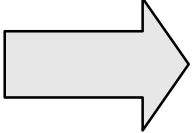




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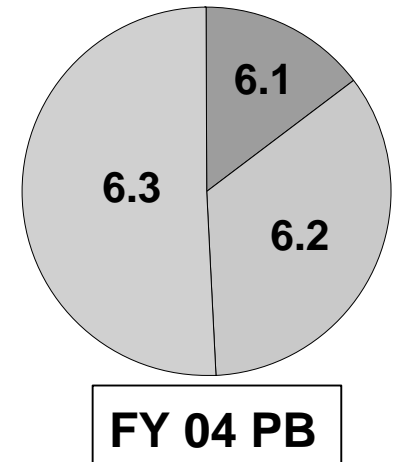
Outline

- 
- **Introduction**
 - **Funding**
 - **Strategic Direction**
 - **Technology Initiatives**
 - **Conclusion**



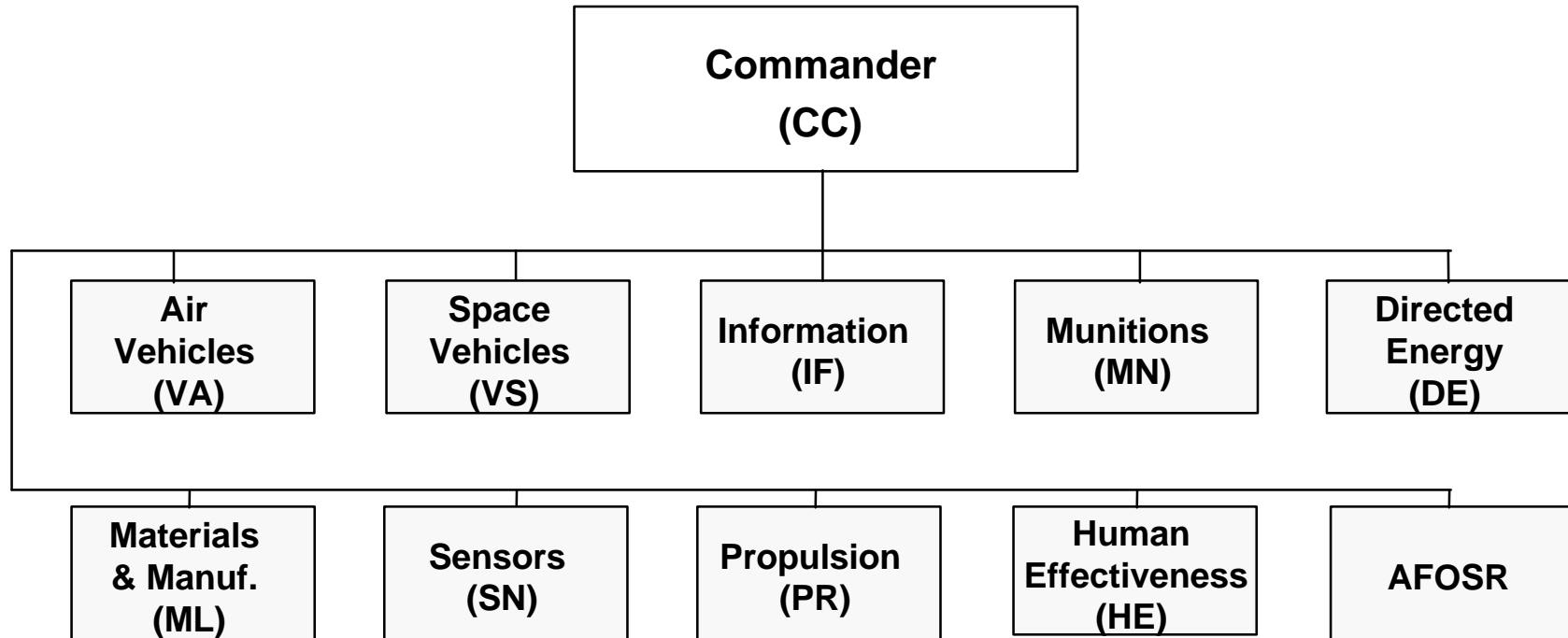
Air Force Science and Technology

- **\$2.2B program in 04 PB**
- **Single line item in budget covering:**
 - **Discovery -- Basic Research (6.1)**
 - **Development -- Applied Research – (6.2)**
 - **Demonstration -- Adv Tech Development (6.3)**
- **Thousands of individual projects**
- **Highly leveraged formal/informal partnerships/alliances**
- **Long-term in nature**
- **No guarantee of success**





