



Main Science and Technology Indicators

Main Science and Technology Indicators, Volume 2020 Issue 1

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Note by Turkey

The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus issue”.

Note by all the European Union Member States of the OECD and the European Union
The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Please cite this publication as:

OECD (2020), *Main Science and Technology Indicators*, Volume 2020 Issue 1, OECD Publishing, Paris,
<https://doi.org/10.1787/e3c3bda6-en>.

Main Science and Technology Indicators
ISSN 2304-2761 (print)
ISSN 2304-277X (online)

Corrigenda to publications may be found on line at: www.oecd.org/about/publishing/corrigenda.htm.

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Foreword

This publication contains key data series selected from the OECD Main Science and Technology Indicators Database (MSTI) accessible at <https://oe.cd/msti>. This publication consists of 68 standard tables of data series regarding the resources devoted to research and experimental development (R&D) as well as some indicators of R&D output and the impact of scientific and technological activities. Also presented are the underlying economic series used to calculate these indicators. It is complemented by a description of the general methodology used as well as national specifications available at http://www.oecd.org/sti/inno/MSTI_documentation_e.pdf.

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Conventional signs and abbreviations

Signs and abbreviations

R&D terminology

BERD	Business enterprise Expenditure on R&D (intramural)
FTE	Full Time Equivalent (on R&D)
GBARD	Government Budget Allocations for R&D
GERD	Gross Domestic Expenditure on R&D (intramural)
GOVERD	Government Expenditure on R&D (intramural)
GUF	General University Funds
HERD	Higher Education Expenditure on R&D (intramural)
NSE	Natural Sciences and Engineering
PNP	Private Non Profit Institutions
R&D	Research and Experimental Development
SSH	Social Sciences and Humanities

For further explanations of the above terms, please see the OECD Frascati Manual 2015, <http://oe.cd/frascati>, which includes in particular a glossary of key terms (www.oecd.org/sti/inno/Frascati-2015-Glossary.pdf)

Other

GDP	Gross Domestic Product
ISIC	International Standard Industrial Classification
PCT	Patent Co-operation Treaty
PPP	Purchasing Power Parity

Sources and methods

Detailed methodological information: http://www.oecd.org/sti/inno/MSTI_documentation_e.pdf.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Standard footnotes

b	Time series break.
c	Confidential statistical information.
d	Definition differs.
e	Estimated value.
k	Data included in another category.
l	Overestimated or based on overestimated data.
m	Underestimated or based on underestimated data.
p	Provisional value.
s	Unrevised breakdown not adding to the revised total.
v	The sum of the breakdown does not add to the total.
w	Includes data from another category.

The latest data for European countries, as well as Iceland, Norway, the Russian Federation, Switzerland and Turkey, were collected by Eurostat. From 2017, Eurostat follows slightly different, but generally compatible, conventions with regard to footnotes:

- Countries only use flags 'b', 'c', 'd', 'e' and 'p'.
- Only one flag may be submitted per data item (cell).
- The flags follow a hierarchy: $p > b > d > e$. As an example, an estimated (e) and provisional (p) data will be annotated with a 'p'.
- Estimated (e), overestimated (l) and underestimated (m) data are all annotated with an 'e' flag.
- 'd', 'k', 's', 'v' and 'w' flags are grouped as 'd' (definition differs).

In this publication, flags for these countries are published as they were received by the OECD from Eurostat, except in the following cases:

- The single-flag rule is not applied when this would lead to suppress 'b' flags indicating breaks in series.
- 's' flags are not replaced with 'd'.

Contact details

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International Comparisons

Table 1. Gross domestic expenditure on R&D (GERD) at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	..	23 129.7 e	..	21 151.5 e	..	22 555.2 e	..
Austria	6 837.0 e	12 007.9	12 863.3 e	13 147.0	14 343.5 e	14 655.0	15 785.6 p
Belgium	6 225.2	11 358.6	11 935.9	12 651.2	13 894.3	15 355.5	15 991.8 e
Canada	23 090.0	26 504.1	27 793.5 b	27 005.5	29 014.8	29 659.6	29 003.3 p
Chile	..	1 532.6	1 517.6 b	1 552.2	1 527.3 b	1 555.6	1 621.3 p
Colombia	587.8	1 524.5	1 894.9	2 037.2	1 987.8	1 831.1	2 125.1
Czech Republic	2 619.5	6 089.3	6 699.4	6 854.8	6 369.2	7 302.4	8 286.9
Denmark	4 429.5	7 793.6	7 877.7	8 518.0	9 207.0	9 682.6 p	10 054.2 p
Estonia	206.7	624.1	544.2	563.5	512.1	570.3	675.0
Finland	5 588.7	7 382.8	7 178.2	6 689.7	6 726.7	7 149.1	7 504.1
France	39 530.1	58 353.3	60 585.6 b	61 645.7	63 645.0	66 044.9 p	68 440.9 e
Germany	64 028.3	102 905.5	109 562.7	114 128.2	122 459.8	134 429.8	141 299.9
Greece	1 627.0	2 321.7	2 436.0	2 798.2	2 980.1	3 538.5	3 843.8
Hungary	1 586.8	3 361.4	3 408.4	3 534.5	3 235.1	3 849.7	4 733.5 b
Iceland	296.8	243.3 b	291.6	355.1	378.4	401.6	415.8
Ireland	2 006.5	3 467.8 e	3 622.8 e	3 840.4 e	3 997.0 e	4 645.8 e	4 100.1
Israel ¹	6 966.3 d	11 272.4 d	11 732.3 d	12 666.3 d	14 591.7 d	16 352.5 d e	17 669.9 d e
Italy	18 241.2	28 459.4	29 448.3 e	30 002.9	33 073.3 b	34 657.6	36 892.8
Japan	128 694.6	164 655.8 b	169 554.1	168 546.1	160 295.0	166 183.7	171 293.6 b
Korea	30 618.3 d	68 234.1	73 099.8	76 932.4	80 798.7	90 386.1	98 451.3
Latvia	164.2	279.4	327.2	306.0	227.8	284.7	378.5
Lithuania	361	750	851	874	747	858	945
Luxembourg	498.8	676.6	712.3	769.6	835.8	853.5	860.0 p
Mexico	5 346.2	8 774.7	9 458.5	9 577.9	9 242.1	8 112.5 e	8 053.9 e
Netherlands	10 892.4	15 969.2	16 404.4	16 913.4	17 779.9	18 803.2	21 463.1 b p
New Zealand	1 189.3	1 856.9	..	2 125.4	..	2 679.2	..
Norway	3 275.8	5 620.4	5 805.6	6 063.5	6 307.4	6 972.1	7 405.8
Poland	2 984.9	8 185.8	9 149.3	10 234.8	10 353.6	11 844.7	14 622.0
Portugal	1 808.2	3 869.8	3 856.2	3 820.8	4 179.5	4 496.1	4 786.5
Slovak Republic	441.0	1 243.8	1 379.5	1 886.9	1 273.4	1 489.7	1 486.9
Slovenia	676.5	1 583.7	1 505.7	1 433.4	1 406.8	1 413.5	1 567.9
Spain	13 251.1	19 282.4	19 356.2	19 820.6	20 631.4	22 319.3	23 552.9
Sweden	10 388.2 b	14 496.4 e	14 191.1 e	15 493.2 v	16 248.9 e	17 837.3 v	18 162.4 e
Switzerland	..	..	..	17 854.9	..	18 688.5	..
Turkey	4 595.6	13 834.8	15 933.0	17 739.0	19 853.1	21 744.0	23 966.3
United Kingdom	30 639.7	41 532.1	43 811.1 e	45 678.2	48 106.5 e	51 029.1	53 952.6
United States	328 128.0 d	454 823.0 d	476 459.0 d	495 094.0 d	516 590.0 d	548 984.0 d p	581 553.0 d e
EU28 (OECD estimates)	226 913.5 e	355 277.5 e	371 249.2 e	386 010.3 e	406 791.9 e	438 171.6 e	464 876.4 e
OECD-Total	779 385.7 e	1 149 748.2 e	1 202 137.7 e	1 240 305.9 e	1 286 055.2 e	1 369 215.5 e	1 447 827.5 e
Argentina	2 220.4	5 288.5 p	4 963.5 p	5 341.1	4 657.6	5 782.0	..
China	86 174.4	323 361.2	346 222.3	366 070.9	393 040.8	420 815.6	468 062.3
Romania	844.7	1 534.5	1 569.5	2 091.5	2 301.2	2 690.7	2 857.4
Russian Federation	18 120.5	38 440.1	40 360.6	38 818.6	39 008.6	42 375.7	41 505.1
Singapore	5 384.3	8 619.4	9 625.0	10 503.9	10 407.4	10 227.7	10 530.5
South Africa	4 046.3	4 849.4	5 267.0	5 549.9	5 793.1	..	..
Chinese Taipei	15 308.9	30 835.6	32 642.2	33 727.9	35 764.3	39 089.7	43 342.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 2. Gross domestic expenditure on R&D (GERD) as a percentage of GDP

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	2.09 e	..	1.88 e	..	1.79 e	..
Austria	2.37 e	2.95	3.08 e	3.05	3.12 e	3.05	3.14 p
Belgium	1.79	2.33	2.37	2.43	2.52	2.66	2.68 e
Canada	1.97	1.71	1.71 b	1.69	1.73	1.67	1.56 p
Chile	..	0.39	0.38 b	0.38	0.37 b	0.36	0.35 p
Colombia	0.17	0.26	0.30	0.32	0.30	0.26	0.29
Colombia	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Czech Republic	1.17	1.90	1.97	1.93	1.68	1.79	1.93
Denmark	2.39	2.97	2.91	3.05	3.09	3.05 p	3.03 p
Estonia	0.92	1.71	1.42	1.46	1.25	1.28	1.40
Finland	3.32	3.27	3.15	2.87	2.72	2.73	2.76
France	2.05	2.24	2.28 b	2.27	2.22	2.20 p	2.19 e
Germany	2.44	2.84	2.88	2.93	2.94	3.07	3.13
Greece	0.58	0.81	0.83	0.96	0.99	1.13	1.18
Hungary	0.92	1.39	1.35	1.35	1.19	1.33	1.53 b
Iceland	2.69	1.70 b	1.95	2.20	2.13	2.10	2.04
Ireland	1.19	1.57 e	1.52 e	1.18 e	1.17 e	1.24 e	1.00
Israel ¹	4.05 d	4.10 d	4.17 d	4.27 d	4.51 d	4.82 d e	4.94 d e
Italy	1.04	1.30	1.34 e	1.34	1.37 b	1.37	1.43
Japan	3.18	3.31 b	3.40	3.28	3.16	3.21	3.28 b
Korea	2.52 d	3.95	4.08	3.98	3.99	4.29	4.53
Latvia	0.53	0.61	0.69	0.62	0.44	0.51	0.64
Lithuania	1	1	1	1	1	1	1
Luxembourg	1.57	1.30	1.26	1.30	1.30	1.27	1.21 p
Mexico	0.40	0.43	0.44	0.43	0.39	0.33 e	0.31 e
Netherlands	1.77	1.93	1.98	1.98	2.00	1.98	2.16 b p
New Zealand	1.12	1.15	..	1.23	..	1.35	..
Norway	1.48	1.65	1.72	1.94	2.04	2.10	2.06
Poland	0.56	0.87	0.94	1.00	0.96	1.03	1.21
Portugal	0.76	1.32	1.29	1.24	1.28	1.32	1.36
Slovak Republic	0.49	0.82	0.88	1.16	0.79	0.89	0.84
Slovenia	1.42	2.56	2.37	2.20	2.01	1.87	1.95
Spain	1.10	1.28	1.24	1.22	1.19	1.21	1.24
Sweden	3.36 b	3.26 e	3.10 e	3.22 v	3.25 e	3.36 v	3.32 e
Switzerland	..	..	..	3.37	..	3.29	..
Turkey	0.57	0.82	0.86	0.88	0.94	0.96	1.03
United Kingdom	1.55	1.62	1.64 e	1.65	1.66 e	1.68	1.73
United States	2.52 d	2.71 d	2.72 d	2.72 d	2.76 d	2.81 d p	2.83 d e
EU28 (OECD estimates)	1.66 e	1.92 e	1.94 e	1.95 e	1.94 e	1.98 e	2.03 e
OECD-Total	2.12 e	2.30 e	2.32 e	2.31 e	2.30 e	2.34 e	2.38 e
Argentina	0.42	0.62 p	0.59 p	0.62	0.53	0.56	..
China	1.31	2.00	2.02	2.06	2.10	2.12	2.14
Romania	0.41	0.39	0.38	0.49	0.48	0.50	0.50
Russian Federation	0.99	1.03	1.07	1.10	1.10	1.11	0.98
Singapore	2.15	1.92	2.08	2.18	2.08	1.92	1.84
South Africa	0.86	0.72	0.77	0.80	0.82	..	..
Chinese Taipei	2.32	3.01	3.01	3.05	3.15	3.28	3.46

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 3. Gross domestic expenditure on R&D (GERD) at 2015 prices and PPP

Million 2010 USD

	2005	2013	2014	2015	2016	2017	2018
Australia	..	22 461.6 e	..	21 151.5 e	..	21 218.2 e	..
Austria	9 097.4 e	12 527.6	13 162.6 e	13 147.0	13 726.8 e	13 749.3	14 501.7 p
Belgium	8 125.7	11 716.6	12 102.2	12 651.2	13 337.1	14 338.4	14 645.7 e
Canada	26 695.6	26 267.5	27 160.3 b	27 005.5	27 847.6	27 735.5	26 497.1 p
Chile	..	1 522.1	1 494.5 b	1 552.2	1 531.5 b	1 493.4	1 524.6 p
Colombia	667.8	1 509.4	1 856.3	2 037.2	1 903.4	1 706.1	1 912.5
Czech Republic	3 385.9	6 240.2	6 656.4	6 854.8	6 116.0	6 802.6	7 540.7
Denmark	6 193.7	7 963.8	7 939.2	8 518.0	8 903.5	8 959.4 p	9 121.8 p
Estonia	306.1	631.5	539.5	563.5	494.6	537.2	617.5
Finland	7 365.2	7 606.6	7 291.9	6 689.7	6 521.2	6 753.9	6 913.6
France	50 881.7	59 590.4	61 206.1 b	61 645.7	61 093.6	61 962.0 p	62 771.3 e
Germany	82 285.0	106 212.3	110 178.7	114 128.2	117 109.8	125 175.5	129 647.1
Greece	2 095.9	2 354.8	2 436.5	2 798.2	2 887.9	3 335.9	3 546.9
Hungary	2 207.8	3 364.6	3 410.3	3 534.5	3 192.6	3 727.6	4 510.0 b
Iceland	357.5	257.3 b	300.6	355.1	366.7	379.2	381.8
Ireland	2 737.6	3 741.8 e	3 951.1 e	3 840.4 e	3 934.2 e	4 503.2 e	3 927.7
Israel ¹	8 179.2 d	11 456.2 d	12 115.1 d	12 666.3 d	13 931.9 d	15 403.6 d e	16 345.8 d e
Italy	24 573.0	28 940.0	29 769.0 e	30 002.9	31 024.9 b	31 628.0	33 181.9
Japan	154 745.8	167 572.1 b	172 526.0	168 546.1	163 035.0	169 213.4	173 313.4 b
Korea	33 990.9 d	72 016.9	76 705.0	76 932.4	79 375.4	88 147.7	95 461.7
Latvia	224.0	285.4	327.3	306.0	220.0	266.9	346.6
Lithuania	491	753	846	874	723	802	874
Luxembourg	714.4	707.6	716.2	769.6	802.1	798.1	785.8 p
Mexico	7 133.1	8 918.7	9 394.5	9 577.9	8 896.5	7 690.5 e	7 483.6 e
Netherlands	13 598.2	15 902.3	16 511.5	16 913.4	17 388.3	17 771.1	19 849.2 b p
New Zealand	1 544.4	1 842.7	..	2 125.4	..	2 507.4	..
Norway	4 058.4	5 350.6	5 534.3	6 063.5	6 259.7	6 684.6	6 863.1
Poland	3 919.2	8 277.9	9 232.9	10 234.8	10 136.7	11 413.4	14 059.1
Portugal	2 357.5	3 967.8	3 894.3	3 820.8	4 015.4	4 281.2	4 514.3
Slovak Republic	555.2	1 238.0	1 359.7	1 886.9	1 310.7	1 513.5	1 487.2
Slovenia	826.4	1 594.1	1 510.9	1 433.4	1 354.1	1 317.2	1 433.7
Spain	17 020.6	19 642.4	19 397.3	19 820.6	19 888.8	20 806.5	21 873.1
Sweden	13 293.9 b	14 629.4 e	14 287.7 e	15 493.2 v	15 953.2 e	16 944.4 v	17 060.5 e
Switzerland	..	..	..	17 854.9	..	18 060.6	..
Turkey	6 930.8	14 758.3	16 328.1	17 739.0	19 614.9	21 418.1	23 741.1
United Kingdom	37 948.4	42 713.2	44 452.5 e	45 678.2	46 847.2 e	48 308.3	50 373.0
United States	393 048.0 d	468 062.8 d	481 420.6 d	495 094.0 d	511 296.7 d	533 313.1 d p	551 517.7 d e
EU28 (OECD estimates)	292 954.1 e	363 939.8 e	374 737.3 e	386 010.3 e	391 306.0 e	410 329.7 e	428 513.2 e
OECD-Total	955 359.5 e	1 179 118.7 e	1 216 947.3 e	1 240 305.9 e	1 262 617.3 e	1 320 667.3 e	1 371 993.6 e
Argentina	2 659.1	5 365.8 p	4 980.1 p	5 341.1	4 483.0	4 836.4	..
China	93 244.5	309 949.1	336 668.3	366 070.9	398 951.6	429 092.4	462 577.6
Romania	1 328.7	1 547.8	1 577.4	2 091.5	2 157.7	2 421.3	2 516.4
Russian Federation	27 032.1	36 684.7	38 576.7	38 818.6	38 947.8	39 921.0	36 251.8
Singapore	5 975.9	8 649.6	9 744.1	10 503.9	10 319.3	9 953.8	9 890.1
South Africa	4 619.0	4 888.8	5 296.9	5 549.9	5 714.2	..	..
Chinese Taipei	18 338.3	31 735.2	32 983.2	33 727.9	35 398.5	37 975.5	41 104.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 4. Gross domestic expenditure on R&D (GERD) per capita at current prices and PPP

USD

	2005	2013	2014	2015	2016	2017	2018
Australia	..	1 000.1 e	..	888.1 e	..	916.8 e	..
Austria	831.2 e	1 416.5	1 505.5 e	1 523.5	1 641.2 e	1 666.3	1 786.2 p
Belgium	594.1	1 017.9	1 064.8	1 122.2	1 226.2	1 349.9	1 399.5 e
Canada	716.1	755.5	784.3 b	756.4	803.5	811.6	782.7 p
Chile	..	86.9	85.1 b	86.0	83.6 b	84.0	86.4 p
Colombia	14.1	33.3	40.9	43.5	42.0	38.3	43.9
Czech Republic	256.0	579.3	636.5	650.2	602.8	689.6	779.8
Denmark	817.4	1 388.5	1 396.0	1 499.1	1 607.1	1 679.0 p	1 735.3 p
Estonia	152.1	472.7	413.6	429.0	389.2	433.5	511.7
Finland	1 065.3	1 357.4	1 314.1	1 220.6	1 224.1	1 297.9	1 360.4
France	625.8	884.3	913.6 b	925.9	952.3	984.8 p	1 017.5 e
Germany	787.2	1 276.0	1 352.9	1 397.1	1 487.1	1 626.4	1 704.3
Greece	148.1	211.7	223.6	258.6	276.5	329.0	358.1
Hungary	157.3	339.8	345.4	359.1	329.6	393.3	484.2 b
Iceland	1 003.0	751.5 b	890.5	1 073.6	1 128.3	1 169.3	1 178.8
Ireland	482.3	750.6 e	778.7 e	817.8 e	841.7 e	967.4 e	843.5
Israel ¹	1 000.7 d	1 399.2 d	1 428.7 d	1 512.0 d	1 708.0 d	1 877.5 d e	1 989.6 d e
Italy	313.5	469.3	484.4 e	494.0	545.5 b	572.5	610.2
Japan	1 007.4	1 293.1 b	1 332.3	1 326.0	1 262.8	1 311.6	1 354.7 b
Korea	635.4 d	1 353.1	1 440.5	1 508.0	1 577.5	1 759.8	1 907.7
Latvia	73.3	138.8	164.1	154.7	116.3	146.7	196.5
Lithuania	109	254	290	301	260	303	337
Luxembourg	1 071.0	1 240.7	1 275.8	1 351.5	1 430.9	1 429.6	1 412.6 p
Mexico	50.0	74.2	79.1	79.3	75.7	65.8 e	64.6 e
Netherlands	667.4	950.3	972.7	998.4	1 044.0	1 097.6	1 245.5 b p
New Zealand	286.7	416.5	..	460.9	..	559.7	..
Norway	708.6	1 106.4	1 130.2	1 168.3	1 204.6	1 321.2	1 394.2
Poland	78.2	212.6	237.7	266.1	269.4	308.3	380.7
Portugal	172.2	370.1	370.8	368.9	404.8	436.5	465.4
Slovak Republic	81.9	229.8	254.6	348.0	234.5	273.9	273.0
Slovenia	338.1	768.9	730.3	694.7	681.4	684.2	756.7
Spain	303.5	413.8	416.7	427.1	444.2	479.6	504.0
Sweden	1 150.5 b	1 510.0 e	1 463.6 e	1 581.1 v	1 637.5 e	1 773.5 v	1 785.0 e
Switzerland	..	..	..	2 155.8	..	2 211.2	..
Turkey	67.2	181.7	206.4	226.8	250.4	270.7	294.4
United Kingdom	507.2	647.9	678.2 e	701.6	732.8 e	772.7	812.1
United States	1 108.6 d	1 437.4 d	1 494.9 d	1 542.2 d	1 597.8 d	1 687.1 d p	1 776.1 d e
EU28 (OECD estimates)	458.5 e	700.6 e	730.3 e	757.2 e	795.5 e	855.1 e	905.2 e
OECD-Total	636.0 e	877.3 e	911.7 e	934.9 e	963.3 e	1 019.8 e	1 072.3 e
Argentina	57.5	125.3 p	116.3 p	123.8	106.8	131.3	..
China	65.9	237.6	253.1	266.3	284.3	302.7	335.4 e
Romania	39.6	76.8	78.8	105.5	116.8	137.3	146.7
Russian Federation	126.3	267.9	276.3	265.1	266.0	288.6	282.7
Singapore	1 262.1	1 596.5	1 759.6	1 897.7	1 856.1	1 822.5	1 867.4
South Africa	85.0	91.3	97.7	101.4	104.2	..	..
Chinese Taipei	672.3	1 319.2	1 392.9	1 435.7	1 519.3	1 658.4	1 837.4

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 5. Estimated civil GERD (Gross domestic expenditure on R&D) as a percentage of GDP

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	..	2.95	..	..	..	..	..
Belgium	1.79	..	..	..	..	..	..
Canada	..	..	..	..	..	..	..
Chile	..	0.39	0.37 b	0.38	0.37 b	0.35	0.35 p
Colombia	0.17	0.26	0.30	0.32	0.29	0.26	0.28
Czech Republic	1.16	1.89	1.97	..	..	..	..
Denmark	..	..	..	..	..	..	..
Estonia	0.91 e	1.71 e	1.41	..	..	1.27	..
Finland	3.30	3.26	3.13	..	..	..	..
France	1.88	2.16	2.21 b	..	..	..	..
Germany	2.41 e	2.81	2.86	..	..	..	..
Greece	..	..	..	..	..	..	..
Hungary	0.92	1.38	1.34	1.34	1.19	1.33	..
Iceland	2.69	1.70 b	1.95	2.20	2.13	2.10	2.04
Ireland	1.19	1.57 e	1.52 e	1.18 e	1.17 e	1.24 e	1.00
Israel ¹	4.05	4.10	4.17	4.27	4.51	4.82 e	4.94 e
Italy	..	..	..	..	..	..	..
Japan	3.15 e	3.28 b e	3.37 e	3.25 e	..	..	..
Korea	2.46 d	3.78	3.92	3.84	3.86	4.11	4.37
Latvia	..	..	..	..	..	..	..
Lithuania	1	1	1	1	1	1	..
Luxembourg	1.57	1.30	1.26	1.30	1.30	1.27	1.21 p
Mexico	..	..	..	..	..	..	..
Netherlands	..	..	..	..	..	..	..
New Zealand	..	1.14	..	1.22	..	1.33	..
Norway	..	..	..	..	..	..	..
Poland	..	..	..	..	..	..	..
Portugal	0.75	1.32	1.28	1.23	1.27	1.31	..
Slovak Republic	0.49	0.82	0.87	1.16	0.79	0.88	..
Slovenia	1.42	2.56	2.37	2.20	..	..	..
Spain	..	1.24	1.21	1.19	1.16	1.17	..
Sweden	3.24 b	3.14 e	..	..	..	..	..
Switzerland	..	..	..	..	..	..	..
Turkey	..	0.80	0.84	0.86	0.93	..	..
United Kingdom	1.36	1.51	1.55 e	..	..	..	..
United States	2.09 d	..	..	..	..	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	0.42	0.62 p	0.59 p	..	..	..	..
China	..	..	..	..	..	..	..
Romania	0.41	0.38	0.38	..	..	..	..
Russian Federation	..	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	0.81	0.69	0.72	0.75	..	..	..
Chinese Taipei	2.25	2.98	2.99	3.03	3.11	3.24	3.42

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 6. Basic research expenditure as a percentage of GDP

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	..	0.56 d	..	0.54 d	..	0.54 d	..
Belgium	..	0.46	..	0.38	..	0.29	..
Canada	..	..	..	..	..	..	..
Chile	..	0.11 m	0.11 b m	0.13 m	0.11 b m	0.11 m	0.12 m p
Colombia	..	..	..	..	..	..	..
Czech Republic	0.36	0.62	0.61	0.61	0.48	0.49	0.50
Denmark	0.45 e	0.57	0.59	0.58	..	0.56 p	..
Estonia	0.27	0.46	0.43	0.39	0.34	0.35	0.38
Finland	..	..	..	..	..	..	..
France	0.49	0.54	0.54	0.54	0.50 e	0.50 p	..
Germany	..	..	..	..	..	..	..
Greece	..	0.28	..	0.34	..	0.35	..
Hungary	0.25	0.27 e	0.25 e	0.25 e	0.22 e	0.25 e	0.29 b e
Iceland	0.51	0.45 b	0.45	0.45	0.45	0.45	0.43 e
Ireland	0.28	0.30 e	..	0.22 e	..	..	..
Israel ¹	0.65 d e	0.52 d e	0.52 d e	0.52 d e	0.52 d e	0.52 d e	0.51 d e
Italy	0.29	0.33	0.32 e	0.33	0.32 b	0.30	0.31
Japan	0.38	0.42 b	0.42	0.39	0.40	0.42	0.41 b
Korea	0.39 d	0.71	0.72	0.69	0.64	0.62	0.64
Latvia	0.11	0.15	0.20	0.21	0.13	0.16	0.23
Lithuania	0	0	0	0	0	0	0
Luxembourg	..	..	..	0.49	..	0.46	..
Mexico	..	0.13	0.14	0.14	0.12	0.10	0.10
Netherlands	..	0.55	0.54	0.54	0.53	0.52	..
New Zealand	0.34	0.29	..	0.28	..	0.34	..
Norway	0.29	0.29 m	..	0.36	..	0.38	..
Poland	0.17	0.30 b	0.32	0.32	0.29	0.30	0.39
Portugal	0.19	0.30	0.30	0.29	0.29	0.29	0.29
Slovak Republic	0.23	0.36	0.40	0.50	0.32	0.33	0.34
Slovenia	0.20	0.35	0.43 b	0.39	0.35	0.33	0.38
Spain	0.19 m	0.29 e	0.28 e	0.27 e	0.26 e	0.26	0.26
Sweden	..	..	..	..	..	..	..
Switzerland	..	..	..	1.29	..	1.40	..
Turkey	..	..	..	..	..	..	..
United Kingdom	..	0.27 e	0.28 e	0.27 e	0.30 e	0.29 e	0.32 e
United States	0.47 d	0.47 d	0.47 d	0.46 d	0.47 d	0.47 d p	0.47 d e
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	0.11	..	..	0.21 b	0.15	0.14	..
China	0.07	0.09	0.10	0.10	0.11	0.12	0.12
Romania	0.09 m	0.15	0.13	0.15	0.12	0.10	0.10
Russian Federation	0.13 m	0.16 m	0.17 m	0.16 m	0.15 d	..	..
Singapore	0.44	0.40	0.42	0.48	0.49	0.46	0.44
South Africa	0.16	0.17	0.19	0.20	0.22	..	..
Chinese Taipei	0.24	0.29	0.28	0.28	0.27	0.27	0.25

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 7. Total researchers in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	28 470 d e	40 426 d	42 627 d e	43 562 d	46 993 d e	47 521 d	50 484 d p
Belgium	33 146	46 355	50 820	53 178 b	54 280 e	54 010	56 651 e
Canada	136 700	163 180	161 982 b	162 952	158 980	158 890	..
Chile	..	5 893 d	7 585 d	8 175 d	8 985 d	9 099 d	9 205 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	24 169 b	34 271	36 040	38 081	37 338	39 181	41 198
Denmark	28 179	39 868	41 409	42 826	44 815	45 428 p	46 396 p
Estonia	3 331	4 407	4 324	4 187	4 338	4 674	4 968
Finland	39 582	39 196	38 281	37 516	35 908	37 047	37 891
France	202 507	265 466 e	271 772 b	277 631	285 488	295 754 p	306 451 e
Germany	272 148	354 463	351 923	387 982	399 605	419 617	433 685
Greece	19 593 d	29 228 d	29 877 d	34 708 d	29 403 d	35 000 d	36 688 d
Hungary	15 878	25 038	26 213	25 316	25 804	28 426	37 606 d
Iceland	2 155	1 848 b	..	1 944 b	..	2 050	..
Ireland	11 587	23 707 e	24 543 e	24 521 e	24 316 e	25 673 e	25 265 e
Israel ¹	..	..	..	..	..	..	..
Italy	82 489 d	116 163 d	118 183 d	125 875 d	133 706 b d	140 378 d	152 523 d
Japan	680 631 d	660 489 b d	682 935 d	662 071 d	665 566 d	676 292 d	678 134 b d
Korea	179 812 d	321 842	345 463	356 447	361 292	383 100	408 370
Latvia	3 282 d	3 625 d	3 748 d	3 613 d	3 152 d	3 482 d	3 456 d
Lithuania	7 637	8 557	9 075	8 167	8 525	8 741	8 938
Luxembourg	2 227	2 503	2 629	2 610	2 767	2 936	2 986 p
Mexico	43 922	29 921	31 315	34 282	38 882	..	..
Netherlands	47 854	76 670	76 229	79 155	81 117	83 187	95 611 b p
New Zealand	12 986	17 900	..	25 000	..	26 000	..
Norway	21 200	28 312	29 237	30 632	31 913	33 632	34 337
Poland	62 162	71 472	78 622	82 594	88 165	114 585 d	117 789 d
Portugal	21 126	37 813 b	38 155	38 672	41 349	44 938	47 652
Slovak Republic	10 921 d	14 727 d	14 742 d	14 406 d	14 149 d	15 226 d	16 337 d
Slovenia	5 253	8 707	8 574	7 900	8 119	9 301	10 068
Spain	109 720	123 225 d	122 235 d	122 437 d	126 633 d	133 213 d	140 120 d
Sweden	55 001 b e	64 194 b e	66 643 e	66 734 e	70 372 e	73 132	75 151 e
Switzerland	..	..	..	43 740	..	46 088	..
Turkey	39 139	89 075	89 657	95 161	100 158	111 893	126 249
United Kingdom	248 599 b e	267 699	276 584 e	284 483	288 922 e	295 934 e	305 795 e
United States	1 104 019 e	1 294 358 e	1 340 103 e	1 369 457 e	1 372 091 e	1 434 415 e	..
EU28 (OECD estimates)	1 374 762 e	1 736 853 e	1 772 538 e	1 845 897 e	1 898 458 e	1 999 886 e	2 097 382 e
OECD-Total	3 708 122 e	4 529 992 e	4 670 047 e	4 780 628 e	4 855 797 e	5 075 075 e	..
Argentina	31 868	50 785	51 665	52 970	54 046	53 184	..
China	1 118 698 d	1 484 040	1 524 280	1 619 028	1 692 176	1 740 442	1 866 109
Romania	22 958	18 576	18 109	17 459	18 046	17 518	17 213
Russian Federation	464 577	440 581	444 865	449 180	428 884	410 617	405 772
Singapore	23 789	36 012	36 647	39 182	39 207	38 898	39 272
South Africa	17 303	23 346	23 572	26 159	27 656	..	..
Chinese Taipei	88 859	140 781	142 458	144 836	147 141	149 886	153 998

 Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>

 1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 8. Total researchers in full-time equivalent per thousand total employment*Per thousand*

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	7.4 d e	9.6 d	10.0 d e	10.2 d	10.8 d e	10.8 d	11.2 d p
Belgium	7.8	10.2	11.1	11.5 b	11.6 e	11.4	11.8 e
Canada	8.3	9.1	9.0 b	8.9	8.6	8.5 e	..
Chile	..	0.8 d	1.0 d	1.0 d	1.1 d	1.1 d e	1.1 d e p
Colombia	..	..	..	..	..	..	..
Czech Republic	4.9 b	6.7	7.1	7.3	7.1	7.3	7.6
Denmark	10.1	14.4	14.8	15.1	15.6	15.5 p	15.7 p
Estonia	5.4	7.3	7.1	6.7	6.9	7.4 e	7.7 e
Finland	16.4	15.6	15.3	15.0	14.3	14.6 e	14.5 e
France	7.7	9.8 e	9.9 b	10.1	10.4	10.6 p	10.9 e
Germany	6.9	8.4	8.2	9.0	9.2	9.5	9.7
Greece	4.2 d	7.3 d	7.4 d	8.5 d	7.2 d	8.4 d	8.6 d e
Hungary	3.9	6.2	6.2	5.9	5.8	6.2	8.1 d
Iceland	13.3	10.6 b	..	10.6 b	..	10.3 e	..
Ireland	5.9	12.4 e	12.6 e	12.3 e	11.9 e	12.2 e	11.6 e
Israel ¹	..	..	..	..	..	..	..
Italy	3.4 d	4.8 d	4.9 d	5.1 d	5.4 b d	5.6 d	6.0 d
Japan	10.4 d	10.1 b d	10.4 d	10.0 d	10.0 d	10.0 d	9.9 b d
Korea	7.9 d	12.8	13.5	13.7	13.8	14.4 e	15.3 e
Latvia	3.4 d	4.1 d	4.3 d	4.1 d	3.6 d	3.9 d e	3.8 d e
Lithuania	5	7	7	6	6	6 e	7 e
Luxembourg	7.2	6.5	6.6	6.4	6.6	6.8 e	6.7 e p
Mexico	1.3	0.8	0.8	0.9	1.0	..	..
Netherlands	5.7	8.8	8.7	9.0	9.1	9.1 e	10.3 b e p
New Zealand	6.3	8.0	..	10.6	..	10.2 e	..
Norway	9.1	10.6	10.9	11.3	11.8	12.2	12.3
Poland	4.4	4.6	5.0	5.2	5.5	7.0 d	7.2 d e
Portugal	4.2	8.5 b	8.5	8.5	8.9	9.4	9.7 e
Slovak Republic	5.2 d	6.7 d	6.6 d	6.4 d	6.1 d	6.4 d	6.8 d
Slovenia	5.7	9.4	9.2	8.4	8.5	9.4 e	9.9 e
Spain	5.6	6.9 d	6.8 d	6.6 d	6.7 d	6.9 d	7.1 d
Sweden	12.6 b e	13.7 b e	14.1 e	13.9 e	14.4 e	14.6 e	14.8 e
Switzerland	..	..	..	8.9	..	9.2	..
Turkey	2.0	3.6	3.5	3.6	3.7	4.0 e	4.4 e
United Kingdom	8.6 b e	8.9	9.0 e	9.1	9.1 e	9.2 e	9.4 e
United States	7.7 e	8.9 e	9.0 e	9.1 e	8.9 e	9.2 e	..
EU28 (OECD estimates)	6.2 e	7.7 e	7.8 e	8.0 e	8.2 e	8.5 e	8.8 e
OECD-Total	7.0 e	8.1 e	8.2 e	8.3 e	8.3 e	8.6 e	..
Argentina	2.1	2.9	2.9	3.0	3.0	2.9	..
China	1.5 d	1.9	2.0	2.1	2.2	2.2	2.4
Romania	2.5	2.2	2.1	2.0	2.1	2.0	2.0
Russian Federation	6.8	6.2	6.2	6.2	5.9	5.7	5.6
Singapore	10.3	10.3	10.1	10.7	10.7	10.6	10.6
South Africa	1.4	1.6	1.6	1.7	1.8	..	..
Chinese Taipei	8.9	12.8	12.9	12.9	13.1	13.2	13.5

