SMALL BUSINESS INNOVATION RESEARCH | SMALL BUSINESS TECHNOLOGY TRANSFER

AMERICA'S SEED FUND POWERED BY THE SBA

ANNUAL REPORT FISCAL YEAR 2022

Small Business Administration
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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 $4.12 billion of SBIR and $618.3 million of STTR funding (for a total of $4.73 billion) in Fiscal Year 2022 (FY22). The $4.73 billion obligated in FY22 was the result of awards made to small businesses in all 50 states, the District of Columbia, and Puerto Rico. This includes more than 3,859 Phase I SBIR and STTR awards, of which 39% of these award winners were first-time winners across the eleven Participating Agencies. In FY22, more than $2.76 billion in Government Phase III funding, representing non-SBIR and non-STTR procurement (or acquisition) funding was reported by federal agencies demonstrating how SBIR and STTR firms continue to meet federal mission needs.

The U.S. Small Business Administration (SBA) compiled and evaluated data across the 11 agencies participating in the SBIR and STTR programs, States, program phases, firm types, and other categories as directed by section 9 of the Small Business Act, 15 U.S.C. § 638. One of SBA's primary responsibilities is determining whether an agency meets the minimum spending requirements for the SBIR and STTR programs, which are established in sections 9(f) and (n) of the Small Business Act. SBA's analysis of agency compliance with the minimum spending requirement is found in Section 7 of this report. SBA analyzed data from the ten civilian agencies, the three Department of Defense (DoD) agencies (Army, Navy, and Air Force) and the nine DoD components.

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 FY22 report is a testament to those improvements. These enhancements have also allowed SBA to add Section 7, a retrospective examining how DoD obligated its FY21 appropriation over FY21 and FY22 for the SBIR and STTR program. SBA will continue working closely with the 11 Participating Agencies on data submissions, as well as to coordinate outreach, provide training, share best practices, and increase program awareness.

This report measures a multitude of factors, as well as the variance between agencies. Some of the variance is the product of differences at the agency enterprise level and others originate from different approaches to running the program. SBA is committed to evaluating these differences and encouraging agencies to adopt the best practices. Data from this report is crucial to assessments of the time between notification of award and the release of funding and the time between Phase I and II awards. The National Defense Authorization Act for Fiscal Year 2022 (FY22) 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 continue to evolve and remain the primary sources of early funding for thousands of highly successful small businesses. Many of these awardees leverage opportunities in the programs to gradually become large businesses and some have become industry leaders. The recent economic impact studies developed by Air Force, Navy, DoD, and National Cancer Institute demonstrate that the program generates one of the highest returns on research and development (R&D) dollars for the Federal Government. These studies and much more can be found on SBIR.gov.

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

The SBIR and STTR programs are highly competitive programs that encourage U.S. small businesses to engage in Federal Research/Research and Development (R/R&D) initiatives that have commercialization potential. Through a competitive awards-based program, SBIR and STTR, respectively, enable small businesses to explore technological innovation 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 2022 (FY22) 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 FY22 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
- U.S. 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 $275,000 for a 6 to 12-month period of performance.

Phase II: Continued Research/Research and Development Effort

The objective of Phase II is to continue the R/R&D efforts initiated in Phase I. Funding is based on the results achieved in Phase I and the scientific and technical merit and commercial potential of the project proposed in Phase II. SBIR/STTR Phase II awards generally range from $750,000 to $1,838,000 for a two-year period of performance. The Small Business Act authorizes agencies to fund additional Phase II awards with a company to continue the Phase II technology development through a Sequential Phase II (15 U.S.C § 638(ff)), and potentially an award under the Commercialization Assistance Pilot Program (15 U.S.C § 638(uu)).

Phase III: Commercialization Effort

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

2 | SBIR and STTR Data

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

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

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

- *Solicitations*. Agencies are responsible for posting SBIR and STTR solicitations to SBIR.gov within five business days of the solicitation open date (SBIR Policy Directive§5(e)(2)).
- *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	3/15/2023	0
HHS	3/7/2023	-8
DOE	3/15/2023	0
NSF	3/15/2023	0
NASA	3/15/2023	0
DHS	3/15/2023	0
USDA	3/15/2023	0
DOT	3/8/2023	-7
DOC	3/15/2023	0
ED	3/14/2023	-1

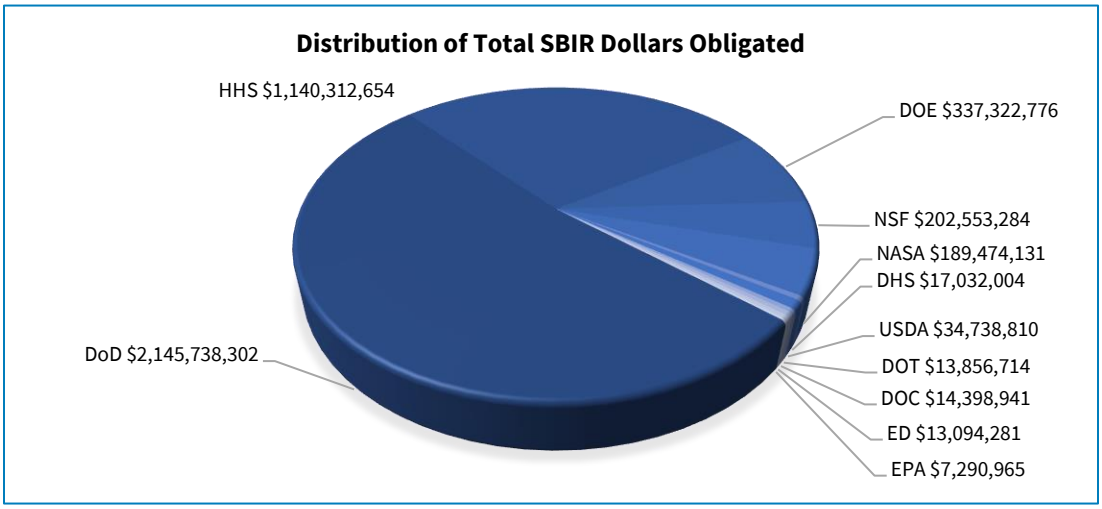
Agency	Submission Date	Days (Early / Late†)
EPA	2/10/2023	-33

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

FY22 SBIR Program Summary

In FY22, Participating Agencies' total SBIR obligations amounted to $4,115,812,863 of which $3,286,050,956 (80%) were attributed to DoD and HHS. The chart below shows the distribution of these funds by agency.

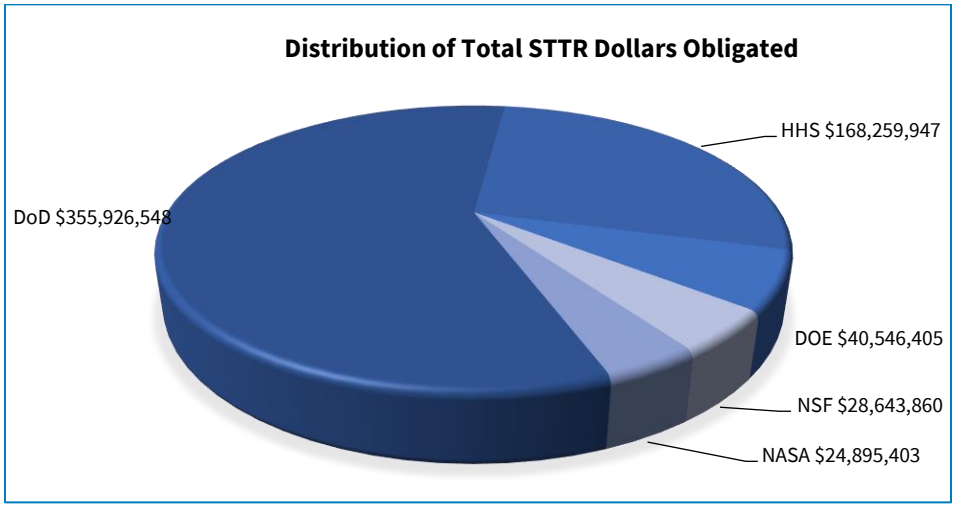
Chart 1: Distribution of Total SBIR Dollars Obligated by Participating Agencies



FY22 STTR Program Summary

In FY22, Participating Agencies' total STTR obligations amounted to $618,272,163 of which $524,186,495 (85%) 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 (#)	23	4	2	1	1
	New Proposals Received (#)	4,121	1,925	2,259	1,433	523
	New Awards (#)	654	376	245	278	78
	Selection Rate (%)*	16%	19%	11%	19%	15%
	Total Obligations ($)	$230,218,543	$79,983,185	$62,484,586	$42,009,163	$12,725,308
Phase II	New Proposals Received (#)	1,390	621	233	294	68
	New Awards (#)	439	223	114	131	34
	Selection Rate (%)*	32%	36%	49%	45%	50%
	Total Obligations ($)	$847,870,649	$251,050,291	$133,536,202	$133,955,535	$21,678,752
Phase III	Total Obligations ($) †	$20,978,426	$6,797,088	$0	$27,578,413	$0
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$1,999,996	$2,104,000	$1,104,806	$0	$334,750
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$4,615,855	$7,484,992	$6,547,560	$2,963,537	$1,396,700
	Commercialization Readiness Pilot Program (CRPP) ($)	$39,987,554	$0	$0	$8,025,433	$0
	Administrative Funding Pilot (AFPP) (3%) ($)	$20,235,912	$4,185,300	$5,427,690	$5,484,000	$0
Totals	Total SBIR Obligations ($)	$1,140,312,654	$337,322,776	$202,553,284	$189,474,131	$34,738,810
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$34,474,295,233	$10,246,859,513	$6,247,901,073	$5,165,248,933	$1,240,950,008
	Percent of SBIR Obligations as determined using Agency-provided data (%)	3.31%	3.29%	3.24%	3.67%	2.80%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Complied	Complied	Complied	Did Not Comply	Did Not Comply

* The selection rate is an estimate. For FY22 awards, the proposals received were from both FY21 and FY22.

† 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 U.S. 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	1	1	1	1	36
	New Proposals Received (#)	137	352	196	213	195	11,354
	New Awards (#)	30	39	12	12	31	1755
	Selection Rate (%) *	22%	11%	6%	6%	16%	15%
	Total Obligations ($)	$4,460,061	$5,412,353	$2,086,671	$3,000,000	$3,089,894	$445,469,765
Phase II	New Proposals Received (#)	33	25	19	24	25	2725
	New Awards (#)	14	19	17	10	9	1010
	Selection Rate (%) *	42%	76%	89%	42%	36%	37%
	Total Obligations ($)	$12,174,333	$8,796,922	$11,332,494	$10,000,000	$3,999,571	$1,434,394,749
Phase III	Total Obligations ($) †	$149,802,704	$532,367	$0	$0	$0	$205,688,998
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$244,209	$0	$201,500	$5,989,261
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$6,500	$0	$43,281	$68,513	$0	$23,126,938
	Commercialization Readiness Pilot Program (CRPP) ($)	$397,610	$0	$0	$0	$0	$48,410,597
	Administrative Funding Pilot (AFPP) (3%) ($)	$0	$189,666	$193,339	$25,768	$0	$35,741,675
Totals	Total SBIR Obligations ($)	$17,032,004	$14,398,941	$13,856,714	$13,094,281	$7,290,965	$1,970,074,560
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$366,667,908	$585,843,700	$389,376,000	$378,430,363	$115,136,000	$59,210,708,731
	Percent of SBIR Obligations as determined using Agency-provided data (%)	4.65%	2.46%	3.56%	3.46%	6.33%	3.33%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Complied	Varied‖	Complied	Complied	Did Not Comply	

* The selection rate is an estimate. For FY22 awards, the proposals received were from both FY21 and FY22.

† 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.

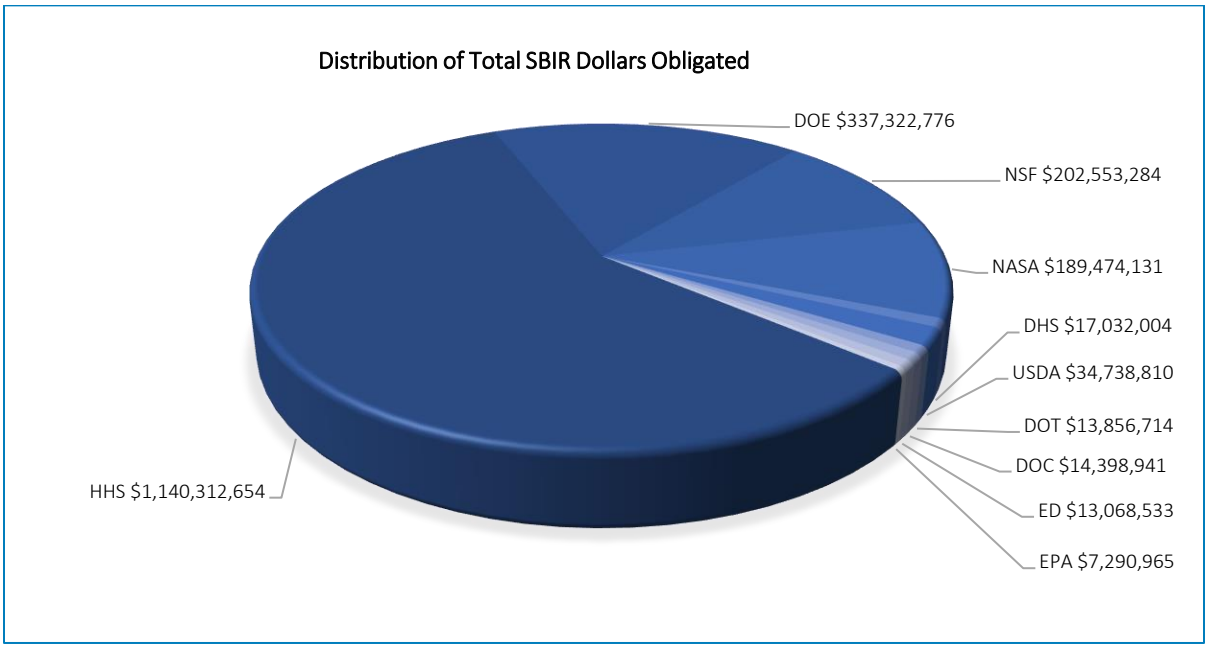
¶ SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the U.S. National Science Foundation's Survey of Federal Funds for Research 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 National Institute of Standards and Technology (NIST) complied with the minimum spending requirements by obligating the required 3.2%; however, the National Oceanic and Atmospheric Administration (NOAA) did not meet the minimum spending requirements, see Section 7.

SBIR Program Award Distribution - Civilian Agencies

In FY22, total SBIR obligations for civilian agencies amounted to $1,970,048,813, of which $1,140,312,654 (58%) was attributed to HHS. Nearly 37% of total dollars were attributed to DOE, NSF, and NASA, with the remaining 5% of total FY22 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	703	17%	220	11%	428	19%	146	10%	98	19%
		New Awards	98	15%	31	8%	38	16%	25	9%	16	21%
		New Obligations	$30,307,749	14%	$6,571,040	8%	$9,708,498	16%	$3,750,534	9%	$2,508,138	20%
		Total Obligations	$31,985,389	14%	$6,571,040	8%	$9,708,498	16%	$3,750,534	9%	$2,508,138	20%
	Phase II	New Proposals	212	15%	63	10%	43	18%	27	9%	4	6%
		New Awards	78	18%	28	13%	23	20%	9	7%	3	9%
		New Obligations	$77,582,539	18%	$32,840,305	13%	$22,474,132	20%	$6,089,013	5%	$1,898,946	9%
		Total Obligations	$107,431,956	13%	$32,840,305	13%	$28,223,851	21%	$8,023,914	6%	$1,898,946	9%
SDB	Phase I	New Proposals	1137	28%	312	16%	508	22%	177	12%	64	12%
		New Awards	143	22%	39	10%	46	19%	25	9%	9	12%
		New Obligations	$47,961,759	23%	$8,099,919	10%	$11,766,254	19%	$3,776,113	9%	$1,372,079	11%
		Total Obligations	$49,813,323	22%	$8,099,919	10%	$11,766,254	19%	$3,859,437	9%	$1,372,079	11%
	Phase II	New Proposals	266	19%	70	11%	37	16%	32	11%	4	6%
		New Awards	71	16%	18	8%	15	13%	14	11%	2	6%
		New Obligations	$73,693,415	17%	$22,894,351	9%	$14,599,246	13%	$11,979,361	10%	$1,249,000	6%
		Total Obligations	$123,265,001	15%	$22,894,351	9%	$16,669,185	12%	$12,384,401	9%	$1,249,000	6%
HUB Zone	Phase I	New Proposals	30	1%	199	10%	252	11%	56	4%	102	20%
		New Awards	10	2%	41	11%	25	10%	10	4%	25	32%
		New Obligations	$2,892,267	1%	$8,609,699	11%	$6,396,058	10%	$1,550,253	4%	$4,158,596	33%
		Total Obligations	$2,892,267	1%	$8,609,699	11%	$6,396,058	10%	$1,550,253	4%	$4,158,596	33%
	Phase II	New Proposals	6	0%	69	11%	24	10%	5	2%	15	22%
		New Awards	5	1%	28	13%	10	9%	1	1%	7	21%
		New Obligations	$3,262,713	1%	$33,599,795	13%	$9,777,476	9%	$799,788	1%	$4,388,928	20%
		Total Obligations	$6,632,017	1%	$33,599,795	13%	$10,715,118	8%	$1,124,758	1%	$4,388,928	20%

* Data is based on proposals received and awards made in Fiscal Year 2022.

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	19	14%	59	17%	23	12%	56	26%	30	15%	**1,782**	**15%**
		New Awards	5	17%	11	28%	1	8%	3	25%	3	10%	**231**	**13%**
		New Obligations	$737,696	17%	$1,465,734	27%	$197,628	9%	$750,000	25%	$299,966	10%	**$56,296,983**	**13%**
		Total Obligations	$737,696	17%	$1,465,734	27%	$197,628	9%	$750,000	25%	$299,966	10%	**$57,974,623**	**13%**
	Phase II	New Proposals	2	6%	7	28%	4	21%	4	24%	4	16%	**370**	**14%**
		New Awards	0	0%	3	16%	4	24%	3	30%	2	22%	**153**	**15%**
		New Obligations	$0	0%	$1,500,000	17%	$2,399,025	21%	$3,000,000	30%	$799,985	21%	**$148,583,945**	**15%**
		Total Obligations	$0	0%	$1,500,000	17%	$2,399,025	21%	$3,000,000	30%	$799,985	20%	**$186,117,982**	**13%**
SDB	Phase I	New Proposals	22	16%	43	12%	35	18%	23	11%	23	12%	**2,310**	**20%**
		New Awards	3	10%	5	13%	1	8%	1	8%	0	0%	**272**	**15%**
		New Obligations	$446,977	10%	$796,419	15%	$149,994	7%	$250,000	8%	$0	0%	**$74,619,515**	**18%**
		Total Obligations	$446,977	10%	$796,419	15%	$149,994	7%	$250,000	8%	$0	0%	**$76,554,402**	**17%**
	Phase II	New Proposals	1	3%	7	28%	4	21%	0	0%	2	8%	**423**	**16%**
		New Awards	1	7%	0	0%	2	12%	0	0%	0	0%	**123**	**12%**
		New Obligations	$985,950	8%	$0	0%	$1,633,792	14%	$0	0%	$0	0%	**$127,035,115**	**13%**
		Total Obligations	$985,950	8%	$0	0%	$1,633,792	14%	$0	0%	$0	0%	**$179,081,680**	**12%**
HUB Zone	Phase I	New Proposals	4	3%	34	10%	7	4%	23	11%	13	7%	**720**	**6%**
		New Awards	2	7%	7	18%	0	0%	2	17%	1	3%	**123**	**7%**
		New Obligations	$298,207	7%	$896,354	17%	$0	0%	$500,000	17%	$99,966	3%	**$25,401,400**	**6%**
		Total Obligations	$298,207	7%	$896,354	17%	$0	0%	$500,000	17%	$99,966	3%	**$28,994,695**	**6%**
	Phase II	New Proposals	1	3%	4	16%	1	5%	0	0%	4	16%	**129**	**5%**
		New Awards	0	0%	4	21%	1	6%	0	0%	1	11%	**57**	**6%**
		New Obligations	$0	0%	$1,699,825	19%	$499,879	4%	$0	0%	$400,000	11%	**$54,428,404**	**5%**
		Total Obligations	$0	0%	$1,699,825	19%	$499,879	4%	$0	0%	$400,000	10%	**$59,060,320**	**4%**

* For some FY22 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

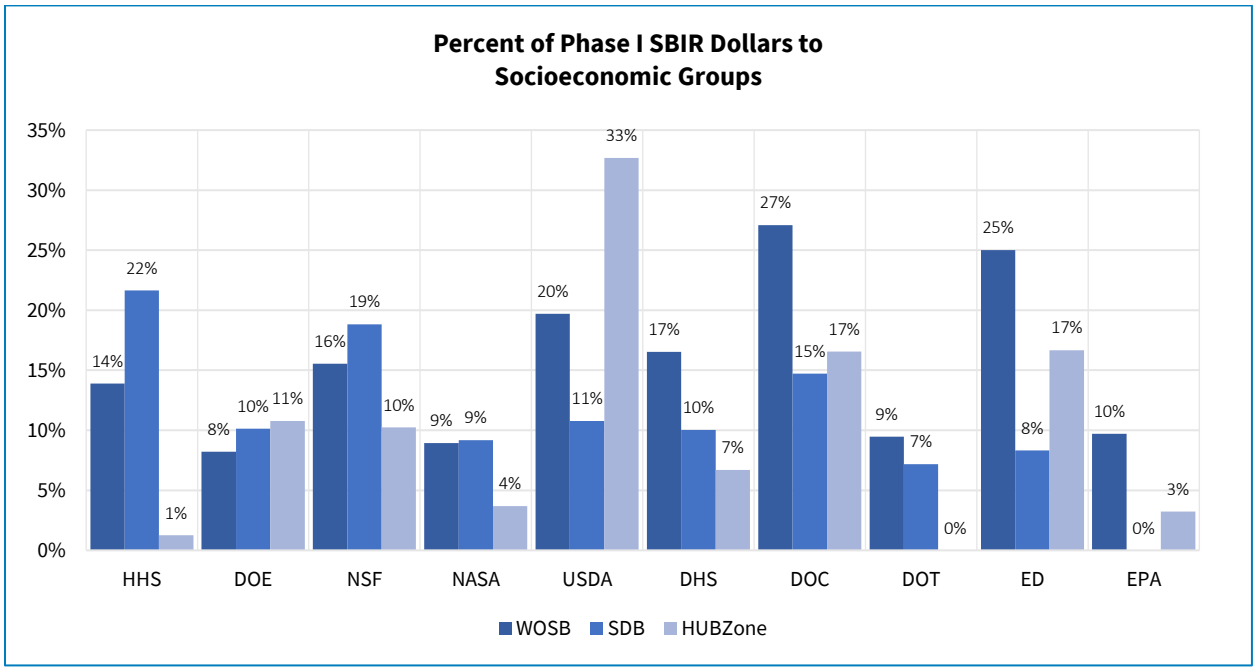
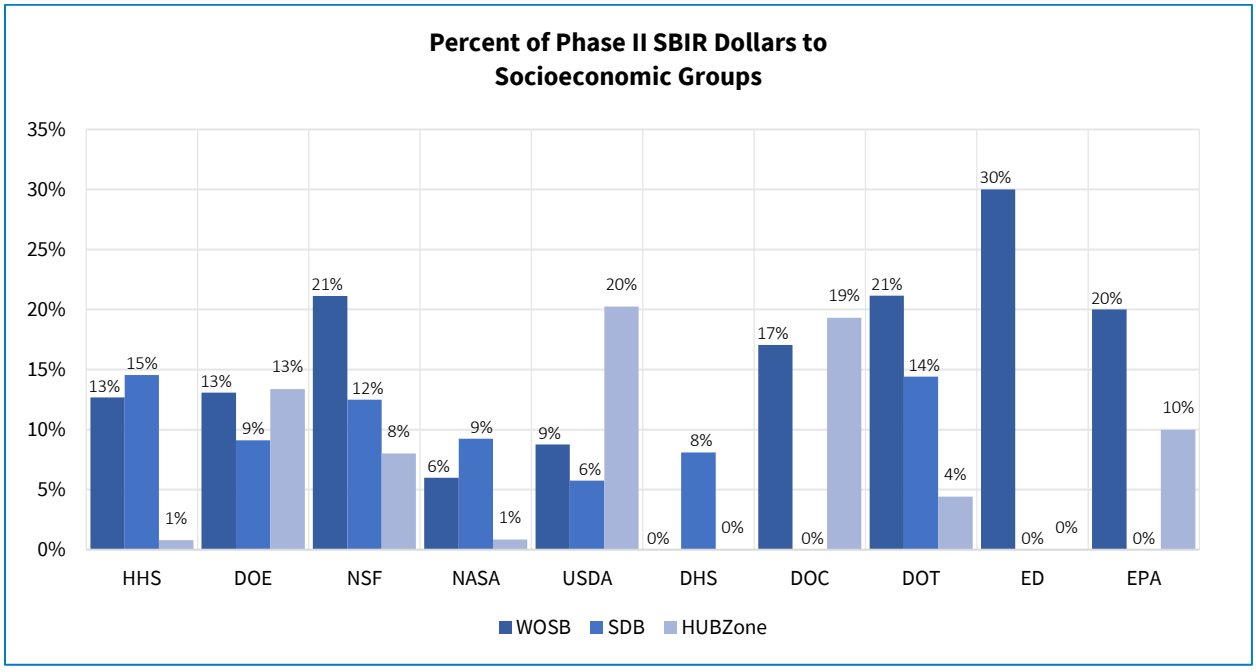


Chart 5: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - Civilian Agencies



4 | SBIR Program – DoD Summary Data

To facilitate the review of the FY22 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.[1] Details on SBA's analysis of compliance with the minimum spending requirements are discussed in detail in Section 7.

