

DERWENT WORLD PATENTS INDEX

2012 STATE OF INNOVATION

*TWELVE KEY TECHNOLOGY AREAS
AND THEIR STATES OF INNOVATION*



THOMSON REUTERS™

“Innovation is the process of turning ideas into manufacturable and marketable form.”

WATTS HUMPHREY

Influential Thinker in Software Engineering

“Technological innovation is indeed important to economic growth and the enhancement of human possibilities.”

LEON KASS

Leading Physician, Scientist and Educator

“If you always do what you always did, you will always get what you always got.”

ALBERT EINSTEIN

Theoretical Physicist

INTRODUCTION

Innovation continues to be the salvation term and strategy of the decade. Countries are innovating for economic prosperity. Companies are innovating for competitive advantage. And individuals are mastering the art (and science) of innovation for personal and professional success.

The technology areas with the largest volume of innovation are Computers & Peripherals, Telecommunications, Automotive and Semiconductors, for the fourth consecutive year. Areas experiencing the largest growth are Medical Devices, Aerospace and Domestic Appliances. In the area of Aerospace, the subcategory for Production Techniques had the largest overall increase, of 19.2 percent. The largest subsectors of growth in Domestic Appliances were in laundry and kitchen equipment.

This report, in its fourth consecutive year, showcases 12 leading sectors and analyzes their innovation levels based on patent activity. Patents are a proxy for innovation. Inventive ideas that are unprotected cannot be successfully commercialized. Therefore, by looking at patent activity, one gets a true picture of the innovative landscape, regardless of how commercially successful an invention is. Thomson Reuters showcases the volume of activity as well as the top innovators by region: Asia-Pacific, Europe and North America.

Findings in this year's report show that, in general, innovation is on the upswing. It appears that most decreases in innovation resulting from the global economic crisis have plateaued. Global increases in R&D spending support this finding as do increases in stock market values.

- The largest increase in innovation activity was in medical devices, which had 15.7 percent growth over the prior period.
- Aerospace and domestic appliances were the next two fastest growing areas, with increases of 12.9 percent and 12 percent, respectively.
- Computers and peripherals continue to lead in terms of overall innovation volume with more than 232,000 inventions for the period.
- Semiconductors experienced a slight decline of 2.8 percent despite growth in this sector from an annual sales perspective.¹ Declines in this sector are attributed to the lag effect of patent publications from the economic financial crisis.
- Cosmetics also saw a decline of 2.1 percent due to a decrease in overall sales from 2011 to 2012, as well as retractions in growth, primarily in European markets.²

¹ http://www.researchandmarkets.com/reports/1848168/semiconductor_industry_market_analysis_and_future

² https://www.npd.com/wps/portal/npd/us/news/press-releases/npd-reports-global-prestige-beauty-annual-sales-results-us-growth-outpaces-europe/#.UUJbH3_c6-Q.link

IMPLICATIONS

OUTSOURCING

In an era when companies are still recovering from the financial crisis of a few years ago and working to increase profits and shareholder value, outsourcing has emerged as a trend. Outsourcing impacts the backend of the innovation lifecycle, where companies work to move from prototype to commercial product, the latter of which has protected IP rights. Given the “do more with less” philosophy that permeates so many companies today, many organizations are utilizing expert IP services for things such as patent preparation and prosecution, translations, patent drafting and more. The impact of such services on innovation activity is still being evaluated, however current projections are that they will help increase innovation volume as corporate employees expand their capabilities via external sources.

REGIONAL INSIGHTS

Another insight regarding this year’s innovation is that China, despite being the world leader in patent volume, is significantly under-represented in most of the technology area listings of the top 10 assignees. Japan, which is now third in overall patent filing volume, after China and the US, takes the most top 10 slots of any Asia-Pacific nation.

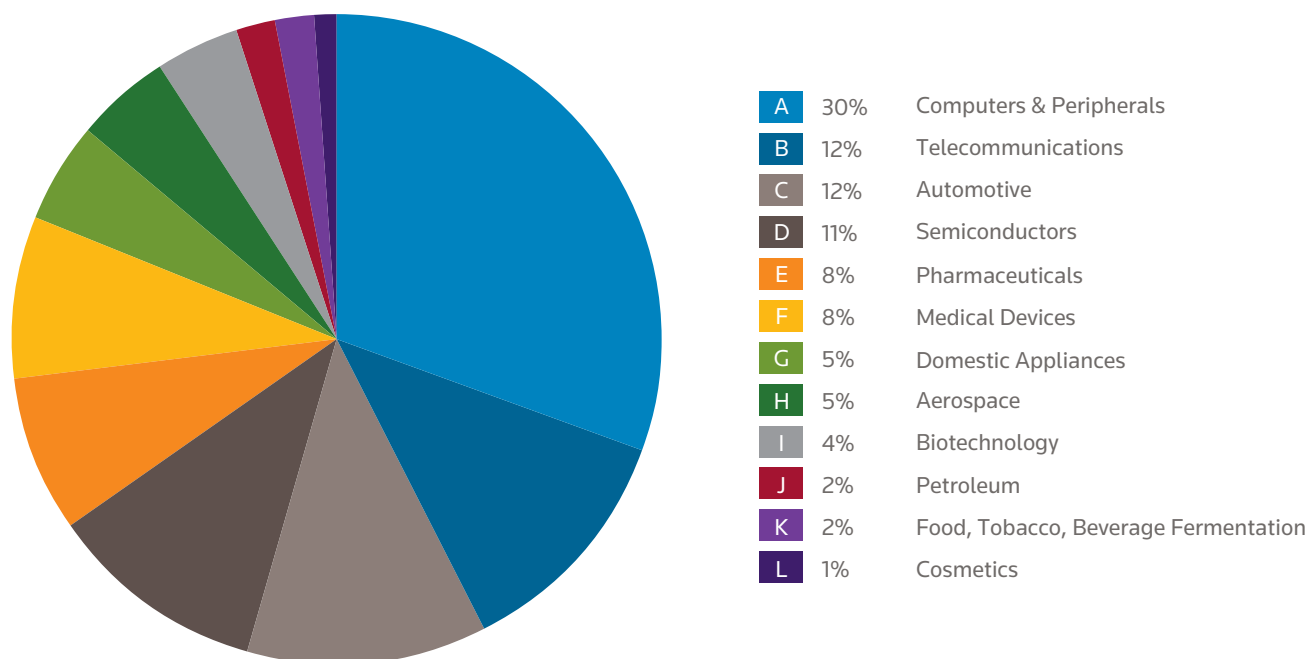
Similarly, the United States sweeps all 120 of the top 10 assignees slots except for two, which are both held by Research In Motion in Canada. European representation is evenly spread over the likely candidates in this region, with significant occurrences from France and Germany.

