



Ministry of Education and Science
of the Russian Federation



Federal State
Statistics Service



HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY



Science. Technology. Innovation



Pocket Data Book

15
years

Institute for Statistical
Studies and Economics
of Knowledge, HSE



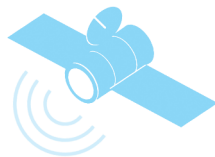
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NATIONAL RESEARCH UNIVERSITY



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Pocket Data Book

Moscow 2018

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The pocket data book contains main indicators characterizing S&T and innovation potential of the Russian Federation. There are the information about intellectual property, S&T output, data of international comparisons given.

The data book includes information of the Federal State Statistics Service, Federal Service for Intellectual Property, Organisation for Economic Co-operation and Development (OECD), Eurostat, UNESCO, World Intellectual Property Organisation, national statistical services of foreign countries, and results of own methodological and analytical studies of the HSE Institute for Statistical Studies and Economics of Knowledge.

In some cases, the presented data specify those published earlier.

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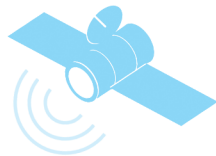
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Symbols used in tables are:

- ... data not available
and not included in the totals,
- data not applicable.

In some tables, details may not add to the totals
because of rounding.

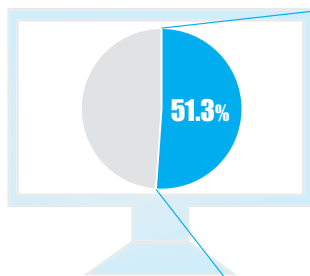
Infographics



R&D Personnel: 2016

R&D personnel
Total – 722.3 thousand persons

Researchers
Total – 370.4 thousand persons



Without scientific degree



Candidates of science



Doctors of science



70.7%

21.9%

7.4%

Researchers by gender

60%



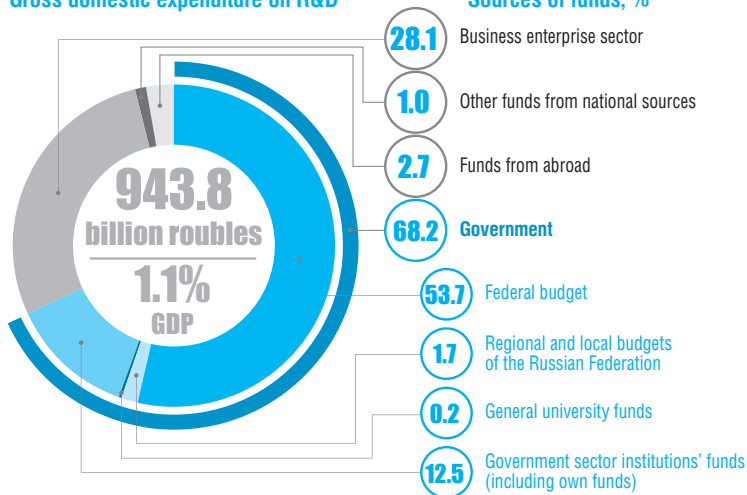
40%



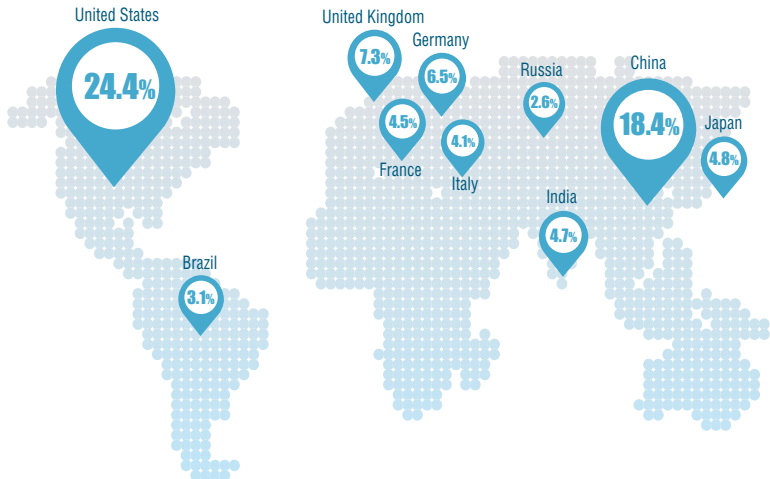
Average age, years

R&D Funding: 2016

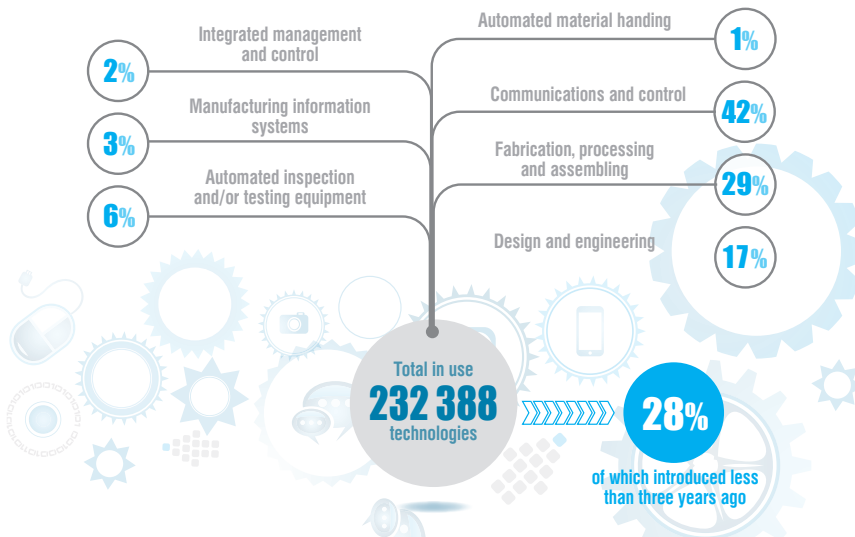
Gross domestic expenditure on R&D



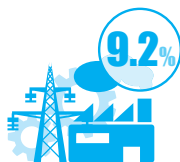
Country shares in the total number of articles in scientific journals indexed in Web of Science: 2016



Use of advanced manufacturing technologies by degree of novelty: 2016



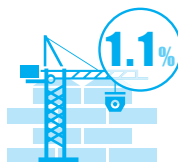
Innovation: 2016



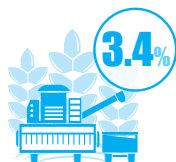
Industry



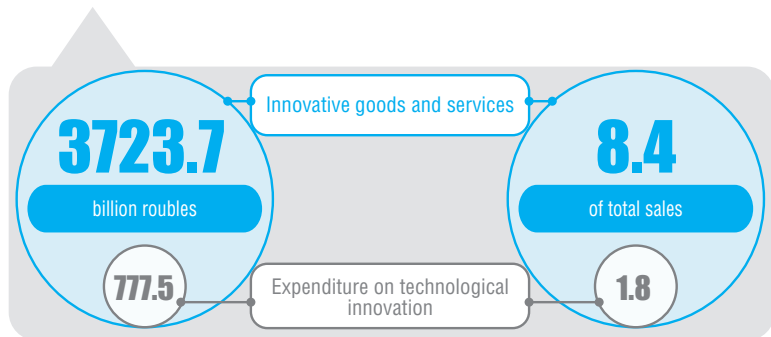
Services



Construction



Agriculture



1. Institutions



1.1. R&D institutions by type

	1991	2000	2010	2015*	2016*
Total	4564	4099	3492	4175	4032
Research institutes	1831	2686	1840	1708	1673
Design organisations	930	318	362	322	304
Construction project and exploration organisations	559	85	36	29	26
Experimental enterprises	15	33	47	61	62
Higher education institutions	450	390	517	1040	979
Industrial enterprises	400	284	238	371	363
Others	379	303	452	644	625

* Here and below the number of institutions includes branches of higher education institutions.

