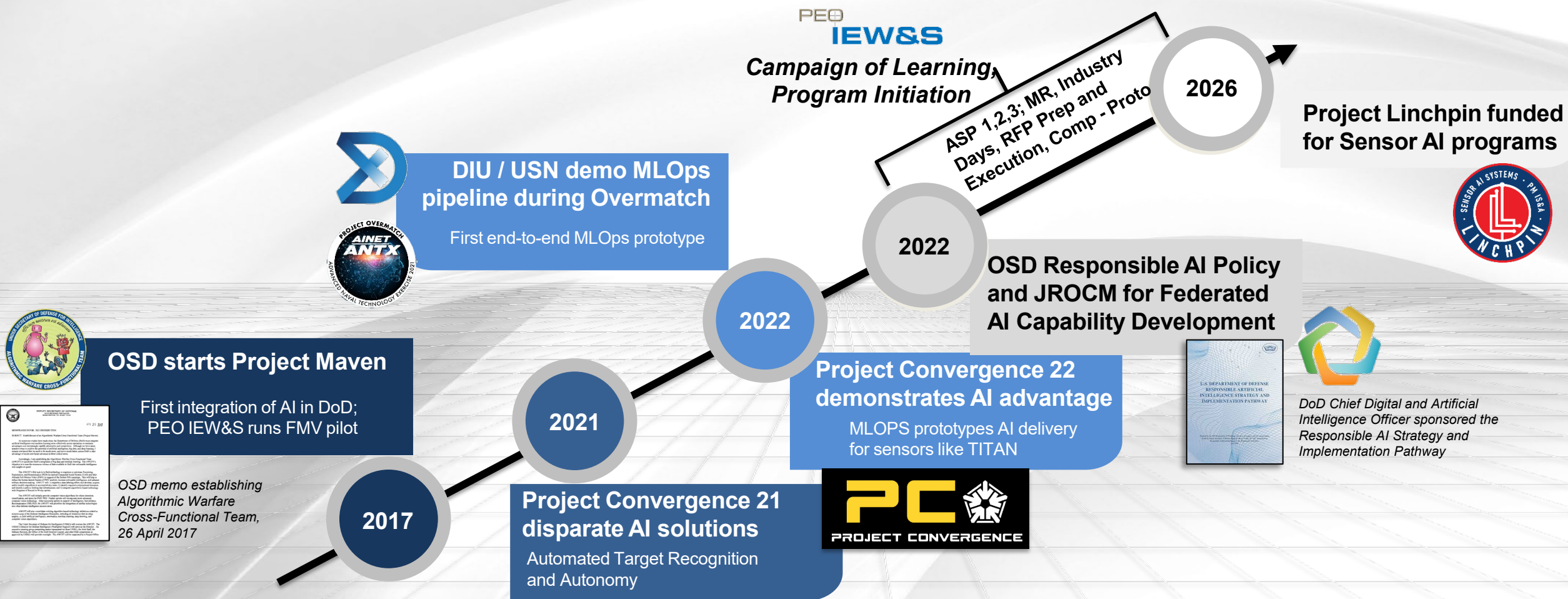
As a pre-program activity, define technical and acquisition approaches for a future Program Management Office focused on the AI/MLOPS environment that enables rapid development, integration, and deployment of advanced analytics to PEO IEW&S sensor modernization efforts

Why Project Linchpin and Why Now?

All PEO IEW&S sensor modernization efforts require AI/ML capabilities to process, exploit, and disseminate intelligence data in the volume and veracity collected. The AI/MLOps Pipeline necessary to continuously integrate and continuously deliver those capabilities is cost prohibitive to be individualized within each separate program office. That activity must be centralized to enable an affordable technical infrastructure

Partnerships

Project Linchpin is a collaboration between Army Futures Command's Artificial Intelligence Integration Center (AI2C), Army Research Labs (ARL), Development Command (DEVCOM), and Office of the Secretary of Defense (OSD) / Chief Data and Artificial Intelligence Office (CDAO)



