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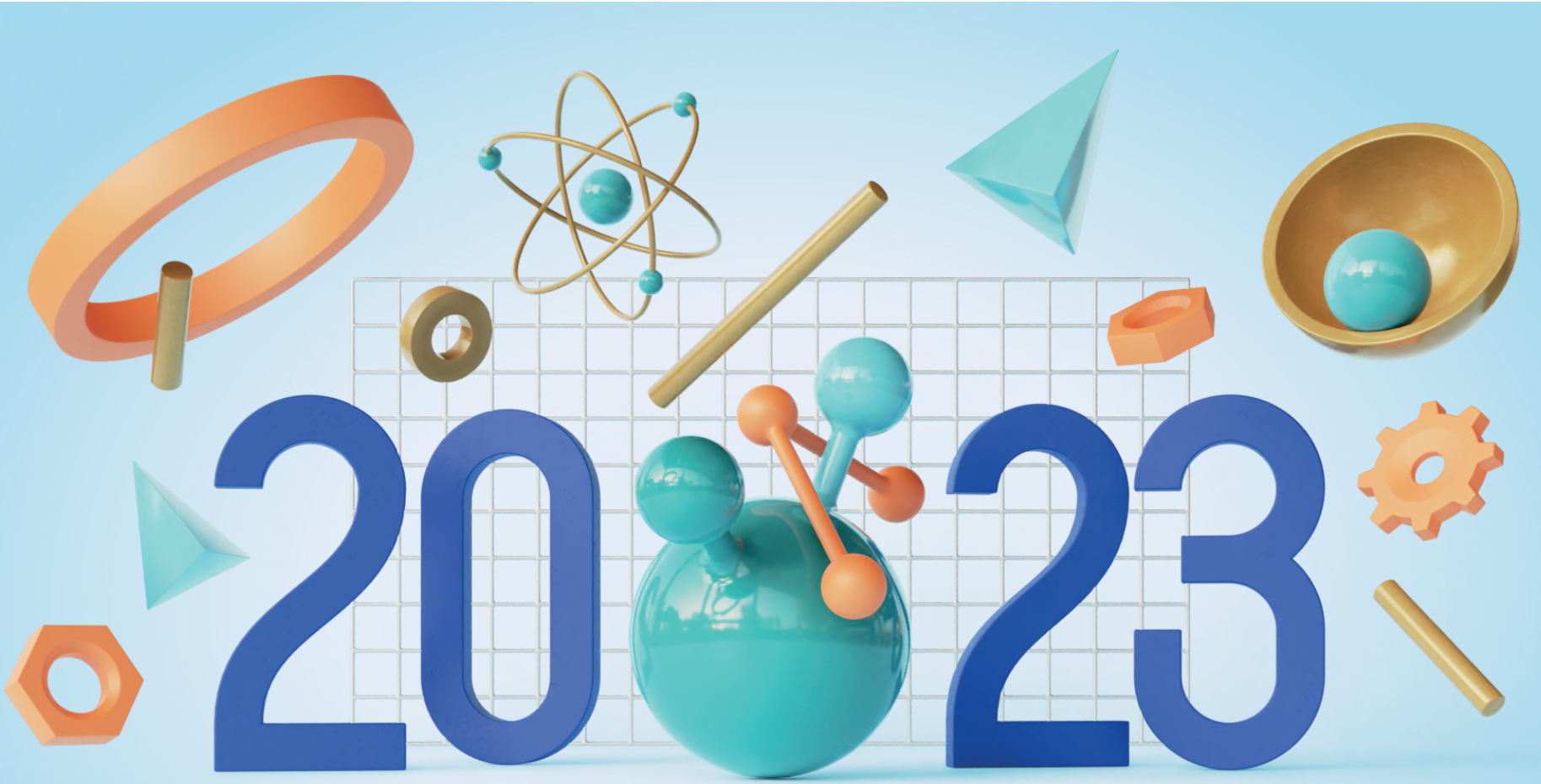

SCIENCE. TECHNOLOGY. INNOVATION

POCKET DATA BOOK

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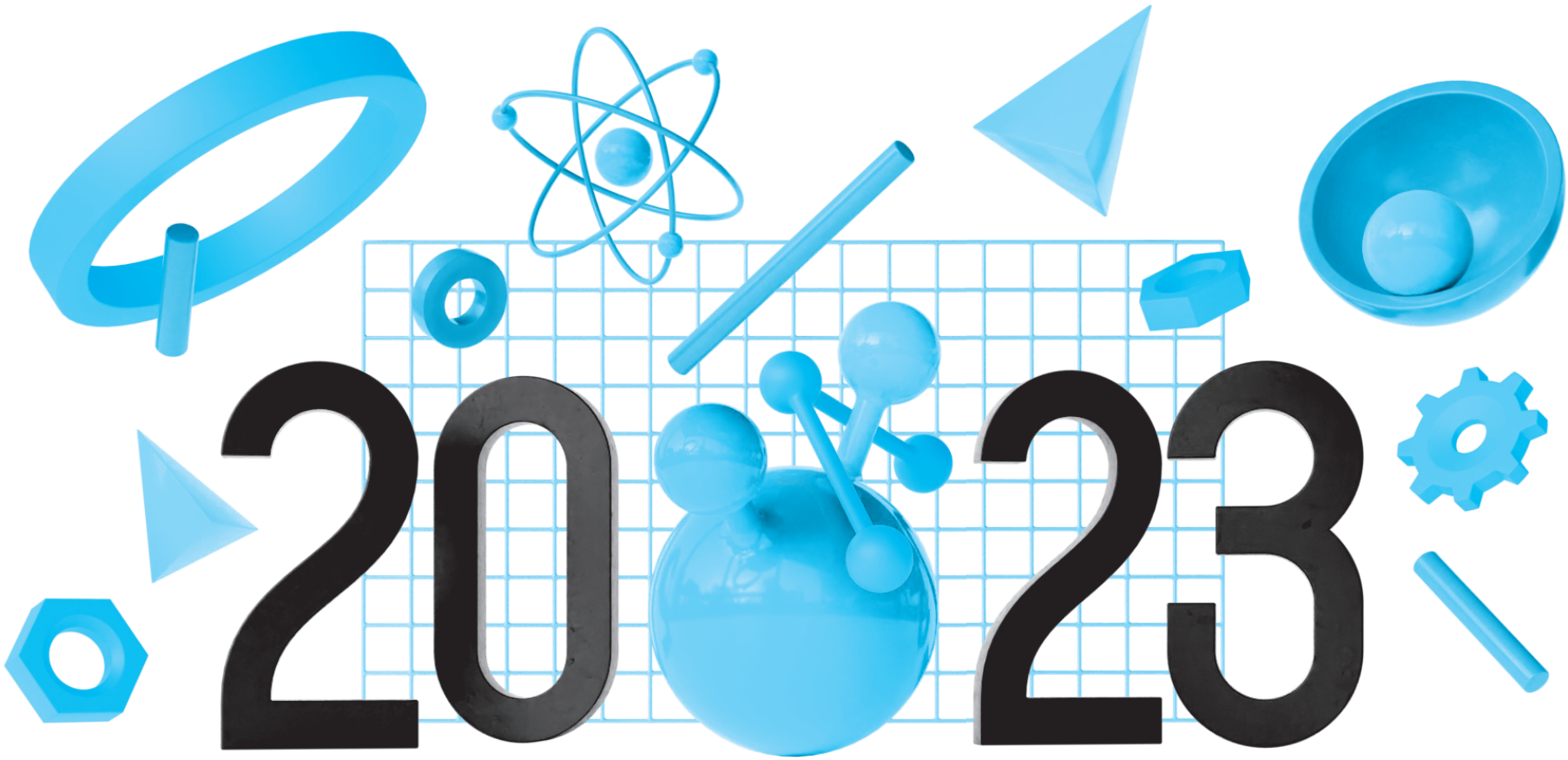

SCIENCE. TECHNOLOGY. INNOVATION

POCKET DATA BOOK

MOSCOW 2023

УДК 001(083.41)(470+571)
ББК 72(2Рос)я27
S40

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S40

This pocket data book contains main S&T and innovation indicators for the Russian Federation. The publication includes the most recent statistical data on R&D input and output, as well as international comparisons.

The data book includes information of the Russian Federal State Statistics Service, Ministry of Science and Higher Education of the Russian Federation, Russian Federal Service for Intellectual Property (Rospatent), Organisation for Economic Co-operation and Development (OECD), European Statistical Office (Eurostat), UNESCO, World Intellectual Property Organisation (WIPO), national statistical offices of other countries, and results of own methodological and analytical studies of the HSE Institute for Statistical Studies and Economics of Knowledge.

In some cases, 2021 data are preliminary.

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The publication was prepared within the framework of the Basic Research Program of the National Research University Higher School of Economics (HSE).

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Content

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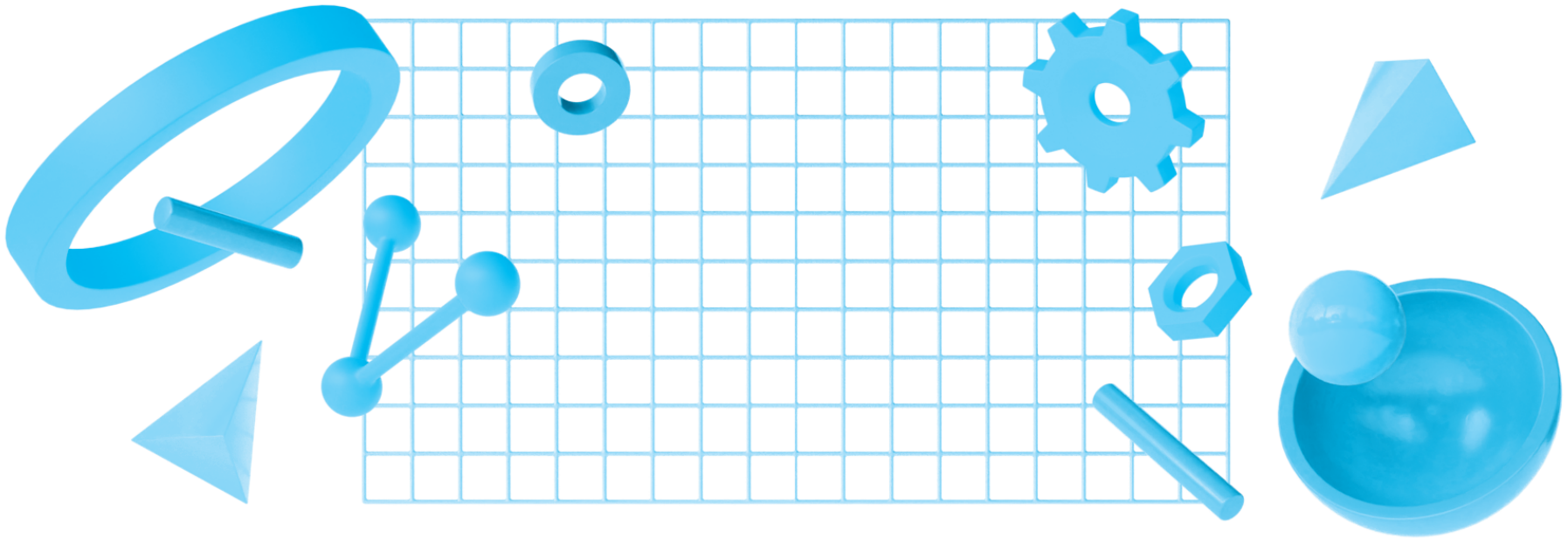
0.0 insignificant value.
In some tables, the sum of the breakdown may not add to the total because of rounding.



