NATIONAL WOMEN'S BUSINESS COUNCIL

ADVISORS TO THE PRESIDENT, CONGRESS, AND THE SBA

2020

REPORT SUMMARY

AMERICA'S SEED FUND

WOMEN'S INCLUSION

IN SMALL BUSINESS INNOVATION RESEARCH & SMALL BUSINESS TECHNOLOGY TRANSFER PROGRAMS

TABLE OF CONTENTS

This summary report reflects selected findings from a study conducted on behalf of the National Women's Business Council (NWBC). The full report can be found here. NWBC is a federal advisory committee established to serve as an independent source of advice and policy recommendations to the President, the U.S. Congress, and to the Administrator of the U.S. Small Business Administration on issues of importance to women business owners and entrepreneurs. NWBC is dedicated to encouraging women to start and grow their businesses in Science Technology Engineering and Math (STEM), industries with proven high-growth potential, and thus commissioned this study on the participation of women in the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs. **This report provides the first comprehensive analysis of women's participation in the SBIR/STTR programs as business owners or principal investigators.**

1.0 INTRODUCTION

Key Findings:

- Across the SBIR/STTR programs, the proportion of Phase I applications and awards to women-owned small businesses (WOSBs) has remained consistent from 2011 to 2018, hovering between 13 – 15%.
- The top four most prevalent industries for SBIR/STTR awardees are the same for WOSBs and non-WOSBs: Research and Development (R&D) in the Physical, Engineering and Life Sciences; R&D in Biotechnology; Engineering Services; and Custom Computer Programming.

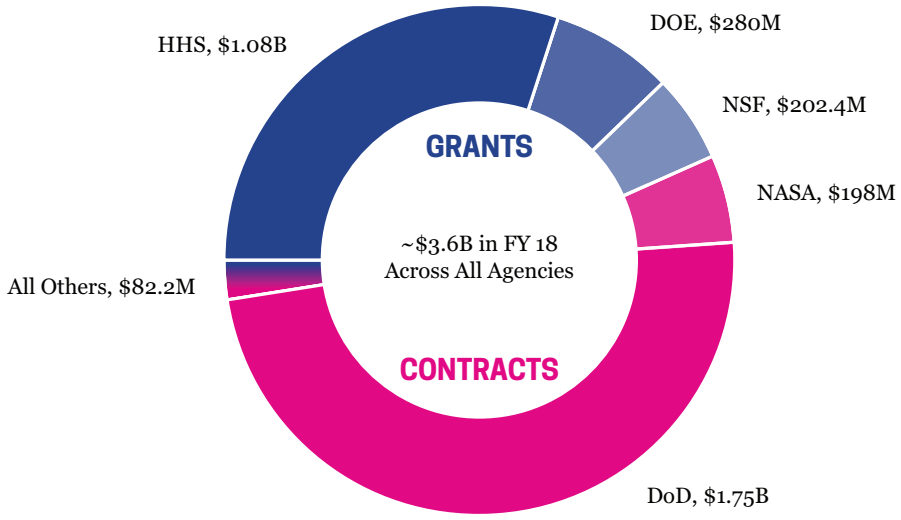
Funding for Women in STEM Entrepreneurship

The SBIR and STTR programs[1] provide funding for early stage, high-risk research and development (R&D) without taking equity in the company. However, it is much more difficult for women to secure financing from equity investors – a major source of investment for small high-tech companies. The Diana Project released its first report in 1999 indicating that at that time only 5% of U.S. firms,[2,3] receiving venture capital investment in 1999 had a woman on the management team. In a 2020 report by Crunchbase they stated that "even if we combined VC investment in female-founded ad mixed co-founded companies in 2019, it still amounts to only 9 percent of all investment."[4]

OVERVIEW OF THE SBIR/STTR PROGRAMS

Annually, the federal government provides extramural R&D funds to a wide assortment of entities including universities and colleges, large business, nonprofit organizations, small business, state and local government, foreign performers and private individuals. The SBIR and STTR programs are funded by a percentage of these extramural R&D budgets. Specifically, agencies with an extramural budget in excess of $100 million must set aside 3.2% of that budget to fund their SBIR programs while agencies with an R&D budget in excess of $1 billion dollars must also set aside .45% of those funds for the STTR program. The resulting FY18 SBIR/STTR budget for the eleven participating agencies was $3.6 billion.

