



January 2024

RESEARCH SECURITY

Strengthening Interagency Collaboration Could Help Agencies Safeguard Federal Funding from Foreign Threats

GAO Highlights

Highlights of [GAO-24-106227](#), a report to congressional committees

Why GAO Did This Study

According to the National Science Foundation, federal agencies obligated about \$1.4 billion for R&D with foreign entities in fiscal year 2020 (the most recent data available). However, some foreign entities may try to exploit U.S. openness in sharing R&D for nefarious purposes.

The Research and Development, Competition, and Innovation Act includes a provision for GAO to review research funding provided to foreign entities of concern. The act's definition of such entities includes foreign terrorist organizations and foreign entities subject to the control, ownership, and jurisdiction of Russia, China, North Korea, and Iran.

This report examines challenges in identifying R&D funds awarded to foreign entities of concern and requirements for awarding and monitoring such funding.

GAO searched USAspending.gov and reviewed documents from federal funding and law enforcement agencies. GAO also interviewed federal agency officials, including those from the five agencies that obligated the most R&D funding in fiscal year 2020.

What GAO Recommends

GAO is recommending that OSTP facilitate information sharing among agencies on identifying foreign ownership, control, or influence. OSTP concurred with this recommendation.

View [GAO-24-106227](#). For more information, contact Candice N. Wright at (202) 512-6888 or wrightc@gao.gov.

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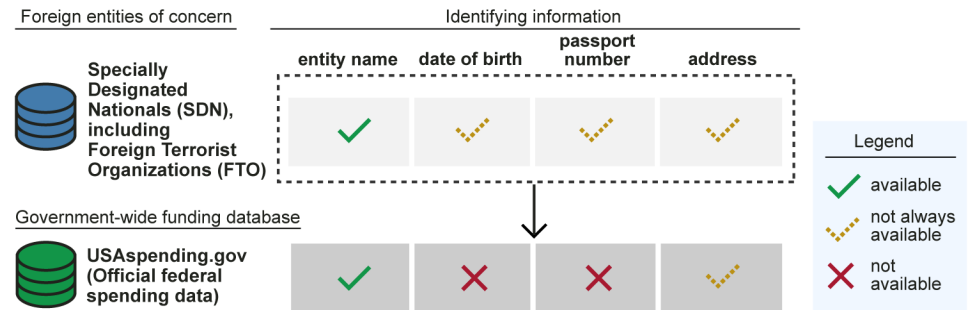
Strengthening Interagency Collaboration Could Help Agencies Safeguard Federal Funding from Foreign Threats

What GAO Found

GAO found that determining whether federal research and development (R&D) funds were provided to a foreign entity of concern is challenging. Such entities include foreign terrorist organizations and specially designated nationals, among others. Awarding agencies are generally prohibited from doing business with foreign terrorist organizations and specially designated nationals.

GAO found that government-wide databases which report on some of these entities lack common identifying information such as a unique identifier or personally identifiable information. For example, a physical address, date of birth, or other identifying information for entities on the foreign terrorist organization list is often unavailable as entities often try to conceal their identity or location, according to the Treasury Department. When personally identifiable information such as date of birth is available, similar information is not available in the public federal funding data source, USAspending.gov. Specifically, although awarding agencies collect other identifying information, such as phone numbers of entities seeking an award, not all such information is reported in USAspending.gov. Together, these challenges limit the ability to match foreign entities on certain lists with those receiving government-wide funding.

Example of Gaps in Crossmatching Identifying Information for Restricted Foreign Entities With Federal Spending Data



Source: GAO analysis of agency information and publicly available information on U.S. government websites; GAO (icons). | GAO-24-106227

GAO found that some requirements exist specific to R&D awards to foreign entities of concern. For example, agencies are generally required to vet potential awardees against the federal exclusions list, which includes foreign terrorist organizations and specially designated nationals. Agencies that GAO interviewed reported challenges in identifying foreign ownership, control, or influence. Officials from two agencies we reviewed said they use analytical tools and other available information to try to identify foreign ownership. Such efforts, however, are not shared across agencies. Recent guidance from the Office of Science and Technology Policy (OSTP)—the lead federal agency for interagency coordination on science and technology policies—does not address the issue of foreign ownership, control, or influence. OSTP officials told GAO that they handle this issue on a case-by-case basis and acknowledged the challenges that agencies face in addressing such risks. Information sharing on such complex matters would better position agencies to more fully safeguard R&D funds.

Contents

Letter		1
	Background	5
	Lack of Common Identifying Information Hinders Ability to Identify Research Funds Provided to Foreign Entities of Concern	9
	Some Federal Requirements Exist Specific to Foreign Entities of Concern	15
	Conclusions	27
	Recommendation for Executive Action	27
	Agency Comments	27
Appendix I	Objectives, Scope, and Methodology	30
Appendix II	Research and Development (R&D) Federal Funding Obligated to Entities Located in China and Russia	36
Appendix III	Examples of Information Used by the Department of Defense to Inform Fundamental Research Mitigation Decisions	40
Appendix IV	GAO Contact and Staff Acknowledgments	41
Tables		
	Table 1: Foreign Entities of Concern as Defined by the Research and Development, Competition, and Innovation Act	8
	Table 2: Data Challenges Related to Foreign Entities of Concern as Defined by the Research and Development, Competition, and Innovation Act	12
	Table 3: U.S. Agency-Reported Obligations through Prime Awards to Entities in China and Russia, Fiscal Years 2017-2022	14
	Table 4: Key Government-wide Requirements and Guidance for Research and Development Awards that Involve Foreign Entities of Concern	17
	Table 5: Key Agency-Specific Requirements for Awarding R&D Funding to Foreign Entities of Concern	22

Table 6: Recent Agency-Specific Actions to Mitigate Risk in Awarding Research & Development Funding to Foreign Entities of Concern	23
Table 7: Obligations Funded in Fiscal Years 2017-2022 for Research & Development Awards Made Directly to Entities Located in China and Russia	36
Table 8: Examples of Information Used by the Department of Defense (DOD) to Assess a Covered Individual's Associations, Affiliations, and Collaborations and the Policies of the Proposing Institution that Employs the Covered Individual	40

Figures

Figure 1: Generalized Research and Development Award Process	5
Figure 2: Identifying Information on Foreign Entities of Concern in Government-wide Data Systems	10
Figure 3: Generalized Steps Agencies Take to Address Prohibited or Restricted Foreign Entities	19

Abbreviations

Commerce	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOJ	Department of Justice
FTO	Foreign Terrorist Organization
FY	Fiscal Year
GSA	General Services Administration
HHS	Department of Health and Human Services
NASA	National Aeronautics and Space Administration
NDAA	National Defense Authorization Act
NIH	National Institutes of Health
NSF	National Science Foundation
NSPM-33	National Security Presidential Memorandum 33
OFAC	Department of the Treasury Office of Foreign Assets Control
OSTP	Office of Science and Technology Policy
R&D	research and development
SAM.gov	System for Award Management
SDN	Specially Designated Nationals and Blocked Persons List
State	Department of State
Treasury	Department of the Treasury

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January 11, 2024

Congressional Committees

The United States has long been a global leader in advancing the frontiers of science and technology because of its public and private investments in research and development (R&D)—the creative and systematic work undertaken to increase knowledge and to devise new applications of available knowledge.¹ As the pace of innovation has quickened, competition in the global economy has accelerated. The United States remains at the forefront of scientific and technological discovery and is the world’s single largest R&D funder.²

Specifically, federal agencies obligated about \$1.4 billion for R&D awards with foreign entities in fiscal year (FY) 2020.³ We previously reported that federal agencies sometimes provide research funds to foreign entities such as universities, laboratories, and public health organizations.⁴ Agencies may also collaborate with foreign entities to access resources such as talent and expertise, certain environments and populations, and one-of-a kind scientific facilities. However, some foreign entities may try to exploit U.S. openness in sharing R&D for nefarious purposes. For example, the National Institutes of Health (NIH) became concerned that a researcher at a U.S. university had failed to disclose, among other things, foreign research activity on their grant applications. This led to the researcher’s conviction in May 2020 for filing a false tax return that did not

¹National Science Foundation, National Center for Science and Engineering Statistics, *Definitions of Research and Development: An Annotated Compilation of Official Sources*, NCSES 22-209 (Alexandria, VA: May 19, 2022).

²American Association for the Advancement of Science, *Federal R&D Budget Trends: A Short Summary* (Washington, D.C.: Jan. 2019).

³National Science Foundation, National Center for Science and Engineering Statistics, *Federal Funds for Research and Development* (Alexandria, Va.: Apr. 28, 2022). The U.S. obligated about \$167 billion for R&D in FY 2020. R&D awards can include, among other award mechanisms, contracts, grants, and cooperative agreements, which collectively we refer to as “awards.” Fiscal year 2020 is the most recent and complete data available.

⁴See 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). GAO, *Federal Spending: Information on U.S. Funding to Entities Located in China*, [GAO-23-105538](#) (Washington, D.C.: Apr. 12, 2023).

include his foreign income for his simultaneous employment at two different Chinese universities where he was conducting research.⁵

Congress, the White House, and others have expressed concerns about entities from certain foreign countries, such as China, exploiting U.S. funded research in ways that could harm U.S. national security or economic competitiveness. Recent federal legislation aims to improve the research security environment. The Research and Development, Competition, and Innovation Act was enacted in August 2022 as part of what is commonly referred to as the CHIPS and Science Act of 2022 (the Act).⁶ It includes provisions for federal agencies and federally funded research institutions to address threats to the U.S. research enterprise.

The Act also includes a provision for GAO to examine R&D funding to foreign entities of concern.⁷ This report: (1) describes challenges faced in identifying R&D funds made available to foreign entities of concern and how much funding was provided to foreign entities of concern in FY 2017 through FY 2022 and (2) examines the requirements for awarding and monitoring⁸ of such funding.

The Act defines a “foreign entity of concern” as a foreign entity that is:⁹

- on the Foreign Terrorist Organization (FTO) list;¹⁰
- on the Specially Designated Nationals and Blocked Persons (SDN) list;

⁵Department of Justice press release, *Former Emory University Professor and Chinese “Thousand Talents” Participant Convicted and Sentenced for Filing a False Tax Return* (Washington, D.C.: May, 11, 2020), available at <https://www.justice.gov/opa/pr/former-emory-university-professor-and-chinese-thousand-talents-participant-convicted-and>.

⁶Research and Development, Competition, and Innovation Act, Pub. L. No. 117-167, div. B, 136 Stat. 1366 (2022).

⁷Pub. L. No. 117-167, div. B, tit. VI, sub. D, §10635, 136 Stat. 1366, 1668-69 (2022).

⁸For the purposes of this report, “monitoring” includes both monitoring and tracking of funds.

⁹Pub. L. No. 117-167, div. B, tit. VI, sub. D, §10638(3), 136 Stat. 1366, 1670 (2022). For the purposes of this report, we also include individuals as “entities.”

¹⁰As designated by the Secretary of State under section 219(a) of the Immigration and Nationality Act (8 U.S.C. 1189(a)).

-
- owned by, controlled by, or subject to the jurisdiction or direction of a “covered nation”, as defined by 10 U.S.C. § 4872, which are the Democratic People’s Republic of North Korea, the People’s Republic of China, the Russian Federation, or the Islamic Republic of Iran;
 - alleged by the Attorney General to have been involved in activities for which a conviction was obtained under a series of specified federal laws, including the Espionage Act and the Arms Export Control Act;¹¹ or
 - engaged in conduct that is detrimental to national security or foreign policy, as determined by the Secretary of Commerce in consultation with the Secretary of Defense and Director of National Intelligence.

To address the first objective, we collected publicly available information on foreign entities included on the FTO and SDN lists from agency websites.¹² The FTO list is comprised of organizations, and the SDN list includes both organizations and individuals. We also collected information from the Department of Justice (DOJ) on foreign entities—individuals and organizations—convicted under the statutory provisions identified in the Act. We then searched USAspending.gov to identify whether any R&D funds were provided to these entities.¹³ Specifically, we searched for matches—in the names and addresses of entities on the lists (such as the SDN list)—with similar information in USAspending.gov to determine

¹¹The full list of laws specified in the definition of foreign entity of concern are: 18 U.S.C. ch. 37, (commonly known as the Espionage Act); 18 U.S.C. §§ 951, 1030; 18 U.S.C. ch. 90, (commonly known as the Economic Espionage Act of 1996); the Arms Export Control Act (22 U.S.C § 2751 et seq.); sections 224-227, or 236 or the Atomic Energy Act of 1954 (42 U.S.C. §§ 2274 - 2277, 2284); the Export Control Reform Act of 2018 (50 U.S.C. § 4801 et seq.); and the International Emergency Economic Powers Act (50 U.S.C. § 1701 et seq.).

