SMALL BUSINESS INNOVATION RESEARCH | SMALL BUSINESS TECHNOLOGY TRANSFER

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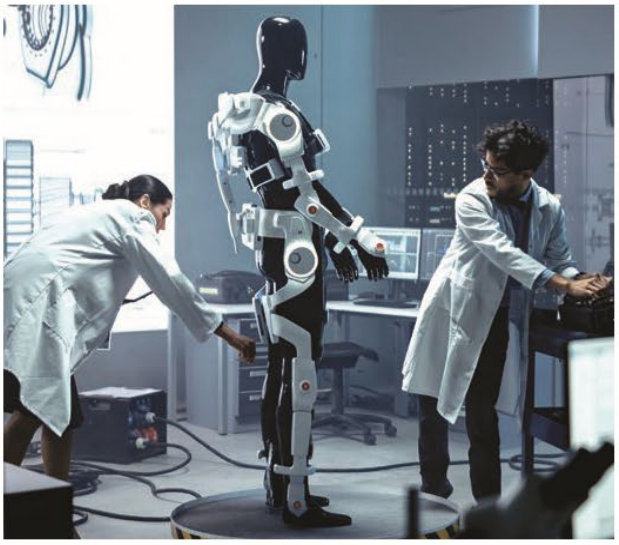

ANNUAL REPORT FISCAL YEAR 2019

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Office of Investment and Innovation
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U.S. Small Business Administration

SBIR·STTR America's Seed Fund™ POWERED BY SBA

i | Executive Summary

This report provides a detailed analysis of how the agencies that participate in the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs obligated $3.29 billion of SBIR and $429.3 million of STTR funding in Fiscal Year 2019 (FY19). The U.S. Small Business Administration (SBA) compiled and evaluated data across the 11 agencies participating in the SBIR and STTR programs, States, program phases, firm types, and other categories as directed by section 9 of the Small Business Act, 15 U.S.C. § 638.

One of SBA's primary responsibilities is determining whether an agency meets the minimum spending requirements for the SBIR and STTR programs, which are established in sections 9(f) and (n) of the Small Business Act. SBA's analysis of agency compliance with the minimum spending requirement is found in Section 7 of this report. SBA analyzed data from the ten civilian agencies, the three Department of Defense (DoD) agencies (Army, Navy, and Air Force) and the combined nine Other Defense Agencies (ODAs). Separating the data among the DoD ODAs provides increased visibility into the DoD's SBIR and STTR (SBIR/STTR) programs, which is important as they represent over 43% of the funds obligated by all participating agencies. SBA found several civilian agencies and DoD agencies and ODAs not in compliance with the minimum spending requirement, which is detailed further in Section 7 of this report.

Over the last few years, SBA focused on solutions to ensure agencies could upload and verify data in an accurate and cost-effective manner. This focus enabled several innovations, and the data integrity captured by the FY19 report is a testament to those improvements. SBA will continue working closely with the 11 Participating Agencies on data submissions, as well as to coordinate outreach, provide training, share best practices, and increase program awareness.

This report measures a multitude of factors, as well as the variance between agencies. Some of the variance is the product of differences at the agency enterprise level and others originate from different approaches to running the program. SBA is committed to evaluating these differences and encouraging agencies to adopt the best practices. Data from this report is crucial to assessments of the time between notification of award and the release of funding and the time between Phase I and II awards. The National Defense Authorization Act for Fiscal Year 2019 (FY19) directed the Government Accountability Office (GAO) to study proposal selection and award timelines. SBA continues to expand the reporting on award timelines and provides this data in section 12.

The SBIR/STTR program continues to evolve and remain the primary source of early funding to thousands of highly successful small businesses. Many of these awardees leverage opportunities in the program to gradually become large businesses and some have become industry leaders. The recent economic impact studies developed by Air Force, Navy, DoD, and National Cancer Institute demonstrate that the program generates one of the highest returns on research and development (R&D) dollars for the Federal Government. These studies and much more can be found on SBIR.gov.

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1 | Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs Overview

The SBIR and STTR programs are highly competitive programs that encourage U.S. small businesses to engage in Federal Research/Research and Development (R/R&D) initiatives that have commercialization potential. Through a competitive awards-based program, SBIR and STTR, respectively, enable small businesses to explore technological innovation and with the possibility of commercialization. Each participating agency administers the programs within guidelines established by Congress and the SBIR/STTR Policy Directive established by the SBA. These agencies designate R/R&D topics in solicitations and receive and evaluate proposals from eligible small businesses, and make awards on a competitive basis.

The Fiscal Year 2019 (FY19) Annual Report provides comprehensive summary data and performance results for the SBIR and STTR Programs, aggregating information as reported to the SBA from the 11 federal agencies participating in the SBIR Program, including five federal agencies that also participate in the STTR Program (collectively referred to as Participating Agencies).

SBIR and STTR Mission and Program Goals

The mission of the SBIR Program is to support scientific excellence and technological innovation through the investment of federal research funds in critical American priorities to build a strong national economy. The goals of the SBIR and STTR Programs are to:

- Stimulate technological innovation
- Use small businesses to meet Federal Government R/R&D needs
- Foster and encourage participation in innovation and entrepreneurship by women and socially and economically disadvantaged individuals
- Increase private-sector commercialization of innovations derived from federal R/R&D funding, thereby increasing competition, productivity, and economic growth
- Stimulate a partnership of ideas and technologies between innovative small businesses and non-profit Research Institutions (STTR Only)

Participating Agencies

The Small Business Act requires each SBIR Participating Agency to allocate a percentage of extramural R/R&D budget to fund small business R/R&D activities through the SBIR Program. Federal agencies with extramural R/R&D budgets exceeding $100 million were required to obligate a minimum of 3.2% of the FY19 extramural R/R&D budget for SBIR awards to small businesses. Federal agencies with extramural R/R&D budgets exceeding $1 billion were required to also obligate a minimum of 0.45% of the extramural R/R&D budget to fund small business R/R&D activities through the STTR Program.

Section 9(e)(1) of the Small Business Act defines extramural budget as:

> [T]he sum of the total obligations minus amounts obligated for such activities by employees of the agency in or through government-owned, government-operated facilities, except that for the Department of Energy it shall not include amounts obligated for atomic energy defense programs solely for weapons activities or for naval reactor

programs, and except that for the Agency for International Development it shall not include amounts obligated solely for general institutional support of international research centers or for grants to foreign countries.

The 11 SBIR Program and the 5 STTR Program (noted by an asterisk) Participating Agencies are listed below:

- Department of Agriculture (USDA);
- Department of Commerce (DOC);
- *Department of Defense (DoD);
- Department of Education (ED);
- *Department of Energy (DOE);
- *Department of Health & Human Services (HHS);
- Department of Homeland Security (DHS);
- Department of Transportation (DOT);
- Environmental Protection Agency (EPA);
- *National Aeronautics & Space Administration (NASA); and
- *National Science Foundation (NSF).

SBIR/STTR Programs are Structured in Three Phases

Phase I: Feasibility-Related Experimental Study or Theoretical Research/Research and Development

The purpose of Phase I is to determine the scientific and technical merit, feasibility, and commercial potential of the proposed R/R&D efforts and to determine the quality of performance of the small business awardee prior to providing further federal support in Phase II. SBIR/STTR Phase I awards generally range from $100,000 to $250,000 for a 6 to 12-month period of performance.

Phase II: Continued Research/Research and Development Effort

The objective of Phase II is to continue the R/R&D efforts initiated in Phase I. Funding is based on the results achieved in Phase I and the scientific and technical merit and commercial potential of the project proposed in Phase II. SBIR/STTR Phase II awards generally range from $750,000 to $1,650,000 for a two-year period of performance. The Small Business Act authorizes agencies to fund additional Phase II awards with a company to continue the Phase II technology development through a Sequential Phase II (15 U.S.C § 638(ff)), and potentially an award under the Commercialization Assistance Pilot Program (15 U.S.C § 638(uu)).

Phase III: Commercialization Effort

Phase III refers to work that derives from, extends, or completes an effort made through SBIR/STTR-funded Phase I or II R/R&D but is funded by sources other than the SBIR/STTR Programs. To the greatest extent practicable, federal entities, including government prime contractors, pursuing products, production, services, or R/R&D developed under the SBIR/STTR Programs shall issue Phase III awards to the SBIR/STTR awardee that developed the technology. The competition for SBIR/STTR Phase I and Phase II awards satisfies competition requirements, allowing federal agencies to issue direct or sole-source awards to SBIR/STTR awardees for Phase III efforts.

2 | SBIR and STTR Data

SBA coordinates and monitors the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs for all Federal agencies with extramural budgets for research or research and development (R/R&D) in excess of the expenditures established in sections 9(f) and 9(n) of the Small Business Act. This includes providing policy guidance, monitoring agency performance, analyzing program data, and reporting on the program to Congress. SBA administers the program with maximum flexibility, allowing the Participating Agencies to tailor SBIR/STTR activities to best address unique agency missions, cultures, and needs.

SBIR/STTR Business Intelligence Platform – Housed at www.SBIR.gov

SBIR.gov serves as the central portal for accessing all award and performance information on the SBIR/STTR programs. SBIR.gov houses SBA's SBIR/STTR database and serves as a platform for users to access program information. Participating Agencies are required to provide the following through SBIR.gov:

- *Solicitations*. Agencies are responsible for posting SBIR and STTR solicitations to SBIR.gov within five business days of the solicitation open date (SBIR Policy Directive § 5(e)(2)). Not all agencies provide this information in accordance with the requirement. SBA is working with the agencies to address this issue.
- *Applications*. All SBIR and STTR applicant proposal data received during the reporting cycle must be uploaded through SBIR.gov (SBIR Policy Directive § 10(e)). SBA continues to work with the agencies to collect unawarded proposal coversheet data.
- *Awards.* Information required by statute on all awards obligated during the reporting cycle must be uploaded through SBIR.gov (SBIR Policy Directive § 10(f)). Not all agencies provide this information in a timely manner. SBA is working with the agencies to address this issue.
- *Annual Report.* Agencies are required to upload to SBIR.gov all SBIR and STTR activities for the previous fiscal year (SBIR Policy Directive § 10(h)) by March 15. Not all agencies uploaded the submission by the deadline. SBA continues to work with agencies on addressing this issue.
- *Commercialization.* Company-specific and proprietary information collected from SBIR and STTR awardees and agencies on award commercialization efforts is uploaded through SBIR.gov (SBIR Policy Directive § 10(g)).

Table 1: SBIR Annual Report Submission History. The agencies are listed in descending order starting with the agency that obligates the most funding through the SBIR/STTR program.

Agency	Submission Date	Days (Early / Late†)
DoD[1]	05/18/2021	+429
HHS	05/15/2020	+60
DOE	03/13/2020	-2
NSF	03/16/2020	+1

[1] During FY19 DoD deployed a new proposal submission/reporting portal managed by a new service support contractor which led to delays in the transmission of the annual report. DoD requested an extension from SBA and worked collaboratively with SBA throughout this period to submit the data.

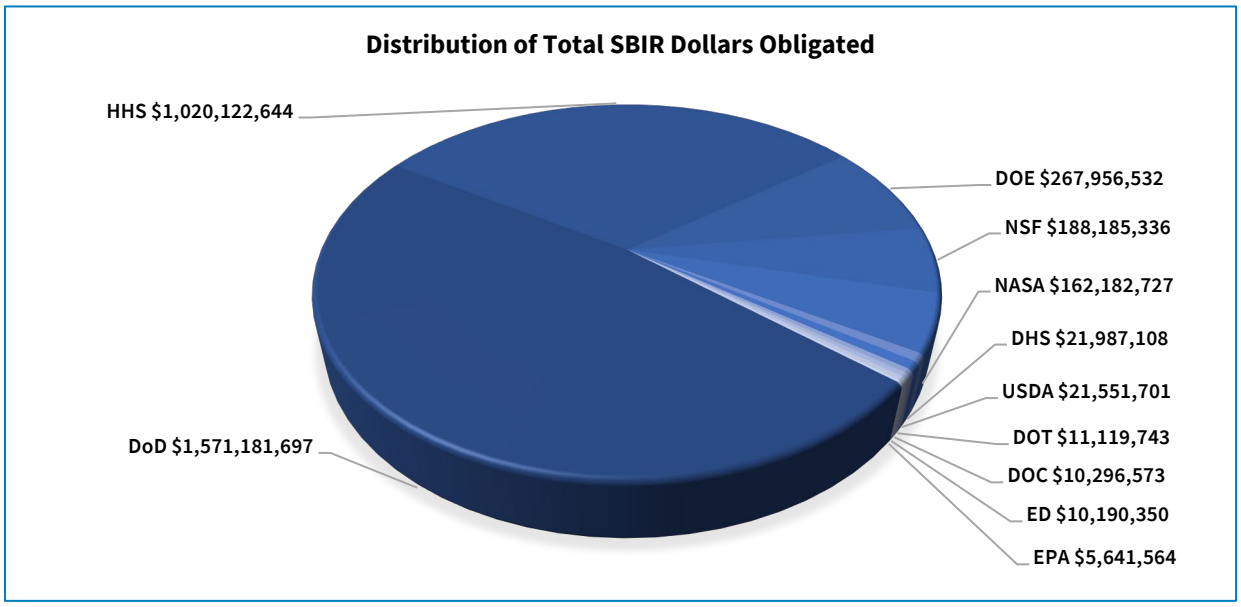
Agency	Submission Date	Days (Early / Late†)
NASA	04/02/2020	+18
DHS	04/22/2020	+38
USDA	05/19/2020	+65
DOT	03/16/2020	+1
DOC	03/16/2020	+1
ED	03/14/2020	-1
EPA	03/12/2020	-3

† (-) early submission; (0) on time submission; (+) late submission

FY19 SBIR Program Summary

In FY19, Participating Agencies' total SBIR obligations amounted to $3,290,415,975 of which $2,591,304,341 (79%) were attributed to DoD and HHS. The chart below shows the distribution of these funds by agency.

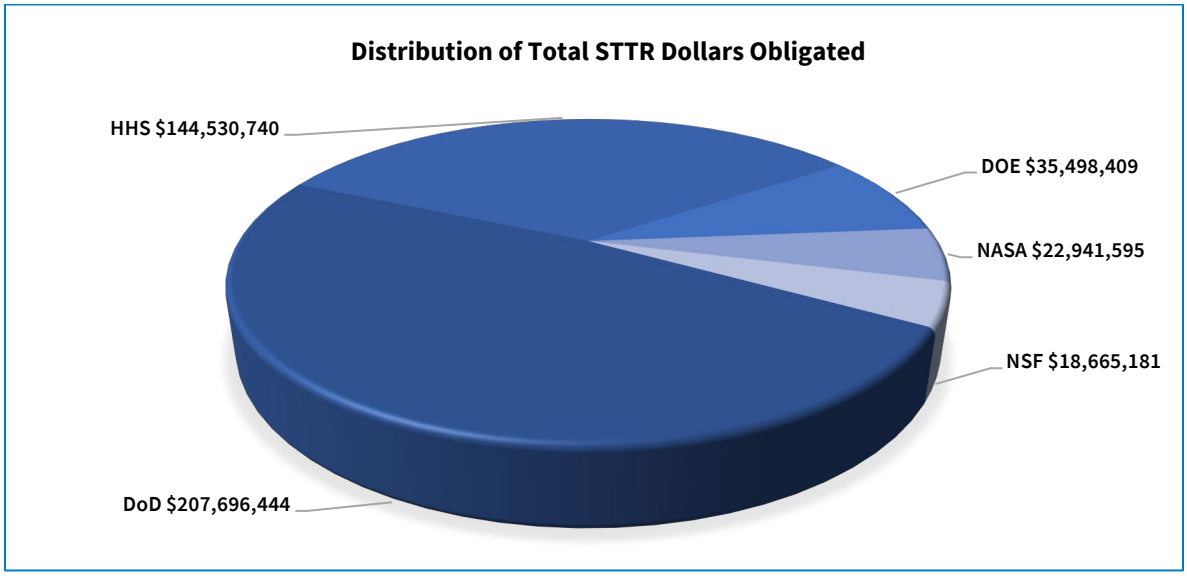
Chart 1: Distribution of Total SBIR Dollars Obligated by Participating Agencies



FY19 STTR Program Summary

In FY19, Participating Agencies' total STTR obligations amounted to $429,332,369 of which 82% or $352,227,184 were attributed to DoD and HHS. The chart below shows the distribution of these funds by agency.

Chart 2: Distribution of Total STTR Award Dollars Obligated – Participating Agencies



3 | SBIR Program – Civilian Agency Summary Data

SBIR Program Agency Summary Data is reported in separate sections of this report for Civilian Agencies and the Department of Defense (DoD). Moreover, DoD data is separated by DoD Services and Other Defense Agencies (ODAs). Tables 2 and 3 provide proposal and award summary data from each of the ten civilian agencies. This data was submitted by the agencies through the SBA Annual Report submission site and further analyzed to develop percent ratios for many of the reported fields.

Table 2: SBIR Program - Civilian Agency Summary Data - HHS, DOE, NSF, NASA, and DHS

Phase	Report Field	HHS	DOE	NSF	NASA	DHS
Phase I	Solicitations Released (#)	19	11	3	1	1
	New Proposals Received (#)	5428	1376	2142	1442	105
	New Awards (#)	948	363	309	313	24
	Selection Rate (%)*	17%	26%	14%	22%	23%
	Total Obligations ($)	$283,286,690	$68,265,575	$69,410,742	$38,725,374	$3,573,109
Phase II	New Proposals Received (#)	908	408	216	290	30
	New Awards (#)	426	178	112	141	19
	Selection Rate (%)*	47%	44%	52%	49%	63%
	Total Obligations ($)	$704,716,106	$193,979,655	$111,740,226	$112,689,407	$17,672,353
Phase III	Total Obligations ($) †	$0	$18,770,635	$0	$30,819,844	$4,076,399
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$2,674,868	$3,950,000	$1,860,383	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$214,300	$3,861,971	$397,464	$99,968	$0
	Administrative Funding Pilot (AFPP) (3%) ($)	$16,659,650	$1,761,302	$5,173,985	$3,405,232	$0
Totals	Total SBIR Obligations ($)	$1,020,122,644	$267,956,532	$188,185,336	$162,182,727	$21,987,108
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$31,918,190,453	$7,622,095,182	$5,633,324,088	$5,251,439,862	$483,760,085
	Percent of SBIR Obligations as determined using Agency-provided data (%)	3.20%	3.52%	3.34%	3.09%	4.55%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Complied	Complied	Complied	Did Not Comply	Complied

* The selection rate is an estimate. For FY19 awards, the proposals received were from both FY18 and FY19.

† Agencies cannot use SBIR/STTR funding for Phase III awards and these dollars are not part of Total SBIR Obligations. This table includes Phase III dollars under the SBIR and STTR programs.

‡ These are TABA funds provided by the agency directly to the awardee through grant or contract and thus already included in PI/PII obligation award amounts.

¶ SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the National Science Foundation's Survey of Federal Funds for Research and Development. As a result, the table may show an agency's percentage of obligations as compliant based on agency submitted data but listed as "Did Not Comply" (or another status) based on SBA's assessment (SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements). Details on the SBA analysis are provided in Section 7 which describes SBA's validation process for extramural dollars and obligations as reported to SBA and NSF NCSES and includes the process SBA used to assess compliance.

Table 3: SBIR Program - Civilian Agency Summary Data - USDA, DOT, DOC, ED, and EPA

Phase	Report Field	USDA	DOT[2]	DOC	ED	EPA	SBIR TOTAL All Civilian Agencies
Phase I	Solicitations Released (#)	1	1	2	2	1	42
	New Proposals Received (#)	533	165	245	199	49	11,684
	New Awards (#)	79	0	12	15	23	2,086
	Selection Rate (%) *	15%	0%	5%	8%	47%	18%
	Total Obligations ($)	$8,487,284	$0	$1,218,529	$2,993,949	$2,298,597	$478,259,849
Phase II	New Proposals Received (#)	65	19	39	15	16	2006
	New Awards (#)	26	14	24	8	9	957
	Selection Rate (%) *	40%	74%	62%	53%	56%	48%
	Total Obligations ($)	$12,479,417	$11,064,458	$8,668,853	$7,194,604	$3,198,966	$1,183,404,045
Phase III	Total Obligations ($) †	$0	$0	$0	$0	$0	$53,666,878
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$585,000	$0	$208,750.00	$0	$144,000.00	$9,423,001
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$259,069	$5,000	$39,000	$20,500	$0	$4,897,272
	Administrative Funding Pilot (AFPP) (3%) ($)	$0	$50,286	$200,441	$1,798	$0	$27,252,694
Totals	Total SBIR Obligations ($)	$21,551,701	$11,119,743	$10,296,573	$10,190,350	$5,641,564	$1,719,234,278
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$877,675,473	$301,669,000	$322,537,000	$225,442,779	$115,186,100	$52,260,560,475
	Percent of SBIR Obligations as determined using Agency-provided data (%)	2.46%	3.69%	3.19%	4.52%	4.90%	3.27%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Did Not Comply	Complied	Did Not Comply	Complied	Did Not Comply	

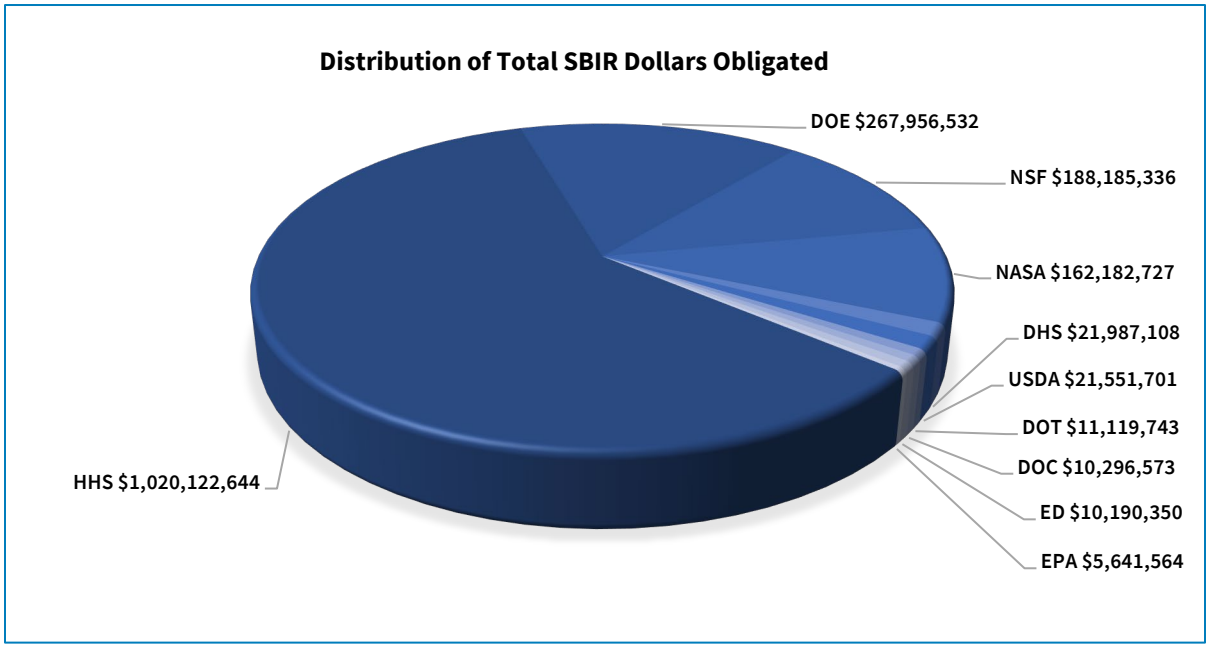
* The selection rate is an estimate. For FY19 awards, the proposals received were from both FY18 and FY19.
† Agencies cannot use SBIR/STTR funding for Phase III awards and these dollars are not part of Total SBIR Obligations. This table includes Phase III dollars under the SBIR and STTR programs.
‡ These are TABA funds provided by the agency directly to the awardee through grant or contract and thus already included in PI/PII obligation award amounts, except for DOT TABA, which is not already included in PI/PII obligation award amounts.
¶ SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the National Science Foundation's Survey of Federal Funds for Research and Development. As a result, the table may show an agency's percentage of obligations as compliant based on agency submitted data but listed as "Did Not Comply" (or another status) based on SBA's assessment (SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements). Details on the SBA analysis are provided in Section 7 which describes SBA's validation process for extramural dollars and obligations as reported to SBA and NSF NCSES and includes the process SBA used to assess compliance.

[2]All Phase I awards associated with DOT's FY19 solicitation were made at the beginning of FY20. As a result, the number of awards, selection rate, and total obligations are reported as zero. The resulting awards and obligations will be reported within the FY20 report.

SBIR Program Award Distribution - Civilian Agencies

In FY19, total SBIR obligations for civilian agencies amounted to $1,719,234,278, of which $1,020,122,644 (59%) was attributed to HHS. Nearly 36% of total dollars were attributed to DOE, NSF, and NASA, with the remaining nearly 5% of total FY19 SBIR award dollars obligated by USDA, DHS, DOC, ED, DOT, and EPA. The chart below shows the distribution of these funds by agency.

Chart 3: Distribution of Total SBIR Dollars Obligated - Civilian Agencies



Congress directs the SBIR Program to foster and encourage participation in innovation and entrepreneurship by women and by socially and economically disadvantaged persons. The following tables and charts summarize SBIR participation across Participating Agencies by women-owned small businesses (WOSB); socially and economically disadvantaged small businesses (SDB); and small businesses located in Historically Underutilized Business Zones (HUBZone). For definitions of WOSB see the Policy Directive § 3(ss), for SDB see § 3(ll) and for HUBZone see 15 USC § 632(p)(3).

Table 4: SBIR Program - Civilian Agency Summary Data by Socioeconomic Group - HHS, DOE, NSF, NASA, and USDA

Socio Group	Phase	Report Field	HHS		DOE		NSF		NASA		USDA	
			Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
WOSB	Phase I	New Proposals	600	11%	133	10%	408	19%	162	11%	95	18%
		New Awards	119	13%	26	7%	67	22%	34	11%	13	16%
		New Obligations	$33,531,172	13%	$5,082,006	7%	$15,086,644	22%	$4,206,146	11%	$1,848,101	18%
		Total Obligations	$36,061,552	13%	$5,082,006	7%	$15,086,644	22%	$4,206,146	11%	$1,848,101	18%
	Phase II	New Proposals	70	8%	34	8%	39	18%	31	11%	9	14%
		New Awards	32	8%	12	7%	27	24%	12	9%	3	12%
		New Obligations	$26,146,157	7%	$13,469,857	7%	$20,742,501	26%	$8,979,445	9%	$1,174,354	9%
		Total Obligations	$70,259,365	10%	$13,469,857	7%	$25,865,077	23%	$10,090,365	9%	$1,174,354	9%
SDB	Phase I	New Proposals	413	8%	198	14%	458	21%	199	14%	51	10%
		New Awards	39	4%	29	8%	55	18%	33	11%	0	0%
		New Obligations	$9,730,972	4%	$5,645,344	8%	$12,386,212	18%	$4,072,997	11%	$0	0%
		Total Obligations	$10,482,047	4%	$5,645,344	8%	$12,386,212	18%	$4,072,997	11%	$0	0%
	Phase II	New Proposals	41	5%	32	8%	25	12%	24	8%	5	8%
		New Awards	9	2%	12	7%	12	11%	6	4%	0	0%
		New Obligations	$7,243,913	2%	$13,030,615	7%	$9,708,395	12%	$4,503,258	4%	$0	0%
		Total Obligations	$17,615,969	2%	$13,030,615	7%	$11,410,438	10%	$5,227,510	5%	$0	0%
HUB Zone	Phase I	New Proposals	53	1%	141	10%	191	9%	64	4%	83	16%
		New Awards	9	1%	35	10%	22	7%	12	4%	15	19%
		New Obligations	$3,516,837	1%	$6,526,152	10%	$4,946,888	7%	$1,494,644	4%	$1,499,458	18%
		Total Obligations	$3,811,984	1%	$6,526,152	10%	$4,946,888	7%	$1,494,644	4%	$1,499,458	18%
	Phase II	New Proposals	2	0%	50	12%	22	10%	4	1%	15	23%
		New Awards	2	0%	14	8%	12	11%	3	2%	8	31%
		New Obligations	$1,028,960	0%	$14,440,006	7%	$9,056,213	11%	$2,259,892	2%	$4,831,998	39%
		Total Obligations	$1,767,062	0%	$14,440,006	7%	$11,806,675	11%	$2,404,821	2%	$4,831,998	39%

Table 5: Civilian Agency Summary Data by Socioeconomic Group - DHS, DOC, DOT, ED, and EPA

Socio Group	Phase	Report Field*	DHS		DOC		DOT[3]		ED		EPA		SBIR Civilian Total	
			Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
WOSB	Phase I	New Proposals	13	12%	25	10%	37	22%	63	32%	9	18%	1545	13%
		New Awards	4	17%	4	33%	0	0%	4	27%	2	4%	273	13%
		New Obligations	$599,879	17%	$406,458	33%	$0	0%	$799,596	27%	$200,000	9%	$61,760,002	13%
		Total Obligations	$599,879	17%	$406,458	33%	$0	0%	$799,596	27%	$200,000	9%	$64,290,382	13%
	Phase II	New Proposals	3	10%	5	13%	4	21%	6	40%	1	6%	202	10%
		New Awards	1	5%	3	13%	4	29%	1	13%	1	11%	96	10%
		New Obligations	$999,643	6%	$705,524	8%	$2,989,856	27%	$900,000	13%	$299,876	9%	$76,407,213	6%
		Total Obligations	$999,643	6%	$705,524	8%	$2,989,856	27%	$900,000	13%	$299,876	9%	$126,853,917	11%
SDB	Phase I	New Proposals	20	19%	22	9%	29	18%	29	15%	4	8%	1,423	12%
		New Awards	2	8%	0	0%	0	0%	0	0%	2	9%	160	8%
		New Obligations	$299,911	8%	$0.0	0%	$0.0	0%	$0.0	0%	$200,000	7%	$32,335,436	7%
		Total Obligations	$299,911	8%	$0.0	0%	$0.0	0%	$0.0	0%	$399,876	17%	$33,086,511	7%
	Phase II	New Proposals	2	7%	4	10%	0	0%	0	0%	1	6%	134	7%
		New Awards	2	11%	2	8%	0	0%	0	0%	0	0%	43	4%
		New Obligations	$1,999,767	11%	$799,998	9%	$0.0	0%	$0.0	0%	$0.0	0%	$37,285,946	4%
		Total Obligations	$1,999,767	11%	$799,998	9%	$0.0	0%	$0.0	0%	$0.0	0%	$50,084,297	4%
HUB Zone	Phase I	New Proposals	5	5%	3	1%	8	5%	13	7%	3	6%	564	5%
		New Awards	0	0%	0	0%	0	0%	0	0%	0	0%	93	4%
		New Obligations	0	0%	0	0%	0	0%	0	0%	0	0%	$17,983,979	4%
		Total Obligations	0	0%	0	0%	0	0%	0	0%	0	0%	$18,279,126	4%
	Phase II	New Proposals	0	0%	5	13%	0	0%	0	0%	1	6%	99	5%
		New Awards	0	0%	4	17%	0	0%	0	0%	0	0%	43	4%
		New Obligations	$0	0%	$1,506,301	17%	$	0%	$0	0%	$0	0%	$33,123,370	4%
		Total Obligations	$0	0%	$1,506,301	17%	$	0%	$0	0%	$0	0%	$36,756,863	3%

* Data is based on proposals received and awards made in Fiscal Year 2019.

[3] All Phase I awards associated with DOT's FY19 solicitation were made at the beginning of FY20. As a result, the number of awards and total obligations are reported as zero. The resulting awards and obligations will be reported within the FY20 report.

