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SCIENCE AND INNOVATION ACTIVITY IN THE REPUBLIC OF BELARUS

Statistical book

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The statistical book presents data on the activities of organisations in the field of science and innovation in the Republic of Belarus.

The publication is intended for government authorities, research institutions, higher education teaching staff, postgraduates and students, and other interested users.

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FOREWORD

The statistical book presents information on the main indicators of scientific and innovation activities in the Republic of Belarus in 2005, 2009-2013.

The book contains statistical data on the main indicators of the activity of organisations engaged in research and experimental development. It provides statistics reflecting innovation activities of organisations with the principal economic activity in mining and manufacturing; electricity, gas and water supply (hereinafter referred to as industrial organisations); communications and computer-related activities (hereinafter referred to as service sector organisations).

The data book contains statistics on the training of personnel of highest qualification, size and composition of personnel engaged in R&D, on domestic expenditure on R&D by field of science, on current costs of R&D by type of works and field of science, on the volume of works performed, on sources of funds of domestic R&D expenditure.

The system of statistical indicators on innovation activity presented in the data book comprises expenditures on technological, organisational and marketing innovations, sources of funding of innovations, volume of innovative products shipped and its share in total products shipped, availability of organisational and marketing innovations, data on factors hampering innovation activity, on the results of implementing innovation, number of acquired and transferred new and high technologies.

The section "International Comparisons" provides information on the main indicators of scientific and innovation activities in Belarus in comparison with other countries.

The indicators are presented in a breakdown by economic activity, by ownership and by regions of the country.

Selected statistical indicators are furnished with brief methodological explanations.

Explanation of symbols

- not applicable
- ... data not available
- 0,0 negligible magnitude

In certain cases minor discrepancies between the totals and the sum is explained by data rounding.

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1. INDICATORS OF SCIENCE AND INNOVATION DEVELOPMENT

Indicators are focused economic measures which make it possible to a certain extent to foresee, in which direction economic processes are expected to develop.

The science and innovation development indicators comprise relative measures calculated on the basis of data on R&D expenditure, number of R&D personnel, education expenditure, number of patent applications, innovation products shipped, and other.

Innovation Union Scoreboard (IUS) is a multiple indicator review of the innovation development of the European countries within the framework of the European Union Initiative. The system of the IUS indicators captures various aspects of science and innovation activity and allows for the country comparisons by the level of their innovativeness.

The structure of the Innovation Union Scoreboard reflects in logical sequence through the “enablers – firm activities – outputs” chain:

1. the ability of personnel to perceive innovation, educational attainment of personnel, funding of innovative projects, government support to science and innovation activity;
2. expenditure on research, development and innovation, firms' effort in innovation cooperation;
3. innovation activity of businesses and economic effects from innovation.

1.1. Indicators of science development

	2005	2009	2010	2011	2012	2013
Domestic R&D expenditure by source of funds, percent						
budget	58,1	61,9	57,8	45,0	43,6	47,6
extra-budgetary funds	5,1	0,6	0,9	0,5	0,3	0,7
Domestic R&D expenditure per organisation engaged in R&D, million rubles	1 371	1 981	2 437	4 155	6 675	9 071
Domestic R&D expenditure per employee engaged in R&D, million rubles	15	27	36	67	116	151
Number of R&D personnel per organisation engaged in R&D	94	73	68	62	57	60
Number of R&D personnel per 10 000 employed population	68,5	69,9	68,0	67,3	66,6	64,1
Share of education expenditure in total expenditure of the consolidated budget, percent	13,3	11,2	16,8	18,1	17,5	17,9
Net enrolment ratio in education, ages 5-18, percent	90,8	89,7	90,1	90,1	88,6	87,8
Ratio of average monthly nominal gross wages in education to average monthly nominal gross wages in the economy, percent	86,1	71,6	73,4	78,6	75,6	68,6
Share of high education sector in domestic R&D expenditure, percent	17,0	13,6	12,6	9,6	10,0	10,8

