

SMALL BUSINESS INNOVATION RESEARCH | SMALL BUSINESS TECHNOLOGY TRANSFER
AMERICA'S SEED FUND POWERED BY THE SBA



Annual Report FISCAL YEAR **2015**

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1. Message from the SBA Administrator



As the 25th Administrator of the U.S. Small Business Administration (SBA) and a member of President Trump's cabinet, it is my honor to advocate on behalf of America's nearly 29 million small businesses that employ nearly half of all American workers. It is my goal to ensure SBA is there to help these entrepreneurs and innovators with the essential components of small business growth and to discover new opportunities to compete and succeed.

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs – or "America's Seed Fund" – serves as the nation's premier source of early-stage, high-risk funding for research and development (R&D) small businesses. America's Seed Fund, with assistance from SBA and the 11 SBIR/STTR Participating Agencies, fuels thousands of innovative high-growth companies with non-dilutive funding totaling almost \$2.5 billion dollars a year – opening opportunities in

STEM fields to all entrepreneurs while also meeting the R&D needs of the Federal Government.

This Fiscal Year 2015 Annual Report to Congress on the SBIR/STTR Programs highlights the achievements of SBA and our partners across the Federal Government to solicit, select and supply seed funding to the amazing small businesses on the front lines of driving revolutionary advances in technology through their own innovation. Things that seemed to be the stuff of science fiction a generation ago are not only reality, they are increasingly accessible and affordable to the masses thanks to the ingenuity of our entrepreneurs and the seed funding they received through the SBIR/STTR Programs.

It is a distinct privilege for me to play a part in SBA's role to help SBIR/STTR small businesses launch and thrive – seeing firsthand their hard work and dedication that extends well beyond their own employees and communities to provide much-needed solutions that help make the U.S. more globally competitive.

America thrives when we invest in innovation, and doing so provides a return on the taxpayers' investment that upholds our fundamental responsibility of delivering value while also fueling economic growth. SBIR and STTR awards have helped U.S. innovators advance new technologies that set America apart on the world stage as the leader in innovation.

Sincerely yours,

Linda E. McMahon
Administrator
U.S. Small Business Administration



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2.Small Business Innovation Research (SBIR) Program Overview

The Small Business Innovation Research (SBIR) Program is a highly competitive program that encourages U.S. small businesses to engage in Federal Research/Research and Development (R/R&D) that has the potential for commercialization. Through a competitive awards-based program, SBIR enables small businesses to explore their technological potential and provides the incentive to profit from the commercialization. By including qualified small businesses in the Federal R/R&D arena, high-tech innovation is stimulated and the U.S. gains entrepreneurial spirit by encouraging participation by women and socially or economically disadvantaged persons as it meets its specific R/R&D needs. This Fiscal Year 2015 (FY15) 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 and the 5 federal agencies participating in the Small Business Technology Transfer (STTR) Programs (Participating Agencies). For additional information, refer to the Frequently Asked Questions (and answers) about the SBIR/STTR Programs in Appendix A.

SBIR 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 Program are to:

- Stimulate technological innovation;
- Meet Federal Government R/R&D needs;
- Foster and encourage participation in innovation and entrepreneurship by women and socially or economically disadvantaged persons; and
- Increase private-sector commercialization of innovations derived from federal R&D funding.

Participating Agencies

The Small Business Act (the Act), as amended by the SBIR/STTR Reauthorization Act of 2011 (the Reauthorization Act) requires the SBIR Participating Agencies to set aside certain percentages of their extramural R/R&D budgets to fund small business R/R&D activities through the SBIR Programs. For FY15, federal agencies with extramural R/R&D budgets that exceed \$100 million were required to set aside 2.9% of their FY15 extramural R/R&D budgets for SBIR awards to small businesses. Each agency administers its own individual program within guidelines established by Congress and the Policy Directives established by SBA. These agencies designate R/R&D topics in their solicitations and accept proposals from eligible small businesses. SBIR Phase I and Phase II awards are made on a competitive basis after proposal evaluation. Section 9(e)(1) of the Act defines extramural budget as “the 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 following 11 federal agencies participate in the SBIR Program (SBIR Participating Agencies):

- Department of Agriculture (USDA);
- Department of Commerce (DOC);
- Department of Defense (DoD);

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



3. Small Business Technology Transfer (STTR) Program Overview

The Small Business Technology Transfer (STTR) Program expands funding opportunities in the federal innovation R/R&D arena. The unique feature of the STTR Program is the requirement for a small business to formally partner with a research institution in Phase I and Phase II. The STTR Program's important role is to bridge the gap between performance of fundamental scientific research and commercialization of the resulting innovations.

STTR Mission and Program Goals

The mission of the STTR 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 STTR Program are to:

- Stimulate technological innovation;
- Foster technology transfer through cooperative R/R&D between small businesses and research institutions;
- Foster and encourage participation in innovation and entrepreneurship by women and socially or economically disadvantaged persons; and
- Increase private sector commercialization of innovations derived from federal R/R&D.

Participating Agencies

The Act, as amended by the Reauthorization Act, requires STTR Participating Agencies to set aside a certain percentage of their extramural R/R&D budgets to fund small business R/R&D activities through the STTR Program. For FY15, federal agencies with extramural R/R&D budgets that exceed \$1 billion are required to set aside a minimum of 0.40% of their FY15 extramural R/R&D budgets for the STTR Program. Each agency administers its own individual program within guidelines established by Congress and the Policy Directive established by SBA. These agencies designate R/R&D topics in their solicitations and accept proposals from small businesses working in cooperation with allowable federally funded research and development centers and non-profit research institutions. Phase I and Phase II awards are made on a competitive basis after proposal evaluation. The following five agencies participate in the STTR Program (STTR Participating Agencies):

- Department of Defense (DoD);
- Department of Energy (DOE);
- Department of Health & Human Services (HHS);
- National Aeronautics & Space Administration (NASA); and
- National Science Foundation (NSF).

4. SBIR/STTR Programs Are Structured in Three Phases

Phase I | Feasibility-Related Experimental Study or Theoretical R/R&D

The objective 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 \$150,000 to \$225,000 for a 6 to 12-month period of performance.

Phase II | Continued R/R&D 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 \$1,500,000 for a two-year period of performance.

Phase III | Commercialization Effort

Phase III refers to work that derives from, extends, or completes an effort made through SBIR/STTR-funded Phase I or II R/R&D but is funded by sources other than the SBIR/STTR Programs. To the greatest extent practicable, federal entities, including government prime contractors that pursue R/R&D or production developed under the SBIR/STTR Programs shall issue Phase III awards to the SBIR/STTR awardee that developed the technology using funds other than SBIR/STTR set aside funds. The competition for SBIR/STTR Phase I and Phase II awards satisfies competition requirements for the Armed Services Procurement Act, the Federal Property and Administrative Services Act, and the Competition in Contracting Act, allowing federal agencies to issue direct or sole source awards to SBIR/STTR awardees for Phase III efforts.

The SBIR/STTR Programs are structured in three phases and typically follow the award process in Figure 1 shown below:



Figure 1: Typical Award Process

5. SBIR Program – Agency Summary Data

Tables 1 and 2 provide proposal and award summary data from each of the 11 agencies. This data is submitted by the agencies through the SBA annual report submission site and further analyzed to develop percent ratios for many of the reported fields. Though the data has been validated by the agencies, SBA has identified data verification challenges, and continues to work with agencies on improving the accuracy of all reported data.

Table 1 SBIR Program – Agency Summary Data – DoD, HHS, DOE, NASA, and NSF

REPORT FIELD		DoD	HHS	DOE	NASA	NSF
Solicitations	Solicitations Released (#)	3	16	5	2	2
Phase I	Proposals Received (#)	6,567	4,686	1,552	1,229	1,949
	New Phase I Awards (#) / (% selection rate)	1,198 / 18%	674 / 14%	255 / 16%	332 / 27%	199 / 10%
	Obligations for New Phase I Awards (\$)	\$127,076,355	\$159,606,334	\$39,875,913	\$41,272,974	\$30,511,166
	Obligations on Prior-Year Phase I Awards (\$)	\$27,260,459	\$28,299,548	\$0	\$0	\$697,409
	Total Obligations for Phase I Awards (New + Prior) (\$)*	\$154,336,814	\$188,205,882	\$39,875,913	\$41,272,974	\$31,208,575
	WOSB New Proposals Received (#) / (% of new)	1,173 / 18%	618 / 13%	179 / 12%	142 / 12%	350 / 18%
	WOSB New Awards (#) / (% of new)	245 / 20%	71 / 11%	17 / 7%	44 / 13%	44 / 22%
	WOSB Obligations (new \$) / (% of new Phase I \$)	\$25,690,635 / 20%	\$16,670,004 / 10%	\$2,902,117 / 7%	\$5,354,052 / 13%	\$6,674,447 / 22%
	SDB New Proposals Received (#) / (% of new)	655 / 10%	199 / 4%	103 / 7%	134 / 11%	324 / 17%
	SDB New Awards (#) / (% of new)	78 / 7%	34 / 5%	9 / 4%	27 / 8%	23 / 12%
	SDB Obligations (new \$) / (% of new Phase I \$)	\$7,735,853 / 6%	\$7,684,569 / 5%	\$1,482,828 / 4%	\$3,366,228 / 8%	\$3,571,613 / 12%
	HUBZone SBC New Proposals Received (#) / (% of new)	116 / 2%	6 / 0%	152 / 10%	12 / 1%	118 / 6%
	HUBZone SBC New Awards (#) / (% of new)	74 / 6%	2 / 0%	27 / 11%	5 / 2%	12 / 6%
	HUBZone SBC Obligations (new \$) / (% of new Phase I \$)	\$7,865,640 / 6%	\$225,000 / 0%	\$4,178,841 / 10%	\$619,531 / 2%	\$1,829,341 / 6%
Phase II	Proposals Received (#)	1,139	639	273	329	266
	New Phase II Awards (Initial + Second) (#) / (% selection rate)	606 / 53%	371 / 58%	146 / 53%	131 / 40%	109 / 41%
	"Second Phase II" Awards (subset) (#) / (% of total Phase II Awards)	57 / 9%	16 / 4%	25 / 17%	0 / 0%	0 / 0%
	Obligations for New Phase II Awards (\$)	\$377,122,839	\$293,364,542	\$151,401,656	\$105,141,605	\$80,179,407
	Obligations for "Second Phase II" Awards (subset) (\$)	\$70,585,440	\$13,694,525	\$25,066,553	\$0	\$0
	Obligations on Prior-Year Phase II Awards (\$)	\$397,089,387	\$220,549,438	\$1,003,904	\$5,560,369	\$28,946,969
	Total Obligations for Phase II Awards (New + Prior) (\$)*	\$774,212,225	\$513,913,980	\$152,405,560	\$110,701,974	\$109,126,376

	WOSB New Proposals Received (#) / (% of new)	203 / 18%	67 / 10%	24 / 9%	29 / 9%	41 / 15%
	WOSB New Awards (#) / (% of new)	81 / 13%	45 / 12%	5 / 3%	7 / 5%	15 / 14%
	WOSB Obligations (new \$) / (% of new Phase II \$)	\$55,027,620 / 15%	\$34,855,260 / 12%	\$5,389,893 / 4%	\$6,753,344 / 6%	\$10,938,502 / 14%
	SDB New Proposals Received (#) / (% of new)	67 / 6%	14 / 2%	15 / 5%	25 / 8%	22 / 8%
	SDB New Awards (#) / (% of new)	34 / 6%	9 / 2%	8 / 5%	6 / 5%	7 / 6%
	SDB Obligations (new \$) / (% of new Phase II \$)	\$23,127,333 / 6%	\$9,042,248 / 3%	\$8,884,994 / 6%	\$4,504,589 / 4%	\$5,064,911 / 6%
	HUBZone SBC New Proposals Received (#) / (% of total)	18 / 2%	5 / 1%	22 / 8%	3 / 1%	19 / 7%
	HUBZone SBC New Awards (#) / (% of new)	12 / 2%	0 / 0%	11 / 8%	1 / 1%	8 / 7%
	HUBZone SBC Obligations (new \$) / (% of new Phase II \$)	\$7,832,405 / 2%	\$0 / 0%	\$12,009,866 / 8%	\$749,863 / 1%	\$5,765,690 / 7%
Phase III	Total Phase III Awards (\$)	\$373,617,684	\$0	\$3,422,690	\$21,792,971	\$0
Admin	Technical Assistance (\$)	\$1,282,192	\$1,986,000	\$0	\$0	\$2,085,000
	Administrative Funding Pilot (3%) (\$)	\$20,724,739	\$10,273,300	\$1,274,251	\$0	\$5,313,300
	Commercialization Readiness Program (DoD only) (\$)	\$6,357,143	N/A	N/A	N/A	N/A
	Civilian CRP Pilot (\$)	N/A	\$0	\$0	\$6,360,613	\$0
Totals	Total SBIR Obligations (\$)	\$956,913,114	\$714,379,162	\$193,555,724	\$158,335,561	\$147,733,251

*Total obligations for awards include obligations for Technical Assistance services purchased directly by awardees: DoD \$209,985; HHS \$25,000; DOE \$183,907; NASA \$244,920; NSF \$789,521; DHS \$30,000.

*Agencies do not use SBIR/STTR funding for Phase III awards and these dollars are not part of Total SBIR Obligations.

Table 2 SBIR Program – Agency Summary Data – USDA, DHS, ED, DOC, DOT, and EPA

REPORT FIELD		USDA	DHS	ED	DOC	DOT	EPA	SBIR TOTAL All Agencies
Solicitations	Solicitations Released (#)	1	1	2	2	1	1	36
Phase I	Proposals Received (#)	414	120	193	155	153	140	17,158
	New Phase I Awards (#) / (% selection rate)	85 / 21%	27 / 23%	13 / 7%	33 / 21%	35 / 23%	19 / 14%	2,870 / 17%
	Obligations for New Phase I Awards (\$)	\$8,420,889	\$3,047,842	\$1,942,380	\$3,188,088	\$4,903,900	\$1,893,017	\$421,738,858
	Obligations on Prior-Year Phase I Awards (\$)	\$0	\$0	\$0	\$0	\$0	\$0	\$56,257,416
	Total Obligations for Phase I Awards (New + Prior) (\$)*	\$8,420,889	\$3,047,842	\$1,942,380	\$3,188,088	\$4,903,900	\$1,893,017	\$478,296,274
	WOSB New Proposals Received (#) / (% of new)	59 / 14%	19 / 16%	65 / 34%	27 / 17%	28 / 18%	23 / 16%	2,683 / 16%
	WOSB New Awards (#) / (% of new)	8 / 9%	3 / 11%	5 / 38%	5 / 15%	8 / 23%	4 / 21%	454 / 16%
	WOSB Obligations (new \$) / (% of new Phase I \$)	\$796,994 / 9%	\$299,386 / 10%	\$749,913 / 39%	\$479,130 / 15%	\$1,115,062 / 23%	\$398,924 / 21%	\$61,130,665 / 14%
	SDB New Proposals (#) / (% of new)	17 / 4%	20 / 17%	38 / 20%	22 / 14%	39 / 25%	18 / 13%	1,569 / 9%
	SDB New Awards (#) / (% of new)	2 / 2%	2 / 7%	0 / 0%	5 / 15%	9 / 26%	3 / 16%	189 / 7%
	SDB Obligations (new \$) / (% of new Phase I \$)	\$199,567 / 2%	\$199,468 / 7%	\$0 / 0%	\$194,992 / 6%	\$1,307,266 / 27%	\$298,729 / 16%	\$26,041,112 / 6%
	HUBZone SBC New Proposals Received (#) / (% of new)	42 / 10%	7 / 6%	8 / 4%	5 / 3%	9 / 6%	7 / 5%	482 / 3%
	HUBZone SBC New Awards (#) / (% of new)	10 / 12%	0 / 0%	0 / 0%	1 / 3%	0 / 0%	0 / 0%	131 / 5%
	HUBZone SBC Obligations (new \$) / (% of new Phase I \$)	\$999,031 / 12%	\$0 / 0%	\$0 / 0%	\$94,952 / 3%	\$0 / 0%	\$0 / 0%	\$15,812,336 / 4%
Phase II	Proposals Received (#)	51	38	10	21	19	15	2,800
	New Phase II Awards (Initial+Second) (#) / (% selection rate)	28 / 55%	21 / 55%	8 / 80%	16 / 76%	10 / 53%	8 / 53%	1,454 / 52%
	"Second Phase II" Awards (subset) (#) / (% of total Phase II Awards)	0 / 0%	4 / 19%	0 / 0%	0 / 0%	4 / 40%	0 / 0%	106 / 7%
	Obligations for New Phase II Awards (\$)	\$13,620,971	\$15,023,588	\$5,542,620	\$5,789,473	\$6,091,413	\$2,395,463	\$1,055,673,576
	Obligations for "Second Phase II" Awards (subset) (\$)	\$0	\$2,999,493	\$0	\$0	\$2,642,572	\$0	\$114,988,583
	Obligations on Prior-Year Phase II Awards (\$)	\$0	\$1,381,989	\$0	\$0	\$0	\$239,406	654,771,462
	Total Obligations for Phase II Awards (New + Prior) (\$)*	\$13,620,971	\$16,405,577	\$5,542,620	\$5,789,473	\$6,091,413	\$2,634,869	1,710,445,038
	WOSB New Proposals Received (#) / (% of new)	9 / 18%	5 / 13%	3 / 30%	3 / 14%	9 / 47%	1 / 7%	394 / 14%
	WOSB New Awards (#) / (% of new)	6 / 21%	1 / 5%	2 / 25%	1 / 6%	3 / 30%	1 / 13%	167 / 11%
	WOSB Obligations (\$ / (% of total Phase II \$)	\$2,988,931 / 22 %	\$749,973 / 5%	\$1,385,801 / 25%	\$299,987 / 5%	\$1,449,682 / 24%	\$300,000 / 13%	\$120,138,993 / 11%

REPORT FIELD		USDA	DHS	ED	DOC	DOT	EPA	SBIR TOTAL All Agencies
	SDB New Proposals (#) / (% of new)	2 / 4%	0 / 0%	0 / 0%	1 / 5%	4 / 21%	1 / 7%	151 / 5%
	SDB New Awards (#) / (% of new)	0 / 0%	0 / 0%	0 / 0%	1 / 6%	2 / 20%	1 / 13%	68 / 5%
	SDB Obligations (\$) / (% of total Phase II \$)	\$0 / 0%	\$0 / 0%	\$0 / 0%	\$300,000 / 5%	\$1,147,599 / 19%	\$300,000 / 13%	\$52,371,674 / 5%
	HUBZone SBC New Proposals Received (#) / (% of new)	7 / 14%	0 / 0%	0 / 0%	0 / 0%	2 / 11%	1 / 7%	77 / 3%
	HUBZone SBC New Awards (#) / (% of new)	3 / 11%	0 / 0%	0 / 0%	0 / 0%	0 / 0%	1 / 13%	36 / 2%
	HUBZone SBC Obligations (\$) / (% of total Phase II \$)	\$1,499,997 / 11%	\$0 / 0%	\$0 / 0%	\$0 / 0%	\$0 / 0%	\$300,000 / 13%	\$28,157,822 / 3%
Phase III	Total Phase III Awards (\$)	\$0	\$3,152,091	\$0	\$0	\$0	\$0	\$401,985,436
Admin	Technical Assistance (\$)	\$430,564	\$0	\$0	\$70,000	\$80,000	\$130,500	\$6,064,256
	Administrative Funding Pilot (3%) (\$)	\$220,253	-	\$651	\$36,256	\$95,061	\$0	\$37,937,811
	CRP (DoD only) (\$)	N/A	N/A	N/A	N/A	N/A	N/A	\$6,357,143
	Civilian CRP Pilot (\$)	\$0	\$1,217,903	\$0	\$0	\$0	\$0	\$7,578,516
Totals	Total SBIR Obligations (\$)	\$22,692,677	\$20,671,322	\$7,485,651	\$9,083,817	\$11,170,375	\$4,658,386	\$2,246,679,040

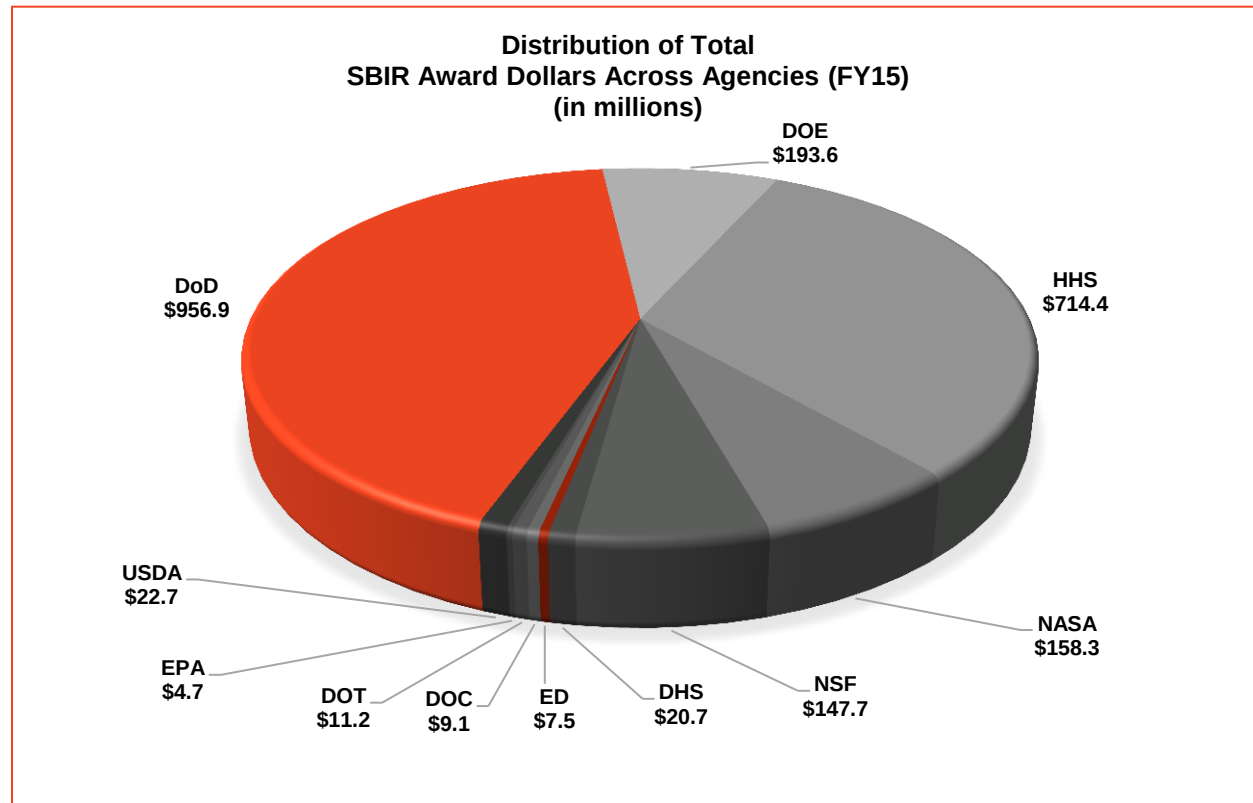
*Total obligations for awards include obligations for Technical Assistance services purchased directly by awardees: DoD \$209,985; HHS \$25,000; DOE \$183,907; NASA \$244,920; NSF \$789,521; DHS \$30,000.

