

# Maritime Sensing and Data Sharing Across DHS

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CG Office of Shore Forces, CG-741  
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# USCG Overview



- By law, the Coast Guard has 11 missions:

- Drug Interdiction
- Migrant Interdiction
- Other Law Enforcement
- Ports, Waterways, and Coastal Security
- Defense Readiness
- Living Marine Resources
- Search and Rescue
- Marine Environmental Protection
- Marine Safety
- Aides to Navigation
- Ice Operations

## USCG Force Composition:

- 43,000 Active Duty
- 10,000 Civilians
- 8,000 Reservists
- 259 Cutters
- 200 Aircraft
- 1,602 Boats

## Provide services to:

- 3.4M square miles of EEZ
- ~100,000 miles of coastline
- 14,000 miles of inland rivers

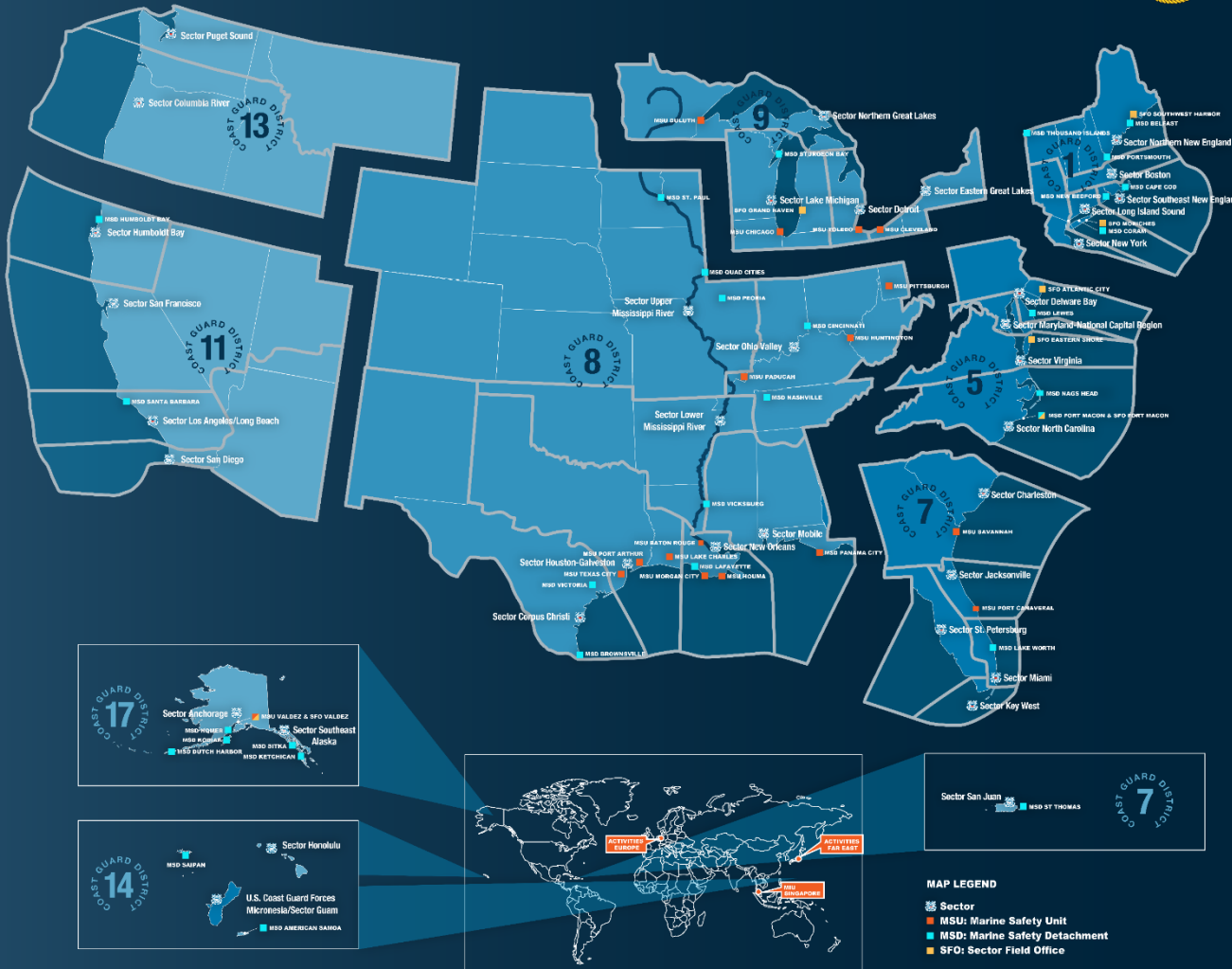


# CG-741 Office of Shore Forces Overview



United States Coast Guard  
U.S. Department of Homeland Security

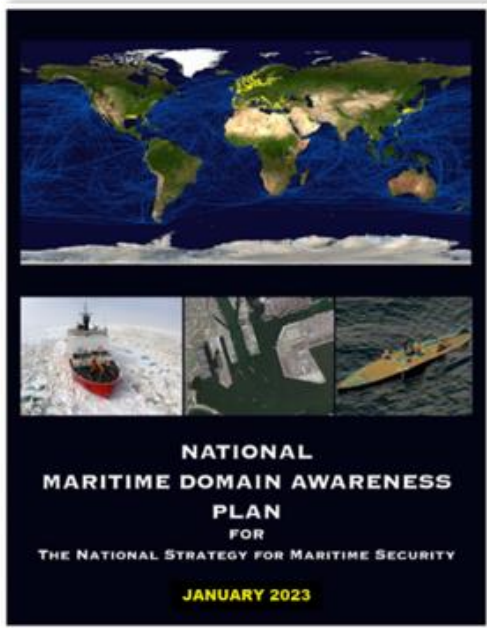
## SHORE FORCES



### Composition:

- 36 Sectors w/ 10,000 Personnel (mil/civ)
- 46 Command Centers: 35 Sector, 9 District, and 2 Area
- 12 Vessel Traffic Service Centers
- 57 Marine Safety Units/Detachments and Sector Field Offices
- 2 Overseas Field Activities (Japan/Holland)

