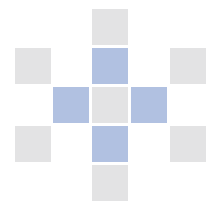



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01_Survey Outline



SURVEY OUTLINE

❖ Purpose of the Survey

- Survey Korea's R&D activities (R&D human resources and expenditure) to provide basic data for setting up the national R&D policy and offer reference for R&D planning to experts in various fields
- Provide OECD with data on Korea's R&D activities to enhance the nation's credibility and to utilize the data for comparison with other economies

❖ History and Basis of the Survey

- Designated statistics according to the Statistics Law : No. 10501 (July 16, 1982)
- Started in 1963 as a project titled "Status survey of Research Institutes" and annually announced previous year's research and development performances

❖ Coverage and Methodology of the Survey

- Surveyed fields of research : natural sciences, engineering and technology, medical sciences, agricultural sciences, social sciences and humanities according to "OECD Proposed Standard Practice for Surveys of Research and Experimental Development : FRASCATI MANUAL"

※ Surveys from 2008 (results of 2007) include humanities and social sciences

- Survey method : self-reporting survey via mail or the Internet, supplemented by telephone survey
- Organizations covered in the survey : public research institutes, universities and colleges, medical institutes, business enterprises

※ Surveyed organizations in the year 2011

Classification	Public Research Institutes	Univ. and Colleges	General Hospitals	Business Enterprises	Total
Number of the Surveyed Org.	755	428	553	27,790	29,526
Number of the Retrieval Org. (Recovery Rate)	740 (98.0%)	423 (98.8%)	549 (99.3%)	22,250 (80.1%)	23,962 (81.2%)

- Survey base period : number of personnel/researchers and capital are based on the last calendar date (December 31) of the previous year while sales and R&D expenditure is based on the whole previous calendar year (January 1- December 31)
- Surveyed items : general information, researcher(gender, degree, major), R&D expenditure (type of R&D, source of funds)

02 Key Figures

1. R&D Expenditure
2. R&D Personnel
3. R&D Activities of the Business Enterprise Sector
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KEY FIGURES

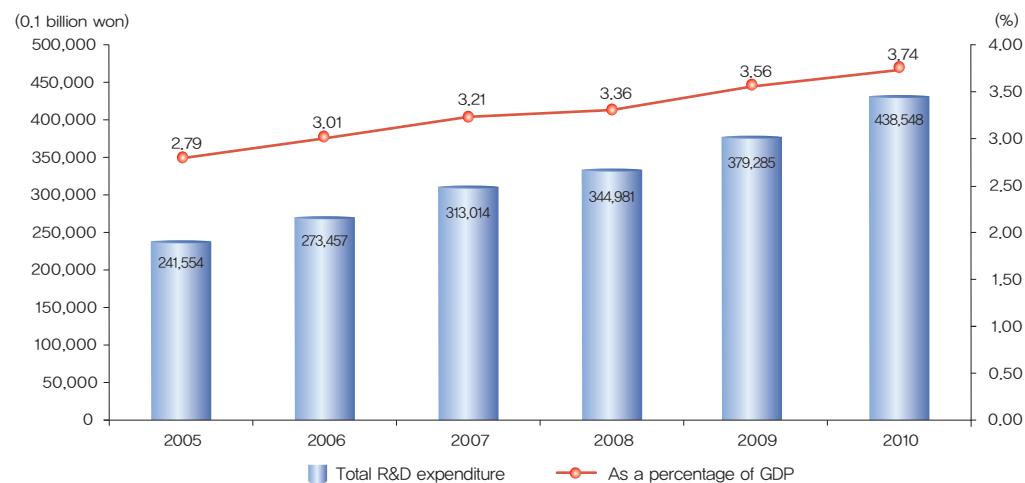


1. R&D Expenditure

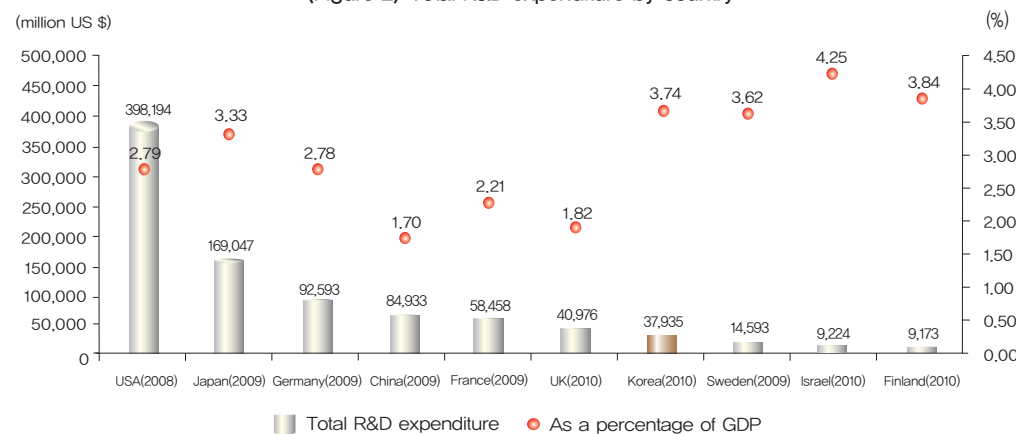
Total R&D expenditure

- Korea's total R&D expenditure in 2010 has increased by 5,926.3 billion won (15.6%) from the previous year to 438,548 billion won
 - R&D expenditure as a percentage of GDP is 3.74%, which has increased 0.18 percentage points compared to 2009
- With R&D expenditure of 37,935 million USD, Korea ranked 7th in the world and the nation's R&D expenditure as a percentage of GDP was 3.74 %, which was the 3th highest worldwide

〈Figure 1〉 R&D expenditure and as a percentage of GDP (Korea)



〈Figure 2〉 Total R&D expenditure by country

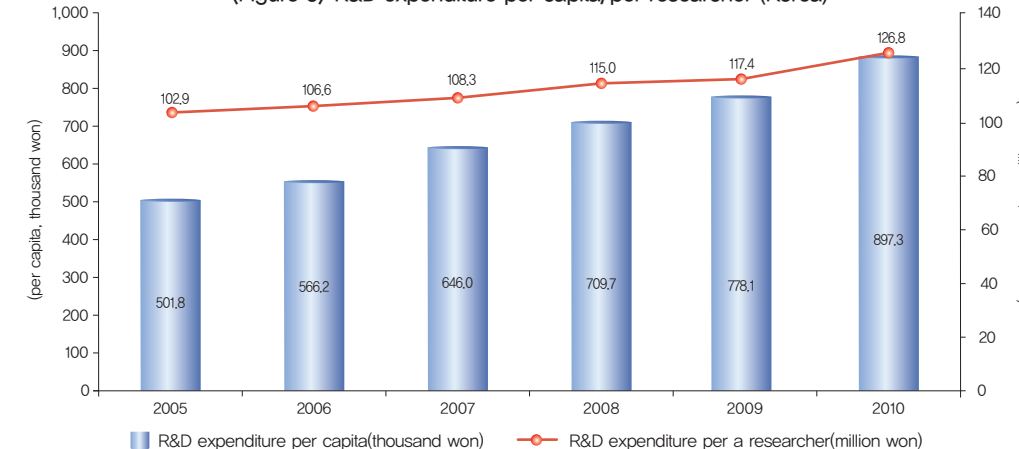


* Source : OECD, Main Science and Technology Indicators 2011-1

R&D expenditure per Capita/per Researcher

- Korea's R&D expenditure per capita and per researcher continued to grow
 - R&D expenditure per capita has increased by 15.3 percent to 897.3 thousand won and R&D expenditure per researcher was 126.8 million won, which has increased 8.0 percent from the previous year
- The nation's R&D expenditure per capita (776 USD) and per researcher (144 thousand USD) were less than those of the major developed nations (US, Japan, Germany), respectively
 - Japan had the highest R&D expenditure per capita (1,328 USD in 2009), followed by the US (1,306 USD in 2008), and Germany (1,131 USD in 2009)
 - Nations with the highest R&D expenditure per researcher(FTE) were Germany (297 thousand USD in 2009), the US (264 thousand USD in 2007), and France (262 thousand USD in 2008)

〈Figure 3〉 R&D expenditure per capita/per researcher (Korea)



〈Table 1〉 R&D expenditure per capita/per researcher(FTE) by country

	Germany (2009)	USA ('08)	UK (2010)	Japan (2009)	China (2009)	France ('08)	Korea (2010)
R&D expenditure per capita (US \$)	1,131	1,306 ('08)	659	1,328	64	906 ('09)	776
R&D expenditure per researcher (thousand US \$, FTE)	297	264 ('07)	174	258	74	262 ('08)	144

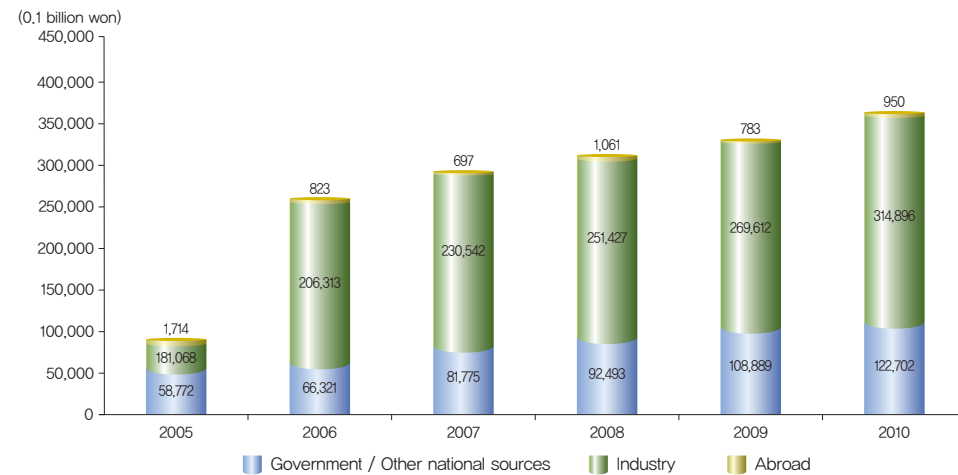
* Source : OECD, Main Science and Technology Indicators 2011-1



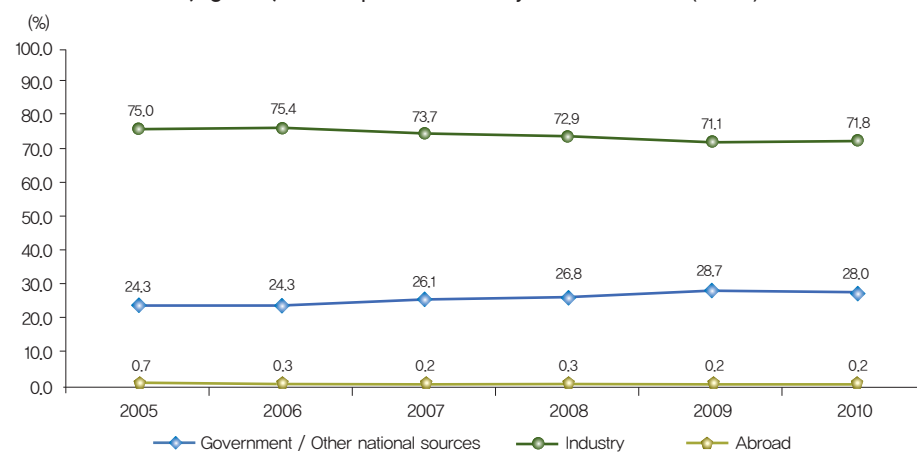
R&D Expenditure by Source of Funds

- With an increase of 1,381.3 billion won (12.7%) from the previous year to a total of 12,270.2 billion won, funding from the government and other national sources occupied 28.0 percent of the total source of funds in 2010
 - Funds from industry and abroad were 31,489.6 billion won (71.8%) and 95.0 billion won (0.2%) respectively
 - Ratio of public to industry funds was 28:72
- Percentage of public fund in Korea's total R&D expenditure was relatively low when compared to France, the UK, and the US
 - Public fund occupied 41.2 percent in France(2008), 36.8 percent in the UK(2010), and 32.7 percent in the US(2008)

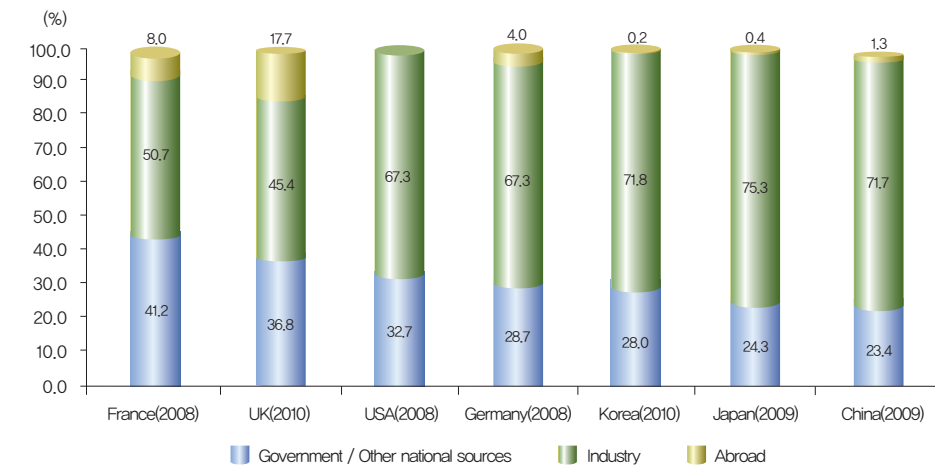
〈Figure 4〉 R&D expenditure by source of funds (Korea)



〈Figure 5〉 R&D expenditure rate by source of funds (Korea)



〈Figure 6〉 R&D expenditure rate by source of funds (major countries)

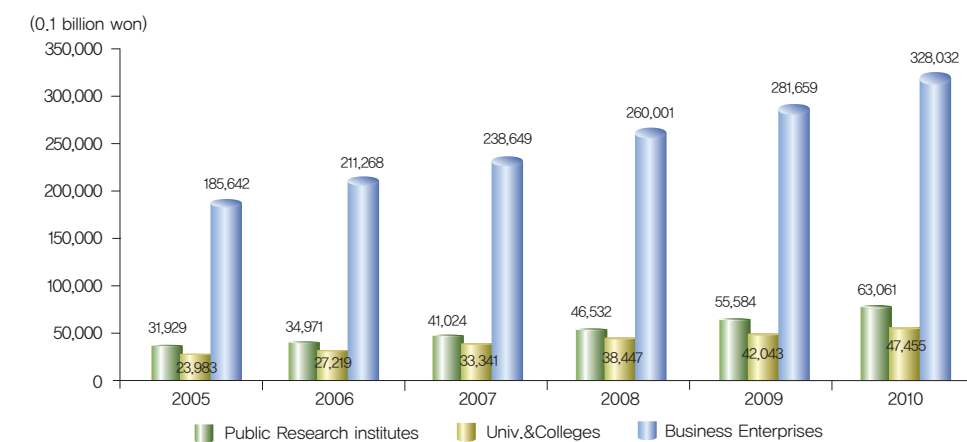


* Source : OECD, *Main Science and Technology Indicators 2011-1*
 * Total sum of China is less than 100.0%

