

DERWENT WORLD PATENTS INDEX

2010 STATE OF INNOVATION

*TWELVE KEY TECHNOLOGY AREAS
AND THEIR STATES OF INNOVATION*



2010 STATE OF INNOVATION

12 KEY TECHNOLOGY AREAS AND THEIR STATES OF INNOVATION

The 2010 State of Innovation Report is the second annual analysis of 12 key technology areas and their global innovation by the IP Solutions business of Thomson Reuters. The technology areas analyzed within this report are often those with significant volumes of patent activity, according to data in the Derwent World Patents Index® (DWPISM) database from Thomson Reuters. For benchmarking purposes, the technology areas remain the same year over year.

Patent activity is used as a barometer for innovation in this report. To measure patent activity, our expert analysts studied the first instance or invention for published patent applications and granted patents in 2010, counting each invention only once, in the country where protection was first sought. This gives the truest picture of patent and innovation activity.

Each of the technology areas has a series of subsectors that comprise it. Patent activity data for the 12 areas, as well as their subsectors, is presented in this report. In addition, our analysts further looked at the subsectors with the highest volume of activity*, providing a snapshot of the top 10 assignees/companies in each.

Noteworthy findings include:

- **Aerospace patent activity increased by 25% overall from 2009 to 2010**, driven by a 108% increase in Space Vehicle and Satellite Technologies, a sector within the Aerospace industry. The top three companies leading in this subsector were Japanese manufacturer Sharp, followed by Korean manufacturers LG and Samsung.
- **Semiconductor patent activity decreased by 9% from 2009 to 2010 overall**, driven by double-digit decreases in three Semiconductor subsectors: Integrated Circuits; Discrete Devices; and Memories, Film and Hybrid Circuits.
- **Computers & Peripherals retained the leading position as the most innovative technology area in 2010 with the highest volume of patent activity:** 212,622 unique inventions, despite a 6% decline in total volume from 2009.
- **Automotive moved up to the second position in 2010 from fourth in 2009 based on overall volume of patent activity**, surpassing the Telecommunications and Semiconductors industries.

Read on to learn more about 2010 innovation and to discover which areas were expanding versus contracting.

*Within the Computer & Peripherals technology area, an alternative subsector, Smart media, was selected

2010 PATENT ACTIVITY OVERVIEW OF 12 KEY TECHNOLOGY AREAS

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



A	28%	Computers & Peripherals
B	12%	Automotive
C	11%	Telecommunications
D	11%	Semiconductors
E	8%	Pharmaceuticals
F	7%	Medical Devices
G	5%	Petroleum & Chemical Engineering
H	5%	Domestic Appliances
I	5%	Food Tobacco & Fermentation
J	4%	Aerospace
K	3%	Agrochemicals & Agriculture
L	1%	Cosmetics

Click on a technology area below to jump directly to its snapshot.

		2010 Volume	2010 Ranking	% of Total	2009 Volume	% Change in Volume (2010 v 2009)
A	Computers & Peripherals	212,622	1	28%	226,293	-6%
B	Automotive	88,867	2	12%	89,106	0%
C	Telecommunications	87,920	3	11%	90,867	-3%
D	Semiconductors	86,479	4	11%	95,106	-9%
E	Pharmaceuticals	59,350	5	8%	59,638	0%
F	Medical Devices	52,117	6	7%	49,035	6%
G	Petroleum & Chemical Engineering	42,304	7	5%	38,729	9%
H	Domestic Appliances	36,816	8	5%	34,591	6%
I	Food Tobacco & Fermentation	36,048	9	5%	35,375	2%
J	Aerospace	32,622	10	4%	26,167	25%
K	Agrochemicals & Agriculture	22,726	11	3%	20,503	11%
L	Cosmetics	6,438	12	1%	6,612	-3%