NEED FOR PROVEN ASSET MANAGEMENT

Finally, we have noticed that some companies are choosing defensive publications, as opposed to patenting, as a way of publishing inventions less germane to their business. This move calls for an even stronger asset management solution, to handle the tracking of everything from trade secrets to license agreements to patents.

Data in this report was compiled using Thomson Reuters Derwent World Patents Index® (DWPISM), the world’s most trusted and authoritative collection of editorially enhanced patent information for 50 years. Analysis was conducted by the Thomson Reuters Intellectual Property (IP) Services team, providers of expert research, analysis and consulting services for corporations, law firms, and governments around the world.

2012 PATENT ACTIVITY OVERVIEW OF 12 KEY TECHNOLOGY AREAS

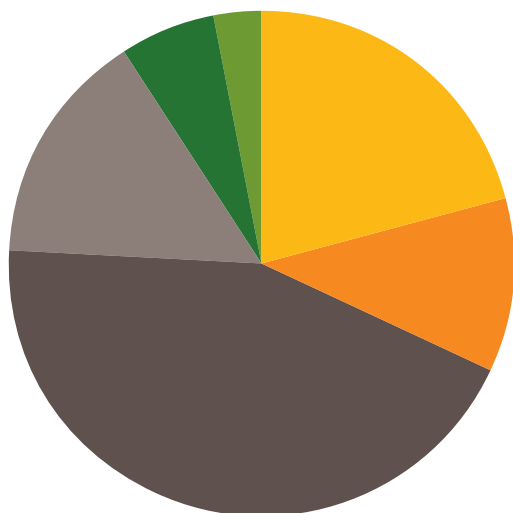


		2012 Volume	2012 Ranking	% of Total	2010 Volume	% Change in Volume (2012 v 2010)
A	Computers & Peripherals	232,549	1	30%	212,622	9.4%
B	Telecommunications	94,516	2	12%	87,920	7.5%
C	Automotive	90,816	3	12%	86,479	2.2%
D	Semiconductors	84,058	4	11%	88,867	-2.8%
E	Pharmaceuticals	60,890	5	8%	59,350	2.6%
F	Medical Devices	60,300	6	8%	52,117	15.7%
G	Domestic Appliances	41,249	7	5%	36,816	12.0%
H	Aerospace	36,837	8	5%	32,622	12.9%
I	Biotechnology	26,809	9	4%	N/A*	N/A
J	Petroleum	13,234	10	2%	N/A*	N/A
K	Food, Tobacco, Beverage Fermentation	11,736	11	2%	N/A*	N/A
L	Cosmetics	6,304	12	1%	6,438	-2.1%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

*Technology areas were added or revised in 2011; there is no like-to-like comparison for 2010.

2012 PATENT ACTIVITY AEROSPACE



	SUBSECTORS	2012 Volume	2010 Volume	% Change
20%	Advanced Materials	5,510	5,937	-7.2%
10%	Instrumentation	3,005	2,786	7.9%
41%	Production Techniques	11,597	9,726	19.2%
14%	Propulsion Plants	4,008	3,566	12.4%
13%	Structures & Systems	1,643	3,612	-54.5%
2%	Space Vehicles & Satellite Technologies	702	N/A	N/A

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES SPACE VEHICLES & SATELLITE TECHNOLOGIES

	Company	Country	Number of Documents
1	BEIJING UNIVERSITY OF AERONAUTICS AND ASTRONAUTICS	CN	21
2	KOREA AEROSPACE RESEARCH INSTITUTE	KR	20
3	HARBIN INSTITUTE OF TECHNOLOGY	CN	19
4	IHI CORPORATION	JP	15
5	MITSUBISHI ELECTRIC CORPORATION	JP	10
6	AEROSPACE DONGFANGHONG SATELLITE CO	CN	6
7	MITSUBISHI CHEMICAL CORPORATION	JP	4
8	NEC CORPORATION	JP	4
9	DOKURITSU GYOSEI HOJIN UCHU KOKU KENKYU (Japan Aerospace Exploration Agency)	JP	4
10	KAWASAKI HEAVY INDUSTRY	JP	4

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES

SPACE VEHICLES & SATELLITE TECHNOLOGIES

	Company	Country	Number of Documents
1	EADS	NL	40
2	THALES	FR	22
3	ENERGIYA ROCKET COSMIC CORPORATION	RU	15
4	CNES, CENTRE NATIONAL D'ÉTUDES SPATIALES	FR	11
5	COSMIC SCIENCE PRODUCTION CENTER	RU	9
6	ROCKETS COSMIC RESEARCH PRODUCTION CENTER	RU	9
7	VOLGOGRAD STATE TECHNICAL UNIVERSITY	RU	8
8	DEUTSCHES ZENTRUM FÜR LUFT-UND RAUMFAHRT	DE	7
9	MECHANICAL ENGINEERING RESEARCH INSTITUTE	RU	6
10	LAVOCHKIN RESEARCH PRODUCTION ASSOCIATION	RU	2

Source: Thomson Reuters Derwent World Patents Index (DWPI)