*Agencies do not use SBIR/STTR funding for Phase III awards and these dollars are not part of Total SBIR Obligations

SBIR Awards

Participating Agencies made a total of 4,324 new SBIR awards in FY15, totaling \$1,477,412,435 in Phase I and Phase II new award obligations. The 2,870 Phase I awards accounted for 66% of all new FY15 SBIR Awards and 29% of the total dollars at slightly over \$421 million. The 1,454 new Phase II awards represented 34% of the total number of new awards obligated. Almost \$1.1 billion, new Phase II awards represented 71% of all new SBIR award dollars. The chart below shows the distribution of these funds across the agencies.

Chart 1 Distribution of Total SBIR Award Dollars Across Agencies



In FY15, the Participating Agencies' SBIR obligations for new and prior-year awards totaled nearly \$2,246,679,040, of which 74% came from DoD and HHS. Almost 22% of total dollars was attributable to DOE, NASA, and NSF, with the remaining 4% of total FY15 SBIR award dollars being obligated by USDA, DHS, DOC, ED, DOT, and EPA.

Approximately \$56.3 million of total SBIR obligations went to prior-year Phase I awards and \$654.8 million went to prior-year Phase II awards.

The Reauthorization Act also included a provision allowing Participating Agencies to make second, sequential Phase II awards, which doubled the amount of Phase II dollars an agency could give to a Phase II awardee for a given project. In FY15, five Participating Agencies made use of this authority in their SBIR Programs for a total of \$114,988,583. DoD issued 57 Second Phase II awards (\$70,585,440), DOE issued 25 awards (\$25,066,553), HHS issued 16 awards (\$13,694,525), DHS issued four awards (\$2,999,493) and DOT issued four awards (\$2,642,572) in the SBIR Program.

Table 3 SBIR Summary Statistics

SBIR Summary Statistics (FY15)

- \$1.477 billion in 4,324 new awards
- \$421 million in 2,870 new Phase I awards
- \$1.056 billion in 1,454 new Phase II awards
- \$56.3 million in prior-year Phase I awards
- \$654.8 million in prior-year Phase II awards
- 17% of Phase I proposals were awarded
- 52% of Phase II proposals were awarded
- Approximately \$181,269,658 (8%) of total SBIR obligations went to Women-Owned Small Business Concerns (WOSBs)
- Approximately \$78,412,786 (3.5%) of total SBIR obligations went to Socially or Economically Disadvantaged-owned Small Business Concerns (SDBs)
- Approximately \$43,970,158 (2%) total SBIR obligations went to HUBZone-certified Small Business Concerns (HUBZone SBCs)
- 68% of total award dollars went to 10 states: California, Massachusetts, Virginia, Colorado, Maryland, New York, Pennsylvania, Texas, Ohio, and Florida

One of the Congressional goals of the SBIR program is to foster and encourage participation in innovation and entrepreneurship by women and socially or economically disadvantaged persons. The following charts summarize SBIR participation across Participating Agencies by small businesses located in Historically Underutilized Business Zones (HUBZone); socially or economically disadvantaged small businesses (SDBs); and women-owned small businesses (WOSBs).

Chart 2 Percent of SBIR Dollars to HUBZone Small Business Concerns

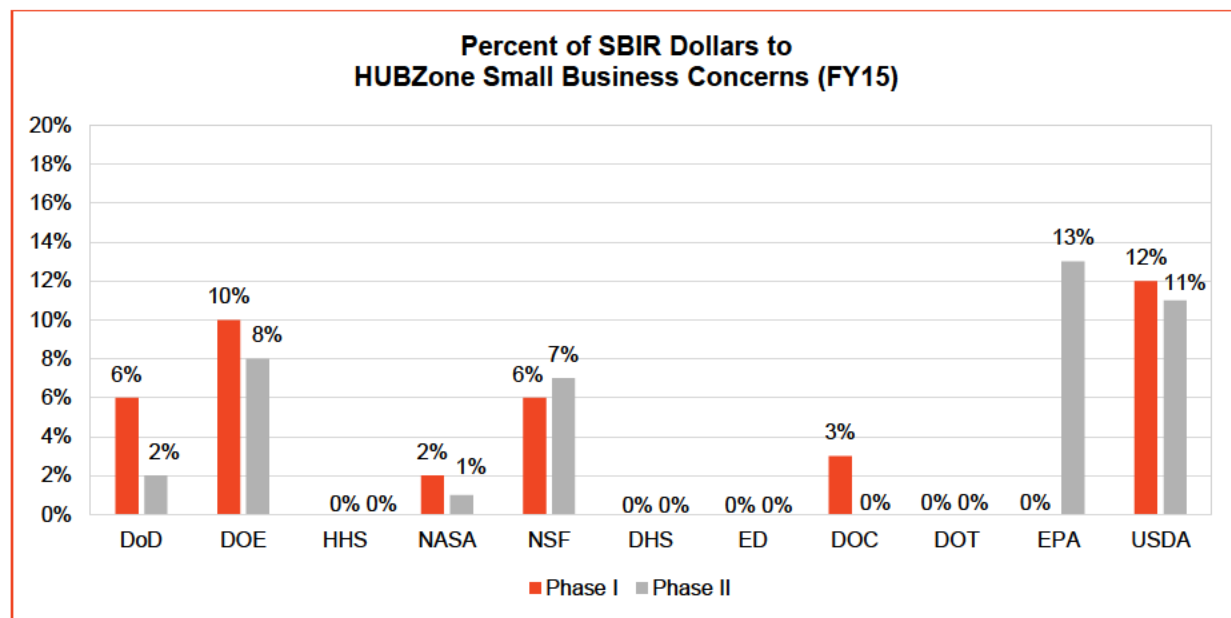


Chart 3 Percent of SBIR Dollars to Woman-Owned Small Business Concerns

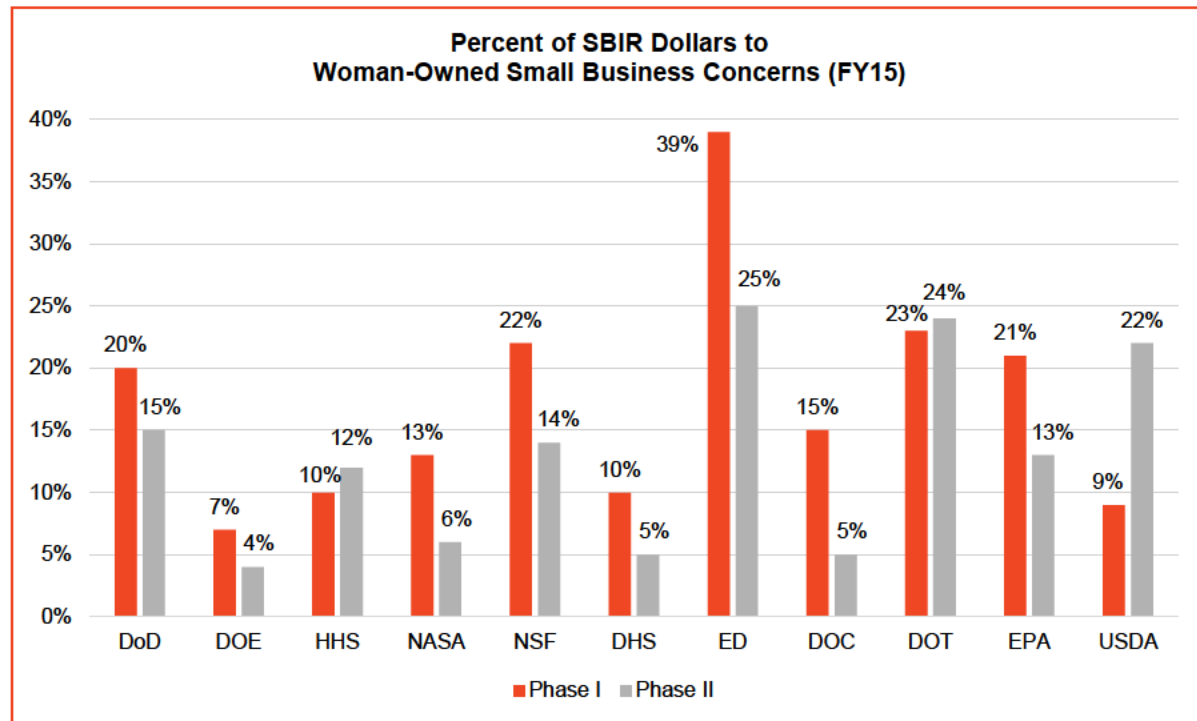
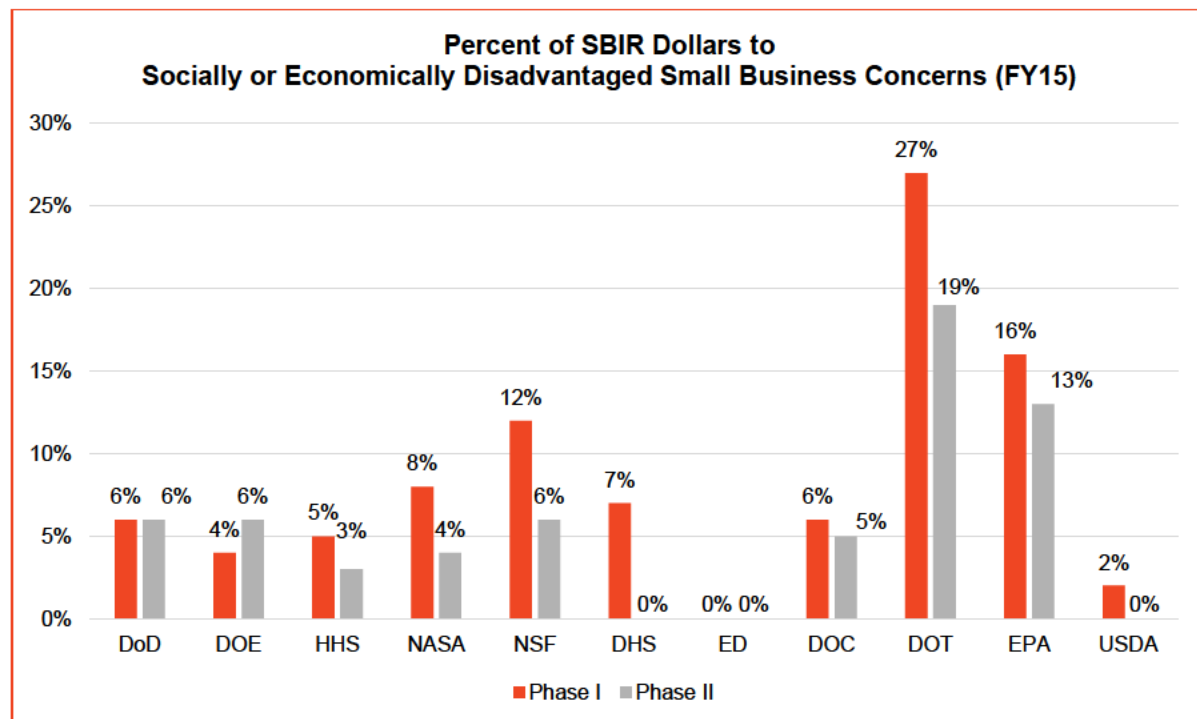


Chart 4 Percent of SBIR Dollars to Socially or Economically Disadvantaged Small Business Concerns



6. STTR Program – Agency Summary Data

Table 4 provides proposal and award summary data from the 5 agencies whose extramural R/R&D obligations exceed \$1 billion requiring them to participate in the STTR program. This data is submitted by the agencies through the SBA annual report submission site and further analyzed to develop percent ratios for many of the reported fields. Though the data has been validated by the agencies, SBA has identified data verification challenges, and continues to work with agencies on improving the accuracy of all reported data.

Table 4 STTR Program – Agency Summary Data

REPORT FIELD		DoD	HHS	DOE	NASA	NSF	STTR TOTAL All Agencies
Solicitations	Solicitations Released (#)	3	15	4	1	2	25
	Proposals Received (#)	817	997	293	103	473	2,683
Phase I	New Phase I Awards (#) / (% selection rate)	234 / 29%	161 / 16%	39 / 13%	49 / 48%	70 / 15%	553 / 21%
	Obligations for New Phase I Awards (\$)	\$29,616,709	\$36,586,693	\$6,233,060	\$6,119,452	\$15,578,032	\$94,133,946
	Obligations on Prior-Year Phase I Awards (\$)	\$1,748,636	\$6,617,889	\$0	\$0	\$659,323	\$9,025,848
	Total Obligations for Phase I Awards (New + Prior) (\$)*	\$31,365,345	\$43,204,582	\$6,233,060	\$6,119,452	\$16,237,355	\$103,159,794
	Research Institutions Obligations (\$) / (% of total)	\$11,083,901 / 35%	\$19,850,287 / 46%	\$2,460,394 / 39%	\$2,413,931 / 39%	\$6,314,776 / 39%	\$42,123,289 / 41%
	WOSB New Proposals Received (#) / (% of new)	120 / 15%	114 / 11%	41 / 14%	15 / 15%	78 / 16%	368 / 14%
	WOSB New Awards (#) / (% of new)	32 / 14%	19 / 12%	1 / 3%	7 / 14%	12 / 17%	71 / 13%
	WOSB Obligations (new \$) / (% of new)	\$4,067,200 / 14%	\$4,653,210 / 13%	\$149,999 / 2%	\$871,355 / 14%	\$2,744,649 / 18%	\$12,486,413 / 13%
	SDB New Proposals Received (#) / (% of new)	90 / 11%	33 / 3%	23 / 8%	12 / 12%	64 / 14%	222 / 8%
	SDB Awards (#) / (% of new)	20 / 9%	4 / 3%	6 / 15%	2 / 4%	2 / 3%	34 / 6%
	SDB Obligations (new \$) / (% of new)	\$2,708,171 / 9%	\$769,880 / 2%	\$974,855 / 16%	\$245,241 / 4%	\$450,000 / 3%	\$5,148,147 / 5%
	HUBZone SBC Proposals Received (#) / (% of new)	13 / 2%	0 / 0%	27 / 9%	2 / 2%	29 / 6%	71 / 3%
	HUBZone SBC Awards (#) / (% of new)	8 / 3%	0 / 0%	3 / 8%	1 / 2%	2 / 3%	14 / 3%
	HUBZone SBC Obligations (\$) / (% of new)	\$1,129,987 / 4%	\$0 / 0%	\$450,000 / 7%	\$121,524 / 2%	\$494,881 / 3%	\$2,196,392 / 2%
Phase II	Proposals Received (#)	158	91	37	31	31	348
	New Phase II Awards (Initial + Second) (#) / (% selection rate)	92 / 58%	36 / 40%	19 / 51%	21 / 68%	5 / 16%	173 / 50%
	"Second Phase II" Awards (subset) (#) // (% of total of Phase II Awards)	1 / 1%	2 / 6%	3 / 16%	0 / 0%	0 / 0%	6 / 3%
	Obligations for New Phase II Awards (\$)	\$45,983,216	\$25,526,055	\$19,245,210	\$15,744,712	\$3,616,395	\$110,115,588

REPORT FIELD		DoD	HHS	DOE	NASA	NSF	STTR TOTAL All Agencies
	Obligations for "Second Phase II" Awards (subset) (\$)	\$512,990	\$1,224,564	\$3,019,999	\$0	\$0	\$4,757,553
	Obligations on Prior-Year Phase II Awards (\$)	\$48,164,504	\$26,844,724	\$890,000	\$249,919	\$453,607	\$76,602,754
	Total Obligations for Phase II Awards (New + Prior) (\$)*	\$94,147,720	\$52,370,779	\$20,135,210	\$15,994,631	\$4,070,002	\$186,718,342
	Research Institutions Obligations (new \$) / (% of total)	\$14,026,702 / 15%	\$21,423,067 / 41%	\$7,902,155 / 39%	\$6,164,087 / 39%	\$1,302,079 / 32%	\$50,818,090 / 27%
	WOSB New Proposals Received (#) / (% of new)	22 / 14%	11 / 12%	7 / 19%	3 / 10%	5 / 16%	48 / 14%
	WOSB New Awards (#) / (% of new)	15 / 16%	3 / 8%	1 / 5%	1 / 5%	1 / 20%	21 / 12%
	WOSB New Obligations (new \$) / (% of new\$)	\$7,681,745 / 17%	\$2,263,900 / 9%	\$999,958 / 5%	\$749,991 / 5%	\$750,000 / 21%	\$12,445,594 / 11%
	SDB Proposals Received (#) / (% of new)	11 / 7%	2 / 2%	5 / 14%	4 / 13%	2 / 6%	24 / 7%
	SDB Awards (#) / (% of total)	7 / 8%	0 / 0%	3 / 16%	3 / 14%	1 / 20%	14 / 8%
	SDB Obligations (\$) / (% of total)	\$4,131,595 / 9%	0 / 0%	\$3,236,431 / 17%	\$2,249,983 / 14%	\$750,000 / 21%	\$10,368,009 / 9%
	HUBZone SBC Proposals Received (#) / (% of total)	1 / 1%	0 / 0%	6 / 16%	1 / 3%	1 / 3%	9 / 3%
	HUBZone SBC Awards (#) / (% of total)	1 / 1%	0 / 0%	3 / 16%	0 / 0%	0 / 0%	4 / 2%
	HUBZone SBC Obligations (\$) / (% of total)	\$565,927 / 1%	\$0 / 0%	\$3,000,000 / 16%	\$0 / 0%	\$0 / 0%	\$3,565,927 / 3%
Phase III	Phase III Awards+ (\$)	\$0	\$0	\$0	\$0	\$0	\$0
Admin	Obligations for Technical Assistance (\$)	\$15,000	\$0	\$0	\$0	\$992,907	\$1,007,907
	Obligations for "Phase 0" Programs (NIH only) (\$)	-	\$4,999,193	-	-	-	\$4,999,193
Totals	Total STTR Obligations (\$)	\$125,528,065	\$100,574,554	\$26,368,270	\$22,114,083	\$21,300,264	\$295,885,236

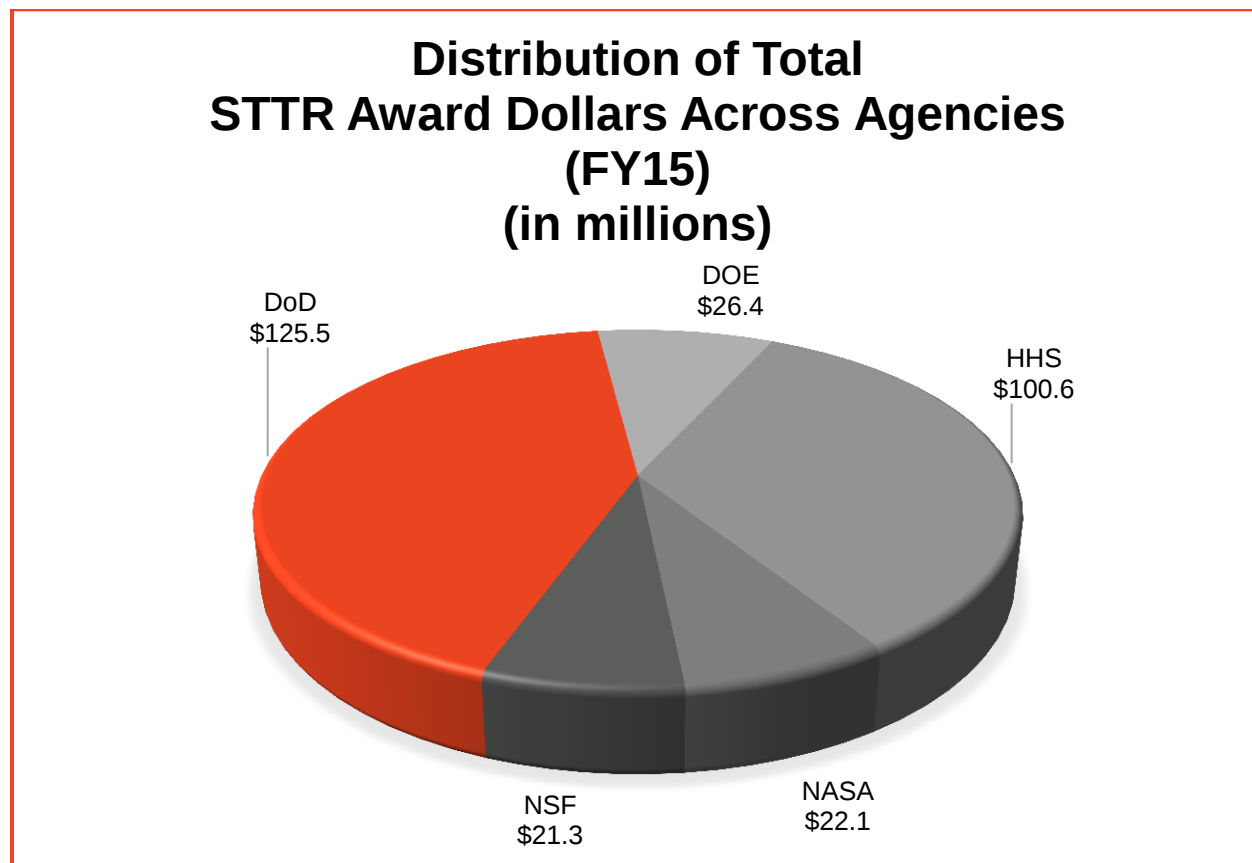
*Total obligations for awards include obligations for Technical Assistance services purchased directly by awardees: HHS \$5,000; DOE \$40,000; NASA \$50,000; NSF \$10,000.

