



Main Science and Technology Indicators

Main Science and Technology Indicators

Volume 2013/2

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Foreword

This publication is prepared by the Economic Analysis and Statistics (EAS) Division of the OECD Secretariat in collaboration with the Working Party of National Experts on Science and Technology Indicators (NESTI). It contains the main data series selected from the OECD Scientific and Technological Indicators Database.

The first part of this publication presents key figures in the field of science and technology. These are found in one summary table and several graphs showing the most used indicators.

The second part consists of 72 standard tables showing data series on resources devoted to research and experimental development (R&D) and some measures of output and the impact of scientific and technological activities. It is complemented by a description of the general methodology used. National specifications and background economic indicators are shown in annex.

R&D data

The OECD has been collecting R&D data for member countries on a regular basis since the early 1960s. During the 1990s, it has also embarked on the collection of R&D data for selected non-member economies, some of which are presented in the tables below. This publication presents various indicators of the level and trends in total national R&D efforts. The standard expenditure measure is the Gross Domestic Expenditure on Research and Experimental Development (GERD), which covers all R&D carried out on national territory in the year concerned. The pattern of financing and of performance of GERD is also presented.

Further information is given on R&D performed in the business enterprise sector. This includes tables showing data on total business enterprise R&D carried out by the major industries concerned. Sets of data are provided for R&D carried out in the higher education and government sectors. All the above tables are essentially based on retrospective surveys of the units carrying out the R&D though national forecasts have been included when available.

More up-to-date information on R&D financed by government can be derived from budget data. These data show government R&D appropriations distinguishing firstly between defence and civil programmes and secondly between the main objectives of civil R&D. Readers are warned that these budget R&D data vary in coverage from those in previous tables and that these two types of data should not be combined.

Two tables show data on R&D expenditure of foreign affiliates. These data come from the OECD Database on Foreign Affiliates and in some cases are not directly comparable with standard Business Enterprise R&D.

Measures of the output and impact of science and technology

The publication contains no direct measures of the output of scientific and technological activities, such as indicators based on innovation. However, three types of proxy indicators based on data originally collected for other purposes are presented: patents, the technology balance of payments and trade in R&D intensive industries. While each of these indicators has its shortcomings, taken together they may throw light on countries' technological performances.

Patent data can be considered as proxy measures of the output of R&D in the form of inventions. The data presented show the total number and national percentages of triadic patent families, as well as the number of patent applications filed under the Patent Co-operation Treaty (PCT) in two specific sectors of interest: the ICT and biotechnology sectors.

The Technology Balance of Payments (TBP) series are data extracted from national sources (balance of payments or survey results) with the aim of measuring the flow of technological know-how and services into and out of the country concerned. The OECD manual “Proposed Standard Method of Compiling and Interpreting Technology Balance of Payments Data”, TBP Manual 1990, gives the methodology for the international standards for compiling such data. The series quoted comprise money paid or received for the acquisition or use of patents, licences, trademarks, designs, inventions, know-how and closely related technical services.

Indicators of trade performance in R&D intensive industries can be used as proxy measures of the industrial and economic impact of scientific and technological activity. The tables concerned give trade balances and export market shares for three selected groups of R&D intensive industries: “pharmaceuticals”, “computers, electronic and optical industry” and “aerospace”.

Abbreviations

R&D terminology

BERD	Expenditure on R&D in the business enterprise sector.
FTE	Full Time Equivalent (on R&D).
GBAORD	Government Budget Appropriations or Outlays for R&D.
GERD	Gross Domestic Expenditure on R&D.
GOVERD	Government Intramural Expenditure on R&D.
GUF	General University Funds.
HERD	Expenditure on R&D in the higher education sector.
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, see the standard OECD methodology for the collection of R&D statistics entitled *The Measurement of Scientific and Technological Activities: Proposed Standard Practice for Surveys of Research and Experimental Development – Frascati Manual 2002*, known simply as the *Frascati Manual*.

Other

GDP	Gross Domestic Product.
ISIC	International Standard Industrial Classification.
PCT	Patent Co-operation Treaty.
PPP	Purchasing Power Parities.
SITC	Standard International Trade Classification.
TBP	Technology Balance of Payments.

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Standard footnotes

- a) Break in series with previous year for which data is available.
- b) Secretariat estimate or projection based on national sources.
- c) National estimate or projection.
- d) Defence excluded (all or mostly).
- e) National results adjusted by the Secretariat to meet *Frascati Manual* recommendations.
- f) (Not currently used).
- g) Excluding R&D in the social sciences and humanities.
- h) Federal or central government only.
- i) Excludes data for the R&D content of general payment to the higher education sector for combined education and research (public GUF).
- j) Excludes most or all capital expenditure.
- k) Total intramural R&D expenditure instead of current intramural R&D expenditure.
- l) Overestimated or based on overestimated data.
- m) Underestimated or based on underestimated data.
- n) Included elsewhere.
- o) Includes other classes.
- p) Provisional.
- q) (Not currently used).
- r) (Not currently used).
- s) Unrevised breakdown not adding to the revised total.
- t) Do not correspond exactly to *Frascati Manual* recommendations.
- u) University graduates instead of researchers.
- v) The sum of the breakdown does not add to the total (see General Methodology).
- w) Including extramural R&D expenditure.
- x) Confidential.
- y) (Not currently used).
- z) Compiled according to the System of National Accounts 2008.

Key figures

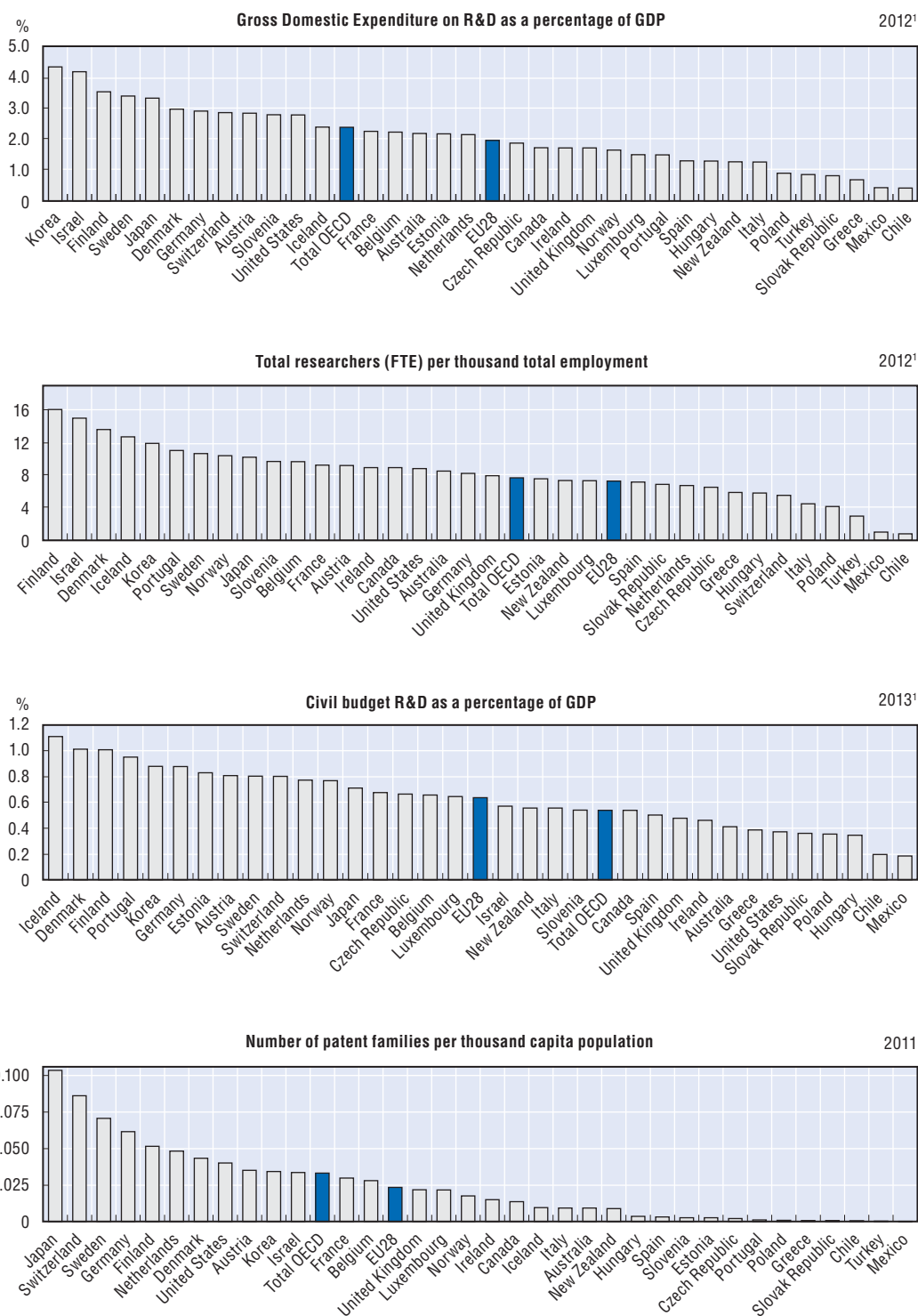
Key figures

2012 or latest available year

	Million current PPP	Gross domestic expenditure on R&D					Total researchers
		% financed by		% performed by			Full time equivalent
		Industry	Government	Industry	Higher education	Government	
Australia	20 469.5 ^c	61.9	34.6	58.4 ^c	26.6 ^c	12.4	92 649
Austria	10 817.2 ^{b, p}	43.9 ^{c, p}	40.4 ^{c, o, p}	68.8 ^{c, p}	25.6 ^{c, p}	5.1	38 637 ^{c, p}
Belgium	10 094.8 ^p	60.2	23.4	67.8 ^p	23.2 ^p	8.2	44 052 ^p
Canada	24 801.1 ^p	48.4 ^p	34.5 ^{c, p}	52.3 ^p	38.3 ^p	9.0	157 360 ^p
Chile	1 304.8	35.4	37.3	38.7	30.6	8.4	5 440 ^m
Czech Republic	5 442.9 ^p	36.4 ^p	36.8	53.6 ^p	27.5	18.4	33 169
Denmark	7 137.5 ^{c, p}	60.1 ^{c, p}	29.0 ^{c, p}	65.7 ^{c, p}	31.8 ^{c, p}	2.2	37 675 ^{c, p}
Estonia	709.1 ^p	51.2 ^p	38.4 ^p	57.4 ^p	32.2 ^p	9.3	4 570
Finland	7 530.1	63.1	26.7	68.7	21.6	9.0	40 468
France	54 679.9 ^p	55.0	35.4	64.2 ^p	20.8 ^p	13.7	249 086
Germany	100 247.6 ^c	65.6	29.8	66.9 ^{c, p}	18.3 ^c	14.8	342 700 ^{c, p}
Greece	1 994.3	31.0	50.4	34.3	39.9	24.8	24 122
Hungary	2 911.6	46.9	36.9	65.6 ^v	18.4 ^v	14.4	23 837
Iceland	292.6	47.5	42.3	52.6	26.5	17.8	2 131
Ireland	3 465.9 ^c	48.6 ^c	29.8 ^c	69.4 ^c	25.9 ^c	4.7	16 076 ^c
Israel	9 735.3 ^d	36.6 ^d	12.2 ^d	84.4 ^d	12.6 ^{d, g}	1.8	49 797 ^d
Italy	26 320.5 ^p	45.1	41.9	54.5 ^p	28.6 ^p	13.7	110 823 ^p
Japan	151 837.2 ^b	76.5	16.4 ^p	77.0	13.2	8.4	656 651
Korea	65 394.4 ^b	73.7	24.9	76.5	10.1	11.7	288 901
Luxembourg	641.5	44.3	34.8	67.6	12.7 ^p	19.7	2 636
Mexico	8 058.5	36.8	59.6	39.0	28.9	30.5	46 125
Netherlands	15 661.2 ^p	49.9	35.5	56.6 ^p	32.7 ^p	10.7	58 599 ^p
New Zealand	1 766.6	40.0	41.4	45.4	31.8	22.7	16 300
Norway	5 492.6	44.2	46.5	52.4	31.2	16.4	27 908
Poland	7 899.1	32.3	51.3	37.2	34.4	28.0	67 001
Portugal	4 081.5 ^p	44.0	41.8	47.0 ^p	38.7 ^p	6.5	50 694 ^p
Slovak Republic	1 150.3	37.7	41.6 ^m	41.3	34.0	24.5	15 271
Slovenia	1 639.9 ^p	62.8 ^p	28.1 ^p	77.2 ^p	10.4 ^p	12.3	9 093 ^p
Spain	19 555.7	44.3	44.5	53.0	27.7	19.1	127 129 ^p
Sweden	13 899.3 ^c	57.3	27.7	67.8 ^c	27.1 ^c	4.8	49 280 ^{c, m}
Switzerland	10 525.2	68.2	22.8	73.5	24.2	0.7	25 142
Turkey	11 301.8	45.8	29.2	43.2	45.5	11.3	72 109
United Kingdom	39 109.8 ^{c, p}	45.6 ^{c, p}	28.9 ^{c, p}	63.4 ^{c, p}	26.5 ^{c, p}	8.2	252 652 ^{c, p}
United States	453 544.0 ^{i, p}	59.1 ^{i, p}	30.8 ^{i, p}	69.8 ^{i, p}	13.8 ^{i, p}	12.3	1 252 948 ^b
EU28 (OECD estimates)	339 092.0^b	54.3^b	33.9^b	62.2^b	23.9^b	12.9	1 652 933^b
OECD	1 106 506.4^b	59.9^b	29.8^b	67.8^b	18.2^b	11.6	4 296 736^b
Non-member economies							
Argentina	4 592.3	23.9	71.6	24.6	31.4	42.3	50 340
China	243 421.9	74.0	21.6	76.2	7.6	16.3	1 404 017
Romania	1 722.5	34.4	49.9	39.0	19.7	40.9	18 016
Russian Federation	37 854.4	27.2	67.8	58.3	9.3	32.2	443 269
Singapore	6 987.3	55.3	38.1	62.1	27.7	10.2	33 719
South Africa	4 021.3	40.1	44.5	49.7	26.8	22.7	18 720
Chinese Taipei	27 467.6	74.1	24.8	74.2	11.3	14.2	139 215

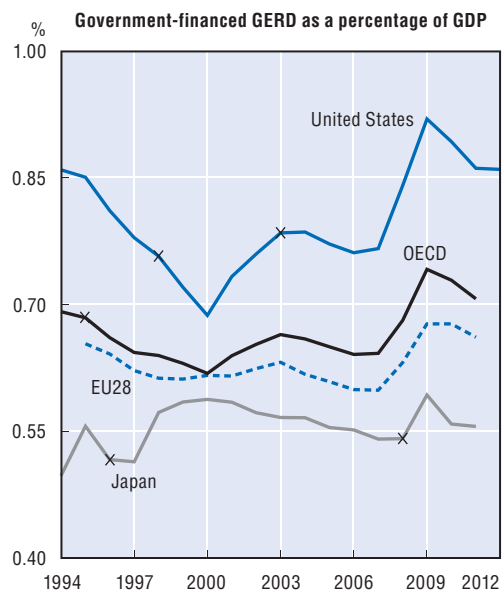
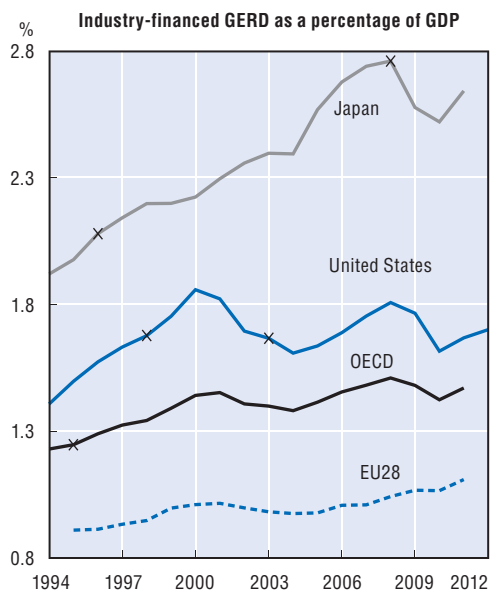
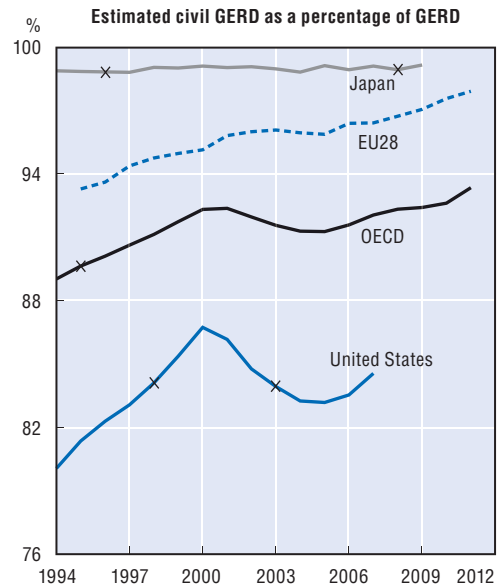
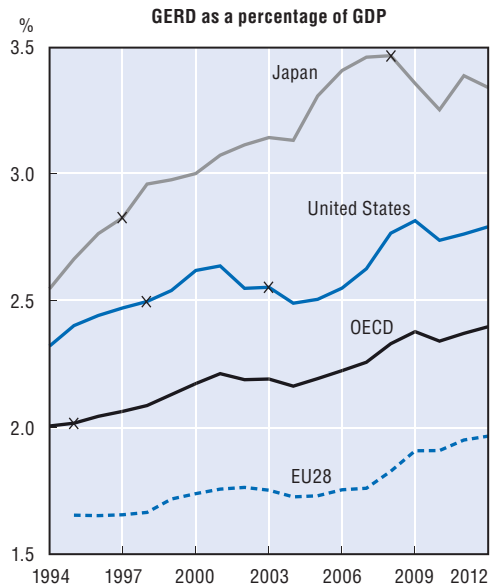
Note: See Tables 1, 7, 13, 14, 17, 18 and 19 for details on reference years.

Source: OECD, Main Science and Technology Indicators Database, January 2014.



1. Or latest year.

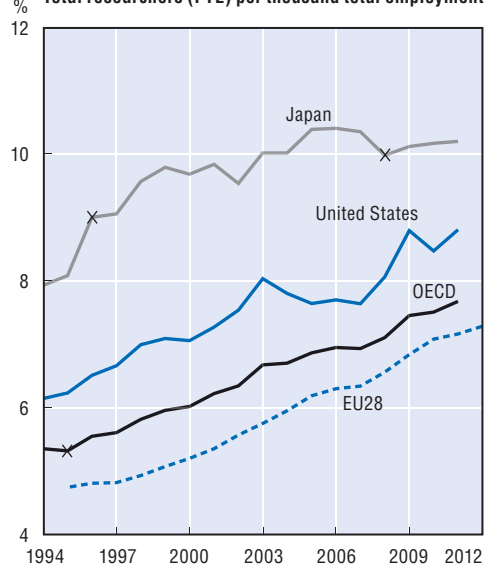
Source: OECD, Main Science and Technology Indicators Database, January 2014.



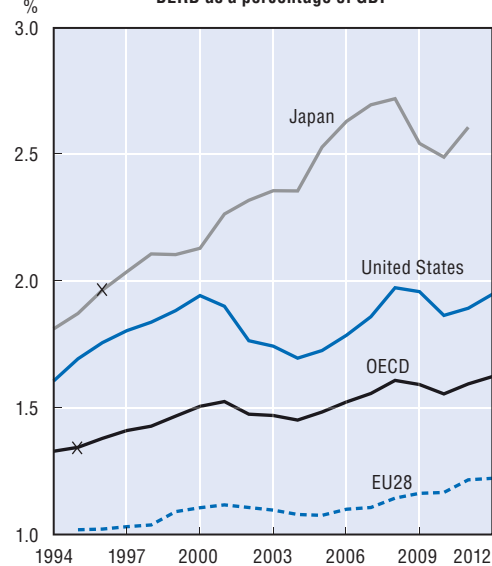
× Break in series.

Source: OECD, Main Science and Technology Indicators Database, January 2014.

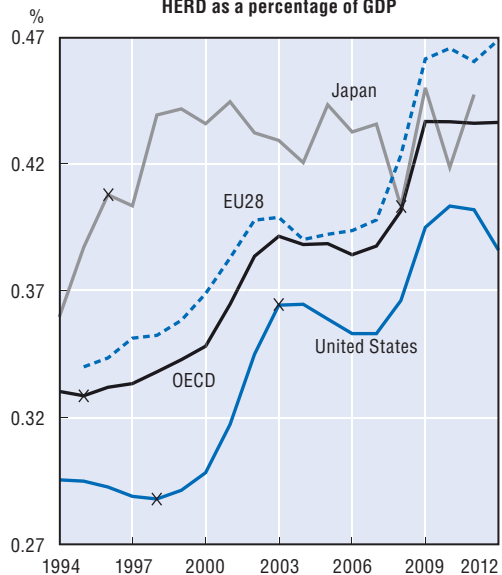
Total researchers (FTE) per thousand total employment



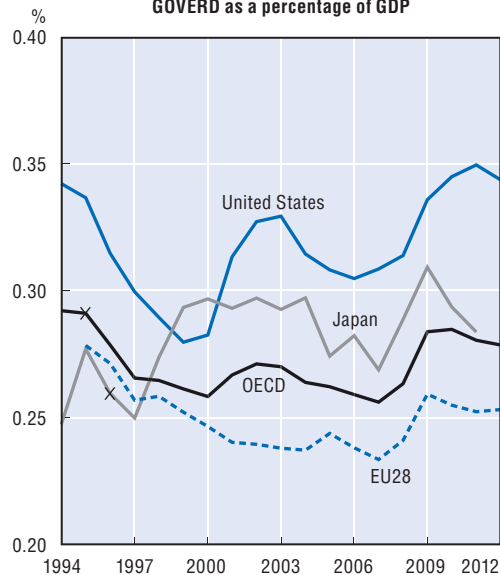
BERD as a percentage of GDP



HERD as a percentage of GDP



GOVERD as a percentage of GDP



X Break in series.

Source: OECD, Main Science and Technology Indicators Database, January 2014.

International comparisons

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

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	7 948.8	..	19 133.0	..	20 469.5 ^c	..	..
Austria	4 480.3 ^c	7 910.4	8 854.1 ^c	8 893.8	9 484.5 ^c	9 971.2	10 549.9 ^{c,p}
Belgium	5 578.0	7 162.1	7 799.3	8 075.1	8 767.0	9 739.4	10 094.8 ^p
Canada	16 703.7	24 778.3	24 916.8	25 051.8	24 703.4	24 756.8	24 801.1 ^p
Chile	..	850.6	1 016.6	1 104.2 ^a	1 304.8	..	..
Czech Republic	1 865.8	3 583.3	3 496.9	3 674.1	3 796.8	4 659.4	5 442.9 ^p
Denmark	..	5 306.9 ^a	6 235.8	6 742.4 ^v	6 812.5	6 934.7	7 137.5 ^{c,p}
Estonia	81.5	312.7	379.1	377.8	444.3	733.6	709.1 ^p
Finland	4 450.6	6 631.2	7 487.9	7 543.0	7 653.9	7 897.7	7 530.1
France	33 000.7 ^a	43 976.3	46 547.8	49 944.2	50 735.6 ^a	53 310.7	54 679.9 ^p
Germany	52 411.0	73 956.6	81 970.7	83 133.7	87 831.8	96 971.5	100 247.6 ^c
Greece	..	1 865.3 ^c	..	..	..	2 006.9 ^a	1 994.3
Hungary	978.0 ^d	1 869.2	2 058.2	2 391.7	2 472.8	2 721.7	2 911.6
Iceland	216.7 ^c	310.3	333.6	373.7 ^l	..	292.6 ^a	..
Ireland	1 223.9 ^c	2 535.3	2 738.4	3 078.2	3 166.8 ^c	3 258.4 ^c	3 465.9 ^c
Israel ¹	6 170.1 ^{a,d}	8 735.1 ^d	8 706.4 ^d	8 487.2 ^d	8 641.7 ^d	9 306.3 ^d	9 735.3 ^d
Italy	15 266.7	22 297.2	24 076.1	24 741.5	25 154.4	25 780.8	26 320.5 ^p
Japan	98 749.8	147 604.1	148 719.2 ^a	137 016.8	140 656.9	148 389.2	151 837.2 ^b
Korea	18 574.2 ^g	40 695.4 ^a	43 906.4	46 129.9	52 100.3	58 379.7	65 394.4 ^b
Luxembourg	387.7	639.4 ^c	682.8	686.5	641.5	..	..
Mexico	3 362.5	5 695.9	6 626.6	6 996.0	7 883.2	8 058.5	..
Netherlands	9 074.3	12 051.3	12 467.8	12 416.7	12 823.6	14 597.9 ^a	15 661.2 ^p
New Zealand	..	1 433.1	..	1 667.2	..	1 766.6	..
Norway	..	4 186.3	4 630.5	4 694.5	4 744.4	5 064.4	5 492.6
Poland	2 608.1	3 617.5	4 150.9	4 883.0	5 723.2	6 409.2	7 899.1
Portugal	1 325.9 ^c	2 987.2	3 981.9 ^a	4 381.7	4 349.1	4 152.7	4 081.5 ^p
Slovak Republic	384.8	517.5	594.1	595.0	816.2	921.3	1 150.3
Slovenia	482.7	794.7	972.6 ^a	1 023.2	1 163.1	1 429.7 ^a	1 639.9 ^p
Spain	7 799.7	18 300.1	20 414.9 ^a	20 632.1	20 338.5	20 107.0	19 555.7
Sweden	..	12 074.2	13 496.1 ^c	12 647.1	12 586.8 ^{c,m}	13 366.3	13 899.3 ^c
Switzerland	5 772.7	..	10 525.2	..	..	..	..
Turkey	2 826.7	7 042.4	7 744.5	8 900.5	9 853.6	11 301.8	..
United Kingdom	27 891.8	38 700.2	39 396.9 ^c	39 581.2 ^c	38 143.5 ^c	39 217.4	39 109.8 ^{c,p}
United States	269 513.0 ⁱ	380 316.0 ⁱ	407 238.0 ⁱ	406 000.0 ⁱ	409 599.0 ⁱ	429 143.0 ⁱ	453 544.0 ^{i,p}
EU28 (OECD estimates)	184 368.0 ^b	270 507.0 ^b	293 655.6 ^b	300 828.8 ^b	308 388.1 ^b	328 999.9 ^b	339 092.0 ^b
OECD-Total	616 482.7^b	915 832.3^b	974 573.7^b	974 466.8^b	998 077.5^b	1 056 228.8^b	1 106 506.4^b
Argentina	1 486.5	2 657.2	2 983.8	3 440.9	3 946.7	4 592.3	..
China	26 973.9 ^a	102 360.0	120 749.3	154 023.7 ^a	177 512.3	207 727.7	243 421.9
Romania	468.3	1 439.6	1 866.6	1 479.3	1 463.2	1 646.4 ^a	1 722.5
Russian Federation	10 503.6	26 536.0	30 058.4	34 618.9	33 055.9	35 192.1	37 854.4
Singapore	2 474.9	5 736.7	6 649.3	5 533.7	6 002.8	6 987.3	..
South Africa	..	4 437.5	4 744.4	4 401.3	4 021.3	..	..
Chinese Taipei	8 781.6 ^d	18 421.6	20 523.6	21 454.6	23 825.8	26 219.2	27 467.6

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	1.47 ^z	..	2.26 ^z	..	2.20 ^{c,z}	..	..
Austria	1.93 ^c	2.51	2.67 ^c	2.71	2.80 ^c	2.77	2.84 ^{c,p}
Belgium	1.97	1.89	1.97	2.03	2.10	2.21	2.24 ^p
Canada	1.91	1.96	1.92	1.97	1.86	1.79	1.73 ^p
Chile	..	0.31	0.37	0.41 ^a	0.42	..	..
Czech Republic	1.17	1.37	1.30	1.35	1.40	1.64	1.88 ^p
Denmark	..	2.58 ^a	2.85	3.16 ^v	3.00	2.98	2.98 ^{c,p}
Estonia	0.60	1.08	1.28	1.41	1.62	2.37	2.18 ^p
Finland	3.35	3.47	3.70	3.94	3.90	3.80	3.55
France	2.15 ^a	2.08	2.12	2.27	2.24 ^a	2.25	2.26 ^p
Germany	2.47	2.53	2.69	2.82	2.80	2.89	2.92 ^c
Greece	..	0.60 ^c	..	..	..	0.67 ^a	0.69
Hungary	0.81 ^d	0.98	1.00	1.17	1.17	1.22	1.30
Iceland	2.67 ^c	2.68	2.65	3.11 ^l	..	2.40 ^a	..
Ireland	1.11 ^c	1.28	1.45	1.69	1.69 ^c	1.66 ^c	1.72 ^c
Israel ¹	4.19 ^{a,d}	4.76 ^d	4.66 ^d	4.40 ^d	4.22 ^d	4.21 ^d	4.20 ^d
Italy	1.04	1.17	1.21	1.26	1.26	1.25	1.27 ^p
Japan	3.00	3.46	3.47 ^a	3.36	3.25	3.39	3.34 ^b
Korea	2.30 ^g	3.21 ^a	3.36	3.56	3.74	4.04	4.36 ^b
Luxembourg	1.65	1.58 ^c	1.66	1.74	1.51	..	..
Mexico	0.34	0.37	0.41	0.44	0.46	0.43	..
Netherlands	1.94	1.81	1.77	1.82	1.86	2.03 ^a	2.16 ^p
New Zealand	..	1.17	..	1.28	..	1.27	..
Norway	..	1.59	1.58	1.76	1.68	1.65	1.65
Poland	0.64	0.57	0.60	0.67	0.74	0.76	0.90
Portugal	0.73 ^c	1.17	1.50 ^a	1.64	1.59	1.52	1.50 ^p
Slovak Republic	0.65	0.46	0.47	0.48	0.63	0.68	0.82
Slovenia	1.38	1.45	1.66 ^a	1.85	2.10	2.47 ^a	2.80 ^p
Spain	0.91	1.27	1.35 ^a	1.39	1.40	1.36	1.30
Sweden	..	3.43	3.70 ^c	3.62	3.39 ^{c,m}	3.39	3.41 ^c
Switzerland	2.47	..	2.87	..	..	..	..
Turkey	0.48	0.72	0.73	0.85	0.84	0.86	..
United Kingdom	1.79	1.75	1.75 ^c	1.82 ^c	1.77 ^c	1.78	1.72 ^{c,p}
United States	2.62 ^{i,z}	2.63 ^{i,z}	2.77 ^{i,z}	2.82 ^{i,z}	2.74 ^{i,z}	2.76 ^{i,z}	2.79 ^{i,p,z}
EU28 (OECD estimates)	1.74 ^b	1.76 ^b	1.83 ^b	1.91 ^b	1.91 ^b	1.95 ^b	1.97 ^b
OECD-Total	2.17^b	2.26^b	2.33^b	2.38^b	2.34^b	2.37^b	2.40^b
Argentina	0.44	0.51	0.52	0.60	0.62	0.65	..
China	0.90 ^a	1.40	1.47	1.70 ^a	1.76	1.84	1.98
Romania	0.37	0.52	0.58	0.47	0.46	0.50 ^a	0.49
Russian Federation	1.05	1.12	1.04	1.25	1.13	1.09	1.12
Singapore	1.85	2.36	2.64	2.20	2.05	2.23	..
South Africa	..	0.92	0.93	0.87	0.76	..	..
Chinese Taipei	1.94 ^d	2.57	2.78	2.94	2.91	3.02	3.07

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 3. Gross domestic expenditure on R&D (GERD) at 2005 prices and PPPs

Million 2005 USD

	2000	2007	2008	2009	2010	2011	2012
Australia	8 897.5	..	17 700.9	..	18 016.6 ^c	..	..
Austria	4 919.5 ^c	7 455.2	8 054.8 ^c	7 858.0	8 264.7 ^c	8 399.7	8 689.1 ^{c,p}
Belgium	6 125.3	6 744.3	7 076.5	7 087.6	7 531.7	8 058.3	8 132.4 ^p
Canada	19 062.9	23 355.9	22 975.5	22 948.4	22 358.6	21 999.0	21 659.7 ^p
Chile	..	712.4	888.7	960.6 ^a	1 034.9	..	..
Czech Republic	2 078.8	3 363.0	3 290.7	3 281.9	3 472.2	4 152.4	4 711.4 ^p
Denmark	..	4 874.8 ^a	5 342.4	5 588.7 ^v	5 381.2	5 392.8	5 388.2 ^{c,p}
Estonia	94.8	284.9	323.8	306.7	360.6	578.2	553.1 ^p
Finland	4 733.3	6 150.5	6 576.0	6 400.7	6 552.6	6 552.1	6 072.6
France	36 945.9 ^a	40 623.3	41 393.5	42 869.2	43 089.6 ^a	44 067.4	44 325.4 ^p
Germany	61 578.8	69 568.9	74 704.6	74 369.7	76 830.0	81 921.0	83 233.5 ^c
Greece	..	1 775.5 ^c	..	..	..	1 681.6 ^a	1 629.3
Hungary	1 124.2 ^d	1 750.9	1 803.2	1 955.6	1 980.7	2 093.9	2 192.4
Iceland	224.2 ^c	308.5	307.6	337.4 ^l	..	256.7 ^a	..
Ireland	1 414.4 ^c	2 290.0	2 525.7	2 757.2	2 732.5 ^c	2 740.9 ^c	2 854.6 ^c
Israel ¹	6 075.9 ^{a,d}	8 604.8 ^d	8 768.1 ^d	8 383.1 ^d	8 433.7 ^d	8 803.4 ^d	9 050.9 ^d
Italy	16 411.4	20 203.9	20 527.7	20 336.5	20 696.5	20 613.1	20 286.7 ^p
Japan	110 017.2	139 915.5	138 683.6 ^a	126 872.3	128 685.2	133 225.8	133 979.2 ^b
Korea	20 213.2 ^g	38 923.5 ^a	41 685.3	44 311.2	49 447.7	55 402.1	60 992.7 ^b
Luxembourg	440.9	560.6 ^c	584.0	580.8	516.9	..	..
Mexico	4 011.3	5 227.1	5 791.7	5 854.0	6 517.4	6 303.7	..
Netherlands	10 385.3	11 134.2	11 070.7	10 961.0	11 376.9	12 539.4 ^a	13 177.5 ^p
New Zealand	..	1 301.5	..	1 417.0	..	1 437.2	..
Norway	..	3 828.7	4 022.7	4 044.3	3 973.8	4 103.9	4 241.3
Poland	2 912.0	3 384.1	3 790.3	4 301.0	4 869.7	5 293.8	6 348.9
Portugal	1 574.4 ^c	2 727.5	3 518.5 ^a	3 727.8	3 683.8	3 484.2	3 310.7 ^p
Slovak Republic	444.4	479.8	522.3	506.0	691.9	765.9	945.0
Slovenia	542.9	769.3	910.5 ^a	938.4	1 077.1	1 276.4 ^a	1 407.8 ^p
Spain	9 192.6	16 219.5	17 457.0 ^a	17 301.7	17 296.0	16 813.9	15 876.6
Sweden	..	10 929.2	11 685.6 ^c	10 862.4	10 855.3 ^{c,m}	11 157.6	11 324.8 ^c
Switzerland	6 360.0	..	8 685.9	..	..	..	..
Turkey	2 995.8	6 314.5	6 380.4	7 109.6	7 709.5	8 545.8	..
United Kingdom	31 125.0	37 338.5	37 117.8 ^c	36 623.9 ^c	36 205.7 ^c	36 753.8	35 597.7 ^{c,p}
United States	302 753.7 ⁱ	359 434.3 ⁱ	377 503.7 ⁱ	373 481.4 ⁱ	372 285.8 ⁱ	382 536.7 ⁱ	397 341.0 ^{i,p}
EU28 (OECD estimates)	208 139.1 ^b	251 665.3 ^b	263 217.3 ^b	263 044.3 ^b	267 932.1 ^b	278 040.1 ^b	279 737.7 ^b
OECD-Total	691 305.6^b	861 377.2^b	894 553.5^b	882 487.9^b	894 354.0^b	926 351.9^b	951 853.0^b
Argentina	1 665.3	2 511.7	2 764.9	3 164.6	3 586.3	4 093.0	..
China	30 404.7 ^a	96 315.5	111 195.9	140 620.2 ^a	160 513.0	183 138.5	213 119.0 ^b
Romania	562.4	1 218.8	1 447.9	1 098.5	1 064.0	1 180.6 ^a	1 161.3
Russian Federation	13 242.4	22 229.6	21 891.8	24 190.5	22 822.0	23 038.3	24 355.4
Singapore	2 836.8	5 418.2	6 162.3	5 088.7	5 452.8	6 224.1	..
South Africa	..	4 177.7	4 370.0	4 018.6	3 623.2	..	..
Chinese Taipei	9 867.9 ^d	17 410.1	19 024.3	19 735.5	21 655.3	23 370.8	24 064.3

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

USD

	2000	2007	2008	2009	2010	2011	2012
Australia	412.5	..	880.6	..	912.7 ^c	..	..
Austria	559.2 ^c	953.6	1 064.0 ^c	1 066.2	1 134.4 ^c	1 188.7	1 252.0 ^{c,p}
Belgium	544.4	674.3	728.4	748.4	805.6	887.2	913.2 ^p
Canada	544.3	752.5	747.8	742.7	723.9	717.9	711.1 ^p
Chile	..	51.2	60.6	65.2 ^a	76.3	..	..
Czech Republic	181.6	347.1	335.3	350.2	361.0	443.9	517.8 ^p
Denmark	..	972.0 ^a	1 135.4	1 221.0 ^v	1 228.4	1 245.2	1 276.8 ^{c,p}
Estonia	59.4	232.9	282.7	281.9	331.5	547.4	529.3 ^p
Finland	859.8	1 253.8	1 409.2	1 412.8	1 427.1	1 466.0	1 391.2
France	543.4 ^a	689.5	725.8	774.8	783.2 ^a	818.7	835.7 ^p
Germany	637.7	899.0	998.2	1 015.4	1 074.3	1 185.8	1 223.8 ^c
Greece	..	166.7 ^c	..	..	..	177.6 ^a	176.6
Hungary	95.8 ^d	185.9	205.0	238.6	247.3	272.9	293.5
Iceland	770.8 ^c	996.6	1 044.6	1 170.5 ^l	..	917.2 ^a	..
Ireland	321.7 ^c	576.2	609.1	678.2	694.5 ^c	711.9 ^c	755.1 ^c
Israel ¹	979.2 ^{a,d}	1 211.3 ^d	1 185.7 ^d	1 134.1 ^d	1 133.8 ^d	1 198.7 ^d	1 231.4 ^d
Italy	268.1	375.5	402.4	411.0	415.9	424.6	432.2 ^p
Japan	778.0	1 153.3	1 161.5 ^a	1 070.2	1 098.5	1 160.8	1 190.4 ^b
Korea	395.1 ^g	837.4 ^a	897.0	937.9	1 054.4	1 172.8	1 307.8 ^b
Luxembourg	887.1	1 330.0 ^c	1 395.8	1 377.9	1 264.0	..	..
Mexico	34.2	53.9	62.2	65.1	72.8	73.8	..
Netherlands	569.9	735.8	758.4	751.4	771.9	874.5 ^a	934.9 ^p
New Zealand	..	337.9	..	384.9	..	400.2	..
Norway	..	889.6	971.0	972.5	970.4	1 022.5	1 094.4
Poland	68.2	94.9	108.9	128.0	148.6	166.4	205.0
Portugal	129.7 ^c	281.6	374.9 ^a	412.1	408.9	391.0	385.8 ^p
Slovak Republic	71.2	95.9	109.9	109.8	150.3	170.7	212.8
Slovenia	242.6	393.6	481.0 ^a	501.1	567.7	696.5 ^a	797.3 ^p
Spain	193.7	407.8	447.8 ^a	449.2	441.4	435.9	423.6
Sweden	..	1 319.9	1 463.8 ^c	1 360.0	1 342.1 ^{c,m}	1 414.5	1 460.4 ^c
Switzerland	800.8	..	1 365.0	..	..	..	..
Turkey	44.0	100.3	108.9	123.5	135.0	152.8	..
United Kingdom	473.7	634.6	641.7 ^c	640.6 ^c	612.6 ^c	625.1	613.9 ^{c,p}
United States	954.4 ⁱ	1 260.6 ⁱ	1 337.2 ⁱ	1 321.4 ⁱ	1 322.2 ⁱ	1 375.3 ⁱ	1 443.1 ^{i,p}
EU28 (OECD estimates)	382.0 ^b	540.0 ^b	583.6 ^b	596.0 ^b	608.9 ^b	648.2 ^b	665.8 ^b
OECD-Total	542.5^b	757.2^b	800.0^b	794.8^b	809.1^b	851.5^b	887.0^b
Argentina	40.3	67.6	75.2	86.0	97.8	112.8	..
China	21.3 ^a	77.5	90.9	115.4 ^a	132.4	154.2	179.8
Romania	20.9	65.4	85.0	67.5	66.9	75.5 ^a	79.2
Russian Federation	71.6	185.8	210.6	242.5	231.4	246.2	264.6
Singapore	631.7	1 212.3	1 371.4	1 114.7	1 181.9	1 345.7	..
South Africa	..	91.8	97.0	89.0	80.4	..	..
Chinese Taipei	394.2 ^d	802.4	890.9	928.0	1 028.7	1 128.9	1 178.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	1.42 ^z	..	2.19 ^z	..	..	..	..
Austria	..	2.50	..	2.70	..	2.76	..
Belgium	1.96	1.89	1.97 ^p	..	..	..	..
Canada	..	..	..	..	..	..	..
Chile	..	0.31	0.37	0.40 ^a	0.41	..	..
Czech Republic	1.10	1.36	1.29	1.35	1.39	1.63	1.88 ^p
Denmark	..	..	..	..	..	..	..
Estonia	0.60	1.08	1.27	1.41	1.62	.. ^x	..
Finland	3.32	3.46	3.69	3.91	3.88	3.78	..
France	1.98 ^a	1.94	1.97	2.13	2.15 ^a	2.18	..
Germany	2.42 ^c	2.49	2.65	2.79	2.77	2.87	..
Greece	..	0.60 ^b	..	..	..	0.66 ^{a,b}	0.69 ^b
Hungary	0.81	..	..	..	..	..	..
Iceland	2.67 ^c	2.68	2.65	3.11 ^l	..	2.40 ^a	..
Ireland	1.11 ^c	1.28	1.45	1.69	1.69 ^c	1.66 ^c	..
Israel ¹	4.19 ^a	4.76	4.66	4.40	4.22	4.21	4.20
Italy	1.04	1.16 ^b	1.20 ^b	1.26 ^b	1.26 ^b	1.25 ^b	1.26 ^{b,p}
Japan	2.98	3.43	3.43 ^a	3.33	..	..	..
Korea	2.17 ^g	3.06 ^{a,b}	3.20 ^b	3.40 ^b	3.58 ^b	3.87 ^b	4.17 ^b
Luxembourg	1.65	1.58 ^c	1.66	1.74	1.51	..	..
Mexico	..	..	..	..	..	..	..
Netherlands	..	..	..	..	..	..	..
New Zealand	..	1.17 ^b	..	1.28 ^b	..	1.27 ^b	..
Norway	..	..	..	..	..	..	..
Poland	..	..	..	..	..	..	..
Portugal	0.72 ^c	1.16	1.50 ^{a,c}	1.64	1.59	1.52	..
Slovak Republic	0.62	0.45	0.46	0.47	0.62	0.67	0.82
Slovenia	..	1.45	1.64 ^a	1.84	2.09	..	..
Spain	..	1.24	1.32 ^a	1.35	1.35	1.31	..
Sweden	..	3.31	..	3.48	..	3.28	..
Switzerland	2.45	..	2.85	..	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	1.53	1.56	1.59 ^c	1.67 ^c	1.64 ^c	1.65	..
United States	2.27 ^{i,z}	2.22 ^{i,p,z}	..	..	..	..	..
EU28 (OECD estimates)	1.65 ^b	1.70 ^b	1.77 ^b	1.85 ^b	1.86 ^b	1.91 ^b	..
OECD-Total	2.01^b	2.08^b	2.15^b	2.20^b	2.17^b	2.21^b	..
Argentina	0.43	0.51	0.52	0.59	0.61	0.64	..
China	..	..	..	..	..	..	..
Romania	0.36	0.51	0.57	0.46	0.45	0.50 ^a	..
Russian Federation	0.80	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	0.87	0.88	0.82	0.71	..	..
Chinese Taipei	1.94	2.50	2.74	2.88	2.85	2.97	3.04

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 6. Basic research expenditure as a percentage of GDP

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	0.38 ^{k,z}	..	0.45 ^{k,z}	..	..	..	..
Austria	..	0.43 ^k	..	0.51 ^k	..	0.53 ^k	..
Belgium	..	..	..	..	..	..	..
Canada	..	..	..	..	..	..	..
Chile	..	0.06	0.07	0.06 ^m	0.06 ^m	..	..
Czech Republic	0.27 ^{c,k}	0.36	0.37	0.40	0.42 ^k	0.47 ^k	0.56 ^{k,p}
Denmark	..	0.30	..	0.50	0.54 ^c	0.54	..
Estonia	0.22	0.23	0.29	0.34	0.38	0.35	..
Finland	..	..	..	..	..	..	..
France	0.51 ^{a,k}	0.52 ^k	0.54 ^k	0.59 ^k	0.56 ^{a,k}	0.55 ^k	..
Germany	..	..	..	..	..	..	..
Greece	..	..	..	..	..	0.19	..
Hungary	0.20	0.20	0.20	0.24	0.23	0.23	..
Iceland	..	0.45	0.44	0.49 ^l	..	0.58 ^a	..
Ireland	..	0.28 ^k	0.36 ^k	0.35 ^k	0.33 ^{c,k}	0.29 ^{c,k}	..
Israel ¹	0.62 ^{a,d}	0.63 ^d	0.61 ^d	0.57 ^d	0.44 ^d	0.42 ^d	0.41 ^d
Italy	..	0.31 ^k	0.32 ^k	0.34 ^k	0.32 ^k	0.30 ^k	..
Japan	0.37 ^k	0.40 ^k	0.39 ^{a,k}	0.42 ^k	0.39 ^k	0.42 ^k	..
Korea	0.29 ^{g,k}	0.50 ^{a,k}	0.54 ^k	0.64 ^k	0.68 ^k	0.73 ^k	..
Luxembourg	..	..	..	..	..	..	..
Mexico	0.10	0.07 ^k	..	0.11 ^k	..	..	..
Netherlands	..	..	..	..	..	0.64 ^{a,k}	..
New Zealand	..	0.35 ^k	..	0.35 ^k	..	0.33 ^k	..
Norway	..	0.27	..	0.32	..	0.30	..
Poland	0.21	0.17	0.18	0.21	0.22	0.20	..
Portugal	0.17 ^c	0.20	0.28	0.31	0.30	0.28	..
Slovak Republic	0.15	0.19	0.19	0.20	0.23	0.25	0.30
Slovenia	0.30	0.16 ^m	0.18 ^a	0.23	0.25	0.29 ^a	..
Spain	0.15 ^c	0.21	0.23 ^a	0.27	0.27	0.27	..
Sweden	..	..	..	..	..	..	..
Switzerland	0.69 ^k	..	0.77 ^k	..	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	..	0.18 ^c	0.19 ^c	0.20 ^c	0.19 ^c	0.17 ^c	..
United States	0.42 ^z	0.47 ^z	0.49 ^z	0.53 ^z	0.52 ^z	0.48 ^z	0.46 ^z
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	0.12 ^k	0.15 ^k	0.15 ^k	0.18 ^k	0.20 ^k	0.20 ^k	..
China	0.05 ^{a,k}	0.05	0.05	0.08 ^{a,k}	0.08 ^k	0.09 ^k	0.10 ^k
Romania	0.06	0.19	0.24	0.17	0.17	0.17 ^a	..
Russian Federation	0.14	0.19	0.19	0.25	0.21	0.19	0.17
Singapore	0.22 ^k	0.41 ^k	0.45 ^k	0.45 ^k	0.42 ^k	0.43 ^k	..
South Africa	..	0.19 ^k	0.19 ^k	0.20 ^k	0.18 ^k	..	..
Chinese Taipei	0.20 ^{d,k}	0.26 ^k	0.28 ^k	0.31 ^k	0.29 ^k	0.29 ^k	0.29 ^k

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 7. Total researchers in full-time equivalent

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	66 001	..	92 649	..	..	..	..
Austria	..	31 676	34 508 ^c	34 664	36 233 ^c	37 114	38 637 ^{c,p}
Belgium	30 540	36 318	36 774	38 225	40 832	42 686	44 052 ^p
Canada	107 900	151 330	157 200	150 220	156 260	157 360 ^p	..
Chile	..	5 551	5 959	4 859 ^m	5 440 ^m	..	..
Czech Republic	13 852	27 878	29 785	28 759	29 228	30 682	33 169 ^p
Denmark	..	30 174 ^a	35 702 ^c	36 789	37 435	37 944	37 675 ^{c,p}
Estonia	2 666	3 690	3 979	4 314	4 077	4 511	4 570 ^p
Finland	34 847 ^u	39 000	40 879	40 849	41 425	40 003 ^a	40 468
France	172 070 ^a	221 851	227 679 ^d	234 366 ^d	243 533 ^a	249 086	..
Germany	257 874 ^c	290 853	302 467	317 226	327 953 ^c	338 608	342 700 ^{c,p}
Greece	..	21 014 ^c	..	..	..	24 674 ^a	24 122
Hungary	14 406 ^d	17 391	18 504	20 064	21 342	23 019	23 837
Iceland	..	2 208	2 308	2 861 ^l	..	2 131 ^a	..
Ireland	8 516 ^c	12 695	14 502	14 189 ^c	14 176 ^c	15 172 ^c	16 076 ^c
Israel ¹	..	..	..	..	..	49 797 ^d	..
Italy	66 110	93 000	95 766	101 840	103 424	106 151	110 823 ^p
Japan	647 572	684 311	656 676 ^a	655 530	656 032	656 651	..
Korea	108 370 ^g	221 928 ^a	236 137	244 077	264 118	288 901	..
Luxembourg	1 646	2 201 ^c	2 288	2 396	2 636	..	..
Mexico	..	37 930	37 639	42 973	45 045	46 125	..
Netherlands	42 194	51 057	50 727	46 958	53 703	58 447 ^a	58 599 ^p
New Zealand	..	14 600	..	16 100	..	16 300	..
Norway	..	24 351	25 578	26 273	26 451	27 228	27 908
Poland	55 174	61 395	61 805	61 105	64 511	64 133	67 001
Portugal	16 738 ^c	28 176	40 408 ^a	44 084	46 256	50 061	50 694 ^p
Slovak Republic	9 955	12 354	12 587	13 290	15 183	15 326	15 271
Slovenia	4 336	6 250	7 032 ^a	7 446	7 703	8 774 ^a	9 093 ^p
Spain	76 670	122 624	130 986 ^a	133 803	134 653	130 235	127 129 ^p
Sweden	..	45 812 ^{a,m,v}	50 220 ^c	47 160 ^m	49 312 ^{c,m}	48 589 ^{a,m}	49 280 ^{c,m}
Switzerland	26 105	..	25 142	..	..	..	..
Turkey	23 083	49 668	52 811	57 759	64 341	72 109	..
United Kingdom	170 554 ^b	252 651 ^c	251 932 ^c	256 124 ^c	256 585 ^c	251 358	252 652 ^{c,p}
United States	983 208 ^b	1 133 557 ^b	1 191 024 ^b	1 250 984 ^b	1 198 280 ^b	1 252 948 ^b	..
EU28 (OECD estimates)	1 117 809 ^b	1 458 115 ^b	1 521 765 ^b	1 557 711 ^b	1 605 489 ^b	1 628 174 ^b	1 652 933 ^b
OECD-Total	3 119 400^b	3 885 453^b	4 007 801^b	4 124 228^b	4 161 476^b	4 296 736^b	..
Argentina	26 420	38 681	41 523	43 717	47 580	50 340	..
China	695 062 ^{a,t}	1 423 381 ^l	1 592 420 ^l	1 152 311 ^a	1 210 841	1 318 086	1 404 017
Romania	20 476	18 808	19 394	19 271	19 780	16 080 ^a	18 016
Russian Federation	506 420	469 076	451 213	442 263	442 071	447 579	443 269
Singapore	16 633	27 301	27 841	30 530	32 031	33 719	..
South Africa	..	19 320	19 384	19 793	18 720	..	..
Chinese Taipei	55 460 ^{d,m}	103 455	110 089	119 185	127 768	134 048	139 215