2010 PATENT ACTIVITY AEROSPACE

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
29%	Space Vehicles and Satellite Technologies	10,429	5,019	108%
27%	Production Techniques	9,726	9,070	7%
16%	Advanced Materials	5,937	5,836	2%
10%	Structures & Systems	3,612	3,414	6%
10%	Propulsion Plants	3,566	3,359	6%
8%	Instrumentation	2,786	2,570	8%

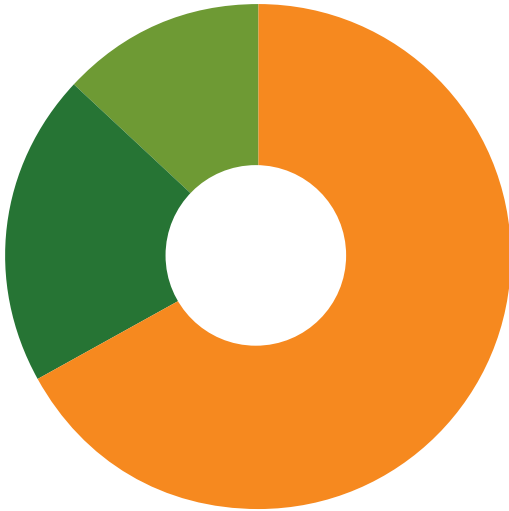
SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES SPACE VEHICLES AND SATELLITE TECHNOLOGIES

	ASSIGNEE	Country	2010 Volume
1	Sharp	JP	166
2	LG	KR	156
3	Samsung	KR	119
4	Mitsubishi Electric	JP	101
5	Sanyo	JP	89
6	Kyocera	JP	85
7	Applied Materials	US	83
8	Dupont	US	81
9	Toyota	JP	73
10	Fujifilm	JP	60

2010 PATENT ACTIVITY AGROCHEMICALS & AGRICULTURE

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
67%	Agriculture	21,843	19,645	11%
20%	Agrochemicals	6,577	5,756	14%
13%	Biotechnology in Agriculture	4,161	3,880	7%

SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES AGROCHEMICALS

	ASSIGNEE	Country	2010 Volume
1	Bayer Cropscience	DE	149
2	BASF	DE	143
3	Sumitomo Chemical	JP	109
4	Syngenta	CH	68
5	Dow Agrosciences	US	51
6	Univ. of S. China Agriculture	CN	51
7	Dupont	US	24
8	Nippon Soda	JP	24
9	Univ. Nanjing	CN	33
10	Clariant	CH	22

2010 PATENT ACTIVITY AUTOMOTIVE

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
16%	Alternative Powered Vehicles	15,913	13,118	21%
13%	Navigation Systems	12,060	12,414	-3%
12%	Transmission	11,577	11,520	0%
11%	Safety	10,263	10,589	-3%
9%	Pollution Control	8,376	8,567	-2%
8%	Seats, Seatbelts and Airbags	7,769	7,657	3%
7%	Steering Systems	6,327	6,610	-4%
6%	Suspension Systems	5,924	5,975	-1%
6%	Security Systems	5,752	5,817	-1%
5%	Engine Design and Systems	5,336	5,552	-4%
4%	Braking Systems	3,908	4,067	-4%
3%	Entertainment Systems	3,052	3,230	-6%

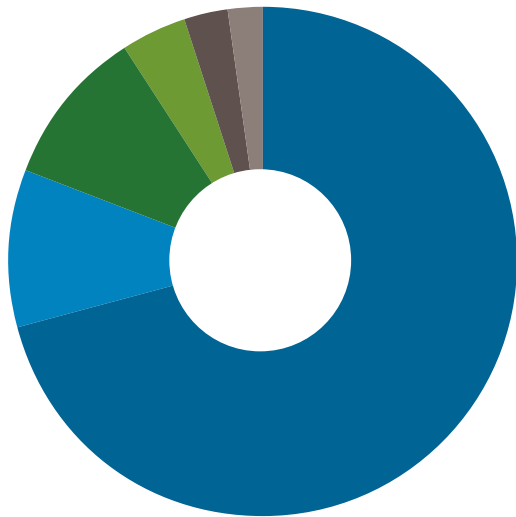
SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES ALTERNATIVE POWERED VEHICLES

