



U.S. AIR FORCE



AFRL

Air Force Research Laboratory / Air Force Office of Scientific Research Overview

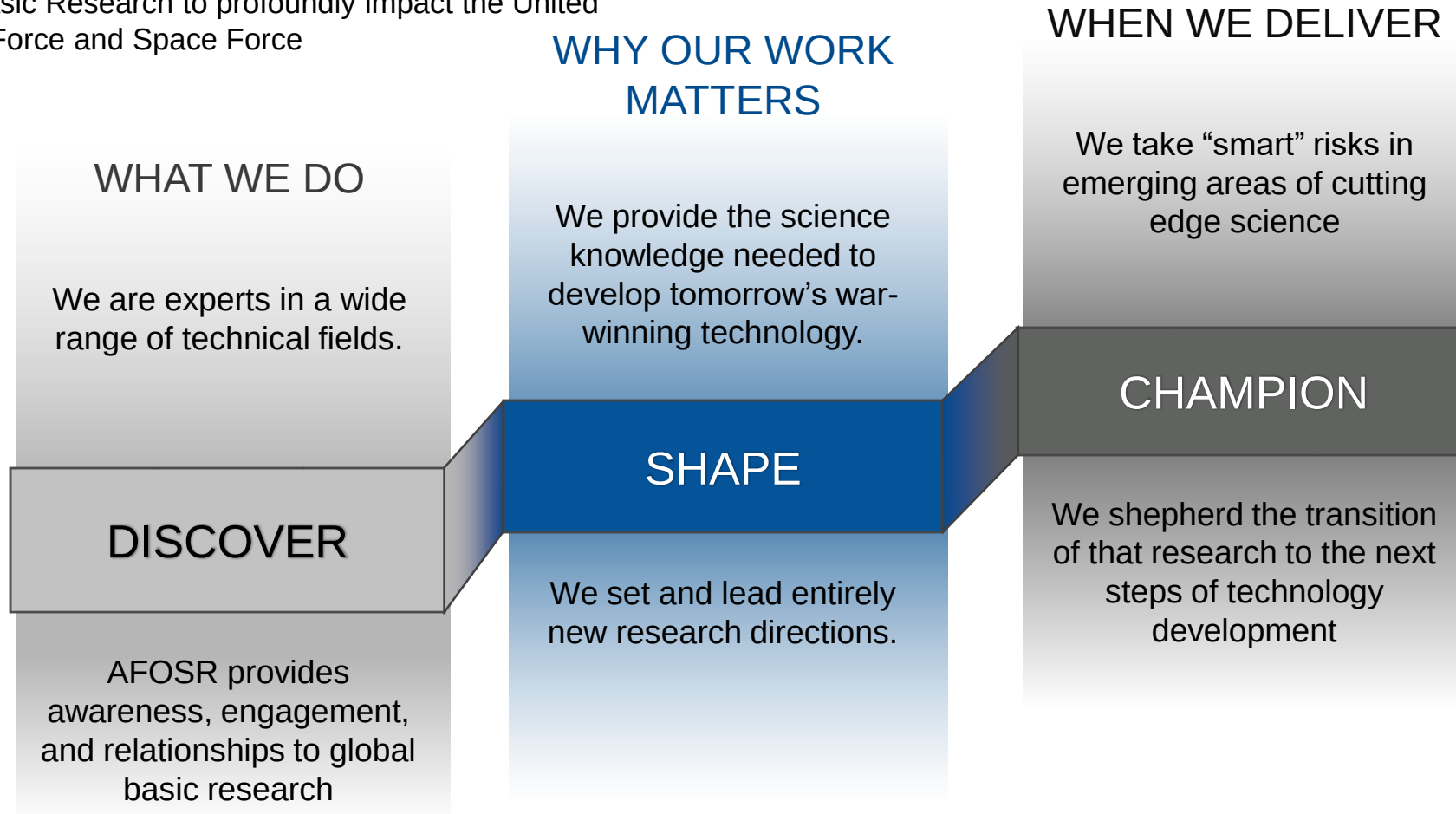
Van Blackwood, Technical Advisor

AFOSR/RT, 23 June 2021



Mission

Discover, Shape, and Champion Bold, High Risk, High Reward Basic Research to profoundly impact the United States Air Force and Space Force





