SMALL BUSINESS INNOVATION RESEARCH | SMALL BUSINESS TECHNOLOGY TRANSFER

AMERICA'S SEED FUND POWERED BY THE SBA

ANNUAL REPORT FISCAL YEAR 2020

U.S. Small Business Administration
409 3rd Street SW
Washington, DC 20416
www.sbir.gov

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 $3.53 billion of SBIR and $460.6 million of STTR funding (for a total of $3.99 billion) in Fiscal Year 2020 (FY20). 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, 15 U.S.C. § 638(f) and (n). 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, Air Force, and Navy) and the combined nine DoD components. Separating the data among the DoD components provides increased visibility into the DoD's SBIR and STTR (SBIR/STTR) programs, which is important as they represent over 20% of the funds obligated by all Participating Agencies. SBA found several civilian agencies and DoD components did not comply 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 FY20 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 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 11.

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.

---

* DoD sets aside SBIR/STTR funding as indicated in 15 U.S.C. 638 (f) and (n), however, there is a mismatch between set aside amounts and obligated amounts due to the two-year execution cycle of the DoD SBIR/STTR program that could lead to an appearance of non-compliance.

Sections

Tables

Charts

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 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 2020 (FY20) 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 FY20 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 $256,580 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 $1,710,531 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) that exceed $100,000,000 (SBIR) or $1,000,000,000 (STTR) as indicated in sections 9(f) and 9(n), respectively, 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)).
- *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)).
- *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 as seen in Table 1. 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	8/12/2021	150[1]
HHS	3/19/2021	4
DOE	3/15/2021	0
NSF	3/12/2021	-3
NASA	3/15/2021	0
DHS	3/15/2021	0
USDA	3/16/2021	1

[1] DoD notified SBA that it would be unable to meet the March 15, 2021, deadline and worked with SBA to minimize the delay.

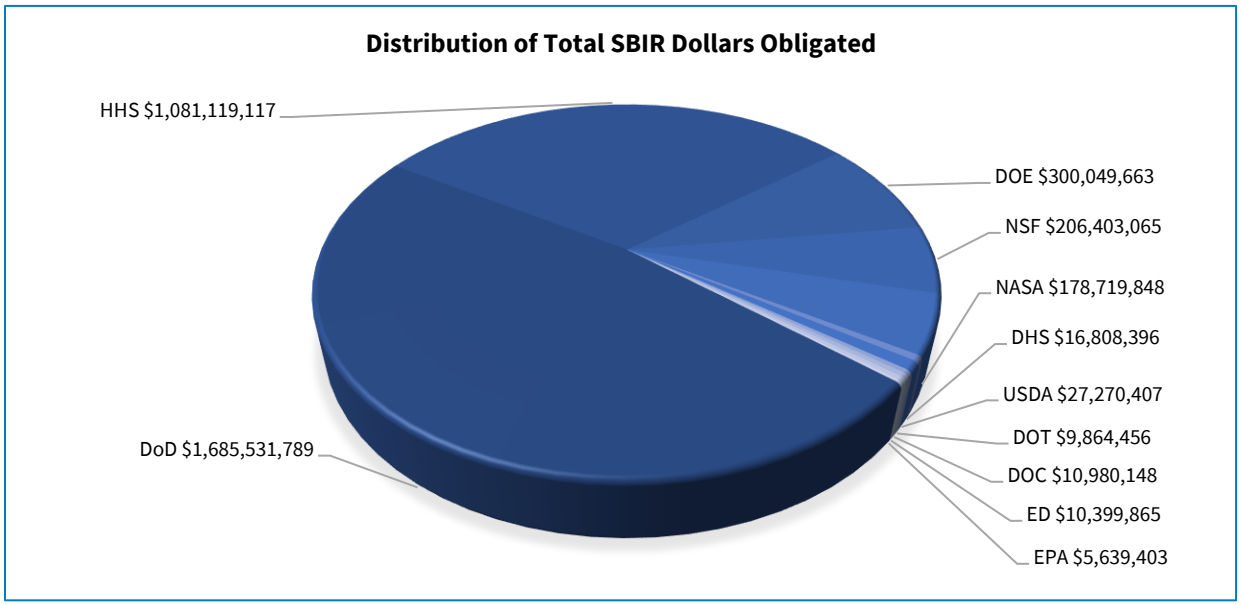
Agency	Submission Date	Days (Early / Late†)
DOT	3/15/2021	0
DOC	3/15/2021	0
ED	3/12/2021	-3
EPA	3/11/2021	-4

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

FY20 SBIR Program Summary

In FY20, Participating Agencies' total SBIR obligations amounted to $3,533,487,606 of which $2,767,352,356 (78%) were attributed to DoD and HHS. The chart below shows the distribution of these funds by agency.

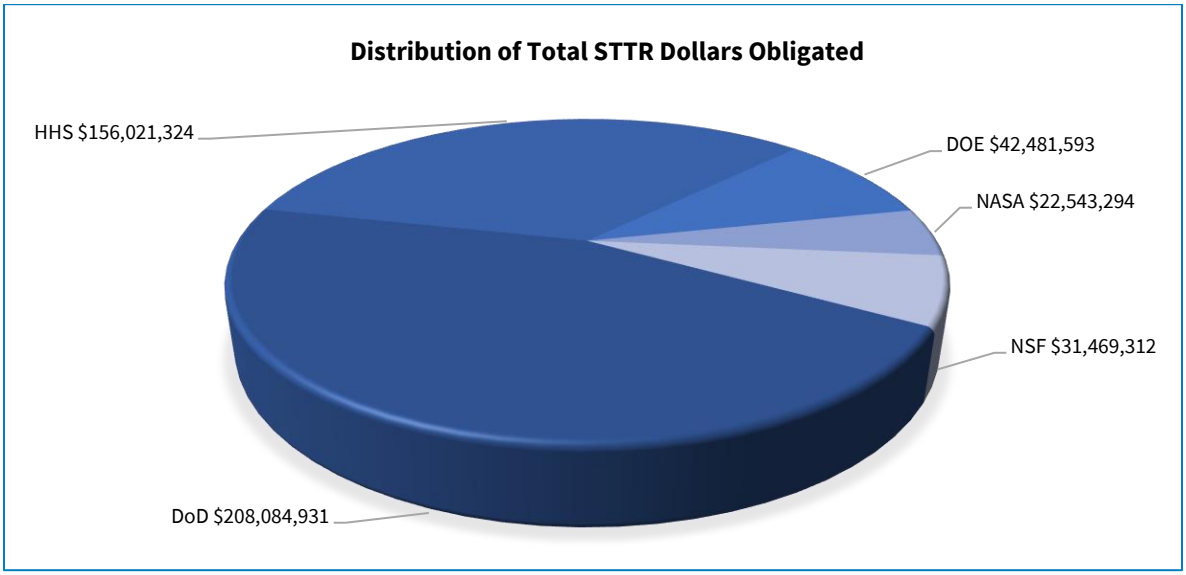
Chart 1: Distribution of Total SBIR Dollars Obligated by Participating Agencies



FY20 STTR Program Summary

In FY20, Participating Agencies' total STTR obligations amounted to $460,600,454 of which 79% or $364,106,255 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 Service Agencies and Components. 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 (#)	28	6	2	1	1
	New Proposals Received (#)	4846	1532	2157	1633	130
	New Awards (#)	652	374	320	351	26
	Selection Rate (%)*	13%	24%	15%	21%	20%
	Total Obligations ($)	$211,930,014	$77,815,875	$75,268,983	$43,670,998	$3,855,320
Phase II	New Proposals Received (#)	1599	533	176	295	26
	New Awards (#)	501	197	115	141	12
	Selection Rate (%)*	31%	37%	65%	48%	46%
	Total Obligations ($)	$849,047,145	$214,272,091	$123,458,819	$124,204,704	$11,877,878
Phase III	Total Obligations ($) †	$0	$4,090,949	$0	$37,735,428	$84,005,913
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$2,000,000	$4,853,212	$1,953,000	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$1,341,250	$4,402,300	$5,896,195	$183,928	$10,000
	Commercialization Readiness Pilot Program (CRPP) ($)	$21,800,068	$0	$0	$5,260,882	$1,075,198
	Administrative Funding Pilot (AFPP) (3%) ($)	$18,141,958	$3,108,485	$5,722,263	$5,583,264	$0
Totals	Total SBIR Obligations ($)	$1,081,119,117	$300,049,663	$206,403,065	$178,719,848	$16,808,396
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$31,873,589,493	$8,537,548,590	$5,985,169,750	$5,354,867,268	$467,491,923
	Percent of SBIR Obligations as determined using Agency-provided data (%)	3.39%	3.51%	3.45%	3.34%	3.60%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Did Not Comply	Complied	Complied	Unable to Determine	Complied

* The selection rate is an estimate. For FY20 awards, the proposals received were from both FY19 and FY20.
† 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

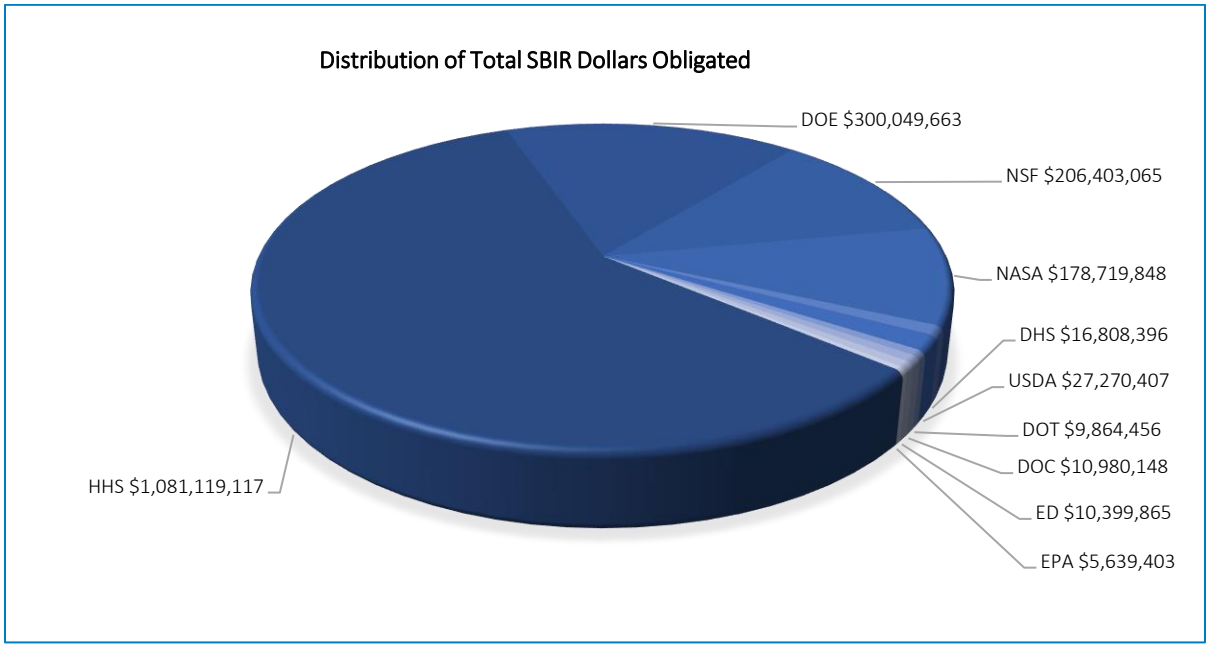
Phase	Report Field	USDA	DOT	DOC	ED	EPA	SBIR TOTAL All Civilian Agencies
Phase I	Solicitations Released (#)	3	1	3	3	1	59
	New Proposals Received (#)	526	101	293	179	88	11485
	New Awards (#)	83	33	62	16	23	1940
	Selection Rate (%) *	16%	33%	21%	9%	26%	17%
	Total Obligations ($)	$8,488,178	$4,787,741	$7,720,189	$3,197,065	$2,298,334	$439,032,697
Phase II	New Proposals Received (#)	68	19	11	17	15	2759
	New Awards (#)	29	12	8	8	10	1033
	Selection Rate (%) *	43%	63%	73%	47%	67%	37%
	Total Obligations ($)	$18,197,229	$4,652,924	$3,199,959	$7,163,497	$3,192,568	$1,359,266,813
Phase III	Total Obligations ($) †	$0	$0	$0	$0	$0	$125,832,290
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$585,000	$208,314	$60,000.00	$0	$148,500.00	$9,808,026
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$205,600	$49,165	$46,300	$12,000	$0	$12,146,738
	Commercialization Readiness Pilot Program (CRPP) ($)	0	0	0	0	0	$28,136,148
	Administrative Funding Pilot (AFPP) (3%) ($)	$0	$191,277	$0	$39,303	$0	$32,786,550
Totals	Total SBIR Obligations ($)	$27,270,407	$9,864,456	$10,980,148	$10,399,865	$5,639,403	$1,847,254,367
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$988,793,178	$322,502,000	$421,196,400	$229,775,193	$126,536,500	$54,307,470,295
	Percent of SBIR Obligations as determined using Agency-provided data (%)	2.76%	3.06%	2.61%	4.53%	4.46%	3.40%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Did Not Comply	Did Not Comply	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.

SBIR Program Award Distribution - Civilian Agencies

In FY20, total SBIR obligations for civilian agencies amounted to $1,847,254,367, of which $1,081,119,117 (59%) was attributed to HHS. Nearly 37% of total dollars were attributed to DOE, NSF, and NASA, with the remaining 4% of total FY20 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	763	16%	163	11%	362	17%	166	10%	79	15%
		New Awards	89	14%	21	6%	48	15%	34	10%	15	18%
		New Obligations	$24,305,903	13%	$4,241,279	6%	$11,499,407	15%	$4,237,376	10%	$1,507,799	18%
		Total Obligations	$27,461,920	13%	$4,241,279	6%	$11,619,406	15%	$427,376	10%	$1,540,299	18%
	Phase II	New Proposals	186	12%	35	7%	34	19%	31	11%	10	15%
		New Awards	67	13%	7	4%	21	18%	15	11%	5	17%
		New Obligations	$61,622,533	13%	$8,396,791	4%	$17,633,694	14%	$11,247,452	9%	$3,148,557	17%
		Total Obligations	$96,836,125	11%	$8,396,791	4%	$22,498,701	18%	$11,614,399	9%	$3,148,557	17%
SDB	Phase I	New Proposals	1230	25%	201	13%	424	20%	230	14%	45	9%
		New Awards	139	21%	30	8%	42	13%	41	12%	4	5%
		New Obligations	$40,942,029	21%	$6,203,173	8%	$9,969,182	13%	$5,105,442	12%	$406,500	5%
		Total Obligations	$45,517,662	21%	$6,203,173	8%	$10,184,713	13%	$5,105,442	12%	$406,500	5%
	Phase II	New Proposals	186	12%	52	10%	13	7%	27	9%	0	0%
		New Awards	67	13%	7	4%	7	6%	11	8%	0	0%
		New Obligations	$85,732,515	18%	$6,449,954	3%	$5,983,148	5%	$8,237,543	7%	$0	0%
		Total Obligations	$145,952,442	17%	$6,449,954	3%	$7,954,248	6%	$9,267,796	7%	$0	0%
HUB Zone	Phase I	New Proposals	29	1%	156	10%	223	10%	70	4%	100	19%
		New Awards	6	1%	31	8%	32	10%	18	5%	11	13%
		New Obligations	$2,398,844	1%	$6,452,101	8%	$7,877,203	10%	$2,243,918	5%	$1,098,122	13%
		Total Obligations	$2,693,096	1%	$6,452,101	8%	$7,972,202	10%	$2,243,918	5%	$1,124,122	13%
	Phase II	New Proposals	4	0%	46	9%	24	14%	13	4%	12	18%
		New Awards	2	0%	16	8%	12	10%	5	4%	8	28%
		New Obligations	$1,961,449	0%	$17,627,396	8%	$10,707,726	9%	$7,018,928	6%	$5,049,952	18%
		Total Obligations	$2,988,092	0%	$17,627,396	8%	$12,419,933	10%	$7,018,928	6%	$5,049,952	18%

* Data is based on proposals received and awards made in Fiscal Year 2020.

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

Socio Group	Phase	Report Field*	DHS		DOC		DOT		ED		EPA		SBIR Civilian Total	
			Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
WOSB	Phase I	New Proposals	20	15%	13	4%	15	15%	55	31%	7	8%	1643	14%
		New Awards	2	8%	7	11%	5	15%	8	50%	1	4%	230	12%
		New Obligations	$299,820	8%	$794,174	10%	$678,999	14%	$1,598,151	50%	$100,000	4%	$49,262,908	11%
		Total Obligations	$299,820	8%	$794,174	10%	$678,999	14%	$1,598,151	50%	$100,000	4%	$48,761,424	11%
	Phase II	New Proposals	4	15%	4	36%	3	16%	4	24%	0	0%	311	11%
		New Awards	3	25%	3	38%	2	17%	1	13%	0	0%	124	12%
		New Obligations	$2,494,877	21%	$1,199,991	38%	$597,855	13%	$900,000	13%	$0	0%	$107,241,750	11%
		Total Obligations	$2,494,877	21%	$1,199,991	38%	$597,855	13%	$900,000	13%	$0	0%	$147,687,296	15%
SDB	Phase I	New Proposals	13	10%	8	3%	22	22%	9	5%	11	13%	2193	19%
		New Awards	1	4%	3	5%	3	9%	0	0%	4	17%	267	14%
		New Obligations	$149,820	4%	$355,866	5%	$412,218	9%	$0	0%	$399,999	17%	$63,944,229	15%
		Total Obligations	$149,820	4%	$355,866	5%	$412,218	9%	$0	0%	$399,999	17%	$68,735,393	16%
	Phase II	New Proposals	2	8%	2	18%	2	11%	0	0%	2	13%	286	10%
		New Awards	2	17%	0	0%	1	8%	0	0%	2	20%	97	9%
		New Obligations	$1,994,877	17%	$0	0%	$347,855	7%	$0	0%	$592,848	19%	$109,338,740	11%
		Total Obligations	$1,994,877	17%	$0	0%	$347,855	7%	$0	0%	$592,848	19%	$172,560,020	18%
HUB Zone	Phase I	New Proposals	7	5%	5	2%	5	5%	18	10%	4	5%	617	5%
		New Awards	1	4%	4	6%	0	0%	0	0%	2	9%	105	5%
		New Obligations	$149,522	4%	$552,173	7%	$0	0%	$0	0%	$199,997	9%	$20,971,880	5%
		Total Obligations	$149,522	4%	$552,173	7%	$0	0%	$0	0%	$199,997	9%	$21,387,131	5%
	Phase II	New Proposals	0	0%	0	0%	0	0%	0	0%	0	0%	99	4%
		New Awards	0	0%	0	0%	0	0%	0	0%	0	0%	43	4%
		New Obligations	$0	0%	$0	0%	$0	0%	$0	0%	$0	0%	$42,365,451	4%
		Total Obligations	$0	0%	$0	0%	$0	0%	$0	0%	$0	0%	$45,104,301	5%

* For some FY20 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 4: Percent of Phase I Total SBIR Dollars to Socioeconomic Groups - Civilian Agencies

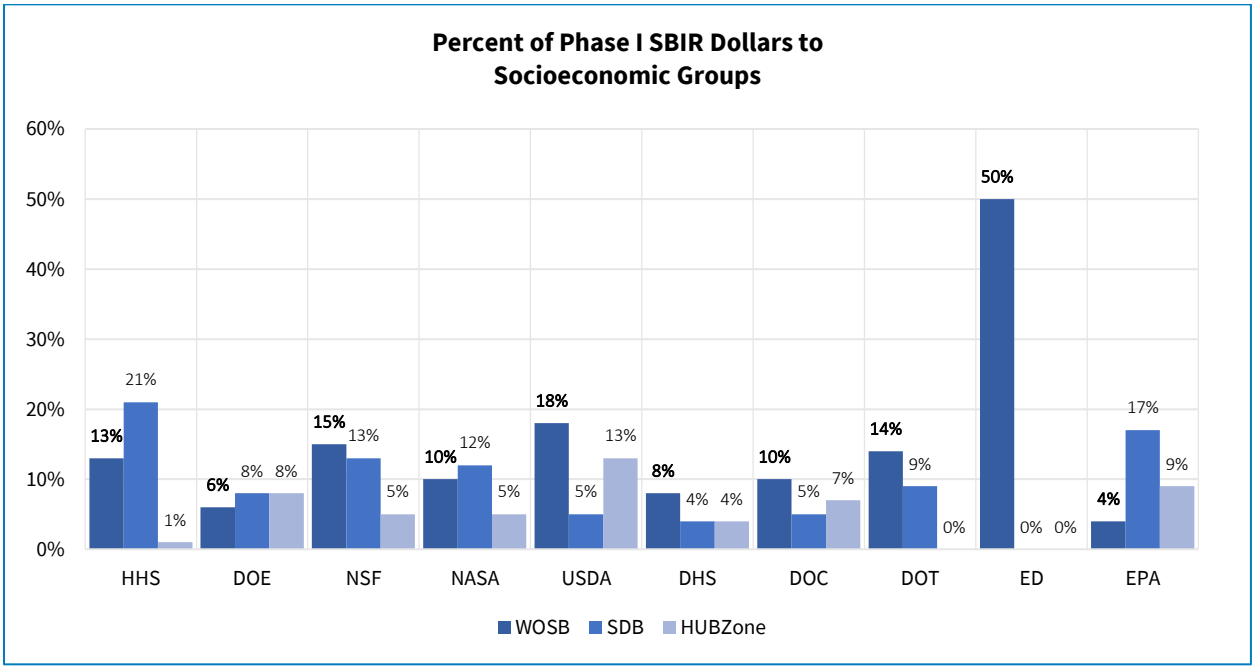
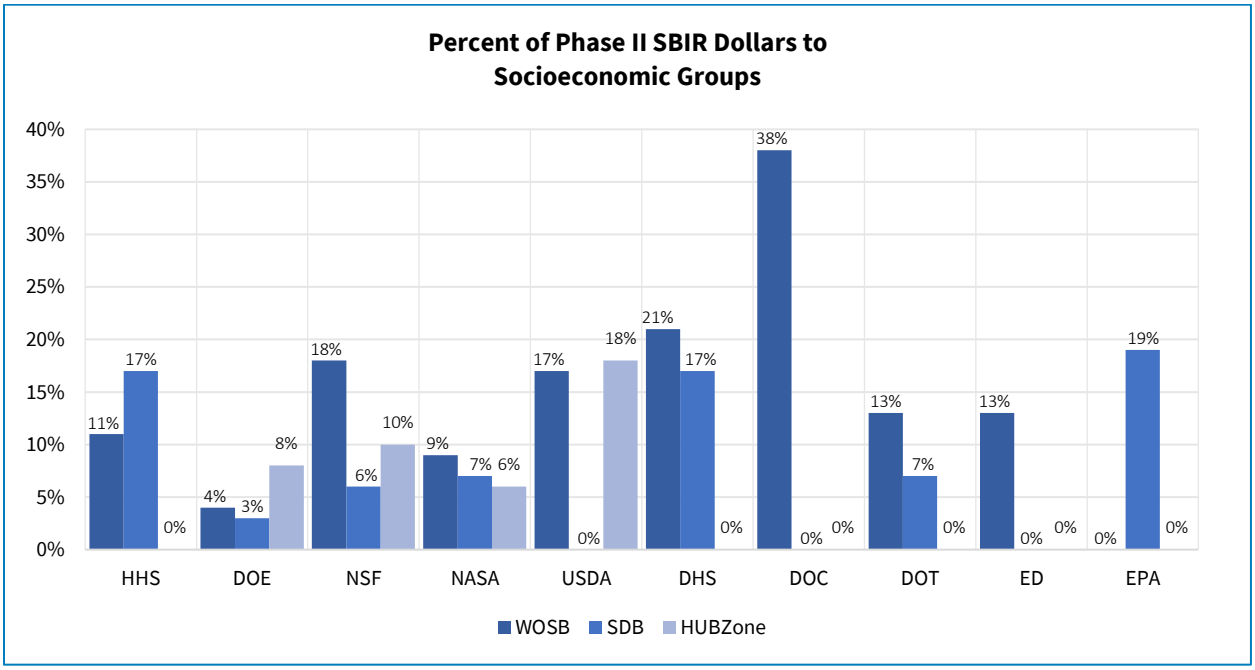


