

The background of the slide is a blurred image of a financial market data screen. It features various stock indices and their values, such as 'OMX18' (OMX ICELAND 8) with a value of 28289.06, 'OMX18' (OMX ICELAND 8) with a value of 27956.04, and 'OMX18' (OMX ICELAND 8) with a value of 1632.51. There are also line charts showing price movements and 'Buy'/'Sell' indicators. The overall color scheme is blue and white with some red and green accents.

Overview of the SBIR Program

Maryann Feldman
Arizona State University

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

BOARD ON SCIENCE, TECHNOLOGY, AND ECONOMIC POLICY

Department of Energy (DOE): *Review of the SBIR and STTR Programs at the Department of Energy* (2020) [Office of Science National Academies](#)

National Institutes of Health (NIH): *Assessment of the SBIR and STTR Programs at the National Institutes of Health* (2022) [National Academies Press](#)

National Science Foundation (NSF): *Review of the SBIR and STTR Programs at the National Science Foundation* (2023) [National Academies Press](#)

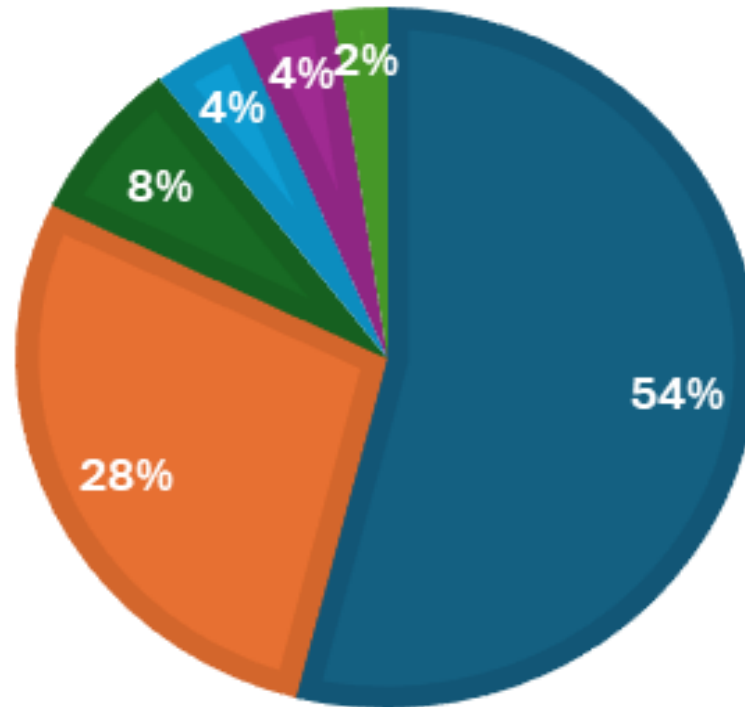
Department of Defense (DOD): *Assessment of the SBIR and STTR Programs at the Department of Defense* (under review)

National Aeronautics and Space Administration: *Review of the Small Business Innovation Research and Small Business Technology Transfer Programs at NASA* (in progress)

DOD SBIR/STTR Accounts for more than 50% of all SBIR/STTR across the Federal government

DISTRIBUTION OF SBIR/STTR FUNDING ACROSS AGENCIES

■ DOD ■ HHS ■ DOE ■ NASA ■ NSF ■ All others



SBIR Programs reflect Agency missions & goals

- NSF and NIH are mostly science funding agencies
- NASA and DOD are procurement agencies
- DOE is a hybrid agency – while it is primarily a science funding agency, it also supports the national labs.
- While NSF has transitioned to a model of *one and done*, many of their successful SBIR/STTR funded companies received follow-on SBIR/STTR funding from other agencies.
- Difference between these agencies affect the metrics that should be used to evaluate the success of their SBIR/STTR programs.

The impact of the SBIR/STTR programs: Summary of National Academies reports

- For DOE, the committee found **significant spillovers** to other firms, especially to firms located near awardee firms.
- NIH SBIR/STTR awardees **produced about 12% of all approved drugs**, including **18% of orphan drugs** during the 1996-2020.
- For NIH, awarded firms, especially those that were in the top 10% of NIH receipt of SBIR/STTR awards, **were much more likely to produce patented inventions, register trademarks, engage in clinical trials, or attract venture capital** compared to those who applied but did not receive SBIR/STTR funding on their first application.
- NSF SBIR/STTR funded firms were also **more likely to patent and receive venture funding**.

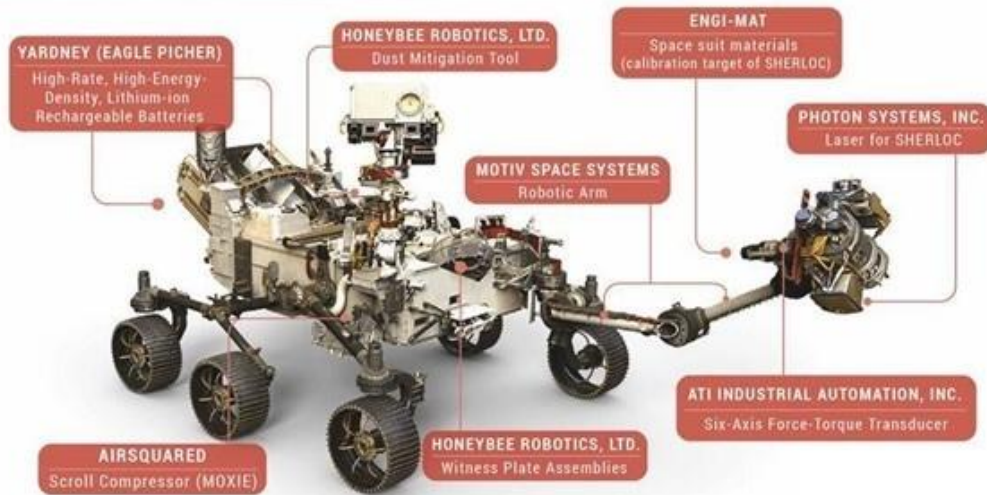
Department of Defense SBIR Program

- Goal -- Promoting Transition for Battle-Ready Technologies
- Two types of small firms apply/receive DOD SBIR funding
 - Dual use start-ups seeking non-dilutive funding
 - Defense-focused R&D specialists
- Every dollar of DOD SBIR activity generates \$4 in follow-on (non-SBIR) RDT&E funding