Our Priorities



Conduct bold, high risk, high reward research



Bolster Space Force basic research



Strengthen human talent pipeline; emphasize HBCU/MSI and STEM



Enhance existing and establish new partnerships



Accelerate the use of data analytics



Where we work





How we accomplish our mission – Strategic Programming

- **Basic Research Grants (Grants.gov)**

- Funding Opportunity Announcements (FOAs)
- Seek proposals to foster **revolutionary breakthrough science**
- **Eligible:** All qualified, responsible organizational applicants from academia, the non-profit sector, and industry are eligible to submit research proposals. This includes University Affiliated Research Centers unless precluded from submitting a proposal by their Department of Defense operating contract.

- **Workforce Development**

- Awards to Stimulate and Support Undergraduate Research Experiences (ASSURE)
- National Defense Science and Engineering Graduate Fellowship Program (NDSEG)
- K-12 STEM

- **Strengthening Academic Research Capabilities**

- Multidisciplinary University Research Initiative (MURI) Program
- Defense University Research Instrumentation Program (DURIP)
- Presidential Early Career Award for Scientists and Engineers (PECASE)

- **Expanding Air & Space Force Academic Reach**

- Young Investigator Program (YIP)
- Historically Black Colleges & Universities/Minority Serving Institutes (HBCU/MSI) Program

- **Strengthening Air & Space Force Research Capabilities**

- US Air Force Academy Program
- Summer Faculty Fellowship Program (SFFP)/Science & Technology Fellowship Program (STFP)

- **Technology Transition**

- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) Program
- Partnerships for Transition

How we accomplish our mission – S&T Portfolios

Engineering and Complex Systems	Information and Networks	Physical Sciences	Chemistry and Biological Sciences	International Office
Dynamic Materials and Interactions	Computational Cognition and Machine Intelligence	Aerospace Materials for Extreme Environments	Biophysics	Asian Office of Aerospace R&D Tokyo
GHz-THz Electronics	Computational Mathematics	Atomic and Molecular Physics	Human Performance and Biosystems	European Office of Aerospace R&D London
Energy, Combustion, and Non-Equilibrium Thermodynamics	Dynamical Systems and Control Theory	Electromagnetics	Mechanics of Multifunctional Materials and Microsystems	Southern Office of Aerospace R&D Santiago
Unsteady Aerodynamics and Turbulent Flows	Dynamic Data and Information Processing	Laser and Optical Physics	Molecular Dynamics and Theoretical Chemistry	North America - Arlington
High-Speed Aerodynamics	Information Assurance and Cybersecurity	Optoelectronics and Photonics	Natural Materials and Systems	
Aerospace Composite Materials	Mathematical Optimization	Plasma and Electro-Energetic Physics	Organic Materials Chemistry	
Multiscale Structural Mechanics and Prognosis	Science of Information, Computation, Learning, and Fusion	Quantum Information Sciences		
Propulsion and Power	Trust and Influence	Physics of Remote Sensing		
Agile Science of Test and Evaluation (T&E)	Complex Networks	Space Science		
	Cognitive and Computational Neurosciences	Ultrashort Pulse Laser-Matter Interactions		
		Condensed Matter Physics		