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

Phase	Report Field	Air Force	Navy	Army	Other Defense Agencies	DoD Total Reported
Phase I	Solicitations Released (#)*	3	3	3	3	3
	New Proposals Received (#)	2,477	1,609	992	1,366	6,444
	New Awards (#)	409	306	87	370	1,172
	Selection Rate (%)	17%	19%	9%	27%	18%
	Total Obligations ($)	$29,844,301	$57,178,517	$37,224,695	$61,536,668	$185,784,181
Phase II	New Proposals Received (#)	3,096	246	451	958	4,751
	New Awards (#)	706	204	70	354	1,334
	Selection Rate (%)**	23%	*	16%	37%	28%
	Total Obligations ($)	$823,540,912	$321,711,085	$98,317,794	$465,682,258	$1,709,252,049
Phase III	Total Obligations (For both SBIR and STTR) ($) †	$1,049,669,789	$1,067,871,935	$311,529,525	$134,151,046	$2,563,222,295
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	0	0	0	0	0
	TABA Provided to Small Businesses in Award Obligations ($) ‡	$0	$279,340	$0	$144,867	$424,207
	Administrative Funding Pilot (AFPP) (3%) ($)	$28,088,443	$8,612,805	$9,218,166	$11,000,587	$56,920,001
	DoD 1% CRP ($)	$186,233,369	$5,214,000	$0	$2,334,702	$193,782,071.00
Totals	Total SBIR Obligations ($)	$1,067,707,025	$392,716,407	$144,760,655	$540,554,215	$2,145,738,302
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$20,880,539,747	$14,044,167,701	$10,250,219,000	$16,895,521,049	$62,070,447,497
	Percent of SBIR Obligations as determined using DoD-provided data (%)	5.11%	2.80%	1.41%	3.20%	3.46%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements¶	Did Not Comply	Unable to Determine	Did Not Comply	Various	

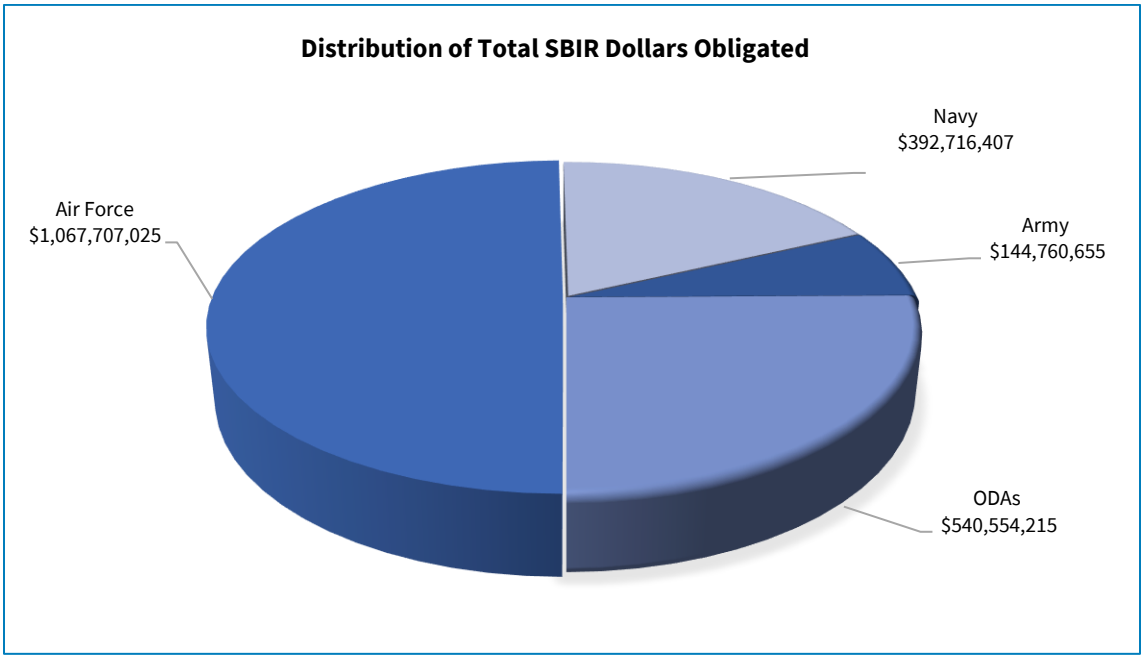
1 Other Defense Agencies include: Defense Advanced Research Projects Agency (DARPA), Missile Defense Agency (MDA), Defense Health Agency (DHA), Chemical and Biological Defense Program (CBD), United States Special Operations Command (SOCOM), Defense Threat Reduction Agency, Defense Logistics Agency (DLA),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

*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 FY22 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 U.S. 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 FY22, DoD Service Agencies' and Other Defense Agencies' total SBIR obligations amounted to $2,145,738,302 of which approximately 68% 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	258	10%	172	11%	127	13%	163	12%	720	11%
		New Awards	27	7%	23	8%	9	10%	40	11%	99	8%
		New Obligations	$1,786,384	6%	$3,238,090	7%	$1,499,818	8%	$6,295,020	11%	$12,819,312	8%
		Total Obligations	$1,786,384	6%	$4,134,378	7%	$2,682,184	7%	$6,569,795	11%	$15,172,741	8%
	Phase II	New Proposals	303	10%	17	7%	57	13%	119	12%	496	10%
		New Awards	59	8%	16	8%	7	10%	37	10%	119	9%
		New Obligations	$61,419,100	8%	$12,625,959	8%	$4,495,459	7%	$40,465,718	10%	$119,006,236	8%
		Total Obligations	$63,123,184	8%	$27,520,718	9%	$7,186,342	7%	$50,380,437	11%	$148,210,680	9%
SDB	Phase I	New Proposals	311	13%	177	11%	133	13%	182	13%	803	12%
		New Awards	33	8%	21	7%	9	10%	39	11%	102	9%
		New Obligations	$2,641,953	9%	$2,930,219	6%	$1,747,640	9%	$5,882,314	10%	$13,202,127	9%
		Total Obligations	$2,641,953	9%	$3,927,101	7%	$3,300,722	9%	$6,105,626	10%	$15,975,402	9%
	Phase II	New Proposals	266	9%	15	6%	51	11%	113	12%	445	9%
		New Awards	36	5%	8	4%	8	11%	28	8%	80	6%
		New Obligations	$39,477,799	5%	$6,399,467	4%	$8,395,175	12%	$37,863,226	9%	$92,135,666	6%
		Total Obligations	$39,477,799	5%	$12,614,719	4%	$8,395,175	9%	$39,113,296	8%	$99,600,988	6%
HUB Zone	Phase I	New Proposals	74	3%	44	3%	31	3%	51	4%	200	3%
		New Awards	9	2%	3	1%	1	1%	11	3%	24	2%
		New Obligations	$645,269	2%	$632,908	1%	$249,589	1%	$1,610,760	3%	$3,138,526	2%
		Total Obligations	$645,269	2%	$832,627	1%	$504,640	1%	$1,610,759	3%	$3,593,295	2%
	Phase II	New Proposals	81	3%	2	1%	15	3%	23	2%	121	3%
		New Awards	19	3%	1	0%	2	3%	8	2%	30	2%
		New Obligations	$22,520,901	3%	$799,990	1%	$2,183,030	3%	$10,082,178	2%	$35,586,099	3%
		Total Obligations	$24,939,078	3%	$4,425,409	1%	$2,183,030	2%	$10,082,179	2%	$41,629,696	2%

* For some FY22 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

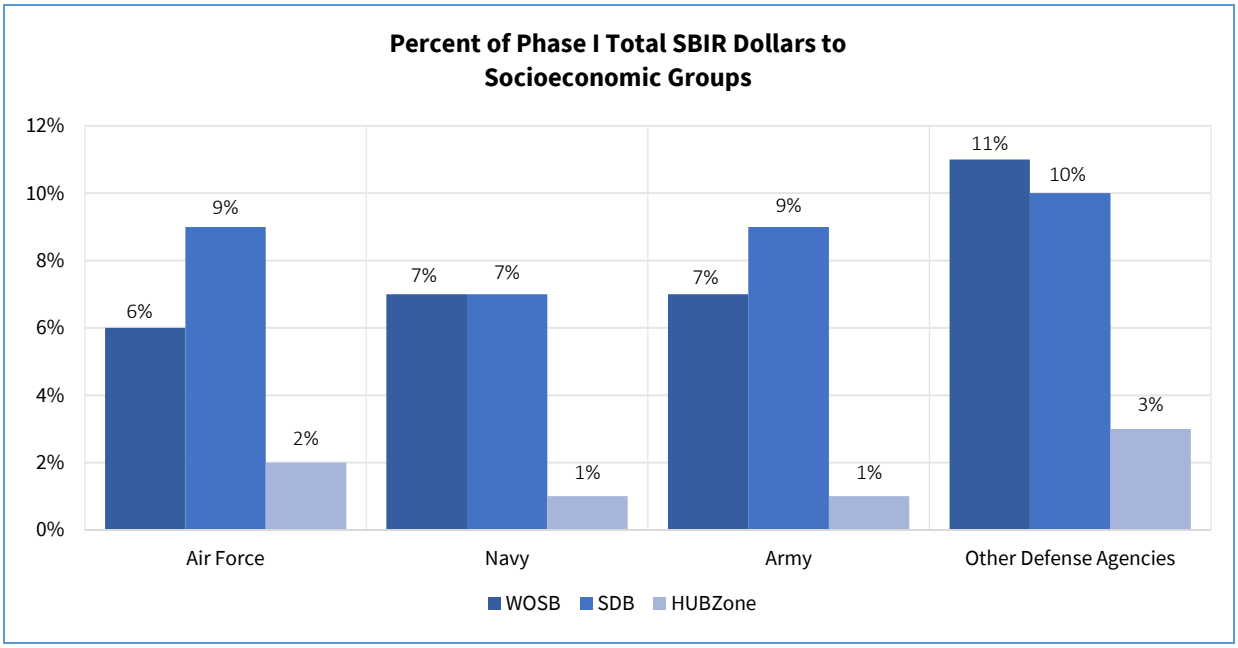
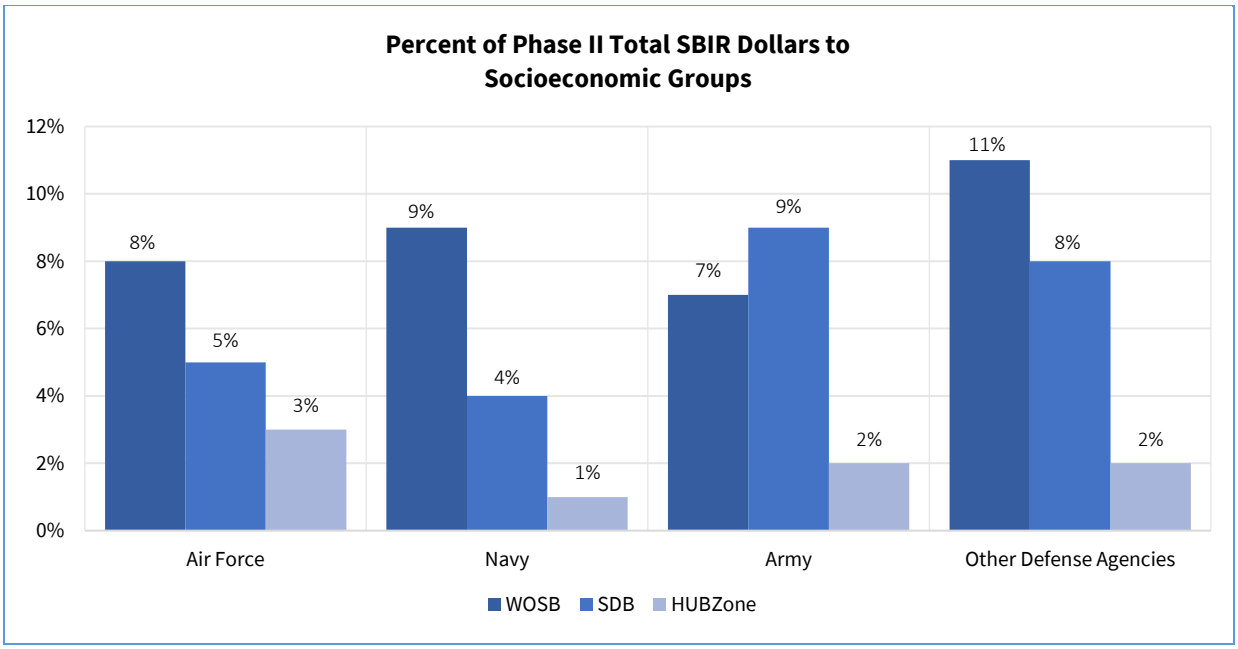


Chart 8: Percent of Phase II Total SBIR Dollars to Socioeconomic Groups - DoD Service Agencies and Other Defense Agencies



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 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	4	1	2	21
	New Proposals Received (#)	1163	416	137	322	2038
	New Awards (#)	214	66	53	79	412
	Proposal Selection Rate (%)	18%	16%	39%	25%	20%
	Total Obligations ($)	$76,210,141	$12,183,815	$8,027,151	$20,291,798	$116,712,905
	Total Obligations for Research Institutions ($)	$34,296,439	$6,624,443	$2,700,282	$8,163,352	$51,784,516
	Total Obligations for Research Institutions (%)	45%	54%	34%	40%	44%
Phase II	New Proposals Received (#)	95	110	55	24	284
	New Awards (#)	49	23	20	7	99
	Proposal Selection Rate (%)	52%	21%	36%	29%	35%
	Total Obligations for Awards ($)	$87,130,349	$28,066,590	$16,868,252	$7,928,046	$139,993,237
	Total Obligations for Research Institutions ($)	$34,817,138	$14,178,512	$5,138,389	$2,723,810	$56,857,849
	Total Obligations for Research Institutions (%)	40%	51%	30%	34%	41%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$296,000	$0	$424,016	$720,016
	TABA Provided to Small Businesses in Award Obligations ($) *	$331,307	$331,307	$331,307	$331,307	$1,325,228
	Obligations for "Phase 0" Programs (NIH only) ($)	$4,919,457				$4,919,457
Totals	Total STTR Obligations ($)	$168,259,947	$40,546,405	$24,895,403	$28,643,860	$262,345,615
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$34,474,295,233	$10,246,859,513	$5,165,248,933	$6,247,901,073	$56,134,304,752
	Percent of STTR Obligations as determined using Agency-provided data (%)	0.49%	0.40%	0.48%	0.46%	0.47%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements †	Complied	Did Not Comply	Complied	Did Not Comply	

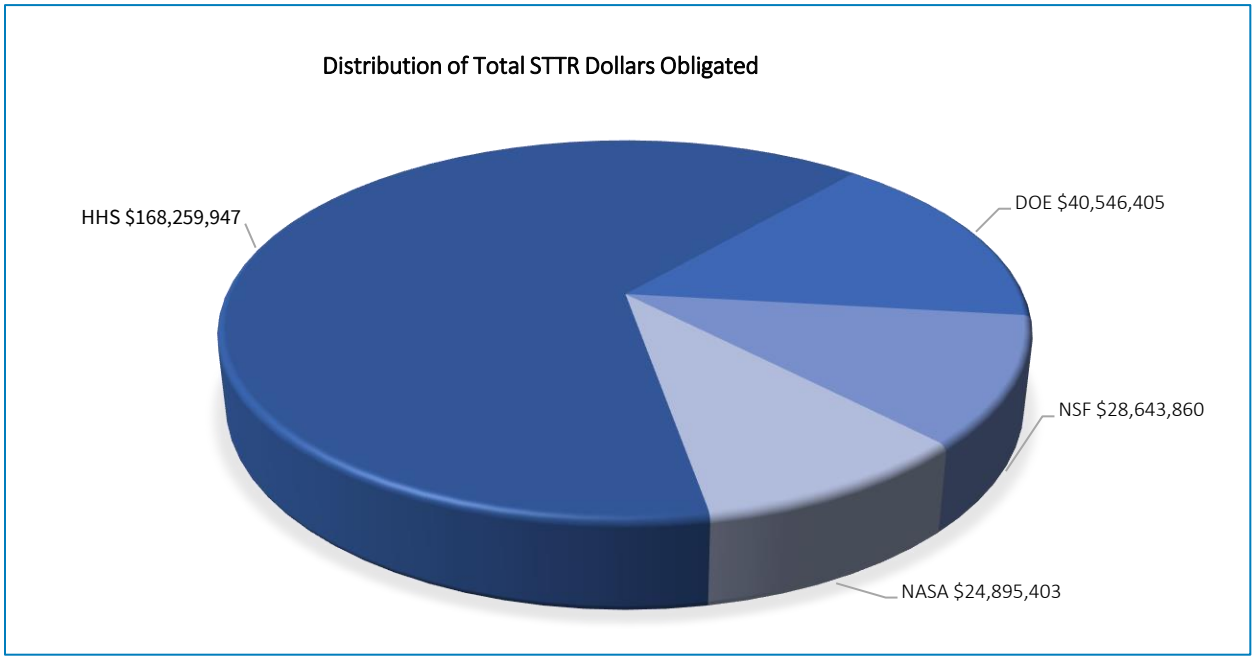
* This is TABA funds that were provided by the agency directly to the awardee through grant or contract and thus already included in Phase I/Phase II obligation award amounts.