R&D Expenditure by Sector of Performance

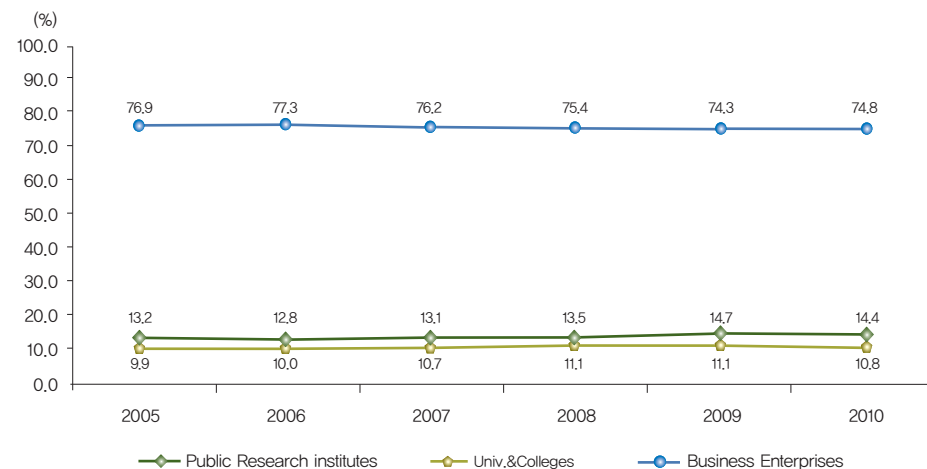
- Spending by business enterprises occupied 74.8 percent (32,803.2 billion won) of the total R&D expenditure
 - R&D expenditure by business enterprises has increased by 16.5 percent (4,637.4 billion won). Meanwhile, public research institutes and universities & colleges spent 6,306.1 billion won and 4,745.5 billion won respectively
- Among the major countries, percentage of R&D expenditure by businesses was high in Korea (74.8%), second only to Japan (75.8% in 2009)
 - On the contrary, the nation's R&D expenditure by universities and colleges was 10.8 percent, which is one of the lowest, second only to China (8.1% in 2009)

〈Figure 7〉 R&D expenditure by sector of performance (Korea)

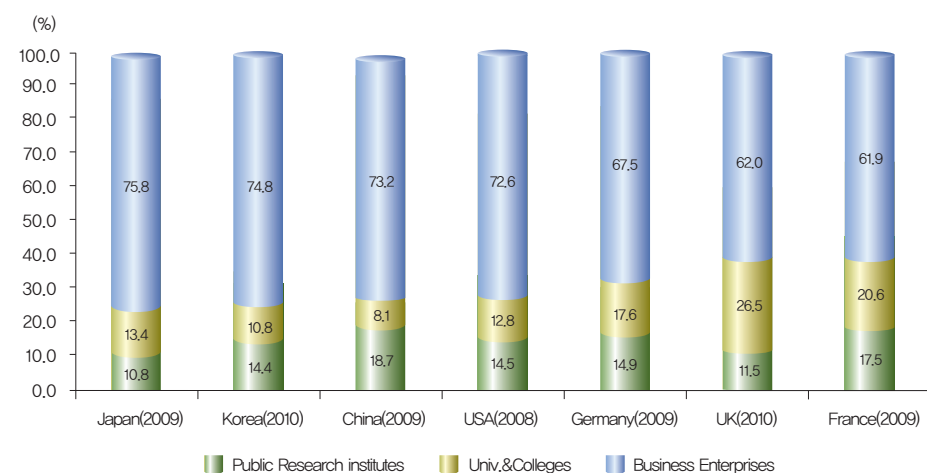




〈Figure 8〉 R&D expenditure rate by sector of performance (Korea)



〈Figure 9〉 R&D expenditure rate by sector of performance (major countries)

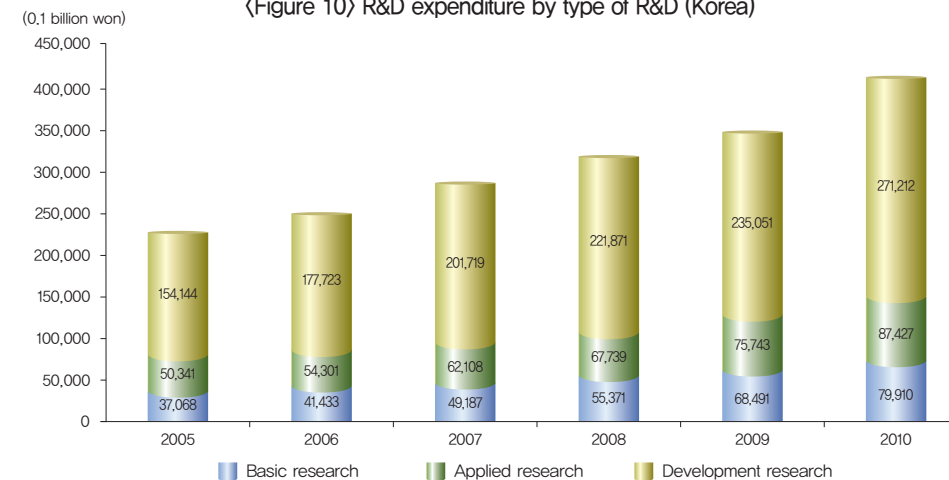


* Source : OECD, Main Science and Technology Indicators 2011-1

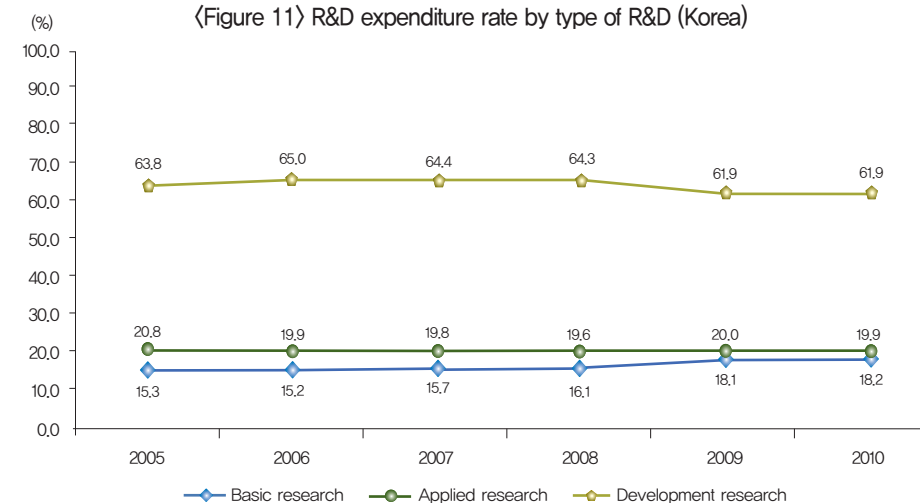
R&D Expenditure by type of R&D

- R&D expenditure on basic research was 7,991.0 billion won in 2010, which has increased 1,141.9 billion won (16.7%) from the previous year
 - Spending on basic research occupied 18.2 percent, which has increase by 0.1 percentage points from 2009
 - R&D expenditure on applied research and development research occupied 19.9 percent (8,742.7 billion won) and 61.9 percent (27,121.2 billion won) respectively
- Percentage of expenditure on basic research in Korea (18.2%) was lower than that of France (25.4% in 2008) but higher when compared to the US (17.4% in 2008), Japan (11.4% in 2008), and China (4.8% in 2008)

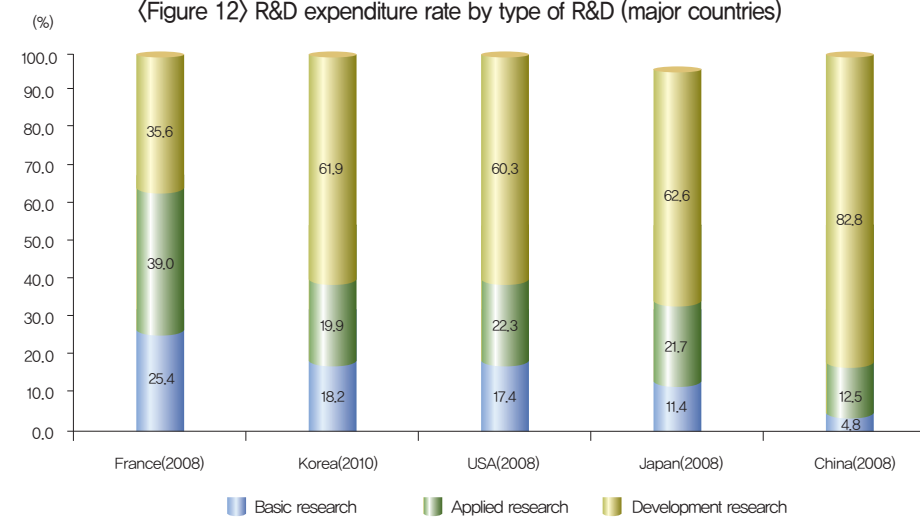
〈Figure 10〉 R&D expenditure by type of R&D (Korea)



〈Figure 11〉 R&D expenditure rate by type of R&D (Korea)



〈Figure 12〉 R&D expenditure rate by type of R&D (major countries)



* Source : OECD, R&D Statistics 2010

* Total sum of Japan is less than 100.0%

R&D Expenditure by Type of Costs

- Of the total R&D expenditure in 2010, current cost increased by 15.3 percent (5,254.6 billion won) and reached 395,789 billion won
 - Percentage of current cost decreased 0.3 percentage points to 90.2 percent
 - In the total current cost, labor cost occupied 17,342.0 billion won (39.5%) and other current cost occupied 22,236.9 billion won (50.7%)
 - With 4,275.9 billion won, capital cost accounted for 9.8 percent of the total R&D expenditure

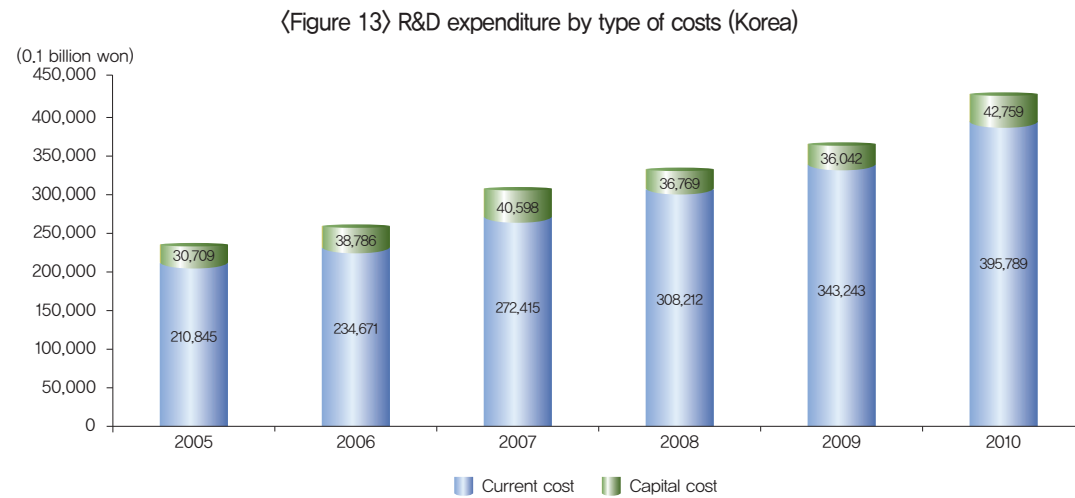


Table 2) R&D expenditure by type of costs (Korea)

(Unit : 0.1 billion won, %)

		2005	2006	2007	2008	2009	2010	
Current cost	Labor cost	R&D exp.	99,536	111,658	128,041	139,877	145,239	173,420
		rate(%)	41.2	40.8	40.9	40.5	38.3	39.5
	Other current cost	R&D exp.	111,309	123,013	144,375	168,335	198,005	222,369
		rate(%)	46.1	45.0	46.1	48.8	52.2	50.7
Sub total		R&D exp.	210,845	234,671	272,415	308,212	343,243	395,789
		rate(%)	87.3	85.8	87.0	89.3	90.5	90.2
Capital cost	Machinery	R&D exp.	23,936	29,793	30,311	26,895	28,622	34,190
		rate(%)	9.9	10.9	9.7	7.8	7.5	7.8
	Land, Building	R&D exp.	2,999	4,725	5,829	6,452	4,609	5,182
		rate(%)	1.2	1.7	1.9	1.9	1.2	1.2
	Computer software	R&D exp.	3,775	4,269	4,458	3,422	2,811	3,388
		rate(%)	1.6	1.6	1.4	1.0	0.7	0.8
Sub total		R&D exp.	30,709	38,786	40,598	36,769	36,042	42,759
		rate(%)	12.7	14.2	13.0	10.7	9.5	9.8
Total			241,554	273,457	313,014	344,981	379,285	438,548

R&D Expenditure of 6T

- Percentage of ET (Environment Technology) has increased by 1.9 percentage points and occupied 11.0 percent in 2010
 - R&D expenditure for ET, which is closely related to the nations vision, "Low-Carbon, Green Growth," has increased by 39.1 percent (1,354.4 billion won) and reached 4,819.6 billion won

Figure 14) R&D expenditure rate of 6T (Korea)

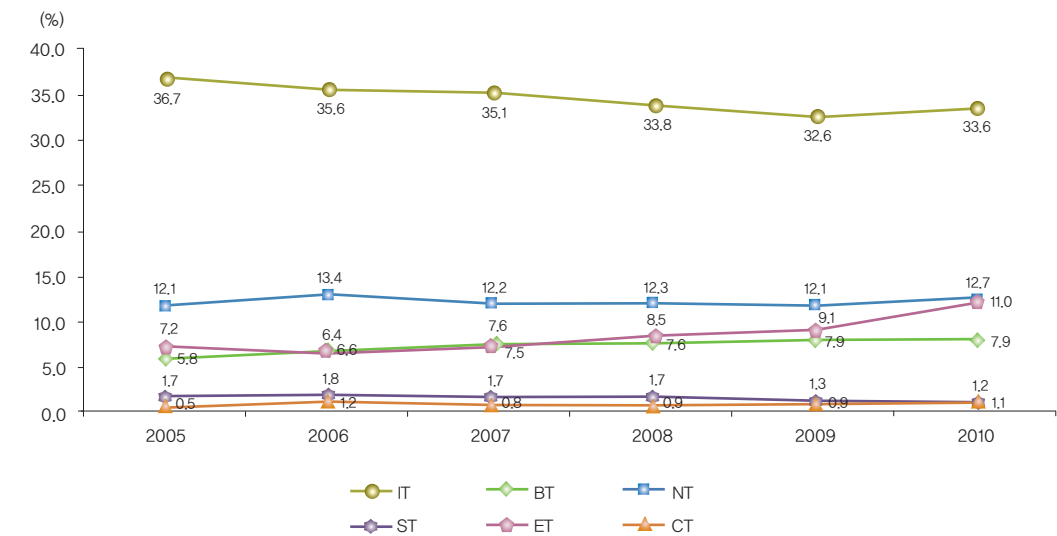


Table 3) R&D expenditure by 6T (Korea)

