

# EVALUATION OF FEDERAL AND STATE TECHNOLOGY (FAST) GRANTEES

## EVALUATION REPORT

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**PREPARED FOR:**

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## EXECUTIVE SUMMARY

Managed by the U.S. Small Business Administration (SBA), the Federal and State Technology (FAST) Partnership Program (FAST program) is a competitive grant program designed to strengthen the technological competitiveness of small businesses seeking funding from the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

The FAST program provides funding to organizations for executing state and regional programs that increase the number of SBIR/STTR proposals (through outreach and financial support); increase the number of SBIR/STTR awards (through technical assistance and mentoring); and better prepare SBIR/STTR awardees for commercialization success (through technical assistance and mentoring).<sup>1</sup>

SBA's interest in better understanding and measuring the impact of the types and levels of services provided by FAST grantees to SBIR/STTR applicants and awardees prompted this evaluation. Project deliverables include an updated reporting form for FAST awardees (*Quarterly Reporting Form*), this evaluation report, and a *Best Practices and Lessons Learned Report*. This report addresses six research questions and corresponding data sources and methodologies (as described in Table ES-1).

**Table ES-1: Evaluation questions, data sources, and methodology**

Evaluation Question	Data Source	Methodology
1. Do SBIR/STTR applicants and awardees who receive assistance from FAST grantees have better outcomes than those who do not?	FAST metrics reports, FAST narrative reports	Descriptive statistics, Qualitative analysis
2. Is there a difference in performance between the Small Business Technology Development Centers (SBTDC) FAST grantee and the general FAST grantee?	FAST metrics reports, FAST narrative reports	Descriptive statistics, Qualitative analysis
3. Did CY 2017 FAST grantees reach more underserved applicants than FAST grantees in previous fiscal years?	FAST Narrative reports, FAST grantee interviews	Qualitative analysis, Qualitative analysis/Issue reporting
4. Are FAST grantees supporting both SBIR/STTR applicants as well as SBIR/STTR	FAST metrics reports, FAST narrative reports, peer-reviewed literature, websites,	Descriptive statistics, Qualitative analysis, Literature review,

<sup>1</sup> <https://www.sbir.gov/about-fast>



Evaluation Question	Data Source	Methodology
awardees? How well are they supporting them?	congressional reports, FAST grantee interviews, federal SBIR/STTR Program Manager interviews	Qualitative analysis/Issue reporting
5. Do FAST grantees consider that they have achieved their predefined goals in serving small business applicants and awardees?	FAST narrative reports	Qualitative analysis
6. What are the components of a healthy entrepreneurial ecosystem?	Peer-reviewed literature, websites, congressional reports, FAST grantee interviews, federal SBIR/STTR Program Manager interviews	Literature review, Qualitative analysis/Issue reporting

The following text summarizes our research findings.

**Question 1: Do SBIR/STTR applicants and awardees who receive assistance from FAST grantees have better outcomes (as defined in Section 34 of the Small Business Act; 15 USC section 657d) than those who do not?**

Limited information was available on small businesses not assisted by FAST grantees, so the team studied participant outcomes over time. The total number of Phase I and Phase II awards increased from cohort year (CY) 2015 to CY 2017, and the average award amount (awarded to small businesses) per FAST grantee increased as well. See Section 4 for details.

**Question 2: Is there a difference in performance between the SBTDC FAST grantees and the general FAST grantees?**

On average for all measures (the number of Phase I and Phase II awards, award amounts, and discussions of technology transfer), SBTDCs show better outcomes than non-SBTDCs based on proportionate total numbers (see Figure 5, Figure 6, and Figure 7 for relative comparison). While fewer SBTDCs are funded, the 15 SBTDCs helped small businesses win more proposals and award money on average than the 48 non-SBTDCs. However, this finding may result in part from SBTDCs having more sophisticated tracking systems, allowing them to better measure and report their outcomes. Nonetheless, the general FAST grantees also showed promising numbers in assisting small businesses earn Phase I and Phase II funding. See Section 5 for details.





**Question 3: Did CY 2017 FAST grantees reach more underserved applicants (women, minorities, and rural applicants) than FAST grantees in previous fiscal years?**

There is a trend in increasing outreach to women from CY 2014 to CY 2017.<sup>2</sup> Outreach to minorities was higher in CY 2017 than in CY 2014, although there is not a stable trend across years. Both of these trends are expected, since the FAST program started emphasizing outreach to underserved populations in the Funding Opportunity Announcements in 2017. Reported outreach to rural small businesses was consistent at around five to ten percent across all years, although this may result in part from rural small businesses being harder to identify than minority- or women-owned businesses and from FAST grantees located in predominantly rural areas not specifically mentioning “rural” small businesses in their narrative reports. Additionally, some grantees may interpret their entire state as being rural or minority (such as Puerto Rico) and not report on their individual clients as such. See Section 6 for details.

**Question 4: Are FAST grantees supporting both SBIR/STTR applicants as well as SBIR/STTR awardees? How well are they supporting them?**

FAST grantees support both SBIR/STTR applicants and awardees. For SBIR/STTR applicants, FAST grantees performed outreach to small businesses and provided introductions to partners, pre-application research, application preparation, training, financial assistance, and networking. For SBIR/STTR awardees, FAST grantees provide financial assistance, networking, logistics, strategy support, and commercialization services. The most common services listed in the metrics reports were in-person trainings, individual counseling, and proposal writing assistance. Webinar trainings were the least common service. The most common financial assistance offered was Phase 0 awards, although bridge awards made up the greatest dollar amount of financial assistance given. A bridge award assists companies advance toward commercialization by providing funding between Phases. Government agencies tend to support bridge award funding if a small business demonstrates readiness to proceed and fulfills commercialization and business milestone progress requirements. In terms of gaps in services, there was a need for access to funding, strengthening the entrepreneurial ecosystem, and cohort training. See Section 7 for details.

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<sup>2</sup> Cohort Year (CY) refers to the year FAST grantees utilized the allocated funding amount for FAST program activities.



**Question 5: Based on FAST grantees' self-assessments, did FAST grantees meet their goals?**

According to the narrative reports, most FAST grantees met or exceeded their goals. However, many of the goals were subjective, and some narrative reports did not indicate goals at all. See Section 8 for details.

**Question 6: What are the components of a healthy entrepreneurial ecosystem?**

FAST grantees and small businesses operate within the context of an entrepreneurial ecosystem that can enable or constrain their success. The components of a healthy entrepreneurial ecosystem include networks of entrepreneurs, entrepreneurial leadership, financing, skilled talent, a high quality of life, knowledge-sharing, support services, and diversity. The level of development of the entrepreneurial ecosystem varies significantly across the country and within states. While many components of the entrepreneurial ecosystem are beyond the direct influence or purview of the FAST program, federal SBIR/STTR Program Managers and FAST grantees noted that the FAST program can help strengthen the entrepreneurial ecosystem, particularly in less developed areas, including rural states and underserved communities. See Section 9 for details.



## 1 INTRODUCTION

### 1.1 PROGRAM BACKGROUND

Managed by the U.S. Small Business Administration (SBA), the Federal and State Technology (FAST) Partnership program (henceforth, FAST program) is a competitive grant program defined in Section 34 of the Small Business Act,<sup>3</sup> that strengthens the technological competitiveness of small businesses seeking funding from the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. Congress established the FAST program under the Consolidated Appropriations Act of 2001, codified at 15 U.S.C. §657d(c). The program expired on September 30, 2005 and was reestablished under the Consolidated Appropriations Act of 2010.

The FAST program provides funding to organizations to execute state and regional programs that increase the number of SBIR/STTR proposals (through outreach and financial support); increase the number of SBIR/STTR awards (through technical assistance and mentoring); and better prepare SBIR/STTR awardees for commercialization success (through technical assistance and mentoring).

#### Definitions

*FAST Grantee*—State and local economic development agencies, SBTDCs, accelerators, incubators, Women’s Business Centers, PTACs, colleges, universities, and other organizations having received a FAST grant

*SBIR/STTR Applicant and Awardee*—Small businesses in pursuit of, or already awarded, SBIR/STTR funding

*SBTDC FAST Grantee*—Small Business Technology Development Center having received a FAST grant

*Underserved Population*—Women, minorities, and rural small businesses

The FAST program awards build the SBIR/STTR ecosystem in the following ways:

1. **Outreach:** increase the pipeline of possible applicants (see SBIR authorization language for explicit direction to increase the participation of women, socially/economically disadvantaged individuals, and small businesses in underrepresented areas—typically rural states); and build the capacity of partner organizations and individuals to refer possible SBIR/STTR applicants through train-the-trainer activities.
2. **Technical assistance:** support new business formation through programs or services that improve proposal development and team creation; provide assistance that leads to the

<sup>3</sup> [https://www.sba.gov/sites/default/files/Small%20Business%20Act\\_0.pdf](https://www.sba.gov/sites/default/files/Small%20Business%20Act_0.pdf). Last accessed: October 18, 2019.



commercialization of technology developed through SBIR/STTR program funding; and form or encourage relevant mentoring networks to provide business advice and counseling.

3. **Financial support:** make grants or loans to applicants to pay a portion or all the cost of developing SBIR/STTR proposals, attending relevant conferences, and bridging gaps between phases.<sup>4</sup> The FAST program and the SBIR Program Managers at the National Science Foundation and the Department of Defense will make awards to enhance or develop a state's technology transfer from university research to technology-based small business concerns.<sup>5</sup> The FAST program, by helping individuals compete and win SBIR/STTR awards, is indirectly affecting technology transfer.

Eligible applicants for the FAST program funding include state and local economic development agencies, Small Business Technology Development Centers (SBTDCs), accelerators, incubators, Women's Business Centers, Procurement Technical Assistance Centers (PTACs), colleges, universities, and other organization types (nonprofits, educational institutions, or state/local government entities).

The Small Business Act Section 34 under the Grants and Cooperative Agreements terms states a limit on the FAST proposals by state indicating that "Not more than 1 proposal may be submitted for inclusion in the FAST program" provide services in any one state in any one fiscal year.

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## 1.2 PROJECT BACKGROUND AND PURPOSE OF THE EVALUATION

This project was prompted by SBA's interest in measuring the impact and better understanding the types and levels of services provided by FAST grantees to SBIR/STTR applicants and awardees. The FAST program increases SBIR and STTR proposal submissions, awards, and commercialization successes across the United States. The FAST program assists small businesses indirectly (through organizations that directly receive FAST awards—FAST grantees) by increasing funding for grant writing assistance, mentorship, networking, conference attendance. And other provided services. In addition, SBA assesses progress in serving underserved populations while supporting goals to more broadly reach socially and economically disadvantaged emerging markets and entrepreneurs.<sup>6</sup>

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<sup>4</sup> <https://www.sbir.gov/about-fast>

<sup>5</sup> Small Business Act Section 34

<sup>6</sup> SBA Strategic Plan 2018–2022: [https://www.sba.gov/sites/default/files/2018-06/SBA\\_FY\\_2018-2022\\_Strategic\\_Plan.pdf](https://www.sba.gov/sites/default/files/2018-06/SBA_FY_2018-2022_Strategic_Plan.pdf)



SBA's Office of Program Performance, Analysis, and Evaluation and the Office of Investment and Innovation have contracted with Summit Consulting, LLC and its partner IEc (the Summit/IEc Team) to evaluate the FAST program. This evaluation includes analyzing FAST program data reported from CY 2015 to CY 2017, conducting an environmental scan of the relevant literature and websites, and interviewing FAST grantees and SBIR/STTR Program Managers. We omitted data from years prior to CY 2015 from the statistical analysis to ensure we consistently highlighted the data from CY 2015, CY 2016, and CY 2017.

Using the information and outputs from the literature review, the quantitative program data, and the qualitative narrative reports and interviews (a mixed-methods approach), the evaluation explores the benefits of the FAST program. The Summit/IEc Team identified several questions to glean key measures for FAST grantees, performance differences between SBTDC and non-SBTDC FAST grantees, FAST grantee outreach to underserved applicants, and general support types provided to SBIR/STTR applicants.

The availability, detail, and richness of the data determined the analytical rigor of this evaluation. Both the metrics reports and narrative reports (discussed below in Section 2.2) vary in structure, content, and quality. The data available do not support an impact evaluation of the FAST program.

This evaluation report shows outcomes over time, compares SBTDC and non-SBTDC grantees, reports their outreach and support to underserved populations,<sup>7</sup> and describes provided services. Additionally, the report includes a self-assessment of grantees' success in attaining the milestones proposed in their grant applications, presents the components of a healthy entrepreneurial ecosystem, and explains how FAST can strengthen the ecosystem.

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### 1.3 PURPOSE OF THE FAST EVALUATION AND EVALUATION QUESTIONS

Table 1 matches the evaluation questions with the applicable data sources and methodologies used to answer them. SBA specified the first four questions, and SBA and the Summit/IEc Team agreed to address two additional questions during project execution.

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<sup>7</sup> Businesses in underserved communities include minority and women-owned businesses as well as those in rural areas.



**Table 1: Evaluation questions matched with data sources and methodologies**

Evaluation Question	Data Source	Methodology
1. Do SBIR/STTR applicants and awardees who receive assistance from FAST grantees have better outcomes than those who do not?	FAST metrics reports, FAST narrative reports	Descriptive statistics, Qualitative analysis
2. Is there a difference in performance between the SBTDC FAST grantee and the general FAST grantee?	FAST metrics reports, FAST narrative reports	Descriptive statistics, Qualitative analysis
3. Did CY 2017 FAST grantees reach more underserved applicants than FAST grantees in previous fiscal years?	FAST narrative reports, FAST grantee interviews	Qualitative analysis, Issue reporting
4. Are FAST grantees supporting both SBIR/STTR applicants and SBIR/STTR awardees? How well are they supporting them?	FAST metrics reports, FAST narrative reports, peer-reviewed literature, websites, Congressional reports, FAST grantee interviews, federal SBIR/STTR Program Manager interviews	Descriptive statistics, Qualitative analysis, Literature review, Issue reporting
5. Based on FAST grantees' self-assessments, did FAST grantees meet their goals?	FAST narrative report	Qualitative analysis
6. What are the components of a healthy entrepreneurial ecosystem?	Peer-reviewed literature, websites, congressional reports, FAST grantee interviews, federal SBIR/STTR Program Manager interviews	Literature review, Qualitative analysis/Issue reporting

## 1.4 BEST PRACTICES AND LESSONS LEARNED REPORT

The Summit/IEC Team complements this evaluation with a *Best Practices and Lessons Learned Report*. This report summarizes the feedback gathered from interviews with FAST grantees, non-recipients of FAST funding, SBIR/STTR awardees, unsuccessful SBIR/STTR applicants, and small businesses that chose not to apply to SBIR/STTR.



