

TABLE 24

**Companies with domestic R&D paid for by the company and others and performed by the company in the environmental protection application area, by industry and company size: 2019**

(Millions of U.S. dollars and number)

Industry and company size	NAICS code	Environmental protection R&D									
		Domestic R&D		Total		Paid for by the company		Paid for by others			
		Companies <sup>a</sup> (number)	Amount	Companies <sup>b</sup> (number)	Amount	Companies <sup>b</sup> (number)	Amount	Companies <sup>b</sup> (number)	Amount		
All industries	21-23, 31-33, 42-81	28,270	492,956	3,140	i 11,795	i 2,820	i 10,405	i 440	i 1,390	i	
Manufacturing industries	31-33	15,180	285,674	2,380	i 10,331	i 2,260	i 9,411	i 190	i 920	i	
Food	311	870	4,180	80	i 105	i 80	i 74	i 10		31	
Beverage and tobacco products	312	350	1,082	10		12		10	i	5	
Textile, apparel, and leather products	313-16	240	904	30	i 21	i 30	i 21		0	0	
Wood products	321	80	186	20	i 5	i 20	i 5		0	0	
Paper	322	90	1,064	30	i 74	i 30	i 74		0	0	
Printing and related support activities	323	200	420	i 10	i 2	i 10	i 2		0	0	
Petroleum and coal products	324	80	1,306	30		179		30		178	
Chemicals	325	2,330	97,063	430	i 578	i 420	i 530		20	48	
Basic chemicals	3251	240	2,360	100	i 205	i 100	i 191		10	13	
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	180	1,172	40	i 50	i 40	i 50		0	0	
Pesticide, fertilizer, and other agricultural chemicals	3253	150	1,822 - 1,846	40	i 104	i 40	i 104		10	*	
Pharmaceuticals and medicines	3254	1,060	87,619	10		91		10		63	
Soap, cleaning compound, and toilet preparation	3256	270	2,760	60	i 52	i 60	i 52		0	0	
Paint, coating, adhesive, and other chemicals	3255, 3259	460	1,305 - 1,333	200	i 76	i 190	i 70		10	7	
Plastics and rubber products	326	790	2,856	140	i 141	i 140	i 141		10	i *	
Nonmetallic mineral products	327	170	1,508	i 50	i 41	i 50	i 41		0	0	
Primary metals	331	200	665	50	i 35	i 50	i 30		10	5	
Fabricated metal products	332	1,840	2,885	150	i 91	i 140	i 83		10	8	
Machinery	333	2,240	15,184	470	i 1,022	i 420	i 925		70	i 97	
Agricultural implement	33311	190	1,921	30	i 100	i 30	i 100		10	i *	
Semiconductor machinery	333242	80	4,459	10		3		10		3	
Engine, turbine, and power transmission equipment	3336	110	1,301	60	i 299	i 60	i 260		20	39	
Other machinery	other 333	1,880	7,503	380	i 620	i 330	i 563		60	i 57	
Computer and electronic products	334	2,280	86,729	350	i 2,557	i 350	i 2,041		20	516	
Communications equipment	3342	300	12,595	40	i 154	i 40	i 153		10	i *	
Semiconductor and other electronic components	3344	640	35,183	i 50	i 630	i 50	i 619		10	12	
Navigational, measuring, electromedical, and control instruments	3345	1,140	17,562	250	i 1,712	i 250	i 1,209		10	i 503	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	230	3,342	10		1		10		1	