1.2. R&D institutions by sector of performance

	1991	2000	2010	2015	2016
Total	4564	4099	3492	4175	4032
Sectors of performance:					
government	992	1247	1400	1560	1546
business enterprise	3009	2278	1405	1400	1326
higher education	537	526	617	1124	1064
private non-profit	26	48	70	91	96

1.3. R&D institutions by ownership

	1995	2000	2010	2015	2016
Total	4059	4099	3492	4175	4032
Ownership:					
public	2979	2938	2610	2684	2592
private	198	388	470	881	865
joint	832	635	304	358	326
of state corporations	6	90	92
foreign and joint (with both Russian and foreign participation)	25	64	56	98	92
others	25	74	46	64	65

2. R&D Personnel



2.1. R&D personnel

(headcount)

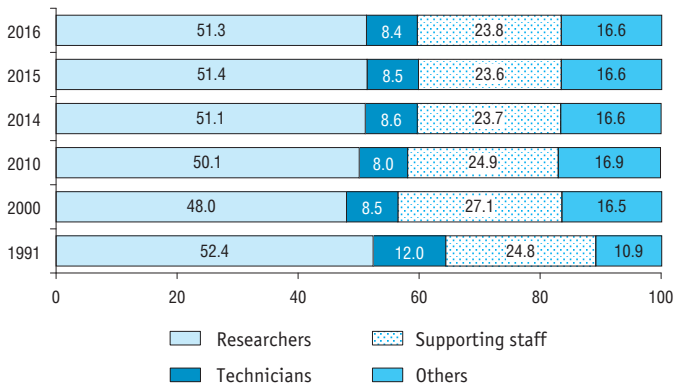
	1991	2000	2010	2015	2016
Total	1677784	887729	736540	738857	722291
Research institutes	970565	718434	435304	435502	427158
Design organisations	287504	56488	157146	136263	133742
Construction project and exploration organisations	149833	6811	6324	2849	1801
Experimental enterprises	19495	6145	1558	3023	2996
Higher education institutions	90550	31110	46776	60151	59124
Industrial enterprises	118414	54721	51807	53868	50740
Others	41423	14020	37625	47201	46730

2.2. R&D personnel by occupation

(headcount)

	1991	2000	2010	2015	2016
Total	1677784	887729	736540	738857	722291
Researchers	878482	425954	368915	379411	370379
Technicians	200606	75184	59276	62805	60441
Supporting staff	416590	240506	183713	174056	171915
Others	182106	146085	124636	122585	119556

2.3. Percentage distribution of R&D personnel by occupation



2.4. R&D personnel by sector of performance

(headcount)

	1991	2000	2010	2015	2016
Total	1677784	887729	736540	738857	722291
Sectors of performance:					
government	294500	255850	259007	265429	269056
business enterprise	1269200	590646	423112	408802	388385
higher education	112700	40787	53290	63870	63046
private non-profit	1400	446	1131	756	1804

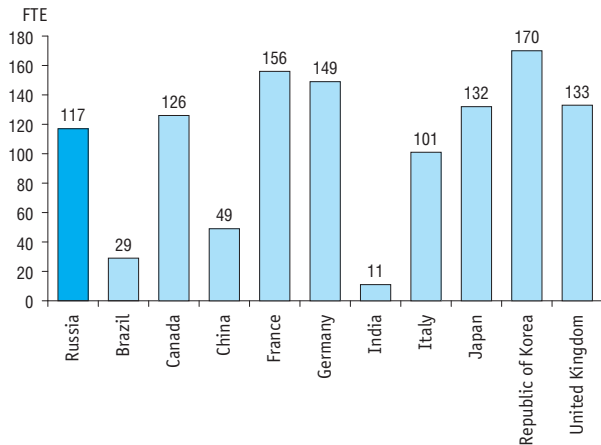
2.5. R&D personnel by country

(thousand person-years; in full-time equivalent)

	1994	2000	2016*
Russia	1264.1	1007.3	802.3
Brazil	...	133.0	266.7
Canada	143.6	167.9	226.6
China	783.2	922.1	3758.8
France	315.2	327.5	428.6
Germany	...	484.7	640.5
India	...	318.4	528.2
Italy	143.8	150.1	248.1
Japan	828.0	896.8	875.0
Republic of Korea	...	138.1	442.0
United Kingdom	267.8	288.6	416.5

* Or nearest years for which data is available.

2.6. R&D personnel per 10 000 employment by country: 2016*



* Or nearest years for which data is available. Calculated by employment in full-time equivalent.

2.7. Researchers by sector of performance

(headcount)

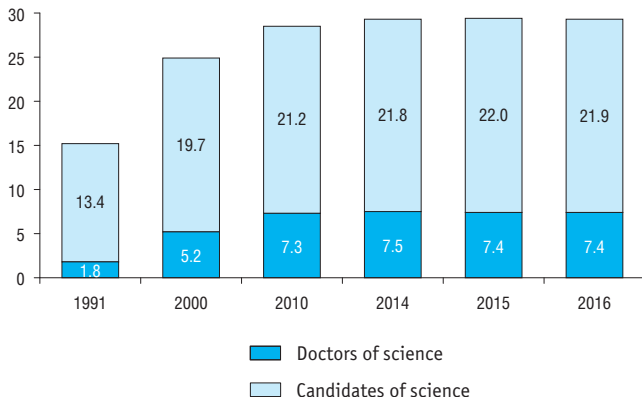
	1991	2000	2010	2015	2016
Total	878482	425954	368915	379411	370379
Sectors of performance:					
government	166100	129725	131734	134794	134225
business enterprise	637200	267640	197785	198123	190378
higher education	74300	28325	38640	45967	44994
private non-profit	900	264	756	527	782

2.8. Researchers with scientific degrees

(headcount)

	1991	2000	2010	2015	2016
Researchers with scientific degrees	134176	105911	105114	111533	108388
Doctors of science	16165	21949	26789	28046	27430
Candidates of science	118011	83962	78325	83487	80958

