NATIONAL SCIENCE BOARD
SCIENCE & ENGINEERING INDICATORS 2024

Innovation

Invention, Knowledge Transfer, and Innovation

Supplemental Tables

NSB-2024-1
February 29, 2024

This publication is part of the 2024 edition of the *Science and Engineering Indicators* (*Indicators*) suite of reports. *Indicators* is prepared under the guidance of the National Science Board by the National Science Foundation's National Center for Science and Engineering Statistics. The *Indicators* suite consists of a summary report called *The State of U.S. Science and Engineering*, more-detailed thematic reports with supporting data, and a data tool that provides state-level indicators.

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Table SINV-1

USPTO utility patents granted to owners, by sector: 2000–22

(Number)

Owner and sector	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	157,595	166,158	167,400	169,077	164,384	143,891	173,822	157,331	157,788	167,463	219,848	224,871	253,633	278,518	301,643	299,382	304,126	320,003	308,853	355,923	353,701	329,097	324,698
Assigned to foreign owner	69,232	75,250	77,832	79,037	78,084	67,615	82,239	76,192	78,216	83,055	109,149	113,068	128,616	139,354	150,216	151,166	152,731	159,565	154,380	177,043	176,569	166,580	172,529
Assigned to owner from unknown location	49	45	50	37	23	20	33	47	27	28	33	33	26	35	53	29	39	25	19	25	35	50	66
Assigned to U.S. owner	88,314	90,863	89,518	90,003	86,277	76,256	91,551	81,092	79,545	84,380	110,667	111,770	124,991	139,130	151,374	148,187	151,356	160,413	154,454	178,854	177,097	162,467	152,102
Academic	3,386	3,507	3,498	3,504	3,262	2,876	3,520	3,215	3,024	3,265	4,516	4,414	5,042	5,625	6,086	6,180	6,630	7,005	6,892	7,795	7,841	7,219	6,651
Government	1,057	1,148	1,122	1,078	1,019	844	1,008	946	905	931	1,257	1,195	1,359	1,446	1,430	1,376	1,299	1,342	1,312	1,431	1,225	1,231	1,181
Individual	16,122	15,186	14,122	13,548	12,181	10,482	12,006	10,050	9,205	9,210	12,556	11,906	12,810	13,914	14,420	14,078	13,902	14,348	13,760	15,173	14,758	14,265	12,886
Other	396	437	406	383	361	292	371	303	262	300	449	446	491	562	565	540	485	612	557	726	693	711	773
Business	67,093	70,497	70,294	71,416	69,389	61,723	74,610	66,550	66,130	70,646	91,856	93,769	105,242	117,539	128,672	125,739	128,858	136,724	131,419	152,821	151,535	137,994	129,351
Unclassified	260	89	76	74	64	38	36	29	19	28	33	41	48	44	200	275	181	382	515	909	1,045	1,047	1,261

USPTO = Patent and Trademark Office.

Note(s):
Patents are allocated according to patent ownership information. Patents are credited on a fractional-count basis (i.e., for patents with collaborating institutions, each institution receives fractional credit on the basis of the proportion of inventors from participating institutions). Business covers the for-profit business sector. Government includes federal, state, local, and municipal and federally funded research and development centers. Other includes private nonprofits, such as foundations, associations, nonacademic hospitals, and research-performing institutions.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

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Table SINV-2

Regions, countries, or economies in patent and trademark data: 1998–2022

(Regions, countries, or economies)

North America	Central America and Caribbean	South America	EU	Other Europe	Middle East	Africa	Asia	Australia and Oceania
Canada	Antigua and Barbuda	Argentina	EU-27 United Kingdom	Albania	Armenia	Algeria	Afghanistan	Australia
Greenland	Bahamas, The	Bolivia	United Kingdom[a]	Andorra	Azerbaijan	Angola	Bangladesh	Cook Islands
Mexico	Barbados	Brazil	EU-27[b]	Belarus	Bahrain	Benin	Brunei	Fiji
United States	Belize	Chile	Austria	Bosnia and Herzegovina	Georgia	Burkina Faso	Burma	Kiribati
	Costa Rica	Colombia	Belgium	Holy See (Vatican City)	Iran	Cameroon	Cambodia	Marshall Islands
	Cuba	Ecuador	Bulgaria	Iceland	Iraq	Chad	China	Nauru
	Dominica	Guyana	Croatia	Liechtenstein	Israel	Congo, Democratic Republic of the	India	New Zealand
	Dominican Republic	Paraguay	Cyprus	Moldova	Jordan	Congo, Republic of the	Indonesia	Palau
	El Salvador	Peru	Czechia	Monaco	Kuwait	Côte d'Ivoire	Japan	Samoa
	Grenada	Suriname	Denmark	Montenegro	Lebanon	Djibouti	Kazakhstan	Solomon Islands
	Guatemala	Uruguay	Estonia	North Macedonia	Oman	Egypt	Kyrgyzstan	Vanuatu
	Haiti	Venezuela	Finland	Norway	Qatar	Eritrea	Laos	
	Honduras		France	Russia	Saudi Arabia	Eswatini	Malaysia	
	Jamaica		Germany	San Marino	Syria	Ethiopia	Nepal	
	Nicaragua		Greece	Serbia	United Arab Emirates	Gabon	North Korea	
	Panama		Hungary	Serbia and Montenegro	Yemen	Gambia, The	Pakistan	
	Saint Kitts and Nevis		Ireland	Switzerland		Ghana	Papua New Guinea	
	Saint Lucia		Italy	Turkey		Guinea	Philippines	
	Saint Vincent and the Grenadines		Latvia	Ukraine		Kenya	Singapore	
	Trinidad and Tobago		Lithuania			Liberia	South Korea	
			Luxembourg			Libya	Sri Lanka	
			Malta			Madagascar	Taiwan	
			Netherlands			Mali	Tajikistan	
			Poland			Mauritius	Thailand	
			Portugal			Morocco	Uzbekistan	
			Romania			Namibia	Vietnam	
			Slovakia			Niger		
			Slovenia			Nigeria		
			Spain			Rwanda		

Table SINV-2

Regions, countries, or economies in patent and trademark data: 1998–2022

(Regions, countries, or economies)

North America	Central America and Caribbean	South America	EU	Other Europe	Middle East	Africa	Asia	Australia and Oceania
			Sweden			Senegal		
						Seychelles		
						Sierra Leone		
						South Africa		
						Tanzania		
						Togo		
						Tunisia		
						Uganda		
						Zambia		
						Zimbabwe		

EU-27 = European Union.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, Patent and Trademark Office, accessed June 2023.

Science and Engineering Indicators

Table SINV-3

Technical fields, by fields of technology in patent data: 1998–2022

(Category)

Technical field	Fields of technology
Basic materials chemistry	Chemistry
Biotechnology	Chemistry
Chemical engineering	Chemistry
Environmental technology	Chemistry
Food chemistry	Chemistry
Macromolecular chemistry, polymers	Chemistry
Materials, metallurgy	Chemistry
Microstructural and nanotechnology	Chemistry
Organic fine chemistry	Chemistry
Pharmaceuticals	Chemistry
Surface technology, coating	Chemistry
Audio-visual technology	Electrical engineering
Basic communication processes	Electrical engineering
Computer technology	Electrical engineering
Digital communication	Electrical engineering
Electrical machinery, apparatus, energy	Electrical engineering
IT methods for management	Electrical engineering
Semiconductors	Electrical engineering
Telecommunications	Electrical engineering
Analysis of biological materials	Instruments
Control	Instruments
Measurement	Instruments
Medical technology	Instruments
Optics	Instruments
Engines, pumps, turbines	Mechanical engineering
Handling	Mechanical engineering
Machine tools	Mechanical engineering
Mechanical elements	Mechanical engineering
Other special machines	Mechanical engineering
Textile and paper machines	Mechanical engineering
Thermal processes and apparatus	Mechanical engineering
Transport	Mechanical engineering
Civil engineering	Other fields
Furniture, games	Other fields
Other consumer goods	Other fields

IT = information technology.

Note(s):
Patent and Trademark Office patents and international patent families are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields and 5 fields of technology.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; WIPO, IPC, accessed June 2021.

Science and Engineering Indicators

Table SINV-4

USPTO utility patents granted to inventors, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	157,595	166,158	167,400	169,077	164,384	143,891	173,822	157,331	157,788	167,463	219,848	224,871	253,633	278,518	301,643	299,382	304,126	320,003	308,853	355,923	353,701	329,097	324,698
North America	na	88,257	91,063	90,214	91,143	87,456	77,318	93,050	82,570	80,599	85,695	112,189	113,271	126,383	139,855	151,266	147,435	149,944	157,656	150,751	174,536	171,850	157,017	148,710
Canada	High	3,401	3,594	3,448	3,448	3,395	2,921	3,603	3,341	3,375	3,670	4,856	5,051	5,758	6,533	7,032	6,735	6,503	6,937	6,603	7,709	7,375	6,865	6,694
Mexico	Upper middle	79	90	108	91	91	82	72	59	64	64	101	103	135	164	185	182	238	295	341	384	348	283	261
United States	High	84,777	87,379	86,658	87,604	83,971	74,315	89,375	79,170	77,160	81,961	107,232	108,117	120,490	133,158	144,048	140,518	143,203	150,423	143,807	166,444	164,127	149,869	141,754
Central America and Caribbean	na	28	31	34	33	14	19	21	16	28	32	34	35	40	52	61	51	57	52	49	56	84	85	54
South America	na	209	224	206	244	208	138	216	185	180	208	285	355	366	446	552	550	513	605	590	724	769	762	762
Argentina	Upper middle	55	50	54	61	47	27	42	41	35	47	47	60	68	83	77	75	90	91	88	135	108	111	110
Brazil	Upper middle	102	116	99	132	106	75	130	92	101	111	181	223	201	261	352	337	318	398	389	452	510	503	507
Europe	na	27,102	29,385	29,174	28,887	26,859	22,765	26,346	23,726	23,722	24,146	33,134	33,474	39,097	44,407	48,747	48,585	49,114	51,855	50,145	57,097	55,801	51,615	51,011
EU-27 and United Kingdom[a]	na	25,229	27,338	27,243	26,972	25,068	21,315	24,595	22,161	22,031	22,384	30,741	30,927	36,239	40,985	44,997	44,589	44,992	47,517	45,934	52,361	51,061	47,109	46,545
United Kingdom	High	3,696	3,989	3,859	3,661	3,478	3,169	3,629	3,311	3,120	3,237	4,394	4,375	5,343	5,926	6,604	6,506	6,603	6,804	6,737	7,961	7,564	7,213	7,018
EU-27[b]	na	21,533	23,349	23,383	23,311	21,591	18,146	20,966	18,850	18,911	19,148	26,348	26,552	30,895	35,059	38,393	38,083	38,389	40,713	39,197	44,400	43,496	39,895	39,527
Austria	High	520	584	532	595	546	452	560	454	456	509	740	763	871	1,014	1,213	1,180	1,367	1,543	1,419	1,614	1,532	1,403	1,344
Belgium	High	707	738	725	636	630	530	621	532	517	601	831	810	882	1,064	1,205	1,155	1,238	1,304	1,298	1,447	1,375	1,251	1,318
Denmark	High	436	489	450	537	426	373	443	396	397	393	612	737	857	923	1,065	1,012	1,084	1,121	1,122	1,223	1,199	1,178	1,190
Finland	High	618	743	824	868	924	726	955	858	824	866	1,143	960	1,060	1,227	1,363	1,386	1,513	1,616	1,453	1,529	1,476	1,265	1,340
France	High	3,839	4,067	4,039	3,879	3,406	2,903	3,463	3,152	3,185	3,167	4,478	4,558	5,394	6,148	6,723	6,597	6,465	6,836	6,519	7,285	7,124	6,418	6,365
Germany	High	10,255	11,276	11,309	11,462	10,784	9,040	10,052	9,080	8,952	9,017	12,387	11,931	13,889	15,572	16,589	16,588	15,975	16,924	16,072	18,403	17,887	16,291	16,015
Hungary	High	39	59	49	74	51	48	54	49	66	50	93	104	110	137	159	159	178	180	137	177	172	160	179
Ireland	High	129	142	126	163	185	158	186	151	174	193	278	328	356	432	506	508	590	612	690	833	969	908	875
Italy	High	1,703	1,728	1,760	1,723	1,605	1,316	1,496	1,318	1,369	1,377	1,842	1,922	2,167	2,531	2,653	2,686	2,712	2,751	2,862	3,249	3,243	3,007	2,976
Netherlands	High	1,269	1,329	1,392	1,330	1,286	1,005	1,339	1,273	1,324	1,318	1,660	1,766	1,954	2,277	2,530	2,424	2,600	2,752	2,738	3,066	2,891	2,566	2,418
Spain	High	275	276	323	325	273	274	313	282	317	339	436	492	673	738	805	850	795	891	898	974	1,057	966	1,069
Sweden	High	1,584	1,746	1,668	1,511	1,286	1,132	1,251	1,068	1,065	1,010	1,436	1,715	2,090	2,301	2,775	2,664	2,863	3,049	2,835	3,149	3,054	2,999	2,933
Other Europe	na	1,873	2,047	1,932	1,915	1,791	1,450	1,751	1,565	1,691	1,762	2,393	2,548	2,859	3,422	3,749	3,997	4,122	4,338	4,211	4,736	4,740	4,506	4,466
Other Europe (2020)[b]	na	5,569	6,036	5,791	5,576	5,269	4,619	5,381	4,877	4,811	4,998	6,787	6,922	8,202	9,348	10,354	10,502	10,725	11,141	10,948	12,697	12,304	11,719	11,484
Belarus	Upper middle	3	9	3	6	3	2	6	9	8	7	10	7	8	9	12	12	15	14	11	16	20	19	32
Moldova	Upper middle	0	0	0	1	1	1	0	0	0	0	0	1	1	0	1	1	1	2	2	2	2	3	4
Norway	High	247	266	249	258	247	223	239	243	263	267	391	369	445	479	549	616	609	605	600	662	710	624	622
Russia	Upper middle	201	255	220	223	188	167	199	201	200	216	307	331	365	439	474	498	557	569	565	626	686	655	656
Switzerland	High	1,343	1,428	1,366	1,335	1,267	991	1,212	1,033	1,126	1,193	1,584	1,713	1,882	2,303	2,464	2,577	2,631	2,768	2,692	2,997	2,897	2,792	2,759
Ukraine	Lower middle	19	24	30	23	21	20	27	20	25	20	20	28	48	44	52	66	76	79	62	95	93	87	87
Asia	na	40,182	43,272	45,529	46,342	47,538	41,503	51,307	48,183	50,497	54,413	70,164	73,319	83,041	88,216	94,762	96,382	98,010	102,597	100,059	115,047	116,600	111,087	115,599
China	Upper middle	326	461	561	614	740	744	1,057	1,193	1,606	2,042	3,215	3,720	5,359	6,681	8,122	9,021	11,439	14,286	15,477	20,378	22,500	24,471	27,769
India	Lower middle	141	187	265	354	369	401	511	566	651	709	1,144	1,277	1,756	2,456	3,073	3,457	3,767	4,271	4,315	5,478	5,917	6,009	6,349

Table SINV-4

USPTO utility patents granted to inventors, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	31,362	33,279	34,913	35,567	35,441	30,381	36,870	33,410	33,725	35,557	44,977	46,337	50,899	52,270	54,317	52,809	50,168	50,073	47,904	54,037	52,116	46,841	45,983
Malaysia	Upper middle	44	34	58	48	85	94	123	171	159	156	200	177	213	222	268	267	275	270	252	290	270	261	256
Singapore	High	226	307	420	438	457	345	412	391	406	436	616	650	805	793	933	961	989	1,023	974	1,115	1,039	997	1,058
South Korea	High	3,332	3,548	3,792	3,952	4,429	4,365	5,901	6,299	7,544	8,776	11,669	12,254	13,236	14,556	16,529	17,963	19,576	20,815	19,901	21,871	22,204	20,924	22,147
Taiwan	High	4,705	5,397	5,444	5,299	5,951	5,115	6,350	6,104	6,345	6,666	8,235	8,794	10,638	11,077	11,342	11,688	11,576	11,606	10,995	11,569	12,234	11,285	11,782
Middle East	na	841	1,022	1,094	1,236	1,089	980	1,274	1,163	1,250	1,478	1,937	2,123	2,752	3,406	3,988	4,182	4,357	4,898	4,956	5,934	6,039	6,107	6,106
Israel	High	789	983	1,046	1,189	1,053	936	1,217	1,111	1,183	1,413	1,839	1,976	2,482	3,008	3,486	3,631	3,713	4,100	4,038	4,668	4,721	4,588	4,418
Africa	na	130	137	129	136	124	114	129	99	109	112	151	155	188	223	234	228	251	264	246	271	251	219	240
South Africa	Upper middle	112	119	112	111	102	90	109	78	90	90	121	120	140	163	154	161	181	187	152	192	160	129	150
Australia and Oceania	na	819	1,012	1,009	1,048	1,094	1,052	1,472	1,382	1,400	1,374	1,944	2,129	1,754	1,893	2,014	1,934	1,831	2,028	2,009	2,220	2,273	2,167	2,184
Australia	High	710	882	861	909	957	929	1,334	1,271	1,295	1,242	1,770	1,943	1,530	1,643	1,753	1,667	1,561	1,709	1,680	1,839	1,898	1,787	1,775
New Zealand	High	109	129	147	137	135	122	137	111	104	132	171	185	223	250	260	267	270	314	328	377	370	377	408
Unclassified	na	25	12	11	8	2	2	6	5	3	5	10	10	12	20	19	34	49	47	48	37	35	39	32

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-5

USPTO utility patents granted in chemistry, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	30,824	32,875	32,803	30,839	26,965	22,240	25,673	23,863	22,834	24,336	32,975	33,228	36,771	40,979	43,719	43,333	42,327	44,402	42,591	46,097	46,273	43,261	41,042
North America	na	17,452	18,080	18,005	16,895	14,531	12,288	14,279	13,177	12,503	13,293	17,471	17,329	19,234	21,202	22,377	21,812	21,344	22,659	21,336	23,099	23,164	21,612	19,455
Canada	High	738	781	805	703	631	486	622	567	562	618	769	811	850	922	968	976	888	942	935	934	966	895	829
Mexico	Upper middle	25	21	25	25	18	10	12	14	16	21	28	32	39	57	54	53	53	73	71	76	59	54	52
United States	High	16,690	17,278	17,175	16,167	13,883	11,792	13,645	12,595	11,925	12,653	16,674	16,486	18,345	20,223	21,354	20,782	20,403	21,644	20,330	22,089	22,139	20,663	18,574
Central America and Caribbean	na	10	12	21	16	7	7	6	4	11	5	11	10	13	18	25	19	16	13	11	14	13	13	11
South America	na	68	56	68	63	62	37	74	64	62	76	106	117	125	135	194	170	161	156	146	182	183	159	184
Argentina	Upper middle	14	11	15	18	13	6	17	13	12	16	10	17	17	23	17	18	20	27	20	35	20	22	25
Brazil	Upper middle	33	24	27	32	31	22	39	28	28	37	66	59	58	73	115	91	101	85	80	93	108	80	104
Europe	na	7,529	8,305	8,078	7,546	6,390	5,146	5,835	5,436	5,186	5,281	7,578	7,535	8,345	9,480	10,211	10,125	9,591	9,672	9,313	9,974	9,884	8,972	8,460
EU-27 and United Kingdom[a]	na	6,947	7,660	7,466	7,005	5,892	4,777	5,393	5,045	4,775	4,839	6,960	6,867	7,635	8,628	9,327	9,282	8,659	8,727	8,475	9,131	8,996	8,158	7,657
United Kingdom	High	1,110	1,166	1,068	1,002	861	696	818	814	724	697	1,018	985	1,111	1,134	1,199	1,278	1,165	1,218	1,233	1,349	1,273	1,167	1,070
EU-27[b]	na	5,837	6,494	6,398	6,003	5,031	4,082	4,575	4,231	4,051	4,141	5,942	5,882	6,524	7,494	8,128	8,004	7,494	7,509	7,242	7,782	7,724	6,992	6,587
Austria	High	109	144	137	109	98	84	79	102	74	92	144	138	154	189	243	208	232	222	224	234	229	227	167
Belgium	High	295	324	353	276	242	199	230	202	186	232	324	308	325	425	437	422	396	399	367	388	409	362	382
Denmark	High	207	231	198	213	137	139	149	143	132	142	229	251	261	297	313	279	305	265	301	282	322	324	287
Finland	High	108	145	133	136	133	96	96	74	82	91	127	113	108	125	140	161	167	179	191	200	209	165	186
France	High	1,210	1,367	1,296	1,218	877	780	832	872	798	786	1,127	1,138	1,257	1,481	1,528	1,513	1,472	1,432	1,402	1,420	1,498	1,283	1,299
Germany	High	2,693	2,967	2,918	2,808	2,483	1,899	2,162	1,873	1,777	1,782	2,540	2,431	2,824	3,181	3,486	3,349	2,932	2,986	2,801	3,095	2,935	2,653	2,412
Hungary	High	21	33	28	33	25	22	21	19	31	16	37	30	29	30	28	43	42	45	28	37	34	25	22
Ireland	High	19	20	21	28	29	25	21	15	24	26	34	46	41	58	57	61	53	61	59	63	68	63	65
Italy	High	430	438	450	375	334	274	334	291	303	297	470	449	491	540	580	586	592	539	566	599	564	511	507
Netherlands	High	361	362	381	353	330	263	266	282	262	309	402	436	417	526	604	619	595	641	612	697	669	596	541
Spain	High	71	75	103	95	70	68	88	81	94	102	136	134	184	179	213	245	198	227	212	218	234	215	230
Sweden	High	254	319	313	288	220	183	227	202	228	183	272	283	310	303	337	340	312	333	309	353	376	360	324
Other Europe	na	582	645	612	541	498	369	442	391	411	443	618	669	710	852	884	842	932	944	838	843	887	814	803
Other Europe (2020)[b]	na	1,692	1,811	1,680	1,543	1,359	1,065	1,260	1,205	1,135	1,140	1,636	1,653	1,821	1,987	2,083	2,120	2,096	2,162	2,071	2,192	2,160	1,980	1,873
Belarus	Upper middle	0	2	2	1	0	1	1	1	3	1	1	1	0	2	4	2	2	1	1	1	3	2	3
Moldova	Upper middle	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	66	65	64	63	73	50	46	50	53	59	77	79	83	104	117	119	123	118	103	100	115	101	92
Russia	Upper middle	73	80	83	66	61	51	57	63	53	65	88	84	71	112	110	97	108	109	99	87	83	68	75
Switzerland	High	421	467	433	378	342	250	311	257	274	296	429	472	519	593	606	582	653	655	587	610	641	586	584
Ukraine	Lower middle	5	12	11	7	7	7	6	5	9	4	4	8	12	11	10	11	13	9	5	10	12	14	15
Asia	na	5,322	5,912	6,096	5,818	5,548	4,387	5,005	4,760	4,654	5,161	7,164	7,527	8,296	9,170	9,880	10,130	10,187	10,752	10,564	11,538	11,735	11,099	11,571
China	Upper middle	67	77	99	93	127	97	149	171	170	222	366	388	570	759	975	1,090	1,306	1,522	1,654	2,065	2,240	2,399	2,815
India	Lower middle	103	130	191	227	201	188	229	209	204	197	262	260	334	409	487	565	588	647	585	593	584	526	503

Table SINV-5

USPTO utility patents granted in chemistry, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	4,537	4,962	5,013	4,688	4,388	3,429	3,807	3,575	3,413	3,737	5,107	5,370	5,583	5,877	6,077	5,992	5,716	5,729	5,459	5,874	5,788	5,193	5,135
Malaysia	Upper middle	4	3	6	7	12	10	10	11	10	16	20	21	41	41	43	26	27	27	32	23	32	25	23
Singapore	High	20	23	27	37	31	31	34	38	34	37	45	52	84	87	120	130	143	145	162	179	163	169	138
South Korea	High	323	385	432	454	462	383	475	451	496	611	878	945	1,037	1,212	1,384	1,570	1,692	1,916	1,921	2,028	2,134	2,043	2,192
Taiwan	High	253	316	315	300	311	240	289	298	313	334	475	475	625	755	768	712	677	719	707	724	737	691	720
Middle East	na	172	183	218	229	165	144	192	190	190	242	284	306	365	497	554	585	606	706	781	849	889	989	985
Israel	High	151	170	199	212	155	133	175	173	177	223	254	269	279	382	398	394	388	409	397	388	403	413	344
Africa	na	44	52	49	48	38	29	36	34	26	37	44	50	55	79	52	64	56	53	47	52	42	39	32
South Africa	Upper middle	32	44	43	39	32	25	27	26	21	30	34	41	46	63	38	50	43	39	31	35	31	22	18
Australia and Oceania	na	221	273	261	222	224	201	243	197	202	239	314	353	336	390	420	424	358	385	384	377	357	368	337
Australia	High	187	243	218	189	189	181	210	170	174	199	268	297	287	335	365	372	299	333	332	328	309	324	288
New Zealand	High	33	29	43	32	35	20	33	28	28	40	47	56	48	55	55	52	59	52	52	49	47	44	49
Unclassified	na	6	2	6	2	0	0	2	1	0	1	0	1	3	6	4	5	9	7	9	11	7	11	8

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Patents are allocated according to patent ownership information. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-6

USPTO utility patents granted in electrical engineering, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	51,793	55,779	57,605	59,897	63,710	57,541	75,425	68,782	72,270	79,245	102,331	105,791	121,276	132,248	144,663	142,364	146,195	150,685	143,330	166,080	166,442	156,057	154,745
North America	na	27,589	29,357	29,675	30,879	32,731	29,813	39,174	34,933	35,998	39,534	50,737	51,373	58,043	64,233	71,168	68,314	69,273	70,904	66,864	78,245	77,581	70,661	67,206
Canada	High	794	825	811	895	1,026	936	1,302	1,271	1,412	1,596	2,181	2,377	2,872	3,322	3,627	3,323	3,061	3,088	2,805	3,355	3,163	2,931	2,875
Mexico	Upper middle	11	13	13	15	19	26	19	12	13	11	24	18	34	26	34	31	65	63	68	80	81	73	58
United States	High	26,784	28,519	28,851	29,968	31,686	28,851	37,853	33,649	34,573	37,926	48,531	48,978	55,138	60,885	67,506	64,959	66,146	67,753	63,991	74,810	74,337	67,658	64,273
Central America and Caribbean	na	2	4	2	2	1	1	1	2	4	8	11	4	10	11	13	17	22	22	20	16	38	46	25
South America	na	13	22	21	15	18	19	24	25	27	41	46	64	62	88	112	125	124	149	165	199	249	294	276
Argentina	Upper middle	5	5	1	2	2	1	5	7	1	8	8	11	15	21	16	24	25	21	27	45	40	48	47
Brazil	Upper middle	3	13	14	12	12	12	13	14	22	28	32	49	40	58	84	91	86	113	121	133	184	212	199
Europe	na	5,544	6,040	6,366	6,634	7,006	6,343	8,072	7,249	7,600	8,103	10,884	11,074	13,203	14,820	16,654	16,616	17,655	18,147	17,388	19,909	19,420	18,342	18,097
EU-27 and United Kingdom[a]	na	5,276	5,748	6,077	6,313	6,645	6,028	7,673	6,869	7,183	7,648	10,296	10,392	12,406	13,884	15,594	15,417	16,332	16,752	16,005	18,268	17,812	16,755	16,527
United Kingdom	High	855	957	984	986	1,087	1,075	1,303	1,220	1,218	1,345	1,645	1,676	2,087	2,424	2,744	2,624	2,727	2,723	2,644	3,206	3,203	3,053	2,977
EU-27[b]	na	4,422	4,791	5,093	5,327	5,558	4,953	6,370	5,649	5,965	6,303	8,651	8,716	10,320	11,460	12,850	12,794	13,605	14,029	13,360	15,062	14,609	13,702	13,549
Austria	High	88	80	87	136	127	112	160	121	153	170	248	257	301	297	391	426	517	606	530	599	547	495	461
Belgium	High	111	116	98	125	154	131	158	135	149	172	233	224	267	289	331	335	396	371	377	446	409	380	410
Denmark	High	50	59	73	85	90	80	125	96	114	114	168	177	245	250	278	269	297	309	298	347	305	281	287
Finland	High	251	293	360	419	481	390	588	569	533	558	716	619	658	786	886	869	948	914	784	817	772	691	675
France	High	892	920	1,019	932	1,007	861	1,174	1,004	1,067	1,106	1,553	1,507	1,841	2,114	2,226	2,171	2,207	2,248	2,154	2,380	2,253	2,215	2,118
Germany	High	1,742	1,883	1,974	2,162	2,370	2,192	2,649	2,437	2,558	2,694	3,760	3,549	4,005	4,311	4,740	4,788	4,869	5,024	4,798	5,562	5,419	4,981	4,998
Hungary	High	7	7	8	26	13	13	11	18	20	23	30	50	57	71	93	86	85	82	64	89	69	78	73
Ireland	High	42	68	54	68	90	68	95	77	92	90	137	166	200	227	278	302	336	353	416	487	586	567	499
Italy	High	349	393	395	375	334	318	374	318	366	363	453	519	594	727	779	757	763	808	760	855	886	800	784
Netherlands	High	385	404	443	475	442	320	491	442	441	438	557	646	710	801	832	772	885	871	896	860	820	757	707
Spain	High	40	39	35	45	51	52	80	67	85	98	109	132	210	238	240	237	249	253	259	272	274	268	310
Sweden	High	449	505	523	450	369	373	410	305	309	356	524	689	966	1,062	1,395	1,394	1,583	1,636	1,478	1,666	1,553	1,499	1,487
Other Europe	na	268	292	289	321	361	315	399	380	418	456	589	682	797	937	1,060	1,199	1,324	1,395	1,383	1,641	1,608	1,588	1,570
Other Europe (2020)[b]	na	1,122	1,249	1,273	1,307	1,448	1,390	1,702	1,600	1,635	1,801	2,233	2,357	2,883	3,361	3,804	3,822	4,051	4,118	4,027	4,847	4,811	4,640	4,548
Belarus	Upper middle	2	3	0	1	0	1	2	5	2	3	5	3	4	3	3	2	4	4	6	9	10	14	18
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	2	2	3
Norway	High	32	33	31	33	46	43	46	67	62	60	86	74	120	109	123	163	180	153	181	203	195	181	177
Russia	Upper middle	46	62	48	63	49	50	66	61	79	83	121	152	184	187	225	259	299	316	317	393	426	436	423
Switzerland	High	177	178	193	211	244	207	267	231	259	296	357	420	427	576	632	670	725	784	762	879	813	795	805
Ukraine	Lower middle	2	1	5	4	4	4	4	3	4	6	4	10	25	20	32	44	46	50	39	59	57	50	54
Asia	na	18,225	19,817	20,971	21,671	23,203	20,632	27,094	25,614	27,596	30,401	39,093	41,494	47,893	50,690	53,911	54,354	56,043	58,116	55,617	63,941	65,430	63,130	65,469
China	Upper middle	106	162	213	240	317	345	559	631	941	1,256	1,963	2,390	3,502	4,423	5,268	5,679	7,395	9,092	9,684	12,773	14,148	15,575	17,480
India	Lower middle	20	39	47	87	111	160	223	271	365	423	763	854	1,191	1,693	2,189	2,446	2,695	2,972	3,023	4,006	4,313	4,502	4,821

Table SINV-6

USPTO utility patents granted in electrical engineering, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	13,424	14,335	15,469	16,146	16,709	14,606	18,622	16,599	16,992	18,149	22,522	23,413	26,260	26,403	26,646	25,230	23,683	23,677	21,873	24,630	23,546	20,980	20,365
Malaysia	Upper middle	18	23	30	23	40	56	73	109	96	100	134	115	126	130	170	178	189	168	159	197	174	192	175
Singapore	High	143	206	297	289	318	217	294	263	280	309	451	479	580	554	621	616	626	614	569	596	571	533	616
South Korea	High	2,049	2,136	2,212	2,252	2,568	2,515	3,670	4,038	4,971	6,001	8,031	8,519	9,213	10,173	11,435	12,334	13,457	13,701	12,877	14,030	14,317	13,498	13,909
Taiwan	High	2,449	2,903	2,679	2,607	3,111	2,710	3,611	3,676	3,924	4,124	5,176	5,663	6,952	7,231	7,499	7,772	7,894	7,769	7,310	7,551	8,203	7,699	7,968
Middle East	na	291	358	381	473	485	465	619	545	615	722	986	1,105	1,508	1,824	2,161	2,324	2,388	2,617	2,562	2,962	2,938	2,818	2,865
Israel	High	286	351	371	465	479	455	605	538	603	710	958	1,070	1,439	1,728	2,049	2,202	2,241	2,440	2,398	2,728	2,696	2,555	2,593
Africa	na	18	19	21	16	22	24	22	16	27	22	39	39	52	54	77	75	102	103	89	112	97	89	99
South Africa	Upper middle	14	14	17	13	18	21	19	10	21	16	30	26	24	27	36	42	62	63	40	71	51	45	56
Australia and Oceania	na	105	158	167	205	243	241	418	396	402	413	531	636	498	520	559	526	571	605	609	688	677	665	697
Australia	High	89	139	143	175	225	220	393	378	379	377	489	590	444	459	502	461	510	530	538	599	587	564	553
New Zealand	High	16	19	23	30	18	21	25	19	23	35	42	45	54	61	56	65	61	75	72	89	90	100	144
Unclassified	na	7	4	2	3	0	1	1	1	1	1	4	3	7	7	7	15	18	22	15	8	11	12	10

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Patents are allocated according to patent ownership information. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-7

USPTO utility patents granted in instruments, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	26,044	27,077	27,812	30,521	29,311	25,590	30,314	27,990	27,800	29,189	38,141	38,947	43,243	47,512	50,221	49,197	50,451	54,144	52,718	62,787	61,246	56,401	56,045
North America	na	15,015	15,519	15,561	17,317	16,032	13,989	16,369	14,772	14,101	14,669	19,535	20,192	22,399	24,783	25,717	24,645	25,622	27,747	26,397	31,809	30,944	28,494	27,427
Canada	High	433	482	480	564	517	414	476	443	448	465	607	621	659	793	821	800	853	993	973	1,214	1,156	1,076	1,085
Mexico	Upper middle	5	7	12	14	18	17	16	11	10	9	10	14	16	20	24	23	27	32	29	43	36	36	32
United States	High	14,577	15,030	15,070	16,738	15,498	13,559	15,878	14,318	13,643	14,196	18,918	19,557	21,723	23,971	24,872	23,822	24,742	26,722	25,395	30,551	29,751	27,383	26,311
Central America and Caribbean	na	7	4	5	3	2	3	6	3	2	7	3	5	4	10	6	8	7	7	9	6	13	12	8
South America	na	34	41	39	50	31	29	32	22	21	29	36	55	68	79	81	84	62	118	101	119	118	100	102
Argentina	Upper middle	14	14	16	20	13	10	7	7	4	14	10	17	18	20	24	16	18	24	22	29	30	25	20
Brazil	Upper middle	16	15	11	20	8	11	19	8	13	10	19	27	35	34	43	44	28	59	56	67	63	60	57
Europe	na	3,978	4,250	4,398	4,687	4,429	3,765	4,360	4,113	4,170	4,170	5,714	5,565	6,579	7,641	8,386	8,104	8,460	9,252	8,960	10,626	10,122	9,243	9,353
EU-27 and United Kingdom[a]	na	3,640	3,879	4,002	4,278	4,018	3,409	3,973	3,729	3,729	3,738	5,112	4,986	5,896	6,852	7,515	7,144	7,500	8,280	8,006	9,491	9,109	8,235	8,354
United Kingdom	High	624	641	656	653	646	559	607	542	501	520	762	711	873	1,037	1,129	1,107	1,251	1,235	1,142	1,432	1,293	1,204	1,199
EU-27[b]	na	3,016	3,238	3,346	3,625	3,372	2,850	3,366	3,188	3,228	3,218	4,350	4,275	5,023	5,815	6,385	6,037	6,249	7,045	6,865	8,059	7,817	7,031	7,154
Austria	High	64	64	64	77	81	58	83	59	68	76	111	124	144	177	205	201	248	276	241	296	285	251	279
Belgium	High	127	108	93	89	69	51	80	71	70	64	86	101	99	136	179	133	165	195	187	232	218	201	205
Denmark	High	65	59	68	101	82	69	78	67	56	69	99	123	121	147	194	162	158	207	212	247	221	201	215
Finland	High	79	82	89	99	101	78	96	96	88	96	147	102	116	140	163	147	185	210	201	247	225	185	228
France	High	535	541	507	565	473	423	445	440	474	456	666	672	843	950	1,060	1,000	991	1,161	1,056	1,258	1,237	1,055	1,043
Germany	High	1,401	1,589	1,736	1,843	1,775	1,504	1,689	1,605	1,603	1,626	2,190	2,043	2,434	2,781	2,879	2,801	2,844	3,138	3,072	3,502	3,397	3,082	3,126
Hungary	High	1	9	3	7	4	7	11	6	10	3	10	10	8	13	17	14	18	28	19	24	25	31	34
Ireland	High	32	18	22	42	35	42	48	43	28	53	77	80	70	88	115	95	142	127	151	200	230	201	231
Italy	High	173	211	191	233	210	156	176	178	164	171	220	231	267	342	358	350	354	352	403	459	456	441	418
Netherlands	High	201	205	227	227	243	187	332	337	393	359	404	391	427	497	608	548	557	659	638	823	725	633	581
Spain	High	30	21	33	28	21	26	26	33	37	37	37	49	69	87	98	99	94	115	107	142	143	136	149
Sweden	High	289	308	276	285	242	219	260	213	189	174	241	287	335	352	410	358	372	401	405	426	427	423	418
Other Europe	na	338	371	395	409	411	356	388	383	440	431	602	579	684	790	871	960	960	972	954	1,135	1,013	1,008	1,000
Other Europe (2020)[b]	na	963	1,012	1,052	1,062	1,057	914	994	925	942	951	1,364	1,290	1,556	1,826	2,001	2,067	2,211	2,207	2,096	2,568	2,306	2,212	2,199
Belarus	Upper middle	0	3	1	3	3	1	3	2	3	2	4	2	3	2	2	3	5	6	2	5	4	1	6
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Norway	High	36	43	47	56	57	50	58	60	74	59	94	94	102	111	118	119	98	113	106	136	125	102	99
Russia	Upper middle	40	52	46	52	40	44	44	44	41	43	54	45	58	79	85	71	83	72	73	67	84	78	73
Switzerland	High	242	262	286	281	302	247	261	253	291	307	420	407	487	564	624	707	705	693	701	830	710	739	727
Ukraine	Lower middle	6	3	4	6	4	4	6	7	7	4	5	5	9	5	5	6	11	10	7	14	9	8	9
Asia	na	6,638	6,813	7,316	7,926	8,320	7,392	8,982	8,576	9,011	9,729	12,090	12,289	13,258	13,821	14,767	15,082	15,026	15,444	15,678	18,212	17,990	16,520	17,140
China	Upper middle	29	35	64	73	90	85	104	145	195	247	398	403	518	611	878	1,090	1,362	1,885	2,206	2,940	3,071	3,241	3,640
India	Lower middle	8	9	17	26	31	33	35	55	59	56	64	85	103	185	223	226	260	350	381	477	528	496	520

Table SINV-7

USPTO utility patents granted in instruments, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	5,748	5,848	6,193	6,610	6,785	5,798	7,050	6,592	6,654	7,106	8,750	8,876	9,495	9,902	10,240	10,123	9,688	9,136	9,137	10,302	9,975	8,773	8,745
Malaysia	Upper middle	9	5	10	11	10	14	25	32	30	25	24	18	18	20	22	32	25	34	21	30	25	18	33
Singapore	High	29	35	38	48	50	54	36	38	54	49	64	61	78	74	95	116	120	152	155	190	184	155	184
South Korea	High	431	460	480	599	700	768	939	992	1,190	1,267	1,586	1,618	1,617	1,618	1,811	1,970	2,081	2,355	2,314	2,571	2,467	2,256	2,385
Taiwan	High	383	417	501	553	649	636	788	716	824	973	1,190	1,223	1,416	1,397	1,472	1,502	1,458	1,505	1,438	1,666	1,697	1,540	1,602
Middle East	na	211	294	316	331	283	230	315	280	299	362	463	470	548	689	769	795	842	1,036	1,046	1,407	1,446	1,423	1,345
Israel	High	205	287	309	323	276	221	303	268	286	350	444	436	506	614	677	692	727	895	875	1,130	1,199	1,141	1,029
Africa	na	16	15	14	15	14	13	23	16	9	14	17	21	30	33	37	35	35	46	46	46	42	44	51
South Africa	Upper middle	16	12	11	10	12	8	19	12	6	11	13	13	21	22	22	23	26	29	32	34	22	26	32
Australia and Oceania	na	142	139	162	188	196	169	228	207	187	210	282	347	356	452	456	439	388	484	473	556	564	561	613
Australia	High	124	123	133	167	165	141	202	185	167	185	250	318	307	401	408	373	331	402	376	436	439	433	487
New Zealand	High	18	16	29	22	30	26	25	21	20	25	31	29	49	50	48	67	57	82	96	119	124	128	125
Unclassified	na	2	1	2	2	2	0	0	1	1	0	1	3	1	4	4	5	8	9	9	6	7	4	7

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Patents are allocated according to patent ownership information. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-8

USPTO utility patents granted in mechanical engineering, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	35,703	37,615	36,604	35,837	33,203	29,035	31,801	27,416	26,041	25,610	33,628	34,410	38,523	42,395	45,959	47,251	47,394	51,862	51,605	59,146	58,229	53,332	53,274
North America	na	18,859	19,353	18,540	18,049	16,595	14,771	15,992	13,418	12,153	12,137	15,889	16,220	17,805	19,791	21,127	21,543	22,301	24,305	24,243	27,858	27,131	24,368	23,339
Canada	High	917	962	886	861	815	743	845	730	659	658	834	787	903	937	1,016	1,012	1,049	1,193	1,186	1,355	1,322	1,264	1,289
Mexico	Upper middle	27	37	40	26	25	20	22	15	19	13	26	25	28	36	49	50	53	103	139	144	134	97	97
United States	High	17,914	18,354	17,614	17,162	15,756	14,007	15,125	12,673	11,476	11,466	15,029	15,408	16,874	18,818	20,062	20,481	21,199	23,009	22,918	26,360	25,675	23,008	21,953
Central America and Caribbean	na	6	6	3	8	2	2	7	3	6	8	3	7	7	7	8	5	9	7	6	15	12	10	9
South America	na	67	87	57	82	69	34	64	53	46	43	70	92	83	98	107	116	126	144	127	159	151	146	129
Argentina	Upper middle	18	15	14	19	12	5	6	7	10	7	11	10	11	13	7	12	19	13	13	16	8	12	13
Brazil	Upper middle	38	60	36	52	47	23	47	34	31	27	49	75	57	66	81	79	83	115	100	122	110	113	98
Europe	na	8,236	8,887	8,492	8,313	7,576	6,305	6,648	5,740	5,605	5,338	7,190	7,408	8,831	9,941	10,764	11,067	10,665	11,956	11,648	13,235	13,087	12,032	12,141
EU-27 and United Kingdom[a]	na	7,711	8,328	8,001	7,822	7,165	5,981	6,237	5,428	5,298	5,017	6,786	6,967	8,364	9,362	10,131	10,409	10,078	11,276	10,975	12,512	12,302	11,338	11,446
United Kingdom	High	762	907	788	692	611	591	602	504	467	465	652	671	881	887	1,037	1,042	996	1,111	1,208	1,360	1,228	1,239	1,215
EU-27[b]	na	6,949	7,422	7,213	7,130	6,554	5,390	5,635	4,924	4,831	4,553	6,134	6,296	7,483	8,476	9,094	9,366	9,081	10,165	9,767	11,151	11,074	10,099	10,231
Austria	High	194	221	178	199	190	157	171	123	116	128	176	158	202	250	277	257	283	335	330	363	371	330	356
Belgium	High	155	150	151	124	139	121	134	107	93	110	135	137	139	169	197	209	209	271	285	292	250	226	255
Denmark	High	85	95	84	103	90	65	69	78	73	48	95	150	180	174	225	239	245	274	252	262	272	305	333
Finland	High	165	199	208	189	184	142	147	96	106	101	121	108	151	138	140	165	164	248	220	208	213	175	207
France	High	940	955	963	931	844	677	801	687	676	647	921	997	1,203	1,319	1,576	1,607	1,502	1,707	1,639	1,895	1,817	1,592	1,643
Germany	High	3,922	4,304	4,113	4,162	3,725	3,125	3,178	2,814	2,710	2,545	3,408	3,372	4,003	4,549	4,712	4,903	4,621	5,057	4,692	5,399	5,309	4,842	4,722
Hungary	High	8	8	9	6	8	5	10	5	3	7	10	12	12	21	15	13	27	19	19	22	36	18	44
Ireland	High	24	24	18	21	23	17	13	15	24	17	21	27	34	52	39	29	43	50	43	55	61	60	58
Italy	High	568	540	560	580	589	451	485	419	432	407	513	549	632	732	719	764	741	811	879	1,031	1,049	977	985
Netherlands	High	237	273	279	213	217	181	183	155	170	158	232	223	283	347	381	371	435	437	443	519	493	435	460
Spain	High	101	105	121	122	102	95	87	82	80	74	116	131	165	186	209	211	205	245	254	281	327	287	326
Sweden	High	502	509	484	417	383	302	305	297	293	255	315	354	395	435	491	464	448	535	501	539	550	549	544
Other Europe	na	525	558	491	491	411	323	411	311	307	321	404	441	467	578	633	659	587	679	672	724	786	694	695
Other Europe (2020)[b]	na	1,287	1,465	1,279	1,183	1,022	915	1,013	815	775	786	1,056	1,112	1,348	1,465	1,670	1,701	1,583	1,790	1,881	2,084	2,014	1,933	1,910
Belarus	Upper middle	1	2	0	2	0	0	0	2	0	1	0	1	1	1	0	1	1	1	0	1	3	0	3
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	1	1
Norway	High	67	69	57	58	41	50	52	33	33	48	71	62	69	72	94	89	91	98	97	97	126	109	124
Russia	Upper middle	36	53	37	33	29	18	24	24	19	19	27	39	36	40	36	44	39	42	46	52	66	45	61
Switzerland	High	402	413	372	375	313	237	312	239	240	236	282	316	342	427	448	468	411	485	461	481	501	458	429
Ukraine	Lower middle	5	8	7	6	6	5	9	4	4	5	6	3	2	7	5	4	5	7	5	8	10	9	5
Asia	na	8,133	8,800	9,046	8,892	8,510	7,457	8,489	7,583	7,575	7,517	9,618	9,848	11,154	11,910	13,231	13,861	13,580	14,693	14,841	17,033	16,955	15,911	16,759
China	Upper middle	56	81	84	97	103	117	121	124	161	178	268	332	466	587	641	760	837	1,095	1,237	1,690	1,881	1,966	2,429
India	Lower middle	9	9	8	12	22	18	19	27	16	27	45	63	103	137	142	175	172	224	249	300	388	377	391

Table SINV-8

USPTO utility patents granted in mechanical engineering, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	6,769	7,208	7,277	7,207	6,739	5,848	6,609	5,917	5,946	5,792	7,562	7,662	8,444	8,847	9,865	10,082	9,719	10,093	10,141	11,476	11,115	10,324	10,217
Malaysia	Upper middle	9	2	5	3	14	9	9	13	11	9	12	16	20	19	23	18	23	27	25	29	28	18	15
Singapore	High	23	35	46	51	45	32	31	45	22	28	34	42	49	55	65	68	70	71	60	92	82	90	73
South Korea	High	354	408	492	440	477	493	592	554	592	624	757	774	909	1,069	1,335	1,508	1,669	2,042	2,034	2,291	2,325	2,165	2,524
Taiwan	High	907	1,041	1,116	1,072	1,100	927	1,093	899	816	850	919	942	1,149	1,179	1,131	1,216	1,058	1,105	1,060	1,115	1,096	937	1,082
Middle East	na	128	137	132	153	111	100	110	108	98	109	144	171	220	278	350	316	350	371	361	447	444	496	508
Israel	High	111	128	120	143	105	93	101	101	87	97	136	145	180	217	271	251	272	258	261	314	312	360	340
Africa	na	35	30	28	29	32	29	29	22	30	28	38	21	29	36	33	36	41	45	44	35	42	22	36
South Africa	Upper middle	33	28	26	25	25	21	27	20	29	24	32	20	28	33	28	30	36	40	33	30	33	17	25
Australia and Oceania	na	231	314	306	310	308	338	461	488	527	428	674	641	392	333	337	298	312	334	324	356	401	338	348
Australia	High	202	278	273	272	270	302	428	458	502	403	642	609	344	280	273	243	249	262	255	286	329	278	287
New Zealand	High	29	37	33	36	37	36	32	30	24	25	33	31	47	53	64	55	63	69	69	69	70	58	60
Unclassified	na	9	3	1	1	0	0	1	3	0	2	2	1	2	3	2	7	10	7	10	8	6	10	5

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Patents are allocated according to patent ownership information. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-9

USPTO utility patents granted in other fields, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	13,016	12,597	12,414	11,868	11,044	9,371	10,529	9,197	8,805	8,937	12,511	12,097	13,315	14,662	16,067	16,236	16,663	17,715	17,498	20,305	19,797	18,263	17,857
North America	na	9,236	8,641	8,359	7,952	7,506	6,393	7,200	6,224	5,830	5,994	8,450	7,986	8,697	9,564	10,529	10,737	10,979	11,533	11,481	12,939	12,378	11,230	10,551
Canada	High	517	542	465	424	407	337	357	329	294	331	462	450	469	541	584	605	631	699	682	820	742	668	591
Mexico	Upper middle	11	12	18	10	11	8	3	7	7	10	13	13	19	25	24	25	37	23	34	40	38	23	23
United States	High	8,708	8,087	7,876	7,518	7,088	6,047	6,839	5,888	5,530	5,654	7,975	7,523	8,209	8,999	9,922	10,107	10,311	10,811	10,766	12,078	11,598	10,538	9,936
Central America and Caribbean	na	3	6	3	4	3	7	1	3	6	4	5	7	7	5	8	3	3	4	3	4	7	2	2
South America	na	26	18	22	34	27	19	22	22	24	19	27	28	28	44	54	56	40	39	51	63	67	63	70
Argentina	Upper middle	5	3	8	3	8	5	7	7	9	2	8	5	7	6	12	5	8	5	6	10	8	4	6
Brazil	Upper middle	13	5	10	17	9	6	12	9	7	9	15	12	11	29	30	32	20	26	31	37	45	38	47
Europe	na	1,797	1,879	1,826	1,695	1,444	1,196	1,424	1,183	1,156	1,238	1,733	1,855	2,089	2,447	2,629	2,563	2,621	2,715	2,706	3,167	3,087	2,835	2,788
EU-27 and United Kingdom[a]	na	1,638	1,700	1,682	1,543	1,333	1,110	1,312	1,083	1,041	1,128	1,554	1,678	1,890	2,186	2,337	2,237	2,308	2,372	2,355	2,786	2,651	2,442	2,405
United Kingdom	High	342	313	360	325	272	247	298	231	210	206	310	325	382	435	468	433	446	500	484	577	524	507	519
EU-27[b]	na	1,296	1,387	1,322	1,218	1,061	863	1,014	852	831	922	1,244	1,354	1,508	1,751	1,869	1,804	1,862	1,873	1,870	2,209	2,127	1,935	1,886
Austria	High	65	75	66	73	50	42	66	48	45	43	59	86	69	97	95	86	80	100	88	119	95	92	76
Belgium	High	18	38	29	20	25	28	20	17	19	23	50	37	51	46	61	56	65	64	76	84	83	78	60
Denmark	High	28	43	27	34	26	18	21	13	22	19	19	34	45	53	54	61	77	62	57	84	73	65	64
Finland	High	16	24	33	25	23	20	27	23	15	19	33	20	26	35	34	39	49	62	51	48	55	44	42
France	High	261	283	252	229	201	161	208	147	168	166	209	239	244	279	327	293	280	275	262	318	307	259	253
Germany	High	488	526	562	485	426	317	373	351	303	370	479	521	608	717	738	703	664	680	670	780	755	674	697
Hungary	High	1	2	0	3	2	2	0	1	2	2	6	2	3	1	6	4	6	6	7	3	5	6	5
Ireland	High	12	11	10	4	7	6	10	2	6	6	8	10	11	8	14	20	15	21	18	25	23	14	20
Italy	High	183	146	164	161	136	116	126	112	104	139	185	173	181	187	211	225	257	238	248	296	281	272	277
Netherlands	High	85	85	62	61	55	52	68	57	57	53	63	65	115	102	102	112	124	135	147	160	170	134	118
Spain	High	33	36	30	35	29	34	32	19	21	29	39	45	46	48	44	58	48	49	63	58	77	58	52
Sweden	High	88	103	72	71	71	53	48	50	46	41	81	98	82	141	136	103	142	136	133	152	134	152	150
Other Europe	na	159	179	144	153	111	87	112	100	115	110	179	176	199	261	293	327	313	342	351	381	436	393	383
Other Europe (2020)[b]	na	501	492	504	477	382	334	410	331	325	316	489	501	580	696	760	759	760	842	835	958	960	900	902
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	4	2	2	2	1	1	1	1
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Norway	High	46	56	49	47	30	31	37	33	41	42	61	60	71	83	94	123	117	124	112	124	149	130	130
Russia	Upper middle	6	8	6	9	9	5	7	8	7	6	17	10	17	22	17	22	26	28	28	24	24	27	20
Switzerland	High	100	108	81	90	66	49	61	52	62	57	95	98	105	140	149	144	134	150	173	190	225	204	203
Ukraine	Lower middle	1	0	3	0	0	1	2	1	1	1	1	1	1	1	1	1	1	2	6	4	6	6	3
Asia	na	1,778	1,852	2,027	1,985	1,880	1,596	1,703	1,621	1,641	1,543	2,080	1,978	2,194	2,275	2,441	2,485	2,646	3,038	2,830	3,619	3,660	3,518	3,855
China	Upper middle	67	106	101	110	104	99	123	122	139	138	217	203	294	284	332	371	489	645	658	840	1,027	1,096	1,249
India	Lower middle	2	0	1	3	4	3	6	4	6	5	10	15	26	27	28	40	48	71	71	92	92	85	91

Table SINV-9

USPTO utility patents granted in other fields, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	Income status	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	844	883	918	888	762	670	760	709	711	734	953	876	922	958	1,082	1,031	1,023	1,077	976	1,328	1,250	1,111	1,134
Malaysia	Upper middle	5	2	7	4	10	4	7	6	11	6	10	7	9	12	11	13	11	13	12	11	10	8	10
Singapore	High	11	5	9	12	13	11	17	8	15	12	20	14	13	20	29	30	26	36	26	55	35	46	44
South Korea	High	161	141	163	196	210	199	216	257	286	261	393	373	428	454	489	507	563	683	613	770	745	750	924
Taiwan	High	681	706	819	760	775	602	565	511	468	379	470	479	488	502	460	476	473	493	460	501	482	400	388
Middle East	na	40	49	47	47	43	39	39	40	48	42	59	67	109	110	144	152	157	155	188	249	304	357	390
Israel	High	36	46	46	45	38	32	33	32	29	31	45	52	76	60	81	81	72	85	91	90	97	101	100
Africa	na	17	22	16	28	18	18	19	11	17	12	12	24	22	21	35	18	18	16	20	26	26	25	20
South Africa	Upper middle	17	22	15	25	15	16	17	10	14	10	12	20	19	18	30	16	14	16	16	22	22	19	18
Australia and Oceania	na	119	127	113	123	122	103	121	92	82	84	143	151	170	193	226	220	197	214	215	235	264	231	179
Australia	High	107	99	93	107	108	84	99	80	73	77	121	127	145	162	189	194	169	178	177	185	224	184	153
New Zealand	High	12	28	20	16	14	19	22	13	9	7	19	23	24	30	37	27	27	35	38	49	38	46	25
Unclassified	na	1	2	0	0	0	0	1	0	1	1	2	2	0	1	2	2	2	2	4	4	4	2	3

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Patents are allocated according to patent ownership information. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-10

