



November 2023

SMALL BUSINESS RESEARCH PROGRAMS

Information Regarding Subaward Use and Data Quality

Accessible Version

November 2023

GAO Highlights

Highlights of [GAO-24-106399](#), a report to congressional committees

SMALL BUSINESS RESEARCH PROGRAMS

Information Regarding Subaward Use and Data Quality

Why GAO Did This Study

Small businesses are important drivers of economic growth, but they can face challenges in accessing capital to fund research and development (R&D). Congress established the SBIR/STTR programs to enable small businesses to undertake and obtain the benefits of R&D. Agencies issue SBIR/STTR awards as contracts, grants, and cooperative agreements. The award recipients may enter into agreements—subawards—with other entities to carry out part of the work or to provide needed materials, supplies, or services.

The SBIR and STTR Extension Act of 2022 includes provisions for GAO to evaluate subcontracting practices of SBIR/STTR award recipients. This report (1) examines factors that affect the reporting of SBIR/STTR first-tier subaward data on USAspending.gov; and (2) estimates the extent to which SBIR/STTR award recipients used subawards, the general purposes for these subawards, and which types of entities received them.

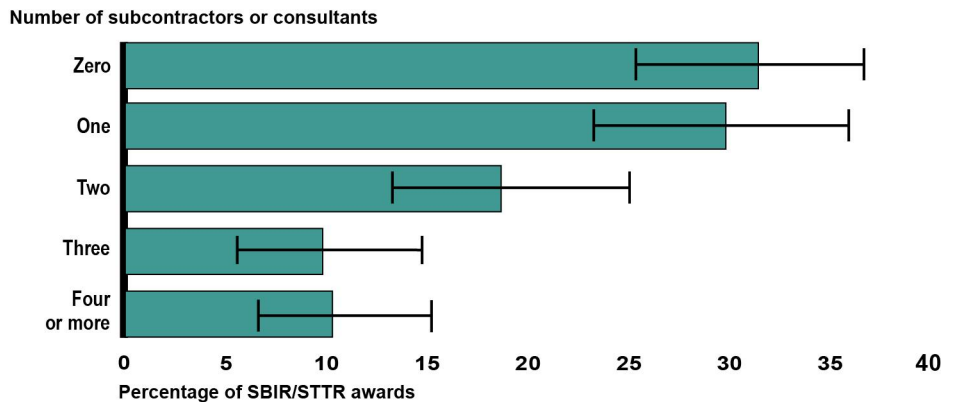
GAO reviewed a generalizable sample of 198 fiscal year 2019 SBIR/STTR awards and interviewed agency officials from the Small Business Administration and 11 agencies that participate in the SBIR/STTR programs. GAO also interviewed a non-generalizable sample of 10 SBIR/STTR award recipients to obtain their perspectives on subaward reporting requirements.

What GAO Found

Several factors determine which first-tier subawards must be reported by recipients of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards under the Federal Funding Accountability and Transparency Act. These factors include the value of the subawards, applicable exemptions, and varying definitions of first-tier subawards. According to small business representatives that GAO interviewed, a lack of awareness and understanding by small businesses may also affect reporting rates. Based on GAO’s review of USAspending.gov, few SBIR/STTR awards (about 10 percent) display subawards. Limitations on first-tier subaward reporting are a government-wide issue and not unique to SBIR/STTR awards (see GAO-24-106237).

SBIR/STTR award recipients commonly partner with other entities, including subcontractors or consultants, to assist with a portion of the work for contracts, grants, and cooperative agreements. Based on a sample of fiscal year 2019 awards, GAO estimates that approximately 70 percent of SBIR/STTR Phase II awards—which are used to advance concepts after feasibility is assessed—included the use of subcontractors or consultants. In addition, GAO estimates that about 16 percent of the total award value across all Phase II awards went to subcontractors and about 2 percent went to consultants.

Estimated Percentage of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Awards That Used Subcontractors or Consultants, Fiscal Year 2019



Legend: The whiskers represent the 95% confidence interval for each estimate.

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

View [GAO-24-106399](#). For more information, contact Candice N. Wright at (202) 512-6888 or WrightC@gao.gov.

Accessible Data Table for Estimated Percentage of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Awards That Used Subcontractors or Consultants, Fiscal Year 2019

	Number of Subcontractors or Consultants				
	Zero	One	Two	Three	Four or more
% going to Subcontractors or Consultants	31.43	29.82	18.66	9.80	10.29

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

SBIR/STTR award recipients use private sector entities, academic institutions, and nonprofits for a variety of support. GAO estimates, for example, that 29 percent of awards included one or more subcontracts to private sector entities and 24 percent included one or more subcontracts to academic institutions. Award recipients use subcontractors and consultants for a wide variety of purposes, such as providing technical insights and expertise; assisting with design activities; developing systems, products, or software; and performing testing and evaluation of technological innovations.

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Abbreviations

DCMA	Defense Contract Management Agency
DHS	Department of Homeland Security
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FFATA	Federal Funding Accountability and Transparency Act of 2006
FSRS	FFATA Subaward Reporting System
HHS	Department of Health and Human Services
NASA	National Aeronautics and Space Administration
NSF	National Science Foundation
R&D	research and development
SAM	System for Award Management
SBA	Small Business Administration
SBIR	Small Business Innovation Research
STTR	Small Business Technology Transfer
USDA	U.S. Department of Agriculture

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November 28, 2023

Congressional Committees

Small businesses are important drivers of economic growth, but they can face challenges in accessing capital to fund research and development (R&D). Congress established the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs to enable small businesses to undertake and obtain the benefits of R&D.¹ The SBIR/STTR programs are highly competitive programs in which participating agencies generally award qualified small businesses with contracts, grants, or cooperative agreements to carry out R&D.²

Small businesses have cited SBIR/STTR program funding as instrumental to their success in commercializing important technologies and bringing them to market. Examples of such technologies include a low-cost, energy-efficient alternative to fluorescent light fixtures and an inexpensive process to convert readily available steel into a stronger, lighter component for use in civilian and military vehicles.

To complete their work, small businesses that receive SBIR/STTR awards (award recipients) may enter into agreements with other entities—subrecipients—to carry out part of the work.³ These agreements, called subawards, may be used because the award recipient does not have the equipment, skills, or expertise to fully study or develop the technology.

¹The Small Business Innovation Development Act of 1982 established the SBIR program. Pub. L. No. 97-219, 96 Stat. 217 (1982). This act amended section 9 of the Small Business Act, Pub. L. No. 85-536, 72 Stat. 384 (1958), codified as amended at 15 U.S.C. § 638. The Small Business Technology Transfer Act of 1992 established the STTR program. Pub. L. No. 102-564, tit. II, 106 Stat. 4249, 4256 (1992). This act made additional amendments to section 9 of the Small Business Act.

²In this report, we refer to the agencies that issue SBIR and STTR awards as “participating agencies.” In addition, for the purposes of this report we use the term “grants” to include grants and cooperative agreements. Both are types of federal financial assistance awards received by nonfederal entities. See 2 C.F.R. 200.1.

³For the purposes of this report, we define an award recipient as an entity that receives a contract, grant, or cooperative agreement directly from a participating agency, and a subrecipient as an entity that receives the funds from an award through a subaward either from the award recipient or another subrecipient.

SBIR/STTR award recipients can also enter into agreements with entities to procure materials, supplies, or services.⁴

The SBIR and STTR Extension Act of 2022 includes a provision for GAO to evaluate subawards made under the SBIR/STTR programs.⁵ The definition of a subaward differs based on the type of award (e.g., contracts or grants) and context. To summarize across agencies and programs, we examined all planned costs to entities that help carry out these awards. This report (1) examines factors that affect the reporting of SBIR/STTR first-tier subaward data on USAspending.gov and (2) estimates the extent to which SBIR/STTR award recipients used subawards, the general purposes for these subawards, and which types of entities received them.⁶

Under the SBIR/STTR programs, participating agencies may issue awards to small businesses that compete for awards in one of three phases of technology development.⁷ For both objectives, we primarily

⁴For the purposes of this report, these agreements may also be considered subawards—as defined above—in some contexts if there is no pre-existing agreement between the award recipient and the entity for the materials, supplies, or services needed for the performance of the award.

⁵Pub. L. No. 117-183, §11, 136 Stat. 2180, 2194-2195. The act uses the word “subcontracts.” The term “subcontract” is often considered to be a subaward agreement stemming from a contract award. However, within the SBIR/STTR programs the term “subcontracts” generally includes subawards stemming from contracts and grants. Collectively, we refer to these as subawards.

⁶For the purposes of this report, first-tier subawards refers collectively to first-tier subcontracts and first-tier subgrants. For contracts, a first-tier subcontract is defined as a subaward awarded directly by a contract award recipient to a subrecipient “for the purpose of acquiring supplies or services (including construction) for performance of a prime contract.” See FAR 52.204-10. A first-tier subgrant is an award provided by a grant recipient directly to a subrecipient to carry out part of a federal award. See 2 C.F.R. § 200.1. Financial assistance subawards include subawards made under grants and cooperative agreements.

USAspending.gov is the public-facing, searchable source of federal spending data, which includes data submitted by federal agencies and award recipients pursuant to the Federal Funding Accountability and Transparency Act of 2006, as amended. Pub L. No. 109-282, 120 Stat. 1186 as amended by the Digital Accountability and Transparency Act of 2014, Pub. L. No. 113-101, 128 Stat. 1146 (codified as amended at 31 U.S.C. § 6101 note).