(Unit : 0.1 billion won)

	2005	2006	2007	2008	2009	2010
IT	88,680	97,230	109,949	116,501	123,543	147,369
BT	14,115	18,099	23,537	26,349	30,089	34,591
NT	29,134	36,568	38,120	42,326	45,994	55,891
ST	4,089	5,000	5,331	5,949	4,878	5,481
ET	17,424	17,408	23,680	29,330	34,651	48,196
CT	1,249	3,345	2,406	2,986	3,574	5,029
Others	86,865	95,808	109,992	121,540	136,556	141,992
Total	241,554	273,457	313,014	344,981	379,285	438,548

R&D Expenditure by Technology Type

- In 2010, electricity & electronics, information & communication, and machinery occupied around 59.7 percent of the total R&D expenditure
 - Share of electricity & electronics was the highest with 24.94 percent, followed by information & communication (19.05%), and machinery (15.71%)
- Compared to 2009, the R&D expenditure on energy & resources increased by 0.3 percentage points to 2.8 percent
- The share of public research institutes was the highest in machinery (14.23%), while that of universities and colleges was the highest in health science (15.48%) and the share of business enterprises was the highest in electricity & electronics (30.13%)

(Table 4) 2010 R&D expenditure rate by the National S&T Standard Classification System (Korea)

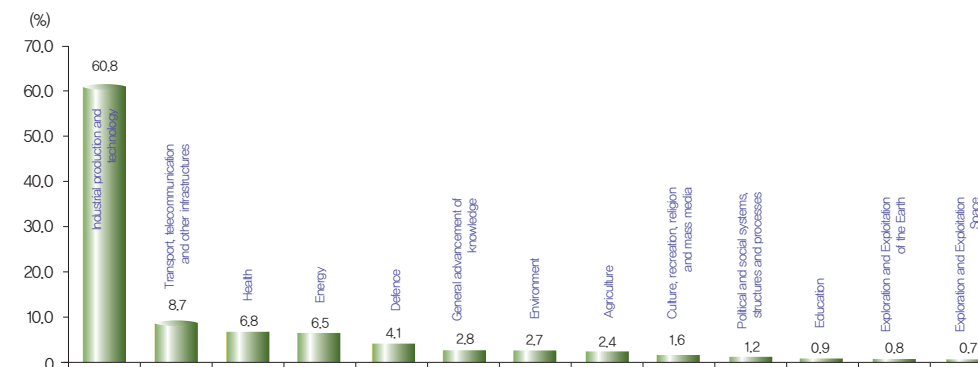
(Unit : %)

	Mathematics	Physics	Chemistry	Earth Science	Life Science	Agriculture, Fishery & food	Health Science
Public Research Ins.	0.27	1.32	1.32	4.62	2.77	8.44	4.87
Univ. & Colleges	1.04	2.83	4.00	2.48	8.72	5.02	15.48
Business Enterprises	0.21	0.40	6.73	0.08	1.53	0.91	1.96
Total	0.30	0.79	5.66	0.99	2.49	2.44	3.84
	Machinery	Materials	Chemical Eng.	Electricity & Electronics	Information/Communication	Energy/Resources	Nuclear Power
Public Research Ins.	14.23	6.14	1.60	10.26	13.95	8.09	5.52
Univ. & Colleges	7.78	5.94	2.85	8.61	6.49	3.09	0.83
Business Enterprises	17.14	6.18	2.53	30.13	21.85	1.79	0.65
Total	15.71	6.15	2.43	24.94	19.05	2.84	1.37
	Environment	Construction/Transportation	History/Archeology	Philosophy/Religion	Linguistics	Literature	Cultural/Arts/Sports
Public Research Ins.	3.33	3.46	0.17	0.01	0.00	0.01	0.76
Univ. & Colleges	3.06	4.66	0.89	0.48	1.13	0.60	1.79
Business Enterprises	1.89	4.40	0.00	0.00	0.02	0.00	0.66
Total	2.22	4.29	0.12	0.06	0.14	0.07	0.80
	Law	Politics/Public Administration	Economics/Management	Society, Anthropology, Welfare, Woman	Human Ecology	Geographical/Region/Tourism	Psychology
Public Research Ins.	0.02	0.93	2.05	0.90	0.24	0.18	0.00
Univ. & Colleges	0.53	0.97	2.91	1.55	0.59	0.92	0.25
Business Enterprises	0.00	0.01	0.21	0.04	0.18	0.03	0.03
Total	0.06	0.25	0.77	0.33	0.23	0.15	0.05
	Education	Media/Communication/Library & information	Brain Sciences	Cognitive/Emotion & Sensibility Sciences	S&T and Society	Total	
Public Research Ins.	2.05	0.09	0.37	0.04	1.98	100.00	
Univ. & Colleges	2.06	0.78	0.41	0.11	1.16	100.00	
Business Enterprises	0.07	0.28	0.00	0.01	0.07	100.00	
Total	0.57	0.30	0.10	0.03	0.46	100.00	

R&D Expenditure by Socioeconomic Objective

- Based on socioeconomic objectives, Korea's R&D expenditure for 2010 can be broken down into the following :
 - Share of industrial production and technology was the highest with 60.8 percent, followed by transport, telecommunication and other infrastructures (8.7%), and health (6.8%)
- R&D expenditure rate by sector of performance and socioeconomic objective are as follows :
 - In industrial production and technology, the share of business enterprises (73.3%) was exceptionally high while that of public research institutes (23.6%) and universities and colleges (23.4%) were relatively low
 - Share of universities and colleges in health was relatively high (20.3%)

(Figure 15) 2010 R&D expenditure rate by socioeconomic objective (Korea)



(Table 5) 2010 R&D expenditure rate by sector of performance and socioeconomic objective (Korea)

(Unit : %)

	Public Research Ins.	Univ. & Colleges	Business Enterprises	Total
Exploration and Exploitation of the Earth	3.1	1.3	0.3	0.8
Environment	4.4	3.6	2.2	2.7
Exploration and Exploitation of Space	4.0	0.9	0.1	0.7
Transport, telecommunication and other infrastructures	5.5	10.7	9.0	8.7
Energy	14.0	5.6	5.1	6.5
Industrial production and technology	23.6	23.4	73.3	60.8
Health	7.8	20.3	4.6	6.8
Agriculture	8.4	5.9	0.8	2.4
Education	2.1	3.4	0.3	0.9
Culture, recreation, religion and mass media	1.0	4.1	1.4	1.6
Political and social systems, structures and processes	4.0	4.8	0.2	1.2
General advancement of knowledge	3.9	14.0	1.0	2.8
Defence	18.1	2.0	1.7	4.1

R&D Expenditure by Field of Science

- In 2010, Korea's R&D expenditure for science and technology occupied 96.0 percent (42,094.9 billion won) of the total R&D spending
 - Within science and technology R&D investment, expenditure on engineering and technology occupied 30,628.1 billion won (69.8%), followed by natural science with 5,636.5 billion won (12.9%), and medical & health science with 4,748.2 billion won (10.8%)
 - Share of engineering and technology has fallen steadily since 2007 while that of natural science and medical & health science has increased
- Share of R&D investment in science and technology was the highest in business enterprises(98.6%) and relatively low in universities and colleges (85.3%)

〈Table 6〉 R&D expenditure by research field (Korea)

(Unit : 0.1 billion won, %)

		2008		2009		2010	
		expenditure	rate	expenditure	rate	expenditure	rate
Science and Technology	Natural Science	40,846	11.8	47,598	12.5	56,365	12.9
	Engineering & Tech.	247,241	71.7	266,711	70.3	306,281	69.8
	Medical & Health Science	35,294	10.2	40,095	10.6	47,482	10.8
	Agricultural Science	7,478	2.2	9,201	2.4	10,822	2.5
	Sub-total	330,859	95.9	363,604	95.9	420,949	96.0
Humanities and Social Sciences	Humanities	4,708	1.4	5,147	1.4	5,326	1.2
	Social Science	9,414	2.7	10,534	2.8	12,273	2.8
	Sub-total	14,122	4.1	15,681	4.1	17,599	4.0

〈Table 7〉 2010 R&D expenditure by sector of performance and research field (Korea)

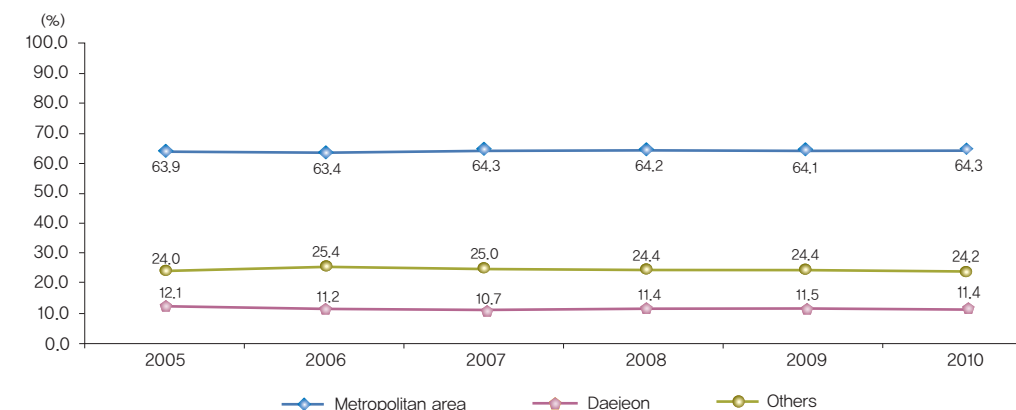
(Unit : 0.1 billion won, %)

		Public Research Ins.		Univ. & Colleges		Business Enterprises		Total	
		exp.	rate	exp.	rate	exp.	rate	exp.	rate
Science and Technology	Natural Science	7,271	11.5	7,462	15.7	41,631	12.7	56,365	12.9
	Engineering & Tech.	41,304	65.5	22,107	46.6	242,870	74.0	306,281	69.8
	Medical & Health Science	2,786	4.4	8,265	17.4	36,431	11.1	47,482	10.8
	Agricultural Science	5,703	9.0	2,637	5.6	2,482	0.8	10,822	2.5
	Sub-total	57,064	90.5	40,472	85.3	323,413	98.6	420,949	96.0
Humanities and Social Sciences	Humanities	338	0.5	2,737	5.8	2,251	0.7	5,326	1.2
	Social Science	5,659	9.0	4,246	8.9	2,368	0.7	12,273	2.8
	Sub-total	5,997	9.5	6,983	14.7	4,619	1.4	17,599	4.0

R&D Expenditure by Region

- R&D expenditure of the Seoul Metropolitan Area in 2010 was 28,218.3 billion won, which accounted for 64.3 percent of the total R&D investment
 - In the Metropolitan Area, R&D expenditure of Gyeonggi region reached 18,312.9 billion won while that of Seoul was 8,243.0 billion won
 - Percentage of R&D expenditure in Daejeon and the Metropolitan Area has increased by 0.2 percentage points and occupied 75.8 percent

〈Figure 16〉 R&D expenditure rate in metropolitan area (Korea)



〈Table 8〉 R&D expenditure by region (Korea)

(Unit : 0.1 billion won, %)

	2008		2009		2010	
	expenditure	rate	expenditure	rate	expenditure	rate
Seoul	71,747	20.8	73,042	19.3	82,430	18.8
Busan	7,423	2.2	8,111	2.1	8,395	1.9
Daegu	5,080	1.5	5,308	1.4	5,900	1.3
Incheon	14,062	4.1	14,407	3.8	16,624	3.8
Gwangju	5,004	1.5	5,269	1.4	5,209	1.2
Daejeon	39,476	11.4	43,567	11.5	50,122	11.4
Ulsan	4,114	1.2	3,945	1.0	4,522	1.0
Gyeonggi	135,505	39.3	155,632	41.0	183,129	41.8
Gangwon	2,576	0.7	2,772	0.7	2,847	0.6
Chungbuk	6,434	1.9	6,256	1.6	7,829	1.8
Chungnam	17,255	5.0	21,261	5.6	26,866	6.1
Jeonbuk	3,869	1.1	4,934	1.3	5,308	1.2
Jeonnam	3,287	1.0	3,898	1.0	4,826	1.1
Gyeongbuk	14,106	4.1	15,748	4.2	18,286	4.2
Gyeongnam	14,240	4.1	14,039	3.7	15,137	3.5
Jeju	803	0.2	1,095	0.3	1,118	0.3

The Flow and Composition of R&D Expenditures

<Table 9> 2010 flow of R&D expenditures by sector of performance (Korea)
(Unit : million won, %)