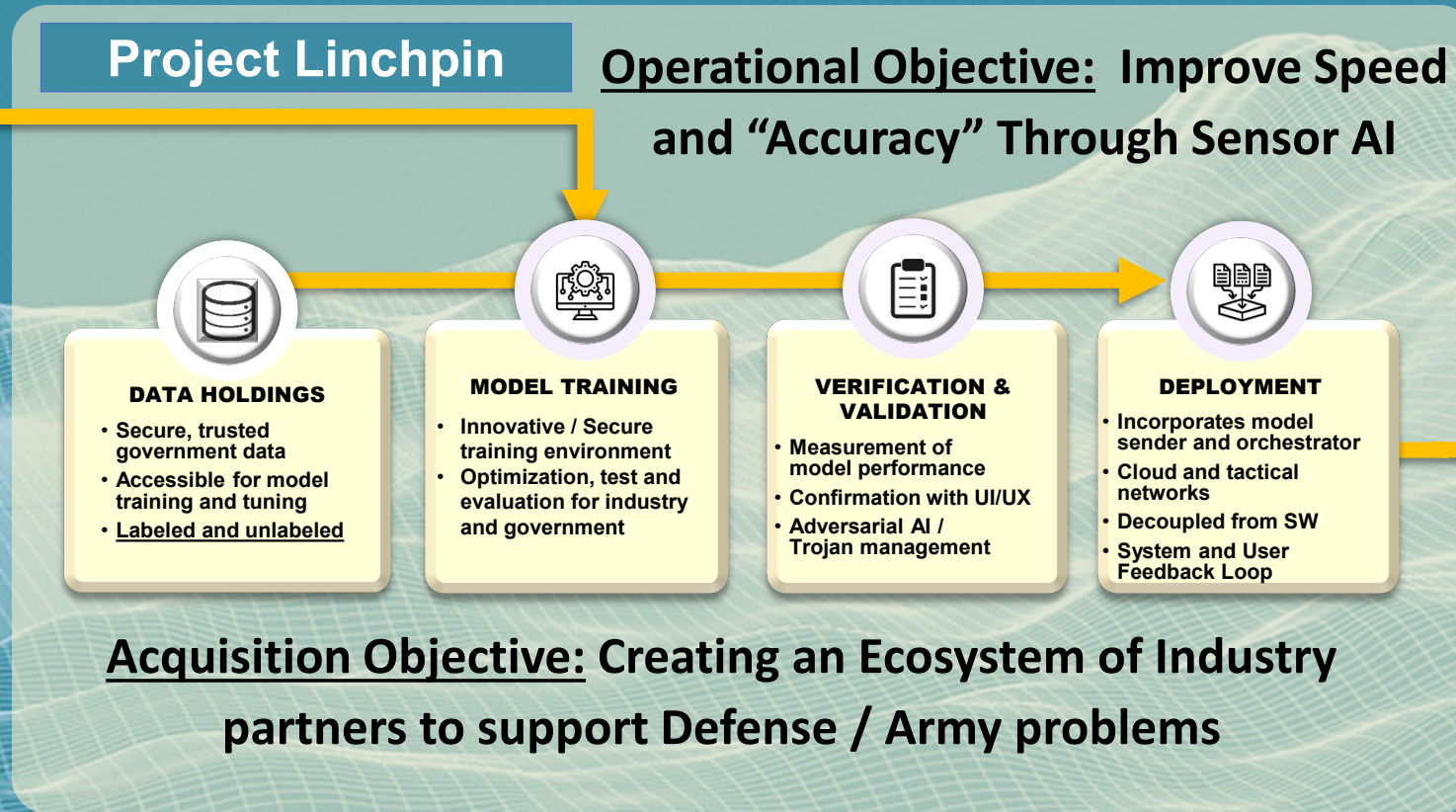
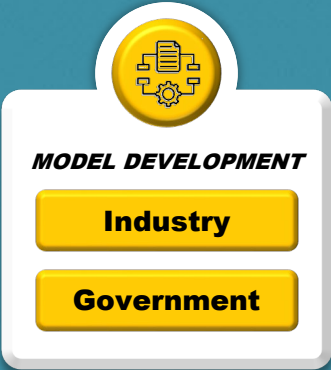
PEO IEW&S continues long-term Campaign of Learning for Intelligence and Sensor modernization, including development and integration of AI/ML capabilities to meet operational requirements.

PROJECT LINCHPIN

OPERATIONAL VIEW AND COMPETITIVE ENVIRONMENT



Machine Learning Operations Pipeline enables rapid and continuous integration and continuous delivery of Artificial Intelligence and system feedback to retrain and optimize for increasing performance



DATA HOLDINGS

- Secure, trusted government data
- Accessible for model training and tuning
- Labeled and unlabeled

MODEL TRAINING

- Innovative / Secure training environment
- Optimization, test and evaluation for industry and government

VERIFICATION & VALIDATION

- Measurement of model performance
- Confirmation with UI/UX
- Adversarial AI / Trojan management

DEPLOYMENT

- Incorporates model sender and orchestrator
- Cloud and tactical networks
- Decoupled from SW
- System and User Feedback Loop

EMPLOYMENT

- Containerized Model Integrated onto SW/Platform
- Inference engines run deployed models
- Models optimized for each sensor and sensor system





- AIDP – Army Intelligence Data Platform
- ALE – Air Launched Effects
- ABIS – Automated Biometric Identification System
- BAT-A – Biometrics Automated Toolset – Army
- BCT – Brigade Combat Team
- CIRCIM – Common Infrared Countermeasure
- CMOSS – Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, Reconnaissance (C5ISR)/ Electronic Warfare Modular Open Suite of Standards
- CMWS – Common Missile Warning System
- EAB – Echelons Above Brigade
- EW – Electromagnetic Warfare
- EWPMT – Electronic Warfare Planning & Management Tool
- FLOT – Forward Line of Troops
- GLE – Ground Launched Effect
- HADES – High Accuracy Detection and Exploitation System
- ITDS – Improved Threat Detection System
- JCAP – Joint Common Access Platform
- LDS – Laser Detection System
- LIMWS – Limited Interim Missile Warning System
- MEMSS – Modular Electromagnetic Spectrum System
- MFEW – Multi-Function Electronic Warfare
- MRL – Multiple Rocket Launcher
- NESO – NAVWAR EW Systems Overhead
- PNT – Position Navigation Timing
- RWR – Radar Warning Receiver
- S2AS – Spectrum Situational Awareness System
- SAM – Surface to Air Missile
- TITAN – Tactical Intelligence Targeting Access Node
- TCE – Tactical Cyber Equipment
- TLS – Terrestrial Layer System
- TRAC – Tactical RF Application Chassis
- UAV – Unmanned Aerial Vehicle

MULTI DOMAIN INTELLIGENCE - FOUNDATIONAL

Project Linchpin
TITAN
Intel Apps
AIDP

OFFENSIVE CYBER

TRAC
TCE
JCAP

APNT / NAVWAR

CMOSS
PNT Card
Mounted APNT
Dismounted APNT
RCDN

BIOMETRICS

DoD ABIS
BAT-A



**“The pace of innovation taking pace [with AI] — it’s not slowing down, it’s accelerating...
How do we make sure JADC2 elements are continuously open to state-of-the-art technologies?...
Getting comfortable with [speed] should be normal...once you focus on discreet tasks [like Sensor AI] it’s a lot more plausible.”**

- Hon. Doug Bush, Assistant Secretary of the Army, Acquisition, Logistics and Technology