Chart 5: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - Civilian Agencies



4 | SBIR Program – DoD Summary Data

To facilitate the review of the FY20 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 Service Agencies (Navy, Air Force, and Army) and the Other Defense Agencies.[2] 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 (#)	5	4	5	3	8*
	New Proposals Received (#)	1684	3186	3026	1331	9227
	New Awards (#)	816	613	324	238	1991
	Selection Rate (%)	48%	19%	11%	18%	22%
	Total Obligations ($)	$50,663,362	$102,446,399	$39,831,565	$38,276,822	$231,218,148
Phase II	New Proposals Received (#)	1562	231	193	413	2399
	New Awards (#)	511	248	136	239	1134
	Selection Rate (%)**	33%	107%	70%	58%	47%
	Total Obligations ($)	$587,215,376	$328,844,387	$171,545,370	$309,983,305	$1,397,588,438
Phase III	Total Obligations (For both SBIR and STTR) ($) †	$585,492,753	$900,018,311	$6,537,427	$49,031,378	$1,541,079,870
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$0	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$0	$0	$54,778	$104,850	$159,628
	Administrative Funding Pilot (AFPP) (3%) ($)	$23,193,102	$9,548,210	$1,692,000	$6,096,430	$40,529,742
	DoD 1% CRP ($)	$7,731,034	$1,927,000	$6,537,427	-	$16,195,461.00
Totals	Total SBIR Obligations ($)	$668,802,874	$442,765,996	$219,606,362	$354,356,557	$1,685,531,789
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$24,159,480,874	$13,614,826,608	$10,769,724,000	$13,469,279,295	$62,013,310,777
	Percent of SBIR Obligations as determined using DoD-provided data (%)	2.77%	3.25%	2.04%	2.63%	2.72%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Did Not Comply[3]	Complied	Did Not Comply[3]	Varied[4]	

[2] 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 (DTRA), Defense Logistics Agency (DLA), Defense Microelectronics Activity (DMEA), and the Office of the Secretary of Defense (OSD).

[3] The DoD sets aside SBIR/STTR funding as indicated in 15 U.S.C. 638 (f) and (n), however, there is a mismatch between set aside amounts and obligated amounts due to the two-year execution cycle of the DoD SBIR/STTR program that could lead to an appearance of non-compliance.

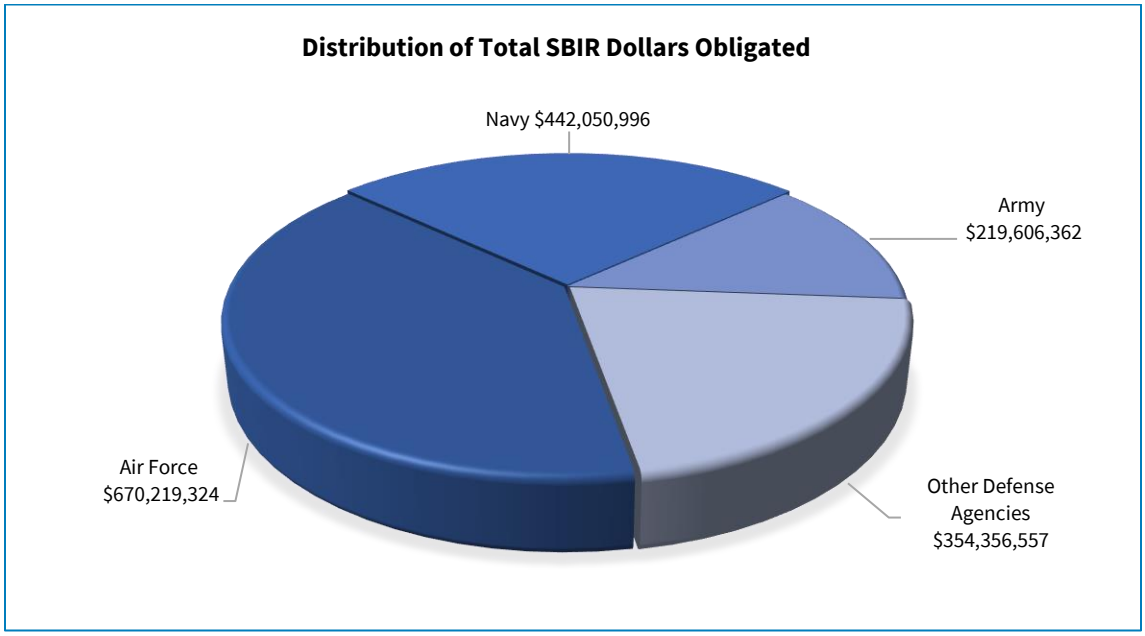
[4] Section 7 details SBA's individual assessment for each of the 9 ODA components.

*This row is not a total. The DoD has three primary solicitations for which each Service or Other Defense Agency can elect to participate. These entities may also choose to participate in additional special solicitations.
** For some FY20 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 Service Agencies and Other Defense Agencies

In FY20, DoD Service Agencies' and Other Defense Agencies' total SBIR obligations amounted to $1,686,233,239 of which approximately 66% were attributed to Air Force and Navy. The chart below shows the distribution of these funds by the DoD Service Agencies and Other Defense Agencies.

Chart 6: Distribution of Total SBIR Dollars Obligated - DoD Service Agencies 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	152	9%	402	13%	349	12%	147	11%	1050	11%
		New Awards	67	8%	68	11%	40	12%	30	13%	205	10%
		New Obligations	$4,102,451	8%	$10,676,926	11%	$4,230,882	13%	$4,815,775	13%	$23,905,868	11%
		Total Obligations	$4,102,451	8%	$11,376,890	11%	$5,028,613	13%	$4,815,775	13%	$25,323,729	11%
	Phase II	New Proposals	152	10%	33	14%	15	8%	54	13%	254	11%
		New Awards	49	10%	32	13%	6	4%	35	15%	122	11%
		New Obligations	$45,965,973	9%	$35,259,021	17%	$3,924,048	5%	$37,289,244	15%	$122,438,286	12%
		Total Obligations	$51,876,296	9%	$48,744,410	15%	$12,337,557	7%	$44,737,480	14%	$157,695,743	11%
SDB	Phase I	New Proposals	97	6%	312	10%	268	9%	131	10%	808	9%
		New Awards	28	3%	27	4%	17	5%	4	2%	76	4%
		New Obligations	$1,390,829	3%	$3,692,710	4%	$1,901,239	6%	$892,407	2%	$7,877,185	4%
		Total Obligations	$1,590,253	3%	$4,191,895	4%	$2,164,611	5%	$892,407	2%	$8,839,166	4%
	Phase II	New Proposals	92	6%	16	7%	4	2%	32	8%	144	6%
		New Awards	14	3%	12	5%	4	3%	7	3%	37	3%
		New Obligations	$17,442,817	4%	$9,277,335	4%	$1,588,524	2%	$5,789,736	2%	$34,098,412	3%
		Total Obligations	$18,668,314	3%	$12,020,620	4%	$3,652,328	2%	$7,709,217	2%	$42,050,479	3%
HUB Zone	Phase I	New Proposals	42	2%	92	3%	73	2%	36	3%	243	3%
		New Awards	11	1%	13	2%	5	2%	7	3%	36	2%
		New Obligations	$647,951	1%	$1,990,539	2%	$554,373	2%	$993,572	3%	$4,186,435	2%
		Total Obligations	$667,937	1%	$2,189,643	2%	$818,706	2%	$993,572	3%	$4,669,858	2%
	Phase II	New Proposals	40	3%	5	2%	3	2%	11	3%	59	2%
		New Awards	7	1%	4	2%	3	2%	6	3%	20	2%
		New Obligations	$6,860,865	1%	$3,348,691	2%	$1,650,326	2%	$7,845,414	3%	$19,705,296	2%
		Total Obligations	$7,610,865	1%	$4,735,081	1%	$3,270,129	2%	$8,832,435	3%	$24,448,510	2%

* For some FY20 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 Service Agencies and Other Defense Agencies

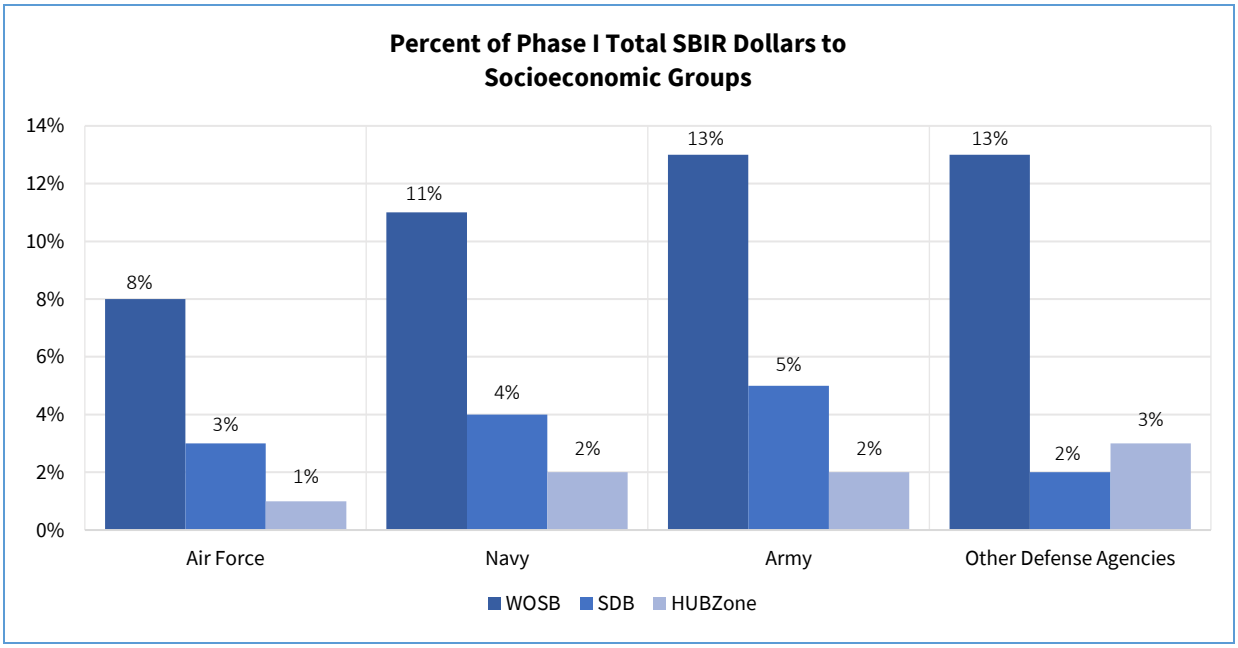
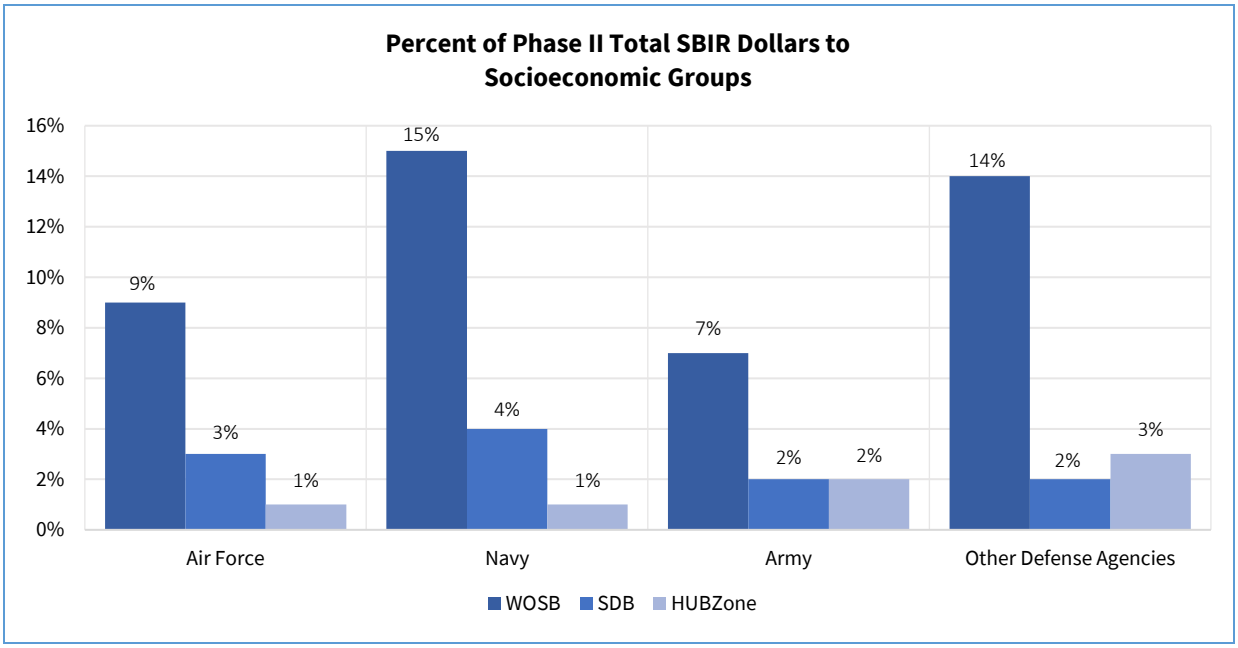


Chart 8: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - DoD Service Agencies and Other Defense Agencies



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 (#)	8	6	1	2	27
	New Proposals Received (#)	1227	219	266	215	1927
	New Awards (#)	204	66	58	67	395
	Proposal Selection Rate (%)	17%	30%	22%	31%	20%
	Total Obligations ($)	$67,520,244	$13,763,609	$7,031,433	$15,579,319	$103,894,605
	Total Obligations for Research Institutions ($)	$30,749,208	$5,834,497	$2,401,404	$6,048,703	$45,033,812
	Total Obligations for Research Institutions (%)	46%	42%	34%	39%	43%
Phase II	New Proposals Received (#)	114	57	85	13	269
	New Awards (#)	40	27	23	5	95
	Proposal Selection Rate (%)	35%	47%	27%	38%	35%
	Total Obligations for Awards ($)	$83,553,042	$28,071,196	$24,437,879	$6,599,475	$142,661,592
	Total Obligations for Research Institutions ($)	$35,554,429	$10,478,714	$6,766,687	$1,324,310	$54,124,140
	Total Obligations for Research Institutions (%)	43%	37%	28%	20%	38%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$646,788	$0	$364,500	$1,011,288
	TABA Provided to Small Businesses in Award Obligations ($) *	$218,990	$205,460	$25,000	$564,984	$1,014,434
	Obligations for "Phase 0" Programs (NIH only) ($)	$4,948,038	-	-	-	$4,948,038
Totals	Total STTR Obligations ($)	$156,021,324	$42,481,593	$31,469,312	$22,543,294	$252,515,523
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$31,873,589,493	$8,537,548,590	$5,354,867,268	$5,985,169,750	$51,751,175,101
	Percent of STTR Obligations as determined using Agency-provided data (%)	0.49%	0.50%	0.59%	0.38%	0.49%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements †	Did Not Comply	Complied	Unable to Determine	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.**

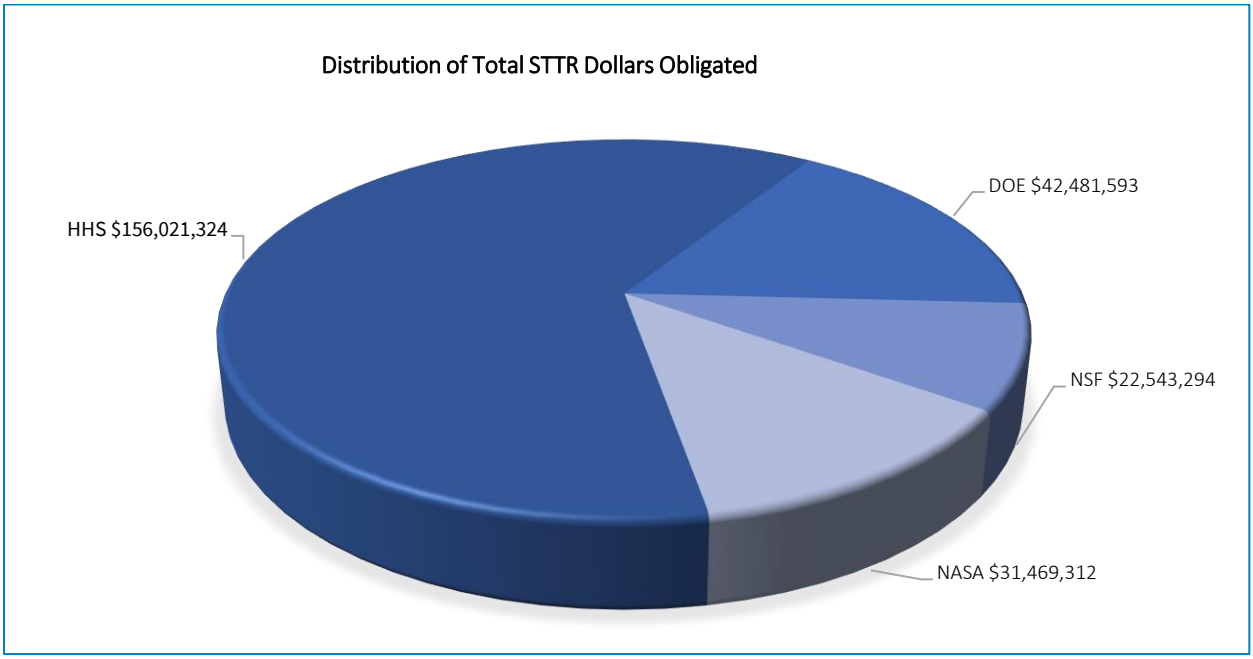
† SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the National Science Foundation's Survey of Federal Funds for Research and Development. 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.