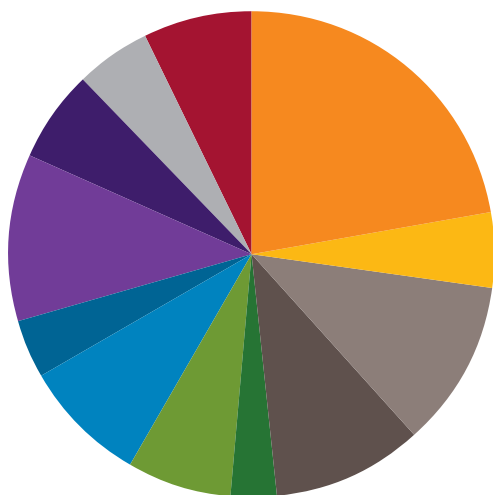
TOP 10 NORTH AMERICAN ASSIGNEES

SPACE VEHICLES & SATELLITE TECHNOLOGIES

	Company	Country	Number of Documents
1	BOEING	US	24
2	HONEYWELL INTERNATIONAL	US	9
3	RAYTHEON	US	7
4	SPACE SYSTEMS/LORAL	US	5
5	LOCKHEED MARTIN	US	5
6	ALLIANT TECHSYSTEMS	US	4
7	NASA	US	4
8	ROCKWELL COLLINS	US	3
9	UNITED LAUNCH ALLIANCE	US	3
10	ORBIT RESEARCH	US	2

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY AUTOMOTIVE



	SUBSECTORS	2012 Volume	2010 Volume	% Change
20%	Alternative Powered Vehicles	22,688	15,913	42.6%
6%	Security Systems	5,686	5,752	-1.1%
12%	Navigation Systems	11,594	12,060	-3.9%
10%	Safety	10,286	10,263	0.2%
3%	Entertainment Systems	2,734	3,052	-10.4%
6%	Steering Systems	6,862	6,327	8.5%
8%	Seats, Seatbelts and Airbags	8,614	7,769	10.9%
4%	Braking Systems	4,247	3,908	8.7%
12%	Transmission	11,859	11,577	2.4%
6%	Suspension Systems	6,393	5,924	7.9%
5%	Engine Design and Systems	5,201	5,336	-2.5%
8%	Pollution Control	7,262	8,376	-13.3%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES ALTERNATIVE POWERED VEHICLES

	Company	Country	Number of Documents
1	TOYOTA MOTOR CORPORATION	JP	1660
2	HONDA MOTOR COMPANY, LTD.	JP	495
3	DENSO CORPORATION	JP	457
4	NISSAN MOTOR COMPANY, LTD.	JP	440
5	PANASONIC CORPORATION	JP	429
6	HYUNDAI	KR	393
7	SAMSUNG	KR	272
8	SANYO ELECTRIC COMPANY, LTD.	JP	251
9	SUMITOMO ELECTRIC INDUSTRIES, LTD.	JP	246
10	LG	KR	233

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES ALTERNATIVE POWERED VEHICLES

	Company	Country	Number of Documents
1	ROBERT BOSCH	DE	327
2	DAIMLER	DE	287
3	PEUGEOT CITROËN AUTOMOBILE	FR	206
4	SIEMENS	DE	100
5	RENAULT	FR	98
6	VOLKSWAGEN	DE	98
7	AUDI	DE	92
8	BMW	DE	87
9	PORSCHE	DE	84
10	VALEO	FR	75

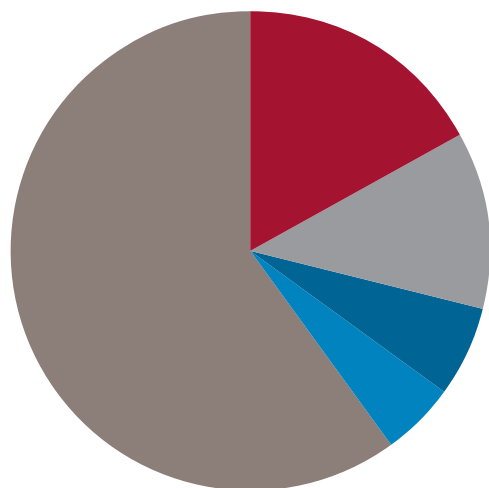
Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 NORTH AMERICAN ASSIGNEES ALTERNATIVE POWERED VEHICLES

	Company	Country	Number of Documents
1	GM GLOBAL TECHNOLOGY OPERATIONS	US	348
2	FORD GLOBAL TECHNOLOGIES	US	138
3	GENERAL ELECTRIC	US	61
4	TESLA MOTORS	US	23
5	CATERPILLAR	US	28
6	REMY TECHNOLOGIES	US	27
7	DELPHI TECHNOLOGIES	US	17
8	JOHNSON CONTROLS	US	17
9	DEERE & CO	US	15
10	TEXAS INSTRUMENTS	US	13

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY BIOTECHNOLOGY



	SUBSECTORS	2012 Volume	2010 Volume	% Change
19%	Diagnosis of Diseases	4,902	N/A	-4.9%
13%	Cancer Treatment	3,450	N/A	-2.8%
6%	Genetically Modified Crops	1,757	N/A	13.4%
5%	Drug Discovery	1,287	N/A	1.4%
58%	General Biotechnology	17,069	N/A	7.6%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES CANCER TREATMENT

	Company	Country	Number of Documents
1	THE UNIVERSITY OF TOKYO	JP	15
2	KOREA RESEARCH INSTITUTE OF BIOSCIENCE AND BIOTECHNOLOGY	KR	15
3	SNU R&DB FOUNDATION	KR	12
4	UNIVERSITY OF CATHOLIC INDUSTRIAL ACADEMIC COOPERATION FOUNDATION	KR	12
5	UNIVERSITY YONSEI INDUSTRIAL ACADEMIC COOPERATION FOUNDATION	KR	12
6	FUDAN UNIVERSITY	CN	11
7	THE PEOPLE'S LIBERATION ARMY SECOND MILITARY MEDICAL UNIVERSITY	CN	11
8	SUZHOU AISHENG GENE CO LTD	CN	10
9	TAKEDA PHARMACEUTICALS CO LTD	JP	9
10	OSAKA UNIVERSITY	JP	8