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 9. Total R&D personnel in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	47 625 d e	66 186 d	70 138 d e	71 396 d	75 165 d e	76 010 d	80 750 d p
Belgium	53 517	67 898	72 795	77 520 b	79 109 e	82 686	88 031 e
Canada	218 590	232 910	236 470 b	244 879	228 590	229 170	..
Chile	..	13 228 d	15 887 d	15 261 d	16 626 d	16 608 d	15 594 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	43 370 b	61 976	64 444	66 433	65 783	69 736	74 969
Denmark	43 499	57 744	58 361	60 243	62 859	63 243 p	64 591 p
Estonia	4 362	5 858	5 790	5 636	5 772	6 048	6 183
Finland	57 471	52 972	52 130	50 367	47 429	48 999	50 011
France	349 681	416 687 m	423 903 b	428 643	432 245	441 509 p	451 423 e
Germany	475 278	588 615	605 252	640 516	657 894	686 349	707 704
Greece	33 603 d	42 188 d	43 316 d	49 658 d	41 790 d	47 585 d	51 279 d
Hungary	23 239	38 163	37 329	36 847	35 757	40 432	54 654 d
Iceland	3 226	2 736 b	..	2 941	..	3 172	..
Ireland	16 690	31 870 e	33 494 e	34 346 e	34 374 e	35 992 e	35 817 e
Israel ¹	..	..	..	..	..	..	..
Italy	175 248 d	246 764 d	249 467 d	259 167 d	290 040 b d	317 628 d	345 669 d
Japan	896 855 d	865 523 b d	895 285 d	875 005 d	872 340 d	890 749 d	896 901 b d
Korea	215 345 d	401 444	430 868	442 027	447 408	471 201	501 175
Latvia	5 483 d	5 396 d	5 739 d	5 570 d	5 120 d	5 378 d	5 806 d
Lithuania	11 002	11 080	11 791	10 607	10 924	11 577	11 956
Luxembourg	4 392	4 975	5 243	5 260	5 403	5 545	5 624 p
Mexico	83 685	59 073	52 150	57 013	65 824	..	..
Netherlands	93 599	123 214	124 066	129 060	132 867	135 626	157 389 b p
New Zealand	18 929	24 900	..	33 000	..	36 000	..
Norway	29 966	38 536	40 297	42 409	43 918	46 234	46 601
Poland	76 761	93 751	104 359	109 249	111 789	144 103 d	161 993 d
Portugal	25 728	46 711	46 878	47 999	50 406	54 995	58 154
Slovak Republic	14 404 d	17 166 d	17 594 d	17 591 d	17 768 d	19 011 d	20 268 d
Slovenia	8 994	15 229	14 866	14 225	14 403	14 713	15 686
Spain	174 773	203 302 d	200 233 d	200 866 d	205 873 d	215 744 d	225 696 d
Sweden	77 557 b e	80 957 e	83 473 e	83 551 e	90 690 e	88 928 v	92 011 e
Switzerland	..	..	..	81 451	..	81 751	..
Turkey	49 251 e	112 969 e	115 444 e	122 288 e	136 953	153 552	172 119
United Kingdom	324 917 b e	377 343 e	396 281 e	413 860	417 390 e	443 597 e	463 476 e
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	2 201 520 e	2 719 150 e	2 790 416 e	2 885 752 e	2 962 097 e	3 126 160 e	3 302 962 e
OECD-Total	..	..	..	..	..	..	..
Argentina	45 361	74 866	76 904	78 713	79 333	80 009	..
China	1 364 799 d	3 532 817	3 710 580	3 758 848	3 878 057	4 033 597	4 381 444
Romania	33 222	32 507	31 391	31 331	32 232	32 586	31 933
Russian Federation	919 716	826 733	829 190	833 654	802 317	778 155	758 462
Singapore	28 586	41 566	42 521	45 454	45 096	44 515	44 816
South Africa	28 798	37 956	38 465	41 055	42 533	..	..
Chinese Taipei	149 154	233 761	239 974	245 401	250 495	255 229	262 307

 Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

 1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 10. Total R&D personnel in full-time equivalent per thousand total employment*Per thousand*

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	12.3 d e	15.7 d	16.5 d e	16.7 d	17.3 d e	17.2 d	18.0 d p
Belgium	12.5	14.9	15.9	16.8 b	16.9 e	17.4	18.3 e
Canada	13.3	12.9	13.1 b	13.4	12.4	12.2 e	..
Chile	..	1.7 d	2.0 d	1.9 d	2.0 d	2.0 d e	1.9 d e p
Colombia	..	..	..	..	..	..	..
Czech Republic	8.8 b	12.2	12.6	12.8	12.5	13.0	13.8
Denmark	15.6	20.9	20.9	21.3	21.9	21.6 p	21.8 p
Estonia	7.1	9.7	9.6	9.0	9.2	9.5 e	9.6 e
Finland	23.8	21.0	20.8	20.1	18.8	19.3 e	19.2 e
France	13.3	15.3 m	15.5 b	15.6	15.7	15.9 p	16.1 e
Germany	12.1	13.9	14.2	14.9	15.1	15.5	15.8
Greece	7.2 d	10.6 d	10.7 d	12.2 d	10.2 d	11.4 d	12.1 d e
Hungary	5.6	9.5	8.8	8.5	8.0	8.9	11.7 d
Iceland	20.0	15.6 b	..	16.0	..	16.0 e	..
Ireland	8.5	16.7 e	17.3 e	17.3 e	16.8 e	17.1 e	16.5 e
Israel ¹	..	..	..	..	..	..	..
Italy	7.1 d	10.1 d	10.2 d	10.6 d	11.7 b d	12.6 d	13.6 d
Japan	13.7 d	13.2 b d	13.6 d	13.2 d	13.0 d	13.2 d	13.1 b d
Korea	9.4 d	16.0	16.8	17.0	17.1	17.7 e	18.8 e
Latvia	5.7 d	6.1 d	6.5 d	6.3 d	5.8 d	6.1 d e	6.4 d e
Lithuania	8	9	9	8	8	9 e	9 e
Luxembourg	14.3	12.9	13.2	13.0	12.9	12.8 e	12.5 e p
Mexico	2.6	1.6	1.4	1.5	1.7	..	..
Netherlands	11.2	14.1	14.2	14.7	14.9	14.9 e	16.9 b e p
New Zealand	9.2	11.1	..	14.0	..	14.1 e	..
Norway	12.9	14.5	15.0	15.7	16.2	16.8	16.7
Poland	5.5	6.1	6.6	6.8	7.0	8.9 d	9.9 d e
Portugal	5.1	10.5	10.4	10.5	10.8	11.5	11.8 e
Slovak Republic	6.9 d	7.8 d	7.9 d	7.8 d	7.7 d	8.0 d	8.4 d
Slovenia	9.7	16.4	16.0	15.1	15.0	14.9 e	15.4 e
Spain	8.9	11.4 d	11.1 d	10.9 d	10.9 d	11.1 d	11.4 d
Sweden	17.8 b e	17.3 e	17.6 e	17.4 e	18.5 e	17.8 e v	18.1 e
Switzerland	..	..	..	16.6	..	16.3	..
Turkey	2.5 e	4.6 e	4.5 e	4.6 e	5.1	5.5 e	6.1 e
United Kingdom	11.3 b e	12.6 e	12.9 e	13.2	13.1 e	13.8 e	14.3 e
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	10.0 e	12.1 e	12.3 e	12.6 e	12.8 e	13.3 e	13.8 e
OECD-Total	..	..	..	..	..	..	..
Argentina	2.9	4.2	4.4	4.4	4.4	4.4	..
China	1.8 d	4.6	4.8	4.9	5.0	5.2	5.6
Romania	3.6	3.8	3.6	3.7	3.8	3.8	3.7
Russian Federation	13.5	11.6	11.6	11.5	11.1	10.8	10.5
Singapore	12.3	11.9	11.7	12.4	12.3	12.1	12.1
South Africa	2.3	2.6	2.5	2.6	2.7	..	..
Chinese Taipei	15.0	21.3	21.7	21.9	22.2	22.5	22.9

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 11. Business-financed GERD (Gross domestic expenditure on R&D) as a percentage of GDP*As a percentage of GDP*

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	1.08 e	1.44	1.47 e	1.52	1.65 e	1.67	1.69
Belgium	1.07	1.41	..	1.42	..	1.69	..
Canada	0.97	0.80	0.78 b	0.74	0.74	0.71	0.64 p
Chile	..	0.13	0.12 b	0.12	0.13 b	0.11	0.10 p
Colombia	0.04	0.08	0.14	0.13	0.14	0.10	0.12
Czech Republic	0.56	0.71	0.71	0.67	0.66	0.70	0.64
Denmark	1.42	1.75	..	1.81	..	1.78 p	..
Estonia	0.35	0.72	0.53	0.60	0.60	0.56	0.57
Finland	2.22	1.99	1.68	1.57	1.55	1.58	1.54
France	1.07	1.23	1.24	1.23	1.24	1.24 p	..
Germany	1.65 d	1.86 d	1.90 d	1.92 d	1.92 d	2.03 d	2.07 d
Greece	0.18	0.25	0.25	0.30	0.40	0.51	0.50
Hungary	0.36 d	0.65	0.65	0.67	0.67	0.70	0.80 b
Iceland	1.29	0.63 b	0.70	0.79	0.80	0.77	0.82
Ireland	0.69	0.82 e	0.79 e	0.58 e	0.57 e	0.64 e	..
Israel ¹	2.28 d	1.47 d	1.46 d	1.41 d	1.73 d	1.72 d e	..
Italy	0.41	0.59	0.63 e	0.67	0.71 b	0.74	0.78
Japan	2.42	2.50 b	2.63	2.56	2.47	2.51	2.59 b
Korea	1.89 d	2.99	3.07	2.97	3.01	3.27	3.47
Latvia	0.18	0.13	0.19	0.12	0.09	0.12	0.14
Lithuania	0	0	0	0	0	0	0
Luxembourg	1.25	0.22	..	0.63	..	0.63	..
Mexico	0.17	0.09	0.07	0.07	0.07	0.06 e	0.06 e
Netherlands	0.82	0.99	1.01	0.97	1.04	1.02	..
New Zealand	0.46	0.46	..	0.54	..	0.63	..
Norway	0.69	0.71	..	0.86	0.88	0.90	0.87
Poland	0.19	0.32	0.37	0.39	0.51	0.54	0.64
Portugal	0.27	0.56	0.54	0.53	0.57	0.61	0.64
Slovak Republic	0.18	0.33	0.28	0.29	0.37	0.43	0.41
Slovenia	0.78	1.64	1.62	1.52	1.39	1.18	1.22
Spain	0.51	0.59	0.58	0.56	0.56	0.58	0.62
Sweden	2.15 b	1.99 e	..	1.84	..	2.04	..
Switzerland	..	..	..	2.14	..	2.26	..
Turkey	0.25 d	0.35	0.39	0.39	0.44	0.47	0.55
United Kingdom	0.65	0.75	0.79 e	0.81	0.86 e	0.90	0.95
United States	1.59 d	1.66 d	1.69 d	1.70 d	1.74 d	1.76 d	1.76 d e
EU28 (OECD estimates)	0.89 e	1.04 e	1.06 e	1.07 e	1.10 e	1.14 e	..
OECD-Total	1.32 e	1.39 e	1.42 e	1.42 e	1.43 e	1.46 e	1.49 e
Argentina	0.13	..	..	0.11	0.10	0.10	..
China	0.88	1.49	1.53	1.54	1.60	1.62	1.64
Romania	0.15	0.12	0.13	0.18	0.24	0.27	0.29
Russian Federation	0.30	0.29	0.29	0.29	0.31	0.33	0.29
Singapore	1.26	0.99	1.10	1.15	1.07	1.00	0.98
South Africa	0.38	0.30	0.31	0.31	0.32	..	..
Chinese Taipei	1.55	2.27	2.32	2.37	2.45	2.60	2.78

Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 12. Government-financed GERD (Gross domestic expenditure on R&D) as a percentage of GDP

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	0.85 e	0.99	1.10 d e	0.99	0.95 d e	0.84	0.93 d
Belgium	0.44	0.57	..	0.55	..	0.53	..
Canada	0.63 e	0.58 e	0.55 b e	0.54 e	0.53 e	0.54 e	0.52 p
Chile	..	0.15	0.17 b	0.16	0.17 b	0.17	0.17 p
Colombia	0.07	0.11	0.10	0.12	0.09	0.10	0.09
Czech Republic	0.53	0.66	0.65	0.62	0.60	0.62	0.66
Denmark	0.66	0.89 d	..	0.92 d	..	0.83 d p	..
Estonia	0.40	0.81	0.70	0.68	0.47	0.51	0.60
Finland	0.85	0.85	0.87	0.83	0.79	0.79	0.78
France	0.79	0.79	0.78	0.79	0.72	0.71 p	..
Germany	0.69 d	0.83 d	0.83 d	0.82 d	0.84 d	0.85 d	0.87 d
Greece	0.27	0.42	0.44	0.51	0.42	0.43	0.48
Hungary	0.46 d	0.50	0.45	0.47	0.31	0.42	0.50 b
Iceland	1.09	0.63 b	0.66	0.68	0.70	0.73	0.74
Ireland	0.38	0.43 e	0.42 e	0.31 e	0.30 e	0.28 e	..
Israel ¹	0.59 d	0.52 d	0.54 d	0.55 d	0.50 d	0.51 d e	..
Italy	0.53	0.54	0.53 e	0.51	0.48 b	0.44	0.47
Japan	0.53 e	0.57 b e	0.54 e	0.51 e	0.47 e	0.48 e	0.48 e
Korea	0.58 d	0.90	0.94	0.94	0.90	0.93	0.93
Latvia	0.24	0.15	0.18	0.20	0.21	0.22	0.22
Lithuania	0	0	0	0	0	0	0
Luxembourg	0.26	0.63	..	0.61	..	0.55	..
Mexico	0.20	0.33	0.35	0.34	0.30	0.25 e	0.24 e
Netherlands	0.69	0.64	0.66	0.66	0.63	0.62	..
New Zealand	0.48	0.46	..	0.46	..	0.48	..
Norway	0.65	0.76	..	0.87	0.93	0.98	0.99
Poland	0.32	0.41	0.42	0.42	0.37	0.40	0.43
Portugal	0.42	0.62	0.61	0.55	0.55	0.54	0.55
Slovak Republic	0.28 e	0.32 e	0.36 e	0.37	0.32	0.31	0.32
Slovenia	0.53	0.69	0.52	0.44	0.41	0.43	0.46
Spain	0.47	0.53	0.51	0.50	0.48	0.47	0.47
Sweden	0.82 b	0.92 e	..	.. c	..	0.84	..
Switzerland	..	..	..	0.82	..	0.87	..
Turkey	0.29 d	0.32	0.32	0.34	0.33	0.32	0.33
United Kingdom	0.51	0.47	0.47 e	0.46	0.44 e	0.44	0.45
United States	0.78 d	0.75 d	0.71 d	0.69 d	0.65 d	0.65 d p	0.65 d p
EU28 (OECD estimates)	0.59 e	0.63 e	0.63 e	0.62 e	0.59 e	0.59 e	..
OECD-Total	0.63 e	0.65 e	0.63 e	0.62 e	0.59 e	0.59 e	0.59 e
Argentina	0.27	..	..	0.47	0.39	0.39	..
China	0.34	0.42	0.41	0.44	0.42	0.42	0.43
Romania	0.22	0.20	0.19	0.20	0.19	0.18	0.17
Russian Federation	0.62	0.69	0.74	0.77	0.75	0.73	0.66
Singapore	0.77	0.77	0.79	0.83	0.81	0.72	0.68
South Africa	0.33	0.31	0.34	0.36	0.38	..	..
Chinese Taipei	0.73	0.71	0.66	0.65	0.67	0.65	0.65

 Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

 1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 13. Percentage of Gross domestic expenditure on R&D (GERD) financed by the business enterprise sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	45.6 e	48.7	47.7 e	49.7	53.0 e	54.7	53.9 p
Belgium	59.7	60.6	..	58.6	..	63.5	..
Canada	49.3	46.7	45.8 b	44.0	42.7	42.7	41.1 p
Chile	..	34.2	31.9 b	32.8	35.1 b	31.4	29.9 p
Colombia	23.8	29.6	46.4	41.6	46.0	39.7	40.5
Czech Republic	48.2	37.6	35.9	34.5	39.5	39.3	33.0
Denmark	59.5	59.0	..	59.1	..	58.5 p	..
Estonia	38.5	42.1	37.1	41.0	48.2	43.6	40.8
Finland	66.9	60.8	53.5	54.8	57.0	58.0	55.8
France	51.9	55.1	54.5 b	54.0	56.0	56.1 p	..
Germany	67.5 d	65.4 d	66.0 d	65.7 d	65.2 d	66.2 d	66.0 d
Greece	31.1	30.3	29.8	31.4	40.2	44.8	42.5
Hungary	39.4 d	46.8	48.3	49.7	56.4	52.7	52.4 b
Iceland	48.0	36.9 b	35.7	35.8	37.7	36.4	40.2
Ireland	57.4	52.6 e	52.2 e	48.7 e	49.0 e	52.1 e	..
Israel ¹	56.2 d	35.8 d	35.1 d	33.2 d	38.3 d	35.8 d e	..
Italy	39.7	45.2	47.3 e	50.0	52.1 b	53.7	54.6
Japan	76.1	75.5 b	77.3	78.0	78.1	78.3	79.1 b
Korea	75.0 d	75.7	75.3	74.5	75.4	76.2	76.6
Latvia	34.3	21.8	27.8	20.0	21.6	24.1	22.3
Lithuania	21	27	33	29	39	35	38
Luxembourg	79.7	16.5	..	48.3	..	49.6	..
Mexico	41.5	20.5	15.7	17.4	18.8	19.0 e	18.6 e
Netherlands	46.3	51.1	51.1	48.6	52.0	51.6	..
New Zealand	41.1	39.8	..	43.8	..	46.4	..
Norway	46.8	43.1	..	44.2	43.2	42.8	42.0
Poland	33.4	37.3	39.0	39.0	53.1	52.5	53.2
Portugal	36.3	42.3	41.8	42.7	44.4	46.5	47.3
Slovak Republic	36.6	40.2	32.2	25.1	46.2	49.0	48.8
Slovenia	54.8	63.8	68.4	69.2	69.2	63.1	62.6
Spain	46.3	46.3	46.4	45.8	46.7	47.8	49.5
Sweden	63.9 b	61.0 e	..	57.3 v	..	60.8 v	..
Switzerland	..	..	..	63.5	..	68.6	..
Turkey	43.3 d	43.4	45.3	44.6	46.7	49.4	53.6
United Kingdom	42.1	46.2	48.0 e	49.0	51.8 e	53.7	54.8
United States	63.3 d	61.1 d	62.0 d	62.5 d	63.2 d	62.5 d p	62.4 d e
EU28 (OECD estimates)	53.7 e	54.5 e	54.6 e	54.7 e	56.7 e	57.8 e	..
OECD-Total	62.2 e	60.7 e	61.3 e	61.4 e	62.2 e	62.4 e	62.5 e
Argentina	31.0	..	..	17.2	18.2	17.8	..
China	67.0	74.6	75.4	74.7	76.1	76.5	76.6
Romania	37.2	31.0	32.9	37.3	49.4	54.4	57.1
Russian Federation	30.0	28.2	27.1	26.5	28.1	30.2	29.5
Singapore	58.6	51.6	53.0	52.8	51.8	52.1	53.1
South Africa	43.9	41.4	40.8	38.9	39.4	..	..
Chinese Taipei	66.9	75.3	77.0	77.7	77.6	79.2	80.3

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 14. Percentage of Gross domestic expenditure on R&D (GERD) financed by government

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	35.9 e	33.6	35.6 d e	32.6	30.3 d e	27.6	29.8 d p
Belgium	24.7	24.3	..	22.5	..	20.0	..
Canada	31.8 e	33.8 e	32.1 b e	31.6 e	30.9 e	32.5 e	33.1 p
Chile	..	38.4	44.2 b	42.6	45.5 b	47.1	48.1 p
Colombia	43.0	43.7	32.7	36.3	32.1	36.6	32.4
Czech Republic	45.2	34.7	32.9	32.2	35.6	34.6	34.1
Denmark	27.6	29.9 d	..	30.2 d	..	27.2 d p	..
Estonia	43.5	47.2	49.5	46.4	37.6	40.2	42.8
Finland	25.7	26.0	27.5	28.9	28.9	29.0	28.3
France	38.6	35.3	34.3 b	34.8	32.4	32.4 p	..
Germany	28.5 d	29.1 d	28.7 d	27.9 d	28.5 d	27.7 d	27.8 d
Greece	46.8	52.3	53.3	53.1	42.6	37.6	40.6
Hungary	49.4 d	35.9	33.5	34.6	26.2	31.9	32.3 b
Iceland	40.5	37.2 b	34.1	30.8	32.9	34.5	36.0
Ireland	32.0	27.5 e	27.4 e	26.1 e	25.8 e	22.9 e	..
Israel ¹	14.5 d	12.7 d	13.0 d	12.8 d	11.1 d	10.6 d e	..
Italy	50.7	41.4	39.7 e	38.0	35.2 b	32.3	32.7
Japan	16.8 e	17.3 b e	16.0 e	15.4 e	15.0 e	15.0 e	14.6 b e
Korea	23.0 d	22.8	23.0	23.7	22.7	21.6	20.5
Latvia	46.0	23.9	25.6	32.7	47.7	43.6	34.3
Lithuania	63	35	33	35	39	36	32
Luxembourg	16.6	48.4	..	46.6	..	43.1	..
Mexico	49.2	76.8	81.3	79.7	77.6	76.8 e	76.8 e
Netherlands	38.8	33.4	33.2	33.1	31.3	31.4	..
New Zealand	43.2	39.8	..	37.1	..	35.8	..
Norway	43.6	45.8	..	44.9	45.7	46.7	48.0
Poland	57.7	47.2	45.2	41.8	38.9	38.3	35.4
Portugal	55.2	46.6	47.1	44.3	42.6	41.0	40.6
Slovak Republic	57.0 e	38.9 e	41.4 e	31.9	41.0	35.5	38.0
Slovenia	37.2	26.9	21.8	19.9	20.2	22.9	23.7
Spain	43.0	41.6	41.4	40.9	40.0	38.9	37.6
Sweden	24.4 b	28.3 e	..	.. c	..	25.0 v	..
Switzerland	..	..	..	24.4	..	26.5	..
Turkey	50.1 d	39.3	37.4	38.5	35.1	33.6	32.3
United Kingdom	32.7	29.1	28.4 e	27.7	26.3 e	26.0	25.9
United States	30.8 d	27.5 d	25.9 d	25.3 d	23.6 d	23.1 d p	23.0 d e p
EU28 (OECD estimates)	35.2 e	33.0 e	32.5 e	31.8 e	30.6 e	29.7 e	..
OECD-Total	29.7 e	28.3 e	27.3 e	26.9 e	25.7 e	25.2 e	24.9 e
Argentina	65.3	..	..	76.4	73.1	70.7	..
China	26.3	21.1	20.3	21.3	20.0	19.8	20.2
Romania	53.5	52.3	48.5	41.7	39.6	35.9	33.3
Russian Federation	61.9	67.6	69.2	69.5	68.2	66.2	67.0
Singapore	35.7	40.2	38.0	38.2	38.9	37.5	37.0
South Africa	38.2	42.9	43.9	44.6	46.0	..	..
Chinese Taipei	31.5	23.5	21.9	21.2	21.4	19.8	18.8

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 15. Percentage of Gross domestic expenditure on R&D (GERD) financed by the Higher Education and PNP sectors

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	0.4 e	1.1	0.5 d e	1.1	0.5 d e	1.1	0.3 d p
Belgium	3.3	1.5	..	2.4	..	3.5	..
Canada	10.1 e	13.7 e	14.0 b e	14.6 e	15.6 e	15.9 e	16.5 p
Chile	..	12.5	10.2 b	11.8	15.5 b	17.1	17.1 p
Colombia	29.0	23.7	18.8	17.0	16.6	18.5	22.4
Czech Republic	1.2	0.5	0.7	0.8	0.9	1.1	1.1
Denmark	2.8 d	4.4 d	..	4.4 d	..	5.4 d p	..
Estonia	1.0	0.4	1.0	0.5	0.6	1.3	1.7
Finland	1.2	1.6	1.7	1.8	2.0	2.2	2.0
France	1.9	1.7	3.5 b	3.5	3.8	3.7 p	..
Germany	0.3 d	0.3 d	0.3 d	0.3 d	0.3 d	0.3 d	0.3 d
Greece	3.1	3.5	3.7	2.9	2.7	2.6	2.5
Hungary	0.3 d	0.8	0.7	0.7	0.7	0.5	0.5 b
Iceland	0.3	5.9 b	6.9	8.1	8.1	4.6	5.2
Ireland	1.9	1.3 e	1.7 e	1.6 e	1.5 e	1.6 e	..
Israel ¹	4.6 d	1.7 d	1.5 d	1.5 d	1.4 d	1.0 d e	..
Italy	1.7	3.7	3.6 e	3.7	2.9 b	2.3	2.1
Japan	6.8 e	6.7 b e	6.3 e	6.1 e	6.2 e	6.1 e	5.8 b e
Korea	1.3 d	1.2	1.0	1.0	1.0	0.9	0.9
Latvia	1.2	2.7	2.3	2.2	2.9	2.5	1.8
Lithuania	6	1	0	2	3	4	3
Luxembourg	0.1	2.8	..	1.8	..	1.6	..
Mexico	8.2	2.2	2.5	2.3	2.9	3.3 e	3.7 e
Netherlands	2.8	3.4	3.1	2.7	2.7	2.7	..
New Zealand	10.6	13.2	..	11.4	..	10.1	..
Norway	1.6	1.6	..	1.6	1.7	1.7	1.7
Poland	3.2	2.3	2.4	2.4	2.6	3.2	4.4
Portugal	3.8	5.0	5.4	5.7	4.9	5.1	4.9
Slovak Republic	0.3	2.9	2.7	3.6	2.1	1.7	1.9
Slovenia	0.7	0.4	0.6	0.3	0.4	0.9	0.6
Spain	5.0	4.7	4.8	5.2	5.2	5.1	5.0
Sweden	3.6 b	4.1 e	..	4.3 v	..	4.0 v	..
Switzerland	..	..	..	1.9	..	1.9	..
Turkey	5.8 d	15.6	15.3	15.0	14.5	13.5	12.1
United Kingdom	5.9	6.0	6.1 e	6.3	6.4 e	5.9 b	5.6
United States	5.9 d	6.9 d	7.0 d	7.1 d	7.4 d	7.3 d p	7.4 d e p
EU28 (OECD estimates)	2.3 e	2.4 e	2.7 e	2.7 e	2.7 e	2.6 e	..
OECD-Total	4.9 e	5.2 e	5.2 e	5.3 e	5.4 e	5.3 e	5.2 e
Argentina	2.9	..	..	3.1	2.4	2.3	..
China	..	..	..	..	..	..	..
Romania	4.0	1.2	1.5	1.8	1.2	1.7	0.6
Russian Federation	0.5	1.2	1.2	1.4	1.0	1.0	1.1
Singapore	1.3	2.2	2.0	2.2	3.0	3.3	3.0
South Africa	4.4	2.8	3.1	3.5	2.9	..	..
Chinese Taipei	1.4	1.0	0.9	0.9	0.8	0.8	0.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 16. Percentage of Gross domestic expenditure on R&D (GERD) financed by the rest of the world

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	18.0 e	16.6	16.2 e	16.6	16.2 e	16.6	16.1 p
Belgium	12.4	13.7	..	16.5	..	13.0	..
Canada	8.8	5.8	8.1 b	9.8	10.8	8.9	9.3 p
Chile	..	15.0	13.8 b	12.9	3.9 b	4.5	4.9 p
Colombia	4.2	2.9	2.1	5.1	5.3	5.2	4.7
Czech Republic	5.4	27.2	30.5	32.5	24.0	25.0	31.8
Denmark	10.1	6.7	..	6.3	..	8.9 p	..
Estonia	17.1	10.3	12.5	12.2	13.6	15.0	14.7
Finland	6.3 b	11.5	17.3	14.5	12.1	10.8	13.9
France	7.5	7.9	7.6 b	7.6	7.8	7.8 p	..
Germany	3.7 d	5.2 d	5.0 d	6.2 d	5.9 d	5.8 d	5.8 d
Greece	19.0	14.0	13.2	12.7	14.6	15.0	14.3
Hungary	10.7 d	16.6	17.5	15.0	16.6	14.9	14.8 b
Iceland	11.2	20.0 b	23.3	25.4	21.4	24.5	18.6
Ireland	8.6	18.6 e	18.7 e	23.6 e	23.6 e	23.4 e	..
Israel ¹	24.7 d	49.8 d	50.4 d	52.5 d	49.2 d	52.6 d e	..
Italy	8.0	9.7	9.4 e	8.3	9.8 b	11.7	10.5
Japan	0.3	0.5 b	0.4	0.5	0.7	0.6	0.6 b
Korea	0.7 d	0.3	0.7	0.8	0.9	1.3	1.9
Latvia	18.5	51.6	44.2	45.0	27.8	29.8	41.5
Lithuania	10.5	37.1	33.8	34.3	19.2	24.4	26.2
Luxembourg	3.6	32.3	..	3.3	..	5.7	..
Mexico	1.1	0.4	0.5	0.6	0.7	0.8 e	0.9 e
Netherlands	12.0	12.2	12.7	15.5	13.9	14.3	..
New Zealand	5.2	7.2	..	7.7	..	7.7	..
Norway	8.1	9.5	..	9.2	9.5	8.8	8.2
Poland	5.7	13.1	13.4	16.7	5.5	6.0	7.0
Portugal	4.7	6.1	5.6	7.4	8.0	7.3	7.2
Slovak Republic	6.0	18.0	23.7	39.4	10.7	13.7	11.2
Slovenia	7.3	8.9	9.3	10.6	10.2	13.1	13.1
Spain	5.7	7.4	7.4	8.0	8.1	8.2	7.9
Sweden	8.1 b	6.7 e	..	.. c	..	10.1 v	..
Switzerland	..	..	..	10.2	..	5.3	..
Turkey	0.8	1.7	2.0	1.9	3.7	3.5	2.0
United Kingdom	19.3	18.7	17.5 e	17.1	15.6 e	14.4	13.7
United States	.. k	4.5 d	5.0 d	5.0 d	5.8 d	7.1 d p	7.3 d e
EU28 (OECD estimates)	8.7 e	10.1 e	10.2 e	10.9 e	9.9 e	9.9 e	..
OECD-Total	..	5.8 e	6.2 e	6.5 e	6.7 e	7.2 e	7.3 e
Argentina	0.8	..	..	3.3	6.3	9.2	..
China	0.9	0.9	0.8	0.7	0.7	0.6	0.4
Romania	5.3	15.5	17.0	19.2	9.9	7.9	9.0
Russian Federation	7.6	3.0	2.5	2.6	2.7	2.6	2.3
Singapore	4.4	6.0	7.0	6.8	6.3	7.1	6.9
South Africa	13.6	12.9	12.2	13.0	11.7	..	..
Chinese Taipei	0.2	0.2	0.2	0.2	0.2	0.2	0.1

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 17. Percentage of Gross domestic expenditure on R&D (GERD) performed by the business enterprise sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	56.3 e	..	53.4 e	..	52.7 e	..
Austria	69.8 e	70.8	71.3 e	71.4	70.2 b e	69.9	69.9 p
Belgium	68.0	69.4	69.9	69.9	68.6	70.2	69.8 e
Canada	55.8 d	51.2 d	53.2 b	53.3	53.5	52.3	50.9 p
Chile	..	35.0	33.4 b	34.3	37.7 b	34.2	33.6 p
Colombia	18.8	25.2	43.3	41.0	45.0	36.4	36.9
Czech Republic	58.2 b	53.3	55.2	54.3	61.1	62.9	61.9
Denmark	68.3	63.3	63.8	63.5	65.1	64.7 p	64.3 p
Estonia	45.1	47.7	43.5	46.1	51.5	47.2	42.3
Finland	70.8	68.9	67.7	66.7	65.8	65.3	65.7
France	62.1	64.6	63.6 b	63.7	65.1	65.3 p	65.4 e
Germany	69.2	67.2	67.7	68.7	68.2	69.1	68.9 e
Greece	31.0	33.3	33.9	33.0	42.2	48.8	48.2
Hungary	43.2 d	69.4 d	71.5 d	73.4 d	74.1 d	73.1 d	75.6 b d
Iceland	51.5	55.8 b d	61.1 d	66.0 d	64.4 d	64.3 d	64.3 d
Ireland	65.5	71.9 e	71.0 e	71.8 e	72.2 e	75.4 e	70.9
Israel ¹	81.5 d	84.2 d	84.8 d	85.2 d	86.6 d	87.8 d e	88.3 d e
Italy	50.4	54.7	56.7 e	58.2	60.8 b	62.4	63.3
Japan	76.4	76.1 b	77.8	78.5	78.8	78.8	79.4 b
Korea	76.9 d	78.5	78.2	77.5	77.7	79.4	80.3
Latvia	40.7	28.2	35.5	24.7	24.5	27.2	24.9
Lithuania	20.4	25.5	30.9	27.4	35.0	36.8	41.8
Luxembourg	86.4	52.5	53.7	52.7	55.5	55.8	55.8 p
Mexico	46.9	25.5	17.8	18.6	22.2	22.5 e	22.1 e
Netherlands	52.9	55.7	56.0	56.0	58.3	58.1	67.1 b p
New Zealand	41.6	46.4	..	51.1	..	55.2	..
Norway	53.5	52.5	53.7	53.9	53.3	52.6	51.5
Poland	31.8	43.6	46.6	46.6	65.7 b	64.5	66.1
Portugal	38.5	47.5	46.4	46.4	48.4	50.4	51.4
Slovak Republic	49.8	46.3	36.8	28.0	50.4	54.1	54.1
Slovenia	58.8	76.5	77.3	76.3	75.7	74.8	74.2
Spain	53.8	53.1	52.9	52.5	53.7	55.0	56.5
Sweden	72.8 b	68.9 e	67.0 e	69.7 v	69.6 e	71.3 v	71.0 e
Switzerland	..	..	..	71.0	..	71.0	..
Turkey	33.8	47.5	49.8	50.0	54.2	56.9	60.4
United Kingdom	61.4	63.9	65.1 e	66.0	67.1 e	68.0	67.6
United States	68.9 d	70.9 d	71.5 d	71.9 d	72.5 d	72.9 d p	72.6 d e
EU28 (OECD estimates)	62.1 e	62.7 e	63.1 e	63.6 e	65.1 e	65.9 e	66.3 e
OECD-Total	67.6 e	68.2 e	68.7 e	69.1 e	69.8 e	70.4 e	70.6 e
Argentina	32.2	24.2 p	20.1 p	21.2 b	23.9	27.1	..
China	68.3	76.6	77.3	76.8	77.5	77.6	77.4
Romania	49.7	30.7	41.5	44.0	55.2	56.7	59.3
Russian Federation	68.0	60.6	59.6	59.2	58.7	60.1	55.6
Singapore	66.1	58.5	60.2	59.7	58.4	59.4	60.7
South Africa	58.3	45.9	45.3	42.7	41.4	..	..
Chinese Taipei	67.0	75.5	77.0	77.6	77.5	79.0	80.3

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 18. Percentage of Gross domestic expenditure on R&D (GERD) performed by the higher education sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	29.6 e	..	30.6 e	..	34.0 e	..
Austria	24.7 e	24.3	23.7 e	23.5	22.2 b e	22.4	22.4 p
Belgium	22.3	21.7	20.6	20.3	21.2	19.8	19.7 e
Canada	34.0	39.5	37.7 b	39.3	39.4	40.1	41.7 p
Chile	..	39.3	39.0 b	38.5	43.1 b p	45.9	47.4 p
Colombia	48.3	40.5	34.0	31.6	26.6	29.2	31.5
Czech Republic	18.6	27.2	25.4	24.9	20.4	19.6	21.5
Denmark	24.6	33.9	33.5	33.9	32.4	32.1 p	32.4 p
Estonia	41.4	42.3	44.3	41.4	35.5	39.6	44.5
Finland	19.0	21.5	22.9	24.4	25.1	25.4	25.2
France	18.8	20.9	22.1 b	22.0	20.5	20.7 p	20.5 e
Germany	16.8	17.9	17.7	17.3	18.0 b	17.4	17.6
Greece	47.5	37.4	37.2	37.8	31.9	28.3	28.4
Hungary	25.1 d	14.4 d	13.5 d	12.1 d	11.1 d	13.3 d	12.7 b d
Iceland	22.0	37.4 b	32.8	29.4	30.8	31.5	31.5
Ireland	27.1	23.5 e	24.6 e	23.8 e	23.6 e	20.8 e	24.1
Israel ¹	14.9 d	12.8 d	12.4 d	12.1 d	10.9 d	9.8 d e	9.3 d e
Italy	30.2 b	28.3	26.7 e	25.5 e	24.2 b e	23.6 e	22.8 e
Japan	13.4	13.5 b	12.6	12.3	12.3	12.0	11.6 b
Korea	9.9 d	9.2	9.0	9.1	9.1	8.5	8.2
Latvia	40.6	42.9	40.5	49.7	43.8	46.7	52.4
Lithuania	54.6	54.7	52.1	55.5	38.9	35.3	35.9
Luxembourg	1.5	18.6	16.4	18.2	19.1	20.4	20.4 e p
Mexico	28.7	31.8	48.8	50.3	50.4	50.3 e	50.6 e
Netherlands	34.7	32.1	32.1	32.1	30.4	30.8	27.2 b p
New Zealand	32.5	30.4	..	28.0	..	24.7	..
Norway	30.8	31.5	31.0	31.1	32.6	33.7	34.6
Poland	31.6	29.3	29.2	28.9	31.4	32.9	31.7
Portugal	35.4	44.6 b	45.6	45.5	44.7	42.5	41.6
Slovak Republic	20.4	33.1	34.4	43.8	27.7	24.7	24.3
Slovenia	16.7	10.4	10.5	10.2	10.8	11.2	11.9
Spain	29.0	28.0	28.1	28.1	27.5	27.1	26.4
Sweden	22.0 b	27.1 e	29.0 e	26.7 v	26.8 e	24.9 v	25.3 e
Switzerland	..	..	..	26.7	..	28.2	..
Turkey	54.6	42.1	40.5	39.7	36.3	33.5	30.3
United Kingdom	25.7	26.4	25.8 e	25.3	24.3 e	23.5	23.6
United States	14.3 d	13.5 d	13.1 d	13.1 d	13.1 d	13.0 d p	12.8 d e p
EU28 (OECD estimates)	22.7 e	23.6 e	23.5 e	23.1 e	22.5 e	22.0 e	21.9 e
OECD-Total	17.8 e	18.1 e	17.9 e	17.7 e	17.7 e	17.3 e	17.1 e
Argentina	25.8	29.1 p	30.5 p	26.0	25.8	25.2	..
China	9.9	7.2	6.9	7.0	6.8	7.2	7.4
Romania	13.7	19.7	15.2	17.4	11.3	10.6	9.8
Russian Federation	5.8	9.0	9.8	9.6	9.1	9.0	9.7
Singapore	24.2	29.9	28.1	29.2	30.3	29.4	27.7
South Africa	19.3	28.4	28.5	30.5	32.7	..	..
Chinese Taipei	11.4	11.1	10.4	9.9	9.4	9.0	8.9

