

Notes



◆ This booklet is published biannually. Please note that figures may vary according to the exact time of the survey.

◆ The figures included in this booklet are based on survey and analysis of statistics as of March 2026.

- OECD regularly publishes R&D statistics comparing various countries, and international comparisons in this booklet are mostly based on the latest version of their biannual publication, Main Science & Technology Indicators 2026–March.

◆ The source of each indicator is stated in detail (in some cases with URL). The sum of individual figures and the total may not be identical due to issues such as significant figures.

- For example, figures were rounded to the nearest integer when recomputing statistics or adjusting units (ten thousand KRW → 100 million KRW). Differences between the sum of individual figures and the total may arise from these processes.

◆ Some figures were recalculated from original data by the publishers to suit the purpose of the indicator. Thus some figures of the final year may not have been calculated.

- For example, if the available data for labor force is from 2026 and researchers is from 2025, total researchers per 1,000 labor force (FTE) was calculated only up to 2025.
- In addition, even if the year remains the same, figures may differ from previous versions if the numbers in the original data have been revised. For example, if PPP figures for past years are adjusted or revised editions are published, the relevant figures may change.

◆ Rankings were based on data of the most recent year obtained (or recomputed).

2026-March

Main Science & Technology Indicators of Korea



2026-March



Main Science & Technology Indicators of Korea



100 MAIN SCIENCE & TECHNOLOGY INDICATORS OF KOREA



Ministry of Science and ICT



Korea Institute of S&T
Evaluation and Planning



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Main Science and Technology Indicators

1. R&D Expenditure and Personnel

		Korea	USA	Japan	Germany	France	UK('23)	China
R&D Expenditure (2024)	Gross Domestic Expenditure on R&D (million USD, PPP)	161,932 (5th)	1,009,275 (2nd)	233,834 (3rd)	193,433 (4th)	93,360 (7th)	114,691 (6th)	1,028,344 (1st)
	Ratio	1.00	6.23	1.44	1.19	0.58	0.71	6.35
	As a percentage of GDP(%)	5.13	3.44	3.62	3.13	2.18	2.75	2.69
	Government & Higher Education and PNP sectors: Business enterprise & Rest of the world Ratio(%)	21:79	25:75	22:78	30:70 ('23)	37:63 ('23)	32:68	17:80
	Government Expenditure on R&D (million USD, PPP)	32,791	199,342	88,420	64,089	27,779	25,788	-
	As a percentage of GDP(%)	1.04	0.68	1.37	1.04	0.65	0.62	-
R&D Personnel (2024)	Total Researchers (1,000 FTE)	503	1,733 ('23)	703	513	362	296 ('17)	3,180
	Total Researchers (FTE) per 1,000 labor force	17.1	10.4 ('23)	10.1	11.6	11.6	8.8 ('17)	-

▶ Rankings were based on the data of the most recent year obtained from OECD Main Science & Technology Indicators 2026-March, and the year given in parentheses means the base year of data shown

▶ The sum of Government·Public : Private·Foreign Ratio in China is less than 100.0%

▶ Total R&D expenditure in Korea : 131.462trillion KRW('24), Government Budget on R&D : 26.5369 trillion KRW('24)

2. R&D Performance

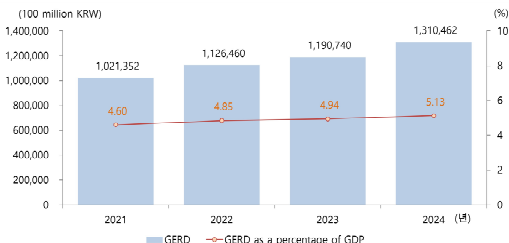
		Korea	USA	Japan	Germany	France	UK	China
Publications ('24)	SCI Papers	78,658 (11th)	435,216 (2nd)	86,409 (7th)	128,376 (5th)	80,123 (9th)	150,085 (3rd)	838,941 (1st)
Patents	Number of triadic patent families('23)	4,914 (4th)	14,321 (2nd)	16,688 (1st)	4,105 (5th)	1,968 (6th)	1,812 (7th)	7,369 (3rd)
	Number of patent applications to the PCT('25)	25,015 (4th)	52,134 (2nd)	47,921 (3rd)	16,431 (5th)	7,778 (6th)	5,799 (7th)	73,709 (1st)
R&D-intensive industries('24)	Exports (A, 100 million USD)	2,192	4,951	1,086 ('25)	2,976	1,345	1,117	8,839
	Imports (B, 100 million USD)	1,414	8,406	1,665 ('25)	2,529	1,239	1,361	7,254
	Balance of payments ratio(A/B)	1.55	0.59	0.65 ('25)	1.18	1.09	0.82	1.22
	Balance of payments (A-B, 100 million USD)	778	-3,455	-578 ('25)	447	106	-244	1,585
IMD evaluation ('25)	Competitiveness ranking	27	13	35	19	32	29	16
	Science Infrastructure	2	1	8	4	14	11	6
	Technology Infrastructure	39	21	27	28	15	26	8

▶ Source : See main text

R&D Expenditure

1. Gross Domestic Expenditure on R&D (GERD)

① GERD in Korea



▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

② GERD in major countries

		2021	2022	2023	2024
Korea	GERD (million USD, PPP)	123,074	139,042	146,815	161,932
	As a percentage of GDP (%)	4.60	4.85	4.94	5.13
USA	GERD (million USD, PPP)	821,488	907,828	952,115	1,009,275
	As a percentage of GDP (%)	3.46	3.48	3.42	3.44
Japan	GERD (million USD, PPP)	182,504	200,798	217,082	233,834
	As a percentage of GDP (%)	3.27	3.40	3.44	3.62
Germany	GERD (million USD, PPP)	160,159	176,376	188,299	193,433
	As a percentage of GDP (%)	3.07	3.04	3.13	3.13
France	GERD (million USD, PPP)	78,840	86,321	90,611	93,360
	As a percentage of GDP (%)	2.21	2.22	2.18	2.18
UK	GERD (million USD, PPP)	99,067	113,401	114,691	–
	As a percentage of GDP (%)	2.85	2.78	2.75	–
China	GERD (million USD, PPP)	701,115	811,348	915,463	1,028,344
	As a percentage of GDP (%)	2.38	2.49	2.58	2.69

▶ Source : OECD, Main Science & Technology Indicators 2026–March

3 GERD per capita and per researcher in Korea

	2021	2022	2023	2024
GERD per capita (1,000 KRW)	1,974	2,182	2,304	2,539
GERD per researcher (million KRW)	174.1	187.3	197.3	213.1

► The data is based on headcount

► Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

4 GERD per capita and per researcher(FTE) in major countries

		2021	2022	2023	2024
GERD per capita population (USD, PPP)	Korea	2,377	2,691	2,839	3,129
	USA	2,471	2,715	2,825	2,968
	Japan	1,454	1,607	1,746	1,889
	Germany	1,953	2,137	2,261	2,316
	France	1,160	1,266	1,325	1,362
	UK	1,479	1,677	1,674	–
	China	496	575	649	730
GERD per researcher (FTE) (USD, PPP)	Korea	261,455	284,471	299,466	321,711
	USA	477,441	522,576	549,363	–
	Japan	259,055	284,598	310,458	332,411
	Germany	346,930	362,905	376,474	376,989
	France	236,188	251,739	254,256	257,883
	UK	–	–	–	–
	China	291,462	307,656	305,022	323,398

► FTE (Full-time equivalent) takes into account the amount of researchers' actual participation in labor

► Source : OECD, Main Science & Technology Indicators 2026–March

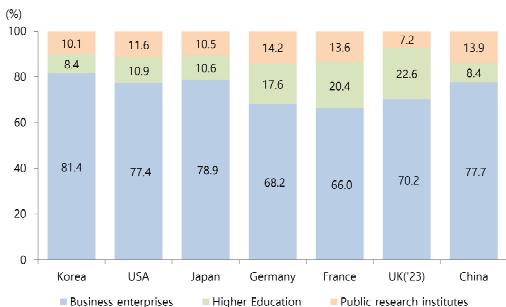
5 GERD by performance sector in Korea

	2021		2022		2023		2024	
	GERD (100 million KRW)	Percentage (%)	GERD (100 million KRW)	Percentage (%)	GERD (100 million KRW)	Percentage (%)	GERD (100 million KRW)	Percentage (%)
Business enterprise	808,076	79.1	894,213	79.4	942,968	79.2	1,066,988	81.4
Higher Education	93,306	9.1	103,061	9.1	108,935	9.1	110,538	8.4
Public research institute	119,970	11.7	129,186	11.5	138,837	11.7	132,936	10.1
Total	1,021,352	100.0	1,126,460	100.0	1,190,740	100.0	1,310,462	100.0

► Non-profit organizations are included in public research institutes

► Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

6 Percentage of GERD by performance sector in major countries (2024)



▶ Non-profit organizations are included in public research institutes

▶ Source : OECD, Main Science & Technology Indicators 2026-March

7 GERD by source of funds in Korea

	2021		2022		2023		2024	
	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)
Government & Higher Education and PNP sectors	240,950	23.6	263,283	23.4	281,276	23.6	277,672	21.2
Business enterprise	777,421	76.1	859,637	76.3	905,598	76.1	1,028,750	78.5
Rest of the world	2,982	0.3	3,539	0.3	3,866	0.3	4,040	0.3
Total	1,021,352	100.0	1,126,460	100.0	1,190,740	100.0	1,310,462	100.0

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

8 Percentage of GERD by source of funds in major countries (%) (2024)

	Korea	USA	Japan	Germany ('23)	France ('23)	UK ('23)	China
Government & Higher Education and PNP sectors	21.2	25.0	22.0	30.1	37.3	31.6	16.8
Business enterprise	78.5	68.7	77.5	62.6	54.1	58.0	79.5
Rest of the world	0.3	6.3	0.5	7.3	8.6	10.5	0.3
총계	100.0	100.0	100.0	100.0	100.0	100.0	96.6

- ▶ The sum of Government, Private and Abroad of China is less than 100.0%
- ▶ Source : OECD, Main Science & Technology Indicators 2026-March

9 GERD by type of R&D in Korea

	2021		2022		2023		2024	
	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)
Basic research	151,002	14.8	169,184	15.0	177,404	14.9	192,690	14.7
Applied research	214,704	21.0	224,560	19.9	234,752	19.7	252,812	19.3
Experimental development	655,647	64.2	732,717	65.0	778,584	65.4	864,960	66.0
Total	1,021,352	100.0	1,126,460	100.0	1,190,740	100.0	1,310,462	100.0

- ▶ Source : MSIT-KISTEP-KOITA, Survey of Research and Development in Korea

10 GERD by type of R&D in major countries (%) (2024)

	Korea	USA	Japan	France ('23)	China
Basic research	14.7	14.4	11.6	20.6	6.9
Applied research	19.3	18.0	18.5	41.0	11.9
Experimental development	66.0	67.2	66.0	38.5	81.3

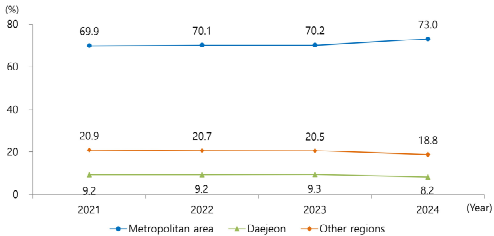
- ▶ For USA and Japan, other sources are excluded such that the total does not add up to 100.0%
- ▶ Source : OECD, Research and Development Statistics, 2026.3.

