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# Standards Committee Report

NDIA Robotics Division

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June 21, 2007 NDIA Meeting

# Standards Committee Mission Statement



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## Updated Mission Statement:

Assess ongoing Unmanned Systems standardization activities and recommend/advocate a DoD Unmanned Systems standardization strategy to support improved interoperability, safety, and cost reduction.

# Unmanned Systems Safety



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## Provided comments on UMS System Safety Guide:

Comment Submission Matrix						
Document Title:						
SUBMITTER ORG NAME PHONE #	PAGE #	PARA #	LINE #	IMPORTANCE (C/M/S/A) (Critical/Major/Substantive/ Administrative)	COMMENTS/ RATIONALE	A/R/P (Accept/Reject/Partial)
Comments submitted by NDIA Robotics Division; Jorgen Pedersen (Chair, Standards Committee); Cell: 412-398-0949	1	3	4	S	unmanned surface vehicles should be included in this list	
	2	2	3	A	Human-Machine-Interface (HMI) is a more common term in the industry than man-to-machine	
	Many			C	References to figures are off throughout the document, for example, "Figure 3" should be "Figure 2" on page 6, paragraph 3, line 1.	
	38			A	Lines in table extend into margins for "Non-Developmental Software (NDS)"	
	20			S	A possible addition to the references is the safety standard used for automated guided vehicles (AGV's), formally: ASME B56.5-2004 "Safety Standard for Guided Industrial Vehicles and Automated Functions of Manned Industrial Vehicles" (ASME = American Society of Mechanical Engineers)	



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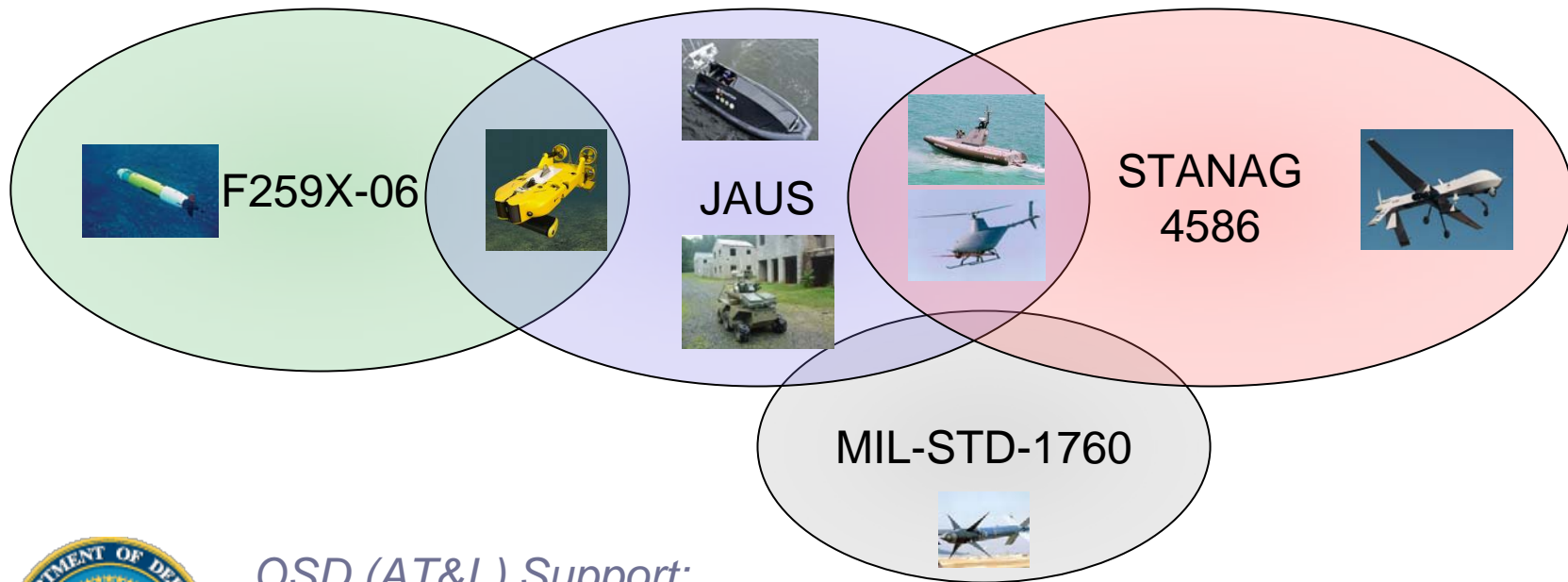


# Interoperability Standards Analysis

# NDIA Interoperability Standards Analysis

One of the primary objectives:

- Bridge the gap between interoperability standards



OSD (AT&L) Support:

- Joint Ground Robotics Enterprise (JGRE)
- Unmanned Aircraft Systems (UAS)



# NDIA Interoperability Standards Analysis

## Approach:

- Where are we now?
  - Perform an extensive analysis of existing unmanned system (and related) standards. Solicit input from leaders of each identified standard.
- How do we get to where we need to go?
  - Perform an analysis for coordination of key interoperability standards such as the SAE Joint Architecture for Unmanned Systems (JAUS) standard and the NATO STANAG 4586 standard.



# NDIA Interoperability Standards Analysis

## Questions to be Answered:

- Which standards, or combination of standards, provide the best path to interoperability across all domains?
- Which standards, or combination of standards, provide a viable path for dual-use applications (i.e. 2003 National Defense Authorization Act, Section 1401)?

# NDIA Interoperability Standards Analysis

## Primary focus:

- JAUS (SAE AS-4)
- STANAG 4586 (NATO)



JAUS and STANAG 4586 have strong mandates and requirements spanning multiple domains.



# NDIA Interoperability Standards Analysis

## Other standards/efforts currently being considered:

- MIL-STD-1760 (SAE AS-1) - weapons
- Universal Armament Interface (UAI) - weapons
- F41 (ASTM) - UUVs
- Joint Unmanned Aircraft System - UAVs
- Sub-Joint Unmanned Aircraft System - UAVs
- 4D/RCS (NIST) – unmanned system architecture
- SOSCOE (Boeing/FCS) – unmanned system architecture
- F38 (ASTM) - UAVs
- etc.

# NDIA Interoperability Standards Analysis

## Evaluation criteria:

- **Span and scope of the standard**
- Governance
- **Classifications and restrictions**
- Adoption audience
- Process and configuration management
- Technical approach, status, and plans

Driving force



# NDIA Interoperability Standards Analysis

## Discussion of Coordination Concepts :



J AUS



STANAG 4586



F41



U.S. AIR FORCE

MIL-STD-1760 & UAI

Questions?



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