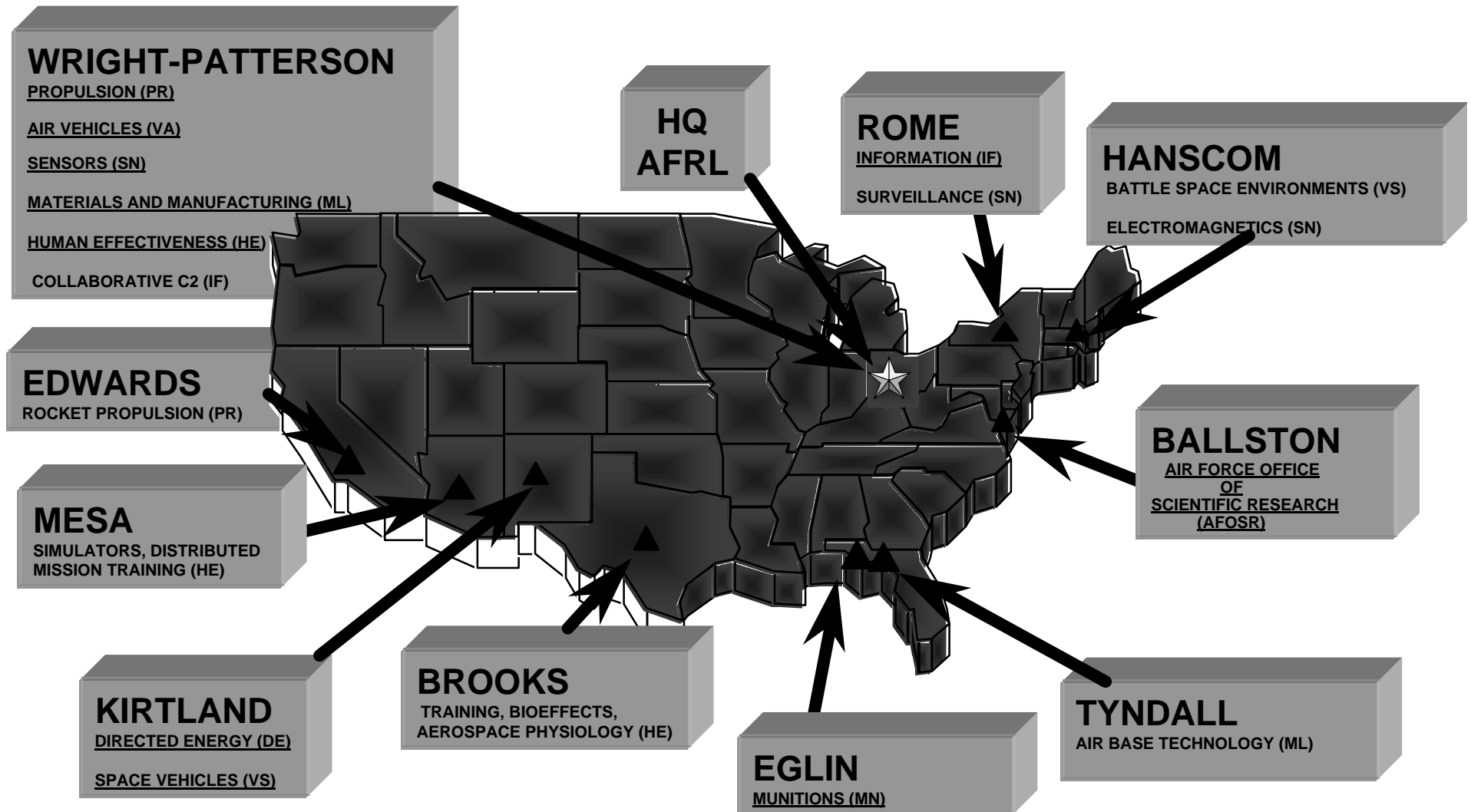
Air Force Research Laboratory (AFRL) Organization





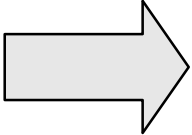
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AFRL Major Sites and Technology Areas