STTR Program Award Distribution - Civilian Agencies

In FY20, the Participating Civilian Agencies' total STTR obligations amounted to $252,515,523, with 62% 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	195	16%	30	14%	34	13%	50	23%	309	16%
		New Awards	28	14%	5	8%	9	16%	12	18%	54	14%
		New Obligations	$8,497,026	14%	$1,055,446	8%	$947,407	13%	$2,785,877	18%	$13,285,756	14%
		Total Obligations	$10,343,918	15%	$1,055,446	8%	$947,407	13%	$2,830,777	18%	$15,177,548	15%
	Phase II	New Proposals	16	0%	8	14%	5	6%	2	15%	31	12%
		New Awards	3	8%	0	0%	2	9%	1	20%	6	6%
		New Obligations	$3,054,595	9%	$0	0%	$1,493,587	7%	$798,762	20%	$5,346,944	6%
		Total Obligations	$7,929,736	9%	$0	0%	$2,243,586	9%	$1,054,745	16%	$11,228,067	8%
SDB	Phase I	New Proposals	285	23%	34	16%	38	14%	36	17%	393	20%
		New Awards	44	22%	6	9%	4	7%	6	9%	60	15%
		New Obligations	$12,861,463	22%	$1,317,456	10%	$499,130	7%	$1,486,181	10%	16164230	17%
		Total Obligations	$15,620,795	23%	$1,317,456	10%	$499,130	7%	$1,486,181	10%	18923562	18%
	Phase II	New Proposals	29	0%	8	14%	10	12%	1	8%	48	18%
		New Awards	7	18%	3	0%	1	4%	0	0%	11	12%
		New Obligations	$5,832,949	17%	$3,846,502	14%	$754,919	4%	$0	0%	$10,434,370	12%
		Total Obligations	$15,581,820	19%	$3,846,502	14%	$804,919	3%	$105,984	2%	$20,339,225	14%
HUB Zone	Phase I	New Proposals	3	0%	23	11%	9	3%	19	9%	54	3%
		New Awards	1	0%	6	9%	1	2%	8	12%	16	4%
		New Obligations	$258,360	0%	$1,198,186	9%	$124,999	2%	$1,886,644	12%	$3,468,189	4%
		Total Obligations	$258,360	0%	$1,198,186	9%	$124,999	2%	$1,886,644	12%	$3,468,189	3%
	Phase II	New Proposals	0	0%	5	14%	5	6%	2	15%	12	4%
		New Awards	0	0%	5	0%	1	4%	2	40%	8	8%
		New Obligations	$0	0%	$5,497,746	20%	$749,602	4%	$1,548,679	38%	$7,796,027	9%
		Total Obligations	$1,451,724	2%	$5,497,746	20%	$749,602	3%	$1,654,679	25%	$9,353,751	7%

* For some FY20 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 10: Percent of Phase I Total STTR Dollars to Socioeconomic Groups - Civilian Agencies

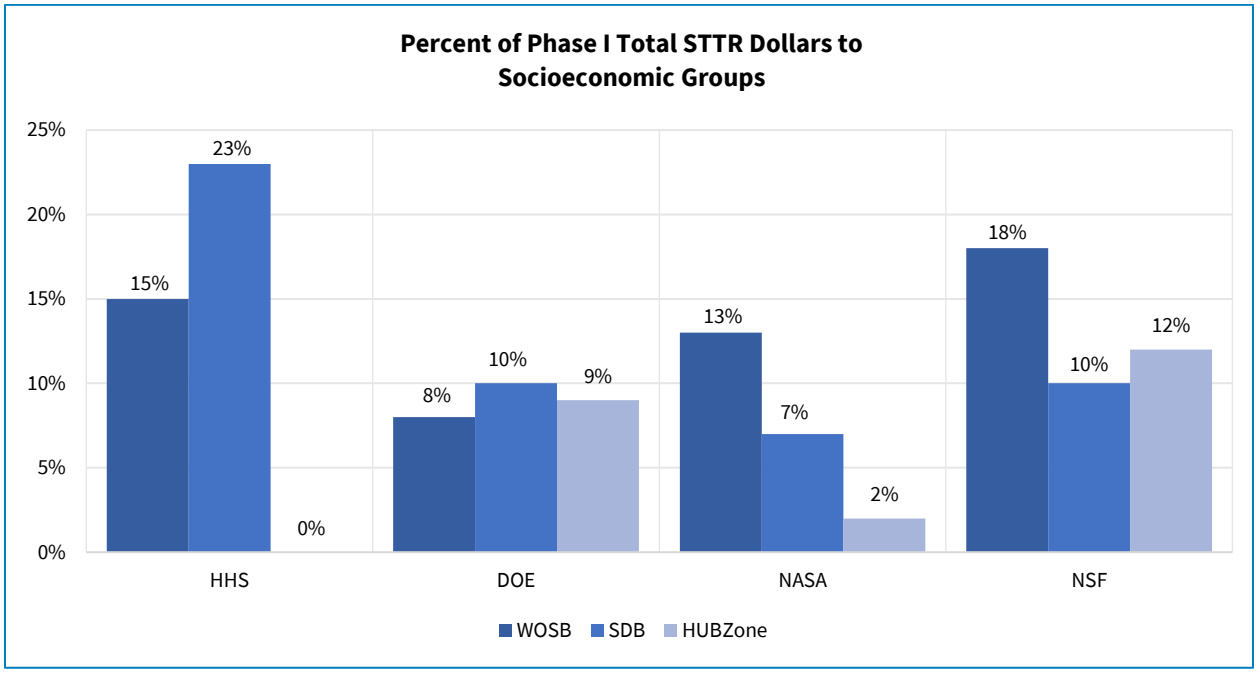
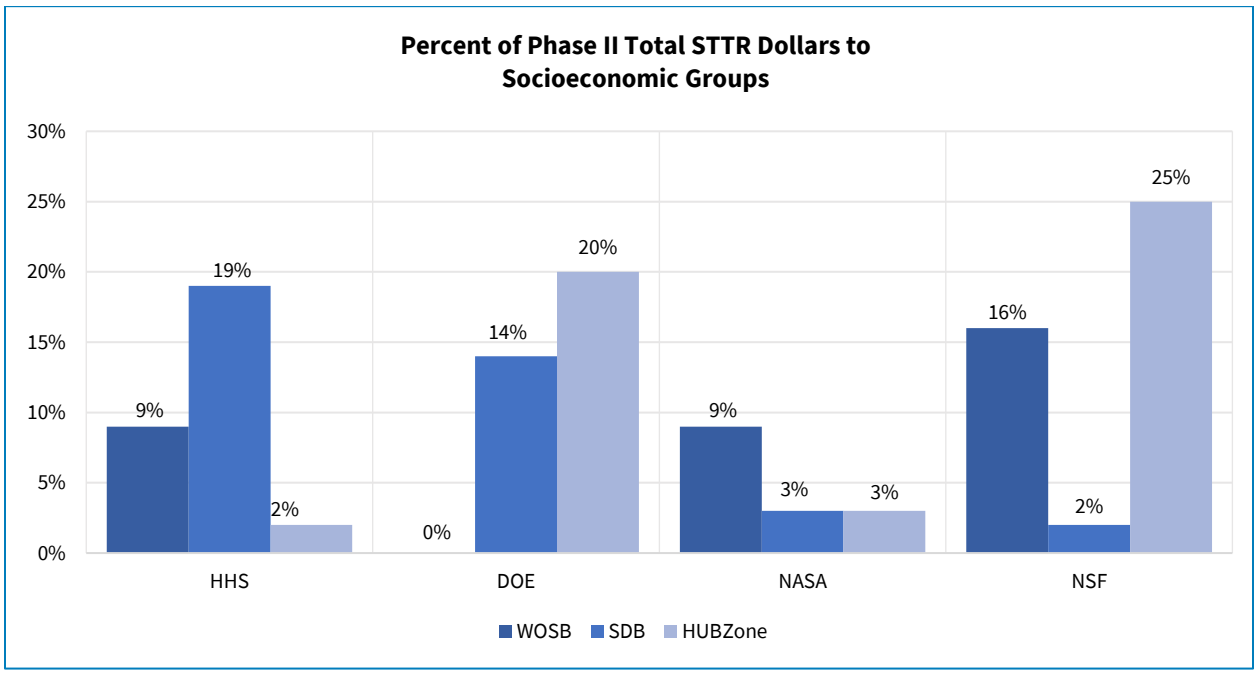


Chart 11: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - Civilian Agencies



6 | STTR Program – DoD Summary Data

To facilitate the review of the FY20 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 Service Agencies (Navy, Air Force, and Army) 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 (#)	4	3	3	4	5†
	New Proposals Received (#)	603	286	387	243	1519
	New Awards (#)	151	92	58	52	353
	Proposal Selection Rate (%)	25%	32%	15%	21%	23%
	Total Obligations ($)	$13,130,180	$16,493,388	$9,642,456	$8,719,564	$47,985,588
	Total Obligations for Research Institutions ($)	$4,602,049	$9,282,364	$3,244,898	$2,873,861	$20,003,172
	Total Obligations for Research Institutions (%)	35%	56%	34%	33%	42%
Phase II	New Proposals Received (#)	142	37	11	20	210
	New Awards (#)	99	38	24	33	194
	Proposal Selection Rate (%) *	70%	103%	218%	165%	92%
	Total Obligations for Awards ($)	$52,461,397	$51,935,627	$15,388,235	$40,314,084	$160,099,343
	Total Obligations for Research Institutions ($)	$23,240,668	$9,641,584	$7,874,037	$12,169,758	$52,926,048
	Total Obligations for Research Institutions (%)	44%	19%	51%	30%	33%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$0	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) **	$0	$0	$45,935	$81,372	$127,307
Totals	Total STTR Obligations ($)	$65,591,577	$68,429,015	$25,030,691	$49,033,648	$208,084,931
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$24,159,480,874	$13,614,826,608	$10,769,724,000	$13,469,279,295	$62,013,310,777
	Percent of STTR Obligations as determined using DoD-provided data (%)	0.27%	0.50%	0.23%	0.36%	0.34%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements§	Did Not Comply[5]	Complied	Did Not Comply[5]	Varied[6]	

[5] The DoD sets aside SBIR/STTR funding as indicated in 15 U.S.C. 638 (f) and (n), however, there is a mismatch between set aside amounts and obligated amounts due to the two-year execution cycle of the DoD SBIR/STTR program that could lead to an appearance of non-compliance.

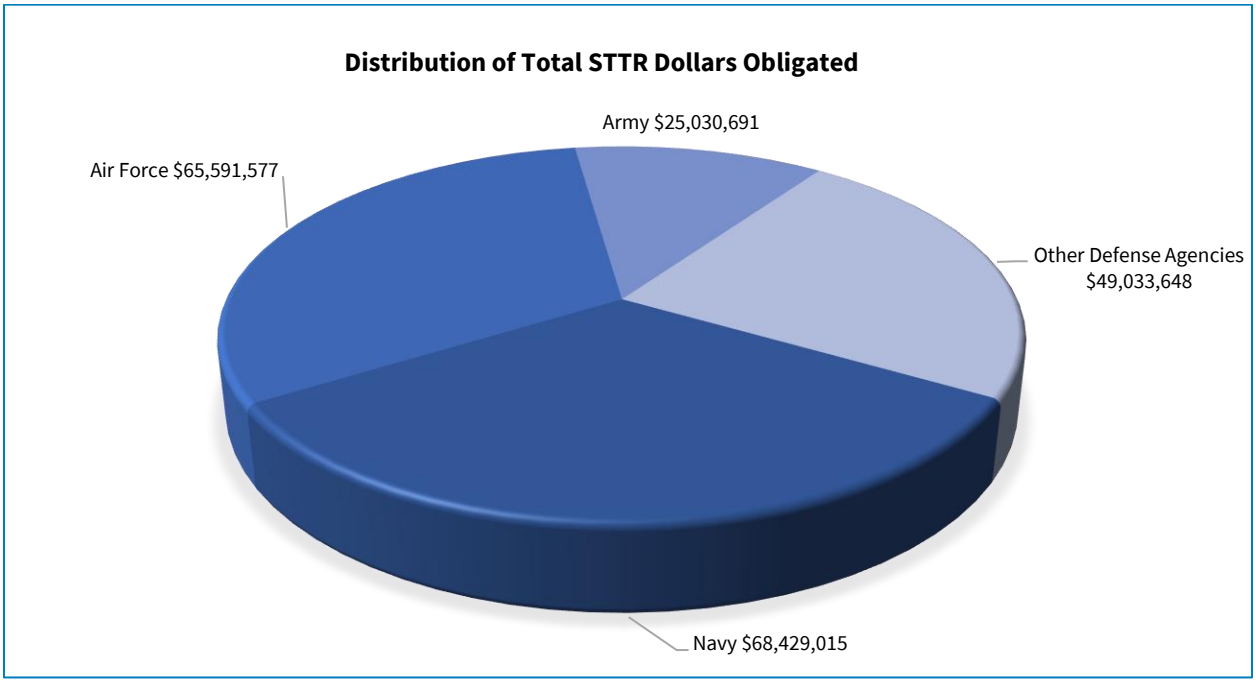
[6] Section 7 details SBA's individual assessment for each of the 9 ODA components.

* For some FY20 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 grants or contracts and thus already included in PI/PII obligation award amounts.
† This row is not a total. The DoD has three primary solicitations for which each Service or Other Defense Agency can elect to participate. These entities may also choose to participate in additional special solicitations.
§ 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 Service Agencies and Other Defense Agencies

DoD Service Agencies' and Other Defense Agencies' STTR obligations totaled $208,084,931 in FY20, with 33% attributed to the Navy, 32% to the Air Force, 12% to the Army, and 24% attributed to the Other Defense Agencies as shown below.

Chart 12: Distribution of Total STTR Dollars Obligated - DoD Service Agencies 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	62	10%	43	15%	55	14%	27	11%	187	12%
		New Awards	33	10%	9	11%	2	9%	6	14%	50	10%
		New Obligations	$1,868,042	14%	$1,839,903	13%	$499,277	5%	$1,012,450	12%	$5,219,672	12%
		Total Obligations	$1,868,042	14%	$2,339,646	14%	$499,277	5%	$1,261,500	14%	$5,968,465	12%
	Phase II	New Proposals	21	15%	9	24%	2	18%	4	20%	36	17%
		New Awards	12	14%	4	20%	2	25%	3	19%	21	16%
		New Obligations	$6,026,832	12%	$4,729,716	18%	$2,600,000	20%	$4,657,753	16%	$18,014,301	15%
		Total Obligations	$6,026,832	11%	$7,236,766	14%	$3,045,423	20%	$4,817,753	12%	$21,126,774	13%
SDB	Phase I	New Proposals	51	8%	44	15%	32	8%	9	4%	136	9%
		New Awards	26	17%	8	9%	0	0%	0	0%	34	10%
		New Obligations	$647,251	5%	$1,132,973	8%	$0	0%	$0	0%	$1,780,224	4%
		Total Obligations	$647,251	5%	$1,332,843	8%	$0	0%	$0	0%	$1,980,094	4%
	Phase II	New Proposals	20	14%	2	5%	0	0%	0	0%	22	10%
		New Awards	12	12%	1	3%	0	0%	0	0%	13	7%
		New Obligations	$4,498,877	9%	$0	0%	$0	0%	$0	0%	$4,498,877	4%
		Total Obligations	$5,248,852	10%	$0	0%	$0	0%	$991,078	2%	$6,239,930	4%
HUB Zone	Phase I	New Proposals	17	3%	10	3%	11	3%	7	3%	45	3%
		New Awards	7	5%	1	1%	0	0%	3	6%	11	3%
		New Obligations	$424,970	3%	$279,694	2%	$166,500	2%	$367,299	4%	$1,238,463	3%
		Total Obligations	$424,970	1%	$379,693	1%	$166,500	1%	$367,299	1%	$1,338,462	1%
	Phase II	New Proposals	5	4%	0	0%	0	0%	0	0%	5	2%
		New Awards	3	3%	0	0%	0	0%	0	0%	3	2%
		New Obligations	$1,749,869	4%	$0	0%	$0	0%	$0	0%	$1,749,869	1%
		Total Obligations	$1,749,869	3%	$250,000	0.5%	$0	0%	$0	0%	$1,999,869	1%

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

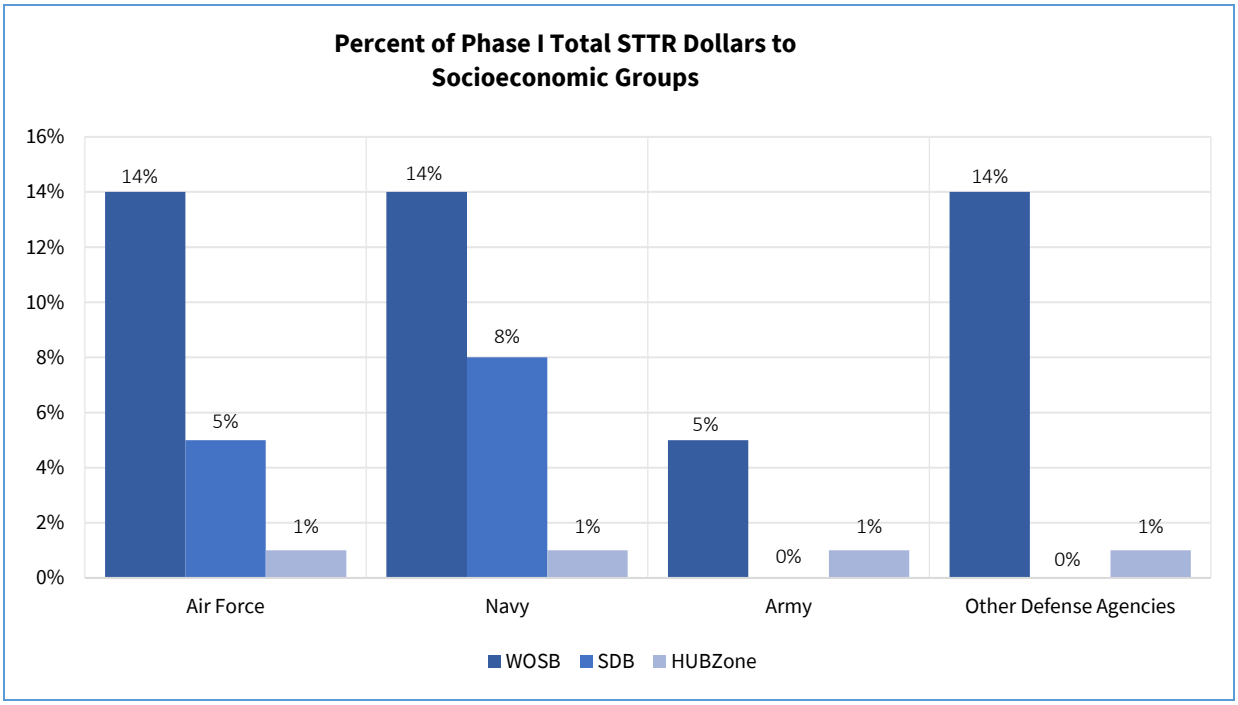
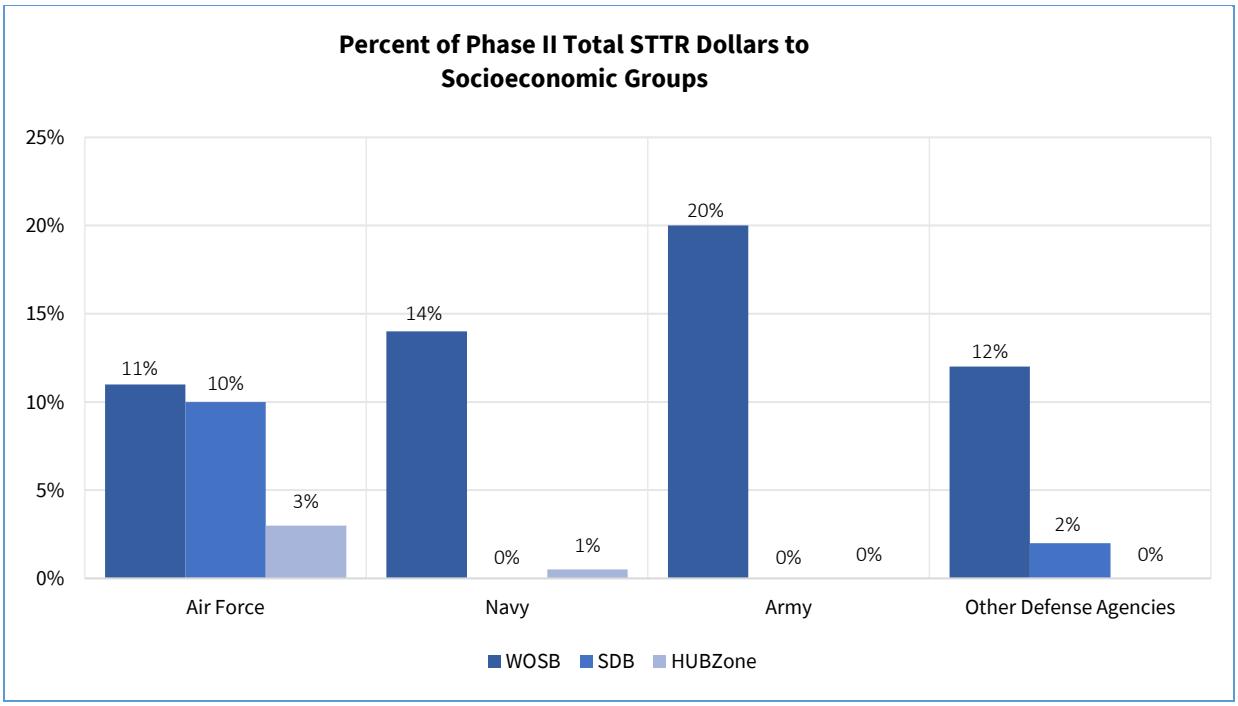


Chart 14: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - DoD Service Agencies and Other Defense Agencies



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 FY20, the minimum spending requirement was 3.2% for the SBIR program and 0.45% for the STTR Program. Agencies are required to meet 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 that funded SBIR/STTR awards and activities compared to an agency's total extramural R/R&D obligations for the fiscal year. 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 (or budgeted) 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 individual DoD Components (except for MDA and DARPA) in the public reports, nor do the Components themselves provide that information to SBA or the DoD SBIR office.

- 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 in 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 components. 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 FY20 is shown in Table 12 and the DoD components 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.

---

[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	$31,907,747,331	$34,157,838	$31,873,589,493	$1,081,119,117	3.39%	$40,705,277,138	$40,671,119,300	2.66%	$156,021,324	0.49%	0.38%
DOE[9]	$15,481,331,800	$6,943,783,210	$8,537,548,590	$300,049,663	3.51%	$12,581,229,467	$5,637,446,257	5.32%	$42,481,593	0.50%	0.75%
NSF	$6,294,343,109	$309,173,359	$5,985,169,750	$206,403,065	3.45%	$6,341,776,615	$6,032,603,256	3.42%	$22,543,294	0.38%	0.37%
NASA	$7,171,478,954	$1,816,611,686	$5,354,867,268	$178,719,848	3.34%	$7,985,860,581	$6,169,248,895	2.90%	$31,469,312	0.59%	0.51%
USDA[10]	$1,041,241,789	$52,448,611	$988,793,178	$27,270,407	2.76%	$953,867,210	$901,418,599	3.03%			
DHS	$468,946,218	$1,454,295	$467,491,923	$16,808,396	3.60%	$374,669,094	$373,214,799	4.50%			
DOC	$424,456,000	$3,260	$424,452,740	$10,980,148	2.59%	$428,880,554	$428,877,294	2.56%			
ED	$229,775,193	$0	$229,775,193	$10,399,865	4.53%	$229,700,000	$229,700,000	4.53%			
DOT[11]	$917,460,000	$594,958,000	$322,502,000	$9,864,456	3.06%	$962,135,700	$367,177,700	2.69%			
EPA	$126,536,500	$0	$126,536,500	$5,639,403	4.46%	$244,000,000	$244,000,000	2.31%			
TOTAL	**$64,063,316,894**	**$9,752,590,259**	**$54,310,726,635**	**$1,847,254,367**	**3.40%**	**$70,807,396,359**	**$57,128,824,245**	**2.99%**	**$252,515,523**	**0.46%**	**0.44%**

* 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/nsf22323/assets/data-tables/tables/nsf22323-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	Did Not Comply	Did Not Comply
DOE	O	No-year	Complied	Complied
NSF	O	2-year	Complied	Did Not Comply
NASA	O	2-year	Unable to Determine	Unable to Determine
DHS	O	3-year	Complied	N/A
USDA	O	1-year and No-year	Did Not Comply	N/A
DOT	O	No year	Did Not Comply	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. SBA has determined that HHS did not comply with the minimum spending requirement because the extramural R/R&D reported for the NCSES Survey was significantly more (>15%) than what was reported to SBA. HHS reported obligating 3.39% for SBIR activities and .49% for STTR activities but based on the data reported for the NCSES Survey those percentages drop to 2.66% and .38%, respectively.

HHS explained:

> NIH disagrees with the SBA finding because it has met the annual set-asides for the SBIR/STTR requirements. The NSF Funds Survey that the SBA used to calculate the SBIR/STTR set-asides differs from the base that NIH used. The base that NIH used is the total extramural research funding amount minus training and an administrative contractor supporting the National Library of Medicine. The NSF Funds Survey includes other funding sources that are not part of the extramural research funding.

DOE. DOE complied with both the minimum spending requirements; with 3.51% obligated for SBIR activities, and 0.50% 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 3.45% obligated for SBIR activities. NSF obligated 0.38% 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 $22,543,294 which is 0.38% of the extramural R/R&D amount for FY20. NSF exceeded the minimum spending requirement for SBIR, including 11 STTR Phase I projects that converted to SBIR Phase II projects for a total of $8,332,520, which, when added to the STTR award expenditures, brings the expenditure total to $30,875,814 for a total of .52% spending for the STTR Program.

