

TABLE 23

## Foreign R&amp;D paid for by the company and others and performed by the company, by type of R&amp;D, industry, and company size: 2020

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total foreign R&D performance			Research (basic and applied)			Development		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
All industries	21-23, 31-33, 42-81	109,705	98,187	11,518	17,011	13,872	3,138	92,694	84,315	8,380
Manufacturing industries	31-33	66,243	64,829	1,414	11,111	10,880	231	55,132	53,949	1,183
Food	311	1,153 - 1,161	1,154	0 - 6	283 - 290	284	0 - 6	870	870	*
Beverage and tobacco products	312	759	759	0	227	227	0	532	532	0
Textile, apparel, and leather products	313-16	152	152	0	38	38	0	114	114	0
Wood products	321	8	8	0	3	3	0	5	5	0
Paper	322	93	93	* i	13	13	* i	80	80	* i
Printing and related support activities	323	10	10	0	*	*	0	10	10	0
Petroleum and coal products	324	165	165	* i	46	46	* i	119	119	* i
Chemicals	325	19,362	19,118	244	4,810	4,743	67	14,552	14,375	177
Basic chemicals	3251	846	842	4	314	313	1	531	529	3
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	512	504	8	133	126	8	379	379	* i
Pesticide, fertilizer, and other agricultural chemicals	3253	92 - 108	91	0 - 17	18 - 35	18	0 - 17	73	73	0
Pharmaceuticals and medicines	3254	16,761	16,548	213	4,012	3,968	43	12,749	12,579	170
Soap, cleaning compound, and toilet preparation	3256	767	763	3	103	103	0	664	661	3
Paint, coating, adhesive, and other chemicals	3255, 3259	370 - 385	370	0 - 14	214 - 229	215	0 - 14	156	155	* i
Plastics and rubber products	326	529	529	* i	152	152	* i	377	377	* i
Nonmetallic mineral products	327	206	203	3	11	11	*	195	192	3
Primary metals	331	32	32	* i	4	4	* i	28	28	* i
Fabricated metal products	332	349	345	5	112	112	1	237	233	4
Machinery	333	4,285	4,183	102	524	504	20	3,761	3,679	82
Agricultural implement	33311	639 - 681	640	0 - 41	90 - 98	91	0 - 7	548 - 585	549	0 - 35
Semiconductor machinery	333242	1,027	1,013	14	32	32	* i	995	981	14
Engine, turbine, and power transmission equipment	3336	558	509	49	18	4	14	539	505	34
Other machinery	other 333	2,021 - 2,062	2,021	0 - 41	376 - 384	377	0 - 7	1,643 - 1,680	1,644	0 - 35
Computer and electronic products	334	26,567	26,222	346	2,769	2,734	36	23,798	23,488	310
Communications equipment	3342	3,388	3,379	9	478	476	2	2,910	2,903	7
Semiconductor and other electronic components	3344	13,023	12,868	155	1,450	1,448	2	11,573	11,419	153



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Software publishers	5112	7,683	7,654	29	696	693	3	6,987	6,961	26
Telecommunications	517	94	94	0	7	7	0	87	87	0
Data processing, hosting, and related services	518	8,147	8,145	1 i	903	903	* i	7,244	7,243	1 i
Other information	other 51	6,976	6,976	0	393 i	393 i	0	6,583 i	6,583 i	0
Finance and insurance	52	1,541	1,490	51	185	144	41	1,356	1,346	10
Real estate and rental and leasing	53	163	163	0	84	84	0	80	80	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0 - 15	0 - 15	0	0 - 15	0 - 15	0	0	0	0
Other real estate and rental and leasing	other 53	148 - 164	148 - 164	0	69 - 84	69 - 84	0	80	80	0
Professional, scientific, and technical services	54	13,744 i	3,731	10,013 i	3,581 i	719 i	2,863 i	10,163 i	3,012 i	7,151 i
Architectural, engineering, and related services	5413	20	12 i	9	5 i	4	2 i	15 i	8 i	7 i
Computer systems design and related services	5415	3,324	3,209	115	632 i	559 i	73 i	2,692 i	2,650 i	42 i
Scientific research and development services	5417	10,070 i	196	9,874 i	2,863 i	77	2,786 i	7,207 i	119	7,087 i
Research and development in nanotechnology	541713	0 - 3	0 - 3	0	0	0	0	0 - 3	0 - 3	0
Research and development in biotechnology (except nanobiotechnology)	541714	2,929	108	2,822	423	58	365	2,506 i	50	2,456 i
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	7,135 i	82 - 89 i	7,045 - 7,053 i	2,433 - 2,440 i	12 - 20 i	2,414 - 2,422 i	4,694 - 4,702 i	63 - 70 i	4,631 i
Research and development in the social sciences and humanities	541720	1 - 7	0 - 7 i	0 - 7	1 - 7	0 - 7 i	0 - 7	0 - 6 i	0 - 6 i	0
Other professional, scientific, and technical services	other 54	330	314	16	81 i	79 i	2	249 i	235 i	14
Health care services	621-23	18 - 22 i	19	0 - 2 i	3	3	0	15 - 19 i	16	0 - 2 i
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1 - 4,789 i	0 - 4,787	2 i	0 - 15	0 - 15	0	1 - 4,789 i	0 - 4,787	2 i
All companies (number of domestic employees)	-	109,705	98,187	11,518 i	17,011	13,872	3,138 i	92,694	84,315	8,380 i
Small companies										
10-19 <sup>a</sup>	-	290	263	27	58	57	1	232	206	26
20-49	-	606	568	38	83	82	1 i	523	486	37
Medium companies										
50-99	-	798	758	41	171	162	9	627	596	32
100-249	-	2,072	1,991	81 i	596	591	5	1,476	1,399	76 i

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Large companies										
250–499	–	2,866	2,705	161	715	607	108	2,151	2,098	53
500–999	–	3,187	3,020	167	599	568	31 i	2,588	2,452	136
1,000–4,999	–	18,520	18,111	409 i	3,378	3,305	73 i	15,142	14,806	336 i
5,000–9,999	–	11,845	9,515	2,330 i	2,421	1,289	1,132	9,424 i	8,226	1,198 i
10,000–24,999	–	23,186	16,965	6,221 i	4,116 i	2,780	1,336 i	19,070 i	14,184	4,886 i
25,000 or more	–	46,336	44,292	2,044	4,875	4,431	444	41,462	39,861	1,601

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

NAICS = 2017 North American Industry Classification System.

<sup>a</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&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D and are not comparable with estimates published for years prior to 2018. 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, 2020.