



# PEO IEW&S Integration Directorate

## *Integrated Sensor Architecture*



PEO  
**IEW&S**

Program Executive Office  
Intelligence, Electronic Warfare & Sensors

DECEMBER 2023

# Integrated Sensor Architecture Panel



## Description:

- This briefing and panel session will discuss the PEO IEW&S approach to open data and interoperability standards. The focus of the discussion will be the Integrated Sensor Architecture (ISA), which is the material solution for the Sensor Compute Environment (SCE), and how this MOSA standard is facilitating the sharing of data with internal and external stakeholders.
- Topics of discussion will also include the panelists approach to data interoperability, data models, APIs (i.e. ISA and Hydra), and how the PEOs/Services are managing data interfaces. These topics and efforts are addressing the Army’s digital transformation vision and aiming to achieve seamless network and data connectivity for large scale combat operation in the future battlespace.

## Panelists:

- Christine Moulton - PEO IEW&S INT DIR, Lead OA&S Team
- Erik Heist - HQDA G-2, Foundation Branch Chief
- Dave Szczesny – PEO IEW&S, PM IS&A (Hydra)
- Chris Matthews - PM MC, PdM Tactical Mission Command
- COL Stephen Bynum - Senior Army National Guard Advisor USAICoE

## Format:

- 20 min – Background on the Integrated Sensor Architecture and related topics for interoperability.
- 5-7 min per panelist – Updates on how they are using/working with/implementing ISA and open standards.
- 10 min – Q&A

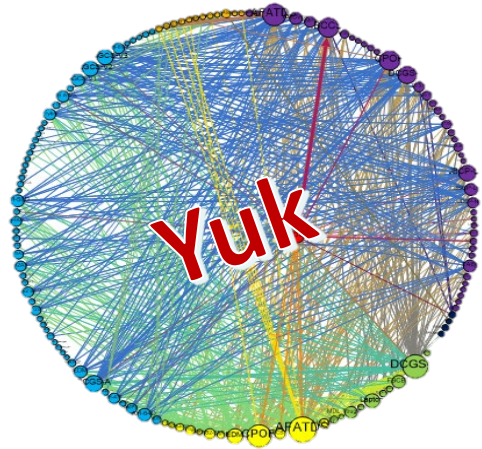
# Integrated Sensor Architecture (ISA)

Original Problem State

Requirement

Future Interoperability State

“776 Point-to-Point connections  
between 118 systems”



## ISA Benefits to the End User:

1. Enables sensor to shooter scenarios.
2. Operate on, and across, all security enclaves.
3. Modular and adaptable.
4. Enables dynamic discovery of sensor alerts and data\*.
5. Usable for any sensor modality (EOIR, CBRN, ELINT, UGS, etc.)
6. Enables processing of data near the point of collection.
7. Supports Degraded Denied Intermittent Limited operations.
8. Utilizes encryption and authorization for security.

## Issues with Current Approach

- Proprietary connections.
- Connections are determined pre-deployment.
- Redundant connections.
- Security Concerns.
- Unintentional stovepipes.