NASA. SBA is unable to determine if NASA complied with the minimum SBIR and STTR obligations because it is unable to verify its exemptions. Based on the data submitted to SBA NASA obligated 3.34% for SBIR activities and 0.59% for STTR activities. The data reported to NCSES was not significantly more than what was reported to SBA.

NASA explained:

> NASA continues to evaluate and improve its methodology to increase accuracy of estimating and reporting extramural R&D in support of the SBIR/STTR program. NASA utilizes a Research and Development (R&D) Heuristic to categorize obligations by type of R&D and identify whether the work is intramural or extramural in nature to budget for SBIR/STTR requirements and evaluate compliance with SBA statute. NASA follows the definition of extramural budget as defined in the statute and in the Small Business Administration Policy Directive for SBIR/STTR calculations. The definition states that extramural budget is: "The sum of the total obligations for R/R&D minus amounts obligated for R/R&D activities by employees of a Federal agency in or through Government-owned, Government operated facilities." Based on this definition, NASA

identifies the exclusions that are considered intramural R&D. In addition to the exclusions in the NSF survey for FY2020, NASA also excluded the following categories from total R/R&D obligations reported to SBA:

1. Support contractors performing NASA Center on- or near-site science, engineering, technical or management services;
2. Launch vehicle procurements (as these are transportation costs); and
3. Procurement and administrative expenses associated with NASA "in-house" performed R&D projects and activities.

DHS. DHS complied with the minimum spending requirement based on the extramural R/R&D reported to SBA with 3.6% 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 SBIR minimum spending requirement because it obligated less than the minimum required with 2.76% obligated for SBIR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

DOT. DOT did not comply with the SBIR minimum spending requirement because it obligated less than the minimum required with 3.06% obligated for SBIR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

DOT explained:

> USDOT obligated 3.06% of its extramural research budget for FY20. The shortfall was largely due to the fact that the original estimate of USDOT obligations at the start of the fiscal year was lower than the actual USDOT obligations reported at the end of the fiscal year and a contract extension due to COVID circumstances that delayed the awarding of at least one Phase II award until FY21. Additionally, planned travel expenses tied to our administrative funding activities did not occur in FY 2020 due to the pandemic.

DOC. DOC did not comply with the SBIR minimum spending requirement because it obligated less than the minimum required with 2.59% 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.

DOC explained:

> Due to the COVID-19 pandemic NOAA granted a 3 month no cost extension for FY2019 awards. This caused a delay in the follow on FY2020 Phase II competition; therefore, no Phase II awards were made by NOAA in FY 2020 and the FY 2020 reporting period was underfunded. Given this was a one-time COVID-19 related extension we do not foresee this occurring again in the future.

ED. ED complied with the minimum spending requirement by obligating 4.53% 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 4.46% for SBIR activities based. However, based on the NCSES total, EPA did not comply with the minimum spending requirement with 2.31% 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 Components

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

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	$24,159,480,874	$0	$24,159,480,874	$668,802,874	2.77%	$32,322,600,000	$32,322,600,000	**2.07%**	$65,591,577	**0.27%**	**0.20%**
Navy	$13,614,826,608	$0	$13,614,826,608	$442,765,996	3.25%	$12,434,200,000	$12,434,200,000	**3.56%**	$68,429,015	**0.50%**	**0.55%**
Army	$10,769,724,000	$0	$10,769,724,000	$219,606,362	2.04%	$8,227,000,000	$8,227,000,000	**2.67%**	$25,030,691	**0.23%**	**0.30%**
ODAs	$13,922,421,208	$0	$13,469,279,295	$354,356,557	2.63%	$12,558,300,000	$12,558,300,000	**2.82%**	$49,033,648	**0.36%**	**0.39%**
DoD Total	**$62,466,452,690**	$0	**$62,013,310,777**	**$1,685,531,789**	**2.72%**	**$65,542,100,000**	**$65,542,100,000**	**2.57%**	**$208,084,931**	**0.34%**	**0.32%**
Other Defense Agencies (ODAs) Break Out											
DARPA	$2,939,573,000	$0	$2,939,573,000	$98,097,444	3.34%	$3,347,000,000	$3,347,000,000	2.93%	$15,193,884	0.52%	0.45%
MDA	$1,709,996,170	$0	$1,709,996,170	$82,928,479	4.85%	$4,682,100,000	$4,682,100,000	1.77%	$16,617,339	0.97%	0.35%
DHA	$1,823,834,000	$0	$1,823,834,000	$59,250,544	3.25%	$1,779,400,000	$1,779,400,000	3.33%	$5,671,577	0.31%	0.32%
DLA & DMEA	$104,731,250	$0	$104,731,250	$37,534,075	35.84%	$239,500,000	$239,500,000	15.67%	$1,836,908	1.75%	0.77%
SCO†	-	-	-	$23,486,269	-	N/A	N/A	N/A	-	-	-
DTRA	$354,046,000	$0	$354,046,000	$20,770,965	5.87%	$388,800,000	$388,800,000	5.34%	$5,474,960	1.55%	1.41%
SOCOM	$747,349,000	$0	$747,349,000	$14,297,475	1.91%	$644,300,000	$644,300,000	2.22%	$1,000,000	0.13%	0.16%
CBD	$590,931,875	$0	$590,931,875	$11,566,913	1.96%	$360,100,000	$360,100,000	3.21%	$2,039,603	0.35%	0.57%
NGA**	-	-	-	$4,373,472	-	N/A	N/A	-	$1,199,377	N/A	N/A
OSD	$5,198,818,000	$0	$5,651,959,913	$2,050,920	0.04%	$1,117,100,000	$1,117,100,000	0.18%	-	-	-

* Service Components 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/nsf22323/assets/data-tables/tables/nsf22323-tab009.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 Service Components and the Other Defense Agencies. Delineating the data also provides a more transparent account of individual Component performance. SBA evaluated compliance for Components primarily based on data reported for the NCSES survey. In FY20, the DoD SBIR/STTR Program Office 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 SBIR/STTR Program Office for the individual Components.

The following subsections summarize SBA's assessment of whether each of the DoD Service Agencies 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.

SBA is only determining a component as having "complied" with the minimum spending requirements for FY20 if, as per the SBIR and STTR Policy Directive, 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 the agency's exemptions.

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 Components

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	Did Not Comply‡	Complied
MDA	A	2-year	Did Not Comply‡	Did Not Comply‡
DHA	A	2-year	Complied	Did Not Comply‡
CBD	A	2-year	Did Not Comply‡	Did Not Comply‡
SOCOM	A	2-year	Did Not Comply‡	Did Not Comply‡
DTRA	A	2-year	Complied	Complied
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‡
SCO	A	2-Year	N/A	N/A

*** SBA recognizes Components of the Other Defense Agencies may transfer all or portions of STTR funding to another Component to obligate.**

**** 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.**

† 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.

‡ The DoD sets aside SBIR/STTR funding as indicated in 15 U.S.C. 638 (f) and (n), however, there is a mismatch between set aside amounts and obligated amounts due to the two-year execution cycle of the DoD SBIR/STTR program that could lead to an appearance of non-compliance.

The Department of Defense explained:

> Within the Department, a particular fiscal year (FY) appropriation will most likely result in obligations spread across the appropriated FY as well as the subsequent FY. For example, for SBIR/STTR funding associated with FY 2020 appropriation will be spread between both FY 2020 and FY 2021. There are several reasons for this, one of which is that the Department's SBIR/STTR funding is derived from its Research, Development, Testing, and Evaluation (RDT&E) appropriation, which is available for obligations over a two-year period. Another reason is to offset any delays on receiving a full year appropriation; the Department's Components reserve enough SBIR/STTR funding to cover new awards, increments and options for efforts that are due in the next FY. The amount of SBIR/STTR funding the components reserve is predicated on when they anticipate the new FY funding will arrive. As an example, the FY19 SBIR/STTR funding was made available in February 2019 and the FY20 funding was made available in March 2020. The Department executes the entirety of its authorized SBIR/STTR funding over the course of two years. This applies to any of the DoD Components that are deemed "Did Not Comply."

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 3.25% for SBIR activities and 0.50% for STTR activities.

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 2.77% for SBIR activities and 0.27% 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 2.04% for SBIR activities and 0.23% 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 did not comply with the SBIR minimum spending requirements. Based on the data reported to SBA, DARPA would have met the minimum SBIR requirements, obligating 3.34% for SBIR activities. However, when assessed against the NCSES Survey data, DARPA obligated less than the minimum requirements with 2.93%. DARPA complied with the STTR requirements, obligating .45% based on the NCSES Survey, and .52% when based against the data reported to SBA.

MDA. MDA did not comply with the SBIR and STTR minimum spending requirements. Based on the extramural R/R&D reported to SBA, MDA obligated 4.85% for SBIR activities but when

compared against the NCSES data this percentage drops to 1.77%. MDA obligated 0.97% for STTR awards based on the data reported to SBA, but only 0.35% when assessed against NCSES data. The extramural R/R&D reported for the NCSES Survey was significantly more than what was reported to SBA.

DHA. DHA 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 the DHA obligated 3.25% for SBIR activities. DHA did not comply with the STTR minimum spending requirements, obligating .31% for STTR activities based on the data reported to SBA. The extramural R/R&D reported for the NCSES Survey was not significantly different.

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 1.96% for SBIR activities and .35% for 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 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, SOCOM obligated 1.91% for SBIR activities and .13% for 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.

DTRA. DTRA 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 DTRA obligated 5.34% for SBIR activities and 1.41% for STTR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported 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 15.67% for SBIR activities and .77% for STTR activities. The extramural R/R&D reported for the NCSES Survey was significantly more than what was reported to SBA; however, DLA/DMEA surpassed the minimum requirements based on the larger extramural R/R&D number reported to NCSES.

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 .04% 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.

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 | 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 FY20 reporting year, agencies could issue a Phase I award up to $256,580 and a Phase II award up to $1,710,531 without seeking SBA approval. Any award above those amounts requires a waiver from SBA. Only DoD, HHS, and NASA required a waiver in FY20.

Table 16: Awards Exceeding Guideline Amounts by More Than 50%

Awards Exceeding Guideline Amounts by More Than 50% (FY20)				
Program	**Phase**	**DoD**	**HHS**	**NASA**
SBIR	Phase I	1,991	652	351
	Phase I Exceeding	0 / 0%	329 / 50%	0 / 0%
	Phase II	1,135	501	141
	Phase II Exceeding	103 / 9%	256 / 51%	3 / 2%
STTR	Phase I	353	204	58
	Phase I Exceeding	0 / 0%	115 / 56%	0 / 0%
	Phase II	194	40	23
	Phase II Exceeding	12 /6%	14 /35%	1 / 4%
($256,580 for Phase I, $1,710,531 for Phase II)				

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.

HHS. For FY20, NIH requested, and the SBA approved, waivers granting NIH authority to make awards over the statutory award guidelines for specific biomedical research topics that require larger funding levels to enable commercialization. In order for NIH to leverage the SBIR/STTR Programs to improve health and save lives, projects must be funded at a level that is typically over the statutory guidelines because:

- The cost of early-stage research in the biomedical and behavioral arenas is often above the statutory guidelines and higher than most other research and development research areas.
- Life science products require extensive pre-clinical research and development to facilitate regulatory filings, testing, and approval.
- Life science SBIR/STTR projects need to reach a stage of product validation and early development sufficient to attract the third-party funding and partnerships required to facilitate commercialization. Reaching market access can take years and possibly tens/hundreds of millions of dollars after the SBIR/STTR Phase.

HHS believes underfunding a Phase I, II, or IIB SBIR/STTR project may cause projects to fail and not reach the healthcare marketplace due to any one or more of the above reasons. As a consequence, NIH would not be able to fulfill its mission and could not bring lifesaving 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."

NASA. NASA received waivers to offer sequential Phase II awards that exceeded the guidelines to meet nearer term technology needs for NASA's Moon to Mars initiative.

9 | 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 FY20, small businesses submitted a total of 20,712 SBIR Phase I proposals across the eleven Participating Agencies. Agencies made 3,931 new Phase I awards, resulting in an average Phase I proposal selection rate of 19%. Agencies received 5,158 SBIR Phase II proposals and selected 2,167 new Phase II awards, resulting in an average Phase II selection rate of 42%. Four agencies combined to make nineteen SBIR awards, including fourteen Phase I awards (DOE-9, HHS-2, NSF-2, and DOD-1), and five Phase II awards (HHS-5), against a topic that received only one proposal.

Chart 15: SBIR Phase I Proposal Selection Rates

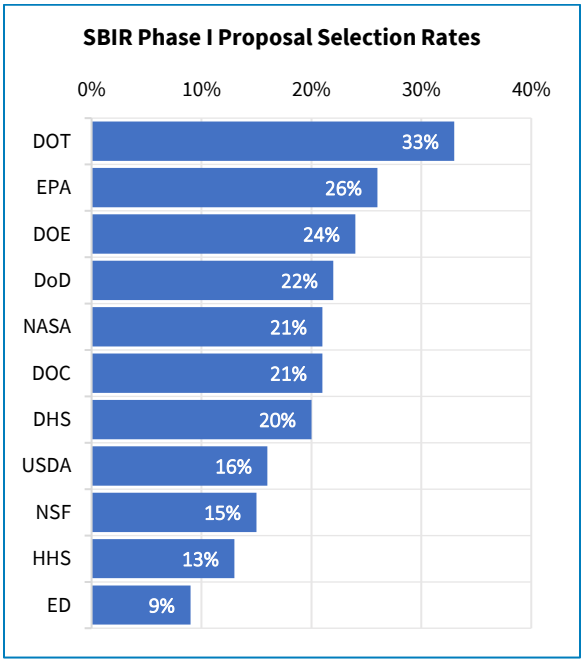
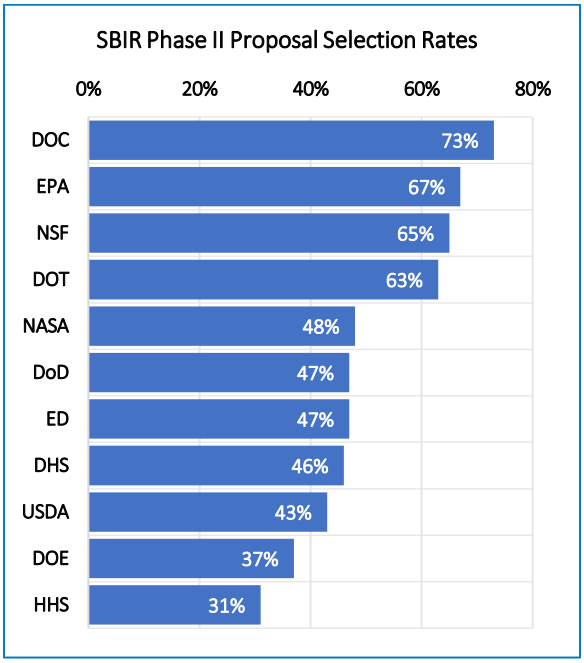


Chart 16: SBIR Phase II Proposal Selection Rates



STTR Program

In FY20, small businesses submitted a total of 3,446 STTR Phase I proposals. Agencies selected 748 new Phase I awards, resulting in an average Phase I proposal selection rate of 22%. Agencies received 479 Phase II proposals and selected 289 new Phase II awards, resulting in an average Phase II proposal selection rate of 60%. Both the Department of Energy and the Department of Health and Human Services made STTR awards against a topic that received only one proposal. They combined to make 3 awards, 2 Phase I awards (DOE-1, HHS-1), and one Phase II award (HHS).

Chart 17: STTR Phase I Proposal Selection Rates

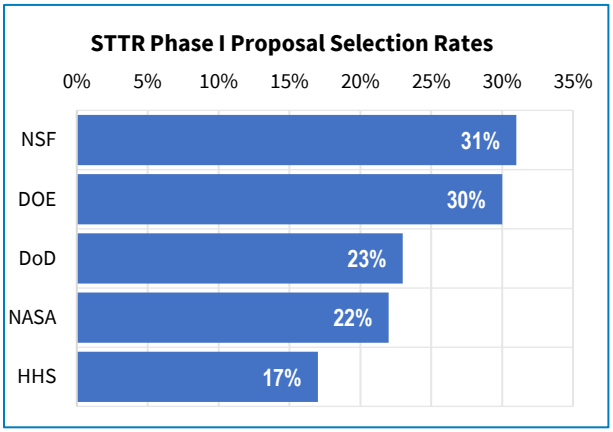
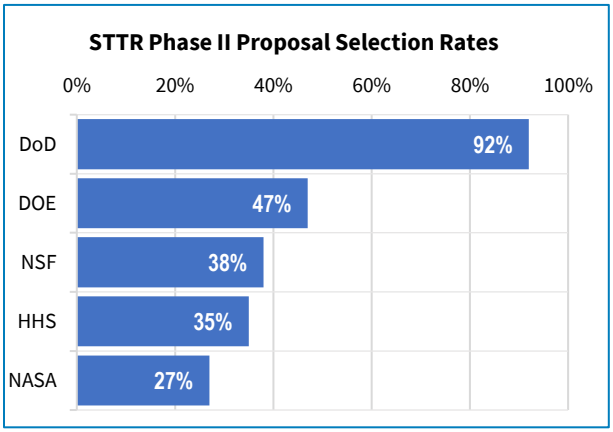


Chart 18: STTR Phase II Proposal Selection Rates



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 (FY15-FY19). The table also details the number of FY20 Phase I awards that these companies received.

Table 17: Phase IIs Made to Small Business Concerns that Received More Than 15 Phase IIs during the Preceding 5 Fiscal Years (FY15 – FY19)- Participating Agencies

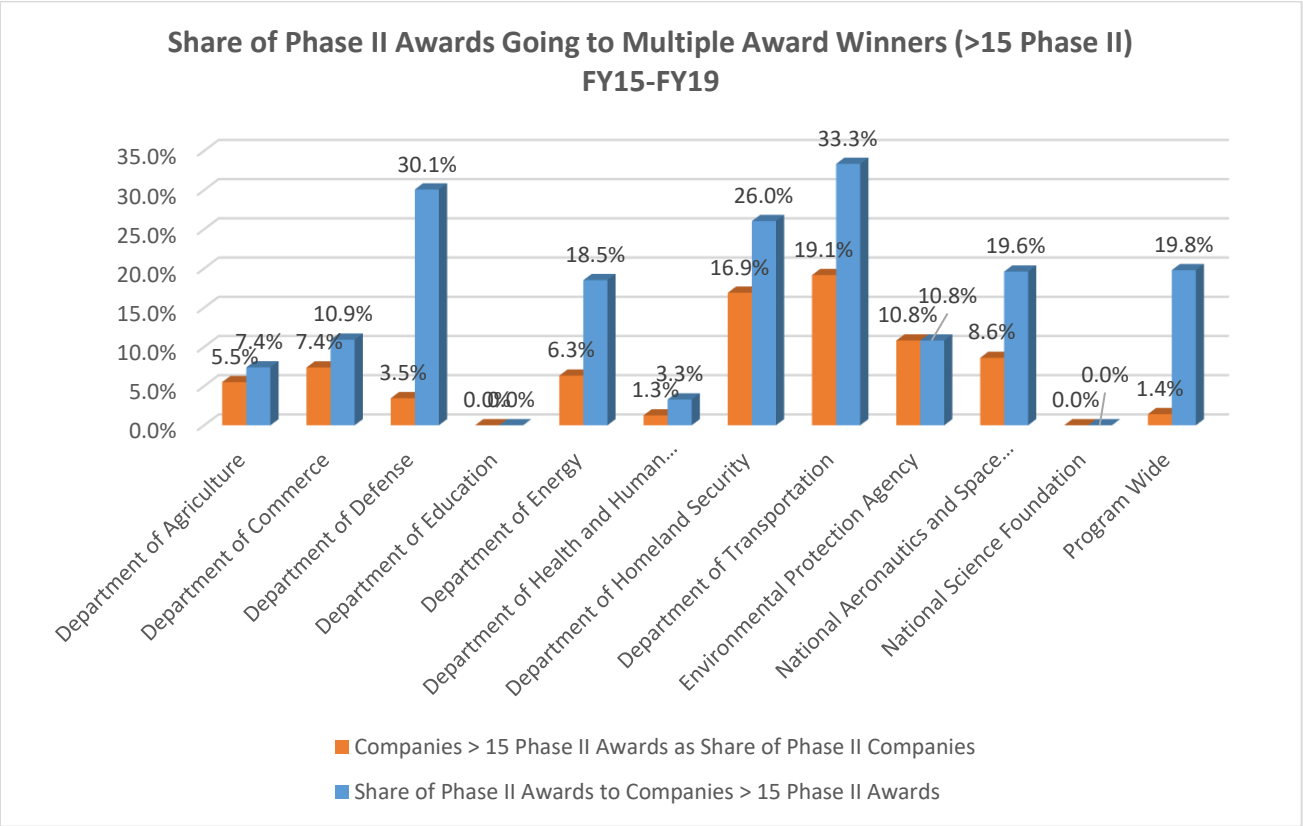
Multiple Award Winners	Totals
Number of Companies with a Phase II Award	4,223
Number of Companies with > 15 Phase II Awards	60
Companies with > 15 Phase II Awards as Percentage of Phase II Companies	1.4%
Number of FY20 Phase I Awards received by Companies with > 15 Phase II Awards	684

FY15 - FY19 Phase II Awards

In the preceding five fiscal years (FY15 - FY19), the Participating Agencies made Phase II awards to 4,223 companies. Sixty (60) or 1% of these companies received more than 15 Phase II awards during the period. Although these 60 companies represent a small percentage of the individual firms that received a Phase II, they represent 1,998 (20%) of the 10,098 Phase II awards made during FY15-FY19. 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 1,998 Phase II awards obtained by these 60 companies, 1,524 (76%) were awarded by DoD during the period. The 1,524 DoD awards represents 30% of the total number of Phase II awards (5,069) made by DoD during the five-year period.