⁷Agencies issue Phase I awards to fund small businesses to determine the scientific and technical merit and feasibility of ideas that appear to have commercial potential. Generally, small businesses with successful Phase I projects may compete for Phase II awards, which continue the R&D project for an additional period. Phase II awards generally provide more funding and have a longer period of performance than Phase I awards.

focused on SBIR/STTR awards for Phase II projects, which typically have already demonstrated scientific or technical merit and may be ready to develop a prototype, conduct operational testing, or make other advancements. We selected Phase II awards from fiscal year 2019 because Phase II awards make up about 75 percent of the total award dollars for a given year and the performance period for the awards typically covers 2 to 3 years, so these awards were generally completed by the time of our review.⁸

For both objectives, we collected and analyzed a generalizable sample of 198 SBIR/STTR Phase II awards from fiscal year 2019. It included 173 Phase II SBIR awards and 25 Phase II STTR awards. The sample included awards from all 11 participating agencies, with a total value of about \$300 million.⁹

To examine factors that affect the reporting of SBIR/STTR first-tier subaward data on USAspending.gov, we reviewed available information displayed on USAspending.gov for 339 fiscal year 2019 SBIR and STTR awards. We determined the extent to which first-tier subaward information is available for those 339 awards. The sample of 339 awards includes 102 SBIR and 24 STTR awards from the generalizable sample that had at least one planned subaward valued at over \$30,000. This is a threshold required by regulation and guidance for first-tier subaward reporting that may apply to these subawards. The sample also includes an additional 213 STTR awards from fiscal year 2019. We included these additional awards because STTR award recipients are required to partner with a nonprofit institution for at least 30 percent of the total award value. To obtain award recipients' perspectives on federal subaward reporting requirements, we interviewed a non-generalizable sample of 10 small businesses that received multiple Phase II awards between fiscal years 2011 and 2020.

To estimate the extent to which subawards are used by SBIR/STTR recipients, and for what purposes, we evaluated the generalizable sample

⁸Refer to appendix I for more information on the rationale for award selection.

⁹The generalizable sample was a stratified random sample of 215 awards from the population of 2,367 awards issued in fiscal year 2019. The Department of Defense was not able to locate award documentation for 15 of 48 awards made by the Air Force, and two of 15 the awards made by the Army. However, despite these missing awards, estimates derived from the remaining 198 awards have margins of error of plus or minus 10 percentage points or relative margins of error of plus or minus 15 percent, unless otherwise noted. See appendix I for more details on the sample.

of 198 SBIR/STTR Phase II awards to identify planned subawards included either in the award recipient's initial proposal or in subsequent award documentation.¹⁰ This sample was obtained from awards listed in SBIR.gov, which we reviewed and determined to be reliable for the purpose of estimating the use of subawards. We also interviewed or requested written responses from the 11 participating agencies on their knowledge of the use of subawards by SBIR/STTR award recipients; what information they collect on subawards, if any; and how agencies assess subawards during their proposal review process. We also reviewed applicable laws, regulations, and guidance.

We conducted this performance audit from November 2022 to November 2023 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Through the SBIR/STTR programs, participating federal agencies provide awards to qualified small businesses for R&D of new technologies.¹¹ The SBIR/STTR programs fund small business R&D projects with the goals of:

- stimulating technological innovation;
- meeting federal R&D needs;
- fostering diverse participation in innovation and entrepreneurship; and

¹⁰Information on agreements with other entities made by SBIR/STTR award recipients is generally included within the budget proposal and other award documentation. Therefore, for the purposes of this report, when we refer to these agreements, it is those identified in proposals and other award documentation. Specifically, SBIR/STTR proposals generally include a budget section where each applicant provides information on planned costs, including direct and indirect costs. The direct costs include personnel costs (salaries and wages), fringe benefits, travel, and "other direct costs," which provide detail on the planned agreements with other entities. Indirect costs include costs for facilities and administration (i.e., overhead costs).

¹¹Generally, participating SBIR/STTR small businesses must be greater than 50 percent U.S.-owned and have 500 or fewer employees. See 13 C.F.R. § 121.702.

- increasing private-sector commercialization of innovations derived from federal R&D funding.

Pursuant to the Small Business Act, federal agencies with an extramural research or R&D budget greater than \$100 million in any fiscal year are required to participate in the SBIR program, and agencies with a R&D budget greater than \$1 billion are required to participate in the STTR program.¹² The Small Business Administration (SBA) oversees the SBIR/STTR programs and, in accordance with statute, 11 federal agencies and their components participate in one or both programs.¹³ These agencies are the Department of Agriculture (USDA), the Department of Commerce (Commerce), the Department of Defense (DOD), the Department of Education (Education), the Department of Energy (DOE), the Department of Health and Human Services (HHS), the Department of Homeland Security (DHS), the Department of Transportation (DOT), the Environmental Protection Agency (EPA), the National Aeronautics and Space Administration (NASA), and the National Science Foundation (NSF). According to SBA data, in fiscal year 2021, the 11 participating agencies issued new SBIR and STTR awards totaling approximately \$3 billion (see table 1). Agencies generally make SBIR and STTR awards in the form of contracts, grants, or cooperative agreements.

Table 1: Agencies Participating in the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs, Fiscal Year 2021 (dollars in millions)

Agency	Number of awards	Total award value
Department of Defense ^a	3,375	\$1,487.8
Department of Health and Human Services ^a	1,349	\$736.5
Department of Energy ^a	657	\$308.0
National Science Foundation ^a	496	\$204.1
National Aeronautics and Space Administration ^a	534	\$198.7
Department of Agriculture	110	\$27.7

¹²15 U.S.C. §§ 638(f)(1), (n)(1)(A). Agencies' R&D programs generally include funding for two types of R&D: intramural and extramural. Intramural R&D is conducted by employees of a federal agency in or through government-owned, government-operated facilities. Extramural R&D is generally conducted by nonfederal employees outside of federal facilities. Federal agency, as defined under the statute, does not include agencies within the intelligence community. 15 U.S.C. § 638(e)(2).

¹³The SBIR and STTR programs are to be carried out in accordance with statutory and regulatory requirements and under oversight and guidance of SBA. See 15 U.S.C. § 638. Five agencies participated in the STTR program at the time of our review. USDA began participating in the STTR program in fiscal year 2023.

Agency	Number of awards	Total award value
Department of Commerce	72	\$22.2
Department of Homeland Security	47	\$17.2
Department of Transportation	38	\$14.8
Department of Education	29	\$13.5
Environmental Protection Agency	33	\$5.9
Total	6,740	\$3,036.5

Source: GAO analysis of Small Business Administration data. | GAO-24-106399

^aAgencies participating in both the SBIR program and the STTR program in fiscal year 2021.

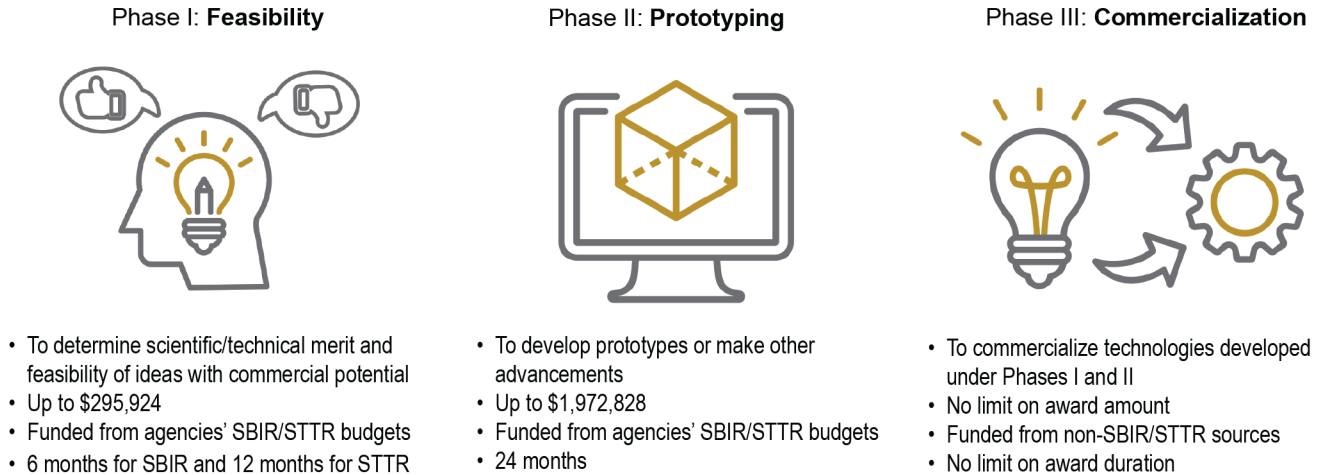
Under the SBIR/STTR programs' awards process, participating agencies issue awards to small businesses for three phases of technology development (see fig. 1):

- Phase I: Feasibility.** Small businesses conduct R&D activities to determine the scientific and technical merit and feasibility of ideas that may have commercial potential. Companies compete for these awards in response to SBIR or STTR solicitations issued by the agencies. Proposals are then screened for compliance with application requirements. After the solicitation close date, evaluators review and score qualified proposals on factors such as technical merit and commercial potential.
- Phase II: Prototyping.** Phase I award recipients with projects that demonstrate scientific and technical merit, as well as commercial potential, may compete for a Phase II award to continue the R&D.¹⁴ Those activities could include developing a prototype or making other R&D advancements, such as operational testing of the mature technology.
- Phase III: Commercialization.** Small businesses work toward commercializing technologies developed under Phases I and II, including further R&D or testing. Federal agencies may issue Phase III awards without further competition. Unlike Phase I and II awards, agencies do not fund Phase III awards with their research or R&D budgets aligned to their SBIR/STTR programs.

