



Air Force Research Laboratory



Addressing Air Force Capability Requirements with Emerging Technology Options

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Director, Plans and Programs
Air Force Research Laboratory

Integrity ★ Service ★ Excellence





AFRL Mission



LEADING the discovery, development, and integration of affordable warfighting technologies for our air, space, and cyberspace force.



AFRL Strategic Plan

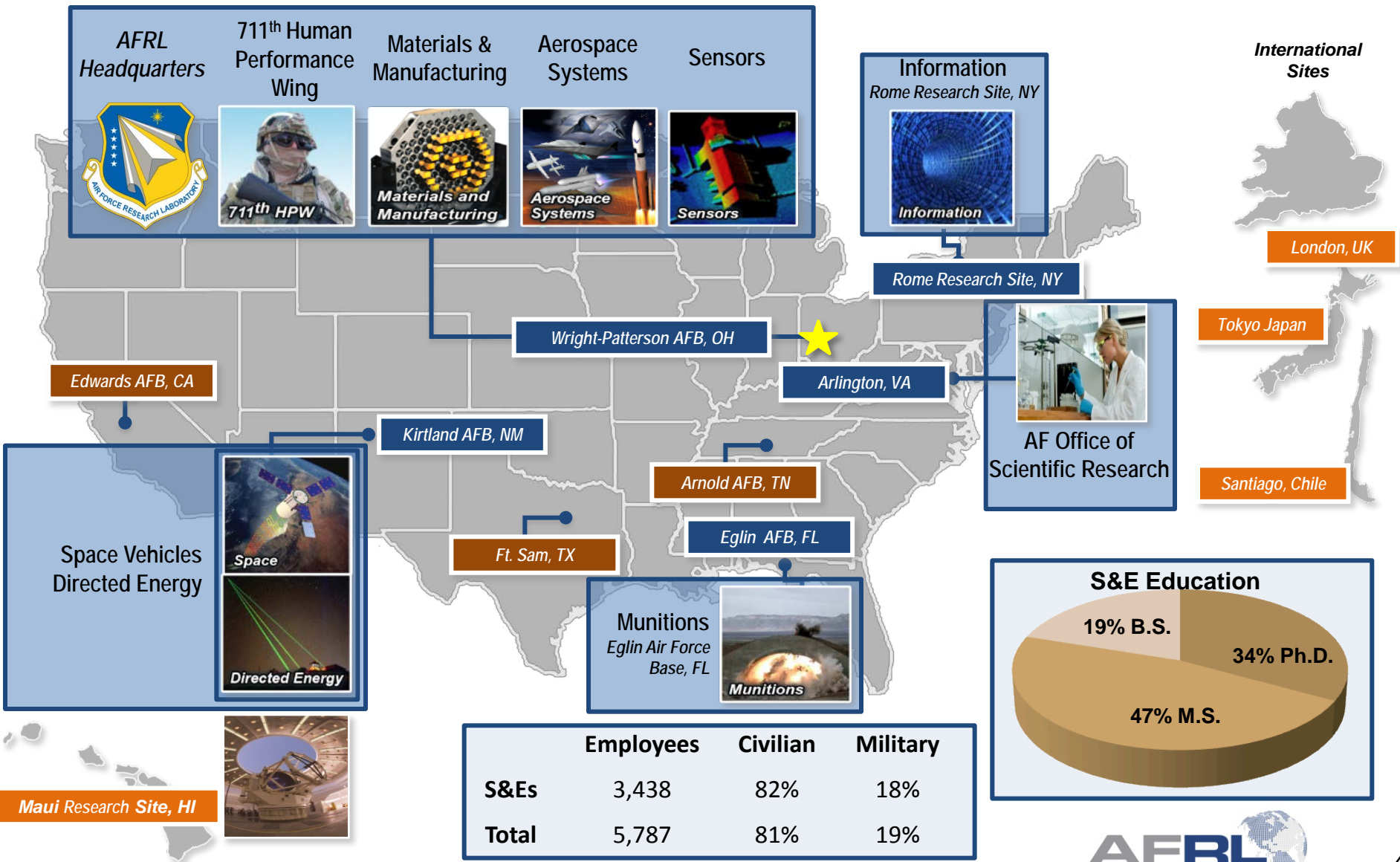


- Shape and guide AFRL's action for the next 3 to 5 years
- Focus organizational resources
- Ensure AFRL continues to provide the right technology, at the right time, and at an affordable cost
- Available on the Defense Innovation Marketplace

