

Congress of the United States
U.S. House of Representatives
Committee on Small Business
2361 Rayburn House Office Building
Washington, DC 20515-6515

MEMORANDUM

TO: Members, Committee on Small Business
FROM: Nydia M. Velázquez, Chairwoman
DATE: May 13, 2021
RE: Full Committee Hybrid Hearing: “Overview of the Small Business Innovation Research and Small Business Technology Transfer Programs”

The Committee on Small Business will meet for a hybrid hearing titled “Overview of the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs.” **The hearing is scheduled to begin at 11:00 A.M. on May 13, 2021, in person in 2360 Rayburn House Office Building, and virtually via the Zoom platform.**

Federally funded research and development (R&D) has produced innumerable innovations and discoveries, leading to new companies and entire industries that have made America a global leader in science and technology fields. While small businesses are a major driver of American innovation, commercialization, and overall economic growth, they oftentimes struggle to obtain crucial early financing. The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs reduce the risks associated with early stage technology and stimulate commercialization of federal R&D innovations. The hearing will give Members the opportunity to learn more about “America’s Seed Fund” programs and their impact on pioneering small business.

Panel

- Dr. Joyce Tung, Vice President of Research, 23andMe, Inc, Sunnyvale, CA
- Ms. Pat Keady, Co-founder, CEO and President, Aerosol Devices Inc., Fort Collins, CO
- Ms. Rebecca Todd, Innovation Consultant, Arkansas Small Business and Technology Development Center, Little Rock, AK
- Mr. Jere Glover, Executive Director, Small Business Technology Council, Washington, DC

Background

In the 1970s and 1980s there were rising concerns that the U.S. was losing its long-time competitiveness on the international stage. The National Science Foundation (NSF) recognized the vital role that small businesses play in domestic innovation and job creation and established the NSF SBIR Program in 1977.¹ Due to the success of the NSF SBIR Program, Congress enacted

¹ TUTORIAL 5: THE HISTORY OF THE SBIR AND STTR PROGRAMS, SBIR STTR AMERICA’S SEED FUND, <https://www.sbir.gov/tutorials/program-basics/tutorial-5>.

the Small Business Innovation Development Act of 1982, which expanded the SBIR program to all agencies with extramural research and development (R&D) budgets.² Modeled after the SBIR program, STTR program was established as a pilot program by the Small Business Research and Development Enhancement Act of 1992.³ The STTR program is administered by government R&D agencies with an extramural budget of \$1 billion or more and requires participation of research institutions.⁴ The programs have been reauthorized several times, most recently by the SBIR/STTR Reauthorization Act of 2011, which reauthorized the program through September 30, 2017.⁵ The programs were later extended through 2022 in the FY 2017 NDAA.⁶

SBIR/STTR Program Basics

The SBIR and STTR programs are divided into 3 phases:

- Phase I is the pre-prototype phase used to explore the technical merit or feasibility of an idea, concept, or technology.
- Phase II is the prototype phase to expand on Phase I results. During this phase, R&D work is implemented, and commercialization potential is evaluated.
- Phase III is the commercialization phase to move the technology from the laboratory into the marketplace or into federal procurement. For more details, see Appendix 1.

The SBIR and STTR programs share four goals, which are: (1) stimulate innovation; (2) use small businesses to meet federal R&D needs; (3) foster and encourage the participation of minority and disadvantaged persons in technological innovation; and (4) increase private sector commercialization of innovations derived from federally funded R&D.⁷

The STTR program has an additional statutory purpose to stimulate partnerships between small businesses and non-profit research institutions.⁸ The Small Business Administration (SBA) emphasizes three principal differences between the SBIR and STTR programs, for STTR:

- The small business and its partnering research institution must establish an intellectual property agreement detailing the allocation of intellectual property rights and rights to carry out follow-on research, development, or commercialization activities;
- The small business partner must perform at least 40 percent of the R&D and the research institution partner must perform at least 30 percent of the R&D; and
- The principal investigator may be primarily employed by the partner research institution, in SBIR, the principal investigator must be primarily employed by the small business.⁹

² Small Business Innovation Development Act of 1982, Pub. L. No. 97-219, 96 Stat. 217.

³ Small Business Research and Development Enhancement Act of 1992, Pub. L. No. 102-564, 106 Stat. 4256.

⁴ Marcy E. Gallo, CONG. RESEARCH SERV., R43695 SMALL BUSINESS INNOVATION RESEARCH AND SMALL BUSINESS TECHNOLOGY TRANSFER PROGRAMS 12(May 5, 2020) [hereinafter CRS].

⁵ Pub. L. No. 112-81 [hereinafter FY 2012 NDAA].

⁶ Pub. L. No. 114-328 [hereinafter FY 2017 NDAA].

⁷ About, SBIR STTR AMERICA'S SEED FUND, [hereinafter About], <https://www.sbir.gov/about>.

