SMALL BUSINESS INNOVATION RESEARCH | SMALL BUSINESS TECHNOLOGY TRANSFER

AMERICA'S SEED FUND POWERED BY THE SBA

ANNUAL REPORT FISCAL YEAR 2021

U.S. Small Business Administration
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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 $3.46 billion of SBIR and $528.7 million of STTR funding (for a total of $3.99 billion) in Fiscal Year 2021 (FY21). 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 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 the total DoD funding represents over 45% 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 FY21 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 programs continues to evolve and remain the primary source of early funding to thousands of highly successful small businesses. Many of these awardees leverage opportunities in the program to gradually become large businesses and some have become industry leaders. The recent economic impact studies developed by Air Force, Navy, DoD, and National Cancer Institute demonstrate that the program generates one of the highest returns on research and development (R&D) dollars for the Federal Government. These studies and much more can be found on SBIR.gov.

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* 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.

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

The SBIR and STTR programs are highly competitive programs that encourage U.S. small businesses to engage in Federal Research/Research and Development (R/R&D) initiatives that have commercialization potential. Through a competitive awards-based program, SBIR and STTR, respectively, enable small businesses to explore technological innovation 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 2021 (FY21) 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 FY21 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 $259,613 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 $600,000 to $1,730,751 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. Most 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	8/11/2022	149[1]
HHS	3/8/2022	-7
DOE	3/14/2022	-1
NSF	3/14/2022	-1
NASA	3/15/2022	0
DHS	3/15/2022	0
USDA	3/14/2022	-1

[1] DoD notified SBA that it would be unable to fully meet the March 15, 2022, deadline and provided the vast majority of required data by the deadline.

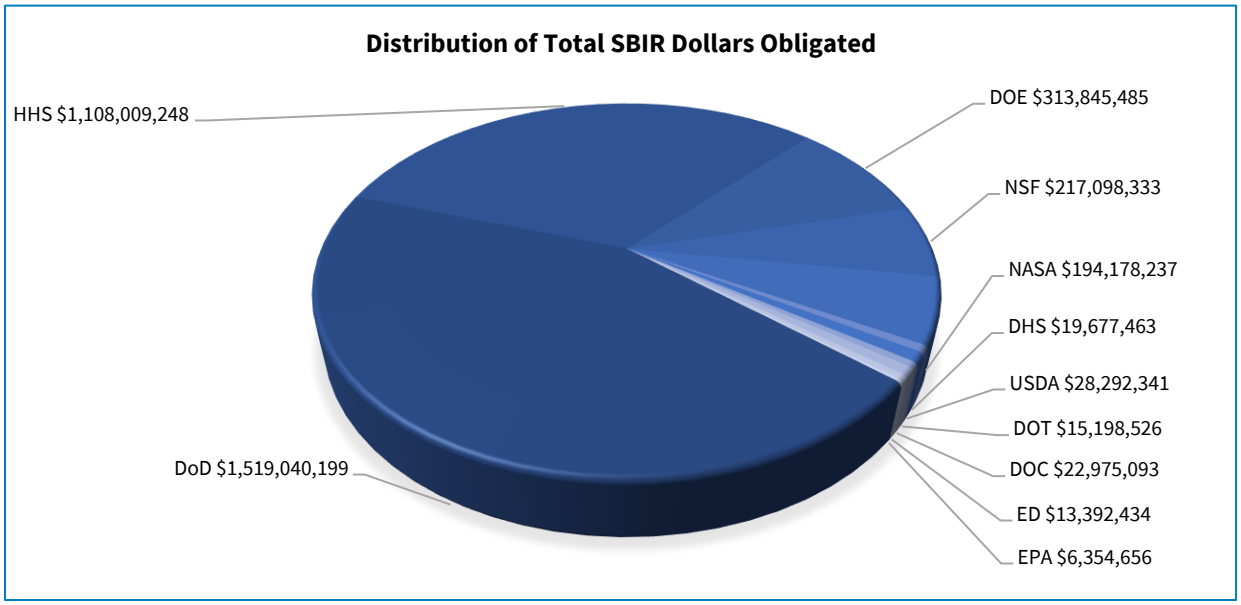
Agency	Submission Date	Days (Early / Late†)
DOT	3/14/2022	-1
DOC	3/15/2022	0
ED	3/15/2022	0
EPA	2/15/2022	-28

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

FY21 SBIR Program Summary

In FY21, Participating Agencies' total SBIR obligations amounted to $3,458,062,017 of which $2,627,049,447 (76%) were attributed to DoD and HHS. The chart below shows the distribution of these funds by agency.

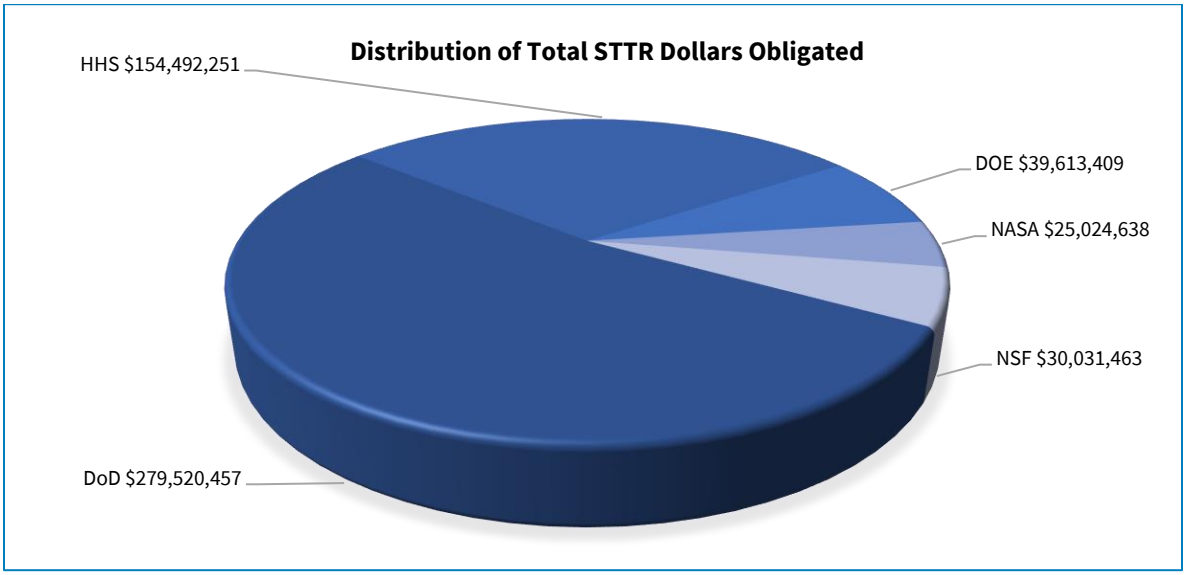
Chart 1: Distribution of Total SBIR Dollars Obligated by Participating Agencies



FY21 STTR Program Summary

In FY21, Participating Agencies' total STTR obligations amounted to $528,682,218 of which $434,012,708 (82%) 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 USDA

Phase	Report Field	HHS	DOE	NSF	NASA	USDA
Phase I	Solicitations Released (#)	**38**	**6**	**2**	**1**	1
	New Proposals Received (#)	**5,101**	**1,952**	**3,223**	**1,535**	695
	New Awards (#)	**657**	**407**	**317**	**305**	79
	Selection Rate (%)*	**13%**	**21%**	**10%**	**20%**	11%
	Total Obligations ($)	$223,998,881	$86,358,363	$81,753,774	$37,866,705	$7,932,469
Phase II	New Proposals Received (#)	**1,593**	**533**	**164**	**322**	64
	New Awards (#)	**406**	**204**	**97**	**150**	31
	Selection Rate (%)*	**25%**	**38%**	**59%**	**47%**	48%
	Total Obligations ($)	$826,522,356	$223,374,623	$127,238,998	$143,834,170	$19,774,872
Phase III	Total Obligations ($) †	**$33,470,405**	**$6,126,237**	**$0**	**$29,909,157**	$0
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	**$1,655,000**	**$1,729,693**	**$2,175,194**	**$0**	$585,000
	TABA Provided to Small Businesses in Award Obligations ($) ‡	**$3,818,838**	**$1,893,797**	**$6,751,654**	**$464,893**	$1,297,500
	Commercialization Readiness Pilot Program (CRPP) ($)	**$37,312,897**	**$0**	**$0**	**$6,624,362**	$0
	Administrative Funding Pilot (AFPP) (3%) ($)	**$18,520,114**	**$2,382,806**	**$5,930,367**	**$5,853,000**	$0
Totals	Total SBIR Obligations ($)	**$1,108,009,248**	**$313,845,485**	**$217,098,333**	**$194,178,237**	$28,292,341
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	**$32,642,886,731**	**$8,730,488,446**	**$6,333,068,221**	**$5,514,675,119**	$1,031,948,644
	Percent of SBIR Obligations as determined using Agency-provided data (%)	**3.39%**	**3.59%**	**3.43%**	**3.52%**	2.74%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	**Did Not Comply**	**Complied**	**Complied**	**Did Not Comply**	Did Not Comply

* The selection rate is an estimate. For FY21 awards, the proposals received were from both FY20 and FY21.
† 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 - DHS, DOC, DOT, ED, and EPA

Phase	Report Field	DHS	DOC	DOT	ED	EPA	SBIR TOTAL All Civilian Agencies
Phase I	Solicitations Released (#)	1	2	1	1	1	54
	New Proposals Received (#)	175	331	134	268	138	13,552
	New Awards (#)	34	30	19	18	25	1891
	Selection Rate (%) *	19%	9%	14%	7%	18%	14%
	Total Obligations ($)	$4,999,492	$3,939,381	$2,785,352	$3,466,666	$2,499,230	$455,600,313
Phase II	New Proposals Received (#)	27	72	19	16	20	2830
	New Awards (#)	13	42	19	11	8	981
	Selection Rate (%) *	48%	58%	100%	69%	40%	35%
	Total Obligations ($)	$14,130,697	$18,282,819	$12,064,016	$9,900,000	$3,692,926	$1,398,815,477
Phase III	Total Obligations ($) †	$43,850,662	$3,587,949	$0	$0	$481,681	$117,426,090
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$513,000	$197,314	$0	$162,500	$7,017,701
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$56,500	$13,000	$37,425	$5,445	$0	$14,339,052
	Commercialization Readiness Pilot Program (CRPP) ($)	$547,274	$0	$0	$0	$0	$44,484,533
	Administrative Funding Pilot (AFPP) (3%) ($)	$0	$239,893	$114,420	$25,768	$0	$33,066,369
Totals	Total SBIR Obligations ($)	$19,677,463	$22,975,093	$15,198,526	$13,392,434	$6,354,656	$1,939,021,817
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$590,930,243	$509,617,200	$285,050,000	$362,792,017	$119,974,355	$56,121,430,976
	Percent of SBIR Obligations as determined using Agency-provided data (%)	3.33%	4.51%	5.33%	3.69%	5.30%	3.46%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Complied	Complied	Complied	Complied	Did Not Comply	

* The selection rate is an estimate. For FY21 awards, the proposals received were from both FY20 and FY21.

† 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.

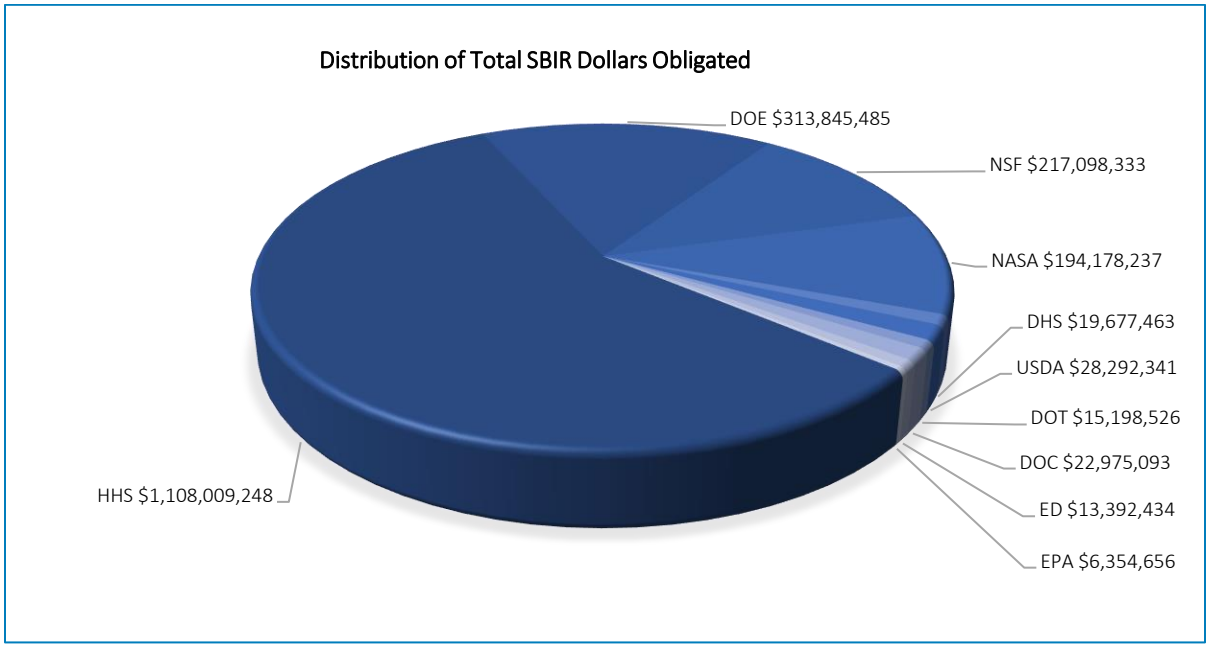
‡ These are TABA funds provided by the agency directly to the awardee through grant or contract and thus already included in PI/PII obligation award amounts, except for DOT TABA, which is not already included in PI/PII obligation award amounts.

¶ 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 FY21, total SBIR obligations for civilian agencies amounted to $1,939,021,817, of which $1,108,009,248 (57%) was attributed to HHS. Nearly 37% of total dollars were attributed to DOE, NSF, and NASA, with the remaining 6% of total FY21 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	835	16%	198	10%	587	18%	164	11%	93	13%
		New Awards	89	14%	46	11%	59	19%	28	9%	6	8%
		New Obligations	$28,172,425	14%	$9,724,372	11%	$15,194,071	19%	$3,485,485	9%	$611,139	8%
		Total Obligations	$28,600,919	13%	$9,724,372	11%	$15,274,071	19%	$3,485,485	9%	$611,139	8%
	Phase II	New Proposals	178	11%	38	7%	34	21%	30	9%	11	17%
		New Awards	31	8%	13	6%	24	25%	8	5%	7	23%
		New Obligations	$30,911,769	8%	$13,834,829	6%	$23,666,883	24%	$6,036,612	4%	$4,499,518	23%
		Total Obligations	$61,113,445	7%	$13,834,829	6%	$30,746,697	24%	$6,789,458	5%	$4,499,518	23%
SDB	Phase I	New Proposals	1452	28%	228	12%	677	21%	216	14%	55	8%
		New Awards	136	21%	38	9%	49	15%	33	11%	4	5%
		New Obligations	$43,563,817	21%	$7,981,255	9%	$12,603,767	16%	$4,134,811	11%	$406,172	5%
		Total Obligations	$44,771,367	20%	$7,981,255	9%	$12,683,767	16%	$4,009,814	11%	$406,172	5%
	Phase II	New Proposals	324	20%	48	9%	24	15%	36	11%	5	8%
		New Awards	73	18%	11	5%	13	13%	19	13%	0	0%
		New Obligations	$73,738,420	19%	$12,693,234	6%	$13,045,727	13%	$14,268,138	10%	$0	0%
		Total Obligations	$92,128,553	11%	$12,693,234	6%	$16,720,152	13%	$14,681,138	10%	$0	0%
HUB Zone	Phase I	New Proposals	15	0%	225	12%	343	11%	59	4%	99	14%
		New Awards	2	0%	47	12%	51	16%	5	2%	21	27%
		New Obligations	$374,085	0%	$10,068,150	12%	$12,975,125	16%	$637,714	2%	$2,127,858	27%
		Total Obligations	$429,085	0%	$10,068,150	12%	$13,035,125	16%	$637,714	2%	$2,127,858	27%
	Phase II	New Proposals	2	0%	37	7%	14	9%	14	4%	9	14%
		New Awards	1	0%	13	6%	6	6%	6	4%	6	19%
		New Obligations	$287,500	0%	$13,742,670	6%	$5,985,410	6%	$4,503,645	3%	$3,843,681	19%
		Total Obligations	$2,019,711	0%	$13,742,670	6%	$8,918,995	7%	$4,503,645	3%	$3,843,681	19%

* Data is based on proposals received and awards made in Fiscal Year 2021.

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	17	10%	27	8%	28	21%	68	25%	19	14%	**2,036**	**15%**
		New Awards	2	6%	2	7%	5	26%	5	28%	4	16%	**246**	**13%**
		New Obligations	$306,056	6%	$300,000	8%	$740,885	27%	$1,000,000	29%	$399,613	16%	**$59,934,046**	**14%**
		Total Obligations	$306,057	6%	$300,000	8%	$740,885	27%	$1,000,000	29%	$399,613	16%	**$60,442,541**	**13%**
	Phase II	New Proposals	1	4%	8	11%	4	21%	8	50%	1	5%	**313**	**11%**
		New Awards	0	0%	5	12%	3	16%	5	45%	1	13%	**97**	**10%**
		New Obligations	$0	0%	$2,049,303	11%	$2,017,360	17%	$4,500,000	45%	$396,970	12%	**$87,913,244**	**9%**
		Total Obligations	$500,000	4%	$2,049,303	11%	$2,017,360	17%	$4,500,000	45%	$396,970	11%	**$126,447,580**	**9%**
SDB	Phase I	New Proposals	17	10%	27	8%	25	19%	36	13%	20	14%	**2,753**	**20%**
		New Awards	1	3%	2	7%	2	11%	0	0%	3	12%	**268**	**14%**
		New Obligations	$149,842	3%	$299,999	8%	$291,761	10%	$0	0%	$299,973	12%	**$69,731,397**	**16%**
		Total Obligations	$149,842	3%	$299,999	8%	$291,761	10%	$0	0%	$299,973	12%	**$70,893,950**	**16%**
	Phase II	New Proposals	0	0%	3	4%	1	5%	8	50%	4	20%	**453**	**16%**
		New Awards	0	0%	1	2%	1	5%	0	0%	1	13%	**119**	**12%**
		New Obligations	$0	0%	$400,000	2%	$997,715	8%	$0	0%	$400,000	13%	**$115,543,234**	**12%**
		Total Obligations	$0	0%	$400,000	2%	$997,715	8%	$0	0%	$400,000	11%	**$138,020,792**	**10%**
HUB Zone	Phase I	New Proposals	12	7%	24	7%	9	7%	10	4%	12	9%	**808**	**6%**
		New Awards	2	6%	6	20%	1	5%	1	6%	4	16%	**140**	**7%**
		New Obligations	$306,342	6%	$749,906	19%	$149,652	5%	$200,000	6%	$399,672	16%	**$27,988,504**	**6%**
		Total Obligations	$306,342	6%	$749,906	19%	$149,652	5%	$200,000	6%	$399,672	16%	**$28,103,504**	**6%**
	Phase II	New Proposals	1	4%	2	3%	0	0%	0	0%	1	5%	**80**	**3%**
		New Awards	0	0%	2	5%	0	0%	0	0%	1	13%	**35**	**4%**
		New Obligations	$0	0%	$799,126	4%	$0	0%	$0	0%	$400,000	13%	**$29,562,032**	**3%**
		Total Obligations	$0	0%	$799,126	4%	$0	0%	$0	0%	$400,000	11%	**$34,227,828**	**2%**