— Featured as Figure 4 in the full report: FY2018 SBIR/STTR budgets by agency



There are a number of differences in how each agency implements the SBIR/STTR programs, but there is a core basic model common across the Federal government. Phase I SBIR/STTR awards typically provide $50,000 to $250,000 for six months to one year for concept development, followed by Phase II awards for up to $1,500,000 for two years of further R&D and prototype development. The expectation is that after completing these two phases the small business will secure funding from non-SBIR sources to bring the resulting technology to market. This final stage is referred to as Phase III or the commercialization phase.

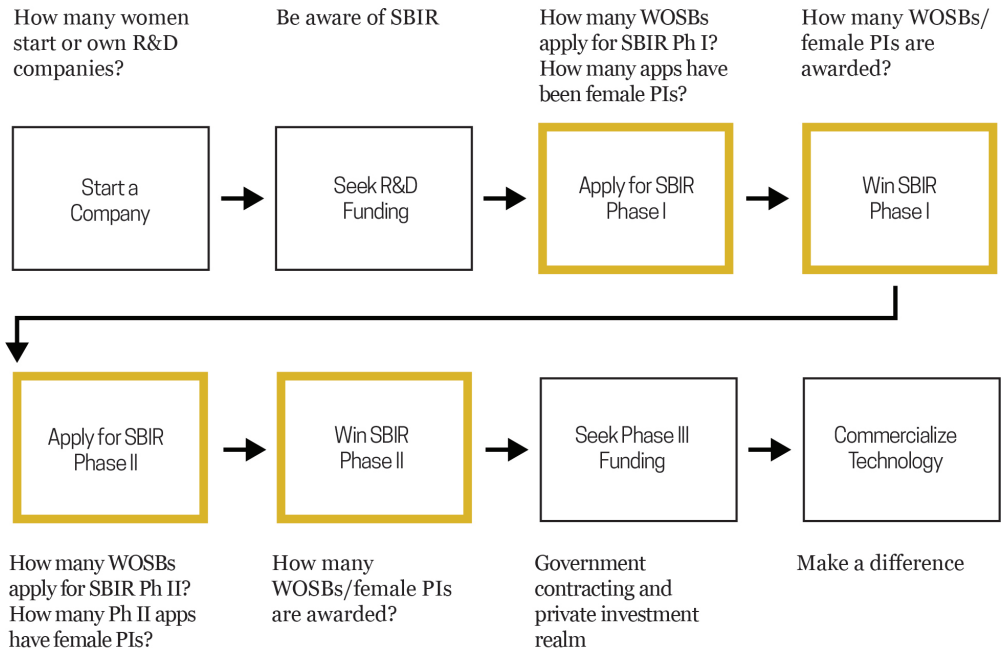
DoD, DHS, DOT, EPA and NASA all use contracts. Most other agencies participating in the SBIR/STTR programs use grants as the vehicle of choice.

— Featured as Table 1 in the full report: Key Differences among agencies participating in SBIR/STTR programs

	FY2018 BUDGET (SBIR/STTR)	AGREEMENT	OPPORTUNITIES TO SUBMIT ANNUALLY	TOPIC SPECIFICITY
DoD	$1.75B	Contract	3 (SBIR/STTR) solicitations	Narrow
HHS	$1.08B	Grants and Contracts	3 (SBIR/STTR) standard due dates	Broad
DOE	$280M	Grants	2 (SBIR/STTR) solicitations	Narrow
NSF	$202.4M	Grants	4 (SBIR/STTR) submission windows	Broad
NASA	$198M	Contracts	1 (SBIR/STTR)	Narrow
USDA	$27M	Grants	1 SBIR	Broad
DHS	$20.8M	Contracts	1 SBIR	Narrow
DOC	$14.2M	Grants	1 SBIR	Broad
ED	$8.5M	Contracts	1 SBIR	Broad
DOT	$7.5M	Contracts	1 SBIR	Narrow
EPA	$4.2M	Contracts	1 SBIR	Narrow

POTENTIAL WAYS TO ENGAGE WOMEN WITH SBIR/STTR PROGRAMS

– *Featured as Figure 6 in the full report: Potential intervention points to engage women in STEM in SBIR/STTR*



2.0: FINDINGS & ANALYSIS: SBIR/STTR TRENDS

In the full report the definition of women-owned small business (WOSB) is taken from the SBIR/ STTR Policy Directive, based on guiding statute (15 U.S.C. §638), defining a WOSB as a small business that is "at least 51% owned by one or more women, or in the case of any publicly owned business, at least 51% of the stock is owned by women, and women control the management and daily business operations."