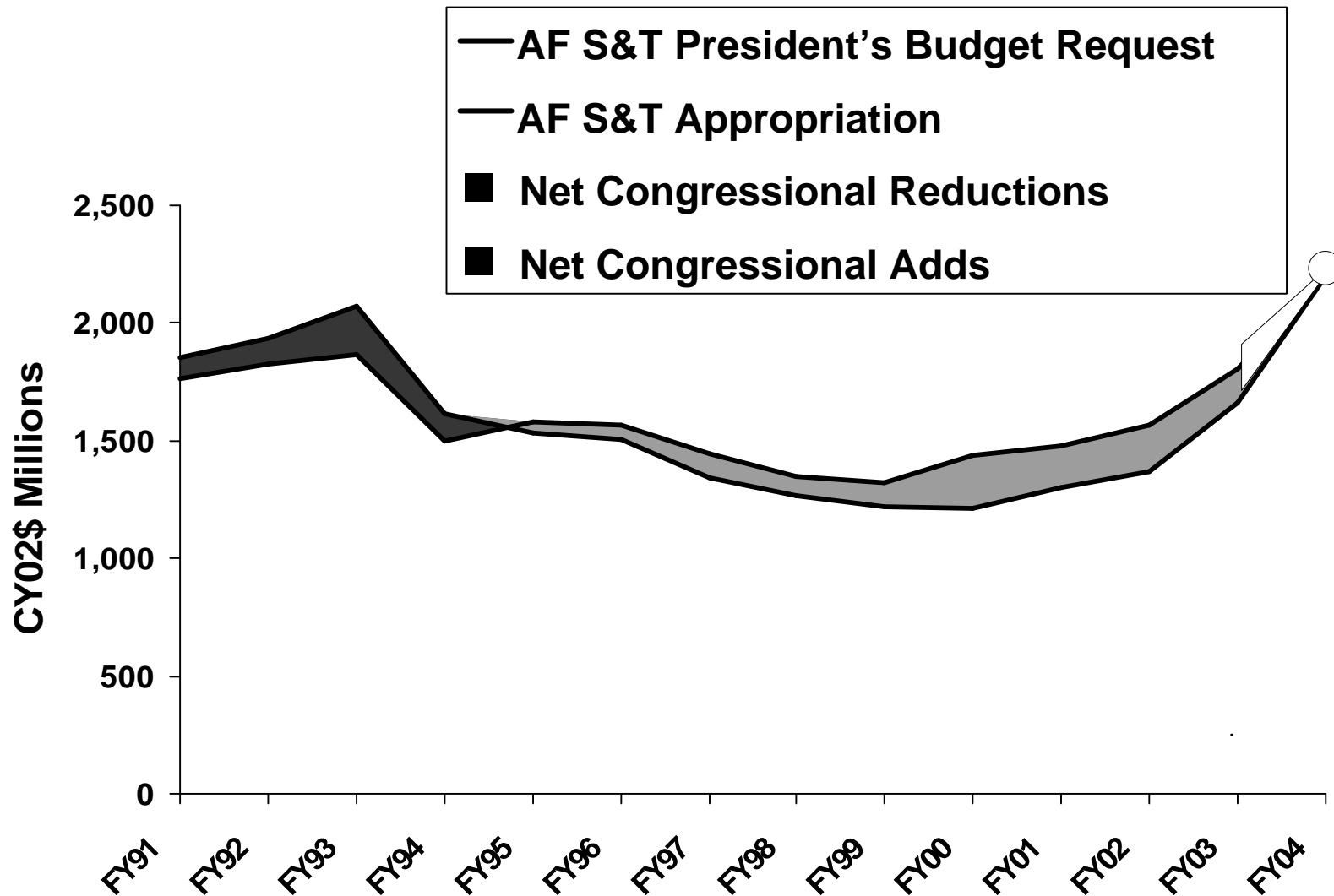
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U.S. AIR FORCE

