

TABLE 62

Worldwide sales for companies located in the United States that performed or funded R&D, by business activity: 2008–20

(Millions of U.S. dollars)

Business activity ^a	Business code ^b	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
All business activities	21100–81000	10,976,518	10,221,923	12,204,773	12,874,185	12,975,886	13,279,075	13,409,822	12,201,595	12,246,930	12,878,032	14,493,394	14,927,124	14,863,520
Oil and gas extraction	21100	271,493	153,939	212,469	331,320	271,983	250,884	241,227	141,687	117,720	108,940	178,064	58,355 - 1,966,830	119,553
Mining	21200	NA	D	38,302	57,661	43,857	54,531	D	D	29,976	23,057	44,867	18,307	15,337
Support activities for mining, including oil and gas	21300	NA	45,184	61,062	68,523	79,788	100,175	129,989	74,421	44,705	64,412	84,366	89,793	53,272
Utilities	22100	NA	317,243	310,768	348,763	318,893	324,150	356,225	346,925	309,116	407,052	4,778 - 1,152,314	304,369	288,292
Construction	23000	NA	42,287	93,305	107,286	107,685	94,057	91,507	64,463	52,363	69,900	87,053	93,308	99,239
Food manufacturing	31100	475,588	630,500	694,763	690,698	688,804	941,309	844,673	744,318	705,021	789,784	718,760	785,374	795,967
Beverage manufacturing	31210	143,008	129,396	141,259	180,153	167,003	164,270	166,544	170,059	155,459	146,561	138,524	119,571	131,037
Tobacco manufacturing	31220	28,970	134,972	133,993	140,998	130,759	69,191	D	D	64,978	72,291	67,629	70,749	75,788
Textile, apparel, and leather products manufacturing	31990	NA	56,131	68,515	66,416	89,086	70,260	66,546	83,170	109,296	88,817	84,900	24,172 - 1,932,647	80,098
Wood products manufacturing	32100	34,563	27,826	28,342	24,165	32,908	42,472	51,879	33,713	0 - 373,524	36,180	41,001	41,880	43,662
Paper manufacturing	32200	139,953	110,534	136,302	144,064	142,335	146,748	148,797	D	129,369	146,927	157,969	0 - 2,264,461	138,038
Printing and related support activities	32300	26,426	37,743	37,398	32,823	32,152	29,576	34,227	42,885	31,310	47,910	36,015	65,568	36,160
Petroleum refineries	32401	NA	NA	837,945	954,108	911,784	968,046	787,825	512,224	415,433	325,034 - 733,821	586,670	565,849	378,920
Asphalt paving, roofing, and saturated materials manufacturing	32402	NA	NA	7,566	8,872	8,563	14,504	11,150	10,324	12,322	16,662	17,798	18,422	18,932
Other petroleum and coal products manufacturing, including motor oil, hydraulic fluid, and charcoal	32403	NA	NA	32,282	43,514	D	23,425	22,348	20,440	15,665	20,790	16,008	11,434	8,947
Basic chemicals manufacturing	32510	273,809	179,494	243,193	299,476	473,666	278,661	270,287	212,951	264,935	231,673	262,007	228,984	253,285

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Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	89,805	94,915	108,693	88,762	97,410	95,249	108,867	92,708	91,399	92,324	128,075	111,483	96,423
Pesticide, fertilizer, and other agricultural chemicals manufacturing	32530	40,337	71,003	51,940	47,381	57,246	67,823	68,738	72,737	58,476	74,274	83,310	67,388	67,234
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic substances) manufacturing ^c	32541	582,910	438,687	471,763	577,607	594,394	577,930	569,968	564,398	608,453	636,157	669,845	555,403	707,023
In vitro diagnostic substances manufacturing ^c	32542	22,317	16,940	20,637	25,005	27,022	13,871	25,365	14,159	7,892 - 171,885	15,915	17,050	9,160 - 594,175	18,981
Biotechnology-based pharmaceutical and biological products (except diagnostic substances)	32543	NA	NA	NA	NA	NA	40,409	56,454	84,437	0 - 373,524	90,419	110,160	126,736	126,405
Soap, cleaning compound, and toilet preparations manufacturing	32591	142,212	151,565	167,258	170,417	166,942	185,266	196,651	180,201	164,810	179,865	192,314	178,596	182,299
Paint, adhesive, and other chemical manufacturing	32592	113,118	104,308	103,452	120,242	128,998	113,108	128,730	107,146	118,885	124,026	131,768	122,393	121,547
Plastics and rubber products manufacturing	32600	162,401	161,057	193,471	243,447	265,623	219,020	241,780	201,164	232,466	229,347	227,659	207,637	242,938
Clay and glass products manufacturing	32710	36,417	27,803	37,853	34,184	36,960	39,365	34,863	39,676	47,603	41,355	48,534	39,769	34,344