¹²In this report, we collected information on foreign entities reported on the FTO list from the Department of State’s website, <https://www.state.gov/foreign-terrorist-organizations/> and information on the SDN list from Treasury’s website, <https://ofac.treasury.gov/specially-designated-nationals-and-blocked-persons-list-sdn-human-readable-lists>.

¹³The USAspending.gov website is the official public source of government spending data. Agencies are required to report certain information about federal awards that equal or exceed the micro-purchase threshold that are then made available on a single public-facing, searchable website. Federal Funding Accountability and Transparency Act of 2006, 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, FAR subparts 4.6 and 4.14.

whether any foreign entity of concern received R&D funds from FY 2017 through FY 2022.

We also met with relevant agency officials who collect and manage this information and discussed challenges in the availability and reliability of data. Due to the difficulty in determining whether foreign entities are owned by, controlled by, or subject to the jurisdiction of covered nations (China, Iran, North Korea, and Russia), to address funding to these entities we analyzed publicly available country-level obligations data reported by agencies in USAspending.gov.¹⁴ Specifically, we focused on prime awards (grants, cooperative agreements, and contracts) made directly to an entity located in a covered nation in FY 2017 through FY 2022.¹⁵ We requested that agency officials validate the accuracy of prime award data from USAspending.gov, and we refined the data. We found that the prime award data were sufficiently reliable for the purposes of this report.

To address the second objective, we focused on the five agencies that—according to a report by the National Science Foundation (NSF)—obligated the largest amount of R&D funding in FY 2020, the most recent data available when we initiated this review. The five agencies are the NSF; the National Aeronautics and Space Administration (NASA); and the Departments of Defense (DOD), Energy (DOE), and primarily the NIH within Health and Human Services (HHS). We collected agency policies and other documents and interviewed agency officials on requirements for awarding and monitoring federal funds to foreign entities of concern.

We also interviewed officials at the General Services Administration (GSA) about the System for Award Management (SAM.gov), which includes information on entities doing business with the federal government, and at the Office of Science and Technology Policy (OSTP) on its role in providing guidance to federal agencies that fund R&D and

¹⁴An obligation is a definite commitment that creates a legal liability of the government for the payment of goods and services ordered or received, or a legal duty on the part of the United States that could mature into a legal liability by virtue of actions on the part of the other party, beyond the control of the United States. Payment may be made immediately or in the future.

¹⁵For the purposes of this report, we define a prime award as a grant, cooperative agreement, or contract awarded by the U.S. government directly to a non-federal entity for the purpose of carrying out a federal program.

the institutions that perform the work. For more information on the objectives, scope, and methodology, see appendix I.

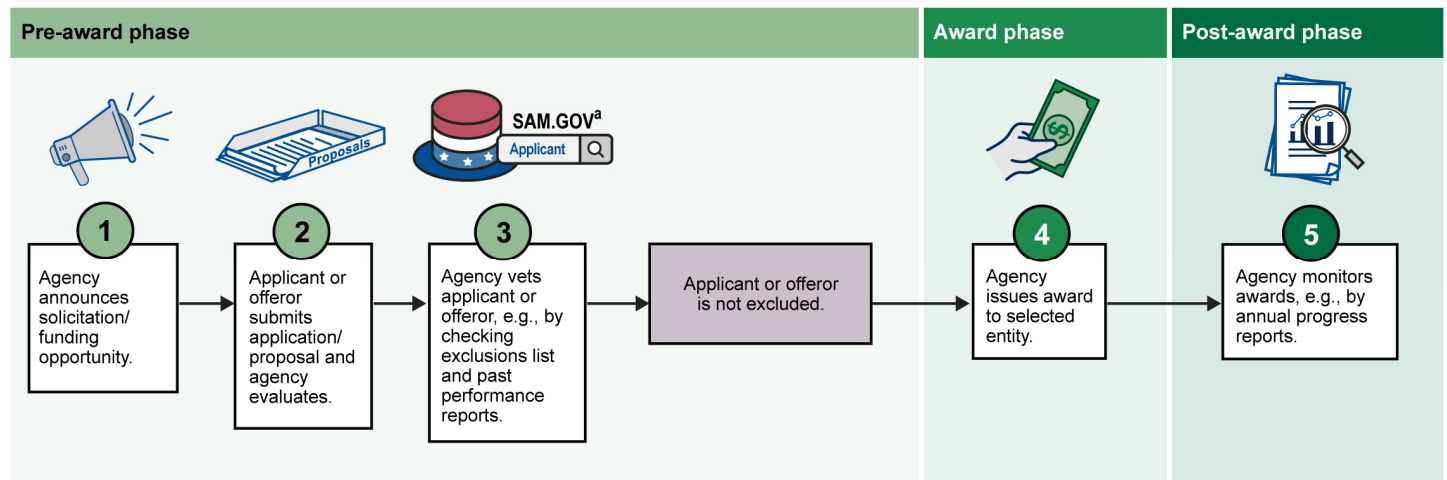
We conducted this performance audit from August 2022 to January 2024 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions 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

Federal Process for Determining Eligibility to Receive Funds

Federal agencies generally follow a phased process for providing R&D funds to an award recipient (fig. 1).

Figure 1: Generalized Research and Development Award Process



Source: GAO analysis of agency information, regulations, and guidance; GAO (icons). | GAO-24-106227

^aThe System for Award Management (SAM.gov) is a U.S. government website that includes entity registrations for those entities that would like to do business with the government, including those entities seeking to apply for federal grants or loans or propose on a federal contract. Among other things, SAM.gov also contains data on excluded entities. According to agency officials, they can also vet applicants using agency-specific or other internal government data sources to determine suitability. In such internal sources, other identifiable information may be available on the applicant or offeror.

In general, there are three phases:

- The pre-award phase begins with an agency announcing a funding opportunity or solicitation. For prime awards—including contracts, grants, and cooperative agreements—an applicant or offeror submits an application or proposal.¹⁶ As part of the application or proposal evaluation process, the awarding agency evaluates information about and provided by the applicant or offeror to ensure it is qualified to conduct the research.¹⁷
- In the award phase, the awarding agency issues the award to the entity selected for work and begins to obligate funds.
- In the post-award phase, the awarding agency monitors the awardee to ensure compliance with the award terms. This process occurs throughout the period of performance of the award and includes the review of progress or other reports submitted by the awardee. At the end of the period of performance, the awarding agency reviews the final financial and progress or technical reports to close out the award.

Federal agencies report information on R&D funds made through prime awards, which is, in turn, made available to the public in USAspending.gov in accordance with the requirements outlined in the Federal Funding Accountability and Transparency Act (FFATA) of 2006, as amended, and implementing regulations and guidance.¹⁸

¹⁶For the purposes of this report, we use the term “applicant” to include offerors and applicants responding to solicitations or funding announcements posted by federal agencies for prime awards.

¹⁷For some agencies, the evaluation phase can include a required peer review process.

¹⁸Pub 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, FAR subparts 4.6 and 4.14.

Some Entities are Excluded from Receiving Federal Funding

Entities seeking prime awards are generally required to register in SAM.gov, which is managed by GSA.¹⁹ Some entities are excluded from receiving federal contracts, certain subcontracts, and types of federal financial and nonfinancial assistance and benefits. An active exclusion means an entity is currently debarred, suspended, proposed for debarment, or declared ineligible for these awards. These entities are included in the SAM.gov exclusions data. The exclusions list also includes entities that are designated with prohibition/restriction where the scope of the exclusion from receiving federal funds is determined by the specific program or law under which the entity has been prohibited or restricted. Entities on the FTO and SDN lists are included on the SAM.gov exclusions list and denoted as “prohibition/restriction.” Awarding agencies are generally required to check the SAM.gov exclusions list prior to making an award.²⁰

Foreign Entities of Concern

The key elements of the definition of “foreign entity of concern” include long-established sanctions lists, four covered nations, and entities related to convictions obtained under specified U.S. laws. Table 1 provides information on the key elements included in the definition of “foreign entity of concern.”

¹⁹Individuals who apply as a natural person for federal financial assistance, including grants and cooperative agreements, are not required to register in SAM.gov. 2 C.F.R. § 25.110(b). See 2 C.F.R. § 25.110 and FAR 4.1102 for exceptions to SAM.gov registration requirements for those seeking federal financial assistance, including grants and cooperative agreements and contracts respectively.

²⁰For grants and cooperative agreements, 2 C.F.R. § 180.430 directs agency officials to check SAM.gov exclusions before entering into covered transactions. However, not all transactions are covered transactions. For example, direct awards to foreign governments and foreign government entities are generally not covered transactions; therefore, agencies are not required to check SAM.gov exclusions for such transactions (2 C.F.R. § 180.215). Regardless, agency officials are prohibited from entering into any transaction with a disqualified entity if the entity is disqualified for that transaction according to 2 C.F.R. § 180.400. To identify a disqualified entity, an agency would need to check SAM.gov exclusions before providing federal funds. Most of the agencies we reviewed told us they check SAM.gov regardless of these exemptions.

Table 1: Foreign Entities of Concern as Defined by the Research and Development, Competition, and Innovation Act

Definition from Act	Description from Federal Laws, Regulations, and Agency Information
Foreign Terrorist Organizations (FTO)	<p>Foreign Terrorist Organizations (FTOs) are foreign organizations that are designated by the Secretary of State in accordance with section 219 of the Immigration and Nationality Act (INA), as amended. It is unlawful for a person in the United States or subject to its jurisdiction to knowingly provide a designated FTO with “material support or resources” including tangible or intangible property, or services, including currency or monetary instruments, and expert advice or assistance, which is advice or assistance derived from scientific, technical, or other specialized knowledge.</p> <p>The organizations’ names are publicly listed on the State Department website and updated when a new designation is made by the Secretary of State.</p>
Specially Designated Nationals and Blocked Persons (SDN)	<p>The Department of the Treasury’s Office of Foreign Assets Control, as part of its enforcement efforts, publishes a list of individuals and companies owned or controlled by, or acting for or on behalf of, targeted countries. It also lists individuals, groups, and entities—such as terrorists and narcotics traffickers—designated under programs that are not country-specific. Collectively, such individuals and companies are called “Specially Designated Nationals” or “SDNs.” Their assets are blocked and people in the United States are generally prohibited from dealing with them.</p> <p>This list is searchable or downloadable from the Treasury website and is updated by the Department as frequently as multiple times per week.</p>
Entities owned by, controlled by, or subject to the jurisdiction or direction of a government of a foreign country that is a covered nation (as such term is defined in section 4872 of title 10, United States Code)	<p>10 U.S.C. § 4872 defines “covered nations” as the Democratic People’s Republic of North Korea, the People’s Republic of China, the Russian Federation, and the Islamic Republic of Iran.</p>
Entities alleged by the Attorney General to have been involved in activities for which a conviction was obtained under the federal laws cited in section 10638(3)(D) of the Research and Development, Competition, and Innovation Act	<p>Section 10638(3)(D) listed the following laws:</p> <ul style="list-style-type: none"> • 18 U.S.C. ch. 37, commonly known as the Espionage Act; • 18 U.S.C. §§ 951, 1030; • 18 U.S.C. ch. 90, commonly known as the Economic Espionage Act of 1996; • the Arms Export Control Act, 22 U.S.C. § 2751 et seq.; sections 224-227, or 236 of the Atomic Energy Act of 1954; 42 U.S.C. §§ 2274-2277, 2284; • the Export Control Reform Act of 2018, 50 U.S.C § 4801 et seq.; and • the International Emergency Economic Powers Act, 50 U.S.C. § 1701 et seq.
Entities determined by the Secretary of Commerce, in consultation with the Secretary of Defense and the Director of National Intelligence, to be engaged in unauthorized conduct that is detrimental to the national security or foreign policy of the United States	<p>The phrase also appeared in the definition of “foreign entity of concern” found in the Creating Helpful Incentives to Produce Semi-Conductors for America Act, found in the National Defense Authorization Act for Fiscal Year 2021. That law prohibits the Secretary of Commerce from providing financial incentives for semiconductor development to “foreign entities of concern.”</p>

Source: GAO analysis of federal laws, regulations, and agency information. | GAO-24-106227

Lack of Common Identifying Information Hinders Ability to Identify Research Funds Provided to Foreign Entities of Concern

We found that, due to a lack of common identifying information (such as a unique identifier or personally identifiable information) on foreign entities of concern in federal government databases, determining whether federal funds were provided to such entities is challenging. For example, common identifying information for the entities on the foreign terrorist organization list is not publicly available. We were able to identify some information on R&D funding provided to entities in China and Russia.

