

TABLE 1

Business R&D and Innovation Survey aggregate estimates, by questionnaire reference: 2016

(Financial information, employees, and patents)

Question	Survey item	Aggregate amount
Company and financial information (US\$millions)		
1.8	Worldwide net sales and operating revenues	12,285,760
1.9	Net sales and operating revenues from domestic operations	9,191,871
-	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	463,568
2.3	Worldwide R&D paid for by the company (expense) adjustments	28,165
2.4	Worldwide R&D paid for by the company and performed by the company and others	435,403
2.8a	Domestic R&D paid for by the company and performed by the company and others	355,230
2.8b	Foreign R&D paid for by the company and performed by the company and others	80,173
2.6	Indirect R&D charges to be recouped from the U.S. federal government (IR&D or independent R&D)	5,795
2.11m(1)	Domestic R&D paid for by the company and performed by the company and others	355,230
2.11a(1)	Salaries, wages, and fringe benefits	180,885
2.11b(1)	Stock-based compensation	21,068
2.11c(1)	Leased or temporary staffing, including on-site contractors	14,836
2.11d(1)	Expensed equipment	5,160
2.11e(1)	Materials and supplies	21,595
2.11f(1)	Leased facilities and equipment rental payments	5,107
2.11g(1)	Depreciation and amortization of R&D property and equipment	12,520
2.11h(1)	Royalties and licensing fees	1,872
2.11i(1)	Payments to business partners for collaborative R&D	8,278
2.11j(1)	Purchased R&D services	29,221
2.11k(1)	All other purchased services except R&D	7,285
2.11l(1)	All other costs	47,402
2.12(3)	Worldwide R&D paid for by the company and performed by others	47,346
2.12(1)	Domestic R&D paid for by the company and performed by others	37,499
2.12(2)	Foreign R&D paid for by the company and performed by others	9,847
2.13(3)	Worldwide R&D paid for and performed by the company	388,057
2.13(1)	Domestic R&D paid for and performed by the company	317,731
2.13(2)	Foreign R&D paid for and performed by the company	70,326
2.13(3) + 3.9(3)	Worldwide R&D paid for by the company and others and performed by the company	451,831
2.12(1) + 2.13(1) + 3.8(1) + 3.9(1)	Domestic R&D paid for by the company and others and performed by the company and others	421,539
2.13(1) + 3.9(1)	Domestic R&D paid for by the company and others and performed by the company	374,685
-	Domestic R&D paid for and performed by the company	
2.19	Performed at largest domestic location	180,657
2.21	Performed at second-largest domestic location	30,967
2.23	Domestic R&D paid for by foreign operations or subsidiaries and performed by the company	11,120
2.24	Foreign R&D paid for by domestic operations or subsidiaries and performed by the company	13,030
2.26i	Domestic R&D paid for by the company and performed by others	37,499
2.26a	Companies in the United States	31,239
2.26b	Your company's foreign parent or owner	843
2.26c	Companies outside the United States	3,322
2.26d	U.S. federal government agencies or laboratories	116
2.26e	U.S. state and local government agencies or laboratories	5
2.26f	U.S. universities, colleges, and academic researchers	275
2.26g	All other organizations in the United States	346
2.26h	All other organizations outside the United States	163
2.26	Undistributed (BRDI-1(S))	1,190
2.28	Monetary gifts made by the company to U.S. universities and colleges	72
-	Projected worldwide R&D expense paid for and performed by the company in 2017	
2.29(3)	Worldwide R&D to be paid for and performed by the company	455,995