# Challenge: Maritime Domain Awareness



**Maritime Domain Awareness (MDA)** is the effective understanding of anything associated with the maritime domain that could impact the security, safety, economy, or environment of the United States.

The **Maritime Domain** is all areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, vessels, and other conveyances.

## Two Core Principles:

- Unity of Effort
- Foster Information Sharing and Safeguarding

### Source:

- [National Maritime Domain Awareness Plan](#) [Revision 3 of 2022; original December 2013]



# Desired End State: Coastal Maritime Domain Awareness

1. Manned platforms supplemented with new unmanned platforms and commercial LEO satellites fill capacity gaps and provide persistent, wide-area maritime surveillance.

2. Onboard sensors employ AI/ML algorithms to automatically detect targets of interest

3. Mobile Ad Hoc Networks (MANET) using mesh radios share detections and full motion video across a tactical data network

USCG & Partner Command Centers

MANET Mesh Radios

Unmanned & Autonomous Vessels

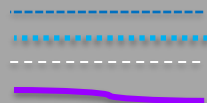
4. Machine-to-Machine data transfer, advanced analytics, and user-defined operating pictures (UDOP) provide the right information to the decision-maker at the right time.

5. Once a decision to employ forces is made, operational tasking including search patterns, TOI locations, and Blue Force tracking can be sent machine-to-machine directly to the operational asset.