## 2 DATA SOURCES

Below we discuss the data sources available for the evaluation: (1) published and gray literature, (2) FAST program data and reports, and (3) interviews with FAST grantees and federal SBIR/STTR Program Managers.

This evaluation relied primarily on self-reported participant data and determines whether the program meets original goals, progress on more recent goals (e.g., outreach to underserved populations), and insights and observations for making any necessary program improvements.

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### 2.1 LITERATURE

Our literature review gathers information on healthy entrepreneurial ecosystems (Question 6), strategies used to reach underserved populations (Question 3), and services provided by FAST grantees (Question 4). The review includes the following literature sources:

- **Peer-reviewed literature**—identified by searching Google Scholar for key terms, these sources primarily informed the context of the entrepreneurial ecosystem (Question 6).
- **Websites of FAST grantees and similar organizations**—detailed provided services and existing outreach to underserved populations.
- **Gray literature**<sup>8</sup>—used to gather information about programs similar to SBIR/STTR.

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### 2.2 FAST PROGRAM DATA

As of November 30, 2018, we had received all data available for CY 2014 to CY 2017. This data included the metrics reports (FAST Quarterly Report Data Sheet) and the Standard Form–Performance Progress Reports (SF-PPR forms), which provide narrative descriptions (narrative reports). Data relevant to CY 2014 is not available in a consistent format and not reported as frequently as the CY 2015 to CY 2017 data. Consequently, SBA and the Summit/IEc agreed not to incorporate CY 2014 data in the analysis

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<sup>8</sup> From Wikipedia: gray literature “are materials and research produced by organizations outside of the traditional commercial or academic publishing and distribution channels. Common grey literature publication types include reports (annual, research, technical, project, etc.), working papers, government documents, white papers and evaluations. Organizations that produce grey literature include government departments and agencies, civil society or non-governmental organisations, academic centres and departments, and private companies and consultants.” [https://en.wikipedia.org/wiki/Grey\\_literature](https://en.wikipedia.org/wiki/Grey_literature).



component. The information received for some grantees also included communications with SBA, financial information, and other documents.

The quarterly report data sheet (metrics reports) available from 63 FAST grantees details the outputs from each organization over time. Figure 1 depicts the metrics report form template. Data from the metrics reports provide counts of activities and services provided by FAST grantees. While some FAST grantees may record the names of mentored small businesses, SBA does not require grantees to share this information with SBA. Thus, we used aggregated data on the number of awards, unique clients, grantees' outreach, training activities, technical and financial assistance, and other information.

SBA receives the metrics reports in PDF format, which the study team organized into a spreadsheet, aggregating available information to produce descriptive statistics.

The metrics reports analysis provides a current picture of the program and how current outcomes compare to those of past years and to the grantees' own goals. We also excluded CY 2014 from the analysis due to inconsistent reporting of the quarterly report data sheet. Thus, the analysis only covers years CY 2015 to CY 2017. Potential changes in patterns may result from differences in the types of grantees being selected, changes in SBA's emphasis on certain activities, and differences in the grantees who reported each year.<sup>9</sup>

The SF-PPRs (narrative reports) are a second set of FAST program documents (see Figure 2) providing a narrative of the grantees' accomplishments and the services provided to small businesses. SBA received 80 SF-PPR reports during the study period, with nearly all grantees reporting annually.

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<sup>9</sup> There is some overlap of grantees across years. For example, nine grantees are present in all three years in the study.





Figure 1: FAST program Quarterly Report Data Sheet (metrics report) template

2018 FAST Quarterly Report Data Sheet

**Instructions:** Please complete the following sheet each quarter. Not all sections and measurements will apply. These metrics are based on previous review of FAST recipients and should not be viewed as an exhaustive list. Please include other metrics, and quarterly program highlights, as you deem appropriate.

Report Summary	Cumulative	Q1	Q2	Q3	Q4
Number of Unique Clients Supported by FAST Activities	0				
<b>Outreach (activities with outreach as the primary purpose)</b>					
Number of outreach events/meetings/webinars	0				
Total number of outreach event participants	0				
Did you publish any e-newsletters? (Yes/No)					
Did you utilize social media (Twitter, Facebook, etc.)? (Yes/No)					
Did you utilize external consultants and/or speakers as a component of any outreach sessions? (Yes/No)					
Did you support any mentor networks or events? (Yes/No)					
<b>Training (activities with training as the primary purpose)</b>					
Number of in-person training sessions/workshops	0				
Number of in-person training sessions/workshops participants	0				
Number of training webinars	0				
Number of training webinar participants	0				
Did you utilize external consultants and/or speakers as a component of any training sessions? (Yes/No)					
<b>Technical Assistance</b>					
Number of clients who received proposal writing assistance	0				
Number of clients who received other technical assistance (e.g. market research, business assistance, etc.).	0				
Number of clients who received assistance with solicitation matching	0				
<b>Financial Assistance</b>					
Number of Phase 0 awards provided	0				
Total Phase 0 award funding provided (\$)	\$0.00				
Number of conference and/or travel grants or loans provided	0				
Total conference and/or travel funding provided (\$)	\$0.00				
Number of Phase I to Phase II bridge awards provided	0				
Total Phase I to Phase II bridge award funding provided (\$)	\$0.00				
<b>SBIR/STTR Award Metrics</b>					
Number of SBIR/STTR Phase I proposals submitted by clients	0				
Number of SBIR/STTR Phase I proposals won by clients	0				
Total Phase 1 award funding won by clients (\$)	\$0.00				
Number of SBIR/STTR Phase II proposals submitted by clients	0				
Number of SBIR/STTR Phase II proposals won by clients	0				
Total Phase II award funding won by clients (\$)	\$0.00				



Figure 2: FAST program Performance Progress Report (SF-PPR) (narrative report) template

### PERFORMANCE PROGRESS REPORT SF-PPR

		Page	of Pages
1. Federal Agency and Organization Element to Which Report is Submitted	2. Federal Grant or Other Identifying Number Assigned by Federal Agency	3a. DUNS Number	
		3b. EIN	
4. Recipient Organization (Name and complete address including zip code)		5. Recipient Identifying Number or Account Number	
6. Project/Grant Period Start Date: (Month, Day, Year)    End Date: (Month, Day, Year)	7. Reporting Period End Date (Month, Day, Year)	8. Final Report? <input type="checkbox"/> Yes <input type="checkbox"/> No	
		9. Report Frequency <input type="checkbox"/> annual <input type="checkbox"/> semi-annual <input type="checkbox"/> quarterly <input type="checkbox"/> other (If other, describe: _____)	
10. Performance Narrative <i>(attach performance narrative as instructed by the awarding Federal Agency)</i>			
11. Other Attachments <i>(attach other documents as needed or as instructed by the awarding Federal Agency)</i>			
<b>12. Certification: I certify to the best of my knowledge and belief that this report is correct and complete for performance of activities for the purposes set forth in the award documents.</b>			
12a. Typed or Printed Name and Title of Authorized Certifying Official		12c. Telephone (area code, number and extension)	
		12d. Email Address	
12b. Signature of Authorized Certifying Official		12e. Date Report Submitted (Month, Day, Year)	
		13. Agency use only	



The narrative reports also include a self-assessment that compares the services provided to the small businesses with the FAST grantees' objectives as stated in their grant applications (Section 8). Several of the reports also discuss lessons learned, best practices, and successes, which are discussed in the *Best Practices and Lessons Learned Report*. About half the reports describe operational activities, services provided, and events hosted. A small number also report feedback from the supported small businesses.

Table 2 provides counts of the available information on the FAST program for each of the study years. Grantees that submitted metrics reports typically provided narrative reports as well.

**Table 2: FAST Grantees Reports: SF-PPR/Narrative Reports and FAST Quarterly Report Data Sheet/FAST Metrics—available information (2014–2017)**

Fiscal Year	Number of FAST Grantees	Grantees with Narrative Report	Grantees with Annual Metrics Report/Cumulative Q4 Report
2014	20	19	N/A
2015	22	21	15
2016	20	20	8
2017	21	21	12

*Note:* There is some, but not complete, overlap in grantees between years. Nine states reported in all given years: Arkansas, Connecticut, Idaho, Minnesota, Mississippi, Nebraska, New York, Oregon, and Wyoming.

In instances where annual reports were not available, we summed the metrics for all four quarters, if available. If the information was available only for some quarters and no annual report was submitted, we used the average of the quarters for which information was available and multiplied by four. Note that this methodology may count duplicate clients in a cumulative total. We take as an example the metric “Number of clients who received proposal writing assistance.” Suppose a grantee reported in all four quarters a total of 10 in each quarter but not the cumulative total. We cannot determine whether the cumulative total is 40 unique clients or 10 unique clients, so we assume 40. This assumption introduces a high level of uncertainty around the numbers derived from the metrics reports because the definition of “unique” was also a challenge for many grantees.

## 2.3 INTERVIEWS—FAST GRANTEES AND SBIR/STTR PROGRAM MANAGERS AT FEDERAL AGENCIES

The study team conducted interviews with FAST grantees and with a selected number of SBIR/STTR Program Managers at federal agencies. Each group provided a unique perspective. We scheduled time for nine interviews from each group.



**Interviews with FAST Grantees.** APPENDIX A includes the FAST grantee interview protocol template. The team had several discussions with SBA staff to obtain input prior to finalizing the interview guide. After recruiting interviewees, we scheduled the interviews. Prior to conducting the interviews, we shared the interview guide with interviewees. We conducted the interviews by phone, and each interview lasted 45 to 60 minutes. Interview responses were provided and kept confidential. In our experience, program participants are comfortable sharing details about program operations, challenges, and lessons learned as long as we report the details they share in aggregate and do not attribute to specific organizations or individuals.

The FAST grantee interviews provided insight into the experiences of the grantees and supplemented the information available from the metrics and narrative reports. We limited the interviews to nine FAST grantees, including seven regular FAST grantees and two SBTDC FAST grantees. APPENDIX B summarizes characteristics of the FAST grantees interviewed. The interviewees discussed their activities and achievements of their programs and their perspectives on the experiences of SBIR/STTR awardees and applicants.

**Interviews with SBIR/STTR Program Managers at Federal Agencies.** The SBIR/STTR Program Manager interviews helped to fill gaps in other data sources. We conducted six phone interviews, which lasted 45 to 60 minutes. The interviewers asked the following questions:

- What makes a strong applicant?
- What kind of business and technical assistance might applicants need?
- What types of support do SBIR/STTR awardees need?
- Are there gaps in services provided to SBIR/STTR applicants and awardees (services that no one is currently providing)? If so, what are they?
- How would you recommend boosting participation from underserved communities?
- How familiar are you with the SBA FAST program? What are your impressions of the program?
- What metrics, if any, does your agency currently use to evaluate the success of SBIR/STTR awardees? How can they be refined?

APPENDIX A includes the interview instrument.



## 2.4 DATA CONSTRAINTS

The study's primary limitation was the unavailability of a counterfactual, which is what would have happened without the FAST program. The lack of information regarding SBIR applicants outside the FAST program and of independent verification of the data, diminished the team's ability to make definitive statements about the program's effect on FAST goals. In particular, for Evaluation Question 1, we were unable to compare SBIR/STTR applicants assisted by FAST grantees to those not assisted by FAST grantees. Although we cannot attribute the outcomes to the FAST program alone, we can reasonably argue that the FAST program contributed to the goals set forth.

Another data limitation is that submission of the FAST metrics reports was never mandatory. Thus, voluntary reporting caused inconsistent frequency. Moreover, when comparing the information between SBTDC and non-SBTDC grantees, SBA noted some of the differences may result from more sophisticated client and activity tracking systems that SBTDCs use, allowing them to more easily report metrics.



### 3 RESEARCH METHODOLOGIES

The Summit/IEc Team conducted a mixed-methods evaluation, combining a quantitative analysis of FAST program data, qualitative data from FAST narrative reports, and interviews with FAST grantees and SBIR/STTR Program Managers to answer the evaluation questions.

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#### 3.1 LITERATURE REVIEW

In response to Evaluation Question 6 (“What are the components of a healthy entrepreneurial ecosystem?”), we searched literature to identify the parts of a healthy entrepreneurial ecosystem. We conducted a literature search using “entrepreneurial ecosystem,” “healthy entrepreneurial ecosystem,” and several other search terms.

To address Evaluation Question 4 (“Are FAST grantees supporting both SBIR/STTR applicants and SBIR/STTR awardees? How well are they supporting them?”), we conducted an exploratory review of websites to inform the following sub-questions:

- 4a: What services are provided? Which of these services are most commonly provided?
- 4b: Are there best practices to share? If so, what are they?
- 4c: What metrics are used to evaluate effectiveness? How can they be refined?

We reviewed the websites of organizations that received FAST grants. We also used these sources to identify methods of outreach to underserved populations (e.g., women and minority-owned businesses and rural small businesses). Finally, we reviewed programs similar to FAST to obtain additional information about outreach practices for women and minority-owned businesses.

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#### 3.2 DESCRIPTIVE STATISTICS

The Summit/IEc Team reviewed, organized, and integrated the information collected by SBA through the FAST metrics reports. Because the available data were not consistent on a quarterly basis, all analyses were performed on an annual basis. Using this information, we created summary charts and tables for the metrics on an aggregate basis, as well as computing averages. For example, we generated statistics that provide a picture of:

- Award funding won by FAST clients
- Services provided to small businesses applying or SBIR/STTR
- Application successes for Phase I and Phase II



To convey the most accurate information in aggregate, we did not include the average number of proposal applications and wins in the study. Proposals won in a particular quarter/year were not necessarily submitted in the same quarter/year.

### 3.3 QUALITATIVE ANALYSIS

The narrative reports (Section 10 of SF-PPR or attached to SF-PPR) provided detailed information on the FAST grantees' services, activities, and achievements. We conducted a qualitative analysis of the submitted reports, focusing on how actual outcomes compared to milestones proposed in the application, technology transfer, and outreach efforts to underserved populations. We first developed our measures of interest. These include:

- **Whether the grantee discussed technology transfer** (Questions 1 and 2)—discussed any sort of strategy around technology transfer. Technology transfer is a goal of the SBIR/STTR programs. By helping individuals compete and win SBIR/STTR awards, the FAST program indirectly affects technology transfer. Note that no grantees described actual successful technology transfer.
- **Described specific activities designed to reach underserved/rural populations** (Question 3)—described activities designed to reach women-owned, minority-owned, or rural businesses.
- **Whether proposed milestones were met** (Question 5)—described milestones and whether they were met, not met, or exceeded. See Section 8.2 for additional details.

We then coded each of the narrative reports. Table 3 shows an example of how a FAST grantee might score on these measures. We then tallied the counts for specific groups (either by year or by SBTDC/non-SBTDC status) to identify patterns.