+Agencies do not use SBIR/STTR funding for Phase III awards and these dollars are not part of the Total STTR Obligations.

STTR Awards

Participating Agencies' STTR obligations totaled \$295,885,236 in FY15. Approximately 76% or \$226,102,619 was attributable to DoD and HHS. The remaining 24% of total FY15 STTR award dollars were obligated by NASA, DOE and NSF as shown in the chart below.

Chart 5 Distribution of Total STTR Award Dollars Across Agencies



Participating Agencies made a total of 726 new STTR awards in FY15, totaling nearly \$204,249,534 in new Phase I and Phase II award obligations.

The 553 Phase I awards accounted for nearly 76% of all new FY15 STTR awards and over 46% of the total dollars at almost \$94,133,946.

The 173 new Phase II awards represented 24% of the total number of new awards obligated and approximately 54% of all new STTR award dollars at approximately \$110,115,588.

Approximately \$9,025,848 of total STTR obligations went to prior-year Phase I Awards and nearly \$76,602,754 went to prior-year Phase II awards.

The Reauthorization Act also included a provision allowing Participating Agencies to make second, sequential Phase II awards, which doubled the amount of Phase II dollars an agency could give to a Phase II awardee for a given project. In FY15, three Participating Agencies made use of this authority in their STTR Programs and issued a total of six second Phase II awards and \$4,757,553 in obligations. DoD issued one second Phase II award (\$512,990), DOE issued three awards (\$3,019,999) and HHS issued two awards (\$1,224,564) in the STTR Program.

Table 5 STTR Summary Statistics

STTR Summary Statistics (FY15)

- \$204 million in 726 new awards
- \$94 million in 553 new Phase I awards
- \$110 million in 173 new Phase II awards
- \$9 million in prior-year Phase I awards
- \$77 million in prior-year Phase II awards
- 21% of Phase I proposals were awarded
- 50% of Phase II proposals were awarded
- Approximately \$24,932,007 (9%) of total STTR obligations went to Women-Owned Small Business Concerns (WOSBs)
- Approximately \$15,516,156 (5%) of total STTR obligations went to Socially or Economically Disadvantaged-owned Small Business Concerns (SDBs)
- Approximately \$5,762,319 (2%) of total STTR obligations went to HUBZone-certified Small Business Concerns (HUBZone SBCs)

One of the Congressional goals of the STTR Program is to foster and encourage participation in innovation and entrepreneurship by women and socially or economically disadvantaged persons. The following charts summarize SBIR participation across Participating Agencies by small businesses located in Historically Underutilized Business Zones (HUBZone); socially or economically disadvantaged small businesses (SDBs); and women-owned small businesses (WOSBs).

Chart 6 Percent of STTR Dollars to HUBZone Small Business Concerns

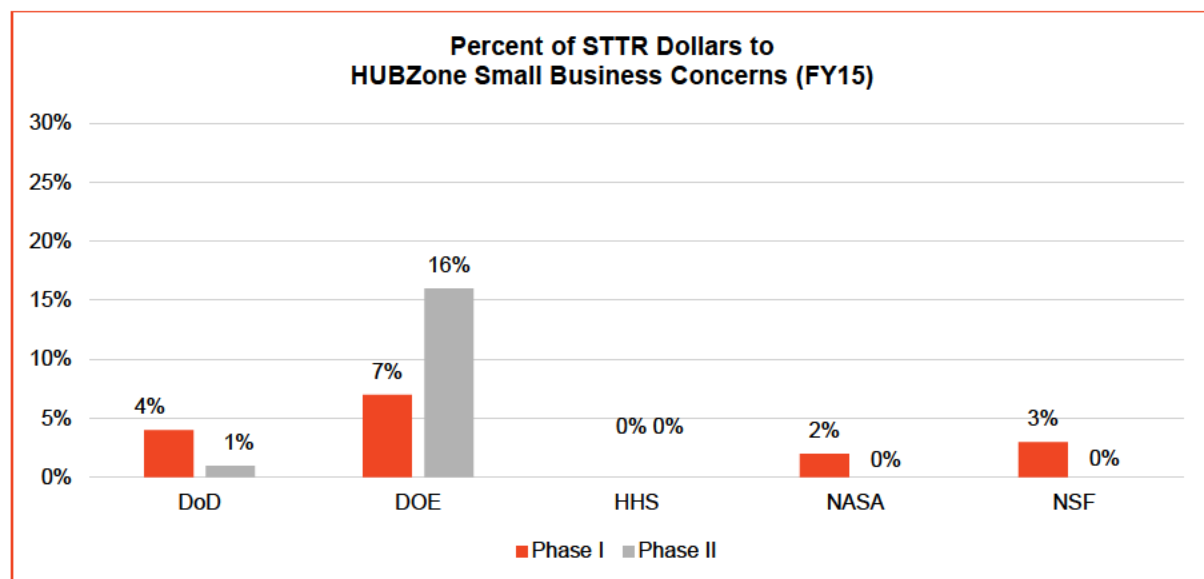


Chart 7 Percent of STTR Dollars to Woman-Owned Small Business Concerns

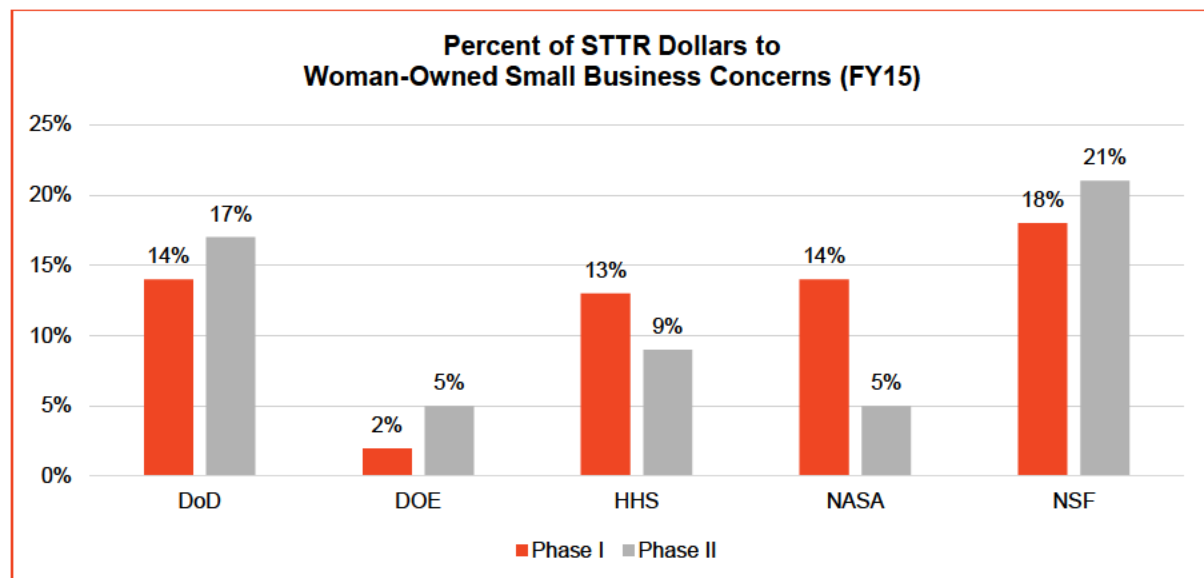
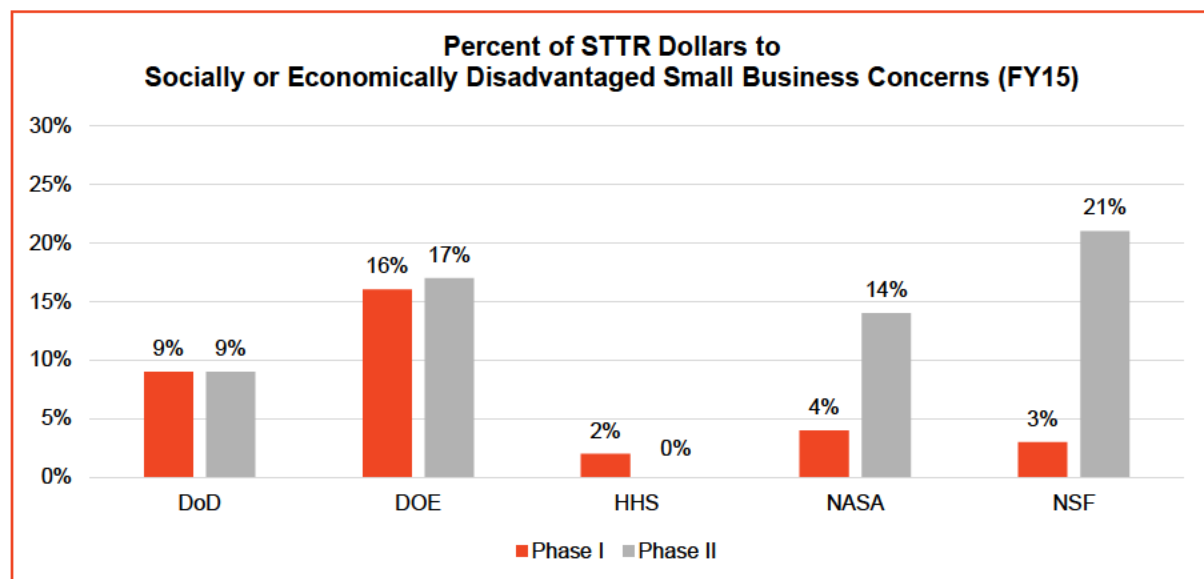


Chart 8 Percent of STTR Dollars to Socially or Economically Disadvantaged Small Business Concerns



7. Minimum Spending Requirements and Understanding the Variance Between Extramural R/R&D reported to SBA and NSF

The Policy Directive specifies the percentage of funds, based on agency extramural R/R&D budget, to be obligated by the participating agencies annually for the SBIR and STTR Programs. This is expressed as a percentage of extramural R/R&D, and defines a minimum spending requirement. Therefore, 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. For FY15, the Small Business Act (15 U.S.C. §§ (f)(1) and (n)(1)) set the minimum percentage as not less than 2.9% for the SBIR program and not less than 0.40% for the STTR Program. Agencies may exceed these minimum percentages, but the goal is that they meet the minimum requirements.

Agency Compliance with Meeting the Minimum Spending Requirements

As required by the Act, each SBIR/STTR Participating Agency is required to report to SBA the methodology used to calculate the amount of the extramural budget not later than four months after the date of the enactment of each Agency's appropriations act. As part of the Annual Report submission due to SBA by March 15th following the end of the prior Fiscal Year, each Participating Agency also reports the total R/R&D extramural funds obligated that year so that SBA can evaluate compliance with minimum spending requirements. Challenges reported in FY14 for Participating Agencies to meet and report on the minimum spending requirement, and for SBA to determine compliance with the minimum spending requirement, also existed in FY15. These issues were also raised in the April 2015 GAO report, *Small Business Research Programs: Challenges Remain in Meeting Spending and Reporting Requirements* (<https://www.gao.gov/products/GAO-15-358>), the May 2016 GAO report, *Small Business Research Programs: Agencies Have Improved Compliance with Spending and Reporting Requirements, but Challenges Remain* (<https://www.gao.gov/products/GAO-16-492>), and the May 2017 GAO report, *Small Business Research Programs: Most Agencies Met Spending Requirements, but DoD and EPA Need to Improve Data Reporting* (<https://www.gao.gov/products/GAO-17-453>). The issues are summarized below:

1. 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 that is performed by non-federal employees and may therefore be performed by small businesses through grants and contracts. Section 9(e)(1) of the Act 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)(i) of the SBIR/STTR Policy Directives, Participating Agencies must report the total fiscal year, extramural R/R&D obligations as reported to the National Science Foundation¹ pursuant to the annual Budget of the United States Government, commonly known as the NSF National Center for Science and Engineering

¹ 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.

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 that 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. Participating Agency explanations are provided in this report.

2. 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, several agencies, like DoD and EPA, use extramural R/R&D budget appropriations rather than the actual amount of funding obligated during the fiscal year to determine their extramural R/R&D. In this case, SBA cannot validate whether these Participating Agencies met their SBIR/STTR minimum spending requirements because the total extramural R/R&D obligations is unknown, as the budget authority may be different.
3. The third challenge is that when a Participating Agency tracks whether it has met the minimum spending requirement by analyzing the amount of funds obligated for SBIR/STTR awards during a particular fiscal year, it is not possible to know whether the minimum was met until the fiscal year has ended, which is after a Participating Agency has the ability to issue additional awards if they find that they have not met the minimum spending requirement.
4. The fourth challenge involves delays in the contracting process, especially for agencies with multi-year budget authority. Even if a Participating Agency plans to obligate funds during the fiscal year to meet the minimum spending requirement, delays in the contracting process may prevent those awards from being issued in that fiscal year and cause the agency to miss the minimum spending requirement.
5. The final challenge is that Participating Agencies that receive appropriations later in the fiscal year may encounter challenges in obligating the minimum spending requirement in the remainder of that particular fiscal year if they do not make awards under a Continuing Resolution. For example, DoD does not release its SBIR/STTR allocation under a Continuing Resolution.

Table 6 shows the total extramural R/R&D amounts each Participating Agency reported to SBA and used to determine the SBIR/STTR minimum spending requirement for FY15. Participating Agencies are required to report these data annually to SBA by March 15th. Through a separate process, the NSF National Center for Science and Engineering Statistics (NCSES) administers the Survey of Federal Funds for Research and Development, also referred to as the “NCSES Survey”, as an annual census completed by the federal agencies that conduct R&D programs.

SBIR/STTR Program Funding as Share of Agency Reported Extramural R/R&D (FY15)

Table 6 SBIR/STTR Program Funding as Share of Agency Reported Extramural R/R&D

Agency ⁺	SBIR					STTR					
	Calculation using Extramural Levels Reported to SBA					Calculation using Extramural Levels Reported on NCSES Survey			SBA		NCSES
	Amount Obligated for SBIR Awards as Reported to SBA (\$)	Amount of Program Exemptions Reported to SBA (\$) *	Extramural R/R&D to Determine Minimum Spending Requirement Reported to SBA (\$)	% Extramural R/R&D Funding Reported to SBA for SBIR Awards (2.9% Min)	Total Extramural R/R&D Including Exemptions Reported to SBA (\$)	Total Extramural R/R&D Obligations Reported to NCSES ⁶ (\$)	Extramural R/R&D Amount to Determine Minimum Spending Requirement Based on Reported NSF Amount Minus Exemptions Reported to SBA (\$)	% Extramural R/R&D Funding Reported to NSF for SBIR Awards (2.9% Min)	Amount Obligated for STTR Awards as Reported to SBA (\$)	% Extramural R/R&D Funding Reported to SBA for STTR Awards (0.40% Min)	% Extramural R/R&D Funding Reported to NCSES for STTR Awards (0.40% Min)
DoD ⁷	\$956,913,114	\$6,676,078,000	\$33,711,403,759	2.84%	\$40,387,481,759	\$40,711,200,000	\$34,035,122,000	2.81%	\$125,528,065	0.37%	0.37%
HHS	\$714,379,162	N/A	\$24,244,452,788	2.95%	\$24,244,452,788	\$23,361,700,000	\$23,361,700,000	3.06%	\$100,574,554	0.41%	0.43%
DOE ⁸	\$193,555,724	\$5,645,250,000	\$6,054,705,601	3.20%	\$11,699,955,601	\$10,317,400,000	\$4,672,150,000	4.14%	\$26,368,270	0.44%	0.56%
NSF	\$147,733,251	N/A	\$5,367,000,000	2.75%	\$5,367,000,000	\$5,557,900,000	\$5,557,900,000	2.66%	\$22,114,083	0.41%	0.40%
NASA	\$158,335,561	N/A	\$4,960,320,000	3.19%	\$4,960,320,000	\$9,525,900,000	\$9,525,900,000	1.66%	\$21,300,264	0.43%	0.22%
USDA	\$22,692,677	N/A	\$904,514,075	2.51%	\$904,514,075	\$830,700,000	\$830,700,000	2.73%			
DHS	\$20,671,322	N/A	\$372,555,025	5.55%	\$372,555,025	\$386,100,000	\$386,100,000	5.35%			
DOT ⁹	\$11,170,375	\$405,338,000	\$349,790,000	3.19%	\$755,128,000	\$623,600,000	\$218,262,000	5.12%			
DOC	\$9,083,817	N/A	\$316,174,500	2.87%	\$316,174,500	\$335,300,000	\$335,300,000	2.71%			
ED	\$7,485,651	N/A	\$238,518,309	3.14%	\$238,518,309	\$240,600,000	\$240,600,000	3.11%			
EPA	\$4,658,386	N/A	\$144,583,500	3.22%	\$144,583,500	\$254,700,000	\$254,700,000	1.83%			
TOTAL	2,246,679,040	\$12,726,666,000	\$76,664,017,557	2.93%	\$89,390,683,557	\$92,145,100,000	\$79,418,434,000	2.83%	\$295,885,236	0.39%	0.37%

⁺Agencies are listed in descending order of Extramural R/R&D Amounts Reported to SBA⁺⁺N/A-Not Applicable

*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 7

⁶ 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.⁷ DoD exemptions include G-2, ONI, AFISRA, and Advanced Sensors Application Program.⁸ DOE exemptions include Weapons Activities and Naval Reactors.⁹ DOT exemptions include FAA and FHWA's State Planning and Research Program.

DoD and EPA report their extramural R/R&D budget as appropriations while the rest of the agencies report extramural R/R&D budget as obligations.

The following subsections summarize whether each Participating Agency complied with the SBIR/STTR minimum spending requirement, any variance between extramural R/R&D amounts reported to SBA and the NCSES Survey, and the Agency response to SBA regarding variance. SBA analyzed compliance through two measures: 1) by determining the percentage of funding obligated for SBIR/STTR awards based on the extramural R/R&D amount and amount of program exemptions reported by the Agency to SBA, and 2) by determining the percentage of funding obligated for SBIR/STTR awards based on the total extramural R/R&D amount reported by the Agency for the NCSES Survey minus the amount of program exemptions reported to SBA.

An Agency is considered to have complied with the minimum spending requirements for FY15 if, as per the SBIR and STTR Policy Directives, the Agency has obligated not less than 2.9% of their extramural R/R&D budgets for SBIR, and not less than 0.40% of their extramural R/R&D budgets for STTR for awards to small business concerns, based on both the extramural R/R&D amount reported to SBA and that reported for the NCSES Survey. Overages of these percentages indicate that the Agency “exceeded” the minimum spending requirement. There are two primary reasons SBA was unable to determine compliance with minimum spending requirements: 1) discrepancies in compliance based on the extramural R/R&D amounts reported to SBA compared to compliance based on the amounts reported for the NCSES Survey, and 2) inability to validate program exemptions. A detailed analysis of each Agency’s compliance with the minimum spending requirement is below.

Table 7 Agency Compliance with the Minimum Spending Requirement

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
DoD	A	2-year	Did Not Comply
HHS	O	1-year	Exceeded
DOE	O	No-year	Unable to Determine
NSF	O	2-year	Please see Page 23
NASA	O	2-year	Unable to Determine
USDA	O	1-year and No-year	Did Not Comply
DHS	O	3-year	Exceeded
DOT	O	No year	Exceeded
DOC	O	2-year	Unable to Determine
ED	O	1-year	Exceeded
EPA	A	2-year	Unable to Determine

DoD. Based on SBA’s analysis of compliance, DoD did not comply with the minimum spending requirement. Based on the extramural R/R&D amount and amount of funding obligated for SBIR and STTR awards reported by the agency to SBA, the DoD did not comply with the minimum spending requirement for SBIR (2.84%) or STTR (0.37%). These percentages are below the SBIR minimum spending requirement of 2.9% and STTR requirement of 0.40%. The difference as measured in dollars comes to over \$20,717,595 for SBIR and \$9,317,550 for STTR. Based on the extramural R/R&D amount reported for the NCSES Survey less exempted programs, the DoD did not meet the minimum spending requirement for SBIR (2.81%) or STTR (0.37%). This is equal to an underfunding of the minimum spending requirement by \$30,105,424 for SBIR and \$10,612,423 for STTR. DoD reports exemptions of \$6,676,078,000.