Chart 4: Percent of Phase I Total SBIR Dollars to Socioeconomic Groups - Civilian Agencies

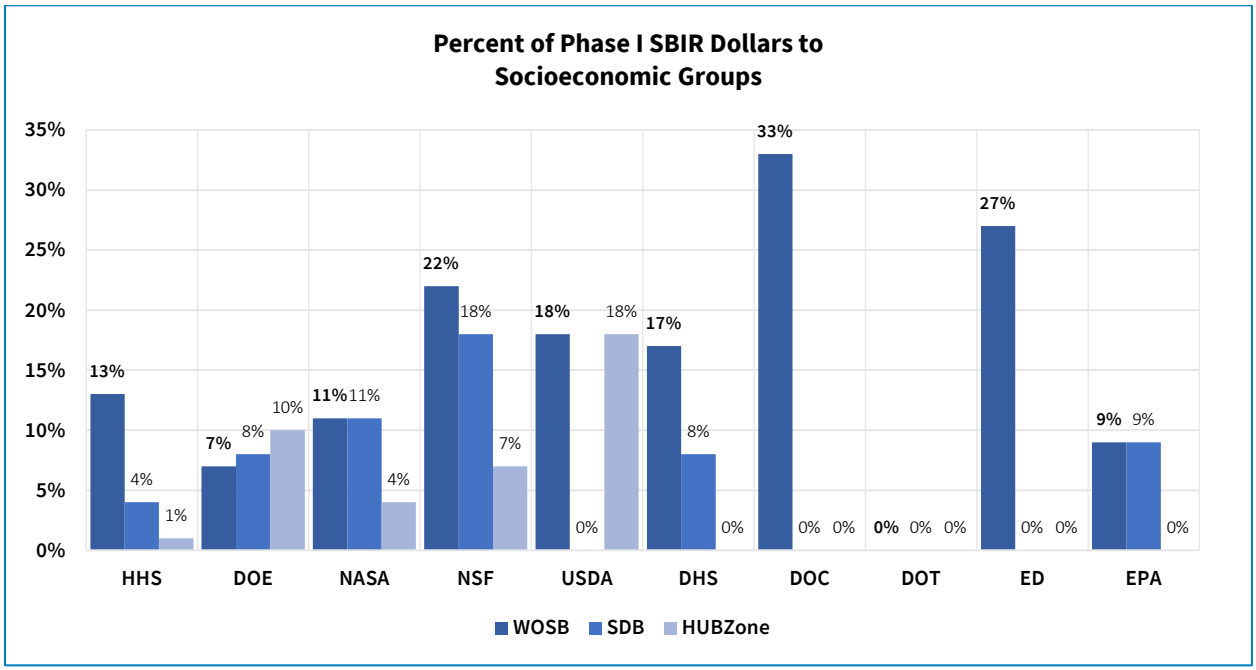
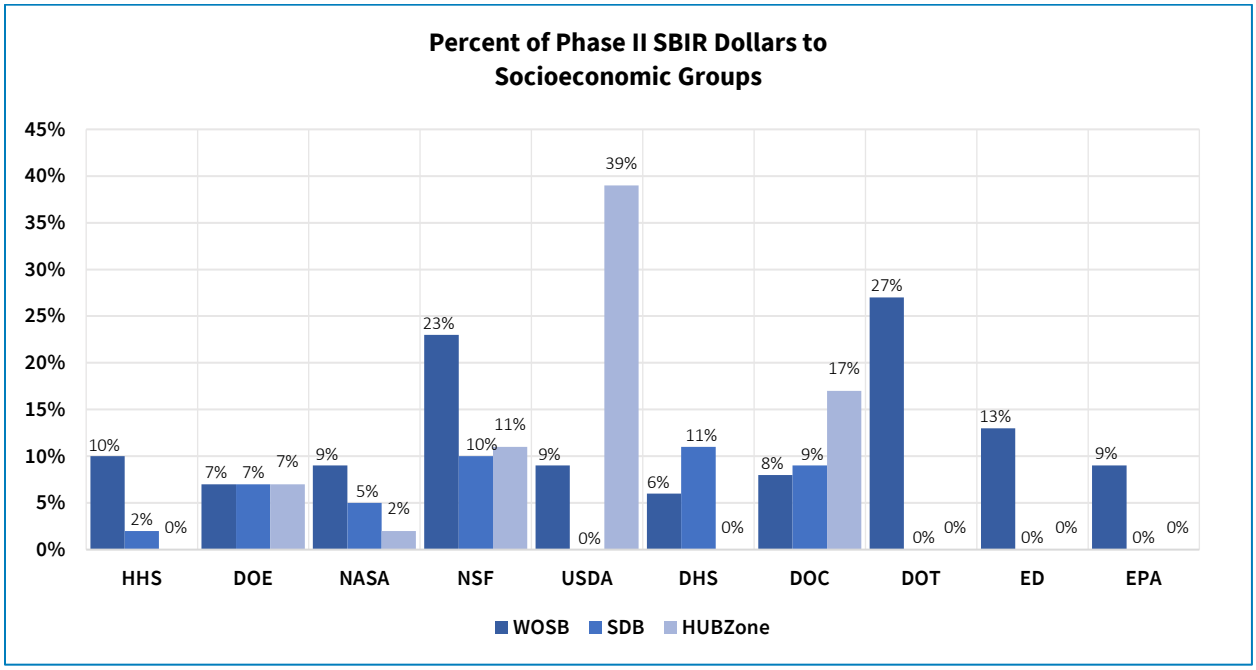


Chart 5: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - Civilian Agencies



4 | SBIR Program – DoD Summary Data

To facilitate the review of the FY19 data collected on the DoD SBIR Program and present a more comprehensive reflection of individual DoD Component program performance, the DoD data is organized in Table 6 by DoD Services (Army, Navy, and Air Force) and the Other Defense Agencies.[4] Details on SBA's analysis of compliance with the minimum spending requirements are discussed in detail in Section 7.

Table 6: SBIR Program - DoD Summary Data - Service Agencies and Other Defense Agencies

Phase	Report Field	Air Force	Navy	Army	Other Defense Agencies	DoD Total Reported
Phase I	Solicitations Released (#)	3	3	3	3	3*
	New Proposals Received (#)	3748	2040	2491	1336	9615
	New Awards (#)	1048	323	312	233	1916
	Selection Rate (%)	28%	16%	13%	17%	20%
	Total Obligations ($)	$83,644,014	$66,927,624	$37,090,206	$35,575,014	$223,236,858
Phase II	New Proposals Received (#)	843	369	131	253	1596
	New Awards (#)	462	297	211	208	1178
	Selection Rate (%)**	55%	80%	161%	82%	74%
	Total Obligations ($)	$454,625,617	$395,664,539	$171,614,264	$287,354,250	$1,309,258,670
Phase III	Total Obligations (For both SBIR and STTR) ($) †	$520,921,894	$489,384,004	$80,608,795	$92,453,746	$1,183,368,438
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$0	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$0	$119,189	$0	$274,780	$393,969
	Administrative Funding Pilot (AFPP) (3%) ($)	$17,407,397	$2,733,000	$1,826,000	$4,328,458	$26,294,855
	DoD 1% CRP ($)	$5,648,290	$1,564,000	$5,890,923	-	$13,103.213
Totals	Total SBIR Obligations ($)	$561,325,318	$467,008,352	$216,421,394	$327,532,501	$1,572,287,565
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$21,731,612,021	$11,201,516,556	$8,312,886,000	$10,440,882,351	$51,686,896,928
	Percent of SBIR Obligations as determined using DoD-provided data (%)	2.58%	4.17%	2.60%	3.14%	3.04%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Did not comply	Complied	Did not comply	Varied[5]	

[4] Other Defense Agencies include: Defense Advanced Research Projects Agency (DARPA), Missile Defense Agency (MDA), Defense Health Agency (DHA), Chemical and Biological Defense Program (CDB), United States Special Operations Command (SOCOM), Defense Threat Reduction Agency, Defense Logistics Agency (DLA), Defense Microelectronics Activity (DMEA), and the Office of the Secretary of Defense (OSD).

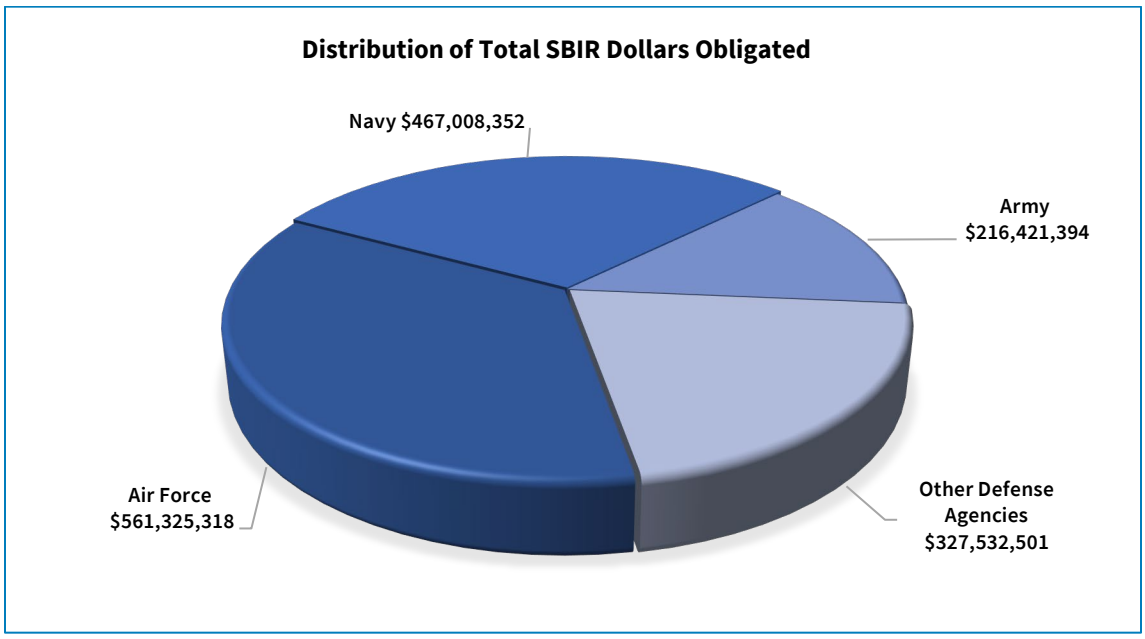
[5] Section 7 details SBA's individual assessment for each of the 9 ODAs.

*** This row is not a total. The DoD has three solicitations for which each branch / component can elect to participate.**
**** For some FY19 awards, agencies may have received proposals during prior fiscal years. As a result, the number of awards may be greater than the number of proposals.**
† Agencies cannot use SBIR/STTR funding for Phase III awards and these dollars are not part of Total SBIR Obligations. Phase III dollars listed includes both SBIR and STTR programs.
‡ This is TABA funds that were provided by the agency directly to the awardee through grant or contract and thus already included in PI/PII obligation award amounts.
¶ SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the National Science Foundation's Survey of Federal Funds for Research and Development. As a result, the table may show an agency's percentage of obligations as compliant based on agency submitted data but listed as "Did Not Comply" (or another status) based on SBA's assessment (SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements). Details on the SBA analysis are provided in Section 7 which describes SBA's validation process for extramural dollars and obligations as reported to SBA and NSF NCSES and includes the process SBA used to assess compliance.

SBIR Program Award Distribution - DoD Services and Other Defense Agencies

In FY19, DoD Services' and Other Defense Agencies' total SBIR obligations amounted to $1,572,287,565 of which approximately 65% were attributed to Air Force and Navy. The chart below shows the distribution of these funds by the DoD Services and Other Defense Agencies.

Chart 6: Distribution of Total SBIR Dollars Obligated - DoD Services and Other Defense Agencies



Congress directs the SBIR Program to foster and encourage participation in innovation and entrepreneurship by women and socially and economically disadvantaged persons. The following tables and charts summarize SBIR participation across Participating Agencies by women-owned small businesses (WOSB); socially and economically disadvantaged small businesses (SDB); and small businesses located in Historically Underutilized Business Zones (HUBZone). For definitions of WOSB see the Policy Directive § 3(ss), for SDB see § 3(ll) and for HUBZone see 15 USC § 632(p)(3).

Table 7: SBIR Program - DoD Summary Data by Socioeconomic Group - Service Agencies and Other Defense Agencies

Socio Group	Phase	Report Field	Air Force		Navy		Army		Other Defense Agencies		DoD Total Reported	
			Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
WOSB	Phase I	New Proposals	425	11%	280	14%	350	14%	187	14%	1242	13%
		New Awards	95	9%	31	10%	25	8%	32	14%	183	10%
		New Obligations	$8,023,284	10%	$5,141,690	10%	$2,201,199	7%	$4,297,168	13%	$19,663,340	10%
		Total Obligations	$8,023,284	10%	$6,738,750	10%	$2,899,694	8%	$4,397,150	12%	$22,058,878	10%
	Phase II	New Proposals	96	11%	54	15%	23	18%	43	17%	216	14%
		New Awards	48	50%	33	61%	22	96%	15	35%	118	55%
		New Obligations	$54,463,068	14%	$30,760,884	13%	$9,451,045	11%	$15,155,621	8%	$109,830,618	12%
		Total Obligations	$66,764,563	15%	$46,988,555	12%	$22,788,191	13%	$25,884,628	9%	$162,425,937	12%
SDB	Phase I	New Proposals	454	12%	232	11%	276	11%	163	12%	1125	12%
		New Awards	86	8%	27	8%	13	4%	29	12%	155	8%
		New Obligations	$6,588,114	8%	$4,438,859	9%	$1,351,928	5%	$3,881,354	11%	$16,260,254	8%
		Total Obligations	$6,588,114	8%	$4,438,859	7%	$1,401,597	4%	$3,881,354	11%	$16,309,924	7%
	Phase II	New Proposals	87	10%	31	8%	7	5%	20	8%	145	9%
		New Awards	31	7%	20	7%	13	6%	13	6%	77	7%
		New Obligations	$27,882,691	7%	$17,835,735	8%	$7,243,038	8%	$13,217,320	7%	$66,178,784	7%
		Total Obligations	$28,132,549	6%	$17,835,735	5%	$7,243,038	4%	$13,725,555	5%	$66,936,877	5%
HUB Zone	Phase I	New Proposals	96	3%	49	2%	90	4%	35	3%	270	3%
		New Awards	24	2%	11	3%	9	3%	5	2%	49	3%
		New Obligations	$1,802,584	2%	$1,591,867	3%	$782,936	3%	$661,771	2%	$4,839.158	2%
		Total Obligations	$1,802,584	2%	$1,789,367	3%	$982,412	3%	$711,443	2%	$5,285,806	2%
	Phase II	New Proposals	24	3%	3	1%	1	1%	7	3%	35	2%
		New Awards	7	2%	4	1%	6	3%	4	2%	21	2%
		New Obligations	$4,802,131	1%	$2,879,552	1%	$2,704,719	3%	$3,455,427	2%	$13,841,829	2%
		Total Obligations	$6,050,857	1%	$4,499,722	1%	$3,919,791	2%	$4,455,813	2%	$18,926,183	1%

* For some FY19 awards, agencies may have received proposals in prior fiscal years. As a result, the number of awards may be greater than the number of proposals.

Chart 7: Percent of Phase I Total SBIR Dollars to Socioeconomic Groups - DoD Services and Other Defense Agencies

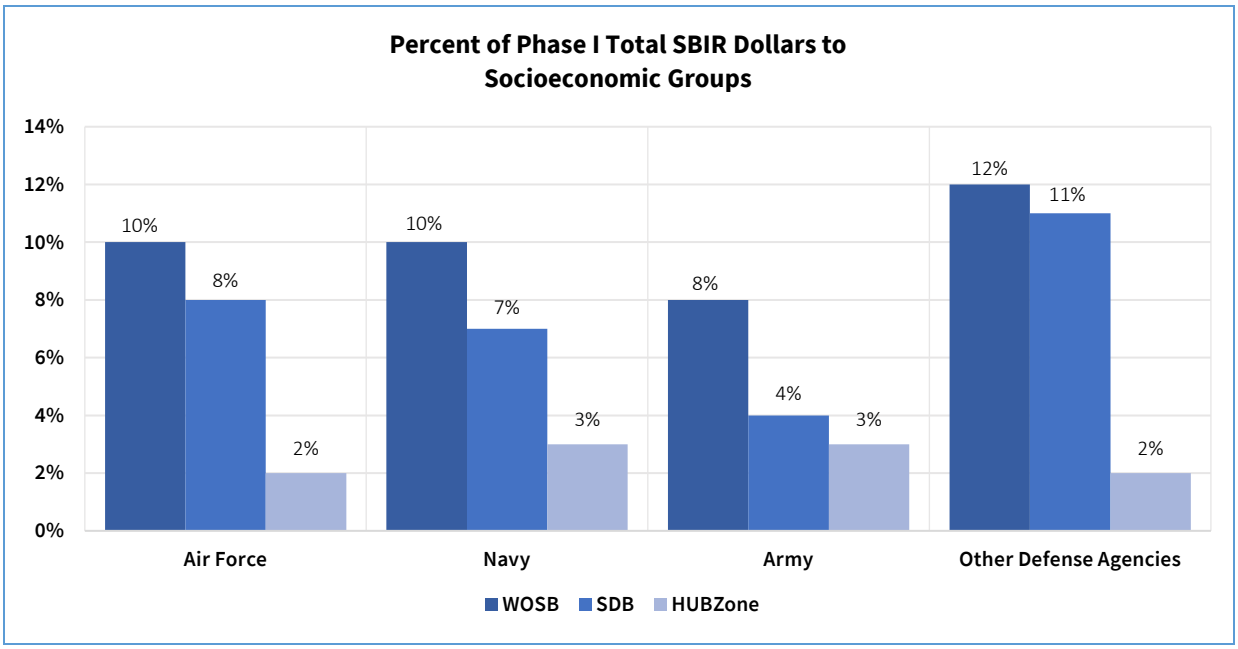
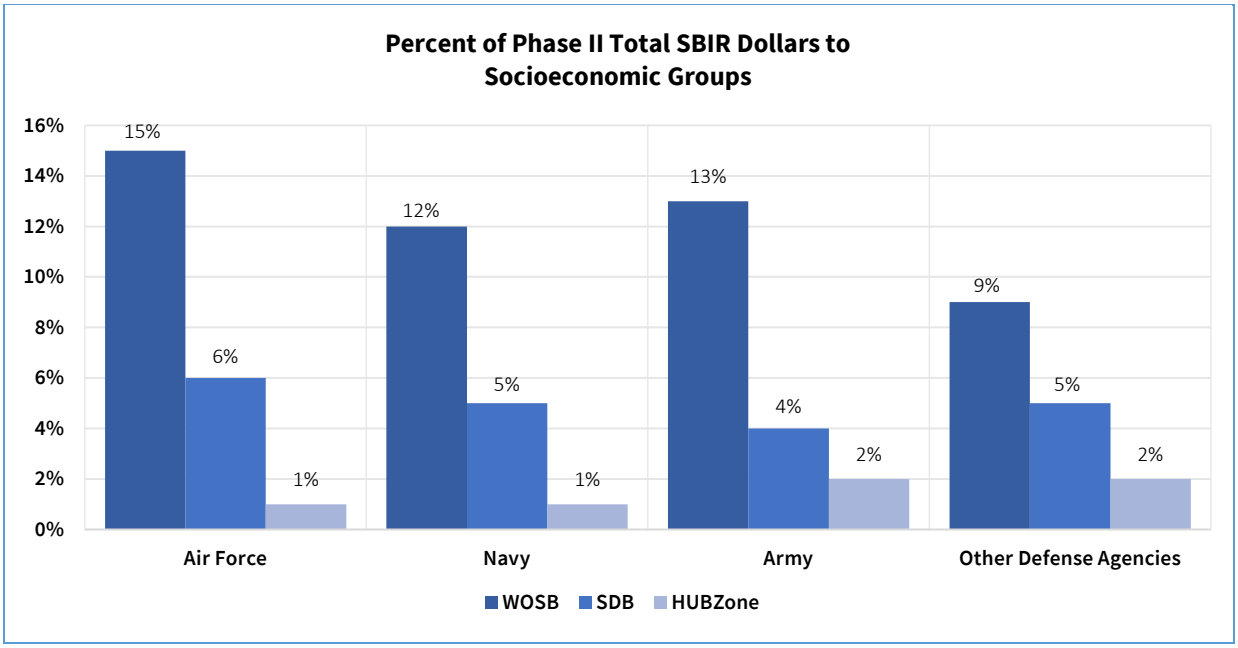


Chart 8: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - DoD Services and Other Defense Agencies



5 | STTR Program – Civilian Agency Summary Data

Table 8 provides proposal and award summary data from the four Civilian Agencies with extramural R/R&D obligations exceeding $1 billion, thereby mandating participation in the STTR program. STTR data for the DoD is provided in Section 6. This data was submitted by the Agencies through the SBA annual report submission site, verified by SBA, and further analyzed to develop percent ratios for many of the reported fields. The agencies validated the data; however, some data verification challenges still exist which are detailed in the SBA analysis are provided in Section 7.

Table 8: STTR Program - Civilian Agency Summary Data - HHS, DOE, NASA, and NSF

PHASE	REPORT FIELD	HHS	DOE	NASA	NSF	STTR TOTAL All Civilian Agencies
Phase I	Solicitations Released (#)	11	11	1	3	26
	New Proposals Received (#)	1,078	215	210	330	1,833
	New Awards (#)	211	55	48	52	366
	Proposal Selection Rate (%)	20%	26%	23%	16%	20%
	Total Obligations ($)	$57,849,242	$10,309,773	$5,941,672	$11,694,876	$85,795,563
	Total Obligations for Research Institutions ($)	$26,570,972	$4,278,387	$1,980,359	$4,579,576	$37,409,294
	Total Obligations for Research Institutions (%)	46%	41%	33%	39%	46%
Phase II	New Proposals Received (#)	102	47	24	19	192
	New Awards (#)	55	24	22	4	105
	Proposal Selection Rate (%)	54%	51%	92%	21%	55%
	Total Obligations for Awards ($)	$81,695,910	$24,638,636	$16,999,923	$6,650,305	$129,984,774
	Total Obligations for Research Institutions ($)	$33,196,365	$9,915,150	$5,457,763	$1,214,564	$49,783,842
	Total Obligations for Research Institutions (%)	41%	40%	32%	18%	38%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$550,000	$0	$320,000	$870,000
	TABA Provided to Small Businesses in Award Obligations ($) *	$121,400	$395,310	$25,000	$30,000	$571,710
	Obligations for "Phase 0" Programs (NIH only) ($)	$4,985,588	N/R	N/R	N/R	$4,985,588
Totals	Total STTR Obligations ($)	$144,530,740	$35,498,409	$22,941,595	$18,665,181	$221,635,925
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$31,918,190,453	$7,622,095,182	$5,251,439,862	$5,633,324,088	$50,425,049,585
	Percent of STTR Obligations as determined using Agency-provided data (%)	0.46%	0.47%	0.44%	0.33%	0.44%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements †	Complied	Complied	Did Not Comply	Did Not Comply	

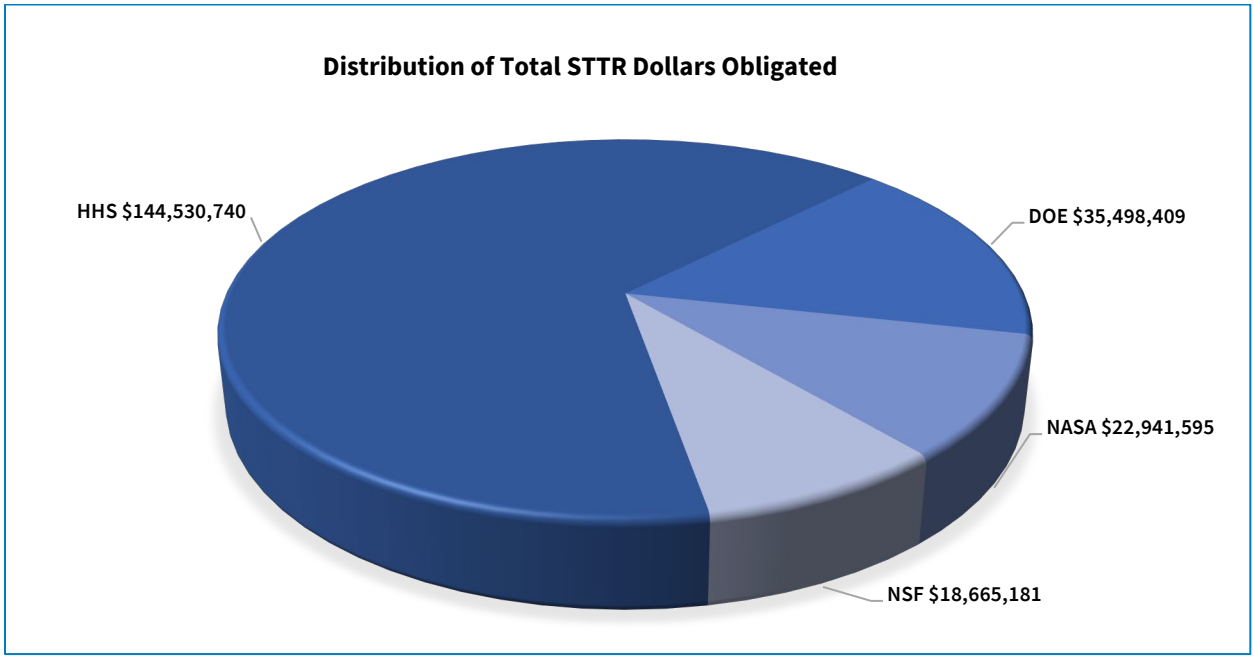
*** This is TABA funds that were provided by the agency directly to the awardee through grant or contract and thus already included in Phase I/Phase II obligation award amounts.**
† SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the National Science Foundation's Survey of Federal Funds for Research and Development. As a result, the table may show an agency's percentage of obligations as compliant based on agency submitted data but listed as "Did Not Comply" (or another status) based on SBA's assessment (SBA Assessment of Agency

Compliance with Meeting Minimum Spending Requirements). Details on the SBA analysis are provided in Section 7 which describes SBA's validation process for extramural dollars and obligations as reported to SBA and NSF NCSES and includes the process SBA used to assess compliance.
N/R – Not Required as only NIH has this authority.

STTR Program Award Distribution - Civilian Agencies

In FY19, the Participating Civilian Agencies' total STTR obligations amounted to $221,635,925, with 65% attributed to HHS.

Chart 9: Distribution of Total STTR Dollars Obligated - Civilian Agencies



Congress directs the STTR Program to foster and encourage participation in innovation and entrepreneurship by women and socially and economically disadvantaged persons. The following tables and charts summarize STTR participation across Participating Agencies by women-owned small businesses (WOSB); socially and economically disadvantaged small businesses (SDB); and small businesses located in Historically Underutilized Business Zones (HUBZone). For definitions of WOSB see the Policy Directive § 3(ss), for SDB see § 3(ll) and for HUBZone see 15 USC § 632(p)(3).

Table 9: STTR Program - Civilian Agency Summary Data by Socioeconomic Group - HHS, DOE, NASA, and NSF

Socio Group	Phase	REPORT FIELD	HHS		DOE		NASA		NSF		Total	
			Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
WOSB	Phase I	New Proposals	116	11%	22	10%	21	10%	55	17%	214	12%
		New Awards	29	14%	2	4%	1	2%	11	21%	43	12%
		New Obligations	$7,186,087	13%	$424,926	4%	$124,764	2%	$2,486,012	21%	$10,221,789	13%
		Total Obligations	$7,550,926	13%	$424,926	4%	$124,764	2%	$2,486,012	21%	$10,586,628	12%
	Phase II	New Proposals	8	8%	6	13%	1	4%	2	11%	17	9%
		New Awards	3	6%	5	21%	1	5%	0	0%	9	9%
		New Obligations	$3,157,467	6%	$5,399,709	22%	$749,999	5%	$0	0%	$9,307,175	7%
		Total Obligations	$8,355,157	10%	$5,399,709	22%	$1,124,999	7%	$985,985	15%	$15,865,850	12%
SDB	Phase I	New Proposals	20	2%	26	12%	29	14%	52	16%	127	7%
		New Awards	7	3%	5	9%	6	13%	10	19%	28	8%
		New Obligations	$1,688,318	3%	$949,996	9%	$749,573	13%	$2,249,401	19%	$5,637,288	7%
		Total Obligations	$1,688,318	3%	$949,996	9%	$749,573	13%	$2,249,401	19%	$5,637,288	7%
	Phase II	New Proposals	3	3%	1	2%	2	8%	1	5%	7	4%
		New Awards	2	4%	1	4%	2	9%	0	0%	5	5%
		New Obligations	$1,499,998	3%	$1,049,963	4%	$1,499,973	9%	$0	0%	$4,049,934	3%
		Total Obligations	$2,256,422	3%	$1,049,963	4%	$1,499,973	9%	$0	0%	$4,806,358	4%
HUB Zone	Phase I	New Proposals	5	0.5%	21	10%	3	1%	37	11%	66	4%
		New Awards	0	0%	6	11%	2	4%	7	13%	15	4%
		New Obligations	$0	0%	$1,254,230	12%	$246,275	4%	$1,561,392	13%	$3,061,897	4%
		Total Obligations	$0	0%	$1,254,230	12%	$246,275	4%	$1,561,392	13%	$3,061,897	4%
	Phase II	New Proposals	1	1%	17	36%	1	4%	0	0%	19	10%
		New Awards	1	2%	4	17%	1	5%	0	0%	6	6%
		New Obligations	$1,716,246	3%	$4,200,000	17%	$749,670	5%	$0	0%	$6,665,916	5%
		Total Obligations	$1,716,246	2%	$4,200,000	17%	$749,670	4%	$834,463	13%	$7,500,379	6%

Chart 10: Percent of Phase I Total STTR Dollars to Socioeconomic Groups - Civilian Agencies

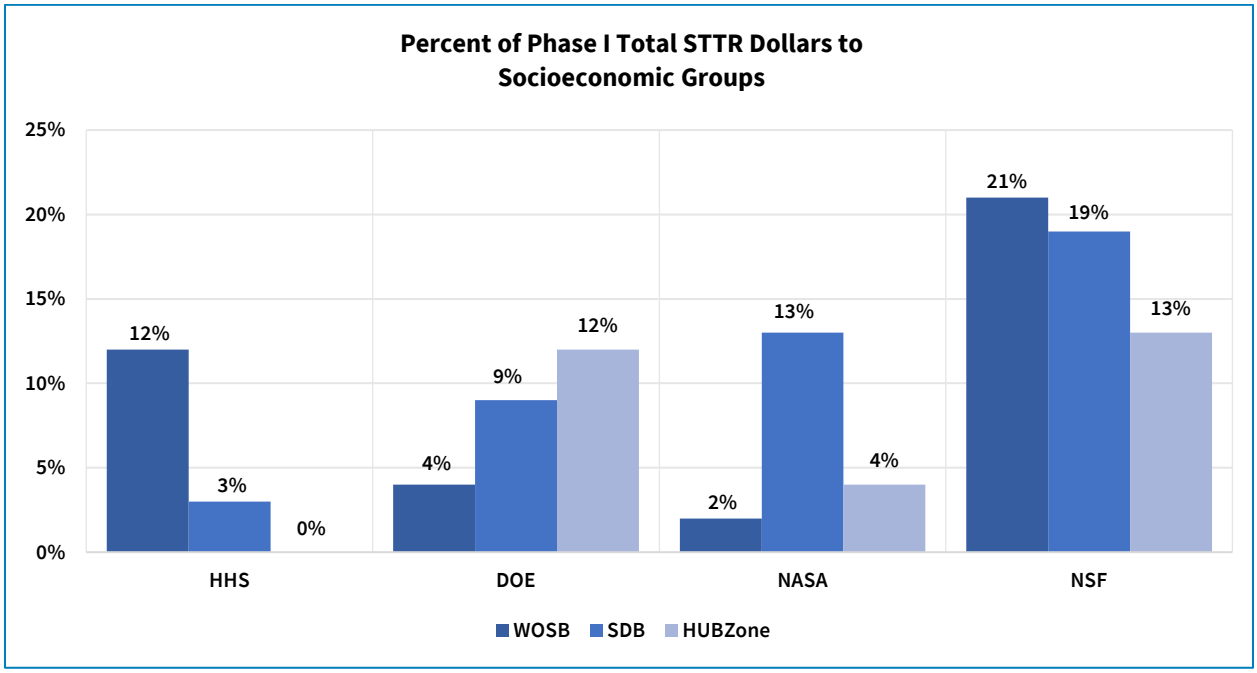
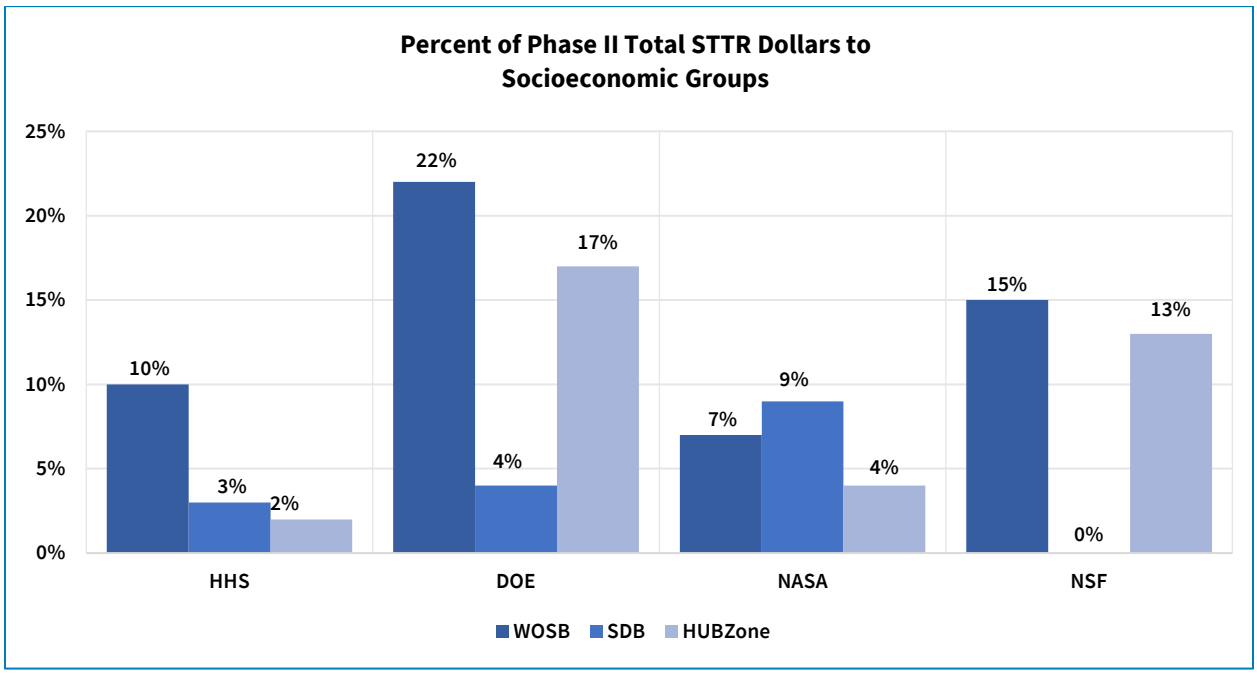


Chart 11: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - Civilian Agencies



6 | STTR Program – DoD Summary Data

To facilitate the review of the FY19 data collected on the DoD STTR Program and present a more comprehensive reflection of individual DoD Component program performance, the DoD data is organized by DoD Services (Army, Navy, and) and the Other Defense Agencies (DARPA, MDA, DHA, CBD, SOCOM, DTRA, DLA, DMEA, and OSD). This data was submitted by the DoD through the SBA Annual Report submission site. SBA requires the data included in this report be a summation of individual awards uploaded to SBA by the DoD, and that this data match what is available on SBIR.gov.