**Table 3: Example narrative review score**

Milestone	(Yes/No)
Discusses technology transfer	Y
Describes activities performed to reach minority-owned businesses	N
Describes activities performed to reach women-owned businesses	Y
Describes activities performed to reach rural populations	N
Meets or exceeds proposed milestones	Met

In the case of Evaluation Question 5 ("How do FAST grantee outcomes compare to proposed milestones?"), we used a metric that reflects the proportion of FAST grantees that stated their objectives (operational) and goals were met relative to the milestones stated in their applications.



### 3.4 ISSUE REPORTING

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Given the limited data available and variability in constructing the narrative reports, we answered several evaluation questions with counts or anecdotal information from the interviews. We flagged whenever we observe an issue or topic in this data source. These observations from the interviews do not represent global findings.

The interviews with FAST grantees provided additional context and explanations about their programs and achievements. In particular, Evaluation Question 4, “Are FAST grantees supporting both SBIR/STTR applicants as well as SBIR/STTR awardees? How well are they supporting them?” benefited from the information provided by grantees during interviews because this information was not explicit or available in other data sources. We used the information gathered from the FAST grantees in interviews as context for the interpretation of the quantitative data and for the performance of the FAST program.





## 4 QUESTION 1: DO SBIR/STTR APPLICANTS AND AWARDEES WHO RECEIVE ASSISTANCE FROM FAST GRANTEES HAVE BETTER OUTCOMES (AS SPECIFIED BY FAST STATUTE) THAN THOSE WHO DO NOT?

### 4.1 OBJECTIVE

This evaluation question assessed both quantitatively and qualitatively the effect of the FAST program on three measures: (1) number of Phase I proposals submitted and won by small businesses supported by FAST grantees, (2) number of Phase II proposals submitted and won by small businesses supported by FAST grantees, and (3) percentage of FAST narrative reports with references to technology transfer.<sup>10</sup>

### 4.2 DATA SOURCES AND METHODOLOGY

We used data from the FAST metrics reports to obtain the number of Phase I and Phase II proposal submissions and awards and the average Phase I and Phase II funding awarded to small businesses supported by FAST grantees. The percentage of grantees that mentioned technology transfer from universities to small businesses was derived from the FAST narrative reports. No grantees listed described actual technology transfer. Therefore, we included any grantees reporting discussion of technology transfer in the percentage of grantees that discussed technology transfer.

We used both descriptive statistics and qualitative analysis to answer this evaluation question.

### 4.3 FINDINGS

We first examined the total number of Phase I and Phase II proposals submitted and won by year, as well as total funding (in \$) for small businesses served by FAST grantees.

Figure 3 outlines the progression of small business Phase I and Phase II submissions, the total count of successful submission outcomes, and the total Phase I and Phase II award money earned by FAST grantees' clients (small businesses) in the CY 2015 to CY 2017 time period. The y-axis on the left side of

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<sup>10</sup> According to the FAST Program Statement of Work, "The program shall provide grants to further technological innovation within states in ... technology transfer from university research to technology-based small business concerns"; see *Program Announcement for Federal and State Technology Partnership Program to Provide Technical Assistance and Other Services to Small High Technology Businesses* (Announcement No: FAST-10-R-0004) from Fiscal Year 2010: <https://www.sba.gov/sites/default/files/FAST%202010.pdf>.



the figure shows the number of proposal submissions and the y-axis on the right side of the figure shows the award money for successful submissions.<sup>11</sup>

Also illustrated in Figure 3, FAST grantees observed a sharp increase in Phase I and Phase II proposal submissions and wins from CY 2015 to CY 2016. Much of this trend can be attributed to increased awareness of the FAST program and FAST grantee assistance to improve proposal submissions. Between CY 2016 and CY 2017, there was a similar amount of Phase I and Phase II proposal submissions and wins. However, the Phase I and Phase II funding amount provided to small businesses assisted by FAST organizations increased substantially between CY 2016 and CY 2017. While total Phase I submissions was lower in CY 2017 than in CY 2016, Phase I submissions in CY 2017 were more successful both by total number and total funding amount awarded. The number of small businesses that submitted and won Phase I and Phase II proposals while receiving assistance from FAST grantees generally increased between CY 2015 and CY 2017. One exception is a slight decline between the CY 2016 and CY 2017 Phase I and Phase II proposal submissions. Nonetheless, CY 2017 saw a substantial increase in Phase I and Phase II funding relative to CY 2015 and CY 2016.

An explanation for this trend is the growth in FAST program awareness and the assistance available to small businesses, promoting higher volumes of quality proposal submissions. Another reasonable explanation for the potential increase in funding from CY 2015 to CY 2017 is an increase in available award money, thus encouraging small businesses to submit proposals for Phase I and Phase II awards.

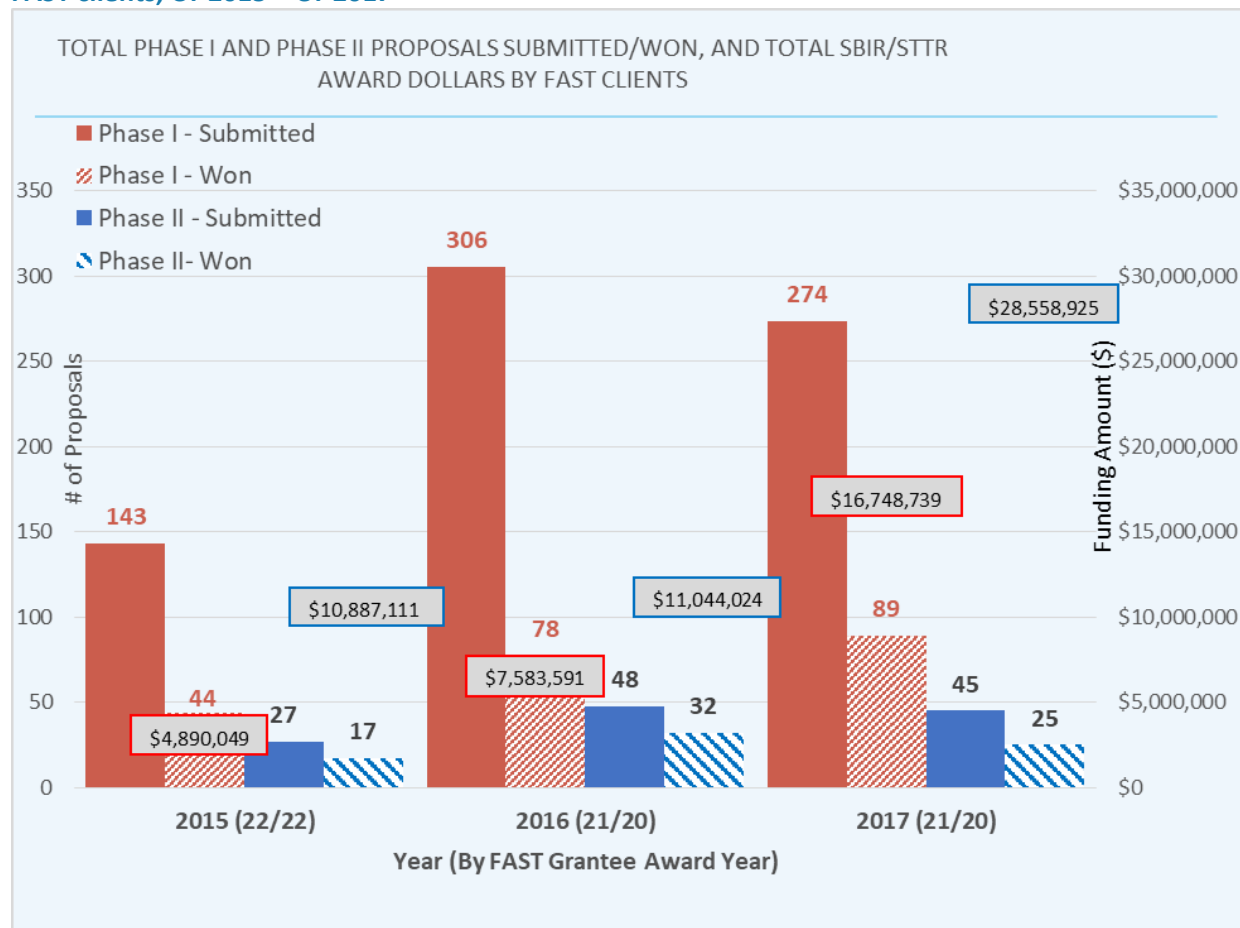
Lastly, while the number of proposal submissions and successful submissions is consistently much higher for Phase I than Phase II, the total funding amount for successful submissions is consistently higher for Phase II awards. This likely reflects the larger size of Phase II awards compared to Phase I awards.

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<sup>11</sup> Note that these two y-axes are not linked. In other words, the award amount varies by submission.



**Figure 3: Total Phase I and Phase II proposals submitted/won, and total SBIR/STTR award dollars by FAST clients, CY 2015 – CY 2017<sup>12</sup>**



Number of FAST grantees for CY 2015 = 15, N for CY 2016 = 17, N for CY 2017 = 18<sup>13</sup>

We next reviewed technology transfer as another programmatic outcome measure. As noted earlier, the FAST program is indirectly affecting technology transfer by helping individuals compete and win SBIR/STTR awards. For this analysis, we counted the number of grantees that discussed technology transfer anywhere in their narrative reports. For example, some grantees discussed actions intended to increase the amount of technology transfer occurring within the state. One grantee did this by working with a local university to develop a program like that of National Science Foundation I-Corps program. This program helped researchers at the university further develop their product and move it through the research and prototype phases. Another grantee cohosted an SBIR/STTR event with a local historically

<sup>12</sup> There is reason to believe not all proposal submissions and proposal wins are represented due to the difficulty of tracking this information.

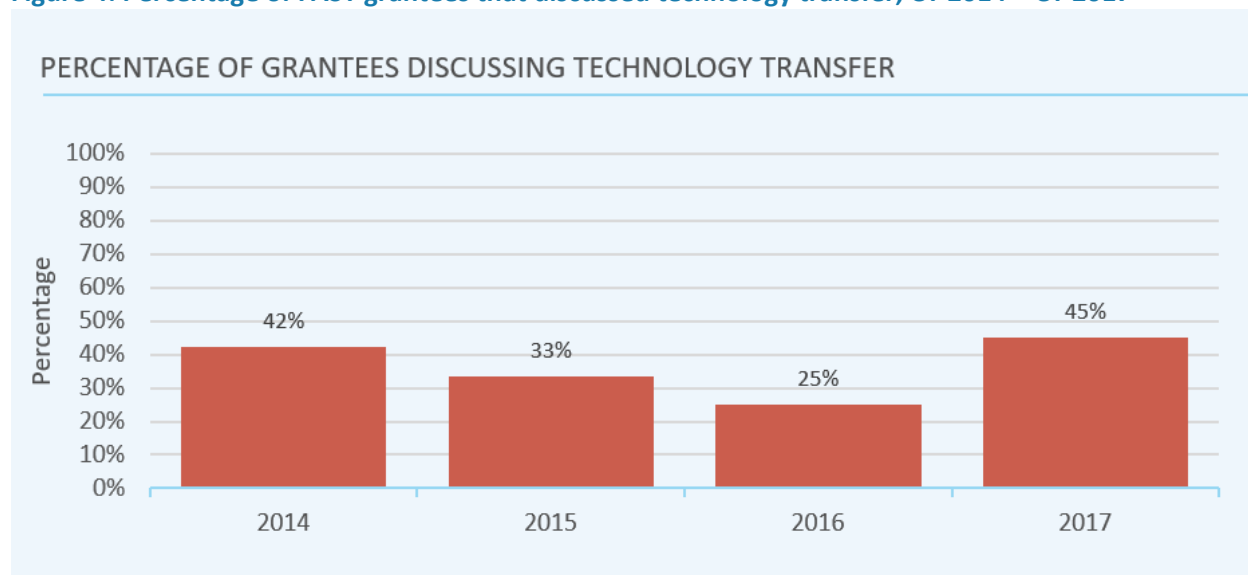
<sup>13</sup> FAST grantees that reported no information on Phase I/II proposal wins and award funding were omitted from the total counts of FAST grantees for the respective Cohort Year.



black college/university (HBCU) to increase the number of underserved businesses as well as facilitate university technology transfer.

The analysis of technology transfer includes CY 2014 because there were narrative reports for this year. Figure 4 shows the counts of these discussions by year. From CY 2014 to CY 2016, the percentage of grantees that discussed technology transfer in their narrative reports steadily decreased, but the percentage increased in CY 2017. The pattern here is most likely due to a lack of reporting on technology transfer from CY2014 to CY2016 instead of a trend in the number of programs implementing technology transfer initiatives. But most important is the fact that in recent years, SBA focused on directing FAST grantees on specific activities to increase SBIR/STTR proposals.

**Figure 4: Percentage of FAST grantees that discussed technology transfer, CY 2014 – CY 2017**



Number of FAST grantees for CY 2014 = 19, N for CY 2015 = 21, N for CY 2016 = 20, N for CY 2017 = 20



## 5 QUESTION 2: IS THERE A DIFFERENCE IN PERFORMANCE BETWEEN THE SBTDC FAST GRANTEE AND THE GENERAL FAST GRANTEE?

### 5.1 OBJECTIVE

This evaluation question focuses on a subset of the FAST grantees, the Small Business Technology Development Centers (SBTDCs). A FAST SBTDC grantee is a currently accredited and SBA-funded SBTDC seeking funding to increase SBIR/STTR proposals and awards within a single or multiple states. The FAST SBTDC also plans to provide outreach, financial support, and/or technical assistance to technology-based small business concerns related to women and individuals who are socially or economically disadvantaged, as well as underrepresented geographies, to participate in SBIR/STTR programs. FAST has specific funding set-aside for SBTDCs on the total amount of \$1,000,000 (in CY 2017), with a maximum amount of \$125,000 per SBTDC.<sup>14</sup> For practical purposes, we use measures, methodologies, and data similar to those used for Evaluation Question 1. The comparisons here, however, are between the FAST SBTDC grantees and the general FAST grantees.

### 5.2 DATA SOURCES AND METHODOLOGY

We used data from the FAST metrics report to obtain the number of Phase I and Phase II proposal submissions and awards and with small businesses supported by FAST grantees. We compared these metrics for the 15 FAST SBTDC grantees and the 48 FAST grantees that are not SBTDCs from CY 2015 to CY 2017.<sup>15</sup> To account for the smaller number of FAST SBTDC grantees, we present average total findings instead of total findings.