† SBA determines compliance based on agency provided data (Percent of SBIR Obligations as determined using Agency-provided data) and by assessing the agency provided data relative to extramural R/R&D obligations submitted to the U.S. 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 FY22, the Participating Civilian Agencies' total STTR obligations amounted to $262,345,615, with 64% 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	186	16%	69	17%	52	16%	13	9%	**320**	**16%**
		New Awards	42	20%	5	8%	19	24%	5	9%	**71**	**17%**
		New Obligations	$13,013,332	19%	$1,049,937	9%	$4,877,358	24%	$745,520	9%	**$19,686,147**	**18%**
		Total Obligations	$13,584,897	20%	$1,049,937	8%	$4,877,358	24%	$745,520	9%	**$20,257,712**	**18%**
	Phase II	New Proposals	13	14%	19	17%	5	21%	5	9%	**42**	**15%**
		New Awards	7	14%	6	26%	1	14%	1	5%	**0**	**0%**
		New Obligations	$7,150,934	16%	$7,329,719	26%	$998,164	14%	$749,967	5%	**$16,228,784**	**17%**
		Total Obligations	$10,568,640	12%	$7,329,719	26%	$1,395,639	18%	$1,124,958	7%	**$20,418,956**	**15%**
SDB	Phase I	New Proposals	258	22%	89	21%	53	16%	21	15%	**421**	**21%**
		New Awards	33	15%	4	6%	10	13%	2	4%	**49**	**12%**
		New Obligations	$10,917,564	16%	$849,767	7%	$2,558,428	13%	$295,874	4%	**$14,621,633**	**13%**
		Total Obligations	$12,424,310	16%	$649,775	5%	$2,558,428	13%	$295,874	4%	**$15,928,387**	**14%**
	Phase II	New Proposals	15	16%	29	26%	2	8%	3	5%	**49**	**17%**
		New Awards	7	14%	6	26%	1	14%	0	0%	**14**	**14%**
		New Obligations	$6,193,137	14%	$7,899,865	28%	$999,999	14%	$0	0%	**$15,093,001**	**16%**
		Total Obligations	$9,046,987	10%	$7,899,865	28%	$1,417,474	18%	$70,328	0%	**$138,020,792**	**99%**
HUB Zone	Phase I	New Proposals	7	1%	52	13%	37	11%	5	4%	**101**	**5%**
		New Awards	0	0%	10	15%	9	11%	1	2%	**20**	**5%**
		New Obligations	$0	0%	$2,106,488	17%	$2,341,568	12%	$149,328	2%	**$4,597,384**	**4%**
		Total Obligations	$12,424,310	16%	$2,106,488	17%	$2,558,428	13%	$295,874	4%	**$17,385,100**	**15%**
	Phase II	New Proposals	3	3%	10	9%	5	21%	0	0%	**18**	**6%**
		New Awards	0	0%	4	17%	0	0%	0	0%	**4**	**4%**
		New Obligations	$0	0%	$4,550,000	16%	$0	0%	$0	0%	**$4,550,000**	**5%**
		Total Obligations	$9,046,987	10%	$4,550,000	16%	$1,417,474	18%	$70,328	0%	**$15,084,789**	**11%**

* For some FY22 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

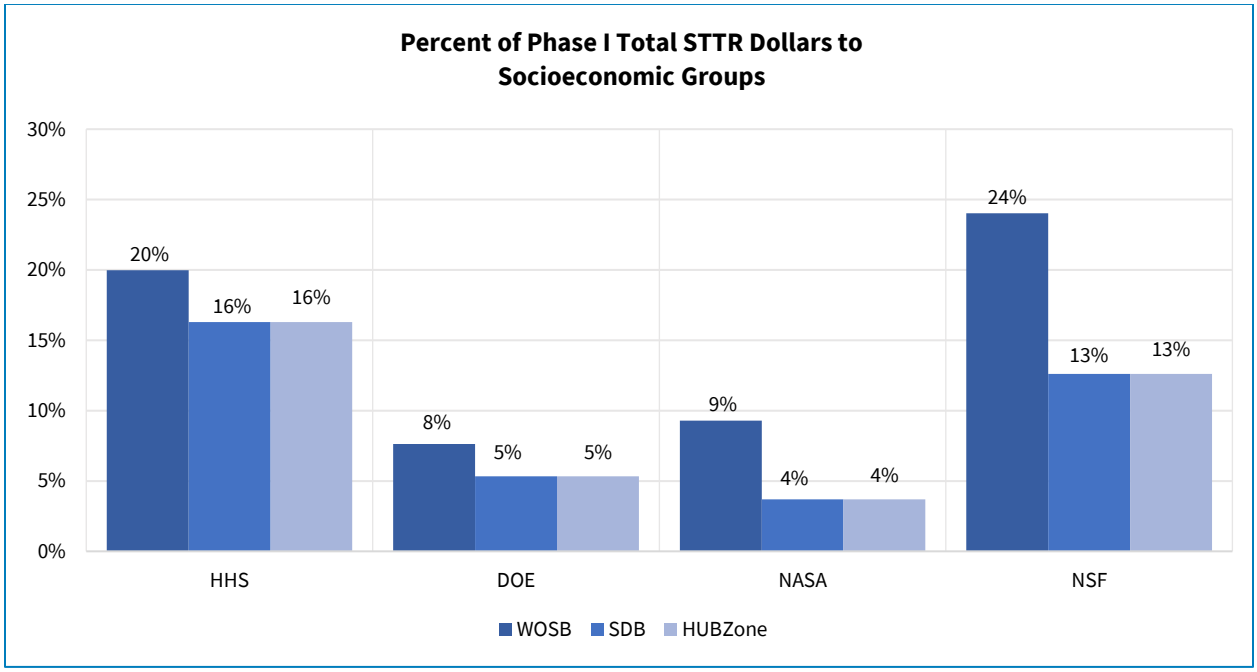
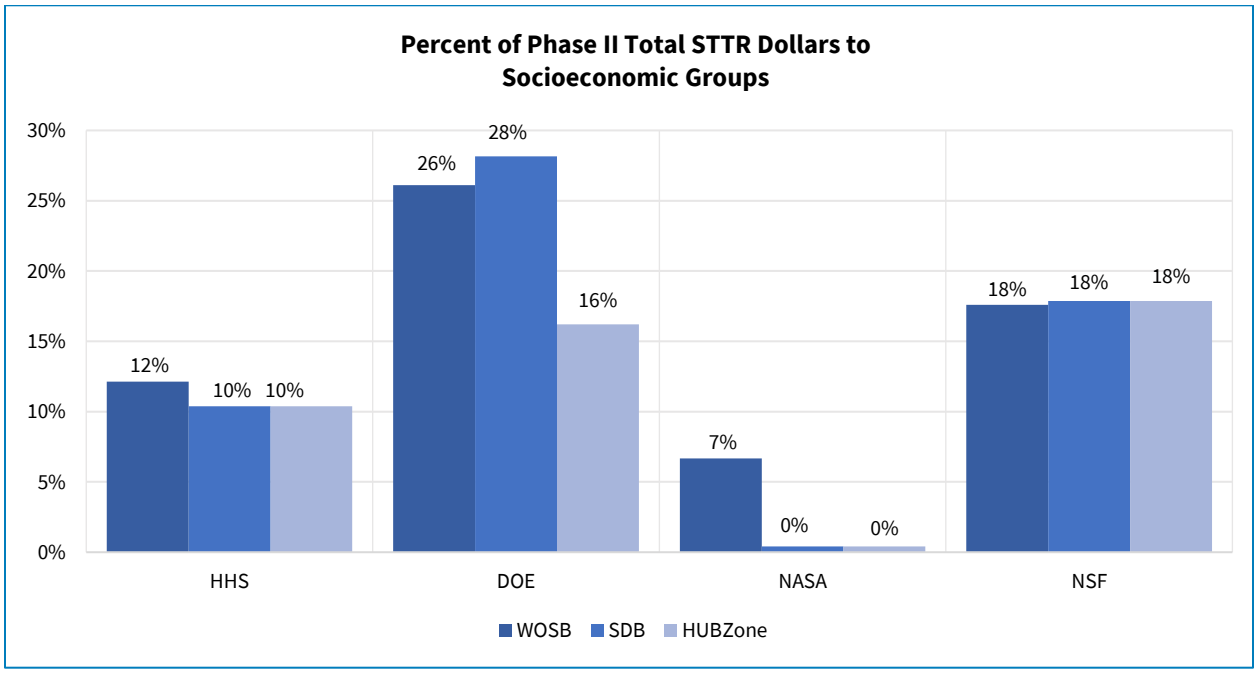


Chart 11: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - Civilian Agencies



6 | STTR Program – DoD Summary Data

To facilitate the review of the FY22 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	3	3
	New Proposals Received (#)	702	234	726	431	2093
	New Awards (#)	266	76	105	73	520
	Proposal Selection Rate (%)	38%	32%	14%	17%	25%
	Total Obligations ($)	$43,031,935	$13,404,1100	$18,154,447	$14,079,312	$88,669,804
	Total Obligations for Research Institutions ($)	$15,491,497	$5,227,603	$6,535,601	$4,505,380	$30,986,425
	Total Obligations for Research Institutions (%)	36%	39%	36%	32%	36%
Phase II	New Proposals Received (#)	187	43	6	64	300
	New Awards (#)	152	34	38	33	257
	Proposal Selection Rate (%) **	81%	79%	*	52%	86%
	Total Obligations for Awards ($)	$117,023,172	$60,057,360	$38,941,938	$51,234,274	$267,256,745
	Total Obligations for Research Institutions ($)	$38,617,647	$22,221,223	$12,850,840	$16,394,968	$90,867,293
	Total Obligations for Research Institutions (%)	33%	37%	33%	32%	34%
Admin	Technical and Business Assistance (TABA) Provided by Agency ($)	$0	$0	$0	$0	$0
	TABA Provided to Small Businesses in Award Obligations ($) **	$0	$76,800	$165,400	$47,947	$290,147
Totals	Total STTR Obligations ($)	$160,055,107	$73,461,470	$57,096,385	$65,313,586	$355,926,548
	Amount of Extramural R/R&D reported to SBA minus Exemptions ($)	$20,880,539,747	$14,044,167,701	$10,250,219,000	$16,895,521,049	$62,070,447,497
	Percent of STTR Obligations as determined using DoD-provided data (%)	0.77%	0.52%	0.56%	0.39%	0.57%
	SBA Assessment of Agency Compliance with Meeting Minimum Spending Requirements§	Did Not Comply	Unable to Determine	Unable to Determine	Various	

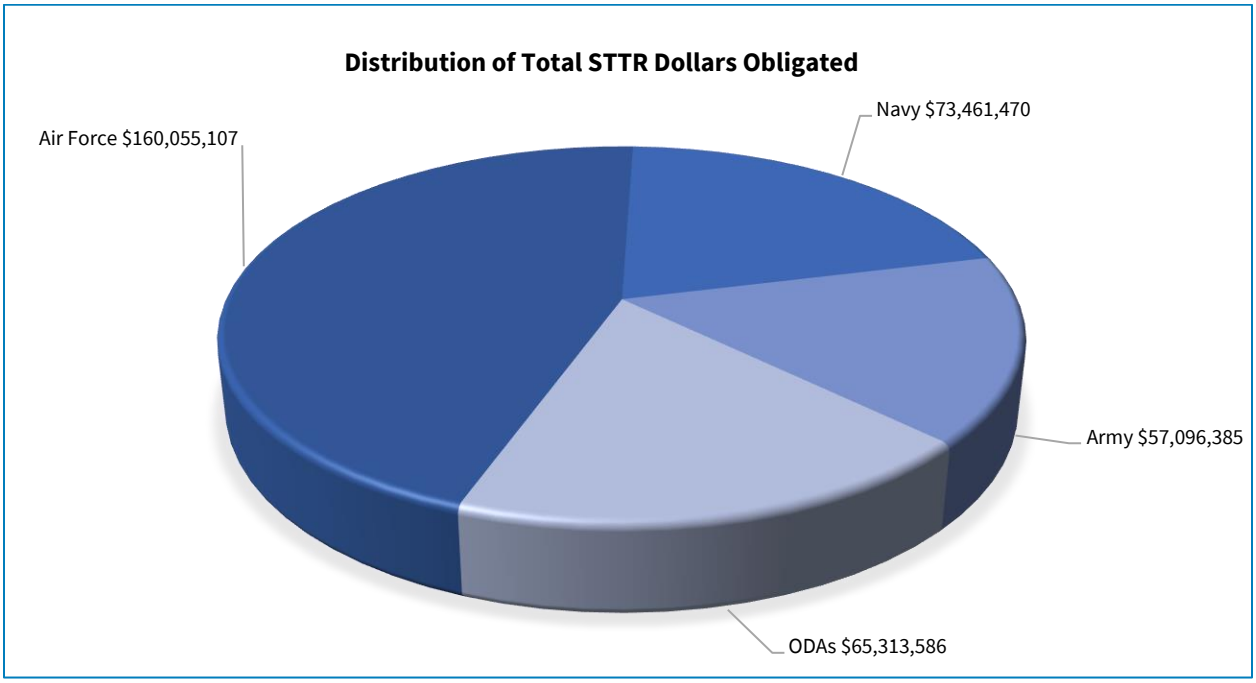
* For some FY22 awards, agencies may have received proposals during prior fiscal years. As a result, the number of awards may be greater than the number of proposals.
** This is TABA funds that were provided by the agency directly to the awardee through grants or contracts and thus already included in 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 U.S. National Science Foundation's Survey of Federal Funds for Research and Development. As a result, the table may show an agency's percentage of obligations as compliant based on agency submitted data but listed as "Did Not Comply" (or another status) based on SBA's assessment (SBA Assessment of Agency Compliance with Meeting Minimum Spending

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

STTR Award Distribution - DoD Service Agencies and Other Defense Agencies

DoD Service Agencies' and Other Defense Agencies' STTR obligations totaled $355,926,548 in FY22, with 45% attributed to the Air Force, 21% to the Navy, 16% to the Army, and 18% 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	60	9%	27	12%	81	11%	46	11%	**214**	**10%**
		New Awards	26	10%	4	5%	6	6%	5	7%	**41**	**8%**
		New Obligations	$4,303,408	10%	$559,957	5%	$1,049,706	6%	$1,023,582	7%	**$6,936,653**	**8%**
		Total Obligations	$4,303,408	10%	$759,868	7%	$1,049,706	6%	$1,023,582	7%	**$7,136,564**	**8%**
	Phase II	New Proposals	20	11%	4	9%	1	17%	3	5%	**28**	**11%**
		New Awards	12	8%	5	15%	3	8%	1	3%	**21**	**8%**
		New Obligations	$10,196,052	9%	$3,691,260	13%	$1,804,287	8%	$1,691,443	5%	**$17,383,042**	**9%**
		Total Obligations	$10,196,052	9%	$7,698,062	13%	$3,320,132	9%	$3,191,396	6%	**$24,405,642**	**9%**
SDB	Phase I	New Proposals	88	13%	30	13%	87	12%	64	15%	**269**	**13%**
		New Awards	28	11%	7	9%	11	10%	6	8%	**52**	**10%**
		New Obligations	$4,405,233	10%	$978,982	9%	$1,921,695	11%	$1,273,191	9%	**$8,579,101**	**10%**
		Total Obligations	$4,405,233	10%	$1,278,923	10%	$1,921,695	11%	$1,273,190	9%	**$8,879,041**	**10%**
	Phase II	New Proposals	15	8%	5	12%	0	0%	6	9%	**26**	**9%**
		New Awards	16	11%	3	9%	4	11%	2	6%	**25**	**10%**
		New Obligations	$13,175,593	11%	$2,535,353	9%	$2,337,080	11%	$3,201,435	10%	**$21,249,461**	**11%**
		Total Obligations	$13,175,593	11%	$4,676,717	8%	$3,447,069	9%	$6,200,227	12%	**$27,499,606**	**10%**
HUB Zone	Phase I	New Proposals	23	3%	8	3%	27	4%	12	3%	**70**	**3%**
		New Awards	10	4%	4	5%	2	2%	1	1%	**17**	**3%**
		New Obligations	$1,498,577	3%	$558,942	5%	$345,774	2%	$149,993	1%	**$2,553,286**	**3%**
		Total Obligations	$1,498,577	3%	$558,942	5%	$345,774	2%	$149,993	1%	**$2,553,286**	**3%**
	Phase II	New Proposals	9	5%	0	0%	1	17%	2	3%	**12**	**4%**
		New Awards	4	3%	0	0%	2	5%	0	0%	**6**	**2%**
		New Obligations	$2,965,477	3%	$0	0%	$1,118,123	5%	$0	0%	**$4,083,600**	**2%**
		Total Obligations	$2,965,477	3%	$0	0%	$1,118,123	5%	$0	0%	**$4,083,600**	**2%**

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

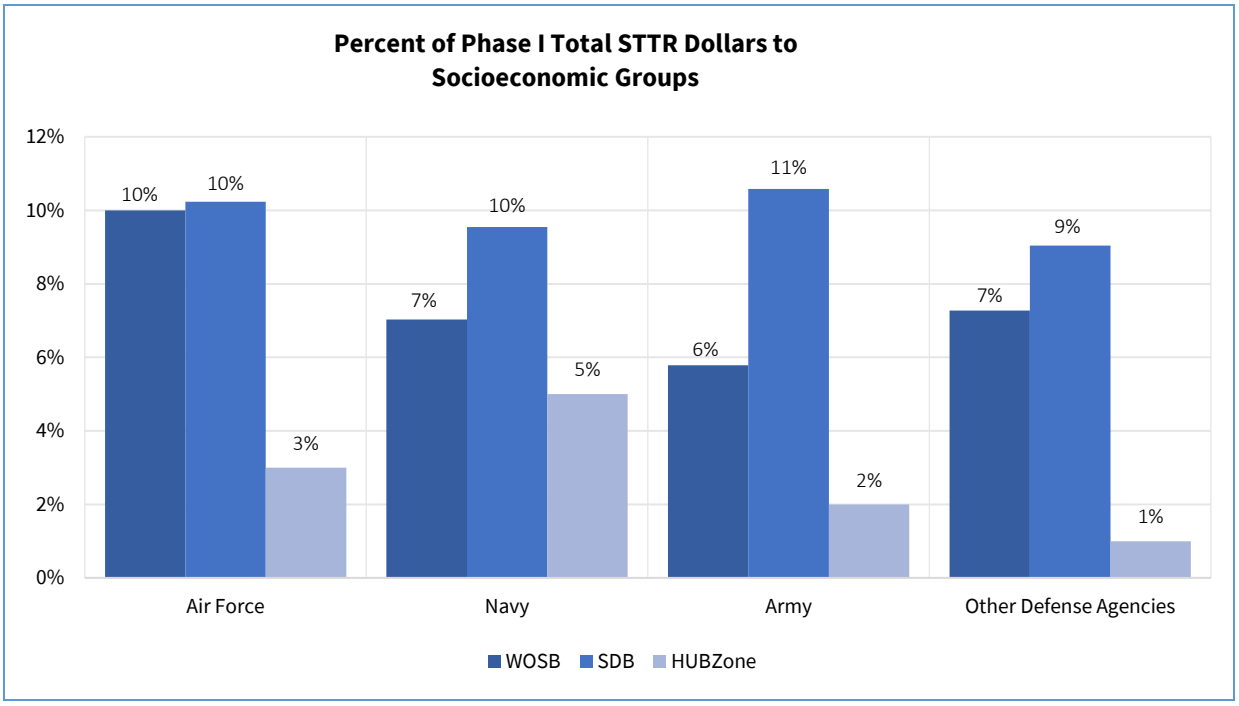
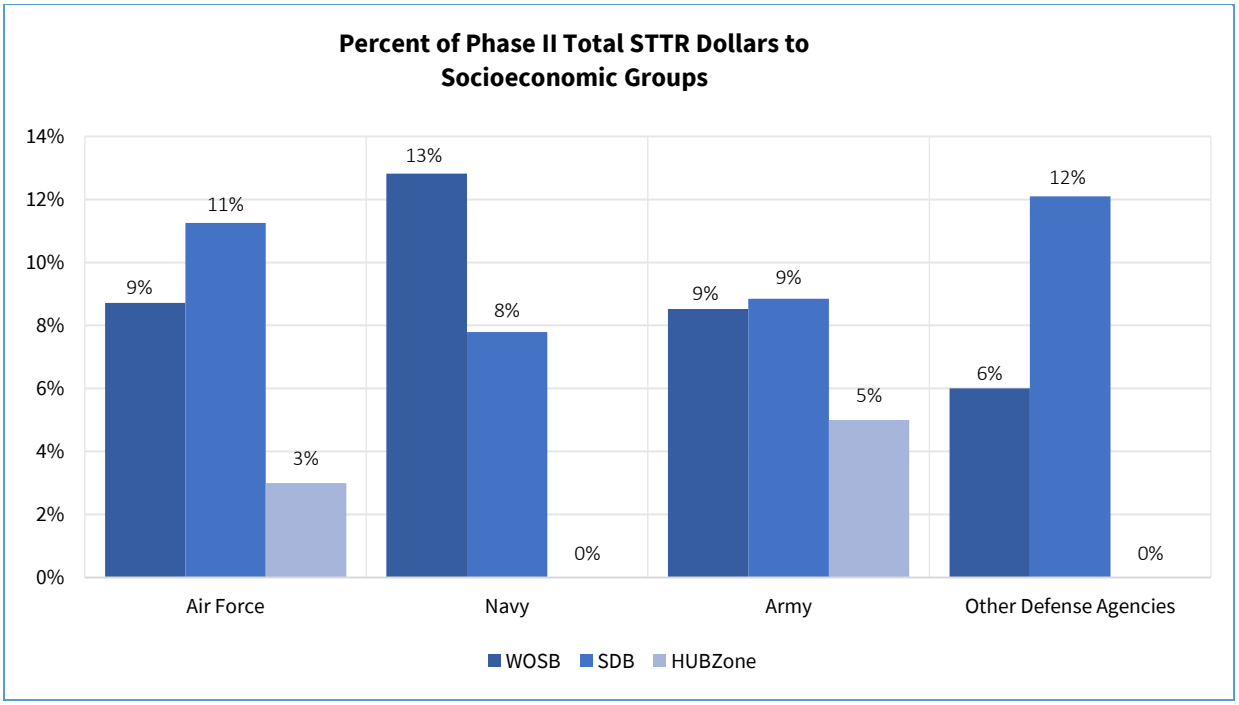


Chart 14: Percent of Phase II Total STTR Dollars to Socioeconomic Groups - DoD Service Agencies and Other Defense Agencies



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 FY22, 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 which funded SBIR/STTR awards and activities, as compared to an agency's total extramural R/R&D obligations for the fiscal year. Therefore, the size of the SBIR/STTR Programs in any given year is dependent on the size of the extramural R/R&D budgets of the Participating Agencies for that year.

Participating Agency Compliance with Meeting Minimum Spending Requirements

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

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 U.S. National Science

Foundation (NSF)[2] 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 for future years. The DoD has a two-year funding cycle, and much of DoD's funding is obligated in the second year of availability. DoD's SBIR/STTR allocation may increase from the prior year, but SBA measures what was obligated in the current year regardless of the year the funds were set aside.

SBA reports on how the civilian and defense agencies met the minimum spending requirements separately. This approach enables a more detailed review and discussion on the individual DoD 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 FY22 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. This comparison is a useful tool to identify compliance with the minimum spending requirements.

[2] 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 ($)	% Measured by SBIR obligations divided by Agency reported Extramural R/R&D (3.2% Min)	Total Extramural R/R&D Obligations Reported to NCSES[3] ($)	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	$34,508,230,247	$33,935,014	$34,474,295,233	$1,140,312,654	3.31%	$36,535,000,000	$36,501,064,986	3.12%	$168,259,947	0.49%	0.46%
DOE	$15,429,077,513	$5,182,218,000	$10,246,859,513	$337,322,776	3.29%	$12,661,000,000	$7,478,782,000	4.51%	$40,546,405	0.40%	0.54%
NSF	$6,537,764,452	$289,863,379	$6,247,901,073	$202,553,284	3.24%	$7,007,000,000	$6,717,136,621	3.02%	$28,643,860	0.46%	0.43%
NASA	$6,729,829,091	$1,564,580,158	$5,165,248,933	$189,474,131	3.67%	$9,638,000,000	$8,073,419,842	2.35%	$24,895,403	0.48%	0.31%
USDA	$1,296,699,828	$55,749,820	$1,240,950,008	$34,738,810	2.80%	$1,336,000,000	$1,280,250,180	2.71%			
DHS	$366,667,908	$0	$366,667,908	$17,032,004	4.65%	$325,000,000	$325,000,000	5.24%			
DOC	$585,863,648	$19,948	$585,843,700	$14,398,941	2.46%	$608,000,000	$607,980,052	2.37%			
DOT	$987,174,000	$597,798,000	$389,376,000	$13,856,714	3.56%	$903,000,000	$305,202,000	4.54%			
ED	$378,430,363	$0	$378,430,363	$13,094,281	3.46%	$406,000,000	$406,000,000	3.22%			
EPA	$115,136,000	$0	$115,136,000	$7,290,965	6.33%	$252,000,000	$252,000,000	2.89%			
TOTAL	**$66,934,873,050**	**$7,724,164,319**	**$59,210,708,731**	**$1,970,074,560**	**3.33%**	**$69,671,000,000**	**$61,946,835,681**	**3.18%**	**$262,345,615**	**0.47%**	**0.44%**

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

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

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

[3] NSF's National Center for Science and Engineering Statistics (NCSES), *data populated based on preliminary results.*

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

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

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

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

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

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

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

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

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

HHS. HHS complied with both the minimum spending requirements; with 3.31% obligated for SBIR activities, and 0.49% obligated for STTR activities. The extramural R/R&D reported for the NCSES Survey was not significantly more than what was reported to SBA.

