

**National Defense Industrial Association (NDIA)
Munitions Executive Summit
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Munitions Challenges

- ◆ **Insensitive Munitions**
- ◆ **Quality of Aging Inventory**
- ◆ **Flexible Response**
- ◆ **New Challenges**

Today's Discussion



Today's Munitions Challenges

Insensitive Munitions

A program to minimize collateral damage to personnel, weapon platforms and logistics systems

.....only one aspect of Ordnance Safety

IM Compliant Weapons offer a significant level of force protection



Today's Munitions Challenges

Insensitive Munitions

Safe Weapons In A Joint Warfighting Environment

IM Test Result Summary

	FCO	SCO	BI	FI	SD	SCJ
Warhead	Type IV	Type III	Type II	Type II	Pass	Type I
Rkt Mtr	Type IV	Type III	Type IV	Type IV	Pass	Type IV

Trying to achieve IM compliance while maintaining or enhancing system performance at a reasonable cost

IM Test Result Summary

	FCO	SCO	BI	FI	SD	SCJ
Warhead	Type V	Type V	Type V	Type V	Pass	Type V
Rocket Mtr	Type V	Type V	Type V	Type V	Pass	Type V



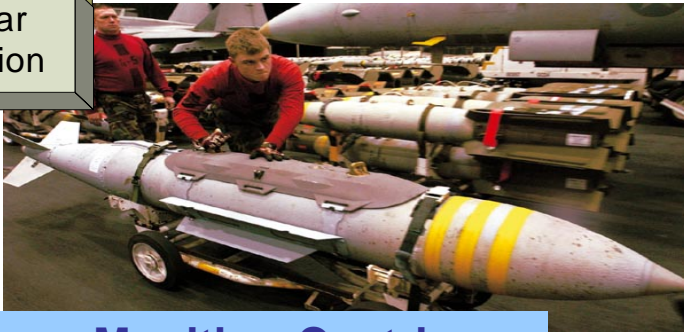
The Future of IM

Combat safe insensitive munitions

Incremental Innovation

Modular Innovation

Insensitive Munitions Shift in focus



Munition-Centric

ONR S&T Program



Architectural Innovation

Satisfy global Warfighter needs

Today, Largely Mass Detonating

CSIM, Non-Mass Detonating

- ❑ **IM Objective:** Render ordnance less vulnerable to accidental initiation as determined by IM Threat Hazard Assessment
- ❑ **Scope:** Weapon system and platform interfaces, tested to MIL-STD-2105
- ❑ **Objective:** Ordnance safe in the warfighting environment. Determine how CSIM can support warfighting efficiencies.
- ❑ **Scope:** Considers the entire warfighting system including logistics. Considers weapons in their ready service configuration.



Aging Inventory

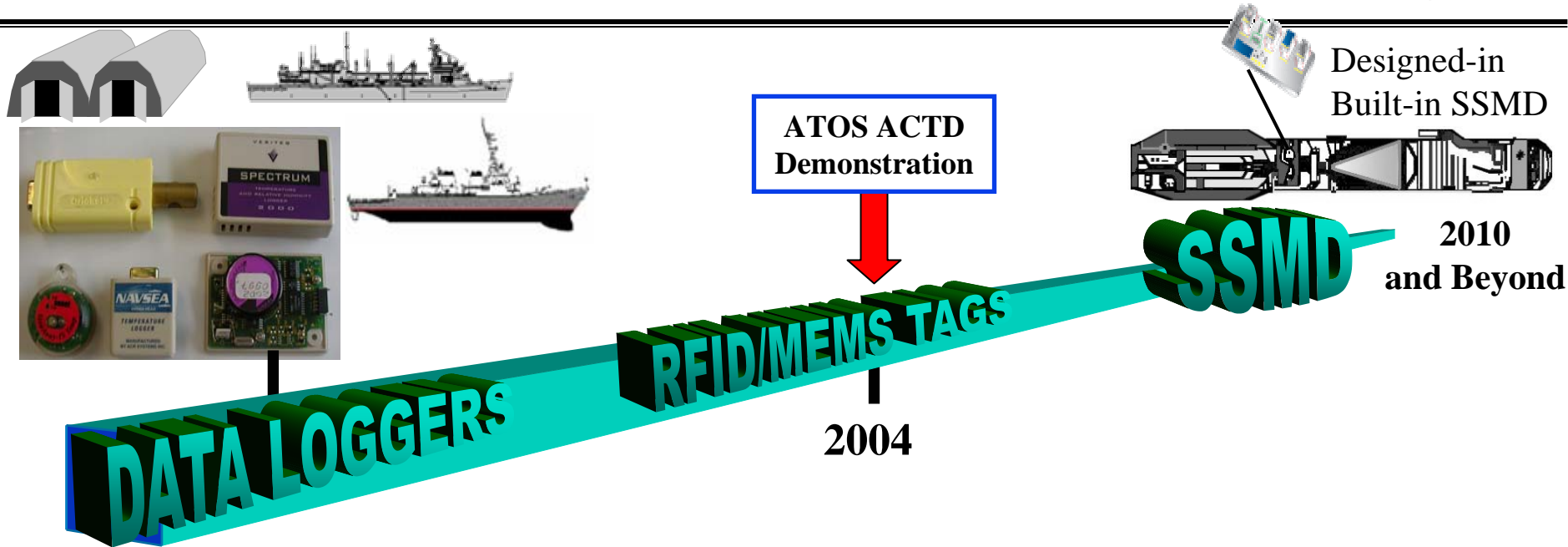
- ◆ **Average age ~25 yrs, oldest ~60 yrs**
 - ◆ **Diverse Munitions Types**
 - ◆ **Effects of Age & Environment on Safety, Reliability and Performance?**
- ◆ **Threats**
 - ◆ **Long Deployments in Adverse Environments**
 - ◆ **Increased Asymmetrical (e.g., USS Cole) Exposure**