### 5.3 FINDINGS

In general, the 15 SBTDCs appear to perform better than the 48 FAST grantees that are not SBTDCs (when comparing averages), although this difference may result from SBA's theory that SBTDCs have greater ability to report metrics. Due to having far fewer SBTDCs, a relative cross-comparison between SBTDCs and non-SBTDCs should be used for analysis. Within the SBTDC FAST grantee pool, a couple strong performing organizations, such as Arkansas (University of Arkansas System) and California

<sup>14</sup> <https://www.sba.gov/offices/headquarters/osbdc/about-us>

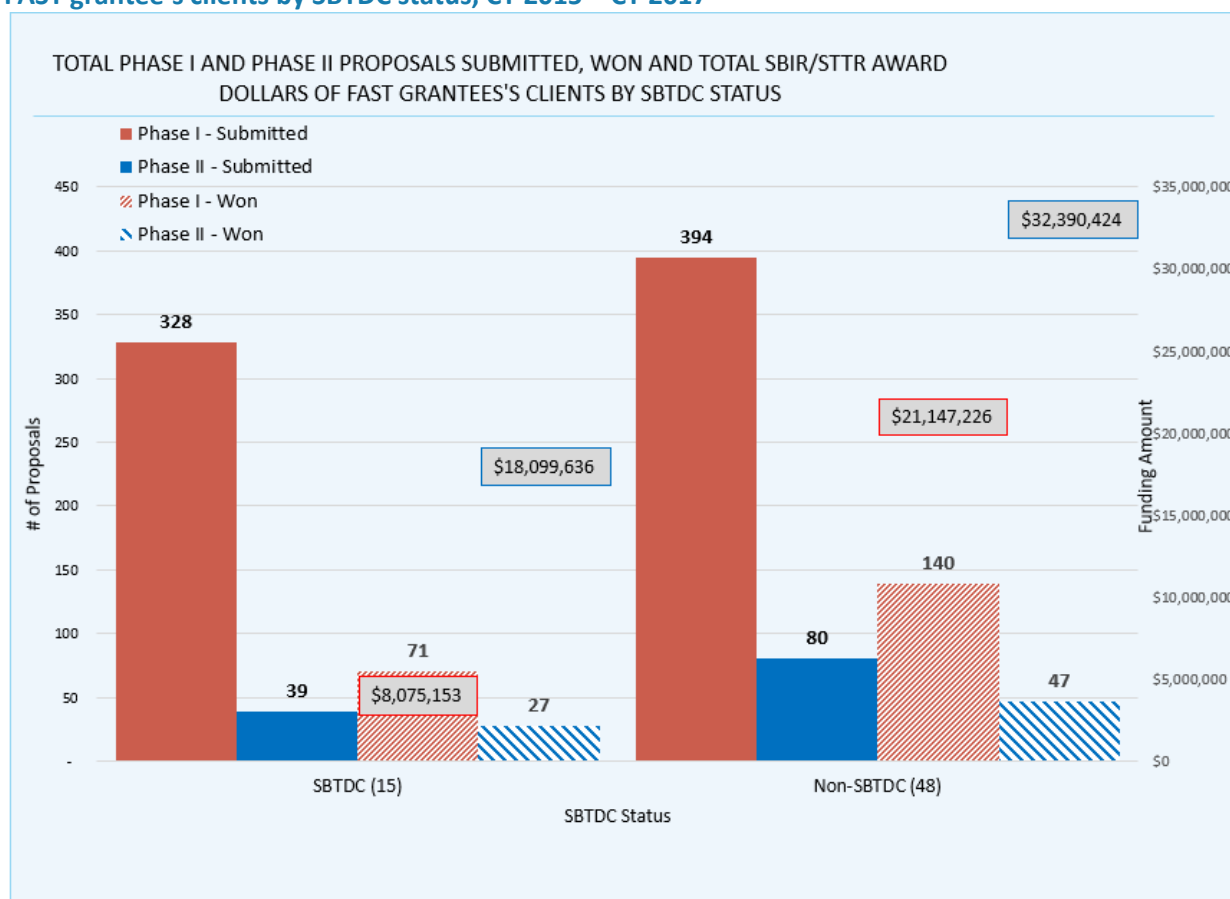
<sup>15</sup> There are some FAST SBTDC grantees and FAST non-SBTDC grantees who earned more than one grant between CY 2015 to CY 2017; these grantees are included in the total count for each time they won an award.



(Riverside Community College District), contribute greatly to the relatively high number of clients supported with proposal wins and award money.

Figure 5 shows the number of Phase I and Phase II proposals submitted by SBTDC status. The y-axis on the left side of the figure shows the number of proposal submissions and the y-axis on the right side of the figure shows the award money for successful submissions.<sup>16</sup> We observe that SBTDCs submitted more proposals for both Phase I and Phase II for all years except CY 2016, where SBTDCs and non-SBTDCs submitted a similar number of proposals. We also see a trend for more proposal submissions in Phase I than Phase II, but more funding awarded to successful Phase II proposal submissions than Phase I proposal submissions, which is consistent regardless of SBTDC status.

**Figure 5: Total Phase I and Phase II proposals submitted/won, and total SBIR/STTR award dollars of FAST grantee's clients by SBTDC status, CY 2015 – CY 2017**



<sup>16</sup> Note that these two y-axes are not linked. In other words, the award amount varies by submission.



Figure 6 provides further insight into the Phase I award funding assisted by FAST grantees as an average amount. Shown in the figure, SBTDCs perform slightly better on average than the non-SBTDCs for Phase I award assistance. A few high performing SBTDCs were responsible for the slight difference between the averages noted in Figure 6. Nonetheless, both SBTDCs and non-SBTDCs both displayed high potential with proposal assistance provided to their clients, as demonstrated by an average total Phase I SBIR/STTR award assistance around \$500,000 per FAST Grantee.

**Figure 6: Average of total Phase I SBIR/STTR awards assisted by each FAST grantee<sup>17</sup>, CY 2015 – CY 2017**

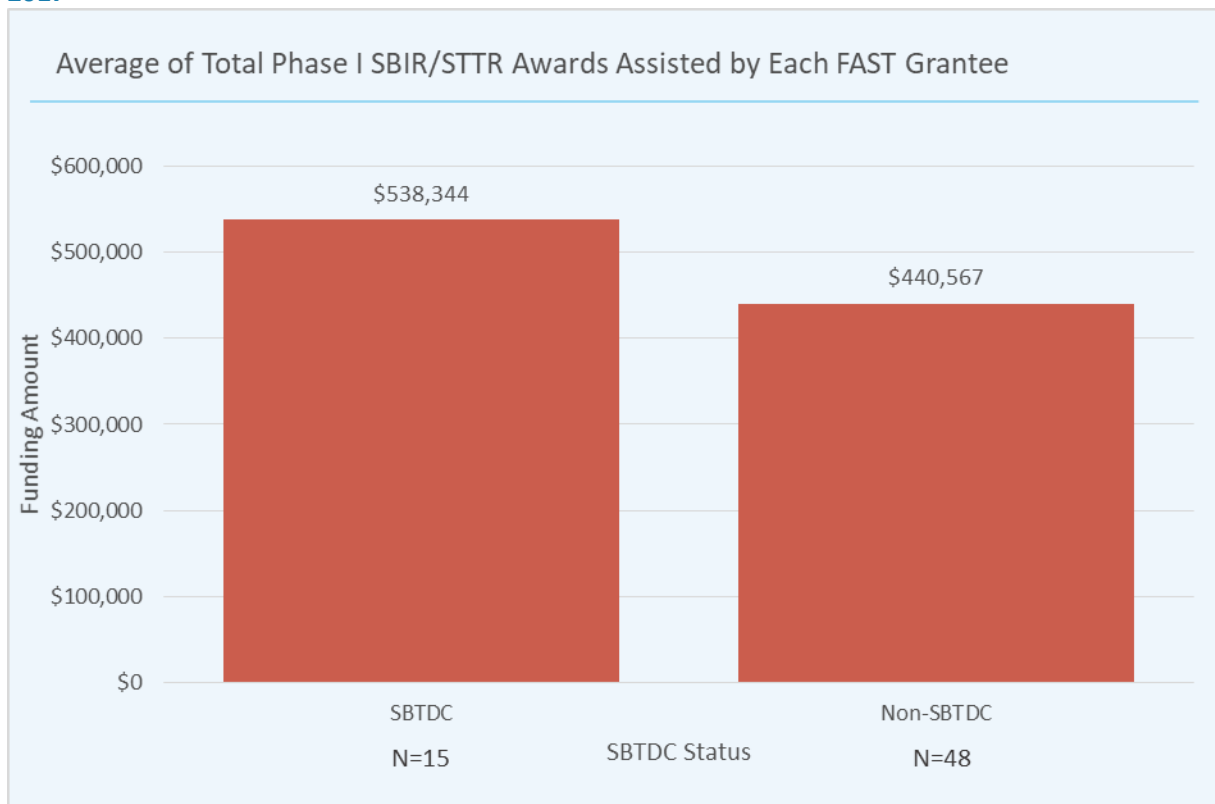


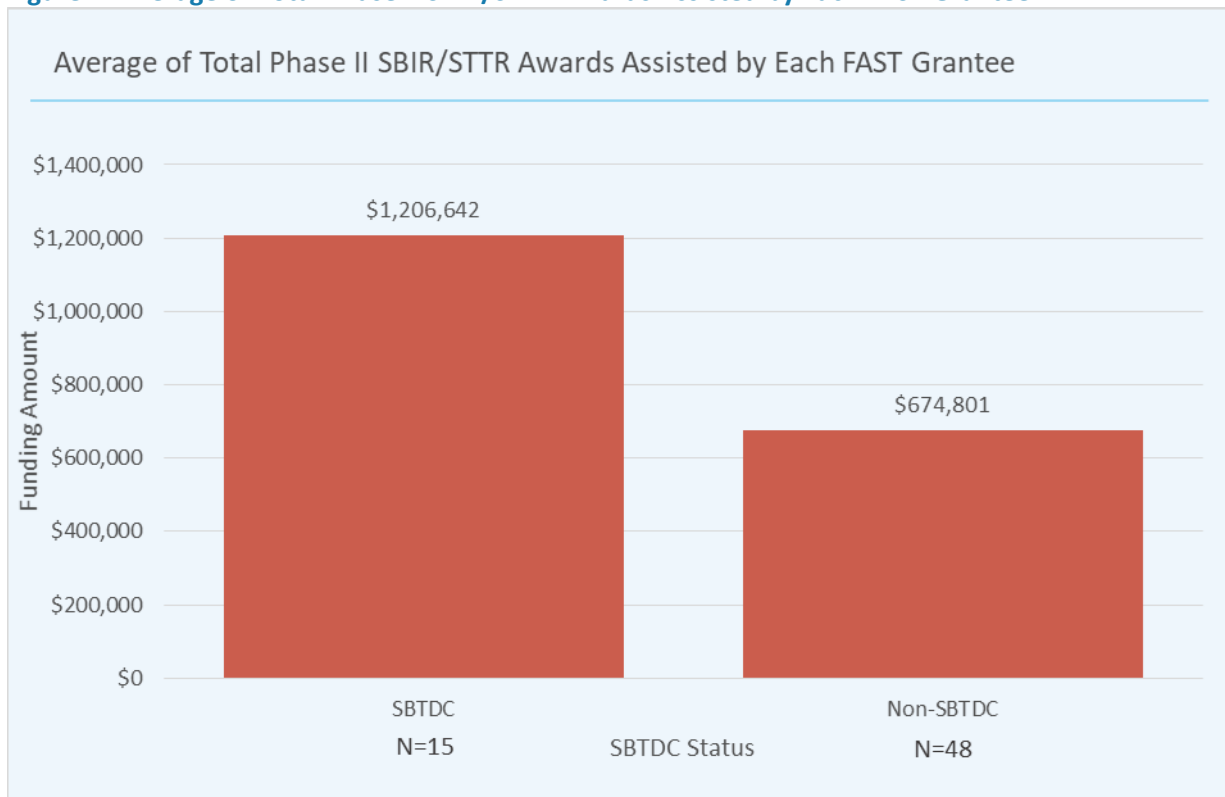
Figure 7, however, indicates a more substantial contrast between the SBTDCs and non-SBTDCs. SBTDCs performed exceedingly well in average total Phase II SBIR/STTR award assistance to clients, which could potentially be attributed to an SBTDC focus on Phase II proposal assistance. Because requirements for Phase I and Phase II differ, the knowledge required to provide assistance with the Phase II proposal process also differs. As inferred, SBTDCs place greater emphasis on providing Phase II proposal assistance

<sup>17</sup> Average of total awards assisted by FAST grantees is calculated by taking the total dollar amount of SBIR/STTR awards assisted by FAST grantees (SBTDCs and Non-SBTDCs respectively) and averaging the amount by the total number of respective FAST grantees in each category.



than non-SBTDCs. An alternative explanation is that the smaller pool of SBTDCs are already high performing organizations and, therefore, appear to perform better than non-SBTDCs regarding Phase II SBIR/STTR assistance. Nevertheless, non-SBTDCs exhibited high performing average total Phase II assistance, with each FAST organization helping their portfolio of clients earn more than \$650,000 on average.

**Figure 7: Average of Total Phase II SBIR/STTR Awards Assisted by Each FAST Grantee**







## 6 QUESTION 3: DID CY 2017 FAST GRANTEES REACH MORE UNDERSERVED APPLICANTS (WOMEN, MINORITIES, AND RURAL APPLICANTS) THAN FAST GRANTEES IN PREVIOUS COHORT YEARS?

### 6.1 OBJECTIVE

SBA is interested in underserved populations (women, minorities, and rural applicants) to support more broadly reaching markets that are socially and economically disadvantaged.<sup>18</sup> Additionally, SBIR/STTR policy developed a strong focus on reaching underserved populations and proponents of this policy hope to achieve diverse small business ownership in the SBIR/STTR community. An evaluation of the SBIR program in 2008 by the National Research Council recommended the program improve participation and success by women and minority applicants.<sup>19</sup> FAST can increase the pipeline of underserved populations participating in the SBIR/STTR program.

In 2017, the FAST program added a solicitation requirement requiring applicants to place greater emphasis on reaching underserved populations. Consequently, the CY 2017 FAST grantees are the benchmark for measuring FAST efforts to reach underserved populations.

### 6.2 DATA SOURCES AND METHODOLOGY

The study team used the FAST grantee narrative reports for descriptions of specific services provided by the grantees to underserved populations. We also used interviews with FAST grantees to help inform best outreach practices, which are discussed in the *Best Practices and Lessons Learned Report*. Our qualitative analysis techniques helped address this evaluation question.

### 6.3 FINDINGS

According to their narrative reports and websites, FAST grantees used the following methods to encourage participation by women and minority small businesses:

- Partnerships with other organizations with ties to underrepresented groups
- Events and programs specifically geared toward underrepresented small businesses

<sup>18</sup> SBA Strategic Plan 2018–2022. [https://www.sba.gov/sites/default/files/2018-06/SBA\\_FY\\_2018-2022\\_Strategic\\_Plan.pdf](https://www.sba.gov/sites/default/files/2018-06/SBA_FY_2018-2022_Strategic_Plan.pdf).

