

DEPARTMENT OF DEFENSE

MANUFACTURING AND INDUSTRIAL BASE POLICY (MIBP)

Need for Industrial Base Rebalance in Pacific Pivot

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Pressures Facing DoD

★ Current Environment

- ★ Declining resources
- ★ Declining production
- ★ Competition for resources

★ Possible impacts on industrial base

- ★ Loss of innovative edge
- ★ Permanent loss of capability

★ Loss of capability to warfighter?



MIBP Mission

- ★ **Ensure access to robust, secure and innovative industrial capabilities to fulfill short- and long-term National Security requirements**



**Secretary of Defense
Deputy Secretary of Defense**

**Under Secretary of Defense,
Principal Deputy Under Secretary of Defense
Acquisition, Technology & Logistics**

**Deputy Assistant Secretary of Defense,
Principal Director
Manufacturing and Industrial Base Policy**

Assessments

Aircraft

- Fixed Wing
- Vertical Lift
- UAVs

Missiles

- Tactical
- Strategic
- Ammunition
- MDA

Ships

- Submarines
- Carriers
- Destroyers

Ground Vehicles

- Tracked
- Wheeled

NATIBO

Transactions

C4I

- EW
- C2
- Computers
- Cyber

Space

- Launch
- Satellites
- ISR

Services

- SETA
- Admin
- IT

Other

- Critical Infrastructure Protection
- Chem DeMil
- Materials/Specialty Metals
- Electronics
- IT/Web Support

Manufacturing

Title III

ManTech

Global Supply

- DPAS/PAIR
- Security of Supply
- Foreign Sourcing
- International Industry & Defense Trade

Merger & Acquisition Review

- CFIUS
- M&A Tracking & Analysis
- Technology Security

Defense Industry Financial Analysis & Metrics

- Financial Parameters
- Investment Community Liaison



SECTOR BY SECTOR, TIER BY TIER (S2T2) AND FRAGILITY AND CRITICALITY (FAC)







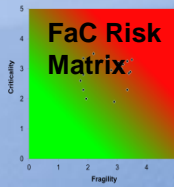
What is Sector-by-Sector, Tier-by-Tier (S2T2)?

- ★ **A standardized Industrial Base Analysis (IBA) approach and methodology for assessing the health of the Defense Industrial Base**
- ★ **Objectives:**
 - ☆ **Understand the impacts of changes in the acquisition / DoD budgets on the Industrial Base**
 - ☆ **Establish early warning indicators & identify Industrial Base (IB) risk, particularly at the lower tiers of the supply chain**
 - **Single points of failure, unreliable suppliers, overreliance on foreign sourcing, areas of limited competition, etc.**
 - **Identify production rate limitations & production constraints**
 - ☆ **Ensure successful DoD weapons system program & portfolio outcomes**
 - ☆ **Support long-term planning & investment decisions by & across the Services**
 - ☆ **Develop an industrial base data repository & a standardized set of tools to use for IBA**

Leverages a statistically-validated & standardized Fragility & Criticality (FaC) assessment process to analyze risk across the tiers of the Industrial Base



