

TABLE 1

Business Research and Development Survey aggregate estimates, by questionnaire reference: 2017

(Financial information, employees, patents)

Question	Survey item	Aggregate amount
Company and financial information (US\$millions)		
1.11	Worldwide net sales and operating revenues	12,948,005
1.12	Net sales and operating revenues from domestic operations	9,682,692
-	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	508,914
2.3	Worldwide R&D paid for by the company (expense), adjustments	37,593
2.4, 2.7c	Worldwide R&D paid for by the company and performed by the company and others	471,321
2.7a	Domestic R&D paid for by the company and performed by the company and others	381,739
2.7b	Foreign R&D paid for by the company and performed by the company and others	89,582
2.5	Indirect R&D charges to be recouped from the U.S. federal government (independent R&D [IR&D])	6,159
2.8m(1)	Domestic R&D paid for by the company and performed by the company and others	381,739
2.8a(1)	Salaries, wages, and fringe benefits	195,095
2.8b(1)	Stock-based compensation	24,315
2.8c(1)	Leased or temporary staffing, including on-site contractors, working on R&D	14,013
2.8d(1)	Expensed equipment	5,800
2.8e(1)	Materials and supplies	23,309
2.8f(1)	Leased facilities and equipment	5,694
2.8g(1)	Depreciation and amortization on R&D property, plant, and equipment	13,495
2.8h(1)	Royalties and licensing fees	2,117
2.8i(1)	Payments to business partners for collaborative R&D	10,900
2.8j(1)	Purchased R&D services	31,803
2.8k(1)	All other purchased services except R&D	8,078
2.8l(1)	All other costs	47,120
2.9(3)	Worldwide R&D paid for by the company and performed by others	53,597
2.9(1)	Domestic R&D paid for by the company and performed by others	42,704
2.9(2)	Foreign R&D paid for by the company and performed by others	10,894
2.10(3)	Worldwide R&D paid for and performed by the company	417,724
2.10(1)	Domestic R&D paid for and performed by the company	339,036
2.10(2)	Foreign R&D paid for and performed by the company	78,689
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	552,325
2.10(3) + 3.5(3)	Worldwide R&D paid for by the company and others and performed by the company	487,628
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	452,593
2.10(1) + 3.5(1)	Domestic R&D paid for by the company and others and performed by the company	400,100
-	Domestic R&D paid for and performed by the company	
2.14	Performed at largest domestic location	197,860
2.16	Performed at second-largest domestic location	31,331
2.18	Domestic R&D paid for by foreign operations or subsidiaries and performed by the company	19,240
2.19	Foreign R&D paid for by domestic operations or subsidiaries and performed by the company	13,807
2.20i, 2.9(1)	Domestic R&D paid for by the company and performed by others	42,704
2.20a	Companies in the United States	36,081
2.20b	Your company's foreign parent or owner	1,727
2.20c	Companies outside the United States	3,444
2.2	U.S. federal government agencies or laboratories	88
2.20e	U.S. state and local government agencies or laboratories	10
2.2	U.S. universities, colleges, and academic researchers	498
2.20g	All other organizations in the United States	588
2.20h	All other organizations outside the United States	267
2.22	Monetary gifts made by the company to U.S. universities and colleges	141
-	Projected worldwide R&D expense paid for and performed by the company in 2018	