¹⁴The National Institutes of Health, DOD, and Education are authorized to issue Direct-to-Phase-II awards to businesses that did not receive a Phase I award but completed equivalent work using non-SBIR/STTR funds through fiscal year 2025. 15 U.S.C. § 638(cc).

Figure 1: Phases of the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs

Authorized award amounts as of October 2022



Accessible text for Figure 1: Phases of the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs
Authorized award amounts as of October 2022

- Phase 1: Feasibility.
 - To determine scientific / technical feasibility merit and feasibility of ideas with commercial potential technical
 - Up to \$295,924
 - Funded from agencies' s SBIR/STTR budget
 - 6 months for SBIR and 12 months for STTR
- Phase 2: Prototyping.
 - To develop prototypes or make other advancements
 - Up to \$1,972,828
 - Funded from agencies' s SBIR/STTR budget
 - 24 months
- Phase 3: Commercialization.
 - To commercialize technologies developed under Phases 1 and 2
 - No limit on award amount
 - Funded from non-SPIR/STTR sources

- No limit on award duration.

Source: GAO analysis of information from the Small Business Administration (SBA). Galuh Sekar/stock.adobe.com (icons) | GAO-24-106399

Note: Maximum award amounts include any modifications to the original award amount. Agencies may seek a waiver from the Small Business Administration to issue awards more than 50 percent above the maximum value established under the award guidelines. In addition, agencies may provide longer performance periods where appropriate for particular projects. SBIR/STTR budget refers to the portion of an agency's extramural research or research and development (R&D) budget designated for the SBIR/STTR programs.

According to SBA's SBIR/STTR Policy Directive, at least once per year each participating agency is required to issue a solicitation requesting proposals that can cover a variety of topics.¹⁵ Each participating agency is responsible for (1) reviewing the proposals it receives, (2) determining which small businesses should receive awards, (3) notifying successful award recipients within its required time frame, and (4) issuing awards within recommended time frames.

SBIR and STTR award recipients may enter into agreements with other entities to carry out or assist with part of the work. For example, an award recipient involved in research to develop a biomedical therapy may require otherwise cost-prohibitive laboratory capabilities, but the recipient might fulfill this need through an agreement with a nearby university. These entities may include other businesses, academic or other research institutions, nonprofit organizations, or individual consultants. In addition, award recipients often purchase materials, supplies, or other services.¹⁶

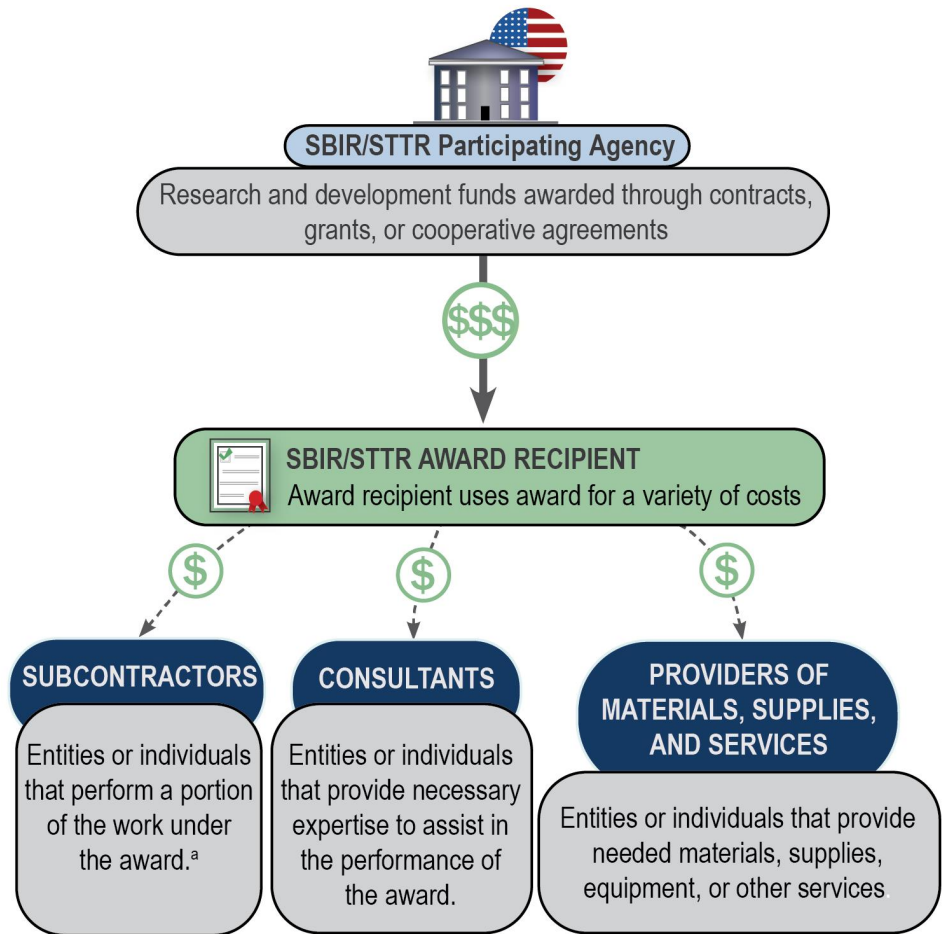
According to SBA guidance, award recipients are to document these planned agreements in their award proposals. The costs for these agreements are a portion of the costs associated directly with the award. Based on SBIR/STTR award documentation, we categorized these agreements as follows (see fig. 2):

- **subcontractors** – subrecipients who perform a portion of the work under a SBIR/STTR award;
- **consultants** – subrecipients who provide necessary expertise to assist in the performance of a SBIR/STTR award; and
- **materials, supplies, and services providers** – award recipients enter into agreements with entities that provide needed materials, supplies, equipment, and other services.

¹⁵SBA SBIR and STTR Program Policy Directive (May 2023).

¹⁶These costs may also be considered subawards in some contexts. It was unclear from the award documentation whether these agreements were subawards.

Figure 2: Example of Flow of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Award Funds to Other Entities



Source: GAO analysis of SBIR/STTR award data and the SBA SBIR/STTR Policy Directive; GAO (icons). | GAO-24-106399

Accessible text for Figure 2: Example of Flow of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Award Funds to Other Entities

- 1) SBIR/STTR Participating Agency:
Research and development funds awarded through contracts, grants, or cooperative agreements
- 2) SBIR/STTR Award Recipient- Award recipient uses award for a variety of costs

-
- a) SUBCONTRACTORS- Entities or individuals that perform a portion of the work under the award.^a
 - b) Consultants - Entities or individuals that provide necessary expertise to assist in the performance of the award.
 - c) Entities or individuals that provide needed materials, supplies, equipment, or other services.

Source: GAO analysis of SBIR/STTR award data and the SBA SBIR/STTR Policy Directive; GAO (icons). | GAO-24-106399

Note: This graphic is not inclusive of all types of entities that may receive award funds.

^aThe Small Business Administration (SBA) SBIR/STTR Policy Directive refers to these entities as subcontractors regardless of whether the award recipient received a grant, contract, or cooperative agreement.

In accordance with the Federal Funding Accountability and Transparency Act of 2006 (FFATA), SBIR/STTR award recipients are required to report certain first-tier subawards in government-wide systems.¹⁷ Specifically, when agencies provide funding to award recipients using a contract or grant, the award recipient is required to provide data on certain first-tier subawards to meet FFATA reporting requirements. First-tier subawards may include funding to subcontractors and consultants, or costs to purchase materials, supplies, and services.¹⁸ Award recipients are to report data on first-tier subawards in the government-wide FFATA

¹⁷According to FFATA and implementing guidance, agencies are required to disclose certain information about federal awards that equal or exceed the micro-purchase threshold on a single public-facing, searchable website. In addition, award recipients are required to report specified information on first-tier subawards—with some exceptions—associated with these awards in the FFATA Subaward Reporting System (FSRS). The goal of the reporting is to increase transparency and publicly available information on federal spending. Since 2010, agencies have required award recipients to report such subaward information in FSRS, which is not public. USAspending.gov, the public-facing, searchable source of spending data includes data submitted by federal agencies and award recipients pursuant to FFATA as amended, including data from government-wide reporting systems, such as the Federal Procurement Data System, the System for Award Management, and FSRS. Pub L. No. 109-282, 120 Stat. 1186 as amended by The Digital Accountability and Transparency Act of 2014, Pub. L. No. 113-101, 128 Stat. 1146 (codified as amended at 31 U.S.C. § 6101 note); 2 C.F.R. pt. 170; Federal Acquisition Regulation (FAR) parts 4.6 and 4.14.