<sup>19</sup> National Research Council, *An Assessment of the SBIR Program*, Washington, DC: National Academies Press, 2008. Available at <https://www.nap.edu/read/11989/>.



- Financial assistance reserved specifically for women- and minority-owned small businesses to participate in existing programs
- Attendance at conferences geared toward underrepresented small businesses
- Award ceremonies highlighting women entrepreneurs, increasing visibility
- Holding SBIR/STTR workshops in rural areas
- Circulating business tips in rural publications

The *Best Practices and Lessons Learned Report* further elaborates on outreach methods to underserved populations.

When studying narrative reports, we observe improved outreach to underserved populations from CY 2015 to CY 2017, relative to CY 2014. However, this improvement may not correlate with the SBA solicitation requirement to target underserved populations, as we observe levels of engagement in CY 2017 comparable to those in CY 2016.

Among the three categories of underserved populations (women, minorities, and rural), we observe the most outreach to minorities in CY 2014 and CY 2015, and the most outreach to women in CY 2016 and CY 2017. From CY 2014 to CY 2016, there was a steady increase in the number of outreach events targeted to women.

The number of outreach activities targeted to rural populations is notably low when compared to the numbers targeted to minorities and women (across all years from CY 2014 to CY 2017). The outreach activities designated specifically for rural populations wavered between five and ten percent between CY 2014 to CY 2017. One possible justification for this result is the difficulty associated with identifying a rural SBIR applicant. Unfortunately, a business's relative proximity to a metropolitan area is often challenging for FAST organizations to identify. Moreover, particular FAST grantees, including those of Wyoming and Nebraska, are predominantly rural. As a result, certain FAST grantees may not differentiate clients in terms of geographic diversity, but rather other factors not related to rural client status. In other words, FAST grantees located in predominantly rural areas (where most of their prospective and actual clients are rural by default) may not even mention "rural" outreach in their reports, because all outreach would apply.



## **7 QUESTION 4: ARE FAST GRANTEES SUPPORTING BOTH SBIR/STTR APPLICANTS AS WELL AS SBIR/STTR AWARDEES? HOW WELL ARE THEY SUPPORTING THEM?**

### **7.1 OBJECTIVE**

This evaluation question focuses on the services small businesses receive from FAST grantees. The question has several components:

- What services are provided? What are the most commonly provided services?
  - What training is needed for SBIR/STTR applicants? Is there a minimum number of training hours needed?
  - What services most benefit applicants in developing competitive proposals?
  - What services most benefit SBIR/STTR awardees?
- What are the gaps in services? What services do SBIR/STTR applicants most commonly request?
- What are some best practices?
- What metrics are used to evaluate effectiveness?

### **7.2 DATA SOURCES AND METHODOLOGY**

The Summit/IEc Team used several data sources, including the FAST metrics reports, narrative reports, and websites; interviews with FAST grantees; and interviews with SBIR/STTR Program Managers. We used descriptive statistics, qualitative analysis, the findings from the literature review, and issue reporting to analyze the data.

### **7.3 FINDINGS**

#### **What services are provided? What are the most commonly provided services?**

The team reviewed the websites of organizations that received FAST awards for either CY 2017 or CY 2018. During the interviews, we inquired about services provided. Table 4 summarizes the types of assistance identified.



**Table 4: Types of assistance provided**

Assistance Provided To	Type of Assistance Provided
Applicants	Outreach
Applicants	Introduction to Partners
Applicants	Pre-application Research
Applicants	Application Preparation
Applicants	Training Sessions on Application Process and SBIR Solicitations
Applicants	Workshops
Applicants	Proposal Writing Assistance/Review
Applicants/Awardees	Personal Coaching/1-on-1 Counseling
Applicants/Awardees	Financial Assistance
Applicants/Awardees	Networking
Awardees	Logistics
Awardees	Strategy

### 7.3.1 What services do FAST grantees provide to applicants?

Prior to a small business submitting an SBIR/STTR application, FAST grantees provide a number of different services, as described below.

**Outreach.** Almost all FAST grantees reviewed listed workshops, trainings, and newsletters as current forms of outreach. The types of workshops included online webinars, workshops recorded and saved on YouTube,<sup>20</sup> workshops held at organizations' offices, and workshops offered throughout the state.<sup>21</sup> The workshops focused on a variety of topics, including a full-day SBIR/STTR proposal writing workshop and workshops to advertise and provide a general overview of SBIR/STTR programs.

Many FAST grantees mentioned the helpfulness of the SBIR Road Tour program, a national outreach effort conducted by SBA.<sup>22</sup> Primarily, this particular event helps individuals better understand the SBIR/STTR proposal process. Other notable benefits include: highlighting a business's SBIR/STTR work, forming an entrepreneurial ecosystem, and providing extensive information regarding SBIR/STTR programs. The SBIR Road Tour also allows FAST grantees to fill the pipeline of potential SBIR/STTR applicants.

**Introductions to partners.** Several organizations offered partner introductions, including introductions to researchers at universities who can serve as a link to the research institution, which encourages

<sup>20</sup> Arrowhead Center, New Mexico State University

<sup>21</sup> Idaho Small Business Development Center

<sup>22</sup> <https://www.sbirroadtour.com/dates.php>



participation in the SBIR/STTR program. These introductions are particularly common among FAST SBTDCs, located within universities. Other organizations facilitated introductions to potential corporate or government partners.<sup>23,24</sup>

**Pre-application research.** Most organizations assisted with pre-application research. Types of assistance included personalized consulting sessions,<sup>25</sup> hands-on guidance with searches of prior awards,<sup>26</sup> assistance navigating federal registrations,<sup>27</sup> and agency-specific guidance. Assistance in navigating agencies took several forms:<sup>28</sup>

- Locating agency research topics that align with a small business's interests
- Guidance drafting a project summary to initiate conversations with agency Program Managers
- Agency-specific SBIR/STTR live webinars
- Agency-specific guides for SBIR/STTR funding

**Application preparation.** Several organizations also provided direct application preparation assistance. Assistance could include drafting the SBIR/STTR proposal,<sup>29,30</sup> proposal budget preparation,<sup>31</sup> or final proposal review.<sup>32</sup> These services applied to both Phase I and Phase II applications, typically by the FAST grantees themselves,<sup>33</sup> but in some cases FAST grantees referred their clients to an external service provider for these services. For example, the Iowa Innovation Corporation contracted with Grow Emerging Companies, an SBIR/STTR advisor, to provide reviews of potential Phase I SBIR proposals.

FAST grantees emphasized the high demand for proposal writing assistance and the need for application preparation assistance during the SBIR process. FAST grantees and Program Managers both described well-written proposals as a substantial element in SBIR success.

**Financial assistance.** Many organizations provided some type of financial assistance to SBIR/STTR applicants. This assistance applied to the grant writing costs of the application, where the FAST grantee

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<sup>23</sup>University of Arkansas System – Arkansas Small Business and Technology Development Center

<sup>24</sup>Illinois Women's Business Development Center

<sup>25</sup>Wichita State University

<sup>26</sup>University of Arkansas System – Arkansas Small Business and Technology Development Center

<sup>27</sup>University of South Dakota – SD Small Business Development Center

<sup>28</sup>University of Arkansas System – Arkansas Small Business and Technology Development Center

<sup>29</sup>Nebraska Small Business Development Center

<sup>30</sup>The Iowa Innovation Corporation, IICorp

<sup>31</sup>University of Arkansas System – Arkansas Small Business and Technology Development Center

<sup>32</sup>Iowa Innovation Corporation

<sup>33</sup>Oregon Best



hired the services of a professional grant writer,<sup>34,35</sup> or to the reimbursement of other application costs.<sup>36</sup> This type of assistance is sometimes referred to as “Phase 0 awards” or “microgrants”<sup>37</sup> and tend to have a value between \$1000 and \$5000, based on interviewee responses.

In one example, the Arkansas Small Business and Technology Development Center assisted small businesses in paying for market research, in such areas as demographics, competitor identification, and industry benchmarks.

A noteworthy response during the FAST interviews concerned a lack of access to or knowledge of potential Phase 0 funding. Several small business interviewees were unaware that such funding exists, in part due to the small amount of Phase 0 funding available and the small number of FAST organizations that offered it. Expanding the available funding for Phase 0 microgrants and increasing the transparency of resources available may enable a larger number of small businesses to access this highly valued type of assistance.

### 7.3.2 What services do FAST grantees provide to awardees?

After a small business receives an SBIR/STTR award, FAST grantees continue to provide additional assistance, as described below.

**Financial assistance.** The most common type of assistance to SBIR/STTR awardees is financial assistance. Often, this assistance is provided as matching funds, in which the organization provides additional funding to small businesses that receive SBIR/STTR funding. FAST matching funds allow businesses to invest in marketing, business assistance, or other commercialization efforts. Some FAST awardees advertise the FAST matching funds on the SBIR/STTR portion of their website,<sup>38,39,40,41</sup> while others do not mention it. Financial assistance can also take the form of helping businesses to find post-award resources, such as angel investors or financing partners, for continued funding.<sup>42</sup> In the interviews with

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<sup>34</sup> Hawaii Technology Development Corporation

<sup>35</sup> Montana Technology Innovation Partnership

<sup>36</sup> Montana Technology Innovation Partnership

<sup>37</sup> Tennessee Technology Development Corporation – Launch Tennessee

<sup>38</sup> Iowa Innovation Corporation, IICorp financial assistance of up to \$50,000 commitment to match on Phase I awards from the Innovation Corporation

<sup>39</sup> Hawaii Technology Development Corporation

<sup>40</sup> Kentucky Cabinet for Economic Development

<sup>41</sup> Tennessee Technology Development Corporation – Launch Tennessee

<sup>42</sup> Delaware Small Business Development Center



FAST organizations, only one FAST grantee respondent mentioned concerns that the funding match was insufficient for meeting their clients' needs.

**Networking.** Many organizations listed networking events as a provided service. These appear to be open to both pre- and post-award SBIR/STTR applicants, as well as university and business partners. Networking was mentioned by interviewees as a way to help small businesses connect with other business professionals, build a stronger knowledge base of the SBIR application process, and connect with federal agencies to learn about application requirements.

**Logistics.** Some FAST grantees provided logistical support, such as assisting with grant management, navigating patent and licensing rights, nondisclosure agreements, and locating space, talent, and equipment.<sup>43,44,45,46</sup>

**Strategy support.** Several organizations' websites discuss assistance with financial and business planning.<sup>47</sup> In addition, some organizations reference assisting with commercialization strategy and/or transferring technologies from universities to small businesses.

**Commercialization.** Some FAST grantees provide help with commercialization of technologies developed. This is also known as Phase III, although SBIR/STTR funding is not available for this phase. During the interview process, many FAST respondents discussed the assistance they provided to SBIR applicants for commercialization. Not only do FAST organizations help SBIR applicants in the interim stage (between Phase I and Phase II, for example), but several FAST organizations also helped small businesses connect with external individuals or organizations interested in the relevant technology. FAST organizations hold networking events and help facilitate interactions between third party members interested in investing in a technology and the small businesses themselves. Some FAST organizations also assist with sales pitches, allowing small business owners to create a concise description of their technology and its marketability. Doing so enables small businesses to develop connections within the industry space without having to rely heavily on "cold-calling" methods or carry the entire burden of selling their product to industry professionals.

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<sup>43</sup> Delaware Small Business Development Center

<sup>44</sup> South Carolina SBDC

<sup>45</sup> University of South Dakota – South Dakota Small Business Development Center

<sup>46</sup> Arrowhead Center, New Mexico State University

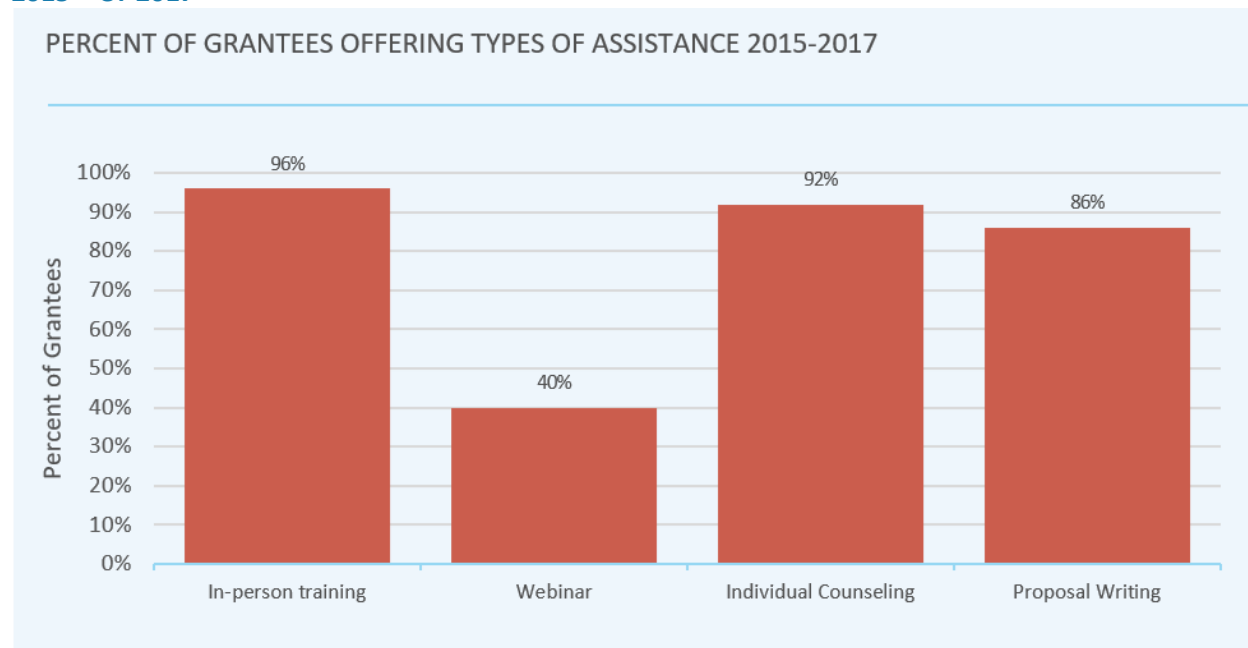
<sup>47</sup> Board of Regents of the University of Wisconsin System – Center for Technology Commercialization



### 7.3.3 What are the most common services?

The Summit/IEc Team reviewed the metrics reports to determine the most common services offered by FAST grantees. As with previous questions, the data is not complete, and some FAST organizations may provide the indicated services without reporting them. Figure 8 shows the percentage of grantees who reported offering services listed under the “Training” and “Technical Assistance” portions of the form, from CY 2015 to CY 2017. In-person trainings, individual counseling, and proposal writing were all very common services, with more than 85 percent of FAST grantees offering them. Webinar trainings were less common; only 40 percent of FAST grantees reported providing webinar trainings.