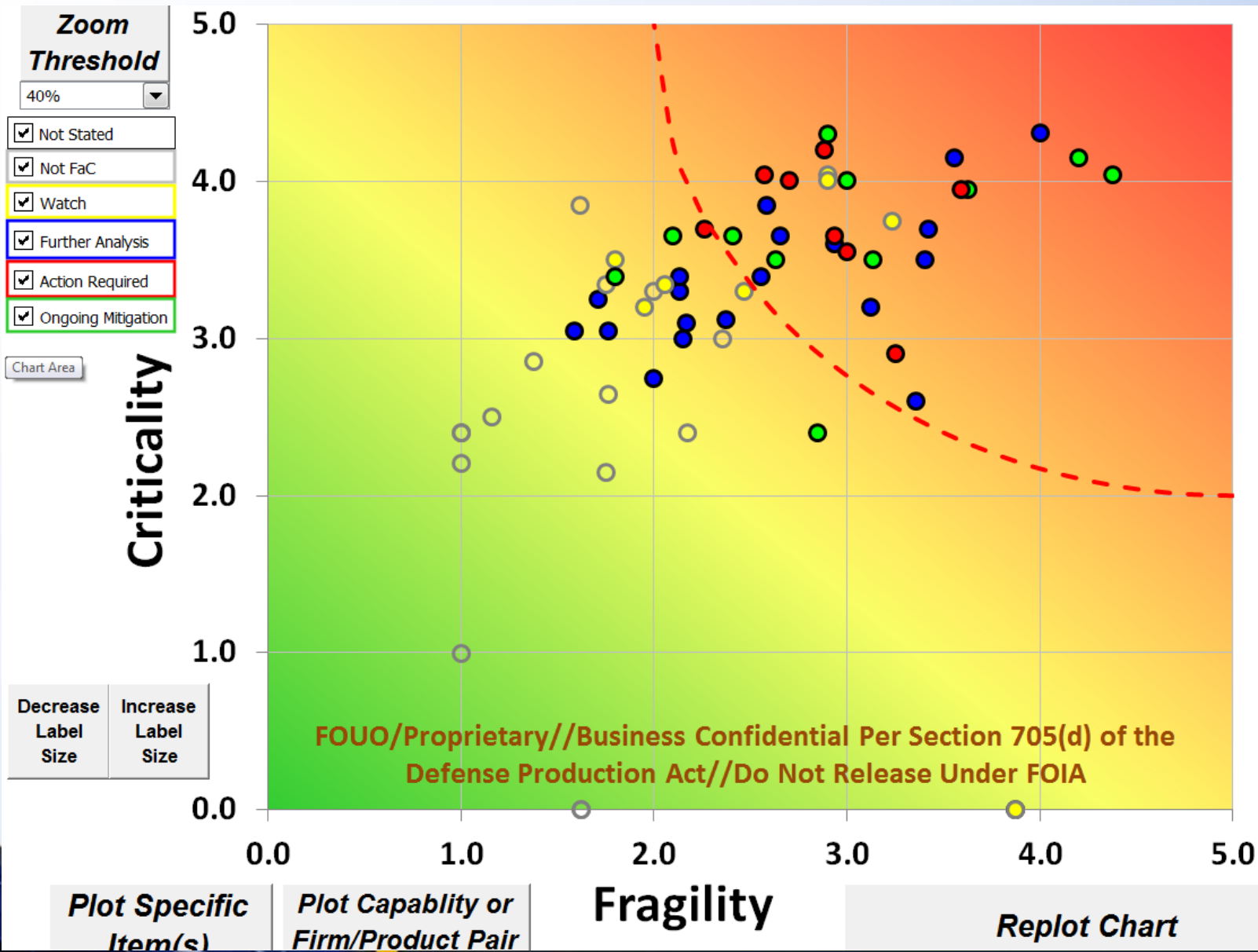
S2T2 FaC Process

Process Activity	Action	Outcome
Select Sector/SubSector 	Scope the problem (existing risk assessments; program shutdowns)	Sector Taxonomy
Search Available Data 	Identify IB-related risks & related capabilities/products Identify suppliers and market	Potential IB Risks/Issues
FaC Screening/Filtering 	Focused set of IB-related risks for further assessment	Screened IB/Issues Capability-Supplier Pairs
Conduct FaC Matrix Assessment 	Facilitated scoring, based on standardized criteria, by SMEs	FaC Risk Matrix 
Validate & Mitigate High Risk Issues; Develop Mitigation Strategy(ies)	SME “deep dive” into IB risk areas; facility visits	High Risk IB Issues