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Per thousand

	2000	2007	2008	2009	2010	2011	2012
Australia	7.3	..	8.5	..	..	..	..
Austria	..	7.9	8.5 ^c	8.6	8.9 ^c	9.0	9.2 ^{c,p}
Belgium	7.4	8.3	8.2	8.6	9.1	9.4	9.7 ^{b,p}
Canada	7.2	8.9	9.1	8.8	9.0	8.9 ^p	..
Chile	..	0.9	0.9	0.7 ^m	0.8 ^m	..	..
Czech Republic	2.9	5.5	5.7	5.6	5.8	6.1	6.5 ^{b,p}
Denmark	..	10.4 ^a	12.1 ^c	12.9	13.5	13.7	13.6 ^{c,p}
Estonia	4.7	5.7	6.2	7.5	7.4	7.7	7.6 ^{b,p}
Finland	15.2 ^u	15.7	16.0	16.4	16.7	15.9 ^a	16.1
France	6.7 ^a	8.2	8.4 ^d	8.8 ^d	9.1 ^a	9.2	..
Germany	6.5 ^c	7.3	7.5	7.9	8.1 ^c	8.2	8.2 ^{c,p}
Greece	..	4.4 ^c	..	..	..	5.5 ^a	5.9 ^b
Hungary	3.4 ^d	4.1	4.5	5.0	5.2	5.6	5.8
Iceland	..	12.5	12.9	17.0 ^l	..	12.7 ^a	..
Ireland	5.0 ^c	6.0	6.9	7.4 ^c	7.7 ^c	8.4 ^c	8.9 ^b
Israel ¹	..	..	..	..	..	15.0 ^d	..
Italy	2.9	3.7	3.8	4.1	4.2	4.3	4.5 ^p
Japan	9.7	10.4	10.0 ^a	10.1	10.2	10.2	..
Korea	5.1 ^g	9.5 ^a	10.0	10.4	11.1	11.9	..
Luxembourg	6.2	6.6 ^c	6.5	6.8	7.3	..	..
Mexico	..	0.9	0.9	1.0	1.0 ^b	1.0 ^b	..
Netherlands	5.2	5.9	5.8	5.4	6.2	6.7 ^a	6.7 ^{b,p}
New Zealand	..	6.7	..	7.4	..	7.4	..
Norway	..	9.6	9.8	10.1	10.2	10.4	10.4
Poland	3.8	4.1	3.9	3.9	4.1	4.0	4.2 ^b
Portugal	3.3 ^c	5.5	7.9 ^a	8.8	9.4	10.4 ^b	11.0 ^{b,p}
Slovak Republic	4.9	5.7	5.6	6.0	7.0	6.9	6.9 ^b
Slovenia	4.7	6.4	7.0 ^a	7.6	8.0	9.3 ^a	9.7 ^p
Spain	4.7	5.9	6.3 ^a	6.9	7.1	7.0	7.2 ^{b,p}
Sweden	..	10.1 ^{a,m,v}	11.0 ^c	10.6 ^m	11.0 ^{c,m}	10.6 ^{a,m}	10.7 ^{b,m}
Switzerland	6.3	..	5.5	..	..	..	..
Turkey	1.2	2.4	2.5	2.7	2.8	3.0	..
United Kingdom	5.7 ^b	7.9 ^c	7.9 ^c	8.1 ^c	8.2 ^c	8.0	8.0 ^{b,p}
United States	7.1 ^b	7.6 ^b	8.1 ^b	8.8 ^b	8.5 ^b	8.8 ^b	..
EU28 (OECD estimates)	5.2 ^b	6.3 ^b	6.6 ^b	6.8 ^b	7.1 ^b	7.2 ^b	7.3 ^b
OECD-Total	6.0^b	6.9^b	7.1^b	7.5^b	7.5^b	7.7^b	..
Argentina	2.0	2.3	2.5	2.6	2.8	2.9	..
China	1.0 ^{a,t}	1.9 ^t	2.1 ^t	1.5 ^a	1.6	1.7	1.8
Romania	1.9	2.0	2.1	2.1	2.2	1.8 ^a	1.9 ^b
Russian Federation	7.8	6.6	6.4	6.4	6.3	6.3	6.2 ^b
Singapore	7.7	10.0	9.4	10.2	10.3	10.4	..
South Africa	..	1.4	1.4	1.5	1.4	..	..
Chinese Taipei	5.8 ^{d,m}	10.0	10.6	11.6	12.2	12.5	12.8

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	95 621	..	137 489	..	..	..	..
Austria	..	53 252	58 014 ^c	56 438	58 992 ^c	61 171	63 682 ^{c,p}
Belgium	53 391	57 963	58 476	59 756	60 075	62 895	65 979 ^p
Canada	167 940	248 640	256 650	236 760	229 090	228 970 ^p	..
Chile	..	11 024	12 571	10 430 ^m	11 491 ^m	..	..
Czech Republic	24 198	49 192	50 808	50 961	52 290	55 697	60 223 ^p
Denmark	37 693	46 897 ^a	58 589 ^c	55 918	56 623	56 126	55 711 ^{c,p}
Estonia	3 710	5 002	5 086	5 430	5 277	5 724	5 841 ^p
Finland	52 604	56 243	56 698	56 069	55 897	54 526 ^a	54 047
France	327 466 ^a	375 235	382 653 ^d	390 214 ^d	397 756 ^a	402 318	..
Germany	484 734 ^c	506 450	522 688	534 565	548 526	574 701	579 200 ^{c,p}
Greece	..	35 531 ^c	..	..	..	36 913 ^a	37 361
Hungary	23 534 ^d	25 954	27 403	29 795	31 480	33 960	35 732
Iceland	..	2 982	3 117	3 753 ^l	..	3 158 ^a	..
Ireland	12 762 ^c	18 157	20 018	19 705 ^c	19 722 ^c	21 560 ^c	22 791 ^c
Israel ¹	..	..	..	..	..	68 175 ^d	..
Italy	150 066	208 376	221 115	226 527	225 632	228 094	233 927 ^p
Japan	896 847	912 202	882 739 ^a	878 418	877 928	869 825	..
Korea	138 077 ^y	269 409 ^a	294 440	309 063	335 228	361 374	..
Luxembourg	3 663	4 605 ^c	4 652	4 711	4 988	..	..
Mexico	..	70 293	..	..	..	..	..
Netherlands	91 313	93 788	93 432	87 874	100 544	116 326 ^a	116 666 ^p
New Zealand	..	21 000	..	23 200	..	23 600	..
Norway	..	33 635	35 485	36 091	36 121	36 950	37 804
Poland	78 925	75 309	74 596	73 581	81 843	85 219	90 716
Portugal	21 888 ^c	35 334	47 882 ^a	51 347	52 348	55 612	56 192 ^p
Slovak Republic	15 221	15 421	15 576	15 952	18 188	18 112	18 127
Slovenia	8 568	10 369	11 594 ^a	12 410	12 940	15 269 ^a	15 333 ^p
Spain	120 618	201 108	215 676 ^a	220 777	222 022	215 079	208 349 ^p
Sweden	..	75 318 ^{a,m}	79 549 ^c	76 711 ^m	77 418 ^{c,m}	77 950 ^{a,m}	81 272 ^{c,m}
Switzerland	52 285	..	62 066	..	..	..	..
Turkey	27 003 ^m	63 377 ^m	67 244 ^m	73 521 ^m	81 792 ^m	92 801 ^m	..
United Kingdom	288 599 ^b	343 855 ^{c,m}	342 086 ^{c,m}	347 486 ^{c,m}	350 766 ^{c,m}	356 258 ^m	358 045 ^{c,m,p}
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	2 000 349 ^b	2 370 179 ^b	2 461 187 ^b	2 488 815 ^b	2 543 136 ^b	2 615 234 ^b	2 647 918 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	37 515	53 187	56 987	59 683	65 761	69 693	..
China	922 131 ^a	1 736 155	1 965 357	2 291 252 ^a	2 553 829	2 882 903	3 246 840
Romania	33 892	28 977	30 390	28 398	26 171	29 749 ^a	31 135
Russian Federation	1 007 257	912 291	869 772	845 942	839 992	839 183	828 401
Singapore	19 365	32 198	33 165	35 896	37 013	38 996	..
South Africa	..	31 352	30 802	30 891	29 486	..	..
Chinese Taipei	104 568 ^{d,m}	175 741	184 633	196 893	210 678	221 371	227 976

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Per thousand

	2000	2007	2008	2009	2010	2011	2012
Australia	10.6	..	12.6	..	..	..	..
Austria	..	13.4	14.3 ^c	14.0	14.5 ^c	14.8	15.2 ^{c,p}
Belgium	13.0	13.2	13.1	13.4	13.4	13.8	14.5 ^{b,p}
Canada	11.2	14.6	14.8	13.9	13.2	13.0 ^p	..
Chile	..	1.7	1.9	1.6 ^m	1.7 ^m	..	..
Czech Republic	5.0	9.7	9.8	10.0	10.3	11.0	11.9 ^{b,p}
Denmark	13.7	16.2 ^a	19.8 ^c	19.6	20.3	20.2	20.1 ^{c,p}
Estonia	6.5	7.8	7.9	9.4	9.6	9.7	9.7 ^{b,p}
Finland	22.9	22.6	22.2	22.6	22.5	21.6 ^a	21.4
France	12.8 ^a	13.9	14.1 ^d	14.6 ^d	14.8 ^a	14.9	..
Germany	12.3 ^c	12.7	13.0	13.2	13.5	14.0	13.9 ^{c,p}
Greece	..	7.4 ^c	..	..	..	8.3 ^a	9.1 ^b
Hungary	5.6 ^d	6.1	6.6	7.4	7.7	8.3	8.7
Iceland	..	16.8	17.4	22.3 ^l	..	18.9 ^a	..
Ireland	7.5 ^c	8.6	9.5	10.2 ^c	10.7 ^c	11.9 ^c	12.7 ^b
Israel ¹	..	..	..	..	..	20.5 ^d	..
Italy	6.5	8.3	8.8	9.1	9.1	9.2	9.5 ^p
Japan	13.4	13.8	13.4 ^a	13.6	13.6	13.5	..
Korea	6.5 ^g	11.5 ^a	12.5	13.1	14.1	14.9	..
Luxembourg	13.9	13.8 ^c	13.3	13.3	13.9	..	..
Mexico	..	1.6	..	..	..	..	..
Netherlands	11.3	10.9	10.7	10.1	11.6	13.4 ^a	13.4 ^{b,p}
New Zealand	..	9.7	..	10.7	..	10.7	..
Norway	..	13.3	13.6	13.9	13.9	14.1	14.1
Poland	5.4	5.0	4.7	4.7	5.2	5.3	5.6 ^b
Portugal	4.4 ^c	6.9	9.3 ^a	10.2	10.6	11.6 ^b	12.2 ^{b,p}
Slovak Republic	7.5	7.1	6.9	7.2	8.4	8.2	8.2 ^b
Slovenia	9.4	10.6	11.6 ^a	12.6	13.4	16.1 ^a	16.3 ^p
Spain	7.3	9.7	10.4 ^a	11.4	11.8	11.6	11.8 ^{b,p}
Sweden	..	16.6 ^{a,m}	17.4 ^c	17.2 ^m	17.2 ^{c,m}	17.0 ^{a,m}	17.6 ^{b,m}
Switzerland	12.7	..	13.6	..	..	..	..
Turkey	1.4 ^m	3.1 ^m	3.2 ^m	3.5 ^m	3.6 ^m	3.8 ^m	..
United Kingdom	9.7 ^b	10.8 ^{c,m}	10.7 ^{c,m}	11.1 ^{c,m}	11.2 ^{c,m}	11.4 ^m	11.3 ^{b,m,p}
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	9.3 ^b	10.3 ^b	10.6 ^b	10.9 ^b	11.2 ^b	11.5 ^b	11.7 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	2.9	3.2	3.4	3.6	3.9	4.0	..
China	1.3 ^a	2.3	2.6	3.0 ^a	3.4	3.8	4.2
Romania	3.1	3.1	3.2	3.1	2.9	3.3 ^a	3.3 ^b
Russian Federation	15.5	12.9	12.3	12.2	12.0	11.9	11.6 ^b
Singapore	8.9	11.8	11.2	12.0	11.9	12.1	..
South Africa	..	2.3	2.2	2.3	2.3	..	..
Chinese Taipei	11.0 ^{d,m}	17.1	17.7	19.2	20.1	20.7	21.0

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

	2000	2007	2008	2009	2010	2011	2012
Australia	0.71 ^z	..	1.40 ^z	..	..	..	..
Austria	0.81 ^c	1.22	1.23 ^c	1.27	1.25 ^c	1.28	1.24 ^{c,p}
Belgium	1.23	1.16	1.20	1.19	1.21	1.33	..
Canada	0.86	0.97	0.95	0.96	0.86	0.86	0.84 ^p
Chile	..	0.12	0.16	0.13 ^a	0.15	..	..
Czech Republic	0.60	0.64	0.58	0.54	0.57	0.62	0.68 ^p
Denmark	..	1.57 ^a	..	1.96	1.83	1.79	1.79 ^{c,p}
Estonia	0.15	0.45	0.51	0.54	0.71	1.30	1.12 ^p
Finland	2.35	2.37	2.60	2.68	2.58	2.54	2.24
France	1.13 ^a	1.09	1.08	1.19	1.20 ^a	1.24	..
Germany	1.63 ^c	1.72	1.81	1.87	1.84	1.90	..
Greece	..	..	..	..	..	0.22 ^a	0.21
Hungary	0.30 ^v	0.43	0.48	0.54	0.55	0.58	0.61
Iceland	..	1.35	1.33	1.56 ^l	..	1.14 ^a	..
Ireland	0.73 ^c	0.64	0.70	0.88	0.88 ^c	0.80 ^c	0.84 ^c
Israel ¹	2.21 ^{a,d}	2.69 ^d	2.47 ^d	1.65 ^{a,d}	1.54 ^d	..	..
Italy	..	0.49	0.55	0.56	0.56	0.57	..
Japan	2.17	2.69	2.71 ^a	2.53	2.47	2.59	..
Korea	1.66 ^g	2.36 ^a	2.45	2.53	2.68	2.98	..
Luxembourg	1.50	1.20	..	1.23	0.67	..	..
Mexico	0.10	0.17	0.16	0.17	0.17	0.16	..
Netherlands	..	0.88	..	0.82	..	1.01 ^a	..
New Zealand	..	0.48	..	0.50	..	0.51	..
Norway	..	0.72	..	0.77	..	0.73	..
Poland	0.19	0.19	0.18	0.18	0.18	0.22	0.29
Portugal	0.20 ^c	0.55	0.72 ^a	0.72	0.70	0.67	..
Slovak Republic	0.35	0.16	0.16	0.17	0.22	0.23	0.31
Slovenia	0.74	0.84	1.04 ^a	1.08	1.23	1.51 ^a	1.76 ^p
Spain	0.45	0.58	0.61 ^a	0.60	0.60	0.60	..
Sweden	..	2.16	..	2.14	..	1.94	..
Switzerland	1.71	..	1.96	..	..	..	..
Turkey	0.21	0.35 ^o	0.34 ^a	0.35	0.38	0.39	..
United Kingdom	0.87	0.80	0.80 ^c	0.81 ^c	0.78 ^c	0.82	0.79 ^{c,p}
United States	1.81 ^{j,z}	1.70 ^{j,z}	1.76 ^{j,z}	1.72 ^{j,z}	1.57 ^{j,z}	1.62 ^{j,z}	1.65 ^{j,p,z}
EU28 (OECD estimates)	0.96 ^b	0.96 ^b	0.99 ^b	1.02 ^b	1.02 ^b	1.06 ^b	..
OECD-Total	1.39^b	1.43^b	1.46^b	1.43^b	1.37^b	1.42^b	..
Argentina	0.10 ^c	0.15	0.14	0.13	0.14	0.16	..
China	0.52	0.98	1.05	1.22 ^a	1.26	1.36	1.47
Romania	0.18	0.14	0.13	0.16	0.15	0.19 ^a	0.17
Russian Federation	0.35	0.33	0.30	0.33	0.29	0.30	0.30
Singapore	1.02	1.42	1.68	1.15	1.09	1.23	..
South Africa	..	0.39	0.40	0.37	0.31	..	..
Chinese Taipei	1.26	1.77	1.96	2.05	2.08	2.19	2.28

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Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	0.67 ^z	..	0.78 ^z	..	..	..	..
Austria	0.73 ^c	0.81	0.99 ^{c,o}	0.95	1.08 ^{c,o}	0.99	1.15 ^{c,o,p}
Belgium	0.45	0.42	0.46	0.51	0.54	0.52	..
Canada	0.56 ^c	0.63 ^c	0.65 ^c	0.68 ^c	0.66 ^c	0.62 ^c	0.60 ^{c,p}
Chile	..	0.11 ^m	0.13 ^m	0.16 ^a	0.16	..	..
Czech Republic	0.52	0.61	0.58	0.65	0.62	0.68	0.69 ^p
Denmark	..	0.67 ^{a,o}	..	0.83	0.85	0.86	0.87 ^{c,p}
Estonia	0.36	0.49	0.64	0.69	0.72	0.78	0.84 ^p
Finland	0.88	0.83	0.81	0.95	1.00	0.95 ^a	0.95
France	0.83 ^a	0.79	0.83	0.88	0.83 ^a	0.80	..
Germany	0.78 ^c	0.70	0.76	0.84	0.85	0.86	..
Greece	..	..	..	..	..	0.33 ^a	0.35
Hungary	0.40 ^{d,v}	0.44	0.42	0.49	0.46	0.46	0.48
Iceland	..	1.04	1.03	1.21 ^l	..	1.02 ^a	..
Ireland	0.26 ^c	0.42	0.49	0.50	0.50 ^c	0.50 ^c	0.51 ^c
Israel ¹	0.92 ^{a,d}	0.58 ^d	0.57 ^d	0.55 ^d	0.51 ^d	..	..
Italy	..	0.52	0.51	0.53	0.53	0.53	..
Japan	0.59 ^e	0.54 ^e	0.54 ^{a,e}	0.59 ^e	0.56 ^e	0.56 ^e	..
Korea	0.55 ^g	0.80 ^a	0.85	0.98	1.00	1.01	..
Luxembourg	0.13	0.29	..	0.42	0.52	..	..
Mexico	0.21	0.19	0.22	0.23	0.28	0.26	..
Netherlands	..	0.69	..	0.74	..	0.72 ^a	..
New Zealand	..	0.50	..	0.57	..	0.53	..
Norway	..	0.72	..	0.82	..	0.77	..
Poland	0.43	0.33	0.36	0.41	0.45	0.43	0.46
Portugal	0.47 ^c	0.52	0.66 ^a	0.74	0.71	0.64	..
Slovak Republic	0.28 ^m	0.25 ^m	0.25 ^m	0.24 ^m	0.31 ^m	0.34 ^m	0.34 ^m
Slovenia	0.55	0.52	0.52 ^a	0.66	0.74	0.78 ^a	0.79 ^p
Spain	0.35	0.55	0.62 ^a	0.66	0.65	0.60	..
Sweden	..	0.85	..	0.99	..	0.94	..
Switzerland	0.57	..	0.66	..	..	..	..
Turkey	0.24	0.34 ^o	0.23 ^a	0.29	0.26	0.25	..
United Kingdom	0.54	0.54	0.54	0.59	0.57	0.54	0.50 ^{c,p}
United States	0.69 ^{i,z}	0.77 ^{i,z}	0.84 ^{i,z}	0.92 ^{i,z}	0.89 ^{i,z}	0.86 ^{i,z}	0.86 ^{i,p,z}
EU28 (OECD estimates)	0.62 ^b	0.60 ^b	0.63 ^b	0.68 ^b	0.68 ^b	0.66 ^b	..
OECD-Total	0.62^b	0.64^b	0.68^b	0.74^b	0.73^b	0.71^b	..
Argentina	0.31 ^c	0.34	0.37	0.45	0.46	0.46	..
China	0.30	0.34	0.35	0.40 ^a	0.42	0.40	0.43
Romania	0.15	0.35	0.41	0.26	0.25	0.25 ^a	0.24
Russian Federation	0.58	0.70	0.68	0.83	0.80	0.73	0.76
Singapore	0.75	0.83	0.79	0.89	0.83	0.85	..
South Africa	..	0.42	0.42	0.39	0.34	..	..
Chinese Taipei	0.65 ^d	0.77	0.79	0.85	0.80	0.79	0.76

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 13. Percentage of Gross domestic expenditure on R&D (GERD) financed by industry

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	47.9	..	61.9	..	..	..	..
Austria	41.8 ^c	48.7	46.1 ^c	47.1	44.8 ^c	46.2	43.8 ^{c,p}
Belgium	62.4	61.4	61.0	58.6	57.6	60.2	..
Canada	44.9	49.2	49.5	48.5	46.4	48.0	48.4 ^p
Chile	..	38.9	43.7	31.3 ^a	35.4	..	..
Czech Republic	51.2	47.2	45.0	39.8	40.8	37.7	36.4 ^p
Denmark	..	61.0 ^a	..	62.1 ^v	61.1	60.3	60.1 ^{c,p}
Estonia	24.2	41.6	39.8	38.5	43.6	55.0	51.2 ^p
Finland	70.2	68.2	70.3	68.1	66.1	67.0	63.1
France	52.5 ^a	52.3	50.8	52.3	53.5 ^a	55.0	..
Germany	66.0 ^c	68.1	67.3	66.1	65.6	65.6	..
Greece	..	..	..	..	..	32.7 ^a	31.0
Hungary	37.8 ^{d,v}	43.9	48.3	46.4	47.4	47.5	46.9
Iceland	..	50.3	50.3	50.2	..	47.5 ^a	..
Ireland	65.8 ^c	49.5	48.8	52.1	52.2 ^c	48.4 ^c	48.6 ^c
Israel ¹	52.8 ^{a,d}	56.6 ^d	53.0 ^d	37.4 ^{a,d}	36.6 ^d	..	..
Italy	..	42.0	45.9	44.2	44.7	45.1	..
Japan	72.4	77.7	78.2 ^a	75.3	75.9	76.5	..
Korea	72.4 ^g	73.7 ^a	72.9	71.1	71.8	73.7	..
Luxembourg	90.7	76.0 ^c	..	70.3	44.3	..	..
Mexico	29.5	44.6	38.3	39.1	36.2	36.8	..
Netherlands	..	48.8	..	45.1	..	49.9 ^a	..
New Zealand	..	40.7	..	39.0	..	40.0	..
Norway	..	45.0	..	43.6	..	44.2	..
Poland	29.5	34.3	30.5	27.1	24.4	28.1	32.3
Portugal	27.0 ^c	47.0	48.1 ^a	44.0	44.1	44.0	..
Slovak Republic	54.4	35.6	34.7	35.1	35.1	33.9	37.7
Slovenia	53.3	58.3	62.8 ^a	58.0	58.4	61.2 ^a	62.8 ^p
Spain	49.7	45.5	45.0 ^a	43.4	43.0	44.3	..
Sweden	..	62.8	..	59.1	..	57.3	..
Switzerland	69.1	..	68.2	..	..	..	..
Turkey	42.9	48.4 ^o	47.3 ^a	41.0	45.1	45.8	..
United Kingdom	48.3	46.0	45.4 ^c	44.5 ^c	44.0 ^c	45.9	45.6 ^{c,p}
United States	69.0 ⁱ	64.9 ⁱ	63.5 ⁱ	60.9 ⁱ	57.2 ⁱ	58.6 ⁱ	59.1 ^{i,p}
EU28 (OECD estimates)	55.3 ^b	54.5 ^b	54.3 ^b	53.4 ^b	53.2 ^b	54.3 ^b	..
OECD-Total	64.1^b	63.4^b	62.7^b	60.2^b	58.7^b	59.9^b	..
Argentina	23.3 ^c	29.3	26.5	21.4	22.3	23.9	..
China	57.6	70.4	71.7	71.7 ^a	71.7	73.9	74.0
Romania	49.0	26.9	23.3	34.8	32.3	37.4 ^a	34.4
Russian Federation	32.9	29.4	28.7	26.6	25.5	27.7	27.2
Singapore	55.0	59.8	63.5	52.1	53.1	55.3	..
South Africa	..	42.7	42.6	42.5	40.1	..	..
Chinese Taipei	65.0 ^d	68.8	70.4	69.7	71.2	72.5	74.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	45.5	..	34.6	..	..	..	..
Austria	38.0 ^c	32.3	37.0 ^{c,o}	34.9	38.7 ^{c,o}	35.8	40.4 ^{c,o,p}
Belgium	22.9	22.2	23.2	25.3	25.4	23.4	..
Canada	29.3 ^c	32.0 ^c	34.0 ^c	34.6 ^c	35.6 ^c	34.8 ^c	34.5 ^{c,p}
Chile	..	35.6 ^m	33.8 ^m	38.5 ^a	37.3	..	..
Czech Republic	44.5	44.7	44.8	47.8	44.4	41.7	36.8 ^p
Denmark	..	25.9 ^{a,o}	..	26.1 ^v	28.2	28.9	29.0 ^{c,p}
Estonia	59.2	45.6	50.0	48.8	44.1	32.8	38.4 ^p
Finland	26.2	24.1	21.8	24.0	25.7	25.0 ^a	26.7
France	38.7 ^a	38.1	38.9	38.7	37.1 ^a	35.4	..
Germany	31.4 ^c	27.5	28.4	29.8	30.3	29.8	..
Greece	..	..	..	..	..	49.2 ^a	50.4
Hungary	49.5 ^{d,v}	44.4	41.8	42.0	39.3	38.1	36.9
Iceland	..	38.8	38.8	38.9	..	42.3 ^a	..
Ireland	23.4 ^c	32.4	33.7	29.8	29.4 ^c	30.3 ^c	29.8 ^c
Israel ¹	21.8 ^{a,d}	12.2 ^d	12.2 ^d	12.5 ^d	12.2 ^d	..	..
Italy	..	44.3	42.0	42.1	41.6	41.9	..
Japan	19.6 ^e	15.6 ^e	15.6 ^{a,e}	17.7 ^e	17.2 ^e	16.4 ^e	..
Korea	23.9 ^g	24.8 ^a	25.4	27.4	26.7	24.9	..
Luxembourg	7.7	18.2 ^c	..	24.3	34.8	..	..
Mexico	63.0	50.7	54.3	53.2	60.5	59.6	..
Netherlands	..	38.0	..	40.9	..	35.5 ^a	..
New Zealand	..	42.2	..	44.7	..	41.4	..
Norway	..	44.9	..	46.8	..	46.5	..
Poland	66.5	58.6	59.8	60.4	60.9	55.8	51.3
Portugal	64.8 ^c	44.6	43.7 ^a	45.3	44.9	41.8	..
Slovak Republic	42.6 ^m	53.9 ^m	52.3 ^m	50.6 ^m	49.6 ^m	49.8 ^m	41.6 ^m
Slovenia	40.0	35.6	31.3 ^a	35.7	35.3	31.5 ^a	28.1 ^p
Spain	38.6	43.7	45.6 ^a	47.1	46.6	44.5	..
Sweden	..	24.6	..	27.3	..	27.7	..
Switzerland	23.2	..	22.8	..	..	..	..
Turkey	50.6	47.1 ^o	31.6 ^a	34.0	30.8	29.2	..
United Kingdom	30.2	30.9	30.7 ^c	32.6 ^c	32.3 ^c	30.5	28.9 ^{c,p}
United States	26.2 ⁱ	29.2 ⁱ	30.4 ⁱ	32.6 ⁱ	32.6 ⁱ	31.2 ⁱ	30.8 ^{i,p}
EU28 (OECD estimates)	35.5 ^b	34.0 ^b	34.6 ^b	35.5 ^b	35.5 ^b	33.9 ^b	..
OECD-Total	28.5^b	28.5^b	29.2^b	31.2^b	31.1^b	29.8^b	..
Argentina	70.7 ^c	67.5	70.6	75.4	74.7	71.6	..
China	33.4	24.6	23.6	23.4 ^a	24.0	21.7	21.6
Romania	40.8	67.1	70.1	54.9	54.4	49.1 ^a	49.9
Russian Federation	54.8	62.6	64.7	66.5	70.3	67.1	67.8
Singapore	40.3	34.9	29.9	40.4	40.2	38.1	..
South Africa	..	45.7	45.1	44.4	44.5	..	..
Chinese Taipei	33.4 ^d	29.9	28.2	28.9	27.5	26.2	24.8

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 15. Percentage of Gross domestic expenditure on R&D (GERD)
financed by other national sources**

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	3.1	..	1.9	..	..	..	..
Austria	0.3 ^c	1.1	0.4 ^c	1.2	0.5 ^c	1.1	0.5 ^{c,p}
Belgium	2.4	3.5	3.5	4.0	3.7	3.5	..
Canada	8.4 ^c	9.6 ^c	9.3 ^c	9.9 ^c	11.4 ^c	11.4 ^c	11.3 ^{c,p}
Chile	..	21.4	19.2	13.8 ^a	11.6	..	..
Czech Republic	1.1	0.8	1.3	1.2	0.9	0.9	0.9 ^p
Denmark	..	3.5 ^a	..	3.1 ^v	3.5	3.6	3.7 ^{c,p}
Estonia	3.9	1.0	0.8	1.4	0.8	0.4	0.4 ^p
Finland	0.9	1.2	1.2	1.3	1.3	1.4	1.4
France	1.6 ^a	2.1	2.3	2.0	1.8 ^a	1.9	..
Germany	0.4 ^c	0.4	0.3	0.3	0.2	0.3	..
Greece	..	..	..	..	..	3.3 ^a	2.9
Hungary	0.3 ^{d,v}	0.6	0.6	0.7	0.9	1.0	0.9
Iceland	..	0.8	0.8	0.5	..	1.8 ^a	..
Ireland	1.9 ^c	2.2	2.0	1.6	1.4 ^c	1.3 ^c	1.2 ^c
Israel ¹	3.1 ^{a,d}	3.5 ^{a,d}	3.8 ^d	3.6 ^d	3.9 ^d	..	..
Italy	..	4.2	4.1	4.3	4.0	3.9	..
Japan	7.6 ^e	6.3 ^e	5.8 ^{a,e}	6.6 ^e	6.4 ^e	6.6 ^e	..
Korea	3.6 ^g	1.3 ^a	1.4	1.3	1.2	1.2	..
Luxembourg	..	0.1 ^c	..	0.1	0.2	..	..
Mexico	6.5	3.3	5.7	6.0	2.7	2.9	..
Netherlands	..	2.5	..	3.1	..	3.6 ^a	..
New Zealand	..	12.3	..	11.1	..	12.2	..
Norway	..	1.6	..	1.4	..	1.5	..
Poland	2.1	0.4	4.3	7.0	2.8	2.7	3.0
Portugal	3.0 ^c	3.0	5.2 ^a	6.6	7.8	8.3	..
Slovak Republic	0.7	0.2	0.7	1.6	0.7	2.2	2.1
Slovenia	0.4	0.4	0.3 ^a	0.3	0.3	0.2 ^a	0.5 ^p
Spain	6.8	3.9	3.8 ^a	4.1	4.6	4.5	..
Sweden	..	3.0	..	3.2	..	3.9	..
Switzerland	3.4	..	3.0	..	..	..	..
Turkey	5.2	4.0	19.8 ^a	24.0	23.2	24.2	..
United Kingdom	5.5	5.8	6.2 ^c	6.3 ^c	6.0 ^c	5.9	5.7 ^{c,p}
United States	4.7 ⁱ	6.0 ⁱ	6.1 ⁱ	6.4 ⁱ	6.5 ⁱ	6.5 ⁱ	6.3 ^{i,p}
EU28 (OECD estimates)	2.1 ^b	2.5 ^b	2.6 ^b	2.7 ^b	2.5 ^b	2.5 ^b	..
OECD-Total	4.4^b	4.7^b	4.8^b	5.2^b	5.1^b	5.1^b	..
Argentina	4.4 ^c	2.5	2.3	2.5	2.4	4.0	..
China	..	..	..	..	..	..	..
Romania	5.3	1.4	2.7	2.0	2.2	1.4 ^a	1.2
Russian Federation	0.4	0.7	0.6	0.5	0.6	1.0	1.0
Singapore	0.7	0.9	1.3	1.5	1.8	1.6	..
South Africa	..	1.0	0.8	0.9	3.3	..	..
Chinese Taipei	1.6 ^d	1.3	1.3	1.3	1.2	1.2	1.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	3.5	..	1.6	..	..	..	..
Austria	19.9 ^c	17.9	16.4 ^c	16.8	16.0 ^c	16.9	15.2 ^{c,p}
Belgium	12.2	13.0	12.3	12.1	13.3	13.0	..
Canada	17.4	9.3	7.2	7.1	6.5	5.8	5.8 ^p
Chile	..	4.2	3.3	16.4 ^a	15.7	..	..
Czech Republic	3.1	7.3	8.9	11.3	13.9	19.7	25.9 ^p
Denmark	..	9.5 ^a	..	8.6 ^v	7.2	7.2	7.2 ^{c,p}
Estonia	12.7	11.7	9.4	11.3	11.4	11.9	10.0 ^p
Finland	2.7	6.5	6.6	6.6	6.9	6.5	8.8
France	7.2 ^a	7.5	8.0	7.0	7.5 ^a	7.7	..
Germany	2.1 ^c	4.0	4.0	3.8	3.9	4.2	..
Greece	..	..	..	..	..	14.8 ^a	15.8
Hungary	10.6 ^{d,v}	11.1	9.3	10.9	12.4	13.5	15.4
Iceland	..	10.0	10.0	10.3	..	8.4 ^a	..
Ireland	8.9 ^c	15.8	15.6	16.5	17.0 ^c	20.1 ^c	20.4 ^c
Israel ¹	22.3 ^{a,d}	27.8 ^{a,d}	31.0 ^d	46.4 ^{a,d}	47.3 ^d	..	..
Italy	..	9.5	7.9	9.4	9.8	9.1	..
Japan	0.4	0.3	0.4 ^a	0.4	0.4	0.5	..
Korea	0.1 ^g	0.2 ^a	0.3	0.2	0.2	0.2	..
Luxembourg	1.6	5.7 ^c	..	5.4	20.7	..	..
Mexico	0.9	1.4	1.8	1.8	0.5	0.7	..
Netherlands	..	10.7	..	10.8	..	10.9 ^a	..
New Zealand	..	4.8	..	5.2	..	6.3	..
Norway	..	8.5	..	8.2	..	7.8	..
Poland	1.8	6.7	5.4	5.5	11.8	13.4	13.3
Portugal	5.2 ^c	5.4	3.0 ^a	4.1	3.2	5.9	..
Slovak Republic	2.3	10.2	12.3	12.8	14.7	14.2	18.7
Slovenia	6.2	5.8	5.6 ^a	6.0	6.0	7.0 ^a	8.6 ^p
Spain	4.9	7.0	5.7 ^a	5.5	5.7	6.7	..
Sweden	..	9.6	..	10.4	..	11.1	..
Switzerland	4.3	..	6.0	..	..	..	..
Turkey	1.2	0.5	1.3	1.1	0.8	0.7	..
United Kingdom	16.0	17.3	17.7 ^c	16.6 ^c	17.6 ^c	17.8	19.7 ^{c,p}
United States	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	3.7 ⁱ	3.8 ⁱ	3.8 ^{i,p}
EU28 (OECD estimates)	7.1 ^b	9.0 ^b	8.7 ^b	8.5 ^b	8.9 ^b	9.3 ^b	..
OECD-Total	..	..	..	..	5.1^b	5.2^b	..
Argentina	1.6 ^c	0.6	0.6	0.7	0.6	0.5	..
China	2.7	1.3	1.2	1.3 ^a	1.3	1.3	1.0
Romania	4.9	4.5	4.0	8.3	11.1	12.1 ^a	14.4
Russian Federation	12.0	7.2	5.9	6.5	3.5	4.3	4.0
Singapore	4.0	4.3	5.3	5.9	4.9	5.0	..
South Africa	..	10.7	11.4	12.1	12.1	..	..
Chinese Taipei	0.0 ^d	0.0	0.0	0.0	0.0	0.0	0.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	47.8	..	61.1	..	58.4 ^c	..	..
Austria	..	70.6	69.3 ^c	68.1	68.1 ^c	68.8	68.8 ^{c,p}
Belgium	72.3	69.5	68.3	66.3	67.1	68.7	67.8 ^p
Canada	60.3	55.8	54.1	53.2	51.2	52.0	52.3 ^p
Chile	..	34.7	40.4	33.3 ^a	38.7	..	..
Czech Republic	60.0	58.7	58.6	56.5	57.7	55.3	53.6 ^p
Denmark	..	69.9 ^a	69.9	69.8 ^v	67.0	65.9	65.7 ^{c,p}
Estonia	22.5	47.2	43.2	44.7	50.2	63.2	57.4 ^p
Finland	70.9	72.3	74.3	71.4	69.6	70.5	68.7
France	62.5 ^a	63.0	62.7	61.7	63.2 ^a	63.9	64.2 ^p
Germany	70.3	70.0	69.2	67.6	67.1	67.7	66.9 ^{c,p}
Greece	..	28.6 ^c	..	..	..	34.9 ^a	34.3
Hungary	44.3 ^{d,v}	50.3 ^v	52.6 ^v	57.2 ^v	59.8 ^v	62.4 ^v	65.6 ^v
Iceland	56.4 ^c	54.6	54.6	52.9	..	52.6 ^a	..
Ireland	71.6 ^c	65.9	64.7	68.3	68.7 ^c	69.0 ^c	69.4 ^c
Israel ¹	80.5 ^{a,d}	84.0 ^d	83.0 ^d	83.5 ^d	83.2 ^d	84.0 ^d	84.4 ^d
Italy	50.1	51.9	53.6	53.3	53.9	54.6	54.5 ^p
Japan	71.0	77.9	78.5 ^a	75.8	76.5	77.0	..
Korea	74.0 ^g	76.2 ^a	75.4	74.3	74.8	76.5	..
Luxembourg	92.6	83.7 ^c	77.9	75.9	67.6	..	..
Mexico	29.8	47.5	38.4	41.1	38.4	39.0	..
Netherlands	55.1	53.1	50.1	47.1	47.9	56.2 ^a	56.6 ^p
New Zealand	..	42.7	..	41.8	..	45.4	..
Norway	..	52.5	53.2	51.6	51.2	52.2	52.4
Poland	36.1	30.4	30.9	28.5	26.6	30.1	37.2
Portugal	27.8 ^c	51.2	50.1 ^a	47.4	46.1	46.7	47.0 ^p
Slovak Republic	65.8	39.6	42.9	41.0	42.1	37.2	41.3
Slovenia	56.3	59.8	64.6 ^a	64.6	67.8	73.9 ^a	77.2 ^p
Spain	53.7	55.9	54.9 ^a	51.9	51.5	52.1	53.0
Sweden	..	73.0	74.1 ^c	70.6	68.7 ^{c,l}	68.8	67.8 ^c
Switzerland	73.9	..	73.5	..	..	..	..
Turkey	33.4	41.3	44.2	40.0	42.5	43.2	..
United Kingdom	65.0	62.5	62.0 ^c	60.4 ^c	60.9 ^c	63.6	63.4 ^{c,p}
United States	74.2 ⁱ	70.8 ⁱ	71.4 ⁱ	69.6 ⁱ	68.1 ⁱ	68.5 ⁱ	69.8 ^{i,p}
EU28 (OECD estimates)	63.7 ^b	62.9 ^b	62.7 ^b	61.0 ^b	61.2 ^b	62.4 ^b	62.2 ^b
OECD-Total	69.4^b	69.0^b	69.1^b	67.0^b	66.5^b	67.3^b	67.8^b
Argentina	25.9	30.3	27.4	22.3	23.2	24.6	..
China	60.0 ^a	72.3	73.3	73.2 ^a	73.4	75.7	76.2
Romania	69.4	41.6	30.0	40.2	38.3	36.0 ^a	39.0
Russian Federation	70.8	64.2	62.9	62.4	60.5	61.0	58.3
Singapore	62.0	66.8	71.8	61.6	60.8	62.1	..
South Africa	..	57.7	58.6	53.2	49.7	..	..
Chinese Taipei	63.6 ^d	69.1	70.7	70.1	71.5	72.7	74.2

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	26.8	..	24.2	..	26.6 ^c	..	..
Austria	..	23.8	25.0 ^c	26.1	26.1 ^c	25.6	25.6 ^{c,p}
Belgium	20.2	21.1	21.8	23.8	23.5	22.3	23.2 ^p
Canada	28.2	33.9	35.5	35.9	37.2	37.9	38.3 ^p
Chile	..	43.0	40.8	34.3 ^a	30.6	..	..
Czech Republic	14.2	18.3	18.2	19.7	20.0	24.4	27.5 ^p
Denmark	..	26.4 ^a	27.2	27.7 ^v	30.3	31.6	31.8 ^{c,p}
Estonia	52.4	41.8	42.9	42.2	38.0	27.8	32.2 ^p
Finland	17.8	18.7	17.2	18.9	20.4	20.0	21.6
France	18.8 ^a	19.5	20.0	20.8	21.6 ^a	21.0	20.8 ^p
Germany	16.1	16.1	16.7	17.6	18.1	17.8	18.3 ^c
Greece	..	49.2 ^c	..	..	..	40.2 ^a	39.9
Hungary	24.0 ^{d,v}	23.3 ^v	22.0 ^v	20.9 ^v	19.9 ^v	20.2 ^v	18.4 ^v
Iceland	16.2 ^c	25.1	25.1	24.9	..	26.5 ^a	..
Ireland	20.2 ^c	27.1	28.8	26.6	26.5 ^c	26.1 ^c	25.9 ^c
Israel ¹	15.6 ^{a,d,g}	12.9 ^{d,g}	13.8 ^{d,g}	13.3 ^{d,g}	13.6 ^{d,g}	13.0 ^{d,g}	12.6 ^{d,g}
Italy	31.0	30.1	30.5	30.3	28.8	28.6	28.6 ^p
Japan	14.5	12.6	11.6 ^a	13.4	12.9	13.2	..
Korea	11.3 ^g	10.7 ^a	11.1	11.1	10.8	10.1	..
Luxembourg	0.2	3.0 ^c	6.1	8.0	12.7	..	..
Mexico	28.3	26.0	29.8	29.2	27.8	28.9	..
Netherlands	31.9	34.7	37.9	40.2	40.4	32.9 ^a	32.7 ^p
New Zealand	..	30.2	..	33.0	..	31.8	..
Norway	..	31.9 ^a	32.0	32.0	32.3	31.4	31.2
Poland	31.5	33.9	33.6	37.1	37.2	35.1	34.4
Portugal	37.5 ^c	29.8	34.5 ^a	36.4	36.7	37.7	38.7 ^p
Slovak Republic	9.5	25.0	24.3	25.0	27.6	34.9	34.0
Slovenia	16.6	15.6	13.4 ^a	14.6	13.9	11.8 ^a	10.4 ^p
Spain	29.6	26.4	26.7 ^a	27.8	28.3	28.2	27.7
Sweden	..	21.9	21.3 ^c	24.9	26.3 ^{c,l}	26.5	27.1 ^c
Switzerland	22.9	..	24.2	..	..	..	..
Turkey	60.4	48.2	43.8	47.4	46.0	45.5	..
United Kingdom	20.6	26.1	26.5 ^c	27.9 ^c	27.0 ^c	26.0	26.5 ^{c,p}
United States	11.4 ⁱ	13.4 ⁱ	13.2 ⁱ	14.0 ⁱ	14.7 ⁱ	14.6 ⁱ	13.8 ^{i,p}
EU28 (OECD estimates)	21.2 ^b	22.6 ^b	23.2 ^b	24.2 ^b	24.4 ^b	23.6 ^b	23.9 ^b
OECD-Total	16.0^b	17.2^b	17.2^b	18.4^b	18.7^b	18.4^b	18.2^b
Argentina	33.5	28.8	29.0	31.3	30.9	31.4	..
China	8.6 ^a	8.5	8.5	8.1 ^a	8.5	7.9	7.6
Romania	11.8	24.1	28.9	24.7	24.5	22.9 ^a	19.7
Russian Federation	4.5	6.3	6.7	7.1	8.4	9.0	9.3
Singapore	23.9	21.0	20.5	27.1	28.8	27.7	..
South Africa	..	19.4	19.9	24.3	26.8	..	..
Chinese Taipei	12.2 ^d	12.2	12.2	12.8	12.1	11.9	11.3

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	22.6	..	12.1	..	12.4 ^c	..	..
Austria	..	5.3	5.3 ^c	5.3	5.3 ^c	5.1	5.1 ^{c,p}
Belgium	6.3	8.1	8.9	8.9	8.4	8.1	8.2 ^p
Canada	11.2	9.7	9.8	10.4	11.1	9.7	9.0 ^p
Chile	..	9.9	9.7	8.7 ^a	8.4	..	..
Czech Republic	25.3	22.6	22.7	23.3	21.7	19.8	18.4 ^p
Denmark	..	3.2 ^a	2.6	2.1 ^v	2.2	2.2	2.2 ^{c,p}
Estonia	23.1	8.7	11.8	11.0	10.6	8.1	9.3 ^p
Finland	10.6	8.5	8.0	9.1	9.2	8.8	9.0
France	17.3 ^a	16.4	16.0	16.3	14.0 ^a	13.9	13.7 ^p
Germany	13.6 ^o	13.9 ^o	14.0 ^o	14.8 ^o	14.8 ^o	14.5 ^o	14.8 ^{c,o}
Greece	..	20.9 ^c	..	..	..	23.8 ^a	24.8
Hungary	26.1 ^{d,v}	24.2 ^v	23.4 ^v	20.1 ^v	18.5 ^v	15.8 ^v	14.4 ^v
Iceland	25.5 ^c	17.8	17.8	20.0	..	17.8 ^a	..
Ireland	8.1 ^c	6.9	6.5	5.0	4.8 ^c	4.9 ^c	4.7 ^c
Israel ¹	3.2 ^{a,d}	1.8 ^d	1.8 ^d	1.9 ^d	1.9 ^d	1.9 ^d	1.8 ^d
Italy	18.9	14.5	12.7	13.1	13.7	13.4	13.7 ^p
Japan	9.9	7.8	8.3 ^a	9.2	9.0	8.4	..
Korea	13.3 ^g	11.7 ^a	12.1	13.0	12.7	11.7	..
Luxembourg	7.1	13.4 ^c	16.0	16.1 ^a	19.7	..	..
Mexico	41.7	25.1	29.0	26.8	32.4	30.5	..
Netherlands	12.0 ^a	12.2 ^o	12.0 ^o	12.7 ^o	11.7 ^o	10.9 ^{a,o}	10.7 ^{o,p}
New Zealand	..	27.0	..	25.3	..	22.7	..
Norway	..	15.6 ^a	14.8	16.4	16.4	16.4	16.4
Poland	32.2	35.4	35.3	34.3	35.9	34.5	28.0
Portugal	23.9 ^c	9.4	7.3 ^a	7.3	7.1	7.4	6.5 ^p
Slovak Republic	24.7 ^d	35.4 ^d	32.8 ^d	33.9 ^d	30.0 ^d	27.7 ^d	24.5 ^d
Slovenia	25.9	24.5	21.9 ^a	20.8	18.2	14.3 ^a	12.3 ^p
Spain	15.8	17.6	18.2 ^a	20.1	20.1	19.5	19.1
Sweden	..	4.9	4.4 ^c	4.4	4.9 ^{c,l}	4.3	4.8 ^c
Switzerland	1.3 ^{a,h}	..	0.7 ^h	..	..	..	..
Turkey	6.2	10.6	11.9	12.6	11.4	11.3	..
United Kingdom	12.6	9.2	9.2 ^c	9.2 ^c	9.5 ^c	8.6	8.2 ^{c,p}
United States	10.8 ^{h,j}	11.8 ^{h,j}	11.3 ^{h,j}	11.9 ^{h,j}	12.6 ^{h,j}	12.7 ^{h,j}	12.3 ^{h,j,p}
EU28 (OECD estimates)	14.2 ^b	13.3 ^b	13.2 ^b	13.6 ^b	13.4 ^b	12.9 ^b	12.9 ^b
OECD-Total	11.9^b	11.4^b	11.3^b	11.9^b	12.2^b	11.8^b	11.6^b
Argentina	38.3	38.9	41.8	44.7	44.3	42.3	..
China	31.5 ^a	19.2	18.3	18.7 ^a	18.1	16.3	16.3
Romania	18.8	33.9	41.0	34.9	36.8	40.7 ^a	40.9
Russian Federation	24.4	29.1	30.1	30.3	31.0	29.8	32.2
Singapore	14.1	12.2	7.6	11.3	10.4	10.2	..
South Africa	..	21.7	20.3	21.6	22.7	..	..
Chinese Taipei	23.5 ^d	18.3	16.8	16.8	16.0	15.1	14.2