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2.23(3)	Worldwide R&D to be paid for and performed by the company	493,548
2.23(1)	Domestic R&D to be paid for and performed by the company	396,799
2.23(2)	Foreign R&D to be paid for and performed by the company	96,749
2.24	Projected R&D services and projected payments for collaborative R&D	37,782
3.1j, 3.2c	Worldwide R&D paid for by others and performed by the company and others	81,003
3.1a	R&D reimbursed by the company's foreign parent or owner	19,787
3.1b	Collaborative R&D reimbursed by business partners	8,799
3.1c	R&D paid for by government or private foundation grants	10,564 i
3.1	Defense RDT&E goods or services provided to the federal government or government contractors	16,427
3.1	Medical nonclinical R&D services provided to others not owned by the company	3,956 i
3.1e	Medical clinical trial Phase I–III services provided to others not owned by the company	13,874
3.1g	Nondefense custom software development or computer systems designed for others not owned by the company	308
3.1h	Prototype development, production, and testing for customer's products	2,511
3.1i	All other R&D services not included in 3.1a–3.1h provided to the federal government or to others not owned by the company	4,778 i
3.2c, 3.1j	Worldwide R&D paid for by others and performed by the company and others	81,003
3.2a	Domestic R&D paid for by others and performed by the company and others	70,854
3.2b	Foreign R&D paid for by others and performed by the company and others	10,150
3.3m(1)	Domestic R&D paid for by others and performed by the company and others	70,854
3.3a(1)	Salaries, wages, and fringe benefits	36,047
3.3b(1)	Stock-based compensation	591
3.3c(1)	Leased or temporary staffing, including on-site contractors	1,879
3.3d(1)	Expensed equipment	375
3.3e(1)	Materials and supplies	6,341
3.3f(1)	Leased facilities and equipment rental payments	1,113
3.3g(1)	Depreciation and amortization of R&D property and equipment	1,578
3.3h(1)	Royalties and licensing fees	332
3.3i(1)	Payments to business partners for collaborative R&D	2,188 i
3.3j(1)	Purchased R&D services	7,601 i
3.3k(1)	All other purchased services except R&D	2,825 i
3.3l(1)	All other costs	9,986 i
3.4(3)	Worldwide R&D paid for and performed by others	11,099 i
3.4(1)	Domestic R&D paid for and performed by others	9,789 i
3.4(2)	Foreign R&D paid for and performed by others	1,311
3.5(3)	Worldwide R&D paid for by others and performed by the company	69,904
3.5(2)	Foreign R&D paid for by others and performed by the company	8,839
3.5(1), 3.8k	Domestic R&D paid for by others and performed by the company	61,065
3.8a	Other companies in the United States	17,494
3.8b	Your company's foreign parent or owner	15,426
3.8c	Other companies outside the United States	2,978
3.8d, 3.11j, 3.12c	U.S. federal government agencies or laboratories	24,277 i
3.8e	U.S. state and local government agencies or laboratories	121
3.8	Foreign government agencies or laboratories	7
3.8g	U.S. universities, colleges, and academic researchers	70 i
3.8h	Universities, colleges, and academic researchers outside the United States	24 i
3.8i	All other organizations in the United States	521 i
3.8j	All other organizations outside the United States	147
3.11j, 3.8d, 3.12c	Federally funded R&D performed by the company	24,277 i
3.11a	Department of Defense	16,632 i

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Question	Survey item	Aggregate amount
3.11b	Department of Energy	570 i
3.11c	National Aeronautics and Space Administration	4,298 i
3.11	National Institutes of Health	665
3.11e	Department of Homeland Security	52
3.11	Department of Transportation	53
3.11g	Environmental Protection Agency	1
3.11h	National Science Foundation	10 - 46
3.11i	Other U.S. federal agencies	1,959 - 2,000 i
3.12c, 3.8d, 3.11j	Federally funded R&D performed by the company, by type of agreement	24,277 i
3.12a	Contracts	23,494 i
3.12b	Grants and all other agreements	784
-	Domestic R&D paid for by others and performed by the company	
3.16	Performed at largest domestic location	30,983
3.18	Performed at second-largest domestic location	5,655
3.19	Domestic R&D paid for by U.S. federal government agencies or laboratories and performed by others	3,198 i
-	Projected R&D to be paid for by others and performed by the company in 2018	
3.2	Worldwide R&D to be paid for by others and performed by the company	84,029
3.21	Domestic R&D to be paid for by others and performed by the company	65,503
3.22	Domestic R&D to be paid for by U.S. federal government and performed by the company	24,997 i
4.1	Total domestic capital expenditures	587,332
4.2, 4.3e	Domestic capital expenditures for R&D	31,885
4.3a	Land and structures	3,541
4.3b	Equipment	14,898
4.3c	Capitalized software	8,539
4.3	All other capital expenditures for R&D	4,907
5.1	Worldwide R&D paid for and performed by the company and others directed toward business areas or product lines new to company	54,555
5.2, 2.10(1)	Domestic R&D paid for and performed by the company	339,036
-	Type of R&D (character of work)	
5.4b	Basic research	18,732
5.4a	Applied research	49,149
5.3b	Development	271,155
-	Application areas	
5.5	Energy applications	20,981
5.6	Environmental protection applications	6,976
5.7	Defense applications	11,036
5.8	Health or medical applications	78,495
5.9	Agricultural applications	5,270
-	Technology focus areas	
5.1	Software products and software embedded in other projects or products	130,015
5.11	Biotechnology	39,856
5.12	Nanotechnology	16,689 i
5.14c	Foreign R&D paid for and performed by the company	78,689
5.14a	Research	15,175 i
5.14b	Development	63,514
5.15, 3.5(1)	Domestic R&D paid for by others and performed by the company	61,065
-	Type of R&D (character of work)	
5.17b	Basic research	6,097
5.17a	Applied research	12,984
5.16b	Development	41,984