Table 10: STTR Program - DoD Summary Data - Service Agencies and Other Defense Agencies

Phase	Report Field	Air Force	Navy	Army	Other Defense Agencies	DoD Total
Phase I	Solicitations Released (#)	3	3	3	3	3†
	New Proposals Received (#)	458	292	217	172	1139
	New Awards (#)	124	86	49	45	304
	Proposal Selection Rate (%)	27%	29%	23%	26%	27%
	Total Obligations ($)	$14,905,257	$16,777,614	$7,349,756	$7,447,466	$46,480,093
	Total Obligations for Research Institutions ($)	$5,699,625	$6,087,028	$4,262,088	$2,873,915	$18,922,656
	Total Obligations for Research Institutions (%)	38%	36%	58%	39%	41%
Phase II	New Proposals Received (#)	45	44	24	29	142
	New Awards (#)	53	47	15	25	139
	Proposal Selection Rate (%) *	118%	107%	63%	83%	98%
	Total Obligations for Awards ($)	$49,673,086	$51,723,227	$19,582,165	$40,097,444	$161,075,922
	Total Obligations for Research Institutions ($)	$18,823,893	$22,359,742	$9,797,080	$17,416,230	$68,396,945
	Total Obligations for Research Institutions (%)	38%	43%	50%	43%	42%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$0	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) **	$0	$66,299	$0	$74,130	$140,429
Totals	Total STTR Obligations ($)	$64,578,343	$68,500,841	$26,931,921	$47,544,910	$207,556,015
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$21,731,612,021	$11,201,516,556	$8,312,886,000	$10,440,882,351	$51,686,896,928
	Percent of STTR Obligations as determined using DoD-provided data (%)	0.30%	0.61%	0.32%	0.46%	0.40%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements§	Did Not Comply	Complied	Did Not Comply	Varied[6]	

* For some FY19 awards, agencies may have received proposals during prior fiscal years. As a result, the number of awards may be greater than the number of proposals.
** This is TABA funds that were provided by the agency directly to the awardee through grant or contract and thus already included in PI/PII obligation award amounts.
† This row is not a total. The DoD has three solicitations for which each branch / component can elect to participate.

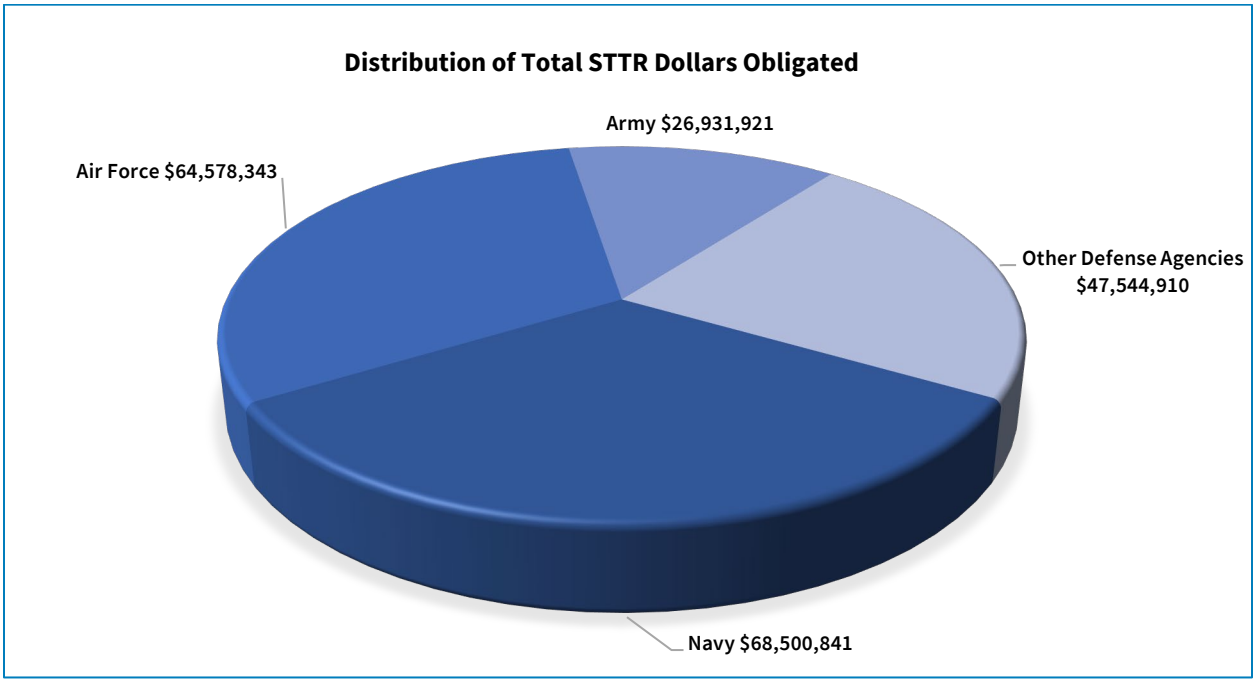
[6] Section 7 details SBA's individual assessment for each of the 9 ODAs.

§ SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the National Science Foundation's Survey of Federal Funds for Research and Development. As a result, the table may show an agency's percentage of obligations as compliant based on agency submitted data but listed as "Did Not Comply" (or another status) based on SBA's assessment (SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements). Details on the SBA analysis are provided in Section 7 which describes SBA's validation process for extramural dollars and obligations as reported to SBA and NSF NCSES and includes the process SBA used to assess compliance.

STTR Award Distribution - DoD Services and Other Defense Agencies

DoD Services' and Other Defense Agencies' STTR obligations totaled $207,556,015 in FY19, with 33% attributed to the Navy, 31% to the Air Force, 13% to the Army, and 23% attributed to the Other Defense Agencies as shown below.

Chart 12: Distribution of Total STTR Dollars Obligated - DoD Services and Other Defense Agencies



Congress directs the STTR Program to foster and encourage participation in innovation and entrepreneurship by women and socially and economically disadvantaged persons. The following tables and charts summarize STTR participation across Participating Agencies by women-owned small businesses (WOSB); socially and economically disadvantaged small businesses (SDB); and small businesses located in Historically Underutilized Business Zones (HUBZone). For definitions of WOSB see the Policy Directive § 3(ss), for SDB see § 3(ll) and for HUBZone see 15 USC § 632(p)(3).

Table 11: STTR Program - DoD Agency Summary Data by Socioeconomic Group - Service Agencies and Other Defense Agencies

Socio Group	Phase	Report Field	Air Force		Navy		Army		Other Defense Agencies		DoD Total Reported	
			Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
WOSB	Phase I	New Proposals	66	14%	41	14%	35	16%	20	12%	162	11%
		New Awards	15	12%	12	14%	8	16%	6	13%	41	13%
		New Obligations	$1,498,611	10%	$1,768,428	14%	$1,199,856	16%	$912,244	13%	$5,379,139	13%
		Total Obligations	$1,648,610	11%	$2,468,394	15%	$1,199,856	16%	$1,036,786	14%	$6,353,646	14%
	Phase II	New Proposals	6	13%	8	18%	4	17%	2	7%	20	13%
		New Awards	5	9%	7	15%	2	13%	3	13%	17	12%
		New Obligations	$3,749,836	9%	$4,054,654	14%	$500,000	7%	$2,479,701	9%	$10,784,191	10%
		Total Obligations	$4,941,090	10%	$6,433,046	12%	$3,965,398	20%	$2,982,474	7%	$18,322,008	11%
SDB	Phase I	New Proposals	75	16%	35	12%	21	10%	25	15%	156	7%
		New Awards	14	11%	6	7%	2	4%	5	11%	27	9%
		New Obligations	$1,599,044	11%	$929,066	7%	$299,880	4%	$736,429	10%	$3,564,419	8%
		Total Obligations	$1,599,044	11%	$929,066	6%	$299,880	4%	$736,429	10%	$3,564,419	8%
	Phase II	New Proposals	4	9%	1	2%	0	0%	1	3%	6	2%
		New Awards*	6	11%	0	0%	0	0%	2	8%	8	6%
		New Obligations	$4,499,483	11%	-	0%	-	-	$1,499,672	6%	$5,999,155	6%
		Total Obligations	$4,499,483	9%	-	0%	-	-	$1,499,672	4%	$5,999,155	4%
HUB Zone	Phase I	New Proposals	11	2%	5	2%	4	2%	6	3%	26	2%
		New Awards	3	2%	1	1%	0	0%	0	0%	4	1%
		New Obligations	$449,790	3%	$139,999	1%	0	0%	0	0%	$589,789	1%
		Total Obligations	$599,707	4%	$239,900	1%	0	0%	0	0%	$839,607	2%
	Phase II	New Proposals	1	2%	1	2%	1	4%	0	0%	3	1%
		New Awards	1	2%	1	2%	1	7%	0	0%	3	2%
		New Obligations	$750,000	2%	$495,280	2%	$499,971	7%	0	0%	$1,745,251	2%
		Total Obligations	$750,000	2%	$745,279	1%	$499,971	3%	0	0%	$1,995,250	1%

* For some FY19 awards, agencies may have received proposals during prior fiscal years. As a result, the number of awards may be greater than the number of proposals.

Chart 13: Percent of Phase I STTR Total Dollars to Socioeconomic Groups - DoD Services and Other Defense Agencies

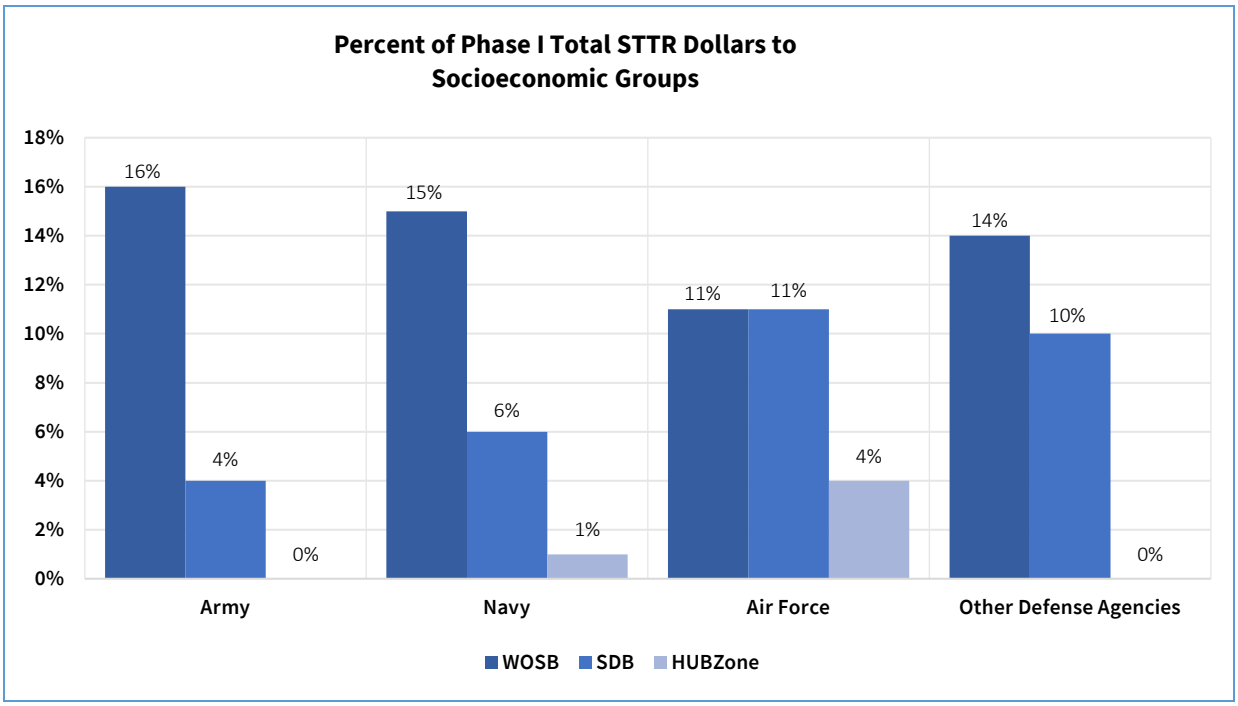
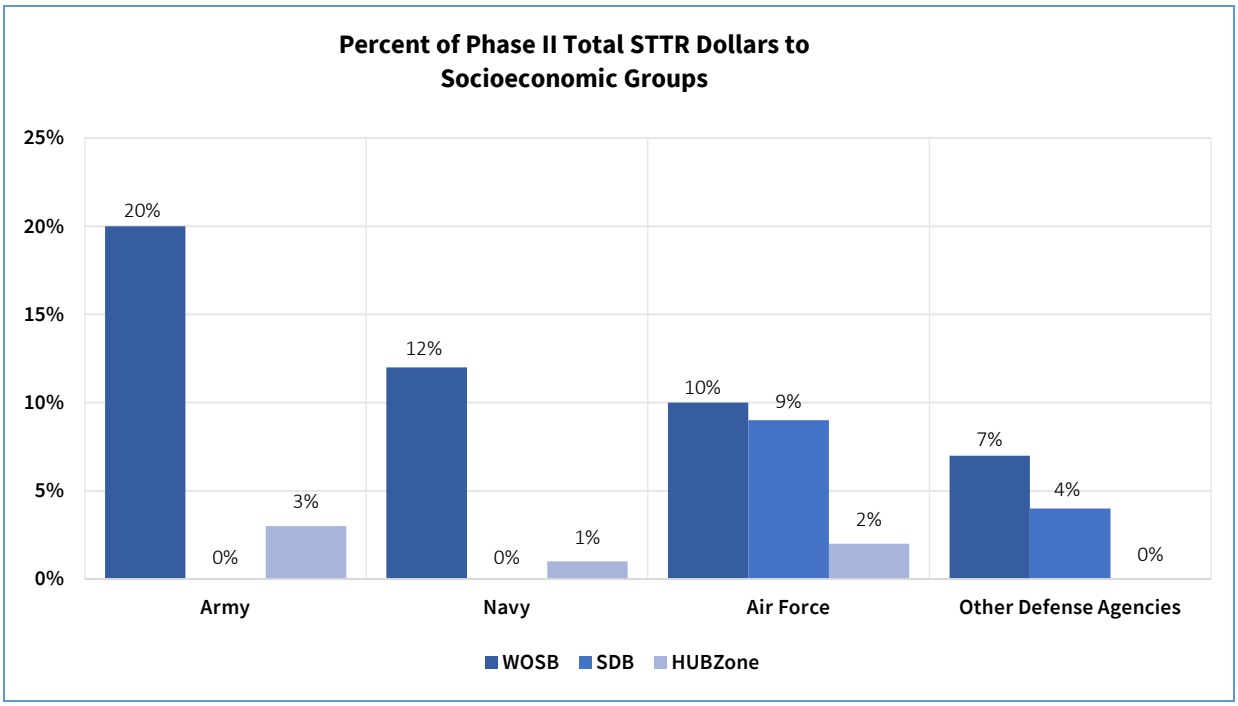


Chart 14: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - DoD Services and Other Defense Agencies



7 | Minimum Spending Requirements and Understanding the Variance Between Extramural R/R&D Reported to SBA and NSF NCSES

The Small Business Act, at 15 U.S.C. § 638(f)(1) and (n)(1), establishes the minimum spending requirement for each year. For FY19, the minimum spending requirement was 3.2% for the SBIR program and 0.45% for the STTR Program. Agencies are required to meet or exceed these minimum percentages. SBA determined whether the Participating Agencies met this minimum spending requirement by calculating the percentage of an agency's extramural R/R&D obligations which funded SBIR/STTR awards and activities, as compared to an agency's total extramural R/R&D obligations for the fiscal year. Therefore, the size of the SBIR/STTR Programs in any given year is dependent on the size of the extramural R/R&D budgets of the Participating Agencies for that year.

Participating Agency Compliance with Meeting Minimum Spending Requirements

The Small Business Act, at 15 U.S.C. § 638(i)(2)(A), requires Participating Agencies to report the methodology used to calculate its extramural R/R&D budget not later than four months after the date of the enactment of the agency's appropriations. As part of the annual report submission due to SBA, each Participating Agency reports the total extramural R/R&D funds obligated that year along with exemptions and exclusions. This enables SBA's evaluation of agency compliance with minimum spending requirements.

As noted in the May 2017 GAO report, *Small Business Research Programs: Most Agencies Met Spending Requirements, but DoD and EPA Need to Improve Data Reporting* (https://www.gao.gov/products/GAO-17-453), there are challenges with reporting and meeting the minimum spending requirements. The challenges are summarized below:

- The first challenge is identifying a common and transparent accounting of agency extramural R/R&D obligations for the year. The original Congressional intent in using extramural R/R&D as the basis for the SBIR/STTR funding requirement is clear: this is the portion of an agency's total R/R&D budget performed by non-federal employees and may therefore be performed by small businesses through grants and contracts. 15 U.S.C. § 638(e)(1) defines the term "extramural budget" as:

  > [T]he sum of the total obligations [for R/R&D] minus amounts obligated for such activities by employees of the agency in or through Government-owned, Government- operated facilities, except that for the Department of Energy it shall not include amounts obligated for atomic energy defense programs solely for weapons activities or for naval reactor programs, and except that for the Agency for International Development it shall not include amounts obligated solely for general institutional support of international research centers or for grants to foreign countries.

As prescribed in Section 10(h)(4)(iv) of the May 2019 SBIR/STTR Policy Directive, Participating Agencies must report the total fiscal year extramural R/R&D obligations as reported to the National Science Foundation (NSF)[7] pursuant to the Annual Budget of the United States Government, commonly known as the NSF National Center for Science and Engineering Statistics (NCSES) Survey of Federal Funds for Research and Development (NCSES Survey). Currently, the extramural R/R&D obligations reported by Participating Agencies to the NCSES Survey may differ from the amounts reported to the SBA. Therefore, SBA requested Participating Agencies provide a rationale for any variance between the amounts reported to SBA for the Annual Report and amounts reported to NSF for the NCSES Survey. When provided, the explanation from the Participating Agency is included in this report. Currently NCSES does not report ODAs (except for MDA and DARPA) in the public reports.

- The second challenge stems from the statutory definition of extramural budget, which looks to the amount that a Participating Agency "obligated" during the Fiscal Year. While most Participating Agencies report amounts of extramural R/R&D funding obligations, the DoD continues to report extramural R/R&D budget appropriations rather than the actual amount of funding obligated during the fiscal year. In this case, SBA cannot validate whether DoD met the SBIR/STTR minimum spending requirements because the total extramural R/R&D obligations is unknown, and the budget authority may be different.

- The third challenge is that Participating Agencies cannot account for all obligations for SBIR/STTR awards or extramural R/R&D spending until the fiscal year is over. Agencies must estimate these amounts and make minor adjustments when possible, during the year.

- The fourth challenge is that several agencies have no-year or two-year funding cycles, which allows the agency to obligate those funds for future years. The DoD has a two-year funding cycle, and much of DoD's funding is obligated in the second year of availability. DoD's SBIR/STTR allocation may increase from the prior year, but SBA measures what was obligated in the current year regardless of the year the funds were set aside.

SBA reports on how the civilian and defense agencies met the minimum spending requirements separately. This approach enables a more detailed review and discussion on the individual DoD Services and ODAs. The total extramural R/R&D amounts each participating Civilian Agency reported to SBA and used to determine the SBIR/STTR minimum spending requirement for FY19 is shown in Table 12 and the DoD Services and ODAs are reported in Table 14.

Through a separate process, the NCSES Survey of Federal Funds for Research and Development administers an annual census completed by those Federal agencies that sponsor R&D programs. As one of 13 Federal statistical agencies, NCSES is mandated to collect, interpret, analyze, and disseminate objective data on the science and engineering enterprise. Beginning with the FY13 annual report, SBA compared extramural R/R&D budgets reported through the NCSES Survey to the Annual Report submission to SBA. This comparison is a useful tool to identify compliance with the minimum spending requirements.

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[7] NSF's National Center for Science and Engineering Statistics (NCSES) at https://www.nsf.gov/statistics/srvyfedfunds/#sd indicates that there are some measurement problems known to exist in the data that is collected by the Survey of Federal Funds for Research and Development.

SBIR/STTR Program Funding as Share of Agency Reported Extramural R/R&D – Civilian Agencies

Table 12: SBIR/STTR Program Funding as Share of Agency Reported Extramural R/R&D - Civilian Agencies

SBIR									STTR		
Calculation using Extramural Levels Reported by Participating Agency to SBA						Calculation using Extramural Levels Reported on NCSES Survey			Calculation using Extramural Levels Reported by Participating Agency to SBA		Calculation using Extramural Levels Reported on NCSES Survey
Agency *	Total Extramural R/R&D Obligations Reported to SBA ($)	Amount of Program Exemptions Reported to SBA ($) †	Extramural R/R&D Reported to SBA by Participating Agency minus Exemptions‡	Amount Obligated for SBIR Awards as Reported to SBA ($)	% Measured by SBIR obligations divided by Agency reported Extramural R/R&D (3.2% Min)	Total Extramural R/R&D Obligations Reported to NCSES[8] ($)	Extramural R/R&D Amount Reported to NCSES minus Exemptions Reported by Participating Agency to SBA ($)	% Measured using NCSES Extramural R/R&D Obligations (3.2% Min)	Amount Obligated for STTR Awards as Reported to SBA ($)	% Measured by Extramural R/R&D Obligations to SBA (0.45% Min)	% Measured by Extramural R/R&D Obligations Reported to NCSES (0.45% Min)
HHS	$31,918,190,453	$33,573,086	$31,918,190,453	$1,020,122,644	3.20%	$31,438,200,000	$31,404,626,914	3.21%	$144,530,740	0.45%	0.46%
DOE[9]	$12,576,242,499	$4,954,147,317	$7,622,095,182	$267,956,532	3.52%	$13,324,100,000	$8,369,952,683	3.20%	$35,498,409	0.47%	0.42%
NSF	$5,947,518,683	$314,194,595	$5,633,324,088	$188,185,336	3.34%	$5,959,400,000	$5,645,205,405	3.33%	$18,665,181	0.33%	0.33%
NASA	$5,433,967,239	$182,527,377	$5,251,439,862	$162,182,727	3.09%	$9,425,500,000	$9,242,972,623	1.75%	$22,941,595	0.44%	0.25%
USDA[10]	$929,877,358	$52,201,885	$877,675,473	$21,551,701	2.46%	$993,200,000	$940,998,115	2.29%			
DHS	$484,260,085	$500,000	$483,760,085	$21,987,108	4.55%	$467,300,000	$466,800,000	4.71%			
DOT[11]	$960,195,000	$658,526,000	$301,669,000	$11,119,743	3.69%	$822,900,000	$164,374,000	6.76%			
DOC	$322,542,495	$5,495	$322,537,000	$10,296,573	3.19%	$432,600,000	$432,594,505	2.38%			
ED	$225,442,779	N/A	$225,442,779	$10,190,350	4.52%	$225,400,000	$225,400,000	4.52%			
EPA	$115,186,100	N/A	$115,186,100	$5,641,564	4.90%	$235,900,000	$235,900,000	2.39%			
TOTAL	**$58,456,053,342**	**$6,195,675,755**	**$52,260,377,587**	**$1,706,448,948**	**3.27%**	**$63,324,500,000**	**$57,128,824,245**	**2.99%**	**$221,635,925**	**0.42%**	**.39%**

* Agencies are listed in descending order of Amount Obligated for SBIR Awards as Reported to SBA

† N/A-Not Applicable; Many agencies do not have authority under 15 U.S.C § 638 to exempt Extramural R/R&D dollars from the budget calculation

‡ Some Participating Agencies reported this figure in terms of dollars obligated, while others reported this figure in terms of amounts budgeted for the Fiscal Year. See Table 13.

[8] NSF's National Center for Science and Engineering Statistics (NCSES) at https://ncses.nsf.gov/pubs/nsf21329/assets/data-tables/tables/nsf21329-tab007.pdf.

[9] DOE exemptions include Weapons Activities and Naval Reactors.

[10] USDA exemptions include the Agriculture Research Service (ARS) and Forest Service.

[11] DOT exemptions include the Federal Aviation Administration (FAA) and the Federal Highway Administration (FHWA) State Planning and Research Program.

The following subsections summarize SBA's assessment of whether each participating Civilian Agency complied with SBIR/STTR minimum spending requirements, variance between extramural R/R&D reported to SBA and NCSES, and the Agency explanation to SBA regarding variance between these two reported amounts.

SBA assesses compliance through two measures: 1) by determining the percentage of funding obligated for SBIR/STTR activities divided by total extramural R/R&D obligation minus program exemptions reported to SBA, and 2) by determining the percentage of funding obligated for SBIR/STTR activities based on the total extramural R/R&D obligations reported by the Agency for the NCSES Survey minus the amount of program exemptions reported to SBA. When the agency's total extramural R/R&D obligations reported to NCSES is lower than what is reported to SBA, the agency's minimum SBIR or STTR percentages will be higher relative to the SBA reported data, and vice versa.

SBA uses the following rubric based on the above assessment in determining compliance:

- **Complied:** Agency must have obligated at least 3.2% for SBIR and .45% for STTR of its total extramural R/R&D obligations as reported to SBA, and the R/R&D obligations reported to NCSES are not significantly more (<15%) than what was reported to SBA.

- **Did Not Comply:** Agency is not compliant if it reports obligating less than the respective percentages (3.2% for SBIR and .45% for STTR) of its total extramural R/R&D obligations as reported to SBA, or the R/R&D obligations reported to NCSES are significantly more (>15%) than the extramural R/R&D obligations reported to SBA.

- **Unable to Determine:** SBA is unable to determine compliance because SBA cannot validate the agency's exemptions.

A detailed analysis of each Participating Agency's compliance with the minimum spending requirement can be found below.

Table 13: Compliance with the Minimum Spending Requirement - Civilian Agencies

Agency	Whether Extramural R/R&D is Reported to SBA as Obligations (O) or Appropriations (A)	Timeframe to Obligate Allocated Funding	SBA Analysis of Compliance with SBIR /STTR Minimum Spending Requirements	
			SBIR	STTR
HHS	O	1-year	Complied	Complied
DOE	O	No-year	Complied	Complied
NSF	O	2-year	Complied	Did Not Comply
NASA	O	2-year	Did Not Comply	Did Not Comply
DHS	O	3-year	Complied	N/A
USDA	O	1-year and No-year	Did Not Comply	N/A
DOT	O	No year	Complied	N/A
DOC	O	2-year	Did Not Comply	N/A
ED	O	1-year	Complied	N/A
EPA	A	2-year	Did Not Comply	N/A

HHS. HHS complied with both the minimum spending requirements; with 3.2% obligated for SBIR activities, and 0.45% obligated for STTR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA

DOE. DOE complied with both the minimum spending requirements; with 3.52% obligated for SBIR activities, and 0.47% obligated for STTR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

NSF. NSF complied with the SBIR minimum spending requirement with 3.34% obligated for SBIR activities. NSF obligated 0.33% for STTR activities; and was therefore not in compliance as that was less than the minimum STTR requirement. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

NSF explained:

> NSF's baseline expenditures for STTR were $18,665,181 which is 0.33% of the extramural R/R&D amount for FY19. NSF exceeded the minimum spending requirement for SBIR, including nine STTR Phase I projects that converted to SBIR Phase II projects for a total of $6,105,775, which, when added to the STTR award expenditures, brings the expenditure total to $24,770,956 for a total of .44% spending for the STTR Program. A total of $4,036,762 of FY19 STTR funds were carried over for obligation in FY20. Additionally, NSF spent approximately $5,000,000 on activities directly benefitting the SBIR/STTR awardees, approximately $644,625 of these funds directly supported the STTR program including additional technical assistance support to STTR awardees. Furthermore, and consistent with NSF policy and practice across the agency, some of the funds listed in this line were spent on the costs of conducting our external merit review process (including reviewer travel and contract support). If the additional amount of funding for these activities is included in the total obligations along with obligations for SBIR Phase II projects noted above, the total would be $25,415,581 for a total of .45% spending in FY19 for the STTR program. NSF did not use any of its STTR budget for costs associated with salaries and expenses.

NASA. SBA has determined that NASA did not comply with the minimum SBIR and STTR obligations based on both the data submitted to SBA and because the discrepancy in what was reported to NCSES compared to what was reported to SBA is greater than 15%. Based on what NASA reported to SBA, NASA obligated 3.09% for SBIR activities and 0.44% for STTR activities, both are less than the respective minimum spending requirements.

NASA explained:

> For FY2019, NASA did not meet its minimum SBIR/STTR set-aside due to the five-week government shutdown which delayed the awards processes. The carryover funding will be awarded during FY2020.
> To ensure that the requirement is met in FY2020, the program is taking several actions including:
> - Releasing the standard solicitation earlier in the year to ensure awards are made in a timely manner and to allow time for review of obligations so that additional selections could be made if needed.

- Implementing a targeted Phase II Sequential program offering much larger awards (up to $5 million) for technologies to help NASA meet its Moon to Mars initiative.
- Studying additional award vehicles which will give the program additional flexibility in not only meeting the funding requirement, but also in better meeting the agency needs.

DHS. DHS complied with the minimum spending requirement based on the extramural R/R&D reported to SBA with 4.55% obligated to SBIR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

USDA. USDA did not comply with the minimum spending requirement because it obligated less than the minimum required with 2.46 obligated for SBIR activities based on the extramural R/R&D reported to SBA. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

DOT. DOT complied with the minimum spending requirement based on the extramural R/R&D reported to SBA with 3.69% obligated to SBIR activities. The extramural R/R&D reported for the NCESES Survey was not significantly more than what was reported to SBA.

DOC. DOC did not comply with the SBIR minimum spending requirement because it obligated less than the minimum required with 3.19% obligated for SBIR activities based on the extramural R/R&D reported to SBA. The extramural R/R&D reported for the NCSES Survey was also significantly more (>15%) than what was reported to SBA.

DOC explained:

> Due to the transition from the utilization of contracts to grants as our award mechanism, FY2019 Phase I proposals were awarded in FY 2020. This caused the underfunding of the FY2019 reporting period by 0.01%. Going forward we will ensure that grants will be awarded in a timely fashion to prevent this from occurring in the future.

ED. ED complied with the minimum spending requirement by obligating 4.52% for SBIR activities based on the extramural R/R&D reported to SBA. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

EPA. SBA has determined that EPA did not comply because the discrepancy in what was reported to NCSES is greater than 15% of what was reported to SBA. Based on the extramural R/R&D reported to SBA, EPA obligated 4.90% for SBIR activities based on its reported extramural R/R&D reported to SBA. However, based on the NCSES total, EPA did not comply with the minimum spending requirement with 2.39% obligated to SBIR activities.

EPA explained:

> Because the NSF Funds Survey and SBIR reports are addressing separate requirements, EPA uses different methodologies. EPA uses a simplified methodology for NSF where only payroll and travel are excluded from extramural, whereas the SBA SBIR reporting is more detailed and excludes all intramural costs such as payroll, travel, facilities,

operating expenses, and other costs required to support in-house research. For these reasons the two data sets do not reconcile.