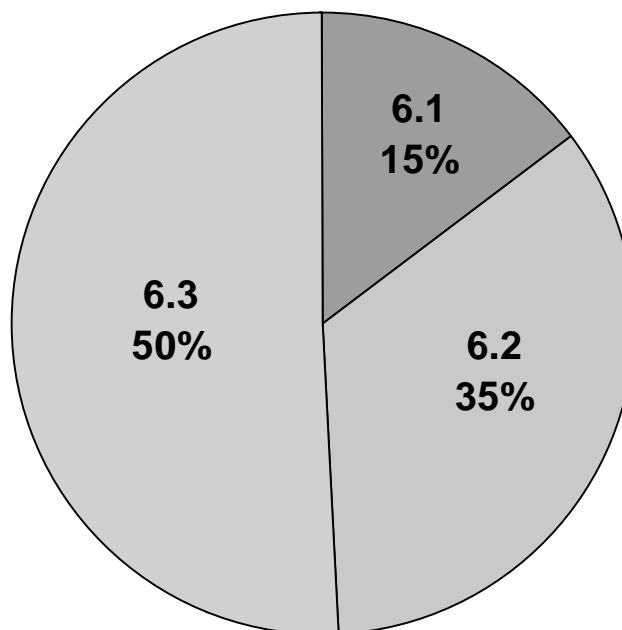
AF S&T Funding





AF S&T by Budget Activity

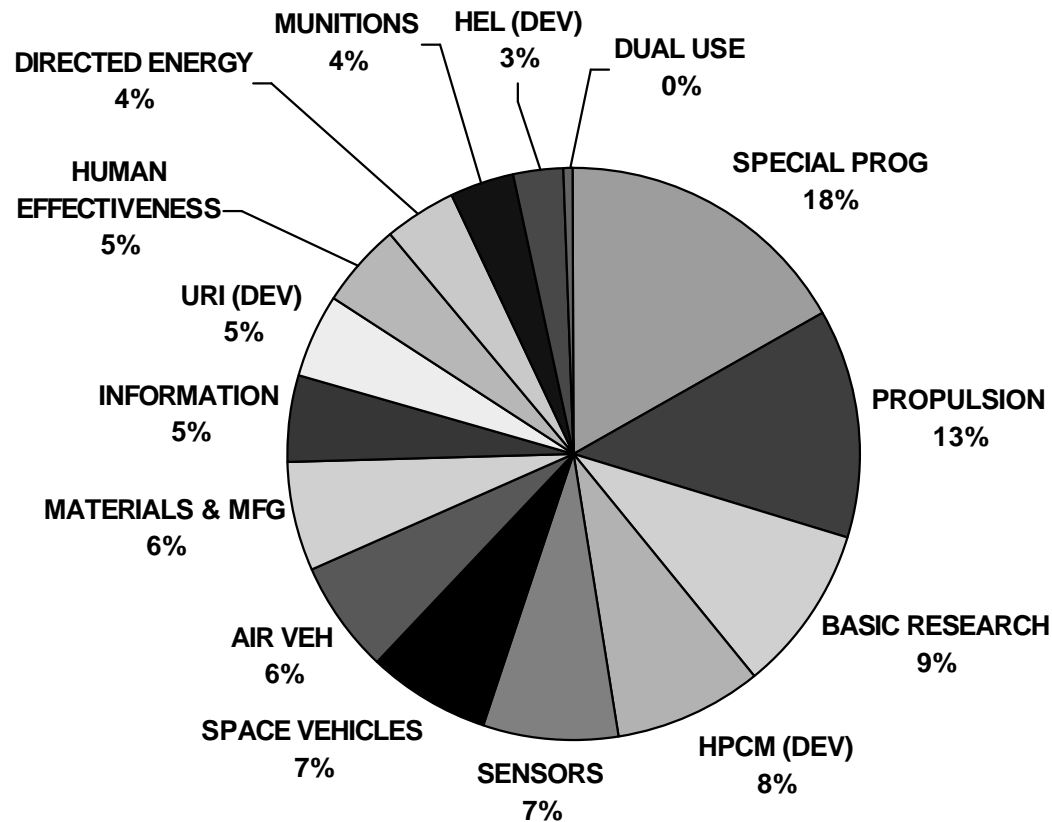
BAC	FY03 PB	FY04 PB	CHANGE	% CHANGE
6.1	219,144	322,041	102,897	47.0%
6.2	697,549	757,960	60,411	8.7%
6.3	742,917	1,116,554	373,637	50.3%
TOTAL	1,659,610	2,196,555	536,945	32.4%



FY04 PB



AF S&T President's Budget by Technical Area



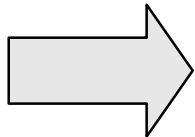
FY04 PB

Tech Area	FY03 PB	FY04 PB
SPECIAL PROG	97,300	369,483
PROPULSION	243,529	283,763
BASIC RESEARCH	219,144	204,754
HPCM (DEV)	0	185,282
SENSORS	162,657	162,138
SPACE VEHICLES	100,897	155,354
AIR VEH	123,006	142,078
MATERIALS & MFG	121,888	133,065
INFORMATION	105,239	108,328
URI (DEV)	0	105,224
HUMAN EFFECTIVENESS	96,186	101,282
DIRECTED ENERGY	85,794	93,420
MUNITIONS	98,344	76,971
HEL (DEV)	0	64,827
DUAL USE	10,626	10,586
MILSATCOM	195,000	0
TOTAL	1,659,610	2,196,555



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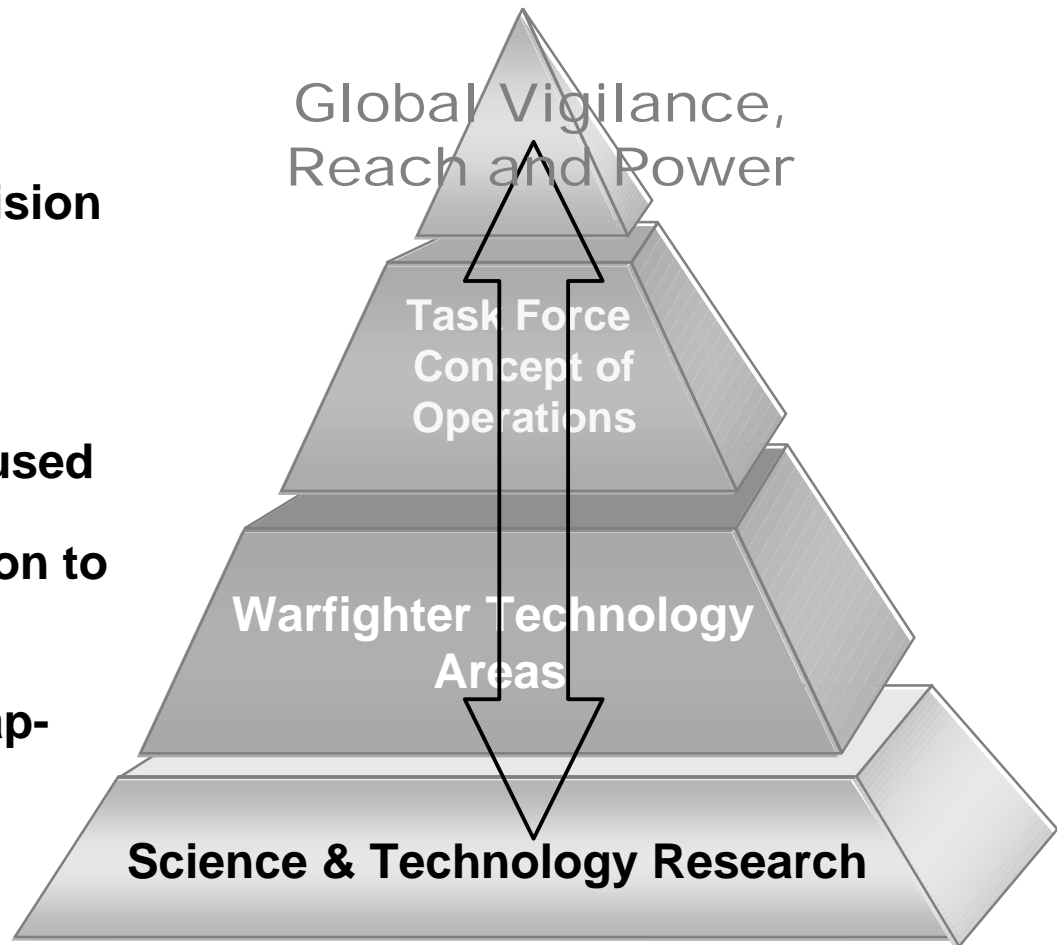




Air Force Science & Technology Program

Air Force S&T . . .

