

CHAPTER 6

Industry, Technology, and the Global Marketplace

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APPENDIX TABLE 6-1 

Regions, countries, or economies in world industry data

(Regions, countries, or economies)

North America	Central and South America	Europe	Middle East	Africa	Asia	Australia and Oceania
Canada	Argentina	EU	Bahrain	Cameroon	Bangladesh	Australia
Mexico	Bolivia	Austria	Iran	Egypt	China	New Zealand
United States	Brazil	Belgium	Israel	Kenya	India	
	Chile	Bulgaria	Jordan	Morocco	Indonesia	
	Colombia	Czech Republic	Kuwait	Nigeria	Japan	
	Costa Rica	Denmark	Qatar	Senegal	Malaysia	
	Ecuador	Finland	Saudi Arabia	South Africa	Pakistan	
	Honduras	France	United Arab Emirates	Tunisia	Philippines	
	Jamaica	Germany		Zimbabwe	Singapore	
	Panama	Greece			South Korea	
	Peru	Hungary			Sri Lanka	
	Uruguay	Ireland			Taiwan	
	Venezuela	Italy			Thailand	
		Netherlands			Vietnam	
		Poland				
		Portugal				
		Romania				
		Slovakia				
		Spain				
		Sweden				

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North America	Central and South America	Europe	Middle East	Africa	Asia	Australia and Oceania
		United Kingdom				
		Other Europe				
		Norway				
		Russia				
		Switzerland				
		Turkey				
		Ukraine				

EU = European Union.

Note(s)

Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong.

Source(s)

IHS Global Insight, World Industry Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-2

Value added of KTI industries, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	10,471,598	10,967,075	12,282,767	13,619,901	14,576,052	15,693,496	17,559,135	18,881,112	18,354,076	19,790,306	21,467,731	22,207,724	22,819,057	23,635,692	22,976,292	23,583,274
North America																
Canada	231,704	238,200	277,279	313,754	350,829	397,739	438,623	454,557	423,139	491,510	541,188	551,595	552,470	539,922	484,375	485,276
Mexico	135,041	146,194	143,068	151,978	174,400	195,317	214,277	225,615	186,820	218,888	236,117	243,754	266,306	268,945	248,150	232,613
United States	3,953,352	4,130,076	4,308,094	4,526,178	4,814,632	5,111,909	5,327,687	5,401,433	5,411,631	5,599,561	5,788,823	6,083,829	6,238,223	6,544,914	6,887,573	7,111,451
Central and South America																
Argentina	86,535	28,755	31,812	35,903	44,926	55,664	71,038	92,743	93,859	110,878	136,429	153,460	158,375	134,725	146,350	130,034
Bolivia	1,286	1,197	1,141	1,152	1,204	1,320	1,478	1,833	2,053	2,258	2,456	2,901	3,276	3,620	4,066	4,971
Brazil	164,184	152,688	160,858	189,243	248,166	312,660	399,992	477,621	467,744	604,651	710,288	666,822	674,600	682,588	505,741	509,499
Chile	22,891	20,068	18,712	23,204	27,938	32,231	37,910	42,463	43,224	52,723	62,285	68,202	73,737	68,794	66,328	69,256
Colombia	21,177	21,282	20,375	25,000	31,213	34,289	44,070	52,056	50,813	61,919	68,611	76,639	79,476	79,963	65,313	63,513
Costa Rica	3,737	3,990	4,230	4,519	4,954	5,666	6,701	7,968	8,707	10,921	12,671	14,394	15,847	15,677	17,098	18,211
Ecuador	5,314	6,052	7,119	8,039	9,109	10,134	11,157	13,124	14,513	15,982	17,486	19,875	21,146	23,324	23,542	22,696
Honduras	1,756	1,843	1,957	2,084	2,340	2,622	3,038	3,524	3,914	4,128	4,355	4,635	4,782	5,009	5,104	5,238
Panama	3,501	3,673	3,759	3,857	4,241	4,546	5,183	5,769	6,583	7,048	7,706	8,580	9,610	10,728	11,429	12,610
Peru	11,931	12,729	13,901	15,232	16,948	19,269	21,805	25,447	25,812	30,648	34,523	40,212	42,401	43,959	42,054	43,329

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	6,253	4,037	3,176	3,308	4,216	4,748	5,536	7,328	7,910	10,247	12,250	13,484	15,238	15,394	14,512	14,330
Venezuela	29,053	21,192	18,171	20,452	23,788	31,105	42,644	55,630	69,056	42,082	55,984	72,277	69,948	54,679	89,485	16,948
Europe																
EU	2,732,162	3,012,884	3,688,951	4,268,442	4,456,285	4,738,035	5,474,827	5,833,684	5,323,383	5,319,806	5,695,235	5,400,690	5,626,960	5,837,474	5,174,521	5,200,041
Austria	56,227	61,892	75,901	85,796	91,310	98,768	114,585	127,640	116,272	116,556	127,990	121,593	128,130	131,682	115,543	118,851
Belgium	82,278	90,028	109,695	126,034	131,885	139,066	158,029	175,813	168,956	170,472	184,916	176,389	186,974	193,262	168,176	171,165
Bulgaria	2,515	3,130	3,892	4,869	5,873	6,203	8,890	10,919	10,596	11,564	13,250	12,258	12,670	13,451	11,547	11,734
Czech Republic	16,713	20,830	25,854	30,964	36,277	41,813	52,241	65,903	58,083	60,784	67,929	62,017	62,638	63,928	57,274	58,397
Denmark	49,890	54,436	67,690	77,419	80,253	85,320	97,290	111,486	108,518	108,859	115,234	110,485	117,373	121,240	107,588	109,382
Finland	37,701	41,281	48,756	56,705	58,384	62,811	76,064	83,366	73,228	72,317	79,044	73,885	77,415	79,737	69,189	69,885
France	413,688	456,308	564,994	643,762	667,122	704,363	803,823	874,027	835,384	824,222	878,606	837,376	862,748	871,315	755,723	770,161
Germany	674,669	732,738	889,676	1,010,505	1,016,107	1,066,131	1,209,815	1,294,471	1,161,269	1,192,633	1,296,044	1,232,184	1,314,240	1,369,593	1,184,468	1,218,021
Greece	28,015	33,039	42,301	53,287	55,725	62,191	72,226	79,899	76,969	67,926	64,634	52,636	50,726	48,684	41,512	41,901
Hungary	14,081	18,346	24,812	30,138	33,856	35,036	40,535	45,260	38,026	39,598	41,798	37,648	40,282	41,974	37,838	37,932
Ireland	42,596	49,752	65,977	76,922	83,623	90,906	109,295	120,383	114,162	111,501	120,094	113,347	117,520	128,457	127,973	135,444
Italy	324,680	353,277	439,987	497,337	515,001	533,498	610,022	663,792	610,900	594,196	626,082	572,598	590,198	598,985	515,780	519,635
Netherlands	125,770	141,419	180,113	205,354	214,946	221,900	251,610	278,546	271,035	273,773	291,656	272,208	280,872	286,409	249,500	252,889
Poland	47,904	49,840	55,798	65,762	78,506	83,938	106,599	133,009	108,380	116,684	128,308	118,199	128,209	135,172	114,997	115,507
Portugal	32,396	35,703	44,220	51,278	53,273	56,539	65,386	73,163	66,956	63,768	65,097	56,071	56,996	56,443	48,698	49,558

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	7,596	8,482	10,494	13,621	17,464	21,893	31,991	40,626	32,213	34,522	39,805	37,169	47,187	49,763	44,136	46,884
Slovakia	4,653	5,908	7,773	9,204	10,118	11,723	16,445	20,073	20,212	21,490	23,507	22,848	24,345	24,599	20,886	21,436
Spain	164,020	184,098	234,983	275,061	294,482	322,736	386,892	439,584	418,871	382,116	393,000	354,629	355,415	360,049	307,502	319,879
Sweden	81,104	89,552	113,323	132,778	136,209	144,838	165,890	171,881	145,174	167,076	196,079	189,456	202,537	201,003	176,572	181,558
United Kingdom	525,667	582,826	682,713	821,644	875,871	948,360	1,097,198	1,023,844	888,178	889,749	942,161	947,694	970,488	1,061,728	1,019,618	949,823
Other Europe																
Norway	38,951	46,420	57,294	65,003	72,760	77,809	95,682	108,561	102,688	111,792	127,788	132,752	136,942	132,685	111,435	109,248
Russia	57,609	66,148	80,972	113,577	148,433	195,027	267,561	342,530	268,047	306,215	361,485	388,010	427,207	398,503	272,011	269,543
Switzerland	108,597	118,036	139,870	157,044	164,175	175,156	198,266	223,663	218,781	231,858	279,093	270,108	281,988	285,965	272,892	270,749
Turkey	41,102	39,912	49,573	62,515	76,730	85,160	109,855	127,453	115,420	129,224	130,820	136,370	143,024	139,064	132,971	136,052
Ukraine	6,900	8,244	10,565	14,970	18,112	22,936	32,238	42,734	29,050	33,047	36,629	41,865	45,094	30,672	16,616	16,630
Middle East																
Bahrain	2,902	3,031	3,671	4,485	5,312	5,946	7,118	7,778	7,870	8,477	8,771	9,524	10,070	10,646	10,343	10,935
Iran	15,992	20,574	25,568	31,152	35,972	45,352	57,010	67,883	75,440	85,220	112,079	83,564	62,237	71,116	67,543	73,412
Israel	52,569	48,351	49,827	53,673	57,481	61,427	71,098	87,070	86,454	94,748	105,232	106,296	117,899	122,943	118,795	125,305
Jordan	2,175	2,466	2,551	2,913	3,436	3,991	4,625	5,824	6,059	6,593	6,996	7,676	8,440	8,675	8,938	9,237
Kuwait	6,761	7,915	9,880	11,926	16,261	19,916	27,029	29,168	24,838	27,855	26,669	28,838	29,386	31,114	22,191	22,045
Oman	3,221	3,729	4,078	4,693	5,182	5,917	7,010	8,312	9,698	10,490	13,151	16,069	17,301	18,800	18,848	17,764
Qatar	1,584	1,847	2,186	3,954	5,884	8,512	11,826	14,905	19,142	18,721	23,080	26,362	28,412	31,321	33,794	34,883

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	28,821	30,177	32,756	36,906	41,868	47,394	57,533	63,989	71,198	80,014	87,118	97,372	104,993	114,164	100,375	92,456
United Arab Emirates	15,954	18,079	20,374	24,326	29,726	34,907	45,492	51,478	50,137	51,136	56,089	61,200	67,490	69,693	66,179	68,158
Africa																
Cameroon	958	1,124	1,269	1,495	1,616	1,681	1,991	2,297	2,382	2,530	2,848	2,798	3,115	3,447	3,055	3,347
Egypt	25,351	22,339	18,738	20,467	23,325	25,648	25,154	30,253	33,929	38,071	42,622	46,538	45,001	50,254	54,426	48,309
Ghana	1,286	1,496	1,846	2,130	2,579	3,074	3,722	4,203	3,966	5,167	5,895	6,588	7,454	6,979	7,503	8,469
Kenya	2,782	2,954	3,608	3,616	4,062	4,912	6,028	6,969	7,020	7,182	7,138	8,518	9,472	10,484	10,522	11,712
Morocco	9,113	9,814	11,706	13,291	15,082	16,263	19,749	21,841	22,150	22,929	25,547	25,209	27,302	28,558	25,586	25,381
Nigeria	13,733	15,834	17,762	23,643	30,595	42,534	51,960	66,459	68,341	79,401	86,013	99,973	117,645	135,627	124,413	103,463
Senegal	729	823	1,058	1,283	1,414	1,578	1,915	2,277	2,167	2,195	2,478	2,415	2,546	2,658	2,393	2,813
South Africa	26,289	24,979	38,917	50,751	57,163	58,540	65,082	60,004	59,758	74,867	82,107	85,058	77,529	75,291	67,782	63,956
Tunisia	3,658	3,843	4,601	5,242	5,590	6,214	7,323	8,616	8,319	9,082	9,326	9,141	9,222	9,586	8,429	8,200
Asia																
Bangladesh	6,447	6,753	7,277	7,758	8,080	10,233	11,590	13,306	15,224	17,081	18,194	19,491	23,474	27,403	32,145	36,840
China	406,983	449,991	522,588	589,472	685,285	838,768	1,106,436	1,406,106	1,567,581	1,885,590	2,321,508	2,670,926	3,102,519	3,473,913	3,838,023	4,048,955
India	93,351	100,771	119,467	143,384	166,630	187,297	235,205	258,321	267,706	326,613	376,266	370,715	392,620	424,271	436,092	478,936
Indonesia	29,466	36,976	46,189	51,231	54,772	65,604	79,324	93,399	97,754	128,335	149,763	158,674	165,178	162,377	160,402	176,173
Japan	1,551,268	1,497,397	1,635,628	1,762,280	1,757,709	1,717,416	1,738,756	1,912,565	1,916,850	2,115,737	2,100,546	2,326,197	1,891,833	1,765,036	1,598,669	1,780,742
Malaysia	26,893	29,108	32,042	35,822	36,574	42,263	47,360	51,643	47,404	59,460	66,961	73,384	77,138	79,830	71,168	71,615

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	8,113	9,490	11,085	13,430	16,629	21,227	23,955	25,014	24,802	26,822	32,006	33,573	33,039	38,623	41,216	44,676
Philippines	15,523	16,870	17,273	19,012	21,410	25,330	31,659	34,366	37,046	42,524	47,578	53,422	59,696	62,795	66,613	69,021
Singapore	32,450	34,654	36,780	43,328	47,293	55,559	64,775	64,208	65,535	81,407	94,075	99,563	104,059	108,150	98,719	99,609
South Korea	159,767	188,641	212,926	242,277	287,682	328,527	366,779	329,064	297,313	369,052	413,390	426,400	461,405	498,150	491,964	488,448
Sri Lanka	2,110	2,803	2,638	2,664	3,167	6,384	5,018	4,933	6,343	7,853	8,308	8,654	9,382	10,300	10,997	11,254
Taiwan	103,321	110,460	118,710	131,091	141,661	147,212	154,373	157,582	144,989	170,513	185,612	188,552	196,008	210,291	207,329	203,580
Thailand	26,778	31,499	36,507	42,108	47,091	55,238	65,812	72,975	69,872	80,645	86,127	91,531	98,499	95,962	93,120	96,143
Vietnam	4,373	4,866	5,474	6,436	7,559	9,156	10,941	13,770	14,386	20,534	23,958	28,943	33,900	37,062	39,514	42,625
Australia and Oceania																
Australia	113,290	126,585	163,585	199,632	224,251	244,846	297,726	320,641	313,653	396,180	471,463	494,732	475,243	456,141	387,945	399,810
New Zealand	14,551	17,212	23,325	28,576	32,317	31,286	38,192	38,160	35,598	41,894	46,598	49,373	62,897	67,425	59,695	62,768

EU = European Union; KTI = knowledge and technology intensive.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. KTI industries include knowledge-intensive (KI) services, high-technology (HT) manufacturing, and medium-high-technology (MHT) industries formerly classified by the Organisation for Economic Co-operation and Development. KI services include business, financial, communications, education, and health. HT manufacturing industries include aerospace, communications and semiconductors, computers and office machinery, pharmaceuticals, and scientific instruments and measuring equipment. MHT manufacturing industries include motor vehicles; electrical machinery and apparatus; chemicals excluding pharmaceuticals; railroad and other transportation equipment; and machinery and equipment. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)



CHAPTER 6 | Industry, Technology, and the Global Marketplace

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-3

Nominal GDP, by region, country, or economy: Selected years, 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	33,426,298	34,747,461	39,008,247	43,872,998	47,526,170	51,499,461	58,055,630	63,650,676	60,318,709	65,882,580	73,300,980	74,687,452	76,794,376	78,636,761	74,347,718	75,154,437
North America																
Canada	736,361	757,447	892,435	1,022,975	1,169,739	1,315,479	1,465,051	1,549,005	1,373,032	1,613,542	1,789,140	1,823,967	1,842,017	1,795,087	1,553,186	1,528,975
Mexico	729,668	752,382	713,263	770,012	865,869	966,244	1,042,659	1,100,718	894,569	1,050,898	1,169,618	1,187,121	1,261,527	1,296,617	1,149,278	1,044,027
United States	10,621,825	10,977,525	11,510,675	12,274,925	13,093,700	13,855,900	14,477,625	14,718,575	14,418,725	14,964,400	15,517,925	16,155,250	16,691,500	17,393,100	18,036,650	18,569,100
Central and South America																
Argentina	325,930	123,210	156,938	166,019	200,640	234,518	289,748	365,398	336,359	426,270	527,357	579,745	611,298	563,358	631,487	544,880
Bolivia	8,142	7,905	8,082	8,773	9,549	11,452	13,120	16,674	17,340	19,650	23,962	27,084	30,659	32,996	37,632	44,722
Brazil	559,992	509,382	557,698	668,436	890,680	1,106,380	1,396,116	1,696,510	1,664,792	2,206,623	2,616,109	2,465,614	2,471,951	2,455,658	1,803,513	1,794,467
Chile	84,092	73,785	75,645	99,223	122,923	154,801	173,468	179,506	172,504	218,271	252,120	267,033	278,406	261,049	242,606	247,142
Colombia	98,212	97,963	94,641	117,082	146,566	162,590	207,417	243,983	232,901	287,018	335,509	369,468	380,175	378,447	291,551	282,543
Costa Rica	15,913	16,505	17,196	18,529	19,952	22,600	26,744	30,613	30,562	37,269	42,714	46,981	50,324	51,238	55,476	58,109
Ecuador	24,468	28,549	32,433	36,592	41,507	46,802	51,008	61,763	62,520	69,555	79,277	87,925	95,130	102,292	100,177	97,802
Honduras	7,653	7,860	8,234	8,871	9,757	10,917	12,361	13,882	14,587	15,839	17,711	18,529	18,499	19,756	20,845	21,518
Panama	11,808	12,272	12,933	14,179	15,465	17,137	20,958	24,522	26,594	28,917	34,374	39,955	44,856	49,166	52,132	55,188
Peru	51,620	54,469	59,060	66,663	74,877	87,714	101,985	121,372	120,749	147,702	168,607	188,883	197,904	203,090	192,483	195,020

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	20,899	13,607	12,046	13,686	17,363	19,579	23,411	30,366	31,661	40,285	47,978	51,275	57,534	57,236	53,290	52,432
Venezuela	122,911	92,890	83,529	112,451	145,513	183,478	230,364	315,600	329,419	239,916	316,479	381,286	371,124	279,384	482,650	63,517
Europe																
EU	8,881,977	9,680,848	11,776,794	13,570,942	14,184,857	15,139,194	17,483,034	18,756,290	16,795,297	16,688,500	18,030,569	16,993,595	17,704,697	18,275,129	16,044,992	16,105,209
Austria	196,646	212,488	260,496	298,823	314,292	335,255	386,542	424,976	398,487	391,013	429,017	406,999	428,496	438,798	377,218	386,794
Belgium	237,887	259,095	319,070	371,005	387,128	409,826	471,794	518,157	484,690	483,520	527,120	497,897	520,116	531,751	454,995	466,365
Bulgaria	14,119	16,354	21,039	26,046	29,735	34,151	44,617	54,510	51,839	49,794	57,054	53,485	55,597	56,540	50,172	52,313
Czech Republic	67,413	81,668	99,264	118,757	135,839	155,320	188,917	234,938	205,817	206,790	227,740	207,421	209,346	207,771	185,287	192,822
Denmark	164,791	178,635	218,097	251,375	264,467	282,886	319,423	353,359	321,243	321,996	344,556	327,130	343,565	351,977	301,293	306,122
Finland	129,276	139,681	171,109	196,836	204,306	216,552	255,373	283,494	251,570	247,785	273,733	256,712	269,979	272,609	232,362	236,786
France	1,383,660	1,502,254	1,849,544	2,121,713	2,200,389	2,326,436	2,664,140	2,918,849	2,694,954	2,644,898	2,862,098	2,681,462	2,809,653	2,841,070	2,419,003	2,458,924
Germany	1,953,584	2,084,304	2,510,077	2,811,211	2,855,338	3,003,174	3,444,275	3,743,962	3,416,192	3,409,640	3,753,087	3,545,602	3,758,336	3,885,109	3,360,612	3,459,221
Greece	136,350	154,168	202,153	240,682	247,831	273,419	318,596	353,767	330,219	300,068	288,124	245,802	239,656	235,886	194,526	194,169
Hungary	53,696	67,555	85,050	103,695	112,589	114,801	139,198	157,291	129,965	130,256	140,055	127,345	134,661	139,288	121,723	124,363
Ireland	109,106	128,022	164,296	193,952	211,549	232,240	270,057	274,684	235,795	221,256	240,533	225,680	238,988	255,896	283,424	293,605
Italy	1,162,058	1,267,130	1,570,670	1,795,976	1,852,137	1,945,082	2,202,644	2,387,922	2,184,253	2,122,658	2,277,555	2,072,841	2,130,051	2,152,967	1,823,775	1,850,917
Netherlands	426,710	465,854	572,271	650,358	677,694	726,755	839,485	935,529	858,283	836,106	893,726	828,753	866,795	879,755	750,409	771,036
Poland	190,667	198,700	217,456	253,337	304,188	342,934	428,408	530,153	436,044	478,616	527,690	500,005	523,697	544,926	475,511	468,844
Portugal	121,570	134,352	165,001	189,253	197,179	208,567	240,158	261,778	243,815	238,289	244,948	216,373	226,073	229,630	199,122	204,677

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	40,241	45,646	59,203	75,452	99,019	122,662	170,179	206,966	166,849	167,706	185,111	171,303	190,932	199,181	177,247	187,116
Slovakia	14,874	17,496	24,636	32,417	38,221	46,235	68,641	93,162	88,971	89,496	98,202	93,416	98,478	100,761	87,268	89,552
Spain	626,099	705,793	907,054	1,069,927	1,156,540	1,264,550	1,479,272	1,633,558	1,499,498	1,431,502	1,488,336	1,335,976	1,361,770	1,375,856	1,192,956	1,232,091
Sweden	240,092	264,141	331,728	381,036	388,306	420,004	488,136	513,594	429,757	487,430	562,179	544,418	579,294	575,139	495,701	510,607
United Kingdom	1,613,139	1,757,510	2,028,579	2,389,092	2,508,111	2,678,344	3,063,179	2,875,642	2,367,056	2,429,681	2,609,705	2,654,971	2,719,215	3,000,218	2,862,387	2,618,885
Other Europe																
Norway	174,447	195,240	228,498	264,072	308,550	345,538	400,191	462,226	386,617	428,127	498,012	509,358	522,751	498,234	386,694	369,395
Russia	328,411	369,756	461,094	632,272	817,211	1,060,419	1,389,810	1,781,730	1,310,488	1,634,623	2,025,722	2,150,676	2,226,119	2,061,656	1,360,936	1,280,021
Switzerland	278,767	301,283	352,285	393,022	407,544	429,447	477,752	550,925	539,686	580,607	696,303	664,851	685,053	703,463	670,656	659,850
Turkey	198,688	236,930	310,664	403,329	500,060	550,673	674,742	764,076	643,218	769,556	830,384	872,079	948,519	932,964	856,978	856,108
Ukraine	39,309	43,956	52,010	67,218	89,239	111,885	148,734	188,110	121,552	136,012	163,161	175,781	183,310	133,344	90,921	93,292
Middle East																
Bahrain	7,821	8,333	9,615	11,083	13,301	18,323	21,517	25,449	22,717	25,445	28,532	30,446	32,233	33,152	30,835	31,561
Iran	92,233	129,115	153,833	183,306	219,422	258,760	338,426	397,658	398,656	467,657	592,161	438,304	345,580	377,824	366,929	402,073
Israel	130,771	121,111	126,748	135,387	142,783	154,475	179,519	216,719	208,020	234,270	261,349	257,607	293,302	308,771	299,393	318,711
Jordan	8,976	9,582	10,195	11,411	12,589	15,057	17,111	21,989	23,827	26,425	28,840	30,937	33,594	35,827	37,517	39,416
Kuwait	34,890	38,136	47,875	59,439	80,799	101,557	114,634	147,380	105,969	115,416	154,033	174,015	174,157	162,665	114,054	109,425
Oman	19,452	20,143	21,634	24,764	31,082	37,216	42,085	60,905	48,388	58,642	67,937	76,689	78,939	81,034	69,832	67,129
Qatar	17,538	19,364	23,534	31,734	44,530	60,882	79,712	115,270	97,798	125,122	167,775	186,834	198,728	206,225	164,641	160,205

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	184,137	189,606	215,808	258,742	328,206	376,398	415,687	519,797	429,098	526,811	671,239	735,975	746,647	756,350	651,757	639,617
United Arab Emirates	103,312	109,816	124,346	147,824	180,617	222,117	257,916	315,475	253,547	286,185	348,526	373,432	388,598	401,958	370,296	371,396
Africa																
Cameroon	9,633	10,880	13,622	15,775	16,588	17,953	20,432	23,322	23,381	23,622	26,588	26,470	29,565	32,050	28,411	30,605
Egypt	90,284	84,206	71,357	78,322	93,185	107,742	132,164	164,841	187,968	214,623	230,579	272,879	267,823	296,232	315,474	266,007
Ghana	8,518	9,882	12,232	14,233	17,199	20,411	24,758	28,528	25,978	32,174	39,600	40,971	47,147	39,122	37,685	42,768
Kenya	14,900	15,092	17,105	18,471	21,506	25,826	31,959	35,897	37,022	40,000	41,953	50,401	55,102	61,395	63,394	68,906
Morocco	39,639	42,469	52,351	59,838	62,545	68,972	79,041	92,507	92,897	93,217	101,378	98,263	107,234	110,030	100,381	102,371
Nigeria	73,128	93,983	102,935	130,345	169,645	222,791	262,267	330,318	297,415	369,062	419,654	467,048	521,794	576,019	495,246	407,146
Senegal	4,878	5,334	6,860	8,031	8,708	9,359	11,285	13,386	12,778	12,926	14,375	14,216	14,826	15,309	13,630	15,686
South Africa	121,515	115,482	175,256	228,590	257,772	271,637	299,417	286,769	295,937	375,348	416,262	396,335	366,645	350,981	317,406	294,840
Tunisia	22,066	23,142	27,454	31,184	32,272	34,377	38,910	44,855	43,456	44,051	45,846	45,046	46,257	47,633	43,028	41,251
Asia																
Bangladesh	52,205	54,291	59,900	64,405	66,391	69,972	79,826	91,647	102,126	114,508	123,547	128,961	153,519	173,121	194,455	220,415
China	1,508,398	1,635,423	1,819,112	2,120,111	2,462,718	2,938,221	3,752,043	4,808,477	5,307,384	6,310,494	7,799,578	8,810,039	9,934,841	10,724,304	11,259,637	11,500,986
India	489,416	511,476	597,952	701,347	820,980	929,215	1,182,321	1,268,588	1,311,852	1,668,768	1,872,206	1,861,571	1,917,783	2,037,230	2,131,831	2,243,733
Indonesia	174,413	212,615	255,060	279,119	310,709	396,118	469,685	557,881	578,433	754,951	892,259	917,965	912,829	890,124	861,184	932,337
Japan	4,305,765	4,116,011	4,447,621	4,816,186	4,756,928	4,530,383	4,515,169	5,038,324	5,231,569	5,701,853	6,160,225	6,204,744	5,157,011	4,851,964	4,378,994	4,934,246
Malaysia	92,784	100,846	110,202	124,749	143,534	162,692	193,550	230,812	202,257	255,018	297,989	314,412	323,280	338,073	296,285	296,359

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	67,981	74,554	84,424	96,821	109,213	136,320	152,124	151,087	161,538	174,508	211,732	214,639	220,321	248,961	267,543	286,055
Philippines	76,262	81,358	83,908	91,371	103,072	122,211	149,360	174,195	168,335	199,591	224,138	250,079	271,831	284,615	292,730	304,941
Singapore	89,285	91,942	97,002	114,187	127,418	147,794	179,981	192,231	192,406	236,420	275,570	289,168	302,506	308,154	296,833	296,966
South Korea	533,050	609,021	680,518	764,881	898,137	1,011,797	1,122,679	1,002,219	901,935	1,094,499	1,202,615	1,222,279	1,305,519	1,411,404	1,382,624	1,411,201
Sri Lanka	15,746	17,102	18,882	20,662	24,406	28,280	32,350	40,714	42,066	56,726	65,293	68,467	74,319	80,026	82,329	83,873
Taiwan	300,192	308,755	318,328	348,614	375,546	388,561	408,202	417,748	392,236	446,405	485,696	495,806	511,497	530,590	525,279	529,394
Thailand	120,297	134,301	152,281	172,895	189,318	221,758	262,943	291,383	281,710	341,105	370,819	397,560	420,529	406,522	399,235	406,858
Vietnam	35,291	37,948	42,717	49,424	57,633	66,372	77,414	99,130	106,015	115,349	135,722	155,820	171,227	186,208	193,444	207,944
Australia and Oceania																
Australia	376,584	424,019	537,608	656,264	733,036	781,576	946,990	1,032,549	982,802	1,246,698	1,502,120	1,560,495	1,504,816	1,447,399	1,227,967	1,257,714
New Zealand	53,073	61,816	82,246	101,402	113,161	109,592	134,728	133,306	119,967	145,201	166,820	174,951	186,675	198,717	172,518	181,750

EU = European Union; GDP = gross domestic product.

Note(s)

GDP for selected regions, countries, or economies is from IHS Global Insight. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail does not add to total because some countries/economies are not included.

Source(s)

IHS Global Insight, Global Economy database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-4

Value added of commercial KI services, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	5,144,488	5,384,004	5,987,024	6,631,846	7,164,483	7,715,196	8,685,581	9,211,631	9,021,000	9,538,473	10,364,505	10,694,121	11,015,690	11,453,772	11,214,091	11,603,987
North America																
Canada	104,990	107,700	127,304	147,879	168,208	193,736	215,324	225,364	204,720	238,423	263,054	266,241	267,933	259,668	231,821	234,076
Mexico	43,752	53,846	51,877	57,079	69,933	77,180	88,590	93,763	79,301	89,173	93,408	91,546	101,711	101,977	90,558	87,234
United States	2,093,129	2,176,045	2,242,879	2,360,336	2,554,458	2,700,102	2,798,520	2,782,103	2,744,513	2,808,594	2,896,087	3,073,178	3,145,323	3,329,223	3,511,380	3,651,827
Central and South America																
Argentina	49,976	16,426	17,160	18,968	23,089	28,621	36,211	45,502	44,512	52,031	60,100	66,561	67,443	56,861	63,416	56,489
Bolivia	880	797	731	724	761	840	956	1,182	1,309	1,469	1,604	1,971	2,256	2,532	2,858	3,542
Brazil	79,070	74,752	77,459	89,047	124,919	156,705	198,410	228,426	235,247	301,756	350,272	332,363	324,495	330,688	243,225	245,755
Chile	10,258	8,902	8,610	10,935	13,505	15,822	19,345	21,786	21,723	26,246	31,665	34,921	37,070	34,285	32,653	33,724
Colombia	11,052	11,163	10,620	13,149	16,543	18,288	24,166	29,099	28,395	34,076	37,996	42,131	43,167	43,064	33,517	32,765
Costa Rica	1,611	1,735	1,869	2,040	2,321	2,750	3,294	3,922	4,209	5,102	5,955	7,053	7,703	7,648	8,537	9,429
Ecuador	2,209	2,750	3,111	3,446	4,082	4,534	4,983	5,610	6,078	6,887	7,939	9,014	9,516	10,440	9,898	9,502
Honduras	772	782	837	932	1,032	1,153	1,325	1,541	1,682	1,781	1,854	1,966	2,055	2,164	2,243	2,301
Panama	2,540	2,645	2,668	2,725	3,064	3,327	3,653	4,145	4,798	5,095	5,625	6,285	6,876	7,696	8,200	9,027
Peru	4,541	5,098	5,347	5,782	6,456	7,448	8,704	10,604	11,484	13,782	15,778	18,188	19,542	20,701	20,303	21,195

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	3,861	2,561	1,983	2,006	2,567	2,862	3,321	4,169	4,483	5,848	6,937	7,711	8,690	8,733	8,231	8,242
Venezuela	11,300	8,704	7,259	7,901	8,899	12,547	18,174	23,089	27,932	17,332	23,337	31,148	30,598	23,996	39,421	7,521
Europe																
EU	1,286,811	1,425,377	1,754,195	2,039,676	2,134,222	2,273,043	2,652,480	2,796,762	2,588,107	2,515,130	2,672,954	2,553,884	2,657,593	2,756,970	2,441,890	2,467,507
Austria	24,757	27,731	33,476	37,741	40,119	43,341	49,929	56,062	49,929	49,610	53,667	50,627	53,507	54,681	46,846	48,203
Belgium	39,155	43,047	52,358	61,354	64,102	68,001	78,016	85,951	83,898	84,449	90,431	86,211	90,948	93,841	81,323	83,492
Bulgaria	1,087	1,363	1,870	2,402	2,937	3,233	5,078	6,911	6,744	7,550	8,628	7,812	7,941	8,129	7,023	7,225
Czech Republic	6,976	8,999	11,376	13,128	15,207	17,509	22,347	29,741	26,737	27,520	30,177	27,175	27,762	27,395	23,842	24,170
Denmark	19,398	21,148	26,882	30,951	32,438	34,506	39,823	47,101	45,492	44,410	48,662	45,552	48,318	49,623	43,751	44,859
Finland	14,155	15,379	16,922	20,404	19,931	21,671	26,983	29,466	27,096	26,285	28,885	27,969	29,084	30,650	26,577	27,481
France	192,714	215,404	268,957	308,490	320,349	343,568	393,070	423,387	408,078	404,507	433,196	421,344	422,021	422,244	366,750	376,478
Germany	296,234	322,053	387,258	437,795	433,275	449,196	503,946	536,286	498,180	480,863	510,280	486,454	529,290	544,705	467,235	485,160
Greece	13,608	16,364	21,321	27,363	28,017	32,151	37,212	39,088	38,500	33,554	30,918	26,380	25,189	23,704	19,615	19,795
Hungary	5,895	7,910	10,179	12,453	14,046	14,861	17,147	19,533	17,531	17,385	18,155	16,301	16,962	17,316	15,049	15,547
Ireland	18,320	20,183	29,001	35,915	40,667	44,532	53,581	57,208	52,273	53,579	57,476	55,688	59,196	62,851	56,390	60,914
Italy	163,010	178,041	225,726	252,800	261,160	264,715	308,303	336,831	310,938	299,634	317,946	291,841	298,828	302,635	257,774	259,393
Netherlands	66,193	73,371	93,939	106,457	113,080	115,034	128,265	140,460	140,304	139,148	143,977	134,094	138,564	141,070	122,606	124,710
Poland	23,163	23,651	25,832	30,300	36,474	40,024	51,992	65,386	53,291	56,767	61,951	57,952	63,089	67,399	55,912	57,063
Portugal	15,064	16,459	20,640	24,064	25,007	27,779	32,989	37,704	33,369	30,651	32,134	26,603	26,042	25,703	21,985	22,473

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	4,197	4,576	5,453	7,024	8,825	11,548	18,123	22,274	17,415	18,585	22,635	20,248	28,494	29,655	28,098	30,228
Slovakia	1,937	2,667	3,552	4,539	5,410	6,251	8,517	10,784	11,327	11,260	12,268	11,860	12,158	12,518	10,679	10,982
Spain	77,761	88,578	112,949	131,436	141,499	157,024	192,362	218,440	210,881	178,552	180,586	165,104	158,896	165,417	140,992	148,355
Sweden	31,874	33,756	42,269	50,769	52,657	55,717	64,715	68,893	58,895	66,311	78,509	77,344	84,677	85,841	76,120	79,399
United Kingdom	271,313	304,695	364,236	444,290	479,022	522,383	620,083	565,257	497,232	484,511	512,472	517,327	536,626	591,591	573,323	541,581
Other Europe																
Norway	15,785	18,801	23,810	28,074	31,456	33,152	42,059	47,068	45,074	48,906	55,345	58,419	60,909	58,779	48,686	47,518
Russia	26,397	30,429	39,830	55,895	75,751	100,477	141,563	178,336	145,459	163,331	184,618	206,443	227,222	215,206	147,907	146,827
Switzerland	61,994	65,151	77,317	86,058	90,373	96,796	111,294	121,085	119,746	125,231	149,702	145,881	152,492	153,229	146,522	145,137
Turkey	25,958	21,966	25,435	32,507	38,748	42,947	57,361	67,114	64,632	69,984	67,604	72,166	76,434	72,826	70,414	72,909
Ukraine	3,023	3,555	4,578	7,673	8,536	10,810	16,794	23,318	14,361	15,712	16,424	18,898	20,938	14,733	8,614	8,937
Middle East																
Bahrain	2,210	2,259	2,777	3,494	4,154	4,559	5,492	5,858	5,872	6,312	6,339	6,697	7,005	7,371	7,232	7,777
Iran	7,539	10,080	13,188	15,944	18,174	22,761	30,671	37,824	39,303	45,930	57,789	43,108	31,923	37,154	35,244	38,397
Israel	26,726	24,910	25,591	28,751	32,023	33,957	40,120	50,271	50,130	54,559	60,907	60,778	67,944	70,911	69,141	74,315
Jordan	1,371	1,503	1,592	1,809	2,233	2,535	2,884	3,691	3,877	4,463	4,878	5,372	5,899	6,233	6,527	6,786
Kuwait	3,477	4,151	5,793	7,287	11,078	14,422	20,330	20,757	16,237	18,103	15,141	15,514	15,766	16,819	11,914	12,013
Oman	2,040	2,151	2,176	2,333	2,619	3,162	3,779	4,481	4,815	5,433	6,090	7,118	7,894	9,054	9,552	9,256
Qatar	1,211	1,414	1,616	2,223	3,790	5,701	7,660	8,657	9,929	11,203	13,174	14,267	15,379	17,311	20,132	21,142

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	18,292	19,127	20,115	23,225	26,356	30,168	34,585	39,836	45,384	48,592	52,059	59,506	66,531	71,740	65,915	61,336
United Arab Emirates	13,885	15,749	17,775	21,373	26,488	31,254	41,162	46,133	44,715	45,300	48,785	53,159	58,745	60,686	57,711	59,395
Africa																
Cameroon	660	746	758	858	907	903	1,006	1,181	1,195	1,228	1,403	1,390	1,576	1,733	1,535	1,687
Egypt	15,581	12,967	10,901	12,784	13,665	14,706	16,851	20,667	23,063	25,667	29,867	31,552	30,606	33,625	35,718	32,001
Ghana	604	704	872	1,013	1,233	1,471	1,819	2,107	1,989	2,749	3,099	3,683	4,584	4,609	5,162	5,755
Kenya	1,396	1,377	1,696	1,577	1,839	2,344	2,897	3,328	3,419	3,631	3,584	4,370	5,048	5,576	5,565	6,261
Morocco	4,751	5,139	6,041	7,022	7,874	8,766	10,657	11,743	12,327	12,315	13,319	13,205	13,718	14,151	12,823	12,831
Nigeria	10,908	12,140	13,612	18,465	23,890	33,419	41,307	53,354	55,915	63,738	66,218	76,765	88,306	100,890	93,357	78,968
Senegal	411	466	626	792	901	1,032	1,258	1,513	1,423	1,429	1,579	1,541	1,677	1,754	1,565	1,864
South Africa	16,945	15,890	25,131	33,156	37,678	40,262	45,963	42,100	41,694	53,700	60,037	56,899	51,630	50,670	45,163	42,919
Tunisia	2,936	3,187	3,797	4,298	4,515	4,927	5,580	6,414	6,330	6,650	6,911	6,760	6,836	7,114	6,330	6,241
Asia																
Bangladesh	3,300	3,467	3,773	4,032	4,191	6,114	6,926	7,823	8,838	10,036	10,696	11,737	14,196	16,359	18,673	21,202
China	167,829	180,123	203,280	224,947	261,366	332,981	464,210	583,173	668,317	786,622	977,192	1,154,128	1,373,911	1,560,919	1,806,011	1,934,749
India	52,109	55,694	66,023	77,697	89,531	101,776	130,122	148,026	154,966	192,932	217,684	220,407	240,528	261,406	264,736	294,010
Indonesia	12,865	17,338	21,242	23,728	26,276	32,660	38,274	43,673	46,915	62,793	72,776	77,632	78,451	76,038	75,769	84,928
Japan	700,671	687,196	747,991	795,629	789,941	761,102	771,649	827,214	873,148	922,903	993,828	989,156	800,278	736,199	674,732	751,222
Malaysia	13,890	15,583	16,704	17,848	19,207	22,169	25,559	28,830	29,343	36,172	40,421	43,787	45,710	47,122	41,136	41,923

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	4,511	5,427	6,076	6,991	8,949	13,400	15,224	15,664	16,154	16,963	19,520	20,737	20,026	23,161	24,482	26,903
Philippines	8,676	9,438	9,981	10,977	12,877	15,715	19,500	22,485	22,030	26,082	29,520	33,727	37,543	39,231	41,135	42,858
Singapore	14,826	15,008	15,835	17,636	19,514	23,364	29,556	32,626	33,670	39,303	46,038	49,760	54,165	57,453	55,904	55,557
South Korea	62,933	78,741	86,802	92,189	110,423	124,743	138,664	123,887	109,325	129,351	142,909	148,560	154,490	168,734	166,445	169,833
Sri Lanka	883	1,280	1,419	1,492	1,747	2,264	2,694	3,258	3,502	4,126	3,898	4,301	4,639	5,041	5,216	5,450
Taiwan	43,257	42,865	43,029	46,444	50,047	50,483	52,399	53,875	47,899	53,267	58,870	59,676	61,227	63,373	62,011	63,264
Thailand	11,448	13,644	15,669	17,767	19,946	22,967	27,141	29,547	29,457	33,889	38,081	42,143	47,463	47,608	46,512	49,313
Vietnam	1,502	1,619	1,789	2,036	2,249	2,571	2,997	3,802	4,112	9,211	10,437	11,756	13,270	14,047	14,745	15,874
Australia and Oceania																
Australia	66,515	73,341	94,745	116,508	131,201	145,593	178,493	192,323	187,679	234,629	277,292	291,520	278,802	264,831	217,427	226,015
New Zealand	8,419	10,093	13,728	16,688	18,675	17,809	21,623	21,525	20,262	23,305	25,906	27,445	39,956	43,429	38,274	40,482

EU = European Union; KI = knowledge intensive.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. KI services include business, financial, information, education, and health formerly classified by the Organisation for Economic Co-operation and Development. Commercial KI services include business, financial, and information. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-5

Value added of education services, by region, country, or economy: 2001-16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1,420,668	1,504,185	1,688,489	1,856,805	1,975,357	2,101,272	2,336,617	2,556,804	2,576,609	2,703,020	2,964,154	3,034,924	3,117,951	3,224,911	3,141,410	3,200,073
North America																
Canada	34,108	35,524	41,891	47,600	53,735	62,987	70,604	74,947	73,787	84,307	91,653	93,765	94,004	91,242	82,899	82,715
Mexico	25,371	28,317	29,133	29,494	33,638	36,744	39,612	42,423	36,928	41,883	45,653	47,398	51,901	53,218	47,848	44,843
United States	511,500	545,000	581,000	609,800	638,000	675,400	717,600	757,600	783,500	797,200	826,367	861,995	874,132	919,057	952,523	976,401
Central and South America																
Argentina	16,215	5,102	5,774	6,415	8,589	10,730	13,826	18,815	19,740	23,175	30,429	34,574	36,508	31,353	34,948	31,474
Bolivia	124	124	125	132	133	149	165	192	216	235	254	281	308	329	373	441
Brazil	24,953	23,424	24,736	27,660	34,762	45,855	58,524	72,054	73,902	93,170	117,580	109,956	119,800	127,761	104,648	108,066
Chile	5,954	5,298	5,571	6,683	7,791	8,884	10,030	11,674	11,878	14,465	16,520	17,564	19,038	17,888	17,398	18,383
Colombia	5,165	5,091	4,825	5,815	7,227	7,585	9,445	11,158	11,072	13,628	15,058	17,209	18,477	19,070	16,863	16,435
Costa Rica	1,027	1,097	1,150	1,194	1,250	1,343	1,545	1,826	2,127	2,732	3,205	3,536	3,918	3,877	4,191	4,302
Ecuador	1,025	996	1,390	1,761	2,050	2,373	2,629	3,162	3,464	3,781	3,814	4,404	4,670	4,998	5,508	5,389
Honduras	423	481	522	552	626	710	863	1,001	1,168	1,218	1,252	1,312	1,348	1,412	1,429	1,484
Panama	512	536	568	588	604	635	772	839	919	995	1,068	1,206	1,422	1,580	1,686	1,933
Peru	2,808	3,066	3,337	3,678	3,994	4,361	4,950	5,612	5,685	6,348	7,042	8,206	8,715	9,147	9,052	9,395

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	813	513	415	460	591	689	837	1,169	1,327	1,634	1,984	2,171	2,477	2,493	2,340	2,254
Venezuela	9,235	6,569	5,611	6,092	7,128	8,865	11,639	14,366	18,029	10,572	14,162	18,510	18,066	13,943	22,750	4,536
Europe																
EU	398,314	445,010	543,219	621,701	652,820	681,134	779,895	849,046	808,942	795,523	844,170	804,552	839,234	864,608	767,572	765,699
Austria	9,223	9,960	12,353	13,748	14,367	15,227	17,375	19,606	19,600	19,222	20,542	19,551	20,769	21,480	18,823	19,383
Belgium	13,527	14,919	18,534	20,897	21,912	23,049	26,335	30,116	29,517	29,235	32,195	31,296	33,331	34,601	29,945	30,050
Bulgaria	660	784	910	1,072	1,166	1,198	1,502	1,691	1,700	1,577	1,649	1,578	1,565	2,096	1,791	1,779
Czech Republic	2,237	2,853	3,658	4,236	4,888	5,486	6,536	8,085	7,476	7,478	8,294	7,684	7,818	7,730	6,926	7,058
Denmark	7,691	8,487	10,497	12,044	12,302	12,866	14,127	16,185	16,243	17,280	18,405	17,797	18,841	19,626	17,182	17,141
Finland	5,054	5,612	7,020	8,077	8,431	8,714	9,960	11,291	11,064	10,952	11,983	11,419	12,101	12,331	10,710	10,593
France	67,976	74,629	92,218	102,014	105,587	108,896	124,130	138,441	134,197	131,626	141,115	133,243	141,963	145,675	126,139	127,830
Germany	76,569	83,843	100,261	114,032	115,782	114,981	129,326	141,360	138,521	134,380	144,591	139,020	147,396	153,180	135,232	140,469
Greece	5,522	7,230	9,199	11,826	12,338	12,665	14,800	17,520	17,179	15,438	15,906	13,578	12,885	13,052	11,311	11,369
Hungary	2,162	2,911	4,074	4,652	5,102	5,052	5,755	6,506	5,344	5,172	5,548	5,160	5,666	5,734	5,021	5,075
Ireland	3,964	4,875	6,661	8,003	8,801	9,866	11,676	13,581	13,414	12,239	12,814	11,896	12,289	12,597	11,597	12,084
Italy	48,086	53,344	66,700	72,032	75,787	78,829	89,196	93,458	90,995	86,074	87,760	81,780	85,697	87,802	76,465	76,821
Netherlands	16,003	18,207	23,073	26,177	26,994	27,879	32,121	36,367	36,695	35,826	37,761	35,885	37,800	38,498	33,260	33,566
Poland	9,372	10,021	10,553	11,807	14,552	15,811	19,092	23,673	19,988	21,503	23,298	21,759	22,917	24,151	21,546	21,283
Portugal	7,236	8,288	10,266	11,853	12,508	12,749	13,749	15,332	15,047	14,678	14,160	12,807	13,389	13,309	11,766	11,959

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	1,207	1,348	1,851	2,572	3,367	3,927	4,849	6,912	5,644	5,763	6,152	6,975	7,629	7,824	6,117	6,301
Slovakia	700	843	1,165	1,355	1,526	1,645	2,066	2,801	2,884	2,816	3,098	3,038	3,312	3,153	2,690	2,727
Spain	29,248	32,884	42,236	49,888	53,889	58,074	68,553	78,876	78,696	75,305	78,653	71,184	73,639	72,446	63,692	65,746
Sweden	10,619	12,040	15,393	17,477	17,812	18,955	21,704	23,256	20,458	22,452	25,983	25,518	27,011	26,688	22,857	23,440
United Kingdom	81,260	91,930	106,597	127,938	135,710	145,266	167,042	163,990	144,278	146,508	154,262	153,384	153,216	162,633	154,502	141,025
Other Europe																
Norway	6,848	8,090	9,802	10,690	11,773	12,360	14,369	16,224	15,599	17,240	19,335	20,001	20,516	19,890	16,968	16,733
Russia	8,445	8,931	10,359	13,887	17,437	22,773	30,095	39,056	35,734	40,370	47,206	49,878	55,700	50,799	36,734	36,147
Switzerland	1,743	1,907	2,108	2,159	2,156	2,166	2,386	2,752	2,836	2,846	3,615	3,436	3,599	3,787	3,834	3,856
Turkey	5,405	6,949	9,373	11,730	14,558	16,391	20,720	23,161	21,446	25,069	25,639	27,228	28,177	28,037	26,880	27,547
Ukraine	1,678	2,035	2,583	3,054	4,072	5,192	6,522	8,258	6,325	6,737	7,452	8,981	9,757	6,392	3,808	3,638
Middle East																
Bahrain	328	387	459	513	557	636	715	834	970	1,027	1,146	1,361	1,528	1,536	1,507	1,528
Iran	1,639	2,377	2,355	3,248	3,820	4,639	4,876	6,025	6,676	7,751	9,461	6,980	5,174	6,009	5,714	6,191
Israel	8,395	7,541	7,736	7,423	7,520	7,923	9,069	11,155	10,720	12,256	13,795	13,984	15,915	16,767	16,412	17,274
Jordan	193	229	231	263	296	332	370	405	430	492	513	574	634	674	706	732
Kuwait	1,927	2,132	2,255	2,443	2,647	3,071	3,591	4,460	4,581	4,635	5,661	6,688	6,961	7,497	5,324	5,216
Oman	575	856	1,074	1,416	1,504	1,662	1,855	2,166	2,356	2,511	2,696	3,240	3,499	3,949	4,191	4,013
Qatar	28	30	30	325	396	613	850	1,128	1,409	1,586	1,866	2,195	2,590	2,837	2,933	3,019

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	1,758	1,838	1,914	2,032	2,124	2,232	2,362	2,516	2,731	2,899	3,249	3,638	3,862	4,188	3,635	3,364
United Arab Emirates	657	758	857	978	1,065	1,204	1,461	1,828	1,921	2,067	2,617	2,883	3,167	3,267	3,101	3,236
Africa																
Cameroon	224	270	379	475	498	565	742	804	860	933	1,033	1,006	1,087	1,211	1,074	1,175
Egypt	7,669	7,397	6,221	5,666	7,287	8,318	5,252	5,762	6,647	7,590	7,775	9,550	9,372	10,361	11,033	9,975
Ghana	294	342	424	492	599	715	915	1,070	1,069	1,312	1,527	1,687	1,639	1,340	1,418	1,650
Kenya	849	1,004	1,238	1,301	1,422	1,613	1,908	2,315	2,249	2,148	2,183	2,634	2,842	3,106	3,099	3,439
Morocco	1,028	1,067	1,368	1,544	1,701	1,778	2,216	2,440	2,417	2,471	2,737	2,773	3,037	3,109	2,821	2,796
Nigeria	903	1,151	1,351	1,768	2,266	3,157	3,702	4,525	4,317	5,500	7,316	8,059	9,983	11,531	10,991	9,366
Senegal	158	177	209	270	291	322	414	465	454	472	540	544	561	584	522	612
South Africa	1,150	1,118	1,817	2,406	2,757	2,932	3,162	2,882	3,227	3,748	4,176	6,475	5,924	5,599	5,004	4,754
Tunisia	10	11	13	13	13	13	15	16	15	15	17	18	17	18	16	16
Asia																
Bangladesh	1,049	1,097	1,215	1,323	1,366	1,445	1,721	2,089	2,354	2,621	2,886	3,061	3,640	4,222	4,827	5,698
China	43,337	49,826	56,603	66,012	77,436	87,609	108,662	135,839	161,763	186,042	231,095	265,827	309,585	355,498	399,682	424,156
India	17,569	19,671	23,670	28,887	33,511	36,417	43,761	45,487	43,415	50,311	57,413	57,849	59,629	68,773	72,788	80,128
Indonesia	3,635	5,010	6,703	7,807	8,907	11,290	13,436	15,040	16,627	22,173	26,520	28,813	29,450	28,819	29,037	31,156
Japan	195,561	187,852	195,979	204,724	195,564	184,064	180,085	201,065	215,684	226,182	254,503	259,866	210,898	191,673	180,988	202,993
Malaysia	853	860	868	864	1,129	1,204	1,372	1,495	1,515	1,834	2,110	2,281	2,419	2,526	2,447	2,488

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	1,155	1,339	1,508	1,663	1,921	2,163	2,304	2,380	2,560	2,647	3,448	3,441	3,702	5,005	5,508	5,965
Philippines	1,913	2,058	2,137	2,281	2,409	2,707	3,291	3,540	6,246	6,898	7,741	8,455	9,191	9,405	9,912	10,375
Singapore	2,079	2,219	2,326	2,527	2,581	2,804	2,990	3,369	3,411	4,407	5,399	5,750	6,211	6,371	6,083	5,988
South Korea	24,231	27,917	32,901	37,790	45,407	53,453	59,784	55,297	49,688	56,128	62,200	63,364	66,928	72,041	72,651	71,461
Sri Lanka	434	552	368	319	366	160	142	231	806	1,225	1,340	1,345	1,467	1,625	1,851	1,927
Taiwan	14,067	14,725	15,963	16,494	17,746	18,456	19,102	20,008	19,551	20,678	22,639	23,122	23,055	22,991	21,951	21,736
Thailand	4,717	4,998	5,487	6,505	7,191	8,423	10,128	11,170	11,594	13,296	15,031	16,334	17,249	17,237	16,852	16,742
Vietnam	1,057	1,165	1,303	1,489	1,698	1,921	2,163	2,347	2,507	2,699	3,257	4,054	5,044	5,733	6,307	6,704
Australia and Oceania																
Australia	17,371	19,586	24,531	30,052	33,569	35,214	41,245	45,174	45,422	56,395	68,938	72,630	71,246	69,569	62,649	64,239
New Zealand	2,189	2,565	3,505	4,348	4,855	4,889	5,930	6,143	5,795	6,945	7,868	8,283	8,679	8,959	8,122	8,288

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-6

Value added of health care, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1,663,565	1,786,498	2,034,846	2,273,793	2,409,805	2,570,198	2,829,828	3,122,828	3,175,613	3,330,685	3,620,337	3,674,344	3,737,121	3,820,983	3,699,475	3,834,707
North America																
Canada	44,435	46,206	55,283	62,818	70,375	79,793	89,619	95,958	95,100	108,971	119,376	122,245	123,152	120,491	109,093	110,411
Mexico	14,728	16,161	15,831	16,148	17,491	18,949	20,478	22,472	19,702	22,682	25,009	25,402	28,537	28,750	26,022	24,356
United States	641,971	692,744	738,026	788,841	828,880	883,002	925,919	996,023	1,051,042	1,079,189	1,111,578	1,153,783	1,186,799	1,223,155	1,298,901	1,368,697
Central and South America																
Argentina	12,599	3,767	4,212	4,501	5,627	6,899	8,974	12,660	14,600	18,005	24,332	29,571	31,673	27,670	30,843	27,862
Bolivia	170	169	171	180	182	204	225	263	295	322	347	385	422	451	511	605
Brazil	19,316	18,475	19,355	22,816	28,420	37,350	48,229	57,706	59,374	73,606	86,217	87,197	93,227	98,856	80,386	83,190
Chile	6,154	5,386	4,005	4,932	5,729	6,714	7,650	8,186	8,491	10,560	12,609	14,169	15,815	14,859	14,350	15,196
Colombia	2,051	2,005	1,951	2,402	3,151	3,501	4,354	4,925	4,914	6,449	7,194	8,298	8,900	9,105	7,994	7,807
Costa Rica	770	833	875	926	987	1,125	1,321	1,616	1,844	2,405	2,743	2,983	3,358	3,294	3,538	3,640
Ecuador	476	570	797	920	1,050	1,152	1,303	1,565	1,721	1,969	2,182	2,538	2,885	3,037	3,327	3,263
Honduras	192	207	217	230	257	302	358	437	520	583	607	650	684	712	717	738
Panama	416	461	492	511	539	548	711	730	805	896	948	999	1,222	1,358	1,449	1,555
Peru	1,295	1,447	1,601	1,747	1,909	2,100	2,312	2,601	2,841	3,288	3,710	4,405	4,892	5,512	5,214	5,417

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	1,232	755	573	611	799	914	1,059	1,491	1,690	2,170	2,631	2,903	3,341	3,387	3,178	3,078
Venezuela	3,922	2,765	2,396	2,589	3,001	4,056	5,873	8,464	11,428	7,498	10,315	12,958	12,161	9,386	15,314	2,914
Europe																
EU	491,557	556,754	692,448	810,159	852,175	911,299	1,036,042	1,135,700	1,097,170	1,087,927	1,160,948	1,097,164	1,135,536	1,173,329	1,031,357	1,034,860
Austria	9,831	10,774	13,725	15,722	16,418	17,541	20,000	22,496	21,912	21,280	23,498	22,088	23,200	23,976	20,842	21,550
Belgium	13,649	15,131	18,983	21,973	22,984	24,211	27,926	32,071	32,206	31,725	35,100	33,706	35,496	36,819	31,605	31,785
Bulgaria	377	546	534	673	918	837	1,028	1,213	1,192	1,341	1,594	1,531	1,839	1,790	1,517	1,510
Czech Republic	2,173	2,877	3,535	4,101	4,796	5,264	6,074	7,936	7,624	7,637	8,486	7,764	7,808	7,714	6,856	7,002
Denmark	14,417	15,863	19,872	22,792	23,344	24,704	27,972	31,658	32,599	31,963	32,955	31,481	32,952	34,298	29,786	29,779
Finland	8,480	9,436	11,899	13,790	14,680	15,491	17,893	20,666	20,573	20,208	22,358	21,043	22,049	22,450	19,342	19,170
France	88,969	100,930	127,877	149,851	157,373	168,740	193,127	215,458	212,029	209,053	226,433	211,185	222,483	228,122	195,935	198,992
Germany	108,351	121,625	148,974	167,738	171,336	178,838	197,076	220,521	220,456	217,428	229,616	218,056	228,598	237,383	207,904	217,265
Greece	6,541	7,209	9,018	10,865	12,305	14,075	16,344	18,793	17,416	15,338	14,642	10,067	9,848	9,109	7,828	7,885
Hungary	1,881	2,517	3,532	4,036	4,374	4,255	4,907	5,457	4,533	4,328	4,601	4,226	4,591	4,642	4,032	4,085
Ireland	5,417	6,435	8,925	10,987	12,040	13,522	16,189	18,995	17,899	15,728	16,655	15,536	16,156	16,077	14,800	15,499
Italy	50,605	55,350	68,372	81,230	86,249	91,502	99,113	113,716	109,849	108,206	113,885	104,796	108,572	111,151	96,052	96,708
Netherlands	26,649	32,122	41,488	47,359	48,949	51,409	59,071	67,472	69,020	68,376	74,085	69,531	72,414	73,693	63,145	63,864
Poland	6,116	6,821	8,218	9,203	10,413	12,002	14,876	18,994	15,688	17,704	19,320	18,142	19,677	20,720	18,339	18,155
Portugal	5,794	6,560	8,255	9,849	10,543	10,672	12,434	13,543	13,294	12,955	13,214	11,799	12,194	12,112	10,620	10,817

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	814	1,173	1,503	1,894	2,662	3,016	4,235	5,572	4,631	4,980	4,999	4,332	4,481	5,163	3,999	4,129
Slovakia	680	800	1,035	1,202	1,285	1,440	2,157	2,527	2,672	2,670	2,761	2,768	3,056	2,909	2,482	2,539
Spain	27,834	32,060	42,527	50,739	55,141	60,175	72,135	86,045	86,148	82,969	86,769	77,231	79,801	78,445	68,409	70,769
Sweden	20,911	23,709	30,313	34,416	35,075	37,326	42,739	45,796	40,287	44,213	51,166	49,648	51,960	51,296	43,572	44,779
United Kingdom	92,069	104,815	123,864	151,738	161,291	176,280	200,750	186,773	167,142	169,822	178,810	182,232	178,361	195,460	184,291	168,579
Other Europe																
Norway	12,560	15,399	18,590	20,809	23,314	25,129	30,331	34,859	33,335	36,571	42,516	43,476	44,086	42,705	36,127	35,703
Russia	6,718	10,254	12,246	16,401	19,963	28,148	37,156	48,197	42,858	48,976	59,816	62,310	72,240	67,506	48,545	46,622
Switzerland	17,134	19,516	23,502	26,645	26,927	27,452	29,331	34,856	36,254	38,741	47,294	47,060	49,416	51,587	50,931	51,328
Turkey	2,828	3,722	5,120	6,308	8,469	9,307	11,918	13,321	12,335	14,419	14,747	15,660	16,206	16,126	14,990	15,109
Ukraine	1,129	1,386	1,703	2,046	2,709	3,484	4,435	5,502	4,397	4,858	5,253	6,161	6,036	3,886	2,543	2,452
Middle East																
Bahrain	202	217	254	280	337	395	452	503	565	605	668	815	847	1,028	1,009	1,041
Iran	2,147	2,489	3,170	3,841	4,927	5,823	6,706	7,821	8,785	9,971	11,864	8,753	6,488	7,535	7,166	7,699
Israel	7,779	7,100	7,544	7,744	7,852	8,490	9,241	11,394	11,415	12,684	14,765	14,631	16,599	17,424	17,055	17,976
Jordan	113	120	130	147	157	199	239	261	271	298	310	347	383	407	427	443
Kuwait	737	800	876	937	1,082	1,199	1,445	1,800	1,956	2,662	3,139	3,512	3,666	3,948	2,804	2,772
Oman	298	406	479	556	578	618	699	819	922	1,001	1,098	1,341	1,427	1,605	1,703	1,622
Qatar	8	10	9	359	411	702	823	1,073	1,341	1,450	1,706	2,069	2,382	2,696	2,905	3,028

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	2,254	2,358	2,454	2,606	2,724	2,862	3,029	3,227	3,491	3,820	4,275	4,757	5,061	5,493	4,789	4,441
United Arab Emirates	900	1,038	1,175	1,341	1,459	1,650	2,002	2,505	2,632	2,833	3,598	3,964	4,333	4,470	4,243	4,398
Africa																
Cameroon	56	69	93	110	156	156	178	200	216	257	284	276	311	350	311	339
Egypt	309	312	253	230	296	338	214	234	270	309	316	388	381	421	449	400
Ghana	112	130	162	188	229	273	329	360	364	471	482	501	482	376	404	508
Kenya	294	330	380	397	463	536	656	710	741	813	744	810	847	1,019	1,068	1,182
Morocco	1,409	1,462	1,874	2,116	2,331	2,437	3,037	3,344	3,312	3,386	3,751	3,800	4,162	4,260	3,866	3,839
Nigeria	427	515	570	738	933	1,284	1,498	1,810	1,730	2,202	2,550	2,850	3,341	3,930	3,546	2,934
Senegal	76	79	101	88	92	109	134	166	161	158	178	176	182	190	170	198
South Africa	1,575	1,532	2,490	3,296	3,778	4,018	4,332	3,949	4,422	5,135	5,722	8,873	8,118	7,672	6,856	6,528
Tunisia	14	14	17	18	18	18	20	22	21	21	24	24	24	25	22	22
Asia																
Bangladesh	1,025	1,050	1,135	1,209	1,260	1,347	1,518	1,773	1,936	2,200	2,392	2,461	3,056	3,469	3,866	4,409
China	29,602	33,010	36,252	41,119	46,243	51,649	63,071	77,509	85,804	98,161	126,553	155,246	192,360	220,176	245,735	261,078
India	6,063	6,526	7,333	9,050	10,435	11,720	14,281	15,676	16,844	20,944	23,470	23,932	24,120	26,714	28,274	31,783
Indonesia	1,200	1,653	2,212	2,576	2,939	3,725	4,433	4,963	5,355	7,309	8,706	9,190	9,267	9,196	9,220	10,025
Japan	270,668	266,127	294,860	318,876	322,337	311,629	317,158	365,505	392,080	422,181	475,952	486,365	403,957	380,398	360,269	406,760
Malaysia	707	683	692	678	929	1,014	1,163	1,309	1,338	1,634	1,865	2,007	2,133	2,228	2,144	2,185

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	693	803	905	998	1,153	1,298	1,658	1,728	1,781	1,937	2,290	2,456	2,601	3,070	3,447	3,742
Philippines	1,112	1,208	1,278	1,352	1,492	1,698	2,077	2,316	2,097	2,437	2,804	3,257	3,541	3,623	3,819	4,005
Singapore	2,666	2,845	2,983	3,240	3,310	3,596	3,835	4,320	4,370	5,838	7,117	7,569	8,126	8,349	7,988	8,007
South Korea	15,392	16,720	19,456	22,368	27,886	33,115	38,150	34,891	33,747	40,853	46,697	49,749	54,156	61,030	64,501	68,908
Sri Lanka	428	544	363	315	361	158	140	227	795	1,208	1,532	1,500	1,540	1,611	1,846	1,818
Taiwan	8,344	8,644	8,859	9,469	10,321	10,908	11,041	11,739	11,621	12,412	13,942	14,533	15,053	15,522	15,478	15,833
Thailand	1,913	2,227	2,386	2,855	3,116	3,586	4,165	4,498	4,751	5,501	6,066	6,381	6,671	6,666	6,517	6,711
Vietnam	495	543	607	687	773	870	991	1,162	1,247	1,259	1,307	1,616	2,823	3,155	3,331	3,614
Australia and Oceania																
Australia	20,299	22,904	29,927	36,223	41,335	45,259	55,918	59,542	61,007	79,754	93,970	99,287	96,905	95,898	88,283	90,348
New Zealand	2,594	3,042	4,173	5,246	6,136	6,090	7,596	7,939	7,508	8,894	9,826	10,593	11,191	11,866	10,638	11,305