2.9. Researchers with scientific degrees as a per cent of the total number of researchers

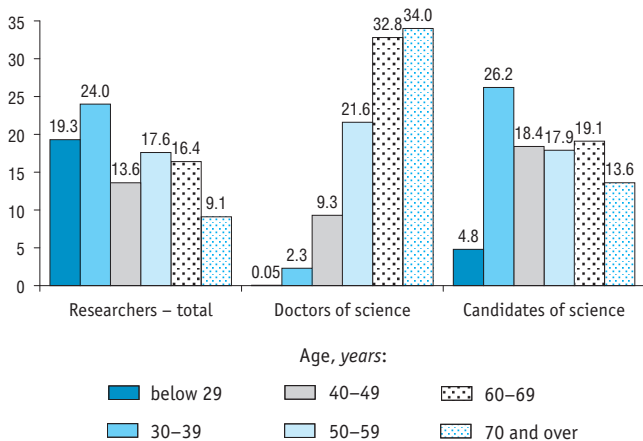


2.10. Researchers by field of science and technology: 2016

(headcount)

	Researchers	Of whom	
		doctors of science	candidates of science
Total	370379	27430	80958
Natural sciences	85979	12083	33087
Engineering	225038	4648	21153
Medical sciences	16137	3768	6755
Agricultural sciences	11066	1487	4483
Social sciences	19831	2990	9611
Humanities	12328	2454	5869

2.11. Percentage distribution of researchers by age: 2016



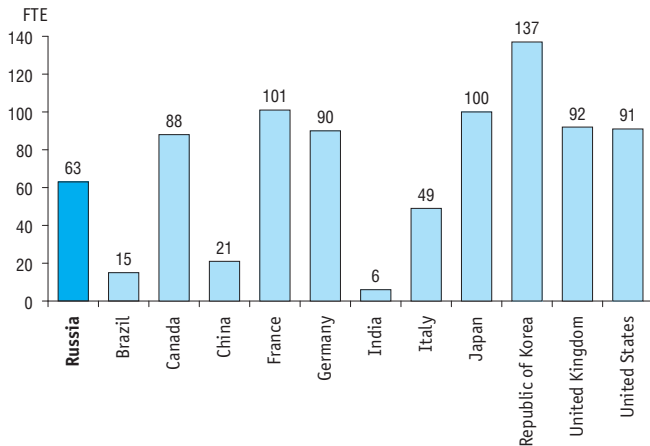
2.12. Researchers by country

(thousand person-years; in full-time equivalent)

	1994	2000	2016*
Russia	621.8	506.4	428.9
Brazil	...	73.9	138.7
Canada	85.9	107.9	159.2
China	552.0	695.1	1619.0
France	149.2	172.1	277.6
Germany	...	257.9	388.0
India	...	115.9	283.0
Italy	75.7	66.1	120.7
Japan	541.0	647.6	662.1
Republic of Korea	...	108.4	356.4
United Kingdom	134.0	170.6	289.3
United States	773.2	983.3	1380.0

* Or nearest years for which data is available.

2.13. Researchers per 10 000 employment by country: 2016*



* Or nearest years for which data is available. Calculated by employment in full-time equivalent.

2.14. Flows of R&D personnel

(headcount)

	Inflow – total	Of which		Outflow – total	Of which	
		graduates from higher education institutions	from other research institutes		at own initiative	due to staff reduction
1995	108335	6498	23402	226585	141776	29747
2001	132757	14122	21549	137932	93587	3542
2005	109973	13495	15618	122773	81623	6598
2009	93526	13235	13529	97071	58295	5776
2011	94939	13725	11881	100849	62848	2973
2013	54550	11075	13210	93112	59214	2015
2015	100290	11662	14026	98643	58285	4238

3. R&D Funding



3.1. Gross domestic expenditure on R&D

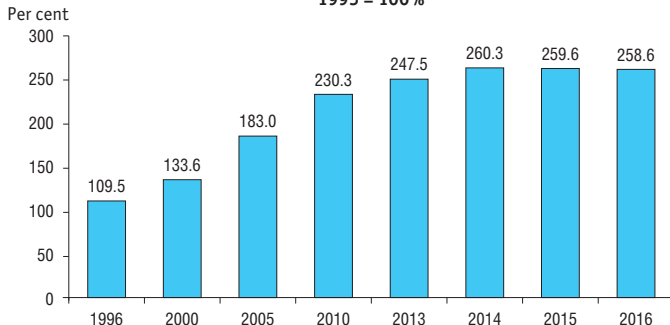
(thousand roubles)

	2000	2010	2015	2016
Gross domestic expenditure on R&D:				
at current prices	76697100.5	523377233.9	914669057.2	943815219.6
at constant 1989 prices	3321.2	5723.2	6452.1	6426.4

3.2. Trends in gross domestic expenditure on R&D

(at constant 1989 prices)

1995 = 100%



3.3. Gross domestic expenditure on R&D by country

(million current PPP \$)

	1991	2000	2016*
Russia	19991.3	10726.9	37260.8
Brazil	...	15781.6	38447.9
Canada	8704.4	16745.4	26715.6
China	9147.3	33044.5	408829.0
France	24422.1	33249.3	60818.7
Germany	40140.5	53632.8	114778.1
India	...	15662.8	50269.4
Italy	12646.8	15461.9	30102.1
Japan	68799.5	98758.0	170003.0
Republic of Korea	7042.6	18533.1	74051.5
United Kingdom	18331.7	25129.9	46259.8
United States	161387.8	269513.0	502893.0

* Or nearest years for which data is available.

3.4. Gross domestic expenditure on R&D as a per cent of GDP by country

	1991	2000	2016*
Russia	1.43	1.05	1.10
Brazil	...	1.00	1.17
Canada	1.54	1.86	1.67
China	0.72	0.89	2.07
France	2.27	2.08	2.22
Germany	2.40	2.39	2.93
India	...	0.74	0.63
Italy	1.15	1.01	1.33
Japan	2.68	2.91	3.29
Republic of Korea	1.74	2.18	4.23
United Kingdom	1.87	1.64	1.70
United States	2.61	2.62	2.79

* Or nearest years for which data is available.

3.5. Federal budget appropriations on civil-purpose science and technology

	1998	2000	2014*	2015*	2016*	2017**
Federal budget appropriations on civil-purpose science and technology, <i>million roubles</i>	6239.4	17091.7	437273.3	439392.8	402722.3	342180.6
Basic research	2829.3	7866.2	121599.5	120203.8	105247.6	118712.5
Applied research	3410.1	9225.5	315673.8	319188.9	297474.7	223468.1
As a per cent:						
of GDP	0.24	0.23	0.55	0.53	0.47	...
of total federal budget appropriations	1.32	1.66	2.95	2.81	2.45	2.50

* The source of 2014, 2015, 2016 data are reports on the execution of the consolidated budget of the Russian Federation and budgets of state extra-budgetary funds (according to the Russian Federal Treasury).