- **Underpins the Air Force Vision**
- **Enables CSAF Task Force CONOPs**
- **Program is effectively focused**
 - **Emphasizing transition to the warfighter**
 - **Funding potential leap-ahead technologies**

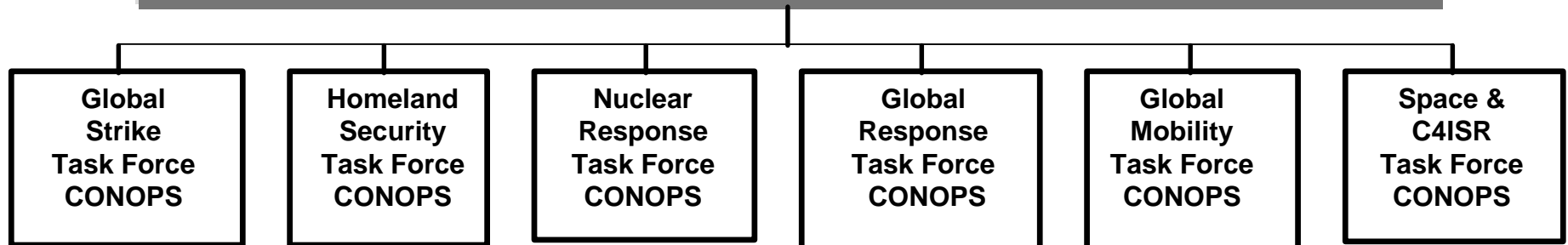




AF Task Force CONOPS Construct

Global Vigilance, Reach, Power

Air & Space Expeditionary Forces CONOPS



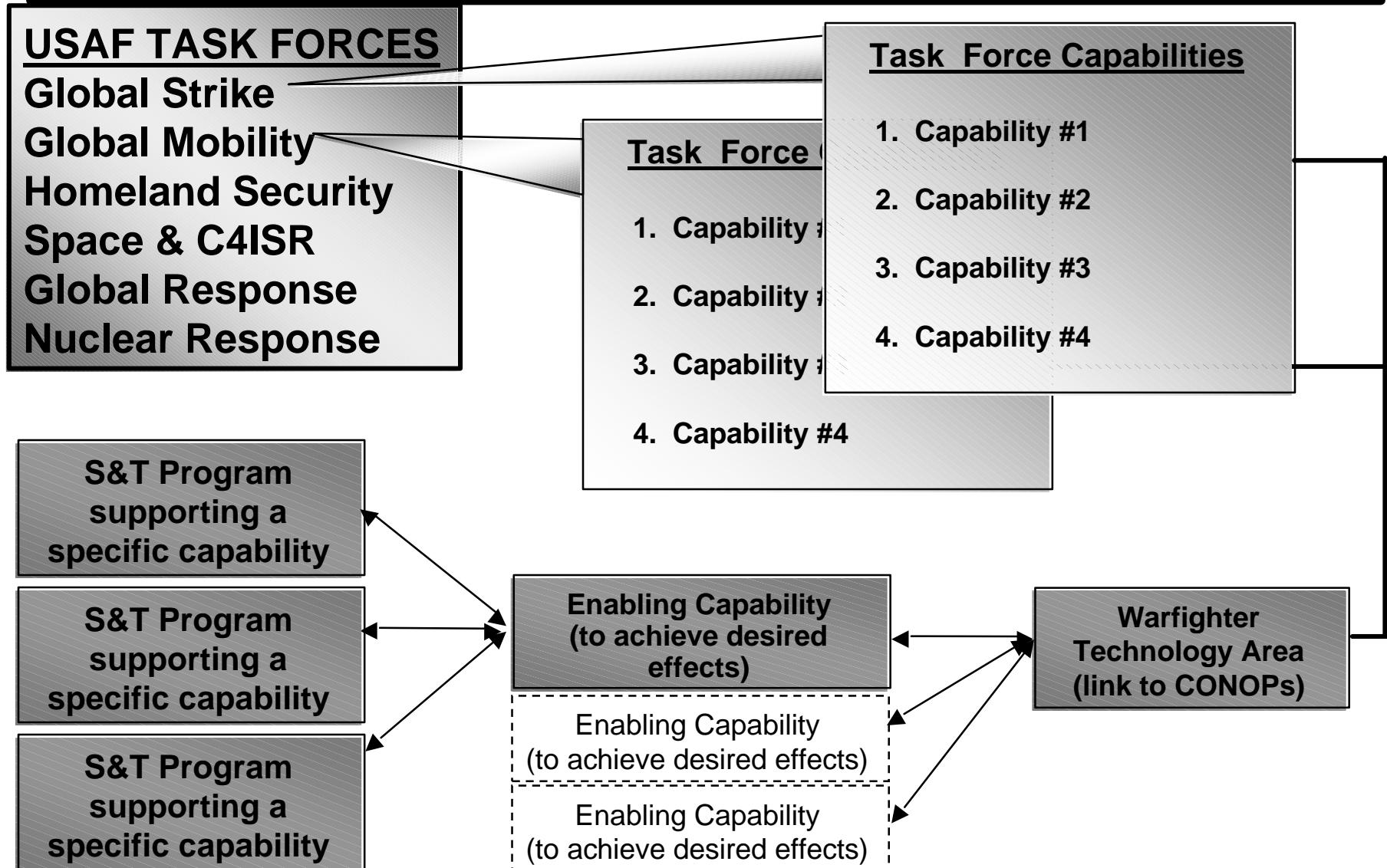
Enabling Capabilities





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Capabilities Link to S&T Programs





Air Force Transformational Capabilities

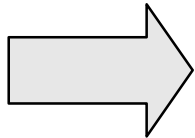
- **Information Superiority**
 - Machine-to-machine interface
 - Reliable, secure bandwidth
 - Real-time, deep-look, target quality information
 - Ensured use of information
 - Deny adversary information
- **Air and Space Superiority**
 - 24/7 stealthy operations
 - Effective, persistent air-to-ground operations
 - Attack high risk, high payoff, time sensitive targets
 - Protect space assets
 - Deny adversary access to space
 - Launch, refuel, repair space vehicles
 - Detect and destroy missiles in flight
- **Precision Engagement**
 - Conduct high volume attacks with less platforms
 - Tailored effects