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Health care includes social services. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-7

Value added of MHT manufacturing industries, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1,464,201	1,508,828	1,696,166	1,900,630	2,012,673	2,196,550	2,499,071	2,713,370	2,370,692	2,857,262	3,131,804	3,334,653	3,418,794	3,533,982	3,325,441	3,326,054
North America																
Canada	34,205	35,729	37,755	39,594	41,951	43,224	45,257	40,059	32,771	41,074	48,462	50,481	49,440	50,064	43,932	41,739
Mexico	32,623	29,741	31,825	35,300	38,131	45,704	47,899	49,730	36,644	49,937	56,437	62,897	67,121	67,954	66,465	60,336
United States	418,294	425,757	435,049	445,925	455,338	487,335	497,881	474,569	421,681	488,034	527,639	560,933	585,932	607,158	619,614	619,053
Central and South America																
Argentina	6,732	3,185	4,269	5,494	6,948	8,612	11,032	14,495	13,706	16,065	19,589	20,558	20,565	16,869	15,340	12,605
Bolivia	67	63	64	67	71	75	80	116	134	138	150	159	174	185	195	223
Brazil	30,242	27,773	31,828	39,970	48,393	57,958	77,545	99,478	83,384	116,293	134,767	116,252	115,525	104,144	63,639	59,123
Chile	369	345	396	486	704	598	641	596	840	1,084	1,103	1,136	1,354	1,293	1,413	1,478
Colombia	2,290	2,391	2,385	2,818	3,454	3,978	4,979	5,534	5,104	6,196	6,729	7,203	7,099	6,951	5,560	5,132
Costa Rica	259	254	261	276	308	348	421	470	410	530	597	639	675	666	647	648
Ecuador	1,168	1,265	1,327	1,393	1,416	1,540	1,688	2,131	2,491	2,522	2,661	2,888	2,943	3,466	3,440	3,235
Honduras	288	292	298	289	332	361	390	431	427	433	509	562	556	574	570	568
Panama	25	23	23	24	25	27	36	41	46	47	48	65	67	70	69	69
Peru	2,631	2,395	2,931	3,177	3,597	4,217	4,506	5,029	4,452	5,526	6,289	7,194	6,880	6,359	5,526	5,412

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	275	168	159	170	181	201	225	346	257	423	504	485	496	524	494	453
Venezuela	4,158	2,853	2,628	3,500	4,304	5,097	6,291	8,687	10,474	5,963	7,285	8,607	8,127	6,552	10,690	1,715
Europe																
EU	414,590	437,789	522,064	596,304	606,409	649,267	754,808	786,108	598,870	682,604	762,344	706,524	735,738	768,298	674,889	668,328
Austria	9,442	10,108	12,378	14,186	15,061	16,912	21,291	23,500	19,225	20,450	23,930	23,147	23,969	24,303	22,223	22,411
Belgium	12,319	13,041	15,283	16,903	17,765	18,342	19,889	20,934	17,007	17,567	19,413	17,940	18,502	18,239	16,625	15,948
Bulgaria	301	337	441	588	694	766	1,056	932	793	925	1,168	1,096	1,121	1,218	1,028	1,028
Czech Republic	4,540	5,165	6,150	8,178	9,771	11,771	15,151	17,741	14,358	16,060	18,680	17,594	17,260	18,872	17,637	18,078
Denmark	5,150	5,766	6,294	7,167	7,128	8,169	9,821	11,342	8,861	8,685	8,626	8,552	9,512	9,635	9,722	9,978
Finland	5,145	4,889	5,838	6,952	7,492	8,342	10,348	11,636	9,045	9,433	11,494	9,787	10,322	10,436	9,218	9,276
France	42,319	42,971	49,588	56,465	55,252	53,320	61,696	64,960	53,844	54,493	56,229	50,658	52,483	52,068	44,743	45,090
Germany	161,789	171,699	210,259	239,650	240,558	265,653	309,080	322,455	245,947	297,092	339,409	320,402	334,414	353,512	302,031	301,572
Greece	1,591	1,543	1,948	2,294	2,253	2,418	2,864	3,345	2,699	2,518	2,259	1,819	1,755	1,680	1,403	1,453
Hungary	2,805	3,469	4,614	5,836	6,763	7,297	9,372	10,003	7,471	9,092	9,900	9,041	10,250	11,397	11,002	10,428
Ireland	6,989	9,465	9,640	9,333	8,565	8,426	10,681	10,840	8,727	9,921	10,121	9,882	9,713	14,029	16,035	14,417
Italy	48,370	50,815	61,125	70,843	71,502	77,210	90,350	94,539	76,941	78,786	83,387	73,795	75,165	74,486	65,220	65,862
Netherlands	13,247	14,299	17,860	21,460	21,896	23,869	27,990	29,461	20,441	25,861	30,818	27,866	27,186	27,883	25,460	25,741
Poland	7,697	7,695	9,346	12,163	14,351	13,539	17,355	21,111	16,218	17,242	20,035	17,236	18,633	18,903	15,880	15,697
Portugal	3,686	3,722	4,274	4,612	4,257	4,358	5,073	5,433	4,402	4,718	4,864	4,129	4,390	4,387	3,568	3,533

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	1,111	1,136	1,365	1,735	2,199	2,849	3,959	4,932	3,872	4,408	5,292	4,892	5,794	6,295	5,238	5,577
Slovakia	1,251	1,488	1,858	1,890	1,632	2,109	3,305	3,473	2,981	4,221	4,921	4,713	5,424	5,616	4,697	4,843
Spain	23,818	25,237	30,708	35,740	36,785	39,486	44,591	45,506	34,166	35,932	37,643	32,180	33,122	33,643	26,563	26,902
Sweden	13,292	14,124	17,151	18,871	19,212	20,639	24,369	21,752	13,270	20,075	24,527	21,830	23,038	21,929	20,471	20,515
United Kingdom	49,726	50,820	55,944	61,439	63,274	63,794	66,568	62,212	38,603	45,125	49,627	49,965	53,686	59,764	56,123	49,977
Other Europe																
Norway	2,643	2,917	3,500	3,813	4,443	5,130	6,593	7,748	6,790	7,076	8,439	8,594	9,272	9,190	7,634	6,929
Russia	13,125	12,653	13,598	20,447	26,834	33,329	44,815	60,720	32,201	39,186	52,031	50,944	51,335	45,491	27,548	28,290
Switzerland	12,006	12,840	14,341	15,751	16,171	17,350	19,526	22,644	20,672	22,461	26,388	22,617	23,468	23,790	22,235	21,455
Turkey	4,979	6,191	8,261	10,335	12,504	14,010	16,738	19,893	13,304	15,745	18,777	17,813	18,764	18,110	16,526	16,006
Ukraine	709	841	1,153	1,559	1,999	2,469	3,259	4,216	2,995	4,313	5,767	5,997	5,896	4,021	1,188	1,124
Middle East																
Bahrain	145	152	164	178	239	322	415	526	418	482	557	588	623	642	537	534
Iran	4,365	5,188	6,267	7,385	8,338	11,329	13,725	14,972	18,880	19,644	30,026	22,519	16,990	18,598	17,688	19,196
Israel	1,854	1,728	1,756	1,833	1,942	2,570	3,062	4,130	3,935	3,995	4,387	3,750	4,023	4,111	3,866	3,903
Jordan	343	422	401	475	496	619	755	916	929	812	755	777	879	712	664	632
Kuwait	543	705	796	1,043	1,212	1,038	1,403	1,796	1,714	2,028	2,189	2,538	2,421	2,300	1,741	1,648
Oman	292	301	331	368	457	449	612	792	1,538	1,458	3,108	4,269	4,377	4,095	3,323	2,797
Qatar	143	149	239	669	691	784	1,896	3,405	6,242	3,310	4,693	5,812	5,984	6,294	5,809	5,662

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	5,293	5,565	6,715	7,338	8,649	9,837	14,525	15,253	16,235	20,473	22,822	24,431	24,492	27,158	21,580	19,300
United Arab Emirates	315	329	349	390	439	492	534	622	535	576	670	735	767	781	692	695
Africa																
Cameroon	16	34	34	46	49	51	57	98	98	99	112	111	124	135	120	127
Egypt	1,378	1,278	1,049	1,373	1,596	1,757	2,182	2,761	3,038	3,419	3,605	4,029	3,673	4,551	5,427	4,526
Ghana	225	261	318	356	423	503	538	544	445	520	643	586	612	534	424	453
Kenya	181	181	215	249	242	337	471	513	506	492	516	578	604	642	649	677
Morocco	1,483	1,641	1,830	1,943	2,312	2,370	2,889	3,356	3,104	3,667	4,480	4,210	5,008	5,535	4,745	4,638
Nigeria	1,186	1,613	1,778	2,146	2,840	3,822	4,479	5,602	5,255	6,611	8,307	10,403	13,627	16,507	14,091	10,238
Senegal	74	92	111	119	116	98	91	114	109	114	155	127	107	108	108	107
South Africa	6,083	5,901	8,725	10,930	11,945	10,319	10,538	10,001	9,266	10,962	10,825	11,437	10,531	10,072	9,448	8,470
Tunisia	627	565	693	824	939	1,145	1,576	1,988	1,780	2,174	2,171	2,137	2,133	2,214	1,879	1,749
Asia																
Bangladesh	635	627	586	579	577	617	681	775	1,021	1,073	1,052	1,043	1,221	1,539	1,935	2,145
China	116,539	131,285	157,270	177,783	209,844	256,589	340,782	451,382	492,848	621,086	760,804	833,613	926,770	1,001,694	1,023,750	1,048,523
India	13,245	14,052	16,898	21,173	25,340	28,755	35,916	37,394	41,025	49,891	60,793	53,998	53,886	53,973	56,846	58,555
Indonesia	10,168	10,196	12,792	14,283	13,619	14,345	18,059	23,434	22,851	29,369	35,903	39,237	43,691	43,991	42,091	45,477
Japan	240,367	234,670	263,671	304,459	313,891	321,011	333,756	370,332	306,619	382,124	273,560	443,274	361,957	353,073	296,672	318,103
Malaysia	4,698	5,508	6,060	7,407	6,918	8,704	8,541	9,811	8,150	10,674	11,592	12,558	11,967	12,251	11,759	11,325

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	1,303	1,426	1,929	2,834	3,479	3,497	3,762	4,082	3,371	4,122	5,214	5,336	5,082	5,597	5,962	6,048
Philippines	1,669	1,774	1,786	1,955	1,958	2,014	2,366	2,803	2,886	3,308	3,425	3,452	4,000	4,326	4,965	4,887
Singapore	2,963	3,334	3,643	5,075	5,264	5,539	7,075	5,754	6,487	8,523	10,193	8,574	10,782	11,398	8,972	8,649
South Korea	33,950	38,364	43,468	51,009	60,529	68,239	77,867	69,552	63,455	85,500	101,332	102,503	110,718	121,635	116,838	109,490
Sri Lanka	293	344	393	433	558	3,074	1,649	981	1,000	1,042	1,219	1,186	1,339	1,589	1,650	1,623
Taiwan	16,407	17,675	18,650	21,676	23,473	20,948	23,053	20,291	20,292	28,082	29,119	27,720	28,394	29,861	31,893	29,853
Thailand	6,796	7,517	9,207	11,121	12,800	15,509	18,483	21,235	17,735	19,512	19,725	20,289	20,618	17,509	17,502	17,706
Vietnam	951	1,146	1,363	1,713	2,288	3,067	3,866	5,413	5,055	5,351	5,661	6,364	6,689	7,282	7,942	8,572
Australia and Oceania																
Australia	6,851	8,062	10,947	12,829	13,454	13,851	16,328	17,596	14,550	18,885	23,237	21,435	20,783	18,962	14,093	13,630
New Zealand	1,143	1,279	1,621	1,942	2,242	2,115	2,527	2,105	1,665	2,236	2,438	2,486	2,497	2,582	2,169	2,192

EU = European Union; MHT = medium high technology.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. MHT manufacturing industries include motor vehicles, electrical machinery, and apparatus; chemicals excluding pharmaceuticals; railroad and other transportation equipment; and machinery and equipment. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-8

Value added of HT manufacturing industries, by region, country, or economy: 2001-16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	778,676	783,560	876,242	956,826	1,013,734	1,110,280	1,208,038	1,276,479	1,210,161	1,360,866	1,386,931	1,469,681	1,529,502	1,602,044	1,595,875	1,618,453
North America																
Canada	13,967	13,041	15,046	15,864	16,560	17,999	17,820	18,229	16,761	18,734	18,643	18,863	17,941	18,457	16,629	16,333
Mexico	18,568	18,128	14,401	13,956	15,206	16,740	17,700	17,227	14,245	15,212	15,610	16,511	17,037	17,047	17,257	15,844
United States	288,458	290,530	311,140	321,276	337,956	366,070	387,767	391,138	410,895	426,544	427,152	433,940	446,037	466,321	505,155	495,473
Central and South America																
Argentina	1,014	275	397	525	674	801	994	1,272	1,301	1,603	1,978	2,195	2,186	1,972	1,804	1,605
Bolivia	45	45	50	49	57	53	52	80	99	94	100	106	116	124	130	160
Brazil	10,604	8,265	7,480	9,751	11,672	14,792	17,284	19,958	15,837	19,825	21,452	21,055	21,553	21,139	13,843	13,364
Chile	154	137	129	168	209	213	244	223	291	368	388	411	460	469	514	474
Colombia	619	632	594	815	838	936	1,126	1,340	1,329	1,571	1,634	1,798	1,834	1,773	1,379	1,374
Costa Rica	70	72	75	83	88	100	121	135	118	152	171	183	193	191	186	193
Ecuador	435	471	494	519	511	536	554	657	759	824	889	1,031	1,133	1,383	1,369	1,308
Honduras	81	82	83	82	92	96	103	114	117	112	133	145	141	147	146	148
Panama	8	8	8	8	8	9	12	14	15	16	16	25	24	25	24	26
Peru	656	723	684	848	992	1,143	1,331	1,601	1,351	1,704	1,704	2,220	2,372	2,240	1,959	1,910

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	72	39	46	61	76	82	95	154	153	172	195	213	234	257	270	304
Venezuela	439	301	278	370	456	540	667	1,024	1,194	717	885	1,054	996	803	1,310	263
Europe																
EU	140,891	147,954	177,026	200,601	210,659	223,292	251,601	266,067	230,294	238,622	254,819	238,567	258,860	274,269	258,813	263,648
Austria	2,975	3,318	3,970	4,400	5,345	5,747	5,989	5,976	5,607	5,994	6,352	6,179	6,685	7,241	6,809	7,305
Belgium	3,628	3,890	4,537	4,907	5,123	5,464	5,862	6,740	6,328	7,496	7,778	7,237	8,697	9,761	8,678	9,891
Bulgaria	89	100	138	135	159	169	227	172	168	171	210	241	203	217	188	191
Czech Republic	787	935	1,134	1,320	1,614	1,784	2,134	2,401	1,889	2,090	2,292	1,800	1,988	2,216	2,014	2,091
Denmark	3,234	3,173	4,145	4,465	5,041	5,076	5,549	5,199	5,323	6,520	6,585	7,104	7,749	8,057	7,147	7,625
Finland	4,867	5,964	7,078	7,482	7,849	8,593	10,880	10,307	5,451	5,439	4,325	3,667	3,859	3,869	3,342	3,365
France	21,711	22,374	26,355	26,942	28,560	29,839	31,800	31,781	27,236	24,543	21,633	20,946	23,799	23,206	22,156	21,771
Germany	31,725	33,517	42,924	51,290	55,156	57,465	70,387	73,849	58,165	62,869	72,147	68,252	74,542	80,812	72,065	73,555
Greece	753	694	816	939	811	882	1,006	1,154	1,175	1,079	909	791	1,049	1,140	1,356	1,399
Hungary	1,339	1,539	2,413	3,160	3,571	3,573	3,354	3,761	3,148	3,621	3,595	2,919	2,813	2,885	2,734	2,796
Ireland	7,905	8,794	11,750	12,684	13,551	14,561	17,168	19,758	21,849	20,033	23,027	20,345	20,166	22,903	29,152	32,530
Italy	14,610	15,726	18,063	20,432	20,303	21,242	23,061	25,248	22,177	21,497	23,104	20,385	21,937	22,911	20,268	20,851
Netherlands	3,677	3,420	3,753	3,901	4,027	3,708	4,162	4,787	4,574	4,562	5,015	4,832	4,909	5,265	5,028	5,009
Poland	1,556	1,652	1,849	2,289	2,716	2,562	3,284	3,845	3,195	3,467	3,703	3,110	3,893	3,999	3,319	3,309
Portugal	616	673	785	900	959	981	1,141	1,151	844	766	726	732	981	931	758	776

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	267	249	322	395	411	552	825	937	651	786	727	722	789	826	684	649
Slovakia	85	110	161	218	266	278	400	488	348	523	460	470	394	402	338	344
Spain	5,359	5,339	6,563	7,259	7,167	7,978	9,252	10,717	8,980	9,358	9,348	8,931	9,957	10,098	7,846	8,107
Sweden	4,409	5,923	8,197	11,244	11,453	12,202	12,363	12,184	12,264	14,024	15,894	15,117	15,851	15,249	13,552	13,424
United Kingdom	31,298	30,565	32,072	36,240	36,575	40,637	42,756	45,612	40,922	43,784	46,990	44,787	48,598	52,280	51,380	48,662
Other Europe																
Norway	1,114	1,214	1,592	1,617	1,774	2,039	2,330	2,662	1,890	1,999	2,154	2,261	2,159	2,121	2,020	2,366
Russia	2,924	3,881	4,940	6,947	8,447	10,301	13,932	16,220	11,795	14,352	17,814	18,435	20,710	19,501	11,277	11,658
Switzerland	15,720	18,623	22,603	26,432	28,549	31,392	35,730	42,326	39,273	42,579	52,095	51,115	53,013	53,573	49,370	48,972
Turkey	1,932	1,084	1,383	1,636	2,450	2,506	3,118	3,963	3,704	4,007	4,054	3,503	3,443	3,964	4,161	4,480
Ukraine	360	427	549	638	796	981	1,228	1,441	973	1,426	1,732	1,828	2,466	1,640	462	480
Middle East																
Bahrain	16	16	18	19	26	35	44	56	45	52	60	63	67	69	58	55
Iran	302	441	588	734	713	800	1,032	1,241	1,797	1,923	2,939	2,204	1,663	1,821	1,731	1,929
Israel	7,816	7,073	7,200	7,922	8,143	8,488	9,606	10,121	10,253	11,254	11,379	13,153	13,417	13,729	12,321	11,837
Jordan	155	191	197	219	255	305	377	552	552	529	540	607	645	649	614	643
Kuwait	77	128	160	216	243	186	260	355	349	427	538	586	571	549	408	397
Oman	16	16	18	20	24	26	66	54	68	87	159	101	104	97	79	76
Qatar	193	244	291	378	595	712	598	642	221	1,173	1,641	2,020	2,077	2,182	2,015	2,031

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	1,224	1,288	1,558	1,705	2,014	2,295	3,031	3,158	3,356	4,231	4,714	5,040	5,047	5,585	4,456	4,015
United Arab Emirates	197	205	218	244	275	307	334	389	334	360	420	460	480	489	433	434
Africa																
Cameroon	2	4	5	6	7	7	8	13	13	13	15	15	17	18	16	18
Egypt	414	384	315	413	480	528	655	828	911	1,086	1,059	1,019	968	1,296	1,799	1,407
Ghana	50	58	71	80	95	112	120	122	99	116	144	131	137	119	95	103
Kenya	61	63	79	92	96	82	96	104	105	99	112	126	132	140	141	154
Morocco	443	504	593	665	864	913	951	957	990	1,089	1,259	1,221	1,376	1,504	1,330	1,277
Nigeria	309	416	450	526	664	852	975	1,168	1,123	1,349	1,622	1,896	2,387	2,769	2,428	1,956
Senegal	10	9	10	14	14	16	17	18	21	23	25	27	19	21	28	32
South Africa	536	537	753	963	1,005	1,008	1,086	1,072	1,148	1,322	1,348	1,375	1,325	1,278	1,310	1,286
Tunisia	70	66	82	89	104	110	132	176	174	222	203	203	212	215	181	171
Asia																
Bangladesh	438	513	568	614	686	709	745	845	1,074	1,150	1,168	1,189	1,360	1,814	2,845	3,385
China	49,676	55,747	69,183	79,611	90,395	109,940	129,711	158,203	158,850	193,680	225,865	262,113	299,892	335,626	362,846	380,449
India	4,364	4,828	5,543	6,578	7,812	8,629	11,124	11,738	11,456	12,535	16,906	14,529	14,458	13,405	13,448	14,459
Indonesia	1,597	2,779	3,240	2,836	3,030	3,584	5,122	6,289	6,006	6,692	5,858	3,802	4,319	4,333	4,284	4,586
Japan	144,000	121,552	133,128	138,593	135,976	139,610	136,107	148,449	129,319	162,346	102,703	147,536	114,743	103,693	86,007	101,664
Malaysia	6,744	6,473	7,718	9,025	8,391	9,173	10,725	10,198	7,058	9,148	10,972	12,750	14,909	15,703	13,683	13,694

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	451	495	666	945	1,127	868	1,008	1,160	936	1,153	1,534	1,603	1,628	1,790	1,817	2,018
Philippines	2,153	2,392	2,091	2,447	2,673	3,195	4,424	3,221	3,787	3,799	4,088	4,530	5,423	6,211	6,783	6,896
Singapore	9,917	11,248	11,993	14,850	16,623	20,255	21,318	18,139	17,598	23,337	25,327	27,910	24,774	24,578	19,771	21,407
South Korea	23,261	26,898	30,299	38,921	43,436	48,977	52,314	45,436	41,098	57,219	60,252	62,224	75,112	74,710	71,529	68,755
Sri Lanka	72	83	95	105	135	727	393	236	241	252	318	323	398	434	433	435
Taiwan	21,246	26,551	32,208	37,008	40,074	46,418	48,778	51,670	45,627	56,074	61,041	63,501	68,279	78,544	75,996	72,894
Thailand	1,905	3,113	3,758	3,860	4,037	4,753	5,895	6,525	6,335	8,447	7,224	6,385	6,498	6,941	5,737	5,670
Vietnam	369	392	413	511	551	727	922	1,046	1,466	2,015	3,296	5,154	6,075	6,846	7,189	7,861
Australia and Oceania																
Australia	2,255	2,691	3,435	4,020	4,690	4,929	5,742	6,007	4,995	6,516	8,026	9,860	7,508	6,881	5,493	5,578
New Zealand	206	233	298	352	408	382	517	449	367	513	559	567	573	589	491	501

EU = European Union; HT = high technology.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. HT manufacturing industries include aerospace, communications and semiconductors, computers and office machinery, pharmaceuticals, and scientific instruments and measuring equipment formerly classified by the Organisation for Economic Co-operation and Development. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries/economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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 APPENDIX TABLE 6-9 
Value added of financial services, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1,876,912	1,960,991	2,207,108	2,426,265	2,676,797	2,892,075	3,254,173	3,233,664	3,309,705	3,571,858	3,871,857	4,051,198	4,190,709	4,425,344	4,419,251	4,556,127
North America																
Canada	43,615	43,915	51,932	61,279	69,161	80,817	90,807	93,550	82,216	97,121	107,171	104,976	107,607	106,902	99,787	103,037
Mexico	10,776	19,077	17,266	19,004	25,531	27,669	32,599	35,091	30,297	34,819	36,387	35,917	41,922	42,797	38,914	37,240
United States	817,492	835,186	866,781	890,279	991,844	1,048,838	1,040,521	907,226	969,254	1,005,832	1,038,026	1,142,684	1,136,414	1,251,154	1,293,093	1,355,546
Central and South America																
Argentina	16,486	6,425	5,631	4,510	5,366	6,726	8,714	11,547	11,024	12,703	14,698	17,867	17,101	13,823	15,408	13,633
Bolivia	387	357	304	277	312	359	435	579	630	743	819	1,095	1,295	1,506	1,706	2,183
Brazil	34,037	34,447	35,620	36,998	53,976	67,923	87,512	93,432	93,896	127,586	143,131	133,295	126,395	135,424	109,069	110,871
Chile	4,918	4,236	3,972	4,899	5,858	6,506	8,335	9,318	9,092	10,532	12,558	13,807	14,339	13,220	13,204	13,647
Colombia	3,945	3,920	3,733	4,665	5,778	6,279	8,557	11,095	10,973	12,799	14,531	16,274	16,459	16,418	14,675	14,385
Costa Rica	627	657	715	734	852	978	1,135	1,356	1,485	1,664	1,901	2,205	2,366	2,417	2,782	3,206
Ecuador	500	612	665	786	1,058	1,298	1,303	1,441	1,714	1,948	2,300	2,761	2,509	2,740	2,743	2,727
Honduras	373	383	400	462	511	623	735	889	911	960	1,071	1,143	1,207	1,296	1,347	1,377
Panama	1,156	1,184	1,155	1,193	1,344	1,423	1,616	1,866	2,235	2,272	2,479	2,865	3,013	3,348	3,574	3,962
Peru	1,460	1,740	1,918	2,044	2,435	2,754	3,286	4,033	4,888	5,963	7,003	8,173	8,984	9,820	9,840	10,402

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	1,419	1,030	776	729	933	1,015	1,135	1,320	1,361	1,733	2,063	2,282	2,520	2,545	2,388	2,356
Venezuela	3,059	2,601	2,239	2,309	2,346	3,765	6,592	8,121	8,987	5,263	8,311	12,296	12,820	9,894	16,144	3,102
Europe																
EU	363,943	405,904	521,934	630,851	673,787	711,753	836,691	834,158	834,371	812,566	849,298	807,442	842,364	868,883	765,150	761,155
Austria	9,432	10,239	11,940	13,720	14,444	16,029	18,704	20,367	16,768	17,405	19,293	18,271	18,760	18,805	16,291	16,738
Belgium	11,976	13,931	16,356	19,698	20,058	20,757	22,935	23,985	25,938	27,796	28,920	28,938	30,222	31,040	26,620	26,629
Bulgaria	365	463	766	992	1,493	1,546	2,757	2,904	2,721	3,458	4,125	3,531	3,383	3,556	3,220	3,278
Czech Republic	1,856	2,008	2,897	3,372	3,403	4,042	5,584	8,158	7,883	8,546	9,474	8,798	9,651	9,310	7,527	7,704
Denmark	6,561	7,437	9,823	11,214	11,838	12,529	15,083	17,900	17,647	16,933	18,946	17,591	18,229	18,350	15,363	15,023
Finland	3,980	4,287	3,483	4,311	4,213	5,269	6,961	6,698	6,060	5,836	6,301	5,907	5,694	6,468	5,517	5,629
France	46,807	53,630	69,032	77,904	80,349	85,213	95,221	92,074	105,274	110,890	115,826	110,263	115,504	118,669	102,368	104,035
Germany	71,763	81,432	106,537	129,048	122,319	122,144	123,851	122,407	129,433	134,300	141,199	136,201	156,581	153,711	132,174	137,591
Greece	4,760	5,547	7,528	10,340	10,555	11,384	12,624	13,752	13,583	12,744	12,030	10,789	10,232	9,469	7,557	7,666
Hungary	1,598	2,217	2,937	3,721	4,459	4,696	5,130	5,449	5,172	5,155	5,131	4,534	4,422	4,306	3,743	3,717
Ireland	7,276	8,346	13,442	16,031	17,338	19,902	23,812	24,020	22,286	21,973	21,083	19,271	17,615	20,240	18,632	19,468
Italy	49,432	51,207	66,685	74,462	78,785	81,481	101,571	110,634	100,010	98,285	105,614	101,772	103,314	104,669	92,217	91,256
Netherlands	21,789	25,346	34,871	40,020	43,615	40,667	41,079	43,990	52,838	57,506	59,141	54,570	55,706	54,972	46,330	46,078
Poland	7,002	6,580	7,186	8,403	10,520	11,346	16,417	19,427	15,276	17,472	20,376	17,851	19,877	21,516	16,919	17,678
Portugal	6,826	7,337	9,301	10,963	11,230	13,427	16,029	18,499	15,275	13,805	15,027	11,908	10,961	10,527	9,385	9,566

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	1,422	1,189	1,138	1,719	2,027	2,236	3,284	4,458	3,558	3,974	5,280	5,163	7,550	6,779	6,127	6,243
Slovakia	416	836	1,146	1,470	1,832	1,951	2,394	2,838	3,126	3,264	3,735	3,480	3,562	3,808	3,172	3,294
Spain	27,667	31,125	38,720	45,363	48,361	54,128	70,730	80,676	79,511	58,186	56,668	52,002	46,749	52,172	42,147	42,507
Sweden	8,597	8,722	11,243	14,437	15,302	14,264	15,826	16,641	15,844	16,303	18,210	17,703	19,826	19,835	17,765	18,354
United Kingdom	74,418	84,024	106,903	143,661	171,648	188,742	236,698	199,281	196,168	178,734	182,918	178,901	184,526	200,682	192,076	178,701
Other Europe																
Norway	4,531	5,212	7,877	9,895	10,614	10,220	13,297	14,791	15,456	17,255	18,974	20,002	21,066	20,866	17,943	17,754
Russia	6,779	8,942	12,642	16,455	24,789	35,933	49,012	61,878	53,785	58,401	66,537	77,135	89,393	89,883	62,788	62,435
Switzerland	30,490	31,224	39,866	43,597	46,660	51,408	61,305	61,497	57,801	58,397	69,431	66,786	69,562	67,016	62,249	61,622
Turkey	16,904	10,251	10,358	13,059	13,615	15,304	21,024	25,383	27,541	26,950	24,225	25,904	27,559	24,210	23,534	24,642
Ukraine	1,035	1,221	1,827	4,104	3,989	5,109	8,470	12,914	6,576	7,720	7,306	7,640	8,286	5,932	2,804	2,874
Middle East																
Bahrain	1,507	1,501	1,971	2,590	3,128	3,378	4,140	4,329	4,281	4,511	4,556	4,777	5,002	5,207	5,109	5,594
Iran	1,286	2,138	3,416	4,385	4,375	5,277	7,389	9,152	8,132	11,839	16,492	12,167	9,019	10,475	9,962	10,910
Israel	5,553	5,279	6,077	7,421	8,256	8,586	10,049	12,132	11,843	12,758	12,938	12,085	15,037	13,481	13,195	14,197
Jordan	307	422	456	549	962	1,131	1,379	2,019	2,034	2,398	2,710	3,045	3,402	3,618	3,791	3,943
Kuwait	2,260	2,840	4,151	5,290	8,805	11,279	16,531	16,395	12,057	14,303	10,717	10,854	11,083	11,936	8,392	8,508
Oman	817	956	965	1,038	1,190	1,538	1,819	2,150	2,310	2,658	3,074	3,574	3,931	4,448	4,695	4,566
Qatar	962	1,147	1,350	1,715	3,136	4,218	5,432	5,747	6,636	7,937	9,339	10,059	10,643	12,101	13,494	14,205

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	9,317	9,889	10,630	12,658	14,935	17,651	20,187	22,409	24,663	25,154	26,224	28,812	31,025	33,163	30,223	28,235
United Arab Emirates	5,442	6,002	6,788	8,112	11,490	13,912	18,481	20,234	19,958	20,154	21,474	23,786	26,679	27,523	26,123	27,066
Africa																
Cameroon	113	132	172	198	193	149	159	210	196	204	261	256	307	357	316	349
Egypt	10,785	8,418	6,914	8,647	7,981	8,636	9,565	11,627	12,952	14,709	13,788	14,475	14,205	15,703	16,723	15,005
Ghana	212	247	306	355	433	516	790	1,029	1,098	1,565	1,632	1,878	2,970	3,146	3,709	4,143
Kenya	761	676	920	796	925	1,234	1,504	1,867	1,900	2,183	2,332	2,892	3,532	4,061	4,244	4,777
Morocco	1,842	1,915	2,288	2,600	2,949	3,340	3,926	4,483	4,539	4,660	5,079	5,032	5,114	5,205	4,724	4,635
Nigeria	5,838	5,440	5,360	6,417	7,630	10,007	11,040	12,620	10,372	12,700	9,839	13,051	15,402	17,838	16,933	13,869
Senegal	29	34	60	87	91	88	98	120	101	123	140	149	154	161	144	172
South Africa	9,019	8,624	13,243	18,041	20,593	23,124	28,166	26,036	24,138	30,810	34,903	32,462	29,482	29,108	26,013	24,809
Tunisia	830	932	1,118	1,231	1,268	1,415	1,594	1,836	1,541	1,593	1,665	1,674	1,709	1,796	1,604	1,590
Asia																
Bangladesh	701	727	811	873	922	2,062	2,362	2,726	2,897	3,367	3,716	4,438	5,408	6,257	7,153	8,110
China	74,692	78,871	96,103	101,187	115,558	156,488	240,844	299,087	352,105	415,881	513,848	598,936	714,519	804,550	952,921	988,149
India	25,393	28,427	33,274	36,187	40,308	46,543	59,323	67,205	67,441	89,322	102,916	100,469	102,781	106,559	107,787	120,273
Indonesia	8,492	10,357	12,290	12,677	13,426	16,035	18,071	20,178	20,398	26,372	30,834	34,159	35,406	34,411	34,719	39,277
Japan	232,658	237,935	265,660	280,820	279,341	259,800	261,630	242,668	253,731	270,746	281,040	273,967	220,043	199,240	189,934	210,904
Malaysia	8,486	9,595	10,114	10,758	10,729	12,083	14,160	16,120	15,792	19,117	21,029	22,677	22,975	23,032	20,919	20,951

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	1,731	2,141	2,302	2,719	3,702	4,694	5,643	5,696	5,890	5,572	6,214	6,108	5,141	5,942	6,096	6,695
Philippines	4,091	4,366	4,566	5,008	6,063	7,734	9,744	11,279	11,421	13,798	15,794	18,083	20,853	22,277	23,372	24,401
Singapore	8,911	9,097	9,437	10,691	11,878	14,679	19,324	20,640	21,129	24,315	27,772	29,929	32,734	35,219	34,745	34,506
South Korea	28,829	38,364	41,856	43,541	52,137	57,850	65,766	59,101	50,931	62,148	71,079	74,063	77,434	86,326	93,396	97,873
Sri Lanka	566	838	953	1,023	1,198	1,606	1,908	2,353	2,524	3,032	2,564	2,835	3,026	3,383	3,507	3,683
Taiwan	24,436	24,202	23,638	25,919	28,218	27,718	28,725	28,944	24,124	27,544	31,051	31,500	32,665	34,664	34,258	35,095
Thailand	5,199	6,439	7,645	9,133	10,372	11,843	14,284	15,719	16,158	18,326	21,148	23,548	27,509	27,490	26,875	28,788
Vietnam	478	518	573	650	737	854	1,000	1,295	1,437	6,345	7,373	8,348	9,464	9,952	10,618	11,488
Australia and Oceania																
Australia	28,959	31,028	39,862	49,647	57,530	64,676	79,931	88,180	83,414	105,091	121,365	129,263	128,550	125,687	114,409	120,598
New Zealand	2,483	2,970	4,227	5,168	5,580	5,231	6,130	6,594	7,068	7,397	8,731	9,296	10,322	10,936	10,004	10,608

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-10

Value added of business services, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1,812,541	1,878,176	2,082,458	2,294,181	2,462,751	2,695,390	3,032,889	3,360,664	3,177,453	3,326,363	3,665,854	3,768,550	3,861,866	3,997,691	3,836,465	3,953,984
North America																
Canada	32,517	33,893	40,136	45,962	52,823	60,598	66,643	71,855	65,469	75,930	84,383	87,924	87,602	82,237	69,973	67,941
Mexico	17,451	18,980	19,521	20,709	23,486	25,476	27,585	29,311	23,645	26,187	28,911	28,955	31,746	31,693	28,801	26,946
United States	714,888	742,455	762,909	805,432	857,593	933,555	976,651	1,054,747	992,638	999,655	1,041,303	1,094,521	1,117,217	1,172,597	1,265,695	1,316,111
Central and South America																
Argentina	19,605	5,969	6,655	8,301	9,995	12,089	15,486	19,165	18,714	21,770	25,651	27,356	28,652	24,483	27,219	23,987
Bolivia	257	229	223	224	221	238	267	311	354	386	420	483	533	563	626	738
Brazil	23,007	21,662	21,882	26,278	36,274	47,528	57,854	71,821	79,853	102,275	125,237	123,052	125,060	123,613	77,710	77,706
Chile	3,500	3,014	2,932	3,966	5,203	6,399	7,694	8,914	9,092	11,392	14,183	16,107	17,529	16,400	15,114	15,596
Colombia	4,732	4,802	4,571	5,630	7,124	7,824	10,115	11,728	11,597	14,272	15,639	17,469	17,885	17,845	12,623	12,310
Costa Rica	633	678	710	803	908	1,085	1,358	1,640	1,775	2,182	2,562	2,996	3,334	3,355	3,655	3,942
Ecuador	1,116	1,442	1,617	1,718	1,873	2,084	2,438	2,743	2,811	3,256	3,827	4,339	4,995	5,526	5,109	4,749
Honduras	115	126	139	155	161	156	166	180	225	260	227	228	240	232	213	223
Panama	793	855	913	961	1,039	1,155	1,195	1,341	1,511	1,701	1,907	2,081	2,377	2,646	2,814	3,082
Peru	1,498	1,765	1,723	1,854	2,003	2,279	2,696	3,360	3,477	4,243	4,918	5,731	6,083	6,407	6,185	6,395

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	1,466	908	690	717	912	1,031	1,237	1,622	1,849	2,469	2,973	3,381	3,866	3,890	3,664	3,632
Venezuela	3,812	2,737	2,126	2,313	2,518	2,979	3,595	4,429	5,710	3,586	4,507	5,806	5,611	4,268	6,930	1,333
Europe																
EU	538,748	589,331	721,818	815,870	855,595	926,198	1,085,341	1,181,527	1,035,534	1,007,206	1,088,389	1,046,095	1,085,796	1,133,331	1,010,324	1,026,323
Austria	8,898	10,195	12,773	14,600	15,839	17,170	20,046	23,481	21,830	21,197	22,864	21,775	23,500	24,306	20,720	21,368
Belgium	18,487	19,732	24,586	28,217	30,086	32,567	38,137	43,124	39,807	38,957	42,587	39,355	42,777	44,820	39,078	40,662
Bulgaria	250	278	316	394	484	595	925	1,347	1,607	1,713	1,823	1,898	1,858	1,836	1,551	1,569
Czech Republic	2,574	3,690	4,386	5,101	6,169	6,792	8,422	11,204	9,607	9,812	10,793	9,683	9,172	8,773	7,746	7,624
Denmark	7,022	7,324	8,842	10,644	11,464	12,147	13,665	16,549	15,464	15,400	16,878	16,040	17,443	18,337	16,517	16,772
Finland	4,303	4,555	5,750	6,816	7,271	7,826	9,789	11,303	10,346	10,121	11,304	10,837	11,318	11,429	9,720	10,013
France	85,137	93,482	116,447	134,093	142,491	155,619	181,893	204,301	185,199	179,002	197,642	199,073	192,684	193,608	169,962	175,949
Germany	149,674	160,188	193,714	207,694	211,890	222,308	261,212	286,174	239,049	227,334	245,389	229,835	242,711	253,619	217,739	225,438
Greece	3,971	5,139	6,986	8,780	8,827	10,988	13,257	13,539	13,009	10,635	10,052	8,502	8,143	7,574	6,618	6,725
Hungary	2,204	2,968	3,660	4,447	4,857	5,288	6,037	7,263	6,148	6,078	6,487	5,861	6,288	6,620	5,817	6,149
Ireland	4,044	4,513	6,048	8,109	10,610	11,730	14,219	14,586	12,316	12,738	14,420	13,706	15,652	15,900	14,600	15,266
Italy	67,073	72,608	94,158	105,262	107,768	107,751	121,346	134,358	124,366	118,296	128,268	114,982	119,369	121,468	103,474	105,559
Netherlands	26,907	28,142	33,850	38,454	40,418	43,654	51,327	57,868	52,695	48,093	49,587	46,528	48,046	50,319	44,938	46,865
Poland	9,506	9,297	10,124	11,318	14,183	16,055	20,333	26,420	22,111	22,825	24,069	23,220	25,094	26,994	23,313	23,508
Portugal	4,280	4,631	5,814	6,688	7,138	7,343	9,023	10,458	9,778	9,245	9,148	7,737	8,155	8,390	7,245	7,436

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	894	1,327	1,772	2,096	2,861	4,293	6,251	7,322	6,182	7,252	9,606	8,236	11,482	12,718	11,974	13,003
Slovakia	763	976	1,235	1,574	1,880	2,283	3,277	4,413	4,380	4,356	4,595	4,372	4,805	4,728	3,966	4,047
Spain	24,482	27,536	36,041	41,865	45,996	52,681	63,351	73,266	69,340	62,851	64,713	59,190	59,001	59,661	52,942	57,021
Sweden	12,221	13,267	16,455	19,262	20,020	23,240	28,258	29,642	24,323	28,594	34,837	34,301	37,828	38,296	33,680	35,297
United Kingdom	106,057	119,483	138,861	160,459	165,344	185,869	214,574	204,908	167,977	172,707	183,326	190,966	200,470	223,934	218,724	206,050
Other Europe																
Norway	5,618	6,594	7,642	8,630	10,101	11,811	15,692	18,410	16,598	17,948	20,900	22,570	23,458	22,449	17,929	17,227
Russia	12,651	12,560	15,684	21,221	28,195	36,007	52,978	67,260	52,055	62,629	69,560	75,734	85,435	78,002	52,878	52,537
Switzerland	19,786	20,872	22,813	26,059	26,969	28,518	32,148	38,895	41,037	44,113	53,384	53,222	56,257	58,751	57,097	56,275
Turkey	4,611	6,327	8,283	10,866	13,715	15,771	21,106	24,753	22,499	26,945	28,122	30,305	32,541	33,537	33,118	34,063
Ukraine	771	913	1,019	1,414	1,914	2,449	3,985	5,078	3,953	3,832	4,300	5,829	6,600	4,371	2,709	2,838
Middle East																
Bahrain	305	324	350	397	459	517	595	640	652	714	672	705	727	786	773	789
Iran	4,604	5,848	7,158	8,522	10,008	12,730	16,940	20,772	22,754	24,771	30,591	22,717	16,844	19,564	18,506	20,007
Israel	11,531	10,554	11,302	12,416	12,542	14,512	16,521	19,611	20,916	23,567	28,719	27,383	30,684	32,682	31,742	34,040
Jordan	503	515	543	580	581	611	645	656	738	814	896	971	1,039	1,106	1,153	1,201
Kuwait	359	442	497	532	590	615	672	713	655	742	1,302	1,324	1,371	1,546	1,129	1,131
Oman	411	437	427	441	459	521	629	714	768	818	886	1,036	1,152	1,377	1,459	1,382
Qatar	104	107	109	228	275	797	1,249	1,501	1,627	1,546	1,811	2,110	2,501	2,704	3,963	4,130

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	4,491	4,598	4,700	5,076	5,349	5,728	6,246	7,141	8,515	9,665	10,690	13,959	16,995	18,605	16,804	15,469
United Arab Emirates	4,127	4,754	5,471	6,554	7,428	8,505	11,604	12,957	11,766	12,070	12,891	14,118	15,582	16,266	15,352	15,645
Africa																
Cameroon	244	268	337	384	415	448	489	554	580	587	660	662	729	775	681	741
Egypt	1,226	1,138	911	851	1,194	1,479	1,424	1,641	1,936	2,193	5,997	6,282	6,051	6,587	6,972	6,180
Ghana	176	205	254	295	359	428	482	490	425	603	811	940	820	620	598	655
Kenya	267	274	312	313	358	431	533	570	588	606	580	691	745	781	740	823
Morocco	1,334	1,506	1,907	2,230	2,493	2,792	3,417	3,720	3,994	3,940	4,373	4,318	4,568	4,690	4,233	4,248
Nigeria	2,744	3,435	3,881	4,698	5,774	7,779	8,800	10,284	9,267	11,417	14,360	16,965	19,061	21,776	20,432	17,014
Senegal	188	214	265	306	323	355	437	520	508	511	575	544	595	619	548	644
South Africa	3,592	3,413	5,453	6,930	8,009	8,248	8,963	8,465	9,961	13,220	14,592	13,167	11,843	11,751	10,437	9,892
Tunisia	897	1,008	1,209	1,332	1,372	1,530	1,724	1,898	1,980	2,012	2,204	2,092	2,198	2,308	2,047	2,012
Asia																
Bangladesh	1,631	1,684	1,787	1,876	1,869	2,229	2,429	2,650	3,045	3,318	3,427	3,559	4,284	4,991	5,737	6,396
China	49,286	51,512	51,001	56,651	68,097	84,983	111,470	142,821	164,733	199,925	259,112	314,115	378,285	434,575	477,564	502,809
India	6,902	7,346	8,651	11,361	13,648	15,967	20,929	24,663	27,153	34,781	40,418	42,776	49,610	59,015	58,794	63,944
Indonesia	1,637	2,214	2,778	3,063	3,433	4,449	5,065	5,692	6,115	8,255	9,833	10,292	10,425	10,503	10,652	11,784
Japan	250,887	234,908	249,989	267,240	272,265	271,175	279,193	320,358	339,535	356,208	388,633	389,422	310,105	285,008	254,576	283,783
Malaysia	1,399	1,510	1,628	1,745	2,390	2,667	3,212	3,687	3,867	4,787	5,447	6,003	6,519	6,871	5,706	5,803

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	1,334	1,666	1,894	2,179	2,856	5,635	6,270	6,397	6,880	7,877	9,435	10,448	11,006	12,992	14,142	15,535
Philippines	2,224	2,346	2,481	2,711	3,106	3,772	4,685	5,592	5,632	6,646	7,651	8,771	9,475	9,575	10,002	10,412
Singapore	2,193	2,305	2,432	2,578	2,876	3,424	4,231	5,219	5,354	6,867	8,492	9,116	9,874	10,123	9,513	9,536
South Korea	12,172	14,499	16,934	19,119	22,884	27,125	30,715	28,792	26,110	30,509	30,271	31,951	35,293	37,921	34,003	33,335
Sri Lanka	248	368	380	375	436	521	616	686	742	814	992	1,109	1,163	1,184	1,140	1,170
Taiwan	6,905	7,003	7,383	7,970	8,728	9,642	10,073	10,514	10,045	11,017	12,148	12,573	12,861	12,986	12,505	12,542
Thailand	3,270	3,796	4,330	4,913	5,370	6,281	7,137	7,687	7,228	8,617	9,591	10,665	11,407	11,420	11,157	11,574
Vietnam	636	694	758	852	882	979	1,142	1,428	1,541	1,651	1,899	2,185	2,488	2,662	2,771	2,940
Australia and Oceania																
Australia	23,304	26,572	34,776	42,752	48,448	54,471	67,170	71,629	71,961	91,360	112,266	118,204	108,834	100,658	67,343	68,089
New Zealand	3,836	4,602	6,166	7,627	8,854	8,813	10,951	10,911	9,490	11,698	12,328	13,191	23,916	26,468	22,908	24,375

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-11

Value added of information services, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1,455,035	1,544,837	1,697,458	1,911,400	2,024,934	2,127,731	2,398,518	2,617,303	2,533,842	2,640,253	2,826,795	2,874,373	2,963,115	3,030,737	2,958,375	3,093,875
North America																
Canada	28,858	29,892	35,237	40,637	46,224	52,321	57,873	59,959	57,034	65,372	71,500	73,341	72,724	70,529	62,061	63,099
Mexico	15,526	15,789	15,091	17,366	20,917	24,034	28,406	29,361	25,359	28,167	28,110	26,674	28,043	27,487	22,843	23,047
United States	560,749	598,404	613,189	664,625	705,021	717,709	781,348	820,130	782,621	803,107	816,758	835,973	891,692	905,472	952,592	980,170
Central and South America																
Argentina	13,884	4,032	4,875	6,157	7,728	9,807	12,011	14,790	14,774	17,558	19,751	21,337	21,691	18,554	20,789	18,870
Bolivia	235	211	204	223	228	243	253	292	326	340	365	393	428	463	526	621
Brazil	22,026	18,643	19,958	25,771	34,669	41,254	53,045	63,173	61,497	71,896	81,904	76,016	73,039	71,651	56,447	57,177
Chile	1,840	1,651	1,706	2,070	2,445	2,917	3,317	3,554	3,539	4,323	4,924	5,007	5,202	4,665	4,336	4,481
Colombia	2,376	2,441	2,316	2,854	3,641	4,186	5,495	6,276	5,824	7,005	7,827	8,387	8,822	8,801	6,219	6,070
Costa Rica	351	400	445	503	562	687	800	927	949	1,256	1,491	1,853	2,003	1,877	2,099	2,280
Ecuador	593	696	829	941	1,151	1,152	1,241	1,425	1,554	1,682	1,812	1,914	2,012	2,174	2,046	2,026
Honduras	285	273	298	315	359	374	424	472	546	562	556	594	607	635	683	701
Panama	591	605	600	570	682	748	842	938	1,052	1,122	1,239	1,340	1,486	1,703	1,812	1,983
Peru	1,583	1,593	1,706	1,883	2,019	2,415	2,723	3,211	3,120	3,575	3,856	4,283	4,475	4,474	4,278	4,398

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	976	624	517	561	722	817	949	1,227	1,273	1,646	1,901	2,047	2,305	2,298	2,179	2,254
Venezuela	4,429	3,367	2,894	3,278	4,034	5,803	7,987	10,540	13,235	8,483	10,518	13,045	12,167	9,833	16,347	3,086
Europe																
EU	384,120	430,143	510,443	592,956	604,840	635,092	730,448	781,078	718,202	695,359	735,267	700,346	729,433	754,756	666,415	680,029
Austria	6,427	7,297	8,763	9,421	9,837	10,141	11,179	12,214	11,331	11,008	11,510	10,581	11,248	11,570	9,835	10,097
Belgium	8,692	9,385	11,415	13,439	13,958	14,676	16,944	18,842	18,153	17,696	18,924	17,918	17,948	17,981	15,625	16,201
Bulgaria	473	622	787	1,016	960	1,092	1,395	2,659	2,416	2,379	2,680	2,383	2,700	2,738	2,253	2,378
Czech Republic	2,546	3,301	4,094	4,656	5,635	6,676	8,341	10,379	9,247	9,162	9,910	8,693	8,940	9,312	8,569	8,841
Denmark	5,815	6,387	8,217	9,092	9,136	9,830	11,074	12,652	12,381	12,078	12,838	11,921	12,646	12,936	11,871	13,064
Finland	5,871	6,537	7,689	9,277	8,448	8,576	10,234	11,465	10,689	10,328	11,279	11,225	12,073	12,754	11,339	11,838
France	60,769	68,292	83,477	96,493	97,509	102,736	115,956	127,012	117,605	114,615	119,728	112,008	113,832	109,967	94,420	96,494
Germany	74,797	80,433	87,007	101,053	99,066	104,743	118,883	127,705	129,697	119,229	123,693	120,418	129,999	137,375	117,323	122,131
Greece	4,878	5,678	6,807	8,243	8,636	9,779	11,331	11,797	11,907	10,175	8,836	7,090	6,814	6,661	5,439	5,404
Hungary	2,092	2,724	3,582	4,285	4,729	4,877	5,980	6,821	6,210	6,152	6,537	5,906	6,252	6,390	5,489	5,681
Ireland	7,000	7,324	9,511	11,776	12,719	12,899	15,549	18,601	17,671	18,868	21,973	22,711	25,928	26,711	23,158	26,180
Italy	46,505	54,225	64,883	73,077	74,607	75,484	85,385	91,839	86,562	83,052	84,063	75,087	76,144	76,498	62,083	62,578
Netherlands	17,497	19,884	25,218	27,983	29,047	30,714	35,859	38,601	34,772	33,549	35,249	32,996	34,811	35,778	31,338	31,767
Poland	6,656	7,774	8,521	10,580	11,771	12,624	15,242	19,539	15,904	16,470	17,507	16,881	18,118	18,889	15,680	15,878
Portugal	3,958	4,492	5,525	6,413	6,638	7,009	7,936	8,747	8,317	7,601	7,958	6,958	6,927	6,786	5,355	5,470

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	1,880	2,059	2,543	3,210	3,937	5,019	8,588	10,494	7,675	7,358	7,750	6,849	9,462	10,158	9,997	10,982
Slovakia	758	856	1,172	1,495	1,698	2,017	2,846	3,533	3,820	3,639	3,938	4,007	3,792	3,982	3,541	3,641
Spain	25,613	29,917	38,188	44,208	47,143	50,215	58,281	64,498	62,030	57,516	59,205	53,912	53,146	53,584	45,903	48,827
Sweden	11,056	11,767	14,570	17,071	17,335	18,212	20,632	22,610	18,727	21,414	25,462	25,340	27,023	27,710	24,674	25,749
United Kingdom	90,838	101,188	118,472	140,170	142,030	147,772	168,811	161,069	133,087	133,070	146,228	147,460	151,630	166,975	162,523	156,830
Other Europe																
Norway	5,637	6,995	8,291	9,549	10,741	11,120	13,070	13,868	13,020	13,703	15,470	15,848	16,385	15,464	12,815	12,537
Russia	6,966	8,928	11,504	18,219	22,767	28,537	39,573	49,198	39,619	42,302	48,522	53,574	52,394	47,321	32,241	31,855
Switzerland	11,718	13,054	14,638	16,401	16,743	16,869	17,842	20,693	20,908	22,721	26,886	25,873	26,673	27,462	27,176	27,239
Turkey	4,443	5,389	6,795	8,582	11,418	11,872	15,231	16,978	14,592	16,089	15,257	15,957	16,334	15,080	13,762	14,205
Ukraine	1,217	1,421	1,732	2,154	2,633	3,253	4,340	5,326	3,832	4,160	4,818	5,428	6,052	4,430	3,101	3,224
Middle East																
Bahrain	399	434	456	507	567	663	757	889	940	1,087	1,111	1,215	1,276	1,378	1,351	1,394
Iran	1,649	2,094	2,614	3,037	3,791	4,754	6,341	7,899	8,416	9,320	10,706	8,224	6,060	7,115	6,777	7,480
Israel	9,642	9,077	8,212	8,915	11,225	10,858	13,550	18,527	17,372	18,233	19,250	21,310	22,223	24,749	24,204	26,079
Jordan	560	566	593	680	690	793	860	1,016	1,105	1,250	1,273	1,356	1,458	1,509	1,584	1,642
Kuwait	859	869	1,146	1,465	1,683	2,527	3,127	3,649	3,525	3,058	3,123	3,336	3,312	3,337	2,393	2,374
Oman	813	757	784	854	970	1,103	1,332	1,617	1,737	1,957	2,131	2,508	2,812	3,228	3,398	3,307
Qatar	145	160	157	280	378	686	978	1,409	1,665	1,721	2,025	2,098	2,235	2,507	2,675	2,807

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	4,485	4,641	4,785	5,491	6,072	6,789	8,152	10,286	12,207	13,772	15,145	16,735	18,511	19,972	18,889	17,633
United Arab Emirates	4,316	4,993	5,515	6,707	7,571	8,837	11,078	12,942	12,991	13,075	14,420	15,255	16,484	16,896	16,235	16,684
Africa																
Cameroon	304	346	249	277	298	305	358	417	419	437	482	472	540	601	537	597
Egypt	3,570	3,411	3,076	3,285	4,490	4,592	5,862	7,399	8,175	8,764	10,083	10,795	10,350	11,336	12,023	10,816
Ghana	217	252	312	363	442	527	547	588	466	581	655	865	793	843	856	957
Kenya	368	427	463	468	556	680	860	891	931	842	673	787	771	734	581	661
Morocco	1,575	1,718	1,846	2,192	2,432	2,633	3,314	3,541	3,794	3,715	3,866	3,855	4,036	4,255	3,867	3,948
Nigeria	2,326	3,266	4,371	7,350	10,486	15,634	21,466	30,450	36,276	39,622	42,020	46,748	53,844	61,276	55,992	48,085
Senegal	194	218	301	399	487	590	724	873	813	795	864	847	928	974	873	1,048
South Africa	4,334	3,854	6,434	8,185	9,076	8,890	8,834	7,599	7,595	9,671	10,542	11,270	10,305	9,811	8,713	8,218
Tunisia	1,209	1,247	1,469	1,735	1,875	1,982	2,261	2,681	2,808	3,046	3,042	2,994	2,929	3,010	2,679	2,640
Asia																
Bangladesh	968	1,056	1,175	1,283	1,399	1,823	2,136	2,447	2,896	3,351	3,553	3,740	4,503	5,112	5,783	6,696
China	43,851	49,740	56,176	67,110	77,711	91,510	111,896	141,264	151,480	170,816	204,232	241,077	281,107	321,794	375,526	443,791
India	19,814	19,921	24,098	30,150	35,574	39,265	49,870	56,158	60,373	68,829	74,350	77,162	88,137	95,832	98,154	109,793
Indonesia	2,736	4,767	6,174	7,988	9,417	12,176	15,138	17,803	20,402	28,167	32,109	33,181	32,620	31,124	30,397	33,867
Japan	217,126	214,354	232,342	247,569	238,335	230,127	230,826	264,188	279,882	295,948	324,155	325,768	270,130	251,951	230,222	256,534
Malaysia	4,005	4,478	4,962	5,344	6,088	7,419	8,187	9,023	9,685	12,267	13,945	15,107	16,217	17,220	14,510	15,169

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	1,447	1,621	1,881	2,093	2,391	3,071	3,311	3,571	3,384	3,513	3,871	4,181	3,879	4,227	4,244	4,673
Philippines	2,361	2,726	2,934	3,257	3,708	4,210	5,072	5,614	4,977	5,639	6,076	6,872	7,215	7,378	7,760	8,044
Singapore	3,721	3,606	3,965	4,368	4,760	5,260	6,001	6,766	7,187	8,121	9,775	10,715	11,557	12,111	11,646	11,515
South Korea	21,932	25,878	28,011	29,529	35,402	39,768	42,182	35,994	32,284	36,694	41,559	42,546	41,764	44,487	39,046	38,624
Sri Lanka	69	74	86	94	114	137	170	219	235	280	342	357	450	474	570	597
Taiwan	11,917	11,659	12,008	12,555	13,101	13,123	13,600	14,416	13,730	14,706	15,670	15,602	15,701	15,724	15,248	15,626
Thailand	2,980	3,409	3,695	3,721	4,204	4,842	5,721	6,141	6,071	6,945	7,342	7,930	8,548	8,699	8,480	8,952
Vietnam	389	408	458	534	630	739	855	1,079	1,134	1,215	1,165	1,223	1,318	1,433	1,356	1,447
Australia and Oceania																
Australia	14,253	15,741	20,107	24,109	25,224	26,446	31,392	32,513	32,304	38,178	43,660	44,053	41,418	38,486	35,675	37,329
New Zealand	2,100	2,521	3,334	3,893	4,241	3,766	4,543	4,019	3,705	4,210	4,847	4,958	5,718	6,025	5,362	5,500

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-12

Value added of computer programming and related services, by region, country, or economy: 2001–2016

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	504,255	542,661	597,652	672,881	715,651	769,005	860,541	942,926	913,419	958,799	1,033,023	1,049,867	1,070,963	1,115,735	1,114,294	1,143,400
North America																
Canada	10,439	10,916	13,021	14,948	17,242	20,058	21,985	22,936	22,527	25,779	29,645	31,333	31,928	32,014	30,586	29,679
Mexico	905	893	862	995	1,149	1,202	1,318	1,428	1,199	1,360	1,436	1,461	1,514	1,635	1,542	1,499
United States	203,206	224,273	234,416	260,388	276,765	298,295	317,890	337,408	334,236	353,010	380,897	403,544	427,908	461,958	495,898	516,970
Central and South America																
Argentina	4,090	1,245	1,388	1,732	2,085	2,522	3,230	4,040	3,910	4,559	5,363	5,659	5,909	5,034	5,919	4,648
Bolivia	54	48	46	47	46	50	56	65	73	78	86	98	108	114	134	147
Brazil	4,165	3,634	4,015	4,999	7,049	8,035	10,838	11,181	12,035	14,609	17,950	17,904	19,152	19,601	15,129	12,672
Chile	916	794	891	1,133	1,425	1,692	1,949	2,448	2,472	3,139	3,906	4,391	4,858	4,579	4,545	4,785
Colombia	852	1,259	1,180	1,421	1,781	1,936	2,431	2,816	2,834	3,545	3,949	4,392	4,533	4,541	3,813	3,730
Costa Rica	103	107	109	115	120	141	169	199	220	292	356	413	465	483	535	595
Ecuador	117	154	173	184	200	222	259	295	310	371	428	485	564	589	622	648
Honduras	28	32	35	38	41	46	54	59	65	72	77	82	86	90	92	97
Jamaica	63	68	63	69	78	83	92	104	97	118	127	130	122	116	122	126
Panama	166	178	190	201	217	241	249	281	313	356	402	449	527	591	662	719

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Peru	473	488	511	552	606	667	766	887	967	1,138	1,278	1,481	1,633	1,718	1,775	1,832
Uruguay	306	189	144	150	190	215	258	353	404	554	665	764	885	914	916	928
Venezuela	743	534	415	451	491	581	701	936	1,213	811	1,029	1,336	1,301	1,029	1,626	303
Europe																
EU	147,110	162,743	193,454	227,062	238,071	257,743	303,811	335,225	303,924	296,092	309,567	291,689	299,142	310,991	291,790	290,709
Austria	2,183	2,767	3,122	3,581	3,872	4,154	4,627	5,104	4,830	4,688	5,190	4,704	4,797	4,695	3,911	3,950
Belgium	3,323	3,470	4,157	4,658	4,915	5,334	6,598	7,744	7,312	7,128	7,890	7,443	7,763	7,880	7,106	7,272
Bulgaria	55	64	83	107	124	143	190	227	237	208	237	212	224	224	202	217
Czech Republic	746	1,106	1,143	1,239	1,686	2,153	2,750	3,859	3,556	3,500	3,922	3,360	3,197	3,095	3,033	3,175
Denmark	2,315	2,630	3,193	3,688	3,473	4,129	5,009	6,451	6,351	6,322	6,891	6,673	6,906	7,455	7,055	7,078
Finland	2,102	2,162	2,620	3,336	3,594	3,899	4,738	5,440	5,057	5,115	5,649	5,649	6,090	6,446	5,914	6,167
France	31,323	33,458	40,068	45,989	46,779	51,604	59,718	68,703	65,601	59,437	60,661	56,892	58,892	59,370	55,728	56,845
Germany	28,659	29,379	32,920	37,708	39,174	40,761	49,094	56,945	54,023	53,061	53,118	51,010	53,843	56,376	51,583	53,258
Greece	198	589	751	1,084	1,176	1,181	1,295	1,536	1,713	1,623	1,296	998	876	773	682	677
Hungary	619	810	951	1,165	1,333	1,550	1,955	2,361	2,156	2,194	2,324	2,167	2,265	2,331	2,066	2,052
Ireland	2,894	3,084	3,379	3,770	6,870	8,085	9,135	10,047	8,076	8,010	8,676	7,625	7,255	7,466	7,140	7,307
Italy	16,292	20,083	24,074	25,668	26,164	26,791	31,303	34,250	32,279	30,931	30,520	27,298	27,186	26,250	22,998	23,186
Netherlands	7,351	7,323	8,781	10,013	10,972	12,310	15,270	17,407	15,919	14,683	15,633	14,087	14,318	14,243	12,807	13,089
Poland	1,507	1,754	2,062	2,570	2,691	3,029	3,742	4,686	4,578	5,051	4,881	4,859	5,120	5,236	4,728	4,836

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Portugal	792	955	1,189	1,391	1,504	1,661	1,899	2,136	2,186	2,142	1,894	1,642	1,670	1,658	1,490	1,508
Romania	181	232	319	382	602	925	1,665	2,078	1,702	1,725	1,918	2,179	2,428	2,639	2,654	2,807
Slovakia	196	192	256	392	490	654	1,101	1,339	1,306	1,288	1,354	1,242	1,403	1,338	1,183	1,206
Spain	7,199	8,687	11,058	12,680	13,359	14,578	17,238	19,912	18,735	17,325	15,188	12,544	12,105	11,177	10,104	10,618
Sweden	6,078	6,129	7,496	9,473	9,916	10,170	11,825	13,400	11,002	12,436	14,277	13,954	14,596	14,314	13,451	13,953
United Kingdom	33,099	37,868	45,833	58,167	59,376	64,635	74,658	71,600	57,305	59,225	68,048	67,151	68,209	78,026	77,954	71,507
Other Europe																
Norway	2,185	2,533	2,846	3,658	4,392	4,419	5,806	6,422	5,876	6,253	7,144	7,241	7,438	7,530	6,154	6,038
Russia	1,419	1,409	1,760	1,718	2,619	3,728	5,800	8,653	7,081	8,517	9,996	13,046	12,397	11,116	7,818	7,226
Switzerland	5,566	6,289	6,704	7,683	7,930	8,193	8,691	10,286	10,751	11,796	14,067	13,995	14,573	15,364	15,158	15,067
Turkey	1,824	2,131	2,748	3,635	4,674	5,744	7,466	8,884	8,725	9,587	9,257	9,556	9,848	9,459	8,763	8,956
Ukraine	198	233	262	365	490	625	1,012	1,303	987	1,065	1,270	1,572	1,615	1,062	798	777
Middle East																
Bahrain	64	68	73	83	96	108	124	139	139	151	143	149	154	165	171	177
Iran	898	1,140	1,396	1,662	1,951	2,482	3,303	4,090	4,297	4,638	5,702	4,199	3,144	3,645	3,614	3,852
Israel	1,904	1,784	1,866	1,995	2,129	2,357	2,707	3,300	3,479	3,871	4,198	4,061	4,652	4,837	4,971	5,265
Jordan	105	107	113	121	121	127	135	144	156	174	188	202	216	230	246	271
Kuwait	32	39	44	47	52	54	59	63	58	66	115	117	121	131	108	107
Qatar	65	68	71	136	168	386	578	721	723	740	792	867	924	1,079	1,174	1,255

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	937	959	980	1,059	1,116	1,195	1,303	1,540	1,826	2,093	2,325	3,059	3,771	4,175	3,928	3,967
United Arab Emirates	861	992	1,141	1,367	1,549	1,774	2,420	2,773	2,502	2,582	2,770	3,048	3,161	3,488	3,468	3,421
Africa																
Cameroon	47	52	66	75	81	87	95	110	112	112	125	126	141	151	140	156
Egypt	256	237	190	178	249	308	297	361	424	480	1,346	1,423	1,398	1,457	1,666	1,707
Kenya	81	84	95	97	110	130	147	173	170	172	165	198	204	226	242	269
Morocco	278	314	398	465	520	582	713	784	834	828	916	904	966	1,003	959	994
Nigeria	1,080	1,337	1,379	1,325	1,662	1,745	1,867	2,379	2,051	2,594	2,988	3,773	4,321	4,841	4,447	4,817
Senegal	39	45	55	64	67	74	91	110	105	105	118	112	123	129	132	144
South Africa	204	192	323	430	487	514	585	555	644	908	992	895	808	795	741	666
Tunisia	187	210	252	278	286	319	360	400	417	435	474	451	486	512	462	473
Zimbabwe	16	10	54	15	5	2	3	3	5	6	7	9	10	11	13	15
Asia																
Bangladesh	320	331	353	371	370	440	480	533	620	694	727	766	943	1,107	1,294	1,426
China	2,985	3,170	3,405	3,886	4,441	5,122	6,211	7,289	7,752	8,499	10,341	11,936	14,155	16,756	19,530	21,533
India	2,971	3,170	3,722	4,873	5,813	6,762	8,812	10,453	11,509	14,613	17,238	18,028	19,126	20,697	21,302	23,862
Indonesia	446	616	790	886	1,005	1,271	1,441	1,692	1,952	2,681	3,227	3,292	3,339	3,337	3,521	3,978
Japan	87,898	87,535	92,445	95,322	94,932	91,329	93,306	107,141	113,302	121,217	123,723	121,246	98,055	88,765	83,101	91,566
Malaysia	338	358	377	396	534	600	723	829	878	1,055	1,181	1,273	1,376	1,455	1,395	1,482

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	163	203	230	262	339	670	738	724	692	741	821	843	875	1,001	1,160	1,273
Philippines	524	560	594	656	761	936	1,173	1,436	1,500	1,732	1,995	2,313	2,598	2,701	3,004	3,295
Singapore	641	676	706	764	871	1,052	1,379	1,737	1,781	2,221	2,694	2,936	3,217	3,342	3,221	3,122
South Korea	6,069	7,235	7,842	8,692	10,697	12,702	13,964	12,019	10,504	12,989	14,139	14,833	15,425	16,069	14,783	15,352
Sri Lanka	38	55	55	56	65	74	85	100	112	124	143	138	165	215	271	291
Taiwan	2,364	2,371	2,486	2,670	2,871	3,190	3,617	3,954	3,740	3,998	4,154	4,305	4,497	4,561	4,657	4,831
Thailand	682	792	903	1,025	1,120	1,310	1,489	1,625	1,502	1,778	1,975	2,188	2,313	2,364	2,455	2,528
Vietnam	117	128	141	159	165	179	210	262	299	526	589	621	723	777	853	924
Australia and Oceania																
Australia	6,086	6,921	8,858	10,674	11,909	13,278	15,657	17,559	17,334	20,628	25,008	27,688	28,262	29,805	27,919	27,439
New Zealand	631	751	1,016	1,251	1,447	1,405	1,637	1,718	1,783	2,247	2,807	2,847	4,789	5,384	4,941	4,773

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries/economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 15 November 2016.