USPTO utility patents granted in semiconductors, by selected region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	5,675	7,108	8,449	10,075	10,474	10,606	10,730	9,291	10,015	9,536	9,186	10,326	14,103	14,365	13,813	15,761	17,799	18,331	18,930	19,042	17,387	18,543	18,610	16,853	16,498
North America	na	2,445	3,089	3,774	4,431	4,573	4,613	4,483	3,884	3,980	3,711	3,367	3,450	4,620	4,485	4,292	4,862	5,573	5,542	5,770	5,676	5,072	5,358	5,255	4,358	3,714
Canada	High	19	21	25	24	25	35	40	29	32	31	31	39	53	63	56	66	79	73	76	67	51	66	68	56	38
Mexico	Upper middle	0	0	0	1	1	0	0	2	0	1	2	0	0	1	2	0	1	1	0	1	0	2	3	2	2
United States	High	2,426	3,068	3,749	4,406	4,547	4,578	4,443	3,853	3,948	3,679	3,334	3,411	4,567	4,421	4,234	4,796	5,494	5,468	5,694	5,608	5,021	5,290	5,184	4,299	3,674
Central America and Caribbean	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0
South America	na	0	1	0	1	0	0	0	0	0	0	0	1	1	1	0	1	1	1	2	1	3	4	4	3	2
Argentina	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2	0	1
Brazil	Upper middle	0	1	0	1	0	0	0	0	0	0	0	1	1	1	0	1	1	1	0	1	2	3	1	1	0
Europe	na	351	418	467	644	702	774	799	722	760	719	672	781	1,147	1,178	1,216	1,426	1,600	1,669	1,705	1,673	1,489	1,513	1,380	1,342	1,161
EU-27 and United Kingdom[a]	na	339	402	447	612	667	750	775	700	734	696	654	750	1,116	1,143	1,177	1,366	1,536	1,610	1,638	1,605	1,423	1,434	1,305	1,281	1,115
United Kingdom	High	27	27	36	47	62	76	85	67	62	65	62	78	86	83	81	104	94	118	96	96	86	95	96	87	79
EU-27[b]	na	312	375	411	565	604	674	690	632	672	631	591	672	1,030	1,060	1,096	1,262	1,443	1,493	1,543	1,509	1,337	1,339	1,209	1,194	1,037
Austria	High	4	7	12	13	10	16	14	11	13	23	18	29	42	57	65	79	105	128	164	186	148	146	115	109	93
Belgium	High	2	7	11	19	18	36	35	22	29	23	30	39	62	56	64	70	69	83	108	102	88	98	100	91	91
Denmark	High	0	1	0	2	2	3	4	2	5	1	2	3	7	4	3	5	5	1	2	5	4	6	4	5	2
Finland	High	5	4	5	5	6	4	10	12	10	9	6	11	14	14	14	12	16	17	24	23	21	27	33	30	34
France	High	50	70	62	95	91	101	111	99	122	116	93	129	168	183	194	240	257	266	251	266	239	229	200	233	201
Germany	High	142	166	194	251	298	344	403	395	385	380	351	367	611	593	600	668	778	770	741	714	637	612	542	523	418
Hungary	High	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1	0	0
Ireland	High	4	3	1	7	3	4	4	3	6	4	8	6	6	11	10	14	14	7	17	13	16	25	32	25	26
Italy	High	57	61	64	96	88	80	53	37	39	29	34	38	40	51	46	73	95	106	92	88	87	88	90	83	75
Netherlands	High	28	29	26	42	55	64	45	35	43	36	33	32	59	68	70	74	71	73	99	78	69	70	60	65	62
Spain	High	0	1	3	1	3	2	0	2	2	1	3	1	2	2	4	5	5	6	5	4	5	5	4	5	8
Sweden	High	21	26	33	32	27	20	8	14	14	7	9	13	12	16	17	15	22	25	23	17	15	20	12	15	16
Other Europe	na	12	16	20	32	35	24	25	23	26	23	18	31	31	36	39	60	63	59	67	68	66	79	74	61	46
Other Europe (2020)[b]	na	39	43	55	78	98	100	109	90	88	88	80	109	117	118	120	164	157	177	162	164	152	174	171	148	125
Belarus	Upper middle	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	0	0	0	0	2	0	4	2	2	2	1	1	1	2	1	3	8	4	4	3	4	7	4	1	7
Russia	Upper middle	4	3	6	10	6	3	2	3	3	2	3	2	3	3	4	3	6	3	4	5	3	4	3	3	2
Switzerland	High	8	12	12	20	26	20	19	17	20	18	14	27	26	29	32	53	47	47	53	57	55	65	62	52	35
Ukraine	Lower middle	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0
Asia	na	2,867	3,584	4,186	4,968	5,170	5,181	5,409	4,649	5,248	5,076	5,119	6,061	8,289	8,653	8,255	9,425	10,556	11,055	11,377	11,601	10,756	11,589	11,905	11,053	11,529
China	Upper middle	2	9	5	12	26	31	48	56	68	104	108	120	176	188	236	362	495	628	814	1,113	1,046	1,618	1,650	1,693	2,165
India	Lower middle	1	1	3	2	2	5	4	1	3	5	4	3	6	5	14	22	18	15	37	35	39	42	47	35	46

Table SINV-10

USPTO utility patents granted in semiconductors, by selected region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	1,851	2,197	2,364	2,699	3,080	3,242	3,336	2,817	3,062	2,828	2,685	3,201	4,403	4,523	4,286	4,753	4,964	4,905	4,556	4,441	4,023	4,168	3,947	3,400	3,077
Malaysia	Upper middle	1	3	4	11	18	11	24	27	32	48	32	34	53	53	47	40	63	81	54	55	44	50	62	70	76
Singapore	High	30	40	70	125	167	146	135	103	123	118	103	103	201	245	252	269	275	255	246	235	208	193	149	130	156
South Korea	High	438	503	533	611	692	680	740	727	945	1,043	1,212	1,635	2,214	2,314	1,982	2,169	2,529	2,731	2,828	2,721	2,482	2,585	2,841	2,648	2,723
Taiwan	High	544	825	1,202	1,503	1,173	1,050	1,104	903	997	919	964	952	1,210	1,304	1,418	1,791	2,195	2,412	2,815	2,965	2,882	2,906	3,170	3,043	3,262
Middle East	na	9	12	16	30	23	27	26	24	18	22	20	22	30	24	35	33	47	44	55	68	51	55	55	81	72
Israel	High	9	12	16	29	22	26	24	22	17	21	19	22	30	20	31	29	44	37	46	60	37	38	40	59	56
Africa	na	0	1	2	0	1	1	1	0	0	0	1	1	2	2	0	3	7	3	4	3	1	2	2	2	1
South Africa	Upper middle	0	1	2	0	0	0	0	0	0	0	0	0	2	2	0	1	5	2	4	1	0	1	0	0	0
Australia and Oceania	na	3	4	3	2	5	9	12	11	9	8	8	11	14	21	15	9	14	15	15	17	13	20	8	13	18
Australia	High	2	4	2	2	3	8	11	11	9	8	8	10	14	21	14	8	12	15	15	16	13	17	8	13	18
New Zealand	High	1	0	1	0	1	1	1	0	0	0	0	1	0	0	1	1	2	1	0	1	1	3	1	1	1
Unclassified	na	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	3	1	0	1	2	1

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-11

Patent Cooperation Treaty applications, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	4,031,717	79,862	99,498	104,096	109,942	112,539	124,280	138,744	150,080	160,815	154,060	151,277	160,544	176,480	191,771	210,111	200,463	206,767	223,765	237,302	246,662	264,590	263,168	264,901
North America	1,251,704	35,348	43,416	44,192	45,406	42,873	48,679	53,186	57,623	60,488	52,550	49,359	48,479	51,901	59,717	69,667	59,231	59,576	60,858	61,430	61,028	63,751	62,444	60,506
Canada	45,605	1,341	1,713	1,870	1,954	2,018	1,839	2,015	2,157	2,399	1,999	1,943	2,086	2,051	2,206	2,194	1,974	1,931	1,926	1,894	1,977	2,079	1,935	2,109
Mexico	3,484	41	66	82	110	85	97	113	163	180	166	147	146	170	149	195	231	197	234	221	211	199	101	180
United States	1,202,615	33,966	41,637	42,240	43,342	40,770	46,743	51,059	55,303	57,909	50,385	47,269	46,247	49,680	57,362	67,278	57,026	57,448	58,699	59,315	58,840	61,473	60,408	58,218
Central America and Caribbean	663	9	9	25	20	27	19	24	35	20	24	30	6	20	18	17	10	12	69	162	35	19	35	18
Aruba	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Belize	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Costa Rica	96	1	3	9	5	6	6	8	4	7	2	2	1	6	0	4	3	5	1	12	3	1	6	1
Cuba	237	8	5	15	14	20	12	14	30	11	10	7	3	8	10	7	2	0	7	5	8	8	20	13
Dominican Republic	60	0	0	0	0	0	0	0	0	0	5	6	0	3	6	4	1	3	6	6	9	4	6	1
El Salvador	12	0	1	0	0	0	0	0	0	1	0	5	0	1	0	0	1	0	1	0	2	0	0	0
Guatemala	19	0	0	0	0	0	0	0	0	1	4	8	1	1	1	0	0	1	0	0	0	1	0	1
Honduras	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Nicaragua	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	1
Panama	216	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	3	53	137	11	3	3	1
Trinidad and Tobago	15	0	0	1	1	1	1	1	0	0	3	1	1	0	1	0	0	0	0	2	2	0	0	0
South America	12,984	150	163	197	203	241	290	302	357	469	458	582	526	633	766	804	760	795	817	871	919	949	852	882
Argentina	221	1	1	1	5	0	3	1	4	17	12	8	4	12	12	27	6	18	27	16	14	17	9	6
Bolivia	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Brazil	9,746	146	161	183	181	214	269	284	328	422	413	487	415	480	600	606	541	541	522	576	574	616	562	626
Chile	1,677	0	0	5	2	2	1	0	7	2	15	51	69	100	93	86	133	147	151	150	157	179	180	148
Colombia	992	1	1	6	11	17	11	15	14	18	11	29	32	30	41	70	59	59	92	98	130	113	67	67
Ecuador	69	0	0	1	3	7	5	1	4	9	4	4	1	7	8	0	1	4	3	0	2	0	1	4
Paraguay	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Peru	259	2	0	0	0	0	0	0	0	1	2	3	4	4	9	14	18	25	20	31	40	23	32	31
Uruguay	17	0	0	1	1	0	1	1	0	0	1	0	0	0	3	0	1	1	2	0	3	1	1	0
Venezuela	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Europe	1,156,291	32,674	38,564	40,102	41,351	41,722	43,472	46,507	49,579	52,626	52,379	49,954	50,223	52,535	52,776	54,531	54,533	53,295	56,898	57,635	58,768	60,848	57,578	57,744
EU-27 and United Kingdom[a]	1,102,248	30,950	36,567	38,139	39,222	39,749	41,327	44,262	47,310	50,361	50,195	48,046	48,083	50,494	50,610	52,248	52,225	50,952	54,258	55,148	55,766	57,378	54,330	54,630
United Kingdom	108,623	4,807	5,410	5,891	5,974	5,893	5,640	5,354	5,466	5,563	4,899	4,611	4,129	4,085	4,177	4,292	4,279	4,067	4,229	4,083	4,180	3,882	3,887	3,831
EU-27[b]	993,625	26,143	31,157	32,249	33,249	33,856	35,687	38,908	41,844	44,798	45,296	43,436	43,955	46,410	46,433	47,957	47,947	46,885	50,029	51,066	51,587	53,496	50,443	50,800
European Patent Office	653,710	11,402	14,449	15,285	16,255	18,550	21,550	23,991	26,560	29,039	30,022	28,669	29,364	32,010	32,239	32,855	32,883	33,112	35,655	37,059	37,572	39,718	37,602	37,874
Austria	10,856	309	379	363	354	416	475	534	585	538	481	459	536	512	499	528	498	528	450	447	470	485	473	537
Belgium	4,112	152	164	190	209	189	175	191	159	151	106	117	146	154	138	201	170	168	186	203	213	290	266	175
Bulgaria	678	26	23	19	33	39	20	21	24	21	27	18	13	36	34	44	35	42	26	42	36	34	48	17

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Region, country, or economy	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Croatia	806	38	40	47	65	54	77	49	41	46	43	28	30	35	32	30	26	28	25	18	20	18	7	9
Cyprus	63	0	3	3	4	3	5	13	8	1	1	2	1	0	2	0	2	1	1	3	3	1	4	2
Czechia	3,078	83	67	73	71	74	105	86	123	119	159	144	125	113	143	168	170	237	192	150	160	142	182	192
Denmark	14,917	693	821	853	875	966	857	843	843	784	692	627	572	627	585	537	494	482	518	459	554	458	450	331
Estonia	267	2	4	13	7	7	13	7	12	32	23	13	27	29	14	4	14	7	10	5	7	6	5	6
Finland	23,983	1,073	1,152	1,085	998	934	992	1,046	1,032	932	1,059	1,063	1,178	1,161	1,325	1,169	1,059	950	984	1,014	987	971	905	915
France	84,400	3,342	3,766	4,118	4,190	3,695	3,759	4,231	4,000	3,807	4,028	4,023	3,827	3,729	3,560	3,750	3,774	3,477	3,727	3,791	3,546	3,014	2,665	2,585
Germany	55,122	4,166	4,847	4,828	4,627	3,761	2,656	2,219	2,296	2,491	2,087	1,833	1,647	1,621	1,335	1,719	1,945	1,524	1,578	1,699	1,536	1,589	1,551	1,570
Greece	1,286	44	41	57	53	59	48	46	69	76	59	45	45	52	55	57	45	45	61	65	63	76	64	61
Hungary	2,945	100	139	103	153	134	133	127	139	149	138	132	131	111	159	135	145	109	148	110	111	115	99	125
Ireland	1,887	145	152	147	193	156	152	153	144	136	91	99	74	65	37	26	15	25	24	11	14	10	13	5
Italy	40,552	608	739	872	1,109	1,112	1,098	1,376	1,540	1,746	1,617	1,587	1,719	1,796	1,923	2,093	2,262	2,188	2,263	2,234	2,607	2,647	2,510	2,908
Latvia	251	5	4	12	9	9	8	14	6	8	11	17	10	9	19	17	20	10	6	6	8	8	20	15
Lithuania	351	0	2	3	7	4	6	9	9	12	20	18	11	20	20	34	35	31	21	16	24	21	15	13
Luxembourg	36	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	1	8	3	6	2	4	7	0
Malta	7	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0	0	1	1	0	1	0	0	0
Netherlands	21,473	822	972	841	903	889	864	926	1,024	1,102	1,076	1,040	1,030	959	970	975	953	882	916	860	891	961	835	785
Poland	4,001	54	105	87	115	134	106	75	95	103	118	145	165	164	199	253	274	329	329	218	217	255	229	233
Portugal	2,168	19	17	26	18	27	32	28	64	84	88	96	104	108	123	121	126	122	157	160	138	191	165	155
Romania	536	30	23	13	29	10	15	21	23	22	13	17	17	31	18	20	52	31	28	22	23	29	24	25
Slovakia	642	16	35	20	22	23	23	26	31	27	20	23	31	44	20	48	31	27	34	32	27	26	27	29
Slovenia	1,199	29	30	37	29	53	38	46	39	49	58	67	64	77	85	65	82	56	30	72	72	43	48	30
Spain	21,336	377	470	531	628	630	702	909	899	1,024	1,072	1,232	1,323	1,297	1,196	1,233	1,159	1,062	1,064	957	893	926	885	869
Sweden	42,966	2,608	2,713	2,624	2,293	1,928	1,778	1,921	2,080	2,301	2,187	1,923	1,766	1,649	1,703	1,876	1,679	1,403	1,593	1,408	1,394	1,459	1,347	1,336
Other Europe	54,044	1,724	1,997	1,963	2,129	1,973	2,145	2,246	2,269	2,265	2,184	1,908	2,140	2,041	2,166	2,283	2,308	2,343	2,641	2,487	3,002	3,470	3,248	3,114
Other Europe (2020)[b]	162,666	6,531	7,407	7,854	8,103	7,866	7,785	7,600	7,735	7,828	7,083	6,518	6,269	6,126	6,343	6,575	6,587	6,410	6,870	6,570	7,181	7,352	7,135	6,945
Albania	10	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	1	1	0	1	0	1	1
Armenia	98	1	5	14	4	3	3	7	2	7	2	3	4	2	10	3	3	6	4	4	3	2	2	4
Azerbaijan	119	0	2	1	1	2	9	4	9	8	5	4	6	7	10	4	2	3	3	9	12	10	4	4
Belarus	255	7	11	12	8	13	15	16	6	5	13	8	9	4	8	7	11	5	16	19	14	21	13	14
Bosnia and Herzegovina	130	1	6	3	10	4	4	12	8	10	7	7	5	6	8	9	2	3	0	3	3	5	6	8
Georgia	130	6	2	4	6	4	3	9	5	8	7	3	4	4	5	8	1	7	4	12	6	4	4	14
Iceland	442	9	18	23	28	22	29	26	23	26	9	29	24	13	19	15	19	13	21	9	15	29	17	6
Macedonia	57	6	4	3	3	6	1	3	0	3	3	2	1	0	1	2	1	2	1	2	3	6	3	1
Moldova	82	0	2	0	2	2	1	7	7	3	2	2	2	5	2	2	2	8	6	10	5	4	5	3
Monaco	12	1	1	0	2	0	2	0	0	0	1	0	0	0	1	0	3	1	0	0	0	0	0	0

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Region, country, or economy	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Montenegro	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0	1
Norway	8,890	389	470	455	460	420	425	480	509	487	456	451	423	331	293	310	288	310	339	368	328	327	296	275
Russia	18,719	500	518	564	560	485	543	583	666	730	779	675	802	917	1,029	1,054	1,025	893	1,029	1,004	1,070	1,143	1,170	980
San Marino	44	0	0	0	2	0	0	2	1	7	8	6	5	2	1	1	0	3	5	0	1	0	0	0
Serbia	283	0	0	0	0	0	0	0	7	17	34	17	12	10	18	13	17	19	12	18	27	26	18	18
Switzerland	11,583	691	851	747	859	841	864	852	767	674	557	438	431	353	325	311	310	277	301	284	232	281	158	181
Turkey	10,798	69	48	73	97	90	131	162	157	192	216	202	323	242	344	387	496	657	760	626	1,120	1,451	1,432	1,523
Ukraine	2,195	33	39	40	61	58	78	58	80	83	85	61	89	144	90	156	125	136	139	118	162	160	119	81
Yugoslavia	193	11	20	24	26	23	37	25	22	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	1,506,349	8,950	13,844	15,853	18,975	23,652	27,420	33,911	37,623	41,687	43,806	46,945	57,038	67,177	74,275	80,418	81,417	88,224	100,211	112,394	120,794	133,750	137,168	140,819
Eurasian Patent Organization	246	9	6	9	12	4	4	12	17	16	3	14	12	13	10	22	15	12	5	3	14	3	17	14
Bangladesh	4	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
Brunei	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	2	2	0	0
China	490,432	250	1,348	897	966	1,338	1,646	2,675	4,221	5,561	6,378	8,429	12,286	16,050	17,999	22,281	24,648	29,283	38,680	47,072	52,164	60,225	67,479	68,558
India	25,572	71	152	249	369	500	605	657	851	877	996	1,036	1,245	1,343	1,283	1,425	1,336	1,437	1,538	1,636	1,958	1,982	1,980	2,047
Indonesia	147	6	4	3	6	3	1	5	5	11	4	11	5	9	8	9	10	5	7	4	5	4	17	5
Japan	752,367	7,493	10,421	12,236	14,886	18,363	21,247	25,286	26,173	27,569	28,487	28,676	33,420	38,889	42,716	43,696	41,714	42,637	44,348	47,311	49,258	51,658	47,661	48,222
Kazakhstan	348	4	2	12	8	8	5	8	18	11	12	19	14	21	11	18	22	23	20	22	17	21	34	18
Kyrgyzstan	11	0	0	0	0	1	2	0	1	0	1	0	0	1	1	0	0	1	0	0	0	3	0	0
Malaysia	3,259	0	4	3	4	7	1	1	55	99	197	240	279	335	282	294	269	203	156	155	140	181	201	153
Mongolia	10	0	0	0	0	0	0	0	0	6	1	1	0	0	0	0	0	0	0	1	1	0	0	0
North Korea	52	0	0	0	0	1	2	5	1	6	2	2	1	5	3	1	5	5	3	3	2	1	3	1
Pakistan	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	1	0
Philippines	343	0	0	7	17	14	12	23	16	20	13	17	14	15	18	22	16	11	27	8	20	13	18	22
Singapore	11,690	135	203	253	297	343	422	400	434	441	489	526	515	474	515	618	613	655	667	624	685	687	816	878
South Korea	220,601	976	1,700	2,182	2,405	3,054	3,468	4,838	5,818	7,061	7,212	7,946	9,202	9,950	11,372	11,953	12,681	13,853	14,607	15,449	16,425	18,875	18,798	20,776
Sri Lanka	86	1	2	2	1	2	1	0	1	4	5	8	3	0	6	2	7	4	4	3	4	4	10	12
Taiwan	97	1	0	0	2	4	1	1	1	2	3	3	3	3	1	5	3	3	9	5	13	10	11	13
Thailand	837	0	1	0	0	0	0	0	0	0	0	7	35	56	41	62	63	77	126	80	67	57	93	72
Turkmenistan	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Uzbekistan	26	4	0	0	0	2	0	0	1	0	0	2	1	1	2	0	4	2	1	4	1	0	1	0
Vietnam	206	0	1	0	2	6	3	0	10	3	3	7	3	12	7	8	9	12	11	11	17	24	29	28
Middle East	29,965	712	1,060	1,098	1,137	1,123	1,273	1,439	1,549	1,744	1,480	1,148	1,055	1,034	1,091	1,205	1,281	1,357	1,469	1,480	1,515	1,571	1,554	1,591
Gulf States Patent Office	15	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	0	1	1	2	4	0	2	1
Bahrain	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3	0	0	0	0
Iran	328	0	0	0	0	0	0	0	0	0	1	3	0	0	1	1	9	24	28	44	31	48	73	65

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Region, country, or economy	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Iraq	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Israel	29,177	712	1,055	1,097	1,133	1,122	1,267	1,432	1,539	1,735	1,473	1,134	1,040	1,026	1,087	1,193	1,260	1,313	1,409	1,401	1,415	1,468	1,406	1,461
Jordan	48	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	8	13	6	17
Lebanon	5	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Oman	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	8	9	11	3
Qatar	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	5	11	19	18	21
Saudi Arabia	142	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	9	14	23	19	32	13	14	17
Syria	60	0	0	0	0	0	2	6	5	3	3	5	15	7	2	1	1	0	1	0	1	1	3	4
United Arab Emirates	68	0	4	1	4	0	4	1	5	4	3	3	0	0	1	5	2	1	2	0	5	0	21	2
Africa	8,536	353	388	396	394	399	385	440	430	456	426	355	311	338	388	413	410	370	343	325	343	307	284	287
African IPO	46	0	0	2	2	0	3	3	2	2	3	3	2	3	1	3	1	2	4	3	2	0	3	2
African Regional IPO	24	2	0	2	2	1	1	0	0	0	1	0	1	0	1	0	2	3	1	0	1	4	0	2
Algeria	140	1	3	5	1	5	1	9	4	14	3	10	3	2	5	5	7	5	9	8	12	10	7	11
Botswana	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burundi	36	0	0	2	0	0	0	0	0	9	0	0	1	0	0	0	0	6	11	7	0	0	0	0
Egypt	702	0	0	0	0	21	37	52	36	43	41	43	35	37	32	37	40	47	40	31	35	38	32	25
Ghana	14	1	0	0	0	0	0	0	1	3	1	0	0	0	0	2	0	4	1	0	0	0	0	1
Kenya	70	1	0	0	0	0	5	4	2	0	1	5	1	3	6	1	10	6	6	5	4	1	3	6
Libya	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1
Madagascar	4	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0
Morocco	511	0	1	1	5	9	2	6	10	8	19	17	12	22	32	57	51	37	37	36	38	27	40	44
Namibia	8	0	0	0	0	0	0	0	0	0	0	0	7	0	0	1	0	0	0	0	0	0	0	0
Nigeria	7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	2	0	0	1	1
Seychelles	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
South Africa	6,808	345	380	379	382	358	332	349	371	369	347	272	244	261	306	300	293	252	229	218	231	217	191	187
Sudan	53	3	3	4	1	2	1	10	1	4	3	0	0	0	0	0	2	3	1	4	5	3	3	0
Tunisia	99	0	0	0	1	2	2	7	3	4	6	1	5	9	5	5	4	4	2	11	10	7	4	7
Zambia	5	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0	0	0
Zimbabwe	3	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
Australia and Oceania	46,685	1,544	1,890	2,036	2,067	2,025	2,182	2,415	2,330	2,503	2,118	2,021	2,026	1,915	1,851	2,038	1,890	2,005	2,009	1,991	1,895	2,101	1,938	1,898
Australia	40,250	1,318	1,610	1,751	1,748	1,739	1,857	2,031	2,009	2,112	1,812	1,715	1,753	1,635	1,594	1,745	1,603	1,750	1,771	1,780	1,687	1,897	1,722	1,613
New Zealand	6,436	226	280	285	319	286	325	384	321	391	306	306	273	280	258	293	287	255	238	211	208	204	216	285
Unclassified	265	12	15	10	9	12	131	4	4	17	30	10	8	0	1	0	0	1	0	0	0	0	0	1
WIPO	18,275	110	150	188	380	466	429	517	552	807	790	874	873	928	890	1,019	933	1,132	1,091	1,014	1,366	1,295	1,317	1,154

EU-27 = European Union; IPO = Intellectual Property Organization; WIPO = World Intellectual Property Organization.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Figures are based on publication year of Patent Cooperation Treaty (PCT) applications. Countries are allocated using the receiving office for each PCT application, which is based on the location of the inventors. In cases where PCT applications are filed directly with WIPO via its international bureau, the priority country of the earliest document in the same patent family is used (i.e., where the first application in the patent family was filed). In terms of the regional patent offices, applicants can choose to file PCT applications via these offices rather than their home country. As such, the IPO counts are in addition to the sum of its constituent country counts. The European Patent Office (EPO) is counted toward the EU-27 in the figures because the constituent countries are largely the same. Although the United Kingdom is no longer a member of the EU, it remains a signatory to the European Patent Convention and can still file via EPO. China includes Hong Kong. The world total is the sum of individual countries. There is no row duplication.

Source(s):
National Center for Science and Engineering Statistics; EP Bibliographic Data (EBD); 1790 Analytics, accessed July 2023.

Science and Engineering Indicators

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Patent Cooperation Treaty applications in chemistry, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	Chemistry	981,608	24,933	30,406	31,706	33,887	35,261	37,639	39,010	40,785	41,424	40,071	38,737	40,201	42,812	44,343	48,027	44,959	44,411	47,290	50,470	52,275	56,639	57,521	58,762
North America	Chemistry	346,855	11,493	13,132	13,610	14,239	14,163	15,372	15,662	16,393	16,291	14,728	13,849	13,888	14,234	15,167	17,419	14,766	14,678	15,394	15,696	15,899	17,066	16,989	16,733
Canada	Chemistry	12,992	484	570	568	628	632	544	601	622	654	585	547	554	572	534	548	541	498	505	472	562	615	535	622
Mexico	Chemistry	1,253	10	22	27	27	26	33	48	69	66	77	41	37	70	65	72	98	71	65	66	74	59	42	88
United States	Chemistry	332,610	10,999	12,540	13,015	13,584	13,505	14,795	15,014	15,702	15,571	14,066	13,261	13,297	13,593	14,568	16,799	14,127	14,109	14,824	15,158	15,263	16,392	16,412	16,024
Central America and Caribbean	Chemistry	284	8	5	16	17	25	11	17	31	14	10	7	3	12	12	7	6	0	14	21	10	10	13	15
Costa Rica	Chemistry	34	1	1	2	3	5	0	5	1	4	0	0	0	2	0	0	2	0	1	6	0	0	0	1
Cuba	Chemistry	211	7	3	14	14	20	11	12	30	10	9	6	3	8	10	6	2	0	6	5	7	6	9	13
Dominican Republic	Chemistry	12	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2	2	4	0
El Salvador	Chemistry	5	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0
Guatemala	Chemistry	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
Panama	Chemistry	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	6	8	0	1	0	1
Trinidad and Tobago	Chemistry	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
South America	Chemistry	4,268	30	44	52	55	69	83	111	115	158	143	170	185	248	262	260	258	269	277	285	292	312	287	304
Argentina	Chemistry	72	0	0	0	0	0	0	0	1	6	6	2	2	0	7	6	4	8	10	2	6	6	4	2
Bolivia	Chemistry	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Brazil	Chemistry	3,017	30	44	48	53	66	79	107	107	142	117	124	140	190	197	190	170	153	158	190	153	178	176	205
Chile	Chemistry	781	0	0	1	0	1	1	0	5	1	14	29	32	46	44	37	59	71	74	61	79	87	78	62
Colombia	Chemistry	304	0	0	2	1	1	3	3	2	5	4	14	11	11	10	19	19	25	30	26	42	35	18	23
Ecuador	Chemistry	15	0	0	0	1	1	0	0	0	4	2	0	0	0	2	0	0	1	1	0	1	0	0	2
Paraguay	Chemistry	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Peru	Chemistry	73	0	0	0	0	0	0	0	0	0	0	1	0	1	2	7	5	11	4	6	10	6	10	10
Uruguay	Chemistry	4	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Europe	Chemistry	303,903	9,539	11,227	11,780	12,493	12,777	13,011	13,137	13,720	14,019	14,307	13,621	13,139	13,726	13,693	13,961	13,608	12,655	13,391	13,625	13,618	14,403	14,213	14,250
EU-27 and United Kingdom[a]	Chemistry	292,281	9,180	10,805	11,356	12,012	12,340	12,521	12,665	13,205	13,472	13,821	13,210	12,636	13,243	13,192	13,480	13,138	12,207	12,889	13,166	13,024	13,722	13,464	13,542
United Kingdom	Chemistry	30,647	1,538	1,728	1,581	1,766	1,915	1,826	1,689	1,678	1,587	1,412	1,349	1,183	1,086	1,106	997	1,124	976	1,081	1,029	933	1,004	1,079	985
EU-27[b]	Chemistry	261,635	7,642	9,077	9,775	10,247	10,425	10,696	10,977	11,527	11,885	12,409	11,862	11,453	12,157	12,086	12,483	12,014	11,231	11,809	12,137	12,091	12,718	12,385	12,557
European Patent Office	Chemistry	189,092	4,487	5,402	5,977	6,326	6,658	7,109	7,501	8,097	8,547	9,005	8,459	8,222	9,040	9,123	9,248	8,972	8,564	9,188	9,612	9,584	10,127	9,850	10,000
Austria	Chemistry	1,724	70	77	64	70	89	85	88	120	125	107	62	100	64	60	69	83	68	52	47	54	50	60	60
Belgium	Chemistry	1,105	50	56	69	64	73	62	78	51	48	33	28	30	32	28	52	43	41	22	45	34	79	51	36
Bulgaria	Chemistry	147	5	4	3	7	13	4	7	5	6	6	5	2	8	3	8	8	6	3	6	9	9	17	3
Croatia	Chemistry	186	11	7	7	23	19	21	8	3	9	11	12	8	11	5	6	5	6	6	3	1	2	2	0
Cyprus	Chemistry	18	0	2	3	1	0	1	2	3	0	0	1	0	0	0	0	0	0	1	2	2	0	0	0
Czechia	Chemistry	1,087	23	18	14	22	24	43	28	43	41	58	58	48	39	53	61	75	101	69	51	38	55	67	58
Denmark	Chemistry	4,143	259	312	331	352	358	347	307	233	230	182	165	127	137	118	120	91	93	88	55	75	66	57	43
Estonia	Chemistry	83	1	1	5	2	1	5	0	2	18	11	3	9	7	2	2	7	1	2	1	1	0	0	2

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Patent Cooperation Treaty applications in chemistry, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Finland	Chemistry	5,011	200	216	225	221	242	223	192	230	167	215	208	240	218	255	283	270	208	198	197	166	202	210	225
France	Chemistry	21,828	1,022	1,188	1,265	1,211	1,149	1,146	1,126	954	937	1,139	1,171	1,049	949	880	972	854	705	732	781	762	623	614	604
Germany	Chemistry	7,017	509	581	564	594	512	425	298	324	342	286	269	235	216	207	207	257	191	168	184	170	146	160	173
Greece	Chemistry	275	9	11	14	8	13	14	12	13	19	14	10	6	13	7	7	5	12	20	13	13	13	14	15
Hungary	Chemistry	1,069	37	56	32	65	47	57	53	72	64	65	52	45	45	61	49	48	29	41	29	25	28	32	37
Ireland	Chemistry	397	38	27	34	27	28	30	35	40	47	18	27	11	12	8	3	3	6	1	0	0	1	0	1
Italy	Chemistry	7,617	115	152	182	218	193	220	254	290	320	246	280	298	322	334	417	385	401	408	450	493	544	495	603
Latvia	Chemistry	92	2	1	5	5	1	4	4	1	1	1	7	2	1	7	5	10	6	4	2	4	3	12	4
Lithuania	Chemistry	83	0	1	0	1	2	1	3	2	3	3	3	3	4	6	11	13	6	7	4	2	2	1	5
Luxembourg	Chemistry	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	3	1	0	1	2	0
Malta	Chemistry	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Netherlands	Chemistry	6,239	271	338	324	332	292	266	316	304	293	302	281	281	292	296	282	255	247	228	181	199	241	226	192
Poland	Chemistry	1,326	9	19	18	27	48	34	25	29	34	46	66	60	53	75	109	105	97	91	56	61	87	80	98
Portugal	Chemistry	748	7	9	8	2	8	12	8	35	41	30	32	40	33	50	42	43	34	49	41	38	68	62	56
Romania	Chemistry	107	6	7	5	6	1	6	5	1	6	0	6	5	8	2	1	13	5	5	0	2	3	8	6
Slovakia	Chemistry	164	7	15	8	4	5	11	6	6	7	5	5	4	13	6	9	3	4	4	8	7	7	11	9
Slovenia	Chemistry	236	14	5	11	9	28	12	6	7	9	5	10	14	20	15	7	14	11	3	8	12	8	5	3
Spain	Chemistry	5,387	91	125	152	194	157	173	237	250	226	299	333	353	370	317	335	281	243	241	214	188	219	197	192
Sweden	Chemistry	6,442	399	447	456	456	464	385	378	413	346	323	310	261	252	169	178	171	142	174	146	153	134	154	133
Other Europe	Chemistry	11,622	359	422	424	481	437	490	472	515	547	486	411	503	483	501	481	470	448	502	459	594	681	749	708
Other Europe (2020)[b]	Chemistry	42,268	1,897	2,150	2,005	2,247	2,352	2,316	2,161	2,193	2,134	1,898	1,760	1,686	1,569	1,607	1,478	1,594	1,424	1,582	1,488	1,527	1,685	1,828	1,693
Armenia	Chemistry	18	1	1	3	1	2	2	1	1	2	2	0	0	0	0	1	0	0	0	0	0	1	0	0
Azerbaijan	Chemistry	22	0	0	0	1	1	0	1	1	1	0	1	2	2	0	1	1	1	1	0	3	3	0	2
Belarus	Chemistry	34	1	2	1	2	4	2	0	2	2	1	1	1	0	2	1	0	2	3	0	1	3	3	0
Bosnia and Herzegovina	Chemistry	13	0	1	1	3	0	0	0	1	0	1	1	0	0	1	1	1	0	0	0	0	0	1	1
Georgia	Chemistry	37	2	1	2	0	1	3	1	3	2	2	1	0	1	1	2	0	3	1	1	3	0	1	6
Iceland	Chemistry	182	2	7	4	12	8	12	13	6	15	6	17	13	10	9	6	7	4	8	4	5	11	3	0
Macedonia	Chemistry	6	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	0
Moldova	Chemistry	10	0	0	0	0	1	0	3	1	0	0	0	1	0	1	1	0	0	0	0	1	1	0	0
Monaco	Chemistry	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Norway	Chemistry	1,493	85	97	88	103	87	97	81	120	104	75	77	72	41	38	32	32	32	44	43	38	44	27	36
Russia	Chemistry	4,826	140	171	162	175	146	172	161	192	227	218	182	201	256	236	245	244	202	241	243	253	234	303	222
San Marino	Chemistry	6	0	0	0	0	0	0	1	0	2	1	0	0	0	0	1	0	1	0	0	0	0	0	0
Serbia	Chemistry	44	0	0	0	0	0	0	0	0	3	5	6	1	2	3	0	2	1	3	2	3	7	2	4
Switzerland	Chemistry	1,978	105	115	138	147	155	155	176	147	145	108	69	61	57	45	47	39	41	51	46	38	38	24	32
Turkey	Chemistry	2,414	10	8	9	18	13	22	7	16	26	37	41	121	92	149	114	115	133	132	93	209	295	368	386

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Patent Cooperation Treaty applications in chemistry, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Ukraine	Chemistry	497	11	11	11	14	16	21	19	19	16	30	14	30	22	16	29	28	27	18	26	40	43	17	19
Yugoslavia	Chemistry	41	2	7	4	5	3	4	8	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	Chemistry	301,454	3,173	5,229	5,369	6,051	7,120	8,047	8,882	9,360	9,705	9,694	9,981	11,899	13,618	14,247	15,400	15,368	15,750	17,124	19,712	21,291	23,545	24,737	26,155
Eurasian Patent Organization	Chemistry	49	1	1	3	4	2	1	1	4	0	0	4	2	2	0	5	5	3	1	1	5	0	3	1
Brunei	Chemistry	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1	0	0
China	Chemistry	66,231	80	1,008	423	277	387	384	477	585	828	874	1,077	1,615	2,207	2,508	2,822	2,973	3,484	4,576	5,776	6,809	7,836	9,315	9,912
India	Chemistry	13,142	48	114	190	270	400	475	476	619	509	572	633	704	767	733	802	710	730	711	663	743	730	718	825
Indonesia	Chemistry	45	0	2	2	3	1	1	2	0	3	1	6	1	4	1	3	1	0	4	0	1	1	7	1
Japan	Chemistry	172,475	2,760	3,651	4,178	4,873	5,586	6,339	6,820	6,923	6,850	6,747	6,569	7,476	8,240	8,424	8,838	8,802	8,636	8,700	9,629	9,817	11,005	10,708	10,904
Kazakhstan	Chemistry	79	1	0	5	4	3	1	2	5	4	2	5	4	8	2	3	1	4	2	3	2	4	11	3
Kyrgyzstan	Chemistry	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	Chemistry	869	0	0	0	1	1	0	0	9	30	44	69	56	99	90	75	66	51	46	51	44	45	47	45
Mongolia	Chemistry	9	0	0	0	0	0	0	0	0	6	1	1	0	0	0	0	0	0	0	1	0	0	0	0
North Korea	Chemistry	20	0	0	0	0	0	0	0	0	2	1	0	0	2	2	0	5	2	2	2	1	0	1	0
Pakistan	Chemistry	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Philippines	Chemistry	93	0	0	2	4	3	3	5	2	6	2	6	2	4	7	7	7	3	3	3	5	5	8	6
Singapore	Chemistry	2,981	20	29	26	43	55	83	98	83	105	125	131	166	131	173	219	183	179	180	202	175	163	204	208
South Korea	Chemistry	45,063	260	422	539	571	677	759	1,000	1,129	1,361	1,323	1,476	1,864	2,124	2,291	2,600	2,584	2,630	2,860	3,341	3,658	3,725	3,662	4,207
Sri Lanka	Chemistry	22	1	0	1	0	0	0	0	0	0	0	2	0	0	0	1	2	0	2	2	0	2	4	5
Taiwan	Chemistry	24	0	0	0	1	1	0	1	1	0	1	0	0	0	0	0	1	0	1	1	2	3	3	8
Thailand	Chemistry	281	0	1	0	0	0	0	0	0	0	0	2	7	27	13	24	21	26	31	30	24	21	32	22
Uzbekistan	Chemistry	14	2	0	0	0	2	0	0	0	0	0	0	0	1	2	0	3	1	0	2	0	0	1	0
Vietnam	Chemistry	52	0	1	0	0	2	0	0	0	1	1	0	2	2	1	1	3	1	3	4	5	4	13	8
Middle East	Chemistry	7,166	160	209	227	265	278	293	320	332	344	349	275	272	281	254	247	265	316	342	379	366	451	456	485
Gulf States Patent Office	Chemistry	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Bahrain	Chemistry	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
Iran	Chemistry	66	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	3	8	4	7	4	8	12	17
Iraq	Chemistry	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Israel	Chemistry	6,998	160	209	227	264	277	292	319	331	344	349	274	272	281	252	240	261	304	337	366	350	426	419	444
Jordan	Chemistry	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	9
Lebanon	Chemistry	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Oman	Chemistry	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	4	1
Qatar	Chemistry	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	11	9
Saudi Arabia	Chemistry	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	4	11	3	4	5
Syria	Chemistry	5	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0
United Arab Emirates	Chemistry	8	0	0	0	1	0	1	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	2	0

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Patent Cooperation Treaty applications in chemistry, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Africa	Chemistry	1,987	79	109	84	102	96	90	113	119	108	102	67	103	82	103	88	89	85	82	44	63	61	64	59
African IPO	Chemistry	14	0	0	2	2	0	1	0	0	1	2	1	1	1	0	0	0	1	0	0	0	0	2	0
African Regional IPO	Chemistry	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0
Algeria	Chemistry	33	1	0	2	0	0	0	1	1	7	1	3	1	0	1	0	1	0	3	1	3	1	2	4
Burundi	Chemistry	6	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	1	2	0	0	0	0	0
Egypt	Chemistry	185	0	0	0	0	5	11	17	9	15	11	5	16	14	5	10	9	9	12	6	5	8	10	8
Ghana	Chemistry	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Kenya	Chemistry	25	1	0	0	0	0	5	1	1	0	0	3	0	0	0	1	2	4	2	1	0	0	2	2
Morocco	Chemistry	143	0	0	0	2	3	0	1	2	5	4	4	3	6	10	24	14	12	12	3	13	10	7	8
Namibia	Chemistry	8	0	0	0	0	0	0	0	0	0	0	0	7	0	0	1	0	0	0	0	0	0	0	0
South Africa	Chemistry	1,513	75	106	77	97	87	72	90	102	76	79	50	73	58	86	49	60	53	49	31	37	37	40	34
Sudan	Chemistry	18	2	3	2	1	1	0	2	1	0	2	0	0	0	0	0	0	2	1	0	1	0	0	0
Tunisia	Chemistry	38	0	0	0	0	0	1	1	3	2	2	1	2	3	1	3	2	2	1	2	4	4	1	3
Australia and Oceania	Chemistry	11,679	413	408	500	551	570	546	647	582	634	562	557	520	462	445	474	419	425	432	495	478	520	528	513
Australia	Chemistry	10,156	352	345	430	462	496	464	543	506	529	484	468	455	387	380	413	357	376	391	451	441	480	490	458
New Zealand	Chemistry	1,523	61	63	70	89	74	82	104	76	105	78	89	65	75	65	61	62	49	41	44	37	40	38	55
Unclassified	Chemistry	44	0	0	0	0	0	43	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WIPO	Chemistry	3,970	38	44	70	114	163	143	121	135	152	177	211	192	149	162	173	182	234	235	213	259	271	235	248

EU-27 = European Union; IPO = Intellectual Property Organization; WIPO = World Intellectual Property Organization.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Figures are based on publication year of Patent Cooperation Treaty (PCT) applications. Technology areas are derived from the WIPO concordance of International Patent Classifications to technology categories available at https://www.wipo.int/ipstats/en/. Countries are allocated using the receiving office for each PCT application, which is based on the location of the inventors. In cases where PCT applications are filed directly with WIPO via its international bureau, the priority country of the earliest document in the same patent family is used (i.e., where the first application in the patent family was filed). In terms of the regional patent offices, applicants can choose to file PCT applications via these offices rather than their home country. As such, the IPO counts are in addition to the sum of its constituent country counts. The European Patent Office (EPO) is counted toward the EU-27 in the figures because the constituent countries are largely the same. Although the United Kingdom is no longer a member of the EU, it remains a signatory to the European Patent Convention and can still file via EPO. China includes Hong Kong. The world total is the sum of individual countries. There is no row duplication.

Source(s):
National Center for Science and Engineering Statistics; EP Bibliographic Data (EBD); 1790 Analytics, accessed March 2023.

Science and Engineering Indicators

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Patent Cooperation Treaty applications in electrical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	Electrical engineering	1,320,846	18,736	26,767	28,082	27,530	28,737	32,399	40,834	45,990	49,496	47,731	47,355	52,922	60,015	67,611	73,168	69,276	70,203	76,017	82,499	84,978	94,970	97,219	98,220
North America	Electrical engineering	396,866	8,817	13,337	13,189	12,422	11,496	13,747	16,162	18,558	19,692	16,702	15,331	15,077	17,013	21,165	23,827	20,146	19,722	19,884	20,233	19,588	20,663	20,378	19,723
Canada	Electrical engineering	11,024	201	369	479	428	497	458	558	616	726	577	538	604	579	685	538	437	321	417	388	352	418	387	452
Mexico	Electrical engineering	339	2	3	4	8	8	4	7	11	34	13	15	11	5	12	25	18	31	31	39	23	17	8	10
United States	Electrical engineering	385,504	8,614	12,965	12,707	11,986	10,991	13,285	15,597	17,931	18,932	16,112	14,778	14,462	16,429	20,468	23,264	19,691	19,370	19,436	19,806	19,213	20,228	19,983	19,261
Central America and Caribbean	Electrical engineering	46	0	0	1	0	2	0	4	1	1	2	1	1	0	0	1	1	6	2	11	5	1	5	1
Belize	Electrical engineering	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Costa Rica	Electrical engineering	8	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	2	0	1	1	0	0	0
Cuba	Electrical engineering	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0
Dominican Republic	Electrical engineering	11	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	3	0	1	2	0	1	0
Guatemala	Electrical engineering	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Nicaragua	Electrical engineering	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
Panama	Electrical engineering	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	9	1	0	1	0
Trinidad and Tobago	Electrical engineering	2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	Electrical engineering	1,410	24	26	18	32	27	39	38	39	56	47	59	35	60	93	102	73	90	105	85	93	110	75	84
Argentina	Electrical engineering	34	0	0	0	3	0	2	0	1	0	2	0	0	0	2	8	0	1	2	4	5	4	0	0
Brazil	Electrical engineering	1,141	24	26	17	27	21	36	31	36	53	44	56	32	51	82	81	58	65	74	61	64	77	60	65
Chile	Electrical engineering	105	0	0	0	2	0	0	0	1	0	0	1	1	8	3	6	8	16	13	9	6	13	5	13
Colombia	Electrical engineering	97	0	0	1	0	5	1	7	1	2	0	2	2	1	4	5	5	5	10	7	15	13	5	6
Ecuador	Electrical engineering	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Peru	Electrical engineering	28	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	2	3	4	4	4	3	4	0
Uruguay	Electrical engineering	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Venezuela	Electrical engineering	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Europe	Electrical engineering	252,090	6,778	8,614	9,261	8,643	8,832	8,985	10,432	11,114	11,302	11,276	10,540	11,029	11,454	12,061	11,786	11,742	11,433	11,693	12,553	12,875	13,608	12,942	13,143
EU-27 and United Kingdom[a]	Electrical engineering	243,176	6,524	8,298	8,902	8,305	8,521	8,687	10,042	10,715	10,985	10,926	10,278	10,697	11,115	11,664	11,350	11,321	11,009	11,236	12,158	12,441	12,974	12,444	12,590
United Kingdom	Electrical engineering	23,599	798	1,131	1,498	1,357	1,281	1,174	1,105	1,167	1,159	926	809	729	846	1,025	1,058	986	955	929	1,016	1,078	944	867	763
EU-27[b]	Electrical engineering	219,577	5,726	7,167	7,404	6,948	7,240	7,513	8,937	9,548	9,826	10,000	9,469	9,968	10,269	10,639	10,292	10,335	10,054	10,307	11,142	11,363	12,030	11,577	11,827
European Patent Office	Electrical engineering	150,299	1,957	2,947	3,116	3,183	4,271	4,935	5,956	6,637	6,839	7,045	6,756	7,201	7,484	7,601	7,402	7,515	7,350	7,568	8,391	8,571	9,341	8,963	9,271
Austria	Electrical engineering	1,709	35	51	62	54	36	58	63	84	83	66	83	76	88	115	124	83	94	75	47	81	78	93	80
Belgium	Electrical engineering	571	15	23	16	32	22	17	20	21	17	6	18	19	24	16	20	25	20	34	35	57	50	42	22
Bulgaria	Electrical engineering	120	3	3	3	8	6	4	2	3	2	8	5	1	7	5	16	5	11	3	8	7	5	3	2
Croatia	Electrical engineering	93	3	7	3	4	6	10	1	8	7	7	1	2	5	6	5	7	2	4	0	1	1	0	3
Cyprus	Electrical engineering	16	0	0	0	1	1	0	6	0	0	0	0	1	0	1	0	0	1	0	1	1	1	1	1
Czechia	Electrical engineering	292	11	1	11	4	11	3	13	19	13	21	12	8	14	5	15	11	23	14	11	23	7	22	20
Denmark	Electrical engineering	1,866	72	108	122	92	123	100	101	131	118	93	74	78	68	74	83	54	56	47	43	70	52	67	40
Estonia	Electrical engineering	65	1	1	1	0	2	2	2	4	5	2	3	11	6	8	1	2	2	3	1	1	2	3	2

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Patent Cooperation Treaty applications in electrical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Finland	Electrical engineering	8,262	428	426	365	295	267	340	416	302	281	343	389	433	463	579	403	302	290	305	337	358	335	303	302
France	Electrical engineering	16,510	568	734	907	891	743	742	886	941	727	737	700	730	674	683	685	708	711	729	763	672	598	510	472
Germany	Electrical engineering	13,078	1,486	1,666	1,629	1,438	1,046	595	517	430	499	370	286	237	227	244	208	253	239	230	261	253	290	326	348
Greece	Electrical engineering	162	0	5	7	6	5	7	7	3	6	3	4	5	5	8	7	8	7	5	8	9	14	17	16
Hungary	Electrical engineering	354	11	20	20	23	20	16	13	13	22	14	15	19	11	25	14	18	12	15	10	12	10	11	10
Ireland	Electrical engineering	426	23	48	42	61	41	34	44	29	27	23	13	18	13	6	2	1	0	0	0	0	0	1	0
Italy	Electrical engineering	4,430	56	80	115	135	105	110	166	150	172	210	173	194	212	222	241	259	201	235	254	283	249	271	338
Latvia	Electrical engineering	29	0	0	0	1	1	0	1	1	2	3	3	1	2	5	2	1	0	0	2	0	0	0	4
Lithuania	Electrical engineering	47	0	0	0	1	0	1	2	1	1	0	3	1	3	5	6	5	4	4	2	1	2	2	3
Luxembourg	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Malta	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Netherlands	Electrical engineering	2,360	67	90	90	88	101	68	125	125	147	139	137	142	107	89	96	105	90	94	79	110	97	95	80
Poland	Electrical engineering	500	4	11	9	22	21	17	11	8	10	16	15	17	13	21	19	31	54	48	32	40	28	31	22
Portugal	Electrical engineering	264	2	0	3	0	1	2	3	3	4	7	13	17	18	20	12	18	14	16	23	14	26	21	28
Romania	Electrical engineering	93	6	4	1	2	1	0	5	5	3	2	2	2	5	6	5	19	10	4	6	0	2	1	2
Slovakia	Electrical engineering	106	0	3	3	5	0	2	1	6	4	2	7	6	12	4	4	10	8	7	8	2	7	1	4
Slovenia	Electrical engineering	189	2	4	4	7	6	4	8	2	7	12	14	15	17	14	17	11	6	1	8	14	3	8	5
Spain	Electrical engineering	2,540	44	42	70	76	60	57	96	108	118	123	130	178	166	158	144	157	138	137	126	117	103	115	77
Sweden	Electrical engineering	15,197	932	893	805	519	344	389	472	514	713	749	613	555	625	719	761	727	711	729	686	666	729	670	676
Other Europe	Electrical engineering	8,915	254	316	359	338	311	298	390	399	317	350	263	332	339	398	437	421	424	457	395	434	634	498	553
Other Europe (2020)[b]	Electrical engineering	32,513	1,052	1,447	1,857	1,695	1,592	1,472	1,495	1,566	1,476	1,276	1,072	1,061	1,185	1,422	1,494	1,407	1,379	1,386	1,411	1,512	1,578	1,365	1,316
Armenia	Electrical engineering	20	0	1	9	1	0	0	3	0	1	0	1	1	0	1	0	0	1	0	1	0	0	0	0
Azerbaijan	Electrical engineering	10	0	0	0	0	0	0	0	1	0	2	0	0	0	2	1	0	0	0	1	2	0	1	0
Belarus	Electrical engineering	38	4	3	3	2	2	2	2	0	0	0	0	0	0	0	2	2	1	1	2	1	5	2	4
Bosnia and Herzegovina	Electrical engineering	14	0	0	0	1	2	1	1	1	2	1	1	0	0	3	0	0	0	0	0	0	0	0	1
Georgia	Electrical engineering	13	0	0	0	2	1	0	0	0	1	0	0	2	0	0	2	1	1	0	1	0	1	0	1
Iceland	Electrical engineering	39	0	2	3	2	2	3	0	4	0	2	4	3	0	2	3	2	0	2	0	0	1	3	1
Macedonia	Electrical engineering	10	0	1	0	0	2	0	2	0	0	1	0	1	0	1	0	0	0	1	0	0	1	0	0
Moldova	Electrical engineering	9	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	1
Monaco	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Montenegro	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Norway	Electrical engineering	1,109	39	54	84	88	77	74	85	78	66	71	65	58	41	30	32	21	21	22	19	18	25	20	21
Russia	Electrical engineering	3,853	86	78	102	75	81	75	118	143	117	142	91	149	174	242	267	278	245	228	216	225	276	226	219
San Marino	Electrical engineering	8	0	0	0	0	0	0	0	0	1	1	4	2	0	0	0	0	0	0	0	0	0	0	0
Serbia	Electrical engineering	39	0	0	0	0	0	0	0	0	0	5	2	0	2	6	3	1	5	2	2	2	5	3	1
Switzerland	Electrical engineering	1,810	112	165	144	142	120	115	140	144	83	74	47	63	52	46	41	32	37	42	52	35	70	23	33

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Patent Cooperation Treaty applications in electrical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Turkey	Electrical engineering	1,530	8	6	7	9	12	11	25	18	27	40	37	39	33	43	41	63	87	126	82	124	227	204	261
Ukraine	Electrical engineering	384	3	3	5	9	8	14	6	10	19	11	11	14	36	21	45	20	25	33	17	27	23	14	10
Yugoslavia	Electrical engineering	27	2	3	2	6	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	Electrical engineering	646,686	2,669	3,984	4,728	5,629	7,580	8,761	13,091	15,132	17,044	18,493	20,393	25,818	30,457	33,156	36,199	36,136	37,795	43,224	48,551	51,373	59,495	62,777	64,202
Eurasian Patent Organization	Electrical engineering	52	1	1	3	4	0	0	4	3	5	2	1	5	4	1	3	3	0	0	1	1	1	5	4
Bangladesh	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Brunei	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
China	Electrical engineering	270,758	52	123	195	325	505	715	1,376	2,511	3,278	3,881	5,323	7,732	9,915	10,077	13,286	14,522	16,683	21,608	25,307	26,998	32,794	36,793	36,760
India	Electrical engineering	4,852	5	14	15	27	42	41	87	88	112	154	173	241	307	285	281	264	287	298	366	408	473	452	432
Indonesia	Electrical engineering	24	1	0	0	0	0	0	1	1	0	1	1	0	1	1	4	4	2	0	0	2	0	4	1
Japan	Electrical engineering	265,837	2,221	3,124	3,604	4,384	5,779	6,291	9,242	9,450	10,125	10,720	11,013	13,476	15,486	16,953	16,700	15,093	14,283	14,802	15,949	16,678	17,118	16,358	16,988
Kazakhstan	Electrical engineering	56	1	0	0	0	0	2	4	3	1	1	3	2	3	3	5	6	6	3	1	0	3	6	3
Kyrgyzstan	Electrical engineering	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Malaysia	Electrical engineering	1,187	0	0	0	2	6	0	0	15	29	82	81	107	133	103	134	117	79	43	39	35	69	76	37
Mongolia	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
North Korea	Electrical engineering	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	1	0	0	0	0	0
Pakistan	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Philippines	Electrical engineering	66	0	0	2	1	1	2	2	4	2	7	2	3	1	5	4	2	1	11	3	5	2	2	4
Singapore	Electrical engineering	4,375	73	92	153	160	183	188	169	182	184	208	199	170	175	168	173	178	221	246	203	230	211	301	308
South Korea	Electrical engineering	99,324	315	629	756	726	1,064	1,520	2,206	2,874	3,305	3,434	3,594	4,072	4,416	5,551	5,596	5,935	6,221	6,195	6,672	7,004	8,823	8,766	9,650
Sri Lanka	Electrical engineering	16	0	1	0	0	0	1	0	1	1	2	1	1	0	2	0	2	0	0	0	1	0	1	2
Taiwan	Electrical engineering	24	0	0	0	0	0	0	0	0	1	1	1	2	3	1	2	1	1	4	0	3	0	4	0
Thailand	Electrical engineering	81	0	0	0	0	0	0	0	0	0	0	0	7	11	6	6	8	7	10	7	5	0	7	7
Uzbekistan	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Vietnam	Electrical engineering	22	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	1	2	2	2	2	1	1	6
Middle East	Electrical engineering	7,514	193	373	375	285	249	322	427	534	560	456	287	254	232	276	309	315	314	303	308	304	307	272	259
Gulf States Patent Office	Electrical engineering	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Iran	Electrical engineering	28	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	4	7	2	4	2	6
Israel	Electrical engineering	7,432	193	372	375	283	249	322	427	531	558	454	286	254	232	275	306	314	310	297	296	295	296	262	245
Jordan	Electrical engineering	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1
Lebanon	Electrical engineering	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oman	Electrical engineering	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
Qatar	Electrical engineering	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	2	0
Saudi Arabia	Electrical engineering	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	5	3	2	0	5
Syria	Electrical engineering	3	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
United Arab Emirates	Electrical engineering	16	0	1	0	2	0	0	0	2	0	1	0	0	0	0	3	0	0	1	0	1	0	4	1

Table SINV-13

Patent Cooperation Treaty applications in electrical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Africa	Electrical engineering	1,506	46	60	57	60	57	67	71	56	76	80	63	47	63	77	82	88	77	64	83	68	55	51	58
African IPO	Electrical engineering	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2	0	0	0	0
African Regional IPO	Electrical engineering	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
Algeria	Electrical engineering	15	0	0	1	0	0	0	2	0	2	0	2	0	1	0	1	0	0	0	1	2	1	2	0
Burundi	Electrical engineering	12	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	4	5	0	0	0	0
Egypt	Electrical engineering	85	0	0	0	0	3	5	3	6	9	4	6	6	6	3	2	4	6	5	4	2	5	3	3
Ghana	Electrical engineering	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Kenya	Electrical engineering	19	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	3	1	1	4	3	1	1	1
Madagascar	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Morocco	Electrical engineering	102	0	0	1	0	3	2	2	1	0	6	1	1	4	6	13	12	7	5	16	3	5	7	7
Nigeria	Electrical engineering	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	1
South Africa	Electrical engineering	1,240	46	60	54	60	50	60	62	48	63	67	52	40	50	65	64	69	58	46	47	56	41	38	44
Sudan	Electrical engineering	4	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0
Tunisia	Electrical engineering	10	0	0	0	0	1	0	0	0	0	2	0	0	2	1	0	0	0	0	2	1	0	0	1
Zambia	Electrical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Australia and Oceania	Electrical engineering	8,289	196	334	399	326	341	307	393	361	446	372	359	354	326	397	426	377	419	419	359	321	366	330	362
Australia	Electrical engineering	7,162	163	284	331	275	287	261	348	311	386	315	301	310	281	347	386	329	361	375	329	292	338	278	275
New Zealand	Electrical engineering	1,127	33	50	68	51	54	46	45	50	60	57	58	44	45	50	40	48	58	44	30	29	28	52	87
Unclassified	Electrical engineering	32	0	0	0	0	0	29	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0
WIPO	Electrical engineering	6,406	13	39	54	134	153	142	217	196	320	303	322	305	411	386	436	398	347	323	316	352	365	390	388

EU-27 = European Union; IPO = Intellectual Property Organization; WIPO = Intellectual Property Organization.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Figures are based on publication year of Patent Cooperation Treaty (PCT) applications. Technology areas are derived from the WIPO concordance of International Patent Classifications to technology categories available at https://www.wipo.int/ipstats/en/. Countries are allocated using the receiving office for each PCT application, which is based on the location of the inventors. In cases where PCT applications are filed directly with WIPO via its international bureau, the priority country of the earliest document in the same patent family is used (i.e., where the first application in the patent family was filed). In terms of the regional patent offices, applicants can choose to file PCT applications via these offices rather than their home country. As such, the IPO counts are in addition to the sum of its constituent country counts. The European Patent Office (EPO) is counted toward the EU-27 in the figures because the constituent countries are largely the same. Although the United Kingdom is no longer a member of the EU, it remains a signatory to the European Patent Convention and can still file via EPO. China includes Hong Kong. The world total is the sum of individual countries. There is no row duplication.