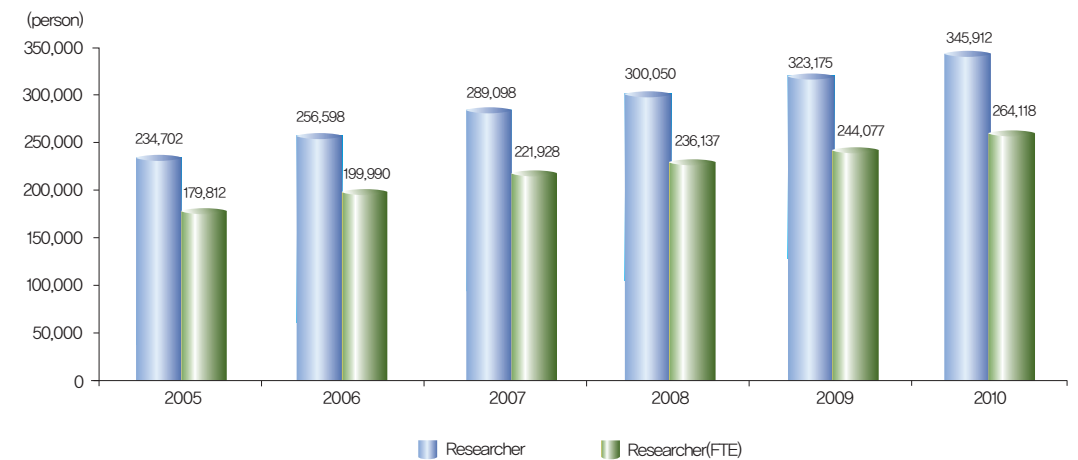
Performance		Public research institutes			Univ. & Colleges		Business Enterprises		Total	
		Gov. Public Institute	Gov. supported Research institute	Other non-profit institute	National public univ.	Private univ.	Gov. -invested com.	Private company		
Gov. & Other national sources	Gov.	616,961	4,300,612	405,193	1,516,550	1,919,927	133,038	1,492,114	10,384,396	
		97.9%	87.3%	54.2%	76.1%	69.8%	23.6%	4.6%	23.7%	
	Gov.-invested institute	8,733	388,628	18,059	137,335	211,633	7,752	573,228	1,345,367	
		1.4%	7.9%	2.4%	6.9%	7.7%	1.4%	1.8%	3.1%	
	National public univ.	746	4,816	1,325	117,212	8,236	131	8,766	141,232	
		0.1%	0.1%	0.2%	5.9%	0.3%	0.0%	0.0%	0.3%	
	Sub-total	626,440	4,694,056	424,577	1,771,097	2,139,796	140,921	2,074,107	11,870,995	
		99.4%	95.3%	56.8%	88.9%	77.7%	25.0%	6.4%	27.1%	
	Other national sources	Private univ.	156	9,105	1,947	6,252	209,979	34	4,956	232,429
			0.0%	0.2%	0.3%	0.3%	7.6%	0.0%	0.0%	0.5%
Non-profit corp.		422	22,495	71,929	19,213	43,707	115	8,923	166,804	
		0.1%	0.5%	9.6%	1.0%	1.6%	0.0%	0.0%	0.4%	
Sub-total	578	31,600	73,875	25,465	253,686	149	13,879	399,233		
	0.1%	0.6%	9.9%	1.3%	9.2%	0.0%	0.0%	0.9%		
Total	627,019	4,725,656	498,452	1,796,562	2,393,483	141,070	2,087,987	12,270,228		
	99.5%	95.9%	66.6%	90.1%	87.0%	25.0%	6.5%	28.0%		
Industry	Gov.-invested institute	0	48,430	631	6,546	24,012	385,994	6,347	471,961	
		0.0%	1.0%	0.1%	0.3%	0.9%	68.4%	0.0%	1.1%	
	Private company	3,106	141,434	236,342	184,426	320,375	36,720	30,095,257	31,017,660	
		0.5%	2.9%	31.6%	9.3%	11.6%	6.5%	93.4%	70.7%	
Total	3,106	189,864	236,974	190,972	344,387	422,714	30,101,604	31,489,621		
	0.5%	3.9%	31.7%	9.6%	12.5%	74.9%	93.4%	71.8%		
Abroad	66	12,362	12,639	5,538	14,517	764	49,100	94,986		
	0.0%	0.3%	1.7%	0.3%	0.5%	0.1%	0.2%	0.2%		
Total	630,190	4,927,882	748,064	1,993,072	2,752,387	564,548	32,238,692	43,854,834		
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

2. R&D Personnel

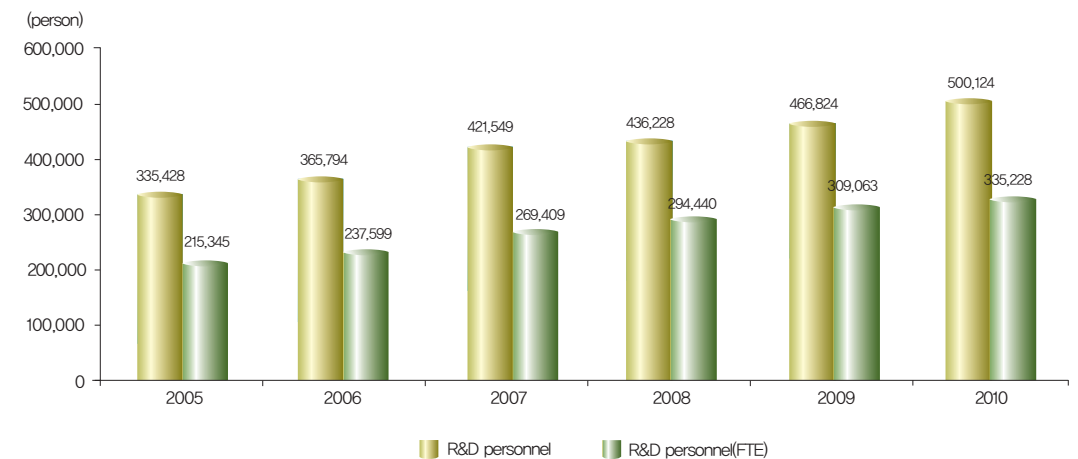
Total Number of Researchers

- In 2010, the total number of researchers in Korea increased by 22,737 persons (7.0%) from the previous year and reached a total of 345,912 persons
- Total number of R&D personnel including research assistants increased by 33,300 persons (7.1%) from the previous year and reached 500,124 persons
- With 264,118 persons, Korea ranked 6th in the world in the number of FTE¹⁾ researchers and the total number of researchers in Korea was 335,228 persons

<Figure 17> Total number of researchers (Korea)

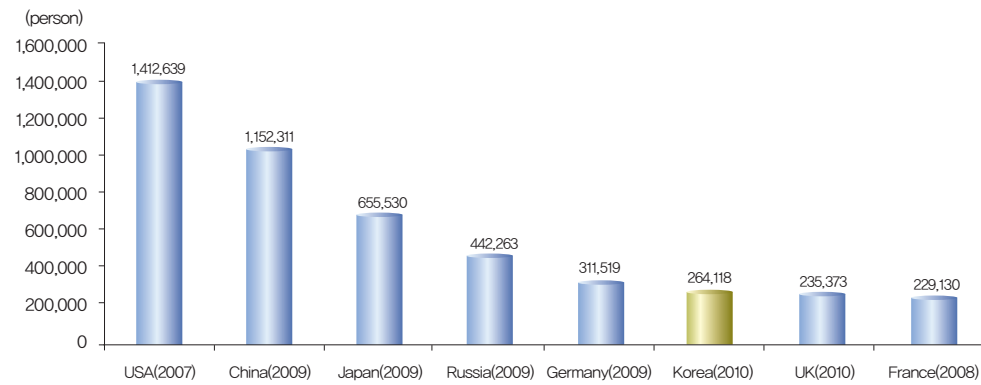


<Figure 18> Total number of R&D personnel (Korea)



1) FTE (Full Time Equivalent) : unlike the 'Headcount', a simple aggregated number of researchers, takes into account the amount of their actual participation in research activities

〈Figure 19〉 Total number of researchers(FTE) by country



* Source : OECD, Main Science and Technology Indicators 2011-1

Researchers per Thousand Population/Labor Force

- Among the major economies, Korea's number of researchers(FTE) per thousand labor force was 10.7 persons
- Countries with the most researchers (FTE) per thousand population were Korea (5.4 persons in 2010), Japan (5.1 persons in 2009), and the US (4.7 persons in 2007)

〈Figure 20〉 Researchers(FTE) per thousand population/labor force (major countries)

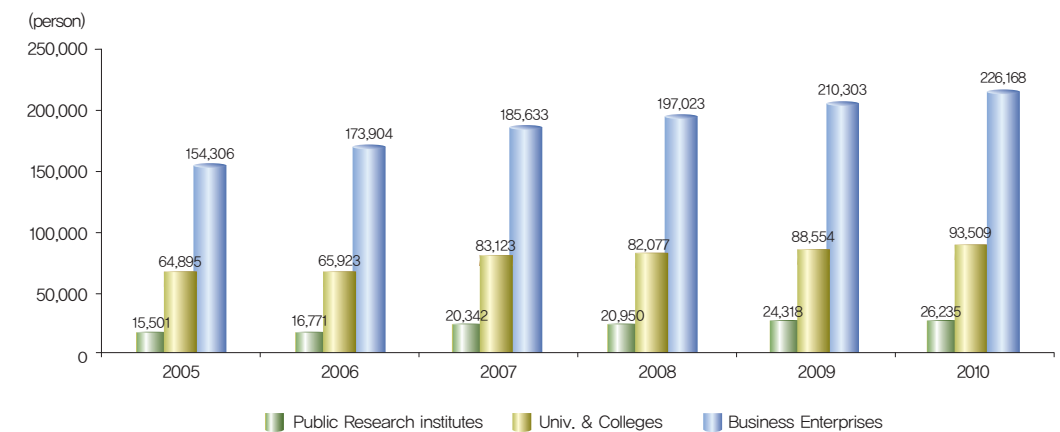


* Source : OECD, Main Science and Technology Indicators 2011-1

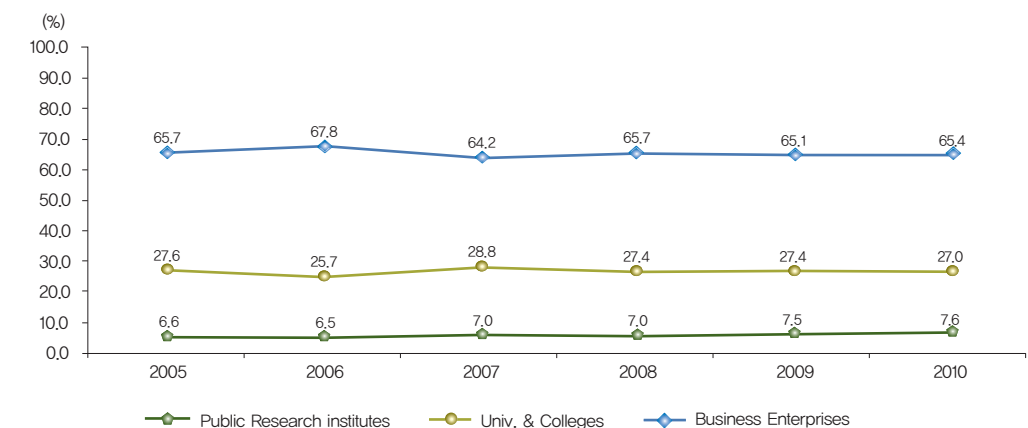
Researchers by Sector of Performance

- Number of researchers in business enterprises saw an increase by 7.5 percent (15,865 persons) from the previous year and reached 226,168 persons
 - Share of researchers in business enterprises accounted for 65.4 percent of the total number of researchers
 - Number of researchers in universities & colleges and public research institutes were 93,509 persons (27.0%) and 26,235 persons (7.6%) respectively
- Based on FTE, the share of researchers in business enterprises in Korea(76.5%) was relatively high among the major economies
 - Other nations with high percentage of researchers in the business sector were Japan (75.0% in 2008), China (68.6% in 2008)
 - Meanwhile, Korea had the lowest percentage of researchers in universities & colleges (14.9%) among the major countries

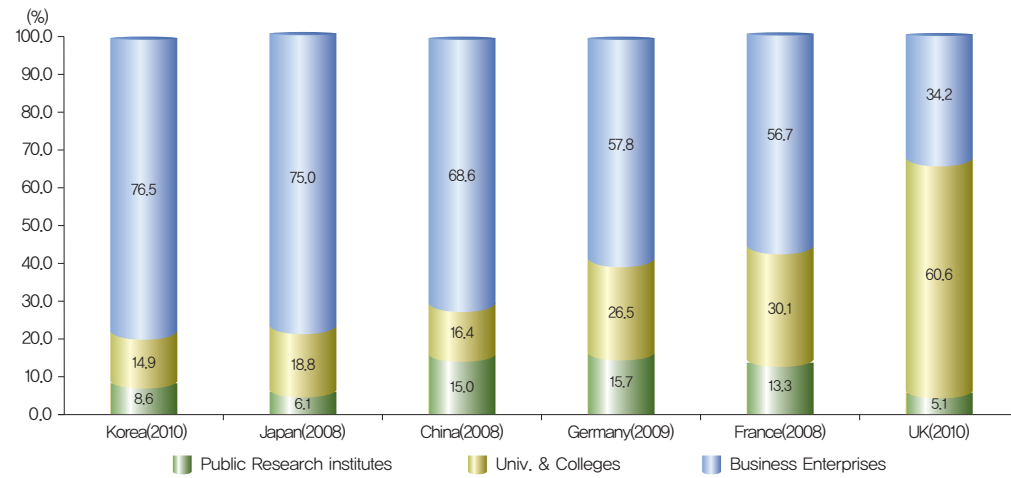
〈Figure 21〉 The number of researchers by sector of performance (Korea)



〈Figure 22〉 The rate of researchers by sector of performance (Korea)

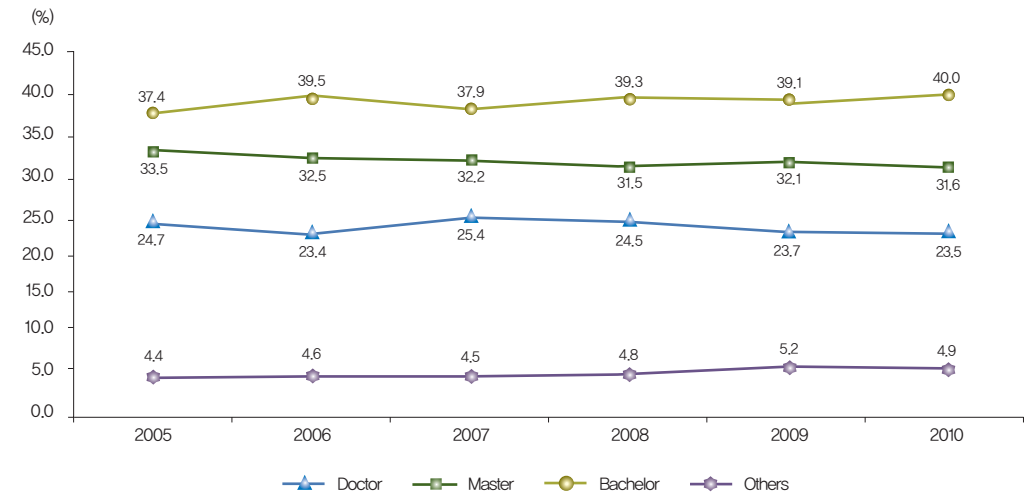


<Figure 23> The rate of researchers by sector of performance (major countries)



* Source : OECD, R&D Statistics 2010

<Figure 25> The rate of researchers by degree (Korea)