S2T2: iterative, repeatable, collaborative, fact-based

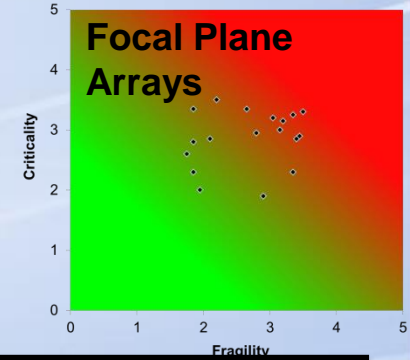
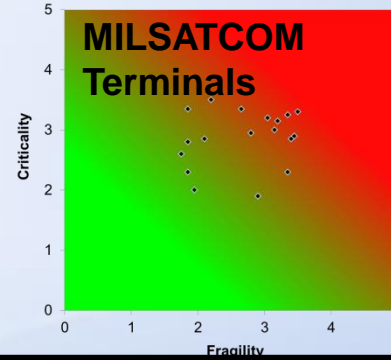
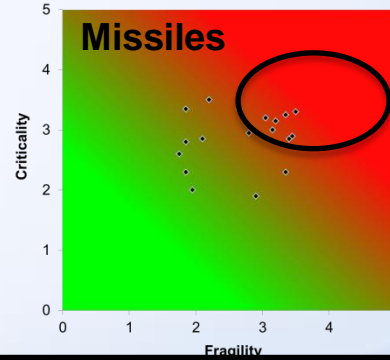
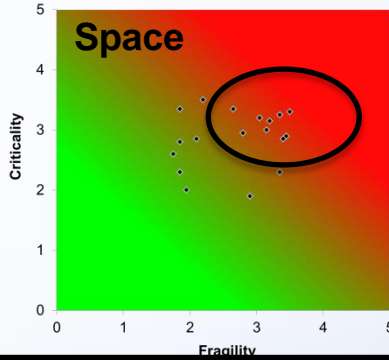


Assessments Provide Guidance for Action

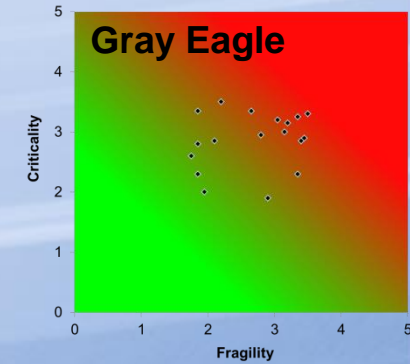
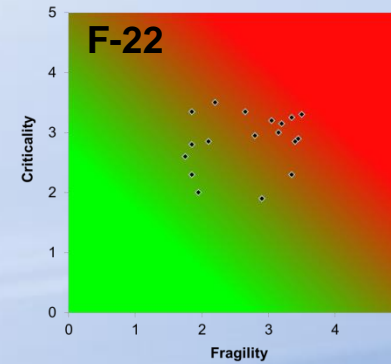
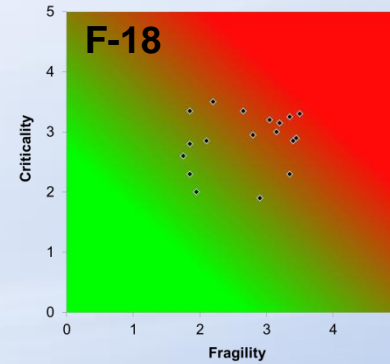
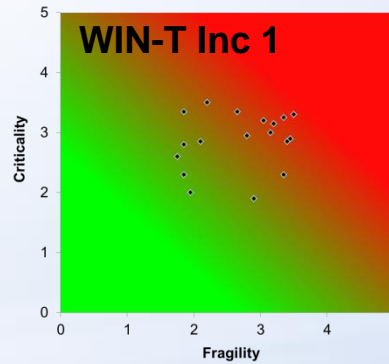


2013 S2T2 FaC Assessments

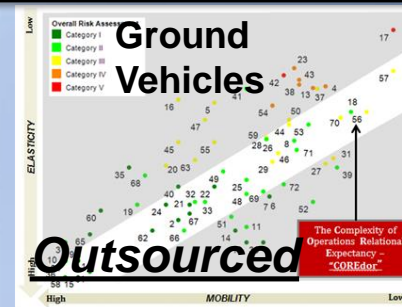
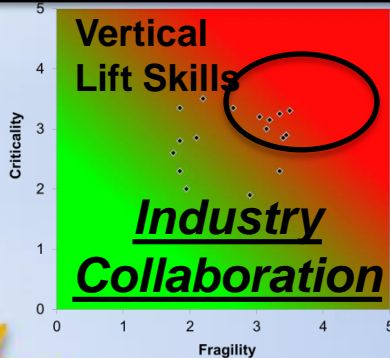
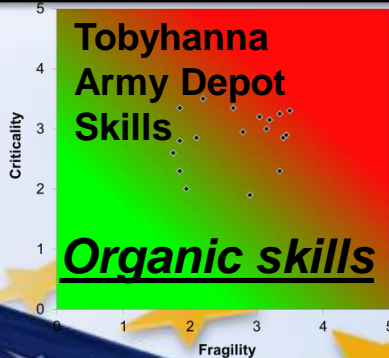
Sectors