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APPENDIX TABLE 6-13

Value added of all manufacturing industries, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	5,251,818	5,363,747	5,993,882	6,751,532	7,244,049	7,851,140	8,838,779	9,584,206	8,751,713	10,023,016	11,255,875	11,423,418	11,674,103	11,926,212	11,432,231	11,429,595
North America																
Canada	120,132	121,009	134,097	150,255	160,537	170,920	179,445	169,505	142,697	167,012	184,230	189,309	183,268	185,346	160,241	155,021
Mexico	131,671	133,074	124,058	135,204	144,221	169,320	175,694	183,474	143,752	175,233	193,758	206,683	213,971	218,529	205,101	185,190
United States	1,503,417	1,499,771	1,558,395	1,648,102	1,732,408	1,833,865	1,885,205	1,844,693	1,755,476	1,859,246	1,938,513	2,016,100	2,068,215	2,133,761	2,206,680	2,229,571
Central and South America																
Argentina	25,382	12,519	16,699	21,151	26,120	31,249	38,584	50,489	43,569	53,503	65,415	69,083	68,752	59,919	66,865	55,442
Bolivia	903	861	867	924	942	1,096	1,265	1,573	1,712	1,881	2,081	2,329	2,567	2,711	3,071	3,600
Brazil	117,390	109,128	125,561	155,325	195,784	238,775	292,905	371,022	317,837	430,950	498,991	452,566	449,364	428,005	284,605	270,483
Chile	14,352	12,514	12,627	15,512	17,344	19,690	20,747	20,108	19,463	23,528	27,494	28,654	29,834	29,138	27,657	27,084
Colombia	13,884	13,747	13,475	16,875	20,718	23,169	29,984	33,890	30,519	36,868	42,198	46,025	45,818	44,001	33,241	31,542
Costa Rica	2,784	2,884	2,954	3,143	3,381	3,744	4,337	4,662	4,351	5,390	5,972	6,138	6,116	6,168	6,258	6,316
Ecuador	4,634	5,016	5,261	5,525	5,864	6,387	7,004	8,465	8,677	9,322	10,339	11,390	12,393	13,956	14,375	13,979
Honduras	1,503	1,564	1,628	1,699	1,862	2,071	2,219	2,472	2,426	2,619	3,045	3,277	3,199	3,323	3,504	3,459
Panama	858	895	891	786	807	856	1,149	1,305	1,463	1,481	1,538	1,699	1,855	1,972	2,105	2,107
Peru	8,110	8,493	9,046	10,934	12,593	14,604	16,882	19,656	18,482	22,950	25,923	29,222	29,836	28,135	24,942	23,980

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	2,214	1,910	1,434	1,720	2,041	2,548	2,959	3,788	3,423	4,015	4,349	5,109	5,452	5,707	5,355	5,033
Venezuela	24,721	16,991	15,700	20,959	25,827	30,599	37,793	54,009	54,882	35,705	45,460	54,247	51,193	41,140	67,105	12,007
Europe																
EU	1,382,071	1,461,512	1,732,316	1,971,577	2,029,149	2,151,904	2,476,848	2,592,593	2,125,827	2,199,975	2,419,248	2,232,819	2,327,099	2,414,712	2,179,903	2,151,578
Austria	34,709	36,449	43,856	50,058	52,791	57,297	67,686	71,399	61,712	63,015	70,807	67,516	70,240	71,703	63,927	64,345
Belgium	37,427	39,967	47,137	54,535	55,877	57,671	64,943	67,782	56,793	57,940	63,408	59,135	61,714	62,311	56,499	55,885
Bulgaria	1,824	2,190	2,885	3,282	4,018	4,568	6,196	6,687	6,616	5,793	7,932	7,366	7,020	7,490	6,369	6,356
Czech Republic	15,183	17,604	20,788	25,983	29,923	34,377	41,798	49,574	40,110	41,172	46,601	42,095	41,964	45,013	41,351	41,837
Denmark	20,865	22,478	26,157	28,876	29,494	31,438	35,606	37,749	31,431	30,719	31,138	30,330	33,022	34,018	31,969	32,504
Finland	27,475	28,712	33,469	37,501	38,187	41,773	50,178	51,163	35,003	35,938	39,196	32,748	34,622	35,051	30,499	30,028
France	176,558	183,162	216,315	240,209	241,793	241,347	275,182	286,529	250,353	237,611	251,264	230,136	242,219	239,163	207,221	205,222
Germany	373,680	389,158	472,233	540,214	549,056	595,954	687,650	720,190	572,554	637,982	729,296	685,377	720,343	764,844	668,296	668,217
Greece	13,539	15,145	18,490	21,044	21,262	23,118	26,956	30,116	25,217	21,661	22,491	19,757	20,421	19,476	15,724	15,720
Hungary	10,093	12,265	15,434	19,279	21,141	22,170	25,763	28,361	21,550	24,218	26,293	23,375	25,017	26,786	24,887	24,495
Ireland	27,578	34,253	38,382	40,979	41,445	43,072	48,443	48,089	48,005	44,546	52,980	44,312	44,353	44,840	88,369	88,687
Italy	197,776	210,623	250,149	283,043	285,662	300,876	349,209	365,690	301,109	297,364	313,527	275,767	283,388	287,592	241,320	240,921
Netherlands	49,430	52,293	63,784	73,094	76,316	78,715	92,271	99,079	83,414	86,195	96,810	88,329	88,170	89,905	80,446	79,715
Poland	27,829	28,547	33,861	42,784	49,083	57,011	70,255	85,921	71,080	74,557	84,078	81,734	83,355	90,035	81,301	80,260
Portugal	17,837	19,060	22,223	24,683	24,763	25,746	29,407	31,268	27,139	27,575	27,752	24,627	26,129	26,716	23,338	22,874

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	8,895	10,047	12,167	15,926	20,940	25,749	33,491	39,960	32,512	35,815	39,795	34,054	38,873	39,134	32,866	33,057
Slovakia	4,802	5,018	6,995	9,072	10,224	12,089	16,146	19,506	14,300	16,911	18,735	17,795	18,125	19,032	16,306	16,742
Spain	99,206	108,477	135,208	154,790	163,119	175,166	199,338	217,682	184,140	174,064	184,159	160,649	163,557	166,593	145,020	145,439
Sweden	40,014	43,594	53,557	61,388	62,637	67,013	77,319	73,026	54,606	68,564	79,361	72,289	75,713	73,291	66,555	66,594
United Kingdom	197,348	202,472	219,226	244,839	251,419	256,753	279,011	262,823	208,183	218,335	233,624	235,429	248,852	271,720	257,640	232,678
Other Europe																
Norway	14,882	16,650	19,390	21,691	24,319	27,736	31,990	34,487	27,189	28,969	33,476	33,935	34,335	33,151	27,805	25,803
Russia	46,750	52,092	61,226	88,777	118,037	149,093	193,236	243,992	155,410	193,116	250,784	251,021	267,290	245,090	154,953	158,079
Switzerland	51,157	56,668	65,616	73,583	76,792	82,311	92,343	108,346	99,258	107,432	130,935	122,216	125,151	126,502	116,615	113,810
Turkey	37,056	41,024	53,289	67,564	82,681	90,538	107,975	117,183	92,673	113,621	124,878	122,256	126,131	126,329	111,862	107,124
Ukraine	6,421	7,441	9,125	11,771	16,517	20,977	27,374	29,884	17,402	17,982	19,413	21,763	20,650	16,305	10,931	10,789
Middle East																
Bahrain	944	985	1,080	1,174	1,573	2,121	2,731	3,462	2,752	3,182	3,688	3,889	4,120	4,237	4,158	4,047
Iran	10,762	13,746	17,302	20,997	23,154	29,293	36,361	40,223	44,669	48,135	73,583	55,169	39,157	45,474	43,254	45,497
Israel	16,922	14,883	15,602	16,633	18,125	20,108	24,201	27,845	25,041	28,188	31,148	31,749	32,000	32,220	30,866	30,995
Jordan	1,426	1,537	1,699	2,153	2,401	2,644	3,146	4,060	3,905	4,828	5,253	5,437	6,105	6,300	6,601	6,460
Kuwait	2,174	2,930	3,713	4,851	5,789	5,480	6,261	6,424	5,349	6,667	8,115	9,595	9,627	8,590	6,100	5,649
Oman	1,709	1,739	1,919	2,135	2,679	4,193	4,526	6,386	5,602	6,203	7,750	8,213	8,529	7,832	6,780	6,101
Qatar	1,074	1,395	1,800	3,638	4,394	5,664	7,365	12,322	9,223	11,218	15,876	19,662	20,280	20,916	15,950	15,577

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	14,174	14,915	18,645	20,384	24,173	27,353	35,245	36,777	38,794	49,498	54,433	58,227	57,551	63,869	64,524	59,017
United Arab Emirates	2,745	2,863	3,043	3,396	3,823	4,280	4,645	5,414	4,652	5,014	5,853	6,411	6,682	6,797	6,451	6,382
Africa																
Cameroon	524	500	554	746	789	823	926	1,594	1,598	1,614	1,817	1,809	2,021	2,190	1,943	2,047
Egypt	7,011	6,505	6,967	7,428	9,419	10,580	12,485	15,727	18,238	21,123	22,906	25,002	23,901	26,468	24,816	19,801
Ghana	883	1,027	1,264	1,432	1,713	1,990	2,128	2,152	1,759	2,056	2,544	2,319	2,423	1,844	1,677	1,819
Kenya	1,799	1,831	2,050	2,280	2,797	3,277	4,088	4,342	4,428	4,502	4,930	5,553	5,787	6,135	6,560	6,935
Morocco	4,876	5,334	5,886	6,382	7,600	7,762	8,947	9,933	9,606	11,189	13,644	12,844	14,480	15,770	14,311	13,861
Nigeria	4,009	4,038	5,575	8,347	11,131	14,006	15,406	19,476	13,373	23,810	29,820	35,954	46,591	55,504	46,605	36,504
Senegal	236	320	384	505	487	506	623	686	690	689	792	734	719	710	637	687
South Africa	20,318	19,727	29,006	37,451	40,364	40,159	42,708	40,884	38,808	45,503	45,375	46,077	42,905	40,870	36,858	33,471
Tunisia	3,910	3,845	4,396	4,900	5,031	5,531	6,837	8,357	7,422	8,322	8,577	8,320	8,604	8,773	7,832	7,250
Asia																
Bangladesh	6,851	7,222	7,878	8,658	9,140	10,711	12,720	14,777	16,831	18,460	19,764	20,523	25,242	28,760	32,646	36,383
China	356,667	389,988	466,262	561,413	676,368	839,508	1,085,145	1,424,781	1,554,264	1,928,849	2,392,933	2,654,067	2,901,826	3,042,168	3,169,807	3,264,639
India	76,786	79,912	93,835	113,336	135,153	159,588	201,547	214,114	216,750	267,722	302,172	294,514	292,657	302,386	309,401	311,594
Indonesia	44,230	53,316	62,936	68,395	74,341	95,257	110,926	134,655	134,945	166,412	194,203	196,954	192,027	186,991	179,701	191,386
Japan	818,633	765,122	833,084	910,410	904,555	862,153	879,503	954,591	890,789	1,074,659	1,093,635	1,101,980	904,665	851,670	768,037	828,114
Malaysia	27,219	29,494	32,982	37,897	39,543	44,848	50,560	56,689	48,138	59,760	69,492	72,749	73,859	77,422	67,539	65,173

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	7,632	8,365	9,762	12,039	14,843	17,675	20,185	22,340	20,548	22,817	29,283	30,083	29,828	32,969	31,031	31,795
Philippines	18,811	20,089	20,677	21,882	24,792	28,868	33,971	39,728	35,789	42,802	47,276	51,406	55,491	58,653	58,652	59,690
Singapore	20,743	22,536	23,711	30,486	33,692	38,295	41,617	38,293	37,665	47,471	52,124	54,183	52,117	54,155	54,209	53,398
South Korea	119,251	133,637	147,635	179,711	208,615	231,402	256,776	232,485	208,765	276,175	311,916	316,839	347,405	371,549	349,040	327,802
Sri Lanka	2,609	2,698	3,432	3,864	4,640	5,770	6,645	8,598	8,943	10,242	12,030	13,312	13,350	14,102	14,924	14,392
Taiwan	72,344	80,139	87,366	98,249	104,802	107,714	114,607	113,115	103,523	129,252	139,207	139,153	146,452	159,148	156,859	149,382
Thailand	18,462	33,170	38,483	42,983	47,279	48,161	57,107	64,386	58,678	73,335	75,840	83,503	86,371	81,196	76,087	75,380
Vietnam	6,426	7,173	8,040	9,181	10,848	12,863	15,003	18,418	19,402	20,708	24,455	27,098	29,953	32,505	26,492	28,451
Australia and Oceania																
Australia	41,149	47,281	60,908	70,202	75,388	76,256	90,988	89,053	81,214	95,921	108,991	105,076	98,278	92,499	79,853	79,105
New Zealand	8,219	9,723	12,350	14,912	16,664	14,846	16,910	16,522	13,076	15,893	18,412	19,172	20,612	21,639	18,855	18,814

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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 APPENDIX TABLE 6-14 
Value added of semiconductor industry, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	177,305	188,975	222,029	249,065	260,912	283,339	299,319	303,543	263,684	348,325	340,584	359,548	375,892	396,140	385,046	383,252
North America																
Canada	1,091	833	1,248	1,360	1,279	1,404	1,164	1,099	971	1,176	1,212	1,112	1,027	1,084	783	755
Mexico	2,072	1,746	1,496	1,606	1,673	1,901	1,953	1,817	1,685	1,859	1,965	2,098	2,060	2,247	2,593	2,246
United States	50,507	53,995	63,003	65,309	69,868	68,607	70,786	73,703	68,429	86,402	91,316	86,347	84,844	86,914	89,141	82,915
Central and South America																
Argentina	11	3	5	9	12	13	15	18	16	23	32	34	33	30	27	22
Bolivia	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Brazil	528	495	380	523	506	936	794	854	446	669	841	761	700	627	356	303
Chile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	1	1	1	1	2	2	10	4	7	10	5	6	7	8	6	5
Costa Rica	11	10	11	13	14	16	19	21	19	24	27	29	31	30	29	28
Ecuador	8	8	9	9	9	9	9	11	13	13	14	16	17	21	21	19
Honduras	2	2	2	2	2	3	3	3	3	3	3	4	3	4	4	4
Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	7	16	22	29	33	38	44	54	42	56	53	74	82	77	68	64

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	116	80	74	98	121	143	177	271	316	190	234	279	264	213	347	68
Europe																
EU	18,519	19,255	21,993	27,543	26,903	28,264	32,322	31,197	23,394	25,128	24,752	20,816	21,511	22,212	18,757	18,328
Austria	977	943	1,054	1,236	1,360	1,523	968	981	796	979	971	892	955	961	846	904
Belgium	601	601	701	700	703	737	761	728	573	416	433	391	373	362	306	297
Bulgaria	15	12	29	21	29	33	48	56	24	35	46	49	31	33	27	27
Czech Republic	146	191	216	268	323	374	439	469	265	293	302	211	239	280	240	237
Denmark	288	381	358	339	335	358	500	410	345	374	374	365	331	337	316	308
Finland	2,337	2,951	3,492	3,661	3,774	4,131	5,338	4,943	2,180	2,144	1,531	1,268	1,305	1,295	1,123	1,087
France	2,839	2,928	2,983	3,362	3,098	2,947	3,145	3,071	2,801	2,448	2,531	1,767	2,063	1,993	1,443	1,386
Germany	3,902	4,307	5,658	7,170	6,670	7,121	9,229	8,458	6,448	7,267	8,450	7,013	7,304	8,011	6,410	6,353
Greece	45	47	51	43	34	35	40	49	35	38	34	42	31	19	17	16
Hungary	297	365	606	838	976	978	867	980	790	907	829	577	539	534	499	513
Ireland	640	478	589	791	743	1,099	1,016	890	600	416	302	338	224	226	377	449
Italy	2,127	2,150	2,925	3,357	3,375	3,315	3,743	3,817	3,433	3,782	2,706	1,768	2,008	2,220	1,810	1,863
Netherlands	529	320	323	359	405	304	363	337	300	350	398	378	371	378	354	352
Poland	161	167	188	243	317	299	384	425	355	367	453	479	469	488	383	365
Portugal	132	150	185	215	259	265	308	304	67	70	55	71	73	61	36	34

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	60	58	68	92	68	92	143	174	122	144	164	211	196	207	174	155
Slovakia	28	35	57	78	98	125	182	221	134	211	130	123	127	140	117	116
Spain	476	534	593	634	497	547	691	612	487	512	457	378	375	397	380	395
Sweden	200	466	571	1,962	1,817	1,987	2,042	1,984	1,731	2,251	2,405	2,211	2,136	1,935	1,853	1,773
United Kingdom	2,719	2,171	1,346	2,173	2,022	1,993	2,116	2,287	1,908	2,126	2,182	2,284	2,364	2,336	2,045	1,700
Other Europe																
Norway	216	191	253	239	265	258	347	353	281	286	304	295	301	294	265	224
Russia	74	135	201	371	495	652	991	1,180	872	1,013	1,385	1,320	1,654	1,753	1,284	1,244
Switzerland	902	977	1,139	1,271	1,298	1,354	1,498	1,732	1,482	1,448	1,660	1,529	1,583	1,543	1,372	1,198
Turkey	48	11	42	64	117	60	41	50	22	67	90	102	104	107	95	88
Ukraine	17	20	18	26	26	31	40	48	22	27	30	27	25	13	2	3
Middle East																
Bahrain	10	10	11	12	16	22	28	36	29	33	38	40	43	44	37	35
Iran	4	8	16	13	11	12	12	14	17	16	24	18	13	15	14	15
Israel	2,149	1,580	1,614	1,610	1,781	1,809	2,007	1,787	2,318	2,251	2,086	4,054	3,727	3,683	2,546	2,142
Jordan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	1	1	1	2	2	1	1	2	2	2	3	4	5	4	2	2
Oman	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
Qatar	0	0	0	0	0	1	2	1	1	6	8	10	10	10	10	9

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	10	11	15	17	22	26	31	33	35	48	57	62	63	72	53	45
United Arab Emirates	5	5	5	6	6	7	8	9	8	8	10	11	11	11	10	10
Africa																
Cameroon	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1
Egypt	1	1	1	1	1	2	2	3	3	4	4	5	6	7	9	8
Ghana	2	2	2	2	3	3	4	4	3	3	4	4	4	4	3	3
Kenya	9	9	10	12	14	8	19	21	22	24	29	29	30	31	32	32
Morocco	138	157	189	225	295	313	287	266	289	323	413	305	384	375	335	305
Nigeria	3	5	6	8	12	19	24	34	30	42	59	73	101	124	107	80
Senegal	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
South Africa	16	15	24	30	30	27	27	24	23	25	24	28	27	30	25	21
Tunisia	29	23	31	33	41	50	65	93	89	123	107	104	106	103	87	78
Asia																
Bangladesh	21	20	20	19	19	18	17	19	23	26	25	26	28	33	46	51
China	14,758	16,891	20,600	24,801	27,534	35,003	40,773	49,977	47,141	67,257	77,277	85,731	98,582	111,492	118,959	120,030
India	304	342	406	361	530	614	789	799	1,066	951	1,008	731	540	265	208	201
Indonesia	396	866	990	1,002	782	1,181	1,827	2,065	1,956	1,768	1,748	1,739	2,633	2,632	2,544	2,632
Japan	53,260	52,702	61,436	62,498	62,181	65,362	62,225	57,060	43,334	63,692	38,157	51,439	37,944	33,375	25,934	32,115
Malaysia	3,874	3,207	3,767	4,546	4,269	4,381	5,345	5,121	3,942	5,589	6,685	7,781	9,648	10,246	8,790	8,851

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	5	6	8	11	13	2	2	3	2	3	3	3	3	4	4	4
Philippines	629	770	651	774	802	969	1,376	751	841	915	898	950	1,027	1,090	1,122	1,023
Singapore	2,355	2,832	3,665	4,677	5,532	7,095	7,577	6,625	5,750	9,446	8,125	8,158	8,853	8,664	6,595	7,441
South Korea	9,281	11,142	13,053	18,817	20,472	23,007	24,334	21,340	19,064	28,577	31,461	32,346	40,707	39,729	39,500	38,955
Sri Lanka	5	6	7	7	10	62	31	17	17	18	21	21	24	29	30	29
Taiwan	13,961	17,448	21,880	27,195	29,777	34,865	36,341	38,467	33,343	40,358	40,864	44,080	49,874	59,304	56,793	55,646
Thailand	1,699	2,817	3,348	3,425	3,570	4,181	5,159	5,746	5,492	7,363	6,173	5,308	5,525	5,839	4,644	4,572
Vietnam	54	65	67	77	92	124	190	202	252	322	468	640	805	886	766	743
Australia and Oceania																
Australia	153	209	248	337	385	404	479	497	478	610	740	866	786	721	574	551
New Zealand	43	45	61	73	85	79	120	110	93	125	132	129	130	135	112	108

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-15

Value added of computers and office machinery, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	106,840	92,898	96,516	95,191	98,435	100,964	104,829	108,734	94,512	94,194	89,702	101,775	103,721	99,569	91,697	87,919
North America																
Canada	885	912	1,090	1,151	1,101	991	810	703	608	706	690	587	507	429	493	435
Mexico	6,161	5,149	3,141	2,436	2,750	3,136	3,048	2,080	1,374	1,431	1,449	1,512	1,553	2,129	2,079	1,805
United States	34,091	33,288	35,879	33,885	36,725	39,846	38,510	41,527	38,708	31,202	24,658	28,012	31,235	30,900	30,106	28,753
Central and South America																
Argentina	21	2	3	3	4	4	5	5	5	6	7	7	6	5	4	3
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	1,663	826	811	771	1,021	1,405	1,912	2,822	2,152	2,553	2,489	2,591	2,238	2,077	744	577
Chile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	2	2	2	3	4	4	5	6	6	7	8	9	9	9	7	6
Costa Rica	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1
Ecuador	88	95	99	104	100	104	107	126	147	151	160	180	195	242	239	219
Honduras	15	16	16	17	18	20	22	23	25	24	28	30	28	30	30	29
Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	66	158	223	287	334	383	442	536	423	558	533	740	818	771	679	629

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	0	0	0	0	3	3	3	5	5	6	7	8	8	11	9	8
Venezuela	1	0	0	0	1	1	1	1	1	1	1	1	1	1	2	0
Europe																
EU	10,424	9,672	10,905	13,567	14,019	13,353	14,600	13,364	9,110	9,448	9,230	8,929	8,478	8,900	7,208	6,463
Austria	53	65	71	56	92	93	87	74	71	86	83	76	81	82	72	76
Belgium	60	60	73	87	84	88	133	168	180	199	207	187	178	173	146	144
Bulgaria	14	11	7	5	4	4	6	7	3	4	4	6	5	5	4	4
Czech Republic	84	41	96	71	99	106	128	170	207	223	241	168	190	223	191	188
Denmark	89	93	111	102	109	109	104	82	102	110	110	108	97	99	93	92
Finland	20	13	19	24	24	33	38	36	27	27	19	16	16	16	14	14
France	630	687	946	778	583	468	564	539	458	382	400	326	264	176	117	100
Germany	2,372	2,613	3,328	4,179	3,848	3,723	4,799	4,393	1,982	2,352	2,688	2,561	2,287	2,370	1,222	1,058
Greece	283	180	174	192	107	69	39	21	15	16	14	16	16	16	15	14
Hungary	145	111	279	443	511	337	242	274	194	223	204	142	133	131	123	124
Ireland	1,209	833	1,318	1,683	1,603	1,536	1,429	1,252	844	360	300	380	329	332	555	632
Italy	774	470	518	740	699	761	824	828	509	558	163	105	56	61	50	46
Netherlands	303	219	198	234	236	232	226	211	175	204	232	205	205	210	162	161
Poland	171	189	213	244	204	192	246	273	228	215	245	194	172	179	140	136
Portugal	22	25	30	32	32	33	38	38	62	51	47	34	50	43	21	20

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	31	20	31	39	27	41	49	41	17	17	15	11	8	6	5	4
Slovakia	10	14	18	30	32	19	28	34	21	33	22	43	37	41	35	34
Spain	383	261	214	175	169	186	235	209	166	175	139	127	102	97	76	68
Sweden	128	165	216	314	243	226	238	223	189	247	264	242	234	212	203	192
United Kingdom	3,643	3,602	3,045	4,140	5,316	5,097	5,147	4,493	3,659	3,968	3,835	3,983	4,017	4,427	3,964	3,355
Other Europe																
Norway	29	11	30	20	24	13	17	17	14	14	15	14	14	14	12	11
Russia	118	88	57	93	150	230	387	373	399	498	608	830	745	569	266	241
Switzerland	440	288	268	301	323	335	390	522	468	493	585	545	541	537	478	407
Turkey	121	117	147	151	156	117	94	90	43	114	147	231	257	265	236	218
Ukraine	28	34	43	39	47	58	73	77	38	63	64	60	108	59	9	11
Middle East																
Bahrain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iran	18	23	18	36	42	34	40	70	218	163	249	187	141	154	147	154
Israel	229	170	181	169	152	180	216	243	248	230	216	136	132	136	126	125
Jordan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	7	11	14	20	20	11	17	19	22	29	35	48	53	47	29	27
Oman	1	1	1	2	2	2	3	3	4	10	19	9	9	8	7	6
Qatar	3	4	5	1	7	9	25	22	17	86	122	151	156	164	151	145

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	85	92	119	137	176	215	261	271	300	412	484	530	536	614	455	395
United Arab Emirates	47	49	52	58	65	73	79	92	79	85	99	109	114	116	102	99
Africa																
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	6	6	5	6	7	8	10	13	14	18	21	23	18	19	20	20
Ghana	7	8	10	11	13	15	16	16	13	16	19	18	18	16	13	14
Kenya	4	7	8	9	10	25	14	13	12	8	8	10	11	12	12	13
Morocco	54	61	74	88	115	122	112	104	113	126	139	127	198	252	226	211
Nigeria	64	85	90	101	120	142	155	168	171	183	188	203	222	229	210	157
Senegal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	5	4	7	8	9	9	9	9	10	12	10	11	11	10	9	8
Tunisia	0	0	0	0	0	0	2	3	3	4	3	3	3	3	3	3
Asia																
Bangladesh	10	11	11	11	11	11	9	9	9	10	9	9	8	8	10	10
China	5,413	6,222	9,800	11,965	13,544	15,211	19,752	21,377	18,504	18,294	25,149	29,753	32,241	30,426	32,168	32,239
India	558	581	683	718	495	474	527	440	527	658	530	498	384	260	212	187
Indonesia	1	1	7	6	61	98	117	134	133	158	92	89	167	167	158	161
Japan	31,307	19,077	16,531	15,085	13,295	10,704	9,239	10,675	10,537	13,625	8,163	11,004	8,207	5,864	2,984	3,223
Malaysia	2,075	2,072	2,563	2,837	2,490	2,865	3,304	2,997	1,616	1,728	2,203	2,678	2,820	2,703	2,263	2,183

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	7	7	10	14	16	17	19	22	18	21	27	28	27	30	30	31
Philippines	528	384	488	535	657	709	1,012	549	427	362	335	448	449	501	386	409
Singapore	3,993	3,969	3,416	3,540	3,207	2,717	2,274	2,919	2,737	4,267	3,614	3,952	4,346	3,839	3,001	2,658
South Korea	3,269	3,171	3,083	1,156	1,448	1,644	1,714	1,182	1,107	1,449	1,568	1,341	1,386	1,622	1,182	1,035
Sri Lanka	11	13	15	16	21	138	70	38	38	39	47	47	54	64	67	65
Taiwan	4,787	5,943	6,276	5,495	5,258	5,067	4,826	4,450	3,601	4,143	4,795	4,567	4,240	4,372	4,384	3,800
Thailand	31	38	58	70	102	119	166	194	222	254	207	201	179	183	123	105
Vietnam	60	55	76	84	105	141	170	184	90	280	373	429	576	549	414	421
Australia and Oceania																
Australia	95	158	177	154	168	167	196	202	164	209	254	840	230	211	168	163
New Zealand	18	19	25	31	36	34	48	40	30	39	41	40	41	42	35	35

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-16

Value added of communications, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	97,869	83,575	89,057	100,446	102,760	117,573	118,782	119,228	111,156	125,983	126,409	130,268	140,328	145,667	141,949	141,544
North America																
Canada	3,263	2,451	2,310	2,469	2,853	2,725	2,507	2,536	2,586	2,926	2,751	2,367	1,778	1,609	1,383	1,390
Mexico	1,769	1,400	1,211	967	1,060	1,163	1,245	1,494	1,279	1,329	1,305	1,258	1,374	1,325	1,579	1,427
United States	42,250	32,204	34,140	34,157	33,901	40,644	37,363	33,542	32,449	33,013	32,829	31,403	33,227	32,022	32,290	33,155
Central and South America																
Argentina	89	26	44	73	97	114	131	155	139	195	274	284	281	252	230	194
Bolivia	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
Brazil	2,885	1,798	1,217	2,153	2,219	2,685	2,899	3,147	1,771	2,354	2,293	3,334	4,392	4,103	2,163	1,998
Chile	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Colombia	8	9	8	13	13	16	17	9	4	5	5	5	6	7	5	5
Costa Rica	3	3	3	3	4	4	5	6	5	7	8	8	9	9	8	8
Ecuador	78	84	88	93	89	93	95	112	131	134	142	160	173	216	214	208
Honduras	18	19	20	21	23	25	27	29	30	29	34	38	35	37	37	37
Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	53	127	179	230	268	307	355	430	339	448	428	593	656	618	544	526

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	5	4	3	5	6	7	8	13	15	9	11	13	12	10	16	3
Europe																
EU	9,255	9,289	10,644	13,241	12,786	13,287	15,674	13,688	9,913	10,027	9,608	8,141	8,126	8,374	7,517	7,192
Austria	569	553	612	690	754	843	390	368	274	207	205	189	202	203	179	189
Belgium	252	257	297	285	283	296	300	235	201	410	427	386	368	357	301	307
Bulgaria	4	9	11	7	12	14	20	23	13	13	16	23	16	17	14	14
Czech Republic	60	97	103	116	147	175	193	209	108	120	123	86	98	114	98	99
Denmark	89	104	110	89	100	79	106	97	104	113	113	110	100	102	96	97
Finland	1,458	1,928	2,277	2,354	2,348	2,562	3,363	2,897	1,111	1,093	780	646	665	660	572	576
France	1,069	1,195	1,106	1,224	1,081	1,020	1,041	1,012	916	430	428	327	287	297	282	256
Germany	1,219	1,443	2,074	2,749	2,456	2,462	3,984	2,773	2,114	2,461	2,600	2,063	2,013	2,114	1,870	1,818
Greece	79	63	92	103	61	44	37	44	31	34	30	39	31	33	38	14
Hungary	169	188	316	446	522	549	425	502	402	461	422	293	274	272	254	272
Ireland	346	261	255	331	424	703	618	541	365	253	184	206	136	137	229	256
Italy	1,091	1,042	1,490	1,603	1,575	1,436	1,590	1,638	1,453	1,275	1,029	903	895	935	788	701
Netherlands	342	195	198	220	250	177	204	179	161	188	214	203	200	203	190	197
Poland	173	147	143	222	278	262	336	372	311	305	360	225	438	455	357	355
Portugal	69	55	57	61	61	62	72	72	60	71	68	61	74	62	36	35

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	39	33	40	46	54	67	144	144	65	59	27	23	31	33	28	26
Slovakia	4	5	9	12	14	23	34	41	25	39	36	31	31	34	29	30
Spain	816	536	547	589	472	520	657	582	463	487	395	312	321	408	325	198
Sweden	111	260	237	1,168	1,086	1,185	1,183	1,159	1,072	1,427	1,525	1,402	1,354	1,227	1,175	1,174
United Kingdom	1,296	918	670	927	809	807	977	801	661	581	626	611	593	710	655	577
Other Europe																
Norway	114	92	121	104	119	113	157	160	127	130	138	134	136	133	120	114
Russia	62	113	168	310	413	544	827	984	727	845	1,155	1,101	1,380	1,518	1,137	1,144
Switzerland	449	528	632	787	865	923	993	1,253	1,303	1,512	2,125	2,039	2,032	2,046	1,921	1,756
Turkey	121	31	33	32	40	23	24	20	19	18	24	24	19	19	17	17
Ukraine	74	80	109	76	78	92	119	141	65	78	87	80	28	15	2	3
Middle East																
Bahrain	5	5	5	6	8	11	14	17	14	16	18	19	21	21	18	17
Iran	31	64	72	139	83	73	110	59	83	56	85	64	48	53	50	55
Israel	1,230	968	858	1,032	994	1,200	1,445	1,611	1,347	1,314	1,433	1,247	1,258	1,323	1,226	1,266
Jordan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	14	23	29	41	42	23	35	40	46	60	74	100	110	99	84	79
Oman	2	2	2	3	3	2	8	6	8	16	29	16	17	16	13	12
Qatar	2	4	5	1	5	7	18	16	12	62	88	109	112	118	109	108

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	289	299	344	363	400	425	439	441	454	505	515	527	518	535	492	430
United Arab Emirates	53	56	59	66	74	83	90	105	90	97	113	124	130	132	117	117
Africa																
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	5	5	4	5	6	7	8	11	12	15	18	20	24	28	39	34
Ghana	14	16	20	22	27	32	34	34	28	33	41	37	39	34	27	29
Kenya	4	4	5	6	7	4	9	10	10	9	10	11	12	12	12	13
Morocco	58	66	79	94	124	131	121	112	121	136	123	178	29	36	32	31
Nigeria	35	50	59	82	128	200	250	350	308	434	609	757	1,043	1,284	1,102	874
Senegal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	39	36	57	70	72	64	64	56	55	59	57	66	65	70	58	52
Tunisia	7	5	6	6	8	9	9	14	13	18	16	15	16	15	13	12
Asia																
Bangladesh	53	54	54	53	54	54	52	57	69	77	76	78	85	100	139	159
China	9,189	10,502	12,211	15,503	16,008	20,292	19,377	23,890	26,511	31,363	31,885	34,519	42,406	51,265	54,698	57,161
India	483	541	559	698	1,072	1,241	1,596	1,616	944	390	514	642	474	232	182	184
Indonesia	1	7	20	37	26	45	70	79	75	67	69	59	80	80	79	86
Japan	17,158	11,610	11,156	10,268	9,453	8,696	8,675	11,135	9,565	11,474	6,874	9,267	6,970	4,890	3,188	3,314
Malaysia	183	604	776	951	919	1,129	1,125	972	551	614	691	768	816	1,013	828	830

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	114	125	169	240	286	46	52	59	49	58	73	76	74	81	82	86
Philippines	684	881	541	657	575	714	1,444	1,051	1,374	1,312	1,588	1,809	2,338	2,769	3,118	3,251
Singapore	887	694	654	912	1,149	1,040	383	170	172	206	204	198	217	224	194	147
South Korea	5,637	6,839	8,004	11,780	12,668	14,084	14,651	12,462	11,245	14,201	13,267	12,981	14,519	12,720	10,205	7,897
Sri Lanka	15	17	20	22	29	187	95	51	52	53	64	64	73	87	85	85
Taiwan	880	1,408	1,852	1,974	2,918	4,184	5,175	6,017	6,010	8,396	11,648	11,093	10,299	10,621	10,649	9,493
Thailand	10	24	29	31	33	30	42	47	54	54	42	34	35	41	37	38
Vietnam	18	23	24	26	28	38	34	84	274	923	1,876	3,413	3,926	4,613	5,215	5,844
Australia and Oceania																
Australia	255	368	429	595	693	727	862	894	669	855	1,037	944	856	786	625	618
New Zealand	17	18	24	29	34	32	48	44	37	50	53	52	52	54	45	45

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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 APPENDIX TABLE 6-17 
Value added of pharmaceuticals industry, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	186,303	206,456	235,067	253,096	265,877	298,474	329,389	364,074	387,625	400,832	413,806	437,079	452,700	483,810	501,462	535,417
North America																
Canada	2,716	3,357	4,084	4,120	4,223	4,968	4,450	4,176	4,116	4,540	4,284	4,694	3,801	4,084	4,409	4,858
Mexico	5,949	6,962	6,365	6,615	7,236	7,780	8,393	8,550	7,085	7,031	6,675	6,996	7,251	6,165	5,481	5,245
United States	60,841	68,297	70,237	72,266	68,083	78,980	81,021	80,902	103,049	97,619	94,009	90,967	94,415	104,118	124,961	127,253
Central and South America																
Argentina	754	188	264	329	417	506	623	830	893	1,078	1,327	1,534	1,523	1,355	1,240	1,130
Bolivia	41	41	46	45	54	49	47	75	93	88	95	99	109	117	123	152
Brazil	3,145	3,000	3,282	3,870	5,523	6,930	8,486	9,157	8,653	10,508	11,269	10,132	9,814	10,119	7,470	7,342
Chile	149	133	125	164	204	209	240	219	285	362	381	403	451	458	503	464
Colombia	574	583	547	757	771	863	1,027	1,256	1,226	1,453	1,505	1,664	1,685	1,640	1,273	1,274
Costa Rica	52	54	58	64	66	75	90	101	88	113	128	137	144	143	139	146
Ecuador	98	106	112	117	124	135	142	173	194	244	273	340	384	451	445	429
Honduras	35	33	34	30	36	36	39	44	44	41	50	56	57	58	58	61
Panama	8	8	7	8	8	9	12	13	15	15	16	25	23	24	24	26
Peru	117	146	118	119	144	172	209	248	264	277	319	343	305	309	238	266

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	67	38	44	59	71	77	89	145	144	161	182	197	218	238	251	285
Venezuela	224	153	142	189	232	275	340	522	608	365	451	537	507	409	668	138
Europe																
EU	52,561	58,340	74,461	79,052	84,506	91,140	102,670	117,035	113,902	113,256	119,573	112,582	123,320	133,091	130,025	136,764
Austria	748	1,037	1,343	1,338	1,966	2,075	3,099	2,965	3,016	3,296	3,577	3,632	3,962	4,500	4,402	4,687
Belgium	1,980	2,294	2,724	2,920	3,078	3,368	3,523	4,398	4,428	5,422	5,608	5,271	6,791	7,898	7,066	8,253
Bulgaria	44	48	67	78	89	90	111	36	73	78	106	95	103	111	99	100
Czech Republic	232	288	358	407	548	606	663	761	691	775	818	724	782	826	804	869
Denmark	1,796	1,674	2,341	2,586	3,084	2,944	2,987	2,966	3,386	4,422	4,489	5,059	5,895	6,167	5,373	5,776
Finland	312	318	371	524	639	739	831	992	1,010	1,078	1,185	1,052	1,138	1,175	1,006	1,050
France	7,923	8,407	10,620	11,195	11,852	12,641	12,942	12,274	11,102	9,683	7,725	7,913	8,771	8,688	9,388	9,488
Germany	8,646	9,156	12,576	15,265	17,760	18,944	22,364	26,138	22,943	21,918	25,055	23,935	27,357	31,200	28,959	30,972
Greece	193	255	337	420	460	548	675	787	890	700	558	544	821	783	672	725
Hungary	546	647	906	1,065	1,166	1,287	1,360	1,431	1,308	1,517	1,660	1,565	1,534	1,616	1,546	1,564
Ireland	4,512	5,895	7,666	7,827	8,342	8,854	10,896	14,278	18,170	17,021	20,252	16,978	17,098	19,867	24,100	26,238
Italy	5,580	6,233	7,577	8,101	7,672	7,757	8,541	9,554	8,928	8,251	8,106	7,780	8,893	9,429	8,821	9,370
Netherlands	1,228	1,476	1,592	1,591	1,429	1,344	1,519	1,913	2,079	1,759	1,840	1,834	1,953	2,252	2,235	2,172
Poland	716	840	945	1,085	1,319	1,244	1,595	1,940	1,516	1,730	1,646	1,233	1,733	1,844	1,521	1,578
Portugal	360	406	466	543	559	571	665	657	591	502	476	492	539	558	541	568

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	71	84	97	103	156	179	249	319	274	395	381	328	378	395	326	321
Slovakia	19	22	35	38	42	52	69	86	105	138	168	171	87	60	50	52
Spain	2,297	2,679	3,472	3,807	3,993	4,461	4,968	6,379	5,430	5,418	5,049	5,003	5,522	5,553	4,450	4,711
Sweden	3,217	4,047	4,965	5,085	5,450	5,878	5,686	5,806	6,757	7,135	8,344	8,227	9,119	9,080	7,674	7,721
United Kingdom	12,140	12,533	16,002	15,074	14,904	17,559	19,927	23,354	21,207	22,017	22,533	20,745	20,845	21,088	20,993	20,549
Other Europe																
Norway	325	407	463	545	578	775	789	1,055	604	727	790	920	779	771	826	1,264
Russia	708	839	972	1,223	1,485	1,810	2,343	2,695	2,124	2,434	2,634	3,101	3,938	3,555	2,482	2,770
Switzerland	7,532	9,431	11,761	14,134	14,983	16,477	18,721	21,600	21,367	23,011	25,971	25,278	26,393	26,677	24,592	26,279
Turkey	808	304	605	729	1,038	1,144	1,528	1,943	1,703	2,018	1,615	1,453	1,409	1,604	1,795	2,059
Ukraine	147	167	201	279	370	435	517	568	321	485	551	630	694	582	195	210
Middle East																
Bahrain	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1
Iran	186	255	363	389	422	508	659	842	1,108	1,256	1,920	1,440	1,087	1,190	1,131	1,273
Israel	1,606	1,858	1,957	2,385	2,491	2,715	2,886	2,805	2,692	3,551	3,407	3,441	3,601	3,843	4,063	3,962
Jordan	143	176	183	207	246	296	369	539	537	515	524	579	618	632	607	636
Kuwait	20	32	41	55	61	45	60	72	71	89	112	136	141	129	96	98
Oman	6	7	7	8	10	13	37	34	26	20	36	41	43	40	32	32
Qatar	50	55	62	70	70	79	63	81	21	56	57	58	58	57	54	56

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	208	219	264	289	340	387	660	703	770	972	1,085	1,162	1,164	1,291	1,026	963
United Arab Emirates	12	12	13	15	16	18	20	23	20	21	25	27	29	29	26	27
Africa																
Cameroon	1	4	4	6	6	6	7	12	12	12	14	14	15	17	15	17
Egypt	384	356	292	383	445	490	608	769	846	1,012	969	922	893	1,212	1,700	1,318
Ghana	15	18	22	24	29	34	37	37	30	36	44	40	42	37	29	32
Kenya	27	28	37	42	42	27	25	29	28	28	30	34	35	37	38	43
Morocco	79	91	106	99	109	107	118	136	134	146	171	161	181	204	180	182
Nigeria	49	67	74	89	117	158	185	231	216	272	343	409	530	628	546	477
Senegal	10	8	10	14	14	16	17	17	20	20	22	24	16	18	25	29
South Africa	233	236	342	465	509	533	581	596	635	775	783	826	828	807	846	853
Tunisia	24	26	31	35	38	32	41	46	49	50	53	57	63	70	59	60
Asia																
Bangladesh	96	124	142	155	184	218	252	296	415	421	430	432	537	648	696	891
China	13,446	14,497	16,186	16,141	19,658	22,350	28,051	37,488	41,334	47,335	58,692	73,290	84,314	95,164	106,544	118,540
India	2,727	3,063	3,464	4,334	5,110	5,651	7,391	8,063	7,915	9,534	13,724	11,487	11,952	11,536	11,755	12,756
Indonesia	1,111	1,840	2,137	1,682	2,008	2,026	2,796	3,603	3,427	4,184	3,533	1,468	1,141	1,156	1,213	1,392
Japan	22,274	22,621	26,008	29,911	29,861	32,475	33,202	39,935	43,880	46,057	32,690	52,577	45,461	44,407	40,209	47,964
Malaysia	73	87	99	108	142	180	178	223	212	275	299	323	316	331	358	374

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	293	322	433	615	734	650	741	845	696	825	1,044	1,075	1,053	1,153	1,159	1,307
Philippines	133	151	185	210	236	331	285	236	386	471	435	392	472	544	717	709
Singapore	1,616	2,496	2,945	4,147	4,873	7,260	8,382	5,533	6,198	6,306	9,326	11,638	7,218	7,914	6,435	7,394
South Korea	2,965	3,478	3,710	4,194	5,298	6,034	6,633	6,058	5,604	6,548	6,913	7,188	8,211	9,486	9,866	10,545
Sri Lanka	21	22	25	27	34	68	60	56	58	65	94	99	142	127	127	130
Taiwan	529	577	670	708	791	898	936	970	1,049	1,201	1,303	1,344	1,392	1,305	1,276	1,351
Thailand	89	91	108	122	136	168	200	224	259	338	366	433	425	524	622	638
Vietnam	210	222	215	287	290	375	480	526	621	430	500	598	669	700	714	768
Australia and Oceania																
Australia	760	764	925	1,081	1,300	1,383	1,537	1,646	1,505	2,058	2,616	3,104	2,659	2,433	1,952	2,032
New Zealand	56	66	75	87	103	100	114	93	71	123	147	171	174	174	145	155

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-18

Value added of testing, measuring, and control instruments industry, by region, country, or economy: 2001-16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	111,495	117,401	136,269	156,503	167,042	180,859	206,526	226,806	204,080	232,942	248,009	270,190	273,006	281,581	282,386	280,073
North America																
Canada	1,440	1,434	1,682	1,928	2,007	2,183	2,488	2,431	2,338	2,794	2,905	2,550	2,469	2,507	2,168	2,118
Mexico	2,112	2,390	1,785	1,889	1,993	2,235	2,466	2,614	2,279	2,934	3,380	3,582	3,563	3,781	4,097	3,746
United States	41,183	47,603	53,845	60,511	63,303	68,112	75,649	81,164	86,653	94,812	97,133	110,128	111,122	115,289	124,782	123,265
Central and South America																
Argentina	131	52	77	106	137	156	211	253	238	291	328	329	333	323	295	250
Bolivia	2	2	2	2	2	2	3	3	3	4	3	4	4	4	4	5
Brazil	621	558	503	676	958	1,131	1,402	1,832	1,514	1,825	2,322	2,022	2,104	1,775	1,298	1,308
Chile	3	3	3	3	3	2	3	3	4	5	4	5	7	8	7	7
Colombia	27	29	29	38	44	46	58	56	67	72	88	89	97	80	62	59
Costa Rica	3	3	2	2	2	2	3	3	3	3	4	4	4	4	4	4
Ecuador	71	77	81	85	82	85	87	102	120	123	130	146	159	197	196	186
Honduras	8	9	9	9	10	11	11	12	13	12	14	15	14	15	15	15
Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	378	235	100	129	150	172	199	241	190	251	240	333	368	347	323	318

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	4	2	1	2	2	2	3	4	3	5	6	7	7	8	10	10
Venezuela	93	64	59	79	97	115	142	217	253	152	188	224	211	170	278	54
Europe																
EU	29,208	30,533	36,388	43,307	45,087	47,711	55,865	56,656	43,127	47,786	54,691	52,529	54,726	56,366	53,197	52,833
Austria	612	691	880	1,062	1,155	1,186	1,412	1,547	1,420	1,394	1,481	1,360	1,455	1,466	1,290	1,427
Belgium	286	312	401	476	516	567	655	682	488	604	629	569	542	526	444	458
Bulgaria	12	20	24	23	25	29	42	49	54	41	39	68	49	52	44	45
Czech Republic	205	244	286	369	404	429	564	615	428	494	590	412	466	547	469	479
Denmark	962	910	1,216	1,338	1,401	1,575	1,840	1,627	1,375	1,488	1,488	1,454	1,317	1,343	1,260	1,342
Finland	659	658	820	813	956	1,019	1,175	1,303	1,021	1,004	717	594	611	606	526	536
France	5,105	5,188	5,967	7,023	6,625	6,809	7,583	7,249	5,039	4,397	4,557	4,532	4,886	4,590	4,702	4,059
Germany	10,917	11,183	14,229	16,529	17,392	18,845	22,681	23,337	16,502	19,986	22,994	21,986	23,578	24,728	22,632	22,070
Greece	123	113	120	133	104	131	132	142	102	109	97	87	93	111	106	104
Hungary	172	215	287	342	371	387	418	497	412	473	432	301	281	278	260	263
Ireland	1,009	1,160	1,735	1,826	2,214	2,131	2,909	2,548	1,719	1,849	1,894	2,344	2,282	2,304	3,847	4,909
Italy	3,227	3,912	3,819	4,467	4,804	5,329	6,147	6,195	5,333	5,511	8,762	7,663	7,795	7,819	6,810	6,869
Netherlands	1,096	1,018	1,164	1,234	1,405	1,342	1,558	1,740	1,511	1,763	2,003	1,902	1,870	1,901	1,784	1,831
Poland	212	214	244	288	341	321	412	456	381	362	416	366	373	388	305	313
Portugal	24	26	34	38	37	37	44	43	38	47	54	50	238	201	118	112

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	57	46	73	101	84	141	195	201	98	99	51	47	62	47	40	38
Slovakia	23	33	42	60	80	58	86	104	63	99	103	98	107	120	103	108
Spain	842	699	887	1,022	1,034	1,139	1,438	1,274	1,014	1,066	1,085	1,089	975	1,050	771	792
Sweden	197	461	1,558	1,995	2,038	2,183	2,339	2,070	1,584	2,027	2,166	1,991	1,923	1,743	1,669	1,675
United Kingdom	3,468	3,431	2,603	4,169	4,099	4,052	4,236	4,976	4,544	4,972	5,132	5,619	5,823	6,546	6,020	5,402
Other Europe																
Norway	378	458	648	608	676	697	876	891	709	722	768	744	759	741	668	624
Russia	1,071	1,576	2,132	3,002	3,484	3,959	5,070	6,254	3,431	4,540	5,506	5,677	6,806	6,080	4,259	4,454
Switzerland	6,181	7,143	8,481	9,555	10,681	11,856	13,622	16,602	14,057	15,226	20,391	20,388	21,055	21,341	19,691	18,112
Turkey	151	122	155	193	246	233	286	298	214	497	605	564	581	598	532	575
Ukraine	54	69	92	85	95	120	162	205	95	163	192	181	176	95	15	19
Middle East																
Bahrain	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2
Iran	64	69	97	127	121	132	157	190	285	327	500	375	283	310	294	326
Israel	2,096	2,054	2,132	2,185	2,179	2,330	2,734	3,258	3,243	3,518	3,803	3,856	4,222	4,231	3,849	3,787
Jordan	13	15	14	11	9	9	8	13	15	14	16	28	27	17	7	7
Kuwait	18	30	37	46	58	57	69	86	71	88	112	118	110	104	71	69
Oman	2	2	2	2	3	3	5	5	7	17	27	18	18	17	14	13
Qatar	82	116	145	15	199	263	327	415	62	159	225	278	287	302	278	285

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	164	176	225	257	325	392	509	538	571	776	905	988	998	1,139	851	771
United Arab Emirates	25	26	28	31	35	39	43	50	43	46	54	59	62	63	55	57
Africa																
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	18	16	13	18	20	22	27	33	36	38	46	49	27	30	31	26
Ghana	8	10	12	13	16	19	20	20	17	19	24	22	23	20	16	17
Kenya	12	11	13	16	18	10	24	26	27	26	30	37	39	41	42	46
Morocco	52	59	71	84	110	117	108	100	108	121	126	132	169	178	149	146
Nigeria	71	95	101	114	135	159	174	189	193	206	212	228	249	258	236	188
Senegal	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
South Africa	159	155	204	248	242	225	243	229	238	253	280	261	230	207	213	201
Tunisia	3	2	3	3	4	4	12	18	17	23	20	20	20	19	16	16
Asia																
Bangladesh	1	1	1	2	2	2	2	2	3	3	3	3	3	4	5	6
China	4,518	4,730	7,076	7,819	9,486	12,027	14,333	16,948	16,548	20,082	24,159	29,783	32,821	36,867	39,405	40,611
India	272	267	382	397	543	575	736	734	976	959	1,086	1,018	951	946	920	956
Indonesia	21	6	11	17	37	137	211	259	258	306	138	198	197	197	192	206
Japan	16,530	12,452	13,867	16,229	17,096	17,228	18,689	24,379	17,187	21,683	12,990	17,512	10,884	9,059	7,239	8,172
Malaysia	519	473	478	546	479	385	547	541	477	544	558	572	572	569	558	593

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	30	33	45	63	75	84	96	109	90	107	135	139	136	149	150	166
Philippines	140	159	177	215	337	404	253	549	683	680	770	858	1,069	1,236	1,356	1,419
Singapore	315	373	426	485	568	639	928	984	883	1,066	1,858	1,729	1,816	1,893	1,726	1,844
South Korea	1,655	1,893	2,088	2,563	3,169	3,676	4,261	3,640	3,339	5,615	6,182	7,139	8,598	9,030	8,312	7,917
Sri Lanka	11	13	15	17	22	144	73	39	40	41	49	49	56	67	68	70
Taiwan	853	957	1,345	1,490	1,215	1,334	1,395	1,628	1,501	1,833	2,258	2,243	2,298	2,753	2,697	2,424
Thailand	71	135	205	199	182	238	308	294	292	414	409	380	308	333	289	295
Vietnam	26	27	31	37	36	48	46	49	228	58	77	67	93	89	67	70
Australia and Oceania																
Australia	609	663	924	1,013	1,227	1,286	1,526	1,583	1,283	1,639	1,988	2,439	1,804	1,655	1,317	1,342
New Zealand	18	19	26	32	37	34	56	53	47	64	68	66	67	69	58	59

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-19

Value added of aircraft and spacecraft, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	98,864	94,255	97,302	102,525	118,708	129,071	149,192	154,095	149,103	158,590	168,420	170,822	183,856	195,276	193,334	190,248
North America																
Canada	4,572	4,054	4,633	4,836	5,096	5,728	6,400	7,284	6,143	6,591	6,801	7,553	8,359	8,745	7,394	6,778
Mexico	505	480	405	442	494	525	594	673	543	629	836	1,065	1,236	1,400	1,427	1,374
United States	59,586	55,143	54,036	55,148	66,076	69,881	84,438	80,300	81,607	83,496	87,207	87,083	91,194	97,078	103,875	100,132
Central and South America																
Argentina	7	4	5	6	8	8	10	11	10	10	10	8	8	7	7	6
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	1,762	1,587	1,288	1,757	1,445	1,705	1,790	2,146	1,300	1,916	2,239	2,215	2,305	2,439	1,812	1,837
Chile	3	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1
Colombia	7	8	6	3	4	5	8	10	18	24	22	25	29	30	26	24
Costa Rica	2	2	1	2	2	2	3	3	3	4	4	4	5	5	4	5
Ecuador	92	100	105	110	106	110	113	133	155	159	169	190	206	256	253	247
Honduras	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	36	41	41	53	62	71	82	94	93	114	131	137	142	118	108	107

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Europe																
EU	20,923	20,865	22,636	23,893	27,357	29,539	30,471	34,127	30,847	32,977	36,965	35,570	42,699	45,326	42,109	42,068
Austria	15	29	10	18	17	27	33	41	29	33	36	30	30	29	20	21
Belgium	448	368	341	438	459	407	490	530	458	445	473	432	445	444	416	432
Bulgaria	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Czech Republic	60	74	76	89	93	94	147	177	190	186	219	199	214	227	211	219
Denmark	10	10	9	12	13	12	12	17	11	13	11	8	8	9	10	10
Finland	82	96	98	107	108	110	135	137	101	93	92	91	123	117	102	102
France	4,146	3,969	4,732	3,359	5,321	5,954	6,526	7,637	6,920	7,203	5,993	6,080	7,528	7,462	6,224	6,482
Germany	4,669	4,817	5,058	5,398	7,031	6,370	7,329	8,751	8,175	8,886	10,360	10,694	12,003	12,389	10,973	11,285
Greece	30	36	43	47	45	54	83	110	102	183	176	63	57	177	508	525
Hungary	10	13	18	27	25	34	42	77	42	40	47	41	53	54	52	61
Ireland	188	167	187	226	225	239	300	248	150	134	96	100	98	38	44	45
Italy	1,812	1,919	1,733	2,164	2,179	2,644	2,216	3,215	2,522	2,119	2,339	2,167	2,290	2,447	1,990	2,001
Netherlands	180	192	279	264	302	309	292	407	348	298	329	311	309	322	303	295
Poland	123	97	116	208	257	242	311	378	404	488	584	613	708	645	612	561
Portugal	7	10	12	13	12	13	15	38	25	24	25	24	8	7	5	6

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	8	8	13	14	22	33	45	58	75	73	89	102	114	138	111	105
Slovakia	0	0	0	0	0	0	1	1	1	2	2	4	5	6	5	5
Spain	544	628	851	1,032	1,002	1,124	1,263	1,662	1,420	1,700	2,222	2,021	2,663	2,593	1,844	1,943
Sweden	556	524	652	719	819	742	876	942	930	938	1,192	1,044	1,083	1,051	977	890
United Kingdom	8,033	7,910	8,406	9,757	9,426	11,129	10,354	9,701	8,943	10,121	12,682	11,546	14,956	17,173	17,703	17,079
Other Europe																
Norway	52	56	77	101	113	183	143	184	155	120	140	154	170	168	129	128
Russia	891	1,131	1,410	1,949	2,420	3,104	4,314	4,734	4,241	5,024	6,526	6,405	6,188	6,026	1,849	1,806
Switzerland	216	256	322	384	399	447	506	617	596	890	1,362	1,337	1,409	1,428	1,314	1,221
Turkey	684	498	401	467	854	928	1,144	1,562	1,703	1,293	1,572	1,129	1,073	1,372	1,486	1,524
Ukraine	40	57	87	133	180	244	316	402	432	610	808	849	1,435	875	238	234
Middle East																
Bahrain	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
Iran	0	22	23	30	34	42	54	67	85	105	161	121	91	100	95	108
Israel	506	443	458	541	547	254	318	416	406	390	434	419	477	513	511	555
Jordan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	19	31	37	53	59	50	78	136	138	159	202	179	151	167	126	120
Oman	4	4	4	5	6	6	11	7	22	23	46	16	17	16	13	12
Qatar	57	64	73	292	313	353	164	106	108	805	1,142	1,414	1,455	1,531	1,413	1,429

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	468	491	590	643	752	849	1,130	1,172	1,226	1,517	1,668	1,771	1,768	1,934	1,579	1,411
United Arab Emirates	55	58	61	69	77	87	94	110	94	101	118	130	135	138	122	125
Africa																
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ghana	4	5	6	6	8	9	10	10	8	9	12	11	11	10	8	8
Kenya	5	5	6	7	6	7	5	6	5	4	5	5	6	6	6	7
Morocco	62	71	73	75	111	123	206	241	226	237	288	318	415	459	408	402
Nigeria	87	114	120	132	152	174	187	197	205	212	212	226	242	247	227	181
Senegal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	84	91	121	141	144	150	163	158	187	198	194	183	165	154	159	151
Tunisia	8	9	12	13	13	14	2	3	3	4	3	3	4	4	3	3
Asia																
Bangladesh	257	302	340	375	417	406	412	462	555	614	625	642	699	1,021	1,950	2,267
China	2,353	2,903	3,310	3,382	4,165	5,058	7,425	8,523	8,811	9,349	8,702	9,036	9,529	10,413	11,070	11,868
India	20	34	49	71	63	74	85	87	27	43	44	153	156	166	170	175
Indonesia	66	59	76	93	118	97	101	149	156	208	278	249	100	100	99	108
Japan	3,471	3,089	4,129	4,602	4,091	5,145	4,077	5,264	4,816	5,816	3,829	5,738	5,277	6,098	6,453	6,877
Malaysia	21	31	34	37	90	232	226	343	260	397	536	629	737	841	886	862

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	2	1	2	2	2	70	98	122	81	140	252	282	334	373	392	424
Philippines	41	47	49	55	65	69	55	85	76	60	61	73	67	71	83	85
Singapore	752	884	886	1,089	1,294	1,505	1,774	1,907	1,857	2,047	2,199	2,235	2,325	2,044	1,821	1,923
South Korea	453	375	361	410	381	531	719	755	739	829	861	1,228	1,691	2,123	2,464	2,406
Sri Lanka	10	12	14	15	20	128	65	35	35	36	43	43	50	60	57	57
Taiwan	236	218	185	146	115	70	105	138	122	142	172	176	177	189	198	181
Thailand	7	8	10	12	14	17	20	20	16	24	27	28	26	22	21	22
Vietnam	0	0	0	0	1	1	1	2	1	1	2	7	5	8	13	14
Australia and Oceania																
Australia	383	530	733	840	918	962	1,142	1,185	897	1,145	1,390	1,668	1,172	1,076	856	872
New Zealand	54	66	86	101	114	102	132	108	90	112	119	109	111	115	96	98