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES CANCER TREATMENT

	Company	Country	Number of Documents
1	ROCHE	CH	49
2	INSERM, INSTITUTE NATIONAL DE LA SANTE ET DE LA RESEARCH MEDICALE	FR	36
3	SANOFI	DE	33
4	CNRS, THE FRENCH NATIONAL CENTER FOR SCIENTIFIC RESEARCH	FR	32
5	NOVARTIS	CH	19
6	GLAXO GROUP	UK	17
7	GANYMED PHARMACEUTICALS	DE	13
8	UNIVERSITY MAINZ GUTENBERG JOHANNES	DE	13
9	ASTRAZENECA	UK	11
10	BAYER PHARMACEUTICALS	DE	11

Source: Thomson Reuters Derwent World Patents Index (DWPI)

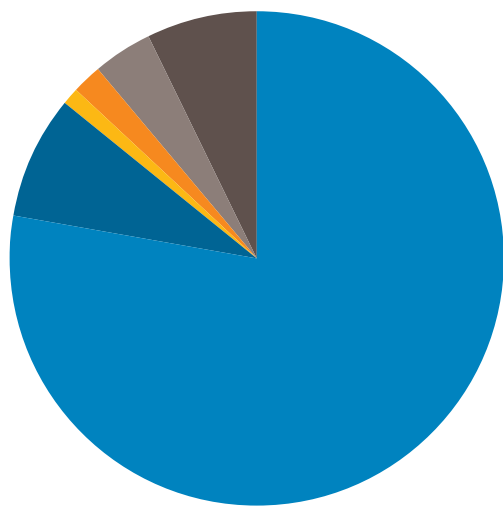
TOP 10 NORTH AMERICAN ASSIGNEES CANCER TREATMENT

	Company	Country	Number of Documents
1	UNIVERSITY OF CALIFORNIA	US	38
2	UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES	US	36
3	GENENTECH	US	34
4	JOHN HOPKINS UNIVERSITY	US	30
5	UNIVERSITY OF TEXAS SYSTEM	US	27
6	ABBOTT LABORATORIES	US	26
7	HARVARD COLLEGE	US	23
8	GENERAL HOSPITAL CORPORATION	US	20
9	LELAND STANFORD JUNIOR UNIVERSITY	US	20
10	UNIVERSITY NEW YORK STATE	US	18

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY

COMPUTERS AND PERIPHERALS



	SUBSECTORS	2012 Volume	2010 Volume	% Change
76%	Computers	201,608	178,509	12.9%
9%	Printers	21,415	25,079	-14.6%
2%	Scanners	3,709	6,372	-41.8%
3%	Screens	5,286	6,471	-18.3%
4%	Smart Media	9,195	9,757	-5.8%
7%	Other Peripherals	17,686	26,317	-32.8%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES SMART MEDIA

	Company	Country	Number of Documents
1	SAMSUNG ELECTRONICS	KR	248
2	TOSHIBA	JP	132
3	TOPPAN PRINTING	JP	101
4	HON HAI PRECISION IND	TW	65
5	PANASONIC	JP	61
6	NEC CORP	JP	58
7	DAINIPPON PRINTING	JP	56
8	SONY	JP	54
9	ELECTRONICS & TELECOM RESEARCH INSTITUTE (ETRI)	KR	53
10	CANON	JP	51

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES

SMART MEDIA

	Company	Country	Number of Documents
1	GIESECKE & DEVRIENT	DE	54
2	SIEMENS	DE	39
3	ERICSSON	SE	35
4	GEMALTO	NL	34
5	STMICROELECTRONICS	DE	30
6	NXP SEMICONDUCTORS	NL	26
7	OBERTHUR TECHNOLOGIES	FR	26
8	MERCK PATENT GMBH	DE	21
9	NOKIA	CH	19
10	UPM RFID OY	FI	13

Source: Thomson Reuters Derwent World Patents Index (DWPI)

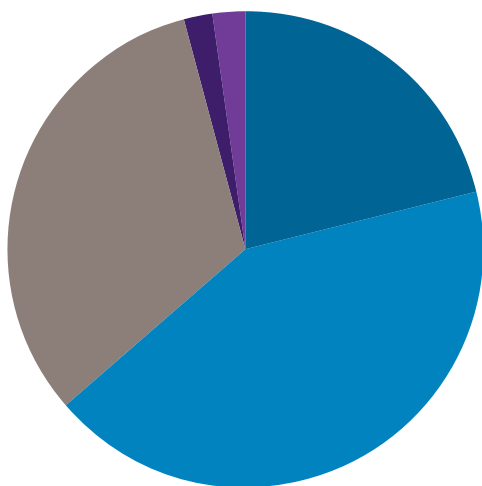
TOP 10 NORTH AMERICAN ASSIGNEES

SMART MEDIA

	Company	Country	Number of Documents
1	INTERNATIONAL BUSINESS MACHINES CORP (IBM)	US	37
2	APPLE, INC	US	32
3	SANDISK TECHNOLOGIES	US	30
4	BROADCOM CORP	US	27
5	MICROSOFT CORP	US	27
6	RESEARCH IN MOTION	CA	27
7	QUALCOMM, INC	US	20
8	GENERAL ELECTRIC	US	19
9	GOOGLE	US	19
10	MICRON TECHNOLOGY	US	19

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY COSMETICS



	SUBSECTORS	2012 Volume	2010 Volume	% Change
21%	Hair	1,833	1,879	-2.4%
42%	Makeup	3,699	3,833	-3.5%
31%	Skin	2,768	2,859	-3.2%
3%	Antiperspirant	212	174	21.8%
3%	Perfume	197	216	-8.8%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES MAKEUP

	Company	Country	Number of Documents
1	KAO CORPORATION	JP	164
2	SHISEIDO COMPANY, LTD.	JP	83
3	AMOREPACIFIC	KR	73
4	KOSE CORPORATION	JP	49
5	LION CORPORATION	JP	27
6	MARUZEN SEIYAKU	JP	26
7	KRACIE HOME PRODUCTS	JP	23
8	NIPPON OILS & FATS	JP	21
9	SANYO CHEMICAL INDUSTRIES	JP	18
10	KOREA BIO MEDICAL SCIENCE INSTITUTE	KR	17

