

TABLE 1

Business Enterprise Research and Development Survey aggregate estimates, by questionnaire reference: 2020

(Millions of U.S. dollars and thousands of employees)

Question	Survey item	Aggregate amount
Company and financial information (US\$millions)		
1.12	Worldwide net sales and operating revenues	14,863,520
1.13	Net sales and operating revenues from domestic operations	11,296,552
	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	660,748
2.3	Worldwide R&D paid for by the company (expense), adjustments	48,421
2.4/ 2.7c	Worldwide R&D paid for by the company and performed by the company and others	612,326
2.7a	Domestic R&D paid for by the company and performed by the company and others	504,793
2.7b	Foreign R&D paid for by the company and performed by the company and others	107,533
2.5	Indirect R&D charges to be recouped from the U.S. federal government (independent R&D [IR&D]) ^a	6,307
2.8m(1)	Domestic R&D paid for by the company and performed by the company and others	504,793
2.8a(1)	Salaries, wages, and fringe benefits	258,088
2.8b(1)	Stock-based compensation	47,548
2.8c(1)	Leased or temporary staffing, including on-site contractors, working on R&D	20,710
2.8d(1)	Expensed equipment (not capitalized)	7,555
2.8e(1)	Materials and supplies	27,379
2.8f(1)	Leased facilities and equipment	7,799
2.8g(1)	Depreciation and amortization on R&D property, plant, equipment, and intangible assets	18,558
2.8h(1)	Royalties and licensing fees	3,476
2.8i(1)	Collaborative R&D payments	7,751
2.8j(1)	Contract R&D	30,880
2.8k(1)	Other purchased services	12,415
2.8l(1)	All other costs	62,634
2.9(3)	Worldwide R&D paid for by the company and performed by others	47,977
2.9(1)	Domestic R&D paid for by the company and performed by others	38,631
2.9(2)	Foreign R&D paid for by the company and performed by others	9,346
2.10(3)	Worldwide R&D paid for and performed by the company	564,350
2.10(1)	Domestic R&D paid for and performed by the company	466,162
2.10(2)	Foreign R&D paid for and performed by the company	98,187
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	705,790
2.10(3) + 3.5(3)	Worldwide R&D paid for by the company and others and performed by the company	647,324
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	585,694
2.10(1) + 3.5(1)	Domestic R&D paid for by the company and others and performed by the company	537,619
	Domestic R&D paid for and performed by the company	
2.14	Performed at largest domestic location	294,994
2.16	Performed at second-largest domestic location	44,160
2.18	Domestic R&D paid for by foreign operations or subsidiaries and performed by the company ^a	27,038
2.19	Foreign R&D paid for by domestic operations or subsidiaries and performed by the company ^a	21,993
2.9(1)	Domestic R&D paid for by the company and performed by others	38,631
	Projected worldwide R&D expense paid for and performed by the company in 2020	
2.20(3)	Worldwide R&D to be paid for and performed by the company	692,741
2.20(1)	Domestic R&D to be paid for and performed by the company	574,938
2.20(2)	Foreign R&D to be paid for and performed by the company	117,803
2.21	Projected R&D services and projected payments for collaborative R&D	45,995
3.1j/ 3.2c	Worldwide R&D paid for by others and performed by the company and others	93,463
3.1a	R&D reimbursed by the company's foreign parent or owner	20,299
3.1b	Collaborative R&D reimbursed by business partners	9,696
3.1c	R&D paid for by grants (government or private foundation)	11,113

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3.1d	Defense R&D goods or services provided as a prime contractor or subcontractor to the federal government and/ or government contractors	19,624	i
3.1e	Medical clinical trial Phase I–III services provided to others not owned by the company	21,577	i
3.1f	Medical R&D services, other than clinical trials, provided to others not owned by the company	2,945	
3.1g	Nondefense custom software development or computer systems designed for others not owned by the company	661	
3.1h	Prototype development, production, and testing for customer's products	1,559	
3.1i	All other R&D services provided to the federal government or to others not owned by the company	5,989	i
3.2c/ 3.1j	Worldwide R&D paid for by others and performed by the company and others	93,463	
3.2a	Domestic R&D paid for by others and performed by the company and others	80,901	
3.2b	Foreign R&D paid for by others and performed by the company and others	12,563	i
3.3m(1)	Domestic R&D paid for by others and performed by the company and others	80,901	
3.3a(1)	Salaries, wages, and fringe benefits	41,958	
3.3b(1)	Stock-based compensation	795	
3.3c(1)	Leased or temporary staffing, including on-site contractors	2,745	
3.3d(1)	Expensed equipment (not capitalized)	373	
3.3e(1)	Materials and supplies	7,642	
3.3f(1)	Leased facilities and equipment rental payments	1,110	
3.3g(1)	Depreciation and amortization on R&D property, plant, equipment, and intangible assets	2,414	
3.3h(1)	Royalties and licensing fees	309	
3.3i(1)	Collaborative R&D payments	2,834	
3.3j(1)	Contract R&D	6,610	
3.3k(1)	Other purchased services	4,386	i
3.3l(1)	All other costs	9,724	
3.4(3)	Worldwide R&D paid for and performed by others	10,489	
3.4(1)	Domestic R&D paid for and performed by others	9,444	
3.4(2)	Foreign R&D paid for and performed by others	1,045	
3.5(3)	Worldwide R&D paid for by others and performed by the company	82,975	
3.5(2)	Foreign R&D paid for by others and performed by the company	11,518	i
3.5(1)	Domestic R&D paid for by others and performed by the company	71,457	
3.8a	Other companies in the United States	21,572	
3.8b	Your company's foreign parent or owner	17,784	
3.8c	Other companies outside the United States	2,070	
3.8d/ 3.11j/ 3.12c	U.S. federal government agencies or laboratories	28,905	
3.8e	U.S. state and local government agencies or laboratories	199	
3.8f	Foreign government agencies or laboratories	128	
3.8g	U.S. universities, colleges, and academic researchers	60	
3.8h	Universities, colleges, and academic researchers outside the United States	2	
3.8i	All other organizations in the United States	707	
3.8j	All other organizations outside the United States	30	
3.8d	Federally funded R&D performed by the company	28,905	
	Domestic R&D paid for by others and performed by the company		
3.13	Performed at largest domestic location	32,965	
3.15	Performed at second-largest domestic location	6,916	
3.16	Domestic R&D paid for by U.S. federal government agencies or laboratories and performed by others	3,694	
	Projected R&D to be paid for by others and performed by the company in 2021		
3.17	Worldwide R&D to be paid for by others and performed by the company	99,058	
3.18	Domestic R&D to be paid for by others and performed by the company	77,900	
3.19	Domestic R&D to be paid for by the U.S. federal government and performed by the company	30,938	
4.1	Total domestic capital expenditures	686,393	
4.2/ 4.3f	Domestic capital expenditures for R&D	32,494	

