

*IEEE-USA POSITION STATEMENT*

## **Small Business Innovative Research**

*Adopted by the IEEE-USA  
Board of Directors, 23 June 2017*

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are strong examples of public-private partnerships designed to advance technology development toward successful commercialization into products that benefit society and generate economic growth in the United States. IEEE-USA supports continuing the SBIR/STTR programs, with focused improvements in the following areas to increase the impact of these important programs:

1. Preserve the Basic Phase I, Phase II and Phase III structures; increase the number of Fast Track awards; and ensure the vitality of the SBIR/STTR programs.
2. Preserve the intent of the 2012 SBIR reauthorization limiting venture capital participation in SBIR to the reduction of “after Phase II risks.” Increase commercialization support past initial funding phase.
3. Improve the program process by drawing topics broadly from the sponsoring agency, ensuring that the selection process is transparent, having an adequate number of well qualified reviewers, and reducing cycle times.
4. Broaden the participation to SBIR/STTR programs beyond organizations with many successful grant applications. Provide incentives and increase awareness to enhance participation from researchers in states that historically have received few SBIR/STTR contracts.
5. Encourage more participation from women and other under-represented groups. Review incentives and implement the best approaches across all agencies.

This statement was developed by the IEEE-USA Research and 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 200,000 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.

## **BACKGROUND**

### **The Importance of Small Business for Job Creation**

Congress has demonstrated an ongoing interest in the small business sector. To enhance economic growth and competitiveness, it has been given special consideration to small, high-technology firms, as they tend to be highly innovative, play a significant role in technology development, and contribute to a high standard of living in the United States. Furthermore, small businesses are historically the largest source of jobs for engineers and scientists; and are the leading source of breakthrough innovations to meet federal research and development needs. While the post-recession recovery has enabled a return to profitability for many large firms and the financial sector, the environment for securing small business capital remains difficult [8].

### **The Role of the SBIR Program**

In 2008, Congress tasked the National Research Council with studying how the SBIR program had stimulated technological innovation, and enabled small businesses to contribute to government research and development (R&D) needs. A series of reports was produced on SBIR efforts at the Department of Defense (DOD), the Department of Energy (DOE), the National Aeronautics and Space Administration (NASA), the National Institutes of Health (NIH), and the National Science Foundation (NSF), accounting for 96% of SBIR program funding. [1-7] Some of the conclusions of this effort were:

- SBIR is a commercial enabler for small firms
- A small number of programs accounts for the majority of successes
- SBIR permits flexibility for programs to adapt to government agency missions
- A large number of firms have benefited from SBIR awards

The 2011 SBIR renewal validated the program success, and included several positive changes to strengthen it, including:

- Increasing the SBIR program allocation from 2.5% to 3.2%, and the STTR allocation from 0.3% to 0.45%, giving small businesses an increased role in the federal R&D enterprise
- Tasking the National Research Council (NRC) with evaluating the effectiveness of both the SBIR and the STTR programs. (Effective July 1, 2015, the NRC is now the National Academies of Sciences, Engineering, and Medicine. This report uses references to the National Research Council in a historic context, identifying programs prior to that date.)

- Enabling participating federal agencies to utilize three percent of program funds to improve program administration; combat waste, fraud and abuse; and conduct outreach to underrepresented businesses