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES

MAKEUP

	Company	Country	Number of Documents
1	L'OREAL	FR	314
2	HENKEL	DE	45
3	UNILEVER	NL/UK	44
4	BASF	DE	42
5	MERCK PATENT GMBH	DE	25
6	BEIERSDORF	DE	22
7	DSM IP ASSETS	NL	18
8	CNRS, CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	FR	15
9	NESTEC	CH	15
10	EVONIK GOLDSCHMIDT	DE	10

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 NORTH AMERICAN ASSIGNEES

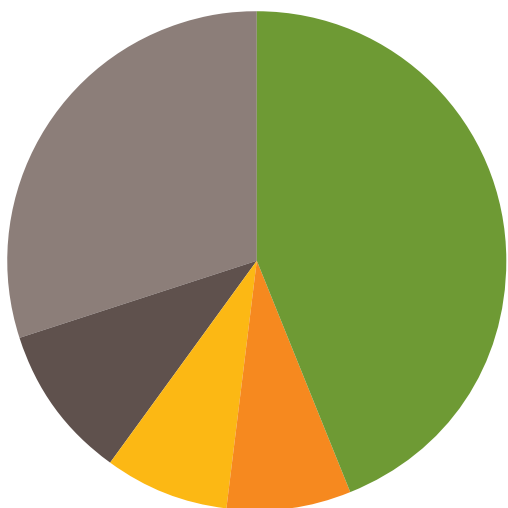
MAKEUP

	Company	Country	Number of Documents
1	DUPONT (PIONEER HI-BRED INTERNATIONAL)	US	32
2	PROCTER & GAMBLE	US	24
3	ALLERGAN	US	22
4	DOW CORNING	US	19
5	JOHNSON & JOHNSON CONSUMER COMPANIES	US	15
6	ISP INVESTMENTS	US	14
7	CELANESE INTERNATIONAL CORPORATION	US	12
8	AVON PRODUCTS	US	11
9	EASTMAN CHEMICAL	US	11
10	MOMENTIVE PERFORMANCE MATERIALS	US	9

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY

DOMESTIC APPLIANCES



	SUBSECTORS	2012 Volume	2010 Volume	% Change
45%	Kitchen	19,226	17,235	11.6%
9%	Household Cleaning	3,536	3,414	3.6%
8%	Human Hygiene	3,323	3,193	4.1%
9%	Laundry	4,299	3,543	21.3%
29%	Heating/Air Conditioning	13,043	11,680	11.7%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES KITCHEN

	Company	Country	Number of Documents
1	PANASONIC CORPORATION	JP	494
2	HEFEI MIDEA ROYALSTAR REFRIGERATOR	CN	491
3	MITSUBISHI ELECTRIC	JP	442
4	LG	KR	401
5	MIDEA HOLDING	CN	266
6	HITACHI APPLIANCES, INC.	JP	196
7	JOYOUNG CO	CN	187
8	HAIER GROUP	CN	185
9	TOSHIBA CORPORATION	JP	151
10	SHARP CORPORATION	JP	132

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES KITCHEN

	Company	Country	Number of Documents
1	BOSCH AND SIEMENS	DE	644
2	SEB	FR	75
3	NESTLE	CH	53
4	ELECTROLUX	SE	52
5	PHILIPS	NL	49
6	ARCELIK ANONIM SIRKETI	TR	44
7	RATIONAL	DE	31
8	MIELE & CIE	DE	23
9	FAGORBRANDT	FR	22
10	VORWERK & CO INTERHOLDING	DE	19

Source: Thomson Reuters Derwent World Patents Index (DWPI)

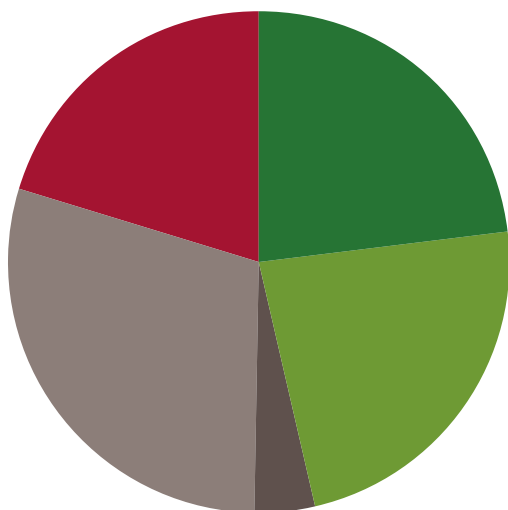
TOP 10 NORTH AMERICAN ASSIGNEES KITCHEN

	Company	Country	Number of Documents
1	WHIRLPOOL	US	84
2	GENERAL ELECTRIC	US	81
3	CARRIER	US	29
4	DUPONT	US	15
5	HONEYWELL INTERNATIONAL	US	14
6	INTERNATIONAL BUSINESS MACHINES (IBM)	US	11
7	CONAIR	US	11
8	PROGRESSIVE INTERNATIONAL	US	10
9	JOHNSON CONTROLS TECHNOLOGY	US	9
10	KRAFT FOODS	US	9

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY

FOOD, TOBACCO AND BEVERAGE FERMENTATION



	SUBSECTORS	2012 Volume	2010 Volume	% Change
27%	Bakery	2,837	2,628	8.1%
24%	Meat	2,843	2,090	36%
3%	Sugar&Starch	507	338	50%
22%	Tobacco	3,481	1,512	130.2%
24%	Brewing	2,472	N/A	4.4%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR
SNAPSHOT:TOP 10 ASIA-PACIFIC ASSIGNEES
BEVERAGE FERMENTATION