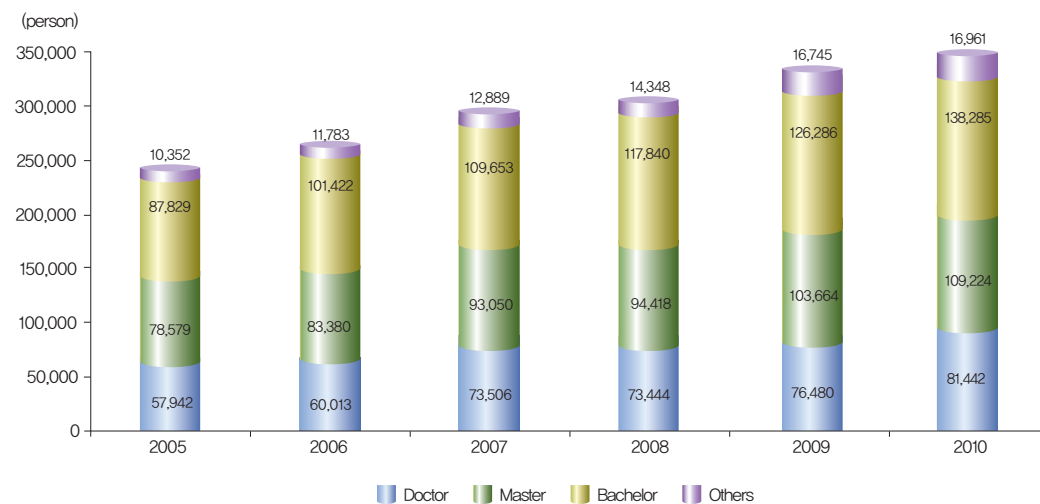


Researchers by Degree

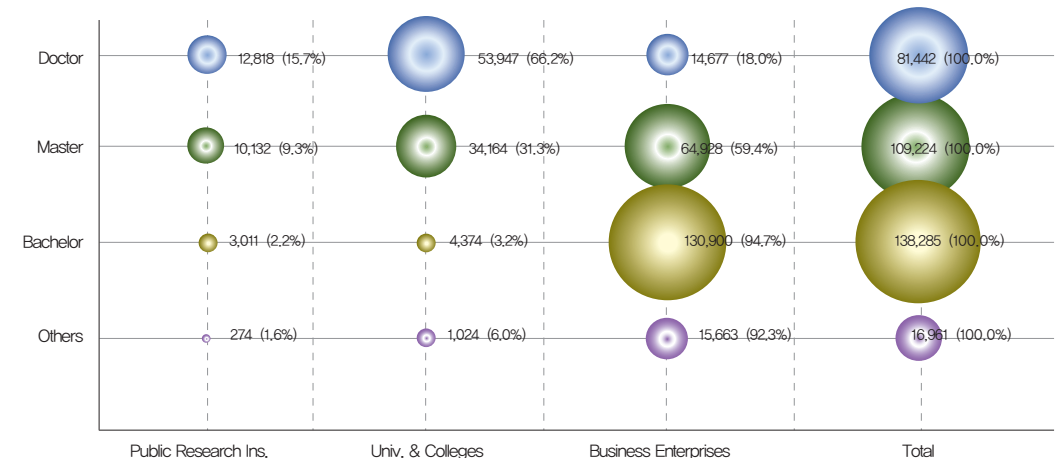
- In 2010, the distribution of researchers by degree revealed that 81,442 persons had doctorate degrees, 109,224 persons had master's degrees, 138,285 persons had bachelor's degrees, and 16,961 researchers had other degrees
 - Share of researchers with doctorate degrees decreased 0.2 percentage points to 23.5 percent and those with master's degrees decreased 0.5 percentage points to 31.6 percent
 - Percentage of researchers with bachelor's degrees increased 0.9 percentage points to 40.0 percent

- 66.2 percent of the total number of doctorate researchers (53,947 persons) worked at universities and colleges
 - Universities & colleges and public research institutes had the highest percentage of researchers with doctorate degrees, followed by master's degrees, and bachelor's degrees
 - Meanwhile, business enterprises had the highest percentage of researchers with bachelor's degree and had a relatively low portion of doctorate researchers

<Figure 24> The number of researchers by degree (Korea)



<Figure 26> 2010 distribution of researchers by sector of performance and degree



Researchers by Major Fields of Study

- In 2010, 67.0 percent (231,913 persons) of the researchers in Korea were engineer majors
 - Other fields of study with high distribution of researchers included natural science with 46,023 researchers (13.3%), social science with 22,280 researchers (6.4%), and medical & health science with 18,926 researchers (5.5%)
- When analyzed by sector of performance, engineering & technology majors that work for business enterprises accounted for the largest share (82.5%)
 - Percentage of engineering and technology majors working in public research institutes and universities & colleges were 49.3 percent and 34.6 percent respectively

〈Table 10〉 The number of researchers by major field of study (Korea)

(Unit : person, %)

		2008		2009		2010	
		number	rate	number	rate	number	rate
Science and Technology	Natural Science	35,760	11.9	41,687	12.9	46,023	13.3
	Engineering & Tech.	205,478	68.5	217,911	67.4	231,913	67.0
	Medical & Health Science	17,247	5.7	17,227	5.3	18,926	5.5
	Agricultural Science	6,853	2.3	8,713	2.7	9,202	2.7
	Sub-total	265,338	88.4	285,538	88.4	306,064	88.5
Humanities and Social Sciences	Humanities	15,457	5.2	16,372	5.1	17,568	5.1
	Social Science	19,255	6.4	21,265	6.6	22,280	6.4
	Sub-total	34,712	11.6	37,637	11.6	39,848	11.5

〈Table 11〉 2010 Researchers by sector of performance and major field of study (Korea)

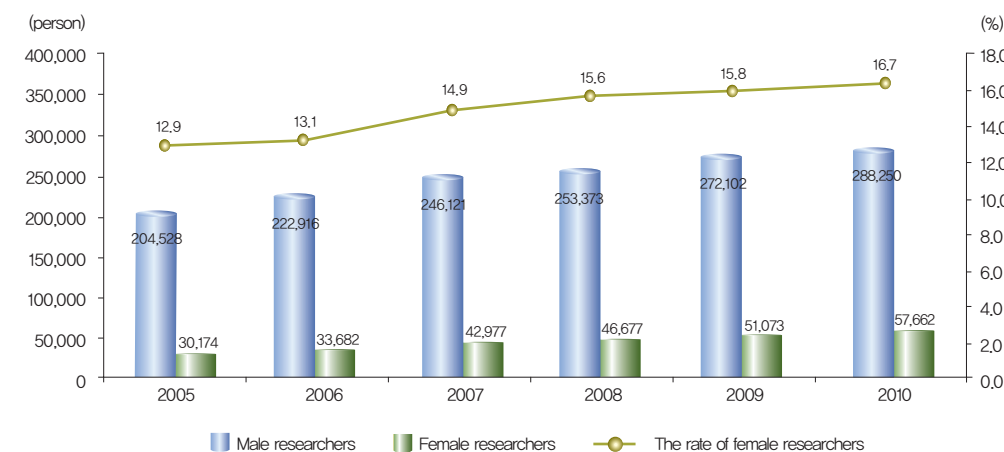
(Unit : person, %)

		Public Research Ins.		Univ. & Colleges		Business Enterprises		Total	
		num.	rate	num.	rate	num.	rate	num.	rate
Science and Technology	Natural Science	5,108	19.5	14,975	16.0	25,940	11.5	46,023	13.3
	Engineering & Tech.	12,927	49.3	32,386	34.6	186,600	82.5	231,913	67.0
	Medical & Health Science	1,836	7.0	15,125	16.2	1,965	0.9	18,926	5.5
	Agricultural Science	2,411	9.2	4,347	4.6	2,444	1.1	9,202	2.7
	Sub-total	22,282	84.9	66,833	71.5	216,949	95.9	306,064	88.5
Humanities and Social Sciences	Humanities	480	1.8	11,122	11.9	5,966	2.6	17,568	5.1
	Social Science	3,473	13.2	15,554	16.6	3,253	1.4	22,280	6.4
	Sub-total	3,953	15.1	26,676	28.5	9,219	4.1	39,848	11.5

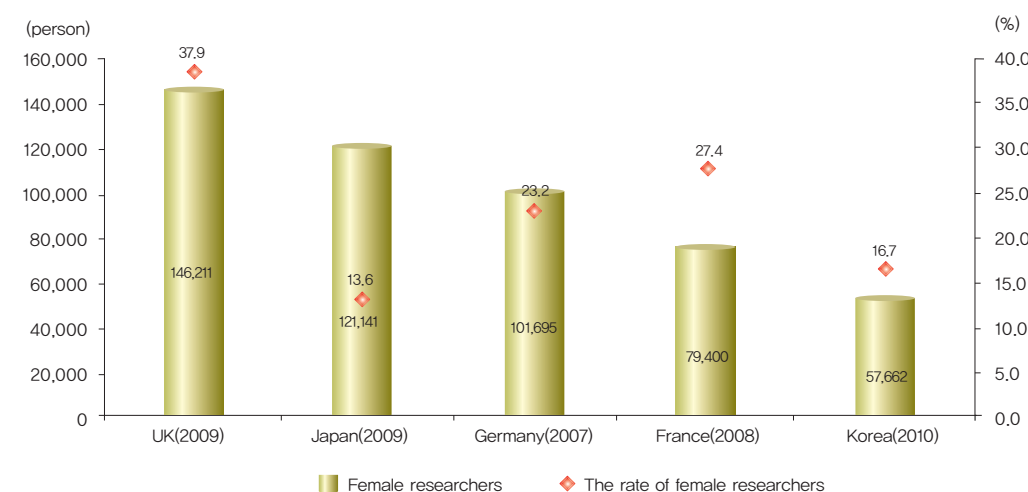
Researchers by Gender

- Number of female researchers has increased by 12.9 percent (6,589 persons) and reached 57,662 persons, which accounted for 16.7 percent of the total number of researchers
- Compared to the major economies, the percentage of female researchers (16.7%) was low in Korea, second only to Japan (13.6% in 2009)
- With 37.9 percent (2009), the UK had the highest ratio of female researchers among the surveyed countries, followed by France (27.4% in 2008), and Germany (23.2% in 2007)

〈Figure 27〉 The number of researchers by gender (Korea)



〈Figure 28〉 The number of female researchers (major countries)

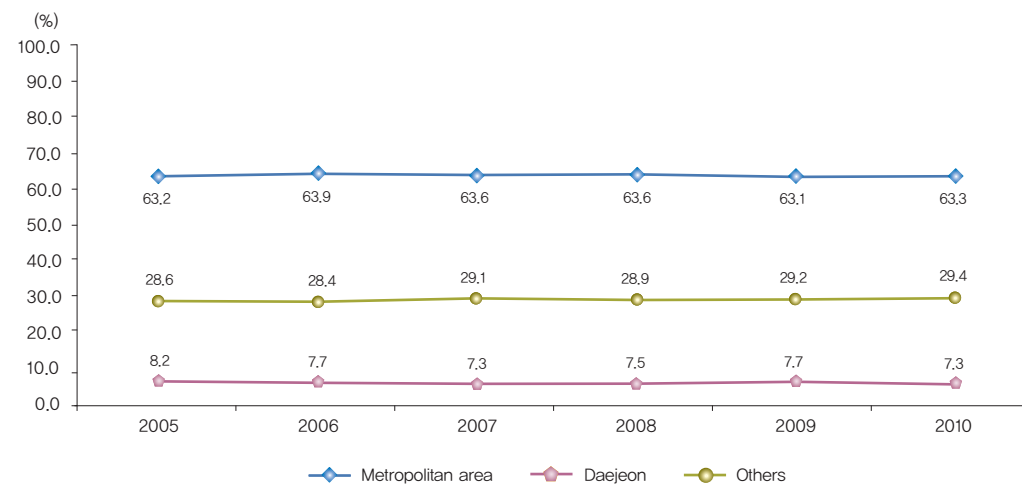


* Source : OECD, Main Science and Technology Indicators 2011-1

Researchers by Region

- Number of researchers in the Metropolitan Area has reached 218,818 persons (63.3%) in 2010
 - Gyeonggi area had 114,858 researchers (33.2%) while Seoul had 91,193 researchers (26.4%)
 - Percentage of researchers in Daejeon and the Metropolitan Area has slightly decreased from the previous year- from 70.8 percent in 2009 to 70.6 percent in 2010

(Figure 29) The rate of researchers in metropolitan area (Korea)



(Table 12) The number of researchers by region (Korea)

(Unit : person, %)

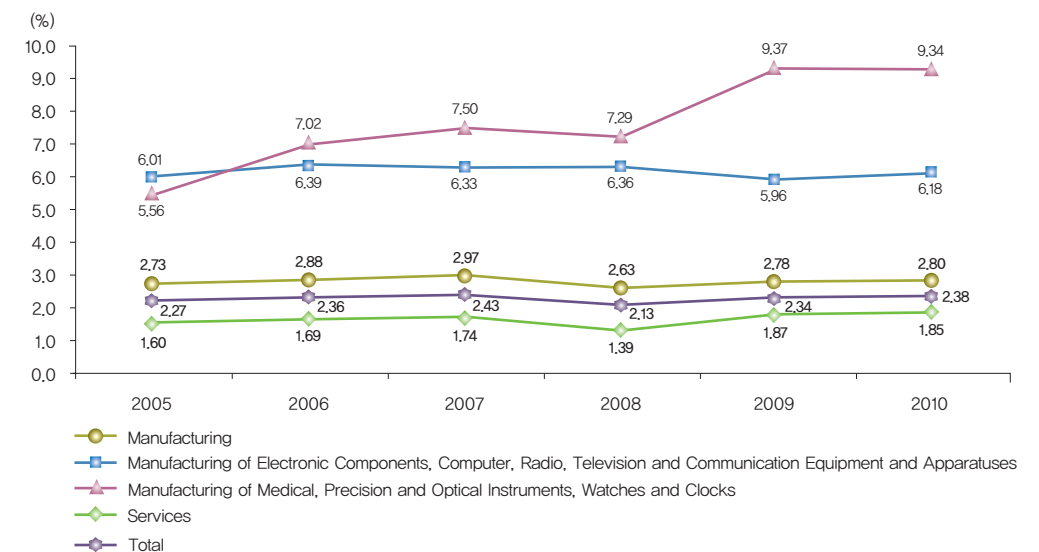
	2008		2009		2010	
	number	rate	number	rate	number	rate
Seoul	82,928	27.6	86,852	26.9	91,193	26.4
Busan	10,204	3.4	10,107	3.1	10,763	3.1
Daegu	7,442	2.5	7,592	2.3	7,740	2.2
Incheon	11,097	3.7	11,629	3.6	12,767	3.7
Gwangju	5,696	1.9	6,651	2.1	6,788	2.0
Daejeon	22,448	7.5	25,014	7.7	25,277	7.3
Ulsan	3,480	1.2	3,678	1.1	3,982	1.2
Gyeonggi	96,747	32.2	105,460	32.6	114,858	33.2
Gangwon	4,143	1.4	4,354	1.3	4,818	1.4
Chungbuk	7,696	2.6	7,803	2.4	9,059	2.6
Chungnam	13,772	4.6	15,878	4.9	17,612	5.1
Jeonbuk	5,283	1.8	6,268	1.9	6,743	1.9
Jeonnam	2,683	0.9	3,093	1.0	3,606	1.0
Gyeongbuk	12,916	4.3	13,302	4.1	15,265	4.4
Gyeongnam	12,596	4.2	13,763	4.3	13,377	3.9
Jeju	919	0.3	1,731	0.5	2,064	0.6