Common Identifying Information across Data Sources is not Always Available

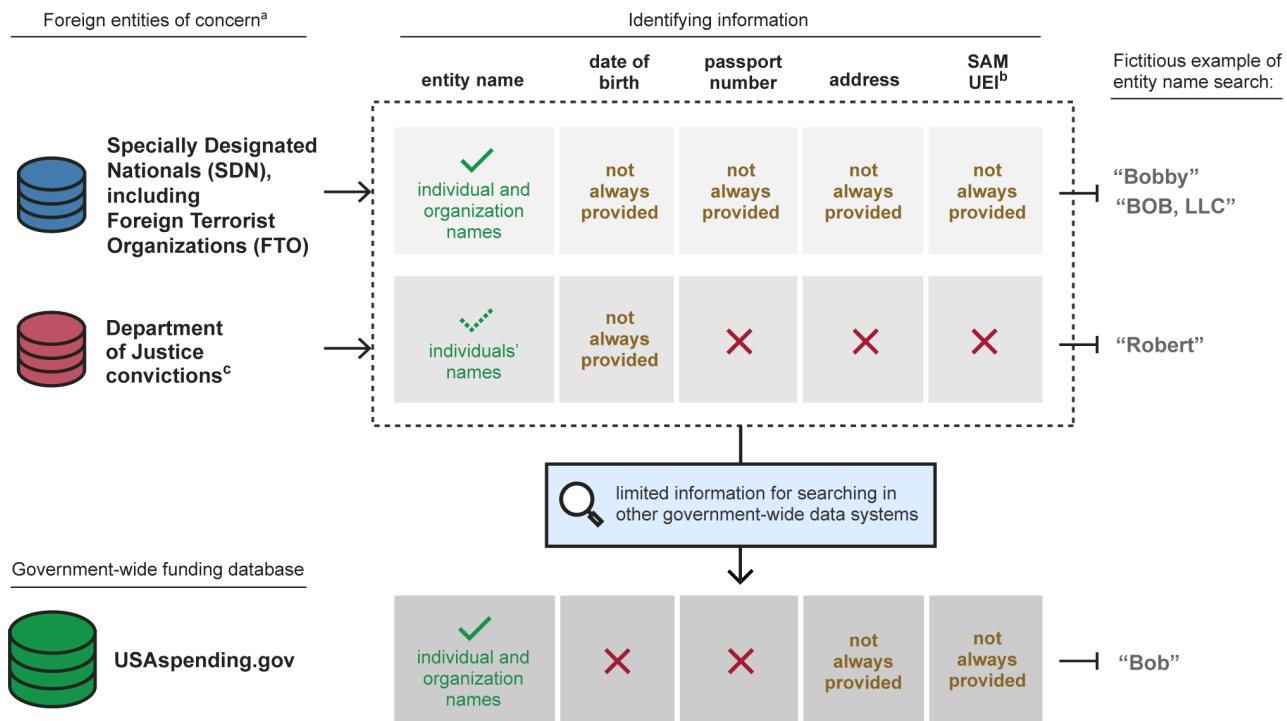
Identifying information for foreign entities of concern—such as a unique identifier, physical address, an individual's date of birth, or passport number—is not fully available across federal data sources. This is primarily due to the nature of the entities themselves, who may try to hide their location or identity, according to Treasury officials. For example, for some foreign terrorist groups as well as some individuals on the SDN list, address, date of birth, or passport information is not available. In addition, while most of the entity lists include individuals, awards are generally made to organizations, research institutions, or businesses rather than individuals, according to agency officials. Furthermore, USAspending.gov—the government-wide federal funding data source—does not include certain personally identifiable information (including for foreign entities) due to existing privacy laws and regulations.²¹ According to USAspending.gov, due to existing laws and regulations, some data such as date of birth or passport are not captured. Awarding agencies collect identifying information such as name, address, email, phone, employment, and previous award history from entities seeking a research award, but not all this information is reported in government-wide data sources.

²¹The USAspending.gov “Data Sources” document states that due to existing laws and regulations, some data—including personally identifiable information—are not published. <https://www.usaspending.gov/data/about-the-data-download.pdf>. The SAM.gov website is the official source for information on entities, including those that are prohibited or restricted, among other things. SAM.gov data on registrants links to USAspending.gov award recipients’ data via the SAM.gov unique entity ID (UEI)—the primary method to identify entities throughout the federal awarding life cycle and in other federal systems. The SAM.gov website does not publicly display “sensitive” information on individuals in the exclusions list, such as their street address, but such information, to the extent available, may be accessed by authorized U.S. government users.

These challenges limit the ability to match foreign entities on certain lists and those receiving government-wide funding as reported in USAspending.gov.

Figure 2 shows identifying information available for foreign entities of concern that are contained in federal data systems used to vet entities and report on federal funds.²²

Figure 2: Identifying Information on Foreign Entities of Concern in Government-wide Data Systems



Source: GAO analysis of agency information and publicly available information on U.S. government websites; GAO (icons). | GAO-24-106227

^a"Foreign Entity of Concern" is defined by the Research and Development, Competition, and Innovation Act as a foreign entity (1) on the Foreign Terrorist Organization (FTO) list; (2) on the Specially Designated Nationals and Blocked Persons (SDN) list; (3) under the ownership, control, or jurisdiction or direction of China, Iran, North Korea, or Russia; (4) alleged by the Attorney General to have been involved in activities for which a conviction was obtained by the Department of Justice (DOJ) under specified laws, including the Espionage Act and the Arms Export Control Act; or (5) determined by the Secretary of Commerce in coordination with the Secretary of Defense and the

²²For the purposes of this report, we use the term "vet" to refer to a process by which agencies gather information on the potential awardees to verify their suitability for an award. DOD told us they use the term "due diligence" to describe such efforts, and that for DOD the term "to vet" refers to either target development or personnel vetting for employment.

Director of National Intelligence to be engaged in unauthorized conduct that is detrimental to U.S. national security or foreign policy.

^bSAM unique entity ID (UEI) is the primary key to identify entities throughout the federal awarding life cycle, in SAM.gov, and in other federal systems.

^cAccording to DOJ officials, the agency does not compile data on entities allegedly involved in activities for which there was a conviction by DOJ under the specified statutory provisions and such a list is not publicly available. DOJ provided information on entities convicted under the laws specified in the definition of foreign entity of concern in the Act.

Example of a Hypothetical Business Name Search in USAspending.gov

A search in USAspending.gov for “Contractor Night”—a contractor which manages and operates an agency-funded national laboratory located in Fictional, Texas—showed the same entity listed under four name variations in the system: “Night,” “Contract Night,” “Night Contractor,” and “Night Limited Liability Company.” A search for “Contract Night” in USAspending.gov also shows results for “Contractor Night and Day.” However, the address information in USAspending.gov for “Contractor Night and Day” is Day, Florida, and not Fictional, Texas, indicating it may not be the same entity as “Contract Night.”

Source: Anonymized example based on actual GAO experience in conducting a name search in USAspending.gov | GAO-24-106227

Specifically, we found that name variations for entities differ across and even within the various data systems when attempting to crossmatch names across systems. As represented in figure 2 above, a fictitious entity called “BOB, LLC” included on the list of foreign terrorist organizations may or may not be related to an individual named “Bob” listed in another data system. (See sidebar for an illustrative example of a name search in USAspending.gov). A name match alone does not provide sufficient or reliable information to conduct matches with awardees in USAspending.gov. Additional identifying information—such as an address—is needed to identify the entity with some assurance. USAspending.gov publishes information on addresses, but we have previously reported that USAspending.gov data are not always complete or accurate.²³

According to agency officials, they can also vet applicants using agency-specific or other internal government data sources to determine suitability. In such internal sources, other identifying information collected through the application or proposal documents may be available on the applicant. For example, the application or proposal may include identifying information such as an address.

²³We have previously reported on issues with the completeness, accuracy, and quality of USAspending.gov data and have identified opportunities for improvement. GAO, *Federal Spending Transparency: Opportunities Exist to Further Improve the Information Available on USAspending.gov*, [GAO-22-104702](#) (Washington, D.C.: Nov. 8, 2021); *Data Act: Quality of Data Submissions Has Improved but Further Action Is Needed to Disclose Known Data Limitations*, [GAO-20-75](#) (Washington, D.C.: Nov. 8, 2019); and *DATA Act: OMB, Treasury, and Agencies Need to Improve Completeness and Accuracy of Spending Data and Disclose Limitations*, [GAO-18-138](#) (Washington, D.C.: Nov. 8, 2017). We have also reported on data quality issues that agencies’ inspectors general have identified—see GAO, *Federal Spending Transparency: OIGs Identified a Variety of Issues with the Quality of Agencies’ Data Submissions*, [GAO-22-105427](#) (Washington, D.C.: July 12, 2022). Of the 17 recommendations GAO made in these reports, 10 have been implemented as of November 2023. We will continue to follow up with the agencies on their implementation of the remaining seven recommendations.

Table 2 highlights key data challenges across the different sources of information on foreign entities of concern.

Table 2: Data Challenges Related to Foreign Entities of Concern as Defined by the Research and Development, Competition, and Innovation Act

List and Lead Agency ^a	Challenges Related to Available Data or Lack Thereof
Foreign Terrorist Organizations (FTO) Department of State	The State website provides information on names of Foreign Terrorist Organizations only. Due to limited available information—name only—making a definitive match with a federal funding data source is challenging.
Specially Designated Nationals and Blocked Persons (SDN) Department of the Treasury	The Treasury website provides information on named entities—such as an address, date of birth, alias, country of residence, or passport number—to the extent such information is available and can be verified. The SDN list includes FTOs and some individuals who may be associated with them. For some of these entities, minimal identifying information is available (i.e., names and address or country). In addition, some have multiple (in some cases dozens) of “also known as” (AKAs) or name spelling variations. In part, these variations result from translating names from other alphabets (e.g., Cyrillic or Arabic) to English. Due to a lack of consistent information across all entities included in the SDN list, making a definitive match with a federal funding data source is challenging.
Entities allegedly involved in activities for which a conviction was obtained under the laws cited in the Research and Development, Competition, and Innovation Act section 10638(3)(D) Department of Justice (DOJ)	The Executive Office for United States Attorneys (EOUSA) in DOJ maintains a case management system, CaseView, to track certain case-related data fields, including names and other pertinent case information for individuals and organizations convicted of a federal crime. However, CaseView does not specifically track or allow for the identification of “foreign entities of concern.” Further, EOUSA is not aware of any other such list maintained by DOJ. Officials told us that gathering this information would require an in-depth analysis of the specific facts for each individual or organization involved in certain identified cases. Since these specific data are not maintained or readily available, we collected data from EOUSA related to convictions under the laws specified in the Act during our time frame (FY 2017 - FY 2022). Most of the convictions involved individuals, and for some of the conviction data, EOUSA was able to include a date of birth or country of citizenship, but not all. Officials noted, however, that personally identifiable information maintained in CaseView—such as date of birth, country of citizenship, and address information—may not be reliable because these data are provided by an investigative agency at the beginning of an investigation when such information may be unverified. Due to these issues, making a definitive match with a federal funding data source is challenging.
Entities under “covered nations” Federal Awarding Agencies	R&D funding agencies we reviewed do not have a list of entities “owned by, controlled by, or subject to the jurisdiction or direction” of North Korea, China, Russia, or Iran. These agencies told us they often lack reliable data and information on R&D awardees’ foreign ownership, control, or influence. In addition, Department of Commerce officials told us that this portion of the definition of foreign entities of concern is new and applies to a limited number of federal agency programs. Due to a lack of information on foreign ownership, jurisdiction, or control for entities, making a definitive match with a federal funding data source is challenging.