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-20

Value added of motor vehicles, trailers, and parts, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	419,460	448,137	513,920	551,624	565,261	604,121	667,233	663,253	530,668	721,425	775,804	860,190	874,076	919,867	880,193	913,032
North America																
Canada	16,449	18,188	18,751	17,861	18,247	18,129	18,504	13,512	9,732	14,077	14,574	16,081	15,502	16,146	14,458	14,443
Mexico	14,807	11,106	15,071	15,918	17,269	20,577	21,734	21,716	14,810	22,277	26,575	30,114	33,230	36,981	37,448	34,262
United States	125,256	136,156	144,296	140,278	136,908	134,632	125,258	91,667	48,439	92,904	111,116	125,662	133,564	144,150	163,150	175,914
Central and South America																
Argentina	1,528	1,033	1,317	1,712	2,292	3,126	4,323	5,606	4,784	5,096	6,225	6,254	6,412	4,435	4,058	3,315
Bolivia	4	3	3	3	3	3	4	4	5	5	5	5	6	6	6	7
Brazil	8,764	8,707	10,542	13,324	17,315	21,537	28,956	39,148	33,935	47,067	54,604	43,664	43,533	35,406	20,757	18,350
Chile	74	63	62	79	87	88	91	72	88	102	121	123	139	88	159	233
Colombia	391	378	327	378	492	595	869	663	505	726	857	935	767	806	693	628
Costa Rica	12	13	11	13	15	17	20	23	20	26	29	31	33	32	32	32
Ecuador	234	254	266	279	332	394	504	728	872	877	887	881	742	773	697	585
Honduras	45	48	49	52	56	60	65	70	74	72	83	91	85	90	90	91
Panama	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Peru	466	295	320	430	517	594	857	1,000	994	1,340	1,456	1,745	1,806	1,541	1,340	1,350

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	108	46	39	32	27	24	27	47	29	88	120	70	53	51	34	28
Venezuela	1,820	1,247	1,152	1,536	1,891	2,241	2,767	3,421	4,282	2,227	2,673	3,167	2,991	2,412	3,935	374
Europe																
EU	108,911	116,184	143,680	162,682	160,519	172,936	200,420	188,871	132,422	173,662	194,699	178,087	190,690	205,413	185,621	189,588
Austria	2,139	2,347	2,896	3,450	3,962	4,188	4,782	4,796	3,558	3,741	4,497	4,264	4,743	4,846	4,305	4,525
Belgium	3,075	3,298	3,996	4,164	4,115	4,154	4,192	4,414	3,257	3,463	3,565	3,085	3,091	3,175	2,895	2,923
Bulgaria	26	32	36	49	64	72	104	34	71	107	168	162	111	148	135	144
Czech Republic	1,750	2,127	2,349	3,630	4,297	5,269	6,564	7,633	6,173	7,212	8,529	7,842	7,541	8,568	8,434	8,999
Denmark	312	330	368	402	477	499	533	555	326	362	365	328	335	321	312	378
Finland	344	382	415	450	521	546	690	722	446	467	588	428	536	652	565	564
France	11,629	13,009	14,673	16,690	14,868	12,672	14,015	13,746	9,919	12,179	10,090	8,391	8,423	8,661	8,203	8,606
Germany	49,602	53,258	68,176	75,218	74,818	85,222	100,351	91,718	63,827	94,213	107,697	101,956	108,242	117,648	101,049	102,731
Greece	328	246	343	406	222	186	232	229	176	137	103	75	63	65	43	44
Hungary	1,168	1,388	1,913	2,298	2,731	3,305	4,259	4,470	2,975	3,244	3,589	3,442	4,379	5,244	5,538	5,428
Ireland	102	100	130	134	147	156	191	169	222	129	226	115	112	124	146	159
Italy	8,001	7,901	9,224	10,718	10,380	11,662	13,873	13,417	10,412	10,648	10,263	8,131	8,276	8,689	9,595	9,801
Netherlands	1,710	1,737	2,112	2,469	2,375	2,473	2,892	3,370	1,399	2,006	2,866	2,373	2,253	2,422	2,685	2,918
Poland	2,361	2,356	3,117	3,986	4,548	4,290	5,499	6,690	5,263	5,842	7,050	6,197	7,007	7,163	6,198	6,363
Portugal	1,153	1,185	1,341	1,381	1,317	1,347	1,567	1,549	1,284	1,405	1,544	1,297	1,374	1,513	1,245	1,225

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	185	213	298	426	651	820	1,144	1,463	1,237	1,492	1,217	1,726	2,142	2,266	2,052	2,269
Slovakia	742	913	1,099	912	674	890	1,651	1,430	1,550	2,118	2,481	2,524	2,914	3,041	2,478	2,584
Spain	7,819	8,472	10,606	12,098	11,755	12,634	14,082	13,149	9,827	10,741	11,767	9,814	11,085	11,819	10,091	10,462
Sweden	4,551	4,683	6,266	7,119	6,537	6,897	7,645	5,269	2,578	5,731	7,280	5,735	6,477	6,215	6,577	7,229
United Kingdom	11,913	12,204	14,321	16,684	16,063	15,654	16,154	14,047	7,920	8,425	10,814	10,204	11,585	12,832	13,077	12,234
Other Europe																
Norway	267	336	380	403	411	412	408	411	243	236	268	270	288	290	278	269
Russia	2,743	1,982	1,151	1,577	1,920	2,366	3,202	3,756	3,978	4,501	5,415	6,419	7,503	5,994	2,196	2,216
Switzerland	276	295	333	356	366	461	507	576	537	728	961	811	852	861	794	724
Turkey	1,648	2,349	3,133	3,861	5,038	5,200	6,369	7,728	4,240	5,375	6,524	5,809	6,107	5,922	6,034	5,965
Ukraine	26	41	69	94	117	141	209	296	164	293	361	383	509	239	100	93
Middle East																
Bahrain	32	33	36	39	52	70	90	115	91	105	122	129	136	140	117	116
Iran	1,801	1,807	2,898	2,911	3,713	5,188	5,087	5,931	7,560	7,735	11,823	8,867	6,690	7,323	6,964	7,631
Israel	214	224	216	215	224	242	286	318	324	328	299	278	278	261	228	230
Jordan	9	11	10	12	12	15	17	21	22	20	19	12	11	10	9	9
Kuwait	134	158	142	187	188	172	261	349	476	574	721	938	782	698	537	525
Oman	18	18	20	22	28	30	74	77	74	201	295	181	185	173	141	135
Qatar	5	5	5	109	116	142	237	306	26	681	966	1,197	1,232	1,296	1,196	1,218

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	1,471	1,547	1,867	2,040	2,405	2,735	3,133	3,132	3,146	3,971	4,432	4,744	4,753	5,272	4,188	3,845
United Arab Emirates	84	87	93	104	117	131	142	165	142	153	178	195	204	207	184	185
Africa																
Cameroon	1	1	1	1	1	1	2	3	3	3	3	3	3	4	3	3
Egypt	140	130	106	139	162	178	221	280	308	396	350	303	325	468	553	370
Ghana	44	51	62	70	83	98	105	106	87	101	125	114	120	104	83	89
Kenya	21	20	22	27	21	28	51	57	54	44	48	54	57	60	61	66
Morocco	250	261	253	258	311	402	493	563	535	624	729	697	969	993	892	888
Nigeria	342	465	513	618	816	1,096	1,283	1,602	1,504	1,889	2,340	3,278	4,372	5,533	4,543	2,687
Senegal	1	0	1	0	1	2	0	1	4	4	4	4	4	4	3	4
South Africa	1,599	1,451	2,100	2,693	3,086	3,368	3,317	2,818	2,248	3,111	3,281	3,390	3,057	3,013	3,019	2,756
Tunisia	114	116	148	169	172	233	279	341	386	383	426	401	413	448	377	359
Asia																
Bangladesh	76	74	56	75	88	84	85	98	120	134	135	136	133	183	206	232
China	22,155	27,593	34,495	32,223	33,943	41,976	56,275	70,412	87,698	120,073	136,634	157,802	180,588	210,215	214,568	232,565
India	1,736	1,990	2,981	3,941	4,285	5,137	6,495	6,400	8,909	10,657	13,384	13,249	11,495	10,918	11,947	12,579
Indonesia	4,378	5,247	6,604	7,836	6,327	4,735	6,765	9,050	8,665	11,852	11,828	13,449	12,481	12,476	11,847	12,788
Japan	78,721	82,501	90,536	102,335	105,348	109,284	116,214	132,709	106,462	134,980	102,457	174,159	140,580	135,320	113,445	125,553
Malaysia	1,326	1,690	1,624	1,624	1,224	1,238	1,244	1,579	1,422	2,024	2,288	2,551	2,507	2,632	2,781	2,593

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	272	296	405	670	897	899	815	685	567	826	1,096	1,112	950	1,070	1,422	1,460
Philippines	383	424	428	471	547	558	766	965	848	1,310	1,186	1,044	952	1,005	1,165	1,184
Singapore	140	137	133	116	122	130	132	112	125	134	184	164	278	291	277	277
South Korea	10,741	11,855	13,463	16,289	19,588	22,684	26,141	21,481	18,950	26,695	31,321	31,447	34,607	38,936	38,816	35,843
Sri Lanka	77	90	105	115	151	984	497	269	273	279	334	334	382	458	463	474
Taiwan	2,741	3,439	3,517	3,589	4,128	3,261	3,057	2,796	2,706	3,336	3,867	3,802	3,939	4,363	4,539	4,227
Thailand	4,190	4,627	5,827	7,141	8,541	10,377	12,437	14,673	11,339	10,301	9,263	9,081	9,017	6,811	6,959	6,843
Vietnam	114	161	236	257	380	553	728	907	914	1,020	1,030	1,253	1,377	1,664	2,093	2,406
Australia and Oceania																
Australia	2,234	2,823	3,961	4,337	4,226	4,431	5,256	5,455	4,420	5,651	6,868	5,046	6,214	5,701	4,538	4,272
New Zealand	69	83	105	122	139	128	154	162	108	149	212	170	172	178	149	154

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-21

Value added of chemicals excluding pharmaceuticals, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	395,521	412,721	454,591	517,308	538,185	575,252	661,453	713,262	677,009	803,008	899,501	918,467	949,068	960,428	889,893	857,856
North America																
Canada	5,936	6,401	7,115	7,895	8,016	7,967	8,456	8,507	8,130	10,630	13,437	13,322	13,671	13,339	11,948	11,470
Mexico	9,202	9,662	8,847	10,444	10,772	13,621	14,054	15,591	12,511	14,679	15,300	17,334	18,140	14,922	13,152	11,347
United States	126,204	130,267	130,389	140,466	139,478	156,074	166,374	170,054	182,135	198,447	206,867	216,734	225,460	228,519	222,534	216,791
Central and South America																
Argentina	4,546	1,705	2,431	3,106	3,847	4,552	5,505	7,378	7,528	9,247	11,221	12,200	12,043	10,508	9,616	7,886
Bolivia	56	53	55	58	62	66	69	102	120	122	134	141	155	165	175	200
Brazil	11,166	9,790	11,488	14,181	15,734	17,755	23,395	28,636	22,786	30,760	36,028	33,051	32,509	32,662	19,186	18,745
Chile	193	189	249	303	492	370	399	381	562	757	756	768	920	939	1,001	1,003
Colombia	1,417	1,524	1,595	1,804	2,141	2,364	2,741	3,348	3,259	3,804	4,031	4,376	4,407	4,274	3,318	3,068
Costa Rica	171	166	176	175	180	204	246	275	240	310	349	374	395	390	379	376
Ecuador	406	440	462	485	466	484	497	584	682	699	743	834	904	1,125	1,115	983
Honduras	119	113	115	100	122	120	130	150	149	139	170	188	191	197	195	188
Panama	21	19	19	20	21	23	31	35	39	39	41	56	57	60	59	59
Peru	625	703	717	923	1,075	1,231	1,422	1,620	1,610	1,966	2,248	2,342	2,357	2,218	2,054	1,981

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	129	105	99	108	122	142	153	232	183	235	303	330	353	386	374	342
Venezuela	1,724	1,184	1,087	1,446	1,774	2,100	2,589	3,969	4,654	2,778	3,419	4,077	3,848	3,102	5,062	989
Europe																
EU	97,659	105,336	122,097	134,970	140,250	143,285	164,280	168,559	137,791	153,478	167,301	153,440	157,825	163,642	142,975	135,034
Austria	1,520	1,447	1,789	1,991	2,022	2,419	2,889	2,964	2,770	3,163	4,092	4,218	4,240	4,227	3,813	3,714
Belgium	5,433	5,835	6,771	7,680	8,309	8,298	9,137	9,135	7,895	8,282	9,267	8,682	9,349	9,324	8,732	8,038
Bulgaria	146	146	164	180	197	204	240	92	149	176	260	199	191	204	164	159
Czech Republic	706	712	882	1,067	1,247	1,212	1,474	1,730	1,149	1,506	1,660	1,524	1,458	1,589	1,270	1,094
Denmark	848	835	1,133	1,287	1,289	1,308	1,332	1,672	1,713	1,924	1,980	2,182	2,431	2,602	2,412	2,392
Finland	1,282	1,249	1,494	1,880	1,827	1,843	2,327	2,374	1,916	2,020	2,732	2,254	2,430	2,507	2,187	2,115
France	11,396	10,644	12,602	14,282	15,330	15,224	17,811	19,539	18,146	17,098	17,843	16,013	16,640	16,630	13,660	13,514
Germany	28,668	31,028	36,182	40,540	40,715	42,467	49,081	52,437	44,942	51,026	58,330	52,494	54,240	54,173	44,473	42,285
Greece	684	685	826	992	942	872	1,030	1,275	1,134	954	917	722	829	809	616	642
Hungary	470	523	593	725	745	856	1,105	1,108	617	647	753	653	669	695	616	578
Ireland	6,080	8,508	8,434	8,095	7,288	7,071	9,013	8,848	7,207	8,635	8,270	8,439	8,206	12,228	13,964	12,326
Italy	8,212	9,046	10,152	11,488	11,494	11,787	13,525	13,311	11,849	12,042	12,056	10,742	10,818	10,669	8,472	8,317
Netherlands	6,868	7,719	9,480	11,622	12,009	12,965	14,825	15,241	10,190	13,946	16,322	14,873	14,082	13,794	12,211	12,485
Poland	2,063	2,000	2,137	2,648	3,059	2,886	3,699	4,500	3,129	3,722	4,607	3,842	3,986	3,756	2,943	2,767
Portugal	566	616	750	887	882	902	1,050	1,038	877	972	1,020	741	774	764	602	573

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	187	197	190	235	309	449	625	800	668	692	1,038	636	713	746	538	482
Slovakia	126	146	142	162	186	243	298	294	216	306	468	269	309	283	240	215
Spain	5,684	6,335	7,446	8,883	9,332	9,519	10,852	11,459	8,319	9,692	10,834	9,087	8,880	9,040	6,884	6,790
Sweden	2,026	2,083	2,113	2,483	2,757	2,779	3,368	3,046	2,932	3,112	3,173	3,136	3,438	3,433	2,892	2,690
United Kingdom	14,695	15,584	18,819	17,842	20,309	19,982	20,599	17,696	11,973	13,565	11,678	12,736	14,142	16,169	16,288	13,860
Other Europe																
Norway	886	844	1,226	1,315	1,629	1,647	2,229	2,201	1,719	1,972	2,500	2,047	2,029	1,889	1,438	1,297
Russia	1,931	2,955	4,081	6,360	9,056	10,426	12,751	23,052	10,677	13,115	19,203	17,345	16,356	15,573	11,425	11,868
Switzerland	1,969	2,356	2,638	2,914	3,069	3,356	3,743	4,250	4,302	4,544	4,619	3,457	3,668	3,780	3,787	3,772
Turkey	1,614	1,623	2,088	2,377	1,585	2,229	2,339	2,931	2,316	2,849	3,460	3,025	3,112	3,011	2,538	2,382
Ukraine	174	212	277	422	566	645	805	1,023	378	541	858	902	1,542	1,056	367	329
Middle East																
Bahrain	51	53	57	62	83	112	144	183	145	167	192	202	215	222	186	190
Iran	1,644	2,114	1,950	2,794	2,634	3,852	5,897	6,307	7,743	8,271	12,642	9,482	7,153	7,831	7,447	8,018
Israel	380	407	442	563	682	810	915	1,368	1,231	1,290	1,501	1,333	1,421	1,410	1,321	1,288
Jordan	270	332	306	349	354	441	522	636	650	612	587	598	658	525	503	472
Kuwait	168	279	353	471	527	387	519	623	608	770	966	1,175	1,217	1,109	824	755
Oman	224	231	254	282	350	316	382	513	1,287	1,002	2,334	3,583	3,673	3,437	2,789	2,293
Qatar	99	105	190	488	512	557	1,237	2,555	337	1,314	1,863	2,307	2,376	2,499	2,306	2,140

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	2,478	2,606	3,144	3,436	4,050	4,607	7,856	8,364	9,205	11,603	12,925	13,837	13,879	15,391	12,227	10,816
United Arab Emirates	74	77	82	91	103	115	125	146	125	135	156	171	179	183	162	162
Africa																
Cameroon	11	31	30	41	43	45	51	87	87	88	99	99	110	120	106	113
Egypt	755	701	575	753	875	963	1,196	1,514	1,665	1,992	2,472	2,943	2,621	3,252	3,667	3,111
Ghana	79	91	111	124	148	175	188	190	155	181	224	204	213	186	148	154
Kenya	120	119	145	163	160	188	235	272	270	282	279	313	327	347	351	356
Morocco	459	521	579	607	797	742	969	1,157	1,056	1,396	1,909	1,721	2,050	2,350	2,077	2,037
Nigeria	312	423	467	562	742	996	1,166	1,455	1,367	1,716	2,163	2,581	3,346	3,966	3,452	2,768
Senegal	69	87	105	110	107	89	83	104	95	99	139	111	93	91	98	96
South Africa	2,857	2,774	4,263	5,276	5,669	3,564	3,606	3,862	3,816	4,203	3,893	4,229	3,998	3,901	3,393	3,001
Tunisia	253	163	189	224	260	288	540	717	623	755	611	677	650	690	582	520
Asia																
Bangladesh	205	232	252	272	297	307	360	400	548	531	501	474	591	674	670	715
China	33,983	36,714	43,679	56,156	62,766	74,293	100,065	120,193	127,065	163,643	214,757	221,443	242,156	250,293	248,493	241,652
India	5,034	5,312	6,058	7,118	8,129	8,990	11,758	12,827	13,305	15,775	21,693	16,722	17,435	16,829	17,140	17,149
Indonesia	1,649	1,730	2,453	1,819	2,646	4,348	6,000	7,728	7,355	8,976	12,350	13,473	17,468	17,695	16,738	18,075
Japan	56,493	57,146	63,165	69,216	66,808	61,299	61,763	59,793	57,557	73,973	48,927	73,651	61,640	57,325	47,089	49,759
Malaysia	1,720	2,101	2,656	3,586	3,749	4,975	4,655	5,283	4,407	5,847	6,194	6,542	6,168	6,269	5,600	5,365

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	847	929	1,252	1,777	2,122	1,881	2,138	2,480	2,038	2,412	3,039	3,124	3,080	3,379	3,390	3,383
Philippines	565	619	605	660	614	706	702	684	746	722	1,022	1,101	1,562	1,629	1,803	1,685
Singapore	1,296	1,615	1,896	2,911	2,586	2,483	3,381	1,513	2,423	3,491	4,005	2,657	4,195	4,462	3,796	3,557
South Korea	7,437	8,649	9,680	11,759	13,074	13,350	14,966	13,457	12,815	17,391	24,254	25,272	28,249	30,701	28,262	26,567
Sri Lanka	99	117	135	149	195	1,273	643	348	352	361	432	432	494	593	598	554
Taiwan	6,402	6,759	7,124	9,597	10,161	7,631	8,949	6,271	8,207	12,642	11,839	9,455	10,154	10,005	12,074	11,391
Thailand	535	889	1,050	1,111	1,195	1,328	1,585	1,974	2,108	2,824	3,479	3,498	3,606	3,524	3,137	2,999
Vietnam	354	415	459	560	699	826	1,157	1,891	1,534	1,466	1,673	1,821	1,856	1,970	2,099	2,116
Australia and Oceania																
Australia	2,133	2,367	3,200	3,813	3,964	4,047	4,783	4,982	3,838	5,276	6,746	6,152	5,535	5,059	4,042	3,867
New Zealand	314	361	434	532	627	609	711	505	472	692	646	741	753	755	630	621

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-22

Value added of machinery and equipment, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	408,875	404,934	454,430	526,119	577,860	637,273	738,666	836,516	699,199	807,960	897,632	964,974	979,385	1,009,634	939,663	931,046
North America																
Canada	7,723	7,572	8,302	9,889	11,145	12,191	13,034	12,723	10,155	11,439	14,507	15,253	14,716	14,684	12,307	10,955
Mexico	4,011	4,333	3,681	4,215	4,807	5,420	5,689	5,924	4,534	7,075	8,119	8,524	8,698	8,439	7,964	7,398
United States	113,586	106,824	105,539	112,643	123,327	131,105	139,214	139,061	124,045	131,318	147,005	153,679	157,811	163,551	164,086	157,805
Central and South America																
Argentina	367	246	278	347	413	470	586	726	723	880	1,090	1,068	1,057	959	781	661
Bolivia	5	4	3	3	3	4	5	6	6	7	8	9	9	10	10	11
Brazil	6,176	5,685	6,016	7,875	8,610	10,280	13,932	17,720	14,202	21,527	25,926	23,457	23,025	21,133	14,554	13,549
Chile	18	28	27	36	41	45	49	45	50	62	69	70	73	69	62	61
Colombia	189	185	186	249	310	366	496	544	472	577	601	624	631	572	497	462
Costa Rica	24	28	30	34	35	40	48	54	47	60	68	73	77	76	74	75
Ecuador	422	457	479	504	484	503	516	607	708	726	772	866	939	1,169	1,159	1,085
Honduras	32	31	32	30	38	55	60	64	49	73	82	92	100	98	98	100
Panama	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Peru	1,344	1,209	1,734	1,601	1,749	2,071	1,809	1,947	1,460	1,702	2,021	2,426	1,985	1,983	1,712	1,670

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	6	5	5	6	6	8	9	12	12	52	28	32	31	30	21	19
Venezuela	390	267	247	329	405	480	592	848	958	502	536	612	578	466	761	156
Europe																
EU	134,619	139,425	164,159	193,448	201,169	218,162	259,957	284,427	209,859	229,631	262,048	248,921	258,088	268,197	232,738	231,321
Austria	3,599	3,903	4,745	5,613	5,977	6,654	8,033	9,058	7,315	7,342	8,868	8,806	9,206	9,303	9,054	8,781
Belgium	2,280	2,390	2,708	3,129	3,373	3,818	4,621	5,101	3,786	3,892	4,399	4,057	4,139	4,023	3,555	3,535
Bulgaria	82	99	147	227	261	294	427	503	296	372	439	421	463	491	387	384
Czech Republic	1,157	1,348	1,585	1,847	2,377	2,985	4,063	4,879	3,896	3,936	4,429	4,161	4,240	4,407	3,903	3,832
Denmark	3,204	3,831	3,951	4,438	4,385	5,299	6,672	7,449	5,670	5,170	5,104	4,969	5,747	5,680	5,836	5,991
Finland	2,593	2,419	2,913	3,435	3,702	4,386	5,447	6,097	4,887	5,043	6,101	5,382	5,541	5,482	4,935	5,078
France	11,302	11,167	13,282	15,074	15,141	15,792	18,203	19,490	15,148	15,134	16,774	15,809	16,360	16,548	14,345	14,478
Germany	54,704	56,743	68,797	80,720	82,847	90,341	109,001	121,442	88,285	97,762	111,755	108,894	113,843	120,356	104,191	104,286
Greece	363	401	502	557	710	846	965	1,075	797	672	586	553	478	473	365	386
Hungary	490	625	746	907	1,060	1,123	1,394	1,653	2,865	4,179	4,600	4,118	4,294	4,477	3,943	3,494
Ireland	701	743	937	931	935	992	1,221	1,600	1,139	993	1,312	1,063	1,116	1,399	1,677	1,662
Italy	22,892	23,521	29,152	33,868	34,811	38,013	44,729	48,195	38,313	39,441	43,502	40,418	40,962	41,263	35,284	36,220
Netherlands	3,419	3,679	4,863	5,853	6,054	6,845	8,198	8,595	7,093	8,435	10,133	9,216	9,467	10,243	9,221	8,913
Poland	1,709	1,783	2,188	2,964	3,746	3,534	4,530	5,511	4,287	4,041	4,210	3,566	3,721	3,985	3,227	3,179
Portugal	683	739	859	924	956	977	1,137	1,124	781	811	803	910	931	930	746	746

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	439	429	467	562	597	729	1,016	1,300	857	790	1,519	968	1,185	1,255	871	867
Slovakia	214	241	350	483	434	590	826	1,076	705	1,045	1,134	1,129	1,277	1,325	1,160	1,193
Spain	5,935	5,737	6,844	8,019	8,441	8,875	10,185	10,860	8,196	7,865	8,136	7,354	7,467	7,006	5,262	5,333
Sweden	4,622	5,155	6,178	6,655	7,255	8,095	9,857	9,877	5,117	8,396	10,621	9,664	9,662	9,078	8,078	7,796
United Kingdom	14,233	14,472	12,944	17,243	18,109	17,975	19,431	19,542	10,428	14,311	17,622	17,461	17,990	20,474	16,699	15,165
Other Europe																
Norway	1,012	1,202	1,305	1,364	1,570	2,094	2,826	3,877	3,756	3,854	4,400	5,013	5,627	5,744	4,896	4,427
Russia	3,974	4,050	5,357	8,078	10,126	12,577	18,421	22,151	10,729	12,832	16,063	15,871	16,424	13,936	10,214	10,263
Switzerland	6,740	7,077	7,887	8,583	8,699	9,286	10,251	11,611	10,075	11,412	13,654	11,857	12,138	12,269	11,310	10,908
Turkey	678	940	1,391	2,096	2,947	3,174	3,828	4,339	2,715	3,438	4,424	4,539	4,842	4,750	4,080	3,927
Ukraine	158	175	238	359	483	573	744	994	1,096	1,545	1,904	2,073	1,921	1,351	327	315
Middle East																
Bahrain	13	14	15	16	22	29	38	48	38	44	51	54	57	58	49	48
Iran	284	463	531	620	738	851	1,173	1,158	1,235	1,392	2,127	1,595	1,204	1,318	1,253	1,363
Israel	976	845	804	785	767	853	1,035	1,386	1,375	1,379	1,495	1,093	1,155	1,208	1,107	1,090
Jordan	26	32	38	47	50	64	85	96	90	63	46	49	55	48	44	44
Kuwait	209	221	236	302	387	366	459	609	439	492	319	266	273	282	247	241
Oman	12	12	14	15	19	24	36	55	24	27	58	63	64	60	49	46
Qatar	11	8	8	57	47	65	288	366	5,587	871	1,235	1,530	1,575	1,657	1,529	1,535

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	930	978	1,180	1,289	1,519	1,728	2,593	2,683	2,833	3,576	3,991	4,272	4,281	4,748	3,772	3,388
United Arab Emirates	103	108	114	128	144	161	175	204	175	189	220	241	251	256	227	227
Africa																
Cameroon	1	1	1	2	2	2	2	4	4	4	5	5	5	5	5	5
Egypt	88	81	67	88	102	112	139	176	194	215	261	280	264	322	481	419
Ghana	73	84	102	115	136	162	173	175	143	167	207	189	197	172	137	149
Kenya	6	9	11	13	15	63	55	49	45	40	40	45	47	50	50	54
Morocco	351	382	458	489	536	548	628	735	673	741	819	823	931	1,026	805	772
Nigeria	402	546	602	725	957	1,286	1,505	1,879	1,764	2,216	2,793	3,330	4,320	5,115	4,452	3,588
Senegal	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1
South Africa	987	1,038	1,464	1,850	1,963	1,993	2,180	1,966	1,773	2,004	2,020	2,113	1,910	1,684	1,609	1,440
Tunisia	63	74	91	103	113	125	142	171	173	175	181	175	160	154	143	140
Asia																
Bangladesh	19	21	23	24	27	31	32	37	46	52	53	55	62	74	88	99
China	29,884	33,564	41,002	46,834	59,685	75,322	100,210	144,757	150,616	186,474	231,110	254,584	280,127	292,903	298,039	301,932
India	3,277	3,355	3,903	5,301	6,160	6,998	8,920	9,732	9,142	10,981	13,130	12,416	11,194	11,300	11,824	12,228
Indonesia	603	427	418	295	648	841	953	992	1,010	1,253	1,920	2,089	2,268	2,351	2,464	2,638
Japan	71,493	64,003	74,528	89,844	97,524	102,459	106,709	122,727	91,456	111,992	80,473	130,816	105,866	107,909	91,252	94,483
Malaysia	860	837	837	1,004	984	1,324	1,331	1,490	1,239	1,530	1,651	1,772	1,705	1,686	1,727	1,726

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	45	50	67	95	113	186	213	242	200	237	300	309	302	331	333	341
Philippines	235	209	270	279	175	139	166	186	227	227	256	278	430	582	648	653
Singapore	1,210	1,247	1,283	1,661	2,114	2,424	2,954	3,426	3,326	4,186	5,214	4,947	5,455	5,782	4,140	4,069
South Korea	9,341	10,421	12,196	14,186	17,277	19,991	23,031	21,090	18,930	24,460	28,068	28,455	29,551	31,661	30,452	28,355
Sri Lanka	73	85	94	103	125	252	225	210	218	243	260	229	243	275	322	325
Taiwan	3,425	3,495	3,847	4,206	4,683	5,356	5,639	5,714	4,613	6,079	7,025	7,635	7,465	8,444	8,230	7,583
Thailand	513	471	558	686	718	834	1,069	1,241	1,185	1,926	2,003	2,324	2,434	2,399	2,319	2,635
Vietnam	108	115	144	175	181	256	328	356	469	413	484	562	608	644	639	675
Australia and Oceania																
Australia	1,329	1,516	2,026	2,372	2,731	2,743	3,180	3,945	3,582	4,674	5,443	6,241	5,082	4,512	2,622	2,612
New Zealand	448	478	603	722	825	778	930	931	720	921	1,049	1,079	1,071	1,129	957	974

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-23

Value added of electrical machinery, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	207,959	208,494	233,735	260,942	282,399	325,292	366,992	425,135	392,275	444,898	471,648	501,737	527,381	546,611	523,277	530,088
North America																
Canada	2,578	2,140	2,148	2,565	2,863	3,110	3,477	3,540	3,233	3,513	4,061	3,997	3,790	3,799	3,271	3,093
Mexico	4,285	4,290	3,858	4,237	4,735	5,588	5,860	5,904	4,467	5,560	5,729	5,949	6,042	6,416	6,391	5,910
United States	44,294	43,690	45,610	42,106	43,247	51,434	50,193	55,089	50,177	49,971	47,393	50,995	54,416	55,438	56,314	55,492
Central and South America																
Argentina	263	188	228	309	371	438	586	750	637	809	1,022	1,008	1,025	943	863	723
Bolivia	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4
Brazil	3,509	3,023	3,118	3,528	5,193	6,123	8,137	10,304	9,691	12,898	14,232	13,167	13,673	12,109	7,035	6,558
Chile	79	60	52	65	78	90	97	93	133	154	147	165	209	185	181	172
Colombia	230	232	200	288	385	477	657	755	653	819	884	862	829	820	637	596
Costa Rica	51	47	45	54	77	88	106	118	103	133	150	161	170	167	163	164
Ecuador	86	94	98	103	112	137	147	184	197	187	225	268	317	347	417	532
Honduras	88	95	97	102	110	119	128	139	146	142	165	180	169	179	177	178
Panama	3	3	3	3	3	3	5	5	6	6	6	7	7	8	8	8
Peru	163	150	122	174	199	255	343	377	302	414	444	556	604	508	322	314

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	31	11	14	21	23	23	29	49	33	46	51	50	58	56	65	63
Venezuela	219	150	138	185	227	269	333	435	563	445	644	735	695	560	914	192
Europe																
EU	67,009	69,537	83,156	95,469	94,331	103,625	116,361	128,255	105,324	112,336	124,072	112,989	115,848	117,133	101,210	100,088
Austria	1,905	1,997	2,362	2,590	2,574	2,858	4,628	5,472	4,724	5,240	5,424	4,966	4,881	5,066	4,451	4,764
Belgium	1,476	1,461	1,738	1,853	1,890	1,997	1,835	2,183	1,980	1,841	2,089	2,031	1,837	1,632	1,363	1,372
Bulgaria	42	53	82	117	150	169	246	289	250	250	278	292	338	356	324	324
Czech Republic	807	821	1,126	1,412	1,599	2,030	2,661	3,015	2,615	2,902	3,464	3,521	3,436	3,689	3,452	3,555
Denmark	712	682	751	918	839	934	1,177	1,490	1,045	1,103	1,068	996	919	946	1,068	1,120
Finland	872	775	929	1,099	1,321	1,468	1,771	2,314	1,705	1,821	1,988	1,641	1,703	1,690	1,438	1,427
France	7,555	7,523	8,437	9,661	9,002	8,633	10,192	10,750	9,291	8,625	10,355	9,303	9,810	8,998	7,460	7,397
Germany	27,567	29,276	35,211	41,273	39,944	45,290	47,685	53,696	46,317	51,265	58,602	54,178	55,028	57,914	49,289	49,166
Greece	187	178	239	294	343	472	574	701	532	627	550	430	339	287	246	243
Hungary	646	878	1,282	1,812	2,143	1,942	2,497	2,567	911	918	836	727	790	838	793	822
Ireland	88	99	122	152	174	185	227	200	145	151	305	255	269	273	245	266
Italy	8,170	9,005	10,947	12,808	13,175	13,990	16,027	17,092	14,359	14,855	15,762	13,060	13,797	12,438	10,691	10,307
Netherlands	1,103	1,001	1,212	1,319	1,250	1,385	1,715	1,922	1,456	1,189	1,208	1,130	1,112	1,142	1,078	1,169
Poland	1,333	1,356	1,658	2,225	2,642	2,493	3,195	3,887	3,116	3,242	3,569	3,137	3,399	3,525	3,063	2,983
Portugal	1,154	1,009	1,113	1,200	887	908	1,056	1,044	1,002	1,098	1,054	759	1,170	1,060	877	889

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	238	241	313	407	512	665	913	1,037	882	1,266	1,303	1,362	1,610	1,852	1,636	1,825
Slovakia	169	189	267	334	338	386	491	618	478	659	758	701	845	885	752	780
Spain	3,451	3,903	4,899	5,734	6,010	7,058	7,901	7,970	6,043	6,028	5,264	4,406	4,321	4,353	3,312	3,252
Sweden	1,900	1,919	2,202	2,253	2,254	2,423	2,955	3,025	2,089	2,278	2,744	2,674	2,817	2,578	2,343	2,261
United Kingdom	7,634	7,170	8,265	8,008	7,282	8,341	8,614	8,984	6,382	6,980	7,450	7,419	7,428	7,612	7,330	6,165
Other Europe																
Norway	456	517	561	690	785	895	1,043	1,169	992	948	1,195	1,181	1,238	1,179	950	868
Russia	4,324	3,470	2,765	4,091	5,283	7,384	9,557	10,751	4,780	6,349	7,950	7,876	7,750	6,907	3,292	3,433
Switzerland	2,912	2,984	3,323	3,707	3,837	4,025	4,772	5,898	5,460	5,332	6,471	5,822	6,104	6,170	5,688	5,450
Turkey	971	1,231	1,543	1,792	2,742	3,243	4,016	4,673	3,773	3,825	4,078	4,229	4,524	4,277	3,748	3,616
Ukraine	278	308	409	439	502	661	920	1,162	562	810	1,158	1,074	1,182	922	271	268
Middle East																
Bahrain	50	52	56	61	82	110	142	180	143	166	192	202	214	220	185	180
Iran	558	682	743	868	1,044	1,152	1,414	1,442	2,229	2,123	3,244	2,433	1,836	2,010	1,911	2,062
Israel	178	160	199	158	156	179	218	260	228	249	260	242	255	248	233	247
Jordan	38	47	46	67	80	100	130	163	168	117	102	118	154	129	108	108
Kuwait	29	45	63	80	106	109	159	207	183	182	171	149	140	200	125	119
Oman	38	39	43	48	60	79	119	147	152	227	419	443	454	425	344	324
Qatar	28	31	35	12	14	17	132	177	291	434	616	762	785	826	762	753

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	365	384	463	506	596	678	826	952	923	1,165	1,300	1,392	1,395	1,547	1,229	1,106
United Arab Emirates	52	54	58	65	73	82	89	103	89	96	111	122	127	130	115	116
Africa																
Cameroon	2	1	1	2	2	2	2	4	4	4	5	5	5	6	5	6
Egypt	381	353	290	380	442	486	603	764	840	785	491	483	451	468	484	410
Ghana	27	31	38	42	50	60	64	65	53	62	76	70	73	63	50	54
Kenya	22	21	23	27	31	40	116	120	124	115	136	152	159	169	171	184
Morocco	415	467	529	577	648	654	750	836	783	845	960	927	975	1,066	890	860
Nigeria	97	132	146	175	232	311	364	455	427	536	676	806	1,046	1,238	1,078	855
Senegal	3	3	4	6	7	7	6	7	8	9	10	10	9	11	5	6
South Africa	539	530	754	942	1,056	1,216	1,241	1,166	1,206	1,409	1,400	1,487	1,369	1,290	1,238	1,094
Tunisia	196	210	262	324	391	494	612	755	593	855	947	878	905	916	772	726
Asia																
Bangladesh	326	286	237	185	136	163	170	197	245	280	287	297	336	375	484	553
China	25,943	27,719	32,094	36,381	46,108	57,248	74,417	102,628	113,042	133,301	157,116	174,714	196,140	214,176	226,366	233,987
India	2,428	2,475	2,749	3,314	4,982	5,538	6,323	5,970	6,491	8,104	8,261	7,554	9,636	10,533	11,420	11,812
Indonesia	2,138	970	980	1,475	1,835	2,484	2,323	2,688	2,703	3,137	4,251	5,232	7,235	7,233	7,031	7,605
Japan	29,502	27,726	31,201	38,034	39,738	43,501	44,832	51,391	47,083	56,444	38,585	59,978	51,352	49,816	42,208	45,328
Malaysia	766	853	914	1,159	915	1,119	1,258	1,384	1,029	1,196	1,378	1,560	1,458	1,524	1,518	1,517

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	125	137	185	263	313	377	430	491	404	479	606	624	611	670	673	721
Philippines	435	466	424	478	542	526	582	632	691	627	584	524	591	618	773	767
Singapore	264	275	272	313	358	424	467	522	449	464	486	506	528	574	505	491
South Korea	6,105	6,909	7,625	8,393	10,091	11,662	12,953	12,663	11,957	16,042	16,919	16,700	17,660	19,578	18,599	18,100
Sri Lanka	26	30	35	38	50	328	166	90	91	93	112	111	128	153	154	155
Taiwan	2,681	2,633	2,718	2,817	2,990	3,441	3,741	3,521	3,129	4,229	4,322	4,715	4,712	4,782	4,666	4,607
Thailand	1,009	943	1,022	1,256	1,218	1,555	1,861	1,799	1,937	2,658	2,911	3,117	3,515	3,079	3,400	3,512
Vietnam	210	255	293	372	522	683	792	866	1,096	1,054	1,149	1,338	1,412	1,513	1,581	1,730
Australia and Oceania																
Australia	970	1,160	1,477	1,878	2,054	2,128	2,514	2,597	2,105	2,512	3,244	2,584	2,834	2,663	2,075	2,068
New Zealand	179	194	266	317	370	349	407	242	144	199	240	227	229	238	198	203

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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APPENDIX TABLE 6-24

Value added of railroad and other transportation equipment, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	32,387	34,542	39,490	44,637	48,967	54,612	64,727	75,205	71,542	79,972	87,220	89,286	88,885	97,443	92,415	94,031
North America																
Canada	1,518	1,428	1,439	1,384	1,679	1,827	1,786	1,778	1,523	1,414	1,883	1,828	1,761	2,096	1,948	1,778
Mexico	317	351	368	487	548	498	561	595	322	347	714	976	1,012	1,197	1,510	1,418
United States	8,954	8,820	9,215	10,432	12,378	14,090	16,842	18,698	16,885	15,394	15,258	13,863	14,681	15,500	13,530	13,051
Central and South America																
Argentina	28	13	15	20	25	27	32	35	33	33	32	28	28	24	22	19
Bolivia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Brazil	626	568	664	1,062	1,542	2,263	3,126	3,670	2,769	4,041	3,977	2,913	2,784	2,835	2,107	1,921
Chile	6	5	6	4	6	5	5	5	8	9	9	10	13	14	9	9
Colombia	63	72	77	100	126	178	217	224	216	270	356	406	464	480	415	378
Costa Rica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ecuador	19	20	21	23	22	22	23	27	32	33	35	39	42	52	52	49
Honduras	4	5	5	5	6	6	7	8	8	8	9	11	10	10	10	11
Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	33	37	38	49	57	65	75	86	85	104	120	125	130	108	99	97

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Uruguay	1	1	2	2	3	4	5	6	1	2	2	2	2	1	1	1
Venezuela	6	4	4	5	6	8	9	14	17	10	12	15	14	11	18	4
Europe																
EU	6,391	7,308	8,972	9,734	10,140	11,258	13,790	15,997	13,473	13,496	14,225	13,087	13,287	13,912	12,346	12,297
Austria	278	414	585	542	526	794	959	1,209	858	965	1,049	893	899	861	600	626
Belgium	55	58	70	77	78	75	105	100	89	88	92	84	87	86	81	81
Bulgaria	5	7	12	14	23	27	38	14	27	20	24	22	18	19	18	18
Czech Republic	120	156	209	222	251	274	389	484	524	504	599	546	586	620	578	598
Denmark	75	87	91	122	138	129	108	176	108	127	109	77	81	86	96	97
Finland	55	64	87	87	121	99	113	130	90	82	84	82	112	106	92	91
France	436	627	595	759	910	999	1,475	1,435	1,340	1,458	1,166	1,142	1,251	1,231	1,076	1,096
Germany	1,249	1,395	1,891	1,898	2,233	2,333	2,962	3,163	2,576	2,826	3,025	2,881	3,061	3,421	3,030	3,104
Greece	29	33	38	46	36	42	62	65	61	127	102	40	46	46	133	138
Hungary	31	55	80	94	85	71	117	204	102	104	122	101	118	143	112	106
Ireland	18	16	18	22	21	23	29	24	14	13	9	10	9	4	4	4
Italy	1,094	1,343	1,651	1,961	1,642	1,758	2,197	2,524	2,007	1,800	1,804	1,445	1,313	1,427	1,178	1,216
Netherlands	148	162	192	197	208	202	359	333	302	284	289	273	271	282	266	256
Poland	231	199	246	341	356	336	431	524	421	394	600	495	520	474	450	406
Portugal	132	172	211	221	215	224	262	678	457	433	443	422	140	121	99	101

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Romania	63	56	97	105	130	187	260	333	228	168	216	200	145	176	141	133
Slovakia	0	0	0	0	0	0	39	55	32	94	79	90	79	83	67	71
Spain	928	791	913	1,006	1,248	1,399	1,571	2,068	1,782	1,606	1,641	1,518	1,369	1,425	1,014	1,065
Sweden	194	282	391	361	408	445	545	536	554	558	709	621	644	625	581	539
United Kingdom	1,251	1,390	1,595	1,661	1,511	1,842	1,770	1,943	1,899	1,843	2,064	2,145	2,540	2,676	2,730	2,553
Other Europe																
Norway	22	18	28	40	48	82	88	90	79	65	76	82	90	89	72	69
Russia	154	195	243	341	449	576	884	1,010	2,037	2,389	3,400	3,434	3,302	3,081	422	511
Switzerland	108	128	161	192	200	224	253	309	299	445	682	670	706	710	657	601
Turkey	67	49	105	208	192	164	186	221	259	258	291	210	178	150	126	116
Ukraine	73	105	160	245	331	449	581	739	795	1,123	1,486	1,563	743	453	123	119
Middle East																
Bahrain	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
Iran	78	121	144	192	210	285	154	134	113	124	189	142	107	117	112	123
Israel	105	92	95	112	114	486	609	798	778	748	832	803	915	983	978	1,047
Jordan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	1	2	2	3	4	3	5	9	9	10	13	11	10	11	8	8
Oman	0	0	0	0	0	0	0	0	0	1	2	1	1	1	0	0
Qatar	1	1	1	3	3	4	2	1	1	9	13	16	16	17	16	16

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Saudi Arabia	49	51	62	67	78	89	118	122	128	158	174	185	184	202	165	147
United Arab Emirates	2	2	2	3	3	3	4	4	4	4	5	5	5	5	5	5
Africa																
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	14	13	11	14	16	18	22	28	31	32	31	20	12	39	242	216
Ghana	3	4	5	5	7	8	8	8	7	8	10	9	9	8	7	7
Kenya	12	12	15	19	15	19	13	14	14	11	13	14	15	16	16	17
Morocco	7	10	11	12	19	23	49	66	56	61	63	42	82	100	81	80
Nigeria	33	46	52	66	93	134	161	211	193	254	336	408	543	654	566	340
Senegal	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
South Africa	100	109	144	168	171	179	194	188	223	235	231	218	196	184	190	177
Tunisia	2	2	3	4	4	6	4	5	5	5	6	5	5	6	5	5
Asia																
Bangladesh	9	13	18	23	30	33	34	43	62	76	77	81	100	232	487	547
China	4,574	5,695	6,001	6,189	7,341	7,750	9,815	13,392	14,427	17,594	21,187	25,071	27,759	34,108	36,284	38,387
India	769	921	1,207	1,498	1,784	2,093	2,420	2,466	3,177	4,374	4,325	4,057	4,125	4,394	4,516	4,787
Indonesia	1,399	1,823	2,336	2,860	2,163	1,936	2,018	2,975	3,119	4,150	5,554	4,994	4,238	4,237	4,011	4,372
Japan	4,159	3,294	4,241	5,030	4,473	4,468	4,239	3,712	4,062	4,735	3,118	4,672	2,518	2,704	2,680	2,979
Malaysia	26	26	28	35	45	48	53	76	53	77	81	133	128	141	133	125

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	13	14	19	28	33	154	166	184	162	168	174	168	138	148	144	144
Philippines	50	57	59	67	80	84	150	337	374	421	376	505	464	492	576	598
Singapore	53	60	58	74	84	79	142	181	163	248	304	301	326	289	253	255
South Korea	325	529	504	383	499	552	777	860	802	913	768	628	651	759	710	625
Sri Lanka	18	22	25	28	36	236	119	65	65	67	80	80	92	110	112	114
Taiwan	1,157	1,349	1,445	1,467	1,511	1,258	1,667	1,988	1,639	1,797	2,066	2,113	2,125	2,267	2,384	2,046
Thailand	549	586	751	927	1,127	1,415	1,531	1,548	1,167	1,803	2,069	2,270	2,045	1,696	1,687	1,716
Vietnam	164	200	230	349	506	750	862	1,393	1,042	1,397	1,325	1,390	1,436	1,491	1,530	1,645
Australia and Oceania																
Australia	186	196	283	429	479	502	595	618	604	772	936	1,412	1,118	1,025	816	811
New Zealand	132	163	213	248	281	252	325	266	221	276	292	269	272	282	235	240

EU = European Union.

Note(s)

Value added is the amount contributed by a country, firm, or other entity to the value of a good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See Appendix Table 6-1 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, World Industry Service database, accessed 17 July 2017.

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 APPENDIX TABLE 6-25 
Exports and imports of commercial KI services, by selected region, country, or economy: 2008–16

(Millions of current dollars)

Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports									
World	1,104,730	1,040,876	1,131,790	1,289,883	1,349,566	1,463,289	1,602,508	1,536,916	1,568,398
Selected developed regions, countries, or economies									
Australia	10,052	8,276	9,497	11,540	12,901	13,589	13,503	12,726	13,127
Canada	37,279	35,668	40,164	45,476	47,569	48,061	47,358	42,072	40,927
EU	378,342	351,494	382,135	432,402	452,962	499,459	548,938	503,002	520,048
Hong Kong	24,239	23,288	27,110	29,271	31,666	33,004	34,949	36,911	19,513
Japan	40,706	41,750	38,335	44,462	32,014	35,703	49,442	49,208	55,804
Norway	16,117	13,462	16,879	13,763	18,553	19,381	19,045	15,564	14,042
Singapore	34,285	33,803	38,836	47,293	52,346	59,985	68,403	70,808	68,846
South Korea	16,659	12,940	14,847	17,230	20,141	21,753	26,195	24,937	26,606
Switzerland	53,260	47,991	48,947	55,041	55,228	56,813	61,938	60,610	60,836
Taiwan	7,371	6,342	6,999	8,246	9,610	10,589	11,745	12,246	13,207
United States	186,213	192,381	207,015	228,951	240,052	262,582	283,802	284,529	287,805
Selected developing regions, countries, or economies									
Brazil	17,037	16,348	16,499	20,363	22,329	21,385	24,642	20,792	19,750

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
China	30,759	26,817	13,534	74,141	72,485	81,514	98,179	90,345	90,635
India	79,336	66,756	82,652	94,495	103,501	108,976	110,922	112,472	115,748
Malaysia	6,082	5,979	7,517	9,708	11,451	11,829	10,587	8,940	9,001
Philippines	8,972	10,504	13,506	14,060	14,484	16,729	18,264	21,544	23,885
Russia	18,496	15,411	16,448	19,281	21,649	24,836	23,232	18,401	17,181
All others	139,527	131,667	150,871	124,160	130,627	137,102	151,363	151,809	171,438
Imports									
World	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selected developed regions, countries, or economies									
Australia	9,944	8,799	9,832	12,488	13,935	15,510	14,981	14,225	12,991
Canada	28,523	28,749	33,325	35,289	37,142	38,072	37,429	34,830	35,311
EU	268,984	253,804	265,666	291,918	302,196	331,866	365,309	357,200	381,860
Hong Kong	12,361	13,086	15,850	17,011	17,569	18,173	18,976	19,679	6,116
Japan	53,567	50,999	52,483	59,892	61,322	65,282	81,029	85,165	88,294
Norway	16,310	14,865	17,525	16,794	18,349	19,885	20,244	17,634	17,538
Singapore	29,994	28,629	34,310	41,614	47,725	59,581	65,792	63,305	63,694
South Korea	26,121	25,661	28,107	30,024	33,650	32,921	35,030	34,031	34,808
Switzerland	34,736	35,104	36,874	43,442	43,951	47,151	52,537	52,962	54,041
Taiwan	10,349	9,602	12,302	14,577	15,581	14,648	15,454	15,371	15,257

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
United States	163,560	167,292	171,987	183,778	186,581	195,870	203,273	203,473	207,234
Selected developing regions, countries, or economies									
Brazil	19,450	21,735	27,188	32,275	35,517	36,281	37,443	34,460	31,981
China	54,029	37,588	21,244	74,726	70,370	80,733	78,873	62,453	70,954
India	31,908	27,915	40,925	42,842	45,166	43,661	41,188	41,958	47,607
Malaysia	8,104	8,419	10,884	12,924	14,499	15,272	14,567	13,448	14,406
Philippines	3,517	2,202	2,366	2,568	3,136	3,900	5,377	7,232	7,441
Russia	24,295	20,719	23,258	27,186	29,397	33,740	34,064	27,373	25,868

NA = not available.

EU = European Union; KI = knowledge intensive.

Note(s)

Commercial KI services trade consists of communications services, computer and information services, financial services, and other business services. Financial services include finance and insurance. World trade and total EU trade do not include intra-EU trade.

Source(s)

World Trade Organization, International trade and tariff data, https://www.wto.org/english/res_e/statis_e/statis_e.htm, accessed 15 September 2017.

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APPENDIX TABLE 6-26

Exports and imports of high-technology products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	930,574	968,797	1,113,846	1,367,710	1,545,145	1,758,209	1,833,815	1,919,440	1,718,914	2,089,174	2,248,045	2,308,649	2,404,474	2,480,049	2,465,549	2,555,146
North America	179,954	165,741	167,626	185,081	230,904	271,769	283,541	279,944	259,297	278,653	288,757	307,861	315,239	326,348	328,705	330,720
Canada	6,142	5,570	5,938	7,464	9,133	11,972	12,289	12,769	12,380	13,146	12,612	12,187	12,301	13,154	12,431	12,348
Mexico	4,931	5,245	4,843	6,426	8,310	10,298	10,317	12,590	10,797	13,470	15,099	15,396	15,556	15,460	14,491	15,041
United States	168,881	154,927	156,845	171,190	213,461	249,499	260,935	254,586	236,120	252,038	261,045	280,279	287,381	297,734	301,783	303,331
Central and South America	10,423	10,882	13,199	16,846	18,834	20,470	23,463	25,891	26,492	33,033	37,328	41,825	40,803	34,614	24,687	26,777
Brazil	5,930	5,198	5,118	7,434	8,244	8,772	9,456	10,438	8,525	9,186	9,006	9,245	8,835	8,207	7,810	8,311
Central America	3,092	4,356	6,649	7,866	8,677	9,476	11,505	12,057	14,679	20,451	24,078	28,786	27,844	23,173	13,718	15,093
All others	1,401	1,328	1,431	1,546	1,913	2,222	2,501	3,396	3,288	3,397	4,245	3,793	4,124	3,234	3,159	3,374
Europe																
EU	177,906	185,552	214,771	258,630	287,494	314,208	335,573	363,672	325,325	361,316	405,562	410,753	429,753	437,887	419,888	423,851
France	35,264	33,981	38,255	45,273	47,040	55,725	59,297	69,086	62,209	70,169	73,914	75,532	77,893	76,793	70,894	68,835
Germany	41,143	42,540	50,767	64,440	68,002	78,562	83,278	88,326	78,870	87,630	102,266	109,703	118,974	123,009	117,400	113,754
United Kingdom	33,097	30,074	33,788	37,386	47,554	44,858	45,422	48,458	44,694	47,347	49,271	50,860	52,736	52,603	51,641	49,091
All others	68,403	78,958	91,960	111,531	124,898	135,062	147,576	157,801	139,552	156,170	180,111	174,658	180,150	185,482	179,954	192,171

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	35,046	39,234	44,686	54,628	56,857	65,917	79,384	93,886	87,524	95,785	117,157	122,201	126,672	131,068	123,426	138,467
Russia	3,333	4,674	4,672	4,711	2,223	2,992	3,404	4,744	3,847	4,061	6,267	6,674	7,446	6,854	6,259	6,375
Switzerland	25,935	28,340	33,066	40,627	44,702	51,428	62,301	74,097	69,436	76,685	94,350	96,470	100,619	105,606	99,868	114,288
Turkey	1,771	2,253	2,661	3,941	4,425	4,834	4,531	4,387	3,993	4,395	4,678	5,379	5,530	6,138	6,172	6,400
All others	4,006	3,967	4,287	5,349	5,506	6,664	9,148	10,659	10,247	10,644	11,862	13,677	13,077	12,470	11,127	11,404
Middle East	13,662	12,869	13,758	17,186	20,967	20,290	25,410	30,048	24,353	30,425	33,303	33,341	36,031	31,598	35,255	36,783
Israel	10,627	9,330	9,439	11,229	11,611	13,812	15,004	17,059	18,307	20,524	22,097	22,668	23,511	20,976	23,909	23,886
All others	3,034	3,540	4,319	5,957	9,356	6,479	10,407	12,989	6,046	9,901	11,206	10,673	12,519	10,622	11,346	12,897
Africa	2,210	2,314	3,000	3,869	4,586	5,441	6,013	7,037	5,855	5,718	6,968	7,154	6,963	8,635	9,096	9,436
Asia																
China	89,681	115,961	160,147	231,703	286,336	347,398	365,769	404,399	364,343	488,957	539,717	545,411	564,207	600,611	597,158	615,068
India	2,836	3,067	3,825	4,646	5,416	6,907	9,972	12,915	15,041	17,423	22,621	23,085	25,850	26,672	28,380	31,244
Indonesia	8,435	8,696	8,444	9,407	10,236	9,504	9,842	10,558	9,863	11,300	11,106	10,627	9,801	9,456	9,714	9,737
Japan	122,293	119,445	136,214	159,671	157,312	160,751	152,258	154,025	124,371	153,195	156,145	151,038	133,773	129,155	118,788	122,416
Malaysia	56,040	57,153	62,192	70,414	76,041	83,327	80,570	71,692	71,661	83,798	85,010	80,322	81,048	86,502	83,501	85,309
Philippines	26,401	28,217	30,475	32,902	33,801	33,184	33,721	30,664	22,927	32,488	27,469	28,708	28,810	32,676	33,308	36,869
Singapore	53,767	54,569	61,466	73,449	82,606	97,599	91,665	96,239	77,918	108,957	117,398	117,735	120,976	121,840	119,106	124,036
South Korea	53,140	60,573	73,226	95,970	104,517	116,431	118,300	116,197	106,482	133,715	132,520	131,774	143,318	148,355	143,608	140,347
Taiwan	65,974	74,207	84,441	110,058	120,470	146,908	152,958	150,710	130,266	168,265	177,603	192,195	224,675	233,905	251,086	274,503

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	21,022	22,328	26,646	33,360	37,687	44,148	47,858	52,639	48,239	58,760	57,223	56,499	54,982	57,964	58,789	60,594
Vietnam	514	592	935	1,063	1,522	2,201	2,983	4,251	4,645	7,814	13,787	29,501	42,089	42,729	57,224	63,436
All others	638	564	631	789	855	1,105	1,062	1,237	946	4,883	1,281	1,224	1,385	1,936	2,032	2,241
Australia	4,080	4,099	4,302	5,067	5,917	6,666	7,658	8,203	7,780	8,536	9,833	9,978	9,208	9,047	8,320	9,992
All others	6,554	2,732	3,863	2,971	2,786	3,986	5,816	5,231	5,586	6,152	7,260	7,416	8,894	9,051	13,477	13,323
Imports																
World	930,574	968,797	1,113,846	1,367,710	1,545,145	1,758,209	1,833,815	1,919,440	1,718,914	2,089,174	2,248,045	2,308,649	2,404,474	2,480,049	2,465,549	2,555,146
North America	232,362	239,485	256,843	308,507	331,837	371,204	355,383	367,057	331,844	390,999	417,955	424,678	431,078	450,813	461,572	463,667
Canada	19,235	17,393	18,620	22,561	26,049	30,163	32,199	34,147	31,261	35,011	38,720	38,080	38,790	37,485	36,015	37,689
Mexico	11,655	14,603	16,211	22,878	26,246	33,799	34,428	41,959	37,168	50,007	52,671	54,733	59,230	59,738	60,304	61,371
United States	201,472	207,490	222,011	263,068	279,542	307,242	288,755	290,950	263,415	305,981	326,564	331,864	333,059	353,590	365,253	364,607
Central and South America	33,895	29,809	29,782	38,758	51,322	66,777	71,223	89,968	80,548	97,647	112,536	114,958	116,576	112,322	103,497	97,551
Brazil	13,966	11,553	10,551	14,589	18,956	24,692	24,936	36,575	30,495	38,864	42,665	44,540	45,708	44,042	36,984	34,138
Central America	7,066	7,983	8,203	8,918	10,203	13,153	13,426	15,054	15,301	16,055	19,852	17,312	16,612	15,940	15,284	15,794
All others	12,863	10,273	11,028	15,251	22,162	28,933	32,862	38,340	34,752	42,728	50,019	53,107	54,256	52,340	51,229	47,619
Europe																
EU	199,190	191,702	228,708	288,818	322,853	364,914	388,620	407,817	356,179	416,916	435,272	416,881	417,745	426,565	417,682	435,927
France	26,170	25,695	28,505	36,670	40,557	44,190	48,136	51,382	48,073	51,972	55,847	57,062	57,987	56,274	57,865	60,261
Germany	48,143	47,222	55,006	69,811	77,228	92,375	94,551	98,040	87,533	105,547	110,759	102,023	99,875	107,018	103,438	107,915

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	40,637	33,937	35,820	42,404	47,161	50,421	51,000	51,320	43,411	54,071	57,417	52,320	50,531	53,001	54,933	56,846
All others	84,241	84,848	109,377	139,933	157,908	177,928	194,933	207,076	177,162	205,325	211,248	205,476	209,351	210,272	201,446	210,905
Other Europe	42,078	45,627	56,001	72,399	85,152	99,654	112,952	126,643	104,854	124,139	146,541	150,468	159,731	153,530	134,845	142,764
Russia	7,091	7,817	11,120	15,109	19,242	24,388	29,508	36,140	25,358	34,272	40,857	47,320	47,242	42,444	31,511	31,644
Switzerland	17,567	18,790	23,085	26,479	31,134	33,263	35,980	38,083	34,719	37,634	43,406	43,763	47,191	48,137	44,491	46,741
Turkey	6,282	7,429	8,593	12,644	14,942	17,956	18,824	20,474	17,332	22,191	25,325	22,818	25,177	26,716	28,437	30,241
All others	11,138	11,591	13,203	18,166	19,834	24,047	28,639	31,946	27,445	30,043	36,952	36,567	40,121	36,233	30,406	34,137
Middle East	27,794	28,917	35,137	40,937	55,354	58,823	63,605	68,808	66,775	75,621	85,284	93,812	105,900	112,455	117,764	123,228
Israel	6,372	5,481	5,540	7,373	8,313	8,847	9,358	9,740	8,117	8,769	10,023	10,578	10,478	11,199	11,685	12,633
All others	21,421	23,436	29,597	33,563	47,041	49,976	54,247	59,068	58,659	66,852	75,261	83,235	95,422	101,256	106,079	110,596
Africa	18,379	18,247	21,851	27,114	32,674	36,855	40,266	50,504	43,696	47,960	50,602	49,527	52,670	59,255	56,929	58,239
Asia																
China	88,170	108,505	142,364	183,099	220,665	263,788	295,760	301,249	281,742	367,213	393,214	421,722	456,899	482,269	500,632	522,171
India	6,457	7,615	9,923	13,044	16,029	24,169	29,768	30,272	30,846	34,628	38,602	37,498	39,995	40,302	40,457	41,084
Indonesia	3,539	3,858	4,197	5,003	5,013	5,451	7,598	13,553	13,163	17,402	18,391	20,439	21,537	19,482	19,552	18,412
Japan	70,699	69,402	78,055	91,644	98,950	105,943	103,261	106,002	94,146	118,320	127,856	140,112	138,742	139,251	130,279	132,597
Malaysia	30,182	33,056	35,807	39,968	42,341	49,230	50,519	44,710	39,311	54,638	52,135	52,978	54,770	55,726	51,355	54,529
Philippines	17,142	17,329	19,317	21,080	20,726	23,945	23,598	22,287	16,623	21,714	18,793	21,882	22,892	23,388	22,900	26,923
Singapore	50,143	50,400	54,883	69,188	78,471	90,623	86,196	86,215	72,518	93,299	94,565	97,776	103,377	103,248	97,143	98,579

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	34,496	37,468	43,661	51,642	56,962	63,333	64,436	65,634	57,051	71,300	77,308	77,984	81,318	89,419	93,136	102,396
Taiwan	35,326	38,306	41,885	50,677	54,169	57,403	54,419	49,991	44,645	59,681	63,240	63,576	66,002	72,445	72,305	80,908
Thailand	16,963	17,326	19,046	22,111	25,619	28,635	29,722	29,420	26,651	33,759	36,851	40,925	41,678	40,118	40,315	41,804
Vietnam	1,579	1,856	2,912	4,017	3,683	4,219	6,146	6,959	8,597	10,494	14,755	21,829	29,245	33,324	40,621	44,731
All others	3,077	3,430	4,161	6,052	6,836	8,445	8,126	8,599	7,734	9,682	11,922	12,261	15,787	17,944	18,519	21,362
Australia	12,909	16,026	18,116	21,866	24,092	26,033	27,353	31,139	29,735	34,191	39,836	38,449	36,348	36,097	34,282	35,034
All others	6,193	10,433	11,196	11,788	12,399	8,764	14,864	12,613	12,254	9,570	12,388	10,893	12,183	12,097	11,765	13,240

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-27

Exports and imports of medium-high technology products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	1,068,601	1,129,867	1,323,009	1,638,530	1,857,751	2,126,679	2,548,862	2,956,739	2,248,123	2,895,891	3,479,217	3,527,733	3,561,743	3,590,029	3,404,237	3,390,522
North America	144,407	139,176	145,793	172,424	201,888	234,004	283,341	321,766	243,664	305,647	357,549	366,408	360,497	363,295	339,257	317,309
Canada	6,506	6,781	8,328	10,349	12,638	14,246	19,149	20,277	14,993	16,803	19,923	20,135	19,061	17,865	16,977	16,252
Mexico	7,943	8,092	6,498	7,641	9,275	12,511	16,866	20,919	15,600	21,823	29,370	32,192	31,723	30,481	28,511	28,546
United States	129,957	124,303	130,968	154,434	179,975	207,246	247,326	280,570	213,071	267,021	308,256	314,081	309,713	314,949	293,769	272,512
Central and South America	29,075	28,076	33,399	44,254	56,767	65,401	75,010	90,979	66,774	83,689	99,665	99,699	96,012	85,787	76,531	75,582
Brazil	13,828	14,161	18,375	24,873	31,902	37,077	41,221	46,538	31,836	40,838	48,371	47,302	45,503	38,509	34,797	35,270
Central America	3,600	3,468	4,411	5,509	7,013	7,809	10,003	13,445	10,518	12,580	14,300	14,138	13,763	13,981	13,075	11,928
All others	11,647	10,447	10,612	13,872	17,852	20,515	23,786	30,995	24,421	30,271	36,994	38,259	36,746	33,297	28,659	28,384
Europe																
EU	327,474	349,474	415,257	500,114	543,082	614,164	738,232	840,765	634,120	762,888	922,651	927,193	960,539	960,372	851,859	830,738
France	35,128	36,941	43,270	51,570	53,827	58,874	67,829	76,594	59,762	67,858	77,878	76,120	75,319	74,578	64,038	62,256
Germany	119,297	130,205	154,023	185,904	202,070	232,406	270,554	311,899	229,197	289,674	355,197	355,777	364,721	365,206	321,225	308,001
United Kingdom	34,822	37,032	42,741	49,885	53,395	57,725	64,221	69,165	52,206	63,690	76,126	82,390	82,420	85,638	83,386	78,700
All others	138,227	145,295	175,223	212,755	233,790	265,158	335,628	383,107	292,954	341,666	413,449	412,906	438,079	434,951	383,209	381,781