1.2. Innovation indicators

	2005	2009	2010	2011	2012	2013
Rate of inventive activity (number of domestic patent applications for inventions registered in Belarus per 10 000 population)	1,2	1,8	1,9	1,8	1,8	1,6
Share of organisations having expenditure on technological innovations in total organisations surveyed, percent	14,1	12,0	15,2	21,7	22,7	21,5
of which:						
share of industrial organisations having expenditure on technological innovations in total industrial organisations surveyed, percent	14,1	12,1	15,4	22,7	22,8	21,7
share of service sector organisations having expenditure on technological innovations in total service sector organisations surveyed, percent	...	12,1	12,8	12,1	21,8	19,2
Share of industrial organisations having expenditure on technological, organisational and marketing innovations in total industrial organisations surveyed, percent	...	...	18,1	24,3	24,8	24,4
Share of shipped innovative products (works, services) in total products (works, services) shipped by industrial organisations, percent	15,2	10,9	14,5	14,4	17,8	17,8
Share of shipped innovative products (works, services) novel to domestic market in total volume of products (works, services) shipped by industrial organisations, percent	...	...	53,2	60,0	43,6	44,6
Share of shipped innovative products (works, services) novel to world market in total volume of products (works, services) shipped by industrial organisations, percent	...	...	0,8	1,1	0,7	0,6

1.3. Selected indicators for the Republic of Belarus calculated according to the Innovation Union Scoreboard (IUS 2013) methodology

Main type / innovation dimension / indicator	2012	2013
Enablers		
Human resources		
1.1.1. New doctorate graduates (ISCED 6) per 1000 population aged 25-34	0,8	0,8
1.1.2. Percentage population aged 30-34 having completed tertiary education	28,4	28,4
1.1.3. Percentage youth aged 20-24 having attained at least upper secondary level education	92,6	92,6
1.2.3. Non-EU doctorate students as % of all doctorate students ¹⁾	4,62	5,03
Finance and public support		
1.3.1. R&D expenditure in the public sector as % of GDP	0,21	0,24
1.3.2. Venture capital ²⁾ (early stage, expansion and replacement) as % of GDP	–	–
Firm activities		
Firm investments		
2.1.1. R&D expenditure in the business sector as % of GDP	0,46	0,45
2.1.2. Non-R&D innovation expenditures as % of products (works, services) shipped	1,55	1,95
Linkages and entrepreneurship		
2.2.1. SMEs innovating in-house as % of SMEs ³⁾	4,70	3,99
2.2.2. Innovative SMEs collaborating with others as % of total organisations surveyed	0,69	0,52
Outputs		
Innovators		
3.1.1. SMEs introducing product or process innovations as % of SMEs	4,21	3,47
3.1.2. SMEs introducing marketing or organisational innovations as % of SMEs	0,99	1,19
Economic effects		
3.2.1. Employment in knowledge-intensive activities (manufacturing and services) as % of total employment	27,36 ⁴⁾	27,36 ⁴⁾
3.2.2. Contribution of medium and high-tech products exports to the trade balance	-15,3	2,02
3.2.3. Knowledge-intensive services exports as % of total service exports	26,36	25,73
3.2.4. Sales of new-to-market and new-to-firm innovations as % of turnover ⁵⁾	17,45	17,28

¹⁾ Percentage share of foreign nationals in total enrollment in postgraduate education programmes.

²⁾ Capital invested in novel and high risk projects that could not be financed from traditional external sources; mainly provided to startup or reorganised companies including high-potential small enterprises, or invested into high risk stocks.

³⁾ SMEs – small and medium-sized enterprises.

⁴⁾ As of end of 2012.

⁵⁾ New to market and new to firm innovations shipped as a percentage of total volume of products shipped.

2. ORGANISATIONS AND HUMAN RESOURCES OF SCIENCE

Research (research work) is a creative activity undertaken in order to acquire new knowledge and ways of its application.

Basic research is a theoretical and/or experimental work undertaken to acquire new knowledge of the underlying laws of development of nature, man, society and artificially created objects.

Applied research is investigation undertaken to apply the results of basic research to achieve a specific practical aim or objective.

