

2004



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1950 National Foundation Act
Science Engineering
NSF가

NSF 1972 ' Science Indicators 1972 '
2004 15

' Science and Engineering Indicators
2004'

Elementary and Secondary Education
Higher Education in Science and Engineering
Science and Engineering Labor Force
U.S. and International Research and Development
Academic Research and Development
Industry, Technology, and the Global Marketplace
Science and Technology : Public Attitudes and
Understanding
State Indicators
S&E Indicators Industry,
Technology, and the Global Marketplace

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S&E Indicators NSF(National Science Foundation,
) 2
Science Engineering Technology
가

USPTO()

Indicators 가

Incompleteness
- 가

2004 S&E Indicators

1) 1950 National Science Foundation Act , Science Engineering

[Http://www.nsf.gov](http://www.nsf.gov)

Table 6-3
Top patenting corporations: 1977-96 and 2001

Company	Patents
1977-96	
General Electric Corp.	16,206
International Business Machines Corp.	15,205
Hitachi Ltd.	14,500
Canon Kabushiki Kaisha	13,797
Toshiba Corp.	13,412
Mitsubishi Denki Kabushiki Kaisha	10,192
U.S. Philips Corp.	9,942
Eastman Kodak Co.	9,729
AT&T Corp.	9,350
Motorola, Inc.	9,142
2001	
International Business Machines Corp.	3,411
NEC Corp.	1,953
Canon Kabushiki Kaisha	1,877
Micron Technology, Inc.	1,642
Samsung Electronics Co., Ltd.	1,450
Matsushita Electric Industrial Co., Ltd.	1,440
Sony Corp.	1,409
Hitachi Ltd.	1,271
Mitsubishi Denki Kabushiki Kaisha	1,184
Fujitsu Ltd.	1,166

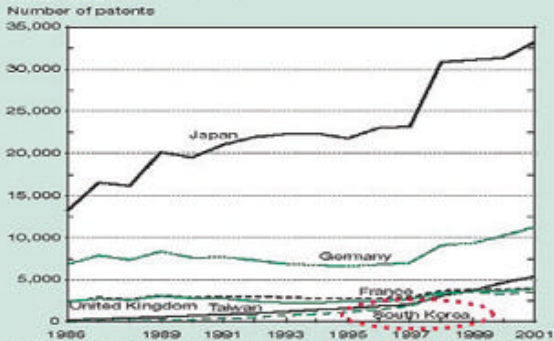
SOURCE: U.S. Patent and Trademark Office, Information Products Division, Technology Assessment and Forecast Branch, special tabulations, November 2002.

1963~1987 1,293
 , 14
 29,000
 1987 343
 21,000
 , 가
 가
 ,

1999 가 2001 47%
 1980 ()
 가 , 1987~1988
 가 48%
 가
 1990~1996 가
 , 44%
 가 56%
 , 72%

가 2 가
 가 . 가가 , USPTO
 가
 2001 2000 10%
 가 가 326,500
 가 56% , 1997~2000
 , 2001
 54%
 45~47%

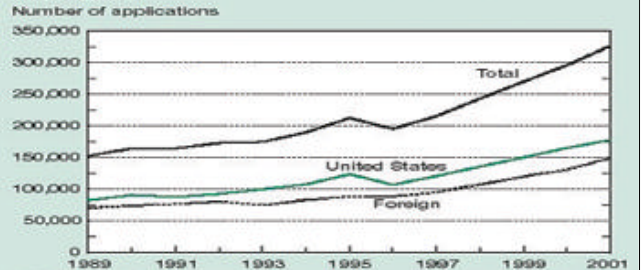
Figure 6-20
U.S. patents granted to foreign inventors in selected countries, by residence of inventor: 1986-2001



NOTE: Selected countries/economies are the top six recipients of U.S. patents during 2001.
 SOURCE: U.S. Patent and Trademark Office, Information Products Division, Technology Assessment and Forecast Branch, special tabulations, 2002. See appendix table 6-10.

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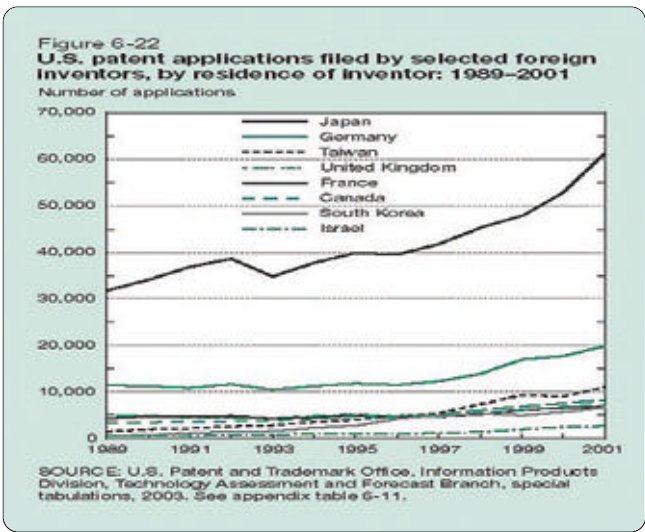
Figure 6-21
U.S. patent applications, by residence of inventor: 1989-2001



SOURCE: U.S. Patent and Trademark Office, Information Products Division, Technology Assessment and Forecast Branch, special tabulations, 2003. See appendix table 6-11.



Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Japan	35,150	38,000	41,000	44,000	47,000	50,000	53,000	56,000	59,000	62,000	65,000	68,000	71,000
Germany	12,000	13,000	14,000	15,000	16,000	17,000	18,000	19,000	20,000	21,000	22,000	23,000	24,000
Taiwan	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000	13,000	14,000	15,000	16,000	17,000
United Kingdom	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000
France	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000	4,200	4,400
Canada	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
South Korea	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200
Israel	500	550	600	650	700	750	800	850	900	950	1,000	1,050	1,100



가 , 가 40~48%

1990
1999 40% 가
1989 16% 가
2000 2001 13% 가

가 , 가 (,)
가

1997 가 5 가 1999
9,000 가 , 2000
가 가 4%
가

가 , 1999
가 가 2000
13%, 2001 18% 가

가 , 가 가

가 가

가 가

가

2001
(Table 6 - 4)



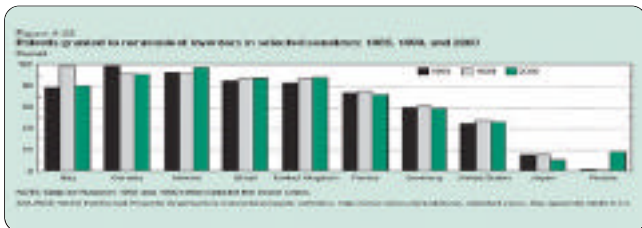
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Table 6-5
Top 15 most important U.S. patent classes for corporations from South Korea and Taiwan, 2001

Rank	South Korea	Taiwan
1	Liquid crystal cells, elements, and systems	Method and apparatus of video manufacturing process
2	Static information storage and retrieval	Method and apparatus
3	Dynamic information storage and retrieval	Method and apparatus of video manufacturing process
4	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
5	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
6	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
7	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
8	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
9	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
10	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
11	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
12	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
13	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
14	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process
15	Method and apparatus of video manufacturing process	Method and apparatus of video manufacturing process

NOTE: Rank is based on patenting activity of major patenting organizations, which are primarily universities in Taiwan by industry program with no overlap.
 SOURCE: U.S. Patent and Trademark Office, Information Products Division, Technology Assessment and Forecast Branch, 2001.

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 ,(Figure
 6 - 23, Appendix Table 6 - 14)



Appendix Table 6-14
Patent grants to corporations in the top 10 patent classes, 1999, 2000, and 2001

Patent Class	1999	2000	2001
1. Liquid crystal cells, elements, and systems	1,200	1,500	1,800
2. Static information storage and retrieval	800	1,000	1,200
3. Dynamic information storage and retrieval	700	900	1,100
4. Method and apparatus of video manufacturing process	600	800	1,000
5. Method and apparatus of video manufacturing process	500	700	900
6. Method and apparatus of video manufacturing process	400	600	800
7. Method and apparatus of video manufacturing process	300	500	700
8. Method and apparatus of video manufacturing process	200	400	600
9. Method and apparatus of video manufacturing process	100	300	500
10. Method and apparatus of video manufacturing process	50	150	300

Appendix Table 6-15
Patent grants to corporations in the top 10 patent classes, 1999, 2000, and 2001

Patent Class	1999	2000	2001
1. Liquid crystal cells, elements, and systems	1,200	1,500	1,800
2. Static information storage and retrieval	800	1,000	1,200
3. Dynamic information storage and retrieval	700	900	1,100
4. Method and apparatus of video manufacturing process	600	800	1,000
5. Method and apparatus of video manufacturing process	500	700	900
6. Method and apparatus of video manufacturing process	400	600	800
7. Method and apparatus of video manufacturing process	300	500	700
8. Method and apparatus of video manufacturing process	200	400	600
9. Method and apparatus of video manufacturing process	100	300	500
10. Method and apparatus of video manufacturing process	50	150	300

Appendix Table 6-16
Patent grants to corporations in the top 10 patent classes, 1999, 2000, and 2001

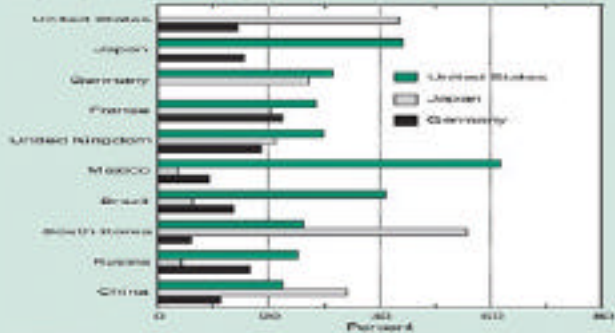
Patent Class	1999	2000	2001
1. Liquid crystal cells, elements, and systems	1,200	1,500	1,800
2. Static information storage and retrieval	800	1,000	1,200
3. Dynamic information storage and retrieval	700	900	1,100
4. Method and apparatus of video manufacturing process	600	800	1,000
5. Method and apparatus of video manufacturing process	500	700	900
6. Method and apparatus of video manufacturing process	400	600	800
7. Method and apparatus of video manufacturing process	300	500	700
8. Method and apparatus of video manufacturing process	200	400	600
9. Method and apparatus of video manufacturing process	100	300	500
10. Method and apparatus of video manufacturing process	50	150	300

6 - 23
 가
 ,
 80%
 1999 2000 90%
 10
 가
 50%

WIPO
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Figure 6-24
 Patents granted to residents of United States, Japan, and Germany in selected countries: 2000



NOTE: Data represent inventor shares of all foreign-resident patents granted. Data for Brazil are from 1999. SOURCE: World Intellectual Property Organization, industrial property statistics, selected years. See appendix Table 6-14.

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S&E Indicators

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OECD, EU

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