

# SPACEWERX

SHAPING OUR FUTURE IN SPACE

April 14th, 2022

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# **We enable the best commercial capabilities in addressing the challenges of the U.S. Space Force**

*SpaceWERX supports the U.S. Space Force as a division of AFWERX,  
powered by the Air Force Research Laboratory*

# 1 SpaceWERX Profile

Evolving Space  
Organization  
Network

# 2 SpaceWERX Portfolio

Approach  
SBIR Investments  
Focus Areas

# 3 Orbital Prime

## SpaceWERX Mission

Identify, acquire and integrate innovative capabilities into the USSF while cultivating partnerships among our nation's Space Guardians and top problem solvers

# Evolving Space

Major technology trends that affect our national security continue to emerge from private industry, academia, and government.

The U.S. Space Force's competitive advantage is our ability to identify, validate, acquire, and integrate those technologies quickly.

To maintain relevance, Space Force harnesses the capabilities of the commercial sphere.



- Empower a Lean and Agile Service
- Develop Joint Warfighters in World Class Teams
- Deliver New Capabilities at Operationally Relevant Speeds
- Expand Cooperation to Enhance Prosperity and Security
- Create a Digital Service to Accelerate Innovation

*"Agility, innovation, and boldness have always been the touchstone traits of military space forces. Today, we must harness these traits to pioneer a new Service and a new professional body of knowledge."*

*General John W. Raymond, Chief of Space Operations*

## Key Objectives

- Develop and harness a Guardian innovation culture and mindset to act with speed, agility and intelligent risk taking
- Drive engagement of our internal and external ecosystems to relentlessly explore and validate dual-use commercial capabilities
- Maximize transition success to support the timely adoption of new capabilities through prioritized resource allocation

## Enterprise Goals

- Create and maintain competitive environments
- Improve USSF outreach for technology and products from global markets
- Increase small business participation
- Remove barriers to commercial technologies utilization
- Improve return on investment in labs



## Ventures

- Develop/manage an easy-to-use open front door for innovative ideas (Open Topic)
- Affordably scale ideas by project-based co-investment (STRATFI/TACFI)
- Develop/execute private investor engagement strategy to grow emerging dual-use commercial technology companies

## Spark

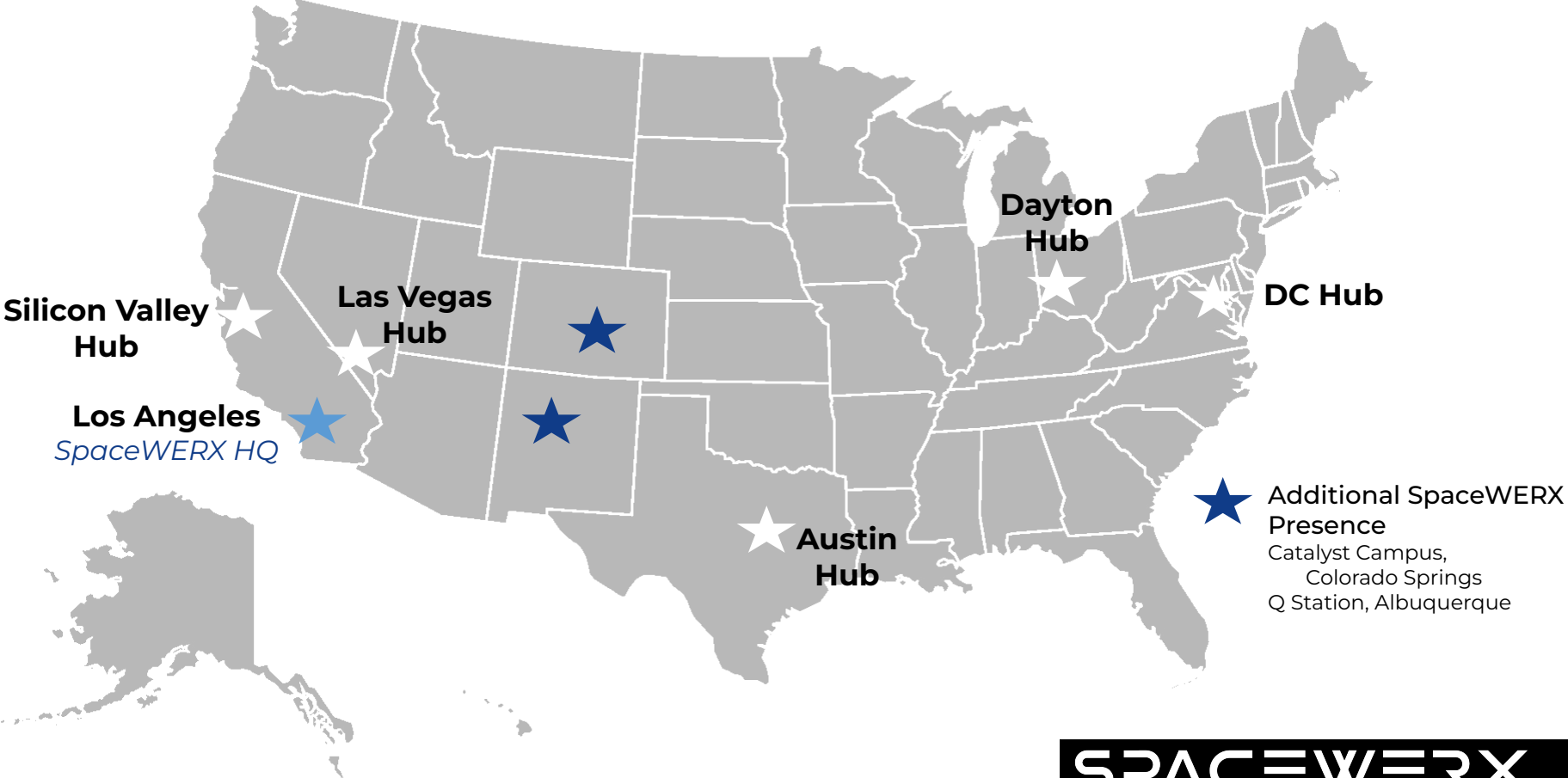
- Develop and harness a Guardian innovation culture and mindset to act with speed, agility and intelligent risk taking
- Drive engagement of our internal and external ecosystem to relentlessly explore and validate dual-use capabilities

