



National Science Foundation
WHERE DISCOVERIES BEGIN

NSF Survey of Federal Funds for Research and Development

FYs 2021–22
(Volume 71)

Standard Form

Due date: August 5, 2022

Questions?

- For questions about your agency's participation, contact NSF Project Manager Christopher Pece by e-mail at cpece@nsf.gov or at 703-292-7788.
- For technical questions, contact the Support Team by e-mail at NCSES-FedFundsSurvey@nsf.gov or at 703-312-5379.

The survey is authorized by the National Science Foundation Act of 1950 (42 U.S. Code 1862, P.L. 87-835), as amended, and the America COMPETES Reauthorization Act of 2010 §505.

Thank you for your participation.

What's New?

The National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation has redesigned the *Survey of Federal Funds for Research and Development* (Federal Funds for R&D) in consultation with experts, data users, and federal representatives. Please review the full questionnaire and reference materials so you know what will be needed before starting to assemble the data.

Specific Change from Volume 70 to Volume 71

- For volume 71, only question 5 includes responses where you are asked to separately report any stimulus funds received from the Coronavirus, Aid, Relief, and Economic Security Act plus any other pandemic-related supplemental appropriations (i.e., “Stimulus”) from regular appropriations (i.e., “Non-Stimulus”). Your totals in other tables should include both stimulus and non-stimulus amounts.

General Changes

- Many of the survey questions have been reorganized and revised. A crosswalk showing the changes from the former survey is included in the reference materials provided with this questionnaire.
- The fields of R&D (formerly “fields of science and engineering”) have been revised for consistency with other NSF surveys. A crosswalk of the field changes and a full list of the new fields and subfields is included in the reference materials at the end of the questionnaire.
- The performer categories have also been revised for consistency with other NSF surveys: “higher education” is used instead of “universities and colleges” and “businesses” is used instead of “industrial firms.”
- The *Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions* (Federal S&E Support Survey) has been integrated into this survey. These survey questions are included as questions 18 and 19.

How is the Revised Survey Organized?

The questionnaire starts with a few general questions about your funding totals, followed by more specific breakouts of the data you provide at the beginning. The table below shows the years and type of R&D funding requested within each question. Additional instructions and materials are available starting on p. 42.

Question number and topic	FY 2021 R&D conduct	FY 2021 R&D plant	FY 2022 R&D conduct	FY 2022 R&D plant
R&D Totals				
Q1. Outlays (totals)	✓	✓	✓	✓
Q2. Comparison with OMB Circular A-11 Schedule C	✓	✓		
Q3. Obligations (totals)	✓	✓	✓	✓
Q4. Deobligations (totals)	✓	✓		
Breakdowns of R&D Obligations				
Q5. By type of work	✓		✓	
Q6. By type of work and by detailed field of R&D	✓			
Q7. By type of work and by broad field of R&D			✓	
Q8. By type of work and performer (FY 2021)	✓	✓		
Q9. By type of work and performer (FY 2022)			✓	✓
Q10. Non-federal R&D by type of agreement	✓	✓		
Q11. R&D agreements with other federal agencies	✓	✓		
Q12. R&D conduct by performer and state	✓			
Q13. R&D plant by performer and state		✓		
Q14. To non-U.S. performers by country	✓	✓		
Q15. To higher education by type of work and detailed field of R&D	✓			
Q16. To specific FFRDCs by type of work	✓	✓		
Q17. To specific UARCs by type of work	✓	✓		
R&D and S&E Support				
Q18. To specific higher education institutions	✓	✓		
Q19. To specific non-profit organizations	✓	✓		

General Survey Definitions and Instructions

The following section provides general guidance on what should be reported on the survey. These definitions come from OMB Circular A-11, Section 84.2(c). Additional definitions and other instructions are provided throughout the questionnaire as needed.

R&D Conduct

Research and experimental development (R&D) conduct is defined as creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of people, culture, and society—and to devise new applications using available knowledge.

Basic research: Basic research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts. Basic research may include activities with broad or general applications in mind, such as the study of how plant genomes change, but should exclude research directed towards a specific application or requirement, such as the optimization of the genome of a specific crop species.

Applied research: Applied research is defined as original investigation undertaken in order to acquire new knowledge. Applied research is, however, directed primarily towards a specific practical aim or objective.

Experimental development: Experimental development is defined as creative and systematic work, drawing on knowledge gained from research and practical experience, which is directed at producing new products or processes or improving existing products or processes. Like research, experimental development will result in gaining additional knowledge. (More details about what is included and excluded can be found in Question 5.)

Experimental development includes:

- The production of materials, devices, and systems or methods, including the design, construction, and testing of experimental prototypes.
- Technology demonstrations, in cases where a system or component is being demonstrated at scale for the first time, and it is realistic to expect additional refinements to the design (feedback R&D) following the demonstration. However, not all activities that are identified as “technology demonstrations” are R&D.

Experimental development does not include:

- User demonstrations where the cost and benefits of a system are being validated for a specific use case. This includes low-rate initial production activities.
- Pre-production development, which is defined as non-experimental work on a product or system before it goes into full production, including activities such as tooling and development of production facilities. For example, exclude activities and programs that are categorized as “Operational Systems Development” in DOD’s budget activity structure. Activities and programs of this type should generally be reported as investments in other major equipment.

General Survey Definitions and Instructions (continued)

R&D Plant

R&D plant includes spending on both R&D facilities and major equipment as defined in Office of Management and Budget (OMB) Circular A-11 Section 84 (Schedule C) and includes physical assets, such as land, structures, equipment, and intellectual property (e.g., software or applications) that have an estimated useful life of two years or more.

Reporting for R&D plant includes the purchase, construction, manufacture, rehabilitation, or major improvement of physical assets regardless of whether the assets are owned or operated by the Federal Government, States, municipalities, or private individuals. The cost of the asset includes both its purchase price and all other costs incurred to bring it to a form and location suitable for use.

Obligations for foreign R&D plant are limited to federal funds for facilities that are located abroad and used in support of foreign R&D.

R&D Activities Must Be...

(Source: Frascati Manual 2015)

- **Novel:** projects that advance current knowledge or create new knowledge
- **Creative:** projects focused on original concepts and hypotheses
- **Uncertain:** project outcomes are unable to be completely determined at the outset
- **Systematic:** projects are planned and budgeted
- **Transferable/Reproducible:** project methodology and results are transferable/reproducible to other situations and locations

Types of Activities That Are Not Likely To Be R&D

- Program planning and evaluation (unless part of an existing R&D program)
- Commercialization (includes promoting/producing the products/services from R&D projects)
- Economic/policy/feasibility studies
- General patient services
- Information systems
- Management studies
- Marketing of products/services
- Market research or analysis
- Routine data collection/dissemination
- Routine monitoring/testing
- Strategic planning
- Technology transfer

What Types of Funding Should I Include?

R&D Conduct

Include:

- All of your agency's R&D costs, regardless of whether the funding was from direct appropriations, trust funds, special account receipts, or fees and charges.
- Agency R&D costs for non-U.S. performers.
- Costs of performing, planning, and administering R&D conducted by your agency, including laboratory overhead and pay of military personnel.
- For R&D contracts, include all of your agency's administrative costs.
- Minor equipment purchases, such as personal computers, standard microscopes, and simple spectrometers.
- Funds transferred to another agency for R&D.

Do not include:

- Reimbursable funds provided to your agency by another federal agency. The originating agency will report these.
- For R&D grants, do not include your agency's administrative costs.

R&D Plant

Include:

- Funding for the construction of facilities that are necessary for the execution of an R&D program. This may include land, major fixed equipment, and supporting infrastructure such as a sewer line, or housing at a remote location. Many laboratory buildings will include a mixture of R&D facilities and office space. The fraction of the building that is considered to be R&D may be calculated based on the percentage of square footage that is used for R&D.
- Acquisition, design, or production of major moveable equipment, such as mass spectrometers, research vessels, DNA sequencers, and other moveable major instrumentation for use in R&D activities.
- Programs of \$1 million or more that are devoted to the purchase or construction of R&D major equipment.
- Agency R&D plant costs for non-U.S. performers.

Do not include:

- Minor equipment purchases, such as personal computers, standard microscopes, and simple spectrometers (if part of an R&D activity, report these costs under R&D conduct, not R&D plant).

How Should I Report My Data?

- Report actual dollars for all amounts.
- Where possible, use enacted appropriation rather than annualized continuing resolution amounts.
- R&D outlays and obligations reported in this survey should be consistent with amounts in the Budget of the United States Government. See OMB Circular A-11, Section 84.3(g). The same definitions are used for both.
- Report all outlays or obligations that occurred in FY 2021, and those estimated for FY 2022.
- Report the fiscal year in which the outlay or obligation was made regardless of when the funds were originally authorized, received, or appropriated.

1 FYs 2021 and 2022 outlays for R&D and R&D plant

What were your agency’s outlays for R&D conduct and R&D plant in fiscal year (FY) 2021 and what are your agency's estimated outlays for FY 2022?

- Previous table number: 1
- Change: No change other than the addition of new fields you may not have reported on previously.

Definition from OMB Circular A-11, Section 20.3: Outlay means a payment to liquidate an obligation (other than the repayment of debt principal or other disbursements that are "means of financing" transactions). Outlays generally are equal to cash disbursements but also are recorded for cash-equivalent transactions, such as the issuance of debentures to pay insurance claims, and in a few cases are recorded on an accrual basis such as interest on public issues of the public debt.

- Report prior year actuals and current year estimates for outlays.
- Amounts should be reported regardless of whether or not they were originally appropriated, received, or identified in your agency’s budget specifically for R&D conduct or R&D plant.

R&D Outlays
(Round to the nearest dollar)

	(1) FY 2021 Actual	(2) FY 2022 Estimated
a. R&D conduct	\$ <input style="width: 80%;" type="text"/>	\$ <input style="width: 80%;" type="text"/>
b. R&D plant	\$ <input style="width: 80%;" type="text"/>	\$ <input style="width: 80%;" type="text"/>
c. Total	TOTAL	TOTAL

If needed, use the space below to provide clarification for the data reported in this question.

