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The U.S. Small Business Technology Transfer (STTR) Program: An Assessment and an Evaluation of the Program

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The U.S. Small Business Technology Transfer (STTR) Program: An Assessment and an Evaluation of the Program

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ABSTRACT

This monograph describes the U.S. Small Business Technology Transfer (STTR) program. The legislative history of the program is presented along with a descriptive analysis of the program based on data collected by the National Research Council (NRC) within the National Academies of Sciences, Engineering, and Medicine. The descriptive analysis presented herein is designed to characterize dimensions of an assessment and evaluation of the program. Under the expectation that Congress will likely request that the NRC conduct an in-depth study of the STTR (and SBIR) program in the coming years, a number of suggestions are offered for improvements in the data collected and how they could be analyzed in an effort to ensure that a more complete assessment and evaluation of the program is possible.

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Introduction

In 2016, the National Academies of Sciences, Engineering, and Medicine (hereafter, the National Academies) published a report based on an assessment of the Small Business Technology Transfer (STTR) program (National Academies, 2016). The assessment was based on an analysis of project data and interview data collected by the National Research Council (NRC) within the National Academies as requested by Congress through the Continued Evaluation by the National Academy of Sciences section of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112–81). The methodology used by the NRC in the assessment report was based on the same methodology that it had used for previous assessments, namely guidelines from the Government Performance and Results Act (GPRA) of 1993 (National Academies, 2016, p. 15):

The current [Congressionally requested] assessment is congruent with the Government Performance and Results Act (GPRA) of 1993.¹ As characterized by the Government Accountability Office (GAO), GPRA seeks to shift the focus of government decision making and accountability away from

¹See <http://govinfo.library.unt.edu/npr/library/misc/s20.html>.

a preoccupation with the activities that are undertaken—such as grants dispensed or inspections made—to the *results* [emphasis added] of those activities.

Although not specifically stated in the National Academies' 2016 report, one might conclude that a broader purpose of Congress' request for the study is one that is in concert with at least two of the legislated purposes of GPRA:²

... [to] improve the confidence of the American people in the capability of the Federal Government, by systematically holding Federal agencies accountable for achieving program results, [and to] improve Federal program effectiveness and public accountability by promoting a new focus on results, service quality, and customer satisfaction.

This monograph is not intended to supplant the National Academies' report; rather it is intended to expand it, and possibly set a stage for more in depth studies of the STTR program in the future by offering a systematic analytical overview of the STTR program and tying that overview to a qualitative/quantitative assessment and evaluation of the program given the limited data collected by and available from the NRC.³ In addition, this monograph represents an effort to orientate readers to a number of nuances of the STTR program that were beyond the scope of the National Academies' report.

Fundamental to the assessment and evaluation of a program, the STTR program in particular, as discussed herein are the following:

²The concept of fiscal accountability in the United States is rooted in the fundamental principle of representation of the people, by the people. However, as a more modern concept, fiscal accountability can be traced at least to the Budget and Accounting Act of 1921, and with the passage of that Act the modern tradition of fiscal accountability began in U.S. public organizations. Over time, fiscal accountability has trickled down from public organizations that rely on public resources (e.g., tax dollars) to private organizations that similarly rely on public resources. The concept of performance accountability logically follows. See Link and Scott (2011).

³This monograph focuses on the STTR program, but many of the assessment and evaluation suggestions offered apply equally well to the SBIR program.

Table 1.1: Metrics on the SBIR program and STTR program for fiscal year 2021

Metric	SBIR Program	STTR Program
Awards	5,480	1,288
Firms funded	3,355	954
Total award and obligated amount (\$B)	\$3.26	\$0.52

Source: www.sbir.gov.

Note: Metrics shown are for the sum of Phase I and Phase II awards (discussed below).

- *Program assessment* is based primarily on the criterion of effectiveness: Has the program met its stated goals and objectives; have its designated outputs been achieved?
- *Program evaluation* is based on the criterion of efficiency: How do the social benefits or outcomes associated with the program compare to the social costs?

The SBIR program is arguably more visible than the STTR program⁴ perhaps because of the relative amount of public support that it receives—see Table 1.1—and because of the number of federal agencies that incorporate SBIR programs—11 agencies for the SBIR program compared to 5 agencies as discussed below that have an STTR program. Thus, a secondary purpose of this monograph is to highlight the economic importance of the STTR program itself.

The remainder of this monograph is organized as follows. Throughout, suggestions for future NRC-lead studies are offered in both footnotes to relevant sections and in the concluding section of the monograph. The legislative background for the STTR program is discussed in Section 2. In Section 3, program assessments and program evaluations are explained from a conceptual perspective. In Section 4, the nature of the NRC’s dataset used in this monograph is described, and based on that dataset a systematic analytical overview of the STTR program, and its funded projects and firms, is presented. Based on the above descriptions and definitions of an assessment and an evaluation, a qualitative/quantitative assessment of the STTR program is presented in

⁴For a recent review of the SBIR program, see Link and Van Hasselt (2023).

Section 5 followed by a qualitative/quantitative evaluation of the STTR program in Section 6. Section 7 offers a summary of the monograph and some concluding observations and additional suggestions for future NRC-led studies.

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