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	68,694	72,446	88,271	113,409	125,861	145,077	183,271	224,037	162,309	187,957	234,355	228,729	230,482	227,085	208,768	215,208
Russia	13,891	13,610	16,651	21,929	24,345	27,163	34,290	46,611	28,190	34,536	46,777	47,230	45,612	41,620	37,890	36,550
Switzerland	33,016	34,431	39,758	47,093	49,563	54,378	62,665	69,403	54,800	61,354	73,184	64,507	66,382	69,630	62,916	71,164
Turkey	7,900	9,838	13,946	19,946	23,702	30,063	39,833	46,545	35,366	41,935	51,094	51,184	56,791	59,186	57,347	57,287
All others	13,886	14,567	17,916	24,441	28,250	33,473	46,482	61,477	43,953	50,132	63,300	65,807	61,697	56,648	50,616	50,208
Middle East	22,647	24,765	26,346	35,476	45,853	47,171	64,939	93,383	66,502	99,291	130,368	122,552	128,732	121,534	129,288	132,866
Israel	6,214	6,447	7,256	8,438	9,160	9,700	11,371	16,435	12,516	14,404	17,312	16,846	16,712	16,700	16,024	15,723
All others	16,433	18,318	19,091	27,038	36,693	37,472	53,568	76,948	53,987	84,887	113,056	105,705	112,020	104,834	113,264	117,143
Africa	14,337	15,530	18,493	22,334	25,253	30,440	36,108	52,659	38,016	47,759	58,093	57,988	59,832	57,252	59,886	61,417
Asia																
China	73,624	86,654	110,174	149,938	191,095	243,176	313,489	387,103	316,598	422,026	526,828	557,829	590,638	642,526	661,674	688,888
India	8,535	9,934	12,770	16,602	21,442	26,852	32,889	41,483	35,337	46,169	60,275	62,782	66,036	68,874	66,570	67,118
Indonesia	8,538	9,242	10,984	13,667	16,023	20,119	24,517	27,915	20,923	31,089	41,955	38,891	37,785	37,455	38,382	38,771
Japan	214,707	225,948	257,610	309,725	332,147	361,963	402,947	437,911	304,120	423,376	463,232	461,712	415,285	399,880	363,794	364,120
Malaysia	11,619	12,618	15,150	19,414	22,027	25,787	29,918	34,729	27,490	37,002	44,987	44,564	45,135	45,662	42,837	40,767
Philippines	3,686	4,243	4,902	6,050	6,925	7,796	8,361	9,017	7,252	10,388	11,548	13,492	13,725	13,298	13,262	13,817
Singapore	19,186	21,428	26,856	33,813	37,705	42,767	49,830	53,993	45,865	61,057	72,117	74,699	70,910	77,220	70,851	67,597
South Korea	49,011	53,211	67,052	90,905	106,192	122,089	140,863	154,437	128,942	173,771	216,506	229,295	238,367	240,179	223,070	207,998
Taiwan	38,744	41,530	46,450	55,946	61,665	65,468	73,711	78,731	61,624	84,086	94,913	92,500	93,329	94,382	100,645	102,721

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	17,709	19,438	24,370	31,786	38,984	46,777	56,624	67,196	55,160	78,834	94,429	96,898	100,965	99,627	101,490	105,115
Vietnam	1,402	1,650	2,139	2,923	3,516	4,650	5,718	7,506	6,891	10,527	14,165	17,429	19,317	21,259	22,771	25,298
All others	1,341	1,345	1,660	1,949	2,618	2,827	3,401	4,151	3,636	4,858	5,675	5,903	5,675	5,800	5,645	5,850
Australia	7,404	7,373	8,506	9,996	11,049	11,157	13,557	14,723	11,037	12,904	14,720	15,688	14,247	13,270	12,176	13,904
All others	6,462	5,786	6,824	7,805	7,658	8,996	12,137	14,257	11,863	12,573	15,185	13,481	14,236	15,268	15,480	15,437
Imports																
World	1,068,601	1,129,867	1,323,009	1,638,530	1,857,751	2,126,679	2,548,862	2,956,739	2,248,123	2,895,891	3,479,217	3,527,733	3,561,743	3,590,029	3,404,237	3,390,522
North America	269,434	283,071	308,985	354,677	397,478	441,615	466,108	488,951	355,530	448,515	529,774	581,933	588,285	619,852	631,980	620,458
Canada	20,462	22,141	25,658	29,592	34,880	40,648	44,300	47,751	37,472	46,013	52,909	57,791	57,252	56,990	54,555	56,706
Mexico	16,638	18,209	19,612	24,100	28,975	33,463	38,288	43,006	32,063	43,780	51,186	56,780	59,549	64,972	67,769	66,705
United States	232,334	242,721	263,716	300,986	333,623	367,503	383,521	398,194	285,995	358,722	425,679	467,363	471,484	497,890	509,655	497,046
Central and South America	76,028	65,113	67,804	89,275	110,988	135,599	173,988	227,124	167,165	228,392	284,168	296,354	296,693	272,440	238,952	217,916
Brazil	24,058	20,379	20,661	26,656	31,095	36,959	50,560	74,252	56,811	80,492	101,297	100,686	106,884	98,272	76,394	64,964
Central America	15,380	15,045	15,324	17,844	21,544	26,449	31,004	35,857	25,689	32,078	37,696	41,746	39,694	39,769	40,436	41,418
All others	36,590	29,689	31,819	44,775	58,349	72,191	92,424	117,015	84,664	115,822	145,175	153,922	150,115	134,399	122,122	111,534
Europe																
EU	180,974	184,563	226,746	276,232	308,568	351,774	432,264	470,904	338,979	414,239	503,036	469,099	474,179	498,240	473,806	486,751
France	21,645	22,099	27,075	32,915	36,225	39,249	48,156	50,943	41,931	47,750	55,469	53,024	54,441	54,377	50,226	51,677
Germany	42,996	43,220	52,998	63,616	71,818	84,095	100,933	111,837	82,618	98,204	123,161	116,495	117,352	124,083	119,647	125,425

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	29,860	30,419	35,160	41,992	45,296	48,793	57,672	54,329	38,686	54,727	65,111	57,442	55,409	60,272	58,686	60,626
All others	86,474	88,825	111,513	137,709	155,229	179,637	225,504	253,796	175,744	213,559	259,296	242,138	246,976	259,509	245,248	249,023
Other Europe	84,953	95,629	121,864	164,636	191,216	237,362	314,594	383,948	239,337	303,942	403,295	412,240	424,330	385,428	321,783	326,051
Russia	17,984	20,557	27,027	37,622	48,782	68,897	102,534	136,306	63,244	91,977	134,604	144,784	141,619	121,354	81,171	79,849
Switzerland	27,647	28,084	31,727	37,007	39,505	42,407	49,678	54,726	45,626	52,816	62,985	60,936	62,874	65,323	57,995	56,473
Turkey	12,953	17,274	25,675	38,045	43,200	50,328	60,105	65,690	49,138	66,922	85,153	79,344	87,956	83,919	81,534	84,005
All others	26,369	29,713	37,435	51,962	59,729	75,729	102,276	127,226	81,329	92,227	120,554	127,176	131,880	114,833	101,082	105,724
Middle East	58,283	63,192	72,379	90,801	109,921	121,334	168,096	207,136	157,544	185,254	207,866	217,244	223,391	240,401	239,183	240,996
Israel	7,991	7,451	7,859	9,602	10,532	11,945	15,190	17,714	12,389	16,181	20,478	19,211	19,568	19,413	19,280	21,192
All others	50,292	55,742	64,520	81,198	99,389	109,390	152,906	189,422	145,155	169,073	187,388	198,033	203,822	220,988	219,903	219,804
Africa	45,906	49,446	58,974	74,399	85,720	103,334	130,637	167,817	150,492	165,707	180,435	193,815	206,845	209,433	201,280	197,291
Asia																
China	89,408	108,610	140,611	178,438	193,595	224,156	263,136	291,348	272,420	388,814	465,635	433,003	448,513	462,474	424,539	414,503
India	11,521	12,379	15,998	22,264	30,423	38,580	52,331	76,095	64,115	83,645	102,229	96,178	88,001	89,902	84,819	82,367
Indonesia	12,778	12,872	13,986	19,052	21,134	20,106	24,722	40,543	31,613	46,531	58,731	66,887	62,410	58,934	55,870	54,542
Japan	56,943	58,077	67,218	79,820	88,644	98,657	108,553	123,319	91,925	118,565	144,705	143,657	136,301	139,942	129,368	127,233
Malaysia	16,028	16,239	17,523	22,274	25,176	28,499	32,052	36,956	30,657	42,149	47,650	52,641	52,616	51,876	47,817	48,631
Philippines	8,780	8,567	9,400	10,434	11,077	12,111	13,594	15,733	13,486	18,461	20,426	22,444	21,867	23,495	25,398	29,578
Singapore	23,184	23,994	26,167	33,357	36,630	42,674	47,897	54,530	44,214	55,580	65,343	65,521	63,689	63,618	59,000	58,844

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	31,061	35,353	42,614	54,130	62,090	72,170	83,763	94,036	78,097	104,875	119,675	115,525	119,022	118,628	112,814	115,710
Taiwan	28,877	30,376	35,537	49,457	50,681	53,638	59,120	59,088	46,053	73,082	78,743	70,565	70,707	70,367	67,326	71,416
Thailand	17,392	18,578	22,533	28,674	32,170	34,399	39,223	47,121	36,213	52,652	62,699	76,137	69,290	63,987	62,557	63,497
Vietnam	6,166	7,343	9,099	10,621	11,843	14,164	20,833	25,845	25,318	31,289	38,208	38,352	45,400	52,767	62,008	65,512
All others	10,503	11,331	13,889	17,508	21,304	23,477	27,575	33,120	30,438	40,356	51,942	51,568	53,117	57,266	60,128	64,531
Australia	23,860	26,357	32,420	39,948	44,883	48,718	58,005	68,086	53,904	67,555	79,652	92,832	83,412	79,981	74,689	72,687
All others	16,521	18,776	19,262	22,534	24,210	24,313	32,370	45,041	20,624	26,286	35,005	31,737	33,675	30,999	30,921	32,009

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

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 APPENDIX TABLE 6-28 
Exports and imports of other business services, by selected region, country, or economy: 2008–16

(Millions of current dollars)

Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports									
World	571,350	538,313	597,425	679,978	712,028	767,047	838,390	807,555	822,210
Selected developed regions, countries, or economies									
Australia	6,688	5,577	6,689	7,835	8,698	8,609	8,130	7,204	7,479
Canada	23,487	22,416	24,396	26,149	27,798	29,509	29,586	26,100	24,756
EU	184,588	175,973	185,661	207,334	214,617	244,177	271,214	260,634	261,549
Hong Kong	10,404	10,103	11,339	11,853	12,774	12,834	13,251	13,581	NA
Japan	32,714	34,528	31,675	36,736	25,442	28,256	37,383	34,089	38,668
Norway	12,068	9,580	12,586	8,801	14,050	14,154	13,958	11,078	9,740
Singapore	18,568	17,817	19,543	23,992	27,936	32,129	37,082	37,231	37,131
South Korea	13,095	10,137	11,655	13,598	16,295	17,660	20,968	19,060	20,648
Switzerland	10,981	10,650	12,262	15,080	16,488	16,631	18,791	19,571	19,966
Taiwan	5,460	4,892	5,252	6,165	6,385	6,837	7,249	7,545	7,940
United States	86,664	89,542	95,232	106,395	114,060	116,336	123,734	129,031	136,049
Selected developing regions, countries, or economies									
Brazil	14,331	13,867	13,773	16,858	18,597	17,462	21,351	17,490	16,423

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
China	21,240	17,148	0	56,365	51,023	57,235	68,906	58,425	57,964
India	36,377	27,594	34,529	38,549	47,091	46,651	48,461	50,097	53,202
Malaysia	3,997	3,496	4,861	6,492	7,666	8,205	7,019	5,568	5,766
Philippines	7,208	8,390	11,087	11,113	11,306	13,208	14,473	17,551	17,920
Russia	13,668	11,455	12,342	14,743	16,408	18,449	16,736	12,610	11,660
All others	69,812	65,147	104,545	71,921	75,395	78,707	80,099	80,690	NA
Imports									
World	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selected developed regions, countries, or economies									
Australia	6,647	6,116	6,794	8,578	10,085	11,041	9,743	9,163	8,058
Canada	17,005	16,749	18,445	19,769	21,615	21,801	21,384	18,453	18,472
EU	174,678	167,506	161,842	178,150	190,696	203,054	224,541	229,965	250,125
Hong Kong	7,498	8,269	9,997	10,680	10,952	10,965	11,195	11,512	NA
Japan	39,438	37,909	37,938	44,550	45,035	48,568	59,079	61,005	62,387
Norway	12,328	11,286	13,409	11,666	13,802	15,116	15,256	13,345	13,011
Singapore	22,320	21,390	24,169	29,177	34,210	43,940	48,600	45,075	44,859
South Korea	22,251	21,154	23,869	25,778	29,065	28,124	30,497	28,682	29,515
Switzerland	18,670	18,774	20,381	25,080	27,265	28,914	32,934	33,772	34,138
Taiwan	8,368	7,822	10,381	12,240	12,944	11,940	12,696	12,635	12,344

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
United States	62,774	63,292	65,992	78,000	81,586	85,871	90,230	94,099	96,076
Selected developing regions, countries, or economies									
Brazil	13,557	15,348	20,393	24,686	27,541	28,090	31,329	28,775	26,507
China	36,045	21,195	0	49,206	42,354	47,325	40,736	39,580	43,247
India	19,700	16,876	25,496	25,134	29,900	28,066	26,873	29,810	32,750
Malaysia	5,363	5,400	6,233	7,533	8,329	8,860	8,253	7,439	8,499
Philippines	1,825	1,018	1,021	1,014	1,652	2,267	3,561	5,111	4,918
Russia	16,750	14,394	15,635	18,565	20,120	22,876	23,152	18,459	17,477

NA = not available.

EU = European Union.

Note(s)

Other business services include merchandising and other trade-related services; operational leasing services; legal, accounting, management, and public relations; market research and public opinion polling; R&D; architectural, engineering, and other technical services; and agricultural, mining, and other on-site processing services. World trade and total EU trade do not include intra-EU trade.

Source(s)

World Trade Organization, International trade and tariff data, https://www.wto.org/english/res_e/statis_e/statis_e.htm, accessed 15 September 2017.

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 APPENDIX TABLE 6-29 
Exports and imports of telecommunications and computer and information services, by selected region, country, or economy: 2008–16

(Millions of current dollars)

Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports									
World	225,825	221,792	225,444	262,989	282,810	304,906	337,169	330,558	347,285
Selected developed regions, countries, or economies									
Australia	1,629	1,490	1,585	1,750	1,764	1,877	2,034	2,279	2,518
Canada	7,726	7,494	8,419	10,016	10,422	8,951	8,104	6,483	6,682
EU	65,816	65,577	84,459	96,902	103,477	113,683	127,951	116,720	125,376
Hong Kong	1,236	1,278	1,830	2,191	2,402	2,637	2,821	2,842	NA
Japan	1,599	1,534	1,781	1,958	2,323	2,709	3,188	3,252	3,789
Norway	1,629	1,980	2,520	2,480	2,294	2,428	2,347	2,171	2,139
Singapore	2,598	2,615	3,543	3,889	4,219	4,888	5,208	6,424	6,455
South Korea	946	883	1,031	1,319	1,518	2,157	2,994	3,502	3,570
Switzerland	6,855	7,348	8,141	9,132	10,167	10,991	14,074	13,628	13,202
Taiwan	463	468	601	810	1,091	1,378	1,754	2,032	2,380
United States	23,119	23,816	25,038	29,171	32,510	34,419	35,044	35,895	37,262
Selected developing regions, countries, or economies									
Brazil	641	538	611	523	732	708	1,446	1,571	1,804

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
China	7,822	7,710	10,476	13,908	16,247	17,098	20,170	24,591	25,425
India	37,107	34,031	40,508	47,113	48,801	53,805	54,535	55,046	55,318
Malaysia	1,628	2,014	2,129	2,421	2,924	2,858	2,760	2,662	2,384
Philippines	1,604	1,897	2,236	2,769	3,003	3,336	3,472	3,461	5,487
Russia	3,045	2,551	2,624	3,102	3,494	4,163	4,504	3,971	3,937
All others	60,364	58,569	27,910	33,534	35,423	36,820	44,765	44,025	NA
Imports									
World	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selected developed regions, countries, or economies									
Australia	1,735	1,685	1,869	2,036	1,989	2,321	2,663	2,541	2,709
Canada	3,602	4,082	4,727	5,506	5,841	6,039	6,022	5,836	5,590
EU	38,355	36,657	52,932	54,431	55,629	63,880	73,166	65,906	67,598
Hong Kong	929	873	1,118	1,257	1,462	1,651	1,902	1,904	NA
Japan	5,035	4,901	4,597	5,191	5,680	6,349	11,568	13,373	14,071
Norway	2,687	1,869	2,462	2,676	2,938	3,062	3,435	3,055	3,279
Singapore	2,393	2,390	3,538	4,793	5,461	7,096	8,635	8,375	8,375
South Korea	1,386	1,327	1,442	1,535	1,516	1,832	2,027	2,799	2,727
Switzerland	8,877	9,548	10,211	11,401	11,344	13,011	14,277	13,789	14,549
Taiwan	671	722	866	1,010	1,168	1,180	1,230	1,234	1,339

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
United States	24,655	25,784	29,015	32,756	32,779	35,034	36,313	36,440	37,527
Selected developing regions, countries, or economies									
Brazil	3,083	2,960	3,775	4,238	4,756	5,208	3,670	3,340	3,248
China	4,675	4,442	4,103	5,035	5,490	7,624	10,746	11,419	12,768
India	4,309	3,240	3,617	3,196	3,482	3,743	4,318	3,798	4,768
Malaysia	1,713	1,978	1,983	2,366	2,768	3,192	3,136	3,211	3,079
Philippines	261	208	237	341	349	527	634	773	670
Russia	3,270	3,302	3,955	4,946	5,169	6,080	6,854	5,520	5,395

NA = not available.

EU = European Union.

Note(s)

World trade and total EU trade do not include intra-EU trade.

Source(s)

World Trade Organization, International trade and tariff data, https://www.wto.org/english/res_e/statis_e/statis_e.htm, accessed 15 September 2017.

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 APPENDIX TABLE 6-30 
Exports and imports of financial services, by selected region, country, or economy: 2008–16

(Millions of current dollars)

Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports									
World	307,555	280,771	308,921	346,916	354,728	391,335	426,948	398,803	398,903
Selected developed regions, countries, or economies									
Australia	1,735	1,210	1,223	1,955	2,438	3,103	3,340	3,242	3,129
Canada	6,065	5,758	7,348	9,311	9,349	9,601	9,668	9,488	9,489
EU	127,938	109,944	112,015	128,167	134,868	141,600	149,774	125,648	133,123
Hong Kong	12,599	11,906	13,940	15,226	16,490	17,533	18,877	20,488	19,513
Japan	6,393	5,689	4,880	5,769	4,249	4,738	8,872	11,867	13,348
Norway	2,420	1,902	1,773	2,482	2,209	2,799	2,740	2,315	2,163
Singapore	13,119	13,370	15,750	19,412	20,191	22,968	26,114	27,154	25,259
South Korea	2,617	1,920	2,161	2,313	2,328	1,935	2,233	2,375	2,388
Switzerland	35,423	29,992	28,544	30,828	28,573	29,190	29,073	27,411	27,668
Taiwan	1,448	982	1,146	1,271	2,134	2,374	2,742	2,669	2,887
United States	76,430	79,023	86,745	93,385	93,482	111,827	125,024	119,603	114,494
Selected developing regions, countries, or economies									
Brazil	2,066	1,943	2,115	2,982	3,001	3,215	1,844	1,730	1,523

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
China	1,697	1,959	3,058	3,867	5,215	7,181	9,103	7,330	7,246
India	5,852	5,132	7,615	8,833	7,609	8,520	7,926	7,329	7,228
Malaysia	457	469	527	794	861	766	808	710	850
Philippines	159	216	183	178	175	185	319	533	477
Russia	1,783	1,405	1,483	1,437	1,747	2,224	1,992	1,819	1,584
All others	9,351	7,951	18,416	18,705	19,808	21,576	26,500	27,094	26,534
Imports									
World	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selected developed regions, countries, or economies									
Australia	1,562	998	1,169	1,874	1,861	2,148	2,575	2,521	2,224
Canada	7,916	7,918	10,153	10,015	9,687	10,231	10,023	10,541	11,250
EU	55,952	49,641	50,892	59,338	55,872	64,933	67,602	61,329	64,137
Hong Kong	3,934	3,944	4,735	5,074	5,156	5,557	5,878	6,264	6,116
Japan	9,094	8,189	9,949	10,152	10,607	10,365	10,382	10,788	11,836
Norway	1,295	1,710	1,653	2,453	1,609	1,707	1,553	1,234	1,248
Singapore	5,281	4,850	6,604	7,644	8,053	8,545	8,557	9,855	10,459
South Korea	2,484	3,181	2,796	2,711	3,068	2,965	2,507	2,549	2,567
Switzerland	7,188	6,782	6,283	6,962	5,341	5,225	5,326	5,401	5,354
Taiwan	1,310	1,058	1,055	1,327	1,469	1,528	1,528	1,502	1,574

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Region, country, or economy	2008	2009	2010	2011	2012	2013	2014	2015	2016
United States	76,131	78,216	76,980	73,022	72,216	74,965	76,730	72,934	73,631
Selected developing regions, countries, or economies									
Brazil	2,810	3,427	3,020	3,352	3,220	2,983	2,444	2,345	2,226
China	13,308	11,952	17,142	20,485	22,526	25,784	27,390	11,453	14,939
India	7,899	7,799	11,812	14,511	11,784	11,852	9,997	8,350	10,089
Malaysia	1,029	1,041	2,668	3,025	3,402	3,220	3,178	2,798	2,829
Philippines	1,430	976	1,108	1,213	1,135	1,107	1,182	1,348	1,854
Russia	4,275	3,022	3,667	3,674	4,108	4,784	4,058	3,394	2,997

NA = not available.

EU = European Union.

Note(s)

Financial services include finance and insurance. World trade and total EU trade do not include intra-EU trade.

Source(s)

World Trade Organization, International trade and tariff data, https://www.wto.org/english/res_e/statis_e/statis_e.htm, accessed 15 September 2017.

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APPENDIX TABLE 6-31

Exports and imports of ICT products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	601,331	626,523	732,515	904,663	1,027,472	1,148,849	1,132,128	1,143,566	979,910	1,250,092	1,304,963	1,309,196	1,362,794	1,402,610	1,385,396	1,432,320
North America	78,993	68,610	70,985	72,507	94,211	106,518	96,971	96,260	74,518	86,312	86,166	83,188	79,147	79,579	74,386	73,566
Canada	2,070	1,900	2,472	3,098	3,748	4,252	4,164	3,550	2,649	2,808	3,051	2,833	2,541	2,527	2,306	2,270
Mexico	3,666	3,964	3,334	4,139	5,388	6,979	6,453	7,936	6,648	8,551	9,594	9,160	8,505	8,572	7,683	7,653
United States	73,256	62,746	65,178	65,270	85,075	95,287	86,355	84,774	65,221	74,954	73,520	71,195	68,101	68,481	64,397	63,644
Central and South America	4,206	5,167	7,201	8,297	10,689	11,830	11,699	12,269	13,584	18,905	21,607	25,874	24,673	19,368	9,212	9,852
Brazil	2,300	2,222	2,141	2,064	3,736	4,081	2,637	2,995	2,168	1,913	1,604	1,163	1,088	814	736	784
Central America	1,741	2,775	4,871	6,055	6,736	7,463	8,696	8,918	11,036	16,624	19,605	24,333	23,156	18,103	8,148	8,771
All others	165	170	189	178	217	286	367	355	379	368	399	378	428	451	328	296
Europe																
EU	66,358	64,044	74,222	90,442	106,564	106,091	101,740	99,159	72,813	80,939	88,800	80,139	76,465	71,771	63,941	66,548
France	8,676	7,917	8,900	10,145	10,541	10,835	9,814	9,610	7,662	8,480	9,785	9,151	8,348	7,221	6,897	7,044
Germany	14,084	14,185	18,074	23,239	24,096	26,122	24,816	22,486	15,745	18,492	20,587	20,239	19,971	20,889	18,505	18,314
United Kingdom	10,932	8,420	9,143	10,669	19,725	13,108	7,837	7,874	6,662	6,776	7,094	6,663	6,875	6,332	5,989	5,638
All others	32,666	33,522	38,106	46,389	52,202	56,027	59,274	59,189	42,743	47,191	51,334	44,086	41,270	37,331	32,550	35,552

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	5,553	5,273	6,024	8,226	9,460	9,922	9,917	10,296	9,393	10,450	11,607	12,206	11,768	11,355	10,087	10,664
Russia	317	501	373	575	494	712	746	984	1,005	1,221	1,814	2,139	2,183	2,331	1,751	1,831
Switzerland	2,599	1,923	2,277	2,889	3,429	3,417	3,281	3,562	2,880	3,176	3,202	2,863	2,835	2,726	2,642	2,958
Turkey	1,190	1,764	2,068	3,052	3,496	3,563	2,991	2,635	2,198	2,500	2,577	2,892	2,425	2,631	2,482	2,585
All others	1,446	1,086	1,307	1,710	2,041	2,230	2,899	3,115	3,310	3,553	4,015	4,312	4,325	3,668	3,212	3,290
Middle East	6,567	5,658	6,606	8,001	10,782	8,068	10,279	10,648	8,937	10,679	10,630	10,608	13,015	12,094	13,230	13,520
Israel	5,244	4,193	4,436	5,124	4,531	5,076	4,526	5,407	6,818	6,259	5,404	5,642	7,090	7,214	8,139	8,111
All others	1,322	1,465	2,170	2,877	6,250	2,992	5,752	5,241	2,119	4,420	5,227	4,966	5,925	4,880	5,091	5,409
Africa	1,246	1,302	1,665	2,113	2,438	3,025	3,186	3,233	2,835	2,893	3,418	3,095	3,013	4,230	4,413	4,581
Asia																
China	73,254	98,015	138,474	204,832	256,465	311,923	321,209	349,806	315,811	425,236	467,036	468,316	483,381	514,658	507,771	520,137
India	852	604	751	1,143	1,154	1,612	2,170	3,589	5,542	5,692	7,071	6,130	5,401	3,078	2,746	2,825
Indonesia	7,739	7,892	7,674	8,608	9,319	8,278	8,603	9,227	8,496	9,886	9,438	8,800	7,991	7,512	7,554	7,554
Japan	90,791	89,193	100,419	114,327	111,919	114,974	106,694	105,881	81,688	98,329	93,010	86,717	74,122	69,167	63,291	64,891
Malaysia	53,728	54,737	59,635	67,082	72,330	78,802	75,137	65,937	66,397	76,476	76,908	71,061	72,297	76,945	74,006	76,012
Philippines	25,404	27,180	29,037	31,330	32,229	31,552	31,965	28,852	21,292	30,620	25,486	26,307	25,604	29,543	30,141	33,503
Singapore	48,561	48,860	55,401	66,734	73,052	84,805	76,387	79,292	57,823	85,304	86,998	85,431	89,025	92,715	88,338	88,115
South Korea	50,133	57,791	69,359	89,557	93,465	98,949	96,274	89,876	77,896	97,442	95,439	92,334	104,498	109,756	107,275	103,110
Taiwan	62,327	68,869	76,305	97,055	104,656	126,119	128,747	123,971	111,449	142,527	152,490	165,904	198,020	204,213	216,897	237,804

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	19,067	20,307	24,074	30,259	34,351	40,379	43,261	47,642	43,725	53,001	51,014	50,162	48,103	50,192	50,832	52,087
Vietnam	420	487	802	902	1,331	1,904	2,578	3,723	4,058	7,080	12,805	28,297	40,615	40,756	54,971	60,756
All others	251	208	250	326	371	559	379	479	237	4,117	290	282	402	513	593	681
Australia	1,210	1,163	1,330	1,558	1,645	1,646	1,650	1,736	1,336	1,653	1,950	1,875	1,874	2,055	2,121	2,392
All others	4,669	1,161	2,300	1,367	1,043	1,892	3,280	1,692	2,080	2,553	2,799	2,469	3,380	3,110	3,591	3,722
Imports																
World	601,331	626,523	732,515	904,663	1,027,472	1,148,849	1,132,128	1,143,566	979,910	1,250,092	1,304,963	1,309,196	1,362,794	1,402,610	1,385,396	1,432,320
North America	149,814	155,766	167,420	202,922	221,683	244,684	211,286	209,687	186,519	230,502	240,007	241,454	240,804	242,806	238,540	235,504
Canada	10,745	7,747	10,187	13,302	15,223	17,015	16,765	17,726	13,894	19,025	21,244	19,647	19,758	18,525	17,630	18,531
Mexico	9,192	11,975	11,999	18,611	21,406	26,883	23,872	28,869	25,543	37,957	39,951	42,931	45,648	46,394	45,886	46,113
United States	129,877	132,584	142,431	171,675	184,642	200,741	171,035	162,735	145,250	179,412	180,071	181,180	174,295	178,079	178,258	169,946
Central and South America	16,167	13,119	14,199	19,801	29,357	37,631	33,986	45,330	36,443	47,860	54,429	54,967	55,523	52,316	44,810	42,610
Brazil	6,531	4,570	4,850	6,999	10,225	12,947	9,018	17,277	13,767	19,165	21,188	20,899	21,622	20,400	14,684	13,179
Central America	3,145	3,899	3,965	4,245	5,357	6,944	6,334	6,764	5,359	6,152	6,732	6,697	6,524	6,109	5,655	5,949
All others	6,490	4,650	5,384	8,557	13,774	17,739	18,634	21,289	17,317	22,543	26,510	27,371	27,377	25,808	24,471	23,482
Europe																
EU	118,664	113,791	142,734	184,696	206,165	229,304	228,209	228,756	181,190	232,795	234,931	209,969	206,281	211,272	199,083	201,506
France	13,043	12,573	15,702	20,012	21,897	23,950	23,668	25,028	21,069	25,141	27,320	25,744	26,169	24,799	22,140	22,331
Germany	30,302	30,987	37,534	50,106	55,159	64,763	58,938	58,156	47,874	63,837	65,910	58,042	54,774	59,596	58,612	59,677

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	23,195	20,138	20,812	25,456	26,247	27,513	26,064	24,241	19,428	27,708	28,503	22,257	22,096	23,206	22,411	22,483
All others	52,125	50,094	68,687	89,123	102,862	113,077	119,539	121,331	92,818	116,109	113,198	103,926	103,242	103,671	95,919	97,015
Other Europe	18,113	18,469	23,853	33,067	41,342	42,961	46,179	47,906	34,643	43,614	49,764	52,760	54,688	49,215	43,793	45,529
Russia	3,556	4,260	6,309	8,903	11,681	12,651	15,484	17,002	9,454	13,979	15,964	18,408	17,640	13,808	10,683	10,765
Switzerland	6,370	5,725	6,570	8,284	11,326	9,471	7,678	8,144	7,676	8,544	9,279	9,615	10,249	10,256	9,530	9,921
Turkey	2,641	3,390	4,524	6,922	8,021	8,707	9,363	8,804	7,476	8,988	9,891	9,686	11,161	11,450	11,589	12,325
All others	5,546	5,094	6,450	8,959	10,314	12,132	13,655	13,956	10,037	12,103	14,629	15,051	15,638	13,702	11,992	12,518
Middle East	11,849	12,556	15,485	19,729	29,081	25,966	27,405	28,586	24,674	29,165	36,037	37,252	41,022	42,953	44,322	46,274
Israel	3,192	2,527	2,579	3,469	3,813	3,965	3,878	3,870	3,590	4,124	4,986	5,433	4,971	5,082	5,880	5,878
All others	8,657	10,029	12,906	16,260	25,269	22,002	23,527	24,716	21,083	25,040	31,050	31,819	36,051	37,871	38,443	40,397
Africa	7,765	7,449	9,385	12,378	14,881	17,628	16,880	19,067	16,672	18,418	19,570	18,241	18,690	21,045	21,577	21,897
Asia																
China	66,422	83,407	110,619	139,683	166,885	198,676	217,922	215,857	200,832	258,155	266,933	282,720	313,363	332,838	349,988	367,450
India	3,467	4,145	5,963	8,123	9,756	13,436	14,211	17,427	16,386	20,981	23,819	21,723	22,433	23,436	25,272	25,604
Indonesia	2,452	2,647	2,919	3,575	3,215	3,446	4,438	9,911	8,498	11,435	12,093	12,632	12,291	11,456	11,398	11,319
Japan	47,815	45,066	50,904	60,140	63,920	65,537	62,395	64,834	54,721	72,952	76,833	79,551	81,626	82,518	73,006	72,537
Malaysia	26,754	29,271	32,528	35,579	38,001	43,081	44,150	36,971	31,698	45,086	41,679	41,199	42,870	43,755	41,727	44,512
Philippines	15,353	15,692	17,162	18,287	18,020	20,475	20,091	18,584	13,675	17,715	14,671	16,500	16,484	16,875	17,758	20,964
Singapore	40,486	40,977	44,852	56,687	64,957	74,445	69,448	67,089	54,988	72,514	71,972	73,433	78,630	78,490	71,688	73,878

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	24,836	27,137	31,824	36,809	39,790	43,071	45,286	47,130	40,669	48,839	51,064	49,285	52,842	58,879	63,049	70,567
Taiwan	26,498	29,648	32,529	35,968	38,214	41,775	40,111	37,991	33,812	44,433	47,150	47,737	49,169	53,527	53,151	59,704
Thailand	13,434	14,089	15,031	17,714	19,567	21,946	22,406	21,690	19,139	24,411	26,018	27,346	27,021	27,320	27,630	29,097
Vietnam	917	983	1,241	2,058	2,063	2,692	3,378	4,028	5,219	6,463	9,725	14,978	22,039	25,584	31,061	34,376
All others	1,443	1,540	1,757	2,659	3,803	4,195	3,666	3,785	3,003	3,999	4,595	4,997	6,297	7,537	7,930	8,852
Australia	7,074	7,490	9,139	11,671	12,788	14,217	14,967	15,239	14,319	17,427	19,671	18,717	16,902	17,146	16,099	16,312
All others	2,007	3,282	2,970	3,117	3,983	3,685	5,713	3,696	2,811	3,327	4,003	3,735	3,820	3,642	3,514	3,828

EU = European Union; ICT = information and communications technology.

Note(s)

ICT products consists of communications, computers, and semiconductors. Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-32

Exports and imports of communications products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	141,536	153,764	186,144	250,516	305,312	339,320	320,708	330,688	275,540	330,790	357,020	359,305	366,662	369,682	368,127	378,007
North America	13,721	12,365	10,661	13,549	18,601	22,051	15,306	15,098	12,790	15,505	17,070	16,280	15,307	14,056	12,090	12,160
Canada	917	916	1,116	1,560	2,078	2,340	2,107	1,508	1,144	1,322	1,426	1,435	1,294	1,219	1,089	1,076
Mexico	853	1,194	683	1,449	2,253	3,406	3,508	4,617	3,765	5,581	6,203	5,710	5,366	4,456	3,547	3,534
United States	11,951	10,255	8,861	10,540	14,269	16,305	9,691	8,973	7,881	8,602	9,441	9,135	8,647	8,381	7,454	7,550
Central and South America	2,009	2,121	1,892	1,931	3,693	4,043	3,234	3,079	2,189	2,047	1,518	1,262	904	802	678	682
Brazil	1,736	1,715	1,605	1,484	3,020	3,327	2,158	2,416	1,625	1,327	944	582	452	285	232	236
Central America	209	309	218	352	556	522	835	442	368	543	348	460	225	248	270	265
All others	64	98	69	95	117	193	241	222	195	177	226	219	226	268	177	182
Europe																
EU	22,560	22,868	26,650	34,422	47,085	43,534	38,919	36,499	26,444	30,279	34,713	28,699	24,579	20,661	19,307	19,188
France	3,150	2,923	3,614	4,115	3,921	3,813	2,465	2,350	2,272	2,459	3,020	3,197	2,448	1,760	1,801	1,777
Germany	4,583	4,751	5,970	7,937	8,821	9,480	7,979	5,383	3,727	4,553	5,256	5,169	4,761	4,520	4,555	4,395
United Kingdom	3,502	2,543	2,646	3,740	11,553	5,698	2,460	2,608	2,525	2,756	3,099	2,758	2,450	2,231	2,222	2,103
All others	11,324	12,651	14,419	18,630	22,789	24,542	26,015	26,158	17,920	20,512	23,337	17,575	14,920	12,149	10,729	10,914

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	2,697	2,965	3,429	5,154	5,925	5,911	5,698	5,492	5,104	5,761	6,548	7,622	7,159	6,631	5,983	6,379
Russia	154	160	177	255	217	389	353	506	595	855	1,274	1,533	1,563	1,368	1,149	1,212
Switzerland	690	572	621	1,001	1,260	994	982	1,033	745	768	662	630	664	601	574	647
Turkey	1,116	1,688	1,973	2,944	3,363	3,394	2,784	2,414	1,989	2,312	2,270	2,605	2,071	2,187	2,070	2,240
All others	737	546	658	955	1,085	1,134	1,579	1,540	1,775	1,826	2,341	2,855	2,863	2,476	2,190	2,281
Middle East	2,985	2,593	3,301	4,013	6,715	4,233	5,224	5,580	2,630	3,880	4,105	4,615	5,216	4,402	4,605	4,828
Israel	2,223	1,724	1,823	2,065	1,956	2,262	1,374	2,241	1,700	1,808	1,427	1,359	1,097	1,229	1,301	1,273
All others	762	869	1,478	1,948	4,760	1,971	3,851	3,339	931	2,072	2,677	3,256	4,119	3,173	3,304	3,555
Africa	327	365	449	579	768	917	931	979	995	1,078	1,531	1,516	1,589	2,608	2,850	2,860
Asia																
China	25,554	33,819	45,478	70,318	93,008	118,747	120,795	131,641	120,908	152,205	165,435	168,653	179,243	196,121	198,336	206,119
India	108	142	206	298	388	668	1,090	1,930	3,994	3,658	5,251	4,684	4,051	1,671	1,497	1,523
Indonesia	3,556	3,599	3,553	3,816	3,797	3,619	3,956	4,365	4,367	5,111	4,700	4,293	4,146	3,626	3,494	3,571
Japan	23,146	23,995	30,118	35,515	35,111	34,596	32,526	33,168	23,777	25,422	23,402	22,723	17,432	15,099	13,684	13,730
Malaysia	12,141	11,183	12,077	14,025	16,794	18,647	13,521	13,513	9,982	13,046	13,094	11,580	10,138	9,628	7,775	7,422
Philippines	1,423	1,551	1,773	2,378	2,307	2,046	2,132	2,003	1,384	1,607	1,607	1,657	1,581	1,887	2,115	2,183
Singapore	4,594	4,636	4,739	6,957	7,978	10,036	7,633	7,005	3,722	4,515	5,162	5,052	4,965	5,740	6,305	6,115
South Korea	16,647	20,767	27,513	37,702	40,268	42,542	38,058	39,487	31,005	31,256	31,208	29,145	32,550	32,701	30,274	28,150
Taiwan	5,054	5,675	8,176	11,500	13,664	17,110	19,392	18,474	14,471	18,446	21,045	21,244	20,265	17,774	16,761	17,248

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	3,317	4,158	4,867	6,891	7,690	8,668	8,769	9,683	8,535	10,816	11,093	10,883	10,149	9,762	9,912	9,609
Vietnam	92	111	162	206	280	432	800	1,245	1,815	3,746	8,014	18,051	25,750	24,785	30,616	34,233
All others	74	63	106	137	219	385	246	337	146	1,159	159	143	277	387	477	526
Australia	404	326	381	523	557	548	478	500	468	495	632	623	627	675	730	831
All others	1,129	463	614	601	464	589	2,001	610	815	758	735	580	735	667	638	649
Imports																
World	141,536	153,764	186,144	250,516	305,312	339,320	320,708	330,688	275,540	330,790	357,020	359,305	366,662	369,682	368,127	378,007
North America	41,350	46,918	53,702	68,100	81,915	92,193	67,189	68,322	59,183	68,708	65,027	65,886	62,243	61,766	60,373	59,289
Canada	3,261	2,894	3,650	4,602	5,369	6,371	6,529	6,968	6,054	7,402	8,337	8,861	8,341	7,819	8,416	9,034
Mexico	2,454	2,795	3,752	5,701	7,905	11,935	11,126	13,687	12,894	17,604	18,017	18,173	20,042	18,848	16,653	16,765
United States	35,635	41,229	46,301	57,798	68,641	73,886	49,534	47,667	40,235	43,703	38,673	38,853	33,860	35,099	35,304	33,490
Central and South America	7,023	5,432	5,777	9,203	13,567	17,521	14,962	20,099	13,997	20,721	24,062	24,183	25,362	25,179	22,857	22,092
Brazil	2,248	1,366	1,477	2,415	3,232	4,268	2,505	6,097	4,030	6,532	8,050	7,549	8,590	8,654	6,258	5,478
Central America	1,541	1,722	1,620	1,882	2,163	2,827	2,402	2,630	1,930	2,480	2,518	2,426	2,225	2,509	2,513	2,583
All others	3,234	2,344	2,680	4,906	8,171	10,426	10,055	11,372	8,037	11,709	13,493	14,208	14,547	14,017	14,086	14,030
Europe																
EU	28,006	30,402	40,099	60,991	74,211	84,063	88,100	84,242	69,541	78,555	82,040	78,092	77,033	75,265	73,423	76,816
France	3,282	3,612	5,196	7,265	8,950	9,548	9,830	10,626	9,517	10,313	10,783	11,058	11,098	10,816	9,762	10,033
Germany	6,633	7,478	9,696	15,157	17,470	22,047	18,742	17,102	14,750	16,162	18,597	19,969	18,204	18,110	18,310	19,152

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	5,191	5,536	6,651	8,902	9,693	10,869	11,219	10,594	9,246	12,574	13,606	9,976	9,630	9,294	9,650	10,139
All others	12,900	13,776	18,555	29,666	38,097	41,599	48,309	45,920	36,028	39,507	39,054	37,090	38,101	37,046	35,701	37,492
Other Europe	6,434	6,969	9,553	14,328	20,072	20,580	22,686	24,259	16,178	20,309	23,160	24,656	25,847	23,259	21,068	22,550
Russia	1,625	2,003	3,070	4,834	6,664	7,078	9,189	10,590	5,280	7,373	8,393	9,594	9,134	7,300	5,574	5,750
Switzerland	1,754	1,787	1,955	2,621	5,475	3,700	2,832	2,780	2,779	2,926	3,112	3,410	3,581	3,539	3,416	3,770
Turkey	1,123	1,081	1,710	2,663	3,009	3,475	3,999	3,704	3,122	4,003	4,612	4,500	5,567	5,686	5,946	6,462
All others	1,932	2,098	2,817	4,210	4,924	6,327	6,666	7,185	4,997	6,008	7,043	7,152	7,566	6,735	6,132	6,567
Middle East	6,344	7,283	9,659	12,235	19,737	16,020	16,446	16,546	13,462	15,121	20,228	20,833	24,895	25,321	26,041	28,000
Israel	1,001	882	805	1,079	1,210	1,219	1,307	1,366	1,324	1,306	1,505	1,260	1,343	1,439	1,456	1,590
All others	5,343	6,400	8,854	11,157	18,526	14,801	15,139	15,181	12,139	13,814	18,723	19,573	23,552	23,882	24,585	26,410
Africa	3,937	3,721	4,755	6,543	8,107	9,788	8,673	9,995	8,347	9,204	10,037	9,066	9,078	11,356	12,119	12,574
Asia																
China	14,296	17,085	20,913	24,363	26,476	29,631	31,899	33,183	28,061	30,867	33,362	36,227	36,203	36,718	36,180	35,578
India	1,055	1,683	3,071	4,063	4,522	6,681	6,920	8,519	7,685	9,817	10,494	9,498	10,442	12,166	13,543	13,904
Indonesia	927	1,066	1,217	1,426	1,325	1,707	2,201	4,734	4,236	5,542	5,750	6,283	6,338	5,831	5,948	6,000
Japan	10,066	9,513	10,518	13,736	15,832	15,406	16,346	18,314	17,850	26,347	30,214	32,078	31,897	30,989	27,058	26,507
Malaysia	2,780	2,751	2,758	3,401	3,659	4,044	3,741	3,936	3,364	5,723	5,554	5,492	5,785	5,096	4,859	5,074
Philippines	1,320	1,196	1,317	1,610	1,627	1,853	1,715	1,707	1,703	1,867	1,846	1,991	2,098	1,912	2,426	2,866
Singapore	5,229	5,237	6,215	8,959	9,954	12,736	12,136	10,058	7,097	8,029	9,575	9,424	8,915	8,426	8,333	8,348

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	3,236	3,653	4,521	5,963	6,072	6,952	6,355	7,176	6,097	7,788	8,881	6,906	7,593	10,802	13,776	15,500
Taiwan	2,798	2,762	3,245	3,722	4,025	3,960	3,595	3,684	3,246	3,994	5,215	5,683	6,168	5,664	5,856	6,398
Thailand	2,243	2,825	2,549	3,101	3,409	3,767	3,258	3,432	3,204	4,021	4,661	5,607	5,732	6,209	6,594	7,012
Vietnam	282	344	477	603	744	1,141	1,503	1,755	2,542	3,127	4,302	5,011	8,522	10,132	14,127	14,705
All others	721	789	880	1,651	2,594	2,881	2,440	2,167	1,573	2,102	2,502	2,699	3,632	4,719	5,100	5,776
Australia	2,547	2,790	3,709	5,034	5,524	6,565	6,884	6,924	6,943	7,526	8,359	8,174	7,277	7,468	6,961	7,369
All others	941	1,346	1,207	1,483	1,940	1,832	3,661	1,636	1,231	1,420	1,752	1,514	1,601	1,405	1,486	1,647

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

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APPENDIX TABLE 6-33

Exports and imports of computer products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	243,226	248,260	278,085	327,430	367,250	400,240	374,862	381,564	324,408	400,247	412,247	410,894	406,537	410,331	386,327	372,122
North America	33,686	25,388	25,220	24,391	33,972	36,745	35,321	34,388	27,697	29,993	30,351	30,585	28,301	28,949	27,050	25,281
Canada	810	611	841	900	991	1,182	1,301	1,261	1,025	1,020	956	866	801	873	852	811
Mexico	2,086	2,162	2,037	2,010	2,409	2,794	2,370	2,528	1,828	2,139	2,521	2,566	2,199	3,141	3,244	3,153
United States	30,790	22,614	22,341	21,481	30,571	32,769	31,651	30,600	24,844	26,835	26,874	27,153	25,301	24,936	22,954	21,318
Central and South America	926	904	1,131	1,017	2,976	3,594	3,773	4,160	5,704	6,664	4,252	4,591	3,787	3,106	433	432
Brazil	333	205	238	297	459	490	295	359	352	331	331	282	304	181	149	165
Central America	529	635	781	646	2,431	3,031	3,367	3,692	5,204	6,162	3,777	4,188	3,316	2,785	223	204
All others	63	64	111	74	87	73	111	109	148	171	144	121	167	140	62	63
Europe																
EU	24,588	23,418	25,402	29,006	33,429	34,219	32,438	31,596	25,295	26,186	28,118	26,437	26,453	25,385	21,480	20,474
France	2,207	1,985	1,987	2,332	2,215	2,407	2,585	2,625	2,033	1,902	2,251	1,900	1,862	1,717	1,588	1,479
Germany	3,779	3,961	4,909	6,759	7,156	7,896	6,794	7,088	5,006	5,521	6,201	5,712	5,475	5,244	4,381	4,129
United Kingdom	5,265	4,081	4,531	4,540	5,244	4,500	3,197	3,259	2,698	2,561	2,435	2,223	2,534	2,434	2,252	2,019
All others	13,336	13,391	13,976	15,374	18,814	19,416	19,862	18,624	15,559	16,202	17,230	16,601	16,582	15,990	13,258	12,848

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	1,745	1,210	1,377	1,493	1,724	1,745	2,048	2,202	1,990	1,787	2,168	2,287	2,421	2,565	2,047	2,009
Russia	50	95	67	96	94	133	164	221	191	125	284	355	387	755	378	372
Switzerland	1,116	667	808	800	987	867	955	974	827	760	811	677	679	692	712	749
Turkey	52	47	47	68	84	109	135	155	101	117	225	225	277	284	254	220
All others	526	401	455	529	559	636	794	852	871	785	847	1,030	1,077	834	702	669
Middle East	1,479	1,373	1,491	1,868	2,420	2,034	2,981	3,006	2,165	3,125	3,286	2,541	2,603	2,547	2,642	2,686
Israel	978	828	855	1,036	1,145	1,140	1,383	1,342	1,075	1,186	1,124	1,034	1,046	1,093	1,091	1,090
All others	501	545	636	832	1,275	894	1,598	1,664	1,090	1,940	2,162	1,507	1,557	1,454	1,551	1,596
Africa	199	172	230	274	319	470	497	517	572	459	420	454	394	478	492	508
Asia																
China	35,986	50,306	75,453	108,647	133,061	154,181	155,906	165,854	150,292	202,488	223,674	225,500	224,408	227,975	216,816	208,414
India	530	238	236	308	275	375	420	629	608	636	734	697	535	462	448	453
Indonesia	3,060	3,080	2,689	3,257	3,409	2,955	2,939	3,128	2,699	2,829	2,524	2,471	1,977	2,052	2,036	1,848
Japan	29,379	27,092	27,195	28,685	27,373	28,035	18,244	17,354	12,881	13,706	12,849	11,494	10,902	10,147	9,013	8,577
Malaysia	20,854	21,303	22,743	25,746	29,195	33,695	32,573	30,906	24,201	26,672	22,052	20,282	19,481	18,445	16,977	16,213
Philippines	9,575	9,912	9,346	8,962	9,198	8,552	7,524	7,002	4,466	5,194	5,711	6,327	6,755	8,659	8,546	8,911
Singapore	24,818	24,795	25,708	27,914	28,767	29,139	19,118	22,801	16,912	20,587	18,756	17,847	16,127	14,875	14,150	12,974
South Korea	14,698	17,494	19,047	22,089	19,136	19,282	19,086	14,119	11,138	14,544	12,671	11,217	11,704	11,828	10,732	9,316
Taiwan	29,898	30,411	28,370	28,655	23,793	23,257	18,506	15,807	12,513	15,782	15,475	13,955	14,386	15,769	15,149	15,695

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	10,139	9,987	11,003	13,574	16,384	19,582	20,585	24,403	21,922	25,044	23,952	26,922	24,654	25,256	24,702	24,390
Vietnam	64	100	307	272	580	1,063	1,398	2,127	1,854	2,651	3,095	5,402	9,606	9,724	11,313	11,535
All others	98	109	100	105	94	103	79	67	50	190	65	62	46	56	46	46
Australia	673	666	736	773	830	831	859	906	716	967	1,069	1,075	1,074	1,221	1,229	1,368
All others	830	302	301	396	317	383	567	593	732	742	1,024	748	922	833	1,027	994
Imports																
World	243,226	248,260	278,085	327,430	367,250	400,240	374,862	381,564	324,408	400,247	412,247	410,894	406,537	410,331	386,327	372,122
North America	70,164	75,381	81,964	97,174	103,409	113,120	108,067	104,013	96,719	118,465	122,005	123,561	123,669	124,996	119,607	111,999
Canada	4,675	3,167	4,749	6,352	7,386	7,792	7,468	7,713	5,289	8,396	9,225	8,083	8,055	8,173	6,979	7,069
Mexico	2,935	5,093	4,242	6,851	6,611	7,913	7,833	8,254	6,780	11,479	12,192	14,629	14,036	14,988	14,530	13,706
United States	62,553	63,662	70,171	84,637	89,001	97,370	93,152	87,688	82,819	104,482	101,846	103,154	100,476	102,028	101,332	90,311
Central and South America	6,069	4,442	4,642	5,752	9,216	12,038	13,715	16,269	14,908	17,587	19,921	20,335	18,883	17,416	14,672	13,453
Brazil	2,244	1,447	1,357	1,609	2,866	3,855	4,302	5,408	4,966	6,158	6,180	6,681	5,735	5,171	3,793	3,406
Central America	948	921	856	947	1,479	1,733	1,732	2,005	1,654	1,812	2,169	2,109	2,007	1,941	1,961	2,032
All others	2,877	2,073	2,430	3,196	4,871	6,449	7,681	8,857	8,289	9,617	11,572	11,545	11,141	10,304	8,918	8,015
Europe																
EU	62,354	59,422	69,698	84,542	93,915	105,377	97,313	96,412	74,602	92,502	94,287	89,959	92,639	96,123	88,743	85,107
France	6,449	6,244	7,336	9,010	9,398	10,638	10,139	10,505	8,246	8,853	9,985	9,290	10,001	9,431	8,038	7,640
Germany	15,513	15,895	18,042	22,433	25,028	28,149	24,082	22,676	17,369	22,359	22,667	20,842	20,698	23,379	22,699	21,707

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	11,831	10,127	9,745	11,116	11,880	12,985	11,387	10,330	7,870	11,961	11,734	9,966	10,252	10,677	9,782	9,178
All others	28,561	27,156	34,574	41,982	47,608	53,604	51,704	52,901	41,117	49,329	49,901	49,861	51,688	52,635	48,224	46,582
Other Europe	9,161	8,670	10,736	13,659	16,599	17,762	18,942	18,544	14,610	18,395	20,877	22,226	22,787	20,208	17,313	17,184
Russia	1,678	1,873	2,591	3,133	4,137	4,836	5,499	5,473	3,502	5,597	6,416	7,556	7,057	5,102	3,834	3,665
Switzerland	3,600	3,271	3,770	4,503	4,651	4,357	3,453	3,674	3,561	3,941	4,356	4,443	4,870	4,950	4,431	4,439
Turkey	740	958	1,283	2,029	3,268	3,622	4,025	3,755	3,484	3,983	4,115	4,120	4,486	4,499	4,329	4,393
All others	3,143	2,568	3,093	3,993	4,543	4,946	5,964	5,643	4,064	4,874	5,990	6,108	6,374	5,656	4,719	4,686
Middle East	4,129	4,180	4,593	5,442	7,345	8,110	9,133	9,927	9,444	11,660	12,861	12,782	12,886	13,962	13,686	13,642
Israel	1,289	1,023	1,134	1,267	1,550	1,661	1,608	1,415	1,297	1,500	1,559	1,493	1,477	1,606	1,565	1,692
All others	2,840	3,157	3,460	4,174	5,795	6,449	7,525	8,512	8,148	10,161	11,302	11,289	11,409	12,356	12,121	11,950
Africa	2,979	2,934	3,509	4,433	5,279	5,965	6,065	6,707	6,106	6,596	6,805	6,673	6,557	6,443	6,070	5,698
Asia																
China	19,142	22,166	28,480	32,606	38,615	42,913	37,673	38,361	32,608	42,342	39,829	39,190	36,178	38,055	37,419	37,122
India	1,650	1,599	1,861	2,599	3,569	4,580	4,535	5,798	4,942	6,561	7,142	7,082	7,331	7,055	7,245	7,052
Indonesia	550	578	601	732	796	792	1,088	2,754	2,216	3,182	3,425	3,298	3,264	3,188	3,065	2,924
Japan	22,675	21,208	23,520	26,139	27,174	26,204	22,367	23,104	18,738	23,406	25,000	25,281	24,196	24,170	20,826	19,434
Malaysia	4,441	5,655	6,716	8,609	9,531	9,867	10,325	8,920	7,505	7,625	7,261	6,851	6,338	6,267	5,957	5,991
Philippines	2,710	3,034	2,938	2,925	2,898	2,687	2,655	2,899	2,142	2,446	2,263	2,800	2,525	2,515	2,763	3,214
Singapore	14,015	13,833	13,724	15,730	18,011	17,433	11,198	15,730	12,176	14,873	14,187	14,070	13,100	12,686	12,465	11,920

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	5,896	5,997	6,109	6,543	8,238	8,902	8,758	8,375	7,055	9,530	9,140	8,482	8,322	9,078	9,496	9,982
Taiwan	7,522	8,340	7,318	6,825	6,502	7,162	5,575	5,065	4,458	5,137	4,917	4,860	5,126	5,703	5,652	5,901
Thailand	4,101	4,073	4,649	4,739	6,134	6,913	6,643	6,993	5,872	6,918	7,646	8,626	7,973	7,446	6,777	6,874
Vietnam	280	330	472	1,058	875	945	968	1,322	1,450	1,723	2,043	2,102	2,677	2,899	3,057	3,252
All others	598	624	710	820	975	1,062	961	1,320	1,164	1,538	1,651	1,920	1,735	1,853	1,780	1,816
Australia	3,865	4,036	4,576	5,634	6,335	6,767	7,104	7,296	6,330	8,054	8,964	8,804	8,386	8,317	7,962	7,664
All others	924	1,758	1,269	1,470	1,834	1,639	1,779	1,755	1,364	1,703	2,022	1,992	1,964	1,953	1,773	1,894

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

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APPENDIX TABLE 6-34

Exports and imports of semiconductor products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	216,569	224,498	268,286	326,718	354,910	409,289	436,557	431,314	379,961	519,056	535,697	538,997	589,595	622,597	630,942	682,190
North America	31,585	30,857	35,104	34,566	41,639	47,722	46,344	46,774	34,032	40,814	38,745	36,323	35,539	36,574	35,246	36,125
Canada	343	373	515	638	678	730	757	781	481	466	670	531	447	435	365	383
Mexico	727	607	614	680	726	779	575	791	1,055	831	870	884	940	975	892	965
United States	30,515	29,877	33,976	33,249	40,235	46,213	45,013	45,202	32,496	39,517	37,205	34,907	34,153	35,164	33,989	34,776
Central and South America	1,272	2,142	4,178	5,350	4,020	4,194	4,693	5,029	5,691	10,193	15,837	20,022	19,982	15,460	8,101	8,737
Brazil	230	303	298	283	257	264	184	220	191	255	329	298	332	348	355	383
Central America	1,004	1,831	3,871	5,057	3,750	3,910	4,494	4,785	5,464	9,918	15,479	19,685	19,614	15,069	7,655	8,302
All others	37	8	8	10	13	20	15	25	37	20	29	38	36	43	90	52
Europe																
EU	19,211	17,758	22,171	27,014	26,051	28,339	30,382	31,064	21,074	24,474	25,970	25,003	25,433	25,726	23,155	26,886
France	3,319	3,009	3,298	3,698	4,405	4,615	4,764	4,636	3,357	4,119	4,513	4,054	4,037	3,744	3,507	3,789
Germany	5,721	5,472	7,194	8,543	8,119	8,746	10,043	10,014	7,013	8,418	9,130	9,358	9,736	11,124	9,569	9,791
United Kingdom	2,165	1,796	1,966	2,389	2,927	2,909	2,179	2,007	1,439	1,459	1,561	1,682	1,892	1,666	1,515	1,516
All others	8,006	7,481	9,711	12,385	10,600	12,069	13,397	14,407	9,264	10,478	10,767	9,910	9,767	9,192	8,564	11,791

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	1,112	1,098	1,219	1,579	1,811	2,266	2,171	2,601	2,299	2,902	2,892	2,297	2,188	2,159	2,057	2,275
Russia	113	246	129	223	183	190	228	257	218	241	256	252	233	208	224	247
Switzerland	793	683	847	1,088	1,182	1,556	1,345	1,556	1,308	1,648	1,729	1,556	1,492	1,433	1,355	1,562
Turkey	23	29	49	41	49	59	73	65	109	71	81	62	77	159	158	125
All others	183	139	193	226	397	461	525	723	664	942	826	427	386	358	320	341
Middle East	2,102	1,692	1,814	2,120	1,646	1,801	2,073	2,061	4,142	3,674	3,239	3,452	5,196	5,145	5,983	6,006
Israel	2,044	1,641	1,758	2,023	1,430	1,675	1,770	1,824	4,044	3,266	2,852	3,250	4,946	4,892	5,748	5,748
All others	58	51	56	97	216	127	304	237	99	408	388	202	250	253	236	258
Africa	721	766	986	1,261	1,350	1,638	1,758	1,738	1,267	1,356	1,467	1,125	1,031	1,144	1,072	1,213
Asia																
China	11,715	13,890	17,543	25,867	30,396	38,995	44,508	52,311	44,611	70,544	77,927	74,163	79,729	90,562	92,619	105,603
India	215	225	309	536	491	569	660	1,030	940	1,398	1,086	748	815	945	800	850
Indonesia	1,123	1,214	1,433	1,535	2,113	1,704	1,708	1,734	1,430	1,945	2,214	2,036	1,868	1,834	2,024	2,134
Japan	38,266	38,106	43,106	50,128	49,434	52,343	55,924	55,359	45,029	59,201	56,759	52,500	45,789	43,921	40,594	42,583
Malaysia	20,733	22,251	24,816	27,311	26,341	26,460	29,043	21,518	32,213	36,758	41,762	39,199	42,678	48,872	49,254	52,378
Philippines	14,406	15,717	17,918	19,990	20,724	20,954	22,308	19,847	15,442	23,818	18,168	18,322	17,268	18,997	19,480	22,410
Singapore	19,149	19,429	24,954	31,863	36,307	45,630	49,636	49,486	37,189	60,202	63,079	62,532	67,934	72,100	67,883	69,026
South Korea	18,788	19,530	22,800	29,766	34,061	37,125	39,131	36,270	35,753	51,642	51,560	51,972	60,244	65,228	66,269	65,645
Taiwan	27,375	32,783	39,759	56,899	67,199	85,752	90,850	89,689	84,464	108,298	115,970	130,705	163,369	170,669	184,987	204,861

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	5,611	6,163	8,204	9,794	10,277	12,129	13,907	13,556	13,268	17,142	15,968	12,357	13,299	15,174	16,218	18,088
Vietnam	264	276	333	424	471	409	380	351	389	683	1,697	4,844	5,259	6,247	13,042	14,987
All others	79	35	44	84	58	71	55	75	41	2,768	66	77	79	71	71	109
Australia	133	171	212	262	258	268	312	330	152	191	249	177	173	159	162	193
All others	2,710	396	1,385	371	262	920	712	490	533	1,052	1,040	1,142	1,724	1,610	1,926	2,079
Imports																
World	216,569	224,498	268,286	326,718	354,910	409,289	436,557	431,314	379,961	519,056	535,697	538,997	589,595	622,597	630,942	682,190
North America	38,300	33,467	31,754	37,648	36,358	39,371	36,030	37,352	30,617	43,329	52,976	52,007	54,892	56,043	58,560	64,216
Canada	2,809	1,687	1,788	2,348	2,468	2,851	2,768	3,045	2,552	3,227	3,682	2,704	3,361	2,533	2,235	2,428
Mexico	3,803	4,087	4,006	6,060	6,890	7,035	4,913	6,927	5,869	8,874	9,742	10,129	11,570	12,558	14,703	15,642
United States	31,688	27,693	25,960	29,240	27,000	29,485	28,349	27,380	22,196	31,228	39,552	39,174	39,960	40,952	41,622	46,146
Central and South America	3,074	3,245	3,779	4,847	6,574	8,072	5,309	8,961	7,538	9,552	10,446	10,449	11,278	9,721	7,281	7,065
Brazil	2,039	1,757	2,016	2,975	4,126	4,824	2,210	5,773	4,772	6,474	6,957	6,669	7,297	6,575	4,633	4,295
Central America	656	1,256	1,489	1,417	1,715	2,384	2,200	2,129	1,775	1,860	2,045	2,163	2,292	1,659	1,181	1,334
All others	379	232	274	455	732	864	899	1,059	991	1,217	1,445	1,618	1,689	1,487	1,467	1,437
Europe																
EU	28,304	23,968	32,938	39,163	38,039	39,864	42,797	48,102	37,046	61,739	58,604	41,918	36,609	39,885	36,917	39,583
France	3,311	2,716	3,169	3,737	3,549	3,764	3,699	3,896	3,306	5,976	6,552	5,396	5,069	4,553	4,340	4,658
Germany	8,155	7,614	9,796	12,515	12,660	14,567	16,114	18,378	15,755	25,316	24,646	17,231	15,872	18,107	17,603	18,818