¹⁸In SBIR/STTR award documentation, these costs are generally broken out into (a) materials, supplies, and equipment; (b) computer services and publication services; (c) other services, such as fabrication and testing, toxicology studies, or animal studies. Materials, supplies, and services costs can be a significant portion of an SBIR/STTR award, in some cases accounting for one-third or more of the total award value. For more information about costs for materials, supplies, and services, see appendix II.

Subaward Reporting System (FSRS), which, in turn, is made available to the public on USAspending.gov.

Several Factors May Affect the Completeness of SBIR/STTR Subaward Data on USAspending.gov

Several factors may affect the completeness of SBIR/STTR first-tier subaward data on USAspending.gov, and we found that few SBIR/STTR awards display first-tier subaward information.

Several Factors May Affect the Completeness of Reporting of Subawards

Several factors determine which subawards must be reported under FFATA, including the specific reporting requirements and applicable reporting exemptions. In addition, other factors may affect compliance with reporting requirements, including uncertainty about the reporting requirements by the award recipients and limited compliance monitoring by the participating agencies.

Reporting requirements and applicable exemptions and exceptions: Required reporting differs depending on whether the SBIR/STTR awards are contracts or grants, and certain exemptions apply (see table 2).

Table 2: First-Tier Subaward Reporting Requirements, Definitions, and Exemptions and Exceptions

	Contracts	Grants^a
Reporting requirement	First-tier subawards in the amount of \$30,000 or more	First-tier subawards in the amount of \$30,000 or more
Definition of first-tier subawards	Federal Funding Accountability and Transparency Act (FFATA) reporting requirements include first-tier subcontracts directly from a contract recipient to a subcontractor used for “the purpose of acquiring supplies or services... for performance of a prime contract” ^b	FFATA reporting requirements include first-tier subgrants directly from a grant recipient to a subgrant recipient “to carry out part of a Federal award” ^c

	Contracts	Grants ^a
Exemptions and exceptions	<p>Award recipients are exempt from the reporting requirement if the award recipient in the previous tax year had gross income from all sources less than \$300,000</p> <p>Award recipients are not required to report a subaward if the first-tier subrecipient had, in the previous tax year, gross income from all sources less than \$300,000</p>	<p>Award recipients are exempt from the subaward reporting requirement if the award recipient, in the previous tax year, had gross income from all sources less than \$300,000</p>

Source: GAO summary of applicable laws, regulations, guidance. | GAO-24-106399

Note: Reporting requirements, exemptions, and exceptions are outlined in the Federal Funding Accountability and Transparency Act (Pub L. No. 109-282, 120 Stat. 1186) as amended by The Digital Accountability and Transparency Act of 2014, (Pub. L. No. 113-101, 128 Stat. 1146, codified as amended at 31 U.S.C. § 6101 note). See also 2 C.F.R. pt. 170, FAR parts 4.6 and 4.14, and FAR 52.204-10.

^aIncludes cooperative agreements.

^bSee Federal Acquisition Regulation (FAR) part 52.204-10(a).

^cThe applicable definition does not specify whether supplies are included in the definition of subaward for the purposes of reporting under the Federal Funding Accountability and Transparency Act. See 2 C.F.R. § 200.1.

Award recipients using first-tier subawards in amounts less than \$30,000 are not required to report them. For first-tier subawards in amounts equal to or greater than \$30,000, award recipients must consider several factors when identifying what subawards must be reported because of differences in definitions in the Code of Federal Regulations (CFR) grant guidance and the Federal Acquisition Regulation (FAR).¹⁹ For SBIR/STTR awards from agencies that use contracts for their awards, the applicable FAR clause states that first-tier subcontracts directly from a contract recipient to a subcontractor used for “the purpose of acquiring supplies or services...for performance of a prime contract” are included in the FFATA reporting requirements.²⁰ In contrast, for SBIR/STTR awards from agencies that use grants, the applicable OMB guidance does not specify whether supplies are included in the definition of first-tier subgrants for the purposes of FFATA reporting requirements. For these awards, the guidance defines a first-tier subgrant as an award provided by a grant

¹⁹Issued by the Office of Management and Budget, 2 C.F.R. subtitle A, which includes 2 C.F.R. parts 170 and 200, contains guidance to federal agencies on governmentwide policies and procedures for the award and administration of grants. Federal awarding agencies implement this guidance through agency regulations published in 2 C.F.R. subtitle B and/or in policy and procedural issuances, such as internal instructions. Additionally, 2 C.F.R. part 200 is often referred to as Uniform Guidance for grants.

²⁰FAR 52.204-10. This definition specifically excludes a “...Contractor’s supplier agreements with vendors, such as long-term arrangements for materials or supplies that benefit multiple contracts and/or the costs of which are normally applied to a Contractor’s general and administrative expenses or indirect costs.”

recipient directly to a subrecipient to carry out part of a federal award.²¹ Further, SBA's SBIR/STTR Policy Directive defines a subcontract as "any agreement other than one involving an employer-employee relationship... calling for supplies or services for the performance of the agreement."²²

Award recipients must determine if a specific subaward (including a purchase of materials, supplies, or services) falls under the applicable definitions for first-tier subawards based on their award type. For example, if a small business received a SBIR or STTR award as a contract, that small business would need to consider if any supplies or services it acquired were for performance of the award or were long-term arrangements with entities that could benefit from multiple contracts. If the small business received the award as a grant, the small business would limit its consideration to subawards used to carry out a part of the award.

In addition, because there are reporting exemptions and exceptions that may apply to many contract and grant recipients, the award recipients may not be required to report first-tier subawards in certain instances. Specifically, for contracts, award recipients are not required to report a first-tier subaward if the award recipient or first-tier subcontractor had, in the previous tax year, gross income from all sources less than \$300,000.²³ For grants, the award recipient is exempt from the requirement to report subaward information only if the award recipient had gross income from all sources less than \$300,000 in the previous tax year regardless of subrecipient gross income.

According to agency officials, agencies do not generally collect information on gross income of award recipients or subrecipients, and we did not find this information in award documents in our sample. However, it is possible that many SBIR/STTR award recipients have less than \$300,000 in gross income and are therefore exempt from reporting first-tier subaward information. For example, of the 198 awards in our generalizable sample, we were able to locate information on the number of employees in the award documentation for 173 awards. Of these 173

²¹See 2 C.F.R. § 170.325, citing the definition at 2 C.F.R. § 200.1.

²²SBA SBIR and STTR Program Policy Directive (May 2023). The policy directive does not define a subaward. However, within the SBIR/STTR programs the term "subcontracts" generally includes subawards stemming from both contracts and grants.

²³Although "gross income" is not defined in the applicable regulations, a common definition of gross income is total revenue minus cost of production (e.g., labor costs, raw material costs, other direct costs linked to production).

awards, 64 small businesses had 10 or fewer employees at the time of SBIR/STTR application. Such very small businesses may be more likely than larger businesses to have revenues less than \$300,000 and therefore gross income less than \$300,000. In addition, although the award documentation we reviewed did not have information on the gross income of the award recipient, we found 37 awards where the award recipient reported revenues of less than \$1 million in the year prior to the application. Small businesses that we spoke with cited a lack of availability of information on subrecipient gross income, as well as concern that divulging subcontractor and consultant costs might provide competitors with sensitive business information.

We were not able to locate reliable information on the subrecipients' income from the award documentation we reviewed or from other sources. As a result, we were not able to determine the extent to which the exceptions were applicable. Agency officials from most participating agencies told us that they do not have knowledge of whether these exemptions apply, although a few officials stated that it was likely, given how small some of the companies are, that the exemptions apply in some cases.

Uncertainty about reporting requirements by the award recipients: We found that agencies included FFATA reporting requirements in most of the award documents we reviewed, but these requirements are one among a wide array of other requirements.²⁴ However, small business representatives we interviewed cited a lack of understanding of reporting requirements, among other things, as potential factors in the lack of subaward reporting. According to small business representatives we spoke with, it is plausible that SBIR/STTR award recipients are not fully aware of these requirements. Specifically, these representatives discussed a lack of familiarity with the FFATA reporting requirements and their applicability. For example, representatives from two small businesses misinterpreted exemptions applying to an adjacent section of the FFATA reporting requirements on reporting of top five executive compensation amounts as also applying to subaward reporting.

Of the 11 agencies we spoke with, officials from three agencies told us that they take steps to inform or educate SBIR/STTR award recipients

²⁴Twenty-six of the 198 award documents we reviewed did not include the relevant FFATA reporting requirement in the documents the agencies provided. We could not determine if these instances represent failure by the agencies to include the requirement or a lack of completeness in the agency-provided documentation.

about the reporting requirements to try to encourage compliance.²⁵ For example, officials from NSF told us that they provide briefings to award recipients where they outline various requirements, including the requirement to report first-tier subaward information. Officials from Education told us they send out an email reminder to SBIR/STTR award recipients about the first-tier subaward reporting requirements. Officials from Commerce told us that they highlight FFATA requirements in information materials for award recipients.

Limited compliance monitoring: Agencies that use grants to issue SBIR/STTR awards are not specifically required by the Uniform Guidance set forth at 2 C.F.R. Part 200 to monitor award recipient compliance with the FFATA subaward reporting requirements. And, according to officials from agencies that use this type of award (Commerce, DOE, HHS, NSF, and USDA), they do not take steps to do such monitoring.²⁶ In contrast, for agencies that use contracts to issue SBIR/STTR awards (DHS, DOD, DOT, Education, EPA, and NASA) the applicable regulation requires agencies to “ensure contractors comply with the clause outlining the FFATA reporting requirements for first-tier subcontracts.”²⁷ However, the extent to which the agencies issuing SBIR/STTR awards as contracts monitor compliance with the FFATA reporting requirements for first-tier subcontracts varies.