DOE. DOE complied with the SBIR minimum spending requirements with 3.29% obligated for SBIR activities, however, DOE did not comply with STTR minimum spending requirements with 0.40% obligated for STTR activities instead of the required 0.45%. The extramural R/R&D reported for the NCSES Survey was significantly less than what was reported to SBA.

DOE explained:

> DOE confirms that it did not meet the expenditure requirement for the STTR requirement (0.40% of extramural R&D compared with the requirement of 0.45%). DOE set aside the appropriate amount of funding for FY 2022 to meet the STTR requirements but was not able to fully obligate these funds. This included $4.0M in STTR funding from the Infrastructure Investment and Jobs Act that was not obligated. In addition, some STTR funding that was set aside from normal appropriations was not obligated because of funding constraints associated with DOE Congressional controls. DOE carried over these funds into FY 2023 for obligation.

NSF. NSF complied with both the minimum spending requirements; with 3.24% obligated for SBIR activities, and 0.46% 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 3.67% for SBIR activities and 0.31% for STTR activities but based on the data reported for the NCSES Survey those percentages drop to 2.35% and 0.31% 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 FY 2022, NASA also excluded the following categories from the extramural 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 2.80% 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:

> USDA calculated the SBIR/STTR budget at the beginning of FY22, during the continuing resolution, using fiscal year (FY) 2021 extramural R/R&D obligations. With consideration of fiscal year (FY) 2022 President's Budget changes and the 3.2% requirement for SBIR projects. In FY 2022 USDA established and contributed funds for STTR for the first time, based upon FY 2021 extramural R/R&D obligations, and the 0.45% requirement calculation.
>
> There are two items that influence differences in the USDA estimates provided in advance of the enacted appropriation and the final reporting of obligations made in the SBIR/STTR programs. The first is changes in budget authority, as the federal government is frequently operating under Continuing Resolution Act authority at the beginning of the new fiscal year, actual enacted budget authority is routinely not available. The second and most influential contributor to the reported differences is the existence of USDA programs that are appropriated with multi-year obligation authority. The programs contributing to R/R&D obligations have a legal authority by statute that allows for obligations to occur across multiple FYs.
>
> Pursuant to the process described, the SBIR/STTR contribution is planned when budget authority is first appropriated, rather than when obligated. While this establishes a budget and planned obligation, the actual obligations may be different because of programs with multi-year appropriation authority. Additionally, when program obligations are reconciled and de-obligations occur, if the authority used is multi-year, then new grant awards and obligation can be made using those returned funds. This has a direct impact on the percentage of R/R&D obligations made within a fiscal year of reporting.
>
> The USDA would be in violation of the Anti-deficiency Act (ADA) if the SBIR/STTR program obligated funds that did not exist under the current year appropriation authority in order to make up the difference from an artificially overinflated end of year methodology calculation. The ADA, Pub. L. 97–258, 96 Stat. 923, was enacted to prevent a federal agency from incurring obligations or the making of expenditures (outlays) in excess of amounts available under its fiscal year budget authority appropriations. At this time the USDA continues to report to SBA and others that the SBIR/STTR calculation methodology does not work well for agencies that obligate multi-year appropriations.
>
> As an example, the accounting procedure used to determine the Total Extramural R/R&D Obligations amount reported by the National Institute of Food and Agriculture (NIFA) is described below for FY 2022. NIFA identified the individual program percentage of research and/or research and development based upon the actual FY 2021 obligations. For those research programs that will contribute to SBIR/STTR, NIFA takes the appropriation amount minus the intramural research (federal admin) to obtain the extramural research portion. With the R/R&D percentage identified,

> the extramural program portion determined, NIFA calculated the 3.2% SBIR and 0.45% STTR contribution requirement for FY 2022.

DHS. DHS complied with the minimum spending requirement based on the extramural R/R&D reported to SBA with 4.65% obligated to SBIR activities. The extramural R/R&D reported for the NCSES Survey was less than what was reported to SBA.

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

DOC explained:

> FY 2022 Extramural R&D obligations were $407 million. Based on this amount, the minimum level NOAA was required to set aside in order to be in compliance with the SBA's SBIR minimum requirement, was $13 million. However, NOAA set aside $10.6 million for the FY22 SBIR program, a value below the minimum requirement. NOAA was unable to keep pace with additional extramural R&D resources provided in FY22 including an increased appropriation, NOAA Community Project Funding/NOAA Special Projects, FY22 Disaster Supplemental, and FY22 obligations related to the Bipartisan Infrastructure Law. NOAA is assessing FY23 estimates to determine any needed revisions to methodology for the FY23 SBIR Set Aside (to be based on FY22 Actuals with buffer noted previously).
>
> To ensure meeting the requirement next fiscal year NOAA will continue to use a higher SBIR rate (3.5%) than the minimum required (3.2%) to attempt to meet or exceed the minimum SBIR requirement.

ED. ED complied with the minimum spending requirement by obligating 3.45% 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 3.56% 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.

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 6.33% for SBIR activities but based on the data reported for the NCSES Survey the percentage drops to 2.89%.

EPA explained:

> The NSF Funds Survey and SBIR reports are addressing separate requirements, EPA uses different methodologies. For example, the NSF survey reports enacted budget levels, whereas the SBA SBIR reports actual obligation data. In addition, 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.

As a side note, we are exploring the use of obligations data for the NSF Survey in future requests, however, given remaining differences in the methodologies, the data still will 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 ($)	% Measured by SBIR obligations divided by Agency reported Extramural R/R&D (3.2% Min)	Total Extramural R/R&D Obligations Reported to NCSES[4] ($)	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	$20,880,539,747	$0	$20,880,539,747	$1,067,707,025	5.11%	$38,230,000,000	$38,230,000,000	2.79%	$160,055,107	**0.77%**	**0.42%**
Navy	**$19,101,924,000**	**$5,057,756,299**	**$14,044,167,701**	**$392,716,407**	2.80%	**$12,354,000,000**	**$7,296,243,701**	**5.38%**	**$73,461,470**	**0.52%**	**1.01%**
Army	$11,511,905,000	$1,261,686,000	$10,250,219,000	$144,760,655	1.41%	$7,682,000,000	$6,420,314,000	2.25%	$57,096,385	**0.56%**	**0.89%**
ODAs	$20,169,215,049	$3,273,694,000	**$16,895,521,049**	**$540,554,215**	**3.20%**	**$21,071,000,000**	$17,797,306,000	**3.08%**	**$65,313,586**	**0.37%**	**0.36%**
DoD Total	**$71,663,583,796**	**$9,593,136,299**	**$62,070,447,497**	**$2,145,738,302**	**3.46%**	**$79,337,000,000**	**$69,743,863,701**	**3.08%**	**$355,926,548**	**0.57%**	**0.51%**
Other Defense Agencies (ODAs) Break Out											
DARPA	$3,326,299,000	$0	$3,326,299,000	$122,471,221	3.68%	$3,490,000,000	$3,490,000,000	3.51%	$20,374,493	0.61%	0.58%
MDA	$5,608,825,000	$2,659,757,000	$2,949,068,000	$118,874,507	4.03%	$4,116,000,000	$1,456,243,000	8.16%	$16,963,879	0.58%	1.16%
DLA & DMEA	$285,774,756	$0	$285,774,756	$83,625,907	29.26%	N/A	N/A	N/A	$1,099,923	0.38%	N/A
DHA	$2,094,563,000	$10,000,000	$2,084,563,000	$82,238,820	3.95%	$1,879,000,000	$1,869,000,000	4.40%	$9,687,929	0.46%	0.52%
SOCOM	$856,119,000	$70,389,000	$785,730,000	$52,443,334	6.67%	$495,000,000	$424,611,000	12.35%	$2,248,081	0.29%	0.53%
SDA	$1,369,196,000	$0	$1,369,196,000	$24,270,113	1.77%	N/A	N/A	N/A	$3,632,408	0.27%	N/A
CBD	$580,240,155	$0	$580,240,155	$13,779,509	2.37%	$559,000,000	$559,000,000	2.47%	$0	0.00%	0.00%
DTRA	$462,171,000	$0	$462,171,000	$13,525,851	2.93%	$442,000,000	$442,000,000	3.06%	$6,610,797	1.43%	1.50%
SCO	$635,892,313	0	$635,892,313	$10,714,466	1.68%	N/A	N/A	N/A	0	0.00%	N/A
NGA*	N/A	N/A	N/A	$10,389,061	N/A	N/A	N/A	N/A	$1,199,531	N/A	N/A
OSD	$4,880,673,194	$533,548,000	$4,347,125,194	$8,221,425	0.19%	$9,793,000,000	$9,259,452,000	0.09%	$3,496,547	0.08%	0.04%

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

[4] 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	Did Not Comply
Navy	A	2-year	Unable to Determine	Unable to Determine
Army	A	2-year	Did Not Comply	Unable to Determine
DARPA	A	2-year	Complied	Complied
MDA	A	2-year	Unable to Determine	Unable to Determine
DLA/DMEA	A	2-year	Complied	Did Not Comply
DHA	A	2-year	Complied	Complied
SOCOM	A	2-year	Complied	Did Not Comply

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
SDA	A	2-year	Did Not Comply	Did Not Comply
CBD	A	2-year	Did Not Comply	Did Not Comply
DTRA	A	2-year	Did Not Comply	Complied
SCO	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 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 2022 appropriation will be spread between both FY 2022 and FY 2023. 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 FY22 defense appropriations bill was enacted on March 15, 2022, and funding was made available to the SBIR/STTR Program Office on May 12, 2022. The Department executes the entirety of its authorized SBIR/STTR funding over the course of two years, achieving "compliance" at the end of the two-year period. This applies to any of the DoD Components that are currently labeled "Did Not Comply."
>
> ***OSD.*** OSD's obligations for FY22 funding were spread across FY22 and FY23 as discussed above, and reported in the FY22 SBA Annual Report submission. The majority of OSD funding in FY22 was distributed to other DoD Components for obligation, it is very likely that the majority of OSD's obligations were reported by those Components that received the funding.

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 5.11% for SBIR activities based on extramural R/R&D reported to SBA; however, that figure drops to 2.79% which is less than the 3.2% required, and the difference between the two reports is significant (>15%), therefore the Air Force is not compliant in meeting the SBIR minimum spending requirements. The Air Force is not compliant in meeting the STTR minimum spending requirements for similar reasons, given a significant delta between extramural obligations reported to SBA when compared to what was reported to NCSES.

Navy. SBA is unable to determine if Navy complied with the minimum SBIR or STTR obligations because it is unable to verify its exemptions.

Army. Army did not comply with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, Army obligated 1.41% 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 3.68% for SBIR activities and the extramural R/R&D reported to NCSES was not significantly more (>15%) than what was reported to SBA. DARPA complied with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, DARPA obligated 0.61% for STTR activities.

MDA. SBA is unable to determine if MDA complied with the minimum SBIR or STTR obligations because it is unable to verify its exemptions.

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 29.26% 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 0.38% for STTR activities.

DHA. DHA complied with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, DHA obligated 3.95% for SBIR activities. DHA complied with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, DHA obligated 0.46% for STTR activities.

SOCOM. SOCOM complied with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, SOCOM obligated 6.67% 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 0.29% 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 1.77% for SBIR activities and 0.27% for obligations for STTR awards instead of the required 3.2% and 0.45%, respectively.

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, SDA obligated 2.37% for SBIR activities and 0.00% for obligations for STTR awards.

DTRA. DTRA did not comply with the SBIR minimum spending requirements because based on the extramural R/R&D reported to SBA, DTRA obligated 2.93% for SBIR activities. DTRA complied with the STTR minimum spending requirements because based on the extramural R/R&D reported to SBA, DTRA obligated 1.43% for STTR activities.

SCO. SCO 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 1.77% for SBIR activities and 0.27% for obligations for STTR awards instead of the required 3.2% and 0.45%, respectively.

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 | Department of Defense (DoD) Fiscal Year 2021 Minimum Spending Retrospective

The SBA is providing, at the request of the Department of Defense (DoD), this retrospective analysis of the DoD FY 2021 SBIR and STTR obligations. The DoD has explained within prior SBIR and STTR reports, that Research, Development, Testing, and Evaluation (RDT&E) appropriation may be obligated across two fiscal years. As a part of the Fiscal Year 2021 SBIR/STTR Annual Report, DoD explained the following:

> 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."

As a component of this Fiscal Year 2022 SBIR/STTR Annual Report, SBA is providing a summarized retrospective now that the Fiscal Year 2021 appropriated funds have exhausted their timeline to be utilized on SBIR and STTR awards. SBA is providing this retrospective because as part of prior SBIR.gov enhancements, we allow agencies to report the year of funding (appropriation year) with the year the funds were obligated. For example, if an agency utilized FY21 appropriated funds on a Fiscal Year 22 SBIR award, and obligated those funds in FY22, they can report scenario to SBA as part of its awards uploads. Using data provided from DoD as part of its data reporting in accordance with the Fiscal Year 2022 SBIR/STTR Annual Report, we present a comparison on obligations in Table 16.

Table 16 DoD Retrospective Examining FY21 Appropriation Obligated for SBIR

Service Component	FY 2021 Appropriation Obligated in FY 2021	FY 2021 Appropriation Obligated in FY 2022	FY 2021 Non-Award Obligations Report (e.g., administrative funding)	Total FY 2021 Appropriation Obligated during FY 2021 & FY 2022	FY 2021 Extramural R/R&D Reported to SBA by Participating Agency minus FY 2021 Exemptions	FY 2021 Appropriation Obligated / FY 2021 Extramural (3.2% Min)	FY 2021 SBIR/STTR Annual Report - Total SBIR Obligations	FY 2021 SBIR/STTR Annual Report - Set-a-side (3.2% Min)
Air Force	$164,140,748	$581,287,255	$17,966,698	$763,394,700	$24,864,938,743	3.07%	$559,495,052	2.25%
Navy	$225,340,079	$192,500,734	$10,531,262	$428,372,075	$12,736,973,872	3.36%	$409,096,678	3.21%
Army	$3,649,686	$130,047,316	$10,350,000	$144,047,002	$10,129,173,000	1.42%	$190,442,354	1.88%
ODAs	$113,358,941	$208,077,929	$7,719,578	$329,156,448	$14,472,377,847	2.27%	$360,006,115	2.49%
Grand Total	**$506,489,454**	**$1,111,913,234**	**$46,567,538**	**$1,664,970,226**	**$62,203,463,462**	**2.68%**	**$1,519,040,199**	**2.44%**

As seen in Table 16, when tracking the obligations by the year of appropriated funds, the DoD total obligation dollars increased from $1,519,040,199 of total obligations in FY21 (i.e., obligations based on FY20 and FY21 funds), to $1,664,970,226 of overall FY21 appropriation obligations, this reflets DoD overall meeting 2.68% of the targeted obligations based on FY21 appropriation, an increase of .24 compared to the data captured in the FY21 SBIR/STTR Annual Report. Despite the increase, the overall compliance of DoD remains below the targeted minimum 3.2% for SBIR obligations.

SBA will continue to work with the Department of Defense on its reporting of SBIR and STTR data, including on identifying the obligated funds year of appropriation, to continue to provide clarity and transparency in the funding of SBIR and STTR awards and DoDs efforts to evidence its compliance given its multi-year obligation of appropriated funds. Table 17 below displays how FY21 appropriated funds were obligated for STTR awards during FY21 and FY22.

Table 17 DoD Retrospective Examining FY21 Appropriation Obligated for STTR

Service Component	FY2021 Appropriation Obligated in FY2021	FY2021 Appropriation Obligated in FY2022	Total FY2021 Appropriation Obligated	FY21 Extramural R/R&D Reported to SBA by Participating Agency minus FY21 Exemptions	FY21 Appropriation Obligated / FY21 Extramural (0.45% Min)	FY21 SBIR/STTR Annual Report - Total SBIR Obligations	FY21 SBIR/STTR Annual Report - Set-a-side (0.45% Min)
Air Force	$5,644,073	$123,523,319	$129,167,392	$24,864,938,743	0.52%	$126,261,098	0.51%
Navy	$24,916,171	$44,344,972	$69,261,143	$12,736,973,872	0.54%	$51,655,200	0.41%
Army	$2,498,334	$45,298,936	$47,797,270	$10,129,173,000	0.47%	$49,599,081	0.49%
ODAs	$21,798,215	$32,055,359	$53,853,574	$14,472,377,847	0.37%	$52,005,079	0.36%
Grand Total	**$54,856,793**	**$245,222,586**	**$300,079,379**	**$62,203,463,462**	**0.48%**	**$279,520,458**	**0.45%**

9 | Awards Exceeding Guideline Amounts

The Small Business Act sets 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 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 FY22 reporting year, agencies could issue a Phase I award up to $275,765 and a Phase II award up to $1,838,436 without seeking SBA approval. Any award above those amounts requires a waiver from SBA. Only DoD, HHS, and NASA required a waiver in FY22.

Table 18: Awards Exceeding Guideline Amounts by More Than 50%

Awards Exceeding Guideline Amounts by More Than 50% (FY22) (the number of awards exceeding / percentage of awards that exceed)				
Program	**Phase**	**DoD**	**HHS**	**NASA**
SBIR	Phase I	0 / 0%	389 / 59%	0 / 0%
	Phase II	56 / 4%	19 / 4%	7 / 5%
STTR	Phase I	0 / 0%	139 / 65%	0 / 0%
	Phase II	3 / 1%	1 / 2%	0 / 0%
($275,765 for Phase I, $1,838,436 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 FY22, 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.

10 | 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. During FY22, 3,859 Phase I SBIR and STTR awards were selected from 21,911 Phase I proposals across the eleven Participating Agencies, representing a 17.6% program wide Phase I selection rate. For FY22, 39% of all Phase I award winners were first-time winners across the eleven Participating Agencies.

SBIR Program

In FY22, small businesses submitted a total of 17,798 SBIR Phase I proposals across the eleven Participating Agencies. Agencies made 2,927 new SBIR Phase I awards, resulting in an average Phase I proposal selection rate of 16%. Agencies received 7,476 SBIR Phase II proposals and selected 2,344 new Phase II awards, resulting in an average Phase II selection rate of 31%. Three agencies combined to make sixteen SBIR awards, including twelve Phase I awards (DOE-10, HHS-2), and four Phase II awards (HHS-1, DoD-3), against a topic that received only one proposal.

Chart 15: SBIR Phase I Proposal Selection Rates

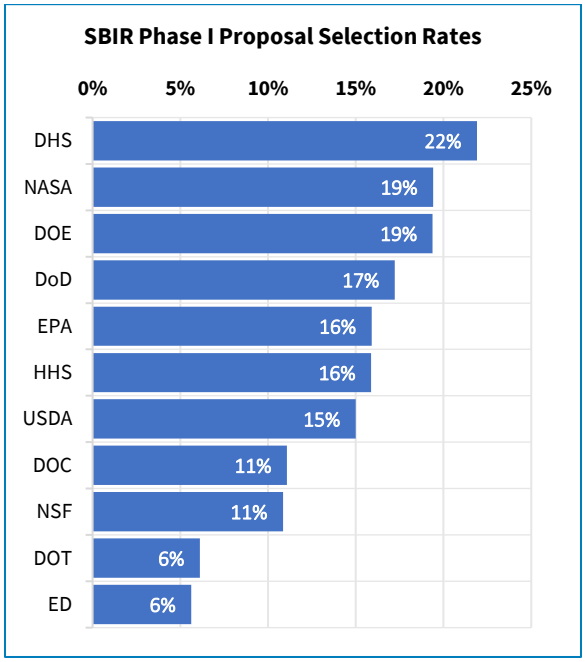
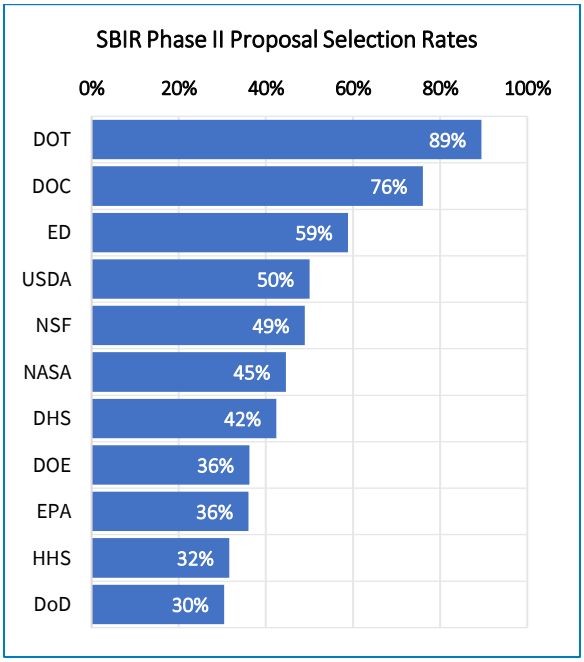


Chart 16: SBIR Phase II Proposal Selection Rates



STTR Program

In FY22, small businesses submitted a total of 4,113 STTR Phase I proposals. Agencies selected 932 new Phase I awards, resulting in an average Phase I proposal selection rate of 23%. Agencies received 584 Phase II proposals and selected 356 new Phase II awards, resulting in an average Phase II proposal selection rate of 61%. Two agencies combined to make four STTR awards, including one Phase I awards (HHS-1), and three Phase II awards (DoD-3), against a topic that received only one proposal.