DoD continues to report the entire DoD budget as appropriations for DoD as a whole making it impossible for SBA to determine how the individual Services and Components within DoD (Army, Navy, Air Force, MDA, etc.) are meeting the spending requirements. To better assess spending levels, SBA believes it would be valuable to obtain obligation amounts from each of the Services and Components and requests that this information be provided.

DoD reported to SBA that they calculate their extramural R/R&D budget by:

[C]ollecting each Component's total RDT&E [research, development, test and evaluation] budget appropriation and reducing this amount by any applicable congressional reductions, OSD reductions, program dollars exempted by statute, and intramural R/R&D amounts. After these reductions are taken, the remaining amount is the total Extramural R/R&D base for calculating the SBIR [minimum spending requirement] based on the current year's required percentages. This calculation is performed for each Component within the Department of Defense that executes an R/R&D budget and is subsequently aggregated by DoD for reporting to SBA. DoD has discussed with the Office of Management and Budget (OMB) that all budgetary calculations are done at the Service/Component Comptroller level and annually reports any updated SBIR/STTR budget related numbers.

[T]he SBIR/STTR budget numbers reported are but a snapshot at one specific point in time (whenever data for the report is queried). This means there may be discrepancies with other reported budget numbers due to the constant shifting between intramural and extramural accounts. Only after the close of an FY obligation authority period will the DoD numbers be final.

DoD's rationale supports the recommendation that obtaining total extramural R/R&D obligations after the fiscal year close is critical to determining if the agency met the minimum spending requirement.

DoD explained that the DoD SBIR/STTR Programs do not have any input to or awareness of the NCSES Survey and its calculation methodology, and that they are unable to provide comment on any discrepancies. Based on review of the individual DoD Component budget calculation worksheets and exemptions (that use extramural R/R&D appropriations as their base) provided by DoD to SBA, it appears that the DoD extramural R/R&D budget reported to SBA is less than the extramural R/R&D budget reported to the NCSES Survey as noted above.

HHS. Based on SBA's analysis of compliance, HHS exceeded the minimum spending requirement. Based on the extramural R/R&D amount and amount of funding obligated for SBIR and STTR awards reported by the agency to SBA, HHS exceeded the minimum spending requirement for SBIR (2.95%) and STTR (0.41%). Based on the extramural R/R&D amount reported for the NCSES Survey, HHS exceeded the minimum spending requirement to an even greater extent for SBIR (3.06%) and STTR (0.43%). The total extramural R/R&D obligation figure reported to SBA is \$882,752,788 higher than that reported for the NCSES Survey. HHS reports no exemptions.

DOE. SBA is unable to determine whether DOE complied with the minimum spending requirement because SBA has no way to validate the exempted programs. Based on the extramural R/R&D amount and amount of funding obligated for SBIR and STTR awards reported by the agency to SBA, DOE exceeded the minimum spending requirement for both SBIR (3.20%) and STTR (0.44%). DOE explained that this "resulted primarily from the carryover of prior year SBIR/STTR funding." Based on the extramural R/R&D amount reported for the NCSES Survey less exempted program amounts reported by DOE to SBA, DOE exceeded the minimum spending requirement to an even greater extent for SBIR (4.14%) and STTR (0.56%). DOE reports exemptions of \$5,645,250,000.

However, given that SBA does not have the authority or access to validate the lines of funding that are exempt, and with over 40% of DOE's reported extramural R/R&D budget falling into this category, SBA is unable to determine the minimum spending requirement calculation for DOE, presenting a considerable challenge for both DOE and SBA.

In terms of the difference between extramural R/R&D obligations reported to SBA and the NCSES Survey, DOE responded that “the numbers DOE reports to SBA are obtained from an SBIR/STTR specific data call issued to the non-exempt programs. The DOE SBIR/STTR Program Office is not involved in the reporting of data to the NCSES Survey as that survey is filled out by each DOE program office.” The DOE SBIR/STTR Program Office informed SBA that they are not in a position to explain the differences between these two reports. SBA cannot validate agencies’ percent of spending on the SBIR or STTR Program when they do not provide details on the exempted lines.

NSF. Based on extramural R/R&D amount and amount of funding obligated for SBIR and STTR awards reported by the agency to the SBA, it is SBA’s view that NSF obligated 2.75% of its extramural R/R&D obligations for awards in the SBIR program and .41% of its extramural R/R&D obligations for awards in the STTR program, which exceeds the minimum spending requirement for the STTR program. Based on the extramural R/R&D amount reported for the NCSES Survey, NSF obligated 2.66% of its extramural R/R&D for awards in the SBIR program and .40% of its extramural R/R&D for awards in the STTR program, which satisfies the minimum spending requirement for STTR. NSF reports no exemptions.

NSF explained that:

NSF’s baseline expenditures were \$147,733,251 which is 2.75% of the extramural R/R&D amount for FY15. However, NSF also spent \$7,710,935 on activities directly benefitting the SBIR/STTR awardees, which, when added to the baseline expenditures, brings the total expenditures to \$155,444,186, which meets the 2.9% minimum spending requirement for the SBIR program. NSF fully complied with the minimum spending requirement for STTR. NSF spent the additional \$7,710,935 on activities related to the SBIR program that directly benefitted the SBIR program and the SBIR awardees, including additional technical assistance support to SBIR awardees. In addition, and consistent with NSF policy and practice across the agency, some of the funds listed in this line were spent on the costs of conducting our external merit review process (including reviewer travel and contract support). If the additional amount of funding for these activities is included in the total obligations, the total would be \$155,444,186, which meets the 2.9% minimum spending requirement for the SBIR program. Some FY15 funding was used for activities to occur in FY16. NSF did not use any of its SBIR budget for costs associated with salaries and expenses.

The extramural R/R&D obligations reported to SBA is \$190,900,000 less than the amount reported for the NCSES Survey, or \$5,536,100 in potential SBIR funding and \$763,600 in potential STTR funding. NSF’s explanation for the variance between NSF’s total extramural R/R&D amount reported to SBA (\$5,367,000,000) and the amount reported for the NCSES Survey (\$5,557,900,000) is that the amount reported to SBA is the amount estimated at the beginning of the year based on FY15 current year budget authority and the amount reported for the NCSES Survey is the FY15 obligations, which is a combination of obligations from FY15 budget authority and FY14 carryover budget authority.

NASA. SBA is unable to determine whether NASA complied with the minimum spending requirement because of the discrepancy between compliance based on the extramural R/R&D amount reported to SBA and compliance based on the extramural R/R&D amount reported for the NCSES Survey. NASA reports no exemptions and does not have legislative authority to exempt any of their extramural budget, yet they assessed only 52% of their extramural R/R&D budget as reported to the NCSES Survey for the SBIR and STTR Programs. This equates to \$4,565,580,000 of their extramural R/R&D budget not being assessed, or \$117,915,539 in potential SBIR funding and \$15,989,517 in potential STTR funding.

Based on the extramural R/R&D amount and amount of funding obligated for SBIR and STTR awards reported by the agency to SBA, NASA exceeded the minimum spending requirement for both SBIR (3.19%) and STTR (0.45%). According to NASA, they “routinely spend more than the requirement since actual obligations could be less than planned obligations” so they reserve a greater percentage of extramural R/R&D for the SBIR/STTR Programs earlier in the fiscal year. However, based on the extramural R/R&D amount reported for the NCSES Survey, NASA did not comply with the minimum spending requirement for SBIR (1.66%) or STTR (0.23%).

NASA's explanation for the variance between the extramural R/R&D obligations reported to SBA and the NCSES Survey is that:

[T]he data reported to NSF for R&D obligations includes all NASA R&D. The only exclusions included in the data set for intramural R&D are administrative costs for R&D performance such as personnel and travel. For the SBIR/STTR calculations, NASA follows the definition of extramural budget as defined in the statute and in the Small Business Administration Policy Directive. 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 NCSES Survey for FY15, NASA also excluded the following categories from total R/R&D obligations reported to SBA:

1. Support contractors performing NASA Center on- or near-site science, engineering, technical or management services; (~\$1.6 billion)
2. Launch vehicle procurement (as these are transportation costs); (~\$0.26 billion)
3. Procurements and administrative expenses associated with NASA "in-house" performed R&D projects and activities (~\$2.6 billion)"

As stated above, NASA does not have legislative authority to exempt any of their extramural budget, and SBA considers R/R&D obligated to support contractors or for use in procurement, to be considered extramural funding, which should be assessed for the SBIR/STTR Programs.

USDA. Based on SBA's analysis of compliance, USDA did not comply with the minimum spending requirement. Based on the extramural R/R&D amount and the amount of funding obligated for SBIR awards reported by the agency to the SBA, USDA did not comply with the minimum spending requirement for SBIR (2.51%). Based on the extramural R/R&D amount reported for the NCSES Survey, USDA did not comply with the minimum spending requirement for SBIR (2.73%). The extramural R/R&D obligation amount reported to SBA is \$73,814,075 greater than the amount reported for the NCSES Survey. USDA reports no exemptions.

In response to its shortfall in meeting the minimum spending requirement for FY15, USDA explained that:

[T]he current SBIR expenditure calculation methodology uses the total FY15 extramural R/R&D obligations for an agency and compares the total agency obligations to the required appropriated set-aside percentage of 2.9% to be obligated on SBIR projects. In order to fund a SBIR Program, each agency must set up its SBIR budget by setting aside 2.9% of its extramural R/R&D budget authority appropriated funds for the same year. This is typically done at the beginning of the fiscal year. It is impossible to set up the budget for an SBIR Program using end of year obligations as this data is not available until after the fiscal year is completed. USDA met the requirement of setting up its SBIR budget at the beginning of FY15 by taxing the FY15 extramural R/R&D appropriations at 2.9% and obligated these taxed set-aside funds over the fiscal year on USDA SBIR projects.

USDA reports that non-SBIR USDA Programs obligate no-year funds from prior years that are included in the reporting fiscal year extramural R/R&D obligations reported to SBA. These no-year obligations artificially increase the total amount of extramural R/R&D funding upon which the SBIR minimum spending requirement is to be based.

These non-SBIR programs have the legal authority by statute to reserve and obligate appropriated funds in future years. Under the budget authority appropriations process,

the USDA SBIR Program already received the taxed set-aside no-year funds in the same year as the appropriations and obligated those funds the same fiscal year.

USDA carried over \$239,745,965 million in extramural R/R&D funding for non-SBIR programs from Fiscal Years 2012, 2013, and 2014. The carryover of funds obligated by non-SBIR programs required an additional \$6,952,632 million to be provided to the USDA SBIR Program in 2015 based on the end of year expenditure calculation using total agency obligations for FY15. This increased the SBIR spending requirement beyond what USDA had estimated at the beginning of the year based on the 2015 budget authority which used USDA's extramural R/R&D appropriations to set-aside the required SBIR funding in 2015. Further, USDA indicated that the \$239,745,965 million carried over from prior years by non-SBIR programs already contributed to the USDA SBIR set-aside under the budget authority appropriations for those years, i.e., 2.6% for 2012, 2.7% for 2013 and 2.8% for 2014." Therefore, USDA stated that "it is impossible to re-tax the \$239,745,965 million of obligated carry-over funds in 2015 at the required 2.9% to meet the increased SBIR spending requirement because these non-SBIR programs already contributed to the SBIR Program. USDA indicated that its SBIR Program could obligate 100% of its SBIR set-aside for FY15, but when earlier no-year funds are obligated on non-SBIR USDA Programs at the department level and are added into the total obligation calculation at the end of the year, USDA automatically falls below the required percentage for expenditure compliance."

USDA also indicated that:

[I]f USDA obligated the additional \$6,952,632 as the end of year obligation calculation required, and obligated the additional \$6,952,632 which was not part of the budget authority appropriations in FY15, the USDA would be in violation of the Antideficiency Act (ADA). The ADA, Pub.L. 97-258, 96 Stat. 923, was enacted to prevent a federal agency from incurring obligations or the making expenditures (outlays) in excess of amounts available under its fiscal year budget authority appropriations.

In terms of what is being done to address this issue, USDA responded that:

[A]t this time the USDA has no ability to determine what the end of year extramural R/R&D obligations will be at the beginning of the fiscal year when setting up the SBIR budget for the fiscal year. The only way USDA can determine an early year budget for the SBIR Program is take the SBIR set-aside from the USDA extramural R/R&D budget authority appropriations. At this time, USDA has no legal authority to apply a secondary SBIR tax on multi-year funds and at this time the USDA has no ability to legally meet the expenditure compliance methodology using only end of year obligations as the final metric.

USDA addressed the variance between its total extramural R/R&D amount reported to SBA (\$904,514,075) and to the NCSES Survey (\$830,700,000) by explaining that:

[I]n FY16, after the FY15 fiscal year was completed, each USDA agency that contributed funding to the SBIR Program calculated the total extramural R/R&D obligations. This data was reported to SBIR staff and provided in the annual report. In FY15 and at the time SBIR staff acquired the end of year obligation data, the NCSES Survey was estimated and it was not known if the estimate would change. The NCSES Survey estimates have not changed and there is an internal review underway at USDA to determine why there is a discrepancy between the two data calls.

DHS. Based on SBA's analysis of compliance, DHS exceeded the minimum spending requirement. Based on the extramural R/R&D amount and amount of funding obligated for SBIR awards reported by the agency to SBA, DHS exceeded the minimum spending requirement for SBIR (5.55%). Based on the extramural R/R&D amount reported for the NCSES Survey, DHS exceeded the minimum spending requirement for SBIR (5.35%). The total extramural R/R&D obligation figure reported to SBA is \$13,544,975 lower than that reported for the NCSES Survey. DHS reports no exemptions.

DOT. Based on SBA's analysis of compliance, DOT exceeded the minimum spending requirement. Based on extramural R/R&D amount and amount of funding obligated for SBIR awards reported by the agency to the SBA, DOT exceeded the minimum spending requirement for SBIR (3.19%). Based on the extramural R/R&D amount reported for the NCSSES Survey less exempted program amounts reported by DOT to SBA, DOT exceeded the minimum spending requirement to an even greater extent for SBIR (5.12%).

DOT reports exemptions of \$405,338,000. The Federal Aviation Administration (FAA), which accounts for about half of the DOT R/R&D allocation, is exempt from the Small Business Act and thus excluded from the SBIR assessment per the DOT and Related Agencies Appropriation Act of 1996, PL 104-50, codified at 49 USC §40110(d). A portion of the Federal Highway Administration (FHWA) extramural R/R&D funding is exempt pursuant to 23 USC §505(b)(3), which states "Funds expended under paragraph (1) shall not be considered to be part of the extramural budget of the agency for the purpose of section 9 of the Small Business Act (15 USC §638).

DOT does not know how NSF determined their number and cannot explain the differences between the extramural R/R&D amount reported to SBA and that reported for the NCSSES Survey. DOT understands that the NSF process involves collecting information from the operating administrations across DOT, whereas the SBIR figure reported to SBA is provided to the DOT SBIR Program Office from the DOT Office of the Secretary.

DOC. SBA is unable to determine whether DOC complied with the minimum spending requirement because of the discrepancy between compliance based on the extramural R/R&D amount reported to SBA and compliance based on the extramural R/R&D amount reported for the NCSSES Survey. Based on the extramural R/R&D amount and amount of funding obligated for SBIR awards reported by the agency to SBA, the DOC complied with the minimum spending requirement for SBIR (2.87%), which is 2.9% when rounded to the nearest tenth of a percent. Based on the extramural R/R&D amount reported for the NCSSES Survey, the DOC did not comply with the minimum spending requirement for SBIR (2.71%). The NCSSES Survey data reports \$19,125,500 more in extramural R/R&D, or \$639,883 in potential SBIR funding. DOC reports no exemptions.

DOC explained that "the variance between the total extramural R/R&D amount reported to SBA and to the NCSSES Survey is due to the timing of report submissions and different error checking methods used by separate reporting offices."

ED. Based on SBA's analysis of compliance, ED exceeded the minimum spending requirement. Based on the extramural R/R&D amount and amount of funding obligated for SBIR awards reported by the agency to SBA, ED exceeded the minimum spending requirement for SBIR (3.14%). Based on the extramural R/R&D amount reported for the NCSSES Survey, ED exceeded the minimum spending requirement for SBIR (3.11%). According to ED, they reserve a specific amount of funding each year for SBIR that typically exceeds the minimum SBIR spending requirement. ED reports no exemptions.

EPA. SBA is unable to determine whether EPA complied with the minimum spending requirement because of the discrepancy between compliance based on the extramural R/R&D amount reported to SBA and compliance based on the extramural R/R&D amount reported for the NCSSES Survey. Based on extramural R/R&D amount and amount of funding obligated for SBIR awards reported by the agency to the SBA, EPA exceeded the minimum spending requirement for SBIR (3.22%). Based on the extramural R/R&D amount reported for the NCSSES Survey, EPA did not comply with the minimum spending requirement for SBIR (1.83%). EPA reports no exemptions.

The extramural R/R&D amount reported to SBA as appropriations is \$110,116,500 less than the amount reported for the NCSSES Survey. This is \$2,727,914 in potential SBIR funding which would be nearly a 60% increase in EPA's SBIR allocation.

Regarding the variance between the extramural R/R&D amounts reported to SBA and the NCSSES Survey, EPA responded that:

[A]s the NSF and SBA reports are at the request of two different entities, the reports address separate issues and therefore use different methodologies. The NCSES Survey data reflects EPA's FY15 enacted budget levels and not obligations, which is consistent with their reporting to SBA. In addition, because of the complexity of the data EPA reports in the NCSES Survey, it uses a simplified approach to calculating 'intramural' (payroll and travel only) versus 'extramural' (research and research support) for those purposes. Based on SBA definitions, and a lower level of complexity of the data EPA develops for this effort, in-house research support costs are classified as intramural, in addition to payroll and travel resources.

SBA does not consider this to be a valid explanation as to why the extramural NCSES Survey numbers are 43% higher than the extramural R/R&D amounts reported to SBA.

8. Awards Exceeding Guideline Amounts

The Act currently sets guideline amounts 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 rationale that it allows them to issue a larger number of awards to reach a wider range of viable solutions to R&D needs. Agencies with larger budgets tend to make more awards that exceed the guideline amounts with the rationale that in some cases larger award sizes are needed when dealing with capital intensive research projects, while their larger SBIR/STTR budgets still allow them to fund a sufficiently wide range of proposals under the guideline thresholds. Agencies may, at their 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. Information about individual awards is available on SBIR.gov.

Table 8 Awards Exceeding Guideline Amounts by More than 50%

Awards Exceeding Guideline Amounts by More Than 50% (FY15)				
Program	Phase	DoD	HHS	DOE
SBIR	Phase I	1,198	674	255
	Phase I Exceeding	0	200	2
	Phase II	606	371	146
	Phase II Exceeding	17	15	1
STTR	Phase I	234	160	39
	Phase I Exceeding	0	42	0
	Phase II	92	36	19
	Phase II Exceeding	0	1	0
(\$225,000 for Phase I, \$1,500,000 for Phase II) *includes FY15 obligations on prior year awards				

The Act provides that a Participating Agency may request a waiver from the SBA for certain awards to exceed the cap. The SBA established in the SBIR/STTR Policy Directives that an agency making such a request must provide the SBA with: 1) evidence that the limitations on award size interfere with the ability of the agency to fulfill its R&D mission; 2) evidence that the agency will minimize, to the maximum extent practicable, the number of awards that exceed the cap for the topic area; and, 3) evidence that research costs for the topic area differ significantly from those in other areas to warrant going over the cap. The latter becomes an important distinction for agencies, such as HHS (including the National Institutes of Health (NIH)), DoD, and DOE, when costs to mature technology to a level in which it can be transitioned, or commercialized to the next level may exceed the cap. For any Participating Agency waiver request approved, that agency must report to SBA any such awards made, to include the identity and location of each recipient.

DoD and DOE requested, and the SBA approved, waivers for awards exceeding the cap on a case-by-case/project-by-project basis.

HHS' justification for awards exceeding guideline amounts was based on the fact that the length of time and cost of research involving development and evaluation of certain technologies exceed that of the amount routinely awarded for SBIR/STTR awards. Such technologies include, but are not limited to, nanotechnologies; genetically engineered proteins; inducible gene expression; combinatorial chemistry approaches; biosilicon devices; toxicology models; drug discovery/drug evaluation approaches; mammalian and non-mammalian models of disease; biocompatible biomaterials; acousto-optics and opto-electronics; diagnostic imaging technologies; biomarkers; biomedical computing; biosensors; and NMR spectroscopy instrumentation.

NIH is the steward of medical and behavioral research. Its mission is science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to

enhance health, lengthen life, and reduce the burdens of illness and disability. According to NIH, in order to accomplish this mission with its SBIR/STTR Programs, the projects that are funded must be funded at an appropriate level:

- To cover the cost of research in the biomedical and behavioral arenas because in many cases it is above the statutory guidelines and higher than most research and development research areas;
- To a level where the project will attract third party funding and partnerships after the SBIR/STTR project period to move products along the commercialization path. This can ultimately take years and possibly tens/hundreds of millions of dollars after the SBIR/STTR Phases; and
- To move products far enough along for regulatory filings, testing, and approval.