Source(s):
National Center for Science and Engineering Statistics; EP Bibliographic Data (EBD); 1790 Analytics, accessed March 2023.

Science and Engineering Indicators

Table SINV-14

Patent Cooperation Treaty applications in instruments, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	Instruments	680,010	14,121	16,857	18,496	20,119	19,266	21,163	23,621	25,203	26,308	25,164	24,412	25,473	27,903	30,917	34,522	31,957	34,117	37,756	41,379	43,793	46,070	45,510	45,859
North America	Instruments	248,356	7,588	8,695	9,158	9,976	8,638	9,619	10,794	11,545	11,536	10,221	9,650	9,532	10,140	11,329	13,320	10,874	11,163	11,460	12,256	12,448	12,810	12,744	12,864
Canada	Instruments	8,232	231	291	348	370	287	264	316	333	362	321	292	318	310	329	433	352	438	416	412	429	425	491	465
Mexico	Instruments	498	4	8	10	15	12	16	17	23	29	15	18	25	18	20	27	29	35	16	33	48	35	15	30
United States	Instruments	239,626	7,353	8,396	8,800	9,591	8,339	9,339	10,461	11,189	11,145	9,885	9,340	9,189	9,812	10,980	12,861	10,493	10,690	11,029	11,811	11,971	12,350	12,238	12,369
Central America and Caribbean	Instruments	55	1	2	2	0	0	1	1	0	0	2	1	0	0	0	3	0	3	12	21	1	1	2	2
Costa Rica	Instruments	7	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	2	0	1	0	0	0	0
Cuba	Instruments	11	1	2	1	0	0	1	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	2	0
Dominican Republic	Instruments	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	1
Guatemala	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Panama	Instruments	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	20	0	1	0	0
Trinidad and Tobago	Instruments	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	Instruments	1,794	14	18	29	17	29	40	33	60	49	59	99	62	68	80	113	100	104	88	141	155	166	131	139
Argentina	Instruments	30	0	0	0	0	0	0	0	0	3	1	1	0	4	1	3	1	3	5	2	0	2	1	3
Brazil	Instruments	1,310	13	18	25	14	26	36	33	56	44	54	85	50	45	63	89	71	68	53	97	96	96	85	93
Chile	Instruments	216	0	0	4	0	0	0	0	0	1	0	4	6	14	9	7	18	21	12	15	26	33	28	18
Colombia	Instruments	189	1	0	0	3	1	2	0	3	0	3	7	6	4	3	14	8	10	15	21	25	31	13	19
Ecuador	Instruments	7	0	0	0	0	2	1	0	1	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0
Peru	Instruments	37	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	2	1	3	6	7	4	4	6
Uruguay	Instruments	5	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0
Europe	Instruments	182,385	4,923	5,849	6,374	6,519	6,096	6,375	7,140	7,477	7,937	8,059	7,694	7,522	7,918	7,801	8,344	8,356	8,274	9,083	9,721	10,156	10,387	10,111	10,276
EU-27 and United Kingdom[a]	Instruments	172,931	4,580	5,442	5,976	6,134	5,720	5,966	6,725	7,076	7,521	7,684	7,385	7,184	7,579	7,443	7,971	7,992	7,867	8,651	9,332	9,663	9,835	9,519	9,693
United Kingdom	Instruments	20,613	916	977	1,195	1,246	1,051	1,005	1,049	1,040	1,037	915	900	807	772	761	787	800	762	816	727	802	730	751	770
EU-27[b]	Instruments	152,318	3,664	4,465	4,781	4,888	4,669	4,961	5,676	6,036	6,484	6,769	6,485	6,377	6,807	6,682	7,185	7,192	7,105	7,835	8,605	8,861	9,105	8,768	8,923
European Patent Office	Instruments	101,687	1,510	1,914	2,086	2,166	2,338	2,881	3,291	3,692	4,205	4,431	4,263	4,298	4,670	4,673	5,138	5,152	5,168	5,827	6,574	6,690	6,977	6,872	6,873
Austria	Instruments	1,469	37	46	50	59	51	60	86	84	77	69	52	62	61	44	53	72	61	57	65	81	75	69	98
Belgium	Instruments	587	20	21	28	31	25	28	38	14	14	5	13	25	28	19	22	12	18	21	25	39	61	50	30
Bulgaria	Instruments	72	5	2	3	4	7	0	1	4	2	2	0	4	4	4	2	2	2	6	7	1	5	5	0
Croatia	Instruments	87	3	3	4	1	5	8	6	10	5	5	2	5	1	5	3	3	2	4	3	2	5	1	1
Cyprus	Instruments	3	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Czechia	Instruments	447	8	7	9	9	3	11	11	17	15	14	18	18	13	18	24	26	40	42	22	25	27	32	38
Denmark	Instruments	2,804	124	158	168	152	197	143	164	180	126	122	123	146	137	105	94	88	84	81	71	133	76	72	60
Estonia	Instruments	54	0	0	2	3	2	4	3	3	2	7	4	4	8	4	0	2	1	2	1	0	2	0	0
Finland	Instruments	2,923	106	117	111	119	105	99	115	125	109	109	128	128	127	135	114	134	151	142	182	166	151	115	135
France	Instruments	11,950	537	594	657	664	578	506	662	587	501	610	572	497	555	482	468	494	481	463	494	435	381	370	364
Germany	Instruments	8,649	628	776	812	774	587	417	353	379	399	353	319	243	246	203	249	246	232	222	276	253	248	199	235

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Patent Cooperation Treaty applications in instruments, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Greece	Instruments	206	7	6	7	13	7	7	2	20	11	13	6	5	9	6	10	5	5	7	15	9	15	11	10
Hungary	Instruments	494	9	24	22	16	18	18	20	19	19	16	20	23	20	33	21	33	21	26	18	25	19	24	30
Ireland	Instruments	503	49	38	34	56	44	43	43	29	36	32	29	23	14	8	2	4	3	8	2	0	1	5	0
Italy	Instruments	6,207	92	105	133	160	139	166	230	237	218	243	239	237	280	286	351	308	328	341	326	466	414	413	496
Latvia	Instruments	35	0	1	1	2	2	0	3	0	1	3	1	2	1	5	2	2	2	0	0	0	2	1	4
Lithuania	Instruments	73	0	1	0	0	0	1	1	2	1	6	2	3	3	3	9	4	8	2	4	10	7	4	2
Luxembourg	Instruments	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0
Malta	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Netherlands	Instruments	3,246	90	127	116	125	115	146	132	162	218	183	156	128	152	127	136	121	113	141	131	150	179	151	147
Poland	Instruments	542	3	10	11	11	15	11	13	14	10	8	13	16	16	26	27	41	47	47	36	33	46	45	43
Portugal	Instruments	378	1	1	4	3	2	2	5	7	10	12	18	14	26	16	26	13	24	24	34	36	42	35	23
Romania	Instruments	70	2	1	1	5	0	2	3	2	1	2	0	0	10	6	5	6	1	4	5	3	4	4	3
Slovakia	Instruments	64	3	1	1	2	2	1	2	2	2	4	2	3	5	1	3	7	2	2	2	3	2	8	4
Slovenia	Instruments	156	2	3	5	4	4	2	4	6	6	7	8	8	10	14	10	12	10	5	7	7	6	11	5
Spain	Instruments	3,442	49	62	65	61	93	103	133	111	160	178	192	195	211	208	208	193	197	192	165	138	187	159	182
Sweden	Instruments	6,168	379	447	451	449	330	302	353	329	336	335	305	289	201	251	208	212	101	169	140	156	173	113	140
Other Europe	Instruments	9,454	343	407	398	385	376	409	415	401	416	375	309	338	339	358	373	364	407	432	389	493	552	593	583
Other Europe (2020)[b]	Instruments	30,067	1,259	1,384	1,593	1,631	1,427	1,414	1,464	1,441	1,453	1,290	1,209	1,145	1,111	1,119	1,159	1,164	1,169	1,248	1,116	1,295	1,282	1,343	1,353
Albania	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Armenia	Instruments	14	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	2	2	0	2	0	1	1	2
Azerbaijan	Instruments	29	0	0	0	0	1	6	1	2	1	0	2	0	1	2	1	1	0	1	3	3	2	1	1
Belarus	Instruments	53	2	2	5	2	2	1	6	1	1	0	5	3	1	2	2	1	0	1	2	4	4	3	3
Bosnia and Herzegovina	Instruments	23	0	1	0	2	0	1	3	0	3	2	1	0	3	1	0	0	1	0	0	0	1	3	1
Georgia	Instruments	20	2	0	0	1	0	0	2	0	1	1	1	1	0	2	1	0	2	0	3	0	0	1	2
Iceland	Instruments	62	1	4	10	5	3	4	3	3	6	0	2	4	2	1	2	3	2	1	0	2	2	2	0
Macedonia	Instruments	6	2	0	0	0	0	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Moldova	Instruments	17	0	0	0	0	1	1	1	2	3	1	0	0	2	1	0	0	2	0	0	0	0	2	1
Montenegro	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Norway	Instruments	1,081	58	74	70	64	64	51	69	65	59	63	42	27	34	31	31	39	32	36	40	35	45	25	27
Russia	Instruments	3,121	113	91	112	106	83	96	101	105	131	120	105	122	161	174	162	149	133	174	159	192	162	204	166
San Marino	Instruments	6	0	0	0	0	0	0	0	0	0	3	0	2	1	0	0	0	0	0	0	0	0	0	0
Serbia	Instruments	46	0	0	0	0	0	0	0	2	2	5	1	3	2	1	3	3	2	2	2	5	5	3	5
Switzerland	Instruments	2,961	156	220	182	185	204	224	212	192	177	143	114	110	89	90	85	69	88	81	80	70	72	57	62
Turkey	Instruments	1,693	5	9	8	7	12	9	5	16	16	28	26	61	21	42	69	88	118	121	86	146	233	269	298
Ukraine	Instruments	294	2	5	6	6	4	11	10	10	12	8	9	5	21	11	17	9	25	15	11	36	25	22	14
Yugoslavia	Instruments	26	2	1	5	7	2	4	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Patent Cooperation Treaty applications in instruments, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Asia	Instruments	226,500	1,064	1,611	2,184	2,771	3,680	4,271	4,686	5,194	5,743	5,980	6,165	7,552	8,977	10,893	11,830	11,706	13,538	16,033	18,205	19,971	21,528	21,419	21,499
Eurasian Patent Organization	Instruments	33	2	0	0	1	0	0	1	3	1	0	0	2	0	2	5	1	3	2	0	4	0	3	3
Brunei	Instruments	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
China	Instruments	62,577	30	49	71	89	123	152	237	312	377	440	571	951	1,343	2,281	2,580	2,927	3,771	5,271	6,657	7,245	8,451	9,570	9,079
India	Instruments	2,795	8	6	24	34	15	27	26	36	64	83	65	128	100	114	144	144	151	155	211	358	290	312	300
Indonesia	Instruments	9	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0	0	0	0	3	2
Japan	Instruments	130,922	888	1,353	1,800	2,225	3,094	3,689	3,969	4,240	4,504	4,582	4,630	5,216	6,263	7,093	7,645	6,967	7,704	8,487	9,103	9,846	10,099	8,703	8,822
Kazakhstan	Instruments	35	0	1	2	0	0	0	0	1	1	1	2	1	2	1	1	4	3	7	0	1	1	3	3
Kyrgyzstan	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Malaysia	Instruments	434	0	0	1	0	0	0	0	7	4	30	24	57	57	39	35	42	17	13	22	13	18	28	27
North Korea	Instruments	7	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1
Pakistan	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Philippines	Instruments	36	0	0	0	0	2	0	2	2	0	0	1	1	4	2	1	0	1	1	1	3	3	6	6
Singapore	Instruments	2,259	23	25	24	27	41	69	69	90	73	79	80	118	94	91	125	139	144	130	106	145	168	196	203
South Korea	Instruments	27,275	113	177	262	394	401	333	381	503	718	764	785	1,074	1,108	1,260	1,289	1,476	1,735	1,959	2,097	2,345	2,489	2,579	3,033
Sri Lanka	Instruments	12	0	0	0	0	0	0	0	0	0	1	1	0	0	3	0	0	1	2	1	0	0	1	2
Taiwan	Instruments	16	0	0	0	1	3	0	0	0	1	0	1	0	0	0	0	1	2	0	0	4	1	0	2
Thailand	Instruments	72	0	0	0	0	0	0	0	0	0	0	0	4	4	6	3	4	5	6	6	6	5	11	12
Uzbekistan	Instruments	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Vietnam	Instruments	12	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3	3	4
Middle East	Instruments	8,726	229	300	332	385	351	386	429	372	480	384	328	322	315	318	359	400	394	452	426	426	433	449	456
Gulf States Patent Office	Instruments	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Bahrain	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Iran	Instruments	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	6	11	2	8	13	15
Israel	Instruments	8,587	229	299	332	385	351	384	428	369	476	384	325	314	310	317	359	396	387	445	411	418	417	423	428
Jordan	Instruments	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Oman	Instruments	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0
Qatar	Instruments	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	2	8
Saudi Arabia	Instruments	16	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3	0	2	3	2	3	0
Syria	Instruments	27	0	0	0	0	0	1	1	2	3	0	3	8	4	1	0	0	0	0	0	0	0	1	3
United Arab Emirates	Instruments	11	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	6	0
Africa	Instruments	1,190	51	48	52	42	57	55	67	54	51	49	61	26	49	66	62	48	52	52	44	62	49	35	58
African IPO	Instruments	9	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	1	0	2	0	1	0	0	1
African Regional IPO	Instruments	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Algeria	Instruments	24	0	0	0	0	0	0	2	1	1	0	0	1	0	3	1	1	2	2	2	2	2	0	4
Burundi	Instruments	8	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	4	1	0	0	0	0

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Patent Cooperation Treaty applications in instruments, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Egypt	Instruments	141	0	0	0	0	5	10	13	6	5	13	10	2	6	10	9	2	10	5	5	13	5	4	8
Ghana	Instruments	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Kenya	Instruments	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Morocco	Instruments	75	0	1	0	0	1	0	0	3	0	3	0	0	4	2	5	6	5	5	5	8	3	9	15
Nigeria	Instruments	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
South Africa	Instruments	910	51	47	52	41	51	43	50	43	40	33	51	23	38	51	47	35	32	31	28	37	36	22	28
Sudan	Instruments	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
Tunisia	Instruments	12	0	0	0	1	0	1	1	0	1	0	0	0	1	0	0	1	1	0	2	1	1	0	1
Australia and Oceania	Instruments	8,147	231	315	343	369	367	344	402	418	398	309	305	324	299	292	330	333	378	376	379	380	465	426	364
Australia	Instruments	7,025	201	278	302	298	322	296	337	384	352	275	267	274	262	253	256	257	323	325	325	335	413	374	316
New Zealand	Instruments	1,122	30	37	41	71	45	48	65	34	46	34	38	50	37	39	74	76	55	51	54	45	52	52	48
Unclassified	Instruments	20	0	0	0	0	0	17	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0
WIPO	Instruments	2,839	20	20	23	41	48	55	70	84	114	101	109	131	138	138	161	141	210	200	186	195	231	194	201

EU-27 = European Union; IPO = Intellectual Property Organization; WIPO = World Intellectual Property Organization.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Figures are based on publication year of Patent Cooperation Treaty (PCT) applications. Technology areas are derived from the WIPO concordance of International Patent Classifications to technology categories available at https://www.wipo.int/ipstats/en/. Countries are allocated using the receiving office for each PCT application, which is based on the location of the inventors. In cases where PCT applications are filed directly with WIPO via its international bureau, the priority country of the earliest document in the same patent family is used (i.e., where the first application in the patent family was filed). In terms of the regional patent offices, applicants can choose to file PCT applications via these offices rather than their home country. As such, the IPO counts are in addition to the sum of its constituent country counts. The European Patent Office (EPO) is counted toward the EU-27 in the figures because the constituent countries are largely the same. Although the United Kingdom is no longer a member of the EU, it remains a signatory to the European Patent Convention and can still file via EPO. China includes Hong Kong. The world total is the sum of individual countries. There is no row duplication.

Source(s):
National Center for Science and Engineering Statistics; EP Bibliographic Data (EBD); 1790 Analytics, accessed March 2023.

Science and Engineering Indicators

Table SINV-15

Patent Cooperation Treaty applications in mechanical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	Mechanical engineering	738,999	16,111	18,591	19,034	20,722	21,102	23,666	24,920	26,727	29,213	28,347	27,107	30,536	33,764	36,421	40,082	39,538	37,638	41,344	44,950	45,336	47,065	43,517	43,227
North America	Mechanical engineering	163,037	5,186	5,866	5,948	6,087	5,735	6,484	6,878	6,990	7,357	6,538	6,063	6,514	6,865	7,966	10,185	8,502	7,655	7,739	8,427	8,008	8,102	7,206	6,739
Canada	Mechanical engineering	8,670	302	339	337	367	403	402	383	386	418	350	357	424	378	422	418	400	390	340	389	401	379	320	366
Mexico	Mechanical engineering	720	15	16	21	23	18	18	24	32	32	31	36	38	36	24	40	44	28	52	49	33	57	23	30
United States	Mechanical engineering	153,647	4,869	5,511	5,590	5,697	5,314	6,064	6,471	6,573	6,907	6,157	5,670	6,052	6,451	7,520	9,727	8,058	7,237	7,347	7,989	7,574	7,666	6,864	6,343
Central America and Caribbean	Mechanical engineering	131	0	1	3	2	0	4	1	2	2	4	6	1	3	4	4	2	2	26	52	4	2	6	0
Costa Rica	Mechanical engineering	28	0	1	3	2	0	3	1	2	0	1	1	1	2	0	2	1	1	0	1	1	0	5	0
Dominican Republic	Mechanical engineering	16	0	0	0	0	0	0	0	0	0	2	1	0	1	3	2	0	0	1	3	1	1	1	0
El Salvador	Mechanical engineering	4	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0
Guatemala	Mechanical engineering	5	0	0	0	0	0	0	0	0	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0
Honduras	Mechanical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Nicaragua	Mechanical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Panama	Mechanical engineering	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	23	48	0	0	0	0
Trinidad and Tobago	Mechanical engineering	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
South America	Mechanical engineering	3,533	58	50	68	66	66	81	76	93	132	144	158	154	164	225	227	221	189	203	241	229	221	235	232
Argentina	Mechanical engineering	48	1	0	0	2	0	0	0	2	3	2	4	1	3	1	8	1	4	4	6	2	3	1	0
Brazil	Mechanical engineering	2,824	56	50	64	62	61	75	75	85	121	139	135	131	130	175	176	167	150	142	150	162	165	166	187
Chile	Mechanical engineering	379	0	0	0	0	1	0	0	1	0	0	13	16	21	27	24	34	22	35	49	31	26	46	33
Colombia	Mechanical engineering	206	0	0	3	2	2	4	1	3	6	2	4	2	8	16	17	14	7	19	27	27	20	15	7
Ecuador	Mechanical engineering	15	0	0	1	0	2	2	0	2	2	0	1	1	1	3	0	0	0	0	0	0	0	0	0
Peru	Mechanical engineering	56	1	0	0	0	0	0	0	0	0	0	1	2	1	3	2	4	6	3	9	6	6	7	5
Uruguay	Mechanical engineering	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0
Venezuela	Mechanical engineering	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Europe	Mechanical engineering	309,073	8,613	9,630	9,553	10,218	10,463	11,302	11,577	12,749	13,646	13,578	12,770	13,895	14,794	14,791	15,614	15,999	14,831	16,063	16,421	16,069	16,596	14,951	14,955
EU-27 and United Kingdom[a]	Mechanical engineering	294,297	8,116	9,086	9,034	9,578	9,922	10,669	10,978	12,133	13,030	12,980	12,191	13,272	14,246	14,226	14,976	15,317	14,210	15,332	15,733	15,327	15,732	14,083	14,130
United Kingdom	Mechanical engineering	19,858	1,036	965	1,014	976	1,021	1,008	899	912	1,007	929	874	823	799	758	883	808	787	801	755	721	704	650	731
EU-27[b]	Mechanical engineering	274,439	7,080	8,121	8,020	8,602	8,901	9,661	10,079	11,221	12,023	12,051	11,318	12,449	13,447	13,468	14,093	14,509	13,423	14,532	14,978	14,607	15,028	13,433	13,399
European Patent Office	Mechanical engineering	164,877	2,743	3,313	3,164	3,572	4,138	5,298	5,635	6,408	7,034	7,354	6,778	7,662	8,751	8,848	8,859	8,962	8,826	9,535	9,947	9,749	10,212	9,098	8,993
Austria	Mechanical engineering	3,962	109	137	131	108	168	190	203	193	155	152	169	189	187	188	183	176	210	194	203	152	193	171	201
Belgium	Mechanical engineering	1,056	45	41	50	51	42	43	34	38	30	33	26	41	30	41	71	50	49	66	54	47	68	58	48
Bulgaria	Mechanical engineering	251	10	12	9	11	8	9	8	9	7	8	7	5	8	18	9	14	19	7	18	14	11	20	10
Croatia	Mechanical engineering	250	13	17	17	21	14	19	23	13	17	10	8	11	10	9	6	7	7	4	6	8	4	3	3
Cyprus	Mechanical engineering	14	0	1	0	1	1	3	2	1	1	1	1	0	0	1	0	1	0	0	0	0	0	0	0
Czechia	Mechanical engineering	881	31	30	28	19	25	33	25	27	36	49	32	32	33	49	52	46	45	51	43	53	42	42	58
Denmark	Mechanical engineering	4,484	165	156	152	189	212	171	172	208	205	190	199	165	221	225	184	219	191	240	235	222	214	196	155
Estonia	Mechanical engineering	41	0	0	4	2	1	0	2	2	6	3	2	2	7	0	0	1	0	3	2	1	0	2	1

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Patent Cooperation Treaty applications in mechanical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Finland	Mechanical engineering	6,230	284	325	317	299	254	290	274	297	286	303	268	301	292	295	285	283	237	250	232	230	220	220	188
France	Mechanical engineering	26,607	892	893	949	1,041	936	1,005	1,191	1,154	1,183	1,186	1,154	1,201	1,234	1,204	1,324	1,418	1,211	1,353	1,451	1,396	1,234	1,011	987
Germany	Mechanical engineering	21,852	1,311	1,582	1,629	1,618	1,396	1,014	853	977	958	816	769	736	716	543	888	1,031	673	756	817	650	711	711	697
Greece	Mechanical engineering	394	17	8	21	17	22	12	20	26	22	17	13	19	16	24	24	16	12	12	15	11	21	13	16
Hungary	Mechanical engineering	595	20	24	15	30	27	26	23	21	26	24	20	30	27	27	38	27	32	34	22	24	28	16	34
Ireland	Mechanical engineering	308	24	24	27	23	19	26	16	21	13	6	18	10	15	7	12	6	8	11	4	11	2	3	2
Italy	Mechanical engineering	15,622	231	276	310	423	482	427	490	582	648	604	576	718	699	764	749	932	853	891	865	991	1,054	971	1,088
Latvia	Mechanical engineering	59	3	0	6	0	1	4	4	2	4	3	2	2	4	1	5	7	0	1	1	1	2	4	2
Lithuania	Mechanical engineering	93	0	0	3	4	0	3	2	1	5	7	6	3	7	6	3	8	7	4	3	6	7	6	2
Luxembourg	Mechanical engineering	16	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4	2	3	5	0
Malta	Mechanical engineering	3	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Netherlands	Mechanical engineering	6,890	301	315	233	265	286	285	254	297	304	315	323	347	298	318	332	347	287	294	319	307	315	260	288
Poland	Mechanical engineering	1,017	24	46	31	26	27	25	17	22	28	25	22	43	60	48	71	67	85	95	58	54	52	47	44
Portugal	Mechanical engineering	450	8	5	10	10	12	11	9	11	20	22	14	22	21	23	24	28	29	32	38	27	26	20	28
Romania	Mechanical engineering	163	9	9	4	9	6	3	7	5	7	6	7	7	3	4	5	14	9	10	7	9	10	7	6
Slovakia	Mechanical engineering	200	1	11	5	7	9	6	11	12	9	8	4	12	6	7	24	6	6	17	12	10	7	2	8
Slovenia	Mechanical engineering	343	3	11	5	4	7	11	13	12	15	13	19	13	18	24	19	35	21	5	35	24	13	11	12
Spain	Mechanical engineering	6,045	127	154	160	184	201	218	231	275	317	295	352	360	342	335	347	343	285	282	241	262	244	243	247
Sweden	Mechanical engineering	11,740	709	731	740	668	606	529	560	606	688	601	529	518	442	461	580	466	320	385	346	346	335	293	281
Other Europe	Mechanical engineering	14,776	497	544	519	640	541	633	599	616	616	598	579	623	548	565	638	682	621	731	688	742	864	868	825
Other Europe (2020)[b]	Mechanical engineering	19,863	1,036	965	1,014	976	1,021	1,008	899	912	1,007	929	874	823	800	758	883	809	788	802	755	722	704	650	731
Albania	Mechanical engineering	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	0	0	0
Armenia	Mechanical engineering	28	0	2	1	1	0	0	2	0	3	0	1	3	0	6	2	1	3	1	0	0	0	1	1
Azerbaijan	Mechanical engineering	37	0	2	0	0	0	2	2	3	5	1	1	1	2	5	0	0	2	1	1	3	3	2	1
Belarus	Mechanical engineering	104	0	4	3	2	3	8	5	3	1	8	2	3	3	4	2	6	1	11	12	6	7	5	5
Bosnia and Herzegovina	Mechanical engineering	45	1	3	1	0	1	1	3	2	1	3	1	3	2	3	6	1	2	0	2	2	4	1	2
Georgia	Mechanical engineering	32	2	1	1	2	1	0	3	2	3	0	1	1	2	0	2	0	0	1	2	1	3	0	4
Iceland	Mechanical engineering	129	5	5	4	9	6	10	9	6	5	1	5	3	0	4	3	7	6	7	5	6	13	6	4
Macedonia	Mechanical engineering	11	3	0	1	1	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0
Moldova	Mechanical engineering	30	0	0	0	1	0	0	2	3	0	1	0	0	2	0	1	1	5	4	3	2	3	1	1
Monaco	Mechanical engineering	5	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0
Montenegro	Mechanical engineering	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Norway	Mechanical engineering	2,840	127	139	128	137	108	126	138	137	139	115	150	166	104	85	105	97	95	113	130	122	126	130	123
Russia	Mechanical engineering	4,421	114	129	139	145	117	141	140	162	158	199	175	204	214	259	250	239	188	227	238	245	244	259	235
San Marino	Mechanical engineering	11	0	0	0	0	0	0	1	0	2	1	1	0	0	1	0	0	2	2	0	1	0	0	0
Serbia	Mechanical engineering	92	0	0	0	0	0	0	0	3	4	14	4	4	3	6	5	7	7	1	8	10	4	6	6

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Patent Cooperation Treaty applications in mechanical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Switzerland	Mechanical engineering	3,339	211	229	199	288	252	282	223	199	185	160	155	141	96	102	97	120	68	70	71	54	67	37	34
Turkey	Mechanical engineering	2,901	19	8	18	26	23	25	53	55	85	67	67	70	66	65	117	155	200	253	169	245	349	378	388
Ukraine	Mechanical engineering	689	12	17	15	23	18	23	15	33	25	28	16	24	53	25	45	45	41	39	47	44	39	42	20
Yugoslavia	Mechanical engineering	56	2	4	9	5	10	15	3	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	Mechanical engineering	243,131	1,565	2,261	2,703	3,507	4,042	4,911	5,474	6,017	7,093	7,164	7,278	9,120	11,107	12,599	13,148	13,930	14,067	16,386	18,910	20,070	21,173	20,224	20,383
Eurasian Patent Organization	Mechanical engineering	82	5	3	3	2	0	3	6	6	8	1	8	1	7	4	6	5	5	1	0	1	0	3	4
Bangladesh	Mechanical engineering	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Brunei	Mechanical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
China	Mechanical engineering	56,497	47	109	129	152	210	213	352	480	663	722	843	1,340	1,723	2,097	2,240	2,527	2,823	4,095	5,843	6,692	7,193	7,705	8,299
India	Mechanical engineering	3,491	9	10	17	29	35	42	45	79	117	124	101	134	148	126	169	186	178	210	304	331	338	361	399
Indonesia	Mechanical engineering	48	4	1	1	0	2	0	2	4	3	2	2	3	2	4	0	4	2	2	4	1	2	3	0
Japan	Mechanical engineering	153,134	1,333	1,839	2,158	2,869	3,211	4,096	4,415	4,681	5,308	5,358	5,159	6,272	7,707	8,877	9,121	9,463	9,224	9,994	10,709	10,909	11,184	9,866	9,381
Kazakhstan	Mechanical engineering	111	1	1	2	2	4	0	1	6	4	6	5	4	7	4	5	5	7	5	12	8	8	9	5
Kyrgyzstan	Mechanical engineering	2	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Malaysia	Mechanical engineering	475	0	1	0	1	0	1	1	9	15	21	41	34	30	36	40	25	32	32	29	26	39	33	29
North Korea	Mechanical engineering	15	0	0	0	0	0	1	4	1	3	0	1	1	1	1	0	0	1	0	0	0	0	1	0
Pakistan	Mechanical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Philippines	Mechanical engineering	81	0	0	1	11	6	3	7	5	2	4	4	4	4	1	4	5	4	6	1	3	2	0	4
Singapore	Mechanical engineering	1,261	11	33	31	41	25	52	36	50	52	54	57	37	46	53	67	72	46	75	70	88	90	78	97
South Korea	Mechanical engineering	27,553	153	264	361	398	541	497	605	688	917	869	1,049	1,270	1,414	1,383	1,474	1,610	1,709	1,914	1,905	1,976	2,287	2,136	2,133
Sri Lanka	Mechanical engineering	16	0	0	0	0	2	0	0	0	0	1	0	2	0	0	1	2	2	0	0	2	1	1	2
Taiwan	Mechanical engineering	14	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	2	1	1	2	2	2
Thailand	Mechanical engineering	268	0	0	0	0	0	0	0	0	0	0	5	17	12	9	17	24	25	48	25	25	17	22	22
Turkmenistan	Mechanical engineering	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Uzbekistan	Mechanical engineering	5	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0
Vietnam	Mechanical engineering	72	0	0	0	2	3	3	0	7	1	1	3	1	5	4	1	2	8	2	5	4	10	4	6
Middle East	Mechanical engineering	4,137	87	112	113	131	158	157	156	156	186	183	170	155	136	182	199	210	195	226	228	268	238	230	261
Gulf States Patent Office	Mechanical engineering	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	3	0	0	0
Bahrain	Mechanical engineering	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Iran	Mechanical engineering	83	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4	5	12	8	7	13	16	17
Israel	Mechanical engineering	3,958	87	112	113	131	158	157	151	156	185	178	166	149	133	182	198	201	185	206	214	241	220	203	232
Jordan	Mechanical engineering	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
Oman	Mechanical engineering	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2
Qatar	Mechanical engineering	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Saudi Arabia	Mechanical engineering	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	5	5	4	9	2	1	5
Syria	Mechanical engineering	20	0	0	0	0	0	0	4	0	0	3	2	6	3	0	0	0	0	1	0	1	0	0	0

Table SINV-15

Patent Cooperation Treaty applications in mechanical engineering, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
United Arab Emirates	Mechanical engineering	16	0	0	0	0	0	0	1	0	1	2	1	0	0	0	0	1	0	0	0	4	0	6	0
Africa	Mechanical engineering	2,266	99	89	113	117	120	102	105	112	116	107	88	84	90	99	118	126	104	79	93	78	87	70	70
African IPO	Mechanical engineering	9	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	0	1	1	0	1	1
African Regional IPO	Mechanical engineering	10	0	0	0	1	1	1	0	0	0	0	0	1	0	1	0	1	1	0	0	1	1	0	1
Algeria	Mechanical engineering	43	0	3	2	0	4	1	1	1	3	2	1	0	1	1	2	2	2	3	3	3	4	2	2
Burundi	Mechanical engineering	7	0	0	1	0	0	0	0	0	2	0	0	1	0	0	0	0	1	1	1	0	0	0	0
Egypt	Mechanical engineering	184	0	0	0	0	7	6	12	10	9	8	17	10	6	10	10	19	19	9	11	7	9	2	3
Ghana	Mechanical engineering	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0
Kenya	Mechanical engineering	14	0	0	0	0	0	0	2	0	0	1	1	1	0	3	0	3	1	1	0	1	0	0	0
Libya	Mechanical engineering	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Madagascar	Mechanical engineering	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Morocco	Mechanical engineering	129	0	0	0	1	2	0	3	2	2	4	7	6	8	8	12	15	10	7	8	10	6	6	12
South Africa	Mechanical engineering	1,821	97	86	107	115	103	94	83	99	98	90	60	61	71	74	89	85	67	57	64	51	65	57	48
Sudan	Mechanical engineering	9	1	0	2	0	1	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0
Tunisia	Mechanical engineering	26	0	0	0	0	1	0	3	0	1	1	0	3	2	1	2	0	1	0	4	2	1	2	2
Zambia	Mechanical engineering	3	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Zimbabwe	Mechanical engineering	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
Australia and Oceania	Mechanical engineering	10,326	481	549	505	533	441	538	578	520	549	473	419	434	441	411	416	402	371	412	382	381	376	350	364
Australia	Mechanical engineering	8,739	413	455	443	461	375	451	482	422	442	400	343	357	367	345	347	342	326	361	338	327	326	305	311
New Zealand	Mechanical engineering	1,587	68	94	62	72	66	87	96	98	107	73	76	77	74	66	69	60	45	51	44	54	50	45	53
Unclassified	Mechanical engineering	29	0	0	0	0	0	26	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
WIPO	Mechanical engineering	3,336	22	33	29	61	77	62	75	88	132	156	155	176	164	145	171	147	224	211	196	230	270	245	224

EU-27 = European Union; IPO = Intellectual Property Organization; WIPO = World Intellectual Property Organization.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Figures are based on publication year of Patent Cooperation Treaty (PCT) applications. Technology areas are derived from the WIPO concordance of International Patent Classifications to technology categories available at https://www.wipo.int/ipstats/en/. Countries are allocated using the receiving office for each PCT application, which is based on the location of the inventors. In cases where PCT applications are filed directly with WIPO via its international bureau, the priority country of the earliest document in the same patent family is used (i.e., where the first application in the patent family was filed). In terms of the regional patent offices, applicants can choose to file PCT applications via these offices rather than their home country. As such, the IPO counts are in addition to the sum of its constituent country counts. The European Patent Office (EPO) is counted toward the EU-27 in the figures because the constituent countries are largely the same. Although the United Kingdom is no longer a member of the EU, it remains a signatory to the European Patent Convention and can still file via EPO. China includes Hong Kong. The world total is the sum of individual countries. There is no row duplication.

Source(s):
National Center for Science and Engineering Statistics; EP Bibliographic Data (EBD); 1790 Analytics, accessed March 2023.

Science and Engineering Indicators

Table SINV-16

Patent Cooperation Treaty applications in other fields, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	Other fields	310,254	5,963	6,877	6,778	7,684	8,175	9,412	10,359	11,375	14,374	12,747	13,666	11,421	11,986	12,479	14,312	14,733	20,398	21,353	18,010	20,083	19,815	19,267	18,833
North America	Other fields	96,591	2,265	2,387	2,288	2,683	2,841	3,458	3,691	4,138	5,613	4,361	4,467	3,469	3,650	4,091	4,916	4,944	6,358	6,382	4,819	5,086	5,111	5,127	4,448
Canada	Other fields	4,689	123	144	138	161	199	171	157	200	239	166	209	186	212	236	257	244	284	249	233	233	242	203	204
Mexico	Other fields	674	10	17	20	37	21	26	17	28	19	30	37	35	41	28	31	42	32	70	34	33	31	13	22
United States	Other fields	91,228	2,132	2,226	2,130	2,485	2,621	3,261	3,517	3,910	5,355	4,165	4,221	3,248	3,397	3,827	4,628	4,658	6,043	6,064	4,552	4,820	4,838	4,912	4,222
Central America and Caribbean	Other fields	147	0	1	3	1	0	3	1	1	3	6	15	1	5	2	2	1	1	15	57	15	5	9	0
Aruba	Other fields	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Costa Rica	Other fields	19	0	1	3	0	0	3	1	1	2	0	0	0	2	0	0	0	0	0	3	1	1	1	0
Cuba	Other fields	10	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	6	0
Dominican Republic	Other fields	17	0	0	0	0	0	0	0	0	0	1	4	0	1	2	2	0	0	2	1	3	1	0	0
El Salvador	Other fields	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Guatemala	Other fields	9	0	0	0	0	0	0	0	0	0	3	5	0	1	0	0	0	0	0	0	0	0	0	0
Panama	Other fields	81	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	13	52	10	1	2	0
Trinidad and Tobago	Other fields	7	0	0	0	1	0	0	0	0	0	2	1	1	0	0	0	0	0	0	1	1	0	0	0
South America	Other fields	1,980	24	25	30	33	50	47	44	50	74	65	96	90	93	106	102	108	143	144	119	150	140	124	123
Argentina	Other fields	37	0	1	1	0	0	1	1	0	5	1	1	1	5	1	2	0	2	6	2	1	2	3	1
Brazil	Other fields	1,455	23	23	29	25	40	43	38	44	62	59	87	62	64	83	70	75	105	95	78	99	100	75	76
Chile	Other fields	196	0	0	0	0	0	0	0	0	0	1	4	14	11	10	12	14	17	17	16	15	20	23	22
Colombia	Other fields	196	0	1	0	5	8	1	4	5	5	2	2	11	6	8	15	13	12	18	17	21	14	16	12
Ecuador	Other fields	29	0	0	0	2	2	2	1	1	2	2	1	0	6	1	0	1	3	2	0	1	0	0	2
Peru	Other fields	65	1	0	0	0	0	0	0	0	0	0	1	2	1	2	3	5	4	6	6	13	4	7	10
Uruguay	Other fields	2	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Europe	Other fields	108,840	2,822	3,244	3,135	3,479	3,555	3,800	4,222	4,520	5,722	5,160	5,329	4,645	4,644	4,431	4,827	4,829	6,103	6,669	5,320	6,051	5,856	5,361	5,121
EU-27 and United Kingdom[a]	Other fields	99,562	2,551	2,936	2,872	3,194	3,247	3,485	3,852	4,182	5,353	4,785	4,983	4,300	4,312	4,087	4,472	4,458	5,660	6,150	4,764	5,312	5,117	4,821	4,676
United Kingdom	Other fields	13,907	520	609	603	630	625	628	613	669	773	717	680	587	582	528	568	561	587	603	556	646	501	540	582
EU-27[b]	Other fields	85,656	2,031	2,327	2,269	2,564	2,622	2,857	3,239	3,513	4,580	4,068	4,303	3,713	3,730	3,559	3,904	3,897	5,073	5,547	4,208	4,666	4,616	4,281	4,094
European Patent Office	Other fields	47,756	705	873	942	1,008	1,145	1,328	1,608	1,726	2,414	2,188	2,414	1,982	2,066	1,996	2,208	2,282	3,205	3,537	2,536	2,979	3,061	2,820	2,737
Austria	Other fields	1,992	58	68	56	63	72	82	94	104	98	87	93	109	112	92	99	84	95	72	85	102	89	80	98
Belgium	Other fields	794	22	23	27	31	27	25	21	35	42	29	32	31	40	34	36	40	40	43	44	36	32	65	39
Bulgaria	Other fields	88	3	2	1	3	5	3	3	3	4	3	1	1	9	4	9	6	4	7	3	5	4	3	2
Croatia	Other fields	190	8	6	16	16	10	19	11	7	8	10	5	4	8	7	10	4	11	7	6	8	6	1	2
Cyprus	Other fields	12	0	0	0	1	1	1	1	3	0	0	0	0	0	0	0	1	0	0	0	0	0	3	1
Czechia	Other fields	371	10	11	11	17	11	15	9	17	14	17	24	19	14	18	16	12	28	16	23	21	11	19	18
Denmark	Other fields	1,621	73	87	80	90	76	96	99	91	105	106	67	56	64	63	56	42	58	62	55	54	50	58	33
Estonia	Other fields	24	0	2	1	0	1	2	0	1	1	0	1	1	1	0	1	2	3	0	0	4	2	0	1
Finland	Other fields	1,558	55	68	67	64	66	40	49	78	89	89	70	76	61	61	84	70	64	89	66	67	63	57	65

Table SINV-16

Patent Cooperation Treaty applications in other fields, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
France	Other fields	7,506	323	357	340	384	289	360	366	364	460	356	426	351	318	312	301	300	369	450	303	281	178	161	158
Germany	Other fields	4,528	232	242	194	203	220	205	198	186	293	262	190	196	217	138	167	158	189	202	161	210	194	155	117
Greece	Other fields	249	11	11	8	9	12	8	5	7	18	12	12	10	9	10	9	11	9	17	14	21	13	9	4
Hungary	Other fields	433	23	15	14	19	22	16	18	14	18	19	25	14	8	13	13	19	15	32	31	25	30	16	14
Ireland	Other fields	253	11	15	10	26	24	19	15	25	13	12	12	12	11	8	7	1	8	4	5	3	6	4	2
Italy	Other fields	6,677	114	126	132	173	193	175	236	281	388	314	319	272	284	318	335	378	406	389	340	375	386	360	384
Latvia	Other fields	36	0	2	0	1	4	0	2	2	0	1	4	3	1	1	3	0	2	1	1	3	1	3	1
Lithuania	Other fields	55	0	0	0	1	2	0	1	3	2	4	4	1	3	0	5	5	6	4	3	5	3	2	1
Luxembourg	Other fields	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Malta	Other fields	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands	Other fields	2,740	93	102	78	93	95	99	99	136	140	137	143	132	110	140	129	125	145	159	150	125	129	103	78
Poland	Other fields	616	14	19	18	29	23	19	9	22	21	23	29	29	22	29	27	30	46	48	36	29	42	26	26
Portugal	Other fields	328	1	2	1	3	4	5	3	8	9	17	19	11	10	14	17	24	21	36	24	23	29	27	20
Romania	Other fields	103	7	2	2	7	2	4	1	10	5	3	2	3	5	0	4	0	6	5	4	9	10	4	8
Slovakia	Other fields	108	5	5	3	4	7	3	6	5	5	1	5	6	8	2	8	5	7	4	2	5	3	5	4
Slovenia	Other fields	275	8	7	12	5	8	9	15	12	12	21	16	14	12	18	12	10	8	16	14	15	13	13	5
Spain	Other fields	3,923	66	87	84	113	119	151	212	155	203	177	225	237	208	178	199	185	199	212	211	188	173	171	171
Sweden	Other fields	3,419	189	195	172	201	184	173	158	218	218	179	166	143	129	103	149	103	129	136	90	73	88	117	106
Other Europe	Other fields	9,278	271	308	263	285	308	315	370	338	369	375	346	345	332	344	355	371	444	520	556	739	739	541	445
Other Europe (2020)[b]	Other fields	23,184	791	917	866	915	933	943	983	1,007	1,142	1,092	1,026	932	914	872	923	932	1,031	1,123	1,112	1,385	1,240	1,081	1,027
Albania	Other fields	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0
Armenia	Other fields	18	0	1	1	1	1	1	1	0	0	0	0	0	1	3	0	0	0	3	1	3	0	0	1
Azerbaijan	Other fields	21	0	0	1	0	0	1	0	2	1	2	0	3	2	1	1	0	0	0	4	1	2	0	0
Belarus	Other fields	26	0	0	0	0	2	2	3	0	1	4	0	2	0	0	0	2	1	0	3	2	2	0	2
Bosnia and Herzegovina	Other fields	35	0	1	1	4	1	1	5	4	4	0	3	2	1	0	2	0	0	0	1	1	0	1	3
Georgia	Other fields	28	0	0	1	1	1	0	3	0	1	4	0	0	1	2	1	0	1	2	5	2	0	2	1
Iceland	Other fields	30	1	0	2	0	3	0	1	4	0	0	1	1	1	3	1	0	1	3	0	2	2	3	1
Macedonia	Other fields	24	1	2	1	2	2	0	1	0	1	1	1	0	0	0	0	0	2	0	1	3	2	3	1
Moldova	Other fields	16	0	2	0	0	0	0	0	1	0	0	2	1	0	0	0	1	0	2	5	2	0	0	0
Monaco	Other fields	5	0	0	0	2	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Montenegro	Other fields	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Norway	Other fields	2,367	80	106	85	68	84	77	107	109	119	132	117	100	111	109	110	99	130	124	136	115	87	94	68
Russia	Other fields	2,498	47	49	49	59	58	59	63	64	97	100	122	126	112	118	130	115	125	159	148	155	227	178	138
San Marino	Other fields	13	0	0	0	2	0	0	0	1	2	2	1	1	1	0	0	0	0	3	0	0	0	0	0
Serbia	Other fields	62	0	0	0	0	0	0	0	2	8	5	4	4	1	2	2	4	4	4	4	7	5	4	2
Switzerland	Other fields	1,496	107	122	84	97	110	88	101	85	84	72	53	57	59	43	42	50	43	58	35	35	34	18	20

Table SINV-16

Patent Cooperation Treaty applications in other fields, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Turkey	Other fields	2,260	27	17	31	37	30	64	72	52	38	44	31	32	30	45	46	75	119	128	196	396	347	213	190
Ukraine	Other fields	331	5	3	3	9	12	9	8	8	11	8	11	16	12	17	20	23	18	34	17	15	30	24	18
Yugoslavia	Other fields	43	3	5	4	3	4	11	5	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	Other fields	88,578	479	759	869	1,017	1,230	1,430	1,778	1,920	2,102	2,475	3,128	2,649	3,018	3,380	3,841	4,277	7,074	7,444	7,017	8,090	8,009	8,012	8,580
Eurasian Patent Organization	Other fields	30	0	1	0	1	2	0	0	1	2	0	1	2	0	3	3	1	1	1	1	3	2	3	2
Brunei	Other fields	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
China	Other fields	34,369	41	59	79	123	113	182	233	333	415	461	615	648	862	1,036	1,353	1,699	2,522	3,130	3,490	4,420	3,951	4,096	4,508
India	Other fields	1,292	1	8	3	9	8	20	23	29	75	63	64	38	21	25	29	32	91	164	92	118	151	137	91
Indonesia	Other fields	21	1	1	0	3	0	0	0	0	5	0	1	1	0	2	1	1	1	1	0	1	1	0	1
Japan	Other fields	29,999	291	454	496	535	693	832	840	879	782	1,080	1,305	980	1,193	1,369	1,392	1,389	2,790	2,365	1,921	2,008	2,252	2,026	2,127
Kazakhstan	Other fields	67	1	0	3	2	1	2	1	3	1	2	4	3	1	1	4	6	3	3	6	6	5	5	4
Kyrgyzstan	Other fields	5	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0
Malaysia	Other fields	294	0	3	2	0	0	0	0	15	21	20	25	25	16	14	10	19	24	22	14	22	10	17	15
North Korea	Other fields	5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0
Pakistan	Other fields	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Philippines	Other fields	67	0	0	2	1	2	4	7	3	10	0	4	4	2	3	6	2	2	6	0	4	1	2	2
Singapore	Other fields	814	8	24	19	26	39	30	28	29	27	23	59	24	28	30	34	41	65	36	43	47	55	37	62
South Korea	Other fields	21,386	135	208	264	316	371	359	646	624	760	822	1,042	922	888	887	994	1,076	1,558	1,679	1,434	1,442	1,551	1,655	1,753
Sri Lanka	Other fields	20	0	1	1	1	0	0	0	0	3	1	4	0	0	1	0	1	1	0	0	1	1	3	1
Taiwan	Other fields	19	0	0	0	0	0	1	0	0	0	0	1	1	0	0	1	0	0	2	3	3	4	2	1
Thailand	Other fields	135	0	0	0	0	0	0	0	0	0	0	0	0	2	7	12	6	14	31	12	7	14	21	9
Uzbekistan	Other fields	4	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0
Vietnam	Other fields	48	0	0	0	0	1	0	0	3	0	1	2	0	5	2	2	3	1	4	0	6	6	8	4
Middle East	Other fields	2,423	43	66	51	71	87	115	107	155	174	108	88	52	70	61	91	91	138	146	139	151	142	147	130
Gulf States Patent Office	Other fields	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1
Iran	Other fields	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	2	11	16	15	30	10
Israel	Other fields	2,203	43	63	50	70	87	112	107	152	172	108	83	51	70	61	90	88	127	124	114	111	109	99	112
Jordan	Other fields	19	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	7	4	3	1
Lebanon	Other fields	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Oman	Other fields	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	3	4	0
Qatar	Other fields	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	5	9	6	1	3
Saudi Arabia	Other fields	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	16	4	6	4	6	2
Syria	Other fields	5	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0
United Arab Emirates	Other fields	17	0	2	1	1	0	2	0	2	2	0	2	0	0	0	0	1	0	0	0	0	0	3	1
Africa	Other fields	1,587	78	82	90	73	69	71	84	89	105	88	76	51	54	43	63	59	52	66	61	72	55	64	42
African IPO	Other fields	9	0	0	0	0	0	1	2	1	0	0	2	0	0	0	2	0	1	0	0	0	0	0	0

Table SINV-16

Patent Cooperation Treaty applications in other fields, by region, country, or economy: 2000–22

(Number)

Region, country, or economy	Technology sector	Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
African Regional IPO	Other fields	6	2	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Algeria	Other fields	25	0	0	0	1	1	0	3	1	1	0	4	1	0	0	1	3	1	1	1	2	2	1	1
Botswana	Other fields	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burundi	Other fields	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Egypt	Other fields	107	0	0	0	0	1	5	7	5	5	5	5	1	5	4	6	6	3	9	5	8	11	13	3
Ghana	Other fields	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kenya	Other fields	9	0	0	0	0	0	0	0	1	0	0	0	0	3	1	0	1	0	1	0	0	0	0	2
Libya	Other fields	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Madagascar	Other fields	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Morocco	Other fields	62	0	0	0	2	0	0	0	2	1	2	5	2	0	6	3	4	3	8	4	4	3	11	2
Nigeria	Other fields	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Seychelles	Other fields	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
South Africa	Other fields	1,324	76	81	89	69	67	63	64	79	92	78	59	47	44	30	51	44	42	46	48	50	38	34	33
Sudan	Other fields	19	0	0	0	0	0	1	6	0	2	1	0	0	0	0	0	0	0	0	2	4	0	3	0
Tunisia	Other fields	13	0	0	0	0	0	0	2	0	0	1	0	0	1	2	0	1	0	1	1	2	1	1	0
Zambia	Other fields	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Zimbabwe	Other fields	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	Other fields	8,245	223	284	290	288	306	447	395	449	476	402	382	394	387	306	392	359	412	370	376	335	374	304	295
Australia	Other fields	7,168	189	248	246	252	259	385	321	386	403	338	337	357	338	269	343	318	364	319	337	292	340	275	253
New Zealand	Other fields	1,077	34	36	44	36	47	62	74	63	73	64	45	37	49	38	49	41	48	51	39	43	34	29	42
Unclassified	Other fields	140	12	15	10	9	12	16	3	4	17	30	9	1	0	1	0	0	0	0	0	0	0	0	1
WIPO	Other fields	1,724	17	14	12	30	25	26	34	49	89	53	77	69	66	59	78	65	117	117	102	133	123	119	93

EU-27 = European Union; IPO = Intellectual Property Organization; WIPO = World Intellectual Property Organization.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Figures are based on publication year of Patent Cooperation Treaty (PCT) applications. Technology areas are derived from the WIPO concordance of International Patent Classifications to technology categories available at https://www.wipo.int/ipstats/en/. Countries are allocated using the receiving office for each PCT application, which is based on the location of the inventors. In cases where PCT applications are filed directly with WIPO via its international bureau, the priority country of the earliest document in the same patent family is used (i.e., where the first application in the patent family was filed). In terms of the regional patent offices, applicants can choose to file PCT applications via these offices rather than their home country. As such, the IPO counts are in addition to the sum of its constituent country counts. The European Patent Office (EPO) is counted toward the EU-27 in the figures because the constituent countries are largely the same. Although the United Kingdom is no longer a member of the EU, it remains a signatory to the European Patent Convention and can still file via EPO. China includes Hong Kong. The world total is the sum of individual countries. There is no row duplication.