**Figure 8: Percentage of grantees offering training and technical assistance (by type of assistance), CY 2015 – CY 2017**



N = 50

We also reviewed the types of financial assistance offered and the total dollar amounts for each type of assistance. Phase 0 awards were the most commonly reported, then came grantees providing conference/travel grants, and lastly grantees offering bridge awards. Although bridge awards were the least common type of financial assistance offered, they account for the greatest amount of total funding because these awards are larger than other types of financial assistance. However, the funding amounts reported by grantees include state matching funds in addition to FAST grant funds. Notably, the vast majority of bridge award funding is state match rather than FAST funds. Phase 0 awards also include state funds in addition to FAST funds.





Many FAST grantees during the interview process described how valuable small businesses consider Phase 0 awards, especially small businesses with promising proposal ideas that require supplemental funding to further their proposal process. Conference and travel grants, while far less common, are nonetheless important since these grants expose small businesses to available resources for learning about the SBIR/STTR proposal process. Lastly, the bridge awards provided were relatively few, but the funding amount for bridge awards was substantial (as noted above, bridge awards are predominantly state matching funds).

Several FAST grantees reported the following most common services: personal coaching/one-on-one mentoring, group training sessions, proposal writing assistance, and Phase 0 award funding. One-on-one mentoring helps FAST grantees hone in on specific skills or application questions an SBIR/STTR applicant might require for a successful SBIR/STTR application. The one-on-one sessions also serve as a diagnostic test for SBIR applicants to assess if applicants are suitable for Phase I, “straight to Phase II,” or not prepared for SBIR/STTR application. FAST grantees also mentioned that group training sessions serve a particularly helpful role for many SBIR/STTR applicants who can benefit from interacting with other SBIR/STTR applicants. Group session trainings allow SBIR/STTR applicants to identify their readiness in the application process and receive advice from more experienced small business owners. In terms of proposal writing assistance, this common service is potentially one of the most crucial for SBIR applicants, as the final proposal determines whether the SBIR/STTR applicant will receive an SBIR/STTR award. Many FAST grantees, through proposal writing assistance, are able to provide the necessary guidance on SBIR/STTR proposal writing and help SBIR/STTR applicants tailor a proposal for a particular government agency. Lastly, several FAST grantees offer Phase 0 funding to SBIR/STTR applicants to offset proposal review and preparation costs.

#### **7.3.4 What training is needed for SBIR/STTR applicants? Is there a minimum number of training hours needed?**

In the narrative reports, FAST grantees indicated a need for training when applying for SBIR/STTR. The reports did not indicate a minimum number of hours to complete, but grantees did report a positive correlation between the time spent developing a proposal and the applicant’s chance of getting an SBIR/STTR award.

During the interview process, several FAST grantees and non-grantees reported providing training on the SBIR/STTR application process, training on SBIR/STTR solicitations, and regular group training



sessions focusing on preparation for proposal writing and the proposal submission process. While interviewees stated the minimum number of training hours depended on applicant needs, those offering extensive forms of training predominantly agreed that SBIR/STTR applicants spending a greater number of training hours perform significantly better during the proposal process. However, exceptions exist for applicants with extensive knowledge on the topic area and proposal submission process, therefore requiring only basic assistance (e.g., a read-through of a completed proposal). Applicants who attended trainings also had similar characteristics that FAST interviewees noted were desirable traits in the SBIR/STTR application process, including ambition and receptiveness to advice.

### **7.3.5 What services most benefit applicants in developing competitive proposals?**

FAST organizations noted that small businesses benefited most from more extensive learning about the SBIR/STTR process and how to approach it, as well as assistance with proposal writing and review. Many FAST interviewees indicated that as a small business, having a well-rounded team is essential to succeeding with proposals, but source funding for small business staffing was often minimal. A team needs to have both business skills and the skills in the technology they are trying to develop. As a result, having access to affordable expert proposal writing assistance is especially important.

Additionally, Program Managers from federal agencies described the services that first-time applicants need most. Two needed resources are time and proposal writing assistance, both obstacles to SBIR success for many small businesses. Federal Program Managers noted proposals often need more refining before submission and concurred with the FAST grantees that proposals would benefit from the assistance of an expert proposal writer. Regarding the time factor, Program Managers uniformly stated the effort to obtain the DUNS Number and register with System for Award Management (SAM) is time consuming.

### **7.3.6 What services most benefit SBIR/STTR awardees?**

FAST grantees referenced several services as contributors to SBIR/STTR applicant success. Among these were accelerator programs, one-on-one counseling, and networking development.

- Accelerator programs are fast-paced development programs that allow SBIR/STTR applicants to learn the intricacies of proposal submission. These programs occasionally provide Phase 0 funding.
- One-on-one counseling that provides direct feedback specific to a small business's proposal ideas or area of focus is another service commonly used by SBIR/STTR awardees.



- Networking events played a substantial role for small businesses in both Phase I and Phase II. Not only does assistance in network expansion help businesses pinpoint potential investors, but the network events also connected SBIR/STTR applicants with other applicants for further insight on commercialization.

### **7.3.7 What are the gaps in services? What services do SBIR/STTR applicants most commonly request?**

In the narrative reports, few FAST grantees described gaps in services explicitly. In 2017, one state reported that small businesses thought that one-time assistance on proposal preparation was less helpful than cohort training. Similarly, another state's small businesses noted that more time spent on the review and discussion of proposals would be more useful than technical writing assistance. In another state, the FAST grantee established an initiative to help small businesses secure SBIR/STTR funds. However, clients found the initiative's website was not user friendly or mobile compatible.

FAST grantee interviewees' responses regarding gaps in services were somewhat spread across the board. One common theme that arose, however, was lack of access to funding. FAST grantees agreed that only minimal funding is available for continuing to provide SBIR/STTR services and maintain staffing. Lack of funding can sometimes lead to insufficient staffing, which several FAST organizations agreed was also insufficient. Organizations would like to see SBA expand the funding amount and/or duration of the FAST grant. Benefits of expanding include enhancing funding certainty for FAST grantees, reducing burden of applying for FAST funding each year, and allowing a focus on the core mission. This extension would potentially improve continuity and/or volume of services provided by FAST grantees to their clients.

FAST grantees indicated simplifying the application process and expanding peer-to-peer/knowledge-sharing events for FAST grantees would be beneficial. In general, interviewees reported the application process is long and requires filling out a number of forms. They also requested greater clarity in what SBA is looking for, including emphasizing major changes from previous Funding Opportunity Announcements (FOAs). This could be further explained with the webinar held around the time of the NOFO/FOA opening. To enhance the webinar, SBA could highlight not only changes from year to year, but also the most requested FAST topics. Using historical background, SBA can decide with which topics FAST grantees need the most assistance or clarification. FAST grantees also noted that monthly peer-to-peer calls with other FAST grantees are a helpful venue for sharing best practices.



In interviews, most federal agency SBIR/STTR Program Managers had a positive view of FAST as a whole and supported its mission of encouraging local participation in SBIR/STTR. They recommended the FAST program increase collaboration with the SBTDCs and think about reallocating the funding per grant or extending the period of a grant (i.e., multi-year or permanent grant funding). As the SBA is not responsible for increasing budget, a recommendation could be to select fewer FAST grantees but allocate more funding to each of the selected FAST grantees. The Program Managers recommended increasing SBIR participation in underserved communities, which would involve more collaboration with organizations that represent underrepresented populations, and a greater focus on underrepresented groups in FAST applications. The Program Managers also emphasized the importance of referring small businesses to government agency resources and educating them on the differences between (and within) government agencies.

The Program Managers also honed in on more general aspects of applicant preparation. Several interviewees mentioned that SBIR/STTR applicants would benefit greatly from assistance with business plans, proposal outlines, product pitches, and other preparation pieces. This could be mitigated by encouraging FAST organizations not only to provide assistance with proposal-related issues but also to provide the “life skills” services businesses require to function on a daily basis.

Several larger structural factors influence a small business’s chances of receiving an SBIR/STTR award. The quality of the entrepreneurial ecosystem is often outside the control of FAST organizations and the FAST program. Some states like New York, California, and Massachusetts have well-developed entrepreneurial ecosystems, but many states do not. Metropolitan areas, such as Boston or Washington D.C., uphold a strong entrepreneurial ecosystem because of population density and an emphasis on education and innovation. While a FAST organization can provide proposal writing assistance, one-on-one counseling, and other services, it cannot change larger structural issues (e.g., their state may not have the necessary talent pool).

### **7.3.8 What are some best practices?**

The best practices employed by FAST grantees are described in the *Best Practices and Lessons Learned Report* delivered by the Summit/IEC Team as a separate document.

### **7.3.9 What metrics are used to evaluate effectiveness?**

In addition to the metrics in the metrics report, some grantees tracked the following metrics and reported them in their narrative reports:



- Percentage increase of researchers from universities and federal labs that participate in SBIR/STTR activities
- Percentage increase in the number of SBIR/STTR program applicants that have not traditionally participated in the SBIR/STTR program
- Percentage increase in the state's share of SBIR/STTR award dollars
- Number of new businesses created
- Number of new jobs created
- Number of jobs retained

When describing the metrics used to evaluate program effectiveness, FAST grantee interviewees indicated an overlap between the priority metrics to track from a FAST organization perspective. The most common metrics are as follows:

- Percent of proposal wins
- Company revenue
- SBIR/STTR money awarded
- SBIR/STTR money brought to the state

As part of the current project, we developed a new *Quarterly Reporting Form* for the FAST program. The new form adds metrics not included in the previous version (e.g., mentor networks, outreach to underserved populations, and more specific types of business assistance) and provides standardized definitions and activity and outcome measures. The new form should help improve the consistency and usefulness of metrics data reported in the future. Figure 9 depicts an excerpt from the new form.



**Figure 9: New FAST Quarterly Reporting Form**

Name of Awardee (FAST Organization):					
Grant Number:					
Year/Quarter Submitted For:					
	Q1	Q2	Q3	Q4	Cumulative
<b>Outreach (activities with outreach as the primary purpose)</b>					
Number of outreach events/meetings					0
Total number of participants at outreach events/meetings					0
Number of outreach events/meetings with a focus on reaching underserved businesses					0
Did you support any mentor networks? (Yes/No) If Yes, which of the following areas of expertise are represented in the network? For each area you check Yes, please describe what kind of support you provided via the mentor network. Examples of support include: financial, connections made between current clients and individuals or businesses that led to an interaction, mentor matchmaking events, etc.					
Commercialization (Yes/No) - If yes, please describe:					
Investment (Yes/No) - If yes, please describe:					
Federal Contracting (Yes/No) - If yes, please describe:					
Other (Yes/No) - If yes, please specify and describe:					
Number of <b>unique</b> clients supported by FAST activities (Count each unique client once per program year. Do not count clients counted in previous quarters of the same program year.)					0
<b>Training (activities with training as the primary purpose)</b>					
Number of in-person training sessions/workshops					0
Number of in-person training session/workshop participants					0
Number of training webinars					0
Number of training webinar participants					0
<b>Business and Technical Assistance</b>					
Number of clients who received proposal writing assistance					0
Number of clients who received assistance with solicitation matching					0
Number of clients who received technical assistance (e.g., prototyping, lab partnerships, etc.)					0
Number of clients who received other business assistance (e.g., market research, audit/accounting, contracting, etc.)					0



Financial Assistance					
Number of Phase 0 awards provided to <b>nascent or startup</b> businesses					0
Number of Phase 0 awards provided to <b>existing</b> businesses					0
Number of Phase 0 awards provided to <b>underserved</b> businesses					0
Total Phase 0 award funding provided (\$) to <b>nascent or startup</b> businesses					\$0.00
Total Phase 0 award funding provided (\$) to <b>existing</b> businesses					\$0.00
Total Phase 0 award funding provided (\$) to <b>underserved</b> businesses					\$0.00
Number of Phase I to Phase II bridge awards provided to <b>nascent or startup</b> businesses					0
Number of Phase I to Phase II bridge awards provided to <b>existing</b> businesses					0
Number of Phase I to Phase II bridge awards provided to <b>underserved</b> businesses					0
Total Phase I to Phase II bridge award funding provided (\$) to <b>nascent or startup</b> businesses					\$0.00
Total Phase I to Phase II bridge award funding provided (\$) to <b>existing</b> businesses					\$0.00
Total Phase I to Phase II bridge award funding provided (\$) to <b>underserved</b> businesses					\$0.00
SBIR/STTR Award Metrics					
Number of SBIR/STTR Phase I proposals submitted by clients					0
Subset of SBIR/STTR Phase I proposals submitted by clients who are underserved businesses					0
Number of SBIR/STTR Phase I awards won by clients					0
Subset of SBIR/STTR Phase I awards won by clients who are underserved businesses					0
Total Phase 1 award funding won by clients (\$)					\$0.00
Subset of Phase I award funding won by clients who are underserved businesses (\$)					\$0.00
Number of SBIR/STTR Phase II proposals submitted by clients					0
Subset of SBIR/STTR Phase II proposals submitted by clients who are underserved businesses					0
Number of SBIR/STTR Phase II awards won by clients					0
Subset of SBIR/STTR Phase II awards won by clients who are underserved businesses					0
Total Phase II award funding won by clients (\$)					\$0.00
Subset of Phase II award funding won by clients who are underserved businesses (\$)					\$0.00
Other Metrics and Explanations					
The metrics above are based on previous review of FAST recipients and should not be viewed as an exhaustive list. Please include other metrics, and quarterly program highlights, as you deem appropriate here. You may also use this space to clarify or expand on any metrics reported above.					



## 8 QUESTION 5: BASED ON FAST GRANTEES' SELF-ASSESSMENTS, DID FAST GRANTEES MEET THEIR GOALS?

### 8.1 OBJECTIVE

This section analyzes whether FAST grantees are accomplishing their goals as reported.

### 8.2 DATA SOURCES AND METHODOLOGY

We conducted qualitative analyses of the narrative reports to assess the performance of FAST grantees relative to their stated goals at the time they applied for the grant.<sup>48</sup> We categorized grantees into five categories, according to their self-reporting:

1. **Exceeded some milestones**—met all milestones and exceeded some milestones.
2. **Met all milestones**—met 100% of milestones.
3. **Met most milestones**—met more than 50% of milestones.
4. **Met some milestones**—met less than 50% of milestones.
5. **Goal not specified**—goals not specified in narrative report.

### 8.3 FINDINGS

There is some subjectivity in rating the self-assessments, so the Summit/IEc Team took the approach described below.