List and Lead Agency ^a	Challenges Related to Available Data or Lack Thereof
Entities determined by Commerce in consultation with the Secretary of Defense and the Director of National Intelligence to be engaged in unauthorized conduct detrimental to U.S. national security or foreign policy Department of Commerce	<p>In September 2023, Commerce issued a final rule implementing conditions in its semiconductor incentives program contained in the CHIPS and Science Act of 2022, which includes a definition of foreign entity of concern. Commerce officials told us that this definition only applies to this Commerce program and does not apply broadly across other federal programs. As part of this final rule, Commerce’s definition of foreign entity of concern for its program includes, among other things, foreign entities (1) Included on the Bureau of Industry and Security’s Entity List (15 CFR part 744, supplement no. 4); (2) Included on Treasury’s list of Non-SDN Chinese Military-Industrial Complex Companies (NS–CMIC List), or for which one or more individuals or entities included on the NS–CMIC list, individually or in the aggregate, directly or indirectly, hold at least 50 percent of the outstanding voting interest; or (3) determined by the Secretary of Commerce, in consultation with the Secretary of Defense and the Director of National Intelligence, to be engaged in unauthorized conduct that is detrimental to the national security or foreign policy of the United States.^b</p> <p>Due to the timing of this final rule issuance, we were unable to include entities defined by the rule above in the analysis of this engagement.</p>

Source: GAO analysis of agency information. | GAO-24-106227

^aSee table 1 in this report for the full definition of foreign entity of concern from section 10638 of the Research and Development, Competition, and Innovation Act.

^bPreventing the Improper Use of CHIPS Act Funding, 88 Fed. Reg. 65600-65619 (September 25, 2023) (to be codified in 15 C.F.R. pt. 231). The effective date for this rule was November 24, 2023. This rule does not include a specific list of entities determined to be engaged in unauthorized conduct detrimental to U.S. national security or foreign policy.

For R&D awards made between FY 2017 and FY 2022, we found no matches between names of entities on the FTO list and awardees in USAspending.gov. In the same time frame, for entities on the SDN list that had a name match with USAspending.gov recipients, address information did not match. Similarly, for entities on the DOJ convictions list for which there was a name match in USAspending.gov, the address information did not match.²⁴

The lack of common identifying information and the nature of the foreign entities of concern themselves limit definitive determinations on whether such entities received federal R&D funding.

²⁴For reporting purposes, to determine with sufficient confidence whether a foreign entity received federal R&D funds, we searched for a match in the entity name and publicly available address information between the list and USAspending.gov. See appendix I for more information on this methodology.

Some Information on R&D Funding Provided to Entities in China and Russia Is Available

Based on our review of USAspending.gov, we identified funds provided directly to entities located in two of the four covered nations (China and Russia) in FY 2017 through FY 2022 (see table 3 below).²⁵ Specifically, U.S. agencies reported obligating \$26 million through prime awards for R&D to entities in China and \$1.5 million to entities in Russia during this period. Based on our review of USAspending.gov, we did not identify prime awards to entities located in the remaining covered nations—Iran and North Korea—during this period.²⁶

Table 3: U.S. Agency-Reported Obligations through Prime Awards to Entities in China^a and Russia, Fiscal Years 2017-2022

Recipient location country	Awarding agency	Obligations in fiscal years 2017-2022 (in thousands of dollars)			
		Cooperative Agreement	Grant	Contract	Total
China	Centers for Disease Control and Prevention	14,135			14,135
	National Institutes of Health	300	9,415	439	10,154
	Department of Agriculture	1,255	64		1,319
	Department of Defense		175		175
	Department of the Interior		70		70
	HHS Office of the Assistant Secretary for Health		50		50
CHINA SUBTOTAL					25,904
Russia	Department of Agriculture	563			563
	Department of Commerce			343	343
	Department of the Interior	12	312		324
	Department of Defense			302	302
RUSSIA SUBTOTAL					1,531

²⁵These data are publicly available on USAspending.gov and provides information on foreign entities—individuals and organizations—based on the country in which they reside or are located, respectively. See appendix II for further information on these data. We have previously found issues with the completeness, accuracy, and quality of USAspending.gov data—see [GAO-22-104702](#) and [GAO-20-75](#). We have also reported on data quality issues that agencies’ inspectors general have identified—see GAO, *Federal Spending Transparency: OIGs Identified a Variety of Issues with the Quality of Agencies’ Data Submissions*, [GAO-22-105427](#) (Washington, D.C.: July 12, 2022).

²⁶Some of the award recipients we identified are under the jurisdiction or direction of the governments of China and Russia. For example, direct funds were provided to the Chinese Center for Disease Control and Prevention and the Russian Ministry of Natural Resources and Environment (Yakut Administration for Hydrometeorology and Environmental Monitoring). See app. II for further details on the award recipients identified for this period. We did not verify ownership or control for all the recipients we identified due to challenges with determining foreign ownership discussed later in this report.

Note: Amounts shown may not sum to totals because of rounding. We analyzed prime award information by awarding agency and calculated the total amount obligated based on the federal action obligation data element. This data element represents the obligation amount agencies reported for award transactions during the period specified. We downloaded award data for fiscal years 2017 through 2022 from USAspending.gov on September 8, 2023.

^aWe included entities in Hong Kong, a Special Administrative Region of China, in the scope of our review due to the recent change in the treatment of the region by the U.S. government. In July 2020 the President determined in Executive Order 13936 that Hong Kong was no longer sufficiently autonomous to justify differential treatment in relation to China. Specifically, the President suspended the application of section 201(a) of the United States-Hong Kong Policy Act of 1992 to several specified statutes.

As shown in table 3, the CDC obligated the most R&D funding to entities in China, primarily for influenza research. See appendix II for more detailed information on the R&D awards we identified to entities in Russia and China from FY 2017 through FY 2022.

Based on our review, we found one contract where an agency misreported funds as R&D. Specifically, NASA incorrectly recorded \$710 million in obligations as “space research and technology” made from FY 2017 through FY 2022 under a long-standing contract to the Russia Space Agency in support of the International Space Station. However, officials noted that activities under the multi-phased contract had transitioned to primarily “space transportation” (i.e., launch, landing, sustaining engineering, and logistics). NASA officials acknowledged the error, attributing it to overlooking the need to update the information in the Federal Procurement Data System following the transition, and plan to correct the error in response to our observation.²⁷

Some Federal Requirements Exist Specific to Foreign Entities of Concern

Based on our review of documents and interviews with R&D funding agencies, we found some government-wide requirements exist related to awarding R&D funds specific to foreign entities of concern. For example, some requirements prohibit funding to certain foreign entities of concern. All federal R&D awards have monitoring requirements, but none are specific to awards involving foreign entities of concern. Officials from nearly all the agencies we reviewed noted additional agency specific requirements to address potential risks posed by foreign entities of concern. However, officials reported that agencies face challenges with identifying and addressing risks associated with foreign ownership, control, or jurisdiction. While OSTP has provided guidance to agencies on research security risks, it does not address issues of foreign ownership,

²⁷The Federal Procurement Data System is the government-wide system for agencies to report information on federally funded contracts. These data are reflected in USAspending.gov.

control, or influence; agencies told us this is a challenge in vetting applicants.

Government-wide Requirements for Awarding and Monitoring R&D Awards Exist

Government-wide requirements for awarding R&D awards specific to foreign entities of concern include both established and newer requirements. For example, agencies are generally required to vet potential award recipients against the SAM.gov exclusions. These exclusions include entities on the FTO and SDN lists that were established decades ago.²⁸ More recently, OSTP issued government-wide guidance limiting science and technology cooperation with Russian government-affiliated research institutions. In addition, a recent statutory restriction prohibits procurement of telecommunications and surveillance services and equipment from certain Chinese telecommunications companies. Table 4 details key government requirements and guidance for R&D awards that involve foreign entities of concern.

²⁸Some officials stated they also check SAM.gov exclusion information to determine whether a principal investigator/project director and the principal business official included in proposals is excluded. As discussed earlier in this report, the SAM.gov exclusion information includes, among others, entities that are designated with “prohibition/restriction” where the scope of the exclusion from receiving federal funds is determined by the specific program or law under which the entity has been prohibited or restricted. Entities on the FTO and SDN lists are among those included in the SAM.gov exclusions list and identified as “prohibition/restriction.”

Table 4: Key Government-wide Requirements and Guidance for Research and Development Awards that Involve Foreign Entities of Concern

<p>Grants and contracts</p>	<p>System for Award Management (SAM.gov) Exclusions List. Federal agencies are generally required to check the exclusions list on SAM.gov—a government-wide website—for potential restrictions or exclusions prior to awarding grants and contracts. The exclusions list includes some entities defined as a foreign entity of concern, such as those entities on the Foreign Terrorist Organizations (FTO) and Specially Designated Nationals and Blocked Persons (SDN) lists. (See 2 C.F.R. §§ 180.425, 180.430, 200.206; FAR § 9.405(e).) Federal guidance and regulations generally prohibit or restrict federal agencies from awarding grants and contracts to parties included on the exclusions list in accordance with the scope of the exclusion or restriction (2. CFR § 180.400, FAR 9.405(a)-(c)).^a</p> <p>41 U.S.C. § 2313 – Agencies are generally required to review information that is contained in the SAM.gov Responsibility/Qualifications data. Agencies review information which, among other things, should indicate if a prospective contractor was on certain lists maintained by Treasury’s Office of Foreign Assets Control (OFAC), including the SDN list or persons sanctioned under the Iran Sanctions Act of 1996 that do not appear on the SDN list.^b</p> <p>Foreign Terrorist Organizations. It is unlawful for a person in the United States to knowingly provide “material support or resources,” such as funding or expert scientific or technical training, to a designated FTO. Entities on the FTO list are included in the definition of foreign entities of concern. According to State and OFAC, these prohibitions also apply to federal agencies.</p> <p>Specially Designated Nationals and Blocked Persons. SDN assets are blocked, and U.S. persons are generally prohibited from dealing with them. According to OFAC, these prohibitions also apply to federal agencies.</p> <p>Chinese Telecommunication Equipment Prohibition. Agencies and award recipients are prohibited from procuring or obtaining certain telecommunications and video surveillance services and equipment that are produced by specified Chinese telecommunications companies. (See 2 C.F.R. § 200.216 for award recipients and FAR subpart 4.21 for agency and awardees.)</p> <p>Russia. In June 2022, the Office of Science and Technology Policy issued guidance stating that the federal government was limiting its bilateral science and technology research cooperation with all Russian government-affiliated research institutions (including various international projects and initiatives), except where required by obligations under international law.</p>
<p>Contracts only</p>	<p>Prohibited Sources. FAR subpart 25.7 addresses foreign acquisition prohibited sources and includes prohibitions of most awards to entities included on sanctions lists administered by OFAC, including the SDN list, and most transactions involving Iran.^c This subpart also generally prohibits an agency from entering into a contract for the procurement of goods or services with a person that exports certain sensitive technology to Iran (FAR subpart 25.703-3).</p> <p>Certification Regarding Responsibility. For awards above the simplified acquisition threshold, prospective contractors must certify that, among other things, they are not currently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any federal agency (FAR §§ 9.104, 52.209-5). Contractors are required to certify prior to receiving federal research and development funding.</p>

Source: GAO analysis of agency information, federal laws and regulations. | GAO-24-106227

Note: This table shows government-wide requirements and guidance based on our review of agency documents and interviews. This is not a comprehensive list of all government-wide requirements and guidance which may involve such entities.

^aIssued by the Office of Management and Budget, 2 C.F.R. subtitle A, which includes 2 C.F.R. parts 25, 180, and 200, contains guidance to federal agencies on government-wide policies and procedures for the award and administration of grants and agreements. 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.