⁸ U.S. SMALL BUS. ADMIN, SMALL BUSINESS INNOVATION RESEARCH (SBIR) AND SMALL BUSINESS TECHNOLOGY TRANSFER (STTR) POLICY DIRECTIVE (Effective: October 1, 2020), [hereinafter "Policy Directive"], available at https://www.sbir.gov/sites/default/files/SBA_SBIR_STTR_POLICY_DIRECTIVE_OCT_2020_0.pdf.

⁹ About, *supra* note 7.

SBIR/STTR Participants

SBA

As the lead coordinating agency, the SBA is responsible for establishing policy, procedures, and regulations; conducting outreach, which includes maintaining sbir.gov; collecting and publishing program-wide data; monitoring program implementation, including annual reports to Congress.¹⁰ Due to the similarities between the programs, the SBA Policy Directive sets guidelines for both SBIR and STTR as one program, unless one is specifically mentioned.¹¹

Research Agencies

Each participating agency operates its own SBIR/STTR programs under the provisions of the law and regulations, as well as with the policy directive issued by the SBA in its SBIR/STTR Policy Directive. According to some analysts, this approach allows for general consistency across STTR programs, while allowing each agency a substantial degree of control and flexibility in the execution of its program in alignment with its overall mission and priorities.

Since 2017, federal agencies with an extramural R&D budget over \$100 million are required to set aside at least 3.2 percent of that budget for SBIR awards to small businesses. There are 11 agencies participating: the Departments of Agriculture (USDA), Commerce (DOC), Defense (DOD), Education (ED), Energy (DOE), Health and Human Services (HHS), Homeland Security (DHS), and Transportation (DOT); the Environmental Protection Agency (EPA); the National Aeronautics and Space Administration (NASA); and the National Science Foundation (NSF). Total agency obligation for FY 2020 was \$3.3 billion for 5,976 awards to 3,547 small businesses.¹²

Federal agencies with an extramural R&D budget over \$1 billion must set aside at least 0.45 percent of the extramural research budget for STTR awards to small businesses. Currently, five agencies participate in the STTR program: DOD, DOE, HHS, NASA, and NSF. Total agency obligation for FY 2020 was \$454 million for 1,030 awards to 744 small businesses.¹³

Small Businesses

A small business' eligibility for the SBIR/STTR program is contingent on its location, number of employees, ownership characteristics, and other factors. Eligibility to participate in the STTR program is limited to for-profit U.S. businesses with a location in the United States. Eligible companies must have 500 or fewer employees, including employees of affiliates. Agencies are restricted on how much of their SBIR funds they can make available for awards to small businesses that are more than 50% owned by venture capital operating companies, hedge funds, or private equity firms.¹⁴ STTR does not have authority to make awards to small businesses that are more than 50% owned by multiple venture capital operating companies, hedge funds, private equity firms, or any combination of these.¹⁵

¹⁰ Policy Directive *supra* note 8, at 100-101.

¹¹ Policy Directive *supra* note 8, at 1.

¹² Award Data, SBIR STTR AMERICA'S SEED FUND, <https://www.sbir.gov/sbirsearch/award/all>.

¹³ *Id.*

¹⁴ Policy Directive *supra* note 8, at 35. The NIH, DOE, and NSF may award no more than 25% of the agency's SBIR funds to such small businesses; all other SBIR agency programs are limited to using 15% of their SBIR funds for such awards.

¹⁵ *Id.*, at 8.

SBIR/STTR's effect on job growth in small firms is critically important. These grants supply the seed capital required to create jobs. For thousands of small firms, the SBIR/STTR awards create jobs related to completing the requirements of a program contract and future jobs associated with R&D outcomes. SBIR/STTR awards, especially the larger Phase II awards, help researchers transition into research and development companies. Phase II grants include training resources and access to experts that can help awardees expand the operation and function of their firm. While the firm prepares its product for the market, their expansion becomes job creation.

Research Institutions

To participate in STTR, the partnering research institution must be located in the United States, and be either a nonprofit college or university, a domestic nonprofit research organization, or a federally funded R&D center. The small business and partner research institution must have a written agreement allocating Intellectual Property rights before receiving the award.¹⁶ For STTR Phase I and II projects, the partner research institution must perform at least 30 percent of the work.¹⁷ Regardless of the portion of work completed, the small business has primary responsibility for the performance of the project.¹⁸ Although partner institutions are identified in STTR applications and reports, they are not independently tracked. The SBA reporting system is searchable by small business awardees.

Technical Assistance Providers

SBIR/STTR support organizations include universities, accelerators, incubators, and economic development offices, as well as SBA local assistance providers including Small Business Development Centers (SBDCs), Procurement Technical Assistance Centers (PTACs), and Women's Business Centers (WBCs), and Regional Innovation Clusters (RICs).¹⁹ The SBA offers grants to support organizations through the Federal and State Technology (FAST) Partnership Program which aims to increase diversity in the SBIR/STTR pipeline.²⁰ The one-year grant is used to fund technical and business assistance, outreach, and financial support.²¹

Awarding agencies may award additional funding to SBIR/STTR participants for Technical and Business Assistance (TABAs) provided by a vendor chosen by the agency. To select their own vendor the small business must request the authority from the agency, but all awardees have flexibility in the type of assistance they need. Agencies may provide up to \$6,500 for Phase I, in addition to the award amount, and \$50,000 for Phase II, either as part of the award or in addition to the award.²² TABAs are meant to assist awardees with making technical decisions and solving problems, minimizing risks, and commercialization efforts.²³

¹⁶ *Id.*, at 57.