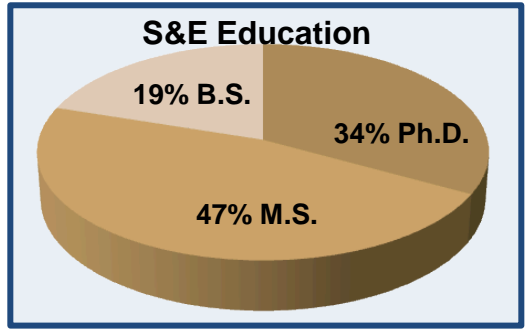
<http://www.defenseinnovationmarketplace.mil/AF>



AFRL Snapshot



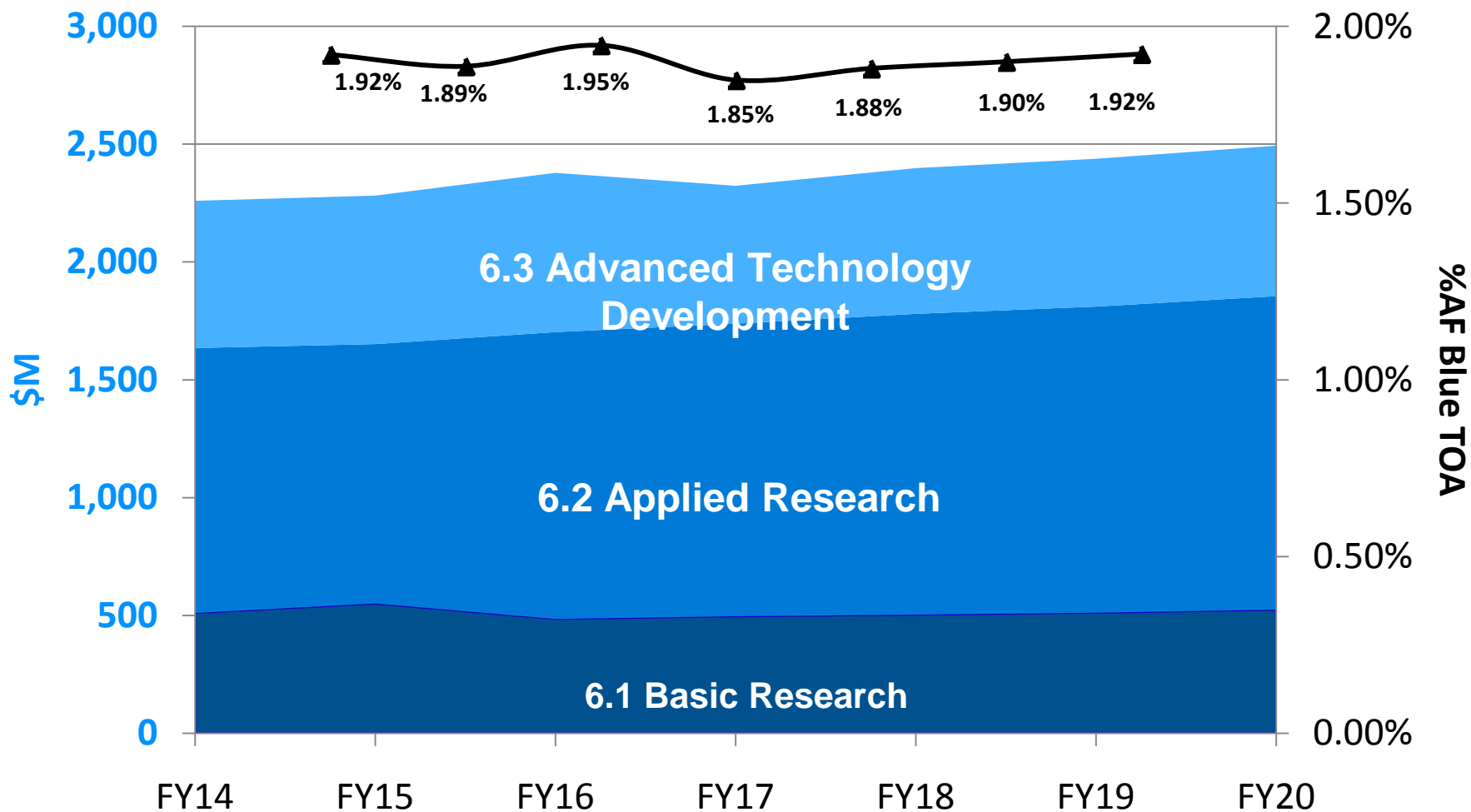
	Employees	Civilian	Military
S&Es	3,438	82%	18%
Total	5,787	81%	19%