** According to the Federal Law of December 19, 2016 №415-FL "On the federal budget for 2017 and the planning period of 2018 and 2019" in the wording of the Federal Law of July 1, 2017 №157-FL "On amendments to the Federal Law "On the federal budget for 2017 and the planning period of 2018 and 2019" .

3.6. Government budget appropriations on R&D by country

(million current PPP \$)

	1991	2000	2016*
Russia**	25840.0	4784.6	35639.6
Brazil***	...	8533.0	23620.7
Canada	3732.3	4589.6	7700.1
China***	...	11039.4	86936.6
France	13946.0	14868.7	17387.3
Germany	15969.5	17220.7	35421.6
Italy	7717.9	9501.2	11511.2
Japan	10767.3	21193.4	33862.0
Republic of Korea	...	5017.9	21207.5
United Kingdom	7596.5	9484.9	14696.1
United States	65897.0	83612.5	148999.0

* Or nearest years for which data is available.

** Federal budget appropriations on science and technology.

*** Gross domestic expenditure on R&D financed by the government.

3.7. Gross domestic expenditure on R&D by source of funds

(million roubles; 1994 – billion roubles)

	1994	2000	2015	2016
Gross domestic expenditure on R&D	5146.1	76697.1	914669.1	943815.2
Government*	3205.6	42035.7	635859.9	643401.0
Of which federal budget appropriations	...**	29639.3	516655.1	506894.8
Business enterprise sector	1814.3	25208.4	242155.4	265277.2
Higher education sector	19.8	213.0	10875.1	8210.5
Private non-profit sector	5.6	67.6	1566.8	1537.1
Funds from abroad	100.8	9172.4	24212.0	25389.3

* Including federal budget appropriations, general university funds and funds of government sector institutions (e.g. own funds of R&D-performing institutions).

** In 1994, federal budget appropriations were not allocated separately in the structure of sources of funds.

3.8. Percentage distribution of gross domestic expenditure on R&D by source of funds and country: 2016*

	Gross domestic expenditure on R&D	Government	Business enterprise sector	Funds from abroad	Other funds from national sources
Russia	100	68.2**	28.1	2.7	1.0
Brazil	100	61.4	36.4	...	2.2
Canada	100	33.3	43.6	8.9	14.2
China	100	21.3	74.7	0.7	...
France	100	34.6	55.7	7.8	2.0
Germany	100	27.9	65.6	6.2	0.4
Italy	100	40.8	46.2	9.3	3.6
Japan	100	15.4	78.0	0.5	6.1
Republic of Korea	100	23.7	74.5	0.8	1.0
United Kingdom	100	28.0	48.4	17.6	6.0
United States	100	24.0	64.2	4.7	7.1

* Or nearest years for which data is available.

** Including federal budget appropriations, general university funds and funds of government sector institutions (e.g. own funds of R&D-performing institutions).

3.9. Percentage distribution of gross domestic expenditure on R&D by sector of performance and country: 2016*

	Gross domestic expenditure on R&D	Government sector	Business enterprise sector	Higher education sector	Private non-profit sector
Russia	100	32.0	58.7	9.1	0.2
Canada	100	8.5	52.3	38.8	0.4
China	100	16.2	76.8	7.0	...
France	100	13.1	65.1	20.3	1.5
Germany	100	14.1	68.7	17.3	...
India	100	52.5	43.6	3.9	...
Italy	100	13.3	55.3	28.6	2.9
Japan	100	7.9	78.5	12.3	1.3
Republic of Korea	100	11.7	77.5	9.1	1.6
United Kingdom	100	6.8	65.7	25.6	1.9
United States	100	11.2	71.5	13.2	4.1

* Or nearest years for which data is available.

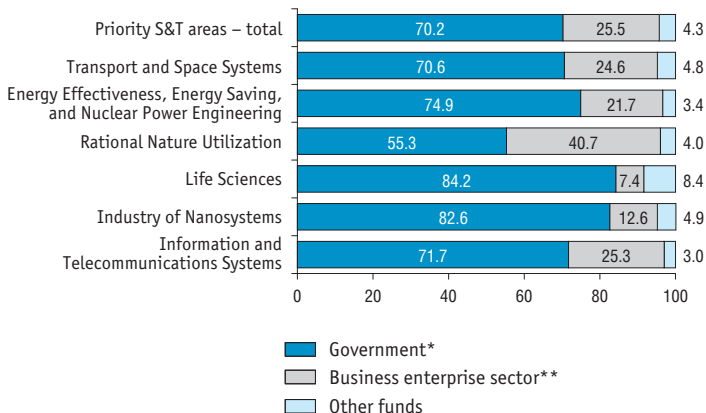
3.10. Gross domestic expenditure on R&D by priority S&T areas: 2016

(million roubles)

	Total	Government*	Of which federal budget appropriations
Gross domestic expenditure on R&D by priority S&T areas	670013.8	470270.0	381662.8
Information and Telecommunications Systems	77932.0	55866.0	47650.4
Industry of Nanosystems	25925.2	21404.0	14907.0
Life Sciences	48711.9	41013.9	35654.1
Rational Nature Utilization	51751.1	28605.6	22584.7
Energy Effectiveness, Energy Saving, and Nuclear Power Engineering	98599.6	73862.7	60415.3
Transport and Space Systems	215921.2	152470.6	128844.2

* Including federal budget appropriations and funds of government sector institutions (e.g. own funds of R&D performing institutions).

3.11. Percentage distribution of gross domestic expenditure on R&D by priority S&T areas and source of funds: 2016



* Including federal budget appropriations and funds of government sector institutions (e.g. own funds of R&D performing institutions).

** Funds of business enterprise sector institutions (including own funds).

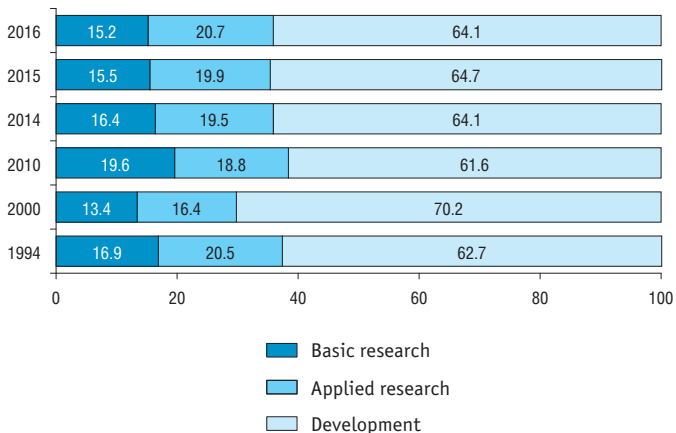
3.12. Subsidies, grants and other types of competitive R&D funding: 2016