11 GERD on future and emerging technologies (6T) in Korea

	2021		2022		2023		2024	
	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)
Information Technology (IT)	391,210	38.3	437,861	38.9	456,103	38.3	507,744	38.7
Biotechnology (BT)	103,754	10.2	116,987	10.4	114,800	9.6	114,631	8.7
Nanotechnology (NT)	101,368	9.9	112,952	10.0	125,178	10.5	150,373	11.5
Space Technology (ST)	15,260	1.5	17,046	1.5	27,470	2.3	33,706	2.6
Environment Technology (ET)	101,260	9.9	112,180	10.0	132,373	11.1	151,615	11.6
Culture Technology (CT)	10,602	1.0	11,113	1.0	12,016	1.0	11,753	0.9
Others	297,899	29.2	318,321	28.3	322,800	27.1	340,641	26.0
Total	1,021,352	100.0	1,126,460	100.0	1,190,740	100.0	1,310,462	100.0

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

12 GERD by region in Korea



	2021		2022		2023		2024	
	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)	GERD (100 million KRW)	Percent age (%)
Seoul	162,043	15.9	176,885	15.7	188,712	15.8	199,695	15.2
Busan	17,627	1.7	20,377	1.8	20,024	1.7	21,988	1.7
Daegu	14,876	1.5	15,784	1.4	15,891	1.3	16,626	1.3
Incheon	32,270	3.2	36,029	3.2	36,031	3.0	36,804	2.8
Gwangju	11,089	1.1	11,293	1.0	11,016	0.9	11,280	0.9
Daejeon	94,428	9.2	103,791	9.2	110,852	9.3	107,707	8.2
Ulsan	11,900	1.2	13,079	1.2	9,747	0.8	9,927	0.8
Gyeonggi	519,571	50.9	577,028	51.2	610,981	51.3	720,462	55.0
Gangwon	6,859	0.7	7,635	0.7	7,945	0.7	7,806	0.6
Chungbuk	21,307	2.1	24,874	2.2	24,259	2.0	23,374	1.8
Chungnam	36,330	3.6	41,164	3.7	49,794	4.2	46,481	3.5
Jeonbuk	14,112	1.4	14,756	1.3	14,757	1.2	14,544	1.1
Jeonnam	8,143	0.8	9,464	0.8	8,977	0.8	9,465	0.7
Gyeongbuk	27,751	2.7	31,953	2.8	38,412	3.2	38,599	2.9
Gyeongnam	34,080	3.3	32,555	2.9	33,415	2.8	35,972	2.7
Jeju	2,433	0.2	2,278	0.2	2,477	0.2	2,436	0.2
Sejong	6,534	0.6	7,513	0.7	7,450	0.6	7,295	0.6
total	1,021,352	100.0	1,126,460	100.0	1,190,740	100.0	1,310,462	100.0

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

2. Business Enterprise Expenditure on R&D (BERD)

13 Percentage of BERD financed by Government & Higher Education and PNP sectors in Korea (%)

	2021	2022	2023	2024
All business enterprises	5.8	5.8	5.7	5.2
SMEs, Venture businesses	16.2	17.0	17.2	15.7

▶ SME(Small·medium-sized business) here does not include start-ups (SMEs are broadly accepted as the combination of SMEs and start-ups)

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

14 Percentage of BERD financed by government in major countries (%)

	2021	2022	2023	2024
Korea	5.8	5.7	5.7	5.2
USA	3.9	4.6	4.5	4.6
Japan	1.0	1.3	1.8	2.2
Germany	3.5	–	5.3	–
France	9.4	9.2	10.3	–
UK	7.1	5.8	6.7	6.8
China	2.9	2.4	2.0	2.1

▶ Source : OECD, Main Science & Technology Indicators 2026–March

15 BERD by business type in Korea

	2021		2022		2023		2024	
	BERD (100 million KRW)	Percentage (%)	BERD (100 million KRW)	Percentage (%)	BERD (100 million KRW)	Percentage (%)	BERD (100 million KRW)	Percentage (%)
Large corporations	491,394	60.8	551,706	61.7	606,503	64.3	714,808	67.0
High potential enterprises	114,751	14.2	125,041	14.0	130,899	13.9	142,834	13.4
Small & medium-sized businesses	85,251	10.5	94,227	10.5	79,525	8.4	85,813	8.0
Venture businesses	116,681	14.4	123,239	13.8	126,042	13.4	123,533	11.6
Total	808,076	100.0	894,213	100.0	942,968	100.0	1,066,988	100.0

▶ SME(Small·medium-sized business) here does not include start-ups (SMEs are broadly accepted as the combination of SMEs and start-ups)

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

16 BERD by industry in Korea

		2021	2022	2023	2024
BERD (100 million KRW)	Manufacturing	695,560	768,956	819,940	941,625
	Chemicals and Chemical Products(Except Pharmaceuticals, Medicinal Chemicals)	36,722	37,681	37,408	40,524
	Electronic Components, Computer, Visual, Sounding and Communication Equipment	384,377	427,007	461,851	529,714
	Motor Vehicles, Trailers and Semitrailers	87,723	96,696	107,619	139,135
	Services	99,188	111,953	110,124	112,021
Percent age (%)	Manufacturing	86.1	86.0	87.0	88.3
	Chemicals and Chemical Products(Except Pharmaceuticals, Medicinal Chemicals)	4.5	4.2	4.0	3.8
	Electronic components, computers, video, audio and communication equipment	47.6	47.8	49.0	49.6
	Motor vehicles and trailers	10.9	10.8	11.4	13.0
	Services	12.3	12.5	11.7	10.5

► The Percentage is compared to corporate R&D expenditures

► Source : MSIT-KISTEP-KOITA, Survey of Research and Development in Korea

17 BERD by industry in major countries (%) (2024)

	Korea	USA ('23)	Japan	Germany ('23)	France ('23)	UK ('23)	China
Manufacturing	88.3	54.7	85.9	77.2	61.4	23.8	77.0
Services	10.5	44.9	12.5	22.2	34.3	72.8	-

► Source : OECD, Main Science & Technology Indicators 2026-March

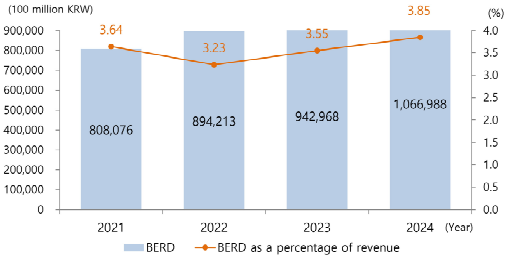
18 BERD performed in R&D-intensive industries of major countries (2024)

	Korea	USA ('23)	Japan	Germany ('23)	France ('23)	UK
R&D Expenditures in the High-Tech Industry (in millions of USD, PPP)	72,417	277,998	46,771	19,536	16,914	6,861
Corporate R&D Expenditures Percentage of Total (%)	54.9	37.9	25.3	15.1	28.2	8.2

► The high-tech industry refers to the three industries defined by the OECD as R&D-intensive industries (pharmaceuticals; computers, electronics, and optics; and aerospace).

► Source : OECD, Main Science & Technology Indicators 2026-March

19 BERD as a percentage of revenue in Korea



▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

20 BERD as a percentage of GDP in major countries (2024)

	Korea	USA	Japan	Germany	France	UK	China
BERD as a percentage of GDP (%)	4.17	2.67	2.86	2.14	1.44	1.92	2.09

▶ Source : OECD, Main Science & Technology Indicators 2026–March

21 BERD intensity in Korea (%)

	2021	2022	2023	2024
Top 5 companies	44.6	44.9	46.5	50.0
Top 10 companies	50.3	51.2	53.4	56.2
Top 20 companies	54.9	55.6	58.6	61.3

▶ BERD intensity is the sum of BERD of top firms (in terms of BERD size) as a percentage of the total BERD

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

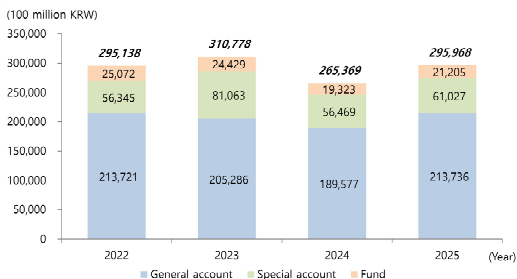
22 World's top 50 companies by R&D investment (2024)