* For some FY21 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

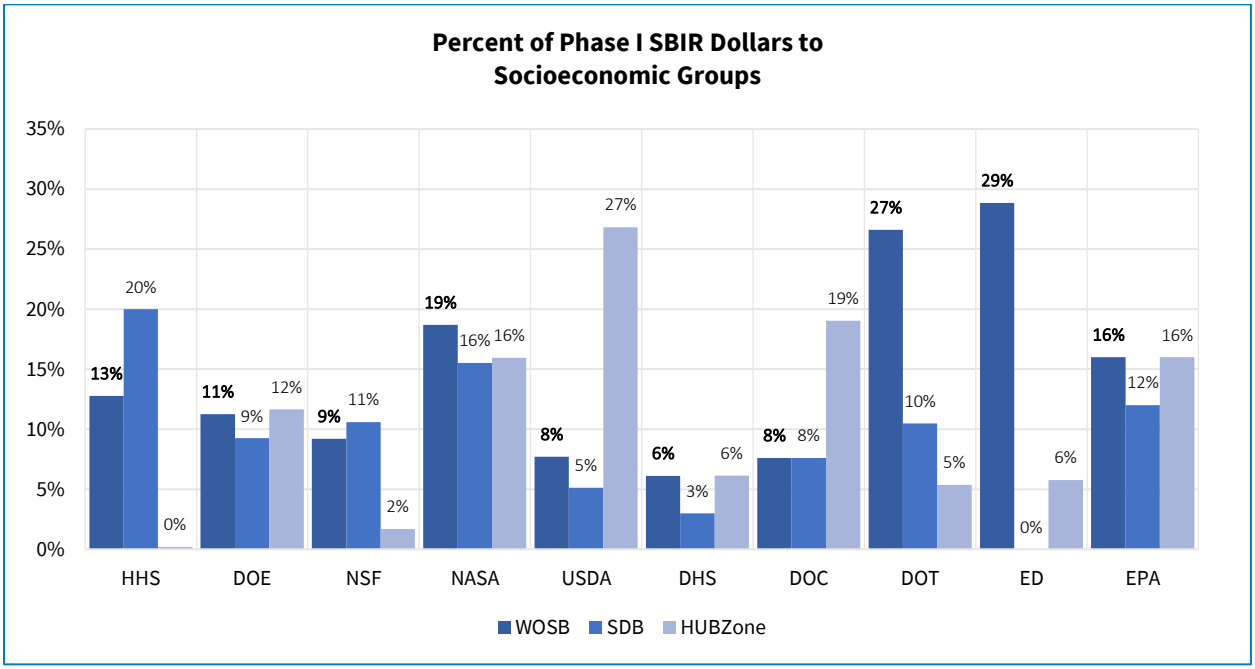
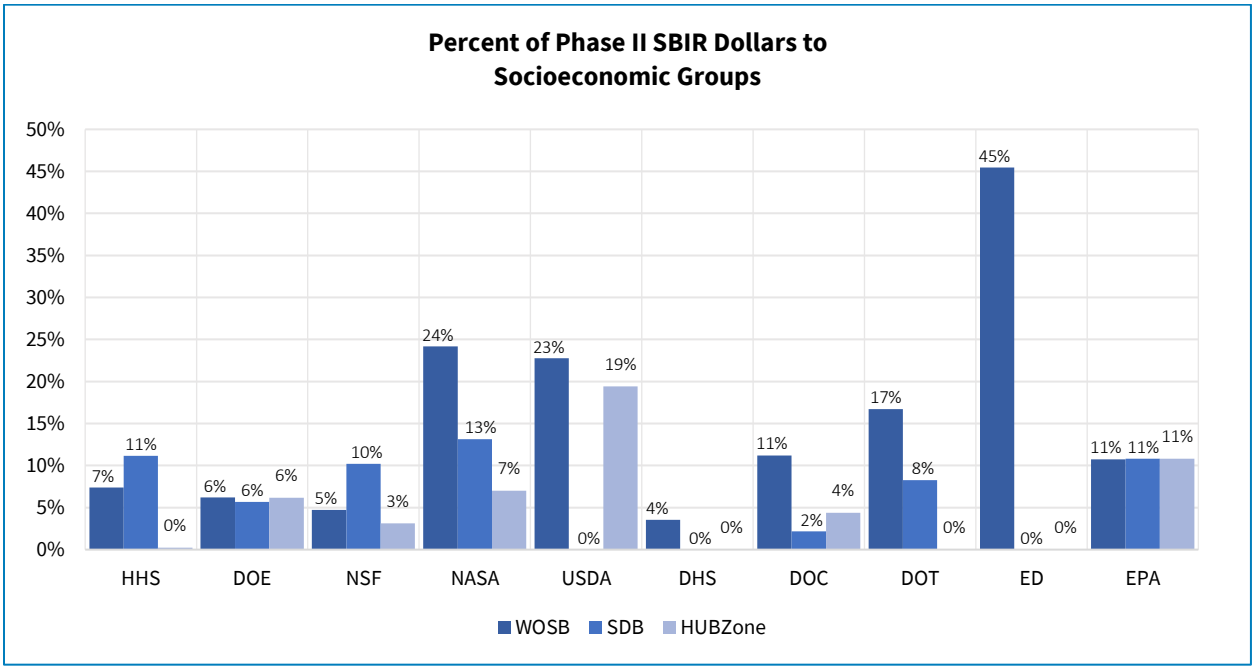


Chart 5: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - Civilian Agencies



4 | SBIR Program – DoD Summary Data

To facilitate the review of the FY21 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 (#)*	3	3	4	5	6
	New Proposals Received (#)	3,091	2,422	1,081	1,640	8,234
	New Awards (#)	732	426	123	266	1,547
	Selection Rate (%)	24%	18%	11%	16%	19%
	Total Obligations ($)	$38,570,104	$74,401,856	$30,304,472	$44,466,755	$187,743,188
Phase II	New Proposals Received (#)	1,043	254	174	317	1,788
	New Awards (#)	512	233	63	238	1046
	Selection Rate (%)**	49%	92%	36%	75%	59%
	Total Obligations ($)	$502,958,250	$324,163,560	$149,787,882	$307,819,782	$1,284,729,474
Phase III	Total Obligations (For both SBIR and STTR) ($) †	$595,847,526	$915,134,211	$263,852,642	$91,988,351	$1,866,822,730
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$0	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$0	$353,432	$0	$23,000	$376,432
	Administrative Funding Pilot (AFPP) (3%) ($)	$10,235,664	$6,040,572	$10,350,000	$6,253,515	$32,879,751
	DoD 1% CRP ($)	$7,731,034	$4,490,690	$0	$1,466,063	$13,687,787
Totals	Total SBIR Obligations ($)	$559,495,052	$409,096,678	$190,442,354	$360,006,115	$1,519,040,199
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$24,864,938,743	12,736,973,872	$10,129,173,000	$14,472,377,847	$62,203,463,462
	Percent of SBIR Obligations as determined using DoD-provided data (%)	2.25%	3.21%	1.88%	2.49%	2.44%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Did not comply[3]	Complied	Did not comply[3]	Varied	Did not comply[3]

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

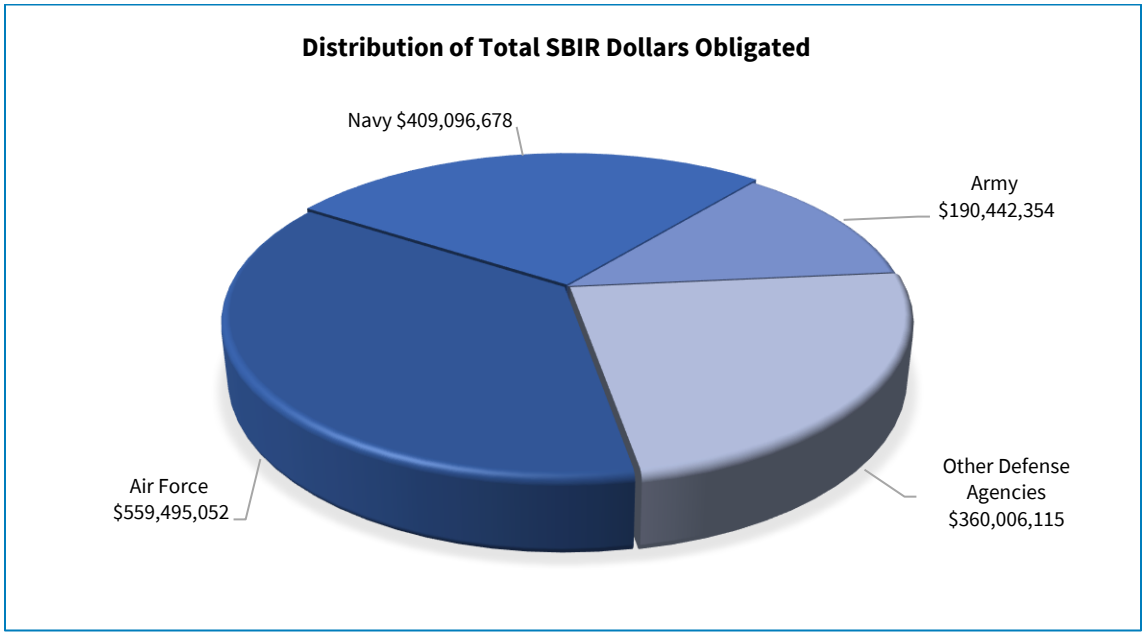
[3] The DoD sets aside SBIR/STTR funding based on research, development, test, and evaluation appropriations as indicated in 15 U.S.C. 638 (f) and (n), however, there is a mismatch between set aside amounts and obligated amounts due to the two-year execution cycle of the DoD SBIR/STTR program that could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

*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 FY21 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 FY21, DoD Service Agencies' and Other Defense Agencies' total SBIR obligations amounted to $1,519,040,199 of which approximately 64% 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	289	9%	241	10%	161	15%	198	12%	959	11%
		New Awards	66	9%	38	9%	12	10%	17	6%	133	9%
		New Obligations	$3,661,080	10%	$5,694,937	9%	$1,382,520	8%	$2,545,598	6%	$13,284,135	8%
		Total Obligations	$3,661,080	9%	$6,293,360	8%	$2,657,407	9%	$2,545,598	6%	$15,157,445	8%
	Phase II	New Proposals	104	10%	18	9%	21	12%	28	10%	180	10%
		New Awards	44	9%	26	11%	4	6%	23	10%	97	9%
		New Obligations	$41,375,633	9%	$18,396,826	11%	$1,967,187	3%	$23,587,999	9%	$85,327,646	9%
		Total Obligations	$45,634,792	9%	$31,612,885	10%	$11,079,623	7%	$25,370,031	8%	$113,697,331	9%
SDB	Phase I	New Proposals	322	10%	245	10%	174	16%	227	14%	968	12%
		New Awards	66	9%	38	9%	10	8%	23	9%	137	9%
		New Obligations	$3,320,312	9%	$5,482,892	8%	$1,188,538	7%	$3,537,724	8%	$13,529,466	8%
		Total Obligations	$3,320,311	9%	$6,220,456	8%	$1,968,735	6%	$3,537,724	8%	$15,047,226	8%
	Phase II	New Proposals	92	9%	9	5%	13	8%	19	7%	133	8%
		New Awards	37	7%	16	7%	2	3%	19	8%	74	7%
		New Obligations	$30,264,808	7%	$12,031,831	7%	$1,219,050	2%	$22,177,863	9%	$65,693,552	7%
		Total Obligations	$31,739,806	6%	$16,068,105	5%	$3,734,568	2%	$22,177,864	7%	$73,720,343	6%
HUB Zone	Phase I	New Proposals	83	3%	65	3%	65	4%	47	2%	260	3%
		New Awards	22	3%	9	2%	1	1%	3	1%	35	2%
		New Obligations	$1,090,494	3%	$1,366,495	2%	$111,468	1%	$544,474	1%	$3,112,931	2%
		Total Obligations	$1,090,493	3%	$1,665,741	2%	$588,266	2%	$544,474	1%	$3,888,974	2%
	Phase II	New Proposals	23	2%	0	0%	20	6%	6	2%	49	3%
		New Awards	11	2%	7	3%	2	3%	1	0%	21	2%
		New Obligations	$11,070,518	2%	$5,995,605	3%	$2,686,881	4%	$1,500,000	1%	$21,253,004	2%
		Total Obligations	$11,070,518	2%	$7,320,337	2%	$3,833,472	3%	$3,640,460	1%	$25,864,787	2%

* For some FY21 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

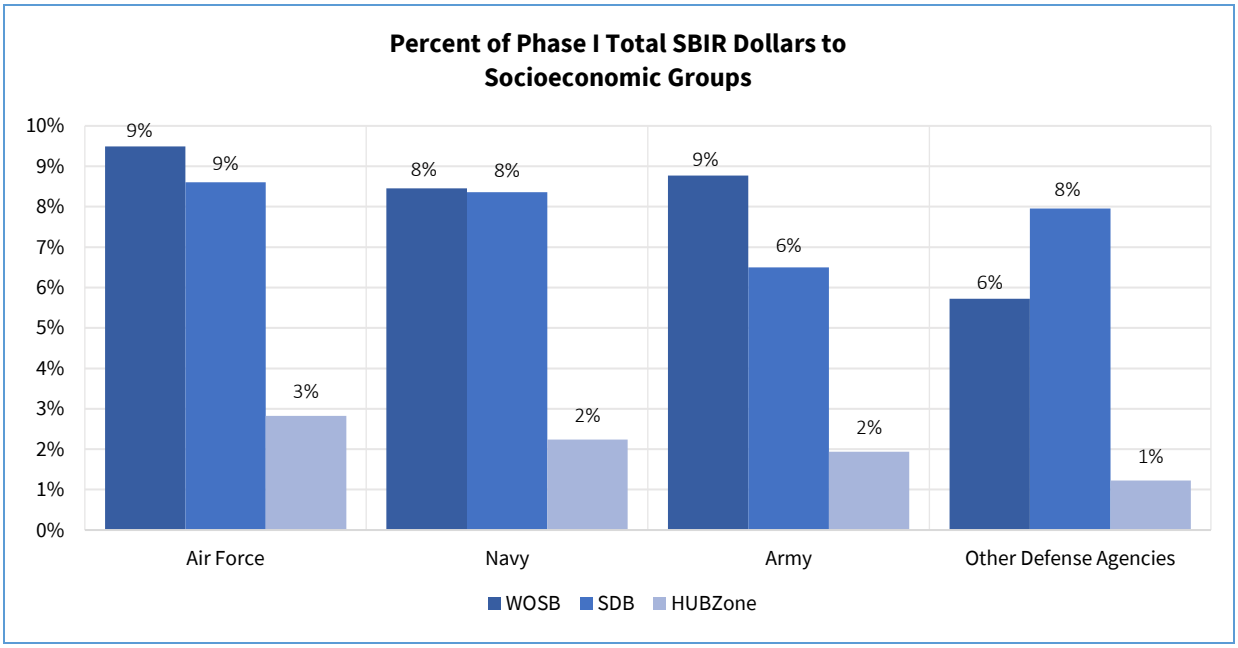
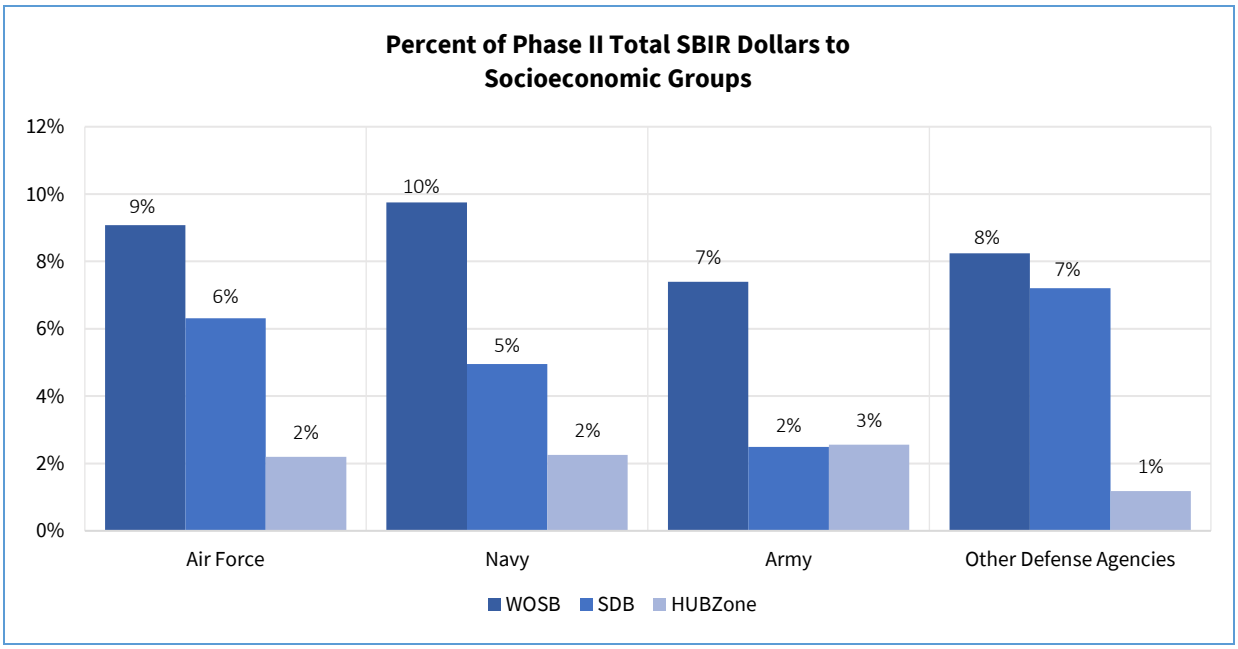


Chart 8: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - DoD Service Agencies and Other Defense Agencies



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 (#)	14	6	1	2	24
	New Proposals Received (#)	1333	385	193	334	2245
	New Awards (#)	210	58	56	73	397
	Proposal Selection Rate (%)	16%	15%	29%	22%	18%
	Total Obligations ($)	$74,999,628	$12,318,939	$7,057,424	$18,853,299	$113,229,290
	Total Obligations for Research Institutions ($)	$34,605,819	$5,094,734	$2,338,352	$7,063,838	$49,102,743
	Total Obligations for Research Institutions (%)	46%	41%	33%	37%	43%
Phase II	New Proposals Received (#)	119	84	43	18	264
	New Awards (#)	48	25	23	9	105
	Proposal Selection Rate (%)	40%	30%	53%	50%	40%
	Total Obligations for Awards ($)	$74,558,922	$27,074,163	$17,967,214	$10,747,180	$130,347,479
	Total Obligations for Research Institutions ($)	$30,218,212	$10,780,756	$5,837,671	$2,663,010	$49,499,649
	Total Obligations for Research Institutions (%)	41%	40%	32%	25%	38%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$220,307	$0	$430,984	$651,291
	TABA Provided to Small Businesses in Award Obligations ($) *	$466,000	$385,443	$91,972	$482,500	$1,425,915
	Obligations for "Phase 0" Programs (NIH only) ($)	$4,933,701				$4,933,701
Totals	Total STTR Obligations ($)	$154,492,251	$39,613,409	$25,024,638	$30,031,463	$249,161,761
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$32,642,886,731	$8,730,488,446	$5,514,675,119	$6,333,068,221	$53,221,118,517
	Percent of STTR Obligations as determined using Agency-provided data (%)	0.47%	0.45%	0.45%	0.47%	0.47%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements †	Did Not Comply	Complied	Did Not Comply	Complied	

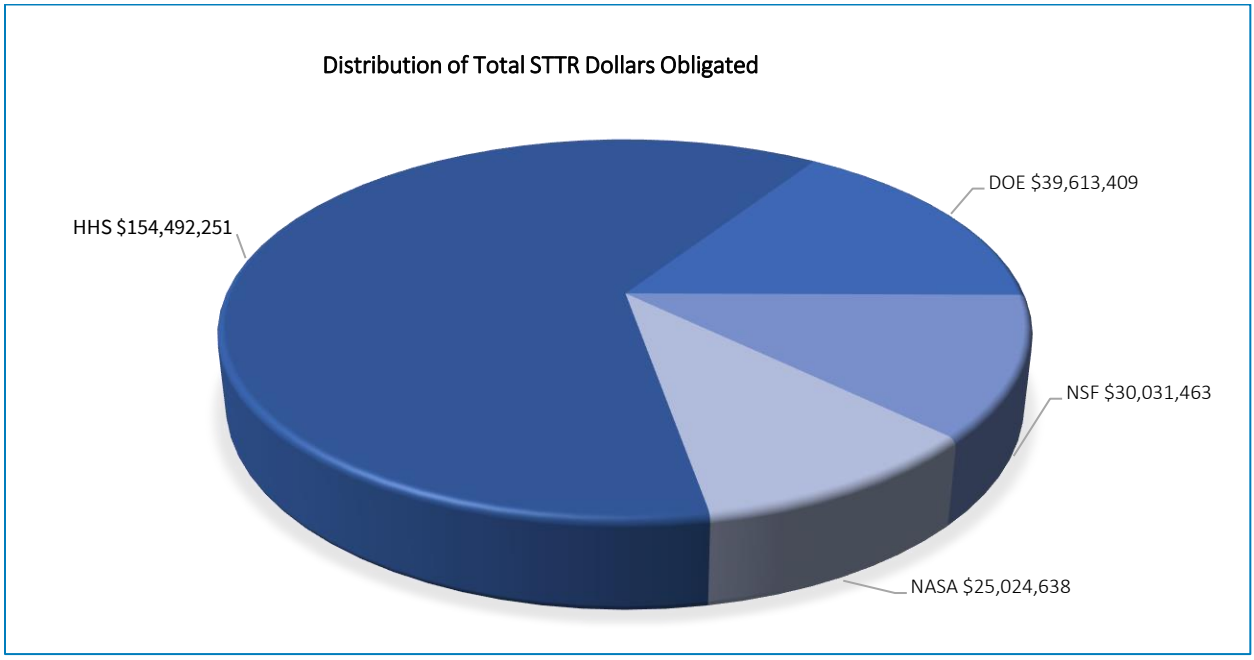
*** This is TABA funds that were provided by the agency directly to the awardee through grant or contract and thus already included in Phase I/Phase II obligation award amounts.**