METHODOLOGY

To examine the participation of women in the SBIR/STTR programs, we analyzed administrative data provided by SBIR funding agencies to SBA. These data are publicly available at SBIR.gov. Data were retrieved in October 2019.

Application Analysis

Data from SBA-published Annual Reports to Congress from 2013–2018 (https://www.sbir.gov/annual-reportsfiles) were used to analyze rates of WOSB submissions of SBIR/STTR Phase I applications.

Award Analysis

For WOSB awards and PI analyses, we use award-level data submitted to SBA from SBIR funding agencies

for the period between 2011 and 2018 (https://www.sbir.gov/sbirsearch/award/all). **We analyzed the participation of individual companies and individual PIs by removing duplicates across years and agencies.** This process is referred to as de-duplication and facilitates counting individual companies and principal investigators irrespective of the number of awards received.

The classification of a company as WOSB is based on self-report. One issue that was identified during the analysis was inconsistency across years in the categorization of some WOSBs. Small businesses must indicate their ownership status with each SBIR/STTR application. We could not determine if a change in WOSB status between different awards was due to an actual change in ownership, or an error in the data submitted or in the reporting transmission by the agency to SBA. **When this type of inconsistency arose, the business was classified as WOSB if more than 50% of the time it was identified as women-owned in the data downloaded from SBIR.gov.**

Principal Investigator Analysis

PI gender was inferred based on name using the Gender API software platform to analyze the names of PIs associated with SBIR/STTR awards between 2011 and 2018. Gender API uses a worldwide gender-name dictionary as the basis for the analysis.

Data Considerations

Information regarding the gender of an owner or PI begins with the small business and the information that it submits in its applications and to various government databases. Depending upon who provides the information there may be inconsistencies in what is reported regarding ownership between different applications.

In the full report the definition of women-owned small business (WOSB) is taken from the SBIR/ STTR Policy Directive, based on guiding statute (15 U.S.C. §638), defining a WOSB as a small business that is "at least 51% owned by one or more women, or in the case of any publicly owned business, at least 51% of the stock is owned by women, and women control the management and daily business operations."

SBIR/STTR WOMEN-OWNED SMALL BUSINESS APPLICATIONS AND AWARDS

SBIR/STTR Applications Submitted By Women-Owned Small Business

– *Featured as Table 2 in the full report: Total number of SBIR Phase I proposals submitted by WOSBs in response to all SBIR solicitations by agency (2013-2018)*

TOTAL SBIR FOR AGENCY (2013-2018)	DOD	HHS	DOE	NSF	NASA	DHS	USDA	DOT	ED	DOC	EPA	TOTAL
Total Proposals Received	44,110	29,728	9,489	11,555	8,298	863	2,947	968	1,465	1,031	933	111,387
Proposals Received from WOSB	7,422	4,059	933	2,025	995	166	444	214	430	169	76	16,933
% Proposals Received from WOSB	16.8%	13.7%	9.8%	17.5%	12.0%	19.2%	15.1%	22.1%	29.4%	16.4%	8.1%	15.2%
	Largest SBIR programs					Smallest SBIR programs						

– *Featured as Table 3 in the full report: Total number of STTR Phase I proposals submitted by WOSBs in response to all STTR solicitations by agency (2013-2018)*

TOTAL STTR FOR AGENCY (2013-2018)	DoD	HHS	DOE	NASA	NSF	TOTAL
Total Proposals Received	5,140	6,288	1,521	886	2,423	**16,258**
Proposals Received from WOSB	774	708	162	107	386	**2,137**
% Proposals Received from WOSB	15.1%	11.3%	10.7%	12.1%	15.9%	**13.1%**

Across all agencies for both SBIR/STTR programs during this time period, 14.9% of Phase I proposals were submitted by WOSB, with a range of 14.0% to 15.4%, and 14.1% of Phase I awards were made to WOSB, ranging from 13.0% to 15.6%. Awards generally followed the trend of proposals over time.