Rank	Name	Country	Rank	Name	Country
1	AMAZON	USA	26	TOYOTA MOTOR	Japan
2	ALPHABET	USA	27	ABBVIE	USA
3	META PLATFORMS	USA	28	ROBERT BOSCH	Germany
4	MICROSOFT	USA	29	FORD MOTOR	USA
5	APPLE	USA	30	CISCO SYSTEMS	USA
6	HUAWEI INVESTMENT & HOLDING	China	31	ALIBABA GROUP	China
7	SAMSUNG ELECTRONICS	Korea	32	HONDA MOTOR	Japan
8	VOLKSWAGEN	Germany	33	SANOFI	France
9	JOHNSON & JOHNSON	USA	34	GSK	UK
10	INTEL	USA	35	STELLANTIS	France
11	MERCK	USA	36	BAYER	Germany
12	ROCHE HOLDING	Switzerland	37	BYD	China
13	NVIDIA	USA	38	INTERNATIONAL BUSINESS MACHINES	USA
14	ASTRAZENECA	UK	39	SIEMENS	Germany
15	ELI LILLY	USA	40	ADVANCED MICRO DEVICES	USA
16	PFIZER	USA	41	TAIWAN SEMICONDUCTOR MANUFACTURING	Taiwan
17	MERCEDES-BENZ GROUP	Germany	42	CHINA STATE CONSTRUCTION ENGINEERING	China
18	ORACLE	USA	43	BOEHRINGER	Germany
19	BRISTOL-MYERS SQUIBB	USA	44	AMGEN	USA
20	TENCENT HOLDINGS	China	45	GILEAD SCIENCES	USA
21	BAYERISCHE MOTOREN WERKE	Germany	46	SAP	Germany
22	BROADCOM	USA	47	SALESFORCE	USA
23	NOVARTIS	Switzerland	48	NOVO NORDISK	Denmark
24	GENERAL MOTORS	USA	49	NIPPON TELEGRAPH AND TELEPHONE	Japan
25	QUALCOMM	USA	50	REGENERON PHARMACEUTICALS	USA

► Source : European Commission, The 2025 EU Industrial R&D Investment Scoreboard

3. Government Expenditure on R&D

23 Government Budget Allocations for R&D (GBARD) in Korea



	2022	2023	2024	2025
General account (100 million KRW)	213,721	205,286	189,577	213,736
Special account (100 million KRW)	56,345	81,063	56,469	61,027
Funds (100 million KRW)	25,072	24,429	19,323	21,205
Total GBAORD (100 million KRW)	295,138	310,778	265,369	295,968

- ▶ The figures for 2022 are based on the supplementary budget and the revised fund management plan
- ▶ The 2023 figure reflects the budget as finalized by the National Assembly, whereas the 2024 government R&D budget has been partially reallocated into the general account—adjusting the baseline—so caution is required when making time-series comparisons
- ▶ Source : KISTEP, Governmental R&D Budget Analysis

24 Total GBARD in major countries (2024)

	Korea	USA	Japan	Germany	France	UK ('23)
Total GBARD (million USD, PPP)	32,791	199,342	88,420	64,089	27,779	25,788
As a percentage of GDP (%)	1.04	0.68	1.37	1.04	0.65	0.62

- ▶ Source : OECD, Main Science & Technology Indicators 2026–March

25 Trend in Expenditure for Korea's national R&D projects

	2021	2022	2023	2024
Expenditure (100 million KRW)	265,791	286,782	305,731	262,175
Number of projects	74,745	76,052	71,804	60,696

▶ Source : MSIT-KISTEP, Survey and Analysis on government R&D expenditure

26 Trends in Expenditure of National R&D Projects by performance sectors in Korea

	2021		2022		2023		2024	
	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)
Research institutes	108,371	40.8	116,761	40.7	125,264	41.0	115,217	43.9
Universities	63,317	23.8	69,738	24.3	74,033	24.2	59,370	22.6
Business enterprises	70,214	26.4	79,529	27.7	85,044	27.8	69,560	26.5
Ministries	2,634	1.0	626	0.2	755	0.2	1,140	0.4
Others	21,254	8.0	20,128	7.0	20,635	6.7	16,887	6.4
Total	265,791	100.0	286,782	100.0	305,731	100.0	262,175	100.0

▶ Source : MSIT-KISTEP, Survey and Analysis on government R&D expenditure

27 Trends in Expenditure of National R&D Projects by R&D type in Korea

	2021		2022		2023		2024	
	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)
Basic research	53,068	27.5	58,024	28.0	57,714	26.6	56,015	28.1
Applied research	45,620	23.6	52,338	25.2	58,953	27.2	50,595	25.4
Experimental development	94,566	48.9	97,032	46.8	100,389	46.3	92,841	46.5
Total	193,253	100.0	207,394	100.0	217,056	100.0	199,451	100.0

▶ Percentage is calculated excluding 「Others」

▶ Source : MSIT-KISTEP, Survey and Analysis on government R&D expenditure

28 Trends in Expenditure of National R&D Projects by ministry in Korea

	2023		2024	
	GOVERD (100 million KRW)	Percentage (%)	GOVERD (100 million KRW)	Percentage (%)
Ministry of Science and ICT	94,145	30.8	80,426	30.7
Ministry of Trade, Industry and Energy	54,576	17.9	47,644	18.2
Defense Acquisition Program Administration	45,992	15.0	44,489	17.0
Ministry of SMEs and Startups	18,224	6.0	14,003	5.3
Ministry of Education	28,199	9.2	12,572	4.8
Ministry of Oceans and Fisheries	9,212	3.0	7,498	2.9
Ministry of Health and Welfare	6,140	2.0	7,107	2.7
Rural Development Administration	8,777	2.9	7,066	2.7
Korea AeroSpace Administration	0	0.0	6,685	2.5
Office for Government Policy Coordination	5,439	1.8	5,247	2.0
Korea Meteorological Administration	6,032	2.0	4,474	1.7
Ministry of Environment	4,232	1.4	3,274	1.2
Ministry of Agriculture, Food and Rural Affairs	2,535	0.8	1,970	0.8
Ministry of Food and Drug Safety	1,341	0.4	1,367	0.5
Korea Disease Control and Prevention Agency	1,934	0.6	1,263	0.5
Multi-ministerial	9,360	3.1	9,217	3.5
Others	9,593	3.1	7,874	3.0
Total	305,731	100.0	262,175	100.0

► This figure represents the total number of ministries, agencies, offices, and commissions—including the Personal Information Protection Commission, the Korean National Police Agency, the Korea Customs Service, the Korea Heritage Service, the Ministry of National Defense, the Korea Meteorological Administration, the Ministry of Finance and Economy, the Ministry of Culture, Sports and Tourism, the Ministry of Justice, the Korea Ministry of Government Legislation, the Korea Forest Service, the National Fire Agency, the Ministry of Gender Equality and Family, the Ministry of Foreign Affairs, the Nuclear Safety And Security Commission, the Public Procurement Service, the Ministry of Intellectual Property, the Korea Coast Guard, the Ministry of the Interior and Safety, and the National Agency for Administrative City Construction—totaling 20 entities.

► Source : MSIT-KISTEP, Survey and Analysis on government R&D expenditure

Trends in Expenditure of National R&D Projects by Research Field Under the Korean National Science and Technology Standard Classification Systems

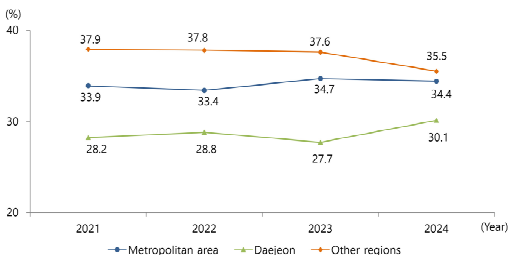
	2021		2022		2023		2024	
	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)	GOVERD (100 million KRW)	Percent age (%)
Mathematics	1,229	0.5	1,256	0.5	1,337	0.5	1,721	0.7
Physics	5,341	2.1	5,567	2.0	6,628	2.3	6,699	2.7
Chemistry	4,257	1.7	4,829	1.8	5,428	1.9	4,915	2.0
Earth Science	5,810	2.3	6,491	2.4	7,576	2.6	5,816	2.3
Life Science	10,646	4.2	10,538	3.9	11,120	3.8	11,061	4.4
Agriculture, Fishery and Food	15,851	6.3	16,867	6.2	17,146	5.9	13,890	5.6
Health Science	24,098	9.6	27,241	10.0	27,912	9.6	25,378	10.2
Machinery	43,597	17.4	42,564	15.6	46,264	15.9	43,337	17.4
Materials	9,970	4.0	10,532	3.9	11,956	4.1	10,042	4.0
Chemical Engineering	5,452	2.2	6,612	2.4	7,632	2.6	6,160	2.5
Electricity/Electronics	25,384	10.1	29,874	11.0	36,977	12.7	33,980	13.6
Information/Communication	28,074	11.2	29,498	10.8	32,692	11.3	28,893	11.6
Energy/Resources	11,661	4.6	12,942	4.8	12,823	4.4	9,981	4.0
Nuclear Power	7,891	3.1	7,913	2.9	7,827	2.7	7,974	3.2
Environment	6,853	2.7	7,292	2.7	7,818	2.7	5,558	2.2
Construction/Transportation	9,501	3.8	10,690	3.9	11,170	3.8	8,885	3.6
Science, Technology and Society	19,101	7.6	23,657	8.7	22,193	7.6	11,723	4.7
Others	16,555	6.6	17,965	6.6	15,665	5.4	13,246	5.3
Total	251,274	100.0	272,329	100.0	290,164	100.0	249,260	100.0

▶ The analysis covers the implementation status of research and development projects in the fields of science and technology (excluding the humanities and Social Sciences) and national defense (including classified subprojects); for 2024, this includes 53,950 subprojects totaling 24.926 trillion won.

▶ Others fall under the categories of Brain Sciences, Cognitive/Emotion and Sensibility Science, Humanities, Social Science, and Culture/Arts/Sports in the National Science and Technology Standard Classification Systems.