Underfunding an NIH Phase I, II, or IIB SBIR/STTR project will cause projects to fail and not reach the market due to any one or more of the above. As a consequence, NIH states that it would not be able to fulfill its mission and could not bring life-saving and life-changing technologies to the market.

Accordingly, for FY15, NIH requested, and the SBA approved, waivers granting NIH authority to solicit and make awards over the cap for specific topics, particularly for life science- and biomedical-related research topics involving clinical trials conducted within rigorous regulatory environments at substantially higher costs and life science areas with higher costs. The SBA approved NIH's waiver request under the condition that NIH would monitor and report quarterly to the SBA any awards exceeding a Phase I or Phase II cap.

9. SBIR/STTR Proposal Selection Rates

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

SBIR Program

Across the 11 SBIR Participating Agencies, small businesses submitted a total of 17,158 proposals for the 2,870 new Phase I awards that were made in FY15, resulting in an average Phase I proposal selection rate of 17%. Agencies received 2,800 proposals for the 1,454 new Phase II awards that were made, resulting in an average Phase II proposal selection rate of 52%.

Chart 9 SBIR Phase I Proposal Selection Rate

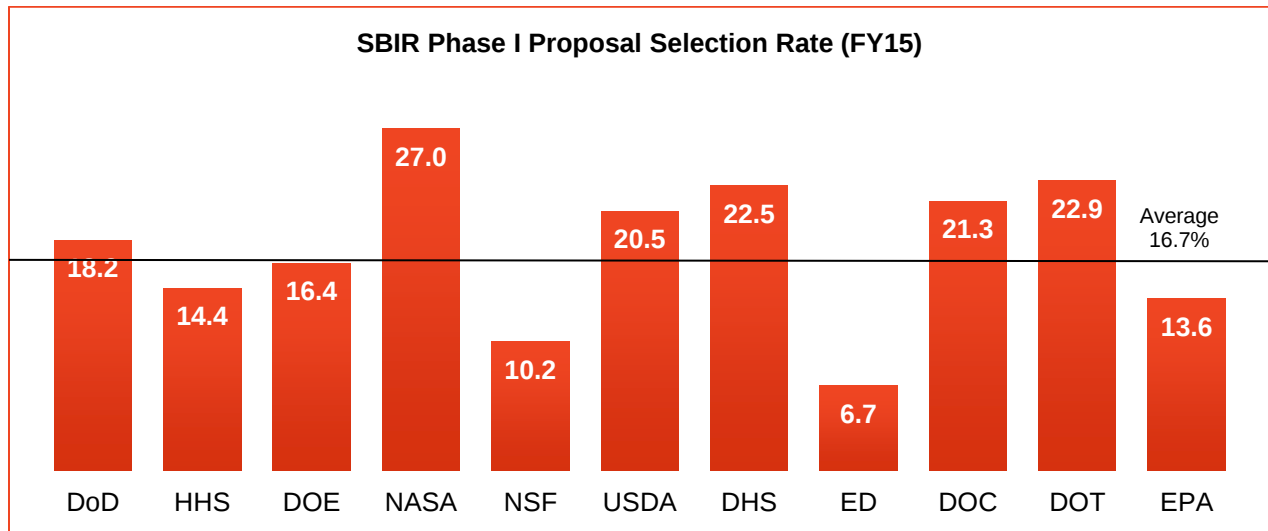
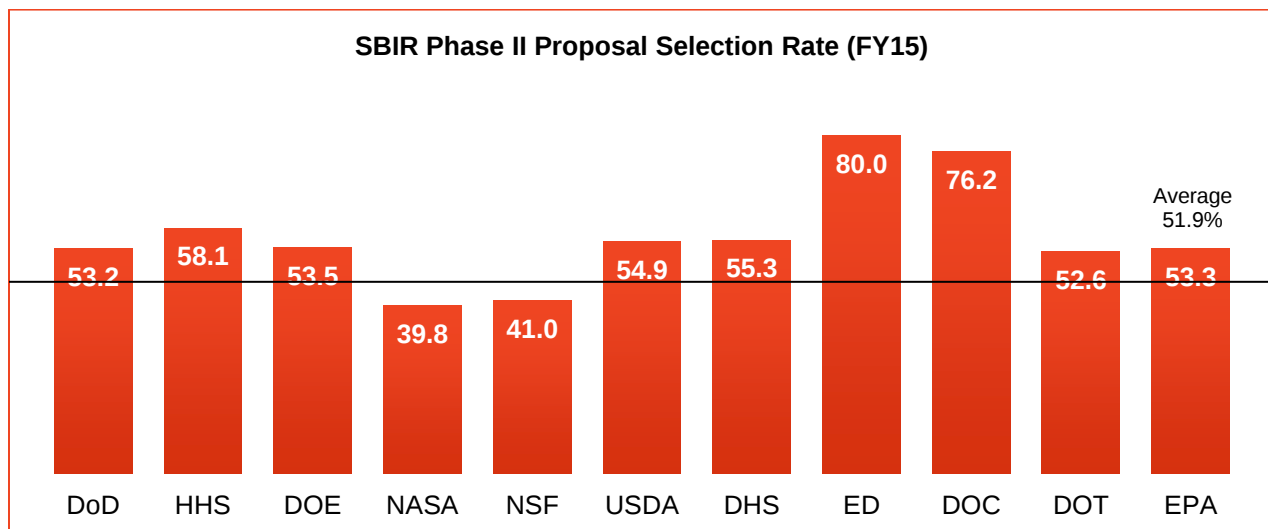


Chart 10 SBIR Phase II Proposal Selection Rate



STTR Program

Across the five STTR Participating Agencies, small businesses partnering with non-profit research institutions submitted a total of 2,683 proposals for 552 new Phase I awards that were made in FY15, resulting in an average Phase I proposal selection rate of 21%. Agencies received 348 proposals for 173 new Phase II awards that were made, resulting in an average Phase II proposal selection rate of 50%.

Chart 11 STTR Phase I Proposal Selection Rate

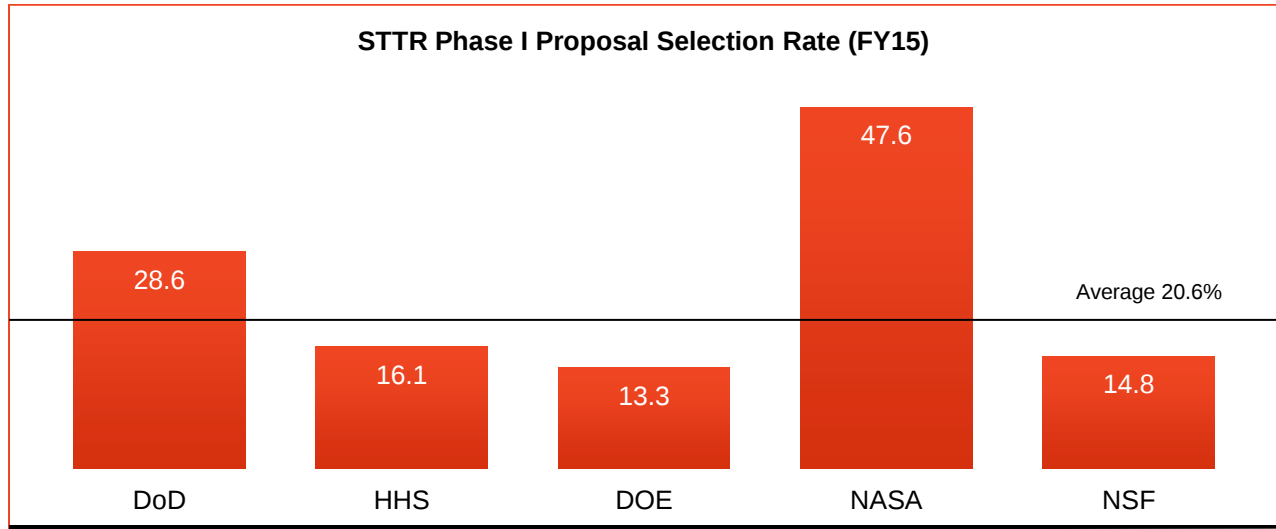
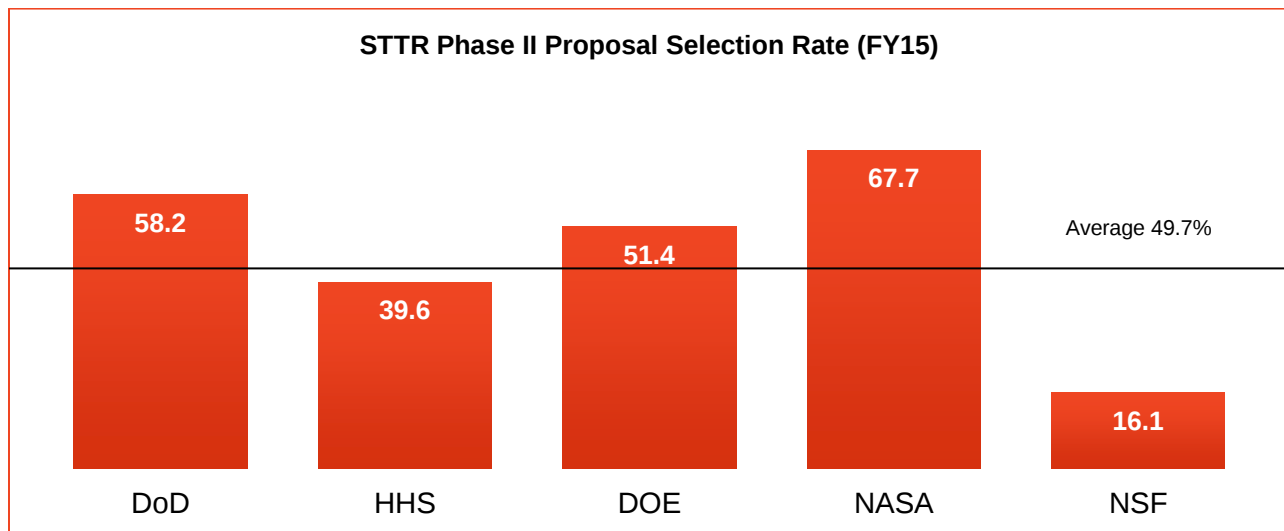


Chart 12 STTR Phase II Proposal Selection Rate



10. SBIR/STTR Awards by U.S. State and Territory

The following table 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.

The SBA has noted that more SBIR/STTR funding goes to states with the largest populations and those with that have a record of receiving substantial R&D funding from Federal programs outside of the SBIR and STTR Programs. For SBIR and STTR funding specifically in order of magnitude:

- Approximately 68% of total FY15 SBIR award dollars were concentrated among the states of California, Massachusetts, Virginia, Colorado, Maryland, New York, Pennsylvania, Texas, Ohio, and Florida.
- Approximately 63% of total FY15 STTR award dollars were concentrated among the states of California, Massachusetts, Virginia, Maryland, New York, Ohio, Pennsylvania, Illinois, Texas, and North Carolina.

The SBA and Participating Agencies have worked to coordinate outreach efforts and tap into the innovation pipelines within the 26 most underrepresented states of Alaska, Arkansas, Delaware, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maine, Mississippi, Missouri, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Puerto Rico, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, West Virginia, and Wyoming. 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.

Additionally, administrative funds to specifically enable outreach for SBIR/STTR participation in underrepresented states have been allocated by the agencies and approved by SBA, most notably for the FY15 SBA Road Tour that visited the 15 underrepresented states of Idaho, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, North Dakota, Oklahoma, South Carolina, South Dakota, Tennessee, and West Virginia.

Table 9 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	1	\$146,667	1	\$149,721	-	-	-	-	1	\$146,667	1	\$149,721	2	\$296,388
AL	63	\$9,349,780	13	\$1,792,197	32	\$38,354,811	2	\$4,205,053	95	\$47,704,591	15	\$5,997,250	110	\$53,701,841
AR	15	\$3,503,780	1	\$149,999	4	\$4,550,734	-	-	19	\$8,054,514	1	\$149,999	20	\$8,204,513
AZ	41	\$5,853,557	18	\$3,083,140	16	\$22,373,592	5	\$4,774,879	57	\$28,227,149	23	\$7,858,019	80	\$36,085,168
CA	617	\$105,054,470	91	\$17,637,836	290	\$353,624,100	29	\$28,125,327	907	\$458,678,570	120	\$45,763,163	1027	\$504,441,733
CO	120	\$18,634,810	11	\$1,931,982	75	\$86,036,290	7	\$5,730,026	195	\$104,671,100	18	\$7,662,008	213	\$112,333,108
CT	42	\$6,967,474	6	\$1,644,554	21	\$23,009,957	2	\$2,934,178	63	\$29,977,430	8	\$4,578,732	71	\$34,556,162
DC	7	\$1,219,810	-	-	2	\$1,052,696	-	\$474,998	9	\$2,272,506	-	\$474,998	9	\$2,747,504
DE	24	\$3,298,411	2	\$229,962	7	\$6,345,462	-	\$499,989	31	\$9,643,873	2	\$729,951	33	\$10,373,824
FL	76	\$12,099,063	16	\$2,835,510	41	\$48,026,382	3	\$3,814,816	117	\$60,125,445	19	\$6,650,326	136	\$66,775,771
GA	28	\$5,310,338	13	\$2,598,955	12	\$17,641,656	2	\$4,219,137	40	\$22,951,994	15	\$6,818,092	55	\$29,770,086
HI	15	\$1,557,703	-	\$53,993	11	\$7,194,933	-	\$250,000	26	\$8,752,636	-	\$303,993	26	\$9,056,629
IA	6	\$1,472,911	-	-	6	\$5,307,277	-	-	12	\$6,780,188	-	-	12	\$6,780,188
ID	10	\$1,279,299	-	-	-	-	1	\$350,000	10	\$1,279,299	1	\$350,000	11	\$1,629,299
IL	54	\$8,712,533	14	\$3,222,420	27	\$28,211,644	8	\$6,737,050	81	\$36,924,177	22	\$9,959,470	103	\$46,883,647
IN	25	\$3,995,430	9	\$2,420,291	16	\$17,907,512	1	\$939,464	41	\$21,902,942	10	\$3,359,755	51	\$25,262,697
KS	9	\$1,410,737	4	\$464,725	6	\$5,276,913	-	\$439,352	15	\$6,687,650	4	\$904,077	19	\$7,591,727
KY	21	\$4,083,508	8	\$1,429,731	8	\$9,761,872	1	\$869,569	29	\$13,845,380	9	\$2,299,300	38	\$16,144,680
LA	5	\$811,881	1	\$225,000	1	\$2,211,207	-	-	6	\$3,023,088	1	\$225,000	7	\$3,248,088
MA	319	\$54,356,069	45	\$8,545,116	184	\$217,997,963	21	\$24,695,080	503	\$272,354,032	66	\$33,240,196	569	\$305,594,228
MD	150	\$25,324,323	32	\$4,996,077	64	\$82,290,592	13	\$10,501,305	214	\$107,614,915	45	\$15,497,382	259	\$123,112,297
ME	3	\$642,030	2	\$449,995	5	\$4,775,863	-	-	8	\$5,417,893	2	\$449,995	10	\$5,867,888
MI	73	\$12,213,286	20	\$3,680,798	43	\$44,897,434	3	\$2,990,095	116	\$57,110,720	23	\$6,670,893	139	\$63,781,613
MN	44	\$8,321,372	10	\$2,032,149	14	\$18,850,029	2	\$3,443,501	58	\$27,171,401	12	\$5,475,650	70	\$32,647,051
MO	19	\$3,927,532	2	\$572,098	7	\$9,751,235	-	-	26	\$13,678,767	2	\$572,098	28	\$14,250,865
MS	2	\$525,127	1	\$192,377	-	-	-	-	2	\$525,127	1	\$192,377	3	\$717,504
MT	10	\$1,223,293	2	\$374,751	9	\$10,519,412	1	\$999,926	19	\$11,742,705	3	\$1,374,677	22	\$13,117,382
NC	60	\$10,880,605	12	\$2,975,092	43	\$46,230,934	5	\$6,027,605	103	\$57,111,539	17	\$9,002,697	120	\$66,114,235

ND	1	\$197,973	-	-	-	-	-	\$314,519	1	\$197,973	-	\$314,519	1	\$512,492
NE	6	\$1,032,382	1	\$523,496	1	\$873,281	1	\$926,229	7	\$1,905,663	2	\$1,449,725	9	\$3,355,388
NH	41	\$5,298,729	4	\$855,429	27	\$38,997,163	3	\$2,607,286	68	\$44,295,892	7	\$3,462,715	75	\$47,758,607
NJ	65	\$9,694,310	14	\$2,353,802	23	\$26,823,825	-	\$2,008,130	88	\$36,518,135	14	\$4,361,932	102	\$40,880,067
NM	32	\$4,899,453	9	\$1,220,155	19	\$18,573,828	2	\$5,087,028	51	\$23,473,281	11	\$6,307,183	62	\$29,780,464
NV	10	\$1,855,785	2	\$672,853	4	\$3,069,344	-	-	14	\$4,925,129	2	\$672,853	16	\$5,597,982
NY	143	\$24,340,636	31	\$6,237,873	64	\$75,698,399	9	\$9,764,208	207	\$100,039,035	40	\$16,002,081	247	\$116,041,116
OH	102	\$15,988,535	22	\$3,275,962	54	\$63,912,897	10	\$8,416,675	156	\$79,901,432	32	\$11,692,637	188	\$91,594,069
OK	15	\$2,718,471	-	\$292,900	6	\$7,553,602	-	-	21	\$10,272,073	-	\$292,900	21	\$10,564,973
OR	33	\$4,789,896	13	\$2,506,114	17	\$22,607,726	3	\$4,879,812	50	\$27,397,621	16	\$7,385,926	66	\$34,783,547
PA	121	\$22,402,318	29	\$5,039,277	62	\$74,152,169	7	\$6,933,910	183	\$96,554,487	36	\$11,973,187	219	\$108,527,674
PR	1	\$179,999	-	-	-	-	-	-	1	\$179,999	-	-	1	\$179,999
RI	11	\$1,342,513	2	\$229,301	6	\$7,250,573	-	\$390,544	17	\$8,593,086	2	\$619,845	19	\$9,212,931
SC	14	\$2,581,676	1	\$454,600	7	\$8,078,974	1	\$2,555,980	21	\$10,660,650	2	\$3,010,580	23	\$13,671,230
SD	5	\$554,154	1	\$149,984	2	\$1,946,372	-	-	7	\$2,500,526	1	\$149,984	8	\$2,650,510
TN	18	\$3,023,140	6	\$776,135	8	\$9,869,837	1	\$749,998	26	\$12,892,977	7	\$1,526,133	33	\$14,419,110
TX	125	\$20,711,230	25	\$4,252,328	55	\$65,725,225	7	\$5,695,729	180	\$86,436,454	32	\$9,948,057	212	\$96,384,511
UT	32	\$5,909,654	7	\$1,349,532	11	\$15,648,740	3	\$2,254,792	43	\$21,558,394	10	\$3,604,324	53	\$25,162,718
VA	154	\$23,002,503	34	\$5,417,014	79	\$96,329,518	14	\$11,530,404	233	\$119,332,021	48	\$16,947,418	281	\$136,279,439
VT	5	\$656,654	-	-	7	\$6,210,222	1	\$508,209	12	\$6,866,876	1	\$508,209	13	\$7,375,085
WA	44	\$9,005,914	8	\$1,482,942	36	\$36,078,744	1	\$1,878,099	80	\$45,084,658	9	\$3,361,041	89	\$48,445,699
WI	22	\$4,916,263	9	\$2,229,958	14	\$17,454,571	4	\$3,702,484	36	\$22,370,834	13	\$5,932,442	49	\$28,303,276
WV	4	\$523,966	-	-	-	\$324,702	-	\$374,998	4	\$848,668	-	\$374,998	4	\$1,223,666
WY	3	\$408,099	1	\$150,000	1	\$1,064,827	-	\$503,522	4	\$1,472,926	1	\$653,522	5	\$2,126,448

*The number of awards are only for new awards during FY15. The dollars obligated includes funding for both new and prior year awards. Agencies have the ability to update the number and dollar amount for awards. The data represented in this table reflects a snapshot of data pulled on 04/03/18

11. SBIR/STTR Award Timelines

The Reauthorization Act required changes aimed at reducing the gaps in the time between the close of the solicitation, the notification of award and the performance start date. For all SBIR and STTR awards, the Policy Directive prescribes the duration between the closing date of the solicitation and the notification of recommendation of award of no more than one year for NIH or NSF and 90 calendar days for all other agencies. The Policy Directive also prescribes the duration between the closing date of the solicitation and the first date of the period of performance on the funding agreement as 15 months for NIH and NSF no more than 180 calendar days for all other agencies. The table below shows how each agency performed during FY15 under the SBIR Program and Table 11 shows the data for the STTR Program.