Source(s):
National Center for Science and Engineering Statistics; EP Bibliographic Data (EBD); 1790 Analytics, accessed March 2023.

Science and Engineering Indicators

Table SINV-17

Worldwide granted utility patents in AI, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	AI patents
World	190,038
North America	43,346
Canada	1,776
Greenland	0
Mexico	62
United States	41,507
Central America and Caribbean	29
Barbados	4
Bermuda	1
British Virgin Islands	2
Cayman Islands	3
Costa Rica	14
Cuba	1
Dominican Republic	0
El Salvador	0
Guatemala	1
Honduras	1
Jamaica	1
Nicaragua	0
Panama	0
Trinidad and Tobago	1
South America	280
Argentina	23
Brazil	219
Chile	15
Colombia	16
Ecuador	1
Paraguay	1
Peru	1
Uruguay	1
Venezuela	4
Europe	14,371
EU-27 and United Kingdom[a]	12,060
United Kingdom	2,216
EU-27[b]	9,845
European Patent Office	50
Austria	208
Belgium	210
Bulgaria	28
Croatia	8
Cyprus	8
Czechia	90
Denmark	199
Estonia	13
Finland	385
France	1,818
Germany	3,875
Greece	68
Hungary	67
Ireland	424
Italy	517

Table SINV-17

Worldwide granted utility patents in AI, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	AI patents
Latvia	5
Lithuania	28
Luxembourg	23
Malta	14
Netherlands	658
Poland	118
Portugal	46
Reunion	1
Romania	94
Slovakia	26
Slovenia	14
Spain	336
Sweden	516
Other Europe	2,311
Other Europe (2020)[b]	4,527
Andorra	0
Armenia	9
Azerbaijan	1
Belarus	23
Bosnia and Herzegovina	1
Georgia	3
Gibraltar	0
Iceland	8
Liechtenstein	0
Macedonia	1
Moldova	3
Monaco	4
Norway	100
Russia	1,327
Serbia	11
Switzerland	671
Turkey	64
Ukraine	85
Yugoslavia	0
Asia	127,973
Bangladesh	1
Brunei	1
Cambodia	1
China	91,436
India	3,043
Indonesia	8
Japan	12,944
Kazakhstan	2
Kyrgyzstan	0
Macau	6
Malaysia	106
Mongolia	1
Nepal	2
North Korea	1
Pakistan	10
Philippines	20

Table SINV-17

Worldwide granted utility patents in AI, by selected region, country, or economy: 2000–22

(Number)

Region, country, or economy	AI patents
Singapore	302
South Korea	17,262
Sri Lanka	4
Taiwan	2,793
Tajikistan	1
Thailand	7
Uzbekistan	2
Vietnam	21
Middle East	2,007
Bahrain	1
Iran	16
Israel	1,786
Jordan	1
Kuwait	2
Lebanon	1
Oman	1
Palestine	0
Qatar	8
Saudi Arabia	156
United Arab Emirates	34
Yemen	1
Africa	126
Algeria	1
Egypt	20
Eritrea	0
Gabon	0
Gambia	0
Ghana	0
Kenya	23
Mauritania	1
Morocco	15
Namibia	2
Nigeria	3
South Africa	58
Sudan	1
Tunisia	3
Uganda	0
Australia and Oceania	1,901
Australia	1,834
Marshall Islands	0
New Zealand	67
World Intellectual Property Organization	4

AI = artificial intelligence; EU-27 = European Union.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Granted patents for all patent authorities are allocated according to patent inventorship information. AI patents are identified and divided into categories using filters consisting of Cooperative Patent Classifications and International Patent Classifications plus keywords and phrases. Details of these filters can be found at https://github.com/georgetown-cset/1790-ai-patent-data/. Only the first granted patent in each patent family is counted so as to avoid double counting the same invention. Patent families containing no granted patents are excluded. Country assignments are based on fractional counting of inventor locations as listed in the associated record from the Global Patent Index. If no inventor countries are listed, the priority country is used (i.e., where the first application in the patent family was filed). China includes Hong Kong. The world total is the sum of individual countries. There is no row duplication.

Source(s):
National Center for Science and Engineering Statistics; European Patent Office, Global Patent Index; 1790 Analytics, accessed March 2023.

Science and Engineering Indicators

Table SINV-18

Granted AI patents in AI techniques, functional applications, and application fields, by selected region, country, or economy: 2000–22

(Number)

Category	United States	China	Japan	South Korea
AI techniques				
Machine learning	31,676	77,615	10,518	14,351
Logic programming	10,380	2,744	2,252	904
Probabilistic reasoning	4,484	5,840	1,027	699
Fuzzy logic	1,363	2,257	415	233
Ontology engineering	1,227	4,608	99	222
Search methods	1,349	271	161	68
Generic or unspecified	3,864	10,990	758	2,401
Functional applications				
Computer vision	10,287	34,044	3,169	4,754
Control	6,244	5,940	3,137	1,749
Measuring and testing	5,050	8,835	1,756	1,992
Knowledge representation	5,723	1,051	763	419
Planning and scheduling	3,866	6,726	930	1,152
Analytics and algorithms	3,775	5,034	590	859
Language processing	3,063	4,270	525	815
Speech processing	2,215	2,958	728	1,134
Robotics	146	4	34	22
Distributed AI	249	26	25	9
Application fields				
Personal devices and computing	23,207	34,074	5,761	5,266
Telecommunications	11,070	11,318	1,807	3,861
Business	6,004	8,070	1,276	2,950
Life sciences	5,676	5,098	1,192	2,339
Transportation	4,538	3,767	1,763	1,415
Energy management	1,177	5,834	810	1,120
Industrial and manufacturing	1,565	5,431	1,232	1,151
Physical science and engineering	1,504	4,171	682	823
Security (e.g., cybersecurity)	3,545	5,487	505	1,372
Education	692	1,978	195	437
Banking and finance	2,004	1,414	310	569
Entertainment	621	565	268	272
Semiconductors	594	663	335	286
Agriculture	399	1,207	138	230
Networks (e.g., social, IOT)	738	466	62	163
Computing in government	147	883	40	317
Nanotechnology	161	26	10	16
Military	81	34	6	33
Document management and publishing	56	39	71	18

AI = artificial intelligence; IOT = Internet of Things.

Note(s):
Granted patents for all patent authorities are allocated according to patent inventorship information. AI patents are identified and divided into categories using filters consisting of Cooperative Patent Classifications and International Patent Classifications plus keywords and phrases. Details of these filters can be found at https://github.com/georgetown-cset/1790-ai-patent-data/. Only the first granted patent in each patent family is counted so as to avoid double counting the same invention. Patent families containing no granted patents are excluded. Country assignments are based on fractional counting of inventor locations as listed in the associated record from the Global Patent Index. If no inventor countries are listed, the priority country is used (i.e., where the first application in the patent family was filed). The patent families in the AI patent database are categorized along three dimensions, available at https://github.com/georgetown-cset/1790-ai-patent-data:

● AI techniques: How does the invention work? (e.g., machine learning, logic models, fuzzy logic)

● Functional applications: What does the invention do? (e.g., speech processing, computer vision, control systems)

● Application fields: Where can the invention be used? (e.g., life sciences, transportation, energy management)

The three dimensions build on the Computing Classification System developed by the Association for Computing Machinery. Within each dimension, a patent family may be included in more than one category. China includes Hong Kong.

Source(s):
National Center for Science and Engineering Statistics; European Patent Office, Global Patent Index; 1790 Analytics, accessed March 2023.

Science and Engineering Indicators

Table SINV-19

Proportion of matched and unmatched cases for gender analysis: 2000–22

(Number and percent)

Issue year	Matched cases (number)	Unmatched cases (number)	Cases matched (%)	Cases unmatched (%)
2000	164,370	11,823	93.3	6.7
2001	171,037	13,041	92.9	7.1
2002	171,116	13,402	92.7	7.3
2003	173,441	13,690	92.7	7.3
2004	167,014	14,429	92.0	8.0
2005	145,300	12,582	92.0	8.0
2006	180,110	16,482	91.6	8.4
2007	167,037	16,118	91.2	8.8
2008	167,861	17,539	90.5	9.5
2009	173,689	18,463	90.4	9.6
2010	221,230	23,433	90.4	9.6
2011	223,886	24,220	90.2	9.8
2012	249,484	27,800	90.0	10.0
2013	272,034	31,613	89.6	10.4
2014	292,122	34,892	89.3	10.7
2015	290,733	36,240	88.9	11.1
2016	296,935	37,739	88.7	11.3
2017	313,774	38,813	89.0	11.0
2018	303,083	38,019	88.9	11.1
2019	347,765	44,852	88.6	11.4
2020	343,660	46,911	88.0	12.0
2021	317,308	46,521	87.2	12.8
2022	310,636	49,781	86.2	13.8
Total	5,463,625	628,403	89.7	10.3

Note(s):
The analysis of patenting by gender is based on patents granted by the Patent and Trademark Office (USPTO). Fractional counting of inventors is used, with the credit for each patent divided equally between the inventors. The gender of inventors is determined using the World Intellectual Property Organization (WIPO) World Gender-Name Dictionary Version 2.0, available at https://dataverse.harvard.edu/dataverse/WGND. The process for matching inventor names to genders is based on the WIPO guidelines described at https://tind.wipo.int/record/45020?ln=en. Technology areas are based on the WIPO concordance of International Patent Classifications to technology categories available at https://www.wipo.int/ipstats/en/.

Source(s):
National Center for Science and Engineering Statistics; 1790 Analytics; USPTO, accessed March 2023.

Science and Engineering Indicators

Table SINV-20

U.S. university USPTO utility patent awards, by WIPO technical field: 2000–22

(Number)

WIPO technical field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Pharmaceuticals	661	626	626	556	472	398	503	451	419	448	676	635	811	887	1,001	1,051	1,083	1,178	1,112	1,223	1,263	1,182	1,049
Biotechnology	727	788	700	622	569	474	658	590	537	577	703	640	702	733	837	810	924	960	949	1,031	1,057	1,045	902
Medical technology	238	234	244	312	242	209	230	197	215	224	360	384	463	574	642	666	703	776	786	938	948	857	859
Measurement	219	231	220	257	295	246	282	266	280	283	346	372	394	400	389	415	440	451	471	565	554	463	430
Organic fine chemistry	228	231	266	223	188	185	222	176	163	184	250	207	283	311	360	381	435	435	431	422	431	393	308
Computer technology	90	116	119	119	138	121	177	165	164	178	267	280	326	345	375	356	395	383	387	482	470	457	504
Analysis of biological materials	133	165	142	141	137	124	146	152	176	168	259	245	236	282	295	274	292	346	325	331	326	303	237
Electrical machinery, apparatus, energy	82	82	89	100	113	99	123	100	94	98	166	132	155	177	218	233	265	299	295	339	363	305	293
Optics	128	104	144	138	152	146	151	140	137	136	156	127	166	156	178	180	178	177	154	195	212	181	189
Semiconductors	81	98	108	139	97	98	101	96	80	109	162	164	170	199	225	227	236	234	210	225	209	166	161
Chemical engineering	79	77	69	99	85	81	80	74	72	72	118	106	121	147	155	171	176	210	196	206	227	223	186
Micro-structural and nano-technology	47	50	65	78	91	89	108	109	104	106	140	158	145	187	181	183	144	124	94	93	97	85	81
Basic materials chemistry	62	73	52	70	60	54	60	44	46	53	73	84	97	137	118	126	140	136	162	162	139	141	121
Other special machines	65	75	80	79	57	55	54	57	45	56	73	71	76	87	84	87	98	100	114	141	145	144	150
Macromolecular chemistry, polymers	61	68	73	83	52	45	64	53	39	51	86	72	73	105	95	97	115	128	122	128	132	138	101
Materials, metallurgy	60	63	63	61	51	48	54	53	40	62	74	75	80	99	86	101	113	111	105	129	131	124	107
Digital communication	25	28	27	22	33	35	64	61	55	62	87	114	119	90	127	119	111	115	112	158	133	92	114
Surface technology, coating	64	59	57	60	50	45	40	49	43	37	66	60	75	82	80	81	88	103	108	112	107	106	101
Telecommunications	27	37	49	42	59	42	56	55	49	57	62	62	84	71	77	85	86	96	107	139	136	116	91
Audio-visual technology	33	46	37	42	38	35	53	39	37	38	44	40	67	69	55	75	78	88	74	93	81	83	64
Environmental technology	41	36	46	35	38	25	43	34	25	43	41	46	44	59	71	59	56	77	66	82	79	77	68
Basic communication processes	20	15	20	24	44	47	44	48	51	53	48	65	51	61	57	54	63	53	62	61	66	48	59
Control	20	18	23	24	19	19	31	25	15	21	32	31	38	47	46	41	55	69	68	88	80	77	71
Engines, pumps, turbines	23	27	25	31	23	24	30	27	30	34	42	37	44	42	48	45	64	49	60	58	56	47	53
Food chemistry	43	33	26	26	17	17	25	17	11	19	25	21	33	34	35	39	40	38	40	41	41	50	38
Transport	17	18	16	14	21	20	19	17	14	11	25	28	24	33	33	33	29	30	48	43	48	48	54
Civil engineering	22	17	19	15	20	18	10	15	10	12	18	24	19	29	26	32	34	31	38	47	42	42	33
Mechanical elements	18	18	19	17	19	13	18	18	11	10	16	20	23	30	29	26	26	39	30	41	36	38	31
Textile and paper machines	15	16	20	14	21	12	19	19	14	12	20	22	22	33	26	24	34	25	29	33	34	37	30
Machine tools	13	17	19	19	22	14	18	19	14	20	18	23	21	24	30	20	18	22	19	26	27	18	19
Thermal processes and apparatus	7	11	10	17	14	10	11	9	8	8	12	10	9	17	19	16	20	19	27	34	34	34	29
Other consumer goods	12	6	9	7	9	5	5	13	4	5	12	15	16	18	17	18	26	30	19	26	34	20	25
Handling	3	6	7	5	5	5	4	6	4	1	9	8	14	16	17	20	22	25	27	39	39	32	31
IT methods for management	5	6	2	4	4	9	12	11	14	12	18	24	17	24	32	14	16	15	18	22	23	14	29
Furniture, games	7	7	4	6	7	5	5	8	4	5	6	6	16	12	15	12	16	16	17	23	20	17	15
Unclassified	6	6	1	1	2	4	0	3	0	5	6	7	6	8	7	9	10	14	8	19	22	15	17

IT = information technology; USPTO = Patent and Trademark Office; WIPO = World Intellectual Property Organization.

Note(s):
Patents are allocated according to patent ownership information. Data include institutions affiliated with academic institutions, such as university and alumni organizations, foundations, university associations, and affiliated hospitals. Universities vary in how patents are assigned (e.g., to boards of regents, individual campuses, or entities with or without affiliation with the university). Patents are classified under the WIPO classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. For instance, a patent that is classified under five different technological fields will see each of its technological fields receive a 0.2 count of the patent, so that the patent accounts for a count of 1.0 across all technological fields. Patents were also fractionally allocated among regions, countries, or economies based on the proportion of residences of all assignees. As such, data across technical fields sum to the total number of granted academic patents in the United States. Data across technical fields also sum to the total number of patents granted by USPTO. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-21

Citations of S&E articles in USPTO utility patents, by cited field, cited author country, and patent sector: 2013–22

(Number)

Field, country, and sector	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
All fields, all sectors	613,495	680,903	672,170	653,505	667,440	635,923	722,775	697,167	663,709	633,630
Foreign	315,348	355,983	356,595	348,962	359,766	345,588	389,853	379,114	363,281	352,760
Unknown country	3,258	3,345	3,090	2,858	2,793	2,533	2,367	2,092	1,714	1,426
United States	294,889	321,574	312,486	301,685	304,881	287,802	330,555	315,961	298,714	279,444
Academic	190,814	207,767	204,992	200,352	202,557	193,432	223,869	215,492	202,930	188,954
Business	56,236	62,095	57,745	54,223	54,840	49,723	55,179	51,089	48,130	45,230
Federal government	11,660	12,386	12,070	11,579	11,584	11,334	12,464	12,226	12,148	11,265
FFRDCs	5,857	6,652	6,193	6,168	6,212	5,785	6,768	6,147	5,648	5,525
Nonprofit	15,574	16,854	17,001	15,846	16,029	15,108	18,015	17,419	16,682	16,048
State and local government	299	304	265	296	239	233	283	257	269	195
Joint and unknown sectors	14,451	15,517	14,220	13,221	13,419	12,188	13,978	13,332	12,908	12,226
Agricultural sciences	3,199	3,480	3,217	3,069	3,157	3,192	3,807	3,987	4,283	3,586
Foreign	1,852	2,073	2,093	2,015	2,096	2,114	2,685	2,857	3,158	2,714
Unknown country	14	13	12	4	7	6	9	6	6	4
United States	1,333	1,394	1,111	1,049	1,054	1,072	1,113	1,124	1,119	868
Academic	904	987	788	698	738	744	773	787	783	608
Business	148	127	110	116	102	121	103	118	111	103
Federal government	194	184	143	167	148	153	168	166	171	110
FFRDCs	3	4	5	9	11	4	12	5	3	3
Nonprofit	6	5	6	4	5	4	5	4	4	3
State and local government	0	1	1	1	0	0	1	2	1	1
Joint and unknown sectors	79	86	58	54	50	45	51	42	47	39
Astronomy and astrophysics	88	111	97	164	108	112	119	156	128	170
Foreign	62	77	63	105	72	59	57	59	64	73
Unknown country	0	0	0	0	0	0	0	0	0	1
United States	26	34	34	59	36	53	62	97	64	96
Academic	14	20	20	39	16	31	30	54	32	57
Business	1	2	3	5	1	3	2	6	3	2
Federal government	2	5	5	7	7	8	16	15	17	16
FFRDCs	6	5	5	4	9	8	8	13	9	15
Nonprofit	2	3	0	0	1	1	2	5	2	1
State and local government	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	1	0	2	4	3	1	4	3	2	4
Biological and biomedical sciences	162,536	176,622	178,140	168,729	174,516	171,999	196,468	196,334	185,814	176,315
Foreign	79,229	87,203	87,205	82,241	85,340	84,641	95,713	95,115	89,691	85,008
Unknown country	753	740	702	662	644	611	546	470	265	243

Table SINV-21

Citations of S&E articles in USPTO utility patents, by cited field, cited author country, and patent sector: 2013–22

(Number)

Field, country, and sector	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
United States	82,554	88,678	90,233	85,826	88,532	86,747	100,209	100,749	95,857	91,064
Academic	52,652	56,179	57,593	55,117	56,937	56,431	66,067	66,867	63,590	60,763
Business	14,432	15,680	15,750	14,815	15,422	14,117	15,628	15,126	14,096	12,837
Federal government	5,170	5,570	5,571	5,283	5,299	5,194	5,720	5,829	5,705	5,333
FFRDCs	978	1,106	976	960	894	923	1,118	1,026	1,012	1,009
Nonprofit	5,524	6,009	6,329	6,108	6,492	6,684	8,028	8,366	8,046	7,951
State and local government	82	92	90	86	74	96	105	101	111	76
Joint and unknown sectors	3,716	4,042	3,925	3,458	3,414	3,304	3,543	3,434	3,298	3,094
Chemistry	53,661	56,089	56,004	54,487	55,058	52,586	57,495	58,483	54,017	49,591
Foreign	30,981	32,699	33,056	31,962	32,641	31,661	34,854	35,579	32,918	31,062
Unknown country	76	61	35	40	41	44	45	41	34	34
United States	22,604	23,330	22,913	22,485	22,376	20,880	22,596	22,863	21,065	18,495
Academic	16,709	17,271	16,936	16,819	16,689	15,873	17,126	17,354	16,140	14,007
Business	3,251	3,428	3,308	3,229	2,995	2,505	2,616	2,577	2,368	2,016
Federal government	564	526	505	484	513	518	481	514	448	434
FFRDCs	770	781	742	724	788	768	974	1,033	898	935
Nonprofit	712	786	885	673	808	700	794	740	633	557
State and local government	7	10	7	17	9	7	10	15	8	6
Joint and unknown sectors	590	529	531	538	574	510	595	629	571	539
Computer and information sciences	82,543	93,345	89,548	89,494	91,846	95,726	107,913	102,748	94,250	96,867
Foreign	39,531	44,762	43,965	44,842	48,779	51,730	59,538	59,432	56,196	59,088
Unknown country	658	740	649	611	527	436	417	358	332	270
United States	42,354	47,843	44,933	44,041	42,540	43,560	47,958	42,958	37,722	37,509
Academic	27,097	31,281	29,910	29,281	28,805	29,988	32,625	29,105	25,039	24,567
Business	11,996	13,190	12,007	11,836	11,056	10,837	12,200	11,009	10,066	10,374
Federal government	321	343	304	323	332	423	417	293	274	336
FFRDCs	462	495	491	511	431	430	609	568	523	425
Nonprofit	936	987	792	687	526	410	472	415	282	243
State and local government	2	1	0	1	0	0	0	0	1	1
Joint and unknown sectors	1,539	1,546	1,430	1,403	1,389	1,471	1,635	1,568	1,537	1,563
Engineering	65,738	73,536	71,114	70,911	73,862	68,714	82,478	80,206	76,716	73,806
Foreign	33,648	37,566	37,463	37,731	39,679	37,483	45,544	45,641	45,050	44,770
Unknown country	278	307	267	262	228	214	202	190	137	110
United States	31,812	35,664	33,384	32,918	33,954	31,017	36,732	34,375	31,529	28,926
Academic	20,378	23,108	22,604	22,694	23,266	21,425	26,018	25,088	22,931	21,004
Business	7,522	8,151	6,671	6,137	6,494	5,732	6,208	5,118	4,691	4,352

Table SINV-21

Citations of S&E articles in USPTO utility patents, by cited field, cited author country, and patent sector: 2013–22

(Number)

Field, country, and sector	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Federal government	776	848	865	794	904	897	1,013	973	917	859
FFRDCs	1,197	1,394	1,246	1,371	1,368	1,286	1,611	1,438	1,383	1,312
Nonprofit	792	854	732	665	615	513	532	456	358	252
State and local government	16	24	19	27	15	10	16	16	14	13
Joint and unknown sectors	1,131	1,285	1,247	1,230	1,293	1,154	1,334	1,285	1,236	1,134
Geosciences, atmospheric sciences, and ocean sciences	3,152	3,789	3,356	3,032	3,746	3,495	5,040	4,289	3,937	4,759
Foreign	1,442	1,796	1,560	1,406	1,807	1,682	2,421	2,037	2,072	2,401
Unknown country	130	138	108	117	104	85	113	70	46	49
United States	1,580	1,855	1,688	1,509	1,835	1,728	2,505	2,182	1,819	2,309
Academic	639	758	731	612	763	638	865	822	714	976
Business	561	656	604	501	662	711	1,068	873	679	846
Federal government	89	80	67	90	79	63	81	74	79	77
FFRDCs	73	91	58	74	72	43	62	49	56	75
Nonprofit	89	101	91	58	84	99	121	97	88	81
State and local government	3	1	4	0	0	0	1	2	0	0
Joint and unknown sectors	125	167	134	174	175	173	307	265	202	254
Health sciences	157,309	171,060	168,193	163,179	167,831	155,510	177,388	170,579	168,416	158,635
Foreign	78,057	84,444	83,463	81,618	83,898	79,668	90,230	87,965	86,364	83,336
Unknown country	1,200	1,201	1,179	1,026	1,101	1,027	933	869	817	658
United States	78,052	85,415	83,551	80,535	82,832	74,814	86,225	81,744	81,235	74,641
Academic	51,061	55,316	54,943	53,783	54,987	50,067	58,022	55,389	54,575	49,940
Business	9,941	11,771	11,053	10,271	11,274	10,063	10,915	10,263	10,410	9,466
Federal government	3,458	3,683	3,567	3,444	3,313	3,171	3,599	3,489	3,643	3,329
FFRDCs	246	216	261	240	266	198	221	210	200	197
Nonprofit	7,114	7,691	7,797	7,310	7,208	6,435	7,698	7,006	7,007	6,730
State and local government	181	172	142	158	138	114	148	115	132	95
Joint and unknown sectors	6,051	6,567	5,787	5,329	5,646	4,766	5,622	5,272	5,267	4,886
Materials science	9,269	10,468	10,685	9,714	10,408	9,745	11,525	10,116	10,380	9,784
Foreign	5,804	6,788	7,102	6,629	7,046	6,751	7,887	7,008	7,174	6,672
Unknown country	18	14	13	18	17	13	13	8	7	9
United States	3,447	3,666	3,570	3,067	3,344	2,981	3,625	3,101	3,199	3,104
Academic	2,229	2,394	2,391	2,108	2,329	2,068	2,592	2,201	2,326	2,249
Business	583	560	524	385	441	362	404	332	296	298
Federal government	176	206	207	168	134	121	155	127	166	121
FFRDCs	248	344	310	279	311	302	349	318	303	348
Nonprofit	50	43	40	42	36	25	31	34	30	20

Table SINV-21

Citations of S&E articles in USPTO utility patents, by cited field, cited author country, and patent sector: 2013–22

(Number)

Field, country, and sector	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
State and local government	0	0	0	0	1	2	0	0	0	0
Joint and unknown sectors	161	119	97	86	93	100	94	89	78	68
Mathematics and statistics	1,014	1,026	902	858	932	1,200	1,421	1,278	1,258	1,222
Foreign	503	536	447	438	509	637	729	615	615	627
Unknown country	3	1	2	2	5	0	1	2	3	2
United States	508	490	453	418	418	563	691	661	640	593
Academic	384	379	353	321	340	449	556	527	510	474
Business	55	47	37	25	26	37	42	59	58	55
Federal government	13	14	11	18	12	14	10	12	14	8
FFRDCs	24	21	10	12	17	34	41	34	36	28
Nonprofit	11	10	10	11	8	19	25	13	11	12
State and local government	0	0	0	0	0	0	0	0	0	0
Joint and unknown sectors	20	19	32	31	16	10	17	15	11	16
Natural resources and conservation	1,175	1,297	1,252	1,308	1,385	1,386	1,503	1,759	1,727	1,566
Foreign	700	784	773	842	860	832	932	1,101	1,115	1,063
Unknown country	4	6	3	2	3	1	2	4	1	2
United States	472	507	475	463	522	554	568	654	611	501
Academic	312	330	319	307	345	318	359	408	427	307
Business	65	65	58	60	74	81	75	88	44	48
Federal government	40	54	48	43	54	50	66	74	60	53
FFRDCs	24	27	23	19	19	64	33	52	52	52
Nonprofit	5	1	4	4	9	9	9	9	6	8
State and local government	2	4	2	4	1	2	1	1	1	1
Joint and unknown sectors	24	25	23	27	21	30	26	23	21	34
Physics	69,093	84,682	84,460	82,950	78,817	66,435	70,434	59,650	55,431	50,022
Foreign	41,622	55,137	57,233	56,748	54,683	45,914	45,949	38,107	35,295	32,432
Unknown country	107	108	104	92	95	79	71	57	50	34
United States	27,364	29,437	27,123	26,111	24,040	20,442	24,414	21,486	20,086	17,556
Academic	16,651	17,764	16,577	16,524	15,113	13,041	16,215	14,134	13,287	11,432
Business	6,911	7,418	6,607	5,909	5,280	4,288	4,893	4,508	4,343	3,845
Federal government	816	832	749	718	758	684	679	610	610	552
FFRDCs	1,820	2,168	2,062	1,960	2,023	1,720	1,728	1,395	1,168	1,122
Nonprofit	282	286	294	261	212	176	260	244	182	162
State and local government	2	1	1	2	0	1	1	1	1	1
Joint and unknown sectors	882	967	834	738	653	532	639	594	494	442
Psychology	4,112	4,830	4,738	5,048	5,165	5,250	6,375	6,773	6,549	6,510

Table SINV-21

Citations of S&E articles in USPTO utility patents, by cited field, cited author country, and patent sector: 2013–22

(Number)

Field, country, and sector	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Foreign	1,680	1,891	1,979	2,167	2,114	2,171	2,969	3,200	3,170	3,102
Unknown country	11	13	14	22	19	15	12	9	10	10
United States	2,422	2,926	2,744	2,859	3,032	3,064	3,394	3,564	3,369	3,399
Academic	1,513	1,737	1,630	1,780	1,946	2,092	2,270	2,413	2,240	2,228
Business	746	975	979	902	968	844	996	993	948	972
Federal government	30	29	27	34	26	31	32	46	38	35
FFRDCs	3	0	3	1	4	4	1	5	5	3
Nonprofit	27	51	10	19	20	23	21	22	21	24
State and local government	2	0	0	0	0	0	0	1	0	1
Joint and unknown sectors	100	135	96	123	68	70	73	84	117	136
Social sciences	606	568	464	562	609	573	809	809	803	797
Foreign	237	229	192	218	244	245	342	398	400	414
Unknown country	7	4	1	1	1	1	3	7	6	1
United States	363	335	270	343	364	327	463	404	397	382
Academic	271	243	197	270	285	266	350	341	335	341
Business	24	25	33	33	45	21	30	19	18	16
Federal government	10	11	3	7	5	6	28	5	5	4
FFRDCs	1	1	3	2	2	1	0	0	1	2
Nonprofit	23	26	11	5	5	10	17	10	12	3
State and local government	0	0	0	0	0	0	0	2	0	0
Joint and unknown sectors	32	29	24	26	23	23	38	28	26	16

FFRDC = federally funded research and development center; USPTO = Patent and Trademark Office.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2021; Elsevier, Scopus abstract and citation database, accessed May 2021.

Science and Engineering Indicators

Table SINV-22

Patents granted to U.S. federal agencies, by technology area: 2013–22

(Number)

Technology area	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	1,463	1,466	1,458	1,360	1,430	1,506	1,621	1,443	1,398	1,280
Analysis of biological materials	41	40	42	34	40	40	33	35	27	29
Audio-visual technology	13	20	25	17	25	23	18	14	19	12
Basic communication processes	18	11	14	12	15	20	18	18	11	17
Basic materials chemistry	46	49	46	43	62	49	39	42	42	29
Biotechnology	122	139	118	116	100	121	123	115	104	92
Chemical engineering	41	46	47	53	50	42	48	43	45	46
Civil engineering	8	4	10	10	6	18	14	15	12	13
Computer technology	98	79	80	89	60	82	103	86	94	82
Control	19	18	19	14	18	21	23	17	20	14
Digital communication	19	30	29	26	24	37	36	28	25	25
Electrical machinery, apparatus, energy	86	88	85	92	90	102	109	107	73	82
Engines, pumps, turbines	27	28	25	25	29	22	33	23	24	33
Environmental technology	36	32	31	29	31	27	28	29	31	26
Food chemistry	4	4	6	4	4	5	7	4	2	3
Furniture, games	1	4	5	2	6	2	1	3	2	1
Handling	22	10	13	8	6	9	10	12	10	9
IT methods for management	9	7	2	4	3	5	8	8	9	7
Machine tools	16	9	10	9	12	9	17	16	16	16
Macromolecular chemistry, polymers	17	17	34	21	24	21	21	27	23	21
Materials, metallurgy	42	44	42	40	51	50	60	57	45	49
Measurement	189	189	160	144	145	185	194	152	147	134
Mechanical elements	20	17	13	16	24	14	21	21	25	18
Medical technology	45	37	43	45	50	58	54	56	52	58
Micro-structural and nano-technology	30	35	38	26	24	15	20	18	13	19
Optics	55	44	46	34	53	65	62	57	60	59
Organic fine chemistry	46	47	50	49	44	43	46	45	48	31
Other consumer goods	10	7	9	7	10	7	11	5	11	14
Other special machines	97	94	82	83	98	76	90	81	109	75
Pharmaceuticals	98	124	120	106	96	105	124	116	105	81
Semiconductors	48	64	68	55	69	64	73	45	49	53
Surface technology, coating	32	28	36	30	38	33	45	34	42	30
Telecommunications	51	39	37	58	60	72	61	45	38	37
Textile and paper machines	6	8	8	6	8	7	7	3	9	5
Thermal processes and apparatus	9	8	18	5	10	19	19	15	15	15
Transport	41	45	47	46	44	36	44	52	38	45

Table SINV-22

Patents granted to U.S. federal agencies, by technology area: 2013–22

(Number)

Technology area	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Unclassified	2	1	0	0	0	0	2	1	2	0

Note(s):
Data are presented by calendar year. Patents are credited on a whole-count basis (i.e., each participating federal agency is credited one count). However, fractioning is used at the level of International Patent Classification codes to ensure that the sum of patents across technology areas (World Intellectual Property Organization technology classification) is equal to the total number of patents as each patent can be assigned to more than one technology area. Note that because more than one agency may appear on a single patent, the sum across agencies is slightly higher than the total for all agencies.

Source(s):
Science-Metrix using Patent and Trademark Office data indexed in PatentsView, accessed June 2023.

Science and Engineering Indicators

Table SINV-23

Patents granted to U.S. federal agencies, by inventor's agency of employment: 2013–22

(Number)

Year	USDA	DOC	DOD	DOE	HHS	DHS	DOI	DOT	VA	EPA	NASA
2013	62	14	635	409	169	3	3	1	38	14	117
2014	75	14	592	408	209	4	2	0	39	7	124
2015	66	19	595	418	185	2	4	0	53	4	120
2016	50	20	539	388	175	3	1	1	60	3	122
2017	65	28	569	437	157	2	5	0	45	4	120
2018	55	35	557	490	173	8	3	5	61	3	120
2019	46	41	614	504	193	10	3	2	65	5	146
2020	42	24	521	442	196	19	5	1	61	1	132
2021	39	34	508	446	163	35	1	1	57	6	111
2022	22	37	465	425	147	43	1	1	64	8	73

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOE = Department of Energy; DOI = Department of the Interior; DOT = Department of Transportation; EPA = Environmental Protection Agency; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; USDA = Department of Agriculture; VA = Department of Veterans Affairs.

Note(s):
Data are presented by calendar year. Patents are credited on a whole-count basis (i.e., each participating federal agency is credited one count). However, fractioning is used at the level of International Patent Classification codes to ensure that the sum of patents across technology areas (World Intellectual Property Organization technology classification) is equal to the total number of patents as each patent can be assigned to more than one technology area.

Source(s):
Science-Metrix using Patent and Trademark Office data indexed in PatentsView, accessed June 2023.

Science and Engineering Indicators

Table SINV-24

Scholarly publications with authors from U.S. federal agencies, by S&E discipline: 2013–22

(Number)

Scientific field	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	71,700	71,651	72,380	74,476	74,169	75,589	73,860	74,035	75,491	71,378
Agricultural sciences	1,334	1,331	1,424	1,306	1,427	1,455	1,382	1,345	1,312	1,241
Astronomy and astrophysics	1,988	1,940	2,036	2,142	2,169	2,114	2,265	2,411	2,397	2,442
Biological and biomedical sciences	14,069	14,040	14,022	14,023	14,006	13,878	13,525	14,063	15,184	13,564
Chemistry	2,845	2,714	2,790	2,974	2,830	3,030	2,815	2,884	2,819	2,554
Computer and information sciences	2,465	2,427	2,762	2,782	2,961	2,863	3,284	2,693	2,677	2,660
Engineering	9,865	9,894	9,732	11,028	10,517	11,679	10,791	10,573	10,162	9,840
Geosciences, atmospheric sciences, and ocean sciences	4,806	4,700	4,784	5,129	5,087	5,082	5,101	5,075	5,111	4,638
Health sciences	18,201	18,643	19,112	19,302	19,433	19,688	19,279	20,018	21,416	20,557
Materials science	1,662	1,648	1,599	1,623	1,680	1,938	1,965	1,913	1,913	1,744
Mathematics and statistics	613	624	541	644	562	561	666	613	605	591
Natural resources and conservation	1,944	2,037	1,886	2,105	2,085	2,087	2,235	2,010	2,178	1,959
Physics	10,307	9,961	9,923	9,710	9,637	9,461	8,877	8,855	7,977	7,632
Psychology	973	1,033	1,128	1,064	1,108	1,057	1,006	909	994	1,072
Social sciences	628	659	641	644	667	696	669	673	746	884

Note(s):
Data are presented by calendar year. Taxonomy of Discipline (TOD) fields are used to classify articles. The TOD is a classification scheme developed by the National Science Foundation to suit its need for a unified scheme. Science-Metrix developed an alignment of its own classification scheme with the TOD, and this alignment replaces the WebCASPAR classification that was used in the past to produce bibliometric data for the *Science and Engineering Indicators* reports. Journals are assigned to a unique TOD except for generalist journals, such as *Science* and *Nature*, for which articles are instead reclassified individually in TOD fields using an automated procedure based on machine-learning techniques. Articles are credited on a whole-count basis (i.e., each participating federal agency receives one count). The sum of the individual federal agencies may exceed the total across agencies because articles may have authors from multiple federal agencies.

Source(s):
Science-Metrix from data provided in Scopus (Elsevier) database, accessed May 2023.

Science and Engineering Indicators

Table SINV-25

S&E articles with authors from U.S. federal agencies, by author's affiliated agency: 2013–22

(Number)

Year	USDA	DOC	DOD	DOE	HHS	DHS	DOI	DOT	VA	EPA	NASA
2013	6,633	4,529	9,954	18,786	14,443	164	2,801	250	10,758	985	6,383
2014	6,596	4,512	9,916	18,794	14,496	122	2,837	250	11,098	959	6,272
2015	6,646	4,415	10,326	18,898	14,607	120	2,813	232	11,296	934	6,247
2016	6,716	4,829	10,447	19,577	14,474	176	2,994	245	11,437	1,039	7,241
2017	7,132	4,826	10,362	19,521	14,448	167	2,913	248	11,557	933	6,688
2018	7,013	4,753	10,488	20,381	14,551	150	2,940	279	11,711	936	7,196
2019	7,021	4,589	10,475	19,762	14,029	131	2,839	219	11,626	830	6,868
2020	6,875	4,584	9,835	20,467	14,150	161	2,911	166	12,420	720	6,724
2021	7,185	4,422	9,640	19,956	15,244	148	3,045	180	13,583	782	6,443
2022	6,422	4,209	9,160	19,100	13,923	157	2,725	181	13,422	672	6,303

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOE = Department of Energy; DOI = Department of the Interior; DOT = Department of Transportation; EPA = Environmental Protection Agency; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; USDA = Department of Agriculture; VA = Department of Veterans Affairs.

Note(s):
Data are presented by calendar year. Taxonomy of Discipline (TOD) fields are used to classify articles. The TOD is a classification scheme developed by the National Science Foundation to suit its need for a unified scheme. Science-Metrix developed an alignment of its own classification scheme with the TOD and this alignment replaces the WebCASPAR classification that was used in the past to produce bibliometric data for the *Science and Engineering Indicators* reports. Journals are assigned to a unique TOD except for generalist journals, such as *Science* and *Nature*, for which articles are instead reclassified individually in TOD fields using an automated procedure based on machine-learning techniques. Articles are credited on a whole-count basis (i.e., each participating federal agency receives one count). The sum of the individual federal agencies may exceed the total across agencies as articles may have authors from multiple federal agencies.

Source(s):
Science-Metrix from data provided in Scopus (Elsevier) database, accessed May 2023.

Science and Engineering Indicators

Table SINV-26

S&E articles with authors at federal agencies cited by granted U.S. patents, by article field: 2013–22

(Number)

Scientific field	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	36,813	40,191	39,270	38,427	40,174	39,938	46,031	44,084	43,244	40,585
Agricultural sciences	321	336	282	301	317	315	345	350	344	252
Astronomy and astrophysics	14	18	23	27	25	29	39	68	55	71
Biological and biomedical sciences	13,130	14,390	14,382	13,848	14,393	15,100	17,642	17,643	17,207	16,597
Chemistry	2,359	2,318	2,356	2,314	2,538	2,513	2,881	2,862	2,741	2,565
Computer and information sciences	1,465	1,645	1,544	1,615	1,589	1,841	2,006	1,752	1,547	1,558
Engineering	3,321	3,865	3,670	3,869	4,189	4,027	5,060	4,900	4,735	4,436
Geosciences, atmospheric sciences, and ocean sciences	273	286	214	292	268	207	279	259	287	323
Health sciences	10,573	11,250	11,101	10,823	11,183	10,737	12,102	11,401	11,655	10,427
Materials science	672	853	867	751	877	818	1,008	834	924	823
Mathematics and statistics	59	66	43	47	40	60	73	77	94	79
Natural resources and conservation	109	138	114	128	127	187	185	219	201	163
Physics	4,384	4,918	4,597	4,305	4,535	4,005	4,299	3,575	3,334	3,190
Psychology	126	99	73	90	80	91	94	135	103	91
Social sciences	7	9	4	17	13	8	18	9	17	10

Note(s):
Data are presented by calendar year. Taxonomy of Discipline (TOD) fields are used to classify articles. The TOD is a classification scheme developed by the National Science Foundation to suit its need for a unified scheme. Science-Metrix developed an alignment of its own classification scheme with the TOD and this alignment replaces the WebCASPAR classification that was used in the past to produce bibliometric data for the *Science and Engineering Indicators* reports. Journals are assigned to a unique TOD except for generalist journals, such as *Science* and *Nature*, for which articles are instead reclassified individually in TOD fields using an automated procedure based on machine-learning techniques. Citation counts are based on an 11-year window with a 5-year lag (e.g., citations for 2012 are references in Patent and Trademark Office patents issued in calendar year 2012 to articles published in 1997–2007). Annual totals may be lower than the sum of numbers presented by field because some articles have authors from multiple federal agencies.

Source(s):
Science-Metrix from data provided in Scopus (Elsevier) database, accessed May 2023.

Science and Engineering Indicators

Table SINV-27

S&E articles with authors at federal agencies cited by granted U.S. patents, by author's affiliated agency: 2013–22

(Number)

Year	USDA	DOC	DOD	DOE	HHS	DHS	DOI	DOT	VA	EPA	NASA
2013	2,276	1,171	5,272	8,536	12,873	53	90	34	6,529	144	1,689
2014	2,307	1,255	5,519	9,955	14,194	53	80	27	6,837	95	1,699
2015	2,225	1,174	5,333	9,663	14,294	48	84	15	6,436	143	1,616
2016	2,268	1,198	5,130	9,625	13,954	43	101	16	6,230	95	1,437
2017	2,135	1,421	5,137	10,563	14,465	33	154	32	6,739	97	1,339
2018	2,227	1,373	5,095	10,243	14,607	49	181	32	6,722	100	1,346
2019	2,472	1,491	5,571	12,862	16,715	43	185	29	7,587	153	1,435
2020	2,407	1,493	4,896	12,028	16,764	56	195	31	7,003	154	1,391
2021	2,165	1,582	4,854	11,437	17,026	51	146	28	6,829	180	1,320
2022	1,689	1,505	4,614	11,116	16,063	61	134	29	6,027	127	1,277

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOE = Department of Energy; DOI = Department of the Interior; DOT = Department of Transportation; EPA = Environmental Protection Agency; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; USDA = Department of Agriculture; VA = Department of Veterans Affairs.

Note(s):
Data are presented by calendar year. Taxonomy of Discipline (TOD) fields are used to classify articles. The TOD is a classification scheme developed by the National Science Foundation to suit its need for a unified scheme. Science-Metrix developed an alignment of its own classification scheme with the TOD and this alignment replaces the WebCASPAR classification that was used in the past to produce bibliometric data for the *Science and Engineering Indicators* reports. Journals are assigned to a unique TOD except for generalist journals, such as *Science* and *Nature*, for which articles are instead reclassified individually in TOD fields using an automated procedure based on machine-learning techniques. Articles are credited on a whole-count basis (i.e., each participating federal agency receives one count). The sum of the individual federal agencies may exceed the total across agencies as articles may have authors from multiple federal agencies.

Source(s):
Science-Metrix from data provided in Scopus (Elsevier) database, accessed May 2023.

Science and Engineering Indicators

Table SINV-28

New technology licenses issued to nonfederal licensees, by agency: FYs 2011–20

(Number)

Agency	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
DHS	0	0	0	0	3	1	0	0	0	0
DOC	5	6	7	7	13	15	19	11	15	15
DOD	63	44	59	24	69	35	162	168	58	70
DOE	822	757	568	573	648	621	567	662	686	700
DOI	2	1	3	0	3	0	0	2	2	17
DOT	1	0	1	0	0	2	1	1	0	0
EPA	6	2	2	6	0	8	5	1	3	2
HHS	264	231	184	212	279	278	334	335	346	365
NASA	30	33	38	51	74	107	119	105	96	172
USDA	35	34	25	31	37	31	40	40	51	93
VA	11	8	9	3	3	1	1	0	0	0

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOE = Department of Energy; DOI = Department of the Interior; DOT = Department of Transportation; EPA = Environmental Protection Agency; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; USDA = Department of Agriculture; VA = Department of Veterans Affairs.

Note(s):
Includes Patent License Agreements and other licensing agreements such as Materials Transfer Agreements.

Source(s):
National Institute of Standards and Technology, Federal Lab Technology Transfer Database, October 2022, and *Summary Report on Federal Laboratory Technology Transfer FY2020*, https://www.nist.gov/tpo/reports-and-publications, accessed May 2023.

Science and Engineering Indicators

Table SINV-29

GitHub repositories contributed to by selected entities: 2009–19

(Number)

Institution	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Administrative Office of the U.S. Courts	na	na	na	na	1	na	2	13	4	4	3
Agency for International Development	na	na	na	na	1	1	3	1	1	7	9
Appalachian Regional Commission	na	na	na	na	na	na	na	na	na	na	1
Department of Agriculture	na	na	na	na	4	4	3	38	15	20	20
Department of Commerce	4	6	4	14	17	58	63	110	156	181	210
Department of Defense	na	na	2	1	8	16	50	42	56	58	88
Department of Education	na	na	na	na	1	na	na	2	2	na	na
Department of Energy	42	51	98	157	418	914	1,267	1,608	2,000	2,281	2,362
Department of Health and Human Services	na	2	4	16	27	42	67	92	187	197	229
Department of Homeland Security	na	na	na	na	na	1	1	6	18	23	17
Department of Justice	na	na	na	na	na	na	1	na	na	na	2
Department of Labor	na	na	na	na	2	na	4	na	11	3	4
Department of State	na	na	na	na	na	7	4	na	na	1	na
Department of the Interior	na	na	1	1	17	47	50	55	99	149	118
Department of the Treasury	na	na	na	na	na	1	na	na	na	1	2
Department of Transportation	na	na	na	1	1	4	5	3	10	10	11
Department of Veterans Affairs	na	na	na	16	1	13	5	16	12	8	5
Environmental Protection Agency	na	na	na	na	3	3	3	12	10	12	17
Federal Communications Commission	na	na	na	1	3	na	na	na	na	1	na
General Services Administration	na	na	na	na	na	27	54	82	61	53	42
Library of Congress	na	na	1	1	1	4	1	4	3	6	1
National Aeronautics and Space Administration	4	3	8	12	40	90	135	134	196	221	263
Office of Personnel Management	na	na	na	na	na	na	na	1	na	na	na
Office of Science and Technology Policy	na	na	na	na	na	na	na	1	na	na	na
Small Business Administration	na	na	na	na	na	na	na	1	1	7	4
Smithsonian Institution	na	na	na	na	4	24	11	6	11	23	28
Microsoft	2	7	31	270	173	520	1,722	3,138	5,842	6,817	6,845
RedHat	123	161	225	410	913	1,325	1,955	2,673	4,678	7,422	5,005
University of California, Berkeley	9	15	27	55	211	405	676	951	1,531	1,651	1,630

na = not applicable; no items are assigned to the entity.

Note(s):
Included repositories are those with an Open Source Initiative–approved open-source license; software shared through other licenses are excluded. Public higher education institutions and selected private entities are included as benchmarks. Overall in terms of number of repositories contributed to, Microsoft and RedHat are the two largest contributors from the private sector and University of California, Berkeley, is the largest contributor from higher education institutions. The highest contributor to open-source software is the Department of Energy (DOE), which encompasses 17 national laboratories, 16 of which were included in the data. The exception is DOE's SLAC National Accelerator Laboratory, formerly known as Stanford Linear Accelerator. Due to data constraints, these repositories are attributed to the operator rather than to DOE.

Source(s):
Robbins C, Korkmaz G, Guci L, Santiago Calderón J, Kramer B, 2021, *A First Look at Open-Source Software Investment in the United States and Other Countries, 2009–2019,* paper prepared for the International Association for Research on Income and Wealth–UK Economics Statistics Centre of Excellence Conference on Intangible Assets and Their Contributions to Growth, London, United Kingdom, 11–12 November 2021.

Science and Engineering Indicators

Table SINV-30

Total SBIR or STTR Phase II funding, by federal agency: 2013–22

(Millions of dollars)

Agency	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Department of Agriculture	12.39	11.50	13.62	20.28	15.48	20.72	15.85	18.20	19.77	21.68
Department of Commerce	3.50	4.80	5.80	7.68	7.50	10.19	9.47	3.20	18.28	8.80
Department of Defense	801.34	768.43	905.15	923.93	1,243.15	966.53	1,622.72	1,503.09	1,349.58	1,844.64
Department of Education	6.47	5.57	7.20	4.50	6.30	5.40	7.19	7.16	9.90	10.00
Department of Energy	107.94	161.26	168.30	172.45	194.86	211.28	218.08	242.34	250.45	277.72
Department of Health and Human Services	435.89	491.67	581.15	688.98	798.64	709.77	863.58	1,020.45	838.85	504.45
Department of Homeland Security	15.70	10.61	16.00	12.82	17.57	10.35	19.06	11.27	12.20	13.76
Department of Transportation	6.42	8.51	6.09	10.21	9.06	3.01	10.17	4.65	12.00	11.32
Environmental Protection Agency	2.08	2.69	2.40	2.70	1.80	1.50	2.90	2.99	3.39	3.80
National Aeronautics and Space Administration	71.92	121.11	128.24	119.42	116.36	127.36	121.24	136.62	153.53	139.83
National Science Foundation	55.25	79.28	82.18	86.10	85.97	82.36	101.12	109.55	109.01	119.19

SBIR = Small Business Innovation Research; STTR = Small Business Technology Transfer.

Note(s):
Data were retrieved from SBIR.gov. Data include Phase II SBIR or STTR awards. Records are deduplicated and summed by awarding agency and calendar year.

Source(s):
Small Business Administration, SBIR/STTR Award database, accessed August 2023.

Science and Engineering Indicators

Table SINV-31

Venture capital invested in firms headquartered in selected regions, countries, or economies: 2003–22

(Millions of dollars)

Region, country, or economy	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	22,804	26,240	30,599	42,244	46,014	50,725	37,592	49,483	67,013	61,485	74,203	121,703	179,163	195,795	213,252	347,017	324,284	371,650	741,987	540,643
United States	18,202	21,894	23,702	29,794	35,905	36,701	27,405	32,076	45,019	40,883	48,806	73,024	86,002	84,000	89,382	145,884	150,361	172,059	345,734	247,925
Canada	576	595	1,033	707	908	1,149	711	991	1,390	1,370	1,430	1,699	1,967	2,224	2,917	3,958	5,564	4,617	13,654	9,984
Rest of North America	0	0	0	0	0	24	9	65	36	54	160	295	220	154	259	724	1,894	1,143	4,110	2,160
United Kingdom[a]	713	803	1,170	1,853	2,075	2,315	1,597	3,495	1,878	3,016	3,394	4,586	6,790	6,008	11,074	13,353	14,211	17,606	39,331	37,131
EU-27[b]	851	1,687	1,730	2,629	3,369	4,448	3,262	4,151	4,697	4,192	6,085	8,876	10,546	11,283	12,783	18,371	23,314	31,019	70,287	61,911
Rest of Europe	55	278	322	307	515	590	975	1,291	1,243	1,178	1,564	1,354	1,605	1,658	1,823	2,258	2,767	4,506	8,000	7,919
Central and South America	92	14	7	1	16	50	41	130	221	700	720	702	796	546	1,562	2,502	2,669	3,502	13,449	7,366
China	784	359	1,752	5,396	1,748	3,053	1,992	4,587	8,792	6,085	6,146	19,349	52,972	76,184	65,881	123,477	75,987	93,459	144,112	88,303
India	87	42	214	558	421	630	428	736	1,255	1,151	1,627	5,871	9,996	4,178	12,317	9,577	18,431	12,448	36,749	23,957
Rest of Asia	33	110	127	173	284	284	428	346	597	793	1,687	2,614	3,569	4,041	8,192	15,770	16,492	16,743	36,566	26,522
Africa	35	37	14	28	23	17	26	36	111	146	91	298	304	280	367	758	800	780	2,654	2,985
Middle East	1,366	407	400	745	668	1,351	651	1,448	1,487	1,751	2,168	2,562	3,610	4,466	5,652	8,462	9,652	11,191	21,262	18,318
Oceania	11	13	129	53	82	114	68	130	288	167	324	473	785	772	1,042	1,922	2,142	2,577	6,080	6,162

EU-27 = European Union.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
China includes Hong Kong. Investment amount includes investment deals classified as seed stage, early stage, and late stage investment rounds. Region, country, and economy is attributed to location of the headquarters of the company receiving venture investment.

Source(s):
PitchBook, venture capital and private equity database, accessed September 2023.