† 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 FY21, the Participating Civilian Agencies' total STTR obligations amounted to $249,161,761, 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		NSF		NASA		Total	
			Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
WOSB	Phase I	New Proposals	222	17%	51	13%	70	21%	23	12%	**366**	**12%**
		New Awards	25	12%	8	14%	14	19%	7	13%	**54**	**13%**
		New Obligations	$8,804,112	13%	$1,762,674	14%	$3,552,690	19%	$877,224	13%	**$14,996,700**	**13%**
		Total Obligations	$10,185,823	15%	$1,762,674	14%	$3,648,690	20%	$918,891	13%	**$16,516,078**	**13%**
	Phase II	New Proposals	15	13%	4	5%	4	22%	1	2%	**24**	**2%**
		New Awards	7	15%	3	12%	3	33%	1	4%	**0**	**4%**
		New Obligations	$4,966,111	12%	$1,770,936	7%	$2,955,626	33%	$742,804	4%	**$10,435,477**	**4%**
		Total Obligations	$4,966,111	7%	$1,770,936	7%	$2,955,626	28%	$742,804	4%	**$10,435,477**	**4%**
SDB	Phase I	New Proposals	333	25%	99	26%	56	17%	26	13%	**514**	**13%**
		New Awards	46	22%	13	22%	11	15%	11	20%	**81**	**20%**
		New Obligations	$13,875,382	21%	$2,812,211	23%	$2,815,741	15%	$1,389,217	20%	**$20,892,551**	**20%**
		Total Obligations	$13,808,794	18%	$2,812,211	23%	$2,568,502	14%	$1,389,217	20%	**$20,578,724**	**20%**
	Phase II	New Proposals	23	19%	5	6%	7	39%	3	7%	**38**	**7%**
		New Awards	8	17%	3	12%	3	33%	3	13%	**17**	**13%**
		New Obligations	$6,948,858	17%	$3,849,928	14%	$3,000,000	34%	$2,254,544	13%	**$16,053,330**	**13%**
		Total Obligations	$6,948,858	9%	$3,849,928	14%	$3,000,000	28%	$2,254,544	13%	**$138,020,792**	**13%**
HUB Zone	Phase I	New Proposals	3	0%	60	16%	40	12%	4	2%	**107**	**2%**
		New Awards	2	1%	7	12%	11	15%	2	4%	**22**	**4%**
		New Obligations	$599,890	1%	$1,499,983	12%	$2,815,845	15%	$243,130	3%	**$5,158,848**	**3%**
		Total Obligations	$599,890	1%	$1,499,983	12%	$2,835,829	15%	$243,130	3%	**$28,103,504**	**3%**
	Phase II	New Proposals	2	2%	8	10%	5	28%	2	5%	**17**	**5%**
		New Awards	1	2%	2	8%	2	22%	2	9%	**7**	**9%**
		New Obligations	$1,036,191	2%	$2,198,450	8%	$1,992,804	22%	$1,517,691	9%	**$6,745,136**	**9%**
		Total Obligations	$1,036,191	1%	$2,198,450	8%	$1,992,804	19%	$1,517,691	8%	**$34,227,828**	**8%**

* For some FY21 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

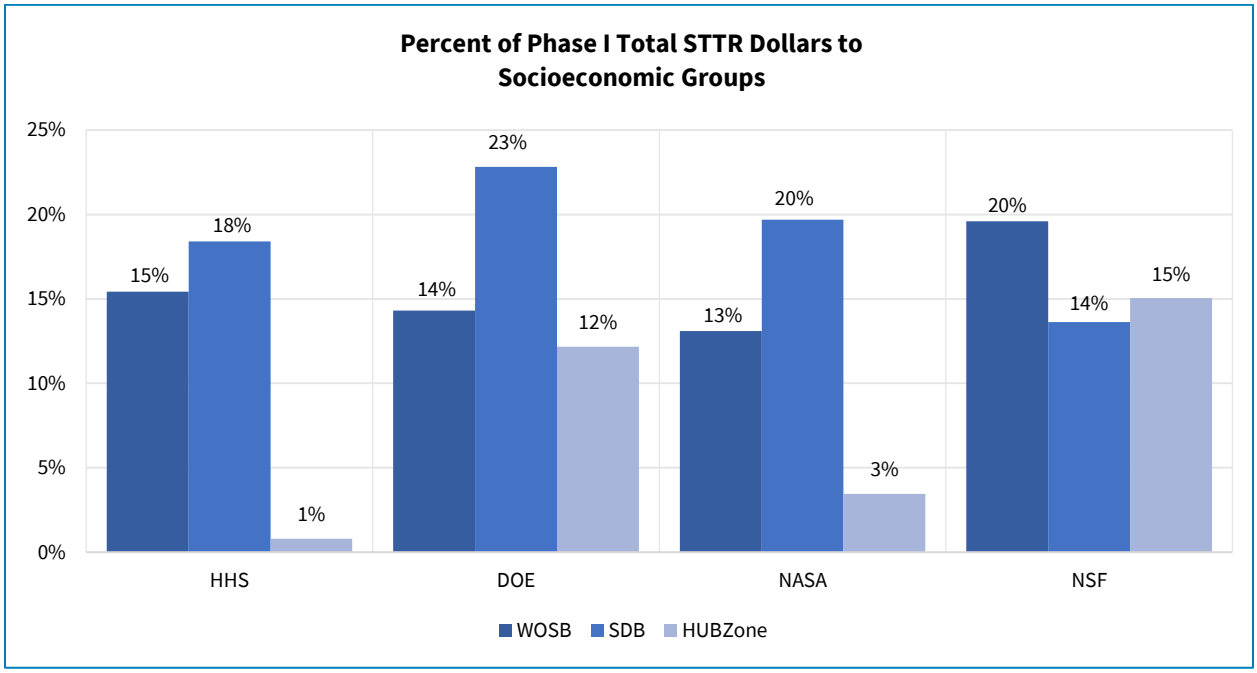
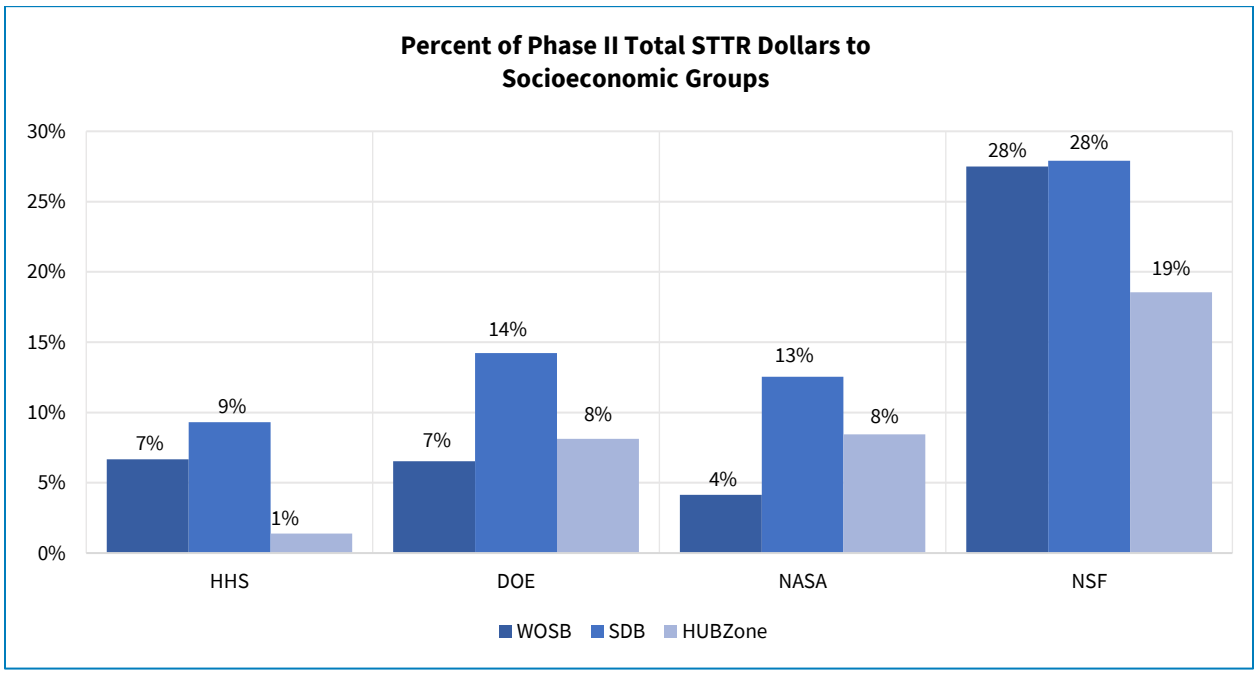


Chart 11: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - Civilian Agencies



6 | STTR Program – DoD Summary Data

To facilitate the review of the FY21 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 (#)†	3	3	3	5	5
	New Proposals Received (#)	685	323	0	195	1,203
	New Awards (#)	405	66	57	63	591
	Proposal Selection Rate (%)	59%	20%	n/a	32%	49%
	Total Obligations ($)	$43,231,011	$12,521,836	$9,502,699	$11,334,587	$76,590,134
	Total Obligations for Research Institutions ($)	$16,040,115	$4,265,942	$3,471,141	$2,683,044	$26,460,242
	Total Obligations for Research Institutions (%)	37%	34%	37%	24%	35%
Phase II	New Proposals Received (#)	167	33	42	35	277
	New Awards (#)	88	32	41	42	203
	Proposal Selection Rate (%) **	53%	97%	98%	120%	73%
	Total Obligations for Awards ($)	$83,030,087	$39,133,364	$40,096,382	$40,670,491	$202,930,324
	Total Obligations for Research Institutions ($)	$29,573,268	$15,624,902	$22,276,157	$8,998,122	$76,472,449
	Total Obligations for Research Institutions (%)	36%	40%	56%	22%	38%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$0	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) **	$0	$95,159	$57,950	$44,500	$197,609
Totals	Total STTR Obligations ($)	$126,261,098	$51,655,200	$49,599,081	$52,005,079	$279,520,458
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$24,864,938,743	12,736,973,872	$10,129,173,000	$14,472,377,847	$62,203,463,462
	Percent of STTR Obligations as determined using DoD-provided data (%)	0.51%	0.41%	0.49%	0.36%	0.45%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements§	Complied	Did Not Comply‡	Unable to Determine	Varied	Did Not Comply‡

* For some FY21 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

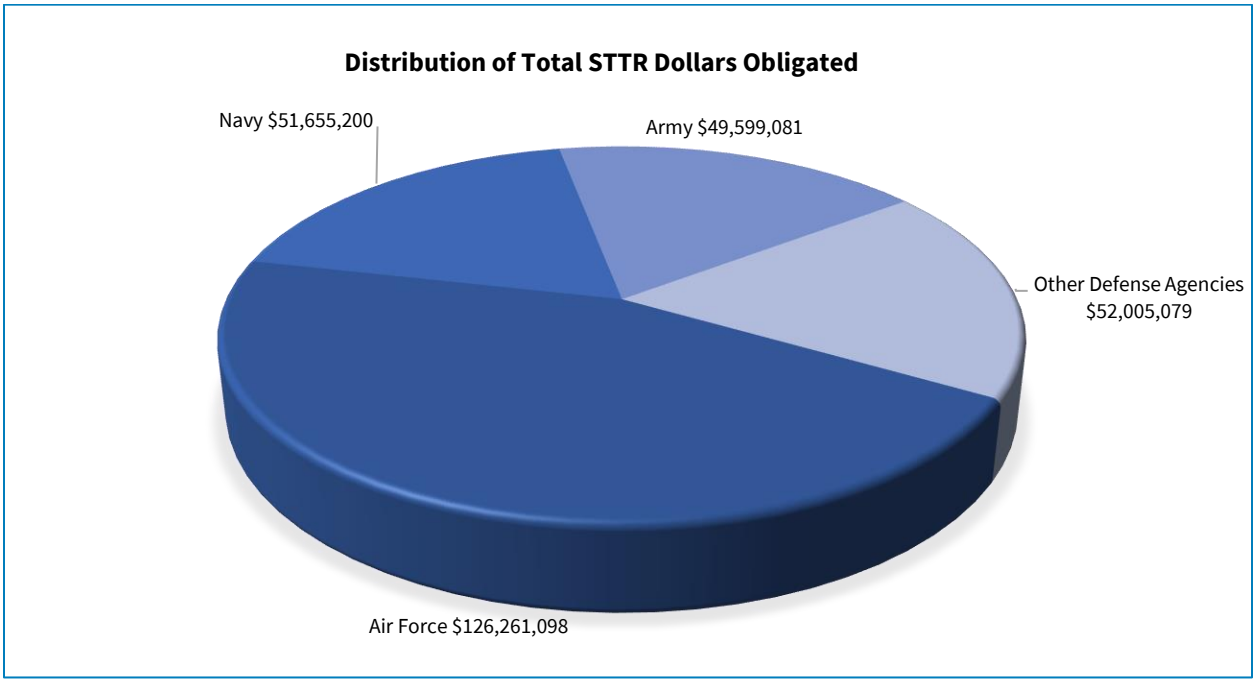
Minimum Spending Requirements). Details on the SBA analysis are provided in Section 7 which describes SBA's validation process for extramural dollars and obligations as reported to SBA and NSF NCSES and includes the process SBA used to assess compliance.

‡ The DoD sets aside SBIR/STTR funding based on research, development, test, and evaluation appropriations 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.

STTR Award Distribution - DoD Service Agencies and Other Defense Agencies

DoD Service Agencies' and Other Defense Agencies' STTR obligations totaled $279,520,457 in FY21, with 45% attributed to the Air Force, 18% to the Navy, 18% to the Army, and 19% 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	73	9%	42	10%	**0**	**0%**	17	9%	132	11%
		New Awards	36	9%	5	8%	8	14%	3	5%	52	9%
		New Obligations	$3,496,678	8%	$798,800	9%	$1,332,623	14%	$548,921	5%	$6,177,022	8%
		Total Obligations	$3,496,678	8%	$1,198,679	13%	$1,332,623	14%	$598,921	5%	$6,626,901	9%
	Phase II	New Proposals	6	10%	4	9%	4	15%	0	0%	14	7%
		New Awards	4	5%	6	19%	4	10%	0	0%	14	7%
		New Obligations	$2,996,092	4%	$3,789,725	22%	$2,983,003	11%	$0	0%	$9,768,820	6%
		Total Obligations	$2,996,092	4%	$3,334,877	9%	$3,983,003	10%	$506,611	1%	$10,820,583	5%
SDB	Phase I	New Proposals	81	12%	39	12%	0	0%	22	11%	142	12%
		New Awards	46	11%	7	11%	8	14%	5	8%	66	11%
		New Obligations	$4,592,276	11%	$979,449	10%	$1,332,245	14%	$841,444	8%	$7,745,414	11%
		Total Obligations	$4,592,276	11%	$1,157,326	9%	$1,332,245	14%	$841,444	7%	$7,923,291	10%
	Phase II	New Proposals	13	10%	4	17%	3	12%	0	0%	20	10%
		New Awards	9	10%	5	16%	2	5%	0	0%	16	8%
		New Obligations	$6,049,099	7%	$3,339,807	19%	$1,089,997	4%	$0	0%	$10,478,903	7%
		Total Obligations	$6,049,099	7%	$2,135,000	5%	$1,089,997	3%	$0	0%	$9,274,096	5%
HUB Zone	Phase I	New Proposals	20	3%	14	4%	0	0%	7	1%	67	4%
		New Awards	8	2%	1	2%	1	2%	1	2%	11	2%
		New Obligations	$772,919	2%	$139,993	2%	$166,476	2%	$124,962	1%	$1,204,350	2%
		Total Obligations	$772,919	2%	$139,993	1%	$166,476	2%	$149,909	1%	$1,229,297	2%
	Phase II	New Proposals	2	2%	0	0%	1	4%	1	0%	4	2%
		New Awards	3	3%	0	0%	0	0%	1	3%	4	2%
		New Obligations	$2,245,283	3%	$0	0%	$0	0%	$874,217	3%	$3,119,500	2%
		Total Obligations	$2,245,283	3%	$0	0%	$0	0%	$874,217	2%	$3,119,500	2%

† In FY21, Army did not have any new STTR proposals, awards resulted from proposals received in prior fiscal years.

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

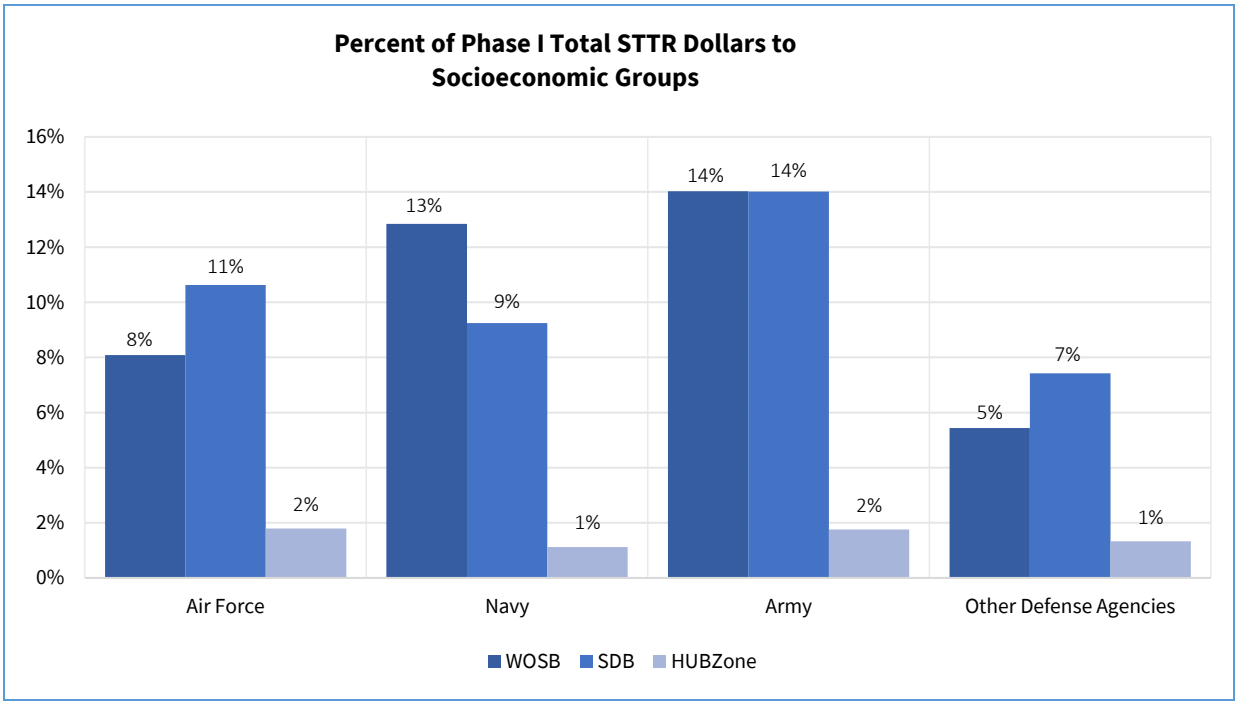
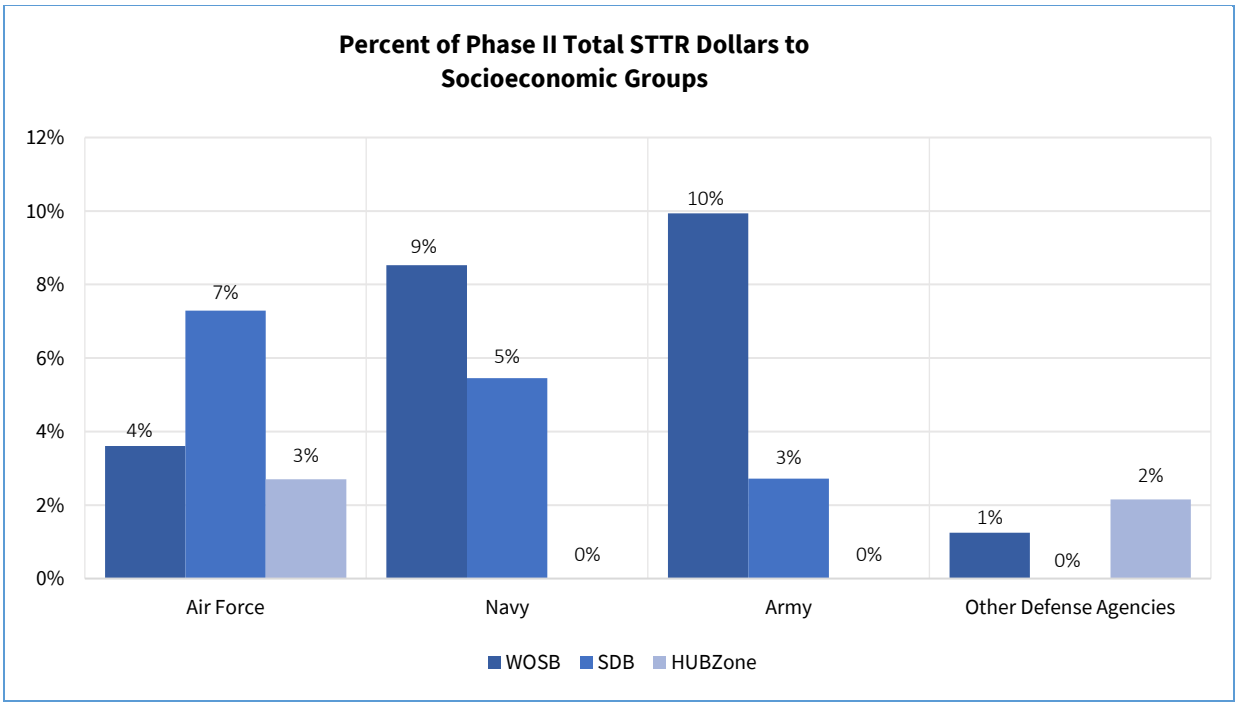


Chart 14: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - DoD Service Agencies and Other Defense Agencies



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 FY21, 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, as 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 that year along with exemptions and exclusions. This enables SBA's evaluation of agency compliance with minimum spending requirements.