INFOGRAPHICS

R&D personnel: 2021

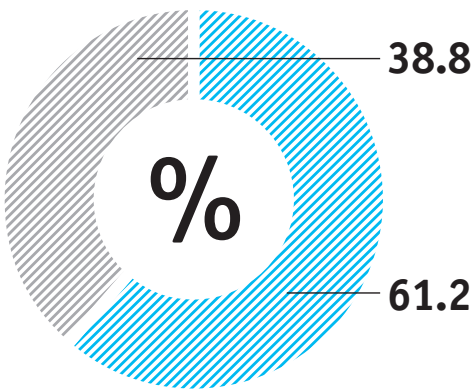
R&D personnel

662.7 thousand persons

Researchers

340.1 thousand persons

Gender



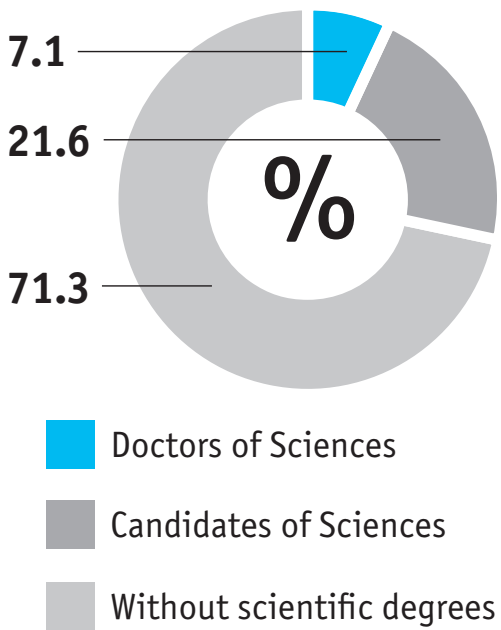
Average age

64 years
Doctors of Sciences

51 years
Candidates of Sciences

43 years
Without scientific degrees

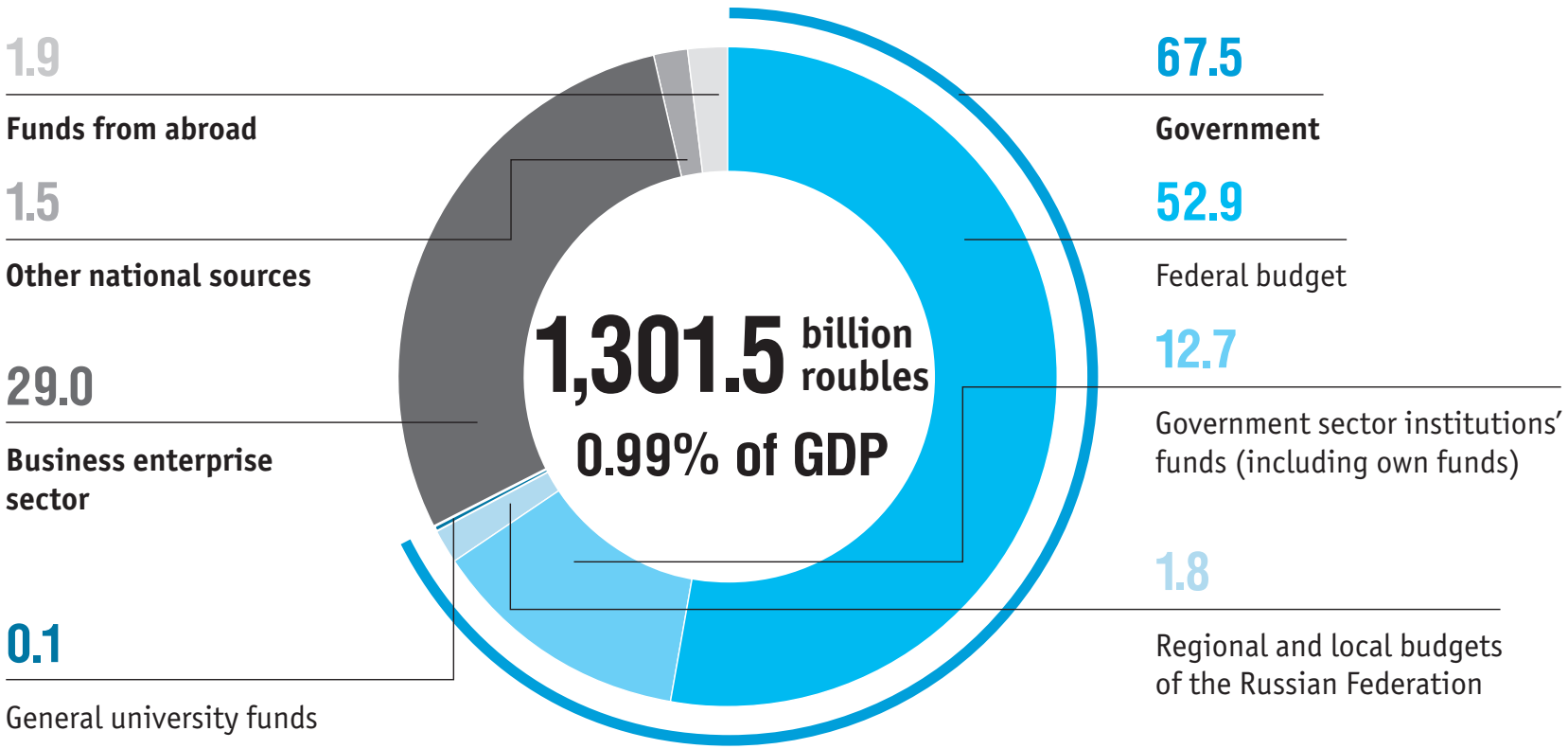
Scientific degree



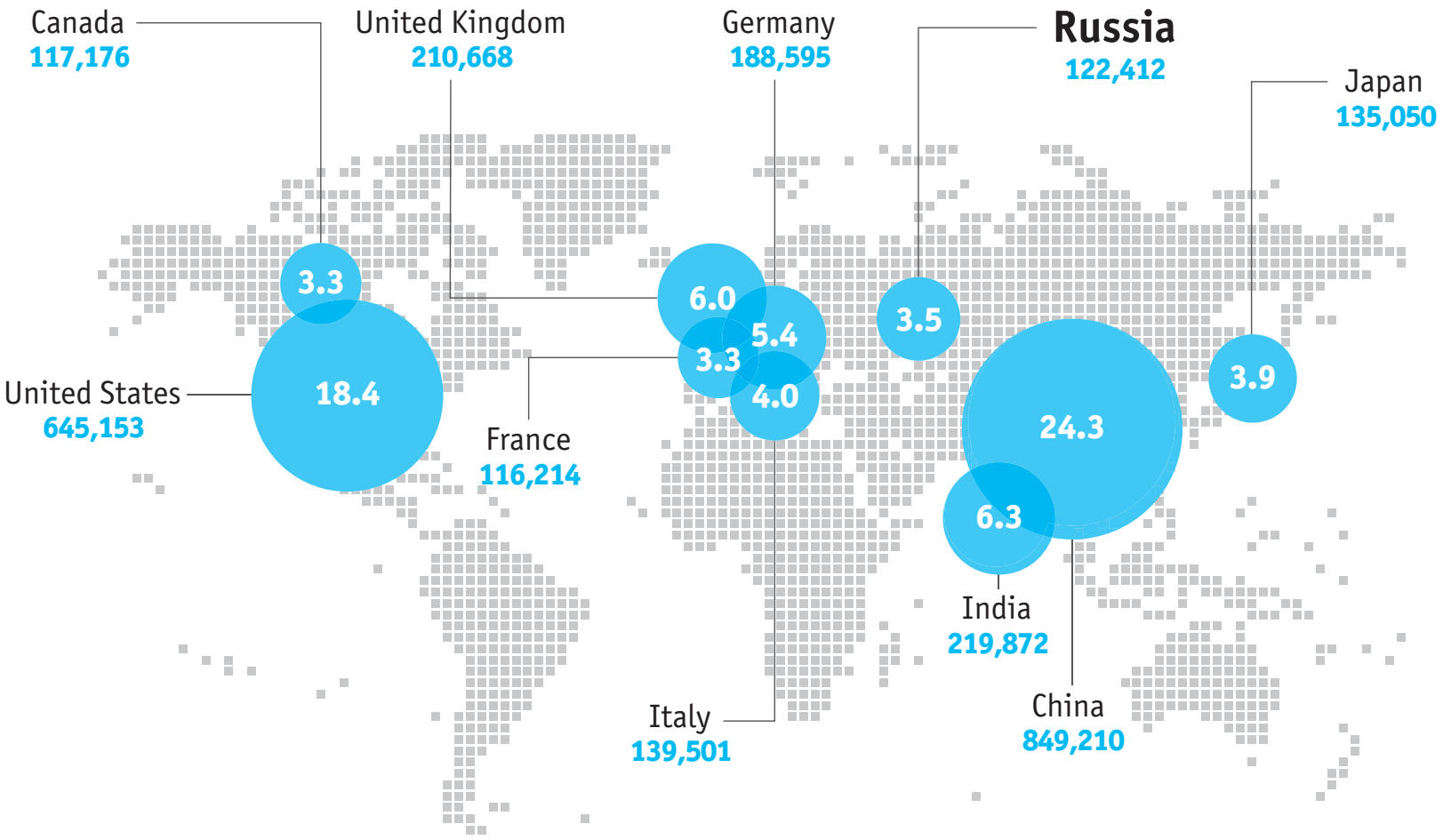
R&D funding: 2021

Gross domestic expenditure on R&D

Sources of funds, %



Publication activity by country: 2021*



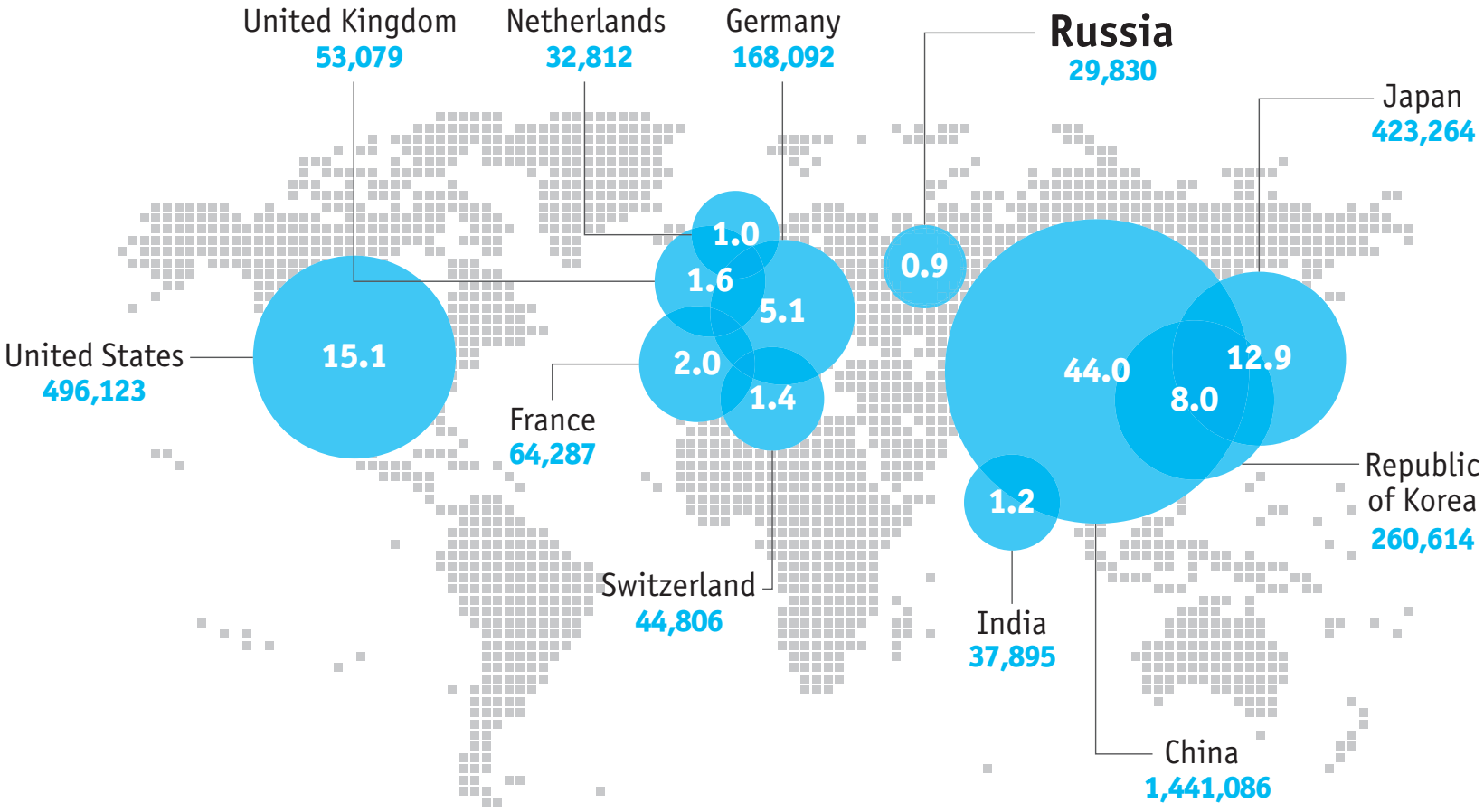
3,500,381 world total of publications

XX Number of publications

● Country's share in the world total number of articles, %

* The data cover top-10 countries. *Source:* Scopus database, as at August 31, 2022.

Patent activity by country: 2020*



3,276,700 world total of patent applications

XX Number of patent applications

Country's share in the world total of patent applications, %

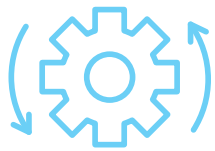
*The data cover top-10 countries and Russia. The data refer to patent applications filed by residents in the country and abroad. *Source:* WIPO, September 2022.

Development and use of advanced manufacturing technologies: 2021

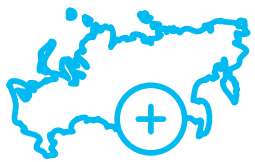
122,981
acquired from other Russian organisations

256,582
Technologies used

53,198
developed by organisations using their own resources



1,926
new to Russia

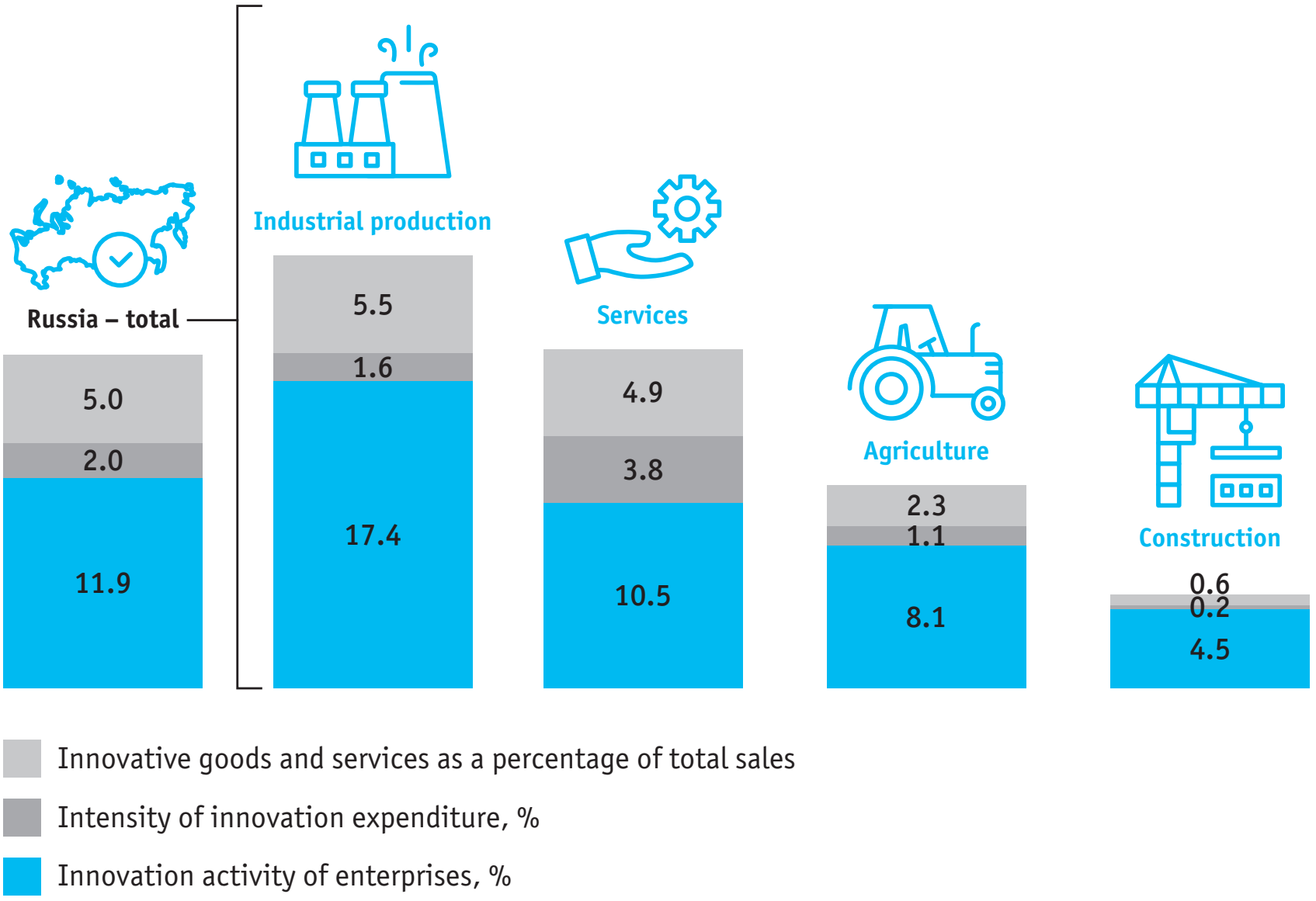


80,403
acquired from foreign suppliers

260
radically new

2,186
Technologies developed

Innovation activity: 2021



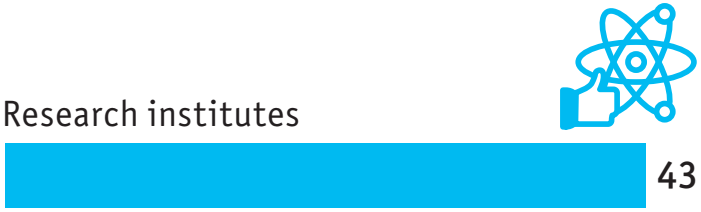
Public attitudes towards science and technology: 2021

Scientists work for the benefit of the humanity, %:

Trust towards scientific institutes, %:

Universities

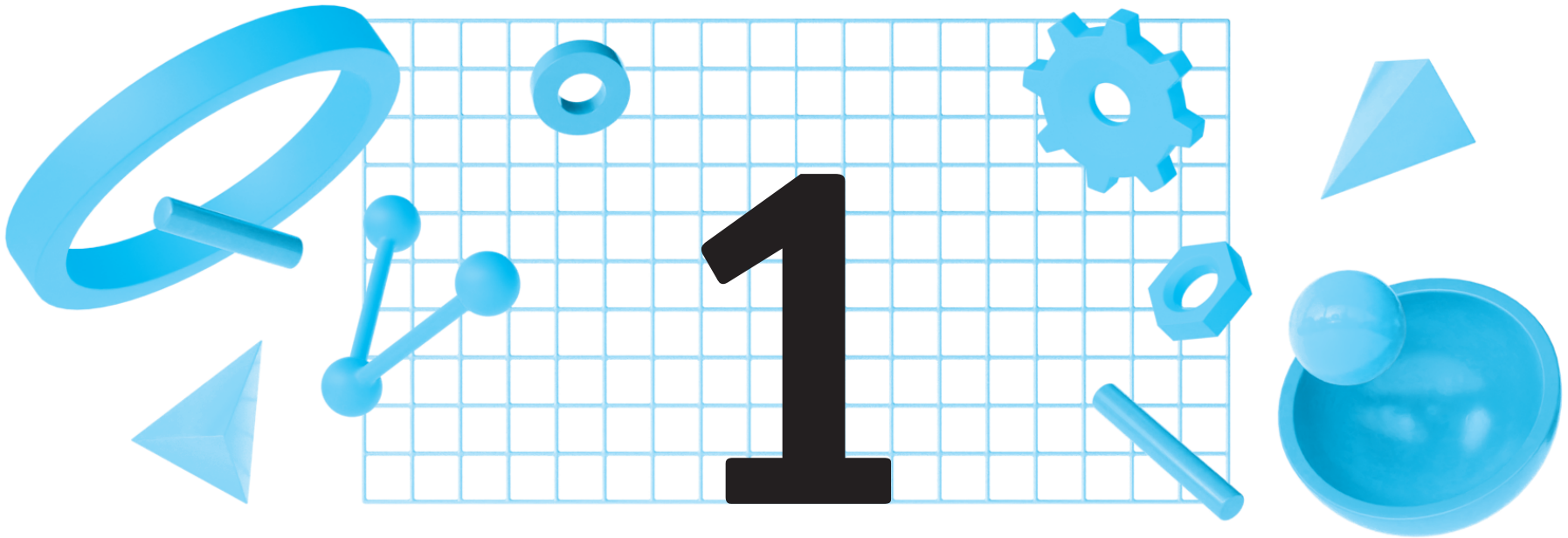
Research institutes



Need for censorship in science, %:

In respect of scientific research in general

In respect of scientific research that can bring humanity not only benefits but also harm



1

INSTITUTIONS

1.1. R&D institutions by type

	2000	2010	2018	2019	2020	2021
Total	**4099**	**3492**	**3950**	**4051**	**4175**	**4175**
Research institutes	2686	1840	1574	1618	1633	1627
Design organisations	318	362	254	255	239	233
Construction project and exploration organisations	85	36	20	11	12	13
Pilot plants	33	47	49	44	35	33
Higher education institutions	390	517	917*	951	969	990
Industrial enterprises	284	238	419	450	441	446
Others	303	452	717	722	846	833

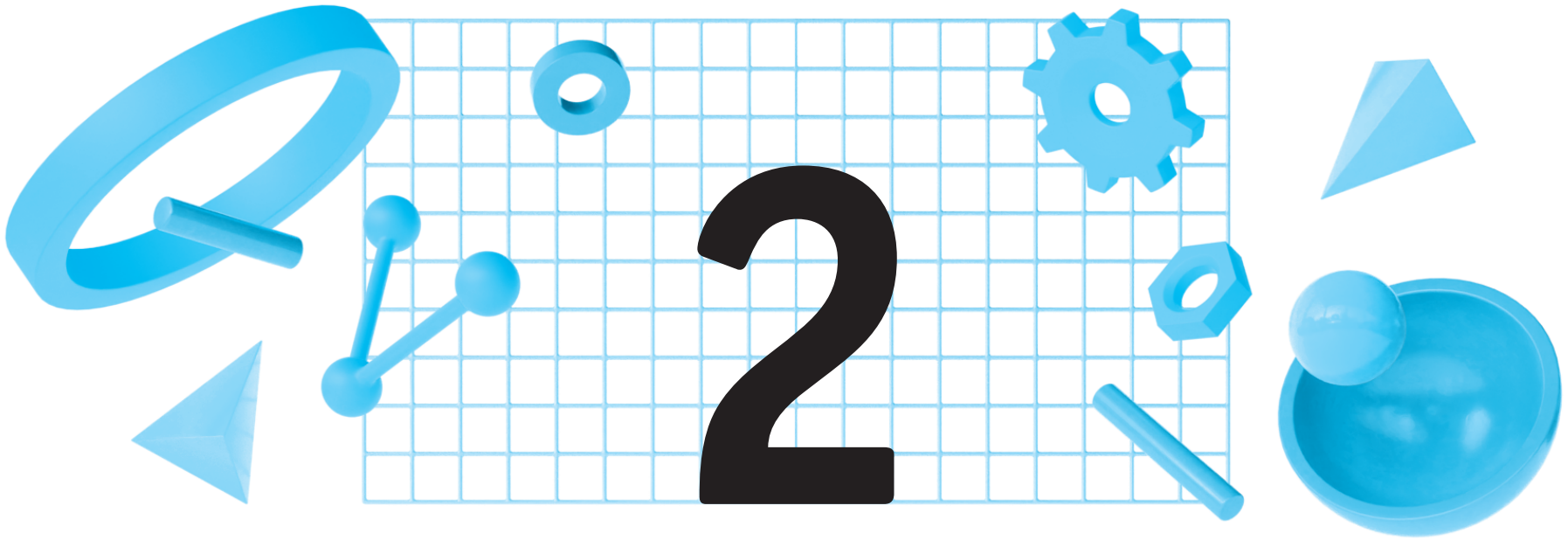
* Since 2015, the number of R&D institutions includes branches of higher education institutions.

1.2. R&D institutions by sector of performance

	2000	2010	2018	2019	2020	2021
Total	**4099**	**3492**	**3950**	**4051**	**4175**	**4175**
Sectors of performance:						
government	1247	1400	1511	1479	1501	1462
business enterprise	2278	1405	1304	1374	1426	1437
higher education	526	617	998	1057	1080	1096
private non-profit	48	70	137	141	168	180

1.3. R&D institutions by ownership

	2000	2010	2018	2019	2020	2021
Total	**4099**	**3492**	**3950**	**4051**	**4175**	**4175**
Ownership:						
public	2938	2610	2510	2555	2591	2580
private	388	470	880	920	999	1014
mixed	635	304	304	310	304	301
by state corporations	…	6	113	121	121	134
foreign and joint (with both Russian and foreign participation)	64	56	88	96	104	93
others	74	46	55	49	56	53



2

PERSONNEL

2.1. R&D personnel

(headcount)

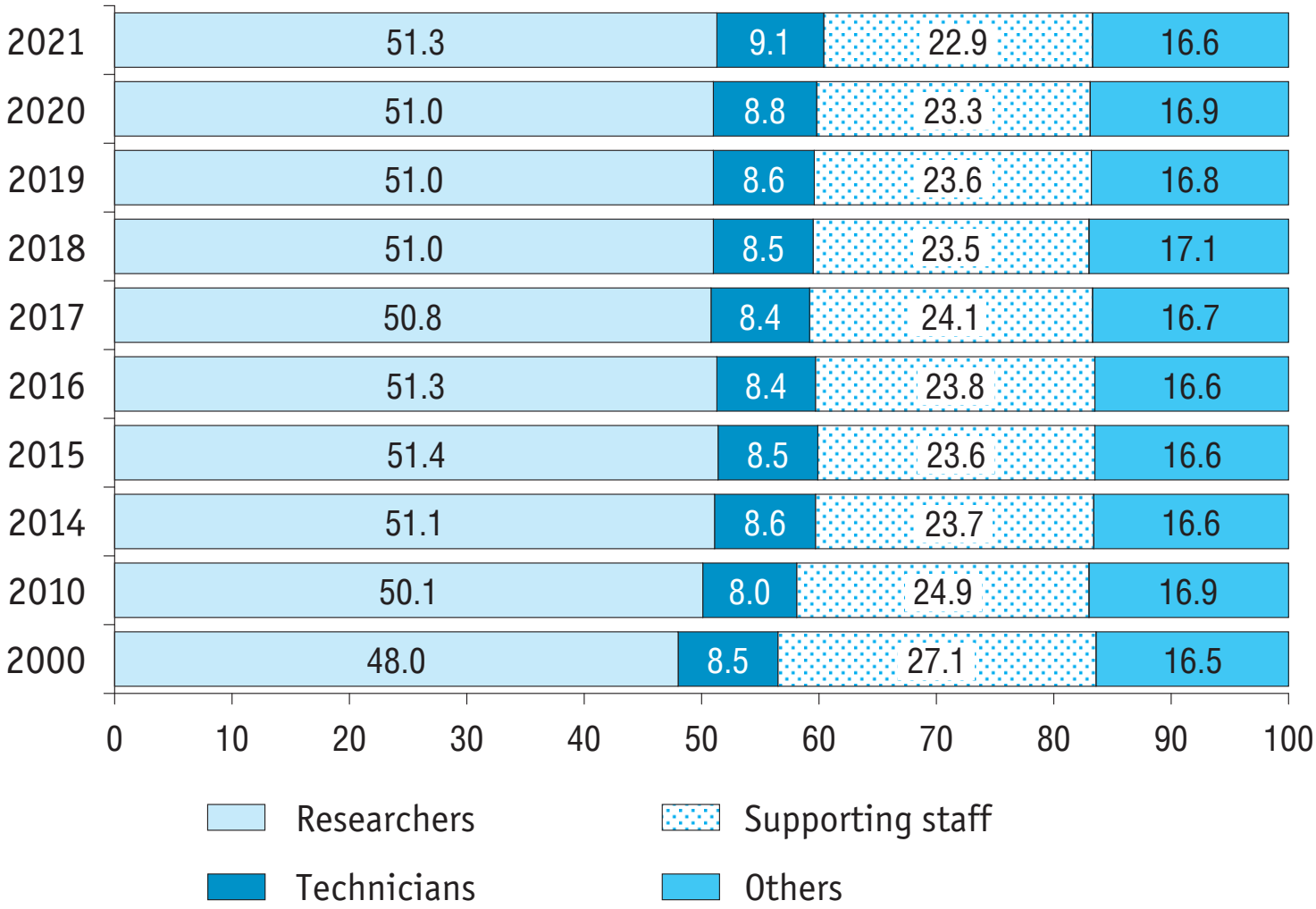
	2000	2010	2018	2019	2020	2021
Total	**887729**	**736540**	**682580**	**682464**	**679333**	**662702**
Research institutes	718434	435304	394402	401771	388757	366041
Design organisations	56488	157146	115565	112684	103346	109185
Construction project and exploration organisations	6811	6324	1296	508	1955	2161
Pilot plants	6145	1558	5747	3284	2897	7477
Higher education institutions	31110	46776	58573	59280	61436	63990
Industrial enterprises	54721	51807	52977	57974	63189	64489
Others	14020	37625	54020	46963	57753	49359