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Question	Survey item	Aggregate amount	
4.3a	Land acquisition	147	
4.3b	Buildings and land improvement	4,060	
4.3c	Equipment	15,731	
4.3d	Capitalized software	8,436	
4.3e	All other capital expenditures for R&D	4,120	
5.1	Worldwide R&D paid for and performed by the company and others directed toward business areas or product lines new to the company	86,264	
5.2/ 2.10(1)	Domestic R&D paid for and performed by the company	466,162	
	Type of R&D (character of work)		
5.4b	Basic research	29,330	
5.4a	Applied research	60,620	
5.3b	Development	376,213	
	Technology focus areas		
5.5	Software products and software embedded in other projects or products	212,555	i
5.6	Biotechnology	72,459	
5.7	Nanotechnology	20,721	i
5.8	Artificial intelligence	18,613	i
5.10c	Foreign R&D paid for and performed by the company	98,187	
5.10a	Research	13,872	
5.10b	Development	84,315	
5.11/ 3.5(1)	Domestic R&D paid for by others and performed by the company	71,457	
	Type of R&D (character of work)		
5.13b	Basic research	6,688	
5.13a	Applied research	15,468	
5.12b	Development	49,301	
	Technology focus areas		
5.14	Software products and software embedded in other projects or products	13,589	i
5.15	Biotechnology	15,964	
5.16	Nanotechnology	1,701	i
5.17	Artificial intelligence	2,030	i
	Federally funded R&D performed by the company		
	Type of R&D (character of work)		
5.20b	Basic research	2,148	i
5.20a	Applied research	5,698	
5.19b	Development	21,059	
	Technology focus areas		
5.21	Federally funded R&D performed by the company for software products and software embedded in other projects or products	6,303	i
5.23c	Foreign R&D paid for by others and performed by the company	11,518	i
5.23a	Research	3,138	i
5.23b	Development	8,380	i
Employees (thousands)			
	Worldwide		
1.8/ 1.9(3)/ 6.1c(3)	Total employees	33,086	
6.1b(3)	Non-R&D employees	30,240	
6.1a(3)	R&D employees	2,847	
6.4a(3)	Female	797	
6.4b(3)	Male	2,050	
6.5a(3)	Researchers	1,924	
6.5b(3)	Technicians	658	
6.5c(3)	Support staff	265	

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Question	Survey item	Aggregate amount
	Domestic	
1.9(1)/ 6.1c(1)	Total employees	22,034
6.1b(1)	Non-R&D employees	20,098
6.1a(1)	R&D employees	1,936
6.4a(1)	Female	517
6.4b(1)	Male	1,419
6.5a(1)	Researchers	1,312
6.5b(1)	Technicians	443
6.5c(1)	Support staff	181
	Foreign	
1.9(2)/ 6.1c(2)	Total employees	11,052
6.1b(2)	Non-R&D employees	10,142
6.1a(2)	R&D employees	910
6.4a(2)	Female	280
6.4b(2)	Male	631
6.5a(2)	Researchers	613
6.5b(2)	Technicians	214
6.5c(2)	Support staff	83
	Researchers with PhD	
6.6(3)	Worldwide	163
6.6(1)	Domestic	129
6.6(2)	Foreign	35
	Full-time equivalent	
6.7d	R&D employees	1,765
6.7a	Full-time R&D employees	1,472
6.7b	Full-time employees not solely working on R&D	272
6.7c	Part-time employees working on R&D	21
6.8d	Researchers	1,201
6.8a	Full-time R&D employees	1,038
6.8b	Full-time employees not solely working on R&D	152
6.8c	Part-time employees working on R&D	10
6.9	Non-U.S. citizens employed as researchers under temporary visa ^a	66
6.10d(1)	Total leased and temporary employees working on R&D	250 i
6.10a(1)	Researchers	161 i
6.10b(1)	Technicians	56 i
6.10c(1)	Support staff	33 i
	U.S. patents (number) ^a	
7.1	Patents applied for, total	163,300
7.2	Nonprovisional utility patents applied for	112,959
7.3	Nonprovisional utility patent applications filed or planned in foreign jurisdictions	53,553
7.4	Nonprovisional utility patent applications originated from organized R&D activities	89,324
7.6	Utility patents issued	116,651
	U.S. patents (US\$millions) ^a	
	Revenue received	
7.7	From sale of utility patents	929
7.8	From licensing utility patents	28,777
	Amount paid	
7.10	To purchase patents	1,016
7.11	To license patents	12,671

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

^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.

Note(s):

Detail may not add to total because of rounding. 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, 2020.