FY16 PBR Funding

(Includes FY14 and FY15 Appropriations)





AFRL's 3 Lines of Operation



Advancing **REVOLUTIONARY** game-changers
Technology to make and keep the fight unfair

Maturing **RELEVANT** S&T for MAJCOMS
S&T Support to Service Core Functions

RESPONSIVE to warfighter's time-critical needs
Technology to fill "right-now" needs



S&T Planning & Programming



Demand Signals

DoD Strategic Priorities

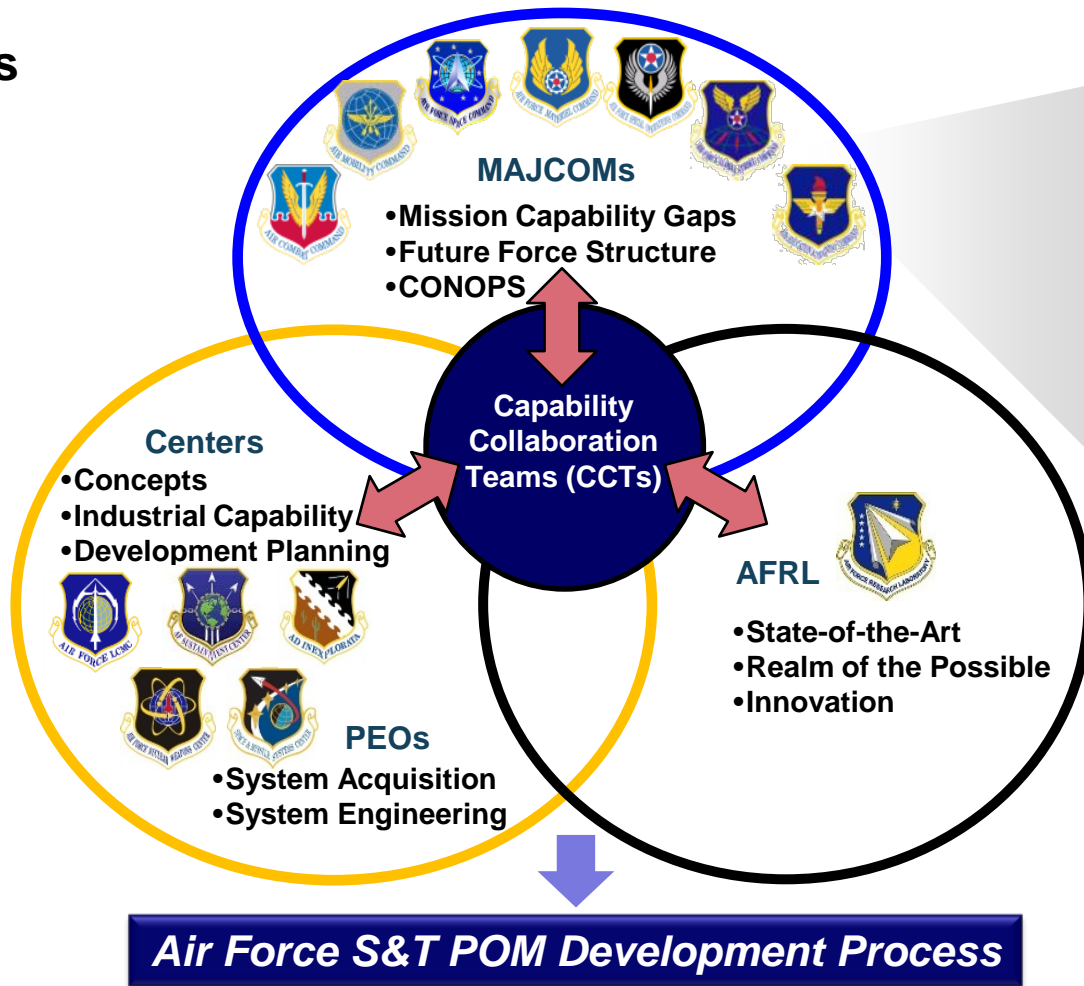
A Call to the Future

AF S&T Strategy

Tech Horizons

Core Function Support Plan

Congressional and OSD Interest Items



Core Function Lead

Air Superiority
 Global Precision Attack
 Personnel Recovery
 Command & Control
 Global Integrated ISR

Cyberspace Superiority
 Space Superiority

Special Operations

Rapid Global Mobility

Nuclear Deterrence Operations

Agile Combat Support

Education and Training

Align Air Force S&T with Air Force Near, Mid, & Far Priorities



Roadmap: Hypersonics



High Speed Strike Weapons



Artist's Concept

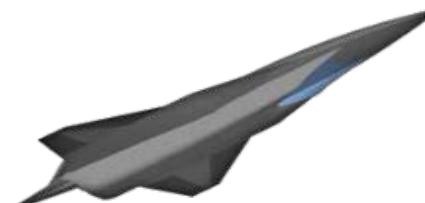
Rapid strike from standoff

Tactical Strike/ISR