▶ Source : MSIT-KISTEP, Survey and Analysis on government R&D expenditure

30 Trends in Expenditure of National R&D Projects by Region in Korea



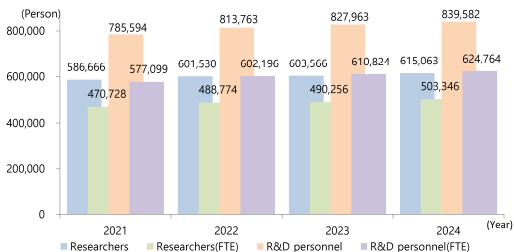
	2021		2022		2023		2024	
	GOVERD (100 million KRW)	Percentage (%)	GOVERD (100 million KRW)	Percentage (%)	GOVERD (100 million KRW)	Percentage (%)	GOVERD (100 million KRW)	Percentage (%)
Seoul	48,767	20.1	51,223	19.7	56,024	18.7	48,385	19.1
Busan	10,002	4.1	11,355	4.4	13,312	4.4	11,100	4.4
Daegu	7,168	3.0	7,376	2.8	8,689	2.9	7,361	2.9
Incheon	5,243	2.2	5,410	2.1	6,937	2.3	5,538	2.2
Gwangju	5,708	2.4	5,678	2.2	6,396	2.1	4,835	1.9
Daejeon	68,208	28.2	74,698	28.8	83,050	27.7	76,231	30.1
Ulsan	3,651	1.5	3,810	1.5	4,784	1.6	4,125	1.6
Gyeonggi	28,082	11.6	30,038	11.6	41,064	13.7	33,292	13.1
Gangwon	3,601	1.5	4,217	1.6	4,534	1.5	3,131	1.2
Chungbuk	7,656	3.2	8,121	3.1	9,134	3.0	7,386	2.9
Chungnam	6,455	2.7	7,333	2.8	10,284	3.4	7,643	3.0
Jeonbuk	9,296	3.8	9,759	3.8	11,475	3.8	9,232	3.6
Jeonnam	3,654	1.5	4,108	1.6	4,270	1.4	3,083	1.2
Gyeongbuk	7,271	3.0	8,127	3.1	10,075	3.4	8,576	3.4
Gyeongnam	19,628	8.1	20,362	7.8	20,598	6.9	16,011	6.3
Jeju	1,858	0.8	1,884	0.7	2,108	0.7	1,443	0.6
Sejong	5,877	2.4	6,218	2.4	6,830	2.3	5,905	2.3
Total	242,125	100.0	259,717	100.0	299,565	100.0	253,278	100.0

▶ Analyzed on government R&D programs classified by region (excluding overseas and others)

▶ Source : MSIT·KISTEP, Survey and Analysis on government R&D expenditure

4. R&D Personnel

31 Total researchers and total R&D personnel in Korea



▶ Source : MSIT-KISTEP-KOITA, Survey of Research and Development in Korea

32 Total researchers and total R&D personnel (FTE) in major countries

		2021	2022	2023	2024
Total researchers (FTE)	Korea	470,728	488,774	490,256	503,346
	USA	1,720,605	1,737,216	1,733,124	–
	Japan	704,502	705,551	699,232	703,447
	Germany	461,645	486,011	500,166	513,100
	France	333,800	342,900	356,378	362,023
	UK	–	–	–	–
	China	2,405,509	2,637,193	3,001,302	3,179,806
Total R&D personnel (FTE)	Korea	577,099	602,196	610,824	624,764
	USA	–	2,726,638	–	–
	Japan	942,024	940,069	927,402	936,569
	Germany	753,940	785,420	824,396	839,700
	France	496,250	501,374	513,230	520,816
	UK	–	–	–	–
	China	5,716,330	6,353,570	7,240,582	7,568,818

▶ Source : OECD, Main Science & Technology Indicators 2026–March

33 Total researchers (FTE) per 10,000 population, per 1,000 total employment, and per 1,000 labor force in Korea

구 분	2021	2022	2023	2024
Total researchers (FTE)	470,728	488,774	490,256	503,346
Total researchers (FTE) per 10,000 population	90.9	94.6	94.8	97.3
Total researchers (FTE) per 1,000 total employee	17.3	17.4	17.3	17.6
Total researchers (FTE) per 1,000 labor force	16.6	16.9	16.8	17.1

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea
 OECD, Main Science & Technology Indicators 2025-March
 OECD, Annual Labour Force Survey, Summary Tables (2025.6.)

34 Total researchers (FTE) per 10,000 population, per 1,000 total employment, and per 1,000 labor force in major countries (2024)

	Korea	USA ('23)	Japan	Germany	France	UK ('17)	China
Researchers (FTE) per 10,000 population	97.3	51.4	56.8	61.4	52.8	44.8	22.6
Researchers (FTE) per 1,000 total employment	17.6	10.6	10.2	11.2	11.8	9.2	4.3
Researchers (FTE) per 1,000 labor force	17.1	10.4	10.1	11.6	11.6	8.8	-

▶ Source : OECD, Main Science & Technology Indicators 2026-March
 OECD, Annual Labour Force Survey, Summary Tables (2025.6.)

35 Researchers by sector of Performance in Korea

	2021		2022		2023		2024	
	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)
Business enterprises	429,465	73.2	443,270	73.7	438,674	72.7	447,351	72.7
Higher educations	114,635	19.5	114,854	19.1	119,447	19.8	120,974	19.7
Public research institutes	42,566	7.3	43,406	7.2	45,445	7.5	46,738	7.6
Total	586,666	100.0	601,530	100.0	603,566	100.0	615,063	100.0

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

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Percentage of researchers (FTE) by sector of Performance in major countries (%) (2024)

	Korea	USA ('23)	Japan	Germany	France	UK ('17)	China
Business enterprises	81.9	76.4	74.8	63.0	62.2	38.5	60.4
Higher educations	10.1	11.5	19.9	24.0	27.0	57.8	24.8
Public research institutes	8.1	9.4	5.3	13.1	10.7	3.7	14.7

▶ "Public research institutions" refers to the combined total of private nonprofit organizations and the government; depending on the country, the combined percentage may not equal 100%.

▶ Source : OECD, Research and Development Statistics, 2026.3.

37

Women researchers in Korea

	2021	2022	2023	2024
Total researchers	586,666	601,530	603,566	615,063
Women researchers	130,055	138,286	143,127	148,922
Women researchers as a percentage of total researchers (%)	22.2	23.0	23.7	24.2

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

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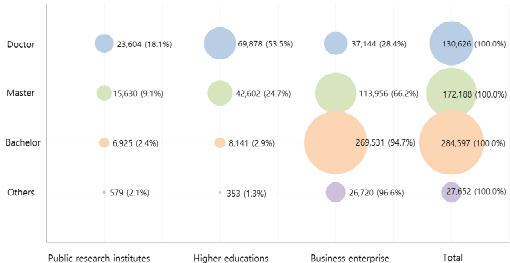
Women researchers in major countries (2024)

	Korea	Japan	Germany ('23)	France ('23)	UK ('17)
Women researchers	148,922	190,365	220,203	147,925	201,858
As a percentage of total researchers (%)	24.2	19.0	29.6	30.6	38.7

▶ Source : OECD, Main Science & Technology Indicators 2026-March

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Distribution of researchers by sector of performance and degree in Korea (2024)



▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

40 Researchers by degree in Korea

	2021		2022		2023		2024	
	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)
Doctor	121,015	20.6	124,290	20.7	128,703	21.3	130,626	21.2
Master	159,973	27.3	163,448	27.2	167,214	27.7	172,188	28.0
Bachelor	273,900	46.7	282,669	47.0	279,063	46.2	284,597	46.3
Others	31,778	5.4	31,123	5.2	28,586	4.7	27,652	4.5
Total	586,666	100	601,530	100	603,566	100	615,063	100

▶ Source : MSIT-KISTEP-KOITA, Survey of Research and Development in Korea

41 Researchers by major field of study in Korea

	2021		2022		2023		2024	
	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)
Natural science	88,727	15.1	93,889	15.6	98,575	16.3	93,799	15.3
Engineering & technology	386,778	65.9	394,529	65.6	392,674	65.1	408,116	66.4
Medical & health sciences	35,396	6.0	36,765	6.1	36,938	6.1	37,607	6.1
Agricultural science	11,361	1.9	11,388	1.9	11,062	1.8	11,057	1.8
Humanities	32,267	5.5	32,542	5.4	31,503	5.2	30,955	5.0
Social science	32,137	5.5	32,417	5.4	32,814	5.4	33,529	5.5
Total	586,666	100.0	601,530	100.0	603,566	100.0	615,063	100.0

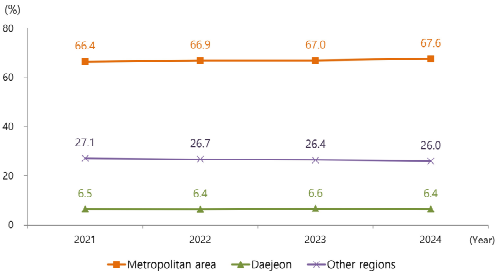
▶ Source : MSIT-KISTEP-KOITA, Survey of Research and Development in Korea

42 Researchers by age in Korea

	2021		2022		2023		2024	
	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)
Under 29	87,866	15.0	91,889	15.3	93,938	15.6	94,180	15.3
30~39	221,149	37.7	221,517	36.8	220,201	36.5	222,708	36.2
40~49	175,901	30.0	179,820	29.9	175,951	29.2	177,096	28.8
50~59	79,072	13.5	84,321	14.0	88,499	14.7	94,386	15.3
Over 60	22,678	3.9	23,983	4.0	24,977	4.1	26,693	4.3
Total	586,666	100.0	601,530	100.0	603,566	100.0	615,063	100.0