– *Featured as Figure 8 in the full report: SBIR/STTR WOSB proposals vs. awards (2013-2018)*

	2013	2014	2015	2016	2017	2018
% WOSB SBIR/STTR Proposals	14.8%	15.4%	15.4%	14.8%	15.3%	14.0%
% WOSB SBIR/STTR Awards	14.4%	14.3%	15.6%	13.5%	13.8%	13.0%

SBIR/STTR Awards to Unique Women-Owned Small Business

The two agencies that had the largest changes over time are the National Science Foundation which went from 15.5% in 2011 to 22.4% in 2018 and the Department of Energy that went from 3.5% in 2011 to 10.5% in 2018.

	2011	2012	2013	2014	2015	2016	2017	2018
NSF	15.5%	12.4%	17.4%	14.7%	22.1%	19.0%	16.4%	22.4%
DoD	12.9%	12.9%	11.5%	14.1%	12.5%	11.8%	14.3%	11.5%
HHS	12.8%	10.5%	12.8%	11.3%	11.6%	13.9%	12.1%	13.7%
NASA	11.3%	10.8%	13.5%	8.4%	12.7%	10.7%	9.3%	9.0%
DOE	3.5%	5.7%	6.4%	7.2%	6.5%	9.7%	9.4%	10.5%

– *Featured as Table 4 in the full report: Percent unique WOSB receiving SBIR Phase 1 awards in larger agencies (2011-2018)*

Small fluctuations submitted to or awards made by smaller agencies can lead to larger percentage change due to the smaller number of total proposals received and awards made. If one looks across these two figures, two agencies stand out as having the highest overall engagement of unique WOSB – NSF with 22.4% in 2018 and ED with 40% in 2018.

	2011	2012	2013	2014	2015	2016	2017	2018
ED	31.6%	28.6%	28.6%	14.3%	33.3%	22.2%	45.5%	40.0%
USDA	28.8%	19.0%	17.5%	12.5%	8.6%	7.1%	13.3%	12.0%
DOT	14.3%	25.0%	33.3%	33.3%	18.8%	33.3%	23.1%	14.3%
DOC	4.3%	11.5%	11.1%	13.6%	16.1%	13.5%	14.3%	12.8%
EPA	3.8%	12.0%	7.7%	4.8%	21.1%	15.4%	13.3%	6.3%
DHS	0.0%	20.0%	10.3%	2.5%	11.5%	11.1%	13.3%	16.7%

– *Featured as Table 5 in the full report: Percent unique WOSB receiving SBIR Phase I awards in smaller agencies (2011-2018)*

In the period 2011 – 2018, 13.7% (3,454) of SBIR Phase I awards and 12.6% (531) STTR Phase I awards were made to unique WOSB. These unique WOSB made up 13.3% (1,113) of SBIR Phase I companies and 12.9% (308) of STTR Phase I companies across all agencies.

– *Featured as Table 6: SBIR Phase I awards made by agencies (2011-2018)*

	Total Awards	Awards to WOSB	% Awards WOSB	Total Companies	# Unique WOSB	% WOSB	Average Awards to WOSB
DoD	**11,033**	**1,713**	15.5%	2,923	383	13.1%	**4.5**
HHS	**5,992**	**727**	12.1%	2,920	362	12.4%	**2.0**
DOE	**2,100**	**154**	7.3%	909	68	7.5%	**2.3**
NASA	**2,626**	**284**	10.8%	923	118	12.8%	**2.4**
NSF	**2,008**	**346**	17.2%	1,823	320	17.6%	**1.1**
USDA	**583**	**74**	12.7%	549	73	13.3%	**1.0**
DHS	**255**	**32**	12.5%	230	26	11.3%	**1.2**
DOC	**230**	**29**	12.6%	182	24	13.2%	**1.2**
DOT	**131**	**36**	27.5%	119	27	22.7%	**1.3**
ED	**145**	**43**	29.7%	129	38	29.5%	**1.1**
EPA	**165**	**16**	9.7%	161	16	9.9%	**1.0**

GENDER OF PRINCIPAL INVESTIGATORS PARTICIPATING IN THE SBIR/STTR PROGRAMS (2011-2018)

During the period 2011-2018 across the entire portfolio, 13.1% of unique PIs for SBIR Phase I awards were women.