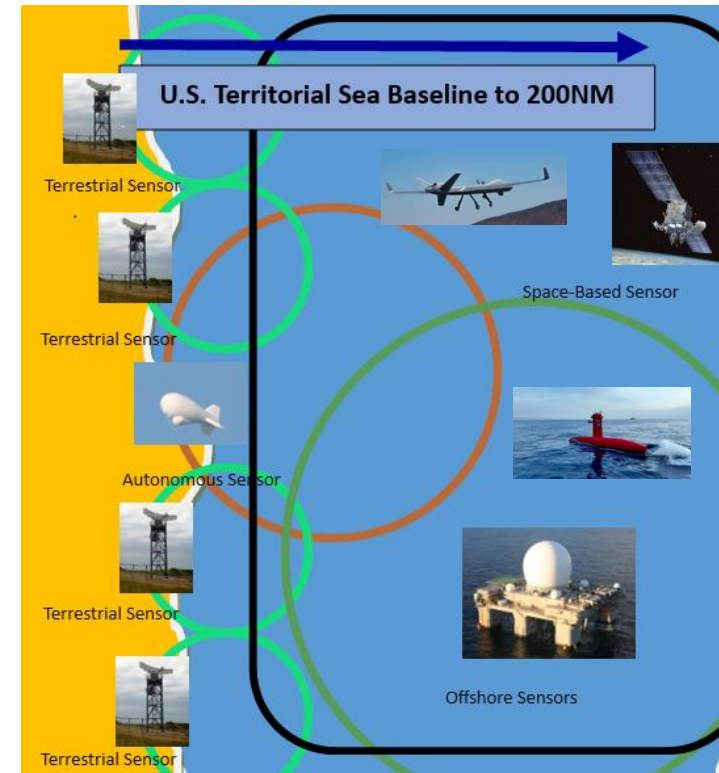
Cellular Network  
SATCOM Path  
Line-of-Sight Transport  
Dedicated ISR Terrestrial Transport

KEY



# Solution: Persistent Wide-Area Maritime Surveillance (PWAMS)

- Focused on surveillance and detection
- Joint Capability Analysis (JCAR) validated by JRC
- Drafted Joint Mission Needs Statement (J-MNS) in component review
- Complementary capabilities and sensors across U.S. Exclusive Economic Zone
- Layered approach of platforms & sensors
- Will require enabling systems and technology
- Seamless access to data by end-users across components
- Will require the ability to tag/credential/control access to data and sensors



# Persistent Wide Area Maritime Surveillance

- PWAMS seeks to close capability gaps in DHS ability to surveil and detect TOI from baseline to EEZ
- PWAMS is comprised of representatives across DHS including USCG, CBP AMO, and ICE/HSI.
- Strategic Guidance from component Executive Steering Committee.
- Looks to leverage complimentary sensors across components.
- Creates a layer system to maximize capabilities





# PWAMS General Concept



- PWAMS will encompass numerous sensors to facilitate a “defense-in-depth” approach to S&D
- Layered capabilities will be “owned” by multiple DHS components with data shared across the department
- PWAMS will be interoperable with DHS enterprise system architecture; as well as other required systems