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	6,173	4,475	4,416	5,438	4,674	3,660	3,458	3,318	2,312	3,173	3,163	2,316	2,214	3,235	2,979	3,166
All others	10,664	9,162	15,557	17,474	17,156	17,873	19,527	22,510	15,673	27,274	24,243	16,975	13,453	13,990	11,994	12,941
Other Europe	2,518	2,830	3,563	5,081	4,672	4,619	4,552	5,103	3,854	4,910	5,727	5,878	6,054	5,748	5,412	5,795
Russia	253	384	648	935	881	737	796	940	672	1,009	1,155	1,258	1,449	1,406	1,275	1,349
Switzerland	1,016	667	844	1,160	1,200	1,414	1,393	1,690	1,336	1,677	1,812	1,763	1,799	1,766	1,683	1,711
Turkey	778	1,350	1,531	2,229	1,744	1,609	1,339	1,344	871	1,003	1,164	1,067	1,108	1,265	1,313	1,469
All others	471	429	540	756	847	858	1,025	1,129	976	1,221	1,595	1,791	1,698	1,311	1,141	1,266
Middle East	1,377	1,092	1,233	2,051	1,999	1,837	1,826	2,113	1,767	2,384	2,948	3,636	3,241	3,670	4,596	4,632
Israel	902	622	641	1,123	1,052	1,085	963	1,090	970	1,318	1,922	2,679	2,150	2,037	2,859	2,596
All others	475	471	592	929	947	752	863	1,023	797	1,065	1,026	957	1,091	1,633	1,737	2,037
Africa	849	793	1,121	1,402	1,495	1,875	2,143	2,365	2,218	2,617	2,728	2,503	3,054	3,245	3,388	3,625
Asia																
China	32,984	44,155	61,226	82,714	101,794	126,132	148,350	144,314	140,163	184,946	193,742	207,303	240,982	258,065	276,389	294,751
India	762	863	1,030	1,461	1,665	2,174	2,755	3,109	3,759	4,603	6,184	5,143	4,660	4,214	4,484	4,647
Indonesia	976	1,003	1,101	1,417	1,094	947	1,150	2,423	2,046	2,711	2,918	3,051	2,690	2,438	2,385	2,396
Japan	15,075	14,344	16,866	20,265	20,914	23,927	23,682	23,416	18,133	23,199	21,619	22,193	25,533	27,360	25,122	26,596
Malaysia	19,533	20,865	23,054	23,569	24,810	29,169	30,084	24,115	20,829	31,738	28,863	28,855	30,747	32,392	30,911	33,447
Philippines	11,322	11,462	12,907	13,752	13,495	15,935	15,722	13,977	9,830	13,402	10,562	11,709	11,861	12,448	12,569	14,883
Singapore	21,241	21,907	24,914	31,998	36,992	44,276	46,114	41,302	35,716	49,612	48,210	49,939	56,615	57,378	50,890	53,610

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	15,704	17,487	21,194	24,303	25,480	27,217	30,173	31,579	27,518	31,521	33,043	33,897	36,926	39,000	39,778	45,084
Taiwan	16,178	18,547	21,966	25,421	27,687	30,653	30,941	29,243	26,108	35,301	37,017	37,195	37,875	42,161	41,644	47,405
Thailand	7,090	7,191	7,834	9,874	10,024	11,265	12,505	11,265	10,063	13,472	13,711	13,112	13,315	13,665	14,259	15,210
Vietnam	355	309	292	397	444	605	906	951	1,227	1,613	3,379	7,864	10,840	12,553	13,876	16,419
All others	124	126	167	188	233	251	265	299	266	358	442	377	929	965	1,051	1,260
Australia	662	665	853	1,003	929	885	979	1,019	1,046	1,846	2,348	1,738	1,240	1,362	1,175	1,279
All others	141	178	495	164	209	214	273	306	216	203	229	228	254	284	254	286

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See appendix table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

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APPENDIX TABLE 6-35

Exports and imports of testing, measuring, and control instrument products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	133,044	135,522	157,762	200,868	225,137	259,370	288,206	318,929	277,872	346,383	394,282	411,557	415,394	430,088	417,188	428,242
North America	31,600	28,635	30,312	36,408	44,007	50,250	54,146	56,062	51,562	59,831	64,360	67,027	67,613	68,398	67,132	66,376
Canada	739	613	918	1,241	1,564	1,875	1,901	2,136	1,911	2,066	2,327	2,297	2,434	2,493	2,349	2,339
Mexico	479	478	664	1,067	1,953	2,268	2,437	2,882	2,468	2,816	3,066	3,303	3,488	3,782	4,091	4,482
United States	30,383	27,544	28,730	34,100	40,490	46,108	49,808	51,044	47,183	54,950	58,966	61,426	61,691	62,123	60,692	59,554
Central and South America	1,321	1,361	1,597	1,696	1,950	2,269	2,617	3,013	2,860	3,116	3,567	3,858	4,050	4,488	4,744	5,432
Brazil	318	293	288	351	419	565	606	718	628	694	860	788	761	708	673	684
Central America	821	897	1,132	1,116	1,226	1,361	1,667	1,844	1,837	2,040	2,268	2,636	2,839	3,399	3,696	4,278
All others	183	172	177	229	304	343	344	450	394	382	439	433	450	381	376	470
Europe																
EU	31,931	34,275	40,330	50,613	54,792	62,259	65,330	72,274	62,394	72,190	85,328	88,858	92,582	95,056	86,714	87,529
France	3,692	3,648	4,198	4,920	5,193	6,125	6,967	7,929	6,649	7,581	8,599	8,635	8,847	8,922	7,968	7,899
Germany	11,303	12,222	14,384	17,955	20,023	23,354	26,706	29,220	24,596	29,424	35,570	36,607	37,933	37,943	34,195	34,209
United Kingdom	5,450	5,393	6,002	6,599	7,242	7,613	8,308	8,507	7,869	8,676	10,052	10,599	11,190	11,538	11,104	10,729
All others	11,486	13,011	15,746	21,139	22,333	25,167	23,349	26,618	23,280	26,510	31,106	33,017	34,611	36,654	33,447	34,693

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	12,458	13,200	14,836	17,804	19,179	21,425	25,795	30,340	24,753	29,419	39,732	40,073	41,298	42,614	40,086	41,968
Russia	631	501	563	684	674	831	940	1,270	986	1,107	2,408	1,607	1,568	1,375	1,417	1,448
Switzerland	10,755	11,410	12,796	15,216	16,731	18,575	22,170	25,753	20,602	25,173	33,885	34,609	35,563	36,905	34,770	36,669
Turkey	93	106	123	173	211	258	333	402	396	461	568	684	830	966	908	915
All others	979	1,184	1,354	1,730	1,564	1,762	2,352	2,915	2,769	2,679	2,872	3,174	3,337	3,367	2,991	2,936
Middle East	2,633	2,463	2,421	3,312	3,496	3,868	4,472	4,430	3,856	4,680	5,413	4,970	5,361	5,218	5,480	5,678
Israel	2,167	1,916	1,867	2,595	2,647	3,115	3,449	3,433	2,878	3,409	4,054	4,135	4,417	4,281	4,537	4,688
All others	466	547	553	717	849	753	1,023	997	978	1,272	1,359	835	944	937	942	991
Africa	347	371	483	626	615	682	903	1,177	1,147	1,088	1,273	1,467	1,364	1,551	1,646	1,725
Asia																
China	12,936	14,039	16,783	21,270	23,712	28,096	35,145	41,466	35,539	47,783	55,250	59,710	62,254	65,801	68,144	71,644
India	399	482	616	754	856	1,040	1,227	1,349	1,310	1,567	1,996	2,226	2,231	2,455	2,547	2,736
Indonesia	535	549	530	544	642	791	842	890	865	899	983	1,155	1,128	1,271	1,323	1,277
Japan	24,907	24,053	28,889	37,480	36,941	36,820	35,388	37,294	30,759	42,887	50,225	49,956	44,449	44,577	39,495	40,405
Malaysia	1,804	1,873	2,083	2,706	2,968	3,669	4,124	4,535	3,900	5,999	6,679	7,722	7,430	8,084	7,997	7,856
Philippines	907	953	1,198	1,299	1,370	1,359	1,609	1,647	1,459	1,715	1,835	2,109	2,648	2,689	2,808	2,957
Singapore	2,729	3,137	3,360	3,886	4,231	4,662	5,657	6,252	5,745	7,799	9,475	11,028	11,906	12,739	12,437	13,505
South Korea	1,897	1,837	2,730	5,363	9,870	16,010	20,174	24,317	26,522	33,879	34,324	36,076	34,762	34,495	31,297	30,106
Taiwan	3,313	5,064	7,807	12,627	15,381	20,192	23,548	25,992	18,027	24,889	24,070	25,166	25,434	28,243	32,584	35,059

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	1,577	1,675	2,025	2,469	2,717	3,090	3,682	3,909	3,593	4,602	4,968	4,971	5,479	6,281	6,294	6,631
Vietnam	76	89	107	135	149	241	318	441	493	592	835	989	1,241	1,636	1,891	2,273
All others	182	153	184	215	225	275	340	392	373	424	493	530	593	663	708	779
Australia	1,077	933	974	1,115	1,304	1,546	1,836	2,104	1,904	2,173	2,470	2,288	2,157	2,392	2,353	2,745
All others	416	379	499	549	733	827	1,054	1,045	811	850	1,005	1,379	1,413	1,436	1,508	1,560
Imports																
World	133,044	135,522	157,762	200,868	225,137	259,370	288,206	318,929	277,872	346,383	394,282	411,557	415,394	430,088	417,188	428,242
North America	31,658	31,008	34,304	40,815	43,425	48,537	53,354	57,598	47,487	55,337	62,847	64,777	67,214	71,013	72,251	72,983
Canada	2,357	2,189	2,439	2,896	3,271	3,461	3,783	4,257	3,965	4,588	5,286	5,347	5,414	5,288	5,082	5,424
Mexico	1,197	1,377	1,418	1,815	2,118	4,204	6,882	8,782	6,615	7,241	7,512	7,418	8,065	8,495	8,689	8,680
United States	28,104	27,443	30,448	36,104	38,036	40,872	42,689	44,559	36,907	43,507	50,049	52,012	53,735	57,230	58,481	58,879
Central and South America	1,144	1,184	1,290	1,449	1,865	2,050	2,392	2,425	2,014	2,299	2,550	2,856	2,858	2,894	2,949	3,053
Brazil	2,002	1,607	1,607	2,239	2,983	3,804	4,900	5,743	5,105	6,209	7,680	8,133	8,022	7,621	7,219	6,640
Central America	71,734	73,072	84,714	99,792	111,713	129,393	147,974	163,532	139,536	158,089	183,035	177,046	184,851	192,985	179,381	185,298
All others	64,204	64,813	74,934	87,606	98,018	112,353	126,583	139,080	120,457	135,128	153,642	146,717	153,500	161,661	152,077	157,698
Europe																
EU	31,533	29,698	33,023	38,621	44,497	52,680	59,231	66,237	58,004	66,696	74,416	74,175	75,669	79,035	76,027	79,164
France	4,447	4,256	4,765	5,480	6,114	6,931	7,800	8,170	7,182	8,091	9,149	9,488	9,994	10,075	9,664	10,362
Germany	9,096	8,248	9,218	10,602	11,811	13,928	16,509	17,902	15,337	17,707	21,206	20,992	21,230	22,162	21,449	22,654

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	5,254	4,769	5,016	5,828	6,840	7,204	7,362	7,765	6,265	6,893	7,554	7,354	7,436	7,902	7,825	7,971
All others	12,736	12,425	14,024	16,711	19,732	24,618	27,559	32,400	29,220	34,005	36,507	36,341	37,008	38,896	37,089	38,178
Other Europe	7,530	8,260	9,780	12,186	13,694	17,040	21,391	24,452	19,079	22,961	29,393	30,329	31,351	31,324	27,304	27,599
Russia	1,473	1,515	1,927	2,335	2,699	3,969	5,652	6,992	4,464	6,169	7,977	9,454	8,867	8,350	6,062	6,002
Switzerland	3,380	3,705	4,058	4,683	5,072	5,763	6,593	7,452	6,415	7,221	8,966	9,258	9,814	10,306	9,784	9,849
Turkey	881	1,019	1,320	1,912	2,459	2,869	3,526	3,543	2,903	3,756	4,669	4,426	5,312	5,660	5,292	5,482
All others	1,796	2,020	2,474	3,256	3,465	4,440	5,620	6,465	5,298	5,815	7,780	7,190	7,358	7,008	6,166	6,267
Middle East	5,055	5,338	6,118	7,111	7,676	8,754	10,431	12,202	11,678	12,737	14,616	15,305	16,398	17,181	16,348	16,625
Israel	1,044	1,048	1,126	1,345	1,524	1,768	1,802	1,823	1,527	1,660	2,055	1,915	2,033	1,975	1,943	2,173
All others	4,011	4,290	4,993	5,766	6,152	6,986	8,629	10,380	10,151	11,077	12,561	13,390	14,365	15,206	14,405	14,453
Africa	2,637	2,805	3,322	4,275	4,680	5,333	6,631	7,629	7,517	7,860	8,353	8,795	9,445	10,380	9,740	9,716
Asia																
China	11,473	14,656	21,481	32,266	38,622	44,544	53,731	61,494	56,395	79,514	89,991	95,030	94,052	97,021	96,159	99,671
India	1,357	1,481	1,689	2,204	2,816	3,417	4,191	5,022	5,133	6,272	7,403	7,775	7,759	7,667	7,775	8,090
Indonesia	510	393	522	649	817	853	1,077	1,636	1,430	2,060	2,719	3,162	3,095	2,881	2,856	2,894
Japan	13,376	13,157	14,877	17,536	20,088	23,137	21,421	22,096	18,154	22,202	24,920	27,350	25,520	25,759	24,388	24,495
Malaysia	2,001	2,028	2,054	2,536	2,470	3,217	3,423	4,260	3,866	5,765	5,884	5,406	5,370	6,242	5,223	5,573
Philippines	1,087	967	1,267	1,711	1,584	1,742	1,913	1,679	1,392	1,796	1,909	2,060	1,894	2,036	2,061	2,357
Singapore	3,872	4,123	4,304	6,216	5,850	6,983	7,119	7,756	6,616	8,483	9,677	9,999	10,230	10,472	10,266	10,607

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	5,240	5,768	7,732	10,192	11,776	12,616	11,522	11,402	9,360	14,052	16,234	17,768	16,864	18,077	17,662	18,585
Taiwan	5,655	6,158	6,580	11,092	10,552	11,284	9,380	8,070	7,101	10,414	10,680	10,416	10,496	11,259	10,812	11,698
Thailand	1,381	1,426	1,811	2,348	2,759	3,296	3,625	4,333	4,138	5,584	6,557	7,985	7,469	6,849	6,888	7,234
Vietnam	226	297	378	444	490	658	801	1,178	1,227	1,624	1,923	2,889	3,966	4,565	5,067	5,513
All others	515	607	683	839	1,023	1,125	1,393	1,421	1,515	1,778	2,417	2,743	2,964	2,735	2,816	2,919
Australia	1,975	2,095	2,472	3,006	3,429	3,798	4,215	4,800	4,522	5,259	6,089	6,537	6,180	6,551	6,211	6,266
All others	4,818	4,074	4,075	5,370	7,024	8,308	10,966	13,240	11,242	13,693	15,704	16,201	16,600	16,146	14,385	13,199

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-36

Exports and imports of pharmaceutical products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	79,882	93,978	113,850	135,625	155,961	177,043	214,676	245,329	262,791	288,325	323,957	331,893	344,641	352,833	360,869	390,813
North America	13,851	14,377	17,178	22,237	27,420	30,560	35,730	40,636	45,481	47,926	45,956	49,132	51,118	52,346	56,277	54,474
Canada	250	317	483	770	1,010	1,171	1,420	1,643	1,734	1,789	1,400	1,393	1,990	2,771	2,252	2,452
Mexico	705	693	734	1,107	845	832	1,030	1,159	1,291	1,669	1,913	2,442	3,014	2,563	2,199	2,374
United States	12,896	13,368	15,961	20,360	25,565	28,557	33,280	37,834	42,455	44,468	42,643	45,297	46,114	47,012	51,826	49,648
Central and South America	1,612	1,713	1,707	1,959	2,213	2,428	3,033	3,789	4,799	5,170	5,882	5,803	5,640	5,606	5,599	6,055
Brazil	304	324	357	440	558	709	877	1,151	1,358	1,679	1,744	1,809	1,838	1,923	1,613	1,762
Central America	446	568	559	601	606	577	897	990	1,656	1,645	2,104	1,739	1,543	1,508	1,746	1,907
All others	863	821	791	918	1,049	1,142	1,259	1,648	1,785	1,846	2,035	2,256	2,259	2,174	2,240	2,386
Europe																
EU	39,760	50,012	61,991	72,059	79,361	87,282	104,387	115,969	117,181	127,094	143,917	144,890	152,921	162,489	164,510	173,732
France	5,829	6,925	8,669	10,700	11,719	13,041	14,577	17,487	17,962	19,175	18,473	17,586	18,299	17,303	16,146	16,959
Germany	8,422	9,072	10,921	13,455	14,404	17,393	21,359	24,522	23,696	24,262	29,124	31,668	36,109	40,053	38,191	38,066
United Kingdom	6,804	7,769	10,261	10,906	10,142	12,199	14,792	15,657	15,575	15,378	14,906	14,747	13,812	13,586	14,736	15,184
All others	18,705	26,245	32,139	36,999	43,095	44,649	53,659	58,302	59,948	68,279	81,413	80,889	84,701	91,546	95,437	103,522

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	11,861	13,849	16,329	20,542	23,320	28,263	35,301	42,557	45,129	49,363	58,319	60,343	63,786	66,998	63,562	76,023
Russia	145	158	230	209	217	262	311	345	419	381	523	669	675	589	638	719
Switzerland	11,134	12,997	15,176	19,091	21,749	26,485	32,897	39,818	41,490	45,095	53,513	55,022	58,293	61,558	58,343	70,279
Turkey	124	141	202	263	348	400	451	623	672	830	896	912	1,114	1,138	1,294	1,354
All others	458	553	722	979	1,006	1,116	1,642	1,772	2,548	3,057	3,388	3,741	3,704	3,714	3,287	3,672
Middle East	1,575	1,701	1,872	2,279	3,224	4,301	5,176	6,781	6,970	9,628	11,515	11,376	10,553	7,838	9,744	9,530
Israel	1,194	1,248	1,402	1,737	2,487	3,448	3,843	5,368	5,519	7,802	9,552	9,549	8,371	5,910	7,494	6,794
All others	380	453	470	543	736	853	1,333	1,413	1,452	1,825	1,963	1,827	2,182	1,929	2,250	2,736
Africa	271	312	306	380	433	468	661	769	895	835	857	969	1,082	1,113	1,253	1,330
Asia																
China	2,199	2,568	3,186	3,613	4,223	5,018	6,683	9,140	9,747	12,154	13,036	13,016	13,470	14,382	14,917	16,813
India	1,390	1,845	2,307	2,601	3,251	3,980	6,017	7,056	7,385	9,358	11,711	13,204	14,566	14,706	16,249	18,867
Indonesia	101	168	142	147	131	170	234	286	270	380	430	454	490	552	682	762
Japan	3,261	3,538	4,431	4,760	4,787	4,254	4,648	4,966	5,788	5,898	5,676	5,572	5,622	5,209	5,538	6,583
Malaysia	116	142	160	179	198	216	268	280	360	449	411	462	492	512	527	535
Philippines	28	23	22	32	31	34	42	41	49	46	56	69	58	68	83	105
Singapore	1,467	1,448	1,519	1,594	3,394	5,318	6,510	6,044	10,707	11,430	16,354	16,062	14,556	10,845	11,916	12,311
South Korea	362	396	449	492	568	660	854	1,081	1,233	1,311	1,434	1,674	1,723	1,955	2,764	5,001
Taiwan	95	91	103	145	193	242	249	296	327	369	446	456	497	588	644	745

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	186	190	220	236	284	325	389	465	447	525	570	694	747	749	857	1,019
Vietnam	13	13	19	15	30	32	45	56	66	82	95	105	124	137	170	211
All others	73	68	72	107	148	154	190	215	257	249	299	283	300	558	537	552
Australia	1,338	1,170	1,490	1,956	2,425	2,949	3,606	3,656	3,810	4,042	4,491	4,968	4,059	3,423	2,756	3,704
All others	321	353	347	292	326	388	652	1,243	1,889	2,016	2,501	2,360	2,839	2,759	2,286	2,463
Imports																
World	79,882	93,978	113,850	135,625	155,961	177,043	214,676	245,329	262,791	288,325	323,957	331,893	344,641	352,833	360,869	390,813
North America	21,457	27,859	34,755	38,906	43,612	50,906	58,232	65,913	69,088	74,444	80,794	79,414	78,934	88,201	99,661	107,278
Canada	2,140	2,511	3,287	3,950	4,800	6,034	7,263	8,143	8,533	7,943	8,516	8,726	8,984	9,272	7,779	8,682
Mexico	1,029	1,186	1,358	1,647	1,827	2,321	2,779	3,119	3,069	3,391	3,528	3,893	4,034	3,856	3,918	4,336
United States	18,288	24,161	30,110	33,309	36,985	42,551	48,190	54,651	57,487	63,111	68,749	66,795	65,916	75,074	87,964	94,260
Central and South America	5,939	5,702	6,029	7,126	7,835	9,295	12,395	14,391	17,598	20,390	24,726	23,852	24,926	24,417	23,272	22,749
Brazil	1,732	1,739	1,836	2,127	2,428	3,053	3,847	4,877	5,026	6,631	6,907	7,431	8,049	8,531	7,527	7,105
Central America	1,471	1,575	1,708	2,111	1,963	2,121	2,825	3,175	5,969	5,630	8,437	5,746	5,525	4,776	4,865	5,265
All others	2,737	2,388	2,485	2,888	3,444	4,121	5,723	6,339	6,604	8,129	9,381	10,676	11,352	11,109	10,880	10,380
Europe																
EU	19,263	21,623	25,735	33,699	39,730	44,826	54,491	63,648	69,498	74,440	79,765	82,136	84,025	82,644	83,342	93,075
France	2,816	2,881	3,410	4,112	4,948	4,590	5,924	6,729	7,765	8,371	8,612	9,773	8,845	8,381	7,695	8,062
Germany	2,994	3,324	3,592	5,059	5,779	7,054	11,343	13,434	15,573	15,623	14,516	13,976	14,581	15,139	13,822	16,613

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	3,315	2,797	3,282	4,362	5,733	6,875	7,064	7,504	7,539	8,785	10,378	10,414	7,872	7,760	10,160	10,904
All others	10,138	12,621	15,450	20,166	23,269	26,307	30,158	35,982	38,622	41,661	46,259	47,973	52,727	51,363	51,666	57,497
Other Europe	10,343	12,393	16,060	19,745	22,689	28,468	34,021	37,942	35,844	40,986	48,620	48,442	52,983	52,039	44,599	47,984
Russia	1,813	1,632	2,219	2,806	4,015	5,944	6,446	8,805	7,853	11,104	13,227	13,328	14,741	12,905	9,229	9,972
Switzerland	5,643	7,189	9,252	11,041	12,035	14,770	17,834	17,241	16,551	17,442	21,321	20,756	22,820	23,971	21,786	22,709
Turkey	1,225	1,564	2,075	2,758	2,911	3,218	3,874	4,938	4,672	4,792	5,162	4,495	4,587	4,876	4,867	5,454
All others	1,662	2,009	2,515	3,140	3,729	4,536	5,867	6,957	6,769	7,648	8,909	9,863	10,835	10,287	8,718	9,849
Middle East	3,447	3,893	4,502	5,074	5,505	6,349	7,849	9,193	10,101	11,454	12,991	13,305	15,728	15,938	16,235	17,853
Israel	624	677	771	857	918	1,063	1,203	1,384	1,382	1,533	1,663	1,784	1,937	2,050	1,998	2,462
All others	2,823	3,216	3,731	4,217	4,586	5,286	6,645	7,809	8,720	9,921	11,328	11,521	13,791	13,888	14,237	15,391
Africa	3,753	4,117	4,824	5,733	6,431	7,489	9,620	10,709	11,108	12,364	13,387	14,482	16,151	16,830	16,842	17,852
Asia																
China	1,523	1,740	1,927	2,168	2,715	3,195	4,480	6,006	6,873	8,415	11,170	13,312	14,707	16,482	18,155	19,341
India	548	737	819	983	1,215	1,595	1,955	2,409	2,657	3,376	3,750	3,523	3,471	3,630	3,506	3,814
Indonesia	225	291	338	313	318	400	501	559	628	759	824	904	1,057	1,029	1,075	1,158
Japan	4,819	5,099	5,740	6,698	7,611	8,255	9,067	10,414	13,700	15,860	18,590	21,248	20,002	18,814	22,160	24,027
Malaysia	366	423	506	610	644	753	887	981	1,081	1,162	1,347	1,483	1,575	1,611	1,433	1,611
Philippines	399	441	500	541	561	624	732	850	884	978	1,066	1,150	1,263	1,261	1,361	1,622
Singapore	698	756	885	929	1,462	1,550	1,848	1,790	1,772	2,144	2,702	2,683	2,794	3,204	3,144	3,336

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	1,022	1,196	1,399	1,604	1,977	2,557	3,067	3,449	3,495	4,393	4,498	5,117	5,114	5,671	4,963	5,205
Taiwan	924	1,011	1,097	1,342	1,397	1,554	1,730	1,884	2,030	2,347	2,663	2,806	2,992	2,848	3,065	3,460
Thailand	562	539	658	755	931	1,127	1,249	1,517	1,663	1,801	2,054	2,142	2,246	2,185	2,325	2,587
Vietnam	332	373	415	467	552	654	815	1,001	1,187	1,325	1,611	1,816	1,984	2,060	2,385	2,722
All others	751	818	923	1,020	1,219	1,262	1,502	1,707	1,969	2,188	2,429	2,567	3,000	3,242	3,437	3,982
Australia	2,167	2,500	3,325	4,174	4,907	4,999	5,604	5,958	6,551	7,373	8,545	9,023	8,942	8,212	7,510	8,456
All others	1,341	2,467	3,413	3,737	4,649	1,184	4,634	5,010	5,064	2,126	2,427	2,486	2,746	2,516	2,397	2,700

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-37

Exports and imports of aircraft and spacecraft, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	116,317	112,775	109,719	126,553	136,575	172,947	198,806	211,616	198,341	204,373	224,843	256,003	281,645	294,517	302,096	303,772
North America	55,509	54,119	49,152	53,930	65,266	84,440	96,694	86,987	87,735	84,583	92,275	108,515	117,361	126,026	130,910	136,304
Canada	3,083	2,740	2,064	2,356	2,812	4,674	4,805	5,440	6,085	6,483	5,833	5,663	5,336	5,363	5,524	5,287
Mexico	81	110	111	114	124	219	397	613	389	434	526	491	550	544	518	532
United States	52,346	51,269	46,976	51,459	62,331	79,547	91,491	80,933	81,260	77,666	85,916	102,360	111,475	120,118	124,868	130,485
Central and South America	3,284	2,641	2,695	4,894	3,982	3,943	6,113	6,820	5,249	5,842	6,272	6,290	6,441	5,152	5,131	5,438
Brazil	3,009	2,358	2,333	4,579	3,532	3,417	5,337	5,573	4,371	4,900	4,799	5,486	5,148	4,761	4,788	5,081
Central America	84	117	88	94	108	75	245	305	149	142	101	78	306	163	128	136
All others	191	166	274	221	343	451	532	943	729	800	1,372	726	987	227	215	221
Europe																
EU	39,857	37,221	38,228	45,515	46,777	58,576	64,116	76,270	72,937	81,094	87,516	96,866	107,786	108,571	104,724	96,042
France	17,067	15,490	16,488	19,508	19,586	25,724	27,940	34,060	29,937	34,934	37,057	40,160	42,399	43,348	39,882	36,933
Germany	7,334	7,061	7,389	9,791	9,478	11,694	10,397	12,097	14,832	15,453	16,985	21,188	24,960	24,124	26,510	23,164
United Kingdom	9,911	8,491	8,382	9,212	10,445	11,938	14,485	16,420	14,588	16,517	17,218	18,852	20,859	21,148	19,812	17,540
All others	5,545	6,179	5,970	7,005	7,267	9,220	11,294	13,693	13,581	14,190	16,257	16,666	19,567	19,951	18,519	18,404

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	5,174	6,669	7,228	7,604	4,528	5,695	7,615	9,965	7,522	5,949	6,859	8,687	8,649	8,405	9,489	9,710
Russia	2,240	3,514	3,507	3,243	838	1,187	1,408	2,145	1,438	1,351	1,522	2,260	3,020	2,532	2,930	2,889
Switzerland	1,447	2,011	2,816	3,431	2,794	2,952	3,953	4,963	4,464	3,241	3,749	3,976	3,928	4,194	4,759	5,120
Turkey	364	1,145	905	930	896	1,556	2,254	2,857	1,620	1,356	1,588	2,451	1,701	1,679	1,800	1,701
All others	1,122	3,290	3,128	4,046	3,835	4,667	6,240	8,917	5,317	6,043	6,383	6,973	8,147	7,741	9,074	9,533
Middle East	2,887	1,973	1,733	1,774	1,945	2,173	3,185	2,851	3,091	3,053	3,088	3,342	3,634	3,571	3,875	3,999
Israel	2,021	242	269	453	370	613	756	728	727	604	638	891	1,161	1,403	1,505	1,609
All others	866	1,074	1,126	1,820	1,520	1,881	2,298	5,338	1,498	2,385	2,657	2,740	3,352	2,766	3,695	3,926
Africa	346	329	546	749	1,100	1,266	1,263	1,857	978	901	1,419	1,622	1,503	1,741	1,784	1,800
Asia																
China	1,293	1,338	1,703	1,989	1,937	2,361	2,732	3,987	3,245	3,784	4,395	4,369	5,102	5,769	6,325	6,474
India	195	135	151	149	155	274	559	921	804	806	1,843	1,524	3,652	6,434	6,839	6,815
Indonesia	60	87	98	108	145	264	162	155	232	135	255	218	193	121	156	145
Japan	3,334	2,662	2,475	3,103	3,666	4,702	5,529	5,883	6,136	6,081	7,234	8,793	9,580	10,203	10,465	10,538
Malaysia	391	401	314	448	545	639	1,040	941	1,004	874	1,012	1,077	829	961	970	906
Philippines	62	61	218	241	170	239	105	125	128	108	91	223	500	376	276	304
Singapore	1,009	1,125	1,186	1,234	1,929	2,814	3,111	4,651	3,643	4,424	4,571	5,214	5,488	5,540	6,414	10,104
South Korea	748	549	688	559	614	812	997	923	831	1,082	1,323	1,691	2,335	2,148	2,272	2,130
Taiwan	239	182	226	232	240	354	412	451	463	480	598	669	724	862	961	895

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	191	156	326	398	336	353	526	622	474	631	671	672	654	742	805	858
Vietnam	5	2	7	11	11	25	41	30	28	61	52	110	109	200	193	196
All others	132	134	125	142	112	117	153	151	78	93	199	129	90	201	194	228
Australia	454	832	507	439	542	526	566	707	730	669	922	847	1,118	1,176	1,091	1,151
All others	1,147	2,156	2,112	3,034	2,575	3,373	3,885	7,317	3,031	3,723	4,249	5,144	5,900	6,319	9,222	9,737
Imports																
World	116,317	112,775	109,719	126,553	136,575	172,947	198,806	211,616	198,341	204,373	224,843	256,003	281,645	294,517	302,096	303,772
North America	29,433	24,852	20,363	25,863	23,117	27,077	32,511	33,858	28,749	30,717	34,308	39,033	44,126	48,793	51,120	47,902
Canada	3,992	3,799	2,352	2,653	3,090	3,424	3,998	3,937	3,773	3,793	4,175	4,127	4,579	4,547	5,183	4,807
Mexico	238	405	477	803	698	859	1,507	1,484	529	1,326	1,367	1,729	1,618	1,571	2,040	2,024
United States	25,203	20,649	17,535	22,407	19,330	22,794	27,007	28,437	24,447	25,597	28,766	33,177	37,929	42,674	43,897	41,071
Central and South America	6,686	6,525	5,061	6,119	6,697	10,835	13,186	16,318	14,668	14,894	16,914	18,792	18,516	18,439	19,864	17,833
Brazil	3,747	3,572	2,270	3,439	3,718	5,530	7,706	8,658	6,982	7,073	8,332	9,852	9,305	8,475	9,390	9,188
Central America	1,306	1,324	1,240	1,113	1,018	2,037	1,876	2,691	1,959	1,975	2,133	2,013	1,706	2,161	1,814	1,528
All others	1,634	1,629	1,551	1,567	1,961	3,268	3,604	4,969	5,726	5,846	6,448	6,927	7,505	7,802	8,659	7,117
Europe																
EU	29,729	26,589	27,216	31,801	32,462	38,105	46,689	49,176	47,487	42,985	46,160	50,602	51,771	53,614	59,230	62,181
France	5,864	5,986	4,627	7,066	7,598	8,719	10,743	11,456	12,058	10,369	10,766	12,058	12,980	13,018	18,366	19,507
Germany	5,751	4,662	4,662	4,043	4,479	6,630	7,760	8,548	8,749	8,380	9,127	9,013	9,290	10,120	9,555	8,971

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	8,872	6,234	6,711	6,758	8,340	8,829	10,510	11,809	10,179	10,685	10,982	12,294	13,127	14,133	14,537	15,489
All others	9,242	9,708	11,217	13,933	12,045	13,926	17,676	17,363	16,501	13,551	15,285	17,236	16,374	16,342	16,772	18,216
Other Europe	6,092	6,505	6,308	7,400	7,425	11,185	11,360	16,343	15,288	16,578	18,764	18,937	20,709	20,951	19,149	21,652
Russia	249	409	664	1,065	846	1,825	1,927	3,341	3,587	3,021	3,689	6,129	5,994	7,382	5,538	4,906
Switzerland	2,174	2,171	3,205	2,471	2,702	3,259	3,876	5,245	4,077	4,427	3,839	4,133	4,308	3,604	3,391	4,263
Turkey	1,535	1,456	674	1,052	1,551	3,162	2,061	3,189	2,281	4,654	5,602	4,211	4,116	4,731	6,689	6,981
All others	2,134	2,468	1,764	2,811	2,325	2,939	3,497	4,568	5,342	4,477	5,634	4,463	6,291	5,235	3,531	5,503
Middle East	7,442	7,130	9,032	9,023	13,092	17,753	17,921	18,828	20,322	22,266	21,639	27,950	32,752	36,383	40,858	42,476
Israel	1,512	1,229	1,065	1,702	2,057	2,052	2,475	2,663	1,617	1,451	1,318	1,446	1,538	2,092	1,864	2,120
All others	5,930	5,902	7,968	7,320	11,034	15,702	15,446	16,165	18,705	20,814	20,321	26,504	31,214	34,291	38,994	40,356
Africa	4,224	3,876	4,321	4,728	6,682	6,404	7,136	13,100	8,399	9,318	9,292	8,009	8,385	11,000	8,769	8,773
Asia																
China	8,752	8,703	8,336	8,982	12,442	17,374	19,627	17,892	17,641	21,129	25,121	30,660	34,778	35,928	36,330	35,710
India	1,085	1,253	1,452	1,734	2,242	5,721	9,410	5,415	6,671	3,999	3,631	4,476	6,332	5,569	3,904	3,577
Indonesia	352	527	418	465	662	751	1,582	1,447	2,607	3,148	2,755	3,742	5,093	4,115	4,223	3,041
Japan	4,689	6,080	6,534	7,270	7,331	9,015	10,379	8,658	7,571	7,306	7,513	11,964	11,593	12,160	10,725	11,537
Malaysia	1,061	1,335	719	1,243	1,226	2,180	2,059	2,498	2,667	2,626	3,226	4,890	4,955	4,118	2,972	2,832
Philippines	302	229	388	541	560	1,104	862	1,175	673	1,225	1,147	2,172	3,251	3,216	1,719	1,979
Singapore	5,088	4,545	4,841	5,356	6,202	7,645	7,781	9,580	9,142	10,158	10,214	11,661	11,723	11,083	12,045	10,759

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	3,398	3,366	2,705	3,037	3,420	5,089	4,561	3,652	3,527	4,015	5,511	5,814	6,497	6,791	7,462	8,039
Taiwan	2,249	1,488	1,678	2,275	4,006	2,790	3,197	2,047	1,702	2,487	2,746	2,616	3,345	4,811	5,277	6,045
Thailand	1,586	1,272	1,546	1,294	2,362	2,267	2,442	1,880	1,711	1,963	2,222	3,453	4,942	3,765	3,473	2,886
Vietnam	104	203	878	1,048	578	216	1,152	752	964	1,082	1,496	2,147	1,255	1,115	2,108	2,119
All others	368	465	798	1,535	791	1,864	1,566	1,686	1,248	1,717	2,481	1,955	3,527	4,430	4,336	5,608
Australia	1,692	3,940	3,181	3,014	2,968	3,019	2,567	5,142	4,342	4,132	5,532	4,171	4,324	4,187	4,461	4,000
All others	1,985	3,889	3,940	3,826	2,311	2,553	2,816	2,171	2,961	2,629	4,171	2,962	3,771	4,050	4,071	4,820

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

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 APPENDIX TABLE 6-38 
Regions, countries, or economies in world trade data

(Regions, countries, or economies in world trade data)

North America	Central and South America	Europe	Middle East	Africa	Asia	Australia
Canada	Brazil	EU	Israel	Algeria	China	
Mexico	Central America	France	All others	Angola	China	
United States	Belize	Germany	Bahrain	Benin	Hong Kong	
	Costa Rica	United Kingdom	Gaza Strip	Burkina Faso	India	
	El Salvador	All others	Iran	Burundi	Indonesia	
	Guatemala	Austria	Iraq	Cameroon	Japan	
	Honduras	Belgium	Jordan	Cape Verde	Malaysia	
	Nicaragua	Bulgaria	Kuwait	Central African Republic	Philippines	
	Panama	Cyprus	Lebanon	Chad	Singapore	
	All others	Czech Republic	Oman	Congo, Democratic Republic of the	South Korea	
	Argentina	Denmark	Qatar	Congo, Republic of the	Taiwan	
	Bahamas, The	Finland	Saudi Arabia	Côte d'Ivoire	Thailand	
	Barbados	Greece	Syria	Djibouti	Vietnam	
	Bermuda	Hungary	United Arab Emirates	Egypt	All others	
	Bolivia	Ireland	Yemen	Equatorial Guinea	Afghanistan	
	Chile	Italy		Eritrea	Armenia	
	Colombia	Malta		Ethiopia	Azerbaijan	
	Cuba	Netherlands		Gabon	Bangladesh	

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North America	Central and South America	Europe	Middle East	Africa	Asia	Australia
	Dominican Republic	Poland		Gambia, The	Brunei	
	Ecuador	Portugal		Ghana	Burma	
	French Guiana	Romania		Guinea	Cambodia	
	Grenada	Slovakia		Guinea-Bissau	Georgia	
	Guyana	Slovenia		Kenya	Kazakhstan	
	Haiti	Spain		Liberia	Kyrgyzstan	
	Jamaica	Sweden		Libya	Laos	
	Paraguay	Other Europe		Madagascar	Maldives	
	Peru	Russia		Malawi	Mongolia	
	Suriname	Switzerland		Mali	Nepal	
	Trinidad and Tobago	Turkey		Mauritania	North Korea	
	Uruguay	All others		Morocco	Pakistan	
	Venezuela	Albania		Mauritius	Papua New Guinea	
	Virgin Islands (British)	Belarus		Mozambique	Sri Lanka	
		Bosnia and Herzegovina		Niger	Tajikistan	
		Croatia		Nigeria	Turkmenistan	
		Gibraltar		Rwanda	Uzbekistan	
		Iceland		Senegal		
		Macedonia		Sierra Leone		
		Moldova		Somalia		
		Montenegro		Southern Africa		
		Norway		Botswana		
		Serbia		Lesotho		

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North America	Central and South America	Europe	Middle East	Africa	Asia	Australia
		Ukraine		Namibia		
				South Africa		
				Sudan		
				Swaziland		
				Tanzania		
				Togo		
				Tunisia		
				Uganda		
				Western Sahara		
				Zambia		
				Zimbabwe		

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg.

Source(s)

IHS Global Insight, World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-39

Exports and imports of motor vehicles and parts, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	233,533	257,413	302,599	361,567	409,949	468,457	564,763	638,984	418,523	592,654	707,926	757,943	765,669	758,959	729,992	725,620
North America	20,361	20,347	23,106	23,012	33,806	40,505	52,989	62,538	38,244	53,628	71,871	79,370	77,162	79,581	72,026	68,833
Canada	1,028	1,145	1,535	1,507	1,775	1,769	2,083	1,643	1,077	1,073	1,368	1,555	1,696	1,747	1,866	1,848
Mexico	2,257	1,735	2,057	2,148	2,978	5,090	8,089	9,703	5,911	9,360	14,174	15,598	14,395	13,632	12,732	12,909
United States	17,076	17,467	19,514	19,357	29,053	33,646	42,816	51,192	31,256	43,195	56,329	62,216	61,072	64,202	57,428	54,076
Central and South America	8,806	8,395	9,782	13,238	17,925	20,858	23,005	26,270	17,846	25,249	28,640	27,637	28,772	22,257	19,199	19,456
Brazil	5,505	5,704	7,336	9,827	13,135	14,798	15,267	16,874	9,584	14,298	16,499	15,386	16,079	11,603	11,101	11,391
Central America	65	87	75	131	143	162	261	730	1,552	1,256	562	438	372	407	410	437
All others	3,236	2,604	2,372	3,279	4,647	5,898	7,476	8,666	6,710	9,694	11,580	11,813	12,322	10,246	7,689	7,629
Europe																
EU	77,987	86,714	105,878	124,105	131,285	145,707	173,296	194,592	127,143	186,506	241,341	256,763	268,353	270,372	252,535	244,075
France	6,987	7,514	9,562	12,135	11,468	11,789	13,116	14,693	10,362	13,006	15,180	13,803	12,300	11,876	9,697	9,301
Germany	41,056	46,470	55,390	61,738	65,531	71,677	81,794	91,381	63,504	97,803	124,169	132,288	135,663	137,809	128,224	120,025
United Kingdom	7,654	9,737	12,043	13,668	15,240	15,299	17,243	19,241	10,776	18,642	24,917	29,626	32,089	33,960	32,774	33,435
All others	22,290	22,993	28,883	36,564	39,047	46,942	61,143	69,278	42,501	57,055	77,075	81,046	88,300	86,727	81,841	81,314

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	6,812	8,139	10,732	15,800	18,511	23,009	30,884	34,855	21,802	24,472	31,305	30,641	34,762	34,475	33,861	35,485
Russia	1,224	1,388	1,553	2,222	2,516	3,064	3,976	4,120	1,922	1,824	2,886	3,226	3,781	3,237	3,616	3,766
Switzerland	1,151	1,287	1,418	1,632	1,774	1,986	2,486	2,534	1,742	1,971	2,393	2,326	2,484	2,884	2,477	2,742
Turkey	2,709	3,693	5,636	8,942	10,657	13,531	17,872	20,313	13,567	15,791	18,730	17,468	20,100	20,836	20,912	21,816
All others	1,728	1,770	2,125	3,003	3,563	4,428	6,550	7,887	4,570	4,885	7,297	7,621	8,397	7,518	6,855	7,162
Middle East	1,885	2,031	1,335	2,024	3,429	3,000	7,252	9,862	5,383	6,055	6,344	4,384	6,088	6,385	6,781	7,262
Israel	116	134	152	180	232	226	269	306	339	310	299	269	245	316	320	323
All others	1,769	1,897	1,183	1,844	3,197	2,774	6,983	9,556	5,044	5,745	6,045	4,115	5,843	6,069	6,460	6,939
Africa	2,638	3,248	4,018	4,624	4,939	5,773	6,384	9,106	7,280	8,985	9,894	10,143	11,501	11,868	13,552	14,933
Asia																
China	1,921	2,646	3,552	5,696	9,288	13,804	22,143	28,188	20,280	28,652	38,796	43,291	45,604	50,048	54,944	58,802
India	738	854	1,294	2,161	3,068	3,480	4,246	5,840	5,898	8,592	11,261	11,422	11,355	12,485	12,588	12,763
Indonesia	444	514	655	921	1,351	1,667	2,225	2,861	1,851	2,741	3,190	4,672	4,715	5,201	6,037	6,484
Japan	87,041	97,665	107,717	122,327	129,846	146,059	165,031	180,592	110,587	159,166	162,470	177,036	161,079	149,427	143,121	144,460
Malaysia	240	311	360	498	660	758	895	991	780	1,108	1,141	1,269	1,327	1,353	1,198	1,155
Philippines	337	481	723	851	955	926	1,062	1,357	960	1,361	1,318	1,289	1,048	1,281	1,409	1,535
Singapore	603	763	931	1,196	1,445	1,607	1,808	2,268	1,484	1,879	1,861	2,056	1,967	2,227	1,945	1,857
South Korea	16,001	17,246	22,519	32,157	37,368	42,970	49,900	50,350	37,697	54,103	68,333	71,869	74,085	75,006	70,543	66,094
Taiwan	1,721	1,906	2,356	2,873	2,948	2,967	3,230	3,388	2,807	3,670	4,340	4,925	5,046	5,340	5,682	5,914

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	2,709	3,058	4,033	5,568	8,435	10,372	14,178	17,988	13,042	20,586	20,296	25,916	27,488	26,319	28,491	29,815
Vietnam	26	34	44	99	175	173	249	370	296	550	569	764	954	1,088	1,161	1,251
All others	69	53	48	91	125	189	364	374	382	192	426	272	184	159	184	198
Australia	2,421	2,406	2,795	3,215	3,607	3,387	3,766	4,448	2,198	2,868	2,900	3,325	3,085	2,877	2,653	3,167
All others	773	603	720	1,112	784	1,244	1,857	2,746	2,567	2,291	1,627	901	1,093	1,210	2,081	2,081
Imports																
World	233,533	257,413	302,599	361,567	409,949	468,457	564,763	638,984	418,523	592,654	707,926	757,943	765,669	758,959	729,992	725,620
North America	94,678	106,049	112,080	122,534	130,705	143,967	145,530	140,975	89,694	122,785	137,741	164,681	168,101	173,331	186,197	183,534
Canada	6,229	7,378	7,977	9,069	10,434	12,330	13,144	13,576	10,671	13,604	13,923	16,672	15,789	14,277	14,156	14,504
Mexico	4,626	5,614	6,070	7,202	8,663	10,059	11,181	11,850	7,140	11,033	12,843	14,431	14,683	16,205	17,477	17,000
United States	83,824	93,057	98,033	106,262	111,608	121,578	121,206	115,549	71,883	98,147	110,976	133,578	137,630	142,849	154,563	152,030
Central and South America	16,276	13,395	13,364	19,185	26,322	33,650	44,513	53,631	36,958	58,598	71,168	71,794	73,496	60,451	52,162	49,142
Brazil	4,691	3,641	3,651	4,663	5,864	7,466	10,434	15,382	12,962	19,777	24,781	23,537	25,599	21,736	15,334	13,283
Central America	2,913	3,312	3,066	3,599	4,486	5,310	6,587	6,843	4,105	5,807	6,222	7,107	6,596	6,653	7,389	7,924
All others	8,672	6,441	6,648	10,923	15,971	20,874	27,492	31,405	19,891	33,015	40,165	41,149	41,302	32,062	29,439	27,936
Europe																
EU	34,227	38,185	49,095	58,973	65,228	76,313	93,772	97,232	61,813	74,177	89,829	78,695	79,929	82,964	85,512	91,234
France	3,193	3,671	4,860	6,446	6,281	7,157	8,722	9,248	7,947	8,014	9,125	8,451	8,501	8,909	8,544	9,273
Germany	8,486	9,666	12,777	13,414	16,107	20,236	23,950	26,919	17,250	17,709	23,327	22,354	20,371	20,852	21,683	23,121

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	6,632	7,341	8,723	10,096	10,193	10,050	12,096	11,177	6,027	12,750	16,015	11,930	11,837	13,750	14,167	15,473
All others	15,916	17,507	22,735	29,018	32,647	38,870	49,004	49,888	30,589	35,703	41,363	35,961	39,220	39,453	41,117	43,366
Other Europe	17,411	19,504	27,488	39,831	46,441	60,935	87,405	109,168	45,660	72,499	104,618	107,815	108,029	90,987	73,652	73,444
Russia	3,584	4,075	5,761	8,540	12,125	20,802	35,162	50,559	12,286	25,900	43,539	49,758	45,084	33,398	19,612	18,305
Switzerland	6,470	6,428	7,068	7,902	8,097	8,328	9,325	10,662	8,774	11,104	14,519	14,020	13,384	13,792	13,267	12,731
Turkey	1,974	2,965	6,597	12,168	12,325	13,498	15,458	16,596	10,774	17,107	21,100	17,559	20,451	19,264	20,137	20,550
All others	5,382	6,037	8,062	11,222	13,893	18,306	27,460	31,351	13,827	18,387	25,460	26,477	29,110	24,533	20,635	21,857
Middle East	17,795	18,174	20,816	26,512	33,668	34,792	48,308	64,886	41,127	54,851	56,798	66,094	69,823	75,228	74,336	72,099
Israel	1,948	1,684	1,690	2,126	2,562	2,503	3,740	4,456	2,806	4,667	4,783	3,886	5,105	5,087	5,354	5,874
All others	15,848	16,490	19,126	24,386	31,106	32,289	44,568	60,430	38,321	50,185	52,014	62,208	64,718	70,141	68,982	66,225
Africa	10,943	11,851	14,444	18,831	23,649	28,554	35,167	43,057	36,234	40,402	41,790	50,568	50,117	49,906	46,633	45,386
Asia																
China	6,297	9,059	15,423	16,563	17,162	21,950	28,391	33,391	35,034	62,032	79,984	77,863	85,373	97,322	83,488	81,713
India	790	916	1,169	1,636	1,932	2,535	3,758	5,235	4,156	6,347	7,957	7,434	6,473	6,261	6,346	6,169
Indonesia	1,734	1,896	2,295	3,213	3,578	2,338	3,577	6,339	4,118	7,602	9,576	12,065	9,358	7,485	6,619	6,672
Japan	9,474	10,423	11,644	12,581	13,457	14,077	16,036	17,502	10,630	15,212	18,482	21,175	21,349	21,940	20,483	19,788
Malaysia	1,858	2,105	2,677	3,344	3,966	3,602	3,678	4,758	4,236	6,334	6,634	8,115	7,823	7,178	6,292	6,491
Philippines	1,035	1,272	1,397	1,330	1,419	1,543	1,991	2,371	2,306	3,494	3,190	3,877	3,791	3,911	4,815	5,746
Singapore	2,195	2,131	2,529	3,119	3,551	3,763	4,022	4,949	3,546	3,875	5,089	4,834	4,335	4,481	4,238	4,240

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	2,210	3,057	3,396	4,026	4,905	6,270	7,789	8,654	6,092	9,682	11,629	11,116	11,958	14,557	15,898	15,878
Taiwan	2,253	2,313	3,026	3,752	4,251	3,587	3,239	3,058	2,907	4,877	6,043	5,708	5,753	6,834	6,923	7,473
Thailand	2,234	2,659	3,561	4,468	4,932	5,036	5,991	7,237	5,691	9,878	11,501	15,575	13,697	10,045	9,991	10,130
Vietnam	646	879	1,048	1,283	1,412	1,236	2,438	3,355	3,618	3,684	3,981	2,872	3,195	4,910	6,346	6,573
All others	1,381	1,746	2,261	2,746	3,525	4,028	4,593	5,367	5,377	7,759	10,625	10,153	8,987	9,470	10,078	10,601
Australia	7,646	8,913	11,433	13,615	15,374	16,245	19,885	22,175	15,778	23,934	26,115	31,879	28,197	25,721	24,515	23,479
All others	2,448	2,887	3,452	4,022	4,472	4,036	4,680	5,644	3,548	4,631	5,175	5,632	5,885	5,976	5,468	5,828

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-40

Exports and imports of chemicals excluding pharmaceuticals, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	367,035	391,896	461,229	568,383	645,490	728,310	869,222	1,028,505	817,414	1,055,252	1,292,854	1,271,036	1,280,032	1,276,684	1,198,250	1,185,477
North America	56,498	56,298	62,188	73,926	78,800	89,301	108,017	123,690	97,661	123,835	142,885	137,636	136,174	134,333	126,080	119,971
Canada	2,697	2,800	3,040	4,162	5,162	5,774	8,818	9,156	5,792	7,709	9,895	9,161	8,794	7,670	7,447	6,708
Mexico	2,910	2,714	2,912	3,391	3,804	4,150	5,040	6,531	5,528	7,017	8,718	9,328	9,446	8,817	7,769	7,557
United States	50,891	50,783	56,236	66,373	69,834	79,377	94,160	108,003	86,341	109,109	124,272	119,146	117,934	117,846	110,864	105,706
Central and South America	13,307	13,019	15,438	19,677	24,676	28,347	32,655	41,474	31,882	38,396	47,615	48,711	45,118	42,216	37,414	35,689
Brazil	4,145	4,385	5,594	7,109	8,931	11,069	12,860	14,838	12,302	14,271	17,333	17,780	16,449	14,762	12,778	12,748
Central America	2,454	2,217	3,049	3,820	4,898	5,464	7,025	9,104	6,033	7,682	9,530	9,373	8,939	8,876	8,072	6,792
All others	6,708	6,417	6,794	8,748	10,847	11,813	12,770	17,531	13,547	16,444	20,752	21,558	19,730	18,578	16,565	16,149
Europe																
EU	105,567	112,672	131,326	155,617	169,293	185,722	216,001	240,657	191,320	221,415	255,522	251,991	259,105	256,873	227,797	221,937
France	12,291	12,845	15,209	17,535	19,049	20,491	23,141	26,501	20,907	24,457	28,742	28,090	29,233	29,470	25,939	25,351
Germany	28,037	30,550	35,336	43,564	47,891	54,469	64,484	74,210	51,185	60,581	70,093	69,865	72,175	71,721	61,689	59,379
United Kingdom	11,319	12,091	12,990	15,327	16,179	18,401	19,922	20,844	19,293	20,363	21,879	21,420	19,635	20,166	21,678	17,997
All others	53,919	57,186	67,791	79,191	86,173	92,361	108,454	119,102	99,936	116,014	134,809	132,616	138,062	135,516	118,491	119,210

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	30,610	32,151	38,684	49,164	55,521	62,119	75,828	96,747	69,417	85,704	107,887	105,125	102,427	101,744	91,480	92,487
Russia	8,671	8,587	10,616	14,125	16,163	17,524	22,383	32,032	19,300	25,536	33,821	33,165	31,695	29,599	25,343	23,580
Switzerland	12,992	14,616	16,893	19,877	21,403	23,036	25,671	28,136	23,940	26,717	30,590	28,172	28,860	30,713	28,128	32,492
Turkey	2,354	2,645	3,383	4,445	5,302	6,431	8,240	9,953	8,353	10,610	13,234	13,802	14,975	15,812	15,056	14,493
All others	6,594	6,303	7,791	10,717	12,653	15,127	19,535	26,627	17,824	22,841	30,242	29,985	26,896	25,620	22,953	21,922
Middle East	16,160	18,178	19,880	27,022	33,493	35,260	43,937	66,463	50,474	78,192	105,842	102,930	106,698	98,773	105,365	107,442
Israel	4,057	4,374	5,072	5,754	6,180	6,262	7,446	11,887	8,765	10,194	12,712	11,760	11,727	11,447	10,699	10,360
All others	12,104	13,804	14,807	21,268	27,313	28,998	36,491	54,577	41,710	67,998	93,131	91,170	94,971	87,326	94,666	97,082
Africa	7,308	7,645	8,973	10,668	12,504	14,808	17,011	28,906	18,725	24,454	30,275	31,619	29,861	28,291	28,550	27,785
Asia																
China	21,989	25,241	31,389	41,862	54,774	68,523	89,612	113,884	91,361	124,730	164,487	167,094	176,219	194,199	193,355	198,288
India	5,096	6,001	7,597	9,398	11,701	14,280	17,126	20,868	17,337	22,885	30,289	31,808	33,758	33,758	31,272	31,302
Indonesia	5,179	5,646	6,892	8,686	9,848	12,493	15,046	17,379	12,647	20,310	29,999	24,978	23,645	22,284	22,184	22,172
Japan	40,736	43,834	50,662	61,453	67,900	73,658	83,322	88,010	76,266	97,634	107,885	102,411	98,073	93,506	80,553	79,300
Malaysia	6,045	6,827	8,549	11,013	12,477	14,313	16,585	19,717	15,083	21,057	26,841	25,054	24,660	24,228	21,497	20,380
Philippines	631	660	758	897	1,072	1,399	1,807	2,166	1,864	2,676	3,175	2,817	3,248	2,627	2,506	2,661
Singapore	9,817	11,961	16,415	20,534	22,356	24,998	29,806	29,834	25,984	35,687	42,039	44,456	41,394	45,744	41,207	39,100
South Korea	16,939	18,272	22,229	29,342	34,561	38,847	45,446	51,575	44,840	59,091	74,090	74,874	79,250	79,861	69,699	64,287
Taiwan	16,451	18,067	20,860	25,628	29,173	31,380	37,844	41,297	34,389	46,367	52,069	49,795	50,880	49,892	52,934	54,012

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	7,668	8,492	10,883	14,222	16,778	20,704	23,705	27,875	23,465	34,293	47,115	43,827	44,476	42,816	41,569	42,528
Vietnam	550	734	943	1,143	1,419	2,141	2,674	3,536	3,083	4,827	6,916	8,178	8,102	8,583	8,973	9,937
All others	802	853	1,135	1,300	1,763	1,735	1,952	2,474	2,113	2,988	3,795	4,087	3,638	3,638	3,416	3,478
Australia	2,528	2,455	2,935	3,388	3,554	3,696	4,911	4,992	4,318	4,855	5,685	5,808	5,380	4,931	4,655	5,139
All others	3,152	2,891	3,492	3,444	3,828	4,588	5,936	6,961	5,183	5,857	8,444	7,837	7,926	8,386	7,742	7,580
Imports																
World	367,035	391,896	461,229	568,383	645,490	728,310	869,222	1,028,505	817,414	1,055,252	1,292,854	1,271,036	1,280,032	1,276,684	1,198,250	1,185,477
North America	69,502	72,677	83,287	95,491	107,505	117,832	126,920	143,337	111,048	135,435	160,960	164,090	164,032	168,904	164,914	161,057
Canada	4,689	5,126	5,969	7,291	8,419	9,652	10,853	11,847	9,346	11,675	13,266	13,695	13,829	13,607	13,032	13,221
Mexico	4,310	4,590	5,122	5,999	7,259	8,101	9,377	10,971	8,805	11,323	13,768	14,521	14,693	16,433	16,292	16,018
United States	60,502	62,961	72,195	82,201	91,827	100,078	106,689	120,518	92,897	112,436	133,925	135,873	135,509	138,864	135,590	131,818
Central and South America	29,804	27,318	30,169	38,493	43,750	50,743	64,452	88,458	64,609	84,437	108,702	112,719	112,766	108,519	95,622	85,858
Brazil	9,436	8,817	9,914	13,164	13,808	15,817	22,045	32,650	22,690	30,648	40,693	40,212	42,980	41,823	34,398	28,871
Central America	6,187	5,904	6,313	7,059	8,483	9,660	11,272	14,160	11,170	13,779	17,209	19,551	17,757	17,602	16,931	17,008
All others	14,181	12,597	13,942	18,270	21,459	25,267	31,136	41,648	30,749	40,011	50,799	52,956	52,029	49,094	44,293	39,979
Europe																
EU	62,095	65,243	80,623	95,606	106,848	122,646	151,938	169,874	127,465	159,608	199,622	187,393	182,368	187,433	173,344	173,870
France	8,244	8,523	10,666	11,800	13,977	14,907	18,330	18,868	15,690	18,666	21,625	20,612	19,290	19,010	17,098	17,190
Germany	11,466	12,180	14,854	18,154	19,955	23,901	30,575	33,986	26,652	33,211	41,220	38,788	40,039	42,432	41,522	43,043

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	9,120	9,643	11,705	14,186	15,204	16,921	20,528	18,287	14,607	17,926	21,498	20,051	17,806	17,604	16,477	16,375
All others	33,265	34,896	43,398	51,466	57,712	66,917	82,505	98,733	70,516	89,805	115,279	107,942	105,234	108,387	98,247	97,262
Other Europe	30,203	34,269	41,517	53,936	61,710	71,973	90,753	106,124	80,467	100,974	126,429	128,567	134,948	126,423	107,809	108,484
Russia	5,681	6,197	7,935	10,115	12,751	16,265	21,426	25,252	17,037	22,323	29,259	31,037	31,633	30,233	21,882	21,389
Switzerland	10,704	11,162	12,431	14,153	15,678	16,127	19,881	20,749	18,004	21,096	24,044	24,302	25,791	26,799	21,944	21,230
Turkey	5,424	7,072	9,467	12,886	15,244	17,788	22,075	24,325	18,904	25,262	32,568	31,608	34,209	34,055	32,175	32,749
All others	8,393	9,838	11,684	16,782	18,037	21,792	27,371	35,798	26,521	32,293	40,558	41,620	43,315	35,336	31,808	33,116
Middle East	14,860	16,549	18,994	22,708	27,620	28,929	37,571	44,107	36,746	47,440	54,449	53,682	55,824	58,904	58,074	59,517
Israel	2,606	2,637	3,172	3,751	4,163	4,804	5,619	6,431	4,952	6,075	7,058	7,139	7,361	7,248	6,909	7,426
All others	12,255	13,912	15,821	18,956	23,457	24,125	31,952	37,676	31,794	41,365	47,391	46,543	48,464	51,656	51,165	52,091
Africa	14,327	15,369	17,679	21,731	24,516	28,988	35,818	46,160	41,559	48,475	58,293	59,921	66,113	65,697	65,943	64,627
Asia																
China	40,929	48,849	59,801	77,585	90,049	102,283	120,936	129,182	123,037	166,081	198,811	189,841	197,513	192,414	184,586	180,423
India	6,055	6,385	8,096	10,719	14,794	17,128	22,769	36,835	29,472	39,676	48,680	48,743	46,170	48,818	45,211	43,286
Indonesia	5,933	5,939	6,178	8,306	8,954	9,668	11,147	17,340	13,055	18,167	24,258	26,009	25,431	25,601	24,204	22,921
Japan	22,844	23,281	26,942	32,318	35,969	39,933	43,732	52,233	40,822	52,705	65,402	59,923	53,954	53,394	47,579	47,497
Malaysia	5,411	5,932	6,536	8,581	9,135	10,549	12,271	14,783	11,998	16,586	20,070	20,618	21,442	21,519	19,498	19,753
Philippines	3,355	3,359	3,704	4,350	4,440	4,848	5,431	6,606	5,552	7,288	8,487	8,528	8,425	9,198	9,324	10,704
Singapore	7,047	7,678	8,949	11,284	12,532	14,214	15,584	17,421	14,435	21,012	25,840	26,275	25,783	25,433	22,870	22,752

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	13,197	14,572	17,232	22,145	25,715	28,931	33,786	38,367	32,053	43,172	51,315	48,420	47,952	47,292	42,682	44,013
Taiwan	11,672	13,072	15,092	20,052	21,407	24,166	27,382	28,422	23,479	33,996	39,658	35,964	34,580	33,916	30,471	32,036
Thailand	6,353	7,012	8,226	10,619	11,865	13,268	15,566	19,307	14,170	20,161	24,591	25,615	24,781	24,058	23,486	23,509
Vietnam	2,508	3,028	3,702	4,963	5,626	6,819	8,763	10,520	10,713	13,829	17,346	17,601	19,959	21,596	24,401	25,653
All others	4,658	4,736	5,708	7,137	9,033	9,161	11,439	14,010	12,602	16,579	20,971	20,114	21,333	22,777	23,710	25,142
Australia	7,093	7,197	8,270	9,976	10,831	12,046	13,987	17,541	13,595	16,235	19,973	20,538	19,315	19,634	18,337	17,888
All others	9,190	9,432	10,525	12,383	13,189	14,187	18,979	27,879	10,537	13,397	18,999	16,475	17,342	15,152	16,185	16,486

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-41

Exports and imports of machinery, equipment, and appliances, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	307,580	312,737	365,837	464,977	526,974	611,626	751,348	876,685	668,400	822,193	988,652	988,201	989,131	1,012,354	990,289	999,283
North America	51,196	46,575	45,492	56,858	67,484	77,534	93,468	103,606	81,483	97,757	109,571	113,317	110,937	112,286	107,169	102,860
Canada	2,187	2,266	2,980	3,669	4,458	5,200	6,524	7,625	6,608	6,315	7,073	7,787	7,096	6,907	7,390	7,398
Mexico	1,604	1,529	842	1,174	1,494	1,948	2,216	2,840	2,552	3,431	4,128	4,485	4,741	4,661	5,580	5,747
United States	47,404	42,780	41,669	52,015	61,532	70,385	84,729	93,141	72,323	88,011	98,369	101,045	99,099	100,719	94,199	89,715
Central and South America	4,815	4,589	5,759	8,393	10,236	11,515	13,837	16,982	11,951	14,138	17,538	17,594	16,195	15,668	16,376	16,236
Brazil	3,069	3,020	4,096	6,233	7,351	8,194	9,513	11,112	6,950	8,691	10,976	10,933	9,654	8,996	9,725	9,710
Central America	432	495	533	764	1,116	1,176	1,611	2,218	1,818	2,273	2,894	2,902	3,047	3,378	3,445	3,408
All others	1,313	1,074	1,130	1,396	1,770	2,146	2,713	3,652	3,183	3,174	3,668	3,759	3,494	3,294	3,207	3,118
Europe																
EU	105,664	110,696	131,869	163,650	180,566	210,093	259,918	302,008	230,455	258,977	315,340	309,229	319,609	317,282	288,446	286,276
France	10,350	10,953	12,247	14,612	16,004	18,224	21,053	24,386	19,149	20,015	23,087	23,789	23,082	23,110	22,565	22,345
Germany	37,653	39,726	47,116	60,134	66,303	78,952	91,777	108,954	84,178	95,152	118,337	112,481	114,118	112,111	100,979	99,007
United Kingdom	11,040	10,757	12,601	14,993	16,143	17,487	19,725	21,131	15,983	18,084	21,533	23,146	22,962	23,203	21,506	21,018
All others	46,621	49,260	59,906	73,911	82,116	95,430	127,362	147,538	111,145	125,726	152,383	149,813	159,446	158,857	143,396	143,906

