

TABLE 23

Foreign R&D paid for by the company and others and performed by the company, by type of R&D, industry, and company size: 2022

(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	149,584	135,009	14,575 i	25,331	21,019	4,312 i	124,254	113,991	10,263 i
Manufacturing industries	31-33	84,419	82,730	1,690	15,462	15,194	268	68,957	67,536	1,421
Food	311	1,463	D	D	241	D	D	1,221	1,218	3 i
Beverage and tobacco products	312	630	630	0	185	185	0	445	445	0
Textile, apparel, and leather products	313-16	113	D	D	27	27	0	86	D	D
Wood products	321	4	4	0	3	3	0	2	2	0
Paper	322	81	81	* i	1 i	1 i	* i	81 i	81 i	* i
Printing and related support activities	323	2	2	0	* i	* i	0	2	2	0
Petroleum and coal products	324	247	242	5	77	76	*	170	166	4
Chemicals	325	25,061	24,757	304	7,484	7,408	76	17,577	17,349	228
Basic chemicals	3251	956	D	D	275	D	D	681	680	1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	539	D	D	141	D	D	398	398	* i
Pesticide, fertilizer, and other agricultural chemicals	3253	151	D	D	43	D	D	109	109	0
Pharmaceuticals and medicines	3254	22,266	22,003	263	6,803	D	D	15,463	D	D
Soap, cleaning compound, and toilet preparations	3256	917	D	D	153	D	D	764	757	7
Paint, coating, adhesive, and other chemicals	3255, 3259	232	D	D	70	D	D	163	D	D
Plastics and rubber products	326	682	652	29	239	233	6	442	419	23
Nonmetallic mineral products	327	159	159	0	13	13	0	145	145	0
Primary metals	331	19	18	2	7	D	D	12	D	D
Fabricated metal products	332	231	197	34 i	79	72	7 i	152	125	27 i
Machinery	333	5,914	5,778	136	488	464	23	5,427	5,314	113
Agricultural implement	33311	990	D	D	17	D	D	974	969	5
Semiconductor machinery	333242	1,636	1,618	18	55 i	53 i	2	1,581 i	1,566 i	16
Engine, turbine, and power transmission equipment	3336	1,071	D	D	43	D	D	1,028	1,005	23
Other machinery	other 333	2,217	2,137	81	374	363 i	11	1,844	1,774	70
Computer and electronic products	334	35,536	35,392	144	4,680	4,658	22	30,856	30,734	122
Communications equipment	3342	3,509	3,497	12	628	626	2	2,881	2,872	10
Semiconductor and other electronic components	3344	21,784	21,698	85	2,372 i	2,368 i	4	19,411 i	19,330 i	81
Navigational, measuring, electromedical, and control instruments	3345	2,668	2,630	38	805	792	13	1,863	1,838	25
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	429	421	8 i	315	311	4	114	110	4
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	327	305	22	141	132	9	186	173	14
Other measuring and controlling devices	other 3345	1,912	1,905	8	349	349	1 i	1,563	1,556	7
Other computer and electronic products	other 334	7,575	7,567	9	875	873	2	6,700	6,694	7
Electrical equipment, appliances, and components	335	1,575	1,569	5 i	146 i	146 i	* i	1,429 i	1,424 i	5 i

