IEEE-USA

POSITION STATEMENT

Broadening Access to the Small Business Innovative Research Program

Adopted by the IEEE-USA
Board of Directors (June 2024)

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are highly successful public-private partnerships designed to advance technology development and commercialize innovative ideas into products that benefit society and generate U.S. economic growth.

While IEEE-USA strongly supports extending and reauthorizing these proven programs, the administrative complexity of applying to SBIR/STTR programs tends to favor those with strong networks of prior participants. Further, the current application process may limit access for those in underrepresented states and groups. Unfortunately, otherwise exceptional companies may fail to apply due to unfamiliarity with the requirements or from fear of rejection due to administrative, rather than technical or business, reasons.

While maintaining the current Phase I, Phase II and Phase III structure, IEEE-USA recommends introducing an optional and preliminary "Expanded Access Training," to help new applicants access these important programs.

The proposed "Expanded Access Training" program should include:

- A single source for information, such as the webportal (https://www.sbir.gov hosted by the Small Business Administration), providing:
    - A series of educational courses designed to show small businesses how all the significant sections of the application process should be completed-in a simple and straightforward manner, with relevant examples for each of the funding agencies
    - A mentoring component, in which participating new entities may request the option to be partnered with a mentor, or mentor company, that has previously completed one or more SBIR/STTR awards
    - A yearly calendar of events and broad agency announcements from the federal funding agencies to show the dates, topics of research, and proposal submission instructions and to facilitate potential participating companies in their SBIR/STTR planning

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- An “Expanded Access Training” Completion Value-Add:
    - New participants who successfully complete the “Expanded Access Training” program will have more confidence that their good-faith submission would not be rejected due to an administrative or similar error. To help accomplish this, the responsible agency would provide an administrative review of such applications -- prior to the due date -- giving timely feedback and sufficient opportunity to these new participants to correct any administrative issues. This review should also extend to the “Expanded Access Training” mentor, or mentor company to encourage participation and teaming in the SBIR/STTR programs.
    - Assistance for eligible entities in preparing their companies for both the business and administrative requirements of application to the SBIR/STTR programs. The assistance should include the submission of an optional one-page white paper for review and feedback prior to the submission of the proposal to the SBIR/STTR programs in order to reduce the burden in the preparation of the proposal.

It is IEEE-USA’s view that implementing this “Expanded Access Training” program across federal agencies would broaden participation in the SBIR/STTR programs to currently underrepresented groups and regions; ensure that knowledge of optimum practices is disseminated from existing experienced groups; and encourage the best companies continue to promote U.S. technological and business growth.

Background

In 1982, through the Small Business Innovation Development Act, the Small Business Innovation Research (SBIR) program was created and implemented across multiple Agencies. It has continued as the Nation’s largest innovation program. SBIR offers competitive awards to stimulate technological innovation among small private-sector businesses while providing government Agencies with new solutions that meet their diverse needs. The SBIR program was reauthorized in 1992 with the passage of the Small Business Research and Development Enhancement Act of 1992. Then again in 2000, the program was reauthorized until 2009 by the Small Business Innovation Research Program Reauthorization Act of 2000. Due to a series of Continuing Resolutions the SBIR program was not reauthorized again until December 2011 when it was reauthorized by the 2012 Defense Authorization Act. The Small Business Technology Transfer, or STTR, program began later and was initialized in 1992 by the Small Business Technology Transfer Act of 1992. It was re-authorized by the Small Business Technology Transfer Program Reauthorization Act of 2001 and again by the SBIR/ STTR Reauthorization Act of 2011. In 2016 both the SBIR and STTR programs were reauthorized as part of the 2017 National Defense Authorization Act, or NDAA, pushing the expiration date to September 30, 2022. The most recent re-authorization was the SBIR and STTR Extension Act of 2022 (public law 117-183), which requires the head of each federal agency with R&D budget to establish an SBIR or STTR program (https://www.congress.gov/117/plaws/publ183/PLAW-117publ183.pdf). The program is due for re-authorization in 2025.