## Sensor CE Requirement

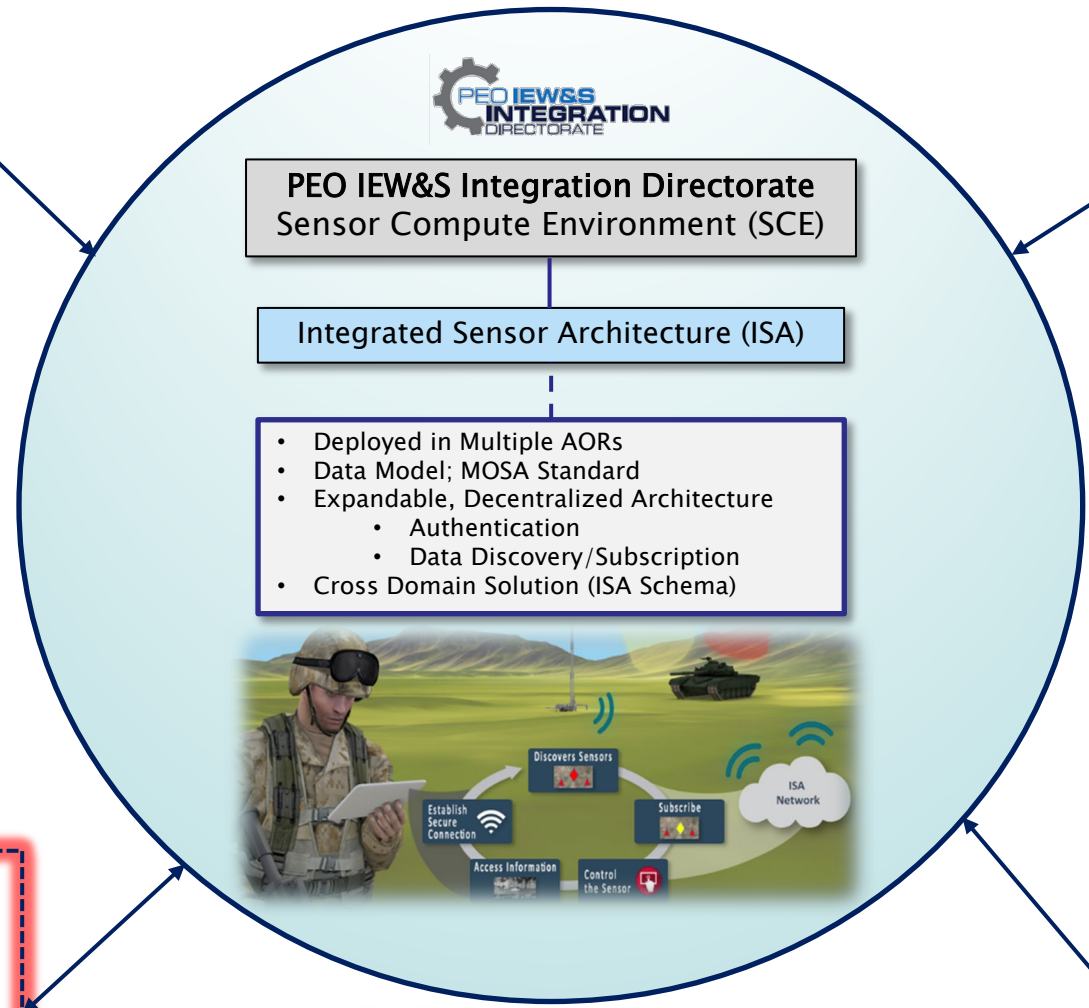
- Sensor CE RDP approved by AROC OCT 2018 (CARDS #08108)
  - IOC FY22, FOC FY24
  - COE IS CDD - FOC (FY25)
- OPR Memo (Jul 2020)
- Provides interoperability for SMBL and future sensors and systems

\*No pre-knowledge of sensors or capabilities needed

# Integrated Sensor Architecture (ISA) Interdependencies

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- Enables dynamic discovery of sensor alerts and data\*.
- Usable for any sensor modality (EOIR, CBRN, ELINT, UGS, etc.)
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- Supports Degraded Denied Intermittent Limited operations.
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## ISA Principal Users / SMBL

HQDA G-2

PEO Soldier

USAF

OGAs (CBP, DTRA, NGA, AOCO)

PEO CBRND

PEO CB3T

USN

USMC

British Army

PEO Aviation

## Common Standards Connections

- JICD Common Services
- Variable Message Format
- GCIA (PEO GCS)
- CMOSS (PM MC)
- FACE
- CoT
- SOSA Consortium



## Common Operating Environment (COE)

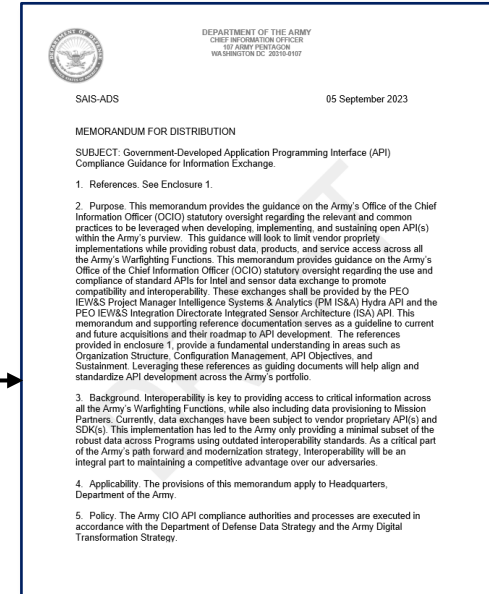
- Command Post CE
- Mounted CE
- Real Time Safety Critical CE
- Mobile Handheld CE
- Enterprise CE