Table 10 SBIR Award Timelines

SBIR Award Timelines	DoD	HHS	DOE	NASA	NSF	USDA	DHS	ED	DOC	DOT	EPA
Average time between Phase I Solicitation Close and Award Notification (days)	69	198	84	92	186	152	65	90	83	78	209
Average time between Phase I Notification and First Day of Period of Performance (days)	84	62	43	49	22	82	36	16	87	80	118
Percentage of Phase I Awards where the time between Solicitation Close and Notification was less than or equal to 90 days (1 year for HHS and NSF only)	97%	99%	100%	0%	100%	0%	100%	100%	100%	89%	0%
Percentage of Phase I Awards where time between Solicitation Close and First Day of Performance was less than or equal to 180 days (15 months for HHS and NSF only)	81%	97%	100%	100%	100%	0%	100%	100%	100%	86%	0%
Average time between Phase I Award Final Day of Period of Performance and Phase II Award's First Day of Period of Performance (days)	495	431	161	162	249	224	157	122	193	325	458
Average time between Phase II Solicitation Close Date, or Proposal Receipt Date, and Award Notification Date (days)	61	204	77	125	179	96	54	79	77	103	116
Average time between Phase II Notification Date and First Day of Period of Performance (days)	201	49	56	43	52	79	90	28	58	147	182
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)	75%	98%	100%	0%	99%	0%	94%	100%	100%	20%	0%
Percentage of Phase II Awards where time between Solicitation Close, or Proposal Receipt, and First Day of Performance was less than or equal to 180 days (<=15 months for HHS and NSF only)	33%	96%	94%	95%	100%	68%	88%	100%	100%	80%	0%

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

USDA and EPA showed timelines exceeding 6 months on average to issue awards. Regarding the longer than prescribed timelines, USDA explained that the agency “uses an external scientific peer review process similar to NSF and NIH and cannot meet the 90-day maximum timeline from the Phase I proposal due date to award selection notification requirement. USDA has noted that the agency could meet the 1 year timeline as congressionally prescribed for NIH and NSF.”

NASA indicates that they have normally met the timeline requirements for announcing awards within 90 days of submission close. In FY15, the program experienced schedule changes that affected the timeline for Phase II award notifications.

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. The following FY15 charts are organized by Participating Agency, and contrast the performance on Phase I and Phase II SBIR proposals. Specific average SBIR times for each agency are as follows:

Chart 13 Average Time from SBIR Phase I Solicitation Close to Award Start

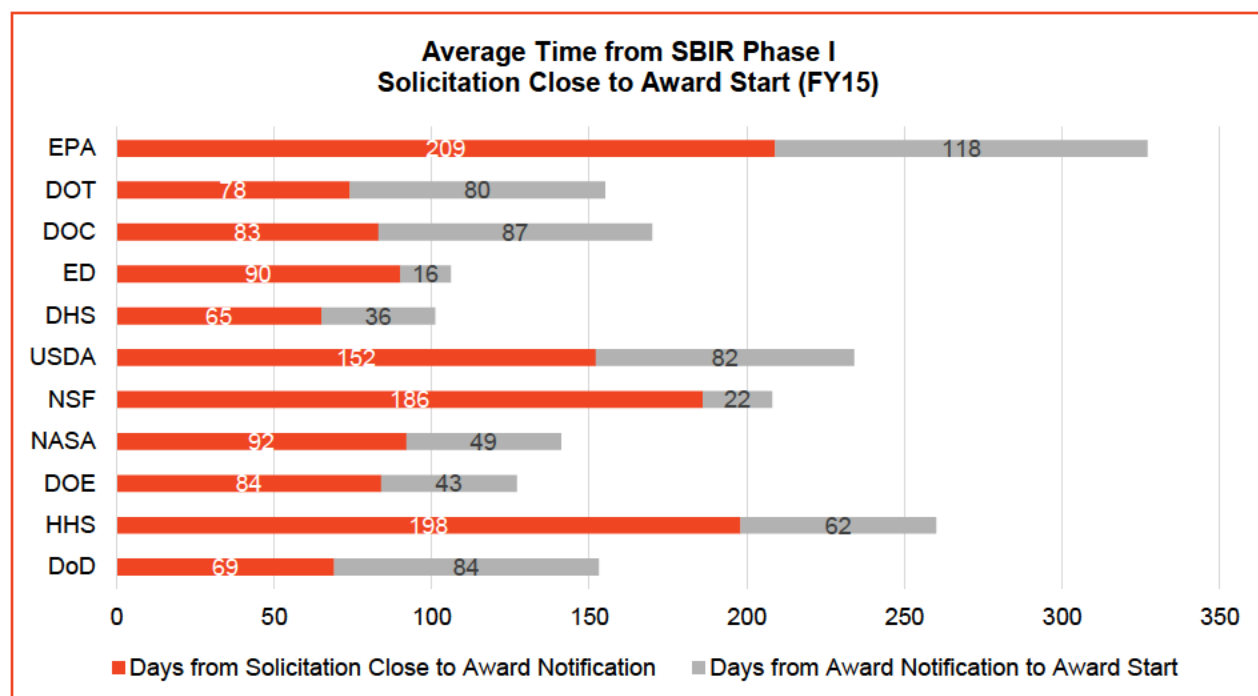
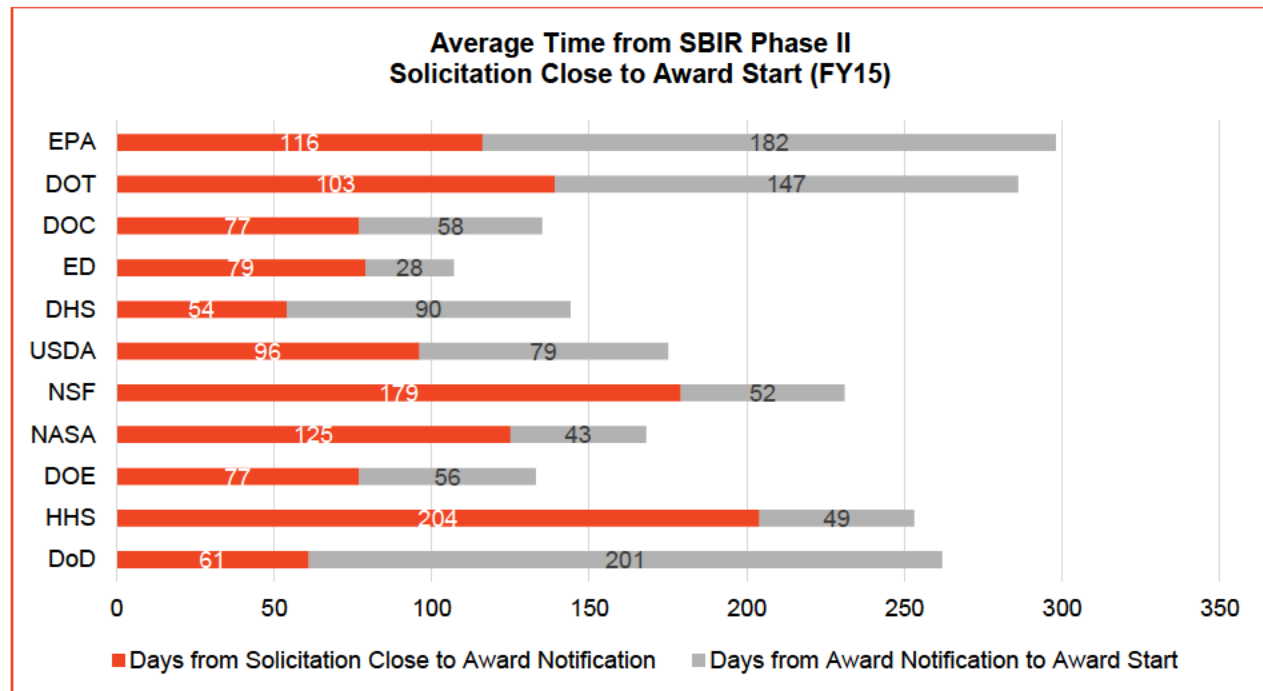


Chart 14 Average Time from SBIR Phase II Solicitation Close to Award Start



STTR Award Timelines

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

Table 11 STTR Award Timelines

STTR Award Timelines	DoD	HHS	DOE	NASA	NSF
Average time between Phase I Solicitation Close and Award Notification (days)	65	202	81	92	195
Average time between Phase I Notification and first day of period of performance (days)	81	61	42	48	11
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)	89%	99%	100%	0%	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)	82%	97%	100%	100%	100%
Average time between Phase I Award final day of period of performance and Phase II Award's first day of period of performance (days)	376	407	138	165	256
Average time between Phase II Solicitation Close Date or Proposal Receipt Date and Award Notification (days)	67	230	76	117	221
Average time between Phase II Notification Date and First Day of Period of Performance (days)	238	45	56	48	4
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)	83%	100%	100%	0%	100%
Percentage of Phase II Awards where time between Solicitation Close or Proposal Receipt and First Day of Performance was less than or equal to 180 days (450 days or 15 months for HHS and NSF only)	29%	97%	95%	86%	100%

The following charts provide time to from proposal submission to award for the STTR program.

Chart 16 Average Time From STTR Phase I Solicitation Close to Award Start

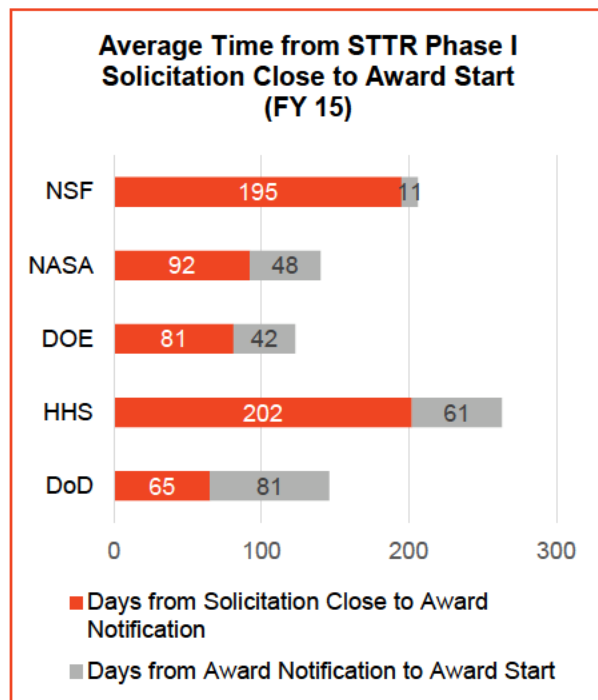
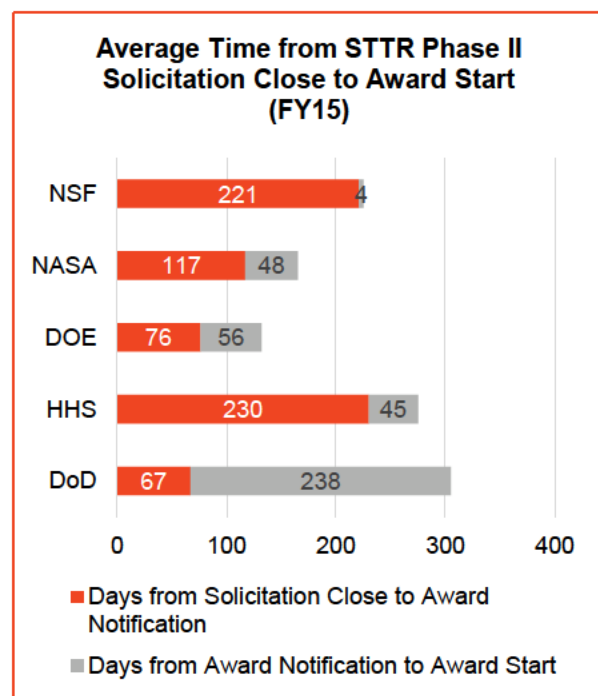


Chart 15 Average Time from STTR Phase II Solicitation Close to Award Start



12. SBIR/STTR Administrative Funding Pilot Program (AFPP)

The Reauthorization Act authorized a pilot program permitting Participating Agencies to use up to 3% of their SBIR funding for the administrative, oversight, and contract processing costs of both the SBIR and STTR Programs. Each agency using the authority to implement the Administrative Funding Pilot Program (AFPP) was required to submit a plan of work with estimated costs for SBA approval. Each proposed plan was required to address efforts supporting material improvements in program performance, such as streamlining award processes, reporting, and outreach. In reviewing outcome data, SBA compiled and verified financial information, requested and compiled outcome data, and reviewed metrics from original requests to match with outcomes. SBA is developing a standalone report that will provide greater details about the Participating Agencies' AFPP plans and outcomes in the areas of Outreach; Commercialization; Streamlining and Simplification; Prevention and Detection of Fraud, Waste, and Abuse; Reporting; and Administration and Implementation of Reauthorization. Agency AFPP obligations are shown below.

Table 12 Administrative Funding Pilot Program

AFPP Maximum Allowable and Obligated Amount per Agency (FY15)			
Participating Agency	Max Allowable	Funding Approved	Obligated
DoD	\$29,700,000	\$29,700,000	\$20,724,739
HHS	\$20,600,000	\$20,600,000	\$10,273,300
DOE	\$5,267,594	\$1,357,065	\$1,274,251
NASA	\$5,700,000	\$5,700,000	\$0
NSF	\$5,313,300	\$5,313,300	\$5,313,300
USDA	\$635,000	\$635,000	\$220,253
DHS	Not participating	Not participating	Not participating
ED	\$225,000	\$15,000	\$651
NOAA (DOC)	\$177,083	\$85,000	\$5,256
NIST (DOC)	\$75,000	\$31,000	\$31,000
DOT	\$248,076	\$107,500	\$95,061
EPA	Not participating	Not participating	Not participating
TOTAL	\$67,941,053	\$59,899,565	\$33,886,440

SBA received and approved work plans from 9 Participating Agencies: DoD, HHS, DOE, NSF, NASA, ED, USDA, DOT, and DOC (NIST and NOAA). However, only NSF fully utilized the maximum 3% amount allowable. The SBA approved \$59,929,565 of FY15 SBIR budget dollars in agency AFPP plans, yet only \$33,886,440, or 57%, was obligated. The difference between the estimated and the actual obligated amounts is primarily attributed to the constraints associated with the timing of: 1) agency appropriations; 2) program office receipt of SBIR funding; and, 3) the amount of time available to make obligations after the necessary budget information was received and before the end of the fiscal year. NASA did not obligate any planned AFPP funding in FY15. If funding was not used for planned AFPP activities, those funds were obligated for SBIR awards at the agency.

No Participating Agencies requested to waive the requirement to use a portion of the AFPP funds authorized to increase the participation of states with respect to which a low level of SBIR awards have historically been awarded.

FY15 utilization of AFPP allowed agencies to dedicate resources 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; and, extensive outreach to increase SBC participation, especially from underrepresented communities.

Table 13 Examples of Agencies' Use of Administrative Funding Pilot Program

Examples of Agencies' Use of Administrative Funding Pilot Program	
Outreach	• DOE Phase 0 Application Assistance program assisted under-represented groups achieve award success rates comparable to the overall application pool. • NSF funded the AWARE (Accelerating Women and Underrepresented Entrepreneurs) pilot entrepreneurial program at the University of Illinois. • SBA and SBIR/STTR Participating Agencies partnered with state innovation leaders across 20 underserved states held over 2,700 one-on-one meetings with innovators through the SBIR Road Tour in FY15 (more in Section 15).
Commercialization	• DoD/Missile Defense Agency (MDA) personnel focused on transitioning technologies to MDA programs of record leading to Phase III contracts. • HHS/NIH and NSF provided over 200 companies a platform to showcase SBIR/STTR funded innovations and partner with customers and follow-on investors at international conferences, including the Biotechnology Industry Organization (BIO) and Consumer Electronics Show (CES) meetings. • DOT created the Commercialization Assistance Program to assist SBIR awardees in planning for and implementing commercialization activities. • USDA and HHS/NIH established I-Corps programs to provide commercialization focused entrepreneurship training. • HHS implemented advanced partnerships with universities, added additional commercialization support staff, and an Entrepreneur-in-Residence program.
Streamlining and Simplification	• DoD/Navy Contracting Focus Center Pilot reduced average Phase II contract award times by 8 months, and Phase I contract time-to-awards by 11%. • DOT implemented pre-proposal conference calls for Phase II awardees to help them discuss research goals and prepare proposals.
Prevention and Detection of Fraud, Waste, and Abuse	• DoD/Air Force partnered with the Air Force Office of Special Investigations to increase tracking and reporting of instances of fraud, waste, and abuse. • HHS hired support staff to assist in prevention and detection of fraud, waste, and abuse.
Reporting	• DoD/Navy updated its program management databases to improve reporting accuracy.
Administration and Implementation of Reauthorization	• DOE upgraded the system used to manage its application and award process. • HHS developed an evaluation framework and tools to improve collection, storage, and analysis of data.

13. 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 Secretary of Defense and the Secretary of each Military Department. Under the Reauthorization Act, the CRP was made permanent through September 30, 2017. The purpose of the CRP is to accelerate the transition of DoD SBIR/STTR-funded technologies to Phase III, especially those providing significant benefit to the nation's warfighters in improved performance, new capabilities, increased reliability, and cost savings well exceeding investment. Phase III commercialization work derives from, extends, or completes efforts made under prior funding agreements under the SBIR/STTR Programs, and requires small businesses to obtain funding from the private sector and/or non-SBIR/STTR government sources. Under the CRP, up to 1% of the available SBIR funding may be used by DoD Services and Components for payment of expenses incurred to administer the CRP. The CRP has been implemented to provide non-financial resources through activities that enhance the connectivity among SBIR/STTR firms, prime contractors, and DoD science & technology and acquisition communities. The CRP may also support improving a firm's capability to provide an identified technology to a department, directly or as a subcontractor.

According to Section 9 of the Act (15 USC §638(y)), for any contract with a value of \$100,000,000 or greater, DoD is authorized to establish goals for the transition of Phase III technologies in subcontracting plans, and require 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. In addition, DoD must 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; use incentives to encourage agency program managers and prime contractors to meet these goals; and submit to SBA the number and percentage of Phase II SBIR/STTR contracts that led to technology transition into programs of record or fielded systems; information on the status of each project that received funding through the CRP and efforts to transition those projects into programs of record or fielded systems; and a description of each incentive used and the effectiveness of that incentive in meeting the goal.

The full FY15 DoD CRP report that includes detailed information on the individual departments' activities and initiatives will be posted on <https://www.sbir.gov/annual-reports-files> once DoD gives approval.

Commercialization Readiness Pilot Program for Civilian Agencies (CRPP)

The Reauthorization Act 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. SBA approved requests by DHS, HHS, NASA and DOC/NIST to use the CRPP authority. The following agencies did not request the authority to implement a CRPP in FY15: DOE, NSF, ED, USDA, DOC/NOAA, EPA, and DOT.

HHS. In Fiscal Year 2013 (FY13), HHS requested and received approval from SBA to establish a CRPP. HHS began planning the CRPP once securing SBA approval on August 29, 2013. In FY14 and FY15, NIH sought and received guidance from NIH Office of General Counsel, Grants Policy, Peer Review, and other necessary offices to develop CRPP solicitations. Draft CRPP solicitations were developed and circulated for internal input, refinement, and clearances. This process took longer than expected due to the unique nature of the CRPP authority. HHS issued its CRPP solicitations on November 2, 2015 (FY16), and held an informational webinar (see <https://sbir.nih.gov/engage/news#dec4>). The first CRPP applications and awards will be in FY16. No funds were spent on the CRPP in FY15.

DHS. Of the two SBIR Programs in DHS, only the Science and Technology (S&T) Directorate administered a CRPP in FY15. Building on the success of its inaugural FY14 CRPP, the S&T SBIR Program Office utilized slightly less than 10% of its SBIR Program funds (or \$1,217,903) in FY15 to help

its small business awardees address two issues related to transitioning new products to market: technology maturation and end-user knowledge.

For technology maturation, DHS/S&T's SBIR Program Office provided additional funding, via separate CRPP awards, to five of its SBIR awardees to help them increase their technologies' readiness levels:

Table 14 Commercialization Readiness Pilot Program for Civilian Agencies (CRPP) - DHS

Company	Project Title	Amount
Boston Engineering	BIOSwimmer: In-Liquid Inspection System	\$199,999
Creare Incorporated	Miniature, Rugged Vacuum System for Portable Mass Spectrometers	\$199,989
Radiance Technologies, Inc.	Virtual Shooter	\$199,995
Robotic Research, LLC	Sensor-Smart Affordable Autonomous Robotic Platforms (SAARP)	\$199,968
Triton Systems, Inc.	Magnetically Switchable Explosives Vapor Isolator	\$199,951

SBIR-funded technology may be technically successful but if the market is unaware of its existence or of its potential, it serves no useful purpose. DHS' S&T Directorate's SBIR CRPP began to address the issue of end-user knowledge in FY14 through memberships in the Auto Harvest Foundation and Pitch Book Data. No new funding was provided for the Auto Harvest Foundation membership in FY15, as the original contract was for two years. However, a new contract was issued with Pitch Book Data in FY15 at a price of \$16,000. Also in FY15, four contracts were awarded to DHS S&T SBIR program awardees at \$50,000 each so that the awardees could participate in the DHS/NSF I-Corps program beginning in October 2015. Specifically, dbS Productions LLC (Charlottesville, VA), MTI Systems, Inc. (Greenbelt, MD), SecureLogix Corporation (San Antonio, TX), and Mod9 Technologies (Berkeley, CA) each received awards to participate in the I-Corps program.

NASA. NASA obligated \$6,360,613 for its CRPP. FY14 funds obligated in FY15 totaled \$725,000 and FY15 funds obligated in FY15 totaled \$5,635,613.