Chart 19: Share of Phase II Awards going to Multiple Award Winners (>15 Phase IIs FY14-FY19)



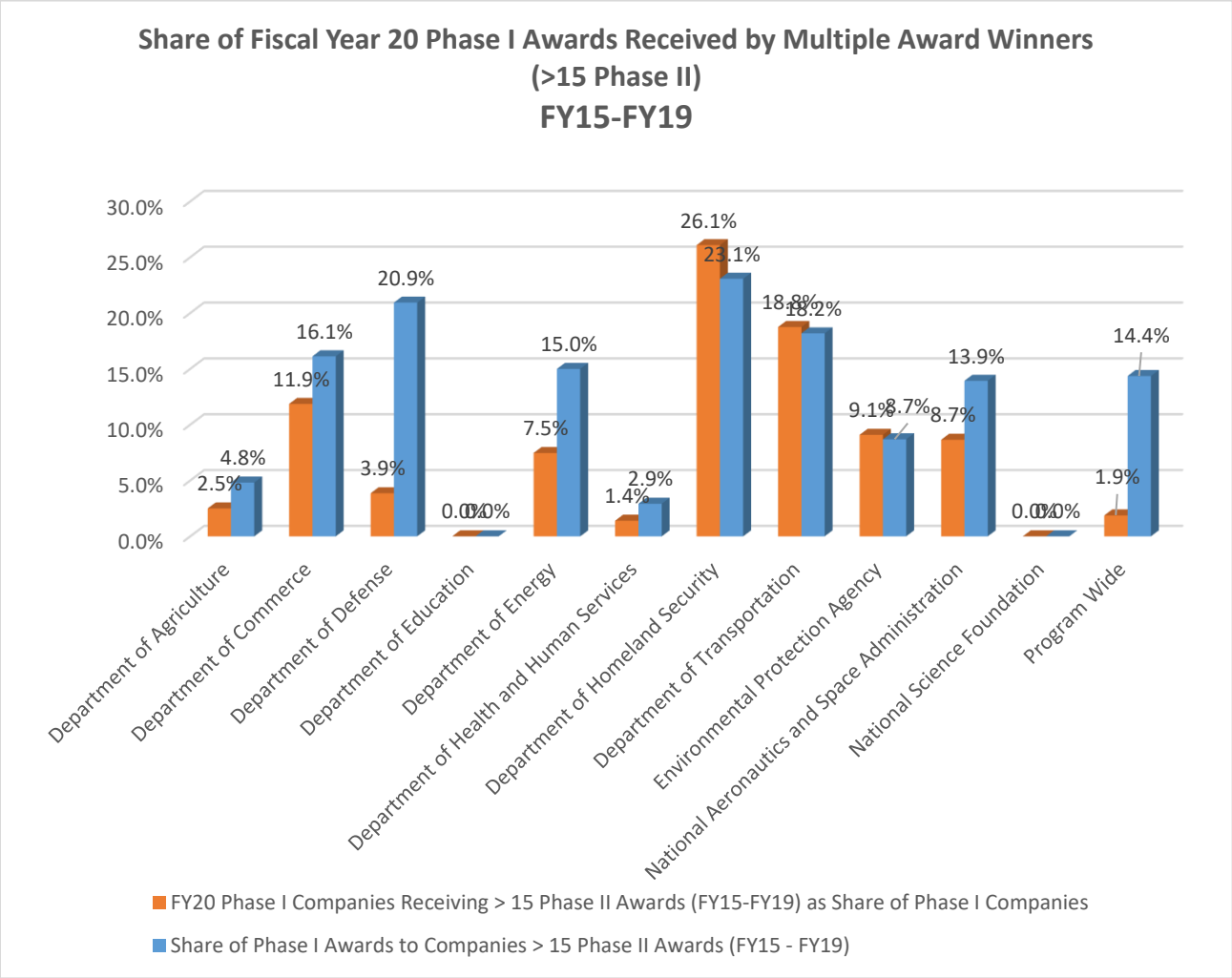
FY20 Phase I Awards

For FY20, the Participating Agencies made 4,762 Phase I awards to 3,041 companies. Fourteen percent of the Phase I awards (684) were obtained by 57 companies identified as multiple award winners, those receiving more than 15 Phase II awards during the previous five fiscal years. The Department of Education 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 FY20 Phase I award to a company with greater than 15 Phase IIs from FY15-FY19.

Fifty-six (56) out of the 57 multiple award firms received at least one Phase I award from the DoD. These companies accounted for 508 (21%) of the DoD's total Phase I awards (2,426). The 508 Phase I award from DoD accounted for 74% of all Phase I awards (684) multiple award companies won from the Participating Agencies.

Program wide, multiple award winners accounted for 2% of companies receiving a Phase I award and 14% of all Phase I awards received in Fiscal Year 2020.

Chart 20: Share of FY20 Phase I awards going to Multiple Award Winners (>15 Phase IIs FY15-FY19)



10 | 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 63% of total FY20 SBIR dollars were concentrated in California, Massachusetts, Virginia, Maryland, and New York, and approximately 53% of total FY20 STTR dollars were concentrated in these states with the addition of Pennsylvania.

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.

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 18: 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	3	$544,444	0	$0	0	$0	0	$0	3	$544,444	0	$0	3	$544,444
AL	68	$9,571,943	18	$3,005,932	37	$42,092,343	8	$5,883,997	105	$51,664,285	26	$8,889,929	131	$60,554,214
AR	11	$2,213,757	4	$601,982	7	$7,613,078	0	$585,965	18	$9,826,836	4	$1,187,947	22	$11,014,783
AZ	74	$12,367,014	20	$4,016,620	35	$41,919,590	5	$4,223,366	109	$54,286,604	25	$8,239,986	134	$62,526,590
CA	834	$136,176,892	120	$23,919,659	466	$635,934,864	43	$41,022,334	1300	$772,111,756	163	$64,941,993	1463	$837,053,749
CO	199	$30,269,142	25	$5,038,527	97	$114,937,876	15	$14,582,658	296	$145,207,018	40	$19,621,185	336	$164,828,203
CT	36	$6,579,479	7	$2,550,292	28	$33,784,130	3	$3,418,063	64	$40,363,609	10	$5,968,355	74	$46,331,964
DC	29	$3,412,583	4	$661,390	12	$12,225,805	1	$1,645,446	41	$15,638,388	5	$2,306,836	46	$17,945,224
DE	19	$3,207,760	11	$1,632,221	10	$13,349,658	2	$2,181,571	29	$16,557,418	13	$3,813,792	42	$20,371,210
FL	128	$19,216,093	21	$3,766,647	49	$64,926,816	11	$12,242,590	177	$84,142,909	32	$16,009,237	209	$100,152,146
GA	42	$9,421,577	16	$4,101,954	26	$36,357,025	5	$5,582,937	68	$45,778,603	21	$9,684,891	89	$55,463,494
HI	25	$4,482,315	2	$274,455	19	$28,746,912	1	$2,350,096	44	$33,229,227	3	$2,624,551	47	$35,853,778
IA	5	$962,982	3	$862,555	11	$11,647,927	1	$1,361,255	16	$12,610,909	4	$2,223,810	20	$14,834,720
ID	9	$1,137,154	1	$139,700	4	$4,112,357	0	$0	13	$5,249,511	1	$139,700	14	$5,389,211
IL	74	$14,621,630	20	$4,725,067	43	$49,808,863	7	$8,039,432	117	$64,430,494	27	$12,764,499	144	$77,194,993
IN	24	$3,428,086	8	$1,744,923	17	$21,042,351	7	$5,482,491	41	$24,470,437	15	$7,227,414	56	$31,697,851
KS	14	$2,591,813	2	$174,751	7	$4,917,250	2	$1,996,143	21	$7,509,063	4	$2,170,894	25	$9,679,957
KY	21	$3,719,685	4	$554,984	13	$16,092,823	1	$3,712,351	34	$19,812,509	5	$4,267,335	39	$24,079,844
LA	14	$1,945,315	6	$887,072	9	$8,899,567	1	$750,165	23	$10,844,882	7	$1,637,237	30	$12,482,119
MA	428	$81,684,186	60	$11,893,676	204	$278,529,428	26	$34,662,993	632	$360,213,614	86	$46,556,669	718	$406,770,284
MD	178	$32,723,301	41	$7,303,524	112	$136,379,150	15	$14,668,705	290	$169,102,451	56	$21,972,229	346	$191,074,680
ME	8	$1,124,669	2	$450,000	4	$3,738,547	0	$0	12	$4,863,216	2	$450,000	14	$5,313,216
MH	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
MI	81	$13,062,758	15	$3,458,331	40	$56,828,965	11	$12,057,473	121	$69,891,723	26	$15,515,804	147	$85,407,526
MN	41	$9,632,403	7	$2,305,621	29	$37,249,934	0	$4,954,458	70	$46,882,337	7	$7,260,079	77	$54,142,416
MO	32	$8,418,952	5	$1,528,130	16	$18,775,096	3	$2,153,974	48	$27,194,048	8	$3,682,104	56	$30,876,152
MS	3	$381,468	0	$0	2	$2,152,559	0	$0	5	$2,534,027	0	$0	5	$2,534,027

State	SBIR Phase I		STTR Phase I		SBIR Phase II		STTR Phase II		SBIR Total Awards		STTR Total Awards		SBIR/STTR Total Awards	
MT	8	$1,842,961	6	$837,877	7	$11,058,324	2	$2,251,383	15	$12,901,285	8	$3,089,260	23	$15,990,545
NC	96	$20,547,876	31	$7,498,531	73	$83,974,040	10	$9,606,510	169	$104,521,916	41	$17,105,041	210	$121,626,957
ND	2	$349,969	0	$0	0	$0	0	$0	2	$349,969	0	$0	2	$349,969
NE	12	$1,860,796	2	$561,321	3	$5,213,834	0	$0	15	$7,074,630	2	$561,321	17	$7,635,951
NH	37	$7,291,090	8	$1,597,980	40	$43,702,466	2	$4,776,063	77	$50,993,556	10	$6,374,043	87	$57,367,599
NJ	67	$10,414,260	24	$4,355,125	37	$45,989,768	1	$2,573,137	104	$56,404,028	25	$6,928,262	129	$63,332,290
NM	33	$4,614,910	8	$1,551,414	12	$23,833,561	6	$4,825,285	45	$28,448,471	14	$6,376,699	59	$34,825,170
NV	11	$1,330,687	0	$0	2	$4,639,076	1	$747,570	13	$5,969,763	1	$747,570	14	$6,717,333
NY	182	$33,454,032	32	$7,674,048	100	$130,994,743	17	$15,703,001	282	$164,448,775	49	$23,377,049	331	$187,825,824
OH	150	$24,119,957	37	$6,847,134	83	$97,381,943	12	$10,331,216	233	$121,501,900	49	$17,178,350	282	$138,680,251
OK	11	$2,172,065	4	$751,324	7	$8,234,269	3	$2,063,684	18	$10,406,334	7	$2,815,008	25	$13,221,342
OR	51	$9,429,784	9	$1,844,409	21	$31,441,560	0	$327,912	72	$40,871,343	9	$2,172,321	81	$43,043,664
PA	138	$26,071,705	30	$7,066,558	90	$110,962,970	16	$18,441,610	228	$137,034,675	46	$25,508,168	274	$162,542,843
PR	0	$0	0	$0	2	$1,552,513	0	$0	2	$1,552,513	0	$0	2	$1,552,513
RI	15	$2,459,860	3	$993,632	8	$6,460,694	0	$0	23	$8,920,554	3	$993,632	26	$9,914,186
SC	25	$6,334,301	5	$1,719,007	10	$10,586,575	0	$0	35	$16,920,876	5	$1,719,007	40	$18,639,883
SD	8	$1,233,206	4	$341,457	4	$5,254,179	2	$499,978	12	$6,487,385	6	$841,435	18	$7,328,820
TN	34	$6,055,758	11	$1,866,666	19	$22,831,642	5	$2,691,931	53	$28,887,400	16	$4,558,597	69	$33,445,997
TX	229	$32,275,585	46	$8,193,877	85	$109,077,806	13	$11,951,453	314	$141,353,391	59	$20,145,330	373	$161,498,721
UT	57	$9,417,648	5	$952,628	36	$41,826,414	2	$2,378,160	93	$51,244,062	7	$3,330,788	100	$54,574,850
VA	243	$34,525,147	29	$4,995,946	152	$178,581,895	18	$17,774,330	395	$213,107,042	47	$22,770,276	442	$235,877,318
VT	14	$2,632,286	0	$0	9	$10,645,829	2	$2,857,148	23	$13,278,115	2	$2,857,148	25	$16,135,263
WA	82	$15,044,407	16	$3,502,129	51	$62,050,779	2	$3,751,037	133	$77,095,186	18	$7,253,166	151	$84,348,352
WI	18	$3,668,578	8	$1,944,025	11	$18,901,351	2	$3,189,854	29	$22,569,929	10	$5,133,879	39	$27,703,808
WV	2	$289,366	3	$323,248	3	$6,184,429	3	$2,211,212	5	$6,473,795	6	$2,534,460	11	$9,008,255
WY	7	$1,267,203	5	$988,844	5	$4,113,128	2	$249,996	12	$5,380,331	7	$1,238,840	19	$6,619,171

The number of awards are only for new awards during FY20. 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 September 30, 2021.

11 | 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.

Civilian Participating Agencies SBIR Timelines

NASA, NSF, DHS, and ED 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 19: SBIR Award Timelines - Civilian Agencies

SBIR TIMELINES	HHS	DOE	NASA	NSF	USDA	DHS	ED	DOC	DOT	EPA
Average time between Phase I Solicitation Close and Award Notification (days)	187	86	71	142	132	85	84	197	79	139
Average time between Phase I Notification and First Day of Period of Performance (days)	69	44	51	8	91	32	14	30	59	75
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)	99%	96%	100%	100%	16%	100%	100%	19%	100%	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)	98%	96%	100%	100%	16%	100%	100%	53%	97%	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)	459	127	146	350	286	213	110	228	159	214
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	188	80	78	225	78	58	84	76	45	123
Average time between Phase II Notification Date and First Day of Period of Performance (days)	68	42	68	5	26	127	6	37	87	55
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)	98%	100%	98%	95%	72%	100%	100%	100%	100%	0%
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%	88%	100%	100%	25%	100%	100%	92%	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

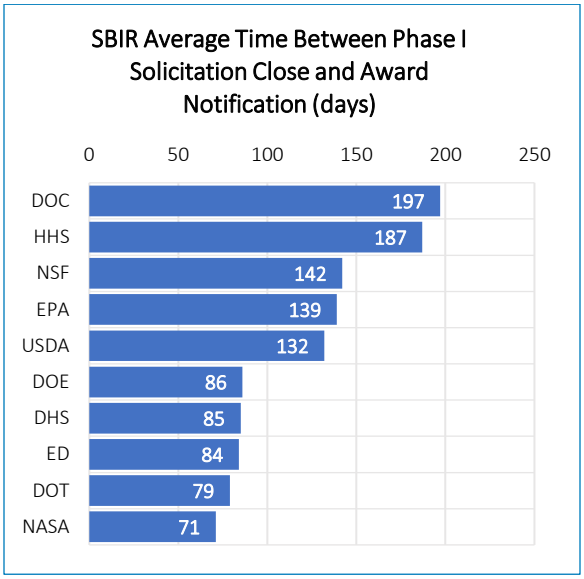


Chart 22: SBIR Average Time Between Phase II Solicitation Close and Award Notification - Civilian

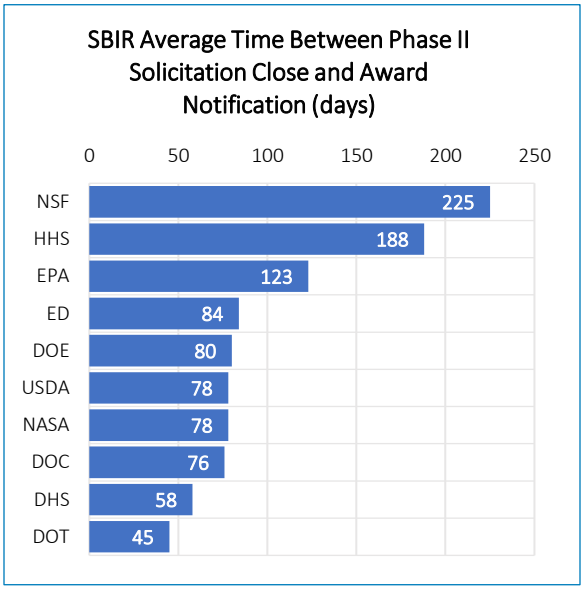
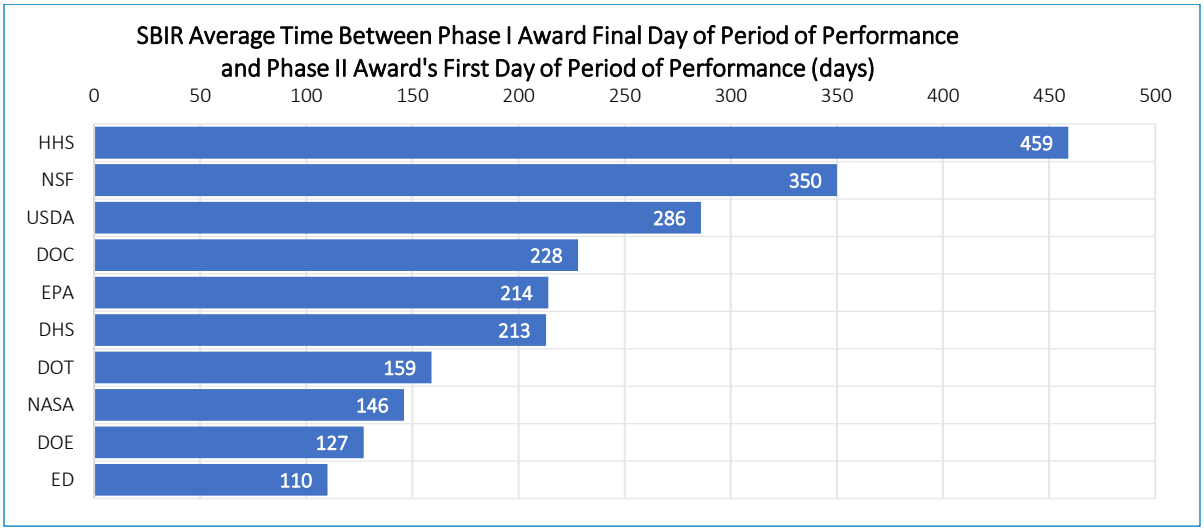


Chart 23: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – Civilian Agencies



DoD Service Agencies and Other Defense Agencies SBIR Timelines

Table 20 below shows how DoD Service Agencies and Other Defense Agencies performed on the SBIR program during FY20. Air Force, Navy, and Other Defense Agencies reported Phase I SBIR awards were largely 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, and that awards should be made within 180 days from the closing date of the solicitation.

Table 20: SBIR Award Timelines - DoD Service Agencies 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	56	86	85	57
Average time between Phase I Notification and First Day of Period of Performance (days)	92	44	31	90	66
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	99%	97%	100%	72%	95%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	92%	94%	95%	66%	90%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	132	188	124	327	191
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	74	35	71	87	67
Average time between Phase II Notification Date and First Day of Period of Performance (days)	55	117	17	139	76
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and Notification Date was less than or equal to 90 days	74%	91%	92%	67%	80%
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	78%	63%	99%	38%	72%

For Phase I notifications, the Army met this timeline requirement for 100% of its awards, the Air Force 99%, the Navy 84%, and the Other Defense Agencies 72%. Overall, 95% of DOD Phase I award recipients were notified within the required 90 calendar days, while 90% of recipients was awarded its Phase I within the required timelines.

The following FY20 charts are organized by DoD Service Agencies 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 Service Agencies and Other Defense Agencies

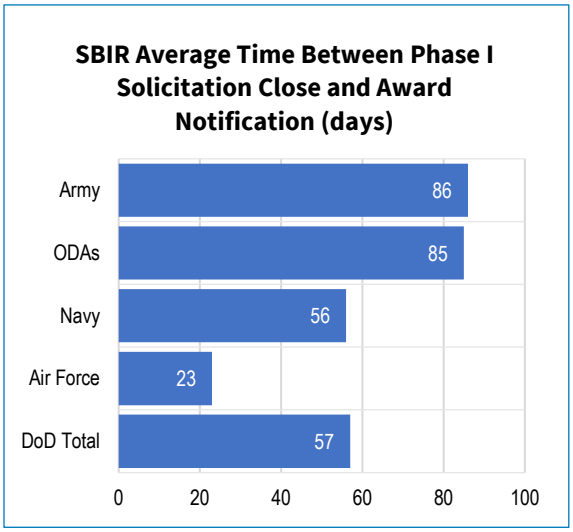


Chart 25: Average Time Between Phase II Solicitation Close and Award Notification – DoD Service Agencies and Other Defense Agencies

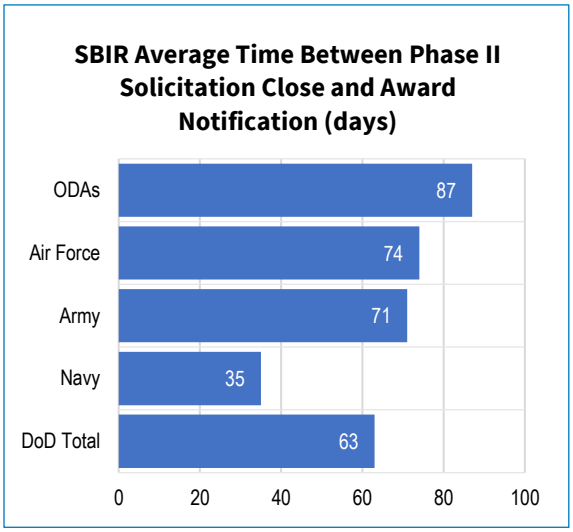
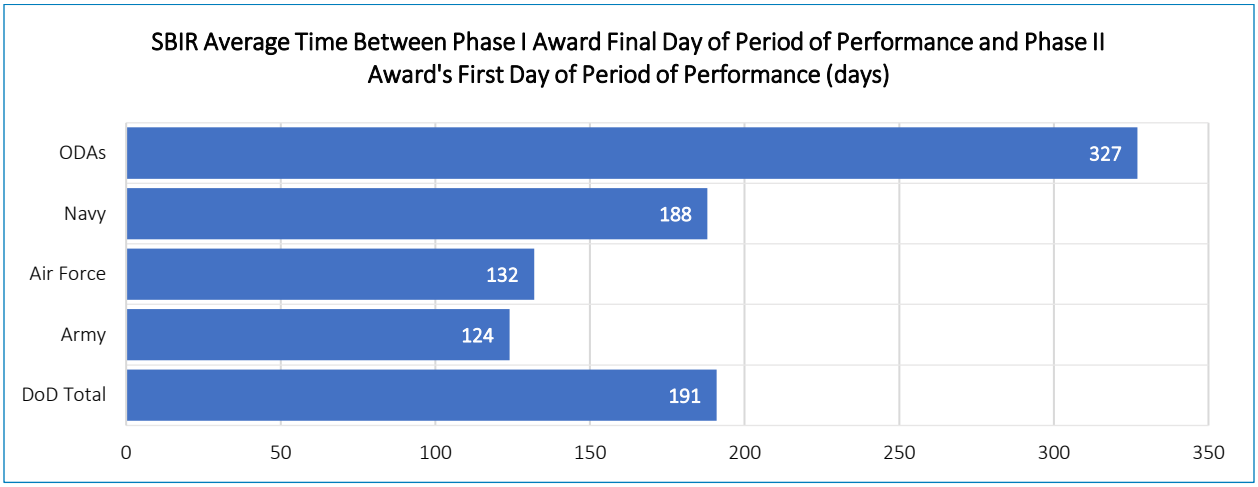


Chart 26: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – DoD Service Agencies and Other Defense Agencies



Civilian Participating Agencies STTR Timelines

NASA and NSF reported 100% of Phase I STTR awards were issued within the required timeline. DOE, NASA, and NSF reported 100% of Phase II STTR awards were issued within the required timeline. HHS reported 94% of Phase I and 97% Phase II STTR awards were issued within the required timeline.