2.2. R&D personnel by occupation

(headcount)

	2000	2010	2018	2019	2020	2021
Total	**887729**	**736540**	**682580**	**682464**	**679333**	**662702**
Researchers	425954	368915	347854	348221	346497	340142
Technicians	75184	59276	57722	58681	59557	60474
Supporting staff	240506	183713	160591	160864	158298	152066
Others	146085	124636	116413	114698	114981	110020

2.3. Percentage distribution of R&D personnel by occupation



2.4. R&D personnel by sector of performance

	2000	2010	2018	2019	2020	2021
			Headcount			
Total	**887729**	**736540**	**682580**	**682464**	**679333**	**662702**
Sectors of performance:						
government	255850	259007	270357	227480	248680	234973
business enterprise	590646	423112	347080	379442	359280	352581
higher education	40787	53290	64073	74215	68860	72353
private non-profit	446	1131	1070	1327	2513	2795
			Percentage			
Total	**100**	**100**	**100**	**100**	**100**	**100**
Sectors of performance:						
government	28.8	35.2	39.6	33.3	36.6	35.5
business enterprise	66.5	57.4	50.8	55.6	52.9	53.2
higher education	4.6	7.2	9.4	10.9	10.1	10.9
private non-profit	0.1	0.2	0.2	0.2	0.4	0.4

2.5. R&D personnel turnover

(headcount)

	Inflow – total	Of whom		Outflow – total	Of whom	
		higher education graduates	other research institutes' graduates		resigned	were made redundant
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	94550	11075	13210	93112	59214	2015
2015	100290	11662	14026	98643	58285	4238
2017	92300	9985	12539	98797	57974	4327
2019	89311	11165	11263	89842	54687	2689
2020	85544	14015	15750	91079	...	2796
2021	92653	17005	13430	98258	...	2105

2.6. R&D personnel by country

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

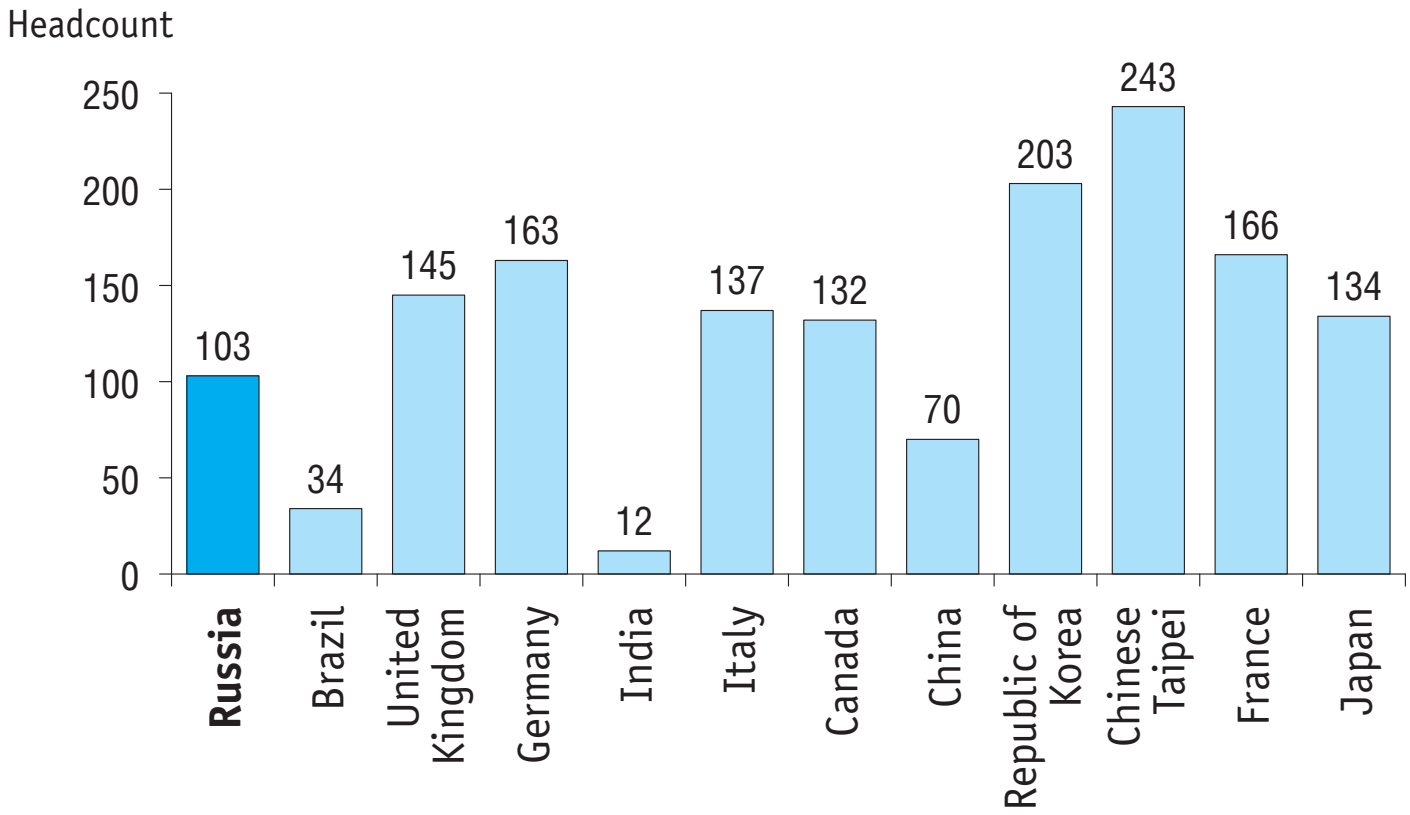
	2000	2010	2021*	Rank**
Russia	**1007.3**	**840.0**	**729.4**	**5**
Brazil	105.2	243.6	316.5	11
Canada	167.9	233.1	256.1	13
China	922.1	2553.8	5234.5	1
Chinese Taipei	104.6	211.2	279.6	12
France	327.5	397.8	470.6	9
Germany	484.7	548.7	733.8	4
India	318.4	441.1	553.0	6
Italy	150.1	225.6	342.3	10
Japan	896.8	877.9	911.6	3
Republic of Korea	138.1	335.2	545.4	7
United Kingdom	288.6	350.8	475.1	8
United States***	984.7	1200.0	1586.5	2

* Or nearest years for which data are available.

** In global ranking.

*** Number of researchers in full-time equivalent.

2.7. R&D personnel per 10,000 employment by country: 2021*



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

2.8. Researchers by sector of performance

	2000	2010	2018	2019	2020	2021
			Headcount			
Total	**425954**	**368915**	**347854**	**348221**	**346497**	**340142**
Sectors of performance:						
government	129725	131734	131366	113555	120649	115208
business enterprise	267640	197785	171205	185358	178481	175178
higher education	28325	38640	44489	48429	45837	48087
private non-profit	264	756	794	879	1530	1669
			Percentage			
Total	**100**	**100**	**100**	**100**	**100**	**100**
Sectors of performance:						
government	30.5	35.7	37.8	32.6	34.8	33.9
business enterprise	62.8	53.6	49.2	53.2	51.5	51.5
higher education	6.6	10.5	12.8	13.9	13.2	14.1
private non-profit	0.1	0.2	0.2	0.3	0.4	0.5

2.9. Researchers with scientific degrees

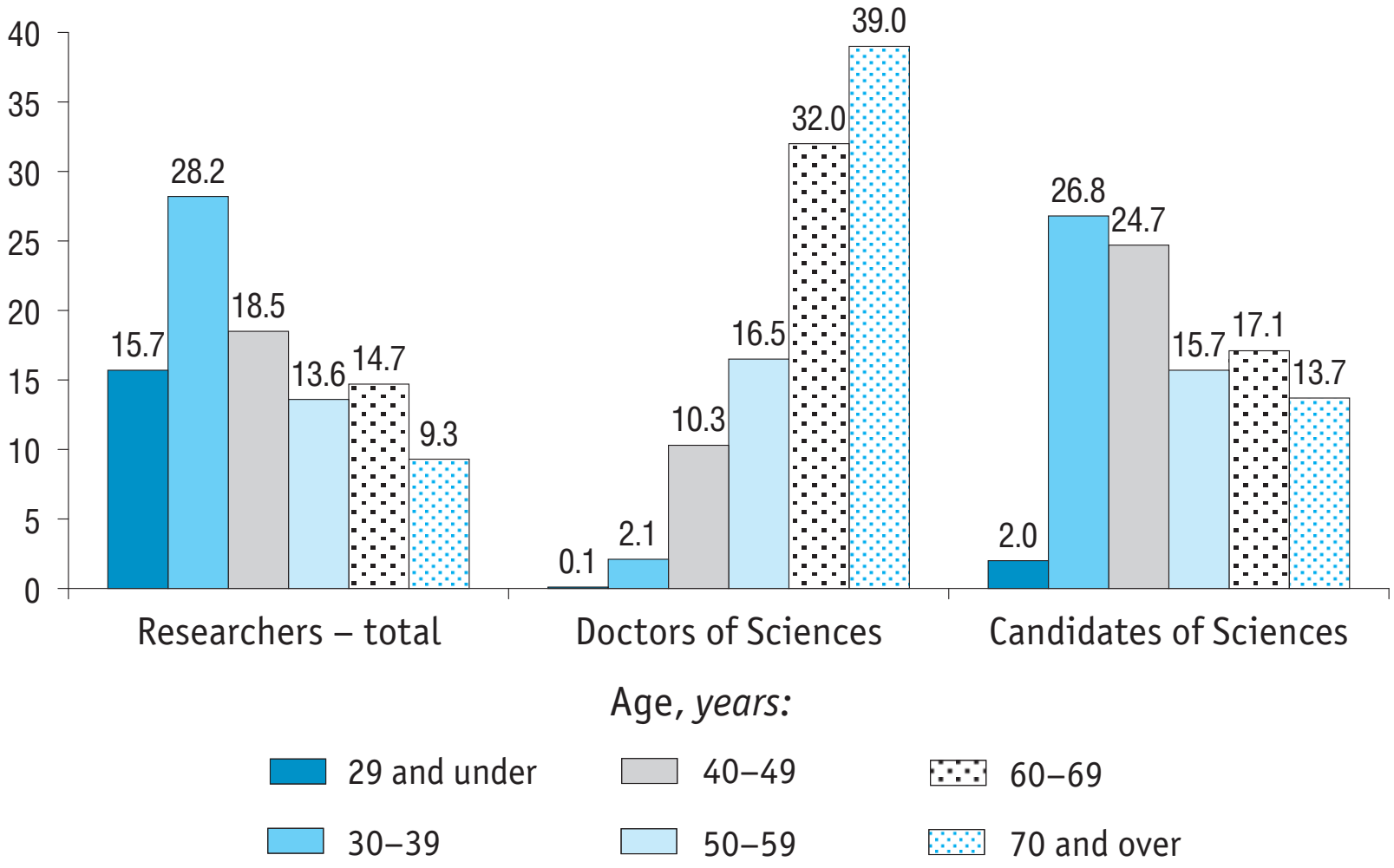
	2000	2010	2018	2019	2020	2021
			Headcount			
Researchers with scientific degrees	**105911**	**105114**	**100330**	**99912**	**99122**	**97537**
Doctors of Sciences	21949	26789	25288	24844	24473	24074
Candidates of Sciences	83962	78325	75042	75068	74649	73463
			As a percentage of the total number of researchers			
Researchers with scientific degrees	**24.9**	**28.5**	**28.8**	**28.7**	**28.6**	**28.7**
Doctors of Sciences	5.2	7.3	7.3	7.1	7.1	7.1
Candidates of Sciences	19.7	21.2	21.6	21.6	21.5	21.6

2.10. Researchers by field of science and technology: 2021

(headcount)

	Researchers	Of whom	
		Doctors of Sciences	Candidates of Sciences
Total	**340142**	**24074**	**73463**
Natural sciences	84364	10475	30499
Engineering and technology (including agroengineering, food technology)	199585	3825	17852
Medical and health sciences (including psychophysiology)	13923	3159	5520
Agricultural and veterinary sciences (excluding agroengineering, food technologies)	9669	1195	3914
Social sciences	19728	2989	9537
Humanities	12873	2431	6141

2.11. Percentage distribution of researchers by age: 2021



2.12. Researchers by country

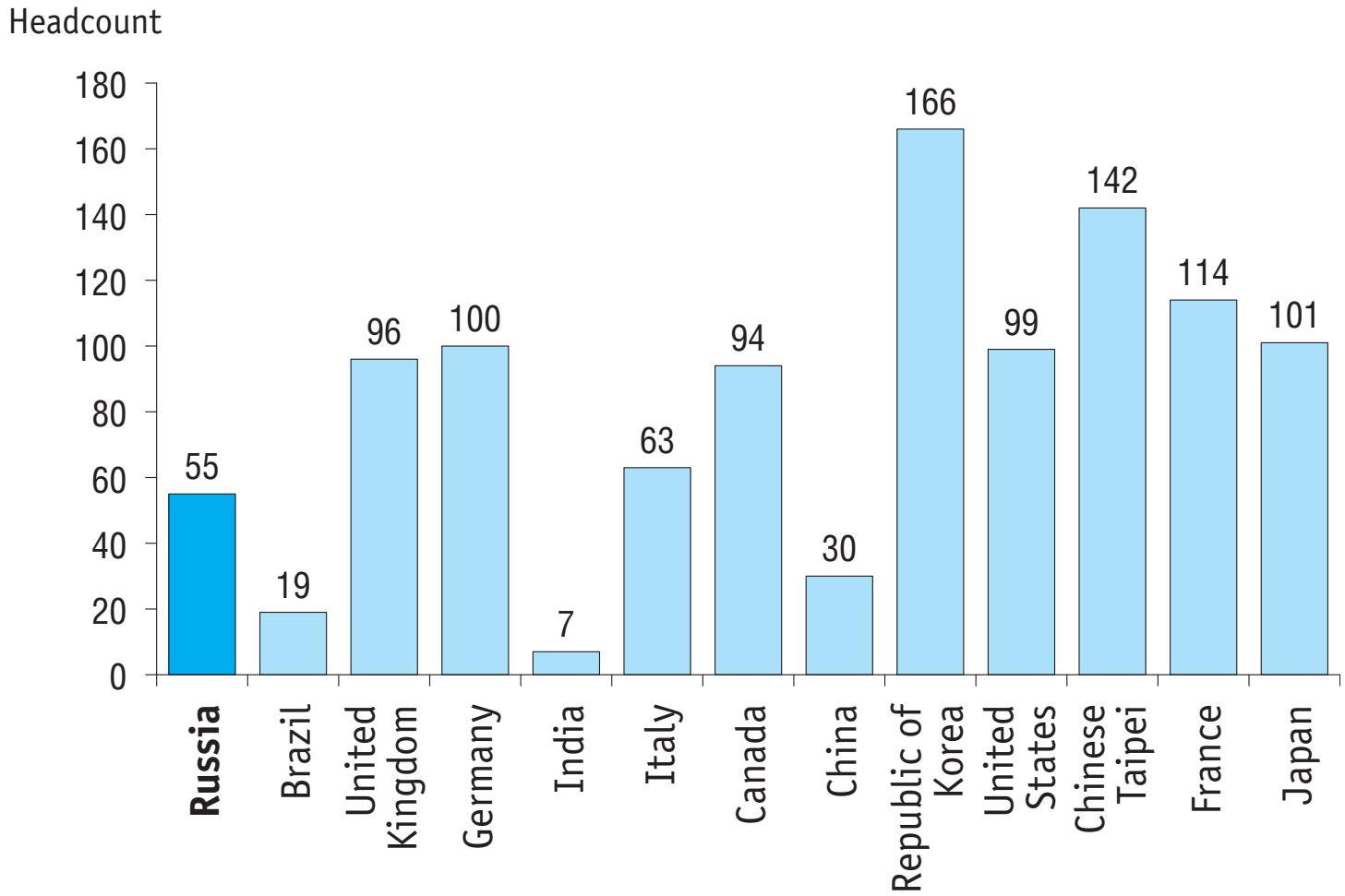
(thousand person-years; in full-time equivalent)

	2000	2010	2021*	Rank**
Russia	**506.4**	**442.1**	**389.2**	**6**
Brazil	51.6	134.3	180.0	11
Canada	107.9	158.7	182.8	10
China	695.1	1210.8	2281.1	1
Chinese Taipei	55.5	128.1	163.5	12
France	172.1	243.5	321.6	8
Germany	257.9	328.0	450.8	4
India	115.9	192.8	341.8	7
Italy	66.1	103.4	157.0	13
Japan	647.6	656.0	689.9	3
Republic of Korea	108.4	264.1	446.7	5
United Kingdom	170.6	256.6	316.3	9
United States	984.7	1200.0	1586.5	2

* Or nearest years for which data are available.

** In global ranking.

2.13. Researchers per 10,000 employment by country: 2021*



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

Training of R&D personnel

2.14. Main indicators of postgraduate studies

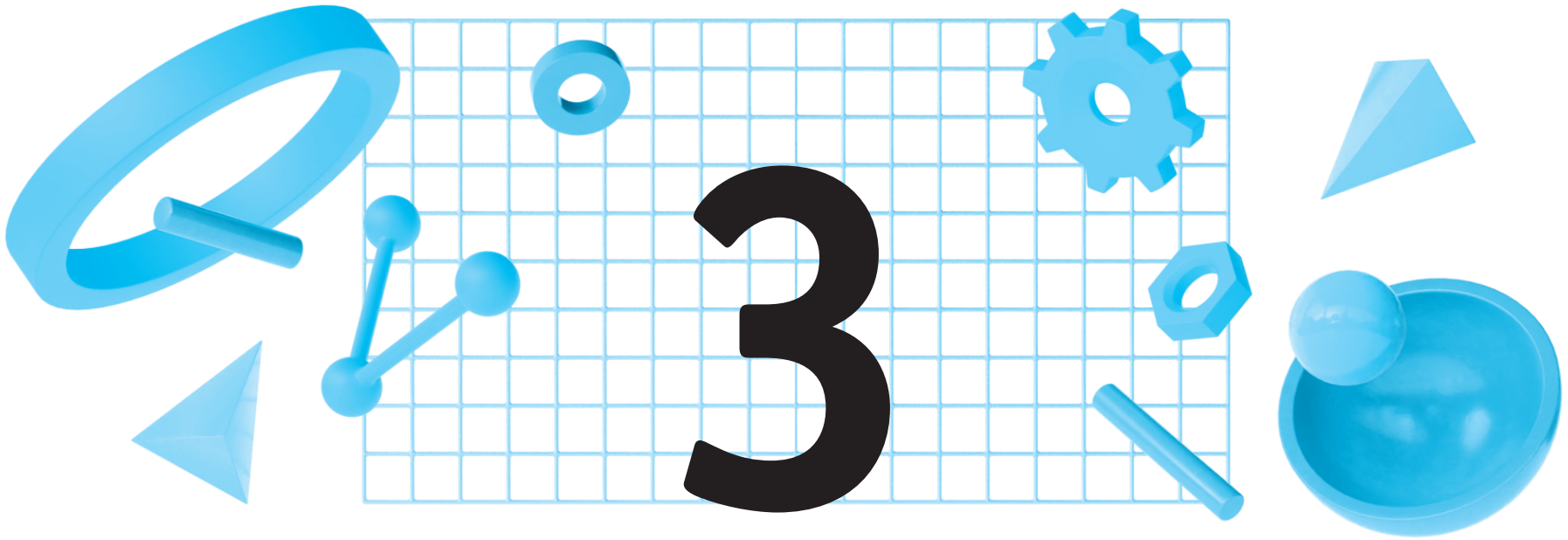
	Number of institutions *(at the end of the year)*	Enrolment *(at the end of the year; headcount)*	Entrants, *headcount*	Graduates, *headcount*	Of whom defended their thesis, *headcount**
2000	1362	117714	43100	24828	7503
2005	1473	142899	46896	33561	10650
2010	1568	157437	54558	33763	9611
2015	1446	109936	31647	25826	4651
2016	1359	98352	26421	25992	3730
2017	1284	93523	26081	18069	2320
2018	1223	90823	27008	17729	2198
2019	1187	84265	24912	15453	1629
2020	1189	87751	27710	13957	1245
2021	1174	90156	27992	14326	1500

* Number of individuals who defended their thesis during their postgraduate studies (i.e., during the period of time specified in the order of admission).