2 FY 2021 comparison of R&D outlays with OMB Circular A-11 Schedule C

What outlays for R&D conduct and R&D plant did your agency report to the Office of Management and Budget (OMB) in response to Circular A-11, section 84 (MAX Schedule C) in FY 2021?

- Previous table number: 1A, 1B
- Change: Combined previous tables into one question and only requests one year.

As noted in OMB Circular A-11, Section 84.3(g):

- You should be able to reconcile information reported in schedule C for the conduct of R&D with information reported in the National Science Foundation’s Survey of Federal Funds for Research and Development, and with information provided in the supplemental R&D data requests in [84.3](h).
- You should also be able to reconcile the total reported in schedule C for the construction of R&D facilities and major movable equipment with information reported as R&D plant in the National Science Foundation’s Survey of Federal Funds for Research and Development.

If your agency’s report to OMB is not available to you, on the website check this box to enter N/A in the data fields.

R&D Outlays (Round to the nearest dollar)

	FY 2021 Actual
a. R&D conduct	
1. Outlays for R&D conduct reported in question 1 row a for FY 2021	Autofill
2. Outlays for R&D conduct reported to OMB in response to Circular A-11, section 84 (MAX Schedule C)	\$ <input style="width: 100px;" type="text"/>
3. Difference in outlays for R&D conduct (row a.1 minus row a.2)	Autofill

Use the space below to explain any difference between rows a.1 and a.2.

R&D Outlays (Round to the nearest dollar)

	FY 2021 Actual
b. R&D plant	
1. Outlays for R&D plant reported in question 1 row b for FY 2021	Autofill
2. Outlays for R&D Facilities plus Major R&D Equipment Reported to OMB in response to Circular A-11, section 84 (MAX Schedule C)	\$ <input style="width: 100px;" type="text"/>
3. Difference in outlays for R&D plant (row b.1 minus row b.2)	Autofill

Use the space below to explain any difference between rows b.1 and b.2.

3 FYs 2021 and 2022 total obligations for R&D and R&D plant

What were your agency’s obligations for R&D conduct and R&D plant in all fields in FY 2021 and what are your agency's estimated obligations for FY 2022?

- Previous table number: 2
- Change: Collects R&D conduct and R&D plant totals used for the remainder of the survey.

Definition from OMB Circular A-11, Section 20.3: Obligation means a binding agreement that will result in outlays, immediately or in the future. Budgetary resources must be available before obligations can be incurred legally.

- Include all R&D obligated by your agency, regardless of whether the funding was from direct appropriations, trust funds, special account receipts, or fees and charges.
- Exclude reimbursable funds provided to your agency by another federal agency.

**R&D Obligations
(Round to the nearest dollar)**

	(1) FY 2021 Actual	(2) FY 2022 Estimated
a. R&D conduct	\$ _____	\$ _____
b. R&D plant	\$ _____	\$ _____
c. Total R&D conduct and plant	TOTAL	TOTAL

If needed, use the space below to provide clarification for the data reported in this question.

4 FY 2021 R&D deobligations

How much of the R&D funding your agency obligated in prior years was deobligated in FY 2021?

- Change: New question. Some agencies have expressed uncertainty over the treatment of previous years' deobligated R&D funding in the overall totals. While these deobligations of prior year funding should continue to be excluded from the current survey totals, this question was added to obtain an overall measurement of the amount of deobligations in FY 2021. The results will be used to inform possible future revisions to the survey.
 - As examples, deobligations might occur when a contract is cancelled or when not all of the obligated funds are spent, allowing the funds to be reobligated somewhere else or returned to the Department of the Treasury.
 - Choose one response per row.

R&D Deobligations (FY 2021 Actual)
(Round to the nearest dollar)

	None	Less than \$1 million	\$1,000,000 to \$9,999,999	\$10,000,000 to \$49,999,999	\$50,000,000 or more	Not available
a. R&D conduct	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. R&D plant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If needed, use the space below to provide clarification for the data reported in this question.

5 FYs 2021 and 2022 obligations for R&D conduct by type of work

What were your agency’s obligations for R&D conduct by type of work in FY 2021 and what are your agency's estimated obligations by type of work in FY 2022?

- Previous table number: 2
- Change: R&D plant now collected in question 3.
 - If you cannot assign a project’s obligations precisely across basic research, applied research, and experimental development, use your best judgment to allocate the obligations.
 - The definitions below are from OMB Circular A-11, Section 84.2(c).
 - Examples are provided on the next page.

**R&D Obligations
(Round to the nearest dollar)**

	(1) FY 2021 Actual	(2) FY 2022 Estimated
a. Basic research		
1. Stimulus	\$ _____	\$ _____
2. Non-stimulus	\$ _____	\$ _____
3. Total basic research	TOTAL	TOTAL
<p>Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts. Basic research may include activities with broad or general applications in mind, such as the study of how plant genomes change, but should exclude research directed towards a specific application or requirement, such as the optimization of the genome of a specific crop species.</p>		
b. Applied research		
1. Stimulus	\$ _____	\$ _____
2. Non-stimulus	\$ _____	\$ _____
3. Total applied research	TOTAL	TOTAL
<p>Original investigation undertaken in order to acquire new knowledge. Applied research is, however, directed primarily towards a specific practical aim or objective.</p>		
c. Experimental development		
1. Stimulus	\$ _____	\$ _____
2. Non-stimulus	\$ _____	\$ _____
3. Total experimental development	TOTAL	TOTAL
<p>Creative and systematic work, drawing on knowledge gained from research and practical experience, which is directed at producing new products or processes or improving existing products or processes. Like research, experimental development will result in gaining additional knowledge.</p> <p><u>Experimental development includes:</u></p> <ul style="list-style-type: none"> • The production of materials, devices, and systems or methods, including the design, construction, and testing of experimental prototypes. 		

→ Question 5 continues on the next page.

5 FYs 2021 and 2022 obligations for R&D conduct by type of work (continued)

	(1) FY 2021 Actual	(2) FY 2022 Estimated
R&D obligations (Round to the nearest dollar)		
<ul style="list-style-type: none"> • Technology demonstrations, in cases where a system or component is being demonstrated at scale for the first time, and it is realistic to expect additional refinements to the design (feedback R&D) following the demonstration. However, not all activities that are identified as “technology demonstrations” are R&D. 		
<u>Experimental development does not include:</u>		
<ul style="list-style-type: none"> • User demonstrations where the cost and benefits of a system are being validated for a specific use case. This includes low-rate initial production activities. • Pre-production development, which is defined as non-experimental work on a product or system before it goes into full production, including activities such as tooling and development of production facilities. For example, exclude activities and programs that are categorized as “Operational Systems Development” in DOD’s budget activity structure. Activities and programs of this type should generally be reported as investments in other major equipment. 		
d. Total R&D conduct	TOTAL	TOTAL
<i>Cross check: totals in row d above should match the amounts from question 3.a displayed here.</i>	<i>Q3.a.1 value</i>	<i>Q3.a.2 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

Examples of R&D types

Basic research examples

- A researcher is studying the properties of human blood to determine what affects coagulation.
- A researcher is studying the properties of molecules under various heat and cold conditions.
- A researcher is investigating the effect of different types of manipulatives on the way first graders learn mathematical strategy by changing manipulatives and then measuring what students have learned through standardized instruments.

Applied research examples:

- A researcher is conducting research on how a new chicken pox vaccine affects blood coagulation.
- A researcher is investigating the properties of particular substances under various heat and cold conditions with the objective of finding longer-lasting components for highway pavement.
- A researcher is studying the implementation of a specific math curriculum to determine what teachers needed to know to implement the curriculum successfully.

Experimental development examples:

- A researcher is conducting clinical trials to test a newly developed chicken pox vaccine for young children.
- A researcher is working with state transportation officials to conduct tests of a newly developed highway pavement under various types of heat and cold conditions.
- A researcher is developing and testing software and support tools, based on fieldwork, to improve mathematics cognition for student special education.

6 FY 2021 obligations for R&D conduct by type of work and detailed field of R&D

What were your agency’s obligations for basic research, applied research, and experimental development in the fields below in FY 2021?

- Previous table number: 3
- Change: Added experimental development category; some fields added, merged, or split.
 - If an obligation was intended to support R&D in multiple fields (i.e., interdisciplinary research), please prorate the obligation for each field involved when possible. Do not double-count funds across multiple fields.
 - Examples of the fields and disciplines are provided in a supplemental list at the end of the survey.

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Field of R&D	(a) Basic research	(b) Applied research	(c) Experimental development	(d) Total R&D conduct
a. Computer and information sciences	\$ _____	\$ _____	\$ _____	TOTAL
b. Geosciences, atmospheric sciences, and ocean sciences				
1. Atmospheric science and meteorology	\$ _____	\$ _____	\$ _____	TOTAL
2. Geological and earth sciences	\$ _____	\$ _____	\$ _____	TOTAL
3. Ocean sciences and marine sciences	\$ _____	\$ _____	\$ _____	TOTAL
4. Other geosciences, atmospheric sciences, and ocean sciences	\$ _____	\$ _____	\$ _____	TOTAL
5. Total geosciences, atmospheric sciences, and ocean sciences	TOTAL	TOTAL	TOTAL	TOTAL
c. Life sciences				
1. Agricultural sciences	\$ _____	\$ _____	\$ _____	TOTAL
2. Biological and biomedical sciences	\$ _____	\$ _____	\$ _____	TOTAL
3. Health sciences	\$ _____	\$ _____	\$ _____	TOTAL
4. Natural resources and conservation	\$ _____	\$ _____	\$ _____	TOTAL
5. Other life sciences	\$ _____	\$ _____	\$ _____	TOTAL
6. Total life sciences	TOTAL	TOTAL	TOTAL	TOTAL
d. Mathematics and statistics	\$ _____	\$ _____	\$ _____	TOTAL

→ Question 6 continues on the next page.