– *Featured as Table 7 in full report: Gender of Principal Investigators for all Phase I SBIR awards (2011-2018)*

Year	Total Awards	# Unique PIs (male and female)	# Unique Female PI	% Female PI
2011	3,628	3,031	348	11.5%
2012	3,417	2,890	356	12.3%
2013	3,016	2,689	334	12.4%
2014	3,088	2,711	342	12.6%
2015	2,807	2,499	293	11.7%
2016	2,960	2,605	333	12.8%
2017	3,217	2,879	344	11.9%
2018	3,135	3,769	399	10.6%
TOTAL	**25,268**	**15,851**	**2,073**	**13.1%**

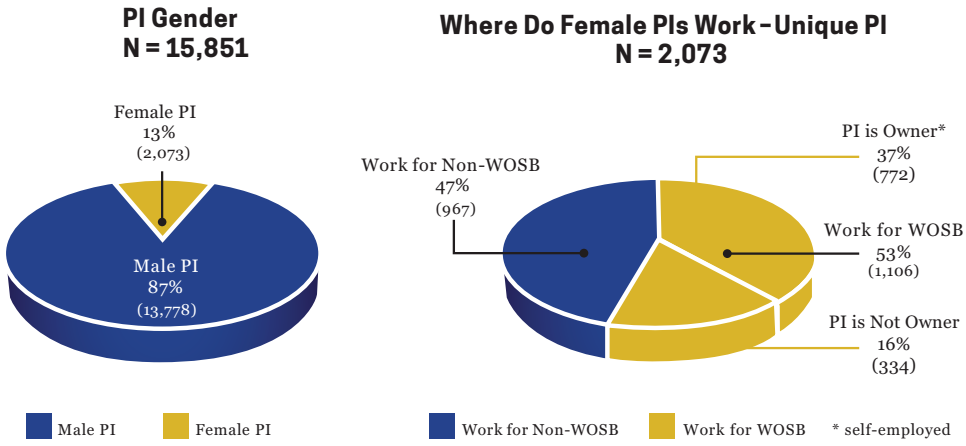
— *Featured as Table 8 in full report: Gender of Principal Investigators for all Phase I STTR awards (2011-2018)*

Year	Total Awards	# Unique PIs (male and female)	# Unique Female PI	% Female PI
2011	466	447	50	11.2%
2012	466	455	62	13.6%
2013	456	445	55	12.4%
2014	493	475	67	14.1%
2015	548	527	62	11.8%
2016	599	574	81	14.1%
2017	623	603	77	12.8%
2018	567	547	76	13.9%
TOTAL	**4,218**	**3,493**	**462**	**13.2%**

RELATIONSHIP BETWEEN WOSB STATUS AND PI GENDER

Notably, 25,268 SBIR Phase I awards were given to 8,368 unique companies during this period. Of these companies 13.3% were WOSB; while 86.7% were classified as non-WOSB.

— *Featured as Figure 12 in full report: Female PIs working on SBIR Phase I awards by business ownership (2011-2018)*



DISCUSSION: PARTICIPATION OF WOMEN IN THE SBIR/STTR PROGRAMS

Agency variables that may affect women's participation in SBIR/STTR Phase I programs

Potential variables to consider include the mission of the agency, if it is a contracting or granting agency, the size of the SBIR/STTR awards, the number of solicitations released by each agency, the number of proposals one can submit in response to a solicitation, the industry that agency draws upon, the size of the agency staff and the quality of the data provided to SBA.

The agencies that received the highest proportion of Phase 1 applications from WOSBs between 2013-2018 were the Department of Homeland Security, the Department of Transportation and the Department of Education.

One shared feature of these agencies is that they all happen to be contracting organizations. Contracting organizations tend to publish specific topics with clear problem statements, deliverables and performance expectations. For some applicants this may make the proposal application process easier. Applicants may also feel a greater incentive to self-identify as WOSB for contracting organizations, because for non-SBIR types of contracts issued by that agency, there are set-asides through the WOSB Federal contracting program. In addition, this may help support the transition to SBIR Phase III with agencies that may become a customer.

Of agencies with both SBIR and STTR programs, the National Science Foundation had the highest percentage of WOSB Phase I SBIR/STTR awards overall, and saw an increasing trend from 2011 to 2018. During the past several years the NSF SBIR/STTR program has consciously shifted its focus to startups and first time applicants. The Department of Energy has increased the portion of Phase I awards to WOSBs during this period from 3.5% in 2011 to 10.5% in 2018. In 2015 DOE initiated a Phase 0 program to assist WOSB; social and economically disadvantaged entrepreneurs and those living in underserved states to prepare and submit SBIR/STTR proposals to DOE.