	Total, million roubles	As a per cent of the total
Gross domestic expenditure on R&D – total	943815.2	100.0
Budget subsidies on state task for R&D	93975.5	10.0
Budget subsidies on R&D	36729.6	3.9
Grants from S&T and innovation supporting funds	22642.2	2.4
Other types of competitive funding	58658.1	6.2

3.13. Intramural current expenditure on R&D by type (million roubles; 1994 – billion roubles)

	1994	2000	2015	2016
Intramural current expenditure on R&D	4996.9	73873.3	854288.0	873778.7
Basic research	842.0	9875.7	132064.9	132565.1
Applied research	1021.9	12117.5	169654.6	181157.9
Development	3133.0	51880.2	552568.5	560055.7

3.14. Percentage distribution of intramural current expenditure on R&D by type



3.15. Tax incentives on R&D by type

(million roubles)

	2012*	2013*	2014*	2015**	2016*
Tax expenditure on R&D – total	94206.7	107402.9	116585.6	122800.2	139891.0
VAT exemption	80824.8	95538.4	105469.1	111954.0	128150.0
R&D funded from budget and special foundations	61012.8	71446.5	81656.7	82718.0	96199.2
Sales of exclusive rights on R&D results	16400.7	18622.4	18572.8	21976.0	24882.9
R&D aimed at development/ improvement of new technologies and products (for selected types of economic activity)	3411.3	5469.5	5239.6	7260.0	7067.9

(continued)

	2012*	2013*	2014*	2015**	2016*
Income tax reduction	11998.9	9682.7	8873.1	8790.2	9552.2
Accelerated depreciation of fixed assets for S&T activity	118.3	80.9	51.6	41.0	37.2
Accelerated expensing of R&D expenditure	11859.5	9585.0	8821.5	8749.2	9514.2
Contributions to the state foundations for R&D and innovation support	21.1	16.9	—	—	0.8
Property tax exemption	1383.0	2181.8	2243.4	2056.0	2188.9
State Research Centres	1383.0	2181.8	2243.4	2056.0	2188.9

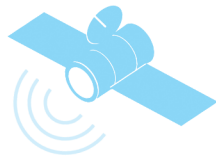
* Sources of data for 2012, 2013, 2014 and 2016 are national statistical surveys on the structure of VAT calculation, on the tax base and the structure of income tax calculation for organisations, on the tax base and the structure of property tax calculation for organisations.

** Source of data on VAT tax expenditure for 2015: Annex 1 “Tax and non-tax expenditure 2014–2020” to the project “Main trends of the tax policy for 2017 and the planning period of 2018 and 2019”.

3.16. Average monthly salaries of R&D personnel

	1995	2000	2015	2016
Average monthly salaries, roubles; 1995 – thousand roubles	305.3	2322.9	41511.8	43539.5
As a per cent of that:				
in the national economy (=100%)	64.6	104.5	122.0	118.5
in manufacturing (=100%)	67.3	98.2	130.1	125.3
in construction (=100%)	52.0	88.0	138.6	135.3

4. R&D Output

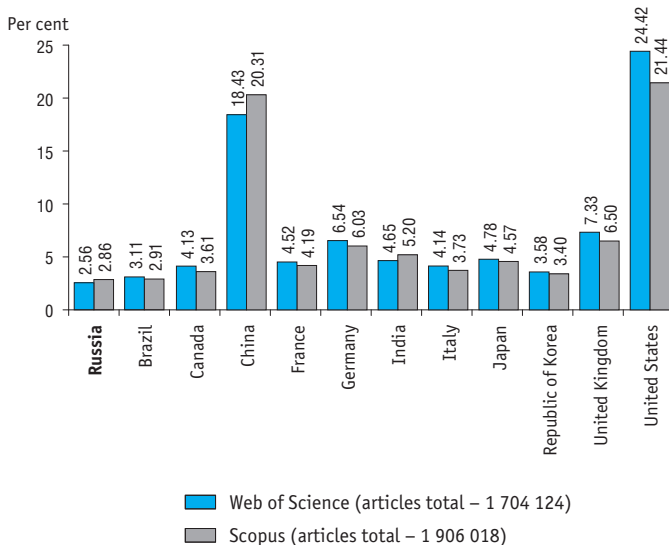


4.1. Articles in scientific journals indexed in international databases by country *

	Web of Science		Scopus	
	2006	2016	2006	2016
Russia	23799	43629	26635	54449
Brazil	18945	53017	25018	55397
Canada	44396	70422	45908	68863
China	84841	314031	153931	387207
France	45023	77066	55747	79785
Germany	74567	111528	79306	114940
India	27405	79197	36019	99111
Italy	41002	70539	43146	71171
Japan	75651	81385	83752	87122
Republic of Korea	28506	60949	26670	64782
United Kingdom	76991	124945	85218	123964
United States	292414	416209	300109	408665

* Here and below as of September 15, 2017.

4.2. Country shares in the total number of articles in scientific journals indexed in international databases: 2016



4.3. Patent applications and patents granted

	1995	2000	2010	2016
Patent applications filed in the Russian Federation	22202	28688	42500	41587
By residents	17551	23377	28722	26795
By non-residents	4651	5311	13778	14792
Patents granted with the indication of the Russian Federation	31556*	17592	30322	33536
To residents	20861	14444	21627	21020
To non-residents	4772	3148	8695	12516
Patents valid with the indication of the Russian Federation	76186	144325	181904	230870

* Including patents granted in exchange for author certificates.

4.4. Patent applications by country*

	1995	2000	2010	2016**
Russia	22202	28688	42500	41587
Brazil	7448	17283	24999	30219
Canada	26592	39622	35449	36964
China	18699	51906	391177	1101864
France	15896	17353	16580	16300
Germany	46158	62142	59245	66893
India	6566	8538	39762	45658
Italy	8574	9273	9723	9687
Japan	368831	419543	344598	318721
Republic of Korea	78499	102010	170101	213694
United Kingdom	27521	32747	21929	22801
United States	228142	295895	490226	589410

* All patent applications filed by residents and non-residents in national patent agencies.

** Or nearest years for which data is available.

Source: WIPO Statistics Database, September 2017.

4.5. Patent applications filed by residents and non-residents by country: 2016*

	Patent applications filed in the country		
	Total	Of which	
		by residents	by non-residents
Russia	41587	26795	14792
Brazil	30219	4641	25578
Canada	36964	4277	32687
China	1101864	968252	133612
France	16300	14306	1994
Germany	66893	47384	19509
India	45658	12579	33079
Italy	9382	8601	781
Japan	318721	258839	59882
Republic of Korea	213694	167275	46419
United Kingdom	22801	14867	7934
United States	589410	288335	301075

* Or nearest years for which data is available.

Source: WIPO Statistics Database, September 2017.