^bRequirements in 41 U.S.C. § 2313 apply to any person awarded a federal agency contract or grant in excess of \$500,000 and any person awarded such other category or categories of federal agency contract as the FAR may provide, if any of the information included in section 2313(c) exists with

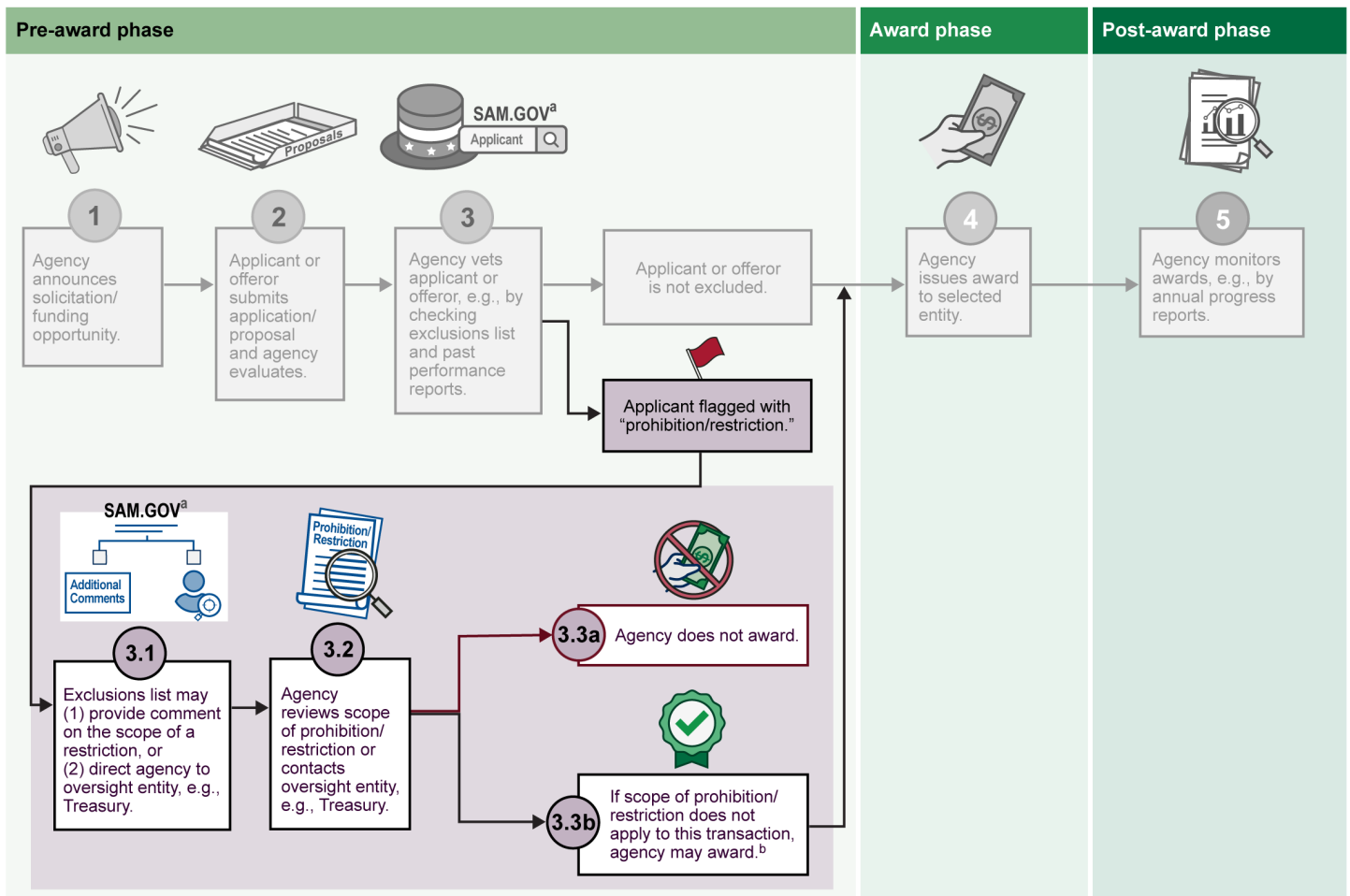
respect to the person. Information in section 2313(c) includes if the entity is on the SDN list and the list of persons sanctioned under the Iran Sanctions Act of 1996 that do not appear on the SDN list (commonly known as the Non-SDN Iranian Sanctions Act list). 41 U.S.C. §§ 2313(b) and (c)(8). While the FAR and part 2 of the CFR refer to the Federal Awardee Performance Integrity and Performance Information System (FAPIS) as the repository for this information, according to officials in the General Services Administration FAPIS was decommissioned in 2022 with this information moving to SAM.gov at that time; however, the regulations and guidance have not yet been updated to reflect this change.

²⁹While part 2 of the C.F.R. does not include a similar specific section addressing prohibited sources, these prohibitions may also apply to grants and cooperative agreements.

Based on our review, we also found that federal award requirements are generally the same for all entities regardless of whether the entity is domestic or foreign.²⁹ For example, as illustrated by figure 3, agencies follow the same process when an entity, domestic or foreign, appears on the SAM.gov exclusions list and is prohibited or restricted from receiving federal funds due to being designated with a “prohibition/restriction” flag. Entities designated with prohibition/restriction include entities on various sanctions lists administered by OFAC, including the SDN list. The scope of the prohibition or restriction on receiving federal funds is determined in accordance with the specific program or law under which the entity is prohibited or restricted.

²⁹While most government-wide requirements do not distinguish between domestic and foreign entities, 2 C.F.R. §200.101(2) states that federal awarding agencies may apply subparts A through E of 2 C.F.R. part 200 to foreign public entities and foreign organizations except where the agency determines that such application would be inconsistent with international responsibilities of the United States or the statutes or regulations of a foreign government. Most agencies told us that they apply 2 C.F.R. part 200 to foreign entities.

Figure 3: Generalized Steps Agencies Take to Address Prohibited or Restricted Foreign Entities



Source: GAO analysis of agency information, regulations and guidance; GAO (icons). | GAO-24-106227

^aThe System for Award Management (SAM.gov) is a U.S. government website that includes entity registrations for those entities that would like to do business with the government, including those entities seeking to apply for federal grants or loans or propose on a federal contract. Among other things, SAM.gov also contains data on entities prohibited or restricted from receiving federal funds. According to some agency officials, they can also vet applicants using agency-specific or other internal government data sources to determine suitability. In such internal sources, other identifiable information may be available on the applicant.

^bUnder certain circumstances, an agency may also seek a license to provide federal funds to an entity subject to Treasury's Office of Foreign Assets Control sanctions that would otherwise be prohibited.

For each entity that is flagged as prohibition/restriction in SAM.gov, the information will either (1) provide the scope of the prohibition/restriction or (2) refer the awarding official to the oversight entity for the exclusion. According to OFAC officials, OFAC is responsible for ensuring that any changes (i.e., addition of new or deletion of existing entities) to entities on the SDN list, among other sanctions lists, that result in a restriction or prohibition from receiving federal funds are reflected in the exclusions list. Agency officials use exclusions information in SAM.gov in determining whether an entity is prohibited from receiving federal funds for the proposed award.³⁰

All federal R&D awards have monitoring requirements—often annual reporting requirements—but none are specific to awards to foreign entities of concern. For example, recipients of grant funding are required to submit progress reports and track financial records. For contracts, awardees are required to provide scientific and technical reports and any other information required by reporting requirements in the contract work statement. These reports may include information such as research data, changes to work, plans for budgets, and accomplishments. For contracts, awardees are required to annually submit representations and certifications including ownership or control of the entity, which could alert an agency if an awardee becomes owned by a foreign entity of concern. While there are no government-wide monitoring requirements specific to foreign entities of concern, agencies may choose to enhance their monitoring efforts by, for example, conducting additional site visits or adding requirements for awardees to report more frequently.³¹ Officials from NIH told us they may apply specific award conditions such as additional reporting requirements to require correction of financial or administrative deficiencies identified during the pre-award risk review or at any point during the period of performance.

³⁰According to Treasury, under certain circumstances federal awarding agencies can apply for special licenses from the Office of Foreign Assets Controls (OFAC) to make awards that otherwise would be prohibited by certain sanctions.

³¹2 C.F.R. § 200.206(b)(1), 2 CFR 200.208, FAR 35.005, FAR 52.246-9.

Some Agencies Take Additional Steps to Address Potential Risks in Providing R&D Funding to Foreign Entities of Concern

Almost all the agencies we interviewed—DOD, NASA, NIH, and NSF—reported that they have additional agency-specific requirements for awarding R&D funding when foreign entities of concern are involved. Most of these requirements either prohibit or restrict R&D funding to Chinese entities. For example, NASA is prohibited from providing funding for bilateral collaboration, participation, or coordination with China or Chinese-owned entities. DOD requires DOD contractors to disclose if any part of its workforce or facilities would be in China on certain acquisitions.

In addition, agencies have implemented their own requirements, guidance, and restrictions on awarding funds to entities in China and Russia in response to changes in the research security landscape (see table 5).

Table 5 provides information on agency-specific requirements when foreign entities of concern are or may be identified during the award vetting process.

Table 5: Key Agency-Specific Requirements for Awarding R&D Funding to Foreign Entities of Concern

Department of Defense (DOD)	<p>Restriction on the acquisition of certain magnets, tantalum, and tungsten from North Korea, China, Russia, and Iran. Restricts contractors from purchasing any of these materials from these countries. (DFARS clause 252.225-7052).</p> <p>Restriction on the acquisition of personal protective equipment and certain other items from non-allied foreign nations. Prohibits contractors from providing specified items from North Korea, China, Russia, and Iran. This clause is generally required in solicitations and contracts for acquisition of these items, including for commercial items, that are for use in the U.S and have an estimated value of greater than \$150,000. (DFARS Clause 252.225-7061).</p> <p>Confucius Institutes. Beginning in FY 2024, unless a waiver is granted, no U.S. institution of higher education that hosts a Confucius Institute may receive DOD funding. Confucius Institutes are cultural institutes directly or indirectly funded by the government of the People’s Republic of China.</p> <p>Disclosure of ownership or control by the government of a country that is a state sponsor of terrorism as determined by the Secretary of State under Section 1754(c)(1)(A)(i) of the Export Control Reform Act of 2018 (currently determined to include Iran and North Korea). According to DOD officials, this provision is required in solicitations, including for commercial products and commercial services that are expected to result in a contract valued at \$150,000 or more. Award is prohibited under this provision, unless a waiver is granted. (DFARS 252.225-7050).</p> <p>Disclosure of employment in the People’s Republic of China is required for non-commercial contracts with a value of over \$5 million unless a waiver is granted. (DFARS Provision 252.225-7057, and DFARS Clause 252.225-7058).</p>
Department of Energy (DOE)	<p>DOE officials stated the agency does not provide any funding to foreign entities of concern identified during the award vetting process.</p>
National Aeronautics and Space Administration (NASA)	<p>Prohibition on funding (grants and contracts) that involves the bilateral participation, collaboration, or coordination with China or any Chinese entity. (Pub. L. No. 112-10, § 1340(a), Pub. L. No. 112-55, § 539, implemented through the NASA Grants and Cooperative Agreement Manual and NASA Procurement Class Deviation 12-01(A)).</p>
National Institutes of Health (NIH)	<p>Per NIH guidance, the agency obtains a U.S. State Department review of any potential award involving a “foreign component,” including foreign entities of concern, in which any significant scientific work or segment of a project will be conducted outside of the United States, either by the recipient or by a researcher employed by a foreign organization, whether or not grant funds are expended. The review is obtained through NIH’s Foreign Award and Component Tracking System (FACTS). In interviews, NIH officials noted that the State Department review includes various criteria, such as whether potential awards include entities in “politically sensitive areas” and whether the award could lead to “negative foreign policy implications” for the United States, among other things. If the State Department does not review an award within 14 days, a request is considered automatically approved except for awards to China or India; those awards must undergo State Department review.</p>
National Science Foundation (NSF)	<p>According to NSF officials, the agency obtains State Department review of all prime awards to foreign entities to ensure the funding does not raise foreign policy concerns. State Department officials we interviewed said they assess multiple risks during their review of NSF awards, including foreign entities on sanctions lists, such as the FTO and SDN lists, as well as identifying ties to entities in Russia and China.</p>

Source: GAO analysis of agency information. | GAO-24-106227

In addition, some agencies we interviewed also told us they are taking or planning to take additional steps to mitigate their own research security risks from foreign entities, including those foreign entities of concern (see Table 6).³²

Table 6: Recent Agency-Specific Actions to Mitigate Risk in Awarding Research & Development Funding to Foreign Entities of Concern

Department of Defense (DOD)	In June 2023, DOD issued a new policy that requires DOD components to assess the risk of all fundamental research projects being considered for funding. The policy defines risk factors to be considered, such as whether the entity is actively receiving funding from a foreign country of concern. The policy also describes conditions under which funding is prohibited or where mitigation measures are required or recommended prior to issuing funding. Examples of mitigation measures include increasing the frequency of project reporting and removing individuals it deems research security risks. As part of this effort, DOD developed a risk matrix to guide program managers in assessing risks.
Department of Energy (DOE)	DOE officials said the agency is taking steps to evaluate research and development (R&D) awards for potential research security risks, including those posed by foreign entities of concern. For example, officials from one DOE program office explained that proposed R&D awards from their office are evaluated by DOE's Office of Counterintelligence to identify whether personnel have connections to China, Russia, Iran, or North Korea. Officials from two other DOE program offices told us that they are considering new disclosure requirements to improve assessment of foreign ownership and control from countries of concern. According to DOE officials, in March 2023, DOE established the Office of Research, Technology, and Economic Security (RTES), which is responsible for enhancing DOE's existing vetting processes by working in coordination with program offices. Its purpose is to ensure that risks of undue foreign influence are considered early in the competitive process and throughout the life of a DOE supported project. This enhanced process integrates RTES reviews at three major points: 1) before the solicitation is released (to ensure the appropriate RTES provisions are included); 2) review of applications before selection; and 3) during the project implementation. The review considers potential risks associated with foreign ownership, control, or influence; improper influence of an individual, entity, or project; conflicts of interest/conflicts of commitment; intellectual property theft; supply chain; procurement; and physical threats.
National Aeronautics and Space Administration (NASA)	NASA officials said they review all awards with foreign entities, including those of concern, in light of broader U.S. national security and foreign policy priorities. NASA officials said they do not typically fund foreign entities to conduct research.
National Institutes of Health (NIH)	In September 2023, NIH updated its policy on foreign award reporting in response to a January 2023 report by the Health and Human Services Office of Inspector General. Under this update, NIH instituted a provision effective as of January 1, 2024, to require foreign subrecipients to provide copies of all lab notebooks, data, and documentation that supports the research outcomes described in the progress reports. NIH officials stated that the fiscal year 2024 Grants Policy Statement included in all NIH grant awards will include this updated requirement.