▶ Source : MSIT-KISTEP-KOITA, Survey of Research and Development in Korea

43 Researchers by region in Korea



	2021		2022		2023		2024	
	Researchers	Percentage (%)	Researchers	Percentage (%)	Researchers	Percentage (%)	Researchers	Percentage (%)
Seoul	151,361	25.8	156,269	26.0	158,706	26.3	158,786	25.8
Busan	17,386	3.0	17,736	2.9	17,192	2.8	17,701	2.9
Daegu	14,856	2.5	14,455	2.4	14,453	2.4	15,163	2.5
Incheon	23,150	3.9	22,792	3.8	22,179	3.7	22,622	3.7
Gwangju	9,392	1.6	8,917	1.5	8,944	1.5	8,742	1.4
Daejeon	38,009	6.5	38,417	6.4	40,024	6.6	39,610	6.4
Ulsan	7,948	1.4	8,161	1.4	8,362	1.4	8,105	1.3
Gyeonggi	215,116	36.7	223,612	37.2	223,253	37.0	234,222	38.1
Gangwon	7,938	1.4	7,041	1.2	6,898	1.1	7,159	1.2
Chungbuk	15,274	2.6	16,339	2.7	15,481	2.6	16,282	2.6
Chungnam	19,418	3.3	19,101	3.2	20,388	3.4	18,836	3.1
Jeonbuk	10,682	1.8	11,216	1.9	10,941	1.8	10,965	1.8
Jeonnam	6,055	1.0	6,606	1.1	6,464	1.1	6,543	1.1
Gyeongbuk	19,891	3.4	20,555	3.4	20,272	3.4	20,637	3.4
Gyeongnam	22,888	3.9	22,840	3.8	22,310	3.7	22,404	3.6
Jeju	2,323	0.4	2,445	0.4	2,340	0.4	2,171	0.4
Sejong	4,979	0.8	5,028	0.8	5,359	0.9	5,115	0.8
Total	586,666	100.0	601,530	100.0	603,566	100.0	615,063	100.0

► Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

44 Researchers by business size in Korea

	2021		2022		2023		2024	
	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)	Researchers	Percent age (%)
Large corporations	135,092	31.5	139,737	31.5	143,606	32.7	149,858	33.5
High potential enterprises	64,468	15.0	67,253	15.2	69,620	15.9	71,599	16.0
Small & medium-sized businesses	109,581	25.5	116,221	26.2	99,760	22.7	105,237	23.5
Venture businesses	120,324	28.0	120,059	27.1	125,688	28.7	120,657	27.0
Total	429,465	100.0	443,270	100.0	438,674	100.0	447,351	100.0

▶ Small-medium sized business (SME) here does not include start-ups (SMEs are broadly accepted as the combination of SMEs and start-ups)

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

45 Researchers by industry in Korea

		2021	2022	2023	2024
Number of researchers	Manufacturing	309,848	317,442	314,662	321,477
	Chemicals and Chemical Products(Except Pharmaceuticals, Medicinal Chemicals)	22,944	22,771	22,659	23,072
	Electronic Components, Computer, Visual, Sounding and Communication Equipment	112,952	115,323	118,532	120,664
	Motor Vehicles, Trailers and Semitrailers	37,917	39,077	35,506	36,466
	Services	108,262	114,510	113,255	115,234
Percentage (%)	Manufacturing	72.1	71.6	71.7	71.9
	Chemicals and Chemical Products(Except Pharmaceuticals, Medicinal Chemicals)	5.3	5.1	5.2	5.2
	Electronic Components, Computer, Visual, Sounding and Communication Equipment	26.3	26.0	27.0	27.0
	Motor Vehicles, Trailers and Semitrailers	8.8	8.8	8.1	8.2
	Services	25.2	25.8	25.8	25.8

▶ The Percentage is compared to business sector R&D researchers

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

46 Researcher and doctoral researcher intensity of the top companies in Korea (%)

		2021	2022	2023	2024
Researcher	Top 5 companies	19.9	19.6	20.0	20.1
	Top 10 companies	23.5	23.3	23.8	24.1
	Top 20 companies	26.7	26.7	27.4	27.9
Doctoral researcher	Top 5 companies	31.2	30.9	32.5	32.4
	Top 10 companies	37.6	37.1	38.7	38.6
	Top 20 companies	42.8	41.8	43.5	43.3

▶ Researcher and doctoral researcher intensities were calculated by the order of the highest from each category

▶ Source : MSIT·KISTEP·KOITA, Survey of Research and Development in Korea

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Principal investigator of national R&D project by sector, gender, and degree in Korea

		2021		2022		2023		2024	
		Researchers	Percentage (%)	Researchers	Percentage (%)	Researchers	Percentage (%)	Researchers	Percentage (%)
Sector	Research institutes	6,606	13.3	6,732	13.1	5,887	12.1	5,233	12.3
	Universities	25,588	51.4	25,436	49.3	23,859	48.9	21,406	50.3
	Business enterprises	15,247	30.6	16,982	32.9	17,037	34.9	14,297	33.6
	Others	2,297	4.6	2,324	4.5	2,000	4.1	1,580	3.7
	Ministries	59	0.1	70	0.1	55	0.1	30	0.1
	Total	49,797	100.0	51,544	100.0	48,838	100.0	42,546	100.0
Gender	Male	40,337	82.3	41,502	81.8	39,191	81.6	33,822	80.7
	Female	8,688	17.7	9,264	18.2	8,849	18.4	8,080	19.3
	Total	49,025	100.0	50,766	100.0	48,040	100.0	41,902	100.0
Degree	Doctor	35,828	73.1	37,232	73.3	33,578	69.9	27,715	66.1
	Master	5,708	11.6	6,104	12.0	6,273	13.1	6,694	16.0
	Bachelor and under	7,489	15.3	7,430	14.6	8,189	17.0	7,493	17.9
	Total	49,025	100.0	50,766	100.0	48,040	100.0	41,902	100.0

► Analysis includes research directors in science and technology R&D programs (excludes R&D programs for humanities and social sciences; classified national security R&D programs)

► For programs by sector, individuals with multiple affiliations were counted multiple times

► Source : MSIT·KISTEP, Survey and Analysis on government R&D expenditure

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Current and shortfall of S&T industry personnel in Korea

	2021	2022	2023	2024
Current personnel	1,681,423	1,699,674	1,716,846	1,735,669
Shortfall of personnel	37,667	38,476	39,190	39,834
Percentage of shortfall (%)	2.2	2.2	2.2	2.2

► Source : MOTIE, Survey Reports on S&T Industry Personnel

5. Nurturing Human Capital

49 Number of students enrolled in bachelor's, master's and doctoral programs in Korea

		2022	2023	2024	2025
Bachelor's program	Total	1,760,027	1,753,638	1,740,291	1,765,810
	Science & engineering	654,032	656,768	652,720	647,532
	Percentage of science & engineering (%)	37.2	37.5	37.5	36.7
Master's program	Total	218,186	219,943	226,372	235,467
	Science & engineering	50,619	53,062	57,378	60,455
	Percentage of science & engineering (%)	23.2	24.1	25.3	25.7
Doctoral program	Total	74,706	75,169	77,303	79,370
	Science & engineering	32,699	33,447	34,391	35,666
	Percentage of science & engineering (%)	43.8	44.5	44.5	44.9

► Science & engineering is the sum of students in natural sciences and engineering majors. Bachelor's program is the sum of 2/3-year curricula and 4-year curricula. Number of enrolled students excludes students on leave

► Source : MOE, Statistical Yearbook of Education

50 Number of science and engineering graduates with master's and doctoral degrees in Korea

		2022	2023	2024	2025
Master's degree	Total	83,869	83,680	87,947	90,955
	Science & engineering	20,435	21,615	22,829	24,677
	Percentage of science & engineering (%)	24.4	25.8	26.0	27.1
Doctoral degree	Total	17,760	17,673	18,714	19,831
	Science & engineering	7,578	7,304	7,664	8,083
	Percentage of science & engineering (%)	42.7	41.3	41.0	40.8

► Science & engineering is the sum of students in natural sciences and engineering majors

► Source : MOE, Statistical Yearbook of Education

51 New doctorates in natural sciences and engineering as a percentage of all graduates in major countries (%) (2023)

	Korea	USA	Japan	Germany	France	UK
New doctorates in natural sciences and engineering as a percentage of all doctorate graduates	38.9	41.6	32.2	44.0	–	45.7

- ▶ The science and engineering fields use the STEM (Science, Technology, Engineering, and Mathematics) classification. Here, STEM refers to the combined total of Field 05 (Natural Sciences, Mathematics, and Statistics), Field 06 (Information and Communication Technologies), and Field 07 (Engineering, Manufacturing, and Construction) as defined in ISCED-F 2013.
- ▶ Source : OECD, Education at a Glance, 2025

52 New master's degrees in natural sciences and engineering as a percentage of all graduates in major countries (%) (2023)

	Korea	USA	Japan	Germany	France	UK
New master's degrees in natural sciences and engineering as a percentage of all master's degree graduates	24.3	20.0	38.7	35.1	–	20.7

- ▶ The science and engineering fields use the STEM (Science, Technology, Engineering, and Mathematics) classification. Here, STEM refers to the combined total of Field 05 (Natural Sciences, Mathematics, and Statistics), Field 06 (Information and Communication Technologies), and Field 07 (Engineering, Manufacturing, and Construction) as defined in ISCED-F 2013.
- ▶ Source : OECD, Education at a Glance, 2025

6. Publications

53 Number of papers published in SCI journals in Korea

	2021	2022	2023	2024
Number of papers published	84,133	78,823	75,467	78,658
World share (%)	3.44	3.30	3.32	3.32
World ranking	12	12	12	11

▶ World share(%) is the relative share to the total number of papers published worldwide. It is different from the relative share to the sum of the number of papers published yearly by each nation, which is greater than the total number of papers published worldwide due to papers co-authored by multiple countries

▶ Source : KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010-2024)

54 Number of papers published in SCI journals in major countries

		2021	2022	2023	2024
Korea	Number of papers	84,133	78,823	75,467	78,658
	World share (%)	3.44	3.30	3.32	3.32
	World ranking	12	12	12	11
USA	Number of papers	537,241	473,487	437,087	435,216
	World share (%)	21.94	19.82	19.25	18.38
	World ranking	2	2	2	2
Japan	Number of papers	103,716	94,746	86,056	86,409
	World share (%)	4.24	3.97	3.79	3.65
	World ranking	7	7	7	7
Germany	Number of papers	152,753	136,219	127,685	128,376
	World share (%)	6.24	5.70	5.62	5.42
	World ranking	4	4	4	5
France	Number of papers	96,451	86,013	80,619	80,123
	World share (%)	3.94	3.60	3.55	3.38
	World ranking	10	10	9	9
UK	Number of papers	181,911	159,452	149,490	150,085
	World share (%)	7.43	6.67	6.58	6.34
	World ranking	3	3	3	3
China	Number of papers	643,728	743,759	731,740	838,941
	World share (%)	26.29	31.13	32.23	35.43
	World ranking	1	1	1	1