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	2.77	..	2.63	..	2.96 ^c	..	..
Austria	..	0.25	0.37 ^c	0.48 ^a	0.48 ^c	0.49	0.49 ^{c,p}
Belgium	1.18	1.26	0.98	1.00	0.91	0.90	0.90 ^p
Canada	0.28	0.55	0.58	0.41	0.45	0.41	0.41 ^p
Chile	..	12.37	9.09	23.72 ^a	22.34	..	..
Czech Republic	0.51	0.40	0.42	0.54	0.61	0.55	0.51 ^p
Denmark	..	0.48 ^a	0.32	0.42 ^v	0.44	0.38	0.37 ^{c,p}
Estonia	1.95	2.39	2.08	2.17	1.25	0.91	1.06 ^p
Finland	0.67	0.58	0.53	0.58	0.68	0.71	0.68
France	1.42 ^a	1.17	1.25	1.20	1.25 ^a	1.25	1.24 ^p
Germany	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ
Greece	..	1.26 ^c	..	..	..	1.01 ^a	0.96
Hungary	..	..	..	..	..	..	..
Iceland	1.87 ^c	2.47	2.47	2.23	..	2.99 ^a	..
Ireland	..	..	..	..	..	..	..
Israel ¹	0.75 ^{a,d}	1.29 ^d	1.36 ^d	1.29 ^d	1.21 ^d	1.15 ^d	1.14 ^d
Italy	..	3.50	3.24	3.30	3.62	3.34	3.13 ^p
Japan	4.62	1.75	1.57 ^a	1.61	1.59	1.45	..
Korea	1.36 ^g	1.45 ^a	1.43	1.64	1.71	1.65	..
Luxembourg	..	..	..	..	..	..	..
Mexico	0.26	1.38	2.79	2.91	1.41	1.61	..
Netherlands	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ
New Zealand	..	..	..	..	..	..	..
Norway	..	..	..	..	..	..	..
Poland	0.13	0.30	0.09	0.13	0.28	0.23	0.40
Portugal	10.79 ^c	9.66	8.14 ^a	8.84	10.13	8.14	7.82 ^p
Slovak Republic	0.00	0.10	0.06	0.05	0.31	0.21	0.10
Slovenia	1.17	0.14	0.10 ^a	0.07	0.06	0.05 ^a	0.04 ^p
Spain	0.90	0.16	0.16 ^a	0.20	0.19	0.17	0.19
Sweden	..	0.17 ^a	0.20 ^c	0.07 ^{a,m}	0.03 ^c	0.32 ^a	0.29 ^c
Switzerland	1.92	..	1.60	..	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	1.82	2.23	2.36 ^c	2.48 ^c	2.48 ^c	1.81	1.84 ^{c,p}
United States	3.63 ^{c,j}	4.00 ^{c,j}	4.03 ^{c,j}	4.48 ^{c,j}	4.55 ^{c,j}	4.26 ^{c,j}	4.03 ^{c,j,p}
EU28 (OECD estimates)	0.90 ^b	1.16 ^b	1.13 ^b	1.18 ^b	1.21 ^b	1.05 ^b	1.02 ^b
OECD-Total	2.71^b	2.47^b	2.46^b	2.68^b	2.70^b	2.50^b	2.40^b
Argentina	2.37	1.90	1.73	1.69	1.63	1.66	..
China	..	..	..	..	..	..	..
Romania	..	0.32	0.23	0.17	0.41	0.38 ^a	0.40
Russian Federation	0.22	0.33	0.26	0.23	0.19	0.17	0.18
Singapore	..	..	..	..	..	..	..
South Africa	..	1.20	1.14	0.90	0.80	..	..
Chinese Taipei	0.70 ^d	0.37	0.34	0.37	0.36	0.34	0.31

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 21. Total researchers in headcount

Headcount

	2000	2007	2008	2009	2010	2011	2012
Australia	..	..	..	..	..	..	..
Austria	..	53 590	..	59 341	..	65 609	..
Belgium	..	51 278	54 624	55 858	59 403	63 207	..
Canada	..	..	..	..	..	..	..
Chile	..	9 886	10 582	8 770 ^m	9 453 ^m	..	..
Czech Republic	30 165	42 538	44 240	43 092	43 418	45 902	47 357 ^p
Denmark	..	42 992 ^a	48 442	54 049	54 813	56 771	..
Estonia	4 570	6 826	7 226	7 453	7 491	7 646	..
Finland	45 241 ^u	53 420	55 195	55 797	57 163	57 549	..
France	211 365 ^m	278 480	289 041	296 093	324 551 ^a	338 761	..
Germany	..	437 780	..	484 566	..	520 561	..
Greece	..	..	..	..	..	45 239 ^a	..
Hungary	27 876 ^d	33 059	33 739	35 267	35 700	36 945	..
Iceland	..	3 979	4 158	4 134 ^l	..	3 350 ^a	..
Ireland	..	19 407	21 040	20 901 ^c	20 802 ^c	22 131	..
Israel ¹	..	..	..	..	..	..	..
Italy	100 171	141 878	145 594	149 314	149 807	151 597	..
Japan	..	883 386	890 669	889 341	894 138	892 684	..
Korea	159 973 ^y	289 098 ^a	300 050	323 175	345 912	375 176	..
Luxembourg	..	2 470 ^c	..	2 951	..	..	..
Mexico	..	37 949	37 639	42 973	45 045	46 125	..
Netherlands	52 718	60 106	60 969	54 505	64 829	82 991 ^a	..
New Zealand	..	25 300	..	27 000	..	28 100	..
Norway	..	41 327	43 699	44 762	44 774	45 578	..
Poland	88 189	97 289	97 474	98 165	100 934	100 723	..
Portugal	29 761 ^c	51 443	75 073 ^a	86 369	96 234	100 435	..
Slovak Republic	15 747	19 375	19 814	21 832	24 049	24 711	25 069
Slovenia	6 562	8 742	10 124 ^a	10 444	11 056	12 514 ^a	..
Spain	..	206 190	217 716 ^a	221 314	224 000	220 254	..
Sweden	..	71 244 ^{a,v}	..	72 864	..	80 039	..
Switzerland	44 230	..	45 874	..	..	..	..
Turkey	67 512	101 961	106 423	114 436	124 796	137 452	..
United Kingdom	..	377 210 ^c	..	385 489 ^c	394 755 ^c	429 009	..
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	41 741	59 052	63 927	67 245	74 020	79 092	..
China	..	..	..	1 556 518 ^u	1 747 589	1 905 899	..
Romania	23 179	30 740	30 864	30 645	30 707	25 489 ^a	..
Russian Federation	425 954 ^m	392 849 ^m	375 804 ^m	369 237 ^m	368 915 ^m	374 791 ^m	372 620 ^m
Singapore	20 800	31 657	33 365	34 387	36 561	38 013	..
South Africa	..	40 084	39 955	40 797	37 901	..	..
Chinese Taipei	69 526 ^{d,m}	135 918	143 862	154 818	164 874	173 654	178 632

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	..	..	..	..	..	..	..
Austria	..	26.4	..	28.4	..	29.0	..
Belgium	..	31.1	32.2	32.7	33.2	33.5	..
Canada	..	..	..	..	..	..	..
Chile	..	27.8	27.5	32.3	32.4	..	..
Czech Republic	27.8	28.3	28.5	28.9	28.1	28.2	27.4 ^p
Denmark	..	30.2 ^a	..	31.7	32.6 ^c	33.1	..
Estonia	43.1	44.3	41.7	42.5	43.4	43.7	..
Finland	28.5 ^u	31.5	30.7	31.4	31.9	32.1	..
France	27.5	27.8 ^d	27.4 ^d	26.9 ^d	25.3 ^{a,m}	25.6 ^m	..
Germany	..	23.2	..	24.9	..	26.7	..
Greece	..	..	..	..	..	36.7 ^a	..
Hungary	34.2 ^d	33.5	33.0	32.1	32.0	31.7	..
Iceland	..	37.8	37.8	41.0	..	37.5 ^a	..
Ireland	..	32.0	32.3	34.2 ^c	34.4 ^c	32.4	..
Israel ¹	..	..	..	..	..	..	..
Italy	27.9	33.2	33.2	33.8	34.5	34.9	..
Japan	..	13.0	13.0	13.6	13.8	14.0	..
Korea	10.2 ^g	14.9 ^a	15.6	15.8	16.7	17.3	..
Luxembourg	..	24.1 ^c	..	21.2	..	..	..
Mexico	..	..	..	..	..	..	..
Netherlands	..	23.0	..	25.9	..	24.1 ^a	..
New Zealand	..	..	..	..	..	..	..
Norway	..	33.5	34.1	35.2	35.7	36.2	..
Poland	38.1	39.9	39.5	39.5	39.0	38.6	..
Portugal	43.4 ^c	43.4	43.0 ^a	45.8	45.5	46.4	..
Slovak Republic	..	42.3	42.3	42.5	42.4	42.6	42.3
Slovenia	35.9	34.9	35.1 ^a	35.7	36.3	36.4 ^a	..
Spain	..	37.0	37.5 ^a	38.1	38.4	38.7	..
Sweden	..	35.0 ^{a,m}	..	35.7	..	37.2	..
Switzerland	20.3	..	30.2	..	..	..	..
Turkey	34.3	36.7	36.5	36.3	35.8	35.6	..
United Kingdom	..	36.8 ^c	..	37.9 ^c	38.3 ^c	37.7	..
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	48.5	51.5	51.3	51.9	52.2	52.7	..
China	..	..	..	..	..	..	..
Romania	42.5	44.7	44.8	44.7	44.0	46.1 ^a	..
Russian Federation	44.1	41.8	41.8	41.9	41.7	41.4	41.2
Singapore	..	27.4	28.0	28.5	29.3	29.2	..
South Africa	..	40.3	39.7	40.8	41.7	..	..
Chinese Taipei	18.3 ^d	20.0	20.1	20.5	20.9	21.6	21.8

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	3 802.0	10 545.7	11 690.6	11 619.1	11 955.7	12 124.9	..
Austria	..	5 581.5	6 138.0 ^c	6 055.7	6 457.9 ^c	6 858.7	7 256.7 ^{c,p}
Belgium	4 032.5	4 980.3	5 323.4	5 350.5	5 886.8	6 690.9	6 842.7 ^p
Canada	10 072.1	13 825.6	13 483.6	13 335.4	12 644.0	12 872.0	12 965.1 ^p
Chile	..	295.4	410.9	367.9 ^a	504.8	..	..
Czech Republic	1 118.8	2 102.6	2 050.9	2 075.8	2 190.7	2 577.7	2 917.8 ^p
Denmark	..	3 708.1 ^a	4 358.6	4 704.9	4 566.9	4 569.2	4 686.5 ^{c,p}
Estonia	18.3	147.4	163.8	168.8	222.9	463.4	407.4 ^p
Finland	3 155.8	4 794.2	5 560.0	5 387.5	5 329.8	5 564.6	5 174.9
France	20 628.0	27 695.9	29 199.8	30 811.8	32 044.2	34 057.5	35 101.1 ^p
Germany	36 860.3	51 765.6	56 764.6	56 164.8	58 927.7	65 602.4	67 082.9 ^p
Greece	294.8	533.2	..	..	..	700.9 ^a	683.7
Hungary	433.4 ^v	940.9 ^v	1 082.0 ^v	1 368.9 ^v	1 479.1 ^v	1 698.9 ^v	1 910.8 ^v
Iceland	122.1 ^c	169.3	182.0	197.5 ⁱ	162.0 ^c	153.9 ^a	..
Ireland	876.6 ^c	1 671.3	1 772.6	2 102.5	2 175.2 ^c	2 247.9	2 405.9 ^c
Israel ¹	4 965.4 ^{a,d}	7 339.9 ^d	7 228.9 ^d	7 087.3 ^d	7 190.9 ^d	7 813.5 ^d	8 221.1 ^d
Italy	7 644.2	11 563.2	12 896.1	13 186.8	13 560.0	14 087.7	14 349.4 ^p
Japan	70 074.1	114 969.7	116 687.8	103 806.8	107 622.5	114 204.6	..
Korea	13 754.0 ^g	31 027.1 ^a	33 090.8	34 256.3	38 970.9	44 680.5	..
Luxembourg	359.0	535.0	531.9	520.9	433.7	459.3	475.2
Mexico	1 000.5	2 707.8	2 547.4	2 873.1	3 029.0	3 143.7	..
Netherlands	5 000.4	6 403.2	6 248.2	5 845.7	6 143.4	8 206.9 ^a	8 865.0 ^p
New Zealand	..	612.1	..	696.2	..	802.9	..
Norway	..	2 199.5	2 462.1	2 421.2	2 431.1	2 642.5	2 876.3
Poland	941.1	1 098.1	1 284.0	1 391.5	1 523.9	1 931.3	2 939.5
Portugal	368.5 ^c	1 530.6	1 994.9	2 078.2	2 003.7	1 938.2	1 918.9 ^p
Slovak Republic	253.2	204.7	254.8	244.2	343.5	342.5	475.6
Slovenia	271.9	475.4	627.8 ^a	661.0	788.7	1 056.0 ^a	1 266.4 ^p
Spain	4 185.6	10 223.6	11 211.2 ^a	10 707.6	10 465.1	10 484.7	10 359.7
Sweden	..	8 810.8	9 994.1 ^c	8 933.7	8 653.0 ^c	9 200.2	9 422.0 ^c
Switzerland	4 266.6	..	7 735.7	..	..	..	9 212.8
Turkey	945.2	2 906.0	3 425.1	3 560.5	4 192.2	4 881.1	..
United Kingdom	18 118.5	24 199.5	24 423.8	23 910.7	23 248.1	24 934.7	24 804.8 ^{c,p}
United States	199 961.0 ⁱ	269 267.0 ⁱ	290 681.0 ⁱ	282 393.0 ⁱ	278 977.0 ⁱ	294 093.0 ⁱ	316 700.0 ^{i,p}
EU28 (OECD estimates)	117 354.1 ^b	170 252.7 ^b	184 041.1 ^b	183 565.7 ^b	188 624.0 ^b	205 311.9 ^b	211 010.5 ^b
OECD-Total	427 545.1^b	631 880.0^b	672 991.0^b	652 890.8^b	663 653.0^b	710 409.1^b	749 739.7^b
Argentina	384.6	806.4	818.8	766.1	915.9	1 131.0	..
China	16 173.7 ^a	73 990.7	88 460.7	112 784.1 ^a	130 332.6	157 328.0	185 365.8
Romania	325.0	599.3	559.2	594.4	560.7	593.5 ^a	671.2
Russian Federation	7 434.8	17 047.0	18 911.0	21 594.4	20 002.5	21 451.5	22 083.2
Singapore	1 534.6	3 832.6	4 776.1	3 410.7	3 651.8	4 341.7	..
South Africa	..	2 558.6	2 780.7	2 339.7	1 997.2	..	..
Chinese Taipei	5 585.3 ^d	12 737.0	14 505.5	15 040.6	17 044.5	19 054.6	20 373.6

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	0.70 ^z	1.28 ^z	1.38 ^z	1.30 ^z	1.28 ^z	1.24 ^z	..
Austria	..	1.77	1.85 ^c	1.84	1.91 ^c	1.90	1.95 ^{c,p}
Belgium	1.42	1.32	1.34	1.34	1.41	1.52	1.52 ^p
Canada	1.15	1.10	1.04	1.05	0.95	0.93	0.90 ^p
Chile	..	0.11	0.15	0.14 ^a	0.16	..	..
Czech Republic	0.70	0.80	0.76	0.76	0.81	0.91	1.01 ^p
Denmark	..	1.80 ^a	1.99	2.21	2.01	1.96	1.96 ^{c,p}
Estonia	0.14	0.51	0.55	0.63	0.81	1.50	1.25 ^p
Finland	2.37	2.51	2.75	2.81	2.72	2.68	2.44
France	1.34	1.31	1.33	1.40	1.42	1.44	1.45 ^p
Germany	1.74	1.77	1.86	1.91	1.88	1.96	1.95 ^p
Greece	0.15	0.17	..	..	..	0.23 ^a	0.24
Hungary	0.36 ^v	0.49 ^v	0.53 ^v	0.67 ^v	0.70 ^v	0.76 ^v	0.85 ^v
Iceland	1.50 ^c	1.46	1.44	1.64 ^l	1.39 ^c	1.26 ^a	..
Ireland	0.80 ^c	0.85	0.94	1.15	1.16 ^c	1.14	1.20 ^c
Israel ¹	3.37 ^{a,d}	4.00 ^d	3.87 ^d	3.68 ^d	3.51 ^d	3.54 ^d	3.54 ^d
Italy	0.52	0.61	0.65	0.67	0.68	0.68	0.69 ^p
Japan	2.13	2.70	2.72	2.54	2.49	2.61	..
Korea	1.70 ^g	2.45 ^a	2.53	2.64	2.80	3.09	..
Luxembourg	1.53	1.32	1.29	1.32	1.02	1.00	1.00
Mexico	0.10	0.18	0.16	0.18	0.18	0.17	..
Netherlands	1.07	0.96	0.89	0.85	0.89	1.14 ^a	1.22 ^p
New Zealand	..	0.50	..	0.54	..	0.58	..
Norway	..	0.84	0.84	0.91	0.86	0.86	0.87
Poland	0.23	0.17	0.19	0.19	0.20	0.23	0.33
Portugal	0.20 ^c	0.60	0.75	0.78	0.73	0.71	0.70 ^p
Slovak Republic	0.43	0.18	0.20	0.20	0.27	0.25	0.34
Slovenia	0.78	0.87	1.07 ^a	1.20	1.43	1.83 ^a	2.16 ^p
Spain	0.49	0.71	0.74 ^a	0.72	0.72	0.71	0.69
Sweden	..	2.51	2.74 ^c	2.55	2.33 ^c	2.33	2.31 ^c
Switzerland	1.82	..	2.11	..	..	..	2.17
Turkey	0.16	0.30	0.32	0.34	0.36	0.37	..
United Kingdom	1.17	1.09	1.09	1.10	1.08	1.13	1.09 ^{c,p}
United States	1.94 ^{i,z}	1.86 ^{i,z}	1.97 ^{i,z}	1.96 ^{i,z}	1.87 ^{i,z}	1.89 ^{i,z}	1.95 ^{i,p,z}
EU28 (OECD estimates)	1.11 ^b	1.11 ^b	1.14 ^b	1.16 ^b	1.17 ^b	1.22 ^b	1.22 ^b
OECD-Total	1.51^b	1.56^b	1.61^b	1.59^b	1.56^b	1.59^b	1.62^b
Argentina	0.11	0.15	0.14	0.13	0.14	0.16	..
China	0.54 ^a	1.01	1.08	1.25 ^a	1.29	1.39	1.51
Romania	0.25	0.22	0.17	0.19	0.18	0.18 ^a	0.19
Russian Federation	0.74	0.72	0.66	0.78	0.68	0.67	0.65
Singapore	1.15	1.58	1.90	1.36	1.25	1.39	..
South Africa	..	0.53	0.55	0.46	0.38	..	..
Chinese Taipei	1.23 ^d	1.77	1.97	2.06	2.08	2.20	2.28

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 25. Business enterprise expenditure on R&D (BERD)
at 2005 prices and PPPs**

Million 2005 USD

	2000	2007	2008	2009	2010	2011	2012
Australia	4 255.7	9 881.6	10 815.5	10 387.0	10 523.1	10 546.1	..
Austria	..	5 260.3	5 583.9 ^c	5 350.4	5 627.4 ^c	5 777.7	5 976.8 ^{c,p}
Belgium	4 428.2	4 689.8	4 830.1	4 696.2	5 057.3	5 536.0	5 512.5 ^p
Canada	11 494.7	13 031.9	12 433.1	12 215.7	11 443.8	11 438.1	11 322.9 ^p
Chile	..	247.4	359.2	320.1 ^a	400.4	..	..
Czech Republic	1 246.4	1 973.4	1 930.0	1 854.2	2 003.3	2 297.2	2 525.6 ^p
Denmark	..	3 406.1 ^a	3 734.1	3 899.9	3 607.3	3 553.2	3 537.9 ^{c,p}
Estonia	21.3	134.3	139.9	137.0	180.9	365.2	317.7 ^p
Finland	3 356.2	4 446.7	4 882.9	4 571.7	4 562.9	4 616.5	4 173.2
France	23 094.1	25 584.2	25 966.5	26 447.1	27 215.1	28 152.4	28 454.1 ^p
Germany	43 307.9	48 694.4	51 732.8	50 243.9	51 546.4	55 420.6	55 697.5 ^p
Greece	327.8	507.6	..	..	..	587.3 ^a	558.6
Hungary	498.2 ^v	881.3 ^v	948.0 ^v	1 119.3 ^v	1 184.7 ^v	1 307.0 ^v	1 438.8 ^v
Iceland	126.4 ^c	168.3	167.8	178.4 ⁱ	144.9 ^c	135.0 ^a	..
Ireland	1 013.0 ^c	1 509.6	1 635.0	1 883.2	1 876.9 ^c	1 890.9	1 981.5 ^c
Israel ¹	4 889.6 ^{a,d}	7 230.4 ^d	7 280.2 ^d	7 000.4 ^d	7 017.8 ^d	7 391.2 ^d	7 643.2 ^d
Italy	8 217.4	10 477.6	10 995.5	10 839.1	11 156.9	11 263.8	11 059.9 ^p
Japan	78 069.6	108 981.0	108 813.6	96 121.2	98 462.4	102 534.5	..
Korea	14 967.6 ^g	29 676.2 ^a	31 416.9	32 905.7	36 986.7	42 401.6	..
Luxembourg	408.3	469.0	454.9	440.7	349.5	349.0	349.3
Mexico	1 193.5	2 484.9	2 226.5	2 404.1	2 504.2	2 459.2	..
Netherlands	5 722.8	5 915.9	5 548.0	5 160.3	5 450.3	7 049.6 ^a	7 459.1 ^p
New Zealand	..	555.9	..	591.7	..	653.2	..
Norway	..	2 011.6	2 139.0	2 085.8	2 036.2	2 141.3	2 221.0
Poland	1 050.8	1 027.3	1 172.4	1 225.7	1 296.6	1 595.2	2 362.6
Portugal	437.6 ^c	1 397.5	1 762.7	1 768.1	1 697.2	1 626.1	1 556.5 ^p
Slovak Republic	292.4	189.8	224.0	207.7	291.2	284.7	390.7
Slovenia	305.7	460.2	587.8 ^a	606.3	730.4	942.8 ^a	1 087.2 ^p
Spain	4 933.1	9 061.3	9 586.8 ^a	8 979.2	8 899.6	8 767.6	8 410.7
Sweden	..	7 975.3	8 653.4 ^c	7 673.0	7 462.6 ^c	7 680.0	7 676.9 ^c
Switzerland	4 700.7	..	6 383.8	..	..	..	6 805.8
Turkey	1 001.8	2 605.6	2 821.8	2 844.1	3 280.0	3 690.8	..
United Kingdom	20 218.8	23 348.0	23 010.8	22 124.2	22 067.0	23 368.3	22 577.4 ^{c,p}
United States	224 623.4 ⁱ	254 482.6 ⁱ	269 457.0 ⁱ	259 774.7 ⁱ	253 563.0 ⁱ	262 153.5 ⁱ	277 454.6 ^{i,p}
EU28 (OECD estimates)	132 556.1 ^b	158 549.4 ^b	165 224.0 ^b	160 774.7 ^b	164 039.1 ^b	173 700.7 ^b	174 321.4 ^b
OECD-Total	479 267.9^b	594 953.8^b	619 008.4^b	593 053.2^b	596 353.7^b	625 109.0^b	647 526.2^b
Argentina	430.9	762.3	758.7	704.6	832.3	1 008.1	..
China	18 230.8 ^a	69 621.4	81 461.9	102 969.4 ^a	117 851.4	138 704.7	162 290.2 ^b
Romania	390.4	507.4	433.8	441.4	407.7	425.6 ^a	452.5
Russian Federation	9 373.4	14 280.5	13 773.0	15 089.4	13 809.9	14 043.1	14 208.2
Singapore	1 758.9	3 619.7	4 426.3	3 136.4	3 317.2	3 867.4	..
South Africa	..	2 408.8	2 561.2	2 136.3	1 799.5	..	..
Chinese Taipei	6 276.2 ^d	12 037.6	13 445.8	13 835.5	15 491.7	16 984.6	17 849.2

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	1.06 ^z	1.87 ^z	1.99 ^z	1.91 ^z	1.89 ^z	1.84 ^{b,z}	..
Austria	..	2.63	2.76 ^c	2.82	2.91 ^c	2.89	2.98 ^{c,p}
Belgium	2.26	2.11	2.17	2.20	2.30	2.47	2.47 ^{b,p}
Canada	1.72	1.62	1.53	1.63	1.48 ^b	1.44 ^b	1.40 ^{b,p}
Chile	..	0.15	0.21	0.19 ^a	0.22	..	..
Czech Republic	0.97	1.12	1.07	1.10	1.16	1.29	1.45 ^p
Denmark	..	3.14 ^a	3.45	4.02	3.61	3.51	3.50 ^{c,p}
Estonia	0.21	0.76	0.83	1.04	1.28	2.33	1.95 ^{b,p}
Finland	3.78	4.05	4.49	4.87	4.68	4.67	4.33
France	2.24	2.26	2.30	2.44	2.47	2.51	2.54 ^p
Germany	2.71	2.78	2.94	3.12	3.03	3.15	3.15 ^p
Greece	0.24	0.28	..	..	..	0.42 ^a	0.43 ^b
Hungary	0.57 ^v	0.78 ^v	0.84 ^v	1.09 ^v	1.13 ^v	1.21 ^v	1.38 ^v
Iceland	2.43 ^c	2.51	2.39	2.76 ^l	2.31 ^c	2.10 ^{a,b}	..
Ireland	1.13 ^c	1.26	1.45	1.75	1.73 ^c	1.69	1.77 ^b
Israel ¹	5.89 ^{a,d}	6.62 ^d	6.40 ^d	6.18 ^d	5.90 ^d	6.05 ^d	6.06 ^{b,d}
Italy	0.80	0.97	1.03	1.10	1.11	1.12	1.14 ^p
Japan	3.14	4.01	4.10	3.96	3.86	4.05	..
Korea	2.46 ^g	3.62 ^a	3.77	3.94	4.09	4.49	..
Luxembourg	2.23	1.88	1.87	1.94	1.45	1.41	1.42 ^b
Mexico	0.13	0.23	0.20	0.24	0.23	0.21	..
Netherlands	1.64	1.51	1.40	1.36	1.40	1.78 ^a	1.91 ^{b,p}
New Zealand	..	0.76	..	0.82	..	0.88 ^b	..
Norway	..	1.26	1.23	1.41	1.33	1.32	1.32
Poland	0.33	0.25	0.27	0.27	0.28	0.33 ^b	0.48 ^b
Portugal	0.32 ^c	0.99	1.24	1.28	1.21	1.18 ^b	1.17 ^{b,p}
Slovak Republic	0.62	0.25	0.27	0.28	0.37	0.35	0.47 ^b
Slovenia	1.18	1.27	1.58 ^a	1.84	2.20	2.81 ^a	3.33 ^p
Spain	0.70	1.03	1.07 ^a	1.04	1.07	1.04	1.01 ^b
Sweden	..	4.06	4.47 ^c	4.30	3.81 ^c	3.82	3.78 ^b
Switzerland	2.58	..	2.92	..	..	..	3.05 ^b
Turkey	0.21	0.43	0.47	0.51	0.53	0.54	..
United Kingdom	1.79	1.73	1.71	1.72	1.76	1.84 ^b	1.78 ^{b,p}
United States	3.09 ^j	3.03 ^j	3.27 ^j	3.34 ^j	3.15 ^j	3.17 ^j	3.26 ^{b,j,p}
EU28 (OECD estimates)	1.71 ^b	1.74 ^b	1.80 ^b	1.85 ^b	1.87 ^b	1.94 ^b	1.96 ^b
OECD-Total	2.31^b	2.42^b	2.52^b	2.55^b	2.48^b	2.53^b	2.58^b
Argentina	0.16	0.21	0.20	0.19	0.20	0.22	..
China	0.65 ^a	1.26	1.33	1.57 ^a	1.62	1.74	1.90
Romania	0.35	0.30	0.24	0.26	0.25	0.26 ^a	0.28
Russian Federation	1.03	0.99	0.92	1.11	0.96	0.94	0.94
Singapore	1.36 ^b	1.89	2.29	1.63	1.52	1.71	..
South Africa	..	0.78	0.79	0.67	0.55	..	..
Chinese Taipei	1.68 ^d	2.41	2.69	2.87	2.81	2.95	3.12

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 27. Business enterprise researchers in full-time equivalent

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	16 221	26 102 ^a	27 721	29 509	27 990	32 439	..
Austria	..	20 058	21 852 ^c	21 599	22 577 ^c	23 138	24 087 ^{c,p}
Belgium	16 684	18 064	17 370	17 872	20 008	21 382	22 182 ^p
Canada	66 870 ^q	94 760 ^q	98 390 ^q	93 360 ^q	92 160 ^q	93 440 ^{q,p}	..
Chile	..	1 692	1 758	1 013 ^a	1 298	..	..
Czech Republic	5 533	12 230	13 253	12 657	12 661	13 958	15 444 ^p
Denmark	..	19 145 ^a	23 400	23 479	22 774	22 467	22 226 ^{c,p}
Estonia	274	961	1 233	1 313	1 282	1 504	1 409 ^p
Finland	19 035 ^u	22 005	24 132	23 633	22 904	22 949	23 269
France	81 012	124 577	128 373	133 701	143 828	148 278	153 081 ^p
Germany	153 120 ^c	174 307	180 295 ^c	183 214	185 815 ^c	190 693	191 000 ^{c,p}
Greece	3 234	6 286	..	..	..	4 021 ^a	4 351
Hungary	3 901	6 986	7 912	8 972	10 274	11 773	13 231
Iceland	..	1 069	1 117	1 126 ^l	..	998 ^a	..
Ireland	5 631 ^c	7 262	7 791	7 732	7 884 ^c	8 996	9 756 ^c
Israel ¹	..	..	..	..	42 095 ^d	44 596 ^d	..
Italy	26 099	32 871	36 509	38 143	38 297	39 808	43 073 ^p
Japan	421 363	483 728	492 805	490 494	490 538	490 920	..
Korea	71 894 ^q	166 289 ^a	182 901	184 830	202 079	223 513	..
Luxembourg	1 399	1 522	1 453	1 371	1 460	1 518	1 708
Mexico	..	16 103	11 849	16 181	18 696	18 954	..
Netherlands	20 022	25 951	24 910	20 477	26 588	30 711 ^a	30 867 ^p
New Zealand	..	4 700	..	4 900	..	5 100	..
Norway	..	11 999 ^u	12 877 ^u	12 661 ^u	12 504 ^u	12 867 ^u	13 399 ^u
Poland	9 821	9 848	8 909	9 818	11 730	10 567	15 088
Portugal	2 358 ^c	8 477	10 312	10 160	10 572	12 198	12 117 ^p
Slovak Republic	2 420	1 599	1 649	1 646	1 928	2 058	2 482
Slovenia	1 380	2 571	3 058 ^a	3 278	3 389	4 510 ^a	4 827 ^p
Spain	20 869	42 101	46 375 ^a	46 153	45 377	44 915	45 272 ^p
Sweden	..	28 965 ^a	33 378 ^c	29 278	30 440 ^c	29 197	30 497 ^c
Switzerland	16 275	..	10 332	..	..	..	16 760
Turkey	3 702	15 293	18 025	21 019	25 342	30 404	..
United Kingdom	85 737	89 600	86 106	84 554	84 074	89 043	90 422
United States	..	..	832 000	874 000	804 000	853 000	..
EU28 (OECD estimates)	522 000 ^b	667 464 ^b	694 908 ^b	695 101 ^b	719 444 ^b	742 578 ^b	767 515 ^b
OECD-Total	1 872 075^b	2 311 003^b	2 417 270^b	2 465 245^b	2 444 276^b	2 556 190^b	..
Argentina	3 234	4 162	4 352	4 204	4 251	4 429	..
China	353 843 ^{a,t}	944 440 ^t	1 092 213 ^t	707 771 ^a	739 891	818 811	872 384
Romania	12 690	7 754	6 309	6 127	5 853	3 518 ^a	4 956
Russian Federation	289 868	237 408	226 534	216 400	211 214	214 744	204 731
Singapore	8 632	16 210	16 607	16 268	16 508	17 432	..
South Africa	..	6 048	6 172	6 059	4 804	..	..
Chinese Taipei	31 975 ^d	62 292	67 851	73 505	80 532	86 705	91 392

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	24.6	..	29.9	..	..	..	..
Austria	..	63.3	63.3 ^c	62.3	62.3 ^c	62.3	62.3 ^{c,p}
Belgium	54.6	49.7	47.2	46.8	49.0	50.1	50.4 ^p
Canada	62.0 ^g	62.6 ^g	62.6 ^g	62.1 ^g	59.0 ^g	59.4 ^{g,p}	..
Chile	..	30.5	29.5	20.8 ^{a,l}	23.9 ^l	..	..
Czech Republic	39.9	43.9	44.5	44.0	43.3	45.5	46.6 ^p
Denmark	..	63.4 ^a	65.5 ^c	63.8	60.8	59.2	59.0 ^{c,p}
Estonia	10.3	26.0	31.0	30.4	31.4	33.3	30.8 ^p
Finland	54.6 ^u	56.4	59.0	57.9	55.3	57.4 ^a	57.5
France	47.1 ^a	56.2	56.4 ^d	57.0 ^d	59.1 ^a	59.5	..
Germany	59.4 ^c	59.9	59.6 ^c	57.8	56.7 ^c	56.3	55.7 ^{c,p}
Greece	..	29.9 ^c	..	..	..	16.3 ^a	18.0
Hungary	27.1 ^d	40.2	42.8	44.7	48.1	51.1	55.5
Iceland	..	48.4	48.4	39.4	..	46.8 ^a	..
Ireland	66.1 ^c	57.2	53.7	54.5 ^c	55.6 ^c	59.3 ^c	60.7 ^c
Israel ¹	..	..	..	..	..	89.6 ^d	..
Italy	39.5	35.3	38.1	37.5	37.0	37.5	38.9 ^p
Japan	65.1	70.7	75.0 ^a	74.8	74.8	74.8	..
Korea	66.3 ^g	74.9 ^a	77.5	75.7	76.5	77.4	..
Luxembourg	85.0	69.2 ^c	63.5	57.2	55.4	..	..
Mexico	..	42.5	31.5	37.7	41.5	41.1	..
Netherlands	47.5	50.8	49.1	43.6	49.5	52.5 ^a	52.7 ^p
New Zealand	..	32.2	..	30.4	..	31.3	..
Norway	..	49.3 ^u	50.3 ^u	48.2 ^u	47.3 ^u	47.3 ^u	48.0 ^u
Poland	17.8	16.0	14.4	16.1	18.2	16.5	22.5
Portugal	14.1 ^c	30.1	25.5 ^a	23.0	22.9	24.4	23.9 ^p
Slovak Republic	24.3	12.9	13.1	12.4	12.7	13.4	16.3
Slovenia	31.8	41.1	43.5 ^a	44.0	44.0	51.4 ^a	53.1 ^p
Spain	27.2	34.3	35.4 ^a	34.5	33.7	34.5	35.6 ^p
Sweden	..	63.2 ^{a,l,v}	66.5 ^c	62.1 ^l	61.7 ^{c,l}	60.1 ^{a,l}	61.9 ^{c,l}
Switzerland	62.3	..	41.1	..	..	..	..
Turkey	16.0	30.8	34.1	36.4	39.4	42.2	..
United Kingdom	50.3 ^b	35.5 ^c	34.2 ^c	33.0 ^c	32.8 ^c	35.4	35.8 ^{c,p}
United States	..	..	69.9 ^b	69.9 ^b	67.1 ^b	68.1 ^b	..
EU28 (OECD estimates)	46.7 ^b	45.8 ^b	45.7 ^b	44.6 ^b	44.8 ^b	45.6 ^b	46.4 ^b
OECD-Total	60.0^b	59.5^b	60.3^b	59.8^b	58.7^b	59.5^b	..
Argentina	12.2	10.8	10.5	9.6	8.9	8.8	..
China	50.9 ^{a,t}	66.4 ^t	68.6 ^t	61.4 ^a	61.1	62.1	62.1
Romania	62.0	41.2	32.5	31.8	29.6	21.9 ^a	27.5
Russian Federation	57.2	50.6	50.2	48.9	47.8	48.0	46.2
Singapore	51.9	59.4	59.7	53.3	51.5	51.7	..
South Africa	..	31.3	31.8	30.6	25.7	..	..
Chinese Taipei	57.7 ^{d,l}	60.2	61.6	61.7	63.0	64.7	65.6

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Per thousand

	2000	2007	2008	2009	2010	2011	2012
Australia	2.4	3.2 ^a	3.4	3.6	3.3 ^b	3.8 ^b	..
Austria	..	6.6	7.0 ^c	7.0	7.3 ^c	7.3	7.5 ^{c,p}
Belgium	5.7	5.9	5.6	5.8	6.5	6.8	7.1 ^{b,p}
Canada	5.7 ^g	7.1 ^g	7.3 ^g	7.1 ^g	6.9 ^g	6.8 ^{g,p}	..
Chile	..	0.4	0.4	0.2 ^a	0.3	..	..
Czech Republic	1.4	3.0	3.2	3.1	3.1	3.4	3.8 ^{b,p}
Denmark	..	9.6 ^a	11.5	12.2	12.4	12.2	12.1 ^{c,p}
Estonia	0.6	1.9	2.5	3.0	3.1	3.4	3.1 ^{b,p}
Finland	11.6 ^u	12.4	13.2	13.5	13.1	12.9	13.1
France	4.5	6.6	6.8	7.2	7.8	8.0	8.2 ^p
Germany	5.2 ^c	5.9	6.0 ^c	6.2	6.3 ^c	6.3	6.2 ^{c,p}
Greece	0.9	1.7	..	..	..	1.2 ^a	1.4 ^b
Hungary	1.2	2.1	2.4	2.9	3.3	3.7	4.2
Iceland	..	8.4	8.7	9.5 ^l	..	8.2 ^a	..
Ireland	4.1 ^c	4.4	4.9	5.4	5.9 ^c	6.9	7.5 ^b
Israel ¹	..	..	..	..	18.4 ^d	19.1 ^d	..
Italy	1.5	1.7	1.9	2.0	2.1	2.1	2.3 ^p
Japan	7.5	9.0	9.2	9.3 ^b	9.4 ^b	9.4 ^b	..
Korea	3.9 ^g	8.5 ^a	9.3	9.7	10.4	11.3	..
Luxembourg	6.5	5.7	5.2	4.9	5.1	5.2	5.7 ^b
Mexico	..	0.5	0.3	0.5	0.5 ^b	0.5 ^b	..
Netherlands	3.4	4.2	4.0	3.4	4.5	5.1 ^a	5.1 ^{b,p}
New Zealand	..	2.8	..	3.0	..	3.1	..
Norway	..	7.2 ^u	7.5 ^u	7.5 ^u	7.5 ^u	7.7 ^u	7.8 ^u
Poland	0.8 ^b	0.8	0.7	0.8	0.9	0.8	1.2 ^b
Portugal	0.6 ^c	2.1	2.6	2.7	2.8	3.3 ^b	3.5 ^{b,p}
Slovak Republic	1.6	0.9	0.9	0.9	1.1	1.2	1.4 ^b
Slovenia	1.8	3.2	3.7 ^a	4.1	4.3	5.9 ^a	6.4 ^p
Spain	1.7	2.6	2.9 ^a	3.2	3.2	3.3	3.5 ^{b,p}
Sweden	..	9.6 ^a	10.9 ^c	9.9	10.1 ^c	9.5	9.8 ^b
Switzerland	5.1	..	3.0	..	..	..	4.7 ^b
Turkey	0.2	0.9	1.0	1.1	1.3	1.5	..
United Kingdom	3.8	3.8	3.7	3.7	3.8	3.9	4.0 ^b
United States	..	..	7.8	8.7	8.1	8.5	..
EU28 (OECD estimates)	3.2 ^b	3.9 ^b	4.0 ^b	4.1 ^b	4.3 ^b	4.4 ^b	4.6 ^b
OECD-Total	4.7^b	5.4^b	5.7^b	5.9^b	5.9^b	6.1^b	..
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	1.3	0.9	0.8	0.8	0.7	0.4 ^a	0.6 ^b
Russian Federation	5.8	4.4	4.2	4.1 ^b	4.0 ^b	4.0 ^b	3.8 ^b
Singapore	4.5 ^b	6.7	6.4	6.2	6.1	6.2	..
South Africa	..	0.6	0.6	0.6	0.5	..	..
Chinese Taipei	3.8 ^{b,d}	6.9	7.5	8.2	8.9	9.3	9.7

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	28 391	50 896 ^a	53 886	57 936	56 511	64 906	..
Austria	..	36 989	40 296 ^c	38 303	40 037 ^c	42 098	43 826 ^{c,p}
Belgium	33 493	34 011	32 905	32 969	32 692	35 011	37 442 ^p
Canada	104 710 ^g	167 690 ^g	172 740 ^g	155 180 ^g	140 330 ^g	140 420 ^{g,p}	..
Chile	..	4 489	5 217	2 945 ^a	3 465	..	..
Czech Republic	11 527	25 217	26 069	25 884	26 998	29 509	32 224 ^p
Denmark	23 725	31 168 ^a	41 041	37 366	36 324	35 151	34 773 ^{c,p}
Estonia	417	1 689	1 845	1 924	1 955	2 121	1 974 ^p
Finland	29 384	31 940	33 111	32 237	30 559	31 180	30 995
France	177 688	215 891	220 016	225 891	235 588	238 937	242 985 ^p
Germany	312 490 ^c	321 853	332 909	332 491	337 211	357 129	357 000 ^{c,p}
Greece	9 764	11 562	..	..	..	6 324 ^a	6 532
Hungary	6 471	10 342	11 373	13 189	14 999	17 220	19 997
Iceland	..	1 417	1 481	1 577 ^l	..	1 462 ^a	..
Ireland	8 724 ^c	10 956	11 755	11 959	12 194 ^c	14 120	15 313 ^c
Israel ¹	41 144 ^d	53 085 ^d	51 620 ^d	50 674 ^d	53 524 ^d	57 564 ^d	..
Italy	63 998	93 760	106 643	109 768	112 212	112 478	115 806 ^p
Japan	581 721	620 004	625 264	616 965	614 772	602 252	..
Korea	87 113 ^g	184 607 ^a	208 428	212 349	230 221	254 280	..
Luxembourg	3 337	3 671	3 516	3 318	3 388	3 387	3 629
Mexico	..	34 376	..	..	..	..	..
Netherlands	47 509	49 246	48 019	42 336	54 139	72 888 ^a	73 259 ^p
New Zealand	..	8 100	..	8 300	..	8 800	..
Norway	..	16 941	18 491	18 166	17 821	18 111	18 721
Poland	18 586	15 032	12 809	13 693	18 424	19 530	25 750
Portugal	3 567 ^c	12 784	14 510	13 922	14 036	16 030	15 912 ^p
Slovak Republic	5 172	2 699	2 743	2 625	3 230	3 251	3 790
Slovenia	4 110	5 299	6 205 ^a	6 785	7 056	9 622 ^a	9 810 ^p
Spain	47 055	87 543	95 207 ^a	93 699	92 221	89 841	88 882 ^p
Sweden	..	54 439 ^a	58 782 ^c	55 147	54 797 ^c	54 292	55 839 ^c
Switzerland	36 190	..	39 832	..	..	..	47 750
Turkey	6 032	24 261	27 462	31 476	37 522	45 408	..
United Kingdom	145 499	157 323	152 173	151 494	154 870	158 385	160 116
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	1 049 343 ^b	1 235 241 ^b	1 282 876 ^b	1 273 937 ^b	1 308 323 ^b	1 367 705 ^b	1 397 202 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	5 736	8 246	8 641	8 347	8 441	8 794	..
China	480 791 ^a	1 186 751	1 395 943	1 647 454 ^a	1 873 913	2 169 291	2 486 400
Romania	22 541	13 107	11 525	10 758	8 271	10 002 ^a	10 887
Russian Federation	628 858	507 415	477 284	454 972	444 111	439 683	413 796
Singapore	10 246	18 948	19 703	19 309	19 169	20 406	..
South Africa	..	12 461	12 492	12 025	10 205	..	..
Chinese Taipei	69 903 ^d	118 005	128 036	135 777	148 047	158 833	165 492

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	29.7	..	39.2	..	..	..	..
Austria	..	69.5	69.5 ^c	67.9	67.9 ^c	68.8	68.8 ^{c,p}
Belgium	62.7	58.7	56.3	55.2	54.4	55.7	56.7 ^p
Canada	62.3 ^g	67.4 ^g	67.3 ^g	65.5 ^g	61.3 ^g	61.3 ^{g,p}	..
Chile	..	40.7	41.5	28.2 ^{a,l}	30.2 ^l	..	..
Czech Republic	47.6	51.3	51.3	50.8	51.6	53.0	53.5 ^p
Denmark	62.9	66.5 ^a	70.1 ^c	66.8	64.1	62.6	62.4 ^{c,p}
Estonia	11.2	33.8	36.3	35.4	37.0	37.1	33.8 ^p
Finland	55.9	56.8	58.4	57.5	54.7	57.2 ^a	57.3
France	54.3 ^a	57.5	57.5 ^d	57.9 ^d	59.2 ^a	59.4	..
Germany	64.5 ^c	63.6	63.7	62.2	61.5	62.1	61.6 ^{c,p}
Greece	..	32.5 ^c	..	..	..	17.1 ^a	17.5
Hungary	27.5 ^d	39.8	41.5	44.3	47.6	50.7	56.0
Iceland	..	47.5	47.5	42.0	..	46.3 ^a	..
Ireland	68.4 ^c	60.3	58.7	60.7 ^c	61.8 ^c	65.5 ^c	67.2 ^c
Israel ¹	..	..	..	..	..	84.4 ^d	..
Italy	42.6	45.0	48.2	48.5	49.7	49.3	49.5 ^p
Japan	64.9	68.0	70.8 ^a	70.2	70.0	69.2	..
Korea	63.1 ^g	68.5 ^a	70.8	68.7	68.7	70.4	..
Luxembourg	91.1	79.7 ^c	75.6	70.4	67.9	..	..
Mexico	..	48.9	..	..	..	..	..
Netherlands	52.0	52.5	51.4	48.2	53.8	62.7 ^a	62.8 ^p
New Zealand	..	38.6	..	35.8	..	37.3	..
Norway	..	50.4	52.1	50.3	49.3	49.0	49.5
Poland	23.5	20.0	17.2	18.6	22.5	22.9	28.4
Portugal	16.3 ^c	36.2	30.3 ^a	27.1	26.8	28.8	28.3 ^p
Slovak Republic	34.0	17.5	17.6	16.5	17.8	18.0	20.9
Slovenia	48.0	51.1	53.5 ^a	54.7	54.5	63.0 ^a	64.0 ^p
Spain	39.0	43.5	44.1 ^a	42.4	41.5	41.8	42.7 ^p
Sweden	..	72.3 ^{a,l}	73.9 ^c	71.9 ^l	70.8 ^{c,l}	69.6 ^{a,l}	68.7 ^{c,l}
Switzerland	69.2	..	64.2	..	..	..	..
Turkey	22.3 ^l	38.3 ^l	40.8 ^l	42.8 ^l	45.9 ^l	48.9 ^l	..
United Kingdom	50.4 ^b	45.8 ^{c,l}	44.5 ^{c,l}	43.6 ^{c,l}	44.2 ^{c,l}	44.5 ^l	44.7 ^{c,l,p}
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	52.5 ^b	52.1 ^b	52.1 ^b	51.2 ^b	51.4 ^b	52.3 ^b	52.8 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	15.3	15.5	15.2	14.0	12.8	12.6	..
China	52.1 ^a	68.4	71.0	71.9 ^a	73.4	75.2	76.6
Romania	66.5	45.2	37.9	37.9	31.6	33.6 ^a	35.0
Russian Federation	62.4	55.6	54.9	53.8	52.9	52.4	50.0
Singapore	52.9	58.8	59.4	53.8	51.8	52.3	..
South Africa	..	39.7	40.6	38.9	34.6	..	..
Chinese Taipei	66.8 ^{d,l}	67.1	69.3	69.0	70.3	71.7	72.6

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Per thousand

	2000	2007	2008	2009	2010	2011	2012
Australia	4.1	6.3 ^a	6.6	7.0	6.7 ^b	7.6 ^b	..
Austria	..	12.1	12.9 ^c	12.5	12.9 ^c	13.3	13.7 ^{c,p}
Belgium	11.4	11.1	10.6	10.7	10.6	11.2	12.0 ^{b,p}
Canada	8.9 ^g	12.5 ^g	12.8 ^g	11.8 ^g	10.5 ^g	10.3 ^{g,p}	..
Chile	..	1.0	1.1	0.6 ^a	0.7	..	..
Czech Republic	2.9	6.1	6.2	6.3	6.6	7.2	7.9 ^{b,p}
Denmark	12.6	15.7 ^a	20.1	19.5	19.8	19.1	18.9 ^{c,p}
Estonia	0.9	3.4	3.7	4.4	4.8	4.8	4.3 ^{b,p}
Finland	17.8	18.0	18.1	18.4	17.5	17.6	17.5
France	10.0	11.5	11.7	12.2	12.7	12.8	13.1 ^p
Germany	10.6 ^c	10.9	11.2	11.2	11.4	11.8	11.7 ^{c,p}
Greece	2.8	3.1	..	..	..	1.8 ^a	2.1 ^b
Hungary	1.9	3.2	3.5	4.2	4.8	5.4	6.3
Iceland	..	11.2	11.6	13.3 ^l	..	12.1 ^a	..
Ireland	6.4 ^c	6.7	7.3	8.4	9.1 ^c	10.8	11.8 ^b
Israel ¹	22.4 ^d	25.2 ^d	23.3 ^d	22.9 ^d	23.4 ^d	24.6 ^d	..
Italy	3.7	4.9	5.6	5.9	6.1	6.1	6.3 ^p
Japan	10.3	11.5	11.7	11.7 ^b	11.7 ^b	11.5 ^b	..
Korea	4.8 ^g	9.4 ^a	10.6	11.1	11.9	12.8	..
Luxembourg	15.6	13.7	12.5	11.7	11.8	11.5	12.1 ^b
Mexico	..	1.0	..	..	..	..	..
Netherlands	8.0	8.1	7.8	7.0	9.1	12.1 ^a	12.2 ^{b,p}
New Zealand	..	4.9	..	5.1	..	5.4	..
Norway	..	10.2	10.8	10.8	10.7	10.8	10.9
Poland	1.5 ^b	1.2	1.0	1.1	1.5	1.5	2.0 ^b
Portugal	0.9 ^c	3.2	3.6	3.6	3.7	4.4 ^b	4.5 ^{b,p}
Slovak Republic	3.3	1.6	1.5	1.5	1.9	1.9	2.2 ^b
Slovenia	5.4	6.6	7.5 ^a	8.4	9.0	12.6 ^a	13.0 ^p
Spain	3.7	5.5	6.0 ^a	6.5	6.6	6.6	6.8 ^{b,p}
Sweden	..	18.1 ^a	19.2 ^c	18.6	18.2 ^c	17.6	18.0 ^b
Switzerland	11.3	..	11.5	..	..	..	13.4 ^b
Turkey	0.4	1.4	1.5	1.7	1.9	2.2	..
United Kingdom	6.5	6.7	6.5	6.7	7.0	7.0	7.0 ^b
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	6.4 ^b	7.2 ^b	7.4 ^b	7.5 ^b	7.8 ^b	8.1 ^b	8.3 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	2.3	1.6	1.4	1.3	1.0	1.3 ^a	1.3 ^b
Russian Federation	12.6	9.4	8.9	8.7 ^b	8.4 ^b	8.2 ^b	7.6 ^b
Singapore	5.4 ^b	7.8	7.5	7.3	7.0	7.2	..
South Africa	..	1.3	1.3	1.3	1.1	..	..
Chinese Taipei	8.3 ^{b,d}	13.1	14.1	15.2	16.3	17.1	17.6