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6 FY 2021 obligations for R&D conduct by type of work and detailed field of R&D (continued)

R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)

Field of R&D	(a) Basic research	(b) Applied research	(c) Experimental development	(d) Total R&D conduct
e. Physical sciences				
1. Astronomy and astrophysics	\$ _____	\$ _____	\$ _____	TOTAL
2. Chemistry	\$ _____	\$ _____	\$ _____	TOTAL
3. Materials science	\$ _____	\$ _____	\$ _____	TOTAL
4. Physics	\$ _____	\$ _____	\$ _____	TOTAL
5. Other physical sciences	\$ _____	\$ _____	\$ _____	TOTAL
6. Total physical sciences	TOTAL	TOTAL	TOTAL	TOTAL
f. Psychology				
1. Biological aspects	\$ _____	\$ _____	\$ _____	TOTAL
2. Social aspects	\$ _____	\$ _____	\$ _____	TOTAL
3. Other psychological sciences	\$ _____	\$ _____	\$ _____	TOTAL
4. Total psychology	TOTAL	TOTAL	TOTAL	TOTAL
g. Social sciences				
1. Anthropology	\$ _____	\$ _____	\$ _____	TOTAL
2. Economics	\$ _____	\$ _____	\$ _____	TOTAL
3. Political science and government	\$ _____	\$ _____	\$ _____	TOTAL
4. Sociology, demography, and population studies	\$ _____	\$ _____	\$ _____	TOTAL
5. Other social sciences	\$ _____	\$ _____	\$ _____	TOTAL
6. Total social sciences	TOTAL	TOTAL	TOTAL	TOTAL

→ Question 6 continues on the next page.

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6 FY 2021 obligations for R&D conduct by type of work and detailed field of R&D (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Field of R&D	(a) Basic research	(b) Applied research	(c) Experimental development	(d) Total R&D conduct
h. Engineering				
1. Aerospace, aeronautical, and astronautical engineering	\$ _____	\$ _____	\$ _____	TOTAL
2. Bioengineering and biomedical engineering	\$ _____	\$ _____	\$ _____	TOTAL
3. Chemical engineering	\$ _____	\$ _____	\$ _____	TOTAL
4. Civil engineering	\$ _____	\$ _____	\$ _____	TOTAL
5. Electrical, electronics, and communications engineering	\$ _____	\$ _____	\$ _____	TOTAL
6. Industrial and manufacturing engineering	\$ _____	\$ _____	\$ _____	TOTAL
7. Mechanical engineering	\$ _____	\$ _____	\$ _____	TOTAL
8. Metallurgical and materials engineering	\$ _____	\$ _____	\$ _____	TOTAL
9. Other engineering	\$ _____	\$ _____	\$ _____	TOTAL
10. Total engineering	TOTAL	TOTAL	TOTAL	TOTAL
i. Other fields				
1. Business management and business administration	\$ _____	\$ _____	\$ _____	TOTAL
2. Communication and communications technologies	\$ _____	\$ _____	\$ _____	TOTAL
3. Education research	\$ _____	\$ _____	\$ _____	TOTAL
4. Humanities	\$ _____	\$ _____	\$ _____	TOTAL
5. Law	\$ _____	\$ _____	\$ _____	TOTAL
6. Social work	\$ _____	\$ _____	\$ _____	TOTAL
7. Visual and performing arts	\$ _____	\$ _____	\$ _____	TOTAL
8. All other fields	\$ _____	\$ _____	\$ _____	TOTAL
9. Total other fields	TOTAL	TOTAL	TOTAL	TOTAL
j. Total, all fields of R&D conduct	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row j above should match the FY 2021 amounts from question 5, rows a.3, b.3, and c.3, and question 3, row a, as displayed here.</i>	<i>Q5.a.3.1 value</i>	<i>Q5.b.3.1 value</i>	<i>Q5.c.3.1 value</i>	<i>Q3.a.1 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

7 FY 2022 obligations for R&D conduct by type of work and broad field of R&D

What are your agency’s estimated obligations for basic research, applied research, and experimental development in the fields below in FY 2022?

- Previous table number: 4
- Change: Added experimental development category; some fields added or split.

- If an obligation is intended to support R&D in multiple fields (i. e., interdisciplinary research), please prorate the obligation for each field involved when possible. Do not double-count funds across multiple fields.
- Examples of fields and disciplines are provided in a supplemental list at the end of the survey.

R&D Obligations (FY 2022 Estimated)
(Round to the nearest dollar)

Field of R&D	(1) Basic research	(2) Applied research	(3) Experi- mental develop- ment	(4) Total R&D conduct
a. Computer and information sciences	\$ _____	\$ _____	\$ _____	TOTAL
b. Geosciences, atmospheric sciences, and ocean sciences	\$ _____	\$ _____	\$ _____	TOTAL
c. Life sciences	\$ _____	\$ _____	\$ _____	TOTAL
d. Mathematics and statistics	\$ _____	\$ _____	\$ _____	TOTAL
e. Physical sciences	\$ _____	\$ _____	\$ _____	TOTAL
f. Psychology	\$ _____	\$ _____	\$ _____	TOTAL
g. Social sciences	\$ _____	\$ _____	\$ _____	TOTAL
h. Engineering	\$ _____	\$ _____	\$ _____	TOTAL
i. Other fields	\$ _____	\$ _____	\$ _____	TOTAL
j. Total, all fields of R&D conduct	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row j above should match the FY 2022 amounts from question 5, rows a–c, and question 3, row a, as displayed here.</i>	<i>Q5.a.3.2 value</i>	<i>Q5.b.3.2 value</i>	<i>Q5.c.3.2 value</i>	<i>Q3.a.2 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

8 FY 2021 R&D obligations by performer and type of work

For each of the following types of R&D performers, what were your agency's obligations for R&D conduct by type of work and for R&D plant in FY 2021?

- Previous table number: 6 and 11
- Change: R&D conduct and R&D plant combined into one question; requests overall FFRDC totals rather than by type of administrator; portion of funding for personnel costs no longer collected.
 - Report obligations in terms of the immediate recipient, even if funds were later passed on to subgrantees or subcontractors.
 - Cross check: certain totals should match with totals reported elsewhere in the questionnaire. The values from the corresponding questions are displayed in the bottom row below in the online questionnaire.

Federal: Obligations for R&D conducted by your federal agency or sent to other federal agencies, and your agency's costs for administering both R&D within the federal government and R&D contracts and cooperative agreements.

- Exclude costs for administering R&D grants.
- Exclude military service academies; report these under higher education.

Federally Funded R&D Centers (FFRDCs): FFRDCs are designated by the federal government, must be separately organized units receiving at least 70% of their funds from the federal government, and have an annual budget of at least \$500,000. The list of individual FFRDCs can be found in question 16.

Businesses (formerly “industry”): Domestic for-profit businesses or industrial firms. Exclude FFRDCs administered by these organizations.

Higher education (formerly “universities and colleges”): Domestic higher education institutions, military service academies, and consortia.

- Higher education institutions are institutions that engage primarily in providing resident and/or accredited instruction for a not less than a 2-year program above the secondary school level that is acceptable for full credit toward a bachelor's degree or that provide not less than a 1-year program of training above the secondary school level that prepares students for gainful employment in a recognized occupation. Included are colleges of liberal arts; schools of arts and sciences; professional schools, as in engineering and medicine, including hospitals, clinics, and research centers that are financial constituents of universities; and agricultural experiment stations.
- Consortia are organizations formed by the membership of a number of institutions from one or more types of performers (i.e., higher education or nonprofit) in order to promote and support efforts to enhance knowledge in one or more disciplines. Consortia that include both higher education institutions and nonprofits have been assigned to one of the two categories by NSF. If your agency funds such consortia, it may be helpful to answer questions 18 and 19 first so you know how they are classified.
- Include fellowships, traineeships, and training grants supporting research; exclude all other awards to individuals and report these under obligations for S&E on question 18.
- Include awards to University Affiliated Research Centers (UARCs).
- Exclude FFRDCs administered by these organizations.

Other nonprofits: Domestic nonprofit organizations other than universities and colleges.

- Nonprofit organizations are businesses granted tax-exempt status by the IRS. Nonprofits pay no income tax on the donations they receive or on any money that they earn through fundraising activities. Nonprofit organizations are sometimes called NPOs or 501(c) organizations, based on the section of the tax code that permits them to operate.
- Include nonprofit hospitals and consortia (see definition of consortia under higher education above).
- Exclude FFRDCs administered by nonprofit organizations.

State and local government: State, county, municipality, or other local government entity in the United States. Do not include state and local universities and colleges or agricultural experiment stations; report these under higher education.

Non-U.S. performers (formerly “foreign”): R&D performers outside of the United States. Do not include R&D performed by U.S. organizations or U.S. citizens in other nations.

→ Question 8 continues on the next page.

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8 FY 2021 R&D obligations by performer and type of work (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

R&D performer	(1) Basic research	(2) Applied research	(3) Experi- mental develop- ment	(4) R&D plant	(5) Total R&D conduct and plant
a. Federal	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
b. Federally Funded R&D Centers (FFRDCs)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
c. Businesses	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
d. Higher education	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
e. Other nonprofits	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
f. State and local government	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
g. Non-U.S. performers	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
h. Total, non-federal performers (rows c–g)	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
i. Total, all performers	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row i above should match the FY 2021 amounts from question 5, rows a–c, and question 3, rows b–c, displayed here.</i>	<i>Q5.a.3.1 value</i>	<i>Q5.b.3.1 value</i>	<i>Q5.c.3.1 value</i>	<i>Q3.b.1 value</i>	<i>Q3.c.1 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

9 FY 2022 R&D obligations by performer and type of work

For each of the following types of R&D performers, what are your agency’s estimated obligations for R&D conduct by type of work and for R&D plant in FY 2022?