Some grantees set very specific goals, making it simple to determine whether the goals were met. For example, one organization aimed to grant six Phase Zero awards, another planned to host two SBIR/STTR workshops, and a third aimed to serve 100 small businesses owned by underserved populations. At the end of the reporting period, the first organization granted seven Phase Zero awards, the second hosted three workshops, and the third served 107 underserved clients. They could all then objectively state they had exceeded their milestones. Other grantees had specific goals they did not meet. One grantee's goal was to interact with at least 12 potential SBIR/STTR applicants, a minimum of six would be underserved. They interacted with seven potential SBIR/STTR applicants, four of which were underserved. Another grantee aimed to provide an SBIR/STTR Phase II workshop but was unable to due to lack of funds.

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<sup>48</sup> The Summit/IEc Team did not have access to the applications themselves.





Other grantees had much more open-ended goals, making it more difficult to determine whether they had met or exceeded their goals. For example:

- One organization aimed to strengthen relationships with young entrepreneurs. The staff hosted a collegiate pitch competition, provided advice to young entrepreneurs, and used marketing strategies targeted to college students who might be interested in starting a business.
- Another organization had a goal of increasing website resources. After adding a blog feature and podcasts, the organization judged this goal had been met.
- A third organization had a goal of expanding university involvement in SBIR/STTR projects. The accomplishments listed included meetings with university leaders, faculty, and researchers, which would “keep the program on [their] mind.” The organization did not share any results of increased involvement with universities.
- A fourth organization aimed to improve the overall quality of proposals submitted through advanced technical training. They did this by providing an in-depth “boot camp” workshop on preparing SBIR/STTR proposals, using consultants.
- Another organization aimed to “target outreach and awareness building.” They did this by speaking to veterans at two veteran-focused small business events planned by other organizations.

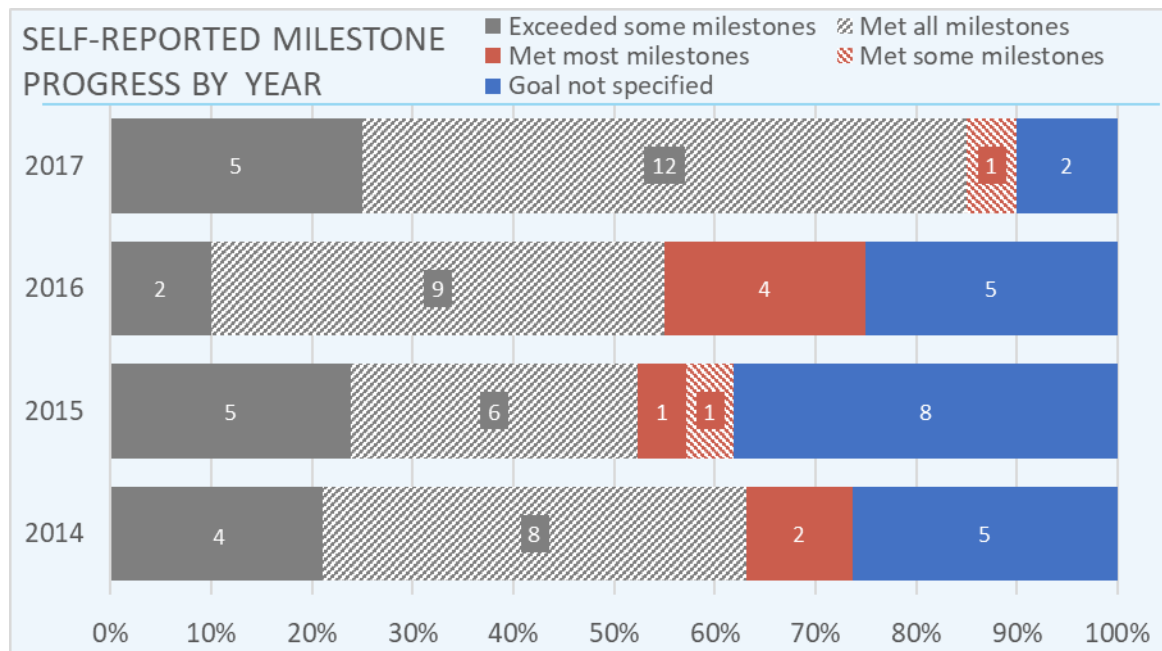
We classified all of these grantees as having met their goals, although this classification is subjective in nature.

Some narrative reports did not include any goals, so it is unknown whether the grantees met their milestones. For example, some reports listed the grantee’s accomplishments without any comparison to predetermined milestones. Even when goals were not specified in the narrative reports, the proposals may have included the goals instead. However, the proposals were not available for analysis.

Figure 10 shows the grantees’ self-reported milestone progress by year. In all years, at least half the grantees met or exceeded all milestones. Grantees had the greatest number of unspecified goals in CY 2015. Further analyzing progress on milestones would involve the required reporting of milestones, more objective milestones, and more standardized tracking of milestone progress.



**Figure 10: Grantees self-reported milestone progress by year**



N = 80



## 9 QUESTION 6: WHAT ARE THE COMPONENTS OF A HEALTHY ENTREPRENEURIAL ECOSYSTEM?

### 9.1 OBJECTIVE

FAST grantees and small businesses operate within the context of an entrepreneurial ecosystem that can enable or constrain their success. Understanding the entrepreneurial ecosystem provided context for evaluating the FAST program, the unique elements of the SBIR program and FAST within the ecosystem, and ways the FAST program contributes to the ecosystem.

### 9.2 DATA SOURCE

We surveyed the available literature and identified three relevant papers that describe the components of a healthy entrepreneurial ecosystem:

1. Erik Stam and Ben Spigel, “Entrepreneurial Ecosystems” (2016): This paper is a review of the literature on entrepreneurial ecosystems and distills the key important elements in a healthy entrepreneurial ecosystem. The paper synthesizes a broad range of research on this topic.<sup>49</sup>
2. Ben Spigel, “The Relational Organization of Entrepreneurial Ecosystems” (2017): This paper further describes the components of a healthy entrepreneurial ecosystem and provides additional detail.<sup>50</sup>
3. Philip Auerswald, “Enabling Entrepreneurial Ecosystems” (2015): This paper adds another perspective regarding the components of a healthy entrepreneurial ecosystem.<sup>51</sup>

We rely on interviews with federal SBIR/STTR Program Managers and FAST grantees to understand how the FAST program fits within the broader entrepreneurial ecosystem, and how the FAST program helps strengthen the entrepreneurial ecosystem.

<sup>49</sup> Stam, Erik and Spigel, Ben, “Entrepreneurial Ecosystems,” USE Discussion Paper No. 16-13 (Utrecht: Utrecht University School of Economics, 2016). Available at: <https://EconPapers.repec.org/RePEc:use:tkiwps:1613>.

<sup>50</sup> Spigel, Ben, “The Relational Organization of Entrepreneurial Ecosystems,” *Entrepreneurship Theory and Practice*, 41 (2017): 49-72. Available at SSRN: <https://ssrn.com/abstract=2892813> or <http://dx.doi.org/10.1111/etap.12167>

<sup>51</sup> Auerswald, Philip. “Enabling Entrepreneurial Ecosystems,” Kauffman Foundation Research Series on City, Metro, and Regional Entrepreneurship, October 2015. [https://www.kauffman.org/-/media/kauffman\\_org/research-reports-and-covers/2015/10/enabling\\_entrepreneurial\\_ecosystems.pdf](https://www.kauffman.org/-/media/kauffman_org/research-reports-and-covers/2015/10/enabling_entrepreneurial_ecosystems.pdf).



### 9.3 FINDINGS

Stam and Spigel summarize the six key elements of a healthy entrepreneurial ecosystem. Many of these are broader than the focus of the FAST program. Both papers by Spigel refer to these six elements, with more detail given in Spigel (2017). The six elements are defined as follows:

1. **Networks of Entrepreneurs** are necessary for effective information flow. Information flow includes the distribution of capital, labor, and knowledge.
2. **Leadership**, entrepreneurs who are highly visible and committed to the region, helps provide role models and guidance to other small businesses.
3. **Financing** from knowledgeable investors makes long-term entrepreneurial projects possible, because new businesses do not immediately generate revenue.
4. **Talent**, a diverse and skilled pool of workers, is necessary to meet the labor demands of startups.
5. **Knowledge** about entrepreneurship opportunities from public and private organizations is also necessary.
6. Finally, **Support Services** from intermediaries can reduce the time to market and lower barriers to entry.

The most readily actionable items related to FAST are the following: creating a *network of entrepreneurs*, helping small businesses obtain *financing* besides SBIR/STTR awards, and enriching the pool of *talent*. In addition, Spigel (2017) discusses the importance of universities in enriching the human capital of a region. This is relevant to FAST because many SBDCs and SBTDCs are located within universities. FAST grantees that are SBDCs or SBTDCs can work with their universities to connect researchers and students with their SBIR/STTR small business clients.

Auerswald (2015) describes key strategies in enabling an entrepreneurial ecosystem, which have some overlap with the Spigel papers. As with the key elements described above, businesses can implement some of these strategies more easily than others. This paper lists the following items as necessary to maintaining a healthy entrepreneurial work environment:

1. **Connection between small and large firms** provides entrepreneurs with greater access to investment, mentorship, oversight, and relationships with subcontractors.



2. **Quality of life** influences where entrepreneurs choose to live and begin their businesses. A higher quality of life will increase the likelihood of an entrepreneurial ecosystem starting and succeeding in an area.
3. **Talented employees** are more valuable to entrepreneurs than the business-related resources offered by a city.
4. **Reduced favoring of incumbents** is necessary to enable and encourage market entry among entrepreneurs. This is done by:
  - a. Reducing the cost of doing business in the industry
  - b. Reducing regulatory risk for new entrants
  - c. Reducing regulatory complexity that gives incumbents a learning curve advantage.
5. **Awareness of who is in the ecosystem and how they are connected** enables open communication between entrepreneurs and supporters, as well as enhanced ability to develop strategies.
6. **Listening to entrepreneurs** will stimulate product development, diversity, and deal flow.
7. **Not segmenting the community** allows participants in the ecosystem to take on multiple roles and support entrepreneurs through more than one avenue.
8. **Taking advantage of market failures** creates opportunity for entrepreneurs in the face of economic disruption.
9. **Diversity** leads to idea exploration and new firm creation.

The quality of the entrepreneurial ecosystem, or the degree to which the entrepreneurial ecosystem is well developed, varies across states. This factor is also largely beyond the control of the FAST grantees, due to their role and limited resources. Both the FAST grantees and federal Program Managers recognize the importance of a healthy entrepreneurial ecosystem:

- FAST organizations and federal Program Managers noted the importance of the entrepreneurial ecosystem—the context in which the FAST program operates—and commented on how “unevenly” developed the ecosystem is across different states and regions.
- Federal Program Managers noted that FAST is especially important in areas of the country with a less developed innovation ecosystem and fewer available services to help small businesses apply for and obtain SBIR/STTR funding.
- Federal SBIR/STTR Program Managers and FAST organizations noted several ways the FAST program can help strengthen the entrepreneurial ecosystem in less developed areas:



- Coordinating with small businesses, business support organizations, universities, and other organizations that comprise the entrepreneurial ecosystem.
- Strengthening entrepreneur networks and connecting entrepreneurs with needed services and resources.
- Providing outreach and direct assistance to companies to increase the number and quality of SBIR/STTR applications.
- Strengthening the performance of SBIR/STTR awardees.



## 10 CONCLUSIONS

In conclusion, available evidence suggests the FAST program enables grantees to better serve small businesses applying for and involved in the SBIR/STTR programs. Table 5 summarizes the study findings by research question.

**Table 5: Summary of findings by research question**

Evaluation Question	Findings
<b>1. Do SBIR/STTR applicants and awardees who receive assistance from FAST grantees have better outcomes (as specified by FAST Statute) than those who do not?</b>	No information was available on small businesses not assisted by FAST, so the team studied participant outcomes over time. The total number of Phase I and Phase II awards increased from CY 2015 to CY 2017, and the size of the average award increased as well. There was no pattern in discussion of technology transfer. See Section 4 for details.
<b>2. Is there a difference in performance between the SBTDC FAST grantee and the general FAST grantee?</b>	Across all measures (number of Phase I and Phase II awards, award amounts, and discussions of technology transfer), SBTDCs appear stronger than non-SBTDCs. However, this may result from SBTDCs having more sophisticated tracking systems, allowing them to better measure and report their outcomes. See Section 5 for details.
<b>3. Did CY 17 FAST grantees reach more underserved applicants (women, minorities, and rural applicants) than FAST grantees in previous fiscal years?</b>	Outreach to women increased from CY 2014 to CY 2017. Outreach to minorities in 2017 was higher than 2014, although there is not a stable trend across years. Reported outreach to rural small businesses was low across all years, although this may result from rural small businesses being harder to identify than minority or women-owned businesses, and/or because FAST grantees in predominantly rural areas do not specifically mention “rural” small businesses in their narrative reports. See Section 6 for details.
<b>4. Are FAST grantees supporting both SBIR/STTR applicants as well as SBIR/STTR awardees? How well are they supporting them?</b>	FAST grantees support both SBIR/STTR applicants and awardees. For SBIR/STTR applicants, FAST grantees performed outreach to small businesses and provided introductions to partners, pre-application research, application preparation, training, financial assistance, and networking. For SBIR/STTR awardees, FAST grantees provide financial assistance, networking, logistics, strategy support, and commercialization services. The most common services listed in the metrics reports were in-person trainings, individual counseling, and proposal writing. Webinar trainings were the least common service. The most common financial assistance offered was Phase 0 awards, although bridge awards made up the greatest dollar amount of financial assistance given. In terms of gaps in services, there was a need for access to funding, strengthening the entrepreneurial ecosystem, and cohort training. See Section 7 for details.



Evaluation Question	Findings
<b>5. Based on FAST grantees' self-assessments, did FAST grantees meet their goals?</b>	According to the narrative reports, most FAST grantees met or exceeded their goals. However, many of the goals were subjective, and some narrative reports did not discuss goals at all. See Section 8 for details.
<b>6. What are the components of a healthy entrepreneurial ecosystem?</b>	The components of a healthy entrepreneurial ecosystem—the context in which FAST grantees and small businesses operate—include networks of entrepreneurs, entrepreneurial leadership, financing, skilled talent, a high quality of life, knowledge-sharing, support services, and diversity. The FAST program can help strengthen the entrepreneurial ecosystem, particularly in less developed areas, including rural states and underserved communities. See Section 9 for details.





## 11 RECOMMENDATIONS FOR FUTURE EVALUATIONS AND PERFORMANCE MEASUREMENT IMPROVEMENTS

Based on the evaluation results, the Summit/IEc Team offers recommendations in two areas: recommendations to strengthen future evaluations and recommendations to strengthen the FAST program.