Table 21: STTR Award Timelines - Civilian Agencies

STTR Award Timelines	HHS	DOE	NASA	NSF
Average time between Phase I Solicitation Close and Award Notification (days)	196	87	71	163
Av Average time between Phase I Notification and First Day of Period of Performance (days)	78	48	46	8
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)	97%	95%	98%	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)	94%	94%	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)	459	115	137	457
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	191	79	87	240
Average time between Phase II Notification Date and First Day of Period of Performance (days)	56	42	44	5
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)	97%	100%	100%	80%
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%	100%	100%

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

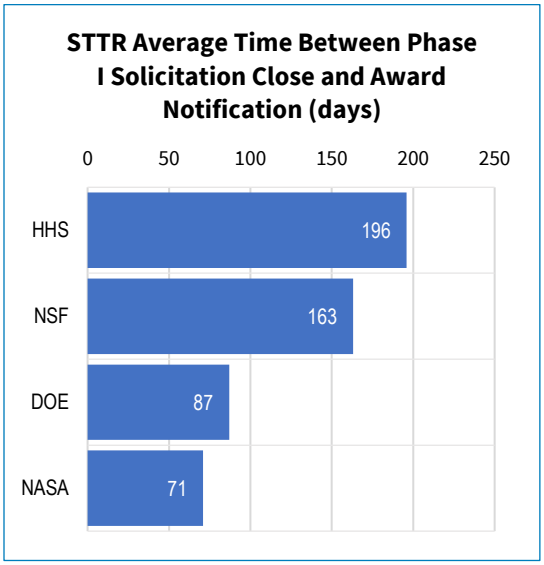


Chart 28: STTR Average Time Between Phase II Solicitation Close to Award Notification - Civilian Agencies

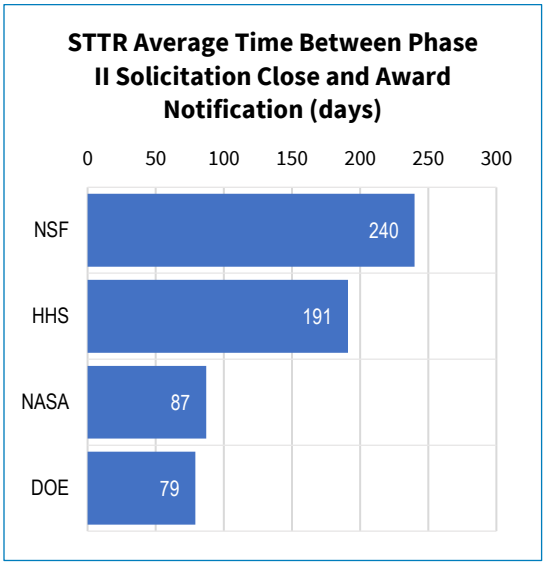
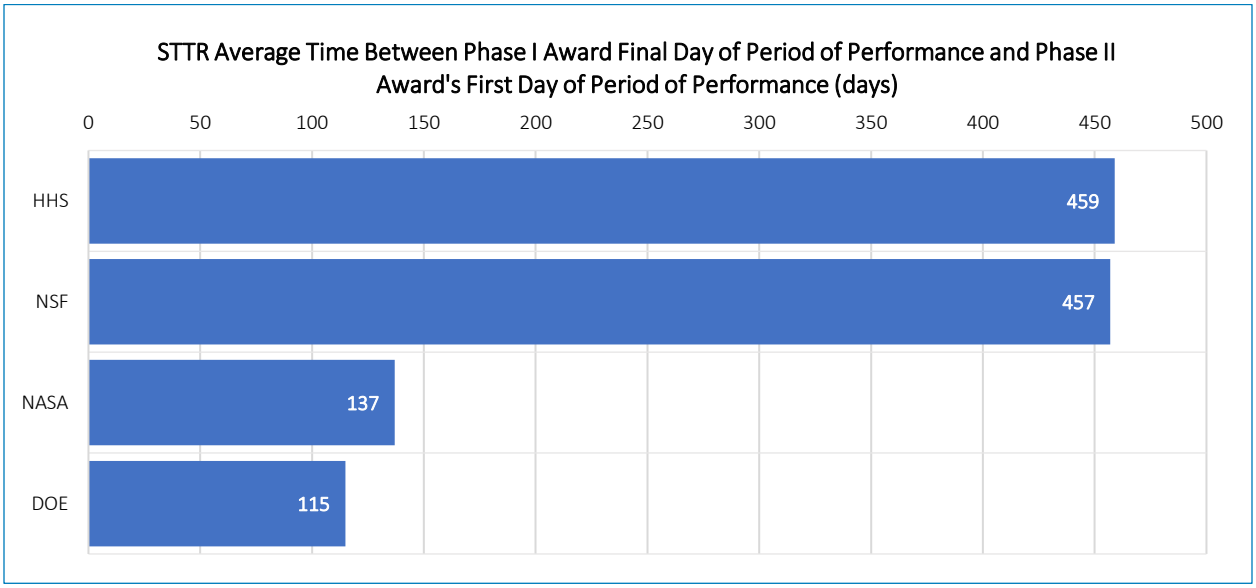


Chart 29: STTR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance - Civilian Agencies



DoD Service Agencies and Other Defense Agencies STTR Timelines

Table 22 shows how DoD Service Agencies and Other Defense Agencies performed on the STTR program during FY20. Air Force, Navy, and Other Defense Agencies reported Phase I STTR awards were largely 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, and that awards should be made within 180 days from the closing date of the solicitation.

Table 22: STTR Award Timelines - DoD Service Agencies 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)	35	60	84	73	55
Average time between Phase I Notification and First Day of Period of Performance (days)	46	45	106	100	63
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	87%	100%	100%	83%	91%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	92%	100%	60%	63%	83%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	85	138	258	220	129
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	53	44	45	69	53
Average time between Phase II Notification Date and First Day of Period of Performance (days)	64	133	133	155	101
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and Notification Date was less than or equal to 90 days	84%	89%	100%	81%	87%
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	81%	58%	88%	44%	71%

For Phase I notifications, the Navy and the Army met the timeline requirement for 100% of their awards, Air Force 87%, the Other Defense Agencies 83%. Overall, 91% of STTR Phase I awardees were notified within the required timelines. Overall, 83% of DOD Phase I STTR awardees--including 100% of the Navy awardees –received its award within the required timeline.

The following FY20 charts are organized by DoD Service Agencies 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 Service Agencies and Other Defense Agencies

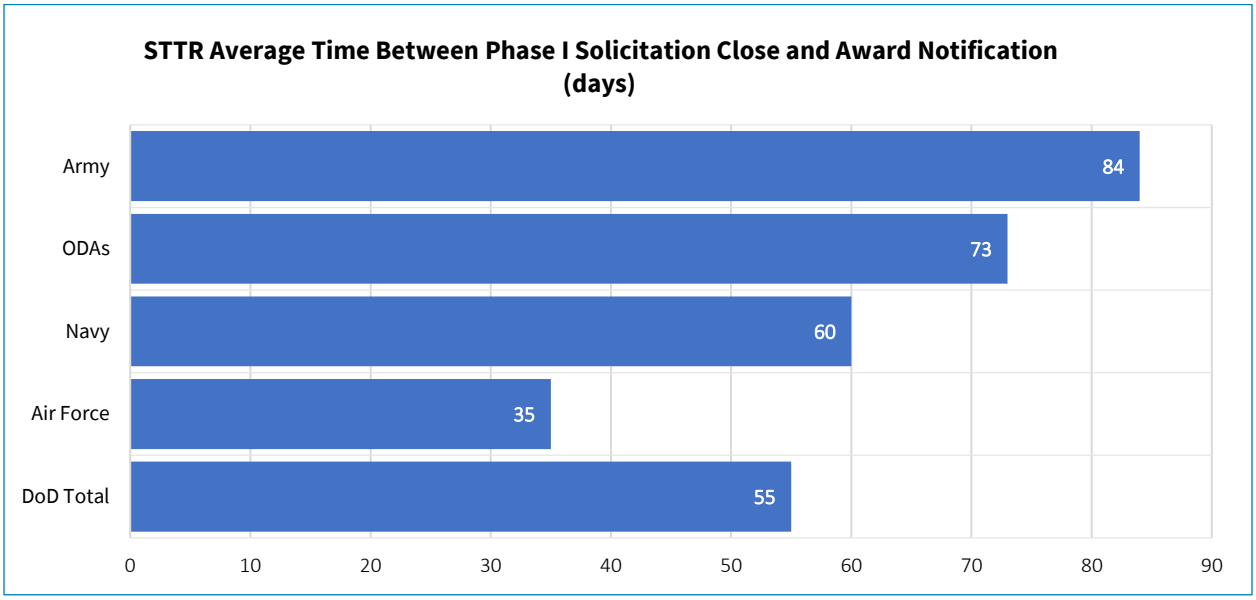


Chart 31: Average Time Between Phase II Solicitation Close and Award Notification - DoD Service Agencies and Other Defense Agencies

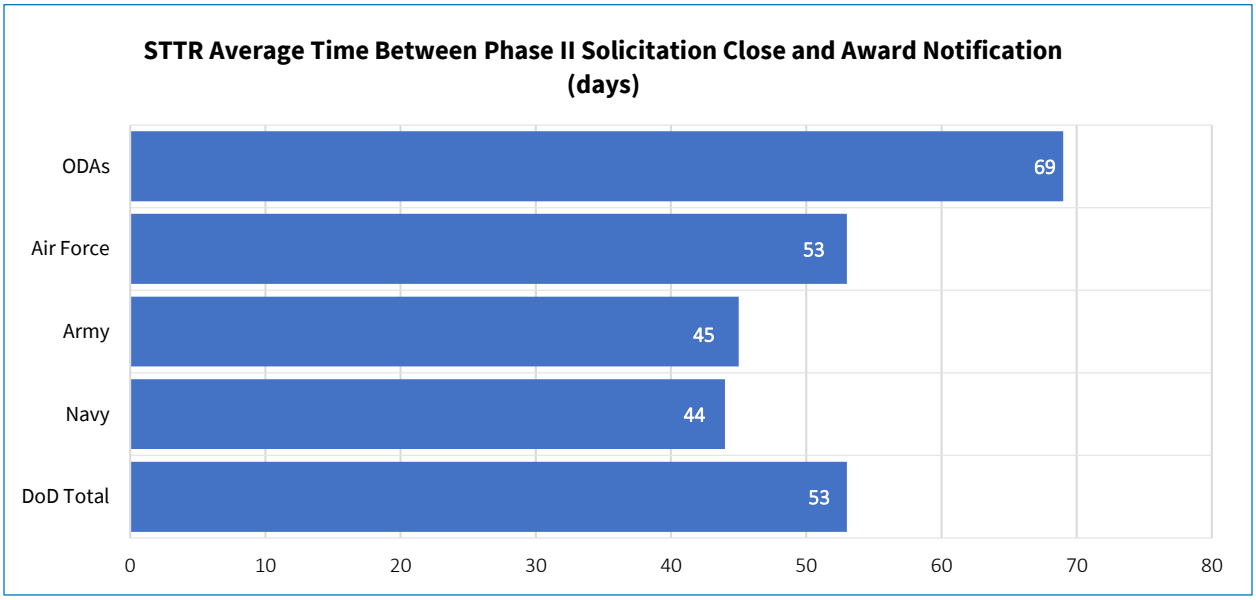
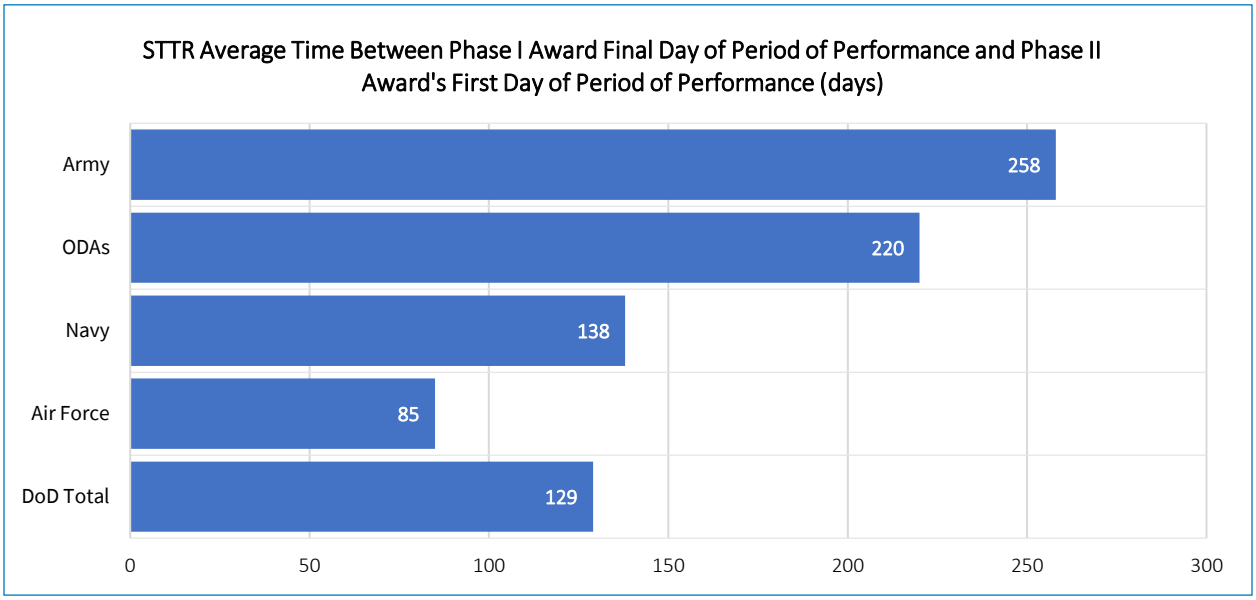


Chart 32: STTR Average Time Between Phase I Award Final Day of Performance and Phase II Award's First Day of Period of Performance - DoD Service Agencies and Other Defense Agencies



12 | 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 23: Administrative Funding Pilot Program

AFPP Maximum Allowable and Obligated Amount per Agency			
Agency	**Max Allowable***	**Funding Approved**	**Obligated†**
DoD	$45,487,284	$43,147,084	$40,529,742
HHS	$28,200,000	$28,200,000	$18,141,958
DOE (Program Office)	$7,700,000	$3,230,935	$3,108,485
NSF	$5,766,300	$5,757,700	$5,722,263
NASA	$5,590,882	$5,590,882	$5,583,264
USDA	Not Participating	Not Participating	Not Participating
DHS	Not Participating	Not Participating	Not Participating

AFPP Maximum Allowable and Obligated Amount per Agency			
DOT	$291,413	$194,275	$191,277
NOAA (DOC)	Not Participating	Not Participating	Not Participating
NIST (DOC)	Not Participating	Not Participating	Not Participating
ED	$310,000	$39,303	$39,303
EPA	Not Participating	Not Participating	Not Participating
Totals	**$93,345,879**	**$86,160,179**	**$73,316,292**

* 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

- SEED, NINDS, NIEHS, NHLBI, NIDA, and SEED hired strategic consultants, analysts, an IP expert on detail from the USPTO, and business development managers to advise small businesses and actively promote commercialization programs.
    - These experts provided selection guidance for several events that led to 12 NINDS company presentations (7 NINDS companies selected for NIH Innovation Zone at BIO, 1 NINDS company selected for presentation at MedTech, 4 NINDS companies selected for presentation at RESI Boston & SF), 17 NIEHS companies participating in commercialization activities (1 in the I-Corps program,13 in Niche, 1 in CRP and 1 in BIO2020 and 1 NIH SBIR entrepreneur in residence interaction in FY2020), pitch coaching 30 NHLBI companies, and improved the NIDA awardee and staff understanding of commercialization processes.
    - NHLBI's USPTO detailee provided IP expertise to portfolio companies, assisted with pitch coaching the 30 companies that attended investor showcases, and led coaching efforts for the 2020 BIO Investor Forum (four companies). MITRE provided personnel to create resources and advise companies and NIH staff on areas across the commercialization landscape. SEED worked with over 100 companies to provide guidance in all areas of commercialization.

- The NIH Applicant Assistance Program provides application preparation and submission guidance to small businesses who lack experience submitting NIH SBIR or STTR applications. The program has grown to include additional ICs and has received a total of 1075 applications to date. NCI has received 350 applications and supported 169 participants in the program.
    - The program helps to attract underrepresented small businesses and applicants, 83% of the NCI-supported participants are from underrepresented businesses, meaning the small businesses are woman-owned, socially and economically disadvantaged, or operating in states that receive limited NIH funding. The main goal of the program is to assist and encourage small businesses to apply for NIH SBIR/STTR funding, and following the program 80% of the participants submit an NIH SBIR/STTR application.
    - In FY20, NIAID's Small Business Program established a separate Applicant Assistance Program (AAP) to provide applicant assessment, proposal development training, customized SBIR/STTR proposal development assistance, and post submission support for NIAID's SBIR/STTR Phase II, Fast-Track, or Direct to Phase II applicants. Online webinars, toolkits, and templates are also

provided by the AAP program to assist all the AAP participants. The NIAID AAP program has an emphasis on engaging and assisting groups underrepresented in extramural biomedical small business programs, including Women-owned (WOSB) and Socially and Economically Disadvantaged Small Business (SDB) applicants.

DOE

- DOE conducted a pilot cohort of 23 FY 2020 Phase I awardees through an Energy I-Corps training program designed for SBIR/STTR awardees. Because of COVID-19, the training was held virtually, and the customer discovery visits were also held virtually. DOE is planning to expand the training for FY 2021 and make some minor modifications based on feedback from the small businesses.
- In FY 2020, the DOE provided Phase 0 services to 171 eligible small businesses intending to apply to the DOE FY 2020 Phase I Release 1 and Release 2 Funding Opportunity Announcement. Of this number, 36 (21%) were WOSBs; 52 (30%) SDBs, 37 (22%) were from one of DOE's under-represented states, and 73 (43%) were not from an under-represented group. Of the 20 awards granted to those Phase 0 small businesses, 3 awards were granted to WOSBs; 3 awards went to SDBs, 3 went to small businesses located in under-represented states, and 11 awards went to non-under-represented small businesses.

NSF

- NSF developed a digital marketing campaign to drive high-quality proposals from deep technology startups/first-time entrepreneurs, underrepresented minorities in STEM and diverse geographic areas. The overall paid marketing campaign ran from September 2019 to June 2020 generating 79M impressions and 448K clicks on NSF advertisements. By the end of the summer campaign, 64% of total website sessions came directly from the Google Paid Search ads with the highest peak in website visits during the weekend leading up to the September 3 deadline. Google Search Ads continued through September 2020, resulting in 9,542,274 impressions and 350,751 clicks, driving nearly 900,000 sessions to the seedfund.nsf.gov site, in total for FY2020.
- NSF has leveraged a number of services to track the commercial outcomes and other success stories for over 2000 SBIR/STTR portfolio companies. This effort identified 347 funding rounds for NSF-funded portfolio companies in FY 2020, leading to NSF posting well over 100 social media posts about awardee investment news.
- Supporting entrepreneurial education. In addition to the NSF Boot Camp, a full I-Corps program was offered to SBIR/STTR Phase I awardee companies resulting in 51 teams SBIR/STTR awardee teams completing the full I-Corps program.

NASA.

- NASA offered selected SBIR & STTR Phase I teams the opportunity to participate in the I-Corps program. This effort is designed to facilitate the commercialization of SBIR/STTR-funded research, where I-Corps will help to increase the likelihood of

generating technologies that meet a NASA need as well as potential other markets/commercial needs. Twenty-six (26) SBIR/STTR firms was supported through this initiative.

- 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 start-up high tech companies. Due to impacts of the COVID-19 pandemic, many events were canceled or postponed, and others pivoted to a fully virtual environment, requiring adjustment to the plan. Despite this, the program participated in 47 events including many targeted to underrepresented groups and states, such as the NASA's HBCU/MSI Engagement Forum at Johnson C. Smith University, an STTR focused webinar hosted by West Virginia University, the SBA SBIR Weekly events and the NASA HBCU/MSI Road Tour. Partnered with the 2019 Innovation & Opportunity Conference (November 2019) in Aurora, Colorado. The event attracted 400 attendees, 14 other federal agencies and programs, and hosted nearly 300 one-on-one sessions.

DOT

- The SBIR Program Office worked with the communication offices of the DOT agencies sponsoring Phase I topics in 2020 with the intent to help increase communication on the topics targeting untraditional groups and practitioners with the needed expertise. Approximately 50% of Proposals came from applicants who said they had never applied to USDOT's SBIR Program before.
- DOT procured new evaluation software and used it for the FY20 Phase I solicitation and Pitch day. Evaluators reported high satisfaction with the new evaluation software. While DOT did not meet the ambitious goal of shortening the timeframe to notification to 45 days, DOT did shorten both the timeframe to notification and the timeframe from notification to contract award.

ED

- Using AFPP funds, the ED SBIR program supported the ED Games Expo, an event focusing on increasing Outreach and Commercialization on behalf of the SBIR program and the SBIR-supported developers who attend the Expo. Approximately 2,000 individuals participated in one of the ED Games Expo events, including more than 100 representatives from government agencies; 300 developers and researchers, 200 representatives from stakeholder organizations, 1,000 students, and 400 members of the public. Students who demoed the technologies and many individuals in this diverse group of attendees provided opportunities for SBIR-supported developers to get feedback on their education technology products and improved the capacity of the firms toward planning for and in commercializing their education technology products in schools and out of schools.