## Prime

- Identify emerging technology sectors with industry & investment community
- Identify commercial tech sectors aligning with warfighter requirements
- Achieve a 20:1 ROI (all colors of money) while delivering rapid military utility



# AFWERX/SpaceWERX Network



# Approach



Source



Discover



Mature



Commercialize/Transition

Needs Sourcing

SpaceWERX Accelerators

Problem Curation

Space Prime

SpaceWERX Challenges

SBIR/STTR Phase I

SBIR/STTR Phase II

SBIR/STTR  
STRATFI/TACFI

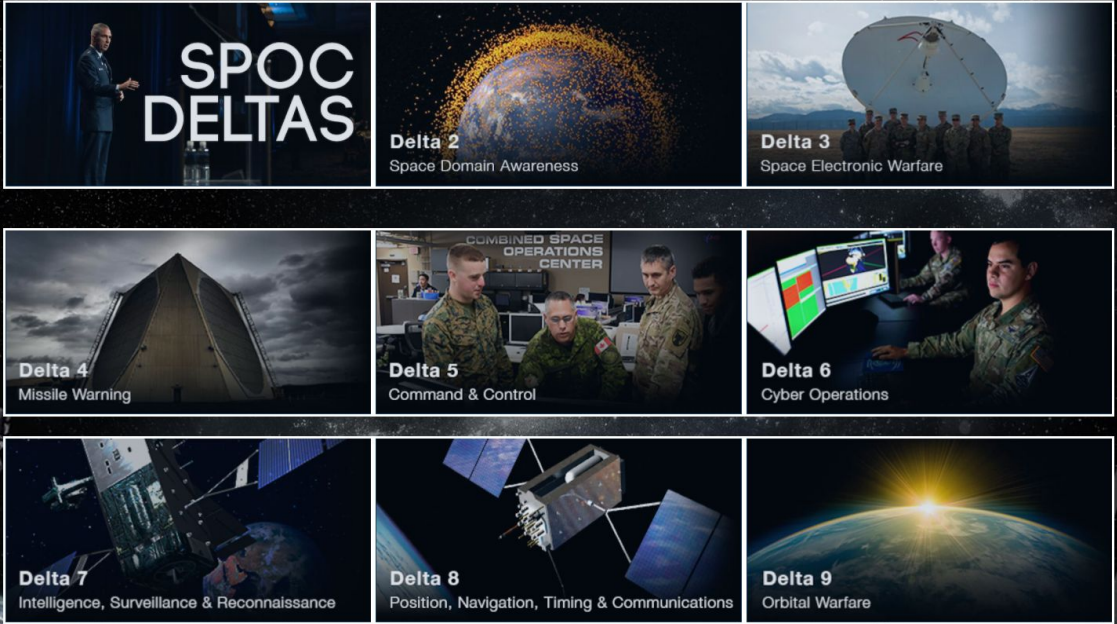
# Source

Through **Spark**, SpaceWERX captures space warfighter's toughest challenges.