	ASSIGNEE	Country	2010 Volume
1	Toyota	JP	2179
2	Nissan	JP	639
3	Honda	JP	467
4	NipponDenso	JP	340
5	Matsushita	JP	287
6	Hyundai	KR	284
7	GM	US	243
8	Robert Bosch	DE	217
9	Daimler	DE	209
10	Aisin	JP	166

2010 PATENT ACTIVITY COMPUTERS & PERIPHERALS

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
71%	Computers	178,509	193,445	-8%
10%	Other Peripherals	26,317	29,800	-12%
10%	Printers	25,079	25,108	0%
4%	Smart media	9,757	11,602	-16%
3%	Screens	6,471	6,684	-3%
2%	Scanners	6,372	4,947	29%

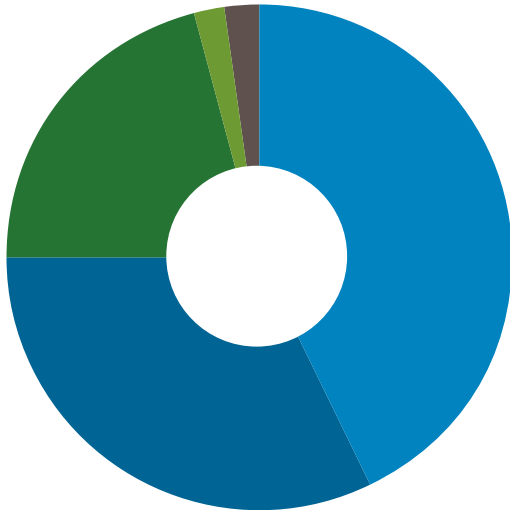
SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES SMART MEDIA

	ASSIGNEE	Country	2010 Volume
1	Samsung	KR	274
2	Matsushita	JP	156
3	Toshiba	JP	139
4	NEC	JP	127
5	Brother	JP	111
6	Toppan Forms	JP	109
7	Sony	JP	91
8	Mitsui Chemical	JP	85
9	Electronics & Telecom Res. Inst.	KR	82
10	Dainippon Printing	JP	76

2010 PATENT ACTIVITY COSMETICS

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
43%	Make-Up	3,833	3,645	5%
32%	Skin	2,859	2,915	-2%
21%	Hair	1,879	2,159	-13%
2%	Perfume	216	185	17%
2%	Antiperspirant	174	199	-12%

SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES MAKE-UP

	ASSIGNEE	Country	2010 Volume
1	L'Oreal	FR	323
2	KAO	JP	147
3	Amorepacific	KR	120
4	Shiseido	JP	115
5	Kose	JP	62
6	Henkel	DE	59
7	Pola Chem Ind	JP	56
8	BASF	DE	53
9	Procter & Gamble Co.	US	33
10	Unilever	NL/UK	32

2010 PATENT ACTIVITY DOMESTIC APPLIANCES

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
44%	Kitchen	17,235	15,851	9%
30%	Heating & Air Conditioning	11,680	11,223	4%
9%	Laundry	3,543	3,602	-2%
9%	Household Cleaning	3,414	3,081	11%
8%	Human Hygiene	3,193	3,228	-1%

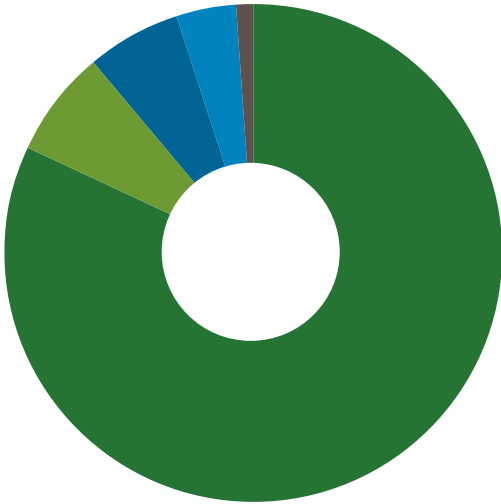
SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES KITCHEN