Deep strike of high value targets

Reusable/Persistent



Penetrating, persistent reusable ISR & strike

Hypersonics S&T Disciplines

- Aerodynamics
- Aerothermodynamics
- Materials & Structures
- Propulsion
- Guidance, Navigation & Control
- Ordnance & Payloads
- Configuration & Integration

2020+

2030+

2040+

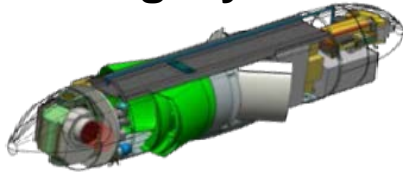
Ensure rapid and survivable strike in contested environments



Roadmap: Laser Weapons



Pod-based System for Legacy A/C



- Soft air & ground targets

Mid Level Capability on legacy A/C



- Increased range & lethality

Full Capability on Next Gen Fighter



- A/C & hard ground targets

Laser System S&T Disciplines

- Laser sources
- Beam control
- Acquisition tracking & pointing
- Power & thermal management
- Target effects & numerical analysis

2018

2020+

2030+

Reducing SWaP and increasing capability for A2/AD Environment



Roadmap: Autonomy



Autonomy S&T Challenges

Artificial Intelligence
 Cognitive & Computer Science
 Data Analytics
 Machine & Human Learning
 Guidance, Navigation & Control
 Human Factors Engineering
 Operations Research