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	21,052	21,210	24,759	30,078	31,691	35,966	44,963	53,484	40,292	42,763	51,292	47,323	47,901	47,236	46,521	49,151
Russia	2,994	2,726	3,311	3,891	3,989	4,548	5,529	7,055	4,899	4,782	6,140	6,401	6,492	5,581	5,826	5,850
Switzerland	13,878	13,632	15,699	18,625	18,895	21,249	24,917	27,565	19,409	22,618	28,424	22,981	23,356	24,538	24,355	26,483
Turkey	4,180	4,851	5,749	7,562	8,806	10,170	14,516	18,864	15,984	15,364	16,728	17,941	18,052	17,117	16,339	16,818
All others	5,387	5,836	7,303	9,352	12,071	13,872	20,121	24,731	16,758	21,606	26,964	24,712	26,508	27,091	27,714	28,787
Middle East	1,460	1,392	1,415	1,818	1,989	2,276	2,594	2,996	2,273	2,470	2,735	2,922	3,008	3,196	3,253	3,173
Israel	1,970	2,466	3,458	4,546	5,443	7,069	9,708	11,576	9,027	10,592	13,245	14,005	15,092	15,615	15,290	15,793
All others	1,957	1,978	2,429	2,988	4,638	4,527	7,819	10,159	5,458	8,543	10,984	7,786	8,408	8,280	9,171	9,821
Africa	3,425	3,434	4,110	5,064	5,840	7,391	9,721	11,410	9,223	11,102	13,878	12,554	12,955	12,874	13,599	14,305
Asia																
China	15,557	19,070	25,872	38,028	50,195	67,923	92,390	119,469	98,131	126,194	155,744	169,548	179,524	194,519	210,134	217,697
India	1,537	1,748	2,260	3,047	4,150	5,510	7,167	9,021	7,267	9,040	11,742	12,432	13,472	14,313	14,648	15,334
Indonesia	1,494	1,506	1,654	2,088	2,644	3,351	4,443	4,597	3,771	4,516	4,927	5,233	5,434	6,030	6,625	6,714
Japan	58,505	56,781	68,712	87,946	93,320	98,970	110,629	123,170	80,744	121,152	143,541	133,693	113,005	114,092	105,053	105,113
Malaysia	2,597	2,656	3,040	3,879	4,458	5,486	6,288	7,583	6,170	7,427	8,483	9,128	9,952	10,520	10,849	10,788
Philippines	1,090	1,214	1,317	1,602	1,818	1,979	2,260	2,396	1,913	2,690	2,927	3,469	3,896	4,221	4,549	4,608
Singapore	5,122	5,343	6,040	7,628	9,013	10,488	11,978	14,477	12,494	15,588	19,194	19,257	19,580	21,004	21,032	20,844
South Korea	11,133	11,994	14,997	19,634	23,143	28,156	34,771	40,584	34,544	44,615	54,998	57,322	55,947	57,865	54,614	55,200
Taiwan	11,614	12,386	13,403	15,683	16,541	17,345	18,965	19,730	12,941	19,334	23,114	22,899	22,407	23,388	26,082	26,386

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	3,711	3,960	4,801	6,468	7,654	8,982	11,473	13,167	11,518	14,839	16,801	16,684	17,450	18,538	19,752	20,476
Vietnam	345	392	500	736	915	1,383	1,700	2,259	1,945	2,836	3,594	4,764	5,443	6,331	7,004	7,718
All others	241	247	268	314	434	529	614	811	667	728	820	774	903	992	1,087	1,122
Australia	1,714	1,782	1,963	2,365	2,781	2,942	3,642	3,992	3,443	3,891	4,612	5,004	4,444	4,144	4,708	5,203
All others	5,309	5,763	7,607	9,702	12,102	13,805	20,527	24,941	17,173	22,134	27,801	25,055	27,070	27,855	28,789	30,080
Imports																
World	307,580	312,737	365,837	464,977	526,974	611,626	751,348	876,685	668,400	822,193	988,652	988,201	989,131	1,012,354	990,289	999,283
North America	63,340	61,268	67,770	82,567	97,198	109,676	118,367	125,452	90,372	110,697	141,932	156,662	157,323	171,824	172,075	170,603
Canada	6,490	6,484	7,916	8,691	10,672	12,492	13,530	14,474	10,829	12,632	17,039	17,865	17,872	18,808	18,801	19,894
Mexico	5,231	5,053	5,348	6,619	7,759	9,065	10,334	12,085	9,128	11,822	13,850	15,779	17,860	18,531	19,348	19,640
United States	51,619	49,731	54,507	67,258	78,767	88,118	94,504	98,893	70,414	86,244	111,043	123,019	121,591	134,485	133,926	131,069
Central and South America	21,722	17,889	17,894	23,345	29,871	36,554	47,181	62,703	47,398	60,164	75,706	79,667	78,254	72,318	68,633	64,195
Brazil	7,013	5,868	5,374	6,570	8,535	10,134	13,526	19,708	15,411	21,534	25,984	26,208	27,343	24,280	20,756	19,055
Central America	4,428	3,990	4,082	4,840	5,584	7,157	8,671	9,946	7,018	8,346	9,476	9,789	10,112	10,099	11,010	11,402
All others	10,282	8,030	8,437	11,935	15,753	19,263	24,984	33,050	24,969	30,284	40,247	43,669	40,799	37,939	36,867	33,739
Europe																
EU	51,676	47,993	56,200	69,319	79,357	90,099	114,024	125,204	86,317	102,382	125,039	117,779	119,867	130,102	127,521	134,374
France	6,212	5,874	6,671	8,264	8,807	9,603	12,018	12,732	9,722	11,040	13,402	12,869	13,419	13,905	13,813	14,534
Germany	13,232	11,760	13,532	16,629	19,060	22,483	27,649	30,405	21,728	26,527	33,785	31,248	31,162	33,108	32,168	34,047

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	8,520	7,740	8,156	9,608	11,908	12,721	14,888	14,905	10,070	12,980	15,425	15,001	14,832	16,447	16,307	17,410
All others	23,711	22,620	27,841	34,817	39,583	45,293	59,469	67,162	44,797	51,835	62,427	58,661	60,454	66,643	65,233	68,383
Other Europe	23,010	24,830	30,612	40,479	47,836	61,052	81,074	103,609	65,913	72,070	96,500	98,155	100,960	94,148	79,094	79,883
Russia	6,672	7,715	9,821	13,827	17,500	23,438	33,471	44,257	24,582	30,199	43,570	44,498	44,874	40,465	29,154	29,033
Switzerland	6,935	6,988	8,010	9,429	10,082	11,601	13,120	15,232	11,853	12,938	15,389	14,051	14,895	15,175	14,790	14,391
Turkey	9,403	10,127	12,781	17,224	20,254	26,013	34,482	44,120	29,478	28,933	37,541	39,606	41,191	38,507	35,150	36,459
All others	22,544	26,389	30,940	39,034	46,196	56,230	77,250	89,228	68,507	74,119	89,034	89,175	90,117	93,863	95,316	98,818
Middle East	2,124	2,016	1,903	2,311	2,356	2,847	3,845	4,654	2,984	3,575	5,996	5,421	4,537	4,455	4,534	5,047
Israel	4,170	5,677	7,449	9,547	11,254	13,677	16,202	16,685	11,796	15,562	20,955	20,563	22,961	20,950	20,598	21,870
All others	16,250	18,697	21,588	27,176	32,585	39,706	57,202	67,890	53,728	54,982	62,083	63,191	62,618	68,458	70,185	71,901
Africa	15,533	16,491	19,926	25,028	27,737	33,333	43,774	57,145	52,296	54,894	56,871	58,285	64,025	64,212	63,710	64,215
Asia																
China	29,879	36,495	47,307	60,845	59,959	67,435	78,489	90,927	79,400	113,792	134,779	111,667	108,877	113,474	108,028	106,623
India	3,448	3,774	5,102	7,584	10,508	14,728	20,477	26,738	23,298	28,293	34,404	29,869	25,165	24,513	23,807	23,371
Indonesia	3,995	3,869	4,191	5,629	6,748	6,307	7,793	12,797	10,933	15,568	18,729	21,898	20,807	19,646	19,640	20,366
Japan	13,726	13,172	15,668	19,706	22,847	26,229	30,032	33,061	23,735	30,092	35,972	36,567	36,172	38,380	36,682	36,243
Malaysia	5,587	4,907	5,079	6,358	7,183	8,300	9,889	10,784	8,689	11,507	13,220	14,375	14,654	14,756	14,809	14,970
Philippines	2,491	2,222	2,433	2,778	3,020	3,261	3,757	4,290	3,455	4,956	5,366	6,196	6,201	6,526	7,101	7,719
Singapore	8,534	8,623	8,577	11,828	12,667	15,329	18,986	21,989	18,221	20,535	22,721	22,946	22,264	22,399	22,327	23,037

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	10,360	11,387	14,224	17,916	19,778	23,403	28,082	31,352	25,956	35,958	38,371	37,217	38,223	38,691	38,584	38,121
Taiwan	10,641	10,210	12,003	18,132	16,796	17,201	21,269	20,332	14,746	26,812	24,566	21,479	22,740	21,682	21,890	21,695
Thailand	5,923	6,159	7,556	9,522	10,960	11,428	12,176	14,243	11,030	15,406	18,565	24,706	21,454	20,700	21,127	20,468
Vietnam	1,974	2,631	3,426	3,291	3,664	4,596	7,264	9,097	8,230	10,007	11,769	11,586	14,355	17,250	20,280	23,016
All others	3,382	3,466	4,314	5,635	6,566	7,468	8,351	9,695	8,706	11,135	14,410	14,940	15,862	16,916	18,553	20,449
Australia	6,321	6,997	8,700	11,342	13,122	14,464	16,911	19,419	16,568	18,063	22,957	28,074	23,881	23,859	23,922	23,878
All others	23,915	28,337	32,954	41,360	48,799	57,916	79,608	93,195	70,151	76,287	90,777	90,713	93,509	96,503	97,974	101,010

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

Science and Engineering Indicators 2018

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APPENDIX TABLE 6-42

Exports and imports of electrical machinery, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	144,492	151,061	173,586	218,856	246,092	285,882	325,334	369,173	310,073	386,535	441,221	457,430	477,254	492,093	477,894	473,770
North America	15,158	14,818	13,691	17,138	19,711	24,119	25,825	28,060	23,158	27,314	30,285	32,581	32,469	33,570	32,987	31,019
Canada	478	481	646	922	1,101	1,298	1,372	1,383	1,191	1,329	1,432	1,472	1,361	1,418	1,422	1,386
Mexico	1,157	2,102	674	912	984	1,309	1,491	1,791	1,439	1,860	2,266	2,669	3,020	3,231	3,247	3,223
United States	13,524	12,235	12,371	15,304	17,626	21,513	22,961	24,885	20,528	24,126	26,587	28,440	28,088	28,920	28,318	26,410
Central and South America	1,987	1,928	2,172	2,600	3,272	4,011	4,775	5,560	4,637	5,050	5,187	5,273	5,353	5,311	5,419	5,650
Brazil	990	935	1,142	1,397	1,894	2,436	2,949	3,193	2,636	2,815	3,047	2,872	2,888	2,802	2,472	2,459
Central America	634	662	747	789	847	986	1,076	1,346	1,071	1,333	1,253	1,368	1,362	1,460	1,450	1,482
All others	362	331	283	414	531	589	750	1,022	930	902	886	1,033	1,103	1,049	1,497	1,709
Europe																
EU	35,150	35,962	42,097	52,175	57,086	67,103	81,447	95,422	76,881	87,451	100,924	99,301	103,501	105,040	91,685	88,152
France	5,005	5,102	5,715	6,844	6,828	7,720	9,166	10,036	8,575	9,589	10,210	9,805	9,801	9,278	8,060	7,649
Germany	11,538	12,337	14,830	18,744	20,738	25,392	30,317	34,779	27,727	33,280	39,407	37,789	39,519	40,148	34,477	32,788
United Kingdom	4,606	4,295	4,835	5,617	5,576	6,240	7,046	7,616	5,831	6,258	7,413	7,802	7,303	7,855	7,420	6,963
All others	14,001	14,228	16,716	20,969	23,944	27,751	34,917	42,990	34,749	38,324	43,893	43,904	46,879	47,758	41,727	40,753

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	7,412	7,413	8,906	11,348	12,087	14,143	17,960	21,804	18,677	20,139	23,438	23,152	24,230	23,849	21,647	22,081
Russia	788	628	694	1,053	1,049	1,332	1,537	2,051	1,461	1,645	2,424	2,577	2,730	2,399	2,375	2,397
Switzerland	4,699	4,592	5,361	6,442	6,850	7,526	8,925	10,320	8,571	9,345	10,585	9,593	9,857	9,803	8,619	9,235
Turkey	806	968	1,362	1,887	2,159	2,892	3,797	4,519	4,224	4,779	5,585	5,593	6,240	6,561	6,269	6,064
All others	1,119	1,225	1,489	1,966	2,029	2,394	3,701	4,914	4,421	4,370	4,844	5,389	5,403	5,086	4,384	4,384
Middle East	1,136	1,121	1,208	1,527	2,177	1,955	3,101	3,690	2,783	3,823	4,151	3,973	4,193	4,557	4,723	4,806
Israel	570	534	599	666	738	916	1,034	1,228	1,126	1,413	1,549	1,869	1,709	1,709	1,747	1,712
All others	566	588	609	861	1,439	1,040	2,067	2,462	1,657	2,411	2,602	2,103	2,484	2,849	2,977	3,094
Africa	847	1,050	1,217	1,575	1,618	2,164	2,639	2,897	2,496	2,906	3,610	3,131	4,980	3,700	3,876	3,840
Asia																
China	31,412	36,704	45,304	58,998	70,057	84,660	99,425	114,355	98,873	131,379	152,667	161,059	174,010	187,071	191,796	196,096
India	955	1,095	1,369	1,674	2,177	3,122	3,824	5,077	4,183	4,708	5,529	5,501	5,734	6,329	6,246	6,191
Indonesia	1,329	1,473	1,698	1,882	2,063	2,478	2,664	2,901	2,521	3,356	3,615	3,682	3,732	3,733	3,707	3,540
Japan	22,986	22,300	25,049	31,207	33,000	35,363	36,433	38,910	31,587	40,945	44,583	44,111	38,906	38,638	35,060	33,587
Malaysia	2,653	2,750	3,136	3,954	4,330	5,075	5,895	5,978	5,254	7,256	8,351	8,965	9,052	9,390	9,173	8,498
Philippines	1,591	1,848	2,061	2,659	3,039	3,450	3,183	3,061	2,486	3,620	4,085	5,868	5,475	5,114	5,208	5,418
Singapore	3,606	3,327	3,429	4,388	4,812	5,558	6,109	7,176	5,691	7,764	8,927	8,829	7,818	7,985	7,689	7,158
South Korea	4,670	5,359	6,998	9,448	10,805	11,577	10,145	11,218	11,403	15,061	18,296	24,259	28,485	26,672	26,346	24,563
Taiwan	7,834	8,085	8,605	10,248	11,201	12,004	11,676	11,983	9,358	12,282	12,667	12,260	12,387	13,157	13,905	13,937

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	3,437	3,735	4,391	5,145	5,650	6,112	6,472	7,116	6,180	8,095	8,961	9,020	9,661	10,328	10,482	10,575
Vietnam	396	378	483	694	786	835	1,021	1,259	1,496	2,223	2,849	3,513	4,426	4,758	5,277	5,869
All others	177	141	173	196	213	223	314	267	252	652	337	304	356	394	423	455
Australia	687	676	761	968	1,037	1,033	1,148	1,189	986	1,151	1,319	1,323	1,179	1,126	981	1,101
All others	1,070	898	838	1,032	971	894	1,279	1,251	1,172	1,359	1,442	1,328	1,306	1,371	1,263	1,233
Imports																
World	144,492	151,061	173,586	218,856	246,092	285,882	325,334	369,173	310,073	386,535	441,221	457,430	477,254	492,093	477,894	473,770
North America	37,468	38,407	40,925	48,235	55,016	62,650	67,983	71,911	59,420	74,588	82,719	88,906	92,112	98,576	101,759	101,191
Canada	2,656	2,774	3,298	4,005	4,653	5,369	5,924	7,014	5,957	7,494	7,895	8,557	8,898	9,407	8,770	9,064
Mexico	2,384	2,831	2,941	4,015	4,831	5,876	6,847	7,725	6,744	9,373	10,293	11,396	11,863	13,250	13,744	13,371
United States	32,428	32,802	34,686	40,215	45,531	51,405	55,212	57,172	46,719	57,721	64,530	68,953	71,351	75,919	79,245	78,757
Central and South America	7,312	5,792	5,600	7,283	9,146	12,329	14,624	18,955	15,975	21,730	24,352	26,547	26,993	26,264	24,320	22,404
Brazil	2,777	1,939	1,648	2,048	2,562	3,158	4,079	5,641	5,247	7,598	8,928	9,271	9,994	9,292	7,546	6,522
Central America	1,582	1,605	1,553	2,036	2,479	3,640	3,688	4,073	2,965	3,253	3,826	4,020	3,996	4,337	4,514	4,668
All others	2,954	2,248	2,399	3,198	4,105	5,531	6,857	9,241	7,764	10,879	11,598	13,256	13,004	12,636	12,260	11,215
Europe																
EU	28,859	28,984	35,386	45,645	49,863	55,182	63,323	69,016	55,793	69,884	79,717	76,636	83,317	88,701	84,757	85,366
France	3,426	3,432	4,074	5,458	6,145	6,531	7,989	9,028	7,605	9,143	10,286	10,120	12,268	11,503	11,053	11,063
Germany	8,896	8,636	10,694	14,139	15,141	15,792	17,130	18,888	15,547	19,424	23,334	22,359	23,797	25,737	23,646	23,970

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	5,022	5,154	5,878	7,299	7,122	8,173	9,049	8,887	6,985	9,727	10,778	9,479	9,942	11,269	11,136	11,072
All others	11,515	11,762	14,741	18,750	21,455	24,685	29,154	32,212	25,657	31,590	35,318	34,679	37,309	40,192	38,922	39,261
Other Europe	8,918	9,748	12,497	17,307	20,268	25,350	33,429	40,406	30,045	36,206	44,593	45,245	47,878	45,591	39,817	40,230
Russia	1,838	2,162	3,030	4,293	5,473	7,234	10,434	13,327	8,205	11,002	14,047	15,349	16,128	14,931	10,751	10,675
Switzerland	3,093	3,018	3,523	4,436	4,620	5,298	6,207	6,924	5,550	6,485	7,573	7,293	7,669	8,203	7,941	7,946
Turkey	1,276	1,495	1,990	3,171	3,953	4,814	6,003	7,472	6,622	8,209	9,625	8,965	9,339	8,688	8,546	8,739
All others	2,711	3,072	3,955	5,407	6,223	8,003	10,785	12,683	9,669	10,511	13,349	13,638	14,741	13,769	12,579	12,870
Middle East	6,664	6,950	8,353	10,936	12,378	13,802	19,697	23,658	21,427	22,424	25,814	26,798	28,650	30,706	31,541	31,650
Israel	1,106	903	991	1,163	1,224	1,421	1,584	1,704	1,499	1,720	2,275	2,323	2,303	2,251	2,149	2,279
All others	5,559	6,047	7,362	9,774	11,154	12,382	18,113	21,953	19,928	20,704	23,539	24,475	26,347	28,455	29,392	29,371
Africa	4,527	5,081	5,949	7,583	8,363	10,594	13,243	18,100	17,132	18,501	19,429	20,574	22,353	24,512	23,703	23,007
Asia																
China	11,763	13,491	17,468	22,848	25,735	30,963	33,538	36,387	33,428	44,605	49,844	52,079	55,311	57,087	53,819	51,373
India	1,201	1,237	1,500	2,200	3,022	3,997	5,038	6,894	6,577	8,783	10,749	9,612	9,715	9,762	9,148	8,888
Indonesia	1,049	1,116	1,274	1,843	1,785	1,655	2,117	3,887	3,364	4,980	5,810	6,517	6,070	5,835	5,814	5,672
Japan	9,949	10,201	11,820	13,912	14,985	16,901	17,078	18,562	14,926	18,801	22,728	23,687	22,653	24,089	22,529	21,348
Malaysia	3,008	3,184	3,109	3,801	4,732	5,849	6,011	6,186	5,187	7,200	7,254	8,420	8,156	7,965	7,858	7,822
Philippines	1,743	1,533	1,634	1,768	1,940	2,052	2,112	2,217	1,945	2,526	3,104	3,524	3,163	3,529	3,576	4,134
Singapore	5,171	5,383	5,947	6,907	7,710	9,110	8,996	9,731	7,783	9,953	11,022	11,018	10,784	10,605	10,174	9,683

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	5,013	6,102	7,558	9,803	11,401	13,228	13,607	15,034	13,510	15,493	17,656	18,148	20,183	17,389	17,129	17,855
Taiwan	4,070	4,533	5,125	6,988	6,774	7,894	6,549	6,630	4,686	6,966	7,856	7,007	6,722	7,006	6,849	7,117
Thailand	2,802	2,687	3,063	3,955	4,307	4,561	5,350	6,034	5,184	7,017	7,858	9,827	8,811	8,738	8,867	8,912
Vietnam	489	581	818	973	1,031	1,348	1,998	2,575	2,503	3,526	4,871	6,130	7,762	8,731	9,880	10,248
All others	840	1,035	1,098	1,467	1,721	2,213	2,572	3,306	3,105	3,818	4,575	4,863	5,339	6,350	6,612	7,042
Australia	2,339	2,636	3,233	4,070	4,526	4,870	5,796	7,072	6,421	7,317	8,695	9,618	9,230	8,460	7,738	7,735
All others	1,305	2,380	1,227	1,332	1,387	1,334	2,273	2,611	1,660	2,216	2,574	2,273	2,051	2,196	2,003	2,091

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

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APPENDIX TABLE 6-43

Exports and imports of railroad equipment and other transportation products, by region, country, or economy: 2001–16

(Millions of current dollars)

Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Exports																
World	5,956	6,402	7,990	10,543	13,106	14,680	18,754	22,000	17,870	21,324	27,312	31,148	26,971	26,260	25,144	24,470
North America	672	595	749	831	1,318	1,621	1,854	2,441	2,066	2,004	1,774	2,330	2,483	2,149	2,007	1,606
Canada	108	80	114	66	125	191	331	418	282	319	97	110	68	63	65	63
Mexico	14	10	12	12	13	13	25	45	162	145	74	80	67	44	42	42
United States	550	505	623	753	1,180	1,417	1,498	1,978	1,622	1,541	1,603	2,140	2,348	2,043	1,900	1,502
Central and South America	69	61	84	121	347	358	431	369	265	680	463	222	296	234	275	282
Brazil	54	49	64	99	310	303	377	283	224	620	362	117	212	146	151	141
Central America	3	2	3	2	4	14	11	11	13	14	23	33	21	20	22	23
All others	12	10	16	20	33	41	43	75	29	46	79	72	63	68	102	118
Europe																
EU	2,327	2,564	3,137	3,545	3,728	4,251	6,072	6,412	6,989	7,177	7,748	7,928	7,841	8,371	6,841	6,579
France	438	479	488	394	426	607	1,310	937	736	759	625	594	866	780	800	724
Germany	827	887	1,055	1,429	1,283	1,555	1,775	2,099	2,203	2,413	2,576	2,690	2,483	2,528	2,102	2,021
United Kingdom	133	107	193	176	149	166	211	234	247	248	240	236	248	277	252	235
All others	928	1,091	1,402	1,546	1,870	1,923	2,776	3,142	3,803	3,757	4,306	4,408	4,244	4,785	3,688	3,598

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Other Europe	765	989	1,644	2,363	2,508	2,674	3,819	5,442	2,986	4,170	7,055	8,333	5,897	3,934	3,380	3,565
Russia	208	271	470	619	615	687	856	1,342	604	742	1,496	1,846	896	773	863	840
Switzerland	285	285	378	504	627	566	651	834	1,122	687	1,173	1,412	1,796	1,635	1,317	1,530
Turkey	43	50	76	85	98	101	171	136	152	114	253	270	323	293	282	273
All others	229	383	720	1,155	1,168	1,320	2,142	3,129	1,109	2,627	4,132	4,805	2,882	1,233	917	923
Middle East	23	38	45	50	79	95	128	130	73	114	261	252	263	250	283	303
Israel	10	13	17	20	20	20	24	17	13	16	17	27	23	28	29	31
All others	13	25	28	31	59	75	105	113	60	98	244	226	240	223	254	272
Africa	102	123	141	367	303	259	282	252	195	217	299	415	410	396	368	403
Asia																
China	789	903	1,173	1,711	2,536	3,257	4,070	4,092	2,786	4,458	7,205	8,919	7,228	8,325	9,301	9,284
India	62	50	54	77	95	144	152	168	111	131	205	238	272	215	203	204
Indonesia	17	35	31	38	60	51	38	22	13	14	25	30	18	31	30	32
Japan	563	481	410	852	1,507	1,007	802	1,034	1,128	849	816	870	885	790	805	645
Malaysia	64	60	52	57	58	96	179	390	180	130	147	134	135	143	88	87
Philippines	3	5	6	6	6	7	9	7	5	6	7	10	7	6	7	6
Singapore	28	22	25	46	53	81	79	188	195	121	82	74	69	138	148	144
South Korea	195	286	255	244	207	422	475	627	394	845	734	899	542	650	755	649
Taiwan	140	104	97	115	122	120	137	113	91	132	137	141	157	166	183	194

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thailand	16	14	14	22	31	53	58	73	46	54	61	53	66	68	72	76
Vietnam	2	4	5	7	7	9	13	23	29	38	81	31	37	42	58	63
All others	6	4	3	4	35	38	30	43	17	15	10	10	20	18	17	17
Australia	37	37	35	48	60	88	75	91	80	124	149	200	144	144	121	126
All others	77	27	30	39	46	48	53	81	219	46	53	59	199	192	205	207
Imports																
World	5,956	6,402	7,990	10,543	13,106	14,680	18,754	22,000	17,870	21,324	27,312	31,148	26,971	26,260	25,144	24,470
North America	974	1,013	1,026	1,342	1,842	2,080	2,331	2,172	1,646	2,077	2,779	3,251	2,522	3,019	3,399	2,921
Canada	134	78	115	148	210	313	318	289	185	199	357	505	321	354	362	389
Mexico	17	30	31	138	307	138	304	141	161	106	266	436	227	237	284	283
United States	822	905	880	1,056	1,325	1,629	1,708	1,742	1,300	1,772	2,156	2,311	1,974	2,428	2,753	2,250
Central and South America	524	416	517	561	1,245	1,289	1,759	1,527	1,182	1,826	2,129	3,408	2,890	2,875	3,286	2,885
Brazil	116	97	53	166	267	291	324	595	386	694	617	1,207	780	965	1,205	933
Central America	144	107	208	188	317	415	448	458	245	608	584	848	806	598	685	753
All others	264	213	256	206	662	583	987	474	551	525	928	1,354	1,304	1,313	1,396	1,198
Europe																
EU	1,002	899	1,602	1,825	1,966	2,092	3,077	3,186	2,676	2,669	3,312	3,736	3,807	3,689	3,120	3,384
France	86	66	110	135	189	213	332	282	221	214	327	328	301	302	267	287
Germany	277	257	358	425	617	637	589	589	590	593	649	901	1,121	1,119	975	1,021

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United Kingdom	156	164	274	307	361	386	496	426	499	282	394	313	285	441	342	412
All others	483	412	860	957	798	857	1,660	1,890	1,365	1,580	1,943	2,193	2,100	1,827	1,536	1,663
Other Europe	892	1,248	1,817	2,897	2,901	3,361	4,673	6,689	4,682	5,703	8,915	10,419	7,929	5,854	4,588	4,567
Russia	165	352	395	739	823	1,004	1,770	2,581	972	2,318	3,808	3,633	3,359	2,049	998	998
Switzerland	258	303	460	830	769	811	835	826	1,106	822	988	803	663	854	907	848
Turkey	94	56	150	178	188	189	309	556	1,012	724	816	538	835	775	739	741
All others	375	537	812	1,150	1,121	1,358	1,759	2,725	1,592	1,839	3,304	5,444	3,072	2,175	1,944	1,980
Middle East	373	559	425	829	1,007	920	1,061	1,474	982	1,273	1,926	1,398	1,194	1,673	1,664	1,849
Israel	174	179	76	217	188	327	342	394	81	70	290	368	169	255	260	279
All others	199	380	349	612	819	593	719	1,080	901	1,203	1,636	1,029	1,025	1,418	1,403	1,570
Africa	240	233	317	469	516	725	1,113	1,494	1,771	1,466	1,331	1,876	1,501	2,102	2,158	1,990
Asia																
China	458	606	524	462	535	1,366	1,595	1,308	1,396	2,162	2,018	1,276	1,139	1,779	1,625	1,550
India	27	65	129	122	161	176	259	343	573	481	362	460	414	475	489	453
Indonesia	31	25	22	29	37	73	50	94	80	102	166	187	464	189	228	165
Japan	261	229	255	316	396	444	451	498	445	434	475	527	474	495	542	582
Malaysia	125	76	66	100	87	111	112	327	450	373	255	810	124	161	414	432
Philippines	27	57	96	10	15	126	15	32	44	25	18	28	18	21	26	30
Singapore	179	111	97	150	104	177	210	310	165	127	565	235	297	499	521	538

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Region, country, or economy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
South Korea	240	161	135	150	167	165	249	350	273	341	441	328	382	306	303	327
Taiwan	226	213	241	464	1,358	713	593	505	137	343	526	297	759	736	777	843
Thailand	56	31	112	98	86	83	120	266	103	134	98	199	280	167	188	194
Vietnam	15	45	14	41	14	41	138	35	51	48	77	54	41	57	69	77
All others	98	73	113	151	115	176	171	219	162	273	325	464	439	244	284	302
Australia	185	302	424	468	472	478	698	1,047	905	1,288	1,191	1,923	1,983	1,525	1,134	991
All others	24	40	58	61	82	84	79	122	145	178	403	273	314	394	331	392

EU = European Union.

Note(s)

Data are not available for EU member Luxembourg. China includes Hong Kong. Detail may not add to total because of rounding. See Appendix Table 6-38 for a full list of countries and economies in each region.

Source(s)

IHS Global Insight, special tabulations (2017) of the World Trade Service database.

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 APPENDIX TABLE 6-44 
Later-stage sustainable energy investment in all technologies and solar, by region, country, or economy: 2006–16

(Millions of current dollars)

Region, country, or economy	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
All technologies											
World	104,711	151,151	167,225	170,494	235,953	276,812	252,172	232,771	279,554	311,806	252,145
United States	27,086	37,813	30,835	22,421	34,036	48,596	39,708	34,471	39,712	50,608	46,424
EU	43,982	64,304	78,673	77,096	107,702	118,739	83,501	53,299	58,835	55,725	63,566
France	4,971	3,277	4,596	3,012	4,799	8,769	5,543	3,572	5,808	2,240	2,714
Germany	14,332	16,262	18,129	24,359	36,806	32,228	23,010	14,532	15,390	14,615	12,271
Italy	1,544	3,455	7,626	7,662	23,861	31,259	15,176	3,682	1,349	1,630	1,936
Spain	9,863	23,311	22,527	9,809	8,137	9,715	2,760	1,092	696	-31	659
United Kingdom	4,902	5,855	4,892	10,785	9,360	11,803	10,464	14,207	16,508	24,349	25,024
All others	8,371	12,144	20,904	21,469	24,740	24,965	26,547	16,213	19,085	12,922	20,962
Selected Asia											
China	9,649	15,420	23,904	37,296	42,945	46,989	60,417	64,660	89,793	116,880	83,530
India	4,913	6,552	5,262	4,031	8,868	13,379	7,848	6,392	8,290	9,105	9,261
Japan	3,215	2,691	3,090	5,175	7,590	10,341	17,571	31,061	36,668	33,715	16,479
Other selected countries											
Brazil	5,047	8,904	10,995	7,147	6,740	10,066	7,947	3,922	7,833	6,945	6,649
Mexico	338	332	893	471	3,004	597	3,233	2,434	2,121	4,519	1,952
South Africa	12	122	19	128	91	277	5,668	5,017	1,361	4,297	919
ROW	10,468	15,014	13,556	16,728	24,978	27,827	26,279	31,517	34,941	30,012	23,365
Solar											
World	17,931	33,336	52,905	58,233	97,250	147,617	134,605	113,659	137,871	164,851	107,876
United States	2,749	5,410	7,764	6,702	8,778	29,265	18,265	15,829	23,095	32,771	27,125
EU	10,272	21,683	38,398	37,948	67,120	79,270	55,607	21,778	16,462	11,378	7,184
France	103	385	873	1,005	2,656	7,346	4,340	1,671	3,336	857	676

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Region, country, or economy	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Germany	6,385	10,049	13,825	18,325	28,212	21,272	19,327	4,791	3,201	2,136	1,562
Italy	159	835	3,586	5,417	20,559	29,549	13,873	3,019	915	671	677
Spain	3,281	9,133	17,522	6,995	5,145	7,508	1,703	793	54	-386	159
United Kingdom	118	468	35	149	340	4,629	4,156	4,342	6,993	6,007	1,708
All others	227	813	2,557	6,057	10,207	8,966	12,209	7,162	1,964	2,092	2,403
Selected Asia											
China	23	220	914	3,084	5,153	12,546	23,604	27,422	40,005	60,188	38,607
India	37	101	64	149	625	5,792	2,702	1,492	2,993	5,093	5,444
Japan	1,932	1,373	1,463	3,715	6,627	8,612	16,592	29,487	33,771	30,605	11,917
Other selected countries											
Australia	112	163	237	699	2,454	4,890	3,412	2,419	1,963	1,498	1,601
Brazil	16	16	16	6	11	13	54	47	20	562	985
Mexico	8	7	8	40	17	71	65	170	231	284	265
South Africa	0	0	0	17	22	35	4,133	3,221	1,218	2,695	918
ROW	2,781	4,363	4,041	5,876	6,444	7,122	10,171	11,795	18,112	19,777	13,830

EU = European Union; ROW = rest of world.

Note(s)

Later stage investment consists of asset finance, public markets, small-scale distributed solar, and re-invested equity. All technologies include biofuels, biomass and waste, energy smart, geothermal, low carbon services, marine, small hydropower, solar, and wind. China includes Hong Kong.

Source(s)

Bloomberg New Energy Finance, special tabulations (2017).

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 APPENDIX TABLE 6-45 
Later-stage sustainable energy investment in wind and energy smart technologies, by region, country, or economy: 2004-16

(Millions of current dollars)

Region, country, or economy	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Wind											
World	38,028	59,560	71,823	76,951	98,713	82,293	82,342	86,610	106,804	122,466	110,729
United States	8,523	12,500	17,490	9,385	18,461	10,619	14,320	12,825	11,185	13,767	15,123
EU	21,911	31,988	32,307	30,889	33,131	28,526	21,346	24,806	35,304	38,552	46,621
France	2,710	2,082	3,241	1,917	1,720	1,059	1,118	1,119	2,155	1,295	1,426
Germany	4,921	4,521	3,418	5,258	7,860	10,350	3,507	9,514	12,026	12,307	10,548
Italy	1,237	1,780	3,738	1,625	1,811	1,049	1,117	393	224	547	947
Spain	5,637	12,835	4,236	2,453	2,807	1,781	635	28	312	0	132
United Kingdom	2,144	3,111	2,632	9,541	7,476	2,673	4,140	5,845	6,278	15,168	19,432
All others	5,262	7,658	15,042	10,097	11,457	11,613	10,829	7,907	14,309	9,235	14,137
Selected Asia											
China	4,112	7,477	17,458	29,079	29,674	25,981	27,395	29,160	40,756	50,388	34,770
India	1,532	3,735	2,045	1,799	5,998	5,721	4,043	3,595	4,603	3,786	3,598
Japan	521	648	662	1,215	94	450	557	688	231	295	758
Other selected countries											
Brazil	112	478	992	1,506	1,685	5,068	3,768	2,874	5,856	5,300	5,362
Mexico	0	143	857	206	2,573	489	2,876	1,832	1,682	4,093	1,283
South Africa	12	0	0	17	25	173	1,534	1,699	125	1,602	0
ROW	1,305	2,591	13	2,855	7,071	5,265	6,503	9,130	7,061	4,683	3,215
Energy smart											
World	980	2,795	2,337	6,144	9,117	9,983	9,821	9,839	12,591	11,614	21,270
United States	288	2,080	1,579	3,997	4,306	3,931	3,439	3,178	4,483	2,839	3,742
EU	417	361	150	1,207	593	875	841	1,293	1,487	2,264	4,928
France	8	0	8	0	31	118	0	18	66	45	437

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Region, country, or economy	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Germany	3	78	1	16	60	61	11	211	81	167	102
Italy	0	0	0	194	131	117	73	119	163	412	312
Spain	0	0	0	49	37	113	232	271	313	355	368
United Kingdom	405	264	141	81	115	147	153	212	355	464	1,205
All others	0	19	0	867	218	320	372	461	509	822	2,503
Selected Asia											
China	12	189	213	475	3,026	2,736	3,649	2,961	3,782	2,559	7,222
India	0	0	0	0	1	1	3	3	6	16	15
Japan	179	123	12	91	309	928	262	621	1,113	1,990	3,500
Other selected countries											
Brazil	0	0	58	56	78	71	89	81	74	68	77
Mexico	0	0	0	0	17	18	13	0	2	141	404
South Africa	0	0	0	17	22	22	0	0	0	0	0
ROW	84	42	325	301	766	1,401	1,526	1,703	1,645	1,738	1,383

EU = European Union; ROW = rest of world.

Note(s)

Later-stage investment consists of asset finance, public markets, small-scale distributed solar, and re-invested equity. China includes Hong Kong.

Source(s)

Bloomberg New Energy Finance.

Science and Engineering Indicators 2018

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 APPENDIX TABLE 6-46 
Government RD&D in sustainable energy technologies, by region, country, or economy: 2005-14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	8,567	8,871	9,871	10,120	16,152	14,385	13,992	13,763	12,568	12,031
Australia	90	91	99	108	171	332	382	527	675	166
Canada	376	432	422	440	706	789	652	739	740	563
EU	2,108	2,448	2,816	2,929	3,839	4,550	4,620	4,491	4,264	3,588
Austria	41	49	37	75	101	138	135	132	130	157
Belgium	0	0	110	0	0	67	172	237	210	182
Czech Republic	5	5	3	34	37	30	46	46	43	38
Denmark	72	89	112	101	119	191	181	156	167	163
Estonia	0	0	0	0	0	0	8	2	2	2
Finland	80	116	165	181	217	289	257	248	234	221
France	817	866	893	938	1,058	941	1,125	1,112	1,064	1,021
Germany	350	353	363	426	672	706	796	790	882	861
Greece	12	12	0	0	0	5	4	0	0	0
Hungary	46	57	72	103	99	101	104	98	0	0
Ireland	10	26	40	59	58	41	20	37	22	0
Italy	282	393	378	413	389	365	475	492	434	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	30	80	0	0
Netherlands	138	146	236	154	228	393	157	195	189	120
Poland	0	0	0	3	86	112	126	84	81	69
Portugal	2	2	2	2	4	2	1	3	10	9
Slovakia	0	0	0	13	15	16	27	27	23	21
Spain	53	62	80	93	152	148	288	172	75	102
Sweden	62	96	100	104	167	173	146	139	161	168
United Kingdom	137	178	225	229	439	832	521	441	535	453
Japan	3,016	3,024	2,956	2,977	2,845	2,767	2,988	3,117	2,356	2,685
New Zealand	9	10	12	21	22	21	16	12	12	13
Norway	46	54	59	53	293	418	355	296	235	423
South Korea	347	455	487	385	440	493	486	536	526	502
Switzerland	146	150	149	179	192	176	211	223	228	287
Turkey	2	4	5	3	4	0	0	0	0	47
United States	2,427	2,202	2,865	3,026	7,638	4,839	4,282	3,820	3,532	3,758

EU = European Union; RD&D = research, development, and demonstration.

Note(s)

Sustainable energy technologies include renewables (solar, wind, biofuels, ocean energy, and hydropower), nuclear, hydrogen and fuel cells, CO₂ capture and storage, other power and storage, and energy efficiency.

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Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 August 2015.

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APPENDIX TABLE 6-47

Government RD&D in nuclear energy, by region, country, or economy: 2005–14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	4,564	4,384	4,629	4,543	4,513	4,543	4,366	4,152	3,319	3,517
Australia	21	16	14	22	2	2	5	9	7	6
Canada	208	205	219	183	286	283	107	83	77	99
EU	1,001	1,023	1,044	1,005	1,051	1,086	1,124	1,263	1,227	1,004
Austria	4	5	4	6	4	4	3	3	3	2
Belgium	0	0	55	0	0	67	81	93	111	75
Czech Republic	3	3	2	15	15	14	16	20	23	23
Denmark	2	2	3	0	0	3	2	6	3	3
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	13	20	15	14	17	19	23	18	17	17
France	612	602	574	554	529	481	539	610	573	535
Germany	174	178	176	194	259	244	263	244	250	243
Greece	0	0	0	0	0	0	0	0	0	0
Hungary	1	1	0	0	0	0	0	0	0	0
Ireland	1	1	1	1	1	0	0	0	0	0
Italy	103	111	107	90	100	95	88	109	109	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	0	0	0	0
Netherlands	19	19	24	20	15	21	16	12	9	9
Poland	0	0	0	1	3	5	6	7	7	4
Portugal	1	1	1	1	3	0	0	0	0	0
Slovakia	0	0	0	6	6	6	6	7	4	2
Spain	19	21	27	27	30	0	1	28	24	2
Sweden	7	7	6	8	10	8	4	4	3	3
United Kingdom	42	53	48	68	61	117	74	101	91	86
Japan	2,160	2,075	2,090	2,122	2,096	2,053	1,645	1,810	1,086	1,367
New Zealand	0	0	0	0	0	0	0	0	0	0
Norway	12	11	11	11	12	12	11	11	11	11
South Korea	212	232	241	66	77	83	109	108	97	93
Switzerland	52	54	55	58	56	52	51	53	49	45
Turkey	0	1	0	0	0	0	0	0	0	0
United States	899	767	956	1,078	933	971	1,313	815	765	891

EU = European Union; RD&D = research, development, and demonstration.

Note(s)

Data for China do not include expenditures on demonstration.

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Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 August 2015.

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 APPENDIX TABLE 6-48 
Government RD&D in energy efficiency technology, by region, country, or economy: 2005–14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	1,461	1,539	1,862	2,085	4,112	3,588	2,976	3,037	3,180	3,276
Australia	30	28	30	36	32	102	75	54	54	22
Canada	60	75	75	76	121	124	112	107	109	111
EU	313	430	605	726	1,154	1,448	1,427	1,385	1,134	977
Austria	13	13	10	29	46	67	76	65	64	70
Belgium	0	0	29	0	0	0	52	89	58	58
Czech Republic	0	0	0	9	10	5	6	4	2	2
Denmark	9	14	17	16	8	30	23	27	39	50
Estonia	0	0	0	0	0	0	0	1	0	0
Finland	33	32	87	91	119	199	140	161	134	150
France	80	102	120	146	176	202	267	227	187	174
Germany	23	26	30	50	123	154	156	181	210	217
Greece	2	2	0	0	0	1	1	0	0	0
Hungary	41	51	66	97	93	95	98	93	0	0
Ireland	5	13	27	28	26	27	3	22	3	0
Italy	31	78	75	109	165	59	105	104	83	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	29	67	0	0
Netherlands	45	50	72	51	101	168	55	54	57	39
Poland	0	0	0	0	40	57	54	37	26	22
Portugal	1	0	0	0	0	0	0	1	2	2
Slovakia	0	0	0	1	1	2	1	1	2	5
Spain	4	6	9	11	18	28	54	36	8	19
Sweden	25	36	47	45	78	63	61	70	74	72
United Kingdom	0	6	16	42	147	290	245	147	186	97
Japan	400	413	401	381	303	227	252	279	352	426
New Zealand	2	2	1	1	1	1	1	1	1	2
Norway	4	3	5	5	19	27	25	28	55	229
South Korea	41	72	93	89	94	97	89	107	99	99
Switzerland	25	26	26	31	35	39	50	59	68	75
Turkey	0	0	1	0	0	0	0	0	0	14
United States	585	491	623	740	2,352	1,523	945	1,016	1,309	1,321

EU = European Union; RD&D = research, development, and demonstration.

Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 August 2015.

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APPENDIX TABLE 6-49

Government RD&D in other power and storage technologies, by region, country, or economy: 2005-14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	446	555	524	555	1,541	867	914	815	805	990
Australia	11	12	12	12	14	11	9	14	18	8
Canada	10	13	14	20	61	55	70	72	91	113
EU	140	204	180	207	224	268	439	409	398	328
Austria	5	5	3	6	8	21	15	27	25	40
Belgium	0	0	6	0	0	0	17	32	20	14
Czech Republic	1	1	0	4	4	4	11	11	9	7
Denmark	1	6	7	7	22	24	33	21	17	17
Estonia	0	0	0	0	0	0	1	1	1	1
Finland	17	21	18	30	25	19	23	25	25	16
France	3	3	14	29	38	25	25	25	35	45
Germany	3	4	4	3	23	33	47	43	79	79
Greece	3	2	0	0	0	1	0	0	0	0
Hungary	0	0	0	0	0	0	0	0	0	0
Ireland	1	2	2	8	12	2	2	4	1	0
Italy	85	131	92	78	18	66	111	115	94	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	0	5	0	0
Netherlands	5	8	9	11	14	4	20	22	18	17
Poland	0	0	0	0	13	20	23	15	15	17
Portugal	0	0	0	0	0	0	0	0	0	0
Slovakia	0	0	0	0	0	0	5	5	3	0
Spain	0	0	5	5	11	15	67	14	0	13
Sweden	9	8	8	8	12	12	13	14	17	16
United Kingdom	8	12	11	17	26	21	27	32	40	46
Japan	59	97	114	101	108	121	104	87	45	74
New Zealand	0	3	3	3	5	5	0	0	1	1
Norway	4	4	6	2	15	17	15	15	18	17
South Korea	12	34	28	52	71	75	69	92	105	113
Switzerland	22	19	17	23	24	15	16	16	14	42
Turkey	0	0	0	0	0	0	0	0	0	14
United States	188	169	149	135	1,019	301	191	107	116	281

EU = European Union; RD&D = research, development, and demonstration.

Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/statistics/topics/rdd/>, accessed 15 August 2015.

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APPENDIX TABLE 6-50

Government RD&D in renewable energy, by region, country, or economy: 2005–14

(Billions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	1,163	1,256	1,732	1,683	4,103	3,481	3,934	4,104	3,673	3,020
Australia	28	35	43	38	73	76	150	195	387	71
Canada	45	74	65	79	129	129	151	172	103	90
EU	488	570	696	736	1,069	1,343	1,296	1,157	1,226	986
Austria	16	18	19	30	40	41	39	33	34	37
Belgium	0	0	19	0	0	0	20	20	22	30
Czech Republic	1	2	1	6	7	7	11	9	6	6
Denmark	37	39	50	55	66	97	90	73	93	63
Estonia	0	0	0	0	0	0	6	0	1	1
Finland	17	42	44	45	55	52	71	45	58	37
France	53	65	83	106	175	131	176	166	192	198
Germany	116	112	114	146	223	228	290	280	294	284
Greece	7	8	0	0	0	3	2	0	0	0
Hungary	4	5	5	5	5	5	5	5	0	0
Ireland	4	9	10	23	19	11	15	11	18	0
Italy	64	45	66	95	73	116	143	146	129	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	1	4	0	0
Netherlands	50	57	80	55	71	161	62	105	101	54
Poland	0	0	0	1	26	26	30	17	13	17
Portugal	1	0	1	0	1	1	0	2	6	6
Slovakia	0	0	0	4	5	6	16	14	15	14
Spain	30	33	34	41	84	92	157	85	42	61
Sweden	18	42	37	39	63	86	65	46	62	71
United Kingdom	70	92	134	83	156	281	96	95	142	108
Japan	201	220	165	163	105	173	796	693	646	611
New Zealand	4	4	5	15	14	14	12	9	10	10
Norway	6	7	13	15	84	102	77	75	61	79
South Korea	52	72	76	89	128	160	143	168	160	147
Switzerland	37	35	35	47	56	52	66	67	64	89
Turkey	1	2	1	1	2	0	0	0	0	15
United States	301	237	633	500	2,443	1,433	1,244	1,569	1,017	921

EU = European Union; RD&D = research, development, and demonstration.

Note(s)

Renewable energy consists of solar, wind, ocean, biofuels, hydropower, and geothermal.

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Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 August 2015.

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APPENDIX TABLE 6-51

Government RD&D in solar energy, by region, country, or economy: 2005–14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	504	485	498	576	978	930	1,129	915	1,033	689
Australia	12	12	12	14	21	19	25	17	21	18
Canada	11	17	19	15	51	44	39	75	203	31
EU	222	203	221	272	308	286	395	358	359	287
Austria	3	2	3	5	10	17	20	14	16	22
Belgium	0	0	11	0	0	0	9	10	8	8
Czech Republic	1	0	0	0	0	0	1	1	1	1
Denmark	5	7	8	8	7	12	13	12	11	10
Estonia	0	0	0	0	0	0	1	0	1	1
Finland	0	1	2	3	9	3	4	8	24	6
France	28	32	41	45	58	54	63	68	74	76
Germany	66	65	57	79	72	77	86	93	83	74
Greece	0	0	0	0	0	0	0	0	0	0
Hungary	0	0	0	0	0	0	0	0	0	0
Ireland	0	1	1	5	3	3	4	2	0	0
Italy	61	40	46	77	40	0	64	50	54	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	0	0	0	0
Netherlands	17	14	14	17	33	34	35	33	28	22
Poland	0	0	0	0	6	5	10	6	3	7
Portugal	0	0	0	0	0	0	0	1	3	2
Slovakia	0	0	0	2	2	2	3	3	4	0
Spain	14	17	19	24	34	24	60	36	22	19
Sweden	1	4	4	5	7	9	8	9	12	22
United Kingdom	28	19	14	0	26	45	16	14	16	16
Japan	125	151	3	1	39	78	105	128	108	103
New Zealand	0	1	1	1	1	1	1	1	1	1
Norway	2	2	6	7	18	22	20	15	13	13
South Korea	17	23	21	60	71	70	78	75	62	60
Switzerland	25	22	22	26	30	33	41	39	36	45
Turkey	0	0	0	0	1	0	0	0	0	10
United States	88	54	193	179	440	377	424	207	230	121

EU = European Union; RD&D = research, development, and demonstration.

Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 February 2015.

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 APPENDIX TABLE 6-52 
Government RD&D in wind energy, by region, country, or economy: 2005–14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	167	165	171	145	402	469	410	392	388	313
Australia	1	3	4	3	1	3	2	0	3	0
Canada	7	8	7	6	7	12	20	15	5	4
EU	91	108	99	84	127	258	208	157	200	163
Austria	0	0	0	1	1	3	1	1	1	1
Belgium	0	0	0	0	0	0	7	3	3	5
Czech Republic	0	0	0	0	0	0	0	0	0	0
Denmark	16	14	20	13	20	43	24	18	30	28
Estonia	0	0	0	0	0	0	3	0	0	0
Finland	1	4	4	8	16	6	13	3	5	2
France	1	2	2	2	1	6	5	6	11	8
Germany	21	13	20	37	34	44	51	45	61	60
Greece	0	0	0	0	0	0	0	0	0	0
Hungary	0	0	0	0	0	0	0	0	0	0
Ireland	2	1	0	1	7	1	1	1	1	0
Italy	0	3	4	4	6	0	8	9	13	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	1	0	0	0
Netherlands	6	6	8	7	11	36	12	15	14	5
Poland	0	0	0	0	1	1	1	1	1	1
Portugal	0	0	0	0	0	0	0	0	0	0
Slovakia	0	0	0	1	1	2	1	1	0	0
Spain	10	8	6	7	8	15	42	20	4	18
Sweden	0	3	3	3	6	5	8	6	6	6
United Kingdom	32	54	31	0	16	96	28	26	50	29
Japan	10	8	3	2	7	21	38	50	43	56
New Zealand	0	0	0	0	0	0	0	0	0	0
Norway	2	2	3	2	18	43	21	20	19	34
South Korea	11	17	17	17	36	37	34	46	47	40
Switzerland	1	1	1	2	2	2	3	7	7	4
Turkey	0	0	0	0	0	0	0	0	0	1
United States	44	18	38	30	205	92	83	98	65	10

EU = European Union; RD&D = research, development, and demonstration.

Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 February 2015.

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APPENDIX TABLE 6-53

Government RD&D in biofuels, by region, country, or economy: 2005–14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	364	442	734	556	1,874	1,448	1,063	1,185	1,031	980
Australia	1	2	6	5	7	10	97	29	44	5
Canada	22	48	40	46	52	53	61	110	38	28
EU	132	207	324	261	432	434	430	391	394	325
Austria	12	15	15	21	25	18	16	16	10	11
Belgium	0	0	5	0	0	0	4	6	9	12
Czech Republic	1	1	1	5	6	6	7	5	3	2
Denmark	14	17	20	28	28	31	51	33	41	21
Estonia	0	0	0	0	0	0	1	0	0	0
Finland	14	37	38	32	25	39	52	28	25	23
France	13	26	34	51	103	60	83	70	93	101
Germany	13	16	19	21	33	35	48	39	39	38
Greece	0	0	0	0	0	0	0	0	0	0
Hungary	4	5	5	5	5	5	5	5	0	0
Ireland	1	5	8	15	5	4	4	2	3	0
Italy	3	3	14	14	20	14	30	34	25	0

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Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	0	4	0	0
Netherlands	28	37	58	30	26	76	9	54	48	23
Poland	0	0	0	0	11	9	10	7	7	7
Portugal	1	0	0	0	0	0	0	1	3	3
Slovakia	0	0	0	1	1	1	8	7	2	9
Spain	5	6	7	7	37	28	31	19	9	11
Sweden	15	32	26	27	46	60	39	28	40	36
United Kingdom	8	8	74	3	61	47	34	32	39	28
Japan	66	59	20	16	50	56	66	61	45	49
New Zealand	1	1	1	6	5	5	4	4	4	4
Norway	1	2	3	3	10	12	13	12	11	12
South Korea	4	8	7	5	8	12	11	19	16	15
Switzerland	6	5	7	9	10	6	10	10	9	17
Turkey	1	1	0	1	1	0	0	0	0	1
United States	130	110	328	203	1,299	860	370	549	470	524

EU = European Union; RD&D = research, development, and demonstration.

Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 February 2015.

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APPENDIX TABLE 6-54

Government RD&D in carbon capture and storage, by region, country, or economy: 2005–14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	142	255	267	357	1,041	1,095	1,104	1,164	1,103	753
Australia	0	0	0	0	49	140	141	255	209	55
Canada	12	13	15	19	60	152	172	284	347	139
EU	41	39	81	61	161	192	131	121	122	152
Austria	0	0	0	1	0	1	1	1	0	0
Belgium	0	0	0	0	0	0	0	3	0	1
Czech Republic	0	0	0	0	1	1	0	1	1	1
Denmark	1	2	1	1	4	0	0	0	0	0
Estonia	0	0	0	0	0	0	1	0	0	0
Finland	0	0	0	0	0	0	0	0	0	0
France	12	31	33	36	78	49	61	44	37	28
Germany	5	0	0	4	16	15	7	20	19	12
Greece	0	0	0	0	0	0	0	0	0	0
Hungary	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0
Italy	0	1	3	10	13	0	0	0	6	0

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	0	0	0	0
Netherlands	10	4	42	7	15	33	4	3	2	0
Poland	0	0	0	0	2	2	5	0	14	8
Portugal	0	0	0	0	0	0	0	0	1	1
Slovakia	0	0	0	0	0	0	0	0	0	0
Spain	0	0	1	3	5	0	0	2	0	2
Sweden	0	0	0	0	0	0	1	1	2	2
United Kingdom	13	0	0	1	28	89	51	45	41	97
Japan	0	21	11	31	103	90	104	130	129	102
New Zealand	0	0	1	1	1	0	0	0	0	0
Norway	9	17	13	13	150	246	212	160	84	79
South Korea	4	4	6	15	16	27	30	25	32	23
Switzerland	0	1	1	2	4	2	2	1	3	5
Turkey	0	0	0	0	0	0	0	0	0	0
United States	76	159	139	215	497	246	311	189	177	198

EU = European Union; RD&D = research, development, and demonstration.

Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 August 2015.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-55

Government RD&D in hydrogen and fuel cells, by region, country, or economy: 2005–14

(Millions of dollars)

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
World	792	881	858	897	842	811	699	491	488	475
Australia	0	0	1	0	1	2	2	0	1	3
Canada	40	52	36	63	48	46	41	21	14	11
EU	126	181	210	195	180	213	204	157	156	141
Austria	2	8	1	3	3	4	3	4	4	9
Belgium	0	0	1	0	0	0	2	0	0	4
Czech Republic	0	0	0	0	0	0	1	1	2	1
Denmark	22	25	35	22	19	38	34	28	15	30
Estonia	0	0	0	0	0	0	1	0	0	0
Finland	0	0	0	0	0	0	0	0	0	0
France	56	62	69	67	61	53	57	40	41	42
Germany	28	32	39	30	29	31	33	22	31	25
Greece	0	0	0	0	0	1	1	0	0	0
Hungary	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	1	0	0	0	0
Italy	0	25	34	30	20	29	27	18	14	0

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Luxembourg	0	0	0	0	0	0	0	3	0	0
Netherlands	9	8	9	10	13	5	0	0	2	0
Poland	0	0	0	1	3	2	7	6	6	2
Portugal	0	0	0	0	0	0	0	0	1	1
Slovak Republic	0	0	0	1	1	2	0	0	0	0
Spain	0	3	4	7	5	12	9	7	1	5
Sweden	3	3	2	4	3	3	2	4	3	4
United Kingdom	5	13	17	19	21	33	27	22	35	19
Japan	197	198	174	180	130	103	87	119	98	105
New Zealand	2	2	2	1	1	1	1	1	0	0
Norway	11	11	11	7	14	14	14	8	7	7
South Korea	26	41	43	74	55	50	46	35	34	27
Switzerland	10	16	15	17	17	17	26	26	28	32
Turkey	1	2	3	1	1	0	0	0	0	4
United States	379	379	365	358	394	364	278	125	149	146

EU = European Union; RD&D = research, development, and demonstration.