4.6. Patents granted with the indication of the Russian Federation by section of the International Patent Classification*

	1995	2000	2010	2016
Total	25633	17592	30322	33536
A. Human necessities	4207	4347	8468	7344
B. Performing operations; transporting	6129	2905	4711	4689
C. Chemistry; metallurgy	4529	3332	5167	7894
D. Textiles; paper	437	197	320	253
E. Fixed constructions; mining	2042	1156	1977	1925
F. Mechanical engineering; lighting; heating; weapons; blasting	3033	2144	3062	3434
G. Physics	3083	2172	3734	4785
H. Electricity	2173	1339	2883	3212

* Patents granted to resident and non-resident applicants.

4.7. Development of advanced manufacturing technologies by type and degree of novelty: 2016

	Total	Of which technologies	
		new to the country	radically new
Advanced manufacturing technologies	1534	1342	192
Of which:			
Design and engineering	402	352	50
Fabrication, processing and assembling	509	449	60
Automated material handling	34	29	5
Automated inspection and/or testing equipment	160	111	49
Communications and control	285	264	21
Manufacturing information systems	83	80	3
Integrated management and control	61	57	4

4.8. Use of advanced manufacturing technologies by type and duration: 2016

	Total	Of which technologies used during the period of			
		less than 1 year	1–3 years	4–5 years	6 years and over
Advanced manufacturing technologies	232388	15671	49445	39109	128163
Of which:					
Design and engineering	40658	3418	9033	7161	21046
Fabrication, processing and assembling	67726	5060	13927	9250	39489
Automated material handling	2316	198	571	387	1160
Automated inspection and/or testing equipment	13523	1099	3854	2683	5887
Communications and control	96846	4898	19699	17903	54346
Manufacturing information systems	7275	626	1606	1220	3823
Integrated management and control	4044	372	755	505	2412

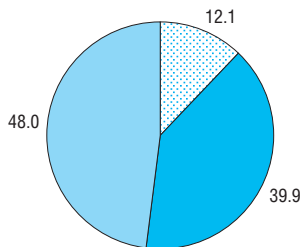
4.9. Technology balance of payments by category of contracts: 2016

(million US \$)

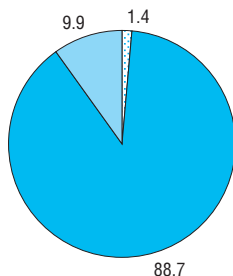
	Receipts from exports	Payments for imports	Balance of payments
Total	1277.0	2498.7	-1221.7
Invention patents	0.0	5.4	-5.4
Unpatented inventions	–	0.1	-0.1
Patent licenses	83.1	80.6	2.5
Utility models	2.0	1.1	0.9
Know-how	28.7	104.9	-76.2
Trademarks	0.9	444.8	-443.9
Industrial designs	50.1	10.5	39.6
Engineering services	819.0	1547.9	-728.9
Research and development	140.7	149.1	-8.4
Others	152.4	154.5	-2.1

4.10. Percentage distribution of technology exports and imports in Russia by country groups: 2016

Receipts from technology exports



Payments for technology imports



 CIS countries

 OECD countries

 Other countries

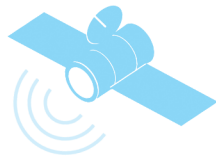
4.11. Technology balance of payments by country: 2016*

(million US \$)

	Receipts from exports	Payments for imports	Balance of payments
Russia	1277.0	2498.7	-1221.7
Canada	2620.9	1227.4	1393.5
France	5188.3	3233.5	1954.8
Germany	71836.5	53734.3	18102.2
Italy	13239.9	12015.7	1224.2
Japan	32631.4	4978.7	27652.6
Republic of Korea	10407.9	16409.0	-6001.1
United Kingdom	41060.6	21280.4	19780.1
United States	130834.0	88891.0	41943.0

* Or nearest years for which data is available.

5. Innovation



5.1. Main indicators of innovation in industry

	2000	2010	2014	2015	2016
Enterprises engaged in technological innovation as a per cent of all industrial enterprises	10.6	9.3	9.7	9.5	9.2
Sales of innovative goods and services, <i>million roubles</i>	154135.0	1165747.6	3037407.3	3258254.6	3723693.4
At constant 1995 prices	32626.7	62312.8	113323.0	112349.7	123937.2
As a per cent of total sales	4.4	4.9	8.2	7.9	8.4
Expenditure on technological innovation, <i>million roubles</i>	49428.0	349763.3	762774.1	735757.7	777518.6
At constant 1995 prices	10462.7	18695.9	28458.4	25370.1	25878.5
As a per cent of total sales	1.4	1.5	2.1	1.8	1.8

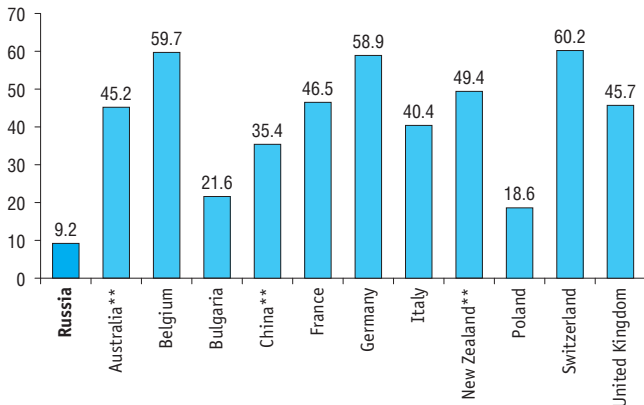
5.2. Innovative activity: 2016

	Enterprises engaged in innovation as a per cent of all enterprises			
	total	technological	marketing	organisational
Industry	10.5	9.2	1.9	2.8
Mining and quarrying	7.4	5.5	0.5	2.8
Manufacturing	13.3	11.8	2.8	3.4
High tech	30.8	29.4	4.8	8.1
Medium high tech	17.2	15.7	2.9	4.5
Medium low tech	12.3	10.4	2.4	3.6
Low tech	7.9	6.6	2.4	1.5
Electricity, gas and water supply	4.8	4.1	0.4	1.5
Services	7.2	6.2	1.2	2.3
Construction	1.5	1.1	0.4	1.1
Agriculture	4.0	3.4	0.4	0.9

5.3. Main indicators of innovation in agriculture: 2016

	Enterprises engaged in innovation as a per cent of all agricultural enterprises		Innovative goods and services		Expenditure on technological innovation	
	total	technological	million roubles	as a per cent of total sales	million roubles	as a per cent of total sales
Total	4.0	3.4	22222.9	1.4	14963.3	0.9
Growing of crops	4.2	3.7	6542.0	1.1	6276.1	1.1
Farming of animals	4.7	3.9	14936.5	1.6	5669.3	0.6
Mixed farming	2.7	1.8	618.9	1.2	2884.1	5.7
Agricultural services, except veterinary activities	1.8	1.5	125.6	0.7	133.8	0.7