Agency officials described varying levels of compliance monitoring. NASA officials told us that, to ensure compliance, they pull quarterly reports from FSRS, but that the agency does not currently take steps to follow up with award recipients. They stated that the agency is currently developing a process to do so. Education officials stated that periodic audits conducted by the agency include some SBIR awards, and that these audits include a review for FFATA compliance. They added that compliance monitoring is complicated by the fact that the agency does not have complete information on the extent to which the SBIR award recipients are subject to exemptions from the FFATA reporting requirements. Similarly, DOD officials stated that neither the Defense Contract Audit Agency nor the

²⁵Officials from the other eight agencies did not mention this as a step that they take.

²⁶HHS also uses a limited number of contracts.

²⁷See FAR 4.1402 (requiring agencies to ensure that contractors comply with the subaward reporting requirements of 52.204-10). To satisfy this requirement, “[a]gencies shall review contractor reports on a quarterly basis to ensure the information is consistent with contract information. The agency is not required to address data for which the agency would not normally have supporting information, such as the compensation information required of contractors and first-tier subcontractors.” FAR 4.1402(a).

Defense Contract Management Agency (DCMA) regularly assesses small businesses' compliance with FFATA. Officials from these two DOD component agencies also confirmed that they do not regularly assess compliance with the FFATA reporting requirements.²⁸

DHS, DOT, and EPA officials told us that contracting officers review small businesses' certification status in the federal government's System for Award Management (SAM.gov) to assess compliance. According to officials from these three agencies, SAM.gov registration requires small businesses to self-certify that they are in compliance with relevant regulations, including the FFATA reporting requirements. According to these agency officials, successful registration signals such compliance. However, SAM.gov registration does not expressly involve a review or assessment of reporting of first-tier subcontracts. DOT officials noted that the agency plans to implement new procedures whereby, on a quarterly basis, DOT contracting officers will review FSRS reports, inform the award recipient of any inconsistencies found, and require the award recipient to correct any inconsistencies or provide a reasonable explanation as to why it believes the information to be correct.²⁹

Few SBIR/STTR Award Recipients Report First-Tier Subawards

We found that few SBIR/STTR awards display first-tier subaward information on USAspending.gov and that some of the data displayed contains likely errors. We reviewed publicly available information for 339 fiscal 2019 Phase II SBIR/STTR awards that included the planned use of first-tier subawards in an amount equal to or greater than \$30,000. We found that 32 of these 339 awards (9.4 percent) displayed information about the first-tier subawards on USAspending.gov. Specifically, we found that:

- For the 126 SBIR/STTR Phase II awards from our generalizable sample of 198 that included planned subrecipients in amounts equal to or greater than the \$30,000 threshold level for FFATA reporting, we found 10 that reported the use of subawards on USAspending.gov.

²⁸According to DCMA officials, DCMA only reviews FSRS information when reviewing a contractor's purchasing system. Such a review may occur when a contractor's sales to the government are expected to exceed \$50 million during the next 12 months.

²⁹According to DOT officials, this will be done in coordination with the Office of the Senior Procurement Executive.

- For the 213 other fiscal year 2019 STTR Phase II awards, each of which required a nonprofit research institution partner to carry out at least 30 percent of the award amount, we found 22 that reported the use of subawards on USAspending.gov.³⁰

In addition, in some cases where we identified first-tier subaward information displayed on USAspending.gov, the information contained likely errors. For example, one award for \$1 million had a total of \$5.6 million in first-tier subawards displayed on USAspending.gov. The planned first-tier subaward amounts for that award, as indicated in the agency documentation that we reviewed, were \$368,000.³¹ In other cases, subaward information on USAspending.gov contained discrepancies between the planned and reported subaward amounts. For example, in a \$4.3 million award where the award documentation listed more than \$1.4 million for planned first-tier subcontracts, \$263,000 in first-tier subcontracts are displayed on USAspending.gov.

We have previously reported on the limitations in subaward data, which is a government-wide issue and not unique to our findings on the small subset of SBIR/STTR awards that we reviewed.³² A separate GAO report examined the state of government-wide subaward data for grants.³³

Estimated Use of Subcontractors or Consultants in SBIR/STTR Awards

According to agency officials, agencies review award recipients' planned use of subawards to ensure consistency with project goals. However, they do not generally monitor or track the award recipient's use of subcontractors and consultants after the award is issued, except in cases

³⁰We reviewed all fiscal year 2019 STTR awards instead of just the 27 in our sample because STTR award recipients are required to collaborate with a nonprofit research institution, which must perform at least 30 percent of the R&D.

³¹The cause of this error appears to be that the award recipient entered the same subaward information into the system multiple times.

³²See GAO, *Federal Spending: Information on U.S. Funding to Entities Located in China*, [GAO-23-105538](#) (Washington, D.C.: Apr. 12, 2023); and GAO, *Federal Research: Information on Funding for U.S.-China Research Collaboration and Other International Activities*, [GAO-22-105313](#) (Washington, D.C.: Sept. 29, 2022).

³³See GAO, *Federal Spending Transparency: Opportunities Exist to Improve Covid-19 and Other Grant Subaward Data on USAspending.gov*, [GAO-24-106237](#) (Washington, D.C.: Nov. 16, 2023).

when they are notified by the award recipient of changes.³⁴ As a result, to assess the use of subawards in SBIR/STTR program, we collected and reviewed proposed subawards from individual award documentation from participating agencies. Based on this review, we found that SBIR/STTR award recipients commonly use subcontractors or consultants to assist with a wide variety of work.

Agencies Evaluate Planned Subawards as Part of Proposal Review Process

Agencies evaluate a SBIR/STTR award applicant's planned use of subcontractors and consultants, including estimated costs, as part of the proposal review process. Specifically, according to agency officials, the proposal review process examines the planned use of subcontractors or consultants to ensure the planned costs are reasonable and that the purpose for the subaward is consistent with the goal of the overall project. Agency officials at all 11 participating agencies stated that, as part of the review process, they evaluate the budget and any planned use of subcontractors or consultants to ensure that planned costs are reasonable, justifiable, and within the applicable limits.³⁵ Officials from all 11 participating agencies told us that proposal evaluators assess planned use of subcontracts and consultants when reviewing several aspects of the proposal. In addition, the SBA SBIR/STTR Policy Directive requires agencies to consider the qualifications of supporting staff and consultants when evaluating proposals. The technical qualifications or experience of subcontractors and consultants may affect the R&D of the proposed technology and its potential for commercialization.

However, participating agencies told us that they typically do not track or monitor the award recipients' use of subcontractors and consultants after

³⁴We evaluated the sample of 198 SBIR/STTR Phase II awards to identify planned subawards included either in the award recipient's initial proposal or in subsequent award documentation. These subawards are inclusive of, but may extend beyond, the first-tier subawards that FFATA requires award recipients to report.

³⁵SBIR/STTR award recipients are required to perform a minimum amount of work for their awards. These requirements differ between the two programs and by award phase. According to SBA officials, the agencies are required to define how the amount of subcontracting work is calculated within each solicitation for the purposes of determining during the review process whether the proposal complies with the award recipient's work requirement. Given agency discretion, according to SBA officials, the method of this calculation will vary across the participating agencies. Agency SBIR/STTR solicitations also vary in the level of detail regarding the underlying calculation. Some agencies base these calculations on subaward costs and others on calculations of project effort.

the contract or grant is issued, except in cases when they are notified by the award recipient of changes. According to agency officials at all 11 participating agencies, the primary exposure to information on plans for subcontracting and consulting occurs during proposal review. When asked what steps are taken to monitor subawards after the award is issued, agency officials at all 11 agencies explicitly told us that they do not take steps to track or monitor them. Because of the lack of consistent definitions of SBIR/STTR subcontractors and consultants in applicable statutes, regulations, and guidance, and the broad scope of potential tracking and monitoring activities, it is unclear if agencies are commonly required to take any specific actions to track or monitor subawards.

SBIR/STTR Award Recipients Commonly Partner with Subcontractors or Consultants to Assist with a Portion of the Work

Because the participating agencies did not have data on actual subcontracting and consulting costs, to estimate the use of subawards we reviewed agency award documentation for information on planned use of subcontractors and consultants and changes to these plans. The award documentation we reviewed contained information on planned subcontractors and consultants, including the general purpose and planned amounts for the subawards. Officials told us that any changes to the planned use of subcontractors or consultants from the original proposal generally require that the award recipient notify the agency, and sometimes require a modification or revision of the award.³⁶ In some cases, such as when the cost of a subcontractor or consultant increases or decreases significantly, or there is a change in the subaward entity, these changes require agency approval, according to agency officials. The documentation we reviewed did not generally contain indications of changes to planned use of subawards.

