

## **Comments on the SBIR/STTR Program: Always Trade-offs**

### **Introduction:**

Thank you Ranking Member Velazquez, Chairman Graves, and Members of the Committee. I am honored to have this opportunity to offer comments on the SBIR program. As Ranking Member Velazquez mentioned, in addition to being a faculty member for nearly 40 years at The College of William and Mary, I have been working as an economist and program evaluator for the SBIR program for nearly 20 years. As an economist from academia, my comments will not be advocating a particular point of view or perspective of any organization, but will be based on my research, my objective conclusions, and the research of others in the public, private, and academic sectors. I will likely be perceived as President Truman's nemesis – the two-handed economist, but I do this as a public policy educator who recognizes that most, if not all, decisions involve trade-offs.

That said, I am admittedly a fan of the SBIR approach to Federal government support for achieving several important goals including encouraging hi-tech research from small businesses, encouraging commercialization and infusion (into Federal agencies) of the technologies generated, and encouraging women and minorities to participate in this important sector. It is widely accepted that small business is an important source of productivity and employment growth and that technological advances are a pre-condition for long-term economic growth and international competitiveness.

The original design of the SBIR program in 1982 identified 4 main goals:

1. Stimulation of technological innovation;
2. Use of small businesses to help meet the R&D needs of the Federal government;
3. The fostering and encouragement of participation by minorities and women in the innovations; and
4. The increase in private sector commercialization emanating from Federal R&D.

While the program has evolved over time (including the creation in 1992 of the STTR program), in 2011 the Congress passed and the President signed the National Defense Authorization Act of FY 2012.

My comments today will address what we might expect in the post-reauthorization period in terms of the process and outcomes of the SBIR program. However, it is important to note at the outset that the time since the passage of the reauthorization is relatively short. I am a firm believer in Congressional oversight and program evaluation more generally. However, it is important to identify what can be observed at various points in time. From what I have been able to determine, the various SBIR sponsoring agencies have been working to reorient their

operations, goals, and metrics to adapt to the reauthorized program. They are at various points in that adaptation. Therefore, my comments will be based on what we can expect from the various elements of the revised program over the next few years, including possible unintended consequences.

I would like to offer some brief comments and observations on the following 7 issues.

1. Overall Health of the SBIR Program
2. Program Goals Should be Remembered When Debating Policy Issues and Consider Implicit Trade-offs
3. The So-called Proposal Mills
4. Dimensions of the VC Issue
5. Geographical Dispersion of Awards
6. Participation by Minorities and Women in the Program
7. Need for Continued Research and Evaluation

## **Seven Issues for Consideration**

### **Overall Health of the SBIR Program**

The SBIR program has been in existence since 1982. In my view and based on nearly all the extant research (including the various reports by the National Academies as well as my own reports), the program is working to achieve its goals. While it is challenging to measure outcomes, the studies that have attempted it, indicate that program outcomes of sales and commercialization, infusion into Federal agencies, and to some extent achieving participation in the program by women and minorities have all shown to be positive. But there is clearly room for improvement on all these dimensions. I would posit that the program itself is well-conceived.

In what follows, I display a convenient summary from the SBA website of the key changes in the program as a result of the reauthorization:

#### ***Funding:***

Set-aside percentages are increased. For FY 2012, SBA has issued guidelines to the agencies that the set-aside share is increased to 2.6%, prior to the new Policy Directives being issued. The share will increase by 0.1 percentage point each fiscal year until it reaches 3.2% for fiscal year 2017. It will remain at that level after that. For STTR, the set-aside percent was increased to 0.35% for 2012 and 2013, and will increase to 0.4% for 2014 and 2015, and to 0.45% for 2016 and thereafter. Note that agencies may exceed these minimum percentages.

Award sizes. STTR award sizes (guideline amounts) are increased to match SBIR amounts: \$150,000 for Phase I and \$1 million for Phase II. Awards may not exceed guideline amounts by more than 50% (\$225,000 for Phase I and \$1.5 million for Phase II). Agencies must report all awards exceeding the guideline amounts and must receive a special waiver from SBA to exceed the guideline amounts by more than 50%.

Administrative funding pilot. A new pilot program permitting agencies to use 3% of their SBIR funds for administration of SBIR and STTR programs.

Technical assistance. The amount of SBIR funds permitted to be used for technical assistance is raised from \$4000 to \$5000 per award per year.