Safety Of The Fleet



Aging Inventory

Vision: Enhanced Knowledge



**Goal: Science Based Knowledge of 100% of the Inventory,
100% of the Time, via 100% Non Destructive Means**



Flexible Response

- ◆ **Collaborative Efforts**
- ◆ **New Capabilities From Existing Inventory**

Adapting to The Fleet's Needs



Flexible Response

Joint Collaboration by the Services and Industry

THERMOBARIC HELLFIRE



SMAW-NE



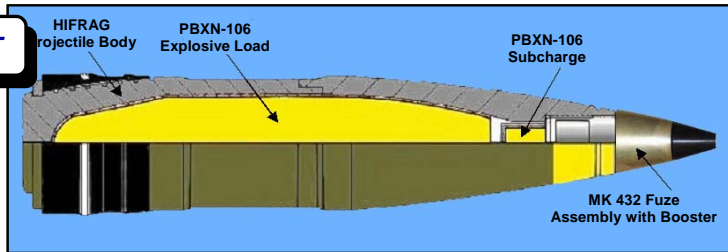


Flexible Response

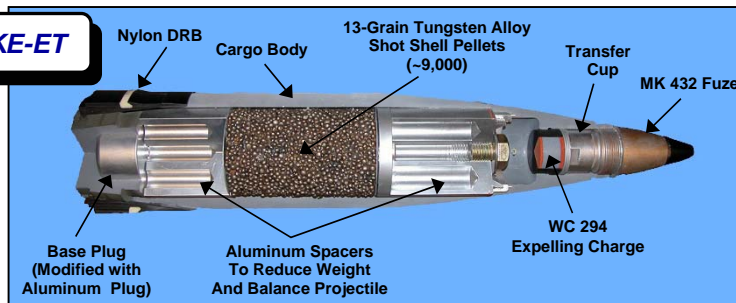
New Capabilities From Existing Inventory

5"/54 Caliber HE-ET & KE-ET Ammunition

MK 179 HE-ET



MK 182 KE-ET



ROCKEYE Leaflet Dispenser





Future Challenges / Capabilities

- ◆ Tailored Effects On Target
- ◆ Directed Energy Munitions
- ◆ Supersonic & Hypersonic Munitions

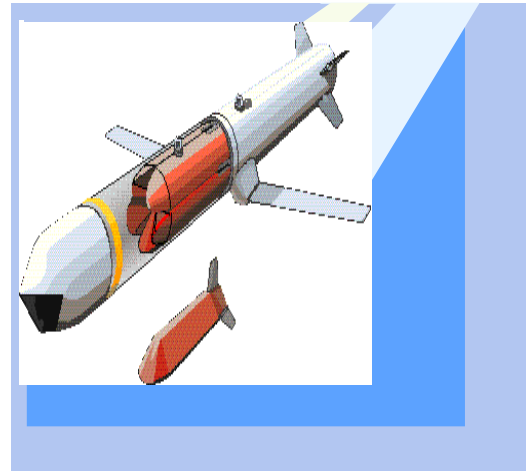
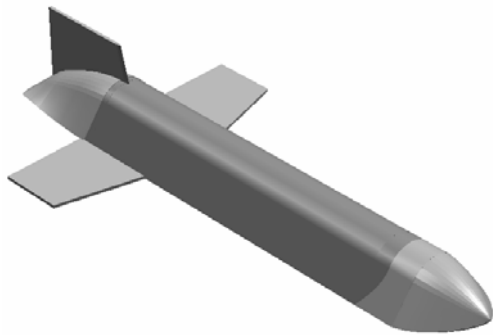
Addressing Our Future Needs Smartly & Affordably