Science and Engineering Indicators

Table SINV-32

Firms receiving venture capital investment, by state of firm headquarters: 2003–22

(Number)

U.S. states	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	1,992	2,338	2,635	2,971	3,842	4,069	3,779	4,468	5,454	6,438	7,897	8,657	9,093	8,668	9,543	10,324	11,310	11,507	15,977	15,453
Alabama	7	10	5	7	10	9	17	12	14	16	14	12	13	16	22	27	32	35	56	44
Alaska	0	0	0	1	0	0	1	2	2	2	2	3	2	2	4	3	6	4	3	6
Arizona	13	17	27	29	49	40	41	39	46	66	78	86	99	76	90	85	115	109	157	139
Arkansas	0	0	0	2	2	1	2	4	4	10	20	17	19	17	18	21	18	16	24	34
California	770	921	1,031	1,229	1,472	1,576	1,408	1,574	2,004	2,303	2,789	3,163	3,221	3,155	3,381	3,716	3,907	4,019	5,503	5,059
Colorado	51	69	84	69	106	113	105	125	141	194	186	238	274	218	292	294	368	336	435	413
Connecticut	17	21	23	19	38	41	40	51	60	73	104	93	90	75	93	102	92	119	161	147
Delaware	5	6	5	10	9	10	15	15	24	33	36	43	46	54	72	89	110	150	263	337
District of Columbia	8	7	10	10	12	17	13	17	21	40	51	59	50	61	67	61	69	65	101	91
Florida	36	42	47	55	69	73	76	102	125	144	206	242	228	261	292	305	341	362	596	658
Georgia	37	46	54	58	71	76	74	75	88	119	127	147	155	124	162	175	179	204	270	286
Guam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hawaii	3	9	5	7	9	14	10	13	13	13	10	8	14	10	14	6	21	9	22	21
Idaho	3	0	4	7	9	7	5	3	7	10	17	11	12	13	22	19	14	21	33	41
Illinois	44	40	45	58	65	67	50	112	134	158	207	228	232	257	245	256	292	308	425	412
Indiana	7	17	12	15	31	27	30	35	39	39	51	62	67	68	85	89	116	121	145	164
Iowa	3	3	1	5	5	7	6	9	6	11	16	22	12	15	22	19	16	31	47	38
Kansas	4	6	3	4	12	13	7	14	22	24	32	30	33	29	33	27	33	30	33	43
Kentucky	5	3	8	10	14	13	17	24	18	18	25	28	42	34	31	40	45	52	57	63
Louisiana	2	6	2	2	10	7	6	9	13	17	15	16	17	20	20	16	22	17	28	31
Maine	5	2	8	9	9	6	12	8	8	17	14	20	13	16	12	22	32	29	29	25
Maryland	37	48	56	60	64	68	64	78	74	102	102	133	129	129	132	140	148	161	198	206
Massachusetts	233	296	292	303	386	394	345	419	449	503	584	573	651	571	702	736	768	802	1,043	949
Michigan	19	15	29	21	30	34	37	54	60	65	125	107	116	81	94	121	116	156	182	164
Minnesota	28	40	33	44	57	46	55	58	75	85	85	98	104	89	101	133	114	113	174	162
Mississippi	1	0	3	2	3	2	3	6	4	7	1	8	9	6	3	9	9	4	4	10
Missouri	13	9	12	18	24	24	18	18	45	50	73	76	78	66	68	74	76	89	101	86
Montana	0	1	1	0	1	3	5	3	5	8	9	14	14	14	15	17	18	27	22	23
Nebraska	2	1	3	4	4	5	2	12	14	14	28	27	29	28	23	28	32	26	49	42
Nevada	5	3	9	5	13	7	16	17	20	34	38	56	53	54	53	57	58	64	102	108
New Hampshire	15	9	12	10	22	27	21	16	20	33	31	25	36	22	22	27	33	29	37	43
New Jersey	69	61	62	64	90	92	85	93	88	87	106	112	113	120	146	155	173	152	224	246
New Mexico	3	6	7	5	13	9	3	8	13	11	20	20	21	11	16	18	26	24	27	26
New York	89	99	116	168	243	313	278	404	545	689	876	1,011	1,090	1,050	1,157	1,288	1,506	1,445	2,229	2,152
North Carolina	53	50	51	52	70	67	65	73	82	99	115	134	157	141	159	164	170	193	285	274

Table SINV-32

Firms receiving venture capital investment, by state of firm headquarters: 2003–22

(Number)

U.S. states	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
North Dakota	1	1	2	1	2	4	1	4	2	3	6	5	7	4	4	8	4	7	5	7
Ohio	21	26	41	39	56	52	67	78	93	132	150	136	139	147	144	154	149	145	180	183
Oklahoma	7	3	6	10	14	9	18	9	14	19	20	20	35	20	22	20	25	24	25	28
Oregon	20	25	29	22	31	41	31	43	63	62	92	97	102	103	98	96	118	120	140	148
Pennsylvania	68	79	82	105	126	130	149	158	168	187	230	233	230	243	254	242	260	295	329	355
Puerto Rico	0	0	0	2	1	1	1	2	2	1	2	2	4	3	5	5	12	15	11	29
Rhode Island	11	7	10	8	10	13	12	15	11	22	18	12	15	22	21	14	13	19	28	35
South Carolina	4	6	5	4	17	14	17	17	20	23	25	37	41	31	36	47	45	51	53	42
South Dakota	2	1	0	0	1	2	4	1	2	1	4	6	4	6	4	4	7	6	3	3
Tennessee	15	15	19	10	27	37	32	48	71	107	122	132	118	106	100	100	107	110	145	144
Texas	123	139	159	170	212	207	229	254	286	320	469	445	489	464	515	573	629	602	864	855
Utah	16	23	31	33	52	57	53	61	64	72	84	113	118	109	117	128	182	152	214	194
Vermont	0	3	1	4	8	8	7	9	15	10	18	14	11	18	14	18	27	24	27	34
Virgin Islands	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	0	2	4	5
Virginia	45	46	66	65	91	92	57	72	108	104	131	151	156	143	171	182	191	174	261	227
Washington	63	92	107	112	146	162	143	165	192	222	269	255	294	270	301	320	377	342	492	486
West Virginia	4	1	2	1	5	2	3	3	5	4	6	1	3	6	1	2	3	0	8	7
Wisconsin	5	8	14	21	19	26	20	26	49	50	49	67	75	64	60	66	73	81	91	90
Wyoming	0	0	1	2	2	4	2	1	6	4	9	8	12	6	7	5	13	16	32	38
Other U.S. territories	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0

Note(s):
Investment amount includes investment deals classified as seed stage, early stage, and late stage investment rounds. State is attributed to location of the headquarters of the company receiving venture investment.

Source(s):
PitchBook, venture capital and private equity database, accessed September 2023.

Science and Engineering Indicators

Table SINV-33

U.S.-headquartered firms receiving venture capital investments, by Primary Industry Code: 2003–22

(Number)

Primary Industry Code (PitchBook)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Accessories	1	1	2	2	2	4	7	12	17	14	22	26	31	36	27	37	41	39	47	29
Accounting, audit and tax services (B2B)	3	3	3	5	2	2	2	3	-	-	2	2	5	5	5	7	6	5	11	18
Accounting, audit and tax services (B2C)	-	1	1	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-	2	1
Aerospace and defense	7	6	8	9	17	13	9	7	11	11	18	24	26	40	40	66	52	64	102	99
Agricultural chemicals	3	3	4	4	7	5	3	3	9	18	14	19	18	15	19	15	19	20	25	24
Air	-	2	-	4	3	3	2	2	1	5	3	5	11	7	9	10	9	12	21	15
Alternative energy equipment	5	10	15	23	51	57	49	74	73	61	44	47	36	42	35	33	36	39	71	59
Aluminum mining	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-
Animal husbandry	-	-	-	-	-	-	-	-	-	-	2	3	4	5	6	4	4	3	4	3
Animal textiles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	1
Application software	57	62	72	96	112	144	113	172	200	267	331	320	227	113	81	50	50	58	88	123
Application specific semiconductors	38	54	65	56	51	41	38	44	46	33	46	40	45	37	56	56	45	53	45	39
Aquaculture	-	-	-	2	3	2	2	2	1	3	2	5	3	4	6	8	5	7	9	10
Asset management	2	1	4	2	3	1	5	5	6	8	9	8	16	7	15	14	18	11	22	14
Automation/workflow software	37	36	35	31	34	34	21	17	31	23	41	31	29	19	6	3	11	12	25	27
Automotive	6	6	5	8	14	18	18	21	26	32	40	76	70	85	105	112	117	107	129	114
Automotive insurance	-	1	1	-	-	-	-	-	1	1	3	3	2	7	7	7	6	9	16	10
Beverages	10	10	8	7	12	10	5	8	11	13	66	78	105	108	134	183	187	184	263	236
Biotechnology	4	5	6	6	16	18	13	25	34	42	192	213	211	227	246	244	222	282	362	346
BPO/outsource services	60	91	81	97	129	112	129	142	138	169	15	9	8	9	6	5	7	8	8	5
Broadcasting, radio and television	5	6	7	10	20	16	18	12	12	22	22	24	17	7	18	15	23	12	12	18
Brokerage	2	2	3	1	2	1	2	-	4	3	6	9	5	8	7	7	6	5	17	13
Building products	1	4	1	5	5	8	6	7	5	10	12	9	20	-	11	6	11	6	16	12
Buildings and property	1	1	1	-	-	2	2	5	5	8	12	7	10	14	12	17	17	13	18	15
Business equipment and supplies	2	-	1	1	1	1	2	2	1	1	2	2	3	2	3	1	2	2	2	2
Business/productivity software	202	251	288	287	363	438	420	517	699	902	1,190	1,415	1,581	1,574	1,818	1,993	2,211	2,167	3,001	2,793
Cable service providers	5	5	4	3	4	3	3	3	5	1	-	1	3	-	1	-	-	-	-	-
Casinos and gaming	-	-	1	-	1	1	-	2	2	3	3	2	4	1	3	2	2	2	2	4
Catalog retail	1	1	-	-	1	-	1	1	-	1	-	-	-	-	-	-	1	-	1	-
Clinics/outpatient services	7	7	14	21	18	19	12	21	30	28	42	46	62	70	83	106	147	166	235	231
Clothing	2	4	7	2	7	11	19	9	21	45	69	65	84	63	78	97	107	67	102	89
Coal and consumable fuels equipment	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	1	1	-	1
Coal mining	-	-	1	2	1	2	-	-	1	3	-	1	-	1	-	-	1	-	1	1
Commercial/professional insurance	1	1	-	1	-	-	-	1	-	-	-	1	4	5	6	5	13	11	18	11
Commodity chemicals	1	-	1	-	1	2	2	1	3	2	3	2	2	1	2	-	1	-	-	1
Communication software	45	49	54	52	72	79	59	70	89	103	140	125	128	109	100	84	90	125	134	119

Table SINV-33

U.S.-headquartered firms receiving venture capital investments, by Primary Industry Code: 2003–22

(Number)

Primary Industry Code (PitchBook)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Computers, parts and peripherals	15	12	16	18	13	6	14	11	20	10	25	21	23	23	19	20	24	18	26	19
Conglomerates	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1
Connectivity products	50	51	41	39	42	34	23	19	24	16	14	15	14	16	17	10	7	7	13	10
Construction and engineering	-	4	5	6	5	9	2	4	11	12	24	10	20	20	15	19	26	31	30	37
Consulting services (B2B)	12	12	13	11	18	27	17	36	26	26	42	28	30	33	37	33	36	41	70	71
Consumer finance	-	2	7	6	10	6	7	8	9	14	19	30	32	25	33	23	30	23	42	37
Cruise lines	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Cultivation	1	1	1	1	1	3	1	2	1	6	7	7	13	12	21	21	19	37	32	26
Database software	20	19	19	22	27	34	39	42	51	78	78	72	82	68	83	79	78	90	125	135
Decision/risk analysis	-	7	4	6	10	14	16	16	18	26	40	38	53	57	61	72	84	103	117	102
Department stores	-	-	-	-	2	2	-	1	1	-	-	3	1	1	-	4	2	4	4	1
Diagnostic equipment	30	44	58	72	89	93	83	98	113	108	116	118	120	126	134	144	143	161	184	152
Discovery tools (healthcare)	10	13	16	4	12	15	14	11	11	11	14	23	20	22	28	33	27	36	55	41
Distributors (healthcare)	-	-	2	2	2	2	1	2	2	5	2	2	3	1	2	-	3	2	1	1
Distributors/wholesale	4	5	6	3	2	2	4	5	2	2	4	4	5	5	7	10	10	14	12	14
Distributors/wholesale (B2C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug delivery	12	15	23	21	30	27	18	16	25	22	35	29	31	24	42	30	43	42	59	37
Drug discovery	55	87	91	103	138	142	144	169	165	184	223	247	297	301	382	441	493	552	672	502
Education and training services (B2B)	5	3	3	2	4	6	8	7	13	18	34	32	30	21	26	41	49	47	54	61
Educational and training services (B2C)	10	15	19	23	27	40	39	51	83	128	62	65	73	64	85	78	106	113	150	135
Educational software	7	9	8	12	12	19	18	23	32	47	163	169	149	167	167	160	145	192	211	210
Elder and disabled care	3	2	2	5	4	5	3	6	8	6	16	12	12	14	15	14	18	20	33	30
Electric utilities	-	-	-	-	2	1	2	3	1	3	5	4	3	2	3	3	5	2	4	3
Electrical equipment	28	33	31	39	48	64	54	78	75	84	110	89	97	98	100	103	105	99	132	126
Electronic components	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Electronic equipment and instruments	33	48	48	49	51	57	48	45	57	56	84	97	110	132	153	167	181	192	200	174
Electronics (B2C)	17	19	20	23	33	32	43	40	38	54	105	177	169	153	161	130	97	102	121	97
Energy exploration	1	1	2	2	5	4	8	6	6	4	8	4	10	5	1	3	3	1	2	4
Energy infrastructure	2	1	-	2	6	8	6	8	7	8	6	7	7	8	8	8	8	10	12	20
Energy marketing	-	-	-	-	-	-	-	4	1	1	4	4	1	-	2	-	-	3	4	2
Energy production	3	5	5	18	27	21	23	37	25	20	17	15	14	11	11	11	11	12	18	13
Energy refining	-	-	1	1	-	3	1	2	-	-	3	1	2	-	-	1	-	1	-	1
Energy storage	1	3	4	4	3	9	19	13	8	9	13	8	7	6	2	4	4	3	6	10
Energy traders and brokers	-	-	-	-	-	-	-	1	1	-	1	-	1	-	-	1	-	2	1	2
Energy transportation	-	-	-	-	-	1	-	-	-	-	2	1	1	3	1	2	2	-	1	2
Enterprise systems (healthcare)	23	22	26	32	34	33	38	47	52	67	86	91	117	120	119	137	138	152	195	169

Table SINV-33

U.S.-headquartered firms receiving venture capital investments, by Primary Industry Code: 2003–22

(Number)

Primary Industry Code (PitchBook)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Entertainment software	9	22	19	44	65	73	65	79	121	149	141	162	144	142	151	182	196	228	357	403
Environmental services (B2B)	6	11	8	12	25	27	23	29	34	34	52	51	42	44	37	44	46	55	91	127
Fiberoptic equipment	24	23	17	19	15	10	9	11	9	7	10	5	4	4	6	5	9	5	5	11
Financial software	53	35	60	59	81	97	102	117	161	195	252	330	347	376	447	652	658	704	1,300	1,357
Food products	2	11	13	15	29	24	22	28	35	57	85	114	160	135	193	213	216	235	345	290
Footwear	-	1	1	-	1	-	2	2	3	11	13	15	15	18	20	17	28	17	38	33
Forestry development/harvesting	-	-	-	1	1	-	-	-	-	-	1	-	-	-	1	1	1	-	1	1
Forestry processing	-	-	-	-	-	-	1	2	1	1	-	4	1	-	1	1	2	5	3	4
Gas utilities	-	1	-	-	-	1	-	-	1	1	3	5	1	1	1	1	5	-	1	-
General merchandise stores	-	-	-	1	1	-	-	1	3	2	1	-	1	1	-	2	1	-	-	-
General purpose semiconductors	21	31	22	24	29	19	21	20	12	13	10	10	11	11	12	19	10	10	23	18
Gold mining	-	-	-	-	1	1	-	1	1	-	-	1	2	-	-	1	-	-	1	-
Government	-	1	-	2	1	4	2	1	3	7	2	6	7	5	8	10	13	15	11	12
Holding companies	1	-	1	1	2	1	3	5	3	4	2	10	8	1	3	7	6	13	10	5
Home furnishings	1	2	4	3	2	2	3	2	4	5	15	12	14	22	20	26	30	22	34	36
Horticulture	-	-	-	-	-	2	-	-	-	1	2	1	4	6	6	12	12	12	16	10
Hospitals/inpatient services	1	4	7	1	4	1	2	5	8	9	7	4	5	6	1	3	4	1	2	6
Hotels and resorts	1	-	-	3	-	1	2	2	2	5	8	7	10	5	6	7	18	6	11	11
Household appliances	-	4	1	1	4	5	4	7	8	6	12	17	20	23	30	20	32	23	30	37
Household products	2	3	1	3	4	3	3	3	1	2	3	6	4	3	5	11	9	13	9	9
Human capital services	8	16	12	13	22	16	21	20	24	34	53	75	86	81	80	99	112	115	166	165
Industrial chemicals	25	28	36	44	64	43	35	45	51	44	11	9	13	9	12	11	8	10	9	7
Industrial supplies and parts	2	2	4	5	10	9	8	10	10	10	35	33	37	27	28	35	36	31	41	40
Information services (B2C)	5	13	15	10	10	20	14	15	21	19	157	170	172	140	119	122	145	146	187	213
Infrastructure	10	16	23	32	77	65	61	85	118	144	-	-	-	-	-	-	1	-	-	2
Insurance brokers	-	-	-	-	-	-	-	-	-	-	3	5	9	8	14	13	11	16	13	26
International banks	-	-	1	-	2	1	-	1	2	2	-	-	1	-	-	1	-	1	-	1
Internet retail	-	-	-	-	-	-	-	-	-	-	74	71	60	42	41	35	35	35	58	55
Internet service providers	11	9	12	23	20	21	27	43	63	79	5	5	6	9	16	13	12	10	14	16
Internet software	24	13	15	10	12	11	3	5	11	8	29	31	18	15	10	14	21	11	41	38
Investment banks	10	13	27	22	23	36	22	22	29	29	2	2	2	1	2	1	-	1	2	1
Iron and steel mining	1	-	-	-	1	-	-	-	1	-	-	-	2	-	-	-	1	-	2	3
IT consulting and outsourcing	-	-	-	-	-	-	-	-	-	-	52	60	60	52	49	52	59	66	60	72
Laboratory services (healthcare)	11	13	12	9	16	16	11	17	19	21	21	22	25	18	27	25	33	18	24	21
Legal services (B2B)	1	3	3	2	2	5	2	5	6	6	9	7	6	11	10	10	11	12	22	19
Legal services (B2C)	-	1	-	2	2	-	1	1	2	2	9	3	4	3	6	4	10	7	13	8

Table SINV-33

U.S.-headquartered firms receiving venture capital investments, by Primary Industry Code: 2003–22

(Number)

Primary Industry Code (PitchBook)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Leisure facilities	4	7	8	6	5	5	4	6	3	3	6	12	13	16	18	28	40	30	40	33
Life and health insurance	1	-	2	2	3	1	3	4	2	1	3	7	5	4	7	13	7	14	15	16
Logistics	17	6	9	9	13	7	13	9	12	13	29	28	44	37	54	71	69	72	97	97
Luxury goods	-	-	-	-	-	-	-	1	-	3	1	-	1	1	-	-	-	1	1	2
Machinery (B2B)	6	6	8	7	9	19	19	10	12	16	15	19	35	28	44	43	50	49	60	69
Managed care	5	6	5	4	11	2	7	7	5	5	8	9	17	17	16	17	28	12	32	28
Marine	-	1	1	-	-	-	-	-	-	4	1	4	9	3	9	8	4	5	10	13
Media and information services (B2B)	82	93	116	172	248	262	244	293	399	491	542	558	518	453	455	406	520	470	645	550
Medical records systems	7	4	10	9	12	14	18	22	22	29	36	41	45	49	47	48	48	36	50	56
Medical supplies	4	10	6	17	13	10	17	25	20	17	24	20	14	19	17	23	25	34	34	36
Metal containers and packaging	-	-	1	-	-	2	1	3	2	4	-	6	2	1	2	1	-	1	2	5
Mineral textiles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monitoring equipment	14	14	19	27	26	29	24	31	47	56	70	76	83	95	91	107	105	113	132	110
Movies, music and entertainment	8	8	10	22	54	37	26	30	39	34	51	47	41	49	42	34	45	44	67	77
Multi-line chemicals	-	-	-	-	-	-	1	-	-	-	4	4	6	6	8	6	6	9	9	12
Multi-line insurance	1	-	1	1	1	2	2	1	5	2	1	3	2	-	3	2	3	5	6	6
Multi-line mining	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	1	1	-
Multimedia and design software	-	-	-	-	-	-	-	-	-	2	90	120	108	117	110	124	130	114	181	142
Multi-utilities	23	36	35	47	69	68	57	60	78	79	-	1	1	-	1	1	-	-	-	1
National banks	-	1	-	1	1	1	-	1	2	-	1	2	3	1	-	1	1	4	4	3
Network management software	115	134	141	131	120	128	114	118	140	185	192	228	220	249	297	282	316	294	381	355
Office electronics	1	1	2	2	1	-	1	-	1	-	2	1	4	5	3	5	2	3	3	3
Office services (B2B)	1	1	1	-	-	-	1	-	1	-	1	2	1	3	2	4	2	2	2	3
Oil and gas equipment	-	-	2	4	4	8	5	4	2	4	10	9	11	13	4	10	6	7	6	6
Operating systems software	1	2	6	5	2	5	5	6	-	11	9	4	5	4	4	5	4	1	7	10
Other agriculture	1	2	1	-	1	4	3	5	7	7	4	14	10	9	23	31	20	33	37	34
Other apparel	1	1	-	1	2	-	1	2	3	3	1	-	3	1	-	-	2	2	2	3
Other business products and services	-	-	-	-	-	-	-	-	-	-	2	3	3	6	9	2	2	5	6	5
Other capital markets/institutions	1	-	2	3	3	3	1	5	4	2	7	5	7	5	5	8	9	8	10	14
Other chemicals and gases	-	1	-	-	-	-	-	-	-	1	4	2	3	2	1	3	3	2	2	2
Other commercial banks	-	-	1	1	-	1	1	1	1	1	2	2	2	5	4	5	6	8	10	12
Other commercial products	14	16	20	18	30	40	27	32	36	45	76	72	78	100	107	83	78	89	131	191
Other commercial services	23	25	31	26	35	40	38	42	35	64	70	80	87	67	89	94	94	100	129	132
Other communications and networking	25	20	24	24	24	12	9	13	10	13	15	16	14	10	14	12	11	12	6	12
Other consumer durables	3	6	4	5	8	11	12	11	16	21	27	29	31	33	39	42	52	31	62	69
Other consumer non-durables	-	2	2	1	4	2	1	4	7	5	12	10	20	10	28	44	84	49	66	66

Table SINV-33

U.S.-headquartered firms receiving venture capital investments, by Primary Industry Code: 2003–22

(Number)

Primary Industry Code (PitchBook)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Other consumer products and services	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	1
Other containers and packaging	1	1	-	1	1	4	2	2	3	3	2	2	4	4	5	4	4	10	10	14
Other devices and supplies	29	31	36	35	36	43	52	51	55	74	77	71	71	63	70	80	92	82	89	93
Other energy	3	2	1	-	2	3	1	1	5	2	5	2	1	-	-	2	-	2	-	-
Other energy services	1	1	3	5	7	6	9	13	14	19	16	17	16	15	12	14	16	14	17	24
Other equipment	1	1	3	3	6	6	7	6	14	5	10	11	10	12	8	13	11	11	23	24
Other financial services	9	8	8	14	18	28	33	25	40	44	56	74	78	66	79	86	105	105	213	282
Other forestry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Other hardware	19	20	22	19	18	22	13	20	27	19	18	28	44	62	63	97	80	90	103	128
Other healthcare	-	-	-	-	-	-	-	-	-	-	1	-	-	2	1	-	2	2	3	3
Other healthcare services	12	8	18	24	22	20	30	33	30	49	47	62	64	73	73	81	108	117	189	174
Other healthcare technology systems	15	14	21	26	33	40	41	50	83	104	122	156	178	190	222	264	270	307	396	378
Other information technology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Other insurance	-	-	-	-	-	-	-	-	-	-	9	11	7	11	17	19	14	23	44	39
Other IT services	1	1	1	1	3	3	4	3	5	5	-	-	-	-	-	-	-	-	-	1
Other materials	3	7	6	7	9	8	7	11	12	8	11	8	11	5	14	18	13	24	19	20
Other media	2	4	6	8	12	8	5	5	11	15	7	12	8	5	7	8	5	3	9	14
Other metals, minerals and mining	-	2	1	1	3	2	4	5	6	3	6	3	5	4	6	9	8	5	13	11
Other pharmaceuticals and biotechnology	3	3	5	6	5	9	9	10	7	8	12	12	12	16	16	23	33	34	31	26
Other restaurants, hotels and leisure	1	3	4	7	9	9	8	12	17	25	31	56	59	61	77	62	69	58	80	89
Other retail	-	-	1	1	1	2	4	3	5	2	2	1	2	-	-	-	-	-	-	1
Other semiconductors	9	9	8	12	14	9	5	6	4	6	4	4	3	-	1	1	2	1	1	1
Other services (B2C non-financial)	4	7	4	18	28	36	31	43	72	88	110	128	118	129	132	139	141	157	210	214
Other software	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Other textiles	-	-	1	-	-	-	-	-	1	-	1	-	-	-	1	-	1	1	3	3
Other transportation	1	1	-	-	-	1	1	-	1	1	1	8	8	6	4	3	5	3	3	3
Other utilities	-	-	-	2	2	2	-	2	2	2	1	2	1	-	-	-	2	-	2	4
Outcome management (healthcare)	1	3	-	3	5	5	2	6	6	5	11	14	17	26	22	28	35	39	37	34
Paper containers and packaging	-	-	-	-	1	1	1	-	2	2	2	3	4	4	2	3	5	5	4	6
Paper/soft products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personal products	1	6	9	8	16	14	16	16	24	30	50	47	56	58	84	107	146	121	188	157
Pharmaceuticals	63	69	68	70	81	70	68	70	71	54	63	52	59	46	47	50	66	52	75	49
Plant textiles	-	-	-	-	-	1	-	1	1	1	-	-	-	1	1	1	2	-	1	2
Plastic containers and packaging	-	-	-	-	1	2	2	-	4	1	5	3	2	1	1	2	6	6	3	6
Practice management (healthcare)	-	7	9	5	4	8	5	6	11	10	15	12	13	17	16	17	14	15	18	19
Precious metals and minerals mining	-	-	1	-	1	-	1	-	-	-	1	-	-	2	-	3	3	1	2	4

Table SINV-33

U.S.-headquartered firms receiving venture capital investments, by Primary Industry Code: 2003–22

(Number)

Primary Industry Code (PitchBook)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Printing services (B2B)	4	2	5	3	3	3	6	6	5	5	4	8	6	3	3	1	2	-	1	4
Private equity	-	-	1	1	2	1	2	7	9	9	15	20	16	14	15	15	17	19	16	23
Production (semiconductors)	9	13	7	6	8	1	2	4	4	3	2	1	-	3	1	-	2	1	-	1
Property and casualty insurance	-	1	-	-	1	-	1	1	1	-	1	3	3	6	8	5	8	7	7	12
Publishing	5	5	12	17	32	39	45	59	61	58	62	73	75	63	48	51	53	48	54	42
Rail	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	1	1	3	5	3
Raw materials (non-wood)	-	-	1	2	-	4	-	2	2	4	-	-	-	2	1	1	3	3	10	9
Real estate investment trusts (REITs)	-	-	-	-	-	-	-	-	-	-	2	2	2	3	1	1	4	3	4	6
Real estate services (B2C)	-	-	-	-	-	1	-	1	-	1	32	43	53	59	57	83	119	104	140	149
Recreational goods	2	4	9	5	5	5	9	11	9	12	21	23	41	26	31	30	35	34	48	40
Regional banks	3	6	4	6	7	7	7	10	16	22	7	2	10	-	2	3	4	6	9	10
Re-insurance	-	1	3	3	4	1	6	4	4	-	-	-	-	-	-	-	-	-	-	-
Restaurants and bars	4	4	3	8	6	3	6	8	10	14	24	34	57	52	35	38	32	27	43	31
Road	2	1	2	3	6	3	1	7	5	6	11	7	10	14	16	23	25	20	21	28
Security services (B2B)	19	18	10	17	10	11	5	3	5	11	5	2	9	3	4	6	1	3	-	6
Social content	1	3	7	18	30	33	18	25	37	51	44	40	27	22	13	9	13	10	26	25
Social/platform software	19	21	32	60	101	117	97	140	195	255	269	289	248	145	121	84	103	109	202	177
Software development applications	28	25	28	29	32	46	28	37	59	74	99	92	123	101	125	131	146	163	255	273
Special purpose acquisition company (SPAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3	4	2
Specialized finance	3	1	4	4	7	10	9	10	9	14	19	30	35	25	16	36	32	36	44	43
Specialty chemicals	2	6	11	8	11	11	9	10	10	12	12	22	11	16	20	13	25	17	21	16
Specialty retail	4	9	3	10	21	22	19	23	25	30	40	48	65	49	46	58	58	55	80	65
Storage (IT)	19	21	24	22	22	24	19	26	22	26	23	11	9	9	11	9	9	7	6	3
Surgical devices	51	43	51	61	78	104	89	87	105	99	95	110	108	95	99	94	107	85	112	99
Synthetic textiles	2	1	3	-	2	1	1	2	1	-	4	3	3	4	5	5	2	4	9	8
Systems and information management	37	35	40	31	47	42	42	54	53	54	59	60	45	40	44	33	38	44	44	51
Telecommunications service providers	36	30	37	28	28	22	22	17	10	17	21	19	17	18	14	14	15	17	21	14
Therapeutic devices	49	50	70	71	100	96	100	97	123	110	130	134	133	128	149	172	172	186	193	184
Thrifts and mortgage finance	1	1	-	-	1	2	2	-	1	2	2	1	4	1	1	-	1	2	2	3
Vertical market software	24	36	30	50	55	58	48	54	53	33	28	10	3	4	-	-	-	-	-	-
Water utilities	1	2	1	3	6	1	4	-	7	6	6	6	3	3	3	2	2	2	3	5
Wireless communications equipment	50	57	54	61	46	45	41	34	30	39	42	32	32	36	27	32	31	26	28	27
Wireless service providers	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Wood containers and packaging	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood/hard products	-	-	-	-	1	-	1	-	1	1	1	-	-	-	1	1	-	-	1	1

B2B = business to business; B2C = business to consumer; BPO = business process outsourcing; IT = information technology.

Source(s):
PitchBook, venture capital and private equity database, accessed September 2023.

Science and Engineering Indicators

Table SINV-34

PitchBook venture capital Primary Industry Code–to–industry classification: 2003–22

(Industry classification based on PitchBook Primary Industry Code)

Primary Industry Code (PitchBook)	Industry classification
Accessories	Consumer goods and services
Accounting, audit and tax services (B2B)	Commercial services
Accounting, audit and tax services (B2C)	Consumer goods and services
Aerospace and defense	Transportation and defense
Agricultural chemicals	Agriculture and food
Air	Transportation and defense
Alternative energy equipment	Energy
Aluminum mining	Industrial products
Animal husbandry	Agriculture and food
Animal textiles	Agriculture and food
Application software	Software
Application specific semiconductors	IT hardware
Aquaculture	Agriculture and food
Asset management	Commercial services
Automation/workflow software	Software
Automotive	Transportation and defense
Automotive insurance	Financial services
Beverages	Agriculture and food
Biotechnology	Biomedical
BPO/outsource services	Commercial services
Broadcasting, radio and television	Information
Brokerage	Financial services
Building products	Industrial products
Buildings and property	Commercial services
Business equipment and supplies	Commercial services
Business/productivity software	Software
Cable service providers	Information
Casinos and gaming	Consumer goods and services
Catalog retail	Consumer goods and services
Clinics/outpatient services	Healthcare
Clothing	Consumer goods and services
Coal and consumable fuels equipment	Energy
Coal mining	Energy
Commercial/professional insurance	Financial services
Commodity chemicals	Industrial products
Communication software	Software
Computers, parts and peripherals	IT hardware
Conglomerates	Other
Connectivity products	IT hardware
Construction and engineering	Commercial services
Consulting services (B2B)	Commercial services
Consumer finance	Financial services
Cruise lines	Consumer goods and services
Cultivation	Agriculture and food
Database software	Software
Decision/risk analysis	Software
Department stores	Consumer goods and services
Diagnostic equipment	Biomedical
Discovery tools (healthcare)	Biomedical
Distributors (healthcare)	Healthcare
Distributors/wholesale	Commercial services

Table SINV-34

PitchBook venture capital Primary Industry Code–to–industry classification: 2003–22

(Industry classification based on PitchBook Primary Industry Code)

Primary Industry Code (PitchBook)	Industry classification
Distributors/wholesale (B2C)	Consumer goods and services
Drug delivery	Biomedical
Drug discovery	Biomedical
Education and training services (B2B)	Commercial services
Educational and training services (B2C)	Consumer goods and services
Educational software	Software
Elder and disabled care	Healthcare
Electric utilities	Energy
Electrical equipment	Industrial products
Electronic components	IT hardware
Electronic equipment and instruments	IT hardware
Electronics (B2C)	Consumer goods and services
Energy exploration	Energy
Energy infrastructure	Energy
Energy marketing	Energy
Energy production	Energy
Energy refining	Energy
Energy storage	Energy
Energy traders and brokers	Energy
Energy transportation	Energy
Enterprise systems (healthcare)	Software
Entertainment software	Software
Environmental services (B2B)	Commercial services
Fiberoptic equipment	IT hardware
Financial software	Software
Food products	Agriculture and food
Footwear	Consumer goods and services
Forestry development/harvesting	Agriculture and food
Forestry processing	Agriculture and food
Gas utilities	Energy
General merchandise stores	Consumer goods and services
General purpose semiconductors	IT hardware
Gold mining	Industrial products
Government	Other
Holding companies	Other
Home furnishings	Consumer goods and services
Horticulture	Agriculture and food
Hospitals/inpatient services	Healthcare
Hotels and resorts	Consumer goods and services
Household appliances	Consumer goods and services
Household products	Consumer goods and services
Human capital services	Commercial services
Industrial chemicals	Industrial products
Industrial supplies and parts	Industrial products
Information services (B2C)	Information
Infrastructure	Transportation and defense
Insurance brokers	Financial services
International banks	Financial services
Internet retail	Consumer goods and services
Internet service providers	Information
Internet software	Software

Table SINV-34

PitchBook venture capital Primary Industry Code–to–industry classification: 2003–22

(Industry classification based on PitchBook Primary Industry Code)

Primary Industry Code (PitchBook)	Industry classification
Investment banks	Financial services
Iron and steel mining	Industrial products
IT consulting and outsourcing	Commercial services
Laboratory services (healthcare)	Healthcare
Legal services (B2B)	Commercial services
Legal services (B2C)	Consumer goods and services
Leisure facilities	Consumer goods and services
Life and health insurance	Financial services
Logistics	Commercial services
Luxury goods	Consumer goods and services
Machinery (B2B)	Industrial products
Managed care	Healthcare
Marine	Transportation and defense
Media and information services (B2B)	Information
Medical records systems	Healthcare
Medical supplies	Healthcare
Metal containers and packaging	Industrial products
Mineral textiles	Industrial products
Monitoring equipment	Healthcare
Movies, music and entertainment	Information
Multi-line chemicals	Industrial products
Multi-line insurance	Financial services
Multi-line mining	Industrial products
Multimedia and design software	Software
Multi-utilities	Energy
National banks	Financial services
Network management software	Software
Office electronics	IT hardware
Office services (B2B)	Commercial services
Oil and gas equipment	Energy
Operating systems software	Software
Other agriculture	Agriculture and food
Other apparel	Consumer goods and services
Other business products and services	Commercial services
Other capital markets/institutions	Financial services
Other chemicals and gases	Industrial products
Other commercial banks	Financial services
Other commercial products	Industrial products
Other commercial services	Commercial services
Other communications and networking	Information
Other consumer durables	Consumer goods and services
Other consumer non-durables	Consumer goods and services
Other consumer products and services	Consumer goods and services
Other containers and packaging	Industrial products
Other devices and supplies	Healthcare
Other energy	Energy
Other energy services	Energy
Other equipment	Industrial products
Other financial services	Financial services
Other forestry	Agriculture and food
Other hardware	IT hardware

Table SINV-34

PitchBook venture capital Primary Industry Code–to–industry classification: 2003–22

(Industry classification based on PitchBook Primary Industry Code)

Primary Industry Code (PitchBook)	Industry classification
Other healthcare	Healthcare
Other healthcare services	Healthcare
Other healthcare technology systems	Healthcare
Other information technology	Commercial services
Other insurance	Financial services
Other IT services	Commercial services
Other materials	Industrial products
Other media	Information
Other metals, minerals and mining	Industrial products
Other pharmaceuticals and biotechnology	Biomedical
Other restaurants, hotels and leisure	Consumer goods and services
Other retail	Consumer goods and services
Other semiconductors	IT hardware
Other services (B2C non-financial)	Commercial services
Other software	Software
Other textiles	Industrial products
Other transportation	Transportation and defense
Other utilities	Energy
Outcome management (healthcare)	Healthcare
Paper containers and packaging	Industrial products
Paper/soft products	Consumer goods and services
Personal products	Consumer goods and services
Pharmaceuticals	Biomedical
Plant textiles	Industrial products
Plastic containers and packaging	Industrial products
Practice management (healthcare)	Healthcare
Precious metals and minerals mining	Industrial products
Printing services (B2B)	Commercial services
Private equity	Financial services
Production (semiconductors)	IT hardware
Property and casualty insurance	Financial services
Publishing	Information
Rail	Transportation and defense
Raw materials (non-wood)	Industrial products
Real estate investment trusts (REITs)	Financial services
Real estate services (B2C)	Consumer goods and services
Recreational goods	Consumer goods and services
Regional banks	Financial services
Re-insurance	Financial services
Restaurants and bars	Consumer goods and services
Road	Transportation and defense
Security services (B2B)	Commercial services
Social content	Information
Social/platform software	Software
Software development applications	Software
Special purpose acquisition company (SPAC)	Other
Specialized finance	Financial services
Specialty chemicals	Industrial products
Specialty retail	Consumer goods and services
Storage (IT)	IT hardware
Surgical devices	Biomedical

Table SINV-34

PitchBook venture capital Primary Industry Code–to–industry classification: 2003–22

(Industry classification based on PitchBook Primary Industry Code)

Primary Industry Code (PitchBook)	Industry classification
Synthetic textiles	Industrial products
Systems and information management	Commercial services
Telecommunications service providers	Information
Therapeutic devices	Healthcare
Thrifts and mortgage finance	Financial services
Vertical market software	Software
Water utilities	Other
Wireless communications equipment	Information
Wireless service providers	Information
Wood containers and packaging	Industrial products
Wood/hard products	Industrial products

B2B = business to business; B2C = business to consumer; BPO = business process outsourcing; IT = information technology.

Source(s):
National Center for Science and Engineering Statistics; PitchBook, venture capital and private equity database, accessed May 2023.

Science and Engineering Indicators

Table SINV-35

Registered USPTO trademarks, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	88,760	88,615	110,487	106,742	146,874	130,946	113,694	121,572	153,329	170,786	194,477	177,390	165,235	180,074	187,596	194,337	204,714	213,794	232,531	255,089	273,175	312,210	283,481	368,121	333,222
North America	na	79,059	78,405	98,204	94,813	127,561	110,259	95,559	102,897	128,725	143,058	162,962	147,610	137,821	151,732	157,601	162,153	171,035	175,741	182,535	190,078	192,554	218,048	190,699	184,065	177,738
Canada	High	2,025	1,886	2,225	2,053	2,957	2,921	2,740	2,844	3,406	3,337	3,859	3,718	3,566	4,009	3,694	3,832	3,932	4,152	4,302	4,734	4,829	5,445	5,258	4,877	4,748
Mexico	Upper middle	248	236	290	207	358	408	386	481	479	629	800	700	694	853	806	896	919	946	953	981	991	1,095	994	914	974
United States	High	76,785	76,283	95,690	92,553	124,247	106,931	92,434	99,572	124,840	139,091	158,303	143,193	133,561	146,870	153,101	157,425	166,183	170,643	177,280	184,363	186,733	211,508	184,446	178,273	172,015
Central America and Caribbean	na	139	142	141	142	240	281	279	293	321	410	422	375	358	346	330	395	333	399	401	413	358	445	378	373	357
South America	na	194	196	187	186	375	511	481	463	574	580	690	594	588	568	638	639	661	713	747	832	870	959	849	782	792
Argentina	Upper middle	53	28	42	33	76	112	108	89	121	142	156	126	142	142	126	148	109	107	126	113	145	129	114	120	138
Brazil	Upper middle	51	58	66	53	128	150	151	152	186	184	205	196	179	151	204	206	254	285	274	329	334	373	332	300	249
Europe	na	5,803	5,855	7,397	7,373	12,585	13,355	11,398	11,838	16,105	17,903	20,051	19,333	17,472	17,778	18,490	19,385	19,753	20,694	23,185	23,157	25,138	26,974	24,775	22,226	20,597
EU-27 and United Kingdom[a]	na	5,074	5,150	6,455	6,534	11,058	11,666	9,946	10,271	13,919	15,412	17,329	16,789	15,250	15,376	15,972	16,789	16,982	17,694	19,992	20,195	21,716	23,037	20,985	18,813	17,438
United Kingdom	High	733	701	975	1,058	1,758	2,007	1,956	1,943	2,460	2,716	3,204	3,355	3,291	3,142	3,288	3,658	3,915	4,141	4,755	4,923	5,106	5,451	5,059	4,968	4,713
EU-27[b]	na	4,341	4,449	5,480	5,477	9,300	9,659	7,990	8,328	11,459	12,696	14,125	13,434	11,959	12,234	12,683	13,130	13,067	13,553	15,237	15,272	16,610	17,586	15,926	13,845	12,725
Austria	High	73	93	131	98	223	264	191	206	289	314	368	360	317	327	351	366	375	394	462	454	429	530	451	428	351
Belgium	High	114	123	125	133	276	250	194	214	304	348	364	350	343	316	329	394	398	318	416	453	555	540	451	399	368
Denmark	High	135	125	135	154	221	261	215	237	344	356	404	419	402	346	366	390	387	434	537	466	498	556	482	445	460
Finland	High	80	59	93	98	190	189	129	162	158	223	213	211	201	223	216	230	227	238	337	323	405	369	372	343	297
France	High	934	887	1,164	1,125	1,774	1,875	1,477	1,459	2,028	2,206	2,386	2,249	2,169	2,205	2,163	2,349	2,297	2,239	2,401	2,533	2,702	2,677	2,465	2,003	1,853
Germany	High	1,283	1,426	1,784	1,767	3,149	3,313	2,825	2,887	3,828	3,994	4,472	4,385	3,700	3,640	3,642	3,707	3,552	3,603	3,980	4,098	4,217	4,616	4,072	3,622	3,262
Hungary	High	10	12	6	16	16	16	10	16	27	21	32	26	38	26	39	49	41	46	36	47	64	61	64	32	44
Ireland	High	121	66	105	146	200	181	191	160	213	248	317	272	236	291	296	316	303	425	442	413	505	480	456	433	454
Italy	High	613	662	771	676	1,158	1,146	951	1,051	1,632	1,956	2,154	1,822	1,535	1,717	1,727	1,802	1,850	1,899	2,034	2,059	2,239	2,499	2,152	1,849	1,607
Netherlands	High	329	367	422	440	753	765	585	666	836	942	964	1,044	866	906	964	854	955	935	1,136	1,033	1,233	1,271	1,154	1,006	861
Spain	High	274	274	277	308	543	547	478	512	757	846	963	841	786	820	915	958	920	1,006	1,191	1,118	1,058	1,211	1,176	978	925
Sweden	High	239	238	287	346	512	520	447	420	495	544	642	616	601	585	679	688	622	670	793	815	855	975	865	767	736
Other Europe	na	729	705	942	839	1,528	1,689	1,452	1,567	2,187	2,491	2,722	2,545	2,222	2,402	2,519	2,596	2,771	3,000	3,193	2,962	3,422	3,937	3,790	3,414	3,159
Other Europe (2020)[b]	na	1,462	1,406	1,917	1,897	3,285	3,696	3,408	3,510	4,647	5,207	5,926	5,899	5,513	5,544	5,807	6,255	6,686	7,141	7,949	7,885	8,528	9,388	8,849	8,382	7,872
Belarus	Upper middle	1	0	0	0	0	0	0	3	1	2	6	9	4	15	10	19	10	9	15	13	19	30	48	40	39
Moldova	Upper middle	0	0	0	0	1	0	0	4	14	3	9	1	4	1	4	1	7	8	5	9	6	16	10	17	10
Norway	High	40	54	69	56	125	111	73	67	111	164	181	182	198	182	166	180	188	182	204	200	250	298	231	236	199
Russia	Upper middle	9	8	16	14	25	51	40	49	122	114	136	135	128	186	246	232	266	242	216	235	344	393	394	390	304
Switzerland	High	615	588	792	691	1,247	1,385	1,204	1,267	1,646	1,880	2,003	1,892	1,597	1,721	1,727	1,736	1,799	2,094	2,123	1,944	2,069	2,199	2,176	1,822	1,741
Ukraine	Lower middle	0	0	0	1	5	3	3	6	20	26	21	19	25	30	34	24	59	45	74	85	198	266	284	254	277
Asia	na	1,979	2,022	2,544	2,603	3,730	4,238	3,982	4,312	5,396	6,351	7,386	6,772	6,508	7,117	7,906	9,004	9,923	12,908	21,833	36,589	49,564	60,351	61,525	155,790	128,913
China	Upper middle	320	344	446	424	675	816	732	817	1,294	1,803	2,198	2,050	1,965	2,471	2,810	3,314	4,055	6,459	15,020	29,186	41,732	51,111	52,287	146,717	120,004
India	Lower middle	26	38	47	72	64	91	95	88	115	130	161	179	185	194	219	228	247	312	338	409	479	661	656	572	583

Table SINV-35

Registered USPTO trademarks, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	987	1,051	1,189	1,243	1,731	1,974	1,837	1,993	2,366	2,496	2,737	2,522	2,340	2,218	2,285	2,790	2,684	2,780	2,903	2,838	2,953	3,365	3,250	3,024	2,698
Malaysia	Upper middle	18	11	19	18	21	28	29	21	47	49	57	48	76	63	54	49	47	55	59	60	116	81	88	81	127
Singapore	High	66	42	78	96	135	121	136	121	155	207	264	223	253	251	327	361	332	365	455	497	529	606	633	759	721
South Korea	High	143	139	177	203	277	397	381	387	428	587	745	736	737	902	1,118	1,136	1,380	1,710	1,836	2,417	2,328	2,877	3,002	3,129	3,187
Taiwan	High	368	351	524	495	739	663	629	749	824	895	1,039	809	758	831	881	910	909	963	966	906	1,031	1,169	1,048	1,010	891
Middle East	na	158	139	187	218	361	350	273	279	306	355	444	432	458	517	611	599	651	789	921	929	1,215	1,338	1,303	1,154	1,014
Israel	High	143	119	164	192	313	309	225	214	244	280	347	308	333	329	431	412	422	528	581	629	902	1,022	968	853	731
Africa	na	62	42	51	56	98	157	93	108	117	127	158	156	161	169	150	190	204	223	181	165	212	242	217	196	187
South Africa	Upper middle	52	28	37	42	72	123	69	84	90	91	105	96	112	109	88	124	127	130	98	87	107	122	97	108	93
Australia and Oceania	na	383	357	490	486	846	958	823	886	1,253	1,388	1,734	1,611	1,468	1,466	1,531	1,599	1,798	1,901	2,348	2,447	2,782	3,388	3,386	3,147	2,763
Australia	High	333	280	391	403	727	769	657	741	1,047	1,171	1,434	1,357	1,207	1,214	1,306	1,382	1,470	1,583	1,973	2,064	2,360	2,872	2,874	2,579	2,372
New Zealand	High	48	75	97	81	116	174	150	140	198	211	292	242	247	244	213	208	306	312	357	373	405	505	494	561	384
Unclassified	na	985	1,458	1,287	868	1,078	838	808	496	533	615	630	508	402	381	340	375	358	428	381	479	482	465	348	389	861

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-36

Nice classes in trademark data, by business sector: 1998–2022

(Nice classes)

Business sector	Abbreviation (if applicable)	Nice class	Class description
		29	Meat, fish, poultry, and game; meat extracts; preserved, frozen, dried, and cooked fruits and vegetables; jellies, jams, compotes; eggs; milk, cheese, butter, yogurt, and other milk products; oils and fats for food.
		30	Coffee, tea, cocoa, and artificial coffee; rice, pasta, and noodles; tapioca and sago; flour and preparations made from cereals; bread, pastries, and confectionery; chocolate; ice cream, sorbets, and other edible ices; sugar, honey, treacle; yeast, baking powder; salt, seasonings, spices, preserved herbs; vinegar, sauces, and other condiments; ice (frozen water).
		31	Raw and unprocessed agricultural, aquacultural, horticultural, and forestry products; raw and unprocessed grains and seeds; fresh fruits and vegetables, fresh herbs; natural plants and flowers; bulbs, seedlings, and seeds for planting; live animals; foodstuffs and beverages for animals; malt.
		32	Beers; non-alcoholic beverages; mineral and aerated waters; fruit beverages and fruit juices; syrups and other non-alcoholic preparations for making beverages.
		33	Alcoholic beverages, except beers; alcoholic preparations for making beverages.
Agricultural products and services	Agriculture	43	Services for providing food and drink; temporary accommodation.
		1	Chemicals for use in industry, science, and photography, as well as in agriculture, horticulture, and forestry; unprocessed artificial resins, unprocessed plastics; fire extinguishing and fire prevention compositions; tempering and soldering preparations; substances for tanning animal skins and hides; adhesives for use in industry; putties and other paste fillers; compost, manures, fertilizers; biological preparations for use in industry and science.
		2	Paints, varnishes, lacquers; preservatives against rust and against deterioration of wood; colorants, dyes; inks for printing, marking, and engraving; raw natural resins; metals in foil and powder form for use in painting, decorating, printing, and art.
Chemicals	na	4	Industrial oils and greases, wax; lubricants; dust-absorbing, wetting, and binding compositions; fuels and illuminants; candles and wicks for lighting.
		6	Common metals and their alloys, ores; metal materials for building and construction; transportable buildings of metal; non-electric cables and wires of common metal; small items of metal hardware; metal containers for storage or transport; safes.
		17	Unprocessed and semi-processed rubber, gutta-percha, gum, asbestos, mica, and substitutes for all these materials; plastics and resins in extruded form for use in manufacture; packing, stopping, and insulating materials; flexible pipes, tubes, and hoses, not of metal.
		19	Materials, not of metal, for building and construction; rigid pipes, not of metal, for building; asphalt, pitch, tar, and bitumen; transportable buildings, not of metal; monuments, not of metal.
		37	Building construction; repair; installation services.
Construction and infrastructure	Construction	40	Treatment of materials.
		8	Hand tools and implements, hand-operated; cutlery; side arms, except firearms; razors.
		11	Apparatus and installations for lighting, heating, cooling, steam generating, cooking, drying, ventilating, water supply, and sanitary purposes.
		20	Furniture, mirrors, picture frames; containers, not of metal, for storage or transport; unworked or semi-worked bone, horn, whalebone, or mother-of-pearl; shells; meerschaum; yellow amber.

Table SINV-36

Nice classes in trademark data, by business sector: 1998–2022

(Nice classes)

Business sector	Abbreviation (if applicable)	Nice class	Class description
Household equipment	na	21	Household or kitchen utensils and containers; cookware and tableware, except forks, knives, and spoons; combs and sponges; brushes, except paintbrushes; brush-making materials; articles for cleaning purposes; unworked or semi-worked glass, except building glass; glassware, porcelain, and earthenware.
		13	Firearms; ammunition and projectiles; explosives; fireworks.
		15	Musical instruments; music stands and stands for musical instruments; conductors' batons.
		16	Paper and cardboard; printed matter; bookbinding material; photographs; stationery and office requisites, except furniture; adhesives for stationery or household purposes; drawing materials and materials for artists; paintbrushes; instructional and teaching materials; plastic sheets, films, and bags for wrapping and packaging; printers' type, printing blocks.
		28	Games, toys, and playthings; video game apparatus; gymnastic and sporting articles; decorations for Christmas trees.
Leisure, education, and training	Leisure and education	41	Education; providing of training; entertainment; sporting and cultural activities.
		35	Advertising; business management; business administration; office functions.
Management, communications, real estate, and financial services	Business services	36	Insurance; financial affairs; monetary affairs; real estate affairs.
		3	Non-medicated cosmetics and toiletry preparations; non-medicated dentifrices; perfumery, essential oils; bleaching preparations and other substances for laundry use; cleaning, polishing, scouring, and abrasive preparations.
		5	Pharmaceuticals, medical, and veterinary preparations; sanitary preparations for medical purposes; dietetic food and substances adapted for medical or veterinary use, food for babies; dietary supplements for human beings and animals; plasters, materials for dressings; material for stopping teeth, dental wax; disinfectants; preparations for destroying vermin; fungicides, herbicides.
		10	Surgical, medical, dental, and veterinary apparatus and instruments; artificial limbs, eyes, and teeth; orthopedic articles; suture materials; therapeutic and assistive devices adapted for the disabled; massage apparatus; apparatus, devices, and articles for nursing infants; sexual activity apparatus, devices, and articles.
Pharmaceuticals, health, and cosmetics	Health	44	Medical services; veterinary services; hygienic and beauty care for human beings or animals; agriculture, horticulture, and forestry services.
		9	Scientific, research, navigation, surveying, photographic, cinematographic, audiovisual, optical, weighing, measuring, signaling, detecting, testing, inspecting, life-saving, and teaching apparatus and instruments; apparatus and instruments for conducting, switching, transforming, accumulating, regulating, or controlling the distribution or use of electricity; apparatus and instruments for recording, transmitting, reproducing, or processing sound, images, or data; recorded and downloadable media, computer software, blank digital or analogue recording and storage media; mechanisms for coin-operated apparatus; cash registers, calculating devices; computers and computer peripheral devices; diving suits, divers' masks, ear plugs for divers, nose clips for divers and swimmers, gloves for divers, breathing apparatus for underwater swimming; fire-extinguishing apparatus.
		38	Telecommunications.

Table SINV-36

Nice classes in trademark data, by business sector: 1998–2022

(Nice classes)

Business sector	Abbreviation (if applicable)	Nice class	Class description
		42	Scientific and technological services and research and design relating thereto; industrial analysis and industrial research services; design and development of computer hardware and software.
Scientific research, information, and communication technology	Research and technology	45	Legal services; security services for the physical protection of tangible property and individuals; personal and social services rendered by others to meet the needs of individuals.
		14	Precious metals and their alloys; jewelry, precious and semi-precious stones; horological and chronometric instruments.
		18	Leather and imitations of leather; animal skins and hides; luggage and carrying bags; umbrellas and parasols; walking sticks; whips, harnesses, and saddlery; collars, leashes, and clothing for animals.
		22	Ropes and string; nets; tents and tarpaulins; awnings of textile or synthetic materials; sails; sacks for the transport and storage of materials in bulk; padding, cushioning, and stuffing materials, except of paper, cardboard, rubber, or plastics; raw fibrous textile materials and substitutes therefor.
		23	Yarns and threads for textile use.
		24	Textiles and substitutes for textiles; household linen; curtains of textile or plastic.
		25	Clothing, footwear, headwear.
		26	Lace, braid and embroidery, and haberdashery ribbons and bows; buttons, hooks and eyes, pins and needles; artificial flowers; hair decorations; false hair.
		27	Carpets, rugs, mats and matting, linoleum, and other materials for covering existing floors; wall hangings, not of textile.
Textiles—clothing and accessories	Clothing	34	Tobacco and tobacco substitutes; cigarettes and cigars; electronic cigarettes and oral vaporizers for smokers; smokers' articles; matches.
		7	Machines, machine tools, power-operated tools; motors and engines, except for land vehicles; machine coupling and transmission components, except for land vehicles; agricultural implements, other than hand-operated hand tools; incubators for eggs; automatic vending machines.
		12	Vehicles; apparatus for locomotion by land, air, or water.
Transportation and logistics	Transportation	39	Transport; packaging and storage of goods; travel arrangement.

na = not applicable.

Note(s):
Trademarks are classified under the 11th edition of the Nice Classification (NCL) of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Business sectors based on class groups are those defined by Edital.

Source(s):
World Intellectual Property Organization, NCL, https://www.wipo.int/classifications/nice/en/.