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Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	190	9,662	30	i	1,398	i	30	i	897	10	i	501	i		
Other measuring and controlling device	other 3345	740	4,558	220	i	313	i	220	i	311	i	10	i	2		
Other computer and electronic products	other 334	220	21,388	30		61		30		60	10	i	1			
Electrical equipment, appliances, and components	335	900	5,263	320	i	772		310	i	678	20	i	95			
Transportation equipment	336	1,090	45,375	190	i	4,526	i	180	i	4,417	i	30	i	109	i	
Motor vehicles, bodies, trailers, and parts	3361-63	540	24,117	80	i	4,108	i	80	i	4,001	i	30	i	106	i	
Aerospace products and parts	3364	380	i	18,358	i	100	i	408	i	100	i	405	i	10	i	3
Aircraft, aircraft engine, and aircraft parts	336411-13	200	16,891	i	20	346	i	20	344	i	10	2				
Guided missile, space vehicle, and related parts	336414-15, 336419	190	i	1,467	90	i	62	i	90	i	61	i	10	i	1	i
Military armored vehicle, tank, and tank component	336992	30	35	10	*	0	0	10	*							
Other transportation	other 336	150	2,865	10	i	10	i	10	i	10	i	0	0			
Furniture and related products	337	190	409	20	i	12	i	20	i	12	i	0	0			
Miscellaneous	339	1,310	18,596	90	161	60	154	40	i	7	i					
Medical equipment and supplies	3391	790	16,014	70	i	67	40	60	40	i	7	i				
Other miscellaneous manufacturing	3399	520	2,582	30	94	20	94	10	*							
Nonmanufacturing industries	21-23, 42-81	13,100	207,283	770	i	1,464	560	i	994	260	i	469				
Mining, quarrying, oil and gas extraction, and support activities	21	160	2,717	20	i	172	20	166	10	i	6	i				
Utilities	22	40	275	20	i	112	20	i	78 - 113	10	0 - 34					
Wholesale trade	42	1,560	1,191	50	i	31	i	50	i	31	i	0	0			
Electronic shopping and electronic auctions	454111-12	60	3,131 - 15,818	i	0	0	0	0	0	0	0					
Transportation and warehousing	48-49	130	9,890	i	10	*	10	*	0	0						
Information	51	3,090	110,227	90	148	90	148	0	0							
Publishing	511	1,080	33,019	20	85	20	85	0	0							
Newspaper, periodical, book, and directory publishers	5111	40	61	0	0	0	0	0	0							
Software publishers	5112	1,040	32,958	20	85	20	85	0	0							
Telecommunications	517	210	3,733	10	0 - 64	10	0 - 64	0	0							

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				Companies <sup>b</sup> (number)	Amount	Companies <sup>b</sup> (number)	Amount	Companies <sup>b</sup> (number)	Amount
Data processing, hosting, and related services	518	1,480	30,558	70	0 - 64	70	0 - 64	0	0
Other information	other 51	340	42,917	10	0 - 64	10	0 - 64	0	0
Finance and insurance	52	220	8,917	0	0	0	0	0	0
Real estate and rental and leasing	53	50	1,371	0	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	20	45	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	30	1,326	0	0	0	0	0	0
Professional, scientific, and technical services	54	6,500	53,233	570	i 933	370	i 503	260	i 431
Architectural, engineering, and related services	5413	1,450	4,207	350	i 611	240	i 316	140	i 295
Computer systems design and related services	5415	3,020	21,046	20	39	20	39	0	0
Scientific research and development services	5417	1,230	21,669	180	i 231	100	i 111	110	i 120
Research and development in biotechnology	541711	310	6,457	40	41	20	i 24	30	17
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	900	14,446	i 140	i 191	i 90	i 87	80	i 103
Research and development in the social sciences and humanities	541720	30	766	0	0	0	0	0	0
Other professional, scientific, and technical services	other 54	810	6,312	40	i 53	30	i 37	20	16
Health care services	621-23	680	2,265	0	0	0	0	0	0
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	680	1,380 - 14,067	50	67	50	33 - 68	10	0 - 34
All companies (number of domestic employees)	-	28,270	492,956	3,140	i 11,795	i 2,820	i 10,405	i 440	i 1,390
Small companies									
10-19 <sup>c</sup>	-	5,490	5,501	680	i 225	i 570	i 178	i 140	i 48
20-49	-	7,980	12,418	770	i 424	i 670	i 347	i 140	i 77
Medium companies									
50-99	-	4,960	14,021	470	i 321	i 440	i 286	i 50	i 34
100-249	-	4,580	19,793	490	i 463	i 460	i 369	i 40	i 94
Large companies									
250-499	-	2,140	18,883	240	i 490	i 220	i 402	i 30	i 87

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500–999	–	1,230	23,969	150	515	140	470	20	i	45	i	
1,000–4,999	–	1,330	75,671	230	1,376	i	220	1,248	i	30	128	
5,000–9,999	–	240	50,811	70	1,450	i	70	1,260	i	10	189	
10,000–24,999	–	220	88,263	60	1,434	i	60	1,299	i	20	i	134
25,000 or more	–	130	183,626	30	5,098		30	4,543		10	555	i

\* = amount &lt; \$500,000; i = &gt; 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

<sup>a</sup> Beginning in survey year 2018, these statistics include an adjustment to the weight to account for unit nonresponse; beginning in survey year 2019, these company count estimates reflect a change in rounding methodology.<sup>b</sup> Beginning in survey year 2018, these statistics include an adjustment to the weight to account for unit nonresponse; beginning in survey year 2019, these company count estimates reflect a change in rounding methodology. These company count estimates also reflect an imputation process implemented for survey year 2014. This change has affected the comparability of these company count estimates with estimates published for years prior to 2014.<sup>c</sup> The Business Enterprise Research and Development Survey does not include companies with fewer than 10 domestic employees.**Note(s):**

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&amp;D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&amp;D. This change has affected the comparability of these estimates with estimates published for years prior to 2018. Companies could report R&amp;D in one, more than one, or no application area. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2019.