SBIR/STTR Program Funding as Share of Agency Reported Extramural R/R&D – DoD Services and ODAs

Table 14: SBIR/STTR Program Funding as Share of Agency Reported Extramural R/R&D - DoD Services and ODAs

SBIR									STTR		
Calculation using Extramural Levels Reported to SBA						Calculation using Extramural Levels Reported on NCSES Survey			SBA		NCSES
Service Component *	Total Extramural R/R&D Obligations Reported to SBA ($)	Amount of Program Exemptions Reported to SBA ($)**	Extramural R/R&D Reported to SBA by Participating Agency minus Exemptions	Amount Obligated for SBIR Awards as Reported to SBA ($)	% Measured by SBIR obligations divided by Agency reported Extramural R/R&D (3.2% Min)	Total Extramural R/R&D Obligations Reported to NCSES[12] ($)	Extramural R/R&D Amount Reported to NCSES minus Exemptions Reported by Participating Agency to SBA ($)	% Measured using NCSES Extramural R/R&D Obligations (3.2% Min)	Amount Obligated for STTR Awards as Reported to SBA ($)	% Measured by Extramural R/R&D Obligations Reported to SBA (0.45% Min)	% Measured by Extramural R/R&D Obligations Reported to NCSES (0.45% Min)
Air Force	$21,731,612,021	$0	$21,731,612,021	$561,325,318	2.58%	$34,131,572,122	$34,131,572,122	1.64%	$64,578,343	0.30%	0.19%
Navy	$11,201,516,556	$0	$11,201,516,556	$467,008,352	4.17%	$11,244,049,987	$11,244,049,987	4.15%	$68,500,841	0.61%	0.61%
Army	$8,312,886,000	$0	$8,312,886,000	$216,421,394	2.60%	$7,434,279,954	$7,434,279,954	2.91%	$26,931,921	0.32%	0.36%
ODAs	$10,440,882,351	$0	$10,440,882,351	$327,532,501	3.14%	$10,735,129,515	$10,735,129,515	3.05%	$47,544,910	0.46%	0.44%
DoD Total	**$51,686,896,928**	$0	**$51,686,896,928**	**$1,572,287,565**	**3.04%**	**$63,545,031,578**	**$63,545,031,578**	**2.47%**	**$207,556,015**	**0.40%**	**0.33%**
Other Defense Agencies (ODAs) Break Out											
MDA	$2,492,269,000	$0	$2,492,269,000	$85,086,550	3.41%	$4,572,817,541	$4,572,817,541	1.86%	$7,534,380	0.30%	0.16%
DARPA	$3,084,344,000	$0	$3,084,344,000	$103,273,971	3.35%	$2,976,920,865	$2,976,920,865	3.47%	$15,074,630	0.49%	0.51%
OSD	$1,350,165,920	$0	$1,350,165,920	$11,069,131	0.82%	$1,487,012,642	$1,487,012,642	0.74%	$0	-	-
DHA†	$1,829,664,000	$0	$1,829,664,000	$48,709,019	2.66%	N/A	N/A	N/A	$13,383,039	.73%	N/A
SOCOM	$505,332,000	$0	$505,332,000	$9,339,541	1.85%	$587,215,000	$587,215,000	1.59%	$7,408,151	1.47%	1.26%
CBD	$582,711,364	$0	$582,711,364	$14,511,983	2.49%	$479,754,758	$479,754,758	3.02%	$0	-	-
DLA & DMEA	$286,396,264	$0	$286,396,264	$27,181,937	9.49%	$284,718,424	$284,718,424	9.55%	$3,399,015	1.19%	1.19%
DTRA	$309,999,803	$0	$309,999,803	$13,664,125	4.41%	$346,690,285	$346,690,285	3.94%	$745,695	0.24%	0.22%
NGA**	-	-	-	$14,696,244	-	N/A	N/A	-	-	-	-

* Services and ODAs are listed in descending order of Amount Obligated for SBIR Awards as Reported to SBA

** DoD did not utilize the SBA provided template and did not report program exemptions, as a result SBA is determining compliance only if both measures meet or exceed the minimum requirements.

***NGA is an intelligence organization, and it participates voluntarily using OSD SBIR/STTR funding.

† N/A - Not Available; the data provided by the NCSES survey does not allow the extramural funding to be isolated for this component.

[12] NSF's National Center for Science and Engineering Statistics (NCSES) at https://ncses.nsf.gov/pubs/nsf21329/assets/data-tables/tables/nsf21329-tab007.pdf.

SBA is reporting the DoD and Civilian agencies' compliance with the minimum spending requirements separately, as well as delineating the DoD data by individual Services and the Other Defense Agencies. Delineating the data also provides a more transparent account of individual Component performance. SBA evaluated compliance for Services and ODAs primarily based on data reported for the NCSES survey. In FY19, the DoD Office of Small Business Programs (OSBP) was responsible for collecting the Component data and uploading it to the SBA Annual Report submission site.

In providing the data, DoD did not adhere to the SBA provided template that required the itemization of any agency exemptions. As a result, SBA is solely determining compliance for DoD when the minimum spending requirements are satisfied when utilizing both the agency provided data and the NCSES provided data. Beyond the extramural reporting template, SBA requires the data used for this annual report to be a summation of the individual awards uploaded to SBA. SBA used the data provided by DoD OSBP for the individual Services and ODAs. SBA continues to work closely with each of these organizations to provide the most accurate data available and provide them the opportunity to upload comments into this report.

The DoD does not provide year-end total extramural R/R&D obligations, and historically SBA cannot properly validate the dollars considered by the DoD to be exempt. DoD only has the total extramural R/R&D budget estimates through the methodology report based on budget appropriation (for those Services and ODAs that provided it) rather than final obligations, as directed by law.

The following subsections summarize SBA's assessment of whether each of the DoD Services and Other Defense Agencies complied with the SBIR/STTR minimum spending requirement, variance between extramural R/R&D reported to SBA and NCSES, and the Component's response to SBA regarding variance between these two reported amounts. Traditionally, SBA analyzes compliance through two measures: 1) by determining the percentage of funding obligated for SBIR/STTR activities based on the extramural R/R&D amount minus the amount of program exemptions reported to SBA by the Component, and 2) by determining the percentage of funding obligated for SBIR/STTR activities based on the total extramural R/R&D reported by the Component for the NCSES Survey minus the amount of program exemptions reported to SBA.

However, since DoD did not provide the appropriate extramural R&D template to outline exemptions, SBA is only determining a component as having "complied" with the minimum spending requirements for FY19 if, as per the SBIR and STTR Policy Directives, the Component obligated not less than 3.2% of its total extramural R/R&D obligations for SBIR activities, and not less than 0.45% of its total extramural R/R&D obligations for STTR activities, based on the extramural R/R&D amount reported to SBA and when assessed against the extramural R/R&D obligations reported to NCSES.

SBA is using the following rubric for DoD based on the above assessment in determining compliance:

- **Complied:** Agency must have obligated at least 3.2% for SBIR and .45% for STTR of its total extramural R/R&D obligations as reported to SBA, and as based on extramural R/R&D reported to NCSES.

- **Did Not Comply:** Agency is not compliant if it reports obligating less than the respective percentages (3.2% for SBIR and .45% for STTR) of its total extramural R/R&D obligations as reported to SBA, or when compared to the R/R&D obligations reported to NCSES.

- **Unable to Determine:** SBA is unable to determine compliance because SBA cannot validate based on lack of NCSES data.

The DoD has a two-year funding cycle, meaning it can obligate the annually appropriated dollars over a period of two years. To provide a more comprehensive account of DoD's compliance with meeting the minimum spending requirements, SBA would like DoD to report SBIR and STTR obligations by both the year the funding was appropriated, and the year that funding was obligated. The DoD will also need to provide the total extramural R/R&D obligations (the non SBIR/STTR funds used as the denominator in determining the minimum percent) in the same way. Having two years' worth of this information will enable SBA to validate DoD's compliance with the minimum spending requirements. SBA requested the Service Agencies and Other Defense Agencies provide the two year funding data for this report. DoD did not provide year end extramural obligation amounts to SBA, nor did DoD provide year end extramural obligation amounts; further limiting the SBA's ability to make a determination. This requirement derives from Section 10(h)(4)(iv) of the SBIR/STTR Policy Directives.

A detailed analysis of each Component's compliance with the minimum spending requirement can be found below.

Table 15: Compliance with the Minimum Spending Requirement - DoD Services and ODAs

Agency*	Whether Extramural R/R&D is Reported to SBA as Obligations (O) or Appropriations (A)†	Timeframe to Obligate Allocated Funding	SBA Analysis of Compliance with SBIR/STTR Minimum Spending Requirements	
			SBIR	STTR
Air Force	A	2-year	Did Not Comply	Did Not Comply
Navy	A	2-year	Complied	Complied
Army	A	2-year	Did Not Comply	Did Not Comply
DARPA	A	2-year	Complied	Complied
MDA	A	2-year	Did Not Comply	Did Not Comply
DHA	A	2-year	Did Not Comply	Unable to Determine
CBD	A	2-year	Did Not Comply	Did Not Comply
SOCOM	A	2-year	Did Not Comply	Complied
DTRA	A	2-year	Complied	Did Not Comply
DLA/DMEA	A	2-year	Complied	Complied
NGA	A	2-year	N/A	N/A
OSD	A	2-year	Did Not Comply	Did Not Comply

* SBA recognizes components of the Other Defense Agencies may transfer all or portions of STTR funding to another Component to obligate.
† Agencies report the extramural R/R&D budget to SBA as either obligations or appropriations. DoD reports its extramural R/R&D budget as appropriations.

Navy. The Navy complied with the SBIR and STTR minimum spending requirements based on the data reported to SBA and when assessed against the extramural R/R&D reported for the NCSES Survey. The lowest percentage of the two reported sources indicates the Navy obligated 3.92% for SBIR activities and 0.58% for STTR activities based on the extramural R/R&D reported for the NCSES Survey.

Air Force. Air Force did not comply with the SBIR and STTR minimum spending requirements because the respective obligations as reported to SBA were less than the minimum requirements. Based on the extramural R/R&D reported to SBA, Air Force obligated 2.58% for SBIR activities and 0.30% for STTR awards instead of the required 3.2% and .45%, respectively. Additionally, the extramural R/R&D reported for the NCSES Survey was significantly more, greater than 15%, than what was reported to SBA.

Army. Army did not comply with the SBIR or STTR minimum spending requirements because the SBIR and STTR obligations as reported to SBA were less than the minimum requirements. Based on the extramural R/R&D reported to SBA, Army obligated 2.60% for SBIR activities and 0.32% for STTR awards instead of the required 3.2% and .45%, respectively. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

DARPA. DARPA complied with the SBIR and STTR minimum spending requirements based on the data reported to SBA and when assessed against the extramural R/R&D reported for the NCSES Survey. The lowest percentage of the two reported sources indicates DARPA obligated 3.35% for SBIR activities and 0.51% for STTR activities based on the extramural R/R&D data reported to SBA.

MDA. MDA did not comply with the SBIR and STTR minimum spending requirements because the respective obligations as reported to SBA and NCSES were less than the minimum requirements. Based on the extramural R/R&D reported to SBA, MDA obligated 3.41% for SBIR activities but when compared against the NCSES data this percentage drops to 1.57%. MDA obligated 0.30% for STTR awards instead of the required 0.45% based on the data reported to SBA, and only 0.14% when assessed against NCSES data. The extramural R/R&D reported for the NCSES Survey was also significantly more than what was reported to SBA.

MDA explained:

> MDA does not concur with the conclusion that we did not meet minimum SBIR/STTR spending requirements. The criteria used to evaluate MDA obligations only considers obligations occurring in FY19. Obligations in support of FY19 SBIR/STTR spending requirements, however, were spread across both FY19 and FY20 because MDA's research and development activities are funded with the Defense-wide RDT&E appropriation, available for obligation for two years, not one year. Considering the regularity of Continuing Resolutions, which can last from one to six months, MDA schedules SBIR/STTR contract awards later in the year, also impacting first-year obligation rates. Had the assessment captured two-years of data for FY19 instead of one, the data would have shown MDA obligated $79,945,895 for SBIR and $11,215,105 for STTR, achieving

> the required 3.2% and 0.45% minimum SBIR and STTR spending requirements respectively.

DHA. DHA did not comply with the SBIR minimum spending requirement because the obligations as reported to SBA were less than the required percentage. SBA is unable to determine if DHA complied with the STTR minimum spending requirement. Based on the extramural R/R&D reported to SBA, DHA obligated 2.66% instead of the required 3.2% for SBIR activities and obligated .73% for STTR awards. Although the obligations for STTR awards complies with the minimum spending requirements, SBA cannot compare the extramural R/R&D reported to SBA against what was reported to the NCSES Survey because the NCSES Survey does not isolate DHA extramural funding. Therefore, SBA is unable to determine if DHA met the minimum STTR obligation requirement.

DHA explained:

> DHA's obligations for FY19 funding were spread across FY19 and FY20 due to the SBIR/STTR programs being RDTE funding, which is available to obligate for two years. To offset the typical Continuing Resolution (CR), DHA reserves enough SBIR/STTR funding to cover new awards and increments/options for efforts that are due in the first quarter of the new fiscal year. Although this practice results in delayed obligations, it is necessary to avoid funding gaps for the small business concerns that may otherwise experience a financial hardship if the agency is unable to provide funding on time. In addition, this practice also mitigates delays in research for the ongoing SBIR/STTR projects, which could negatively impact the company's ability to transition innovative technologies to the Warfighter, or to commercialize technologies beneficial to the private sector.
>
> Delaying obligations of all FY funding creates a funding buffer to get DHA SBIR/STTR efforts through the CRs expected every year that can last from 1-6 months depending on the decisions of Congress.
>
> DHA reported $8,000,000 in exemptions. SBA does not have access to examine and validate the lines of funding which are being excluded.

CBD. CBD did not comply with the SBIR and STTR minimum spending requirements because the respective obligations as reported to SBA were less than the minimum requirements. Based on the extramural R/R&D reported to SBA, CBD obligated 2.49% for SBIR activities and zero obligations for STTR awards instead of the required 3.2% and .45%, respectively. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

SOCOM. SOCOM did not comply with the SBIR minimum spending requirement because the percentage obligated for SBIR was less than the required 3.2% based on the data reported to SBA. SOCOM did comply with the STTR minimum spending requirement. Based on the extramural R/R&D reported to SBA, SOCOM obligated 1.85% for SBIR activities. SOCOM complied with the STTR minimum spending requirement based on both sources of data with the lowest percentage

from the two sources being 1.18% based on the NCSES extramural R/R&D data. The extramural R/R&D reported for the NCSES Survey was significantly more than what was reported to SBA.

DTRA. DTRA complied with the SBIR minimum spending requirement based on the data reported to SBA and when assessed against the extramural R/R&D reported for the NCSES Survey. The lowest percentage of the two reported sources indicates DTRA obligated 3.31% for SBIR activities based on the extramural R/R&D reported for the NCSES Survey. DTRA did not comply with the STTR minimum spending requirement obligating 0.24% instead of the required 0.45% based on data submitted to SBA.

DLA/DMEA. DLA/DMEA complied with the SBIR and STTR minimum spending requirements based on the data reported to SBA and when assessed against the extramural R/R&D reported for the NCSES Survey. The lowest percentage of the two reported sources indicates the DLA/DMEA obligated 9.49% for SBIR activities and 1.19% for STTR activities based on the extramural R/R&D data reported to SBA.

OSD. OSD did not comply with the SBIR or STTR minimum spending requirements because the SBIR and STTR obligations as reported to SBA were less than the minimum requirements. Based on the extramural R/R&D reported to SBA, OSD obligated .82% for SBIR activities and reported zero obligations for STTR awards instead of the required 3.2% and .45%, respectively. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

OSD explained:

> Since the majority of OSD funding in FY19 was distributed to other DoD Services and ODAs for obligation, it is very likely that the majority of OSD's obligations were reported by those Services and ODAs that received the funding. This practice could also account for the data showing that some agencies obligated more than the required amounts since all DoD agencies are calculating the SBIR/STTR set-asides the same way. Further, OSD's obligations for FY19 funding were spread across FY19 and FY20 due to the SBIR/STTR programs being RDT&E funding, which is available to obligate for two years. To offset the typical Continuing Resolution, OSD reserves enough SBIR/STTR funding to cover new awards and increments & options for efforts that are due in the first quarter of the new fiscal year. Although this practice results in delayed obligations, it is necessary to avoid funding gaps for the Small Business Concerns that may otherwise experience a financial hardship if the agency is unable to provide funding on time. In addition, this practice also mitigates delays in research for the ongoing SBIR/STTR projects, which could negatively impact the company's ability to transition innovative technologies to the Warfighter, or to commercialize technologies beneficial to the private sector. Delaying obligations of FY funding creates a funding buffer to get OSD SBIR/STTR efforts through the CR's, expected every year, that can last from one to six months depending on the decisions of Congress.

NGA. Determining compliance for NGA is not applicable because NGA is an intelligence organization and is exempt from mandatory participation. However, NGA participates voluntarily and uses the OSD budget to fund its topics.

8 | Extramural Trend Data – 2015 to 2019

The following provides the Extramural and SBIR obligation trends for the five largest agencies (DoD, HHS, DOE, NASA, and NSF) for years 2015 to 2019. Note that exemptions are allowed only under 15 U.S.C. § 638 for DoD and DOE. However, other agencies have been known to identify exceptions and/or exemptions based on other legislation, or the agency's interpretation of what constitutes an exception/exemption.

Table 16: Extramural Trend Analysis - DoD, HHS, DOE, NASA, and NSF

DoD							
FY	Total Extramural R/R&D Reported to NSF NCSES	Total Extramural R/R&D Including Exemptions Reported to SBA ($)	$ Program Exemptions	$ Extramural R/R&D to Determine Set Aside	$ Obligated for SBIR Awards	% Obligated / Extramural (Reported to SBA)	Min Spending REQ %
2015	$41,333,700,000	$40,387,481,759	$6,676,078,000	$33,711,403,759	$956,913,114	2.84%	2.90%
2016	$46,970,400,000	$42,370,743,093	$5,668,210,000	$36,702,533,093	$981,839,347	2.68%	3.00%
2017	$44,831,000,000	N/P	N/P	N/P	$1,153,167,255	N/P	3.20%
2018	$57,711,800,000	$56,053,040,719	$7,111,336,035	$48,941,704,684	$1,166,299,964	2.38%	3.20%
2019	$63,545,061,578	$51,686,896,928	N/P	$51,686,896,928	$1,572,287,565	3.04%	3.20%

HHS							
FY	Total Extramural R/R&D Reported to NSF NCSES	Total Extramural R/R&D Including Exemptions Reported to SBA ($)	$ Program Exemptions	$ Extramural R/R&D to Determine Set Aside	$ Obligated for SBIR Awards	% Obligated / Extramural (Reported to SBA)	Min Spending REQ %
2015	$23,627,900,000	$24,244,452,788	$0	$24,244,452,788	$714,379,162	2.95%	2.90%
2016	$25,093,200,000	$25,859,796,811	$0	$25,859,796,811	$773,384,238	2.99%	3.00%
2017	$25,124,300,000	$27,455,557,340	$0	$27,455,557,340	$885,737,322	3.23%	3.20%
2018	$28,596,200,000	$29,317,202,304	$0	$29,317,202,304	$930,888,048	3.18%	3.20%
2019	$31,438,200,000	$31,951,763,539	$33,573,086	$31,918,190,453	$1,007,337,314	3.16%	3.20%

N/P – Not Provided

DOE							
FY	Total Extramural R/R&D Reported to NSF NCSES	Total Extramural R/R&D Including Exemptions Reported to SBA ($)	$ Program Exemptions	$ Extramural R/R&D to Determine Set Aside	$ Obligated for SBIR Awards	% Obligated / Extramural (Reported to SBA)	Min Spending REQ %
2015	$10,319,300,000	$11,699,955,601	$5,645,250,000	$6,054,705,601	$193,555,724	3.20%	2.90%
2016	$10,661,200,000	$11,982,292,000	$5,454,273,000	$6,528,019,000	$199,642,873	3.06%	3.00%
2017	$10,964,800,000	$12,190,508,000	$5,286,716,000	$6,903,792,000	$223,735,470	3.24%	3.20%
2018	$11,496,400,000	$13,535,060,038	$6,018,493,000	$7,516,567,038	$249,323,167	3.32%	3.20%
2019	$13,324,100,000	$12,576,242,499	$4,954,147,317	$7,622,095,182	$267,956,532	3.52%	3.20%

NASA							
FY	Total Extramural R/R&D Reported to NSF NCSES	Total Extramural R/R&D Including Exemptions Reported to SBA ($)	$ Program Exemptions	$ Extramural R/R&D to Determine Set Aside	$ Obligated for SBIR Awards	% Obligated / Extramural (Reported to SBA)	Min Spending REQ %
2015	$9,542,400,000	$4,960,320,000	$0	$4,960,320,000	$158,335,561	3.19%	2.90%
2016	$10,618,700,000	$6,036,000,000	$0	$6,036,000,000	$163,327,061	2.71%	3.00%
2017	$11,002,200,000	$3,590,595,217	$0	$3,590,595,217	$155,799,248	4.34%	3.20%
2018	$9,232,500,000	$6,765,345,312	$2,118,164,428	$4,647,180,884	$166,067,230	3.57%	3.20%
2019	$9,425,500,000	$5,433,967,239	$182,527,377	$5,251,439,862	$162,182,727	3.09%	3.20%

NSF							
FY	Total Extramural R/R&D Reported to NSF NCSES	Total Extramural R/R&D Including Exemptions Reported to SBA ($)	$ Program Exemptions	$ Extramural R/R&D to Determine Set Aside	$ Obligated for SBIR Awards	% Obligated / Extramural (Reported to SBA)	Min Spending REQ %
2015	$5,579,900,000	$5,367,000,000	$0	$5,367,000,000	$155,444,186	2.89%	2.90%
2016	$5,490,000,000	$5,444,000,000	$0	$5,444,000,000	$161,577,024	2.97%	3.00%
2017	$5,549,200,000	$5,440,330,000	$0	$5,440,330,000	$174,463,775	3.21%	3.20%
2018	$5,836,200,000	$5,849,450,000	$261,030,000	$5,588,420,000	$184,752,161	3.31%	3.20%
2019	$5,959,400,000	$5,947,518,683	$314,194,595	$5,633,324,088	$188,185,336	3.34%	3.20%

N/P – Not Provided

9 | Awards Exceeding Guideline Amounts

The Small Business Act set guideline award parameters for Phase I awards at $150,000, and Phase II awards at $1 million. Participating Agencies with smaller budgets have traditionally chosen to solicit for award sizes at or less than the guideline amounts, with the justification that it allows them to issue more awards that could theoretically net a wider range of viable solutions for R&D needs. Agencies with larger budgets tend to award companies with greater amounts (exceeding guidelines) with the justification that larger award amounts are sometimes necessary when research projects require substantial funding. The larger SBIR/STTR budgets still allow the agency to fund a sufficiently wide range of proposals within the guideline thresholds.

An Agency may, at its discretion, exceed the guideline amounts by up to 50%; making the effective maximum award amounts $225,000 for a Phase I award and $1.5 million for Phase II awards. These amounts are adjusted every year for inflation. During the FY19 reporting year, agencies could issue a Phase I award up to $252,132 and a Phase II award up to $1,680,880 without seeking SBA approval. Any award above those amounts requires a waiver from SBA. Only DoD and HHS required a waiver in FY19.

Table 17: Awards Exceeding Guideline Amounts by More Than 50%

Awards Exceeding Guideline Amounts by More Than 50% (FY19)			
Program	**Phase**	**DoD**	**HHS**
SBIR	Phase I	1,916	948
	Phase I Exceeding	0 / 0%	396 / 42%
	Phase II	1,178	426
	Phase II Exceeding	57 / 5%	24 / 6%
STTR	Phase I	304	211
	Phase I Exceeding	0 / 0%	73 / 35%
	Phase II	139	55
	Phase II Exceeding	1 / 1%	6 / 11%
($252,132 for Phase I, $1,680,880 for Phase II) ***Includes FY19 obligations on prior year awards**			

The Small Business Act permits Participating Agencies to request a waiver from the SBA for certain awards to exceed the cap. The SBA established in Section 7(i)(4) of the SBIR/STTR Policy Directives that an agency making such a request must provide the SBA with: 1) evidence that the limitations on award size interfere with the ability of the agency to fulfill its R&D mission; 2) evidence that the agency will minimize, to the maximum extent practicable, the number of awards that exceed the cap for the topic area; and, 3) evidence that research costs for the topic area differ significantly from those in other areas to warrant going over the cap. Agencies must report to SBA any such awards made, to include the identity and location of each awardee.

For FY19, NIH requested, and the SBA approved, waivers granting NIH authority to solicit and make awards over the cap for specific biomedical-related research topics that often require funding levels above the statutory guidelines. The SBA approved NIH's waiver request under the condition that NIH would monitor and report to the SBA any awards exceeding a Phase I or Phase II cap.

HHS. HHS' justification for awards exceeding guideline amounts is that the length of time and cost of research involving development and evaluation of certain biomedical technologies routinely exceeds the parameters set for SBIR/STTR awards.

HHS explained:

> In order for NIH to leverage the SBIR/STTR Programs to improve health and save lives, projects must be funded at a level which is typically over the statutory guidelines because:
> - The cost of early-stage research in the biomedical and behavioral arenas is in many cases above the statutory guidelines and higher than most other research and development research areas.
> - Biomedical SBIR/STTR projects need to reach a stage of development sufficient to attract third party funding and partnerships in order to continue along the commercialization path. Reaching market access can take years and possibly tens/hundreds of millions of dollars after the SBIR/STTR Phase.
> - Biomedical products require extensive pre-clinical research and development to facilitate regulatory filings, testing, and approval.
>
> Underfunding a Phase I, II, or IIB SBIR/STTR project will cause projects to fail and not reach the healthcare marketplace due to any one or more of the above. As a consequence, NIH would not be able to fulfill its mission and could not bring life-saving and life-changing technologies to the market.

DoD. For awards that exceeded guidelines by more than 50%, the DoD stated that "the contract cost is reasonable and necessary to ensure the performance of a quality investigation of the proposed idea."

10 | SBIR/STTR Proposal Selection Rates

Proposal selection rates are the number of awards made divided by the total number of proposals received. The SBA monitors the selection rates for Phase I and Phase II awards.

SBIR Program

In FY19, small businesses submitted a total of 21,299 Phase I proposals across the eleven Participating Agencies. Agencies made 4,002 new Phase I awards, resulting in an average Phase I proposal selection rate of 19%. Agencies received 3,602 SBIR Phase II proposals and selected 2,135 new Phase II awards, resulting in an average Phase II selection rate of 59%. The Department of Energy made seven Phase I awards against a topic that received only one proposal.

Chart 15: SBIR Phase I Proposal Selection Rates

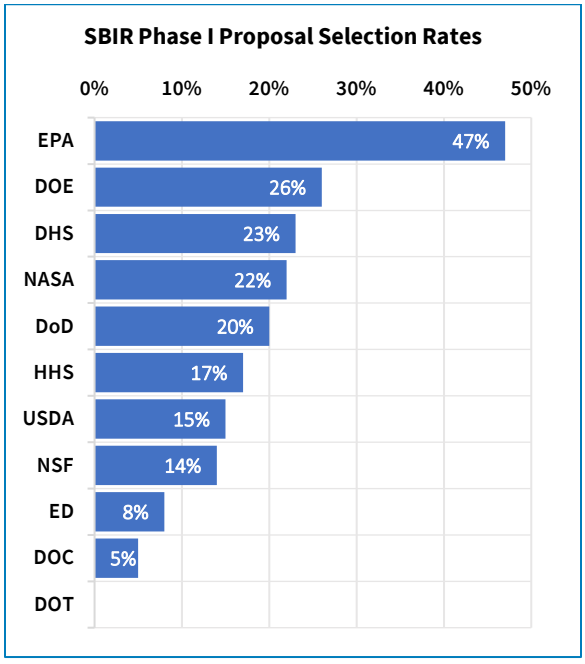
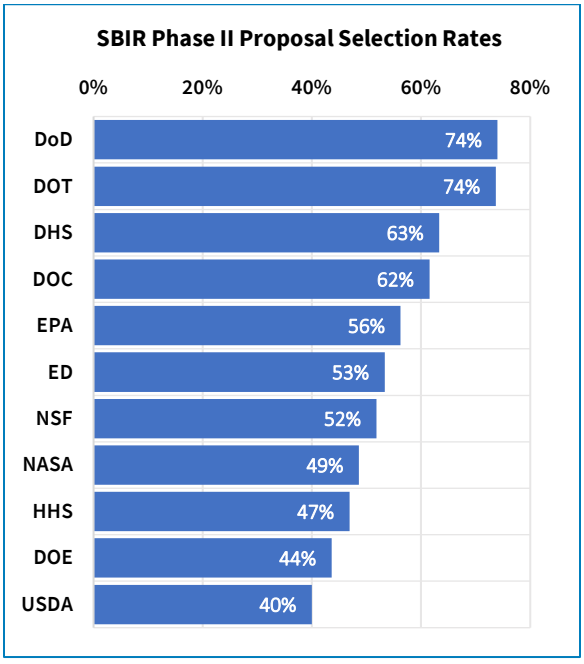


Chart 16: SBIR Phase II Proposal Selection Rates



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[13] All Phase I awards associated with DOT's FY19 solicitation were made at the beginning of FY20.

STTR Program

In FY19, small businesses submitted a total of 2,972 STTR Phase I proposals. Agencies selected 670 new Phase I awards, resulting in an average Phase I proposal selection rate of 23%. Agencies received 334 Phase II proposals and selected 244 new Phase II awards, resulting in an average Phase II proposal selection rate of 73%. Health and Human Services made one Phase I award for a topic that received a single proposal.

Chart 17: STTR Phase I Proposal Selection Rates

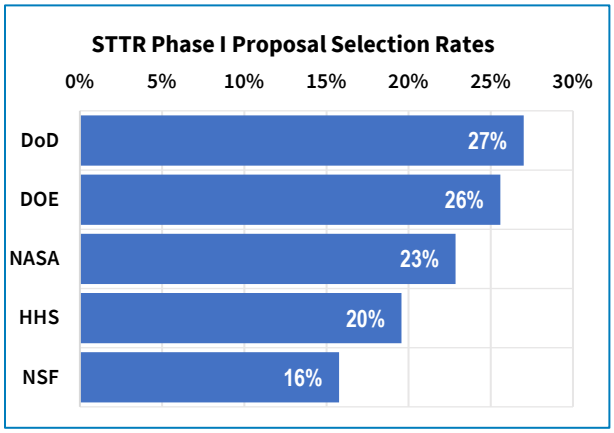
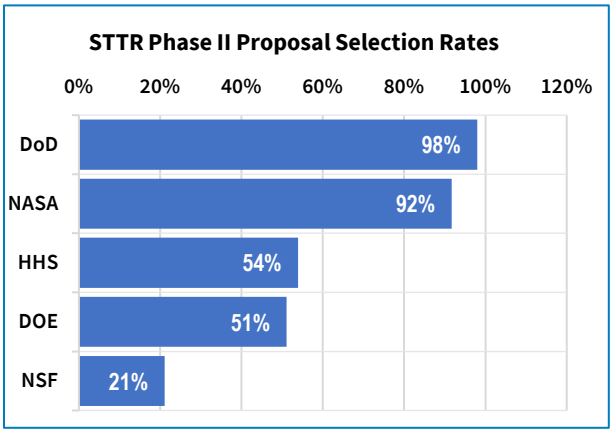


Chart 18: STTR Phase II Proposal Selection Rates



Awards to Multiple Award Winners

Table 18 illustrates Phase II awards made to companies that received more than 15 Phase II awards during the preceding five fiscal years. The table also details the amount of FY19 Phase I awards that these companies received.

Table 18: Phase IIs Made to Small Business Concerns that Received More Than 15 Phase IIs during the Preceding 5 Fiscal Years - Participating Agencies

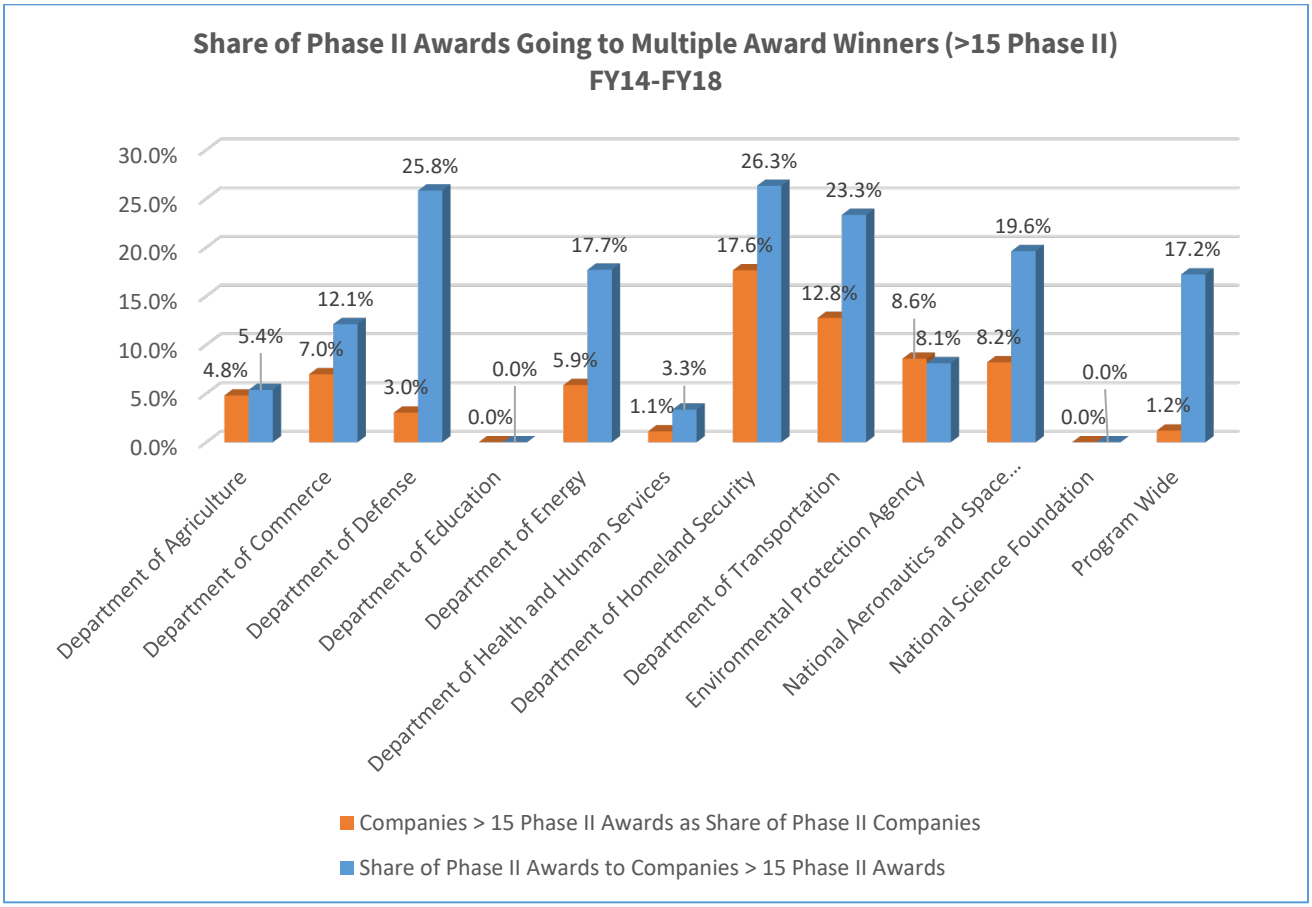
Multiple Award Winners	Totals
Number of Companies with a Phase II Award	3,949
Number of Unique Companies with > 15 Phase II Awards	48
Companies with > 15 Phase II Awards as Percentage of Phase II Companies	1.2%
Number of FY19 Phase I Awards obtained by Companies with > 15 Phase II Awards	614

FY14 - FY18 Phase II Awards

In the preceding five fiscal years (FY14 - FY18), the Participating Agencies made Phase II awards to 3,949 companies. Forty-eight (48) or 1% of these companies received more than 15 Phase II awards during the period. Although these 48 companies represent a tiny percentage of the individual firms that received a Phase II, they represent 1,621 (17%) of the 9,415 Phase II awards made during FY14-FY18. Aside from the NSF and ED, every agency made at least one Phase II award during the five-year period to a company that had more than 15 previous Phase II awards.