³²We asked the R&D federal awarding agencies in our review about any specific policies or guidance on monitoring subcontractors or subrecipients and subcontracts or subawards involving foreign entities of concern. The agencies stated that they have a relationship with a prime awardee and no direct relationship with a subcontractor or subrecipient. Awarding agencies stated that if a foreign subcontractor or subrecipient is identified in a proposal or application, the agency does also vet that potential subcontractor or subrecipient.

National Science Foundation (NSF)

NSF officials stated they are taking steps to evaluate all R&D awards for potential research security issues, including those posed by foreign entities of concern. For example, NSF said they have established an analytics capability to analyze information disclosed by the applicants to identify potential research security concerns, such as undisclosed funding from a foreign entity of concern. But NSF officials stated that the agency rarely provides direct funding to foreign entities.

Source: GAO analysis of agency documents and interviews. | GAO-24-106227

National Science Foundation (NSF) Efforts to Address Research Security Risks

NSF is leading several interagency efforts, along with DOD, DOE, and NASA, to address research security risks, including those posed by foreign entities of concern. For example, NSF recently announced the establishment of a Research Security and Integrity Information Sharing Analysis Organization (known as "SECURE") that will share best practices and information on security risks.

The agency also announced in July 2023 a new program that will fund projects which assess strategies for identifying and mitigating research security risks. Such strategies could include the development of best practices and guidance.

Source: GAO analysis of agency information. | GAO-24-106227

To complement its new policy issued in June 2023, DOD recently developed a risk matrix as a guide to assist program managers and DOD components in reviewing fundamental research applications and proposals for potential conflicts of interest and conflicts of commitment. DOD officials noted that this matrix requires, recommends, or suggest that agency officials add risk mitigation measures, such as increased frequency of project reporting, when an individual on the award discloses receiving funds from China, Iran, North Korea, or Russia (see appendix III). Similarly, NSF officials told us they are also planning efforts to address research security risks posed by foreign entities of concern (see sidebar).

Selected Agencies Reported Facing Challenges with Determining Foreign Ownership

Officials from the R&D funding agencies we reviewed noted challenges in identifying if an entity might be "owned by, controlled by, or subject to the jurisdiction or direction of" China, Russia, Iran, or North Korea.³³ Two agencies told us they use a combination of intelligence information and commercial business analytics tools in attempts to identify foreign

³³Agencies generally consider "owned by, controlled by, or subject to the jurisdiction or direction of" as part of their overall review of entities' foreign ownership, control, or influence—referred to in this report as "foreign ownership." A U.S. company is considered under foreign ownership, control, or influence whenever a foreign interest has the power, direct or indirect, whether or not exercised, and whether or not exercisable through the ownership of the U.S. company's securities, by contractual arrangements or other means, to direct or decide matters affecting the management or operations of that company in a manner which may result in unauthorized access to classified information or may affect adversely the performance of classified contracts. DoD 5220.22-M National Industrial Security Program Operating Manual (NISPOM) January 1995, Department of Defense - Department of Energy - Nuclear Regulatory Commission - Central Intelligence Agency, U.S. Government Printing Office ISBN 0-16-045560-X.

Recent Commerce Definition of Foreign Ownership

In September 2023, the Department of Commerce issued a rule which includes a definition of entities “owned by, controlled by, or subject to the jurisdiction or direction of a covered nation (as defined in 10 U.S.C. 4872(d))”—i.e., Russia, China, North Korea, and Iran. Officials at Commerce told us this definition applies only to the program subject to the rule. The rule defines these entities as:

1. The person is: (A) a citizen, national, or resident of a covered nation and (B) located in a covered nation;
2. The person is organized under the laws of or has its principal place of business in a covered nation;
3. 25 percent or more of the person’s outstanding voting interest, board seats, or equity interest is held directly or indirectly by the government of a covered nation; or
4. 25 percent or more of the person’s outstanding voting interest, board seats, or equity interest is held directly or indirectly by any combination of the persons as described above.

Preventing the Improper Use of CHIPS Act Funding, 88 Fed. Reg. 65600-65619 (September 25, 2023) (to be codified in 15 C.F.R. pt. 231).

Source: Agency information. | GAO-24-106227

ownership during vetting of entities.³⁴ However, these efforts are agency-specific and not shared across the agencies we reviewed. In September 2023 the Commerce Department further defined “owned by, controlled by, or subject to the jurisdiction or direction” of a covered nation in its final rule applicable to its semiconductor incentives program contained in the CHIPS Act of 2022 (see sidebar).

Other agencies we reviewed stated that additional guidance could be beneficial for determining foreign ownership when vetting potential R&D funding awardees and for identifying risk mitigation options. For example, officials at DOE told us that guidance could (1) define the extent of ownership for when an entity is considered foreign owned (e.g., 25 percent or more) and (2) identify information potential R&D awardees should disclose on foreign ownership, control, or influence. Officials at NSF stated that they would benefit from guidance on the potential for foreign influence when a domestic awardee (e.g., a U.S. university) has a foreign-based campus (e.g., in China). OSTP officials told us that they are addressing such issues on a case-by-case basis at this time, but OSTP officials also stated that they are aware that federal awarding agencies face challenges in identifying and mitigating such risks.

The National Security Presidential Memorandum 33 (NSPM-33) issued in January 2021 details the role of OSTP, in coordination with the Director of National Intelligence and other agency heads as appropriate, to enhance the R&D enterprise’s—including R&D agencies—awareness of research security risks and policies and measures for mitigating these risks. In January 2022, OSTP issued broad guidance implementing NSPM-33 addressing foreign risks to government supported research security.³⁵

³⁴Pursuant to the Corporate Transparency Act (CTA), starting in January 2024 certain entities incorporated or registered in the United States will be required to report to Treasury certain identifying information on their beneficial owners—the individuals who directly or indirectly own or control the company. However, strict confidentiality requirements on the information imposed by the CTA restricts certain federal agencies’ access to the information. Only those agencies that are engaged in national security, intelligence, or law enforcement activities, federal functional regulators, or the Department of the Treasury—all subject to certain protocols—may access the information. Officials in Treasury’s Financial Crimes Enforcement Network told us they are currently engaged in rulemaking regarding access to beneficial ownership information.

³⁵NSPM-33 directs actions to strengthen the protections of U.S. government supported R&D against foreign government interference and exploitation. *National Security Personnel Memorandum 33, Presidential Memorandum on United States Government-Supported Research and Development National Security Policy*, Jan. 2021.

This guidance does not address foreign ownership, control, or influence for potential R&D awardees. More recently, the Research and Development, Competition, and Innovation Act requires OSTP to, among other things, develop or revise a national strategy to improve U.S.

science, technology, research, and innovation competitiveness to support the national security strategy.³⁶ This strategy is to include a number of areas as practicable, including specific plans to safeguard research and technology funded, as appropriate, in whole or in part, by the federal government—including technologies critical to national security—from theft by foreign entities of concern. However, in September 2023 OSTP officials told us they plan to address issues related to foreign entities of concern broadly and do not anticipate addressing foreign ownership, control, and influence directly in the forthcoming strategy.

One key role of OSTP is to serve as a sounding board and conduit of information for agency officials seeking to understand, clarify, and shape science and technology-related policy objectives and priorities. Another is to help agencies coordinate and integrate their science and technology strategies and activities. As the lead for interagency coordination on science and technology policies, OSTP can help agencies collaborate and share information on identifying and addressing complex challenges with foreign ownership.

Leading practices for interagency collaboration note that a lead agency can provide direction and coordination on complex issues especially when the lead agency has ties to a center of influence, such as to the President or Congress.³⁷ Additionally, Standards for Internal Control state that management should identify, analyze, and respond to risks—including risk associated with changes in the external environment—related to achieving the defined objectives.³⁸ For example, evolving complex corporate structures for potential R&D awardees, including risks

³⁶Research and Development, Competition, and Innovation Act, Pub. L. No. 117-167, div. B, tit. VI, sub. C, §10612(b)-(c) 136 Stat. 1636-1640 (2022). National security strategy refers to the national security strategy required under section 108 of the National Security Act of 1947 (50 U.S.C. §3043). OSTP officials told us that they anticipate issuing this strategy after December 31, 2024.

³⁷GAO, *Government Performance Management: Leading Practices to Enhance Interagency Collaboration and Address Crosscutting Challenges*, [GAO-23-105520](#) (Washington, D.C.: May 24, 2023).

³⁸GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014).

from often unknown foreign ownership, could put federally funded research and development results at risk for foreign influence or theft. Bringing together agencies to share information on such complex matters could better position agencies to more fully safeguard R&D funds. Further, such information sharing could help federal agencies effectively vet foreign entities of concern and identify potential risks more consistently and effectively across the federal government.

Conclusions

OSTP has an important role to play in enhancing agencies' awareness of and collaboration on complex risks and challenges with research security such as identifying and addressing foreign ownership when making decisions about funding R&D. While OSTP has issued broad guidance on addressing foreign risks to federal research security, the guidance does not address foreign ownership. Additionally, an upcoming strategic document also will not specifically address this issue. We found two agencies that have used analytical tools in attempts to identify foreign ownership during vetting of entities; however, these efforts are agency-specific and not consistent across the agencies we reviewed. By bringing together federal awarding agencies to share information on identifying foreign ownership, OSTP could help facilitate a more consistent and effective approach to safeguarding U.S. R&D from foreign entities of concern.

Recommendation for Executive Action

As part of OSTP's ongoing efforts to address research security risks, the Director of OSTP, in coordination with federal R&D awarding agencies, should facilitate the sharing of information on identifying foreign ownership, control, or influence. This could occur, for example, in conjunction with OSTP's existing efforts to support the national security strategy or its existing role to enhance the federal research agencies' awareness of research security risks and policies under NSPM-33. (Recommendation 1)

Agency Comments

We provided a draft of this report to Commerce, DOD, DOE, DOJ, HHS, NASA, NSF, OSTP, GSA, State, and Treasury for review and comment. In an email response on December 21, 2023, OSTP officials stated they concur with our recommendation. Commerce, DOD, DOJ, HHS, NASA, NSF, and Treasury provided technical comments that we incorporated as appropriate. Officials from State, GSA, and DOE 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 Commerce, Defense, Energy, Health and Human Services, State, and Treasury; the Administrators of NASA and

the GSA; the Attorney General; the Director of the NSF; the Director of the White House Office of Science and Technology Policy; and other interested parties. In addition, the report is available at no charge on the GAO website at <http://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 Maria Cantwell
Chair
The Honorable Ted Cruz
Ranking Member
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Benjamin Cardin
Chairman
The Honorable James E. Risch
Ranking Member
Committee on Foreign Relations
United States Senate

The Honorable Bernard Sanders
Chairman
The Honorable Bill Cassidy
Ranking Member
Committee on Health, Education, Labor, and Pensions
United States Senate

The Honorable Cathy McMorris Rodgers
Chair
The Honorable Frank Pallone, Jr.
Ranking Member
Committee on Energy and Commerce
House of Representatives

The Honorable Michael McCaul
Chairman
The Honorable Gregory Meeks
Ranking Member
Committee on Foreign Affairs
House of Representatives

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

Appendix I: Objectives, Scope, and Methodology

The Research and Development, Competition, and Innovation Act (the Act) passed in August 2022 includes provisions for GAO to report on research funding to foreign entities of concern and requirements for awarding, tracking, and monitoring of such funding.¹ This report: (1) describes challenges faced in identifying research and development (R&D) funds made available to foreign entities of concern and how much funding was made to foreign entities of concern in fiscal year (FY) 2017 through FY 2022 and (2) examines the requirements for awarding and monitoring² of such funding. We used FY 2017 through FY 2022 to cover the review time frame required by the Act.