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2.29(1)	Domestic R&D to be paid for and performed by the company	372,897
2.29(2)	Foreign R&D to be paid for and performed by the company	83,098
2.30	Projected R&D services and projected payments for collaborative R&D	34,846
2.31	Total domestic capital expenditures	560,900
2.32	Domestic capital expenditures for R&D	25,248
2.33a	Land and structures	3,072
2.33b	Equipment	11,839
2.33c	Capitalized software	6,793
2.33d	All other capital expenditures for R&D	3,543
3.1j, 3.4c	Worldwide R&D paid for by others and performed by the company and others	74,224
3.1a	R&D reimbursed by the company's foreign parent or owner	17,447
3.1b	Collaborative R&D reimbursed by business partners	7,939
3.1c	R&D paid for by government or private foundation grants	12,564
3.1d	Defense RDT&E goods or services provided to the federal government or government contractors	13,646
3.1f	Medical nonclinical R&D services provided to others not owned by the company	3,354
3.1e	Medical clinical trial Phase I–III services provided to others not owned by the company	11,544
3.1g	Nondefense custom software development or computer systems designed for others not owned by the company	277
3.1h	Prototype development, production, and testing for customer's products	1,496
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	5,957
3.4c, 3.1j	Worldwide R&D paid for by others and performed by the company and others	74,224
3.4a	Domestic R&D paid for by others and performed by the company and others	66,309
3.4b	Foreign R&D paid for by others and performed by the company and others	7,915
3.7m(1)	Domestic R&D paid for by others and performed by the company and others	66,309
3.7a(1)	Salaries, wages, and fringe benefits	34,074
3.7b(1)	Stock-based compensation	576
3.7c(1)	Leased or temporary staffing, including on-site contractors	1,868
3.7d(1)	Expensed equipment	424
3.7e(1)	Materials and supplies	5,101
3.7f(1)	Leased facilities and equipment rental payments	993
3.7g(1)	Depreciation and amortization of R&D property and equipment	1,154
3.7h(1)	Royalties and licensing fees	56
3.7i(1)	Payments to business partners for collaborative R&D	2,029
3.7j(1)	Purchased R&D services	7,326
3.7k(1)	All other purchased services except R&D	2,912
3.7l(1)	All other costs	9,797
3.8(3)	Worldwide R&D paid for and performed by others	10,450
3.8(1)	Domestic R&D paid for and performed by others	9,355
3.8(2)	Foreign R&D paid for and performed by others	1,095
3.9(3)	Worldwide R&D paid for by others and performed by the company	63,774
3.9(1), 3.14i	Domestic R&D paid for by others and performed by the company	56,954
3.9(2)	Foreign R&D paid for by others and performed by the company	6,820
3.14i, 3.9(1)	Domestic R&D paid for by others and performed by the company	56,954
3.14a	Companies in the United States	14,239
3.14b	Your company's foreign parent or owner	14,766
3.14c	Companies outside the United States	2,926
3.14d, 3.18j, 3.19c	U.S. federal government agencies or laboratories	23,772
3.14e	U.S. state and local government agencies or laboratories	171
3.14f	U.S. universities, colleges, and academic researchers	127
3.14g	All other organizations in the United States	851

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Question	Survey item	Aggregate amount
3.14h	All other organizations outside the United States	100
3.18j, 3.14d, 3.19c	Federally funded R&D performed by the company	23,772
3.18a	Department of Defense	16,458
3.18b	Department of Energy	1,011 i
3.18c	National Aeronautics and Space Administration	4,037 i
3.18d	National Institutes of Health	652
3.18e	Department of Homeland Security	D
3.18f	Department of Transportation	46
3.18g	Environmental Protection Agency	2
3.18h	National Science Foundation	23
3.18i	Other U.S. federal agencies	D
3.19c, 3.14d, 3.18j	Federally funded R&D performed by the company by type of agreement	23,772
3.19a	Contracts	22,951
3.19b	Grants and all other agreements	821
-	Domestic R&D paid for by others and performed by the company	
3.23	Performed at largest domestic location	26,458
3.25	Performed at second-largest domestic location	4,753
3.26	Domestic R&D paid for and performed by others	9,355
3.27	Domestic R&D paid for by U.S. federal government agencies or laboratories and performed by others	3,549
-	Projected R&D to be paid for by others and performed by the company in 2017	
3.28	Worldwide R&D to be paid for by others and performed by the company	77,612
3.29	Domestic R&D to be paid for by others and performed by the company	61,937
3.30	Domestic R&D to be paid for by U.S. federal government and performed by the company	25,411
-	Domestic R&D paid for and performed by the company	
4.3	R&D directed toward business areas or product lines new to company	52,234
-	Type of R&D (character of work)	
4.6b	Basic research	19,143
4.6a	Applied research	48,806
4.5b	Development	249,782
-	Application areas	
4.7	Energy applications	20,341
4.8	Environmental protection applications	7,426
4.9	Defense applications	10,369
4.10	Health or medical applications	78,699
4.11	Agricultural applications	5,705 i
-	Technology focus areas	
4.12	Software products and software embedded in other projects or products	111,933 i
4.13	Biotechnology	36,970
4.14	Nanotechnology	23,823 i
-	Domestic R&D paid for by others and performed by the company	
-	Type of R&D (character of work)	
4.18b	Basic research	5,501 i
4.18a	Applied research	12,213
4.17b	Development	39,239
-	Application areas	
4.19	Energy applications	2,296
4.20	Environmental protection applications	1,792
4.21	Defense applications	17,680
4.22	Health or medical applications	17,989 i
4.23	Agricultural applications	686
-	Technology focus areas	