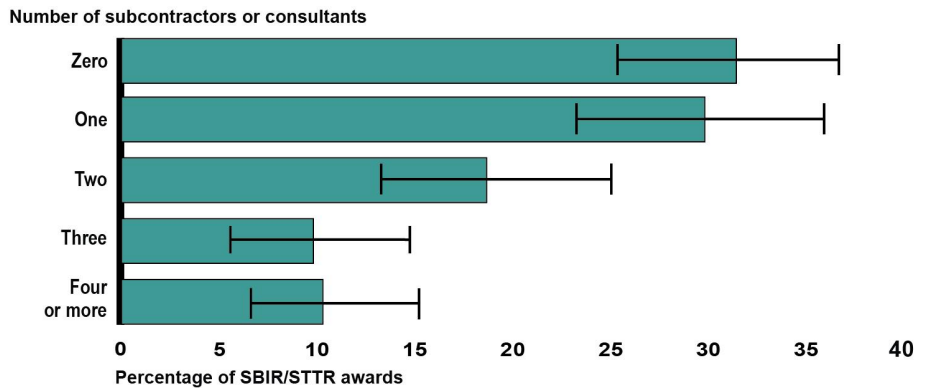
We estimate that approximately 70 percent of SBIR/STTR Phase II awards in fiscal year 2019 planned to use subcontractors or consultants to carry out part of the work (see fig. 3).³⁷ Specifically, based on our

³⁶Based on discussions with agency officials, nine of 11 agencies generally require the award recipient to notify the agency about any changes to approved subaward plans.

³⁷This estimate includes a margin of error of plus or minus 6 percentage points, based on 141 of the 198 awards in our sample. All estimates derived from the sample have margins of error of plus or minus 10 percentage points or relative margins of error of plus or minus 15 percent or less, unless otherwise noted.

sample, we estimate that about 55 percent of SBIR/STTR Phase II awards included one or more subcontractors, and about 32 percent included one or more consultants.³⁸

Figure 3: Estimated Percentage of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Awards That Used Subcontractors or Consultants, Fiscal Year 2019



Legend: The whiskers represent the 95% confidence interval for each estimate.

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

Accessible data table for Figure 3: Estimated Percentage of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Awards That Used Subcontractors or Consultants, Fiscal Year 2019

	Number of Subcontractors or Consultants				
	Zero	One	Two	Three	Four or more
% going to Subcontractors or Consultants	31.43	29.82	18.66	9.80	10.29

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

Note: Subcontractors are entities or individuals that enter into agreements with SBIR/STTR award recipients to perform a portion of the work under the award. Consultants are entities or individuals that enter into agreements with SBIR/STTR award recipients to provide necessary expertise to assist in the performance of the award.

³⁸In our generalizable sample, 115 of the 198 awards included subcontracts and 63 awards included consultants. Note that the percentage value for subcontractor and consultants are not mutually exclusive. For this reason, the percentage value for both categories overlap and do not amount to 70 percent.

Minimum Work Requirements

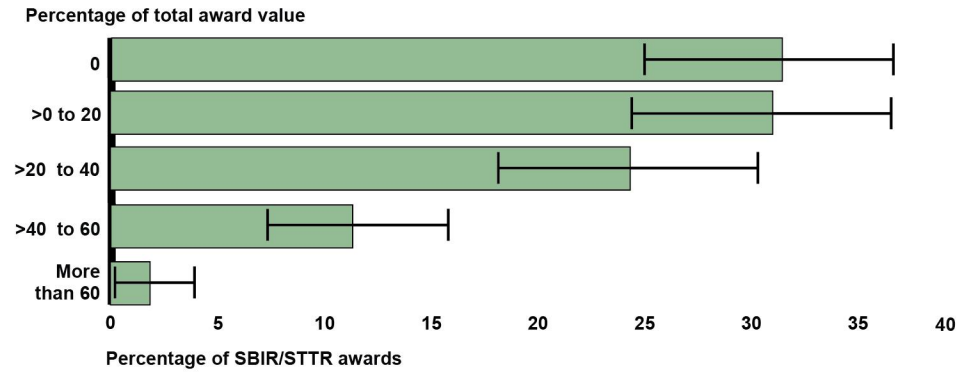
SBIR/STTR award recipients are required to perform a minimum amount of work for their awards. Depending on the awarding agency, these minimums may be measured as a percentage of the award amount or as a percentage of work hours. According to Small Business Administration (SBA) officials, agencies may use different approaches for how specific subawards involving the use of subcontractors, consultants, or others are considered in calculations of the minimum work requirements. SBA officials also stated that purchases of materials, supplies, and services are generally not included in calculations of minimum work requirements.

Under a Phase I SBIR award, the award recipient must perform a minimum of two-thirds of the research or analytical effort (i.e., up to one-third of the award may be performed by another entity). Under a Phase II SBIR award, the award recipient must perform a minimum of one-half of the research or analytical effort (i.e., up to half of the award may be performed by another entity). Small businesses that receive STTR awards, in contrast, are required to collaborate with a nonprofit research institution that must perform at least 30 percent of the work. The award recipient must perform at least 40 percent of the work, and no more than the remaining 30 percent of the work can be performed by a third party.

Source: GAO summary of SBA policy. | GAO-24-106399

Based on our sample, we estimate that about 16 percent of the total award value across all fiscal year 2019 Phase II SBIR/STTR awards went to subcontractors and about 2 percent went to consultants. The percentage of the award value that went to subcontractors and consultants varies widely. For example, we estimate that more than 30 percent of awards did not use a subcontractor or consultant, and about two percent of awards used more than 60 percent of the award's total value for subcontractors and consultants (see fig. 4 and sidebar). STTR award recipients are required to give a minimum of 30 percent of the R&D work to a nonprofit research institution (i.e., a subcontractor).

Figure 4: Estimated Percentage of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Awards and Award Value That Went to Subcontractors and Consultants, Fiscal Year 2019



Legend: The whiskers represent the 95% confidence interval for each estimate.

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

Accessible data table for Figure 4: Estimated Percentage of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Awards and Award Value That Went to Subcontractors and Consultants, Fiscal Year 2019

0%	>0% to 20%	>20% to 40%	>40% to 60%	More than 60%
31.43	31.04	24.36	11.33	1.85

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

Notes: Subcontractors are entities or individuals that enter into agreements with SBIR/STTR award recipients to perform a portion of the work under the award. Consultants are entities or individuals that enter into agreements with SBIR/STTR award recipients to provide necessary expertise to assist in the performance of the award.

SBIR/STTR award recipients are required to perform a minimum amount of work. Under a Phase II SBIR award, the award recipient must perform a minimum of one-half of the research or analytical effort. According to the Small Business Administration, some agencies may use different approaches for how specific subawards are considered in calculations of the minimum work requirements. In addition, depending on the awarding agency, these minimums may be measured as a percentage of the award amount or as percentage of work hours. If minimum work requirements are measured as a percentage of work hours, then it is possible that some awards may provide more than 50 percent of award value to other entities.

We estimate that projects awarded by DOD included subcontractors or consultants less frequently than projects awarded by civilian agencies. Specifically, we estimate that about 55 percent of DOD’s Phase II awards included the use of one or more subcontractors or consultants, compared

to about 82 percent of civilian Phase II awards.³⁹ We also found statistically significant differences between DOD and civilian awards in the overall percent of the total award amount that went to subcontractors or consultants. Specifically, for DOD, we estimate that about 14 percent of total DOD Phase II award value went to subcontractors or consultants, compared to about 21 percent of the total Phase II value for civilian agencies.

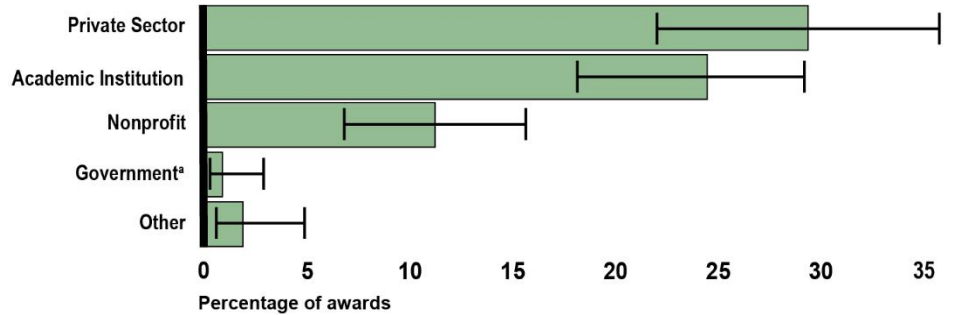
SBIR/STTR award recipients use private sector entities, academic institutions, and nonprofits as subcontractors for a wide variety of support.⁴⁰ Based on our review of agency documentation, we estimate that 29 percent of awards included one or more subcontracts to private sector entities and 24 percent included one or more subcontracts to academic institutions. See figure 5 for the estimated percent of different types of subcontractor entities used by SBIR/STTR award recipients. Consultants are generally individuals, according to our evaluation of our sample of awards. Based on our review of award documentation, we estimate that about 23 percent of the awards with subcontractors used at least one large business subcontractor. We also estimate that about 16 percent of awards with subcontractors used one or more defense subcontractors.⁴¹

³⁹The estimate of DOD's Phase II awards with one or more subcontractors or consultants includes a margin of error slightly above the 10 percent threshold. The estimate of civilian Phase II awards with one or more subcontractors or consultants includes a margin of error of 9 percent.

⁴⁰Nonprofits include research institutions, hospitals, and other organizations. SBIR/STTR award recipients also use government and other entity types for support.