For the first objective, we interviewed agency officials at the Office of Science and Technology Policy on the guidance they have issued and are developing for federal agencies on research security issues. We also interviewed officials at the Departments of State, Commerce, Justice, and the Treasury to gather information on their processes for identifying, classifying, and providing public information on foreign entities of concern as defined by the Act, including availability or reliability of identifying information such as address, date of birth, or passport number. We also interviewed officials at the General Services Administration (GSA) to identify their process for including information about foreign entities of concern in the System for Award Management (SAM.gov) and how SAM.gov registrant information links to USAspending.gov. We queried officials at each of these agencies on their knowledge of federal awarding agencies' access to quality information about foreign entities of concern. We then obtained and analyzed information on the foreign entities and on federal R&D award funding data, as follows:

1. *Amount of funding to foreign entities—individuals or organizations—listed on the Foreign Terrorist Organization (FTO) list and the Specially Designated Nationals and Blocked Persons (SDN) list.*
- **Foreign Terrorist Organization list:** We collected publicly available information on entities designated as a foreign terrorist organization by the Secretary of State under section 219(a) of the Immigration and Nationality Act (8 U.S.C. §1189(a)) and maintained by the Department

¹Research and Development, Competition, and Innovation Act, Pub. L. No. 117-167, div. B, tit. VI, sub. D, §10635, 136 Stat. 1366, 1668-69 (2022).

²For the purposes of this report, “monitoring” includes both monitoring and tracking of funds.

of the State on the agency website.³ The website lists 75 organizations designated as FTOs from FY 2017 through FY 2022.

- **Specially Designated Nationals.** We reviewed publicly available information on the list of specially designated nationals and blocked persons maintained by the Office of Foreign Assets Control (OFAC) of the Department of the Treasury (commonly known as the SDN list) from the agency website. In August 2023 we downloaded a machine-readable version of the SDN from OFAC’s website.⁴ We then engaged in a parsing and cleaning process intended to return a list of searchable entity names, which would maximize the probability of identifying those entities in an arbitrary third-party data system.

For individuals on the SDN list, we used both surname-given name and given name-surname order to build separate search strings. We also built search strings using OFAC-provided “also known as” (AKA) identities. For other types of entities on the SDN list, we removed excess punctuation and various corporate substrings (e.g., “Corp” or “Inc”). For all SDN list entities, we omitted OFAC-identified “vessels” and search strings with character lengths of less than 7. We also omitted a small number of selected entities that produced very large numbers of clearly irrelevant results when searched in USAspending.gov.

- **Foreign Entities Convicted under Specified Federal Laws.** We also collected information on entities—individuals and organizations—convicted under the laws identified in the Act from the Department of Justice (DOJ) from FY 2017 through FY 2022.⁵ DOJ officials stated that the total number of convictions under these statutes (518) included some “sealed” cases for which providing case-specific information would violate a court order. Therefore, the total number of cases for which DOJ provided information to GAO was 483 (excluding sealed cases). We then excluded entities identified in DOJ data as U.S. citizens and used the data on the remaining entities in our data analysis as described below.

³<https://www.state.gov/foreign-terrorist-organizations/>.

⁴<https://ofac.treasury.gov/specially-designated-nationals-list-data-formats-data-schemas>.

⁵We met with DOJ officials to ascertain the extent to which the department has identified and maintains an available data set of entities “alleged by the Attorney General to have been involved in activities for which a conviction was obtained” under the laws specified in the Act. DOJ officials told us that while DOJ may have information on such entities, it is not compiled in a usable and shareable format. Therefore, we looked at entities convicted under these specified laws.

We searched USAspending.gov to identify whether R&D funds were provided to these entities. Specifically, we searched for matches—in the names of entities on the lists (such as the SDN list) and addresses—with similar information for award recipients in USAspending.gov to determine whether any foreign entities of concern received R&D funds during the 6-year period.

- For the SDN entities, we ran the resulting (approximately 41,000) text strings through the USAspending.gov application programming interface (API) to obtain unique recipient identifiers. We then used those identifiers to find matching SDN list entities, resulting in 8,125 recorded matches. We also used the returned data to programmatically assign confidence levels to matches.

We applied the same programmatic cleaning to the USAspending.gov name strings as we had previously applied to the SDN search strings. We identified 'high' confidence levels based on whether there were exact matches across the edited SDN list search strings and the edited USAspending.gov recipient name strings. We applied 'medium' confidence levels based on whether, accounting for spaces and other delimiters, the SDN list search strings appeared as exact substrings of the USAspending.gov name strings.⁶

Based on this analysis, we identified 1,084 relatively high-confidence name matches. We conducted manual review and analysis to determine if the addresses of the USAspending.gov recipients matched available address information for the SDN entities and found one likely match. We queried USAspending.gov on that entity and found no agency-reported funding within our allotted time frame from FY 2017 through FY 2022.

- We conducted a similar process for the 483 convicted entities provided by DOJ. We eliminated those with a citizenship listed as "United States" to focus on foreign entities. To the extent we were able to locate addresses for these entities through the Public Access to Court Electronic Records website, we used that information to determine if it matched the address information for the award recipient in USAspending.gov with the possible name match. We found no matches.

⁶For example, if an SDN list search string was "ABC Corp" and the USAspending.gov name string was "ABC Corp Inc", it would be assigned a medium confidence. However, if the USAspending.gov name string was "ABC Corporation Inc", it would be assigned a low confidence because the 2nd space-delimited word did not match exactly to that of the SDN list equivalent.

2. *Amount of funding reported by U.S agencies through prime awards to entities located in China, Iran, North Korea, and Russia.*

Due to the difficulty of determining whether an entity is “owned by, controlled by, or under the jurisdiction of” China, Iran, North Korea and Russia, we assessed USAspending.gov data for award recipients located in these countries. We examined the amount, type, and purpose of funds obligated⁷ by U.S. agencies to entities located in China (including Hong Kong), Iran, North Korea and Russia referred to as covered nations⁸ by analyzing prime award data⁹ from USAspending.gov.¹⁰ Our scope covered prime awards (grants, cooperative agreements, and contracts) made directly to an entity in a covered nation from FY 2017 through FY 2022.¹¹ GAO has reported on challenges and limitations with the quality of USAspending.gov subaward data, and we did not analyze subaward data for entities located in the four countries.¹²

⁷An obligation is a definite commitment that creates a legal liability of the government for the payment of goods and services ordered or received, or a legal duty on the part of the United States that could mature into a legal liability by virtue of actions on the part of the other party, beyond the control of the United States. Payment may be made immediately or in the future. For amounts identified, in USAspending.gov we used the “federal action obligation” field to calculate amounts obligated to these awards between FY 2017 and FY 2022.

⁸10 U.S.C. § 4872 defines “covered nations” as the Democratic People’s Republic of North Korea, the People’s Republic of China, the Russian Federation, and the Islamic Republic of Iran.

⁹For the purposes of this report, we define a prime award as contract, grant, or cooperative agreement that the U.S. government awards directly to a non-federal entity for the purpose of carrying out a federal program.

¹⁰Agencies are required to report certain information about federal awards that equal or exceed the micro-purchase threshold which is then made available to the public on a single public-facing, searchable website. The USAspending.gov website is the official public source of spending data submitted by U.S. agencies. Federal Funding Accountability and Transparency Act of 2006, 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, FAR subparts 4.6 and 4.14. Department of the Treasury, <https://www.usaspending.gov>, accessed September 8 and 23, 2023.

¹¹We analyzed USAspending.gov data as of September 8, 2023, for China and Russia and as of September 23, 2023, for Iran and North Korea. We included 6 fiscal years from 2017 through 2022 in the scope of this review.

¹²GAO, *Federal Spending Transparency: Opportunities to Improve USAspending.gov Data*, [GAO-24-106214](https://www.gao.gov/products/GAO-24-106214) (Washington, D.C.: Nov. 7, 2023).

We analyzed the prime award data in USAspending.gov by agency, federal action obligation amount, fiscal year, award recipient, recipient location, sector code and description, and prime base award description.¹³ In some instances there were data missing in the “award type” field; we reviewed corresponding data in the “award type code” data field for the award to populate missing data in the “award type” field. We conducted logical tests on the data for missing data or outliers. We provided our analysis to the relevant agencies to verify its accuracy, the agencies provided corrections where necessary, and we incorporated these corrections into our final analysis. We interviewed agency officials as necessary to understand these corrections, which officials attributed to accuracy of either “non-R&D activities” that were not reflected in the USAspending.gov data or miscoding a cooperative agreement as a grant. We determined that the USAspending.gov data, after incorporating the agency corrections, were sufficiently reliable for the purposes of summarizing obligation amounts through prime awards.

For the second objective, we focused on the five agencies that—according to an April 2022 report by the National Science Foundation (NSF)—obligated the largest amount of R&D funding in FY 2020.¹⁴ FY 2020 data were the most recent available when we initiated this review. The five agencies are: the NSF; the Departments of Defense (DOD), Energy (DOE), and primarily the National Institutes of Health (NIH) within Health and Human Services (HHS); and the National Aeronautics and Space Administration (NASA). We collected agency policies and other documents and interviewed agency officials on requirements for awarding and monitoring federal funds to foreign entities of concern. To determine whether a specific requirement was related to a foreign entity of concern, we analyzed each requirement reported by each funding agency to identify whether the requirement specifically referenced one or more of the entities in our mandate, such as a foreign terrorist organization, or one of the four covered nations (e.g., China), or if foreign entities of concern were specifically covered by the requirement.

¹³To identify the sector code, we used the North American Industry Classification System (NAICS) manual for 2022—the standard system for classifying contract codes—and the Annual Publication of Assistance Listings for 2022 (previously called the Catalog of Federal Domestic Assistance and still commonly referred to as CFDA codes). Specifically, we searched for terms including “research,” “development,” and “science,” to identify an award as an R&D award.

¹⁴National Science Foundation, National Center for Science and Engineering Statistics, *Federal Funds for Research and Development* (Alexandria, Va.: Apr. 28, 2022).

We also conducted a key word search of laws, federal acquisition regulations, and government-wide guidance for grants and agreements for additional government-wide requirements for awarding and monitoring specific to foreign entities of concern. To do this, we conducted key word searches in searches in the Federal Acquisition Regulation and subtitle A of chapter 2 of the Code of Federal Regulations, and we searched a legal database based on the definition of foreign entity of concern, such as searching for terms like “foreign terrorist organization.”

We analyzed identified requirements to determine whether each requirement applied to all federal R&D funding agencies or to a specific R&D funding agency. We also analyzed policy documents from the five R&D funding agencies in our scope to determine what, if any, processes each agency has in place for reviewing R&D awards with foreign entities. We interviewed agency officials to obtain greater insight into their processes and policies, including forthcoming changes to them. We also asked about additional steps, if any, they take to vet entities for awards involving foreign entities of concern.

We conducted this performance audit from August 2022 to January 2024 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 any findings and conclusions based on our audit objectives.

Appendix II: Research and Development (R&D) Federal Funding Obligated to Entities Located in China and Russia

As shown in Table 7, multiple U.S. federal agencies obligated funds for R&D awards made directly from a federal agency to entities located in China and Russia from fiscal years 2017 through 2022. These awards included grants, cooperative agreements, and contracts.