- Previous table number: 7 and 11
- Change: R&D conduct and R&D plant combined into one question; requests overall FFRDC totals rather than by type of administrator; portion of funding for personnel costs no longer collected.
 - Report obligations in terms of the immediate recipient, even if funds were later passed on to subgrantees or subcontractors.
 - See question 8 for definitions of R&D performers.

**R&D Obligations (FY 2022 Estimated)
(Round to the nearest dollar)**

R&D performer	(1) Basic research	(2) Applied research	(3) Experimental development	(4) R&D plant	(5) Total R&D conduct and plant
a. Federal	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
b. Federally Funded R&D Centers (FFRDCs)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
c. Businesses	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
d. Higher education	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
e. Other nonprofits	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
f. State and local government	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
g. Non-U.S. performers	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
h. Total, non-federal performers (rows c–g)	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
i. Total, all performers	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row i above should match the FY 2022 amounts from question 5, rows a–c, and question 3, rows b–c displayed here</i>					
	<i>Q5.a.3.2 value</i>	<i>Q5.b.3.2 value</i>	<i>Q5.c.3.2 value</i>	<i>Q3.b.2 value</i>	<i>Q3.c.2 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

10 FY 2021 R&D obligations to non-federal performers by type of agreement

What were your agency’s R&D obligations to non-federal performers in FY 2021 by the following types of agreement?

- **Change:** New question. Collects amounts for grants and contracts funding R&D conduct and R&D plant.

Non-federal performers are defined in question 8 rows c–g and include:

- Businesses
- Higher education
- Other nonprofits
- State and local governments
- Non-U.S. performers

Exclude R&D obligations to:

- Federal performers (question 8 row a)
- FFRDCs (question 8 row b)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

	(1)	(2)	(3)
Type of agreement	R&D conduct	R&D plant	Total R&D conduct and plant TOTAL
a. Contracts and Other Transactions Contracts are legal commitments in which a good or service is provided by the external performer that benefits your agency. Your agency specifies the deliverables and gains the rights to results. These should be consistent with OMB Object Class 25.5, research and development contracts. See OMB Circular A-11, Section 83.6, Schedule O. For the purpose of this survey, also include Other Transaction (OT) agreements for R&D.	\$ _____	\$ _____	
b. Grants and Cooperative Agreements Grants are legal agreements to provide funding by your agency to support a specific purpose, but not to acquire property and services for your agency. Substantial involvement from your agency is not expected. For the purpose of this survey, also include cooperative agreements (e.g., CRADAs).	\$ _____	\$ _____	TOTAL
c. Total	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row c above should match the totals from question 8.h, columns 1–5 displayed here.</i>	Q8.h.1 + Q8.h.2 + Q8.h.3 value	Q8.h.4 value	Q8.h.5 value

If needed, use the space below to provide clarification for the data reported in this question.

11 FY 2021 R&D agreements with other federal agencies

How much of your agency's R&D obligations were provided to other federal agencies outside your department in FY 2021?

- Change: New question. Collects funding totals for interagency agreements or other similar transactions in which your agency provided funds for R&D conduct and R&D plant to other agencies.
 - Include all obligations which your agency provided to other federal agencies through interagency agreements or other similar transactions to conduct R&D on behalf of your agency.
 - Do not include transfers within your department or agency.

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Federal agency to whom funds were provided	(a) R&D conduct	(b) R&D plant	(c) Total R&D conduct and plant
1. Department of Agriculture	\$ _____	\$ _____	TOTAL
2. Department of Commerce	\$ _____	\$ _____	TOTAL
3. Department of Defense			
a. Defense Health Agency	\$ _____	\$ _____	TOTAL
b. Department of the Air Force	\$ _____	\$ _____	TOTAL
c. Department of the Army	\$ _____	\$ _____	TOTAL
d. Department of the Navy	\$ _____	\$ _____	TOTAL
e. U.S. Space Force	\$ _____	\$ _____	TOTAL
f. Other DOD	\$ _____	\$ _____	TOTAL
4. Department of Education	\$ _____	\$ _____	TOTAL
5. Department of Energy	\$ _____	\$ _____	TOTAL
6. Department of Health and Human Services	\$ _____	\$ _____	TOTAL
7. Department of Homeland Security	\$ _____	\$ _____	TOTAL
8. Department of the Interior	\$ _____	\$ _____	TOTAL
9. Department of Justice	\$ _____	\$ _____	TOTAL
10. Department of Labor	\$ _____	\$ _____	TOTAL
11. Department of State	\$ _____	\$ _____	TOTAL
12. Department of Transportation	\$ _____	\$ _____	TOTAL
13. Department of the Treasury	\$ _____	\$ _____	TOTAL
14. Department of Veterans Affairs	\$ _____	\$ _____	TOTAL

➔ Question 11 continues on the next page.

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11 FY 2021 R&D agreements with other federal agencies (continued)

**R&D obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Federal agency to whom funds were provided	(a) R&D conduct	(b) R&D plant	(c) Total R&D conduct and plant
15. Administrative Office of the U.S. Courts	\$ _____	\$ _____	TOTAL
16. Agency for International Development	\$ _____	\$ _____	TOTAL
17. Appalachian Regional Commission	\$ _____	\$ _____	TOTAL
18. Consumer Product Safety Commission	\$ _____	\$ _____	TOTAL
19. Environmental Protection Agency	\$ _____	\$ _____	TOTAL
20. Federal Communications Commission	\$ _____	\$ _____	TOTAL
21. Federal Trade Commission	\$ _____	\$ _____	TOTAL
22. Library of Congress	\$ _____	\$ _____	TOTAL
23. National Aeronautics and Space Administration	\$ _____	\$ _____	TOTAL
24. National Archives and Records Administration	\$ _____	\$ _____	TOTAL
25. National Science Foundation	\$ _____	\$ _____	TOTAL
26. Nuclear Regulatory Commission	\$ _____	\$ _____	TOTAL
27. Patient-Centered Outcomes Research Trust Fund	\$ _____	\$ _____	TOTAL
28. RESTORE Act Centers of Excellence Research Grants Program	\$ _____	\$ _____	TOTAL
29. Smithsonian Institution	\$ _____	\$ _____	TOTAL
30. Social Security Administration	\$ _____	\$ _____	TOTAL
31. Tennessee Valley Authority	\$ _____	\$ _____	TOTAL
32. U.S. Agency for Global Media	\$ _____	\$ _____	TOTAL
33. U.S. Postal Service	\$ _____	\$ _____	TOTAL
34. Other department/agency (describe in text box below)	\$ _____	\$ _____	TOTAL
35. Total	TOTAL	TOTAL	TOTAL

If needed, use the space below to provide clarification for the data reported in this question.

12 FY 2021 obligations for R&D conduct by performer and state

What were your agency’s obligations for R&D conduct to the following types of performers by state in FY 2021?

- Previous table number: 12
- Change: Requests overall FFRDC totals rather than by type of administrator. Previously limited to selected agencies, now required for all agencies.
- If the location of performance is not available, use the state in which the performing organization’s headquarters is located.

**R&D Obligations (FY 2021 Actual)
Round to the nearest dollar)**

State	(a) Federal	(b) FFRDCs	(c) Businesses	(d) Higher education	(e) Other non- profits	(f) State and local government	(g) Total R&D conduct in state
1. Alabama	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
2. Alaska	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
3. Arizona	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
4. Arkansas	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
5. California	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
6. Colorado	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
7. Connecticut	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
8. Delaware	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
9. District of Columbia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
10. Florida	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
11. Georgia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
12. Hawaii	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
13. Idaho	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
14. Illinois	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
15. Indiana	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
16. Iowa	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
17. Kansas	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
18. Kentucky	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
19. Louisiana	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL

→ Question 12 continues on the next page.

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NSF Survey of Federal Funds for Research and Development (Standard Form) – Volume 71 (FYs 2021–22)

12 FY 2021 obligations for R&D conduct by performer and state (continued)

**R&D Obligations (FY 2021 Actual)
Round to the nearest dollar**

State	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	Federal	FFRDCs	Businesses	Higher education	Other nonprofits	State and local government	Total R&D conduct in state
20. Maine	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
21. Maryland	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
22. Massachusetts	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
23. Michigan	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
24. Minnesota	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
25. Mississippi	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
26. Missouri	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
27. Montana	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
28. Nebraska	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
29. Nevada	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
30. New Hampshire	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
31. New Jersey	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
32. New Mexico	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
33. New York	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
34. North Carolina	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
35. North Dakota	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
36. Ohio	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
37. Oklahoma	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
38. Oregon	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
39. Pennsylvania	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
40. Rhode Island	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
41. South Carolina	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
42. South Dakota	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL

➔ Question 12 continues on the next page.

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NSF Survey of Federal Funds for Research and Development (Standard Form) – Volume 71 (FYs 2021–22)

12 FY 2021 obligations for R&D conduct by performer and state (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

State	(a) Federal	(b) FFRDCs	(c) Businesses	(d) Higher education	(e) Other nonprofits	(f) State and local government	(g) Total R&D conduct in state
43. Tennessee	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
44. Texas	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
45. Utah	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
46. Vermont	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
47. Virginia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
48. Washington	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
49. West Virginia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
50. Wisconsin	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
51. Wyoming	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
52. Puerto Rico	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
53. Other U.S. territories	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
54. Offices abroad • R&D performed or administered in foreign countries by the U.S. government	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
55. Total	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row 55 above should match the amounts from question 8, rows a–f, sum of columns 1–3 displayed here.</i>	Q8.a.1 + Q8.a.2 + Q8.a.3 value	Q8.b.1 + Q8.b.2 + Q8.b.3 value	Q8.c.1 + Q8.c.2 + Q8.c.3 value	Q8.d.1 + Q8.d.2 + Q8.d.3 value	Q8.e.1 + Q8.e.2 + Q8.e.3 value	Q8.f.1 + Q8.f.2 + Q8.f.3 value	<i>Total of question 8, rows a–f, sum of columns 1–3 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

13 FY 2021 R&D plant obligations by performer and state

What were your agency’s obligations for R&D plant to the following types of performers by state in FY 2021?