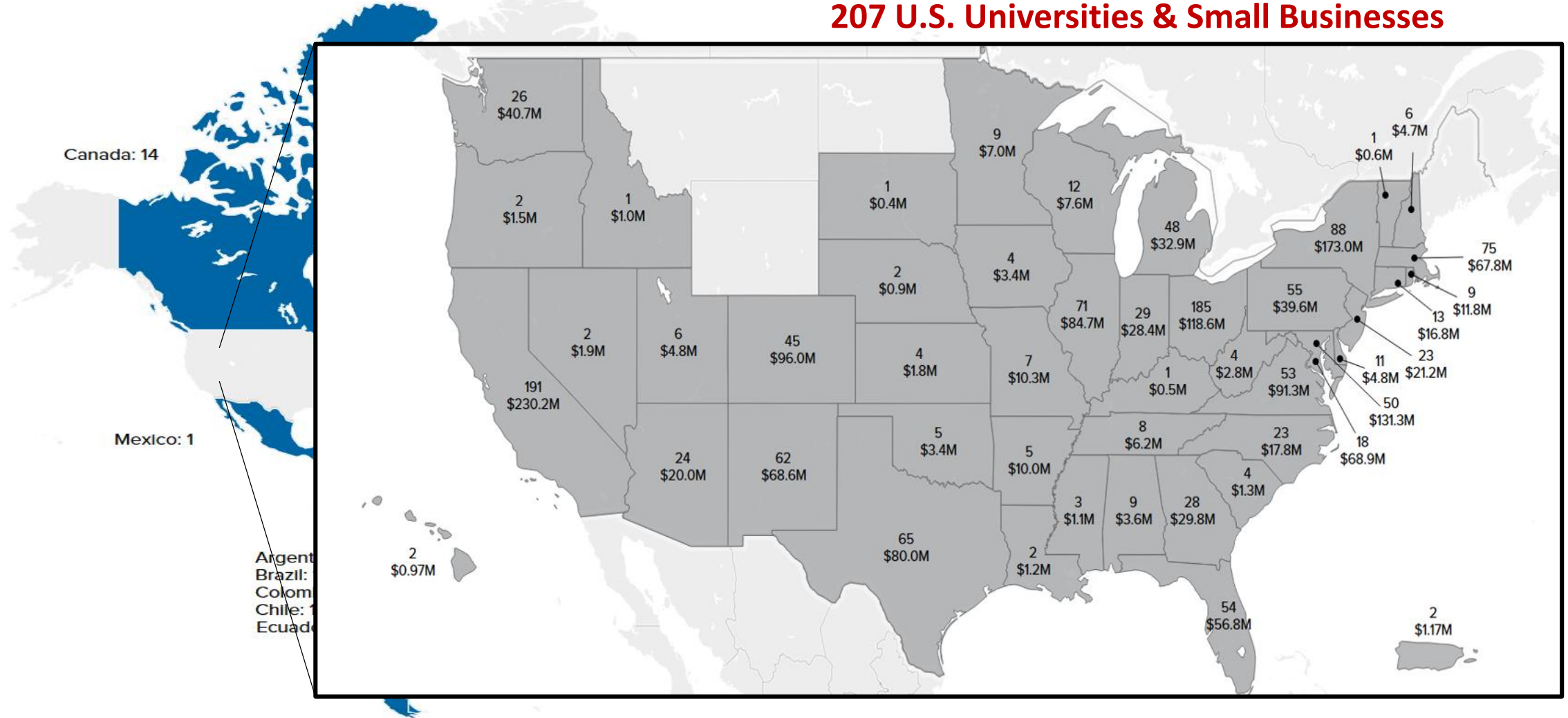




Where we invest

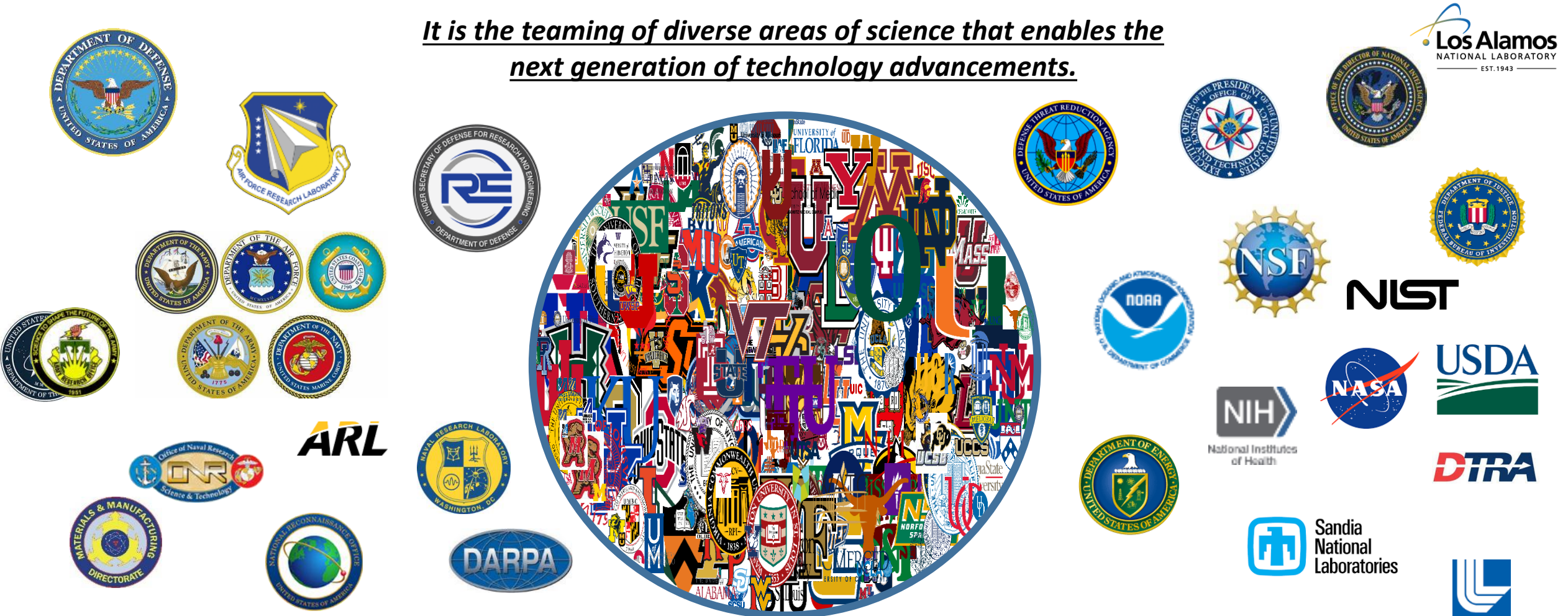
271 international efforts in 37 countries on 5 continents.

1108 Extramural research projects, 47 States at 207 U.S. Universities & Small Businesses



Strategic Partnerships are vital to Basic Research Success

It is the teaming of diverse areas of science that enables the next generation of technology advancements.



Department of Defense

Academia

Other Gov't Offices



Join our ecosystem today...

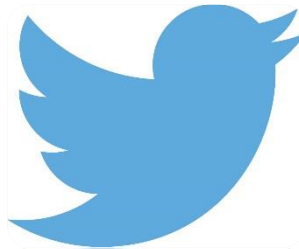
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#AFOSRYIP #EarlyCareer #Grants #AFOSRDURIP #FundingOpportunities #CenterofExcellence #STEM



QUESTIONS



At a Glance



- The Air Force Office of Scientific Research (AFOSR) is **the sole basic research manager** for the Department of the Air Force.
- Created in October **1951** to address a longstanding shortfall in military basic research
- AFOSR is located in **Arlington, Virginia** and one of 9 Technology Directorates of the Air Force Research Laboratory.
- Committed to seamlessly support the Basic Research needs of two services: the **Air Force** and the **Space Force**
- **Workforce:** **~200** employees (military, government civilians and contract positions)
- **Budget:** AFRL executed **~450M** in funding (FY20)
- **Locations** in **5** Countries: United States, The United Kingdom, Japan, Chile, and Australia.
- **History:** **70** years of investing in new scientific knowledge for the Air Force and the World.