- **Global Attack**
 - Attack anywhere, anytime from anywhere with precision
- **Rapid Global Mobility**
 - Rapid delivery of right forces, right places, right time
- **Agile Combat Support**
 - Reduce footprint

AF Transformation Flight Plan Available at:
http://www.xp.hq.af.mil/xpx/xpxt/t_index.htm



Outline

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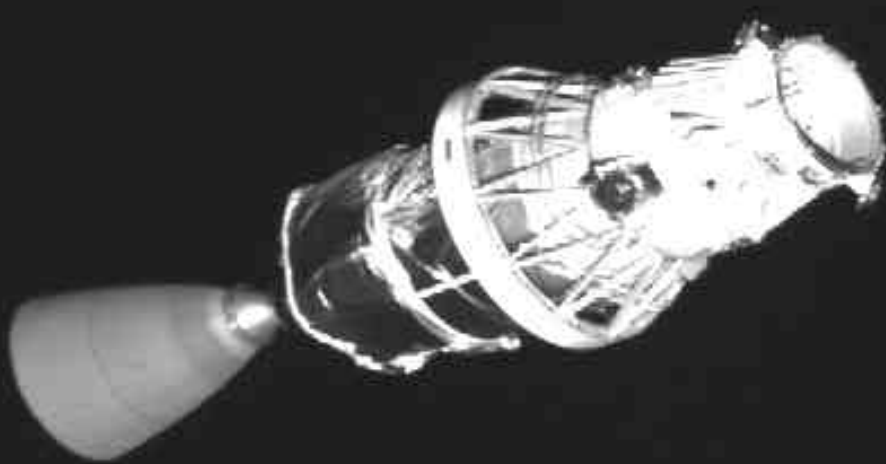
Key Transformational Technology Focus

- **Information Superiority**
 - Joint Battlespace Infosphere
 - Multi-Sensor Fusion for Time Critical Targeting
 - Transformational Communication
 - Laser Communication
- **Air and Space Superiority**
 - Access to Space
 - Integrated Powerhead Demo
 - National Aerospace Initiative
 - Laser Hardened Materials
 - Infrared Countermeasures
 - Microsatellites – Proximity Ops
 - Space Based Radar
- **Precision Engagement**
 - WASAAMM with Data Link
 - Agent Defeat
 - Airborne Active Denial
- **Global Attack**
 - Targets Under Trees
 - Miniature Anti GPS Jam INS
- **Rapid Global Mobility**
 - Hydrocarbon Scramjet (X-43C)
 - Automated Air Refueling
- **Agile Combat Support**
 - Distributed Mission Ops
 - Integrated Panoramic NVG
 - Blast Mitigation