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 33. Industry-financed BERD (Business enterprise expenditure on R&D)
at 2005 prices and PPPs**

Million 2005 USD

	2000	2007	2008	2009	2010	2011	2012
Australia	3 872.5	9 478.1	10 477.9	10 069.3	10 230.5	10 214.5	..
Austria	..	3 488.5	..	3 562.7	..	3 742.6	..
Belgium	3 636.1	3 916.3	4 078.9	3 919.7	4 113.3	4 615.2	..
Canada	7 963.3	10 688.7	10 587.3	10 345.8	9 654.0	9 818.4	9 758.7 ^p
Chile	..	242.3	350.7	274.6 ^a	339.8	..	..
Czech Republic	1 005.2	1 530.6	1 433.5	1 264.7	1 368.7	1 520.0	1 661.2 ^p
Denmark	..	2 941.0 ^a	3 224.2 ^c	3 414.0	3 232.3 ^c	3 183.8	3 170.0 ^{c,p}
Estonia	16.1	110.9	121.0	111.0	150.2	311.4	276.2 ^p
Finland	3 201.8	4 042.2	4 463.6	4 201.5	4 195.2	4 253.4	3 706.6
France	18 704.4	20 602.1	20 347.7	21 662.3	22 315.2	23 446.6	..
Germany	39 333.8 ^{c,m}	44 612.8 ^m	47 396.4 ^m	46 233.8 ^m	47 431.8 ^c	50 626.8	50 880.1 ^c
Greece	..	296.9	..	..	..	462.7 ^a	431.3
Hungary	377.8 ^v	659.8	756.9	794.9	838.3	908.0	958.5
Iceland	..	140.1	139.7	157.8 ^l	..	116.0 ^a	..
Ireland	903.0 ^c	1 114.9	1 207.7	1 413.1	1 408.3 ^c	1 308.0	1 370.6 ^c
Israel ¹	3 159.5 ^{a,d}	4 746.7 ^d	4 507.8 ^d	3 007.3 ^{a,d}	2 954.1 ^d	3 405.2 ^d	..
Italy	6 615.1	8 232.9	9 167.4	8 733.7	9 008.2	9 041.2	..
Japan	76 241.0	107 312.4	107 231.4	94 404.9	96 696.6	100 765.4	..
Korea	13 889.0 ^g	27 725.7 ^a	29 461.6	30 572.5	34 417.1	39 755.4	..
Luxembourg	398.0	423.6	..	405.0	226.3	233.3	231.3
Mexico	1 075.7	2 260.2	1 924.1	1 977.2	2 310.1	2 244.8	..
Netherlands	..	4 912.5	..	4 133.5	..	5 768.2 ^a	..
New Zealand	..	443.3	..	475.8	..	498.8	..
Norway	..	1 613.8	1 694.5	1 646.3	1 590.1	1 697.9	..
Poland	696.5	853.8	.. ^x	1 019.5	1 027.2	1 305.3	1 914.8
Portugal	397.3 ^c	1 251.3	1 657.8	1 611.8	1 595.4	1 491.3	..
Slovak Republic	227.7	139.5	150.9	150.2	210.5	223.3	314.9
Slovenia	261.4	410.1	533.6 ^a	508.4	584.9	749.6 ^a	853.2 ^p
Spain	4 278.6	6 803.0	7 242.5 ^a	6 849.7	6 790.4	6 835.1	..
Sweden	..	6 717.0	..	6 277.7	..	6 246.9	..
Switzerland	4 295.6	..	5 779.0	..	..	..	5 658.5
Turkey	925.7	2 322.1	2 477.2	2 343.5	2 887.7	3 330.6	..
United Kingdom	14 093.9	16 314.8	16 049.7	15 570.8	15 211.0	16 051.1	15 396.9 ^{c,p}
United States	205 395.3 ^{i,o}	229 357.3 ^{i,o}	235 751.9 ^{i,o}	223 371.3 ^{i,o}	209 169.5 ^{i,o}	220 389.8 ^{i,o}	231 197.6 ^{i,o,p}
EU28 (OECD estimates)	110 325.8 ^b	130 139.1 ^b	135 861.0 ^b	133 008.9 ^b	135 102.8 ^b	143 276.7 ^b	..
OECD-Total	428 485.5^b	531 337.4^b	545 912.8^b	516 624.4^b	510 834.8^b	540 685.9^b	..
Argentina	379.3 ^c	720.6	718.1	666.9	787.7	954.1	..
China	15 750.2	64 005.0	75 572.7	95 608.7 ^a	109 294.6	128 979.9	150 969.2 ^b
Romania	246.2	258.7	238.6	319.2	255.0	316.4 ^a	300.0
Russian Federation	3 832.9	5 232.8	5 033.9	5 225.9	4 437.3	5 059.0	4 982.7
Singapore	1 513.9	3 206.7	3 881.7	2 595.8	2 837.6	3 360.5	..
South Africa	..	1 600.3	1 732.0	1 561.6	1 346.8	..	..
Chinese Taipei	6 142.0	11 795.8	13 175.7	13 520.9	15 141.3	16 643.3	17 503.7

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	0.96 ^z	1.79 ^z	1.93 ^z	1.85 ^z	1.84 ^z	1.78 ^{b,z}	..
Austria	..	1.74	..	1.87	..	1.87	..
Belgium	1.86	1.77	1.83	1.84	1.87	2.06	..
Canada	1.19	1.33	1.30	1.38	1.25 ^b	1.24 ^b	1.21 ^{b,p}
Chile	..	0.14	0.20	0.16 ^a	0.19	..	..
Czech Republic	0.78	0.87	0.79	0.75	0.79	0.86	0.96 ^p
Denmark	..	2.71 ^a	2.98 ^c	3.52	3.23 ^c	3.15	3.13 ^{c,p}
Estonia	0.16	0.62	0.72	0.84	1.06	1.99	1.70 ^{b,p}
Finland	3.60	3.68	4.11	4.48	4.30	4.31	3.84
France	1.81	1.82	1.80	2.00	2.03	2.09	..
Germany	2.46 ^{c,m}	2.54 ^m	2.70 ^m	2.87 ^m	2.78 ^c	2.88	2.88 ^c
Greece	..	0.17	..	..	..	0.33 ^a	0.33 ^b
Hungary	0.43 ^y	0.58	0.67	0.77	0.80	0.84	0.92
Iceland	..	2.09	1.99	2.44 ^l	..	1.80 ^{a,b}	..
Ireland	1.01 ^c	0.93	1.07	1.31	1.30 ^c	1.17	1.23 ^b
Israel ¹	3.80 ^{a,d}	4.35 ^d	3.96 ^d	2.66 ^{a,d}	2.48 ^d	2.79 ^d	..
Italy	0.65	0.76	0.86	0.89	0.90	0.90	..
Japan	3.07	3.95	4.04	3.88	3.79	3.98	..
Korea	2.28 ^g	3.38 ^a	3.54	3.66	3.81	4.21	..
Luxembourg	2.17	1.70	..	1.78	0.94	0.95	0.94 ^b
Mexico	0.12	0.21	0.17	0.19	0.21	0.19	..
Netherlands	..	1.26	..	1.09	..	1.46 ^a	..
New Zealand	..	0.61	..	0.66	..	0.68 ^b	..
Norway	..	1.01	0.98	1.11	1.04	1.04	..
Poland	0.22	0.21	.. ^x	0.23	0.22	0.27 ^b	0.39 ^b
Portugal	0.29 ^c	0.88	1.17	1.17	1.14	1.08 ^b	..
Slovak Republic	0.48	0.18	0.18	0.20	0.27	0.27	0.38 ^b
Slovenia	1.01	1.13	1.43 ^a	1.55	1.76	2.23 ^a	2.62 ^p
Spain	0.61	0.78	0.81 ^a	0.79	0.82	0.81	..
Sweden	..	3.42	..	3.52	..	3.11	..
Switzerland	2.36	..	2.64	..	..	..	2.54 ^b
Turkey	0.19	0.39	0.41	0.42	0.47	0.49	..
United Kingdom	1.25	1.21	1.20	1.21	1.21	1.27 ^b	1.21 ^{b,p}
United States	2.82 ^{i,o}	2.73 ^{i,o}	2.86 ^{i,o}	2.87 ^{i,o}	2.60 ^{i,o}	2.66 ^{i,o}	2.72 ^{b,j,o,p}
EU28 (OECD estimates)	1.42 ^b	1.43 ^b	1.48 ^b	1.53 ^b	1.54 ^b	1.61 ^b	..
OECD-Total	2.06^b	2.16^b	2.22^b	2.22^b	2.13^b	2.19^b	..
Argentina	0.14 ^c	0.20	0.19	0.18	0.19	0.21	..
China	0.56	1.15	1.24	1.46 ^a	1.50	1.62	1.77
Romania	0.22	0.16	0.13	0.19	0.16	0.19 ^a	0.18
Russian Federation	0.42	0.36	0.34	0.38	0.31	0.34	0.33
Singapore	1.17 ^b	1.67	2.01	1.35	1.30	1.48	..
South Africa	..	0.52	0.53	0.49	0.41	..	..
Chinese Taipei	1.64	2.36	2.64	2.80	2.75	2.89	3.06

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 35. Percentage of Business enterprise expenditure on R&D (BERD)
financed by industry**

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	91.0	95.9	96.9	96.9	97.2	96.9	..
Austria	..	66.3	..	66.6	..	64.8	..
Belgium	82.1	83.5	84.4	83.5	81.3	83.4	..
Canada	69.3	82.0	85.2	84.7	84.4	85.8	86.2 ^p
Chile	..	97.9	97.6	85.8 ^a	84.9	..	..
Czech Republic	80.6	77.6	74.3	68.2	68.3	66.2	65.8 ^p
Denmark	..	86.3 ^a	86.3 ^c	87.5	89.6 ^c	89.6	89.6 ^{c,p}
Estonia	75.4	82.6	86.5	81.0	83.0	85.3	86.9 ^p
Finland	95.4	90.9	91.4	91.9	91.9	92.1	88.8
France	81.0	80.5	78.4	81.9	82.0	83.3	..
Germany	90.8 ^{c,m}	91.6 ^m	91.6 ^m	92.0 ^m	92.0 ^c	91.4	91.4 ^{c,p}
Greece	..	58.5	..	..	..	78.8 ^a	77.2
Hungary	75.8 ^v	74.9 ^v	79.8 ^v	71.0 ^v	70.8 ^v	69.5 ^v	66.6 ^v
Iceland	..	83.2	83.2	88.4	..	85.9 ^a	..
Ireland	89.1 ^c	73.9	73.9	75.0	75.0 ^c	69.2	69.2 ^c
Israel ¹	64.6 ^{a,d}	65.6 ^d	61.9 ^d	43.0 ^{a,d}	42.1 ^d	46.1 ^d	..
Italy	80.5	78.6	83.4	80.6	80.7	80.3	..
Japan	97.7	98.5	98.5	98.2	98.2	98.3	..
Korea	92.8 ^g	93.4 ^a	93.8	92.9	93.1	93.8	..
Luxembourg	97.5	90.3	..	91.9	64.8	66.8	66.2
Mexico	90.1	91.0	86.4	82.2	92.2	91.3	..
Netherlands	..	83.0	..	80.1	..	81.8 ^a	..
New Zealand	..	79.7	..	80.4	..	76.4	..
Norway	..	80.2	79.2	78.9	78.1	79.3	..
Poland	66.3	83.1	.. ^x	83.2	79.2	81.8	81.0
Portugal	90.8 ^c	89.5	94.0	91.2	94.0	91.7	..
Slovak Republic	77.9	73.5	67.4	72.3	72.3	78.4	80.6
Slovenia	85.5	89.1	90.8 ^a	83.9	80.1	79.5 ^a	78.5 ^p
Spain	86.7	75.1	75.5 ^a	76.3	76.3	78.0	..
Sweden	..	84.2	..	81.8	..	81.3	..
Switzerland	91.4	..	90.5	..	..	..	83.1
Turkey	92.4	89.1	87.8	82.4	88.0	90.2	..
United Kingdom	69.7	69.9	69.7	70.4	68.9	68.7	68.2 ^{c,p}
United States	91.4 ^{i,o}	90.1 ^{i,o}	87.5 ^{i,o}	86.0 ^{i,o}	82.5 ^{i,o}	84.1 ^{i,o}	83.3 ^{i,o,p}
EU28 (OECD estimates)	83.1 ^b	82.1 ^b	82.3 ^b	82.7 ^b	82.5 ^b	82.7 ^b	..
OECD-Total	89.4^b	89.3^b	88.2^b	87.1^b	85.7^b	86.5^b	..
Argentina	88.0 ^c	94.5	94.7	94.6	94.6	94.7	..
China	86.4	91.9	92.8	92.9 ^a	92.7	93.0	93.0
Romania	63.1	51.0	55.0	72.3	62.5	74.4 ^a	66.3
Russian Federation	40.9	36.6	36.5	34.6	32.1	36.0	35.1
Singapore	86.1	88.6	87.7	82.8	85.5	86.9	..
South Africa	..	66.4	67.6	73.1	74.8	..	..
Chinese Taipei	97.9 ^d	98.0	98.0	97.7	97.7	98.0	98.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	3.8	2.8	2.0	2.0	1.7	1.9	..
Austria	..	10.3	..	11.0	..	13.3	..
Belgium	5.8	5.7	5.8	6.6	7.8	6.2	..
Canada	2.3	2.1	2.3	2.8	3.8	3.7	3.6 ^p
Chile	..	2.0	2.3	13.9 ^a	15.0	..	..
Czech Republic	14.7	15.3	15.1	17.1	15.4	15.7	13.7 ^p
Denmark	..	2.4 ^{a,o}	2.4 ^{c,o}	2.6 ^o	2.8 ^{c,o}	2.8 ^o	2.8 ^{c,o,p}
Estonia	9.0	9.3	7.1	11.0	11.1	6.8	9.2 ^p
Finland	3.5	3.5	2.5	2.5	2.6	2.8	3.0
France	9.9	9.8	11.3	9.0	8.7	7.6	..
Germany	6.9 ^{c,l}	4.5 ^l	4.5 ^l	4.5 ^l	4.5 ^c	4.3	4.3 ^{c,p}
Greece	..	4.7	..	..	..	8.0 ^a	8.2
Hungary	6.1 ^v	9.6 ^v	8.6 ^v	15.5 ^v	14.0 ^v	14.5 ^v	15.7 ^v
Iceland	..	5.4	5.4	1.1	..	8.1 ^a	..
Ireland	3.3 ^c	5.5	5.5	4.2	4.2 ^c	5.9	5.9 ^c
Israel ¹	9.8 ^{a,d}	4.5 ^d	4.4 ^d	4.5 ^d	4.2 ^d	3.1 ^d	..
Italy	11.0	6.6	5.9	6.5	5.9	6.9	..
Japan	1.7	1.1	0.9	1.2	1.2	1.0	..
Korea	7.0 ^g	6.2 ^a	5.9	6.8	6.7	6.1	..
Luxembourg	1.6	4.0	..	3.3	.. ^x	.. ^x	.. ^x
Mexico	9.3	7.5	10.0	14.5	7.5	7.8	..
Netherlands	..	2.3 ^s	..	3.7	7.4	3.9 ^a	..
New Zealand	..	8.7	..	8.4	..	12.2	..
Norway	..	7.6	8.9	9.6	9.9	9.7	..
Poland	32.0	11.7	.. ^x	12.3	13.8	12.7	11.2
Portugal	4.2 ^c	3.5	3.3	5.5	4.3	4.0	..
Slovak Republic	20.6	10.3	13.0	7.1	10.7	10.4	6.8
Slovenia	7.0	8.0	5.7 ^a	11.8	15.6	15.1 ^a	14.3 ^p
Spain	7.2	16.3	17.9 ^a	17.1	16.6	14.4	..
Sweden	..	4.6	..	5.8	..	5.0	..
Switzerland	2.3	..	1.7	..	..	..	0.8
Turkey	4.3	9.7	9.5	15.2	10.4	8.9	..
United Kingdom	8.8	6.8	6.6	7.9	8.7	9.3	7.9 ^{c,p}
United States	8.6 ⁱ	9.9 ^{h,j}	12.5 ^{h,j}	14.0 ^{h,j}	12.3 ^{h,j}	10.6 ^{h,j}	11.5 ^{h,j,p}
EU28 (OECD estimates)	8.0 ^b	7.0 ^b	7.3 ^b	7.1 ^b	7.3 ^b	6.9 ^b	..
OECD-Total	7.0^b	6.8^b	8.1^b	9.0^b	8.1^b	7.2^b	7.6^b
Argentina	8.7 ^c	4.7	4.6	4.6	4.6	4.6	..
China	6.8	4.8	4.3	4.3 ^a	4.6	4.4	4.6
Romania	34.0	42.5	39.1	20.7	30.1	18.1 ^a	19.6
Russian Federation	45.5	55.3	56.0	57.4	64.2	58.7	60.4
Singapore	7.8	5.4	5.4	8.3	7.1	5.8	..
South Africa	..	21.7	20.8	12.8	8.3	..	..
Chinese Taipei	2.1 ^d	1.9	2.0	2.2	2.2	2.0	1.9

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 37. Percentage of Business enterprise expenditure on R&D (BERD)
financed by other national sources**

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	0.56	0.04	0.10	.. ^x	.. ^x	.. ^x	..
Austria	..	0.06	..	0.09	..	0.10	..
Belgium	0.05	0.09	0.07	0.15	0.01	0.01	..
Canada	0.00	0.00	0.00	0.00	0.00	0.00	0.00 ^p
Chile	..	0.00	0.00	0.17 ^a	0.08	..	..
Czech Republic	1.01	0.15	0.15	0.16	0.10	0.05	0.04 ^p
Denmark	..	0.32 ^a	0.32 ^c	0.43	0.27 ^c	0.27	0.27 ^{c,p}
Estonia	0.38	0.39	0.55	0.59	0.11	0.01	0.03 ^p
Finland	0.14	0.11	0.03	0.05	0.02	0.05	0.06
France	0.05	0.07	0.11	0.08	0.10	0.06	..
Germany	0.20 ^c	0.17	0.17	0.09	0.09 ^c	0.26	0.26 ^{c,p}
Greece	..	2.88	..	..	..	0.20 ^a	0.15
Hungary	0.03 ^v	0.18 ^v	0.16 ^v	0.14 ^v	0.26 ^v	0.12 ^v	0.05 ^v
Iceland	..	0.00	0.00	0.00	..	0.01 ^a	..
Ireland	0.00 ^c	0.04	0.04	0.04	0.04 ^c	0.07	0.07 ^c
Israel ¹	0.66 ^{a,d}	0.54 ^d	0.55 ^d	0.59 ^d	0.65 ^d	0.62 ^d	..
Italy	0.33	0.18	0.24	0.33	0.21	0.30	..
Japan	0.07	0.09	0.09	0.10	0.08	0.11	..
Korea	0.17 ^g	0.12 ^a	0.08	0.09	0.07	0.06	..
Luxembourg	..	..	..	..	..	..	..
Mexico	0.07	0.02	0.01	0.07	0.10	0.25	..
Netherlands	..	0.22 ^s	..	0.20	..	0.78 ^a	..
New Zealand	..	5.85	..	.. ^x	..	.. ^x	..
Norway	..	0.03	0.03	0.02	0.01	0.02	..
Poland	0.13	0.08	0.09	0.07	0.09	0.20	0.13
Portugal	0.00 ^c	0.00	0.01	0.01	0.00	0.01	..
Slovak Republic	0.00	0.04	0.07	0.05	0.03	0.15	0.00
Slovenia	0.00	0.00	0.00 ^a	0.00	0.06	0.01 ^a	0.12 ^p
Spain	2.33	0.18	0.22 ^a	0.28	0.30	0.22	..
Sweden	..	0.26	..	0.22	..	0.34	..
Switzerland	0.51	..	0.77	..	..	..	0.63
Turkey	1.40	0.28	0.07	0.18	0.19	0.08	..
United Kingdom	0.02	0.10	0.15	0.08	0.03	0.60 ^a	0.22 ^{c,p}
United States	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ
EU28 (OECD estimates)	0.24 ^b	0.15 ^b	..	0.14 ^b	..	0.26 ^b	..
OECD-Total	0.10^b	0.08^b	0.08^b	0.08^b	..	0.12^b	..
Argentina	0.00 ^c	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	0.58	0.99	0.28	0.70	0.37	0.08 ^a	0.16
Russian Federation	0.08	0.33	0.19	0.10	0.16	0.32	0.10
Singapore	0.10	0.05	0.03	0.04	0.05	0.03	..
South Africa	..	0.91	0.24	0.25	2.54	..	..
Chinese Taipei	0.07 ^d	0.04	0.04	0.03	0.03	0.02	0.01

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	4.7	1.2	1.0	1.0	0.9	1.2	..
Austria	..	23.3	..	22.3	..	21.9	..
Belgium	12.0	10.8	9.7	9.8	10.9	10.4	..
Canada	28.4	15.9	12.5	12.5	11.8	10.4	10.3 ^p
Chile	..	0.0	0.1	0.2 ^a	0.1	..	..
Czech Republic	3.6	6.9	10.5	14.5	16.2	18.1	20.5 ^p
Denmark	..	10.9 ^a	10.9 ^c	9.4	7.3 ^c	7.3	7.3 ^{c,p}
Estonia	15.2	7.7	5.8	7.4	5.7	7.9	3.8 ^p
Finland	1.0	5.5	6.0	5.6	5.5	5.0	8.1
France	9.0	9.6	10.2	9.1	9.2	9.0	..
Germany	2.1 ^c	3.7	3.7	3.4	3.4 ^c	4.0	4.0 ^{c,p}
Greece	..	33.9	..	..	..	13.0 ^a	14.4
Hungary	17.2 ^v	15.3 ^v	11.4 ^v	13.4 ^v	15.0 ^v	15.9 ^v	17.7 ^v
Iceland	..	11.4	11.4	10.5	..	6.0 ^a	..
Ireland	7.6 ^c	20.6	20.6	20.8	20.8 ^c	24.8	24.8 ^c
Israel ¹	24.9 ^{a,d}	29.3 ^d	33.2 ^d	51.9 ^{a,d}	53.0 ^d	50.2 ^d	..
Italy	8.2	14.6	10.5	12.6	13.2	12.5	..
Japan	0.6	0.4	0.4	0.5	0.5	0.6	..
Korea	0.0 ^g	0.2 ^a	0.2	0.2	0.2	0.1	..
Luxembourg	0.9	5.7	..	4.9	.. ^x	.. ^x	.. ^x
Mexico	0.5	1.5	3.6	3.2	0.2	0.7	..
Netherlands	15.4	14.5	..	15.9	..	13.5 ^a	..
New Zealand	..	5.9	..	8.5	..	8.9	..
Norway	..	12.1	11.8	11.5	12.0	10.9	..
Poland	1.6	5.1	.. ^x	4.5	6.9	5.3	7.6
Portugal	5.0 ^c	7.0	2.7	3.3	1.7	4.3	..
Slovak Republic	1.6	16.2	19.6	20.6	17.0	11.1	12.7
Slovenia	7.5	2.9	3.6 ^a	4.4	4.2	5.4 ^a	7.1 ^p
Spain	3.7	8.4	6.3 ^a	6.3	6.8	7.4	..
Sweden	..	10.9	..	12.1	..	13.3	..
Switzerland	5.8	..	7.1	..	..	..	15.4
Turkey	1.9	0.9	2.6	2.3	1.3	0.8	..
United Kingdom	21.5	23.2	23.5	21.6	22.4	21.4	23.7 ^{c,p}
United States	.. ⁿ	.. ⁿ	.. ⁿ	.. ⁿ	5.2 ^j	5.3 ^j	5.2 ^{j,p}
EU28 (OECD estimates)	8.6 ^b	10.8 ^b	10.3 ^b	10.0 ^b	10.1 ^b	10.2 ^b	..
OECD-Total	..	..	..	..	6.1^b	6.2^b	..
Argentina	3.3 ^c	0.8	0.8	0.8	0.8	0.8	..
China	4.0	1.5	1.4	1.6 ^a	1.6	1.6	1.1
Romania	2.4	5.5	5.6	6.3	7.0	7.4 ^a	14.0
Russian Federation	13.6	7.8	7.2	7.9	3.5	5.0	4.4
Singapore	6.0	6.0	6.9	8.9	7.3	7.3	..
South Africa	..	11.0	11.3	13.8	14.3	..	..
Chinese Taipei	0.0 ^d	0.0	0.0	0.0	0.0	0.0	0.0

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	149.4 ^b	223.7 ^b	277.3 ^b	266.1 ^b	251.4 ^b	267.2 ^b	..
Austria	156.7 ^b	322.6 ^b	294.1 ^b	228.9 ^b	208.1 ^b	205.2 ^b	..
Belgium	661.4 ^b	1 416.1 ^b	1 467.8 ^b	1 529.9 ^b	1 701.0 ^b	2 050.9 ^b	..
Canada	620.8 ^b	804.4 ^b	546.8 ^b	557.9 ^b	546.9 ^b	417.0 ^b	439.9 ^b
Chile	..	..	..	..	..	..	..
Czech Republic	26.7 ^b	78.7 ^b	76.0 ^b	85.9 ^b	75.5 ^b	79.9 ^b	84.0 ^b
Denmark	..	..	..	839.1 ^b	910.9 ^b	795.5 ^b	..
Estonia	..	..	..	..	0.4 ^b	6.1 ^b	..
Finland	..	..	121.3 ^b	121.5 ^b	115.6 ^b	128.8 ^b	..
France	2 511.7 ^b	3 908.5 ^b	3 956.4 ^b	3 953.8 ^b	3 760.5 ^b	3 705.3 ^b	..
Germany	2 320.8 ^b	3 983.6 ^b	4 206.6 ^b	4 833.1 ^b	4 692.2 ^b	5 227.0 ^b	..
Greece	..	..	..	..	..	87.0 ^b	..
Hungary	159.9 ^b	318.1 ^b	384.9 ^b	422.6 ^b	445.1 ^b	436.3 ^b	..
Iceland	4.3 ^b	49.8 ^b	53.6 ^b	42.7 ^b	..	36.3 ^{a,b}	..
Ireland	..	..	..	270.1 ^b	279.4 ^b	153.8 ^b	..
Israel ¹	..	..	..	..	313.8 ^{b,d}	283.2 ^{b,d}	..
Italy	630.7 ^b	515.5 ^b	608.6 ^b	687.2 ^b	714.2 ^b	752.7 ^b	..
Japan	4 814.8 ^b	10 422.0 ^b	11 088.0 ^b	10 339.7 ^b	11 434.4 ^b	11 446.1 ^b	..
Korea	185.3 ^b	775.9 ^b	807.5 ^b	838.9 ^b	876.6 ^b	1 010.1 ^b	..
Luxembourg	..	..	..	..	..	..	..
Mexico	29.5 ^b	158.9 ^b	181.8 ^b	196.6 ^b	463.5 ^b	538.5 ^b	..
Netherlands	..	..	530.7 ^b	486.7 ^b	449.7 ^b	420.5 ^b	..
New Zealand	..	..	..	..	..	..	..
Norway	59.1 ^b	58.4 ^b	58.1 ^b	52.9 ^b	56.1 ^b	81.9 ^b	..
Poland	..	67.4 ^b	100.4 ^b	85.7 ^b	85.3 ^b	91.7 ^b	..
Portugal	..	90.8 ^b	132.5 ^b	107.7 ^b	123.3 ^b	139.4 ^b	..
Slovak Republic	..	..	..	..	21.9 ^b	25.2 ^b	18.4 ^b
Slovenia	70.0 ^b	176.0 ^b	217.9 ^b	210.7 ^b	250.2 ^b	262.7 ^b	..
Spain	358.3 ^b	1 052.9 ^b	1 061.9 ^b	1 088.7 ^b	1 007.7 ^b	1 036.8 ^b	..
Sweden	..	957.8 ^b	..	711.5 ^b	..	878.9 ^b	..
Switzerland	991.8 ^b	..	2 988.3 ^b	..	..	..	..
Turkey	..	..	..	101.0 ^b	98.0 ^b	196.8 ^b	..
United Kingdom	4 480.4 ^b	6 106.7 ^b	6 639.3 ^b	6 783.5 ^b	6 705.1 ^b	6 946.8 ^b	..
United States	12 793.0 ^{b,j}	47 732.0 ^{b,j}	48 131.0 ^{b,j}	44 936.0 ^{b,j}	49 415.0 ^{b,j}	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	706.5 ^b	..	2 690.4 ^b	3 571.5 ^b	4 186.9 ^b	5 051.4 ^b	6 696.4 ^b
Romania	..	35.0 ^b	5.7 ^b	6.0 ^b	7.5 ^b	22.8 ^b	..
Russian Federation	12.6 ^{b,j}	10.2 ^{b,j}	14.6 ^{b,j}	20.6 ^{b,j}	..	18.6 ^{b,j}	..
Singapore	18.5 ^b	116.2 ^b	29.5 ^b	71.7 ^b	100.5 ^b	110.1 ^b	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	69.8 ^b	141.2 ^b	195.3 ^b	211.6 ^b	248.5 ^b	313.7 ^b	332.5 ^b

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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 PPPs**

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	197.9 ^b	225.3 ^b	272.3 ^b	254.7 ^b	248.3 ^b	237.9 ^b	..
Austria	751.1 ^b	610.4 ^b	527.5 ^b	626.8 ^b	675.8 ^b	631.1 ^b	..
Belgium	865.2 ^b	744.0 ^b	662.0 ^b	642.3 ^b	509.0 ^b	536.9 ^b	..
Canada	3 709.9 ^b	2 369.6 ^b	2 008.3 ^b	2 118.6 ^b	1 729.8 ^b	1 930.8 ^b	1 989.6 ^b
Chile	..	..	..	..	..	..	..
Czech Republic	25.9 ^b	134.4 ^b	112.5 ^b	95.2 ^b	85.4 ^b	85.3 ^b	92.7 ^b
Denmark	..	..	..	334.9 ^b	327.2 ^b	325.7 ^b	..
Estonia	..	9.0 ^b	4.3 ^b	5.8 ^b	5.5 ^b	5.6 ^b	..
Finland	..	..	2 970.7 ^b	2 929.2 ^b	2 837.8 ^b	2 766.9 ^b	..
France	4 253.2 ^b	4 517.6 ^b	4 333.4 ^b	4 605.2 ^b	4 538.6 ^b	4 513.2 ^b	..
Germany	5 531.9 ^b	7 312.8 ^b	7 977.2 ^b	7 214.2 ^b	7 527.5 ^b	8 429.9 ^b	..
Greece	..	..	..	..	..	33.3 ^b	..
Hungary	48.0 ^b	101.5 ^b	79.0 ^b	126.2 ^b	116.8 ^b	150.0 ^b	..
Iceland	5.4 ^b	10.5 ^b	11.3 ^b	20.6 ^b	..	1.6 ^{a,b}	..
Ireland	..	..	..	174.3 ^b	180.3 ^b	184.7 ^b	..
Israel ¹	1 489.4 ^{b,d}	1 717.5 ^{b,d}	1 404.0 ^{b,d}	1 236.0 ^{b,d}	1 401.7 ^{b,d}	1 545.9 ^{b,d}	..
Italy	1 632.3 ^b	1 544.7 ^b	1 518.5 ^b	1 638.7 ^b	1 767.5 ^b	1 878.6 ^b	..
Japan	..	32 756.9 ^b	32 295.2 ^b	27 383.6 ^b	26 341.5 ^b	29 301.1 ^b	..
Korea	6 106.9 ^b	14 415.5 ^b	16 114.4 ^b	16 302.4 ^b	19 604.3 ^b	21 873.9 ^b	..
Luxembourg	..	..	..	..	..	..	..
Mexico	4.3 ^b	65.8 ^b	54.6 ^b	61.6 ^b	..	..	..
Netherlands	..	..	509.3 ^b	474.8 ^b	660.5 ^b	692.8 ^b	..
New Zealand	..	..	..	..	..	..	..
Norway	189.3 ^b	209.3 ^b	216.7 ^b	214.5 ^b	173.7 ^b	190.9 ^b	..
Poland	..	34.0 ^b	41.3 ^b	48.6 ^b	83.6 ^b	73.1 ^b	..
Portugal	28.6 ^b	43.8 ^b	45.9 ^b	33.2 ^b	30.7 ^b	42.2 ^b	..
Slovak Republic	..	14.5 ^b	3.5 ^b	2.2 ^b	4.5 ^b	5.5 ^b	7.1 ^b
Slovenia	55.9 ^b	70.4 ^b	76.3 ^b	69.1 ^b	68.8 ^b	77.1 ^b	..
Spain	441.6 ^b	533.7 ^b	396.6 ^b	348.7 ^b	340.6 ^b	307.0 ^b	..
Sweden	..	1 790.0 ^b	..	2 093.8 ^b	..	2 155.0 ^b	..
Switzerland	492.0 ^b	..	1 128.4 ^b	..	..	..	..
Turkey	..	..	..	493.8 ^b	130.2 ^b	150.5 ^b	..
United Kingdom	2 545.0 ^b	1 983.7 ^b	2 056.6 ^b	1 915.2 ^b	1 757.0 ^b	1 840.6 ^b	..
United States	51 761.5 ^{b,j}	58 599.0 ^{b,j}	60 464.0 ^{b,j}	56 435.0 ^{b,j}	59 875.0 ^{b,j}	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	3 614.9 ^b	..	15 074.8 ^b	17 936.7 ^b	20 944.8 ^b	25 393.1 ^b	28 090.5 ^b
Romania	..	..	19.6 ^b	13.9 ^b	12.9 ^b	12.6 ^b	..
Russian Federation	209.9 ^{b,j}	1 064.3 ^{b,j}	937.4 ^{b,j}	696.7 ^{b,j}	..	740.9 ^{b,j}	..
Singapore	822.0 ^b	2 067.1 ^b	2 922.2 ^b	1 499.4 ^b	1 502.6 ^b	1 374.3 ^b	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	3 360.1 ^b	9 018.8 ^b	10 289.4 ^b	10 798.1 ^b	12 221.7 ^b	13 875.4 ^b	14 817.8 ^b

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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 PPPs**

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	2.4 ^b	70.2 ^b	50.7 ^b	45.5 ^b	36.7 ^b	23.6 ^b	..
Austria	7.6 ^b	19.4 ^b	36.4 ^b	48.8 ^b	49.9 ^b	44.8 ^b	..
Belgium	46.2 ^b	95.6 ^b	97.8 ^b	105.8 ^b	113.0 ^b	141.7 ^b	..
Canada	717.5 ^b	763.2 ^b	810.1 ^b	920.5 ^b	1 002.2 ^b	1 053.3 ^b	1 071.1 ^b
Chile	..	..	..	..	..	..	..
Czech Republic	21.1 ^b	29.0 ^b	20.1 ^b	23.4 ^b	31.4 ^b	37.4 ^b	45.7 ^b
Denmark	..	..	..	..	..	..	..
Estonia	..	0.0 ^b	0.0 ^b	0.0 ^b	0.0 ^b	0.0 ^b	..
Finland	..	..	..	..	..	..	..
France	1 998.0 ^b	2 852.1 ^b	3 088.1 ^b	2 968.5 ^b	3 062.9 ^b	3 374.5 ^b	..
Germany	2 168.9 ^b	2 243.3 ^b	2 523.0 ^b	2 365.7 ^b	2 920.8 ^b	2 958.8 ^b	..
Greece	..	..	..	..	..	..	..
Hungary	..	..	..	..	..	..	..
Iceland	0.0 ^b	..	..	..	..	0.0 ^b	..
Ireland	..	..	..	..	..	..	..
Israel ¹	..	..	..	..	..	..	..
Italy	763.0 ^b	1 228.4 ^b	1 194.8 ^b	1 173.4 ^b	1 207.0 ^b	1 227.1 ^b	..
Japan	..	23.9 ^b	25.8 ^b	173.6 ^b	192.2 ^b	238.0 ^b	..
Korea	403.6 ^b	238.0 ^b	36.3 ^b	83.9 ^b	83.5 ^b	91.2 ^b	..
Luxembourg	..	..	..	..	..	..	..
Mexico	0.3 ^b	0.2 ^b	12.2 ^b	20.5 ^b	..	..	..
Netherlands	..	..	16.6 ^b	15.5 ^b	44.7 ^b	37.7 ^b	..
New Zealand	..	..	..	..	..	..	..
Norway	..	..	..	3.0 ^b	2.7 ^b	..	..
Poland	..	17.0 ^b	16.5 ^b	30.4 ^b	51.4 ^b	73.6 ^b	..
Portugal	..	..	..	..	..	..	..
Slovak Republic	..	..	..	..	..	..	..
Slovenia	0.0 ^b	0.0 ^b	0.1 ^b	1.8 ^b	2.3 ^b	2.3 ^b	..
Spain	252.4 ^b	397.0 ^b	472.5 ^b	491.6 ^b	624.6 ^b	789.4 ^b	..
Sweden	..	..	..	..	..	..	..
Switzerland	..	..	..	..	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	1 717.9 ^b	3 204.7 ^b	2 633.4 ^b	2 246.8 ^b	2 035.2 ^b	2 029.9 ^b	..
United States	10 319.0 ^{b,j}	18 436.0 ^{b,j}	36 941.0 ^{b,j}	34 554.0 ^{b,j}	29 854.0 ^{b,j}	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	376.0 ^b	..	..	..	..	..	..
Romania	..	..	..	..	1.3 ^b	4.0 ^b	..
Russian Federation	1 210.7 ^{b,j}	965.6 ^{b,j}	802.7 ^{b,j}	561.4 ^{b,j}	..	378.2 ^{b,j}	..
Singapore	11.8 ^b	23.0 ^b	43.2 ^b	40.0 ^b	87.4 ^b	52.9 ^b	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	..	..	..	..	..	..	..

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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 PPPs**

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	1 667.1 ^b	4 277.3 ^b	4 803.2 ^b	5 069.6 ^b	5 132.8 ^b	5 512.0 ^b	..
Austria	759.9 ^b	1 635.8 ^b	1 866.0 ^b	1 913.8 ^b	2 147.0 ^b	2 399.2 ^b	..
Belgium	638.2 ^b	1 019.6 ^b	1 281.2 ^b	1 272.0 ^b	1 282.7 ^b	1 408.0 ^b	..
Canada	2 765.3 ^b	5 727.7 ^b	6 015.5 ^b	5 700.7 ^b	5 586.7 ^b	5 777.1 ^b	5 766.2 ^b
Chile	..	..	..	190.6 ^b	197.9 ^b	..	..
Czech Republic	349.3 ^b	874.9 ^b	840.9 ^b	864.0 ^b	915.2 ^b	1 081.1 ^b	1 260.2 ^b
Denmark	..	..	..	2 276.7 ^b	2 126.7 ^b	2 427.0 ^b	..
Estonia	..	93.9 ^b	120.3 ^b	128.1 ^b	134.4 ^b	143.5 ^b	..
Finland	539.1 ^b	908.5 ^b	1 045.9 ^b	965.5 ^b	962.5 ^b	1 162.9 ^b	..
France	2 198.8 ^b	3 412.8 ^b	4 087.3 ^b	4 928.6 ^b	6 028.9 ^b	6 416.4 ^b	..
Germany	3 066.4 ^b	5 768.6 ^b	6 140.9 ^b	7 608.8 ^b	7 861.5 ^b	8 919.4 ^b	..
Greece	..	..	..	..	..	406.6 ^b	..
Hungary	80.8 ^b	224.0 ^b	260.8 ^b	391.4 ^b	474.7 ^b	596.8 ^b	..
Iceland	95.8 ^b	81.6 ^b	87.7 ^b	106.5 ^b	..	76.9 ^{a,b}	..
Ireland	..	..	..	..	..	..	..
Israel ¹	2 942.2 ^{b,d}	4 624.2 ^{b,d}	4 791.6 ^{b,d}	4 840.3 ^{b,d}	4 986.4 ^{b,d}	5 346.7 ^{b,d}	..
Italy	1 615.5 ^b	3 267.2 ^b	3 339.6 ^b	3 700.0 ^b	3 670.2 ^b	3 563.9 ^b	..
Japan	4 698.0 ^b	11 851.3 ^b	13 207.1 ^b	11 669.6 ^b	12 088.4 ^b	12 264.2 ^b	..
Korea	1 465.8 ^b	2 241.1 ^b	2 607.3 ^b	3 227.6 ^b	3 518.0 ^b	3 955.3 ^b	..
Luxembourg	..	310.2 ^b	..	..	..	..	..
Mexico	463.5 ^b	797.7 ^b	478.1 ^b	612.4 ^b	1 278.6 ^b	1 251.5 ^b	..
Netherlands	..	..	..	..	..	3 045.4 ^b	..
New Zealand	..	271.2 ^b	..	331.7 ^b	..	358.0 ^b	..
Norway	509.9 ^b	900.0 ^b	1 028.7 ^b	1 030.1 ^b	1 112.3 ^b	1 234.1 ^b	..
Poland	..	..	..	..	720.7 ^b	..	..
Portugal	167.9 ^b	902.2 ^b	1 141.2 ^b	1 258.0 ^b	1 239.8 ^b	1 199.7 ^b	..
Slovak Republic	..	..	..	76.9 ^b	102.4 ^b	129.4 ^b	215.8 ^b
Slovenia	54.3 ^b	45.4 ^b	85.7 ^b	106.5 ^b	139.6 ^b	276.2 ^b	..
Spain	1 026.9 ^b	3 474.2 ^b	4 573.3 ^b	4 211.1 ^b	3 964.7 ^b	3 831.1 ^b	..
Sweden	..	..	..	..	..	..	..
Switzerland	906.6 ^b	..	1 625.9 ^b	..	..	..	..
Turkey	..	..	..	1 289.9 ^b	1 971.0 ^b	2 198.4 ^b	..
United Kingdom	2 998.2 ^b	5 904.2 ^b	6 035.6 ^b	5 751.9 ^b	5 982.6 ^b	6 358.8 ^b	..
United States	73 729.6 ^{b,j}	79 724.0 ^{b,j}	83 850.3 ^{b,j}	84 181.3 ^{b,j}	78 220.0 ^{b,j}	..	..
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	1 061.7 ^b	..	5 579.1 ^b	8 659.3 ^b	8 172.9 ^b	10 100.7 ^b	..
Romania	8.6 ^b	155.2 ^b	153.4 ^b	201.4 ^b	179.1 ^b	..	..
Russian Federation	4 041.5 ^{b,j}	12 273.0 ^{b,j}	14 318.4 ^{b,j}	17 594.3 ^{b,j}	..	17 592.6 ^{b,j}	..
Singapore	290.3 ^b	1 127.8 ^b	1 274.3 ^b	1 299.9 ^b	1 411.4 ^b	2 265.5 ^b	..
South Africa	..	929.8 ^b	973.4 ^b	1 042.7 ^b	..	..	..
Chinese Taipei	419.0 ^b	842.1 ^b	1 000.9 ^b	1 097.6 ^b	1 234.0 ^b	1 302.9 ^b	1 539.6 ^b

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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 PPPs

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	2 128.8	..	4 626.9	..	5 446.4	..	..
Austria	..	1 885.8	2 210.6 ^c	2 320.8	2 475.0 ^c	2 551.2	2 699.3 ^{c,p}
Belgium	1 129.0	1 513.6	1 702.6	1 921.4	2 061.3	2 175.9	2 337.2 ^p
Canada	4 707.4	8 404.9	8 852.1	8 995.0	9 195.8	9 379.0	9 492.0 ^p
Chile	..	366.1	414.9	378.8	398.8	..	..
Czech Republic	265.1	656.2	637.4	723.8	760.9	1 135.2	1 495.3 ^p
Denmark	686.6	1 401.7 ^a	1 695.1	1 869.3 ^v	2 065.3	2 188.2	2 267.6 ^{c,p}
Estonia	42.7	130.7	162.8	159.3	169.0	204.2	228.3
Finland	794.3	1 237.1	1 286.6	1 425.8	1 564.3	1 578.5	1 625.3
France	6 188.2 ^a	8 573.7	9 326.3	10 389.8	10 948.3	11 188.6	11 395.5 ^p
Germany	8 434.5	11 918.1	13 690.8	14 648.3	15 903.2	17 273.9	18 353.3 ^c
Greece	..	918.3 ^c	..	..	..	807.2 ^a	796.6
Hungary	234.9 ^v	436.4 ^v	453.6 ^v	500.7 ^v	492.8 ^v	549.3 ^v	536.1 ^v
Iceland	35.2 ^c	78.0	83.9	92.9 ^j	82.2 ^c	77.7 ^a	..
Ireland	247.8	688.0	788.0	820.3	840.5	851.0 ^c	898.0 ^c
Israel ¹	959.9 ^g	1 129.6 ^g	1 204.1 ^g	1 132.8 ^g	1 177.8 ^g	1 205.8 ^g	1 224.1 ^g
Italy	4 735.6	6 720.7	7 335.0	7 485.9	7 238.7	7 377.7	7 532.9 ^p
Japan	14 346.9	18 588.7	17 306.1 ^a	18 374.4	18 105.9	19 603.5	..
Korea	2 094.8 ^g	4 334.7 ^a	4 893.3	5 113.4	5 637.7	5 890.4	..
Luxembourg	1.0	19.0 ^c	41.7	55.0	81.4	..	..
Mexico	950.6	1 479.8	1 974.8	2 043.8	2 190.9	2 330.0	..
Netherlands	2 897.3	4 181.0	4 725.0	4 987.9	5 174.4	4 802.5	5 115.5 ^p
New Zealand	..	433.1	..	549.6	..	562.6	..
Norway	..	1 334.7 ^a	1 483.5	1 504.2	1 534.5	1 589.2	1 716.1
Poland	822.4	1 226.6	1 396.5	1 809.9	2 128.6	2 249.8	2 719.9
Portugal	497.2 ^c	888.8	1 372.8 ^a	1 595.2	1 594.4	1 567.4	1 577.9 ^p
Slovak Republic	36.6	129.3	144.1	148.8	225.6	322.0	391.4
Slovenia	80.2	123.6	130.6	149.0	161.8	168.6 ^a	171.3 ^p
Spain	2 310.2	4 826.0	5 460.7	5 742.3	5 748.3	5 673.1	5 425.8
Sweden	..	2 646.5	2 876.2 ^c	3 145.3	3 316.3 ^c	3 542.8	3 769.0 ^c
Switzerland	1 319.5	..	2 544.1	..	2 935.3	..	3 740.4
Turkey	1 706.5	3 393.2	3 394.0	4 221.3	4 533.6	5 140.6	..
United Kingdom	5 742.4	10 093.3	10 439.1	11 061.6	10 316.0	10 207.8	10 361.0 ^{c,p}
United States	30 693.0 ^j	51 149.0 ^j	53 917.0 ^j	56 972.0 ^j	60 369.0 ^j	62 457.0 ^j	62 723.0 ^{j,p}
EU28 (OECD estimates)	39 136.7 ^b	61 199.6 ^b	68 108.6 ^b	72 820.3 ^b	75 283.1 ^b	77 714.1 ^b	80 963.3 ^b
OECD-Total	98 823.8^b	157 355.7^b	167 976.2^b	179 081.3^b	186 329.4^b	194 311.1^b	201 566.8^b
Argentina	497.7	765.9	866.1	1 077.6	1 217.8	1 443.6	..
China	2 311.0	8 681.8	10 206.2	12 428.2	15 012.6	16 472.1	18 449.9
Romania	55.1	346.9	538.6	365.9	358.5	376.5 ^a	339.8
Russian Federation	477.9	1 678.5	2 013.0	2 468.5	2 760.9	3 178.6	3 518.4
Singapore	591.8	1 206.6	1 365.3	1 497.4	1 729.1	1 934.3	..
South Africa	..	863.0	945.1	1 071.5	1 077.0	..	..
Chinese Taipei	1 068.5	2 245.8	2 505.9	2 735.9	2 893.8	3 107.2	3 114.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	0.39 ^z	..	0.55 ^z	..	0.58 ^z	..	..
Austria	..	0.60	0.67 ^c	0.71	0.73 ^c	0.71	0.73 ^{c,p}
Belgium	0.40	0.40	0.43	0.48	0.49	0.49	0.52 ^p
Canada	0.54	0.67	0.68	0.71	0.69	0.68	0.66 ^p
Chile	..	0.13	0.15	0.14	0.13	..	..
Czech Republic	0.17	0.25	0.24	0.27	0.28	0.40	0.52 ^p
Denmark	0.45	0.68 ^a	0.77	0.88 ^v	0.91	0.94	0.95 ^{c,p}
Estonia	0.32	0.45	0.55	0.60	0.62	0.66	0.70
Finland	0.60	0.65	0.64	0.74	0.80	0.76	0.77
France	0.40 ^a	0.41	0.43	0.47	0.48	0.47	0.47 ^p
Germany	0.40	0.41	0.45	0.50	0.51	0.52	0.53 ^c
Greece	..	0.30 ^c	..	..	..	0.27 ^a	0.28
Hungary	0.19 ^v	0.23 ^v	0.22 ^v	0.24 ^v	0.23 ^v	0.25 ^v	0.24 ^v
Iceland	0.43 ^c	0.67	0.67	0.77 ^l	0.71 ^c	0.64 ^a	..
Ireland	0.23	0.35	0.42	0.45	0.45	0.43 ^c	0.45 ^c
Israel ¹	0.65 ^g	0.62 ^g	0.64 ^g	0.59 ^g	0.58 ^g	0.55 ^g	0.53 ^g
Italy	0.32	0.35	0.37	0.38	0.36	0.36	0.36 ^p
Japan	0.44	0.44	0.40 ^a	0.45	0.42	0.45	..
Korea	0.26 ^g	0.34 ^a	0.37	0.39	0.40	0.41	..
Luxembourg	0.00	0.05 ^c	0.10	0.14	0.19	..	..
Mexico	0.10	0.10	0.12	0.13	0.13	0.12	..
Netherlands	0.62	0.63	0.67	0.73	0.75	0.67	0.70 ^p
New Zealand	..	0.35	..	0.42	..	0.40	..
Norway	..	0.51 ^a	0.51	0.56	0.54	0.52	0.52
Poland	0.20	0.19	0.20	0.25	0.27	0.27	0.31
Portugal	0.27 ^c	0.35	0.52 ^a	0.60	0.58	0.57	0.58 ^p
Slovak Republic	0.06	0.11	0.11	0.12	0.17	0.24	0.28
Slovenia	0.23	0.23	0.22	0.27	0.29	0.29 ^a	0.29 ^p
Spain	0.27	0.33	0.36	0.39	0.39	0.38	0.36
Sweden	..	0.75	0.79 ^c	0.90	0.89 ^c	0.90	0.92 ^c
Switzerland	0.56	..	0.69	..	0.77	..	0.88
Turkey	0.29	0.35	0.32	0.40	0.39	0.39	..
United Kingdom	0.37	0.46	0.46	0.51	0.48	0.46	0.46 ^{c,p}
United States	0.30 ^{i,z}	0.35 ^{i,z}	0.37 ^{i,z}	0.40 ^{i,z}	0.40 ^{i,z}	0.40 ^{i,z}	0.39 ^{i,p,z}
EU28 (OECD estimates)	0.37 ^b	0.40 ^b	0.42 ^b	0.46 ^b	0.47 ^b	0.46 ^b	0.47 ^b
OECD-Total	0.35^b	0.39^b	0.40^b	0.44^b	0.44^b	0.44^b	0.44^b
Argentina	0.15	0.15	0.15	0.19	0.19	0.20	..
China	0.08	0.12	0.12	0.14	0.15	0.15	0.15
Romania	0.04	0.13	0.17	0.12	0.11	0.11 ^a	0.10
Russian Federation	0.05	0.07	0.07	0.09	0.09	0.10	0.10
Singapore	0.44	0.50	0.54	0.60	0.59	0.62	..
South Africa	..	0.18	0.19	0.21	0.20	..	..
Chinese Taipei	0.24	0.31	0.34	0.38	0.35	0.36	0.35