Science and Engineering Indicators

Table SINV-37

U.S.-registered USPTO trademarks, by Nice class: 1998–2022

(Number)

Nice class	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
All classes	76,785	76,283	95,690	92,553	124,247	106,931	92,434	99,572	124,840	139,091	158,303	143,193	133,561	146,870	153,101	157,425	166,183	170,643	177,280	184,363	186,733	211,508	184,446	178,273	172,015
1	1,193	1,146	1,285	1,267	1,714	1,541	1,297	1,338	1,503	1,602	1,748	1,556	1,525	1,742	1,669	1,711	1,782	1,917	1,728	1,775	1,816	1,839	1,700	1,564	1,630
2	337	350	400	428	524	489	398	522	594	571	549	514	453	522	482	480	490	586	521	504	470	550	464	444	424
3	2,184	2,213	2,453	2,454	3,128	3,039	2,694	2,910	3,976	4,109	4,552	4,294	3,675	4,352	4,277	4,578	4,808	5,080	5,259	5,562	6,247	7,324	6,872	7,220	6,631
4	311	366	383	375	506	456	329	468	465	528	487	514	501	605	572	538	562	566	618	662	653	728	765	947	1,022
5	2,550	2,875	2,873	3,147	3,606	3,430	3,087	3,156	4,002	4,260	4,804	4,221	4,195	4,427	4,689	4,603	5,014	4,937	5,083	5,288	6,018	6,969	6,385	6,386	5,483
6	814	877	1,024	913	1,245	1,046	967	938	1,114	1,314	1,376	1,164	1,183	1,211	1,174	1,084	1,229	1,214	1,207	1,262	1,248	1,441	1,237	1,130	1,052
7	1,426	1,464	1,902	1,751	2,241	1,765	1,536	1,609	1,810	2,044	2,244	2,109	1,753	1,840	1,757	1,854	1,929	1,840	1,992	2,080	2,056	2,282	1,894	1,766	1,637
8	478	463	517	551	630	600	498	630	708	808	780	699	599	719	732	699	829	799	920	1,058	1,119	1,231	1,034	1,082	966
9	10,793	10,498	12,566	11,857	15,841	13,786	11,130	11,565	13,301	13,951	15,597	13,526	12,680	13,913	14,617	14,847	15,833	15,939	16,076	15,895	15,334	16,496	13,876	13,081	11,863
10	1,352	1,281	1,327	1,646	2,057	1,911	1,646	1,775	1,969	2,162	2,403	2,233	2,159	2,334	2,468	2,393	2,515	2,449	2,443	2,697	2,849	3,236	3,025	3,358	2,718
11	1,126	1,193	1,487	1,448	2,014	1,778	1,495	1,621	1,979	2,238	2,368	2,171	1,976	2,067	2,155	2,095	2,245	2,450	2,553	2,742	2,865	3,255	2,579	2,690	2,375
12	934	1,061	1,194	1,232	1,570	1,293	1,237	1,328	1,635	1,701	1,782	1,554	1,426	1,556	1,420	1,517	1,585	1,623	1,858	1,897	1,973	1,998	1,789	1,651	1,577
13	165	147	163	210	224	183	192	229	336	337	407	385	417	398	426	427	513	579	644	623	765	674	597	494	444
14	712	637	930	822	1,072	979	918	1,073	1,397	1,571	1,720	1,586	1,547	1,791	1,908	1,966	2,081	2,014	2,079	2,091	2,037	2,361	1,918	1,739	1,690
15	125	140	215	182	261	212	162	206	271	303	292	257	286	308	269	319	366	315	293	319	284	310	271	235	251
16	5,990	5,653	6,424	5,668	6,956	6,083	5,225	5,628	6,676	6,975	7,642	6,306	5,232	5,629	5,260	5,121	4,803	4,672	4,738	4,678	4,772	5,558	4,637	4,449	4,114
17	450	396	579	487	668	668	538	530	592	648	741	678	630	657	603	611	632	633	650	685	689	764	546	603	467
18	538	497	628	558	823	749	706	830	1,057	1,173	1,485	1,378	1,265	1,353	1,432	1,456	1,415	1,588	1,597	1,763	1,950	2,226	1,821	1,704	1,522
19	649	672	829	857	1,172	1,026	926	994	1,297	1,385	1,539	1,294	1,122	1,102	1,109	1,081	1,026	1,078	1,130	1,140	1,126	1,309	1,097	1,031	905
20	1,208	1,366	1,643	1,393	1,842	1,764	1,585	1,634	1,795	1,993	2,293	1,855	1,752	1,970	1,999	2,068	1,991	2,130	2,125	2,480	2,831	3,256	2,717	2,650	2,337
21	931	992	1,262	1,028	1,454	1,342	1,220	1,393	1,436	1,587	1,772	1,699	1,591	1,882	1,849	2,100	2,159	2,413	2,620	3,045	3,455	3,900	3,357	3,555	3,497
22	111	118	147	159	175	205	177	209	220	236	250	227	216	229	262	248	239	263	301	376	382	383	399	377	337
23	37	47	33	29	32	37	45	36	112	66	55	53	45	54	64	76	75	75	79	85	84	98	45	52	46
24	424	372	519	425	636	613	554	593	668	731	921	771	725	767	784	836	918	932	952	1,118	1,381	1,441	1,267	1,232	1,195
25	4,118	3,568	4,939	4,002	5,243	4,750	4,676	5,582	6,969	8,124	9,335	8,893	8,744	9,881	10,429	11,268	12,330	12,824	13,298	14,207	14,750	16,459	14,929	15,897	14,671
26	140	128	232	170	212	228	196	201	274	310	344	331	354	392	439	456	465	429	524	500	630	728	617	633	593
27	159	189	311	271	294	297	233	242	257	293	371	308	245	260	241	281	312	301	320	368	498	567	424	440	379
28	3,356	3,023	3,328	3,321	4,010	3,515	3,421	3,376	4,279	4,040	4,382	3,792	3,592	3,846	3,900	4,048	4,538	4,460	4,495	4,729	5,043	5,727	4,744	4,845	4,583
29	1,457	1,271	1,234	1,117	1,748	1,564	1,489	1,645	1,950	2,090	2,396	2,059	1,976	2,101	2,102	2,244	2,411	2,426	2,645	2,725	2,756	3,012	2,555	2,320	2,191
30	2,493	2,414	2,027	1,915	2,994	2,618	2,412	2,803	3,396	3,638	3,841	3,553	3,450	3,986	4,053	4,216	5,033	4,851	4,830	5,138	5,227	5,895	5,150	4,822	4,812
31	851	831	745	686	1,033	1,005	915	954	1,189	1,252	1,326	1,205	1,119	1,340	1,282	1,238	1,267	1,346	1,377	1,613	1,689	1,822	1,681	1,423	1,509
32	924	859	610	535	839	798	655	863	1,056	1,080	1,418	1,278	1,330	1,533	1,712	2,188	2,857	3,258	3,634	3,775	3,539	3,579	2,777	2,341	2,127
33	429	449	384	431	681	719	698	920	1,360	1,603	2,009	1,767	1,726	1,920	2,054	2,156	2,587	2,954	2,775	2,965	2,937	3,332	2,977	2,973	2,923
34	329	262	206	183	282	284	292	297	332	319	480	554	483	529	665	795	996	1,153	1,384	1,194	854	851	810	812	858
35	6,041	6,685	10,014	10,621	14,562	12,089	9,823	10,600	14,149	16,543	19,310	17,811	16,763	18,306	19,279	19,280	19,743	20,048	20,223	20,203	19,908	22,379	19,365	18,649	18,991

Table SINV-37

U.S.-registered USPTO trademarks, by Nice class: 1998–2022

(Number)

Nice class	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
36	3,910	3,956	5,735	5,894	7,885	6,604	5,872	6,034	8,191	9,041	9,990	8,279	7,249	7,567	7,841	7,828	8,387	8,307	8,964	8,952	8,730	10,231	9,113	7,698	7,733
37	1,126	1,267	1,754	1,529	2,358	1,907	1,698	1,937	2,729	3,103	3,585	3,103	2,740	2,785	2,927	2,912	3,056	3,197	3,389	3,490	3,626	4,094	3,639	3,388	3,415
38	1,163	1,045	1,723	1,898	2,316	1,647	1,370	1,344	1,670	2,001	2,299	1,949	1,720	1,723	1,717	1,653	1,582	1,509	1,474	1,344	1,249	1,329	1,178	1,184	1,121
39	962	1,016	1,432	1,337	1,731	1,376	1,106	1,155	1,497	1,754	1,985	1,768	1,610	1,772	1,869	1,904	1,874	1,930	1,975	2,161	1,992	2,313	2,018	1,783	1,829
40	541	581	764	686	1,002	969	845	886	1,158	1,299	1,560	1,559	1,254	1,350	1,408	1,396	1,338	1,447	1,411	1,516	1,455	1,791	1,478	1,401	1,348
41	5,201	5,390	7,577	7,220	10,227	9,271	8,444	9,155	12,200	14,476	17,152	15,721	14,937	16,535	17,743	18,430	18,863	19,608	21,196	22,147	21,863	25,817	22,826	22,221	22,243
42	8,534	8,351	11,609	11,606	15,711	9,055	5,335	4,967	5,747	6,635	7,462	7,358	6,980	7,937	8,817	9,276	9,839	10,363	10,628	11,329	11,523	13,269	11,840	11,273	11,408
43	10	10	10	12	170	1,334	1,789	2,205	3,117	3,577	3,968	3,664	3,313	3,921	4,216	4,360	4,677	5,190	5,566	6,030	6,037	6,876	5,572	4,840	5,301
44	2	1	2	2	122	1,200	1,715	2,150	2,863	3,498	4,164	3,949	3,829	4,233	4,520	4,901	5,069	5,075	5,699	6,087	6,121	7,349	6,413	6,074	6,004
45	1	2	13	7	49	411	609	773	1,150	1,689	2,697	2,785	2,759	3,141	3,522	3,517	3,537	3,504	3,671	3,684	3,543	4,082	3,672	3,484	3,480
Unclassified	197	161	257	227	386	297	279	268	397	433	424	463	437	381	389	370	384	374	333	381	361	378	374	333	314

USPTO = Patent and Trademark Office.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-38

Registered USPTO trademarks in the business sector of agriculture, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	7,582	7,349	6,347	5,908	9,862	10,791	10,391	12,093	15,864	17,517	19,620	17,728	16,801	18,937	19,568	21,070	23,716	25,021	26,587	28,294	28,473	31,402	26,993	24,285	24,199
North America	na	6,458	6,145	5,266	4,953	7,855	8,442	8,348	9,780	12,583	13,834	15,617	14,185	13,505	15,530	16,035	17,118	19,589	20,791	21,692	23,071	23,021	25,451	21,660	19,496	19,732
Canada	High	199	211	177	187	252	245	252	235	323	307	351	374	304	370	307	364	378	421	450	424	453	479	524	399	442
Mexico	Upper middle	94	99	79	70	138	160	138	155	192	285	308	286	287	360	309	353	379	346	414	401	383	456	423	377	427
United States	High	6,165	5,835	5,010	4,697	7,465	8,037	7,958	9,390	12,067	13,240	14,958	13,526	12,914	14,800	15,419	16,402	18,832	20,024	20,828	22,246	22,184	24,516	20,712	18,719	18,863
Central America and Caribbean	na	29	32	27	28	53	70	59	81	81	111	141	104	114	95	84	95	92	117	128	111	118	125	122	125	121
South America	na	95	93	79	73	126	209	184	183	256	261	284	230	248	231	232	233	219	215	247	283	256	285	227	255	254
Argentina	Upper middle	30	13	25	21	42	57	62	44	84	91	85	74	84	75	79	78	62	57	63	63	75	67	45	51	62
Brazil	Upper middle	11	12	2	5	16	32	15	19	38	45	39	32	37	19	24	29	45	43	49	62	51	60	38	57	37
Europe	na	701	784	664	596	1,306	1,430	1,213	1,365	2,044	2,314	2,505	2,283	1,989	2,174	2,320	2,589	2,648	2,644	3,042	3,140	3,161	3,371	2,892	2,358	2,216
EU-27 and United Kingdom[a]	na	600	680	583	526	1,145	1,236	1,062	1,144	1,725	1,956	2,107	1,965	1,708	1,864	1,946	2,194	2,212	2,190	2,564	2,699	2,780	2,851	2,478	2,018	1,906
United Kingdom	High	50	43	45	42	91	101	108	90	174	202	246	220	260	261	309	346	327	336	413	416	433	524	443	378	356
EU-27[b]	na	551	637	537	484	1,055	1,134	954	1,055	1,551	1,754	1,861	1,746	1,448	1,603	1,637	1,848	1,885	1,854	2,151	2,283	2,347	2,327	2,035	1,640	1,549
Austria	High	9	13	11	5	22	12	28	23	36	32	40	44	32	23	26	28	29	36	30	36	48	48	30	31	34
Belgium	High	26	22	21	23	28	36	37	40	55	55	45	55	40	55	57	58	77	47	67	62	56	60	62	56	33
Denmark	High	13	13	10	7	28	19	12	17	29	34	24	26	26	19	25	22	34	19	47	45	46	36	24	22	32
Finland	High	10	7	8	8	18	3	3	10	7	10	16	11	5	12	6	9	12	14	18	24	24	29	19	26	20
France	High	116	145	143	124	235	232	164	204	285	349	350	326	295	257	320	384	368	332	370	464	455	453	402	295	295
Germany	High	65	81	53	49	232	224	154	165	232	264	246	271	226	200	211	245	286	295	321	311	302	272	224	185	217
Hungary	High	1	4	2	1	3	1	2	1	3	4	5	4	8	6	3	9	6	4	5	7	8	13	11	7	2
Ireland	High	24	10	5	19	25	26	29	28	53	48	41	52	39	39	41	47	56	65	62	65	88	69	72	68	85
Italy	High	117	160	122	108	198	231	211	201	319	360	419	336	276	437	369	416	392	399	410	485	544	556	484	376	329
Netherlands	High	44	55	51	32	80	101	79	82	98	132	149	150	109	116	114	104	138	132	155	134	149	146	117	113	115
Spain	High	84	76	53	81	118	139	143	179	278	274	278	245	221	221	245	318	267	259	324	343	291	314	292	206	175
Sweden	High	14	17	17	6	14	24	18	29	23	32	26	33	36	33	54	40	30	32	32	40	56	56	61	45	35
Other Europe	na	101	104	82	70	160	194	151	221	319	358	398	318	281	310	374	395	436	454	478	441	382	520	415	340	310
Other Europe (2020)[b]	na	151	148	127	112	251	296	259	310	494	560	644	537	541	571	683	741	763	790	891	856	814	1,044	858	718	667
Belarus	Upper middle	0	0	0	0	0	0	0	1	0	1	6	3	2	6	5	7	2	2	4	2	7	5	11	3	3
Moldova	Upper middle	0	0	0	0	1	0	0	4	14	3	7	1	4	1	3	1	1	5	4	3	4	7	6	7	4
Norway	High	12	8	1	3	11	11	6	6	17	12	22	15	13	22	15	12	18	10	19	14	17	34	15	13	12
Russia	Upper middle	4	1	3	2	9	17	15	15	51	41	48	43	27	41	66	54	43	68	93	84	88	82	74	59	51
Switzerland	High	76	76	63	54	106	127	103	152	174	221	221	181	178	175	190	236	237	252	189	224	142	208	182	142	132
Ukraine	Lower middle	0	0	0	0	4	1	0	0	12	17	8	6	6	7	11	3	17	14	27	16	16	33	20	19	14
Asia	na	175	168	187	142	263	305	304	347	478	550	604	538	582	567	584	655	773	839	966	1,157	1,335	1,586	1,541	1,545	1,431
China	Upper middle	43	38	43	25	50	54	57	74	99	118	163	163	122	157	154	182	213	222	301	429	573	664	562	712	645
India	Lower middle	3	5	10	13	11	16	16	14	25	15	19	21	21	25	21	30	32	34	42	42	44	83	73	53	53

Table SINV-38

Registered USPTO trademarks in the business sector of agriculture, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	50	62	68	46	94	108	94	103	161	178	173	173	202	134	175	178	190	265	260	276	279	302	305	257	230
Malaysia	Upper middle	4	1	2	0	4	2	2	4	17	16	23	10	15	19	11	10	7	5	15	9	14	10	23	11	13
Singapore	High	11	9	8	10	6	7	15	21	21	26	31	24	31	17	33	31	39	47	50	61	61	42	70	74	61
South Korea	High	20	14	15	11	25	29	24	35	38	74	71	57	88	90	80	85	124	115	136	176	159	241	269	213	218
Taiwan	High	25	23	12	20	40	40	35	49	56	45	56	29	35	55	47	69	52	62	61	62	93	119	116	116	91
Middle East	na	13	15	13	11	26	26	26	26	34	49	57	30	48	75	80	72	84	76	119	117	125	117	121	113	84
Israel	High	5	5	4	3	11	12	13	10	20	22	29	18	25	19	33	19	28	17	33	36	32	40	43	32	24
Africa	na	20	12	14	17	34	60	31	50	53	47	53	42	62	62	47	60	63	50	40	45	52	60	49	47	56
South Africa	Upper middle	14	10	13	15	30	55	28	48	48	44	47	36	56	48	39	45	51	38	27	29	35	33	30	35	31
Australia and Oceania	na	66	74	74	66	163	198	191	225	282	298	292	275	229	179	155	209	208	254	324	332	369	364	340	322	295
Australia	High	52	61	53	44	128	146	150	186	218	233	218	214	160	106	109	144	142	196	236	245	266	245	224	227	233
New Zealand	High	15	13	21	22	35	45	41	37	64	62	72	61	70	70	44	63	63	58	84	86	97	116	112	94	60
Unclassified	na	25	27	24	22	36	51	35	36	54	52	67	40	24	26	31	40	39	36	29	40	35	43	42	25	10

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-39

Registered USPTO trademarks in the business sector of business services, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	10,431	11,090	16,420	17,276	23,877	20,309	17,008	17,996	23,990	27,585	31,755	28,613	26,319	28,321	29,781	29,947	31,061	31,486	32,883	32,991	32,758	37,470	32,971	30,539	30,720
North America	na	10,119	10,789	15,940	16,734	22,797	19,050	15,995	16,956	22,749	25,998	29,792	26,591	24,517	26,435	27,646	27,676	28,697	28,900	29,766	29,827	29,222	33,276	29,116	26,923	27,332
Canada	High	163	136	181	204	327	329	277	292	378	360	444	451	458	495	456	506	498	455	496	557	478	572	531	462	505
Mexico	Upper middle	5	13	9	15	23	28	24	30	31	55	49	49	47	67	69	63	69	91	83	115	106	94	106	114	102
United States	High	9,951	10,640	15,749	16,515	22,447	18,692	15,694	16,634	22,340	25,584	29,300	26,090	24,012	25,874	27,121	27,107	28,130	28,354	29,187	29,155	28,639	32,610	28,478	26,347	26,724
Central America and Caribbean	na	9	10	4	12	28	23	29	20	23	37	26	51	32	30	39	27	32	38	40	37	28	44	30	43	30
South America	na	9	7	10	13	24	43	24	20	31	37	32	32	50	42	59	61	63	60	78	67	94	98	92	89	74
Argentina	Upper middle	1	1	1	0	3	8	5	1	3	3	5	1	8	5	6	11	9	7	6	7	15	10	11	8	5
Brazil	Upper middle	3	1	7	8	10	12	6	5	8	11	14	14	15	20	26	28	30	31	34	29	35	41	48	54	37
Europe	na	230	206	349	371	775	875	713	759	899	1,147	1,411	1,433	1,276	1,324	1,429	1,523	1,572	1,598	1,853	1,853	1,997	2,223	2,111	1,909	1,798
EU-27 and United Kingdom[a]	na	196	162	286	331	678	758	612	639	778	973	1,194	1,204	1,111	1,123	1,220	1,318	1,335	1,377	1,581	1,591	1,705	1,863	1,779	1,582	1,550
United Kingdom	High	53	52	95	83	220	223	213	193	255	325	424	424	398	398	399	450	488	471	558	548	616	658	627	563	619
EU-27[b]	na	143	110	191	248	458	535	400	447	523	648	770	779	713	725	821	868	847	906	1,023	1,044	1,090	1,204	1,152	1,019	931
Austria	High	2	5	5	4	5	12	5	8	8	24	11	21	19	18	18	29	21	21	23	27	21	21	29	27	29
Belgium	High	5	6	6	7	23	20	13	10	14	15	24	21	25	21	23	20	30	23	29	33	37	42	42	27	30
Denmark	High	2	1	4	5	8	6	7	7	12	10	22	21	22	14	17	31	20	29	44	36	50	44	39	39	39
Finland	High	3	1	4	4	11	12	4	5	6	10	7	6	12	11	12	16	17	18	17	26	23	19	23	20	20
France	High	28	23	42	44	88	100	60	65	69	74	132	116	123	133	153	157	139	144	160	167	159	193	188	145	133
Germany	High	41	34	60	92	125	165	153	185	220	196	228	246	191	188	172	204	193	195	219	247	242	305	265	251	210
Hungary	High	0	0	0	3	2	3	0	3	2	2	1	4	3	1	4	1	3	7	2	5	7	4	5	2	5
Ireland	High	13	2	3	7	10	13	14	6	11	23	22	23	19	27	39	31	19	32	43	51	46	29	39	36	24
Italy	High	9	7	9	18	34	56	33	32	44	66	79	57	64	57	66	72	80	100	121	96	107	128	107	102	92
Netherlands	High	18	20	29	32	68	66	48	52	54	89	81	92	68	69	84	72	81	83	86	91	105	102	102	103	89
Spain	High	11	7	14	10	38	36	26	21	33	62	64	65	67	75	80	93	95	90	89	88	87	100	100	82	87
Sweden	High	6	2	7	11	26	22	21	25	20	30	34	31	34	29	47	40	42	53	49	53	66	70	59	58	51
Other Europe	na	34	44	63	40	97	117	100	120	121	174	218	229	165	202	209	206	237	221	272	262	291	360	332	327	248
Other Europe (2020)[b]	na	87	96	158	123	317	339	313	312	376	499	641	654	563	599	608	656	725	692	830	809	907	1,019	960	890	867
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	1	1	1	1	2	0	2	3	4	3
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	2	0	1	0	0	1
Norway	High	0	0	2	2	10	9	4	2	5	7	12	15	13	8	10	11	11	15	20	19	21	25	20	23	17
Russia	Upper middle	1	1	0	0	1	5	2	4	7	6	11	11	15	22	24	31	30	19	17	20	35	34	29	34	21
Switzerland	High	31	41	57	36	80	99	87	103	95	139	161	168	112	148	139	129	138	142	169	158	173	191	187	166	125
Ukraine	Lower middle	0	0	0	0	0	0	0	0	0	2	3	1	3	2	2	2	10	7	6	8	14	25	20	17	15
Asia	na	30	41	58	83	131	187	145	137	170	187	265	272	219	276	372	412	428	558	758	832	1,050	1,404	1,236	1,226	1,154
China	Upper middle	4	6	14	12	26	24	31	18	40	40	82	70	48	76	102	151	148	235	371	458	604	795	659	668	631
India	Lower middle	0	1	1	2	4	8	3	11	9	10	12	21	18	20	19	13	15	27	35	23	40	49	66	47	39

Table SINV-39

Registered USPTO trademarks in the business sector of business services, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	18	27	20	36	43	86	51	55	59	65	72	73	65	83	76	101	92	90	123	104	137	171	144	164	138
Malaysia	Upper middle	0	0	0	1	0	2	5	2	1	4	3	5	4	2	8	7	2	6	7	5	17	7	9	4	5
Singapore	High	2	2	6	12	16	14	7	10	17	20	22	27	22	28	67	44	33	41	57	60	63	86	83	81	75
South Korea	High	2	0	8	10	12	17	13	16	18	23	26	29	27	29	53	52	78	90	99	115	114	218	201	191	191
Taiwan	High	3	5	8	9	26	28	26	22	18	23	38	40	25	24	34	32	44	53	47	49	48	49	53	44	48
Middle East	na	4	5	6	8	17	15	17	23	20	23	43	45	58	52	45	59	46	80	81	81	101	99	102	74	85
Israel	High	1	5	4	7	14	11	11	18	14	15	26	19	35	20	24	24	20	37	43	38	52	60	55	38	54
Africa	na	7	3	6	3	5	9	5	5	9	18	17	22	21	29	15	25	19	26	24	16	17	22	24	24	21
South Africa	Upper middle	6	1	2	2	3	2	4	5	6	9	5	11	10	16	4	13	11	18	14	6	10	10	6	9	6
Australia and Oceania	na	13	14	20	24	50	64	44	42	64	102	125	127	110	102	136	133	178	195	253	237	216	267	243	228	213
Australia	High	11	13	15	22	49	60	40	34	54	83	100	108	97	87	125	119	154	165	220	205	198	221	202	199	178
New Zealand	High	2	2	5	2	2	4	3	8	10	18	23	19	10	15	11	13	22	29	32	30	18	44	37	29	35
Unclassified	na	11	16	27	29	51	44	37	33	24	36	44	41	37	30	39	32	26	31	31	40	33	36	17	23	12

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-40

Registered USPTO trademarks in the business sector of chemicals, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	2,284	2,340	2,585	2,584	3,585	3,378	2,764	3,174	3,551	3,756	3,984	3,798	3,477	3,932	3,912	3,909	3,989	4,301	4,295	4,377	4,611	4,821	4,651	4,998	5,017
North America	na	1,911	1,930	2,145	2,136	2,840	2,588	2,120	2,459	2,682	2,816	2,926	2,725	2,575	2,994	2,841	2,864	2,941	3,195	3,022	3,086	3,079	3,288	3,091	3,092	3,211
Canada	High	65	58	68	65	80	88	79	113	102	103	123	125	81	114	101	98	84	109	135	126	120	147	138	115	111
Mexico	Upper middle	5	10	9	1	15	15	17	18	19	12	20	16	15	11	17	38	22	16	19	18	19	25	24	22	24
United States	High	1,841	1,862	2,069	2,070	2,744	2,486	2,024	2,328	2,561	2,701	2,784	2,585	2,479	2,869	2,723	2,728	2,834	3,070	2,868	2,941	2,940	3,117	2,929	2,955	3,076
Central America and Caribbean	na	2	2	0	1	2	3	4	1	3	1	4	0	3	8	5	3	5	1	7	4	6	2	2	5	4
South America	na	3	7	12	3	8	16	8	10	5	14	11	16	9	12	14	11	26	43	22	22	33	30	23	19	18
Argentina	Upper middle	2	1	0	0	1	0	1	3	0	2	0	0	2	1	3	2	1	1	6	3	2	1	1	2	4
Brazil	Upper middle	1	5	9	1	4	10	3	3	3	8	3	11	2	2	2	3	20	30	11	8	20	26	14	10	9
Europe	na	272	298	335	347	563	596	488	512	652	671	710	767	638	631	710	672	672	695	836	748	883	890	881	802	697
EU-27 and United Kingdom[a]	na	234	269	283	300	498	540	435	464	547	581	620	662	572	559	621	598	585	583	725	654	764	754	732	698	588
United Kingdom	High	16	18	28	39	61	76	60	66	61	79	74	105	65	57	76	96	103	96	126	75	109	125	109	99	71
EU-27[b]	na	218	250	255	262	438	464	375	398	486	502	546	557	507	501	545	502	481	487	598	579	655	629	623	599	517
Austria	High	0	2	4	3	3	4	4	4	10	5	14	6	8	8	11	5	5	11	9	13	9	12	11	9	11
Belgium	High	4	8	10	6	18	13	18	21	10	18	21	26	20	19	16	14	11	12	20	17	25	17	21	13	19
Denmark	High	14	16	11	15	18	21	17	18	19	18	38	27	19	35	25	23	18	19	30	33	25	31	34	32	34
Finland	High	8	2	4	5	11	9	5	7	4	4	7	11	10	12	8	8	7	5	21	5	17	9	20	10	21
France	High	36	31	28	43	64	76	51	53	72	64	68	66	59	86	72	104	81	84	82	106	136	96	107	114	92
Germany	High	109	126	132	114	204	221	175	181	217	255	244	254	238	190	254	184	180	193	189	189	211	206	214	186	147
Hungary	High	0	1	0	1	0	0	0	1	0	1	2	1	1	1	0	1	0	1	2	1	1	1	2	0	3
Ireland	High	1	1	3	2	3	2	5	4	3	2	4	1	1	2	4	6	7	8	14	13	14	9	13	15	8
Italy	High	11	23	19	11	26	20	31	26	44	54	35	41	34	47	48	52	41	52	75	57	67	62	58	51	39
Netherlands	High	16	26	29	35	60	67	44	43	74	50	63	70	74	64	51	50	64	41	63	56	66	96	52	59	51
Spain	High	4	4	2	7	9	11	9	14	9	10	18	20	11	12	18	22	15	23	36	38	25	37	38	62	49
Sweden	High	14	10	11	14	16	16	12	15	17	13	15	17	12	10	24	18	19	16	29	27	31	18	19	24	21
Other Europe	na	38	29	52	46	64	56	53	48	105	90	90	105	66	72	89	74	88	112	111	95	119	135	149	104	108
Other Europe (2020)[b]	na	54	47	80	85	125	132	113	114	166	169	164	211	131	129	165	170	191	208	237	169	228	261	258	204	180
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	2
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Norway	High	4	1	6	2	1	6	7	4	3	9	11	10	9	8	10	4	15	14	6	7	9	14	9	5	14
Russia	Upper middle	1	0	1	0	0	1	0	3	13	3	2	4	4	8	3	7	12	5	7	5	13	8	5	16	12
Switzerland	High	32	28	43	43	58	49	40	38	84	74	72	85	50	54	69	52	51	86	89	71	85	101	115	61	61
Ukraine	Lower middle	0	0	0	0	1	0	3	2	1	1	1	0	0	1	2	1	3	1	1	1	2	1	4	6	11
Asia	na	75	73	70	73	116	124	104	159	168	214	272	247	211	249	291	310	294	318	357	447	540	532	583	1,003	1,017
China	Upper middle	10	6	4	5	10	10	12	20	32	41	65	54	54	74	77	103	99	110	131	211	311	330	372	780	790
India	Lower middle	1	0	1	1	0	4	1	2	5	2	2	1	1	8	6	7	5	8	7	10	5	8	10	10	16

Table SINV-40

Registered USPTO trademarks in the business sector of chemicals, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	52	55	55	57	81	88	70	110	96	132	157	162	111	129	149	156	138	149	146	171	148	137	138	155	120
Malaysia	Upper middle	3	1	0	0	0	0	1	2	1	2	0	3	4	2	4	1	2	3	4	1	8	1	1	1	9
Singapore	High	0	0	1	2	4	3	3	0	7	1	2	2	5	1	7	9	10	1	8	13	5	7	7	9	13
South Korea	High	4	3	0	7	10	6	7	10	16	15	26	18	22	19	15	19	27	27	40	29	39	39	32	33	58
Taiwan	High	5	7	9	3	10	6	9	14	12	20	21	6	13	15	23	12	11	16	19	11	20	8	15	9	6
Middle East	na	5	1	0	6	11	6	8	7	4	9	7	5	12	10	13	12	14	14	10	16	24	25	12	29	15
Israel	High	5	1	0	4	10	6	7	6	4	6	3	4	11	7	9	6	6	9	8	10	15	16	4	14	9
Africa	na	2	3	1	2	3	3	1	0	2	3	9	0	1	2	6	4	8	9	8	1	1	5	6	5	2
South Africa	Upper middle	2	3	1	2	3	3	1	0	2	2	2	0	0	1	3	2	2	9	7	0	1	5	4	2	0
Australia and Oceania	na	7	16	9	10	28	21	15	15	25	24	37	25	18	16	30	29	26	24	33	43	35	44	51	41	48
Australia	High	5	9	8	10	23	17	13	15	22	20	31	16	16	14	26	27	20	17	28	34	30	39	44	29	34
New Zealand	High	3	7	1	0	4	4	2	0	3	4	6	9	2	2	4	2	5	7	5	9	4	6	7	11	13
Unclassified	na	8	11	14	8	15	21	16	11	9	6	10	12	11	10	2	4	2	2	2	10	10	4	3	2	4

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

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Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-41

Registered USPTO trademarks in the business sector of clothing, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	7,941	6,998	9,550	8,006	10,928	10,488	9,964	11,425	14,588	16,500	19,081	17,884	17,062	18,815	19,954	21,562	23,377	25,285	29,351	35,664	40,229	46,389	43,397	67,715	58,912
North America	na	6,798	6,032	8,214	6,829	9,051	8,387	8,076	9,381	11,656	13,191	15,357	14,468	13,980	15,692	16,679	17,786	19,244	20,112	21,084	22,250	23,225	25,896	22,877	23,466	21,845
Canada	High	194	180	210	174	246	206	236	257	308	309	328	325	307	377	398	325	359	442	476	450	575	693	558	523	478
Mexico	Upper middle	36	34	58	37	36	40	42	62	63	58	69	42	51	57	58	78	54	91	73	98	84	89	90	58	76
United States	High	6,569	5,817	7,946	6,617	8,768	8,141	7,797	9,063	11,285	12,824	14,960	14,102	13,623	15,258	16,223	17,383	18,831	19,579	20,535	21,703	22,565	25,114	22,229	22,885	21,291
Central America and Caribbean	na	30	33	34	15	27	46	44	26	47	36	57	42	52	62	45	90	56	63	70	88	56	65	44	41	38
South America	na	18	27	22	25	57	57	71	48	86	85	108	72	75	59	84	77	93	111	96	91	118	113	93	94	93
Argentina	Upper middle	3	4	3	1	2	11	13	11	9	12	13	12	7	11	7	4	7	7	7	7	4	7	10	9	10
Brazil	Upper middle	8	12	13	14	38	31	38	23	47	40	41	28	39	24	40	36	45	52	42	40	55	41	30	33	26
Europe	na	729	580	867	769	1,244	1,289	1,162	1,280	1,823	2,062	2,277	2,047	1,756	1,854	1,958	2,173	2,233	2,320	2,467	2,542	2,706	2,777	2,607	2,159	1,951
EU-27 and United Kingdom[a]	na	645	520	760	683	1,062	1,089	966	1,059	1,482	1,701	1,930	1,722	1,492	1,558	1,622	1,835	1,934	1,976	2,097	2,171	2,287	2,317	2,132	1,754	1,578
United Kingdom	High	76	60	96	103	146	177	194	208	316	342	374	390	357	359	360	468	503	536	574	643	642	641	566	495	495
EU-27[b]	na	569	460	664	580	915	912	772	850	1,165	1,359	1,557	1,332	1,135	1,199	1,263	1,367	1,430	1,440	1,523	1,528	1,645	1,676	1,566	1,260	1,084
Austria	High	12	11	15	15	24	34	20	16	32	27	37	33	30	27	35	31	39	45	40	43	48	50	29	43	28
Belgium	High	8	4	6	14	24	19	28	33	31	35	42	28	23	30	31	38	46	19	46	63	80	71	31	32	21
Denmark	High	12	6	8	15	16	16	10	22	25	33	39	46	33	30	30	37	44	44	47	43	47	73	56	42	45
Finland	High	1	0	2	7	6	6	6	5	8	9	15	12	5	9	23	13	16	15	28	26	20	28	26	19	25
France	High	106	80	144	92	141	155	170	152	212	237	240	237	204	217	203	215	245	245	223	215	243	248	234	199	145
Germany	High	101	82	118	104	166	174	160	147	217	230	268	252	231	226	217	258	258	244	277	296	295	284	298	243	235
Hungary	High	2	0	0	0	0	1	1	2	0	2	2	2	2	2	6	2	2	6	5	4	4	4	11	1	4
Ireland	High	6	5	22	9	8	15	9	5	13	10	15	21	14	20	17	18	12	25	28	25	24	21	31	22	33
Italy	High	189	154	200	173	306	263	208	252	332	458	533	386	326	352	325	364	398	374	413	401	368	400	369	269	236
Netherlands	High	40	31	37	43	66	53	38	73	88	80	84	102	95	83	96	85	83	95	98	87	112	108	108	95	55
Spain	High	55	57	59	50	79	82	49	52	81	98	103	74	63	86	90	98	100	113	118	90	108	103	112	91	81
Sweden	High	18	11	11	29	30	41	21	35	43	36	55	54	46	43	100	113	67	61	75	86	100	105	87	78	55
Other Europe	na	84	60	107	86	182	201	196	221	341	361	346	325	264	296	336	338	299	343	370	371	419	460	474	405	373
Other Europe (2020)[b]	na	159	120	203	189	329	377	391	429	658	703	720	715	622	654	696	805	803	880	944	1,014	1,061	1,101	1,040	899	868
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	2	3	0	3	1	5	3	2	2
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Norway	High	1	1	3	3	14	11	6	3	7	13	9	10	10	9	12	17	12	13	17	15	29	22	28	22	13
Russia	Upper middle	0	0	1	0	1	5	1	1	3	12	11	13	14	26	24	19	25	21	17	24	43	33	37	43	34
Switzerland	High	71	53	95	71	149	157	161	173	248	265	236	234	194	214	237	233	184	239	236	246	220	262	256	178	190
Ukraine	Lower middle	0	0	0	0	0	0	0	0	1	0	1	0	1	2	3	1	2	4	5	7	35	32	43	29	32
Asia	na	271	261	310	271	398	546	478	532	736	870	967	977	937	916	934	1,144	1,419	2,372	5,239	10,342	13,650	17,008	17,198	41,448	34,528
China	Upper middle	68	67	82	68	110	177	152	169	266	338	400	399	376	430	502	593	824	1,728	4,476	9,513	12,813	16,000	16,140	40,466	33,535
India	Lower middle	6	7	10	6	9	16	14	14	22	26	33	31	32	36	38	29	36	43	48	74	105	150	139	155	128

Table SINV-41

Registered USPTO trademarks in the business sector of clothing, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	122	121	132	117	170	211	167	224	256	292	305	336	340	240	185	255	276	268	298	268	298	317	335	279	251
Malaysia	Upper middle	0	1	0	2	2	2	1	0	4	3	4	5	5	3	3	4	5	5	3	6	14	9	7	3	12
Singapore	High	1	1	10	4	5	5	6	6	10	17	24	20	19	18	12	22	22	22	26	37	55	50	52	81	62
South Korea	High	29	24	27	33	37	73	61	52	63	81	81	98	93	91	94	115	150	180	254	322	203	266	327	308	319
Taiwan	High	31	31	43	30	53	42	59	48	74	73	80	54	53	73	64	87	71	83	101	83	88	112	80	77	83
Middle East	na	10	8	18	9	25	19	13	21	35	32	36	45	48	25	40	46	58	64	97	66	85	113	115	86	81
Israel	High	9	8	16	5	13	11	11	15	22	27	29	23	29	14	26	29	20	33	29	41	66	86	73	62	53
Africa	na	5	7	2	5	10	14	8	9	11	13	7	11	8	11	12	14	23	22	9	19	34	35	17	21	16
South Africa	Upper middle	5	2	1	4	9	10	7	6	7	7	4	7	6	6	6	10	10	6	3	10	10	10	5	6	12
Australia and Oceania	na	60	33	61	58	74	81	72	87	145	132	188	163	162	161	175	196	222	204	273	245	312	355	414	368	289
Australia	High	52	28	42	44	58	69	59	67	119	112	154	139	135	130	152	176	187	183	244	226	287	317	361	305	255
New Zealand	High	8	5	18	14	15	11	13	18	24	19	33	23	25	31	21	18	35	22	29	18	24	35	51	63	34
Unclassified	na	21	18	23	26	43	50	41	41	50	79	85	58	41	36	26	36	30	18	17	20	43	27	31	31	71

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-42

Registered USPTO trademarks in the business sector of construction, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	4,206	4,440	5,793	5,317	7,806	6,961	6,137	6,448	8,451	9,606	10,956	9,919	8,773	9,115	9,236	9,064	9,309	9,671	10,083	10,600	11,038	12,642	11,314	12,039	11,581
North America	na	3,734	3,957	5,156	4,639	6,736	5,895	5,225	5,545	7,188	8,104	9,185	8,141	7,291	7,491	7,563	7,411	7,620	7,923	8,142	8,473	8,506	9,782	8,381	7,918	7,493
Canada	High	146	149	189	157	276	257	237	244	286	337	350	303	333	361	313	298	306	310	327	358	323	347	337	341	279
Mexico	Upper middle	9	15	17	10	15	21	13	16	12	19	33	39	29	26	29	30	33	42	28	22	39	37	46	24	27
United States	High	3,580	3,793	4,950	4,472	6,445	5,617	4,975	5,285	6,889	7,748	8,802	7,799	6,930	7,104	7,221	7,083	7,281	7,570	7,787	8,093	8,145	9,398	7,998	7,553	7,186
Central America and Caribbean	na	3	4	3	1	3	3	4	5	3	9	5	9	10	4	6	3	6	8	7	14	4	6	9	5	6
South America	na	6	4	7	11	22	26	31	23	21	29	34	30	9	19	29	17	18	27	23	29	17	31	23	24	17
Argentina	Upper middle	1	0	1	2	0	2	3	0	2	1	2	3	2	4	0	3	2	1	3	3	0	4	2	2	5
Brazil	Upper middle	4	2	0	2	8	10	10	15	12	16	20	8	5	7	12	7	11	12	9	12	7	12	14	10	5
Europe	na	339	345	464	469	775	772	639	631	893	1,038	1,181	1,211	1,037	1,142	1,123	1,097	1,069	1,153	1,243	1,248	1,349	1,384	1,325	1,125	1,067
EU-27 and United Kingdom[a]	na	301	306	410	421	701	689	579	572	802	957	1,046	1,070	925	1,015	1,009	962	923	1,030	1,101	1,102	1,185	1,222	1,165	978	913
United Kingdom	High	31	33	56	48	87	92	78	88	115	102	131	141	160	152	155	135	139	154	175	171	182	171	177	168	184
EU-27[b]	na	270	273	354	373	615	597	502	483	686	855	915	929	766	863	854	826	784	876	926	932	1,003	1,051	988	809	728
Austria	High	11	9	11	10	22	18	24	29	33	43	44	37	36	33	37	32	45	37	49	31	45	46	45	34	24
Belgium	High	10	14	7	12	22	19	14	22	30	24	33	28	26	21	27	32	26	26	30	26	46	36	29	28	29
Denmark	High	3	3	8	6	10	12	19	15	22	27	19	28	21	20	25	25	12	26	21	18	27	26	24	30	21
Finland	High	2	3	4	4	11	14	5	16	12	19	22	26	17	30	22	27	17	20	23	27	27	23	25	23	18
France	High	43	40	59	67	89	85	67	64	106	94	104	102	93	117	133	111	90	84	108	98	111	119	112	72	75
Germany	High	107	101	142	152	246	233	189	172	245	305	378	398	296	354	312	285	266	310	347	337	346	348	342	293	238
Hungary	High	0	1	1	1	1	0	0	2	0	0	1	1	0	1	2	1	1	1	2	5	0	2	2	2	0
Ireland	High	4	5	6	3	4	12	10	7	5	7	11	9	18	5	10	18	11	15	20	21	16	30	17	16	11
Italy	High	34	28	46	41	71	61	58	60	96	133	120	114	106	105	101	114	126	122	112	131	147	177	134	128	100
Netherlands	High	22	24	19	30	42	48	30	33	44	44	52	56	49	53	47	51	54	56	57	63	57	66	71	51	51
Spain	High	14	17	22	18	43	40	34	17	35	55	45	49	39	48	45	43	46	67	60	63	52	57	73	36	59
Sweden	High	15	17	18	15	34	33	31	30	27	62	42	34	35	45	47	44	42	53	40	52	50	47	43	45	48
Other Europe	na	38	38	54	48	73	84	60	59	91	82	135	141	112	127	115	136	146	123	141	145	164	162	160	147	155
Other Europe (2020)[b]	na	69	72	110	96	160	175	137	148	206	184	266	282	272	279	270	271	285	277	316	316	346	333	337	315	339
Belarus	Upper middle	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	1	2	1	1	0	1
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	6	2	9	9	11	10	6	3	8	11	16	21	19	16	14	19	15	14	19	11	19	21	17	22	19
Russia	Upper middle	1	2	0	0	1	1	1	0	3	6	7	10	7	6	11	8	14	5	4	11	14	15	13	19	20
Switzerland	High	29	31	42	37	58	66	52	51	67	51	97	93	66	84	64	73	85	76	84	79	90	81	90	71	77
Ukraine	Lower middle	0	0	0	0	0	0	0	0	2	0	0	3	1	1	0	2	2	1	1	4	6	9	9	7	11
Asia	na	86	93	118	139	179	162	157	178	258	322	425	398	329	371	409	408	479	443	553	714	1,036	1,237	1,409	2,838	2,895
China	Upper middle	5	14	13	16	24	27	41	42	73	118	155	166	137	163	136	180	197	185	293	442	726	906	1,046	2,551	2,577
India	Lower middle	2	4	1	0	5	1	2	2	2	3	4	5	6	4	15	6	15	15	14	12	22	22	13	12	14

Table SINV-42

Registered USPTO trademarks in the business sector of construction, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	45	38	54	63	77	72	54	83	108	105	141	133	104	114	140	151	163	136	137	144	163	159	155	141	143
Malaysia	Upper middle	3	1	1	3	3	2	4	0	3	3	6	3	6	1	5	1	0	4	2	4	8	2	4	3	3
Singapore	High	2	1	2	3	4	6	8	2	5	8	16	10	10	14	16	11	12	15	15	10	10	19	31	17	20
South Korea	High	7	4	4	16	16	17	15	12	19	23	26	20	13	24	32	24	39	40	39	46	45	56	49	57	72
Taiwan	High	22	30	37	34	46	27	26	29	40	56	72	45	41	45	59	25	46	38	49	47	49	58	46	42	35
Middle East	na	3	4	4	8	6	10	13	8	14	8	15	15	17	13	24	20	17	23	20	25	32	49	30	18	14
Israel	High	3	2	3	8	5	9	8	8	11	6	9	10	8	11	14	14	10	14	12	18	25	33	20	16	12
Africa	na	4	0	2	2	6	6	7	3	3	1	6	7	2	4	2	5	7	9	4	1	2	8	3	6	2
South Africa	Upper middle	4	0	1	2	5	5	7	3	2	0	6	4	2	3	2	2	3	8	3	1	1	5	2	6	1
Australia and Oceania	na	18	19	19	32	45	57	43	42	60	75	83	96	63	60	70	92	85	78	79	84	89	132	125	100	81
Australia	High	15	13	17	31	44	40	35	38	51	64	63	83	48	50	59	80	64	62	61	70	72	114	100	79	60
New Zealand	High	3	6	2	1	1	16	8	4	10	10	20	13	15	10	10	12	21	16	18	14	17	18	25	21	21
Unclassified	na	13	14	22	17	34	31	19	13	10	20	20	12	14	11	9	12	7	8	12	12	4	15	9	6	7

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-43

Registered USPTO trademarks in the business sector of health, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	7,571	7,791	8,251	8,969	11,532	12,661	12,015	13,254	17,072	18,540	20,894	19,520	18,512	19,887	20,418	21,279	22,294	23,136	24,849	26,880	29,861	34,931	33,540	42,176	33,716
North America	na	6,256	6,507	6,819	7,395	9,127	9,833	9,384	10,277	13,151	14,398	16,397	15,144	14,295	15,887	16,401	16,939	17,895	18,031	18,995	20,227	21,910	25,574	23,437	23,750	21,548
Canada	High	145	122	138	138	186	232	209	240	288	307	374	389	353	419	339	362	382	411	448	518	580	592	665	606	588
Mexico	Upper middle	22	15	26	9	29	21	33	47	52	62	99	58	84	121	108	102	108	80	63	75	96	104	76	106	125
United States	High	6,088	6,370	6,655	7,248	8,912	9,581	9,142	9,991	12,811	14,029	15,923	14,697	13,858	15,347	15,954	16,475	17,406	17,540	18,485	19,634	21,235	24,878	22,695	23,038	20,835
Central America and Caribbean	na	18	17	17	16	16	24	27	56	34	59	65	63	51	38	35	55	47	59	42	45	57	62	47	50	41
South America	na	13	13	7	7	15	21	50	49	38	50	80	53	48	61	54	52	63	57	74	78	79	118	112	81	96
Argentina	Upper middle	1	1	4	3	3	7	3	9	4	15	14	4	4	12	10	10	6	4	8	4	9	5	15	7	11
Brazil	Upper middle	6	4	0	2	7	4	33	27	20	22	34	28	19	23	15	22	24	31	35	44	40	60	48	38	34
Europe	na	1,018	1,004	1,092	1,233	1,868	2,138	1,996	2,152	2,964	3,095	3,308	3,258	2,946	2,867	2,725	2,879	2,883	3,241	3,633	3,504	3,773	3,949	3,730	3,573	3,384
EU-27 and United Kingdom[a]	na	876	879	941	1,084	1,610	1,794	1,663	1,780	2,442	2,593	2,739	2,669	2,460	2,302	2,258	2,381	2,326	2,508	2,937	2,903	3,074	3,152	2,932	2,849	2,650
United Kingdom	High	103	115	119	138	190	218	279	269	348	339	417	449	405	418	371	481	464	472	716	731	672	720	711	755	652
EU-27[b]	na	773	764	822	946	1,420	1,576	1,385	1,511	2,094	2,254	2,322	2,221	2,055	1,884	1,887	1,900	1,862	2,036	2,221	2,172	2,403	2,432	2,221	2,094	1,997
Austria	High	7	2	7	6	12	12	9	11	24	26	27	34	37	27	41	24	31	27	46	37	36	48	35	44	39
Belgium	High	16	25	11	27	33	45	17	30	47	72	75	66	64	44	46	59	47	41	55	54	75	78	66	56	71
Denmark	High	35	31	29	48	51	69	57	56	109	87	79	88	141	83	79	70	73	127	101	87	73	92	92	83	100
Finland	High	11	6	9	8	16	18	19	21	17	29	12	21	20	19	16	27	22	19	29	34	42	40	31	42	32
France	High	264	270	293	304	447	508	435	454	640	706	670	587	573	507	452	479	543	505	568	537	632	534	498	407	378
Germany	High	236	235	252	288	450	519	472	500	603	653	680	691	545	586	547	587	454	497	514	566	568	566	524	538	475
Hungary	High	2	3	0	1	1	0	1	4	9	5	8	5	8	3	9	14	7	8	5	4	9	6	9	5	6
Ireland	High	26	14	24	36	55	34	52	39	57	63	79	57	49	72	78	67	81	126	104	100	136	155	120	103	131
Italy	High	51	68	73	58	108	120	65	105	172	206	236	219	175	145	189	179	196	217	190	208	212	263	259	256	195
Netherlands	High	45	38	42	55	86	98	88	96	129	118	118	143	102	110	129	110	110	108	128	125	149	153	149	126	111
Spain	High	24	33	41	49	55	49	68	88	92	114	158	119	96	90	122	100	97	131	194	152	146	187	150	142	130
Sweden	High	34	31	33	53	87	75	71	69	116	86	103	111	164	93	69	88	89	102	135	131	106	142	99	99	145
Other Europe	na	142	126	151	149	258	344	333	372	523	501	569	588	486	565	468	498	557	733	696	601	699	797	799	724	734
Other Europe(2020)[b]	na	245	241	270	287	448	562	612	641	871	840	986	1,037	891	984	838	979	1,021	1,206	1,412	1,332	1,371	1,517	1,509	1,478	1,386
Belarus	Upper middle	0	0	0	0	0	0	0	0	1	0	0	2	0	2	0	1	1	2	0	0	1	4	8	6	8
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4	0
Norway	High	6	9	2	3	6	8	11	9	16	13	16	14	37	24	14	27	18	20	12	23	31	32	17	30	22
Russia	Upper middle	0	0	1	1	0	4	4	7	13	8	17	13	10	17	27	19	35	30	20	15	17	46	65	58	65
Switzerland	High	119	105	132	126	229	308	287	320	434	446	490	518	400	476	395	378	456	620	613	507	574	590	587	503	526
Ukraine	Lower middle	0	0	0	0	0	0	0	2	0	1	3	1	3	5	3	4	2	1	3	10	23	33	44	46	38
Asia	na	177	171	214	224	339	420	378	516	640	676	722	697	823	710	845	1,028	1,059	1,212	1,584	2,467	3,375	4,448	5,545	13,966	7,932
China	Upper middle	24	31	34	31	63	81	61	87	87	124	122	115	155	158	192	239	304	351	663	1,281	2,002	2,702	3,777	12,098	6,135
India	Lower middle	8	3	4	10	5	9	17	16	10	11	16	14	15	22	30	36	51	34	35	72	87	109	115	85	90

Table SINV-43

Registered USPTO trademarks in the business sector of health, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	99	97	108	121	199	235	211	255	375	358	360	350	394	286	313	411	405	434	389	466	407	573	537	518	464
Malaysia	Upper middle	4	3	3	3	4	7	6	3	7	7	5	12	25	10	10	10	14	13	12	13	19	15	16	24	26
Singapore	High	5	2	9	13	9	9	11	16	26	21	37	26	30	28	43	60	39	48	63	79	82	78	85	106	127
South Korea	High	18	17	32	23	33	34	46	67	67	90	111	106	117	124	175	183	156	236	308	430	599	769	850	904	891
Taiwan	High	17	15	25	19	25	32	23	57	58	50	59	58	69	73	64	83	72	79	93	98	131	135	115	149	117
Middle East	na	29	26	31	27	52	51	42	48	50	61	78	60	71	105	105	89	103	137	140	152	196	227	214	186	163
Israel	High	27	25	28	26	48	43	36	43	44	56	70	53	59	77	96	79	81	102	108	113	163	197	181	155	123
Africa	na	5	6	5	5	5	14	12	13	8	8	17	15	20	18	24	23	15	23	23	20	30	35	36	31	30
South Africa	Upper middle	5	3	3	4	0	11	3	2	4	5	9	10	10	10	10	17	9	13	12	13	20	20	14	17	17
Australia and Oceania	na	38	27	47	39	67	108	90	103	132	151	173	165	191	154	201	169	189	226	288	301	354	464	394	514	395
Australia	High	31	19	39	35	62	90	71	91	112	132	144	134	153	128	163	132	146	176	239	234	292	375	328	395	319
New Zealand	High	7	7	8	4	6	18	16	12	18	19	29	31	37	25	37	36	41	50	49	68	61	89	66	114	73
Unclassified	na	18	21	20	24	43	52	37	40	55	41	55	65	66	47	29	46	39	149	68	85	86	54	25	25	127