- Previous table number: 13
- Change: Requests overall FFRDC totals rather than by type of administrator. Previously limited to selected agencies, now required for all agencies.

- If the location of performance is not available, use the state in which the performing organization’s headquarters is located.

**R&D Plant Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

State	(a) Federal	(b) FFRDCs	(c) Businesses	(d) Higher education	(e) Other non-profits	(f) State and local government	(g) Total R&D plant in state
1. Alabama	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
2. Alaska	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
3. Arizona	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
4. Arkansas	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
5. California	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
6. Colorado	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
7. Connecticut	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
8. Delaware	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
9. District of Columbia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
10. Florida	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
11. Georgia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
12. Hawaii	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
13. Idaho	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
14. Illinois	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
15. Indiana	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
16. Iowa	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
17. Kansas	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
18. Kentucky	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
19. Louisiana	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL

→ Question 13 continues on the next page.

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13 FY 2021 R&D plant obligations by performer and state (continued)

**R&D Plant Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

State	(a) Federal	(b) FFRDCs	(c) Businesses	(d) Higher education	(e) Other nonprofits	(f) State and local governments	(g) Total R&D plant in state
20. Maine	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
21. Maryland	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
22. Massachusetts	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
23. Michigan	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
24. Minnesota	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
25. Mississippi	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
26. Missouri	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
27. Montana	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
28. Nebraska	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
29. Nevada	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
30. New Hampshire	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
31. New Jersey	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
32. New Mexico	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
33. New York	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
34. North Carolina	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
35. North Dakota	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
36. Ohio	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
37. Oklahoma	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
38. Oregon	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
39. Pennsylvania	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
40. Rhode Island	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
41. South Carolina	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
42. South Dakota	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
43. Tennessee	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL

➔ Question 13 continues on the next page.

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13 FY 2021 R&D plant obligations by performer and state (continued)

**R&D Plant Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

State	(a) Federal	(b) FFRDCs	(c) Businesses	(d) Higher education	(e) Other nonprofits	(f) State and local government	(g) Total R&D plant in state
44. Texas	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
45. Utah	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
46. Vermont	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
47. Virginia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
48. Washington	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
49. West Virginia	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
50. Wisconsin	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
51. Wyoming	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
52. Puerto Rico	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
53. Other U.S. territories	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
54. Offices abroad • R&D performed or administered in foreign countries by the U.S. government	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
55. Total	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row 55 above should match the totals from question 8, rows a–f, column 4 displayed here.</i>	<i>Q8.a.4 value</i>	<i>Q8.b.4 value</i>	<i>Q8.c.4 value</i>	<i>Q8.d.4 value</i>	<i>Q8.e.4 value</i>	<i>Q8.f.4 value</i>	<i>Total of question 8, rows a–f, column 4 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

14 FY 2021 R&D obligations to non-U.S. performers by country

What were your agency’s obligations for R&D conduct and R&D plant to non-U.S. performers of R&D by country in FY 2021?

- Previous table number: 10
- Change: Request for data on basic research replaced with request for total R&D conduct and R&D plant only; countries listed alphabetically.
- Report based on the country of the R&D performing organization. If an R&D obligation was performed in multiple countries, then prorate the funding based on the countries involved.

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Country	(1) R&D conduct	(2) R&D plant	(3) Total R&D conduct and plant
a. International organizations (such as North Atlantic Treaty Organization (NATO), United Nations Educational, Scientific, and Cultural Organization (UNESCO), and the World Health Organization (WHO)).	\$ _____	\$ _____	TOTAL
b. Report individually for each country, using the drop-down menu on the web questionnaire.	\$ _____	\$ _____	TOTAL
c. Total	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row c above should match the amounts from question 8.g, columns 1–5 displayed here.</i>	<i>Q8.g.1 + Q8.g.2 + Q8.g.3 value</i>	<i>Q8.g.4 value</i>	<i>Q8.g.5 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

15 FY 2021 obligations for R&D conduct to higher education institutions by type of work and detailed field of R&D

What were your agency’s obligations to higher education institutions for basic research, applied research, and experimental development in the following fields of R&D in FY 2021?

- Previous table number: 14
- Change: Added experimental development category; some fields added, merged, or split. Previously limited to selected agencies, now required for all agencies with obligations to higher education institutions.
- If an obligation was intended to support R&D in multiple fields (i.e., interdisciplinary research), please prorate the obligation for each field involved when possible. Do not double-count funds across multiple fields.
- Examples of fields and disciplines are provided in a supplemental list at the end of the survey.

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Field of R&D	(a) Basic research	(b) Applied research	(c) Experimental develop- ment	(d) Total R&D conduct
a. Computer and information sciences	\$ _____	\$ _____	\$ _____	TOTAL
b. Geosciences, atmospheric sciences, and ocean sciences				
1. Atmospheric science and meteorology	\$ _____	\$ _____	\$ _____	TOTAL
2. Geological and earth sciences	\$ _____	\$ _____	\$ _____	TOTAL
3. Ocean sciences and marine sciences	\$ _____	\$ _____	\$ _____	TOTAL
4. Other geosciences, atmospheric sciences, and ocean sciences	\$ _____	\$ _____	\$ _____	TOTAL
5. Total geosciences, atmospheric sciences, and ocean sciences	TOTAL	TOTAL	TOTAL	TOTAL
c. Life sciences				
1. Agricultural sciences	\$ _____	\$ _____	\$ _____	TOTAL
2. Biological and biomedical sciences	\$ _____	\$ _____	\$ _____	TOTAL
3. Health sciences	\$ _____	\$ _____	\$ _____	TOTAL
4. Natural resources and conservation	\$ _____	\$ _____	\$ _____	TOTAL
5. Other life sciences	\$ _____	\$ _____	\$ _____	TOTAL
6. Total life sciences	TOTAL	TOTAL	TOTAL	TOTAL
d. Mathematics and statistics	\$ _____	\$ _____	\$ _____	TOTAL

→ Question 15 continues on the next page.

15 FY 2021 obligations for R&D conduct to higher education institutions by type of work and detailed field of R&D (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Field of R&D	(a) Basic research	(b) Applied research	(c) Experimental development	(d) Total R&D conduct
d. Physical sciences				
1. Astronomy and astrophysics	\$ _____	\$ _____	\$ _____	TOTAL
2. Chemistry	\$ _____	\$ _____	\$ _____	TOTAL
3. Materials science	\$ _____	\$ _____	\$ _____	TOTAL
4. Physics	\$ _____	\$ _____	\$ _____	TOTAL
5. Other physical sciences	\$ _____	\$ _____	\$ _____	TOTAL
6. Total physical sciences	TOTAL	TOTAL	TOTAL	TOTAL
e. Psychology				
1. Biological aspects	\$ _____	\$ _____	\$ _____	TOTAL
2. Social aspects	\$ _____	\$ _____	\$ _____	TOTAL
3. Other psychological sciences	\$ _____	\$ _____	\$ _____	TOTAL
4. Total psychology	TOTAL	TOTAL	TOTAL	TOTAL
f. Social sciences				
1. Anthropology	\$ _____	\$ _____	\$ _____	TOTAL
2. Economics	\$ _____	\$ _____	\$ _____	TOTAL
3. Political science and government	\$ _____	\$ _____	\$ _____	TOTAL
4. Sociology, demography, and population studies	\$ _____	\$ _____	\$ _____	TOTAL
5. Other social sciences	\$ _____	\$ _____	\$ _____	TOTAL
6. Total social sciences	TOTAL	TOTAL	TOTAL	TOTAL
g. Engineering				
1. Aerospace, aeronautical, and astronautical engineering	\$ _____	\$ _____	\$ _____	TOTAL
2. Bioengineering and biomedical engineering	\$ _____	\$ _____	\$ _____	TOTAL
3. Chemical engineering	\$ _____	\$ _____	\$ _____	TOTAL
4. Civil engineering	\$ _____	\$ _____	\$ _____	TOTAL
5. Electrical, electronics, and communications engineering	\$ _____	\$ _____	\$ _____	TOTAL
6. Industrial and manufacturing engineering	\$ _____	\$ _____	\$ _____	TOTAL
7. Mechanical engineering	\$ _____	\$ _____	\$ _____	TOTAL
8. Metallurgical and materials engineering	\$ _____	\$ _____	\$ _____	TOTAL
9. Other engineering	\$ _____	\$ _____	\$ _____	TOTAL
10. Total engineering	TOTAL	TOTAL	TOTAL	TOTAL

→ Question 15 continues on the next page.

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15 FY 2021 obligations for R&D conduct to higher education institutions by type of work and detailed field of R&D (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Field of R&D	(a) Basic research	(b) Applied research	(c) Experimental development	(d) Total R&D conduct
h. Other fields				
1. Business management and business administration	\$ _____	\$ _____	\$ _____	TOTAL
2. Communication and communications technologies	\$ _____	\$ _____	\$ _____	TOTAL
3. Education research	\$ _____	\$ _____	\$ _____	TOTAL
4. Humanities	\$ _____	\$ _____	\$ _____	TOTAL
5. Law	\$ _____	\$ _____	\$ _____	TOTAL
6. Social work	\$ _____	\$ _____	\$ _____	TOTAL
7. Visual and performing arts	\$ _____	\$ _____	\$ _____	TOTAL
8. All other fields	\$ _____	\$ _____	\$ _____	TOTAL
9. Total other fields	TOTAL	TOTAL	TOTAL	TOTAL
i. Total, all fields of R&D conduct	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row j above should match the amounts from question 8.d, columns 1–3 displayed here.</i>	<i>Q8.d.1 value</i>	<i>Q8.d.2 value</i>	<i>Q8.d.3 value</i>	<i>Q8.d.1 + Q8.d.2 + Q8.d.3 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

16 FY 2021 R&D obligations to FFRDCs by type of work

What were your agency’s obligations to all FFRDCs by type of R&D conduct and for R&D plant in FY 2021?