The SBIR/STTR program is a significant part of America's R&D enterprise and provides funding to small businesses to develop their ideas and a pathway to commercialization. The SBIR and STTR programs fund a diverse portfolio of startups and small businesses across technology areas and markets to stimulate technological innovation, meet Federal research and development (R&D) needs, and transition the R&D to commercialization. To participate in the SBIR or STTR program, an applicant must meet a number of eligibility requirements. These requirements pertain to the applicant itself, its principal investigator, and its subcontractors.

Only certain types and sizes of small business may apply for and receive SBIR or STTR awards. STTR proposals must be submitted by small businesses that are collaborating with universities or other non-profit research institutions participating on the STTR project. For both SBIR and STTR programs the small business must be the applicant as well as the responsible business and technical lead on the proposal. For SBIR/STTR, small business is defined to be a firm with 500 or fewer employees. It does not matter if they are full- or part-time employees, or even leased employees—they all count toward the 500-employee limit. At the low-end of the employee spectrum, the small business could also be a start-up with one employee. The small business must be for profit, and therefore non-profit entities are not eligible, although non-profit could be a subcontractor or a consultant to the small, for-profit applicant.

The small business must be primarily U.S. owned. This is defined as having at least 51% of its ownership by U.S. citizens and/or permanent resident aliens. This requirement could also be met if the applicant is at least 51% owned by another small business with 500 or fewer employees, as long as that parent company is at least 51% owned by U.S. citizens or permanent resident aliens. When a small business is venture-backed, additional considerations come into play. Every SBIR and STTR proposal must designate a single individual who will serve as the principal investigator (PI) on the proposed project. The PI has overall responsibility for the project, and therefore must be credible in terms of his/her education, work and project management experience.

The principal investigator must meet certain eligibility requirements on an SBIR/STTR proposal. For SBIR projects, the PI must be “primarily employed” by the applicant small business during the SBIR award period. The PI cannot be full time employed elsewhere during the SBIR award period. Some agencies have additional stipulations, such as the PI cannot work more than 19.6 hours elsewhere or has to devote a minimum number of hours to the SBIR program to be confirmed by the hours shown for the PI on the budget form. A careful reading of the agency’s solicitation will help ensure compliance with the eligibility requirements for the PI.

On average the SBIR/STTR program provided funding to about 4,000 small businesses per year for a total of about $4 Billion. The SBIR/STTR program is conducted in three phases. Phase I is the proof of concepts, lasting 6 to 12 months at a budget of $50K to $275K. Phase II is the technology development, lasting about 24 months at a budget of $750K to $1.8M. Finally Phase III is the commercialization with industrial partners to take the results of the technology development to produce products in the marketplace.

The following federal agencies set aside 3.2% of their extramural R&D budget for SBIR:

- Department of Agriculture
- Department of Commerce (National Institute of Standards and Technology and National Oceanic and Atmospheric Administration)
- Department of Defense
- Department of Education
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
- Department of Transportation
- Environmental Protection Agency
- National Aeronautics and Space Administration
- National Science Foundation

While both SBIR and STTR provide federal funding for research and development to small businesses, the difference is that STTR requires collaboration between the small business and research institutions, typically universities. The following federal agencies set aside 0.45% of their extramural R&D budget for STTR:

- Department of Defense
- Department of Energy
- Department of Health and Human Services
- National Aeronautics and Space Administration
- National Science Foundation

The individual agencies execute their SBIR/STTR program independently and in different ways for the R&D to meet their agency's needs and missions. The eleven Agencies that participate in the SBIR and STTR programs make their awards either as grants or contracts. In 2020 the combined SBIR and STTR budget across all of the participating Agencies was a little over $4 billion dollars. Of that, a little over half was provided to small businesses in the form of contracts; while the other half was provided as grants. The Federal government uses grants to accomplish a public purpose, advance a national objective, address a public problem, or stimulate a particular activity desired by the awarding Agency. Grants are very flexible, allowing considerable latitude to the Principal Investigator, or PI. Investigator-initiated research projects that align with an Agency’s mission are awarded as grants. There are four Agencies that participate in the SBIR and STTR programs that uniquely award grants. These are the Department of Energy, the National Oceanic and Atmospheric Administration, the National Science Foundation, and the U.S. Department of Agriculture. By contrast, contracts are more demanding. A contracting Agency is looking to procure a good or service that will be of direct benefit to the government. There are five contracting Agencies that participate in the SBIR or STTR program, with the largest being the Department of Defense and the National

Aeronautics and Space Administration. The other contracting Agencies are the Department of Homeland Security, the Department of Transportation, and the Environmental Protection Agency. There are also two Agencies that use both grants and contracts. These are the Department of Health and Human Services and the Department of Education.