Challenges exist with reporting and meeting the minimum spending requirements, which 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 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)[4] 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.

- 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 FY21 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

[4] 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 ($)	% Measured by SBIR obligations divided by Agency reported Extramural R/R&D (3.2% Min)	Total Extramural R/R&D Obligations Reported to NCSES[5] ($)	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	$32,679,178,439	$36,291,708	$32,642,886,731	$1,108,009,248	3.39%	$38,132,000,000	$38,095,708,292	2.91%	$154,492,251	0.47%	0.41%
DOE[6]	$14,355,289,446	$5,624,801,000	$8,730,488,446	$313,845,485	3.59%	$12,489,000,000	$6,864,199,000	4.57%	$39,613,409	0.45%	0.58%
NSF	$6,612,708,306	$279,640,085	$6,333,068,221	$217,098,333	3.43%	$6,677,000,000	$6,397,359,915	3.39%	$30,031,463	0.47%	0.49%
NASA	$6,216,892,248	$702,217,129	$5,514,675,119	$194,178,237	3.52%	$9,941,000,000	$9,238,782,871	2.10%	$25,024,638	0.45%	0.27%
USDA[7]	$1,086,570,648	$54,622,004	$1,031,948,644	$28,292,341	2.74%	$1,181,000,000	$1,126,377,996	2.51%			
DOC	$509,617,200	$0	$509,617,200	$22,975,093	4.51%	$502,000,000	$502,000,000	4.58%			
DHS	$590,930,243	$0	$590,930,243	$19,677,463	3.33%	$339,000,000	$339,000,000	5.80%			
DOT[8]	$843,057,000	$558,007,000	$285,050,000	$15,198,526	5.33%	$928,000,000	$369,993,000	4.11%			
ED	$362,792,017	$0	$362,792,017	$13,392,434	3.69%	$363,000,000	$363,000,000	3.69%			
EPA	$119,974,355	$0	$119,974,355	$6,354,656	5.30%	$255,000,000	$255,000,000	2.49%			
TOTAL	**$63,377,009,902**	**$7,255,578,926**	**$56,121,430,976**	**$1,939,021,817**	**3.46%**	**$70,807,000,000**	**$63,551,421,074**	**3.05%**	**$249,161,761**	**0.47%**	**0.41%**

* 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.

[5] NSF's National Center for Science and Engineering Statistics (NCSES)

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

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

[8] 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	Complied
NASA	O	2-year	Did Not Comply	Did Not Comply
USDA	O	1-year and No-year	Did Not Comply	N/A
DHS	O	3-year	Complied	N/A
DOT	O	No year	Complied	N/A
DOC	O	2-year	Complied	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 0.47% for STTR activities but based on the data reported for the NCSES Survey those percentages drop to 2.91% and 0.41% 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 3.59% obligated for SBIR activities, and 0.45% obligated for STTR activities. The extramural R/R&D reported for the NCSES Survey was less than what was reported to SBA.

NSF. NSF complied with both the minimum spending requirements; with 3.43% obligated for SBIR activities, and 0.47% obligated for STTR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

NASA. SBA has determined that NASA 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. NASA reported obligating 3.52% for SBIR activities and 0.45% for STTR activities but based on the data reported for the NCSES Survey those percentages drop to 2.10% and 0.27% respectively.

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 FY2021, 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.

USDA. USDA did not comply with the SBIR minimum spending requirement because it obligated less than the minimum required with 2.74% obligated for SBIR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

USDA explained:

> The current SBIR expenditure calculation methodology uses the total FY21 extramural R/R&D obligations for an agency and compares the total agency obligations to the required appropriated set-aside percentage of 3.2% to be obligated on SBIR projects. In order to fund a SBIR Program, each agency must set up its SBIR budget by setting aside 3.2% of its extramural R/R&D budget authority appropriated funds for the same year. This is typically done at the beginning of the fiscal year. It is impossible to set up the budget for an SBIR Program using end of year obligations as this data is not available until after the fiscal year is completed. USDA met the requirement of setting up its SBIR budget at the beginning of FY21 by assessing the FY21 extramural R/R&D appropriations at 3.2% and obligated these assessed set-aside funds over the FY21 fiscal year on USDA SBIR projects. USDA continues to report and indicate that non-SBIR USDA Programs obligate no-year funds from prior years that are included in the fiscal year extramural R/R&D obligations calculation reported to SBA. These no-year obligations artificially increase the total amount of extramural R/R&D funding upon which the SBIR minimum spending requirement is to be based. These non-SBIR programs have the legal authority by statute to reserve and obligate appropriated funds in future years. Under the budget authority appropriations process, the USDA SBIR Program already received the assessed set-aside no-year funds in the same year as those funds were appropriated and the SBIR program obligated those funds the same fiscal year.

DHS. DHS complied with the minimum spending requirement based on the extramural R/R&D reported to SBA with 3.33% obligated to SBIR activities. The extramural R/R&D reported for the NCSES Survey was less than what was reported to SBA.

DOC. DOC complied with the minimum spending requirement by obligating 4.51% for SBIR activities based on the extramural R/R&D reported to SBA. The extramural R/R&D reported for the NCSES Survey was less than what was reported to SBA.

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

DOT. DOT complied with the minimum spending requirement by obligating 5.33% 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 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. EPA reported obligating 5.3% for SBIR activities but based on the data reported for the NCSES Survey the percentage drops to 2.49%.

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 ($)	% Measured by SBIR obligations divided by Agency reported Extramural R/R&D (3.2% Min)	Total Extramural R/R&D Obligations Reported to NCSES[9] ($)	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	$24,864,938,743	$0	$24,864,938,743	$559,495,052	2.25%	$26,472,000,000	$26,472,000,000	2.11%	$126,261,098	0.51%	0.48%
Navy	$18,673,892,294	$5,936,918,422	$12,736,973,872	$409,096,678	3.21%	$11,705,000,000	$5,751,016,578	7.11%	$51,655,200	0.41%	0.90%
Army	$11,394,812,000	$1,265,639,000	$10,129,173,000	$190,442,354	1.88%	$7,343,000,000	$6,077,361,000	3.13%	$49,599,081	0.49%	0.82%
ODAs	$17,993,953,847	$3,521,576,000	$14,472,377,847	$360,006,115	2.49%	$19,459,000,000	$15,937,950,500	2.26%	$52,005,079	0.36%	0.33%
DoD Total	$72,927,596,884	$10,724,133,422	$62,203,463,462	$1,519,040,199	2.44%	$64,979,000,000	$54,238,328,078	2.80%	$279,520,457	0.45%	0.52%
Other Defense Agencies (ODAs) Break Out											
DARPA	$3,010,041,000	$0	$3,010,041,000	99,910,295	3.32%	$3,327,000,000	$3,327,000,000	3.00%	$12,492,093	0.42%	0.38%
MDA	$6,132,205,230	$2,991,585,000	$3,140,620,230	71,726,351	2.28%	$5,277,000,000	$2,285,941,500	3.14%	$20,559,571	0.65%	0.90%
DHA	$1,979,228,000	$8,000,000	$1,971,228,000	55,414,347	2.81%	$1,832,000,000	$1,824,000,000	3.04%	$9,623,044	0.49%	0.53%
SOCOM	$812,506,000	$72,922,000	$739,584,000	32,743,089	4.43%	$592,000,000	$519,078,000	6.31%	$1,499,581	0.20%	0.29%
NGA***	N/A	0	N/A	$28,392,709	N/A	N/A	N/A	N/A	$199,846	N/A	N/A
DLA / DMEA	$225,542,878	0	$225,542,878	26,964,083	11.96%	$186,000,000	$186,000,000	14.5%	$836,562	0.37%	0.45%
OSD	$4,452,291,000	$399,573,000	$4,052,718,000	19,413,070	0.48%	$7,293,000,000	$6,893,427,000	0.28%	0	0	0
DTRA	$389,912,756	$0	$389,912,756	12,134,171	3.11%	$390,000,000	$390,000,000	3.11%	$5,374,580	1.38%	1.38%
CBD	$738,832,685	$49,496,000	$689,336,685	11,577,275	1.68%	$562,000,000	$512,504,000	2.26%	$669,834	0.10%	0.13%
SDA	$253,394,298	$0	$253,394,298	1,730,725	0.68%	N/A	N/A	N/A	$749,968	0.30%	N/A

* 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.

[9] NSF's National Center for Science and Engineering Statistics (NCSES)

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.

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.

The DoD does not provide year-end total extramural R/R&D obligations, and historically SBA cannot properly validate the dollars considered by the DoD to be exempt. DoD provides total extramural R/R&D budget estimates through the methodology report based on budget appropriation rather than final obligations, as directed by law.

SBA is using 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 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	Complied
Navy	A	2-year	Unable to Determine	Did Not Comply
Army	A	2-year	Did Not Comply‡	Unable to Determine
DARPA	A	2-year	Complied	Did Not Comply‡
MDA	A	2-year	Did Not Comply‡	Unable to Determine
DHA	A	2-year	Did Not Comply‡	Complied
CBD	A	2-year	Did Not Comply‡	Did Not Comply‡
SOCOM	A	2-year	Complied	Did Not Comply‡
DTRA	A	2-year	Did Not Comply‡	Complied

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
DLA/DMEA	A	2-year	Complied	Did Not Comply‡
SDA	A	2-year	Did Not Comply‡	Did Not Comply‡
NGA	A	2-year	N/A	N/A
OSD	A	2-year	Did Not Comply‡	Did Not Comply‡

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

† Agencies report the extramural R/R&D budget to SBA as either obligations or appropriations. DoD reports its extramural R/R&D budget as appropriations.

‡ The DoD sets aside SBIR/STTR funding based on research, development, test, and evaluation appropriations 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 2021 appropriation will be spread between both FY 2021 and FY 2022. 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 FY21 funding was made available on December 27, 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."

Air Force. Air Force did not comply with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, Air Force obligated 2.25% for SBIR activities. Air Force complied with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, Air Force obligated 0.51% for STTR activities.

Navy. SBA is unable to determine if Navy complied with the minimum SBIR obligations because it is unable to verify its exemptions. Navy did not comply with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, Navy obligated 0.41% for STTR activities.

Army. Army did not comply with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, Army obligated 1.88% for SBIR activities. SBA is unable to determine if Army complied with the minimum STTR obligations because it is unable to verify its exemptions.

DARPA. DARPA complied with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, DARPA obligated 3.32% for SBIR activities and the extramural R/R&D reported to NCSES was not significantly more (>15%) than what was reported to SBA. DARPA did not comply with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, DARPA obligated 0.42% for STTR activities.

MDA. MDA did not comply with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, MDA obligated 2.28% for SBIR activities. SBA is unable to determine if MDA complied with the minimum STTR obligations because it is unable to verify its exemptions.

DHA. DHA did not comply with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, MDA obligated 2.81% for SBIR activities. DHA complied with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, DHA obligated 0.49% for STTR activities.

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 1.68% for SBIR activities and 0.10% for obligations for STTR awards instead of the required 3.2% and 0.45%, respectively.

SOCOM. SOCOM complied with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, SOCOM obligated 4.43% for SBIR activities. SOCOM did not comply with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, SOCOM obligated 0.20% for STTR activities.

DTRA. DTRA did not comply with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, DTRA obligated 3.12% for SBIR activities. DTRA complied with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, DTRA obligated 1.38% for STTR activities.

DLA/DMEA. DLA/DMEA complied with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, DLA/DMEA obligated 11.92% for SBIR activities. DLA/DMEA did not comply with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, DLA/DMEA obligated 0.37% for STTR activities.

SDA. SDA 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, SDA obligated 0.68% for SBIR activities and 0.30% for obligations for STTR awards instead of the required 3.2% and 0.45%, respectively.

OSD. Since the majority of OSD funding in FY21 was distributed to other DoD Services and ODAs for obligation, it is very likely that the majority of OSD's obligations were reported by those Services and ODAs that received the funding. This practice could also account for the data showing that some agencies obligated more than the required amounts since all DoD agencies are calculating the SBIR/STTR set-asides the same way. Further, OSD's obligations for FY21 funding were spread across FY21 and FY22 due to the SBIR/STTR programs being RDT&E funding, which is available to obligate for two years. To offset the typical Continuing Resolution, OSD reserves enough SBIR/STTR funding to cover new awards and increments & options for efforts that are due in the first quarter of the new fiscal year. Although this practice results in delayed obligations, it is necessary to avoid funding gaps for the Small Business Concerns that may otherwise experience a financial hardship if the agency is unable to provide funding on time.

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 FY21 reporting year, agencies could issue a Phase I award up to $259,613 and a Phase II award up to $1,730,751 without seeking SBA approval. Any award above those amounts requires a waiver from SBA. Only DoD, HHS, and NASA required a waiver in FY21.

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

Awards Exceeding Guideline Amounts by More Than 50% (FY21)					
Program	**Phase**	**DoD**	**HHS**	**DOE**	**NASA**
SBIR	Phase I	1,547	657	407	305
	Phase I Exceeding	2 / 0.1%	392 / 60%	0 / 0%	0 / 0%
	Phase II	1046	406	204	150
	Phase II Exceeding	56 / 5%	205 / 50%	1 / 1%	7 / 5%
STTR	Phase I	591	210	58	56
	Phase I Exceeding	0 / 0%	123 / 59%	0 / 0%	0 / 0%
	Phase II	195	48	25	23
	Phase II Exceeding	5 / 3%	20 /42%	0 / 0%	0 / 0%
	($259,613 for Phase I, $1,730,751 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 Directive 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 FY21, 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 typically requests contract specific waivers targeting specific critical technology projects that may require additional investment to meet specific technology readiness level requirements. DOD also requested waivers for specific pilot topic projects to spur accelerated development with concurrent or subsequent additional non-SBIR (Phase III) funding in support of specific critical technology areas.

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 with the fiscal year. The SBA monitors the selection rates for Phase I and Phase II awards.

SBIR Program

In FY21, small businesses submitted a total of 21,786 SBIR Phase I proposals across the eleven Participating Agencies. Agencies made 3,438 new Phase I awards, resulting in an average Phase I proposal selection rate of 16%. Agencies received 4,618 SBIR Phase II proposals and selected 2,027 new Phase II awards, resulting in an average Phase II selection rate of 44%. Three agencies combined to make twenty-two SBIR awards, including thirteen Phase I awards (DOE-10, HHS-3), and nine Phase II awards (DOD-9), against a topic that received only one proposal.

Chart 15: SBIR Phase I Proposal Selection Rates

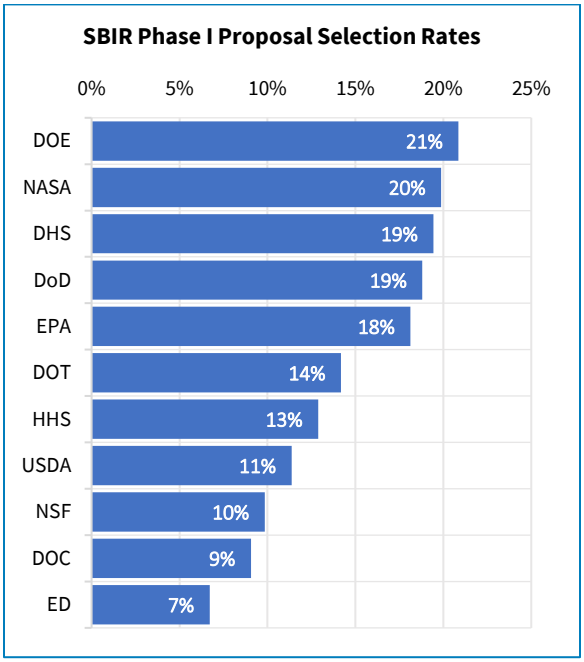
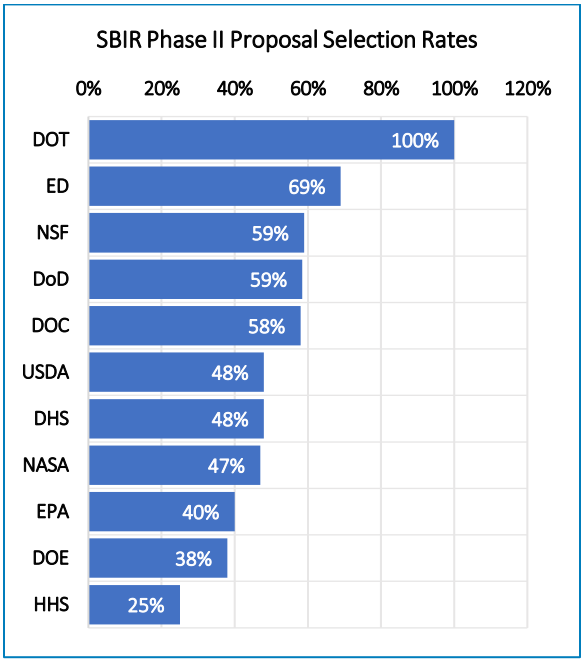


Chart 16: SBIR Phase II Proposal Selection Rates



STTR Program

In FY21, small businesses submitted a total of 3,448 STTR Phase I proposals. Agencies selected 988 new Phase I awards, resulting in an average Phase I proposal selection rate of 29%. Agencies received 541 Phase II proposals and selected 308 new Phase II awards, resulting in an average Phase II proposal selection rate of 57%. Three agencies combined to make sixteen SBIR awards, including seven Phase I awards (DOE-5, HHS-1, and DOD-1), and nine Phase II awards (DOD-9), against a topic that received only one proposal.