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Cement, concrete, lime, gypsum, and other nonmetallic mineral products manufacturing	32790	48,680	35,530	31,789	32,864	40,193	42,592	35,322	35,377	34,503	29,688	41,567	46,610	44,002
Primary metal manufacturing	33100	NA	124,478	197,315	179,318	176,544	161,443	128,532	103,093	121,321	100,279	158,304	162,531	103,454
Fabricated metal products manufacturing	33200	188,359	132,465	161,593	179,228	207,423	199,678	235,784	194,098	165,184	175,986	203,494	183,323	194,912
Agricultural machinery and equipment manufacturing	33311	48,185	46,695	53,946	43,410	59,651	68,793	63,617	53,559	51,776	60,038	67,224	36,554 - 621,568	57,227
Construction machinery manufacturing	33312	32,109	23,195	30,685	42,974	43,355	63,344	65,348	56,090	49,267	60,563	74,106	80,257	70,632
Mining, oil, and gas field machinery and equipment manufacturing	33319	NA	69,074	75,563	101,549	110,356	84,384	76,466	73,725	48,023	65,286	86,513	68,944	55,194
Semiconductor machinery manufacturing	33321	20,019	10,505	21,588	25,960	9,973	24,420	27,333	24,653	30,749	38,320	47,008	24,628 - 609,643	49,278
Industrial machinery manufacturing (except semiconductor machinery)	33322	26,984	21,368	30,723	44,666	42,619	39,357	51,615	39,189	37,659	38,252	44,624	38,113	49,728
Photographic and photocopying equipment manufacturing	33331	NA	7,471	D	D	307 ⁱ	7,502	9,162	8,602	6,775 - 170,768	6,849	0 - 1,147,536	836	1,441 - 233,432
Commercial, service industry, temperature control, and air-flow control machinery manufacturing	33332	NA	49,546	76,811	73,896	90,814	97,984	111,674	101,920	113,832	100,874	116,411	115,647	93,455
Digital cameras manufacturing	33333	NA	NA	NA	NA	NA	NA	15	D	5,579 ⁱ	5,947 ⁱ	0 - 1,147,536	3,372	0 - 308,046

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Engine, turbine, and power transmission equipment manufacturing	33360	86,660	46,879	84,686	112,562	120,116	146,129	D	85,560	87,887	106,205	95,099	55,890 - 640,904	103,655
Metalworking and other general purpose machinery manufacturing	33390	90,067	66,350	95,017	112,947	125,495	105,487	149,607	140,673	116,838	117,535	124,745	101,458	94,049
Computers and peripheral equipment manufacturing and magnetic and optical media ^d	33412	NA	273,429	330,020	342,416	304,309	307,523	297,193	282,890	414,641	452,483	479,840	453,517	454,712
Telephone apparatus manufacturing, including routers, modems, and gateways	33421	48,816	66,123	87,159	64,811	64,652	75,886	72,421	202,399	76,218	74,054	80,804	0 - 2,264,461	70,064
Radio, television, and wireless communication equipment manufacturing	33422	76,167	64,808	79,675	92,884	136,470	148,680	168,774	D	39,937 - 203,930	37,092	0 - 1,147,536	37,124	34,841
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	33429	17,976	13,324	12,856	21,004	15,949	23,299	14,548	15,997	0 - 373,524	13,808	14,852 - 257,625	15,898	18,857
Audio and video equipment manufacturing	33430	13,212	15,041	22,242	11,476	17,926	19,596	18,333	38,954	35,473	3,724 - 417,696	11,671	15,984	16,369
Semiconductor and other electronic components manufacturing	33440	220,272	196,399	296,058	336,789	332,771	320,780	350,779	D	323,512	373,892	464,768	0 - 2,264,461	417,763

