

TABLE 1

Business Research and Development Survey aggregate estimates, by questionnaire reference: 2018

(Financial information, employees, patents)

Question	Survey item	Aggregate amount
Company and financial information (US\$millions)		
1.12	Worldwide net sales and operating revenues	14,458,452
1.13	Net sales and operating revenues from domestic operations	10,698,764
	R&D paid for by the company and performed by the company and others	
2.1	Worldwide R&D paid for by the company (expense), total	565,066
2.3	Worldwide R&D paid for by the company (expense), adjustments	43,455
2.4/2.7c	Worldwide R&D paid for by the company and performed by the company and others	521,611
2.7a	Domestic R&D paid for by the company and performed by the company and others	420,474
2.7b	Foreign R&D paid for by the company and performed by the company and others	101,137
2.5	Indirect R&D charges to be recouped from the U.S. federal government (IR&D or independent R&D) ^a	6,941
2.8m(1)	Domestic R&D paid for by the company and performed by the company and others	420,474
2.8a(1)	Salaries, wages, and fringe benefits	211,925
2.8b(1)	Stock-based compensation	28,203
2.8c(1)	Leased or temporary staffing, including on-site contractors, working on R&D	16,489
2.8d(1)	Expensed equipment (not capitalized)	6,871
2.8e(1)	Materials and supplies	24,609
2.8f(1)	Leased facilities and equipment	6,812
2.8g(1)	Depreciation and amortization on R&D property, plant, equipment, and intangible assets	14,772
2.8h(1)	Royalties and licensing fees	2,674
2.8i(1)	Collaborative R&D payments	8,636
2.8j(1)	Contract R&D	34,032
2.8k(1)	Other purchased services	11,922
2.8l(1)	All other costs	53,529
2.9(3)	Worldwide R&D paid for by the company and performed by others	53,377
2.9(1)	Domestic R&D paid for by the company and performed by others	42,668
2.9(2)	Foreign R&D paid for by the company and performed by others	10,708
2.10(3)	Worldwide R&D paid for and performed by the company	468,235
2.10(1)	Domestic R&D paid for and performed by the company	377,806
2.10(2)	Foreign R&D paid for and performed by the company	90,429
2.9(3) + 2.10(3) + 3.4(3) + 3.5(3)	Worldwide R&D paid for by the company and others and performed by the company and others	605,627
2.10(3) + 3.5(3)	Worldwide R&D paid for by the company and others and performed by the company	541,412
2.9(1) + 2.10(1) + 3.4(1) + 3.5(1)	Domestic R&D paid for by the company and others and performed by the company and others	493,583
2.10(1) + 3.5(1)	Domestic R&D paid for by the company and others and performed by the company	441,036
	Domestic R&D paid for and performed by the company	
2.14	Performed at largest domestic location	225,548
2.16	Performed at second-largest domestic location	36,385
2.18	Domestic R&D paid for by foreign operations or subsidiaries and performed by the company ^a	23,515
2.19	Foreign R&D paid for by domestic operations or subsidiaries and performed by the company ^a	16,375
2.20i/2.9(1)	Domestic R&D paid for by the company and performed by others	42,668
2.20a	Companies in the United States	36,524
2.20b	Your company's foreign parent or owner	1,297
2.20c	Companies outside the United States	3,761
2.20d	U.S. federal government agencies or laboratories	102
2.20e	U.S. state and local government agencies or laboratories	8
2.20f	U.S. universities, colleges, and academic researchers	340
2.20g	All other organizations in the United States	482
2.20h	All other organizations outside the United States	155
2.22	Monetary gifts made by the company to U.S. universities and colleges ^a	90
	Projected worldwide R&D expense paid for and performed by the company in 2019	