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. During the summer of 2020, the Small Business and Technology Partnerships (SBTP) Office brought on five fellows from the National Security Innovation Network (NSIN) to help research and provide recommendations for increasing participation by these groups in our programs.

- As a result of NSIN recommendations, DOD has already implemented more social media engagement, and plan to implement the following during FY21-22L 1) a complete website refresh, 2) identifying formal and informal networks that engage with socially and economically disadvantaged and women-owned small businesses, 3) establishing LinkedIn and Reddit profiles, and 4) developing and compiling resources designed to help companies who have no prior experiences with Federal contracting.

FY20 Outreach Activities included:

- The DoD SBIR/STTR Programs supported the 2020 Small Business Administration (SBA) SBIR Virtual Road Tour. The Virtual Road Tour focused on small businesses, entrepreneurs, academic partners, and stakeholders in the Southeast, Midwest, Rockies, and the Central South regions. The virtual events brought together local innovation ecosystems around the country with agency decision-makers and connected entrepreneurs to additional resources to help their small businesses start and grow. Participating DoD SBIR/STTR components included the Department of Army, Department of Navy, Department of Air Force, Defense Advanced Research Agency, Defense Health Agency, Defense Logistics Agency, Chemical Biological and Defense, Missile Defense Agency, and United States Special Operations Command. The DoD components conducted over 400 1-on-1 meetings with small businesses and entrepreneurs.
- the DoD SBIR/STTR hosted its inaugural Virtual Symposium. Mr. Michael J.K. Kratsios, Acting Under Secretary of Defense for Research and Engineering, kicked off the event. The Symposium boasted participation from Research and Engineering leadership appealing to a broad audience that wants to do business with the Department of Defense. Registrants represented all 50 states and territories, Puerto Rico and the U.S. Virgin Islands. Participants included: government personnel, large business, prime contractors, small business, support contractors, and university/academia. Registration far exceeded expectations of 600 registrants with a final number of nearly ~1,800. Approximately 1,110 unique visitors logged in to view and participate in the Symposium.
- The Department of Navy (DoN) SBIR/STTR program had significant success in virtual events, connecting with several small businesses from new, non-traditional sectors. Participating in all SBA SBIR Road Tours/Virtual Weeks to date, DoN held 157 1-on-1 meetings (10% of the overall meetings). DON attended in person the 2019 Fall Innovation Conference, NAVSEA Small Business Industry Day, AFCEA WEST 2020, New Hampshire Small Business Matchmaker, Center of Innovative Technology Symposium. Virtually

attended the 2020 Navy Gold Coast; these events provided an additional 30 1-on-1 meetings and almost 90 informal booth meetings (in-person and virtual).
- DoN also developed and maintained a new SYSCOM-specific outreach database of 419 companies and organizations.

HHS. HHS's SBIR/STTR outreach activities were limited by COVID-19 during FY2020. However, HHS continued to increase awareness of the SBIR/STTR programs and identify 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 involves centralized coordination of outreach activities conducted by the Institutes and Centers within NIH, CDC, FDA, and ACL.

HHS developed and participated in **virtual outreach events** and worked with organizations to emphasize connections with WOSB, SDB, and small businesses from IDeA states. For example, HHS participated in:

- All four **SBA SBIR Virtual Weeks** covering 13 states and territories, including 9 IDeA states. This year, there was a strong emphasis on outreach to Minority Serving Institutions and 804 registrants (32%) identified as women and 914 registrants (37%) identified as non-White. HHS staff had 227 individual meetings with participants.
- **Specific panels or events targeting WOSBs and SDBs**, including:
  - STEM to Market: SBIR/STTR Workshop with Association for Women in Science (AWIS)
  - HEEHD (HBCU Eradicate Economic and Health Disparities) Conference panel on Take Lead to Eradicate Economic and Health Disparities by Commercializing HBCU's BioMedical Innovations Panel entitled "How Does the National Cancer Institute's SBIR/STTR Program Eradicate Economic & Health Disparities."
  - Southern California SBIR/STTR CON20. Hosted by UC Riverside, with one of the five most diverse student bodies of major research institutions in the United States, the conference aimed at facilitating direct engagement with agencies' program managers and providing key tools and resources to SDB and WOSB entrepreneurs and small businesses to help increase their probability of success in securing funding.
- **Events specifically targeting IDeA states**, including:
  - Northeast IDeA State Webinar focused on Maine, Vermont, New Hampshire, and Rhode Island.
  - Collaboration with University of Hawaii and Hawaii SBDC to deliver a two-part webinar on entrepreneurship and small business applications.
  - Participation in Bio on the Bayou, an annual multi-institutional research expo hosted by LSU Health, Tulane, and the New Orleans BioInnovation Center to lower the activation energy required for industry, investors, foundations, and other collaborators to partner with small businesses.
- The National Institute on Aging (NIA) held a **virtual workshop series** to engage with potential applicants and prepare them to submit SBIR and STTR applications. Outreach specifically targeted women and minority organizations, resulting in women and minorities representing 26% of participants.

- The NIH launched a new **Entrepreneurial Workforce Diversity Working Group**, with participation from 24 Institutes and Centers, to develop strategies to increase participation of under-represented groups in the product development ecosystem. The group will identify barriers to entry and implement programs, tools, and technology to expand participation.
- NIH's **Administrative Diversity Supplement** program provides additional funding to SBIR and STTR grants to improve the diversity of the research workforce and to increase the participation of women and socially and economically disadvantaged individuals in small businesses by recruiting and supporting students, postdocs, and eligible investigators from groups that are underrepresented in health-related research. The administrative supplements are designed to provide support for research and entrepreneurial experiences throughout the continuum from undergraduate to the faculty level. A total of 13 diversity supplement awards were made in FY2020 to SBIR or STTR grants.
- Continued **#DiversifySBIR social media campaign** to highlight women and minorities in leadership at NIH, and the importance of diversity in the scientific workforce. In addition, the National Cancer Institute (@NCIsbir) had a focused **women in entrepreneurship social media campaign** on Twitter. It specifically targeted women researchers with a message encouraging participation in entrepreneurship. The campaign reached 993,211 people in the target demography and there was a 116% increase in traffic to the website.
- NIH launched a new **Success Stories webpage**, https://sbir.nih.gov/stories/, which highlighted 12 WOSBs and 6 SDBs. Of all companies highlighted, 10 were from IDeA states.
- Launched **Engaging Researchers and Innovators for Commercialization at HBCUs (EnRICH),** a 10-week healthcare-focused innovation harvesting and commercialization "pre-accelerator" program for faculty and students at Historically Black Colleges and Universities (HBCUs). The goals of the program are 1) education centered around technology transfer, entrepreneurial/lean startup mindset and growing a sustainable business, and 2) idea acceleration where participants will compete to develop and pitch their healthcare innovation for intellectual property protection, prize money, and advancement toward additional commercialization programs.
- The NIH supports a nationwide network of proof-of-concept centers that includes more than 100 academic institutions in 34 states and Puerto Rico. The network includes the **NIH Centers for Accelerated Innovations (NCAI), the NIH Research Evaluation and Commercialization Hubs (REACH), and Regional Technology Transfer Accelerator Hubs for Institutional Development Award (IDeA) state institutions**. These centers provide proof-of-concept funding and entrepreneurship and commercialization training to accelerate translation of scientific discovery into commercial products that improve health and save lives. The centers support a diverse group of innovators and potential entrepreneurs, including women and members of underrepresented, socially, and/or economically disadvantaged groups. They have developed and instituted a number of programs to provide access to expert knowledge, entrepreneurship training, mentorship, and additional resources including targeted bootcamps and pre-accelerator programs. The annual network meeting had a session focused on the challenges and opportunities to advance diversity in translational research at which they highlighted the existing programs and identified challenges and strategies to enhance diversity at the institutional level.

- The NIH is running several **Applicant Assistance Programs (AAP)** to provide support and guidance to new applicants during the submission of applications. The programs emphasize engaging and assisting groups underrepresented in the extramural biomedical

small business programs, including WOSB, SDB, and applicants from IDeA states. The **NIH Applicant Assistance Program** is aimed at helping small businesses apply for Phase I SBIR/STTR funding by providing needs assessment, small business mentoring, Phase I application preparation support, and application review. In FY2020, four Institutes and Centers participated in the program and 150 businesses received assistance. Of these 64% were owned by women, 34% were owned by an individual from a minority group, and 16 were from IDeA states. The **National Institute of Allergy and Infectious Disease (NIAID) Applicant Assistance Program** provided applicant assessment, proposal development training, customized proposal development assistance, and post submission support for NIAID's Phase II, Fast-Track or Direct to Phase II applicants. The program has enrolled 25 companies to date, 10 of which identified as WOSB and/or SDB.

- Two NIH Institutes undertook **research to better understand engagement** of WOSB and SDB applicants. The National Institute of Allergy and Infectious Disease (NIAID) began a survey to evaluate and advance engagement with underrepresented applicants. The National Institute on Aging (NIA) conducted market research to better understand the perceptions and needs of key stakeholder groups. Based on the results, NIAID and NIA will identify strategies to improve future program engagement and ways to support WOSB and SDB applicants.

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 2020 SBIR Road Tours and other DOE-specific outreach events.

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, and

(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 2020, the DOE provided Phase 0 services to 171 eligible small businesses intending to apply to the DOE FY 2020 Phase I Release 1 and Release 2 Funding Opportunity Announcement. Of this number, 36 (21%) were WOSBs; 52 (30%) SDBs, 37 (22%) were from one of DOE's under-represented states, and 73 (43%) were not from an under-represented group. Of the 20 awards granted to those Phase 0 small businesses, 3 awards were granted to WOSBs; 3 awards went to

SDBs, 3 went to small businesses located in under-represented states, and 11 awards went to non-under-represented small businesses.

In FY 2020, DOE also implemented diversity supplements in its Phase II Funding Opportunity Announcements. These supplements, modeled after the NIH SBIR/STTR Diversity Supplement, is intended to provide summer internships to women and minority undergraduate and graduate students at Phase II awardees. (The internships resulting from FY 2020 Phase II awards would typically not take place until the second year of the Phase II award, so no supplements were requested in FY 2020.) The goal of these supplements is to introduce women and minority students to entrepreneurial careers, with the longer-term goal of increasing the number of women-owned and socially and economically disadvantaged small businesses.

NSF. Some highlights from NSF's efforts in broadening participation of underrepresented groups in fiscal year 2020 are as follows:

- NSF staff presented in-person and online at more than 60 outreach events including the Association for Women in Science, Techstars among many others. These events included keynote presentations, one-on-one meetings with potential applicants and other stakeholders, and information sessions.
- To increase awareness of entrepreneurship and startup opportunities for diverse candidates, NSF sponsored or presented at the following conferences: the American Indian Science and Engineering Society (AISES); the National Society of Black Engineers (NSBE); and Society for Advancement of Chicanos/Hispanics, Native Americans in Science (SACNAS); and The National GEM Consortium
- NSF SBIR/STTR program staff conducted approximately 35 pre-solicitation webinars to encourage people to submit a project pitch or help them prepare their proposals. These webinars attracted a total of about 10,000 attendees.
- NSF sent multiple Program Directors and other senior staff on each of the 2020 SBIR Road Tours, supporting virtual events in many underserved states.
- NSF rolled out its partnership with the GEM Consortium (NSF-1940055) to increase underrepresented minority tech startups through the NSF I-Corps Program. In the first year of this pilot, GEM reached out to their network of more than 1,000 GEM Fellows engaging 168 unique minority graduate student participants (through August 2020) in diverse entrepreneurial workshops and panels introducing pathways for entrepreneurship and encouraging participation in regional NSF I-Corps Programs as a starting point for launch.
- During fiscal year 2020, NSF funded the American Society of Engineering Education (funded via award 1853888) the Innovative Postdoctoral Entrepreneurial Research Fellowship (I-PERF) program to encourage active NSF SBIR/STTR Phase II grantees to bring postdoctoral scholars from underrepresented groups into their ongoing research project. The program made 23 awards, with the majority from underrepresented groups or geographies.

USDA. In FY2020, the USDA SBIR program participated in the SBA organized virtual road tours and other 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. We have also continued the Deconstructing SBIR webinar series which is designed to provide an outlet to reach WOSBs. We have increased the social media and other

targeted communications to new audiences that are intended to increase women-owned participation.

DOT. SBIR Program Staff participated in the Miami and Puerto Rico Road tours and held numerous one-on-one meetings over multiple days in an effort to promote the program and describe USDOT's research areas. The USDOT also participated in the virtual SBIR Road Tour in the Southeast. Additionally, SBIR program staff regularly coordinate notification of solicitations with USDOT's Office of Small and Disadvantaged Business Utilization as well as provide them with SBIR information for their own outreach to their distribution list.

DOC. NIST and NOAA both take steps to increase outreach to SDBs and WOSBs in a number of ways including our virtual 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. In FY2020, ED SBIR continued procedures to increase outreach to WOSB and SDBs, including: virtual outreach to national and regional organizations that serve SDBs and WOSBs; attending virtual national SBIR conference and roadshows including leading agency presentations and conducting 1-on-1 meetings with small business entities, dozens of whom were WOSBs and SDBs; attending national industry conferences and presenting to dozens of firms at virtual industry conferences and conducting 1-on-1 meetings with small businesses, 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 FY2020, ED SBIR also: hosted the ED Games Expo Office Hours event on January 10, 2020, to provide information to potential applicants on the SBIR program across agencies at ED, NSF, NIH, and USDA, dozens of attendees were WOSBs and many were likely SDBs; host a webcast showcase event during the ED Games Expo featuring women game developers who were supported by the SBIR program; and coordinated with 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 2021, as well as joining SBA led initiatives.

EPA. EPA continues to do outreach to all small businesses including SDBs and WOSBs through as many outlets as possible including the SBIR Road Tour, state-hosted SBIR webinars and the annual webinar hosted by EPA prior to the release of the Phase I solicitation for all potential applicants.

NASA. The NASA SBIR/STTR Program's FY20 Outreach Plan focused outreach efforts on underrepresented groups, including attendance at targeted industry days and conferences. However, due to impacts of the COVID-19 pandemic, most of the events originally planned for a large portion of FY20 were canceled or postponed. The events industry responded to the crisis by pivoting to a fully virtual environment, consolidating previously scheduled events into the second part of the calendar year (bumping some events into FY21), and requiring adjustment to the program's plan.

Despite this pivot, the program participated in 47 events in FY20 in a mix of in-person (October 2019 – February 2020) and virtual (March – September 2020) formats. In addition to more general outreach events, the program took part in events that specifically targeted underrepresented groups and states, such as the NASA's HBCU/MSI Engagement Forum at Johnson C. Smith University and an STTR focused webinar hosted by West Virginia University. Unfortunately, several events the program selected to pilot specifically to support the goal of increasing awareness and participation from women-owned small businesses (WOSB) were canceled or rebranded; however, the program is exploring participation in them in 2021.

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 participation in SBIR Road Tour (in-person stops in Miami and Puerto Rico); SBIR Week in the Rockies (virtual "stops" in Idaho, Utah, Montana, Wyoming); SBIR Week in the Southeast (virtual "stops" in North Carolina, South Carolina, Georgia, Virginia); and the NASA Historically Black Colleges and Universities (HBCU)/Minority-Serving Institutions (MSI) Road Tour (both in-person and virtual stops).

During FY20, NASA SBIR/STTR again partnered with the 2019 Innovation & Opportunity Conference (November 2019) in Aurora, Colorado. The event attracted 400 attendees from all over the country—up from 350 attendees in 2018—including NASA experts, small businesses, startups, research institutions, and large businesses/prime contractors to learn more about how small businesses can participate in the aerospace and defense industries. 14 other federal agencies and programs also participated in the conference and NASA SBIR/STTR hosted nearly 300 one-on-one sessions to connect small businesses with the programs in attendance. While the event was intended to reach a broad audience of small businesses, the organizers took steps to increase the participation of SDBs, including providing scholarships through the Minority Business Office of Colorado.

Finally, the NASA SBIR/STTR program participated in other important virtual events in FY20 with audiences that included WOSBs and other SDB categories:

- The Small Satellite Conference gathered over 8,000 attendees virtually from a wide range of backgrounds.
- A series of presentations to small businesses from target congressional districts or states, hosted by the Congressmen or Senators from the area, to increase awareness of program opportunities and support for the Agency's missions. Our program executive presented in each of these alongside other speakers like former NASA Administrator Jim Bridenstine and NASA OSBP Associate Administrator Glenn Delgado.

13 | 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.

SBA understands the challenges with obtaining and reporting Phase III funding 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.

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 24 below provides a listing of Participating Agencies reporting Phase III funding during FY20. The Civilian agencies combined to report nearly $44.3 million in funding, of which NASA made up $37.7 million, DOE obligated $4.1 million, and DHS obligated $2.5 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.

Table 24: Government Phase III Funding

Agency	Total Phase III Obligations ($) †
Navy	$900,018,311
Air Force	$585,492,753
Other Defense Agencies	$49,031,378
Army	$6,537,427
NASA	$37,735,428
DOE	$4,090,949
DHS	$2,501,012
Totals	**$1,585,407,258**

† 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 24 provides a summary of all the agencies that made Phase III awards in FY20 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 Navy reporting $900 million (58% of the total DOD Phase III obligations), Air Force reporting $585 million (38% of the total DoD Phase III obligations), Army reporting $6.5 million, and the Other Defense Agencies reporting $49 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.

14 | 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 Service Agencies 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 FY20 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. SBA would 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 FY20.

Table 25: Commercialization Readiness Pilot Program for Civilian Agencies (CRPP) - HHS, NASA, DHS

Agency	Number of Awards	Amount Obligated
HHS	20	$21,800,068
NASA	8	$5,260,882
DHS	3	$879,176

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 FY20 CRPP activities.

HHS. In FY20, HHS obligated $21,800,068 across 20 CRPP projects.

HHS sampling of CRPP successes:

- **Apex Biomedical LLC** (http://wavecel.com/, https://sbir.nih.gov/stories/wavecel): The CRPP program helped translate the proven helmet concept into mass-produced commercial WaveCel helmets, which required the development and optimization of a robust production process that allows US-based manufacturing of a high-quality product at competitive pricing. In the first year on the market, $20 million in sales was generated through 1,700 TREK dealers in up to 90 countries.
- **Sanaria** (https://sanaria.com/, https://sbir.nih.gov/stories/sanaria): Sanaria is developing a highly effective, long-acting malaria vaccine that prevents disease and parasite transmission. CRPP funding supported critically important components of the quality assurance (QA), quality control (QC), manufacturing, regulatory, and clinical quality and data management programs. Sanaria has conducted more than 30 clinical trials in the U.S., Europe, and in seven African countries. Five of these trials showed 100 percent effectiveness against malaria infection. Phase III trials are planned for 2020 in the U.S., Germany, and West Africa, with hopes that the licensing process will begin with the Federal Drug Administration (FDA) and the European Medicines Agency (EMA) in 2021. The vaccine could be available as early as 2022.
- **Mapp BioPharmaceutical** (https://mappbio.com/, https://sbir.nih.gov/stories/mapp-bio): The company used SBIR funding to identify antibodies that could combat Marburg infection, which a rare disease (fatal in 24-88 percent of cases) that has no approved treatment. The Phase II SBIR allowed the Mapp team to test their antibody treatment in Marburg-infected monkeys, which rescued 80 percent from the disease. The CRPP allowed the company to begin the expensive process of licensing a drug for manufacturing. In June 2019, Mapp was awarded an advanced research and development contract for $16.5 million with options for an additional $30.0 million by the Biomedical Advanced Research and Development Authority (BARDA), part of the Office of the Assistant Secretary for Preparedness and Response (ASPR) at the U.S. Department of Health and Human Services (HHS) to advance MBP091 though the completion of a Phase 1 clinical trial.
- **Diagnostics for the Real World (DRW)** (https://www.drw-ltd.com/, https://sbir.nih.gov/stories/diagnostics_real_world): DRW is working to develop a more sensitive HIV test that can diagnose HIV earlier after transmission at the point of care – in remote, rural, resource-poor settings, close to where many people live. NIH supported to development of their Simple Amplification Based Assay (SAMBA) device. The SAMBA

machine can either give an HIV diagnosis or give a semi-quantitative viral load reading once a clinician draws a patient's blood and separates out the plasma, which is needed for testing. The CRP focused on manufacturing scale-up, product verification and validation, regulatory approval, and market research. The SAMBA II machine received CE Mark Regulatory approval and is currently being used as a rapid diagnostic test for COVID-19.

NASA. NASA received 11 CRPP proposals in FY20 and obligated $5,260,882 on 8 Phase II follow-on awards.

NASA CRPP recent successes:

- **Air Squared** received an award in the FY 2015 cycle to develop their scroll compressor for an instrument package known as MOXIE, the Mars Oxygen In-Situ Resource Utilization Experiment. MOXIE, and Air Squared's scroll compressor landed on Mars on February 18, 2021, on the Mars Perseverance Rover. It will help perform the first in-situ resource utilization on Mars, generating oxygen for propellant and breathing, from the Martian atmosphere.
- Through CCRPP awards, two technologies from two different firms are key technologies supporting NASA's Artemis Program and new lunar exploration efforts - specifically the Lunar Gateway, an outpost orbiting the Moon, that provides vital support for a sustainable, long-term human return to the lunar surface, as well as a staging point for deep space exploration. One of the first elements of the Lunar Gateway that will be put into place is the Power and Propulsion Element (PPE), which is being developed by Maxar Technologies. As part of Maxar's team, **Deployable Space Systems** will be providing Roll Out Solar Arrays (ROSA) as part of the power system which underwent key system development and flight qualification activities via a CCRPP award from 2019. In addition, **Busek Company, Inc.** will be providing Hall Thrusters as part of the propulsion system. This technology underwent key qualification activities through a 2017 CCRPP. NASA's CCRPP awards were key steps in enabling these firms to be enablers of the Power and Propulsion Element, thus enabling NASA's return to the Moon!

DHS. DHS obligated $879,176 across 3 CRPP projects in FY20.

DHS CRPP recent success:

- Do Not Spoof technology developed by Illuma Labs (topic 17.1-003) went into production. They signed a contract to provide their Voice Authentication Product to TruWest Credit Union, which will help protect 93,000 users and assets of $1.3 billion dollars.

15 | 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. The Department of the Navy submitted its determination to begin use this authority beginning in June 2020, but did not report making any such awards during fiscal year 2020.

DOE ARPA-E. In 2020, DOE ARPA-E did not report making any awards to firms that are owned by multiple VCOCs.

ED. In 2020, ED SBIR did not make any awards to firms that are owned by multiple VCOCs.