¹⁷ *Id.*, at 33.

¹⁸ *Id.*, at 50.

¹⁹ Support Organizations, SBIR STTR AMERICA'S SEED FUND, <https://www.sbir.gov/support-organizations>.

²⁰ Federal and State Technology (FAST) Partnership Program, SBIR STTR AMERICA'S SEED FUND, <https://www.sbir.gov/about-fast>.

²¹ *Id.*

²² Policy Directive *supra* note 8, at 64.

²³ *Id.*

Reauthorization Priorities

Since 2006, legislative changes to the SBIR/STTR program have been made exclusively through annual National Defense Authorization Acts (NDAA). The FY 2012 NDAA bill was the most recent comprehensive overhaul: it increased the program set asides and award sizes, allowed agencies to use 3 percent of funds for program administration, commissioned evaluations by the Government Accountability Office (GAO) and the National Academies of Sciences (NAS), and other major programmatic changes.²⁴ The FY2017 NDAA Act included an extension of SBIR/STTR through September 30, 2022.²⁵ The FY 2019 NDAA extended multiple pilot programs through September 30, 2022, and required all agencies to establish a Commercialization Assistance Pilot Program.²⁶

The Committee intends to address several policy areas that will be considered in the upcoming SBIR/STTR reauthorization, which include:

- Participation of women-owned or minority-owned small businesses;²⁷
- SBA compliance with statutory requirements;²⁸
- Agency authority to award funds to small businesses that are majority-owned by venture capital companies, hedge funds, or private equity firms;²⁹
- Agency tracking and prioritization of commercialization;³⁰
- Agency compliance with spending requirements;³¹ and
- Waste, fraud, and abuse mechanisms.³²

Conclusion

Similar to the sentiment of the 1970s and 1980s, the Biden Administration has proposed increased investment in national R&D to reclaim America's dominance in the global technology race. The SBIR/STTR program has decades of demonstrated positive return on investment and funding of groundbreaking technology that shows that it is integral part of the U.S. government's technological ecosystem. This hearing is the first in a series to examine the SBIR/STTR program as Congress prepares to reauthorize the program before September 30, 2022, when the current authorization expires.

²⁴ FY 2012 NDAA *supra* note 5.

²⁵ FY 2017 NDAA *supra* note 6.

²⁶ Pub. L. No. 115-232.

²⁷ CRS *supra* note 4, at 29.

²⁸ *Id.* at 32.

²⁹ *Id.* at 22.

³⁰ *Id.* at 24-26.

³¹ *Id.* at 30.

³² *Id.* at 33.

Appendix 1

The SBA runs the Federal and State Technology (FAST) Partnership Program which provides grant money to technical assistance organizations to increase participation of underrepresented groups in SBIR/STTR. NIH STTR offers Phase 0 Proof of Concept Partnership Pilot Program for participating research institutions to award grants to researchers.

22 states offer Phase 0 grants for SBIR/STTR proposals.

Pre-Application

Phase I

The objective of Phase I is to establish the technical merit, feasibility, and commercial potential of the proposed R/R&D efforts and to determine the quality of performance of the small business awardee organization prior to providing further Federal support in Phase II. SBIR/STTR Phase I awards are generally \$50,000 - \$250,000 for 6 months (SBIR) or 1 year (STTR). The awarding agency may provide an additional award to Phase I SBIR/STTR recipients up to \$6,500 for technical and business assistance. A Phase I award (including modifications) is limited to \$259,613, higher awards require a waiver.

22 states offer matching funds to Phase I/Phase II SBIR/STTR awardees.

Phase II

The objective of Phase II is to continue the R/R&D efforts initiated in Phase I. Funding is based on the results achieved in Phase I and the scientific and technical merit and commercial potential of the project proposed in Phase II. Typically, only Phase I awardees are eligible for a Phase II award. SBIR/STTR Phase II awards are generally \$750,000 for 2 years. The awarding agency may provide an additional award to Phase II SBIR/STTR recipients up to \$6,500 for technical and business assistance. A Phase II award (including modifications) is limited to \$1,730,75, higher amounts require a waiver.

A Phase II awardee may receive a second Phase II award to continue work. A Phase II awardee may receive IIB awards to supplement or extend Phase II awards, some agencies require matching funds. The Commercialization Assistance Pilot Program (CAP) at DOD and civilian agencies: SBIR Phase II awardees can apply for a third Phase II award to continue commercialization efforts.

Additional Phase II

Phase III

The objective of Phase III is to pursue commercialization objectives resulting from the Phase I/II R/R&D activities. The SBIR/STTR programs do not fund Phase III. At some Federal agencies, Phase III may involve follow-on non-SBIR/STTR funded R&D or production contracts for products, processes or services intended for use by the U.S. Government.