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4.24	Software products and software embedded in other projects or products	8,890	
4.25	Biotechnology	7,823	
4.26	Nanotechnology	1,482	i
-	Federally funded R&D performed by the company		
-	Type of R&D (character of work)		
4.30b	Basic research	2,005	i
4.30a	Applied research	5,181	i
4.29b	Development	16,586	
-	Technology focus areas		
4.31	Software products and software embedded in other projects or products	4,481	i
-	Foreign R&D paid for and performed by the company		
-	Type of R&D (character of work)		
4.33a	Research	15,569	
4.33b	Development	54,757	
-	Foreign R&D paid for by others and performed by the company		
-	Type of R&D (character of work)		
4.35a	Research	1,861	i
4.35b	Development	4,959	i
Employees (thousands)			
-	Worldwide		
5.1, 5.2(3)	Total employees	30,667	
5.3b(3)	Non-R&D employees	28,472	
5.3a(3)	R&D employees	2,195	
5.5a(3)	Female	594	
5.5b(3)	Male	1,601	
5.6a(3)	Researchers	1,551	
5.6b(3)	Technicians	431	
5.6c(3)	Support staff	213	
-	Domestic		
5.2(1)	Total employees	19,293	
5.3b(1)	Non-R&D employees	17,772	
5.3a(1)	R&D employees	1,522	
5.5a(1)	Female	399	
5.5b(1)	Male	1,122	
5.6a(1)	Researchers	1,064	
5.6b(1)	Technicians	306	
5.6c(1)	Support staff	152	
-	Foreign		
5.2(2)	Total employees	11,374	
5.3b(2)	Non-R&D employees	10,701	
5.3a(2)	R&D employees	674	
5.5a(2)	Female	194	
5.5b(2)	Male	479	
5.6a(2)	Researchers	488	
5.6b(2)	Technicians	126	
5.6c(2)	Support staff	61	
-	Researchers with PhD		
5.7(3)	Worldwide	149	
5.7(1)	Domestic	120	
5.7(2)	Foreign	30	
-	Full-time equivalent		

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5.8d	R&D employees	1,393
5.8a	Full-time R&D employees	1,226
5.8b	Full-time employees not solely working on R&D	152
5.8c	Part-time employees working on R&D	15
5.9d	Researchers	973
5.9a	Full-time R&D employees	879
5.9b	Full-time employees not solely working on R&D	85 i
5.9c	Part-time employees working on R&D	9
5.10	Non-U.S. citizens employed as researchers under temporary visa	41
U.S. patents (number) ^a		
6.1	Patents applied for, total	135,702
6.2	Nonprovisional utility patents applied for	101,428
6.3	Applications filed or planned in foreign jurisdictions	47,920
6.4	Applications originated from organized R&D activities	75,310
6.6	Utility patents issued	92,099
U.S. patents (US\$millions) ^a		
-	Revenue received from others	
6.7	From sale of utility patents	955
6.8	From licensing utility patents	18,145
-	Amount paid to others	
6.10	To purchase patents	163
6.11	To license patents	8,380

D = data withheld to avoid disclosing operations of individual companies; 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.

Source(s)

National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2016.