Source(s)

International Energy Agency, Statistics and Balances, <https://www.iea.org/stats/index.asp>, accessed 15 August 2015.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-56

USPTO patents granted in sustainable energy technologies, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	3,698	3,717	3,701	4,116	4,129	4,207	4,056	3,521	3,866	3,806	3,904	4,496	6,598	7,355	9,060	10,152	11,428	11,424	11,011
North America	2,036	2,057	2,005	2,206	2,100	2,140	2,079	1,813	2,078	1,962	2,018	2,304	3,215	3,630	4,423	4,924	5,293	4,997	4,941
Canada	103	126	128	123	136	128	150	138	126	123	131	116	158	173	226	217	224	245	207
Mexico	3	0	1	4	7	2	2	2	1	1	6	0	7	3	8	16	10	6	7
Puerto Rico	0	0	1	0	0	2	0	1	0	1	1	1	1	1	3	2	4	0	2
United States	1,931	1,931	1,875	2,080	1,957	2,008	1,928	1,672	1,950	1,837	1,880	2,187	3,049	3,453	4,187	4,689	5,055	4,746	4,725
Central and South America	5	10	1	8	7	8	8	5	4	5	6	9	7	27	23	23	28	25	29
Argentina	0	1	1	1	1	4	0	0	0	0	0	0	1	3	4	2	1	3	1
Brazil	3	2	0	2	4	3	4	3	2	3	3	3	4	16	10	14	14	7	16
All others	1	7	0	5	3	1	4	2	2	3	4	6	1	8	10	7	12	15	12
Europe	667	694	664	752	741	729	665	605	556	618	644	677	1,083	1,166	1,469	1,789	2,084	2,027	1,933
EU	608	636	615	677	703	690	618	548	510	582	598	629	1,021	1,096	1,382	1,658	1,970	1,909	1,797
Austria	11	13	8	11	14	11	13	17	14	19	12	16	18	15	31	28	29	45	41
Belgium	6	6	8	10	14	9	9	7	13	8	6	13	16	16	15	33	34	31	41
Denmark	13	13	11	22	15	23	18	20	8	21	28	27	58	103	133	118	172	154	156
Finland	12	15	12	19	14	20	14	13	14	17	16	15	17	16	25	24	46	37	34

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	109	96	110	104	114	97	78	71	62	91	78	94	151	161	158	237	279	241	285
Germany	280	293	306	326	313	335	304	264	249	257	278	308	484	477	603	726	779	787	654
Hungary	2	1	1	0	2	2	0	2	0	0	2	0	5	1	2	4	7	6	4
Ireland	0	1	2	0	1	2	1	4	3	1	3	3	3	4	6	7	14	9	17
Italy	29	24	29	25	38	30	35	26	29	23	34	28	45	47	65	77	87	108	84
Netherlands	25	41	22	28	34	31	25	18	9	23	23	22	34	51	58	60	88	71	50
Spain	5	5	10	5	8	10	11	10	6	12	8	13	21	30	40	54	63	75	66
Sweden	36	53	38	54	64	37	38	31	32	30	33	20	51	47	71	88	119	101	103
United Kingdom	76	73	51	68	66	73	66	61	68	73	69	64	93	109	142	169	225	217	232
All others	4	3	6	7	4	10	7	6	2	8	8	4	25	18	31	33	29	28	30
Other Europe	60	58	49	74	38	39	47	56	45	36	46	48	62	70	87	131	114	118	136
Former Soviet Union	2	2	1	1	2	2	1	2	1	3	0	2	0	2	2	3	1	1	4
Norway	6	11	8	13	3	8	10	15	9	8	11	8	17	13	16	30	25	30	37
Russia	9	11	6	16	13	8	7	11	5	6	14	10	14	13	13	23	16	11	14
Switzerland	40	31	34	43	18	21	27	29	29	18	21	27	30	40	51	71	69	71	78
All others	3	3	1	1	1	0	1	0	1	1	0	2	1	2	5	5	3	5	4
Asia	941	906	984	1,104	1,233	1,273	1,248	1,053	1,172	1,179	1,188	1,449	2,211	2,429	3,016	3,251	3,831	4,158	3,897
China	10	6	12	9	10	15	15	14	24	26	27	47	87	98	171	191	248	295	311
India	1	1	5	7	8	10	7	12	5	16	8	13	21	37	52	46	61	87	79

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	813	797	882	941	1064	1,087	1,061	882	966	910	915	1,042	1,511	1,645	2,039	2,033	2,304	2,387	2,237
Malaysia	1	0	2	2	0	0	3	0	1	2	0	1	2	2	5	4	6	5	8
Singapore	1	1	1	4	3	3	5	2	2	5	6	5	8	7	16	10	19	26	27
South Korea	67	58	46	91	94	93	94	84	101	145	160	241	442	473	537	725	950	1096	1014
Taiwan	44	40	35	46	52	63	61	57	72	74	70	96	132	161	194	234	235	250	217
All others	4	3	1	4	2	3	3	2	2	1	1	3	8	4	1	8	9	11	5
Middle East	21	17	18	21	20	29	26	19	19	14	20	26	41	48	74	103	111	134	144
Israel	21	14	14	19	16	28	23	15	18	10	17	23	32	39	52	57	74	75	77
All others	1	3	4	2	3	1	3	3	1	4	3	4	9	9	23	45	37	59	66
Africa	2	6	7	9	4	1	4	4	12	6	4	4	10	8	7	11	14	7	10
South Africa	2	6	7	9	3	1	3	4	11	6	4	3	9	8	7	8	12	6	7
All others	0	0	0	0	1	0	1	0	1	1	0	1	1	0	1	3	2	1	3
Australia and Oceania	24	26	20	16	24	26	26	22	24	20	24	26	32	47	47	51	66	74	58
Australia	18	22	17	15	24	23	24	21	23	20	21	22	27	44	40	42	60	67	46
New Zealand	6	4	3	1	0	4	2	1	1	0	3	4	5	3	7	8	7	7	13
Unclassified	2	1	3	1	0	0	0	0	1	0	0	1	0	0	1	1	0	2	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. China includes Hong Kong. Sustainable energy technologies include alternative energy, energy storage, smart grid, and pollution mitigation. Alternative energy includes bioenergy, solar, wind, nuclear, fuel cells, hydropower, wave/tidal/ocean, geothermal, and electric/hybrid. Energy storage includes batteries, compressed air, flywheels, superconducting magnet energy systems, ultracapacitors, hydrogen production and storage, and thermal energy. Pollution mitigation includes recycling; control of air, water, and solid waste pollution; environmental remediation; cleaner coal; and capture and storage of carbon and other greenhouse gases. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix, PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-57

USPTO patents granted in alternative energy technologies, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	975	991	1,051	1,238	1,389	1,420	1,407	1,322	1,459	1,450	1,525	1,835	2,921	3,638	4,781	5,234	6,010	5,873	5,567
North America	482	482	516	610	642	684	681	631	738	713	728	858	1,352	1,740	2,263	2,512	2,715	2,540	2,453
Canada	23	25	32	23	37	49	59	64	55	39	47	41	59	76	85	101	102	127	98
Mexico	1	0	0	1	3	0	1	1	0	0	1	0	2	1	1	8	5	2	4
Puerto Rico	0	0	0	0	0	2	0	0	0	0	1	0	1	1	3	1	3	0	1
United States	458	457	484	586	602	634	621	566	682	674	679	817	1,290	1,661	2,175	2,402	2,605	2,412	2,350
Central and South America	0	4	0	1	0	1	3	2	2	2	0	2	1	8	12	9	14	16	13
Argentina	0	0	0	1	0	0	0	0	0	0	0	0	1	1	2	0	0	2	1
Brazil	0	1	0	0	0	0	1	2	1	2	0	1	0	5	7	6	10	3	6
All others	0	3	0	0	0	1	2	0	1	0	0	1	0	1	3	3	4	12	6
Europe	207	199	198	233	257	262	242	257	221	258	298	305	503	600	854	982	1,177	1,134	1,099
EU	194	181	184	209	245	253	232	236	208	247	279	294	479	575	817	920	1,120	1,087	1,043
Austria	2	5	3	4	2	1	4	4	7	3	5	8	8	8	16	12	16	17	18
Belgium	2	0	0	2	5	4	2	4	5	3	3	5	6	7	7	12	14	15	16
Denmark	5	2	0	2	4	12	11	12	4	15	11	17	43	87	120	98	150	135	136
Finland	3	4	1	2	1	2	2	3	3	1	1	2	2	4	10	12	19	22	19

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	53	30	30	26	38	38	29	27	24	40	30	31	58	64	82	117	169	135	170
Germany	97	96	106	120	130	136	131	131	120	122	158	173	257	261	361	418	449	456	373
Hungary	0	1	1	0	1	0	0	0	0	0	0	0	1	1	2	2	4	1	2
Ireland	0	0	1	0	1	0	0	2	0	0	2	1	1	2	3	3	11	2	8
Italy	5	7	6	7	15	9	8	9	10	8	16	11	22	27	38	45	52	63	46
Netherlands	1	4	8	12	8	10	10	6	3	12	13	8	12	22	41	30	43	43	26
Spain	3	0	4	1	4	9	7	7	5	7	3	8	11	22	36	41	47	58	57
Sweden	4	13	9	15	18	13	11	6	10	8	10	6	12	16	19	30	48	37	51
United Kingdom	19	20	13	15	16	19	16	22	16	26	26	23	33	44	64	78	89	96	106
All others	0	0	2	4	1	1	1	1	0	1	3	0	13	8	17	21	10	6	16
Other Europe	13	18	14	24	12	8	11	20	14	11	18	11	24	26	37	62	57	47	56
Former Soviet Union	0	0	0	0	0	1	0	2	0	0	0	1	0	1	1	2	1	1	1
Norway	1	1	4	2	0	1	0	2	2	2	6	2	4	6	5	17	14	11	6
Russia	1	1	1	1	6	2	3	4	1	2	2	2	5	4	5	8	6	5	6
Switzerland	11	16	8	20	5	5	7	13	11	7	10	6	15	13	22	33	34	26	39
All others	0	0	1	0	1	0	1	0	0	0	0	0	0	2	4	2	2	4	4
Asia	270	282	319	378	471	460	463	421	478	468	486	657	1,033	1,244	1,609	1,666	2,023	2,093	1,887
China	1	0	2	3	2	3	4	5	5	7	10	12	27	29	62	81	91	113	128
India	0	0	0	1	1	2	0	3	0	5	1	4	7	25	25	22	22	36	26

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	250	257	297	346	436	423	414	374	421	407	405	493	738	868	1,113	1,093	1,273	1,308	1,114
Malaysia	0	0	1	1	0	0	1	0	0	0	0	0	0	1	2	2	5	2	7
Singapore	0	0	0	1	2	0	0	0	0	0	2	3	5	6	13	8	15	18	17
South Korea	10	13	10	15	13	19	24	28	24	28	42	89	183	210	257	299	458	473	481
Taiwan	8	9	8	7	18	11	20	12	26	21	26	54	66	103	136	157	154	137	112
All others	1	3	1	4	0	2	0	0	2	0	0	2	7	2	1	4	6	7	3
Middle East	8	9	7	9	8	6	11	7	7	4	8	6	16	22	24	40	50	52	74
Israel	8	8	6	8	7	6	10	5	7	3	8	4	12	19	16	26	38	35	41
All others	0	1	1	1	1	0	1	1	0	1	1	1	4	3	8	14	13	16	33
Africa	0	2	1	0	1	0	0	2	2	1	0	1	3	3	1	4	7	2	4
South Africa	0	2	1	0	1	0	0	2	2	1	0	1	3	3	1	3	5	2	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1
Australia and Oceania	7	13	9	6	10	8	6	3	11	4	5	7	12	20	17	21	23	34	37
Australia	4	11	7	6	10	8	6	3	9	4	4	6	11	19	15	18	19	30	27
New Zealand	3	2	2	0	0	0	0	0	1	0	1	1	1	1	2	3	4	4	10
Unclassified	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. China includes Hong Kong. Alternative energy includes bioenergy, solar, wind, nuclear, fuel cells, hydropower, wave/tidal/ocean, geothermal, and electric/hybrid. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix, PatentsView, and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-58

USPTO patents granted in energy storage technologies, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	449	478	521	582	649	688	656	505	569	566	579	667	1,016	1,046	1,180	1,383	1,729	1,847	1,810
North America	204	213	214	244	222	281	263	207	236	222	246	245	366	357	401	451	548	510	516
Canada	11	16	18	11	11	17	16	12	15	15	17	15	19	21	24	24	23	25	26
Mexico	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	1	2	0	0
Puerto Rico	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
United States	193	197	196	232	211	264	247	194	220	207	229	230	346	336	377	426	523	485	491
Central and South America	0	0	0	3	0	2	0	0	2	0	1	1	0	0	2	2	4	1	1
Argentina	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0
Brazil	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	1	1	0
All others	0	0	0	2	0	0	0	0	2	0	1	0	0	0	1	1	2	0	1
Europe	48	48	54	59	73	62	75	51	42	45	59	53	88	104	95	119	177	177	157
EU	46	40	53	53	66	57	60	44	35	41	49	45	78	93	79	101	163	164	141
Austria	0	1	1	1	1	1	2	4	0	0	0	1	0	1	1	1	3	3	2
Belgium	0	0	0	2	1	0	1	0	0	0	0	0	1	2	0	1	2	3	1
Denmark	4	1	2	4	4	2	2	2	0	1	5	2	3	3	0	3	3	3	2
Finland	0	1	0	3	3	1	1	0	0	0	1	0	1	0	3	1	4	0	1

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	7	9	15	12	18	10	9	6	5	7	9	16	21	33	24	26	46	50	38
Germany	15	13	23	15	18	23	28	14	12	20	12	14	31	26	25	36	46	54	49
Hungary	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Ireland	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Italy	5	2	2	1	4	1	4	5	4	0	4	3	4	4	6	5	6	9	8
Netherlands	5	1	1	3	5	4	4	4	1	1	5	3	3	4	3	7	12	4	5
Spain	1	1	1	2	1	1	3	1	1	2	1	1	2	2	0	0	3	2	0
Sweden	0	5	2	2	2	3	2	1	2	2	2	0	5	3	3	3	6	8	4
United Kingdom	8	6	5	8	9	5	5	5	9	6	7	3	7	13	8	13	24	21	24
All others	0	0	1	0	1	3	1	1	0	1	2	1	1	2	5	3	7	6	6
Other Europe	2	7	1	6	6	5	15	7	8	5	10	8	10	12	16	19	14	13	16
Former Soviet Union	0	1	0	0	1	0	1	1	0	1	0	0	0	1	1	0	0	0	1
Norway	0	3	0	1	0	1	4	2	1	1	2	0	2	1	4	3	2	0	3
Russia	0	2	0	3	4	2	3	3	2	1	4	2	4	5	4	10	3	3	3
Switzerland	2	1	1	3	2	2	8	2	5	2	4	5	3	5	8	6	9	10	8
All others	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Asia	193	212	250	272	350	337	311	243	282	294	267	358	554	573	671	802	985	1,148	1,109
China	1	3	4	2	0	1	4	2	3	3	3	6	24	20	38	29	47	54	54
India	0	0	0	0	0	1	0	1	1	2	0	1	5	0	3	1	7	6	7

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	172	186	220	228	294	278	259	196	226	224	208	243	331	350	427	448	527	563	618
Malaysia	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	0	1	0
Singapore	0	1	0	0	1	0	2	1	1	2	1	0	1	0	0	1	2	4	6
South Korea	13	15	16	33	47	44	32	30	39	50	44	91	170	175	182	290	368	466	378
Taiwan	7	7	10	8	8	13	12	13	12	13	11	17	24	27	20	33	33	52	46
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0
Middle East	1	2	2	3	2	1	4	1	3	1	1	3	0	6	5	4	9	7	18
Israel	1	2	2	3	2	1	3	1	3	0	0	3	0	6	3	4	5	4	12
All others	0	0	0	0	0	0	1	0	0	1	1	0	0	0	2	0	4	3	6
Africa	1	2	0	0	1	0	1	0	0	0	1	1	4	1	0	0	0	1	1
South Africa	1	2	0	0	0	0	1	0	0	0	1	1	4	1	0	0	0	1	1
All others	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	2	2	1	1	2	5	2	3	4	3	5	6	4	6	5	5	6	4	7
Australia	2	2	1	1	2	3	2	2	4	3	5	5	3	5	4	5	5	4	6
New Zealand	0	0	0	0	0	2	0	1	0	0	0	1	2	1	1	0	1	0	1
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. China includes Hong Kong. Energy storage includes batteries, compressed air, flywheels, superconducting magnet energy systems, ultracapacitors, hydrogen production and storage, and thermal energy. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix, PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-59

USPTO patents granted in smart grid technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	454	471	404	456	456	481	473	408	551	545	564	603	823	906	1,141	1,298	1,480	1,550	1,695
North America	279	290	243	287	287	278	292	241	344	332	336	369	499	549	670	739	839	837	948
Canada	10	15	6	16	19	17	23	14	17	30	17	18	28	21	38	33	36	29	36
Mexico	0	0	0	0	0	0	0	1	1	0	0	0	4	0	2	2	1	2	1
Puerto Rico	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
United States	269	276	238	272	268	261	269	226	327	301	319	350	467	528	630	705	802	806	910
Central and South America	2	0	0	0	2	1	1	0	0	0	0	2	0	1	4	2	3	2	2
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Brazil	2	0	0	0	2	1	1	0	0	0	0	1	0	1	3	2	2	1	2
All others	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0
Europe	67	81	80	59	84	80	71	76	73	73	87	87	109	144	169	228	280	276	294
EU	54	76	69	50	78	71	64	67	63	67	80	80	103	124	154	204	260	252	262
Austria	0	2	1	1	2	2	2	0	1	2	3	3	1	0	4	4	1	3	5
Belgium	0	2	0	0	0	0	0	1	0	0	1	0	2	1	3	2	5	1	7
Denmark	0	0	0	4	1	1	2	4	2	1	7	2	11	10	5	13	19	17	24
Finland	1	1	2	0	2	1	2	5	5	7	7	7	3	9	3	3	16	7	9

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	5	14	12	6	6	9	9	9	9	4	8	11	15	20	14	32	28	26	31
Germany	25	23	25	16	29	28	22	21	19	26	26	34	35	38	54	75	88	103	85
Hungary	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	4	1
Ireland	0	0	0	0	0	1	0	2	1	0	2	1	1	0	3	1	3	5	7
Italy	2	3	7	4	4	4	8	8	7	5	7	3	3	7	9	8	11	12	10
Netherlands	6	7	3	0	2	3	1	0	1	2	2	2	1	3	1	3	4	5	8
Spain	0	1	4	0	1	0	1	1	0	1	3	4	5	5	8	7	13	13	10
Sweden	8	17	8	12	19	12	6	6	7	7	4	3	11	14	31	30	36	24	21
United Kingdom	6	5	7	7	12	10	9	10	9	9	9	9	13	17	14	23	32	31	41
All others	0	1	1	0	1	1	2	1	1	2	0	1	0	1	4	3	5	2	4
Other Europe	14	5	11	9	5	9	8	9	10	6	7	8	6	20	15	25	20	24	32
Former Soviet Union	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Norway	0	0	1	0	0	0	1	2	1	1	0	0	1	0	2	1	1	4	6
Russia	0	0	1	1	0	0	0	0	0	0	0	2	0	1	0	1	2	0	1
Switzerland	13	2	8	8	5	8	7	7	8	5	7	6	5	19	13	22	17	20	23
All others	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Asia	100	96	74	110	78	114	98	81	126	135	136	133	202	196	272	296	331	405	428
China	1	2	3	2	3	4	3	3	8	5	7	16	16	29	46	46	69	87	80
India	1	1	0	3	2	1	1	1	1	3	3	2	5	5	13	13	15	32	26

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	83	83	60	82	63	84	64	51	78	64	57	63	96	74	125	144	128	145	153
Malaysia	0	0	0	1	0	0	0	0	1	0	0	1	1	0	1	0	0	1	2
Singapore	0	0	1	1	0	1	1	0	0	0	2	0	1	0	3	0	5	6	8
South Korea	11	7	5	12	4	11	12	14	19	44	51	39	54	67	64	67	75	78	104
Taiwan	4	3	6	10	4	13	16	11	18	19	16	13	29	21	20	26	39	54	54
All others	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2	0
Middle East	3	0	2	0	4	5	5	6	6	3	5	8	9	10	19	23	21	23	17
Israel	3	0	2	0	3	5	5	5	6	3	5	8	7	10	19	15	19	21	15
All others	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	8	2	2	2
Africa	0	1	0	0	1	0	0	0	0	1	0	1	1	0	0	2	1	0	1
South Africa	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	2	1	0	1
All others	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Australia and Oceania	3	2	4	0	1	2	5	4	2	1	1	2	2	5	6	7	5	8	5
Australia	0	1	2	0	1	1	3	4	2	1	1	2	1	4	3	4	4	7	2
New Zealand	3	1	2	0	0	1	2	0	0	0	0	0	1	0	3	3	1	1	3
Unclassified	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. China includes Hong Kong. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-60

USPTO patents granted in pollution mitigation technologies, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1,975	1,924	1,887	2,002	1,810	1,802	1,692	1,442	1,459	1,439	1,409	1,605	2,143	2,129	2,416	2,788	2,825	2,781	2,590
North America	1,160	1,156	1,118	1,160	1,049	1,011	939	823	861	813	808	951	1,189	1,193	1,333	1,514	1,513	1,413	1,346
Canada	62	74	77	76	73	52	56	52	49	45	54	47	58	64	84	76	74	76	64
Mexico	2	0	1	3	5	2	1	1	0	1	4	0	1	2	5	6	3	2	3
Puerto Rico	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
United States	1,097	1,082	1,039	1,082	971	957	882	770	812	767	750	904	1,130	1,127	1,244	1,430	1,435	1,334	1,278
Central and South America	3	6	1	3	5	4	4	3	1	4	5	4	5	17	6	11	8	10	15
Argentina	0	1	1	0	1	3	0	0	0	0	0	0	0	1	0	2	0	1	0
Brazil	2	1	0	1	2	1	2	1	1	1	2	0	4	9	0	6	2	2	7
All others	1	4	0	2	3	0	2	2	0	3	3	4	1	7	6	3	6	6	7
Europe	366	390	363	421	356	346	298	250	232	268	238	259	420	371	410	553	568	549	494
EU	328	361	336	385	340	330	283	227	215	253	222	235	398	353	389	519	536	511	453
Austria	10	5	3	6	9	7	5	10	7	13	4	5	9	7	10	13	10	22	20
Belgium	4	4	8	6	8	5	6	3	8	5	2	8	7	6	6	20	15	11	17
Denmark	4	12	9	12	8	10	3	5	2	4	11	9	8	11	11	10	13	11	10
Finland	8	10	10	13	8	16	10	5	6	9	6	6	11	4	9	9	10	12	8

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	47	48	60	65	55	43	35	32	25	45	33	39	61	49	45	74	54	44	57
Germany	149	166	164	183	144	157	134	108	103	98	93	101	174	170	184	238	233	212	183
Hungary	2	0	0	0	1	2	0	1	0	0	1	0	3	1	0	2	3	1	1
Ireland	0	0	1	0	0	1	1	0	0	1	0	1	2	2	1	3	1	2	2
Italy	18	13	14	12	17	16	15	8	9	11	10	13	19	11	18	21	29	32	25
Netherlands	12	30	12	14	21	14	12	8	4	7	7	8	19	26	14	22	34	21	15
Spain	2	3	2	3	2	1	2	1	0	3	3	2	4	2	2	9	9	7	2
Sweden	24	21	21	26	28	12	21	18	14	15	19	13	28	17	21	29	31	38	31
United Kingdom	45	47	30	40	34	40	36	25	34	38	28	29	42	40	60	64	84	83	74
All others	3	2	3	4	4	6	4	4	1	4	5	2	10	7	7	7	8	14	8
Other Europe	38	29	26	36	16	16	15	23	17	15	16	24	22	18	20	34	32	39	40
Former Soviet Union	2	1	0	1	1	0	0	1	1	2	0	1	0	0	0	1	1	0	1
Norway	5	6	3	10	3	5	6	10	5	4	3	6	11	7	6	10	9	16	21
Russia	8	9	4	11	4	5	3	5	3	3	8	5	5	5	4	8	6	3	5
Switzerland	21	11	20	13	7	6	6	7	8	6	5	10	6	6	9	12	16	20	14
All others	2	1	0	1	1	0	1	0	1	1	0	2	0	0	1	2	1	0	0
Asia	418	350	381	390	375	410	426	345	339	330	335	369	496	512	610	640	658	720	672
China	7	2	4	4	5	7	7	6	10	13	9	15	24	25	34	42	53	56	64
India	1	0	5	3	5	6	5	7	3	7	4	8	6	8	13	11	22	17	25

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	344	303	339	322	306	343	365	290	287	254	273	290	390	412	472	456	473	500	462
Malaysia	1	0	1	0	0	0	1	0	0	1	0	0	1	0	1	2	1	1	0
Singapore	1	0	0	2	0	2	3	1	1	3	2	2	2	1	2	1	0	4	3
South Korea	35	24	18	34	34	23	28	14	20	24	25	33	50	41	58	94	83	111	95
Taiwan	27	21	13	24	23	29	17	24	18	26	21	20	21	21	29	30	23	28	20
All others	3	0	0	0	2	1	1	2	0	0	1	1	1	3	0	3	3	2	2
Middle East	12	8	9	9	8	17	9	5	6	8	7	10	15	14	28	43	38	56	45
Israel	12	6	6	8	6	16	7	4	5	4	5	8	12	9	14	15	16	16	15
All others	1	2	3	1	2	1	2	1	1	4	2	2	3	5	14	27	22	40	30
Africa	1	2	6	9	2	1	3	3	10	4	3	1	2	4	6	5	7	3	3
South Africa	1	2	6	9	2	1	2	3	9	4	3	0	2	4	6	3	7	3	2
All others	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	2	0	1	1
Australia and Oceania	15	12	8	9	15	12	13	13	9	12	13	11	16	17	23	21	33	29	16
Australia	13	10	8	8	15	11	13	13	9	12	11	9	13	16	21	18	32	28	14
New Zealand	1	2	0	1	0	1	0	0	0	0	2	2	3	1	2	3	1	2	1
Unclassified	1	0	2	1	0	0	0	0	1	0	0	1	0	0	0	1	0	1	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. China includes Hong Kong. Pollution mitigation technologies include recycling; control of air, water, and solid waste pollution; environmental remediation; cleaner coal; and capture and storage of carbon and other greenhouse gases. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-61

USPTO patents granted in fuel cell technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	119	159	201	264	353	444	520	481	555	503	525	641	1,031	964	1,106	907	918	853	745
North America	65	98	122	171	218	269	294	272	291	244	229	257	389	360	352	312	317	286	251
Canada	8	7	9	10	18	34	41	44	31	23	23	25	18	21	29	20	29	26	13
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	57	90	113	161	199	235	253	228	259	221	206	232	370	339	324	292	287	260	238
Central and South America	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Europe	20	29	41	34	44	68	65	61	55	66	81	66	122	96	110	101	116	114	94
EU	18	26	40	28	42	65	63	57	52	66	78	64	116	94	105	93	112	106	86
Austria	1	0	0	0	0	0	1	1	2	0	0	2	1	1	0	1	3	2	1
Belgium	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	2	0
Denmark	2	0	0	0	0	1	3	2	0	2	2	3	4	3	6	4	7	7	6
Finland	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	2	3	2	3

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	1	0	1	2	4	1	4	1	5	8	3	7	11	16	17	15	23	14	18
Germany	11	21	32	25	30	55	43	42	35	45	51	39	72	51	55	48	51	56	22
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Italy	0	2	2	0	3	1	3	2	2	2	3	3	7	8	7	5	4	2	4
Netherlands	0	1	1	1	3	2	2	2	2	2	4	1	3	1	1	1	0	6	0
Spain	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	2	0	0
Sweden	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	3	2	3
United Kingdom	3	2	4	0	1	4	6	7	3	6	11	7	10	10	15	15	14	12	27
All others	0	0	0	0	1	1	0	0	0	0	0	0	5	1	1	1	1	0	0
Other Europe	2	3	1	6	2	3	2	4	3	0	3	2	6	2	5	8	4	9	8
Former Soviet Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1
Russia	0	0	0	0	0	2	0	2	0	0	1	0	1	0	1	2	0	0	0
Switzerland	1	3	1	6	2	1	2	2	3	0	2	2	5	2	4	5	4	6	7
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	33	31	36	57	84	105	156	146	203	192	211	313	514	501	637	489	484	445	390
China	0	0	0	0	0	1	1	0	1	2	3	4	5	8	2	6	3	21	10
India	0	0	0	0	0	0	0	0	0	1	0	0	2	0	3	0	2	2	4

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	33	29	33	55	81	100	147	137	184	168	178	240	361	337	483	341	332	296	244
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	0	0
South Korea	0	1	3	2	2	4	6	7	11	15	24	52	124	131	125	117	127	110	121
Taiwan	0	1	0	0	1	0	2	2	7	6	6	17	19	24	24	25	18	15	11
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East	0	0	0	0	4	2	3	1	3	0	2	2	3	3	4	3	1	6	5
Israel	0	0	0	0	4	2	3	1	3	0	2	2	2	3	2	3	1	4	2
All others	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	2	3
Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	1	1	1	2	4	0	2	1	3	1	2	2	3	4	1	1	0	1	1
Australia	1	1	1	2	4	0	2	1	3	1	2	2	3	4	0	1	0	1	1
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-62

USPTO patents granted in bioenergy technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	76	55	68	67	66	65	64	58	59	92	77	130	195	312	461	606	637	584	579
North America	54	35	40	44	41	41	43	32	41	66	53	93	138	241	347	428	449	396	398
Canada	5	3	6	4	4	2	3	3	6	5	5	4	9	24	15	24	18	36	23
Mexico	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
United States	49	32	34	40	35	39	40	29	35	62	47	89	128	217	332	403	429	360	375
Central and South America	0	0	0	0	0	1	1	2	1	1	0	1	0	4	6	5	9	10	6
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Brazil	0	0	0	0	0	0	0	2	1	1	0	1	0	4	4	5	7	3	4
All others	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	2	7	2
Europe	16	13	17	11	12	13	12	17	13	17	13	22	36	44	72	102	115	90	92
EU	11	12	14	8	11	13	11	12	10	14	11	21	30	38	67	96	108	86	86
Austria	0	1	0	1	0	0	0	1	1	0	0	1	0	0	1	0	0	2	2
Belgium	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2	3	1	0	1
Denmark	0	1	0	0	2	2	0	0	0	2	2	3	2	5	7	5	11	8	5
Finland	1	2	0	0	0	1	2	2	2	0	0	2	2	2	5	7	7	11	7

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	2	1	1	2	1	1	0	0	1	2	0	2	5	6	4	17	17	17	21
Germany	5	3	6	1	3	5	3	3	3	2	4	8	8	10	22	24	30	23	12
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	0	1
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0
Italy	1	2	1	1	1	1	0	3	0	2	3	1	6	4	4	7	4	3	6
Netherlands	0	1	2	2	0	2	3	1	0	2	1	1	2	3	7	9	11	9	7
Spain	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1	4	4	2	6
Sweden	1	0	2	0	3	0	2	0	2	1	0	1	0	2	2	4	6	2	3
United Kingdom	1	2	1	0	0	0	1	1	1	3	0	1	2	2	7	10	9	6	8
All others	0	0	0	1	1	1	0	0	0	0	1	0	0	0	3	4	3	0	6
Other Europe	5	1	3	3	1	0	1	5	3	3	2	1	6	6	5	7	7	5	6
Former Soviet Union	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	2	1	0	0
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	1	0
Russia	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2
Switzerland	5	1	3	3	1	0	1	4	3	3	2	1	6	4	2	3	2	1	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Asia	4	7	10	12	11	7	7	6	4	4	8	12	18	20	34	58	54	73	64
China	0	0	1	1	1	0	0	0	0	1	0	2	1	2	3	7	7	13	18
India	0	0	0	0	0	1	0	1	0	0	0	2	2	1	3	4	6	9	8

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	3	5	8	9	6	4	6	5	4	3	6	5	10	11	17	34	21	30	24
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	0	2
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
South Korea	0	1	1	1	3	2	1	0	0	1	0	0	2	2	8	9	16	18	12
Taiwan	1	1	0	1	1	0	0	0	0	0	2	2	3	2	0	1	2	2	1
All others	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0
Middle East	1	0	0	0	1	2	1	1	0	3	2	0	2	0	2	6	3	4	10
Israel	1	0	0	0	1	2	1	1	0	2	2	0	2	0	1	4	2	3	3
All others	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	1	2	6
Africa	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	1	2	1
South Africa	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	1	2	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Australia and Oceania	0	0	1	0	1	1	0	0	0	0	1	1	2	2	1	6	5	8	8
Australia	0	0	1	0	1	1	0	0	0	0	0	1	1	1	1	4	3	6	6
New Zealand	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	2	2	2	2
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-63

USPTO patents granted in solar energy technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	165	212	304	308	303	289	207	160	163	173	163	241	502	813	1,169	1,352	1,755	1,674	1,551
North America	77	96	138	128	112	117	94	79	83	91	92	145	283	463	673	775	937	845	770
Canada	1	2	4	2	2	3	1	1	2	3	3	4	4	11	14	13	16	26	32
Mexico	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2	1	0
Puerto Rico	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	76	94	134	126	110	113	92	77	81	88	89	141	279	451	659	761	918	818	739
Central and South America	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2
Argentina	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2
Europe	27	40	45	42	49	46	23	27	29	27	26	31	75	93	155	166	236	232	230
EU	26	35	40	34	47	41	22	23	27	25	22	27	71	84	142	148	208	216	209
Austria	0	2	2	1	0	0	1	1	0	2	1	2	2	3	4	3	5	5	4
Belgium	1	0	0	1	4	2	0	2	3	1	2	1	3	4	2	4	6	7	11
Denmark	0	0	0	0	1	0	0	0	0	0	0	0	2	2	2	1	2	1	1
Finland	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	3	4

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	2	5	5	1	4	3	3	2	3	3	4	3	9	9	15	22	30	28	42
Germany	21	21	22	20	30	23	14	9	15	10	10	16	35	44	66	66	92	93	84
Hungary	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	1
Italy	0	1	1	2	1	2	0	1	2	1	2	0	3	8	9	8	18	18	11
Netherlands	1	0	3	5	1	3	2	2	0	3	2	2	3	1	8	9	15	16	7
Spain	0	0	2	0	1	3	0	1	1	2	0	0	1	2	12	11	7	22	16
Sweden	0	1	1	2	1	1	0	1	0	0	1	0	3	5	1	2	7	4	4
United Kingdom	2	3	3	1	3	4	2	1	3	2	0	4	6	3	14	13	16	15	19
All others	0	0	0	2	0	0	0	1	0	0	1	0	3	3	7	8	3	4	6
Other Europe	1	6	5	7	2	4	1	5	2	2	4	3	3	9	14	18	28	16	21
Former Soviet Union	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	0
Norway	0	0	2	0	0	0	0	0	0	0	2	0	0	3	0	2	3	1	1
Russia	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1	1	3	1	1
Switzerland	1	6	3	6	2	4	1	4	2	2	2	2	2	5	10	14	20	13	17
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	2
Asia	56	62	111	132	137	120	84	52	43	49	41	62	134	240	324	383	541	553	490
China	0	0	0	1	1	1	0	0	1	2	2	3	7	9	24	31	38	41	44
India	0	0	0	0	1	0	0	1	0	1	1	1	0	1	5	0	4	7	6

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	56	53	103	128	126	111	75	44	35	39	32	37	74	134	142	174	244	261	221
Malaysia	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	3	0	2
Singapore	0	0	0	1	2	0	0	0	0	0	0	3	2	2	1	0	0	2	3
South Korea	0	3	2	0	1	5	2	1	0	3	1	7	18	38	66	82	152	159	149
Taiwan	0	5	4	3	7	1	6	6	6	5	5	10	27	56	86	94	96	78	62
All others	0	1	1	0	0	1	0	0	1	0	0	1	7	1	1	3	3	5	2
Middle East	1	3	3	4	1	1	5	1	2	3	2	1	6	6	11	22	33	30	44
Israel	1	3	3	4	0	1	5	1	2	3	2	1	4	6	6	15	25	24	27
All others	0	0	0	0	1	0	0	0	0	0	0	0	2	0	4	7	8	5	17
Africa	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1
South Africa	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Australia and Oceania	3	8	4	2	3	6	1	1	5	2	1	2	5	9	5	5	6	13	15
Australia	3	7	3	2	3	6	1	1	5	2	1	2	5	9	4	5	6	12	14
New Zealand	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1
Unclassified	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-64

USPTO patents granted in hybrid and electric vehicle technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	322	311	286	352	438	407	371	368	435	439	452	515	718	796	1,088	1,335	1,543	1,767	1,724
North America	110	107	95	121	148	143	119	127	183	187	184	210	300	319	458	497	529	588	599
Canada	5	7	4	6	5	11	5	6	6	7	5	5	12	6	9	17	16	12	15
Mexico	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	104	101	91	114	143	132	114	121	177	181	179	204	287	313	450	479	513	575	580
Central and South America	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Europe	71	49	54	92	89	74	77	61	58	56	83	61	109	94	163	258	258	302	313
EU	69	42	53	87	89	73	73	59	56	56	80	60	108	91	160	246	252	299	304
Austria	1	1	0	1	1	0	1	1	1	1	2	1	3	1	7	6	3	5	8
Belgium	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
Denmark	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Finland	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	2

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	12	6	11	12	17	11	16	7	6	13	13	11	19	13	32	31	44	41	47
Germany	44	26	35	62	51	46	47	38	36	33	56	42	70	64	100	162	153	180	165
Hungary	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0
Ireland	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Italy	3	3	1	5	7	4	3	1	6	1	3	2	4	4	10	15	14	24	15
Netherlands	0	0	0	0	1	1	1	0	0	0	1	0	2	1	0	2	5	4	4
Spain	1	0	1	0	1	4	0	3	3	3	0	1	0	1	1	1	2	3	3
Sweden	0	1	1	2	5	4	4	2	1	2	3	0	4	2	4	14	22	16	32
United Kingdom	6	5	3	5	4	3	2	4	3	2	3	3	5	4	4	10	5	20	22
All others	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	1	3
Other Europe	2	7	1	4	0	1	4	2	2	0	3	1	1	3	3	12	7	3	9
Former Soviet Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Russia	1	1	1	0	0	1	1	1	0	0	1	0	0	0	0	3	0	0	1
Switzerland	1	6	0	4	0	0	3	1	2	0	2	1	1	3	3	9	6	3	7
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Asia	137	150	136	138	200	190	174	178	193	195	185	244	308	378	465	574	745	871	806
China	1	0	1	0	0	0	1	2	2	3	2	1	5	4	15	20	20	14	29
India	0	0	0	0	0	0	0	0	0	1	0	0	1	1	4	10	4	7	3

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	129	145	129	133	193	179	158	165	178	178	166	201	265	340	392	460	578	675	574
Malaysia	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1
South Korea	5	4	3	3	4	2	6	8	5	8	12	23	25	27	43	68	128	155	175
Taiwan	2	1	3	1	3	9	9	3	8	6	4	19	12	5	11	14	14	20	22
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Middle East	1	1	0	0	0	0	0	1	0	0	1	0	0	4	1	4	4	1	1
Israel	1	0	0	0	0	0	0	1	0	0	1	0	0	4	1	3	4	1	1
All others	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Africa	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	3	1	1	1	1	0	0	1	1	0	0	0	1	1	1	2	6	4	6
Australia	0	0	0	1	1	0	0	1	1	0	0	0	1	1	1	2	5	3	0
New Zealand	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	6
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-65

USPTO patents granted in wind energy technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	30	34	48	57	60	64	87	126	137	153	172	185	293	525	713	657	689	606	576
North America	20	25	34	33	30	30	43	58	69	72	86	71	130	224	272	268	230	190	204
Canada	1	3	5	0	3	1	7	6	4	2	6	6	9	10	7	15	10	11	7
Mexico	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	5	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1
United States	19	22	29	33	26	29	36	52	66	70	80	65	120	213	265	248	218	179	196
Central and South America	0	1	0	0	0	0	1	0	1	0	0	0	0	2	2	0	1	2	2
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1
All others	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	1	0
Europe	7	4	8	17	20	24	33	53	41	65	58	90	122	217	297	265	334	310	282
EU	7	4	7	17	19	24	33	52	41	62	56	89	121	213	289	257	328	303	276
Austria	0	0	0	0	1	0	0	0	1	0	0	1	2	1	5	1	5	2	2
Belgium	0	0	0	1	1	1	0	0	2	1	1	2	2	0	2	4	5	4	1
Denmark	1	0	0	2	1	8	8	9	4	10	7	10	33	76	104	87	129	117	122
Finland	0	1	0	2	1	0	0	0	0	1	0	0	0	0	1	0	2	0	1

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	1	1	0	3	0	1	0	6	3	2	0	0	0	1	3	7	15	6	8
Germany	2	0	2	5	9	7	19	29	27	35	37	61	67	82	106	97	95	92	77
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
Italy	0	0	0	0	1	0	0	1	0	1	3	2	1	2	6	8	7	13	6
Netherlands	0	0	2	1	2	2	2	1	0	3	2	3	3	15	24	9	11	6	6
Spain	2	0	1	0	2	1	3	2	0	2	2	5	9	17	20	22	29	30	31
Sweden	0	1	0	2	1	3	0	2	2	1	1	0	0	2	3	5	2	3	3
United Kingdom	1	1	2	1	0	1	1	2	2	6	3	6	1	16	11	12	26	29	18
All others	0	0	0	0	0	0	0	0	0	0	0	0	3	1	3	4	1	1	0
Other Europe	0	0	1	0	1	0	0	1	0	3	2	1	1	3	8	8	5	7	6
Former Soviet Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Norway	0	0	0	0	0	0	0	1	0	2	1	0	1	1	3	5	4	3	2
Russia	0	0	0	0	1	0	0	0	0	1	0	1	0	1	2	1	0	1	1
Switzerland	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	2	1	1	1
All others	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	1
Asia	2	4	5	6	9	9	8	14	22	15	27	21	33	79	135	117	116	95	77
China	0	0	0	1	0	1	0	1	1	0	2	2	11	7	16	12	15	19	20
India	0	0	0	0	0	0	0	1	0	0	1	1	1	21	11	4	3	11	4

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	0	1	4	4	7	6	5	7	14	12	15	10	16	36	81	67	58	29	20
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Singapore	0	0	0	0	0	0	0	0	0	0	0	1	0	3	11	7	10	12	12
South Korea	0	1	0	1	0	1	1	4	4	0	2	2	4	1	4	9	14	11	10
Taiwan	2	1	1	0	2	1	2	1	2	3	7	5	1	10	13	16	14	10	9
All others	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	1	1	2	0
Middle East	0	0	1	0	1	0	0	1	3	0	0	1	5	3	4	3	7	7	10
Israel	0	0	1	0	1	0	0	1	3	0	0	1	4	2	4	0	5	2	5
All others	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	2	5	5
Africa	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1	1	0
South Africa	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Australia and Oceania	0	0	0	1	0	1	2	0	1	1	1	1	1	0	2	4	0	1	1
Australia	0	0	0	1	0	1	2	0	1	1	1	1	1	0	2	3	0	1	1
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Unclassified	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

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Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	37	15	10	6	12	19	6	11	5	11	9	8	12	15	9	17	32	18	27
Germany	17	25	12	10	8	10	6	11	3	1	9	6	7	6	6	10	12	6	11
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	3	1	0
Netherlands	0	1	0	1	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0
Spain	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0
Sweden	3	11	3	8	8	5	4	1	2	2	1	3	4	4	3	1	4	5	4
United Kingdom	5	7	1	7	6	3	2	2	1	3	2	1	0	0	2	1	0	1	2
All others	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Other Europe	3	0	0	1	6	0	3	1	1	2	0	1	3	2	2	0	3	1	2
Former Soviet Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Russia	0	0	0	1	5	0	2	0	1	1	0	1	3	2	1	0	1	1	1
Switzerland	2	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	2	0	1
All others	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Asia	33	23	20	26	25	35	30	27	10	11	14	12	30	35	40	56	73	53	45
China	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	4	4
India	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	29	20	18	17	20	28	22	19	6	8	11	6	18	22	21	31	48	27	29
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Korea	3	3	2	8	3	6	8	8	3	2	3	6	10	10	15	21	22	22	12
Taiwan	1	0	0	0	2	0	0	0	1	0	0	0	2	3	3	3	2	0	0
All others	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East	1	2	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0
Israel	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0
Africa	0	1	0	0	0	0	0	1	2	1	0	0	0	1	0	2	4	0	1
South Africa	0	1	0	0	0	0	0	1	2	1	0	0	0	1	0	2	4	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	1	2
Australia	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	1	2
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-67

USPTO patents granted in battery technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	166	169	204	210	270	256	225	161	161	177	171	240	431	430	471	616	870	1,020	992
North America	70	73	68	73	71	80	55	47	40	39	42	51	78	75	90	126	204	179	204
Canada	9	9	11	3	4	3	4	3	3	2	5	7	4	8	9	5	6	3	2
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	61	64	57	70	67	77	51	44	37	37	37	44	74	66	81	121	198	175	202
Central and South America	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
All others	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Europe	13	12	16	12	26	21	15	9	10	8	8	12	26	28	22	30	37	56	57
EU	13	12	16	12	24	21	15	9	8	8	7	9	25	25	18	26	32	50	51
Austria	0	1	0	0	1	1	0	2	0	0	0	1	0	0	0	1	2	2	1
Belgium	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	2	0
Denmark	2	0	0	2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	3	1	7	2	10	4	3	1	1	2	3	3	10	13	3	8	4	11	13
Germany	3	5	6	3	4	3	5	1	2	4	1	3	9	8	10	11	16	27	26
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	4	1	2	1	1	1	1	1	0	0	0	1	2	1	0	2	2	0	2
Netherlands	0	1	0	2	4	3	1	0	0	0	0	0	1	0	0	0	0	0	0
Spain	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	1	0	0
Sweden	0	0	0	1	0	2	0	0	2	1	0	0	1	1	1	1	0	0	1
United Kingdom	0	2	1	1	3	2	3	3	3	2	3	1	2	2	2	3	5	7	6
All others	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1
Other Europe	0	0	0	0	2	0	1	0	1	0	1	3	2	2	5	4	5	6	6
Former Soviet Union	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Russia	0	0	0	0	1	0	0	0	0	0	1	1	2	1	1	3	2	3	0
Switzerland	0	0	0	0	1	0	0	0	1	0	0	1	0	1	3	1	3	3	5
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	83	83	118	122	172	153	153	104	109	130	119	174	320	324	357	456	629	784	728
China	0	1	2	1	0	0	2	0	1	0	1	4	12	13	23	21	32	41	35
India	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	1	2

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	75	72	104	93	136	123	121	77	74	87	82	97	160	164	196	195	255	295	343
Malaysia	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	3
South Korea	5	8	10	25	35	30	26	26	31	43	36	69	142	142	134	232	334	427	330
Taiwan	3	2	2	3	1	0	2	0	3	0	0	4	6	5	4	7	5	17	14
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Middle East	0	0	0	1	1	0	0	0	1	0	0	0	0	2	1	1	0	1	3
Israel	0	0	0	1	1	0	0	0	1	0	0	0	0	2	1	1	0	1	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Africa	1	1	0	0	0	0	1	0	0	0	1	1	4	1	0	0	0	0	0
South Africa	1	1	0	0	0	0	1	0	0	0	1	1	4	1	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	0	0	1	0	1	2	1	1	1	0	1	2	2	1	0	2	0	1	0
Australia	0	0	1	0	1	2	1	0	1	0	1	1	0	1	0	2	0	1	0
New Zealand	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	0
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

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Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-68

USPTO patents granted in hydrogen production and storage technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	82	118	109	135	118	167	165	119	166	146	165	173	262	251	252	274	279	275	236
North America	39	56	51	69	60	94	98	65	105	81	104	104	164	141	132	141	143	131	113
Canada	2	6	3	4	3	9	8	6	9	3	2	6	8	5	8	12	13	14	14
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	37	50	48	65	57	86	89	59	96	78	102	98	155	136	124	129	130	118	99
Central and South America	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	3	1	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
All others	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0
Europe	12	18	17	20	18	18	22	23	14	15	26	23	28	39	25	31	56	52	34
EU	12	14	17	20	18	17	20	20	13	12	24	22	26	37	22	28	54	52	29
Austria	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1	0
Belgium	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Denmark	2	1	2	2	2	0	2	1	0	0	3	2	0	1	0	1	1	1	1
Finland	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	1	7	3	6	3	3	1	2	2	3	4	8	7	13	11	7	18	18	5
Germany	5	5	10	8	6	11	12	10	3	6	5	7	13	7	5	10	13	11	4
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	0	1	0	0	2	0	1	1	2	0	1	0	1	1	2	0	1	2	4
Netherlands	3	0	1	0	0	1	2	4	0	0	5	3	1	4	1	5	9	4	3
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0
Sweden	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	6	1
United Kingdom	1	0	1	1	2	1	0	1	5	3	4	2	2	8	3	5	8	7	10
All others	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1
Other Europe	0	3	0	1	0	1	3	3	1	2	2	1	2	2	2	4	2	1	4
Former Soviet Union	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Norway	0	3	0	1	0	1	3	1	1	1	1	0	1	0	0	2	2	0	0
Russia	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	2	0	0	3
Switzerland	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	1	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	30	42	40	45	40	54	43	29	45	48	34	42	68	65	90	98	71	86	77
China	0	0	1	1	0	1	0	0	0	1	1	0	3	0	1	1	1	6	4
India	0	0	0	0	0	1	0	0	1	1	0	0	2	0	0	0	1	2	3

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	28	36	35	40	35	49	42	26	43	36	28	34	39	40	63	69	54	62	54
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	2	1	2
South Korea	2	6	4	3	4	2	0	1	0	4	2	6	20	22	23	18	4	9	11
Taiwan	0	0	0	1	0	1	1	1	1	5	3	2	4	3	3	9	8	6	2
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East	0	0	0	0	0	0	2	0	1	1	0	2	0	2	3	2	4	2	8
Israel	0	0	0	0	0	0	1	0	1	0	0	2	0	2	1	2	3	1	3
All others	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	1	1	6
Africa	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
South Africa	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	1	2	0	0	0	1	0	2	0	2	2	2	1	3	1	2	2	2	3
Australia	1	2	0	0	0	0	0	2	0	2	2	2	1	3	1	2	1	2	3
New Zealand	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-69

USPTO patents granted in cleaner coal technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	68	47	51	37	38	52	32	42	30	23	31	43	66	71	70	118	93	88	83
North America	43	31	35	26	29	43	22	29	23	19	23	27	42	49	52	65	58	57	43
Canada	2	0	2	0	1	0	3	0	1	1	0	1	0	1	0	2	1	1	1
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	41	31	33	26	28	43	19	29	22	18	23	27	42	48	52	62	57	56	42
Central and South America	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Europe	7	7	5	4	5	3	2	4	1	2	3	7	4	7	7	15	16	9	10
EU	7	7	4	4	4	3	2	4	1	2	3	4	4	7	7	14	14	8	8
Austria	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0
Belgium	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Denmark	0	0	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Finland	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	0	1	2	0	1	0	1	1	0	1	0	0	0	0	2	1	1	0	2
Germany	5	5	1	1	3	1	1	2	1	0	0	1	2	2	3	7	9	3	1
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Netherlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Spain	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Sweden	1	0	0	0	0	0	0	1	0	0	0	2	1	1	0	0	1	1	2
United Kingdom	1	1	0	1	0	0	0	0	0	0	2	0	0	3	1	3	2	1	1
All others	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
Other Europe	0	0	1	0	1	0	0	0	0	0	0	4	1	0	0	1	2	1	2
Former Soviet Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1
Russia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Switzerland	0	0	1	0	1	0	0	0	0	0	0	4	0	0	0	0	1	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	15	8	9	7	2	4	7	8	5	1	4	6	17	13	8	33	16	16	29
China	0	0	0	0	1	0	0	0	0	0	0	0	2	2	2	4	2	1	7
India	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	2	3

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	15	6	9	7	1	4	7	6	4	1	3	5	14	10	5	25	10	13	17
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Korea	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	1	1	2
Taiwan	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	0	0
Middle East	2	0	0	0	0	2	1	0	0	0	0	0	1	1	0	1	1	2	1
Israel	2	0	0	0	0	2	1	0	0	0	0	0	1	1	0	1	1	2	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	1	1	2	0	2	0	0	1	2	1	1	2	2	1	1	3	2	3	0
Australia	1	1	2	0	2	0	0	1	2	1	1	2	2	1	1	3	2	3	0
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-70

USPTO patents granted in capture and storage of carbon and other greenhouse gases technologies, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	70	89	101	99	97	98	87	79	63	61	70	103	165	166	210	346	346	294	300
North America	31	58	69	55	56	64	55	49	38	34	46	69	111	121	144	206	196	164	149
Canada	1	2	2	2	1	3	0	4	4	3	0	2	8	4	8	12	6	8	9
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
United States	30	56	68	53	55	61	54	45	34	31	46	67	102	117	136	193	190	155	140
Central and South America	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2	1
Argentina	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
All others	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Europe	18	14	16	26	24	18	14	12	14	16	15	18	31	28	34	70	78	59	52
EU	15	13	15	21	22	15	12	9	10	15	14	15	28	22	31	62	69	47	43
Austria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2
Belgium	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0
Denmark	0	0	0	0	0	0	1	1	0	0	1	0	1	1	4	3	3	1	2
Finland	0	1	0	0	0	0	1	0	0	0	0	1	0	1	0	0	2	2	0

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	5	2	6	12	9	7	6	4	4	8	2	4	7	3	7	11	10	4	13
Germany	7	2	7	3	7	3	4	2	2	4	6	8	10	10	5	24	21	19	16
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Italy	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	1	2	4
Netherlands	1	4	0	0	2	0	0	1	0	2	2	1	5	5	4	6	11	5	1
Spain	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	1	0
Sweden	0	1	0	1	0	0	0	0	0	0	1	0	0	0	2	1	3	2	2
United Kingdom	2	4	2	3	1	4	1	1	2	2	2	1	4	3	9	12	14	11	2
All others	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	1
Other Europe	3	1	1	5	2	3	2	3	4	1	1	3	3	5	3	8	9	12	9
Former Soviet Union	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Norway	2	1	0	4	0	2	2	2	1	1	0	2	3	3	1	5	6	8	5
Russia	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1
Switzerland	1	0	1	1	2	1	0	0	3	0	0	0	1	2	1	3	3	5	4
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	19	14	15	16	15	14	16	17	9	11	7	14	22	15	29	57	62	57	84
China	1	0	0	0	0	0	0	0	0	0	0	0	5	2	2	2	2	0	5
India	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	2	5

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	16	14	15	14	15	12	14	16	9	8	7	10	10	9	15	42	45	39	53
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Korea	1	0	0	0	0	1	0	0	0	2	0	2	5	4	8	12	13	11	19
Taiwan	1	0	0	2	0	1	1	1	0	0	0	2	1	0	3	1	1	3	2
All others	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Middle East	1	1	0	1	0	1	1	0	0	0	1	0	0	0	0	1	3	6	9
Israel	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	2
All others	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	2	6	7
Africa	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	1	0	1	0
South Africa	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	1	0	1	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	1	1	0	0	1	0	0	0	2	0	0	2	1	1	2	11	7	5	6
Australia	1	1	0	0	1	0	0	0	2	0	0	2	1	1	1	7	7	4	5
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	1	1
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-71

USPTO patents granted in air pollution control technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	826	807	813	888	814	860	864	761	759	702	724	864	1,165	1,203	1,359	1,554	1,585	1,550	1,447
North America	407	383	405	430	426	399	409	377	391	343	358	437	573	596	666	740	754	708	658
Canada	11	13	17	18	22	14	16	17	15	14	17	13	22	20	27	22	26	29	25
Mexico	0	0	0	0	0	0	1	0	0	0	1	0	0	1	2	1	0	1	2
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
United States	396	370	388	412	404	385	393	360	376	329	340	424	551	575	636	717	727	678	630
Central and South America	1	2	0	0	0	1	0	2	1	0	1	0	2	1	2	5	3	1	4
Argentina	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Brazil	0	0	0	0	0	0	0	1	1	0	0	0	2	1	0	2	1	1	2
All others	1	2	0	0	0	0	0	1	0	0	1	0	0	0	2	2	1	0	2
Europe	168	204	179	224	177	195	174	152	148	152	145	172	250	243	254	366	369	341	316
EU	160	193	174	212	171	188	170	143	144	146	140	161	243	237	251	355	352	326	304
Austria	3	3	0	3	3	2	3	4	3	4	1	2	5	5	6	9	4	10	7
Belgium	1	3	5	3	3	2	2	2	3	1	0	4	4	2	2	10	6	8	11
Denmark	3	4	3	5	1	6	2	3	1	4	3	5	2	5	3	6	11	9	7
Finland	3	2	6	5	1	6	5	2	1	5	4	4	5	4	4	4	6	4	4

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	23	28	33	33	26	19	17	11	15	22	21	27	33	30	24	46	31	24	28
Germany	85	101	97	123	89	108	98	84	87	75	72	80	130	130	142	187	177	147	148
Hungary	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0
Ireland	0	0	1	0	0	0	1	0	0	1	0	1	1	1	0	0	0	0	1
Italy	6	7	4	6	9	7	6	6	5	4	4	8	3	6	9	9	17	17	7
Netherlands	2	12	4	9	5	5	4	4	2	2	3	5	11	11	9	15	19	14	7
Spain	1	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	3	3	0
Sweden	11	10	8	11	16	10	12	10	9	9	15	10	17	13	13	21	28	34	27
United Kingdom	22	22	11	13	15	22	21	16	18	17	18	15	28	25	34	44	47	54	55
All others	0	1	1	0	1	2	1	0	1	2	0	0	3	4	4	2	1	1	2
Other Europe	8	11	5	12	6	7	4	8	4	6	5	11	7	5	3	10	17	16	12
Former Soviet Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Norway	1	1	0	5	2	3	1	4	1	2	2	3	3	3	0	4	6	6	6
Russia	1	3	0	2	0	0	1	2	2	0	1	2	1	0	1	2	1	1	1
Switzerland	5	6	5	5	4	3	2	2	1	4	2	4	2	2	2	2	9	8	5
All others	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0
Asia	244	212	225	228	206	262	277	225	217	202	217	252	337	358	422	421	447	476	451
China	3	0	2	2	2	5	3	1	2	7	5	4	13	12	11	16	17	16	26
India	0	0	3	1	0	0	2	0	0	1	1	0	1	1	5	5	9	6	9

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	220	196	206	201	186	229	253	205	199	175	190	229	292	316	370	348	368	389	359
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Singapore	0	0	0	1	0	1	1	1	0	0	0	1	0	0	0	1	0	3	3
South Korea	11	7	9	11	10	15	12	7	9	12	16	12	20	20	29	44	47	52	44
Taiwan	9	9	5	12	8	12	6	10	8	7	5	4	9	7	6	6	4	9	10
All others	1	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	2	1	0
Middle East	1	2	0	4	3	3	2	2	0	3	2	3	3	3	6	12	9	14	13
Israel	1	1	0	3	3	3	1	2	0	0	1	2	2	1	2	3	2	3	2
All others	1	1	0	1	0	0	1	0	0	3	1	1	1	2	4	9	7	11	10
Africa	1	2	2	0	0	0	0	0	2	1	1	0	0	0	2	0	1	0	0
South Africa	1	2	2	0	0	0	0	0	2	1	1	0	0	0	2	0	1	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	4	4	1	2	2	0	1	3	0	1	0	0	1	2	7	10	3	10	6
Australia	4	4	1	1	2	0	1	3	0	1	0	0	1	2	6	9	3	9	5
New Zealand	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
Unclassified	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. The EU includes 28 member countries. Technologies are based on a classification developed by The Patent Board.

Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-72

USPTO patents granted in solid waste control technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	368	311	305	281	279	218	189	171	172	151	156	150	210	178	224	222	244	222	207
North America	238	197	198	163	170	119	112	105	112	103	101	115	118	123	150	132	155	130	136
Canada	8	12	17	10	15	6	9	10	8	5	8	9	7	11	13	7	7	7	12
Mexico	1	0	0	0	2	1	0	0	0	0	0	0	0	0	3	2	1	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	230	185	180	153	153	113	103	95	105	98	93	107	111	112	134	123	147	123	124
Central and South America	2	1	0	0	2	1	2	0	0	0	2	0	0	1	1	0	0	0	1
Argentina	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	2	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
All others	0	0	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1
Europe	75	62	61	58	50	44	40	31	25	24	25	14	45	24	23	45	34	38	26
EU	61	56	54	46	43	42	36	25	23	21	21	12	39	22	19	41	31	34	22
Austria	1	1	2	2	2	2	1	2	0	0	0	0	2	0	0	0	0	3	2
Belgium	2	0	0	1	2	1	0	1	3	1	1	0	0	1	2	1	0	0	1
Denmark	1	4	1	4	3	1	0	2	0	0	0	0	2	2	1	1	0	0	1
Finland	3	4	2	4	2	3	2	1	0	1	0	1	0	0	0	1	0	1	1

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	13	10	9	4	8	8	7	7	6	7	3	3	5	3	1	7	7	6	5
Germany	19	17	25	10	10	14	14	6	7	4	7	3	10	4	3	14	8	7	1
Hungary	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	0
Italy	3	1	1	4	3	3	3	2	1	1	0	1	3	2	4	1	7	4	1
Netherlands	1	1	3	2	0	3	3	0	0	1	0	0	1	3	0	1	1	0	0
Spain	1	1	1	1	0	0	1	0	0	1	0	0	1	0	0	1	1	1	0
Sweden	6	5	1	5	4	0	2	3	1	1	0	1	3	1	1	3	0	1	1
United Kingdom	7	10	9	8	7	5	3	1	5	4	6	2	8	5	5	7	2	8	7
All others	2	1	1	2	0	2	1	0	0	1	3	0	3	0	1	1	1	2	2
Other Europe	14	7	7	11	6	1	4	6	2	2	4	2	6	2	4	4	3	4	5
Former Soviet Union	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Norway	0	1	1	1	0	0	0	3	0	0	0	0	2	0	1	0	1	2	1
Russia	1	2	2	5	2	1	1	1	1	2	2	1	1	1	2	3	1	0	2
Switzerland	10	4	5	6	3	0	2	1	1	0	2	1	3	1	1	1	1	2	1
All others	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0
Asia	51	45	41	55	52	48	30	31	28	18	23	17	38	21	42	42	46	44	35
China	1	0	1	1	0	1	1	3	3	2	1	5	1	3	6	7	12	9	10
India	0	0	0	0	0	0	1	2	0	0	1	0	1	0	3	0	3	3	0

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	34	35	37	40	39	34	25	20	17	12	14	5	20	13	13	18	20	14	13
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Singapore	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
South Korea	4	4	2	7	6	4	3	0	5	3	4	3	8	5	11	10	8	12	10
Taiwan	10	6	1	6	6	8	0	5	2	1	3	4	6	0	8	4	2	5	2
All others	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Middle East	1	4	3	1	1	2	1	1	2	1	1	2	5	2	6	2	6	5	6
Israel	1	4	3	1	1	2	1	1	2	1	1	1	4	0	4	2	3	3	4
All others	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	3	2	2
Africa	0	0	1	0	0	0	0	1	3	1	1	0	2	0	0	0	1	1	0
South Africa	0	0	1	0	0	0	0	1	3	1	1	0	2	0	0	0	1	1	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	1	2	1	4	4	4	3	2	3	4	2	1	1	7	3	1	2	5	2
Australia	1	1	1	4	4	4	3	2	3	4	1	1	1	6	3	1	2	5	2
New Zealand	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Unclassified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

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Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-73

USPTO patents granted in water pollution control technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	362	404	460	484	444	402	382	326	336	412	367	381	457	443	482	487	506	521	520
North America	236	274	312	318	284	271	261	225	247	272	249	258	288	284	293	312	303	313	327
Canada	21	23	33	30	31	21	23	16	17	15	22	21	18	23	27	24	17	24	19
Mexico	0	0	1	3	1	1	0	1	0	0	1	0	0	0	1	2	2	1	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	214	252	278	285	252	249	238	208	230	257	227	236	270	261	265	285	284	288	308
Central and South America	0	0	0	2	2	1	2	1	0	3	2	4	0	9	0	2	2	7	8
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Brazil	0	0	0	0	1	1	1	0	0	1	1	0	0	4	0	0	0	0	3
All others	0	0	0	2	1	0	1	1	0	2	1	4	0	5	0	1	2	6	5
Europe	63	70	73	87	73	51	47	44	28	52	43	44	78	56	66	63	82	70	77
EU	56	60	68	78	70	48	43	40	25	46	39	40	71	48	56	52	75	62	63
Austria	4	1	0	1	2	1	1	2	1	1	3	1	3	0	1	0	1	3	2
Belgium	1	0	2	1	1	1	3	0	1	1	1	2	1	1	2	3	5	2	3
Denmark	0	4	4	5	3	2	0	1	0	0	6	5	3	3	4	1	0	2	0
Finland	1	1	1	2	2	2	2	0	2	1	1	0	5	0	0	3	4	2	1

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	7	9	10	17	14	10	6	7	5	12	8	6	12	10	11	13	7	8	9
Germany	20	24	25	28	24	16	8	15	6	12	8	10	19	15	17	16	23	21	19
Hungary	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	1	1	0
Ireland	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0
Italy	4	1	5	1	2	2	2	0	1	2	4	1	5	0	3	4	2	4	8
Netherlands	3	8	4	5	11	4	4	3	0	1	1	2	4	6	0	1	8	6	6
Spain	0	1	0	2	1	0	1	1	0	1	2	1	2	1	0	1	3	0	2
Sweden	7	2	8	6	4	1	6	4	2	3	3	2	9	3	5	1	2	2	4
United Kingdom	6	7	6	9	4	7	9	6	6	9	2	10	4	6	11	6	15	7	4
All others	3	2	2	1	1	0	0	2	0	2	1	0	2	1	1	1	3	3	5
Other Europe	7	9	6	10	3	4	4	4	3	6	3	5	7	8	10	12	8	8	13
Former Soviet Union	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Norway	2	2	1	1	0	1	2	1	1	2	0	3	5	2	4	3	0	2	9
Russia	4	4	2	5	2	3	1	1	1	1	3	1	2	3	2	4	3	0	1
Switzerland	1	3	3	2	1	0	1	2	0	2	0	0	1	2	4	4	5	6	3
All others	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Asia	55	54	62	64	72	63	60	45	52	74	63	66	73	76	97	84	84	101	84
China	2	1	1	2	2	0	1	1	4	4	3	4	6	7	14	10	20	19	15
India	1	0	1	0	1	6	0	4	2	4	2	5	1	5	3	3	4	4	6

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	31	38	49	50	47	47	42	29	35	45	44	32	46	45	56	37	35	44	39
Malaysia	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	0
Singapore	0	0	0	0	0	0	1	0	0	0	2	1	0	1	1	0	0	2	1
South Korea	17	11	5	6	14	7	10	3	7	7	4	13	14	7	11	23	17	25	18
Taiwan	4	4	6	6	8	2	6	8	4	12	10	11	4	9	11	10	6	6	4
All others	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	1
Middle East	3	2	6	3	3	7	3	3	3	5	2	5	7	10	14	19	15	22	18
Israel	3	1	3	3	1	6	2	2	2	3	1	4	6	7	7	7	7	6	7
All others	0	1	3	0	2	1	1	1	1	2	1	1	1	3	7	11	8	16	11
Africa	0	0	2	7	2	1	2	2	4	3	0	1	1	2	2	4	1	2	3
South Africa	0	0	2	7	2	1	1	2	3	2	0	0	1	2	2	2	1	1	2
All others	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	2	0	1	1
Australia and Oceania	4	3	3	3	8	7	7	6	2	4	7	4	10	6	9	2	18	7	4
Australia	4	2	3	3	8	6	7	6	2	4	6	3	7	6	9	2	17	7	4
New Zealand	1	1	0	0	0	1	0	0	0	0	1	1	3	0	0	0	1	0	0
Unclassified	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

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Source(s)

Science-Metrix; PatentsView and USPTO patent data.

Science and Engineering Indicators 2018

CHAPTER 6 | Industry, Technology, and the Global Marketplace

APPENDIX TABLE 6-74

USPTO patents granted in recycling technology, by region, country, or economy: 1998–2016

(Number)

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	330	288	242	257	235	226	197	133	125	129	111	141	186	204	225	275	282	285	248
North America	199	191	135	151	132	124	108	68	58	55	65	83	100	109	120	147	153	135	132
Canada	17	19	10	12	10	9	11	8	8	5	9	5	4	7	11	8	18	10	6
Mexico	1	0	0	0	2	1	0	0	0	1	0	0	1	1	3	2	0	0	1
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	181	172	125	139	119	114	97	60	50	49	55	78	95	100	106	137	135	125	125
Central and South America	0	1	0	1	1	1	1	0	0	1	0	0	2	6	2	4	2	1	4
Argentina	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Brazil	0	0	0	1	1	0	0	0	0	0	0	0	1	4	0	4	1	1	3
All others	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2	0	1	0	2
Europe	62	55	53	60	51	49	31	22	24	37	16	23	40	42	50	53	56	69	56
EU	53	53	45	55	51	47	28	19	20	34	13	19	37	42	47	49	54	67	51
Austria	2	2	1	0	4	3	1	3	3	8	0	3	0	2	3	3	5	7	9
Belgium	0	1	1	2	1	2	1	0	4	3	0	1	2	2	1	6	5	1	2
Denmark	0	2	0	0	2	1	0	0	0	0	1	0	2	2	0	0	0	0	1
Finland	2	3	1	5	3	5	0	2	1	1	2	1	1	0	5	0	1	3	2

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	4	5	9	9	5	1	2	1	0	2	1	3	8	4	4	4	3	8	7
Germany	24	24	21	23	17	18	12	5	4	5	5	5	7	19	18	12	18	27	10
Hungary	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Italy	7	4	5	1	3	5	6	0	3	3	2	2	9	3	5	6	4	6	6
Netherlands	5	5	1	1	4	1	0	1	2	2	0	0	0	4	2	2	3	3	1
Spain	0	0	1	1	0	1	0	0	0	1	1	0	0	1	1	7	2	1	0
Sweden	2	2	3	3	3	2	1	2	2	2	0	1	1	0	0	4	1	0	1
United Kingdom	7	5	2	8	6	6	3	2	1	7	1	2	3	2	5	2	9	6	9
All others	0	0	0	1	2	2	2	2	0	1	1	1	3	2	2	2	2	6	1
Other Europe	9	2	8	5	0	2	2	3	4	3	3	4	3	0	3	4	2	2	5
Former Soviet Union	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1
Norway	0	1	0	1	0	0	2	0	1	0	0	0	0	0	0	1	0	0	1
Russia	1	0	0	0	0	1	0	1	1	2	2	1	1	0	1	0	0	1	1
Switzerland	6	1	8	4	0	1	1	2	2	0	1	2	2	0	2	2	0	1	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Asia	62	40	50	42	50	46	53	41	41	33	25	30	42	44	45	63	56	66	49
China	3	0	0	0	2	2	2	1	3	1	0	2	0	2	5	5	10	12	11
India	0	0	1	2	3	0	2	2	1	2	0	3	1	2	1	0	3	0	3

CHAPTER 6 | Industry, Technology, and the Global Marketplace

Region, country, or economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	48	31	46	29	34	36	40	31	32	21	19	21	32	30	26	34	27	30	25
Malaysia	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	1	0	1	3	0	0	1	0	1	0	0	0	0
South Korea	3	5	2	10	7	0	3	4	1	1	3	4	5	6	7	14	12	18	6
Taiwan	6	3	1	1	3	8	5	3	3	5	3	0	3	5	5	8	5	6	4
All others	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Middle East	3	0	1	1	1	3	1	0	1	0	2	1	1	0	5	8	8	11	5
Israel	3	0	1	1	1	3	1	0	1	0	2	1	1	0	2	3	4	4	2
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	5	7	3
Africa	0	0	1	1	0	0	1	1	1	0	1	0	0	1	1	0	2	0	0
South Africa	0	0	1	1	0	0	1	1	1	0	1	0	0	1	1	0	2	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	3	1	1	0	1	2	2	1	0	3	2	2	1	2	2	0	5	3	1
Australia	3	1	1	0	1	2	2	1	0	3	2	1	1	2	2	0	4	3	1
New Zealand	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Unclassified	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

CHAPTER 6 | Industry, Technology, and the Global Marketplace

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Science and Engineering Indicators 2018