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Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	41,395	27,437	29,041	38,560	39,590	43,130	43,537	44,739	46,152	44,317	54,101 i	50,472	45,318
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing	33452	38,474	55,866	68,907	47,701	63,724	66,326	67,154	58,670	59,653	65,730 i	72,999	73,068	78,507
Measuring and control instruments manufacturing (not listed elsewhere)	33459	57,989	78,228	88,305	84,368	99,774	97,153	102,909	101,098	102,226	91,098	80,604	85,037	95,097
Electrical equipment, appliances, and components manufacturing	33500	154,206	129,174	160,532	165,156	164,998	182,490	198,505	195,327	213,284	185,233	189,043	219,931	203,459
Motor vehicles manufacturing	33610	521,541	399,125	476,726	539,595	541,730	615,136	539,139	646,110	693,548	616,741	700,801	618,116	458,784
Motor vehicle body and trailer manufacturing	33620	D	15,688	23,105	15,325	34,284	25,913	32,719	23,229	63,232	20,086	26,219	45,941	30,296
Motor vehicle parts manufacturing	33630	163,993	126,638	242,201	224,450	228,418	269,022	379,492	294,414	238,521	270,643	284,735	291,175	235,737
Aircraft manufacturing	33641	97,635	75,960	89,235	121,480	97,484 i	154,241	139,924	148,986	136,497	128,861	190,692	144,845	120,779
Aircraft engine and engine parts manufacturing	33642	42,829	37,086	34,925	42,514	40,376	54,024	48,134	D	38,176	42,340	60,557	54,264	42,793
Other aircraft parts and auxiliary equipment manufacturing	33643	30,319	36,714	41,704	56,509	44,556	60,520	84,966	97,198	85,111	103,682	67,880	58,258	68,917
Guided missiles, space vehicles, and related parts manufacturing	33644	D	51,326	D	D	16,554	17,200	30,237	31,776	30,600	37,204	51,013	35,217	43,696

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Railroad rolling stock manufacturing	33651	7,248	3,639	9,075	8,870	14,255	12,639	19,679	19,353	14,852	13,416	14,083	13,505	16,854
Ship and boat building	33660	16,461	37,439	D	D	23,966	16,927	39,049	15,426	33,496 - 134,100	22,538	16,295	24,056	18,208
Motorcycle, bicycle, and parts manufacturing	33691	8,423	6,677	6,646	8,948	7,829	11,331	9,142	9,067	9,507	9,107	4,253 - 1,151,789	4,030 - 1,912,506	9,705
Military armored vehicle, tank, and tank components manufacturing	33692	13,341	10,136	D	6,239	4,893	4,354	7,502	D	77 - 229,474	11,306	18,524	15,404	10,766
All other transportation equipment manufacturing	33699	9,513	6,332	13,008	13,415	18,469	28,933	12,026	14,565	14,435	14,658	21,096	17,727	21,046
Furniture and related products manufacturing	33700	43,401	35,821	37,487	39,031	43,719	41,407	45,760	43,530	43,362	47,260	48,896	51,330	57,220
Medical equipment and supplies manufacturing	33910	164,066	159,611	243,406	304,215	217,549	237,729	234,177	235,706	244,748	250,637	271,188	301,591	515,125
Miscellaneous manufacturing not listed elsewhere (games, office supplies, slot machines, etc.)	33990	122,669	114,088	101,526	D	118,660	140,793	134,415	D	131,728	135,910	170,909	117,115	149,045
Merchant wholesalers, durable goods	42300	412,269	313,095	334,004	214,772	246,702	378,550	180,014	260,038	221,852	165,345	247,956	163,818	185,285
Merchant wholesalers, nondurable goods	42400	340,956	273,118	280,982	496,309	587,019	571,742	698,182	547,921	512,867	506,120	633,916	593,435	645,419
Wholesale electronic markets and agents and brokers (business to business)	42500	2,600	8,684	3,347	4,722	115,452	53,497	86,215	41,905	60,197	50,155	435 - 1,147,971	5,355	20,637