Figure 6: Persistent Wide-Area Maritime Surveillance in Depth



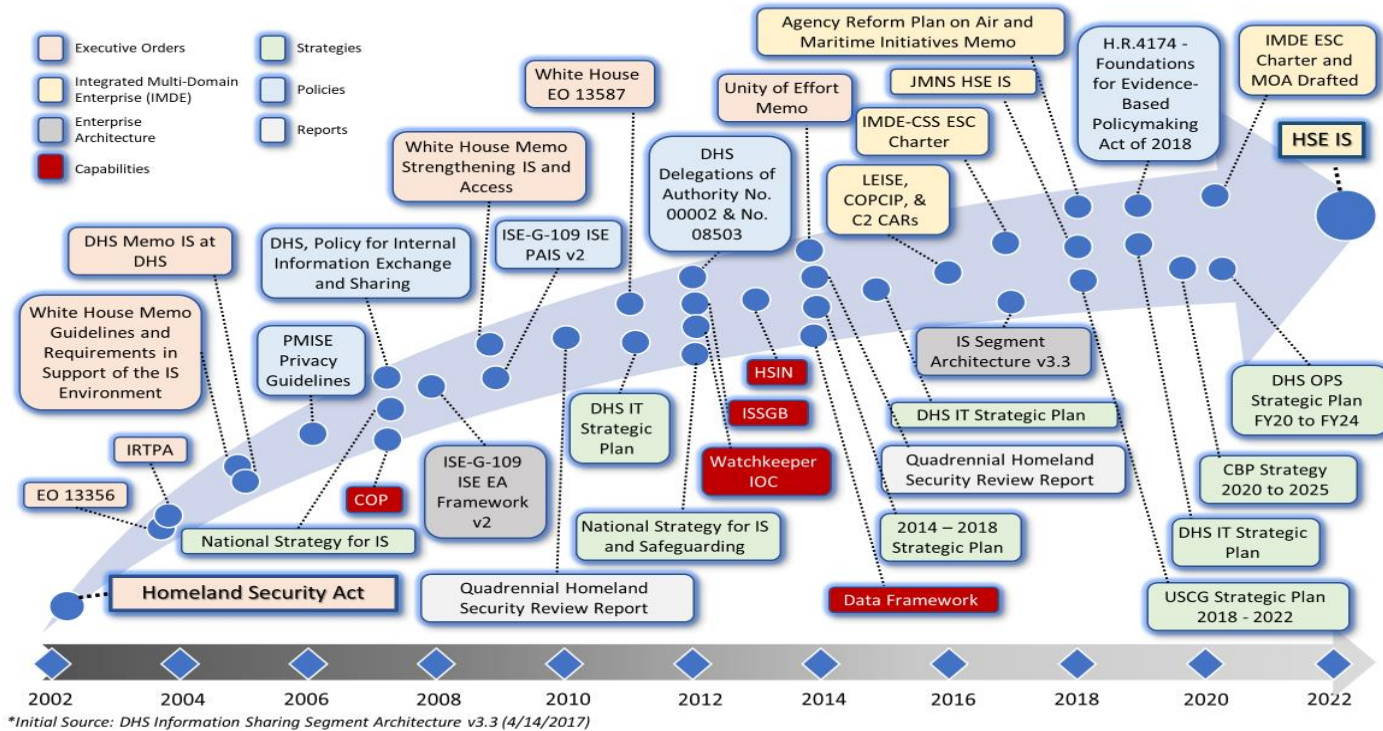
# Sensor Examples: Joint Capabilities Development & Deployment

- Saildrone in Southern California & Caribbean
- Joint Program Office for UAS
- S&T collaboration for MDA Sensors
- Shoreside sensors
- Commercial space surveillance & detection



# Challenge: Data and Information Sharing

## As-Is Enterprise Information Sharing (IS)

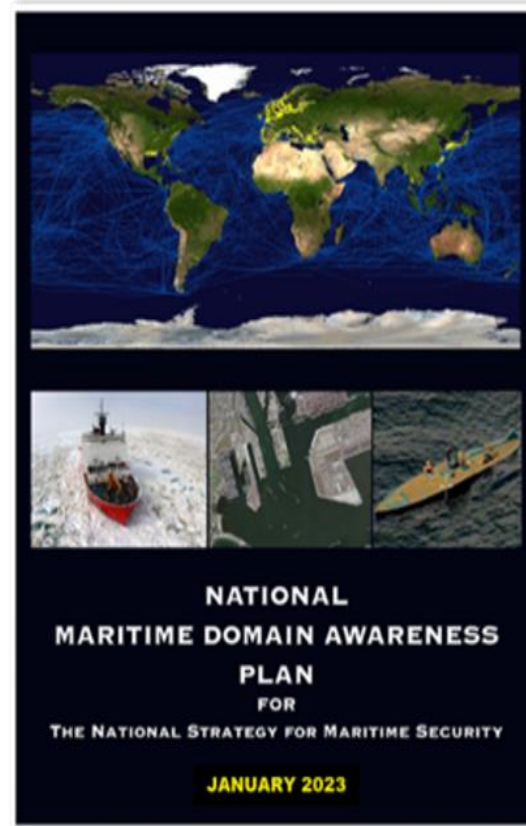


70 integration initiatives, 30 Dept-level documents/policies, 30 enterprise level governance bodies

# Information Sharing & Achieving MDA

## Linkage to Strategic Plans

- National Strategy for Aviation Security
- National Strategy for Maritime Security
- National Strategy for Information Sharing
- North American Air Surveillance Plan
- National Maritime Domain Awareness Plan
- National Maritime Domain Awareness Architecture Plan
- DHS 2014 Quadrennial Homeland Security Review
- DHS Enterprise Data Strategy Fiscal Year 2017-2021
- Homeland Security Standing Information Needs
- Small Vessel Security Strategy
- CG Western Hemisphere Strategy
- CBP Vision and Strategy 2020 Plan
- Maritime Operations Coordination Plan
- Southern Border and Approaches Campaign