	Company	Country	Number of Documents
1	LUZHOU PINGCHUANG TECHNOLOGY	CN	27
2	KIRIN HOLDINGS COMPANY, LTD.	JP	23
3	WUZHANMAO WINE	CN	23
4	UNIVERSITY OF JIANGNAN	CN	20
5	SUNTORY HOLDINGS, LTD.	JP	14
6	KOREA FOOD RESEARCH INSTITUTE	KR	12
7	RURAL DEVELOPMENT ADMINISTRATION	KR	10
8	BINZHOU ZHENGYUAN LIVESTOCK DEVELOPMENT	CN	8
9	SINO FRENCH JOINT VENTURE DYNASTY WINERY	CN	8
10	TIANJIN UNIVERSITY OF SCIENCE AND TECHNOLOGY	CN	8

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES BEVERAGE FERMENTATION

	Company	Country	Number of Documents
1	NESTLE	CH	18
2	NOVOZYMES	DK	16
3	KRONES	DE	11
4	ROYAL DSM	DK	10
5	HANSEN	NL	9
6	SYNGENTA PARTICIPATIONS	CH	8
7	DANNON	FR	6
8	VERENIUM	NL	5
9	AZIENDA VINICOLA BENANTI	IT	4
10	BIFILYUKS	RU	3

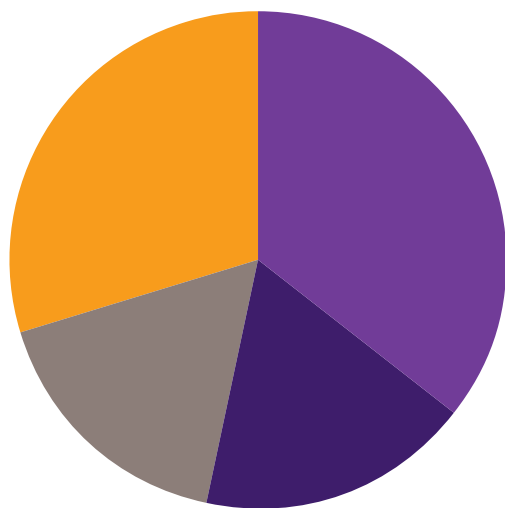
Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 NORTH AMERICAN ASSIGNEES BEVERAGE FERMENTATION

	Company	Country	Number of Documents
1	DANISCO US	US	14
2	CODEXIS	US	6
3	WISCONSIN ALUMNI RESEARCH FOUNDATION	US	5
4	BP CORPORATION NORTH AMERICA	US	3
5	COSKATA	US	3
6	DYADIC INTERNATIONAL USA	US	3
7	PURDUE RESEARCH FOUNDATION	US	3
8	QTEROS	US	3
9	UNIVERSITY OF CALIFORNIA	US	3
10	ARCHER-DANIELS MIDLAND	US	2

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY MEDICAL DEVICES



	SUBSECTORS	2012 Volume	2010 Volume	% Change
34%	Diagnosis, Surgery	24,356	20,076	21.3%
19%	Dentistry, Bandages, Prosthesis	12,456	10,746	15.9%
17%	Medical Aids, Oral Administration	11,515	9,714	18.5%
30%	Sterilizing, Syringes, Electrotherapy	20,238	17,788	13.8%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES DIAGNOSIS, SURGERY

	Company	Country	Number of Documents
1	FUJIFILM HOLDINGS CORPORATION	JP	958
2	OLYMPUS MEDICAL SYSTEMS CORPORATION	JP	535
3	TOSHIBA CORPORATION	JP	414
4	TOSHIBA MEDICAL SYSTEMS	JP	397
5	CANON, INC.	JP	235
6	HITACHI MEDICAL COMPUTER SYSTEMS, INC.	JP	180
7	SAMSUNG MEDISON	KR	177
8	TERUMO CORPORATION	JP	175
9	KONICA MINOLTA HOLDINGS, INC.	JP	164
10	HOYA CORPORATION	JP	127

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES

DIAGNOSIS, SURGERY

	Company	Country	Number of Documents
1	SIEMENS	DE	461
2	PHILIPS	NL	238
3	WARSAW ORTHOPEDIC	CH	100
4	AESCULAP	DE	74
5	SMITH & NEPHEW	UK	64
6	ROCHE	CH	56
7	KARL STORZ	DE	54
8	CARL ZEISS SURGICAL	DE	40
9	STRYKER TRAUMA	DE	40
10	MIKROB ANTI-PLAGUE RESEARCH INSTITUTE	RU	37

Source: Thomson Reuters Derwent World Patents Index (DWPI)

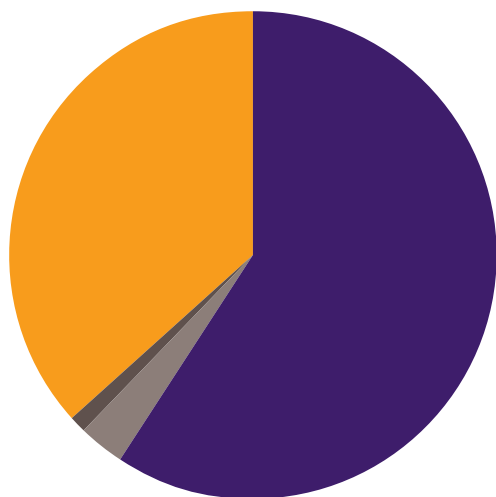
TOP 10 NORTH AMERICAN ASSIGNEES

DIAGNOSIS, SURGERY

	Company	Country	Number of Documents
1	TYCO HEALTHCARE GROUP	US	354
2	GENERAL ELECTRIC	US	334
3	MEDTRONIC	US	214
4	ETHICON ENDO-SURGERY	US	212
5	BOSTON SCIENTIFIC	US	144
6	ST JUDE MEDICAL	US	72
7	SYNTHES USA	US	69
8	NELLCOR PURITAN BENNETT	US	67
9	ABBOTT DIABETES CARE	US	59
10	COOK MEDICAL TECHNOLOGIES	US	55