3.0: FINDINGS AND ANALYSIS: INDUSTRY TRENDS

Identifying SBIR Industries

We were able to identify a primary NAICS code for a total of 6,731 unique small businesses that received SBIR/STTR funding between 2011 and 2018 by merging SBIR.gov data with SAM.gov information using a company's DUNS number as the unique identifier. **Companies with SBIR awards from 2011 to 2018 were found to be primarily within the 54, 33, 51, and 32 two-digit NAICS industries.** However, several 2-digit and even 4-digit NAICS codes include both STEM and non-STEM industries.

A number of the non-STEM-intensive industries included at the 4-digit NAICS level tend to have greater women ownership than the SBIR industries at the 6-digit NAICS level, so using only 4-digit NAICS as a comparison may be misleading about the potential pool of SBIR-eligible WOSBs. We use 6-digit NAICS codes.

WOMEN-OWNED SMALL BUSINESS IN STEM-INTENSIVE INDUSTRIES

The SBIR/STTR programs are strongly aligned with STEM employment, R&D intensity, and high-tech products as these programs provide R&D funding for small businesses engaged in these activities. SBIR industries are primarily a narrower subset of STEM-intensive industries, though not all SBIR industries fell within these STEM industry lists.

— *Featured as Table 10 in full report: Top Industries for WOSB vs. non-WOSB SBIR awardees*

WOSB SBIR Awardees		Non-WOSB SBIR Awardees
541715 R&D in the Physical, Engineering, and Life Sciences	1	541715 R&D in the Physical, Engineering, and Life Sciences
541714 R&D in Biotechnology	2	541714 R&D in Biotechnology
541330 Engineering Services	3	541330 Engineering Services
541511 Custom Computer Programming	4	541511 Custom Computer Programming
541720 R&D in the Social Sciences	5	511210 Software Publishers

There appears to be over-representation of WOSBs funded by SBIR/STTR for R&D in the Social Sciences and Humanities (NAICS 541720), but an under-representation of SBIR/STTR awardees for WOSBs in R&D in Biotechnology (NAICS 541714).

— *Featured as Table 9 in full report: Most Frequently Cited NAICS by Women-Owned SBIR-funded Companies Compared to SBO*

NAICS	Description	# SBIR Companies	# SBIR WOSB	# SBIR non-WOSB	% SBIR WOSB	% SBO WOSB	Delta
541715	**R&D in the Physical, Engineering, and Life Sciences**	1954	**243**	1711	12%	18%	-6%
541714	**R&D in Biotechnology**	982	**116**	866	12%	20%	-8%
541330	**Engineering Services**	566	**104**	462	18%	10%	8%
541511	**Custom Computer Programming Services**	302	**41**	261	14%	15%	-1%
541720	**R&D in the Social Sciences and Humanities**	71	**33**	38	46%	37%	11%
511210	**Software Publishers**	215	**32**	183	15%	10%	5%
541690	**Other Scientific and Technical Consulting**	108	**19**	89	18%	20%	-2%
541512	**Computer Systems Design**	101	**19**	82	19%	16%	3%
611710	**Educational Support**	41	**18**	23	44%	47%	-3%
334510	**Electromedical Apparatus Manufacturing**	102	**15**	87	15%	10%	5%
334413	**Semiconductor Manufacturing**	138	**14**	124	10%	11%	-1%
541713	**R&D in Nanotechnology**	97	**12**	85	12%	n/a	n/a
333314	**Optical Instrument and Lens Manufacturing**	83	**10**	73	12%	17%	-5%
541990	**Other Professional, Scientific, Technical**	59	**10**	49	17%	24%	-7%
334516	**Analytical Laboratory Instrument Manufacturing**	144	**7**	137	5%	14%	-9%
325412	**Pharmaceutical Preparation Manufacturing**	69	**7**	62	10%	17%	-7%
339112	**Surgical and Medical Instrument Manufacturing**	96	**6**	90	6%	13%	-7%

NAICS	Description	# SBIR Companies	# SBIR WOSB	# SBIR non-WOSB	% SBIR WOSB	% SBO WOSB	Delta
334220	**Communications Equipment Manufacturing**	42	**6**	36	14%	9%	5%
334511	**Search, Detection, Navigation, Instrument Manufacturing**	66	**5**	61	8%	9%	-1%
334419	**Other Electronic Component Manufacturing**	38	**5**	33	13%	13%	0%

NAICS code 541715 R&D in the Physical, Engineering, and Life Sciences (except Biotechnology and Nanotechnology) was created in 2017; 2012 SBO uses NAICS code 541712. NAICS code 541714 R&D in Biotechnology was created in 2017; 2012 SBO uses NAICS code 541711.