Basic Research Funding Process

FIND

36 Program Officers (POs), **18** International Program Officers (IPOs) and **7** Program Coordinators (PCs) reaching scientists & engineers globally

FORM

Shape emerging science into high-performing teams and portfolios that address long-term basic science barriers to future AF capabilities

FUND

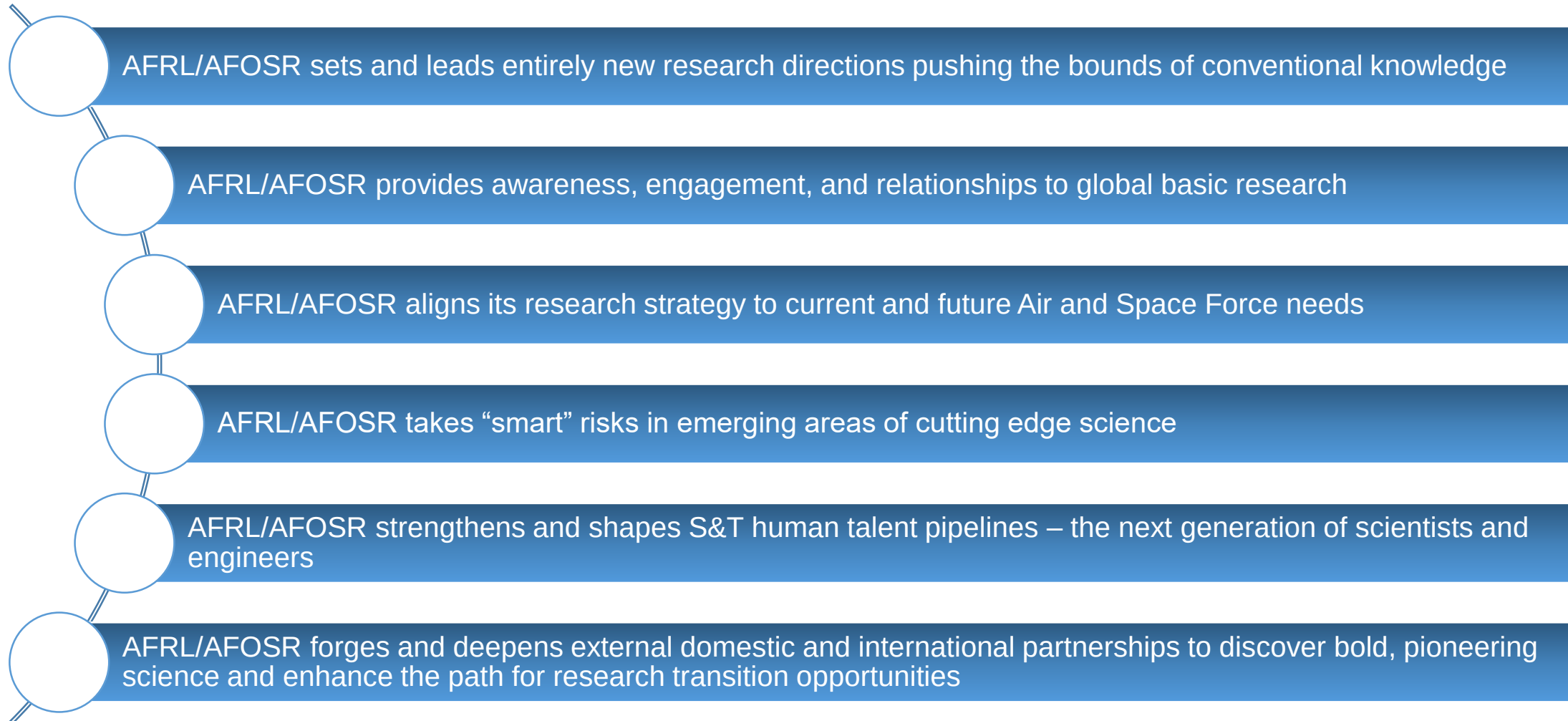
1215 extramural research projects at **209** US universities in **46** states
325 intramural research projects at AFRL Technical Directorates & Air Force Institute of Technology
348 international efforts in **43** countries on **5** continents

FORWARD

Transition through AFRL Technology Directorates (TDs), Small Business Innovation Research & Small Business Technology Transfer (SBIR/STTR)



What we do...We SCIENCE!