***Eligibility:***

VC-owned firms. The biggest change in eligibility required by the reauthorization legislation will be allowing firms that are majority-owned by multiple venture capital operating companies (VCOs), hedge funds and/or private equity firms to receive SBIR and STTR awards.

Company Registry. All applicants will be required to register with the Company Registry Database at [www.sbir.gov](http://www.sbir.gov) at the time of application.

Cross-program awards. Agencies have the option to allow STTR Phase I awardee to receive SBIR Phase II award and SBIR Phase I awardee to receive STTR Phase II award. Implementation is at agency discretion.

Cross-agency awards. Clarifies that a Phase I awardee may receive a Phase II award from an agency other than the one that awarded the related Phase I. Reporting to SBA by both agencies is required.

Direct to Phase II pilot. For fiscal years 2012-2017, the NIH, DoD, and Department of Education may issue Phase II SBIR awards to firms to pursue Phase I solicitation topics without requiring the applicant to have received a Phase I award for related work. Implementation is at agency discretion.

Open Phase II competition: Beginning 10/1/2012, agencies must allow all Phase I awardees to apply for a follow-on Phase II award. Issuing Phase II awards via invitation only will not be permitted. Agencies will need to include information on the Phase II application process in all Phase I solicitations released on or after 10/1/2012 and notify their Phase I awardees of this change in practice.

Second Phase II. Agencies may award a second, sequential, Phase II to continue a Phase II project.

***Streamlining the award process:***

The Reauthorization Act requires changes aimed at reducing gaps in time between close of the solicitation and notification of award. Agencies are to implement these measures as soon as is practicable. In addition, the Policy Directives include new reporting requirements for the participating agencies to develop data needed to monitor and analyze these time lags.

***Data & Reporting:***

Central data system. An improved program-wide data system will be developed to facilitate administrative reporting and program evaluation. The system will enable applicants and agencies to provide the required information into the Tech-Net database ([www.SBIR.gov](http://www.SBIR.gov)).

***New measures to guard against fraud, waste, abuse:***

Company certifications. Awardee firms must certify they are meeting program requirements not only at the time of award, but also at points during the lifecycle of the award.

Information systems. Agencies must: include on their website, and in each solicitation, a telephone hotline number or web-based method for reporting fraud, waste and abuse; include on the agency's website successful prosecutions of fraud, waste and abuse in the SBIR Program; designate at least one individual to serve as liaison for the SBIR/STTR Program to the Office of Inspector General (OIG) and the agency's Suspension and Debarment Official (SDO); and maintain procedures to enforce accountability (e.g., creating templates for referrals to the OIG or SDO).

***Increased support for commercialization:***

Technical assistance. Amounts increased to \$5000, flexibility on use, applies to STTR as well.

Commercialization Readiness Programs. DoD Commercialization Readiness Pilot is made permanent and includes the STTR program; Commercialization Readiness Pilot programs for civilian agencies are authorized allowing agencies to use up to 10% of SBIR/STTR funds to support commercialization and Phase III efforts.

Phase III preference. Agencies directed to support SBIR/STTR awardees in their efforts to commercialize SBIR/STTR work through, among other things, Phase III sole-source contracts.

**Program Goals should be Remembered When Debating Policy Issues and Consider Implicit Trade-offs**

When debating the issues involved in the SBIR program, it is important to consider the implicit trade-offs. For example, a stronger emphasis on commercialization could mean less emphasis on serving agency needs or possibly on emphasis on recruitment of economically disadvantaged applicants and awardees. Also, increasing the participation of small business in serving the R&D needs of Federal agencies could lead to somewhat less commercialization. In addition, it is important to remember that there are 11 Federal agencies involved in the SBIR/STTR program, and they have different needs and approaches. Therefore, flexibility is an important consideration in implementing the program. Finally, the inclusion of VCs into the SBIR arena could be perceived as leading to a deviation from the original intent of the program (see below for more on this issue).