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 45. Higher education expenditure on R&D (HERD) at 2005 prices and PPPs

Million 2005 USD

	2000	2007	2008	2009	2010	2011	2012
Australia	2 382.8	..	4 280.6	..	4 793.8	..	..
Austria	..	1 777.3	2 011.1 ^c	2 050.5	2 156.7 ^c	2 149.1	2 223.2 ^{c,p}
Belgium	1 239.8	1 425.3	1 544.8	1 686.4	1 770.9	1 800.3	1 882.8 ^p
Canada	5 372.2	7 922.4	8 162.5	8 239.7	8 323.0	8 334.2	8 289.7 ^p
Chile	..	306.6	362.7	329.5	316.3	..	..
Czech Republic	295.4	615.9	599.8	646.5	695.8	1 011.6	1 294.3 ^p
Denmark	753.3	1 287.6 ^a	1 452.3	1 549.4 ^v	1 631.3	1 701.7	1 711.8 ^{c,p}
Estonia	49.7	119.1	139.0	129.3	137.1	160.9	178.1
Finland	844.8	1 147.5	1 129.9	1 209.9	1 339.3	1 309.6	1 310.7
France	6 928.0 ^a	7 920.0	8 293.6	8 918.0	9 298.3	9 248.6	9 237.6 ^p
Germany	9 909.8	11 211.0	12 477.2	13 104.1	13 911.2	14 592.9	15 238.4 ^c
Greece	..	874.1 ^c	..	..	..	676.3 ^a	650.8
Hungary	270.0 ^v	408.8 ^v	397.4 ^v	409.4 ^v	394.7 ^v	422.6 ^v	403.6 ^v
Iceland	36.4 ^c	77.5	77.3	83.9 ^l	73.5 ^c	68.1 ^a	..
Ireland	286.4	621.5	726.8	734.8	725.2	715.8 ^c	739.6 ^c
Israel ¹	945.3 ^g	1 112.7 ^g	1 212.6 ^g	1 118.9 ^g	1 149.5 ^g	1 140.6 ^g	1 138.1 ^g
Italy	5 090.7	6 089.7	6 253.9	6 153.2	5 955.9	5 898.9	5 806.1 ^p
Japan	15 983.9	17 620.4	16 138.3 ^a	17 014.0	16 564.8	17 600.3	..
Korea	2 279.7 ^g	4 146.0 ^a	4 645.8	4 911.8	5 350.7	5 589.9	..
Luxembourg	1.1	16.7 ^c	35.7	46.5	65.6	..	..
Mexico	1 134.0	1 358.0	1 726.0	1 710.2	1 811.3	1 822.6	..
Netherlands	3 315.8	3 862.8	4 195.5	4 403.1	4 590.7	4 125.2	4 304.3 ^p
New Zealand	..	393.3	..	467.1	..	457.7	..
Norway	..	1 220.7 ^a	1 288.8	1 295.8	1 285.3	1 287.8	1 325.1
Poland	918.3	1 147.4	1 275.2	1 594.2	1 811.2	1 858.3	2 186.1
Portugal	590.5 ^c	811.6	1 213.1 ^a	1 357.1	1 350.5	1 315.1	1 280.0 ^p
Slovak Republic	42.3	119.9	126.7	126.5	191.2	267.7	321.6
Slovenia	90.2	119.7	122.3	136.7	149.8	150.5 ^a	147.1 ^p
Spain	2 722.7	4 277.3	4 669.5	4 815.4	4 888.4	4 744.0	4 405.0
Sweden	..	2 395.6	2 490.4 ^c	2 701.4	2 860.1 ^c	2 957.4	3 070.9 ^c
Switzerland	1 453.7	..	2 099.5	..	2 363.3	..	2 763.1
Turkey	1 808.5	3 042.4	2 796.2	3 371.9	3 547.1	3 887.0	..
United Kingdom	6 408.1	9 738.2	9 835.2	10 235.1	9 791.9	9 566.6	9 430.6 ^{c,p}
United States	34 478.6 ⁱ	48 340.6 ⁱ	49 980.3 ⁱ	52 408.8 ⁱ	54 869.6 ⁱ	55 674.0 ⁱ	54 950.4 ^{i,p}
EU28 (OECD estimates)	44 042.6 ^b	56 869.3 ^b	60 903.0 ^b	63 557.7 ^b	65 385.1 ^b	65 688.0 ^b	66 777.5 ^b
OECD-Total	110 757.9^b	147 439.2^b	153 004.6^b	160 514.6^b	165 400.4^b	168 534.2^b	170 994.2^b
Argentina	557.6	724.0	802.6	991.1	1 106.6	1 286.7	..
China	2 604.9	8 169.1	9 398.7	11 346.7	13 574.9	14 522.3	16 153.1 ^b
Romania	66.2	293.7	417.7	271.7	260.7	270.0 ^a	229.1
Russian Federation	602.5	1 406.1	1 466.1	1 724.9	1 906.2	2 080.9	2 263.7
Singapore	678.4	1 139.6	1 265.3	1 377.0	1 570.7	1 723.0	..
South Africa	..	812.4	870.5	978.3	970.4	..	..
Chinese Taipei	1 200.7	2 122.5	2 322.8	2 516.7	2 630.2	2 769.6	2 728.3

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 46. Percentage of Higher education expenditure on R&D (HERD)
financed by industry**

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	5.3	..	5.8	..	4.9	..	..
Austria	..	5.7	..	5.2	..	5.2	..
Belgium	11.8	11.1	10.6	11.0	10.1	10.7	..
Canada	9.5	8.5	8.2	8.3	7.5	8.1	8.1 ^P
Chile	..	7.3	7.3	5.9	6.4	..	..
Czech Republic	1.1	0.7	0.6	1.1	1.1	1.0	0.8 ^P
Denmark	2.0	2.1 ^a	..	3.6 ^V	3.1	3.4	3.4 ^{C,P}
Estonia	7.4	5.6	4.4	4.3	4.2	3.5	3.5
Finland	5.6	7.0	7.2	6.4	5.7	5.5	5.1
France	2.7 ^a	1.6	2.2	1.8	2.0	2.6	..
Germany	11.6	15.5	15.1	14.2	13.9	14.0	..
Greece	..	..	..	..	..	9.0 ^a	7.9
Hungary	5.5 ^V	13.7 ^V	14.7 ^V	15.5 ^V	13.6 ^V	11.3 ^V	9.5 ^V
Iceland	..	13.7	13.7	8.2	..	4.0 ^a	..
Ireland	5.3	2.3	3.0	2.7	2.3	2.1 ^c	2.0 ^c
Israel ¹	3.7 ^g	9.4 ^g	9.7 ^g	9.7 ^g	9.7 ^g	..	..
Italy	..	1.3	1.2	1.1	1.1	1.3	1.2 ^P
Japan	2.5	3.0	3.0 ^a	2.5	2.6	2.7	..
Korea	15.9 ^g	14.2 ^a	12.0	11.3	11.3	11.0	..
Luxembourg	..	1.1 ^c	..	0.2	0.1	..	..
Mexico	2.0	1.3	12.7	14.0	0.4	1.6	..
Netherlands	..	7.5	..	8.2	..	8.2	..
New Zealand	..	4.6	..	5.2	..	4.1	..
Norway	..	4.0 ^a	..	3.8	..	4.0	..
Poland	7.8	11.3	3.8	3.3	2.9	2.6	2.1
Portugal	1.0 ^c	1.4	0.9 ^a	0.9	0.6	1.8	..
Slovak Republic	0.3 ^a	6.8	2.5	2.1	2.3	3.5	3.3
Slovenia	7.6	10.6	10.1	9.2	12.0	12.5 ^a	11.2 ^P
Spain	6.9	9.0	8.8	8.0	7.9	8.0	..
Sweden	..	4.9	..	4.5	..	4.0	..
Switzerland	5.1	..	6.9	..	9.1	..	11.0
Turkey	19.4	23.3 ^o	17.4 ^a	16.0	16.2	14.6	..
United Kingdom	7.1	4.5	4.6	3.9	4.1	4.0	3.9 ^{C,P}
United States	7.1 ⁱ	5.5 ⁱ	5.7 ⁱ	5.6 ⁱ	4.6 ⁱ	4.5 ⁱ	4.6 ^{i,P}
EU28 (OECD estimates)	6.3 ^b	6.9 ^b	6.8 ^b	6.4 ^b	6.4 ^b	6.6 ^b	..
OECD-Total	6.4^b	6.6^b	6.5^b	6.3^b	5.8^b	5.9^b	..
Argentina	0.2 ^c	0.7	0.5	0.5	0.3	0.2	..
China	32.4	35.1	34.6	36.7	33.2	35.3	33.4
Romania	6.5	5.6	2.5	3.8	4.3	5.7 ^a	7.5
Russian Federation	27.3	31.0	28.6	22.4	24.5	24.0	27.2
Singapore	6.0	1.9	1.3	3.1	2.5	3.7	..
South Africa	..	14.4	10.8	11.9	6.8	..	..
Chinese Taipei	4.1	5.3	6.0	6.3	6.7	7.5	8.0

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 47. Higher education researchers in full-time equivalent

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	39 507	..	53 592	..	60 631	..	..
Austria	..	10 112	11 016 ^c	11 262	11 772 ^c	12 199	12 700 ^{c,p}
Belgium	11 778	15 461	16 462	17 252	17 878	18 228	18 771 ^p
Canada	33 300	47 310	49 450	47 350	53 960	53 950 ^p	..
Chile	..	2 994	3 238	3 007	3 274	..	..
Czech Republic	3 768	8 664	9 358	9 664	10 115	10 289	11 450 ^p
Denmark	5 866 ^u	9 642 ^a	10 954	12 010	13 250	14 065	14 041 ^{c,p}
Estonia	1 806	2 084	2 126	2 397	2 179	2 398	2 534
Finland	10 999 ^u	12 153	11 849	12 304	13 548	11 964 ^a	12 368
France	61 583 ^a	67 451	68 897	68 696	70 295	71 170	..
Germany	67 087	72 985	76 831	84 771	90 355	93 730	96 600 ^{c,p}
Greece	..	12 382 ^c	..	..	..	16 068 ^a	15 166
Hungary	5 852	5 833	5 872	6 164	6 041	5 975	5 932
Iceland	..	621	648	1 125 ^l	..	681 ^a	..
Ireland	2 148	4 910 ^c	6 174	5 937 ^c	5 730	5 629 ^c	5 825 ^c
Israel ¹	..	..	..	..	..	4 306	..
Italy	25 696	38 860	39 809	43 067	43 470	43 828	45 223
Japan	179 116	159 512	123 549 ^a	124 224	125 263	126 133	..
Korea	23 674 ^q	37 415 ^a	34 773	38 163	39 265	40 844	..
Luxembourg	22	176 ^c	282	428	518	..	..
Mexico	..	13 569	16 678	17 381	16 365	16 691	..
Netherlands	15 586	18 129	18 817	19 661	20 156	20 965	21 151 ^p
New Zealand	..	7 800	..	9 100	..	9 300	..
Norway	..	8 474 ^a	8 771	9 162	9 468	9 760	9 855
Poland	34 246	38 562	39 947	38 080	39 170	39 677	38 152
Portugal	8 592 ^c	13 114	23 138 ^a	27 493	28 591	29 340	30 185 ^p
Slovak Republic	5 009	7 854	8 075	8 873	10 203	10 339	9 782
Slovenia	1 340	1 657	1 795	1 978	2 262	2 431 ^a	2 398 ^p
Spain	42 064	58 813	61 736	63 175	64 590	62 185	59 775 ^p
Sweden	..	14 840	14 896 ^c	16 308	16 959 ^c	17 101	16 561 ^c
Switzerland	9 425 ^c	..	14 322 ^c	..	16 810 ^c	..	..
Turkey	16 902 ^u	29 543 ^u	29 912 ^u	31 037 ^u	32 913 ^u	35 644 ^u	..
United Kingdom	..	150 623 ^c	152 551 ^c	158 004	159 941	150 650	150 557 ^{c,p}
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	412 625 ^b	585 624 ^b	617 466 ^b	645 876 ^b	666 915 ^b	662 536 ^b	665 031 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	13 199	16 825	17 747	18 728	21 190	22 766	..
China	147 866 ^l	248 279 ^l	261 237 ^l	225 057 ^a	239 251	249 025	262 052
Romania	2 542	5 104	6 839	7 310	8 245	6 563 ^a	6 591
Russian Federation	72 264	76 298	76 797	77 955	84 359	89 938	87 259
Singapore	6 754	9 510	9 547	12 421	13 766	14 460	..
South Africa	..	9 999	9 953	10 614	11 068	..	..
Chinese Taipei	11 129 ^m	26 231	27 772	30 712	31 567	32 045	32 588

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	59.9	..	57.8	..	..	..	..
Austria	..	31.9	31.9 ^c	32.5	32.5 ^c	32.9	32.9 ^{c,p}
Belgium	38.6	42.6	44.8	45.1	43.8	42.7	42.6 ^p
Canada	30.9	31.3	31.5	31.5	34.5	34.3 ^p	..
Chile	..	53.9	54.3	61.9 ^l	60.2 ^l	..	..
Czech Republic	27.2	31.1	31.4	33.6	34.6	33.5	34.5 ^p
Denmark	..	32.0 ^a	30.7 ^c	32.6	35.4	37.1	37.3 ^{c,p}
Estonia	67.7	56.5	53.4	55.6	53.4	53.2	55.4 ^p
Finland	31.6 ^u	31.2	29.0	30.1	32.7	29.9 ^a	30.6
France	35.8 ^a	30.4	30.3 ^d	29.3 ^d	28.9 ^a	28.6	..
Germany	26.0 ^c	25.1	25.4	26.7	27.6 ^c	27.7	28.2 ^{c,p}
Greece	..	58.9 ^c	..	..	..	65.1 ^a	62.9
Hungary	40.6 ^d	33.5	31.7	30.7	28.3	26.0	24.9
Iceland	..	28.1	28.1	39.3	..	32.0 ^a	..
Ireland	25.2 ^c	38.7 ^c	42.6	41.8 ^c	40.4 ^c	37.1 ^c	36.2 ^c
Israel ¹	..	..	..	..	..	8.6 ^d	..
Italy	38.9	41.8	41.6	42.3	42.0	41.3	40.8 ^p
Japan	27.7	23.3	18.8 ^a	19.0	19.1	19.2	..
Korea	21.8 ^u	16.9 ^a	14.7	15.6	14.9	14.1	..
Luxembourg	1.3	8.0 ^c	12.3	17.9	19.7	..	..
Mexico	..	35.8	44.3	40.4	36.3	36.2	..
Netherlands	36.9	35.5	37.1	41.9	37.5	35.9 ^a	36.1 ^p
New Zealand	..	53.4	..	56.5	..	57.1	..
Norway	..	34.8 ^a	34.3	34.9	35.8	35.8	35.3
Poland	62.1	62.8	64.6	62.3	60.7	61.9	56.9
Portugal	51.3 ^c	46.5	57.3 ^a	62.4	61.8	58.6	59.5 ^p
Slovak Republic	50.3	63.6	64.2	66.8	67.2	67.5	64.1
Slovenia	30.9	26.5	25.5 ^a	26.6	29.4	27.7 ^a	26.4 ^p
Spain	54.9	48.0	47.1 ^a	47.2	48.0	47.7	47.0 ^p
Sweden	..	32.4 ^{a,l,v}	29.7 ^c	34.6 ^l	34.4 ^{c,l}	35.2 ^{a,l}	33.6 ^{c,l}
Switzerland	36.1 ^c	..	57.0 ^c	..	..	..	..
Turkey	73.2 ^u	59.5 ^u	56.6 ^u	53.7 ^u	51.2 ^u	49.4 ^u	..
United Kingdom	..	59.6 ^c	60.6 ^c	61.7 ^c	62.3 ^c	59.9	59.6 ^{c,p}
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	36.9 ^b	40.2 ^b	40.6 ^b	41.5 ^b	41.5 ^b	40.7 ^b	40.2 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	50.0	43.5	42.7	42.8	44.5	45.2	..
China	21.3 ^{a,t}	17.4 ^t	16.4 ^t	19.5 ^a	19.8	18.9	18.7
Romania	12.4	27.1	35.3	37.9	41.7	40.8 ^a	36.6
Russian Federation	14.3	16.3	17.0	17.6	19.1	20.1	19.7
Singapore	40.6	34.8	34.3	40.7	43.0	42.9	..
South Africa	..	51.8	51.3	53.6	59.1	..	..
Chinese Taipei	20.1 ^d	25.4	25.2	25.8	24.7	23.9	23.4

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	46 287	..	61 773	..	69 199	..	..
Austria	..	13 613	14 831 ^c	15 059	15 740 ^c	16 096	16 757 ^{c,p}
Belgium	15 884	19 544	20 670	21 617	22 371	22 709	23 325 ^p
Canada	45 150	60 140	62 480	60 180	67 580	67 570 ^p	..
Chile	..	4 775	5 220	5 637	6 133	..	..
Czech Republic	5 331	12 465	13 147	13 648	14 056	14 724	16 335 ^p
Denmark	8 015	13 742 ^a	15 723	16 819	18 444	19 123	19 091 ^{c,p}
Estonia	2 305	2 406	2 389	2 688	2 465	2 735	3 000
Finland	15 459	16 503	15 968	16 490	17 924	15 847 ^a	16 146
France	90 051 ^a	102 616	104 961	105 048	106 585	107 891	..
Germany	100 790	103 953	106 712	115 441	120 784	123 910	127 100 ^{c,p}
Greece	..	19 172 ^c	..	..	..	20 640 ^a	20 508
Hungary	8 859	7 778	7 980	8 372	8 256	8 260	8 130
Iceland	..	773	808	1 250 ^l	..	1 002 ^a	..
Ireland	2 602	6 000 ^c	7 141	6 698 ^c	6 501	6 406 ^c	6 557 ^c
Israel ¹	9 405	8 988	9 181	8 987	9 120	9 220	..
Italy	54 837	71 063	72 474	74 949	72 299	73 723	76 207
Japan	227 882	215 269	181 946 ^a	184 951	188 324	192 265	..
Korea	36 209 ^g	60 656 ^a	60 372	66 779	73 511	73 468	..
Luxembourg	23	209 ^c	327	485	594	..	..
Mexico	..	19 889	..	..	..	..	..
Netherlands	30 078	32 402	33 231	34 122	34 981	32 198	32 484 ^p
New Zealand	..	9 500	..	11 300	..	11 500	..
Norway	..	11 011 ^a	11 341	11 655	11 968	12 283	12 413
Poland	41 499	42 595	43 479	41 440	43 111	44 154	42 917
Portugal	9 680 ^c	14 027	24 412 ^a	29 216	29 824	30 074	30 922 ^p
Slovak Republic	5 860	8 493	8 609	9 360	10 535	10 712	10 124
Slovenia	1 746	1 950	2 106	2 354	2 727	3 003 ^a	2 926 ^p
Spain	49 470	75 148	78 846	81 203	83 300	80 900	77 238 ^p
Sweden	..	17 525	17 601 ^c	18 857	19 471 ^c	20 010	21 781 ^c
Switzerland	15 200 ^c	..	21 425 ^c	..	24 719 ^c	..	..
Turkey	..	29 543 ^m	29 912 ^m	31 037 ^m	32 913 ^m	35 644 ^m	..
United Kingdom	..	161 492 ^{c,m}	163 529 ^{c,m}	168 936 ^m	170 446 ^m	175 185 ^m	175 233 ^{c,m,p}
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	610 046 ^b	770 329 ^b	803 446 ^b	832 937 ^b	850 577 ^b	858 683 ^b	865 623 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	14 313	18 166	19 254	20 861	24 602	26 270	..
China	159 246	253 901	266 813	275 191	289 670	299 296	313 520
Romania	3 780	6 931	8 433	8 824	9 054	8 879 ^a	8 710
Russian Federation	99 552	105 643	106 816	106 443	113 353	121 151	119 360
Singapore	7 413	10 808	10 823	13 775	14 877	15 551	..
South Africa	..	11 503	11 169	11 870	12 477	..	..
Chinese Taipei	12 873 ^m	29 351	31 118	34 752	35 219	35 818	36 115

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	1 797.6	..	2 312.6	..	2 544.9 ^c	2 338.1	..
Austria	..	423.1	473.0 ^c	474.5	506.1 ^c	512.3	542.0 ^{c,p}
Belgium	350.7	578.3	696.7	722.3	738.7	785.0	824.0 ^p
Canada	1 877.1	2 412.5	2 430.4	2 616.7	2 752.5	2 405.0	2 243.9 ^p
Chile	..	83.9	98.3	95.6	109.7	..	..
Czech Republic	472.5	810.1	794.1	854.8	822.0	920.9	1 002.1 ^p
Denmark	432.7	171.8 ^a	162.4	139.6	150.4	151.2	156.7 ^{c,p}
Estonia	18.8	27.1	44.6	41.5	46.9	59.3	66.0
Finland	470.9	561.2	601.6	686.1	707.7	698.6	678.7
France	5 716.0 ^a	7 191.1	7 440.5	8 145.3	7 111.4 ^a	7 398.6	7 503.0 ^p
Germany	7 116.2 ^o	10 273.0 ^o	11 515.3 ^o	12 320.6 ^o	13 000.9 ^o	14 095.2 ^o	14 811.4 ^{c,o}
Greece	..	390.2 ^c	..	..	..	478.6 ^a	494.8
Hungary	255.1 ^{d,v}	451.4 ^v	481.5 ^v	479.7 ^v	458.0 ^v	428.9 ^v	420.5 ^v
Iceland	55.3 ^c	55.3	59.5	74.9 ^l	..	52.1 ^a	..
Ireland	99.5	176.0	177.7	155.4	151.1	159.4	161.9
Israel ¹	198.6 ^{a,d}	153.1 ^d	155.1 ^d	157.5 ^d	168.5 ^d	180.4 ^d	179.2 ^d
Italy	2 886.9	3 234.0	3 064.0	3 251.7	3 444.9	3 453.3	3 614.2 ^p
Japan	9 766.5	11 466.5	12 387.0	12 625.5	12 693.5	12 428.3	..
Korea	2 473.1 ^g	4 743.4 ^a	5 293.9	6 005.5	6 603.1	6 847.1	..
Luxembourg	27.7	85.4	109.2	110.5 ^a	126.3	..	..
Mexico	1 402.7	1 429.7	1 919.6	1 875.6	2 552.2	2 455.3	..
Netherlands	1 092.5 ^a	1 467.1 ^o	1 494.7 ^o	1 583.1 ^o	1 505.8 ^o	1 588.5 ^o	1 680.7 ^{o,p}
New Zealand	..	387.3	..	421.4	..	401.1	..
Norway	..	652.1 ^a	684.9	769.2	778.8	832.7	900.2
Poland	841.0	1 281.8	1 466.8	1 675.4	2 054.3	2 213.3	2 208.5
Portugal	317.1 ^c	279.3	290.1	321.0	310.6	309.2	265.3 ^p
Slovak Republic	95.0 ^d	183.0 ^d	194.9 ^d	201.7 ^d	244.5 ^d	254.8 ^d	282.1 ^d
Slovenia	125.0	194.5	213.2	212.4	211.9	204.4 ^a	201.5 ^p
Spain	1 234.0	3 221.6	3 710.8	4 141.1	4 085.6	3 915.8	3 733.4
Sweden	..	596.7	599.3 ^c	558.5	613.2 ^c	580.3	667.5 ^c
Switzerland	75.7 ^{a,h}	..	77.5 ^h	..	82.8 ^h	..	99.9 ^h
Turkey	175.0	743.2	925.4	1 118.7	1 127.8	1 280.2	..
United Kingdom	3 523.4	3 545.1	3 606.0	3 627.0	3 633.9	3 364.3	3 222.5 ^{c,p}
United States	29 076.0 ^h	44 702.0 ^h	46 220.0 ^h	48 455.0 ^h	51 632.0 ^h	54 328.0 ^h	55 853.0 ^{h,p}
EU28 (OECD estimates)	26 145.2 ^b	35 898.1 ^b	38 742.7 ^b	40 902.7 ^b	41 191.5 ^b	42 581.6 ^b	43 684.3 ^b
OECD-Total	73 307.2^b	103 948.3^b	110 189.9^b	116 350.0^b	121 510.3^b	124 963.8^b	128 634.2^b
Argentina	568.9	1 034.3	1 247.1	1 539.0	1 748.7	1 941.2	..
China	8 489.2	19 687.5	22 082.4	28 811.3 ^a	32 167.1	33 927.6	39 606.2
Romania	88.1	488.7	764.5	516.4	538.0	670.3 ^a	704.7
Russian Federation	2 567.6	7 722.0	9 055.8	10 476.4	10 231.0	10 500.4	12 184.2
Singapore	348.5	697.6	507.9	625.6	621.9	711.4	..
South Africa	..	962.7	964.4	950.5	914.8	..	..
Chinese Taipei	2 065.9 ^d	3 371.1	3 441.6	3 598.6	3 801.7	3 967.9	3 895.8

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	0.33 ^z	..	0.27 ^z	..	0.27 ^{c,z}	0.24 ^z	..
Austria	..	0.13	0.14 ^c	0.14	0.15 ^c	0.14	0.15 ^{c,p}
Belgium	0.12	0.15	0.18	0.18	0.18	0.18	0.18 ^p
Canada	0.21	0.19	0.19	0.21	0.21	0.17	0.16 ^p
Chile	..	0.03	0.04	0.04	0.04	..	..
Czech Republic	0.30	0.31	0.29	0.31	0.30	0.32	0.35 ^p
Denmark	0.28	0.08 ^a	0.07	0.07	0.07	0.06	0.07 ^{c,p}
Estonia	0.14	0.09	0.15	0.16	0.17	0.19	0.20
Finland	0.35	0.29	0.30	0.36	0.36	0.34	0.32
France	0.37 ^a	0.34	0.34	0.37	0.31 ^a	0.31	0.31 ^p
Germany	0.34 ^o	0.35 ^o	0.38 ^o	0.42 ^o	0.41 ^o	0.42 ^o	0.43 ^{c,o}
Greece	..	0.13 ^c	..	..	..	0.16 ^a	0.17
Hungary	0.21 ^{d,v}	0.24 ^v	0.23 ^v	0.23 ^v	0.22 ^v	0.19 ^v	0.19 ^v
Iceland	0.68 ^c	0.48	0.47	0.62 ^l	..	0.43 ^a	..
Ireland	0.09	0.09	0.09	0.09	0.08	0.08	0.08
Israel ¹	0.13 ^{a,d}	0.08 ^d	0.08 ^d	0.08 ^d	0.08 ^d	0.08 ^d	0.08 ^d
Italy	0.20	0.17	0.15	0.17	0.17	0.17	0.17 ^p
Japan	0.30	0.27	0.29	0.31	0.29	0.28	..
Korea	0.31 ^g	0.37 ^a	0.41	0.46	0.47	0.47	..
Luxembourg	0.12	0.21	0.26	0.28 ^a	0.30	..	..
Mexico	0.14	0.09	0.12	0.12	0.15	0.13	..
Netherlands	0.23 ^a	0.22 ^o	0.21 ^o	0.23 ^o	0.22 ^o	0.22 ^o	0.23 ^{o,p}
New Zealand	..	0.32	..	0.32	..	0.29	..
Norway	..	0.25 ^a	0.23	0.29	0.28	0.27	0.27
Poland	0.21	0.20	0.21	0.23	0.26	0.26	0.25
Portugal	0.17 ^c	0.11	0.11	0.12	0.11	0.11	0.10 ^p
Slovak Republic	0.16 ^d	0.16 ^d	0.16 ^d	0.16 ^d	0.19 ^d	0.19 ^d	0.20 ^d
Slovenia	0.36	0.35	0.36	0.38	0.38	0.35 ^a	0.34 ^p
Spain	0.14	0.22	0.25	0.28	0.28	0.26	0.25
Sweden	..	0.17	0.16 ^c	0.16	0.17 ^c	0.15	0.16 ^c
Switzerland	0.03 ^{a,h}	..	0.02 ^h	..	0.02 ^h	..	0.02 ^h
Turkey	0.03	0.08	0.09	0.11	0.10	0.10	..
United Kingdom	0.23	0.16	0.16	0.17	0.17	0.15	0.14 ^{c,p}
United States	0.28 ^{h,z}	0.31 ^{h,z}	0.31 ^{h,z}	0.34 ^{h,z}	0.35 ^{h,z}	0.35 ^{h,z}	0.34 ^{h,p,z}
EU28 (OECD estimates)	0.25 ^b	0.23 ^b	0.24 ^b	0.26 ^b	0.25 ^b	0.25 ^b	0.25 ^b
OECD-Total	0.26^b	0.26^b	0.26^b	0.28^b	0.28^b	0.28^b	0.28^b
Argentina	0.17	0.20	0.22	0.27	0.27	0.27	..
China	0.28	0.27	0.27	0.32 ^a	0.32	0.30	0.32
Romania	0.07	0.18	0.24	0.16	0.17	0.20 ^a	0.20
Russian Federation	0.26	0.32	0.31	0.38	0.35	0.33	0.36
Singapore	0.26	0.29	0.20	0.25	0.21	0.23	..
South Africa	..	0.20	0.19	0.19	0.17	..	..
Chinese Taipei	0.46 ^d	0.47	0.47	0.49	0.47	0.46	0.44

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 52. Government intramural expenditure on R&D (GOVERD)
at 2005 prices and PPPs**

Million 2005 USD

	2000	2007	2008	2009	2010	2011	2012
Australia	2 012.1	..	2 139.5	..	2 240.0 ^c	2 033.7	..
Austria	..	398.7	430.3 ^c	419.3	441.0 ^c	431.6	446.4 ^{c,p}
Belgium	385.2	544.6	632.2	634.0	634.6	649.5	663.8 ^p
Canada	2 142.2	2 274.0	2 241.0	2 397.0	2 491.2	2 137.1	1 959.6 ^p
Chile	..	70.3	86.0	83.1	87.0	..	..
Czech Republic	526.4	760.3	747.3	763.5	751.7	820.7	867.4 ^p
Denmark	474.7	157.8 ^a	139.2	115.7	118.8	117.6	118.3 ^{c,p}
Estonia	21.9	24.7	38.1	33.7	38.0	46.8	51.5
Finland	500.8	520.5	528.3	582.2	605.9	579.6	547.4
France	6 399.4 ^a	6 642.8	6 616.6	6 991.4	6 039.7 ^a	6 115.8	6 082.2 ^p
Germany	8 361.0 ^o	9 663.5 ^o	10 494.5 ^o	11 021.7 ^o	11 372.4 ^o	11 907.5 ^o	12 297.6 ^{c,o}
Greece	..	371.5 ^c	..	..	..	401.0 ^a	404.3
Hungary	293.3 ^{d,v}	422.9 ^v	421.8 ^v	392.2 ^v	366.8 ^v	330.0 ^v	316.7 ^v
Iceland	57.2 ^c	55.0	54.8	67.7 ^l	..	45.7 ^a	..
Ireland	115.0	158.9	163.9	139.2	130.4	134.1	133.3
Israel ¹	195.5 ^{a,d}	150.8 ^d	156.2 ^d	155.5 ^d	164.4 ^d	170.7 ^d	166.6 ^d
Italy	3 103.3	2 930.4	2 612.4	2 672.8	2 834.4	2 761.1	2 785.7 ^p
Japan	10 880.9	10 869.2	11 551.1	11 690.8	11 613.1	11 158.3	..
Korea	2 691.3 ^u	4 536.8 ^a	5 026.1	5 768.7	6 266.9	6 497.8	..
Luxembourg	31.5	74.9	93.4	93.5 ^a	101.8	..	..
Mexico	1 673.3	1 312.0	1 677.7	1 569.5	2 110.1	1 920.6	..
Netherlands	1 250.3 ^a	1 355.4 ^o	1 327.2 ^o	1 397.5 ^o	1 335.9 ^o	1 364.5 ^o	1 414.2 ^{o,p}
New Zealand	..	351.7	..	358.2	..	326.3	..
Norway	..	596.4 ^a	595.0	662.6	652.3	674.8	695.1
Poland	939.0	1 199.1	1 339.3	1 475.7	1 748.0	1 828.1	1 775.1
Portugal	376.5 ^c	255.1	256.3	273.1	263.1	259.4	215.2 ^p
Slovak Republic	109.7 ^d	169.6 ^d	171.3 ^d	171.5 ^d	207.3 ^d	211.9 ^d	231.7 ^d
Slovenia	140.6	188.3	199.6	194.8	196.3	182.5 ^a	173.0 ^p
Spain	1 454.3	2 855.4	3 173.2	3 472.7	3 474.5	3 274.5	3 031.1
Sweden	..	540.1	518.9 ^c	479.6	528.8 ^c	484.4	543.9 ^c
Switzerland	83.4 ^{a,h}	..	63.9 ^h	..	66.7 ^h	..	73.8 ^h
Turkey	185.4	666.4	762.4	893.6	882.4	968.0	..
United Kingdom	3 931.8	3 420.4	3 397.4	3 356.0	3 449.2	3 153.0	2 933.1 ^{c,p}
United States	32 662.1 ^h	42 247.6 ^h	42 845.3 ^h	44 574.0 ^h	46 928.5 ^h	48 427.8 ^h	48 931.7 ^{h,p}
EU28 (OECD estimates)	29 580.3 ^b	33 305.8 ^b	34 620.1 ^b	35 625.6 ^b	35 632.8 ^b	35 780.3 ^b	35 820.3 ^b
OECD-Total	82 445.1^b	97 634.0^b	100 924.2^b	105 054.1^b	108 589.5^b	109 250.1^b	110 284.6^b
Argentina	637.3	977.6	1 155.6	1 415.4	1 589.0	1 730.2	..
China	9 568.9	18 524.9	20 335.3	26 304.1 ^a	29 086.7	29 911.5	34 675.7 ^b
Romania	105.8	413.8	593.0	383.5	391.2	480.7 ^a	475.1
Russian Federation	3 237.1	6 468.8	6 595.4	7 320.5	7 063.6	6 874.0	7 839.3
Singapore	399.5	658.8	470.7	575.3	564.9	633.6	..
South Africa	..	906.4	888.3	867.9	824.2	..	..
Chinese Taipei	2 321.5 ^d	3 186.0	3 190.2	3 310.3	3 455.3	3 536.9	3 413.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	12.3	..	9.9	..	..	7.1	..
Austria	..	9.3	..	6.0	..	4.2	..
Belgium	7.2	9.6	11.4	7.7	6.7	5.7	..
Canada	3.1	5.0	4.4	4.3	4.0	2.8	2.3 ^p
Chile	..	6.2	4.4	0.3	0.2	..	..
Czech Republic	9.6	6.7	5.9	4.2	4.7	3.4	4.0 ^p
Denmark	6.7	0.6 ^a	..	0.4	0.9	3.4	3.4 ^{c,p}
Estonia	13.1	0.0	1.3	1.9	2.4	1.5	1.2
Finland	14.5	13.7	14.2	13.6	9.7	11.0	9.9
France	6.7 ^a	6.5	6.7	7.2	8.0 ^a	7.8	..
Germany	2.2 ^o	10.8 ^o	9.3 ^o	9.8 ^o	9.0 ^o	9.3 ^o	..
Greece	..	..	..	..	..	6.6 ^a	5.5
Hungary	10.9 ^{d,v}	12.3 ^v	13.3 ^v	12.6 ^v	12.7 ^v	11.5 ^v	9.8 ^v
Iceland	..	8.3	8.3	7.2	..	6.1 ^a	..
Ireland	10.7	3.5	1.1	2.0	1.6	1.7	1.8
Israel ¹	2.3 ^{a,d}	0.6 ^d	1.0 ^d	1.3 ^d	1.4 ^d	..	..
Italy	1.7	4.4	5.3	5.1	4.8	5.3	..
Japan	1.0	0.8	0.7	0.7	0.7	2.0	..
Korea	9.5 ^g	4.2 ^a	3.5	3.1	3.5	3.2	..
Luxembourg	5.8	3.2	..	3.2 ^a	2.6	..	..
Mexico	4.9	3.2	3.3	3.1	1.4	1.6	..
Netherlands	..	17.1 ^o	..	32.4 ^o	..	11.3 ^o	..
New Zealand	..	19.5	..	14.5	..	17.6	..
Norway	..	10.1 ^a	10.9	10.3	10.1	9.5	..
Poland	9.5	14.1	6.0	6.3 ^o	6.2 ^o	7.4	4.9
Portugal	3.6 ^c	4.4	4.2	1.6	3.6	1.1	..
Slovak Republic	12.8 ^d	13.4 ^d	15.7 ^d	14.4 ^d	13.0 ^d	12.5 ^d	13.2 ^d
Slovenia	13.0	13.1	12.7	11.7	13.0	7.0 ^a	8.4 ^p
Spain	6.1	6.2	5.9	7.4	7.2	6.9	..
Sweden	..	4.4	..	5.1	..	5.2	..
Switzerland	..	..	..	..	..	..	..
Turkey	5.4	4.1	6.6	3.4	1.8	2.0	..
United Kingdom	10.4	9.2	7.9	8.0	7.4	9.7	12.7 ^{c,p}
United States	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^{h,p}
EU28 (OECD estimates)	6.2 ^b	8.6 ^b	8.2 ^b	8.8 ^b	8.1 ^b	8.1 ^b	..
OECD-Total	3.2^b	3.7^b	3.6^b	3.7^b	3.3^b	3.4^b	..
Argentina	0.6 ^c	0.3	0.6	0.2	0.5	1.1	..
China	9.6	4.9	4.7	4.3 ^a	4.4	4.2	4.1
Romania	23.4	11.9	14.4	13.5	19.0	22.7 ^a	17.3
Russian Federation	10.8	13.3	12.4	11.1	12.9	11.8	13.1
Singapore	1.3	2.1	2.9	2.6	3.5	2.9	..
South Africa	..	6.6	3.6	2.7	4.4	..	..
Chinese Taipei	9.3 ^d	2.2	2.3	2.3	2.9	2.6	3.0

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 54. Government researchers in full-time equivalent

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	8 724	8 285	8 285	..	..	8 704	..
Austria	..	1 389	1 513 ^c	1 559	1 630 ^c	1 511	1 573 ^{c,p}
Belgium	1 809	2 526	2 661	2 820	2 650	2 781	2 805 ^p
Canada	7 440	8 730	8 870	9 170	9 610	9 450 ^p	..
Chile	..	497	563	269	292	..	..
Czech Republic	4 424	6 915	7 084	6 270	6 244	6 235	6 066 ^p
Denmark	3 569 ^u	1 203 ^a	1 159	1 115	1 216	1 220	1 218 ^{c,p}
Estonia	559	545	531	513	548	536	546
Finland	4 487 ^u	4 482	4 541	4 505	4 551	4 630	4 433
France	26 132 ^{a,d}	26 527 ^d	27 372 ^d	28 702 ^d	26 611 ^a	26 808	..
Germany	37 667	43 561	45 342	49 241	51 783	54 185 ^o	55 100 ^{c,o,p}
Greece	..	2 201 ^c	..	..	..	4 370 ^a	4 389
Hungary	4 653 ^d	4 572	4 720	4 928	5 027	5 271	4 674
Iceland	..	459	480	547 ^l	..	397 ^a	..
Ireland	737 ^a	523	537	520	562	547	495
Israel ¹	..	..	..	..	..	477 ^d	..
Italy	14 315	17 291	15 555	16 678	17 496	18 780	18 741 ^p
Japan	31 228	32 705	32 050	32 715	32 422	32 164	..
Korea	11 564 ^q	15 859 ^a	15 552	18 217	19 753	21 203	..
Luxembourg	225	503	553	597	658	..	..
Mexico	..	7 322	8 019	8 283	8 756	9 154	..
Netherlands	5 952 ^a	6 977 ^o	7 000 ^o	6 820 ^o	6 959 ^o	6 772 ^o	6 581 ^{o,p}
New Zealand	..	2 100	..	2 200	..	1 900	..
Norway	..	3 878 ^{a,u}	3 930 ^u	4 450 ^u	4 479	4 601	4 654
Poland	11 100	12 813	12 917	13 193	13 553	13 824	13 583
Portugal	3 546 ^c	3 159	3 203	2 764	2 440	2 597	2 177 ^p
Slovak Republic	2 526 ^d	2 890 ^d	2 851 ^d	2 763 ^d	2 999 ^d	2 892 ^d	2 967 ^d
Slovenia	1 495	1 998	2 156	2 171	2 036	1 817 ^a	1 850 ^p
Spain	12 708	21 412	22 578	24 165	24 377	22 893	21 850 ^p
Sweden	..	1 941 ^{a,m,v}	1 770 ^c	1 483 ^m	1 892 ^{c,m}	2 097 ^{a,m}	2 002 ^{c,m}
Switzerland	405 ^{a,h}	..	488 ^h	..	471 ^h	..	430 ^h
Turkey	2 479	4 832	4 874	5 703	6 087	6 060	..
United Kingdom	15 004	8 504	8 695	8 701	8 620	7 571	7 560 ^{c,p}
United States	47 522 ^{d,h}	..	..	..	..	..	..
EU28 (OECD estimates)	169 291 ^b	185 647 ^b	189 326 ^b	195 828 ^b	198 146 ^b	200 721 ^b	197 524 ^b
OECD-Total	275 953^b	305 937^b	310 127^b	324 468^b	332 636^b	338 772^b	..
Argentina	9 548	17 046	18 722	20 079	21 452	22 566	..
China	193 353 ^t	230 662 ^t	238 970 ^t	219 483 ^a	231 699	250 250	269 581
Romania	5 244	5 818	6 169	5 744	5 590	5 846 ^a	6 372
Russian Federation	142 191	153 059	145 988	146 211	145 056	141 572	149 593
Singapore	1 247	1 582	1 687	1 841	1 757	1 827	..
South Africa	..	3 058	3 052	2 932	2 651	..	..
Chinese Taipei	11 658 ^d	14 304	13 912	14 390	15 131	14 706	14 630

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 55. Government researchers as a percentage of national total

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	13.2	..	8.9	..	..	..	..
Austria	..	4.4	4.4 ^c	4.5	4.5 ^c	4.1	4.1 ^{c,p}
Belgium	5.9	7.0	7.2	7.4	6.5	6.5	6.4 ^p
Canada	6.9	5.8	5.6	6.1	6.2	6.0 ^p	..
Chile	..	8.9	9.4	5.5 ^l	5.4 ^l	..	..
Czech Republic	31.9	24.8	23.8	21.8	21.4	20.3	18.3 ^p
Denmark	..	4.0 ^a	3.2 ^c	3.0	3.2	3.2	3.2 ^{c,p}
Estonia	21.0	14.8	13.3	11.9	13.4	11.9	11.9 ^p
Finland	12.9 ^u	11.5	11.1	11.0	11.0	11.6 ^a	11.0
France	15.2 ^{a,d}	12.0 ^d	12.0 ^d	12.2 ^d	10.9 ^a	10.8	..
Germany	14.6 ^c	15.0	15.0	15.5	15.8 ^c	16.0 ^o	16.1 ^{c,o,p}
Greece	..	10.5 ^c	..	..	..	17.7 ^a	18.2
Hungary	32.3 ^d	26.3	25.5	24.6	23.6	22.9	19.6
Iceland	..	20.8	20.8	19.1	..	18.7 ^a	..
Ireland	8.7 ^{a,c}	4.1	3.7	3.7 ^c	4.0 ^c	3.6 ^c	3.1 ^c
Israel ¹	..	..	..	..	..	1.0 ^d	..
Italy	21.7	18.6	16.2	16.4	16.9	17.7	16.9 ^p
Japan	4.8	4.8	4.9 ^a	5.0	4.9	4.9	..
Korea	10.7 ^y	7.1 ^a	6.6	7.5	7.5	7.3	..
Luxembourg	13.6	22.8 ^c	24.2	24.9	25.0	..	..
Mexico	..	19.3	21.3	19.3	19.4	19.8	..
Netherlands	14.1 ^a	13.7 ^o	13.8 ^o	14.5 ^o	13.0 ^o	11.6 ^{a,o}	11.2 ^{o,p}
New Zealand	..	14.4	..	13.7	..	11.7	..
Norway	..	15.9 ^{a,u}	15.4 ^u	16.9 ^u	16.9	16.9	16.7
Poland	20.1	20.9	20.9	21.6	21.0	21.6	20.3
Portugal	21.2 ^c	11.2	7.9 ^a	6.3	5.3	5.2	4.3 ^p
Slovak Republic	25.4 ^d	23.4 ^d	22.7 ^d	20.8 ^d	19.7 ^d	18.9 ^d	19.4 ^d
Slovenia	34.5	32.0	30.7 ^a	29.2	26.4	20.7 ^a	20.3 ^p
Spain	16.6	17.5	17.2 ^a	18.1	18.1	17.6	17.2 ^p
Sweden	..	4.2 ^{a,v}	3.5 ^c	3.1	3.8 ^c	4.3 ^a	4.1 ^c
Switzerland	1.6 ^{a,h}	..	1.9 ^h	..	..	..	..
Turkey	10.7	9.7	9.2	9.9	9.5	8.4	..
United Kingdom	8.8 ^b	3.4 ^c	3.5 ^c	3.4 ^c	3.4 ^c	3.0	3.0 ^{c,p}
United States	4.8 ^{b,d,h}	..	..	..	..	..	..
EU28 (OECD estimates)	15.1 ^b	12.7 ^b	12.4 ^b	12.6 ^b	12.3 ^b	12.3 ^b	11.9 ^b
OECD-Total	8.8^b	7.9^b	7.7^b	7.9^b	8.0^b	7.9^b	..
Argentina	36.1	44.1	45.1	45.9	45.1	44.8	..
China	27.8 ^{a,t}	16.2 ^t	15.0 ^t	19.0 ^a	19.1	19.0	19.2
Romania	25.6	30.9	31.8	29.8	28.3	36.4 ^a	35.4
Russian Federation	28.1	32.6	32.4	33.1	32.8	31.6	33.7
Singapore	7.5	5.8	6.1	6.0	5.5	5.4	..
South Africa	..	15.8	15.7	14.8	14.2	..	..
Chinese Taipei	21.0 ^{d,l}	13.8	12.6	12.1	11.8	11.0	10.5