Chart 17: STTR Phase I Proposal Selection Rates

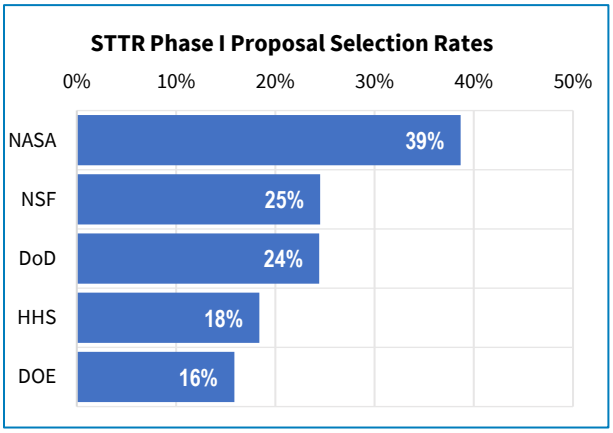
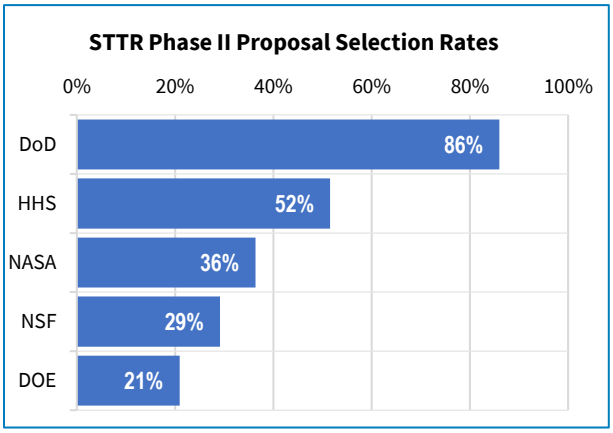


Chart 18: STTR Phase II Proposal Selection Rates



Awards to Multiple Award Winners

Table 19 illustrates Phase II awards made to companies that received more than 15 Phase II awards during the preceding five fiscal years (FY17-FY21). The table also details the number of FY22 Phase I awards that these companies received.

Table 19: Phase IIs Made to Small Business Concerns that Received More Than 15 Phase IIs during the Preceding 5 Fiscal Years (FY17 – FY21)

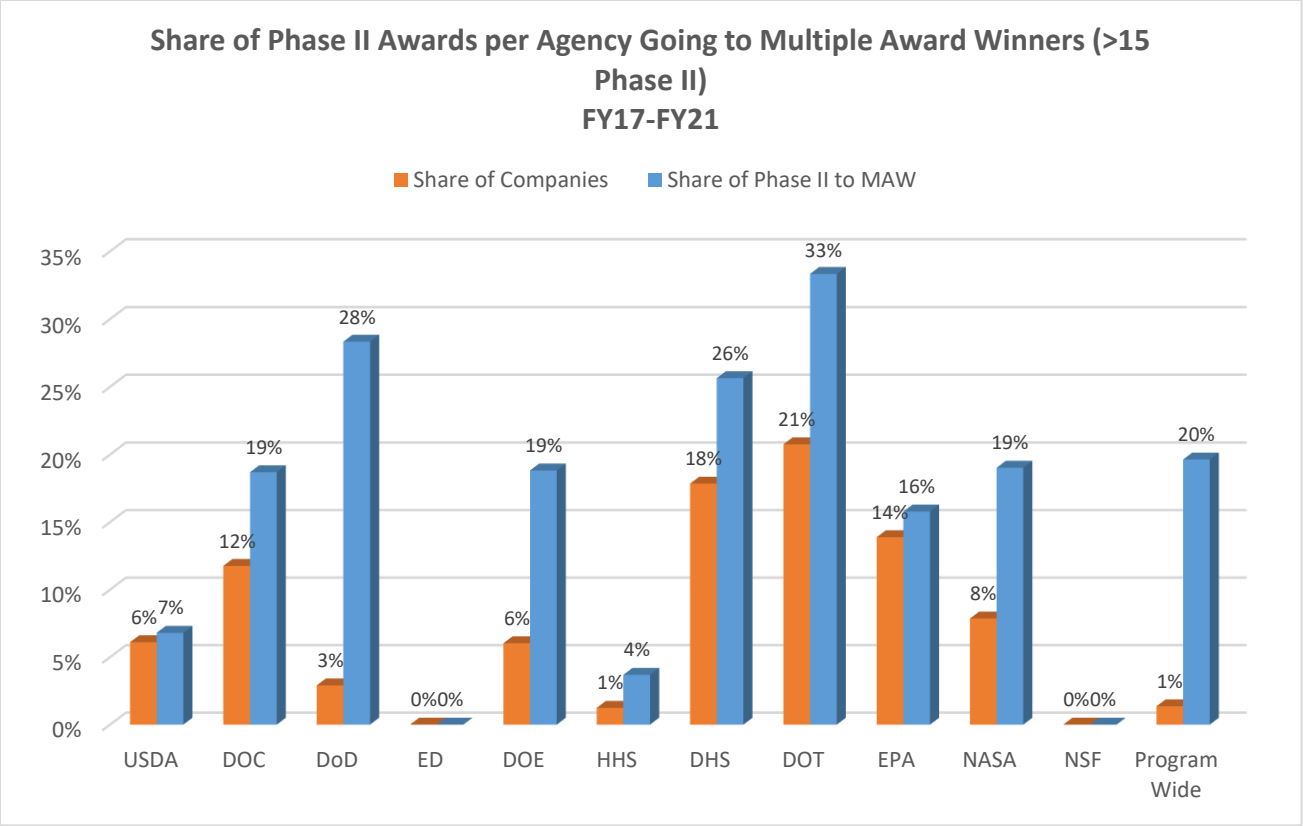
Multiple Award Winners	Totals
Number of Companies with a Phase II Award	4,990
Number of Companies with > 15 Phase II Awards	68
Companies with > 15 Phase II Awards as Percentage of Phase II Companies	1.4%
Number of FY22 Phase I Awards received by Companies with > 15 Phase II Awards	548

FY17 – FY21 Phase II Awards

In the preceding five fiscal years (FY17 – FY21), the Participating Agencies made Phase II awards to 4,990 companies. Sixty-eight (68) or 1.4% of these companies received more than 15 Phase II awards during the period. Although these 68 companies represent a small percentage of the individual firms that received Phase II awards, they received 2,234 (20%) out of the 11,377 Phase II awards made during FY17-FY21. 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 2,234 Phase II awards obtained by these 68 companies, 1,710 (77%) were awarded by DoD during the period. The 1,710 DoD awards represent 28% of the total number of Phase II awards (6,035) made by DoD during the five-year period.

Chart 19: Share of Phase II Awards going to Multiple Award Winners (>15 Phase IIs FY17-FY21)



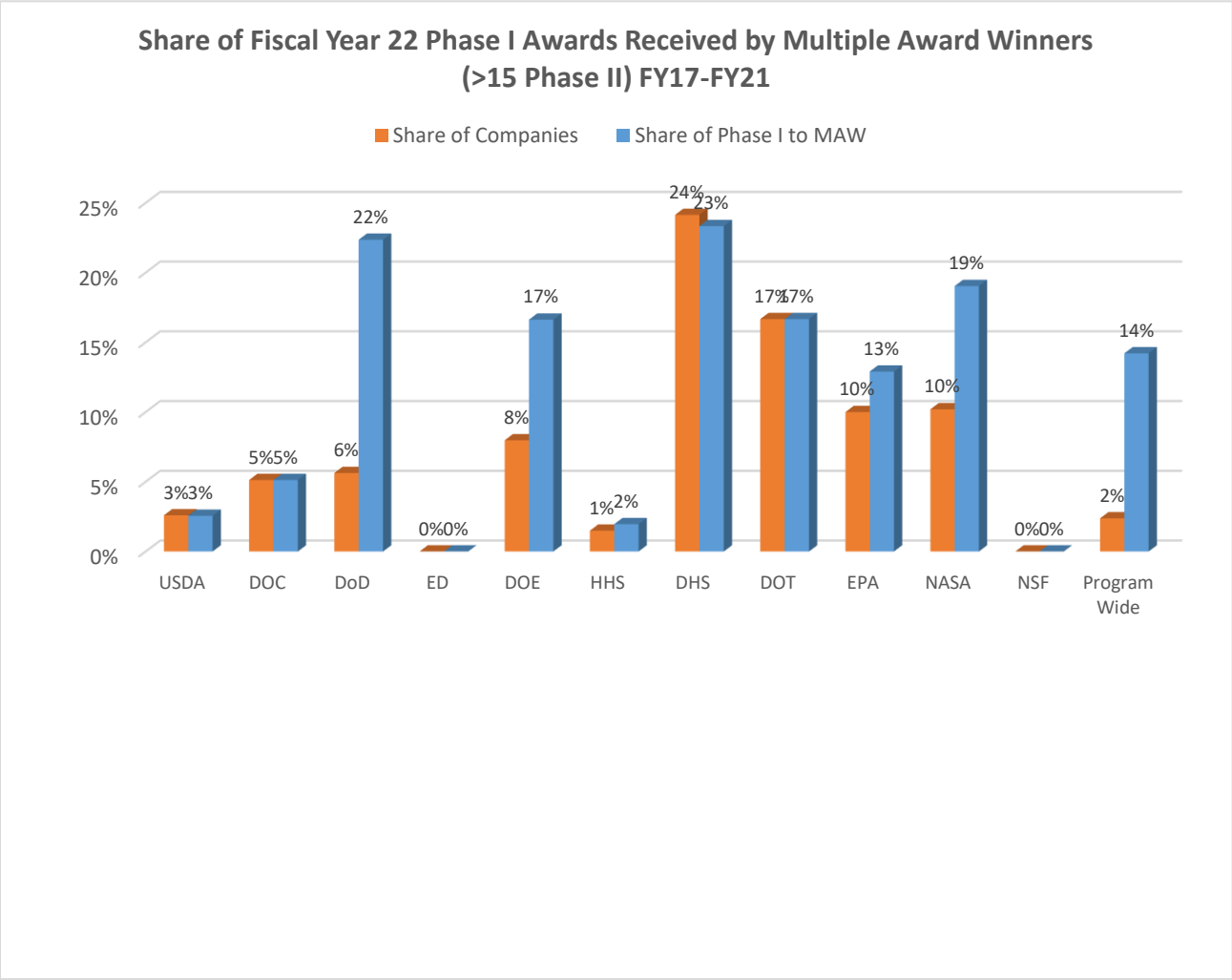
FY22 Phase I Awards

For FY22, the Participating Agencies made 3,859 Phase I awards to 2,560 companies. Fourteen percent of the Phase I awards (548) were obtained by 61 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 U.S. National Science Foundation did not make any Phase I awards to any multiple award-winning companies. All other agencies made at least one FY22 Phase I award to a company with greater than 15 Phase IIs from FY17-FY21.

Fifty-seven (57) out of the 61 multiple award firms received at least one Phase I award from the DoD. These companies accounted for 378 (22%) of the DoD's total Phase I awards (1,692). The 378 Phase I awards from DoD accounted for 69% of all Phase I awards (548) multiple award companies won from the Participating Agencies.

Program wide, multiple award winners accounted for 2% of companies receiving a Phase I award and 14% of all Phase I awards received in Fiscal Year 2022.

Chart 20: Share of FY22 Phase I awards going to Multiple Award Winners (>15 Phase IIs FY17-FY21)



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

The SBA has noted that more SBIR/STTR funding goes to states with the largest populations, and those states that have a record of receiving substantial R&D funding from federal programs outside of the SBIR and STTR programs. In FY22, SBIR or STTR awards were received by small businesses in all fifty states every state, the District of Columbia, and Puerto Rico. Approximately 68% of total FY22 SBIR dollars and 63% of FY22 STTR dollars went to small businesses located 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 20 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 20: SBIR/STTR Awards by U.S. State and Territory

State	SBIR Phase I		STTR Phase I		SBIR Phase II		STTR Phase II		SBIR Total Awards		STTR Total Awards		SBIR/STTR Total Awards	
	(#)	($)	(#)	($)	(#)	($)	(#)	($)	(#)	($)	(#)	($)	(#)	($)
AK	2	$272,904	1	$49,964	3	$2,618,783	0	$0	5	$2,891,687	1	$49,964	6	$2,941,651
AL	81	$15,575,884	26	$4,138,224	41	$62,123,762	11	$9,511,837	122	$77,699,646	37	$13,650,061	159	$91,349,707
AR	13	$2,746,106	1	$259,878	3	$4,587,498	2	$1,849,994	16	$7,333,604	3	$2,109,872	19	$9,443,476
AZ	60	$12,850,212	27	$6,000,194	46	$56,928,380	7	$12,441,746	106	$69,778,592	34	$18,441,940	140	$88,220,532
CA	594	$128,580,264	124	$27,957,561	498	$661,628,041	60	$69,475,402	1092	$790,208,305	184	$97,432,963	1276	$887,641,267
CO	146	$28,468,062	39	$8,402,702	115	$136,911,738	14	$11,801,959	261	$165,379,800	53	$20,204,661	314	$185,584,460
CT	49	$10,077,094	11	$2,488,049	21	$27,605,923	3	$4,581,218	70	$37,683,017	14	$7,069,267	84	$44,752,283
DC	15	$2,657,132	4	$1,034,181	9	$10,730,117	1	$992,093	24	$13,387,249	5	$2,026,274	29	$15,413,524
DE	20	$4,599,182	9	$1,975,169	14	$18,975,053	2	$2,408,818	34	$23,574,235	11	$4,383,987	45	$27,958,222
FL	83	$16,278,230	42	$9,003,153	89	$110,016,519	12	$9,829,010	172	$126,294,749	54	$18,832,163	226	$145,126,912
GA	29	$7,812,057	21	$4,633,901	28	$42,343,155	5	$5,870,541	57	$50,155,212	26	$10,504,442	83	$60,659,654
HI	20	$3,521,440	4	$852,375	19	$27,401,271	3	$2,017,525	39	$30,922,711	7	$2,869,900	46	$33,792,611
IA	14	$3,323,403	2	$556,000	4	$3,973,767	0	$0	18	$7,297,170	2	$556,000	20	$7,853,170
ID	9	$1,359,440	2	$189,855	5	$6,251,183	1	$749,999	14	$7,610,623	3	$939,854	17	$8,550,477
IL	60	$12,348,789	17	$4,016,310	56	$80,436,448	14	$13,113,482	116	$92,785,237	31	$17,129,792	147	$109,915,028
IN	22	$6,233,601	13	$3,179,291	21	$22,694,132	5	$5,227,181	43	$28,927,733	18	$8,406,472	61	$37,334,205
KS	8	$2,140,347	5	$1,147,407	8	$9,416,684	0	$0	16	$11,557,031	5	$1,147,407	21	$12,704,438
KY	13	$3,025,713	7	$1,981,712	11	$17,501,891	5	$5,647,827	24	$20,527,604	12	$7,629,539	36	$28,157,143
LA	10	$2,057,067	10	$2,093,698	12	$23,709,787	2	$3,282,859	22	$25,766,854	12	$5,376,557	34	$31,143,411
MA	299	$64,126,151	72	$15,990,579	234	$328,787,042	29	$34,717,668	533	$392,913,193	101	$50,708,247	634	$443,621,440
MD	104	$25,847,998	34	$7,114,341	84	$130,586,674	11	$16,428,443	188	$156,434,672	45	$23,542,784	233	$179,977,455
ME	4	$759,605	1	$256,000	2	$3,192,168	0	$0	6	$3,951,773	1	$256,000	7	$4,207,773
MI	53	$12,832,247	22	$4,730,154	44	$55,607,893	7	$11,190,638	97	$68,440,140	29	$15,920,792	126	$84,360,931
MN	35	$10,342,234	15	$3,713,613	31	$41,985,001	5	$5,246,135	66	$52,327,235	20	$8,959,748	86	$61,286,983
MO	18	$4,111,838	8	$2,395,675	17	$34,624,005	4	$8,400,090	35	$38,735,843	12	$10,795,765	47	$49,531,608
MS	1	$49,572	0	$0	0	$0	1	$876,494	1	$49,572	1	$876,494	2	$926,066
MT	10	$1,690,129	5	$972,318	8	$9,408,058	2	$1,499,963	18	$11,098,187	7	$2,472,281	25	$13,570,468

State	SBIR Phase I		STTR Phase I		SBIR Phase II		STTR Phase II		SBIR Total Awards		STTR Total Awards		SBIR/STTR Total Awards	
NC	84	$22,639,960	35	$9,468,368	74	$111,994,115	9	$14,919,973	158	$134,634,075	44	$24,388,341	202	$159,022,415
ND	1	$249,974	0	$0	0	$0	0	0	1	$249,974	0	0	1	$249,974
NE	5	$1,005,649	0	$0	6	$7,314,258	1	$749,975	11	$8,319,907	1	$749,975	12	$9,069,882
NH	33	$6,314,993	16	$4,177,063	33	$37,395,939	1	$2,694,575	66	$43,710,932	17	$6,871,638	83	$50,582,570
NJ	41	$8,725,127	19	$4,445,208	41	$58,367,172	6	$7,342,946	82	$67,092,299	25	$11,788,154	107	$78,880,452
NM	30	$5,601,839	8	$1,417,415	25	$30,693,892	8	$8,482,860	55	$36,295,731	16	$9,900,275	71	$46,196,006
NV	4	$538,638	2	$299,999	3	$3,197,668	1	$1,100,000	7	$3,736,306	3	$1,399,999	10	$5,136,305
NY	136	$32,429,957	36	$8,958,208	116	$146,833,221	14	$18,830,529	252	$179,263,178	50	$27,788,737	302	$207,051,915
OH	116	$18,890,177	45	$8,691,768	83	$102,902,369	19	$17,537,303	199	$121,792,546	64	$26,229,071	263	$148,021,617
OK	9	$1,043,140	5	$927,579	7	$8,986,380	6	$4,480,682	16	$10,029,520	11	$5,408,261	27	$15,437,780
OR	39	$10,552,417	9	$2,205,916	23	$30,539,372	1	$2,434,226	62	$41,091,789	10	$4,640,142	72	$45,731,930
PA	114	$26,553,804	33	$7,672,985	105	$162,703,750	12	$15,360,427	219	$189,257,554	45	$23,033,412	264	$212,290,966
PR	4	$826,692	0	$0	1	$1,000,000	0	0	5	$1,826,692	0	0	5	$1,826,692
RI	14	$3,215,896	4	$910,507	5	$6,820,219	1	$1,298,872	19	$10,036,115	5	$2,209,379	24	$12,245,494
SC	14	$3,470,931	13	$4,544,170	13	$17,471,845	1	$2,129,304	27	$20,942,776	14	$6,673,474	41	$27,616,250
SD	5	$989,672	1	$172,998	2	$1,896,607	2	$1,676,585	7	$2,886,279	3	$1,849,583	10	$4,735,862
TN	17	$2,942,191	14	$3,059,917	17	$23,056,134	6	$6,459,287	34	$25,998,325	20	$9,519,204	54	$35,517,529
TX	174	$34,306,067	73	$14,909,107	138	$171,104,513	22	$21,354,662	312	$205,410,580	95	$36,263,769	407	$241,674,349
UT	46	$11,192,535	11	$2,160,414	27	$35,352,611	7	$6,122,175	73	$46,545,146	18	$8,282,589	91	$54,827,736
VA	168	$31,545,813	58	$10,661,621	135	$177,484,480	18	$19,094,177	303	$209,030,293	76	$29,755,798	379	$238,786,092
VT	4	$2,000,072	2	$754,271	7	$10,848,922	1	$1,992,684	11	$12,848,994	3	$2,746,955	14	$15,595,949
WA	60	$14,556,264	15	$4,184,915	53	$68,326,592	12	$12,952,549	113	$82,882,856	27	$17,137,464	140	$100,020,321
WI	26	$6,319,052	8	$1,571,855	20	$24,922,491	2	$3,075,269	46	$31,241,543	10	$4,647,124	56	$35,888,667
WV	2	$224,900	2	$399,999	4	$6,878,148	0	$0	6	$7,103,048	2	$399,999	8	$7,503,047
WY	9	$1,431,490	1	$255,568	7	$7,498,682	0	$0	16	$8,930,172	1	$255,568	17	$9,185,740

The number of awards are only for new awards during FY22. The dollars obligated includes funding for both new and prior year awards. Agencies have the ability to update the number and dollar amounts for awards, so that information may differ on SBIR.gov. The data represented in this table reflects a snapshot in time and was retrieved on September 13, 2023.

12 | SBIR/STTR Award Timelines

The SBIR/STTR provisions in the SBIR/STTR Reauthorization Act of 2011 focused on reducing the gaps in the time between the close of the solicitation, the notification of award, and the performance start date. The Policy Directive prescribed the duration between the closing date of the solicitation and the notification of recommendation of award to be not more than one year for NIH and NSF; and not more than 90 calendar days for all other agencies. The Policy Directive also prescribed the duration between the closing date of the solicitation and the first date of the period of performance on the funding agreement as not more than 15 months for NIH and NSF; and not more than 180 calendar days for all other agencies. The data in this section originates from the proposal notification and award timeline data the Participating Agencies uploaded to SBA.