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY PETROLEUM



	SUBSECTORS	2012 Volume	2010 Volume	% Change
58%	Petroleum & Gas Exploration, Drilling, Production and Processing	8,233	7,554	9%
2%	Petroleum & Gas Transportation and Storage	378	311	21.5%
1%	Petroleum Refining	120	194	38%
39%	Petroleum & Gas Fuels and Other Products	5,097	5,787	11.9%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES

PETROLEUM & GAS EXPLORATION, DRILLING, PRODUCTION AND PROCESSING

	Company	Country	Number of Documents
1	CHINA PETROCHEMICAL	CN	740
2	PETROCHINA	CN	486
3	JX NIPPON OIL & ENERGY CORPORATION	JP	61
4	COSMO OIL COMPANY, LTD.	JP	34
5	NIPPON STEEL CORPORATION	JP	26
6	KAWASAKI STEEL	JP	22
7	SUMITOMO METAL INDUSTRIES, LTD.	JP	15
8	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KR	12
9	UNIVERSITY OF ZHEJIANG	CN	12
10	DALIAN UNIVERSITY OF TECHNOLOGY	CN	11

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES

PETROLEUM & GAS EXPLORATION, DRILLING, PRODUCTION AND PROCESSING

	Company	Country	Number of Documents
1	PRAD RESEARCH & DEVELOPMENT	NL	176
2	TATNEFT	RU	141
3	SHELL	NL	102
4	BASF	DE	48
5	NATIONAL OILWELL VARCO	NO	46
6	SAUDI ARABIAN OIL CO	SA	46
7	TOTAL	FR	44
8	BP	UK	30
9	ENI	IT	18
10	SOLVAY	BE	11

Source: Thomson Reuters Derwent World Patents Index (DWPI)

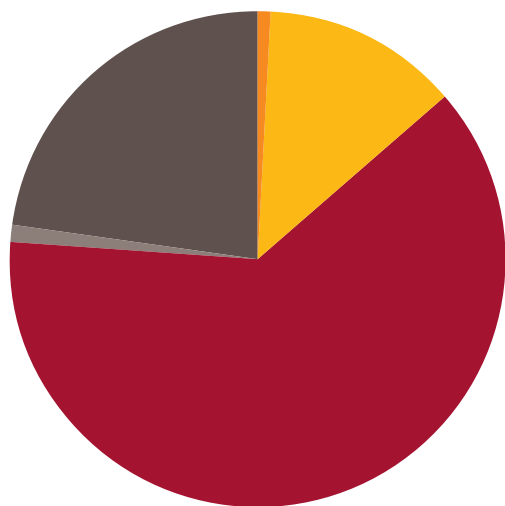
TOP 10 NORTH AMERICAN ASSIGNEES

PETROLEUM & GAS EXPLORATION, DRILLING, PRODUCTION AND PROCESSING

	Company	Country	Number of Documents
1	HALLIBURTON ENERGY SERVICES	US	273
2	BAKER HUGHES	US	270
3	SCHLUMBERGER TECHNOLOGY	US	237
4	UOP	US	100
5	EXXONMOBIL	US	100
6	CHEVRON	US	81
7	VETCO GRAY	US	53
8	CONOCOPHILLIPS	US	52
9	WEATHERFORD/LAM	US	51
10	SMITH INTERNATIONAL	US	36

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY PHARMACEUTICALS



	SUBSECTORS	2012 Volume	2010 Volume	% Change
1%	Steroids	622	654	-4.9%
12%	Heterocyclics	9,165	10,013	-8.5%
63%	Organics	44,833	42,845	4.6%
2%	Inorganics	769	986	-22.0%
22%	General	16,104	15,404	4.5%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES HETEROCYCLICS

	Company	Country	Number of Documents
1	TAKEDA PHARMACEUTICAL COMPANY, LTD.	JP	40
2	UNIVERSITY OF PEKING	CN	38
3	TAISHO PHARMA	JP	35
4	ZHEJIANG UNIVERSITY	CN	35
5	CADILA PHARMACEUTICALS	IN	33
6	KOWA COMPANY, LTD.	JP	32
7	UNIVERSITY OF EAST CHINA SCIENCE & TECHNOLOGY	CN	30
8	KAO	JP	26
9	LUPIN	IN	26
10	UNIVERSITY OF NANJING	CN	26

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES

HETEROCYCLICS

	Company	Country	Number of Documents
1	ROCHE	CH	98
2	NOVARTIS	CH	89
3	BAYER	DE	80
4	GLAXOSMITHKLINE	UK	75
5	BOEHRINGER INGELHEIM	DE	68
6	SANOFI	DE	58
7	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	FR	38
8	JANSSEN	BE	35
9	MERCK PATENT GMBH	DE	31
10	SCHERING	US	28

Source: Thomson Reuters Derwent World Patents Index (DWPI)

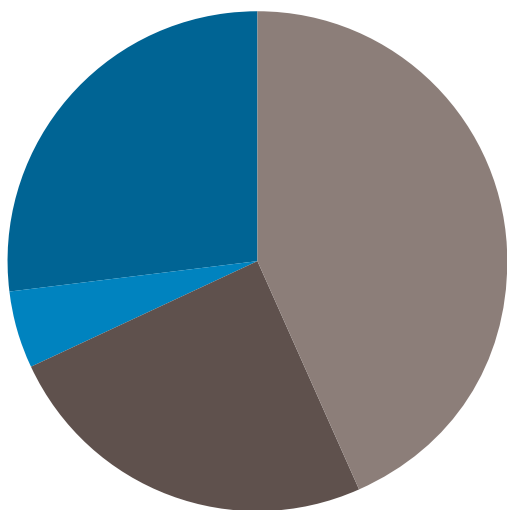
TOP 10 NORTH AMERICAN ASSIGNEES

HETEROCYCLICS

	Company	Country	Number of Documents
1	MERCK	US	100
2	ABBOTT LABS	US	68
3	BRISTOL-MYERS SQUIBB CO	US	51
4	ALLERGAN	US	48
5	PFIZER	US	36
6	GILEAD SCIENCES	US	32
7	UNIVERSITY OF CALIFORNIA	US	29
8	VERTEX PHARMACEUTICALS	US	25
9	EXELIXIS	US	24
10	THERAVANCE	US	24