Of the 1,621 Phase II awards obtained by these 48 companies, 1,179 (73%) were awarded by DoD during the period. The 1,179 DoD awards represents 26% of the total number of Phase II awards (4,564) made by DoD during the five-year period.

Chart 19: Share of Phase II Awards going to Multiple Award Winners (>15 Phase IIs FY14-FY18)



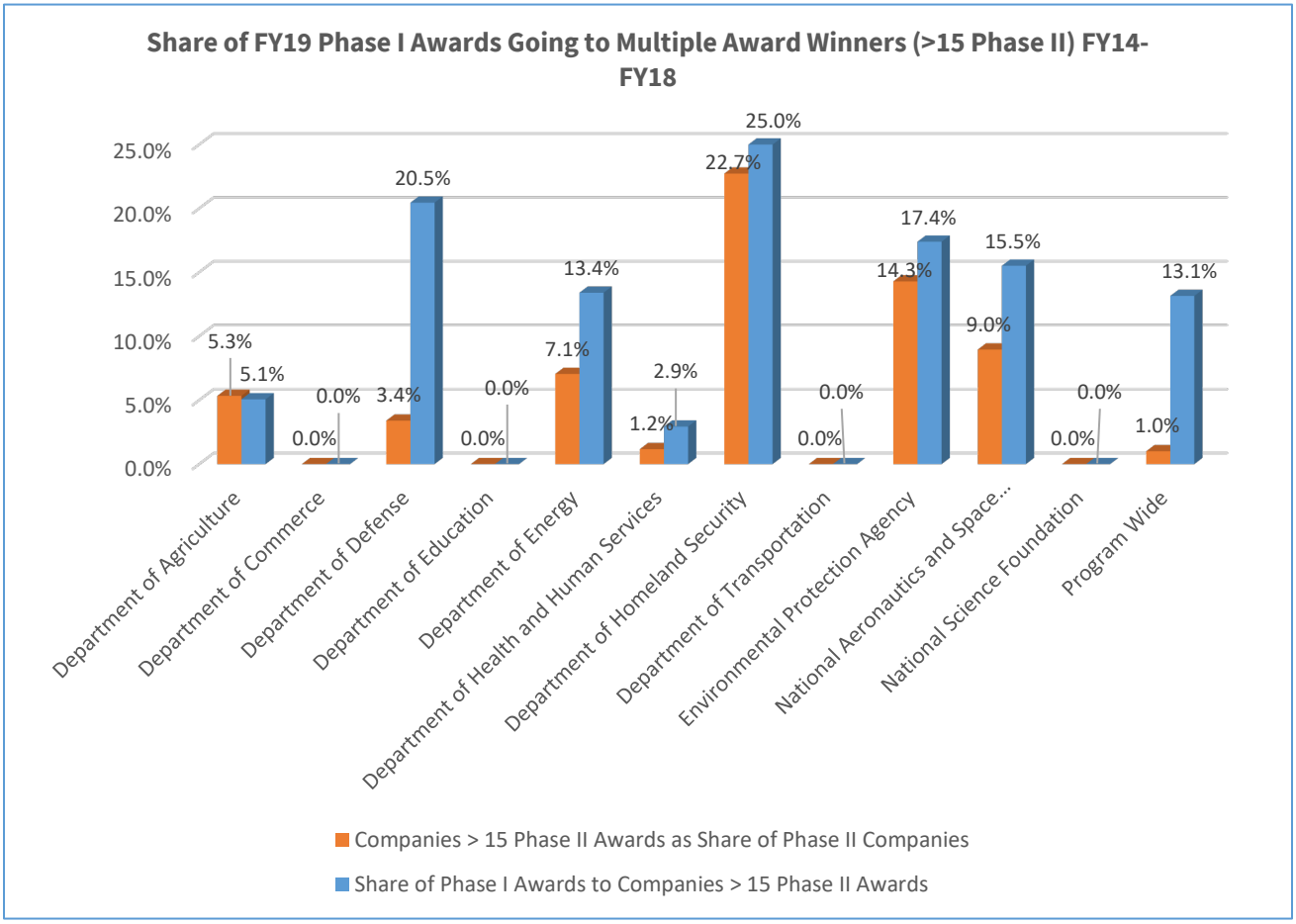
FY19 Phase I Awards

For FY19, the Participating Agencies made 4,671 Phase I awards to 2,992 companies. Thirteen percent of the Phase I awards (614) were obtained by 47 companies identified as multiple award winners, those receiving more than 15 Phase II awards during the previous five fiscal years. The Departments of Commerce, Education, Transportation, and the National Science Foundation did not make any Phase I awards to any multiple award winning companies. All other agencies made at least one FY19 Phase I award to a company with greater than 15 Phase IIs from FY14-FY18.

Forty-three (43) out of the 47 multiple award firms were selected for Phase I by the DoD, representing 3% of all companies DoD selected for a Phase I award. These companies received 454 (21%) of the DoD's total Phase I awards (2,220). The 454 Phase I awards from DoD accounts for 74% of all awards (614) the multiple award companies won from the Participating Agencies.

DHS had the highest percentage (23%) of companies that received more than 15 Phase II SBIR awards during the preceding five fiscal years. These companies accounted for 25% of their Phase I awards.

Chart 20: Share of FY19 Phase I awards going to Multiple Award Winners (>15 Phase IIs FY14-FY18)



11 | SBIR/STTR Awards by U.S. State & Territory

The SBA has noted that more SBIR/STTR funding goes to states with the largest populations, and those states that have a record of receiving substantial R&D funding from Federal programs outside of SBIR and STTR. Approximately 65% of total FY19 SBIR and 57% of FY19 STTR award dollars were concentrated in California, Massachusetts, Virginia, Maryland, Colorado, Ohio, Pennsylvania, New York, and Texas.

The SBA and Participating Agencies have worked to coordinate outreach efforts and tap into the innovation pipelines inside the most underrepresented regions. Key outreach contacts have been identified within these states (and all states and territories) to include economic development agencies, universities, accelerators, and state or local small business service providers, to foster cross-collaboration, increase small business awareness, and encourage future participation in the SBIR/STTR Programs.

The FY19 SBA Road Tour included in-person events (coordinated by SBA) that features most of the Participating Agencies. The tour visited Oklahoma, Kansas, Iowa, South Dakota, North Dakota, Arizona, Texas, New Mexico, Colorado, Vermont, New York, New Jersey, Pennsylvania, Maryland, Florida and Puerto Rico to increase program participation in underrepresented states and among underrepresented populations.

Table 19 on the following page shows the total dollar amount and number of SBIR and STTR Phase I and Phase II awards across the U.S. This data is also publicly available on a searchable database at www.SBIR.gov and remains current to include subsequent funding of ongoing projects.

Table 19: SBIR/STTR Awards by U.S. State and Territory

State	SBIR Phase I		STTR Phase I		SBIR Phase II		STTR Phase II		SBIR Total Awards		STTR Total Awards		SBIR/STTR Total Awards	
	(#)	($)	(#)	($)	(#)	($)	(#)	($)	(#)	($)	(#)	($)	(#)	($)
AK	2	$843,538	1	$358,435	0	$0	0	$0	2	$843,538	1	$358,435	3	$1,201,973
AL	66	$11,804,741	22	$3,439,161	29	$43,295,643	7	$5,491,024	95	$55,100,384	29	$8,930,185	124	$64,030,569
AR	9	$2,148,618	1	$423,422	3	$2,572,242	1	$1,085,780	12	$4,720,860	2	$1,509,202	14	$6,230,062
AZ	80	$12,998,191	19	$3,669,473	29	$28,712,157	5	$4,880,564	109	$41,710,348	24	$8,550,037	133	$50,260,385
CA	849	$147,258,149	80	$15,438,216	444	$522,056,694	35	$45,708,837	1293	$669,314,843	115	$61,147,053	1408	$730,461,896
CO	180	$24,871,567	26	$4,434,201	115	$124,256,355	11	$12,085,461	295	$149,127,922	37	$16,519,662	332	$165,647,584
CT	55	$10,519,411	8	$1,926,093	30	$28,810,507	3	$2,776,107	85	$39,329,919	11	$4,702,200	96	$44,032,119
DC	21	$2,642,934	4	$672,749	12	$11,627,446	2	$1,942,036	33	$14,270,380	6	$2,614,785	39	$16,885,165
DE	21	$3,302,760	8	$1,120,484	9	$11,689,412	3	$4,640,169	30	$14,992,172	11	$5,760,653	41	$20,752,825
FL	111	$15,445,586	20	$4,392,740	71	$87,967,568	9	$11,932,074	182	$103,413,154	29	$16,324,814	211	$119,737,967
GA	62	$12,025,510	10	$2,261,094	23	$33,718,509	2	$4,424,412	85	$45,744,019	12	$6,685,506	97	$52,429,525
HI	26	$3,631,130	6	$1,049,758	19	$19,595,484	2	$2,548,104	45	$23,226,614	8	$3,597,862	53	$26,824,476
IA	17	$3,270,477	2	$377,000	4	$3,660,587	1	$894,987	21	$6,931,064	3	$1,271,987	24	$8,203,051
ID	6	$730,000	0	$0	1	$2,110,858	0	$0	7	$2,840,858	0	$0	7	$2,840,858
IL	95	$16,089,554	24	$5,456,305	31	$38,921,729	9	$9,793,589	126	$55,011,283	33	$15,249,894	159	$70,261,177
IN	42	$6,110,918	8	$1,589,583	15	$13,191,885	2	$1,742,664	57	$19,302,803	10	$3,332,247	67	$22,635,050
KS	17	$3,552,433	2	$296,928	2	$3,157,626	0	$996,130	19	$6,710,059	2	$1,293,058	21	$8,003,117
KY	16	$3,335,455	3	$510,426	11	$14,857,375	3	$3,479,527	27	$18,192,829	6	$3,989,953	33	$22,182,782
LA	15	$1,868,123	5	$1,305,883	8	$6,542,719	0	$0	23	$8,410,842	5	$1,305,883	28	$9,716,725
MA	393	$77,127,464	70	$13,611,271	233	$281,362,791	30	$36,424,677	626	$358,490,255	100	$50,035,948	726	$408,526,203
MD	167	$32,591,897	28	$4,946,624	97	$123,166,018	11	$13,879,699	264	$155,757,915	39	$18,826,323	303	$174,584,237
ME	6	$1,024,215	1	$249,250	2	$2,153,391	0	$0	8	$3,177,606	1	$249,250	9	$3,426,856
MH	0	$0	15	$3,215,826	1	$171,153	8	$10,608,580	1	$171,153	0	$0	1	$171,153
MI	87	$15,131,381	7	$1,315,285	49	$48,112,152	3	$6,779,054	136	$63,243,534	23	$13,824,406	159	$77,067,939
MN	52	$10,676,988	15	$3,966,525	34	$43,648,911	2	$2,871,681	86	$54,325,898	10	$8,094,339	96	$62,420,237
MO	32	$7,200,000	2	$332,356	13	$17,642,195	0	$0	45	$24,842,195	17	$6,838,206	62	$31,680,401
MS	1	$99,990	1	$247,774	1	$499,972	1	$746,516	2	$599,962	2	$332,356	4	$932,318

State	SBIR Phase I		STTR Phase I		SBIR Phase II		STTR Phase II		SBIR Total Awards		STTR Total Awards		SBIR/STTR Total Awards	
MT	15	$3,552,665	27	$6,038,230	12	$12,375,331	6	$5,875,702	27	$15,927,996	2	$994,290	29	$16,922,286
NC	116	$24,953,996	0	$0	46	$72,031,429	0	$0	162	$96,985,425	33	$11,913,932	195	$108,899,357
ND	0	$0	1	$217,445	1	$624,680	0	$0	1	$624,680	0	$0	1	$624,680
NE	3	$649,999	9	$2,116,106	3	$8,552,956	4	$5,420,678	6	$9,202,955	1	$217,445	7	$9,420,400
NH	63	$9,916,541	9	$1,827,237	35	$43,165,454	3	$2,096,933	98	$53,081,995	13	$7,536,784	111	$60,618,779
NJ	86	$15,353,778	14	$2,296,899	48	$51,869,914	5	$4,570,084	134	$67,223,692	12	$3,924,170	146	$71,147,862
NM	23	$3,468,591	1	$149,871	28	$25,137,013	1	$1,000,000	51	$28,605,604	19	$6,866,983	70	$35,472,587
NV	4	$677,570	20	$4,631,630	5	$4,745,696	12	$13,431,414	9	$5,423,266	2	$1,149,871	11	$6,573,137
NY	168	$33,635,507	35	$5,588,394	88	$99,911,174	11	$11,986,776	256	$133,546,681	32	$18,063,044	288	$151,609,725
OH	181	$28,365,429	8	$1,113,429	103	$114,217,357	2	$1,499,185	284	$142,582,786	46	$17,575,170	330	$160,157,956
OK	11	$1,381,532	4	$889,266	5	$7,162,335	1	$1,423,509	16	$8,543,867	10	$2,612,614	26	$11,156,481
OR	59	$11,704,989	28	$5,669,905	17	$33,300,680	8	$12,187,469	76	$45,005,669	5	$2,312,775	81	$47,318,444
PA	144	$28,110,706	0	$0	80	$107,972,792	0	$0	224	$136,083,498	36	$17,857,374	260	$153,940,872
PR	5	$880,976	2	$683,853	1	$1,392,973	2	$1,800,000	6	$2,273,949	0	$0	6	$2,273,949
RI	14	$2,400,524	11	$3,532,129	9	$10,114,308	0	$1,015,871	23	$12,514,831	4	$2,483,853	27	$14,998,684
SC	15	$2,882,795	3	$324,971	7	$10,472,180	0	$483,850	22	$13,354,975	11	$4,548,000	33	$17,902,975
SD	10	$1,535,303	8	$1,755,649	5	$5,324,362	2	$2,448,569	15	$6,859,664	3	$808,821	18	$7,668,485
TN	35	$5,319,272	38	$6,622,465	19	$19,858,134	14	$16,285,568	54	$25,177,406	10	$4,204,218	64	$29,381,624
TX	204	$33,120,948	8	$1,696,357	100	$97,982,993	3	$3,841,911	304	$131,103,941	52	$22,908,033	356	$154,011,974
UT	42	$8,693,097	31	$5,279,725	26	$39,230,424	14	$13,458,936	68	$47,923,521	11	$5,538,268	79	$53,461,788
VA	253	$35,805,613	3	$547,821	146	$162,868,865	2	$1,479,948	399	$198,674,478	45	$18,738,661	444	$217,413,139
VT	9	$2,054,723	9	$2,354,615	5	$4,449,735	2	$2,455,900	14	$6,504,458	5	$2,027,769	19	$8,532,227
WA	82	$14,587,777	10	$1,955,648	32	$43,194,532	3	$2,566,723	114	$57,782,308	11	$4,810,515	125	$62,592,823
WI	22	$4,169,676	3	$377,148	19	$17,704,935	0	$0	41	$21,874,611	13	$4,522,371	54	$26,396,982
WV	2	$199,973	0	$0	5	$5,037,915	0	$0	7	$5,237,888	3	$377,148	10	$5,615,036
WY	7	$773,987	1	$358,435	4	$2,587,490	0	$0	11	$3,361,477	0	$0	11	$3,361,477

The number of awards are only for new awards during FY19. The dollars obligated includes funding for both new and prior year awards. Agencies have the ability to update the number and dollar amounts for awards, so that information may differ on SBIR.gov. The data represented in this table reflects a snapshot in time and was retrieved on August 13, 2021.

12 | SBIR/STTR Award Timelines

The SBIR/STTR provisions in the SBIR/STTR Reauthorization Act of 2011 focused on reducing the gaps in the time between the close of the solicitation, the notification of award, and the performance start date. The Policy Directive prescribed the duration between the closing date of the solicitation and the notification of recommendation of award to be not more than one year for NIH and NSF; and not more than 90 calendar days for all other agencies. The Policy Directive also prescribed the duration between the closing date of the solicitation and the first date of the period of performance on the funding agreement as not more than 15 months for NIH and NSF; and not more than 180 calendar days for all other agencies. The data in this section originates from the proposal notification and award timeline data the Participating Agencies uploaded to SBA. Though the agencies validated the data, SBA identified some agencies that provided incomplete timeline information, and others that provided timeline data which included errors. SBA will continue working closely with the Participating Agencies to improve the accuracy of all reported data.

Civilian Participating Agencies SBIR Timelines

DOE, NASA, NSF, DHS, ED, and DOC reported 100% of Phase I SBIR awards were issued within the required timeline; DOE, NSF, USDA, ED, DOC, and EPA reported 100% of Phase II SBIR awards were issued within the required timeline.

Table 20: SBIR Award Timelines - Civilian Agencies

SBIR TIMELINES	HHS	DOE	NASA	NSF	USDA	DHS	ED	DOC	DOT[14]	EPA
Average time between Phase I Solicitation Close and Award Notification (days)	190	84	81	183	169	64	84	61	0	135
Average time between Phase I Notification and First Day of Period of Performance (days)	73	44	62	7	93	51	9	43	0	139
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days (1 year for HHS and NSF only)	98%	100%	100%	100%	0%	100%	100%	100%	0%	0%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days (15 months for HHS and NSF only)	96%	100%	100%	100%	0%	100%	100%	100%	0%	0%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	370	136	168	334	251	157	168	178	188	215
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	182	74	88	179	94	57	85	81	61	111
Average time between Phase II Notification Date and First Day of Period of Performance (days)	74	44	80	3	80	56	1	33	101	57
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt,	98%	100%	100%	99%	0%	94%	100%	29%	93%	0%

[14] All Phase I awards associated with DOT's FY19 solicitation were made at the beginning of FY20. As a result, the timeline items are reported as zero. This data will be reported within the FY20 report.

SBIR TIMELINES	HHS	DOE	NASA	NSF	USDA	DHS	ED	DOC	DOT[14]	EPA
and Notification Date was less than or equal to 90 days (<=1 year for HHS and NSF only)										
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and First Day of Performance was less than or equal to 180 days (<=15 months for HHS and NSF only)	97%	100%	95%	100%	100%	94%	100%	100%	86%	100%

* HHS and DOE Phase II timelines also include Fast-Track projects that use the Phase I Solicitation Close Date when the Fast-Track proposal was submitted, which can increase the average Phase II timelines.

Chart 21: SBIR Average Time Between Phase I Solicitation Close and Award Notification - Civilian

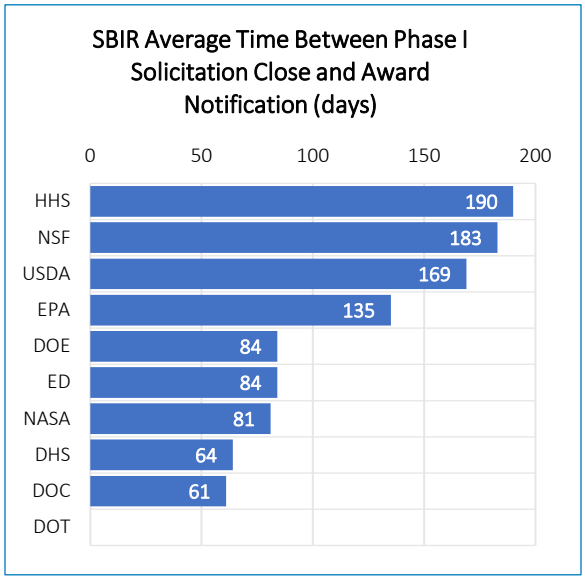


Chart 22: SBIR Average Time Between Phase II Solicitation Close and Award Notification - Civilian

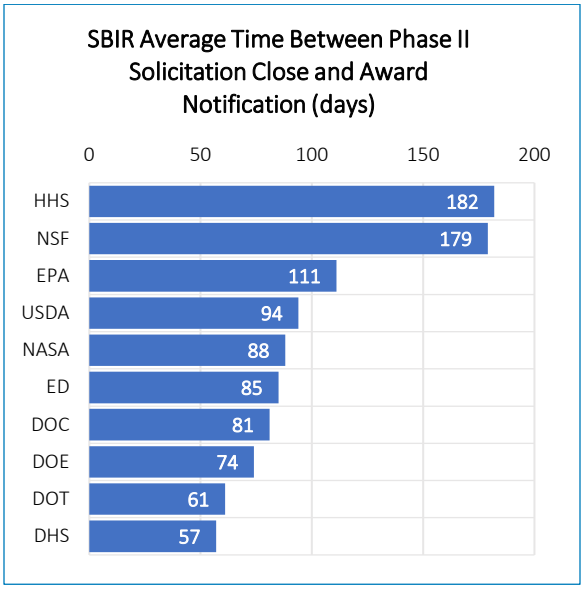
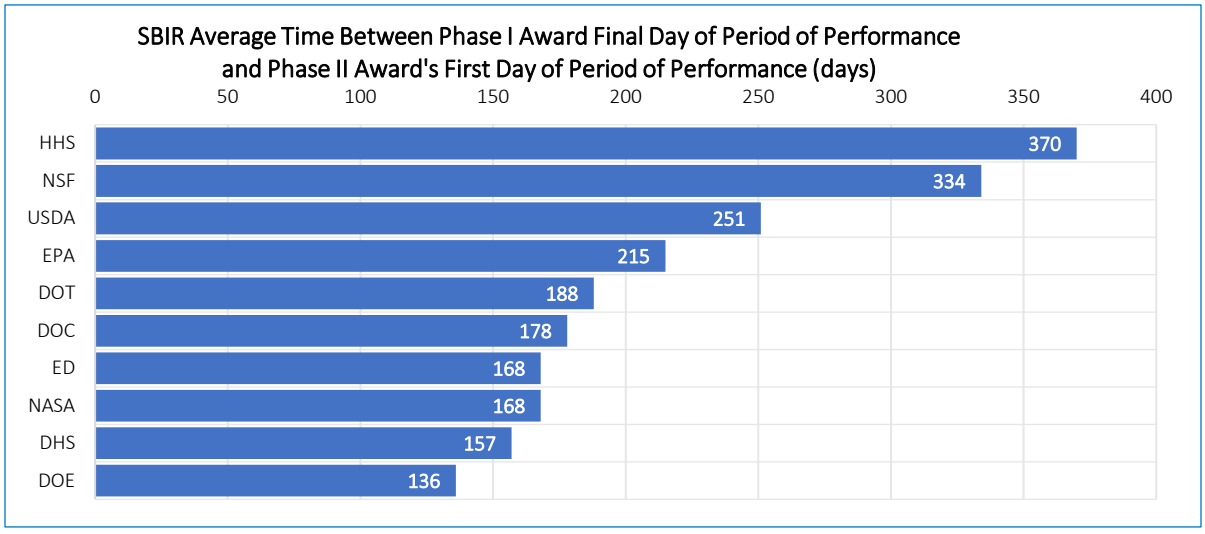


Chart 23: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – Civilian Agencies



DoD Services and Other Defense Agencies SBIR Timelines

Table 21 below shows how DoD Services and Other Defense Agencies performed on the SBIR program during FY19. Air Force, Navy, and Other Defense Agencies reported Phase I SBIR awards were issued within the required timeline. The Policy Directive prescribes the duration between the closing date of the solicitation and the notification of recommendation of award of no more than 90 calendar days.

Table 21: SBIR Award Timelines - DoD Services and Other Defense Agencies

SBIR TIMELINES	Air Force	Navy	Army	ODAs	DoD Total
Average time between Phase I Solicitation Close and Award Notification (days)	23	74	92	52	52
Average time between Phase I Notification and First Day of Period of Performance (days)	63	41	47	63	63
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	100%	84%	0%	72%	72%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	86%	98%	88%	84%	84%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	180	178	193	285	209
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	47	64	69	94	63
Average time between Phase II Notification Date and First Day of Period of Performance (days)	97	120	70	168	111
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and Notification Date was less than or equal to 90 days	85%	80%	97%	72%	84%
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and First Day of Performance was less than or equal to 180 days	68%	57%	78%	29%	60%

For Phase I notifications, the Air Force met this timeline requirement for 100% of its awards, the Navy 84%, and the Other Defense Agencies 72%. The Army did not meet this timeline requirement for any of it awards.

The following FY19 charts are organized by DoD Services and Other Defense Agencies and contrast the performance on Phase I and Phase II SBIR proposals.

Chart 24: Average Time Between Phase I Solicitation Close and Award Notification – DoD Services and Other Defense Agencies

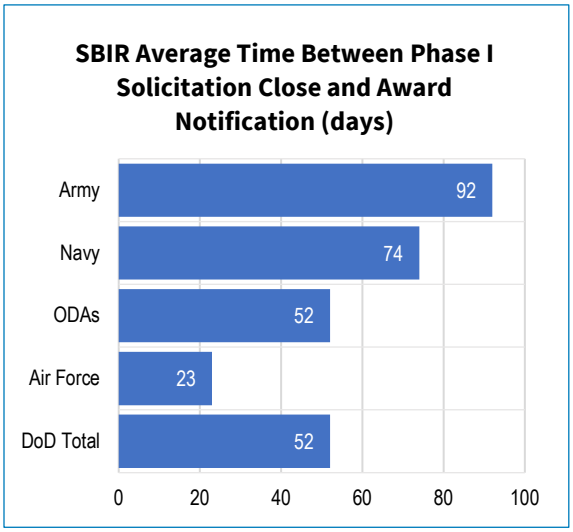


Chart 25: Average Time Between Phase II Solicitation Close and Award Notification – DoD Services and Other Defense Agencies

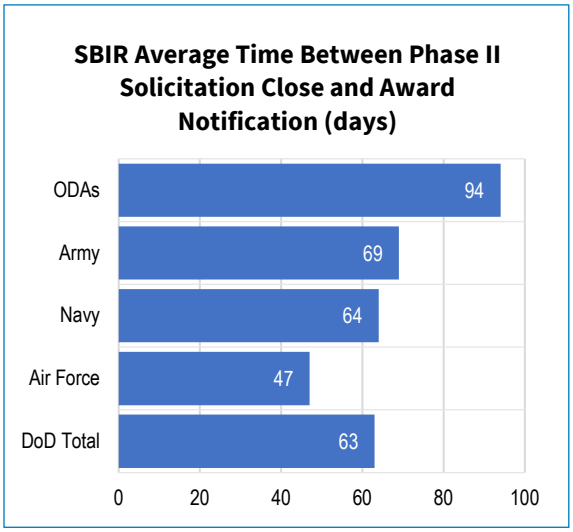
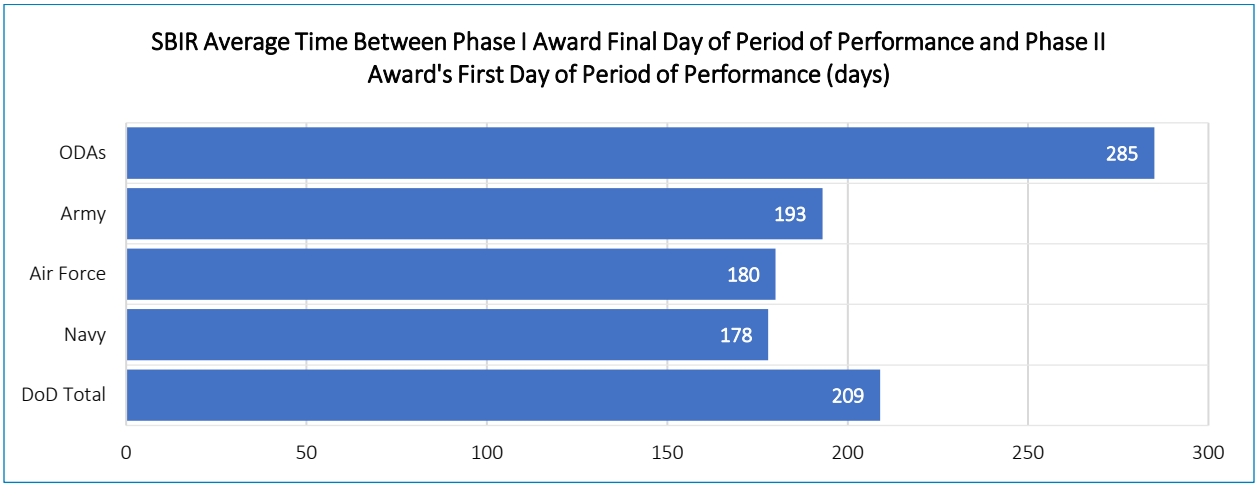


Chart 26: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – DoD Services and Other Defense Agencies



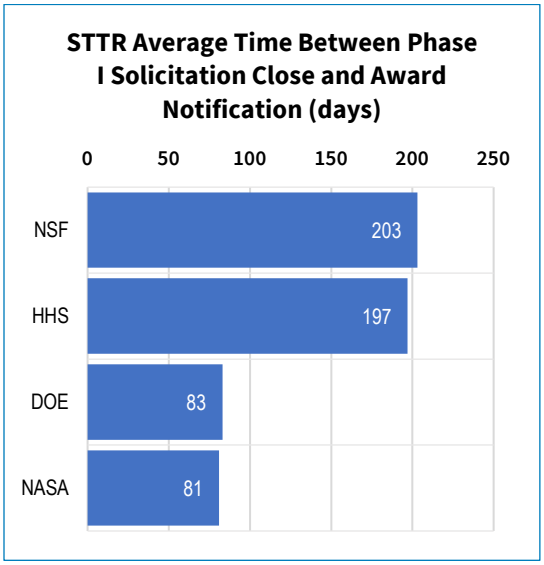
Civilian Participating Agencies STTR Timelines

DOE reported 100% of Phase I STTR and Phase II STTR awards were issued within the required timeline. NASA reported 100% of Phase I STTR awards were issued within the required timeline. NSF reported 100% of Phase II STTR awards were issued within the required timeline. HHS reported 98% of Phase I and 100% Phase II STTR awards were issued within the required timeline.

Table 22: STTR Award Timelines - Civilian Agencies

STTR Award Timelines	HHS	DOE	NASA	NSF
Average time between Phase I Solicitation Close and Award Notification (days)	197	83	81	203
Av Average time between Phase I Notification and First Day of Period of Performance (days)	71	43	62	4
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days (1 year for HHS and NSF only)	98%	100%	100%	98%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days (15 months for HHS and NSF only)	96%	100%	100%	100%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	286	107	253	358
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	167	67	137	204
Average time between Phase II Notification Date and First Day of Period of Performance (days)	81	50	116	3
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and Notification Date was less than or equal to 90 days (1 year for HHS and NSF only)	100%	100%	0%[15]	100%
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and First Day of Performance was less than or equal to 180 days (450 days or 15 months for HHS and NSF only)	97%	100%	30%	100%

Chart 27: STTR Average Time Between Phase I Solicitation Close to Award Notification - Civilian Agencies



[15] To utilize the FY 2019 STTR award funds, NASA selected additional Phase II awards from eligible proposals from the 2017 solicitation. This resulted in a selection notification timeline for those ten proposals that exceeded the 90 days.