5.4. Enterprises engaged in technological innovation as a per cent of all industrial enterprises by country: 2016*



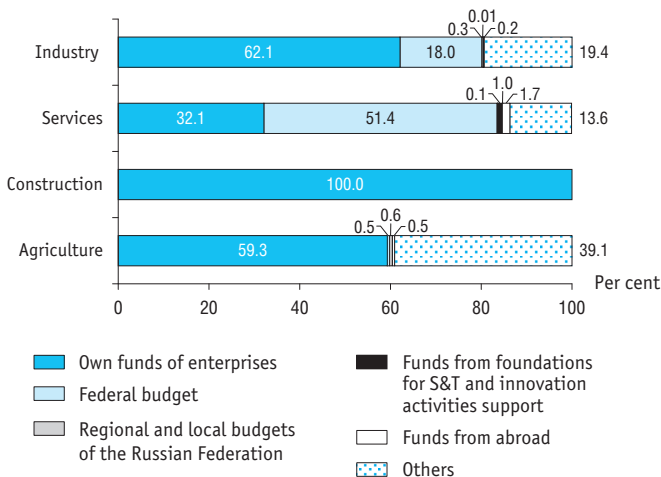
* Or nearest years for which data is available.

** Data covers manufacturing only.

5.5. Expenditure on technological innovation: 2016

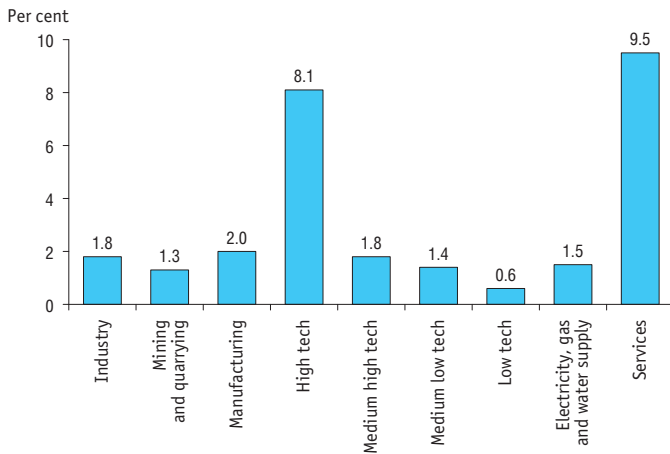
	Total, million roubles	Of which, <i>per cent</i>		
		R&D	acquisition of machinery and equipment	acquisition of technology
Industry	777518.6	23.6	53.2	1.8
Mining and quarrying	136701.0	28.1	59.7	1.6
Manufacturing	574154.1	24.4	49.2	1.9
High tech	168662.3	29.9	57.7	0.5
Medium high tech	105613.2	18.3	49.3	5.9
Medium low tech	193624.2	14.0	46.4	1.1
Low tech	41137.2	6.6	71.9	0.3
Electricity, gas and water supply	66663.4	7.5	74.4	1.3
Services	492102.1	76.3	9.1	0.6
Construction	6.3	8.7	91.3	–
Agriculture	14963.3	12.9	50.3	0.1

5.6. Expenditure on technological innovation by source of funds: 2016



5.7. Intensity of expenditure on technological innovation: 2016

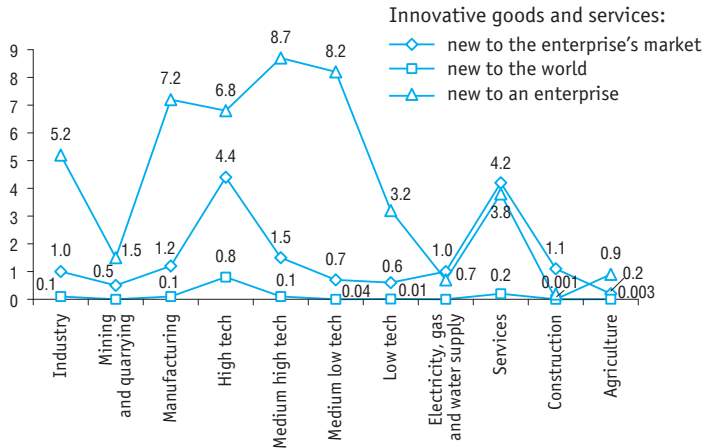
(ratio of expenditure to total sales of enterprises engaged in technological innovation)



5.8. Sales of innovative goods and services: 2016

	Million roubles	As a per cent of total sales
Industry	3723693.4	8.4
Mining and quarrying	419983.3	4.0
Manufacturing	3196986.1	10.9
High tech	379622.7	18.2
Medium high tech	747938.9	13.1
Medium low tech	1552996.1	11.1
Low tech	311309.6	4.8
Electricity, gas and water supply	106724.0	2.3
Services	616054.3	11.9
Construction	2351.0	1.7

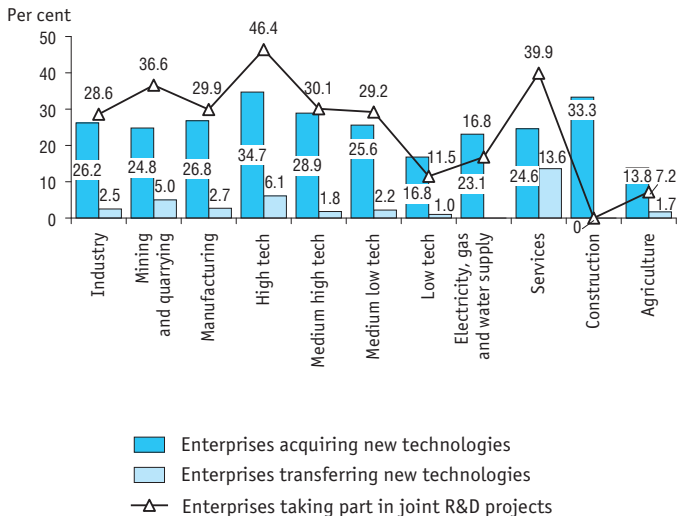
5.9. Technologically new or significantly improved goods and services as a per cent of total sales: 2016



5.10. Innovative goods and services exports

	Million roubles	As a per cent of total goods and services exports
Industry	863331.5	8.4
Mining and quarrying	133073.7	4.4
Manufacturing	730257.7	10.0
High tech	90138.9	28.9
Medium high tech	106572.4	11.6
Medium low tech	421543.8	8.2
Low tech	54151.3	9.4
Electricity, gas and water supply	–	–
Services	55079.2	22.3
Construction	–	–
Agriculture	130.3	0.7

5.11. Co-operation links of enterprises engaged in technological innovation: 2016



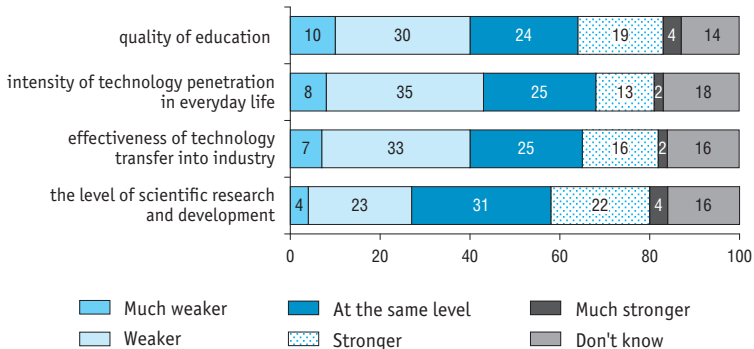
6. Public Attitudes towards Science, Technology, and Innovation



6.1. Public assessment of the level of S&T and innovation development in Russia: 2016*

(as a per cent of all respondents)

In your opinion, compared to other developed countries Russia is stronger or weaker by...?