Experimental development is work directed to creation or improvement of methods and means of process implementation in a specific practical activity, particularly to creation of new products and technologies. Development supports creation of new materials, products, devices, technological processes, systems and methods as well as their improvement.

Scientific and technological services are activities in the field of scientific and technical information, patents, licences, standards, metrology and quality control, scientific and technical consulting, other activities facilitating acquisition, dissemination and application of scientific knowledge.

Researchers are R&D professionals directly engaged in the creation of new knowledge, products, processes, methods and systems, and in the management of these activities.

Technicians participate in R&D by performing technical tasks, normally under the supervision of researchers (operation and service of scientific instruments, laboratory equipment and computer machines, preparation of materials and drawings, conducting of experiments, trials and analyses, etc.).

Supporting staff perform auxiliary functions connected with R&D; these include the staff of planning and economic units, financial units, patent services, scientific and technical information units, scientific and technical libraries; workers performing the assembly,

adjustment, maintenance and repairs of scientific equipment and apparatus; workers of pilot (experimental) production units; laboratory assistants having no higher or secondary specialized education; workers performing functions which are a direct service to R&D (accounting, personnel, secretarial, logistics units).

Government sector comprises government authorities as well as non-profit institutions subordinated to government authorities and other government organisations except organisations referred to higher education sector.

Business enterprise (entrepreneurial) sector comprises organisations pursuing profit generation as the main purpose of their activity and/or distributing the profit gained among partners; organisations whose activity is output of products (works, services) and provision of services (other than those of higher education sector) for commercial purposes, including organisation whose property is state-owned or with a state share in the statutory fund.

Higher education sector includes educational institutions implementing higher education programmes (classical universities, specialised universities (academies), institutes, higher colleges); organisations engaged in R&D under the control of higher education establishments and/or the Ministry of Education; medical institutions associated with higher education establishments.

Private non-profit sector comprises organisations not pursuing profit generation as their main purpose and not distributing profit gained among partners, except non-profit institutions included in the government sector and higher education sector.

Starting from 2009 data on organisations performing R&D include micro- and small entities.

2.1. Main indicators of science development

	2005	2009	2010	2011	2012	2013
Number of organisations engaged in R&D	322	446	468	501	530	482
Number of R&D personnel	30 222	32 441	31 712	31 194	30 437	28 937
of which:						
researchers	18 267	20 543	19 879	19 668	19 315	18 353
of which with an academic degree:						
doctor of science	780	737	746	741	719	704
candidate of science	3 232	3 184	3 143	3 150	3 071	2 974
Enrollment in postgraduate (adjunct) programmes, persons	5 042	4 571	4 725	5 779	5 456	5 265
Domestic R&D expenditure, billion rubles						
at current prices	441,5	883,3	1 140,6	2 081,9	3 537,8	4 372,3
at constant prices of 2005	441,5	551,4	641,2	683,5	664,1	687,7
as percentage of GDP	0,68	0,64	0,69	0,76	0,67	0,69
Nominal gross average monthly wages and salaries in science and science services	603,6	1 390,0	1 706,6	2 653,6 ²⁾	4 905,6 ²⁾	6 830,7 ²⁾
Fixed capital investment in science and science services, billion rubles	43,8	167,4	266,6	361,8 ²⁾	630,6 ²⁾	810,2 ²⁾
Indices of fixed capital investment in science and science services, percent	100,0	68,6	145,3	95,6 ²⁾	98,3 ²⁾	96,9 ²⁾
Commissioning of fixed assets in science and science services, billion rubles	36,0	195,5	242,1	310,6 ²⁾	741,9 ²⁾	513,9 ²⁾
Profitability of sold goods, products, works and services in science and science services, percent	9,6	17,9	17,5	27,9 ³⁾	21,5 ³⁾	23,9 ³⁾

¹⁾ Data for 2009 section including micro entities and small organisations without departmental affiliation.

²⁾ Data refer to the economic activity classified under division 73 "Research and development".

³⁾ Data refer to organisations with the principal economic activity classified under division 73 "Research and development".