## **Background on Recommendations**

1. SBIR/STTR Reauthorization as part of the 2017 National Defense Authorization Act (NDAA) calls for a simple five-year reauthorization of the 2012 SBIR reauthorization with no allocation increase or pilot programs -- pushing the expiration date back to 2022. The 2012 SBIR reauthorization was successful in preserving the Basic Phase I, Phase II and Phase III structures. The recently created SBIR Fast Track program has been effective in accelerating technology development, and it should be preserved to support highly meritorious proposals accelerating commercialization, by requiring a single review process for the combined Phase I and Phase II efforts. IEEE-USA supports the continuing Phase I, as this stage includes the critical feasibility analysis, and the fundamental innovations needed to increase the chances of success in Phase II, and subsequent commercialization.
2. The 2012 reauthorization expanded the scope of participation for venture capital (VC) in the SBIR program. Though it is appropriate that some access to the SBIR program be afforded to small businesses with venture capital backing, the SBIR program should not become an alternative source of early stage funding for venture capital operating companies. Currently, in Phases I and II, if the VC firm is a large business, with 500 or more employees, including affiliates and subsidiaries, then it may seek or hold only a minority position in an SBIR company to participate in the SBIR Program. On the other hand, if the VC is a small business, with 499 or fewer employees, including affiliates and subsidiaries, then it may participate in the SBIR Program in any manner it wishes, as either a majority or a minority shareholder.

Furthermore, many firms that successfully complete Phase I and Phase II programs encounter the so-called "Valley of Death" funding gap to commercialization. IEEE-USA supports developing additional funding mechanisms to enhance commercialization support, and writing SBIR topics with commercialization in mind. The 2012 reauthorization directed new resources for agencies participating in the SBIR program to use part of their allocation to assist participants with developing commercialization plans. Firms receiving Phase II funding should be required to develop specific and detailed commercialization plans with clear milestones. The Navy Technology Assistance Program (TAP) and Department of Energy Commercialization Assistance Program (CAP) are good models for this effort. Although in many cases, SBIR awards have been vital inputs for success, most major commercialization successes need substantial post-SBIR research and funding from a variety of sources. IEEE-USA intends this recommendation solely to improve the SBIR program commercialization

possibilities, by authorizing experiments with funding beyond Phase II, to bridge the “Valley of Death.”

3. The SBIR/STTR program has higher chances of successful yield, if agencies open opportunities to groups to define topics of interest, rather than confine the program to specific directions. Groups seeking specific technologies with near-term applications should develop SBIR/STTR topics. Furthermore, IEEE-USA recommends further improving the review process, by making it more transparent, and clearly articulating the cycle time/milestones. As the initial demonstrations are validated, over the course of successful Phase I and Phase II programs, this approach will maximize the chances for commercial success.
4. The 2012 reauthorization increased the required allocation for SBIR funding. IEEE-USA supports that policy, and would oppose any future efforts to reduce or curtail program allocations. Future policies should focus additional attention on awarding Phase I funds to states that historically have received relatively few SBIR/STTR contracts; as well as ensuring that Phase I and Phase II funding limits are reflective of the broader economy, and research and developments costs. The NIH Institutional Development Award (IDeA) program, which seeks to broaden the geographic distribution of NIH funding for competitive biomedical research can serve as a model. It builds research capacities in states that have not traditionally received significant levels of NIH research dollars. It supports basic, clinical and translational research, faculty development, and infrastructure improvements in 23 states and Puerto Rico. As a result, NIH has developed a list of activities for IDeA states to improve success rate in their SBIR programs [2]. IDeA states include AK, AR, DE, HI, ID, KS, KY, LA, ME, MS, MT, ND, NE, NH, NM, NV, OK, PR, RI, SC, SD, VT, WV, and WY.
5. While Congress made a point of encouraging women and minority entrepreneurs to participate in federal research and development, more needs to be done to encourage members of underrepresented groups to apply as principal investigators and senior investigators for SBIR awards. According to [1-6], “While support for woman-owned businesses is increasing, support for minority-owned firms has not increased.” The fraction of Phase I awards to minority-owned firms at the DOD has declined since the mid-1990s, falling below 10 percent for the first time in 2004 and 2005. Furthermore, R&D agencies do not have a uniformly positive record in collecting data and monitoring funding flows for research by woman- and minority-owned firms. Congress and agencies should consider which incentive structures have shown greatest promise in effecting these desired outcomes, and use them more broadly in the SBIR context.

## References:

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