4.0 PROMISING PRACTICES: AGENCY OUTREACH & INITIATIVES

The percentage of WOSB SBIR awardees (13.3%) is slightly lower, but within range of the percentage of WOSBs in SBIR-industries based on NAICS (15.0%). These percentages translate to 26,137 WOSBs in SBIR-industries or 73,088 WOSBs in STEM-intensive industries in 2012.

One reason for analyzing SBIR/STTR participation data in the time period from 2011–2018 was that it encompasses a period of major policy and programmatic changes to the SBIR/ STTR programs that occurred with the SBIR/STTR Reauthorization Act of 2011. This included an Administrative Funding Pilot Program that provided agencies with the ability to dedicate funding to outreach activities and other initiatives to increase the participation of women and socially or economically disadvantaged individuals.

METHODOLOGY

In March 2020, phone interviews were conducted with program managers from 14 funding agencies to discuss the outreach methods they use to promote the SBIR/ STTR programs.

Institutions (MSIs) and Historically Black Colleges and Universities (HBCUs). For example, NASA has led an HBCU Road Tour which other agencies have joined, and the SBA has signed a Strategic Alliance Memorandum with the MSI STEM Research & Development Consortium (MSRDC) to enhance the flow of information about the SBIR/STTR programs to MSIs.

UNIQUE AGENCY INITIATIVES

◇ **Targeted Outreach and Communications: A promising practice from a few agencies is hiring full-time or dedicated communications staff to target outreach and communications.**

◇ **Technical Assistance:** In 2015 DOE initiated a Phase 0 program to assist WOSBs, social and economically disadvantaged entrepreneurs and those living in under-served states to prepare and submit SBIR/STTR proposals to DOE.

◇ **Supporting Future Entrepreneurs:** NSF and NIH each have programs that encourage SBIR/STTR awardees to hire and train students or postdoctoral scholars from underrepresented groups.

◇ **Policies and Program Structure:** NSF has made a concerted effort to design their program for startups and first-time applicants. In 2019, NSF introduced a short Project Pitch to enable entrepreneurs and startups to more easily submit their idea to NSF. Startups or entrepreneurs who submit a three-page Project Pitch will know within three weeks if they meet the program's objectives to support innovative technologies that show promise of commercial and/or societal impact and involve a level of technical risk.

Air Force has also moved toward a program structure that aims to reduce barriers to application and award. In 2019, they began doing Pitch Day events that award contracts "on the spot." Both Air Force and Navy have created contracting Centers of Excellence (CoE) with dedicated SBIR contracting personnel to reduce the amount of time to issue awards to companies. Navy also began a Technology Acceleration Pilot that cuts proposal requirements by 75% and uses new contracting tools to make awards within 30 days.

NIST is the only agency that identified that they consider participation by women and socially and economically disadvantaged small businesses or small businesses from Historically Under-utilized Business Zones (HUBZones) or underserved states in the selection factors for SBIR award selection.

5.0 PROMISING PRACTICES: SUPPORT ORGANIZATIONS

Many programs have been developed to support prospective entrepreneurs, as well as existing small, advanced tech firms that seek assistance specifically with the SBIR/ STTR programs. These programs offer support in the form of mentoring and coaching. The Small Business Administration, through the Office of Investment and Innovation (OII) administers two programs which provide such support: the Growth Accelerator Fund Competition (GAFC) and the Federal and State Technology Partnership (FAST) programs.

Organizations selected to interview are recognized as having effective programs for women entrepreneurs. This section is not an evaluation of either GAFC or FAST, but merely a brief discussion of what they have learned working with women entrepreneurs in STEM.

METHODOLOGY

To collect data, information, and best practices on outreach to and engagement of women entrepreneurs in STEM, phone interviews were conducted with GAFC and FAST recipients identified by SBA using a standardized discussion guide (OMB Control No: 3245-0398. Between March and April 2020, 22 phone interviews were conducted with a management representative from 10 GAFC and 12 FAST-funded organizations.