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-44

Registered USPTO trademarks in the business sector of household equipment, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	4,459	4,633	5,868	5,314	7,324	6,815	6,064	6,744	7,648	8,583	9,519	8,480	7,865	8,811	8,918	9,227	9,642	10,517	12,579	16,916	21,576	26,096	25,373	57,956	49,451
North America	na	3,929	4,168	5,113	4,588	6,173	5,682	5,001	5,519	6,188	6,881	7,507	6,695	6,205	6,973	7,000	7,249	7,503	8,091	8,538	9,690	10,685	12,149	10,189	10,557	9,730
Canada	High	169	135	184	164	222	185	196	212	256	235	270	248	262	310	241	255	250	273	295	336	382	471	469	546	528
Mexico	Upper middle	18	19	21	4	9	13	7	29	14	19	25	23	25	25	25	32	28	26	26	29	33	36	32	34	28
United States	High	3,742	4,014	4,908	4,419	5,942	5,484	4,797	5,278	5,917	6,626	7,212	6,424	5,918	6,639	6,734	6,962	7,225	7,792	8,217	9,325	10,270	11,641	9,688	9,977	9,174
Central America and Caribbean	na	10	13	15	25	21	19	28	25	31	33	25	14	15	31	18	19	14	14	22	26	15	25	35	24	27
South America	na	6	1	6	8	14	15	25	24	28	16	16	18	15	16	13	7	18	22	26	40	26	33	37	29	41
Argentina	Upper middle	0	0	0	1	2	2	5	1	4	1	2	2	2	3	1	0	1	2	3	1	4	4	1	6	8
Brazil	Upper middle	1	1	2	5	10	8	10	15	12	5	7	8	8	3	9	3	8	8	16	21	14	19	16	10	16
Europe	na	356	312	510	491	794	731	652	762	902	1,025	1,239	1,118	1,014	1,047	1,047	1,063	1,149	1,120	1,327	1,334	1,566	1,784	1,579	1,395	1,419
EU-27 and United Kingdom[a]	na	314	274	456	433	680	635	568	673	809	897	1,102	1,000	887	940	915	937	1,030	997	1,193	1,204	1,372	1,566	1,340	1,172	1,188
United Kingdom	High	42	27	49	42	72	102	89	105	119	112	152	152	147	131	139	159	173	195	247	254	294	310	280	319	306
EU-27[b]	na	272	247	407	390	608	533	479	568	690	784	950	848	741	809	776	778	857	802	947	951	1,078	1,256	1,061	853	882
Austria	High	6	6	5	5	13	13	12	21	23	22	27	31	22	32	25	24	23	30	29	33	37	39	47	30	27
Belgium	High	3	5	6	6	13	7	15	7	23	26	19	25	18	10	19	20	21	17	25	27	35	35	22	25	26
Denmark	High	10	8	8	11	11	16	13	21	17	22	35	43	18	24	21	38	28	18	39	39	50	47	34	37	29
Finland	High	5	5	6	9	5	8	8	11	9	15	10	11	8	13	16	20	15	11	26	22	17	29	35	21	13
France	High	53	43	72	72	99	85	77	69	97	83	126	102	106	120	121	129	137	110	123	127	120	121	101	82	84
Germany	High	91	92	140	128	213	200	185	207	223	297	351	315	302	279	270	252	274	247	280	287	310	374	295	257	257
Hungary	High	0	0	2	1	1	0	0	0	1	0	2	2	2	1	1	2	1	1	0	0	2	3	2	1	4
Ireland	High	5	4	1	3	7	5	2	4	3	5	6	10	5	14	11	11	10	9	13	10	15	29	18	16	18
Italy	High	44	34	69	65	95	89	76	105	165	176	193	147	113	136	122	105	150	136	159	163	167	192	163	136	146
Netherlands	High	18	19	39	35	55	29	28	46	43	63	58	57	64	67	57	59	77	68	96	83	113	111	94	58	69
Spain	High	19	9	20	19	34	24	19	24	28	26	40	45	29	40	29	34	35	39	53	29	42	66	68	36	42
Sweden	High	12	19	29	30	51	43	34	34	39	27	50	30	34	46	44	44	45	49	56	64	52	83	63	49	54
Other Europe	na	42	38	54	59	114	96	84	89	93	128	136	118	127	107	132	126	119	124	134	129	193	218	239	223	231
Other Europe (2020)[b]	na	84	65	103	101	186	198	173	194	212	240	288	270	274	238	271	285	292	318	381	383	488	528	519	542	537
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	2	2	5	3	10
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	2	1	0	0
Norway	High	2	6	7	6	16	7	5	13	7	12	12	15	8	13	6	10	9	12	12	8	13	15	15	13	10
Russia	Upper middle	0	0	0	0	1	3	3	4	1	3	1	3	9	5	10	10	10	8	4	6	16	25	31	26	22
Switzerland	High	39	32	46	42	82	81	72	65	75	92	103	81	91	75	99	86	77	90	83	80	89	73	87	78	66
Ukraine	Lower middle	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	1	1	1	2	9	33	40	40	42	59
Asia	na	119	107	160	157	239	272	270	324	380	512	588	517	496	616	712	772	781	1,126	2,477	5,624	8,891	11,649	13,040	45,465	37,795
China	Upper middle	27	28	35	30	56	72	79	86	138	229	278	239	237	320	370	362	432	721	2,062	5,090	8,342	10,927	12,315	44,615	36,897
India	Lower middle	1	1	5	6	4	3	6	3	4	2	6	7	6	3	6	6	4	11	10	12	23	28	32	54	45

Table SINV-44

Registered USPTO trademarks in the business sector of household equipment, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	39	25	57	51	62	68	79	102	90	113	119	107	102	104	115	149	108	144	153	174	165	223	200	174	168
Malaysia	Upper middle	2	1	6	2	3	2	1	1	4	4	1	2	2	4	3	1	2	2	2	3	8	8	8	15	34
Singapore	High	0	1	3	0	4	1	5	3	9	8	7	9	8	6	3	9	10	19	27	31	28	47	41	77	82
South Korea	High	7	9	9	13	19	28	23	27	37	50	65	62	47	76	108	116	120	117	120	213	181	239	251	323	366
Taiwan	High	39	36	42	51	83	85	67	91	95	99	102	79	85	93	97	120	97	102	90	88	114	135	127	127	98
Middle East	na	7	3	3	5	12	6	12	16	11	14	9	8	10	19	27	18	16	21	28	39	113	107	99	101	97
Israel	High	7	3	3	4	10	5	7	11	9	12	9	7	8	16	25	18	12	15	23	36	107	97	84	87	76
Africa	na	3	2	6	3	2	12	2	4	3	4	6	6	7	1	7	7	9	8	8	9	20	9	7	11	10
South Africa	Upper middle	2	1	5	2	2	11	2	2	3	1	1	4	4	1	3	7	4	4	4	6	7	6	3	4	5
Australia and Oceania	na	17	14	36	23	38	55	54	42	82	80	103	89	90	95	85	84	143	108	144	138	246	318	371	362	263
Australia	High	14	14	25	20	36	39	47	36	66	72	91	75	77	87	72	78	120	91	123	114	212	283	326	298	237
New Zealand	High	2	0	10	3	2	16	7	7	15	7	11	12	12	8	12	5	19	14	18	22	31	33	40	62	26
Unclassified	na	13	14	19	15	31	24	20	29	24	19	25	14	14	13	8	7	9	7	9	16	15	21	14	11	69

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-45

Registered USPTO trademarks in the business sector of leisure and education, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	16,123	15,538	19,177	18,170	23,912	21,696	19,738	20,898	26,655	29,386	33,564	29,856	27,821	30,066	31,256	32,162	33,030	33,922	36,611	39,275	41,341	48,935	44,236	58,385	53,960
North America	na	15,176	14,626	18,021	16,883	22,049	19,670	17,873	19,046	24,268	26,638	30,478	27,025	25,051	27,396	28,214	28,990	29,742	30,292	32,057	33,320	33,499	38,992	33,958	33,073	32,376
Canada	High	310	261	293	255	341	360	361	380	455	434	490	458	509	571	506	535	526	538	530	699	651	759	768	731	654
Mexico	Upper middle	29	12	22	27	31	47	68	72	51	73	113	106	78	109	110	109	132	121	161	126	121	147	114	97	87
United States	High	14,837	14,354	17,707	16,600	21,677	19,263	17,444	18,594	23,762	26,130	29,875	26,461	24,464	26,716	27,598	28,346	29,083	29,633	31,366	32,495	32,726	38,086	33,075	32,244	31,635
Central America and Caribbean	na	9	10	7	14	29	48	46	38	43	64	41	33	33	36	44	33	25	28	26	22	29	46	23	22	37
South America	na	14	17	17	18	36	48	27	48	48	31	53	57	48	56	48	53	44	65	55	74	97	91	88	75	59
Argentina	Upper middle	7	1	2	3	10	7	7	15	9	10	13	15	14	10	10	18	6	13	13	7	16	11	13	15	11
Brazil	Upper middle	7	9	13	5	11	19	8	15	22	10	27	22	15	22	16	16	20	25	25	31	39	40	39	34	15
Europe	na	502	505	691	669	1,072	1,218	1,128	1,089	1,478	1,642	1,800	1,788	1,778	1,579	1,816	1,837	1,924	1,969	2,208	2,203	2,416	2,790	2,566	2,412	2,153
EU-27 and United Kingdom[a]	na	435	455	601	588	949	1,077	1,020	972	1,318	1,472	1,599	1,617	1,605	1,405	1,610	1,646	1,713	1,744	1,961	1,977	2,150	2,451	2,246	2,105	1,902
United Kingdom	High	110	105	152	165	253	278	304	309	363	426	456	477	523	421	477	528	559	612	610	679	714	811	735	770	675
EU-27[b]	na	325	349	449	423	695	799	716	663	955	1,046	1,143	1,140	1,082	984	1,133	1,119	1,154	1,131	1,351	1,298	1,436	1,640	1,511	1,335	1,227
Austria	High	15	22	26	16	37	49	26	17	37	34	50	39	29	35	34	45	42	46	61	73	37	79	39	43	35
Belgium	High	8	9	16	11	25	24	15	13	22	27	29	27	29	32	30	33	35	38	33	38	50	38	32	46	27
Denmark	High	9	14	5	9	15	16	17	13	26	21	29	31	41	20	25	31	36	27	56	45	39	44	37	28	43
Finland	High	12	1	8	11	22	36	28	30	29	36	24	15	25	33	32	34	28	35	40	41	53	57	45	54	45
France	High	70	67	81	72	116	142	116	100	131	150	159	186	186	193	188	180	184	174	188	187	187	211	211	172	146
Germany	High	98	104	150	137	231	249	265	248	368	325	375	396	340	285	301	304	293	277	330	327	338	374	322	269	262
Hungary	High	1	0	2	2	1	5	0	0	4	3	4	4	5	2	6	6	5	4	8	8	12	6	7	4	7
Ireland	High	9	7	13	18	28	17	18	22	17	33	48	34	29	25	30	31	34	37	41	25	37	37	50	36	34
Italy	High	25	37	52	35	56	64	56	57	91	114	132	109	106	95	125	100	118	103	130	103	137	148	148	130	100
Netherlands	High	28	33	33	38	45	72	67	52	73	95	87	76	78	77	93	80	90	74	94	79	138	129	131	109	78
Spain	High	23	13	16	21	57	52	38	40	70	79	70	59	72	67	80	78	78	81	99	113	93	114	103	106	96
Sweden	High	19	35	36	39	38	44	52	41	41	55	51	71	50	43	64	72	66	62	89	76	94	114	102	93	87
Other Europe	na	67	51	91	81	123	141	108	117	160	170	201	171	173	174	206	190	211	225	247	226	265	338	320	306	250
Other Europe (2020)[b]	na	177	156	243	246	376	418	412	426	523	596	657	648	696	596	683	718	770	838	857	905	979	1,150	1,054	1,076	925
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	2	4	10	4
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	3
Norway	High	1	3	9	4	13	12	3	6	6	16	11	13	20	10	15	13	24	12	25	22	22	27	25	21	17
Russia	Upper middle	2	1	4	4	3	6	5	4	10	11	10	7	10	20	24	16	23	25	20	25	41	51	50	45	32
Switzerland	High	54	44	75	67	102	110	90	97	131	119	155	134	118	124	144	135	129	142	158	133	140	163	143	146	110
Ukraine	Lower middle	0	0	0	1	0	1	0	2	1	1	1	0	4	3	0	2	3	4	7	9	23	40	39	40	38
Asia	na	331	289	339	438	543	528	506	527	608	754	859	636	638	721	787	880	920	1,091	1,790	3,065	4,568	6,127	6,654	22,067	18,611
China	Upper middle	82	77	115	145	173	161	129	144	198	241	272	191	194	302	305	281	338	445	1,132	2,425	3,822	5,279	5,808	21,161	17,663
India	Lower middle	2	2	1	5	6	6	7	12	10	7	14	7	16	19	15	14	15	37	35	44	36	55	54	34	48

Table SINV-45

Registered USPTO trademarks in the business sector of leisure and education, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	169	146	123	202	250	261	279	269	278	319	373	265	259	232	266	357	323	354	340	323	337	354	393	411	365
Malaysia	Upper middle	0	1	1	5	0	1	2	0	0	1	4	1	5	4	4	5	4	7	7	10	15	10	4	10	10
Singapore	High	5	6	8	11	17	6	14	15	16	38	25	22	28	42	51	56	37	47	51	50	65	102	64	95	79
South Korea	High	21	23	30	21	25	17	25	24	31	56	80	63	60	55	69	76	99	102	133	136	181	209	207	255	260
Taiwan	High	51	33	57	46	65	61	45	54	62	77	79	72	60	53	59	71	80	70	71	61	77	84	80	66	70
Middle East	na	9	8	6	10	13	10	16	21	20	34	31	46	41	38	61	80	72	123	104	117	201	208	179	181	159
Israel	High	8	7	6	9	10	9	13	14	16	28	22	31	26	24	41	63	58	94	73	95	167	177	150	149	125
Africa	na	3	1	4	8	10	13	7	6	11	4	10	13	13	18	10	15	18	25	15	19	22	23	28	16	18
South Africa	Upper middle	3	1	3	5	7	7	6	2	8	3	8	8	7	9	6	10	10	6	6	8	9	13	15	8	9
Australia and Oceania	na	47	48	59	82	98	97	92	90	135	167	222	203	172	176	232	239	251	299	327	416	478	612	707	515	497
Australia	High	46	31	46	65	86	81	71	71	116	142	201	179	150	154	199	224	224	263	288	378	430	576	655	455	456
New Zealand	High	1	17	14	16	12	13	17	19	17	25	20	20	22	22	30	15	26	35	38	37	45	35	52	60	40
Unclassified	na	32	34	32	49	62	65	42	34	43	53	71	54	46	46	45	36	33	31	28	38	31	45	31	23	50

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-46

Registered USPTO trademarks in the business sector of research and technology, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	23,041	22,545	29,456	28,979	39,625	30,941	23,426	23,441	27,831	30,689	35,676	32,934	30,990	34,091	36,491	37,751	39,726	41,812	45,514	49,432	51,939	56,689	49,365	55,008	50,795
North America	na	21,032	20,437	26,567	25,974	34,787	25,741	19,219	19,383	22,677	25,053	29,024	26,477	24,944	27,576	29,550	30,234	31,801	32,396	32,824	33,337	32,755	36,351	31,640	29,986	28,887
Canada	High	524	529	627	589	817	804	747	696	776	749	914	801	754	809	826	884	946	981	903	1,014	1,018	1,102	1,026	914	955
Mexico	Upper middle	16	13	29	18	52	39	28	37	33	29	56	58	51	53	52	57	64	100	71	71	89	72	48	50	60
United States	High	20,492	19,896	25,911	25,367	33,918	24,898	18,444	18,649	21,868	24,275	28,054	25,618	24,139	26,714	28,672	29,294	30,791	31,315	31,849	32,253	31,648	35,176	30,566	29,022	27,872
Central America and Caribbean	na	24	15	28	28	56	37	28	34	50	46	40	33	27	32	38	58	49	58	46	45	36	48	54	44	49
South America	na	12	16	11	15	57	54	39	33	36	37	41	54	63	46	76	94	80	69	89	104	106	126	122	89	111
Argentina	Upper middle	6	4	5	1	13	13	9	5	5	6	13	12	16	11	8	21	10	12	12	15	16	17	11	14	16
Brazil	Upper middle	1	8	5	7	19	17	13	16	15	20	12	27	29	21	42	44	34	30	37	57	47	60	66	45	59
Europe	na	1,209	1,256	1,734	1,773	3,036	3,212	2,515	2,420	3,213	3,495	4,032	3,969	3,772	3,841	4,013	4,222	4,283	4,591	4,959	5,076	5,591	5,937	5,535	5,133	4,662
EU-27 and United Kingdom[a]	na	1,074	1,098	1,527	1,576	2,692	2,853	2,242	2,176	2,884	3,040	3,552	3,594	3,348	3,425	3,559	3,740	3,749	4,071	4,389	4,530	4,914	5,202	4,824	4,474	4,073
United Kingdom	High	211	212	275	348	552	613	525	520	567	621	749	843	826	753	832	867	966	1,084	1,116	1,203	1,221	1,300	1,204	1,240	1,179
EU-27[b]	na	864	886	1,253	1,228	2,140	2,240	1,717	1,656	2,317	2,419	2,803	2,751	2,522	2,672	2,727	2,873	2,783	2,987	3,273	3,327	3,693	3,902	3,620	3,233	2,894
Austria	High	7	15	30	24	48	71	48	58	61	79	82	82	69	82	94	105	109	115	135	123	102	139	135	119	90
Belgium	High	29	26	34	23	70	58	29	25	50	69	58	55	79	76	63	102	85	78	88	114	125	139	122	103	96
Denmark	High	35	23	42	29	54	69	45	51	66	74	91	80	62	66	92	79	91	96	117	96	109	131	112	110	94
Finland	High	21	25	35	33	76	67	40	46	48	69	85	74	81	66	65	64	77	90	116	106	151	114	111	108	79
France	High	170	139	224	240	382	389	260	222	325	352	416	414	417	460	417	486	418	435	463	508	540	546	495	444	410
Germany	High	303	335	507	482	836	910	756	760	1,065	973	1,132	1,070	912	910	932	924	930	902	957	1,025	1,116	1,238	1,141	1,001	867
Hungary	High	4	1	1	6	5	4	4	4	6	2	7	2	8	8	6	12	15	16	5	13	18	23	11	6	11
Ireland	High	34	17	23	45	54	52	47	38	49	51	79	57	57	81	61	69	66	97	102	93	114	92	88	114	99
Italy	High	65	74	96	79	134	142	101	108	181	198	191	218	183	212	207	224	196	236	247	241	260	304	243	216	202
Netherlands	High	81	103	113	119	195	186	137	154	179	214	225	232	174	220	227	193	200	231	286	243	278	284	261	232	203
Spain	High	24	51	30	30	78	79	64	48	81	79	130	126	133	126	146	136	145	152	180	153	165	182	182	173	162
Sweden	High	70	62	80	86	147	164	132	98	122	150	200	172	135	179	168	182	162	190	225	220	227	272	278	226	192
Other Europe	na	135	158	207	197	344	359	273	244	329	455	480	376	424	417	454	482	534	520	570	546	677	735	712	659	590
Other Europe (2020)[b]	na	345	370	482	545	896	972	798	764	896	1,076	1,229	1,218	1,250	1,169	1,286	1,349	1,500	1,604	1,685	1,749	1,898	2,035	1,915	1,900	1,769
Belarus	Upper middle	0	0	0	0	0	0	0	0	1	0	0	1	1	2	1	6	2	1	4	4	3	9	11	10	6
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	1	0	1	0	0	2	4	2
Norway	High	7	19	22	19	38	33	20	16	38	53	61	60	59	56	60	55	55	66	59	68	74	87	74	78	59
Russia	Upper middle	1	2	5	7	5	11	9	10	17	19	26	20	27	35	49	57	63	53	27	36	59	87	73	76	40
Switzerland	High	117	131	173	162	285	304	227	205	255	350	357	267	303	285	299	321	348	340	400	368	437	411	418	379	365
Ukraine	Lower middle	0	0	0	0	0	1	0	1	2	4	4	9	7	4	9	8	17	9	20	15	34	45	55	36	46
Asia	na	523	611	779	810	1,094	1,300	1,244	1,193	1,395	1,547	1,866	1,742	1,621	1,928	2,170	2,477	2,782	3,927	6,690	9,940	12,502	13,091	10,929	18,813	16,139
China	Upper middle	44	54	72	67	118	154	122	125	227	341	405	377	403	510	659	848	1,089	2,027	4,767	7,929	10,566	10,923	8,873	16,801	14,260
India	Lower middle	2	11	13	19	18	23	19	11	18	37	42	62	60	46	58	67	63	90	102	104	108	132	135	103	128

Table SINV-46

Registered USPTO trademarks in the business sector of research and technology, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	285	361	423	416	530	629	624	595	682	649	710	678	541	655	623	746	693	672	716	634	673	796	733	691	604
Malaysia	Upper middle	1	1	3	0	3	10	5	7	7	6	10	3	10	14	4	10	10	10	7	9	11	13	12	9	14
Singapore	High	34	17	25	37	58	63	59	39	42	53	83	66	89	90	84	104	113	109	137	142	133	139	177	199	178
South Korea	High	26	32	30	54	71	140	142	121	120	134	192	224	196	305	391	366	488	666	607	809	683	728	679	683	660
Taiwan	High	127	132	211	212	286	276	264	282	287	318	403	300	290	290	324	304	303	322	326	281	290	323	271	278	237
Middle East	na	77	67	96	130	188	197	115	91	106	107	155	160	138	158	201	186	222	228	289	283	291	332	386	312	272
Israel	High	76	63	90	126	185	193	107	79	97	95	140	135	125	131	158	155	177	192	237	225	243	275	327	253	229
Africa	na	9	5	10	5	18	20	11	14	12	23	25	31	19	17	18	27	35	43	39	29	31	40	40	24	27
South Africa	Upper middle	8	5	7	3	8	15	7	13	8	13	19	13	10	9	8	15	23	24	18	13	14	17	13	15	10
Australia and Oceania	na	94	92	142	124	236	224	172	206	270	290	408	391	354	437	361	379	408	435	515	535	560	688	606	569	588
Australia	High	89	78	125	108	204	187	127	177	242	255	351	349	313	391	329	347	344	367	450	464	470	591	523	487	520
New Zealand	High	5	14	17	15	30	36	37	28	27	35	57	41	40	43	31	30	60	69	62	68	88	97	81	82	66
Unclassified	na	62	46	88	119	154	156	84	66	71	91	85	77	51	55	64	74	65	66	64	82	67	74	53	39	60

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-47

Registered USPTO trademarks in the business sector of transportation, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	4,144	4,475	5,770	5,438	7,465	6,271	5,433	5,637	7,087	7,987	8,835	8,058	7,090	7,607	7,558	7,895	8,062	8,181	9,315	10,139	10,840	12,312	11,136	14,471	14,105
North America	na	3,447	3,647	4,706	4,452	5,756	4,669	4,036	4,276	5,179	5,706	6,251	5,690	5,017	5,377	5,275	5,507	5,614	5,631	6,076	6,409	6,288	6,909	5,965	5,464	5,264
Canada	High	110	100	158	116	204	212	142	170	226	190	212	237	201	183	201	198	198	206	236	246	245	281	231	232	203
Mexico	Upper middle	14	6	20	16	9	23	14	14	12	16	28	23	27	25	29	34	29	33	15	25	22	35	33	32	18
United States	High	3,322	3,541	4,528	4,320	5,543	4,434	3,880	4,092	4,942	5,499	6,011	5,430	4,789	5,168	5,046	5,275	5,388	5,392	5,825	6,137	6,021	6,593	5,701	5,200	5,043
Central America and Caribbean	na	6	6	5	4	5	9	9	7	7	15	18	24	21	10	10	12	7	13	14	18	10	19	12	12	5
South America	na	17	11	19	14	19	24	21	25	25	17	28	28	24	27	28	33	33	43	36	43	44	32	32	27	28
Argentina	Upper middle	2	3	1	1	2	5	1	1	3	1	8	3	4	9	2	2	7	3	7	4	4	4	5	8	6
Brazil	Upper middle	10	4	17	4	7	10	15	15	11	8	9	18	10	10	18	17	16	22	16	24	26	12	20	9	11
Europe	na	441	555	681	646	1,142	1,084	878	859	1,228	1,403	1,572	1,449	1,259	1,311	1,337	1,319	1,310	1,360	1,609	1,501	1,688	1,860	1,541	1,350	1,241
EU-27 and United Kingdom[a]	na	394	499	602	585	1,033	987	784	786	1,126	1,232	1,424	1,275	1,135	1,179	1,203	1,167	1,167	1,215	1,435	1,354	1,476	1,654	1,351	1,173	1,082
United Kingdom	High	41	33	60	49	86	124	104	95	142	168	182	152	148	188	168	128	191	183	220	204	220	188	205	176	173
EU-27[b]	na	353	466	542	537	947	862	680	691	984	1,064	1,242	1,124	988	991	1,035	1,039	976	1,032	1,215	1,150	1,256	1,466	1,145	997	910
Austria	High	5	9	18	11	38	39	16	20	25	20	35	33	33	41	30	41	31	27	41	39	47	48	51	47	34
Belgium	High	6	7	8	6	22	9	8	11	21	8	18	16	19	8	18	18	18	16	23	19	26	23	23	14	16
Denmark	High	3	11	11	8	11	15	17	17	19	29	28	28	19	35	25	35	29	30	35	23	33	30	31	23	22
Finland	High	9	9	12	9	15	15	10	11	17	23	15	24	18	17	17	13	16	13	19	12	30	21	37	21	26
France	High	49	49	77	69	114	104	77	75	89	95	120	113	112	114	103	102	90	124	112	120	119	156	116	73	94
Germany	High	132	236	228	219	442	417	318	320	438	496	571	490	420	422	424	463	419	443	543	513	487	647	447	399	353
Hungary	High	0	0	0	0	2	1	1	1	2	1	2	1	4	1	1	2	1	0	2	0	3	1	4	4	2
Ireland	High	0	2	5	6	6	6	5	7	2	7	8	7	6	8	5	14	7	10	14	11	15	10	8	7	10
Italy	High	67	77	82	86	127	99	104	103	186	184	204	193	152	132	174	174	150	159	173	170	228	268	183	181	168
Netherlands	High	15	18	30	21	54	44	26	36	52	56	47	66	53	46	66	47	60	47	73	73	66	76	68	61	41
Spain	High	18	7	20	21	31	31	26	27	50	47	58	36	55	55	57	35	41	52	40	48	47	47	58	45	45
Sweden	High	37	35	45	61	68	59	54	44	46	54	65	62	57	64	60	46	61	51	63	65	73	67	53	49	48
Other Europe	na	47	56	80	61	109	97	94	74	102	171	148	174	123	132	134	151	143	146	174	147	212	206	190	177	159
Other Europe (2020)[b]	na	88	89	139	110	195	222	198	168	244	339	330	326	271	321	302	279	334	328	395	351	432	394	396	353	331
Belarus	Upper middle	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	1	0	0	2	1	2	1	1
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0
Norway	High	0	6	8	5	6	4	5	4	4	18	10	10	10	15	10	12	12	6	14	13	16	20	12	9	15
Russia	Upper middle	0	0	1	0	3	1	1	1	5	4	3	11	7	7	10	11	10	7	8	8	17	11	18	13	6
Switzerland	High	46	47	67	51	95	84	84	61	81	122	108	131	84	85	88	91	92	106	102	78	119	114	110	96	88
Ukraine	Lower middle	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	1	3	5	3	7	11	7	11	13	14
Asia	na	191	208	306	265	427	392	393	397	562	716	817	742	651	761	793	919	980	1,016	1,416	1,995	2,616	3,264	3,390	7,415	7,409
China	Upper middle	14	22	35	25	45	57	49	52	135	214	256	273	240	282	312	375	410	435	824	1,409	1,973	2,585	2,735	6,865	6,872
India	Lower middle	3	5	2	10	2	6	10	4	11	16	12	10	10	11	12	22	11	14	12	15	11	22	19	17	22

Table SINV-47

Registered USPTO trademarks in the business sector of transportation, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	108	119	149	135	224	217	209	196	261	285	326	246	223	241	240	286	295	269	339	279	345	332	309	235	214
Malaysia	Upper middle	1	1	4	2	1	0	3	2	4	4	2	4	3	7	2	0	1	2	2	1	3	6	5	1	3
Singapore	High	7	4	6	4	13	6	10	9	4	15	18	17	11	7	11	17	17	16	21	14	27	38	22	19	22
South Korea	High	10	14	22	17	29	37	26	24	21	41	67	61	73	88	100	100	96	135	100	142	122	109	136	162	151
Taiwan	High	47	40	81	71	104	65	74	102	121	134	130	124	86	110	109	107	130	135	109	120	122	145	145	102	106
Middle East	na	3	5	11	6	10	12	12	18	12	18	13	16	14	17	10	16	17	25	33	31	46	61	44	56	43
Israel	High	3	3	10	2	7	11	11	11	7	11	9	10	9	11	5	5	11	15	14	16	32	40	28	46	27
Africa	na	5	4	2	6	5	6	11	5	3	7	8	10	7	8	9	10	8	9	13	4	3	6	6	10	5
South Africa	Upper middle	4	3	1	4	4	4	6	5	2	5	5	5	6	6	8	4	4	6	5	1	2	4	5	7	3
Australia and Oceania	na	23	20	23	28	48	53	50	33	58	69	103	76	78	84	83	70	82	77	110	117	124	141	134	129	95
Australia	High	19	16	20	25	38	39	44	25	47	57	81	59	58	66	71	56	67	64	82	95	103	111	109	106	79
New Zealand	High	3	3	3	3	10	10	5	8	11	12	23	12	16	18	10	13	15	12	24	22	20	30	24	23	16
Unclassified	na	12	20	16	18	55	23	23	16	14	38	26	22	19	13	13	9	10	8	8	21	22	21	11	8	16

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-48

Registered USPTO trademarks unassigned under the Nice Classification, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	975	1,414	1,270	782	958	635	754	462	592	637	593	600	526	493	504	471	508	462	466	522	509	523	506	549	767
North America	na	199	166	257	231	391	300	283	275	404	439	429	469	441	382	397	378	389	380	339	388	364	380	385	341	320
Canada	High	2	5	0	4	5	3	3	4	7	6	5	6	4	1	8	8	5	6	6	6	3	2	10	8	6
Mexico	Upper middle	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
United States	High	197	161	257	227	386	297	279	268	397	433	424	463	437	381	389	370	384	374	333	381	361	378	374	333	314
Central America and Caribbean	na	0	1	0	0	0	1	0	1	0	0	1	1	0	0	5	0	0	0	1	2	0	1	0	0	0
South America	na	1	0	0	0	0	0	1	0	0	3	3	2	0	0	1	1	2	0	1	1	0	2	0	0	0
Argentina	Upper middle	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	Upper middle	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	1	0	0	0	0	2	0	0	0
Europe	na	5	8	9	8	11	10	13	8	8	11	17	10	7	8	12	12	8	4	9	8	8	10	7	11	9
EU-27 and United Kingdom[a]	na	4	7	8	6	9	9	13	6	6	10	16	10	6	8	9	11	8	4	9	8	8	5	7	10	8
United Kingdom	High	1	1	0	0	0	3	2	1	0	0	0	3	2	5	3	1	2	1	0	0	3	2	2	4	3
EU-27[b]	na	3	6	8	6	9	6	11	5	6	10	16	7	4	3	6	10	6	3	9	8	5	3	5	6	5
Austria	High	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Belgium	High	0	0	0	0	0	0	0	0	2	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0
Denmark	High	0	0	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finland	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
France	High	0	1	2	0	0	0	0	1	2	1	2	0	1	1	2	1	2	2	4	3	0	0	0	0	0
Germany	High	1	2	3	2	5	0	0	1	0	0	0	2	1	0	0	0	0	0	2	0	0	1	0	1	3
Hungary	High	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	High	0	0	0	0	0	0	0	1	0	0	3	0	1	0	0	4	0	0	0	0	0	0	0	0	0
Italy	High	1	1	2	2	1	1	7	1	1	5	11	3	0	0	1	2	2	0	3	2	3	0	3	3	1
Netherlands	High	0	0	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0
Spain	High	0	1	1	0	0	2	1	1	0	1	0	1	0	0	2	0	0	0	0	0	2	2	0	0	0
Sweden	High	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Other Europe	na	1	1	1	2	2	1	0	2	2	1	1	0	1	0	3	1	0	0	0	0	0	5	0	1	1
Other Europe (2020)[b]	na	2	2	1	2	2	4	2	3	2	1	1	3	3	5	6	2	2	1	0	0	3	7	2	5	4
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Russia	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switzerland	High	1	1	1	2	2	1	0	2	2	1	1	0	1	0	3	1	0	0	0	0	0	5	0	1	1
Ukraine	Lower middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	na	0	1	1	0	1	1	2	1	2	2	1	6	1	1	8	0	7	4	2	7	0	5	0	3	1
China	Upper middle	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
India	Lower middle	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	0	1

Table SINV-48

Registered USPTO trademarks unassigned under the Nice Classification, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	0	1	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Malaysia	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Singapore	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Korea	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	2	0	0	0
Taiwan	High	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3	3	0	6	0	0	0	0	0
Middle East	na	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	2	0	0	0	1	0	0	1	0	1
Israel	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Africa	na	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
South Africa	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia and Oceania	na	0	0	1	0	0	1	0	0	0	1	0	1	0	1	2	0	5	0	2	0	0	1	1	0	0
Australia	High	0	0	1	0	0	1	0	0	0	1	0	1	0	1	1	0	2	0	2	0	0	0	1	0	0
New Zealand	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
Unclassified	na	770	1,238	1,003	542	555	321	455	177	178	181	142	111	77	95	73	79	97	74	112	115	136	124	112	194	436

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
Trademarks are allocated according to holder information. Trademarks are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named holders. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories. Trademarks are classified under the 11th edition of the Nice Classification of goods and services, which classifies trademarks under 34 categories of goods and 11 categories of services. Fractional counts of trademarks were assigned to each category to assign the proper weight of a trademark to the corresponding category under the classification. These counts are then grouped under 10 industry sectors following a mapping defined by Edital.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; USPTO data hosted by Reed Tech (LexisNexis), accessed June 2023.

Science and Engineering Indicators

Table SINV-A

USPTO utility patents granted in all environmental sustainability technologies, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	9,762	9,878	10,466	11,390	11,395	11,561	11,106	10,079	11,669	10,920	10,788	11,818	16,312	18,003	21,667	24,299	28,240	30,773	32,429	35,495	34,887	39,931	38,972	35,506	32,131
North America	na	5,473	5,491	5,699	6,140	6,026	6,076	5,746	5,338	6,204	5,700	5,571	6,167	8,278	9,188	10,769	12,157	13,654	14,351	15,080	16,118	16,035	18,299	17,718	16,085	13,912
Canada	High	258	290	302	336	330	334	323	322	364	332	288	345	404	424	571	562	643	638	608	745	704	841	878	775	703
Mexico	Upper middle	5	5	6	7	12	11	9	4	7	7	8	10	11	10	13	25	31	26	29	29	40	29	38	35	28
United States	High	5,209	5,196	5,391	5,797	5,684	5,731	5,413	5,012	5,832	5,361	5,275	5,813	7,864	8,754	10,185	11,570	12,980	13,687	14,443	15,344	15,292	17,429	16,802	15,276	13,182
Central America and Caribbean	na	1	4	2	5	1	4	4	2	3	2	4	6	2	3	2	6	9	4	6	4	4	3	4	8	3
South America	na	16	13	12	19	18	26	15	10	23	18	18	24	23	52	44	48	70	79	65	78	63	84	77	82	91
Argentina	Upper middle	1	3	3	4	4	10	0	1	3	1	0	3	4	4	4	4	1	4	6	4	9	12	7	9	11
Brazil	Upper middle	7	2	5	4	5	12	11	6	17	10	8	10	11	33	22	29	43	43	39	50	34	42	49	46	59
Europe	na	1,835	1,909	2,094	2,252	2,169	2,189	2,016	1,813	1,979	1,903	1,907	1,983	2,896	3,081	3,835	4,379	5,196	5,686	6,040	6,659	6,387	7,038	6,915	6,363	5,832
EU-27 and United Kingdom[a]	na	1,698	1,773	1,949	2,083	2,030	2,064	1,907	1,693	1,877	1,812	1,802	1,865	2,736	2,933	3,645	4,130	4,944	5,366	5,675	6,261	6,028	6,624	6,498	5,995	5,471
United Kingdom	High	250	262	223	242	227	249	207	202	238	236	239	237	347	349	477	524	651	690	782	865	817	966	867	821	783
EU-27[b]	na	1,448	1,511	1,726	1,841	1,803	1,814	1,700	1,492	1,639	1,576	1,562	1,628	2,389	2,584	3,168	3,607	4,293	4,677	4,893	5,396	5,212	5,658	5,632	5,174	4,688
Austria	High	39	45	39	76	55	45	46	52	49	54	40	38	47	46	78	86	119	127	163	162	161	192	184	134	151
Belgium	High	38	30	38	52	42	38	51	43	43	52	43	57	83	82	72	103	138	124	135	159	152	176	153	150	137
Denmark	High	28	36	36	39	35	41	37	33	31	32	45	46	83	131	193	171	237	234	256	256	237	251	261	301	271
Finland	High	46	42	34	45	47	49	31	40	46	60	38	48	78	65	75	86	121	139	160	160	167	158	179	136	137
France	High	268	262	281	322	291	253	212	200	227	256	235	280	422	477	560	660	791	816	921	956	944	1,002	978	816	818
Germany	High	745	783	969	967	955	1,033	1,017	875	958	836	833	846	1,210	1,234	1,527	1,747	1,900	2,173	2,154	2,482	2,245	2,488	2,464	2,313	2,002
Hungary	High	9	3	6	3	3	6	6	3	4	1	4	3	13	8	13	15	15	17	13	14	13	14	16	9	9
Ireland	High	5	4	11	4	6	11	6	5	6	4	5	8	13	13	10	14	29	27	32	22	40	41	42	45	40
Italy	High	89	84	90	86	105	108	101	81	115	96	109	83	141	167	196	218	249	294	273	318	394	426	340	355	279
Netherlands	High	58	83	78	81	82	72	72	60	46	56	84	86	95	141	149	164	253	243	278	273	301	307	347	290	234
Spain	High	13	12	23	27	29	33	23	19	11	23	18	33	48	51	80	93	118	135	117	154	137	117	159	135	140
Sweden	High	99	114	107	124	135	108	82	70	91	84	88	83	118	126	163	186	249	274	303	339	308	348	366	357	348
Other Europe	na	137	136	145	169	138	125	109	120	102	91	105	118	160	148	190	248	252	320	365	398	359	414	417	369	361
Other Europe (2020)[b]	na	387	398	367	411	366	374	315	321	340	327	344	355	507	497	667	772	903	1,010	1,147	1,263	1,175	1,380	1,284	1,189	1,144
Belarus	Upper middle	3	1	0	0	0	0	0	0	0	2	1	2	0	1	0	0	1	1	1	1	0	0	2	4	5
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Norway	High	19	16	18	20	16	24	20	31	13	18	24	22	36	30	33	58	47	65	73	70	65	73	72	66	78
Russia	Upper middle	20	23	27	29	30	22	21	21	19	20	21	23	28	23	23	34	33	41	47	61	52	67	62	41	45
Switzerland	High	93	88	94	115	80	69	58	57	63	48	54	64	90	88	121	140	157	193	222	248	213	243	241	221	204
Ukraine	Lower middle	1	3	4	3	8	4	5	5	4	1	2	2	3	2	4	4	2	3	8	3	5	6	8	8	7
Asia	na	2,283	2,312	2,492	2,816	3,003	3,099	3,145	2,766	3,271	3,127	3,091	3,424	4,827	5,339	6,637	7,296	8,787	10,092	10,572	11,871	11,579	13,577	13,397	12,033	11,497
China	Upper middle	29	17	33	32	42	43	49	32	55	60	72	108	187	238	424	501	638	830	1,050	1,286	1,452	1,978	2,210	2,243	2,443
India	Lower middle	8	3	14	15	28	29	27	30	33	36	29	38	66	71	130	158	215	307	307	380	358	442	456	436	368

Table SINV-A

USPTO utility patents granted in all environmental sustainability technologies, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	1,996	1,988	2,194	2,423	2,538	2,640	2,620	2,303	2,640	2,472	2,389	2,478	3,393	3,622	4,352	4,610	5,224	5,757	5,903	6,446	6,152	7,013	6,490	5,707	5,250
Malaysia	Upper middle	3	4	4	2	4	2	9	4	6	11	11	4	12	10	15	16	17	21	29	33	27	18	24	25	24
Singapore	High	5	4	7	10	17	16	18	10	16	14	21	17	25	29	38	34	70	75	90	93	86	91	97	70	63
South Korea	High	134	161	130	187	197	197	206	207	267	300	338	491	770	906	1,045	1,324	1,895	2,330	2,434	2,805	2,787	3,269	3,348	2,911	2,756
Taiwan	High	103	128	109	146	173	166	214	173	245	230	229	280	361	454	621	634	709	745	737	796	681	726	735	600	557
Middle East	na	50	48	65	61	62	78	57	50	59	54	69	75	106	157	212	224	309	337	432	493	544	646	606	670	575
Israel	High	47	44	49	56	54	68	52	45	56	46	59	68	96	136	161	161	229	243	290	312	321	348	326	367	277
Africa	na	10	19	20	23	20	15	20	16	18	15	15	16	29	21	20	31	27	22	36	35	32	30	24	22	21
South Africa	Upper middle	10	17	15	22	20	14	16	14	16	13	13	13	24	17	18	24	18	17	29	30	17	22	16	14	11
Australia and Oceania	na	87	81	77	72	96	74	105	84	110	99	112	122	151	160	147	157	185	198	188	229	239	250	228	235	197
Australia	High	76	72	70	63	88	67	97	78	98	90	105	113	133	145	131	128	151	170	144	177	193	187	188	195	164
New Zealand	High	11	9	7	10	8	8	8	7	12	9	7	9	18	15	16	29	34	28	44	52	46	63	40	40	33
Unclassified	na	6	1	5	1	0	1	0	0	1	3	0	1	0	1	1	0	3	4	9	8	4	3	3	7	3

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-B

USPTO utility patents granted in environmental management, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	3,193	3,171	3,277	3,540	3,452	3,390	3,240	2,852	3,065	2,826	2,676	2,631	3,341	3,372	3,606	4,073	4,168	4,492	4,689	5,331	5,319	6,035	6,009	5,518	5,288
North America	na	1,762	1,728	1,761	1,876	1,833	1,769	1,612	1,401	1,552	1,420	1,363	1,395	1,711	1,773	1,843	2,123	2,161	2,239	2,389	2,654	2,557	2,839	2,824	2,636	2,468
Canada	High	83	106	120	128	128	104	100	92	100	77	75	80	70	80	96	97	108	122	110	128	124	154	175	146	135
Mexico	Upper middle	2	0	1	3	4	4	4	2	1	0	3	2	2	3	5	6	3	6	7	9	7	7	7	8	12
United States	High	1,677	1,623	1,641	1,745	1,701	1,661	1,508	1,307	1,450	1,342	1,286	1,314	1,638	1,690	1,742	2,020	2,050	2,111	2,272	2,517	2,426	2,677	2,641	2,482	2,321
Central America and Caribbean	na	1	0	0	1	0	1	1	1	1	0	0	2	0	1	0	0	0	0	0	1	1	0	1	3	1
South America	na	5	3	1	3	6	5	1	2	7	6	7	7	5	16	7	12	16	14	14	20	15	14	20	21	24
Argentina	Upper middle	0	2	0	0	1	2	0	0	1	1	0	0	0	1	0	2	0	1	1	0	1	1	1	2	3
Brazil	Upper middle	4	1	0	0	3	3	1	2	4	3	3	3	2	8	3	3	9	7	8	12	7	5	14	8	17
Europe	na	661	681	743	855	777	775	734	613	657	602	566	520	709	740	767	837	871	984	1,022	1,151	1,103	1,251	1,252	1,098	1,049
EU-27 and United Kingdom[a]	na	618	646	713	810	748	749	709	593	637	584	546	494	679	717	739	794	843	942	968	1,104	1,053	1,193	1,191	1,045	997
United Kingdom	High	77	95	73	87	89	66	62	54	57	61	55	63	83	76	88	84	118	121	116	114	130	145	156	125	125
EU-27[b]	na	541	550	640	723	659	682	647	539	581	523	492	432	597	641	651	710	725	820	852	990	923	1,048	1,035	919	873
Austria	High	14	12	9	23	20	19	22	18	20	25	18	7	15	13	17	21	22	20	30	30	29	31	28	23	27
Belgium	High	12	9	14	17	10	8	7	7	11	8	11	11	13	14	15	20	22	16	27	29	18	37	32	26	40
Denmark	High	7	13	13	16	10	9	4	7	6	5	10	8	8	10	10	7	16	15	13	19	17	23	28	21	19
Finland	High	16	14	13	19	16	20	10	13	10	14	8	8	16	16	10	14	19	29	18	25	28	30	27	26	28
France	High	65	56	66	101	66	64	41	40	40	70	54	48	83	89	85	103	86	82	106	138	132	142	122	118	141
Germany	High	329	353	438	439	419	458	464	387	395	304	303	267	323	363	398	415	398	488	485	553	465	510	523	476	409
Hungary	High	1	0	0	0	1	2	1	1	1	0	2	1	5	4	1	2	2	0	2	0	3	3	4	0	0
Ireland	High	0	2	3	0	1	3	2	1	1	1	0	3	3	2	1	2	3	6	5	3	3	3	6	3	5
Italy	High	28	30	27	26	38	38	36	21	37	42	35	26	52	53	52	48	54	57	59	69	110	118	91	81	64
Netherlands	High	14	25	17	25	25	18	19	12	8	9	12	17	23	19	11	21	33	30	33	40	33	54	56	40	35
Spain	High	4	1	5	14	12	9	5	4	5	6	3	3	11	6	7	6	10	7	9	19	11	12	21	14	13
Sweden	High	47	33	32	40	39	31	31	26	44	34	31	28	38	41	33	38	47	53	48	49	56	55	74	69	65
Other Europe	na	42	36	30	45	29	27	25	20	20	18	20	26	29	23	28	42	28	42	54	47	50	58	61	53	52
Other Europe (2020)[b]	na	120	131	104	132	118	93	87	74	76	78	75	88	112	99	116	126	146	164	170	161	180	203	217	178	176
Belarus	Upper middle	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	7	6	3	4	8	7	6	8	2	6	6	7	10	5	7	12	6	11	18	9	15	8	12	13	10
Russia	Upper middle	8	7	6	14	5	6	7	3	4	4	7	6	4	3	3	9	7	2	7	4	7	16	11	7	7
Switzerland	High	26	18	21	26	14	13	11	8	11	6	6	11	13	13	17	18	15	28	28	31	25	26	29	28	31
Ukraine	Lower middle	0	1	1	1	1	0	1	0	1	0	0	0	1	0	0	1	0	0	1	0	0	3	3	3	3
Asia	na	715	724	723	758	799	808	851	793	815	763	710	674	874	807	923	1,027	1,024	1,159	1,170	1,400	1,521	1,767	1,770	1,578	1,588
China	Upper middle	7	3	7	7	12	10	14	7	13	12	12	18	26	27	41	49	64	71	87	128	148	218	225	257	295
India	Lower middle	0	0	4	2	9	13	8	11	9	8	4	5	5	9	15	17	27	25	34	40	44	57	66	52	58

Table SINV-B

USPTO utility patents granted in environmental management, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	636	655	656	662	683	698	743	695	721	670	619	565	740	678	737	804	791	871	843	953	988	1,117	1,061	921	890
Malaysia	Upper middle	2	0	1	0	1	0	1	0	0	2	0	1	1	2	1	3	1	3	1	2	1	0	1	1	3
Singapore	High	1	1	0	2	2	4	3	3	0	0	2	2	4	2	4	2	5	5	8	7	9	10	13	16	12
South Korea	High	33	26	25	37	46	39	39	32	39	36	39	44	62	56	74	99	99	145	149	211	274	302	330	275	268
Taiwan	High	35	38	31	49	45	43	43	44	33	35	36	38	36	31	51	50	34	37	44	56	53	55	70	47	52
Middle East	na	5	10	13	13	14	11	8	9	9	12	12	11	15	14	34	35	42	56	60	68	82	113	87	132	118
Israel	High	4	9	7	12	10	10	8	8	8	8	9	9	12	9	16	15	18	24	23	24	29	39	29	39	19
Africa	na	3	3	9	10	3	3	4	4	9	4	2	1	2	3	6	9	5	5	6	4	6	4	8	6	6
South Africa	Upper middle	3	3	9	10	3	3	2	3	8	4	2	1	2	3	6	6	4	3	4	3	4	2	7	4	4
Australia and Oceania	na	36	21	24	23	21	18	28	31	15	17	15	21	25	18	26	31	47	36	27	32	32	48	46	43	33
Australia	High	32	18	23	19	19	15	26	29	12	13	13	20	19	18	25	27	41	32	23	29	28	41	42	36	29
New Zealand	High	4	3	1	4	2	3	3	2	3	4	2	2	5	1	1	4	6	3	3	4	4	7	4	8	4
Unclassified	na	4	1	2	1	0	0	0	0	1	2	0	1	0	0	0	0	2	0	1	1	1	0	2	1	2

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-C

USPTO utility patents granted in climate change mitigation technologies related to energy generation, transmission, or distribution, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	1,585	1,578	1,748	1,961	2,036	2,161	2,038	1,796	1,977	1,929	2,011	2,460	3,915	4,420	5,657	6,247	7,460	7,851	7,850	8,590	8,344	9,439	9,521	8,725	7,943
North America	na	846	833	894	996	962	1,028	1,003	878	989	923	947	1,099	1,676	1,980	2,463	2,750	3,127	3,115	3,147	3,224	3,142	3,344	3,334	3,052	2,688
Canada	High	39	47	47	46	50	72	82	79	67	63	55	72	84	113	144	135	145	140	130	169	136	139	161	151	142
Mexico	Upper middle	0	2	0	2	1	0	0	2	2	1	1	1	3	0	1	6	6	3	2	4	4	2	6	6	3
United States	High	806	785	847	949	911	956	920	798	920	859	890	1,027	1,589	1,866	2,319	2,609	2,976	2,972	3,015	3,050	3,003	3,203	3,167	2,895	2,544
Central America and Caribbean	na	0	2	0	2	0	1	0	0	0	0	2	0	1	1	0	1	4	2	1	2	1	2	0	1	0
South America	na	0	0	1	2	2	1	1	3	1	1	1	3	3	5	9	10	13	13	10	8	10	15	14	13	11
Argentina	Upper middle	0	0	1	0	0	1	0	0	1	0	0	0	2	1	1	0	1	2	1	1	2	3	3	2	1
Brazil	Upper middle	0	0	0	1	0	1	0	2	0	1	0	3	1	4	6	7	11	8	6	5	6	9	8	8	9
Europe	na	256	276	279	278	320	336	297	309	280	286	339	376	646	713	949	1,040	1,335	1,408	1,421	1,591	1,450	1,569	1,509	1,471	1,355
EU-27 and United Kingdom[a]	na	236	255	253	242	290	313	266	278	255	264	311	347	609	673	898	959	1,260	1,340	1,339	1,499	1,365	1,473	1,406	1,385	1,271
United Kingdom	High	29	34	24	26	22	43	24	30	27	28	41	40	58	67	86	98	122	138	152	183	167	198	166	151	167
EU-27[b]	na	207	221	229	216	268	270	243	248	228	236	270	307	551	605	812	861	1,139	1,203	1,187	1,316	1,198	1,274	1,239	1,234	1,103
Austria	High	5	4	6	2	6	2	4	7	8	4	6	7	12	8	14	15	23	22	36	37	33	50	33	30	36
Belgium	High	1	0	1	4	5	6	6	7	10	5	6	5	12	11	10	14	26	24	21	25	30	29	28	37	23
Denmark	High	8	3	3	6	8	13	12	12	7	12	17	16	44	84	122	107	160	148	151	153	124	135	137	179	164
Finland	High	6	3	3	3	3	7	4	7	3	3	3	4	7	3	11	13	23	21	30	29	26	28	39	21	24
France	High	57	41	40	37	60	49	29	37	30	31	33	50	82	90	103	147	187	194	233	226	210	223	209	179	163
Germany	High	101	120	121	107	126	128	142	141	139	140	152	181	293	295	369	398	468	542	504	622	546	585	580	541	473
Hungary	High	0	1	1	1	1	0	0	0	0	0	0	0	1	1	2	2	1	5	1	2	1	3	3	3	0
Ireland	High	0	1	1	2	1	2	0	1	0	0	1	2	1	1	2	3	12	5	6	5	3	10	9	11	7
Italy	High	11	8	12	11	10	15	15	14	13	10	18	7	30	29	42	40	50	54	42	59	66	56	47	67	44
Netherlands	High	3	8	13	12	12	16	12	9	5	10	14	11	15	31	39	34	59	63	47	42	47	40	45	61	53
Spain	High	1	1	5	2	5	6	6	4	2	4	3	10	15	20	33	34	52	65	54	65	60	43	46	39	47
Sweden	High	11	30	21	27	31	22	12	8	10	12	14	11	28	23	45	35	62	44	44	40	39	49	38	45	44
Other Europe	na	20	21	26	35	31	23	31	30	25	22	28	28	37	41	51	81	74	67	82	93	85	96	103	86	84
Other Europe (2020)[b]	na	49	55	50	62	52	66	54	61	52	50	69	68	95	108	137	179	196	205	234	275	252	295	269	237	252
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	2	1	5	4	1	4	6	4	1	2	7	3	4	5	5	17	17	11	14	18	15	18	17	10	19
Russia	Upper middle	2	5	5	8	12	6	4	6	5	5	8	6	11	8	6	10	9	8	6	12	11	14	18	14	19
Switzerland	High	17	14	13	24	15	10	17	18	19	13	10	17	21	25	35	50	44	44	54	61	52	58	61	49	41
Ukraine	Lower middle	0	0	1	0	2	3	4	3	0	0	2	1	1	1	2	1	1	0	5	0	3	1	2	3	1
Asia	na	459	434	546	658	723	765	711	584	680	700	703	947	1,549	1,665	2,178	2,372	2,885	3,207	3,132	3,604	3,583	4,317	4,474	4,000	3,736
China	Upper middle	2	1	4	7	4	5	8	5	8	17	18	22	56	67	158	146	150	219	205	312	363	566	676	750	757
India	Lower middle	1	0	2	1	2	1	2	5	2	4	2	4	15	24	27	21	25	45	43	61	53	55	64	59	53

Table SINV-C

USPTO utility patents granted in climate change mitigation technologies related to energy generation, transmission, or distribution, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	407	367	492	580	633	676	607	492	570	554	551	666	1,015	1,038	1,344	1,377	1,591	1,631	1,705	1,918	1,879	2,176	2,105	1,799	1,622
Malaysia	Upper middle	0	1	1	1	3	0	3	0	1	1	1	0	1	0	3	4	3	3	6	4	3	3	3	5	6
Singapore	High	0	0	1	2	3	2	1	3	0	0	0	2	3	7	14	12	15	25	30	30	27	20	23	15	14
South Korea	High	31	38	27	41	57	57	57	53	69	89	87	188	356	406	447	604	869	1,037	944	1,092	1,087	1,310	1,403	1,208	1,154
Taiwan	High	17	25	19	28	21	24	33	27	28	35	43	64	96	121	185	202	228	240	194	178	164	179	192	156	125
Middle East	na	13	12	14	16	15	14	13	9	8	5	10	13	16	24	29	45	60	65	84	104	113	127	143	141	111
Israel	High	12	12	13	15	14	13	11	8	8	5	9	12	14	23	20	33	47	51	55	64	66	65	70	76	52
Africa	na	3	6	0	2	3	1	3	4	2	2	1	3	7	3	1	5	7	3	10	11	8	10	4	4	4
South Africa	Upper middle	3	5	0	2	3	1	3	3	2	2	1	2	7	3	1	5	5	3	9	10	7	9	1	3	1
Australia and Oceania	na	8	14	12	7	11	14	11	9	17	12	8	20	18	28	27	24	28	37	44	44	37	55	42	44	37
Australia	High	6	11	10	7	10	13	9	8	16	11	8	18	13	26	19	16	19	32	34	32	30	44	36	40	30
New Zealand	High	3	3	2	0	1	1	2	1	1	1	0	2	5	2	8	8	9	5	10	12	7	11	6	5	7
Unclassified	na	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-D

USPTO utility patents granted in capture, storage, sequestration, or disposal of greenhouse gases, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	51	64	68	86	79	80	84	67	66	50	69	77	119	120	156	222	227	211	231	244	233	240	231	202	199
North America	na	33	43	46	49	43	51	60	43	42	30	51	47	77	84	106	129	138	130	129	126	129	128	120	109	101
Canada	High	1	2	2	1	1	2	1	3	4	1	2	2	7	4	11	10	4	6	6	5	7	6	7	9	4
Mexico	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0
United States	High	33	41	44	48	42	49	59	40	38	29	49	45	69	79	96	119	135	124	122	120	123	122	113	99	98
Central America and Caribbean	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	1
Argentina	Upper middle	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Brazil	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Europe	na	10	14	12	23	18	13	12	13	16	11	10	15	23	20	27	45	43	35	31	48	35	48	38	33	36
EU-27 and United Kingdom[a]	na	9	14	11	20	18	12	10	12	13	9	10	13	22	17	25	43	39	27	28	40	34	43	37	30	32
United Kingdom	High	2	5	2	2	1	4	1	1	5	2	2	3	6	3	3	7	8	3	3	7	4	6	7	2	7
EU-27[b]	na	6	9	9	18	16	7	9	11	8	8	8	10	17	14	22	36	30	24	25	33	30	37	30	28	25
Austria	High	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	0	2	2	0	0	0
Belgium	High	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	2	1	1	2
Denmark	High	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	1	0	0	1	1	1	1	1	2
Finland	High	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0
France	High	3	3	5	14	8	4	3	4	5	4	3	2	4	2	7	9	9	5	9	6	7	9	8	8	11
Germany	High	3	3	4	2	5	2	4	4	1	3	2	4	7	8	9	17	11	13	9	9	10	14	11	8	3
Hungary	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Italy	High	0	0	0	0	2	1	1	1	1	0	0	0	0	0	1	1	1	1	2	1	4	1	1	2	2
Netherlands	High	1	1	0	0	0	0	1	1	1	1	3	2	3	2	3	4	4	3	1	9	3	4	5	2	2
Spain	High	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	0	3	1	1	0	1	1
Sweden	High	0	0	0	2	0	0	1	1	1	0	0	1	0	1	1	0	1	1	2	3	2	3	0	3	0
Other Europe	na	1	0	1	3	0	2	2	1	3	2	0	2	1	3	2	2	4	8	4	8	1	5	2	3	5
Other Europe (2020)[b]	na	3	5	3	5	2	6	3	2	8	3	2	5	6	6	5	10	12	11	7	15	5	11	9	5	12
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	1	0	0	3	0	2	1	0	1	1	0	1	1	3	1	2	3	5	2	6	1	3	0	0	1
Russia	Upper middle	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0
Switzerland	High	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	1	3	1	2	0	3	1	3	4
Ukraine	Lower middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	na	8	7	10	13	18	15	12	11	8	9	7	15	19	15	21	39	40	39	59	55	54	51	49	48	46
China	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	2	1	5	6	2	6	2	4	7
India	Lower middle	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	3	2	1	3	1	1	1