Programs



Other



FY13 FaC Results Used by Leadership

- ★ **Quarterly industry meetings with USD**
 - ☆ Potential issues in lower tiers
- ★ **Ongoing IPTs, IB forums**
 - ☆ Space, energetic materials, fuze, vertical lift
- ★ **Congressional reports**
 - ☆ FPA, Annual Report, specialty metals
- ★ **FY15 POM Issue Teams**
 - ☆ MDAP, TACAIR, Munitions, Space, Missile Defense, Strategic Warfare
- ★ **Defense Management Advisory Group on IB (4-star)**
 - ☆ December 2013





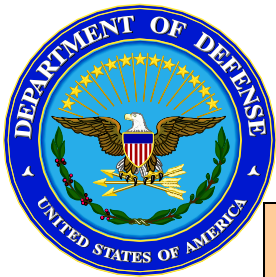
Missile FaC IPT

- Missile FaC was a pilot program
- Missile FaC IPT consisted of representatives from OSD, DCMA, Army, Navy, Air Force, and MDA
- Process began with the development of the refinement of the missile sector taxonomy
- Data Collection began in Spring 2013
- Results were completed by August 31, 2013 to affect Budget Review Process

Missiles Industrial Sector

- ★ Tactical Missiles (AMRAAM, AIM-9X, AARGM, ATACMS, APKWS, GMLRS, Hellfire, JASSM, Javelin, JAGM)
 - ★ Smart Munitions (Excalibur, JDAM, LGBs, SDB I & II, JSOW, SFW, WCMD)
- ★ Strategic Missiles (Trident II (D5), Minuteman III)
- ★ Missile Defense (Patriot (PAC-3), Patriot/MEADS, Standard Missile (SM-2/3/6), THAAD, GMD, KEI)





General Missile Subsystem Taxonomy

These are examples of hardware components associated with the major functional elements often found in Missiles. Not all elements are found in all missiles.

Missile All-Up-Round Specification, Integration, Assembly and Test

Propulsion

- Solid Rocket Motor
- Ammonium Perchlorate Motor Case
- Jet Engine
- Jet Propellant
- Fuel Tanks

Armament

- Warhead Explosive Fill
- Warhead (Inert Components)
- Fuzes
- Safe & Arm Device
- Target Detector

NGC

Guidance

- IR Seeker
 - Integrated Detector Assembly (Focal Plane Array)
 - Cryostat/Engine (Cooler)
 - Lens/Mirror
 - Gimbals
 - Sensor Window/Dome
- Radar Seeker
 - Transmit/Receive Antenna
 - Signal Processor
 - Radome
- Optical
 - CCD
 - Lens/Mirror
 - Window