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 19. Percentage of Gross domestic expenditure on R&D (GERD) performed by the government sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	11.2 e	..	12.7 e	..	10.1 e	..
Austria	5.2 e	4.4	4.6 e	4.6	7.1 b e	7.1	7.1 p
Belgium	8.4	8.5	9.0	9.2	9.6	9.4	9.9 e
Canada	9.7	8.9	8.6 b	7.0	6.6	7.1	6.9 p
Chile	..	8.4 b	8.1 b	7.8	12.9 b	13.1	12.6 p
Colombia	5.7	7.2	3.2	2.5	7.4	8.4	7.8
Czech Republic	22.8 b	19.1	19.0	20.4	18.2	17.2	16.4
Denmark	6.5	2.4	2.3	2.2	2.2	3.0 p	3.0 p
Estonia	11.3	8.9	11.0	10.8	11.4	11.8	11.4
Finland	9.6	8.9	8.6	8.2	8.2	8.5	8.3
France	17.8	13.1	12.7 b	12.8	12.7	12.5 p	12.5 e
Germany	14.1 d	14.9 d	14.6 d	14.1 d	13.8 d	13.5 d	13.5 d
Greece	20.3	28.0	27.7	28.1	25.0	22.1	22.4
Hungary	28.0 d	14.9 d	13.7 d	13.3 d	13.4 d	12.6 d	10.9 b d
Iceland	23.5	6.8 b	6.1	4.7	4.7	4.2	4.2
Ireland	7.4	4.6 e	4.4 e	4.4 e	4.2 e	3.9 e	4.9
Israel ¹	2.7 d	1.8 d	1.8 d	1.7 d	1.6 d	1.5 d e	1.5 d e
Italy	17.3	14.0	13.6 e	13.1	12.6 b	12.4	12.4
Japan	8.3	9.2 b	8.3	7.9	7.5	7.8	7.8 b
Korea	11.9 d	10.9	11.2	11.7	11.5	10.7	10.1
Latvia	18.7	28.9	24.0	25.6	31.8	26.1	22.8
Lithuania	25.0	19.8	17.0	17.1	26.1	27.9	22.2
Luxembourg	12.1 d	29.0 d	29.9 d	29.1 d	25.5 d	23.9 d	23.8 d e p
Mexico	23.2	41.8	32.3	30.1	26.4	26.2 e	26.2 e
Netherlands	12.4 d	12.2 d	11.9 d	11.9 d	11.3 d	11.1 d	5.8 b p
New Zealand	25.9	23.2	..	21.0	..	20.1	..
Norway	15.7	16.0	15.2	15.0	14.2	13.7	13.9
Poland	36.4	26.8	24.0	24.4	2.5 b	2.3	1.9
Portugal	14.6	6.5	6.3	6.5	5.3	5.5	5.3
Slovak Republic	29.7 d	20.5 d	28.3 d	27.9	21.4	20.8	21.2
Slovenia	24.2	13.0	12.2	13.5	13.4	13.8	13.5
Spain	17.0	18.7	18.8	19.1	18.5	17.7	16.8
Sweden	4.9 b	3.7 e	3.7 e	3.4 v	3.4 e	3.6 v	3.6 e
Switzerland	..	..	..	0.9 d	..	0.8 d	..
Turkey	11.6	10.4	9.7	10.3	9.5 d	9.6 d	9.2 d
United Kingdom	10.6	7.9	7.3 e	6.6	6.6 e	6.3	6.6
United States	12.3 d	11.5 d	11.4 d	11.0 d	10.2 d	9.9 d p	10.4 d e
EU28 (OECD estimates)	14.1 e	12.7 e	12.4 e	12.2 e	11.4 e	11.2 e	10.9 e
OECD-Total	12.0 e	11.4 e	11.0 e	10.8 e	10.1 e	9.9 e	9.9 e
Argentina	39.7	45.0 p	47.7 p	51.2	49.5	46.8	..
China	21.8	16.2	15.8	16.2	15.7	15.2	15.2
Romania	34.2	49.2	43.0	38.3	33.3	32.4	30.6
Russian Federation	26.1	30.3	30.5	31.1	32.0	30.4	34.4
Singapore	9.7	11.6	11.7	11.1	11.2	11.1	11.5
South Africa	20.8	23.4	23.5	24.0	23.1	..	..
Chinese Taipei	21.0	13.1	12.3	12.1	12.8	11.7	10.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 20. Percentage of Gross domestic expenditure on R&D (GERD) performed by the private non-profit sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	2.84 e	..	3.24 e	..	3.21 e	..
Austria	0.30 e	0.42	0.47 e	0.49	0.49 e	0.55	0.55 p
Belgium	1.31	0.37	0.46	0.55	0.61	0.56	0.61 e
Canada	0.53	0.49	0.45 b	0.47	0.45	0.49	0.47 p
Chile	..	17.28 b	19.52 b	19.35	6.36 b	6.83	6.40 p
Colombia	27.25	27.08	19.41	24.92	21.08	26.00	23.84
Czech Republic	0.51	0.34	0.41	0.39	0.25	0.28	0.22
Denmark	0.67	0.42	0.41	0.35	0.35	0.30 p	0.30 p
Estonia	2.20	1.06	1.19	1.80	1.54	1.41	1.68
Finland	0.58	0.71	0.77	0.77	0.86	0.82	0.81
France	1.29	1.47	1.51 b	1.54	1.64	1.58 p	1.59 e
Germany	..	..	..	..	..	..	..
Greece	1.26	1.25	1.24	1.12	0.89	0.80	1.06
Hungary	..	..	..	..	..	..	..
Iceland	2.99	..	..	..	..	..	..
Ireland	..	..	..	..	..	..	..
Israel ¹	0.97 d	1.15 d	1.02 d	1.02 d	0.96 d	0.90 d e	0.91 d e
Italy	2.12	2.99	3.04 e	3.19	2.48 b	1.71	1.46
Japan	1.86	1.28 b	1.34	1.33	1.38	1.38	1.27 b
Korea	1.36 d	1.33	1.52	1.64	1.59	1.41	1.41
Latvia	0.00	..	..	..	..	..	..
Lithuania	..	..	..	..	..	..	..
Luxembourg	..	..	..	..	..	..	..
Mexico	1.13	0.97	1.00	0.93	0.99	1.07 e	1.15 e
Netherlands	..	..	..	..	..	..	..
New Zealand	..	..	..	..	..	..	..
Norway	..	..	..	..	..	..	..
Poland	0.31	0.29	0.30	0.16	0.44	0.35	0.30
Portugal	11.52	1.33 b	1.72	1.58	1.60	1.56	1.62
Slovak Republic	0.08	0.15	0.41	0.40	0.49	0.41	0.42
Slovenia	0.22	0.04	0.04	0.04	0.02	0.22	0.33
Spain	0.14	0.17	0.17	0.20	0.24	0.21	0.26
Sweden	0.31 b	0.22 e	0.24 e	0.19 v	0.19 e	0.12 v	0.11 e
Switzerland	..	..	..	1.45	..	2.26	..
Turkey	..	..	..	..	..	..	..
United Kingdom	2.32	1.79	1.81 e	2.01	2.11 e	2.17	2.22
United States	4.44 d e	4.04 d e	4.05 d e	4.04 d e	4.18 d e	4.28 d e p	4.21 d e
EU28 (OECD estimates)	1.08 e	0.96 e	0.98 e	1.00 e	0.99 e	0.90 e	0.88 e
OECD-Total	2.67 e	2.33 e	2.35 e	2.38 e	2.42 e	2.42 e	2.38 e
Argentina	2.23	1.67 p	1.75 p	1.61	0.77 b	0.90	..
China	..	..	..	..	..	..	..
Romania	2.44	0.40	0.37	0.30	0.23	0.29	0.22
Russian Federation	0.18	0.13	0.13	0.14	0.21	0.41	0.30
Singapore	..	..	..	..	..	..	..
South Africa	1.60	2.27	2.65	2.76	2.85	..	..
Chinese Taipei	0.48	0.32	0.33	0.31	0.30	0.24	0.13

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 21. Total researchers in headcount
Headcount

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	..	71 448 d	..	78 051 d	..	83 648 d	..
Belgium	48 757	66 724	..	73 709 b	..	78 867	..
Canada	..	..	..	..	..	..	..
Chile	..	9 795 d	12 303 d	13 015 d	14 181 d	14 392 d	14 596 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	37 542	51 455	54 493	56 605	56 178	59 789	61 966
Denmark	43 460	57 876	58 735	60 492	60 782	61 961 p	..
Estonia	5 734	7 515	7 721	7 181	6 845	7 344	7 281
Finland	50 773	56 720	55 515	55 728	53 752	54 139	55 415
France	251 599	365 737	379 048 b	383 843	396 594	416 217 p	..
Germany	406 253	549 283	..	586 030	..	623 125	..
Greece	33 396 d	53 744 d	..	60 736 d	..	61 616 d	..
Hungary	31 407	37 803	39 190	38 418	38 915	42 729	54 970 d
Iceland	3 821	3 356 b	..	3 722 b	..	3 783	..
Ireland	17 653	32 084	..	33 117 e	..	34 791 e	..
Israel ¹	..	..	..	..	..	..	..
Italy	125 534 d	163 925 d	168 074 d	174 327 d	185 916 b d	195 560 d	212 671 d
Japan	861 901 d	892 406 d	926 671 d	907 455 d	917 725 d	930 720 d	935 658 d
Korea	234 702 d	410 333	437 447	453 262	460 769	482 796	514 170
Latvia	5 748 d	7 448 d	7 939 d	7 827 d	7 400 d	7 504 d	7 439 d
Lithuania	11 918.00	18 083.00	19 371.00	17 293.00	17 746.00	18 767.00	19 198.00
Luxembourg	2 443	2 713	..	3 207	..	3 540	..
Mexico	..	42 222	44 662	48 812	54 354	..	..
Netherlands	57 782	110 536	111 795	112 946	114 589	115 185	..
New Zealand	22 186	29 300	..	39 000	..	44 000	..
Norway	36 555	47 795	50 025	52 181	54 601	57 934	59 629
Poland	97 875	109 611	115 375	118 494	132 547	187 905 d	192 833 d
Portugal	37 769	78 290 b	78 736	81 005	85 780	89 659	96 123
Slovak Republic	17 526 d	24 441 d	25 080 d	24 396 d	26 720 d	26 861 d	28 755 d
Slovenia	7 644	12 111	12 155	11 308	11 282	14 079 d	15 388 d
Spain	181 023	208 767 d	210 104 d	214 227 d	218 680 d	225 995 d	234 798 d
Sweden	82 459 d	101 820 b e	..	108 761 e	..	107 042 b	..
Switzerland	..	..	..	70 834	..	73 502	..
Turkey	83 856	166 097	181 544	190 784	191 769	210 769	230 030
United Kingdom	364 807 e	466 689	489 181 e	496 953 e	510 980 e	520 936 e	535 477 e
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	49 050	81 964 p	83 837 p	82 407	83 947	84 284	..
China	..	..	..	..	..	..	..
Romania	29 608	27 600	27 535	27 253	27 801	27 367	27 471
Russian Federation	391 121 e	369 015 e	373 905 e	379 411 e	370 379 e	359 793 e	347 854 e
Singapore	27 969	40 358	40 699	43 159	43 177	42 838	43 310
South Africa	39 266	45 935	48 479	51 877	56 761	..	..
Chinese Taipei	115 954	179 975	181 589	183 022	184 898	187 971	193 035

 Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

 1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 22. Women researchers as a percentage of total researchers
Based on headcount

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	..	29.6 d	..	29.5 d	..	30.1 d	..
Belgium	29.6	33.4	..	34.1 b	..	34.8	..
Canada	..	..	..	..	..	..	..
Chile	..	34.3 d	31.5 d	33.0 d	33.1 d	34.4 d	34.4 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	28.8	28.3	27.2	26.9	26.7	26.8	26.6
Denmark	29.7	35.2	..	33.8	..	35.8 p	..
Estonia	40.8	44.4	44.0	43.9	43.6	42.2	43.9
Finland	30.2	31.5	32.1	32.3	32.5	33.2	33.7
France	28.0	25.5 e	26.7 b e	27.0 e	28.0	28.3 p	..
Germany	21.3	27.9	..	28.0	..	27.9	..
Greece	36.4 d	39.4 d	..	38.0 d	..	37.8 d	..
Hungary	34.2	30.3	30.4	30.8	30.8	30.5	28.0 d
Iceland	39.3	43.8 b	..	45.6 b	..	46.4	..
Ireland	30.3	35.3	..	36.1 e	..	36.3 e	..
Israel ¹	..	..	..	..	..	..	..
Italy	32.3 d	35.7 d	36.0 d	36.0 d	35.2 b d	34.3 d	33.9 d
Japan	11.9 d	14.6 d	14.7 d	15.3 d	15.7 d	16.2 d	16.6 d
Korea	12.9 d	18.2	18.5	18.9	19.7	20.1	20.4
Latvia	51.5 d	52.0 d	52.1 d	51.0 d	52.2 d	52.2 d	50.7 d
Lithuania	48.65	51.22	50.25	50.74	51.57	49.51	49.00
Luxembourg	18.2	27.3	..	28.4	..	28.1	..
Mexico	..	33.0	34.6	34.7	33.7	..	..
Netherlands	21.0	23.6	23.4	25.4	25.8	26.4	..
New Zealand	..	..	..	..	..	..	..
Norway	31.6	36.9	37.4	37.4	37.6	38.1	38.8
Poland	39.3	37.8	37.2	37.0	36.4	38.1 d	37.9 d
Portugal	44.4	45.4 b	44.3	44.1	43.5	43.7	43.3
Slovak Republic	41.5 d	42.7 d	42.5 d	42.2 d	41.4 d	41.9 d	41.2 d
Slovenia	34.8	36.0	36.1	36.5	34.5	32.3 d	32.5 d
Spain	36.7	39.3 d	39.6 d	40.0 d	40.2 d	40.5 d	40.8 d
Sweden	35.7 d	33.3 b e	..	33.7 e	..	32.6 b	..
Switzerland	..	..	..	33.5	..	34.9	..
Turkey	36.1	36.2	36.9	37.3	36.7	37.0	36.8
United Kingdom	35.7 e	38.1	37.4 e	38.6 e	38.7 e	38.7 e	38.6 e
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	50.5	52.4 p	52.9 p	52.6	53.0	53.8	..
China	..	..	..	..	..	..	..
Romania	45.3	45.7	46.0	46.2	45.8	46.7	46.2
Russian Federation	42.4 e	40.9 e	40.5 e	40.3 e	40.0 e	39.5 e	39.2 e
Singapore	26.3	29.6	30.1	30.2	30.7	30.7	30.8
South Africa	39.7	44.0	44.3	45.0	45.1	..	..
Chinese Taipei	19.6	21.9	22.1	22.2	22.3	22.6	22.6

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 23. Business enterprise expenditure on R&D (BERD) at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	7 515.5	13 025.4	..	11 301.5	..	11 896.1	..
Austria	4 770.9 e	8 504.0	9 169.6 e	9 389.6	10 070.0 b e	10 239.8	11 029.8 p
Belgium	4 233.8	7 885.3	8 342.7	8 847.8	9 531.2	10 782.6	11 159.1 e
Canada	12 886.0 d	13 560.5 d	14 798.1 b	14 386.2	15 514.1	15 514.6	14 763.7 p
Chile	..	536.4	506.5	532.4	575.6	532.1	544.8 p
Colombia	110.6	384.7	821.1	835.0	893.6	667.3	785.2
Czech Republic	1 523.5 b	3 246.9	3 698.3	3 722.4	3 894.2	4 589.8	5 133.6
Denmark	3 023.3	4 936.6	5 023.4	5 406.7	5 990.8	6 260.1 p	6 461.6 p
Estonia	93.2	297.8	236.9	259.5	263.7	269.1	285.8
Finland	3 958.3	5 083.5	4 860.5	4 459.8	4 428.8	4 665.1	4 927.1
France	24 554.5	37 688.6	38 551.3	39 279.2	41 436.6	43 100.6 p	44 764.7 e
Germany	44 288.0	69 136.9	74 123.8	78 353.2	83 469.3	92 885.2	97 334.5 e
Greece	504.0	774.1	825.3	922.3	1 257.8	1 725.6	1 851.1
Hungary	685.1 d	2 333.8 d	2 437.9 d	2 595.8 d	2 398.5 d	2 814.5 d	3 578.6 b d
Iceland	152.9	135.9 b d	178.1 d	234.4 d	243.8 d	258.3 d	267.5 d
Ireland	1 314.6	2 492.4	2 572.3 e	2 758.7	2 886.3 e	3 501.7	2 908.8
Israel ¹	5 677.4 d	9 491.4 d	9 953.1 d	10 792.0 d	12 632.7 d	14 356.8 d	15 596.1 d e
Italy	9 186.6	15 570.9	16 688.8	17 449.5	20 108.3 b	21 615.9	23 339.7
Japan	98 384.0	125 287.5	131 839.8	132 293.7	126 236.6	130 945.5	136 044.5
Korea	23 531.2 d	53 573.7	57 180.5	59 643.5	62 809.0	71 772.1	79 049.8
Latvia	66.9	78.9	116.2	75.6	55.7	77.4	94.1
Lithuania	73.54	190.88	262.83	239.47	261.26	315.62	395.46
Luxembourg	431.1	355.1	382.7	405.8	463.6	476.1	480.0 p
Mexico	2 510.0	2 233.6	1 688.1	1 781.7	2 053.6	1 824.4 e	1 780.8 e
Netherlands	5 761.6	8 888.9	9 190.7	9 470.7	10 363.2	10 927.6	14 391.4 b p
New Zealand	495.1	861.7	..	1 085.8	..	1 479.3	..
Norway	1 752.6	2 949.9	3 118.9	3 267.4	3 359.9	3 667.9	3 815.3
Poland	947.8	3 570.4	4 262.3	4 766.6	6 798.8 b	7 639.1	9 663.8
Portugal	695.5	1 838.4	1 789.6	1 772.5	2 023.7	2 267.1	2 462.5
Slovak Republic	219.8	575.4	508.2	527.4	641.3	806.2	804.1
Slovenia	398.0	1 211.9	1 164.5	1 093.2	1 065.0	1 057.0	1 163.5
Spain	7 128.0	10 234.7	10 242.7	10 412.9	11 087.4	12 266.7	13 308.2
Sweden	7 564.0 b	9 995.0	9 514.1 e	10 797.1	11 306.3 e	12 722.5	12 886.4 e
Switzerland	..	..	..	12 675.6	..	13 262.8	..
Turkey	1 554.8	6 569.7	7 931.2	8 870.5	10 763.2	12 367.3	14 485.0
United Kingdom	18 809.0	26 534.1	28 541.9	30 165.0	32 271.5	34 721.7	36 454.1
United States	226 159.0 d	322 528.0 d	340 728.0 d	355 821.0 d	374 685.0 d	400 101.0 d	422 070.0 d e
EU28 (OECD estimates)	141 009.5 e	222 834.6 e	234 273.4 e	245 533.8 e	264 695.9 e	288 651.3 e	308 126.3 e
OECD-Total	527 005.3 e	783 809.1 e	826 333.9 e	856 707.6 e	897 934.6 e	964 377.6 e	1 022 083.2 e
Argentina	715.8	1 281.0 p	995.5 p	1 134.7 b	1 113.0	1 565.2	..
China	58 874.0	247 731.6	267 617.9	281 113.5	304 468.2	326 502.0	362 351.8
Romania	420.0	470.5	650.6	920.3	1 270.0	1 526.1	1 695.6
Russian Federation	12 317.7	23 296.4	24 058.9	22 982.7	22 901.1	25 486.5	23 073.9
Singapore	3 556.9	5 045.6	5 794.6	6 266.3	6 081.4	6 079.3	6 397.0
South Africa	2 357.5	2 226.7	2 385.5	2 371.1	2 399.0	..	..
Chinese Taipei	10 264.3	23 286.9	25 129.3	26 182.6	27 725.7	30 898.6	34 809.1

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 24. Business enterprise expenditure on R&D (BERD) as a percentage of GDP

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	1.05	1.18	..	1.00	..	0.94	..
Austria	1.66 e	2.09	2.20 e	2.18	2.19 b e	2.13	2.19 p
Belgium	1.22	1.62	1.66	1.70	1.73	1.87	1.87 e
Canada	1.10 d	0.87 d	0.91 b	0.90	0.92	0.87	0.80 p
Chile	..	0.14	0.13	0.13	0.14	0.12	0.12 p
Colombia	0.03	0.07	0.13	0.13	0.13	0.10	0.11
Czech Republic	0.68 b	1.01	1.09	1.05	1.03	1.13	1.20
Denmark	1.63	1.88	1.86	1.94	2.01	1.97 p	1.95 p
Estonia	0.41	0.82	0.62	0.67	0.64	0.60	0.59
Finland	2.35	2.25	2.13	1.91	1.79	1.78	1.81
France	1.27	1.44	1.45	1.44	1.45	1.44 p	1.43 e
Germany	1.69	1.91	1.95	2.01	2.00	2.12	2.16 e
Greece	0.18	0.27	0.28	0.32	0.42	0.55	0.57
Hungary	0.40 d	0.96 d	0.97 d	0.99 d	0.88 d	0.97 d	1.16 b d
Iceland	1.38	0.95 b d	1.19 d	1.45 d	1.37 d	1.35 d	1.31 d
Ireland	0.78	1.13	1.08 e	0.85	0.84 e	0.93	0.71
Israel ¹	3.30 d	3.45 d	3.54 d	3.63 d	3.91 d	4.23 d	4.36 d e
Italy	0.53	0.71	0.76	0.78	0.83 b	0.85	0.90
Japan	2.43	2.52	2.64	2.58	2.49	2.53	2.60
Korea	1.94 d	3.10	3.19	3.08	3.10	3.41	3.64
Latvia	0.22	0.17	0.24	0.15	0.11	0.14	0.16
Lithuania	0.2	0.2	0.3	0.3	0.3	0.3	0.4
Luxembourg	1.36	0.68	0.68	0.69	0.72	0.71	0.68 p
Mexico	0.19	0.11	0.08	0.08	0.09	0.07 e	0.07 e
Netherlands	0.94	1.07	1.11	1.11	1.16	1.15	1.45 b p
New Zealand	0.47	0.54	..	0.63	..	0.74	..
Norway	0.79	0.87	0.92	1.04	1.09	1.10	1.06
Poland	0.18	0.38	0.44	0.47	0.63 b	0.67	0.80
Portugal	0.29	0.63	0.60	0.58	0.62	0.67	0.70
Slovak Republic	0.25	0.38	0.32	0.32	0.40	0.48	0.45
Slovenia	0.83	1.96	1.83	1.67	1.52	1.40	1.45
Spain	0.59	0.68	0.66	0.64	0.64	0.67	0.70
Sweden	2.45 b	2.25	2.08 e	2.24	2.26 e	2.40	2.36 e
Switzerland	..	..	..	2.39	..	2.34	..
Turkey	0.19	0.39	0.43	0.44	0.51	0.55	0.63
United Kingdom	0.95	1.04	1.07	1.09	1.11	1.14	1.17
United States	1.73 d	1.92 d	1.94 d	1.95 d	2.00 d	2.05 d	2.05 d e
EU28 (OECD estimates)	1.03 e	1.20 e	1.23 e	1.24 e	1.26 e	1.30 e	1.34 e
OECD-Total	1.43 e	1.57 e	1.59 e	1.60 e	1.61 e	1.65 e	1.68 e
Argentina	0.14	0.15 p	0.12 p	0.13 b	0.13	0.15	..
China	0.89	1.53	1.56	1.58	1.63	1.64	1.66
Romania	0.21	0.12	0.16	0.21	0.27	0.29	0.30
Russian Federation	0.68	0.62	0.64	0.65	0.65	0.67	0.55
Singapore	1.42	1.13	1.26	1.30	1.21	1.14	1.12
South Africa	0.50	0.33	0.35	0.34	0.34	..	..
Chinese Taipei	1.56	2.27	2.32	2.37	2.45	2.59	2.78

Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 25. Business enterprise expenditure on R&D (BERD) at 2010 prices and PPP

Million 2010 USD

	2005	2013	2014	2015	2016	2017	2018
Australia	8 955.5	12 649.2	..	11 301.5	..	11 190.9	..
Austria	6 348.3 e	8 872.1	9 383.0 e	9 389.6	9 637.1 b e	9 607.0	10 132.7 p
Belgium	5 526.3	8 133.8	8 459.0	8 847.8	9 149.0	10 068.3	10 219.8 e
Canada	14 898.2 d	13 439.4 d	14 461.0 b	14 386.2	14 890.1	14 508.1	13 487.9 p
Chile	..	532.7	498.8	532.4	577.2	510.8	512.3 p
Colombia	125.7	380.9	804.4	835.0	855.6	621.8	706.6
Czech Republic	1 969.3 b	3 327.4	3 674.5	3 722.4	3 739.5	4 275.6	4 671.3
Denmark	4 227.4	5 044.4	5 062.6	5 406.7	5 793.2	5 792.4 p	5 862.4 p
Estonia	138.0	301.4	234.9	259.5	254.7	253.5	261.5
Finland	5 216.6	5 237.6	4 937.5	4 459.8	4 293.5	4 407.2	4 539.4
France	31 605.6	38 487.6	38 946.1	39 279.2	39 775.5	40 436.1 p	41 056.4 e
Germany	56 916.0	71 358.7	74 540.5	78 353.2	79 822.7	86 490.9	89 307.5 e
Greece	649.3	785.1	825.5	922.3	1 218.9	1 626.7	1 708.1
Hungary	953.2 d	2 336.1 d	2 439.3 d	2 595.8 d	2 366.9 d	2 725.3 d	3 409.6 b d
Iceland	184.1	143.7 b d	183.6 d	234.4 d	236.2 d	243.9 d	245.6 d
Ireland	1 793.6	2 689.4	2 805.4 e	2 758.7	2 841.0 e	3 394.2	2 786.5
Israel ¹	6 665.9 d	9 646.3 d	10 277.8 d	10 792.0 d	12 061.4 d	13 523.7 d	14 427.3 d e
Italy	12 375.4	15 833.8	16 870.5	17 449.5	18 862.9 b	19 726.3	20 992.0
Japan	118 299.6	127 506.5	134 150.6	132 293.7	128 394.5	133 332.8	137 648.8
Korea	26 123.2 d	56 543.8	60 000.6	59 643.5	61 702.6	69 994.7	76 649.4
Latvia	91.3	80.6	116.2	75.6	53.8	72.6	86.2
Lithuania	100.1	191.8	261.2	239.5	252.9	295.4	365.5
Luxembourg	617.5	371.4	384.8	405.8	444.9	445.2	438.6 p
Mexico	3 348.9	2 270.2	1 676.7	1 781.7	1 976.8	1 729.5 e	1 654.7 e
Netherlands	7 192.9	8 851.7	9 250.7	9 470.7	10 135.0	10 327.8	13 309.3 b p
New Zealand	642.9	855.1	..	1 085.8	..	1 384.4	..
Norway	2 171.3	2 808.3	2 973.1	3 267.4	3 334.5	3 516.7	3 535.7
Poland	1 244.5	3 610.6	4 301.2	4 766.6	6 656.4 b	7 361.0	9 291.8
Portugal	906.8	1 884.9	1 807.3	1 772.5	1 944.2	2 158.7	2 322.4
Slovak Republic	276.8	572.7	500.9	527.4	660.1	819.1	804.2
Slovenia	486.2	1 219.9	1 168.5	1 093.2	1 025.1	985.0	1 063.9
Spain	9 155.6	10 425.8	10 264.4	10 412.9	10 688.3	11 435.2	12 359.1
Sweden	9 679.8 b	10 086.7	9 578.9 e	10 797.1	11 100.5 e	12 085.6	12 104.6 e
Switzerland	..	..	..	12 675.6	..	12 817.2	..
Turkey	2 344.8	7 008.3	8 127.8	8 870.5	10 634.0	12 181.9	14 348.9
United Kingdom	23 295.7	27 288.7	28 959.7	30 165.0	31 426.8	32 870.4	34 035.4
United States	270 904.5 d	331 916.7 d	344 276.1 d	355 821.0 d	370 845.7 d	388 680.0 d	400 271.5 d e
EU28 (OECD estimates)	181 922.8 e	228 429.2 e	236 545.5 e	245 533.8 e	254 631.9 e	270 337.9 e	284 046.2 e
OECD-Total	644 200.3 e	804 490.5 e	837 394.8 e	856 707.6 e	882 800.0 e	931 901.3 e	970 621.0 e
Argentina	857.2	1 299.7 p	998.9 p	1 134.7 b	1 071.3	1 309.2	..
China	63 704.3	237 456.4	260 233.1	281 113.5	309 047.0	332 923.8	358 105.7
Romania	660.7	474.6	653.9	920.3	1 190.8	1 373.3	1 493.3
Russian Federation	18 375.5	22 232.5	22 995.6	22 982.7	22 865.4	24 010.2	20 153.5
Singapore	3 947.7	5 063.2	5 866.3	6 266.3	6 029.9	5 916.5	6 007.9
South Africa	2 691.2	2 244.8	2 399.1	2 371.1	2 366.4	..	..
Chinese Taipei	12 295.3	23 966.2	25 391.8	26 182.6	27 442.2	30 017.8	33 011.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 26. Business enterprise expenditure on R&D (BERD) as a percentage of value added in industry

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	1.55	1.78	..	1.56	..	1.46 e	..
Austria	2.52 e	3.22	3.38 e	3.36	3.38 b e	3.29	3.37 p
Belgium	1.92	2.65	2.70	2.74	2.80	3.03	3.03 e
Canada	1.67 d	1.36 d	1.42 b	1.44 e	1.49 e	1.41 e	1.28 e p
Chile	..	0.19	0.18	0.19 e	0.21 e	0.18 e	0.17 e p
Colombia	0.05	0.09	0.19	0.20	0.20	0.14	0.16
Czech Republic	0.98 b	1.49	1.58	1.52	1.49	1.64	1.76
Denmark	2.83	3.26	3.20	3.33	3.43	3.33 p	3.29 p
Estonia	0.61	1.24	0.97	1.08	1.05	0.98 e	0.96 e
Finland	3.85	4.00	3.80	3.42	3.20	3.12 e	3.17 e
France	2.15	2.51	2.51	2.50	2.51	2.51 p	2.51 e
Germany	2.62	3.01	3.06	3.16	3.14	3.31	3.38 e
Greece	0.29	0.51	0.53	0.59	0.80	1.04 e	1.07 e
Hungary	0.63 d	1.54 d	1.53 d	1.57 d	1.40 d	1.54 d	1.83 b d
Iceland	2.38	1.58 b d	2.02 d	2.44 d	2.30 d e	2.33 d e	2.26 d e
Ireland	1.14	1.61	1.54 e	1.12	1.09 e	1.20 e	0.91 e
Israel ¹	5.46 d e	5.79 d	6.07 d e	6.20 d e	6.68 d e	7.23 d e	7.46 d e
Italy	0.83	1.17	1.25	1.27	1.35 b	1.38	1.46
Japan	3.21	3.51	3.68	3.55	3.43	3.48	3.59 e
Korea	2.95 d	4.73	4.89	4.77	4.83 e	5.31 e	5.66 e
Latvia	0.32	0.27	0.39	0.25	0.17	0.22 e	0.25 e
Lithuania	0.2	0.3	0.4	0.4	0.4	0.5 e	0.6 e
Luxembourg	2.04	1.02	1.00	0.98	1.07	1.06 e	1.02 e p
Mexico	0.25	0.15	0.11	0.11	0.12	0.10 e	0.09 e
Netherlands	1.45	1.66	1.73	1.72	1.80	1.79 e	2.25 b e p
New Zealand	0.69	0.83	..	0.97	..	1.14 e	..
Norway	1.19	1.33	1.43	1.68	1.81	1.81	1.72
Poland	0.26	0.54	0.62	0.66	0.89 b	0.94	1.13 e
Portugal	0.49	1.08	1.03	0.98	1.06	1.16 e	1.21 e
Slovak Republic	0.36	0.57	0.46	0.46	0.58	0.71	0.67
Slovenia	1.25	3.07	2.80	2.56	2.33	2.11 e	2.18 e
Spain	0.88	1.10	1.07	1.03	1.02	1.06	1.12
Sweden	3.98 b	3.70	3.42 e	3.65	3.67 e	3.90 e	3.82 e
Switzerland	..	..	..	3.38	..	3.32	..
Turkey	0.28	0.57	0.62	0.63	0.74	0.77 e	0.88 e
United Kingdom	1.55	1.70	1.76	1.80	1.85	1.88	1.91
United States	2.67 d	3.05 d	3.07 d	3.08 d	3.17 d	3.24 d e	3.24 d e
EU28 (OECD estimates)	1.63 e	1.94 e	1.97 e	1.99 e	2.02 e	2.08 e	2.14 e
OECD-Total	2.16 e	2.43 e	2.47 e	2.47 e	2.49 e	2.55 e	2.59 e
Argentina	0.20	0.24 e p	0.19 e p	0.21 b e	0.20 e	0.24 e	..
China	1.04 e	1.81 e	1.86 e	1.90 e	1.98 e	2.02 e	2.06 e
Romania	0.29	0.17	0.23	0.31 e	0.38 e	0.41 e	0.43 e
Russian Federation	1.00 e	0.98 e	0.98 e	0.96 e	0.95 e	0.97 e	0.81 e
Singapore	1.69 e	1.40 e	1.55 e	1.61 e	1.51 e	1.43 e	1.40 e
South Africa	0.71 e	0.48 e	0.51 e	0.50 e	0.50 e	..	..
Chinese Taipei	2.09 e	3.08	3.09	3.15	3.25	3.42	3.67