2.2. R&D organisations by regions and Minsk city

(entities)

	2005	2009	2010	2011	2012	2013
Republic of Belarus	322	446	468	501	530	482
Regions:						
Brest	18	26	29	30	28	26
Vitebsk	29	28	30	26	27	26
Gomel	27	32	35	38	36	34
Grodno	13	17	21	21	22	19
Minsk city	202	302	303	329	356	320
Minsk	19	22	29	37	40	39
Mogilev	14	19	21	20	21	18

2.3. R&D organisations by sector of performance

(entities)

	2005	2009	2010	2011	2012	2013
Government sector						
Republic of Belarus	122	102	95	96	104	98
Regions:						
Brest	3	4	3	3	5	4
Vitebsk	6	5	4	4	5	4
Gomel	9	7	7	7	7	6
Grodno	3	2	4	4	4	1
Minsk city	93	70	70	70	73	73
Minsk	4	12	5	6	8	8
Mogilev	4	2	2	2	2	2
Business enterprise sector						
Republic of Belarus	144	277	304	331	352	317
Regions:						
Brest	12	18	22	23	19	18
Vitebsk	18	18	21	15	15	15
Gomel	12	19	21	24	22	21
Grodno	7	12	14	14	15	15
Minsk city	74	187	188	212	236	205
Minsk	15	10	24	31	32	31
Mogilev	6	13	14	12	13	12

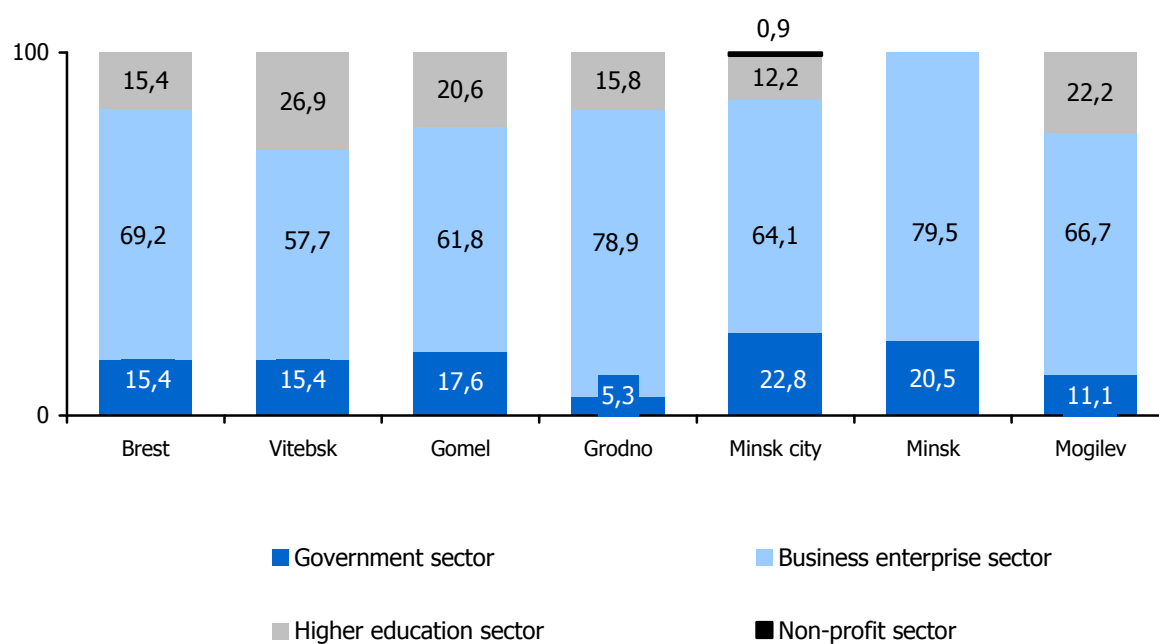
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	2005	2009	2010	2011	2012	2013
Higher education sector						
Republic of Belarus	56	62	63	70	70	64
Regions:						
Brest	3	4	4	4	4	4
Vitebsk	5	5	5	7	7	7
Gomel	6	6	7	7	7	7
Grodno	3	3	3	3	3	3
Minsk city	35	40	39	43	43	39
Minsk	–	–	–	–	–	–
Mogilev	4	4	5	6	6	4

In 2013 three organisations carried out research and development in the non-profit sector.