Strategic Breakthrough Allocation

DOD & NASA SBIR funds small parts of big networks

SBIR TECH ON-BOARD MARS 2020 PERSEVERANCE ROVER



Product Manufacturing

Variation Reduction Solutions, Inc. (AF063C-011) Confined Robotic Drilling
TDA Research (N03-172) Liquid Shims
Cuming Microwave Corp (AF081C-042) Mold-In Place Coatings
Picomatrix (AF082C-001) Step Gap Measurement Device
VRSI (AF091C-001) Affordable Automated Robot Guidance
ARC Technologies (AF093C-122) Rapid Boot Installation

Propulsion/Engine

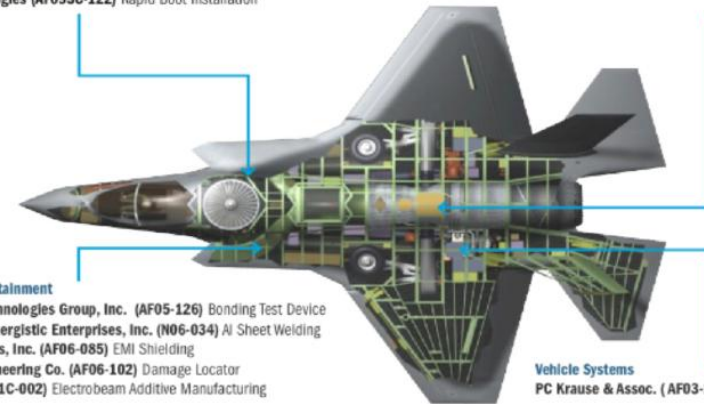
METSS Corporation (AF03-119) Engine Oil Additives
Arcamac Surface Engineering, LLC (AF06-088) Bearing Race Coatings
Adiabatics, Inc. (AF071-106) Engine Oil Temp Range
Third Wave Systems, Inc. (N04-013) TI Manufacturing
Touchstone Research Laboratory (AF05-270) Carbon Foam

Airframe Sustainment

Brighton Technologies Group, Inc. (AF05-126) Bonding Test Device
Keystone Synergistic Enterprises, Inc. (N06-034) Al Sheet Welding
NanoTechLabs, Inc. (AF06-085) EMI Shielding
Survive Engineering Co. (AF06-102) Damage Locator
Sciaky (AF091C-002) Electrobeam Additive Manufacturing

Vehicle Systems

PC Krause & Assoc. (AF03-173) Power Systems M&S



DOD SBIR Reinforces the Defense Industrial Base

- States underserved by venture capital benefit from the SBIR/STTR programs.
- Cap on Award Concentration penalizes the most productive firms
 - <\$75M cumulative awards over the firm/program life is very restrictive (proposed)
 - Big losers -- New Hampshire (39%), Massachusetts (37%), Maryland (32%), Alabama/Texas (19%), California (14%), Ohio (13%), Virginia (12%), Florida/N Carolina (9%), Colorado/Arizona (4%)
 - Encourages inefficient churning - reforming entities with new names
- Evidence contradicts
 - Only firms with > 50 awards realized DOD procurement activity
 - > 5 SBIR awards is associated with firm survival, and employment growth

Careful of Matching Funds Requirements

- Requirement for private matching funds favors Dual-use firms
- Disadvantages Defense-focused firms as follow-on contracts are omitted
- There are other RDT&E opportunities for Strategic Breakthroughs
- SBIR is the funnel for sourcing new ideas and an entry for small firms into the defense innovation system
- Each participating Agency (DOD Service/Component) has tailored the program to its needs and objectives

Streamlining the SBIR Process

- Give Agencies/Services/Components latitude to best achieve their mission
- Open Topics
 - Do not fit with the strategic goals/may not serve the mission of DOD
 - Administrative Burden on smaller agencies and components
 - Better to allow rather than require
- Better to reform the application process
- Don't cap submissions
 - Caps ignores that fact that firms have multiple Principal Investigators (PIs)
 - SBIR firms are an effective platform for organizing innovative activity
 - Application/compliance burden is significant
 - Spin – offs/M&A activity
 - Objective is to Source the best ideas

Simplifying SBIR-STTR Standards

- Need for improved data collection & reporting
 - Linking Phase I to Phase II to Phase III
 - Better reporting on relationships to Prime Contractors
- Make the program permanent
 - Reauthorization with changing rules is inefficient
 - Uncertainty around reauthorization lowers application rates to the program and harms small businesses
- Need to refine DOD procurement in general

Key DOD SBIR take aways

- Every dollar of DOD SBIR activity generates \$4 in follow-on (non-SBIR) RDT&E funding
- SBIR is the funnel for sourcing new ideas and an entry for small firms into the defense innovation system
- Only firms with > 50 awards realized DOD procurement activity
- > 5 SBIR awards is associated with firm survival, & employment growth
- Fund the best ideas - Give Agencies/Services latitude to best achieve their mission
- Make the SBIR/STTR program permanent – Don't mess with Success

Maryann Feldman

maryann.feldman@asu.edu