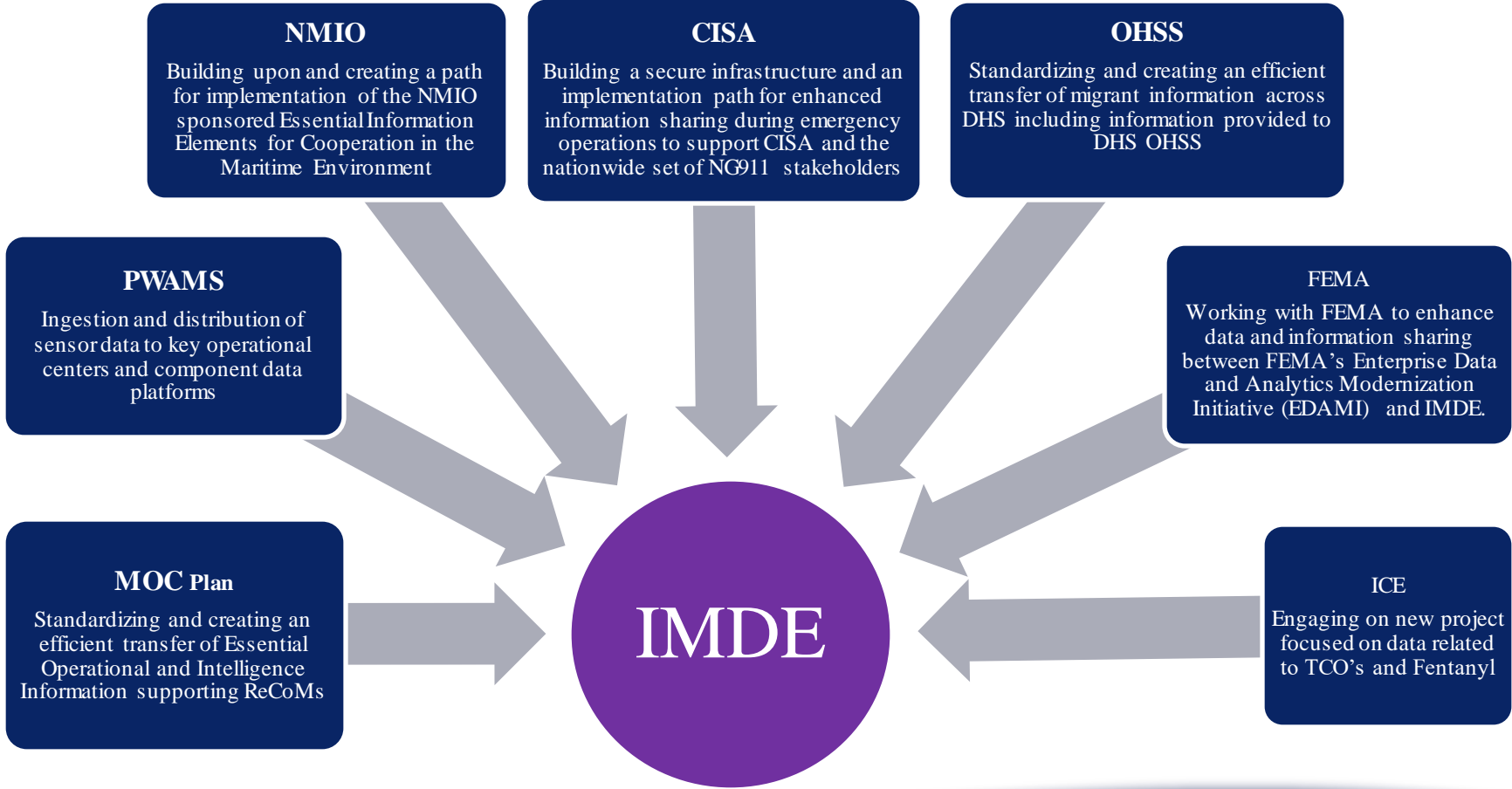
## Two Core Principles

**Unity of Effort**

**Foster  
Information  
Sharing and  
Safeguarding**

*\*Note: Unity of Effort and ISS cannot be stove-piped by domain*

# Ever Growing Need for a DHS Enterprise Solution



DIVERSE PERSPECTIVES + SHARED GOALS = POWERFUL SOLUTIONS



# Solution: Integrated Multi-Domain Enterprise (IMDE)

IMDE is a data transactional platform used to control the flow of unclassified information to and between authorized sources, systems and data consumer native systems to support mission outcomes