2.4. Structure of R&D organisations by sector of performance in 2013

(percent)



2.5. R&D personnel by sector of performance

(persons)

	2005	2009	2010	2011	2012	2013
Republic of Belarus	30 222	32 441	31 712	31 194	30 437	28 937
of which:						
government sector	12 720	9 885	8 294	8 150	8 041	7 533
business enterprise sector	14 585	19 551	20 510	19 995	19 479	18 690
higher education sector	2 917	2 995	2 902	3 046	2 908	2 705

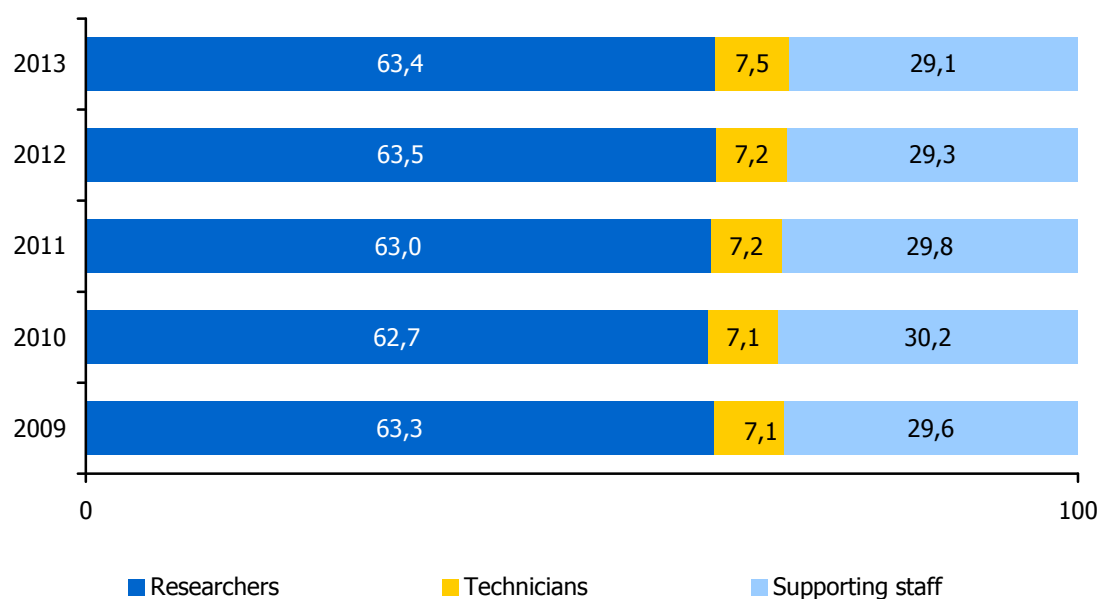
2.6. R&D personnel by category

(persons)

	2005	2009	2010	2011	2012	2013
Total	30 222	32 441	31 712	31 194	30 437	28 937
of which:						
researchers	18 267	20 543	19 879	19 668	19 315	18 353
technicians	2 112	2 312	2 248	2 236	2 202	2 162
supporting staff	5 763	9 586	9 585	9 290	8 920	8 422

2.7. Structure of R&D personnel by category

(percent)