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Transportation equipment	336	8,035	7,064	971	1,263	1,134	129	6,773	5,931	842
Motor vehicles, bodies, trailers, and parts	3361-63	6,035	5,547	487	793	775	17	5,242	4,772	470
Aerospace products and parts	3364	1,819	1,365	454	416	329	87	1,403	1,037	367
Aircraft, aircraft engine, and aircraft parts	336411-13	653	498	155	116	105	11	537	393	143
Guided missile, space vehicle, and related parts	336414-15, 336419	1,166	867	299	299	223	76	867	644	223
Military armored vehicle, tank, and tank components	336992	1	1	0	0	0	0	1	1	0
Other transportation	other 336	181	151	30	54	30	25	126	121	5
Furniture and related products	337	36	36	0	15	15	0	21	21	0
Miscellaneous	339	4,631	4,577	55	514	511	4	4,117	4,066	51
Medical equipment and supplies	3391	4,234	4,180	55	416	412	4	3,818	3,767	51
Other miscellaneous manufacturing	3399	397	397	0	98	98	0	299	299	0
Nonmanufacturing industries	21-23, 42-81	65,165	52,279	12,886	9,868	5,825	4,044	55,297	46,455	8,842
Mining, quarrying, oil and gas extraction, and support activities	21	D	D	D	D	D	0	D	D	D
Utilities	22	D	D	D	D	D	0	D	D	D
Wholesale trade	42	D	D	0	8	8	0	D	D	0
Electronic shopping and electronic auctions	454111-12	D	D	0	D	D	0	D	D	0
Transportation and warehousing	48-49	121	121	0	4	4	0	116	116	0
Information	51	36,948	36,784	164	3,550	3,505	46	33,398	33,280	118
Publishing	511	12,330	12,182	149	1,176	1,133	42	11,155	11,048	106
Newspaper, periodical, book, and directory publishers	5111	* i	* i	0	* i	* i	0	* i	* i	0
Software publishers	5112	12,330	12,182	149	1,176	1,133	42	11,155	11,048	106
Telecommunications	517	201	198	3	82	82	*	118	116	2
Data processing, hosting, and related services	518	12,242	12,229	13	1,173	1,170	3	11,069	11,060	10
Other information	other 51	12,176	12,176	0	1,120	1,120	0	11,056	11,056	0
Finance and insurance	52	2,612	2,562	50	395	372	23	2,217	2,189	27
Real estate and rental and leasing	53	102	102	0	37	37	0	65	65	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	1	1	0	0	0	0	1	1	0
Other real estate and rental and leasing	other 53	101	101	0	37	37	0	65	65	0
Professional, scientific, and technical services	54	19,028	6,372	12,656	5,240	1,264	3,975	13,788	5,108	8,681
Architectural, engineering, and related services	5413	36	30	6	13	11	2	22	19	3
Computer systems design and related services	5415	4,575	4,535	40	920	912	9	3,654	3,623	31
Scientific research and development services	5417	13,571	961	12,610	4,089	125	3,964	9,481	836	8,646
Research and development in nanotechnology	541713	30	23	6	27	21	6	3	2	1
Research and development in biotechnology (except nanobiotechnology)	541714	4,073	77	3,997	9	6	3	4,064	70	3,994

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Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	9,466	i 861	8,605	i 4,052	i 98	i 3,954	i 5,415	i 763	i 4,651
Research and development in the social sciences and humanities	541720	2	0	2	2	0	2	0	0	0
Other professional, scientific, and technical services	other 54	847	846	1	216	216	*	631	630	* i
Health care services	621-23	93	D	D	28	28	0	65	D	D
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	146	146	0	D	D	0	D	D	0
All companies (number of domestic employees)	-	149,584	135,009	14,575	i 25,331	21,019	i 4,312	i 124,254	113,991	10,263
Small companies										
10-19 ^a	-	260	244	17	i 56	49	i 7	204	195	10
20-49	-	941	913	28	i 184	181	i 3	757	732	25
Medium companies										
50-99	-	962	927	36	283	272	11	679	655	25
100-249	-	2,017	1,934	84	494	468	27	1,523	1,466	57
Large companies										
250-499	-	4,240	4,083	157	1,162	1,157	4	3,078	2,926	152
500-999	-	4,657	4,258	399	i 1,208	979	i 230	3,448	3,279	169
1,000-4,999	-	24,407	23,845	562	4,807	4,491	316	19,600	19,354	246
5,000-9,999	-	13,616	13,204	412	2,279	2,246	33	11,337	10,958	379
10,000-24,999	-	32,036	24,079	7,957	i 4,818	3,342	1,476	27,218	20,737	6,481
25,000 or more	-	66,448	61,523	4,925	i 10,040	i 7,834	i 2,206	56,408	53,689	2,720

* = amount < \$500,000; D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error is more than 50%.

NAICS = 2017 North American Industry Classification System.

^a 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.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2022.