2.15. Main indicators of postdoctoral studies

	Number of institutions *(at the end of the year)*	Enrolment *(at the end of the year; headcount)*	Entrants, *headcount*	Graduates, *headcount*	Of whom defended their thesis, *headcount**
2000	492	4213	1637	1251	486
2005	535	4282	1457	1417	516
2010	602	4418	1650	1259	336
2015	437	2007	419	1386	181
2016	385	921	397	1346	151
2017	223	1059	439	253	65
2018	213	1048	393	330	82
2019	195	955	386	356	82
2020	183	979	351	339	63
2021	182	932	210	354	87

* Number of individuals who defended their thesis during postdoctoral studies (i.e., during the period of time specified in the order of admission).



3

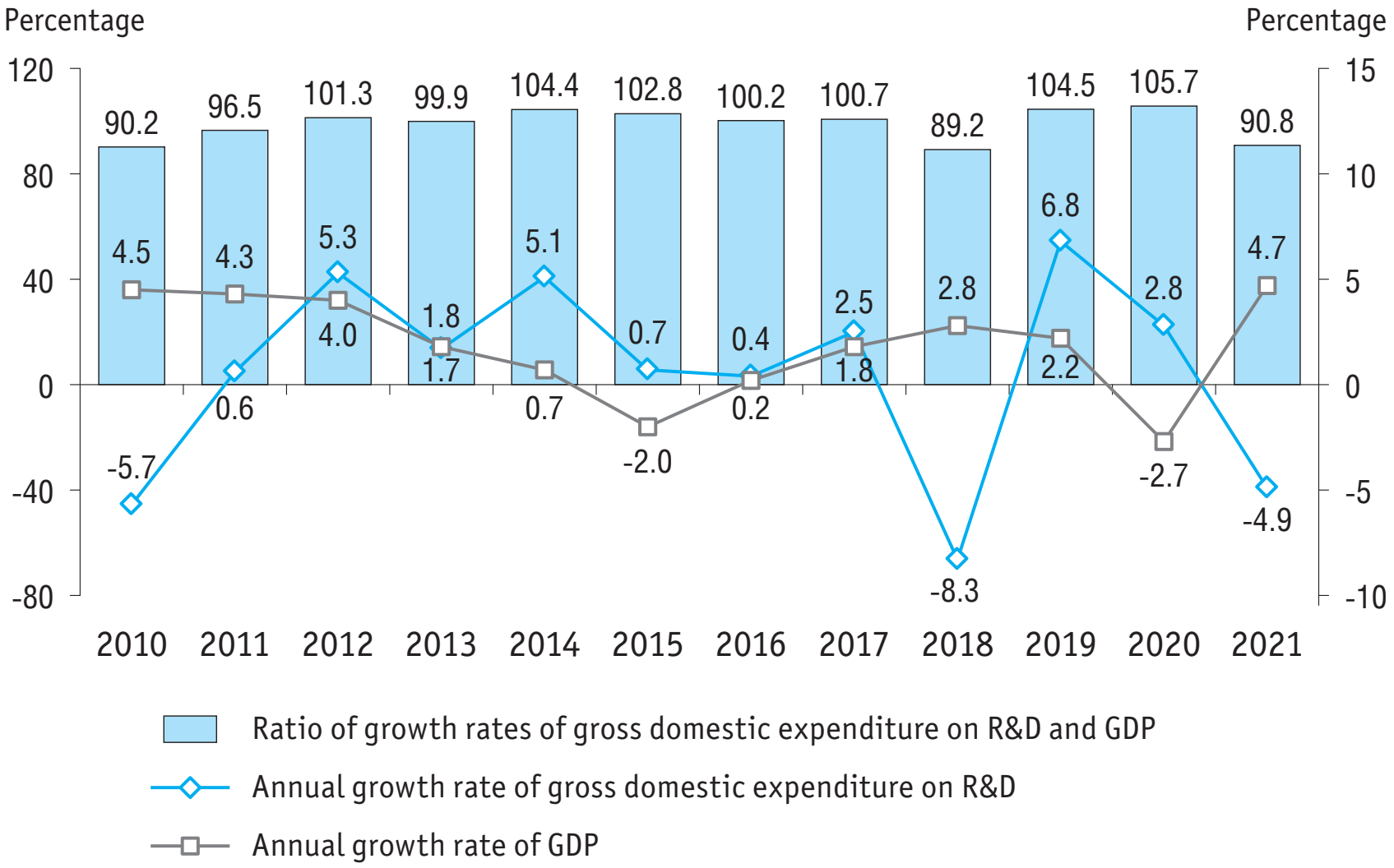
R&D FUNDING

3.1. Gross domestic expenditure on R&D

	2010	2017	2018	2019	2020	2021
Gross domestic expenditure on R&D, *million roubles:*						
at current prices	523377.2	1019152.4	1028247.6	1134786.7	1174534.3	1301490.9
at constant 2010 prices*	523377.2	614650.8	563763.2	602296.4	619055.7	588803.4
Gross domestic expenditure on R&D as a percentage of GDP	1.13	1.11	0.99	1.04	1.09	0.99

* The data are calculated using GDP deflator as at April 8, 2022.

3.2. Growth rates of gross domestic expenditure on R&D and GDP



3.3. Gross domestic expenditure on R&D by country

(million current USD PPPs)

	2000	2010	2021*	Rank**
Russia	**10504.4**	**33080.9**	**47618.0**	**10**
Brazil	16589.9	32461.8	36315.5	12
Canada	16744.9	24889.1	31974.4	13
China	32899.1	212161.6	583754.5	2
Chinese Taipei	9147.9	25044.6	47935.4	9
France	33270.2	50862.7	74563.3	6
Germany	53885.3	86969.8	144352.7	4
India	16761.4	41232.6	58721.4	7
Italy	15471.7	25383.7	37704.2	11
Japan	98935.2	140511.5	174065.4	3
Republic of Korea	18520.6	52146.6	112868.2	5
United Kingdom	25145.8	37539.7	55983.7	8
United States	268558.0	408496.0	720880.0	1

* Or nearest years for which data are available.

** In global ranking.

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

	2000	2010	2021*
Russia	**1.05**	**1.13**	**0.99**
Brazil	1.05	1.16	1.21
Canada	1.86	1.83	1.61
China	0.89	1.71	2.40
Chinese Taipei	1.91	2.82	3.63
France	2.09	2.18	2.35
Germany	2.41	2.73	3.13
India	0.76	0.79	0.66
Italy	1.00	1.22	1.51
Japan	2.86	3.10	3.27
Republic of Korea	2.13	3.32	4.81
United Kingdom	1.61	1.64	1.71
United States	2.62	2.71	3.45

* Or nearest years for which data are available.

3.5. Federal budget appropriations on civil S&T

	2010*	2019*	2020*	2021*	2022**
Federal budget appropriations on civil S&T, *million roubles*	**237644.0**	**489158.4**	**549602.1**	**626574.3**	**568951.5**
Basic research	82172.0	192495.3	203246.8	225152.7	229288.3
Applied research	155472.0	296663.1	346355.4	401421.6	339663.1
As a percentage of:					
GDP	0.51	0.45	0.51	0.48	…
total federal budget appropriations	2.35	2.69	2.41	2.53	2.85

* *Sources:* annual reports on the implementation of the consolidated budget of the Russian Federation and the budgets of state extra-budgetary funds (according to the Russian Federal Treasury).

** In accordance with Federal Law no. 390-FL of December 6, 2021 'On the 2022 Federal Budget and the 2023–2024 Budget Plan'.

3.6. Government budget appropriations on R&D by country

(million current USD PPPs)

	2000	2010	2021*
Russia**	**4685.4**	**26074.9**	**39674.2**
Brazil***	8576.9	16593.0	19463.2
Canada	4589.4	8475.9	9183.2
China***	11003.3	50951.6	115293.1
Chinese Taipei	2955.7	7038.9	8190.5
France	14878.1	19143.1	24347.6
Germany	17231.6	28589.4	52810.6
India***	…	…	34855.6
Italy	9507.2	12349.8	17580.8
Japan	21231.4	32128.0	81463.0
Republic of Korea	5014.5	16291.9	32332.6
United Kingdom	9490.9	13316.9	18209.0
United States	72681.0	119382.0	165560.0

* Or nearest years for which data are 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)

	2000	2010	2018	2019	2020	2021
Gross domestic expenditure on R&D	**76697.1**	**523377.2**	**1028247.6**	**1134786.7**	**1174534.3**	**1301490.9**
Government*	42035.7	368191.8	689270.6	752261.0	796369.9	878778.6
Of which federal budget appropriations	29639.3	287057.5	539896.7	602743.8	618170.4	688707.9
Business enterprise sector	25208.4	133499.0	303219.2	342833.0	343278.0	378026.0
Higher education sector	213.0	2436.6	8841.5	9010.7	10876.3	15733.1
Private non-profit sector institutions	67.6	682.4	2761.1	3462.8	3327.1	3829.3
Funds from abroad	9172.4	18567.5	24155.3	27219.2	20683.1	25124.0

* Including budget funds, general university funds, and government sector institutions' funds (including own funds).

3.8. Percentage distribution of gross domestic expenditure on R&D by source of funds and country: 2021*

	Gross domestic expenditure on R&D	Government	Business enterprise sector	Other national sources	Funds from abroad
Russia	**100**	**67.5****	**29.0**	**1.5**	**1.9**
Brazil	100	53.6	43.5	2.9	...
Canada	100	32.3	43.5	14.8	9.4
China	100	19.8	77.5	...	0.4
Chinese Taipei	100	16.8	82.5	0.6	0.1
France	100	31.4	56.7	3.8	8.1
Germany	100	29.7	62.6	0.4	7.3
India	100	63.2	36.8	...	...
Italy	100	33.7	52.8	2.2	11.3
Japan	100	15.2	78.3	6.0	0.5
Republic of Korea	100	22.4	76.6	0.8	0.2
United Kingdom	100	27.1	53.6	4.8	14.5
United States	100	20.1	66.2	6.5	7.2

* Or nearest years for which data are available.

** Including budget funds, general university funds, and government sector institutions' funds (including own funds).

3.9. Percentage distribution of gross domestic expenditure on R&D by sector of performance and country: 2021*

	Gross domestic expenditure on R&D	Government sector	Business enterprise sector	Higher education sector	Private non-profit sector
Russia	**100**	**31.4**	**57.8**	**10.2**	**0.7**
Canada	100	7.1	52.3	40.3	0.3
China	100	15.7	76.6	7.7	...
Chinese Taipei	100	9.6	82.5	7.8	0.1
France	100	11.9	66.2	20.2	1.7
Germany	100	14.6	66.6	18.7	...
India	100	56.1	36.8	7.1	...
Italy	100	13.2	61.8	23.1	1.9
Japan	100	8.3	78.7	11.7	1.4
Republic of Korea	100	10.1	79.1	9.0	1.8
United Kingdom	100	6.9	67.4	23.5	2.2
United States	100	9.5	75.3	11.3	4.0

* Or nearest years for which data are available.

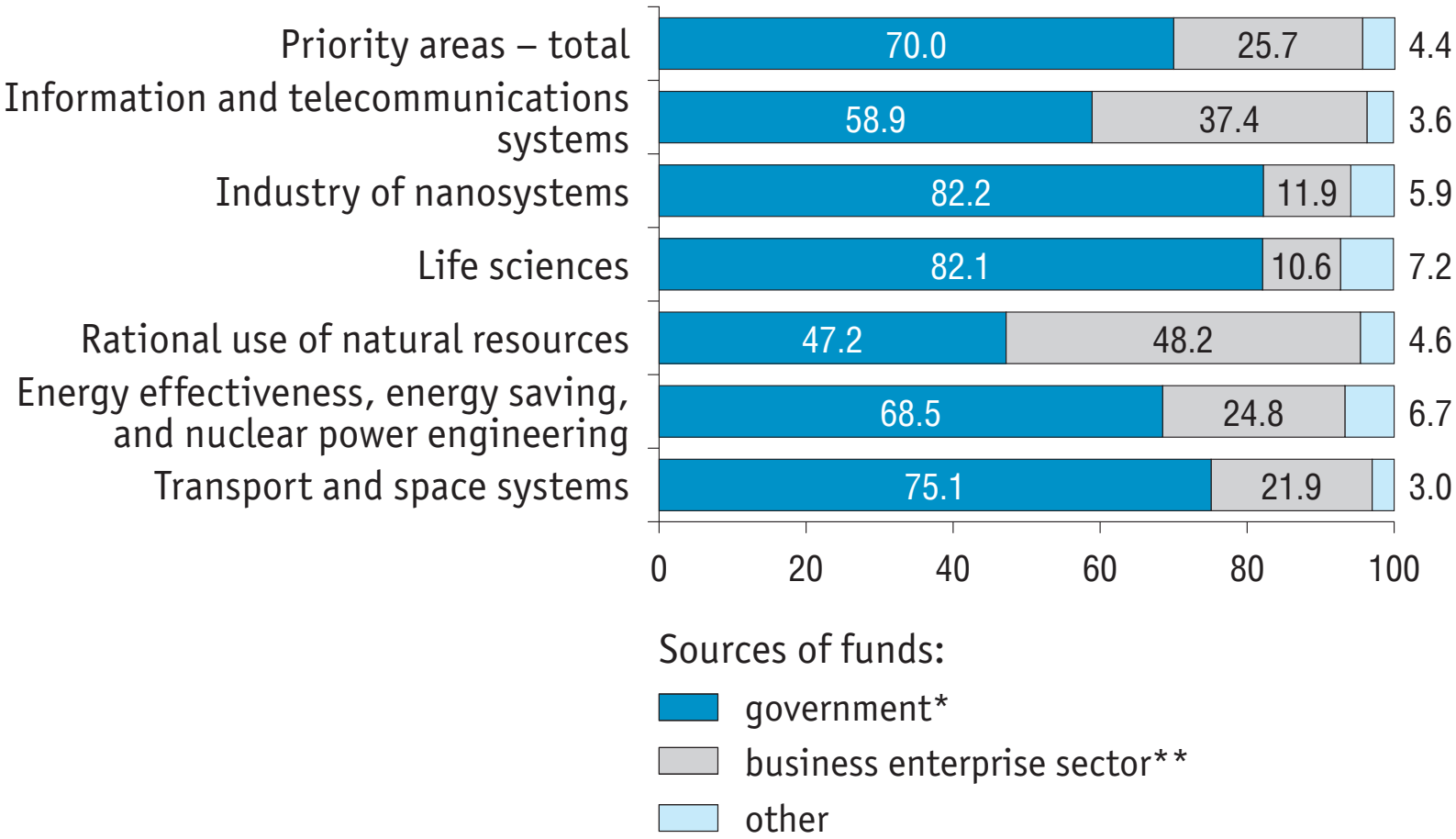
3.10. Gross domestic expenditure on R&D by priority S&T area and source of funds: 2021

(million roubles)

	Total	Government*	Of which federal budget appropriations
Gross domestic expenditure on R&D by priority S&T areas	**905910.3**	**633787.6**	**504400.1**
Of which:			
information and telecommunications systems	99673.0	58742.4	46541.2
industry of nanosystems	30705.5	25226.2	17390.3
life sciences	102632.4	84305.7	73903.3
rational use of natural resources	61291.8	28955.0	23109.7
energy effectiveness, energy saving, and nuclear power engineering	131427.3	90022.8	66420.8
transport and space systems	268070.5	201407.8	169945.7

* Including budget funds and government sector institutions' funds (including own funds).

3.11. Percentage distribution of gross domestic expenditure on R&D by priority S&T area and source of funds: 2021



* Including budget funds and government sector institutions' funds (including own funds).

** Business enterprise sector institutions' funds (including own funds).

3.12. Subsidies, grants, and other types of competitive R&D funding: 2021

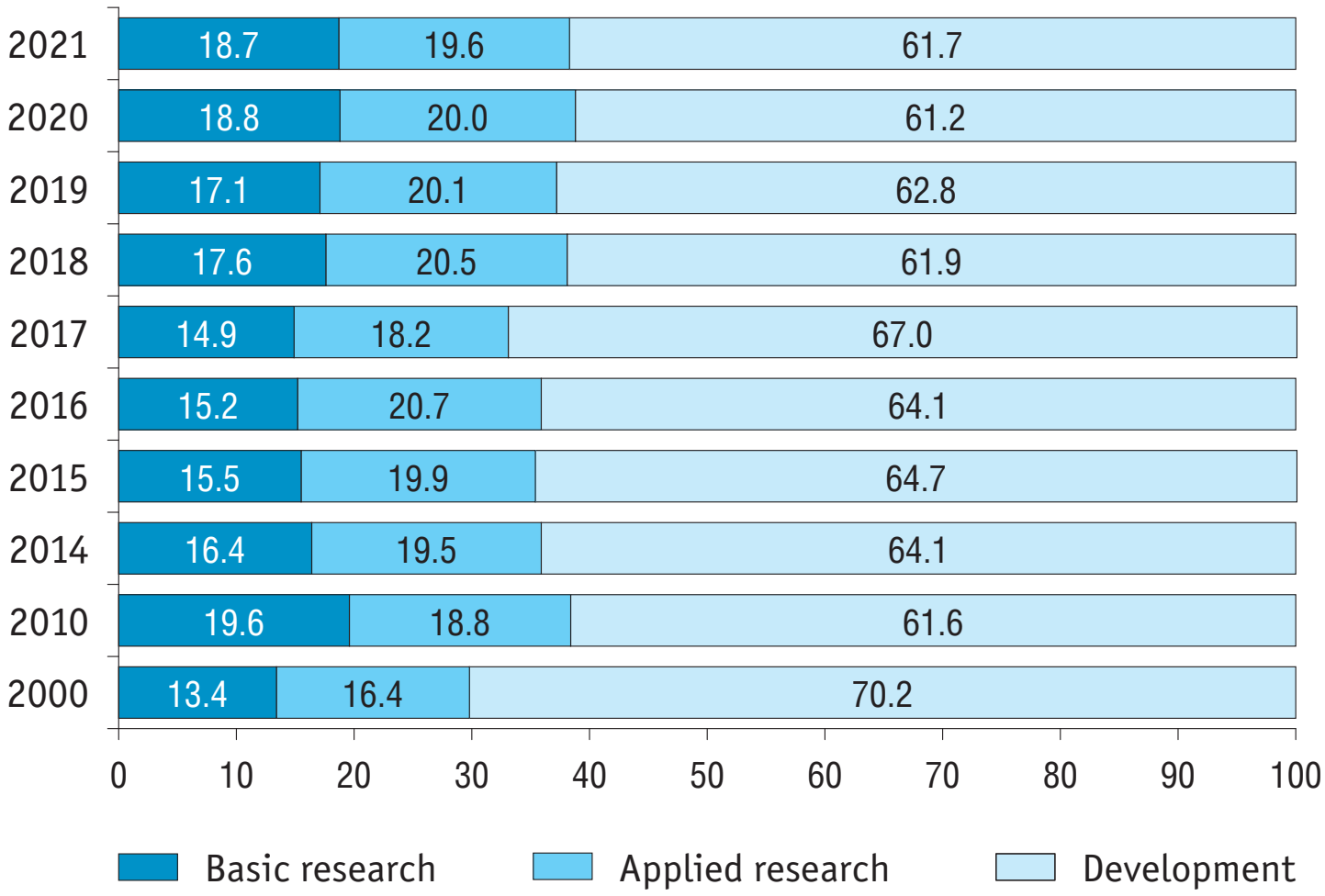
	Total, *million roubles*	As a percentage of the total
Gross domestic expenditure on R&D – total	**1301490.9**	**100**
Of which:		
budget subsidies for institutional R&D funding	216297.7	16.6
budget subsidies for performing R&D	72488.4	5.6
grants from foundations for S&T and innovation	42747.1	3.3
other types of competitive financing	76324.7	5.9

3.13. Current expenditure on R&D by type of R&D activity

(million roubles)