Navigation

- AMU/IMU/RMU
- GPS
- GPS Antenna

Control

- Circuit Card Assemblies (ASICs)
- Control Actuators
- Battery
- Data Link

Airframe

- Fuselage
- Substructure
- Wings, Fins, Tail
- Coatings

Prime Contractors



Prime Contractors

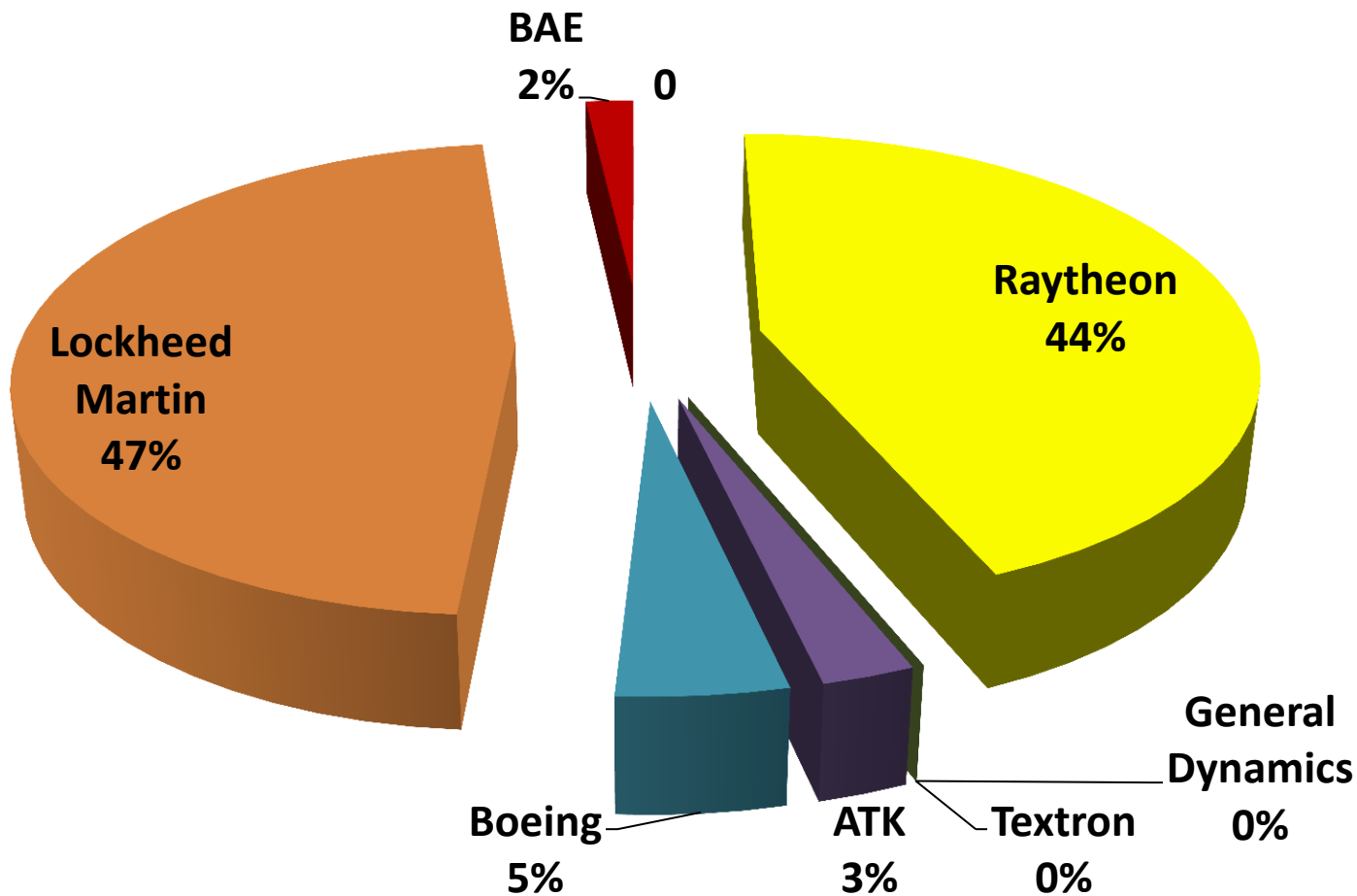
	Boeing	Raytheon	ATK	Lockheed Martin	Northrop Grumman	BAE	General Dynamics	Textron Systems
Tactical Missiles	X	X	X	X		X	X	X
Strategic Missiles				X	X			
Missile Defense		X		X	X*			

* Northrop Grumman is prime on KEI, but Raytheon has the interceptor.