Much information about the SBIR/STTR program is provided in the CRS report, Small Business Research Programs: SBIR and STTR (https://crsreports.congress.gov/product/pdf/R/R43695). Much information can also be found throughout the Internet from various organizations, some are government and some private sector. The webportal hosted by Small Business Administration https://www.sbir.gov provides a wealth of information regarding theSBIR/STTR program. Particularly useful is the information in the form of tutorials and frequently asked questions. Other websites (e.g. https://www.universitylabpartners.org/blog/how-to-create-a-competitive-sbir) provide tips on how to prepare winning SBIR proposals. All SBIR/STTR funding agencies have websites devoted to the program, but some are useful and some not so useful. For example, the NASA SBIR/STTR website (https://www.nasa.gov/sbir_sttr/) provides useful information such as proposal solicitation schedules.

However, all this useful information is scattered throughout the Internet. There is not a centralized single source of information, such as the SBA hosted webportal (https://www/sbir.gov) to provide educational and mentoring assistance to new applicants. Furthermore, different agencies make their program announcements at different times of the year. That makes it difficult for small businesses new to the SBIR/STTR program to track and respond to the proposal solicitations. A single source of information and webportal would be tremendously helpful to broaden access to the SBIR/STTR program to new applicants.

Small businesses are vitally important components in the U.S. economy. Even though people think that large businesses are controlling the economy, in fact 99.9% of American businesses are small businesses which employ 61.7 million Americans, totaling 46.4% of private sector employees. According to the SBA (https://advocacy.sba.gov/wp-content/uploads/2021/12/Small-Business-FAQ-Revised-December-2021.pdf) there are 32,540,953 small businesses in the U.S., while there are 20,516 large businesses. Each year 4.7 million businesses are started, although many of them fail within two to five years. Many of these small businesses are technology startups with potential to participate in the SBIR/STTR program. Throughout the history of the SBIR/STTR program, only a small percentage of eligible small businesses end up with grant/contract awards. The SBIR/STTR program is so competitive that some small businesses are hesitant to apply for research funding. Furthermore, the process of preparing and submitting proposals in response to the agency's SBIR/STTR solicitations are complex and difficult, particularly for small businesses that are new and are unfamiliar to the program. The result is that the U.S. would miss a perfectly good opportunity to advance and develop innovative technology that can meet the needs of the agencies.

Wider participation from the small businesses, including technology startups, would enable the agencies to develop and commercialize innovative technologies that are sorely needed to stimulate growth in the economy. There is a need to broadly

publicize the SBIR/STTR program to small businesses, including creation of a webportal that contains information on everything about the SBIR/STTR program. A series of educational courses designed to show small businesses how all the significant sections of the application process should be completed-in a simple and straightforward manner. Mentors with previously successful SBIR/STTR awards can assist new small businesses in the preparation and submission of proposals. A well-publicized webportal, such as https://www.sbir.gov/, with a yearly calendar of events would enable the interested small business to plan their research and to prepare to respond to the agency's program announcements. Small businesses often do not have the additional resources dedicated to preparing SBIR/STTR proposals, any effort by the agencies to reduce the burden of application preparation, including optional submission of a one-page white paper for review and feedback, would be very helpful to small businesses new to the SBIR/STTR program.

This statement was developed by the IEEE-USA Research & Development Policy Committee and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. IEEE-USA advances the public good and promotes the careers and public policy interests of the nearly 150,000 engineering, computing, and allied professionals who are U.S. members of the IEEE. The positions taken by IEEE-USA do not necessarily reflect the views of IEEE or its other organizational units.

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