Who we are



A small organization with
a big mission ...

to Discover, Shape, and
Champion Bold, High Risk, High
Reward Basic Research to
profoundly impact the United
States Air Force and Space
Force



200 personnel –
Scientists & Engineers
and Business
Professionals

- Active duty Air Force
- All-service veterans
- Renowned academics
- Passionate civil servants



A global network of talent

We partner, grow and discover
with a global network of the
greatest scientific minds in the
world, pulling them into our
ecosystem, launching career
trajectories, and strengthening
their contributions to national
defense.

We are the Air Force Research Laboratory/Air Force Office of Scientific Research!



STEM Education Investment

Strengthen science, mathematics, and engineering research and educational infrastructure in the US, thereby strengthening current and future Air Force science and technology capabilities

Diverse science and technology areas addressing Air Force interests



K-12
Competitions and
Camps



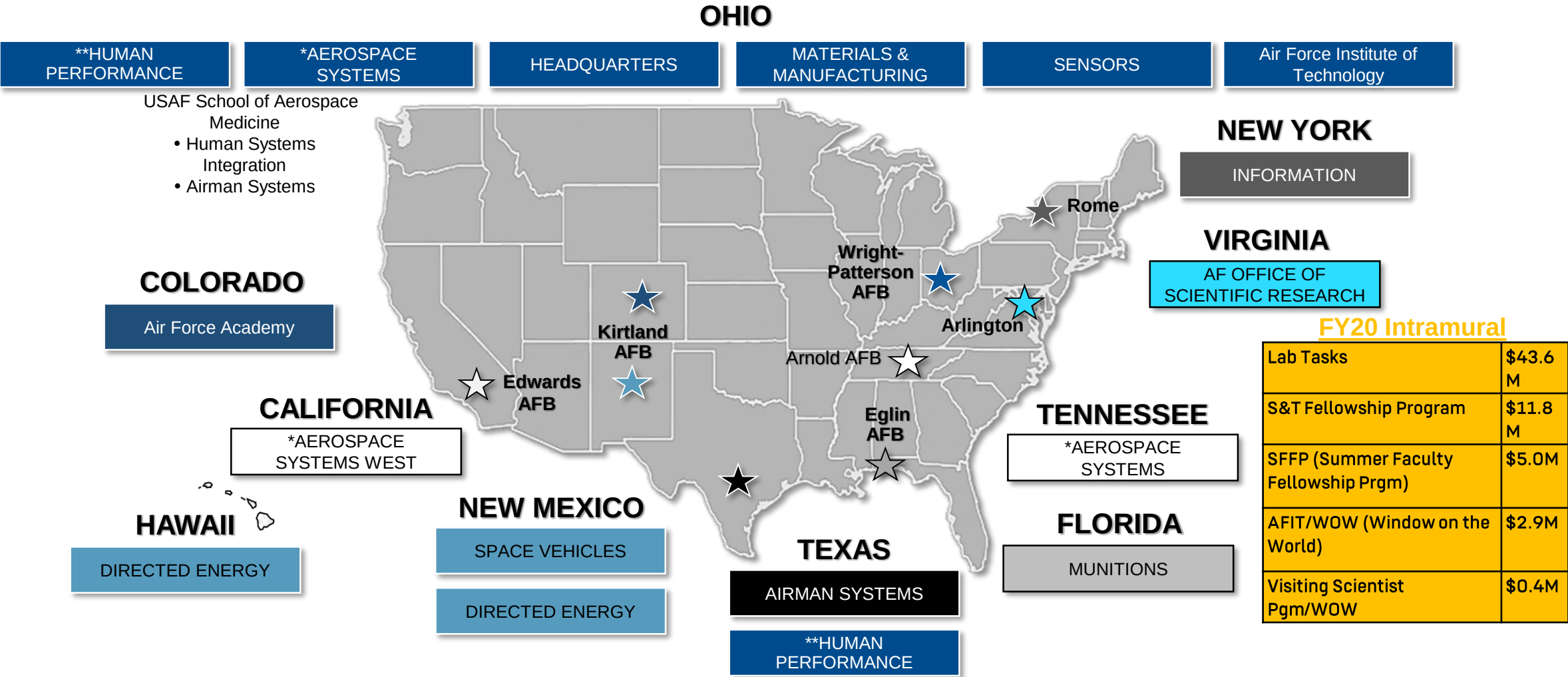
Undergrad
and Graduate
Fellowships,
Internships and
Experiences