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY SEMICONDUCTORS



SUBSECTORS		2012 Volume	2010 Volume	% Change
45%	Semiconductor Materials and Processes	45,621	50,812	-10.2%
23%	Discrete Devices	25,722	18,709	37.5%
4%	Integrated Circuits	4,967	5,127	-3.1%
28%	Memories, Film and Hybrid Circuits	28,435	30,995	-8.3%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES SEMICONDUCTOR MATERIALS AND PROCESSES

Company		Country	Number of Documents
1	SAMSUNG	KR	1485
2	TOSHIBA CORPORATION	JP	1068
3	LG	KR	1008
4	HYNIX SEMICONDUCTOR	KR	869
5	SHANGHAI HUALI MICRO-ELECTRONICS	CN	758
6	RENESAS ELECTRONICS	JP	652
7	PANASONIC CORPORATION	JP	649
8	TOKYO ELECTRON, LTD.	JP	572
9	SEMICONDUCTOR MANUFACTURING INTERNATIONAL	CN	527
10	TAIWAN SEMICONDUCTOR MANUFACTURING	TW	503

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES SEMICONDUCTOR MATERIALS AND PROCESSES

	Company	Country	Number of Documents
1	GLOBALFOUNDRIES	DE	224
2	INFINEON TECHNOLOGIES	DE	212
3	STMICROELECTRONICS	CH	203
4	OSRAM	DE	180
5	ASML	NL	125
6	COMMISSARIAT À L'ÉNERGIE ATOMIQUE	FR	110
7	ROBERT BOSCH	DE	108
8	CARL ZEISS	DE	102
9	MERCK PATENT	DE	96
10	SOITEC	FR	77

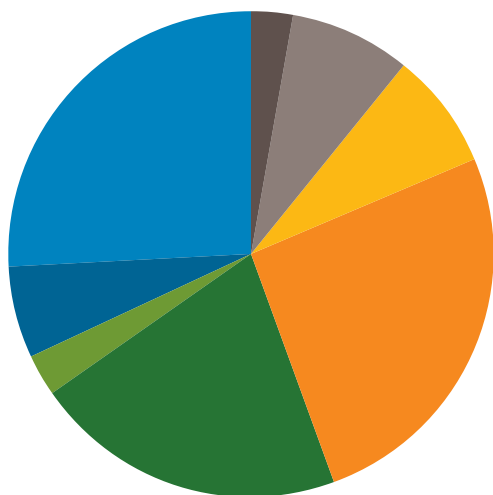
Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 NORTH AMERICAN ASSIGNEES SEMICONDUCTOR MATERIALS AND PROCESSES

	Company	Country	Number of Documents
1	INTERNATIONAL BUSINESS MACHINES (IBM)	US	1017
2	APPLIED MATERIALS	US	273
3	MICRON TECHNOLOGY	US	261
4	TEXAS INSTRUMENTS	US	197
5	DUPONT	US	105
6	FREESCALE SEMICONDUCTOR	US	81
7	XILINX	US	80
8	LAM RESEARCH	US	74
9	INTEL	US	74
10	ROHM AND HAAS ELECTRONIC MATERIALS	US	57

Source: Thomson Reuters Derwent World Patents Index (DWPI)

2012 PATENT ACTIVITY TELECOMMUNICATIONS



	SUBSECTORS	2012 Volume	2010 Volume	% Change
4%	Telephone Exchange Systems	5,225	6,251	-16.4%
8%	Digital Information Transmission Systems	13,791	12,504	10.3%
8%	Multiplex & Multiple Access Information Transmission Systems	14,143	14,031	0.8%
26%	Data Transmission Networks	44,151	39,367	12.2%
20%	Telephone Subscriber Equipment	36,023	34,834	3.4%
3%	Telephone Communications Systems & Installations	4,774	6,511	-26.7%
6%	Telemetry & Telecontrol	9,957	7,638	30.4%
25%	Mobile Telephony	44,454	42,836	3.8%

Source: Thomson Reuters Derwent World Patents Index (DWPI)

SUBSECTOR SNAPSHOT:

TOP 10 ASIA-PACIFIC ASSIGNEES MOBILE TELEPHONY

	Company	Country	Number of Documents
1	SAMSUNG	KR	1423
2	LG	KR	1203
3	PANASONIC CORPORATION	JP	955
4	SONY CORPORATION	JP	812
5	CASIO HITACHI MOBILE COMMUNICATIONS	JP	706
6	KYOCERA CORPORATION	JP	706
7	ZTE	CN	636
8	NEC CORPORATION	JP	630
9	SHARP CORPORATION	JP	615
10	FUJITSU	JP	529

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 EUROPEAN ASSIGNEES MOBILE TELEPHONY

	Company	Country	Number of Documents
1	ERICSSON	SE	574
2	NOKIA	FI	435
3	ALCATEL-LUCENT	FR	258
4	NOKIA SIEMENS NETWORKS	NL	155
5	STMICROELECTRONICS	CH	91
6	FRANCE TELECOM	FR	80
7	INFINEON TECHNOLOGIES	DE	72
8	DEUTSCHE TELEKOM	DE	45
9	SIEMENS	DE	39
10	VODAFONE	DE	35

Source: Thomson Reuters Derwent World Patents Index (DWPI)

TOP 10 NORTH AMERICAN ASSIGNEES MOBILE TELEPHONY

	Company	Country	Number of Documents
1	QUALCOMM	US	869
2	RESEARCH IN MOTION	CA	825
3	MICROSOFT	US	458
4	APPLE, INC.	US	410
5	GOOGLE	US	316
6	INTERNATIONAL BUSINESS MACHINES (IBM)	US	305
7	AT&T	US	241
8	INTEL	US	240
9	MOTOROLA MOBILITY	US	203
10	VERIZON	US	180

Source: Thomson Reuters Derwent World Patents Index (DWPI)

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