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2.23(3)	Worldwide R&D to be paid for and performed by the company	558,974
2.23(1)	Domestic R&D to be paid for and performed by the company	452,151
2.23(2)	Foreign R&D to be paid for and performed by the company	106,823
2.24	Projected R&D services and projected payments for collaborative R&D	43,137
3.1j/3.2c	Worldwide R&D paid for by others and performed by the company and others	84,016
3.1a	R&D reimbursed by the company's foreign parent or owner	17,998
3.1b	Collaborative R&D reimbursed by business partners	7,725
3.1c	R&D paid for by grants (government or private foundation)	9,746
3.1d	Defense R&D goods or services provided as a prime or as a sub to the federal government and/or government contractors	17,032
3.1e	Medical clinical trial Phase I–III services provided to others not owned by the company	20,721
3.1f	Medical R&D services, other than clinical trials, provided to others not owned by the company	745
3.1g	Nondefense custom software development or computer systems designed for others not owned by the company	433
3.1h	Prototype development, production, and testing for customer's products	1,767
3.1i	All other R&D services provided to the federal government or to others not owned by the company	7,850
3.2c/3.1j	Worldwide R&D paid for by others and performed by the company and others	84,016
3.2a	Domestic R&D paid for by others and performed by the company and others	73,109
3.2b	Foreign R&D paid for by others and performed by the company and others	10,907
3.3m(1)	Domestic R&D paid for by others and performed by the company and others	73,109
3.3a(1)	Salaries, wages, and fringe benefits	36,004
3.3b(1)	Stock-based compensation	556
3.3c(1)	Leased or temporary staffing, including on-site contractors	2,051
3.3d(1)	Expensed equipment (not capitalized)	389
3.3e(1)	Materials and supplies	5,410
3.3f(1)	Leased facilities and equipment rental payments	990
3.3g(1)	Depreciation and amortization on R&D property, plant, equipment, and intangible assets	1,638
3.3h(1)	Royalties and licensing fees	217
3.3i(1)	Collaborative R&D payments	1,786
3.3j(1)	Contract R&D	8,093
3.3k(1)	Other purchased services	4,239
3.3l(1)	All other costs	11,737
3.4(3)	Worldwide R&D paid for and performed by others	10,838
3.4(1)	Domestic R&D paid for and performed by others	9,878
3.4(2)	Foreign R&D paid for and performed by others	960
3.5(3)	Worldwide R&D paid for by others and performed by the company	73,178
3.5(2)	Foreign R&D paid for by others and performed by the company	9,947
3.5(1)/3.8k	Domestic R&D paid for by others and performed by the company	63,230
3.8a	Other companies in the United States	19,087
3.8b	Your company's foreign parent or owner	15,775
3.8c	Other companies outside the United States	2,558
3.8d/3.11j/3.12c	U.S. federal government agencies or laboratories	24,685
3.8e	U.S. state and local government agencies or laboratories	103
3.8f	Foreign government agencies or laboratories	248
3.8g	U.S. universities, colleges, and academic researchers	66
3.8h	Universities, colleges, and academic researchers outside the United States	5
3.8i	All other organizations in the United States	366
3.8j	All other organizations outside the United States	337
3.11j/3.8d/3.12c	Federally funded R&D performed by the company	24,685
3.11a	Department of Defense	15,182
3.11b	Department of Energy	589

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Question	Survey item	Aggregate amount
3.11c	National Aeronautics and Space Administration	4,724 i
3.11d	National Institutes of Health	385
3.11e	Department of Homeland Security	77
3.11f	Department of Transportation	37
3.11g	Environmental Protection Agency	1
3.11h	National Science Foundation	11
3.11i	Other U.S. federal agencies	3,680
3.12c/3.8d/3.11j	Federally funded R&D performed by the company by type of agreement	24,685
3.12a	Contracts	24,106
3.12b	Grants and all other agreements	579
	Domestic R&D paid for by others and performed by the company	
3.16	Performed at largest domestic location	29,344
3.18	Performed at second-largest domestic location	6,872
3.19	Domestic R&D paid for by U.S. federal government agencies or laboratories and performed by others	4,614
	Projected R&D to be paid for by others and performed by the company in 2018	
3.20	Worldwide R&D to be paid for by others and performed by the company	88,631
3.21	Domestic R&D to be paid for by others and performed by the company	71,163
3.22	Domestic R&D to be paid for by U.S. federal government and performed by the company	28,899
4.1	Total domestic capital expenditures	665,199
4.2/4.3f	Domestic capital expenditures for R&D	34,743
4.3a	Land acquisition	659
4.3b	Buildings and land improvement	4,063
4.3c	Equipment	16,393
4.3d	Capitalized software	9,659
4.3e	All other capital expenditures for R&D	3,969
5.1	Worldwide R&D paid for and performed by the company and others directed toward business areas or product lines new to company	64,994
5.2/2.10(1)	Domestic R&D paid for and performed by the company	377,806
	Type of R&D (character of work)	
5.4b	Basic research	22,312
5.4a	Applied research	53,229
5.3b	Development	302,264
	Application areas	
5.5	Energy applications	23,275 i
5.6	Environmental protection applications	7,994 i
5.7	Defense applications	12,721
5.8	Health or medical applications	89,550
5.9	Agricultural applications	7,273
	Technology focus areas	
5.10	Software products and software embedded in other projects or products	155,935
5.11	Biotechnology	48,915
5.12	Nanotechnology	14,820 i
5.13	Artificial intelligence	7,112
5.15c	Foreign R&D paid for and performed by the company	90,429
5.15a	Research	17,520
5.15b	Development	72,909
5.16/3.5(1)	Domestic R&D paid for by others and performed by the company	63,230
	Type of R&D (character of work)	
5.18b	Basic research	6,668
5.18a	Applied research	11,993
5.17b	Development	44,570