This includes space operators and **any warfighter who relies on space to accomplish their mission.**

Problems curated around warfighter challenges.

We work with the U.S. Space Force Deltas through their **Combat Development Teams** to capture and address needs, empowering innovation at the operational edge.





# SpaceWERX SBIR Investments



## Feasibility - Phase I

\$50K - \$250K per award

1000-1500 awards per year

Triannual Solicitation Opening



## Prototype - Phase II

\$500K - \$1.5M per award

300-500 awards per year

Triannual Solicitation Opening



## Scale - STRATFI/TACFI

Up to \$15M (SBIR) awards  
(matching required)

20+ Awards per year

Annual Notification

Award Count

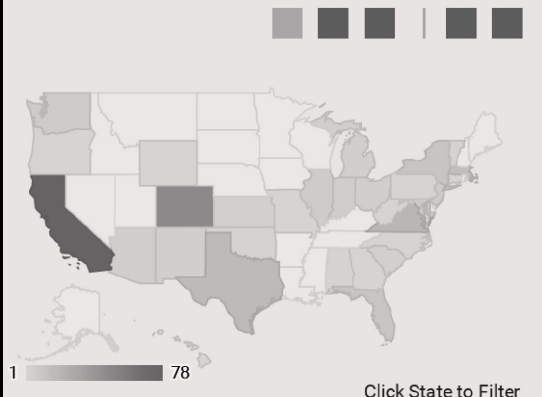
**270**

Amount

**\$227.6M**

Number of Companies

**169**



## What We Want From You

The Small Business Innovation Research program was established by Congress in the 1980's with the goal of identifying small businesses that could provide a solution to the warfighter in a faster, more efficient manner than was presently available. Fast forward almost 50 years, and the program is reducing barriers and accelerating processes, seeding the future of the U.S. Space Force through innovation and forward-thinking technology.

### Open Topic Calls

#### **SBIR 22.2/B**

Pre-Release: April 20, 2022

Open: May 18, 2022

Close: Check Solicitation

#### **SBIR 22.3/C**

Pre-Release: August 24, 2022

Open: September 21, 2022

Close: October 19, 2022

## Space Focus Areas

### Mission Areas

Battle Management Command & Control

Space Domain Awareness

Space Control

Space Access, Maneuver, & Logistics

Satellite Communications

Positioning, Navigation, & Timing

Space Sensing (Environmental Monitoring, Missile Warning)

### Pervasive Technologies

Electronics

Cyber Operations

Digital Engineering/Model Based Systems Engineering

Advanced Production/Manufacturing

Data Analytics/Artificial Intelligence/Machine Learning

Resilience

Operator Training

### Objective

Advance the market in On-Orbit Servicing, Assembly, and Manufacturing (OSAM) by maturing the common technology required to demonstrate Active Debris Removal (ADR)

### Vision

Demonstrate preservation and good stewardship of Space domain via ADR

Unlock the Commercial OSAM Market via ADR Use Case

Accelerate the Technology Required for OSAM & ADR

Rapidly Transition Technology for On-Orbit Demonstration

Actively network and seed consortium of partners to catalyze development and supply chain:

- Commercial Businesses
- Universities
- U.S. Gov Agencies across DoD and NASA
- Multinational Partners

#### Focus: 3 Technology Tracks

##### A) On-Orbit Resident Space Object (RSO)

###### *Approach and Remote Proximity Operations*

- Characterization and Pose Estimation
- Feature Extraction
- Safe Close Inspection and 3-D Modeling
- ID of Safe/Keep-out Zones
- Advanced Maneuver, Power, Propulsion

##### B) RSO Acquisition

- Execution of Capture
- Update Control Algorithms with new Dynamic System

##### C) RSO On-Orbit Servicing

- End of Life Servicing
- De-orbit Maneuver and Destination Orbits
- Mission Extension

#### By Close of FY24:

- Demonstrate ADR with Commercial & Int'l Partners
- Establish International Best Practices and Norms
  - Solving Policy & Regulatory Barriers
  - Laying Foundation for OSAM
- Transition to an Enduring and Accessible Capability

Inform Make-Or-Buy Decision for Space Commercialization Office

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