SECTION 5

Management and Strategy of R&D

Who should answer this section?

Persons familiar with the technical, managerial, and strategic aspects of your company's R&D should complete this section.

What does this section cover?

This section requests information about the characteristics of the R&D reported in Sections 2 and 3. This section requests information about your company's worldwide consolidated R&D and the R&D your company performs in the domestic United States.

If the amount reported in Question 2-4 was less than \$1 Million, skip to Question 5-15 on page 37.

5-1 What percentage of the total R&D paid for by your company reported in Question 2-4 was directed toward business areas or product lines that are new to your company?

Example: Company A manufactures laptop computers. In 2017 Company A's management decided to attempt to enter the cellular phone market and used a portion of the company's R&D budget to develop cellular phones. Because this was a new line of business in 2017, Company A reports this R&D in this question.



Thou.

Characteristics of domestic R&D paid for and performed by your company

5-2 Copy the amount from Question 2-10, column 1. This is the domestic R&D paid for and performed by your company.

\$Bil.	Mil.	Thou.

Mil.

\$Bil.

5-3 How much of the amount reported in Question 5-2 was for the following categories?

Research-planned, systematic pursuit of new knowledge or understanding						
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b. Development-systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes

- c. **Total** (equals Question 5-2).....
- 5-4 If you reported any research in Question 5-3, line a, how much of that research was for the following categories?

\$Bil.	Mil.	Thou.

a. Applied research-activities aimed at solving a specific problem or meeting a specific commercial objective..... b. Basic research-activities aimed at acquiring new

knowledge or understanding without specific immediate



	as of application for domestic R&D paid for and performed by your pany	
NOTE	: You may report the same R&D in multiple areas for Questions 5-5 to 5-9.	
5-5	What percentage of the amount reported in Question 5-2 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?	
	Example: Company B is a semiconductor manufacturer. Its products are not designed specifically for energy applications. In 2017, 10% of the domestic R&D performed by the company was focused on improving the energy efficiency of its products. Based on this, Company B reports "10%" for this question.	
5-6	What percentage of the amount reported in Question 5-2 had environmental protection applications, including pollution abatement?	
5-7	What percentage of the amount reported in Question 5-2 had defense applications, including military applications and homeland security-related R&D?	
5-8	What percentage of the amount reported in Question 5-2 had health or medical applications?	
5-9	What percentage of the amount reported in Question 5-2 had agricultural applications?	
Tecl	hnology focus of domestic R&D paid for and performed by your company	/
NOTE	: You may report the same R&D in multiple areas for Questions 5-10 to 5-13.	
5-10	What percentage of the amount reported in Question 5-2 was for software products or software embedded in other projects or products?	
5-11	What percentage of the amount reported in Question 5-2 was for biotechnology? For list-based definition see Question by Question Guidance at https://www.census.gov/programs-surveys/brds/information/brdshelp.html#q5-11	
	Biotechnology – The application of science and technology to living organisms, as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services.	
5-12	What percentage of the amount reported in Question 5-2 was for nanotechnology? For list-based definition see Question by Question Guidance at https://www.census.gov/programs-surveys/brds/information/brdshelp.html#q5-12	
	Nanotechnology – The application of science and technology to organisms, organic and inorganic materials as well as parts, products, and models thereof, at the nanometer-scale (but not exclusively below 1000 nanometers).	
5-13	What percentage of the amount reported in Question 5-2 was for artificial intelligence (AI)? For a detailed definition see Question by Question Guidance at https://www.census.gov/programs-surveys/brds/information/brdshelp.html#q5-13	
	Artifical Intelligence (AI) - A branch of computer science and engineering dealing with the simulation of intelligent behavior in computers.	