Civilian Participating Agencies SBIR Timelines

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

Table 21: 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)	207	72	78	300	98	59	64	102	73	79
Average time between Phase I Notification and First Day of Period of Performance (days)	83	55	53	6	64	50	53	76	44	42
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days (1 year for HHS and NSF only)	99%	97%	100%	72%	49%	100%	100%	41%	100%	100%
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)	91%	99%	100%	91%	73%	100%	100%	41%	100%	100%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	404	131	178	491	407	190	135	172	193	123
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	186	72	94	303	57	57	66	47	50	57
Average time between Phase II Notification Date and First Day of Period of Performance (days)	67	66	83	5	67	104	32	68	103	31
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and Notification Date was less than or equal to 90 days (<=1 year for HHS and NSF only)	98%	91%	2%	70%	91%	100%	100%	100%	94%	100%
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and First Day of Performance was less than or equal to 180 days (<=15 months for HHS and NSF only)	94%	95%	72%	91%	100%	64%	100%	100%	71%	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

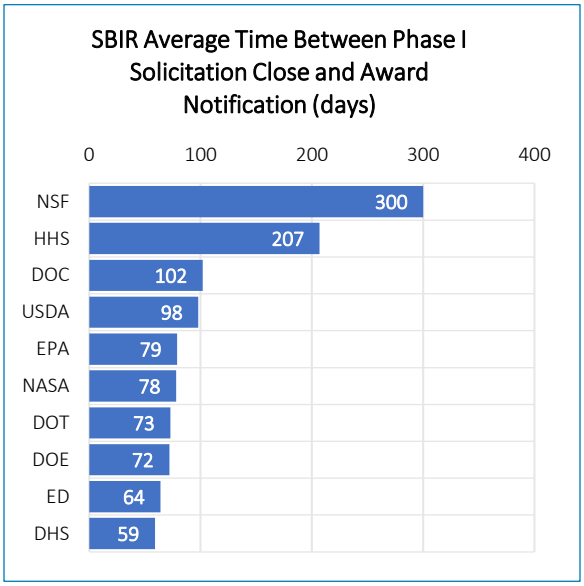


Chart 22: SBIR Average Time Between Phase II Solicitation Close and Award Notification - Civilian

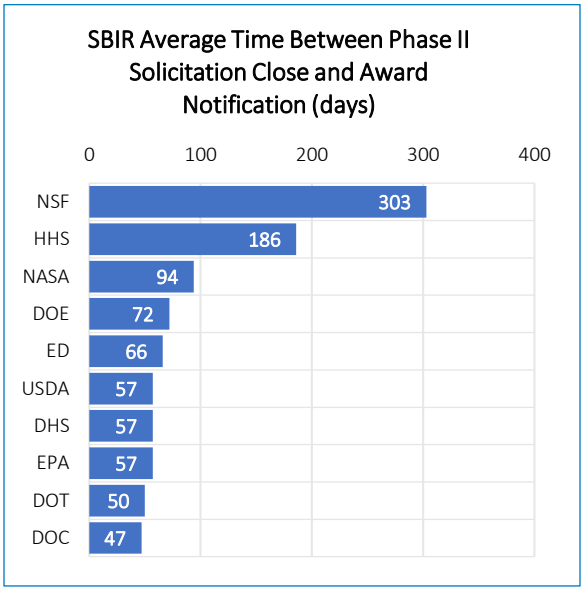
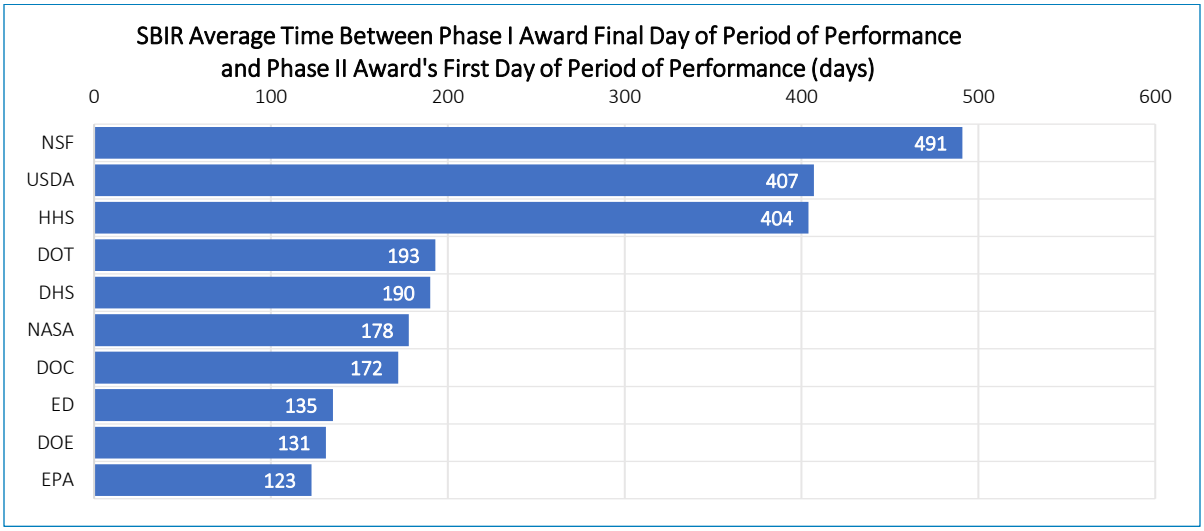


Chart 23: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – Civilian Agencies



DoD Service Agencies and Other Defense Agencies SBIR Timelines

Table 22 below shows how DoD Service Agencies and Other Defense Agencies performed on the SBIR program during FY22. 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 met this timeline requirement for 96% of its awards, the Army 91%, Air Force 21%, and the Other Defense Agencies 93%. Across the DoD 81% of Phase I awards were issued within 180 days of the solicitation close or proposal receipt; including 95% of Navy and 80% of Other Defense Agencies SBIR Phase I awards. Across the DoD 62% of SBIR Phase II awards were issued within the 180-calendar day requirement, including 86% of Navy, 80% of the Air Force and 80% of Other Defense Agencies SBIR Phase II awards.

Table 22: 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)	112	69	64	81	87
Average time between Phase I Notification and First Day of Period of Performance (days)	50	82	95	88	74
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	21%	96%	91%	93%	68%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	74%	95%	72%	80%	81%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	321	169	428	406	308
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	89	32	98	101	84
Average time between Phase II Notification Date and First Day of Period of Performance (days)	79	194	124	117	109
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and Notification Date was less than or equal to 90 days	80%	86%	51%	80%	79%
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	72%	41%	36%	59%	62%

The following FY22 charts are organized by DoD Service Agencies and Other Defense Agencies and contrast the performance on Phase I and Phase II SBIR proposals.

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

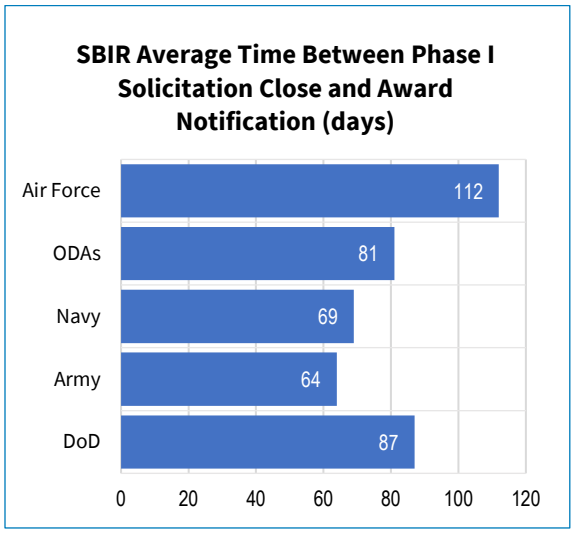


Chart 25: Average Time Between Phase II Solicitation Close and Award Notification – DoD Service Agencies and Other Defense Agencies

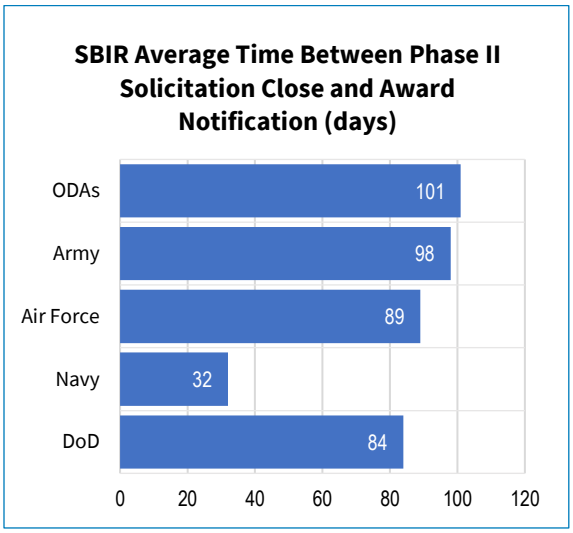
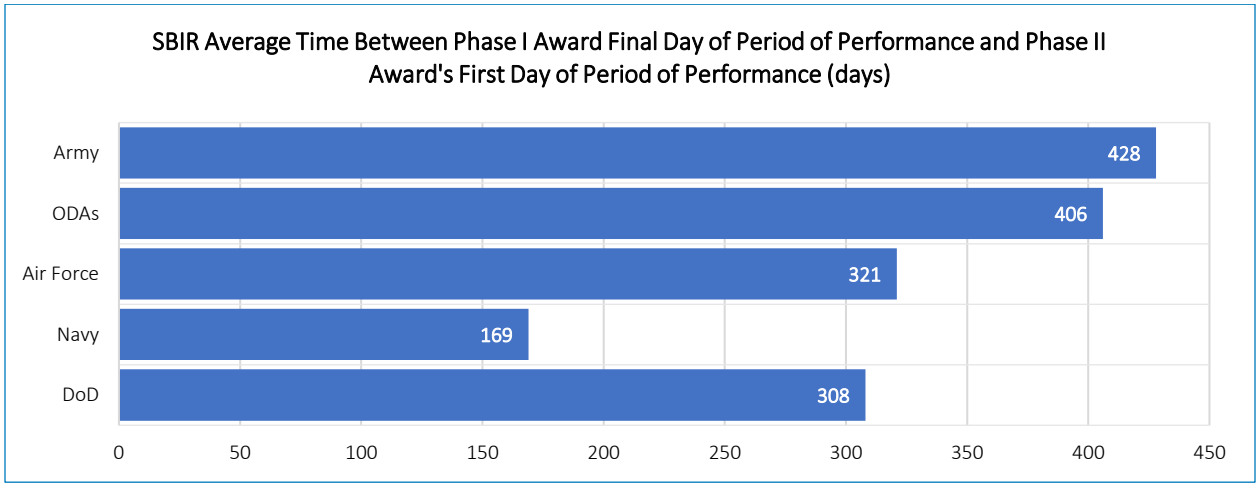


Chart 26: SBIR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance – DoD Service Agencies and Other Defense Agencies



Civilian Participating Agencies STTR Timelines

NASA reported that 100% of Phase I STTR awards were issued within the required timeline.

Table 23: STTR Award Timelines - Civilian Agencies

STTR Award Timelines	HHS	DOE	NASA	NSF
Average time between Phase I Solicitation Close and Award Notification (days)	203	70	78	309
Av Average time between Phase I Notification and First Day of Period of Performance (days)	87	57	54	8
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days (1 year for HHS and NSF only)	99%	100%	100%	70%
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)	91%	98%	100%	84%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	420	110	169	584
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	230	60	82	361
Average time between Phase II Notification Date and First Day of Period of Performance (days)	68	80	80	5
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and Notification Date was less than or equal to 90 days (1 year for HHS and NSF only)	96%	100%	100%	43%
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)	86%	91%	85%	71%

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

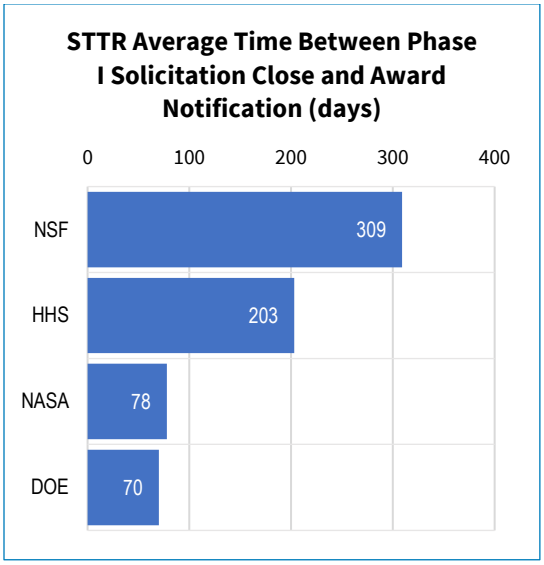


Chart 28: STTR Average Time Between Phase II Solicitation Close to Award Notification - Civilian Agencies

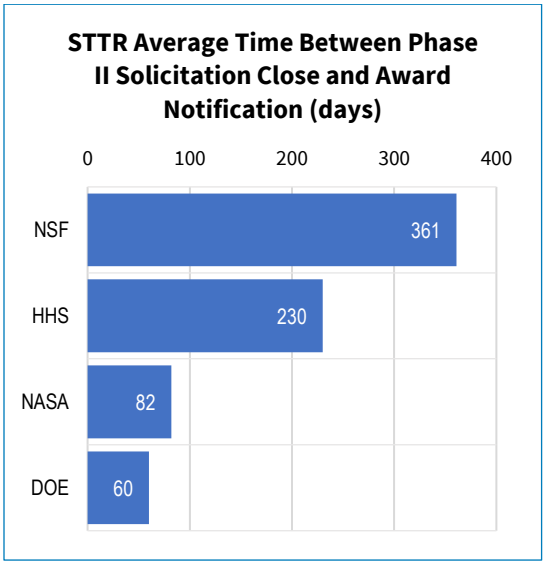
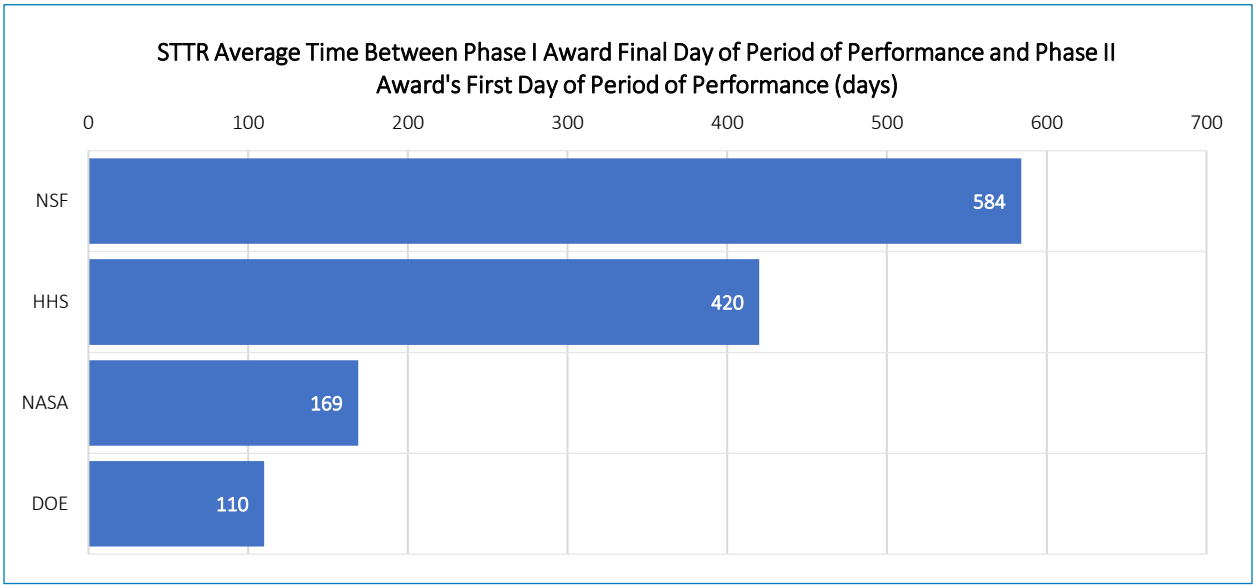


Chart 29: STTR Average Time Between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance - Civilian Agencies



DoD Service Agencies and Other Defense Agencies STTR Timelines

Table 24 below shows how DoD Service Agencies and Other Defense Agencies (ODAs) performed during FY22 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 Army and ODAs met this notification requirement for 100% of its STTR Phase I awards. Across the DoD 68% of STTR Phase I awards were issued within 180 calendar days of the solicitation close or proposal receipt; but only 34% of Phase II awards were issued within the 180-calendar day requirement.

Table 24: 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)	94	57	33	65	72
Average time between Phase I Notification and First Day of Period of Performance (days)	79	85	128	78	90
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days	56%	93%	100%	100%	74%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days	63%	89%	65%	76%	68%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	292	42	380	378	316
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	118	40	80	127	103
Average time between Phase II Notification Date and First Day of Period of Performance (days)	95	201	167	124	123
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and Notification Date was less than or equal to 90 days	61%	79%	100%	70%	70%
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	39%	21%	5%	58%	34%

The following FY22 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

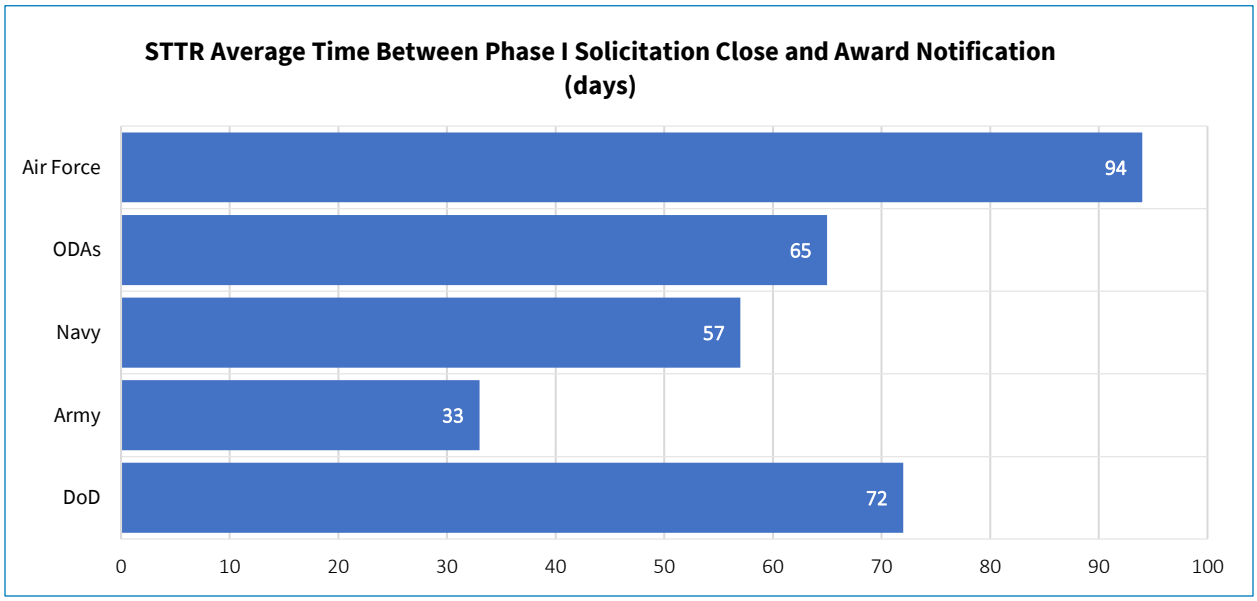


Chart 31: Average Time Between Phase II Solicitation Close and Award Notification - DoD Service Agencies and Other Defense Agencies

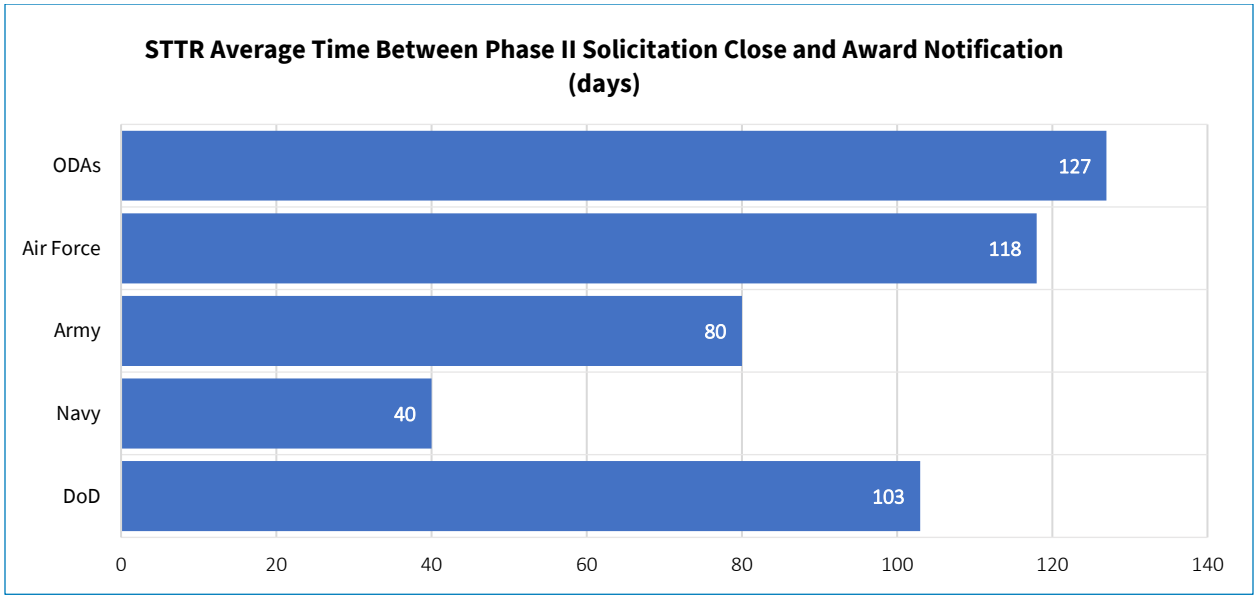
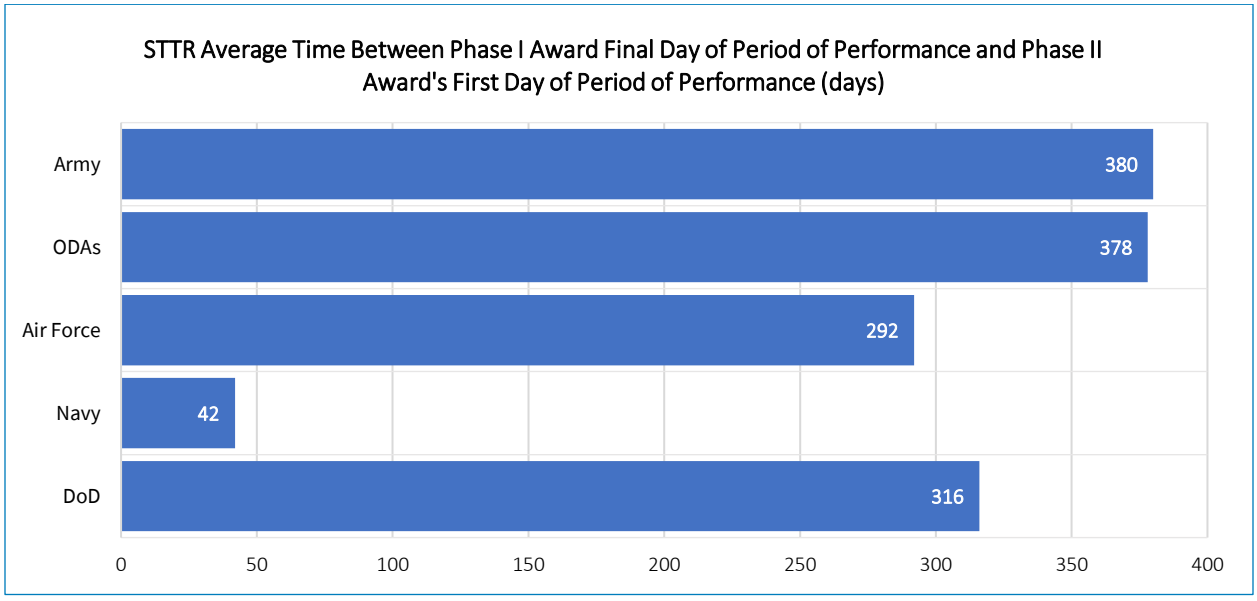


Chart 32: STTR Average Time Between Phase I Award Final Day of Performance and Phase II Award's First Day of Period of Performance - DoD Service Agencies and Other Defense Agencies



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

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

- Update and/or upgrade information technology systems to accommodate new reporting requirements
- Modify program application, review, and selection processes and procedures to shorten award timelines
- Develop targeted marketing and commercialization plans
- Assess prior awardee commercialization efforts
- Continue extensive outreach to increase small business 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 budgets and actual obligations are shown below.