▶ World share(%) is the relative share to the total number of papers published worldwide. It is different from the relative share to the sum of the number of papers published yearly by each nation, which is greater than the total number of papers published worldwide due to papers co-authored by multiple countries

▶ Source : KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010-2024)

55 Number of papers published in SCI journals per 10,000 population or per 100 researchers (FTE) in Korea

	2021	2022	2023	2024
Number of papers (SCI) per 10,000 population	16.25	15.25	14.59	15.20
Number of papers (SCI) per 100 researchers (FTE)	17.87	16.13	15.39	15.63

▶ Source : OECD, Main Science & Technology Indicators 2026–March
KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010–2024)

56 Number of papers published in SCI journals per 10,000 population or per 100 researchers (FTE) in major countries (2024)

	Korea	USA	Japan	Germany	France	UK	China
Number of papers (SCI) per 10,000 population	15.20	12.80	6.98	15.37	11.69	21.68	5.96
Number of papers (SCI) per 100 researchers (FTE)	15.63	25.22 ('23)	12.28	25.02	22.13	50.60 ('17)	26.38

▶ Source : OECD, Main Science & Technology Indicators 2026–March
KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010–2024)

57 Average citations per paper over five-year periods in Korea

	2017–2021	2018–2022	2019–2023	2020–2024
Average citations per paper over five-year periods	8.60	9.41	9.85	10.24
World average of citations	7.75	8.39	8.69	8.91

▶ Average citations per paper over five-year periods are the average number of cumulative citations over the five-year periods from the year of publication (According to InCites)

▶ Source : KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010–2024)

58 Average citations per paper over five-year periods in major countries (2020~2024)

Korea	USA	Japan	Germany	France	UK	China
10.24	11.12	8.78	11.53	11.70	12.69	10.75

▶ Average citations per paper over five-year periods are the average number of cumulative citations over the five-year periods from the year of publication (According to InCites)

▶ Source : KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010–2024)

59 Number of papers published in top 3 journals in Korea

	2021	2022	2023	2024
NATURE	44	48	50	63
SCIENCE	24	26	31	23
CELL	7	5	4	12
Total	75	79	85	98

► Only full-length papers (Articles and Reviews) were counted

► Source : KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010–2024)

60 Number of papers published by region in Korea (2024)

	Co-authorship		First authorship	
	Number of papers	Percentage (%)	Number of papers	Percentage (%)
Seoul	39,707	33.3	23,119	38.8
Gyeonggi	18,226	15.3	8,276	13.9
Daejeon	10,777	9.0	5,127	8.6
Gyeongbuk	6,428	5.4	2,728	4.6
Busan	5,989	5.0	2,970	5.0
Daegu	4,731	4.0	2,321	3.9
Incheon	4,652	3.9	1,983	3.3
Gangwon	4,155	3.5	1,812	3.0
Gyeongnam	4,071	3.4	1,892	3.2
Gwangju	3,781	3.2	1,879	3.2
Jeonbuk	3,861	3.2	1,895	3.2
Chungnam	3,249	2.7	1,533	2.6
Chungbuk	3,233	2.7	1,379	2.3
Ulsan	2,364	2.0	1,177	2.0
Jeonnam	1,716	1.4	624	1.0
Jeju	1,097	0.9	491	0.8
Sejong	980	0.8	366	0.6
Others	159	0.1	74	0.1
Total	119,176	100.0	59,646	100.0

► Source : KISTEP, Analysis on the Research Achievements in the Science & Technology Fields (2010–2024)

7. Patents

61 Domestic patent applications and patent grants in Korea

	2021	2022	2023	2024
Patent applications	237,998	237,663	243,310	246,245
Patent grants	145,882	135,180	134,734	127,806

► Source : KIPO, Intellectual Property Statistics

62 Domestic patent applications and patent grants by region in Korea

	Patent applications				Patent grants			
	2021	2022	2023	2024	2021	2022	2023	2024
Seoul	54,042	53,871	54,023	56,400	31,576	28,781	27,717	27,129
Busan	6,504	6,174	6,346	6,337	3,570	3,008	3,107	2,946
Daegu	5,037	4,683	4,705	4,840	2,837	2,509	2,450	2,382
Incheon	7,095	6,900	6,988	7,365	3,921	3,538	3,543	3,632
Gwangju	3,549	3,378	3,464	3,324	1,817	1,645	1,624	1,392
Daejeon	11,374	11,071	11,594	11,472	6,688	5,740	6,018	5,766
Ulsan	2,209	2,228	2,210	2,402	1,557	1,156	1,133	1,136
Sejong	922	933	979	953	564	460	521	529
Gyeonggi	57,830	58,241	61,623	63,931	34,663	32,839	33,265	31,200
Gangwon	2,898	2,807	3,052	2,861	1,706	1,424	1,495	1,367
Chungbuk	4,353	3,989	4,022	4,046	2,413	2,094	2,071	2,108
Chungnam	7,274	7,384	7,606	7,029	4,987	3,856	4,023	3,993
Jeonbuk	4,354	3,957	4,576	4,375	2,357	2,114	1,958	1,897
Jeonnam	4,050	3,973	4,297	4,883	2,101	2,082	2,009	2,162
Gyeongbuk	6,733	6,374	7,798	8,179	4,390	3,297	3,470	3,047
Gyeongnam	6,964	6,746	6,710	6,360	4,099	3,683	3,889	3,532
Jeju	1,046	1,027	1,138	1,026	470	406	451	433
Others	11	12	11	3	635	570	571	514
Total	186,245	183,748	191,142	195,786	110,351	99,202	99,315	95,165

- The table above refers to the first applicant's/patent holder's address
- 'Others' include those who are Korean citizens but do not have an address in Korea (overseas residents, soldiers, etc.)
- Based on the address of the first right holder among domestic rights holders
- Source : KIPO, Intellectual Property Statistics

63 Number of triadic patent families in Korea

	2020	2021	2022	2023
Triadic patent families	3,925	4,461	4,744	4,914
Triadic patent families per million population	75.7	86.2	91.8	95.0
Triadic patent families per 10,000 researchers (FTE)	87.9	94.8	97.1	100.2

- ▶ Triadic patent families : Patents applied to EPO(European Patent Office) and JPO(Japan Patent Office), and granted by USPTO(United States Patent and Trademark Office)
- ▶ Source : OECD, Main Science & Technology Indicators 2026-March

64 Number of triadic patent families in major countries (2023)

	Korea	USA	Japan	Germany	France	UK	China
Triadic patent families	4,914	14,321	16,688	4,105	1,968	1,812	7,369
Triadic patent families per million population	95.0	42.5	134.2	49.3	28.8	26.4	5.2
Triadic patent families per 10,000 researchers (FTE)	100.2	82.6	238.7	82.1	55.2	57.2 ('17)	24.6

- ▶ Source : OECD, Main Science & Technology Indicators 2026-March

65 Number of patent applications to and grants from the USPTO in Korea

	2021	2022	2023	2024
Patent applications	37,250	41,759	43,464	44,654
Patent grants	20,703	22,031	22,081	23,219

- ▶ Patent applications here is number of Utility Patents by their filing year
- ▶ Source : WIPO, WIPO Statistics Database, 2026. 3.

66 Number of patent applications to and grants from the USPTO in major countries (2024)

	Korea	USA	Japan	Germany	France	UK	China
Patent applications	44,654	270,295	72,830	26,951	10,671	12,333	54,129
Patent grants	23,219	142,324	42,079	15,069	5,859	6,215	29,798

- ▶ Patent applications here is number of Utility Patents by their filing year
- ▶ Country is based upon nationality of the first patentee. Hong Kong and Macao are not included in China.
- ▶ Source : WIPO, WIPO Statistics Database, 2026. 3.

67 Top 10 companies granted U.S. Patents

Rank	2023		2024	
	Number of patents	Company	Number of patents	Company
1	6,377	Samsung Electronics Co Ltd	7,054	Samsung Electronics Co Ltd
2	3,989	Taiwan Semiconductor Manufacturing Co TSMC Ltd	4,194	Taiwan Semiconductor Manufacturing Co TSMC Ltd
3	3,422	Qualcomm Inc	3,749	Qualcomm Inc
4	3,082	Apple Inc	3,052	Huawei Technologies Co Ltd
5	3,046	Huawei Technologies Co Ltd	2,859	Samsung Display Co Ltd
6	2,768	LG Electronics Inc	2,722	Apple Inc
7	2,596	Samsung Display Co Ltd	2,623	Canon Inc
8	2,465	International Business Machines Corp	2,406	Toyota Motor Corp
9	2,329	Canon Inc	2,301	Dell Products LP
10	2,054	Google LLC	2,284	LG Electronics Inc

► Source : IFI Claims, US patent grants Top 50

68 Number of patent applications to and grants from the EPO in Korea

	2021	2022	2023	2024
Patent applications	9,386	10,381	12,582	13,114
Patent grants	5,806	4,383	5,581	6,094

► Source : WIPO, WIPO Statistics Database, 2026. 3.

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Number of patent applications to and grants from the EPO in major countries (2024)

	Korea	USA	Japan	Germany	France	UK	China
Patent applications	13,114	47,801	21,064	25,022	11,038	6,070	20,024
Patent grants	6,094	26,868	13,444	15,541	6,663	3,363	8,716

► Source : WIPO, WIPO Statistics Database, 2026. 3.

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Number of patent applications filed under the PCT in Korea

	2022	2023	2024	2025
PCT applications	22,013	22,276	23,842	25,015

► PCT (Patent Cooperation Treaty) : International patent law treaty that provides a unified procedure for filing patent applications to protect inventions in each of its contracting states

► Source : WIPO, WIPO Statistics Database, 2026. 3.