# Integrated Sensor Architecture OCIO API Memorandum



## ISA OCIO API Memorandum\*

- Provides the guidance on the Army's OCIO statutory oversight regarding the relevant and common practices to be leveraged when developing, implementing, and sustaining open API(s) within the Army's purview.
- This guidance will look to limit vendor propriety implementations while providing robust data, products, and service access across all the Army's Warfighting Functions.
- This memorandum provides guidance on the Army's Office of the Chief Information Officer (OCIO) statutory oversight regarding the use and compliance of standard APIs for Intel and sensor data exchange to promote compatibility and interoperability.
- These exchanges shall be provided by the PEO IEW&S Project Manager Intelligence Systems & Analytics (PM IS&A) Hydra API and the PEO IEW&S Integration Directorate Integrated Sensor Architecture (ISA) API.



U.S. Army Special Operations Command  
Military Surface Deployment and Distribution Command  
U.S. Army Space and Missile Defense Command/Army Strategic Command U.S. Army  
Cyber Command  
U.S. Army Medical Command  
U.S. Army Intelligence and Security Command  
U.S. Army Criminal Investigation Command

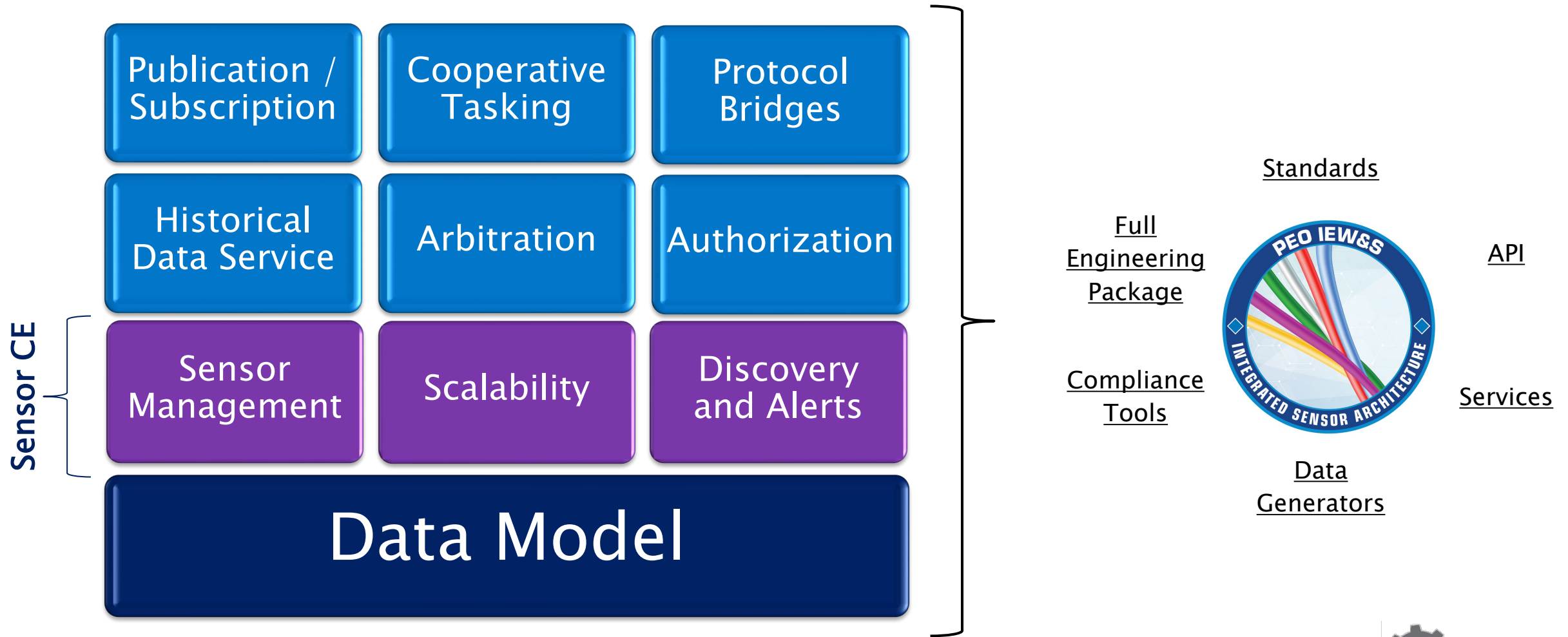
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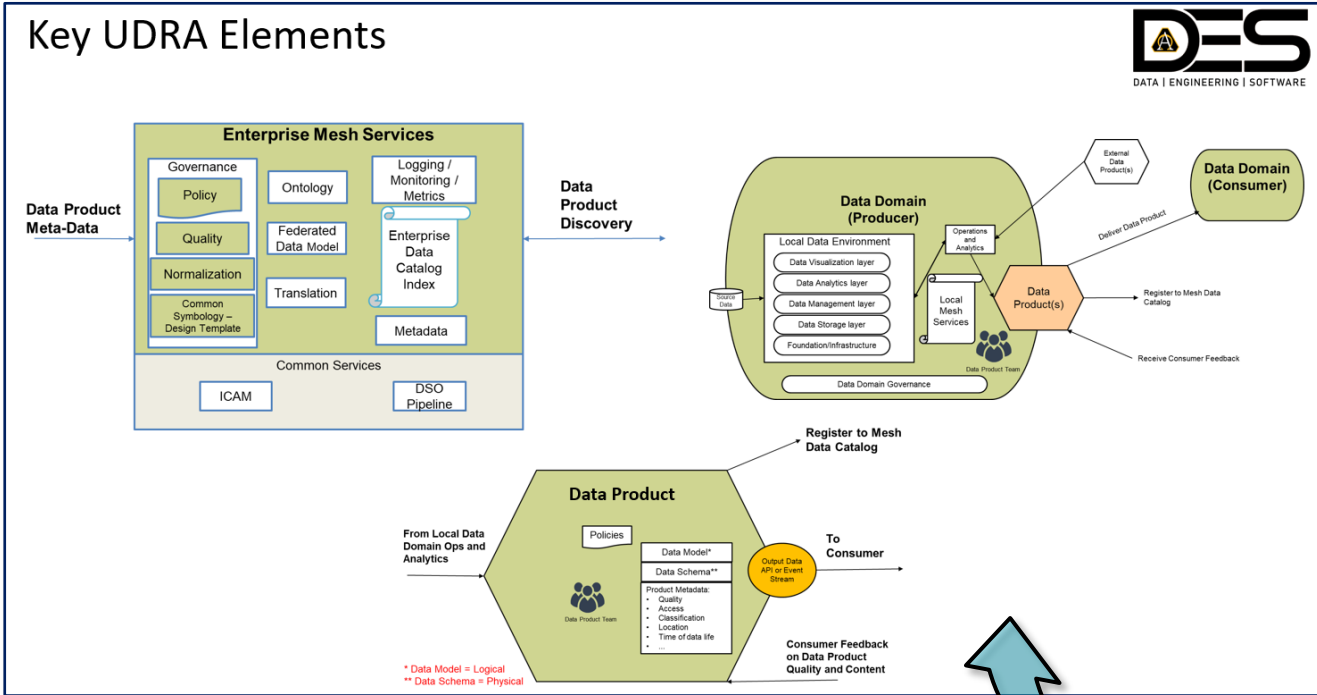
\*API Memo is currently pending OCIO signature.



# Sensor Compute Environment & ISA



# ISA Alignment with the DASA(DES) UDRA



### Integrated Sensor Architecture (ISA)

- ISA provides the following capabilities consistent with UDRA:
  - Data product discovery service.
  - Sensor data product provider.
  - Data Domain extensible data model / ontology.
  - Data normalization.
  - Standard sensor data API.
  - Existing services for Pub/Sub, data store, ICAM, tasking, authorization, and additional extensions.
- ISA operates in multiple roles both across the enterprise and tactical networks.

ISA technology is providing the connection for PEO IEW&S into UDRA.