Chart 28: STTR Average Time Between Phase II Solicitation Close to Award Notification - Civilian Agencies

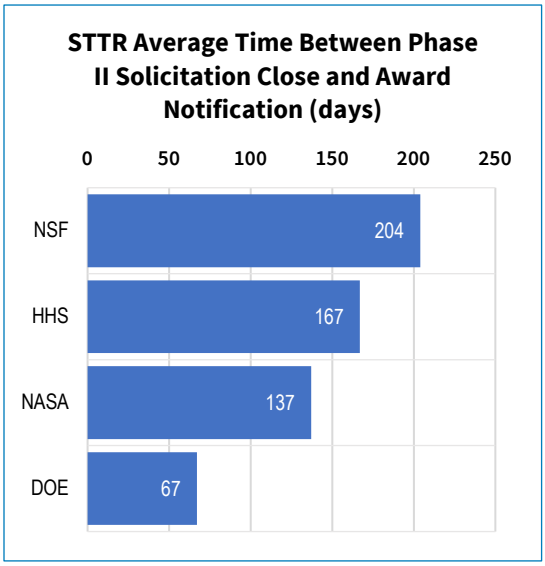
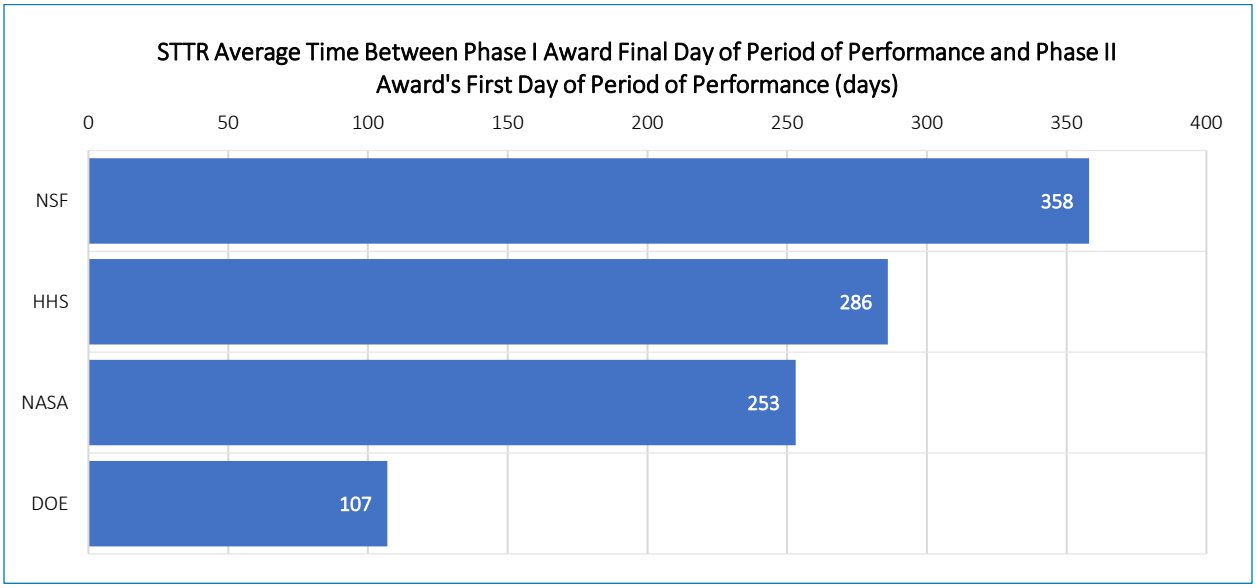


Chart 29: STTR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance - Civilian Agencies



DoD Services and Other Defense Agencies STTR Timelines

Table 23 below shows how DoD Services and Other Defense Agencies (ODAs) performed during FY19 in the STTR program. The Policy Directive prescribes the duration between the closing date of the solicitation and the notification of recommendation of award of no more than 90 calendar days.

Table 23: STTR Award Timelines - DoD Services and Other Defense Agencies

STTR Award Timelines	Air Force	Navy	Army	ODAs	DoD Total
Average time between Phase I Solicitation Close and Award Notification (days)	30	44	91	50	50
Average time between Phase I Notification and First Day of Period of Performance (days)	110	55	129	96	96
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	88%	100%	0%	77%	77%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	70%	100%	43%	77%	77%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	201	107	391	277	208
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	67	63	53	70	65
Average time between Phase II Notification Date and First Day of Period of Performance (days)	150	116	165	173	144
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and Notification Date was less than or equal to 90 days	79%	74%	60%	72%	74%
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and First Day of Performance was less than or equal to 180 days	23%	64%	53%	36%	42%

For Phase I notifications, the Navy met this timeline requirement for 100% of its awards, Air Force 88%, the Other Defense Agencies 77%, and the Army 0%.

The following FY19 charts are organized by DoD Services and Other Defense Agencies and contrast the performance on Phase I and Phase II STTR proposals.

Chart 30: STTR Average Time Between Phase I Solicitation Close and Award Notification - DoD Services and Other Defense Agencies

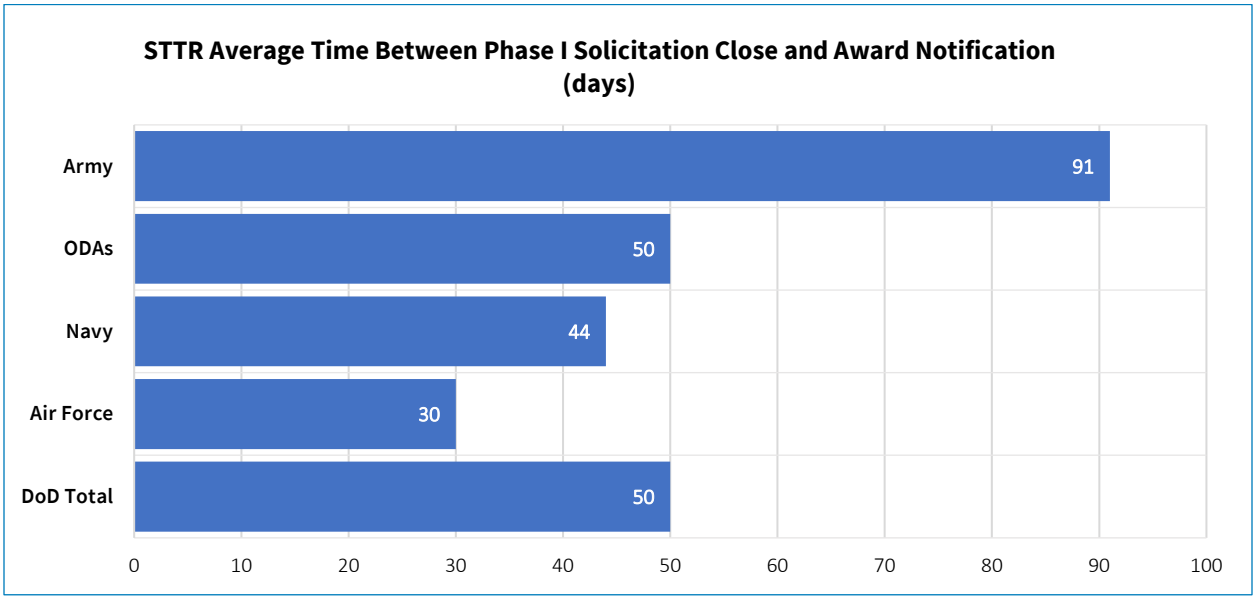


Chart 31: Average Time Between Phase II Solicitation Close and Award Notification - DoD Services and Other Defense Agencies

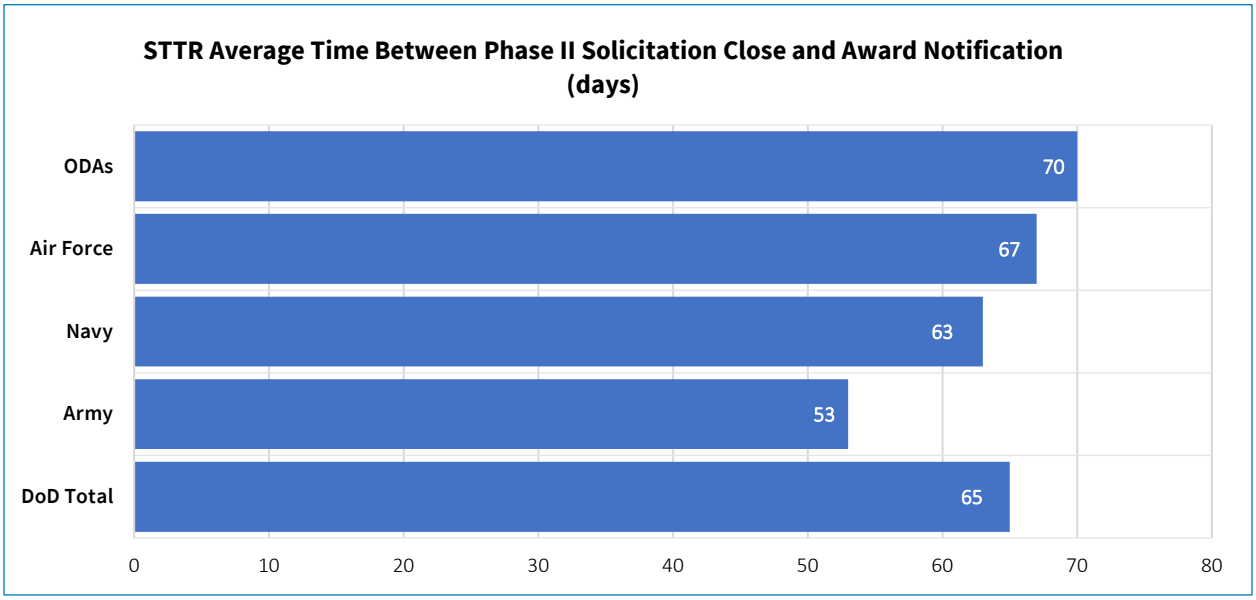
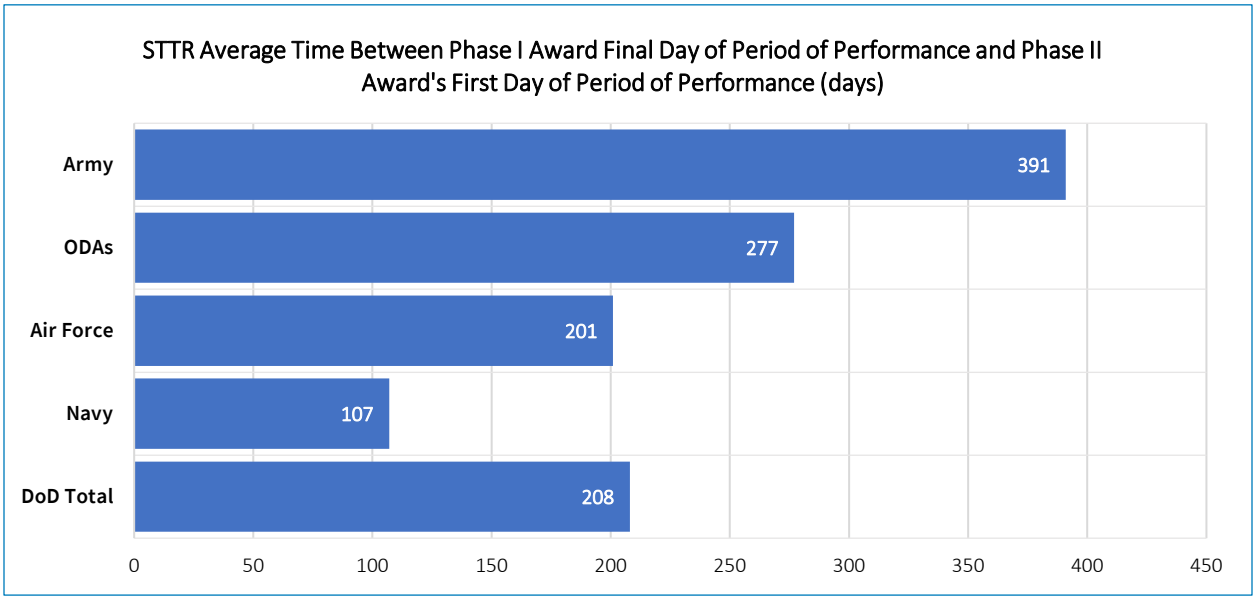


Chart 32: STTR Average Time Between Phase I Award Final Day of Performance and Phase II Award's First Day of Period of Performance - DoD Services and Other Defense Agencies



13 | SBIR/STTR Administrative Funding Pilot Program (AFPP) and Outreach to SDBs/WOSBs

The SBIR/STTR Reauthorization Act of 2011 authorized a pilot program permitting Participating Agencies to request up to 3% of its SBIR funding to support assistance for administrative, oversight, and contract processing costs. The AFPP is an essential tool for the agencies, as it generates dedicated resources toward support initiatives to improve the program and the experience for small businesses participating in the program. Specifically, agencies used the funds to:

- Update and/or upgrade information technology systems to accommodate new reporting requirements
- Modify program application, review, and selection processes and procedures to shorten award timelines
- Develop targeted marketing and commercialization plans
- Assess prior awardee commercialization efforts
- Continue extensive outreach to increase small business Concern participation, especially from underrepresented communities.

Agencies are required to submit a work plan for SBA approval to use the authority. The work plan must include the specific activities to be supported, the estimated costs for the activities, milestones, and the expected results. The activities are required to improve program performance in areas such as streamlining award processes, enhancing reporting, and expanding outreach efforts to underrepresented individuals. As part of the annual report submission, SBA requires agencies to report AFPP obligations and performance criteria outcomes organized into the following areas: 1) Outreach; 2) Commercialization; 3) Streamlining and Simplification; 4) Prevention and Detection of Fraud, Waste, and Abuse; 5) Reporting; and 6) Administration and Implementation of Reauthorization.

The amount of AFPP funds requested and obligated by the agencies varied significantly. The difference between the approved plan and the amount obligated was primarily attributed to the constraints surrounding the timing of the following factors: 1) the length of agency appropriations; 2) the program office receipt of SBIR funding; and, 3) the amount of time available to make obligations.

Agency AFPP "approved" budgets and actual obligations are shown below.

Table 24: Administrative Funding Pilot Program

AFPP Maximum Allowable and Obligated Amount per Agency			
Agency	**Max Allowable***	**Funding Approved**	**Obligated†**
DoD	$41,343,714	$36,968,527	$26,294,855
HHS	$30,596,716	$28,200,000	$16,659,650
DOE (Program Office)	$7,317,211	$2,032,100	$1,761,302
NSF	$5,324,970	5,324,970	$5,323,985
NASA	$5,128,767	$2,916,000	$2,913,255
USDA	$810,000	$785,000	$326,022
DHS	Not Participating	Not Participating	Not Participating

AFPP Maximum Allowable and Obligated Amount per Agency			
DOT	$291,413	$194,275	$50,286
NOAA (DOC)	$321,150	$194,900	$194,900
NIST (DOC)	$120,000	$60,000	$5,541
ED	$310,000	$310,000	$1,798
EPA	Not Participating	Not Participating	Not Participating
Totals	**$91,563,941**	**$76,985,772**	**$53,531,594**

*** Maximum Allowable obligations as reported to SBA in the work plan**
† Dollars Obligated as reported to SBA in the Annual Report Submission

Further examples of agency efforts under the AFPP pilot program are:

HHS. SBA approved HHS's FY19 AFPP request for $28,200,000, which was the estimated maximum allowable funding amount. In the Annual Report submission, HHS reported $16,659,650 in obligations, which were $13,937,066 less than the maximum allowable funding amount based on actuals ($30,596,716). HHS's reported outcomes included:

- HHS's SBIR/STTR outreach activities during FY19 were directed at increasing awareness of the SBIR/STTR programs, and identifying new SBIR/STTR applicants, with a special emphasis on Women-Owned Small Businesses (WOSB), Socially and Economically Disadvantaged Businesses (SDB), and under-represented states. NIH created the SBIR Administrative Diversity Supplement specifically to provide funding for underrepresented groups to be hired on existing grants/research projects.
- NIH launched an applicant assistance program to facilitate preparation and submission of applications by first-time applicants. The program encouraged participants from SDBs, WOSBs, and small businesses located in under-represented states. Over 150 companies were coached through the program.
- NIH provided commercialization training and guidance to awardees and staff, including workshops and/or webinars focused on business education. Entrepreneurs in Residence conducted well over 200 consults with internal NIH staff, small businesses, and proof of concept network participants. Over 50 companies or project teams participate in the trans-NIH commercialization programs C3i and I-Corps@NIH. The C3i cohort reported two FDA cleared devices and $95M in follow on funding.
- NIH supported companies' attendance at several investor and partnering forums, including BIO, the Angel Capital Association's Annual Summit and regional events, RESI, AdvaMed, and Landmark Forum. Companies were provided mentoring by Entrepreneurs in Residence and volunteer mentors prior to participation in the events. Over 100 companies exhibited or presented at an investor event and at least one company identified a CEO candidate at an angel investor forum.
- NIH and CDC added staff through contracts or fellowships to support streamlining and simplification efforts. The National Institute of Neurological Disorders and Stroke (NINDS) saw the average time from application to award drop from 9.2 calendar months in 2018 to 5.1 calendar months 2019 as a result of additional staff support.

DOE. SBA approved DOE's FY19 AFPP request for $2,032,100, which was $5,667,900 less than the estimated maximum allowable funding amount ($7,700,000). In the Annual Report submission, DOE reported $1,761,302 in obligations, which were $5,555,909 less than the

maximum allowable funding amount based on actuals ($7,317,211). DOE's reported outcomes included:

- Site visits were performed for 17 companies to determine compliance with award terms and conditions regarding financial requirements. No incidents of fraud were identified during the site visits.
- Phase I Principal Investigator Meeting: This two-day meeting will provide: (1) opportunities for Principal Investigators to have face to face meetings with DOE program managers and commercialization assistance providers; (2) networking opportunities with other small businesses; (3) presentations on proper administration of their grants from a DOE contracting officer, proper handling of intellectual property from a DOE IP attorney, avoiding and reporting fraud, waste and abuse from the DOE Office of Inspector General; and (4) presentation on commercialization success from past DOE SBIR/STTR awardees. Two Phase I PI meetings were held in June and October 2019. Both meetings were judged as being valuable for attendees. New for 2019, we invited other agencies to discuss their SBIR programs and have one-on-one meetings with our awardees.

NSF. SBA approved NSF's FY19 AFPP request for $5,324,970, which was the estimated maximum allowable funding amount. In the Annual Report submission, NSF reported $5,323,985 in obligations. NSF's reported outcomes included:

- Working with the American Society of Engineering Education (funded via award 1853888) to strengthen the Innovative Postdoctoral Entrepreneurial Research Fellowship (I-PERF) program, which encourages active NSF SBIR/STTR Phase II awardees to bring postdoctoral scholars from underrepresented people in STEM into their ongoing research project. The goal is for the participating scholar to acquire authentic entrepreneurial research experience and to bring the latest innovative theories and techniques from the academic community to the country's entrepreneurial technology sector.
- Supporting entrepreneurial education. For example, NSF launched the I-Corps for SBIR/STTR pilot in March 2019.
- Attending or sponsoring approximately 75 events across the United States, including the SBIR Road Tour, Techstars Techcrunch, the Angel Capital Association Summit, the Consumer Electronics Show (CES), YoungStartup Venture Summits, and Synbiobeta among many others.
- Launching a digital marketing campaign with advertising across relevant sections of the website and on Twitter, Reddit, and LinkedIn to reach qualified, diverse candidates. The campaign generated 18.8 million ad impressions, 88.5k clicks, 80.9k sessions on the website and 613 pitch applications opened. Users learned about the brand and ultimately drove qualified candidates to submit project pitches on the site. After the campaign launched on 9/30, there was a 65% increase in website sessions on the NSF Seed Fund site. When comparing December performance (year over year), we saw a 307% increase in sessions compared to 2018.
- Building an email marketing portal to better segment and engage NSF audiences via email.

NASA. SBA approved NASA's FY19 AFPP request for $2,916,000, which was $2,212,767 less than the estimated maximum allowable funding amount ($5,128,767). In the annual report submission, NASA reported $2,913,255 in obligations, which were $2,215,512 less than the maximum allowable funding amount based on actuals ($5,128,767). NASA's reported outcomes included:

- NASA SBIR/STTR outreach activities supported targeted outreach events to Historically Black Colleges and Universities (HBCUs) and Minority Serving Institutions (MSIs) in partnership with The Office of Small Business Programs. Both groups play integral roles in preparing minority professionals who enter into high-tech careers and who in turn, may establish high tech companies. NASA participated in the HBCU/MSI NASA Technology Infusion Road Tours to Tuskegee University and New Mexico State University, and attended tribal institutions outreach tours to the College of Menominee Nation, Bay Mills Community College, Keweenaw Bay Ojibwa Community College, and Navajo Technical University. NASA met the goal to increase STTR submissions in 2019 from HBCUs/MSIs as compared to the baseline. 2019 actuals are: three for HBCUs: which is an increase of one from the baseline average, and 28 for MSIs: which is an increase of 19 from the baseline average (the goal was to increase NASA's participation in these events by one for HBCUs and by one for MSIs).
- Targeted outreach to women-owned small businesses (WOSB) including an Industry Day for WOSB and the Women Tech Founders Conference. The goal for SBIR was to increase SBIR submissions by six, but it was narrowly missed with an increase of four compared to the baseline. The program did meet the STTR submission goal with an increase of nine STTR submissions by WOSB (goal was to increase by one).
- Continued to pilot the Innovation Corps (I-Corps) program as directed by the Office of Management and Budget to train awardees to prepare for and make better decisions as they progress through their SBIR/STTR Phase I awards to increase Phase II and commercialization success.
- Updated the program's end-to-end database platform features to include: user-centered design (UCD) methodology to improve the user (including small businesses) experience, development of a decision support tool to both streamline the Phase I review and selection process and also to ensure the optimum portfolio of proposals that meet/support mission and programmatic goals, and developed Phase II sequential proposal submissions and contracts capability.

DOC – National Oceanic and Atmospheric Administration (NOAA). In the Annual Report submission, NOAA reported $194,900 in obligations, which were $126,250 less than the maximum allowable funding amount based on actuals ($321,150). NOAA's reported outcomes included:

- Increased exposure at the FY 2019 Blue Tech Week, held in San Diego, California, for several NOAA SBIR program awardees by highlighting them and the technologies developed by their companies. Each of the companies who participated in this event stated that they received excellent exposure and many networking opportunities from the event. In addition to this event, SBIR awardees were asked to present at the NOAA "Innovators Series" Brown Bag seminars through the NOAA Central Library. Companies have seen an increase in additional contacts, both inside and outside of NOAA as a result.

- Funding facilitated the timely generation and submission of recurring reports in accordance with the SBA SBIR/STTR Reporting Schedule, and contract staffers were hired resulting in a more streamlined administrative process of the SBIR program, especially in light of the transition from contracts to grants as the award mechanism.

DOC – National Institute of Standards and Technology (NIST). SBA approved NIST's FY19 AFPP request for $60,000, which was less than half of the estimated maximum allowable funding amount. In the Annual Report submission, NIST reported $5,541 in obligations, which were $114,459 less than the maximum allowable funding amount based on actuals ($120,000). NIST's reported outcomes included:

- The percentage of proposals submitted from underrepresented states, minority SBC, proposals from women-owned SBCs increased by 21%.

ED. SBA approved ED's FY19 AFPP request for $310,000, which was the estimated maximum allowable funding amount. In the Annual Report submission, ED reported $1,798 in obligations, which were $308,202 less than the maximum allowable funding amount based on actuals ($310,000). ED's reported outcomes included:

- Using AFPP funds, the ED SBIR program manager attended, presented, and met individually with attendees at three industry events, including the Small Business Innovation Research Program conference in Boston; the Games for Change Festival in New York City, and the International Society for Technology in Education Conference in Philadelphia. The ED SBIR Program Manager estimates that 300 individuals attended the sessions where the ED SBIR Program Manager presented, including 50 at the Small Business Innovation Research program conference in Boston, 50 at the Games for Change Festival in New York, and 200 at the International Society for Technology in Education Conference in Philadelphia.

Outreach Including Specific Activities to Women- and Socially and Economically Disadvantaged-Owned Small Business Concerns (SBCs), and Underrepresented States

Each Participating Agency is required to report its efforts to increase outreach and awards to firms owned and controlled by women or by socially and economically disadvantaged individuals. Examples of outreach efforts are listed below by agency.

DoD. DoD ensures that outreach is occurring across the SBIR/STTR programs and that it is cost effective. DoD implements new methods of communication and outreach tools (conferences, workshops, and training opportunities). DoD will continue monitoring the outreach efforts and compare program participation by socially disadvantaged small businesses and small businesses that are located in underserved communities.

For Fiscal Year 2019 – the DoD SBIR/STTR programs participating Services and ODAs continued to utilize the Pilot Administration Authority Funds provision (15 U.S.C. 638 (mm)), to participate in multifaceted outreach initiatives across programs. These initiatives have significantly improved DoD's ability to achieve the SBA's and their objectives. Below are some highlights from those activities:

The Department of the Navy (DON) held its annual Small Business Innovative Research Topic workshops with events on the Eastern (Boston, MA) and Southwestern (Albuquerque, NM) portions of the United States. These events provide an overview of newly released topics during solicitation pre-releases periods, feature expert panels, one-on-one sessions with Technology Managers, and networking opportunities. In executing the event, the DON collaborated with multiple organizations, including the New England Business Association and the Arrowhead Center at the New Mexico State University, our respective lead hosts. In addition to the main event locations, multiple satellite locations, which also include DON government or contractor personnel, are setup across the United States.

Defense Microelectronics Activity (DMEA) participated in outreach activities, typically in conjunction with other small business outreach activities (such as the SBIR/STTR Spring Innovation Conference, Nevada PTAC Reno Matchmaker, and the Navy Gold Coast Small Business Event). DMEA funded a total of eight trips to support the three activities during FY19.

Missile Defense Agency's (MDA) Outreach Office focused on expansion of tech connection with Industry R&D. The focus will be on increased participation in conferences, symposiums, workshops, meetings, exhibits, and webinars. While FY 2018 identified a goal of 8 conferences and 3 labs, MDA planned a 163% participation increase in FY 2019 to include 18 Industry conferences. MDA also increased the number of one-on-ones with small businesses through the SBIR bus tours and through MDA's Industry Days.

HHS. HHS's SBIR/STTR outreach activities during FY19 were directed at increasing awareness of the SBIR/STTR programs, and identifying new SBIR/STTR applicants, with a special emphasis on women-owned businesses (WOSB), socially and economically disadvantaged businesses (SDB) and under-represented states, known as Institutional Development Award (IDeA) States. HHS's SBIR/STTR outreach strategy is implemented by NIH, including the 24 Institutes and Centers with SBIR/STTR programs, and CDC, FDA, and ACL.

Outreach activities included in FY19 included:

- Participated in 4 SBA SBIR Road Tours covering 15 states and territories, including 6 IDeA States, and reaching over 2,227 attendees; conducted 2,558 meetings.
- Dedicated a session at our HHS SBIR/STTR Conference to the topic of encouraging women and minority SBIR/STTR applicants to participate.
- Developed key contacts and relationships with multiple U.S. Historically Black Colleges and Universities (HBCUs) through site visits and targeted outreach.
- Created and facilitated SBIR Workshop model for HBCU faculty at Howard University.
- SBIR Administrative Diversity Supplement specifically to provide funding for underrepresented groups to be hired on existing grants/research projects.
- Updated the central HHS SBIR/STTR website regularly with news, guides, and additional resources for small businesses.
- Participated in SBA's SBIR Outreach Workgroup to determine upcoming SBIR outreach priorities.
- Leveraged our NIH SBIR/STTR listserv with 20,000+ subscribers.

- Presented during national and local conferences to reach new biomedical entrepreneurs.
- Held informational webinars on SBIR/STTR, including topics such as the SBIR Grant Omnibus Solicitation, SBIR Contract Solicitation, and I-Corps at NIH.
- Participated in local/state SBIR events/conferences and provided one-on-One meetings with attendees.
- Earned 1,000 new Twitter followers through strategic, engaging, informative messaging.
- Continued #DiversifySBIR social media campaign to highlight Women and Minorities in leadership at NIH, and the importance of diversity in the scientific workforce.
- Collaborated with the NIH IDeA program to promote the SBIR/STTR programs in underrepresented states, participating in conferences and events in 13 IDeA states.
- Partnered with SBA and other SBIR/STTR governmental agencies, state-based economic development centers, and universities to conduct outreach to WOSB and SDB.
- Coordinated an HHS Women and Minority Outreach Small Business interest group to develop strategies to increase WOSB/SDB.

Summary of our outcomes for FY19:

- 199 events (in person and virtual) hosted in 43 states (including 13 IDeA states), plus the District of Columbia (DC) that collectively reached over 21,000 attendees.
- Reached over 2,227 attendees; conducted 2,558 meetings; 15 states and territories, during the SBIR Road Tour.
- Over 600 Women-Owned Small Business and 650 Small Disadvantaged Business reached through direct outreach efforts.
- 20th Annual HHS SBIR/STTR Conference was hosted in Dallas, TX from October 30 through November 1, 2018, reaching 454 attendees (193 businesses) from 41 states including the District of Columbia and U.S. Virgin Islands. This event included several workshops and sessions designed for WOSB/SDB.

DOE. To increase outreach to SDBs and WOSBs, the DOE SBIR/STTR Programs Office provides an extensive web-based, multi-media platform, designed to reach and educate all new, first-time SBIR/STTR applicants. This web platform includes such educational content as 36 concise multi-media tutorials, templates, user guides, participant eligibility criteria, and many other pertinent applicant resources to help prepare a competitive Phase I SBIR/STTR grant application. Additionally, the DOE participated in the SBA's 2019 SBIR Road Tours and other DOE-specific outreach events that included visits to 14 states, 17 cities, and provided almost 300 1x1 meetings with small business participants interested in applying to the DOE SBIR/STTR Phase I Funding Opportunity Announcements.

For more than five years, the DOE has administered its Phase 0 Application Assistance program. This program is specifically designed to increase the number of responsive, high-quality Phase I proposals from all first-time SBIR/STTR grant applicants, including the following three under-represented groups:

(1) women-owned small businesses.
(2) socially and economically disadvantaged small businesses.

(3) small businesses from 25 states with historically few DOE SBIR/STTR applications and awards (AK, AR, DC, GA, HI, IA, IN, KS, LA, ME, MN, MO, MS, NC, ND, NE, NY, OK, PA, PR, RI, SC, TN, WV, and WI).

Through the Phase 0 Assistance program, DOE provides grant application support and assistance services to potential DOE Phase I applicants. These Phase 0 services, provided at no cost to eligible small businesses include: Letter of Intent support, proposal preparation and review assistance, budget formulation, Intellectual Property consultation, travel assistance to establish a partnership with a DOE research institution, technology advice and consultation, and registration assistance for those mandatory federal systems.

In FY 2019, the DOE provided Phase 0 services to 100 eligible small businesses intending to apply to the DOE FY 2019 Phase I Release 2 Funding Opportunity Announcement. Of this number, 22 (17%) were WOSBs; 34 (26%) SDBs, 36 (27%) were from one of DOE's under-represented states, and 41 (31%) were not from an under-represented group. Of the 10 awards granted to those Phase 0 small businesses, 2 awards were granted to WOSBs; 2 awards went to SDBs, 2 went to small businesses located in under-represented states, and 4 awards went to non-under-represented small businesses.

To broaden outreach to under-represented groups, in FY 2019 the DOE SBIR/STTR Programs Office conducted outreach to a Carnegie Research 1 Minority Serving Institution, the University of California – Riverside, to facilitate the DOE's efforts to establish a minority-serving entrepreneurial internship program. That program was not established due to a legal opinion that federal agency-managed internship programs must be open to all eligible applicants, and not just to under-represented groups. However, the DOE SBIR/STTR Programs Office is currently investigating a new program to provide award funding supplements to current DOE Phase II small businesses that strive to promote small business R&D entrepreneurship, improve the diversity of the R&D workforce by recruiting and supporting both undergraduate and graduate students from groups that have been shown to be underrepresented in STEM research. The DOE plans to have this program in place for the FY 2021 Phase II Funding Opportunity Announcements.

NSF. Some highlights from NSF's efforts in broadening participation of underrepresented groups in FY19 are as follows:

- During fiscal year 2019, NSF worked with the American Society of Engineering Education (funded via award 1853888) to strengthen our Postdoctoral Research Diversity Fellowship Program. This program, newly rebranded as the Innovative Postdoctoral Entrepreneurial Research Fellowship (I-PERF) program, encourages active NSF SBIR/STTR Phase II grantees to bring postdoctoral scholars from underrepresented groups into their ongoing research project. The goal is for the participating scholar to acquire authentic entrepreneurial research experience and to bring the latest innovative theories and techniques from the academic community to the country's entrepreneurial technology sector. As part of this program update, we also launched a new program portal at https://iperf.asee.org/ and strengthened key recruitment and support aspects of the program to further strengthen its ability to target underserved groups and encourage their participation in entrepreneurship and innovation going forward. In the last three months leading up to February 2020, the program has made 10 awards, all to postdocs from underrepresented groups, and anticipates many more to come over the next several months.