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Number of patent applications filed under the PCT in major countries (2025)

	Korea	USA	Japan	Germany	France	UK	China
PCT applications	25,015	52,134	47,921	16,431	7,778	5,799	73,709
Rank	4	2	3	5	6	7	1

► Source : WIPO, WIPO Statistics Database, 2026. 3.

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Number of patent applications filed under the PCT in the ICT and biotechnology sector in major countries (2023)

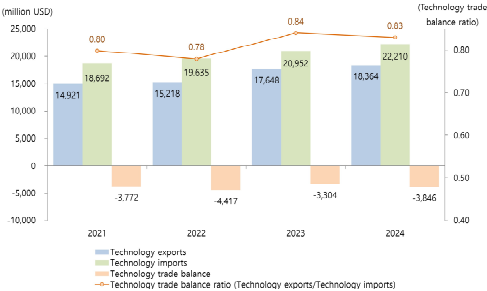
	Korea	USA	Japan	Germany	France	UK	China
ICT	8,170	18,227	12,897	3,324	1,583	1,548	30,171
Biotechnology	1,358	7,009	1,580	790	493	624	3,521

► The number of patent applications is based on priority year, extracted from OECD data for the comparison of the same standards

► Source : OECD, Main Science & Technology Indicators 2026-March

8. Technology Trade

73 Technology balance of payments in Korea



	2021	2022	2023	2024
Technology exports(million USD)	14,921	15,218	17,648	18,364
Technology imports(million USD)	18,692	19,635	20,952	22,210
Technology trade balance(million USD)	-3,772	-4,417	-3,304	-3,846
Technology trade balance ratio (Technology exports/Technology imports)	0.80	0.78	0.84	0.83

► Source : Statistics Report on the Technology Trade of Korea, published by MSIT·KOITA

74 Technology balance of payments by industry in Korea

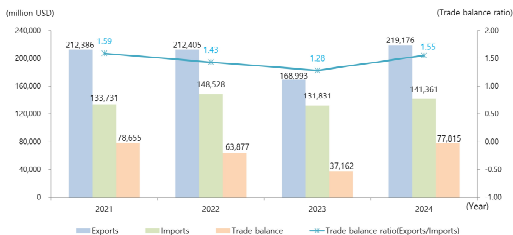
	Technology exports (million USD)		Technology imports (million USD)		Balance of payments (million USD)		Balance of payments ratio (Exports/Imports)	
	2023	2024	2023	2024	2023	2024	2023	2024
ICT	6,812	7,415	5,679	6,237	1,132	1,178	1.20	1.19
Electrical·electronics	5,283	5,006	9,092	8,641	-3,809	-3,635	0.58	0.58
Machine	2,781	2,507	2,222	2,697	559	-190	1.25	0.93
Chemistry	918	1,277	944	877	-26	401	0.97	1.46
Construction	280	234	61	72	219	162	4.56	3.24
Textiles	89	82	214	303	-125	-221	0.42	0.27
Agriculture, forestry and fisheries	56	44	193	267	-136	-223	0.29	0.17
Materials	56	40	127	143	-71	-103	0.44	0.28
Others	1,373	1,757	2,418	2,972	-1,045	-1,215	0.57	0.59
Total Amount	17,648	18,364	20,952	22,210	-3,304	-3,846	0.84	0.83

► "Other" refers to the total of "Other" and "Technical Services".

► Source : Statistics Report on the Technology Trade of Korea, published by MSIT·KOITA

9. International Trade in High-Tech Industries

75 International trade in R&D-intensive industries of Korea



	2021	2022	2023	2024
Exports (million USD)	212,386	212,405	168,993	219,176
Imports (million USD)	133,731	148,528	131,831	141,361
Trade balance (million USD)	78,655	63,877	37,162	77,815
Trade balance ratio (Exports/Imports)	1.59	1.43	1.28	1.55

▶ R&D-intensive industries include pharmaceutical, computer, electronic and optical, and aerospace industries, as defined by OECD

▶ Source : OECD, Main Science & Technology Indicators 2026–March

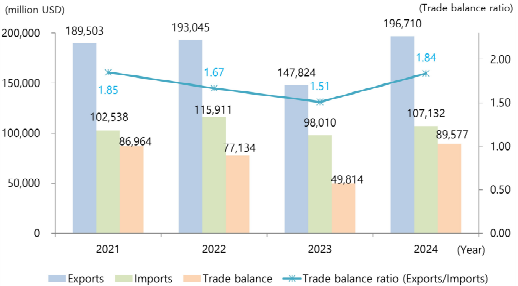
76 International trade in R&D-intensive industries of major countries (2024)

	Korea	USA	Japan ('25)	Germany	France	UK	China
Exports (million USD)	219,176	495,059	108,642	297,637	134,499	111,707	883,866
Imports (million USD)	141,361	840,568	166,473	252,897	123,853	136,106	725,351
Trade balance (million USD)	77,815	-345,509	-57,831	44,740	10,646	-24,399	158,515
Trade balance ratio (Exports/Imports)	1.55	0.59	0.65	1.18	1.09	0.82	1.22

▶ R&D-intensive industries include pharmaceutical, computer, electronic and optical, and aerospace industries, as defined by OECD

▶ Source : OECD, Main Science & Technology Indicators 2026–March

77 ICT industry trade in Korea



	2021	2022	2023	2024
Exports (million USD)	189,503	193,045	147,824	196,710
Imports (million USD)	102,538	115,911	98,010	107,132
Trade balance (million USD)	86,964	77,134	49,814	89,577
Trade balance ratio (Exports/Imports)	1.85	1.67	1.51	1.84

► Source : OECD, Bilateral Trade in goods by end-use, 2026.3.

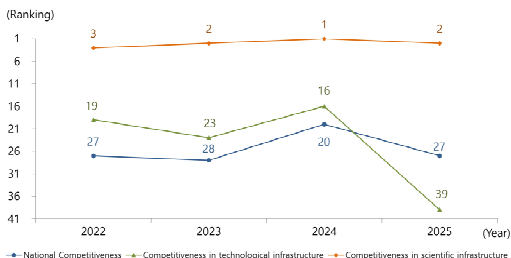
78 ICT industry trade in major countries (2024)

	Korea	USA	Japan	Germany	France	UK	China
Exports (million USD)	196,710	192,105	64,376	79,119	19,757	17,777	804,108
Imports (million USD)	107,132	472,809	94,181	114,638	42,470	54,684	601,699
Trade balance (million USD)	89,577	-280,704	-29,805	-35,519	-22,713	-36,907	202,409
Trade balance ratio (Exports/Imports)	1.84	0.41	0.68	0.69	0.47	0.33	1.34

► Source : OECD, Bilateral Trade in goods by end-use, 2026.3.

10. National Competitiveness

79 Competitiveness ranking of Korea (IMD)



	2022	2023	2024	2025
Overall competitiveness	27	28	20	27
Economic performance	22	14	16	11
Government efficiency	36	38	39	31
Business efficiency	33	33	23	44
Infrastructure	16	16	11	21
– Scientific infrastructure	3	2	1	2
– Technological infrastructure	19	23	16	39

► Source : IMD, The World Competitiveness Yearbook

80 Competitiveness ranking of major countries (2025, IMD)

	Korea	USA	Japan	Germany	France	UK	China
Competitiveness	27	13	35	19	32	29	16
– Science infrastructure	2	1	8	4	14	11	6
– Technology infrastructure	39	21	27	28	15	26	8

► Source : IMD, The World Competitiveness Yearbook, 2025

	2022	2023	2024	2025
Total expenditure on R&D	5	5	6	5
Total expenditure on R&D as a percentage of GDP	2	2	2	1
Total expenditure on R&D per capita**	9	8	9	8
Business expenditure on R&D	5	5	5	5
Business expenditure on R&D as a percentage of GDP	2	2	2	1
Total R&D personnel nationwide	5	6	6	5
Total R&D personnel nationwide per 1,000 people	3	4	5	4
Total R&D personnel in business enterprise**	5	5	6	6
Total R&D personnel in business per 1,000 people**	3	3	4	3
Researcher in R&D per 1,000 people	1	1	1	1
percentage of total % of graduates in ICT, Engineering, Math & Natural Sciences	11	9	9	11
Scientific articles	8	8	8	8
Nobel prizes**	28	29	30	29
Nobel prizes per 1,000,000 people	28	29	30	29
Number of patent applications	4	4	4	4
Number of patent applications filed per 100,000 inhabitants	2	2	2	1
Number of patents granted	4	4	4	4
Number of patents in force per 100,000 inhabitants	4	3	3	3
Patent publications for AI-related technology	–	–	–	3
Medium- and high-tech value added	5	4	5	5
Laws relating to scientific research do encourage innovation*	31	32	35	44
Intellectual property rights are adequately enforced*	37	28	31	52
Knowledge transfer is highly developed between companies and universities*	30	26	25	40
Overall Ranking	3	2	1	2

► * represents indicators in the survey, ** is background data and is not included in the ranking calculation

► Source : IMD, The World Competitiveness Yearbook

82 Competitiveness ranking of Korea in technological infrastructure (IMD)

	2022	2023	2024	2025
Investment in telecommunications as a percentage of GDP	15	23	22	30
Mobile broadband subscribers (based upon 5G)**	11	12	6	11
Monthly telephone costs per user	54	56	57	58
Communications technology*	12	11	9	24
Number of secure internet servers	43	43	43	42
Number of internet users per 1,000 people	8	9	11	11
Number of broadband subscribers per 1,000 inhabitants	25	24	23	24
Internet bandwidth speed	12	15	20	12
Digital technology skills are readily available*	46	48	28	59
Qualified engineers are available in labor market*	42	47	29	46
Public and private sector ventures are supporting technological development*	46	40	33	59
Development and application of technology are supported by the legal environment*	48	52	43	55
Funding for technological development is readily available*	30	36	33	49
High-tech exports	5	6	6	7
High-tech exports as a percentage of manufactured exports	6	6	27	11
ICT as a percentage of total service exports	35	37	34	27
Cyber security is being adequately addressed by corporations*	28	24	20	40
Overall Ranking	19	23	16	39