Early Career
Awards,
Fellowships and
Programs



Where we invest



FY20 Intramural

Lab Tasks	\$43.6 M
S&T Fellowship Program	\$11.8 M
SFFP (Summer Faculty Fellowship Prgm)	\$5.0M
AFIT/WOW (Window on the World)	\$2.9M
Visiting Scientist Pgm/WOW	\$0.4M



Improving Competitiveness

DOING BUSINESS WITH AFOSR

Engage with AFOSR PO researchers to discuss your idea statement

- Promising ideas may begin an ongoing dialogue leading to full proposal submission
- Throughout your working relationship with AFOSR, you can expect an AFOSR PO to take on a number of roles:
 - Topical / Program Expert
 - Educator / Communicator
 - Team Builder
 - Advocate
 - Evaluator
 - Administrator
 - Active Member of AFRL, DoD & Scientific Communities



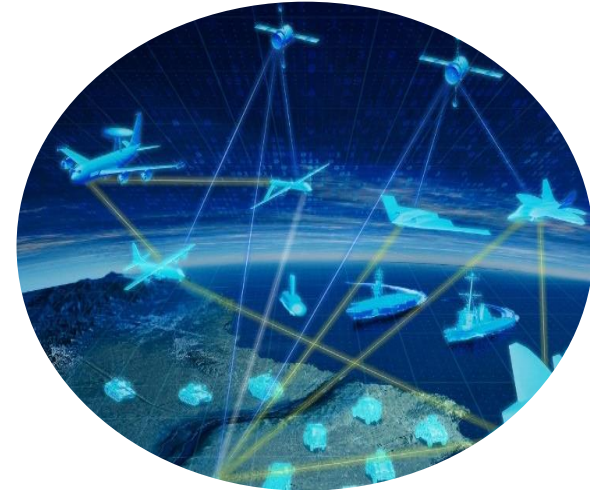


Improving Competitiveness

DOING BUSINESS WITH AFOSR

Attend grant writing courses

- In general, a good proposal is one that includes:
 - Strong technical merit
 - Air Force relevance
 - Solid budget justification
 - Consideration given to every requirement stated in the BAA



Understand funding considerations

- AFOSR receives far more good proposals than it is able to fund every year
- POs must factor many other considerations into funding decisions. Those include, but aren't limited to:
 - Overlap with program interests and connecting to DoD labs
 - Potential for scientific breakthroughs
 - Strategic directions
 - Budget realities
 - Peer review recommendations



Improving Competitiveness

DOING BUSINESS WITH AFOSR

- **Look for opportunities to forge partnerships**
- Once funded, remain engaged and continue with the process by
 - Reviewing BAAs
 - Attending program reviews
 - Collaborating with other PIs in the program
- Seek out Center of Excellence FOAs
 - University-led efforts, sponsored by 1+ AFRL Technology Directorate and AFOSR
 - Prime opportunity for academic engagement and student pipeline
 - Nominal three-year arrangement, with two-year renewal option
 - AFRL and University share costs (with AF investment up to \$500K/year)





Finding Funding Opportunities

For funding opportunities create an account, save searches and subscribe to updates at