Table 25: Administrative Funding Pilot Program

AFPP Maximum Allowable and Obligated Amount per Agency			
Agency	**Max Allowable***	**Funding Approved**	**Obligated†**
DoD	$65,588,112	$63,593,358	$56,920,001
HHS	$31,223,894	$30,225,000	$20,235,912
DOE (Program Office)	$7,950,000	$4,936,590	$4,185,300
NSF	$5,766,300	$5,016,300	$5,427,690
NASA	$5,853,000	$5,853,000	$5,484,000
DOT	$371,277	$371,277	$193,339
NOAA (DOC)	$330,000	$189,666	$239,893
NIST (DOC)	$159,000	$15,900	$0

ED	$353,202	$101,039	$25,768
USDA	Not Participating	Not Participating	Not Participating
DHS	Not Participating	Not Participating	Not Participating
EPA	Not Participating	Not Participating	Not Participating
Totals	**$117,594,785**	**$110,302,130**	**$92,711,903**

* 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:

DoD

- Army Contracting Center of Excellence became fully operational in March 2022. The CCOE awarded, administered and consolidated Army Applied SBIR Phase I and Phase II contracting resources under one centralized office. This streamlined approach to contracting process helped the Army rapidly respond to Army needs across laboratories and acquisition offices and improved he ability of small businesses to receive funding and begin working with the Army much faster. The time to award contracts decreased from an average of 239 days per the recent GAO report to as fast as 20 days for a Phase I award and 45 days for a Phase II award.

HHS

- The goal of the NIH Applicant Assistance Program is to provide application preparation and submission guidance to small businesses who lack experience submitting a NIH SBIR or STTR application. In FY22, 10 NIH Institutes and Centers participated in the NIH program (up from 8 in FY21). 411 businesses applied for the program and 150 businesses received assistance. Of the participating businesses, approximately 71% indicated women in an ownership role, 44% indicated individuals from an underrepresented group in an ownership role, and 28 were from Institutional Development Award (IDeA) states.
- In FY22 90 consults were conducted by SEED Innovator Support staff (up from 47 in FY21). National Heart, Lung, and Blood Institute (NHLBI) provided pitch-coaching to 38 companies across partnering events, 36 consultations to NHLBI grantees, and review of 91 unique projects. National Institute on Aging (NIA) conducted over 255 consultations.

DOE

- In FY2022, DOE provided Phase 0 services to 235 eligible small businesses intending to apply to the FY 2022 Phase I Release 1 and 2 Funding Opportunity Announcements. Of the 27 awards granted to those Phase 0 small businesses, 3 awards were granted to WOSBs, 10 awards went to SDBs, 10 went to small businesses in underrepresented states, and 12 awards went to non-underrepresented small businesses. For the period 2013 to 2022, Phase I award rates have increased for all underrepresented groups. The agency has made improvements over the past years and continues to explore ways to accelerate the trend. DOE's Equity Action Plan goal for SBIR/STTR is that 15% of awards go to women-owned and 15% go to socially and economically disadvantaged small businesses by FY 2025.

NSF

- Developed digital marketing campaign by fine-tuning ad placement on social media sites (e.g., adding more content on LinkedIn and Research Gate and removing content from Reddit, etc.). Continued to develop advertisements featuring women and BIPOC community to encourage Project Pitches associated with deep tech innovations. Outcomes included:

  1) Generated 6,587 SBIR/STTR Pitch submissions in FY2022.

  2) NSF's digital marketing campaign generated 48 million web impressions and >810,000 website sessions.

  3) Language in targeted advertisements, emails, and communications has been improved to provide greater clarity on the aims of the program and how to apply. 4) NSF observed a 10% increase in invited Project Pitches in FY 2022 (compared to previous year). They also observed a significant decrease in expired Project Pitches of 77.4% (Project Pitches expire if the invited full proposal is not submitted within one year of issue date), potentially indicating better targeting of the applicant pool.

NASA

- Continued a partnership with the Minority Serving Institution STEM Research and Development Consortium (MSRDC)to implement a Phase 0 program aimed at increasing awareness of the NASA STTR program at HBCU/MSIs, facilitating partnerships between HBCU/MSIs, and providing proposal support to increase the 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. Developed the ReCapSys database to serve as the entry point and engine for collecting capabilities from the HBCUs/MSIs and SBs as they align with NASA Centers' core competencies. Funded 5 of the 12 grants through MUREP and oversaw activities to transition to STTR proposal teams for the FY23 solicitation.

DOT

- New website layout, including search-able FAQs, new 'Suggest A Topic' form, new homepage and new success stories layout.
- Continued cost-savings with debriefings and satisfaction surveys by evaluators.

DOC

- For NIST, in year 2022, the number of companies within underserved states that submitted applications to the FY22 Phase 1 solicitation increased over FY21 due to NIST's continued outreach activities to increase small business participation.
- For NOAA, with standardization, a more effective and efficient processing of the solicitation, evaluation, and selection process was achieved. A baseline was established for the average length of time needed for each step of the standardized SBIR grant administration process.

ED

- Administrative funds supported a program analyst who assisted in several ways, including spending 210 hours assisting in the ED SBIR program review. The program analyst reviewed 5 proposals and 247 technical evaluation review forms and provided support to more than 80 reviewers. The program complied with the 90-day requirement for notification of awards. The program analyst represented the agency at the expo booth at the SBIR Spring Conference.

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

- The Army participated in 15 panels, expos, or other presentations geared toward small businesses, to include events through the SBA and PTACs, which help local businesses compete in the government marketplace, to help small businesses enter the market and find research and development opportunities. Many of the Army's engagements focused on outreach to SDBs and WOSBs.
- AFWERX actively participates in the AFRL Equity (DEIA) Council - Outreach Committee. As of FY22, AFWERX is represented on the DEIA Council as a committed member to the DEIA mission. The DEIA Council was established in November 2021 to provide cross-bureau coordination, policy development, and administrative support for initiatives that: institutionalize equity and inclusion across the Department's programs and operations; support bureaus in creating a positive internal culture; and raise program officials' consciousness of systemic barriers.

HHS. HHS continued to increase awareness of SBIR/STTR programs and identify new applicants, with an emphasis on Women-Owned Businesses (WOSB), Socially and Economically Disadvantaged Businesses (SDB), and under-represented states, known as Institutional Development Award (IDeA) States. HHS' SBIR/STTR outreach strategy involves centralized coordination of programmatic and outreach activities conducted by the Institutes and Centers within NIH, CDC, FDA, and ACL. Examples include:

- NIH's nationwide network of proof-of-concept centers, including 56 academic institutions in 19 states through the NIH Centers for Accelerated Innovations (NCAI) and the Research Evaluation and Commercialization Hubs (REACH) programs: These centers provide proof of concept funding and entrepreneurship and commercialization training to accelerate translation of scientific discovery into commercial products that improve health and save lives. More than 25% of the innovators supported by technology development projects are women or underrepresented minorities. They have developed and instituted several programs to provide access to expert knowledge, entrepreneurship training, mentorship, and additional resources including targeted bootcamps and pre-accelerator programs with several programs focused on underrepresented groups. Within the auspices of the proof-of-concept centers, several initiatives targeted SDBs and WOSDBs.
- NIH supported several campaigns to highlight the importance of diversity in the scientific workforce, including during Women's Small Business Month, Hispanic Heritage Month, and Black History Month. Several events and opportunities supporting SDB/WOSB/IDeA state companies were also actively promoted. NIA also hosted the Research Diversity Day Twitter Chat to provide participants with information about diversity supplements and have awardees share their experiences.

DOE. DOE SBIR/STTR Programs collaborates across the Office of Science (SC) to advance organizational best practices for promoting diversity, equity, and inclusion (DEI) in SC's business practices for awarding and managing competitive research. Our methodology is to track, educate, support and innovate. For the tracked period 2013 to 2022, our Phase I award rates have increased for all underrepresented groups.

However, in light of DOE's Equity Action Plan goal for SBIR/STTR that 15% of awards go to women-owned small businesses (WOSBs), and 15% of awards go to socially and economically disadvantaged small businesses (SEDs) by FY 2025, we are looking for ways to accelerate the trend.

NSF. Some highlights from NSF's efforts in broadening participation of underrepresented groups in fiscal year 2022 are as follows:

- NSF staff presented in-person and online at more than 75 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.
- NSF SBIR/STTR program staff organized and conducted approximately 25 pre-submission webinars to encourage people to submit a project pitch or help them prepare their proposals, both by providing guidance on the submission process (especially in regard to the budget) and guidance on the goals of the programs. These webinars attracted several thousand attendees.

USDA. USDA held or participated in several events including an SBIR/STTR Boot Camp, USDA SBIR Webinars, and the SBA-led America's Seed Fund Week.

DHS. The DHS SBIR Program Office has continued to take advantage of the multi-agency outreach events and actively seeks other opportunities to speak to and promote participation by SDBs, WOSBs and the underrepresented communities in the SBIR program. Each year we increase our social media and targeted communications to both old and new audiences which are intended to increase participation within socially and economically disadvantaged communities. We have also added personnel resources to develop strategic outreach planning and support additional outreach opportunities. Administrative funding approval has been requested to fund the development and execution of a Phase 0 program to identify and engage new potential applicants from nationally underrepresented groups, particularly SDBs and WOSBs, who have no prior DHS SBIR awards. The program will also provide education and assistance early in the SBIR lifecycle to reduce the knowledge gap and increase the chances of success for new participants.

DOT. DOT SBIR has taken steps in increase outreach to SDBs and WOSBs by participating in events that target small, disadvantaged businesses and women owned small businesses such as the TechConnect SBIR/STTR Innovation Conference in Washington DC. 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. DOT SBIR also coordinate with requests from SBIR-wide events and SBA requests such providing informational materials for virtual events.

DOC. NIST and NOAA both took steps to increase outreach to SDBs and WOSBs in a number of ways including our virtual and in-person participation in the SBIR national conferences and programs sponsored by other organizations with outreach activities serving the small business community. Technically excellent proposals received from SDBs and WOSBs, and SDBs and WOSBs from HUBZones and underserved states, is one of several selection criteria within the NIST Phase I selection process. NOAA plans to implement a similar process to give priority to technically excellent proposals from SDBs and WOSBs in future evaluations.

ED. ED provided information on its program and associated funding opportunities which was presented at the Department of Education's "HBCU Research and Innovation week" led by the ED White House HBCU and Domestic Policy representative. The agency provided information on its 2022 program funding opportunity for the ED HBCU newsletter. ED also participated in six SBIR HBCU and MSI working groups led by the Small Business Administration. The purpose of these meetings is to coordinate across agencies to support and enable partnerships with SBIR federal agency program managers and HBCUs to leverage resources, collaborate, and cross-share information to achieve the Mission goals and objectives.

EPA. EPA continues to do outreach to all small businesses including SDBs and WOSBs through as many outlets as possible including the SBIR National Conference, State hosted SBIR webinars and the annual webinar hosted by EPA prior to the release of the Phase I solicitation for all potential applicants. EPA has plans to improve outreach to underrepresented groups and welcomes leveraging other larger SBIR agencies' efforts in this area.

NASA. The NASA SBIR/STTR Program continues to focus outreach efforts on underrepresented groups. Leveraging the ability to attend many events virtually, and thus reduce travel time and expenses, the program participated in over 30 events in 2022. In addition to more general outreach events such as the SBIR/STTR national conferences, many of the events targeted underrepresented groups, including woman-owned, disadvantaged, and underrepresented states. The program partners with NASA's Office of Small Business Programs (OSBP), Office of STEM Engagement (OSTEM), and the Small Business Administration (SBA) on outreach activities that are often specifically targeting disadvantaged-, veteran-, and women-owned businesses.

14 | Government Phase III Funding

Phase III funding is measured as the revenue a business receives through the funding of additional R&D, licensing, investment and/or sales for work that can be tied back to SBIR/STTR funded technology. Phase III, by definition, is work that derives from, extends, or completes Phase I or II work and is not supported by SBIR or STTR dollars. The data in Table 26 represents agency reported awards that satisfy the Phase III definition.

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 26 below provides a listing of Participating Agencies reporting Phase III funding during FY22. The Civilian agencies combined to report nearly $206 million in funding, of which DHS made up $149 million, NASA obligated $28 million, and HHS obligated $21 million.

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

Table 26: Government Phase III Funding

Agency	Total Phase III Obligations ($) †
Navy	$1,067,871,935
Air Force	$1,049,669,789
Army	$311,529,525
DHS	$149,802,704
Other Defense Agencies	$134,151,046
NASA	$27,578,413
HHS	$20,978,426

Agency	Total Phase III Obligations ($) †
DOE	$6,797,088
DOC	$532,367
EPA	$117,118
Totals	**$2,769,028,411**

† 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 26 provides a summary of all the agencies that made Phase III awards in FY22 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 $1.06 billion (42% of the total DoD Phase III obligations), Air Force reporting $1.05 billion (31% of the total DoD Phase III obligations), Army reporting $312 million, and the Other Defense Agencies reporting $134 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 Cancer Institute (NCI), 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 and the NCI study estimating a 33:1 return on investment for NCI. The reports can be found at https://www.sbir.gov/impact/impact-reports.

15 | SBIR/STTR Commercialization Programs

DoD Commercialization Readiness Program (CRP)

The Commercialization Readiness Program (CRP) was originally authorized and created as part of the National Defense Authorization Act of Fiscal Year 2006 as the Commercialization Pilot Program (CPP) under the OSD and the Secretary of each Military Department. Congress permanently authorized the program through the SBIR/STTR Reauthorization Act of 2011. The purpose of the CRP is to pay for activities that accelerate the transition of DoD SBIR/STTR-funded technologies to Phase III, especially those providing significant benefit to the nation's warfighters in improved performance, new capabilities, increased reliability, and cost savings well exceeding investment. Phase III commercialization work derives from, extends, or completes efforts made under prior funding agreements under the SBIR/STTR Programs, and requires small businesses to obtain funding from the private sector and/or non-SBIR/STTR government sources. Under the CRP, up to 1% of the available SBIR funding may be used by DoD 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 FY22 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 the firms do not directly receive the funds, much like the Administrative Funding Pilot Program. Note that once an agency submits and has its CRPP plan approved by SBA, it does not have to reapply year to year.

The following table provide further data on how HHS, NASA, and DHS used the CRPP authority in FY22.

Table 27: Commercialization Readiness Pilot Program for Civilian Agencies (CRPP) - HHS, NASA, DHS

Agency	Number of Awards	Amount Obligated
HHS	26	$39,987,554
NASA	6	$8,025,433
DHS	6	$397,610

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 FY22 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 FY22, HHS obligated $39,987,554 across 26 CRPP projects.

A sampling of HHS CRPP successes:

- **Actuated Medical** (https://actuatedmedical.com/, https://seed.nih.gov/portfolio/stories/Actuated-Medical): Actuated Medical uses vibrations in medical devices to improve outcomes. To make needle insertion smoother and less painful, the company has created a needle which vibrates with low-frequency, back-and-forth motions. A similar product uses quiet vibrations to reduce traumatic damage to surrounding tissue during insertion of neural implants to the brain. A third SBIR-supported product uses vibration to clear clogs from feeding and drainage tubes. The CRP Program helped extend the company's technology and product portfolio through activities to increase hospital access, adoption, and sales of their Active Disposable Cap for Endoscope system (ACE). ACE is a disposable endoscopic accessory that enables physician-controlled tissue manipulation to facilitate complex polyp removal procedures and aid resection.
- **AxoSim** (https://axosim.com/, https://seed.nih.gov/portfolio/stories/AxoSim): AxoSim produces lab-grown human nerve cells to accelerate development of new drugs. These cells allow better predictions on how a drug or environmental chemical will affect the human nervous system, including performance and toxicity. Building upon previous STTR-supported work which demonstrated the technical feasibility and successful commercial deployment of a peripheral "nerve-on-a-chip," the CRPP award is supporting deployment of the technology at a commercial scale. This work will position the technology for scalable implementation, enabling the company to offer the platform widely to pharmaceutical companies seeking information about peripheral neuropathy earlier in the preclinical drug development process than currently possible.
- **Baebies** (https://baebies.com/, https://www.nichd.nih.gov/newsroom/news/sbir_ma_020617): Baebies developed the first FDA-authorized newborn screening platform for lysosomal storage disorders that could injure the brain and nervous system. The platform, called SEEKER™, performs multiples assays at the same time using a single punch from a newborn dried blood specimen. It's used on thousands of babies around the world every day.
- **BioSensics** (https://biosensics.com/, https://www.nia.nih.gov/news/small-business-spotlight-biosensics-wearable-technology-supports-aging-place): BioSensics is a global leader in the development of wearable sensors and digital technologies that support aging in place for elderly Americans so they can maintain their independence longer. Commercialization was a goal from the beginning; the company kept end users in mind as it refined this technology, and it secured multiple licensing partnerships that helped deploy it to thousands of users. Electronics retailer

Best Buy also acquired a portion of BioSensics' assets. In 2020, the company received a Tibbetts Award from the SBA for its contribution to society.

- **Eyenuk** (https://www.eyenuk.com/us-en/, https://seed.nih.gov/portfolio/stories/Eyenuk,): Eyenuk developed an Artificial Intelligence screening system to detect one of the most common causes of blindness in people living with diabetes called diabetic retinopathy. In most cases, this public health concern is preventable with early detection. The CRPP award allowed the company to run clinical trials validating their technology, which is now being used around the world.

- **Healthy Design** (https://www.exersides.com/, https://seed.nih.gov/portfolio/stories/Healthy-Design): Healthy Design developed the Exersides Refraint System that allows patients to move within a desired range of motion while containing vital tubes and lines. This negates the need for traditional restraints and lessens a patient's agitation and need for sedation. The company used CRPP funding to commercialize, manufacture, and market the system which is now available globally.
- **Microvi Biotech** (https://www.microvi.com/, https://seed.nih.gov/portfolio/stories/Microvi): Microvi develops pollutant-eating microbes that clean drinking water reliably and cost-effectively without producing secondary waste. The company's technology has been installed in drinking water plants in the U.S. and other countries.
- **Oligomerix** (https://oligomerix.com/, https://www.nia.nih.gov/research/sbir/nia-small-business-showcase/oligomerix): Oligomerix has developed a drug to treat Alzheimer's Disease and other neurodegenerative disorders that could be more economical, convenient to dose, and cost-effective than its competitors. The company is heading toward Phase I clinical trials to study the drug's safety and how it moves through the human body. CRPP funding helped Oligomerix form advisory boards and ramp up its public relations activities.
- **RIVANNA** (https://rivannamedical.com/, https://seed.nih.gov/portfolio/stories/Rivanna): RIVANNA developed a handheld ultrasound device to guide epidural placement. The company's 3D image guidance system to support interventional procedures in the spine and pelvis aims to increase access to, and decrease the cost of, interventional pain services. Their mobile, bedside system, Accuro 3S, produces intuitive reconstructions of spine anatomy and enables real-time needle guidance for pain management injections at the patient bedside while reaching a cost >5x less than current imaging guidance options. Their CRPP award allowed the company to generate an all-inclusive Clinical Evidence Generation Strategy to demonstrate the clinical and economic value proposition for their system. The company also used the support to expedite the manufacturing, validation, and regulatory approval of a sterile consumable so that it will be available when clinical trials commence. Completion of this commercialization project will enable RIVANNA to maximize early market penetration and work toward the long-term vision of improving outcomes in chronic pain management by changing the standard of care.
- **Epitel** (https://www.epitel.com/, https://www.businesswire.com/news/home/20220216005643/en/Epitel-Secures-12.5-Million-Series-A-Financing-for-Wearable-Wireless-EEG-Monitoring-System): Epitel has developed a remote EEG monitoring system to wirelessly monitor brain activity for up two consecutive days. The wearable FDA-cleared platform, which can detect seizures, can be easily applied to patients and makes data available in the cloud for review by neurologists at any time or location. As the company begins initial commercialization to hospitals for use in emergency departments and intensive care units across the country, the CRPP award is supporting additional studies and evidence generation for clinical utility, health economics modeling, market access, and manufacturing optimization.

NASA. NASA obligated $8,025,433 on 6 awards.

A sampling of NASA CRPP success:

- **Mango Materials**: Methane Bioreactor System Offers Sustainable Plastic Alternative for Earth and Space. Mango Materials partnered with the Colorado School of Mines on NASA STTR awards to adapt a bioreactor system to convert methane into bioplastic for low-gravity environments. In space, methane from carbon dioxide conversion systems and waste treatment can be used to 3D print objects and provide polymers for construction and regolith binding. On Earth, the system can convert methane—a greenhouse gas—into environmentally conscious bioplastic. Mango Materials received $6 million through NASA CCRPP, including funds from fashion investors seeking alternatives to plastic-based textiles. (https://ntrs.nasa.gov/api/citations/20220012586/downloads/007-Mango%20Materials%20SuccessStory_V5.pdf)

DHS. DHS funded 6 awards for $397,610.

A sampling of DHS CRPP success:

- DHS awarded **Synthetik Applied Technologies** a 26-month, Phase III contract in FY22 to continue development and commercialization efforts on their DeepSpektra – Enhanced Explosives and Illicit Drugs Detection by Targeted Interrogation of Surfaces solution. Synthetik's DeepSpektra technology directly addresses a significant pain point for TSA, namely optimal sample collection for effective trace detection at passenger security checkpoints. The technology will greatly enhance non-contact explosives and illicit drugs detection technologies by directing these modalities toward surfaces that have residues of interest for further interrogation. Synthetik's Phase III effort will demonstrate, verify, and validate tools for generating physically accurate synthetic data for property screening (2-D and 3-D) as well as passenger screening. It will also demonstrate techniques for leveraging these capabilities for automatic algorithm training and evaluation. Finally, it will harden the developed software to meet DHS requirements necessary for operational deployment on a DHS network.

16 | Other SBIR/STTR Reporting Requirements

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

The SBIR/STTR Reauthorization Act of 2011 provided authority to SBIR Participating Agencies to use a portion of its program funds for awards to firms that are majority-owned by multiple venture capital operating companies (VCOCs), hedge funds (HFs) or private equity firms (PEFs). HHS's NIH and Centers for Disease Control and Prevention (CDC) and DOE's Advanced Research Projects Agency-Energy (ARPA-E) elected to begin using this authority in 2013. 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 2022. Hereafter, firms that are majority-owned by multiple VCOCs, HFs, or PEFs are referred to as portfolio companies. The Department of Defense did not provide the SBA required reporting on awards to such firms for fiscal year 2022, and therefore are not represented in the table below.

Table 28: HHS SBIR Awards to SBC majority-owned by multiple VCOCs, hedge funds or private equity firms

FY22 HHS SBIR Awards to SBC majority-owned by multiple VOCs, hedge funds or private equity firms	
Number of proposals received	17
Number of awards	16
Total dollar amount of awards	$9,014,952
Number of Phase I proposals Received	12
Number of Phase I Awards	11
Total dollar amount of Phase I Awards	$3,224,554
Number of Phase II proposals received	5
Number of Phase II Awards	5
Total dollar amount of Phase II Awards	$5,790,398
Number of non-competing awards	13
Total dollar amount of non-competing Phase II Awards	$12,637,264
Overall dollar amount of awards (competing and non-competing)	$21,652,216

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 FY22. 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 FY22.