	2000	2010	2018	2019	2020	2021
Current expenditure on R&D	**73873.3**	**489450.8**	**960689.4**	**1060589.7**	**1091333.5**	**1193578.5**
Basic research	9875.7	95881.4	169175.0	181371.9	205227.9	223093.6
Applied research	12117.5	92010.7	197209.3	213363.3	218491.5	233457.7
Development	51880.2	301558.8	594305.2	665854.6	667614.1	737027.2

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



3.15. Average monthly salary of R&D personnel

	2000	2010	2018	2019	2020	2021
Average monthly salary, *roubles*	**2322.9**	**25043.5**	**53272.0**	**57012.6**	**60247.3**	**67685.0**
As a percentage of the salary:						
in the national economy (=100%)	104.5	119.5	121.8	119.1	117.3	118.2
in manufacturing (=100%)	98.2	131.3	130.8	130.0	129.5	129.1
in construction (=100%)	88.0	118.3	138.3	133.7	134.7	130.3

3.16. Tax incentives on R&D by type

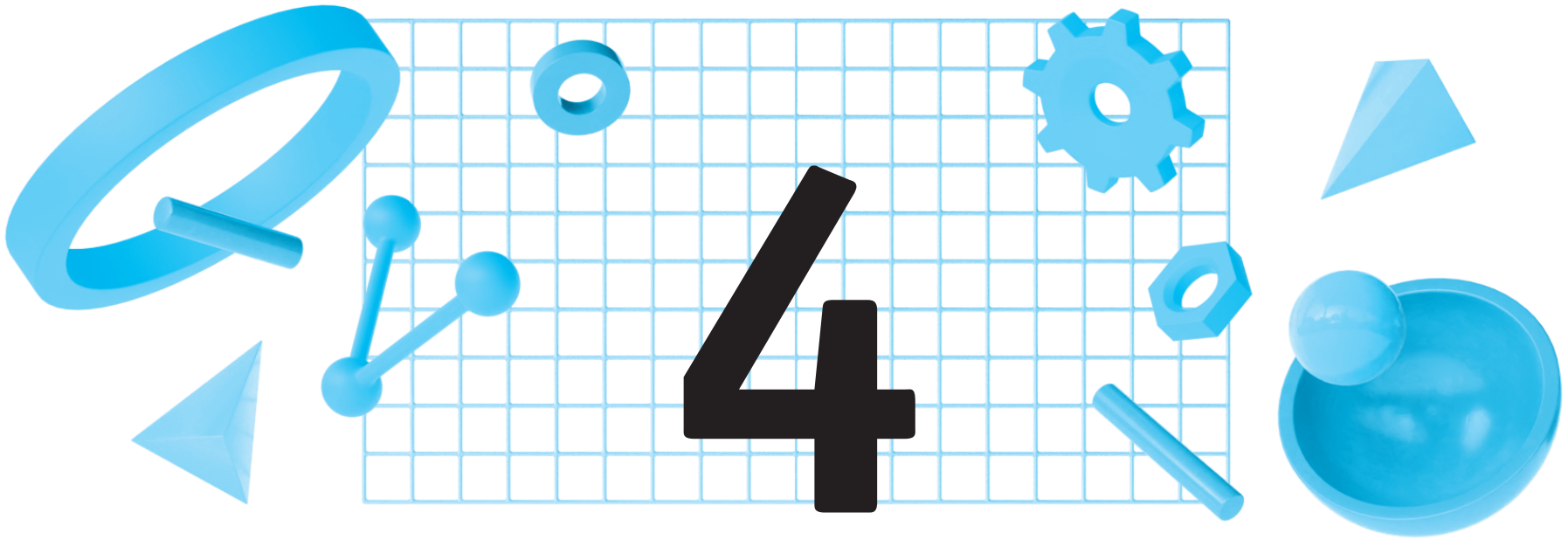
(million roubles)

	2015	2017	2018	2019	2020	2021
Tax expenditure on R&D – total	**122800.1**	**143133.1**	**144926.4**	**176871.7**	**186468.6**	**175573.3**
VAT exemption	111953.9	128925.2	128188.3	161831.2	169735.4	175573.3
R&D funded from budget and special foundations	82718.1	95200.5	86585.6	104606.8	96736.9	112260.6
Sales of exclusive rights on R&D results	21976.3	27767.7	34651.3	50369.4	65856.1	51560.4
R&D aimed at development/ improvement of new technologies and products (for selected types of economic activity)	7259.6	5956.9	6951.4	6855.1	7142.4	11752.4

(continued)

	2015	2017	2018	2019	2020	2021
Income tax reduction	8790.2	12005.1	14158.8	13016.1	15091.4	…
Accelerated depreciation of fixed assets for S&T activity	41.0	36.6	35.4	23.5	21.8	…
Accelerated R&D expenditure write-off	8749.2	11968.5	14123.4	12992.6	15069.6	…
Contributions to state foundations for R&D and innovation support	–	–	–	–	–	…
Property tax exemption	2056.0	2202.9	2579.3	2024.3	1641.8	…
State research centres	2056.0	2202.9	2579.3	2024.3	1641.8	…

Sources: 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.



4

R&D OUTPUT

4.1. Publications in scientific journals indexed in international databases by country

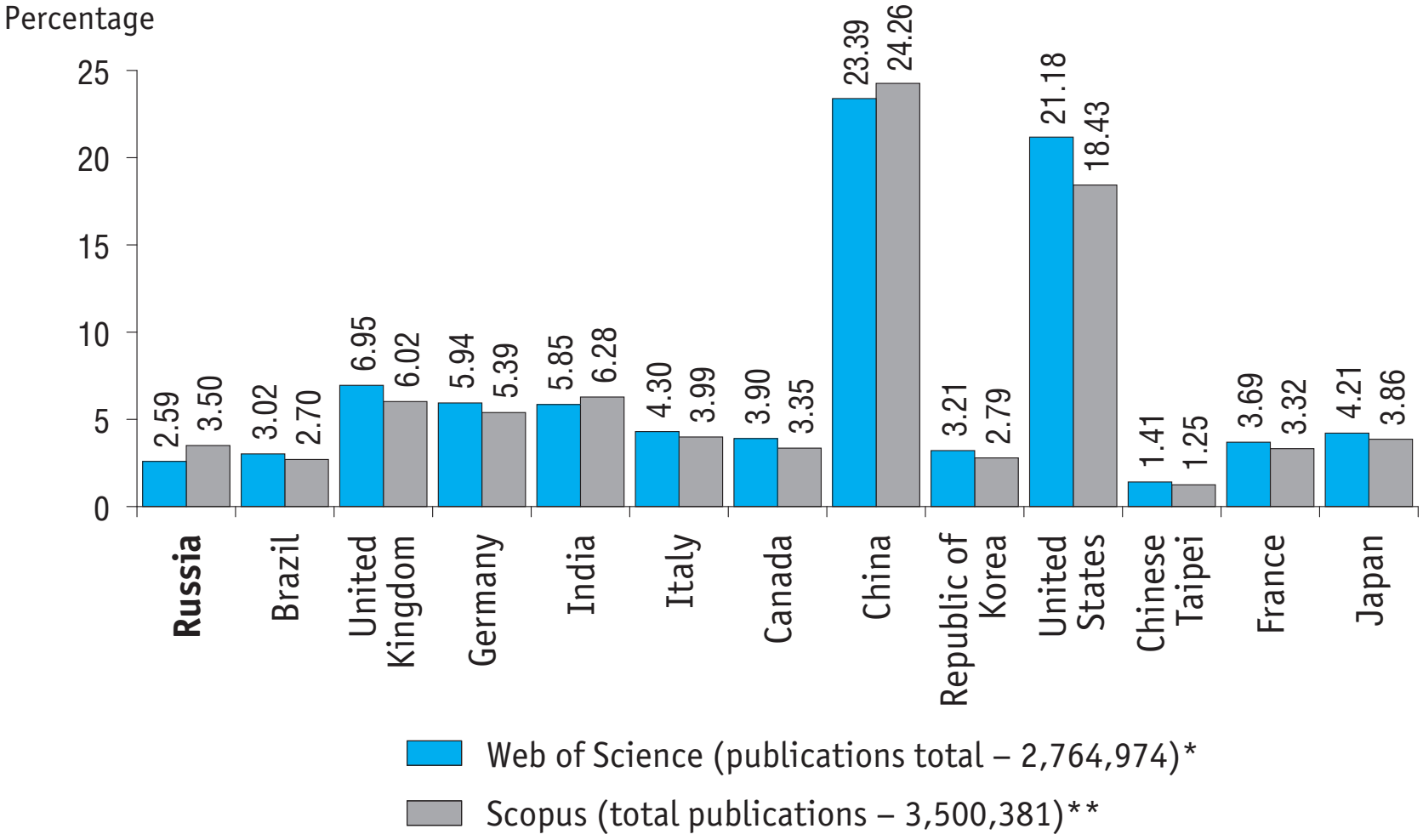
	Web of Science*				Scopus**			
	2010	Rank***	2021	Rank***	2010	Rank***	2021	Rank***
Russia	**38170**	**15**	**71617**	**14**	**39647**	**15**	**122412**	**8**
Brazil	43731	13	83407	13	48766	13	94553	14
Canada	73964	7	107743	8	81093	7	117176	9
China	203709	2	646660	1	335804	2	849210	1
Chinese Taipei	31899	16	39118	22	39357	16	43624	23
France	84949	6	102136	11	97682	6	116214	10
Germany	120345	4	164173	4	137838	4	188595	5
India	56154	10	161861	5	76137	9	219872	3
Italy	71534	8	118831	6	78498	8	139501	6
Japan	97822	5	116365	7	123578	5	135050	7
Republic of Korea	52278	12	88745	12	59411	12	97660	13
United Kingdom	128607	3	192033	3	141678	3	210668	4
United States	455490	1	585723	2	518296	1	645153	2

* Calculations are based on the InCites Clarivate Analytics data (Web of Science as at March 12, 2022).

** Calculations are based on the Scopus data (as at August 31, 2022).

*** In global ranking.

4.2. Countries' shares in the world total number of publications in scientific journals indexed in international databases: 2021



* Calculations are based on the InCites Clarivate Analytics data (Web of Science as at March 12, 2022).

** Calculations are based on the Scopus data (as at August 31, 2022).

4.3. Main quality indicators of publications by Russian authors in scientific journals indexed in international databases*

Indicator	Web of Science		Scopus	
	2010	2021	2010	2021
Ratio of average citation level of publications by Russian authors to the world citation average	0.46	0.66	0.52	0.53
Citations of publications by Russian authors as a percentage in the world citation total	1.01	1.71	0.95	1.84
Publications in Q1 journals as a percentage of the total number of publications by Russian authors	18.5	28.2**	21.1	21.6
Publications in Q1 journals as a percentage of the world total number of publications	43.0	42.1**	44.8	48.1

* Calculations are based on the data of InCites Clarivate Analytics data (Web of Science as at March 12, 2022) and Scopus SciVal (Scopus as at June 11, 2022).

** The data refer to 2020.

4.4. Publications by Russian authors in scientific journals indexed in international databases by field of science: 2021*

Field of science	Web of Science		Scopus		
	Number of publications by Russian authors	Russia's share in the world global number of publications	Number of publications by Russian authors	Russia's share in the world global number of publications	Russia's rank**
Natural sciences					
Physical sciences	13882	5.74	34130	6.82	4
Earth and related environmental sciences	5267	2.29	23250	4.59	6
Chemical sciences	12011	3.49	16568	3.90	8
Biological sciences	8320	2.40	14803	2.50	14
Computer and information sciences	1852	1.17	14566	2.80	10
Mathematics	4921	4.75	12022	4.08	6
Interdisciplinary research	303	4.06	956	1.37	23

* Calculations are based on the data of InCites Clarivate Analytics data (Web of Science as at March 12, 2022) and Scopus SciVal (Scopus as at August 31, 2022).

** In global ranking.

(continued)

Field of science	Web of Science		Scopus		
	Number of publications by Russian authors	Russia's share in the world global number of publications	Number of publications by Russian authors	Russia's share in the world global number of publications	Russia's rank**
Engineering and technology					
Materials engineering	7732	3.54	18752	4.71	5
Chemical engineering	1429	2.72	8836	3.85	6
Mechanical engineering	3292	4.11	7661	3.59	7
Electrical engineering, electronic engineering, and information technology	3590	1.91	6937	2.77	8
Energy sector and rational use of natural resources	3314	2.12	1515	1.44	23
Construction and architecture	354	0.71	1488	1.87	15
Medical technologies	333	1.22	922	1.86	16
Nanotechnology	1479	2.62	523	2.69	9
Environmental biotechnology	423	1.21	277	1.11	27
Industrial biotechnology	135	1.20	109	1.15	21

(continued)

Field of science	Web of Science		Scopus		
	Number of publications by Russian authors	Russia's share in the world global number of publications	Number of publications by Russian authors	Russia's share in the world global number of publications	Russia's rank**
Medical sciences					
Clinical medicine	3675	0.73	17264	2.06	18
Basic medicine	3216	1.31	6881	1.93	16
Health sciences	1163	0.57	3274	1.47	19
Medical biotechnologies	…	…	794	2.01	15
Agricultural sciences					
Agriculture, forestry and fisheries	1167	2.27	2949	2.44	14
Animal and dairy farming	109	0.79	1492	1.67	21
Veterinary science	123	0.54	200	0.68	41-42
Agricultural biotechnologies	…	…	30	1.78	16
Social sciences					
Sociology	653	1.73	4546	4.66	3
Economics and business	1444	1.55	3344	2.46	13

(continued)

Field of science	Web of Science		Scopus		
	Number of publications by Russian authors	Russia's share in the world global number of publications	Number of publications by Russian authors	Russia's share in the world global number of publications	Russia's rank**
Educational sciences	1100	2.19	2192	2.82	10
Psychology	1046	1.66	1792	1.72	14
Social and economic geography	932	1.67	1542	2.41	14
Political sciences	632	2.95	1471	5.38	3
Law	442	2.49	628	2.28	13
Media and communications	427	2.39	313	1.69	13
Humanities					
History and archaeology	2560	10.20	4139	10.24	2
Languages and literature	1219	4.27	2559	5.17	5
Philosophy, ethics, religion	699	2.91	1470	4.29	5
Art (arts, history of arts, etc.)	127	1.14	761	4.55	5

4.5. Patent applications and patent grants

	2000	2010	2018	2019	2020	2021
Patent applications filed in the Russian Federation	28688	42500	37957	35511	34984	30977
By Russian residents	23377	28722	24926	23337	23759	19569
By non-residents	5311	13778	13031	12174	11225	11408
Patent grants received in the Russian Federation	17592	30322	35774	34008	28788	23662
By Russian residents	14444	21627	20526	20113	17181	15012
By non-residents	3148	8695	15248	13895	11607	8650
Patents in force in the Russian Federation	144325	181904	256419	263688	266189	264587

4.6. Patent applications filed in the Russian Federation by technological area*

		2000	2010	2019	2020
	Total**	**20492**	**38829**	**38465**	**33250**
1	Electrical equipment	851	1515	1493	1212
2	Audio-visual technologies	193	422	486	319
3	Telecommunications	319	621	506	445
4	Technologies and equipment for digital communications	113	747	759	934
5	Equipment for conventional telephone communication	173	260	264	256
6	Computer technologies	223	855	1112	919
7	Information technologies for management	14	125	238	248
8	Semiconductors	245	248	273	185
9	Optics	267	329	390	303
10	Measuring technologies	1341	2189	2572	2125

* Published patent applications of resident and non-resident applicants (patent publications).

** The sum of indicators for each year does not match the equivalent sum calculated for the data in table 4.5, due to the difference in indicators. Table 4.5 takes into account all filed patent applications (according to Rospatent data), table 4.6 – only the ones that have been published (according to the World Intellectual Property Organization data).

(continued)

		2000	2010	2019	2020
11	Biomaterials analysis	322	492	697	526
12	Measuring and control devices	306	570	660	571
13	Medical technologies	1678	2745	3200	3062
14	Fine and organic chemicals	771	1366	1046	856
15	Biotechnology	306	743	1025	1030
16	Pharmaceuticals	1045	1927	2103	1716
17	Macromolecular compounds and polymers	268	535	499	446
18	Food chemistry	855	4401	1896	1472
19	Materials chemistry	742	1077	1103	1040
20	Materials for metallurgy	1351	1857	1570	1242
21	Surface treatment and coating technologies	400	616	646	469
22	Microstructural and nanotechnology	1	201	214	160
23	Chemical engineering	988	1275	1348	1226
24	Environmental protection technologies	493	765	884	714
25	Processing and assembly technologies	298	782	705	682
26	Machine tools	948	1244	1154	770
27	Engines, pumps, turbines	958	1764	1528	1141
28	Machinery for paper and textile production	215	352	348	266
29	Other special-purpose machines	1155	1820	2002	1844

(continued)

		2000	2010	2019	2020
30	Thermal processes and heating devices	450	702	669	545
31	Machine and equipment parts	632	1095	1358	1181
32	Transport	745	1836	2215	1980
33	Furniture, games	170	465	565	521
34	Other consumer goods	227	618	785	833
35	Civil construction	1381	2262	2153	2010
	Area not elsewhere classified	48	8	1	1

4.7. Patent applications by country of origin*

	2000	2010	2019	2020	Rank**
Russia	**24159**	**32547**	**29285**	**29830**	**12**
Brazil	3799	5743	7458	7271	26
Canada	14360	24249	25174	23855	14
China	26489	308345	1328067	1441086	1
France	47119	65805	67389	64287	6
Germany	136484	173826	178359	168092	5
India	2886	14888	34052	37895	9
Italy	20511	27992	32028	32551	11
Japan	493936	468510	453816	423264	3
Republic of Korea	86151	178679	248550	260614	4
United Kingdom	47995	50908	54794	53079	7
United States	293616	433462	521738	496123	2

* Patent applications filed by residents in the country and abroad.

** In global ranking.

Source: Rospatent Annual Reports; WIPO Statistics Database, September 2022.

4.8. Patent applications by country of origin and patent office: 2020

	Patent applications filed by residents		
	total	of which	
		to the national patent office	abroad
Russia	**29830**	**23759**	**6071**
Brazil	7271	5280	1991
Canada	23855	4452	19403
China	1441086	1344817	96269
France	64287	23377	40910
Germany	168092	68214	99878
India	37895	23141	14754
Italy	32551	14669	17882
Japan	423264	227348	195916
Republic of Korea	260614	180477	80137
United Kingdom	53079	17709	35370
United States	496123	269586	226537

Source: Rospatent Annual Reports; WIPO Statistics Database, September 2022.

4.9. Development of advanced manufacturing technologies by type and degree of novelty: 2021

	Total	Of which technologies	
		new to the country	radically new
Advanced manufacturing technologies	**2186**	**1926**	**260**
Of which:			
design and engineering	438	382	56
fabrication, processing, and assembling	658	573	85
automated inspection and/or testing equipment	131	117	14
communications, management, and geomatics	189	176	13
production management information system and automation of production processes	256	235	21
industrial computing and big data technologies	241	200	41
green technology*	131	115	16
advanced production engineering and management methods	142	128	14

* Here and below in table 4.10, as of 2021, energy efficient technologies are also included in this type of advanced manufacturing technologies.