	ASSIGNEE	Country	2010 Volume
1	LG	KR	728
2	Matsushita	JP	685
3	Bosch & Siemens	DE	418
4	Mitsubishi Electric	JP	370
5	Daikin Kogyo	JP	217
6	Sanyo	JP	173
7	Hitachi	JP	140
8	Sharp	JP	136
9	Toshiba	JP	129
10	Samsung	KR	125

2010 PATENT ACTIVITY FOOD, TOBACCO & FERMENTATION

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
82%	Fermentation	30,086	27,433	10%
7%	Bakery	2,628	2,675	-2%
6%	Meat	2,090	4,323	-52%
4%	Tobacco	1,512	1,529	-1%
1%	Sugar & Starch	338	307	10%

SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES FERMENTATION

	ASSIGNEE	Country	2010 Volume
1	Dupont	US	238
2	Monsanto Technology	US	219
3	Univ Zhejiang	CN	186
4	Univ California	US	179
5	Hoffmann La Roche	CH	133
6	Olympus Optical	JP	128
7	Novozymes	DN	116
8	Univ Seoul Nat. Ind. Foundation	KR	111
9	Univ Nanjing	CN	111
10	US Dept. Health & Human Services	US	109

2010 PATENT ACTIVITY MEDICAL DEVICES

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 volume	% Change
35%	Diagnosis, Surgery	20,076	19,249	4%
30%	Sterilizing, Syringes, Electrotherapy	17,788	16,315	9%
18%	Dentistry, Bandages, Prosthesis	10,746	11,044	-3%
17%	Medical Aids, Oral Administration	9,714	8,788	11%

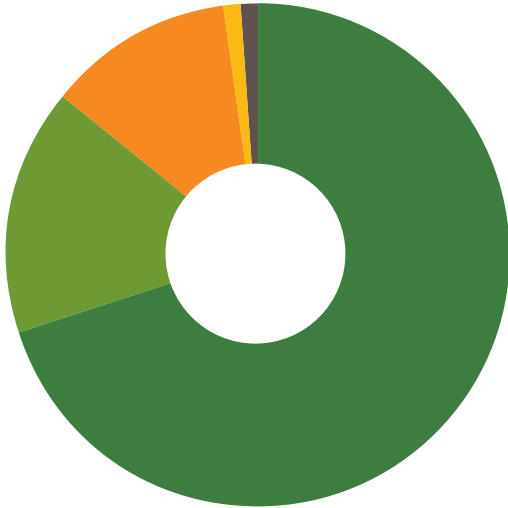
SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES DIAGNOSIS, SURGERY

	ASSIGNEE	Country	2010 Volume
1	Fujifilm	JP	529
2	Olympus Optical	JP	456
3	Toshiba	JP	453
4	Toshiba Medical	JP	396
5	Siemens	DE	361
6	Konica Minolta	JP	269
7	Philips	NL	258
8	Tyco Healthcare Group	US	243
9	GE Medical Systems Global Tech.	US	197
10	Hitachi Medical	JP	175

2010 PATENT ACTIVITY PETROLEUM & CHEMICAL ENGINEERING

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
70%	Chemical Engineering	32,655	28,642	14%
16%	Petroleum & Gas Exploration, Drilling, Production and Processing	7,554	7,724	-2%
12%	Petroleum & Gas Fuels and Other Products	5,787	6,086	-5%
1%	Petroleum & Gas Transportation and Storage	311	334	-7%
1%	Petroleum Refining	194	188	3%