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/impact/impact-reports.

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 Directive. 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/impact/impact-reports.

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 FY22.

Table 29: Direct to Phase II Awards

Agency / Branch	New Direct to Phase II Awards	Total Obligations (including those on prior awards)
DoD/Air Force	322	$430,978,408
HHS/National Institutes of Health	154	$275,469,927
DoD/Defense Advanced Research Projects Agency	32	$49,231,745
DoD/Army	30	$47,888,054
DoD/Special Operations Command	21	$25,899,928
DoD/Space Development Agency	11	$18,214,210
DoD/Defense Health Agency	15	$13,994,675
DoD/Strategic Capabilities Office	7	$9,966,963
DoD/Missile Defense Agency	5	$8,466,803
DoD/Navy	6	$6,036,268
DoD/National Geospatial-Intelligence Agency	4	$3,997,871
DoD/Defense Logistics Agency	2	$2,341,874
DoD/Defense Microelectronics Activity	1	$1,099,638
ED/Department of Education	1	$1,000,000
Total	611	$894,586,365

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 2022 NIH obligated $4,919,457 in Phase 0 Proof of Concept Partnership Pilot Program funding.

17 | 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 2022 SBIR Highlights

- In FY22, USDA surpassed the extramural threshold to begin offering a STTR program.

FY 2022 SBIR Success Stories

- **NovolBio**, recipient of USDA SBIR funding, is on the verge of revolutionizing the eyeglass lens industry with the world's first sustainable prescription eyeglass lenses and zero-waste production platform. Made from plant-based materials to replace petroleum, Bioglass and its precision molding process dramatically reduces fossil fuel consumption by up to 80% and eliminates plastic waste, creating the first circular economy for eyewear.
- The **Intellisense Systems LLC**, a leading provider of integrated environmental sensing solutions, is developing a novel Fire Weather Observation Sensor (FWOS) system to facilitate detection and management of wildfires on forest lands through USDA SBIR funding. As a stand-alone unattended field deployable sensor, the FWOS technology remotely measures data related to fire weather and transmits the data via satellite or cellular communications from anywhere in the globe. FWOS supports fire departments to anticipate fire weather conditions and improve awareness in remote and densely forested regions. Ultimately, FWOS helps maintain healthy and productive forest ecosystems through providing new information to fire service personnel for understanding wildfire events.
- As much as $20 billion worth of food goes to waste each year in developing countries because it is not dried properly. **JUA Technologies** received USDA SBIR funding and a $50,000 investment from Elevate Ventures to develop solar-powered crop-drying devices. The grant money will be used to advance a multipurpose solar dryer and a power generator, named “Dehymeleon®” to test “proof of concepts” of its multi-crop drying algorithms that would position it to progress toward designing a product for manufacture and commercialization. Dehymeleon will be marketed to small to mid-sized growers in the United States and in developing countries.

FY 2022 Commercialization/Outreach Activities

- USDA participated in America's Seed Fund week in July of 2022, and participated in numerous other outreach activities that are documented previously in this report.

Department of Commerce (DOC)

FY 2022 SBIR Highlights

- NIST conducted its first ever SBIR Program Fast-Track competition to utilize funds appropriated by Section 7501 of the American Rescue Plan (ARP) Act of 2021, Pub. L. 117-2 (March 11, 2021), which provided NIST with funding to make awards for "research, development, and testbeds to prevent, prepare for, and respond to coronavirus." The Notification of Funding Opportunity (NOFO) utilizing ARP funds resulted in 4 awards totaling $800K each.
- The following list of companies, which won SBIR Phase 1 awards in FY22 are new to the NIST SBIR program: **Criticality Sciences, Inc.**; **InfraTrac, Inc.**; **Julia Jean LLC**, **Tiami LLC.**

FY 2022 SBIR Success Stories

- Three NOAA SBIR-funded SBC's were selected to showcase their technologies at the inaugural SBA-led America's Seed Fund Expo in May of 2022.

FY 2022 Commercialization/Outreach Activities

- Air Force HBCU/MI Outreach Initiative Collider
- America's Seed Fund Week
- NOAA Small Business Industry Day
- Blue Tech Week
- SACNAS National Diversity in STEM Conference

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 2022 SBIR Highlights

- Millions of students, educators, and administrators continue to use education technology products developed by dozens of companies supported by ED SBIR each year.
- ED/IES SBIR announced 22 new awards in 2022, including 12 for prototype development and 10 for full-scale education technology product development. The awards continue trends from recent years, including the development 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 (previously supported by government programs) into products that can be used at scale.

FY 2022 SBIR Success Stories

- GOOGLE acquired **Moby.Read** and **Skill Check**, oral reading fluency assessments developed by AMI through ED/IES SBIR awards. Read Here.
- ED/IES SBIR awardee **Readorium** was acquired by **Beable**, an online literacy website for students. Read Here.
- ED/IES SBIR-supported small business **Learning Ovations** was acquired by Scholastic to support scale-up of the A2i formative assessment reading program. Read Here.
- ED/IES SBIR awardee **Literably** won an award through the Schmidt Futures Tools Competition in the Learning Engineering area. Read Here.
- Through its ED/IES SBIR-developed platform and a Phase III contract from NASA, **Future Engineers** administered several NASA and DoD challenges in which 50,000 students participated around the country.
- ED/IES SBIR awardee **Myriad Sensors (PocketLab)** hosted a series of "Science is Cool Unconferences" in 2022 to present innovative approaches for sciences educators which were attended by more than 100,000 science educators since 2020. **PocketLab** entered partnerships for its Notebook to be used with national content providers.

FY 2022 Commercialization/Outreach Activities

- ED/IES SBIR provided commercialization support to awardees through technical assistance and by making connections to industry partners. For example, ED/IES SBIR introduced an awardee to the Meta Quest team which led to Meta making an investment in the company and SBIR product. ED/IES SBIR hosted the ED Games Expo annually between 2014 and 2021 in order to increase outreach and commercialization for the education technology products developed through its program and more than 40 programs around government. In 2022, ED/IES SBIR began planning the 2023 ED Games Expo, once again to occur at the Kennedy Center. ED/IES SBIR continued its outreach through blogs, social media, and participation at in-person and virtual industry events.

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 2022 SBIR Highlights

- U.S. Manufacturing Requirement. DOE has taken additional steps to ensure that the benefits of SBIR/STTR technologies are realized in the United States. One of these was a U.S. competitive provision included in SBIR/STTR solicitations beginning in FY 2022. This provision requires that inventions made under SBIR/STTR awards be substantially manufactured in the United States, regardless of where they are later used or sold. The U.S. competitiveness provision is implemented by DOE pursuant to a Determination of Exceptional Circumstances under the Bayh-Dole Act and DOE Patent Waivers.

FY 2022 SBIR Success Stories

- **Drone-based Platform Provides Safe and Efficient Utility Line Inspections.** Climate events are a continuous threat to the Nation's electric infrastructure. Within DOE, the Office of Electricity (OE) provides national leadership to ensure that the energy delivery system is secured, resilient, and reliable. In 2017, OE issued an SBIR topic that focused on the application of Artificial Intelligence (AI), Machine Learning (ML) and sensing technology for rapid response inspections of the electric grid after climate disasters**. Brains4Drones**, a woman-owned small business, proposed equipping drones with AI to keep utility first responders safe and productive.
- **U.S. Energy Plants Fend Off Hackers with Low-Cost Cybersecurity Device.** With more solar energy and other high-value assets going onto the electric grid, protecting the nation's power system is a priority for DOE. So, when **Fend Incorporated's** CEO, Colin Dunn, wanted to domestically develop and manufacture a device that protects large-scale photovoltaic (PV) control systems from hacks, he turned to the DOE SBIR program.

FY 2022 Commercialization/Outreach Activities

- **SBIR/STTR Partnering Website**
  DOE began development of a partnering website for SBIR/STTR applicants and awardees to facilitate relationships necessary for research and development as well as commercialization. The partnering website planned launch is mid-2023. The partnering website is being developed in response to a National Academies of Sciences, Engineering, and Medicine recommendation that found some segments of the DOE SBIR/STTR applicant pool needed assistance to effectively partner.
- **Artificial Intelligence Driven Outreach**
  DOE is making use of LinkedIn Sales Navigator and other proprietary artificial intelligence tools to identify potential under-represented entrepreneurs, invite them to join our network and create posts designed to elevate awareness of the SBIR/STTR Programs. In 2022, using this approach DOE increased its LinkedIn followers by 50%.

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 2022 SBIR Highlights

- Nearly 1,500 small businesses received SBIR and STTR awards through Phase I, Phase II, Phase IIB, Direct to Phase II, and Fast-Track mechanisms
- 24 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 proof-of-concept centers, including the funding of 5 Research Evaluation and Commercialization Hubs (REACHs) to accelerate the creation of small businesses and commercialization of research innovations.

FY 2022 SBIR Success Stories

- The NIH Success Stories webpage continues to be a resource for constituents and investors to find innovations (diagnostic, digital health, drugs, medical devices, and research tools) developed with NIH funding and support. The page highlights 85 projects from 41 states, including 21 from Women-owned and/or Socially or Economically Disadvantaged businesses and 15 from Institutional Development Award (IDeA) states.
- Highlights from FY 2022 include: **NeuraMedica** that received FDA 510(k) clearance for its DuraFuse dural clips for fast and secure dural closure. **Cerovations** was granted FDA's Breakthrough Device designation for its Reductive Ventricular Osmotherapy (RVOT) system. **Epitel** secured $12.5 million Series A financing for its wearable, wireless EEG monitoring system. **Cognition Therapeutics** held an initial public offering on the NASDAQ. **Respira Labs** (now called Samay) raised $1 million in funding for its acoustic resonance technology to assess lung function.

FY 2022 Commercialization/Outreach Activities

- The NIH supports a nationwide network of proof-of-concept centers, with more than 56 academic institutions in 19 states through the Research Evaluation and Commercialization Hubs (REACH) and NIH Centers for Accelerated Innovations (NCAI). In December 2022, NIH held the Proof-of-Concept Network Annual meeting, which brought together representatives from the NIH proof of concept network, the federal government, and biomedical entrepreneurship ecosystem including academic innovators, entrepreneurs, technology transfer professionals, investors, and strategic partners. The meeting included an Innovator Showcase Pitch Event and a panel discussion on diversity, equity, and inclusion efforts across the network.
- NIH supported 32 SBIR or STTR Diversity Supplements to provide support for research and entrepreneurial experiences for individuals from underrepresented groups.

- The NIH Applicant Assistance Program, which emphasizes engaging and assisting underrepresented groups, provided 150 small businesses with needs assessment, small business mentoring, and Phase I application preparation support.
- The Entrepreneurial Workforce Diversity Working Group, with participation from 24 Institutes and Centers, continued to develop strategies and implement programs to increase participation of under-represented groups in the product development ecosystem, including collaboration with the NIH UNITE Initiative.
- The NIH Innovator Support Team, Entrepreneurs in Residence, and regulatory and reimbursement experts assisted and mentored 87 small businesses and provided 74 consultations across proof-of-concept centers.
- NIH pitch-coached 71 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 was redesigned and relaunched in late FY22 to provide small businesses with a third party, unbiased assessment of a Phase I project's progress in technical and business areas that are critical to success in the competitive healthcare marketplace. The Needs Assessment Report helps companies strategize for the project's next steps by identifying strengths and weaknesses across four categories: Intellectual Property/Barriers to Entry, Market Needs/Competitive Advantages, Regulatory, Manufacturing and/or Clinical Plan, and Business Model Profitability.
- NIH trained more than 55 small businesses on how to translate technologies from the lab into the marketplace through the NIH I-Corps and C3i programs.

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.

FY 2022 SBIR/STTR Highlights

- In FY22 the DHS SBIR Program continued to engage and partner with many new small businesses, with 18 of 30 Phase I awards for the 22.1 solicitation having no prior DHS SBIR awards, and 4 of 5 DHS funded NSF I-Corps participants had no prior DHS SBIR awards. For Phase II awards, 6 of 13 awardees for the 21.1 solicitation had no prior DHS SBIR awards.
- The DHS SBIR Program hosted SBIR showcase events, as part of the Commercialization Assistance Marketplace (CAM) Program for five operational components and stakeholders: CISA, CWMD, CBP, USSS, and First Responders. During the showcases, 20 Phase II companies presented the technologies being developed under the program that could be applicable to the R&D needs of the DHS. While the CISA, CWMD, CBP and USSS sessions were government-only events (including attendees), the First Responder session was the first external showcase which was attended by 276 people from industry, academia, federally funded research development centers (FFRDCs), and Federal, State and Local Government.

FY 2022 SBIR/STTR Success Stories

- Under the DHS SBIR Program**, Epiq Solutions** developed an innovative in-building coverage analysis (ICAS) system for commonly used first responders' network types to address the need of emergency communications network coverage for first responders in a host of building types and locations. **Epiq Solutions'** resulting product, PRiSM, a handheld network scanner and spectrum analyzer, is an ultra-portable, simple, cost-effective measurement tool that provides Project 25 and FirstNet Long Term Evolution (LTE) network survey, scanning testing, and troubleshooting for testing in-building public safety network coverage. In July 2022, iBwave Solutions, announced the commercial launch of its mobile survey tool based on the PRiSM scanner for public safety networks.
- **Catalyst Communications Technologies** developed a reliable, secured and standards-based Land Mobile Radio (LMR) Project 25 (Project 25) – LTE Mission Critical Network interface service. The resulting product, IntelliLink™ Interworking is a standards compliant solution, designed to deliver the mission-critical voice communications traditionally transmitted via LMR systems to users communicating across LMR and LTE networks. Catalyst Communications Technologies' resulting product, IntelliLink™ is operational in the field with Public Safety. Additionally, the Department of Commerce awarded AT&T the contract to build a nationwide wireless network for Public Safety and AT&T has announced that Catalyst meets its standards and is supporting use of their products. The regional cellular carrier, SouthernLinc, has also announced that it is selling the product.

FY 2022 Commercialization/Outreach Activities

- In FY22 the DHS SBIR Program's CAM Program, in addition to the Showcases, provided current Phase II SBIR awardees an assessment of their needs to help companies move forward towards successful commercialization. CAM provided services such as market research, strategic planning, mentorship, and other commercialization related education.

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 2022 SBIR Highlights

- DOT launched an updated website to improve the user experience. Features include searchable FAQs, newly designed success stories, and updated "Suggest A Topic" form.
- In FY 2022, U.S. DOT awarded 12 Phase I awards across 3 operating administrations and 17 Phase II and Phase IIB awards across 6 operating administrations.

FY 2022 SBIR/STTR Success Stories

- Four new success stories were developed in FY 2022 featuring topics funded by the Federal Highway Administration and Federal Railroad Administration. These are featured at https://www.volpe.dot.gov/work-with-us/small-business-innovation-research/sbir-success-stories.
    - The Dilemma Zone: Addressing High-Speed Crashes at Lighted Intersections, ***Intelligent Automation***
    - Low-Cost, Modular Mini-Roundabouts Help Improve Small-Intersection Safety, Congestion, ***ZKxKZ, LLC***
    - New Drone-Based System Assesses Highway-Rail Crossings to Improve Safety, ***MTRI, Inc.***
    - Increasing Efficiency in Highway-Rail Grade Crossing Inspections, ***VisioStack***

FY 2022 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.

Environmental Protection Agency (EPA)

EPA's SBIR Program is a small program with the big mission- to develop and commercialize technologies that support the Agency's mission to protect human health and the environment. Communication with Agency stakeholders is key to identifying the most important environmental needs in the priority areas pf clean and safe water, air quality and climate, land revitalization, homeland security, manufacturing, sustainable materials management/circular economy, safer chemicals, and risk assessment.

Key FY22 Achievements

Timeline: *For the first time in EPA SBIR history, the program made 100% of new awards within the required timelines.* EPA SBIR's implementation of an online review platform as well as a streamlined review process has allowed the agency to significantly shorten the time between solicitation close and award notification to meet these timeline goals.

Communication: EPA has worked to increase communications efforts by highlighting successes of EPA SBIR small businesses. In FY22, this included web-published success story focused on EPA SBIR recipients developing novel technologies to monitor air quality from wildland fires.

Commercialization: EPA places an emphasis on commercialization starting in Phase I. The proposal evaluation criteria emphasize commercialization, including 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 FY22, four EPA-funded SBIR companies, **Aguagga Inc.**, **AquaRealTime**, **NanoAffix Science LLC**, and **Pure Blue Tech** successfully brought in outside investment and received the option funding.

FY 2022 SBIR/STTR Success Stories

- **Aquagga Inc.,** a Washington small business, received funding from third-party investors interested in supporting the development and commercialization of their PFAS destruction technology. Aquagga plans to use these funds to further development and market-readiness of their novel a hydrothermal alkaline treatment process for destroying PFAS in contaminated liquid.
- **AquaRealTime,** a small business based in Colorado, received funding through sales and investment for their innovative AlgaeTracker. This innovation is an automated, internet of things sensor buoy that allows for the early detection and prediction of harmful algal blooms and other water quality parameters. AquaRealTime plans to use the additional funding to further commercialization efforts for the AlgaeTracker.
- **NanoAffix Science LLC,** a Wisconsin small business, received funding from an angel investor interested in supporting the company grow and expand their air quality sensing technology into the marketplace. This funding will suport NanoAffix to further advance their environmental innovation- a low-cost, handheld sulfur dioxide tester with a hybrid nanomaterials-based sensor chip.

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 2022 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 2022 Key SBIR/STTR Highlights

- The makeup of Phase I awardees included 30 percent first time awardees for NASA, 25 percent from underrepresented communities including Woman-Owned and Small, Disadvantaged Businesses, and 24% of Research Institutions in STTR were Minority Serving Institutions.
- In FY22, NASA awarded 74 Phase III contracts worth over $25 million, and firms attracted an additional $14 million in matching funding from outside investors in our Phase II-E and CCRPP programs demonstrating our success in developing subtopics and selecting proposals that meet agency and commercial needs.
- The program also rolled out and began operating to its new strategy which includes the following 3 goals: demonstrable positive ROI for all SBIR/STTR investment vehicles supporting scientific & technological innovation; equitable access for all relevant innovators through increasing diverse representation to create richer SBIR & STTR portfolios; and an exemplary service providing access to the critical non-monetary support that every awardee needs to successfully progress/transition technology into use.

FY 2022 SBIR Success Stories:

Recent success stories can be found at: https://www.nasa.gov/nasa-sbir-sttr-success-stories/.

Stories in 2022 included: **Mango Materials**, a WOSB, partnered with the Colorado School of Mines to adapt a bioreactor system to convert methane into bioplastic for low-gravity environments or environmentally conscious bioplastic on Earth. They received $6 million through CCRPP, including funds from fashion investors seeking alternatives to plastic-based textiles. **Tendeg, LLC**, has advanced its parabolic antenna technology to capture images of Earth's surface for science research. Tendeg attributes $45 million in revenue as a result of SBIR-related developments. **Area-I** developed the Prototype-Technology Evaluator and Research Aircraft (PTERA), a versatile UAS enabling low-risk flight experiments that are safer than piloted tests and more dynamic than wind tunnel testing. Area-I was acquired by Anduril Industries—a $4.6 billion defense technology company.

FY 2022 Commercialization/Outreach Activities

To support commercialization, the program again offered the focused, high value Sequential Phase II awards to support infusion into high priority NASA missions like the Artemis Program and Moon to Mars and made 7 awards worth almost $30M; the Civilian Commercialization Readiness Pilot Program (CCRPP) which supports infusion and commercialization and made 6 awards worth $8M in program funds which was matched at least 1:1 by investor funding; and Phase II-E which executed options on 44 SBIR worth $11M and 7 STTR worth $1.8M in program funds which was matched at least 1:1 by investor funding. NASA continued its partnership with the U.S. National Science Foundation (NSF) Innovation Corps program (I-Corps ™) selecting 28 teams to participate in the bootcamps or national cohorts.

U.S. National Science Foundation (NSF)

America's SEED FUND SBIR.STTR

America's Seed Fund powered by the U.S. National Science Foundation (NSF) awards over $220 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 total budget of $8.8 billion (in FY2022) that supports fundamental research and education across all fields of science and engineering. For more information, visit seedfund.nsf.gov.

FY 2022 SBIR/STTR Highlights

- SBIR/STTR programs are now housed within NSF's new Directorate for Technology, Innovation and Partnerships.
- Engaging and Supporting First-Time Applicants – A total of 68% of all Phase I proposals awarded in FY2022 were from first-time applicants (i.e., companies that had never submitted a proposal to NSF before), 94% were to companies with fewer than 10 employees and 76% were to companies established within the last five years.
- NSF continued to offer Innovation Corps (I-Corps) for SBIR/STTR, enabling dozens of SBIR/STTR Phase I awardees to participate in the customer discovery and entrepreneurial education program.

FY 2022 SBIR/STTR Success Stories

- Acquisition Highlights – Fiscal year 2022 saw 63 confirmed acquisitions, mergers or initial public offerings of NSF awardee firms (per Pitchbook).
- NSF SBIR/STTR portfolio companies had 295 separate private capital rounds of $1 million or more, of which 116 exceeded $10 million and 11 exceeded $100 million. The total private equity funding raised by the portfolio in 2022 was $5.6 billion (per Pitchbook).
- Featured Awardee – Former NSF SBIR/STTR awardee **Ascend Elements** (formerly known as Battery Resourcers) raised $300 million in private capital, received $480 million in support from the Department of Energy, and broke ground on a 500,000-square foot manufacturing facility and 140-acre campus in western Kentucky. The plant is expected to supply batteries for up to 250,000 electric vehicles per year. The company received STTR support from NSF in 2015, its first year of operation, when it had just a single employee.

FY 2022 Commercialization/Outreach Activities

- NSF SBIR/STTR hosted 60 webinars, attended by over 5,000 researchers, entrepreneurs, and startups.
- NSF SBIR/STTR partnered and attended 77 outreach events hosted by the 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), 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's digital marketing campaign generated 48 million advertisement impressions and 800,000 website sessions, which helped to generate 6,500 Project Pitch submissions.

- GEM's Inclusion in Innovation Initiative (GEMi4) supports academic researchers in launching successful tech startups through the GEMpreneur Workshops, Voices From the Field Panels, and PEP (Preparing for Entrepreneurial Pathways) Talks for current GEM fellows and alumni. More than 98 GEM Alumni and Fellows are pursuing Entrepreneurial Pathways focused on launching a startup. Eleven Tech startups have formed as a result of GEMi4 training and one of these startups has raised over $3M in seed funding.

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