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Retail trade (except electronic shopping and electronic auctions)	44000	NA	206,489	223,211	104,922	257,466	156,839	442,527	210,412	296,019	322,049	537,429	662,767	685,031
Electronic shopping and electronic auctions	45411	NA	NA	D	D	88,213	96,577	D	130,399	110,617 - 274,610	198,755	191,380 - 434,154 i	168,466 - 753,481 i	212,463 - 444,454 i
Transportation	48000	NA	D	182,535	109,842	139,615	95,821	117,267	D	0 - 373,524	278,263	277,801	387,962	223,100
Couriers, messengers, and express delivery services	49200	D	D	47,619	D	D	D	170,934	D	187,345	136,436	90,988	2,034	0 - 308,046
Warehousing and storage	49300	31,235	1,536	24,457	22,885	3,983	13,530	2,585	D	4,652	15,714	0 - 1,147,536	15,943	17,095
Newspaper, periodical, book, and directory publishers (except Internet)	51110	17,053	24,528	26,671	30,831	33,557 i	17,955	10,520	7,008	8,704	6,010	0 - 1,147,536	7,146	6,869
Software publishers (except Internet) ^e	51120	210,186	195,833	214,359	230,898	237,602	266,587	278,159	272,944	256,293	231,880	244,928	237,538	238,475
Motion picture and sound recording (except Internet)	51200	16,774	20,697	18,011	14,964	9,467	20,861	D	7,142	9,353	8,936	37,326	46,569	36,035
Broadcasting (except Internet)	51500	NA	39,734	53,313	44,029	67,429	81,499	D	74,473	84,879	88,160	151,227	185,522	168,015
Wired telecommunications carriers	51710	D	187,439	210,704	268,345	223,829	181,992	230,630	216,588	181,904	222,699	129,766	139,245	150,710
Wireless telecommunications carriers (except satellite)	51720	135,248	154,682	138,479	156,696	193,408	D	247,759	D	172,416	201,063	264,219	264,976	254,772
Satellite telecommunications	51740	19,330	12,662 i	16,021	2,783	3,056	D	3,581	44,400	61,927	57,588	53,333	51,337	45,199
Other telecommunications (not listed elsewhere)	51790	5,603	9,122	7,737	18,803	17,803	18,504	6,507	14,561	8,524	16,040	12,551 - 255,324	13,862 - 598,877	23,263

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Data processing, hosting, and related services ^e	51800	NA	36,196	38,523	60,641	95,872	58,502	81,059	79,017	76,345	77,859	141,006	97,846	102,570
Cloud computing applications and Internet-based software services	51801	NA	NA	NA	NA	NA	27,442	D	33,792	57,770	98,224	167,679	220,609	323,266
Other information services, including Internet publishing, broadcasting, and Web search portals ^e	51910	NA	41,660	77,319	39,551	45,729	65,134	102,254	94,541	113,123	160,826	191,042	215,354	390,595
Finance: banking and credit intermediation	52200	NA	D	1,068,703	631,129	673,238	347,139	364,224	377,622	400,369	472,203	536,280	629,461	637,872
Securities, commodity contracts, and other financial investments and related activities, including funds and trusts	52310	NA	148,454	148,014	152,435	104,915	107,027	74,030	75,325	72,115	102,310	20,889 - 1,168,425	97,894	129,354
Insurance carriers and related activities	52400	NA	294,233	281,344	280,278	358,159	397,971	380,117	420,526	372,903	312,922	0 - 1,147,536	37,829 - 1,946,303	914,331
Real estate	53100	D	7,738	D	D	D	D	D	8,537	9,292	10,114	11,565	222 - 1,908,697	11,841
Rental and leasing services	53200	NA	32,231	36,299	23,830	29,033	35,488	21,986	29,238	14,235	21,642	3,607 - 1,151,143	12,718	10,127
Lessors of nonfinancial intangible assets, including patent licensing	53300	D	1,835	1,927	2,709	2,890	11,404	2,125	2,150	1,468	3,513	0 - 1,147,536	1,672	3,191 - 235,182
Legal, accounting, tax preparation, bookkeeping, and payroll services	54111	NA	D	16,188	D	11,315	14,588	22,315	22,259	19,526	21,336	24,044	28,797	29,108