⁴¹All defense contractors in our sample are large businesses.

Figure 5: Types of Subcontractor Entities Used by Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Phase II Award Recipients, Fiscal Year 2019



Legend: The whiskers represent the 95% confidence interval for each estimate.

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

Accessible data table for Figure 5: Types of Subcontractor Entities Used by Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Phase II Award Recipients, Fiscal Year 2019

Types of subcontractors	Percentage of awards
Academic Institution	24.39
Government (with a superscript "a")	0.88
Nonprofit	11.23
Other	1.89
Private Sector	29.38

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

Note: The percentage total does not sum to 100 percent because SBIR/STTR awards can have multiple subcontractors of different types.

^aGovernment subcontractors include federal research labs and local government entities, among others.

Award recipients provide a justification for the use of particular entities in most award documentation we reviewed. Award recipients use subcontractors for a wide variety of purposes, such as providing technical insights and expertise; assisting with design activities; developing systems, products, or software; and performing testing and evaluation of technological innovations based on our review of proposals and other award documents. For example, in a DOD award for R&D of uncrewed vehicle controls, the award recipient planned to use a subcontractor to provide expertise in unmanned systems and flight controls, which the

award recipient explained is instrumental in transitioning the proposed technology to demonstration and to the field.

Similarly, a subcontract included as part of a NASA award for R&D of methods and tools for optimizing space systems went to an entity that planned to provide expertise in flight software and data redundancy design. In another case, a subcontract included as part of a USDA award went to an entity that planned to provide software development assistance in relation to the data architecture for management of forest wildfires. A subcontract included as part of an EPA award went to an entity that planned to assist with experimentation and testing, and relevant data analysis.

Award recipients use consultants to obtain needed expertise from outside sources. For example, for a DOE award for R&D of efficient production of certain materials from coal, a consultant planned to provide expertise on the optimization of the coal transformation technology. The recipient of a National Institutes of Health award supporting the development of a new therapy to treat stroke planned to include consultants with expertise in clinical design, regulatory affairs, preclinical pharmacology and toxicology, and biostatistics.

Agency Comments

We provided a draft of this report to SBA and the 11 federal agencies that participated in either or both of the SBIR and STTR programs in fiscal year 2019 for review and comment. DOT, EPA, HHS, and SBA provided technical comments that we incorporated as appropriate. Officials from Commerce, DHS, DOD, DOE, Education, NASA, NSF, and USDA stated via email that they had no comments on the report.

We are sending copies of this report to the appropriate congressional committees, the Secretaries of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, and Transportation; the Administrators of SBA, EPA, and NASA; and the Director of NSF. In addition, the report is available at no charge on the GAO website at <https://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-6888 or WrightC@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on

the last page of this report. GAO staff who made key contributions to this report are listed in appendix IV.

A handwritten signature in black ink that reads "Candice N. Wright". The signature is written in a cursive, flowing style.

Candice N. Wright
Director, Science, Technology Assessment, and Analytics

List of Committees

The Honorable Jeanne Shaheen
Chair
The Honorable Joni Ernst
Ranking Member
Committee on Small Business and Entrepreneurship
United States Senate

The Honorable Frank D. Lucas
Chairman
The Honorable Zoe Lofgren
Ranking Member
Committee on Science, Space, and Technology
House of Representatives

The Honorable Roger Williams
Chairman
The Honorable Nydia M. Velázquez
Ranking Member
Committee on Small Business
House of Representatives

Appendix I: Objectives, Scope, and Methodology

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Extension Act of 2022 includes provisions for GAO to issue a report evaluating the use of subawards in the SBIR/STTR programs.¹ Because the definition of a subaward differs based on the type of award (e.g., contracts or grants) and other factors, subawards across different agencies or award types may not be comparable. Therefore, to summarize across agencies and programs, we examined all planned costs to entities that help carry out these awards. This report (1) examines factors that affect the reporting of SBIR/STTR first-tier subaward data on USAspending.gov and (2) estimates the extent to which SBIR/STTR award recipients used subawards, the general purposes for these subawards, and which types of entities received them.

Under the SBIR/STTR programs, participating agencies may issue awards to small businesses that compete for awards in one of three phases of technology development. For both objectives, we primarily focused on awards for Phase II projects, which typically have already demonstrated scientific or technical merit and may be ready to develop a prototype, conduct operational testing, or other advancements.

For both objectives, we collected and analyzed a generalizable sample of SBIR/STTR awards. Specifically, the generalizable sample was a stratified random sample of 198 SBIR/STTR Phase II awards from fiscal year 2019. It included 173 Phase II SBIR awards and 25 Phase II STTR awards.² The sample included awards from each of the 11 participating

¹Pub. L. No. 117-183, §11, 136 Stat. 2180, 2194-2195. The act uses the word “subcontracts.” Although the word subcontract is often considered to be a subaward agreement stemming from a contract award, within these programs the term “subcontracts” generally includes subawards stemming from contracts and grants. Collectively, we refer to these as subawards.

²The Department of Defense was not able to locate award documentation for 15 of 48 awards made by the Air Force, and two of 15 the awards made by the Army. However, despite these missing awards, estimates derived from the remaining 198 awards have margins of error of plus or minus 10 percentage points or relative margins of error of plus or minus 15 percent, unless otherwise noted.

agencies, with a total value of about \$300 million.³ We downloaded publicly available award-level data from the SBIR.gov webpage maintained by the Small Business Administration (SBA).⁴ We chose our generalizable sample from the population of 2,367 unique SBIR/STTR Phase II awards issued in fiscal year 2019. We also stratified the sample into 17 mutually exclusive strata using award size, program (SBIR and STTR awards), and awarding agency. In addition:

- We used Phase II awards because these awards account for more than 75 percent of the total award value and subawards are typically larger in Phase II. Although there are fewer Phase II awards than Phase I awards in a given year, Phase II awards are larger in value than Phase I awards. Specifically, Phase I awards typically range in value from \$50,000 to \$250,000. In comparison, Phase II awards are typically \$750,000 (and often larger), so subawards in Phase II tend to be significantly larger.
- We used awards from fiscal year 2019 because the award performance period (i.e., time to complete the funded research) is generally two years for Phase II awards and the performance period is commonly extended for a year or more. In addition, the frequency and length of performance period extensions increased because of the COVID-19 pandemic's effect on businesses' ability to carry out the research, issue subawards, and complete other tasks, meaning that many awards issued in 2020 were not completed by the end of our review period.
- Our sample included the top 25 highest-value Phase II awards from fiscal year 2019 so that we could assess if there were qualitative or quantitative differences in the type of subawards for these high-value awards. The largest 25 awards make up about 6 percent of the total amount awarded in fiscal year 2019.

To assess the extent to which SBIR/STTR first-tier subaward data are available on USAspending.gov, we reviewed the Federal Funding Accountability and Transparency Act (FFATA), as amended, as well as applicable sections of the Code of Federal Regulations and the Federal Acquisition Regulation. In addition, we reviewed publicly available first-tier subaward information displayed on USAspending.gov, the public-facing

³Our original sample included 215 awards, but we ultimately collected information for 198 awards. The Department of Defense was unable to provide award documentation for 17 of the 105 requested.

⁴SBIR Award Data (accessed Feb. 3, 2023), <https://www.sbir.gov/sbirsearch/award/all>.

database for federal spending information, to determine the extent to which first-tier subaward information is available in that data set. Specifically, we reviewed available information displayed on USAspending.gov for 339 fiscal year 2019 SBIR and STTR awards and determined the extent to which first-tier subaward information is available in that data set. The sample of 339 awards includes 102 SBIR and 24 STTR awards from the generalizable sample that had at least one or more subawards valued at or over \$30,000. This is a threshold required by regulation and guidance for first-tier subaward reporting that may apply to these subawards. The sample also includes an additional 213 STTR awards from fiscal year 2019. We included these additional awards because STTR award recipients are required to partner with a nonprofit research institution.⁵ This nonprofit research institution partner must carry out a minimum of 30 percent of the project's work.

In addition, to obtain award recipients' perspectives on federal subaward reporting requirements we spoke to representatives from a nongeneralizable sample of 10 small businesses that received multiple SBIR/STTR awards between fiscal years 2011 and 2020 to understand their perspectives on FFATA reporting requirements for award recipients. Specifically, we selected a nongeneralizable sample of award recipients that received between 16 and 235 Phase II awards from fiscal year 2011 through fiscal year 2020.⁶ We asked these small businesses to provide their perspectives on reasons subcontracting information would not appear in USAspending.gov, the extent to which they were aware of reporting requirements, barriers to reporting information, and knowledge of reporting exemptions.

To gather information from the USAspending.gov website, we carried out a manual search using the website's award search filters. We began by entering agency contract or grant numbers for each award into USAspending.gov. We then verified that the correct award record was located using award amounts, award dates, award recipient names, or other identifying information. In cases where we were unable to locate an award record using the contract or grant numbers, we searched using other searchable fields, including award recipient name, award amount, award date, awarding agency. We were not able to locate seven awards

⁵This may include (a) nonprofit colleges or universities, (b) domestic nonprofit scientific or research organizations, or (c) federally funded R&D centers.