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 27. Business enterprise researchers in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	23 794	39 065	..	33 016	..	34 576	..
Austria	18 155 d e	25 752 d	27 361 d e	27 872 d	29 615 d e	29 948 d	31 816 d p
Belgium	16 769	23 759	27 384	28 474 b	29 532 e	29 358	31 819 e
Canada	84 410	93 150	93 647 b	95 577	91 750	90 040	..
Chile	..	1 430 d	2 248 d	2 237 d	2 651 d	2 627 d	2 528 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	9 716 b	16 367	17 892	19 161	19 185	20 206	21 150
Denmark	17 624	23 364	23 975	25 011	26 976	27 496 p	28 082 p
Estonia	883	1 383	1 268	1 152	1 318	1 585	1 652
Finland	21 967	22 253	21 369	21 296	20 257	20 544	21 328
France	106 837	161 460	161 744	165 845	170 571	180 446 p	190 891 e
Germany	166 874	198 585	198 076 e	230 823	235 758 e	252 759	261 634 e
Greece	6 033 d	4 197 d	4 938 d	5 035 d	5 608 d	9 660 d	10 041 d
Hungary	5 008	14 317	15 577	15 026	15 247	17 527	21 467 d
Iceland	1 012	656 b	..	813 b	..	876	..
Ireland	6 768	10 793	11 246 e	11 296	11 185 e	12 569	12 192 e
Israel ¹	..	..	..	..	..	..	..
Italy	27 939 d	43 116 d	44 322 d	50 500 d	56 197 b d	62 478 d	73 335 d
Japan	481 496 d	485 318 d	506 134 d	486 198 d	488 828 d	498 732 d	504 746 d
Korea	137 706 d	253 447	274 638	284 136	287 869	311 566	334 810
Latvia	468 d	570 d	776 d	604 d	582 d	647 d	684 d
Lithuania	716.0	1 763.0	2 434.0	1 888.0	1 956.0	2 554.0	2 832.0
Luxembourg	1 696	1 001	1 015	1 048	1 194	1 275	1 311 p
Mexico	19 888	7 323	8 925	10 107	14 500	..	..
Netherlands	22 898	46 838	45 684	47 860	50 160	51 288	66 946 b p
New Zealand	3 700	6 000	..	7 400	..	8 100	..
Norway	10 239 d	13 553 d	14 314 d	14 921 d	15 330 d	16 342 d	16 679 d
Poland	9 412	20 606	24 960	28 746	40 838 b	53 947 d	56 727 d
Portugal	4 014	10 025 b	11 203	11 785	13 426	15 407	16 746
Slovak Republic	1 947 d	2 436 d	2 645 d	2 789 d	2 846 d	3 333 d	3 918 d
Slovenia	1 936	4 664	4 637	4 191	4 489	5 757	6 270
Spain	35 034	44 714 d	44 689 d	45 151 d	47 222 d	49 571 d	54 360 d
Sweden	36 697 b d	43 141 b	44 433 e	45 067	47 127 e	51 843	54 720 e
Switzerland	..	..	..	21 893	..	22 909	..
Turkey	9 456	40 207	41 847	45 313	52 463	62 305	75 308
United Kingdom	93 717	98 469	102 221	105 774	110 149	113 807	123 022
United States	..	914 000	960 000	981 000	973 000	1 023 000	..
EU28 (OECD estimates)	625 655 e	829 400 e	850 197 e	907 847 e	954 956 e	1 027 512 e	1 108 167 e
OECD-Total	2 196 791 e	2 744 151 e	2 861 702 e	2 938 751 e	2 997 179 e	3 170 472 e	..
Argentina	3 763	3 569	3 204	4 554 b	4 362	5 155	..
China	696 413 d	922 682	946 077	1 014 614	1 048 147	1 055 746	1 143 157
Romania	10 319	5 333	5 244	4 234	4 857	4 467	4 643
Russian Federation	237 959	205 455	207 593	208 604	198 561	193 425	179 312
Singapore	14 238	18 326	18 518	19 761	19 383	19 336	20 207
South Africa	5 896	4 530	4 636	4 627	4 777	..	..
Chinese Taipei	51 202	94 236	97 019	100 106	102 721	105 558	109 276

 Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

 1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 28. Business enterprise researchers as a percentage of national total

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	63.8 d e	63.7 d	64.2 d e	64.0 d	63.0 d e	63.0 d	63.0 d p
Belgium	50.6	51.3	53.9	53.5 b	54.4 e	54.4	56.2 e
Canada	61.7	57.1	57.8 b	58.7	57.7	56.7	..
Chile	..	24.3 d	29.6 d	27.4 d	29.5 d	28.9 d	27.5 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	40.2 b	47.8	49.6	50.3	51.4	51.6	51.3
Denmark	62.5	58.6	57.9	58.4	60.2	60.5 p	60.5 p
Estonia	26.5	31.4	29.3	27.5	30.4	33.9	33.3
Finland	55.5	56.8	55.8	56.8	56.4	55.5	56.3
France	52.8	60.8 e	59.5 b	59.7	59.7	61.0 p	62.3 e
Germany	61.3	56.0	56.3 e	59.5	59.0 e	60.2	60.3 e
Greece	30.8 d	14.4 d	16.5 d	14.5 d	19.1 d	27.6 d	27.4 d
Hungary	31.5	57.2	59.4	59.4	59.1	61.7	57.1 d
Iceland	46.9	35.5 b	..	41.8 b	..	42.7	..
Ireland	58.4	45.5 e	45.8 e	46.1 e	46.0 e	49.0 e	48.3 e
Israel ¹	..	..	..	..	..	..	..
Italy	33.9 d	37.1 d	37.5 d	40.1 d	42.0 b d	44.5 d	48.1 d
Japan	70.7 d	73.5 b d	74.1 d	73.4 d	73.4 d	73.7 d	74.4 b d
Korea	76.6 d	78.7	79.5	79.7	79.7	81.3	82.0
Latvia	14.3 d	15.7 d	20.7 d	16.7 d	18.5 d	18.6 d	19.8 d
Lithuania	9.4	20.6	26.8	23.1	22.9	29.2	31.7
Luxembourg	76.1	40.0	38.6	40.2	43.1	43.4	43.9 p
Mexico	45.3	24.5	28.5	29.5	37.3	..	..
Netherlands	47.8	61.1	59.9	60.5	61.8	61.7	70.0 b p
New Zealand	28.5	33.5	..	29.6	..	31.2	..
Norway	48.3 d	47.9 d	49.0 d	48.7 d	48.0 d	48.6 d	48.6 d
Poland	15.1	28.8	31.7	34.8	46.3 b	47.1 d	48.2 d
Portugal	19.0	26.5 b	29.4	30.5	32.5	34.3	35.1
Slovak Republic	17.8 d	16.5 d	17.9 d	19.4 d	20.1 d	21.9 d	24.0 d
Slovenia	36.9	53.6	54.1	53.1	55.3	61.9	62.3
Spain	31.9	36.3 d	36.6 d	36.9 d	37.3 d	37.2 d	38.8 d
Sweden	66.7 b d e	67.2 b e	66.7 e	67.5 e	67.0 e	70.9	72.8 e
Switzerland	..	..	..	50.1	..	49.7	..
Turkey	24.2	45.1	46.7	47.6	52.4	55.7	59.6
United Kingdom	37.7 b e	36.8	37.0 e	37.2	38.1 e	38.5 e	40.2 e
United States	..	70.6 e	71.6 e	71.6 e	70.9 e	71.3 e	..
EU28 (OECD estimates)	45.5 e	47.8 e	48.0 e	49.2 e	50.3 e	51.4 e	52.8 e
OECD-Total	59.2 e	60.6 e	61.3 e	61.5 e	61.7 e	62.5 e	..
Argentina	11.8	7.0	6.2	8.6 b	8.1	9.7	..
China	62.3 d	62.2	62.1	62.7	61.9	60.7	61.3
Romania	44.9	28.7	29.0	24.3	26.9	25.5	27.0
Russian Federation	51.2	46.6	46.7	46.4	46.3	47.1	44.2
Singapore	59.8	50.9	50.5	50.4	49.4	49.7	51.5
South Africa	34.1	19.4	19.7	17.7	17.3	..	..
Chinese Taipei	57.6	66.9	68.1	69.1	69.8	70.4	71.0

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 29. Business enterprise researchers in full-time equivalent per thousand employment in industry*Per thousand*

	2005	2013	2014	2015	2016	2017	2018
Australia	3.2	4.7	..	3.9	..	3.9	..
Austria	6.2 d e	8.1 d	8.5 d e	8.7 d	9.1 d e	9.1 d	9.5 d p
Belgium	5.7	7.6	8.8	9.1 b	9.3 e	9.1	9.7 e
Canada	6.8	7.0	7.0 b	7.1	6.7	6.5 e	..
Chile	..	0.2 d	0.4 d	0.4 d	0.4 d	0.4 d e	0.4 d e p
Colombia	..	..	..	..	..	..	..
Czech Republic	2.5 b	4.0	4.4	4.6	4.5	4.7	4.9
Denmark	9.5	12.9	13.1	13.4	14.1	14.0 p	14.1 p
Estonia	1.9	3.1	2.8	2.5	2.8 e	3.3 e	3.4 e
Finland	12.9	12.6	12.2	12.2	11.5	11.5 e	11.7 e
France	5.9	8.7	8.7	8.9	9.1	9.5 p	9.9 e
Germany	5.8	6.4	6.4 e	7.4	7.5 e	7.9	8.1 e
Greece	1.7 d	1.4 d	1.6 d	1.6 d	1.8 d	3.0 d e	3.1 d e
Hungary	1.6	4.7	4.9	4.7	4.5	5.1	6.0 d
Iceland	8.7	5.3 b	..	6.2 b	..	6.1 e	..
Ireland	4.4	7.7	7.9 e	7.7	7.4 e	8.0 e	7.6 e
Israel ¹	..	..	..	..	..	..	..
Italy	1.5 d	2.4 d	2.5 d	2.8 d	3.1 b d	3.4 d	3.9 d
Japan	8.8 d	9.1 d	9.5 d	9.2 d	9.1 d	9.2 d	9.2 d
Korea	7.2 d	12.6	13.4	13.7	13.8	14.8 e	15.9 e
Latvia	0.6 d	0.8 d	1.2 d	0.9 d	0.9 d	1.0 d e	1.0 d e
Lithuania	0.7	1.8	2.4	1.9	1.9	2.5 e	2.7 e
Luxembourg	6.9	3.4	3.3	3.4	3.7	3.8 e	3.8 e p
Mexico	0.8	0.3	0.3	0.4	0.5	..	..
Netherlands	3.8	7.6	7.3	7.6	7.8	7.8 e	9.9 b e p
New Zealand	2.4 e	3.6 e	..	4.3 e	..	4.3 e	..
Norway	6.9 d	8.0 d	8.4 d	8.7 d	9.0 d	9.5 d	9.5 d
Poland	0.8	1.7	2.0	2.3	3.2 b	4.2 d e	4.4 d e
Portugal	1.0	3.0 b	3.3	3.4	3.8	4.2 e	4.5 e
Slovak Republic	1.2 d	1.4 d	1.5 d	1.6 d	1.6 d	1.8 d	2.1 d
Slovenia	2.5	6.3	6.2	5.5	5.8	7.2 e	7.6 e
Spain	2.3	3.5 d	3.4 d	3.3 d	3.4 d	3.5 d	3.7 d
Sweden	12.9 b d	13.9 b	14.1 e	14.2	14.7 e	15.7 e	16.3 e
Switzerland	..	..	..	6.0	..	6.2	..
Turkey	0.6	1.9	1.9	2.1	2.4	2.7 e	3.2 e
United Kingdom	4.4	4.5	4.6	4.6	4.7	4.8	5.2
United States	..	9.0	9.3	9.4	9.1	9.4	..
EU28 (OECD estimates)	3.8 e	5.0 e	5.1 e	5.4 e	5.6 e	5.9 e	6.3 e
OECD-Total	5.5 e	6.6 e	6.8 e	6.9 e	7.0 e	7.3 e	..
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	1.3	0.7	0.7	0.6	0.7	0.6	0.6
Russian Federation	4.7	3.9	3.9	3.9	3.7	3.6	3.4
Singapore	7.0	6.0	5.9	6.2	6.1	6.1	6.3
South Africa	0.6 e	0.4 e	0.4 e	0.4	0.4	..	..
Chinese Taipei	5.9	9.9	10.1	10.3	10.5	10.7	11.0

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 30. Total business enterprise R&D personnel in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	43 687	78 839	..	70 467	..	74 991	..
Austria	32 780 d e	46 412 d	49 539 d e	50 534 d	51 895 d e	52 478 d	55 751 d p
Belgium	31 613	38 497	42 391	44 508 b	46 564	50 106	54 207 e
Canada	142 030	138 620	144 462 b	155 357	140 150	138 520	..
Chile	..	3 905 d	5 087 d	4 398 d	4 946 d	4 525 d	3 925 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	21 116 b	33 188	35 256	36 365	37 263	39 968	42 349
Denmark	28 359	34 985	35 431	36 898	38 855	38 975 p	39 805 p
Estonia	1 398	2 069	1 798	1 694	1 855	2 086	2 150
Finland	32 109	30 381	29 634	29 770	27 634	28 148	28 720
France	194 991	249 991	248 145	251 444	255 805	265 496 p	275 553 e
Germany	304 502	360 375	371 706 e	404 767	413 027 e	436 571	451 057 e
Greece	11 665 d	6 832 d	7 750 d	8 131 d	9 102 d	13 004 d	13 944 d
Hungary	7 393	22 244	22 177	21 030	20 825	24 719	31 027 d
Iceland	1 530	1 260 b d	..	1 604 d	..	1 799 d	..
Ireland	10 338	17 103	17 821 e	18 383	18 203 e	19 542	18 956 e
Israel ¹	43 049 d	65 099 d	69 854 d	72 914 d	83 579 d	94 498 d	..
Italy	70 725 d	124 736 d	129 271 d	136 725 d	164 471 b d	191 960 d	218 822 d
Japan	609 808 d	583 855 d	611 027 d	592 175 d	586 593 d	603 407 d	611 500 d
Korea	153 400 d	288 758	314 019	323 652	328 948	355 601	383 321
Latvia	1 370 d	981 d	1 382 d	1 145 d	896 d	956 d	1 221 d
Lithuania	1 190.0	2 401.0	3 307.0	2 714.0	2 630.0	3 783.0	4 304.0
Luxembourg	3 662	2 913	3 066	3 066	3 234	3 252	3 311 p
Mexico	42 331	19 197	16 139	18 892	26 309	..	..
Netherlands	48 588	77 399	76 708	81 108	85 585	87 034	113 686 b p
New Zealand	6 100	10 100	..	11 000	..	14 000	..
Norway	15 399	19 041	20 597	21 637	22 171	23 766	23 766
Poland	13 966	30 250	37 253	42 054	55 758 b	72 966 d	85 981 d
Portugal	6 133	16 220	17 348	18 283	19 367	22 022	23 662
Slovak Republic	3 524 d	3 618 d	4 133 d	4 405 d	4 643 d	5 654 d	6 524 d
Slovenia	4 347	9 811	9 696	9 222	9 569	9 954	10 471
Spain	75 345	88 635 d	87 642 d	87 432 d	90 129 d	95 667 d	104 474 d
Sweden	56 106 b	56 413	57 307 e	57 691	64 276 e	63 729	67 554 e
Switzerland	..	..	..	50 825	..	49 353	..
Turkey	14 992	58 391	61 945	66 667	72 579	87 918	104 376
United Kingdom	145 401	177 948	192 221	206 153	209 584	231 234	250 059
United States	..	1 318 000	1 366 000	1 399 000	1 393 000	1 475 000	..
EU28 (OECD estimates)	1 127 705 e	1 451 412 e	1 500 557 e	1 577 018 e	1 657 729 e	1 786 372 e	1 934 636 e
OECD-Total	..	4 067 241 e	4 226 547 e	4 342 110 e	4 426 465 e	4 709 264 e	..
Argentina	7 155	9 923	9 979	12 214 b	11 860	12 876	..
China	883 130 d	2 740 563	2 896 352	2 910 799	3 012 081	3 119 809	3 424 780
Romania	16 157	10 514	10 437	10 128	10 785	11 525	12 081
Russian Federation	524 049	424 063	423 134	426 372	402 097	389 191	359 385
Singapore	17 076	21 335	21 638	23 044	22 387	22 228	23 136
South Africa	12 236	11 877	12 928	12 458	12 549	..	..
Chinese Taipei	96 714	173 329	180 435	186 804	192 127	196 992	203 456

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 31. Total business enterprise R&D personnel as a percentage of national total

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	68.8 d e	70.1 d	70.6 d e	70.8 d	69.0 d e	69.0 d	69.0 d p
Belgium	59.1	56.7	58.2	57.4 b	58.9 e	60.6	61.6 e
Canada	65.0	59.5	61.1 b	63.4	61.3	60.4	..
Chile	..	29.5 d	32.0 d	28.8 d	29.8 d	27.2 d	25.2 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	48.7 b	53.5	54.7	54.7	56.6	57.3	56.5
Denmark	65.2	60.6	60.7	61.2	61.8	61.6 p	61.6 p
Estonia	32.0	35.3	31.1	30.1	32.1	34.5	34.8
Finland	55.9	57.4	56.8	59.1	58.3	57.4	57.4
France	55.8	60.0 l	58.5 b	58.7	59.2	60.1 p	61.0 e
Germany	64.1	61.2	61.4 e	63.2	62.8 e	63.6	63.7 e
Greece	34.7 d	16.2 d	17.9 d	16.4 d	21.8 d	27.3 d	27.2 d
Hungary	31.8	58.3	59.4	57.1	58.2	61.1	56.8 d
Iceland	47.4	46.0 b d	..	54.5 d	..	56.7 d	..
Ireland	61.9	53.7 e	53.2 e	53.5 e	53.0 e	54.3 e	52.9 e
Israel ¹	..	..	..	..	..	..	..
Italy	40.4 d	50.5 d	51.8 d	52.8 d	56.7 b d	60.4 d	63.3 d
Japan	68.0 d	67.5 b d	68.2 d	67.7 d	67.2 d	67.7 d	68.2 b d
Korea	71.2 d	71.9	72.9	73.2	73.5	75.5	76.5
Latvia	25.0 d	18.2 d	24.1 d	20.6 d	17.5 d	17.8 d	21.0 d
Lithuania	10.8	21.7	28.0	25.6	24.1	32.7	36.0
Luxembourg	83.4	58.6	58.5	58.3	59.9	58.6	58.9 p
Mexico	50.6	32.5	30.9	33.1	40.0	..	..
Netherlands	51.9	62.8	61.8	62.8	64.4	64.2	72.2 b p
New Zealand	32.2	40.6	..	33.3	..	38.9	..
Norway	51.4	49.4	51.1	51.0	50.5	51.4	51.0
Poland	18.2	32.3	35.7	38.5	49.9 b	50.6 d	53.1 d
Portugal	23.8	34.7	37.0	38.1	38.4	40.0	40.7
Slovak Republic	24.5 d	21.1 d	23.5 d	25.0 d	26.1 d	29.7 d	32.2 d
Slovenia	48.3	64.4	65.2	64.8	66.4	67.7	66.8
Spain	43.1	43.6 d	43.8 d	43.5 d	43.8 d	44.3 d	46.3 d
Sweden	72.3 b e	69.7 e	68.7 e	69.0 e	70.9 e	71.7 v	73.4 e
Switzerland	..	..	..	62.4	..	60.4	..
Turkey	30.4 e	51.7 e	53.7 e	54.5 e	53.0	57.3	60.6
United Kingdom	44.8 b e	47.2 e	48.5 e	49.8	50.2 e	52.1 e	54.0 e
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	51.2 e	53.4 e	53.8 e	54.6 e	56.0 e	57.1 e	58.6 e
OECD-Total	..	..	..	..	..	..	..
Argentina	15.8	13.3	13.0	15.5 b	14.9	16.1	..
China	64.7 d	77.6	78.1	77.4	77.7	77.3	78.2
Romania	48.6	32.3	33.2	32.3	33.5	35.4	37.8
Russian Federation	57.0	51.3	51.0	51.1	50.1	50.0	47.4
Singapore	59.7	51.3	50.9	50.7	49.6	49.9	51.6
South Africa	42.5	31.3	33.6	30.3	29.5	..	..
Chinese Taipei	64.8	74.1	75.2	76.1	76.7	77.2	77.6

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 32. Total business enterprise R&D personnel in full-time equivalent per thousand employment in industry

Per thousand

	2005	2013	2014	2015	2016	2017	2018
Australia	5.9	9.5	..	8.3	..	8.5	..
Austria	11.1 d e	14.6 d	15.5 d e	15.7 d	16.0 d e	15.9 d	16.6 d p
Belgium	10.7	12.4	13.6	14.2 b	14.6	15.5	16.5 e
Canada	11.5	10.4	10.8 b	11.5	10.3	10.0 e	..
Chile	..	0.7 d	0.8 d	0.7 d	0.8 d	0.7 d e	0.6 d e p
Colombia	..	..	..	..	..	..	..
Czech Republic	5.3 b	8.1	8.6	8.7	8.8	9.4	9.8
Denmark	15.3	19.3	19.3	19.7	20.3	19.9 p	19.9 p
Estonia	3.0	4.6	4.0	3.6	3.9 e	4.3 e	4.4 e
Finland	18.8	17.2	16.9	17.0	15.7	15.8 e	15.7 e
France	10.8	13.5	13.4	13.5	13.7	14.0 p	14.3 e
Germany	10.6	11.6	11.9 e	12.9	13.1 e	13.6	13.9 e
Greece	3.2 d	2.2 d	2.5 d	2.6 d	2.9 d	4.0 d e	4.3 d e
Hungary	2.3	7.3	7.0	6.5	6.2	7.1	8.7 d
Iceland	13.2	10.2 b d	..	12.3 d	..	12.5 d e	..
Ireland	6.7	12.2	12.5 e	12.5	12.0 e	12.5 e	11.8 e
Israel ¹	22.9 d	27.1 d	28.5 d	29.2 d	32.5 d	35.9 d e	..
Italy	3.9 d	6.9 d	7.2 d	7.6 d	9.0 b d	10.3 d	11.6 d
Japan	11.1 d	11.0 d	11.5 d	11.2 d	11.0 d	11.2 d	11.1 d
Korea	8.0 d	14.3	15.3	15.6	15.7	16.9 e	18.2 e
Latvia	1.8 d	1.4 d	2.1 d	1.7 d	1.3 d	1.4 d e	1.8 d e
Lithuania	1.1	2.4	3.3	2.7	2.5	3.7 e	4.1 e
Luxembourg	15.0	9.8	10.0	9.8	10.0	9.7 e	9.6 e p
Mexico	1.7	0.7	0.6	0.7	0.9	..	..
Netherlands	8.0	12.5	12.3	12.8	13.3	13.2 e	16.8 b e p
New Zealand	3.9 e	6.1 e	..	6.4 e	..	7.5 e	..
Norway	10.3	11.2	12.0	12.7	13.1	13.8	13.6
Poland	1.3	2.5	3.0	3.4	4.4 b	5.7 d e	6.7 d e
Portugal	1.6	4.8	5.1	5.3	5.5	6.0 e	6.3 e
Slovak Republic	2.2 d	2.1 d	2.4 d	2.5 d	2.5 d	3.0 d	3.4 d
Slovenia	5.7	13.2	13.0	12.2	12.4	12.5 e	12.7 e
Spain	4.9	6.9 d	6.7 d	6.5 d	6.5 d	6.7 d	7.2 d
Sweden	19.7 b	18.2	18.2 e	18.2	20.1 e	19.3 e	20.2 e
Switzerland	..	..	..	14.0	..	13.5	..
Turkey	0.9	2.8	2.9	3.0	3.3	3.8 e	4.4 e
United Kingdom	6.8	8.2	8.6	9.0	9.0	9.8	10.5
United States	..	13.0	13.2	13.3	13.0	13.6	..
EU28 (OECD estimates)	6.8 e	8.8 e	9.0 e	9.4 e	9.7 e	10.3 e	11.0 e
OECD-Total	..	9.8 e	10.1 e	10.2 e	10.3 e	10.8 e	..
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	2.0	1.4	1.4	1.4	1.5	1.6	1.6
Russian Federation	10.3	8.0	8.0	8.0	7.5	7.3	6.7
Singapore	8.4	7.0	6.8	7.2	7.0	7.0	7.2
South Africa	1.3 e	1.1 e	1.2 e	1.1	1.1	..	..
Chinese Taipei	11.1	18.2	18.7	19.2	19.6	19.9	20.4

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 33. Business-financed BERD (Business enterprise expenditure on R&D) at 2015 prices and PPP

Million 2015 USD

	2005	2013	2014	2015	2016	2017	2018
Australia	8 419.9	12 169.0	..	10 871.9	..	10 745.8	..
Austria	..	5 920.9	..	6 326.5	..	7 255.5 b	..
Belgium	4 573.1	6 730.0	..	7 008.3	..	8 692.6	..
Canada	12 288.0 d w	11 469.4 d w	11 573.9 b	11 014.4	10 990.8	10 932.9	9 997.8 p
Chile	..	480.0	441.6	470.5	506.5	439.6	416.5 p
Colombia	123.4	375.6	788.1	797.6	839.5	610.9	692.8
Czech Republic	1 552.2 b	2 262.3	2 293.6	2 251.1	2 312.3	2 561.1	2 361.9
Denmark	3 635.9	4 624.1	..	4 957.1	..	5 155.7 p	..
Estonia	110.9	253.0	188.3	216.7	223.3	220.1	230.7
Finland	4 743.2	4 476.1	3 782.9	3 553.2	3 606.7	3 819.9	3 761.7
France	25 496.8	31 699.5	32 263.2	32 201.8	33 095.4	33 630.7 p	..
Germany	52 400.3 e	65 219.8	68 128.1 e	70 405.8	71 640.8 e	78 225.5	80 764.7 e
Greece	556.3	640.5	651.1	759.3	1 067.6	1 368.6	1 391.7
Hungary	741.9 d	1 484.2	1 568.3	1 681.5	1 741.6	1 909.5	2 297.6 b
Iceland	156.4	87.8 b	101.3	122.4	133.3	136.5	149.4
Ireland	1 544.1	1 948.0	2 031.9 e	1 842.1	1 897.0 e	2 306.4	..
Israel ¹	4 480.4 d	3 973.6 d	4 078.5 d	4 038.4 d	5 150.8 d	5 334.3 d	..
Italy	9 501.5	12 765.4	13 766.8	14 689.9	15 868.7 b	16 320.9	17 469.2
Japan	116 304.5	125 075.4	131 932.3	130 022.6	125 924.5	130 927.6	135 444.1
Korea	24 671.1 d	53 246.6	56 545.2	56 096.9	58 483.5	65 670.1	71 550.3
Latvia	56.3	43.0	69.4	36.2	35.3	50.3	61.4
Lithuania	84.0	120.4	197.8	173.4	221.9	238.3	291.1
Luxembourg	566.1	111.6	..	367.2	..	389.6	..
Mexico	2 907.6	1 779.0	1 392.1	1 548.6	1 563.4	1 370.3 e	1 300.5 e
Netherlands	5 685.9	7 418.6	7 714.0	7 528.2	8 317.1	8 412.1	..
New Zealand	517.7	636.2	..	828.2	..	1 050.2	..
Norway	1 772.5	2 162.8	2 315.3	2 555.8	2 570.5	2 743.0	2 763.9
Poland	1 033.2	2 916.7	3 413.6	3 802.4	5 268.3 b	5 849.4	7 293.4
Portugal	828.4	1 641.4	1 593.4	1 589.1	1 735.8	1 942.8	2 082.6
Slovak Republic	187.9	465.8	373.7	411.2	559.7	701.5	707.7
Slovenia	414.9	982.9	998.6	959.4	909.7	805.6	870.7
Spain	7 319.7	8 502.3	8 451.4	8 530.4	8 791.1	9 414.5	10 229.7
Sweden	8 337.1 b	8 746.6	..	8 684.0	..	10 100.1	..
Switzerland	..	..	..	10 826.9	..	11 853.9	..
Turkey	2 129.0	6 321.8	7 279.8	7 772.1	9 031.9	10 458.9	12 548.3
United Kingdom	15 028.0	18 860.2	20 458.0	21 764.8	23 674.6	25 375.9	26 947.6
United States	244 660.8 d w	281 315.4 d	293 524.1 d	304 487.0 d	317 562.3 d	327 662.0 d	338 240.7 d e
EU28 (OECD estimates)	149 186.1 e	188 671.4 e	194 693.8 e	201 228.3 e	212 168.5 e	226 859.6 e	..
OECD-Total	574 716.0 e	696 833.7 e	726 391.7 e	741 191.4 e	766 105.2 e	804 684.1 e	838 718.5 e
Argentina	810.3	..	..	900.4 b	801.3	852.6	..
China	58 124.3	221 370.1	243 899.1	263 453.7	292 597.0	316 405.1	342 277.7
Romania	380.0	343.2	387.3	639.7	920.0	1 194.8	1 329.7
Russian Federation	6 847.5	7 882.0	8 061.8	7 853.0	8 798.6	9 827.0	8 447.6
Singapore	3 466.1	4 247.9	4 910.6	5 325.6	5 114.5	4 976.6	5 099.3
South Africa	1 838.2	1 820.0	1 951.3	1 954.0	2 014.9	..	..
Chinese Taipei	12 017.6	23 519.8	24 989.0	25 786.7	27 035.3	29 595.7	32 524.8

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 34. Business-financed BERD (Business enterprise expenditure on R&D) as a percentage of value added in industry

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	1.46	1.71	..	1.50	..	1.40 e	..
Austria	..	2.15	..	2.26	..	2.48 b	..
Belgium	1.59	2.19	..	2.17	..	2.61	..
Canada	1.38 d w	1.16 d w	1.14 b	1.10 e	1.10 e	1.06 e	0.95 e p
Chile	..	0.18	0.16	0.17 e	0.18 e	0.15 e	0.14 e p
Colombia	0.05	0.09	0.19	0.19	0.19	0.14	0.16
Czech Republic	0.77 b	1.01	0.98	0.92	0.92	0.98	0.89
Denmark	2.43	2.98	..	3.05	..	2.97 p	..
Estonia	0.49	1.04	0.77	0.90	0.92	0.85 e	0.85 e
Finland	3.50	3.42	2.91	2.73	2.69	2.70 e	2.63 e
France	1.73	2.06	2.08	2.05	2.09	2.09 p	..
Germany	2.41 e	2.75	2.79 e	2.84	2.82 e	3.00	3.05 e
Greece	0.25	0.41	0.42	0.49	0.70	0.87 e	0.87 e
Hungary	0.49 d	0.98	0.98	1.01	1.03	1.08	1.23 b
Iceland	2.02	0.97 b	1.12	1.27	1.30 e	1.30 e	1.37 e
Ireland	0.98	1.17	1.12 e	0.75	0.73 e	0.81 e	..
Israel ¹	3.67 d e	2.38 d	2.41 d e	2.32 d e	2.85 d e	2.85 d e	..
Italy	0.64	0.94	1.02	1.07	1.14 b	1.15	1.22
Japan	3.16	3.45	3.62	3.49	3.36	3.42	3.53 e
Korea	2.78 d	4.45	4.61	4.49	4.57 e	4.98 e	5.29 e
Latvia	0.20	0.15	0.23	0.12	0.11	0.15 e	0.18 e
Lithuania	0.2	0.2	0.3	0.3	0.4	0.4 e	0.4 e
Luxembourg	1.87	0.31	..	0.89	..	0.93 e	..
Mexico	0.22	0.11	0.09	0.10	0.09	0.08 e	0.07 e
Netherlands	1.15	1.39	1.44	1.36	1.48	1.46 e	..
New Zealand	0.56	0.61	..	0.74	..	0.87 e	..
Norway	0.97	1.03	1.12	1.31	1.39	1.41	1.34
Poland	0.22	0.43	0.49	0.52	0.71 b	0.75	0.89 e
Portugal	0.45	0.94	0.90	0.88	0.95	1.04 e	1.09 e
Slovak Republic	0.24	0.46	0.34	0.36	0.50	0.61	0.59
Slovenia	1.07	2.48	2.39	2.25	2.07	1.73 e	1.78 e
Spain	0.71	0.90	0.88	0.84	0.84	0.87	0.92
Sweden	3.43 b	3.21	..	2.94	..	3.26 e	..
Switzerland	..	..	..	2.89	..	3.07	..
Turkey	0.26	0.51	0.55	0.56	0.63	0.66 e	0.77 e
United Kingdom	1.00	1.18	1.25	1.30	1.39	1.45	1.51
United States	2.41 d w	2.59 d	2.62 d	2.64 d	2.72 d	2.73 d e	2.74 d e
EU28 (OECD estimates)	1.33 e	1.60 e	1.62 e	1.63 e	1.68 e	1.75 e	..
OECD-Total	1.93 e	2.10 e	2.14 e	2.13 e	2.16 e	2.20 e	2.24 e
Argentina	0.19	..	..	0.17 b e	0.15 e	0.16 e	..
China	0.94 e	1.69 e	1.74 e	1.78 e	1.87 e	1.92 e	1.97 e
Romania	0.17	0.12	0.14	0.21 e	0.29 e	0.35 e	0.38 e
Russian Federation	0.37 e	0.35 e	0.34 e	0.33 e	0.36 e	0.40 e	0.34 e
Singapore	1.48 e	1.17 e	1.30 e	1.37 e	1.28 e	1.20 e	1.19 e
South Africa	0.49 e	0.39 e	0.41 e	0.41 e	0.42 e	..	..
Chinese Taipei	2.05 e	3.02	3.04	3.10	3.20	3.37	3.61

Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 35. Percentage of Business enterprise expenditure on R&D (BERD) financed by the business enterprise sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	94.0	96.2	..	96.2	..	96.0	..
Austria	..	66.7	..	67.4	..	75.5 b	..
Belgium	82.8	82.7	..	79.2	..	86.3	..
Canada	82.5 d w	85.3 d w	80.0 b	76.6	73.8	75.4	74.1 p
Chile	..	90.1	88.5	88.4	87.8	86.1	81.3 p
Colombia	98.1	98.6	98.0	95.5	98.1	98.2	98.0
Czech Republic	78.8 b	68.0	62.4	60.5	61.8	59.9	50.6
Denmark	86.0	91.7	..	91.7	..	89.0 p	..
Estonia	80.3	83.9	80.2	83.5	87.7	86.8	88.2
Finland	90.9	85.5	76.6	79.7	84.0	86.7	82.9
France	80.7	82.4	82.8	82.0	83.2	83.2 p	..
Germany	92.1 e	91.4	91.4 e	89.9	89.7 e	90.4	90.4 e
Greece	85.7	81.6	78.9	82.3	87.6	84.1	81.5
Hungary	77.8 d	63.5 d	64.3 d	64.8 d	73.6 d	70.1 d	67.4 b d
Iceland	84.9	61.1 b d	55.2 d	52.2 d	56.4 d	56.0 d	60.8 d
Ireland	86.1	72.4	72.4 e	66.8	66.8 e	68.0	..
Israel ¹	67.2 d	41.2 d	39.7 d	37.4 d	42.7 d	39.4 d	..
Italy	76.8	80.6	81.6	84.2	84.1 b	82.7	83.2
Japan	98.3	98.1	98.3	98.3	98.1	98.2	98.4
Korea	94.4 d	94.2	94.2	94.1	94.8	93.8	93.3
Latvia	61.7	53.3	59.7	47.9	65.6	69.3	71.3
Lithuania	83.9	62.8	75.7	72.4	87.7	80.7	79.6
Luxembourg	91.7	30.0	..	90.5	..	87.5	..
Mexico	86.8	78.4	83.0	86.9	79.1	79.2 e	78.6 e
Netherlands	79.0	83.8	83.4	79.5	82.1	81.5	..
New Zealand	80.5	74.4	..	76.3	..	75.9	..
Norway	81.6	77.0	77.9	78.2	77.1	78.0	78.2
Poland	83.0	80.8	79.4	79.8	79.1 b	79.5	78.5
Portugal	91.4	87.1	88.2	89.7	89.3	90.0	89.7
Slovak Republic	67.9	81.3	74.6	78.0	84.8	85.6	88.0
Slovenia	85.3	80.6	85.5	87.8	88.7	81.8	81.8
Spain	79.9	81.6	82.3	81.9	82.2	82.3	82.8
Sweden	86.1 b	86.7	..	80.4	..	83.6	..
Switzerland	..	..	..	85.4	..	92.5	..
Turkey	90.8	90.2	89.6	87.6	84.9	85.9	87.5
United Kingdom	64.5	69.1	70.6	72.2	75.3	77.2	79.2
United States	90.3 d w	84.8 d	85.3 d	85.6 d	85.6 d	84.3 d	84.5 d e
EU28 (OECD estimates)	82.0 e	82.6 e	82.3 e	82.0 e	83.4 e	84.0 e	..
OECD-Total	89.3 e	86.6 e	86.7 e	86.5 e	86.7 e	86.2 e	86.3 e
Argentina	94.5	..	..	79.3 b	74.8	65.1	..
China	91.2	93.2	93.7	93.7	94.7	95.0	95.6
Romania	57.5	72.3	59.2	69.5	77.3	87.0	89.0
Russian Federation	37.3	35.5	35.1	34.2	38.5	40.9	41.9
Singapore	87.8	83.9	83.7	85.0	84.8	84.1	84.9
South Africa	68.3	81.1	81.3	82.4	85.1	..	..
Chinese Taipei	97.7	98.1	98.4	98.5	98.5	98.6	98.5

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 36. Percentage of Business enterprise expenditure on R&D (BERD) financed by government