Mission Continues
 thru A2/AD

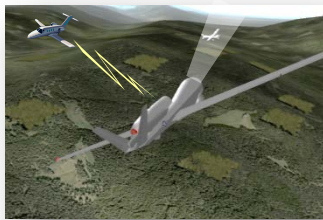


Machine-Assisted Ops
 compressing the kill chain



Optimized platform
 operations delivering
 integrated ISR and
 weapon effects

Operating Safely & Efficiently



Air Collision
 Avoidance



Work-centered
 PED cell

Defensive system
 mgr ids threats &
 recommends
 actions

Intelligence analytic
 system fuzes INT
 data & cues analyst
 of threats

Today

2020

2030+

Facilitates Decisions at the Speed of Computing





Upcoming AFRL Solicitations



- **FY15 Armament Technology BAA**
 - Estimated Amount: \$200M
 - BAA Number: BAA-AFLR-RWK-15-0001 (Issued 12 Mar 15)
 - Contracting Officer: Mr. Kevin Miller, (850) 882-4296
- **Warfighter Readiness and Training BAA**
 - Estimated Amount: \$200M
 - Estimated BAA issue Date: Jun - Sep 15
 - Contracting Officer : Ms. Helen Williams, (937) 713-9871
- **Beam Control BAA – Supersonic Turret Research in Aero Effects**
 - Estimated Amount: \$60M
 - BAA Number: BAA-RVKD-2015-002 (Estimate: Jul - Sep 15)
 - Contracting Officer: Ms. Susan Thorpe, (505) 846-3404
- **Laser Pod Research and Development BAA**
 - Estimated Amount: \$80M
 - BAA Number: BAA RVKD-2015-0003 (Estimate: Oct - Dec 15)
 - Contracting Officer: Mr. John Nolan, (505) 846-2240



Air Force SBIR/STTR Programs



The Air Force Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs are mission-oriented programs that integrate the needs and requirements of the Air Force through research and development topics that have military and commercial potential

www.AFsbirsttr.com

Next Air Force Opportunities:

- SBIR 2015.1 solicitation – Closed 25 Feb 2015, Proposals under evaluation
- SBIR 2015.3 solicitation – 28 Sep – 28 Oct 2015
- SBIR 2016.1 solicitation – January 2016 (Tentative)
- STTR 2015.A solicitation – Closed 25 Feb 2015, Proposals under evaluation
- STTR 2016.A solicitation – January 2016 (Tentative)





Air Force Independent Research & Development (IR&D) Program



The Air Force IR&D Program leads the use of the Defense Innovation Marketplace as primary communication tool to inform industry's IR&D portfolio planners

<http://www.defenseinnovationmarketplace.mil/>



Next Air Force IR&D Technical Interchanges:

- Weapons COI: 20-24 April, IDA – Alexandria, VA
- Human Systems COI: 22-26 June 2015, Washington DC Area (TBD)
- Air force Space Enterprise: 3-7 August 2015, LA AFS, CA

Broad Agency Announcements Included on the Defense Innovation Marketplace



What We Want to Hear From Industry



- What are industries Big Bets?
- How is industry making decisions for IR&D?
- How can AFRL and industry achieve better alignment (road-mapping)?
- What are the current trends in S&T that AFRL may be missing?

The screenshot shows the homepage of the Defense Innovation Marketplace. At the top, it features the title "DEFENSE INNOVATION MARKETPLACE" and a row of logos for various defense agencies including DARPA and the Air Force Research Laboratory. Below the logos is a navigation menu with links for HOME, RESOURCES, FAQs, NEWS, ABOUT IR&D, and CONTACT US. The main content area is titled "Connecting Industry with Government Customers" and includes a brief description of the marketplace's purpose. It also features three columns of "NEW IN THE MARKETPLACE" updates: S&T Strategic Documents, Doing Business with DoD, and News & Events. On the right side, there are three boxes for "Resources", "Industry", and "Government", each with a link to further information. At the bottom, there is a footer with links for Privacy & Security, Acrobat, Recovery Act, FOIA, USA.gov, No Fear Act, Web Policy, and About DoD.