⁶We initially selected a sample of 16 award recipients. Of the 16 award recipients, we received responses from 10 that agreed to interviews.

in our sample on the USAspending.gov website, although we were unable to determine the reason for their absence. For the award records we located, we then recorded the absence or presence of first-tier subaward information for each award and, when that information was available, we recorded that information. Because we were able to locate most awards in USAspending.gov, we found the information was reliable for the purpose of comparing it with award documentation.

To assess the extent to which subawards are used by SBIR/STTR recipients, and for what purposes, we evaluated the sample of 198 SBIR/STTR Phase II awards to identify planned subawards included either in the award recipient's initial proposal or in subsequent award documentation.⁷ For each award in our sample, we asked the awarding agency to provide documentation pertinent to the award. Award documentation received from the agencies included the award proposal, planned budget, letters of support, agency evaluations of proposed projects, signed or executed contracts and grants, contract modifications or grant revisions, and progress reports. The amount and type of information provided varied by agency and by award, although we received and reviewed, at a minimum, the proposal documentation, the signed contract or grant, and the corresponding modifications or revisions (if applicable) for all awards included in our analysis.

We reviewed each set of award documentation to collect information on the award amount, recipient, and the purpose for the award as well as the characteristics, amount, and purpose of any planned use of subawards, and other planned purchases of materials, supplies, or services associated with the award. In addition, we examined the award documentation for illustrative examples, and chose examples that illustrated the breadth of the SBIR/STTR program, some of which are presented in this report. We also looked for references to the reporting requirements applicable under FFATA, as amended. In reviewing and

⁷Information on agreements with other entities made by SBIR/STTR award recipients is generally included within the budget proposal and other award documentation. Therefore, for the purposes of this report, when we refer to subawards it is those identified in proposals and other award documentation. Specifically, SBIR/STTR proposals generally include a budget section where each applicant provides information on planned costs, including direct and indirect costs. The direct costs include personnel costs (salaries and wages), fringe benefits, travel, and "other direct costs," which provide detail on the planned subawards. Indirect costs include costs for facilities and administration (i.e., overhead costs).

assessing the award documentation, we encountered several limitations, as described below:

- Information about subawards was from applicants' proposals. We did not have documentation of actual post-award funding to subcontractors or consultants, or for other entities, because the participating agencies are not tracking this information.
- Some proposal and award documentation was incomplete or contained inconsistent information. Using the information provided, the analyst reviewing the files reconciled the proposal and award information to the extent possible. When information was not readily reconcilable, another analyst also reviewed the information and a judgment was made about how to best interpret the information. A third GAO analyst confirmed the results of this analysis.

Based on our generalizable sample, we analyzed the collected data and report statistics describing the use of subcontractors, consultants, and purchases of materials, supplies, and services for the population of all SBIR/STRR Phase II awards. These include rates of subaward use by entity type, subaward costs by entity type as a percentage of total award amount, average subaward costs by entity type as a percentage of each award amount, and average cost by entity type. These results are subject to sampling errors, and we express our confidence in the precision of the results at a 95 percent confidence interval for these estimates. Estimates derived from the sample have margins of error of plus or minus 10 percentage points or relative margins of error of plus or minus 15 percent, unless otherwise noted.

To classify subcontractors as large businesses or small businesses, we used several pieces of information. Specifically, we used:

- SBA's criteria for defining a small business, which are based on an entity's number of employees or annual revenue,⁸

⁸SBA defines small businesses based on factors including number of employees and annual revenues. These factors vary depending on which industry the business is part of. SBA uses the North American Industry Classification System (NAICS) to delineate between different industry sectors and set size standards by industry type. We were not able to determine the industry sector for every subcontractor. The term "other-than-small" business refers to any entity that is not classified as a small business. This includes large businesses, nonprofit organizations, public utilities, educational institutions, and foreign-owned firms.

- an entity's fiscal year 2019 registration status under the Federal Acquisition Regulation 52.219-1,⁹
- an entity's business type classification from USAspending.gov, and
- an entity's employee count and company revenue provided in agency award documentation or from company websites.

A GAO analyst reviewed these sources of information for each entity and classified an entity as a small business or a large business based on the number of employees or annual revenues as compared with the SBA's definition of a small business, the entity's registration status, if available, or its profile on USAspending.gov. A second GAO analyst reviewed the same information to ensure concurrence with these classifications. In most cases, the information for making this determination was readily available and the business-size determination was clear. For very few cases, information was incomplete, and we made the most likely classifications based on the information available. Because some of the available information is current and the award performance periods were between 2019 and 2022, we cannot be certain that these classifications would have been the same if we had information for those earlier years. In cases where the information did not allow us to make a conclusive determination, we classified an entity's sector type as "undetermined," which was translated to "other" in our generalizable sample.

To determine which large businesses are defense contractors, we consulted the Department of Defense's (DOD) Prime Contractor Directory to identify large prime contractors that are required to establish subcontracting plans. DOD developed the prime contractor directory in fiscal year 2017, prior to the fiscal year 2019 awards that we evaluated.

To determine the purpose for the planned use of subcontractors or consultants, we relied on the proposal and other award documentation. The proposal often contained a specific section identifying the planned entities as well as the role of the subcontractor or consultant. The budget justification within the proposal provided additional information on the planned subcontracting and consulting costs and the purpose of the subawards.

⁹Under 52.219-1 in the Federal Acquisition Regulation, a business certifies its size status for the NAICS codes relevant to its industry sector to determine if the entity is a small business concern.

For both objectives, we interviewed or collected written responses from the 11 participating agencies using semi-structured interview questions to ask about how the agencies track the award recipient's use of subawards; what is known about the extent of the use of subawards and what entities receive subawards; steps the agencies take to review and approve subawards; and the extent to which agencies monitor FFATA reporting by award recipients.¹⁰ Specifically, we asked all 11 participating agencies to describe how subawards are reviewed as part of the proposal review process, legal or policy requirements assessed, processes for monitoring the award recipient's subawards, and how changes to an award recipient's subawards are tracked. We also interviewed SBA officials about SBIR/STTR program management and oversight as relates to subawards and subaward reporting. In addition, we reviewed applicable laws, regulations, and guidance.

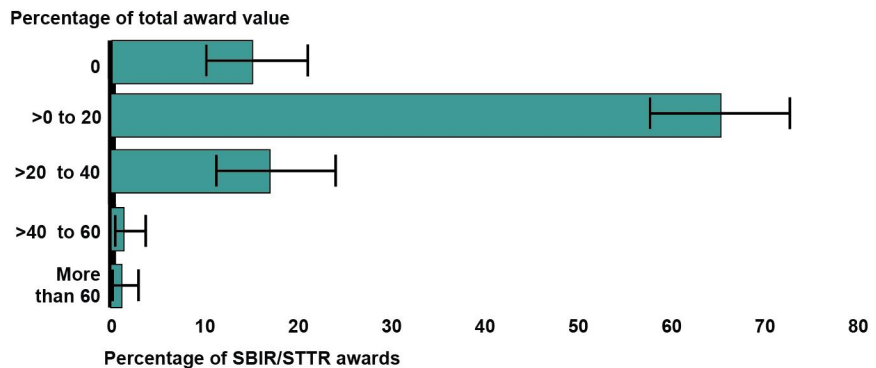
We conducted this performance audit from November 2022 to November 2023 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

¹⁰For each agency, we contacted the SBIR/STTR program managers and other supporting staff for these programs.

Appendix II: Purchases of Materials, Supplies, and Services

Based on our review of award documentation, we estimate that about 85 percent of all Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Phase II awards included planned purchases of materials, supplies, or services. We also estimate that about 13 percent of the total award value was used for these purchases, although some awards used a substantial portion of the award value for these purchases (see fig. 6). As described in this report, in some cases these purchases may be subject to first-tier subaward reporting requirements under the Federal Funding Accountability and Transparency Act of 2006 (FFATA), as amended. Materials, supplies, and services needs vary widely based on the type of project. For example, a Department of Defense award for researching human performance optimization included agreements with multiple vendors to provide materials including ketone ester, testing strips, and specialized salts. In another example, three National Institutes of Health awards included agreements for a variety of materials and supplies, including chemical reagents, plasma supplies, and general lab supplies. Other awards included planned purchases of sample testing and preclinical animal studies.

Figure 6: Estimated Percentage of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Awards and Award Value Used for Materials, Supplies, and Services, Fiscal Year 2019



Legend: The whiskers represent the 95% confidence interval for each estimate.

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

**Appendix II: Purchases of Materials, Supplies,
and Services**

**Accessible data table for Figure 6: Estimated Percentage of Small Business
Innovation Research (SBIR) and Small Business Technology Transfer (STTR)
Awards and Award Value Used for Materials, Supplies, and Services, Fiscal Year
2019**

Estimated Percentage of (SBIR) and (STTR) Awards	Percentage of total award value
0%	15.05
>0% to 20%	65.37
>20% to 40%	17.06
>40% to 60%	1.35
More than 60%	1.18

Source: GAO analysis of planned use of subcontractors and consultants in fiscal year 2019 SBIR/STTR proposal and award documentation. | GAO-24-106399

Appendix III: Staff Acknowledgments

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Staff Acknowledgments

In addition to the contact named above, Tind Shepper Ryen (Assistant Director), Michael Krafve (Analyst-in-Charge), Jim Ashley, Mark Kuykendall Jr., Curtis Martin, Matty Njie, John Sanchez, and Ashley Stewart made key contributions to this report.

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