GROWTH ACCELERATOR FUND COMPETITION (GAFC)

SBA has conducted the Growth Accelerator Fund Competition since 2014. Through a competitive process, organizations are provided with a prize award of $50,000 often used to develop an initiative, usually focused on women, minority or underserved entrepreneurs. Typical services include mentorship, commercialization assistance, pitch opportunity, resource sharing, and small amounts of angel seed investment.

Outreach Methods

Most organizations indicated that the primary purpose of outreach was to increase the number of applicants or clients to help them grow or start their business. Others commented that the objective was to increase the diversity of entrepreneurs in their start up ecosystem and to build awareness of opportunities. When asked what outreach methods they used, top of mind was "social media." Additionally, when putting together seminars and events these organizations showcased the success of women entrepreneurs, the companies in which they invested and frequently partnered with other organizations to expand their diversity.

Barriers Women Entrepreneurs Face

Given the focus on women in STEM entrepreneurship, we asked participants to share their perceptions of the barriers that women entrepreneurs face. **The most frequent response was funding. Other responses included childcare and the perception that women did not see themselves as entrepreneurs.**

FEDERAL AND STATE TECHNOLOGY (FAST) PARTNERSHIP PROGRAM

The Federal and State Technology (FAST) Partnership Program is a competitive grant program, administered by SBA. As set forth in the Small Business Act (Rev.13), FAST awards build the SBIR/STTR ecosystem through:

- Outreach
- Technical Assistance
- Financial Support

FAST awards are made to a broad array of organizations including state and local economic development agencies, Small Business Development Centers (SBDCs), accelerators, incubators, Women's Business Centers (WBCs), Procurement Technical Assistance Centers (PTACs), colleges, universities, and more. FAST places particular emphasis on helping women, socially/economically disadvantaged individuals, and applicants from underrepresented or rural areas compete in the SBIR and STTR programs. In awarding FAST grants, SBA gives special consideration to entities located in states that have historically lacked awards. **It is noteworthy that only one entity may apply per state and must have a Governor's signature to do so.**[5]

Barriers Women Entrepreneurs Face

As with GAFC, the primary barrier mentioned was a financial one. A number of the organizations talked about the importance of explaining that the SBIR/STTR programs provide non-dilutive funding. If companies are struggling with securing equity investment, and are working on an appropriate technology, SBIR can be a promising funding source. **Lack of women investors was also called out as an issue.**

6.0 CONCLUSIONS & FUTURE DIRECTIONS

Future Directions

This study lays a foundation for future research into factors that may explain the variation in the participation of women in the SBIR/STTR programs. Funding agency factors to investigate:

- Nature of the industry the agency primarily funds.
- Funding mechanism – whether SBIR/STTR awards are made through grants or contracts.
- Number of solicitations each year/number of opportunities to submit an application.
- Breadth of topics.
- Whether an applicant can resubmit an application to the same topic.
- Review process - who is engaged in the review and whther feedback is provided to applicants.
- Ability to interact with program staff prior to submission.
- Changes in overall agency budgets.
- Changes in program management and support.
- Speed of award notifications.
- Targeted outreach and training opportunities.
- Coordination of agency SBIR program with other agency initiatives to engage underrepresented populations.

NATIONAL WOMEN'S BUSINESS COUNCIL

ADVISORS TO THE PRESIDENT, CONGRESS, AND THE SBA

REPORT SUMMARY

AMERICA'S SEED FUND

WOMEN'S INCLUSION

IN SMALL BUSINESS INNOVATION RESEARCH & SMALL BUSINESS TECHNOLOGY TRANSFER PROGRAMS

1 In May, 2020 a correction was made using different data provided by EPA. However, the data used here were those publicly available at the time the analysis was conducted.
2 Brush, Candida. "Women Entrepreneurs: Bridging the Gender Gap in Venture Capital." (September 30, 2014) 7 Brush, Candida G., Greene G. Patricia, Lakshmi Balachandra, and Amy E. Davis. "Diana Report Women Entrepreneurs 2014: Bridging the Gender Gap in Venture Capital," https://www.babson.edu/media/babson/site-assets/content-assets/images/news/announcements/diana-project-executive-summary-2014.pdf
3 Tear, Gene and Desmond, Ned. The first comprehensive study on women and venture capital and their impact on female founders. Crunchbase (April 19, 2016)
4 "Closing the Gender Gap in Patenting, Innovation and Commercialization." Institute for Women's Policy Research (2018)
5 Interviews were conducted with representatives from 12 FAST awardees known to have strengths in working with women entrepreneurs.