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Proximity Operations

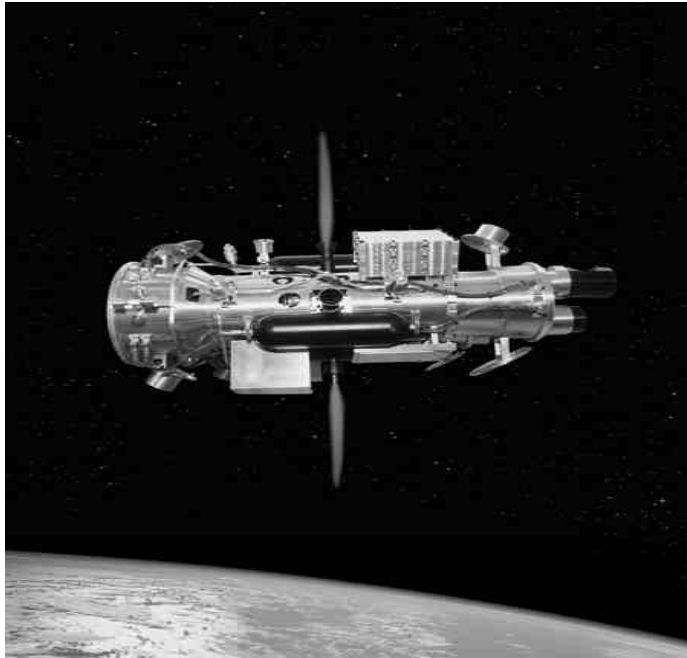




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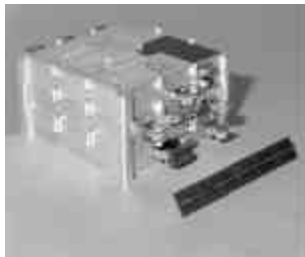
XSS-10 Program

Pathfinder for Microsatellite Proximity Operations



~31kg XSS-10 microsatellite

- **First on-orbit flight demonstration of microsatellite proximity operations**
- **Launched 29 Jan 03; conducted 24-hour mission on 30 Jan 03**
- **Demonstrated:**
 - **Semi-autonomous and manual control of microsatellite on-orbit**
 - **Navigation and inspection of object of interest (Delta 2nd Stage) by microsat**
 - **Several advanced microsat technology components**



**Mini-communications
system (SGLS)**



**Integrated imager
and star camera**



**Lightweight
propulsion system**

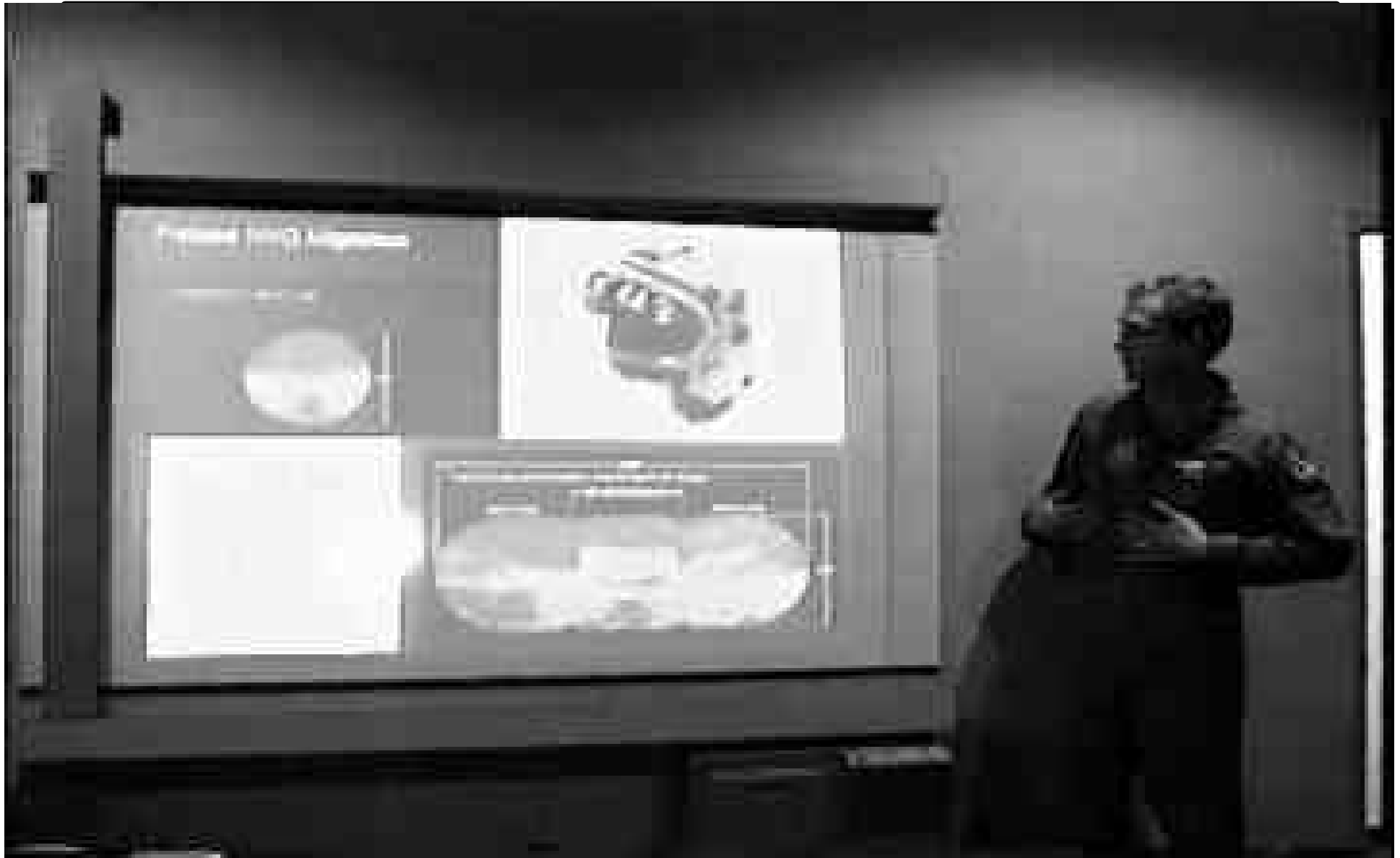


**Lithium polymer
batteries**



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Integrated Panoramic Night Vision Goggle (IPNVG)