- Previous table number: 9
- Change: FFRDCs organized alphabetically; R&D conduct requested by type.
- Include your agency's obligations to all FFRDCs, regardless of whether your agency sponsors the FFRDC.
- Information on sponsoring agency and administering organization for each FFRDC is available on the NSF website at <https://www.nsf.gov/statistics/ffrdclist/>

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

FFRDC	(a) Basic research	(b) Applied research	(c) Experi- mental develop- ment	(d) R&D plant	(e) Total R&D conduct and plant
1. Aerospace Federally Funded Research and Development Center (El Segundo, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
2. Ames Laboratory (Ames, IA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
3. Argonne National Laboratory (Argonne, IL)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
4. Arroyo Center (Santa Monica, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
5. Brookhaven National Laboratory (Upton, NY)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
6. Center for Advanced Aviation System Development (McLean, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
7. Center for Communications and Computing (Alexandria, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
8. Center for Enterprise Modernization (McLean, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
9. Center for Naval Analyses (Arlington, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
10. Center for Nuclear Waste Regulatory Analyses (San Antonio, TX)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
11. CMS Alliance to Modernize Healthcare (Baltimore, MD)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
12. Fermi National Accelerator Laboratory (Batavia, IL)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL

→ Question 16 continues on the next page.

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NSF Survey of Federal Funds for Research and Development (Standard Form) – Volume 71 (FYs 2021–22)

16 FY 2021 R&D obligations to FFRDCs by type of work (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

FFRDC	(a) Basic research	(b) Applied research	(c) Experi- mental develop- ment	(d) R&D plant	(e) Total R&D conduct and plant
13. Frederick National Laboratory for Cancer Research (Frederick, MD)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
14. Green Bank Observatory (Green Bank, WV)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
15. Homeland Security Operational Analysis Center (Arlington, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
16. Homeland Security Systems Engineering and Development Institute (McLean, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
17. Idaho National Laboratory (Idaho Falls, ID)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
18. Jet Propulsion Laboratory (Pasadena, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
19. Judiciary Engineering and Modernization Center (McLean, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
20. Lawrence Berkeley National Laboratory (Berkeley, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
21. Lawrence Livermore National Laboratory (Livermore, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
22. Lincoln Laboratory (Lexington, MA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
23. Los Alamos National Laboratory (Los Alamos, NM)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
24. National Biodefense Analysis and Countermeasures Center (Frederick, MD)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
25. National Center for Atmospheric Research (Boulder, CO)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
26. National Cybersecurity Center of Excellence (Rockville, MD)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
27. National Defense Research Institute (Santa Monica, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
28. National Radio Astronomy Observatory (Charlottesville, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
29. National Renewable Energy Laboratory (Golden, CO)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL

→ Question 16 continues on the next page.

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NSF Survey of Federal Funds for Research and Development (Standard Form) – Volume 71 (FYs 2021–22)

16 FY 2021 R&D obligations to FFRDCs by type of work (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

FFRDC	(a) Basic research	(b) Applied research	(c) Experi- mental develop- ment	(d) R&D plant	(e) Total R&D conduct and plant
30. National Security Engineering Center -- Bedford, MA Laboratory	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
31. National Security Engineering Center -- McLean, VA Laboratory	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
32. National Solar Observatory (Boulder, CO)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
33. NSF's National Optical-Infrared Astronomy Research Laboratory (Tucson, AZ)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
34. Oak Ridge National Laboratory (Oak Ridge, TN)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
35. Pacific Northwest National Laboratory (Richland, WA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
36. Princeton Plasma Physics Laboratory (Princeton, NJ)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
37. Project Air Force (Santa Monica, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
38. Sandia National Laboratories (Albuquerque, NM)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
39. Savannah River National Laboratory (Aiken, SC)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
40. Science and Technology Policy Institute (Washington, DC)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
41. SLAC National Accelerator Laboratory (Menlo Park, CA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
42. Software Engineering Institute (Pittsburgh, PA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
43. Systems and Analyses Center (Alexandria, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
44. Thomas Jefferson National Accelerator Facility (Newport News, VA)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
45. Total	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row 45 above should match the amounts from question 8b, columns 1–5 displayed here.</i>	<i>Q8.b.1 value</i>	<i>Q8.b.2 value</i>	<i>Q8.b.3 value</i>	<i>Q8.b.4 value</i>	<i>Q8.b.5 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

17 FY 2021 R&D obligations to University Affiliated Research Centers (UARCs) by type of work

What were your agency’s obligations to all UARCs by type of R&D conduct and for R&D plant in FY 2021?

- Change: New question. Collects information on obligations for University Affiliated Research Centers (UARCs).
- Include your agency's obligations to all UARCs.

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

UARC	(a) Basic research	(b) Applied research	(c) Experi- mental develop- ment	(d) R&D plant	(e) Total R&D and plant
1. Georgia Institute of Technology, Georgia Tech Research Institute (GTRI) (Organization code 502546)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
2. Johns Hopkins University (JHU) Applied Physics Laboratory (APL) (Organization code 500594)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
3. Massachusetts Institute of Technology (MIT) Institute for Soldier Nanotechnologies (ISN) (Organization code 502547)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
4. Pennsylvania State University (PSU) Applied Research Laboratory (ARL) (Organization code 502550)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
5. Stevens Institute of Technology (SIT) Systems Engineering Research Center (SERC) (Organization code 502555)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
6. University of Alaska (UAK) Geophysical Detection of Nuclear Proliferation (GDNP) (Organization code 700110)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
7. University of California, Santa Barbara (UCSB) Institute for Collaborative Biotechnologies (ICB) (Organization code 502548)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
8. University of Hawaii, Manoa (UH) Applied Research Laboratory (ARL) (Organization code 502551)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
9. University of Maryland College Park (UMD) Applied Research Laboratory for Intelligence and Security (ARLIS) (Organization code 502556)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL

➔ Question 17 continues on the next page.

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NSF Survey of Federal Funds for Research and Development (Standard Form) – Volume 71 (FYs 2021–22)

17 FY 2021 R&D obligations to University Affiliated Research Centers (UARCs) by type of work (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

UARC	(a) Basic research	(b) Applied research	(c) Experi- mental develop- ment	(d) R&D plant	(e) Total R&D and plant
10. University of Nebraska (UNE) National Strategic Research Institute (NSRI) (Organization code 502365)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
11. University of Southern California Institute for Creative Technologies (USC ICT) (Organization code 502549)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
12. University of Texas (UT) at Austin Applied Research Laboratories (ARL) (Organization code 502552)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
13. University of Washington (UW) Applied Physics Laboratory (Organization code 502553)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
14. Utah State University (USU) Space Dynamics Laboratory (SDL) (Organization code 502554)	\$ _____	\$ _____	\$ _____	\$ _____	TOTAL
15. Total	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
<i>Cross check: totals in row 15 above should be less than or equal to the amounts from question 8.d, columns 1–5 displayed here.</i>	<i>Q8.d.1 value</i>	<i>Q8.d.2 value</i>	<i>Q8.d.3 value</i>	<i>Q8.d.4 value</i>	<i>Q8.d.5 value</i>

If needed, use the space below to provide clarification for the data reported in this question.

18 FY 2021 R&D obligations and science and engineering (S&E) support to individual U.S. higher education institutions and consortia

What were your agency’s obligations for R&D and science and engineering (S&E) support to higher education institutions in FY 2021?

- Previous table number: Moved from Federal S&E Support Survey.
- Change: Categories of general support for S&E and other S&E activities combined.

Report all obligations in terms of the immediate recipient, even if these funds were later passed on to subgrantees or subcontractors.

Include:

- Awards to individuals. Report these in columns 3, 6, or 8. If there is no institution name associated with the awards to individuals, please select "Institution unknown" for column 1.
- Awards to University Affiliated Research Centers (UARCs) should be included in the totals to the respective institutions of higher education.

Exclude:

- Obligations to FFRDCs.

Higher education institutions (formerly “universities and colleges”): Institutions that engage primarily in providing resident and/or accredited instruction for a not less than a 2-year program above the secondary school level that is acceptable for full credit toward a bachelor’s degree or that provide not less than a 1-year program of training above the secondary school level that prepares students for gainful employment in a recognized occupation. Included are colleges of liberal arts; schools of arts and sciences; professional schools, as in engineering and medicine, including affiliated hospitals and associated research institutes; and agricultural experiment stations.

Consortia: Organizations formed by the membership of a number of institutions from one or more types of performers (i.e., higher education or nonprofit) in order to promote and support efforts to enhance knowledge in one or more disciplines. If a consortium’s members are not primarily academic or nonprofit, but the consortium is legally organized as a nonprofit, NSF classifies that consortium as a nonprofit institution. A list of consortia and their classification as either academic or nonprofit is included in the organization code search tool.

Organization code: This code (previously called the FICE code) can be found in the website’s organization code search tool. *(If you cannot find the organization code, please contact survey support to have one assigned.)*

S&E fellowships, traineeships, and training grants: These types of support are primarily for the development of the scientific or technical workforce. Exclude awards supporting research; these should be reported as R&D conduct.

Facilities and equipment for instruction in S&E: Programs whose principal purpose is to provide support for construction, acquisition, renovation, modification, repair, or rental of facilities, land, works, or equipment, for use in S&E instruction. If the facilities or equipment are used for mixed purposes, report only the amount used for S&E instruction here.

Other general support for S&E: Activities that provide general or nonspecific support related to scientific research and education. These include projects awarded through the NIH Minority Biomedical Research Support for Undergraduate Colleges and NIH Biomedical Support Grants. Also includes S&E activities that cannot be assigned to one of the above categories, including support for scientific conferences, teacher institutes, and S&E activities for precollege and undergraduate students.

→ Question 18 continues on the next page.