3. R&D Activities of the Business Enterprise Sector

R&D Expenditure Rate to Sales

- In 2010, R&D expenditure rate to sales has increased by 0.04 percentage points and reached 2.38 percent
 - In manufacturing, R&D expenditure rate to sales has risen by 0.02 percentage points from the previous year and reached 2.80 percent
 - R&D expenditure rate to sales in the service industry has decreased by 0.02 percentage points to 1.85 percent
- In the manufacturing industry, manufacture of medical, precision, and optical instruments, watches and clocks had the highest R&D expenditure relative to sales
 - Industries with active R&D investment rate to sales are high-tech industries such as manufacture of medical, precision, and optical instruments, watches and clocks (9.34%) and manufacture of electronic components, computer, radio, television, and communication equipment and apparatuses (6.18%)
- In the service industry, the research and development industry showed the highest R&D expenditure rate to sales (40.38%)

(Figure 30) R&D expenditure rate to sales of major industries (Korea)



〈Table 13〉 R&D expenditure rate to sales by industry (Korea)

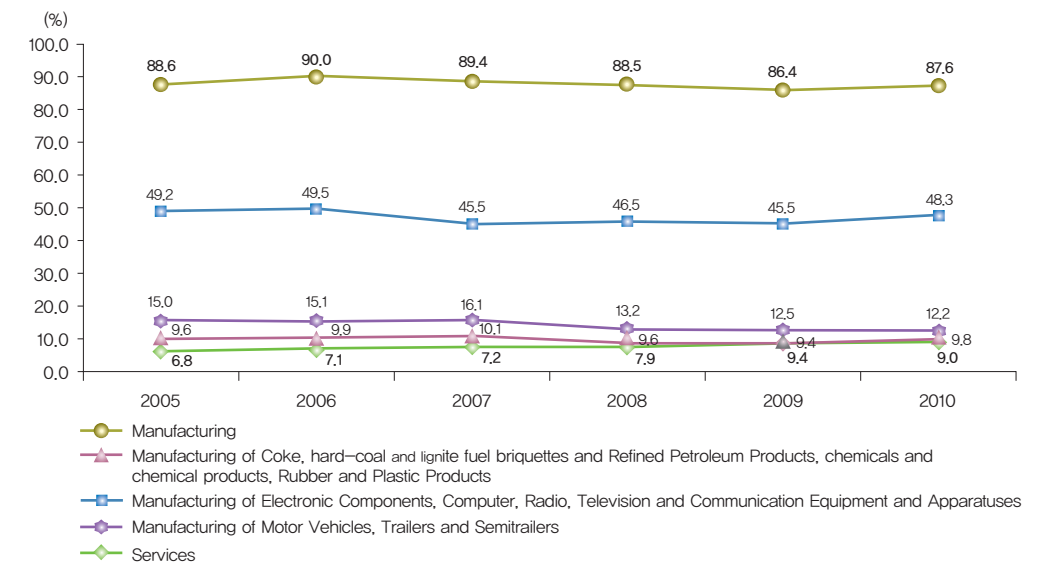
Industry	2006	2007	2008	2009	2010
Total	2.36	2.43	2.13	2.34	2.38
AGRICULTURE FORESTRY AND FISHING	4.40	9.05	11.93	13.98	8.47
MINING AND QUARRYING		0.60	0.32	0.74	0.62
Manufacturing	2.88	2.97	2.63	2.78	2.80
Manufacture of food products; beverages and tobacco products	0.74	0.76	0.96	0.90	0.75
Manufacture of textiles, wearing apparel, leather and related products	0.70	0.86	0.72	1.45	1.42
Manufacture of wood, paper, printing and reproduction	0.46	0.69	0.76	1.02	1.07
Manufacture of Coke, hard-coal and lignite fuel briquettes and Refined Petroleum Products, chemicals and chemical products, Rubber and Plastic Products	1.30	1.49	1.06	1.22	1.21
Manufacture of Coke, hard-coal and lignite fuel briquettes and Refined Petroleum Products	0.24	0.24	0.10	0.15	0.20
Manufacture of chemicals and chemical products	2.00	2.22	2.02	1.94	1.92
Manufacture of chemicals and chemical products except pharmaceuticals, medicinal chemicals	1.61	1.72	1.56	1.49	1.51
Manufacture of Pharmaceuticals, Medicinal Chemicals and Botanical Products	5.12	5.85	5.24	5.38	5.47
Manufacture of Rubber and Plastic Products	2.50	2.56	2.34	2.45	2.16
Manufacture of Other Non-metallic Mineral Products	1.32	1.20	1.04	1.41	1.25
Manufacture of Basic Metal Products	0.57	0.63	0.58	0.72	0.61
Manufacture of Fabricated Metal Products, Except Machinery and Furniture	1.79	1.92	2.04	2.19	1.87
Manufacture of Electronic Components, Computer, Radio, Television and Communication Equipment and Apparatuses	6.39	6.33	6.36	5.96	6.18
Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks	7.02	7.50	7.29	9.37	9.34
Manufacture of electrical equipment	2.36	2.32	2.53	2.41	2.72
Manufacture of Other Machinery and Equipment	2.80	3.75	3.08	3.41	3.07
Manufacture of Motor Vehicles, Trailers and Semitrailers	3.16	3.42	2.83	3.03	2.71
Manufacture of Other Transport Equipment	1.08	1.07	0.89	0.73	0.83
Manufacture of Furniture & Other manufacturing	1.68	1.39	2.10	2.17	1.76
Electricity, gas, steam and water supply	0.43	0.45	0.39	0.38	0.35
Sewerage, waste management, materials recovery and remediation activities	2.54	1.73	2.53	2.06	2.05
Construction	0.40	0.49	0.50	0.74	0.71
SERVICES	1.69	1.74	1.39	1.87	1.85
Professional, scientific and technical activities	4.04	4.31	3.84	3.54	3.41
Research and Development	30.57	35.73	32.31	40.80	40.38

(Unit : %)

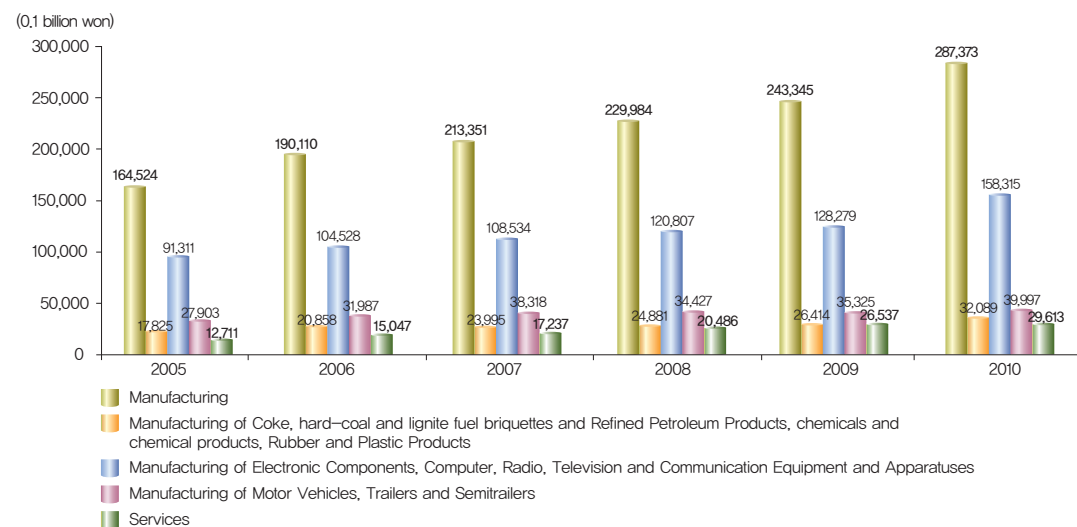
R&D Expenditure by Industry

- In the 2010 total R&D expenditure of the business enterprise sector, R&D investment of the manufacturing industry has increased by 4,402.8 billion won (18.1%) from the previous year and reached 28,737.3 billion won
 - R&D expenditure of the manufacturing industry accounted for 87.6 percent of the total R&D investment made by the business sector and out of this expenditure, R&D investment made by the manufacture of electronic components, computer, radio, television and communication equipment and apparatuses occupied 48.3 percent
- R&D expenditure of the service industry increased by 307.5 billion won (11.6%) to 2,961.3 billion won
 - Service industry's share in the total R&D investment decreased by 0.4 percentage points from the previous year and reached 9.0 percent
 - However, the share of service industry's R&D expenditure (9.0%) remained low compared to major economies such as the US (29.5% in 2007) or the UK (24.7% in 2008)

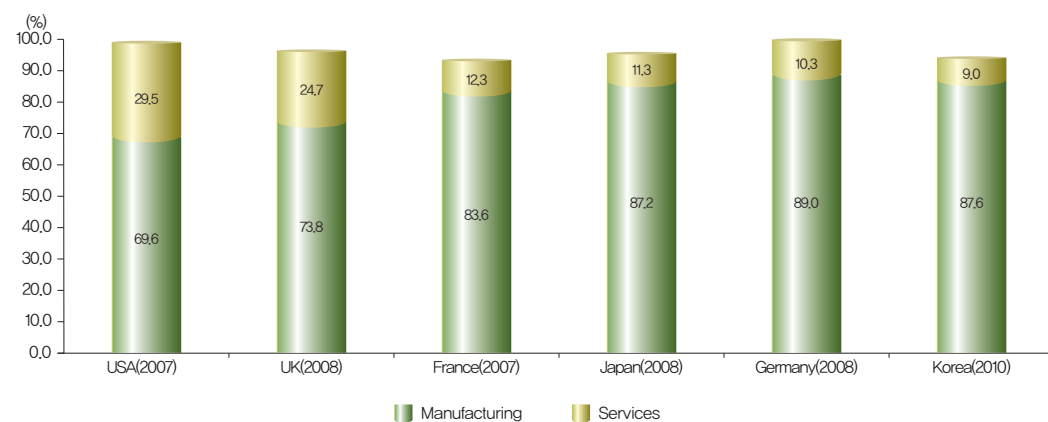
〈Figure 31〉 R&D expenditure rate of major industries (Korea)



〈Figure 32〉 R&D expenditure of major industries (Korea)



〈Figure 33〉 R&D expenditure rate of major industries (major countries)



* Source : OECD, R&D Statistics 2010

〈Table 14〉 R&D expenditure by industry (Korea)

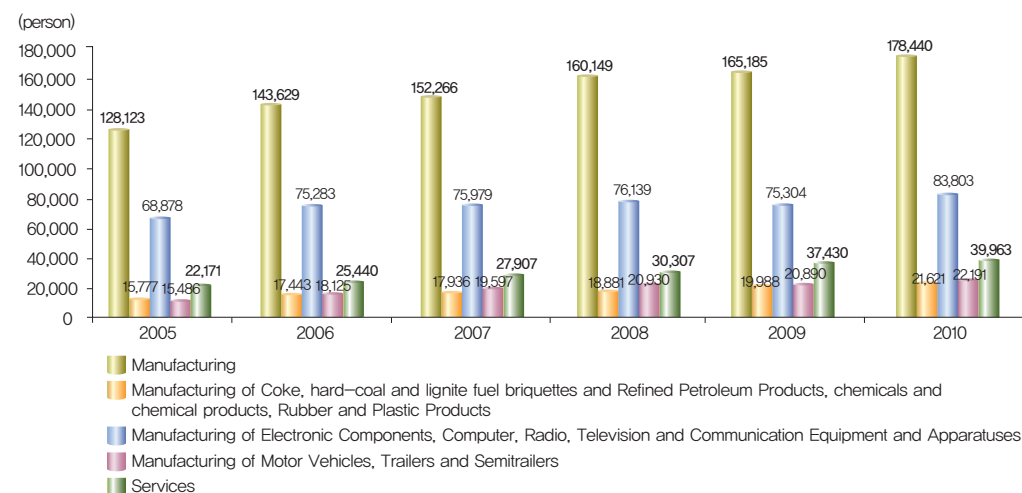
(Unit : 0.1 billion won)

Industry	2006	2007	2008	2009	2010
Total	211,268	238,649	260,001	281,659	328,032
AGRICULTURE FORESTRY AND FISHING	119	119	205	204	260
MINING AND QUARRYING	0	66	61	144	188
Manufacturing	190,110	213,351	229,984	243,345	287,373
Manufacture of food products; beverages and tobacco products	2,975	3,311	3,497	3,713	3,037
Manufacture of textiles, wearing apparel, leather and related products	773	1,465	1,526	1,638	1,669
Manufacture of wood, paper, printing and reproduction	189	383	442	617	681
Manufacture of Coke, hard-coal and lignite fuel briquettes and Refined Petroleum Products, chemicals and chemical products, Rubber and Plastic Products	20,858	23,995	24,881	26,414	32,089
Manufacture of Coke, hard-coal and lignite fuel briquettes and Refined Petroleum Products	1,578	1,511	1,159	1,373	2,307
Manufacture of chemicals and chemical products	16,110	18,743	19,369	21,446	24,715
Manufacture of chemicals and chemical products except pharmaceuticals, medicinal chemicals	11,534	12,775	13,024	14,548	17,336
Manufacture of Pharmaceuticals, Medicinal Chemicals and Botanical Products	4,576	5,968	6,345	6,897	7,379
Manufacture of Rubber and Plastic Products	3,170	3,741	4,353	3,595	5,068
Manufacture of Other Non-metallic Mineral Products	1,371	1,419	1,437	2,372	2,081
Manufacture of Basic Metal Products	3,231	4,158	5,117	5,519	5,586
Manufacture of Fabricated Metal Products, Except Machinery and Furniture	1,340	1,716	2,338	2,910	2,584
Manufacture of Electronic Components, Computer, Radio, Television and Communication Equipment and Apparatuses	104,528	108,534	120,807	128,279	158,315
Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks	2,845	3,691	6,885	6,942	8,020
Manufacture of electrical equipment	5,348	5,844	5,684	7,692	8,344
Manufacture of Other Machinery and Equipment	9,834	15,023	16,063	16,026	18,366
Manufacture of Motor Vehicles, Trailers and Semitrailers	31,987	38,318	34,427	35,325	39,997
Manufacture of Other Transport Equipment	4,315	4,938	5,453	5,195	5,807
Manufacture of Furniture & Other manufacturing	517	556	673	705	797
Electricity, gas, steam and water supply	2,158	2,415	2,588	2,729	2,940
Sewerage, waste management, materials recovery and remediation activities	17	17	227	206	203
Construction	3,816	5,444	6,449	8,493	7,455
SERVICES	15,047	17,237	20,486	26,537	29,613
Professional, scientific and technical activities	3,701	4,577	5,220	7,271	7,035
Research and Development	709	760	1,157	1,504	1,702