Chart 17: STTR Phase I Proposal Selection Rates

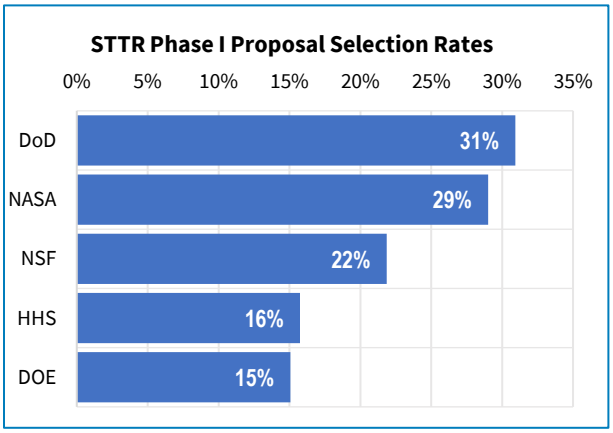
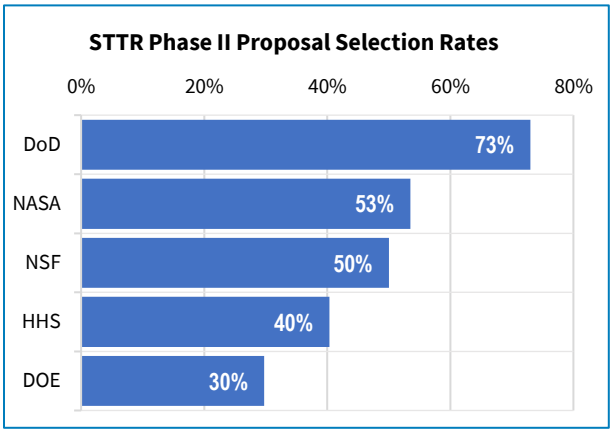


Chart 18: STTR Phase II Proposal Selection Rates



Awards to Multiple Award Winners

Table 17 illustrates Phase II awards made to companies that received more than 15 Phase II awards during the preceding five fiscal years (FY16-FY20). The table also details the number of FY21 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 (FY16 – FY20)- Participating Agencies

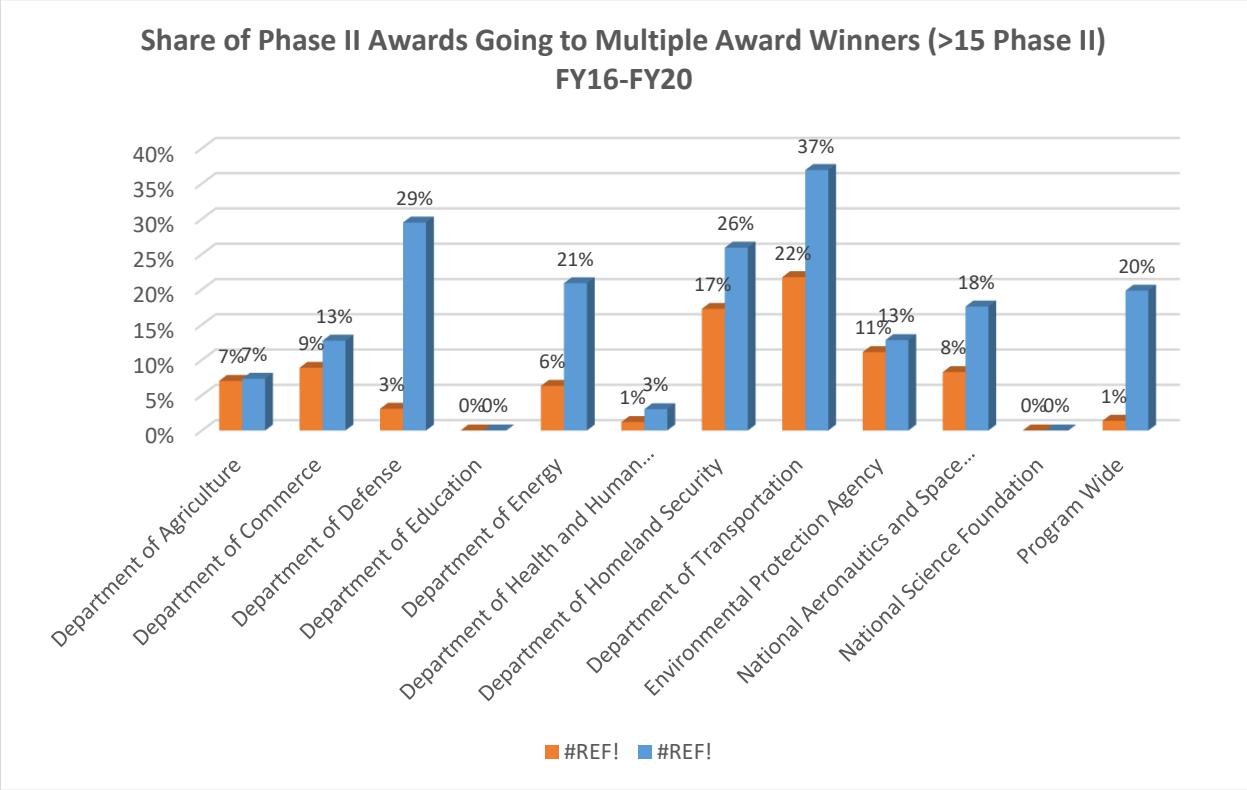
Multiple Award Winners	Totals
Number of Companies with a Phase II Award	4,692
Number of Companies with > 15 Phase II Awards	65
Companies with > 15 Phase II Awards as Percentage of Phase II Companies	1.4%
Number of FY21 Phase I Awards received by Companies with > 15 Phase II Awards	597

FY16 – FY20 Phase II Awards

In the preceding five fiscal years (FY16 – FY20), the Participating Agencies made Phase II awards to 4,692 companies. Sixty-five (65) or 1.4% of these companies received more than 15 Phase II awards during the period. Although these 65 companies represent a small percentage of the individual firms that received a Phase II, they represent 2,149 (20%) of the 10,841 Phase II awards made during FY16-FY20. 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 2,149 Phase II awards obtained by these 65 companies, 1,656 (77%) were awarded by DoD during the period. The 1,656 DoD awards represents 29% of the total number of Phase II awards (5,618) made by DoD during the five-year period.

Chart 19: Share of Phase II Awards going to Multiple Award Winners (>15 Phase IIs FY16-FY20)



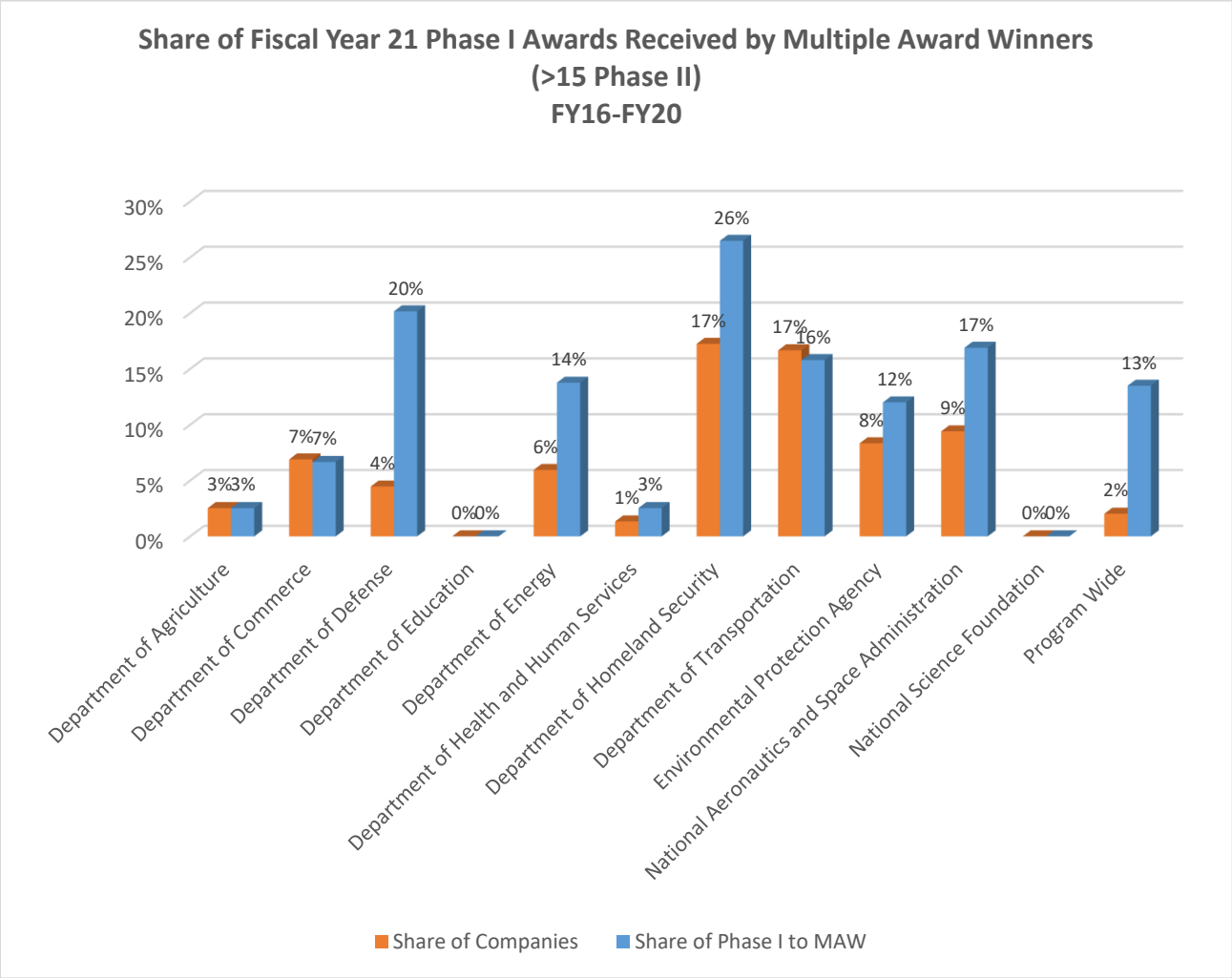
FY21 Phase I Awards

For FY21, the Participating Agencies made 4,426 Phase I awards to 2,957 companies. Thirteen percent of the Phase I awards (597) were obtained by 60 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 FY21 Phase I award to a company with greater than 15 Phase IIs from FY16-FY20.

Fifty-nine (59) out of the 60 multiple award firms received at least one Phase I award from the DoD. These companies accounted for 431 (20%) of the DoD's total Phase I awards (2,138). The 431 Phase I awards from DoD accounted for 72% of all Phase I awards (597) multiple award companies won from the Participating Agencies.

Program wide, multiple award winners accounted for 2% of companies receiving a Phase I award and 13% of all Phase I awards received in Fiscal Year 2021.

Chart 20: Share of FY21 Phase I awards going to Multiple Award Winners (>15 Phase IIs FY16-FY20)



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 68% of total FY21 SBIR dollars and 63% of FY21 STTR dollars were concentrated in California, Massachusetts, Virginia, Maryland, Pennsylvania, New York, Colorado, North Carolina, Texas, and Ohio.

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	$250,000	1	$256,000	0	$0	0	$0	3	$250,000	1	$256,000	4	$506,000
AL	56	$9,567,706	20	$3,519,782	35	$38,883,691	6	$6,808,404	91	$48,451,397	26	$10,328,186	117	$58,779,584
AR	8	$1,201,463	6	$988,402	5	$5,473,058	0	$0	13	$6,674,521	6	$988,402	19	$7,662,923
AZ	60	$11,879,263	17	$4,119,585	44	$44,541,790	11	$8,639,977	104	$56,421,054	28	$12,759,562	132	$69,180,615
CA	750	$139,577,979	165	$34,642,941	427	$576,305,900	43	$53,203,919	1177	$715,883,880	208	$87,846,860	1385	$803,730,740
CO	180	$29,288,440	41	$6,389,241	107	$114,940,740	11	$13,543,603	287	$144,229,180	52	$19,932,844	339	$164,162,024
CT	34	$7,668,565	10	$2,366,898	13	$21,863,437	2	$2,400,539	47	$29,532,001	12	$4,767,437	59	$34,299,438
DC	19	$3,027,824	2	$266,582	7	$11,710,457	1	$749,837	26	$14,738,281	3	$1,016,419	29	$15,754,700
DE	24	$3,620,167	7	$1,219,040	9	$13,234,994	4	$4,927,869	33	$16,855,161	11	$6,146,909	44	$23,002,070
FL	113	$19,175,226	32	$6,505,336	75	$88,880,806	4	$6,338,560	188	$108,056,032	36	$12,843,896	224	$120,899,928
GA	32	$6,944,586	20	$5,192,276	21	$27,977,587	10	$8,983,495	53	$34,922,173	30	$14,175,771	83	$49,097,944
HI	41	$8,120,268	4	$521,899	15	$21,244,625	2	$1,849,785	56	$29,364,893	6	$2,371,684	62	$31,736,577
IA	12	$2,512,278	5	$1,767,892	3	$7,560,286	1	$1,099,773	15	$10,072,564	6	$2,867,665	21	$12,940,229
ID	6	$910,971	1	$149,926	4	$4,622,380	0	$0	10	$5,533,351	1	$149,926	11	$5,683,277
IL	79	$15,757,524	26	$4,678,394	45	$56,207,574	7	$8,954,718	124	$71,965,098	33	$13,633,112	157	$85,598,210
IN	36	$5,459,781	21	$3,681,038	17	$19,322,959	3	$7,479,878	53	$24,782,741	24	$11,160,916	77	$35,943,657
KS	11	$1,378,233	11	$1,048,345	4	$4,480,180	1	$749,631	15	$5,858,413	12	$1,797,976	27	$7,656,389
KY	20	$4,472,171	4	$907,707	5	$10,863,380	3	$3,166,436	25	$15,335,551	7	$4,074,143	32	$19,409,694
LA	16	$2,462,587	9	$1,417,935	5	$8,571,032	1	$840,427	21	$11,033,619	10	$2,258,362	31	$13,291,981
MA	324	$66,357,157	81	$15,288,442	244	$329,356,818	25	$29,355,281	568	$395,713,976	106	$44,643,724	674	$440,357,699
MD	148	$32,763,412	38	$7,373,371	93	$138,355,799	13	$22,026,798	241	$171,119,211	51	$29,400,169	292	$200,519,380
ME	9	$1,848,648	0	$40,000	7	$8,833,829	0	$0	16	$10,682,477	0	$40,000	16	$10,722,477
MH	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
MI	53	$10,322,853	18	$3,493,610	29	$42,297,341	9	$8,885,828	82	$52,620,194	27	$12,379,438	109	$64,999,631
MN	41	$10,595,057	8	$1,738,258	21	$35,297,091	3	$2,368,596	62	$45,892,147	11	$4,106,854	73	$49,999,001
MO	19	$3,857,494	6	$1,618,856	22	$31,119,317	6	$6,487,512	41	$34,976,811	12	$8,106,368	53	$43,083,179
MS	1	$236,969	0	$0	1	$1,244,320	0	$0	2	$1,481,289	0	$0	2	$1,481,289

State	SBIR Phase I		STTR Phase I		SBIR Phase II		STTR Phase II		SBIR Total Awards		STTR Total Awards		SBIR/STTR Total Awards	
MT	11	$1,988,478	2	$447,787	6	$5,396,635	3	$5,130,711	17	$7,385,113	5	$5,578,498	22	$12,963,611
NC	115	$27,453,865	31	$8,184,543	75	$115,930,370	6	$7,894,630	190	$143,384,235	37	$16,079,173	227	$159,463,408
ND	1	$249,886	0	$0	0	$0	0	$0	1	$249,886	0	$0	1	$249,886
NE	5	$669,188	2	$501,999	4	$4,487,515	0	$0	9	$5,156,703	2	$501,999	11	$5,658,702
NH	35	$5,852,601	6	$1,292,714	23	$41,260,667	2	$2,351,063	58	$47,113,268	8	$3,643,777	66	$50,757,045
NJ	56	$9,918,239	22	$4,098,911	47	$56,047,246	8	$5,636,602	103	$65,965,485	30	$9,735,513	133	$75,700,998
NM	49	$8,113,476	9	$1,262,752	21	$29,141,846	1	$758,628	70	$37,255,322	10	$2,021,380	80	$39,276,702
NV	8	$1,147,684	0	$0	2	$2,376,284	2	$1,302,426	10	$3,523,968	2	$1,302,426	12	$4,826,394
NY	142	$27,711,635	46	$8,388,381	89	$115,323,799	12	$17,038,782	231	$143,035,434	58	$25,427,163	289	$168,462,597
OH	135	$21,396,685	76	$10,733,127	76	$90,558,868	27	$21,886,772	211	$111,955,553	103	$32,619,899	314	$144,575,452
OK	18	$2,505,581	8	$988,514	8	$11,047,590	0	$0	26	$13,553,170	8	$988,514	34	$14,541,684
OR	49	$8,842,132	9	$1,432,882	18	$28,213,657	5	$3,593,692	67	$37,055,789	14	$5,026,574	81	$42,082,363
PA	115	$22,715,362	32	$6,324,440	80	$127,417,703	13	$15,775,856	195	$150,133,065	45	$22,100,296	240	$172,233,361
PR	2	$449,996	0	$0	0	$783,762	0	$0	2	$1,233,758	0	$0	2	$1,233,758
RI	10	$2,686,666	4	$1,224,974	8	$8,588,041	2	$1,586,319	18	$11,274,706	6	$2,811,293	24	$14,085,999
SC	14	$3,085,257	12	$4,537,785	10	$9,716,260	4	$3,340,115	24	$12,801,517	16	$7,877,900	40	$20,679,417
SD	2	$461,413	3	$423,943	2	$1,960,406	1	$629,372	4	$2,421,819	4	$1,053,315	8	$3,475,134
TN	19	$3,968,824	12	$1,636,210	18	$22,105,065	3	$3,024,010	37	$26,073,889	15	$4,660,220	52	$30,734,109
TX	206	$30,497,899	60	$9,285,965	99	$100,998,790	15	$14,690,787	305	$131,496,689	75	$23,976,752	380	$155,473,441
UT	35	$7,820,872	19	$3,169,355	20	$30,641,532	3	$4,324,933	55	$38,462,403	22	$7,494,288	77	$45,956,691
VA	184	$28,249,961	53	$8,353,253	134	$168,369,730	20	$17,791,440	318	$196,619,691	73	$26,144,693	391	$222,764,384
VT	9	$2,034,559	1	$760,219	5	$8,997,797	0	$0	14	$11,032,356	1	$760,219	15	$11,792,575
WA	80	$17,358,724	19	$5,495,216	45	$62,668,616	5	$5,706,215	125	$80,027,340	24	$11,201,431	149	$91,228,771
WI	32	$6,795,630	3	$1,062,032	8	$15,237,826	1	$799,647	40	$22,033,456	4	$1,861,679	44	$23,895,135
WV	3	$1,240,791	4	$641,715	1	$999,966	1	$1,154,937	4	$2,240,757	5	$1,796,652	9	$4,037,409
WY	8	$871,474	2	$380,950	0	$873,129	0	$0	8	$1,744,603	2	$380,950	10	$2,125,553

The number of awards are only for new awards during FY21. 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 February 9, 2023.

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

DOE, NASA, DHS, NSF, ED and DOT reported 100% of Phase I SBIR awards were issued within the required timeline; DOE, USDA, DHS, 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)	197	72	76	226	96	75	87	172	66	129
Average time between Phase I Notification and First Day of Period of Performance (days)	81	54	47	9	59	42	15	15	38	51
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%	100%	100%	97%	63%	100%	100%	0%	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)	96%	100%	100%	100%	81%	100%	100%	37%	100%	52%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	325	124	150	407	227	141	113	183	189	213
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	195	63	74	264	63	72	78	114	43	98
Average time between Phase II Notification Date and First Day of Period of Performance (days)	82	62	75	6	43	49	21	0	112	56
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)	99%	100%	97%	92%	97%	100%	100%	14%	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)	96%	100%	95%	97%	100%	100%	100%	100%	79%	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

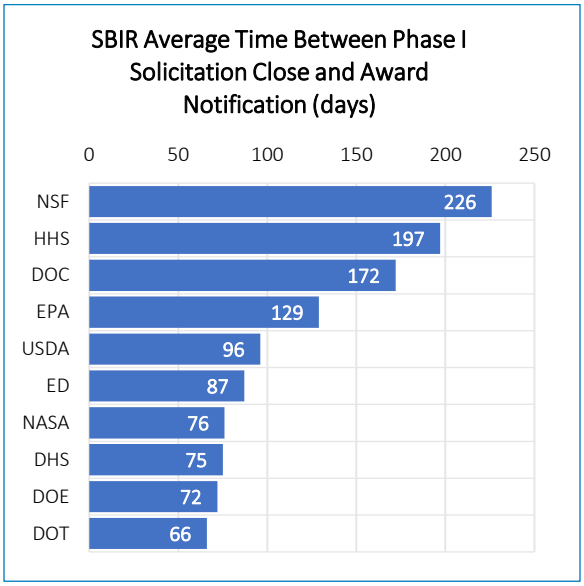


Chart 22: SBIR Average Time Between Phase II Solicitation Close and Award Notification - Civilian

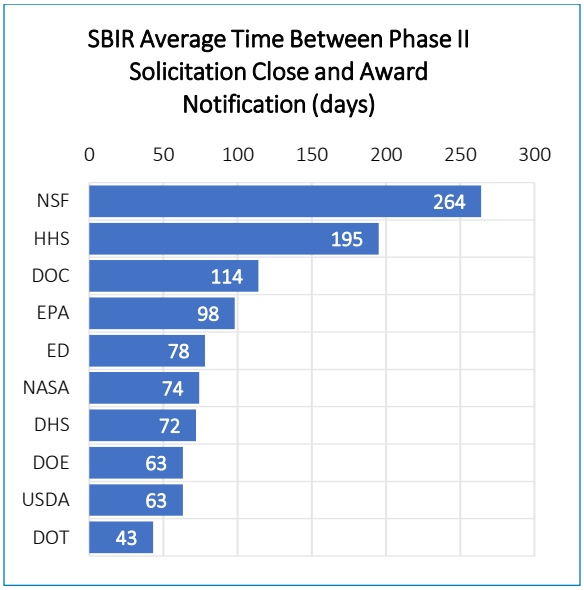
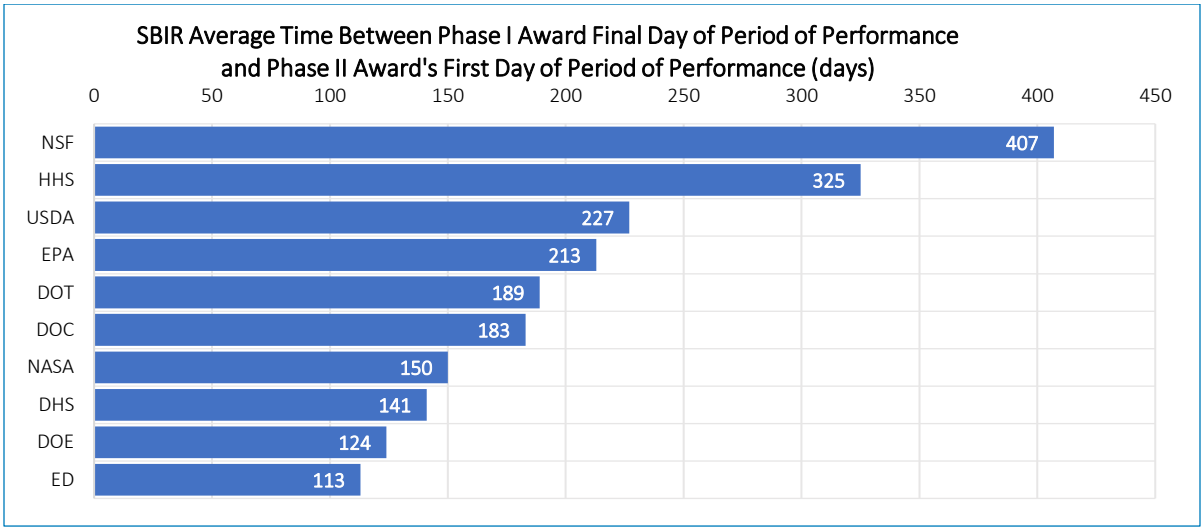


Chart 23: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – Civilian Agencies



DoD Service Agencies and Other Defense Agencies SBIR Timelines

Table 21 below shows how DoD Service Agencies and Other Defense Agencies performed on the SBIR program during FY21. 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. The Army met this timeline requirement for 100% of its awards, the Navy 97%, Air Force 95%, and the Other Defense Agencies 93%. Across the DoD 94% of Phase I awards were issued within 180 days of the solicitation close or proposal receipt; but only 49% of Phase II awards were issued within the 180 calendar day requirement.