▶ * represents indicators in the survey, ** Based on 4G and 5G standards through 2024

▶ Source : IMD, The World Competitiveness Yearbook

83 Global innovation index (GII) rankings of major countries

Korea	USA	Japan	Germany	France	UK	China
4	3	12	11	13	6	10

► Source : WIPO, Global Innovation Index 2025

84 Global innovation index (GII) rankings by innovation pillar of major countries

	Inputs						Outputs		
	overall	institutions	human capital and research	infrastructure	market sophistication	business sophistication	overall	knowledge and technology outputs	creative outputs
Korea	4	20	1	7	5	4	6	9	4
USA	6	16	13	32	1	1	3	3	5
Japan	12	22	18	17	10	6	14	12	18
Germany	15	23	4	28	22	13	8	11	8
France	18	33	15	18	14	14	12	15	7
UK	10	25	7	23	4	17	4	5	3
China	19	44	20	6	13	8	5	1	14

► Source : WIPO, Global Innovation Index 2025

85 COmposite Science and Technology Innovation Index (COSTII) of Korea

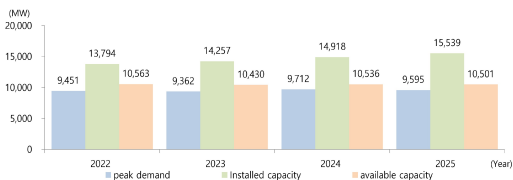
	2022		2023		2024		2025	
	Indicator (Score)	Ranking	Indicator (Score)	Ranking	Indicator (Score)	Ranking	Indicator (Score)	Ranking
Resource	2.030	5	2.018	5	2.039	5	2.066	5
Activities	3.110	3	3.072	3	3.082	3	3.246	3
Network	1.757	11	1.724	13	2.027	11	1.855	13
Environment	2.855	22	2.841	20	2.936	19	2.836	22
Performance	2.181	10	2.326	9	2.080	10	1.962	11

► COSTII : COmposite Science and Technology Innovation Index

► Source : MSIT-KISTEP, Composite Science and Technology Innovation Index 2025

11. Energy and Resources

86 Electricity supply and demand in Korea



▶ Installed capacity and available capacity is based on each year's time of occurrence for maximum power demand

▶ Source : Korea Power Exchange (KPX), Electric Power Statistics Information System (Peak/Base Demand)

87 Petroleum and Natural gas supply in Korea

		2021	2022	2023	2024
Petroleum	Crude oil imports (million barrels)	960	1,031	1,006	1,029
	Amount of crude oil imports (million USD)	67,691	105,379	86,442	85,269
Natural gas	Imports (1,000 tons)	45,932	46,394	44,117	46,318

▶ Source : Ministry of Climate, Energy and Environment, Korea Energy Economics Institute, Yearbook of Energy Statistics (2025)

Korea National Oil Corporation, Petronet - Korea Supply & Demand

88 Energy Intensity of GDP in major countries (2024)

	Korea	USA	Japan	Germany	France	UK	China
energy consumption (toe) / GDP (1,000 USD(PPP))	0.12	0.10	0.07	0.06	0.07	0.05	0.15

▶ GDP in dollars at constant exchange rate, price and purchasing power parities (PPP) of the year 2015

▶ Source : Enerdata, World Energy & Climate Statistics - Yearbook 2025 July

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Nuclear electricity as a percentage of total electricity generation in major countries (% , 2023)

Korea	USA	Japan	Germany	France	UK
29.9	18.2	8.5	1.4	64.2	14.3

► Source : OECD, Electricity generation – Regions, 2025.5.

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Overseas natural resource development in Korea

		2021	2022	2023	2024
Number of overseas resource development programs (cumulative)	Petroleum/Gas	388	391	391	393
	In progress	110	105	100	98
	Production	62	56	55	53
	Development	10	10	10	10
	Exploration	38	39	35	35
	Completed programs	278	286	291	295
	General minerals	551	553	555	562
	In progress	291	289	287	116
	Completed programs	260	264	268	446
Self-sufficient development ratio (%)	Petroleum/Gas	10.7	10.5	11.3	10.8
	Bituminous coal	40.9	40.3	40.0	44.8
	Iron	34.0	43.4	36.6	33.8
	Bronze	8.3	10.0	11.5	6.8
	Zinc	21.6	19.4	23.4	22.2
	Nickel	44.8	44.0	43.3	47.8

► Self-sufficient development ratio indicates the percentage of resource developed and produced by domestic companies compared to total imports

► Source : e-Nara Indicators (MOTIR, Status of Overseas Resource Development), Public data portal (Resource development rate, Overseas resource development project count) (data.go.kr)

12. Green Growth and Technology

91 Production of New & Renewable Energy in Korea (1,000 toe, %)

	2021	2022	2023	2024
Production of New & Renewable Energy	14,000	15,706	17,058	18,813
Production percentage (%)	4.7	5.2	5.7	6.2
solar thermal	26	25	24	25
solar photovoltaic	5,317	6,609	7,149	8,051
wind power	678	718	723	796
hydro power	651	755	792	919
Marine	97	90	93	89
Geothermal heat	256	280	280	316
hydro thermal	25	27	28	31
bio	4,264	4,373	5,030	5,147
waste	1,198	1,257	1,393	1,381
Fuel Cells	1,023	1,154	1,334	1,617
IGCC	467	419	212	441

- ▶ Supply share refers to the proportion of renewable energy production relative to primary energy supply
- ▶ Source : Korea Energy Agency, Survey on Deployment of New & Renewable Energy 2024

92 Renewable energy share in the total final energy consumption in major countries (%) (2023)

Korea	USA	Japan	Germany	France	UK	China
4.37	12.25	9.68	21.23	18.4	15.23	14.21

- ▶ Source : United Nations, SDG Indicators Global Database, 2026. 3.

93 CO₂ emissions / GDP in major countries (kg/PPP USD, 2024)

Korea	USA	Japan	Germany	France	UK	China('23)
0.20	0.18	0.16	0.10	0.07	0.07	0.36

- ▶ GDP in US dollar (2020 PPP prices)
- ▶ Source : IEA, Data Services – Greenhouse Gas Emissions from Energy Highlights, 2025.11.

94 Health and Environment programmes as a percentage of Civil GBARD (%) (2024)

Korea	USA('25)	Japan('25)	Germany	France	UK('23)
14.5	55.8	8.0	10.2	8.3	28.6

- ▶ The government's R&D budget excludes the defense budget
- ▶ Source : OECD, Main Science & Technology Indicators 2026-March

13. Space

95 Space programs as a percentage of GBARD in major countries (2024)

	Korea	USA ('25)	Japan ('25)	Germany	France	UK ('23)
Civil GBARD for Space programme (million USD, PPP)	1,087	10,647	4,267	2,662	3,606	553
Space programmes as a percentage of Civil GBARD (%)	4.00	11.64	5.17	4.49	14.07	2.54

- ▶ The government's R&D budget excludes the defense budget
- ▶ Source : OECD, Main Science & Technology Indicators 2026–March

96 BERD performed in aerospace industry in major countries (2024)

	Korea	USA ('23)	Japan	Germany ('23)	France ('23)	UK
Aerospace industry R&D expenditure (million USD, PPP)	1,280	38,165	531	2,210	6,767	3,146
Percentage of aerospace industry R&D expenditure in BERD (%)	0.97	5.21	0.29	1.71	11.30	3.76

- ▶ Source : OECD, Main Science & Technology Indicators 2026–March

14. Biotechnology

97 BERD performed in biotechnology industry in major countries (2023)

	Korea	USA	Japan	Germany	France
Biotechnology R&D expenditures in the business sector (million USD, PPP)	3,094	136,129	3,158	5,316	5,255
Number of firms active in biotechnology	1,139	3,200	178	946	2,335

- Type of firms active in biotechnology varies across countries. Some countries include all biotech firms whereas others only include biotech R&D firms.
- Source : OECD, Key Biotechnology Indicators, October 2025

98 Trends and personnel in biotechnology industry in Korea

		2021	2022	2023	2024
Industry trends (trillion KRW)	Production	21.40	23.82	20.87	22.92
	Domestic demand	14.15	14.24	12.51	12.90
	Exports	12.01	13.78	11.71	13.71
	Imports	4.77	4.21	3.35	3.69
Personnel	researchers	17,910	19,334	19,432	19,788
	production workers	17,836	18,855	21,746	22,151
	Total	35,746	38,189	41,178	41,939

- Researchers indicates personnel for R&D in biotechnology
- Production workers indicates personnel for production, including facility management and quality assurance in biotechnology
- Sales and management positions are not included in the total biotechnology industry personnel.
- Source : MOTIE, Korea Biotechnology Industry Organization, Report on Survey of Domestic Bio-industry

15. Economic and Social Indicators

99 Population and GDP per capita in major countries (2024)

	Korea	USA	Japan	Germany (²⁵)	France (²⁵)	UK	China
Population (thousands)	51,751	340,095	123,802	83,524	68,723	69,226	1,408,280
GDP per capita (USD, PPP)	61,051	86,147	52,130	76,120	64,584	62,872	27,118

► Source : OECD, Main Science & Technology Indicators 2026–March

100 Labor force and total employment in major countries (2024)

	Korea	USA	Japan	Germany	France	UK	China
Labor force (thousands)	29,398	168,106	69,571	44,193	31,276	35,121	–
Total employment (thousands)	28,576	163,436	68,897	45,982 (²⁵)	30,657 (²⁵)	33,613	734,390

► Source : OECD, Main Science & Technology Indicators 2026–March
OECD, Annual Labour Force Survey, Summary Tables (2025.6.)

2026-March

100 Main Science & Technology Indicators of Korea

Korean Edition

- Published in April 2026
- Edited and Published by
 - Center for Data Analysis Innovation, Office of National R&D Evaluation and Analysis, KISTEP

Ministry of Science and ICT (MSIT)

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English Version

- Published in September 2026
 - Edited and Published by
 - Center for Global R&D Cooperation, KISTEP
-

2026-March



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Technology Indicators of Korea**



Ministry of Science and ICT



Korea Institute of S&T
Evaluation and Planning