4.10. Use of advanced manufacturing technologies by type and degree of novelty: 2021

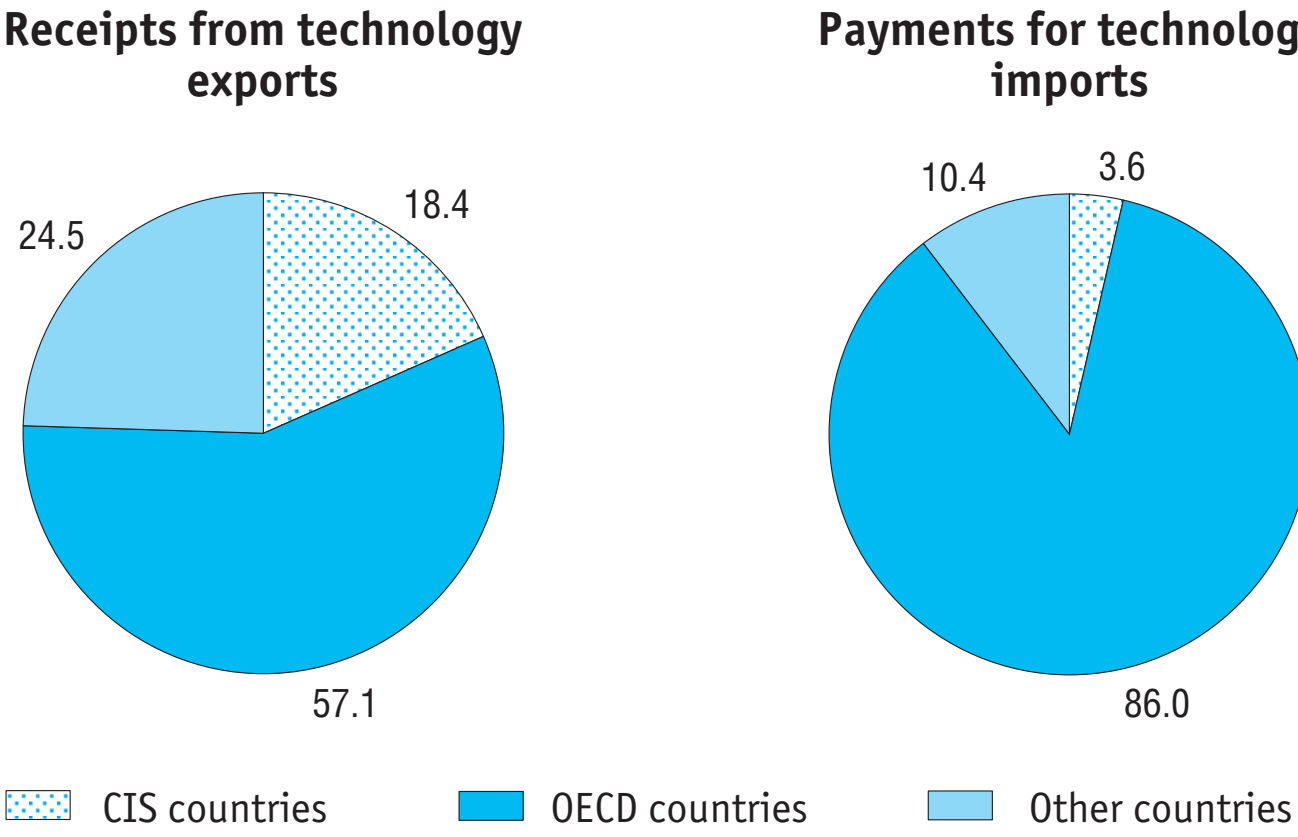
	Total	Of which technologies used during the period of			
		less than 1 year	1–3 years	4–5 years	6 years and over
Advanced manufacturing technologies	**256582**	**20949**	**56695**	**36270**	**142668**
Of which:					
design and engineering	36773	2804	7301	5297	21371
fabrication, processing, and assembling	86612	6626	16489	11428	52069
automated inspection and/or testing equipment	21605	1850	5983	3042	10730
communications, management, and geomatics	54695	3817	13805	8435	28638
production management information system and automation of production processes	29529	2842	5809	4551	16327
industrial computing and big data technologies	9037	1411	3241	1264	3121
green technology	3823	301	786	490	2246
advanced production engineering and management methods	14508	1298	3281	1763	8166

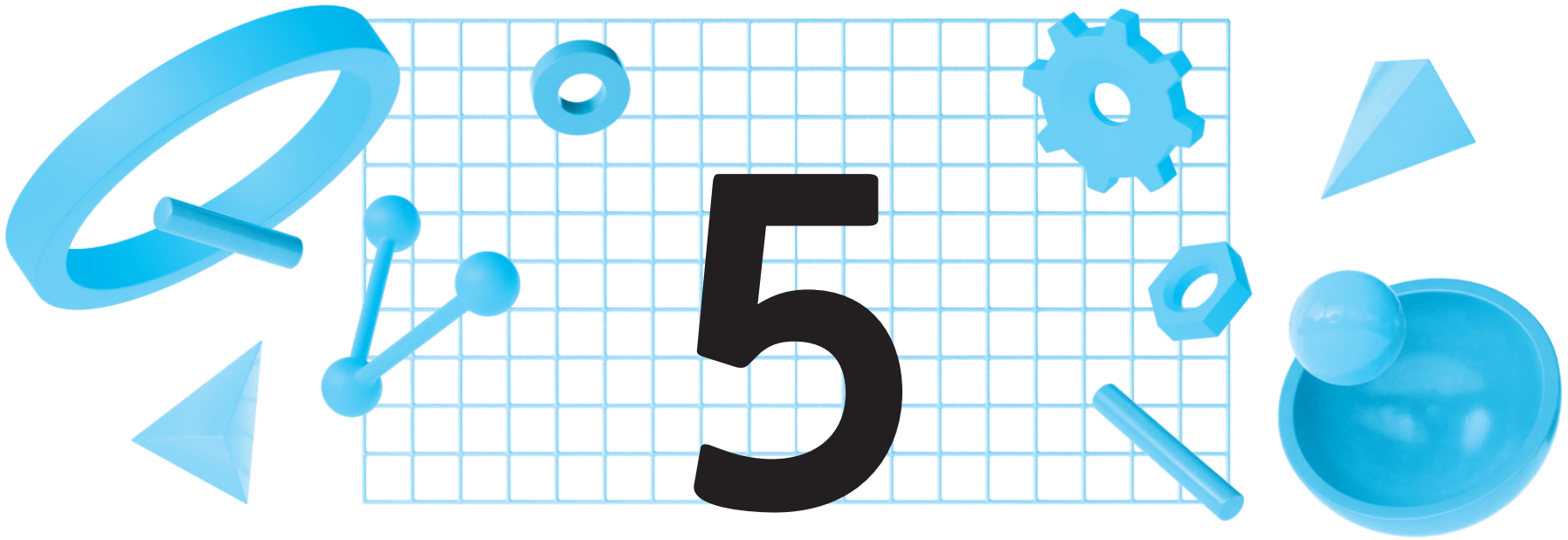
4.11. Technology balance of payments by category of contracts: 2021

(million USD)

	Receipts from technology exports	Payments for technology imports	Technology balance of payments
Total	**4662.7**	**5044.3**	**-381.5**
Patents	1.5	52.7	-51.2
Unpatented inventions	30.0	1.3	28.7
Patent licences	33.3	409.3	-376.0
Selection achievements	1.9	5.0	-3.1
Utility models	0.3	3.4	-3.0
Know-how	443.8	462.3	-18.5
Trademarks	108.3	1273.1	-1164.8
Industrial designs	0.1	1.9	-1.9
Engineering services	1862.9	1569.5	293.4
Research and development	967.7	250.2	717.5
Others	1212.9	1015.6	197.3

4.12. Percentage distribution of technology exports and imports in Russia by country group: 2021





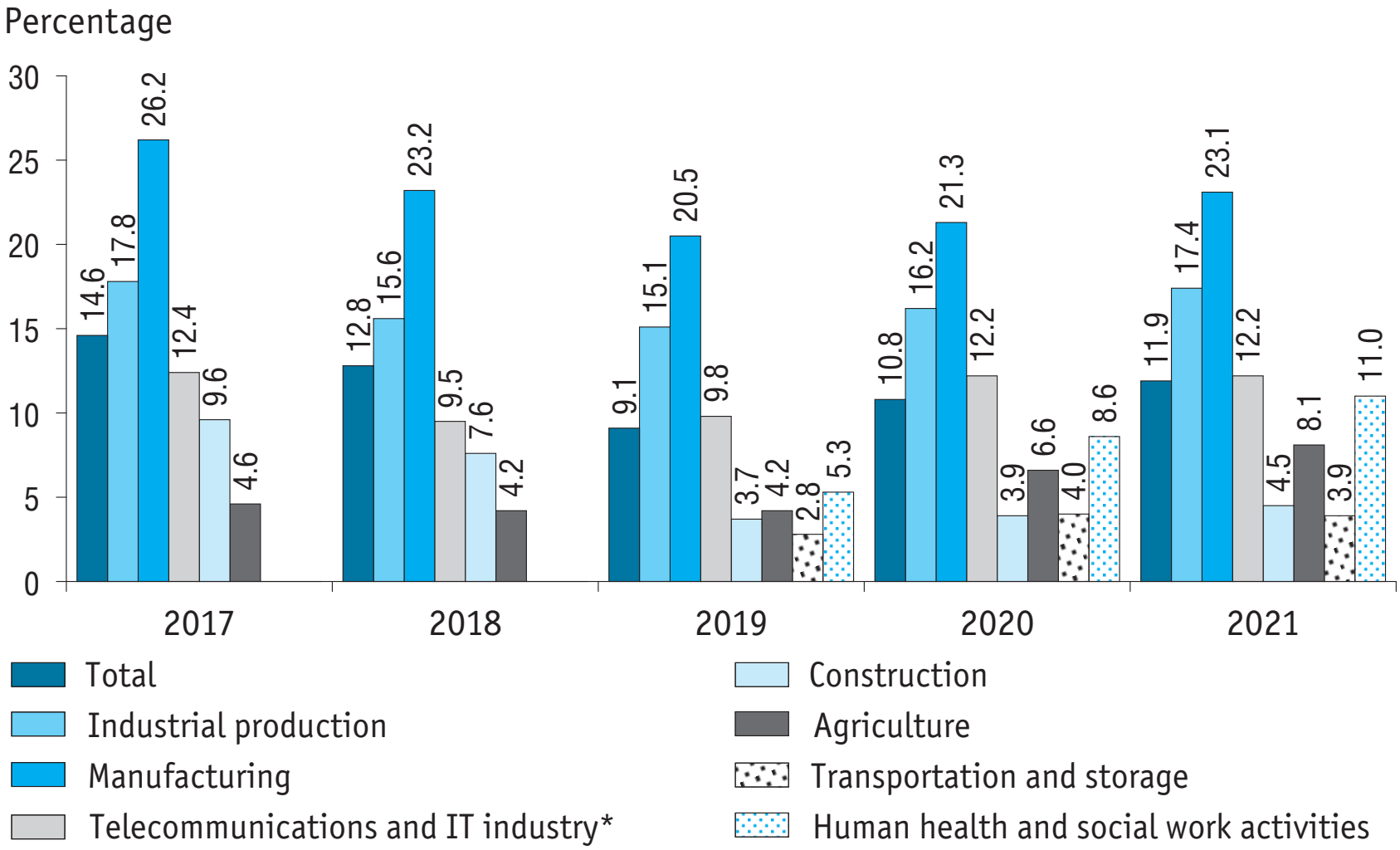
5

INNOVATION

5.1. Main indicators of enterprises' innovative activities

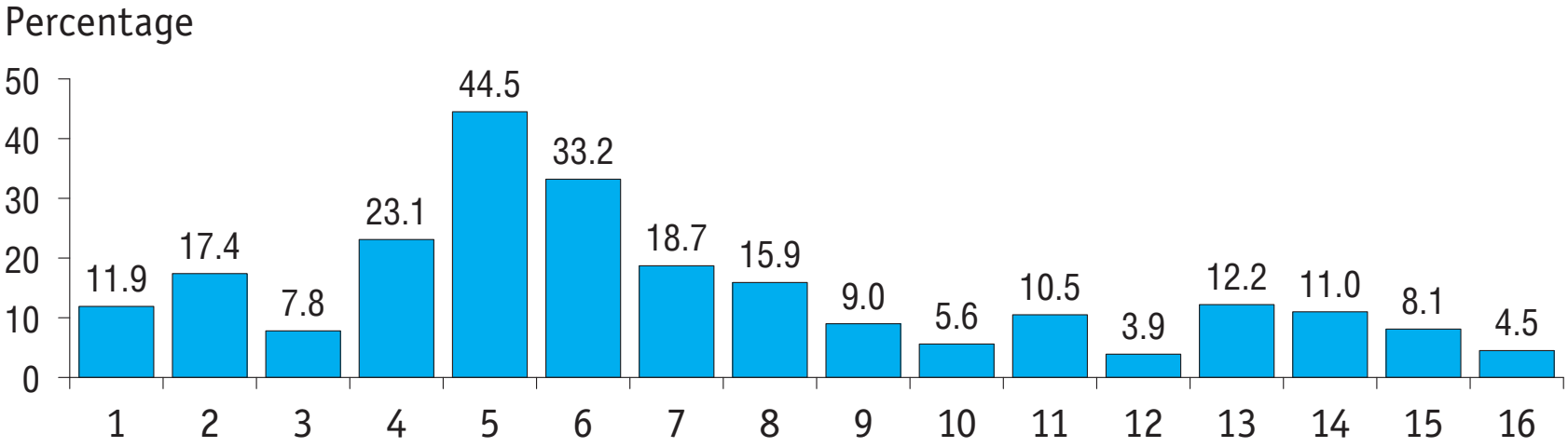
	2010	2015	2017	2018	2019	2020	2021
Innovation activity of enterprises, *percentage*	9.5	9.3	14.6	12.8	9.1	10.8	11.9
Innovation expenditure, *million roubles*	411008.8	1211294.4	1416922.8	1484901.1	1954133.3	2134038.4	2379709.9
At constant 2010 prices	411008.8	790817.0	854546.0	814135.2	1037170.7	1124776.5	1076596.9
As a percentage of total sales	1.6	2.7	2.5	2.2	2.1	2.3	2.0
Sales of innovative goods and services, *million roubles*	1243712.5	3843428.7	4166998.7	4516276.4	4863381.9	5189046.2	6003342.0
At constant 2010 prices	1243712.5	2509256.8	2513116.6	2476164.5	2581275.9	2734963.5	2715952.8
As a percentage of total sales	4.8	8.4	7.2	6.5	5.3	5.7	5.0

5.2. Trends in innovation activity of enterprises



* Here and below in this section, aggregate data on enterprises by type of economic activity with OKVED2 codes 61, 62, 63.

5.3. Innovation activity of enterprises: 2021



1 – total
2 – industrial production
3 – mining and quarrying
4 – manufacturing
5 – high tech
6 – medium high tech
7 – medium low tech
8 – low tech
9 – electricity, gas, steam and air conditioning supply*
10 – water supply; sewerage, waste management and remediation activities**
11 – services
12 – transportation and storage
13 – telecommunications and IT industry
14 – human health and social work activities
15 – agriculture
16 – construction

* Here and below in this section, aggregate data on enterprises by type of economic activity with OKVED2 Section D codes.

** Here and below in this section, aggregate data on enterprises by type of economic activity with OKVED2 Section E codes.

5.4. Enterprises that engaged in product and business process innovation: 2019–2021

(as a percentage of all enterprises that have had completed innovations)

5.5. Innovation expenditure: 2021

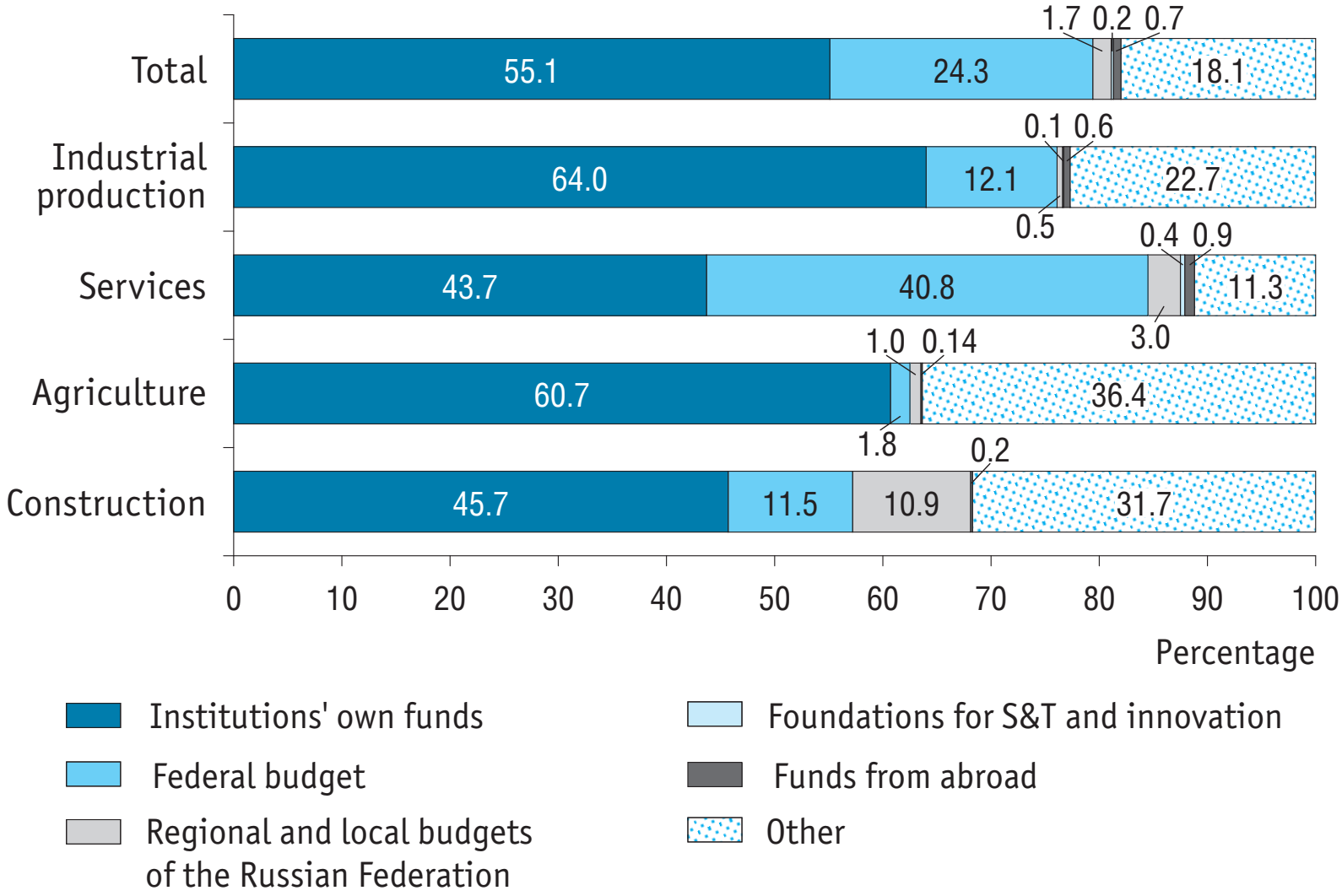
	Total, *million roubles*	Of which, *percentage*			
		research and development	purchase of machinery and equipment, or other fixed assets	development and purchase of software and databases	acquisition of rights to the results of intellectual activity*
Total	**2379709.9**	**43.3**	**36.6**	**2.6**	**1.2**
Industrial production	1307322.1	33.4	44.6	0.9	1.3
Mining and quarrying	180466.1	11.1	74.5	0.5	0.2
Manufacturing	1053903.0	36.6	39.7	0.9	1.5
High tech	247262.8	53.0	35.3	1.0	1.3
Medium high tech	230358.4	23.0	39.7	0.8	3.7
Medium low tech	468892.4	41.0	34.7	1.0	0.5
Low tech	107389.3	9.0	71.5	0.4	1.9
Electricity, gas, steam and air conditioning supply	38380.4	15.8	63.8	3.1	0.6
Water supply; sewerage, waste management and remediation activities	34572.6	72.5	17.9	0.7	0.01

(continued)

	Total, *million roubles*	Of which, *percentage*			
		research and development	purchase of machinery and equipment, or other fixed assets	development and purchase of software and databases	acquisition of rights to the results of intellectual activity*
Services	1022074.7	57.1	24.6	4.7	1.2
Transportation and storage	180625.9	9.3	83.7	1.8	0.2
Telecommunications and IT industry	147312.9	16.7	22.9	20.3	2.6
Human health and social work activities	25607.9	12.9	60.5	3.5	1.2
Agriculture	33424.6	5.8	87.7	3.5	0.8
Construction	16888.5	49.7	39.1	2.6	0.8

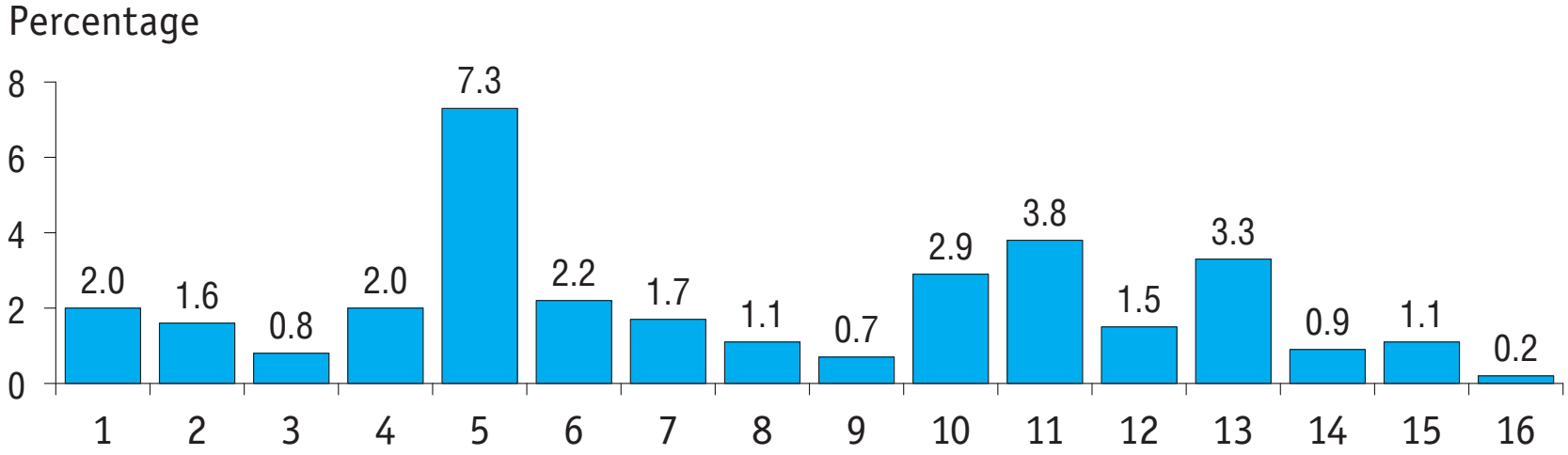
* Acquisition of patent rights (alienation), licenses, industrial designs, utility models, selection achievements, integrated circuit designs, etc.; patenting (registration) of the results of intellectual activity.