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)	67	72	74	66	68
Average time between Phase I Notification and First Day of Period of Performance (days)	24	54	22	88	42
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	95%	97%	100%	93%	95%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	97%	95%	99%	82%	94%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	234	206	106	246	209
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	159	36	89	121	119
Average time between Phase II Notification Date and First Day of Period of Performance (days)	63	165	66	135	102
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and Notification Date was less than or equal to 90 days	30%	81%	60%	75%	53%
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	53%	41%	66%	44%	49%

The following FY21 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

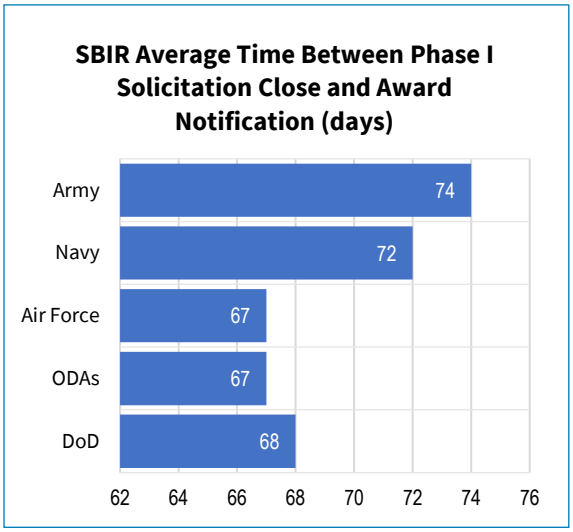


Chart 25: Average Time Between Phase II Solicitation Close and Award Notification – DoD Service Agencies and Other Defense Agencies

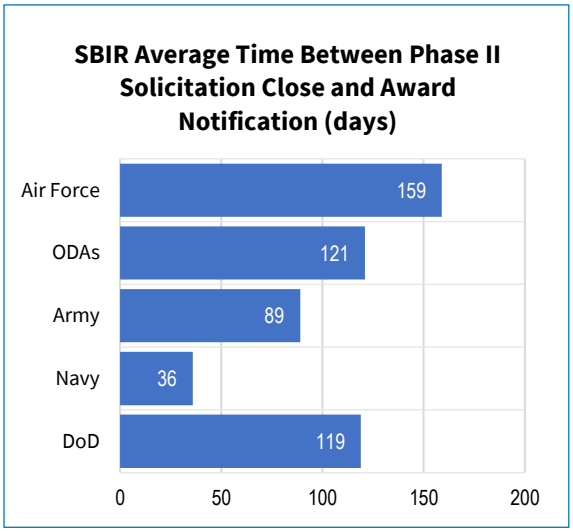
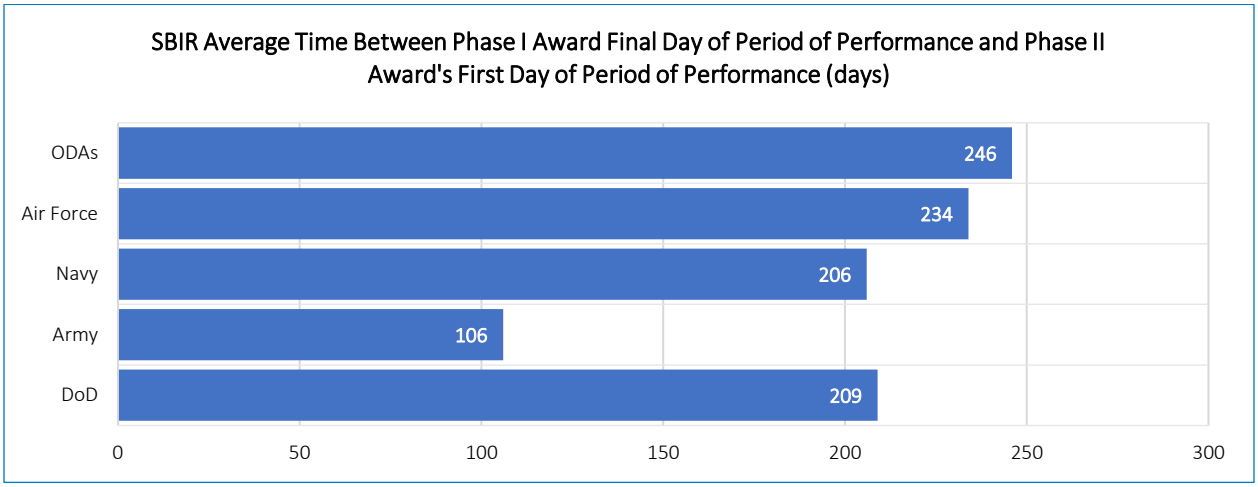


Chart 26: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – DoD Service Agencies and Other Defense Agencies



Civilian Participating Agencies STTR Timelines

DOE reported that 100% of Phase I and 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)	198	76	76	241
Av Average time between Phase I Notification and First Day of Period of Performance (days)	76	50	50	10
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days (1 year for HHS and NSF only)	98%	100%	100%	89%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days (15 months for HHS and NSF only)	96%	100%	96%	99%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	393	110	164	388
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	197	61	102	253
Average time between Phase II Notification Date and First Day of Period of Performance (days)	100	57	53	6
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and Notification Date was less than or equal to 90 days (1 year for HHS and NSF only)	100%	100%	86%	89%
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)	87%	100%	86%	100%

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

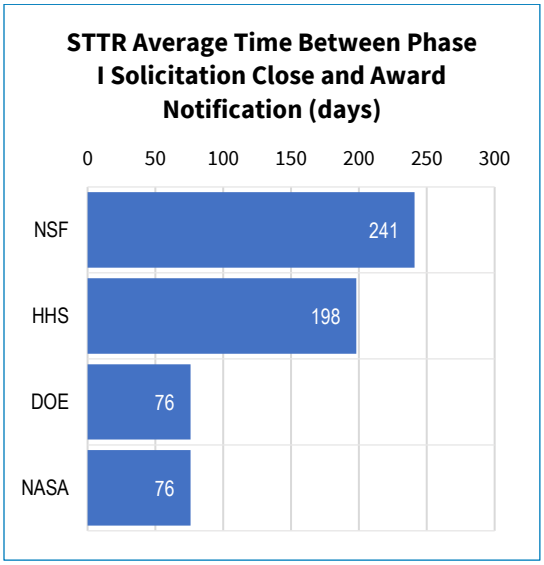


Chart 28: STTR Average Time Between Phase II Solicitation Close to Award Notification - Civilian Agencies

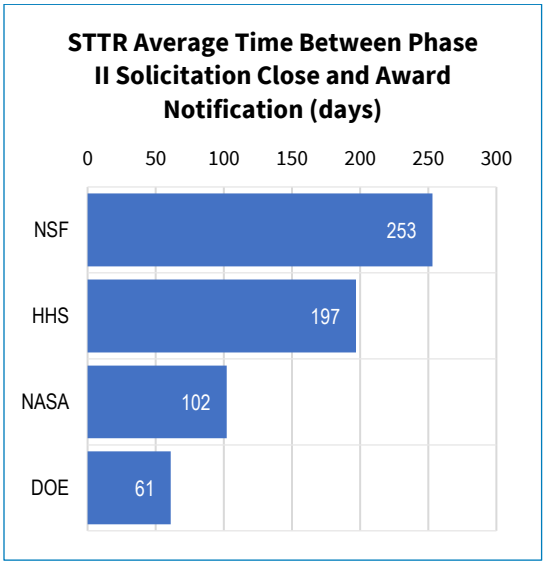
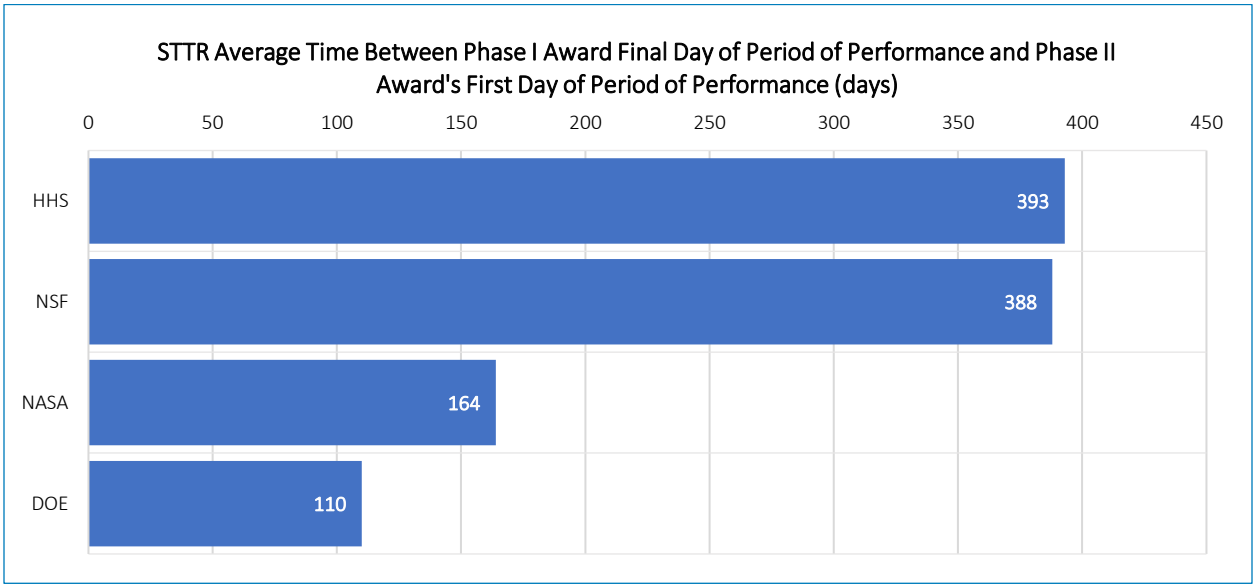


Chart 29: STTR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance - Civilian Agencies



DoD Service Agencies and Other Defense Agencies STTR Timelines

Table 23 below shows how DoD Service Agencies and Other Defense Agencies (ODAs) performed during FY21 in the STTR program. The Policy Directive prescribes the duration between the closing date of the solicitation and the notification of recommendation of award of no more than 90 calendar days. The Navy and Army met this notification requirement for 100% of its STTR Phase I awards. Across the DoD 88% of STTR Phase I awards were issued within 180 calendar days of the solicitation close or proposal receipt; but only 58% of Phase II awards were issued within the 180 calendar day requirement.

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)	67	54	69	74	67
Average time between Phase I Notification and First Day of Period of Performance (days)	49	50	119	110	62
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	99%	100%	100%	81%	97%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	96%	94%	49%	67%	88%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	113	62	335	199	184
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	68	35	69	60	62
Average time between Phase II Notification Date and First Day of Period of Performance (days)	48	235	147	135	114
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and Notification Date was less than or equal to 90 days	81%	63%	98%	79%	81%
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	89%	25%	32%	39%	58%

The following FY21 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

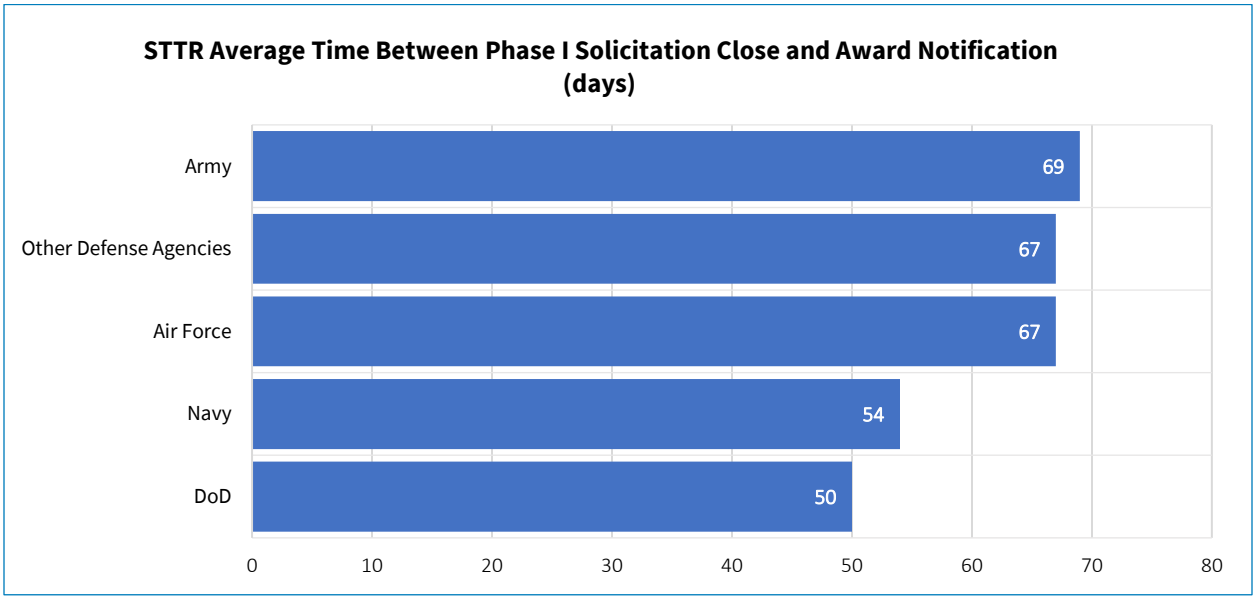


Chart 31: Average Time Between Phase II Solicitation Close and Award Notification - DoD Service Agencies and Other Defense Agencies

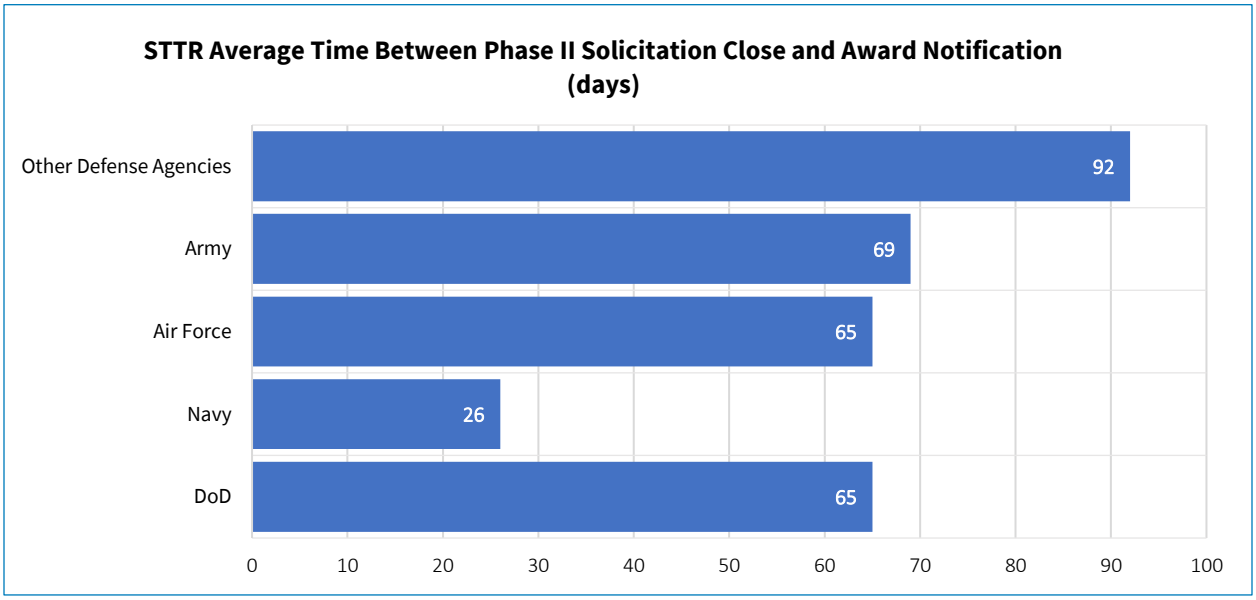
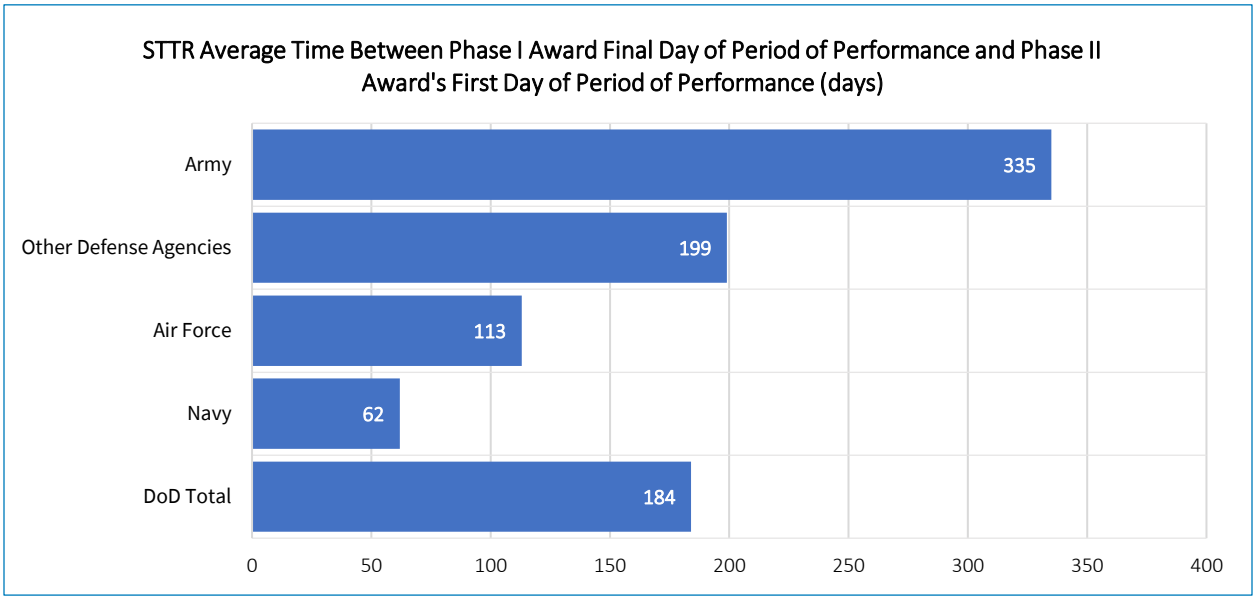


Chart 32: STTR Average Time Between Phase I Award Final Day of Performance and Phase II Award's First Day of Period of Performance - DoD Service Agencies and Other Defense Agencies



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 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	$62,251,577	$56,157,116	$32,879,750
HHS	$31,223,894	$20,763,483	$18,520,114
DOE (Program Office)	$8,000,000	$3,034,000	$2,382,806
NSF	$5,971,770	$5,971,770	$5,930,367
NASA	$5,853,000	$5,853,000	$5,853,000
DOT	$285,222	$285,222	$114,420
NOAA (DOC)	$330,000	$300,000	$239,893

AFPP Maximum Allowable and Obligated Amount per Agency			
Agency	**Max Allowable***	**Funding Approved**	**Obligated†**
NIST (DOC)	$132,000	$10,000	$0
ED	$348,270	$107,919	$25,768
USDA	Not Participating	Not Participating	Not Participating
DHS	Not Participating	Not Participating	Not Participating
EPA	Not Participating	Not Participating	Not Participating
Totals	**$114,395,733**	**$92,482,510**	**$65,946,119**

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

A sampling of examples of agency efforts under the AFPP pilot program include:

HHS

- HHS 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; collectively provided over 600 consultations during fiscal year 2021.
- Eight (8) Institutes and Centers supported the Phase I Applicant Assistance Program focused on training and assisting first-time applicants in the preparation and submission of SBIR/STTR applications. The program has received a total of 1,432 applications to date, with the National Cancer Institute (NCI) receiving 38% of the and supported 215 participants in the program. The program helps to attract underrepresented small businesses and applicants, 82% 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 84% of the participants submit an NIH SBIR/STTR application. This is a significantly higher percentage than small businesses not selected for the program, of which only 21% apply to the NIH SBIR/STTR program. FY21 funds supported 70 companies.