Characteristics of foreign R&D paid for and performed	l by you	ur comp	any
5-14 Copy the amount from Question 2-10, column 2. This is the foreign R&D paid for and performed by your company.	\$Bil.	Mil.	Thou.
 How much of the foreign R&D paid for and performed by your company reported in Question 5-14 was for the following categories? a. Research-planned, systematic pursuit of new knowledge or understanding. b. Development-systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes. c. Total (equals Question 5-14). 	\$Bil.	Mil.	Thou.
Domestic R&D performed by your company that was pure of the amount reported in Question 3-1, line j was less than \$1 Million 5-16 Copy the amount from Question 3-5, column 1. This is the domestic R&D performed by your company that was paid for by others.			
How much of the amount reported in Question 5-16 was for the following categories? a. Research—planned, systematic pursuit of new knowledge or understanding. b. Development—systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes. c. Total (equals Question 5-16).	\$Bil.	Mil.	Thou.
5-18 If you reported any research in Question 5-17, line a, how much of that research was for the following categories? a. Applied research—activities aimed at solving a specific problem or meeting a specific commercial objective b. Basic research—activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses	\$Bil.	Mil.	Thou.



	You may report the same R&D in multiple areas for Questions 5-19 to	5-23.
5-19	What percentage of the amount reported in Question 5-16 had energy applications, including energy production, distribution, storage, and efficiency (excluding exploration and prospecting)?	%
5-20	What percentage of the amount reported in Question 5-16 had environmental protection applications, including pollution abatement?	%
5-21	What percentage of the amount reported in Question 5-16 had defense applications, including military applications and homeland security-related R&D?	%
5-22	What percentage of the amount reported in Question 5-16 had health or medical applications?	%
5-23	What percentage of the amount reported in Question 5-16 had agricultural applications?	%
paid	nology focus of domestic R&D performed by your compan for by others	
NOTE:	You may report the same R&D in multiple areas for Questions 5-24 to	5-27.
5-24	What percentage of the amount reported in Question 5-16 was for software products or software embedded in other projects or products?	%
5-25	What percentage of the amount reported in Question 5-16 was for	
0 20	biotechnology? For list-based definition see Question by Question Guidance at https://www.census.gov/programs-surveys/brds/information/brdshelp.html#q5-25	
	Biotechnology – The application of science and technology to living organisms,	
	as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services.	%
	as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services.	%
5-26	as well as parts, products and models thereof, to alter living or non-living materials	%
5-26	as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services. What percentage of the amount reported in Question 5-16 was for nanotechnology? For list-based definition see Question by Question Guidance at	%
5-26	as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services. What percentage of the amount reported in Question 5-16 was for nanotechnology? For list-based definition see Question by Question Guidance at https://www.census.gov/programs-surveys/brds/information/brdshelp.html#q5-26 Nanotechnology – The application of science and technology to organisms, organic and inorganic materials as well as parts, products, and models thereof,	



Domestic R&D performed by your company that was U.S. federal government	paid f	or by the	
5-28 Copy the amount from Question 3-8, line d. This is	\$Bil.	Mil.	Thou.
the domestic R&D performed by your company that was paid for by the U.S. federal government.			
5-29 How much of the amount reported in Question 5-28 was for the following categories?	\$Bil.	Mil.	Thou.
a. Research-planned, systematic pursuit of new knowledge or understanding			
b. <u>Development</u> -systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes			
c. Total (equals Question 5-28)			
5-30 If you reported any research in Question 5-29, line a, how much was for the following categories?	\$Bil.	Mil.	Thou.
a. Applied research—activities aimed at solving a specific problem or meeting a specific commercial objective			
b. Basic research—activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses			
c. Total (equals Question 5-29, line a)			
5-31 What percentage of the amount reported in Question 5-2 for software products or software embedded in other proor products?			%
Characteristics of foreign R&D performed by your cofor by others	mpany	that was	paid
5-32 Copy the amount from Question 3-5, column 2. This is	\$Bil.	Mil.	Thou.
the foreign R&D performed by your company and paid for by others.			
5-33 How much of the amount reported in Question 5-32			
was for the following categories?	\$Bil.	Mil.	Thou.
a. Research-planned, systematic pursuit of new knowledge or understanding			
b. <u>Development</u> -systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes			
c. Total (equals Question 5-32)			