In 2013, NASA received approval from SBA to initiate a CRPP, as authorized in Section 5123 of P.L. 112-81. NASA used the Air Force CRP program to model many aspects of implementation. The objective of the NASA CRPP is an infusion into a NASA application or a commercialization to industry, not an incremental improvement in technology readiness level alone. The CRPP is intended to provide the bridge to infusion and commercialization for technologies which could not accomplish this within other funding opportunities. The NASA CRPP operates as a matching funding arrangement, with a 1:1 ratio target (SBIR/STTR to non-SBIR/STTR funds). In FY15, NASA offered two distinct cycles for CRPP applications; in the first cycle, nine were approved and in the second cycle, eight were approved:

Table 15 Commercialization Readiness Pilot Program for Civilian Agencies (CRPP) - NASA

Company	Project Title	Amount
Bally Ribbon Mills	Loom Modification Required for Weaving Thick 3D Woven Preforms for Extreme Environments TPS Applications	\$440,000
Blue Canyon	Attitude Determination and Control System (ADCS) for Cubesats	\$24,993
Carbon-Carbon Advanced Technologies (C-CAT)	Lower Cost Higher Performance RL-10 Nozzle	\$550,000
Colorado Electronics, Inc.	High-Performance Power Processing Unit for Hall Thruster	\$625,000

Company	Project Title	Amount
Creare, Inc.	20W/20W Cryocooler for Thermal	\$2,285,000
Fibertek, Inc.	Laser Transmitters for Airborne Methane and Water Vapor DIAL Instruments	\$100,000
Honeybee Robotics	Lunar Resource Prospector Drill	\$349,934
MMA Design LLC	Modular High Power Solar Array for BioSentinel	\$29,991
Nuvotronics LLC	Broadband 8-40 GHz Feed Array for Space Application	\$522,695
Porifera, Inc.	Forward Operating Base Gray Water Recycling System	\$75,000
Space Micro, Inc.	Software-Defined Near-Earth Space Transceiver (SD-NEST)	\$250,000
TECHSHOT, Inc.	Multi-Purpose Variable-gravity Platform (MVP) Development	\$690,000
Vanguard Space Technologies, Inc.	Electrostatically Cleaned CubeSat Solar Panels	\$29,000
Vista Photonics, Inc.	High-Performance Infrared Laser Sensor Technology Readiness & Maturation Project	\$389,000

DOC/NIST. In FY13, NIST (National Institute of Standards and Technology) requested and received approval from SBA to establish a CRPP. NIST began planning the CRPP once securing SBA approval. NIST publicized its authority to establish a CRPP to provide supplemental funding to selected awardees after completion of Phase II in its FY15 Federal Funding Opportunity (2015-NIST-SBIR-01). The first CRPP applications and awards will be in FY17. No funds were spent on the CRPP in FY15.

14. Other SBIR/STTR Reporting Requirements

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

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

HHS/NIH. In FY13, NIH submitted its written determination to SBA and Congress that NIH intended to exercise the authority to allow portfolio companies to apply to its SBIR Program. Every new NIH SBIR solicitation issued after January 28, 2013, has allowed portfolio companies to apply to the NIH SBIR Program.

In FY15 NIH awarded 7 Phase I and 1 Phase II awards to portfolio companies. The total NIH SBIR funds awarded to portfolio companies in FY15 was \$2,442,353 and represents less than 0.5% of NIH's SBIR set-aside for FY15, well below the 25% statutory threshold. Overall, NIH has received a very small number of SBIR applications from portfolio companies and has thus made a small number of awards.

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

HHS/CDC. On July 30, 2014, CDC submitted its written determination to SBA and Congress that CDC intended to exercise the authority to allow portfolio companies to apply to its SBIR Program. Every new HHS SBIR solicitation that CDC participates in issued after July 30, 2014, has allowed portfolio companies to apply to the CDC SBIR Program. CDC made no awards and spent \$0 on portfolio companies in FY15.

DOE/ARPA-E. In FY15, ARPA-E had ongoing Phase II awards with two portfolio companies. ARPA-E obligated a total of \$1.35 million of FY15 funding as a portion of the total funding for those two SBIR awards. DOE has controls in place to ensure that overall spending on portfolio companies would not exceed 25% of its FY15 SBIR set-aside.

Phase III Appeals

Pursuant to Section 4(c)(8) of the SBIR/STTR Policy Directives, Participating Agencies are to notify the SBA before they pursue follow-on work on a technology developed under an SBIR/STTR award with an entity other than the SBIR/STTR awardee that developed the technology. The SBA did not receive such a notification from any funding agency during FY15. 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 FY15.

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

Pursuant to 15 USC §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 or economically disadvantaged individuals under each of the SBIR and STTR Programs. Award information can be found in the Agency Summary Data in Sections 5 and 6 of this report. FY15 outreach activities to the firms identified as disadvantaged are described below.

USDA. In FY15, the USDA fully participated in all of the outreach activities that the SBA established to focus on increasing program participation by SDBs, WOSBs, and underserved states. This included participation in the four Road Tours (total of 20 stops) and regional events. USDA SBIR staff attended outreach meetings that were hosted by the SBDC in Puerto Rico, Professional Agricultural Workers Conference in Alabama, the Native American Intellectual Property Enterprise Council in Georgia, Community Development Society in Kentucky, and the New England Regional SBIR Summer Session in Maine. The USDA SBIR staff also conducted 9 online webinars that provided information on the SBIR Program where there were SDBs and WOSBs in attendance.

DOC. DOC provided outreach in a number of ways including participation in the SBIR National conferences, webinars, Road Tour, and involvement with the Federal Laboratories Consortium. NIST is working with the Minority Business Development Agency (MBDA) to increase participation of minorities in the SBIR Program. NIST's selection process gives priority to technically excellent proposals from small businesses headed by minorities and/or disadvantaged persons.

DoD. DoD participated in over 45 national, regional, and state outreach events and was an active participant in the SBIR Road Tour. All DoD components participated in a number of conferences throughout the fiscal year. The two largest conferences were the National SBIR/STTR Conferences held in June and December. Most components also participated in webinars and other outreach events targeted towards small businesses. The DoD components have conducted specific outreach initiatives aimed at underserved communities.

Army. The Army SBIR Program Outreach and Marketing Analyst assisted with implementation and execution of numerous webinars and events to provide assistance and support to underserved states. As a result, Army increased participation of targeted groups by 10%. The Army SBIR Program staff attended 21 events to include National SBIR/STTR conferences. Army assisted 919 small businesses for all events and 656 of those assisted were small businesses from under-served and under-represented states.

Navy. Navy conducted Phase I site visits to improve success factors and/or provide specific training. As a result, the Navy increased the success of advancing from Phase I to Phase II by conducting these visits. Navy conducted 1,600 meetings between the government Program Office and small businesses at the National SBIR/STTR conferences. As a result of outreach participation, Navy increased participation of WOSB in SBIR and increased participation from firms in under-represented states; reached 100 participants in 50 small businesses through various outreach activities in FY15.

Air Force. The Air Force SBIR/STTR Programs conducted and participated in outreach events reaching 760 businesses. These outreach efforts focused primarily on underserved states and regions, as well as socio-economically disadvantaged small businesses and communities. To increase attendance at events the Air Force placed announcements in local business publications and targeted news releases to local and regional media outlets. Over the span of the SBA Road Tour the Air Force conducted 262 one-on-one interviews. Air Force met with local business and economic development organizations located near each event where they educated these organizations on the DoD and Air Force programs and how to access the wealth of information available on their website and in their publications, as well as resources such as webinars and one-on-one opportunities. Air Force continued outreach dialog with the National Society of Black Engineers and the Society of Hispanic Professional Engineers, as well as established a presence at their annual convention, this is to continue to reach out to underserved states and regions, as well as socio-economically disadvantaged small businesses and communities.

DLA. Through various outreach activities, DLA received 116 proposals in response to 4 topics of which 28 were selected for award. As a result of their outreach activities, DLA reports that of 28 selected awardees in FY15 25% went to underserved states, 14% went to minority-owned companies and 7% went to women owned businesses.

DARPA. DARPA compiled a distribution list of WOSB and Historically Black Colleges and Universities (HBCU)/Minority Institutions (MI) and sent weekly alerts of DARPA funding opportunities and SBIR/STTR solicitations. A total of 91 DARPA opportunities were distributed. Additionally, DARPA compiled and sent weekly lists of events (a total of 171 events) focused on increasing awareness/knowledge and opportunities for networking to program participants.

MDA. MDA targeted outreach towards four key underserved regions (Northern Plains, Gulf South, Appalachia and Alaska) which represent areas with low SBIR participation and awards. MDA technical representatives held over 600 teleconferences with companies focusing on underrepresented states including Arkansas, Kentucky (MDA received 5 proposals and made 2 awards to companies in Kentucky, a 100% increase from FY14), Louisiana, Montana, Nebraska, and South Dakota to clarify any technical questions regarding the 15.2, 15.3, and 15.C solicitations. These teleconferences were to spur participation from SBCs in these states.

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

In FY15, the ED SBIR Program conducted outreach directly to underrepresented groups, including to SDBs and WOSBs. Specific actions included outreach through phone calls to several national and regional organizations that serve SDBs and WOSBs, including: the National Society for Hispanic MBAs; the National Association for Equal Opportunity in Higher Education; the National Association of Women Owned Small Businesses; the National Association of Historically Black Colleges & Universities Title III Administrators; HBCU Connect; the Association of Black Women in Higher Education; the National Alliance of Black School Educator; the National Association of Negro Business and Professional Women's Clubs; and the Association for Women in Science.

In addition, the ED SBIR Program continued many outreach procedures, including: attending the National SBIR Conference and leading an agency presentation; a panel session on Games for Learning across SBIR and 1-on-1 meetings with 35 small business entities, several of whom were WOSBs; attending and presenting to dozens of firms at the Games for Change conference, many of whom were WOSBs; conducting an SBA webinar with NSF, NIH, and DOT attended by 466 individuals; posting program announcements and numerous blogs published on websites such as ED.gov, IES.ED.gov, FBO.gov, SBIR.gov, SBA.gov, tweets on news stories on leading e-newsletters and publications such as Edsurge and eschoolnews.com; and through direct outreach to its network of hundreds of small businesses.

DOE. In an effort to increase the number of responsive, high quality Phase I proposals from underrepresented groups, DOE awarded a contract to provide application assistance services to potential DOE Phase I applicants. DOE refers to this program as Phase 0. The Phase 0 services are provided at no cost to eligible small businesses and include: Letter of Intent preparation support, proposal preparation and review assistance, budget formulation, intellectual property consultation, and registration assistance with federal systems. In FY15, the contractor provided services to 68 eligible small businesses intending to apply to the DOE FY15 Phase I Release 2 Funding Opportunity Announcement. Of this number, 43 submitted Phase I applications, and 7 (16%) received a Phase I award.

HHS. HHS's SBIR/STTR outreach activities during FY15 were directed at increasing awareness of the SBIR/STTR Programs, and identifying new SBIR/STTR applicants, with a special emphasis on WOSBs, SDBs, and underrepresented states, known as Institutional Development Award (IDeA) states. HHS's SBIR/STTR outreach strategy is implemented by NIH, including the 24 Institutes and Centers with SBIR/STTR Programs, CDC, U.S. Food and Drug Administration (FDA), Administration for Children and Families (ACF), and Administration for Community Living (ACL).

Outreach activities in FY15 included:

- Participated in the SBIR Road Tours, and reached 15 states, including seven IDeA states and WOSB/SDB;

- Organized the BIO Innovation Zone for SBIR/STTR funded companies, in partnership with the National Science Foundation and the Biotechnology Industry Organization (BIO);
- Updated the central HHS SBIR/STTR website regularly with new resources for small businesses;
- Participated in SBA's SBIR Outreach Working Group to determine SBIR outreach priorities;
- Leveraged the NIH SBIR/STTR listserv with 21,000+ subscribers;
- Presented during national and local conferences to reach new biomedical entrepreneurs;
- Held national webinars on new SBIR/STTR pilot programs like I-Corps at NIH;
- Maintained the NIH SBIR/STTR Twitter account and developed content for SBIR Pulse blogs;
- Collaborated with the NIH IDeA program to promote the SBIR/STTR Programs in underrepresented states. Held the 16th Annual NIH SBIR/STTR conference in Albuquerque, New Mexico, an IDeA state, on October 21 – 23, 2014 (FY15), and presented during the IDeA Central Conference and the IDeA Northeastern Conference; and
- Partnered with SBA and other SBIR/STTR Participating Agencies, state-based economic development centers, and universities to conduct outreach to WOSBs and SDBs.

Outcomes for FY15 included:

- 126 events (in person and virtual) hosted in 34 states, plus the District of Columbia (DC) and Puerto Rico (PR) that collectively reached over 8,968 attendees;
- 52% increase in the number of events that HHS SBIR/STTR staff contributed to in FY15, compared with FY14;
- Reached over 1,310 attendees and 15 states during the SBIR Road tour;
- 278 SDBs reached and 305 WOSBs reached;
- Collaborated with IDeA program to reach all 23 IDeA states and Puerto Rico through outreach events; and
- The 17th Annual NIH SBIR/STTR conference was hosted in Seattle, WA on October 27–29, 2015 (FY16). This conference reached over 650 attendees from 42 states, and represented an 80% increase in attendance over the 2014 conference in Albuquerque, NM. This event included a workshop designed for WOSB/SDB.

DHS. In FY15, approximately 16% (S&T Directorate) and 17% (DNDO) of Phase I proposals received were from WOSBs and SDBs. DHS took steps to increase outreach to WOSBs and SDBs as follows: DHS S&T Directorate SBIR Program.

- Prior to the release of the FY15 DHS SBIR solicitation, organizations that focus on women-owned small businesses (e.g., Women in Homeland Security, Women Technology, Angels LLC, etc.) and SDBs were contacted to make them aware of the funding opportunities. In response to the S&T topics in the joint DHS SBIR solicitation, 99 Phase I proposals were submitted by 88 companies located in 22 states, five of which are underrepresented states (Hawaii, Kentucky, Mississippi, Rhode Island, and Tennessee). Of the 88 companies, ~14% were WOSBs and ~22% were SDBs.

- During FY15, S&T SBIR Program Office personnel participated in 20 outreach events in 17 states plus the District of Columbia, including participation in the SBIR multi-state Road Tour coordinated by SBA. Two-thirds of the states in which the S&T SBIR Program visited are underrepresented states. Other outreach efforts included: modernizing the S&T SBIR public website and using social media, and engaging state-based economic development centers and professional organizations that reach women and minority entrepreneurs. In addition to the 12 outreach events, S&T SBIR Program Office personnel participate in eight DHS Vendor Outreach Sessions, including those focused on meeting one-on-one with representatives from women-owned and socially and economically disadvantaged small businesses.

DHS DNDO SBIR Program.

- In response to the DNDO topics in the joint DHS SBIR solicitation, 21 Phase I proposals were submitted by 19 companies located in 14 states, one of which is considered to be an underrepresented state (Kentucky). Of the 19 companies, one self-identified as being a WOSB and one self-identified as being an SDB.
- During FY15, DNDO SBIR Program Office personnel participated in the SBIR multistate Road Tour coordinated by SBA, including participating in events in eight states, five of which are considered to be underrepresented states.

DOT. Representatives from the DOT SBIR Program attended or participated in the Fall National SBIR Conference (November 2014), National SBIR Conference (June 2015), SBIR Road Tour (Summer 2015), and the webinar with Arkansas Small Business and Technology Developments Center (September 2015).

EPA. EPA has a modest SBIR budget and therefore receives more quality proposals than it can afford to fund. EPA continues to do outreach to all small businesses including SDBs and WOSBs through many venues including the SBIR National Conference(s) (where EPA presented, had a booth and did one-on-ones), state meetings via the SBIR Road Tour, and webinars including one presented jointly with National Institute of Environmental Health Sciences (NIEHS) and NSF and one hosted by EPA prior to the release of the Phase I solicitation for all potential applicants.

NASA. At the core of the NASA SBIR/STTR Programs are the disadvantaged small businesses; and because of this, the program prioritizes the effort to build relationships with these firms. In FY15, NASA SBIR/STTR developed an Outreach Strategy and Implementation Plan. The Outreach Strategy provides program stakeholders with a single vision for conducting outreach, providing frameworks and methodologies to plan and coordinate successful outreach efforts. The Implementation Plan is the living companion to the Outreach Strategy which provides a rolling three-month view of upcoming outreach events as well as internal planning activities that will be carried out in support of the program.

The programs also continued to partner with the Office of Small Business Programs (OSBP) and the SBA in outreach endeavors specifically targeting disadvantaged-, veteran-, and women-owned businesses. Examples of these outreach efforts include: SBIR Road Tour, Historically Black Colleges and Universities/Minority Serving Institutions (HBCU/MSI) Technology Infusion Road Tour, Technology Day, Small Business Meetings, and visits to local universities. In addition, SBIR/STTR leverages its relationship with the Space Technology Mission Directorate and collaborates on regional and national conferences as well as specialized workshops.

The SBIR/STTR Programs participated in other events in FY15 beyond those mentioned above, such as: Service-Disabled Veteran-Owned Small Business (SDVOSB) Industry day for firms to learn about opportunities in SBIR; Regional SBIR/STTR Conference held in Austin, Texas outreaching to the entire SBIR/STTR community; Veteran-owned Industry Day at Kennedy Space Center targeting veteran firms; and underrepresented states via the SBIR Road Tour.

The beginnings of collaborations with other government agencies was taken on with EPA, SBA, and others which included consolidated online solicitation searches, resources sharing, and public outreach

levering other government funding and news. NASA SBIR/STTR is an active participant on tiger teams and conversations from concept to implementation and is committed to increasing partnerships with SBCs and research institutions.

NSF. Some highlights from NSF's efforts in broadening participation of underrepresented groups in FY15 are as follows:

- NSF provided \$9.66 million (award no. 1552305) to extend and strengthen the NSF Postdoctoral Research Diversity Fellowship Program, which is funded through and coordinated by the American Society for Engineering Education. This program allows existing NSF SBIR/STTR Phase II grantees to bring postdoctoral scholars from underrepresented groups into their ongoing research project to allow them to be exposed to the unique environment of a technology-based small business. This funding provided for an additional 100 person-years of fellowship support.
- NSF staff participated in outreach events exclusively targeting SDBs and WOSBs, including events at Georgia State University and Bowie State University, both HBCUs, and at the annual meeting of the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS).
- NSF funded the first in a series of awards for a pilot program, AWARE (Accelerating Women and Underrepresented Entrepreneurs), intended to increase the participation of underserved groups in NSF SBIR and STTR Programs. The award (no. 1464507) was made for \$100,000 to the University of Illinois at Urbana-Champaign, and included funding for seed funding to teams led by individuals from underrepresented groups, hands-on workshops targeted to these groups, and the establishment of a contract with an entrepreneur-in-residence with specific understanding of the needs of female innovators.
- NSF staff attended over 60 outreach events in-person in Alabama, Alaska, California, District of Columbia, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New York, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Virginia, and Washington. These events included over 300 one-on-one meetings with potential applicants and other stakeholders.
- NSF SBIR/STTR staff conducted multiple pre-solicitation webinars in advance of each Phase I proposal deadline. They also participated in virtual (teleconference and videoconference) events tailored to specific regions, including to Experimental Program to Stimulate Competitive Research (EPSCoR) states. NSF also conducted in-person outreach visits to EPSCoR states.
- NSF sent Program Directors and other staff on each of the 2015 SBIR Road Tour legs, supporting events in over a dozen underserved states.
- NSF's SBIR/STTR Programs also continued to offer supplemental funding opportunities to Phase II awardees with a specific focus on supporting underrepresented groups. One example is the Phase IIA opportunity that provides Phase II grantees up to \$100,000 to build research partnerships with minority-serving institutions.
- NSF sponsored engagements by portfolio companies at a number of relevant industry trade shows and investment events, including the Consumer Electronics Show (Eureka Park), the Future Educational Technology Conference (FETC), the Angel Capital Association (ACA) summit, the International Society for Technology in Education (ISTE), and the Biotechnology Industry Organization (BIO).

- NSF's outreach efforts resulted in a continued increase in the number of Phase I applications from first-time submitters (950) and the number of awards (173) based on these applications.

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 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 Executive Order 13329 [note to this section] (69 Fed. Reg. 9181; relating to encouraging innovation in manufacturing);
- an assessment of the effectiveness of the actions described in paragraph (2) 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 under subsection (q)(1) to help SBIR and STTR concerns manufacture in the United States; and
- recommendations that the program managers of the SBIR or STTR Program of the agency consider appropriate for additional actions to increase the effectiveness of enhancing manufacturing activities.

Pursuant to E.O. 13329, agencies must give priority to small business concerns that participate in or conduct R/R&D "...relating to manufacturing processes, equipment and systems; or manufacturing workforce skills and protection." Each agency includes in its Annual Report to the SBA a synopsis of its implementation of these requirements. Agencies utilized a variety of approaches in addressing the E.O. 13329 directive. For most, these requirements are assessed within the scope of each agency's R/R&D needs with tangible numbers of solicitation topics, awards, and dollars. Mechanisms commonly used by agencies to give priority to manufacturing-related work include: adding manufacturing-related topics in solicitations; requesting in solicitations that proposals address any possible manufacturing-related elements of the small businesses' proposed work, technological approach, delivery or resulting technological applicability to manufacturing processes; and, noting in solicitations that including such elements in proposals may provide a competitive advantage in the award selection process. Additionally, cross-agency collaborations, targeted outreach efforts, and other agency-specific activities related to manufacturing contribute to addressing the objectives of E.O. 13329. A detailed report on the individual agencies' activities and initiatives is located at <https://www.sbir.gov/annual-reports-files>.