Table 7: Obligations Funded in Fiscal Years 2017-2022 for Research & Development Awards Made Directly to Entities Located in China^a and Russia

Amount in thousands of dollars

Recipient location Country	Awarding agency	Recipient	Award type	Award description	Obligations in fiscal years 2017-2022
China	Centers for Disease Control and Prevention	Chinese Center for Disease Control and Prevention	Cooperative agreement	Conducting public health research in China	1,197
China	Centers for Disease Control and Prevention	Chinese Center for Disease Control and Prevention	Cooperative agreement	Public health epidemiology of influenza virus infection and control in China	3,539
China	Centers for Disease Control and Prevention	University of Hong Kong	Cooperative agreement	Research on the epidemiology, vaccine effectiveness, and treatment of influenza and other respiratory viruses in Southeast Asia and the western Pacific	9,400
China	Department of Agriculture	Wuhan Botanical Garden, Chinese Academy of Sciences	Cooperative agreement	Biological control of Japanese stiltgrass	34
China	Department of Agriculture	Nanjing Agricultural University	Cooperative agreement	Evaluation of the potential and host-specificity testing of pathogens as bio-control agents against <i>Microstegium vimineum</i>	55
China	Department of Agriculture	Fujian Agriculture and Forestry University	Cooperative agreement	To develop survey techniques determining the distribution and risk factors of <i>Lymantria</i> spp.	33
China	Department of Agriculture	Chinese Academy of Forestry	Cooperative agreement	To collaborate on research to discover and collect parasitoids of the Asian longhorned beetle and the spotted lanternfly	91
China	Department of Agriculture	Fujian Agriculture and Forestry University	Cooperative agreement	To develop survey techniques determining the distribution and risk factors of <i>Lymantria</i> spp.	39
China	Department of Agriculture	Chinese Academy of Forestry	Cooperative agreement	Host range and reference and evaluation of insecticide treatment	66
China	Department of Agriculture	Chinese Academy of Forestry	Cooperative agreement	Exploration for Asian longhorned beetle and the spotted lanternfly parasitoids in China	210
China	Department of Agriculture	Fujian Agriculture and Forestry University	Cooperative agreement	Characterize risks of exotic <i>Lymantria</i> species in south China	46

**Appendix II: Research and Development (R&D)
Federal Funding Obligated to Entities Located
in China and Russia**

Recipient location Country	Awarding agency	Recipient	Award type	Award description	Obligations in fiscal years 2017-2022
China	Department of Agriculture	Beijing Forestry University	Cooperative agreement	Risk characterization of Lymantria and light trap evaluation of Asian gypsy moth	39
China	Department of Agriculture	Chinese Academy of Forestry	Cooperative agreement	Host range and preference of the Asian longhorned beetle	61
China	Department of Agriculture	Fujian Agriculture and Forestry University	Cooperative agreement	Risk characterization and mitigation of Lymantria in southern China	73
China	Department of Agriculture	Chinese Academy of Forestry	Cooperative agreement	Research to discover natural enemies that could be used to assist in the control of the exotic invasive spotted lanternfly.	37
China	Department of Agriculture	Chinese Academy of Agriculture Plant Protection Research Institute	Cooperative agreement	Exploration for natural enemies of invasive species originating from China and the surrounding areas that affect Chinese and U.S. agriculture	357
China	Department of Agriculture	Chinese Academy of Agriculture Plant Protection Research Institute	Cooperative agreement	Distribution and natural enemy complex of Roseau cane scale in China	24
China	Department of Agriculture	Wickham, Jacob	Cooperative agreement	Develop new and improved attractants and trapping methods for wood-boring beetles from China, with emphasis on longhorned beetles	90
China	Department of Agriculture	Ecology and Nature Conservation Institute, Chinese Academy of Forestry	Grant	Biological control of invasive Asian longhorned beetle	21
China	Department of Agriculture	China Academy of Agriculture Plant Protection Research Institute	Grant	Distribution and natural enemy complex of Roseau cane scale in Asia	24
China	Department of Agriculture	Nanjing Agricultural University	Grant	Microstegium vimineum rust fungi as biological control agents	20
China	Department of Defense	University of Hong Kong	Grant	Compressive feedback for featureless video-based tracking control	100
China	Department of Defense, Army	University of Hong Kong	Grant	Compressive feedback for featureless video-based tracking control	75
China	Department of the Interior	Wildlife Conservation Society	Grant	Develop a new portable DNA-based genetic test tool that will enhance enforcement of international regulations and lead to a reduction in big cat trafficking	70
China	HHS Office of the Assistant Secretary for Health	University of Hong Kong	Grant	6th world conference on research integrity	50

**Appendix II: Research and Development (R&D)
Federal Funding Obligated to Entities Located
in China and Russia**

Recipient location Country	Awarding agency	Recipient	Award type	Award description	Obligations in fiscal years 2017-2022
China	National Institutes of Health	Cancer Hospital, Chinese Academy of Medical Sciences	Contract	Nutrition intervention trial biobank	75
China	National Institutes of Health	Cancer Hospital, Chinese Academy of Medical Sciences	Contract	Upper gastrointestinal cancer prevention studies	365
China	National Institutes of Health	Beijing George Medical Research Co. Ltd.	Cooperative agreement	Integrating depression care for ACS patients in low-resource hospitals in China	300
China	National Institutes of Health	National Center for Aids/Std Control and Prevention, Chinese Center for Disease Control and Prevention	Cooperative agreement	HIV/AIDS clinical trial unit in NCAIDS	0 ^b
China	National Institutes of Health	National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention	Grant	Strengthening research integrity oversight and ethical review of critical HIV research in China	298
China	National Institutes of Health	Peking University	Grant	China health and retirement longitudinal study	5,298
China	National Institutes of Health	Peking University	Grant	Harmonized cognitive and dementia assessment in China	1,323
China	National Institutes of Health	Institut Pasteur of Shanghai, Chinese Academy of Sciences Wuhan University	Grant	Versatile functions of LANA in KSHV pathogenesis	303
China	National Institutes of Health	Institut Pasteur of Shanghai, Chinese Academy of Sciences	Grant	Var gene regulation mechanisms in malaria parasite Plasmodium falciparum	389
China	National Institutes of Health	Fudan University	Grant	Influence of gut microbiota on vector competence of disease transmitting insects	730
China	National Institutes of Health	Southern Medical University	Grant	Impacts of urbanization on vector biology and transmission of dengue in China	667
China	National Institutes of Health	China Medical University	Grant	Antigen discovery for transmission-blocking vaccines in plasmodium vivax	407
Russia	Department of Agriculture	VNIIKR, FGBU	Cooperative agreement	Asian gypsy moth	188
Russia	Department of Agriculture	VNIIKR, FGBU	Cooperative agreement	Asian gypsy moth	188

**Appendix II: Research and Development (R&D)
Federal Funding Obligated to Entities Located
in China and Russia**

Recipient location Country	Awarding agency	Recipient	Award type	Award description	Obligations in fiscal years 2017-2022
Russia	Department of Agriculture	VNIIKR, FGBU	Cooperative agreement	Asian gypsy moth at Russian ports	188
Russia	Department of Commerce	Yakut Administration for Hydrometeorology and Environmental Monitoring	Contract	Upper air data collection at the Tiksi observatory in Russia	275
Russia	Department of Commerce	Arctic and Antarctic Research Institute, Federal State Budgetary Institution	Contract	Transmission of atmospheric data from the Tiksi observatory in Russia	68
Russia	Department of Defense	International Science and Technology Center	Contract	Summary - kickoff meeting	302
Russia	Department of the Interior	Sovet Po Morskim Mlekopitayushchim Oo	Cooperative agreement	Amendment to provide additional travel funds	12
Russia	Department of the Interior	Zoological Society of London	Grant	Rhino Tiger-FY 17-RT1727 ^c	104
Russia	Department of the Interior	Fond Phoenix	Grant	Rhino Tiger-FY 17-RT1701 ^c	24
Russia	Department of the Interior	Zoological Society of London	Grant	RT1832 ^c	100
Russia	Department of the Interior	Fond Phoenix	Grant	Encouraging locals to support Amur tiger recovery in northern range	25
Russia	Department of the Interior	Wildlife Conservation Society	Grant	Smart anti-poaching in protected and unprotected tiger habitat in Russia	60

Source: GAO analysis of data in USA Spending.gov, accessed and downloaded September 8, 2023. | GAO-24-106227

Note: Dollar amounts are rounded. Also, some of the award recipients we identified are under the jurisdiction or direction of the governments of China and Russia. For example, direct funds were provided to the Chinese Center for Disease Control and Prevention and the Russian Ministry of Natural Resources and Environment (Yakut Administration for Hydrometeorology and Environmental Monitoring). We did not verify ownership or control for all the recipients we identified due to challenges with determining foreign ownership as we discussed in this report.

^aWe included federal research funds provided to entities in Hong Kong, a Special Administrative Region of China, due to the recent change in the treatment of the region by the U.S. government. In July 2020, the President determined in Executive Order 13936 that Hong Kong was no longer sufficiently autonomous to justify differential treatment in relation to China. Specifically, the President suspended the application of section 201(a) of the United States-Hong Kong Policy Act of 1992 to several specified statutes.

^bAccording to NIH officials, \$1 was funded to this recurring award to keep it active in the Department's and agency's internal systems. No other funding was obligated under this award within the scope of our review.

^cUSA Spending.gov did not provide information on the description of this award. According to the Department of the Interior's public website, the Rhinoceros and Tiger Conservation Fund provides financial and technical support to projects that deliver measurable conservation results for African and Asian rhinoceros and tiger populations in Asia.

Appendix III: Examples of Information Used by the Department of Defense to Inform Fundamental Research Mitigation Decisions

Table 8 provides examples of information used by DOD to inform fundamental research mitigation decisions.

Table 8: Examples of Information Used by the Department of Defense (DOD) to Assess a Covered Individual’s Associations, Affiliations, and Collaborations and the Policies of the Proposing Institution that Employs the Covered Individual

	Foreign Talent Recruitment Programs	Funding Sources	Patents	Entity Lists
Mitigation Required ^a	Indicators of participation in a foreign talent recruitment program (FTRP) for the period after August 9, 2024. ^b	Indicators of current funding from a country of concern. ^c	Patent applications or patents not disclosed in proposal that result from research funded by the U.S. government (USG) that were filed in a foreign country of concern (FCOC) prior to filing in the United States or filed on behalf of an FCOC connected entity.	Indicators of affiliation with an entity on the denied entity or person list – trade restriction lists published by Commerce’s Bureau of Industry and Security (BIS) consisting of some foreign entities of concern.
Mitigation Measures Recommended	Policy of proposing institution employing applicant does not prohibit participation in a malign foreign talent recruitment program (MFTRP). ^d	Indicators of past funding from a country of concern.	Patent applications or patents disclosed in proposal resulting from research funded by the USG that were filed in an FCOC prior to filing in the United States or on behalf of an FCOC connected entity.	N/A ^e
Mitigation Measures Suggested	Applicant’s co-author on publications in scientific and engineering (S&E) journals are participants in a MFTRP or FTRP.	Indicators of limited or partial funding from a country of concern.	Patent applications or patents not disclosed in fundamental research project proposal that result from research funded by USG that were filed in a non-FCOC prior to filing in the United States or on behalf of an entity in a non-FCOC. Co-patent applicant with a person on the U.S. BIS Denied Persons List.	Applicant is co-author on a publication in a S&E journal affiliated with an entity on the BIS lists.
No Mitigation Needed	No indicators of participation in a MFTRP or FTRP.	No indicators of current or past funding from a country of concern.	All patent applications or patents resulting from research funded by the USG have been filed in the United States prior to filing in any other country.	No Indicators of any association or affiliation with an entity on the BIS lists.

Source: GAO analysis of risk matrix from DOD. | GAO-24-106227

^aDOD’s June 2023 decision matrix states that the proposal must be rejected if no mitigation is possible.

^bThe National Science and Technology Council implementation guidance for National Security Presidential Memorandum 33 defines a foreign government-sponsored talent recruitment program as an effort organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students.

^cDOD defines a country of concern as China, Russia, North Korea, and Iran.

^dDOD’s June 2023 decision matrix states that beginning in August 2024 any indicators of participation in a foreign talent recruitment program, as defined in the Chips and Science Act, will automatically disqualify an applicant from receiving funding.

^ePrior to August 2022 mitigation measures were recommended when indicators of affiliation with an entity on the BIS lists were present. Since August 2022 mitigation measures are required in these instances.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

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