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18 FY 2021 R&D obligations and science and engineering (S&E) support to individual U.S. higher education institutions and consortia (continued)

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

Institution information (1–2), R&D obligations (3–5), Obligations for S&E (not counting R&D) (6–8)

(1) Institution or consortium name	(2) 6-digit organization code	(3) R&D conduct	(4) R&D plant	(5) Total R&D conduct and plant	(6) S&E fellowships, traineeships, and training grants	(7) Facilities and equipment for instruction in S&E	(8) Other general support for S&E
a. _____	\$ _____	\$ _____	\$ _____	TOTAL	\$ _____	\$ _____	\$ _____
b. _____	\$ _____	\$ _____	\$ _____	TOTAL	\$ _____	\$ _____	\$ _____
		TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL

If needed, use the space below to provide clarification for the data reported in this question, including why it may not match your higher education totals from question 8, which are included for reference below.

R&D performer	Basic research	Applied research	Experimental development	R&D plant	Total R&D conduct and plant
Higher education	Autofill	Autofill	Autofill	Autofill	Autofill

19 FY 2021 R&D obligations to individual U.S. nonprofit organizations other than higher education institutions

What were your agency’s R&D conduct and R&D plant obligations to nonprofit organizations in FY 2021?

- Previous table number: Moved from Federal S&E Support Survey.

This question applies only if you are reporting R&D conduct or R&D plant obligations to nonprofit organizations in question 8e.

Report all obligations in terms of the immediate recipient, even if these funds were later passed on to subgrantees or subcontractors.

Include:

- Obligations to nonprofit consortia. A list of consortia and their classification as either academic or nonprofit can be found in the website’s organization code search tool.

Exclude:

- Support for science and engineering (S&E) other than R&D conduct and R&D plant.
- Funds your agency transferred to other federal agencies, who then obligated the funds to nonprofit organizations.
- Obligations to FFRDCs.

Nonprofit organization: A business granted tax-exempt status by the IRS. Nonprofits pay no income tax on the donations they receive or on any money that they earn through fundraising activities. Nonprofit organizations are sometimes called NPOs or 501(c) organizations, based on the section of the tax code that permits them to operate.

Organization code: This code (previously called the FICE code) can be found in the website’s organization code search tool. *(If you cannot find the organization code, please contact survey support to have one assigned.)*

**R&D Obligations (FY 2021 Actual)
(Round to the nearest dollar)**

(1) Institution or consortium name	(2) 6-digit organization code	(3) R&D conduct	(4) R&D plant	(5) Total R&D conduct and plant
a. <input style="width: 90%;" type="text"/>	\$ <input style="width: 50%;" type="text"/>	\$ <input style="width: 50%;" type="text"/>	\$ <input style="width: 50%;" type="text"/>	TOTAL
b. <input style="width: 90%;" type="text"/>	\$ <input style="width: 50%;" type="text"/>	\$ <input style="width: 50%;" type="text"/>	\$ <input style="width: 50%;" type="text"/>	TOTAL
		TOTAL	TOTAL	TOTAL

If needed, use the space below to provide clarification for the data reported in this question, including why it may not match your other nonprofits totals from question 8, which are included for reference below.

R&D performer	Basic research	Applied research	Experimental development	R&D plant	Total R&D conduct and plant
Other nonprofits	Autofill	Autofill	Autofill	Autofill	Autofill

Reference Materials

About the Survey of Federal Funds for Research and Development (R&D)

Who sponsors the survey?

The National Center for Science and Engineering Statistics (NCSES), within the National Science Foundation (NSF), an independent government agency, sponsors the *Survey of Federal Funds for Research and Development* (Federal Funds for R&D). NSF has collected data on federal funding for R&D from this annual census of federal agencies since 1951.

Why is the survey important?

This survey is the primary source of detailed information about federal funding for R&D in the United States.

The Office of Management and Budget (OMB) Circular A-11, Section 84, Schedule C collects some R&D data from federal agencies for the Budget of the U.S. Government, specifically outlays for R&D by type of work and R&D plant. However, the information provided does not provide as much detail on type of work or performers as this survey, and it provides no information on fields of R&D or geographic distribution.

Your survey responses are also used in the federal government's calculation of Gross Domestic Product, for analysis in public policy and science policy, and for budget purposes of three federal programs: Federal Laboratory Consortium for Technology Transfer, Small Business Innovation Research (SBIR), and Small Business Technology Transfer (STTR).

Are these data confidential?

No, these data are a matter of public record.

What is the authority for collecting these data?

Legislation makes provision for the collection of this survey data, under the National Science Foundation Act of 1950 (42 U.S. Code. 1862, P.L. 87-835), as amended, and the America COMPETES Reauthorization Act of 2010 §505.

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Crosswalk of previous survey (Volume 70) and current survey (Volume 71) with description of changes or reason for new question

For volume 71, only question 5 includes responses where you are asked to separately report any stimulus funds received from the Coronavirus, Aid, Relief, and Economic Security Act plus any other pandemic-related supplemental appropriations (i.e., “Stimulus”) from regular appropriations (i.e., “Non-Stimulus”). Your totals in other tables should include both stimulus and non-stimulus amounts. The removal of the stimulus and non-stimulus fields from other tables is not mentioned below.

Previous table number	Current question number	Question title	Description of change or reason for new question
1	1	FYs 2021 and 2022 outlays for R&D and R&D plant	No change
1A, 1B	2	FY 2021 comparison of R&D outlays with OMB Circular A-11, Schedule C	Combined previous tables into one question and only requests one year.
2	3	FYs 2021 and 2022 total obligations for R&D and R&D plant	Collects R&D and R&D plant totals used for the rest of the survey. R&D conduct by type of work now collected in question 5.
New	4	FY 2021 R&D deobligations	Some agencies have expressed uncertainty over the treatment of previous years' deobligated R&D funding in the overall totals. While these deobligations of prior year funding should continue to be excluded from the current survey totals, this question was added to obtain an overall measurement of the amount of deobligations in FY 2021. The results will be used to inform possible future revisions to the survey.
2	5	FYs 2021 and 2022 obligations for R&D conduct by type of work	R&D plant now collected in question 3.
3	6	FY 2021 obligations for R&D conduct by type of work and detailed field of R&D	Added experimental development category; some fields added, merged, or split.
4	7	FY 2022 obligations for R&D conduct by type of work and broad field of R&D	Added experimental development category; some fields added or split.
6, 11	8	FY 2021 R&D obligations by performer and type of work	R&D conduct and R&D plant combined into one question; requests overall FFRDC totals rather than by type of administrator; portion of funding for personnel costs no longer collected.
7, 11	9	FY 2022 R&D obligations by performer and type of work	R&D conduct and R&D plant combined into one question; requests overall FFRDC totals rather than by type of administrator; portion of funding for personnel costs no longer collected.
New	10	FY 2021 non-federal R&D obligations by type of agreement	Collects amounts for grants and contracts funding R&D conduct and R&D plant.

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Crosswalk of previous survey (Volume 70) and current survey (Volume 71) with description of changes or reason for new question (continued)

Previous table number	Current question number	Question title	Description of change or reason for new question
New	11	FY 2021 R&D agreements with other federal agencies	Collects funding totals for interagency agreements in which your agency provided funds for R&D conduct and R&D plant to other agencies.
12	12	FY 2021 obligations for R&D conduct by performer and state	Requests overall FFRDC totals rather than by type of administrator. Previously limited to selected agencies, now required for all agencies.
13	13	FY 2021 R&D plant obligations by performer and state	Requests overall FFRDC totals rather than by type of administrator.
10	14	FY 2021 R&D obligations to non-U.S. performers by country	Requests overall FFRDC totals rather than by type of administrator. Countries listed alphabetically. Previously limited to selected agencies, now required for all agencies.
14	15	FY 2021 obligations for R&D conduct to higher education institutions by type of work and detailed field of R&D	Added experimental development category; some fields added, merged, or split. Previously limited to selected agencies, now required for all agencies with obligations to higher education institutions.
9	16	FY 2021 R&D obligations to FFRDCs by type of work	FFRDCs organized alphabetically; R&D conduct requested by type.
New	17	FY 2021 R&D and R&D plant obligations to UARCs by type of work	R&D requested by type.
Federal S&E Support Survey	18	FY 2021 R&D obligations and science and engineering (S&E) support to individual higher education institutions and consortia	Question moved from Federal S&E Support Survey; categories of general support for S&E and other S&E activities combined.
Federal S&E Support Survey	19	FY 2021 R&D obligations to individual nonprofit organizations other than higher education institutions	Question moved from Federal S&E Support Survey.
5	Deleted	Obligations for basic, applied, and total research by field of S&E (for budget year)	No longer collect data for budget year.
6.1, 6.2, 7.1, 11.1, 11.2, 12.1, 13.1	Deleted	R&D obligations by different criteria and funding type, or obligations for COVID-19 related R&D	Collection of data on funding type (stimulus/non-stimulus) limited to new table 5 for this collection
8	Deleted	R&D obligations by performer and type of R&D (for budget year)	No longer collect data for budget year.
15, 16	Deleted	Obligations for basic, applied, and total research performed at universities and colleges, excluding FFRDCs, by broad field of S&E (for current and budget year)	Only collecting data for prior year for R&D obligations by field to higher education performers (question 15).