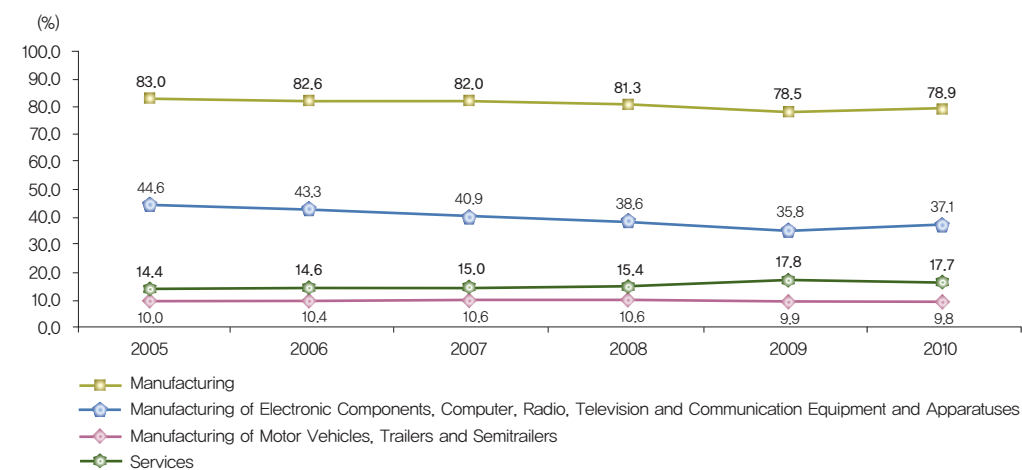
Number of Researchers by Industry

- Number of researchers in the manufacturing industry has increased by 13,255 persons (8.0%) from the previous year and reached 178,440 persons, which accounted for 78.9 percent of the total number of researchers in the business sector
- Number of researchers in the service industry has increased by 6.8 percent from the previous year and reached 39,963 persons
 - In 2010, the service industry accounted for 17.7 percent of the total number of researchers in the business enterprise sector

〈Figure 34〉 The number of researchers by industry (Korea)



〈Figure 35〉 The rate of researchers by industry (Korea)



〈Table 15〉 The number of researchers by industry (Korea)

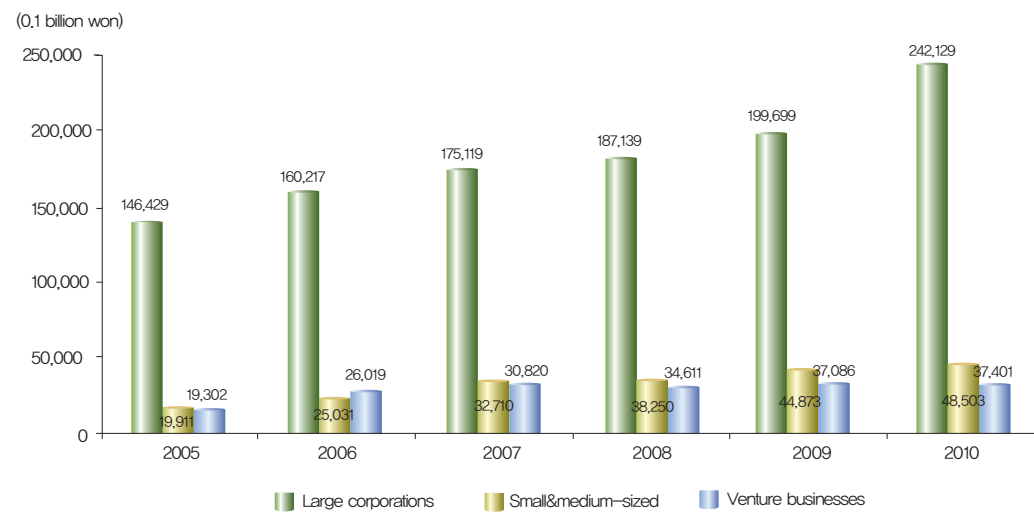
(Unit : person)

Industry	2006	2007	2008	2009	2010
Total	173,904	185,633	197,023	210,303	226,168
AGRICULTURE FORESTRY AND FISHING	135	92	114	128	156
MINING AND QUARRYING		39	59	84	97
Manufacturing	143,629	152,266	160,149	165,185	178,440
Manufacture of food products; beverages and tobacco products	3,102	3,358	3,556	3,638	3,491
Manufacture of textiles, wearing apparel, leather and related products	768	1,464	1,559	1,823	1,959
Manufacture of wood, paper, printing and reproduction	238	398	458	627	701
Manufacture of Coke, hard-coal and lignite fuel briquettes and Refined Petroleum Products, chemicals and chemical products, Rubber and Plastic Products	17,443	17,936	18,881	19,988	21,621
Manufacture of Coke, hard-coal and lignite fuel briquettes and Refined Petroleum Products	756	729	579	441	655
Manufacture of chemicals and chemical products	14,235	14,500	15,362	16,728	17,630
Manufacture of chemicals and chemical products except pharmaceuticals, medicinal chemicals	10,219	10,197	10,505	11,865	12,510
Manufacture of Pharmaceuticals, Medicinal Chemicals and Botanical Products	4,016	4,303	4,857	4,863	5,120
Manufacture of Rubber and Plastic Products	2,452	2,707	2,940	2,819	3,336
Manufacture of Other Non-metallic Mineral Products	1,087	1,299	1,292	1,438	1,595
Manufacture of Basic Metal Products	1,363	1,617	2,000	2,164	2,137
Manufacture of Fabricated Metal Products, Except Machinery and Furniture	1,729	2,036	3,006	3,799	3,773
Manufacture of Electronic Components, Computer, Radio, Television and Communication Equipment and Apparatuses	75,283	75,979	76,139	75,304	83,803
Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks	3,720	4,162	6,119	7,081	7,724
Manufacture of electrical equipment	6,013	6,087	5,607	7,100	7,285
Manufacture of Other Machinery and Equipment	9,958	13,091	13,925	14,951	15,737
Manufacture of Motor Vehicles, Trailers and Semitrailers	18,125	19,597	20,930	20,890	22,191
Manufacture of Other Transport Equipment	4,127	4,684	4,906	5,546	5,373
Manufacture of Furniture & Other manufacturing	673	740	1,039	836	1,050
Electricity, gas, steam and water supply	834	912	810	930	926
Sewerage, waste management, materials recovery and remediation activities	28	43	354	274	269
Construction	3,838	4,374	5,230	6,272	6,317
SERVICES	25,440	27,907	30,307	37,430	39,963
Professional, scientific and technical activities	6,119	6,911	7,738	9,735	9,857
Research and Development	1,005	1,187	1,372	1,878	1,819

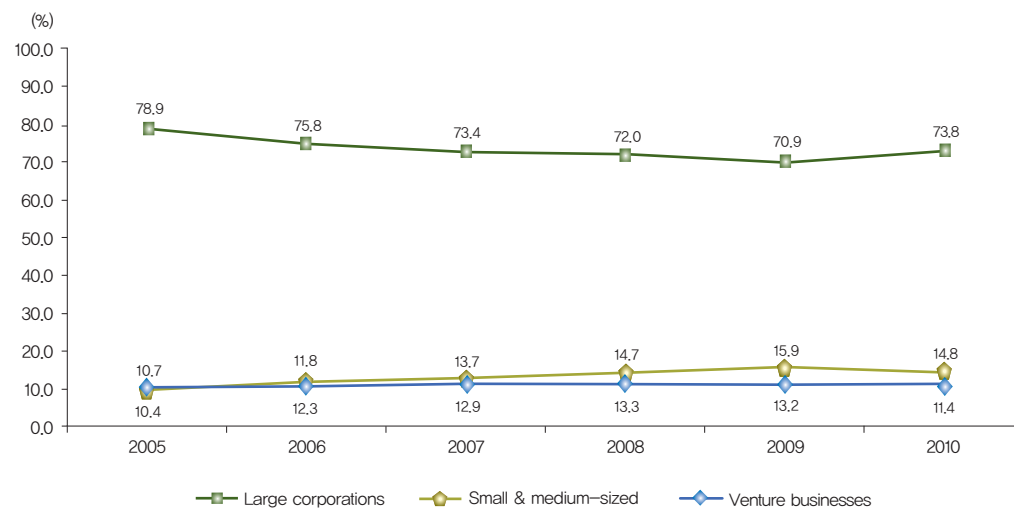
R&D Activity by Company Type

- R&D expenditure of large corporations in 2010 has increased by 4,242.9 billion won (21.2%) from the previous year and reached 242,212.9 billion won
 - Share of R&D investment in large corporations has increased by 2.9 percentage point and reached 73.8 percent of the total R&D expenditure of business enterprises
 - R&D investment of small & medium-sized businesses and venture businesses were 4,850.3 billion won (14.8%) and 3,740.1 billion won (11.4%) respectively

〈Figure 36〉 R&D expenditure by company type (Korea)

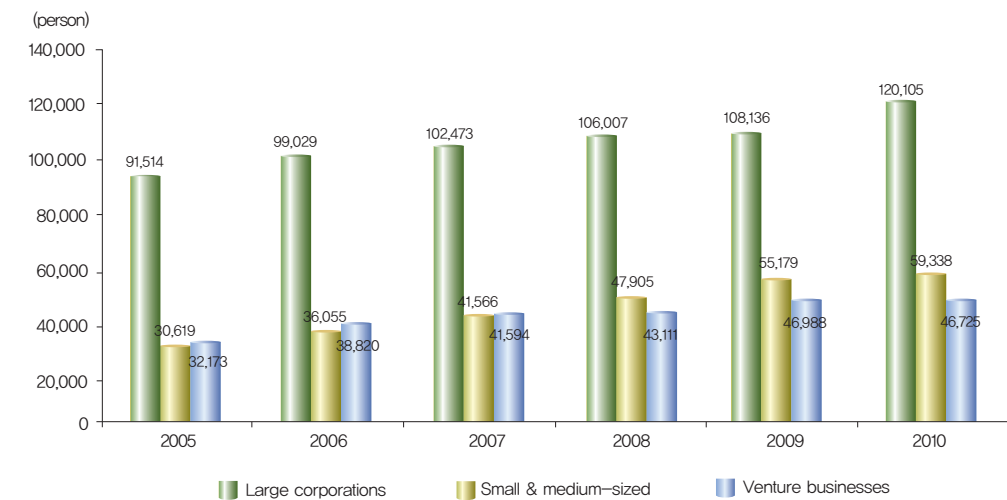


〈Figure 37〉 R&D expenditure rate by company type (Korea)

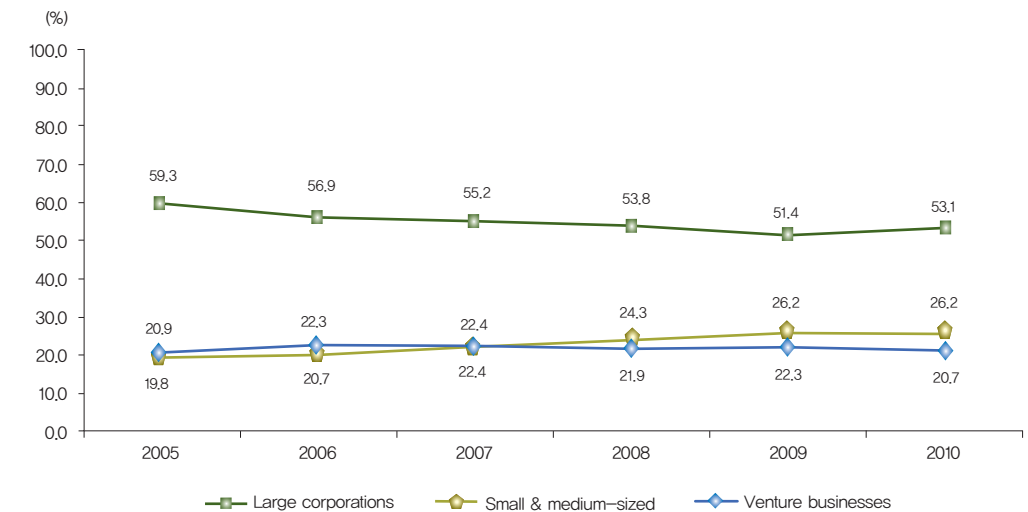


- Number of researchers employed by large corporations has increased by 11,969 persons(11.1%) from the previous year and reached 120,105 persons
 - Share of researchers in large corporations has increased by 1.7 percentage point and reached 53.1 percent
- Number of researchers in small & medium sized corporations and venture businesses were 59,338 persons and 46,725 persons respectively
 - Share of researchers in small & medium sized corporations and venture corporations were 26.2 percent and 20.7 percent respectively

〈Figure 38〉 The number of researchers by company type (Korea)



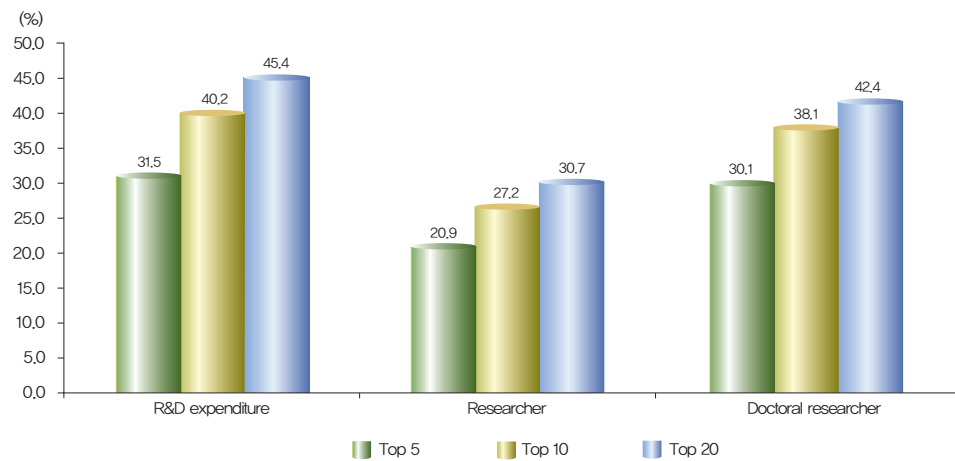
〈Figure 39〉 The rate of researchers by company type (Korea)



R&D Intensity of Business Enterprises

- R&D expenditure of 5 companies with the highest sales accounted for 31.5 percent of the total business expenditure of the business sector
 - Of the total R&D expenditure of business enterprises, the top 10 companies occupied 40.2 percent while the top 20 companies accounted for 45.4 percent
 - Research intensity of companies with top 5 sales was 20.9 percent and the intensity of doctoral researchers was 30.1 percent

〈Figure 40〉 2010 R&D intensity of the top sales companies (Korea)



- Analysis of R&D intensity by item²⁾ showed that the share of leading companies was increasing
 - In 2010, share of top 5 companies has increased slightly from the previous year and reached 40.9 percent. Its share in researchers has increased by 1.8 percentage point to 27.6 percent and the share of doctoral researchers has increased by 3.6 percentage points to 37.7 percent

〈Table 16〉 R&D intensity of the top companies by item (Korea)

(Unit : %)

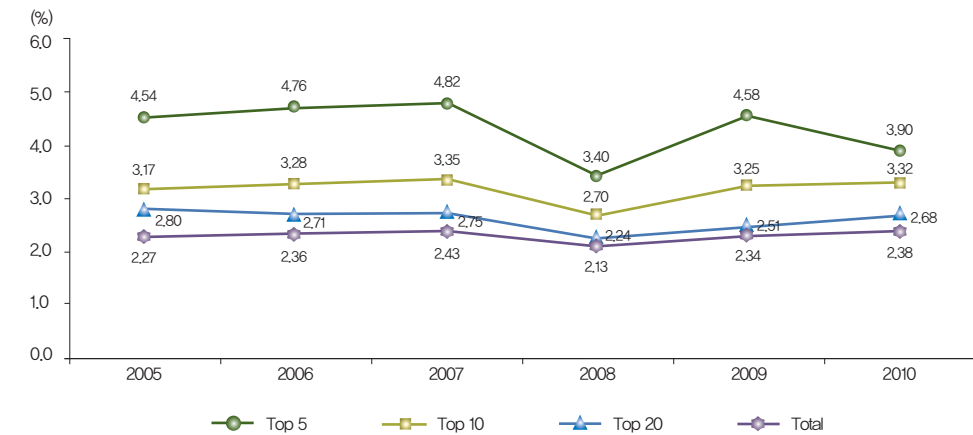
	R&D expenditure			Researcher			Doctoral researcher		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
Top 5	38.7	39.2	40.9	27.2	25.8	27.6	35.7	34.1	37.7
Top 10	43.1	43.6	46.2	30.2	28.8	31.2	41.3	40.3	43.9
Top 20	48.4	49.2	52.0	33.9	32.9	35.3	47.2	46.8	50.2

2) R&D intensity by item is the intensity of R&D institutions that is calculated by items such as R&D expenditure, researchers, and doctoral researchers. The statistic is different from the intensity of top sales companies.