- NSF staff attended over 70 outreach events in-person in over 15 states. These events included dozens of presentations as well as over 300 one-on-one meetings with potential applicants and other stakeholders.
- NSF SBIR/STTR program staff attended conducted multiple pre-solicitation webinars in advance of each Phase I proposal deadline.
- NSF sent multiple Program Directors and other senior staff on each of the 2019 SBIR Road Tour legs, supporting events in several underserved states and regions.
- NSF's SBIR/STTR programs also continued to offer supplemental funding opportunities to Phase II awardees with a specific focus on supporting underrepresented groups. One example is the Phase IIA opportunity that provides Phase II grantees up to $150,000 to build research partnerships with minority-serving institutions.
- To reach underrepresented audiences, in FY19, NSF staff attended the ACM IUI Fostering Women in Entrepreneurship Conference, the Generation Indigenous Native Networking Reception, Solve at Pine Ridge Indian Reservation, and the Concordia Annual Summit.
- NSF actively engaged with multiple communities to ensure higher participation of underrepresented groups through the Inclusion in Innovation Initiative (I4), beginning with I-Corps so that these teams can be prepared for success in the SBIR program. The pilot activity is with the GEM Consortium (https://www.nsf.gov/awardsearch/showAward?AWD_ID=1940055).
- In addition, NSF piloted Culturally Relevant Enterprise Development, short courses piloted with the Native American/Alaska Native communities to develop entrepreneurial skills toward new ventures aligned with their communities.

USDA. In FY2019, the USDA SBIR program participated in the SBA organized road tours and regional events. Each of these were focused on providing outreach to SDBs and WOSBs.

DHS. DHS continues to take advantage of multi-agency outreach events to open opportunities to SDBs and WOSBs.

DOT. U.S. DOT program representatives met with small businesses during the Southwestern, Eastern and Miami and Puerto Rico Road tours. Multiple staff also participated in the SBIR/STTR Spring Innovation Conference in Boston, MA. Program Representatives also served on SBIR panels and gave brief presentations at the events.

DOC. NIST and NOAA both take steps to increase outreach to SDBs and WOSBs in a number of ways including participation in the SBIR national conferences and SBA Road Tours. The NIST Phase I selection process gives priority to technically excellent proposals from SDBs and WOSBs. NOAA plans to implement a similar process to give priority to technically excellent proposals from SDBs and WOSBs in future evaluations.

ED. For years, ED SBIR has conducted outreach and technical assistance to small businesses around the country through participation at the SBIR national and DC-based conferences, participation at a number of industry and developer focused conferences, forums, and meetings, and through a variety of web-based outreach strategies including blogging, emailing, and webinars.

In FY 2019, ED SBIR conducted outreach directly to underrepresented groups, including to socially and economically disadvantaged-owned small businesses (SDBs) and women-owned small businesses (WOSBs).

In FY2019, ED SBIR continued many other outreach procedures, including: conducting outreach to national and regional organizations that serve SDBs and WOSBs; attending the National SBIR Conference and leading an agency presentation and conducting 1-on-1meetings with small business entities, several of whom were WOSBs and SDBs; attending national and DC-based conferences presenting to dozens of firms at industry conferences, many of whom were WOSBs and SDBs; posting program announcements and numerous blogs published on websites such as ED.gov and IES.ED.gov; through news stories on e-newsletters and publications such as EdSurge; and through direct outreach to its network of hundreds of small businesses. It is possible many WOSBs and SDBs were reached through these modes of outreach.

In FY2019, ED SBIR also: posted information on its program solicitation through the HBCU e-newsletter on Federal Agency Postings on March 4, 2019; engaged in planning a showcase event during the ED Games Expo featuring women game developers; led a presentation on innovation and opportunities through the ED SBIR program at a Black History Month Event on Virtual Reality in Education at the US Department of Education; and met the ED representative from the White House Initiative on Historically Black Colleges and Universities.

The ED SBIR program manager will continue to engage in similar opportunities in 2020, as well as joining SBA-led initiatives.

EPA. EPA continues to do outreach to all small businesses including SDBs and WOSBs through many venues including the SBIR National Conference(s) (where EPA presented, had a booth, and did one-on-ones), state meetings/webinars, and one webinar hosted by EPA prior to the release of the Phase I solicitation for all potential applicants.

NASA. In FY19, the NASA SBIR/STTR Program executed goals against its FY19 Outreach Strategy which focused outreach efforts on underrepresented groups by attending targeted industry days and conferences.

In FY19, the program participated in several events that targeted underrepresented groups and states, including the HBCU-NASA Engagement Forum, a Historically Underutilized Business Zone outreach event, the 20th Annual HHS SBIR/STTR Conference, the Kansas Regional Business Forum, and outreach to four tribal colleges (Navajo Technical University, College of Menominee Nation, Bay Mills College, and Keweenaw Bay Ojibwa Community College).

The program targeted women-owned small businesses specifically through two events: the Women Tech Founders Conference in Chicago, IL (piloted for the first time), and the 2019 Small Business Industry Day for Woman Owned Small Businesses in Nashville, TN.

The program continued to partner with the Office of Small Business Programs (OSBP) and the Small Business Administration (SBA) on outreach activities specifically targeting disadvantaged-, veteran-, and women-owned businesses. Example of these outreach efforts include continued participation in the SBIR Road Tour to underrepresented states and the NASA Historically Black Colleges and Universities (HBCU)/Minority-Serving Institutions (MSI) Technology Infusion Road Tours.

The SBIR/STTR program participated in other major events in FY19 beyond those mentioned above. These events targeted a broad audience that would include WOSBs and other Small Disadvantaged Business categories:

- The SBIR/STTR National Conference and the SBIR/STTR Innovation Summit with thousands of attendees and targeted outreach to the entire SBIR/STTR community.
- The Navy Gold Coast Small Business Procurement Event, AUVSI Xponential, and AIAA/USU Small Satellite Conference gather thousands of attendees from a wide range of backgrounds.
- Other major conferences for the program included the CubeSat Developer's Workshop, Newspace Conference, and the Innovation and Opportunity Conference.
- The program also ensured that all Center and Mission Directorate personnel conducted their outreach efforts equipped with branded program collateral and a business card scanning capability that made networking and interfacing with the firms more prominent and trackable. They are also equipped with an event feedback mechanism that helps the program with strategic planning for future events.

14 | Government Phase III Funding

Phase III funding is measured as the revenue a business receives through the funding of additional R&D, licensing, investment and/or sales for work that can be tied back to SBIR/STTR funded technology. Phase III, by definition, is work that derives from, extends, or completes Phase I or II work and is not supported by SBIR or STTR dollars.

In the FY15 Annual Report, SBA began collecting agency awarded Phase III funding data from the Participating Agencies. SBA understands the challenges with obtaining and reporting this data. Agencies commonly provide funding to a business for work based on earlier SBIR/STTR efforts but are often not aware of the SBIR/STTR lineage. For example, the SBIR/STTR awardee may serve as a supplier or subcontractor beyond what is recorded on the award. Furthermore, some Phase III efforts are not documented because the acquisition programs do not report the award to the SBIR/STTR program offices. Similarly, small businesses are not required to notify the SBIR/STTR program of their Phase III funding. Those figures are only collected if the company applies for additional SBIR/STTR Phase I or II funding. Moreover, agencies have even less insight into Phase III funding for companies which no longer participate in the SBIR/STTR programs.

SBA is working with the agencies to develop tools which will provide a more efficient way to obtain and validate data on private sector sales, licenses, equity investment and acquisition. Due to these challenges, Phase III reporting through the Annual Report will likely continue to represent a subset of the total Phase III funding. For Participating Agencies issuing SBIR/STTR grants most of the Phase III funding typically comes from the private sector. SBA continues to encourage agencies to increase the Phase III funding provided by themselves or through Federally Funded Research and Development Centers (FFRDC's).

Table 25 below provides a listing of Participating Agencies reporting Phase III funding during FY19. The Civilian agencies combined to report nearly $53.7 million in funding, of which NASA made up $30.8 million, DOE obligated $18.8 million, and DHS obligated $4.1 million.

The Participating Agencies issuing SBIR/STTR contracts, such as DoD and NASA, are often the customers or buyers of Phase III technology developed under previous SBIR/STTR awards. These agencies use later stage Research, Development, Test, and Evaluation (RDT&E) and procurement funds to further develop or purchase the SBIR/STTR technology. Aligning the awards with agency customers encourages Phase III commercialization. A best practice for agencies is to identify and fund SBIR/STTR Phase I and II work with a transition path into a program or platform. This approach best positions the SBIR/STTR awardee to work with the integrator (government or prime) to ensure the project meets the specifications as they work towards and reach the desired Technology Readiness Level (TRL) for the effort and is an approach the Navy has used for many years with the Air Force making major changes in FY18 to create a similar model and mindset.

Table 25: Government Phase III Funding

Agency	Total Phase III Obligations ($) †
Air Force	$520,921,894
Navy	$489,384,004
Other Defense Agencies	$92,453,746
Army	$80,608,795

Agency	Total Phase III Obligations ($) †
NASA	$30,819,844
DOE	$18,770,635
DHS	$4,076,399
Totals	$1,237,035,317

† Agencies cannot use SBIR/STTR funding for Phase III awards and these dollars are not part of Total SBIR Obligations. Phase III dollars listed includes both SBIR and STTR programs.

Table 25 provides a summary of all the agencies that made Phase III awards in FY19 and the variance between agencies is substantial. Congress has continuously highlighted the importance of Phase III for both the Civilian and DoD agencies. DoD Phase III activity shows the Air Force reporting $521 million, Navy reporting $489 million (combined 85% of the total DoD Phase III obligations), Army reporting $81 million, and the Other Defense Agencies reporting $92 million.

Economic Impact Studies

SBA and the 11 Participating Agencies are committed to capturing the economic impact of SBIR/STTR awardees and using this knowledge to stimulate additional economic growth opportunities. Three organizations have funded major studies that looked at Phase II awards over a 10-year period. They measured a number of economic impacts to include additional R&D, sales, spin offs, jobs created, average salaries and total economic impact. These studies funded by and performed for the National Institute of Cancer, Air Force, Navy, and recently the entire DoD, provide the most detailed data on the impact of the SBIR and STTR programs. The reports examine the direct and indirect of SBIR and STTR investments, and while the underlying methodologies vary based on the funder, they generally found a positive impact on job creation and economic development, with the recent DoD report identifying a 22:1 return on the DoD SBIR/STTR investment. The reports can be found at https://www.sbir.gov/node/832335.

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15 | SBIR/STTR Commercialization Programs

DoD Commercialization Readiness Program (CRP)

The Commercialization Readiness Program (CRP) was originally authorized and created as part of the National Defense Authorization Act of Fiscal Year 2006 as the Commercialization Pilot Program (CPP) under the OSD and the Secretary of each Military Department. Congress permanently authorized the program through the SBIR/STTR Reauthorization Act of 2011. The purpose of the CRP is to pay for activities that accelerate the transition of DoD SBIR/STTR-funded technologies to Phase III, especially those providing significant benefit to the nation's warfighters in improved performance, new capabilities, increased reliability, and cost savings well exceeding investment. Phase III commercialization work derives from, extends, or completes efforts made under prior funding agreements under the SBIR/STTR Programs, and requires small businesses to obtain funding from the private sector and/or non-SBIR/STTR government sources. Under the CRP, up to 1% of the available SBIR funding may be used by DoD Services and Other Defense Agencies for payment of expenses incurred to support CRP activities. The CRP pays for activities that enhance the connectivity among SBIR/STTR firms, prime contractors, and DoD science & technology and acquisition communities.

The DoD has not addressed several requirements established in the 2012 NDAA and described in 15 U.S.C. § 638(y). This legislation authorized DoD to establish goals for the transition of Phase III technologies in subcontracting plans and requires a prime contractor on such a contract to report the number and dollar amount of contracts entered into by that prime contractor for Phase III SBIR/STTR projects for efforts over $100,000,000; set a goal to increase the number of Phase II SBIR and STTR contracts that lead to technology transition into programs of record or fielded systems; and use incentives to encourage agency program managers and prime contractors to meet these goals. SBA believes implementing these practices across the DoD would increase the Phase III awards made and the number of SBIR and STTR technologies that transition into acquisition platforms.

To date, the DoD has not provided SBA with the number and percentage of Phase IIs leading to technology transition; information on the status of each project receiving funding through CRP and efforts to transition those projects; as well as any details or evidence they set a goal to increase Phase IIs that lead to technology transition, or a description of the incentives used to increase the effectiveness. The DoD provides SBA with a CRP report which describes the activities and firms helped under CRP funding and authority. The full FY19 DoD CRP report will be posted at https://www.sbir.gov/annual-reports-files.

Commercialization Readiness Pilot Program for Civilian Agencies (CRPP)

The SBIR/STTR Reauthorization Act of 2011 created the Civilian Agency Commercialization Readiness Pilot Program (CRPP) that allows an agency to use up to 10% of its SBIR/STTR budget for additional awards to SBIR/STTR awardees. The size of these awards may be up to three times the Phase II guideline amount. The DoD CRP is structured in a completely different way in that all the funding goes to support the firms but not to the firms, much like the Administrative Funding Pilot Program. Note that once an agency submits and has its CRPP plan approved by SBA, it does not have to reapply year to year.

The following table provide further data on how HHS, NASA, and DHS used the CRPP authority in FY19.

Table 26: Commercialization Readiness Pilot Program for Civilian Agencies (CRPP) - HHS, NASA, DHS

Agency	Number of Awards	Amount Obligated
HHS	18	$12,785,330
NASA	10	$7,362,714
DHS	2	$449,999

According to Section 9 of the Act, 15 U.S.C. § 638(b)(7)(F), participating Agencies must provide an accounting of funds, initiatives, and outcomes under the CRPP to SBA. The following subsections summarize FY19 CRPP activities.

HHS. HHS issued its first CRPP solicitation on November 2, 2015, and the first CRPP applications were received, and awards made in FY16. In FY19, HHS obligated $12,785,330 across 18 CRPP projects.

NASA. NASA received 13 CRPP proposals in FY19. NASA obligated $7,362,714 on 10 Phase II follow-on awards.

DHS. DHS received 2 CRPP proposals in FY19, which were funded with $449,999.

16 | Other SBIR/STTR Reporting Requirements

Awards to Small Business Concerns (SBCs) Majority-Owned by Venture Capital Operating Companies

The SBIR/STTR Reauthorization Act of 2011 provided authority to SBIR Participating Agencies to use a portion of its program funds for awards to firms that are majority-owned by multiple venture capital operating companies (VCOCs), hedge funds (HFs) or private equity firms (PEFs). HHS's NIH and Centers for Disease Control and Prevention (CDC) and DOE's Advanced Research Projects Agency-Energy (ARPA-E) elected to begin using this authority in 2013. Hereafter, firms that are majority-owned by multiple VCOCs, HFs, or PEFs are referred to as portfolio companies.

ED. In 2019, ED SBIR made one Phase II award to a firm that is owned by multiple VCOCs for $899,072, less than the maximum threshold for such awards through its program. ED submitted a written determination which was approved by SBA on August 3, 2018.

HHS/NIH. In FY2013, HHS/NIH submitted its written determination to SBA and Congress that NIH intended to exercise the authority to allow portfolio companies to apply to its SBIR program. Every new NIH SBIR solicitation issued after January 28, 2013, has allowed portfolio companies to apply to the NIH SBIR program.

HHS/CDC. On July 30, 2014, HHS/CDC submitted its written determination to SBA and Congress that CDC intended to exercise the authority to allow portfolio companies to apply to its SBIR program. Every new HHS SBIR solicitation, that CDC participates in, issued after July 30, 2014, has allowed portfolio companies to apply to the CDC SBIR program.

HHS has controls in place to ensure that overall spending on NIH and CDC portfolio companies will not exceed 25% or 15% of its SBIR set-aside respectively.

Table 27: HHS SBIR Awards to SBC majority-owned by multiple VCOCs, hedge funds or private equity firms

FY19 HHS SBIR Awards to SBC majority-owned by multiple VOCs, hedge funds or private equity firms	
Number of proposals received	17
Number of awards	15
Total dollar amount of awards	$9,126,120
Number of Phase I proposals Received	11
Number of Phase I Awards	9
Total dollar amount of Phase I Awards	$2,280,340
Number of Phase II proposals received	6
Number of Phase II Awards	6
Total dollar amount of Phase II Awards	$6,845,780
Number of non-competing awards	6 (year 2 or 3 of a Phase II, funded one FY at a time or a supplement to existing award from prior FY)
Total dollar amount of non-competing Phase II Awards	$3,353,104
Overall dollar amount of awards (competing and non-competing)	$12,479,224

Phase III Appeals

Pursuant to section 4(c)(8) of the SBIR/STTR Policy Directives, Participating Agencies are to notify the SBA before they pursue follow-on work on a technology developed under an SBIR/STTR Award with an entity other than the SBIR/STTR Awardee that developed the technology. The SBA did not receive such a notification from any funding agency during FY18. The SBA may also be contacted directly by SBIR/STTR awardees seeking assistance with perceived violations of the Phase III preference requirements or SBIR/STTR data rights. In such cases, the SBA works with the awardee and the relevant agency to resolve the issue and may, if warranted, appeal an agency decision or action to pursue Phase III work with another entity. None of the Participating Agencies or SBIR/STTR awardees reported Phase III appeals in FY19.

Outreach to Women- and Socially and Economically Disadvantaged Small Business Concerns (SBCs), and Underrepresented States

Pursuant to 15 U.S.C. §638(b)(7)(C), the SBA reports a description of the extent to which each federal agency is increasing outreach and awards to firms owned and controlled by women or by socially and economically disadvantaged individuals under each of the SBIR and STTR Programs. Proposal and award statistical information can be found in Sections 5 and 6 of this report. Detailed information on the individual agencies' activities can be found in Section 15.

Participating Agency Compliance with Executive Order 13329 - Encouraging Innovation in Manufacturing (E.O. 13329)

Section 9(ss) of the Act, 15 U.S.C. § 638(ss), requires that the Annual Report contain the following information from agencies that make more than $50 million in SBIR/STTR awards about Executive Order (E.O.) 13329:

- a description of efforts undertaken by the head of the federal agency to enhance United States manufacturing activities;
- a comprehensive description of the actions undertaken each year by the head of the federal agency in carrying out the SBIR or STTR Program of the agency in support of E.O. 13329 (69 Fed. Reg. 9181; relating to encouraging innovation in manufacturing);
- an assessment of the effectiveness of the actions carrying out E.O. 13329 at enhancing the research and development of United States manufacturing technologies and processes;
- a description of efforts by vendors selected to provide discretionary technical assistance to help SBIR and STTR concerns manufacture in the United States; and
- recommendations that the program managers of the SBIR or STTR Program of the agency consider appropriate for additional actions to increase the effectiveness of enhancing manufacturing activities.

Pursuant to E.O. 13329, agencies must give priority to small business concerns that participate in or conduct R/R&D "…relating to manufacturing processes, equipment and systems; or manufacturing workforce skills and protection." Each agency includes in its Annual Report to the SBA a synopsis of its implementation of these requirements. Agencies utilized a variety of approaches in addressing the E.O. 13329 directive. For most, these requirements are assessed

within the scope of each agency's R/R&D needs with tangible numbers of solicitation topics, awards, and dollars. Mechanisms commonly used by agencies to give priority to manufacturing-related work include: adding manufacturing-related topics in solicitations; requesting in solicitations that proposals address any possible manufacturing-related elements of the small businesses' proposed work, technological approach, delivery or resulting technological applicability to manufacturing processes; and, noting in solicitations that including such elements in proposals may provide a competitive advantage in the award selection process. Additionally, cross-agency collaborations, targeted outreach efforts, and other agency-specific activities related to manufacturing contribute to addressing the objectives of E.O. 13329. A detailed report on the individual agencies' activities and initiatives is located at https://www.sbir.gov/annual-reports-files

Participating Agency Compliance with the Energy Independence and Security Act of 2007 (EISA)

Section 9(z) of the Act, 15 U.S.C. §638(z), requires that the Annual Report include a determination of whether Participating Agencies give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system research and development projects.

Pursuant to the Energy Independence and Security Act of 2007 (Pub. L. No. 110-140) and the SBIR/STTR Policy Directives issued by the SBA, Participating Agencies must give high priority to Small Business Concerns that participate in or conduct energy efficiency or renewable energy system R/R&D projects. Agencies utilize a variety of approaches to comply with EISA and the Policy Directives. For some, such as DOE, these efforts are ingrained in the agency mission and therefore easy to assess in very tangible ways. Mechanisms commonly used by agencies – aside from specifically adding energy related topics in solicitations – include adding that solicitation proposals address any energy efficiency or renewable energy aspects related to the small businesses' technological approach, delivery or technological applicability and often provide such proposals a competitive advantage in the award selection process. Cross-agency collaborations, outreach efforts, and other initiatives also become critical to assessing the collective achievements of the program rather than focusing on individual agency performance. Each Participating Agency's Annual Report addresses EISA compliance by including: examples of SBIR/STTR projects related to energy efficiency or renewable energy; procedures and mechanisms used during the reporting fiscal year to give priority to energy efficiency and renewable energy projects in SBIR/STTR; and, specific actions taken to promote and support energy efficiency and renewable energy research projects. A detailed report on the individual agencies' activities and initiatives is located at https://www.sbir.gov/annual-reports-files.

Interagency Policy Committee (IPC)

The Interagency Policy Committee (IPC), as created by the SBIR/STTR Reauthorization Act of 2011, is co-chaired by the SBA and the White House Office of Science and Technology Policy (OSTP). The IPC is comprised of representatives from all SBIR/STTR Participating Agencies with the collective purpose to review issue areas and make policy recommendations on ways to improve SBIR/STTR Program effectiveness and efficiency. Throughout FY17, the SBA, OSTP, and the agency representatives (Program Managers) collaborated through the IPC in bimonthly Program Managers' meetings at the SBA to formulate policy recommendations to be submitted

to Congress. The IPC also achieved significant accomplishments in the areas of government data and reporting mechanisms through continued build-out of the www.SBIR.gov portal for registered users, creating administrative and programmatic efficiencies for agency reporting officials and small businesses participating in the SBIR/STTR Programs.

Annual Report on SBIR/STTR Program Goals

Pursuant to Section 15 USC § 638(nn), added by the Reauthorization Act:

> The head of each Federal agency required to participate in the SBIR Program or the STTR Program shall develop metrics to evaluate the effectiveness and the benefit to the people of the United States of the SBIR Program and the STTR Program of the Federal agency that are science-based and statistically driven; reflect the mission of the Federal agency; and include factors relating to the economic impact of the programs.

It further requires the agency to conduct an annual evaluation using these metrics and provide that report to the House and Senate Small Business Committees and House Committee on Science, Space and Technology, as well as the SBA Administrator. SBA followed up and verified with the Participating Agencies that no individual reports were submitted to Congress to address the reporting requirement pursuant to Section 15 U.S.C. § 638(nn). Agencies indicated that they feel the SBA Annual Report meets the spirit of this provision.

Direct to Phase II Awards

The SBIR/STTR Reauthorization Act of 2011 granted the authority to the National Institutes of Health, Department of Defense, and the Department of Education to make Phase II awards to small business concerns without regard to whether the company was provided a Phase I award. Prior to such an award, the heads of those agencies, or designees, must issue a written determination that the small business has demonstrated the scientific and technical merit and feasibility of the ideas that appear to have commercial potential. The determination must be submitted to SBA prior to issuing the Phase II award. The National Defense Authorization Act for Fiscal Year 2019 signed on August 13, 2018, extended this authority through FY22. The bill also requested SBA provide an analysis and metrics on the program. In accordance with the requirement, SBA provided metrics and analysis on agency use of the Direct to Phase II authority within the FY18 SBIR/STTR Annual Report. The below table summarizes the current usage and obligations amount for Direct to Phase II awards during FY19.

Table 28: Direct to Phase II Awards

Agency	New Direct to Phase II Awards	Total Obligations (including those on prior awards)
Air Force	4	$2,804,551
Defense Advanced Research Projects Agency (DARPA)	-	$11,462,549
National Institutes of Health (NIH)	26	$36,215,452
Total	30	**$50,482,552**

NIH Phase 0 Proof of Concept Partnership Pilot Program

The Phase 0 Proof of Concept Partnership Pilot Program was authorized through the National Defense Authorization Act for Fiscal Year 2012, section 5127 of Public Law 112-81 (Dec. 31, 2011), and allowed the National Institutes of Health (NIH) to use up to $5 million of its annual STTR

set-aside to make awards to research institutions (not to exceed $1 million per institution per year) to accelerate the creation of small businesses and the commercialization of research innovations.

The NIH implemented the authority by creating the Research Evaluation and Commercialization Hub (REACH) program to address barriers to the commercialization of biomedical basic science discoveries, including a gap in funding programs between discovery-based research and the SBIR/STTR programs, a lack of academic innovators' knowledge about how new technologies are brought to market, and a lack of access to sufficient technology development and commercialization resources. The funds could be used to support work including technical validation, market research, clarification of intellectual property rights position and strategy, and investigation of commercial or business opportunities.

In 2015, NIH provided $1 million per year for three years to each of the following Hubs:

- Long Island Bioscience Hub (LIBH), based at Stony Brook University, with partner institutions Cold Spring Harbor Laboratory, Brookhaven National Laboratory, and the Feinstein Institute for Medical Research;
- MN-REACH at the University of Minnesota; and
- University of Louisville (UofL) Expediting Commercialization, Innovation, Translation, and Entrepreneurship (ExCITE).

The program was subsequently reauthorized through FY 2022 in the John McCain National Defense Authorization Act for Fiscal Year 2019, section 854(a) of Public Law 115-232 (Aug. 13, 2018). At the end of fiscal year 2019 the NIH awarded $1 million per year for four years to each of the following Hubs:

- Kentucky Network for Innovation and Commercialization (KYNETIC) based at University of Kentucky in partnership with all public universities and technical colleges in Kentucky;
- Midwest Biomedical Accelerator Consortium (MBArC) based at University of Missouri, Columbia in partnership with 15 other universities in Kansas, Missouri, Nebraska, North Dakota, Oklahoma, and South Dakota;
- Rutgers HealthAdvance at Rutgers University;
- Colorado-SPARK REACH at University of Colorado; and
- WE-REACH at University of Washington.

The eight REACH Hubs span 48 universities and technical colleges in 12 states. The total program funding is $43 million, with NIH contributing $29 million in STTR funds and Hubs and their local partners contributing $24 million in matching funds. Each REACH site provides funding through a competitive selection process assisted by external review boards of local biomedical industry experts, milestone-driven project management with go/no-go decision points, and product development and entrepreneurial education and training.

The REACH 2015 program that was active from late 2015 until 2018 provided education and training to 1,013 individuals and funded 127 technology development projects. These projects have led to the formation of 28 startup companies. These companies have submitted 40 SBIR/STTR applications (10 awards have been received and funding decisions are pending for 11 applications). In addition, 6 technologies have been licensed and 6 are optioned. A total of $88.35 million in follow-on funding has been secured to move technologies closer to the market. Despite the relatively lengthy time required to commercialize biomedical technologies, several technologies have reached patients in a clinical trial setting or in the consumer marketplace.

These include a commercially available artificial brain to improve the power of functional MRI as a diagnostic tool, an online toolkit to address burnout in first responders that is currently being used by more than 6,500 people in all 50 states, and a new drug that latches onto tumors and prompts the immune system to fight cancer that is in Phase I clinical trial.

The REACH 2019 program has only been active since the end of fiscal year 2019. As of August 2021, 872 individuals have received education and training, 60 projects have been funded, 8 startup companies have been formed, 2 technologies have been licensed, and 1 has been optioned. These startup companies have applied for 9 SBIR/STTR applications (3 awards have been received and funding decision is pending for 1 application).

17 | SBA Accomplishments

The Office of Innovation and Technology (OI&T), within SBA's Office of Investment and Innovation, is the office at SBA that is responsible for the oversight and management of the SBIR and STTR Programs on behalf of the Administrator. SBA responsibilities identified in Section 9 of the Small Business Act (15 U.S.C. § 638(b)) include: assisting small businesses in participating in the SBIR/STTR Programs; coordinating and monitoring Federal agency operation of the SBIR/STTR Programs; managing databases and SBIR/STTR Program data; and reporting activities to Congress.

Advocacy for SBIR/STTR

OI&T focuses on building stronger relationships with and for the 11 Participating Agencies. Improving assistance provided to potential applicants, especially those from underrepresented communities is a priority and much of that is executed by building a strong network of those that are often called the "innovation ecosystem". This network is made up of individuals, for profit, nonprofit, universities, state economic development organizations, and others. SBA plays the role of intermediary for these organizations and the Participating Agencies. Our network is much wider than the FAST and Growth Accelerators we fund directly, and it continues to grow.

Key efforts included the SBIR Road Tour, major upgrades to the SBIR.gov business intelligence database platform and working with the university startup community. SBA continues to improve and expand the training tools available on the SBIR.gov website. SBA exposes the hundreds of stakeholders across the innovation ecosystem to these tools and provides them training so they themselves can better train entrepreneurs in applying to and succeeding in the programs. Additional activities are discussed below.

SBIR.gov Improvements

A focus for 2019 was assessing the functionality of SBIR.gov and improving data quality from Participating Agencies, incorporated into these annual reports, and posted on SBIR.gov. SBA engaged agencies to discuss functionality shortcomings and developed a technology improvement roadmap to lead future modernization and enhancements to SBIR.gov. These enhancements focus on both the data collection from the agency portal and the public facing site to support entrepreneurs as they consider the SBIR and STTR program opportunities.

Innovation Ecosystem Support

Collecting award data, monitoring agencies, and reporting SBIR/STTR activity are part of the overall goals for the office, but equipping networks within the innovation ecosystem is also critical to increase quality SBIR/STTR assistance for potential applicants, regardless of where they are based. During 2019, SBA continued to host a monthly call for SBIR support organizations, growing participation from 340 to 450 individuals around the country. Calls featured updates directly from participating agencies, announcements of funding opportunities for support organizations, upcoming outreach events, and fostered an environment of collaboration between federal and state partners.

In FY 2019, SBA was appropriated funds for two programs to support the innovation ecosystem. The Federal and State Technology (FAST) Partnership Program, and the Growth Accelerator Fund Competition (GAFC) are both described in detail in section 21 of this report.

Road Tour and Conferences

The SBIR Road Tour is a national outreach effort coordinated by the SBA and supported by the federal Participating Agencies to grow the national innovation ecosystem. By working with local and regional hosts, SBA raises awareness of SBIR/STTR funding opportunities, provides information to help potential applicants develop more competitive proposals, and highlights relevant partners and programs.

The FY19 SBIR Road Tour brought on average 17 SBIR agencies or ODAs to each stop to meet directly with potential applicants and community partners, successfully reaching historically underrepresented states and individuals (including women-owned as well as socially and economically disadvantaged small businesses, rural populations, HBCUs and MSIs.) Furthermore, these stops offered opportunities to engage the R&D community and local innovation support organizations (including SBDCs and PTACs) critical to the growth and development of local technology ecosystems. The fifth year of the SBIR Road Tour included 17 stops over 4 tours in the following regions: Central Plains, Southwest, Eastern, and Miami-Puerto Rico. These events averaged over 150 attendees per stop. In total, these tours provided almost 2,500 attendees with a local opportunity to hear directly from Program Managers from the Participating Agencies and facilitated over 2,600 one-on-one meetings between entrepreneurs and Participating Agency personnel. SBA and the Participating Agencies also participated in the 2018 Fall SBIR/STTR Conference (Tampa, FL) and 2019 SBIR Innovation Summit (Boston, MA).

Training

SBA continued improving the training tools available on SBIR.gov while offering targeted Train-the Trainer courses for stakeholders across the innovation ecosystem, including entrepreneur support organizations working directly with small businesses. In FY19, SBA offered 4 courses focused on either helping potential applicants or assisting first time awardees. Each course included 10 sessions with a live instructor, discussion boards, and select homework assignments to better equip participants and deepen their understanding of the SBIR/STTR programs.

SBIR/STTR Program Managers Meetings

SBA continued facilitating bi-monthly meetings with the SBIR/STTR Program Managers. In these meetings, SBA and the 11 Participating Agencies discussed issues including outreach strategies, best practices, challenges, improving data integration, and policy updates.

Fraud, Waste, and Abuse

Fraud, Waste, and Abuse (FWA) was a regular topic for discussion at the bi-monthly SBIR Program Managers meetings. SBA discussed the topic at every meeting and encouraged agencies to share FWA best practices. This included best practices on sharing information regarding duplicate proposals submitted by firms, sharing agency Inspector General contact information, discussing the requirement to publish and successful FWA cases on agency websites, as well as discussing the importance of obtaining complete FWA certifications from awardees.

The SBIR program office had ongoing discussions with the SBA Office of Inspector General (OIG) at the SBIR OIG Working Group regarding FWA trends in the program.

18 | Agency Summaries

Department of Commerce (DOC)

The Department of Commerce's SBIR Programs are administered by the National Institute of Standards and Technology (NIST) and the National Oceanic and Atmospheric Administration (NOAA).

FY 2019 SBIR Highlights

- Both NIST and NOAA fund small businesses to perform research and development in technology areas that align with the agencies' missions as described in annual solicitations. The technologies demonstrate significant potential for successful commercialization.

FY 2019 SBIR Success Stories

- En'Urga Inc. - Combined Extinction/Fluorescence Absorption Diagnostics for Pharmaceutical Sprays
- Grier Forensics, LLC - Secure Email Agent Using the Domain Name System (DNS) as a Trust Infrastructure
- QalibreMD, Inc. (previously dba High Precision Devices, Inc.) - Optimization of the NIST/UCSF Breast Phantom for Quantitative MRI

FY 2019 Commercialization/Outreach Activities

- NIST implemented a Technology and Business Assistance (TABA) program for NIST Phase I and Phase II awardees.
- NIST participated in two SBIR Road Tours and several conferences. The percentage of Phase I and Phase II awards made to WOSBs increased from 19% in FY 2018 to 31% in FY 2019.