DOE

- In FY 2021, DOE continued the Energy I-Corps for SBIR/STTR program with their Phase I awardees. Release 1 had 23 participants (14% or 23/169) and Release 2 had 38 participants (14% or 38/265). 358 customer interviews were conducted across the Release 1 cohort (average of 16 per company). 741 customer interviews were conducted across the Release 2 cohort (average of 20 per company). Based on feedback from our pilot program in FY 2020, DOE offered an optional extended program to all participants that enabled them to have five (5) additional meetings with their I-Corps coach. Nine (9) participants (39%) from Release 1 and 25 participants (66%) from Release 2 participated in the extended program. Based on Release 2 participant feedback, 96% scored their satisfaction with the overall program as Very Satisfied or Extremely Satisfied. The feedback collected on the Release 1 extended program was also positive, with 92% stating that the additional coaching sessions were either Very Beneficial or

Extremely Beneficial in helping with the development of their Phase II commercialization plan.

NSF

- NSF ran a national digital marketing campaign that generated 70 million ad impressions, 2.5 million clicks to the website and 1.5 million website sessions. NSF also produced 10 animated videos to better explain the program, the process and several tech topic areas. Videos that were promoted in the advertisement campaign were viewed to completion 2.5 million times. The top video that NSF posted organically on the website has received about 2,700 views thus far. There were 8,500 project pitch submissions as a result of the advertising campaign. Of which, 3,700 were invited to submit a full proposal to NSF. 1,852 project pitches were submitted in FY21 that cited social media as the answer to the question "How did you first hear about the Program?"

NASA

- Initiated pilot initiatives to increase Historically Black Colleges and Universities (HBCU) / Minority-Serving Institution (MSI) participation and encourage diversity in the STEM workforce. The pilot STTR Phase 0 effort focus is to provide hands-on support to MSIs and HBCUs with the goal of increasing their participation and viability in the space industry through NASA's STTR program. The initial expectations met:
    - Fostered a better understanding of critical challenges in participation.
    - Developed and implemented a plan to increase visibility of MSI/HBCUs within NASA and prepare them for success in the space industry.
    - Provided proposal support to increase likelihood of success.
    - Supported NASA's Minority University Research and Education Project (MUREP) to offer grants that enhance the research, academic and technology capabilities of MSIs through engagement with small businesses. Awards provide NASA-specific knowledge and skills to learners who have historically been underrepresented and underserved in STEM.
    - Began development of a plan to offer an intern supplement program that will afford students the opportunity to intern with successful SBIR/STTR firms.
- Technological enhancements were made to support Electronic Handbook (EHB) data management across program business operations as well as enabling cross-Agency data access, and data oversight and accuracy. Continued the work to establish a robust data management practice, including data governance, architecture, and security, administratively and technologically. Improvements continue to be made cross-organizationally leading to cross-agency sharing of data.

DOT

- Pitch Day Development & Implementation: Following the success of FY20's Pitch Day, DOT repeated the process for FY21 Phase I Solicitation and the FY20 Phase II process. This required planning and coordination with leadership and staff across DOT as well as event logistics.
- DOT continued to utilization and fund its subscription-based evaluation software as a service to help standardize the process for evaluators, provide offerors with helpful debriefing information, and save time during the evaluation process.

DOC

- Applied for and funded a one-year Knauss Sea Grant Fellow who was dedicated to Stakeholder Engagement and Communications. This position assisted in promoting, not only the NOAA SBIR program, but also to market/highlight and promote our various SBIR awardees. By procuring a dedicated individual to focus on stakeholder engagement and communications, NOAA expects higher visibility to not only the NOAA SBIR program, but also to the various past awardees and our goal to increase their commercial viability.

ED

- A Program Analyst was trained with the necessary information on the ED SBIR program to assist in data entry and review, including entering and checking data on the ED SBIR program to its internal database which tracks awards over the history of the program. The Program Analyst compiled and entered data for the internal SBIR database hosted by the Institute of Education Sciences and has begun to develop new tracking systems for monitoring status of SBIR applications and contracts.

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

- Targeted outreach to HBCUs to encourage participation and educate potential participants on STTR processes and requirements. Presented "Ask Me Anything" virtual sessions targeted to the HBCU ecosystem, leveraged social media and website to post relevant HBCU events.
- The MDA SBIR/STTR Program maintained a robust outreach program which targets all types of Socio-Economic backgrounds and firms to include (but not limited to) Woman Owned Small Businesses (WOSB) and Small Disadvantaged Businesses (SDB's). The SBIR/STTR Program office works in conjunction with the MDA Office of Small Business Programs (OSBP) to ensure that outreach opportunities to these firms are not overlooked. Some of the events that MDA have supported in the past include: National 8(a) Association yearly conference, Women's Business Enterprise National Conference (WBENC), and US Women's Chamber of Commerce events.

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

- 2021 HHS Small Business Conference: Diverse Perspectives SEEDing Impactful Innovations. There was a strong emphasis on conducting outreach to new and prospective applicants, specifically targeting women owned and socially and economically disadvantaged owned businesses. There were 2,184 registrants. Of the

1,624 questionnaire respondents 62% were from under-represented groups (both women owned, and minority owned businesses). Of those that responded, 33% identified as women owned businesses and 29% identified as minority owned. The event garnered representation from every state and Washington, DC. The conference additionally held a 45-minute discussion panel – Diversity and Bias: Perceptions and Reality with 800 registrants attending the livestream.

- Continued #DiversifySBIR social media campaign to highlight women and minorities in leadership at NIH, and the importance of diversity in the scientific workforce. NCI's social media and email communications featuring underrepresented portfolio company CEO / Principal Investigators (PI) and on International Day of Women and Girls in Science by sharing anecdotes from SBIR-funded underrepresented CEOs and other voices of NCI SBIR's women program directors to urge women in stem to participate in biomedical entrepreneurship and in the SBIR program.
- NIH continued to update the Success Stories webpage, adding 2 WOSBs and/or SDBs and 1 from an IDeA State. The page now highlights 20 WOSBs and/or SDBs. Of all companies highlighted, 12 were from IDeA states. Additionally, the National Human Genome Research Institute (NHGRI), launched a success story video project highlighting a woman owned small business. https://seed.nih.gov/portfolio/stories

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 first-time DOE 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.
- For seven 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 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.

NSF. Some highlights from NSF's efforts in broadening participation of underrepresented groups in fiscal year 2021 are as follows:

- To increase awareness of entrepreneurship and startup opportunities for diverse candidates, NSF SBIR/STTR sponsored and attended events hosted by: the American Indian Science and Engineering Society (AISES); the National Society of Black Engineers (NSBE); the Society for Advancement of Chicanos/Hispanics, Native Americans in Science (SACNAS); the Society of Women Engineers (SWE); the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCHE); the Society of Hispanic Professional Engineers (SHPE); and the Women in Engineering ProActive Network (WEPAN).
- NSF staff presented in-person and online at more than 60 outreach events including several targeted at underrepresented groups. These events included keynote presentations, one-on-one meetings with potential applicants and other stakeholders, and information sessions.

USDA. During 2021, USDA presented a SBIR General Overview to Tuskegee University and Tennessee State University at NIFA's 1890s quarterly meeting. The SBIR team also joined the NIFA monthly Tribal meeting, reached out to FALCON offering to convey information about USDA SBIR program and attended the annual FALCON conference. USDA also outreached to the Association of Women Scientists in San Diego (AWISSD) and as well as the National branch of that association (AWIS). In 2021 USDA began the process of developing a statement of work for outreach to historically underserved small business owners. That is currently in process, and the hope is to have that in place by the end of the FY22.

DHS. DHS continues to take advantage of multi-agency outreach events and sought other opportunities to speak to and promote the participation of SDBs and WOSBs in the SBIR program. DHS has also continued the Deconstructing SBIR webinar series which is designed to provide an outlet to reach WOSBs. DHS have increased the social media and other targeted communications to new audiences that are intended to increase women-owned participation. Administrative funding approval was requested to provide funding for additional opportunities to increase participation to underserved communities and demographics.

DOT. SBIR Program Staff participated virtually in an SBIR Roundtable Event, a BBCetc event and DOT's Office of Small and Disadvantaged Business Utilization (OSDBU) Summer Program for Small Businesses. 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. Collaborated with ED's Office of Small and Disadvantaged Business Utilization (OSDBU) to produce an ED Games Expo event called "Doing Business with the U.S. Department of Education: A Primer for Small Businesses." The event was designed for small businesses to learn about the ED's forecast of federal contracting opportunities (including SBIR) and with information on how the ED OSDBU can support SDBs. The event has been viewed many times on YouTube and is available here https://www.youtube.com/watch?v=PQFoFa3Y2_0. ED SBIR is in regular contact with the ED OSDBU team.

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 Outreach Plan continued to focus its outreach efforts on underrepresented groups. Despite still operating in the virtual environment due to the ongoing Covid-19 pandemic, the program participated in over 60 events in 2021. In addition to more general outreach events, many of these targeted underrepresented groups, including woman-owned and disadvantaged, and underserved states.

The program is partnering with NASA's Office of Small Business Programs (OSBP), Office of STEM Engagement (OSTEM), 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 SBA's SBIR Weeks and NASA OSTEM's Historically Black Colleges and Universities (HBCU)/Minority-Serving Institutions (MSI) Road Tour. In early FY21, NASA SBIR/STTR again partnered with the Innovation & Opportunity Conference team in Colorado to offer a virtual event in October 2020 with over 950 YouTube views, while in the second half of the year, the program pivoted to smaller, more focused webinars to provide not only more timely information, but to allow a deeper dive into subjects of interest.

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 or code them as such in the Federal Procurement Data System-Next Generation (FPDS-NG). 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 FY21. The Civilian agencies combined to report nearly $120 million in funding, of which DHS obligated $44 million, HHS obligated $33 million, and NASA obligated $30 million. At the request of SBA, HHS included non-SBIR/STTR grant and cooperative agreement awards to SBIR/STTR recipients when reporting Phase III funding.

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	$915,134,211
Air Force	$710,809,896
Army	$263,852,642
Other Defense Agencies	$158,114,284
DHS	$43,850,662
HHS	$33,470,405

Agency	Total Phase III Obligations ($) †
NASA	$29,909,157
DOE	$6,126,237
DOC	$3,587,949
EPA	$481,681
Totals	**$2,165,337,124**

† 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 FY21 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 $915 million (45% of the total DOD Phase III obligations), Air Force reporting $711 million (35% of the total DoD Phase III obligations), Army reporting $264 million, and the Other Defense Agencies reporting $158 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 FY21 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 FY21.

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

Agency	Number of Awards	Amount Obligated
HHS	30	$37,312,897
NASA	6	$6,624,362
DHS	1	$547,274

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 FY21 CRPP activities.

HHS. HHS issued its first CRPP solicitation on November 2, 2015, and the first CRPP applications were received, and awards made in FY16. In FY21, HHS obligated $37,312,897 across 30 CRPP projects.

HHS Sampling of CRPP Successes:

- **Cognition Therapeutics** (https://cogrx.com, https://seed.nih.gov/portfolio/stories/cognition_therapeutics): Cognition Therapeutics received funds from the NIH Commercialization Readiness Program to continue developing a drug that could target the main toxin thought to cause Alzheimer's disease. This drug may stop progression of the disease and restore brain function, and Phase II clinical trials are underway to test the drug's ability to alleviate symptoms in different types of Alzheimer's patients.
- **Imbed Biosciences** (https://www.imbedbio.com, https://seed.nih.gov/portfolio/stories/imbed): Imbed Biosciences developed an absorbable wound dressing that helps fight infection and reduce healthcare costs. NIH CRP funding helped the company create this antibiofilm matrix, called Microlyte Matrix, that may speed wound closure, and reduce the use of antibiotics, the length of hospital stays, and overall wound treatment costs. It is also being used in veterinary medicine

NASA. NASA obligated $6,624,362 on 6 awards.

DHS. DHS funded one award for $547,274.

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 opted into this authority in 2020, while the Defense Advanced Research Projects Agency (DARPA) and the Department of the Air Force opted into this authority in 2021. Hereafter, firms that are majority-owned by multiple VCOCs, HFs, or PEFs are referred to as portfolio companies. There were no such awards reported for fiscal year 2021 by the Navy, DARPA, or the Air Force.

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

FY21 HHS SBIR Awards to SBC majority-owned by multiple VOCs, hedge funds or private equity firms	
Number of proposals received	19
Number of awards	13
Total dollar amount of awards	$9,107,355
Number of Phase I proposals Received	11
Number of Phase I Awards	8
Total dollar amount of Phase I Awards	$2,395,452
Number of Phase II proposals received	8
Number of Phase II Awards	5
Total dollar amount of Phase II Awards	$6,711,903
Number of non-competing awards	11
Total dollar amount of non-competing Phase II Awards	$6,693,165
Overall dollar amount of awards (competing and non-competing)	$16,100,159

Phase III Appeals

Pursuant to section 4(c)(8) of the SBIR/STTR Policy Directive, 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 FY21.

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 12.

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 Directive 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.

Annual Report on SBIR/STTR Program Goals

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

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

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

Direct to Phase II Awards

The SBIR/STTR Reauthorization Act of 2011 granted the authority to the National Institutes of Health, Department of Defense, and the Department of Education to make Phase II awards to small business concerns without regard to whether the company was provided a Phase I award. Prior to such an award, the heads of those agencies, or designees, must issue a written determination that the small business has demonstrated the scientific and technical merit and feasibility of the ideas that appear to have commercial potential. The determination must be submitted to SBA prior to issuing the Phase II award. The National Defense Authorization Act for Fiscal Year 2019 signed on August 13, 2018, extended this authority through FY22. The bill also requested SBA provide an analysis and metrics on the program. In accordance with the requirement, SBA provided metrics and analysis on agency use of the Direct to Phase II authority beginning with the FY18 SBIR/STTR Annual Report. The below table summarizes the current usage and obligations amount for Direct to Phase II awards during FY21.

Table 27: Direct to Phase II Awards

Agency / Branch	New Direct to Phase II Awards	Total Obligations (including those on prior awards)
HHS/National Institutes of Health	134	$237,167,763
DOD/Air Force	199	$191,145,770
DOD/Defense Advanced Research Projects Agency	22	$26,897,169
DOD/Special Operations Command	10	$10,809,038
DOD/Strategic Capabilities Office	3	$4,499,588
DOD/Defense Logistics Agency	6	$4,501,313
DOD/National Geospatial-Intelligence Agency	4	$3,994,091
DOD/Army	2	$1,955,455
DOD/Navy	0	$1,156,162
HHS/Administration for Community Living	-	$809,425
Total	380	$482,935,774

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 2021 NIH obligated $4,933,701 in Phase 0 Proof of Concept Partnership Pilot Program funding in support of its 2019 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 2021 SBIR Highlights

- In FY21, USDA made 79 Phase I awards and 31 Phase II awards.

FY 2021 SBIR Success Stories

- The Weed Seed Destroyer of Global Neighbor Inc. is a weed seed destroyer that has 90 percent control of weed seeds.
- Windcall Mfg. Inc innovated a hand-held combine/sampler for moisture testing small grains which is called Grain Goat. Grain Goat, Windcall Mfg. was named Innovative Business of the Year by the Nebraska Business Development Center.
- WholeTrees engineers beams, columns and trusses using renewable round timber. Google recently purchased more than 50 decorative birch tree columns to create a biophilic work environment. Many other businesses have also purchased WholeTree products.

FY 2021 Commercialization/Outreach Activities

- USDA participated in America's Seed Fund virtual week in July of 2021.
- USDA participated in numerous outreach activities that are documented in section 12 of this report.

Department of Education (ED)

ED's Small Business Innovation Research Program (SBIR), administered by the Institute of Education Sciences, provides awards for R&D of new, commercially viable education technology products. ED/IES SBIR's goal is to grow a portfolio of scalable, research-based products that address pressing needs across topic areas in education and special education.

FY 2021 SBIR Highlights

- Millions of students, educators, and administrators in tens of thousands of schools around the U.S. use education technology products developed by dozens of companies supported by ED SBIR each year, including from remote settings during the COVID-19 pandemic.
- ED/IES SBIR announced 29 new 2021 awards, including 18 for prototype development and 11 for full-scale education technology product development. The awards continue trends from recent years, including the employment of advanced technologies such as artificial intelligence, machine learning, natural language processing, virtual and augmented reality, or algorithms to personalize student learning, and projects to advance and ready evidence-based interventions (many supported previously through IES and government programs) into products that can be used at scale.

FY 2021 SBIR Success Stories

- More than 15,000 students participated in NASA- and Army-administered engineering challenges using an ED/IES SBIR-developed platform implemented through a Phase III contract from NASA. These included the Future Engineers-administered TechRise Student Challenge and Lunabotics Junior Challenge for NASA, and an AEOP We Heart Veterans Pin Design Challenge for the Army.
- Current awardee Myriad Sensors (PocketLab) hosted a series of "Science is Cool Unconferences" in 2020 and 2021 (in consultation with ED/IES SBIR) to present innovative approaches for STEM. The events were attended by 67,000+ science educators.
- Codespark was acquired to support distribution of its SBIR-developed Story Mode.
- ECO by Strange Loop Games reached more than 500,000 units sold in 2021.
- Inq-ITS reached the one million mark for its completed virtual labs.
- Cognitive Toybox and research partners received an award from the Gates Foundation to continue development of their early childhood assessment; they also received an investment from Morgan Stanley to grow their business.
- EDC received an IES research grant to evaluate the efficacy of SBIR-developed game Mission US.
- SBIR-supported ThinkAUM and Citizen Math (formerly Mathalicious) were key parts of teams that won ED EIR grants.
- Muzology was recognized as a Top 10 Finisher in the 2021 Elite 200 by GSU-ASV.
- Hats & Ladders was awarded $2.5M by New York City to implement for implementation.

FY 2021 Commercialization/Outreach Activities

- ED/IES SBIR led the 8th annual ED Games Expo virtually in June 2021 to provide resources to the public in response to pandemic-related challenges and showcase the vast impact of the SBIR program. As part of the virtual Expo, 170 ED, NSF, NIH, and

USDA SBIR and other government-supported education technology products were available at no cost to educators and students around the country. The Expo also presented 35 virtual events for the public that have been viewed more than 10,000 times on YouTube, many featuring SBIR-supported innovations.

- Two highlights from the 2021 ED Games Expo include the *Kick Off Show* featuring remarks from the Secretary of Education Miguel Cardona and the *SBIR Women Developers Got Game* event featuring remarks from SBA Administrator Isabella Guzman.

FY 2021 COVID-19 Agency Actions

During COVID-19, ED SBIR mobilized, produced, and supported numerous large-scale responses to COVID-19 in education that involved more than 70 small businesses supported by ED, NSF, NIH, and USDA SBIR and other government supported developers. Tens of thousands of individuals attended virtual events LIVE or watched archived videos, and millions of students used SBIR-supported products during COVID-19.

For example:

- At the onset of the COVID-19 crisis, the ED SBIR Program generated a list of education technologies that were "Ready Now" for remote teaching and learning with 84 SBIR and government-funded innovations. According to developers, millions of students used the edtech at no cost after COVID-19.
- In the first year of the pandemic to provide educators and families information to support remote teaching and learning during COVID-19, ED SBIR created and co-produced a series of **Virtual Unconferences** and a Special Education Resource Event featuring SBIR-funded companies. The events were attended by thousands of practitioners and individuals in real time.
- Since the start of the pandemic, ED SBIR has provided support to ED and NSF SBIR-awardee Myriad Sensors in the production of 8 Science Is Cool (SciC) virtual events, which have been attended by 67,000 educators. The company believes that this is the largest live science educator event in the world.
- ED SBIR created a concept and led more than 50 SBIR developers in creating a series of *Guides to Education Technology That is Ready Now* to showcase research-based education technologies that can be used for remote or in person learning across topics. The guides have been accessed by thousands.

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 2021 SBIR Highlights

- **Diversity Supplement.** In FY 2021, DOE adopted a best practice from NIH and implemented a diversity supplement (up to $20,000) for Phase II awardees in its Funding Opportunity Announcements. The supplement allows Phase II awardees to bring on a diverse undergraduate or graduate intern for the summer to help promote visibility of entrepreneurial STEM careers. Twenty-one percent of the first group of eligible Phase II awardees applied for and received a diversity supplement.