5.6. Innovation expenditure by source of funds: 2021



5.7. Intensity of innovation expenditure: 2021

(ratio of innovation expenditure to total sales)



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14 – human health and social work activities
15 – agriculture
16 – construction

5.8. Sales of innovative goods and services: 2021

	Million roubles	As a percentage of total sales
Total	**6003342.0**	**5.0**
Industrial production	4582372.5	5.5
Mining and quarrying	874336.9	3.6
Manufacturing	3659812.3	7.1
High tech	622869.3	18.4
Medium high tech	1138984.2	11.0
Medium low tech	1429446.6	5.1
Low tech	468512.2	4.6
Electricity, gas, steam and air conditioning supply	28345.2	0.5
Water supply; sewerage, waste management and remediation activities	19878.1	1.7
Services	1313278.8	4.9
Transportation and storage	82179.5	0.7
Telecommunications and IT industry	370602.1	8.3
Human health and social work activities	15287.5	0.6
Agriculture	67339.6	2.3
Construction	40351.1	0.6

5.9. Exports of innovative goods and services: 2021

	Million roubles	As a percentage of total sales
Total	**993248.6**	**16.5**
Industrial production	905925.2	19.8
Mining and quarrying	244103.4	27.9
Manufacturing	661821.8	18.1
High tech	132643.6	21.3
Medium high tech	178609.4	15.7
Medium low tech	294680.0	20.6
Low tech	55888.7	11.9
Electricity, gas, steam and air conditioning supply	–	–
Water supply; sewerage, waste management and remediation activities	–	–
Services	82438.0	6.3
Transportation and storage	2092.2	2.5
Telecommunications and IT industry	31397.4	8.5
Human health and social work activities	4.4	0.03
Agriculture	1466.3	2.2
Construction	3419.2	8.5

5.10. Enterprises that engaged in joint R&D projects: 2021

(as a percentage of enterprises that engaged in innovative activities)

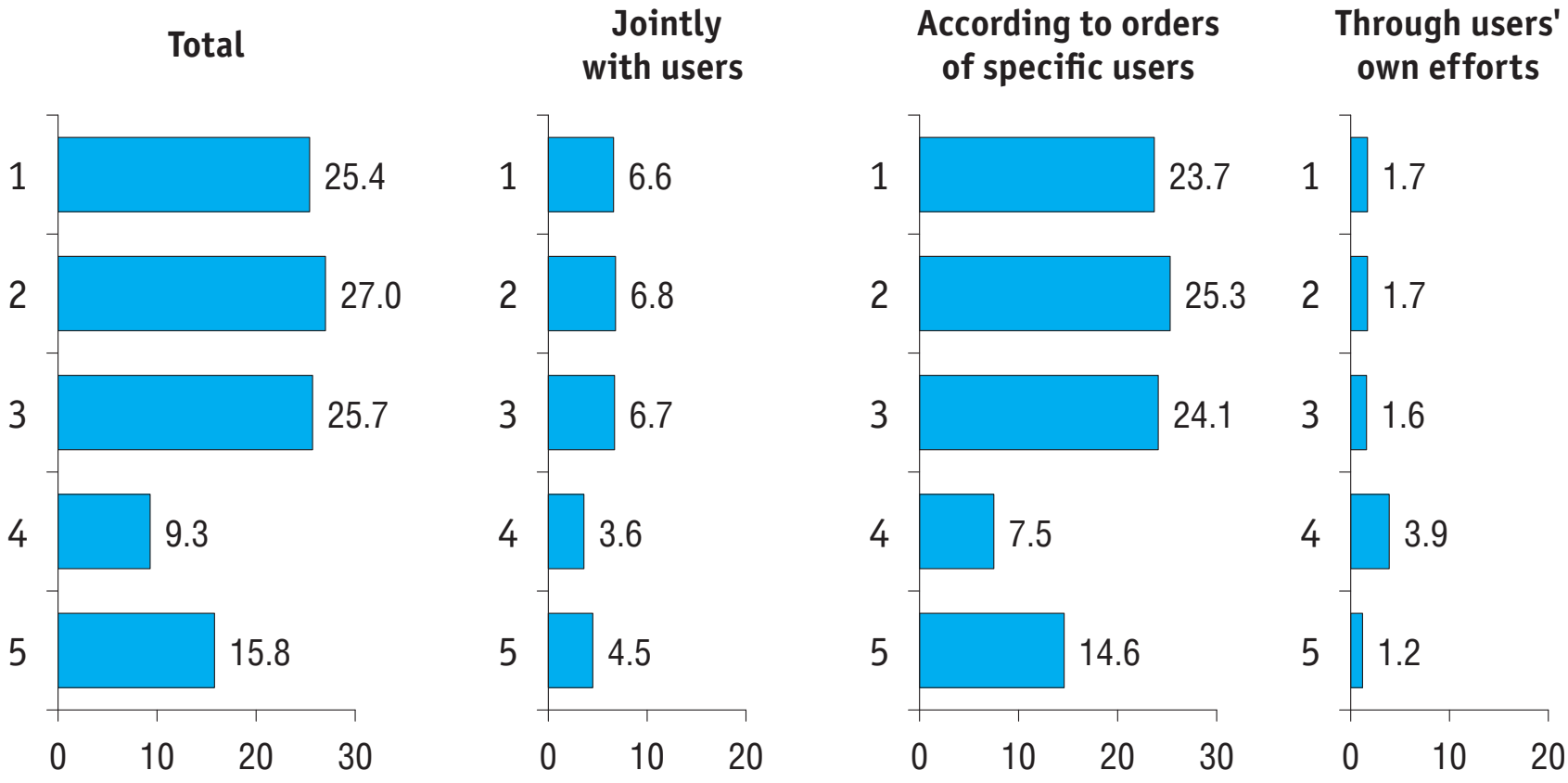
	Total	By type of partners		
		research institutes	higher education institutions	enterprises within a single network
Total	**16.8**	**8.1**	**4.8**	**6.1**
Industrial production	16.6	6.9	4.1	6.8
Mining and quarrying	21.5	9.3	3.2	11.7
Manufacturing	17.1	6.9	4.4	7.1
High tech	31.1	11.3	8.8	13.4
Medium high tech	17.8	7.0	4.2	6.0
Medium low tech	18.2	9.1	5.0	9.4
Low tech	5.4	0.9	0.8	1.4
Electricity, gas, steam and air conditioning supply	12.9	6.5	3.0	3.5
Water supply; sewerage, waste management and remediation activities	5.9	4.8	1.1	0.5

(continued)

	Total	By type of partners		
		research institutes	higher education institutions	enterprises within a single network
Services	18.8	10.3	6.1	6.1
Transportation and storage	13.7	2.1	2.8	4.1
Telecommunications and IT industry	12.5	1.2	1.3	5.8
Human health and social work activities	4.5	2.3	1.7	0.7
Agriculture	4.2	1.4	0.5	1.2
Construction	4.4	0.2	0.7	2.2

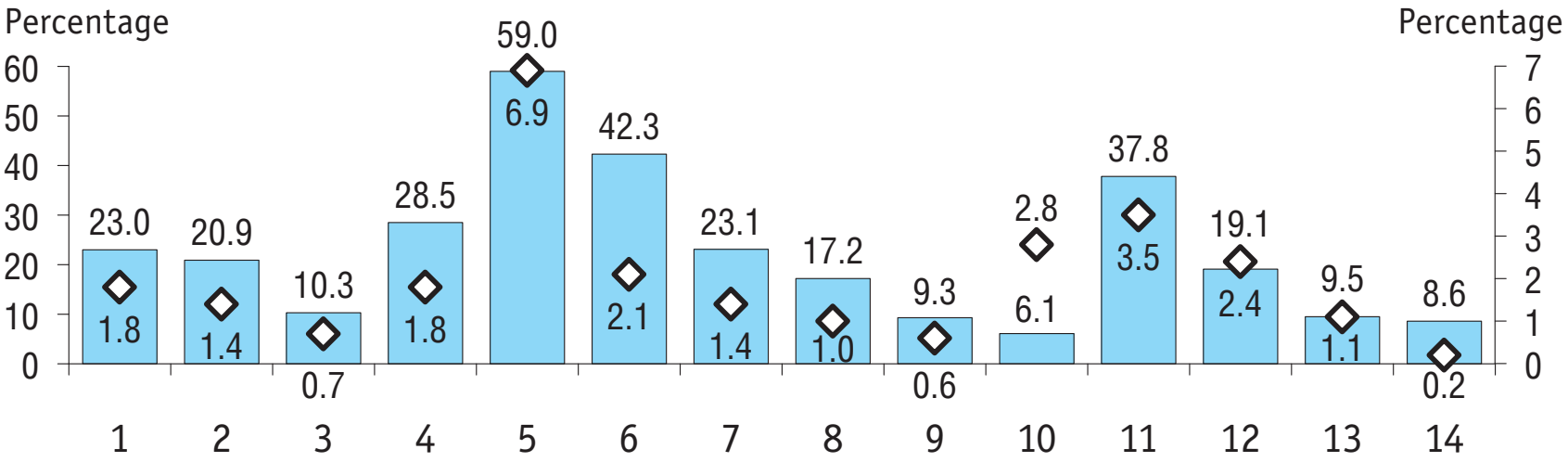
5.11. Enterprises that produced customised innovative goods and services: 2019–2021

(as a percentage of all enterprises that have had completed innovations)



1 – total
2 – industrial production
3 – services
4 – agriculture
5 – construction

5.12. Technological innovation: 2021



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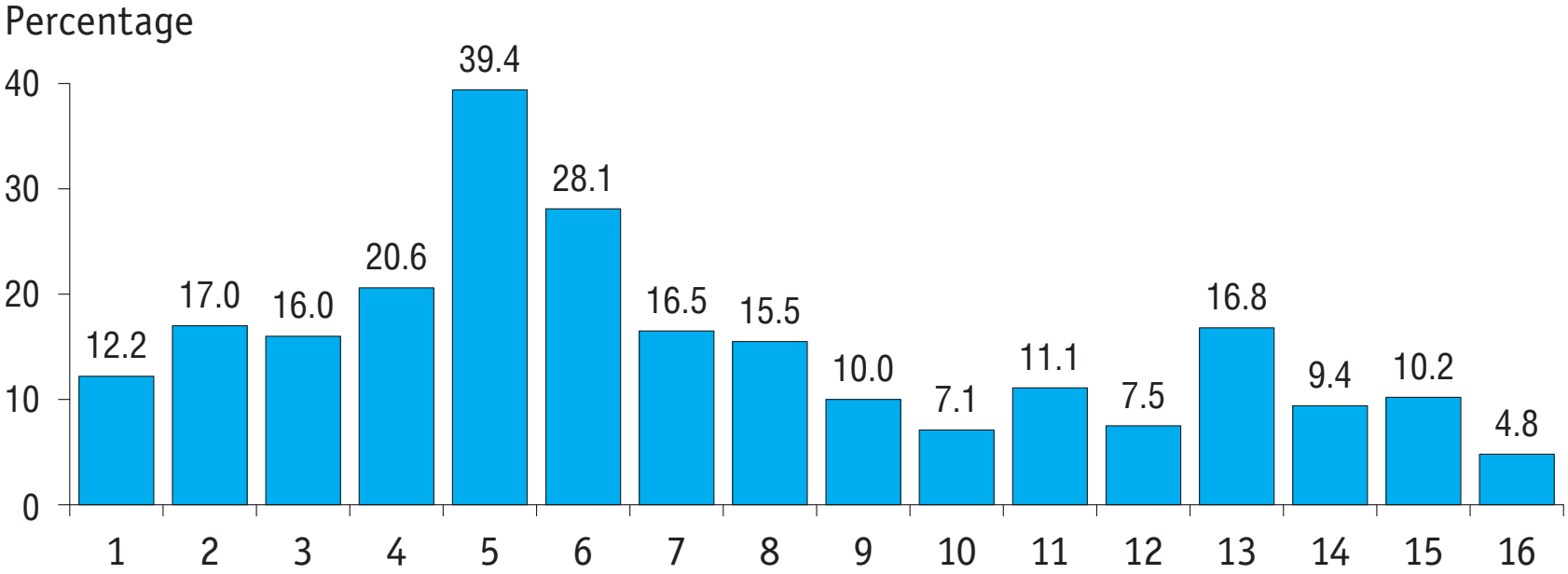
Enterprises that engaged in technological innovation as a percentage of the total number of enterprises*

Expenditure on technological innovation as a percentage of total sales

* According to a methodology approved by Rosstat order no. 788 of December 20, 2019, with amendments no. 813 of December 18, 2020.

5.13. Enterprises that plan to engage in innovative activities in 2022–2024



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5.14. Main indicators of enterprises' innovation activity by country: 2021*

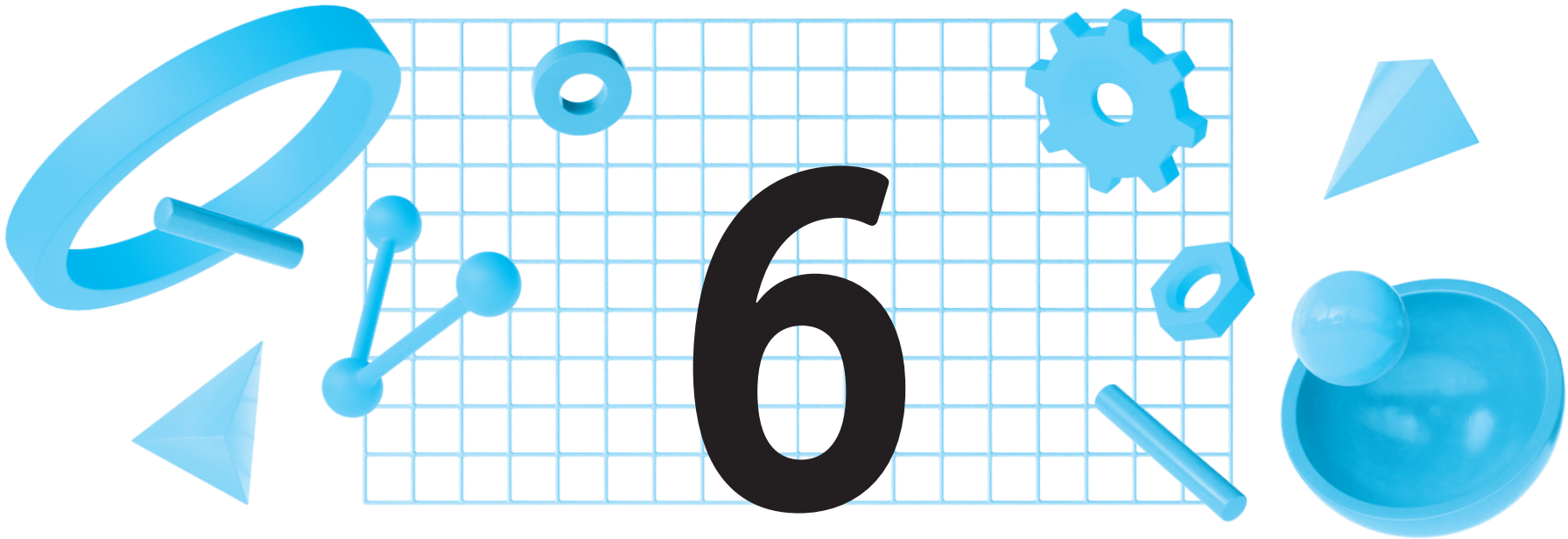
(percentage)

	Innovation activity of enterprises	Expenditure on technological innovation as a percentage of total sales:	Innovative goods and services as a percentage of total sales
Russia	**11.9**	**2.0**	**5.0**
Austria	60.0	0.4	13.0
Belgium	71.3	0.6	15.1
Bulgaria	36.2	0.4	7.4
Croatia	54.9	0.4	12.9
Cyprus	65.8	0.7	13.8
Czech Republic	56.9	1.8	14.4
Denmark	57.7	0.8	15.0
Estonia	51.3	1.5	9.0
Finland	68.7	0.5	19.3
France	54.8	0.2	5.9
Germany	68.8	1.3	14.0
Greece	72.6	0.9	20.3

* Or nearest years for which data are available.

(continued)

	Innovation activity of enterprises	Expenditure on technological innovation as a percentage of total sales:	Innovative goods and services as a percentage of total sales
Hungary	32.7	0.6	7.8
Ireland	57.2	0.04	36.9
Italy	55.7	0.6	13.5
Latvia	32.0	0.3	6.4
Lithuania	53.0	2.1	11.5
Malta	39.7	0.4	6.1
Netherlands	55.8	…	…
Poland	34.9	0.6	7.5
Portugal	51.1	0.4	14.5
Romania	10.7	0.05	5.2
Serbia	56.8	3.6	9.4
Slovakia	36.6	0.8	14.9
Slovenia	55.2	0.1	12.3
Spain	33.4	0.6	21.7
Sweden	65.3	0.5	12.9



6

PUBLIC ATTITUDES TOWARDS SCIENCE, TECHNOLOGY, AND INNOVATION

6.1. Opinions about scientists*

(as a percentage of respondents aged 18-65)

Do you agree or disagree with the following statements?**

	2014	2019	2020
Scientists solve challenging tasks	80	88	89
Scientists are enthusiasts who work for the benefit of the humanity	71	86	86
Most scientists want to work on the tasks that make the lives of ordinary humans better	74	82	84
Scientists try to convey their research to a wider audience	–	–	73
Personally, I find the job of a scientist very boring	53	54	58
Scientists may often be perceived as eccentric	58	57	57

* *Sources:* here and below in this section, for 2020, the data are based on the results of a representative survey of the Russian population aged 18–65 organised by The Russia Longitudinal Monitoring Survey – Higher School of Economics within the framework of the HSE Basic Research Programme (conducted in September 2020 – January 2021, with 7,467 participants); for 2009–2019, the data are based on the results of representative surveys of the adult Russian population organised by the HSE ISSEK and published in the previous editions of this data book.