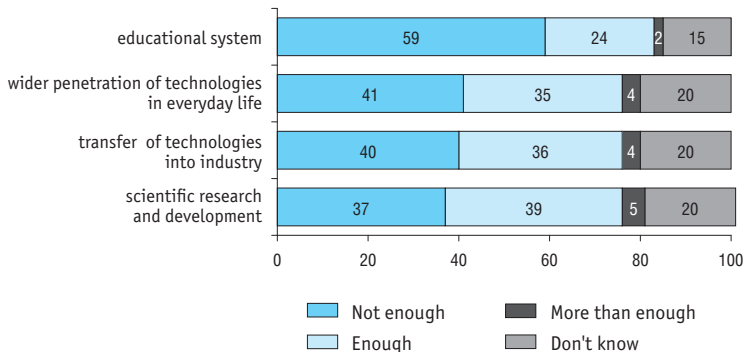


* Hereinafter the section presents the results of a representative survey of the population of Russia aged 16 years and over, organized by the HSE Institute for Statistical Studies and Economics of Knowledge in cooperation with the Russian Longitudinal Monitoring Survey (RLMS) under the financial support of the HSE Programme for Basic Research. The survey was conducted in October 2016 – January 2017.

6.2. Public opinion about funding S&T development: 2016

(as a per cent of all respondents)

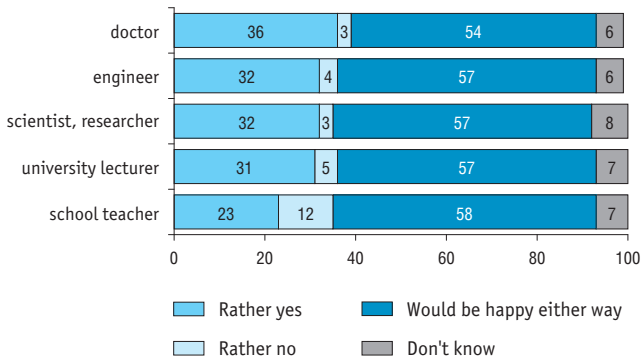
Does the Russian government allocate enough funds for ...?



6.3. Public perceptions of scientific and engineering careers: 2016

(as a per cent of all respondents)

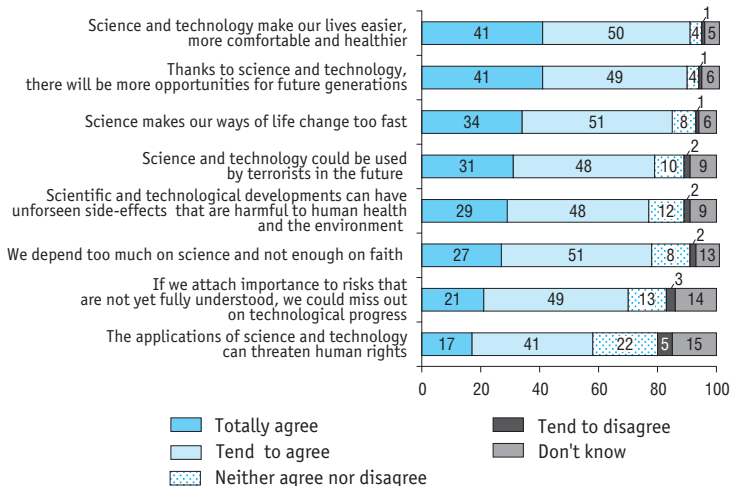
Would you be happy if your child decided to become a...?



6.4. Public assessment of science and technology influence on daily life: 2016

(as a per cent of all respondents)

Do you agree with the following statements?



Technical Notes

Bibliometric indicators are calculated on the basis of Web of Science Core Collection (SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI) and Scopus databases and include scientific articles only. An article belongs to a country if it is listed in the affiliated address of author or one of co-authors.

Competitive research funding (programme funding) – funds received by the organisation, which took the first place according to the decision of the competition commission made on the basis of summarizing the results of the competition of scientific, technical programmes, innovation and other projects related to the implementation of scientific research and development, on the basis of the best conditions for the implementation of the competitive project presented by the organisation in comparison with other participants.

Federal budget appropriations on civil-purpose S&T – federal budget funds allocated for civil-purpose basic and applied scientific research.

Grants are cash and other assets that are provided free of charge and irrevocably by persons and legal entities, including foreign citizens and foreign legal entities and international organisations which have the right to provide grants to the Russian Federation in accordance with the procedures laid down by the Government of the Russian Federation, to realize specific S&T programmes and projects, innovation projects, to conduct specific research under the conditions attached by grant-makers.

Gross domestic expenditure on R&D – actual expenditure on research and development performed by organisations during the reference year irrespective of financing sources, expressed in a monetary form.

Information and communication technologies (ICT) – the types of technologies using microelectronics for collection, storage, processing, retrieval, transmission, and presentation of data, texts, images, and sounds.

Innovative goods and services are products (goods and services) that are new or have undergone technological modification in the last three years.

Marketing innovation is the implementation of a new or significantly improved marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

Number of personnel in full-time equivalent is the indicator which reflects the sum of timeshares actually spent by R&D personnel on R&D activities and is measured in person-years.

Organisational innovation is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations.

R&D personnel are professionals whose creative activities are aimed at the advancement of scientific knowledge or search for new areas of its application, as well as direct services related to performance of R&D.

Researchers are professionals engaged in R&D and immediately performing the creation of new knowledge, products, processes, methods, and systems, as well as in the management of these activities. Researchers usually have higher education (university or equivalent) degrees.

Tax incentives (according to the main tax policy trends for 2015 and the planning period of 2016 and 2017 approved by the Government of the Russian Federation July 1, 2014)

are recognized as the income shortfalls of the Russian Federation budgetary system which are down to the application of tax benefits and other instruments (preferences) established by laws on taxation and duties.

Technological innovations are the final result of innovative activities, embodied in a technologically new or improved good or service introduced on a market, a technologically new or improved process or technique of service production (transfer) used in practice.

The technology balance of payments registers the volume of commercial transactions related to international technology and other intangible assets transfers (exports and imports).

Science. Technology. Innovation

Pocket Data Book

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