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	Application areas	
5.19	Energy applications	1,949
5.20	Environmental protection applications	1,763
5.21	Defense applications	22,088
5.22	Health or medical applications	24,947
5.23	Agricultural applications	617
	Technology focus areas	
5.24	Software products and software embedded in other projects or products	9,641
5.25	Biotechnology	13,947 i
5.26	Nanotechnology	1,979 i
5.27	Artificial intelligence	2,096 i
	Federally funded R&D performed by the company	
	Type of R&D (character of work)	
5.30b	Basic research	2,510 i
5.30a	Applied research	5,097 i
5.29b	Development	17,078
	Technology focus areas	
5.31	Software products and software embedded in other projects or products	5,365
5.33c	Foreign R&D paid for by others and performed by the company	9,947
5.33a	Research	2,268
5.33b	Development	7,680
Employees (thousands)		
	Worldwide	
1.8/1.9(3)	Total employees	31,345
6.1b(3)	Non-R&D employees	28,781
6.1a(3)	R&D employees	2,564
6.4a(3)	Female	717
6.4b(3)	Male	1,846
6.5a(3)	Researchers	1,770
6.5b(3)	Technicians	562
6.5c(3)	Support staff	231
	Domestic	
1.9(1)	Total employees	20,645
6.1b(1)	Non-R&D employees	18,878
6.1a(1)	R&D employees	1,766
6.4a(1)	Female	468
6.4b(1)	Male	1,298
6.5a(1)	Researchers	1,212
6.5b(1)	Technicians	394
6.5c(1)	Support staff	161
	Foreign	
1.9(2)	Total employees	10,700
6.1b(2)	Non-R&D employees	9,903
6.1a(2)	R&D employees	797
6.4a(2)	Female	249
6.4b(2)	Male	548
6.5a(2)	Researchers	558
6.5b(2)	Technicians	169
6.5c(2)	Support staff	70
	Researchers with PhD	
6.6(3)	Worldwide	158

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Question	Survey item	Aggregate amount
6.6(1)	Domestic	129
6.6(2)	Foreign	29
	Full-time equivalent	
6.7d	R&D employees	1,619
6.7a	Full-time R&D employees	1,367
6.7b	Full-time employees not solely working on R&D	236
6.7c	Part-time employees working on R&D	16
6.8d	Researchers	1,127
6.8a	Full-time R&D employees	987
6.8b	Full-time employees not solely working on R&D	131
6.8c	Part-time employees working on R&D	9
6.9	Non-U.S. citizens employed as researchers under temporary visa ^a	57
6.10d(1)	Total leased and temporary employees working on R&D	238 i
6.10a(1)	Researchers	162 i
6.5b(1)	Technicians	52 i
6.5c(1)	Support staff	23 i
U.S. patents (number) ^b		
7.1	Patents applied for, total	163,866
7.2	Nonprovisional utility patents applied for	117,393
7.3	Applications filed or planned in foreign jurisdictions	53,969
7.4	Applications originated from organized R&D activities	86,635
7.6	Utility patents issued	105,854
U.S. patents (US\$millions) ^a		
	Revenue received	
7.7	From sale of utility patents	932
7.8	From licensing utility patents	21,472
	Amount paid	
7.10	To purchase patents	812
7.11	To license patents	8,961

i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

IR&D = independent research and development.

^a Statistics are based on companies in the United States that reported to the survey. No systematic item imputation was applied. These statistics include an adjustment to the weight to account for unit nonresponse.

^b Statistics are based on companies in the United States that reported to the survey. No systematic item imputation was applied. Beginning in survey year 2018, these statistics include an adjustment to the weight to account for unit nonresponse.

Note(s):

Detail may not add to total because of rounding. 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&D. This change has affected the comparability of these estimates with estimates published for years prior to 2018.

Source(s):

National Center for Science and Engineering Statistics and U.S. Census Bureau, Business Research and Development Survey, 2018.