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

Source: OECD, Main Science and Technology Indicators database, January 2014

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

FTE

	2000	2007	2008	2009	2010	2011	2012
Australia	18 151	17 042	17 042	..	..	16 760	..
Austria	..	2 488	2 711 ^c	2 679	2 801 ^c	2 567	2 673 ^{c,p}
Belgium	3 493	3 844	4 326	4 591	4 404	4 573	4 610 ^p
Canada	17 240	18 630	19 240	20 160	19 880	19 740 ^p	..
Chile	..	993	1 272	375	404	..	..
Czech Republic	7 148	11 341	11 386	11 180	10 926	11 133	11 345 ^p
Denmark	5 658	1 711 ^a	1 544	1 456	1 563	1 581	1 578 ^{c,p}
Estonia	948	782	747	718	772	776	774
Finland	7 314	7 325	7 122	6 787	6 836	6 881	6 360
France	53 388 ^a	50 937 ^d	52 055 ^d	53 148 ^d	49 925 ^a	49 685	..
Germany	71 454 ^o	80 644 ^o	83 066 ^o	86 633 ^o	90 531 ^o	93 663 ^o	95 100 ^{c,o,p}
Greece	..	4 584 ^c	..	..	..	9 620 ^a	9 982
Hungary	8 204 ^d	7 834	8 050	8 234	8 225	8 480	7 605
Iceland	..	701	733	816 ^l	..	584 ^a	..
Ireland	1 436 ^a	1 201	1 122	1 048	1 027	1 034	921
Israel ¹	..	..	..	..	..	837 ^d	..
Italy	31 231	35 474	34 076	33 764	34 665	36 153	36 057 ^p
Japan	59 254	63 162	61 901	63 045	61 830	62 833	..
Korea	13 182 ^g	20 928 ^a	21 768	25 785	26 939	28 246	..
Luxembourg	303	724	809	909	1 006	..	..
Mexico	..	14 247	..	..	..	..	..
Netherlands	12 627 ^a	12 140 ^o	12 182 ^o	11 416 ^o	11 424 ^o	11 240 ^o	10 923 ^{o,p}
New Zealand	..	3 400	..	3 600	..	3 300	..
Norway	..	5 683 ^a	5 653	6 270	6 332	6 556	6 670
Poland	18 823	17 467	18 262	18 429	20 180	21 407	21 804
Portugal	5 936 ^c	4 523	4 582	3 874	3 328	3 342	2 902 ^p
Slovak Republic	4 189 ^d	4 214 ^d	4 207 ^d	3 957 ^d	4 359 ^d	4 103 ^d	4 168 ^d
Slovenia	2 565	3 096	3 260	3 252	3 141	2 628 ^a	2 579 ^p
Spain	22 400	37 919	41 139	45 353	46 008	43 913	41 787 ^p
Sweden	..	3 253 ^m	2 937 ^c	2 605 ^m	3 110 ^{c,m}	3 388 ^{a,m}	3 359 ^{c,m}
Switzerland	895 ^{a,h}	..	809 ^h	..	719 ^h	..	781 ^h
Turkey	4 069	9 572	9 871	11 007	11 357	11 749	..
United Kingdom	29 686	18 380	18 608	18 797	18 745	16 919	16 901 ^{c,p}
United States	..	..	..	..	..	..	..
EU28 (OECD estimates)	317 630 ^b	332 007 ^b	341 007 ^b	346 680 ^b	351 268 ^b	355 954 ^b	351 483 ^b
OECD-Total	..	..	..	..	..	..	..
Argentina	16 766	25 566	27 804	29 089	31 307	33 277	..
China	282 094	295 503	302 601	368 607 ^a	390 245	414 316	446 920
Romania	7 571	8 786	10 312	8 708	8 704	10 675 ^a	11 381
Russian Federation	276 373	295 851	282 929	282 207	280 506	276 341	292 894
Singapore	1 706	2 441	2 638	2 812	2 967	3 039	..
South Africa	..	7 009	6 774	6 687	6 491	..	..
Chinese Taipei	20 709 ^d	27 409	24 522	25 331	26 439	25 645	25 246

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

Source: OECD, Main Science and Technology Indicators database, January 2014

**Table 57. Total GBAORD (Government budget appropriations or outlays for R&D)
at current prices and PPPs**

Million USD

	2000	2008	2009	2010	2011	2012	2013
Australia	2 853.8 ^h	3 846.6 ^h	4 524.7 ^h	4 581.8 ^h	4 697.0 ^h	4 698.7 ^h	4 721.4 ^{b,h,p}
Austria	1 431.6 ^h	2 330.5 ^h	2 556.4 ^h	2 697.9 ^h	2 925.4 ^h	2 996.8 ^h	3 076.7 ^{b,h,p}
Belgium	1 599.3	2 684.0	2 677.6	2 780.9	2 855.4	2 989.9	..
Canada	4 578.2 ^h	7 933.5 ^h	8 414.6 ^h	8 465.8 ^h	7 736.9 ^h	..	..
Chile	..	..	..	..	691.5 ^v	..	..
Czech Republic	838.0	1 436.7	1 661.4	1 620.0	1 914.0	1 967.3	1 963.4 ^{b,p}
Denmark	1 172.3 ^c	1 852.5	2 099.1	2 195.9	2 382.6	2 454.9	2 485.6 ^{b,p}
Estonia	45.0	189.6 ^c	184.4 ^c	196.1 ^c	240.2 ^c	272.2 ^c	294.7 ^{b,p}
Finland	1 304.1	1 976.6	2 143.4	2 271.5	2 284.0	2 275.2	2 202.0 ^{b,p}
France	14 757.5	19 214.2	20 419.8	19 095.3	19 906.7	17 997.1	17 817.9 ^b
Germany	16 828.4	24 261.3	26 932.4	28 900.2	30 495.7	30 955.7	32 146.9 ^{b,p}
Greece	620.4	1 341.4 ^a	1 080.4	849.2	826.3	1 091.3 ^a	1 100.4 ^{b,p}
Hungary	..	881.2	956.0	767.0	669.2	781.5	..
Iceland	76.3	116.6	130.9	120.2	124.0	132.2	144.6 ^b
Ireland	314.4	986.2	1 010.9	987.9	960.8	932.6	..
Israel ¹	1 294.0 ^d	1 173.8 ^d	1 179.1 ^d	1 195.1 ^d	1 256.6 ^d	1 330.2 ^d	..
Italy	9 381.2	12 602.6	12 594.7	12 238.2	11 570.2	11 707.5	..
Japan	21 191.6 ^{g,h}	30 559.9 ^{g,h}	30 871.6 ^{g,h}	32 161.3 ^{g,h}	33 953.0 ^h	35 273.5 ^h	35 174.2 ^{b,h}
Korea	5 029.0	11 895.0	12 928.6	14 205.9	15 265.4	..	..
Luxembourg	30.1	193.8 ^a	223.6	247.5	283.1	312.8	318.2 ^{b,p}
Mexico	2 118.9	3 597.0	3 719.6	4 708.9	4 735.8	..	..
Netherlands	3 796.9	5 438.9	5 787.6	5 718.6	5 981.8	5 926.4 ^p	5 751.5 ^{b,p}
New Zealand	..	657.7	715.1	678.1	729.2	759.5	847.2 ^b
Norway	1 058.5	2 113.8	2 312.2	2 417.0	2 504.5	2 644.1	2 750.7 ^{b,p}
Poland	1 541.4	2 079.3	2 450.2	..	..	3 349.4 ^{a,p}	..
Portugal	1 020.8	2 420.9	2 778.1	2 797.5	2 794.3	2 571.3 ^p	2 613.8 ^{b,p}
Slovak Republic	213.2	348.2	449.7	495.7	636.4	579.3	523.6 ^{b,p}
Slovenia	174.2	298.9	381.5	339.7	350.8	315.1	317.8 ^{b,p}
Spain	5 180.8 ^c	11 684.6	12 309.7	11 582.8	10 280.5	7 873.2	..
Sweden	1 733.2	2 917.3	3 182.5	3 280.7	3 285.2	3 583.7	..
Switzerland	1 460.1	2 686.2	..	3 074.5 ^h	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	10 371.3	13 991.9	14 341.1	13 397.0	12 905.2	13 039.0 ^{c,p}	..
United States	83 612.5 ^{a,h,i}	144 391.0 ^{h,i}	164 292.0 ^{a,h,i}	148 962.0 ^{h,i}	144 379.0 ^{h,i}	143 737.0 ^{h,i}	133 515.0 ^{b,h,i,p}
EU28 (OECD estimates)	76 460.3 ^m	111 881.5 ^m	118 633.0 ^m	117 462.7 ^m	118 868.7 ^m	116 180.5 ^m	..
OECD-Total	199 642.1^m	318 101.5^m	348 212.7^m	335 785.2^m	332 650.1^m	..	..
Argentina	838.4 ^h	1 744.0 ^h	2 156.0 ^h	2 322.4 ^h	2 543.9 ^h	..	..
China	..	..	..	..	..	..	..
Romania	178.0	1 283.5	959.2	902.1	883.6	776.9 ^a	797.7
Russian Federation	4 685.1	11 304.2	15 609.0	15 009.3	18 096.8	19 251.0	18 940.7 ^b
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	2 837.4 ^d	5 976.8	6 326.6	6 711.9	7 058.5	6 984.6	6 975.2

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 58. Defence Budget R&D

As a percentage of total GBAORD (Government budget appropriations or outlays for R&D)

Percentage

	2000	2008	2009	2010	2011	2012	2013
Australia	7.1 ^h	7.0 ^h	6.7 ^h	6.5 ^h	6.8 ^h	6.6 ^h	6.5 ^{h,p}
Austria	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^h	0.0 ^{h,p}
Belgium	0.3	0.2	0.2	0.2	0.2	0.2	..
Canada	4.8 ^h	3.2 ^h	2.7 ^h	3.2 ^h	3.0 ^h	..	..
Chile	..	..	..	..	0.0 ^v	..	..
Czech Republic	..	2.4	2.4	2.2	1.7	1.6 ^a	1.6 ^p
Denmark	0.5 ^c	0.6	0.5	0.4	0.3	0.3	0.3 ^p
Estonia	..	1.2 ^c	1.0 ^c	0.3 ^c	0.3 ^c	0.3 ^c	..
Finland	1.3	2.8	1.8	2.7	2.5	2.6	1.9 ^p
France	21.4	21.3 ^v	21.8 ^v	14.7 ^v	6.8 ^v	7.1 ^v	6.3 ^v
Germany	7.8	6.0 ^s	5.4 ^s	5.0 ^s	3.9 ^s	3.9 ^s	3.8 ^{p,s}
Greece	0.4	0.8 ^a	0.5	0.3	1.0	0.7 ^a	0.2 ^p
Hungary	..	0.6	0.1	0.6	0.1	0.3	..
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	..
Israel ¹	..	..	..	..	..	..	..
Italy	0.8	1.2	0.7	0.7	0.7	0.7	..
Japan	4.1 ^{g,h,m}	5.2 ^{g,h,m}	3.7 ^{g,h,m}	4.8 ^{g,h,m}	2.7 ^{h,m}	2.9 ^{h,m}	4.6 ^{h,m}
Korea	20.5	18.0 ^{a,c}	16.0 ^c	15.8 ^c	16.3 ^c	..	..
Luxembourg	0.0	0.0 ^a	0.0	0.0	0.0	0.0	0.0 ^p
Mexico	0.0	..	..	..	..	..	..
Netherlands	1.8	1.7	1.7	1.6	1.5	1.6 ^p	1.5 ^p
New Zealand	..	0.0	0.0	0.0	0.0	0.0	0.0
Norway	5.0	4.8	4.4	4.3	4.3	4.4	4.3 ^p
Poland	..	3.2	..	..	..	6.7 ^{a,p}	..
Portugal	1.2	0.1 ^a	0.2	0.2	0.3	0.3 ^p	0.3 ^p
Slovak Republic	.. ⁿ	4.5	3.6	1.7	1.9	2.2	1.3 ^p
Slovenia	0.1	5.3	1.7	0.7	0.5	0.7	0.7 ^p
Spain	26.2 ^c	3.0	2.3	1.4	1.7	3.7	..
Sweden	7.1	12.4	8.4 ^v	7.6 ^v	7.8 ^v	8.1 ^v	..
Switzerland	0.7 ^h	0.6 ^h	..	0.5 ^h	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	36.2	22.0	18.8	18.4	14.6	16.4 ^{c,p}	..
United States	51.6 ^{a,h,i}	58.3 ^{h,i}	51.6 ^{a,h,i}	57.3 ^{h,i}	56.8 ^{h,i}	54.7 ^{h,i}	53.1 ^{h,i,p}
EU28 (OECD estimates)	12.9	8.8	8.1	6.5	4.5	5.0	..
OECD-Total	27.8	30.9	28.2	29.0	27.5	..	..
Argentina	1.0 ^h	0.5 ^h	0.8 ^h	1.3 ^h	1.6 ^h	..	..
China	..	..	..	..	..	..	..
Romania	1.6	2.7	3.4	1.8	2.0	4.9 ^a	1.4 ^a
Russian Federation	38.3	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	..	5.3	7.0	6.8	5.8	3.3	2.9

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Source: OECD, Main Science and Technology Indicators database, January 2014

Table 59. Civil Budget R&D

As a percentage of total GBAORD (Government budget appropriations or outlays for R&D)

Percentage

	2000	2008	2009	2010	2011	2012	2013
Australia	92.9 ^h	93.0 ^h	93.3 ^h	93.5 ^h	93.2 ^h	93.4 ^h	93.5 ^{h,p}
Austria	100.0 ^h	100.0 ^h	100.0 ^h	100.0 ^h	100.0 ^h	100.0 ^h	100.0 ^{h,p}
Belgium	99.7	99.8	99.8	99.8	99.8	99.8	..
Canada	95.2 ^h	96.8 ^h	97.3 ^h	96.8 ^h	97.0 ^h	..	..
Chile	..	..	..	..	100.0 ^v	..	..
Czech Republic	..	97.6	97.6	97.8	98.3	98.4 ^a	98.4 ^p
Denmark	99.5 ^c	99.4	99.5	99.6	99.7	99.7	99.7 ^p
Estonia	..	98.8 ^c	99.0 ^c	99.7 ^c	99.7 ^c	99.7 ^c	..
Finland	98.7	97.2	98.2	97.3	97.5	97.4	98.1 ^p
France	78.6	78.7 ^v	78.2 ^v	85.3 ^v	93.2 ^v	92.9 ^v	93.7 ^v
Germany	92.2	94.0 ^s	94.6 ^s	95.0 ^s	96.1 ^s	96.1 ^s	96.2 ^{p,s}
Greece	99.6	99.2 ^a	99.5	99.7	99.0	99.3 ^a	99.8 ^p
Hungary	..	99.4	99.9	99.4	99.9	99.7	..
Iceland	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Ireland	100.0	100.0	100.0	100.0	100.0	100.0	..
Israel ¹	..	..	..	..	..	..	..
Italy	99.2	98.8	99.3	99.3	99.3	99.3	..
Japan	95.9 ^{g,h}	94.8 ^{g,h}	96.3 ^{g,h}	95.2 ^{g,h}	97.3 ^h	97.1 ^h	95.4 ^h
Korea	79.5	82.0 ^{a,c}	84.0 ^c	84.2 ^c	83.7 ^c	..	..
Luxembourg	100.0	100.0 ^a	100.0	100.0	100.0	100.0	100.0 ^p
Mexico	100.0	..	..	..	..	..	..
Netherlands	98.2	98.3	98.3	98.4	98.5	98.4 ^p	98.5 ^p
New Zealand	..	100.0	100.0	100.0	100.0	100.0	100.0
Norway	95.0	95.2	95.6	95.7	95.7	95.6	95.7 ^p
Poland	..	96.8	..	..	..	93.3 ^{a,p}	..
Portugal	98.8	99.9 ^a	99.8	99.8	99.7	99.7 ^p	99.7 ^p
Slovak Republic	.. ⁿ	95.5	96.4	98.3	98.1	97.8	98.7 ^p
Slovenia	99.9	94.7	98.3	99.3	99.5	99.3	99.3 ^p
Spain	73.8 ^c	97.0	97.7	98.6	98.3	96.3	..
Sweden	92.9	87.6	91.6 ^v	92.4 ^v	92.2 ^v	91.9 ^v	..
Switzerland	99.3 ^h	99.4 ^h	..	99.5 ^h	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	63.8	78.0	81.2	81.6	85.4	83.6 ^{c,p}	..
United States	48.4 ^{a,h,i}	41.7 ^{h,i}	48.4 ^{a,h,i}	42.7 ^{h,i}	43.2 ^{h,i}	45.3 ^{h,i}	46.9 ^{h,i,p}
EU28 (OECD estimates)	87.1	91.2	91.9	93.5	95.5	95.0	..
OECD-Total	72.2	69.1	71.8	71.0	72.5	..	..
Argentina	99.0 ^h	99.5 ^h	99.2 ^h	98.7 ^h	98.4 ^h	..	..
China	..	..	..	..	..	..	..
Romania	98.4	97.3	96.6	98.2	98.0	95.1 ^a	98.6 ^a
Russian Federation	61.7	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	..	94.7	93.0	93.2	94.2	96.7	97.1

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

Source: OECD, Main Science and Technology Indicators database, January 2014

Table 60. Civil GBAORD by socio-economic objectives (million current PPPS)
2013 or latest year available

	Economic development	Health and environment	Education and society	Space programmes	Non-oriented research	General university funds
Australia	1 263.8 ^{b, h, p}	1 258.0 ^{b, h, p}	86.7 ^{b, h, p}	24.6 ^{b, h, p}	628.5 ^{b, h, p}	1 154.6 ^{b, h, p}
Austria	582.7 ^{b, h, p}	223.8 ^{b, h, p}	78.5 ^{b, h, p}	17.2 ^{b, h, p}	383.5 ^{b, h, p}	1 790.9 ^{b, h, p}
Belgium	1 164.1	139.8	170.4	260.6	757.6	492.3
Canada	2 067.1 ^h	1 847.7 ^h	432.3 ^h	275.8 ^h	711.3 ^h	2 171.1 ^c
Chile	198.2	111.8	27.7	8.1	206.2	119.5
Czech Republic	534.9 ^{b, p}	211.4 ^{b, p}	77.9 ^{b, p}	38.4 ^{b, p}	637.2 ^{b, p}	431.9 ^{b, p}
Denmark	391.6 ^{b, p}	335.1 ^{b, p}	198.6 ^{b, p}	32.8 ^{b, p}	415.1 ^{b, p}	1 104.8 ^{b, p}
Estonia	91.2 ^c	31.7 ^c	28.4 ^c	9.8 ^c	110.2 ^c	0.0 ^c
Finland	769.2 ^{b, p}	173.7 ^{b, p}	115.1 ^{b, p}	42.9 ^{b, p}	425.6 ^{b, p}	633.3 ^{b, p}
France	2 937.1 ^{b, v}	1 897.3 ^{b, v}	908.9 ^{b, o, v}	1 735.5 ^{b, v}	3 532.9 ^{b, v}	4 501.7 ^{b, v}
Germany	7 204.9 ^{b, p, s}	3 117.4 ^{b, p, s}	1 254.6 ^{b, p, s}	1 517.5 ^{b, p, s}	5 508.1 ^{b, p, s}	12 641.2 ^{b, p, s}
Greece	151.7 ^{b, p}	154.8 ^{b, p}	234.3 ^{b, p}	25.5 ^{b, p}	89.0 ^{b, p}	442.9 ^{b, p}
Hungary	189.4	48.5	10.4	0.8	329.2	201.0
Iceland	26.5 ^{b, p}	13.7 ^{b, p}	17.8 ^{b, o, p}	. . ⁿ	26.8 ^{b, p}	51.7 ^{b, p}
Ireland	309.6	61.8	20.5	18.0	314.8	207.9
Israel ¹	626.0	24.4	69.2	1.2	58.8	550.6
Italy	2 904.1	2 122.2	1 654.4	759.7	125.4	4 057.8
Japan	8 465.7 ^{b, h}	3 026.5 ^{b, h}	227.1 ^{b, h}	2 176.4 ^{b, h}	7 272.5 ^{b, h}	12 379.6 ^{b, h}
Korea	6 380.7 ^c	1 806.8 ^c	340.0	301.4 ^c	3 950.8 ^{c, o}	. . ⁿ
Luxembourg	23.1 ^{b, p}	74.5 ^{b, p}	44.0 ^{b, p}	1.3 ^{b, p}	137.3 ^{b, p}	37.9 ^{b, p}
Mexico	1 519.1	725.5	132.9	. .	. . ⁿ	2 358.4 ^o
Netherlands	1 051.9 ^{b, p}	300.9 ^{b, p}	187.8 ^{b, p}	144.2 ^{b, p}	942.2 ^{b, p}	3 037.4 ^{b, p}
New Zealand	264.8 ^b	186.4 ^b	15.0 ^b	0.0 ^b	175.6 ^b	205.4 ^b
Norway	563.2 ^{b, p}	548.5 ^{b, p}	217.3 ^{b, p}	61.8 ^{b, p}	329.2 ^{b, p}	912.0 ^{b, p}
Poland	809.9 ^p	770.9 ^p	653.3 ^p	8.6 ^p	882.1 ^p	. .
Portugal	1408.8 ^{b, p}	426.1 ^{b, p}	207.7 ^{b, p}	11.2 ^{b, p}	502.2 ^{b, p}	1 050.1 ^{b, p}
Slovak Republic	61.0 ^{b, p}	60.0 ^{b, p}	32.9 ^{b, p}	2.1 ^{b, p}	88.8 ^{b, p}	272.2 ^{b, p}
Slovenia	87.0 ^{b, p}	44.6 ^{b, p}	19.5 ^{b, p}	1.7 ^{b, p}	161.4 ^{b, p}	1.4 ^{b, p}
Spain	1 210.2	1 322.7	193.1	350.5	2 085.3	2 423.0
Sweden	467.8 ^v	134.2 ^v	113.9 ^v	73.8 ^v	715.9 ^v	1 738.1 ^v
Switzerland	99.4 ^h	26.5 ^h	53.0 ^h	106.0 ^h	931.0 ^h	1 842.0 ^h
Turkey	. .	. .	. .	. .	. .	. .
United Kingdom	777.4 ^{c, p}	3 578.2 ^{c, p}	490.3 ^{c, p}	353.7 ^{c, p}	2 534.6 ^{c, p}	3 168.1 ^{c, p}
United States	6 283.0 ^{b, h, p}	34 267.0 ^{b, h, p}	1 792.0 ^{b, h, p}	10 598.0 ^{b, h, p}	9 741.0 ^{b, h, p}	0.0 ^{b, h}
EU28 (OECD estimates)	22 209.5^m	15 383.4^m	6 903.9^m	5 347.9^m	20 857.1^m	38 392.3^m
OECD-Total	51 445.2^m	59 571.2^m	9 770.2^m	17 972.1^m	42 914.9^m	57 263.8^m
Argentina	1 073.2 ^h	506.0 ^h	204.1 ^h	202.2 ^h	438.6 ^h	79.5 ^h
China	. .	. .	. .	. .	. .	. .
Romania	199.6	109.7 ^p	59.7	14.6 ^p	394.7	8.1 ^m
Russian Federation	1 984.5	420.9	515.9	3 337.4	. .	. .
Singapore	. .	. .	. .	. .	. .	. .
South Africa	. .	. .	. .	. .	. .	. .
Chinese Taipei	2 472.5	1 537.0	330.1	199.4	1 610.3	626.8

1. Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.
Source: OECD, Main Science and Technology Indicators Database, January 2014.

Table 61. R&D expenditure of foreign affiliates at current prices and PPPs

Million USD

	2000	2006	2007	2008	2009	2010	2011
Australia	..	3 278.8	3 847.8	4 149.8	3 731.0	3 521.1	3 698.1 ^P
Austria	..	..	2 977.4 ^a	..	3 145.7 ^P	..	..
Belgium	..	..	2 956.7	..	2 877.7 ^P	..	..
Canada	2 943.8	4 307.7	4 666.6	4 973.3	4 421.8	4 467.5 ^P	4 418.1 ^P
Chile	..	..	..	..	..	..	..
Czech Republic	412.9	1 380.0	1 358.5	1 328.6 ^{a,p}	1 317.5 ^P	..	..
Denmark	..	..	..	..	..	..	..
Estonia	..	..	..	..	..	..	..
Finland	401.5	738.0	..	834.0 ^{a,p}	625.3 ^{a,p}	..	..
France	..	5 543.5	5 774.7	6 583.7	8 651.0	8 907.7	9 483.0 ^P
Germany	..	..	13 481.9 ^P	..	15 224.5	..	17 003.4 ^P
Greece	..	..	..	..	..	..	..
Hungary	..	365.2	397.6	420.9	446.9 ^P	..	..
Iceland	..	..	..	..	..	..	..
Ireland	..	..	1 209.5	..	1 468.7	..	1 598.9 ^P
Israel ¹	..	3 997.0	4 802.1	4 676.3	4 606.8 ^P	..	..
Italy	..	2 625.7	3 167.6	3 165.3	3 234.2	3 308.2	3 412.2 ^P
Japan	2 528.3	5 805.3	5 906.1	6 399.5 ^a	6 575.3	5 569.1 ^P	..
Korea	..	..	..	..	..	..	..
Luxembourg	..	..	..	..	..	..	..
Mexico	..	..	..	..	..	..	..
Netherlands	1 304.1	1 564.8	..	2 038.4	1 327.9 ^{a,p}	1 390.4	1 611.2 ^P
New Zealand	..	..	..	..	..	..	..
Norway	..	496.7	602.8	..	..	..	..
Poland	113.8	303.3	337.1	388.0 ^a	614.2 ^P	..	..
Portugal	..	..	353.8 ^P	..	..	..	..
Slovak Republic	51.7	62.7	76.7 ^P	..	..	..	..
Slovenia	..	..	134.0	..	178.7 ^{a,p}	..	..
Spain	..	..	1 832.9 ^a	..	1 388.3 ^P	..	..
Sweden	..	..	3 228.0	..	2 816.8 ^P	..	3 476.0 ^P
Switzerland	..	..	..	..	..	..	..
Turkey	100.2	..	..	..	..	..	..
United Kingdom	5 678.2	8 882.9	9 543.1	10 663.1	11 173.3	9 530.8 ^P	12 576.1 ^P
United States	26 180.0	34 625.0	40 967.0	40 727.0	40 425.0	42 360.0	45 229.0 ^P
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	..	..	..	..	..	..	..
Russian Federation	..	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	..	..	..	..	..	..	..

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

Source: OECD, Activities of Foreign Affiliates database, January 2014

**Table 62. R&D expenditure of foreign affiliates
as a percentage of R&D expenditures of enterprises**

Percentage

	2000	2006	2007	2008	2009	2010	2011
Australia	..	36.5	36.5	35.5	32.1	29.5	30.5 ^P
Austria	..	..	53.5 ^a	..	52.3 ^P	..	..
Belgium	..	..	59.4	..	53.8 ^P	..	..
Canada	29.3	31.5	33.8	36.9	33.2	35.3 ^P	34.3 ^P
Chile	..	..	..	..	..	..	..
Czech Republic	36.9	58.6	54.7	60.4 ^{a,p}	58.0 ^P	..	..
Denmark	..	..	..	..	..	..	..
Estonia	..	..	..	..	..	..	..
Finland	12.7	17.0	..	16.0 ^{a,p}	14.5 ^{a,p}	..	..
France	..	20.9	20.8	22.5	28.1	27.8	27.8 ^P
Germany	..	..	26.2 ^P	..	27.3	..	26.1 ^P
Greece	..	..	..	..	..	..	..
Hungary	..	57.4	62.6	57.4	52.6 ^P	..	..
Iceland	..	..	..	..	..	..	..
Ireland	..	..	72.4	..	69.9	..	71.1 ^P
Israel ¹	..	64.3	60.9	60.2	62.0 ^P	..	..
Italy	..	26.6	27.4	24.6	24.5	24.4	24.2 ^P
Japan	3.6	5.4	5.1	5.5 ^a	6.3	5.2 ^P	..
Korea	..	..	..	..	..	..	..
Luxembourg	..	..	..	..	..	..	..
Mexico	..	..	..	..	..	..	..
Netherlands	18.7	24.8	..	32.6	30.2 ^a	32.3	32.5 ^P
New Zealand	..	..	..	..	..	..	..
Norway	..	28.3	30.5	..	..	..	..
Poland	12.1	30.1	30.7	40.1 ^a	50.5 ^P	..	..
Portugal	..	..	23.1 ^P	..	..	..	..
Slovak Republic	20.4	30.2	37.5 ^P	..	..	..	..
Slovenia	..	..	28.2	..	33.2 ^{a,p}	..	..
Spain	..	..	34.3 ^a	..	26.6 ^P	..	..
Sweden	..	..	34.1	..	30.9 ^P	..	37.8 ^P
Switzerland	..	..	..	..	..	..	..
Turkey	10.6	..	..	..	..	..	..
United Kingdom	31.3	39.3	39.3	43.9	47.0	41.0 ^P	50.4 ^P
United States	13.0	14.0	15.2	14.0	14.3	15.2	15.4 ^P
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	..	..	..	..	..	..	..
Russian Federation	..	..	..	..	..	..	..
Singapore	..	..	..	..	..	..	..
South Africa	..	..	..	..	..	..	..
Chinese Taipei	..	..	..	..	..	..	..

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

Source: OECD, Activities of Foreign Affiliates database, January 2014

Table 63. Number of triadic patent families
By priority year

	2000	2006	2007	2008	2009	2010	2011
Australia	380	257 ^b	250 ^b	239 ^b	227 ^b	212 ^b	209 ^b
Austria	277	289 ^b	279 ^b	269 ^b	290 ^b	298 ^b	294 ^b
Belgium	329	326 ^b	328 ^b	320 ^b	297 ^b	310 ^b	307 ^b
Canada	526	513 ^b	521 ^b	485 ^b	486 ^b	496 ^b	469 ^b
Chile	2	5 ^b	4 ^b	5 ^b	9 ^b	10 ^b	10 ^b
Czech Republic	9	19 ^b	20 ^b	21 ^b	19 ^b	21 ^b	21 ^b
Denmark	226	244 ^b	255 ^b	257 ^b	224 ^b	235 ^b	241 ^b
Estonia	1	4 ^b	3 ^b	3 ^b	3 ^b	3 ^b	3 ^b
Finland	353	265 ^b	271 ^b	265 ^b	271 ^b	280 ^b	277 ^b
France	2 155	1 934 ^b	1 930 ^b	1 944 ^b	1 936 ^b	1 906 ^b	1 939 ^b
Germany	5 829	5 184 ^b	5 172 ^b	5 030 ^b	5 070 ^b	5 057 ^b	5 031 ^b
Greece	6	13 ^b	11 ^b	9 ^b	9 ^b	7 ^b	7 ^b
Hungary	29	28 ^b	33 ^b	32 ^b	32 ^b	33 ^b	34 ^b
Iceland	11	4 ^b	5 ^b	4 ^b	4 ^b	3 ^b	3 ^b
Ireland	32	63 ^b	73 ^b	71 ^b	68 ^b	63 ^b	68 ^b
Israel ¹	323	301 ^b	281 ^b	281 ^b	269 ^b	267 ^b	261 ^b
Italy	641	584 ^b	580 ^b	575 ^b	564 ^b	566 ^b	562 ^b
Japan	14 947	13 501 ^b	13 552 ^b	12 253 ^b	12 219 ^b	12 793 ^b	13 239 ^b
Korea	732	1 578 ^b	1 651 ^b	1 346 ^b	1 481 ^b	1 630 ^b	1 702 ^b
Luxembourg	20	15 ^b	11 ^b	13 ^b	10 ^b	10 ^b	11 ^b
Mexico	8	9 ^b	9 ^b	9 ^b	7 ^b	7 ^b	7 ^b
Netherlands	1 027	882 ^b	829 ^b	819 ^b	824 ^b	766 ^b	805 ^b
New Zealand	48	53 ^b	50 ^b	47 ^b	44 ^b	44 ^b	39 ^b
Norway	106	82 ^b	80 ^b	75 ^b	91 ^b	84 ^b	86 ^b
Poland	9	14 ^b	18 ^b	20 ^b	24 ^b	29 ^b	28 ^b
Portugal	2	10 ^b	18 ^b	14 ^b	11 ^b	11 ^b	11 ^b
Slovak Republic	2	3 ^b	3 ^b	3 ^b	2 ^b	3 ^b	3 ^b
Slovenia	9	6 ^b	6 ^b	7 ^b	6 ^b	6 ^b	5 ^b
Spain	145	134 ^b	133 ^b	137 ^b	142 ^b	139 ^b	140 ^b
Sweden	622	659 ^b	688 ^b	672 ^b	639 ^b	669 ^b	668 ^b
Switzerland	815	726 ^b	675 ^b	668 ^b	676 ^b	684 ^b	678 ^b
Turkey	4	11 ^b	9 ^b	9 ^b	12 ^b	16 ^b	16 ^b
United Kingdom	1 641	1 479 ^b	1 414 ^b	1 377 ^b	1 373 ^b	1 365 ^b	1 360 ^b
United States	13 874	13 878 ^b	13 265 ^b	12 924 ^b	12 260 ^b	12 272 ^b	12 505 ^b
EU28 (OECD estimates)	13 379	12 169 ^b	12 091 ^b	11 877 ^b	11 830 ^b	11 790 ^b	11 834 ^b
OECD-Total	45 141	43 073^b	42 427^b	40 206^b	39 600^b	40 293^b	41 041^b
Argentina	7	6 ^b	5 ^b	4 ^b	4 ^b	3 ^b	3 ^b
China	71	316 ^b	412 ^b	446 ^b	664 ^b	708 ^b	909 ^b
Romania	0	1 ^b	3 ^b	2 ^b	2 ^b	2 ^b	2 ^b
Russian Federation	73	43 ^b	44 ^b	41 ^b	40 ^b	46 ^b	47 ^b
Singapore	70	92 ^b	79 ^b	82 ^b	81 ^b	81 ^b	74 ^b
South Africa	37	26 ^b	24 ^b	27 ^b	23 ^b	24 ^b	23 ^b
Chinese Taipei	38	105 ^b	175 ^b	175 ^b	180 ^b	198 ^b	197 ^b

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

Source: OECD, Patent database, October 2013

Table 64. Share of countries in triadic patent families
By priority year

Percentage

	2000	2006	2007	2008	2009	2010	2011
Australia	0.83	0.58 ^b	0.58 ^b	0.58 ^b	0.56 ^b	0.51 ^b	0.49 ^b
Austria	0.61	0.66 ^b	0.64 ^b	0.65 ^b	0.71 ^b	0.71 ^b	0.69 ^b
Belgium	0.72	0.74 ^b	0.76 ^b	0.78 ^b	0.73 ^b	0.74 ^b	0.72 ^b
Canada	1.15	1.17 ^b	1.20 ^b	1.18 ^b	1.19 ^b	1.19 ^b	1.10 ^b
Chile	0.00	0.01 ^b	0.01 ^b	0.01 ^b	0.02 ^b	0.02 ^b	0.02 ^b
Czech Republic	0.02	0.04 ^b	0.05 ^b	0.05 ^b	0.05 ^b	0.05 ^b	0.05 ^b
Denmark	0.50	0.56 ^b	0.59 ^b	0.62 ^b	0.55 ^b	0.57 ^b	0.57 ^b
Estonia	0.00	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b
Finland	0.77	0.60 ^b	0.62 ^b	0.64 ^b	0.66 ^b	0.67 ^b	0.65 ^b
France	4.72	4.41 ^b	4.44 ^b	4.72 ^b	4.74 ^b	4.58 ^b	4.55 ^b
Germany	12.77	11.81 ^b	11.91 ^b	12.20 ^b	12.41 ^b	12.14 ^b	11.81 ^b
Greece	0.01	0.03 ^b	0.03 ^b	0.02 ^b	0.02 ^b	0.02 ^b	0.02 ^b
Hungary	0.06	0.06 ^b	0.08 ^b	0.08 ^b	0.08 ^b	0.08 ^b	0.08 ^b
Iceland	0.02	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b
Ireland	0.07	0.14 ^b	0.17 ^b	0.17 ^b	0.17 ^b	0.15 ^b	0.16 ^b
Israel ¹	0.71	0.69 ^b	0.65 ^b	0.68 ^b	0.66 ^b	0.64 ^b	0.61 ^b
Italy	1.40	1.33 ^b	1.34 ^b	1.40 ^b	1.38 ^b	1.36 ^b	1.32 ^b
Japan	32.75	30.76 ^b	31.22 ^b	29.72 ^b	29.91 ^b	30.72 ^b	31.07 ^b
Korea	1.60	3.60 ^b	3.80 ^b	3.26 ^b	3.62 ^b	3.91 ^b	4.00 ^b
Luxembourg	0.04	0.03 ^b	0.03 ^b	0.03 ^b	0.03 ^b	0.02 ^b	0.03 ^b
Mexico	0.02	0.02 ^b	0.02 ^b	0.02 ^b	0.02 ^b	0.02 ^b	0.02 ^b
Netherlands	2.25	2.01 ^b	1.91 ^b	1.99 ^b	2.02 ^b	1.84 ^b	1.89 ^b
New Zealand	0.11	0.12 ^b	0.12 ^b	0.12 ^b	0.11 ^b	0.11 ^b	0.09 ^b
Norway	0.23	0.19 ^b	0.18 ^b	0.18 ^b	0.22 ^b	0.20 ^b	0.20 ^b
Poland	0.02	0.03 ^b	0.04 ^b	0.05 ^b	0.06 ^b	0.07 ^b	0.07 ^b
Portugal	0.01	0.02 ^b	0.04 ^b	0.04 ^b	0.03 ^b	0.03 ^b	0.03 ^b
Slovak Republic	0.00	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b
Slovenia	0.02	0.01 ^b	0.01 ^b	0.02 ^b	0.02 ^b	0.01 ^b	0.01 ^b
Spain	0.32	0.30 ^b	0.31 ^b	0.33 ^b	0.35 ^b	0.33 ^b	0.33 ^b
Sweden	1.36	1.50 ^b	1.59 ^b	1.63 ^b	1.56 ^b	1.61 ^b	1.57 ^b
Switzerland	1.79	1.65 ^b	1.55 ^b	1.62 ^b	1.66 ^b	1.64 ^b	1.59 ^b
Turkey	0.01	0.02 ^b	0.02 ^b	0.02 ^b	0.03 ^b	0.04 ^b	0.04 ^b
United Kingdom	3.60	3.37 ^b	3.26 ^b	3.34 ^b	3.36 ^b	3.28 ^b	3.19 ^b
United States	30.40	31.62 ^b	30.56 ^b	31.34 ^b	30.01 ^b	29.47 ^b	29.35 ^b
EU28 (OECD estimates)	29.31	27.72 ^b	27.85 ^b	28.81 ^b	28.95 ^b	28.31 ^b	27.78 ^b
OECD-Total	98.90	98.12^b	97.73^b	97.51^b	96.92^b	96.75^b	96.33^b
Argentina	0.01	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b	0.01 ^b
China	0.16	0.72 ^b	0.95 ^b	1.08 ^b	1.62 ^b	1.70 ^b	2.13 ^b
Romania	0.00	0.00 ^b	0.01 ^b	0.01 ^b	0.00 ^b	0.00 ^b	0.01 ^b
Russian Federation	0.16	0.10 ^b	0.10 ^b	0.10 ^b	0.10 ^b	0.11 ^b	0.11 ^b
Singapore	0.15	0.21 ^b	0.18 ^b	0.20 ^b	0.20 ^b	0.19 ^b	0.17 ^b
South Africa	0.08	0.06 ^b	0.05 ^b	0.07 ^b	0.06 ^b	0.06 ^b	0.05 ^b
Chinese Taipei	0.08	0.24 ^b	0.40 ^b	0.42 ^b	0.44 ^b	0.47 ^b	0.46 ^b

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

Source: OECD, Patent database, October 2013

Table 65. Number of patents in the ICT sector - applications filed under the PCT
By priority year

	2000	2006	2007	2008	2009	2010	2011
Australia	628	590	530	566	506	468	432
Austria	189	383	374	282	265	249	273
Belgium	148	211	230	227	251	258	303
Canada	924	1 163	1 313	1 050	994	1 126	1 042
Chile	4	4	2	11	8	10	9
Czech Republic	15	23	37	41	27	28	20
Denmark	248	308	273	266	240	210	213
Estonia	5	13	27	21	24	18	14
Finland	717	916	819	697	659	639	547
France	1 499	1 893	2 001	2 023	1 971	1 965	2 035
Germany	3 960	4 042	4 208	3 916	3 795	3 866	3 655
Greece	13	14	25	24	20	15	16
Hungary	59	64	66	68	60	48	49
Iceland	12	10	6	2	4	6	3
Ireland	100	142	161	165	133	129	145
Israel ¹	865	937	868	718	665	605	629
Italy	326	570	572	550	535	498	495
Japan	4 759	11 979	12 027	11 022	12 220	14 923	15 469
Korea	891	2 845	3 450	3 137	3 656	4 141	4 597
Luxembourg	13	15	8	12	8	11	12
Mexico	14	25	22	31	25	27	24
Netherlands	1 675	1 446	1 301	1 238	1 097	876	986
New Zealand	96	86	91	63	66	56	48
Norway	162	160	183	181	178	158	124
Poland	17	32	39	45	58	55	46
Portugal	3	30	24	30	30	33	38
Slovak Republic	4	6	7	15	9	10	7
Slovenia	12	13	18	21	19	18	18
Spain	124	248	336	361	397	387	390
Sweden	1 216	1 078	1 215	1 187	1 041	818	859
Switzerland	455	473	507	470	499	471	504
Turkey	13	44	47	59	70	56	38
United Kingdom	2 174	2 231	2 151	1 930	1 644	1 637	1 507
United States	18 825	20 720	19 308	16 172	15 011	16 312	15 869
EU28 (OECD estimates)	12 536	13 727	13 952	13 174	12 320	11 804	11 668
OECD-Total	40 164	52 714	52 247	46 603	46 185	50 126	50 415
Argentina	5	6	14	9	7	13	14
China	231	2 673	3 381	3 241	4 747	5 698	7 355
Romania	3	18	22	23	15	14	17
Russian Federation	179	211	191	175	194	194	247
Singapore	166	303	273	325	283	282	247
South Africa	99	106	70	102	47	69	69
Chinese Taipei	19	67	61	52	68	115	131

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Source: OECD, Patent database, October 2013

Table 66. Number of patents in the biotechnology sector - applications filed under the PCT
By priority year

	2000	2006	2007	2008	2009	2010	2011
Australia	186	194	212	183	170	168	139
Austria	60	84	102	76	68	79	87
Belgium	134	118	146	123	129	130	126
Canada	309	305	334	313	241	235	260
Chile	1	4	8	9	14	8	12
Czech Republic	1	5	9	10	10	3	7
Denmark	178	151	211	191	124	160	162
Estonia	3	9	11	5	3	3	7
Finland	39	47	60	61	52	62	48
France	426	369	419	445	496	458	513
Germany	1 009	662	885	681	643	670	585
Greece	3	5	9	8	6	5	5
Hungary	11	11	12	14	13	7	12
Iceland	4	3	9	12	6	9	10
Ireland	13	22	31	47	31	15	29
Israel ¹	140	152	198	168	129	154	146
Italy	121	147	146	177	163	150	113
Japan	909	1 218	1 118	1 079	1 124	1 206	1 120
Korea	148	277	315	315	377	440	477
Luxembourg	1	2	2	2	1	0	2
Mexico	6	6	9	12	15	13	11
Netherlands	186	272	286	263	238	218	200
New Zealand	30	40	53	43	32	38	23
Norway	41	31	29	28	35	43	21
Poland	2	12	16	20	13	19	21
Portugal	5	14	15	15	16	10	12
Slovak Republic	1	4	0	0	1	1	3
Slovenia	4	8	4	8	8	8	7
Spain	59	127	143	184	186	171	167
Sweden	169	130	133	113	120	123	109
Switzerland	134	111	302	152	141	156	131
Turkey	1	1	2	2	2	3	3
United Kingdom	606	431	445	408	375	379	359
United States	6 190	4 662	4 524	4 318	4 005	4 092	3 907
EU28 (OECD estimates)	3 037	2 634	3 095	2 854	2 709	2 679	2 580
OECD-Total	11 129	9 634	10 199	9 486	8 989	9 239	8 833
Argentina	6	13	12	7	6	4	7
China	932	185	198	208	291	385	443
Romania	0	0	1	1	1	0	1
Russian Federation	32	73	70	45	41	61	38
Singapore	34	55	56	54	87	65	64
South Africa	9	12	18	20	16	14	11
Chinese Taipei	6	16	15	27	25	33	23

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

Source: OECD, Patent database, October 2013

Table 67. Technology balance of payments: receipts
At current prices and exchange rates

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	1 558.4	3 751.2	4 093.3	3 619.6	4 522.3	5 051.3	4 904.7 ^P
Austria	1 687.0	7 007.6	8 256.5	7 375.1	7 112.2	9 056.7	9 401.3 ^P
Belgium	4 088.4	6 910.4	9 881.7	12 056.8	11 983.4	13 783.2	15 126.7 ^P
Canada	3 143.2	3 139.4	2 754.3	2 306.9	2 976.2	2 556.8 ^P	..
Chile	..	..	..	..	..	..	..
Czech Republic	249.3	1 340.0	2 453.2	2 260.5	2 101.7	2 960.3	3 085.0 ^P
Denmark	..	6 025.9	7 676.3	7 162.8	2 970.4	2 948.8	3 099.2 ^P
Estonia	..	213.3	274.6	276.7	474.1	629.1	428.2 ^P
Finland	1 555.2	3 878.8	10 677.5	9 502.4	9 472.3	10 795.8	10 093.9 ^P
France	2 741.8	..	..	..	..	..	..
Germany	13 583.0	41 596.5	52 415.9	57 957.1	58 303.8	63 772.4	62 901.7 ^P
Greece	139.4	443.0	857.9	721.3	715.2	797.2	674.3 ^P
Hungary	249.3	2 635.2	3 068.1	2 633.1	3 050.0	3 361.0	3 345.9 ^P
Iceland	..	..	..	337.5	283.1	302.2	254.3 ^P
Ireland	..	32 262.2	37 780.8	37 087.3	40 878.4	49 683.4	52 133.3 ^P
Israel ¹	..	8 053.9	9 271.1	9 784.7	9 449.8	..	..
Italy	2 806.6	5 737.3	12 032.4 ^a	10 042.3	10 464.3	13 988.3	18 564.5 ^P
Japan	9 816.3	21 080.1	21 531.5	21 538.2	27 758.5	29 887.2 ^P	..
Korea	..	2 178.3	2 529.6	3 581.9	3 344.9	4 032.1 ^P	..
Luxembourg	..	1 247.5	1 446.5	1 518.0	2 089.7	2 421.6	3 028.9 ^P
Mexico	43.1	94.4	97.0	94.3	..	..	..
Netherlands	..	24 671.8	30 507.4	29 473.8	..	39 985.8 ^P	..
New Zealand	216.8	523.9	691.7	1 137.1	636.2	..	..
Norway	1 912.1	5 626.7	6 284.2	6 541.2	6 929.0	..	..
Poland	188.4	1 700.4	2 960.0	2 270.0	3 317.6	4 256.1	4 472.9 ^P
Portugal	281.7	1 416.2	1 747.8	1 768.3	1 515.5	1 818.4	1 790.5 ^P
Slovak Republic	57.1	480.8	824.2	444.7	504.5	770.1 ^P	..
Slovenia	12.1	..	431.2 ^a	314.9	296.1	299.0 ^P	..
Spain	2 388.4	6 625.4	8 934.4	10 112.1	9 146.6	10 170.1	12 456.1 ^P
Sweden	5 281.2	16 563.6	17 857.9	16 698.5	17 727.1	21 019.1	20 470.4 ^P
Switzerland	3 406.8	10 758.3	13 762.5	16 307.6	17 945.0	21 261.4	21 952.0 ^P
Turkey	..	..	..	..	..	..	..
United Kingdom	19 926.4	44 838.4	44 282.2	42 123.7 ^a	44 312.3	48 269.5	48 874.7 ^P
United States	43 233.0	83 613.0	90 759.0	89 571.0	98 787.0	115 433.0	120 361.0 ^P
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	14.0	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	7.2 ^m	13.7 ^m	29.3 ^m	23.0 ^m	19.9 ^m	31.2 ^m	92.3 ^{m,p}
Russian Federation	204.0	623.0	872.1	606.9	627.8	592.6	688.8 ^P
Singapore	895.8	4 134.6	5 970.6	5 924.1	..	..	..
South Africa	40.2	52.7	53.2	47.5	..	..	..
Chinese Taipei	126.5 ^m	511.7 ^m	626.9 ^m	755.0 ^m	822.1 ^m	..	..

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

Source: OECD, Technology Balance of Payments database, January 2014

Table 68. Technology balance of payments: payments
At current prices and exchange rates

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	2 243.1	5 093.4	6 197.1	5 513.2	7 299.8	8 581.0	8 274.0 ^P
Austria	1 234.6	4 353.7	5 045.5	4 609.1	4 311.0	5 203.3	5 903.9 ^P
Belgium	3 460.6	7 942.4	12 037.9	11 295.5	10 233.8	11 664.6	12 822.9 ^P
Canada	1 280.0	1 527.8	1 042.1	823.2	565.0	758.9 ^P	..
Chile	..	..	..	..	..	..	..
Czech Republic	435.4	1 919.4	2 303.0	2 521.1	2 512.6	3 137.7	3 232.2 ^P
Denmark	..	4 769.2	6 033.0	4 935.0	5 459.4	7 308.3	7 910.8 ^P
Estonia	..	129.6	180.8	177.0	191.6	346.8	324.6 ^P
Finland	1 704.4	5 671.8	9 366.2	9 061.9	7 769.1	8 146.2	8 847.6 ^P
France	2 644.2	..	..	..	..	..	..
Germany	18 215.4	38 611.5	44 271.4	49 426.1	47 305.8	53 689.8	54 447.3 ^P
Greece	407.6	1 133.7	1 432.0	1 327.2	1 383.9	1 267.1	814.0 ^P
Hungary	396.6	3 692.7	4 018.4	3 936.7	3 590.1	3 842.4	3 604.3 ^P
Iceland	..	..	..	140.6	179.1	215.2	239.1 ^P
Ireland	..	31 134.4	42 545.9	42 143.9	44 576.2	48 898.0	49 153.7 ^P
Israel ¹	..	2 356.2	2 870.2	2 402.8	2 470.3	..	..
Italy	3 505.4	4 619.3	18 234.9 ^a	15 448.1	15 779.5	18 101.9	16 825.3 ^P
Japan	4 113.5	6 033.9	5 805.4	5 716.6	6 038.6	5 197.0 ^P	..
Korea	..	5 103.5	5 669.9	8 438.1	10 234.3	9 900.5 ^P	..
Luxembourg	..	1 439.6	1 897.7	1 980.8	2 323.4	2 822.4	3 258.7 ^P
Mexico	406.7	1 388.5	926.7	1 822.1	..	..	..
Netherlands	..	18 863.0	23 412.9	25 969.6	..	29 427.8 ^P	..
New Zealand	471.2	896.8	1 003.1	855.3	998.4	..	..
Norway	1 190.4	3 256.4	3 667.9	3 185.4	3 351.7	..	..
Poland	1 097.1	3 994.5	4 790.5	3 780.4	5 459.2	6 039.1	5 933.5 ^P
Portugal	665.9	1 249.0	1 657.9	1 632.5	1 546.0	1 712.6	1 410.3 ^P
Slovak Republic	155.0	820.3	887.9	839.8	763.0	635.3 ^P	..
Slovenia	22.3	..	514.4 ^a	584.3	581.6	694.8 ^P	..
Spain	3 664.7	9 234.2	9 281.4	10 024.8	8 640.2	9 265.9	8 772.8 ^P
Sweden	5 635.1	10 951.4	12 382.4	10 222.7	9 802.4	11 502.4	12 212.1 ^P
Switzerland	5 336.9	15 148.7	16 069.8	18 736.6	21 959.7	32 720.3	27 040.0 ^P
Turkey	..	..	..	..	..	..	..
United Kingdom	9 218.8	21 539.8	25 760.8	24 781.9 ^a	25 614.2	27 120.5	26 299.8 ^P
United States	16 468.0	50 128.0	57 509.0	61 884.0	69 577.0	79 075.0	84 453.0 ^P
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	1 064.5	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	6.0 ^m	65.8 ^m	111.2 ^m	80.0 ^m	101.0 ^m	119.4 ^m	121.1 ^{m,p}
Russian Federation	183.6	1 396.2	2 217.5	1 572.5	1 410.1	1 915.4	2 053.1 ^P
Singapore	6 233.1	12 566.4	17 472.9	17 075.1	..	..	..
South Africa	244.8	1 591.3	1 662.1	1 642.5	..	..	..
Chinese Taipei	1 304.3 ^m	1 984.4 ^m	2 400.5 ^m	3 071.8 ^m	4 479.7 ^m	..	..