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Architectural, engineering, and related services	54130	42,680	96,534	147,309	102,126	114,240	i 125,923	134,541	139,846	103,412	84,387	102,795	126,787	95,540
Specialized design services	54140	D	6,504	3,976	2,581	3,646	i 3,614	2,165	D	706	4,584	i 25,655	12,684	1,439 - 233,430
Computer systems design and related services ^e	54150	210,916	216,477	224,026	377,919	i 272,065	249,600	272,937	243,790	249,430	223,281	251,167	238,436	229,217
Management, scientific, and technical consulting services	54160	52,497	60,125	43,190	76,910	85,161	81,834	93,077	92,120	63,143	49,057	69,344	58,335	59,488
Research and development services in the social sciences and humanities	54172	NA	980	1,170	827	D	1,301	992	D	1,131	1,185	941	1,233	1,016
Research and development services in biotechnology ^{c,f}	54173	NA	22,354	i 8,493	8,657	11,316	12,390	17,543	10,962	9,026	9,340	3,772 - 1,151,308	4,159 - 1,912,634	13,779
Research and development services in the physical, engineering, and life sciences (except biotechnology)	54174	NA	19,858	18,840	23,446	33,296	36,913	32,703	36,038	37,997	37,955	41,855	49,247	54,377
Research and development services in nanotechnology	54175	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	362
Advertising and related services	54180	D	48,883	12,992	i D	52,764	D	D	D	44,669 - 208,661	107,640	140,254	84,187 - 669,202	101,585 - 333,576
Professional, scientific, and technical services (not listed elsewhere)	54190	19,146	30,323	35,320	50,949	63,254	47,353	32,811	30,775	12,204 - 176,196	31,239	21,496	23,047	34,696

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Management of companies and enterprises	55100	828	2,333	3,613	17,275	5,435	177,880	9,213	16,180	11,794	i	18,180	13,915	13,249	11,906	i	
Administrative and support services	56100	NA	35,867	45,135	32,735	50,684	i	44,004	243,644	50,037	55,602	49,518	66,944	27,043 - 1,935,519	63,563		
Waste management and remediation services	56200	NA	6,242	14,172	8,182	6,564	6,245	4,766	24,985	27,470	22,609	88,502	11,624	2,613 - 234,604			
Offices of physicians	62110	7,492	25,752	24,133	23,844	35,513	36,233	19,041	36,724	40,586	61,118	50,891	102,827	65,797			
Medical and diagnostic laboratories	62150	20,968	15,216	37,950	17,047	21,038	17,914	5,919	20,904	27,539	i	28,636	39,514	i	38,605	52,328	
Other ambulatory health care services (ambulance, dental, home health care)	62199	NA	8,127	8,487	D	3,361	i	10,919	5,274	5,651	0 - 229,395	10,819	176 - 1,147,712	22,636	30,615		
Hospitals and nursing care facilities	62200	NA	D	D	D	D	D	26,866	27,616	32,896	32,276	35,119	25,798	44,662			
Social assistance services	62400	D	286	448	326	249	1,065	1,338	63	77	112	0 - 1,147,536	0 - 1,908,473	1,825			
Arts, entertainment, and recreation	71000	NA	17,339	16,089	16,023	18,344	D	D	18,677	17,509 - 181,502	24,540	34,697	37,590	17,465			
Accommodation and food services	72000	NA	D	69,474	39,421	88,878	i	107,255	46,228	76,898	66,849	26,196	54,566	84,342	52,941		
Other services (not listed elsewhere)	81000	NA	15,585	43,778	129,084	57,612	142,029	78,365	70,781	237,671	0 - 413,972	0 - 1,147,536	18,845 - 1,927,321	86,353			
Less: intersegment eliminations	-	381,031	237,743	234,289	281,460	309,288	301,615	316,930	240,217	226,993	196,040	255,127	182,826	215,380			
Undistributed	-	1,092,275	1,590,109	516,754	598,369	i	167,240	i	D	4,602	9,547	i	0	0	8	i	0

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; NA = not available.

^a Data are tabulated independent of the industry classification of the company. Companies were asked to report their sales and R&D activity in one or more business activity codes.^b Business codes and descriptions are based on 2017 North American Industry Classification System (NAICS) industry definitions.^c Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013 and beyond: 32543, Biotechnology-based pharmaceutical and biological products (except diagnostic substances).

^d Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2014 and beyond: 33333, Digital cameras manufacturing.

^e Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2013 and beyond: 51801, Cloud computing applications and Internet-based software services.

^f Estimates for this business code may not be comparable to those from prior years due to the introduction of a related business code for survey year 2020 and beyond: 54175, Research and development services in nanotechnology.

Note(s):

Detail may not add to total because of rounding. 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. For survey year 2008, industry classification was based on the 2002 NAICS. For survey years 2009–13, industry classification was based on the 2007 NAICS. For survey years 2014–19, industry classification was based on the 2012 NAICS. Most statistics for years prior to 2020 have been revised since original publication. Revised statistics include adjustments based on information obtained after the original statistics were prepared. 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.