# Simply Put....

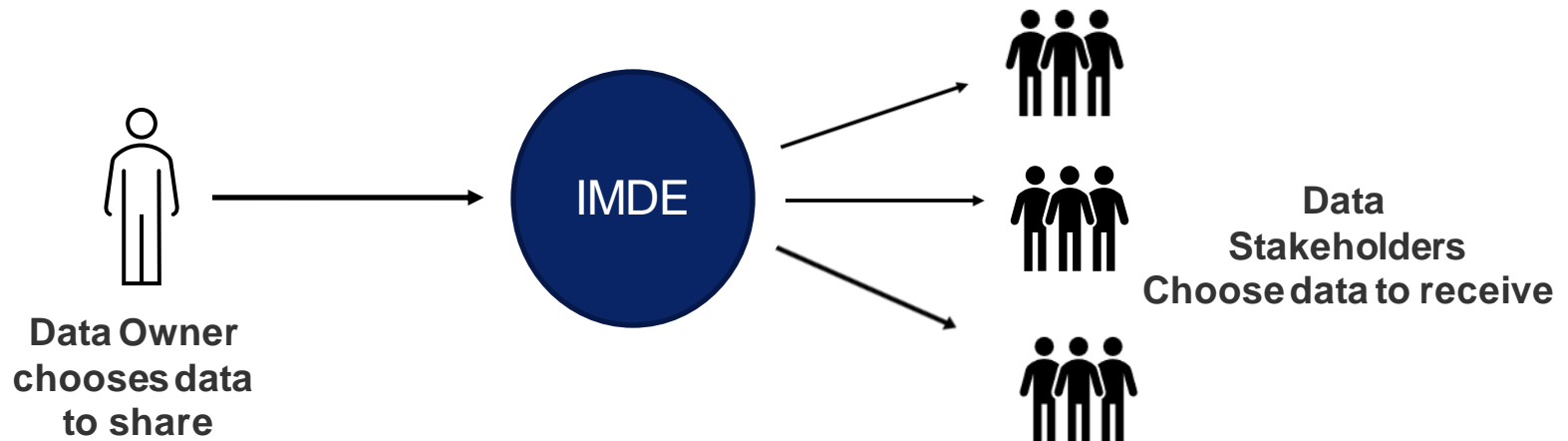
## *\*Information Sharing and Safeguarding*

1

Component elects to share a set of data based on an associated sharing policy established by the data owner

3

Approved transactions are automatically disseminated to authorized users of native systems



2

IMDE compares the data owners sharing policy against an IMDE stakeholder's attributes and enforces the policy by allowing (or not allowing) the data transaction to take place

# IMDE Outcomes for DHS Components

1. **Mitigate** the need to rely on traditional and inefficient information sharing paradigms (Information Sharing and Safeguarding)
2. **Improve** the quality and availability of data across the enterprise (Information Sharing and Safeguarding)
3. **Advance** the Non-Material Changes that improve policies and procedures supporting IS (Information Sharing and Safeguarding)
4. **Improve** operational and intelligence sharing to enhance operational coordination and collaboration (Unity of Effort)
5. **Improve** data and data sharing to enhance our opportunities to leverage AI/ML (Unity of Effort)
6. **Support and Enhance** other Major Efforts and Acquisitions (Unity of Effort – leveraging existing and enhancing future capabilities)

## Types of Data/Information

The capability shall be able to disseminate multiple structured and unstructured authoritative data types to authorized connected native systems, including:

- Relational database
- Non-relational databases
- Analytic products
- Spreadsheets conforming to Open Document Format for Office Applications
- Documents conforming to Open Document Format for Office Applications
- Images
- Geospatial data
- Video formats
- Raw sensor data

# Questions/Discussion



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