Department of Education (ED)

ED's SBIR program, operated by the Institute of Education Sciences (IES), provides up to $1.1M in funding to small businesses and partners to translate their innovative R&D ideas into research-based and commercially viable products to address educational challenges and improve relevant outcomes for teachers, students, and administrators, in education and special education. The funds enable firms to develop prototypes, conduct iterative R&D to inform refinements, access full-scale development, and perform pilot research in schools to determine the feasibility and promise. After a project ends, firms commercialize and disseminate the products to schools, teachers, and students, often producing solid results and gaining media and key stakeholder recognition of ED SBIR as an innovation driver in the ed-tech ecosystem. Information about the program can be found on the program website http://ies.ed.gov/sbir and the video page http://ies.ed.gov/sbir/videos.asp.

Key FY19 Achievements

- ***Real World Impact*** – In 2019 millions of students in thousands of schools (and dozens of countries) used research-based products developed fully or in part with support of ED SBIR. View the ED SBIR Success Story page for examples of products that are in wide scale use, including the following Success Stories that were added in 2019: Electric Funstuff; Attainment Company; Readorium; and Learning Ovations.
- ***ED Games Expo*** – For the 6th consecutive year, ED SBIR led the ED Games Expo, the public showcase for more than 50 small businesses that developed emerging learning games and technologies out of SBIR programs at ED, NSF, NIH, and the DOA. The 2019 Expo was held at the John F. Kennedy Center for the Performing Arts and attracted 1600 attendees, including more than 1200 students from area schools. Articles and blogs about the 2019 ED Games Expo included the following: A video review by STEMS; an ED Week Market Brief article; a WTOP News Story; and a @USEDGOV video trailer. In addition, several SBIR entrepreneurs were featured in a How The Game Was Made series of TED-style talks and a high school class described their experience playing the ED SBIR supported games ECO.
- ***Building Capacity for Small Businesses Across the Field of Education Technology*** – ED/IES SBIR provided substantive technical assistance to over 300 small business firms, including potential applicants before solicitations were released and to all awardees during- and after- the project period.
- ***ED SBIR product was used by NASA to Manage their Name the Rover National Student Competition***: Read Here a blog describing an SBIR project by Future Engineers that is being used by NASA to run their Name the Rover Competition, and which has received a Phase III award from NASA.
- ***ED SBIR product was invited to the United Nations Climate Summit:*** ECO by Strange Loop Games was one of the invited participants in the UN Climate Summit. Read in a *United Nations press release* (Here), in *USA Today* (Here), and in the *NY Post* (Here).

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Department of Energy (DOE)

The DOE SBIR & STTR Programs provide research and development funding to advance the physical sciences and to improve energy and national security. Small businesses participating in these programs often collaborate with the DOE National Laboratories to take advantage of their unique capabilities and expertise.

Expanded Commercialization Assistance: In FY 2019 DOE fully implemented expanded technical and business assistance (TABA) provisions in its SBIR/STTR Funding Opportunity Announcements. The expansion was enabled by changes passed in John S. McCain National Defense Authorization Act for Fiscal Year 2019. Phase I awardees are now eligible to receive up to $6,500 in TABA funds and Phase II awardees up to $50,000, either from vendor(s) of their own choice or through a vendor under contract to DOE. Allowable expenses were expanded to include patent and regulatory costs. The expansion in TABA led to a significant increase in small businesses choosing to utilize their own vendors for both Phase I and II.

DOE also implemented the Commercialization Assistance Pilot Program (CAPP) in FY 2019. The program allows small businesses that have received both a first and second SBIR Phase II awards from DOE to apply for a third Phase II award provided that they have at 1:1 investor matching funds. We received only a limited number of applications for this new program in FY 2019 and made no awards, but did issue our first CAPP award in FY 2020.

Enabling Small Business Partnerships with DOE National Laboratories: Small business are challenged to execute partnership agreements with large research institutions that fully address their unique needs as an SBIR or STTR awardee. In FY 2019, DOE General Counsel developed a standardized template for such agreements that that will eliminate or minimize negotiation time while protecting SBIR/STTR data rights for small businesses. This template in undergoing adoption by the contractors that operate the DOE National Laboratories with five National Labs already signed on.

Small Business Highlight
Telescent, Inc. | Santa Monica, CA

Fiber optic interconnects are the most numerous devices in a data center, totaling hundreds of thousands of cables connecting all the servers with switches and storage devices. Today these cables are managed using manual processes, which are highly inefficient, particularly as data centers scale. The technical challenges involved in robotically reconfiguring fiber optic strands without physical entanglement has stymied progress for several decades at the leading telecom research laboratories in the U.S. and Japan. Telescent was founded in 2008 by Dr. Anthony Kewitsch and Prof. Amnon Yariv with the vision of automating the physical layer of fiber optic connections by leveraging software sophistication rather than hardware complexity. Using innovative algorithms and special robotic designs, Telescent has introduced a fiber optic cross-connect capable of automating the physical layer of fiber optic connections in data centers. Telescent has reached $5M in product sales and is expected to reach $250M in 4 years. With its innovative technology and sound results, Telescent has been able to attract the interest of several investors, including some venture capitalists who had been early investors in Apple Computer and AOL.

Department of Health and Human Services (HHS)

The HHS SBIR/STTR Programs are administered by the National Institutes of Health (NIH) to invest in early-stage biomedical, health, and life science companies creating a wide range of innovative technologies aligning with NIH's mission to improve health and save lives. A key objective of this work is translating promising technologies with strong potential for commercialization to the private sector through strategic public and private partnerships, so that life-saving innovations reach consumer markets.

FY 2019 SBIR/STTR Highlights

- Awarding over 1,600 SBIR/STTR Phase I, Phase II, Phase IIB, and Fast Track applications to US small businesses.
- HHS Technical Assistance (Niche Assessment, Commercialization Accelerator, I-Corps) Programs assisted ~300 SBCs.

FY 2019 SBIR/STTR Success Stories

- **Captozyme** (FL – acquired by Arranta Bio, a Massachusetts based microbiome therapy company);
- **Ecovative** (NY –$10 million in capital to develop sustainable materials from fungi);
- **Platelet Biogenesis** (MA – raised over $26 million in a series A-1 financing round to accelerate the development of manufacturing capabilities and advance its proof of concept work around platelet-based therapeutics); and
- **Apex Biomedical Company** (OR – Successful launch of the SBIR supported WaveCel technology. Four bicycle helmet models with WaveCel technology were released by the licensing partner, Trek Bicycle Corp.).

FY 2019 Commercialization/Outreach Activities

- Expanded an NIH-wide Entrepreneur in Residence program to assist and mentor small businesses.
- Supported awardee attendance at multiple investor forums to facilitate partnering with third-party investors and conferences.
- Coordinated an HHS Women and Minority Outreach Small Business interest group to develop strategies to increase participation.
- SBIR Administrative Diversity Supplement specifically to provide funding for underrepresented groups to be hired on existing grants/research projects
- 20th Annual HHS SBIR/STTR Conference was hosted in Dallas, TX on October 30 through November 1, 2018, reaching 454 attendees (193 businesses) from 40 states plus the District of Columbia and U.S. Virgin Islands. This event included several workshops designed for women and minority owned businesses.
- Participated in 199 events (in person and virtual) hosted in 43 states (including 13 IDeA states) and the District of Columbia reaching over 21,000 attendees (including over 650 socially-economically disadvantaged businesses and 600 women owned businesses).
- Reached over 2,227 attendees and conducted 2,558 meetings in 15 states and territories, during the SBIR Road Tour.

Department of Homeland Security (DHS)

The DHS SBIR Program serves to increase small business access to DHS R&D opportunities while providing innovative solutions for DHS technology needs. The DHS SBIR Program is administered through the Science and Technology Directorate (S&T) and the Countering Weapons of Mass Destruction (CWMD) Office.

S&T SBIR focuses on delivery of innovative solutions for federal, state and local emergency responders and managers, as well as internal DHS operational units to support the DHS missions: Prevent Terrorism and Enhance Security, Secure and Manage Our Borders, Enforce and Administer Our Immigration Laws, Safeguard and Secure Cyberspace, and Strengthen National Preparedness and Resilience.

CWMD SBIR focuses on aggressive and expedited small business R&D developing break-through technologies to prevent attacks against the United States using a weapon of mass destruction. CWMD uses small business to identify, explore, develop, and demonstrate new technologies and capabilities that federal, state, and local law enforcement and other public safety officials can use to carry out their mission to prevent chemical, biological, radiological, and nuclear threats and incidents

DHS SBIR Addresses the R&D Needs of the 7 DHS Operational Units (as well as First Responders nationwide)

- U.S. Coast Guard
- U.S. Transportation Security Administration
- U.S. Customs and Border Protection
- Federal Emergency Management Agency
- U.S. Citizenship and Immigration Services
- U.S. Immigration and Customs Enforcement
- U.S. Secret Service

DHS SBIR has awarded 1,026 contracts since 2004.
In FY 2019:

- 24 Phase I contracts totaling $3.5 million across ten topic areas
- 11 Phase II contracts totaling $13.5 million
- 4 Phase II contracts from other agency topics totaling $3.8 million

Commercialization Readiness Pilot Program: In FY 2019, while continuing its Commercialization Assistance Program, the DHS SBIR Program initiated several efforts aimed at improving the chances of commercial success of SBIR technology efforts and the small businesses developing them. Key aspects of this approach include: mentoring of small businesses to improve business and marketing skills including end-user product knowledge, and additional investment in promising Phase II technologies to improve technical readiness.

Department of Transportation (DOT)

U.S. DOT's highly competitive SBIR program, managed for over 30 years by the Volpe National Transportation Systems Center, awards contracts to domestic small businesses to pursue research on and develop innovative solutions to our nation's transportation challenges across all modes. U.S. DOT seeks SBIR applicants who can help the Department anticipate and address emerging issues by advancing technical, operational, and institutional innovations through specific R&D topics of interest to the eight DOT operating administrations:

- Federal Aviation Administration
- Federal Highway Administration
- Federal Motor Carrier Safety Administration
- Federal Railroad Administration
- Federal Transit Administration
- National Highway Traffic Safety Administration
- Pipeline and Hazardous Materials Safety Administration
- Office of the Assistant Secretary for Research and Technology.

FY 2019 SBIR Highlights

- In FY 2019, U.S. DOT awarded eleven Phase II SBIR awards across nine research topics funded by four DOT operating administrations and awarded three Phase IIB awards to prior Phase II awardees.
- Approximately 77% of FY 2019 Phase II awardees chose to participate in DOT's Technical and Business Assistance (TABA) Program, accessing a wide variety of business services to help their technology progress and reach commercialization.

FY 2019 Commercialization/Outreach Activities

- DOT continued to offer the Technical and Business Assistance (TABA) Program to all Phase I and Phase II awardees. All SBIR awardees may receive up to $5,000 per year of award for a wide variety of services provided by DOT's vendor, or the awardee may use their own vendor.
- The DOT SBIR Program Office participated in the SBA's SBIR Road Tour, the SBIR/STTR Spring Innovation Summit, and the Transportation Research Board Annual Meeting, reaching small businesses across the country.

FY 2019 SBIR/STTR Success Stories

U.S. DOT featured three SBIR Success Stories in FY 2019:

- **Tool, Inc.** designed and developed prototype seat belt retractor countermeasures aimed at reducing the risk of seat belt entrapment.
- **Soar Technology, Inc.** developed a system that alerts drivers to their surroundings during the handoff between an automated driving system and a human driver – a key challenge in safely integrating autonomous vehicles into our nation's transportation system.
- **Pulsar Informatics, Inc.** developed a data analytics technology that uses existing streams of trucking data to evaluate driver fatigue and provide actionable feedback in near real-time.

Environmental Protection Agency (EPA)

EPA's SBIR Program is a small program with the big mission- to develop and commercialize technologies that protect human health and the environment. EPA works to keep its annual solicitation responsive and relevant. Interaction and communication within the Agency are key to identifying the most important and current environmental needs in areas such as clean and safe water, air quality, land revitalization, homeland security, manufacturing, sustainable materials management, and safer chemicals.

Key FY19 Achievements

Commercialization - EPA works closely with its small businesses to help them commercialize their technologies. The proposal evaluation criteria emphasize commercialization, including business expertise, partnerships, and track record. Peer reviewers with commercialization experience make up a significant portion of each peer review panel. EPA also provides commercialization assistance to all its Phase I and Phase II companies. In addition, EPA has a commercialization option where Phase II companies can receive a funding supplement of up to $100,000 from EPA for securing 3rd party investment. In FY19, all the following EPA- funded SBIR companies successfully brought in outside investment and received the EPA option funding.

FY 2019 SBIR/STTR Success Stories

TIAX LLC, a small business based in Massachusetts, is developing technology within the homeland security sector for the encapsulation of biological contaminants in transportation systems. TIAX received a $749,919 contract from the US Army, Defense Forensics and Biometrics Agency (DFBA) for their forensic surface sampling technology. With EPA and DFBA funding, TIAX plans to explore pathways to make formulations manufacturable for their technology.

Instrumental Polymer Technologies, LLC (IPTech), a small business out of California, received a third-party investment of $100,000. The investment was from angel investors interested in seeing the work IPTech is doing towards developing a biodegradable plastic move closer to the marketplace. IPTech develops sustainably derived materials for multiple different applications and has received several EPA SBIR awards.

Vaporsens, Inc., a small business based in Utah, is using novel organic nanofiber technology to develop a highly sensitive, real-time sensor for indoor formaldehyde detection. In 2019, Vaporsens received a $1 million investment from a global supplier of advanced technology. Vaporsens will use third-party funds and the EPA option to develop prototypes and facilitate commercialization.

Microvi Biotech Inc., a small business out of California, received third-party investments in collaboration projects from two water utility companies, Scottish Water and Thames Water Utilities Ltd., in the United Kingdom. Microvi's innovative process, Provi™, uses microorganisms to

remove phosphorus and ammonia from municipal wastewater and recover phosphorus as a valuable by-product.

ASAT, Inc., a small business based in Oregon, developed the Integrated Stove, a clean-burning cookstove that can be used for cooking, home heating, and provide electricity for lighting and charging cells phones and small appliances. ASAT received funding from a partnership with the Gates-funded Global Good organization. EPA SBIR funding has allowed ASAT to succeed in making international sales and its products are now found in more than 30 countries, including a tender from the Nigerian government for 25,000 Integrated Stoves.

National Aeronautics and Space Administration (NASA)

The NASA SBIR and STTR programs fund the research, development, and demonstration of innovative technologies that fulfill NASA needs as described in the annual Solicitation and have significant potential for successful commercialization. Commercialization encompasses the transition of technology into products and services for NASA mission programs, other Government agencies and non-Government markets. NASA research and technology areas solicited in 2019 are aligned by the Agency's Mission Directorates. The Directorates identify high priority research and technology needs for their respective programs and projects. The needs are explicitly described in the topics and subtopics descriptions developed by technical experts at NASA's Centers.

FY 2019 Key SBIR/STTR Highlights

- In FY19, Woman-Owned Small Businesses represented 10 percent of the awards, Small, Disadvantaged Businesses received 11 percent of the awards, and approximately 27 percent of awards went to companies that were first-time awardees for NASA.
- In FY19, NASA awarded 82 Phase III awards made worth over $31 million – this is up from 57 in FY18 and 50 in FY17. This upward trend demonstrates our success in developing subtopics and then selecting proposals that meet agency needs so that projects are willing to pick them up and carry them forward. We are also able to better track the Phase III's as a result of consolidating the award negotiation and administration at the NASA Shared Services Center (NSSC).
- To overcome the government shutdown, the program pursued several process efficiencies which allowed us to both meet our obligation to the small business community by maintaining our award dates, and also allow us to obligate our funding on time.
- In our FY19 solicitation, we specifically called out subtopics that could provide downstream opportunities on the Commercial Lunar Payload Service (CLPS) providers. This made it easier for firms to find content that is important to high priority NASA interests and supports our Moon to Mars initiative.

FY 2019 Commercialization/Outreach Activities

- **I-Corps Training Program:** In FY19, NASA continued its partnership with the National Science Program (NSF) which allowed NASA selected teams from the Phase I awardees to participate in the NSF Innovation Corps program (I-Corps TM). I-Corps educates teams on how to translate technologies from the laboratory into the marketplace. In FY19, NASA selected 22 SBIR Teams to participate in the NSF I-Corps Bootcamp program and 3 STTR Teams were selected to participate in the NSF I-Corps Cohort program.
- **Phase II-E Options in active Phase II Contracts:** The objective of the Phase II-E Option is to further encourage the advancement of innovations developed under Phase II via an option to further R/R&D efforts underway on active Phase II contracts that are in good standing with NASA. Eligible firms must secure a non-SBIR/STTR investor to contribute funding towards further enhancing the research to qualify for this option. The investor may be a non-SBIR/STTR NASA program; or may be an investor external to NASA, from another government agency or the private sector, depending on the strategy being pursued for enhancing the technology for further research, infusion, and/or commercialization. For FY19, 34 SBIR worth $7.3 million and 4 STTR worth $1.1 million Phase II-E options were executed. These each had a matching investor as well.
- **Civilian Commercialization Readiness Pilot Program (CCRPP):** NASA offered the CCRPP program again after pausing in FY18 to review the results and input from stakeholders and consider beneficial changes to the program. The SBIR/STTR Program is interested in advancing SBIR/STTR-developed technology through a combination of further SBIR/STTR program investment and non-SBIR/STTR program investor funds. The primary objective of the NASA CCRPP is an infusion or commercialization, not an incremental improvement in technology maturation alone. For FY19, the program made 10 CCRPP awards worth $7.3 million which was matched 1:1 by an investor.
- **Innovation and Opportunity Conference (IOC):** This event was hosted by Colorado Business Development Foundation (CBDF), the Colorado Small Business Development (SBDC) Network, and American Institute of Aeronautics and Astronautics (AIAA) in Aurora, CO on November 7-8, 2018. The event offered SBIR/STTR basics but focused on transition opportunities. There were over 350 attendees including 181 small businesses and 212 one-on-one meetings were held.
- **STTR Sequentials Pilot:** In FY19, the program conducted a pilot program to offer sequential Phase II awards under our STTR program. The program invited proposals from firms with technologies of high value to NASA. This pilot influenced the larger sequential program developed in FY20 to support NASA's Moon to Mars initiative.

FY 2019 SBIR Success Stories: The articles highlight Infusions, Phase IIIs, and Commercial Successes for SBIR/STTR technologies

- Virginia Diodes: VDI, a small business based in Charlottesville, VA, was founded in 1996. They received awards to fund research and development for a lesser developed region of the electromagnetic spectrum—terahertz waves. Their work led to funding from NASA Earth Science Technology Office, and the resulting CubeSat (named IceCube) captured the world's first ice cloud map, which will contribute to our understanding of Earth's climate.

- OnRobot (formerly Perception Robotics): Recently featured in NASA Spinoff for their industrial robotic gripper. The technology stems from the weak electrical attraction that allows geckos to scale even the smoothest surfaces. The company received Phase I and II SBIR awards to develop the technology further. OnRobot is still improving the device and releasing new generations, but it's already come a long way. The gripper can achieve an adhesion force of 35 to 40 kilopascals on a polished surface. This makes it competitive with vacuum grippers. The company says it can easily lift polished metal weighing up to about 14 pounds.

Operational and Technical Modernization

- In FY19, the program set up process steering committees focused on improving the usability of the Electronic Handbook which is the NASA SBIR/STTR interface that is used by everyone involved in the program from firms to technical reviewers to those responsible for making selections. The steering committees were made up of representatives from each user group and were charged with bringing down barriers to participation and making our system more user friendly.
- In order to better position our program to deploy awards that are better positioned for transitions, and to enable more flexibility in the ways we respond to potentially fluctuating budgets, the program underwent an Organizational Design exercise and restructured into workstreams focused on supporting both core and strategic initiatives. This will enable the team to be more agile and deliver more effectively.

National Science Foundation (NSF)

America's Seed Fund powered by the National Science Foundation (NSF) awards $200 million annually to startups and small businesses, transforming scientific discovery into products and services with commercial and societal impact. Companies working across almost all areas of science and technology can receive up to $1.5 million to support research and development (R&D), helping de-risk technology for commercial success. The NSF is an independent federal agency with a budget of about $8 billion (in FY2019) that supports fundamental research and education across all fields of science and engineering. For more information, visit seedfund.nsf.gov.

FY 2019 SBIR/STTR Highlights

- In March 2019, NSF launched its Project Pitch to allow startups or entrepreneurs to submit a three-page online form prior to completing a full proposal. Each Project Pitch receives a response within three weeks that notifies the startup/entrepreneur if they fit the NSF's program objectives of supporting innovative technologies that show promise of commercial and/or societal impact and involve a level of technical risk. Startups with technology that fits the program objectives are then invited to submit a full proposal and are helped through the process and required registrations by the cognizant NSF SBIR/STTR program director.
- Engaging and Supporting First-Time Applicants – A total of 55% of all Phase I proposals received in FY2019 were from first-time applicants (i.e., companies who had never submitted a proposal to NSF before).
- NSF Phase I awards made were to first-time NSF applicants (57%) with companies with 10 or fewer employees (96%) and established within the last five years (86%).

FY 2019 SBIR/STTR Success Stories

- Acquisition Highlights – The calendar year 2019 saw 18 confirmed acquisitions, mergers, or initial public offerings of NSF awardee firms (including zyBooks, NGCodec, and Deepscale).
- Featured Awardee – Sila Nanotechnologies, an NSF-funded company developing new materials for better batteries, raised $215 million in 2019, inked a partnership with Daimler and saw its valuation rise to $1 billion.
- NSF SBIR Portfolio companies raised 40 separate private capital rounds that were greater than $10 million each and 107 separate private capital rounds that were greater than $1 million each in fiscal year 2019.
- The total private equity funding raised by the NSF SBIR portfolio companies in 2019, according to CB Insights, was $1.69 billion.

FY 2019 Commercialization/Outreach Activities

- NSF partnered with the USPTO and SBA to create a new "Government Startup Connection" pavilion at the Consumer Electronics Show (CES) to help startups see the full range of funding and services provided by the federal government.
- NSF sponsored TechCrunch and paid for a promoted story that generated 423,732 impressions, 5,000 clicks and 10,000-page views. Many Project Pitch submitters reported that they learned about the program from the story.

- NSF piloted a program for SBIR/STTR awardees giving them the opportunity to apply for participation in the full NSF I-Corps program (11 companies participated).
- NSF actively engaged with multiple communities to ensure higher participation of underrepresented groups through the Inclusion in Innovation Initiative (I4), beginning with I-Corps so that these teams can be prepared for success in the SBIR program. The pilot activity is with the GEM Consortium (https://www.nsf.gov/awardsearch/showAward?AWD_ID=1940055).
- In addition, NSF piloted Culturally Relevant Enterprise Development (CRED), short courses piloted with the Native American/Alaska Native (NA/AN) communities to develop entrepreneurial skills toward new ventures aligned with their communities.

19 | Federal and State Technology Partnership (FAST) Program

The Federal and State Technology Partnership (FAST) Program, reestablished under the Consolidated Appropriations Act of 2010, is a competitive grants program administered by the SBA and designed to build and grow the pipeline of potential SBIR/STTR applicants. FAST improves the participation of small technology firms in the innovation and commercialization of new technology, thereby helping keep the United States on the forefront of R&D in science and technology. All 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and the American Samoa may receive funding for an array of services in support of the SBIR/STTR Programs.

FAST places an emphasis on helping underrepresented applicants, specifically women, socially and economically disadvantaged, and rural-based firms compete in the SBIR/STTR Programs.

In FY 2018, the 2019 cohort of 24 organizations was announced, with a program period ranging from September 30, 2018, to September 29, 2019. The 2019 cohort's efforts played a vital role in helping entrepreneurs around the country learn about funding SBIR/STTR funding opportunities, submit competitive proposals, and commercialize the work developed under their SBIR/STTR award. Examples of successful cohort initiatives included strengthening relationships with other local innovation ecosystem partners, hosting events for potential applicants particularly in underrepresented areas and populations, fostering relationships with research institutions as well as labs, offering training sessions on key issue areas, helping companies identify technical assistance needs, connecting companies with mentors, and developing newsletters highlighting SBIR/STTR opportunities.

In FY 2019, a total of $3,000,000 was appropriated as grants for entities to carry out targeted activities. SBA announced the selection of the 2020 Cohort in August 2019, which included 24 FAST grants for up to $125,000 each to state and local economic development agencies, Small Business Technology Development Centers, Women's Business Centers, incubators, accelerators, colleges, and universities to support innovative, technology-driven small businesses developing and commercializing high risk technologies. FAST candidates were submitted through each of their state and territorial governors, as each governor may submit only one proposal. Proposals were evaluated by panels of reviewers from SBA, NASA, NIST, USDA, SOCOM, DHS, DOE, MDA, and NIH. FAST awards were made based upon the merits of each proposal. Varying levels of matching funds were required, based on the number of SBIR Phase I awards in each state. The FAST award project and budget periods are for 12 months, beginning September 30, 2019, through September 29, 2020.

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The 2020 FAST Cohort includes the following awardees:

FAST State Organizations awarded up to $125K:

- Arkansas | University of Arkansas at Little Rock
- Colorado | Colorado Office of Economic Development and International Trade
- Connecticut | Connecticut Innovations, Inc.
- Hawaii | Hawaii Technology Development Corporation
- Indiana | Northeast Indiana Innovation Center
- Kansas | Wichita State University
- Louisiana | Louisiana Business & Technology Center/LSU
- Maryland | Maryland Technology Development Corporation
- Minnesota | Minnesota High Tech Association
- Mississippi | Innovate Mississippi
- Missouri | The Curators of the University of Missouri, Office of Sponsored Programs
- Montana | Montana State University
- Nebraska | University of Nebraska at Omaha – Nebraska Business Development Center
- Nevada | University of Nevada, Reno
- New Mexico | Arrowhead Center of New Mexico State University
- North Carolina | First Flight Venture Center, Inc.
- Ohio | Ohio Aerospace Institute
- Oklahoma | The University of Oklahoma Tom Love Innovation Hub
- Oregon | VertureLab
- South Carolina | University of South Carolina
- Tennessee | Tennessee Technology Development Corporation – Launch Tennessee
- Virginia | Center for Innovative Technology (CIT)
- West Virginia | TechConnect West Virginia
- Wyoming | University of Wyoming Small Business Development Center

20 | Growth Accelerator Fund Competition (GAFC)

The Growth Accelerator Fund Competition (GAFC) was first launched by SBA in 2014 to stimulate innovation and entrepreneurship across the country. GAFC prize awards have funded a wide range of accelerators and incubators in an effort to provide increased support to entrepreneurs, particularly in the STEM/R&D innovation ecosystem. Each competition has varied in total prize dollars as well as targeted groups and/or geographies.

The 2019 Competition featured sixty (60) $50,000 prize awards for accelerators working with high-tech entrepreneurs, mainly potential applicants to the SBIR/STTR programs. The Competition totaled $3 million, combining $1 million from FY18 funding and $2 million from FY19 funding.

Prize winners proposed at least 60 percent of their competition-related work to entrepreneurs in one of the following groups: women; socially and/or economically disadvantaged individuals; entrepreneurs in states with lower numbers of SBIR/STTR awards; or entrepreneurs living in or whose business was located/operating in an Opportunity Zone. Awards were distributed to accelerators and incubators across 39 states and territories, who focused on a broad set of industries and sectors. Submissions included a brief presentation deck and an optional two-minute video outlining the organization's overall approach, experience working with the targeted entrepreneur group, and key metrics to evaluate the success of the proposed plan.

21 | Appendix: SBIR/STTR Program History

For the U.S. government to recognize the necessity of federal engagement of small businesses in R&D of high risk technology development and to coordinate such a network would not have been possible without the support of key framers, politicians, and legislators. The 'Father' of the SBIR Program, Roland Tibbetts (pictured right), experienced firsthand how government programs affect individuals after President Roosevelt signed the GI Bill into law in 1944. Previously, a distinguished first lieutenant in the U.S. Army Air Corp during World War II, Tibbetts was able to complete his undergraduate degree at Boston University and then his MBA at Harvard due to benefits from the GI Bill. After garnering close to 20 years of corporate experience, including serving as the VP of two small, high-tech firms, Tibbetts was appointed as a Senior Program Officer at NSF in 1972. As an NSF program manager, Tibbetts was known as a task master with well-honed instincts for enabling potentially game-changing projects. He also recognized the importance of small, high-tech firms to the economy and observed the fierce opposition they faced from other recipients when pursuing federal R&D funding.

Senator Edward Kennedy (pictured on the left) also recognized the vital role that small businesses play in America's growing economy and spent much of the 1970s tirelessly championing for NSF to support the research of qualified small businesses as the chairman of the National Science Foundation Subcommittee of the Senate Labor and Public Welfare Committee. Kennedy continued to introduce different proposals to increase the percentage of the budget directed toward small businesses. Once NSF recognized the need for ongoing support for small business, the Foundation instituted the SBIR Program in 1977.

In addition to Senator Kennedy, much of the legislative support for the SBIR Program was directly due to the work of Arthur and Judith Obermayer, this year's SBIR Hall of Fame recipients (also pictured above with Senator Kennedy). As early as 1970, Arthur testified before the U.S. Congress on the challenges small R&D companies faced in dealing with the government. He also lobbied alongside Kennedy for the initial 1974 NSF Authorization Act, which was actualized in the first NSF SBIR Program, designed by Roland Tibbetts. Tibbetts envisioned a 3-phase structure to foster the R&D of small, high-tech businesses and push them to realize their commercial potential. He believed these firms were instrumental in converting government R&D into public benefit through technological innovation and commercial applications, therefore stimulating aggregate economic growth. Of the 42 Phase I Awards and 21 Phase II Awards selected in 1977, one firm went on to discover the cystic fibrosis gene and complete the Human Genome Map, a small language-understanding firm (then MicroComputer) became

Symantec, and a high-risk firm (then Relation Technology Inc.) became the data giant Ingres Corporation. It seems that Arthur Obermayer was on to something when he advised the Congressional committee in 1978 that the NSF SBIR Program was "potentially…the most significant government program of this century in the field of science and technology."

Due to the success of the NSF SBIR Program, in 1979 the Small Business Administration concluded SBIR Programs should be installed at all government agencies involving research to encourage U.S. innovation and technology. Senator Kennedy, an avid supporter of small businesses, spearheaded legislation to institute a government-wide SBIR Program. He and other legislators called for every federal agency with a budget over $100 million to establish a program modeled after Tibbetts' NSF SBIR Program. The Obermayers convinced most delegates at the 1980 White House Conference on Small Business to support SBIR. President Reagan signed a government-wide SBIR Program into law in 1982 (pictured on the right). To date, the Programs have resulted in 70,000 issued patents, close to 700 public companies, and approximately $41 Billion in venture capital investments.

Legislative History

The SBIR Program was created by enactment of Public Law 97-219, the Small Business Innovation Development Act of 1982. The program was reauthorized with the enactment of the Small Business R&D Enhancement Act of 1992, Public Law 102-564. Title I of the bill expanded and reauthorized the SBIR Program while Title II created the STTR Program.

In September 1996, Public Law 104-208 reauthorized the STTR Program through FY 1997. In December 1997, Public Law 105-135 reauthorized the program through September 30, 2006. In 2000 the SBIR Program was re-authorized until September 2009 by the Small Business Innovation Research Program Reauthorization Act of 2000. In October 2001, Public Law 107-50 reauthorized the STTR Program through FY 2009 and increased the program set-aside from 0.15% to 0.30% which began in Fiscal Year 2004.

From 2009 to 2011, the SBIR and STTR Programs were authorized by a series of Continuing Resolutions issued by Congress. In December 2011, the Programs were reauthorized until Fiscal Year 2017 (FY17) by the 2012 National Defense Authorization Act, Public Law 112-81. The bill also increased the minimum set-aside amounts for both Programs:

SBIR: Participating Agencies with extramural R&D budgets exceeding $100M were required to set aside 2.6% of their Fiscal Year 2012 (FY12) extramural R&D budget for SBIR Awards to small businesses (an increase of 0.1% over Fiscal Year 2011). The minimum percentage was then set to increase in increments of 0.1% each year until FY16 when it reached 3.0%. For FY17 and each fiscal year thereafter, the minimum percentage will remain at 3.2%, unless subsequently modified by statute.

STTR: Participating Agencies with extramural R/R&D budgets exceeding $1B were required to set aside 0.35% of their FY12 and FY13 extramural R&D budget for STTR Awards to small businesses (an increase of 0.05% over Fiscal Year 2011). The minimum percentage was then set to increase to 0.40% for FYs 2014 and 2015, and again to 0.45% for FY16 and each fiscal year thereafter, unless subsequently modified by statute.

In December 2016, the National Defense Authorization Act for Fiscal Year 2017 (P.L. 114-328) extended the SBIR and STTR programs through September 30, 2022. In August 2018, the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (P.L. 115-232) made several

changes to the statute, including modifying language regarding business and technical assistance, and established a pilot to accelerate award timelines within the Department of Defense.

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