Active R&D investment of Korea's top sales companies

- In 2010, R&D expenditure rate to sales of the top 5 sales companies was 3.90 percent

〈Figure 41〉 R&D expenditure rate to sales of the top sales companies (Korea)



R&D Expenditure by type of Usage

Korean business enterprises made the largest R&D investment in new product development

- In 2010, investment in new product development was 15,384.7 billion won, which accounted for 46.9 percent of total R&D expenditure
- R&D investment for other uses were improvement of existing product (7,047.3 billion won, 21.5%), development of new process (6,029.2 billion won, 18.4%), and improvement of existing process (4,342.1 billion won, 13.2%)

〈Table 17〉 R&D expenditure by type of usage (Korea)

(Unit : 0.1 billion won, %)

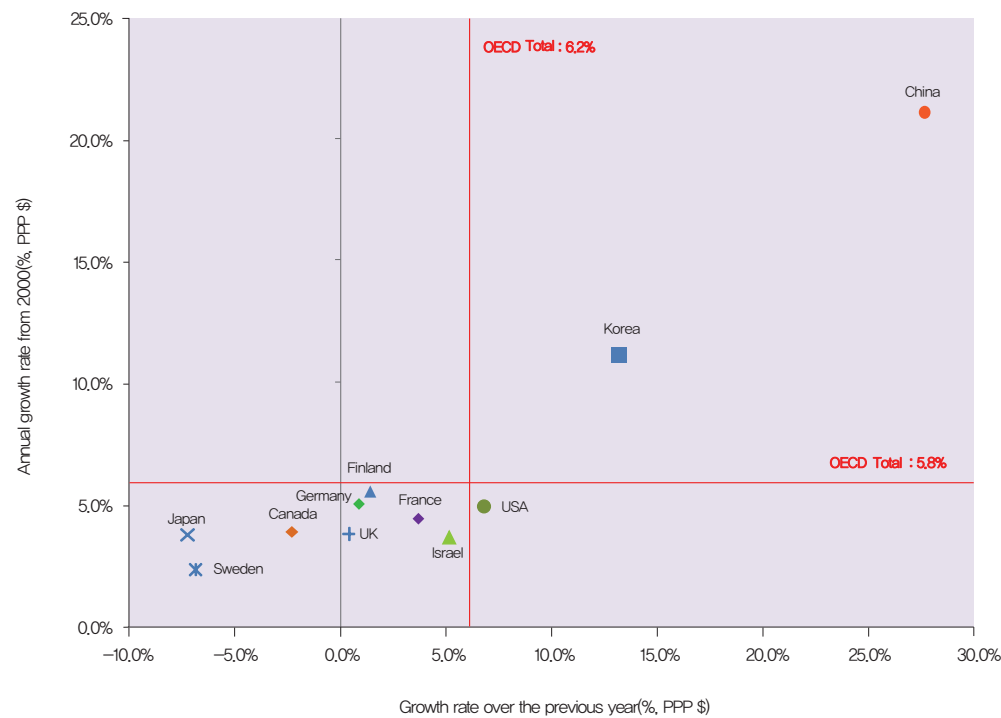
	2008		2009		2010	
	expenditure	rate	expenditure	rate	expenditure	rate
New product	128,349	49.4	134,184	47.6	153,847	46.9
Existing product	56,412	21.7	60,048	21.3	70,473	21.5
New process	41,843	16.1	51,393	18.2	60,292	18.4
Existed process	33,396	12.8	36,033	12.8	43,421	13.2

4. Synthetic Analysis of R&D

R&D Expenditure Rate

- Korea had a higher R&D expenditure growth rate than OECD average in both annual R&D expenditure growth rate from 2000 (11.1%) and the R&D expenditure growth rate compared to the previous year (13.2%)
 - Among the major countries, China's R&D expenditure growth rate was the highest with an average annual growth of 21.3 percent and a 27.6 percent growth rate compared to the previous year's spending
- Developed economies except US had a lower R&D expenditure growth rate than OECD average

〈Figure 42〉 The growth rate of R&D expenditure (major countries)

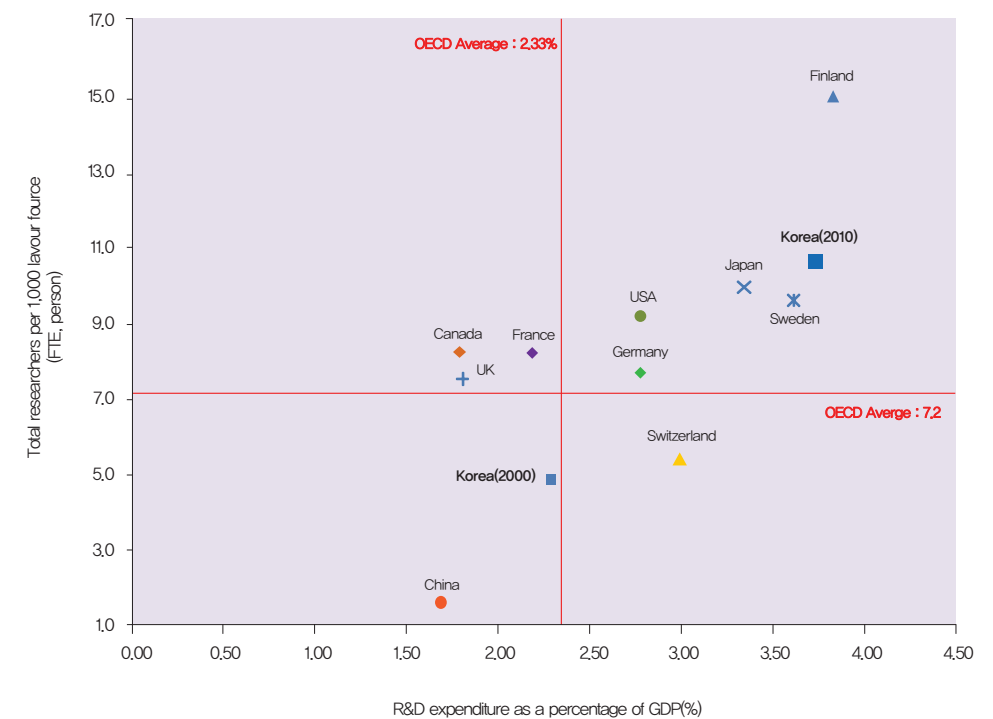


* Source : OECD, *Main Science and Technology Indicators 2011-1*
 * USA, OECD Total : 2000~2008, Germany, Japan, China, France : 2000~2009, Sweden : 2001~2009, others : 2000~2010

R&D Intensity of R&D Expenditure/Researchers

- Comparison of Korea's R&D intensity (expenditure and number of researchers) with that of other major developed economies indicated the following :
 - Korea scored higher than the OECD average in the number of researchers per thousand labor force (10.7 persons vs. 7.2 persons of OECD average) and in the amount of R&D expenditure relative to the GDP (3.74% vs. 2.33% of OECD average)
 - Among the surveyed nations, Finland had the highest R&D intensity (15.1 persons, 3.84%)
 - Among the OECD members, countries with higher than average R&D intensity (both R&D expenditure and researchers) included Korea, Finland, the US, Japan, Sweden, and Germany

〈Figure 43〉 The R&D intensity of expenditure and number of researchers (major countries)

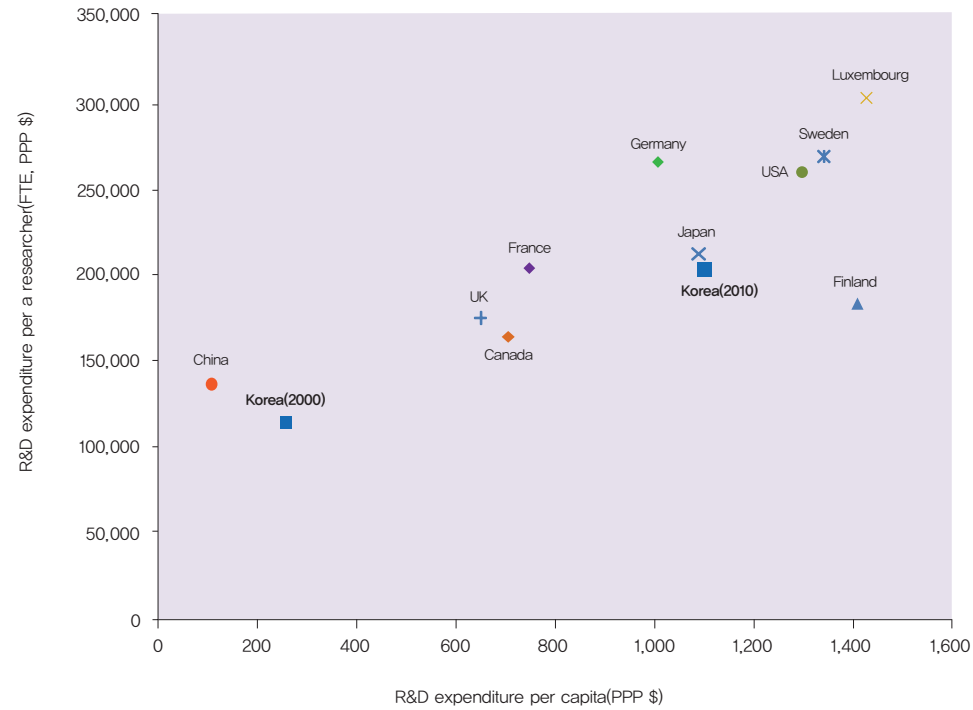


* Source : OECD, *Main Science and Technology Indicators 2011-1*
 * R&D expenditure as a percentage of GDP - USA, Switzerland, OECD Average : 2008, UK, Canada, Finland : 2010, others : 2009
 * Total researchers per 1,000 labour force - USA, OECD Average : 2007, France, Canada, Switzerland : 2008, UK : 2010, others : 2009

R&D Intensities by R&D Expenditure per Capita and Researcher

- In 2010, Korea's R&D expenditure per capita was 1,091 PPP \$ and R&D expenditure per researcher was 201,939 PPP \$, which has increased since 2000

〈Figure 44〉 R&D intensity by expenditure per capita/per researcher (major countries)



* Source : OECD, *Main Science and Technology Indicators 2011-1*
 * per capita - USA : 2008, UK, Canada, Finland : 2010, others : 2009
 * per a researcher - USA : 2007, Canada, France : 2008, UK : 2010, others : 2009



Exchange rates by Country

(Unit : national currency per dollar)

	2006	2007	2008	2009	2010
Australia	1.328	1.195	1.192	1.282	1.090
Austria	0.797	0.731	0.683	0.720	0.755
Belgium	0.797	0.731	0.683	0.720	0.755
Canada	1.134	1.074	1.067	1.143	1.030
Chile	530.275	522.464	522.461	560.860	510.249
Czech Republic	22.596	20.294	17.072	19.063	19.098
Denmark	5.947	5.444	5.098	5.361	5.624
Estonia	0.797	0.731	0.683	0.719	0.755
Finland	0.797	0.731	0.683	0.720	0.755
France	0.797	0.731	0.683	0.720	0.755
Germany	0.797	0.731	0.683	0.720	0.755
Greece	0.797	0.731	0.683	0.720	0.755
Hungary	210.390	183.626	172.113	202.342	207.944
Iceland	70.180	64.055	87.948	123.638	122.242
Ireland	0.797	0.731	0.683	0.720	0.755
Israel	4.456	4.108	3.588	3.932	3.739
Italy	0.797	0.731	0.683	0.720	0.755
Japan	116.299	117.754	103.359	93.570	87.780
Korea	954.791	929.257	1,102.050	1,276.930	1,156.060
Luxembourg	0.797	0.731	0.683	0.720	0.755
Mexico	10.899	10.928	11.130	13.514	12.636
Netherlands	0.797	0.731	0.683	0.720	0.755
New Zealand	1.542	1.361	1.423	1.600	1.387
Norway	6.413	5.862	5.640	6.288	6.044
Poland	3.103	2.768	2.409	3.120	3.015
Portugal	0.797	0.731	0.683	0.720	0.755
Slovak Republic	0.986	0.820	0.709	0.720	0.755
Slovenia	0.797	0.731	0.683	0.720	0.755
Spain	0.797	0.731	0.683	0.720	0.755
Sweden	7.378	6.759	6.591	7.654	7.208
Switzerland	1.254	1.200	1.083	1.088	1.043
Turkey	1.428	1.303	1.302	1.550	1.503
United Kingdom	0.543	0.500	0.544	0.642	0.647
United States	1.000	1.000	1.000	1.000	1.000
Argentina	3.054	3.096	3.144	3.710	3.896
China	7.973	7.608	6.949	6.831	6.770
Romania	2.809	2.438	2.519	3.049	3.178
Russian Federation	27.191	25.581	24.853	31.740	30.368
Singapore	1.589	1.507	1.415	1.455	1.364
South Africa	6.772	7.045	8.261	8.474	7.321
Chinese Taipei	32.531	32.842	31.517	33.049	31.642

* Source : OECD, *Main Science and Technology Indicators 2011-1*

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Contacts

National Science & Technology Commission

18th floor, S-Tower, 116, Sinmunno1ga,
Jongno-gu, Seoul, Korea, 110-016
Tel : +82-2-724-8744
<http://www.nstc.go.kr>

KISTEP

11th floor, Dongwon Industry Building, 275, Yangjae-Dong,
Seocho-Gu, Seoul, Korea, 137-130
Tel : +82-2-589-2892
<http://www.kistep.re.kr>