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	4.0	2.1	..	2.2	..	2.4	..
Austria	..	12.5	..	12.0	..	3.7 b	..
Belgium	6.2	5.2	..	5.5	..	3.4	..
Canada	2.6 d	4.1 d	4.5 b	4.6	5.4	6.5	6.6 p
Chile	..	8.3 b	9.3	9.7	11.7	13.0	18.2 p
Colombia	1.9	1.4	2.0	4.5	1.9	1.8	2.0
Czech Republic	15.6 b	10.7	9.2	7.6	6.1	7.0	7.0
Denmark	2.4 d	1.8 d	..	2.7 d	..	2.0 d p	..
Estonia	6.9	10.2	10.3	8.4	4.7	4.4	5.7
Finland	3.8	2.8	3.0	3.6	3.6	3.1	2.8
France	10.1	8.1	7.8	8.8	7.7	8.0 p	..
Germany	4.5 e	3.4	3.4 e	3.3	3.4 e	3.2	3.1 e
Greece	5.6	7.0	10.5	8.8	3.3	4.1	6.0
Hungary	3.9 d	19.0 d	16.5 d	19.4 d	8.3 d	13.6 d	16.3 b d
Iceland	2.8	9.7 b d	9.0 d	7.8 d	8.4 d	9.2 d	11.4 d
Ireland	4.1	6.0	6.0 e	5.0	5.0 e	4.6	..
Israel ¹	4.8 d	2.8 d	3.7 d	3.2 d	2.8 d	2.7 d	..
Italy	11.0	6.4	5.7	5.5	3.5 b	3.5	4.9
Japan	1.2	1.1	1.0	1.0	0.9	0.9	0.8
Korea	4.6 d	5.5	5.1	5.1	4.2	4.7	4.4
Latvia	12.7	1.5	1.4	1.6	2.6	6.1	3.7
Lithuania	1.8	2.8	1.8	2.2	1.5	1.2	1.6
Luxembourg	5.2	.. c	..	6.9	..	6.5	..
Mexico	11.0	20.8	16.2	11.3	18.8	18.4 e	18.7 e
Netherlands	3.4	2.0	1.8	1.9	1.7	2.1	..
New Zealand	11.4	11.2	..	11.0	..	11.9	..
Norway	7.9	9.3	8.5	8.6	9.4	9.4	9.9
Poland	13.7	10.0	11.5	10.0	16.3 b	13.9	13.5
Portugal	4.2	9.1	9.1	5.5	3.8	4.2	5.6
Slovak Republic	26.7	5.1	3.9	6.5	3.7	2.5	2.5
Slovenia	7.0	12.6	7.7	4.3	3.1	5.3	6.2
Spain	13.6	10.7	9.7	9.4	8.9	8.7	9.0
Sweden	4.5 b	6.1	..	.. c	..	4.7	..
Switzerland	..	..	..	1.4	..	1.0	..
Turkey	6.9	8.6	8.9	10.6	9.9	9.0	10.0
United Kingdom	8.3	8.9	9.3	8.7	7.8	7.6	6.9
United States	9.7 d	9.2 d	7.8 d	7.6 d	6.4 d	6.1 d	5.6 d e
EU28 (OECD estimates)	7.4 e	6.4 e	6.4 e	6.4 e	5.5 e	5.2 e	..
OECD-Total	6.8 e	6.5 e	5.9 e	5.8 e	5.1 e	5.0 e	4.8 e
Argentina	4.5	..	..	7.1 b	2.0	3.4	..
China	4.6	4.5	4.2	4.3	3.7	3.4	3.2
Romania	36.8	14.0	19.0	13.7	12.2	7.2	4.9
Russian Federation	53.6	61.5	62.7	63.4	59.0	56.6	56.2
Singapore	6.3	6.9	5.5	4.8	5.1	4.7	4.3
South Africa	16.2	5.8	5.2	3.8	3.1	..	..
Chinese Taipei	2.2	1.7	1.5	1.4	1.4	1.3	1.4

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 37. Percentage of Business enterprise expenditure on R&D (BERD) financed by the Higher Education and PNP sectors

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	0.33	0.07	..	0.05	..	0.02	..
Austria	..	0.06	..	0.06	..	0.12	..
Belgium	0.04	0.01	..	0.02	..	0.05	..
Canada	.. k	.. k	0.80 b	1.18	1.34	1.78	1.71 p
Chile	..	0.05	0.23	0.08	0.08	0.10	0.16 p
Colombia	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Czech Republic	0.10 b	0.08	0.04	0.05	0.07	0.08	0.07
Denmark	0.16 d	0.50 d	..	0.31 d	..	0.75 d p	..
Estonia	0.01	0.11	0.06	0.03	0.07	0.04	0.12
Finland	0.01	0.06	0.06	0.02	0.02	0.03	0.02
France	0.05	0.09	0.09	0.08	0.07	0.08 p	..
Germany	0.17 d	0.20 d	0.20 d	0.15 d	0.19 d e	0.13 d	0.13 d e
Greece	0.37	0.06	0.04	0.01	0.02	0.05	0.03
Hungary	0.06 d	0.06 d	0.05 d	0.04 d	0.05 d	0.04 d	0.03 b d
Iceland	0.00	0.62 b d	3.58 d	6.18 d	6.70 d	2.12 d	2.93 d
Ireland	0.00	0.09	0.09 e	0.03	0.03 e	0.14	..
Israel ¹	0.61 d	0.61 d	0.59 d	0.57 d	0.53 d	0.48 d	..
Italy	0.11	0.38	0.36	0.34	0.14 b	0.14	0.14
Japan	0.10	0.24	0.17	0.12	0.09	0.10	0.07
Korea	0.06 d	0.06	0.05	0.06	0.04	0.05	0.06
Latvia	..	..	..	..	..	..	..
Lithuania	0.2	2.5	0.4	0.5	0.1	0.1	0.1
Luxembourg	0.02	..	..	..	..	..	..
Mexico	0.02	0.10	0.12	0.66	0.84	0.94 e	1.06 e
Netherlands	0.33	0.69	0.49	0.22	0.23	0.47	..
New Zealand	1.05	.. c	..	.. c	..	.. c	..
Norway	0.01	0.02	0.04	0.05	0.04	0.00	0.02
Poland	0.08	0.06	0.11	0.14	0.10 b	0.11	0.06
Portugal	0.00	0.01	0.02	0.02	0.03	0.03	0.02
Slovak Republic	0.03	0.00	0.00	0.01	0.00	0.00	0.00
Slovenia	0.48	0.01	0.05	0.00	0.00	0.53	.. c
Spain	0.68	0.25	0.18	0.85	0.24	0.22	0.18
Sweden	0.20 b	0.27	..	0.38	..	0.17	..
Switzerland	..	..	..	0.52	..	0.45	..
Turkey	2.02 d	0.20	0.09	0.14	0.12	0.27	0.16
United Kingdom	0.02 d	0.40 d	0.68 d	0.62 d	0.84 d	1.28	0.98
United States	.. k	0.08 d	0.15 d	0.14 d	0.26 d	0.15 d	0.16 d e
EU28 (OECD estimates)	0.14 e	0.22 e	0.25 e	0.24 e	0.24 e	0.29 e	..
OECD-Total	0.10 e	0.17 e	0.20 e	0.19 e	0.24 e	0.21 e	0.20 e
Argentina	0.00	..	..	0.00 b	0.03	0.03	..
China	..	..	..	..	..	..	..
Romania	0.16	0.27	0.20	0.28	0.32	0.34	0.08
Russian Federation	0.04	0.13	0.16	0.18	0.05	0.05	0.05
Singapore	0.08	0.01	0.01	0.01	0.01	0.05	0.01
South Africa	1.02	2.69	2.79	2.71	2.72	..	..
Chinese Taipei	0.04	0.01	0.01	0.01	0.01	0.02	0.01

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 38. Percentage of Business enterprise expenditure on R&D (BERD) financed by the rest of the world

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	1.6	1.6	..	1.6	..	1.6	..
Austria	..	20.7	..	20.6	..	20.7	..
Belgium	11.0	12.0	..	15.3	..	10.2	..
Canada	14.9 d	10.5 d	14.7 b	17.6	19.5	16.4	17.6 p
Chile	..	1.5 b	1.9	1.9	0.5	0.8	0.3 p
Colombia	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	5.4 b	21.2	28.3	31.9	32.0	33.0	42.4
Denmark	11.4	6.1	..	5.3	..	8.2 p	..
Estonia	12.7	5.7	9.4	8.1	7.5	8.7	5.9
Finland	5.3 b	11.7	20.4	16.7	12.4	10.2	14.3
France	9.2	9.4	9.3	9.1	9.0	8.7 p	..
Germany	3.3	5.0	5.0 e	6.7	6.7 e	6.3	6.3 e
Greece	8.3	11.4	10.6	8.9	9.1	11.7	12.5
Hungary	18.1 d	17.4 d	19.2 d	15.8 d	18.0 d	16.3 d	16.3 b d
Iceland	12.2	28.5 b d	32.2 d	33.8 d	28.4 d	32.8 d	24.8 d
Ireland	9.8	21.5	21.5 e	28.2	28.2 e	27.3	..
Israel ¹	27.4 d	55.4 d	56.0 d	58.8 d	53.9 d	57.4 d	..
Italy	12.1	12.6	12.3	10.0	12.2 b	13.6	11.7
Japan	0.4	0.6	0.5	0.6	0.9	0.8	0.7
Korea	0.9 d	0.2	0.6	0.8	1.0	1.4	2.2
Latvia	25.6	45.2	38.9	50.5	31.9	24.5	25.1
Lithuania	14.1	31.9	22.1	24.9	10.7	18.0	18.7
Luxembourg	3.1	.. c	..	2.6	..	5.9	..
Mexico	2.1	0.7	0.6	1.2	1.3	1.5 e	1.6 e
Netherlands	17.2	13.5	14.4	18.4	16.0	16.0	..
New Zealand	7.0	11.6	..	10.5	..	11.0	..
Norway	10.5	13.7	13.6	13.1	13.5	12.6	11.9
Poland	3.2	9.2	9.0	10.1	4.4 b	6.5	7.9
Portugal	4.5	3.8	2.7	4.9	6.9	5.7	4.7
Slovak Republic	5.3	13.6	21.5	15.5	11.5	11.9	9.4
Slovenia	7.2	6.8	6.8	8.0	8.2	12.4	11.9
Spain	5.8	7.5	7.8	7.9	8.6	8.7	8.0
Sweden	9.1 b	6.9	..	.. c	..	11.6	..
Switzerland	..	..	..	12.6	..	6.1	..
Turkey	0.3	1.0	1.4	1.6	5.0	4.9	2.4
United Kingdom	27.1	21.5	19.4	18.5	16.0	13.9	13.0
United States	.. k	6.0 d	6.8 d	6.7 d	7.7 d	9.5 d	9.8 d e
EU28 (OECD estimates)	10.5 e	10.8 e	11.0 e	11.5 e	10.9 e	10.5 e	..
OECD-Total	..	6.7 e	7.2 e	7.4 e	8.0 e	8.6 e	..
Argentina	1.0	..	..	13.6 b	23.2	31.4	..
China	1.0	1.0	0.9	0.9	0.8	0.8	0.4
Romania	5.5	13.4	21.6	16.5	10.3	5.5	5.9
Russian Federation	9.1	2.9	2.1	2.2	2.5	2.4	1.8
Singapore	5.9	9.2	10.8	10.2	10.1	11.2	10.8
South Africa	14.5	10.4	10.7	11.1	9.1	..	..
Chinese Taipei	0.0	0.1	0.1	0.1	0.1	0.1	0.1

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 39. Business enterprise expenditure on R&D (BERD) performed in the pharmaceutical industry at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	178.0 e	366.2	..	..	..	..	..
Austria	269.7 e	357.1	379.6 e	368.1	388.6 e	403.2	..
Belgium	814.5 e	1 929.4	1 948.5	1 989.8	2 617.2	2 881.5	..
Canada	878.1 d e	340.7 d	375.5 d	400.6 d	411.0 d	455.7 d	..
Chile	..	33.7	28.0	28.8	38.5 e	38.7	46.8
Colombia	..	..	..	..	..	..	..
Czech Republic	55.1	76.9	84.6	86.9	90.5	89.9	111.1
Denmark	..	1 127.2	1 162.6	1 239.0	1 484.7	1 414.4	..
Estonia	..	1.9	2.1	1.6	0.8	1.4	..
Finland	..	132.4	148.5	143.3	162.9	170.9	..
France	..	988.0 e	1 058.7 e	1 100.2 e	1 087.6	1 083.9	..
Germany	3 891.4 e	5 259.4	5 247.0	5 085.4	6 002.4	6 253.2	..
Greece	..	93.2	82.9 e	69.3	73.7 e	88.0	..
Hungary	279.2 e	420.3 e	433.2	406.9	414.4	405.1	..
Iceland	..	0.4	0.2	1.0	1.4	1.1	1.5
Ireland	..	203.0	186.9 e	179.1	280.6 e	432.0	..
Israel ¹	..	383.2 d	279.0 d	349.6 d	341.7 d	271.5 d	..
Italy	452.2 e	738.2	691.7	729.6	841.6	872.7	..
Japan	8 087.5	14 185.8	14 510.5	14 091.1	12 810.8	13 905.0	13 427.6
Korea	444.0	1 245.9	1 287.1	1 576.4	1 511.0	1 631.3	1 814.5
Latvia	..	11.2	5.4	5.4	5.7	8.5	..
Lithuania	..	5.6	17.1	5.0	1.2 e	1.6 e	..
Luxembourg	..	..	..	..	..	..	..
Mexico	..	..	..	..	..	..	..
Netherlands	..	305.2	316.7	318.6	296.2	321.1	..
New Zealand	..	..	..	..	..	..	..
Norway	52.1 e	42.5	36.8	33.3	35.5	40.8	..
Poland	71.0	122.8	150.7	216.0	179.9	263.6	..
Portugal	63.8 e	144.9	129.7	127.5	154.1	173.9	..
Slovak Republic	..	4.2	8.7	6.3	10.7	6.0	5.2
Slovenia	124.1 e	272.9	275.4	308.0	311.6	..	..
Spain	711.1 e	841.8	873.0	892.8	982.3	1 107.4	..
Sweden	..	809.6	764.4 e	861.1 e	828.2 e	860.7 e	..
Switzerland	2 295.3 e	3 935.8 e	4 194.0 e	4 481.9	4 610.9 e	4 703.7	..
Turkey	..	196.5	198.4	201.6	176.8	228.7	..
United Kingdom	..	658.5	572.6	560.4	556.0	..	..
United States	34 839.0 d	52 426.0 d	56 612.0 d	58 675.0 d	64 628.0 d	66 202.0 d	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	..	9 489.5	10 382.6	11 404.8	12 246.7	12 767.7	..
Romania	19.2 e	25.1	38.8	27.9	37.0	21.1	..
Russian Federation	..	..	..	..	..	..	..
Singapore	76.8 e	143.0	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	118.3	395.1	489.5	456.8	557.5	567.6	542.3

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, ANBERD database: Research and Development Expenditure in Industry

Table 40. Business enterprise expenditure on R&D (BERD) performed in the computer, electronic and optical industry at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	182.7 e	..	..	..	..	..	..
Austria	1 234.0 e	772.3	854.1 e	909.9	1 012.9 e	1 072.0	..
Belgium	556.1 e	593.4	550.1	578.7	624.9	684.8	..
Canada	2 398.6 d e	1 820.3 d	838.8 d	877.4 d	952.1 d	981.1 d	..
Chile	..	1.2	1.7	1.0	1.3 e	1.3	2.0
Colombia	..	..	..	..	..	..	..
Czech Republic	105.2	119.1	147.5	152.7	185.6	207.5	235.9
Denmark	..	406.2	412.4	438.4	492.0	518.8	..
Estonia	..	5.0	8.0	12.4	17.0	26.2	..
Finland	2 111.4 e	1 966.8	1 916.4	1 507.0	1 318.0	1 292.5	..
France	..	4 502.6 e	4 648.8 e	4 676.9 e	4 928.8	4 909.0	..
Germany	6 607.9 e	9 476.1	9 762.4	9 693.9	10 146.5	10 450.7	..
Greece	..	23.2	20.1 e	19.6	25.3 e	34.5	..
Hungary	57.2 e	95.4 e	35.7	37.8	45.8	45.3	..
Iceland	..	2.7	2.8	2.4	2.9	3.6	4.4
Ireland	..	251.6 e	289.2 e	339.7	313.4 e	339.6	..
Israel ¹	1 486.5 d e	1 522.2 d	1 518.7 d	1 460.6 d	1 545.7 d	1 711.7 d	..
Italy	1 518.7 e	1 757.4	1 771.2	1 857.0	1 391.8	1 502.2	..
Japan	..	28 750.8	28 017.8	27 883.9	24 905.7	25 331.6	26 477.0
Korea	11 753.5	27 676.6	30 402.1	29 892.6	31 751.4	36 798.4	40 836.8
Latvia	..	6.4	5.8	6.6	7.4	6.6	..
Lithuania	..	12.8	17.8	18.2	18.9	35.2	..
Luxembourg	..	..	..	..	..	..	..
Mexico	..	..	..	..	..	..	..
Netherlands	..	818.2	848.5	761.0	814.2	872.2	..
New Zealand	..	..	..	..	..	..	..
Norway	178.9 e	180.9	195.6	196.7	188.6	192.6	..
Poland	29.3	84.5	94.7	115.3	125.7	175.3	..
Portugal	121.8 e	41.0	49.8	53.1	64.1	63.8	..
Slovak Republic	12.4	7.8	7.2	9.0	12.2	12.1	14.0
Slovenia	66.7 e	67.8	69.1	66.5	57.1	59.9	..
Spain	319.2 e	260.4	257.0	246.2	263.7	305.3	..
Sweden	..	2 039.0	1 949.4 e	2 220.9	1 200.1 e	259.3	..
Switzerland	799.1 e	1 632.9 e	1 718.7 e	1 777.1	1 724.8 e	1 627.2	..
Turkey	279.2 e	263.9	237.1	292.8	1 408.1	1 903.2	..
United Kingdom	..	1 468.3	1 440.9	1 422.7	1 582.6	..	..
United States	49 725.0 d e	67 205.0 d	73 891.0 d	72 110.0 d	77 385.0 d	78 575.0 d	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	..	38 262.8	41 537.9	46 310.9	50 059.9	52 894.3	..
Romania	8.3 e	40.2	16.2	37.8	44.9	15.1	..
Russian Federation	..	..	..	..	..	..	..
Singapore	1 451.8 e	1 808.1	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	7 242.2	16 855.8	18 264.8	19 240.9	20 243.3	22 778.2	25 632.5

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, ANBERD database: Research and Development Expenditure in Industry

Table 41. Business enterprise expenditure on R&D (BERD) performed in the aerospace industry at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	39.3 e	..	..	..	..	..	..
Austria	5.7 e	45.9	60.2 e	73.2	79.8 e	75.9	..
Belgium	77.9 e	156.3	..	..	..	..	..
Canada	708.6 d e	1 285.1 d e	1 317.5 d	1 293.3 d e	1 257.0 d	1 134.7 d	..
Chile	..	..	..	..	..	..	..
Colombia	..	..	..	..	..	..	..
Czech Republic	37.6	54.0	69.4	47.6	61.5	93.1	84.0
Denmark	..	..	..	..	0.7	2.8	..
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	..
Finland	..	5.9 e	5.2 e	8.4	6.8	8.0 e	..
France	..	3 827.4 e	3 963.7 e	3 858.5 e	3 656.7	3 428.6	..
Germany	2 285.8 e	2 268.4	2 342.5	2 194.3	2 300.4	2 013.7	..
Greece	..	..	..	..	..	..	..
Hungary	..	..	..	..	..	..	..
Iceland	..	0.2	0.2	0.1	0.0	0.0	0.0
Ireland	..	..	..	..	..	..	..
Israel ¹	..	..	..	..	..	..	..
Italy	924.0 e	1 121.4	1 049.6	991.3	1 727.1	1 846.6	..
Japan	12.4	481.4	477.7	657.3	733.5	832.1	785.2
Korea	165.5	142.6	86.6	275.1	440.1	391.6	412.1
Latvia	..	..	..	..	..	..	..
Lithuania	..	..	0.0	..	..	..	..
Luxembourg	..	..	..	..	..	..	..
Mexico	..	..	..	..	..	..	..
Netherlands	..	59.1	..	..	..	..	..
New Zealand	..	..	..	..	..	..	..
Norway	..	1.2 e	1.1 e	1.1	1.0 e	0.9 e	..
Poland	30.4	92.1	92.4	104.7	100.5	117.2	..
Portugal	..	..	..	..	..	..	..
Slovak Republic	..	..	..	..	..	..	..
Slovenia	0.0 e	3.9	2.0	1.8	1.7	..	..
Spain	386.8 e	614.6	525.8	598.1	631.5	657.5	..
Sweden	..	..	..	..	..	..	..
Switzerland	..	..	..	..	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	..	2 011.5	2 137.3	2 110.4	2 402.7	..	..
United States	15 005.0 d	27 114.0 d	26 181.0 d	27 464.0 d	26 645.0 d	26 383.0 d	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	..	5.6	7.8	0.7	2.1	4.4	..
Russian Federation	..	..	..	..	..	..	..
Singapore	21.9 e	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	..	..	..	..	..	..	..

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, ANBERD database: Research and Development Expenditure in Industry

Table 42. Business enterprise expenditure on R&D (BERD) performed in service industries at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	3 085.1 e	6 713.6	6 742.6 e	6 670.3	7 238.6 e	7 318.4	..
Austria	1 306.3 e	3 146.5	3 409.1 e	3 464.5	3 540.3 e	3 361.1	..
Belgium	1 253.5 e	3 023.3	3 572.5	3 819.5	3 896.4	4 562.2	..
Canada	5 189.8 d e	6 167.5 d	8 135.0 d	7 869.8 d e	8 702.3 d e	8 957.1 d e	..
Chile	..	218.1	220.9	202.4	237.9	237.0	278.1
Colombia	..	..	..	..	..	..	..
Czech Republic	556.0	1 452.4	1 708.1	1 685.7	1 738.4	2 044.1	2 245.9
Denmark	..	2 033.2	2 073.6	2 307.6	2 787.1	2 667.0	..
Estonia	50.4	181.1	155.0	173.3	175.4	170.5	..
Finland	737.2 e	1 340.9	1 277.3	1 302.1	1 381.5	1 514.5	..
France	..	17 431.6 e	17 785.5 e	18 153.5 e	19 277.4	20 923.0	..
Germany	4 682.3 e	9 124.9	9 219.6	11 096.4	12 027.9	13 286.0	..
Greece	..	479.5	556.4 e	649.7	838.1 e	1 072.2	..
Hungary	162.6 e	1 088.5 e	1 277.2	1 477.7	1 200.8	1 422.2	..
Iceland	..	95.0	132.5	174.3	179.8	185.9	185.4
Ireland	..	1 431.2	1 515.6 e	1 664.1	1 646.3 e	1 904.0	..
Israel ¹	3 497.4 d e	7 043.4 d	7 614.5 d	8 391.3 d	10 159.5 d	11 695.7 d	..
Italy	2 584.7 e	4 155.2	4 533.3	4 867.2	5 738.4	6 372.4	..
Japan	9 828.6	12 482.7	16 299.8	16 044.8	14 895.1	15 453.1	16 305.7
Korea	1 611.2	4 531.4	4 722.2	4 802.3	5 431.3	5 989.2	7 160.1
Latvia	..	..	..	39.6	..	33.5	..
Lithuania	..	114.6	145.8	152.9	173.3 e	204.9	..
Luxembourg	..	130.7	..	125.6	..	186.4	..
Mexico	457.5	989.2	655.0	650.3	735.8	653.7	638.0
Netherlands	..	3 283.5	3 277.1	3 627.0	4 044.8	4 201.7	..
New Zealand	202.2	437.1	510.6 e	565.9	..	..	..
Norway	886.3 e	1 720.1	1 818.2	1 943.7	2 028.5	2 248.1	..
Poland	461.3	1 647.7	2 130.2	2 473.1	4 371.5 e	4 439.9	..
Portugal	314.5 e	1 062.8	1 003.2	1 010.7	1 117.8	1 300.8	..
Slovak Republic	117.1 e	240.2	162.7	169.8	187.9	232.9	240.8
Slovenia	71.0 e	408.1	380.9	310.5	255.3	261.7	..
Spain	2 975.2 e	5 107.1	5 039.8	5 180.6	5 427.7	6 007.7	..
Sweden	..	2 841.5	2 755.2 e	3 178.3	4 236.7 e	5 648.2	..
Switzerland	1 237.2 e	3 510.7 e	3 817.5 e	4 066.2	4 064.8 e	3 963.4	..
Turkey	343.3 e	3 089.0	3 717.1	4 277.8	4 473.5	4 927.1	..
United Kingdom	..	15 453.3	16 810.5	17 739.9	18 275.2	..	..
United States	65 828.5 d e	96 513.0 d e	102 696.0 d e	114 677.0 d e	120 230.0 d	138 819.0 d	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	314.1	321.2	530.8	..
China	..	..	..	..	..	..	..
Romania	47.1 e	213.7	286.0	506.8	774.6	960.1	..
Russian Federation	..	..	..	..	..	..	..
Singapore	1 242.0 e	2 204.0	..	..	..	..	..
South Africa	858.4	..	..	..	..	..	..
Chinese Taipei	734.9	1 961.5	2 080.8	2 130.5	2 261.0	2 566.2	2 851.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, ANBERD database: Research and Development Expenditure in Industry

Table 43. Higher education expenditure on R&D (HERD) at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	..	6 854.0 e	6 984.6	6 477.9 e	7 502.5	7 664.6 e	8 379.7
Austria	1 689.8 e	2 920.3	3 047.5 e	3 090.7	3 187.1 b e	3 288.3	3 541.9 p
Belgium	1 389.2	2 469.4	2 464.7	2 571.8	2 939.6	3 045.5	3 152.7 e
Canada	7 841.7	10 460.0	10 478.3	10 612.9	11 443.2	11 902.2	12 103.3 p
Chile	..	602.7	591.3 b	598.1	657.7 b p	713.3	767.9 p
Colombia	283.8	616.8	645.0	643.8	527.8	533.8	668.4
Czech Republic	486.2	1 658.0	1 702.5	1 707.3	1 302.5	1 433.3	1 780.1
Denmark	1 090.8	2 641.0	2 641.4	2 891.1	2 980.0	3 106.0 p	3 260.2 p
Estonia	85.6	264.0	241.0	233.0	181.9	226.0	300.7
Finland	1 064.0	1 588.4	1 641.9	1 631.4	1 691.1	1 814.9	1 892.8
France	7 442.5	12 184.1	13 402.3 b	13 553.5	13 073.6	13 654.7 p	14 032.0 e
Germany	10 726.2	18 459.0	19 416.8	19 724.8	22 089.9 b	23 336.7	24 839.0
Greece	772.6	869.0	905.2	1 057.3	950.2	1 001.4	1 091.0
Hungary	399.0 d	483.8 d	460.0 d	428.2 d	360.6 d	511.7 d	601.6 b d
Iceland	65.2	90.9 b	95.8	104.3	116.7	126.5	131.0
Ireland	543.6	816.3 e	891.4	913.4 e	942.6	964.1 e	990.1
Israel ¹	1 035.2 d	1 445.0 d	1 450.6 d	1 534.6 d	1 591.3 d	1 602.6 d e	1 642.5 d e
Italy	5 509.9 b	8 054.0	7 863.1 e	7 654.8 e	7 988.6 e	8 169.4 e	8 427.5 e
Japan	17 250.4	22 172.2 b	21 326.7	20 694.2	19 744.5	19 963.0	19 801.0 b
Korea	3 040.0 d	6 305.9	6 614.4	6 996.8	7 380.6	7 666.1	8 096.7
Latvia	66.6	119.8	132.6	152.0	99.7	133.0	198.2
Lithuania	197.1	410.2	443.8	485.5	290.9	302.5	339.7
Luxembourg	7.5	125.5	116.9	139.8	159.3	173.8	175.1 e
Mexico	1 536.9	2 787.9	4 617.5	4 821.8	4 658.8	4 077.4 e	4 071.7 e
Netherlands	3 775.3	5 127.2	5 269.8	5 425.4	5 410.3	5 788.2	5 830.9 p
New Zealand	386.3	565.0	..	594.4	..	660.5	..
Norway	1 010.1	1 772.1	1 802.0	1 884.1	2 054.8	2 350.6	2 564.4
Poland	942.5	2 395.1	2 668.0	2 955.4	3 248.9	3 893.8	4 630.3
Portugal	640.1	1 727.6 b	1 758.6	1 740.1	1 869.1	1 912.5	1 992.6
Slovak Republic	90.1	411.7	474.8	826.3	352.9	367.5	361.0
Slovenia	113.3	165.0	157.4	146.1	152.4	158.4	186.8
Spain	3 846.5	5 405.2	5 444.4	5 573.6	5 677.5	6 045.0	6 218.4
Sweden	2 284.9	3 934.9	4 111.2 e	4 137.9	4 357.9 e	4 447.6	4 598.6 e
Switzerland	..	..	4 415.2	4 763.1	..	5 269.3	..
Turkey	2 509.8	5 823.0	6 457.8	7 035.1	7 206.0	7 294.9	7 267.6
United Kingdom	7 885.7	10 972.1	11 294.4	11 567.9	11 667.7	11 981.8	12 719.8
United States	47 006.0 d	61 547.0 d	62 349.0 d	64 623.0 d	67 800.0 d	71 251.0 d	74 722.0 d p
EU28 (OECD estimates)	51 464.9 e	83 874.5 e	87 178.6 e	89 349.8 e	91 697.7 e	96 491.0 e	102 002.6 e
OECD-Total	138 379.3 e	208 395.1 e	214 979.1 e	219 983.1 e	227 342.6 e	236 825.7 e	247 561.7 e
Argentina	573.5	1 540.8	1 512.3	1 387.5	1 202.0	1 458.4	..
China	8 522.7	23 384.6	23 891.1	25 798.0	26 882.7	30 258.6	34 677.4
Romania	115.5	302.6	238.9	364.8	260.4	286.2	280.2
Russian Federation	1 047.3	3 461.8	3 947.4	3 723.3	3 551.7	3 822.6	4 016.2
Singapore	1 305.6	2 574.9	2 705.4	3 069.1	3 158.3	3 008.9	2 920.5
South Africa	781.3	1 378.2	1 503.6	1 695.1	1 892.3	..	..
Chinese Taipei	1 748.5	3 423.3	3 389.1	3 346.4	3 360.4	3 508.2	3 853.0

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 44. Higher education expenditure on R&D (HERD) as a percentage of GDP

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	0.62 e	0.62	0.57 e	0.62	0.61 e	0.62
Austria	0.59 e	0.72	0.73 e	0.72	0.69 b e	0.68	0.70 p
Belgium	0.40	0.51	0.49	0.49	0.53	0.53	0.53 e
Canada	0.67	0.67	0.65	0.67	0.68	0.67	0.65 p
Chile	..	0.15	0.15 b	0.15	0.16 b p	0.16	0.17 p
Colombia	0.08	0.10	0.10	0.10	0.08	0.08	0.09
Czech Republic	0.22	0.52	0.50	0.48	0.34	0.35	0.41
Denmark	0.59	1.01	0.98	1.04	1.00	0.98 p	0.98 p
Estonia	0.38	0.72	0.63	0.60	0.44	0.51	0.63
Finland	0.63	0.70	0.72	0.70	0.68	0.69	0.69
France	0.39	0.47	0.50 b	0.50	0.46	0.46 p	0.45 e
Germany	0.41	0.51	0.51	0.51	0.53 b	0.53	0.55
Greece	0.27	0.30	0.31	0.36	0.32	0.32	0.33
Hungary	0.23 d	0.20 d	0.18 d	0.16 d	0.13 d	0.18 d	0.19 b d
Iceland	0.59	0.64 b	0.64	0.65	0.66	0.66	0.64
Ireland	0.32	0.37 e	0.37	0.28 e	0.28	0.26 e	0.24
Israel ¹	0.60 d	0.53 d	0.52 d	0.52 d	0.49 d	0.47 d e	0.46 d e
Italy	0.32 b	0.37	0.36 e	0.34 e	0.33 e	0.32 e	0.33 e
Japan	0.43	0.45 b	0.43	0.40	0.39	0.39	0.38 b
Korea	0.25 d	0.37	0.37	0.36	0.36	0.36	0.37
Latvia	0.22	0.26	0.28	0.31	0.19	0.24	0.34
Lithuania	0.4	0.5	0.5	0.6	0.3	0.3	0.3
Luxembourg	0.02	0.24	0.21	0.24	0.25	0.26	0.25 e
Mexico	0.11	0.14	0.21	0.22	0.20	0.17 e	0.16 e
Netherlands	0.61	0.62	0.63	0.64	0.61	0.61	0.59 p
New Zealand	0.36	0.35	..	0.34	..	0.33	..
Norway	0.46	0.52	0.53	0.60	0.67	0.71	0.71
Poland	0.18	0.25	0.27	0.29	0.30	0.34	0.38
Portugal	0.27	0.59 b	0.59	0.57	0.57	0.56	0.56
Slovak Republic	0.10	0.27	0.30	0.51	0.22	0.22	0.20
Slovenia	0.24	0.27	0.25	0.22	0.22	0.21	0.23
Spain	0.32	0.36	0.35	0.34	0.33	0.33	0.33
Sweden	0.74	0.89	0.90 e	0.86	0.87 e	0.84	0.84 e
Switzerland	..	..	0.87	0.90	..	0.93	..
Turkey	0.31	0.34	0.35	0.35	0.34	0.32	0.31
United Kingdom	0.40	0.43	0.42	0.42	0.40	0.39	0.41
United States	0.36 d	0.37 d	0.36 d	0.35 d	0.36 d	0.37 d	0.36 d p
EU28 (OECD estimates)	0.38 e	0.45 e	0.46 e	0.45 e	0.44 e	0.44 e	0.44 e
OECD-Total	0.38 e	0.42 e	0.41 e	0.41 e	0.41 e	0.41 e	0.41 e
Argentina	0.11	0.18	0.18	0.16	0.14	0.14	..
China	0.13	0.14	0.14	0.14	0.14	0.15	0.16
Romania	0.06	0.08	0.06	0.09	0.05	0.05	0.05
Russian Federation	0.06	0.09	0.10	0.11	0.10	0.10	0.10
Singapore	0.52	0.57	0.59	0.64	0.63	0.56	0.51
South Africa	0.17	0.21	0.22	0.24	0.27	..	..
Chinese Taipei	0.27	0.33	0.31	0.30	0.30	0.29	0.31

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 45. Higher education expenditure on R&D (HERD) at 2015 prices and PPP

Million 2015 USD

	2005	2013	2014	2015	2016	2017	2018
Australia	..	6 656.0 e	6 845.6	6 477.9 e	7 113.1	7 210.3 e	7 553.0
Austria	2 248.5 e	3 046.7	3 118.4 e	3 090.7	3 050.1 b e	3 085.1	3 253.9 p
Belgium	1 813.3	2 547.2	2 499.1	2 571.8	2 821.8	2 843.8	2 887.3 e
Canada	9 066.2	10 366.6	10 239.5	10 612.9	10 982.8	11 130.1	11 057.5 p
Chile	..	598.5	582.3 b	598.1	659.5 b p	684.8	722.1 p
Colombia	322.4	610.7	631.8	643.8	505.4	497.4	601.5
Czech Republic	628.5	1 699.1	1 691.6	1 707.3	1 250.7	1 335.2	1 619.8
Denmark	1 525.3	2 698.7	2 662.0	2 891.1	2 881.8	2 874.0 p	2 957.8 p
Estonia	126.8	267.2	239.0	233.0	175.7	212.9	275.0
Finland	1 402.2	1 636.6	1 667.9	1 631.4	1 639.4	1 714.6	1 743.8
France	9 579.7	12 442.4	13 539.6 b	13 553.5	12 549.5	12 810.5 p	12 869.6 e
Germany	13 784.6	19 052.1	19 526.0	19 724.8	21 124.8 b	21 730.2	22 790.6
Greece	995.2	881.4	905.4	1 057.3	920.9	944.0	1 006.8
Hungary	555.2 d	484.3 d	460.3 d	428.2 d	355.8 d	495.4 d	573.1 b d
Iceland	78.5	96.1 b	98.7	104.3	113.1	119.4	120.3
Ireland	741.7	880.9 e	972.2	913.4 e	927.8	934.5 e	948.5
Israel ¹	1 215.4 d	1 468.5 d	1 497.9 d	1 534.6 d	1 519.3 d	1 509.6 d e	1 519.4 d e
Italy	7 422.4 b	8 190.0	7 948.8 e	7 654.8 e	7 493.8 e	7 455.3 e	7 579.8 e
Japan	20 742.3	22 565.0 b	21 700.5	20 694.2	20 082.0	20 326.9	20 034.5 b
Korea	3 374.8 d	6 655.5	6 940.6	6 996.8	7 250.6	7 476.3	7 850.9
Latvia	90.9	122.4	132.7	152.0	96.3	124.6	181.5
Lithuania	268.2	412.2	441.1	485.5	281.6	283.0	314.0
Luxembourg	10.7	131.3	117.6	139.8	152.8	162.6	160.0 e
Mexico	2 050.6	2 833.7	4 586.3	4 821.8	4 484.6	3 865.2 e	3 783.4 e
Netherlands	4 713.2	5 105.7	5 304.2	5 425.4	5 291.1	5 470.5	5 392.5 p
New Zealand	501.6	560.7	..	594.4	..	618.1	..
Norway	1 251.4	1 687.1	1 717.8	1 884.1	2 039.2	2 253.7	2 376.5
Poland	1 237.6	2 422.1	2 692.4	2 955.4	3 180.8	3 752.0	4 452.0
Portugal	834.5	1 771.4 b	1 776.0	1 740.1	1 795.7	1 821.1	1 879.2
Slovak Republic	113.4	409.8	467.9	826.3	363.3	373.4	361.0
Slovenia	138.4	166.1	157.9	146.1	146.7	147.6	170.8
Spain	4 940.7	5 506.1	5 456.0	5 573.6	5 473.2	5 635.3	5 774.9
Sweden	2 924.0	3 971.0	4 139.2 e	4 137.9	4 278.6 e	4 225.0	4 319.6 e
Switzerland	..	..	4 551.9	4 763.1	..	5 092.3	..
Turkey	3 785.2	6 211.7	6 617.9	7 035.1	7 119.5	7 185.6	7 199.3
United Kingdom	9 766.8	11 284.1	11 459.7	11 567.9	11 362.2	11 343.0	11 875.8
United States	56 306.1 d	63 338.6 d	62 998.3 d	64 623.0 d	67 105.3 d	69 217.1 d	70 862.9 d p
EU28 (OECD estimates)	66 461.6 e	85 810.8 e	88 007.3 e	89 349.8 e	88 303.7 e	90 449.8 e	94 150.0 e
OECD-Total	171 427.4 e	213 131.3 e	216 975.3 e	219 983.1 e	222 137.5 e	226 954.7 e	232 948.7 e
Argentina	686.8	1 563.3	1 517.4	1 387.5	1 156.9	1 219.9	..
China	9 221.9	22 414.7	23 231.8	25 798.0	27 287.0	30 853.7	34 271.1
Romania	181.6	305.2	240.1	364.8	244.2	257.6	246.8
Russian Federation	1 562.3	3 303.7	3 772.9	3 723.3	3 546.1	3 601.2	3 507.9
Singapore	1 449.1	2 583.9	2 738.9	3 069.1	3 131.6	2 928.3	2 742.9
South Africa	891.9	1 389.4	1 512.2	1 695.1	1 866.6	..	..
Chinese Taipei	2 094.5	3 523.2	3 424.5	3 346.4	3 326.1	3 408.2	3 654.0