Future Challenges / Capabilities

Tailored Effects On Target

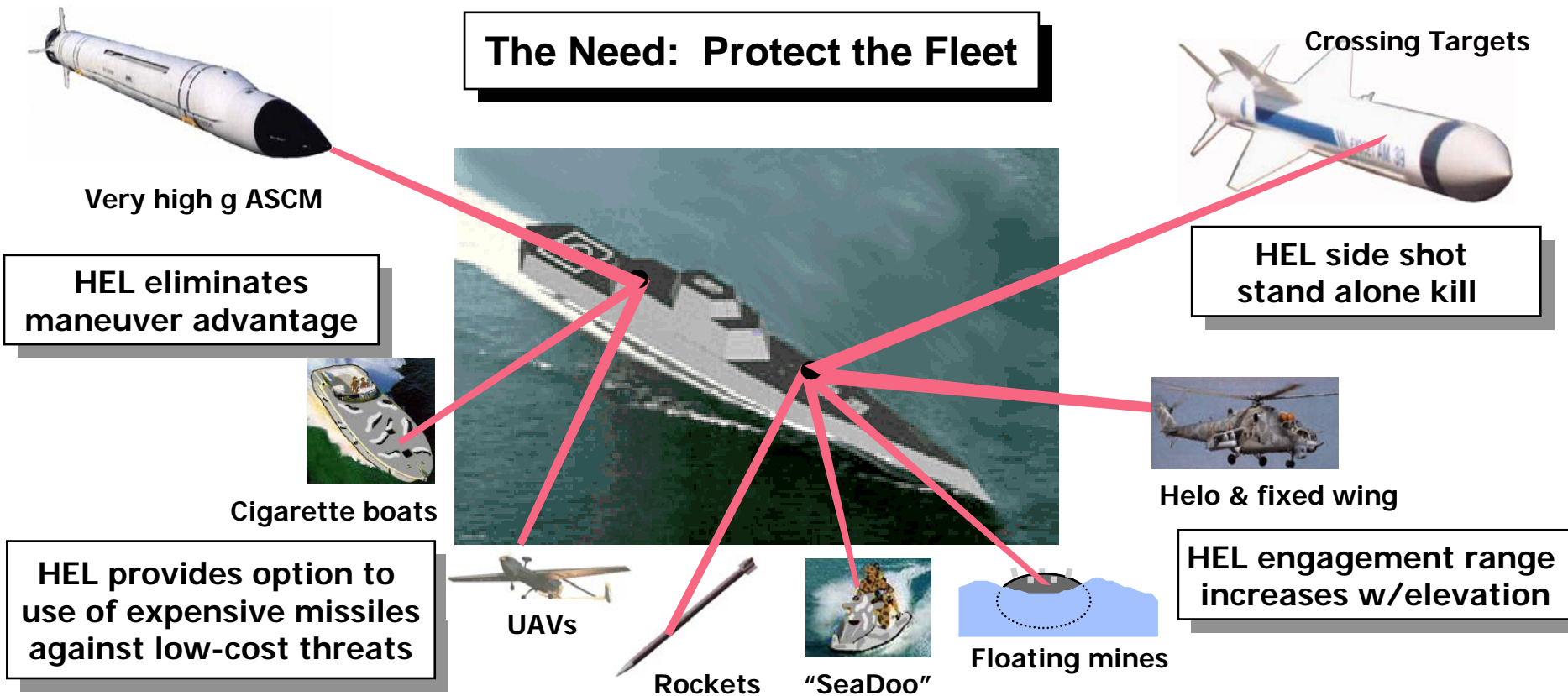
- ◆ Multi-function Ordnance
- ◆ Dial a Yield Payload
- ◆ Reduced Collateral Damage





Future Challenges / Capabilities

Directed Energy Munitions



- ◆ Renewed interest laser technology



Future Challenges / Capabilities

Supersonic & Hypersonic Guided Projectiles

**Increased Lethality While Reducing
Dependence on Hazardous HE**

**Ranges Beyond 200 nmi
In Under Six Minutes**

Hypersonic Kinetic Energy Target Interactions

EM Gun Launch @ Mach 6



Affordable Precision Munitions





Summary

- ◆ **Munitions challenges can be achieved**
- ◆ **We must be able to adapt to a continually changing environment**
- ◆ **Addressing the fleets needs with limited funds**
- ◆ **Investment in our Technological Base is crucial**

Continue To Provide Affordable Technology To Our Capital Asset (Our People)