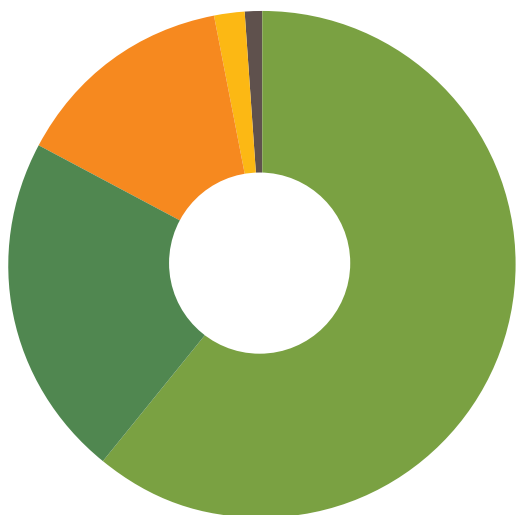
SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES CHEMICAL ENGINEERING

	ASSIGNEE	Country	2010 Volume
1	Toyota	JP	515
2	China Petro-Chem Corp	CN	267
3	Univ Zhejiang	CN	240
4	Matsushita	JP	198
5	Univ Nanjing	CN	163
6	BASF	DE	152
7	NGK Insulators	JP	133
8	Nippondenso	JP	132
9	Dokuritsu Gyosei Hojin Sangyo Gijutsu	JP	128
10	Robert Bosch	DE	127

2010 PATENT ACTIVITY PHARMACEUTICALS

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
61%	Organics	42,845	43,169	-1%
22%	General	15,404	15,585	-1%
14%	Heterocyclics	10,013	10,213	-2%
2%	Inorganics	986	668	48%
1%	Steroids	654	741	-12%

SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES ORGANICS

	ASSIGNEE	Country	2010 Volume
1	Seiko Epson	JP	385
2	Hoffman La Roche	CH	233
3	Univ California	US	189
4	Dokuritsu Gyosei Hojin Sangyo Gijutsu	JP	183
5	Olympus Optical	JP	178
6	Abbott Labs	US	165
7	Nikon	JP	142
8	Univ Seoul Nat Ind Found	KR	139
9	CNRS	FR	136
10	Univ Tokyo	JP	127

2010 PATENT ACTIVITY SEMICONDUCTORS

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
48%	Semiconductor Materials and Processes	50,812	49,255	3%
29%	Memories, Film and Hybrid Circuits	30,995	35,287	-12%
18%	Discrete Devices	18,709	32,068	-42%
5%	Integrated Circuits	5,127	9,148	-44%

SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES SEMICONDUCTOR MATERIALS AND PROCESSES

	ASSIGNEE	Country	2010 Volume
1	Samsung	KR	1566
2	Hynix Semiconductor	KR	1435
3	Toshiba	JP	1429
4	Matsushita	JP	977
5	NEC	JP	925
6	Canon	JP	822
7	Seiko Epson	JP	717
8	Sony	JP	673
9	Sharp	JP	663
10	IBM	US	591

2010 PATENT ACTIVITY TELECOMMUNICATIONS

SOURCE: THOMSON REUTERS DERWENT WORLD PATENTS INDEX (DWPI)



	SUBSECTORS	2010 Volume	2009 Volume	% Change
26%	Mobile Telephony	42,836	44,714	-4%
24%	Data Transmission Networks	39,367	32,922	20%
21%	Telephone Subscriber Equipment	34,834	34,665	0%
8%	Multiplex & Multiple Access Information Transmission Systems	14,031	15,191	-8%
8%	Digital Information Transmission Systems	12,504	13,886	-10%
5%	Telemetry & Telecontrol	7,638	8,037	-5%
4%	Telephone Communications Systems & Installations	6,511	8,549	-24%
4%	Telephone Exchange Systems	6,251	9,277	-33%

SUBSECTOR SNAPSHOT:

2010 TOP TEN ASSIGNEES/COMPANIES MOBILE TELEPHONY

	ASSIGNEE	Country	2010 Volume
1	Samsung	KR	1627
2	LG	KR	1251
3	NEC	JP	1146
4	Seiko Epson	JP	1051
5	Matsushita	JP	1035
6	Sony	JP	930
7	Sharp	JP	857
8	Kyocera	JP	851
9	Qualcomm Inc	US	824
10	ZTE Corp	CN	776

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