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 46. Percentage of Higher education expenditure on R&D (HERD) financed by the business sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	5.1	..	5.1	..	4.9
Austria	..	5.1	..	5.3	..	5.1	..
Belgium	10.9	12.1	11.7	12.9	12.1	11.7	..
Canada	8.4	7.1	7.7	7.9	7.9	7.8	7.8 p
Chile	..	4.3	3.3 b	3.0	2.8 b p	2.6	3.2 p
Colombia	7.6	5.6	6.9	5.2	4.8	11.0	11.4
Czech Republic	0.8	2.0	2.4	4.0	4.7	5.1	4.6
Denmark	2.4	2.5	1.9	2.5	2.6	2.7 p	..
Estonia	5.2	4.4	4.4	5.4	7.4	5.8	6.9
Finland	6.5	5.0	4.0	3.7	3.7	3.2	2.9
France	1.6	2.8	2.5 b	2.8	2.6	2.7 p	..
Germany	14.6 d	14.0 d	14.1 d	13.9 d	13.8 b d	13.3 d	13.5 d
Greece	8.9	5.5	6.0	7.6	7.3	8.4	8.5
Hungary	11.8 d	8.6 d	9.1 d	8.0 d	9.6 d	6.1 d	5.4 b d
Iceland	11.3	4.7 b	3.4	2.0	2.3	0.8	0.5
Ireland	2.7	2.0 e	2.7	2.9 e	3.2	3.4 e	3.7
Israel ¹	7.3 d	6.8 d	9.5 d	8.6 d	9.5 d	8.6 d e	..
Italy	1.4 b	1.3	1.3 e	1.3 e	1.3 e	6.0 e	6.0 e
Japan	2.8	2.6 b	2.6	2.6	2.8	2.9	3.2 b
Korea	15.2 d	12.3	11.2	12.3	12.6	13.7	14.3
Latvia	15.4	6.9	7.1	7.8	5.6	5.9	4.2
Lithuania	3.8	16.7	13.9	11.6	12.2	6.8	6.4
Luxembourg	1.4	1.0	..	1.1	1.2	1.3	..
Mexico	1.2 e	0.6	0.2	0.3	0.4	0.4 e	0.3 e
Netherlands	7.8	7.6	7.7	7.8	7.8	8.3	..
New Zealand	8.0	4.0	..	3.5	..	4.5	..
Norway	4.7	4.1	..	3.1	3.1	2.3	2.3 e
Poland	5.4	3.2	2.8	2.6	3.0	3.5	3.9
Portugal	1.2	1.7 b	1.6	1.9	1.8	1.9	2.0
Slovak Republic	0.7	2.6	2.4	1.6	1.9	2.1	0.7
Slovenia	9.0	11.4	12.6	11.4	10.6	8.7	8.5
Spain	6.9	6.6	5.9	5.7	5.1	5.2	5.5
Sweden	5.1	3.8	..	4.0	..	3.6	..
Switzerland	..	..	10.0	9.8	..	9.7	..
Turkey	22.7 d	0.8	1.1	1.2	1.2	1.3	1.9
United Kingdom	4.6	4.1	4.3	4.4	4.4	4.4	4.4
United States	5.0 d	4.8 d	5.1 d	5.2 d	5.2 d	5.3 d	5.4 d p
EU28 (OECD estimates)	6.6 e	6.4 e	6.4 e	6.4 e	6.5 e	6.9 e	6.9 e
OECD-Total	6.1 e	5.5 e	5.6 e	5.7 e	5.8 e	6.0 e	6.2 e
Argentina	0.6	0.3	0.2	0.1	0.3	0.3	..
China	36.7	33.8	33.7	30.2	29.0	28.5	26.6
Romania	7.5	4.8	6.9	5.1	6.2	6.6	5.7
Russian Federation	29.3	27.6	27.3	27.4	27.7	28.2	29.1
Singapore	1.7	6.1	7.3	5.5	5.9	6.1	4.2
South Africa	11.6	8.1	10.6	7.8	7.8	..	..
Chinese Taipei	5.8	7.5	8.3	9.3	9.7	10.0	9.9

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 47. Higher education researchers in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	68 528	..	69 287	..	..
Austria	8 962 d e	12 846 d	13 462 d e	13 658 d	13 363 d e	13 513 d	14 356 d p
Belgium	13 853	18 750	19 157	20 362 b	19 601	19 705	19 882 e
Canada	43 400	60 270	58 550	58 850	59 240	60 290	..
Chile	..	3 259 d	3 600 d	4 004 d	4 357 d	4 520 d	4 601 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	7 762 b	10 995	10 965	11 357	10 511	10 875	12 001
Denmark	8 242	15 057	15 854	16 193	16 233	16 042 p	16 384 p
Estonia	1 905	2 398	2 443	2 431	2 426	2 452	2 718
Finland	12 879	12 056	12 381	12 240	11 987	12 731	12 824
France	66 290	72 750 m	78 409 b	79 622	81 565	81 771 p	81 911 e
Germany	65 363	99 123	100 992	103 148	109 877 b	112 143	114 868
Greece	11 356 d	18 957 d	18 801 d	22 149 d	17 241 d	17 853 d	18 588 d
Hungary	5 911	5 939	5 860	5 610	5 592	6 032	9 547 d
Iceland	585	1 011 b	1 033	892 b	1 151	927	..
Ireland	4 400	12 477 e	12 836	12 731 e	12 627	12 523 e	12 421
Israel ¹	..	9 615 d e	9 639 d e	9 590 d e	9 524 d e	9 802 d e	..
Italy	37 073 b d	47 526 d	48 198 d	48 841 d e	50 816 d e	51 362 d e	51 989 d e
Japan	156 176 d	136 593 b d	137 586 d	137 078 d	138 095 d	138 697 d	134 740 b d
Korea	27 416 d	41 784	41 938	40 866	40 759	38 813	40 736
Latvia	2 224 d	2 348 d	2 291 d	2 318 d	1 944 d	2 264 d	2 200 d
Lithuania	5 116.0	5 399.0	5 241.0	4 830.0	4 992.7	4 574.5	4 521.4
Luxembourg	157	769	906	945	972	1 048	1 057 p
Mexico	16 691 e	14 422	14 921	16 677	17 008	..	..
Netherlands	17 928	21 216	21 921	22 342	22 244	22 788	22 800 p
New Zealand	7 481	9 800	..	16 000	..	16 000	..
Norway	7 512	10 054	10 296	10 976	11 795	12 538	13 051
Poland	40 449	37 167	39 695	40 126	44 414	56 397 d	57 049 d
Portugal	10 956	25 760 b	24 978	25 043	26 106	27 562	28 831
Slovak Republic	6 458 d	9 625 d	8 959 d	8 508 d	8 154 d	8 745 d	9 279 d
Slovenia	1 695	2 201	2 180	2 069	1 951	2 020	2 104
Spain	54 028	57 641 d	57 156 d	57 107 d	58 413 d	62 542 d	64 007 d
Sweden	15 125 b	18 401	19 616 e	18 215	19 726 e	17 501	16 676 e
Switzerland	..	..	..	21 375	..	22 724	..
Turkey	25 434	42 574	41 269	43 293	40 996	42 916	44 240
United Kingdom	141 762 b e	158 445	163 838	167 463	167 519	170 971	171 527
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	551 645 e	682 835 e	701 232 e	712 050 e	724 892 e	748 968 e	762 571 e
OECD-Total	..	..	1 410 399 e	..	1 461 817 e	..	..
Argentina	14 200	23 220	23 153	21 701	22 274	20 720	..
China	221 908 d	272 683	282 304	298 728	307 923	327 891	352 836
Romania	5 386	6 578	6 378	6 480	6 314	6 413	5 832
Russian Federation	70 494	89 085	91 501	92 503	83 024	75 977	80 678
Singapore	8 187	15 843	16 180	17 275	17 418	17 140	16 565
South Africa	9 235	15 772	15 804	18 367	19 629	..	..
Chinese Taipei	23 180	31 712	30 621	29 828	29 099	28 810	28 767

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 48. Higher education researchers as a percentage of national total

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	31.5 d e	31.8 d	31.6 d e	31.4 d	28.4 d e	28.4 d	28.4 d p
Belgium	41.8	40.4	37.7	38.3 b	36.1 e	36.5	35.1 e
Canada	31.7	36.9	36.1 b	36.1	37.3	37.9	..
Chile	..	55.3 d	47.5 d	49.0 d	48.5 d	49.7 d	50.0 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	32.1 b	32.1	30.4	29.8	28.2	27.8	29.1
Denmark	29.2	37.8	38.3	37.8	36.2	35.3 p	35.3 p
Estonia	57.2	54.4	56.5	58.1	55.9	52.5	54.7
Finland	32.5	30.8	32.3	32.6	33.4	34.4	33.8
France	32.7	27.4 e m	28.9 b	28.7	28.6	27.6 p	26.7 e
Germany	24.0	28.0	28.7	26.6	27.5 b	26.7	26.5
Greece	58.0 d	64.9 d	62.9 d	63.8 d	58.6 d	51.0 d	50.7 d
Hungary	37.2	23.7	22.4	22.2	21.7	21.2	25.4 d
Iceland	27.2	54.7 b	..	45.9 b	..	45.2	..
Ireland	38.0	52.6 e	52.3 e	51.9 e	51.9 e	48.8 e	49.2 e
Israel ¹	..	..	..	..	..	..	..
Italy	44.9 b d	40.9 d	40.8 d	38.8 d e	38.0 b d e	36.6 d e	34.1 d e
Japan	22.9 d	20.7 b d	20.1 d	20.7 d	20.7 d	20.5 d	19.9 b d
Korea	15.2 d	13.0	12.1	11.5	11.3	10.1	10.0
Latvia	67.8 d	64.8 d	61.1 d	64.2 d	61.7 d	65.0 d	63.7 d
Lithuania	67.0	63.1	57.8	59.1	58.6	52.3	50.6
Luxembourg	7.1	30.7	34.5	36.2	35.1	35.7	35.4 p
Mexico	38.0 e	48.2	47.6	48.6	43.7	..	..
Netherlands	37.5	27.7	28.8	28.2	27.4	27.4	23.8 b p
New Zealand	57.6	54.7	..	64.0	..	61.5	..
Norway	35.4	35.5	35.2	35.8	37.0	37.3	38.0
Poland	65.1	52.0	50.5	48.6	50.4	49.2 d	48.4 d
Portugal	51.9	68.1 b	65.5	64.8	63.1	61.3	60.5
Slovak Republic	59.1 d	65.4 d	60.8 d	59.1 d	57.6 d	57.4 d	56.8 d
Slovenia	32.3	25.3	25.4	26.2	24.0	21.7	20.9
Spain	49.2	46.8 d	46.8 d	46.6 d	46.1 d	46.9 d	45.7 d
Sweden	27.5 b e	28.7 b e	29.4 e	27.3 e	28.0 e	23.9	22.2 e
Switzerland	..	..	..	48.9	..	49.3	..
Turkey	65.0	47.8	46.0	45.5	40.9	38.4	35.0
United Kingdom	57.0 b e	59.2	59.2 e	58.9	58.0 e	57.8 e	56.1 e
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	40.1 e	39.3 e	39.6 e	38.6 e	38.2 e	37.5 e	36.4 e
OECD-Total	..	..	30.2 e	..	30.1 e	..	..
Argentina	44.6	45.7	44.8	41.0	41.2	39.0	..
China	19.8 d	18.4	18.5	18.5	18.2	18.8	18.9
Romania	23.5	35.4	35.2	37.1	35.0	36.6	33.9
Russian Federation	15.2	20.2	20.6	20.6	19.4	18.5	19.9
Singapore	34.4	44.0	44.1	44.1	44.4	44.1	42.2
South Africa	53.4	67.6	67.0	70.2	71.0	..	..
Chinese Taipei	26.1	22.5	21.5	20.6	19.8	19.2	18.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 49. Higher education Total R&D personnel in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	78 038	..	79 008	..	..
Austria	12 353 d e	16 840 d	17 479 d e	17 682 d	17 484 d e	17 680 d	18 783 d p
Belgium	17 767	23 156	23 733	26 156 b	24 953	25 060	25 312 e
Canada	56 950	74 730	72 510	72 720	73 210	74 350	..
Chile	..	6 672 d	7 361 d	7 190 d	8 058 d	8 233 d	8 078 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	10 972 b	16 240	16 525	16 868	15 201	15 803	18 226
Denmark	11 561	20 925	20 956	21 258	21 969	21 742 p	22 205 p
Estonia	2 176	2 850	3 103	3 062	2 969	3 015	3 233
Finland	17 453	15 726	16 034	15 515	15 157	16 007	16 418
France	98 743	109 883 e	119 081 b	120 480	119 367	119 286 p	119 340 e
Germany	94 522	130 079	132 542	134 032	141 661 b	143 753	147 160
Greece	17 401 d	23 390 d	23 924 d	27 383 d	20 404 d	21 986 d	23 431 d
Hungary	8 194	8 154	7 937	7 706	7 476	8 442	12 994 d
Iceland	742	1 211 b	1 232	1 062	1 360	1 096	..
Ireland	5 220	13 949 e	14 847	15 012 e	15 178	15 399 e	15 664
Israel ¹	9 011 d	11 311 d e	11 340 d e	11 283 d e	11 205 d e	11 532 d e	..
Italy	66 976 b d	76 986 d	75 235 d	76 858 d e	80 226 d e	80 358 d e	81 233 d e
Japan	209 734 d	207 766 b d	209 101 d	208 579 d	210 683 d	212 212 d	210 100 b d
Korea	42 157 d	73 196	74 861	72 745	72 482	70 037	71 333
Latvia	2 856 d	3 237 d	3 177 d	3 241 d	3 147 d	3 448 d	3 553 d
Lithuania	6 699.0	6 452.0	6 260.0	5 737.0	5 895.3	5 386.6	5 318.9
Luxembourg	169	866	989	1 057	1 097	1 164	1 174 p
Mexico	25 218 e	21 106	21 721	23 998	25 130	..	..
Netherlands	32 305	32 331	33 237	33 604	33 300	34 350	34 300 p
New Zealand	9 660	11 600	..	18 000	..	19 000	..
Norway	9 420	12 715	13 010	13 952	14 937	15 675	16 237
Poland	44 763	41 441	44 304	44 961	51 652	65 325 d	70 172 d
Portugal	11 680	27 753 b	26 870	27 001	28 265	30 078	31 451
Slovak Republic	7 146 d	9 969 d	9 297 d	8 815 d	8 623 d	9 056 d	9 620 d
Slovenia	2 099	2 805	2 667	2 555	2 321	2 395	2 659
Spain	66 996	74 923 d	73 428 d	73 327 d	75 191 d	79 286 d	80 318 d
Sweden	17 686 b	21 004	22 410 e	21 435	21 918 e	20 196	19 453 e
Switzerland	..	..	..	29 717	..	31 523	..
Turkey	25 434 e	42 574 e	41 269 e	43 293 e	52 576 b	54 289	56 364
United Kingdom	152 634 b e	177 767 e	183 023 e	186 724	186 770	190 078	190 526
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	723 258 e	876 287 e	896 324 e	909 717 e	920 971 e	948 633 e	971 201 e
OECD-Total	..	..	..	..	..	..	..
Argentina	15 507	27 737	27 896	26 015	26 619	28 128	..
China	227 163 d	324 942	334 794	354 861	360 049	382 160	410 893
Romania	6 803	9 523	8 966	9 008	8 627	8 416	7 695
Russian Federation	97 672	118 971	121 526	121 680	110 379	101 628	107 756
Singapore	9 337	17 086	17 386	18 532	18 634	18 278	17 608
South Africa	10 611	17 778	17 944	20 812	22 061	..	..
Chinese Taipei	25 752	35 088	34 135	33 177	32 349	31 866	31 896

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 50. Government intramural expenditure on R&D (GOVERD) at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	..	2 592.5 e	2 292.1	2 685.7 e	2 261.5	2 271.1 e	2 295.1
Austria	355.9 e	533.1	585.3 e	602.4	1 016.2 b e	1 047.0	1 127.8 p
Belgium	520.6	961.6	1 073.8	1 162.0	1 338.9	1 441.6	1 582.2 e
Canada	2 238.7	2 354.6	2 392.8	1 879.0	1 928.2	2 097.6	2 000.3 p
Chile	..	128.7 b	123.6	121.2	197.0	204.1	204.8 p
Colombia	33.2	110.2	61.1	50.8	147.2	153.9	164.9
Czech Republic	596.5 b	1 163.5	1 271.0	1 398.6	1 156.8	1 258.9	1 354.9
Denmark	285.7	183.6	180.5	190.0	203.9	287.7 p	302.0 p
Estonia	23.3	55.7	59.7	60.9	58.5	67.1	77.2
Finland	534.0	658.7	620.7	546.8	548.7	610.4	623.6
France	7 024.1	7 620.6	7 717.1	7 863.1	8 089.0	8 248.1 p	8 558.2 e
Germany	9 014.2 d	15 309.6 d	16 022.1 d	16 050.1 d	16 900.7 d	18 207.8 d	19 126.4 d
Greece	329.9	649.7	675.3	787.2	745.5	783.1	860.9
Hungary	444.3 d	500.7 d	468.3 d	469.7 d	433.9 d	483.4 d	514.7 b d
Iceland	69.8	16.5 b	17.7	16.5	17.9	16.8	17.3
Ireland	148.3	159.0	159.1	168.3	168.1	180.0	201.2
Israel ¹	186.4 d	206.8 d	208.9 d	211.0 d	227.1 d	246.5 d	270.4 d e
Italy	3 158.8	3 984.0	4 001.6	3 941.3	4 155.4	4 280.3	4 585.8
Japan	10 669.1	15 096.3	14 116.7	13 313.1	12 100.1	12 985.2	13 279.1
Korea	3 631.6 d	7 446.8	8 196.6	9 033.8	9 327.8	9 670.5	9 917.9
Latvia	30.7	80.7	78.4	78.4	72.4	74.3	86.2
Lithuania	90.1	148.7	144.7	149.3	195.0	239.4	210.3
Luxembourg	60.1 d	196.0 d	212.7 d	224.1 d	212.9 d	203.6 d	204.9 d e
Mexico	1 238.8	3 667.8	3 058.3	2 885.1	2 438.4	2 123.6 e	2 109.1 e
Netherlands	1 355.4 d	1 953.1 d	1 943.9 d	2 017.3 d	2 006.4 d	2 087.4 d	1 240.8 b p
New Zealand	308.1	430.2	..	446.0	..	539.4	..
Norway	513.1	898.4	884.7	911.9	892.7	953.6	1 026.0
Poland	1 085.2	2 196.2	2 191.5	2 496.7	260.2 b	270.6	284.2
Portugal	264.3	252.1	241.6	247.7	219.7	246.5	254.2
Slovak Republic	130.8 d	254.8 d	390.9 d	525.7	273.0	309.9	315.6
Slovenia	163.7	206.1	183.2	193.6	189.1	195.0	212.4
Spain	2 258.7	3 610.6	3 636.5	3 792.0	3 816.7	3 959.7	3 963.3
Sweden	506.9 b	533.7 e	531.7 e	529.5	553.2 e	646.0	656.8 e
Switzerland	..	..	148.7 d	157.0 d	..	156.3 d	..
Turkey	531.0	1 442.1	1 544.0	1 833.5	1 884.0 d	2 081.8 d	2 213.7 d
United Kingdom	3 234.9	3 280.7	3 181.6	3 028.9	3 152.7	3 219.9	3 580.6
United States	40 378.0 d	52 372.0	54 106.0	54 666.0	52 501.0	54 128.0	60 266.0
EU28 (OECD estimates)	31 990.1 e	45 174.9 e	46 164.9 e	47 246.1 e	46 373.6 e	49 047.7 e	50 660.0 e
OECD-Total	93 161.3 e	130 809.1 e	132 566.7 e	134 123.5 e	129 694.6 e	135 257.3 e	143 706.0 e
Argentina	881.6	2 378.4	2 369.0	2 732.8	2 307.0	2 706.5	..
China	18 777.7	52 245.0	54 713.2	59 159.5	61 689.8	64 055.0	71 033.2
Romania	288.6	755.4	674.2	800.1	765.4	870.6	875.2
Russian Federation	4 723.4	11 633.8	12 302.6	12 059.5	12 472.6	12 890.8	14 290.7
Singapore	521.8	998.9	1 125.0	1 168.6	1 167.7	1 139.6	1 213.0
South Africa	842.7	1 134.2	1 238.0	1 330.8	1 336.5	..	..
Chinese Taipei	3 222.4	4 027.5	4 015.5	4 095.5	4 571.7	4 587.3	4 625.7

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 51. Government intramural expenditure on R&D (GOVERD) as a percentage of GDP

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	0.23 e	0.20	0.24 e	0.19	0.18 e	0.17
Austria	0.12 e	0.13	0.14 e	0.14	0.22 b e	0.22	0.22 p
Belgium	0.15	0.20	0.21	0.22	0.24	0.25	0.27 e
Canada	0.19	0.15	0.15	0.12	0.11	0.12	0.11 p
Chile	..	0.03 b	0.03	0.03	0.05	0.05	0.04 p
Colombia	0.01	0.02	0.01	0.01	0.02	0.02	0.02
Czech Republic	0.27 b	0.36	0.37	0.39	0.31	0.31	0.32
Denmark	0.15	0.07	0.07	0.07	0.07	0.09 p	0.09 p
Estonia	0.10	0.15	0.16	0.16	0.14	0.15	0.16
Finland	0.32	0.29	0.27	0.23	0.22	0.23	0.23
France	0.36	0.29	0.29	0.29	0.28	0.28 p	0.27 e
Germany	0.34 d	0.42 d	0.42 d	0.41 d	0.41 d	0.42 d	0.42 d
Greece	0.12	0.23	0.23	0.27	0.25	0.25	0.26
Hungary	0.26 d	0.21 d	0.19 d	0.18 d	0.16 d	0.17 d	0.17 b d
Iceland	0.63	0.12 b	0.12	0.10	0.10	0.09	0.08
Ireland	0.09	0.07	0.07	0.05	0.05	0.05	0.05
Israel ¹	0.11 d	0.08 d	0.07 d	0.07 d	0.07 d	0.07 d	0.08 d e
Italy	0.18	0.18	0.18	0.18	0.17	0.17	0.18
Japan	0.26	0.30	0.28	0.26	0.24	0.25	0.25
Korea	0.30 d	0.43	0.46	0.47	0.46	0.46	0.46
Latvia	0.10	0.18	0.16	0.16	0.14	0.13	0.15
Lithuania	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Luxembourg	0.19 d	0.38 d	0.38 d	0.38 d	0.33 d	0.30 d	0.29 d e
Mexico	0.09	0.18	0.14	0.13	0.10	0.09 e	0.08 e
Netherlands	0.22 d	0.24 d	0.23 d	0.24 d	0.23 d	0.22 d	0.13 b p
New Zealand	0.29	0.27	..	0.26	..	0.27	..
Norway	0.23	0.26	0.26	0.29	0.29	0.29	0.29
Poland	0.20	0.23	0.23	0.24	0.02 b	0.02	0.02
Portugal	0.11	0.09	0.08	0.08	0.07	0.07	0.07
Slovak Republic	0.15 d	0.17 d	0.25 d	0.32	0.17	0.18	0.18
Slovenia	0.34	0.33	0.29	0.30	0.27	0.26	0.26
Spain	0.19	0.24	0.23	0.23	0.22	0.21	0.21
Sweden	0.16 b	0.12 e	0.12 e	0.11	0.11 e	0.12	0.12 e
Switzerland	..	..	0.03 d	0.03 d	..	0.03 d	..
Turkey	0.07	0.09	0.08	0.09	0.09 d	0.09 d	0.10 d
United Kingdom	0.16	0.13	0.12	0.11	0.11	0.11	0.11
United States	0.31 d	0.31	0.31	0.30	0.28	0.28	0.29
EU28 (OECD estimates)	0.23 e	0.24 e	0.24 e	0.24 e	0.22 e	0.22 e	0.22 e
OECD-Total	0.25 e	0.26 e	0.26 e	0.25 e	0.23 e	0.23 e	0.24 e
Argentina	0.17	0.28	0.28	0.32	0.26	0.26	..
China	0.28	0.32	0.32	0.33	0.33	0.32	0.32
Romania	0.14	0.19	0.16	0.19	0.16	0.16	0.15
Russian Federation	0.26	0.31	0.33	0.34	0.35	0.34	0.34
Singapore	0.21	0.22	0.24	0.24	0.23	0.21	0.21
South Africa	0.18	0.17	0.18	0.19	0.19	..	..
Chinese Taipei	0.49	0.39	0.37	0.37	0.40	0.39	0.37

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 52. Government intramural expenditure on R&D (GOVERD) at 2015 prices and PPP

Million 2015 USD

	2005	2013	2014	2015	2016	2017	2018
Australia	..	2 517.6 e	2 246.5	2 685.7 e	2 144.1	2 136.4 e	2 068.6
Austria	473.6 e	556.1	598.9 e	602.4	972.6 b e	982.3	1 036.1 p
Belgium	679.5	991.9	1 088.7	1 162.0	1 285.2	1 346.1	1 449.0 e
Canada	2 588.3	2 333.6	2 338.3	1 879.0	1 850.6	1 961.5	1 827.4 p
Chile	..	127.8 b	121.7	121.2	197.5	195.9	192.5 p
Colombia	37.7	109.1	59.8	50.8	141.0	143.4	148.4
Czech Republic	771.0 b	1 192.3	1 262.8	1 398.6	1 110.8	1 172.7	1 232.9
Denmark	399.5	187.6	181.9	190.0	197.1	266.2 p	274.0 p
Estonia	34.5	56.4	59.2	60.9	56.5	63.2	70.6
Finland	703.7	678.7	630.5	546.8	531.9	576.7	574.5
France	9 041.2	7 782.1	7 796.1	7 863.1	7 764.7	7 738.2 p	7 849.2 e
Germany	11 584.5 d	15 801.6 d	16 112.2 d	16 050.1 d	16 162.3 d	16 954.4 d	17 549.1 d
Greece	425.0	658.9	675.4	787.2	722.4	738.3	794.4
Hungary	618.1 d	501.1 d	468.6 d	469.7 d	428.2 d	468.1 d	490.4 b d
Iceland	84.1	17.5 b	18.3	16.5	17.3	15.9	15.9
Ireland	202.3	171.6	173.5	168.3	165.4	174.5	192.8
Israel ¹	218.9 d	210.2 d	215.7 d	211.0 d	216.8 d	232.2 d	250.1 d e
Italy	4 255.2	4 051.3	4 045.2	3 941.3	3 898.0	3 906.1	4 124.5
Japan	12 828.8	15 363.7	14 364.2	13 313.1	12 307.0	13 221.9	13 435.7
Korea	4 031.6 d	7 859.7	8 600.9	9 033.8	9 163.5	9 431.0	9 616.7
Latvia	41.9	82.5	78.4	78.4	70.0	69.7	78.9
Lithuania	122.7	149.4	143.8	149.3	188.8	224.1	194.3
Luxembourg	86.1 d	205.0 d	213.8 d	224.1 d	204.3 d	190.4 d	187.2 d e
Mexico	1 652.9	3 728.0	3 037.6	2 885.1	2 347.2	2 013.1 e	1 959.7 e
Netherlands	1 692.1 d	1 944.9 d	1 956.6 d	2 017.3 d	1 962.2 d	1 972.8 d	1 147.5 b p
New Zealand	400.2	426.9	..	446.0	..	504.8	..
Norway	635.7	855.2	843.3	911.9	885.9	914.3	950.9
Poland	1 425.0	2 220.9	2 211.5	2 496.7	254.8 b	260.8	273.3
Portugal	344.6	258.5	243.9	247.7	211.0	234.7	239.7
Slovak Republic	164.6 d	253.6 d	385.3 d	525.7	281.0	314.9	315.6
Slovenia	200.0	207.4	183.8	193.6	182.0	181.7	194.2
Spain	2 901.2	3 678.0	3 644.3	3 792.0	3 679.3	3 691.3	3 680.6
Sweden	648.7 b	538.6 e	535.3 e	529.5	543.1 e	613.7	617.0 e
Switzerland	..	..	153.3 d	157.0 d	..	151.1 d	..
Turkey	800.8	1 538.4	1 582.3	1 833.5	1 861.4 d	2 050.6 d	2 192.9 d
United Kingdom	4 006.6	3 374.0	3 228.2	3 028.9	3 070.2	3 048.2	3 343.0
United States	48 366.8 d	53 896.5	54 669.4	54 666.0	51 963.0	52 582.9	57 153.5
EU28 (OECD estimates)	41 415.4 e	46 229.4 e	46 513.7 e	47 246.1 e	44 508.1 e	45 813.8 e	46 552.1 e
OECD-Total	114 544.4 e	134 075.8 e	134 005.6 e	134 123.5 e	127 040.7 e	130 072.0 e	135 746.0 e
Argentina	1 055.8	2 413.1	2 377.0	2 732.8	2 220.5	2 263.9	..
China	20 318.2	50 078.1	53 203.4	59 159.5	62 617.6	65 314.9	70 200.8
Romania	454.0	762.0	677.6	800.1	717.7	783.5	770.8
Russian Federation	7 046.4	11 102.5	11 758.9	12 059.5	12 453.2	12 144.1	12 481.9
Singapore	579.1	1 002.4	1 139.0	1 168.6	1 157.8	1 109.0	1 139.2
South Africa	962.0	1 143.4	1 245.1	1 330.8	1 318.3	..	..
Chinese Taipei	3 860.0	4 145.0	4 057.5	4 095.5	4 524.9	4 456.5	4 386.8

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 53. Percentage of Government intramural expenditure on R&D (GOVERD) financed by the business sector

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	9.9	..	10.3	..	10.0
Austria	..	4.2	..	6.0	..	8.7	..
Belgium	9.2	5.4	3.6	6.2	5.8	5.4	..
Canada	3.8	2.1	2.1	0.9	0.9	0.9	1.0 p
Chile	..	1.5 b	3.3	2.7	1.8	2.0	1.6 p
Colombia	0.0	0.4	0.5	0.9	0.3	0.3	0.0
Czech Republic	9.4 b	3.7	3.8	2.8	4.0	3.6	3.9
Denmark	2.1	2.8	1.7	1.2	2.1	3.9 p	..
Estonia	0.0	1.3	1.3	1.6	2.9	1.8	1.7
Finland	12.4	9.9	8.3	8.7	9.1	7.4	7.8
France	7.4	8.0	8.0	7.6	8.1	7.9 p	..
Germany	9.9 d	10.3 d	11.2 d	11.3 d	11.2 d	10.1 d	9.9 d
Greece	1.3	3.6	3.1	4.5	3.2	5.6	3.3
Hungary	10.3 d	9.7 d	7.8 d	8.8 d	6.0 d	5.2 d	6.6 b d
Iceland	7.4	15.0 b	15.3	15.5	12.2	3.8	21.7
Ireland	4.1	1.9	1.9	0.8	0.9	3.9	3.0
Israel ¹	7.7 d	2.1 d	2.1 d	2.1 d	2.2 d	2.1 d	..
Italy	2.4	4.2	4.1	4.2	3.8	4.3	3.8
Japan	0.7	1.9	1.9	2.3	2.4	2.8	2.7
Korea	4.3 d	2.8	2.8	2.3	3.0	3.4	3.0
Latvia	15.6	13.2	15.6	16.9	9.7	9.7	10.6
Lithuania	6.6	11.9	12.3	13.3	13.5	11.9	10.9
Luxembourg	3.9 d	2.0 d	..	1.3 d	1.1 d	2.1 d	..
Mexico	1.2 e	0.7	1.8	2.7	3.1	3.2 e	3.1 e
Netherlands	14.6 d	16.6 d	16.0 d	13.6 d	16.1 d	15.6 d	..
New Zealand	19.0	17.2	..	18.2	..	17.0	..
Norway	10.6	8.9	9.6	7.4	8.0	7.5	7.0
Poland	14.3	4.3	.. c	4.5	5.3 b	4.8	3.9
Portugal	2.0	1.7	1.2	1.9	5.9	5.0	5.6
Slovak Republic	8.5 d	8.2 d	13.4 d	8.6	12.0	8.8	4.1
Slovenia	12.1	7.6	7.8	8.0	6.8	.. c	.. c
Spain	7.3	5.9	5.8	6.0	5.6	5.9	6.9
Sweden	1.3 b	3.7 e	..	3.9	..	6.8	..
Switzerland	..	..	0.0 d	2.4 d	..	3.9 d	..
Turkey	1.5	2.0	2.6	2.8	2.1 d	1.9 d	1.7 d
United Kingdom	9.9	11.6	12.0	2.2	1.8	1.6	2.8
United States	0.0 d	0.4 d	0.4 d	0.4 d	0.4 d	0.4 d	0.3 d p
EU28 (OECD estimates)	8.3 e	8.4 e	8.6 e	7.8 e	8.2 e	7.8 e	..
OECD-Total	3.5 e	3.7 e	3.9 e	3.6 e	3.8 e	3.8 e	3.5 e
Argentina	0.2	0.5	0.2	0.3	0.5	0.2	..
China	4.9	4.6	4.1	3.9	4.7	4.6	4.4
Romania	16.1	16.0	17.0	15.2	18.0	13.3	12.0
Russian Federation	11.4	13.8	11.5	11.6	9.1	9.7	9.6
Singapore	2.3	6.1	4.3	4.0	3.5	3.1	3.0
South Africa	7.9	7.0	3.2	4.7	5.9	..	..
Chinese Taipei	3.0	2.7	3.0	2.7	2.6	3.4	3.2

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 54. Government researchers in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	7 637	..	7 483	..	..
Austria	1 232 d e	1 567 d	1 654 d e	1 682 d	3 624 d e	3 665 d	3 894 d p
Belgium	2 274	3 657	4 062	4 041 b	4 290	4 486	4 395 e
Canada	8 360	9 100	9 250	7 930	7 400	7 930	..
Chile	..	710 b d	769 d	863 d	1 296 d	1 163 d	1 316 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	6 564 b	6 725	6 979	7 393	7 500	7 908	7 879
Denmark	2 105	1 254	1 384	1 426	1 392	1 700 p	1 736 p
Estonia	474	553	533	514	504	549	489
Finland	4 374	4 482	4 089	3 550	3 209	3 318	3 236
France	25 889 d	27 893	28 065	28 445	28 890	29 077 p	29 195 e
Germany	39 911	56 755	52 854 b	54 011 d	53 971 d	54 715 d	57 183 d
Greece	2 076 d	5 778 d	5 844 d	7 256 d	6 263 d	7 184 d	7 768 d
Hungary	4 959	4 782	4 776	4 680	4 965	4 867	6 592 d
Iceland	501	181 b	..	239 b	143	247	..
Ireland	419	437	461	494	504	580	652
Israel ¹	..	..	..	..	..	..	..
Italy	14 454 d	21 313 d	21 045 d	21 592 d	21 711 d	22 118 d	22 712 d
Japan	34 035 d	30 904 d	30 373 d	30 242 d	30 238 d	30 610 d	30 585 d
Korea	12 791 d	23 292	24 750	26 431	27 170	27 185	27 364
Latvia	589 d	707 d	681 d	691 d	626 d	571 d	572 d
Lithuania	1 805.0	1 395.0	1 400.0	1 449.0	1 576.6	1 612.6	1 584.3
Luxembourg	374	733	708	617	601	612	618 p
Mexico	6 589 e	7 273	6 772	6 798	6 670	..	..
Netherlands	7 028 d	8 616 d	8 624 d	8 953 d	8 714 d	9 111 d	5 864 b p
New Zealand	1 800	2 000	..	1 900	..	1 800	..
Norway	3 449 d	4 705	4 627	4 735	4 788	4 752	4 607
Poland	12 175	13 571	13 847	13 618	2 369 b	3 392 d	3 110 d
Portugal	3 338	1 386 b	1 447	1 351	1 340	1 477	1 558
Slovak Republic	2 503 d	2 635 d	3 123 d	3 084 d	3 087 d	3 078 d	3 088 d
Slovenia	1 591	1 825	1 744	1 629	1 667	1 502	1 661
Spain	20 446	20 673 d	20 180 d	19 962 d	20 663 d	20 844 d	21 422 d
Sweden	2 929 b d e	2 386 b e	2 304 e	3 322 b e	3 362 e	3 788	3 700 e
Switzerland	..	..	466 d	472 d	..	455 d	..
Turkey	4 249	6 294	6 541	6 555	6 700 d	6 672 d	6 701 d
United Kingdom	9 311	7 641	7 769	7 057	7 047	7 015	6 869
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	179 520 e	207 268 e	203 743 e	206 770 e	197 847 e	202 859 e	205 622 e
OECD-Total	295 018 e	341 701 e	339 973 e	343 498 e	332 268 e	337 939 e	340 393 e
Argentina	13 285	23 444	24 814	26 266	27 168	26 975	..
China	200 377 d	288 675	295 899	305 686	336 106	356 805	370 116
Romania	7 082	6 583	6 409	6 659	6 755	6 526	6 597
Russian Federation	154 827	144 776	144 700	146 840	145 956	139 479	144 548
Singapore	1 364	1 843	1 950	2 146	2 407	2 423	2 501
South Africa	1 974	2 705	2 735	2 781	2 910	..	..
Chinese Taipei	13 789	14 221	14 229	14 343	14 797	15 044	15 688

 Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

 1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 55. Government researchers as a percentage of national total

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	..	..	..	..	..
Austria	4.3 d e	3.9 d	3.9 d e	3.9 d	7.7 d e	7.7 d	7.7 d p
Belgium	6.9	7.9	8.0	7.6 b	7.9 e	8.3	7.8 e
Canada	6.1	5.6	5.7 b	4.9	4.7	5.0	..
Chile	..	12.1 b d	10.1 d	10.6 d	14.4 d	12.8 d	14.3 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	27.2 b	19.6	19.4	19.4	20.1	20.2	19.1
Denmark	7.5	3.1	3.3	3.3	3.1	3.7 p	3.7 p
Estonia	14.2	12.5	12.3	12.3	11.6	11.7	9.8
Finland	11.1	11.4	10.7	9.5	8.9	9.0	8.5
France	12.8 d	10.5 e	10.3 b	10.2	10.1	9.8 p	9.5 e
Germany	14.7	16.0	15.0 b	13.9 d	13.5 d	13.0 d	13.2 d
Greece	10.6 d	19.8 d	19.6 d	20.9 d	21.3 d	20.5 d	21.2 d
Hungary	31.2	19.1	18.2	18.5	19.2	17.1	17.5 d
Iceland	23.3	9.8 b	..	12.3 b	..	12.0	..
Ireland	3.6	1.8 e	1.9 e	2.0 e	2.1 e	2.3 e	2.6 e
Israel ¹	..	..	..	..	..	..	..
Italy	17.5 d	18.3 d	17.8 d	17.2 d	16.2 b d	15.8 d	14.9 d
Japan	5.0 d	4.7 b d	4.4 d	4.6 d	4.5 d	4.5 d	4.5 b d
Korea	7.1 d	7.2	7.2	7.4	7.5	7.1	6.7
Latvia	17.9 d	19.5 d	18.2 d	19.1 d	19.9 d	16.4 d	16.6 d
Lithuania	23.6	16.3	15.4	17.7	18.5	18.4	17.7
Luxembourg	16.8	29.3	26.9	23.6	21.7	20.8	20.7 p
Mexico	15.0 e	24.3	21.6	19.8	17.2	..	..
Netherlands	14.7 d	11.2 d	11.3 d	11.3 d	10.7 d	11.0 d	6.1 b p
New Zealand	13.9	11.2	..	7.6	..	6.9	..
Norway	16.3 d	16.6	15.8	15.5	15.0	14.1	13.4
Poland	19.6	19.0	17.6	16.5	2.7 b	3.0 d	2.6 d
Portugal	15.8	3.7 b	3.8	3.5	3.2	3.3	3.3
Slovak Republic	22.9 d	17.9 d	21.2 d	21.4 d	21.8 d	20.2 d	18.9 d
Slovenia	30.3	21.0	20.3	20.6	20.5	16.1	16.5
Spain	18.6	16.8 d	16.5 d	16.3 d	16.3 d	15.6 d	15.3 d
Sweden	5.3 b d e	3.7 b e	3.5 e	5.0 b e	4.8 e	5.2	4.9 e
Switzerland	..	..	..	1.1 d	..	1.0 d	..
Turkey	10.9	7.1	7.3	6.9	6.7 d	6.0 d	5.3 d
United Kingdom	3.7 b e	2.9	2.8 e	2.5	2.4 e	2.4 e	2.2 e
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	13.1 e	11.9 e	11.5 e	11.2 e	10.4 e	10.1 e	9.8 e
OECD-Total	8.0 e	7.5 e	7.3 e	7.2 e	6.8 e	6.7 e	..
Argentina	41.7	46.2	48.0	49.6	50.3	50.7	..
China	17.9 d	19.5	19.4	18.9	19.9	20.5	19.8
Romania	30.8	35.4	35.4	38.1	37.4	37.3	38.3
Russian Federation	33.3	32.9	32.5	32.7	34.0	34.0	35.6
Singapore	5.7	5.1	5.3	5.5	6.1	6.2	6.4
South Africa	11.4	11.6	11.6	10.6	10.5	..	..
Chinese Taipei	15.5	10.1	10.0	9.9	10.1	10.0	10.2

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 56. Government Total R&D personnel in full-time equivalent

FTE

	2005	2013	2014	2015	2016	2017	2018
Australia	..	..	14 715	..	14 773	..	..
Austria	2 318 d e	2 538 d	2 641 d e	2 674 d	5 208 d e	5 266 d	5 595 d p
Belgium	3 589	5 931	6 381	6 470 b	6 653	6 946	7 866 e
Canada	17 860	18 110	18 050	15 410	14 300	15 120	..
Chile	..	1 382 b d	1 372 d	1 495 d	2 223 d	2 295 d	2 316 d p
Colombia	..	..	..	..	..	..	..
Czech Republic	11 054 b	12 275	12 380	12 953	13 099	13 689	14 163
Denmark	3 240	1 544	1 686	1 792	1 720	2 256 p	2 304 p
Estonia	696	851	800	782	841	847	680
Finland	7 422	6 319	5 880	4 519	4 039	4 240	4 217
France	49 645 d	49 982	49 375	49 413	49 409	49 195 p	48 980 e
Germany	76 254 d	98 161 d	101 005 d	101 717 d	103 206 d	106 025 d	109 487 d
Greece	4 345 d	11 436 d	11 125 d	13 628 d	11 750 d	12 074 d	13 350 d
Hungary	7 652	7 765	7 215	8 111	7 456	7 271	10 633 d
Iceland	849	266 b	..	275	185	277	..
Ireland	1 132	818	826	951	993	1 051	1 196
Israel ¹	..	..	..	..	..	..	..
Italy	32 684 d	39 023 d	38 506 d	38 669 d	38 490 d	38 756 d	39 442 d
Japan	62 975 d	61 486 d	61 585 d	60 299 d	61 615 d	62 046 d	62 470 d
Korea	16 847 d	34 367	35 574	38 174	38 119	37 578	38 738
Latvia	1 256 d	1 178 d	1 180 d	1 184 d	1 077 d	974 d	1 032 d
Lithuania	3 113.0	2 227.0	2 224.0	2 156.0	2 398.5	2 407.5	2 332.9
Luxembourg	560 d	1 195 d	1 187 d	1 136 d	1 072 d	1 129 d	1 138 d p
Mexico	14 837 e	16 944	13 158	12 959	13 183	..	..
Netherlands	12 706 d	13 485 d	14 121 d	14 348 d	13 982 d	14 242 d	9 402 b p
New Zealand	3 100	3 300	..	3 500	..	3 400	..
Norway	5 147	6 780	6 690	6 820	6 810	6 793	6 598
Poland	17 877	21 884	22 614	22 073	3 733 b	4 596 d	4 377 d
Portugal	4 533	1 983	2 037	2 066	2 098	2 212	2 283
Slovak Republic	3 717 d	3 545 d	4 147 d	4 335 d	4 414 d	4 213 d	4 060 d
Slovenia	2 517	2 596	2 490	2 437	2 501	2 323	2 497
Spain	32 077	39 349 d	38 764 d	39 678 d	39 972 d	40 283 d	40 332 d
Sweden	3 444 b e	3 217 e	3 404 e	4 234 b e	4 269 e	4 894	4 918 e
Switzerland	..	..	897 d	909 d	..	875 d	..
Turkey	8 825	12 004	12 230	12 328	11 799 d	11 345 d	11 379 d
United Kingdom	20 415	16 592	16 250	14 615	14 531	14 698	14 631
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	321 394 e	363 164 e	364 447 e	367 856 e	350 831 e	357 178 e	362 442 e
OECD-Total	..	..	..	..	..	..	..
Argentina	21 688	35 850	37 757	39 271	40 248	38 245	..
China	254 506 d	467 313	479 435	493 200	505 927	531 629	545 771
Romania	10 055	12 336	11 866	12 080	12 663	12 500	11 986
Russian Federation	296 428	282 051	283 161	283 968	287 129	283 620	289 612
Singapore	2 173	3 145	3 497	3 879	4 075	4 009	4 073
South Africa	5 586	7 410	6 362	6 417	6 453	..	..
Chinese Taipei	25 673	24 240	24 322	24 408	25 031	25 460	26 411

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 57. Total GBARD (Government budget allocations for R&D) at current prices and PPP

Million USD

	2005	2015	2016	2017	2018	2019	2020
Australia	3 729.1 d	4 610.9 d	4 731.9 d	5 257.6 d	5 057.2 d p	5 295.0 d p	..
Austria	1 836.6 d	3 437.1 d	3 701.0 d	3 751.2 d	3 797.5 d	4 055.2 p	4 376.4 e p
Belgium	2 004.6	3 172.5	3 439.3	3 792.2	3 776.0	4 310.2 p	..
Canada	6 777.1 d	7 947.1 d	8 451.9 d	9 168.8 d	..	..	..
Chile	..	821.7	907.7	944.3	..	..	..
Colombia	172.9	620.1	514.1	572.1	604.5	663.8	..
Czech Republic	1 129.0	2 151.6	2 224.9	2 476.5	2 692.3	2 890.3 p	..
Denmark	1 329.3	2 795.2 e	2 694.2 e	2 837.2 e	2 950.6 e	3 096.0 p	3 309.2 e p
Estonia	89.9 e	261.3 e	275.0 b	268.3	336.7	..	..
Finland	1 648.0	2 205.6	2 084.5	2 184.0	2 274.2	2 370.8 p	..
France	18 220.2	17 531.1	18 007.6	17 752.8	18 453.3	..	..
Germany	19 732.0	34 107.7	37 664.0	40 726.9	42 515.9	45 482.8 p	..
Greece	895.8	1 515.9	1 607.5	1 535.7	1 971.9	2 567.0 p	..
Hungary	696.1	725.6	1 060.2	1 013.7	936.8	917.9 p	..
Iceland	94.0	85.6	99.4	114.8	..	..	..
Ireland	710.7	909.6	905.5	934.5	971.4	1 015.5 p	..
Israel ¹	1 044.9 d	1 837.5 d	1 997.9 d	2 065.9 d	2 225.8 d	..	..
Italy	11 199.3	11 336.0	12 466.3	12 806.2	13 195.7	14 330.8 p	..
Japan	27 617.8 d	33 616.8 d	33 808.3 b d	34 048.5 d	36 709.2 d	41 802.8 d	43 720.5 d e p
Korea	9 886.5 b d	22 032.6	22 292.6	22 372.3	22 679.0	..	..
Latvia	57.4	93.7	108.5	123.9	129.9	139.5 p	..
Lithuania	169.8	273.8	278.6	299.2	296.4	335.1 p	..
Luxembourg	81.5	380.0	394.4	434.6	445.1	507.0 p	..
Mexico	2 963.4	7 093.7 e	6 597.9	5 696.7 p	5 596.4	5 385.8 p	..
Netherlands	4 391.9	6 027.4	6 192.2	6 368.7	7 075.1	7 201.8 p	7 410.5 e p
New Zealand	..	873.8	933.3	1 037.7	..	..	..
Norway	1 535.9	2 917.1	3 080.8	3 417.6	3 560.8	3 661.9	3 823.0 e p
Poland	1 548.8	4 158.7	3 526.6	4 135.8	3 450.9	..	..
Portugal	1 045.6	1 174.4	1 240.1	1 239.3	1 225.7	1 260.9 p	..
Slovak Republic	244.6	673.0	600.6	609.7	649.9	627.9 p	..
Slovenia	273.3	268.6	282.0	300.4	336.6	365.4 p	..
Spain	6 440.7	9 092.2	9 421.5	9 516.8	9 878.6	10 092.4 p	..
Sweden	2 508.0	3 742.9	3 897.4	4 206.4	4 245.7	4 232.5 p	..
Switzerland	..	4 754.0	..	5 515.8	..	..	..
Turkey	..	6 915.3	7 344.6	7 800.3	8 100.6	8 108.3	6 944.0 e p
United Kingdom	12 116.1	14 612.7	14 879.6	15 906.3	17 050.5	13 893.0 e	..
United States	111 332.0	115 220.0	126 093.0	127 306.0	144 459.0	147 945.0 p	..
EU28 (OECD estimates)	89 609.6 e	122 971.4 e	129 467.8 e	135 475.4 e	140 996.1 e	145 432.5 e	..
OECD-Total	258 220.0 e	329 992.9 e	348 955.2 e	358 539.0 e	384 740.2 e	399 394.0 e	..
Argentina	1 190.2 d	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	448.5	1 104.5	1 338.2	1 003.5	981.4	1 162.7	..
Russian Federation	6 038.6 b	18 647.9	16 644.8	15 712.1	16 972.3	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	4 889.6	7 585.4	7 964.1	8 366.5	8 213.2	8 665.8	..

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 58. Defence Budget R&D

As a percentage of total GBARD (Government budget allocations for R&D)

Percentage

	2005	2015	2016	2017	2018	2019	2020
Australia	6.9 d	7.7 d	6.9 d	6.7 d	6.7 d p	6.5 d p	..
Austria	0.0 d	0.0 d	0.1 d	0.2 d	0.2 d	0.2 p	0.1 p
Belgium	0.3	0.1	0.1	0.1	0.1	0.1 p	..
Canada	4.1 d	2.6 d	2.2 d	..	..	..	..
Chile	..	0.0	0.0	0.0	..	..	..
Colombia	1.3	2.4	1.9	1.7	1.9	0.9	..
Czech Republic	2.5	1.3	1.2	1.3	1.2	1.0 p	..
Denmark	0.7	0.3 e	0.3 e	0.3 e	0.3 e	0.3 e p	0.3 e p
Estonia	1.0 e	1.5 e	2.3 b	1.9	3.4	..	..
Finland	3.3	1.9	1.9	2.2	2.4	2.5 p	..
France	20.8	7.2 d	6.4 d	8.2 d	6.9 d	..	..
Germany	5.8 s	3.1 s	2.7	3.8	3.3	4.4 p	..
Greece	0.5	0.1	0.9	1.8	1.7	1.5 p	..
Hungary	0.1	0.6	0.1	0.4	0.0	0.1 p	..
Iceland	0.0	0.0	0.0	0.0	..	..	..
Ireland	0.0	0.0	0.0	0.0	0.0	0.0 p	..
Israel ¹	..	..	..	..	..	..	..
Italy	3.6	0.8	0.6	0.6	0.6	0.6 p	..
Japan	4.0 d m	4.4 d m	3.0 b d	3.4 d	2.7 d	3.0 d	2.9 d p
Korea	12.4 b d	13.5	14.0	15.0	15.8	..	..
Latvia	1.1	1.9	2.7	.. c	..	..	..
Lithuania	0.2	0.1	0.3	0.1	0.2	0.3 p	..
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0 p	..
Mexico	0.0	0.2 e	0.1	0.2 p	0.1	0.2 p	..
Netherlands	2.0	1.3	1.2	1.1	1.2	1.3 p	1.3 p
New Zealand	..	0.0	0.0	0.0	..	..	..
Norway	6.4	3.8	3.7	3.5	3.5	3.5	3.5 p
Poland	1.3	5.1	15.5	9.2	5.8	..	..
Portugal	0.1	0.3	0.3	0.3	0.4	0.4 p	..
Slovak Republic	8.3 d	1.9	1.5	1.7	1.8	2.0 p	..
Slovenia	4.9	0.2	0.2	0.3	0.3	0.7 p	..
Spain	3.9	1.4	1.0	1.1	0.9	1.1 p	..
Sweden	17.4	3.3 d	3.4 e	3.0 e	3.7 e	2.8 p	..
Switzerland	..	0.4	..	0.3	..	..	..
Turkey	..	10.7	13.1	17.3	20.0	18.7	20.8 p
United Kingdom	23.5	16.4	15.9	15.2	14.1	14.1 e	..
United States	49.1	41.6	42.7	43.5	46.7 p	46.7 p	..
EU28 (OECD estimates)	10.2 e	4.5 e	4.3 e	4.7 e	4.2 e	4.3 e	..
OECD-Total	26.0 e	18.0 e	18.7 e	19.1 e	20.9 e	20.6 e	..
Argentina	0.4 d	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	1.7	1.6	1.7	4.5	7.7	8.6	..
Russian Federation	..	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	10.6	2.5	5.2	6.4	7.0	9.8	..

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 59. Civil Budget R&D
As a percentage of total GBARD (Government budget allocations for R&D)

Percentage

	2005	2015	2016	2017	2018	2019	2020
Australia	93.1 d	92.3 d	93.1 d	93.3 d	93.3 d p	93.5 d p	..
Austria	100.0 d	100.0 d	99.9 d	99.8 d	99.8 d	99.8 p	99.9 p
Belgium	99.7	99.9	99.9	99.9	99.9	99.9 p	..
Canada	95.9 d	97.4 d	97.8 d	..	..	..	..
Chile	..	100.0	100.0	100.0	..	..	..
Colombia	98.7	97.6	98.1	98.3	98.1	99.1	..
Czech Republic	97.5	98.7	98.8	98.7	98.8	99.0 p	..
Denmark	99.3	99.7 e	99.7 e	99.7 e	99.7 e	99.7 e p	99.7 e p
Estonia	99.0 e	98.5 e	97.7 b	98.1	96.6	..	..
Finland	96.7	98.1	98.1	97.8	97.6	97.5 p	..
France	79.2	92.8 d	93.6 d	91.8 d	93.1 d	..	..
Germany	94.2 s	96.9 s	97.3	96.2	96.7	95.6 p	..
Greece	99.5	99.9	99.1	98.2	98.3	98.5 p	..
Hungary	99.9	99.4	99.9	99.6	100.0	99.9 p	..
Iceland	100.0	100.0	100.0	100.0	..	..	..
Ireland	100.0	100.0	100.0	100.0	100.0	100.0 p	..
Israel ¹	..	..	..	..	..	..	..
Italy	96.4	99.2	99.4	99.4	99.4	99.4 p	..
Japan	96.0 d	95.6 d	97.0 b d	96.6 d	97.3 d	97.0 d	97.1 d p
Korea	87.6 b d	86.5	86.0	85.0	84.2	..	..
Latvia	98.9	98.1	97.3	.. c	..	..	..
Lithuania	99.8	99.9	99.7	99.9	99.8	99.7 p	..
Luxembourg	100.0	100.0	100.0	100.0	100.0	100.0 p	..
Mexico	100.0	99.8 e	99.9	99.8 p	99.9	99.8 p	..
Netherlands	98.0	98.7	98.8	98.9	98.8	98.7 p	98.7 p
New Zealand	..	100.0	100.0	100.0	..	..	..
Norway	93.6	96.2	96.3	96.5	96.5	96.5	96.5 p
Poland	98.7	94.9	84.5	90.8	94.2	..	..
Portugal	99.9	99.7	99.7	99.7	99.6	99.6 p	..
Slovak Republic	91.7 d	98.1	98.5	98.3	98.2	98.0 p	..
Slovenia	95.1	99.8	99.8	99.7	99.7	99.3 p	..
Spain	96.1	98.6	99.0	98.9	99.1	98.9 p	..
Sweden	82.6	96.7 d	96.6 e	97.0 e	96.3 e	97.2 p	..
Switzerland	..	99.6	..	99.7	..	..	..
Turkey	..	89.3	86.9	82.7	80.0	81.3	79.2 p
United Kingdom	76.5	83.6	84.1	84.8	85.9	85.9 e	..
United States	50.9	58.4	57.3	56.5	53.3 p	53.3 p	..
EU28 (OECD estimates)	89.8 e	95.5 e	95.7 e	95.3 e	95.8 e	95.7 e	..
OECD-Total	74.0 e	82.0 e	81.3 e	80.9 e	79.1 e	79.4 e	..
Argentina	99.6 d	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	98.3	98.4	98.3	95.5	92.3	91.4	..
Russian Federation	..	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	89.4	97.5	94.8	93.6	93.0	90.2	..

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database

Table 60. Triadic patent families
By priority year

Number

	2005	2013	2014	2015	2016	2017	2018
Australia	479	309	324	344	354 e	367 e	370 e
Austria	411	380	399	393	398 e	415 e	427 e
Belgium	543	431	395	414	427 e	447 e	458 e
Canada	720	622	592	583	587 e	612 e	625 e
Chile	6	12	8	12	14 e	15 e	16 e
Colombia	2	2	5	5	5 e	5 e	6 e
Czech Republic	25	32	44	50	51 e	55 e	56 e
Denmark	390	264	307	316	320 e	330 e	337 e
Estonia	3	9	6	4	4 e	4 e	5 e
Finland	391	271	313	264	262 e	262 e	266 e
France	3 048	2 425	2 495	2 249	2 197 e	2 117 e	2 073 e
Germany	7 145	4 911	4 655	4 673	4 697 e	4 737 e	4 772 e
Greece	24	20	23	10	11 e	12 e	13 e
Hungary	58	20	35	36	36 e	35 e	34 e
Iceland	7	2	1	2	3 e	3 e	4 e
Ireland	99	94	108	98	100 e	105 e	108 e
Israel ¹	502	438	455	512	529 e	543 e	561 e
Italy	966	773	818	812	848 e	868 e	884 e
Japan	18 933	17 651	17 615	17 607	17 489 e	17 780 e	18 645 e
Korea	2 746	2 549	2 211	2 219	2 177 e	2 103 e	2 160 e
Latvia	10	3	1	4	6 e	6 e	7 e
Lithuania	1.0	4.3	4.7	3.6	2.8 e	3.0 e	3.1 e
Luxembourg	21	15	20	23	26 e	25 e	25 e
Mexico	19	20	28	30	29 e	29 e	29 e
Netherlands	1 762	1 139	1 288	1 116	1 137 e	1 096 e	1 091 e
New Zealand	73	71	101	68	65 e	66 e	66 e
Norway	141	104	111	100	105 e	109 e	108 e
Poland	18	59	54	81	81 e	91 e	95 e
Portugal	16	21	32	33	39 e	40 e	42 e
Slovak Republic	2	10	7	9	10 e	10 e	10 e
Slovenia	22	14	13	7	7 e	7 e	8 e
Spain	293	230	256	285	296 e	306 e	314 e
Sweden	970	588	676	718	714 e	742 e	772 e
Switzerland	1 084	1 117	1 180	1 199	1 232 e	1 257 e	1 275 e
Turkey	16	42	28	49	57 e	65 e	74 e
United Kingdom	2 165	1 825	1 674	1 646	1 670 e	1 690 e	1 714 e
United States	17 371	14 818	13 660	13 541	12 872 e	12 768 e	12 753 e
EU28 (OECD estimates)	18 415	13 558	13 646	13 266	13 366 e	13 435 e	13 544 e
OECD-Total	60 483	51 289	49 936	49 512	48 853 e	49 125 e	50 201 e
Argentina	16	6	10	11	11 e	11 e	11 e
China	524	2 191	2 835	3 213	3 792 e	4 472 e	5 323 e
Romania	7	13	9	13	13 e	14 e	15 e
Russian Federation	91	76	111	90	88 e	90 e	88 e
Singapore	170	130	148	121	117 e	121 e	120 e
South Africa	49	29	26	24	22 e	21 e	21 e
Chinese Taipei	145	337	388	443	460 e	489 e	518 e

Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, Patent database

Table 61. Share of countries in triadic patent families
By priority year

Percentage

	2005	2013	2014	2015	2016	2017	2018
Australia	0.77	0.56	0.60	0.63	0.65 e	0.67 e	0.65 e
Austria	0.66	0.69	0.74	0.73	0.74 e	0.75 e	0.75 e
Belgium	0.88	0.79	0.73	0.76	0.79 e	0.81 e	0.80 e
Canada	1.16	1.14	1.09	1.08	1.08 e	1.11 e	1.09 e
Chile	0.01	0.02	0.02	0.02	0.02 e	0.03 e	0.03 e
Colombia	0.00	0.00	0.01	0.01	0.01 e	0.01 e	0.01 e
Czech Republic	0.04	0.06	0.08	0.09	0.09 e	0.10 e	0.10 e
Denmark	0.63	0.48	0.57	0.58	0.59 e	0.60 e	0.59 e
Estonia	0.00	0.02	0.01	0.01	0.01 e	0.01 e	0.01 e
Finland	0.63	0.49	0.58	0.49	0.48 e	0.47 e	0.47 e
France	4.92	4.43	4.60	4.15	4.05 e	3.83 e	3.62 e
Germany	11.53	8.97	8.59	8.62	8.67 e	8.58 e	8.34 e
Greece	0.04	0.04	0.04	0.02	0.02 e	0.02 e	0.02 e
Hungary	0.09	0.04	0.06	0.07	0.07 e	0.06 e	0.06 e
Iceland	0.01	0.00	0.00	0.00	0.01 e	0.01 e	0.01 e
Ireland	0.16	0.17	0.20	0.18	0.19 e	0.19 e	0.19 e
Israel ¹	0.81	0.80	0.84	0.95	0.98 e	0.98 e	0.98 e
Italy	1.56	1.41	1.51	1.50	1.57 e	1.57 e	1.54 e
Japan	30.54	32.23	32.51	32.47	32.28 e	32.19 e	32.58 e
Korea	4.43	4.65	4.08	4.09	4.02 e	3.81 e	3.77 e
Latvia	0.02	0.01	0.00	0.01	0.01 e	0.01 e	0.01 e
Lithuania	0.0	0.0	0.0	0.0	0.0 e	0.0 e	0.0 e
Luxembourg	0.03	0.03	0.04	0.04	0.05 e	0.05 e	0.04 e
Mexico	0.03	0.04	0.05	0.05	0.05 e	0.05 e	0.05 e
Netherlands	2.84	2.08	2.38	2.06	2.10 e	1.98 e	1.91 e
New Zealand	0.12	0.13	0.19	0.12	0.12 e	0.12 e	0.12 e
Norway	0.23	0.19	0.20	0.18	0.19 e	0.20 e	0.19 e
Poland	0.03	0.11	0.10	0.15	0.15 e	0.17 e	0.17 e
Portugal	0.03	0.04	0.06	0.06	0.07 e	0.07 e	0.07 e
Slovak Republic	0.00	0.02	0.01	0.02	0.02 e	0.02 e	0.02 e
Slovenia	0.04	0.03	0.02	0.01	0.01 e	0.01 e	0.01 e
Spain	0.47	0.42	0.47	0.52	0.55 e	0.55 e	0.55 e
Sweden	1.56	1.07	1.25	1.32	1.32 e	1.34 e	1.35 e
Switzerland	1.75	2.04	2.18	2.21	2.27 e	2.28 e	2.23 e
Turkey	0.03	0.08	0.05	0.09	0.10 e	0.12 e	0.13 e
United Kingdom	3.49	3.33	3.09	3.04	3.08 e	3.06 e	2.99 e
United States	28.02	27.05	25.21	24.98	23.76 e	23.12 e	22.28 e
EU28 (OECD estimates)	29.71	24.75	25.18	24.47	24.67 e	24.32 e	23.67 e
OECD-Total	97.57	93.64	92.16	91.32	90.17 e	88.93 e	87.72 e
Argentina	0.03	0.01	0.02	0.02	0.02 e	0.02 e	0.02 e
China	0.84	4.00	5.23	5.93	7.00 e	8.10 e	9.30 e
Romania	0.01	0.02	0.02	0.02	0.02 e	0.03 e	0.03 e
Russian Federation	0.15	0.14	0.21	0.17	0.16 e	0.16 e	0.15 e
Singapore	0.28	0.24	0.27	0.22	0.22 e	0.22 e	0.21 e
South Africa	0.08	0.05	0.05	0.05	0.04 e	0.04 e	0.04 e
Chinese Taipei	0.23	0.62	0.72	0.82	0.85 e	0.89 e	0.90 e

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Patent database

Table 62. Patents in the ICT sector - applications filed under the PCT
By priority year

Number

	2005	2013	2014	2015	2016	2017	2018
Australia	385	395	404	392	396	352	..
Austria	211	149	161	151	174	167	..
Belgium	144	238	233	215	194	183	..
Canada	819	933	819	917	917	817	..
Chile	2	5	16	19	10	3	..
Colombia	3.0	5.0	6.3	6.8	5.1	8.0	..
Czech Republic	17	25	21	23	21	28	..
Denmark	161	145	152	155	138	129	..
Estonia	6	16	10	5	10	10	..
Finland	755	626	551	496	488	560	..
France	1 502	1 356	1 433	1 350	1 283	1 245	..
Germany	2 289	2 310	2 330	2 535	2 648	2 874	..
Greece	14	20	25	12	22	19	..
Hungary	27	55	67	59	75	54	..
Iceland	5	1	2	2	0	3	..
Ireland	84	109	124	136	173	144	..
Israel ¹	669	761	747	754	731	620	..
Italy	346	325	324	307	319	296	..
Japan	6 358	10 130	9 068	9 492	9 928	10 145	..
Korea	2 132	4 643	5 093	5 382	4 974	5 209	..
Latvia	4	1	3	7	1	3	..
Lithuania	2.1	7.0	6.0	4.0	4.3	4.3	..
Luxembourg	5	9	15	7	24	19	..
Mexico	14	22	33	50	44	42	..
Netherlands	1 266	598	587	593	543	458	..
New Zealand	43	38	33	37	31	33	..
Norway	99	85	71	73	78	96	..
Poland	13	53	71	103	79	63	..
Portugal	20	23	17	36	38	28	..
Slovak Republic	3	10	10	13	9	3	..
Slovenia	5	14	7	8	7	4	..
Spain	130	225	231	181	210	177	..
Sweden	688	1 149	1 356	1 421	1 444	1 460	..
Switzerland	218	308	277	260	338	311	..
Turkey	11	102	104	152	169	159	..
United Kingdom	1 348	1 397	1 443	1 361	1 412	1 410	..
United States	14 907	18 403	17 301	16 946	17 076	16 628	..
EU28 (OECD estimates)	9 062	8 914	9 235	9 236	9 353	9 365	..
OECD-Total	34 707	44 689	43 150	43 662	44 014	43 765	..
Argentina	7	4	5	12	3	4	..
China	1 817	12 795	14 484	18 943	22 031	24 135	..
Romania	6	29	31	36	21	12	..
Russian Federation	153	307	280	263	273	238	..
Singapore	192	188	216	242	232	289	..
South Africa	54	70	65	53	47	43	..
Chinese Taipei	64	242	283	221	249	381	..

Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, Patent database

Table 63. Patents in the biotechnology sector - applications filed under the PCT
By priority year

Number

	2005	2013	2014	2015	2016	2017	2018
Australia	219	149	163	163	157	164	..
Austria	61	67	75	77	63	65	..
Belgium	118	108	114	129	142	136	..
Canada	309	270	241	258	237	248	..
Chile	3	18	29	36	23	31	..
Colombia	1.0	8.3	4.7	10.4	6.8	10.9	..
Czech Republic	5	9	14	14	6	12	..
Denmark	193	179	196	164	167	177	..
Estonia	2	3	1	3	5	6	..
Finland	50	61	50	48	53	40	..
France	341	524	541	542	512	510	..
Germany	701	628	650	704	618	653	..
Greece	6	3	5	5	6	7	..
Hungary	10	16	10	16	13	12	..
Iceland	5	1	2	2	0	2	..
Ireland	27	31	35	29	36	25	..
Israel ¹	171	144	174	197	183	206	..
Italy	169	138	155	146	165	158	..
Japan	1 450	1 281	1 334	1 441	1 612	1 517	..
Korea	219	540	620	738	879	901	..
Latvia	1	1	1	1	3	2	..
Lithuania	1.3	6.5	5.1	4.0	2.8	6.7	..
Luxembourg	1	2	2	8	3	6	..
Mexico	11	21	18	25	22	18	..
Netherlands	234	234	223	254	230	216	..
New Zealand	53	32	26	26	24	25	..
Norway	32	47	62	35	47	28	..
Poland	10	35	37	33	25	20	..
Portugal	10	14	12	17	15	15	..
Slovak Republic	0	3	2	2	5	3	..
Slovenia	4	8	6	6	3	5	..
Spain	123	202	172	169	134	161	..
Sweden	135	109	115	115	140	117	..
Switzerland	150	189	186	216	202	215	..
Turkey	2	14	12	16	25	27	..
United Kingdom	518	457	513	534	496	484	..
United States	4 756	5 161	4 940	5 520	5 637	5 763	..
EU28 (OECD estimates)	2 726	2 844	2 942	3 028	2 850	2 844	..
OECD-Total	10 100	10 712	10 748	11 705	11 897	11 989	..
Argentina	10	16	13	6	4	2	..
China	122	577	654	846	1 118	1 484	..
Romania	1	2	3	2	0	1	..
Russian Federation	60	65	55	51	34	64	..
Singapore	64	115	99	89	104	102	..
South Africa	16	17	22	16	15	16	..
Chinese Taipei	11	42	86	91	87	83	..

Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, Patent database

Table 64. Trade balance and export market share: Pharmaceutical industry

	Trade balance (Million current USD)			Export market share (Percentage)		
	2012	2015	2018	2012	2015	2018
Australia	-6 168.0	-5 842.9	-5 293.5	0.87	0.35	0.56
Austria	1 039.6	369.5	172.3	1.79	1.74	1.66
Belgium	8 932.8	7 654.8	8 188.2	9.00	8.56	7.87
Canada	-7 624.7	-4 715.2	-5 914.4	1.01	1.47	1.26
Chile	-946.4	-1 114.3	-1 473.3	0.03	0.04	0.03
Colombia	-1 734.5	-1 966.3	-2 196.5	0.09	0.10	0.06
Czech Republic	-2 112.3	-1 666.1	-2 224.6	0.33	0.45	0.47
Denmark	7 434.8	8 722.4	11 077.7	2.22	2.40	2.49
Estonia	-320.5	-328.9	-478.1	0.01	0.01	0.02
Finland	-919.9	-1 254.7	-1 420.8	0.28	0.18	0.14
France	5 838.1	4 665.7	5 367.8	6.97	5.83	5.47
Germany	24 807.4	28 328.1	37 259.4	13.89	14.43	15.41
Greece	-2 516.9	-1 954.9	-2 019.9	0.24	0.21	0.28
Hungary	894.6	749.4	676.6	0.91	0.89	0.94
Iceland	-7.9	-47.7	-166.0	0.02	0.01	0.00
Ireland	25 950.3	27 000.2	41 314.8	6.12	6.34	8.68
Israel	4 874.2	4 608.3	3 195.0	1.29	1.25	0.90
Italy	-2 603.2	-2 468.8	-681.8	4.15	4.00	4.65
Japan	-20 348.6	-20 167.4	-20 475.7	0.76	0.71	0.91
Korea	-3 089.0	-2 862.6	-3 284.1	0.29	0.43	0.59
Latvia	-188.0	-200.0	-181.4	0.07	0.07	0.08
Lithuania	-436.6	-369.7	-343.1	0.08	0.13	0.13
Luxembourg	-361.8	-314.2	-406.6	0.01	0.02	0.02
Mexico	-3 418.4	-3 319.8	-3 701.7	0.41	0.37	0.24
Netherlands	6 276.0	3 869.9	11 683.1	4.68	3.25	4.51
New Zealand	-668.4	-533.3	-673.1	0.05	0.07	0.06
Norway	-1 149.4	-1 080.0	-1 403.9	0.15	0.14	0.15
Poland	-2 939.4	-2 231.4	-3 904.2	0.46	0.58	0.60
Portugal	-1 860.2	-1 568.1	-2 088.1	0.18	0.19	0.20
Slovak Republic	-1 408.9	-1 284.3	-1 555.0	0.07	0.10	0.07
Slovenia	1 624.4	1 474.2	1 593.1	0.52	0.50	0.57
Spain	-2 128.6	-3 198.4	-4 258.0	2.47	2.27	1.93
Sweden	3 957.3	4 478.1	4 746.9	1.65	1.59	1.48
Switzerland	36 446.3	41 235.8	47 548.1	11.41	12.22	12.53
Turkey	-3 612.8	-3 656.3	-3 553.0	0.14	0.18	0.19
United Kingdom	8 266.0	2 059.0	-372.3	7.06	6.92	5.26
United States	-25 273.1	-37 945.4	-67 899.7	8.52	9.75	8.16
OECD-Total	44 504.4	35 124.7	36 854.4	88.22	87.76	88.56
Argentina	-1 293.3	-1 442.5	-1 822.8	0.19	0.22	0.11
China	-1 745.1	-6 522.2	-11 704.5	2.34	2.57	2.77
Romania	-2 038.8	-1 931.0	-2 669.7	0.23	0.18	0.14
Russian Federation	-12 882.1	-8 444.6	-10 146.4	0.13	0.10	0.13
Singapore	6 595.7	4 841.0	6 164.8	1.78	1.40	1.49
South Africa	-1 981.8	-1 830.8	-2 126.9	0.09	0.08	0.07
Chinese Taipei	-2 100.2	-2 417.3	-3 361.8	0.08	0.10	0.10

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, STAN Bilateral Trade in Goods by Industry and End-use Category database

Table 65. Trade balance and export market share: Computer, electronic and optical industry

	Trade balance (Million current USD)			Export market share (Percentage)		
	2012	2015	2018	2012	2015	2018
Australia	-23 675.8	-20 565.2	-24 834.0	0.17	0.18	0.16
Austria	-2 169.6	-1 239.1	-2 698.0	0.42	0.40	0.37
Belgium	-5 358.3	-2 618.7	-4 218.1	0.56	0.55	0.47
Canada	-28 405.5	-24 465.0	-27 574.9	0.67	0.59	0.51
Chile	-6 141.2	-5 771.5	-6 554.8	0.02	0.01	0.01
Colombia	-6 162.9	-5 936.7	-5 801.2	0.00	0.01	0.00
Czech Republic	2 267.0	-955.2	518.8	1.10	1.00	1.23
Denmark	-2 109.9	-1 675.4	-1 838.9	0.30	0.27	0.26
Estonia	-159.0	-95.7	-144.3	0.10	0.08	0.07
Finland	-2 020.3	-2 182.0	-3 251.4	0.20	0.13	0.14
France	-18 581.1	-17 011.2	-17 626.4	1.59	1.40	1.31
Germany	-6 601.0	-7 936.1	-5 171.6	4.89	4.65	5.01
Greece	-2 851.7	-1 703.8	-1 945.6	0.03	0.05	0.06
Hungary	3 644.6	455.7	336.3	0.90	0.58	0.61
Iceland	-216.2	-321.2	-491.0	0.00	0.00	0.00
Ireland	4 803.3	3 958.4	7 221.9	0.50	0.51	0.61
Israel	2 888.0	3 766.5	2 591.0	0.46	0.52	0.40
Italy	-16 822.9	-13 796.0	-14 990.5	0.71	0.65	0.67
Japan	6 727.6	-10 609.1	-9 156.7	4.98	3.65	3.55
Korea	61 159.7	63 978.4	96 757.0	5.45	5.98	6.76
Latvia	-274.3	-176.5	-417.7	0.04	0.06	0.05
Lithuania	-497.0	-454.1	-563.2	0.04	0.06	0.06
Luxembourg	-581.0	-540.1	-634.3	0.03	0.02	0.02
Mexico	-2 083.7	-5 932.6	-3 954.2	3.00	3.03	2.83
Netherlands	-2 173.5	-2 993.3	-5 602.2	3.06	2.57	2.65
New Zealand	-2 986.6	-2 983.5	-3 311.3	0.03	0.02	0.02
Norway	-4 805.9	-4 206.6	-5 417.7	0.14	0.13	0.09
Poland	-5 069.0	-4 268.9	-5 416.7	0.60	0.74	0.78
Portugal	-1 994.4	-2 102.1	-2 696.8	0.11	0.09	0.14
Slovak Republic	1 031.5	-558.0	-246.4	0.60	0.55	0.51
Slovenia	-363.7	-385.1	-584.6	0.04	0.04	0.04
Spain	-13 464.4	-14 660.6	-17 252.0	0.25	0.26	0.28
Sweden	-3 390.1	-3 654.4	-5 871.5	0.71	0.54	0.46
Switzerland	17 714.0	16 353.4	15 207.4	1.48	1.40	1.18
Turkey	-9 732.5	-12 405.5	-10 401.8	0.13	0.11	0.09
United Kingdom	-28 787.0	-32 184.2	-35 777.2	1.48	1.43	1.23
United States	-157 208.6	-181 709.4	-212 256.7	8.34	8.12	7.26
OECD-Total	-254 451.6	-297 584.4	-314 069.4	43.11	40.38	39.90
Argentina	-6 761.4	-6 888.5	-6 025.6	0.01	0.01	0.00
China	161 022.9	184 852.3	160 469.8	26.59	28.11	26.24
Romania	-2 288.9	-3 270.4	-4 114.3	0.15	0.13	0.18
Russian Federation	-28 027.7	-16 133.3	-24 464.4	0.14	0.17	0.13
Singapore	28 348.4	36 350.8	27 757.5	5.48	5.40	4.90
South Africa	-7 733.1	-7 414.4	-7 445.5	0.07	0.07	0.05
Chinese Taipei	65 690.1	68 266.9	75 984.4	5.26	5.26	5.58

Note: Detailed metadata:<http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel:<http://dx.doi.org/10.1787/888932315602>

Source: OECD, STAN Bilateral Trade in Goods by Industry and End-use Category database

Table 66. Trade balance and export market share: Aerospace industry

	Trade balance (Million current USD)			Export market share (Percentage)		
	2012	2015	2018	2012	2015	2018
Australia	225.6	225.6	-445.9	0.37	0.39	0.40
Austria	329.3	590.1	967.8	0.44	0.37	0.40
Belgium	567.6	489.1	479.4	0.49	0.54	0.62
Canada	4 168.4	2 590.5	1 980.0	3.72	3.85	3.32
Chile	-2 508.5	-906.1	-110.2	0.01	0.01	0.01
Colombia	-1 474.5	-2 763.5	-1 259.2	0.01	0.01	0.01
Czech Republic	104.8	348.1	-564.2	0.20	0.18	0.23
Denmark	-417.7	-42.3	-285.2	0.10	0.14	0.10
Estonia	-26.6	-16.4	13.9	0.00	0.01	0.02
Finland	-166.8	-221.1	-357.0	0.07	0.16	0.03
France	25 771.2	24 609.7	32 112.5	18.40	16.01	14.90
Germany	18 179.3	16 376.4	22 288.4	14.34	12.36	11.37
Greece	31.1	-173.0	-95.2	0.06	0.03	0.01
Hungary	48.0	-687.7	-235.2	0.04	0.03	0.05
Iceland	-199.8	-202.8	-210.9	0.00	0.00	0.00
Ireland	-11 146.1	-6 883.8	-18 595.8	0.81	1.61	1.46
Israel	1 045.7	2 071.5	172.8	0.54	0.76	0.52
Italy	4 053.9	2 713.7	3 318.7	1.92	1.57	1.49
Japan	-4 280.3	-2 323.3	-6 042.5	1.82	1.97	1.76
Korea	-2 053.1	-2 463.2	-988.3	0.44	0.53	0.69
Latvia	-5.5	-156.6	-557.6	0.00	0.00	0.11
Lithuania	30.0	-25.4	-17.6	0.02	0.01	0.01
Luxembourg	-1 871.7	-1 121.9	-276.4	0.07	0.05	0.03
Mexico	425.9	830.0	1 166.2	0.44	0.49	0.65
Netherlands	-37.1	-391.1	615.9	0.85	0.88	1.26
New Zealand	-748.1	-1 685.3	-1 513.4	0.03	0.02	0.02
Norway	-1 002.4	-682.5	-1 338.9	0.15	0.20	0.22
Poland	-181.9	830.9	1 035.9	0.51	0.56	0.84
Portugal	-250.1	-227.0	-1 006.6	0.05	0.06	0.10
Slovak Republic	-11.0	-14.6	-77.0	0.01	0.01	0.01
Slovenia	-91.9	41.0	-40.3	0.01	0.02	0.03
Spain	2 388.4	701.4	1 612.0	1.52	1.28	1.59
Sweden	-167.8	-187.8	-394.2	0.24	0.19	0.19
Switzerland	-184.3	518.6	-1 761.0	0.61	0.67	0.45
Turkey	-2 559.3	-3 396.4	-2 603.6	0.22	0.24	0.29
United Kingdom	8 415.5	7 081.0	13 088.3	9.81	9.24	9.60
United States	65 586.9	79 083.7	85 389.1	30.20	33.47	31.41
OECD-Total	101 986.9	114 529.9	125 464.9	88.53	87.95	84.20
Argentina	-440.9	-426.9	-45.4	0.15	0.06	0.03
China	-17 807.8	-23 633.5	-28 646.8	0.87	1.61	1.73
Romania	-5.7	113.8	66.7	0.06	0.07	0.10
Russian Federation	415.2	95.2	-2 435.1	1.69	0.94	0.89
Singapore	-2 294.2	-2 052.9	-6 520.1	2.56	2.67	4.16
South Africa	-784.5	-469.9	-511.7	0.15	0.17	0.08
Chinese Taipei	-445.4	-1 806.9	-3 291.5	0.17	0.21	0.68

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, STAN Bilateral Trade in Goods by Industry and End-use Category database

Annex. Background Economic Indicators

Table A. Gross domestic product at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	717 705	1 104 626	1 118 494	1 126 612	1 216 419	1 262 007	1 342 136
Austria	288 087	406 370	417 060	431 092	459 839	480 672	502 771
Belgium	347 658	487 344	503 620	521 018	550 809	577 007	597 058
Canada	1 171 340	1 554 123	1 621 397	1 594 899	1 678 387	1 777 242	1 855 771
Chile	206 274	394 292	404 667	407 689	413 528	437 082	463 832
Colombia	355 032	591 784	625 019	630 400	672 094	700 091	743 037
Czech Republic	224 201	320 535	339 583	355 312	379 085	407 775	429 336
Denmark	185 074	262 368	270 331	278 823	297 689	317 448	331 503
Estonia	22 523	36 433	38 300	38 669	41 094	44 555	48 065
Finland	168 147	225 680	228 059	232 930	246 904	261 649	272 369
France	1 926 880	2 608 524	2 662 033	2 719 225	2 863 816	2 997 297	3 120 959
Germany	2 622 040	3 628 559	3 807 115	3 895 126	4 163 899	4 381 792	4 514 794
Greece	281 028	286 169	292 336	291 109	299 824	312 843	325 790
Hungary	172 222	242 362	252 631	262 494	271 845	289 032	308 700
Iceland	11 048	14 297	14 966	16 162	17 787	19 080	20 367
Ireland	168 218	221 468	237 861	324 698	342 012	375 593	411 092
Israel ¹	172 084	275 197	281 083	296 964	323 415	339 528	357 633
Italy	1 746 658	2 187 377	2 200 256	2 241 524	2 420 428	2 529 502	2 587 031
Japan	4 045 734	4 967 052	4 986 566	5 136 019	5 076 057	5 180 326	5 230 147
Korea	1 213 618	1 726 903	1 792 600	1 933 849	2 026 536	2 105 893	2 174 501
Latvia	30 978	45 673	47 540	49 104	51 741	55 333	59 058
Lithuania	48 263	78 911	82 564	83 731	88 700	95 660	100 385
Luxembourg	31 733	51 940	56 354	59 097	64 400	67 280	71 000
Mexico	1 341 775	2 064 491	2 171 927	2 228 164	2 382 092	2 470 076	2 573 848
Netherlands	614 044	827 476	830 318	852 113	890 399	948 182	991 875
New Zealand	106 148	160 942	168 108	172 477	187 684	198 914	207 247
Norway	220 982	340 138	338 506	313 315	308 491	332 135	359 299
Poland	530 341	940 325	973 566	1 020 174	1 073 934	1 145 045	1 208 904
Portugal	238 691	292 135	298 952	307 312	326 331	340 796	353 154
Slovak Republic	89 400	151 397	157 095	162 303	161 031	168 113	177 428
Slovenia	47 717	61 744	63 653	65 283	69 939	75 735	80 362
Spain	1 205 129	1 512 074	1 558 307	1 621 505	1 733 039	1 843 951	1 894 494
Sweden	309 213	444 617	457 508	481 300	500 373	530 433	546 885
Switzerland	301 741	486 239	506 895	529 568	550 297	567 448	590 533
Turkey	807 227	1 690 856	1 851 026	2 012 362	2 101 655	2 265 513	2 316 406
United Kingdom	1 973 200	2 563 271	2 665 876	2 768 619	2 897 574	3 037 045	3 120 715
United States	13 036 637	16 784 851	17 527 258	18 224 780	18 715 040	19 519 424	20 580 223
EU28 (OECD estimates)	13 650 441 e	18 530 920 e	19 111 986 e	19 762 601 e	20 968 345 e	22 131 510 e	22 954 478 e
OECD-Total	36 772 519 e	50 038 542 e	51 849 430 e	53 685 818 e	55 864 186 e	58 457 498 e	60 868 706 e
Argentina	527 729	849 785	837 732	863 497	878 477	1 037 824	1 036 721
China	6 588 683	16 185 348	17 119 100	17 796 258	18 713 302	19 887 035	21 866 165
Romania	204 715	395 624	410 589	428 645	479 084	534 708	570 606
Russian Federation	1 822 445	3 741 783	3 763 537	3 526 234	3 538 581	3 818 779	4 223 365
Singapore	250 652	448 148	461 713	481 393	501 247	532 833	571 120
South Africa	468 782	668 989	683 002	695 081	707 490	724 101	747 577
Chinese Taipei	658 835	1 024 466	1 085 413	1 105 588	1 133 899	1 190 800	1 251 980

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>Source: OECD, Main Science and Technology Indicators database (underlying sources described in section 10 of the documentation, http://www.oecd.org/sti/inn/MSTI_documentation_e.pdf.)

Table B. Implicit GDP price indices

Year 2010 = 1.000

	2005	2013	2014	2015	2016	2017	2018
Australia	0.790	1.011	1.005	1.000	1.037	1.057	1.092
Austria	0.830	0.957	0.978	1.000	1.017	1.028	1.046
Belgium	0.854	0.977	0.987	1.000	1.017	1.035	1.051
Canada	0.841	0.990	1.009	1.000	1.008	1.032	1.051
Chile	0.628	0.900	0.953	1.000	1.045	1.095	1.120
Colombia	0.656	0.955	0.976	1.000	1.051	1.105	1.155
Czech Republic	0.871	0.965	0.988	1.000	1.013	1.027	1.054
Denmark	0.839	0.986	0.996	1.000	1.003	1.014	1.022
Estonia	1	1	1	1	1	1	1
Finland	0.819	0.968	0.984	1.000	1.001	1.007	1.026
France	0.881	0.983	0.989	1.000	1.005	1.010	1.020
Germany	0.873	0.965	0.983	1.000	1.012	1.022	1.038
Greece	0.904	1.022	1.003	1.000	0.998	1.004	1.009
Hungary	0.710	0.942	0.976	1.000	1.010	1.047	1.095
Iceland	0.561	0.913	0.947	1.000	1.018	1.023	1.050
Ireland	0.916	0.929	0.928	1.000	0.997	1.008	1.017
Israel ¹	0.807	0.963	0.972	1.000	1.011	1.013	1.025
Italy	0.860	0.982	0.991	1.000	1.011	1.019	1.028
Japan	1.041	0.962	0.979	1.000	1.003	1.000	0.999
Korea	0.829	0.960	0.969	1.000	1.020	1.043	1.047
Latvia	0.6	1.0	1.0	1.0	1.0	1.0	1.1
Lithuania	1	1	1	1	1	1	1
Luxembourg	0.750	0.972	0.998	1.000	1.008	1.025	1.051
Mexico	0.642	0.932	0.973	1.000	1.054	1.124	1.180
Netherlands	0.887	0.990	0.992	1.000	1.005	1.017	1.042
New Zealand	0.801	0.988	0.993	1.000	1.024	1.053	1.064
Norway	0.732	0.955	0.980	1.000	1.019	1.042	1.068
Poland	0.806	0.987	0.992	1.000	1.003	1.022	1.034
Portugal	0.871	0.973	0.980	1.000	1.017	1.033	1.049
Slovak Republic	0.913	1.004	1.002	1.000	0.995	1.007	1.028
Slovenia	0.839	0.986	0.990	1.000	1.008	1.023	1.046
Spain	0.901	0.997	0.995	1.000	1.003	1.017	1.028
Sweden	0.837	0.962	0.979	1.000	1.015	1.037	1.062
Switzerland	0.941	1.013	1.006	1.000	0.994	0.988	0.991
Turkey	0.476	0.863	0.927	1.000	1.081	1.199	1.397
United Kingdom	0.825	0.976	0.994	1.000	1.021	1.041	1.063
United States	0.835	0.972	0.990	1.000	1.010	1.029	1.054
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	0.134	0.563	0.790	1.000	1.411	1.778	2.502
China	0.679	0.987	0.999	1.000	1.015	1.060	1.099
Romania	0.536	0.958	0.975	1.000	1.025	1.072	1.140
Russian Federation	0.362	0.867	0.932	1.000	1.028	1.083	1.204
Singapore	0.869	0.973	0.970	1.000	1.007	1.035	1.067
South Africa	0.526	0.901	0.951	1.000	1.072	1.129	1.173
Chinese Taipei	1.010	0.952	0.968	1.000	1.009	0.997	0.988

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>Source: OECD, Main Science and Technology Indicators database (underlying sources described in section 10 of the documentation, http://www.oecd.org/sti/inn/MSTI_documentation_e.pdf.)

Table C. Purchasing power parities

National currency per USD

	2005	2013	2014	2015	2016	2017	2018
Australia	1.39	1.45	1.45	1.47	1.45	1.47	1.45
Austria	0.88	0.80	0.80	0.80	0.78	0.77	0.77
Belgium	0.89	0.81	0.80	0.80	0.78	0.77	0.77
Canada	1.21	1.22	1.23	1.25	1.21	1.20	1.20
Chile	333.69	349.68	367.21	391.36	409.98	411.26	412.36
Colombia	951.91	1 206.68	1 220.61	1 276.48	1 285.21	1 314.79	1 326.89
Czech Republic	14.56	12.79	12.70	12.93	12.58	12.38	12.40
Denmark	8.57	7.35	7.33	7.30	7.08	6.85	6.78
Estonia	1	1	1	1	1	1	1
Finland	0.98	0.91	0.91	0.91	0.88	0.86	0.86
France	0.92	0.81	0.81	0.81	0.78	0.77	0.76
Germany	0.87	0.77	0.77	0.78	0.75	0.74	0.74
Greece	0.71	0.63	0.61	0.61	0.59	0.58	0.57
Hungary	130.93	124.98	129.41	132.52	132.05	134.36	138.20
Iceland	95.84	137.02	138.55	141.94	140.04	137.12	136.86
Ireland	1.01	0.81	0.82	0.81	0.79	0.79	0.79
Israel ¹	3.72	3.84	3.94	3.92	3.79	3.75	3.72
Italy	0.86	0.74	0.74	0.74	0.70	0.69	0.68
Japan	129.55	101.30	103.05	103.45	105.50	105.38	104.61
Korea	788.92	869.08	871.88	857.37	858.99	871.70	870.77
Latvia	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Lithuania	0	0	0	0	0	0	0
Luxembourg	0.95	0.90	0.88	0.88	0.85	0.84	0.85
Mexico	7.13	7.88	8.05	8.33	8.45	8.87	9.13
Netherlands	0.90	0.80	0.81	0.81	0.80	0.78	0.78
New Zealand	1.54	1.45	1.44	1.48	1.44	1.45	1.45
Norway	9.01	9.03	9.28	9.93	10.04	9.92	9.83
Poland	1.87	1.76	1.77	1.76	1.73	1.74	1.75
Portugal	0.66	0.58	0.58	0.58	0.57	0.57	0.58
Slovak Republic	0.56	0.49	0.49	0.49	0.50	0.50	0.51
Slovenia	0.61	0.59	0.59	0.60	0.58	0.57	0.57
Spain	0.77	0.67	0.66	0.66	0.64	0.63	0.63
Sweden	9.48	8.60	8.73	8.85	8.82	8.72	8.83
Switzerland	1.69	1.31	1.28	1.24	1.20	1.18	1.17
Turkey	0.83	1.07	1.10	1.16	1.24	1.37	1.61
United Kingdom	0.71	0.70	0.70	0.69	0.69	0.68	0.69
United States	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	1.10	3.94	5.47	6.90	9.37	10.26	14.09
China	2.84	3.66	3.76	3.87	3.99	4.18	4.20
Romania	1.40	1.61	1.63	1.66	1.60	1.60	1.67
Russian Federation	12.74	19.51	21.00	23.56	24.20	24.05	24.77
Singapore	0.85	0.86	0.86	0.88	0.88	0.89	0.88
South Africa	3.50	5.29	5.57	5.83	6.16	6.43	6.52
Chinese Taipei	18.35	14.87	14.84	15.17	15.15	14.70	14.21

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Table D. Value added in industry at current prices and PPP

Million USD

	2005	2013	2014	2015	2016	2017	2018
Australia	484 209	733 784	732 448	726 178	783 976	813 357 e	865 000 e
Austria	189 163	264 027	271 351	279 552	297 991	311 431	327 126
Belgium	220 965	297 695	309 467	322 788	340 813	356 388	368 187
Canada	772 894	993 773	1 042 316	1 001 176 e	1 040 438 e	1 101 719 e	1 150 399 e
Chile	151 417 e	275 490	281 272	277 537 e	279 724 e	295 656 e	313 751 e
Colombia	240 834	409 729	427 984	425 898	453 718	466 925	494 502
Czech Republic	155 817	217 781	234 396	245 668	261 095	279 527	292 457
Denmark	107 005	151 614	156 880	162 352	174 652	187 851	196 478
Estonia	15 236	23 951	24 525	24 091	25 051	27 521 e	29 751 e
Finland	102 863	127 024	127 894	130 332	138 289	149 741 e	155 323 e
France	1 144 059	1 504 248	1 533 004	1 570 744	1 648 759	1 718 138	1 785 522
Germany	1 691 833	2 299 308	2 424 686	2 478 542	2 655 938	2 802 184	2 883 476
Greece	172 166	152 657	156 353	155 762	156 555	166 004 e	172 874 e
Hungary	109 041	151 623	159 327	165 842	170 764	182 260	195 462
Iceland	6 436	8 587	8 806	9 611	10 599 e	11 104 e	11 853 e
Ireland	114 952	154 546	167 050	246 658	263 942	292 161 e	320 951 e
Israel ¹	103 938 e	164 061	164 081 e	174 033 e	189 144 e	198 568 e	209 156 e
Italy	1 108 896	1 334 075	1 339 992	1 368 782	1 486 495	1 561 275	1 594 678
Japan	3 061 437	3 566 122	3 586 371	3 727 688	3 681 661	3 759 308	3 793 479 e
Korea	798 471	1 133 309	1 169 340	1 250 492	1 301 389 e	1 351 741 e	1 395 780 e
Latvia	20 748	28 884	29 707	30 725	31 990	34 919 e	37 270 e
Lithuania	34 584	56 897	59 362	59 606	62 196	67 520 e	70 630 e
Luxembourg	21 125	34 791	38 218	41 225	43 172	45 024 e	47 159 e
Mexico	995 958	1 531 083	1 591 302	1 622 839	1 743 879	1 845 986	1 932 483
Netherlands	396 829	534 272	532 594	552 032	575 409	611 289 e	639 458 e
New Zealand	71 276	104 319	108 916	111 557	120 895 e	129 233 e	134 647 e
Norway	147 023	221 603	217 473	194 523	185 784	202 836	222 319
Poland	365 586	664 790	687 412	725 235	760 496	811 645	852 976 e
Portugal	141 458	169 903	174 386	180 593	190 138	195 846 e	203 276 e
Slovak Republic	61 334	101 509	110 753	114 091	109 623	113 420	120 635
Slovenia	31 859	39 422	41 599	42 725	45 726	50 044 e	53 458 e
Spain	807 808	930 330	961 410	1 010 463	1 083 659	1 162 017	1 192 536
Sweden	189 919	269 898	277 921	295 574	308 270	326 577 e	337 724 e
Switzerland	216 809	346 846	360 651	375 065	388 217	399 496	418 761
Turkey	552 853	1 154 990	1 280 546	1 397 562	1 445 778	1 599 217 e	1 649 437 e
United Kingdom	1 212 583	1 558 887	1 618 507	1 671 329	1 744 197	1 846 845	1 909 488
United States	8 485 524	10 567 747	11 101 619	11 550 115	11 807 310	12 357 011 e	13 028 563 e
EU28 (OECD estimates)	8 671 177 e	11 502 976 e	11 884 705 e	12 345 846 e	13 100 775 e	13 875 900 e	14 394 770 e
OECD-Total	24 353 491 e	32 279 576 e	33 509 920 e	34 718 985 e	36 007 733 e	37 831 783 e	39 407 023 e
Argentina	358 987	534 381 e	528 357 e	535 022 e	545 406 e	641 047 e	655 812 e
China	5 686 674 e	13 678 965 e	14 383 239 e	14 829 646 e	15 376 163 e	16 196 952 e	17 596 117 e
Romania	144 833	275 627	282 839	298 435 e	336 417 e	375 262 e	396 536 e
Russian Federation	1 235 157 e	2 377 304 e	2 446 278 e	2 399 080 e	2 417 405 e	2 623 925 e	2 864 936 e
Singapore	210 657 e	361 219 e	372 837 e	388 697 e	402 708 e	425 594 e	455 908 e
South Africa	330 979 e	463 461 e	471 208 e	476 853 e	483 172 e	497 087 e	507 172 e
Chinese Taipei	489 962 e	755 594	813 237	830 883	853 895	904 264	949 228

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database (underlying sources described in section 10 of the documentation, http://www.oecd.org/sti/inn/MSTI_documentation_e.pdf.)

Table E. Total population

Thousands

	2005	2013	2014	2015	2016	2017	2018
Australia	20 177	23 128	23 476	23 816	24 191	24 602	24 993
Austria	8 225	8 477	8 544	8 630	8 740	8 795	8 838
Belgium	10 479	11 159	11 209	11 274	11 331	11 375	11 427
Canada	32 244	35 083	35 437	35 703	36 109	36 543	37 058
Chile	16 283	17 640	17 836	18 045	18 278	18 522	18 770
Colombia	41 686	45 774	46 296	46 819	47 343	47 868	48 391
Czech Republic	10 234	10 511	10 525	10 543	10 565	10 590	10 626
Denmark	5 419	5 613	5 643	5 682	5 729	5 767	5 794
Estonia	1 359	1 320	1 316	1 313	1 316	1 316	1 319
Finland	5 246	5 439	5 463	5 481	5 495	5 508	5 516
France	63 168	65 991	66 312	66 581	66 831	67 063	67 265
Germany	81 337	80 646	80 983	81 687	82 349	82 657	82 906
Greece	10 987	10 965	10 892	10 821	10 776	10 755	10 733
Hungary	10 087	9 893	9 866	9 843	9 814	9 788	9 776
Iceland	296	324	327	331	335	343	353
Ireland	4 160	4 620	4 652	4 696	4 749	4 802	4 861
Israel ¹	6 961	8 056	8 212	8 377	8 543	8 710	8 881
Italy	58 191	60 646	60 789	60 731	60 628	60 537	60 459
Japan	127 755	127 333	127 262	127 110	126 933	126 706	126 443
Korea	48 185	50 429	50 747	51 015	51 218	51 362	51 607
Latvia	2 239	2 013	1 994	1 977	1 959	1 941	1 926
Lithuania	3 323	2 958	2 932	2 905	2 868	2 828	2 802
Luxembourg	466	545	558	569	584	597	609
Mexico	107 000	118 229	119 550	120 846	122 117	123 364	124 582
Netherlands	16 320	16 804	16 865	16 940	17 030	17 131	17 232
New Zealand	4 148	4 458	4 527	4 611	4 703	4 787	4 863
Norway	4 623	5 080	5 137	5 190	5 236	5 277	5 312
Poland	38 161	38 502	38 484	38 455	38 427	38 422	38 413
Portugal	10 503	10 457	10 401	10 358	10 326	10 300	10 284
Slovak Republic	5 387	5 413	5 419	5 422	5 431	5 438	5 446
Slovenia	2 001	2 060	2 062	2 063	2 065	2 066	2 072
Spain	43 663	46 593	46 455	46 410	46 450	46 533	46 729
Sweden	9 030	9 600	9 696	9 799	9 923	10 058	10 175
Switzerland	7 488	8 089	8 189	8 282	8 373	8 452	8 514
Turkey	68 435	76 148	77 182	78 218	79 278	80 313	81 407
United Kingdom	60 413	64 106	64 597	65 110	65 648	66 040	66 436
United States	295 993	316 421	318 717	321 026	323 317	325 410	327 436
EU28 (OECD estimates)	494 910 e	507 129 e	508 322 e	509 792 e	511 347 e	512 432 e	513 586 e
OECD-Total	1 225 387 e	1 310 525 e	1 318 554 e	1 326 679 e	1 335 009 e	1 342 566 e	1 350 252 e
Argentina	38 592	42 203	42 670	43 132	43 590	44 045	44 495
China	1 307 560	1 360 720	1 367 820	1 374 620	1 382 710	1 390 080	1 395 380 e
Romania	21 320	19 989	19 916	19 822	19 706	19 592	19 472
Russian Federation	143 519	143 507	146 091	146 406	146 675	146 842	146 831
Singapore	4 266	5 399	5 470	5 535	5 607	5 612	5 639
South Africa	47 602	53 104	53 912	54 750	55 620	56 522	57 354 e
Chinese Taipei	22 770	23 374	23 434	23 492	23 540	23 571	23 589

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>Source: OECD, Main Science and Technology Indicators database (underlying sources described in section 10 of the documentation, http://www.oecd.org/sti/inn/MSTI_documentation_e.pdf.)

Table F. Total employment

Thousands

	2005	2013	2014	2015	2016	2017	2018
Australia	9 965	11 456	11 665	11 903	12 080	12 450	12 754
Austria	3 873	4 220	4 260	4 286	4 341	4 413	4 489
Belgium	4 273	4 559	4 577	4 617	4 675	4 752	4 817
Canada	16 407	17 988	18 091	18 262	18 454	18 798 e	19 042 e
Chile	6 176	7 771	7 897	8 009	8 117	8 278 e	8 392 e
Colombia	..	..	..	..	..	..	..
Czech Republic	4 923	5 081	5 109	5 182	5 264	5 346	5 418
Denmark	2 783	2 766	2 791	2 829	2 876	2 922	2 963
Estonia	612	601	606	623	625	634 e	642 e
Finland	2 411	2 520	2 508	2 504	2 517	2 543 e	2 607 e
France	26 321	27 190	27 334	27 391	27 567	27 842	28 114
Germany	39 311	42 350	42 721	43 122	43 655	44 248	44 854
Greece	4 647	3 998	4 035	4 064	4 083	4 170	4 254 e
Hungary	4 122	4 035	4 219	4 313	4 473	4 559	4 667
Iceland	162	175	178	184	191	199 e	204 e
Ireland	1 962	1 908	1 940	1 989	2 045	2 107 e	2 174 e
Israel ¹	2 924	3 742	3 847	3 934	4 026	4 124 e	4 195 e
Italy	24 511	24 339	24 357	24 516	24 849	25 138	25 342
Japan	65 531	65 549	65 934	66 220	66 852	67 501	68 626
Korea	22 856	25 066	25 599	25 936	26 235	26 549 e	26 646 e
Latvia	969	889	877	889	886	886 e	900 e
Lithuania	1 421	1 292	1 318	1 335	1 361	1 351 e	1 370 e
Luxembourg	308	386	396	406	418	433 e	449 e
Mexico	32 801	36 615	36 981	37 562	38 201	38 645	39 240
Netherlands	8 339	8 732	8 724	8 806	8 901	9 099 e	9 323 e
New Zealand	2 059	2 238	2 312	2 355	2 485	2 559 e	2 607 e
Norway	2 319	2 666	2 694	2 707	2 715	2 747	2 793
Poland	14 057	15 464	15 731	15 970	16 061	16 281	16 370 e
Portugal	5 041	4 450	4 513	4 576	4 651	4 802	4 914 e
Slovak Republic	2 089	2 192	2 223	2 267	2 321	2 372	2 420
Slovenia	930	927	930	942	960	988 e	1 020 e
Spain	19 704	17 803	17 988	18 491	18 885	19 388	19 817
Sweden	4 349	4 672	4 737	4 807	4 889	5 009 e	5 086 e
Switzerland	4 145	4 733	4 822	4 895	4 963	5 008	5 055
Turkey	19 489	24 778	25 633	26 330	26 907	27 868 e	28 396 e
United Kingdom	28 853	30 042	30 753	31 285	31 745	32 060	32 443
United States	143 979	146 185	148 513	151 000	153 586	155 491	157 921
EU28 (OECD estimates)	220 618 e	224 490 e	226 842 e	229 342 e	232 134 e	235 764 e	238 948 e
OECD-Total	528 444 e	559 378 e	566 812 e	574 506 e	582 861 e	591 562 e	600 322 e
Argentina	15 530	17 641	17 677	17 920	18 145	18 376	18 332
China	746 470	769 770	772 530	774 510	776 030	776 400	775 860
Romania	9 159	8 569	8 635	8 526	8 430	8 631	8 651
Russian Federation	68 339	71 391	71 539	72 324	72 393	72 142	72 354
Singapore	2 320	3 494	3 624	3 656	3 673	3 669	3 715
South Africa	12 769	14 866	15 146	15 741	15 780	16 169	16 394
Chinese Taipei	9 942	10 967	11 079	11 198	11 267	11 352	11 434

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>

Source: OECD, Main Science and Technology Indicators database (underlying sources described in section 10 of the documentation, http://www.oecd.org/sti/inn/MSTI_documentation_e.pdf.)

Table G. Industrial employment

Thousands

	2005	2013	2014	2015	2016	2017	2018
Australia	7 453	8 258	8 406	8 506	8 583	8 835	9 020
Austria	2 951	3 176	3 206	3 212	3 245	3 299	3 360
Belgium	2 963	3 116	3 119	3 145	3 182	3 229	3 277
Canada	12 392	13 327	13 424	13 510	13 621	13 875 e	14 055 e
Chile	4 774 e	5 967	6 003	6 053	6 175	6 245 e	6 307 e
Colombia	..	..	..	..	..	..	..
Czech Republic	3 960	4 087	4 100	4 164	4 223	4 270	4 331
Denmark	1 858	1 814	1 836	1 871	1 917	1 961	1 997
Estonia	471	452	453	469	470 e	480 e	487 e
Finland	1 707	1 766	1 757	1 749	1 762	1 781 e	1 827 e
France	18 059	18 515	18 582	18 595	18 717	18 982	19 269 e
Germany	28 709	30 944	31 164	31 335	31 638	32 014	32 420
Greece	3 648	3 068	3 111	3 132	3 144	3 213 e	3 278 e
Hungary	3 178	3 035	3 181	3 231	3 359	3 467	3 563
Iceland	116	124	127	131	137	144 e	148 e
Ireland	1 538	1 404	1 431	1 468	1 520	1 562 e	1 606 e
Israel ¹	1 882	2 403	2 447	2 494	2 569	2 632 e	2 655 e
Italy	18 313	17 961	17 892	18 022	18 350	18 629	18 843
Japan	54 922	53 046	53 188	53 106	53 441	54 023	54 993
Korea	19 172	20 135	20 505	20 778	20 890	20 998 e	21 012 e
Latvia	747	683	673	685	679	678 e	692 e
Lithuania	1 084	983	1 008	1 015	1 033	1 026 e	1 044 e
Luxembourg	245	299	306	313	323	334 e	346 e
Mexico	25 303	27 817	28 082	28 456	29 087	29 497	30 048
Netherlands	6 066	6 188	6 220	6 323	6 421	6 581 e	6 758 e
New Zealand	1 557 e	1 647 e	1 698 e	1 730 e	1 821 e	1 869 e	1 904 e
Norway	1 492	1 695	1 710	1 706	1 698	1 716	1 749
Poland	11 097	12 091	12 302	12 516	12 634	12 819 e	12 853 e
Portugal	3 922	3 346	3 410	3 469	3 533	3 648 e	3 740 e
Slovak Republic	1 624	1 716	1 739	1 776	1 822	1 866	1 908
Slovenia	765	744	747	757	771	794 e	821 e
Spain	15 266	12 939	13 053	13 521	13 841	14 265	14 579
Sweden	2 842	3 108	3 141	3 169	3 199	3 297 e	3 348 e
Switzerland	3 173	3 537	3 595	3 628	3 651	3 668	3 697
Turkey	16 854	20 992	21 577	22 040	22 299	23 096 e	23 534 e
United Kingdom	21 280	21 681	22 331	22 824	23 255	23 548	23 763
United States	102 533	101 477	103 356	104 808	106 826	108 319	109 658
EU28 (OECD estimates)	164 839 e	165 058 e	166 812 e	168 639 e	170 885 e	173 875 e	176 309 e
OECD-Total	399 140 e	413 540 e	418 877 e	423 707 e	429 835 e	436 660 e	442 887 e
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	7 918	7 466	7 556	7 334	7 257	7 424	7 454
Russian Federation	50 969	52 759	52 929	53 353	53 267	53 132	53 331
Singapore	2 040	3 057	3 161	3 182	3 192	3 179	3 215
South Africa	9 714 e	11 026 e	11 202 e	11 694	11 749	12 091	12 301
Chinese Taipei	8 727	9 523	9 624	9 735	9 797	9 876	9 958

Note: Detailed metadata: <http://metalinks.oecd.org/msti/20200805/3885>

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AVAILABLE ON LINE

Main Science and Technology Indicators

This biannual publication provides a set of indicators that reflect the level and structure of the efforts undertaken by OECD member countries and seven non-member economies (Argentina, China, Romania, Russian Federation, Singapore, South Africa, Chinese Taipei) in the field of science and technology. These data include final or provisional results as well as forecasts established by government authorities. The indicators cover the resources devoted to research and development, patent families, technology balance of payments and international trade in R&D-intensive industries. Also presented are the underlying economic series used to calculate these indicators. Series are presented for a reference year and for the last six years for which data are available.

ALSO AVAILABLE ON LINE

The data in this publication are also available on line via www.oecd-ilibrary.org under the title *OECD Science, Technology and R&D Statistics* (<https://doi.org/10.1787/strd-data-en>).

Volume 2020/1



ISSN 2304-2761
2020 SUBSCRIPTION
(2 ISSUES)