FY 2021 SBIR Success Stories

- **Opus 12 (now Twelve).** Founded in 2015, Twelve received a DOE funded Phase I SBIR award entitled "Utilization of Waste CO2 to Make Renewable Chemicals and Fuels" in 2017 from the Bioenergy Technologies Office within the Office of Energy Efficiency and Renewable Energy. They subsequently received a follow-on Phase II award to further the development in May 2018. Included in the first cohort of six companies in the highly selective Cyclotron Road program at Lawrence Berkeley National Lab (LBNL) and winning DOE's Transformational Idea Award in 2015, Twelve has grown from a company of three Stanford graduates in 2015 to 89 employees in January 2022 occupying 21,000+ ft2 of customized space. Using artificial photosynthesis, Twelve creates CO2-based chemicals that can be used as drop-in replacements for fossil-based chemicals to make everyday products. To date, Twelve CO2Made®chemicals have been used to create the first carbon-negative car part for Mercedes-Benz, sunglass lenses, sustainable aviation fuel, and ingredients for laundry detergent.

FY 2021 Commercialization/Outreach Activities

- **Energy I-Corps.** In FY 2020 DOE launched Energy I-Corps for SBIR/STTR Phase I awardees. The program was so well received in the first pilot cohort, that we have decided to include this as a permanent training option for Phase I awardees. In addition, the training was modified to provide an option for extended mentoring to facilitate further customer discovery and business planning beyond the end of the initial two-month training program.
- **Phase 0 Application Assistance Program.** In FY 2021, the popularity of our application assistance program continued to grow and hit the contract ceiling (200 applicants per year). We therefore modified the contract to allow participation to grow to 225 in 2022 and 250 in 2023. Approximately two thirds of Phase 0 applicants are from under-represented groups.

FY 2021 COVID-19 Agency Actions

DOE made changes to its two-Phase II Funding Opportunity Announcements (FOAs) in FY 2021 because of the impact of COVID on small businesses. The application deadline for the FY 2021 Phase II Release 1 FOA was delayed by 4 weeks to provide additional time for Phase I applicants to complete their research. In addition, applicants were given the option to request a delayed submission to the FY 2022 Phase II Release 1 FOA. Our FY 2021 Phase II Release2 FOA maintained its application deadline (to allow the awards to be issued by the end of the fiscal year) but allowed applicants the choice of submitting 2 weeks late, if impacted by COVID, or to delay submission until the FY 2022 Phase II Release 2 FOA.

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 2021 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 2021 SBIR/STTR Success Stories

- NIH updated its Success Stories webpage to make it easier for constituents and investors to find innovations (diagnostic, digital health, drugs, medical devices, and research tools) from women and minority small business life science entrepreneurs. The page now highlights projects from 36 states, including 20 from Women-owned and/or Socially or Economically Disadvantaged businesses and 12 from IDeA states.
- Highlights from FY 2021 include: Stratatech Corp. (FDA approval for StrataGraft, a skin substitute for adults with deep thermal burns), Sarfez Pharmaceuticals, Inc. (FDA approval for Soaanz, a new treatment option for patients with heart failure and renal disease who have persistent edema and swelling in the lower limbs or abdomen), and Scynexis, Inc. (the first and only oral non-azole prescription medication approved by the FDA to treat vulvovaginal candidiasis (VVC), commonly referred to as vaginal yeast infection). In addition, ReveraGen Biopharma received a $1.2 million grant from the FDA to launch a clinical trial to study the use of vamorolone in adults and children with Becker muscular dystrophy, a progressive muscle wasting disease. The FDA grant adds to existing grants from the NIH and the Foundation to Eradicate Duchenne.
- Small businesses (e.g., Montana Molecular, LLC and BlueWillow Biologics) applied SBIR or STTR funded technologies to respond to COVID-19 testing, tools, and vaccines.

FY 2021 Commercialization/Outreach Activities

- The NIH held the 2021 HHS Small Business Conference: Diverse Perspectives SEEDing Impactful Innovations using the administrative funding pilot. There was a strong emphasis on encouraging participation from first time applicants, particularly those from women owned and socially and economically owned businesses. Based on

registration responses, every state was represented and approximately 60% of registrants were from under-represented groups.

- The NIH SEED (Small business Education and Entrepreneurial Development) Office launched a new website to serve as a central location for SBIR/STTR and academic entrepreneurship resources at NIH. The new website showcases the impact of NIH's Proof of Concept Network and Small Business Programs through a collection of 75 success stories demonstrating NIH's role in turning discovery into health.
- NIH supported 21 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 209 small businesses with needs assessment, small business mentoring, Phase I application preparation support, and application review.
- The Entrepreneurial Workforce Diversity Working Group, with broad NIH participation, continued to develop strategies to increase participation of under-represented groups in the product development ecosystem.
- The NIH Innovator Support Team, Entrepreneurs in Residence, and regulatory and reimbursement experts assisted and mentored 87 small businesses.
- NIH pitch coached over 70 small businesses to attend investor forums to facilitate partnering with third-party investors and strategic partners.
- The Technical and Business Assistance (TABA) Needs Assessment Program provided 103 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.
- NIH supported 56 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.

FY 2021 COVID-19 Agency Actions

- NIH continued to encourage investigator-initiated applications that focused on improving our understanding and available control measures for SARS-CoV-2 and COVID-19 through notices of special interest connected with the SBIR/STTR Grant Omnibus Solicitation. To get funding as quickly as possible to the research community, NIH also utilized Urgent and Emergency competing revisions and administrative supplements to existing grant awards. NIH also released program announcements specific to COVID-19, including RFA-DA-22-001, Mobile Health Solutions to rectify digital inequalities in communities affected by drug addiction. A listing of active and expired funding opportunities specific to Coronavirus Disease 2019 (COVID-19) can be found at Funding Opportunities Specific to COVID- 19.
- CDC modified the PHS 2020-2 SBIR/STTR Grant Omnibus Solicitation (FY21) to encourage investigator-initiated grant applications that focused on support for prevention, detection, and response to emerging health threats, including SARS-CoV-2/COVID-19.
- COVID-19 Related topics in the PHS 2022-1 SBIR Contract Solicitation titled:
    - CDC/NCEZID 029 - Product to Inactivate and Stabilize Wastewater Samples for Shipping and Transport.
    - NIH/NIAID 112 - Digital Tools Against Misinformation about Infectious Disease Treatments and Vaccines.

Flexibilities:

- NIH provided several flexibilities in response to the COVID-19 pandemic throughout fiscal year 2021. These are detailed at *Coronavirus Disease 2019 (COVID-19): Information for NIH Applicants and Recipients of NIH Funding* and *Reminder of COVID-19 Related Flexibilities for NIH Grants: Open Mike Blog*.
- On March 19, 2021, the Office of Management and Budget (OMB) issued Memorandum M-21-20 pdf, which addresses administrative relief for applicants and recipients of COVID-19 related federal financial assistance and those applicants and recipients affected by the COVID-19 pandemic. CDC's approach to the flexibilities from M-21-20 pdf is outlined at *Flexibilities Guidelines for Applicants and Recipients of Federal Financial Assistance Affected by COVID-19*.
- ACL's SBIR program has provided increased flexibility with no-cost extensions in accordance with paragraph IV, appendix 3 of M-21-20 dated March 19, 2021.

Department of Homeland Security (DHS)

The DHS SBIR Program serves as a critical pathway to increase small business access to DHS R&D opportunities, while providing innovative solutions for DHS technology needs. Administered by the DHS Science and Technology Directorate (S&T), the DHS SBIR Program issues an annual solicitation for all new topics. Published topics seek solutions to address the needs of DHS Components, including the Countering Weapons of Mass Destruction Office (CWMD), Federal Emergency Management Agency (FEMA), Cybersecurity and Infrastructure Security Agency (CISA), Transportation Security Administration (TSA), U.S. Citizenship and Immigration Services (USCIS), U.S. Coast Guard (USCG), U.S. Customs and Border Protection (CBP), U.S. Immigration and Customs Enforcement (ICE), and U.S. Secret Service (USSS)-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

FY 2021 SBIR/STTR Highlights

- In July 2021 the DHS SBIR Office published three Other Agency Technology Solutions (OATS) Requests for Information (RFIs). These RFIs were developed in coordination with DHS components: CISA, CWMD, and USCG, to provide SBIR/STTR awardees from other federal agencies to provide submissions for how their SBIR/STTR technologies could be leveraged for the DHS mission needs described. The goal of these RFIs was to identify potential efforts for which federal government resources that had already been expensed to decrease the required time and funding required by DHS to achieve solutions.
- In 2021 the DHS SBIR Program completed the development and approval for a new portal to be used for the receipt of proposals, documentation of evaluations, and recording/managing of contract awards. The new portal, launched on 29 September 2021, supports the SBIR program and was also able to be leveraged for the support of two other programs.

FY 2021 SBIR/STTR Success Stories

- Accipiter Systems developed a high-speed, low-latency IT hardware to enable distributed screening and more data sharing between sensors at security checkpoints. Accipiter delivered a prototype that was tested and operationally verified by the Navy for DHS S&T and is now being installed for testing and validation by S&T's industry and Government partners against aviation security-specific requirements. Accipiter's technology is being used at DoD labs and several major universities and research centers.
- Krypotwire developed SAFARI: Scalable Analysis of Firmware for Android and IOS, that automatically tests and validates the security of mobile and internet of things (IoT) firmware and applications to the highest government and industry software assurance standards. As a result of Kryptowire's pilot project with DHS's CISA and the Idaho

National Laboratory, the system was operationalized by the government in June 2021 through a $25 million contract.
- SecureLogix developed Orchestra One™ call authentication service, that stops Caller ID Spoofing by auto-authenticating calls in real-time. SecureLogix's technology is a commercially successful product generating $2 million in revenue from industry customers, including Verizon and AT&T.
- Waverley Labs built a secure and trusted network for incident managers and first responders for use during emergencies. Waverley Labs developed RESILIANTTM SDP (software defined perimeter) that effectively reduces the number of successful attacks by creating a trust zone around applications or services which "hides" applications on the internet from attackers. RESILIANTTM SDP admits only credentialed users from validated devices into the RESILIANTTM trust zone – even during ongoing attacks.

FY 2021 Commercialization/Outreach Activities

- In FY21, 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, and educational webinars on critical areas of knowledge additional investment in promising Phase II technologies to improve technical readiness.
- The program also expanded the Virtual Showcases, to increase the ability to promote awareness of technologies being developed in Phase II to potential government end-users and stakeholders. Showcases to highlight technologies with application for Transportation Security Administration (TSA) and United States Coast Guard (USCG) were added.

FY 2021 COVID-19 Agency Actions

The 21.1 DHS solicitation included two topics in the 21.1 Solicitation that were related to Covid-19 and similar viruses.

- DHS211-001: Non-Invasive "Breathalyzer" Detection System to Screen for Presence of Viral Respiratory Infections - Demonstrate plausibility of a mobile, handheld, or badge-type detection system as a diagnostic tool to screen breath for the presence of communicable respiratory viral infections, particularly those with pandemic potential. End applications could include use as a personal health monitor or at check or choke points in open space venues to include office buildings, arenas, airports, subway systems, and borders. The three companies who received Phase I awards under this topic were Triton Systems Inc., Chelmsford, MA; N5 Sensors, Inc., Rockville, MD; and Lynntech, Inc., College Station, TX.
- DHS211-004: Vehicle Infectious Diseases Protection - Develop solutions to convert the current and future fleet of law enforcement vehicles to vehicles that offer a Vehicle Infectious Disease Protection (VIDP) capability to the entire interior compartment utilized to transport detained subjects. The three companies who received Phase I awards under this topic were MagPlasma Inc., Troy, MI; Karagozian & Case, Glendale, CA; and Progressive Engineering Services LLC, Bulverde, TX.

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 seven DOT operating administrations:

- 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 2021 SBIR Highlights

- DOT continued to implement new process improvements first piloted in FY 2020, including the Phase I Pitch Day event and new evaluation software to streamline the award process.
- DOT also introduced a pre-solicitation period featuring UserVoice, an online forum to collect and respond to clarifying questions for Phase I topics. This new process provided a real-time, transparent approach for SBCs to submit clarifying questions and for DOT topic authors to directly respond online.
- In FY 2021, U.S. DOT awarded 19 Phase I awards across 6 operating administrations, 14 Phase II awards across 5 operating administrations, and 5 Phase IIB awards across 2 operating administrations.
- 100% of FY 2021 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 2021 SBIR/STTR Success Stories

Three new success stories were developed in FY 2021 featuring topics funded by the Federal Highway Administration. These are featured on DOT's website:

- Intelligent Automation, Robotic Utility Mapper Reduces Costs, Improves Safety During Infrastructure Planning and Maintenance
- Charles River Analytics, First-of-Its-Kind Hazard Alert System for Motorcyclists
- NanoSonic, Introducing Students to Careers in Intelligent Transportation Systems

FY 2021 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 issued its first customer satisfaction survey in FY 2021 to obtain information from past awardees on their experience and impact of the program. Results were used to help inform activities in support of TABA and future data collection.

FY 2021 COVID-19 Agency Actions

In response to the Coronavirus pandemic, the U.S. DOT SBIR Program continued to support Phase I, Phase II, and Phase IIB small business awardees by extending flexibilities and granting upon request contract modifications for no-cost-extensions. U.S. DOT also included in out FY21 Solicitation, two topics related to transportation impacts from the Coronavirus, funded by the Federal Transit Administration:

- One award made for topic: 21-FT1: Robots for Unmanned Disinfection and Decontamination of Transit Assets
- Two awards made for topic: 21-FT2: Using Artificial Intelligence (AI) to Inspect, Repair and Sanitize Transit Vehicles

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 FY21 Achievements

Commercialization: EPA places an emphasis on commercialization starting in Phase I. The proposal evaluation criteria emphasize commercialization, including with a focus on intellectual property, market opportunity and the business expertise of the team. 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 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 FY21, four EPA- funded SBIR companies, framergy Inc., AethLabs, Ximax Technologies, and METSS Corporation successfully brought in outside investment and received the EPA option funding.

FY 2021 SBIR/STTR Success Stories

- **AethLabs**, a small business out of California, received over $100,000 in purchase orders for their prototype air quality sensors and data services. AethLabs will use this supplemental funding to further commercialization efforts of their EPA SBIR Phase II project focused on developing an integrated black carbon and carbon dioxide sensor platform for real-time identification and analysis of emissions from wildland fires. AethLabs also recently partnered with the University of Utah to further testing and commercialization of their technology. Several prototype black carbon monitors have been deployed in Salt Lake City.
- **framergy, Inc.**, a small business out of Texas, received third-party investment from angel investors interested in helping the company accelerate their technology to market. This additional funding will be used for a prototype and demonstration unit to advance the scale and market readiness of framergy's PFAS VOC capture technology as well as their PFAS mineralization technology. PFAS are a group of man-made chemicals that are persistent in the environment and can have adverse human health effects.
- **METSS Corporation**, a small business based in Ohio, received over $100,000 in funding from a company interested in helping accelerate their novel chlorine dioxide gas dispersion system to market. This technology can be used for on-site, viral decontamination of confined spaces such as hospital rooms. METSS plans to use this commercialization option funding to optimize unit operations and performance of their technology.
- **Ximax Technologies**, a Colorado small business, received $100,000 from an angel investor interested in supporting the development and commercialization of their innovative green rooftop technology. Ximax plans to use these funds to further development and market-readiness of their novel rooftop system that promotes superior building efficiency and significantly reduces energy consumption of industrial and commercial buildings.

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 2021 were aligned by the Agency's mission directorate and center needs. The needs found in the subtopic descriptions were developed by NASA's technical experts.

FY 2021 Key SBIR/STTR Highlights

- The makeup of Phase I awardees included 31 percent first time awardees for NASA, 27 percent from underrepresented communities including Woman-Owned and Small, Disadvantaged Businesses, and 19% of Research Institutions in STTR were Minority Serving Institutions.
- In FY21, NASA awarded 69 Phase III contracts worth over $29 million demonstrating our success in developing subtopics and selecting proposals that meet agency needs.

FY 2021 SBIR Success Stories:

- Recent success stories can be found at: https://sbir.nasa.gov/success-stories. Stories in 2021 included a hybrid upper stage that provides a safe, green, and cost-efficient solution for cubesat launches from Parabalis Space Technologies, Inc.; cryocooler electronics to enable thermal imaging of planetary objects in deep space from Iris Technology Corporation; power and propulsion systems for Gateway from Busek Company, Inc. and Deployable Space Systems, Inc.; and a 3-D bioprinter to print living tissues in space from Techshot, Inc.
- Redwire Space continued their acquisition of successful NASA SBIR firms by adding Techshot, Inc.; Loadpath, LLC.; and Deployable Space Systems, Inc. to its portfolio. Voyager Space Holdings also increased its portfolio by adding Nanoracks, LLC.

FY 2021 Commercialization/Outreach Activities

Commercialization:

- High Value Sequential Phase II awards to support the Artemis Program and Moon to Mars Objectives: The program made 7 SBIR and 1 STTR award worth almost $30M.
- Civilian Commercialization Readiness Pilot Program: The program made 6 awards worth $6.6M in program funds which was matched at least 1:1 by investor funding.
- Phase II-E: Options executed included 36 SBIR worth $9M and 3 STTR worth $500k in program funds which was matched at least 1:1 by investor funding.
- I-Corps: NASA continued its partnership with the National Science Program (NSF) Innovation Corps program (I-Corps ™) selecting 32 teams to participate.

Outreach:

- The program kicked off two initiatives focused on increasing participation by Minority Serving Institutions. The M-STTR solicitation is a partnership with NASA's Minority University Research and Education Project (MUREP) offering a research planning grant opportunity to foster MSI/SBC partnerships to prepare for submitting STTR proposals. Recipients included 6 HBCUs and 5 Hispanic Serving Institutions (HSI). The program

also entered into a cooperative agreement with MSI Research & Development Consortium (MSRDC) to engage MSIs, align competencies, link them with SBCs, and provide partnership coaching.

- The Innovation and Opportunity Conference (IOC) was held virtually in October 2020 and had over 950 YouTube views and over 350 networking participants. The program then pivoted to hosting a series of focused webinars which included expectations for Phase I awardees and tips for maximizing commercialization opportunities. These events have been very well attended and provide timely information in easily digestible amounts.

National Science Foundation (NSF)

America's SEED FUND SBIR.STTR

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 $2 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 $8.5 billion (in FY2021) that supports fundamental research and education across all fields of science and engineering. For more information, visit seedfund.nsf.gov.

FY 2021 SBIR/STTR Highlights

- Engaging and Supporting First-Time Applicants - A total of 69% of all Phase I proposals awarded in FY2021 were from first-time applicants (i.e., companies that had never submitted a proposal to NSF before), to companies with fewer than 10 employees (94%), and/or to companies established within the last five years (79%).
- NSF continued to offer its Innovation Corps (I-Corps) for SBIR/STTR pilot, enabling - SBIR/STTR Phase I awardees to participate in the customer discovery and entrepreneurial education program.

FY 2021 SBIR/STTR Success Stories

- Acquisition Highlights - The calendar year 2020 saw 34 confirmed acquisitions, mergers, or initial public offerings of NSF awardee firms (including Inpria for $514 million and Caribou Biosciences for $300 million, per Pitchbook).
- NSF SBIR/STTR portfolio companies had 180 separate private capital rounds that were greater than $1 million each, of which, 86 were greater than $10 million and 11 were greater than $100 million. The total private equity funding raised by the NSF SBIR/STTR portfolio companies in 2020, according to Pitchbook, was over $4 B.
- Featured Awardee - Recent NSF SBIR/STTR awardee Turntide Technologies (formerly known as Software Motor Corporation) had its high-efficiency motor technology adopted by major customers including Amazon, and raised over $300 million in equity financing from Bill Gates, Robert Downey Jr., and other high-profile investors. The company's motors are free of rare-earth elements, critical materials almost all of which are sourced from overseas.

FY 2021 Commercialization/Outreach Activities

- NSF hosted 60 webinars to 6,800+ researchers, entrepreneurs, and startups.
- NSF partnered and attended events hosted by American Indian Science and Engineering Society (AISES), National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCHE), National Society of Black Engineers (NSBE), Society for Women Engineers (SWE), Women in Engineering Programs and Advocates Network (WEPAN), Society of Hispanic Professional Engineers (SHPE) and the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), among others, increasing awareness of NSF entrepreneurship and startup opportunities for diverse candidates.
- NSF continued its partnership with the GEM Consortium to increase Diversity, Equity, Inclusion and Accessibility (DEIA) in technology startups using the NSF I-Corps

Program as an entry point (NSF award-1940055; GEM i4). Since the pilot was launched in June 2020, more than 1000 Black, Indigenous, and People of Color (BIPOC) STEM graduate students and their advisors, GEM alumni, and GEM university representatives have participated in experiential, customer-based discovery, introducing pathways for entrepreneurship and encouraging participation in regional NSF I-Corps Cohorts as a potential entry point for startup launch.

- Notably, as a direct result of the GEM i4 pilot, 3 BIPOC start-ups have been founded and are seeking SBIR/STTR funding.
- NSF's digital marketing campaign generated 70 million advertisement impressions and 2.5 million website sessions, which generated 8,500 Project Pitch submissions.

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