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Laser IRCM Flyout Experiment (LIFE)





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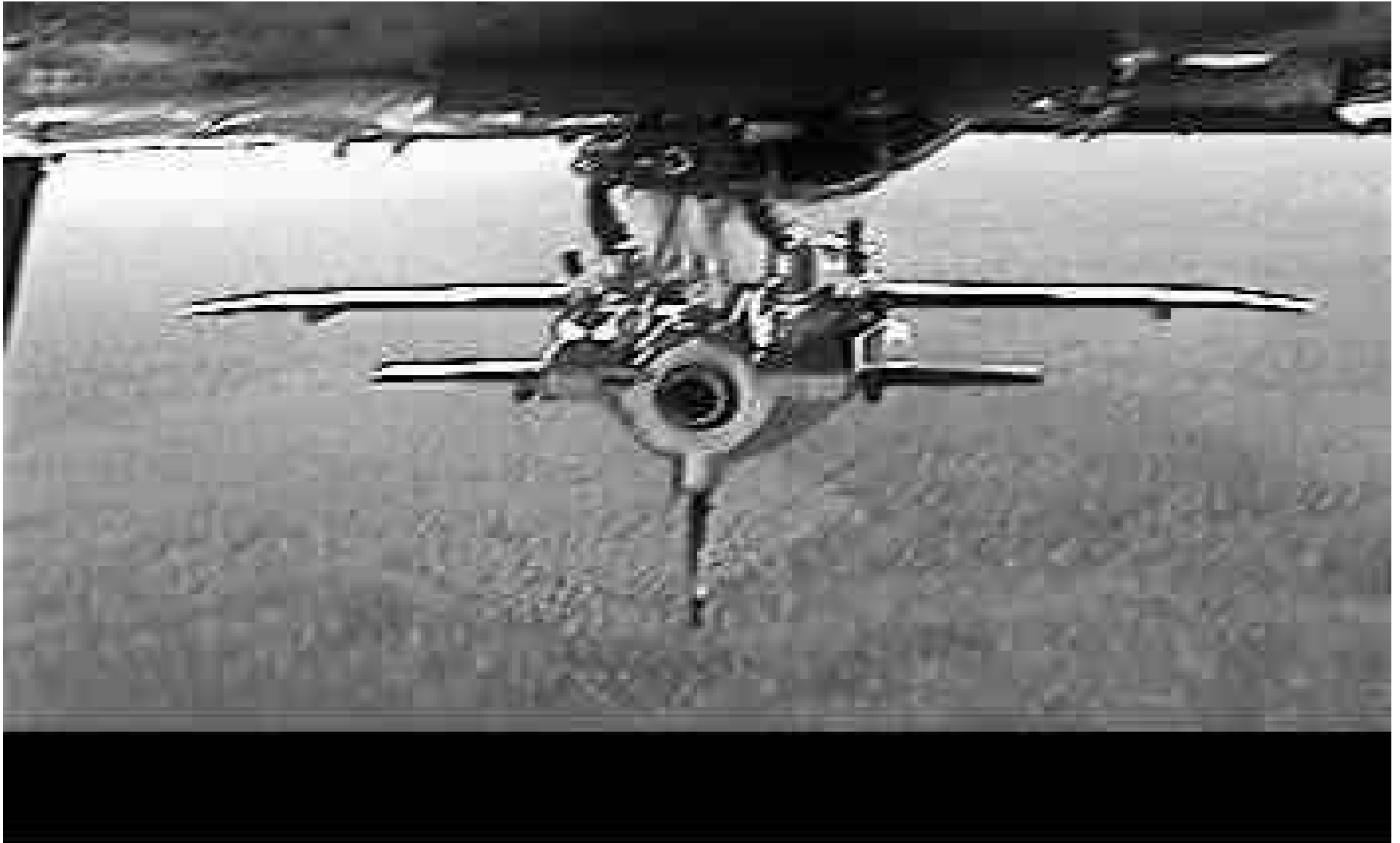
Blast Mitigation





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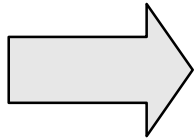
Wide Area Search





Outline

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U.S. AIR FORCE

Conclusion

- **Diverse, highly leveraged program**
- **Near term increase in funding due to devolvment**
- **S&T focused on capabilities necessary to achieve TF CONOPS**

S&T for the world's best Air Force

"Global Vigilance, Reach and Power"



***We defend America by unleashing the
power of innovative science and technology***