Table SINV-D

USPTO utility patents granted in capture, storage, sequestration, or disposal of greenhouse gases, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	8	6	10	11	15	13	11	10	7	6	6	13	10	11	12	31	28	24	34	27	32	28	33	27	25
Malaysia	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0
Singapore	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1
South Korea	High	0	0	0	0	2	1	0	0	0	3	1	2	4	4	6	5	8	9	14	17	15	12	11	14	11
Taiwan	High	1	0	0	1	1	0	1	0	1	0	0	0	0	0	1	1	1	3	2	3	2	2	1	1	2
Middle East	na	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2	3	1	10	9	12	12	19	9	13
Israel	High	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	2	4	1	3	2	1
Africa	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
South Africa	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Australia and Oceania	na	0	0	0	0	1	0	0	0	1	0	1	1	0	1	0	4	3	5	1	5	3	0	4	2	1
Australia	High	0	0	0	0	1	0	0	0	1	0	1	1	0	1	0	4	3	5	1	5	3	0	3	2	1
New Zealand	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-E

USPTO utility patents granted in climate change mitigation technologies related to transportation, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	1,069	1,104	1,201	1,398	1,441	1,480	1,433	1,434	1,648	1,497	1,462	1,520	2,104	2,415	3,142	3,576	4,319	5,064	5,127	5,832	5,877	6,799	6,449	5,851	5,170
North America	na	485	505	525	667	687	679	628	696	789	717	667	729	1,015	1,103	1,465	1,547	1,745	2,010	2,041	2,298	2,539	3,089	2,983	2,618	2,171
Canada	High	17	9	18	30	20	27	28	36	49	44	32	31	37	29	45	48	47	55	54	87	97	126	129	120	132
Mexico	Upper middle	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0	1	1	3	5	4	5	5	9	4	3
United States	High	468	497	506	636	665	652	600	659	740	672	635	697	978	1,074	1,421	1,498	1,696	1,952	1,982	2,207	2,437	2,957	2,845	2,495	2,035
Central America and Caribbean	na	0	0	0	1	0	1	0	0	1	0	1	1	0	1	0	2	1	1	1	0	1	0	1	2	1
South America	na	1	2	1	3	2	2	2	1	1	2	0	1	4	2	2	3	4	8	7	8	6	8	6	7	8
Argentina	Upper middle	0	0	0	2	1	2	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	2	0	0	1
Brazil	Upper middle	0	0	1	0	0	0	2	1	0	2	0	0	3	2	2	3	3	5	5	6	5	5	4	6	6
Europe	na	213	212	287	314	293	330	314	281	314	289	307	291	424	495	680	836	1,009	1,139	1,186	1,324	1,302	1,450	1,426	1,305	1,229
EU-27 and United Kingdom[a]	na	204	200	271	297	284	319	302	273	300	281	294	284	414	481	661	819	991	1,117	1,162	1,289	1,277	1,397	1,393	1,271	1,187
United Kingdom	High	32	20	26	29	34	29	28	28	36	27	40	29	51	52	89	78	122	129	161	167	162	186	190	217	204
EU-27[b]	na	173	180	245	268	250	290	274	245	264	254	255	255	363	429	573	741	869	988	1,001	1,122	1,115	1,211	1,203	1,055	983
Austria	High	6	6	8	12	8	9	8	13	9	9	7	7	6	5	15	14	15	20	25	21	24	25	34	22	37
Belgium	High	1	1	1	2	1	2	0	1	0	2	1	5	4	2	4	7	9	10	8	21	22	24	16	13	11
Denmark	High	3	1	3	2	1	3	0	0	0	1	1	1	0	2	2	5	4	5	4	5	6	5	5	2	2
Finland	High	2	0	0	2	1	1	1	5	4	6	2	1	2	4	3	4	7	11	7	5	11	15	10	7	7
France	High	34	48	50	42	41	34	44	43	50	48	52	59	92	130	160	173	251	247	246	289	271	286	293	213	235
Germany	High	102	101	160	178	157	194	180	157	165	160	158	148	220	230	323	421	461	546	557	619	592	665	642	617	530
Hungary	High	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	1	2	1	1	1	1	2	0	1	0
Ireland	High	0	0	2	0	1	1	1	0	0	1	0	1	1	0	0	0	1	1	1	0	2	0	2	1	3
Italy	High	11	7	6	9	16	16	18	7	20	9	15	10	13	16	24	38	35	53	36	41	69	66	58	47	49
Netherlands	High	3	2	1	5	6	5	2	2	3	2	3	5	4	4	3	13	12	16	19	18	16	13	18	22	19
Spain	High	2	1	4	2	2	5	3	3	0	4	0	6	3	10	11	19	22	15	19	19	13	17	24	20	15
Sweden	High	7	12	8	13	16	17	16	14	12	12	16	13	15	21	22	43	46	54	64	62	72	67	74	63	56
Other Europe	na	9	12	16	17	9	11	12	8	14	7	13	7	10	14	18	16	18	22	24	35	25	53	33	33	42
Other Europe (2020)[b]	na	40	32	42	46	43	40	40	36	50	35	52	36	61	66	107	95	140	151	185	202	188	239	223	250	246
Belarus	Upper middle	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	1	1	0	0	1	0	1	2	0	0	0	2	1	1	1	2	2	3	1	3	3	7	7	5	5
Russia	Upper middle	2	3	6	3	2	3	4	0	2	3	3	2	1	4	3	2	1	2	4	4	2	7	4	2	2
Switzerland	High	6	6	8	12	5	8	8	5	9	4	9	3	7	8	14	12	13	15	18	28	20	37	20	25	31
Ukraine	Lower middle	0	0	1	1	2	0	0	0	2	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	1
Asia	na	355	376	377	404	449	460	481	448	531	481	477	493	650	798	976	1,170	1,526	1,877	1,848	2,152	1,986	2,195	1,986	1,867	1,707
China	Upper middle	2	1	4	1	1	1	1	0	1	2	4	5	5	14	26	31	31	44	59	90	94	131	142	155	172
India	Lower middle	0	0	1	2	0	1	0	0	2	1	0	2	4	4	13	20	11	19	16	25	28	47	50	50	35

Table SINV-E

USPTO utility patents granted in climate change mitigation technologies related to transportation, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	338	361	356	388	429	435	449	419	500	454	439	438	594	714	864	990	1,249	1,490	1,397	1,552	1,396	1,477	1,320	1,219	1,105
Malaysia	Upper middle	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	1	0	1	0	0
Singapore	High	1	1	0	1	0	0	2	0	1	0	1	0	0	1	0	1	0	2	2	3	1	4	6	3	3
South Korea	High	10	6	7	5	10	12	10	20	18	15	27	30	32	51	58	102	209	286	340	424	414	476	414	405	353
Taiwan	High	5	8	10	8	8	10	19	9	8	9	6	17	13	14	15	24	25	35	33	54	50	59	51	34	38
Middle East	na	4	4	4	4	2	3	0	1	1	2	4	2	4	8	7	8	16	14	17	17	15	23	17	25	31
Israel	High	4	3	3	4	2	0	0	1	1	2	3	2	4	7	7	7	11	11	13	13	10	16	6	18	18
Africa	na	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	1	2	1	1	2	0	3
South Africa	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	2	0	1	2	0	2
Australia and Oceania	na	11	4	6	6	9	6	8	7	11	6	6	3	6	9	11	9	16	14	25	31	27	33	27	23	20
Australia	High	8	4	4	4	6	6	8	7	11	5	4	3	5	5	11	7	13	11	11	14	11	14	17	14	14
New Zealand	High	3	0	2	2	3	0	0	0	0	1	2	0	1	4	1	2	3	4	13	16	16	19	10	9	6
Unclassified	na	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	3	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-F

USPTO utility patents granted in climate change mitigation technologies related to buildings, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	523	561	636	680	686	647	681	653	829	823	816	852	1,123	1,346	1,651	1,948	2,442	2,592	3,126	3,394	3,385	3,647	3,284	2,730	2,317
North America	na	291	309	338	346	346	324	358	355	413	413	406	421	549	632	773	963	1,177	1,203	1,382	1,530	1,580	1,751	1,559	1,276	1,039
Canada	High	14	10	13	10	14	18	14	17	20	16	24	26	28	33	44	47	66	62	66	79	74	88	101	63	41
Mexico	Upper middle	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	3	2	2	2	2	5	5	2	2	1
United States	High	277	298	325	335	332	307	345	338	393	397	382	395	521	597	729	912	1,109	1,139	1,315	1,450	1,501	1,658	1,456	1,211	996
Central America and Caribbean	na	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	1	1	0	1	1	2	1	1	0	0	0	1	0	0	1	0	0	5	4	3	2	3	4	4	4
Argentina	Upper middle	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0
Brazil	Upper middle	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	3	2	2	1	2	3	2	3
Europe	na	100	93	134	112	99	92	98	76	122	96	92	93	136	186	227	285	328	372	506	534	552	559	514	421	359
EU-27 and United Kingdom[a]	na	91	84	129	107	97	87	95	69	116	94	86	89	132	180	214	272	319	350	471	502	525	537	488	388	341
United Kingdom	High	9	8	10	15	11	7	9	7	21	4	7	11	17	15	23	35	41	32	57	58	59	48	49	39	29
EU-27[b]	na	83	76	119	91	86	80	85	62	96	90	80	78	115	165	191	236	278	319	414	444	465	489	439	349	312
Austria	High	1	2	2	1	2	2	3	1	2	1	0	4	5	5	7	9	16	19	32	31	30	36	36	14	14
Belgium	High	1	0	2	2	1	0	0	0	0	2	3	1	4	3	5	3	10	8	12	12	14	12	10	12	9
Denmark	High	2	5	8	2	3	3	2	1	3	3	0	1	4	7	7	11	9	10	15	13	21	28	17	17	12
Finland	High	4	5	1	3	2	3	2	3	3	1	1	5	1	5	2	7	7	10	8	8	11	12	10	11	11
France	High	16	18	17	19	9	6	12	12	10	13	7	9	19	29	20	37	40	42	41	43	49	70	48	39	41
Germany	High	33	27	47	42	38	42	43	23	57	43	28	36	56	58	83	85	93	119	135	149	119	140	121	103	94
Hungary	High	5	1	2	1	1	2	1	0	1	0	1	1	3	3	4	6	5	6	4	4	4	1	1	2	1
Ireland	High	0	0	3	1	2	3	0	1	2	0	0	1	1	2	2	0	5	2	5	3	6	6	8	7	10
Italy	High	5	3	9	5	10	8	8	8	9	12	13	7	8	17	18	25	29	30	42	63	56	70	49	50	39
Netherlands	High	9	11	20	10	8	7	9	10	4	9	19	8	9	23	27	35	42	44	87	85	108	80	94	66	48
Spain	High	1	1	2	1	1	0	1	0	0	1	0	1	2	2	5	5	3	8	5	5	10	4	10	5	9
Sweden	High	6	4	7	3	5	3	3	3	4	2	7	3	3	6	8	9	10	12	20	18	17	20	14	16	16
Other Europe	na	9	9	5	6	2	5	3	8	6	2	6	4	3	6	14	14	9	21	35	32	28	21	25	33	18
Other Europe (2020)[b]	na	17	17	15	21	13	12	12	15	27	6	13	14	20	21	37	49	50	53	92	90	87	70	75	72	47
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	1	1	1	0	0	0	1	2	0	0	1	0	0	0	2	2	0	1	4	1	3	2	2	5	3
Russia	Upper middle	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	2	0	2	2	2	2	2	3	4	0
Switzerland	High	7	8	5	5	2	5	1	5	6	2	5	3	3	5	11	9	9	15	25	25	15	14	14	19	10
Ukraine	Lower middle	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	2
Asia	na	123	149	148	212	226	221	216	213	279	298	302	324	421	511	626	672	907	960	1,173	1,267	1,182	1,278	1,152	977	877
China	Upper middle	7	6	8	10	17	11	10	10	11	7	17	23	41	46	69	98	132	164	255	250	286	339	354	273	258
India	Lower middle	0	1	1	0	0	0	0	1	1	2	0	2	2	3	6	9	8	14	18	27	20	30	37	46	37

Table SINV-F

USPTO utility patents granted in climate change mitigation technologies related to buildings, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	87	94	117	158	156	161	139	130	169	175	158	171	205	229	278	306	392	428	440	549	496	514	391	352	325
Malaysia	Upper middle	0	0	1	0	0	0	0	2	4	2	3	1	0	1	2	2	2	1	2	6	2	1	0	1	0
Singapore	High	1	1	1	1	2	1	2	0	4	1	4	3	4	4	4	4	12	6	8	19	11	8	11	5	2
South Korea	High	18	36	11	31	21	16	24	42	34	46	60	57	64	79	95	98	150	167	244	208	186	204	193	155	156
Taiwan	High	10	11	11	13	30	31	41	28	53	63	61	64	104	148	170	154	207	176	204	204	175	170	162	135	95
Middle East	na	2	0	8	3	6	3	4	5	6	3	7	6	5	9	16	15	18	36	39	36	38	35	36	34	28
Israel	High	2	0	8	3	5	3	3	5	6	3	5	5	5	7	14	11	16	30	30	26	31	25	25	28	21
Africa	na	1	1	1	1	0	2	0	1	3	4	4	3	3	3	1	3	2	2	4	4	2	2	2	1	0
South Africa	Upper middle	1	1	1	1	0	2	0	1	3	4	4	3	3	3	1	3	2	2	4	3	1	1	2	0	0
Australia and Oceania	na	5	10	6	6	8	3	4	3	6	9	4	4	9	5	6	10	9	14	16	17	29	18	18	17	12
Australia	High	5	8	5	5	8	2	2	3	3	8	4	3	7	3	5	7	8	9	11	13	23	12	13	12	8
New Zealand	High	0	2	1	1	0	1	2	0	3	1	0	1	2	2	1	4	2	5	6	4	6	6	4	5	3
Unclassified	na	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3	0	0	0	0	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-G

USPTO utility patents granted in climate change mitigation technologies related to wastewater treatment or waste management, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	330	329	289	303	301	266	261	205	227	230	229	242	337	344	383	415	411	422	416	423	460	544	584	543	557
North America	na	213	209	174	178	178	157	152	129	139	153	143	154	210	219	240	271	256	244	254	251	261	320	330	288	289
Canada	High	17	18	12	9	15	14	12	11	11	13	11	14	13	11	19	15	13	15	16	17	19	20	23	23	27
Mexico	Upper middle	0	0	1	1	1	1	1	0	0	0	1	1	3	1	1	2	1	0	2	2	3	2	2	0	1
United States	High	196	191	161	168	163	142	138	119	128	139	131	140	194	207	220	254	242	229	236	232	239	298	305	264	262
Central America and Caribbean	na	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	1	1	0	1	1	2	1	0	2	2	2	3	1	7	4	2	3	7	4	3	3	3	5	5	4
Argentina	Upper middle	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Brazil	Upper middle	1	0	0	0	1	1	1	0	2	2	2	1	0	4	1	1	0	3	2	2	1	1	3	2	3
Europe	na	59	71	62	67	59	52	47	35	39	32	41	34	59	44	59	72	78	85	85	87	91	101	121	115	106
EU-27 and United Kingdom[a]	na	53	66	56	61	52	46	42	32	35	30	39	29	54	39	52	65	69	76	79	82	85	90	109	103	99
United Kingdom	High	10	9	4	6	6	4	4	5	3	5	5	2	4	2	7	4	6	7	7	10	14	12	15	15	11
EU-27[b]	na	42	58	52	55	46	43	38	27	31	25	34	27	50	38	46	60	62	70	72	72	70	77	94	88	88
Austria	High	3	2	1	3	2	2	3	3	2	5	1	1	1	1	1	2	2	4	4	4	3	4	5	3	2
Belgium	High	2	3	2	3	2	1	2	1	2	2	2	2	4	4	1	5	4	4	2	3	4	2	1	3	4
Denmark	High	1	4	0	3	1	0	0	2	1	0	1	3	1	2	4	1	2	1	1	3	2	4	3	2	3
Finland	High	2	4	1	2	2	3	1	1	1	2	1	1	2	4	6	2	4	4	4	4	8	5	9	8	8
France	High	5	10	9	12	9	8	8	10	7	3	7	5	11	5	10	14	12	17	15	17	16	18	16	13	14
Germany	High	21	23	29	23	15	17	13	5	10	6	12	9	15	13	14	21	21	24	22	24	25	23	24	28	25
Hungary	High	0	0	0	0	1	2	1	1	1	0	1	0	1	0	1	1	0	0	1	0	0	1	1	0	0
Ireland	High	0	0	0	0	1	0	0	1	0	0	1	0	1	1	0	1	0	0	2	0	1	2	1	0	0
Italy	High	2	3	4	1	3	2	2	1	2	2	3	3	7	5	3	7	8	8	10	5	4	5	13	15	10
Netherlands	High	3	4	3	2	5	5	4	1	4	2	3	2	3	2	2	2	5	3	4	3	2	5	11	5	5
Spain	High	0	0	2	1	1	2	1	1	0	0	1	0	1	0	2	3	2	3	1	2	2	3	3	4	3
Sweden	High	3	4	2	3	3	1	4	2	3	2	2	2	1	1	1	1	1	1	3	4	1	5	4	4	9
Other Europe	na	6	5	6	6	7	6	5	3	4	3	2	5	5	5	7	7	9	9	6	5	7	11	12	12	8
Other Europe (2020)[b]	na	17	14	10	12	13	9	8	8	8	7	7	7	9	7	13	11	16	16	13	16	21	24	27	27	19
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	2	2	1	0	0	0	1	0	2	1	2	2	2	3	3	1	1	2	1	1	0	2	1	3	2
Russia	Upper middle	1	0	1	1	2	1	0	0	1	1	1	1	1	1	1	2	1	2	0	0	1	1	1	1	0
Switzerland	High	2	3	4	4	4	3	3	2	2	0	0	2	3	1	3	4	7	5	4	4	6	8	10	8	5
Ukraine	Lower middle	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Asia	na	52	44	47	49	50	46	52	36	40	37	36	42	53	64	67	54	58	70	56	71	81	87	99	99	127
China	Upper middle	0	0	2	0	1	1	0	2	2	1	2	4	6	8	4	4	12	11	13	21	23	25	33	28	42
India	Lower middle	0	0	0	2	4	1	1	2	1	1	2	2	1	1	3	3	5	6	5	4	8	9	7	7	6

Table SINV-G

USPTO utility patents granted in climate change mitigation technologies related to wastewater treatment or waste management, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	41	39	39	38	36	39	40	25	27	26	27	28	37	44	43	32	30	38	26	27	31	41	38	42	51
Malaysia	Upper middle	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	1	1	2
Singapore	High	0	0	0	0	0	0	1	0	0	0	1	1	0	1	1	1	0	0	0	0	2	1	1	1	1
South Korea	High	3	3	4	6	4	1	6	4	4	3	4	5	7	6	8	9	10	8	7	14	12	8	13	11	17
Taiwan	High	6	2	2	3	5	4	3	3	6	6	2	4	2	4	7	4	1	5	3	5	5	3	3	8	6
Middle East	na	2	0	2	2	2	2	2	2	2	1	2	2	3	4	7	11	8	9	13	7	15	27	24	28	19
Israel	High	2	0	2	2	2	2	2	2	2	1	2	1	2	3	3	5	2	4	4	4	6	6	3	6	2
Africa	na	1	1	1	2	6	1	1	0	1	0	0	0	1	0	1	1	0	1	0	1	2	2	0	1	0
South Africa	Upper middle	1	1	1	2	6	1	1	0	1	0	0	0	1	0	1	0	0	1	0	1	0	2	0	0	0
Australia and Oceania	na	3	3	2	3	5	4	8	3	5	5	5	5	9	5	6	5	8	5	4	3	7	4	5	5	11
Australia	High	3	2	2	2	5	4	7	2	3	5	5	4	8	5	5	2	7	4	3	3	7	4	5	5	10
New Zealand	High	0	0	0	1	0	0	1	0	2	0	1	1	2	0	0	2	1	1	1	0	0	0	0	0	1
Unclassified	na	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-H

USPTO utility patents granted in climate change mitigation technologies in the production or processing of goods, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	1,458	1,541	1,618	1,724	1,745	1,778	1,708	1,418	1,759	1,591	1,453	1,667	2,290	2,466	2,687	2,928	3,284	3,561	3,929	3,986	3,962	4,738	4,785	4,449	3,975
North America	na	775	824	846	877	886	891	850	742	902	772	723	807	1,100	1,173	1,214	1,390	1,526	1,484	1,628	1,693	1,668	1,985	2,041	1,911	1,627
Canada	High	37	37	30	57	46	38	43	31	54	34	31	45	60	54	55	61	79	73	85	80	75	102	103	96	82
Mexico	Upper middle	1	3	3	2	4	2	3	1	3	1	1	3	1	2	2	4	6	4	5	3	5	2	6	6	4
United States	High	738	784	813	819	836	851	804	711	845	737	691	759	1,039	1,117	1,156	1,325	1,441	1,407	1,538	1,610	1,589	1,881	1,932	1,809	1,542
Central America and Caribbean	na	0	1	1	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
South America	na	6	4	6	6	5	8	5	1	3	4	4	5	4	14	11	14	18	10	11	9	8	16	13	12	20
Argentina	Upper middle	1	1	1	1	0	1	0	0	1	0	0	1	0	0	1	1	0	0	0	0	0	1	0	2	1
Brazil	Upper middle	2	0	2	1	2	4	4	0	2	1	0	2	2	11	6	10	12	7	8	6	2	7	8	6	9
Europe	na	318	333	331	363	334	318	286	249	290	291	277	319	450	431	491	584	640	706	788	746	757	868	900	880	755
EU-27 and United Kingdom[a]	na	294	299	293	331	305	298	270	227	279	276	262	301	416	407	462	549	608	669	728	687	705	813	828	813	710
United Kingdom	High	43	49	39	38	29	41	33	27	32	34	25	34	37	43	54	62	68	74	79	85	80	109	83	90	74
EU-27[b]	na	251	250	254	293	276	257	237	199	247	242	237	267	379	363	408	487	539	595	649	602	625	705	745	723	635
Austria	High	6	17	11	30	13	10	4	6	4	5	7	7	5	7	11	13	16	25	20	22	24	21	18	19	14
Belgium	High	11	5	9	13	16	10	22	20	12	19	10	22	22	24	14	27	31	31	30	32	21	39	29	27	23
Denmark	High	6	6	6	5	8	3	10	5	7	5	7	10	14	17	28	27	27	39	47	40	44	34	41	50	41
Finland	High	7	6	9	10	9	9	8	5	7	12	9	14	21	12	13	16	12	24	36	29	33	36	36	29	27
France	High	58	56	55	64	59	54	30	22	29	40	38	36	57	58	73	68	85	93	128	91	102	109	120	95	88
Germany	High	110	96	102	119	118	120	117	102	132	117	117	124	199	169	180	228	246	238	246	253	250	291	319	313	282
Hungary	High	0	1	1	0	0	1	1	1	2	0	0	0	0	1	2	3	1	1	2	0	1	4	2	1	2
Ireland	High	0	0	0	0	0	1	1	1	2	1	2	1	2	1	3	1	2	3	3	1	6	3	5	3	2
Italy	High	25	22	26	24	15	19	15	19	21	16	15	16	19	22	26	31	31	46	38	30	37	49	33	42	32
Netherlands	High	16	20	15	11	15	12	12	11	12	11	19	18	18	28	29	31	57	47	50	39	45	61	53	47	34
Spain	High	1	5	4	5	4	2	4	4	3	3	4	6	7	5	11	12	10	12	11	14	17	13	32	36	31
Sweden	High	6	11	13	9	14	10	6	4	8	6	6	9	10	11	11	20	11	24	28	39	28	28	38	43	43
Other Europe	na	24	34	38	31	30	19	16	22	11	15	15	18	34	25	29	35	32	38	59	59	52	55	73	67	46
Other Europe (2020)[b]	na	67	83	77	70	59	60	49	49	43	49	40	53	71	68	83	97	101	111	139	144	132	163	156	157	120
Belarus	Upper middle	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Norway	High	1	2	3	5	2	3	3	5	1	3	1	1	5	4	5	9	5	8	10	11	11	7	8	12	6
Russia	Upper middle	4	5	3	2	4	3	3	6	3	3	0	4	5	2	2	4	4	3	11	8	7	9	11	4	9
Switzerland	High	17	26	31	24	23	13	10	10	7	9	14	13	25	18	20	19	23	25	36	37	33	37	48	48	28
Ukraine	Lower middle	1	0	1	0	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	2	0	0	2	1	0
Asia	na	344	356	406	456	490	531	535	410	538	495	426	500	691	793	921	900	1,042	1,294	1,416	1,436	1,405	1,746	1,718	1,511	1,454
China	Upper middle	9	3	6	4	7	7	6	4	9	14	8	17	25	35	43	56	87	95	122	134	182	225	255	260	306
India	Lower middle	6	1	4	5	7	7	7	8	11	11	11	7	11	8	11	18	33	36	43	39	49	55	61	55	35

Table SINV-H

USPTO utility patents granted in climate change mitigation technologies in the production or processing of goods, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	301	303	336	376	398	435	419	331	395	359	310	348	468	510	612	550	563	683	777	754	742	936	866	774	710
Malaysia	Upper middle	0	2	1	1	0	2	2	2	1	4	5	2	4	4	3	2	4	1	2	5	4	1	2	4	5
Singapore	High	1	0	3	2	6	7	9	3	9	11	10	4	9	9	8	7	13	18	19	19	14	20	20	9	10
South Korea	High	16	30	34	45	36	40	41	25	41	49	43	71	126	156	157	170	244	345	346	376	317	402	396	319	286
Taiwan	High	11	16	20	22	35	33	50	37	71	44	38	49	48	72	84	93	95	109	102	103	90	98	109	86	93
Middle East	na	9	6	11	7	7	10	12	5	8	7	4	7	8	13	18	12	22	27	42	63	82	85	79	99	82
Israel	High	8	5	4	6	4	6	12	5	6	4	2	6	6	8	11	7	9	11	16	16	18	23	33	35	24
Africa	na	0	6	5	5	6	4	6	5	2	2	4	6	7	6	8	6	4	9	10	7	4	5	3	4	5
South Africa	Upper middle	0	6	3	5	6	4	5	5	2	2	3	6	7	6	7	5	3	6	9	6	3	4	3	3	5
Australia and Oceania	na	5	12	13	10	17	14	15	6	15	22	17	23	31	34	24	23	31	30	32	32	37	33	29	31	31
Australia	High	4	11	12	10	16	13	14	6	14	21	16	22	31	32	23	21	25	26	27	25	34	28	23	27	26
New Zealand	High	1	1	1	0	1	1	1	0	2	1	1	1	1	2	1	2	6	4	4	7	3	5	5	5	5
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-I

USPTO utility patents granted in climate change mitigation in information and communications technologies, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	448	426	436	459	459	509	610	621	989	856	1,067	1,127	1,522	1,819	2,305	2,646	3,263	3,780	4,191	4,346	3,921	4,392	4,100	3,870	3,428
North America	na	291	281	291	287	269	326	357	368	617	523	594	655	919	1,061	1,290	1,509	1,833	2,145	2,307	2,281	2,033	2,269	2,012	1,914	1,587
Canada	High	9	13	7	5	8	12	12	10	21	25	27	31	53	56	84	84	110	93	74	85	78	93	76	72	54
Mexico	Upper middle	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1	1	1	1	0	0
United States	High	282	268	284	282	261	314	345	358	597	497	567	623	865	1,005	1,206	1,425	1,723	2,051	2,233	2,194	1,955	2,175	1,935	1,842	1,532
Central America and Caribbean	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0
South America	na	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	4	1	6	4	5	2	2	4
Argentina	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
Brazil	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	4	1	6	3	3	1	2	4
Europe	na	34	32	36	45	61	48	65	61	72	86	91	115	133	150	236	271	338	382	439	478	423	453	424	401	358
EU-27 and United Kingdom[a]	na	32	32	36	44	59	46	63	57	71	83	87	108	126	145	230	266	324	342	403	437	381	420	397	383	325
United Kingdom	High	7	4	6	6	5	13	13	14	19	28	22	22	24	21	52	77	76	75	91	100	73	106	89	73	65
EU-27[b]	na	25	28	29	38	55	33	51	43	53	56	65	86	103	124	178	189	247	267	312	338	309	314	308	310	260
Austria	High	0	0	0	0	0	1	0	0	2	1	1	1	1	2	5	2	4	4	2	5	4	6	8	5	1
Belgium	High	1	0	0	1	0	1	1	1	0	0	4	3	4	3	4	3	6	2	8	4	7	8	4	4	2
Denmark	High	0	0	1	0	0	1	1	2	3	1	2	3	2	2	8	4	5	6	2	3	4	3	7	3	3
Finland	High	8	8	6	5	13	4	4	6	13	18	13	11	27	17	26	25	41	31	50	47	36	24	33	28	21
France	High	3	3	7	10	10	3	21	15	13	11	8	22	19	28	24	41	36	50	58	49	46	42	38	43	39
Germany	High	3	6	8	5	16	13	9	14	14	13	18	19	25	33	49	53	64	62	72	77	79	90	75	76	63
Hungary	High	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1	3	4	1	6	3	1	3	1	2
Ireland	High	0	0	1	1	1	0	1	0	0	1	2	1	1	3	0	3	3	3	6	4	9	11	6	13	7
Italy	High	0	1	0	0	0	1	1	0	3	2	4	3	2	6	12	9	13	17	10	21	15	13	16	21	12
Netherlands	High	0	4	3	4	2	1	6	2	4	6	5	11	8	16	13	12	16	17	19	9	17	12	23	13	8
Spain	High	0	0	0	0	0	0	0	0	0	0	2	1	1	3	7	4	5	7	7	4	3	4	3	5	5
Sweden	High	10	6	4	12	13	8	5	4	0	3	5	10	12	11	25	26	47	59	73	99	69	88	81	83	86
Other Europe	na	2	0	0	1	1	2	2	5	1	2	5	6	7	5	7	5	14	40	36	41	42	33	28	19	33
Other Europe (2020)[b]	na	9	4	6	7	6	15	15	19	19	30	27	28	30	27	58	83	90	115	127	140	115	139	116	92	98
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	4	4
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	0	0	0	0	0	0	1	0	0	0	0	1	1	2	2	2	0	5	7	5	6	8	3	2	14
Russia	Upper middle	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	5	14	13	22	17	9	12	5	5
Switzerland	High	2	0	0	1	1	2	0	4	1	2	3	3	4	3	2	3	7	17	15	12	16	12	11	7	9
Ukraine	Lower middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0
Asia	na	119	109	102	123	121	126	165	169	263	224	331	315	419	526	701	802	996	1,162	1,322	1,442	1,333	1,534	1,550	1,450	1,387
China	Upper middle	0	0	0	1	0	1	2	0	3	3	2	9	16	26	49	78	118	168	232	255	270	351	381	400	447
India	Lower middle	0	0	0	0	0	2	1	1	1	2	3	4	14	14	36	40	65	119	107	131	118	142	116	122	108

Table SINV-I

USPTO utility patents granted in climate change mitigation in information and communications technologies, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	103	89	87	101	98	101	131	129	179	154	228	181	235	301	358	398	439	450	488	478	402	447	418	358	304
Malaysia	Upper middle	0	1	0	0	0	0	1	0	0	1	1	0	3	3	4	5	4	5	12	11	12	12	10	9	5
Singapore	High	1	1	0	0	3	1	0	0	1	0	1	2	2	3	5	2	12	5	12	4	12	8	10	8	8
South Korea	High	13	15	14	12	15	14	20	25	51	39	62	81	102	131	167	197	266	296	343	410	403	458	495	447	410
Taiwan	High	2	4	1	8	6	7	10	15	28	25	34	38	47	47	82	81	92	119	129	152	114	115	119	105	105
Middle East	na	3	5	6	1	5	9	9	8	17	9	19	22	29	50	66	60	84	78	110	118	114	122	99	92	85
Israel	High	3	5	6	1	5	9	9	8	17	9	19	22	29	50	66	57	83	75	105	115	106	109	87	87	80
Africa	na	0	0	1	0	1	0	2	2	0	0	0	0	1	1	0	0	3	0	2	2	4	1	1	0	1
South Africa	Upper middle	0	0	1	0	1	0	2	2	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
Australia and Oceania	na	1	0	0	3	3	1	12	12	21	14	31	21	21	29	11	2	6	9	6	17	9	8	12	7	5
Australia	High	1	0	0	3	3	1	12	11	21	14	31	21	21	28	11	2	5	9	5	12	8	7	11	6	2
New Zealand	High	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	1	1	5	1	1	1	1	3
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	1	0	0	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

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USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-J

USPTO utility patents granted in climate change adaptation technologies, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	1,008	1,027	1,094	1,147	1,112	1,150	954	938	1,009	1,024	905	1,134	1,427	1,554	1,888	2,014	2,379	2,541	2,625	3,060	3,126	3,800	3,698	3,351	2,974
North America	na	707	699	753	802	774	783	662	661	693	688	611	793	940	1,067	1,257	1,327	1,525	1,638	1,677	1,915	1,995	2,421	2,358	2,143	1,803
Canada	High	36	45	45	45	43	38	26	41	35	55	27	41	44	39	67	54	62	61	61	81	87	103	97	86	77
Mexico	Upper middle	2	1	1	0	2	4	1	0	1	4	2	2	2	1	4	3	10	6	3	4	9	5	4	6	4
United States	High	669	653	708	757	728	742	635	620	657	629	582	750	894	1,027	1,186	1,271	1,453	1,572	1,612	1,829	1,899	2,314	2,257	2,051	1,722
Central America and Caribbean	na	0	0	0	0	1	0	1	1	1	2	1	2	1	1	2	2	3	0	2	0	2	0	1	1	0
South America	na	2	2	2	5	2	6	3	3	9	4	3	4	5	6	8	4	12	15	11	20	14	18	14	16	14
Argentina	Upper middle	0	0	1	1	2	3	0	1	0	1	0	2	2	1	1	1	1	1	2	3	3	2	3	2	3
Brazil	Upper middle	1	1	1	3	0	3	2	2	8	2	2	3	2	4	4	3	5	8	6	10	9	10	7	10	7
Europe	na	167	191	194	181	187	207	145	156	166	187	158	196	286	270	355	363	488	507	493	622	609	674	651	576	520
EU-27 and United Kingdom[a]	na	147	174	174	158	166	182	134	141	151	172	145	179	261	247	327	325	434	446	441	554	549	604	582	524	457
United Kingdom	High	38	39	35	28	29	40	27	31	35	43	37	30	60	60	69	69	80	100	106	123	118	150	101	102	93
EU-27[b]	na	109	135	139	130	137	142	108	110	116	129	108	149	201	187	258	256	355	345	335	431	431	455	481	423	364
Austria	High	4	2	1	7	5	0	2	4	1	4	0	4	3	6	8	10	18	11	13	10	12	16	21	17	19
Belgium	High	9	13	10	10	6	8	12	6	7	15	8	9	19	21	19	21	29	28	26	30	33	21	30	24	21
Denmark	High	2	4	2	5	4	8	5	3	5	3	5	4	9	7	9	7	12	6	17	13	13	15	18	19	19
Finland	High	1	2	2	1	1	2	2	2	3	4	1	3	3	2	4	4	5	5	5	9	6	6	11	5	6
France	High	25	27	31	22	27	28	23	16	39	31	34	43	53	40	72	60	75	76	71	87	97	91	107	99	79
Germany	High	39	53	58	50	57	57	43	39	39	44	38	51	67	60	93	100	126	130	114	166	154	165	158	142	116
Hungary	High	2	0	0	0	0	0	1	1	0	1	0	1	3	0	1	0	1	0	0	1	1	0	2	1	4
Ireland	High	4	0	2	0	0	1	1	0	1	1	0	0	3	2	1	3	2	6	3	2	12	6	5	7	4
Italy	High	5	10	6	10	12	7	5	11	9	4	5	9	11	18	15	18	26	24	30	28	31	44	27	27	23
Netherlands	High	8	6	6	9	7	7	6	12	4	6	5	12	10	14	19	10	21	16	16	27	27	36	34	27	22
Spain	High	3	2	1	2	3	7	2	4	0	4	4	5	8	4	3	7	12	16	9	19	16	15	15	7	16
Sweden	High	7	14	17	13	11	16	4	9	7	11	7	5	10	11	12	10	21	21	20	23	21	26	37	30	26
Other Europe	na	21	17	20	23	22	25	11	16	15	15	13	17	25	23	29	38	54	61	51	68	61	70	69	51	63
Other Europe (2020)[b]	na	58	56	55	51	51	64	37	47	50	58	51	47	85	83	97	107	134	161	158	191	178	220	170	153	156
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	2	3	4	4	1	4	0	4	4	1	5	3	7	6	3	7	8	12	9	7	6	12	12	9	11
Russia	Upper middle	3	1	6	0	5	3	2	5	2	3	1	1	7	4	6	5	5	6	2	9	5	8	3	5	2
Switzerland	High	15	13	11	19	15	15	7	6	9	10	8	11	12	14	18	23	36	38	37	48	45	47	47	32	44
Ukraine	Lower middle	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0
Asia	na	99	106	123	129	117	115	113	94	111	115	92	102	137	145	201	236	267	288	356	394	382	541	539	457	510
China	Upper middle	3	2	4	3	2	7	7	4	7	4	9	9	10	14	29	35	37	52	66	81	76	107	130	99	140
India	Lower middle	1	2	3	4	6	4	7	3	6	8	7	10	12	8	19	28	38	41	36	48	38	41	53	44	33

Table SINV-J

USPTO utility patents granted in climate change adaptation technologies, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	72	70	93	99	84	75	75	68	68	71	47	62	83	87	94	110	120	129	176	170	161	250	235	201	198
Malaysia	Upper middle	0	1	0	0	0	0	1	0	0	1	1	0	2	0	0	1	4	6	4	2	2	1	3	3	3
Singapore	High	0	0	2	2	2	1	1	1	2	2	2	2	3	2	4	4	9	10	10	11	10	18	10	10	11
South Korea	High	8	6	7	8	5	15	8	7	10	20	15	12	12	17	30	34	33	32	40	43	67	84	81	71	87
Taiwan	High	15	24	15	13	19	14	14	11	15	10	9	5	13	15	22	21	22	14	22	35	25	39	23	25	35
Middle East	na	12	11	5	15	11	25	8	10	9	14	11	11	23	32	33	31	49	47	53	63	64	88	90	98	81
Israel	High	12	10	5	15	11	24	7	8	9	13	9	10	22	29	25	25	40	36	40	43	47	61	65	72	59
Africa	na	3	1	2	1	1	3	4	1	1	2	4	2	7	4	2	5	4	2	3	3	3	6	4	6	1
South Africa	Upper middle	3	1	0	0	1	2	3	0	0	1	3	0	4	1	1	3	1	1	3	3	2	4	2	3	0
Australia and Oceania	na	17	17	14	14	19	12	17	13	19	13	25	24	28	29	31	46	31	44	29	42	55	50	41	53	46
Australia	High	17	17	14	13	18	11	17	10	16	12	23	22	26	26	28	39	27	39	26	37	47	36	35	47	43
New Zealand	High	0	0	1	1	1	1	0	2	3	1	2	2	2	3	3	6	5	5	4	4	8	14	7	6	3
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	2	0	1	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-K

USPTO utility patents granted in sustainable ocean economy, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	96	76	98	93	84	101	96	94	100	93	99	108	133	148	193	230	287	259	246	289	260	297	311	268	280
North America	na	68	60	71	62	50	68	65	64	67	62	67	67	81	96	117	148	166	143	125	147	130	153	156	137	140
Canada	High	5	4	8	4	4	9	5	2	3	3	3	3	6	4	8	9	9	11	7	12	8	9	5	8	9
Mexico	Upper middle	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	1	0	1	0	0	1	0
United States	High	63	56	64	57	46	59	60	62	64	58	62	63	76	92	110	138	157	133	118	135	121	144	150	128	131
Central America and Caribbean	na	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	1	0	0
South America	na	1	1	0	0	0	1	1	1	0	0	1	1	0	1	3	1	1	2	3	1	2	2	1	2	2
Argentina	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
Brazil	Upper middle	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	1	0	1	1	0	0	1	1	1
Europe	na	18	6	14	14	21	18	18	20	23	22	24	26	31	30	43	46	67	68	69	77	64	64	79	63	64
EU-27 and United Kingdom[a]	na	14	4	13	12	13	12	15	12	18	18	21	20	22	28	37	39	58	56	56	67	55	54	67	52	52
United Kingdom	High	3	0	2	4	2	2	6	4	3	5	6	4	9	9	8	9	10	11	9	18	8	7	10	8	7
EU-27[b]	na	11	4	10	9	11	10	9	8	16	13	15	17	14	19	29	30	48	46	46	49	47	47	57	44	45
Austria	High	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	2	1	1	1	1	0	1
Belgium	High	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	2	2	0	2	1	1	1	2	1
Denmark	High	0	0	0	0	0	1	1	1	0	2	1	1	2	1	3	1	2	3	7	7	5	3	4	6	7
Finland	High	1	0	0	0	0	1	0	0	2	0	1	1	0	2	1	1	3	2	2	4	5	3	2	0	4
France	High	1	1	2	2	1	2	1	2	4	3	1	5	3	6	4	6	10	10	14	9	14	12	16	10	8
Germany	High	5	1	2	2	3	2	2	3	5	5	6	6	4	5	8	8	12	12	9	10	5	6	10	9	8
Hungary	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	High	0	0	0	0	0	0	0	1	0	0	0	1	1	2	1	1	3	1	2	2	0	1	1	0	1
Italy	High	1	0	1	0	2	1	1	0	0	1	1	1	0	0	4	3	3	3	4	2	3	2	4	3	3
Netherlands	High	1	1	1	2	2	0	1	1	1	1	2	1	1	2	2	2	3	3	2	3	3	3	8	7	8
Spain	High	1	0	1	0	1	2	2	0	1	0	1	1	1	1	1	2	2	2	3	6	4	5	5	5	1
Sweden	High	1	1	3	2	1	2	1	0	2	1	2	1	1	0	4	3	5	5	2	3	5	7	5	2	3
Other Europe	na	4	2	2	2	8	6	2	8	4	4	3	6	9	2	6	8	9	12	13	10	9	10	12	11	12
Other Europe (2020)[b]	na	6	2	4	6	9	8	9	12	7	9	9	9	17	12	13	16	19	23	22	28	17	17	22	18	19
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	3	1	1	0	3	5	2	7	2	3	3	4	7	2	4	5	4	7	8	9	7	7	10	7	10
Russia	Upper middle	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	2	0	1	0	1	0	0	0
Switzerland	High	1	1	0	1	1	1	0	0	1	1	0	1	1	0	1	1	3	3	3	1	1	1	1	1	1
Ukraine	Lower middle	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	na	8	7	10	15	10	11	8	7	8	6	7	12	15	15	23	25	41	35	39	49	51	61	59	46	63
China	Upper middle	0	2	0	0	0	1	1	1	0	0	1	1	1	0	3	4	5	4	7	10	8	10	13	18	18
India	Lower middle	0	0	0	0	0	0	0	1	0	0	0	2	1	1	0	1	1	1	1	2	1	3	3	1	2

Table SINV-K

USPTO utility patents granted in sustainable ocean economy, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	4	5	8	12	8	8	6	5	5	4	4	6	7	10	12	12	19	12	17	18	25	26	22	15	19
Malaysia	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	1	1
Singapore	High	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	4	2	0	1	2	2	2	1
South Korea	High	2	0	1	1	0	3	0	0	1	0	0	2	4	1	4	4	7	7	8	11	11	14	12	5	15
Taiwan	High	2	0	1	2	2	0	2	1	2	2	1	1	3	3	3	4	5	6	4	6	4	5	5	4	7
Middle East	na	1	1	2	1	1	1	1	1	1	1	1	1	1	4	2	5	6	4	5	8	8	13	12	11	7
Israel	High	1	0	0	1	1	1	0	1	1	1	1	1	1	2	1	1	2	1	2	3	5	3	6	5	1
Africa	na	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1
South Africa	Upper middle	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	1	0
Australia and Oceania	na	1	2	1	1	3	2	2	1	1	2	0	2	4	1	5	5	4	5	5	6	3	2	4	7	2
Australia	High	1	2	1	1	2	2	2	1	1	2	0	1	4	1	4	3	3	4	4	6	3	2	3	6	2
New Zealand	High	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	2	1	1	1	0	0	0	1	2	0
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-L

USPTO utility patents granted in climate change adaptation technologies in agriculture, forestry, livestock, or agroalimentary production, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	191	196	218	216	223	227	199	155	186	209	162	203	264	262	289	318	352	313	344	371	446	526	583	511	442
North America	na	129	137	159	150	152	171	148	112	131	146	123	155	181	196	193	214	227	204	233	253	284	355	354	339	275
Canada	High	9	6	11	8	14	20	10	14	14	13	6	17	15	11	16	10	13	11	8	10	19	27	22	11	12
Mexico	Upper middle	1	0	0	0	1	1	0	0	0	1	2	0	1	0	1	0	3	1	0	2	1	0	1	3	1
United States	High	118	132	148	142	136	151	138	98	117	132	116	139	165	185	176	204	211	192	224	242	263	328	331	326	262
Central America and Caribbean	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0	0
South America	na	1	2	0	1	0	1	1	1	1	0	0	1	2	2	6	2	1	6	5	4	4	5	8	8	3
Argentina	Upper middle	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	2	1	2	0	2
Brazil	Upper middle	0	0	0	0	0	0	1	1	1	0	0	1	1	1	3	2	0	3	2	2	1	2	4	5	1
Europe	na	35	39	30	34	39	25	30	21	19	32	24	27	46	38	47	51	55	44	51	52	67	66	101	75	60
EU-27 and United Kingdom[a]	na	29	35	27	29	37	22	27	17	18	30	22	24	38	35	44	44	49	35	42	49	54	50	89	65	47
United Kingdom	High	4	4	7	4	6	6	4	2	3	10	1	0	4	2	4	5	5	4	7	5	7	11	15	15	9
EU-27[b]	na	25	31	20	25	32	16	23	15	15	20	21	24	33	33	40	39	44	31	36	44	47	40	75	50	38
Austria	High	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	2	1	4	1	2
Belgium	High	5	7	3	3	3	0	5	1	2	7	3	5	10	11	10	10	13	4	8	3	9	5	7	8	3
Denmark	High	0	2	0	2	1	1	0	0	0	0	1	0	3	2	1	1	0	0	3	6	5	3	5	5	1
Finland	High	0	0	0	1	0	0	1	1	1	2	0	2	1	0	1	1	1	1	0	1	1	1	3	1	2
France	High	2	4	2	3	3	5	2	1	5	1	2	1	4	5	5	5	7	3	4	6	6	7	10	6	4
Germany	High	8	6	9	9	14	6	9	1	5	8	12	8	8	4	13	9	9	10	7	7	8	9	12	10	12
Hungary	High	1	0	1	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0
Ireland	High	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Italy	High	0	5	1	0	4	0	1	1	0	0	2	2	1	2	1	3	2	0	4	1	2	0	2	2	2
Netherlands	High	4	4	1	2	4	2	2	6	1	2	1	4	2	6	6	8	5	5	4	6	7	7	20	13	7
Spain	High	1	0	0	1	1	1	2	2	0	0	1	0	2	1	0	1	4	3	1	6	4	1	5	2	2
Sweden	High	2	3	2	4	1	1	0	1	1	0	0	1	1	1	0	0	1	3	0	3	3	2	4	2	3
Other Europe	na	6	4	3	5	1	4	2	4	2	2	2	3	8	3	4	7	6	9	9	3	12	16	12	10	13
Other Europe (2020)[b]	na	10	8	10	9	7	9	6	6	4	12	3	4	12	5	8	12	11	12	16	9	20	27	27	25	22
Belarus	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	2	2	2	3	1	3	0	3	0	0	2	0	6	2	2	3	3	6	6	2	7	8	7	7	10
Russia	Upper middle	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0
Switzerland	High	4	2	0	3	0	0	1	0	1	2	0	2	1	1	1	4	3	1	3	1	3	8	2	3	1
Ukraine	Lower middle	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Asia	na	21	12	20	20	27	24	17	15	20	24	9	12	26	18	28	35	45	38	41	36	50	60	79	48	80
China	Upper middle	0	0	2	0	0	2	0	1	1	1	4	2	1	2	2	4	8	9	13	14	12	20	33	24	36
India	Lower middle	0	0	0	0	2	2	0	1	2	1	0	3	2	1	0	0	5	2	3	0	4	9	6	4	3

Table SINV-L

USPTO utility patents granted in climate change adaptation technologies in agriculture, forestry, livestock, or agroalimentary production, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Japan	High	16	9	12	15	16	17	9	8	9	16	3	6	14	9	13	15	18	21	13	10	20	18	29	18	20
Malaysia	Upper middle	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	1	1
Singapore	High	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	2	1	0	1	0	3	0	0	0	1
South Korea	High	1	2	1	1	1	2	3	2	4	3	0	0	5	5	7	5	7	3	6	5	8	8	5	1	14
Taiwan	High	3	1	5	4	8	1	3	2	4	3	1	1	5	1	6	10	5	2	4	4	2	4	2	0	6
Middle East	na	3	2	4	7	3	0	0	2	5	2	2	2	4	5	6	10	13	15	10	20	27	31	30	23	22
Israel	High	3	1	4	6	3	0	0	2	5	2	1	2	3	4	5	7	11	12	9	17	26	27	29	22	20
Africa	na	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	1	1	1	1	3	1	0	1	0
South Africa	Upper middle	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	1	0	1	1	1	1	0	1	0
Australia and Oceania	na	3	4	6	4	3	6	2	4	9	5	3	5	3	2	7	6	9	6	2	5	11	7	10	15	1
Australia	High	3	4	5	4	2	6	2	2	8	4	1	4	2	1	5	5	7	3	2	5	10	2	6	11	1
New Zealand	High	0	0	1	0	1	0	0	2	1	1	2	1	1	1	2	2	2	2	0	1	1	6	4	4	0
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0

na = not applicable; metric not calculated at this level.

EU-27 = European Union; USPTO = Patent and Trademark Office.

[a] The United Kingdom was a part of the EU for data purposes from 1973 to 2019.

[b] Beginning in 2020, the United Kingdom was no longer a member of the EU.

Note(s):
USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under environmental technology areas, based on a direct mapping to Cooperative Patent Classification codes from the Organisation for Economic Co-operation and Development's Green Growth Indicators, and under climate change mitigation and adaptation technologies in agriculture and forestry. Fractional counts of patents were assigned to each environmental technology area on patents to assign the proper weight of a patent to the corresponding environmental technology under the classification. China includes Hong Kong. The United States includes Puerto Rico and all other U.S. territories.

Source(s):
National Center for Science and Engineering Statistics; Science-Metrix; PatentsView, USPTO, accessed June 2023.

Science and Engineering Indicators

Table SINV-M

USPTO utility patents granted in climate change mitigation technologies relating to agriculture, livestock, or agroalimentary industries, by region, country, or economy: 1998–2022

(Number)

Region, country, or economy	Income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World	na	46	73	52	61	59	54	57	43	45	42	37	55	58	74	125	151	181	139	188	195	231	271	292	267	245
North America	na	30	47	31	48	39	43	44	30	33	29	26	39	46	55	92	111	139	97	122	137	144	171	188	179	140
Canada	High	4	3	5	18	3	7	7	6	8	10	5	9	7	2	9	11	13	8	15	13	20	17	13	11	6
Mexico	Upper middle	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	0
United States	High	26	44	26	30	36	36	36	24	25	19	20	30	39	53	83	101	126	90	105	123	124	153	176	168	134
Central America and Caribbean	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	2	1	0	1	1	3	1	2	1	2
Argentina	Upper middle	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
Brazil	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	2
Europe	na	7	13	7	5	8	1	6	7	1	4	3	7	8	10	11	21	15	14	30	20	39	44	52	41	42
EU-27 and United Kingdom[a]	na	5	11	7	5	8	1	6	5	1	4	3	6	6	10	10	20	13	12	28	18	36	43	49	37	40
United Kingdom	High	1	0	1	2	0	1	0	1	0	1	1	0	0	1	2	2	0	0	1	3	4	6	9	9	9
EU-27[b]	na	4	11	6	3	8	0	6	4	1	4	2	6	6	9	8	18	13	12	26	16	32	36	40	28	31
Austria	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Belgium	High	1	0	0	1	0	0	0	1	0	0	0	0	1	1	1	2	1	0	1	1	1	1	4	1	3
Denmark	High	0	0	1	0	1	0	0	0	0	0	0	2	0	1	0	0	0	1	2	3	2	2	2	2	2
Finland	High	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3	2	1	7	3	6	3	8	1	2
France	High	0	0	0	0	1	0	0	1	0	0	1	0	2	0	0	0	1	2	5	0	4	6	5	1	3
Germany	High	1	6	2	0	3	0	3	1	0	3	1	2	3	4	6	4	2	3	2	3	5	6	8	7	9
Hungary	High	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Ireland	High	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Italy	High	0	1	2	1	0	0	0	1	0	0	0	2	0	1	0	1	2	0	0	0	1	2	1	6	3
Netherlands	High	1	2	0	1	0	0	1	0	0	0	0	1	0	1	1	6	2	1	7	3	7	10	7	9	6
Spain	High	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	2	1	1	0	1	3	1	0	0	0
Sweden	High	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	1	0	2	2	1	3	2	2	1
Other Europe	na	2	2	0	0	0	0	0	2	0	0	0	1	2	0	1	1	2	2	2	1	3	1	4	4	2
Other Europe (2020)[b]	na	3	2	1	2	0	1	0	3	0	1	1	1	2	1	3	3	2	2	4	4	7	7	13	13	11
Belarus	Upper middle	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moldova	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	High	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2
Russia	Upper middle	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Switzerland	High	0	2	0	0	0	0	0	1	0	0	0	1	2	0	1	0	2	1	2	1	2	1	3	3	0
Ukraine	Lower middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia	na	9	11	12	5	10	7	6	6	10	7	7	7	3	7	19	14	16	22	30	33	39	42	38	38	50
China	Upper middle	3	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2	1	3	2	4	10	12	14	10	24
India	Lower middle	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	1	2	3	1	3

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Japan	High	5	7	7	3	4	5	5	5	7	5	5	5	2	5	9	5	6	10	15	14	23	16	12	19	7
Malaysia	Upper middle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	0	1	1	0	1	0	0
Singapore	High	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	1
South Korea	High	0	1	1	0	1	0	0	0	2	1	1	2	1	2	3	0	1	3	4	4	4	6	3	4	11
Taiwan	High	1	2	4	1	4	2	0	1	1	1	0	0	0	0	4	6	6	4	9	7	1	5	2	2	3
Middle East	na	0	0	2	1	0	0	1	0	0	0	0	0	0	1	1	1	3	1	2	2	4	5	5	2	5
Israel	High	0	0	2	1	0	0	1	0	0	0	0	0	0	1	0	1	1	0	1	1	3	2	5	1	4
Africa	na	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1
South Africa	Upper middle	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1
Australia and Oceania	na	1	2	1	1	2	2	0	0	0	2	1	1	1	1	2	2	8	5	3	4	2	7	5	5	5
Australia	High	1	2	1	1	1	1	0	0	0	2	1	1	1	1	2	2	7	2	2	3	2	5	2	4	3
New Zealand	High	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	3	1	1	0	2	3	1	2
Unclassified	na	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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