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

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

Pursuant to the Energy Independence and Security Act of 2007 (Pub. L. No. 110-140) and Policy Directives issued by the SBA, Participating Agencies must give high priority to small business concerns that participate in or conduct energy efficiency or renewable energy system R/R&D projects. Agencies

utilize a variety of approaches to comply with EISA and the Policy Directives. For some, such as DOE, these efforts are ingrained in the agency mission and therefore easy to assess in tangible ways. Mechanisms commonly used by agencies – aside from specifically adding energy related topics in solicitations – include adding that solicitation proposals address any energy efficiency or renewable energy aspects related to the small businesses' technological approach, delivery or technological applicability and often provide such proposals a competitive advantage in the award selection process. Cross-agency collaborations, outreach efforts, and other initiatives also become critical to assessing the collective achievements of the program rather than focusing on individual agency performance. Each Participating Agency's Annual Report addresses EISA compliance by including: examples of SBIR/STTR projects related to energy efficiency or renewable energy; procedures and mechanisms used during the reporting fiscal year to give priority to energy efficiency and renewable energy projects in SBIR/STTR; and, specific actions taken to promote and support energy efficiency and renewable energy research projects. A detailed report on the individual agencies' activities and initiatives is located at <https://www.sbir.gov/annual-reports-files>.

Annual Report on SBIR/STTR Program Goals

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

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

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

15. SBA SBIR/STTR Accomplishments (FY15)

The Office of Investment and Innovation (OII) is the office at SBA responsible for the oversight and management of the SBIR and STTR Programs for the Administrator. SBA responsibilities identified in Section 9 of the Small Business Act (15 USC § 638(b)) include: assisting small businesses in participating in the SBIR/STTR Programs; coordinating and monitoring Federal agency operation of the SBIR/STTR Programs; managing databases and SBIR/STTR Program data; and reporting activities to Congress.

Advocacy for SBIR/STTR

Throughout FY15, OII's main focus was to build stronger relationships with the 11 Participating Agencies and increase and improve the assistance provided to potential applicants, especially those from underrepresented communities. These efforts were carried out through increased meetings and improved responsiveness to the Participating Agencies, launching of the SBIR Road Tour, major upgrades to the SBIR.gov business intelligence database platform, work with the university startup community and the quarterly Intellectual Property webinar series with the U.S. Patent and Trademark Office (USPTO).

A focus for SBIR.gov was to improve the training tools available through the portal while reaching out to hundreds of stakeholders across the innovation ecosystem, including entrepreneur support organizations that could promote these tools to enhance existing training. Regular Agency Program Managers' meetings were reestablished at SBA and focused on outreach strategies, individual agency best practices, agency challenges, improved data integration, and continued enhancement of the SBIR.gov portal to improve user experience. Furthermore, OII worked on identifying and expanding the local/state resource partnership directory on SBIR.gov that included relevant access points to support services that could assist entrepreneurs with the SBIR/STTR Programs.

Social Media

Continuing from initial efforts in FY14, OII and the Participating Agencies proceeded with a campaign to raise awareness of the SBIR/STTR Programs using platforms such as Twitter, LinkedIn, and Facebook. An interagency Communication and Outreach working group formed that focused on increasing engagement. Working group members created the @SBIRGov Twitter handle and facilitated various Twitter chat conversations regarding the SBIR/STTR Programs. Team members also used the LinkedIn platform to share updates about the SBIR/STTR Programs such as conferences, events, news stories, solicitation postings, and programmatic activities to help spur interest, dialogue, and continued engagement among the innovation ecosystem stakeholders. At the end of August 2017, the SBIR/STTR LinkedIn group had over 2,000 members, and the @SBIRGov Twitter account had over 2,700 followers, with the number of participants in both groups continuing to grow.

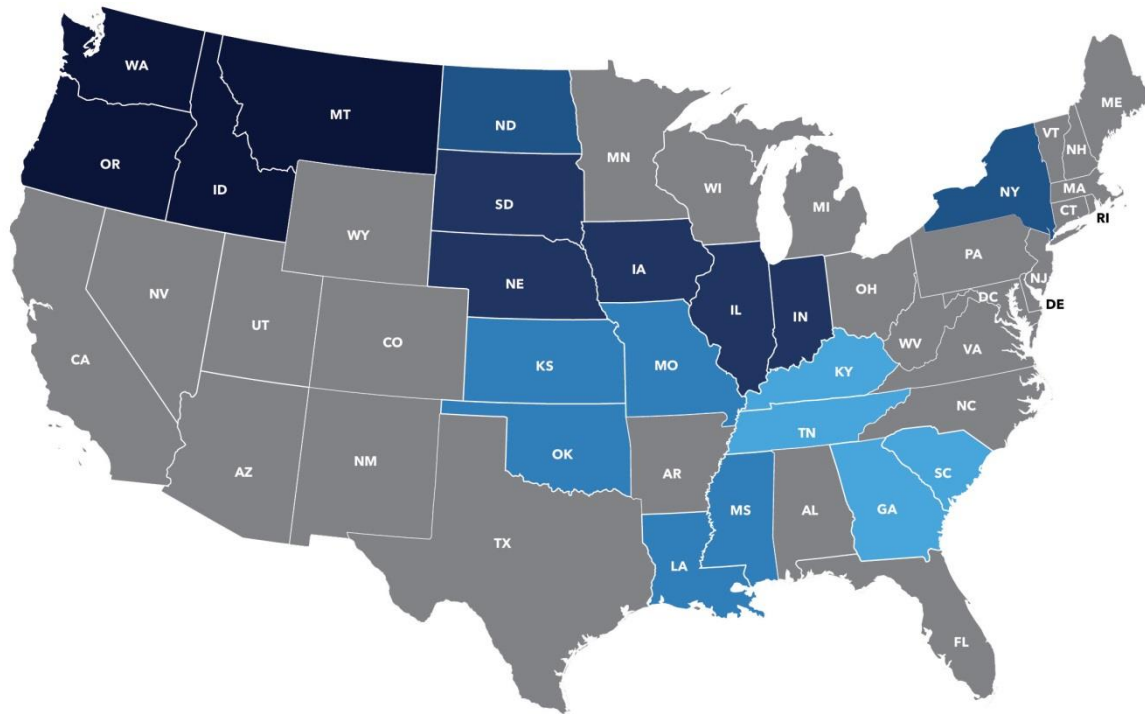
SBIR Road Tour

One of the most visible efforts was the launching of the [SBIR Road Tour](#), a national outreach effort to convey the non-dilutive technology funding opportunity provided through the SBIR/STTR Programs. The SBIR Road Tour brought Program Managers from the 11 Participating Agencies, representing \$2.5 billion in early stage funding, directly to potential applicants. The 20-state tour (see map below) provided over 2,000 attendees with a local opportunity to hear directly from Participating Agency Program Managers, and held over 2,700 one-on-one meetings with the individuals that oversee agency programs. In communities that have historically underutilized the opportunities provided through the SBIR/STTR Programs, local innovation supporters invited representatives of America's Seed Fund to engage the small advanced technology community, including women-owned and socially or economically disadvantaged R&D companies.

SBIR.gov Modernization

Beginning in late FY14 and continuing into FY15, SBIR.gov went through a transformation. SBA designed a new, fully responsive website, which is more accessible and more easily navigated on different platforms, including mobile devices. This transformation included a redesign of every aspect of the site, content was rewritten to ensure up-to-date and accurate information, and the user interface was

improved. The redesigned SBIR.gov platform now enables Participating Agencies to provide data directly, creating a valuable resource for research institutions, participants, and potential and existing applicants. SBA determined which parts of the website received the most traffic, and enhanced usability and accessibility to meet a 2-click model goal. “America’s Seed Fund,” a new tagline for the SBIR/STTR Programs, was released as part of the new website. Agency-specific logos for SBIR/STTR were created to help with rebranding, allowing for a link back to SBIR.gov with the logos customized to include “Powered By <Agency>” for each Participating Agency. Agency microsite pages were built in as auxiliary websites with independent links and addresses to be accessed mainly from SBIR.gov.



SOUTH EAST TOUR MAR. 24–MAR. 27, 2015	SOUTH CENTRAL TOUR APR. 27–MAY 1, 2015	ROAD TOUR STOPS DATES: BELOW	NORTH CENTRAL TOUR JULY 13–JULY 18, 2015	PACIFIC NORTHWEST TOUR AUG. 17–AUG. 21, 2015
Louisville, KY Nashville, TN Atlanta, GA Columbia, SC	Long Beach, MS Ruston, LA Oklahoma City, OK Wichita, KS Columbia, MO	Fargo, ND - April 9, 2015 Fairmont, WV - May 14, 2015	Indianapolis, IN Chicago, IL Iowa City, IA Omaha, NE Sioux Falls, SD	Seattle, WA Portland, OR Boise, ID Missoula, MT

FY15 Annual Report Agency Submission Portal

The FY15 Annual Report agency submission portal was restructured to adopt a wizard approach, which is particularly beneficial to verify prerequisite conditions prior to data input. The portal presents a comprehensive list of required information and makes it easier to navigate among data entry fields. Inline reporting was a new feature introduced to provide agencies with the ability to generate a report for every field on the report originating from an award. Some fields in the report were upgraded to include pre-calculated and auto-populated values thereby reducing the reporting burden on the Participating Agencies. The pre-calculated fields were also locked to ensure improved accuracy and completeness of the data provided. Additionally, for some questions on the SBIR and STTR Annual Reports, the text field was replaced with the ability to upload more structured data files. The ability to bring together data for all 11 Participating Agencies in the summarized report and the ability to download the report to perform further analyses in Excel was established. Lastly, version control was incorporated for naming and distinguishing between Annual Reports submitted versus Annual Reports resubmitted during editing.

SAM.gov Validation

To ensure that only authorized users could access sensitive company information, SBA established validation of user accounts via the General Services Administration (GSA) managed System for Award Management (SAM.gov). An application programming interface (API) was built for SBIR.gov to interface with SAM.gov to validate company and user profiles being registered on SBIR.gov. The validation checks ensured that not every user registering under a firm would have access to sensitive information, such as the company commercialization report. To gain access and view or edit the report, users must be listed as one of the four official contacts under the company profile: Government Business Point of Contact, Alternate Government Business POC, Electronic Business POC or Alternate Electronic Business POC and also must go through SAM.gov validation. Once the profile is verified and approved by SAM.gov, SBIR.gov displays a message that states 'Verified by SAM' on the user profile similar company verification by SAM.gov.

Awards Management

For better award management, the proposals and award upload interface was also upgraded to adopt a wizard approach (like Annual Reports). The user interface was modernized to make it easier for Participating Agency users to provide requested information and upload award data.

DoD Commercialization Migration

For the Company Commercialization Report, data for thousands of firms was migrated from the DoD database to SBIR.gov. The data migration involved transformation functions, error handling, and data cleanse routines to ensure seamless transfer while maintaining the integrity of the data.

State Services Migration

To make it easier for small businesses to find SBA's local assistance and state services, SBIR.gov added new types of state contacts, such as "FAST Awardee" and "Small Business Development Center."

16. Federal and State Technology (FAST) Partnership Program

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



FAST is an important catalyst for stimulating economic development among small, high technology businesses through federally-funded innovation and R&D programs, with an emphasis on helping socially and economically disadvantaged firms compete in the SBIR/STTR Programs. FAST Program participants support areas such as: small business R&D assistance; technology transfer from universities to small businesses; technological

diffusion of innovation benefiting small businesses; proposal development and mentoring for small businesses applying for SBIR/STTR grants; and, commercializing technology developed through SBIR/STTR grants.

In FY15, SBA awarded 20 FAST grants for \$100,000 each to state and local economic development agencies, business development centers, and colleges and universities to support programs for innovative, technology-driven small businesses. FAST candidates were submitted through each of their state and territorial governors, as each governor may submit only one proposal. Panels of SBIR program managers conducted evaluations. Panel recommendations were jointly reviewed by SBA, DoD, and NSF, and FAST awards were made based upon the merits of each proposal. Varying levels of matching funds were required, based upon the state and territory location of each economic development agency.

The following 2015 FAST awardees were announced by SBA on June 8, 2015:

- **Arkansas** | Board of Trustees of the University of Arkansas
- **Connecticut** | Connecticut Innovations, Inc.
- **District of Columbia D.C.** | Department of Small and Local Business Development
- **Delaware** | University of Delaware
- **Idaho** | Boise State University
- **Kansas** | Wichita State University
- **Louisiana** | Louisiana State University and A&M College
- **Minnesota** | Metropolitan Economic Development Association
- **Mississippi** | Innovate Mississippi
- **Montana** | Montana Department of Commerce
- **Nebraska** | University of Nebraska at Omaha
- **New Mexico** | The Regents of New Mexico State University
- **New York** | The Research Foundation for the State University of New York
- **North Dakota** | University of North Dakota
- **Ohio** | Ohio Aerospace Institute
- **Oregon** | Oregon Built Environment & Sustainable Technologies Center
- **Pennsylvania** | Ben Franklin Technology Partners Corporation
- **Puerto Rico** | Puerto Rico Trade and Export Company
- **Vermont** | Vermont State Colleges
- **Wyoming** | University of Wyoming

17. Tibbetts Awards and SBIR Hall of Fame



The annual Tibbetts Awards, named for SBIR Program pioneer Roland Tibbetts (see Appendix B – History of the SBIR and STTR Programs), are presented to models of excellence for developing and commercializing new technologies through participation in the SBIR/STTR Programs. Small businesses having received SBIR or STTR awards are eligible for the Tibbetts Awards, and winners are selected based upon the merit of their SBIR/STTR-funded work, the economic and societal impacts of their technological innovations, and the successful commercialization of developed technologies. Similarly, individuals selected for Tibbetts Awards are selected

based upon the merit of their roles in SBIR/STTR-funded R&D without having received any SBIR or STTR award assistance.

The SBIR Hall of Fame recognizes companies with extraordinary successes in research, innovation, and commercialization within the SBIR Program. Eligible nominees must have previously won an SBIR award and shown continued and significant contributions to the goals of the SBIR Program by demonstrating success beyond participating in the SBIR Program through ingenuity, resolve, and longevity.

The 2015 Tibbetts and SBIR Hall of Fame Awards were presented during a White House ceremony on June 15, 2015, SBA honored 23 high-tech small businesses, three organizations, and six individuals with Tibbetts Awards for their outstanding roles in federal R&D, innovation, and job creation. In addition, the SBA named a couple to the SBIR Hall of Fame who have championed the role of small research and development companies in national innovation and economic growth for more than 40 years.

SBIR Hall of Fame

Arthur S. Obermayer, Ph.D.

Judith Obermayer, Ph.D.

Tibbetts Organizations

LAUNCH

New Orleans BioInnovation Center (NOBIC)

MassVentures

Tibbetts Individuals

R. Wayne Brass

The Honorable Jacques S. Gansler, Ph.D.

Ms. Amanda Gentry

Peter Grazaitis

Thomas J. Piazza

Larry Pollack

Tibbetts Companies

ANDRO Computational Solutions, LLC | New York

Aspen Aerogels, Inc. | Massachusetts

Behavior Imaging Solutions | Idaho

Bexion Pharmaceuticals | Kentucky

Bioo Scientific | Texas

Celdara Medical, LLC | New Hampshire

FarSounder, Inc. | Rhode Island

FlexSyS, Inc. | Michigan

Frontier Technology, Inc. (FTI) | Ohio

Hybrid Plastics, Inc. | Mississippi

Hydronalix, Inc. | Arizona

Hysitron, Inc. | Minnesota

LI-COR Biosciences | Nebraska

Lift Labs | California

Orbital ATK | California

Out of the Fog Research LLC | California

Precision Combustion, Inc. | Connecticut

SenesTech | Arizona

StormCenter Communications, Inc. | Maryland

Systema Technologies, Inc. | Washington

Techshot, Inc. | Indiana

TissueTech, Inc. | Florida

Transposagen Biopharmaceuticals, Inc. | Kentucky

18. U.S. Small Business Administration (SBA)

The SBA is charged with overseeing the SBIR/STTR Programs across the Federal Government, serving as the coordinating agency for all SBIR and STTR Participating Agencies. The SBA's Office of Technology, within OII, assists small businesses in obtaining SBIR/STTR funding, monitors the SBIR/STTR Participating Agencies in their individual program implementations, provides policy guidance and directives as authorized by statute, reviews agency progress and performance, collects required annual reporting data, and reports to the U.S. Congress. The SBA administers the program with maximum flexibility, allowing the Participating Agencies to tailor their SBIR/STTR activities in ways that best address their unique agency missions, cultures, and R&D needs. The SBA issues Policy Directives to provide guidance that governs the Participating Agencies' program implementation, compliance, and reporting. The SBA maintains updated versions of the SBIR and STTR Program Policy Directives at www.SBIR.gov.

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

The SBA maintains the central, SBIR/STTR Program-wide web portal for accessing award and performance information through the single point of entry at www.SBIR.gov. The primary purpose of the continual investment in the informational data system and public and government-facing SBIR.gov web portal is to meet the statutory requirement in 15 USC §638 (k) of developing, maintaining, and making available to the public and government a searchable, up-to-date, electronic database that includes—

- (A) the name, size, location, and an identifying number assigned by the Administrator, of each small business concern that has received a Phase I or Phase II SBIR or STTR award from a federal agency;
- (B) a description of each Phase I or Phase II SBIR or STTR award received by that small business concern, including—
 - (i) an abstract of the project funded by the award, excluding any proprietary information so identified by the small business concern;
 - (ii) the federal agency making the award; and,
 - (iii) the date and amount of the award; and to also provide interested stakeholders with a one-stop-shop repository of valuable and searchable SBIR/STTR Program information.

The complex platform collects and hosts multiple levels of programmatic information across the following seven relational databases and, as required by 15 USC §638(b)(7)(G), SBA describes the extent to which Participating Agencies are providing information in a timely manner needed to maintain these databases:

- **Solicitations.** All SBIR/STTR solicitations and topics from all agencies are provided to SBA prior to each agency's solicitation release. Not all agencies provide this information to SBA in a timely manner and it is an area that SBA is trying to improve with the agencies.
- **Applications.** All SBIR/STTR proposals from all agencies are collected by SBA during the annual reporting cycle. SBA continues to work with the Participating Agencies in FY15 to collect unawarded proposal coversheet data.
- **Company Registry.** Company-specific and proprietary information collected from all SBIR/STTR small business applicants and awardees;
- **Awards.** All SBIR/STTR awards from all agencies by number and dollar amount are collected on an annual basis. Not all agencies have provided this information in a timely manner (see Annual Report bullet immediately following).

- **Annual Report.** All agencies are required to report SBIR/STTR activities to the SBA on an annual basis by March 15 for the previous fiscal year. The following table summarizes the dates of each Participating Agency's FY15 SBIR Annual Report submission.

Table 16 SBIR Annual Report Submission History

FISCAL YEAR 2015 - SBIR Annual Report Submission History				
Participating Agency	First Submission Date	Days Early (-) Days Late (+) On Time (0)	Final Submission Date	Days Early (-) Days Late (+) On Time (0)
DoD	4/01/2016	+17	4/01/2016	+17
HHS	4/13/2016	+29	4/13/2016	+29
DOE	3/15/2016	0	4/08/2016	+24
NASA	3/15/2016	0	8/24/2016	+162
NSF	3/04/2016	-11	3/04/2016	-11
USDA	4/14/2016	+30	4/14/2016	+30
DHS	3/15/2016	0	3/15/2016	0
ED	3/15/2016	0	3/15/2016	0
DOC	4/01/2016	+17	4/01/2016	+17
DOT	4/13/2016	+29	4/13/2016	+29

- **Commercialization.** Company-specific and proprietary information collected from all SBIR/STTR small business awardees and awarding agencies on all SBIR/STTR award commercialization efforts and results; and,
- **Other.** Information required by statute to be submitted but does not fit into any of the other databases.

Although certain database elements containing proprietary information are unavailable to the public, the www.SBIR.gov portal allows visitors the flexibility to self-identify into roles based on individual interests and needs. Users may search award topics, solicitations and award activity by Participating Agency or small business. Small businesses may connect with outside resource partners for SBIR/STTR-related support or services and utilize outreach tools and informational links to agency offices, conference listings, registrations, webinars, tutorials, and blogs.

19. Appendix – SBIR/STTR Program History

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



instituted the SBIR Program in 1977.

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

In addition to Senator Kennedy, much of the legislative support for the SBIR Program was directly due to the work of Arthur and Judith Obermayer, this year’s SBIR Hall of Fame recipients (also pictured above with Senator Kennedy). As early as 1970, Arthur testified before the U.S. Congress on the challenges small R&D companies faced in dealing with the government. He also lobbied alongside Kennedy for the initial 1974 NSF Authorization Act, which was actualized in the first NSF SBIR Program, designed by Roland Tibbetts. Tibbetts envisioned a 3-phase structure to foster the R&D of small, high-tech businesses and push them to realize their commercial potential. He believed these firms were instrumental in converting government R&D into public benefit through technological innovation and commercial applications, therefore stimulating aggregate economic growth. Of the 42 Phase I Awards and 21 Phase II Awards selected in 1977, one firm went on to discover the cystic fibrosis gene and complete the Human Genome Map, a small language-understanding firm (then MicroComputer) became Symantec, and a high-risk firm (then Relation Technology Inc.) became the data giant Ingres Corporation. It seems that Arthur Obermayer was on to something when he advised the Congressional committee in 1978 that the NSF SBIR Program was “potentially...the most significant government program of this century in the field of science and technology.”

Due to the success of the NSF SBIR Program, in 1979 the Small Business Administration concluded SBIR Programs should be installed at all government agencies involving research to



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

Legislative History

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

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

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

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

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

In December 2016, the programs were reauthorized until Fiscal Year 2022 (FY22) by the 2017 National Defense Authorization Act, Public Law 114-328.



U.S. Small Business
Administration



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