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Source: OECD, Technology Balance of Payments database, January 2014

**Table 69. Technology balance of payments: payments as a percentage of GERD
(Gross domestic expenditure on R&D)**

Percentage

	2000	2007	2008	2009	2010	2011	2012
Australia	37.1	..	26.1	..	25.8 ^c	..	..
Austria	33.3 ^c	46.3	45.6 ^c	44.4	40.8 ^c	45.2	52.8 ^{c,p}
Belgium	75.7	91.3	120.6	117.8	103.2	102.7	118.7 ^p
Canada	9.2	5.5	3.6	3.1	1.9	2.4 ^p	..
Chile	..	..	..	..	..	..	..
Czech Republic	63.5	77.9	78.8	94.5	90.6	88.5	87.4 ^p
Denmark	..	59.4 ^a	61.6	50.3 ^v	58.1	73.6	84.1 ^{c,p}
Estonia	..	54.6	59.4	64.5	62.1	64.9	66.5 ^p
Finland	41.8	66.4	93.1	96.1	84.1	81.8	100.8 ^p
France	9.3 ^a	..	..	..	..	..	..
Germany	39.1	45.9	45.4	53.1	51.1	51.2	54.4 ^{c,p}
Greece	..	61.7 ^c	..	..	..	65.5 ^a	47.4 ^p
Hungary	106.2 ^d	276.0	259.6	266.3	240.7	229.6	223.1 ^p
Iceland	..	..	..	37.4 ^m	..	63.9 ^a	..
Ireland	..	935.4	1 114.7	1 109.0	1 260.8 ^c	1 305.0 ^c	1 353.7 ^{c,p}
Israel ¹	..	29.8 ^d	30.6 ^d	28.0 ^d	26.9 ^d	..	..
Italy	30.5	18.5	65.5 ^a	57.9	60.7	65.7	66.0 ^p
Japan	2.9	4.0	3.5 ^a	3.4	3.4	2.6 ^p	..
Korea	..	15.2 ^a	18.1	28.4	27.0	22.0 ^p	..
Luxembourg	..	177.8 ^c	209.4	229.9	296.5	..	..
Mexico	18.8	36.1	20.8	47.3	..	..	..
Netherlands	..	133.3	152.2	179.6	..	174.4 ^{a,p}	..
New Zealand	..	56.5	..	56.3	..	..	..
Norway	..	51.9	51.0	47.8	47.4	..	..
Poland	99.4	165.7	149.8	130.0	158.0	153.1	134.6 ^p
Portugal	78.0 ^c	46.3	43.8 ^a	42.5	42.5	47.3	44.5 ^p
Slovak Republic	117.3	237.9	199.0	199.5	138.4	97.6 ^p	..
Slovenia	8.1	..	56.9 ^a	64.0	58.9	55.9 ^{a,p}	..
Spain	69.6	50.6	43.1 ^a	49.5	44.7	47.0	51.0 ^p
Sweden	..	68.9	68.9 ^c	69.7	62.4 ^{c,l}	63.4	68.4 ^{c,p}
Switzerland	84.4	..	106.8	..	..	..	..
Turkey	..	..	..	..	..	..	..
United Kingdom	34.4	43.1	54.7 ^c	61.5 ^{a,c}	62.9 ^c	61.8	61.7 ^{c,p}
United States	6.1 ^j	13.2 ^j	14.1 ^j	15.2 ^j	17.0 ^j	18.4 ^j	18.6 ^{j,p}
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	85.3	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	4.4 ^m	7.4 ^m	9.4 ^m	10.4 ^m	13.3 ^m	13.1 ^{a,m}	14.6 ^{m,p}
Russian Federation	6.7	9.6	12.8	10.3	8.2	9.2	9.0 ^p
Singapore	357.1	298.8	346.8	411.0	..	..	..
South Africa	..	60.2	65.3	66.4	..	..	..
Chinese Taipei	20.6 ^{d,m}	19.7 ^m	21.5 ^m	27.6 ^m	35.9 ^m	..	..

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Source: OECD, Technology Balance of Payments database, January 2014

Table 70. Trade balance and export market share: Pharmaceutical industry

	Trade balance (Million current USD)			Export market share (Percentage)		
	2005	2008	2011	2005	2008	2011
Australia	-3 179.7	-3 966.3	-7 373.0	0.83	0.73	0.72
Austria	320.7	1 095.7	820.0	1.56	1.63	1.75
Belgium	-1 287.5	6 468.0	12 441.3	12.58	11.53	9.74
Canada	-4 761.4	-5 776.6	-7 985.8	1.20	1.36	1.07
Chile	-401.5	-682.9	-962.4	0.02	0.02	0.03
Czech Republic	-1 421.0	-2 393.5	-2 465.5	0.23	0.31	0.35
Denmark	4 024.7	4 594.1	6 650.7	2.18	1.74	1.99
Estonia	-163.9	-310.2	-324.3	0.01	0.01	0.01
Finland	-963.3	-1 258.7	-698.9	0.30	0.28	0.33
France	4 277.9	7 135.3	1 761.6	8.00	7.49	6.53
Germany	7 921.9	20 047.5	15 581.8	13.65	15.22	13.56
Greece	-2 373.9	-4 316.9	-3 258.7	0.40	0.28	0.23
Hungary	-222.8	-232.3	309.4	0.53	0.72	0.90
Iceland	-29.7	-42.5	-19.3	0.03	0.02	0.02
Ireland	17 853.0	23 393.0	37 993.8	7.05	6.17	8.43
Israel	1 163.6	3 249.4	5 271.0	0.75	1.09	1.37
Italy	-1 268.1	-4 070.8	-5 629.7	4.66	3.84	4.00
Japan	-5 041.6	-8 004.6	-18 173.3	1.49	0.99	1.02
Korea	-1 453.2	-2 680.3	-3 403.9	0.29	0.28	0.31
Luxembourg	-272.1	-375.3	-391.7	0.02	0.02	0.02
Mexico	-1 700.6	-3 520.0	-3 539.9	0.49	0.33	0.38
Netherlands	352.6	675.1	2 641.1	4.07	5.68	3.40
New Zealand	-553.4	-633.6	-687.0	0.06	0.05	0.05
Norway	-426.7	-647.0	-727.3	0.33	0.27	0.23
Poland	-2 807.8	-5 257.3	-4 375.2	0.19	0.37	0.43
Portugal	-1 704.6	-2 429.0	-2 280.0	0.14	0.13	0.18
Slovak Republic	-707.6	-1 402.1	-1 597.5	0.09	0.09	0.10
Slovenia	538.4	1 320.1	1 517.8	0.39	0.50	0.50
Spain	-3 256.0	-4 575.2	-3 771.7	2.38	2.57	2.38
Sweden	4 441.6	4 990.0	4 467.0	2.44	2.01	1.68
Switzerland	13 715.3	27 273.0	37 032.6	9.73	10.31	11.73
Turkey	-3 079.3	-4 505.4	-4 701.1	0.11	0.11	0.12
United Kingdom	5 405.0	10 645.3	8 785.0	7.94	7.15	6.96
United States	-14 952.0	-23 641.6	-32 314.8	9.50	8.86	8.70
OECD-Total	7 987.0	30 164.3	30 592.6	93.67	92.16	89.23
Argentina	-443.1	-760.1	-1 223.1	0.14	0.15	0.18
China	2 533.7	5 035.6	4 200.3	1.81	2.44	3.12
Romania	-1 094.2	-2 438.4	-2 265.1	0.02	0.05	0.19
Russian Federation	-4 270.0	-9 086.2	-13 437.2	0.07	0.07	0.07
Singapore	1 660.5	3 408.5	6 047.3	1.21	1.28	1.73
South Africa	-1 176.4	-1 581.4	-2 240.3	0.05	0.05	0.04
Chinese Taipei	-1 262.8	-1 599.8	-2 214.7	0.09	0.08	0.10

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Source: OECD, STAN Bilateral Trade in Goods by Industry and End-use Category database, January 2014

Table 71. Trade balance and export market share: Computer, electronic and optical industry

	Trade balance (Million current USD)			Export market share (Percentage)		
	2005	2008	2011	2005	2008	2011
Australia	-15 360.2	-19 756.1	-26 469.7	0.20	0.21	0.22
Austria	-3 161.0	-2 791.1	-2 819.9	0.55	0.55	0.45
Belgium	-3 218.1	-4 516.7	-5 007.1	1.10	1.06	0.96
Canada	-19 441.1	-23 892.8	-32 882.1	1.07	0.93	0.70
Chile	-3 034.9	-4 540.2	-6 551.5	0.01	0.02	0.01
Czech Republic	-232.4	231.8	1 080.5	0.61	1.11	1.21
Denmark	-2 774.6	-2 568.9	-1 820.6	0.52	0.40	0.38
Estonia	-113.0	-397.9	-71.3	0.09	0.05	0.10
Finland	5 424.3	4 929.8	-1 700.7	0.88	0.78	0.26
France	-14 327.8	-21 663.0	-23 105.2	2.43	2.10	1.89
Germany	6 691.6	4 047.3	-4 508.7	6.89	6.34	5.85
Greece	-3 746.7	-5 875.0	-3 232.1	0.03	0.04	0.03
Hungary	3 088.4	6 422.4	8 194.9	1.02	1.29	1.15
Iceland	-332.9	-280.7	-208.0	0.00	0.00	0.00
Ireland	13 788.2	12 796.4	10 265.0	1.93	1.37	0.76
Israel	913.9	2 687.4	2 881.7	0.40	0.46	0.47
Italy	-16 962.6	-18 581.9	-24 900.1	1.21	1.07	1.01
Japan	51 047.0	48 269.7	27 079.1	8.22	6.73	5.80
Korea	43 648.0	56 284.5	64 333.0	5.61	5.51	5.58
Luxembourg	-557.9	-551.8	-578.6	0.06	0.04	0.04
Mexico	809.4	3 925.0	-2 890.2	2.75	3.10	2.90
Netherlands	5 232.5	2 829.8	3 779.4	4.42	3.93	3.69
New Zealand	-2 602.1	-2 804.4	-3 084.4	0.04	0.04	0.04
Norway	-4 186.8	-5 009.2	-5 464.2	0.13	0.18	0.14
Poland	-5 625.7	-9 346.6	-6 527.7	0.26	0.63	0.63
Portugal	-3 002.2	-3 974.3	-2 593.6	0.20	0.21	0.13
Slovak Republic	-1 080.9	267.8	1 955.0	0.19	0.58	0.55
Slovenia	-575.9	-845.5	-653.3	0.04	0.06	0.05
Spain	-18 300.3	-32 799.9	-19 454.7	0.54	0.45	0.31
Sweden	2 617.9	721.4	-1 413.1	1.07	0.97	0.93
Switzerland	7 628.4	14 019.5	19 525.8	1.33	1.55	1.70
Turkey	-6 268.1	-9 010.3	-11 179.0	0.20	0.13	0.11
United Kingdom	-24 557.1	-31 872.8	-29 223.9	3.00	2.10	1.72
United States	-103 650.2	-112 816.4	-147 166.9	10.76	9.74	9.13
OECD-Total	-112 222.9	-156 462.7	-224 412.3	57.76	53.74	48.93
Argentina	-3 763.8	-5 691.3	-7 781.7	0.01	0.02	0.01
China	34 052.0	106 957.4	142 701.3	14.91	20.13	23.35
Romania	-2 696.6	-4 264.0	-1 908.1	0.05	0.12	0.23
Russian Federation	-8 632.0	-27 048.6	-27 639.1	0.08	0.10	0.11
Singapore	26 195.9	33 242.7	37 371.7	6.43	6.05	5.63
South Africa	-6 978.9	-8 207.4	-10 141.9	0.05	0.06	0.05
Chinese Taipei	24 205.6	46 194.2	65 497.7	4.40	4.55	5.21

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Source: OECD, STAN Bilateral Trade in Goods by Industry and End-use Category database, January 2014

Table 72. Trade balance and export market share: Aerospace industry

	Trade balance (Million current USD)			Export market share (Percentage)		
	2005	2008	2011	2005	2008	2011
Australia	-2 458.1	-3 168.3	-115.1	0.32	0.36	0.40
Austria	-48.0	-1 025.7	125.1	0.37	0.35	0.36
Belgium	489.0	224.9	257.9	0.52	0.68	0.50
Canada	2 792.5	3 057.1	4 120.3	5.56	4.82	4.23
Chile	-300.3	-999.8	-1 071.4	0.01	0.02	0.00
Czech Republic	-419.1	53.1	112.0	0.17	0.29	0.22
Denmark	-347.4	-1 177.5	-397.5	0.15	0.09	0.11
Estonia	-7.9	-24.1	-83.7	0.00	0.00	0.00
Finland	-180.7	-361.3	-167.4	0.11	0.10	0.05
France	13 261.0	22 691.1	24 228.9	15.12	16.33	19.07
Germany	1 310.2	4 573.8	10 776.0	13.80	12.98	14.29
Greece	-918.4	-473.0	60.5	0.10	0.16	0.10
Hungary	-52.2	-26.8	-14.1	0.01	0.02	0.03
Iceland	-58.6	92.6	-45.6	0.06	0.12	0.02
Ireland	-2 407.7	-2 449.7	-2 267.1	0.17	0.41	0.47
Israel	269.0	459.5	1 266.9	0.50	0.53	0.66
Italy	524.1	3 202.5	2 964.6	2.11	2.28	1.99
Japan	-5 117.0	-5 583.9	-1 488.5	1.37	1.51	1.76
Korea	-1 188.3	-1 553.3	-3 165.1	0.32	0.32	0.41
Luxembourg	-427.6	-915.8	-1 043.4	0.06	0.02	0.11
Mexico	323.3	505.5	547.4	0.33	0.48	0.47
Netherlands	220.3	334.1	487.3	0.95	1.20	1.04
New Zealand	-679.5	-407.1	-1 091.7	0.13	0.10	0.07
Norway	-91.9	-749.0	-870.3	0.28	0.29	0.22
Poland	-112.6	366.8	199.3	0.16	0.27	0.48
Portugal	-356.8	-693.1	-73.9	0.17	0.11	0.08
Slovak Republic	-4.9	8.9	-13.5	0.03	0.04	0.01
Slovenia	-28.5	-215.7	-37.7	0.00	0.03	0.01
Spain	-662.4	-84.8	2 446.5	1.79	1.44	1.73
Sweden	157.8	93.3	-30.0	0.58	0.40	0.27
Switzerland	-346.4	311.3	-22.4	0.87	1.05	0.64
Turkey	-10.4	-1 186.5	-3 658.0	0.19	0.21	0.17
United Kingdom	4 293.1	-715.3	10 616.0	11.66	9.20	10.47
United States	38 635.5	57 826.4	54 191.4	34.01	33.21	29.13
OECD-Total	46 051.2	71 990.6	96 743.4	92.02	89.42	89.59
Argentina	-397.7	-479.0	-116.4	0.04	0.27	0.29
China	-6 278.9	-9 340.4	-13 385.4	0.55	0.85	0.97
Romania	-8.5	-42.0	-167.4	0.06	0.06	0.04
Russian Federation	755.1	805.6	571.8	0.66	0.36	0.36
Singapore	-3 675.0	-5 750.3	-3 268.7	1.14	2.28	2.46
South Africa	-1 189.3	-1 506.2	-1 478.9	0.37	0.25	0.15
Chinese Taipei	-1 541.9	-453.3	-82.1	0.09	0.14	0.17

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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, January 2014

General methodology

R&D data (Tables 1 to 60)

A. Definitions and coverage

1. OECD standards

The data in this publication have been collected and presented in line with the standard OECD methodology for R&D statistics entitled *The Measurement of Scientific and Technological Activities: Proposed Standard Practice for Surveys of Research and Experimental Development – Frascati Manual 2002* (OECD).

2. The two types of data

Most R&D data are derived from retrospective surveys of the units actually carrying out or “performing” R&D projects. Thus, the indicators in Tables 1 to 56 are based on the sum of performers’ reports of their R&D expenditure and personnel on national territory (i.e. excluding payments to international organisations and other performers abroad). Personnel data are expressed in full-time equivalent (FTE) on R&D (i.e. a person working half-time on R&D is counted as 0.5 person years) and headcount. Because of the complexity of the surveys, it is difficult to obtain very up-to-date series. In the present volume, some 2011 data are still provisional and data for later years are national estimates or projections (these data are annotated).

Given the difficulty of estimating defence R&D figures which are compatible with GERD (notably in industry), a number of countries have been unable to supply data and the information is shown in Table 5 with only one decimal.

More up-to-date information on government support for R&D can be derived from budgetary sources. The indicators in Tables 57 to 60 are based on Government Budget Appropriations or Outlays for R&D as reported by the funding ministry or agency and include payments to international organisations and other performers abroad.

The specifications of these two sets of R&D data vary significantly and the two types of data should not be combined.

3. Fields of science

In general, the tables cover R&D in both natural sciences (including agricultural and medical sciences) and engineering (NSE) and social sciences and humanities (SSH). A large number of countries collect data on R&D activities in the business enterprise sector for NSE only.

4. Sectors of performance and sources of funds

Domestic R&D efforts (expenditure or personnel) are divided into four *sectors of performance* for statistical purposes, business enterprise (industry), higher education, government and private non-profit institutions (PNP).

R&D expenditure is subdivided into five *sources of funds*, from business enterprise (industry), from government (public), from higher education, from PNPs and from abroad. By convention and for international comparison purposes, public general university funds (GUF) are allocated to the government sector as a source of funds. Since the amounts financed by the

higher education and PNP sectors are small, they have been combined as “other national sources” in Tables 15 and 37.

5. R&D in the business enterprise sector

The business enterprise sector covers private and public enterprises and institutes serving such enterprises. The breakdown between industries is, in principle, made at the level of the enterprise, though some countries are able to break down the R&D data for multi-product enterprises between their main lines of business. National statistical regulations prevent publication of results where there are very few firms in the given category, hence the many gaps in the tables. In principle R&D institutes serving enterprises are classified to the industry concerned; when this is not done the percentage of BERD performed by the non-manufacturing industry is overestimated compared with other countries.

The classification used to present business R&D series is the International Standard Industrial Classification, Revision 4 (ISIC Rev. 4). The indicators on industrial BERD concern R&D-intensive manufacturing industries and services:

	ISIC Rev. 4
• Pharmaceutical industry (Table 39)	21
• Computer, electronic and optical industry (Table 40)	26
• Aerospace industry (Table 41)	303
• Services industry (Table 42)	45-99

The above mentioned indicators were calculated using mainly the *Analytical Business Enterprise R&D Database* (ANBERD) for OECD member countries and selected non-member economies covered by this database. For further information on this database see: www.oecd.org/sti/anberd.

6. Government budget appropriations or outlays for R&D (GBAORD)

These data are assembled by national authorities using statistics collected for budgets. This essentially involves identifying all the budget items involving R&D and measuring or estimating their R&D content. The series generally cover federal or central government only. These estimates, based on funders' reports, are less accurate than the “performer-reported” data in Tables 1 to 56 but as they are derived from the budget, they can be linked back to policy issues by means of a classification by “objectives” or “goals”. Programmes are allocated between socio-economic objectives on the basis of intentions at the time the funds are committed and not the actual content of the projects concerned. These breakdowns reflect policies at a given moment in time.

The classification used is the European Commission's Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets – NABS, specially developed for R&D analysis (see *Frascati Manual* 2002, Sections 8.7.3 and 8.7.4).

The breakdown is as follows:

Defence (Table 58)

All defence R&D financed by government, including military nuclear and space but excluding civilian R&D financed by ministries of defence (e.g. meteorology).

Civil (Table 59)

Total GBAORD less defence.

Economic development (Table 60)

R&D programmes financed for the purpose of the advancement of agriculture, fishery, forestry; industry; energy; and infrastructure and general planning of land use.

Health and environment (Table 60)

R&D programmes funded for the purpose of the protection and improvement of human health; control and care of the environment; and for the exploration and exploitation of Earth.

Education and society (Table 60)

R&D programmes funded for the purpose of education; culture, recreation, religion and mass media; and political and social systems, structure and processes.

Space (Table 60)

Civil space R&D programmes.

Non-oriented research (Table 60)

Research programmes financed in view of the advancement of knowledge.

General university funds (Table 60)

The estimated R&D content of “block grants” to the higher education sector. This category is generally absent or underestimated for countries where only federal government is included.

7. International comparability

Though all OECD countries generally collect and report R&D in line with the *Frascati Manual*, some detailed national specifications may vary from OECD standards. These differences are generally too small to affect the general indicators quoted in this publication. The main exceptions are shown in Annex 1.

8. Expenditures in current dollars

National currency data have been converted to US\$ using purchasing power parities (PPPs) (Table C). The PPPs are those developed by the OECD National Accounts Division (for further details see *National Accounts of OECD Countries*, as well as *Eurostat-OECD Methodological Manual on Purchasing Power Parities* [PPPs], and the Internet PPP site: www.oecd.org/std/ppp), updated for the most recent years by comparing the growth in prices (implicit GDP deflator) in each country with that in the United States. These estimated parities are footnoted “b” in the tables as are any data converted to current dollars using them.

For most of the non-OECD economies featured in MSTI, PPP rates provided by the World Bank are used to convert data from national currency into PPPs. Only TBP data have been converted using current exchange rates as these transactions are conducted on international markets.

9. Expenditures in constant dollars

R&D expenditure series have been deflated using the implicit GDP deflator taken from the *OECD National Accounts Database* updated for the most recent years by Secretariat projections of changes in the GDP deflator, as published twice a year in the *OECD Economic Outlook* (except in the case of Norway where a deflator excluding trends in petroleum prices has been used) (Table B). Any expenditures series calculated on the basis of these estimated rates are footnoted “b”.

10. Comparisons with economic indicators

R&D expenditures are shown as a percentage of selected indicators drawn from the *OECD National Accounts Database* updated for very recent years on the basis of the projections published in the *OECD Economic Outlook*. Any ratios where such estimated economic series are the denominator are footnoted “b” in the tables concerned. R&D personnel are shown per thousand of selected indicators from the *OECD National Accounts* and *Labour Force Databases*. The main indicators used are shown in Annex 2.

Impact of changes to GDP measurement on R&D intensity: the latest update to the System of National Accounts (SNA), the SNA 2008, recognised the role of R&D as an activity leading to the creation of an intellectual asset. One implication of recognising R&D as an asset-building activity is that the level of GDP will be revised upwards by a magnitude close to the value of domestic business investment in R&D. This will then reduce the R&D intensity ratio, as the numerator stays constant and the denominator increases to incorporate an element that was previously missing from the GDP estimate. New figures and indicators for countries which have already implemented a revision to their National Accounts figures to take into account the role of R&D as investment – and for which data are available in the National Accounts of OECD Countries published by the OECD National Accounts Division – are flagged with the note Z (a new flag introduced in MSTI for this purpose and meaning “compiled according to the System of National Accounts 2008”). Users should be careful when comparing the R&D intensity of countries that have and have not capitalised R&D in their national accounts. Likewise, they should avoid comparing previously published measures of R&D intensity and more recent ones.

When possible, economic indicators for the non-member economies are also drawn from the OECD databases. Alternatively, other international databases are used, such as the *Eurostat NewCronos Database* (in the case of Romania, plus Bulgaria, Croatia, Cyprus, Latvia, Lithuania and Malta for the EU zone totals), the *International Monetary Fund*, *International Labour Organisation* and *World Bank Databases*, as well as various national data sources.

11. Zone totals

Zone totals have been calculated for the EU28 and the OECD for most tables. The OECD zone includes all member countries of the OECD, i.e. Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. Zone totals for EU15 are available in the electronic editions of this publication. In order to obtain a full set of data for the OECD countries the Secretariat has made a number of estimates to fill gaps and to bring series up to date. These estimates were done using simple statistical routines or information from national publications and observations of trends. Data points where such estimates exceed 25% of the zone total have been suppressed. Israel and Mexico are included in the OECD total as from 1991. The Czech Republic, Estonia, Hungary, Poland, the Slovak Republic and Slovenia are included in the OECD total as from 1995. OECD total integrates R&D expenditure data for Korea as from 1991 and personnel data as from 1995. Chile is included in the OECD total as from 2007. Luxembourg is included in the OECD and EU totals beginning 2000. Croatia and Malta are included in the EU28 total beginning 2002. Data for non-OECD countries used to calculate EU28 have been provided by the Statistical Office of the European Commission (Eurostat).

OECD estimates for the EU15 and the EU28 zones may slightly differ from those published by EUROSTAT. In this publication, in line with standard OECD practice, national estimates are aggregated using USD Purchasing Power Parity indices (PPPs) instead of EUR exchange rates applied by EUROSTAT. For example, the EU28 measure of GERD to GDP intensity will be an average of EU countries’ GERD intensities, weighted by the share of countries’ GDP to EU GDP in USD PPPs as opposed to EUR-based GDP shares.

Due to the difficulty in forecasting R&D budgets, the zone totals for GBAORD are essentially arithmetic totals of the available national data. For missing intermediate years, data are interpolated and the total is annotated “b”. However, forecasts are not made nor

are estimates for countries not providing GBAORD data. The resulting zone data are thus underestimated and are footnoted “m”. Data points where the sum of unavailable data probably exceeds 25% of the expected zone total have been suppressed. R&D financed by the European Commission using funds from the Commission’s own budget (data provided by Eurostat) is included in the zone totals up to 2004.

B. Sources

The data are derived from national R&D surveys and budgets and are supplied to the Secretariat via the Common OECD/ESTAT Core questionnaire.

R&D expenditures of foreign affiliates (Tables 61 and 62)

A. Definitions and coverage

These data are collected as part of the OECD Secretariat effort to measure globalisation through the role of multinationals. Data on the activity of foreign affiliates are based on the concept of controlling interest and the statistical test for data collection is that of a majority interest (over 50% of shares that carry voting rights on a company’s board of management). For further information on methodological and conceptual aspects of globalisation statistics, see *Handbook on Economic Globalisation Indicators* (OECD, 2005). Data, in some cases, are not directly comparable with standard business enterprise R&D. Details on national sources and definitions are published in *Measuring Globalisation, Activities of Multinationals*, 2007. Data are available on-line at www.oecd.org/sti/industryandglobalisation/amne.htm.

B. Sources

OECD Database on Activities of Foreign Affiliates (AFA).

Patents (Tables 63 to 66)

A. Definitions and coverage

1. Patents and patent families

A patent family is defined as a set of patents taken in various countries for protecting a single invention. An inventor seeking protection files a first application (priority) generally in his/her country of residence. Then, the inventor has a 12-month legal delay for applying or not for protection of the original invention in other countries. Patent families, as opposed to patents, are provided with the intention of improving international comparability (the “home advantage” is suppressed; the values of the patents are more homogeneous).

The patent families presented in this publication refer to triadic families: i.e. a patent is a member of the patent families if and only if it is filed at the European Patent Office (EPO), the Japan Patent Office (JPO) and is granted by the US Patent and Trademark Office (USPTO).

In addition, the number of patent applications filed under the Patent Co-Operation Treaty (PCT) is now provided for two specific sectors of interest: the ICT and biotechnology sectors. These sectors are defined according to selected classes of the International Patent Classification – IPC. The PCT procedure offers the possibility to seek patent rights in a large number of countries by filing a single international application with a single patent office, and then enter the national stage in the desired countries at a later date.

2. Presentation and availability

For patent counts, the choice of the country and date of reference among the set of information included in patent documents is important. Patents are presented here

according to the country(ies) of residence of the inventor(s), giving thus a measure of technological innovativeness of researchers and laboratories located in a country.

The *priority date*, the date of the first international filing of a patent, is chosen as a reference date. It is the earliest available date and therefore the closest to the invention date. Although the *application date* may provide more recent series, counts by *application date* introduce a bias between residents and foreigners for a selected patent office with respect to the *priority date*. Residents usually first file a patent application at their domestic office, the extension of application to other countries takes one year following the traditional procedure, and up to two and a half years for the PCT procedure.

However, counting patent families according to the earliest priority date increases the drawback of traditional patent counts with respect to timeliness. The time lag between the priority date and the availability of information on patent applications to the EPO and JPO could be up to 4 years, whereas for the USPTO patent grants, the time lag could be up to 6 to 10 years. From priority years 2004 to 2011, patent families for individual countries are Secretariat estimates, based on the number of biadic patent families (EPO and JPO) and the latest trends of EPO patents. Series on triadic patent families were revised for this edition.

The PCT procedure expanded after 1990 and is increasingly used by applicants from all signatory states: since the early 2000s, most countries are well represented. For the transition period (1990-2000), cross-country comparisons or time trends should be interpreted with care.

A broader set of patent-related indicators is available on-line, along with methodological issues, at www.oecd.org/sti/ipr-statistics, covering notably patents by main technology classes, as well as indicators on international co-operation in patenting. For further details on patent data, refer to the *OECD Patent Statistics Manual*, 2009.

B. Sources

The data on patents at intellectual property offices (EPO, JPO, USPTO) are mainly derived from EPO's *Worldwide Statistical Patent Database* (PATSTAT, October 2013). The series on triadic patent families have been compiled by the Secretariat. The series on PCT applications are based on data published by the EPO.

Technology balance of payments (TBP) (Tables 67 to 69)

A. Definitions and coverage

The TBP registers the commercial transactions related to international technology transfers. It consists of money paid or received for the acquisition and use of patents, licences, trademarks, designs, know-how and closely related technical services (including technical assistance) and for industrial R&D carried out abroad, etc.

Payments as a percentage of GERD (Table 69) give an indication of the share of imported technology to domestic R&D efforts.

It has not been possible to produce zone totals for the TBP due to the lack of data and because of the problem of excluding flows within the zones.

B. Sources

OECD Database on Technological Balance of Payments (TBP).

Trade balance and export market shares for R&D-intensive industries (Tables 70 and 72)

A. Definitions and coverage

These tables present indicators concerning international trade in goods by selected R&D intensive industries. Data are presented in the International Standard Industrial Classification, Revision 4 (ISIC Rev. 4). In general, prior to 1988 underlying source data are based on ISIC Revision 2.

These series are taken from the OECD's *Bilateral Trade in Goods by Industry and End-Use Category Database* (BTDIxE), derived from the OECD's *International Trade Statistics Database* and UNSD's *COMTRADE Databases*, which and have been converted from the Harmonised System (HS) and the Standard International Trade Classification (SITC revision 2) to International Standard Industrial Classification (ISIC).

Industries concerned are the following:

	ISIC Rev. 4
• <i>Pharmaceutical industry (Table 70)</i>	21
• <i>Computer, electronic and optical industry (Table 71)</i>	26
• <i>Aerospace industry (Table 72)</i>	303

A note indicating breaks in series is assigned to the first available year of Revision 4 data. Until 1992 inclusive, the data for Belgium include Luxembourg.

The zone total for EU15 (electronic editions) excludes intra-EU trade. The OECD total has not been adjusted to exclude trade between member countries.

From 1996, calculation of the export market shares is relative to total aggregate exports of the declaring countries available in the OECD *Bilateral Trade in Goods by Industry and End-use Category Database* (BTDIxE). Reporting countries included in BTDIxE but not presented in this publication include notably Brazil, Hong Kong, India, Indonesia, Malaysia, the Philippines, Saudi Arabia and Thailand. Prior to 1996, Export market share are based on the share of OECD total exports.

B. Sources

OECD *Bilateral Trade in Goods by Industry and End-use Category Database* (BTDIxE), January 2014 (www.oecd.org/sti/btd).

ANNEX 1

National specifications

OECD member countries

- In 2001 in **Australia**, R&D in the business enterprise sector saw a significant increase due to a change in government policy in regard to the R&D tax concession scheme [introduction of the 175% Premium (incremental) Tax Concession for additional investment in R&D; introduction of an R&D Tax Offset for small companies in tax loss that undertake R&D, enabling them to “cash out” their R&D tax losses; and a new treatment of R&D plant-asset depreciation that allows a 125% deduction for effective life depreciation of assets used in R&D activities (on a pro rata basis)].

From 2011, Australia has included submission from agencies that have previously not submitted R&D expenditure data. The agencies have been asked to provide retrospective time series and this results in a break in series in 2002 in GBAORD data. From 1999, Australia has prepared its Federal Budget details according to the principles of accrual accounting, leading to a break in the series for GBAORD data.

Up to 1998, TBP data come from the business enterprise R&D survey, and only refer to technical know-how. From 1999, TBP data are based on ABS's quarterly *Survey of International Trade in Services*, and include all TBP components.

Since 2006, a definition of foreign ownership has not been provided in the national survey and R&D data on foreign affiliates have been accepted (by the Australian Bureau of Statistics) as reported.

- Since 2009 in **Austria**, a large unit previously omitted has been included as an R&D performer in the PNP sector.

From 2007 onwards, the former “post-secondary colleges for teacher training” (“Pädagogische Akademien”) have become “Universities of Education” and are, consequently, surveyed as units of the higher education sector (up to 2006, these units were covered in the government sector).

In the BE sector, the “research premium” is included in “funds from government” beginning 2006. This measure was introduced for the first time for the calendar year 2002, and for the 2002 and 2004 data, government funding for R&D via the “research premium” was subsumed under “funds from enterprises”.

In 2004, Statistics Austria's regular annual updating procedure of the R&D expenditure data resulted in revisions showing a significant increase compared to previous estimates, mainly due to the inclusion of results from the 2002 survey of the business enterprise sector.

As from 1995, TBP data cover royalties and license fees, technology-related services and R&D performed abroad. Until 1991 inclusive, these data cover only royalties and license fees. From reference year 2006, all TBP items are covered.

- For **Belgium**, beginning with the 1998 data, two large non-profit organisations, formerly included in the higher education sector, were reclassified in the government sector.

As from 1993 (1992 for the business enterprise sector), data are based on full surveys and no longer on a combination of budget figures and survey findings.

The national total expenditures (Tables 1 to 4) are underestimated in 1987 and 1988, as is the contribution of government (Table 14) as R&D financed by federative authorities (about

2-4% of GERD and 7-15% of government-financed GERD) is excluded. As a breakdown of this sum by sector of performance is not available, the impact on the other R&D expenditure tables cannot be estimated, though it probably affects R&D in the government and higher education sectors.

As from 1995, TBP data are collected according to the OECD, IMF and Eurostat Manuals. Up to 2001, data refer to the Belgium-Luxembourg Economic Union (BLEU). From 2002 onwards, data refer to Belgium only.

- In **Canada**, as from 1988, included in the R&D expenditure of the higher education sector are the estimated values for R&D in hospitals not covered by university reports and not previously included.

As from 1989, non-federal sources are no longer excluded from General University Funds in GBAORD.

- For **Chile**, from reference year 2009, Innovation and R&D surveys are separated and the survey sampling has been modified. Astronomical observatories are surveyed and included in the PNP sector from 2009.
- For the **Czech Republic**, beginning 2005, there is a change in methodology for the collect of R&D personnel data in FTE. Data are provided in FTE by the reporting units, and based on new, more precise guidelines.

Between 2004 and 2008, some public research institutions were included in the business enterprise sector because of their classification as non-financial enterprises (ISEKTOR 11) in the European System of Accounts (ESA). These institutions have been re-classified into the government sector and R&D expenditure and personnel data have been recalculated for those years.

In 2012, the methodology for assessing GBAORD statistics by socio-economic objective was revised.

Up to 2004, TBP data come from the balance of payments of the Czech National bank. From 2005, TBP data are prepared by the Czech Statistical office and come from the quarterly trade in services survey, except for the item "Sale/purchase of patents and inventions" which continued to be collected by the central bank up to reference year 2008.

- In **Denmark**, from reference year 2007, the surveys are conducted by Statistics Denmark. Modifications in the questionnaires have increased the response rate; this is particularly noticeable in the business enterprise sector where survey response is now mandatory. Additionally, due to changes in the administrative structure, a number of institutes, previously classified in the government sector, were merged with universities.

Until 2002, the HE sector R&D expenditure was underestimated as R&D carried out in hospital departments at the university-hospitals was included in the government sector.

As of 2002, the business enterprise survey specifically requests data on researchers, technicians and other. Earlier data for R&D personnel by occupation are based on qualification.

As from 2001, a new principle concerning budgeting of commitments was introduced: from 2001, commitments of grants are carried to the debit side at the time of entering the commitment, where previously commitment of grants was carried to the debit side at maturity. As from 1999, provincial and local Government funding is included in the GBAORD data (in particular funding in provincial hospitals), as well as funding from the Danish National Research Foundation and the Danish Investment Fund. In 1983, 1988 and 1993, the method of assessing GBAORD data by socio-economic objectives changed, leading to breaks in series.

- In **Finland**, a new methodology was implemented in 2011 for calculating the R&D coefficients. As a consequence, R&D personnel (measured in FTE) in the Higher Education sector decreased. As from 2004, R&D personnel data are available according to occupation. Previous breakdown was by formal qualification.

In 1998, due to a greater number of responses to the BE survey on the group level, the questionnaire category funds from other foreign enterprises of the group have been merged with business enterprise funds (own funds) thus reducing the share of funds coming from abroad.

As from 1997, the higher education sector covers central university hospitals.

As from 1997 and the implementation of ISCED-97, also included in Researchers are holders of engineering degrees and graduates of vocational polytechnics, degrees which are now classified in First Stage Tertiary Education (ISCED 5A).

In 1991, the method of measuring R&D expenditures in the government and the higher education sectors changed. Since 1994, PNP institutions are included in the government sector in non-survey years.

Data on GBAORD have been revised back to 1991 because of changes in R&D coefficients for certain research institutes. In 1991, there was an upward adjustment in the total due to the inclusion of pension costs. As from 1995, funds from external sources of the State research institutes are excluded from government appropriations. As from 1997, the data covers appropriations for central university hospitals.

Until 1998 inclusive, TBP data refer to royalties and licence fees. As from 1999, data also include architectural, engineering and other technical services, computer services and R&D performed abroad.

- In **France**, the National Centre for Scientific Research (CNRS) is included in the higher education sector, whereas in other countries such as Italy for example, this type of organisation is classified in the government sector. This affects comparisons of the breakdown of R&D efforts by sector of performance.

The methodology of the public administrations survey was changed in 2010: the method for measuring the resources devoted to R&D in ministries and some public organisations has been modified, leading to a better identification of their financing activities. The impact is notably a 900 million GOVERD drop and a 3 200 FTE personnel drop.

In 2007, a new methodology was introduced to correct for some double-counting in source of funds for universities, and the higher education R&D expenditure data revised for 2004. Also in 2007, the sampling method in the BE sector was modified and the 2004 data revised according to the new methodology.

Beginning with the 2006 survey, in order to better take into account SMEs, there is no longer a cut-off point in the business enterprise sector of one full-time-equivalent on R&D for an enterprise to be included in the survey population.

In 2001, coverage of the BE sector was expanded, and the data communicated by the Ministry of Defence now cover research that was not considered R&D in earlier years.

In 2000, several methodological changes which improved the quality of the public sector data have resulted in a break in series for that year: social charges and civil pensions are better evaluated in universities' research expenses; modification of responses from some institutes to better harmonise with the corresponding multi-annual programme; and implementation of a redesigned questionnaire. National sources estimate that the previous method would have produced a 1.6% increase in GERD, where the current method results in 4%.

Due to changes in the methods used to evaluate domestic expenditure on defence, the results of the 1998 surveys revealed significant modifications requiring new estimates for 1997. This break in series relates also to the GBAORD data.

In 1997, the method used to measure R&D personnel in administrations has changed.

Between 1991 and 1992, France Télécom and GIAT Industries were transferred from the government to the business enterprise sector following a change in their legal status.

- The data in this publication for **Germany** cover unified Germany from 1991 and Western Germany only until 1990.

The method for calculating public-financed R&D in the business enterprise sector was reviewed, resulting in the revision of business enterprise R&D and the national total back to 1991.

In 1992, the methodology of the survey on resources devoted to R&D in the government sector was changed.

From 1991, the data for the Private non-profit sector have been included in the government sector.

For 1997, the methodology of assessing GBAORD by socio-economic objective changed. The 1997 total budget figure of the Federal Ministry of Education, Science, Research and Technology was reduced, but the global reduction was not available by socio-economic objective. Therefore, total GBAORD reflects the adjusted budget figure, and the sum of the breakdown does not add to the total. This is also the case beginning with the 2001 GBAORD data.

Until 1985 inclusive, the TBP data for Germany cover transactions concerning patents, licence, trademarks, models and designs. As from 1986, this data also covers technical services, computer services and industrial R&D.

- In **Greece**, in 2011, methodological improvements and a better coverage resulted in breaks in series: in the business enterprise sector, a new frame population was defined to cover exhaustively all R&D-performing firms; in the government sector, the coverage was extended to also cover public hospitals as well as all institutions administered by the Ministry of Culture; and in the higher education sector, all Technological Educational Institutes (TEI) and post-secondary establishments were included.

The methods of assessing R&D in the higher education sector changed in 1983, 1989 and 1995.

In 2012, there is a break in series in GBAORD data due to the following elements: R&D coefficients applied on Universities' teaching staff have been revised, universities' administrative staff labour costs are now covered, as well as institutional funding for R&D performed in public hospitals. As from 2008, GBAORD data are exclusively based on R&D funders. Part of the increase in 2008 is also explained by a better identification of GBAORD for cultural activities.

- In **Hungary**, the breakdown of R&D expenditure data by sector of performance and by source of funds is not complete. Beginning 2006, government-financed R&D, some of which was not allocated to the appropriate sector, is now allocated, in particular to the business enterprise sector. Prior to 2004, only defence R&D performed in the civil sector is covered. Until 1993, business enterprise expenditure includes purchase of licenses and know-how. As from 1994, the Central Technology Fund has been reclassified from the business enterprise sector to the government sector.

Up to 2003, the source of TBP data was the balance of payment statistics compiled by the Hungarian Central Bank, and data covered royalties and licence fees and sale/purchase

of patents and inventions only. Since 2004, TBP data have been collected by the Hungarian Central Statistical Office from enterprise surveys on trade in services. TBP data also include computer services, architectural, engineering and other technical services and R&D carried out abroad.

- In **Iceland**, in 2011, new sampling methods have caused a break in series for all sectors. From 2006, GBOARD data is compiled making better use of R&D information from the state budget and is based on a better coverage of relevant R&D funding in major recipients organisations. As from 1993, new methods for collecting and processing budget data for GBAORD, result in a break in series.

- In **Ireland**, as of 2000, personnel data in the government sector were surveyed in FTE. Prior to 2000, data were collected for human resources devoted to S&T in FTE, and the R&D expenditure to total S&T expenditure ratio was applied.

The government data were revised back to 1992 inclusive, as some government expenditures are no longer classified as R&D.

Prior to 2004, EU funds were included in GBAORD data.

- In **Israel**, from 2000 onwards, hospitals were transferred to the business sector from the government and PNP sectors. Both the business enterprise and higher education surveys were improved introducing a break in series in 2009 for the BERD financed by abroad and by the business enterprise sector as well as a break in 2007 for the HERD financed by abroad and by the Higher Education sector. Since 2001, the government sector is covered by a survey. Before 2001, data on R&D expenditure in the government sector were estimated through financial reports and interviews of accountants.

Data for the higher education sector are partly based on data from financial reports of the universities. Humanities and law are only partially covered in the higher education sector.

Hospitals and medical centres are included in the PNP sector and in the government sector, as are university hospitals.

The 2009 BERD survey has given more options to businesses to break down the data (from 1993) by sources of funds. Consequently, there are breaks in series in 1993 for BERD (as for GERD) financed by the business enterprises and by abroad.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities or third party. 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.

- For **Italy**, in 2005 and 1997, new methods for estimating R&D in universities were introduced, resulting in breaks in series in the higher education sector.

Up until 1990, the national total expenditures on R&D are overestimated by more than 10% as they include extramural R&D expenditures. As from 1991, data on extramural R&D expenditures are available separately and are excluded.

2010 GBAORD data are calculated with a new set of coefficients especially affecting the data on non-oriented research programmes.

Up to reference year 2007, the source of TBP data was the balance of payment statistics compiled by the Ufficio Italiano dei Cambi, based on the ITRS system (settlement data collection system). On 1st January 2008, UIC ceased to exist and its functions have been taken over by the Bank of Italy. The data are derived from a new data collection system, mainly based on direct reporting from enterprises. Until 1991 inclusive, R&D performed abroad is excluded.

- For **Japan** in 2008, the FTE coefficients for researchers in the higher education sector were revised, producing a decrease in both R&D expenditure and personnel for this sector and the national total.

Beginning with the 2002/03 survey (OECD data 2002), the coefficients supplied by the Ministry of Education, Culture, Sports, Science and Technology were applied to doctoral level students as well as teachers when calculating FTE for the HE sector, resulting in a break in series for that year.

GBAORD data represent the budget for S&T and cover central government only. From 2011 onwards, GBAORD for education and society data include a more accurate measure of the budget of the National Institute for Cultural Heritage. Military procurement contracts are excluded from defence GBAORD, and before 2010, GUF excludes social sciences and humanities.

- In **Korea**, social sciences and humanities are excluded from the R&D data prior to 2007. Since 2008, estimates have been done in GBAORD breakdown to fit NABS 2007.

For the TBP data, data for technology receipts and payments do not come from the same source and are therefore not comparable. Technology receipts data come from the R&D survey and are probably underestimated as all firms are not surveyed. Technology payments data come from the balance of payments statistics compiled by the Bank of Korea.

- In **Luxembourg**, from 2009, some budgetary items for the Ministry of Research and other ministries are no longer included in the government's own R&D funds. The impact on GOVERD is less than a 7 million drop.

In 2004, the significant increase in R&D performed in the higher education sector is due to the re-defined role of higher education in the national system of innovation and research, in particular the newly created University of Luxembourg.

GBAORD data have been revised back to 2008 following the implementation of a new questionnaire.

- Beginning with the 2004 data, **Mexico's** business enterprise survey register was increased to include large firms previously not identified as R&D providers. The first R&D surveys based on the *Frascati Manual* covered the period 1992-93. Earlier data for R&D performed in the government sector are based on broader national estimates, and thus do not exactly correspond to the recommendations of the *Frascati Manual*.
- In the **Netherlands**, in 2011, the method for producing business enterprise data has changed: all observed enterprises are included whereas before 2011, only enterprises with substantial R&D activities (i.e. with a minimum number of R&D personnel) were incorporated. Subsequent changes affected the higher education sector: before 1999, a large number of PhD candidates were formally employed by research institutes financing their research. As from 1999, universities became the formal employer of PhD candidates and their research activities moved from the government sector to the higher education sector. Besides this, the R&D activities of the Universities of Applied Sciences (HBO) were for the first time taken into account. Finally, the R&D activities of the Academic hospitals were increasingly underestimated due to the merging of the Academic hospitals and (parts) of the Faculties of Medicine of the universities into so-called University Medical Centers (UMC's). This started in 1998 and meant for instance that staff of the Faculty of Medicine of the university became employees of the UMC. So, data on R&D in the field of medical sciences were also revised. As from 2000, newly-recruited researchers on the payroll of the Netherlands Organisation for Scientific Research (NOW), previously included in the government sector, were included with

personnel in the higher education sector. In 1982 and 1990, the methodology of the survey on R&D expenditure changed.

In 2003, Statistics Netherlands revised the panel of the R&D survey for the government and PNP sectors, resulting in breaks in series for both sectors. Also beginning 2003, R&D personnel in the PNP sector are grouped with government sector R&D personnel.

In 1994 and 1996, there were major expansions of the area covered by the business enterprise sector survey; R&D expenditure and personnel data in the latter sector and in the whole economy are thus not comparable with those for the previous years.

In 1990 and 1999, new methods of calculating GUF are used for GBAORD series.

- **New Zealand** revised the methods of collection and estimation of R&D data respectively in 1984 (for the higher education sector), 1992 (for GUF), and 2001 (BERD and national total and HE personnel).

GBAORD figures have been revised back to 2007 resulting in a break in series. From 2006 onwards, GBAORD data are collected from all government agencies, together with analysis of selected budgetary information. Prior to that year, data were derived from the budget estimate of the pool for science funding, together with figures on government department's operational research.

Up to 1997, TBP data came from the R&D survey conducted by the Ministry of Research, Science and Technology. From 1999 onwards, the data are based on the quarterly *International Trade in Services and Royalties Survey* carried out by Statistics New Zealand. All TBP components are covered.

- In **Norway** in 2007, break in series with previous years because of a change in compilation methods for health institutions. This affects both higher education sector (university hospitals) and government sector (other hospitals).

In 1995, the survey sample was revised to improve coverage of small firms (10 to 50 employees) and non-manufacturing industries.

As of 1991, personnel in central administration units of higher education are not included, however the cost of such personnel is included in other current R&D expenditure (in line with the *Frascati Manual*).

In 1987, own funds from public enterprises have been reclassified from funds from government to the funds from the business enterprise sector. As from 1989, R&D performed by PNP institutes has been included in the government sector.

The growth in resources devoted to R&D in 1984 is due to the expansion of the area covered by the business enterprise sector survey.

The method for compiling GBAORD data changed in 1996. The series have been revised retrospectively to exclude contract research, state enterprises and payments to the European Commission.

Before 1988, TBP data cover only patent licensing and are consequently underestimated.

- For **Poland**, up to 1999, TBP data cover trade in techniques; transactions involving trademarks, patterns and designs; services with a technical contents (including prospecting until 1995 and spatial planning, town planning and architectonic work); R&D performed abroad. From 2000, all categories are covered (acquisition/disposal of non-produced, non-financial assets, royalties and licence fees, computer services, architectural, engineering and other technical services and R&D services).
- In **Portugal**, in 2008, the R&D personnel increased because of methodological improvements in the different institutional sectors (government, higher education, as well as private non

profit institutions): the results of the individual survey forms were crossed with information from other internal databases resulting notably in the inclusion of all permanent academic staff and all researchers funded by the Ministry of Science, Technology and Higher Education in 2008.