### **The So-called Proposal Mills**

The concept of “SBIR Mills” or “Proposal Mills” has been discussed for several years. This is the notion that a relatively small number of small firms have figured out how to win SBIR awards and have become basically SBIR contract research companies. A look at the data tells us that there is some degree of multiple award winners. If they were firms that win Phase I awards and go no further, it could easily be argued that something drastic should be done about this. However, based on various studies (NAS and my own), more of the multiple award winners are also successful in commercialization, receiving additional investment dollars from other sources, and/or successful in having their technologies infused into Federal agencies. Overall, this is an issue to watch, but I think it would likely be counter-productive to restrict number of proposals for an SBC without considering the trade-offs. The notion that these multiple award winners generally become dependent on SBIR awards (without other outcomes occurring) or that these firms will no longer need early start-up funding is, in my view, a limited way of thinking about such firms. In some ways, many of these firms could be the most successful, depending on how and when success is measured. One final point is that there are approximately 1/3 first-time applicants in SBIR (program-wide) every year.

### **Dimensions of the VC Issue**

The recent report by the National Academies on venture capital and the SBIR program notes that during the first 20 years of the program, there were some majority venture-funded companies participating in the program, and received SBIR awards along with the outside equity funding. Over that period, participation of majority venture-funded firms was not raised as an issue and there seemed to be no adverse effects on the program. Following a rule change by the SBA, there was much debate about the issue. The reauthorization led to a new provision regarding an option by and SBIR agency to permit allow participation by firms that are majority-owned by multiple venture capital operating companies, private equity firms or hedge funds.

The new VC approach is a start to resolving the trade-offs but will need to be monitored. It appears that so far it has not had much of an impact.

## **Geographical Dispersion**

It is true that the top 10 states make up 68 percent of awards, with California and Massachusetts making up the lion's share. The issue of geographic dispersion is complicated and can be taken to extreme. What if agricultural assistance programs were thought to be biased if corn or wheat oriented assistance went more to Kansas, Nebraska, and Iowa and was not disperse across a wider variety of states. There is seems obvious to most people that the nature of the subsidy is going to be fairly regionally concentrated. Efforts to make the assistance more disperse would likely lead to a misallocation of resources and not achieve what the program is intending to achieve. Furthermore, one could argue that the benefits of a regionally focused program would redound to the entire nation in the form of lower and/or more stable food prices.

The existence of geographical concentration of SBIR awards is subject to similar reasoning. Certainly, SBIR could have been designed with regional quotas in mind in the name of some sort of equity. But it wasn't and for good reason. The SBIR program has several goals including increasing the level of technology investments (and their payoff) and targeting the small business sector (at least partly on equity grounds but also because of the notion that small business producing innovation will be beneficial to the extent that large businesses may have size and bureaucratic barriers to producing innovative R&D). If every state in the U.S. had the same share of science and technology human capital and related infrastructure, then it would likely be efficient to have a program such as SBIR be very geographically diverse. But, while every state/region has significant scientific/technology human and infrastructure (including strong educational institutions), there seems to be a certain amount of regional clustering in R&D activities. This pattern long preceded the creation of the SBIR program. Therefore, if the SBIR program is to achieve its maximum return to taxpayer investment, it will be necessary for the program awards to mirror those regional cluster patterns and take advantage of them. While that is perhaps not the best political answer in terms of Members of Congress "bringing home the bacon" of SBIR awards to their district, it could be argued analogously to the wheat and corn example, that the nation as a whole benefits from most from putting the scarce SBIR dollars where they can have their highest return. It would not be completely out of the question to mandate that Federal agencies ensure a less geographically concentrated award pattern. However, in mandating such a pattern, the SBIR program would yield a lower national return on investment. Therein lay the political tradeoff. That said, monitoring of the SBIR programs at the agency level could be feasible by requiring each agency to explain how they have ensured that their award allocation does not take geography into account at all.

## **Increasing Participation in Awards to Minority and Women:**

It is well known that there is low (and declining) levels of minority and women involvement. The low and declining levels of participation in SBIR by minorities and women is a somewhat different concern than the regional dispersion issue. This concern is built directly into the legislation. One could use similar arguments about efficient allocation of human resources given the relatively lower availability of scientific and technological. But that could be seen as a static view of the way we produce science and technology in the U.S. With demographic and labor force composition patterns changing dramatically, it is essential to ensure that women and minorities have opportunities to participate fully in the technology field. This would include targeting educational and opportunities such as SBIR awards. Therefore, both in terms of long-term research allocation and economic growth of the U.S. and the explicit legislative intent, it makes sense to encourage increased women and minorities for awards.

### **Need for Continued Research and Evaluation**

As is evident from the discussion above, there is continuing need for data and analysis of the complex SBIR program. This should be done by the agencies themselves, the Congress, and independent researchers and evaluators.