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Federal Funds for R&D Field Revision Crosswalk

Volume 70 field	Change	Volume 71 field
Computer sciences and mathematics Computer sciences	Separated	Computer and information sciences
Mathematics Other computer sciences and mathematics	Separated	Mathematics and statistics
Engineering		Engineering
Aeronautical engineering Astronautical engineering	Combined	Aerospace, aeronautical, and astronautical engineering
	New item	Bioengineering and biomedical engineering
Chemical engineering		Chemical engineering
Civil engineering		Civil engineering
Electrical engineering	New wording	Electrical, electronics, and communications engineering
	New item	Industrial and manufacturing engineering
Mechanical engineering		Mechanical engineering
Metallurgy and materials engineering	New wording	Metallurgical and materials engineering
Other engineering		Other engineering
Environmental sciences	New wording	Geosciences, atmospheric sciences, and ocean sciences
Atmospheric sciences	New wording	Atmospheric science and meteorology
Geological sciences	New wording	Geological and earth sciences
Oceanography	New wording	Ocean sciences and marine sciences
Other environmental sciences	New wording	Other geosciences, atmospheric sciences, and ocean sciences
Life sciences		Life sciences
Agricultural sciences		Agricultural sciences
Biological sciences (excluding environmental) Environmental biology	Combined	Biological and biomedical sciences
Medical sciences	New wording	Health sciences
	New item	Natural resources and conservation
Other life sciences		Other life sciences
Physical sciences		Physical sciences
Astronomy	New wording	Astronomy and astrophysics
Chemistry		Chemistry
	New item	Materials science
Physics		Physics
Other physical sciences		Other physical sciences
Psychology		Psychology
Biological aspects		Biological aspects
Social aspects		Social aspects
Other psychological sciences		Other psychological sciences
Social sciences		Social sciences
Anthropology		Anthropology
Economics		Economics
Political science	New wording	Political science and government
Sociology	New wording	Sociology, demography, and population studies
Other social sciences		Other social sciences (<i>Education research and Law moved to Other fields</i>)
	New section	Other fields
		Business management and business administration
		Communication and communications technologies
	Separated	Education research (<i>Separated from other social sciences</i>)
		Humanities, including History
	Separated	Law (<i>Separated from other social sciences</i>)
		Social work
		Visual and performing arts
		All other fields

Supplemental List of R&D Fields and Example Disciplines

A. Computer and information sciences

Artificial intelligence
 Computer and information technology administration and management
 Computer science
 Computer software and media applications
 Computer systems analysis
 Computer systems networking and telecommunications
 Data processing
 Information sciences, studies
 Information technology

B. Geosciences, atmospheric sciences, and ocean sciences

1. Atmospheric science and meteorology

Aeronomy
 Atmospheric chemistry and climatology
 Atmospheric physics and dynamics
 Extraterrestrial atmospheres
 Meteorology
 Solar
 Weather modification

2. Geological and earth sciences

Earth and planetary sciences
 Geochemistry
 Geodesy and gravity
 Geology
 Geomagnetism
 Geophysics and seismology
 Hydrology and water resources
 Mineralogy and petrology
 Paleomagnetism
 Paleontology
 Physical geography
 Stratigraphy and sedimentation
 Surveying

3. Ocean sciences and marine sciences

Biological oceanography
 Geological oceanography
 Marine biology
 Marine oceanography
 Marine sciences
 Oceanography, chemical and physical

4. Other geosciences, atmospheric sciences, and ocean sciences

Other fields that cannot be classified using the fields listed above

C. Life sciences

1. Agricultural sciences

Agricultural business and management
 Agricultural chemistry
 Agricultural economics
 Agricultural engineering—report in Engineering
 Agricultural production operations
 Animal sciences
 Applied horticulture and horticultural business services
 Aquaculture
 Food science and technology
 International agriculture
 Plant sciences

Soil sciences
 Wood science

2. Biological and biomedical sciences

Allergies and immunology
 Biochemistry, biophysics, and molecular biology
 Biogeography
 Biology and biomedical sciences, general
 Biomathematics, bioinformatics, and computational biology
 Biotechnology
 Botany and plant biology
 Cell, cellular biology, and anatomical sciences
 Epidemiology, ecology and population biology
 Genetics
 Microbiological sciences and immunology
 Molecular medicine
 Neurobiology and neuroscience
 Pharmacology and toxicology
 Physiology, pathology and related sciences
 Zoology, animal biology

3. Health sciences

Advanced, graduate dentistry and oral sciences
 Allied health and medical assisting services
 Bioethics, medical ethics
 Clinical medicine research
 Clinical/medical laboratory science/research and allied professions
 Communication disorders sciences and services
 Dentistry
 Dietetics and clinical nutrition services
 Health and medical administrative services
 Health, medical preparatory programs
 Gerontology, health sciences
 Kinesiology and exercise science
 Medical clinical science, graduate medical studies
 Medical illustration and informatics
 Medicine
 Mental health
 Nursing
 Optometry
 Osteopathic medicine, osteopathy
 Pharmacy, pharmaceutical sciences, and administration
 Podiatric medicine, podiatry
 Public health
 Radiological science
 Registered nursing, nursing administration, nursing research and clinical nursing
 Rehabilitation and therapeutic professions
 Veterinary biomedical and clinical sciences
 Veterinary medicine
 Zoology

4. Natural resources and conservation

Fishing and fisheries sciences and management
 Forestry
 Natural resources conservation and research
 Natural resources economics
 Natural resources management and policy
 Renewable natural resources
 Wildlife and wildlands science and management

5. Other life sciences

Other life sciences that cannot be classified using the fields listed above

D. Mathematics and statistics

Applied mathematics
 Mathematics
 Statistics

E. Physical sciences

1. Astronomy and astrophysics

Astronomy
 Astrophysics
 Planetary astronomy and science

2. Chemistry

(except Biochemistry—report in Biological and Biomedical Sciences)
 Analytical chemistry
 Chemical physics
 Environmental chemistry
 Forensic chemistry
 Inorganic chemistry
 Organic chemistry
 Organo-metallic chemistry
 Physical chemistry
 Polymer chemistry
 Theoretical chemistry

3. Materials science

Materials chemistry
 Materials science

4. Physics

Acoustics
 Atomic, molecular physics
 Condensed matter and materials physics
 Elementary particle physics
 Mathematical physics
 Nuclear physics
 Optics, optical sciences
 Plasma, high-temperature physics
 Theoretical physics

5. Other physical sciences

Other physical sciences that cannot be classified using the fields listed above

F. Psychology

1. Biological aspects

Animal behavior and ethology
 Clinical psychology
 Comparative psychology
 Experimental psychology

2. Social aspects

Human development and personality
 Educational psychology
 Industrial and organization psychology
 Personality psychology
 Social psychology
 Counseling psychology

3. Other psychological sciences

Other psychology that cannot be classified using the fields listed above

Supplemental List of R&D Fields and Example Disciplines (continued)

G. Social sciences

1. Anthropology

Cultural anthropology
 Medical anthropology
 Physical and biological anthropology

2. Economics

Applied economics
 Business development
 Development economics and international development
 Econometrics and quantitative economics
 Industrial economics
 International economics
 Labor economics
 Managerial economics
 Public finance and fiscal policy

3. Political science and government

Comparative government
 Government
 Legal systems
 Political economy
 Political science
 Political theory

4. Sociology, demography, and population studies

Comparative and historical sociology
 Complex organizations
 Cultural and social structure
 Demography and population studies
 Group interactions
 Rural sociology
 Social problems and welfare theory
 Sociology

5. Other social sciences

Archeology
 Area, ethnic, cultural, gender, and group studies
 Cartography
 Criminal science and corrections
 Criminology
 Geography
 Gerontology, social sciences
 International relations and national security studies
 Linguistics
 Public policy analysis
 Regional studies
 Urban studies, affairs

H. Engineering

1. Aerospace, aeronautical, and astronautical engineering

Aerodynamics
 Aerospace engineering
 Space technology

2. Bioengineering and biomedical engineering

Biological and biosystems engineering
 Biomaterials engineering
 Biomedical technology
 Medical engineering

3. Chemical engineering

Biochemical engineering
 Chemical and biomolecular engineering
 Engineering chemistry
 Paper science
 Petroleum refining process
 Polymer, plastics engineering

4. Civil engineering

Architectural engineering
 Construction engineering
 Engineering management, administration
 Environmental, environmental health engineering
 Geotechnical and geoenvironmental engineering
 Sanitary engineering
 Structural engineering
 Surveying engineering
 Transportation and highway engineering
 Water resources engineering

5. Electrical, electronic, and communications engineering

Communications engineering
 Computer engineering
 Computer hardware engineering
 Computer software engineering
 Electrical and electronics engineering
 Laser and optical engineering
 Power
 Telecommunications engineering

6. Industrial and manufacturing engineering

Industrial engineering
 Manufacturing engineering
 Operations research
 Systems engineering

7. Mechanical engineering

Electromechanical engineering
 Mechatronics, robotics, and automation engineering

8. Metallurgical and materials engineering

Ceramic sciences and engineering
 Geophysical, geological engineering
 Materials engineering
 Metallurgical engineering
 Mining and mineral engineering
 Textile sciences and engineering
 Welding

9. Other engineering

Agricultural engineering
 Engineering design
 Engineering mechanics, physics, and science
 Engineering physics
 Engineering science
 Forest engineering
 Nanotechnology
 Naval architecture and marine engineering
 Nuclear engineering
 Ocean engineering
 Petroleum engineering
 Other engineering fields that cannot be classified using the fields listed above

I. Other fields

1. Business management and business administration

Business administration
 Business management
 Business, managerial economics
 Management information systems and services
 Marketing management and research

2. Communication and communications technologies

Communication and media studies
 Communications technologies
 Journalism
 Radio, television, and digital communication

3. Education research

4. Humanities

English language and literature, letters
 Foreign languages and literatures
 History, including history and philosophy of science and technology
 Humanities, general
 Liberal arts and sciences
 Philosophy and religious studies
 Theology and religious vocations

5. Law

Law
 Legal studies

6. Social work

(no specific examples)

7. Visual and performing arts

Drama, theatre arts and stagecraft
 Film, video, and photographic arts
 Fine and studio arts
 Music

8. All other fields

Architecture
 City, urban, community and regional planning
 Family, consumer sciences and human sciences
 Foods, nutrition, and wellness studies
 Landscape architecture
 Library science
 Parks, sports, recreation, leisure and fitness
 Public administration and public affairs
 Other fields that cannot be classified using the fields listed above

Also, use this category for R&D that involves multiple fields if it is impossible to report multidisciplinary or interdisciplinary R&D expenditures in specific fields.