Due to methodological improvements in the 2008 R&D survey as well as complementary information collected from internal databases, there is now a more complete and accurate measure of R&D resources, both expenditure and personnel, in the higher education sector. In particular, the large increase in higher education funded R&D is due to the inclusion of more accurate data related to private higher education institutions.

Beginning with the 2007 survey, the following measures resulted in a significant increase in Business enterprise R&D: the reintroduction of the fiscal incentive, SIFIDE; an increase in the number of the firms performing R&D activities; and an updating of the Business Enterprise Register.

New methodological procedures have been adopted for the 1997 survey so that only R&D activities are covered in the survey. The classification of BERD by NACE (Rev. 1) was introduced and the data have been revised back to 1995. Some of the PNP units have been resectored in the business enterprise and higher education sectors.

In 1997, due to a new accounting method for structural funds from the European Commission, funds from abroad and direct government financing are not comparable with those of earlier years.

GBAORD data have been revised back to 2008 according to a new methodological exercise.

- For the **Slovak Republic**, data before 1994 refer to the *Research and Development Base* (RDB) and cover the whole activity of institutions and not only R&D. Defence R&D was totally excluded until 1997 and only partially included thereafter.

Since 2002, a new budget classification compatible with COFOG enables the identification of government budget appropriations for defence R&D. The defence category includes R&D appropriations for defence, safety and security of the country. For earlier years, defence R&D was included in the GBAORD total.

- For **Slovenia**, in 2011, the increase in R&D personnel and expenditure is notably explained by both the improvement of non-response analysis and new administrative sources to better identify R&D performers. Beginning reference year 2008, survey coverage was expanded to include some innovative companies that were not previously recognised as R&D performers.
- For **Spain**, beginning 2008, the R&D questionnaire includes a specific category for on-site consultants undertaking R&D projects in the enterprise; as well as a specific category within the breakdown of current costs.

Since 2004, loans for R&D that are returnable are not included in GBAORD, in order to ensure international comparability.

From 2002, R&D expenditure and personnel data for the business enterprise sector include the occasional and the systematic R&D.

R&D personnel data prior to 1989 are underestimated because the R&D personnel data for the higher education sector only include researchers. In consequence, total R&D personnel in Spain may be underestimated for these years by between 10 and 15%.

In 1992, there was an upward reestimation of the General University Funds causing a break in series in the financing of HERD and GERD. In 1995, the sources of funds for R&D in the higher education sector were reviewed; own funds are now separated from the General University Funds where they were previously included.

In 1997, the defence objective in GBAORD almost doubled in magnitude due to an exceptional contribution by the Ministry for Industry and Energy. The incorporation in 1997 of the Spanish contribution to CERN has involved substantial changes in the “energy” category.

Up to 1992, TBP data come from the annual survey into technological transfer in companies conducted by the Ministry of Science and Technology (former Ministry of Industry and Energy). From 1996 onwards, TBP data come from the balance of payments statistics compiled by the Spanish Central Bank. All TBP items are covered.

- In **Sweden**, in 2011 and 2009, the PNP sector decreased due to a new sampling method. In 2011, for personnel data, the institutional coverage of the Government sector was improved.

Beginning 2007, researchers in the business enterprise, government and PNP sectors are now surveyed by occupation; prior to that year, university graduates were counted in their place.

Until 2005, R&D data for Sweden were underestimated: R&D in the government sector covered central government units only and companies between 10-49 employees were excluded from the coverage. Moreover, prior to 1993 the surveys in the business enterprise, government and private non-profit sectors excluded R&D in the social sciences and humanities. Also beginning 2005, FTE on R&D in the higher education sector reflects a change in survey method. Concerning the government sector, beginning 2005, the data exclude R&D personnel from the County councils, resulting in the personnel data being underestimated.

As from 1997, funding from the Public Research Foundations, previously classified in the PNP sector, is considered as funding from the government sector.

In 1995, some institutions from the PNP sector have been reclassified to the business enterprise or the government sectors, and in the higher education sector, capital expenditures are excluded.

As from 1998, GBAORD series refer to the calendar year (January-December) instead of the period July-June which has been used until 1994. Budget appropriations for 1995 and 1996 are estimates based on the period July 1995-December 1996. Also from 1998, funding from the Public Research Foundations is excluded from the GBAORD data.

Up to 1993, TBP data came from the R&D survey and referred to the transactions linked to patents, licences, royalties and know-how. From 1998, the data are based on the quarterly trade in services survey. All TBP components are covered.

- In **Switzerland**, the business enterprise sector comprises private enterprises only. Public enterprises are included in the government sector.

As from the reference year 2000, the government sector no longer includes the telecommunications companies that have been privatised (Swisscom).

GBAORD series, with the exception of GUF, cover federal government only. Before 1994, GBAORD did not include the public sector financed R&D mandates.

The TBP statistics are drawn from the Swiss balance of payments. They include sales and purchases of intangible assets, technological services (construction services, commercial and technical consulting), license and patent fees, including management fees, computer and information services.

- Total R&D personnel data for **Turkey** (Tables 9 and 10) are underestimated because personnel data for the higher education sector only include researchers.

- Beginning with the 2005 data, **United Kingdom** counts of researchers in full-time equivalent on R&D reflect a more accurate measure of post-graduate students. Estimates are based on the sum of student time allocated to different research activities (some students may be involved in several research projects). Students who spend 50% or more of their time on research activities are counted as one FTE; those for whom it is less than 50% are not counted.

In 2001, the government research agency, the Defence Evaluation and Research Agency (DERA) was disestablished and two new organisations were created. Around one quarter of DERA remained within the Ministry of Defence as a government agency, whilst the remaining three quarters became a private limited company, resulting in a break in series in both the government and business enterprise sectors as well as GBAORD.

Following work to enhance the estimates of R&D by PNP undertaken in 1996, estimates for R&D performed by PNP sector were substantially revised downwards. The data for previous years were revised accordingly.

Until 1994, in the business enterprise sector, R&D funding by business includes funds that may have been collected from other national sources such as higher education or PNPs.

A new method of estimating government-financed R&D in the higher education sector was applied as from 1993.

Reclassification of institutes explains most of the growth of the R&D personnel in the government sector between 1991 and 1992 and the decline in the following year.

As from 1991, the data for the government sector include an estimate for R&D expenditures in the public health services.

Between 1985 and 1986, the “United Kingdom Atomic Energy Authority” was transferred from the government sector to the business enterprise sector. Expenditure revisions have been made back to 1985.

Due to lack of official data for the higher education sector, the OECD Secretariat has made estimates for total researchers beginning 1999 and total R&D personnel beginning 1994.

As from 1995, the health objective in GBAORD has been broadened to include the total net costs to National Health Service trusts of their involvement in R&D.

Oil company operations have been included in the United Kingdom TBP data as from 1984. From 1996 onwards, the TBP data cover sale of patents and inventions, patent licensing, trademark patterns and designs, technology-related services and R&D. As from 2009, royalties for films and television programs are included.

- For the **United States**, in the higher education sector, all fields of SSH are included from 2003 onwards.

Following a survey of Federally-Funded Research and Development Centers (FFRDCs) in 2005, it was concluded that FFRDC R&D belongs in the government sector – rather than the sector of the FFRDC administrator, as had been reported in the past. R&D expenditures by FFRDCs were reclassified from the other three R&D performing sectors to the government sector; previously published data were revised accordingly. Between 2003 and 2004, the method used to classify data by industry has been revised. This particularly affects the ISIC category “wholesale trade” and consequently the BERD for total services.

US R&D data are generally comparable, but there are some areas of underestimation:

- i) government sector R&D performance covers only federal government activities; that by State and local government establishments is excluded;

ii) except for the government sector, the R&D data exclude capital expenditures; for the business enterprise sector, depreciation is reported in place of gross capital expenditures. Higher education (and national total) data were revised back to 1998 due to an improved methodology that corrects for double-counting of R&D funds passed between institutions. Breakdown by type of R&D (basic research, applied research, etc.) was also revised back to 1998 in the Business enterprise and higher education sectors due to improved estimation procedures.

No data is available for total R&D personnel; only data for R&D scientists and engineers are collected. The methodology for estimating researchers was changed as from 1985. In the government, higher education and PNP sectors, the data since then refer to employed doctoral scientists and engineers who report their primary work activity as research, development or the management of R&D, plus, for the higher education sector, the number of full-time equivalent graduate students with research assistantships averaging an estimated 50% of their time engaged in R&D activities. As from 1985, researchers in the government sector exclude military personnel. As from 1987, higher education R&D personnel also include those who report their primary work activity as design.

Due to the lack of official data for the different employment sectors, the total researchers figure is an OECD estimate.

2009 GBAORD data also includes the one time incremental R&D funding legislated in the American Recovery and Reinvestment Act of 2009. Beginning with the 2000 GBAORD data, budgets for capital expenditure – “R&D plant” in national terminology – are included. GBAORD data for earlier years relate to budgets for current costs only.

Up to 2000, the United States TBP data cover only royalties and licence fees. From 2001, data also include “research, development and testing services”. Beginning 2006, new statistics on total trade for several types of services are available for the first time. As from 2006, TBP data include royalties and license fees related to industrial processes, business format franchising fees, trademarks and other intangibles; research, development and testing services; computer and data processing services; architectural, engineering and other technical services; industrial engineering services.

Non-member economies

- In **Argentina**, Frascati Manual definitions are followed. Since 1997, data for human resources are strictly R&D. Before that, human resources data were expressed in terms of Science and Technology Activities (STA), involving R&D and diffusion activities of S&T (library services, training services, conferences, etc.). These have not been transferred to the *OECD Database*. Since 2002, the source of funds data for private non-profit organisations, universities and S&T public organisations are requested for R&D. Before 2002, these source of funds data were requested in terms of STA. These data were converted into R&D by means of a coefficient for each sector of performance. The main source of funds for science and technology activities in Argentina is the National Budget.
- In **China**, the national breakdown by source of funds does not fully match with the classification defined in the Frascati Manual. The R&D financed by the government, the business enterprises and by abroad can be retrieved but part of the expenditure has no specific source of financing, i.e. self-raised funding (in particular for independent research institutions), the funds from the higher education sector and left-over government grants from previous years.

The government and higher education sectors cover all fields of NSE and SSH while the business enterprise sector only covers the fields of NSE. There are only few organisations in the private non-profit sector. Hence no R&D survey has been carried out in this sector and the data are not available.

From 2009, researcher data are collected according to the *Frascati Manual* definition of researcher. Beforehand, this was only the case for independent research institutions, while for the other sectors data were collected according to the UNESCO concept of “scientist and engineer”.

In 2009, the survey coverage in the business and the government sectors has been expanded.

Before 2000, all of the personnel data and 95% of the expenditure data in the business enterprise sector are for large- and medium-sized enterprises only. Since 2000 however, the survey covers almost all industries and all enterprises above a certain threshold. In 2000 and 2004, a census of all enterprises was held, while in the intermediate years data for small enterprises are estimated.

Due to the reform of the S&T system, some government institutions have become enterprises, and their R&D data have been added to the enterprise sector since 2000.

- In **Romania**, in 2011, R&D questionnaires have been redesigned for all sectors (and merged with the *Community Innovation Survey* in the case of the business enterprise sector). This has had an impact on the number of researchers in both the higher education and business enterprise sectors. A substantial proportion of R&D expenditure and R&D personnel reported in the data for the business enterprise sector are performed/employed in public enterprises (57.4 and 62% respectively for the year 2003).

The higher education sector includes faculty hospitals. For some of these hospitals, as well as for other types of medical centres, there are problems of delimitation between R&D activities and health activities and in these cases no data is available on R&D expenditures and personnel. The higher education sector does not include experimental stations: given the specific nature of their activity, these are directly co-ordinated by the Ministry of Agriculture, and therefore included in the business enterprise sector.

In 2013, a change in methodology for the allocation of GBAORD data by socio-economic objectives has resulted in a break in series. From reference year 2012 onwards, General University Funds (GUF) are included in GBAORD.

- In the **Russian Federation**, the business enterprise sector includes all organisations and enterprises whose main activity is connected with the production of goods and services for sale, including those owned by the state, and private non-profit institutions serving the above-mentioned organisations. In practice however, R&D performed in this sector is carried out mostly by industrial research institutes other than enterprises. This particularity reflects the traditional organisation of Russian R&D.

Headcount data include full-time personnel only, and hence are underestimated, while data in full-time equivalents (FTE) are calculated on the basis of both full-time and part-time personnel. This explains why the FTE data are greater than the headcount data.

New budgetary procedures introduced in 2005 have resulted in items previously classified as GBAORD being attributed to other headings and have affected the coverage and breakdown by socio-economic objective.

- In **Singapore**, the Public Research Centres are located within the universities and draw upon university expertise. They are closely linked with the universities and several have “spun off” from university research groups. However, they are administratively separate

from the universities and funded by the Agency for Science, Technology and Research (A*STAR) and industry. The centres have been included in the “Public Research Institutes and Centres” category in the R&D survey since 1995. Until 1995, they were subsumed in the higher education sector. This leads to a discontinuity in the statistics for the government/public and higher education sectors between 1994 and 1995.

Data for TBP receipts do not include services with a technical content, unless covered under “licensing of new technologies”.

- For the 2001/02 R&D survey in **South Africa**, no comprehensive business register was available, nor was there any official register of the specific subset of those entities that actually conduct R&D. However, lists of firms surveyed in previous R&D surveys, those covered in previous technology audits, public listings of the top 200 companies in the economy, as well as lists of firms that participate in public innovation and R&D support programmes were available to the survey agency. These lists provided the basis for a purposive sample of all firms known to have R&D activities. There may however be an underestimation of R&D expenditure by 10 to 15%.
- In **Chinese Taipei**, each university has one or two research institutes, which receive government funding. These are usually included in the higher education sector. Several are directly funded by the National Science Council (NSC) and counted in the government sector. There are also Regional Centres for Instrumentation that are major national research facilities used by all sectors. The NSC monitors the budgets of the institutes and if their budget derives overwhelmingly (greater than 80%) from non-university sources, they are classified as belonging to the government research sector.

Since 2003, the business sector includes R&D data of private enterprises in the sectors of electricity, gas and water supply; construction; and services, which were not surveyed before.

Postgraduate students engaged in R&D were not included in the higher education sector until 2002.

Researchers must have a university degree or above.

TBP data do not include R&D performed abroad, services with a technical content, or transactions involving trademarks, design, patterns (sale, licensing, franchising).

ANNEX 2

Background economic indicators

Table A. Gross domestic product at current prices and PPPs

Million USD

	2000	2008	2009	2010	2011	2012	2013
Australia	539 396 ^z	848 027 ^z	895 939 ^z	932 115 ^z	974 968 ^z	1 024 685 ^z	1 065 663 ^{b,z}
Austria	231 845	331 667	328 449	338 918	360 522	371 948	378 965 ^b
Belgium	283 781	396 535	398 437	416 529	440 138	451 424	458 620 ^b
Canada	874 823	1 298 956	1 271 328	1 328 084	1 386 907	1 435 271	1 481 539 ^b
Chile	146 961	271 086	269 592	312 744	349 100	374 936	396 688 ^b
Czech Republic	159 885	269 838	271 469	271 708	283 888	289 288	289 093 ^b
Denmark	154 057	218 809	213 341	226 980	233 022	239 181	243 427 ^b
Estonia	13 549	29 582	26 739	27 432	30 943	32 501	33 314 ^b
Finland	133 030	202 337	191 528	196 224	208 012	212 221	213 236 ^b
France	1 534 809	2 191 237	2 198 741	2 260 487	2 369 589	2 416 639	2 456 927 ^b
Germany	2 119 987	3 047 863	2 945 256	3 132 913	3 352 099	3 434 191	3 503 717 ^b
Greece	199 431	332 660	332 558	316 597	300 834	288 864	283 046 ^b
Hungary	121 467	205 080	204 877	211 349	223 497	224 549	230 748 ^b
Iceland	8 119	12 607	12 029	11 651	12 194	12 539	12 958 ^b
Ireland	109 959	189 431	182 612	187 548	196 555	201 061	204 326 ^b
Israel ¹	147 150	186 966	192 739	204 793	221 009	232 022	244 100 ^b
Italy	1 468 185	1 996 725	1 957 391	1 989 140	2 056 689	2 079 485	2 070 687 ^b
Japan	3 289 804	4 289 493	4 081 113	4 322 670	4 379 753	4 543 515	4 694 115 ^b
Korea	809 085	1 306 387	1 295 333	1 393 872	1 445 332	1 500 662	1 564 600 ^b
Luxembourg	23 434	41 238	39 371	42 617	46 054	47 525	49 084 ^b
Mexico	987 945	1 627 068	1 597 569	1 702 985	1 870 386	1 975 103	2 029 001 ^b
Netherlands	468 814	705 759	683 866	690 851	720 274	726 143	728 901 ^b
New Zealand	82 187	124 474	130 004	132 509	139 003	145 964	151 561 ^b
Norway	162 455	292 492	267 015	282 301	306 578	331 932	340 985 ^b
Poland	404 785	687 046	723 846	778 345	838 048	877 925	903 960 ^b
Portugal	182 177	264 912	267 145	273 519	272 678	272 948	272 383 ^b
Slovak Republic	59 379	125 489	123 314	129 177	135 653	139 741	142 995 ^b
Slovenia	34 958	58 713	55 171	55 327	57 800	58 580	58 102 ^b
Spain	859 084	1 510 545	1 481 283	1 457 751	1 483 224	1 502 643	1 505 368 ^b
Sweden	248 286	365 236	349 686	371 080	394 625	408 056	417 167 ^b
Switzerland	233 830	366 673	366 414	379 447	405 921	425 363	439 918 ^b
Turkey	590 015	1 067 944	1 048 319	1 168 281	1 314 897	1 371 745	1 443 008 ^b
United Kingdom	1 553 959	2 246 425	2 169 100	2 149 557	2 201 439	2 272 394	2 339 297 ^b
United States	10 289 700 ^z	14 720 300 ^z	14 417 900 ^z	14 958 300 ^z	15 533 800 ^z	16 244 600 ^z	16 765 311 ^{b,z}
EU28 (OECD estimates)	10 606 321	16 077 530	15 775 533	16 161 159	16 873 314	17 255 342	17 529 665
OECD-Total	28 379 369	41 829 599	40 989 475	42 653 799	44 545 430	46 165 644	47 412 807
Argentina	338 987	569 009	578 172	638 794	709 027	735 215	770 966
China	2 987 948	8 215 035	9 049 662	10 091 708	11 313 081	12 266 155	13 402 316 ^b
Romania	128 027	322 327	314 535	317 504	328 894	352 271	375 844
Russian Federation	999 459	2 878 201	2 765 271	2 924 791	3 216 935	3 385 844	3 487 791 ^b
Singapore	133 704	251 547	251 516	292 249	313 408	322 954	338 886
South Africa	298 260	508 799	505 437	528 008	557 884	585 625	606 273 ^b
Chinese Taipei	452 672	737 072	729 291	817 524	867 496	894 289	926 465

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

Source: OECD, Statistics Directorate, January 2014

Table B. Implicit GDP price indices

Year 2005 = 1.000

	2000	2008	2009	2010	2011	2012	2013
Australia	0.843 ^z	1.152 ^z	1.162 ^z	1.233 ^z	1.251 ^z	1.243 ^z	1.255 ^{b,z}
Austria	0.924	1.057	1.074	1.089	1.112	1.131	1.152 ^b
Belgium	0.901	1.070	1.083	1.105	1.127	1.149	1.167 ^b
Canada	0.889	1.103	1.082	1.114	1.150	1.169	1.182 ^b
Chile	0.764	1.187	1.232	1.341	1.387	1.411	1.432 ^b
Czech Republic	0.890	1.059	1.083	1.066	1.056	1.073	1.090 ^b
Denmark	0.891	1.089	1.096	1.143	1.151	1.177	1.196 ^b
Estonia	0.778	1.280	1.282	1.286	1.325	1.369	1.425 ^b
Finland	0.956	1.069	1.085	1.089	1.119	1.151	1.171 ^b
France	0.907	1.074	1.082	1.093	1.107	1.124	1.140 ^b
Germany	0.948	1.027	1.039	1.050	1.063	1.079	1.102 ^b
Greece	0.853	1.108	1.134	1.147	1.159	1.150	1.124 ^b
Hungary	0.729	1.149	1.190	1.218	1.250	1.290	1.332 ^b
Iceland	0.822	1.285	1.392	1.488	1.537	1.581	1.634 ^b
Ireland	0.823	1.021	0.982	0.967	0.973	0.980	0.983 ^b
Israel ¹	0.940	1.033	1.082	1.096	1.122	1.159	1.187 ^b
Italy	0.876	1.068	1.090	1.094	1.109	1.128	1.145 ^b
Japan	1.074	0.967	0.962	0.942	0.924	0.916	0.911 ^b
Korea	0.868	1.049	1.085	1.124	1.141	1.152	1.167 ^b
Luxembourg	0.866	1.112	1.121	1.201	1.251	1.289	1.331 ^b
Mexico	0.717	1.199	1.248	1.298	1.376	1.426	1.451 ^b
Netherlands	0.869	1.059	1.060	1.068	1.080	1.095	1.112 ^b
New Zealand	0.889	1.110	1.119	1.172	1.190	1.180	1.210 ^b
Norway	0.883	1.132	1.164	1.210	1.245	1.276	1.301 ^b
Poland	0.881	1.088	1.128	1.144	1.181	1.210	1.219 ^b
Portugal	0.860	1.074	1.084	1.090	1.093	1.090	1.105 ^b
Slovak Republic	0.803	1.071	1.058	1.063	1.081	1.094	1.109 ^b
Slovenia	0.772	1.108	1.144	1.132	1.145	1.148	1.153 ^b
Spain	0.813	1.101	1.102	1.103	1.103	1.103	1.111 ^b
Sweden	0.934	1.080	1.103	1.112	1.127	1.138	1.147 ^b
Switzerland	0.963	1.077	1.072	1.076	1.080	1.081	1.081 ^b
Turkey	0.321	1.301	1.369	1.447	1.571	1.678	1.779 ^b
United Kingdom	0.895	1.086	1.110	1.145	1.171	1.191	1.216 ^b
United States	0.890 ^z	1.079 ^z	1.087 ^z	1.100 ^z	1.122 ^z	1.141 ^z	1.159 ^{b,z}
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	0.591	1.543	1.699	1.959	2.296	2.649	3.156
China	0.854	1.204	1.197	1.276	1.376	1.402 ^b	1.414 ^b
Romania	0.370	1.447	1.508	1.594	1.659	1.738	1.812
Russian Federation	0.455	1.546	1.577	1.801	2.080	2.256	2.401 ^b
Singapore	0.983	1.072	1.101	1.103	1.109	1.132	1.143
South Africa	0.708	1.244	1.347	1.444	1.531	1.614	1.722 ^b
Chinese Taipei	1.035	0.955	0.962	0.943	0.914	0.927	0.933

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

Source: OECD, Statistics Directorate, January 2014

Table C. Purchasing power parities

National currency per USD

	2000	2009	2010	2011	2012	2013	2014
Australia	1.31	1.44	1.51	1.51	1.48	1.47 ^b	1.47 ^b
Austria	0.90	0.84	0.84	0.83	0.83	0.83 ^b	0.82 ^b
Belgium	0.89	0.86	0.85	0.84	0.83	0.83 ^b	0.83 ^b
Canada	1.23	1.20	1.22	1.24	1.24	1.23 ^b	1.23 ^b
Chile	286.44	357.74	354.95	348.02	348.13	347.97 ^b	350.91 ^b
Czech Republic	14.20	13.85	13.95	13.47	13.29	13.30 ^b	13.21 ^b
Denmark	8.40	7.80	7.75	7.69	7.63	7.64 ^b	7.60 ^b
Estonia	0.45	0.52	0.52	0.52	0.54	0.55 ^b	0.55 ^b
Finland	0.99	0.90	0.91	0.91	0.91	0.91 ^b	0.91 ^b
France	0.94	0.86	0.86	0.84	0.84	0.84 ^b	0.83 ^b
Germany	0.97	0.81	0.80	0.78	0.78	0.78 ^b	0.78 ^b
Greece	0.68	0.69	0.70	0.69	0.67	0.65 ^b	0.62 ^b
Hungary	107.76	125.08	125.45	123.65	124.91	127.10 ^b	127.89 ^b
Iceland	84.21	124.52	131.83	133.56	135.46	137.94 ^b	142.24 ^b
Ireland	0.96	0.89	0.84	0.83	0.82	0.81 ^b	0.80 ^b
Israel ¹	3.44	3.97	3.97	3.94	4.01	4.04 ^b	4.06 ^b
Italy	0.82	0.78	0.78	0.77	0.75	0.75 ^b	0.75 ^b
Japan	154.98	115.44	111.59	107.45	104.68	102.61 ^b	102.06 ^b
Korea	745.58	822.21	841.74	854.59	847.93	846.08 ^b	840.23 ^b
Luxembourg	0.94	0.90	0.92	0.91	0.90	0.92 ^b	0.91 ^b
Mexico	6.09	7.44	7.65	7.67	7.81	7.83 ^b	7.99 ^b
Netherlands	0.89	0.84	0.85	0.83	0.83	0.83 ^b	0.82 ^b
New Zealand	1.44	1.46	1.50	1.49	1.45	1.46 ^b	1.47 ^b
Norway	9.12	8.92	9.01	8.97	8.76	8.80 ^b	8.87 ^b
Poland	1.84	1.86	1.82	1.82	1.82	1.80 ^b	1.80 ^b
Portugal	0.70	0.63	0.63	0.63	0.60	0.60 ^b	0.60 ^b
Slovak Republic	0.53	0.51	0.51	0.51	0.51	0.51 ^b	0.51 ^b
Slovenia	0.53	0.64	0.64	0.63	0.60	0.60 ^b	0.59 ^b
Spain	0.73	0.71	0.72	0.71	0.68	0.68 ^b	0.67 ^b
Sweden	9.12	8.88	8.99	8.82	8.70	8.64 ^b	8.61 ^b
Switzerland	1.85	1.51	1.51	1.44	1.39	1.37 ^b	1.36 ^b
Turkey	0.28	0.91	0.94	0.99	1.03	1.08 ^b	1.12 ^b
United Kingdom	0.64	0.65	0.69	0.70	0.69	0.69 ^b	0.69 ^b
United States	1.00	1.00	1.00	1.00	1.00	1.00 ^b	1.00 ^b
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	0.84	1.98	2.26	2.60	2.94	3.46	4.01
China	3.32	3.77	3.98	4.18	4.23	4.20 ^b	4.18 ^b
Romania	0.63	1.59	1.65	1.69	1.67	1.66	1.69
Russian Federation	7.30	14.03	15.83	17.35	18.49	19.38 ^b	20.08 ^b
Singapore	1.22	1.09	1.08	1.07	1.07	1.07	1.06
South Africa	3.09	4.76	5.04	5.23	5.39	5.66 ^b	5.90 ^b
Chinese Taipei	22.51	17.11	16.58	15.76	15.70	15.60	15.44

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

Source: OECD, Statistics Directorate, January 2014

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

Million USD

	2000	2007	2008	2009	2010	2011	2012
Australia	360 149 ^z	565 356 ^z	586 702 ^z	608 858 ^z	631 362 ^z	660 388 ^{b,z}	694 063 ^{b,z}
Austria	155 663	212 492	222 688	215 094	221 861	237 725	243 704
Belgium	178 108	235 531	245 505	243 273	255 674	270 605	277 544 ^b
Canada	586 393	855 061	882 557	818 629	855 175 ^b	893 052 ^b	924 194 ^b
Chile	103 079	203 022	196 353	193 112	225 747	251 615	267 994
Czech Republic	115 407	188 237	192 568	188 555	188 861	199 412	200 943
Denmark	89 927	117 975	126 158	117 123	126 516	130 175	134 050
Estonia	8 834	19 496	19 714	16 254	17 474	19 872	20 873 ^b
Finland	83 516	118 422	123 800	110 620	113 854	119 048	119 640
France	920 940	1 226 806	1 268 425	1 262 450	1 297 480	1 357 583	1 381 308
Germany	1 360 115	1 863 616	1 927 566	1 799 916	1 947 580	2 084 071	2 127 604
Greece	124 034	188 877	196 546	191 415	180 770	166 502	159 878 ^b
Hungary	75 763	120 498	128 897	125 561	130 611	140 409	138 782
Iceland	5 021	6 737	7 626	7 164	7 000	7 326 ^b	7 533 ^b
Ireland	77 681	133 103	121 965	120 469	125 956	132 740	135 784 ^b
Israel ¹	84 367	110 851	112 912	114 657	121 843	129 245	135 686 ^b
Italy	952 440	1 196 151	1 252 097	1 199 125	1 216 979	1 259 228	1 263 296
Japan	2 232 605	2 867 681	2 844 591	2 624 359	2 789 978	2 818 139	2 923 511 ^b
Korea	559 547	857 583	877 755	869 479	952 221	995 013	1 033 103 ^b
Luxembourg	16 105	28 483	28 420	26 864	29 822	32 472	33 509 ^b
Mexico	755 996	1 193 940	1 288 052	1 217 419	1 314 479	1 472 323	1 554 754 ^b
Netherlands	304 902	423 120	446 942	431 075	440 004	460 061	463 809 ^b
New Zealand	55 642	80 345	80 889	84 852	86 487 ^b	90 725 ^b	95 268 ^b
Norway	107 132	174 762	200 027	172 263	182 650	200 603	217 784
Poland	286 278	445 035	477 868	512 268	546 591	588 517 ^b	616 521 ^b
Portugal	114 308	155 312	160 663	162 225	164 945	164 438 ^b	164 601 ^b
Slovak Republic	41 009	82 773	93 292	88 759	92 947	98 123	101 081 ^b
Slovenia	23 123	37 468	39 736	35 865	35 811	37 607	38 000
Spain	596 858	988 583	1 046 654	1 028 596	977 973	1 012 325	1 025 579 ^b
Sweden	151 312	216 998	223 572	207 936	226 971	240 897	249 096 ^b
Switzerland	165 395	243 573	265 152	260 166	270 575	288 293 ^b	302 101 ^b
Turkey	455 392	671 350	736 271	704 807	784 025	895 737	934 287
United Kingdom	1 009 422	1 399 149	1 424 207	1 389 830	1 321 090	1 352 976 ^b	1 396 584 ^b
United States	6 476 146	8 879 710	8 883 223	8 467 256	8 854 959	9 288 687	9 713 721 ^b
EU28 (OECD estimates)	6 852 815	9 801 729	10 224 576	9 909 911	10 092 718	10 560 435	10 773 396
OECD-Total	18 529 530	26 108 093	26 729 394	25 616 294	26 736 269	28 095 934	29 096 186
Argentina	235 842	383 394	413 077	411 785	457 789	506 973	515 315
China	2 497 764	5 891 139	6 627 473	7 185 572	8 045 646	9 024 336	9 734 186
Romania	93 644	196 633	232 383	227 590	220 405	227 435	241 392
Russian Federation	724 735	1 724 499	2 062 847	1 952 971	2 078 306	2 272 372	2 359 482
Singapore	112 876 ^b	202 813	208 190	208 939	240 168	254 133	260 749
South Africa	207 700	329 298	353 391	347 847	364 435	381 317	393 969
Chinese Taipei	333 350	528 623	538 929	524 892	606 394	646 659	653 006

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

Source: OECD, STAN Structural Analysis database

Table E. Total population

Thousands

	2000	2007	2008	2009	2010	2011	2012
Australia	19 270	21 261	21 728	22 129	22 427	22 761	23 128
Austria	8 012	8 295	8 322	8 341	8 361	8 389	8 426
Belgium	10 246	10 622	10 707	10 790	10 883	10 978	11 054
Canada	30 686	32 930	33 319	33 730	34 126	34 483	34 879
Chile	15 398	16 598	16 763	16 929	17 094	17 268	17 423
Czech Republic	10 273	10 323	10 430	10 491	10 517	10 497	10 511
Denmark	5 338	5 460	5 492	5 522	5 546	5 569	5 590
Estonia	1 372	1 342	1 341	1 340	1 340	1 340	1 340
Finland	5 176	5 289	5 313	5 339	5 363	5 387	5 413
France	60 725	63 781	64 133	64 459	64 781	65 115	65 433
Germany	82 188	82 263	82 120	81 875	81 757	81 779	81 917
Greece	10 917	11 193	11 237	11 283	11 308	11 300	11 290
Hungary	10 211	10 056	10 038	10 023	10 000	9 972	9 920
Iceland	281	311	319	319	318	319	321
Ireland	3 804	4 400	4 496	4 539	4 560	4 577	4 590
Israel ¹	6 301	7 211	7 343	7 484	7 622	7 764	7 906
Italy	56 942	59 375	59 832	60 193	60 483	60 724	60 905
Japan	126 926	127 980	128 046	128 034	128 043	127 831	127 547
Korea	47 008	48 598	48 949	49 182	49 410	49 779	50 004
Luxembourg	437	481	489	498	508	519	532
Mexico	98 295	105 677	106 573	107 443	108 292	109 220	110 023
Netherlands	15 922	16 378	16 440	16 526	16 612	16 693	16 752
New Zealand	3 866	4 241	4 281	4 332	4 381	4 415	4 444
Norway	4 491	4 706	4 769	4 827	4 889	4 953	5 019
Poland	38 256	38 116	38 116	38 153	38 517	38 526	38 534
Portugal	10 226	10 608	10 622	10 632	10 637	10 622	10 579
Slovak Republic	5 401	5 397	5 406	5 418	5 430	5 398	5 406
Slovenia	1 989	2 019	2 022	2 042	2 049	2 053	2 057
Spain	40 264	44 874	45 593	45 929	46 073	46 125	46 163
Sweden	8 872	9 148	9 220	9 299	9 379	9 450	9 518
Switzerland	7 209	7 619	7 711	7 801	7 786	7 869	7 930
Turkey	64 252	70 215	71 095	72 050	73 003	73 950	74 899
United Kingdom	58 886	60 986	61 398	61 792	62 262	62 735	63 705
United States	282 398	301 696	304 543	307 240	309 776	312 036	314 278
EU28 (OECD estimates)	482 621	500 930	503 152	504 730	506 447	507 596	509 321
OECD-Total	1 136 440	1 209 448^a	1 218 208	1 225 985	1 233 533	1 240 394	1 247 435
Argentina	36 903	39 331	39 676	40 024	40 374	40 729	41 087
China	1 267 430	1 321 290	1 328 020	1 334 500	1 340 910	1 347 350	1 354 040
Romania	22 388	22 016	21 965	21 913	21 862	21 809	21 755
Russian Federation	146 597	142 805	142 742	142 785	142 850	142 961	143 056
Singapore	3 918	4 732	4 849	4 964	5 079	5 192	5 303
South Africa	44 108	48 337	48 909	49 475	50 034	50 587	51 069
Chinese Taipei	22 277	22 958	23 037	23 120	23 162	23 225	23 316

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

Source: OECD, Statistics Directorate, January 2014

Table F. Total employment

Thousands

	2000	2007	2008	2009	2010	2011	2012
Australia	9 018	10 708	10 899	11 003	11 290	11 419	11 540 ^b
Austria	3 736	3 987	4 066	4 037	4 075	4 144	4 198
Belgium	4 114	4 383	4 461	4 453	4 483	4 545	4 553 ^b
Canada	15 048	17 047	17 330	17 036	17 339	17 625	17 829 ^b
Chile	5 332	6 356	6 539	6 497	6 703	6 998	7 140 ^b
Czech Republic	4 853	5 086	5 204	5 111	5 059	5 057	5 075 ^b
Denmark	2 760	2 903	2 952	2 852	2 783	2 776	2 769
Estonia	572	642	643	579	551	589	604 ^b
Finland	2 293	2 486	2 550	2 484	2 482	2 520	2 520
France	25 587	27 006	27 137	26 783	26 798	26 966	26 956
Germany	39 382	39 857	40 348	40 372	40 587	41 152	41 608
Greece	4 348	4 807	4 866	4 836	4 712	4 447	4 091 ^b
Hungary	4 237	4 222	4 146	4 043	4 077	4 090	4 095
Iceland	156	177	179	168	167	167	169
Ireland	1 696	2 123	2 100	1 929	1 848	1 810	1 800 ^b
Israel ¹	2 520	2 973	3 102	3 128	3 233	3 320	3 660
Italy	22 930	25 188	25 256	24 840	24 660	24 739	24 661
Japan	66 853	66 083	65 768	64 761	64 484	64 358	64 161 ^b
Korea	21 137	23 433	23 577	23 506	23 829	24 244	24 681
Luxembourg	264	333	350	353	360	370	379 ^b
Mexico	38 045	42 907	43 867	43 344	43 833 ^b	44 805 ^b	46 296 ^b
Netherlands	8 115	8 606	8 733	8 671	8 636	8 698	8 682 ^b
New Zealand	1 800	2 174	2 188	2 164	2 180	2 215	2 216
Norway	2 320	2 532	2 615	2 604	2 591	2 625	2 682
Poland	14 686	15 156	15 740	15 803	15 876	16 035	16 064 ^b
Portugal	5 030	5 124	5 147	5 014	4 937	4 798 ^b	4 597 ^b
Slovak Republic	2 025	2 177	2 247	2 203	2 170	2 208	2 217 ^b
Slovenia	915	977	1 002	984	963	947	939
Spain	16 412	20 713	20 687	19 338	18 856	18 564	17 720 ^b
Sweden	4 301	4 524	4 565	4 455	4 498	4 594	4 623 ^b
Switzerland	4 116	4 440	4 548	4 568	4 600	4 713	4 761 ^b
Turkey	19 443	20 738	21 194	21 277	22 594	24 110	24 821
United Kingdom	29 724	31 890	31 993	31 434	31 213	31 380	31 761 ^b
United States	139 175	148 295	147 643	142 183	141 386	142 183	144 813
EU28 (OECD estimates)	214 646	229 681	231 738	227 569	226 517	227 103	226 696
OECD-Total	517 610	560 051^a	563 643	552 812	553 851	559 212	564 679
Argentina	13 102	16 541	16 798	16 778	16 955	17 308	17 407 ^b
China	720 850	753 210	755 640	758 280	761 050	764 200	767 040
Romania	10 772	9 365	9 366	9 181	9 156	9 082	9 366 ^b
Russian Federation	65 070	70 570	70 965	69 285	69 804	70 732	71 342 ^b
Singapore	2 171	2 731	2 952	2 990	3 106	3 229	3 358
South Africa	12 107 ^b	13 467	13 867	13 455	13 061	13 265 ^b	13 523 ^b
Chinese Taipei	9 491	10 294	10 403	10 279	10 493	10 709	10 860

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Source: OECD, STAN Structural Analysis database

Table G. Industrial employment

Thousands

	2000	2007	2008	2009	2010	2011	2012
Australia	6 894	8 084	8 143	8 251	8 466 ^b	8 563 ^b	8 653 ^b
Austria	2 896	3 056	3 115	3 073	3 096	3 154	3 197
Belgium	2 926	3 053	3 111	3 074	3 082	3 126	3 132 ^b
Canada	11 816	13 379	13 537	13 159	13 407	13 651	13 810 ^b
Chile	3 774	4 477	4 620	4 547	5 141	5 363	5 472 ^b
Czech Republic	3 935	4 110	4 199	4 117	4 068	4 087	4 101 ^b
Denmark	1 881	1 992	2 038	1 917	1 836	1 841	1 844
Estonia	449	501	502	435	408	444	455 ^b
Finland	1 646	1 774	1 825	1 752	1 751	1 775	1 771
France	17 849	18 782	18 876	18 525	18 496	18 622	18 619
Germany	29 466	29 450	29 850	29 651	29 704	30 249	30 600
Greece	3 436	3 743	3 816	3 774	3 650	3 423	3 149 ^b
Hungary	3 336	3 280	3 236	3 114	3 121	3 169	3 152
Iceland	117	127	128	119	117	121	122
Ireland	1 365	1 643	1 606	1 428	1 340	1 310	1 302 ^b
Israel ¹	1 834	2 107	2 212	2 213	2 285	2 336	2 415
Italy	17 335	19 106	19 143	18 701	18 525	18 569	18 456
Japan	56 303	53 826	53 445	52 610 ^b	52 370 ^b	52 228 ^b	52 068 ^b
Korea	18 295	19 652	19 622	19 145	19 400	19 810	20 101
Luxembourg	214	269	282	283	286	294	301 ^b
Mexico	30 801 ^b	34 350	35 105	34 331	34 718 ^b	35 488 ^b	36 669 ^b
Netherlands	5 926	6 113	6 196	6 082	5 972	6 008	5 997 ^b
New Zealand	1 425	1 657	1 667	1 620	1 620	1 638	1 652
Norway	1 522	1 660	1 718	1 687	1 662	1 680	1 719
Poland	11 999 ^b	12 100	12 572	12 519	12 464	12 648	12 671 ^b
Portugal	3 951	3 969	3 980	3 833	3 756	3 650 ^b	3 497 ^b
Slovak Republic	1 552	1 710	1 779	1 734	1 695	1 737	1 744 ^b
Slovenia	768	807	829	807	782	765	755
Spain	12 633	15 989	15 870	14 497	13 971	13 639	13 019 ^b
Sweden	2 885	3 011	3 067	2 968	3 010	3 085	3 104 ^b
Switzerland	3 202	3 384	3 455	3 442	3 465	3 540	3 576 ^b
Turkey	16 983	17 839	18 219	18 449	19 632	20 820	21 147
United Kingdom	22 451	23 414	23 400	22 579	22 265	22 561	22 835 ^b
United States	103 872	107 826	106 392	100 399	99 352	100 427	102 284 ^b
EU28 (OECD estimates)	163 481	172 594	174 059	169 099	167 395	168 079	167 717
OECD-Total	401 963	426 238^a	427 553	414 832	414 912	419 821	423 388
Argentina	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..
Romania	9 949	8 244	8 223	8 020	8 000	7 930	8 178 ^b
Russian Federation	49 918	54 054	53 823	52 549 ^b	52 942 ^b	53 646 ^b	54 109 ^b
Singapore	1 914 ^b	2 417	2 611	2 629	2 728	2 833	2 938
South Africa	8 775 ^b	9 721	9 981	9 524	9 122	9 264 ^b	9 444 ^b
Chinese Taipei	8 412 ^b	9 034	9 100	8 916	9 099	9 284	9 426

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Source: OECD, STAN Structural Analysis database

Table H. Exchange rates

National currency per USD

	2000	2007	2008	2009	2010	2011	2012
Australia	1.725	1.195	1.192	1.282	1.090	0.969	0.966
Austria	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Belgium	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Canada	1.485	1.074	1.067	1.143	1.030	0.990	0.999
Chile	539.588	522.464	522.461	560.860	510.249	483.668	486.471
Czech Republic	38.598	20.294	17.072	19.063	19.098	17.696	19.578
Denmark	8.083	5.444	5.098	5.361	5.624	5.369	5.792
Estonia	1.084	0.731	0.683	0.719	0.755	0.719	0.778
Finland	1.085	0.731	0.683	0.720	0.755	0.719	0.778
France	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Germany	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Greece	1.072	0.731	0.683	0.720	0.755	0.719	0.778
Hungary	282.179	183.626	172.113	202.342	207.944	201.055	225.104
Iceland	78.616	64.055	87.948	123.638	122.242	115.954	125.083
Ireland	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Israel ¹	4.077	4.108	3.588	3.932	3.739	3.578	3.856
Italy	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Japan	107.765	117.754	103.359	93.570	87.780	79.807	79.791
Korea	1 130.960	929.257	1 102.050	1 276.930	1 156.060	1 108.290	1 126.470
Luxembourg	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Mexico	9.456	10.928	11.130	13.514	12.636	12.423	13.170
Netherlands	1.085	0.731	0.683	0.720	0.755	0.719	0.778
New Zealand	2.201	1.361	1.423	1.600	1.387	1.266	1.234
Norway	8.802	5.862	5.640	6.288	6.044	5.605	5.818
Poland	4.346	2.768	2.409	3.120	3.015	2.963	3.257
Portugal	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Slovak Republic	1.528	0.820	0.709	0.720	0.755	0.719	0.778
Slovenia	0.929	0.731	0.683	0.720	0.755	0.719	0.778
Spain	1.085	0.731	0.683	0.720	0.755	0.719	0.778
Sweden	9.162	6.759	6.591	7.654	7.208	6.494	6.775
Switzerland	1.689	1.200	1.083	1.088	1.043	0.888	0.938
Turkey	0.625	1.303	1.302	1.550	1.503	1.675	1.796
United Kingdom	0.661	0.500	0.544	0.642	0.647	0.624	0.633
United States	1.000	1.000	1.000	1.000	1.000	1.000	1.000
EU28 (OECD estimates)	..	..	..	..	..	..	..
OECD-Total	..	..	..	..	..	..	..
Argentina	1.000	3.096	3.144	3.710	3.896	4.110	4.537
China	8.279	7.608	6.949	6.831	6.770	6.461	6.312
Romania	2.171	2.438	2.519	3.049	3.178	3.049	3.468
Russian Federation	28.129	25.581	24.853	31.740	30.368	29.382	30.840
Singapore	1.724	1.507	1.415	1.455	1.364	1.258	1.250
South Africa	6.940	7.045	8.261	8.474	7.321	7.261	8.210
Chinese Taipei	31.225	32.842	31.517	33.049	31.642	29.464	29.614

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Source: OECD, Statistics Directorate, January 2014

ANNEX 3

List of indicators for the electronic publication

The electronic version of the MSTI publication contains, in addition to the indicators published in this volume, most of those which were published in the previous version of the publication before its revision. These are presented as of 1981.

1. Gross Domestic Expenditure on R&D – GERD (million national currency)
2. GERD (million current PPP \$)
3. GERD as a percentage of GDP
4. GERD – (million 2000 dollars – constant prices and PPP)
5. GERD – Compound annual growth rate (constant prices)
6. GERD per capita population (current PPP \$)
7. Estimated civil GERD as a percentage of GDP
8. Basic research expenditure as a percentage of GDP
9. Total researchers (FTE)
10. Total researchers – Compound annual growth rate
11. Total researchers per thousand total employment
12. Total researchers per thousand labour force
13. Total R&D personnel (FTE)
14. Total R&D personnel – Compound annual growth rate
15. Total R&D personnel per thousand employment
16. Total R&D personnel per thousand labour force
17. Industry-financed GERD as a percentage of GDP
18. Government-financed GERD as a percentage of GDP
19. Percentage of GERD financed by industry
20. Percentage of GERD financed by government
21. Percentage of GERD financed by other national sources
22. Percentage of GERD financed by abroad
23. Percentage of GERD performed by the business enterprise sector
24. Percentage of GERD performed by the higher education sector
25. Percentage of GERD performed by the government sector
26. Percentage of GERD performed by the private non-profit sector
27. Total researchers (headcount)
28. Women researchers (headcount)
29. Women researchers as a percentage of total researchers (headcount)
30. Business enterprise sector: Total researchers (headcount)
31. Business enterprise sector: Women researchers (headcount)
32. Business enterprise sector: Women researchers as a percentage of total researchers (headcount)

33. Government sector: Total researchers (headcount)
34. Government sector: Women researchers (headcount)
35. Government sector: Women researchers as a percentage of total researchers (headcount)
36. Higher education sector: Total researchers (headcount)
37. Higher education sector: Women researchers (headcount)
38. Higher education sector: Women researchers as a percentage of total researchers (headcount)
39. Business enterprise expenditure on R&D – BERD (million national currency)
40. BERD (million current PPP \$)
41. BERD as a percentage of GDP
42. BERD – (million 2000 dollars – constant prices and PPP)
43. BERD – Compound annual growth rate (constant prices)
44. BERD as a percentage of value added in industry
45. Business enterprise researchers (FTE)
46. Business enterprise researchers – Compound annual growth rate
47. Business enterprise researchers as a percentage of national total
48. Business enterprise researchers per thousand employment in industry
49. Total business enterprise R&D personnel (FTE)
50. Total business enterprise R&D personnel – Compound annual growth rate
51. Total business enterprise R&D personnel as a percentage of national total
52. Total business enterprise R&D personnel per thousand employment in industry
53. Industry-financed BERD – (million 2000 dollars – constant prices and PPP)
54. Industry-financed BERD – Compound annual growth rate (constant prices)
55. Industry-financed BERD as a percentage of value added in industry
56. Percentage of BERD financed by industry
57. Percentage of BERD financed by government
58. Percentage of BERD financed by other national sources
59. Percentage of BERD financed by abroad
60. BERD performed in the pharmaceutical industry (million current PPP \$)
61. BERD performed in the computer, electronic and optical industry (million current PPP \$)
62. BERD performed in the aerospace industry (million current PPP \$)
63. BERD performed in service industries (million current PPP \$)
64. Percentage of BERD performed in the pharmaceutical industry
65. Percentage of BERD performed in the computer, electronic and optical industry
66. Percentage of BERD performed in the aerospace industry
67. Percentage of BERD performed in service industries
68. Higher education expenditure on R&D – HERD (million national currency)
69. HERD (million current PPP \$)
70. HERD as a percentage of GDP
71. HERD – (million 2000 dollars – constant prices and PPP)

72. HERD – Compound annual growth rate (constant prices)
73. Percentage of HERD financed by industry
74. Higher education researchers (FTE)
75. Higher education researchers – Compound annual growth rate
76. Higher education researchers as a percentage of national total
77. Higher education total R&D personnel (FTE)
78. Higher education total R&D personnel – Compound annual growth rate
79. Government intramural expenditure on R&D – GOVERD (million national currency)
80. GOVERD (million current PPP \$)
81. GOVERD as a percentage of GDP
82. GOVERD – (million 2000 dollars – constant prices and PPP)
83. GOVERD – Compound annual growth rate (constant prices)
84. Percentage of GOVERD financed by industry
85. Government researchers (FTE)
86. Government researchers – Compound annual growth rate
87. Government researchers as a percentage of national total
88. Government total R&D personnel (FTE)
89. Government total R&D personnel – Compound annual growth rate
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91. Total GBAORD (million current PPP \$)
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95. Civil GBAORD for health and environment programmes (million current PPP \$)
96. Civil GBAORD for education and society (million current PPP \$)
97. Civil GBAORD for space programmes (million current PPP \$)
98. Civil GBAORD for non-oriented research programmes (million current PPP \$)
99. Civil GBAORD for General University Funds (GUF) (million current PPP \$)
100. Economic development programmes as a percentage of civil GBAORD
101. Health and environment programmes as a percentage of civil GBAORD
102. Education and society as a percentage of civil GBAORD
103. Space programmes as a percentage of civil GBAORD
104. Non-oriented research programmes as a percentage of civil GBAORD
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116. Technology balance of payments: Receipts (million current dollars)
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123. Total imports: Computer, electronic and optical industry (million current dollars)
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