** The share of respondents who gave the answers 'completely agree' and 'mostly agree.'

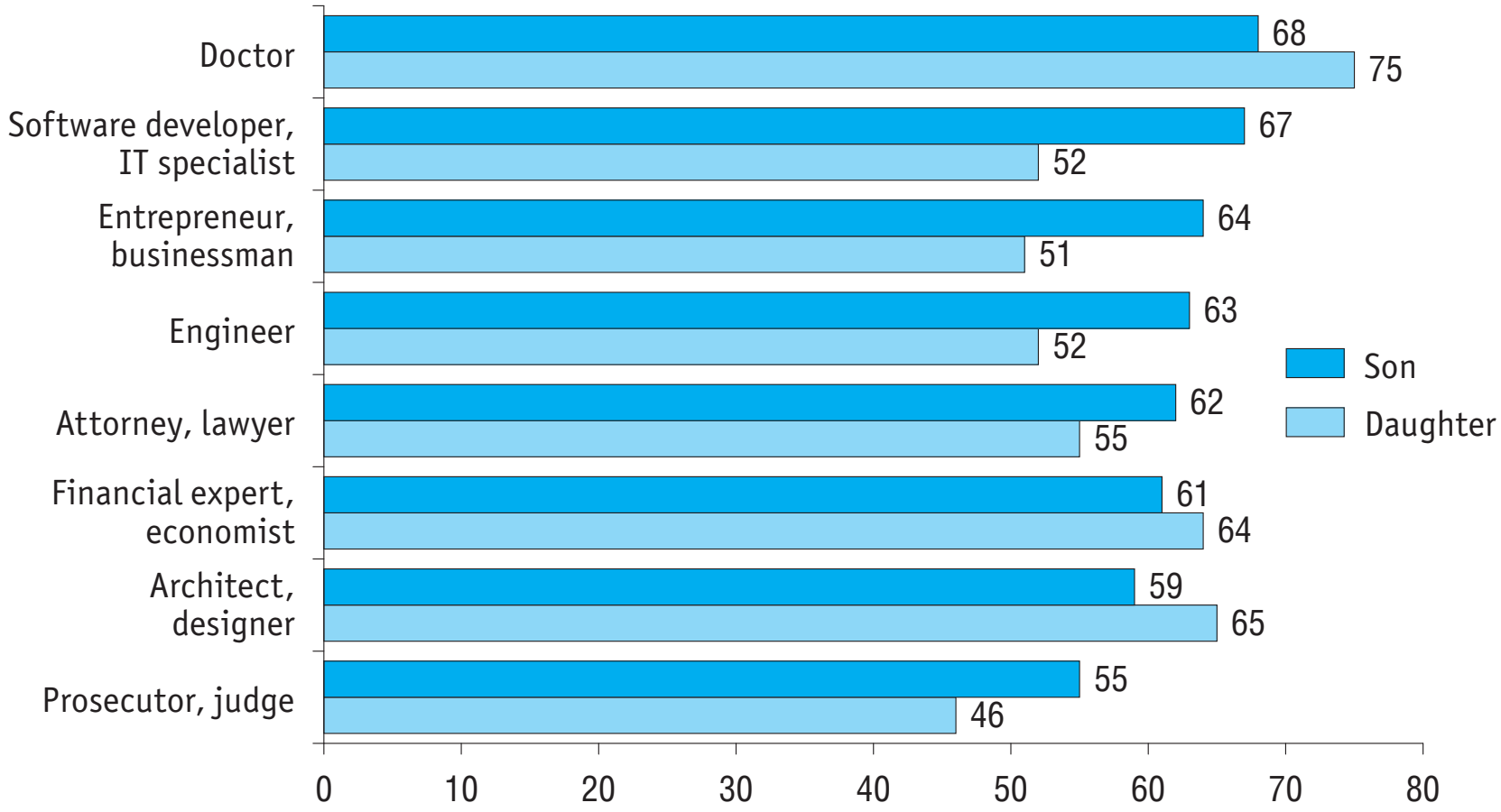
(continued)

	2014	2019	2020
Scientists have less entertainment in their lives, than people of other occupations	50	46	39
Scientists have hardly any other interests apart from their profession	46	40	37
Scientists earn less than representatives of other occupations with similar workload	42	28	23
Scientists usually work alone	27	26	21
Scientists are loafers who hide it well	–	–	10

6.2. STI career attractiveness in comparison with other occupations: 2020*

(as a percentage of respondents aged 18-65)

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



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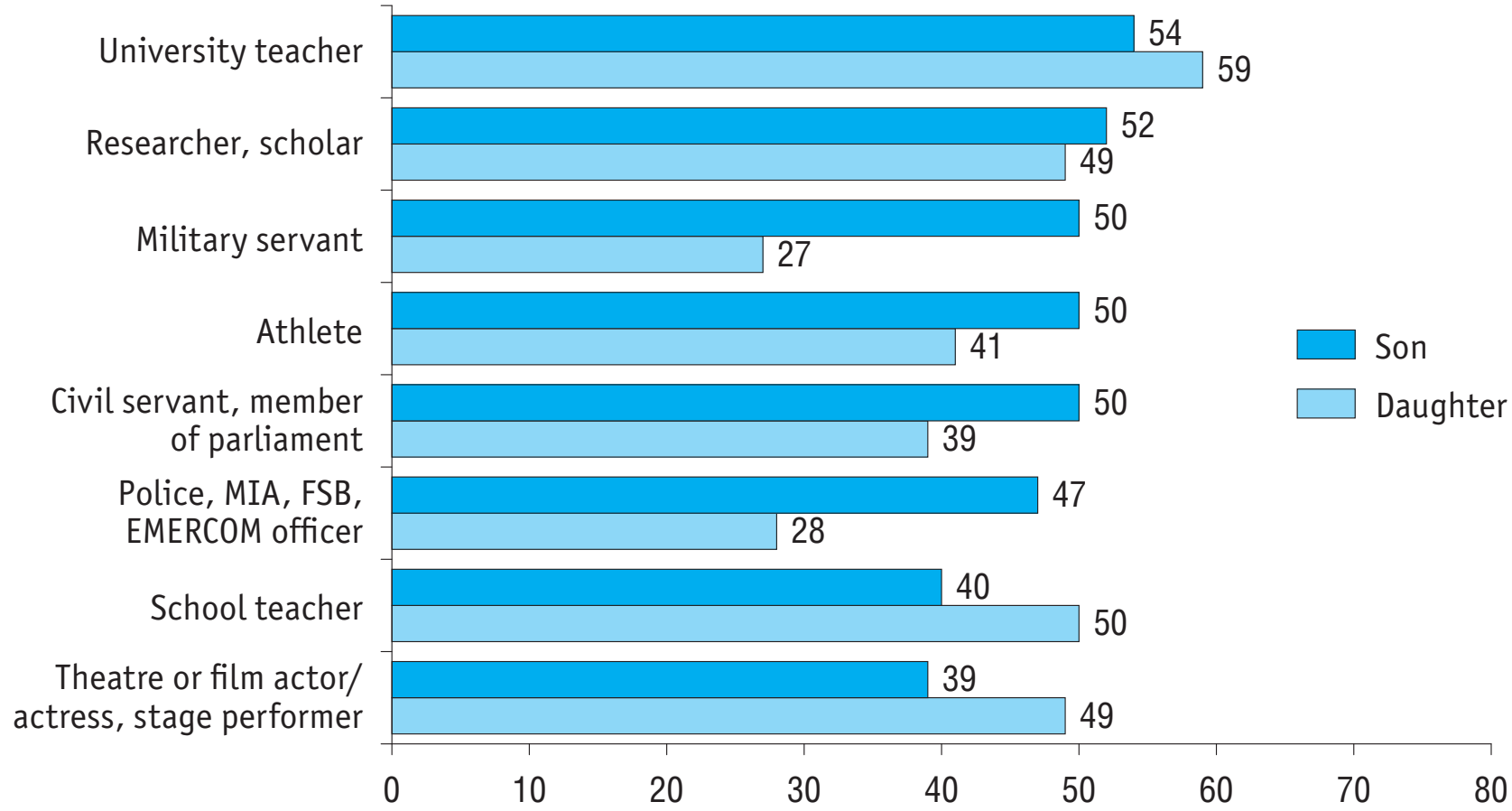
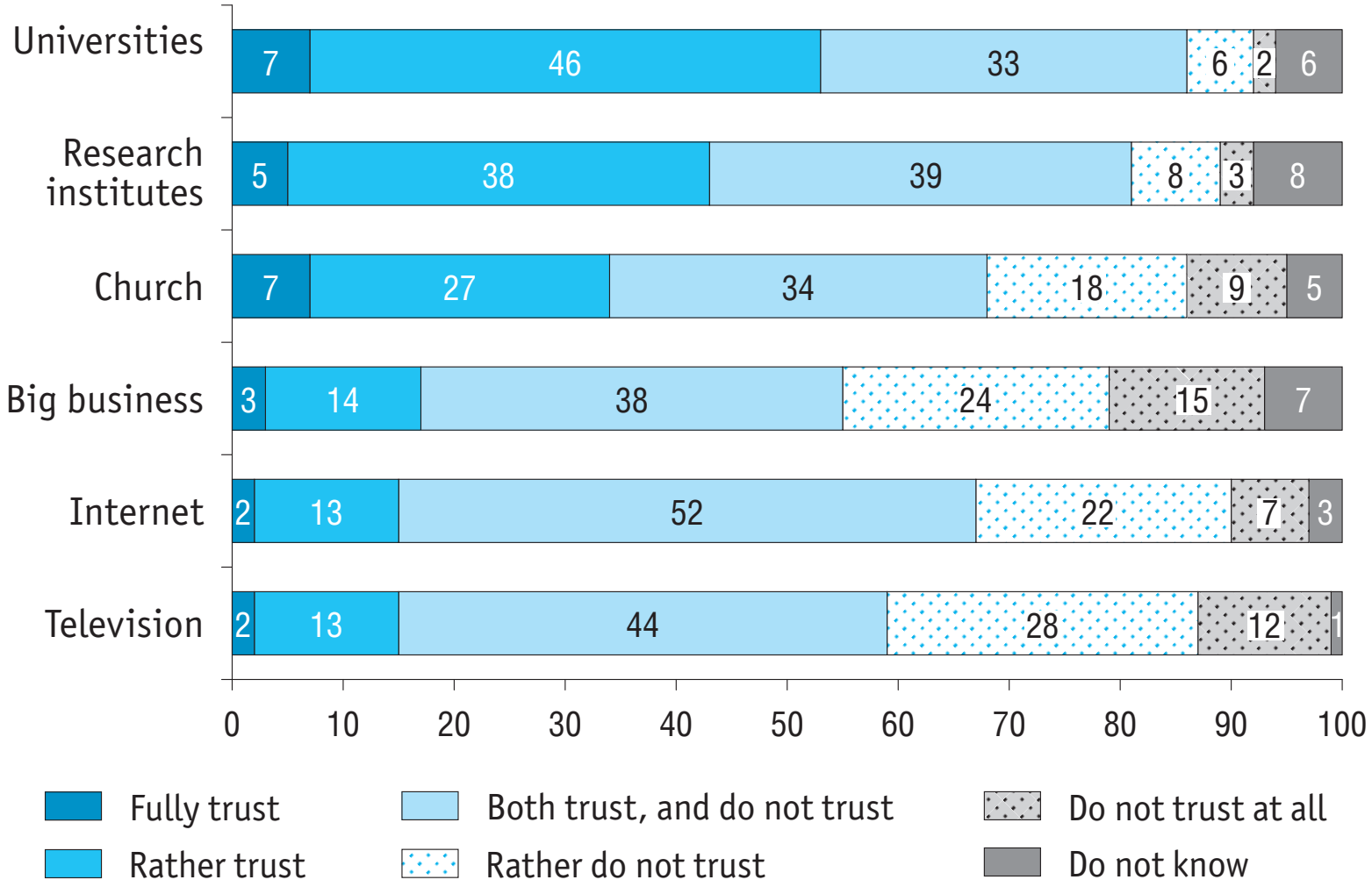


* The share of respondents who 'would be happy' over their child's choice.

6.3. Trust towards various institutes of science and technology in comparison with other institutions: 2020

(as a percentage of respondents aged 18-65)

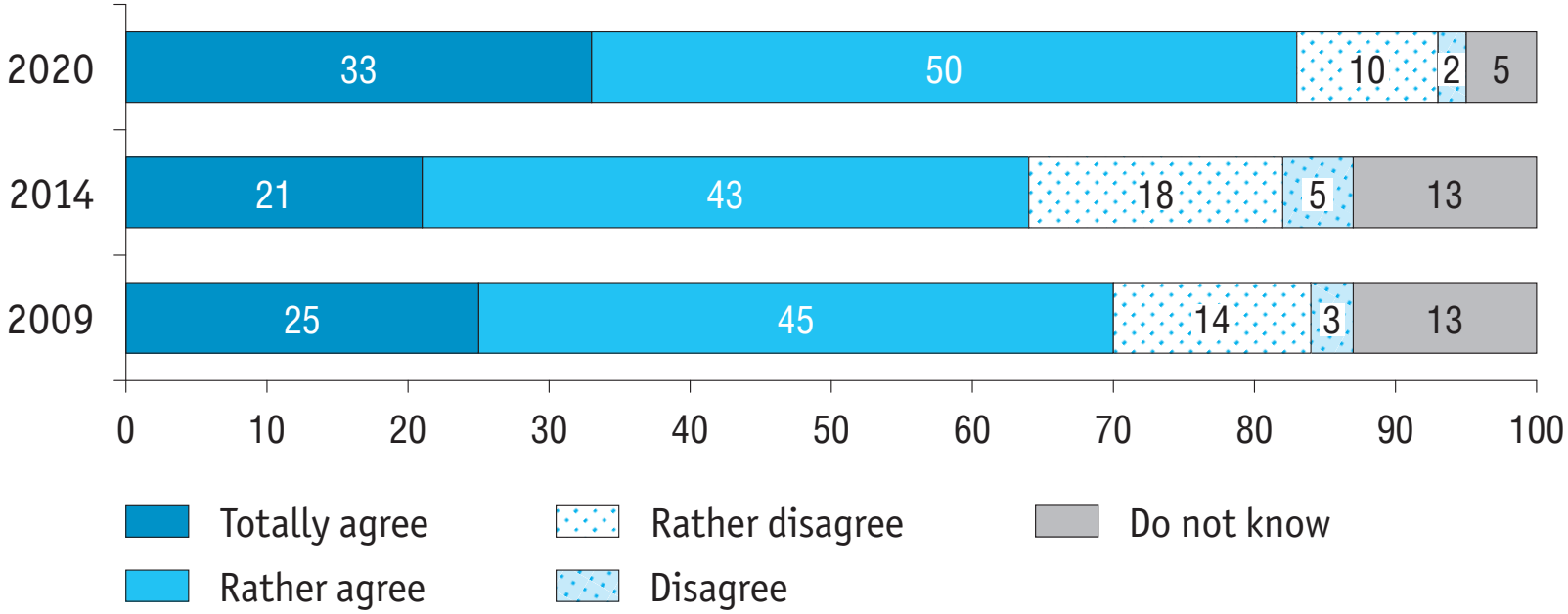


6.4. Risk management of science and technology development: 2009–2020

(as a percentage of respondents aged 18-65)

Do you agree or disagree with the following statements?

*If there are concerns that any scientific research can bring humanity not only benefits but also harm, it should be banned**



* In 2009 and 2014, 'If any scientific research can bring humanity not only benefits but also harm, such research should be banned'.

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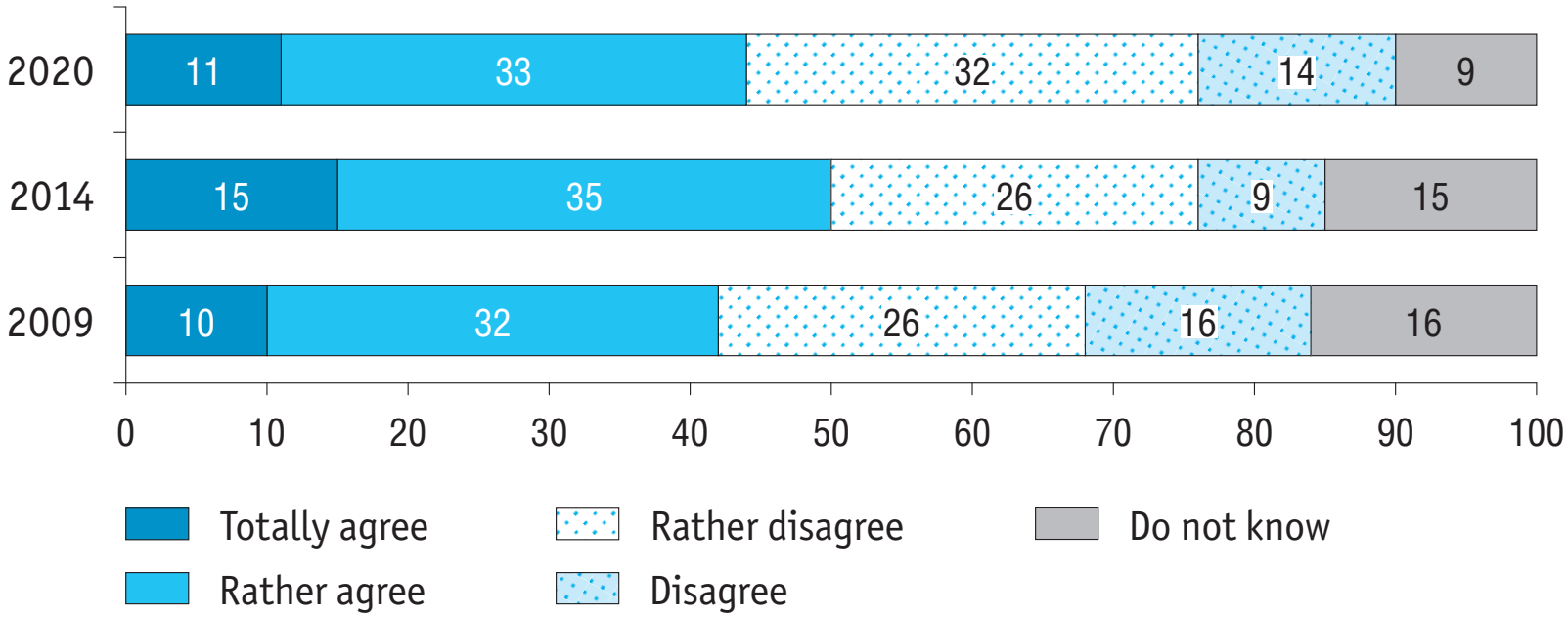
Scientific research should be conducted on any topic, any censorship in this regard is unacceptable



Technical Notes

Business process innovation is a new or improved business process that differs significantly from the previous business processes and that has been brought into use.

Competitive research funding (programme funding) are funds received by the organisation, which came first according to the decision of a competition commission after summarising the results of a competition for scientific, technical programmes, innovation and other R&D-related projects, based on the best R&D project implementation conditions presented by this organisation in comparison with other participants.

Construction includes aggregated data on enterprises by types of economic activities: for 2017–2018, OKVED2 codes 43.91, 43.99; from 2019, Section F.

Federal budget appropriations on civil S&T are the federal budget funds allocated for basic and applied research to be applied in civil S&T.

Grants are cash and other assets provided irrevocably and free of charge 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 with95 the procedures laid down by the Government of the Russian Federation, to realise specific S&T programmes and projects, innovation projects, to conduct specific research under the conditions attached by grantmakers.

Gross domestic expenditure on R&D – actual expenditure on research and development performed by organisations, expressed in a monetary form.

Innovation expenditure is the actual expenditure connected with the implementation of one, several, or all types of innovative activities performed within an organisation, expressed in monetary form. Innovation expenditure includes current expenditure and capital expenditure.

Innovation activity of enterprises is determined as the ratio of the number of innovation-active enterprises to the total number of enterprises surveyed in the reporting year. The methodology for calculating this indicator was approved by Rosstat Order no. 818 of December 27, 2019. Any changes in 2017 data are due to the recalculation of the indicator according to the specified method.

Innovative activity includes all developmental (R&D), financial or commercial activity related to creation of technologically new or significantly improved goods or services that have been introduced on the market and differ significantly from the previously produced goods and services; or technologically new or significantly improved business processes that differ significantly from the previously used business processes.

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

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

Product innovation is a new or improved good or service that differs significantly from the previous goods or services and that has been introduced on the market.

Publication activity is calculated on the basis of Web of Science Core Collection and Scopus, as well as Scopus SciVal and InCites Clarivate Analytics. An article belongs to a country if it is listed in the affiliated address of an author or one of the co-authors.

Researchers are professionals engaged in R&D and direct creators of new knowledge, products, processes, methods, and systems, as well as managers of these activities. Generally, researches have diplomas of higher education;

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

Services includes consolidated data on enterprises by types of economic activities according OKVED2 Section H codes 58, 61, 62, 63, 69, 70, 71, 72, 73, 74, 86.

Tax expenditure, as defined by the '2019–2024 Tax Expenditures Efficiency Improvement Framework' approved on January 31, 2019 by the Government of the Russian Federation in Order no. 117-r, are revenues' shortfalls in budgets of the Russian budgetary system caused by applicable tax incentives and other instruments (preferences) set by the fiscal law of the Russian Federation by way of state (municipal) support according to the strategic goals of state (municipal) programmes and/or socio-economic objectives of the policy that are not related to state (municipal) programmes.

Technological innovation is 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 real life.

Technology balance of payments is the total sum of the money transfers on intangible transactions connected with technology imports and exports.

Electronic Resource

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Pocket Data Book

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