Missile Procurement Funding Distribution by Prime Contractor (FYDP 12-18)



Source: DoD FY 2014 President's Budget Procurement Program

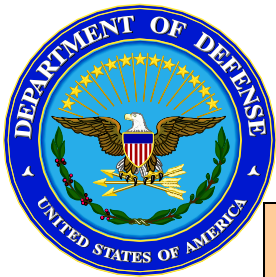
Missile New Start Development & Production Timeline

In 5 Year Increments

			Name of Systems in Development	Name of Systems Beginning Production
	Number of New Start Missile Programs in Development	Number of New Start Missile Programs in Production		
1950	5	5	AGM-12 Bullpup, AIM-9, AIM-4 Falcon, AIM-7 Sparrow, AGM-28 Hound Dog,	AGM-12 Bullpup, AIM-9, AIM-4 Falcon, AIM-7 Sparrow, AGM-28 Hound Dog
1960	5	0	TOW, Standard Missile, AIM-54 Phoenix, FIM-43 Redeye, AGM-45 Shrike,	
1965	8	6	Maverick, Patriot, Stinger, Harpoon, MIM-72 Chaparral, Dragon, AGM-78, AGM-69 SRAM,	Standard Missile, AIM-54 Phoenix, MIM-72 Chaparral, RIM-43 Redeye, AGM-45 Shrike, AGM-78,
1970	2	3	Maverick, Hellfire	TOW, Dragon, AGM-69 SRAM,
1975	4	3	HARM, RAM, AMRAAM, MLRS,	Patriot, Stinger, Harpoon,
1980	1	3	ATACMS	HARM, Hellfire, MLRS,
1985	2	2	Javelin, THAAD	RAM, AMRAAM,
1990	5	0	ESSM, SM-3, PAC-3 MSE, GBI	ATACMS,
1995	1	2	GMLRS,	ESSM, Javelin,
2000	4	5	Griffin, SM-6, AARGM, Joint Common Missile*,	SM-3, PAC-3 MSE, GMLRS, THAAD, GBI
2005	1	2	JAGM*,	Griffin, SM-6
2010	0	1		AARGM,
2015				
NOTES:				
* JAGM has been restructured as a tech development program.				
* Joint Common Missile was canceled in 2007.				
- New Starts do not include most of the current missile development program modifications/upgrades to existing missile systems (AMRAAM, AIM-9X, etc.)				
- Does not include missiles with turbo fan engines (Tomahawk, JASSM, ALCM, ACM)				
- Does not include glide munitions (LGBs, JDAM, JSOW, SDB I, SDB II)				

**Few new start missile programs to hone industry's design
Engineering skills and sustain workforce**





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INDUSTRIAL BASE DEFENSE MANAGEMENT ADVISORY GROUP (DMAG)

AT&L Support

- ★ **In the past, there has been talk of support for the industrial base. (Office was created in 1994 due to IB concerns peace dividend)**
- ★ **Mr. Kendall has demonstrated more than just concern, he has implemented actions**
 - ☆ **Request for IB review to determine where we were breaking the IB**
 - ☆ **Supported funding IB concerns – including missiles**



Industrial Base DMAG

- ★ **AT&L directed MIBP to lead an Industrial Base DMAG during this Fall's Budget Review Process**
- ★ **For the first time the Department committed to funding projects solely associated with industrial base concerns. These include:**
 - ★ **Air Force and Navy high-performance jet engine technology development**
 - ★ **Army next generation ground combat vehicle design team investment**
 - ★ **Investments in the missile industrial base for production process improvements/automation and material/technology upgrades**



Missile Industrial Base Concerns

- ★ Using the data from the missile FaC, MIBP supported CAPE Budget Issue Teams. Missile issue teams included: Munitions, Missile Defense, and Strategic Offense. Also IB issue team
- ★ Proposed budget reductions resulted in the following industrial base concerns (design & production):
 - ★ Fuzes
 - ★ Thermal Batteries
 - ★ Solid Rocket Motors
- ★ DoD supported funding for fuze & thermal battery areas



Conclusion

- ★ **The Department and the Defense Industrial Base will continue to face fiscal realities.**
- ★ **MIBP will continue to evolve the sophistication of our industrial analysis to identify those design and production risk areas that need mitigation**
- ★ **DoD's Leadership recognizes the tough choices we face and continues to conduct reviews of our needs and systems to ensure an innovative fighting force and robust industrial base**