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Question	Survey item	Aggregate amount	
-	Application areas		
5.18	Energy applications	2,333	
5.19	Environmental protection applications	949	
5.2	Defense applications	20,054	i
5.21	Health or medical applications	22,171	
5.22	Agricultural applications	516	
-	Technology focus areas		
5.23	Software products and software embedded in other projects or products	10,437	
5.24	Biotechnology	11,781	
5.25	Nanotechnology	1,548	
-	Federally funded R&D performed by the company		
-	Type of R&D (character of work)		
5.28b	Basic research	1,783	i
5.28a	Applied research	5,037	i
5.27b	Development	17,457	i
-	Technology focus areas		
5.29	Software products and software embedded in other projects or products	5,212	i
5.31c	Foreign R&D paid for by others and performed by the company	8,839	
5.31a	Research	1,966	
5.31b	Development	6,873	i
Employees (thousands)			
-	Worldwide		
1.7, 1.8(3)	Total employees	30,450	
6.1b(3)	Non-R&D employees	28,101	
6.1a(3)	R&D employees	2,349	
6.2a(3)	Female	646	
6.2b(3)	Male	1,703	
6.3a(3)	Researchers	1,629	
6.3b(3)	Technicians	496	
6.3c(3)	Support staff	224	
-	Domestic		
1.8(1)	Total employees	19,893	
6.1b(1)	Non-R&D employees	18,284	
6.1a(1)	R&D employees	1,609	
6.2a(1)	Female	423	
6.2b(1)	Male	1,186	
6.3a(1)	Researchers	1,103	
6.3b(1)	Technicians	347	
6.3c(1)	Support staff	160	
-	Foreign		
1.8(2)	Total employees	10,557	
6.1b(2)	Non-R&D employees	9,817	
6.1a(2)	R&D employees	740	
6.2a(2)	Female	223	
6.2b(2)	Male	517	
6.3a(2)	Researchers	526	
6.3b(2)	Technicians	149	
6.3c(2)	Support staff	65	
-	Researchers with PhD		
6.4(3)	Worldwide	147	
6.4(1)	Domestic	119	

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Question	Survey item	Aggregate amount
6.4(2)	Foreign	28
-	Full-time equivalent	
6.5	R&D employees	1,475
6.5a	Full-time R&D employees	1,231
6.5b	Full-time employees not solely working on R&D	228
6.5c	Part-time employees working on R&D	16
6.6	Researchers	1,023
6.6a	Full-time R&D employees	885
6.6b	Full-time employees not solely working on R&D	130
6.6c	Part-time employees working on R&D	9 ⁱ
6.7	Non-U.S. citizens employed as researchers under temporary visa	48
U.S. patents (number) ^a		
7.1	Patents applied for, total	151,928
7.2	Nonprovisional utility patents applied for	100,485
7.3	Applications filed or planned in foreign jurisdictions	50,572
7.4	Applications originated from organized R&D activities	79,011
7.6	Utility patents issued	101,607
U.S. patents (US\$millions)		
-	Revenue received	
7.7	From sale of utility patents	1,009
7.8	From licensing utility patents	20,347
-	Amount paid	
7.1	To purchase patents	44
7.11	To license patents	8,098

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

IR&D = independent research and development; RDT&E = research, development, test, and evaluation.

^a These statistics do not 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 R&D. 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 U.S. Census Bureau, Business Research and Development Survey, 2017.