### 11.1 RECOMMENDATIONS TO STRENGTHEN FUTURE EVALUATIONS

To provide a more robust analysis for future evaluations, the Summit/IEc Team makes the following recommendations for SBA and future researchers:

- Leverage new data from the new *Quarterly Reporting Form* to capture the role of mentor networks, outreach to underserved populations, and more specific types of business assistance as well as client outcomes (Section 7.3.9). The new form standardizes definitions and activity and outcome data and should improve the richness and certainty of the data derived from the forms.
- Improve milestone tracking to better measure progress against milestones (Section 8). Work with grantees to set measurable milestones, such as “mentor five entrepreneurs,” rather than “improve relationships with young entrepreneurs.” To encourage more standardized tracking of milestone progress, require grantees to list each milestone from their application in their narrative reports and comment on whether it was met, not met, or exceeded.
- Require client-level tracking to determine success rates of client applications (Section 4). Tracking data at the individual client level, rather than the aggregate level, would allow SBA to calculate the success rate of clients served by FAST grantees. Tracking applications and award decisions for individual clients would overcome one of the challenges we faced in this evaluation – i.e., we could not calculate success rates with the aggregated data, because awards reported in a particular time period may not correspond to applications submitted in that same time period. Client-level data could be tracked in a future version of the *Quarterly Reporting Form*.
- Leverage SBIR/STTR program data to measure the impact of the FAST program by using a comparison group of small businesses not aided by FAST grantees (Section 4). Using state or national SBIR/STTR data, combined with client-level data (see previous recommendation), SBA could compare the outcomes of small businesses aided by FAST grantees to the outcomes of small businesses not aided by FAST grantees.



- Interview more FAST grantees and broaden the scope of the evaluation to include interviews with small businesses themselves for a broader perspective from additional stakeholders.
- Investigate why SBTDC FAST grantees seemingly perform better than the general FAST grantee, and what lessons can be learned for the program as a whole (Section 5).

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## 11.2 RECOMMENDATIONS TO STRENGTHEN THE FAST PROGRAM

Based on discussions with FAST grantees and federal Program Managers, the Summit/IEc Team also has the following recommendations for program implementation:

- Increase the duration and amount of FAST grants to enhance funding certainty for FAST grantees. These changes would improve continuity of SBIR/STTR support services in states where the SBIR/STTR support organization relies heavily on the FAST program but may not win consecutive awards. Increasing the duration of awards (e.g., from one year to two years) would allow FAST grantees to engage in longer-term planning and to provide more continuous service to their clients (Section 7.3.7). However, there are trade-offs given the FAST funding appropriated each year would mean that increasing grant award sizes results in offering fewer grants.
- Simplify the application process to reduce the burden of applying for FAST funding and allow FAST grantees to focus on their core mission. FAST grantees requested a shorter application process, with fewer forms to fill out, and more clarity/emphasis on major changes in requirements or evaluation criteria from previous FOAs to the current year's FOA. While this recommendation directly addresses the efficiency of the application process, it could also improve outcomes by allowing grantees to spend less time on the application process, and more time providing the services that result in SBIR/STTR outcomes (Section 7.3.7).
- Share best practices in monthly peer-to-peer calls with other FAST grantees to support FAST grantees in expanding the services the evaluation identified as most necessary (Section 7.3.7).



## APPENDIX A INTERVIEW INSTRUMENTS

### DISCUSSION GUIDE FOR: FAST AWARD RECIPIENTS (GROUP 1)

#### Opening script

Thank you for taking the time to talk with us today. My name is [DISCUSSION LEADER], and I am a [TITLE] with Summit/IEc. I am joined by my colleague [NAME], who will be taking notes during today's discussion. Summit and IEc, under contract to the U.S. Small Business Administration, are conducting research on the agency's behalf to elicit feedback on how the agency might improve program service delivery under its Federal and State Technology (FAST) Partnership Program. As required by the Paperwork Reduction Act, this discussion cannot take place without approval from the Office of Management and Budget. SBA obtained that approval under OMB Control # 3245-0398. Your participation in this research effort is completely voluntary. The total estimated time for participating in this discussion is one hour.

Summit and IEc, as independent research firms, will keep the information you provide confidential to the extent permitted by law. Your name and organization will not be associated with any of your responses. Your insights will be used to develop recommendations on how to improve the FAST grant program.

Today's discussion is divided into four parts. We will start by talking about your experience with the FAST program. Next, we will review the types of small businesses you serve and the services you provide. Part 3 consists of a handful of questions about the type of client data that your organization tracks. Lastly, we would like to discuss current and/or prior clients of your organization who may also be willing to participate in an interview. Unless you have any questions for me, we can start our discussion.

*[To be filled in by the Discussion Leader/Note-taker prior to the discussion]*

Organization Name:

Organization's State:

Year Organization Established [from organization's website]:

Types of Small Businesses Served [from organization's website]:

Geographic Area Served [from organization's website]:

Number of FAST grants received [from SBA FAST program website]:

First Year of FAST Award [from SBA FAST program website]:



Most Recent Year of FAST Award [from SBA FAST program website]:

Respondent's Name and Title:

Date of Discussion:

Name of Discussion Leader:

Name of Note-taker:

## FAST PROGRAM EXPERIENCE

I'll start by asking you some questions about your experience with the FAST program.

TOPIC/QUESTION
1. How did you hear about the FAST program?
2. When thinking about applying for the FAST grant, did you expect or need any help from the SBA? a. [If yes] What type of help did you expect to receive?
3. What assistance did you receive once your FAST application was successful?
4. What assistance have you found helpful from SBA on FAST program implementation?
5. Are there changes you would recommend to SBA to improve the FAST application process?
6. What other assistance would you like to see SBA offer?
7. Do you have any plans to apply to future FAST grant opportunities? a. If no, why not?
8. Do you have concerns about meeting the FAST funding match requirement?
9. What other federal, state, or private grant programs do you regularly apply to? a. How do these other programs supplement or augment the assistance you receive from FAST?

## SMALL BUSINESS SERVICES

Next, I'd like to talk about the small businesses that you serve and the services that you provide.

TOPIC/QUESTION
1. How many small businesses do you serve overall per year? a. [If needed] How do you define a client included in the 'number served'? b. How do small businesses find your organization? c. Of the total number of small businesses served, approximately what percent represent underserved clients? d. Of the total number of small businesses served, what is the overall level of interest among these small businesses in the SBIR/STTR programs? e. Do you observe any difference in awareness and/or the level of interest in the SBIR/STTR programs among underserved clients? i) <i>If yes, what type of differences do you observe?</i>
2. What types of services do you provide to SBIR/STTR applicants and awardees? a. How did the FAST grant enhance or augment the services that you provide to SBIR/STTR applicants and awardees?



TOPIC/QUESTION
b. How did the FAST grant enhance or augment your ability to develop a network of mentors to work with your clients?
c. What services do potential SBIR/STTR applicants and awardees most commonly request?
d. Is there a minimum number of training hours that SBIR/STTR applicants require?
e. Are there gaps in services? If so, what are they?
3. What common characteristics do you see in the most successful SBIR/STTR applicants?
4. What outreach strategies have you found effective for engaging first-time and/or underserved clients?
5. What outcomes (e.g., commercialization progress) do you see in successful Phase I awardees?
6. What outcomes (e.g., commercialization progress) do you see in successful Phase II awardees?
7. What business assistance tools have you found helpful in meeting SBIR/STTR client needs?
8. What lessons learned and/or best practices can you share on each of the following?
a. Increasing the number of underserved clients
b. Improving SBIR/STTR client outcomes
c. Meeting first-time client needs
d. Facilitating more competitive proposals, particularly from underserved clients

## CLIENT DATA TRACKING

Finally, I have a few questions about the type of client data you regularly track.

TOPIC/QUESTION
1. How do you evaluate the effectiveness of the services you provide to SBIR/STTR applicants and awardees?
a. [If needed] What metrics do you rely on?
b. [If yes] Do you track any different or additional metrics for services provided to underserved clients?
2. What information do you track on your clients?
3. How has that information helped you determine client outcomes?
4. What challenges exist in tracking client data?



## DISCUSSION GUIDE FOR: SBIR/STTR PROGRAM MANAGERS

### Opening script

Thank you for taking the time to talk with us today. My name is [DISCUSSION LEADER], and I am a [TITLE] with Summit/IEc. I am joined by my colleague [NAME], who will be taking notes during today's discussion. Summit and IEc, under contract to the U.S. Small Business Administration, are conducting research on the agency's behalf to elicit feedback on how the agency might improve program service delivery under its Federal and State Technology (FAST) Partnership Program. The FAST program provides funding to organizations that support small businesses that apply for and/or receive awards as a result of the Small Business Innovation Research (SBIR) program and the Small Business Technology Transfer (STTR) program. Organizations eligible for FAST funding include but are not limited to: state and local economic development agencies, Small Business Technology Development Centers (SBTDCs), accelerators, incubators, Procurement Technical Assistance Centers (PTACs), colleges, and universities. For more information on the FAST program, please visit: <https://www.sbir.gov/about-fast>.

Your participation in this research effort is completely voluntary. Summit and IEc, as independent research firms, will keep the information you provide confidential to the extent permitted by law. Your name and organization will not be associated with any of your responses. Your insights will be used to develop recommendations on how to improve the FAST grant program.

Today's discussion will start with a few questions about your agency's SBIR/STTR program. Next, we will discuss your familiarity with the FAST program. Then we will discuss the types of business and/or technical services your program provides to SBIR and STTR applicants and awardees. Lastly, we have some questions about ways to increase participation in the SBIR/STTR program by small businesses from underserved communities. Unless you have any questions for me, we can start our discussion.

*[To be filled in by the Discussion Leader/Note-taker prior to the discussion]*

Respondent's Name and Title:

Respondent's Federal Agency:

Date of Discussion:

Name of Discussion Leader:

Name of Note taker:



## **SBIR/STTR FUNDING ACTIVITIES**

1. Approximately how many **Phase I** applications/proposals does your program receive and review on an annual basis?
  - a. Approximately how many of those are funded?
2. What makes a strong **Phase I** applicant?
  - a. Speaking generally, what patterns or trends exist between the types of entities that (routinely) submit high-quality **Phase I** applications/proposals more likely to be funded as compared to low-quality **Phase I** applications/proposals not likely to be funded?
3. Approximately how many **Phase II** applications/proposals does your program receive and review on an annual basis?
  - a. Approximately how many of those are funded?
4. What makes a strong Phase II applicant?
  - a. Speaking generally, what patterns or trends exist between the types of entities that (routinely) submit high-quality **Phase II** applications/proposals more likely to be funded as compared to low-quality **Phase II** applications/proposals not likely to be funded?
5. What metrics does your program currently use to evaluate the success of your SBIR/STTR awardees?

## **FAST PROGRAM EXPERIENCE**

6. How familiar are you with SBA's FAST program?
  - a. [If not familiar] FAST provides one-year funding to organizations that provide technical, business, and financial assistance to small businesses to increase the number of SBIR/STTR proposals and awards.
    - i. Based on this description, what is your overall impression of this program and its potential role in supporting your SBIR/STTR programs?
  - b. [If familiar] How did you hear about the FAST program?
    - i. What is your general understanding and impression of the FAST program?



- ii. Do you have any recommendations to improve the role the FAST program plays in supporting your SBIR/STTR programs?

#### **BUSINESS AND TECHNICAL ASSISTANCE**

- 7. Does your program or Agency offer technical or business assistance to applicants prior to the application due date for Phase I or Phase II solicitations?
  - a. [If yes] What is the nature of the technical assistance offered?
    - i. Does this assistance differ between Phase I and Phase II applicants?
    - ii. Is there a minimum number of training hours that applicants use?
  - b. [If interviewee is familiar with FAST] How is the assistance that you provide to applicants different from, or similar to, the assistance provided by FAST organizations?
- 8. Does your program offer business or technical assistance of any kind to award recipients?
  - a. [If yes] What is the nature of the assistance offered?
    - i. Does this assistance differ between Phase I and Phase II awardees?
    - ii. Is there a minimum number of training hours used by Phase I and Phase II awardees?
  - b. [If interviewee is familiar with FAST] How is the assistance that you provide to applicants different from, or similar to, the assistance provided by FAST organizations?
- 9. What kind of business and technical assistance do you think is most needed for:
  - a. First-time applicants?
  - b. Moving Phase I award recipients to Phase II?
  - c. Moving Phase II award recipients to Phase III?
- 10. Are there gaps in services provided to SBIR/STTR applicants and awardees that are not provided by anyone?
  - a. If so, what are they?

#### **SBIR/STTR PARTICIPATION BY SMALL BUSINESSES FROM UNDERSERVED COMMUNITIES**

- 11. Do you track how many applications and awards are made to small businesses from underserved communities?





- *[While the SBA and federal law does not officially designate any groups to be considered underserved; for the purposes of SBIR/STTR, underserved clients include participants that identify as a member of the following groups: (a) women and/or (b) racial and ethnic minorities (Black Americans; Hispanic Americans; Native Americans (Alaska Natives, Native Hawaiians, or enrolled members of a Federally or State recognized Indian Tribe); Asian Pacific Americans; and Asian Americans).]*

12. Are there any processes or actions taken by your program to increase the number of applicants made to small businesses from underserved communities?

- a. [If yes] What is the nature of the processes or actions implemented?
- b. When were these processes or actions put in place?
- c. How effective have these processes or actions been in increasing participation from underserved communities?
- d. Are there additional processes or actions your program is considering to further improve participation among small businesses from underserved communities?
- e. How would you recommend boosting participation from underserved communities in your SBIR/STTR programs?
  - i. Are there any actions that FAST organizations could take?

## **FINAL THOUGHTS**

Thank you so much for participating today. We appreciate hearing your perspectives on these topics.

13. Are there any other thoughts or observations that you would like to share about type of assistance needed by small businesses to improve SBIR/STTR outcomes, the FAST program, or other topics we have discussed?



## APPENDIX B OVERVIEW OF FAST GRANTEES INTERVIEWED

Table B-1 shows a summary of the FAST grantees interviewed for this project.

**Table B-1: Summary of FAST grantees interviewed**

In an Underserved State? <sup>1</sup>	SBDC?	Attached to University?	Nonprofit?	State Economic Development Organization?
Yes	No	Yes	No	No
No	No	Yes	No	No
No	No	No	Yes	No
No	Yes	Yes	No	No
Yes	No	Yes	No	No
No	No	No	No	Yes
No	No	Yes	Yes	No
Yes	Yes	Yes	No	No
No	No	Yes	Yes	No

<sup>1</sup> According to the SBA, underserved states refer to the states that win fewer SBIR/STTR awards. This is reflected in the match requirement, which is categorized for each state and can be found in the annual Funding Opportunity Announcement (FOA). The 1/3 of states required to commit to the lowest match rate of \$0.50 for each \$1 of federal funds are considered underserved. We refer to the 2018 FOA since that was the year when we conducted the interviews.