HHS. In FY2020, HHS made 17 awards to firms that are owned in majority by multiple VCOCs, hedge funds or private equity funds and obligated a total of $18,106,912 across new and prior year awards.

Table 26: HHS SBIR Awards to SBC majority-owned by multiple VCOCs, hedge funds or private equity firms

FY20 HHS SBIR Awards to SBC majority-owned by multiple VOCs, hedge funds or private equity firms	
Number of proposals received	28
Number of awards	17
Total dollar amount of awards	$14,197,773
Number of Phase I proposals Received	12
Number of Phase I Awards	6
Total dollar amount of Phase I Awards	$2,972,439
Number of Phase II proposals received	16
Number of Phase II Awards	11
Total dollar amount of Phase II Awards	$11,225,334
Total dollar amount obligated on Prior-Year Phase II Awards	$3,909,139
Overall dollar amount of awards (New and Prior Year awards)	$18,106,912

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 FY20.

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 extended this authority and requested SBA provide an analysis and metrics on the program. The below table summarizes the current usage and obligations amount for Direct to Phase II awards during FY20.

Table 27: Direct to Phase II Awards

Agency	New Direct to Phase II Awards	Total Obligations (including those on prior awards)
Department of Defense - Air Force	131	$147,663,802
National Institutes of Health (NIH)	121	$133,282,403
Department of Defense - Defense Advanced Research Projects Agency	11	$9,610,636
Department of Defense - Navy	6	$3,098,054
Department of Defense - Defense Health Agency	5	$10,950,114
Department of Defense - Army	4	$2,282,609
Department of Defense - Defense Logistics Agency	3	$3,481,570
Department of Defense - Defense Microelectronics Activity	1	$653,910
Department of Defense - Special Operations Command	1	$1,590,000
Total	**283**	**$312,613,098**

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 Fiscal Year 2020 NIH obligated $4,948,038 in Phase 0 Proof of Concept Partnership Pilot Program funding in support of its 2020 REACH program recipients.

16 | Agency Summaries

Department of Agriculture (USDA)

USDA is composed of 29 agencies that provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues.

FY 2020 SBIR Highlights

In addition to its annual Phase I and Phase II solicitations, USDA-SBIR awarded 14 grants for $1.3 million to support rapid research and development innovations by small businesses to facilitate knowledge or implementation or shifts in utility to address COVID-19 pandemic challenges across agricultural, rural communities, food supply and nutrition areas.

FY 2020 SBIR Success Stories

- Precision Combustion, Inc. developed a compact, efficient and economic soil steam disinfestation for high value annual plants such as strawberries and other berries. Other potential applications and markets include commercial flowers and golf courses. Precision Combustion, Inc. completed design and engineering for the device.
- Montana BioAgriculture Inc. (MBAI) developed and demonstrated at pilot scale an integrated biological process for producing multiple bio-products from barley. It also successfully developed production of these co-products at pilot scale. The project led to a technology license and initiation of project to construct a commercial production plant.
- Accelerated Ag Technologies (AAT, dba PowerPollen®) developed protocols for large scale conditioning and transport of maize pollen suitable for field applications. New technology developed enabled the conditioning, preservation and storage of massive amounts of maize pollen. This novel technology generated new intellectual property now listed under patents US20170238535A1 and US201900081444A1. AAT has deployed PowerPollen® across several commercial customers.

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 2020 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 2020 SBIR Success Stories

- **Antara Teknik** - *Cryptographic Acceleration for Border Gateway Protocol Security (CaBGPsec) - Antata Teknik developed taraBGPsec™*, a high-performance software library that implements security functionality for the Border Gateway Protocol as defined in the IETF RFC 8205, "BGPsec Protocol Specification" and is compatible with SRx, an open source reference implementation and research platform developed by NIST.

FY 2020 Commercialization/Outreach Activities

- NIST implemented a Technology and Business Assistance (TABA) program for NIST Phase I and Phase II awardees.
- NIST participated in three virtual SBIR Road Tours and several webinars.

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. Millions of students and educators in schools across the United States and world use technologies developed through the program each year. Examples include learning games, simulated virtual environments, adaptive tutors that scaffold learning as student's progress, teacher and administrator dashboards that generate real-time data to inform real-time decision making, and assistive technologies for students with disabilities. To showcase the Impact of the SBIR Program across agencies on education to the public and to policy makers, the ED SBIR program manager leads the ED GAMES EXPO each year (watch the Expo trailer video here). More than 60 developers demo their SBIR-supported edtech products at the Expo each year and thousands of individuals attend, including educators, students, and families.

Key FY20 Achievements

See a selection of blogs which detail 2020 highlights and impact of ED SBIR:

- 2020, October – Responding to COVID19 in special education. Read here.
- 2020, September – Back to School. Developers Respond to COVID19. Read Here.
- 2020, August – As a part of an ongoing series focusing on research to practice at scale in education, *Inside IES Research* features ED/IES SBIR awardee Teachley. Read Here.
- 2020, August – An *ED Homeroom* blog describes the launch of a NASA rocket to Mars and features ED/IES SBIR awardee Future Engineers. Read Here.
- 2020, July – An *Inside IES Research* blog announces the 2020 ED/IES SBIR awards through its standard SBIR program and through its special program for tools to inform postsecondary decision making. Read Here and Read Here
- 2020, June – An *EDWeek Market Brief* blog details a virtual event to support early learners and practitioners during COVID19 led by ED/IES SBIR awardee Cognitive Toybox. Read Here.
- 2020, April – An *Inside IES Research* blog describes how developers who have participated in past ED Games Expos responded to COVID19 and the move to remote learning in education through a series of virtual events for educators. Read Here.
- 2020, April – An *Inside IES Research* blog describes learning technologies that were made available at no cost during COVID19 by developers who participated at past ED Games Expos. Read Here.
- 2020, March – As a part of an ongoing series focusing on research to practice at scale in education, *Inside IES Research* features ED/IES SBIR awardee Learning Ovations and the A2i intervention. Read Here.
- 2020, January – *EdSurge* covers the Early Learning Showcase at the ED Games Expo. Read Here.
- 2020, January – An *EDWeek Market Brief* covers the Special Education Showcase Read Here.
- 2020, January – *ED Homeroom* recaps the 7th Annual ED Games Expo. Read Here.

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.

FY 2020 SBIR Highlights

DOE issued its first awards under the Commercialization Assistance Pilot Program authorized by Congress in the John S. McCain National Defense Authorization Act for Fiscal Year 2019. These awards are intended to encourage commercialization of SBIR technologies and require 1:1 matching funds from investors. The awards, designated as Phase IIC by DOE, went to the small businesses listed below.

Small Business	Project Title
Alphacore, Inc. Tempe, AZ	Radiation Hard High Speed Camera System for Accelerator Beam Diagnostics
SixPoint Materials, Inc. Buellton, CA	Low-cost, Low-defect, 2" GaN Epi-ready Substrates Processed with E-Grinding
Global Research & Development, Inc. Columbus, OH	Oxygen Separation with Dual Phase Nano-Composite Membrane
Mainstream Engineering Corporation Rockledge, FL	Cross-polarized Near-UV/Vis Detector for In-line Quality Control of PEM Materials

FY 2020 SBIR Success Stories

- **Applied Spectra's instruments are leading a paradigm change for chemical analysis**

Every time a solid material, whether originating from research, industry, or nuclear activity needs to be disposed of, it is first chemically analyzed to determine its elemental composition. This is typically done using Inductively Coupled Plasma Mass Spectrometry (ICP-MS), which requires macroscopic samples to be extracted and liquefied by "digestion" in strong and hot acids. This process, which is the standard for industry, research and environmental cleanup efforts produces significant quantities of liquid substances that are themselves hazardous waste. This technology can now be purchased in the form of analytical instruments sold by Applied Spectra.

- Additional Phase III success stories can be found on the DOE website: https://science.osti.gov/sbir/SBIR-STTR-Phase-III-Success-Stories

FY 2020 Commercialization/Outreach Activities

ENERGY I-CORPS for SBIR/STTR
U.S. Department Of Energy

DOE piloted an abbreviated versions of its Energy I-Corps program specifically designed for Phase I SBIR/STTR awardees. The first cohort of 23 small businesses found the customer discovery focused program to extremely valuable and plans are to expand the program in 2021.

Department of Health and Human Services (HHS)

The HHS SBIR and STTR Programs are coordinated by the National Institutes of Health (NIH) to invest in early-stage biomedical, health, and life science small businesses creating a wide range of innovative technologies 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. Within HHS, there are multiple Institutes and Centers from the National Institutes of Health (NIH), the Centers for Disease Control (CDC), Food and Drug Administration (FDA), and Administration for Community Living (ACL) that participate in the SBIR and STTR programs.

FY 2020 SBIR/STTR Highlights

- Over 1,400 small businesses received SBIR and STTR awards through Phase I, Phase II, Phase IIB, Direct to Phase II, and Fast-Track mechanisms.
- 20 small businesses received Commercialization Readiness Pilot Program (CRPP) awards to facilitate the transition of Phase II and Phase IIB projects to the commercialization stage.
- NIH supported 5 Research Evaluation and Commercialization Hubs (REACHs) to accelerate the creation of small businesses and commercialization of research innovations from 43 universities and colleges.

FY 2020 SBIR/STTR Success Stories

- 12 NIH-supported small businesses received 2020 Tibbetts Awards (2B Technologies, Actuated Medical, Backyard Brains, BioSensics, ImmunogenX, NanoSurface Biomedical, Pain Care Labs, QT Medical, Raptamer Discovery Group, Ripple LLC, RockStep Solutions, Inc., and UltraVision Corporation). In addition, Dr. Jodi Black (formerly NIH, now FDA) and Dr. Richard Duke (Colorado REACH Hub) received awards for their individual efforts.
- NIH launched a new Success Stories webpage, highlighting 11 small businesses from underrepresented states and 20 women-owned and/or socially or economically disadvantaged businesses. Highlights from 2020 include: ZetrOZ (CT, on the 2020 Inaugural List of Most Innovative Companies in Healthcare for its wearable drug-free treatment for pain management, adopted by 30 US Veteran Health Centers) and Imbed Biosciences (WI, raised over $4M to commercialize the FDA-cleared Microlyte Matrix wound dressing for management of chronic ulcers, burns, and surgical wounds).
- Small businesses (e.g. BioMedomics, Adaptive Biotechnologies, NuGenerex, and Sylvatica) applied SBIR or STTR funded technologies to respond to COVID-19 developing rapid testing, research tools, and vaccines.

FY 2020 Commercialization/Outreach Activities

- The NIH Innovator Support Team, Entrepreneurs in Residence, and regulatory and reimbursement experts assisted and mentored over 120 small businesses.
- Supported and pitch coached over 140 small businesses to attend investor forums to facilitate partnering with third-party investors and strategic partners.

- Launched a new Entrepreneurial Workforce Diversity Working Group to develop strategies to increase participation of under-represented groups in the product development ecosystem.
- Supported 13 SBIR or STTR Diversity Supplements to provide support for research and entrepreneurial experiences for individuals from underrepresented groups.
- The NIH Applicant Assistance Program, which emphasizes engaging and assisting underrepresented groups, provided 150 small businesses with needs assessment, small business mentoring, Phase I application preparation support, and application review.
- Launched a new Technical and Business Assistance (TABA) Needs Assessment Program, to provide small businesses with a third party, unbiased assessment of their progress in 10 technical and business areas that are critical to success in the competitive healthcare marketplace.
- Supported 60 small businesses through either the NIH I-Corps or C3i, programs focused on educating researchers and technologists on how to translate technologies from the lab into the marketplace.

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. Administered by DHS S&T (Science and Technology) Directorate. The Countering Weapons of Mass Destruction Office manages the SBIR allocation for their programs. The DHS SBIR Program issues an annual solicitation with all the topics. Topics are solicited to address the needs of DHS Operational Components including the Federal Emergency Management Agency, Cybersecurity and Infrastructure Security Agency, Transportation Security Administration, U.S. Citizenship and Immigration Services, U.S. Coast Guard, U.S. Customs and Border Protection, U.S. Immigration and Customs Enforcement, and U.S. Secret Service—as well as first responders. As such, the solicitations typically consist of topics relevant to the following organizational focus areas:

- Borders and Maritime Security
- Chemical and Biological Defense
- Critical Infrastructure and Resilience
- Cybersecurity
- Explosives Detection and Aviation Screening
- First Responders
- Unmanned Aerial Systems
- Detecting Bioterrorism
- Technical Capability Standards for Radiological Detection
- Countering Weapons of Mass Destruction

FY 2020 Commercialization/Outreach Activities

Commercialization Readiness Pilot Program: In FY20, the DHS SBIR Program launched its Commercialization Assistance Marketplace program, focused on providing SBIR awardees tailored guidance and education to increase the likelihood that successful technologies developed would be able to transition/commercialize. Key aspects of this approach include: mentoring of small businesses to improve business and marketing skills including end-user product knowledge, educational webinars on critical areas of 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 2020 SBIR Highlights

- DOT implemented a number of new process improvements in FY 2020, including a Pitch Day event for Phase I and new evaluation software to streamline the award process.
- In FY 2020, U.S. DOT awarded 34 Phase I awards across 6 operating administrations, 8 Phase II awards across 4 operating administrations, and 4 Phase IIB awards across 2 operating administrations.
- Approximately 88% of FY 2020 Phase I 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 2020 SBIR/STTR Success Stories

- Four previous DOT SBIR awardees were 2020 Tibbetts Award winners: Design Interactive Inc., Fuchs Consulting Inc., Harmonia Holding Group LLC, and Zeteo Tech Inc.
- DOT's SBIR Program website features 15 success stories from across the DOT operating administrations.

FY 2020 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 $6,500 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 participated in the SBA's SBIR Virtual Road Tours, SoCal SBIR/STTR CON20, the Fall SBIR/STTR Innovation Summit, and Innovate Huntsville Week, reaching small businesses virtually across the country.

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 FY20 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. External reviewers with commercialization experience review all Phase I and Phase II proposals and provide evaluations which impact final funding decisions. 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 FY20, two EPA- funded SBIR companies, **AAPlasma, LLC** and **DMAX Plasma**, successfully brought in outside investment and received the EPA option funding. Another EPA-funded SBIR company, **ASAT**, continued their strong record of commercial success and was honored with the Tibbetts Award for their achievements within the SBIR program.

FY 2020 SBIR/STTR Success Stories

AAPlasma, LLC, a small business out of Pennsylvania, received third-party investment from a company interested in helping them accelerate their technology to market. With this additional funding, AAPlasma will further commercialization efforts of their EPA SBIR Phase II project focused on developing a novel process that uses non-thermal plasma treatment to remove PFOS and PFOA from water. PFAS are a group of man-made chemicals that are persistent in the environment and can have adverse human health effects.

DMAX Plasma, a small business based in New York, is developing an innovative PFAS technology- an electrical discharge plasma treatment system to destroy PFAS in water. DMAX received a $732,245 contract with the Environmental Security Technology Certification Program (ESTCP), DOD's environmental demonstration and validation program. With EPA and ESTCP funding, DMAX will demonstrate their novel PFAS destruction technology.

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 Health Laboratories. 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. Domestically, ASAT's stoves are sold in 76 box stores in the Pacific Northwest. ASAT Inc. was also awarded a 2020 Tibbetts Award, a prestigious award that honors companies that exemplify the best in SBIR achievements. https://www.epa.gov/sbir/epa-sbir-small-business-receives-2020-tibbetts-award

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. NASA research and technology areas solicited in 2020 are aligned by the Agency's Mission Directorate needs. The needs are explicitly described in the subtopic descriptions developed by technical experts at NASA's Centers.

FY 2020 Key SBIR/STTR Highlights

- In FY20, Woman-Owned Small Businesses represented 11 percent of the Phase I awards; Small, Disadvantaged Businesses also received 11 percent of the awards, and 26 percent of awards went to companies that were first-time awardees for NASA.
- In FY20, NASA awarded 81 Phase III contracts worth over $39 million which demonstrates our success in developing subtopics and selecting proposals that meet agency needs so projects are willing to pick them up and carry them beyond Phase I and II.
- To offset the effects of COVID-19 on our firms, the program pursued process efficiencies that allowed us to extend our solicitation by 30 days yet extend our selection period by less than 3 weeks. We also instituted an early deliverable in Phase II contracts facilitating funding in the first 30 days rather than at the end of the first quarter. And finally, we accelerated solicitation development to release the FY21 solicitation 2 months earlier than normal, again offering firms an earlier funding opportunity.

FY 2020 SBIR Success Stories

- Recent success stories can be found at: https://sbir.nasa.gov/success-stories. These include a lunar lander by Astrobotic Technology, Inc.; a cubesat to measure the world's first ice cloud map to support climate research by Virginia Diodes, Inc.; and an enhanced UAV capable of reestablishing communication channels following natural disasters by Higher Ground.
- Several successful NASA SBIR firms have been acquired recently including Made in Space, Roccor, LoadPath, and Deployable Space Systems by Redwire; and Altius Space Machines, Pioneer Astronautics, and Nanoracks by Voyager Space Holdings.
- The Mars 2020 Perseverance Rover which launched in FY21 included 8 technologies from 7 SBIR/STTR-funded firms. Look for more details on these individual successes moving forward.

FY 2020 Commercialization/Outreach Activities

Commercialization:

- Lunar Sequentials: SBA approved a waiver which allowed the SBIR/STTR program to make high-value (up to $5M) Sequential Phase II awards to support the Artemis Program and Moon to Mars Objectives. In FY20, the program made 3 SBIR and 1 STTR award worth a total of $17M.
- CCRPP: This program looks to advance SBIR/STTR-funded technology through a combination of program investment and non-SBIR/STTR investor funds. The objective is infusion/commercialization, not incremental improvement in

technology maturation. For FY20, the program made 8 CCRPP awards worth $6.8 million in program funds which was matched at least 1:1 by investor funding.

- Phase II-E: The objective is the advancement of innovations developed under Phase II via an option on active Phase II contracts. Eligible firms must secure a non-SBIR/STTR investor which the program will match 1:1 up to $375k. For FY20, 28 SBIR worth $8 million and 4 STTR worth $1 million Phase II-E options were executed.
- I-Corps: In FY20, NASA continued its partnership with the National Science Program (NSF) Innovation Corps program (I-Corps TM). In FY20, NASA selected 27 Phase I SBIR Teams to participate in the NSF I-Corps Bootcamp program and 1 Phase I STTR Team to participate in the NSF I-Corps Cohort program.
- TABA: The program completed the framework and design of the full Technical and Business Assistance (TABA) Program. This TABA program was fully implemented in the 2021 SBIR/STTR solicitation.

Outreach:

- The Innovation and Opportunity Conference (IOC) was held in November 2019 and was hosted by Colorado Business Development Foundation, Colorado SBDC Network, and AIAA in Aurora, CO. The event offered SBIR/STTR basics but focused on transition opportunities. There were over 400 attendees including 207 small businesses, and 295 one-on-one meetings were held.
- The program supported the SBA SBIR Weeks which were the virtual redesign of the Bus Tours which target underrepresented communities. NASA provided an overview presentation and individuals to support one-on-ones at each event.

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 $1.75 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 2020 SBIR/STTR Highlights

- In March 2020, the NSF SBIR/STTR program solicited proposals for the development of new technologies, products, processes and services with the potential to impact the COVID-19 crisis. In FY2020, NSF awarded more than $15 million to 80 startups putting their technology to work to address the global pandemic.
- NSF offered additional flexibility to applicants and current awardees in the COVID-19 pandemic, giving no-cost extensions to current awardees and allowing those with a Project Pitch invitation more time to submit a full Phase I proposal and those with a Phase I award more time to submit a Phase II proposal.
- Engaging and Supporting First-Time Applicants – A total of 59% of all Phase I proposals awarded in FY2020 were from first-time applicants (i.e. companies that had never submitted a proposal to NSF before) to companies with fewer than 10 employees (95%) and established within the last five years (81%).

FY 2020 SBIR/STTR Success Stories

- Acquisition Highlights – The calendar year 2020 saw 20 confirmed acquisitions, mergers, or initial public offerings of NSF awardee firms.
- NSF SBIR/STTR portfolio companies had 140 separate private capital rounds that were greater than $1 million each, of which, 44 were greater than $10 million and 12 were greater than $50 million. Alternative meat companies, Nature's Fynd and Emergy raised $45 million and $28 million respectively. The total private equity funding raised by the NSF SBIR portfolio companies in 2020, according to Pitchbook, was $2.1 billion.
- Featured Awardee – The U.S. Food and Drug Administration approved the first-ever, self-administered, at-home COVID-19 test in November 2020. The diagnostic tool, created by Lucira Health, an NSF STTR awardee, has the capacity to vastly increase accessibility and reduce the public burden of disease transmission. Lucira Health, formerly DiAssess, received NSF support in 2015 for "the development of a widely deployable, inexpensive and accessible diagnostic platform that can rapidly detect infectious diseases in clinical and non-clinical locations."
- A few more examples of awardees helping combat COVID-19 and related challenges: BioInfoExperts is creating a cloud-based infection control platform using whole-genome sequencing of SARS-CoV-2, the virus that causes COVID-19, and the patient's individual nasopharyngeal microbiome. Mindprint Learning is developing a data-driven approach to improve math education and thereby help students in the virtual learning environment. 42BIO is using a magnetic antibody nanoparticle technology to capture and separate COVID-19 antibodies from donor serum. Diligent Robotics nursing assistant robot, Moxi, is helping reduce COVID-19 risk and keep medical workers safe.

FY 2020 Commercialization/Outreach Activities

- NSF Division of Industrial Innovation and Partnerships (which houses SBIR/STTR) hosted 80 webinars to 15,700+ researchers, entrepreneurs, and startups.
- NSF partnered with AISES, NSBE and SACNAS to increase awareness of entrepreneurship and startup opportunities for diverse candidates.
- NSF rolled out its partnership with the GEM Consortium (NSF-1940055) to increase underrepresented minority tech startups through the NSF I-Corps Program. In the first year of this pilot, GEM reached out to their network of more than 1,000 GEM Fellows engaging 168 unique minority graduate student participants (through August 2020) in diverse entrepreneurial workshops and panels introducing pathways for entrepreneurship and encouraging participation in regional NSF I-Corps Programs as a starting point for launch.
- NSF launched a new pilot in the National I-Corps Program designed exclusively for SBIR/STTR awardees providing an opportunity for them to evaluate their product-market fit and determine their beachhead market. A total of 59 companies participated in FY2020 including awardees from NSF, NASA, and DHS.

U.S. Small Business Administration
409 3rd Street SW
Washington, DC 20416
www.sbir.gov