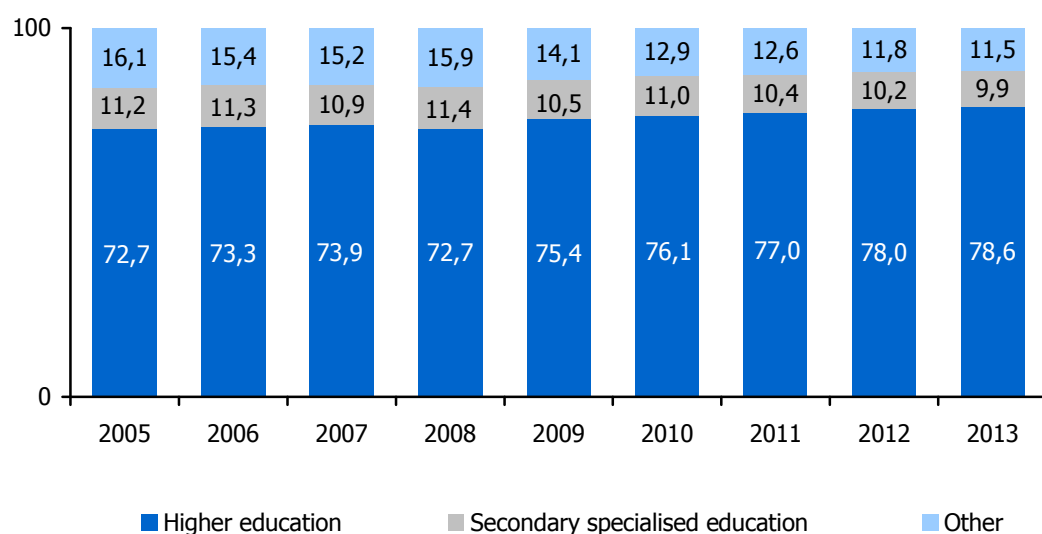


2.8. R&D personnel by educational attainment

(persons)

	2005	2009	2010	2011	2012	2013
Total	30 222	32 441	31 712	31 194	30 437	28 937
of which with completed education:						
higher	21 961	24 454	24 119	24 005	23 730	22 744
secondary specialised	3 398	3 413	3 476	3 260	3 095	2 867
other	4 863	4 574	4 117	3 929	3 612	3 326

2.9. Structure of R&D personnel by educational attainment (percent)

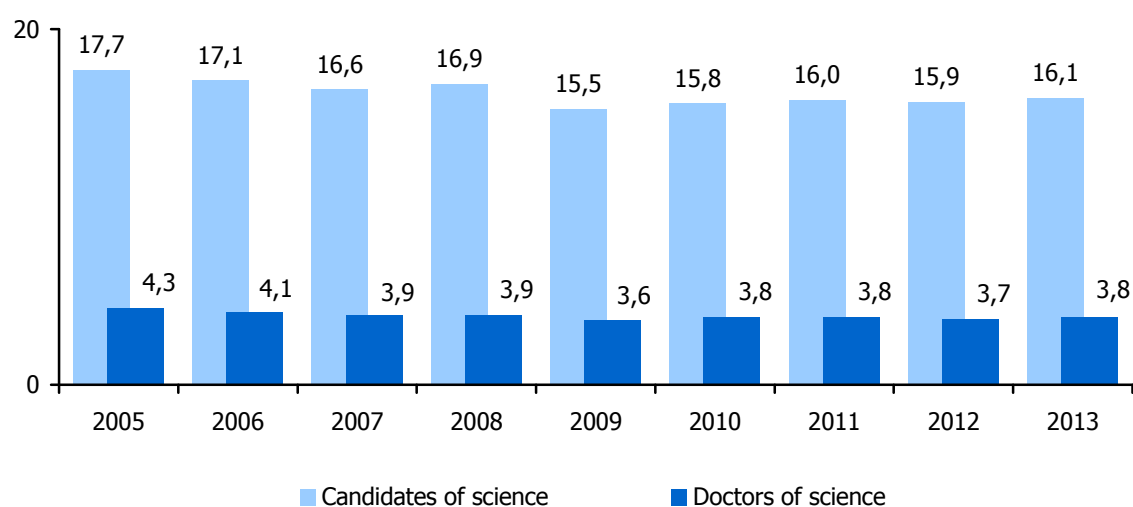


2.10. Number of researchers with an academic degree (persons)

Year	Number of researchers		Of which			
			doctors of science		candidates of science	
	total	of which women	total	of which women	total	of which women
2005	18 267	7 897	780	118	3 232	1 161
2009	20 543	8 775	737	124	3 184	1 175
2010	19 879	8 392	746	127	3 143	1 156
2011	19 668	8 192	741	123	3 150	1 195
2012	19 315	7 944	719	123	3 071	1 168
2013	18 353	7 535	703	121	2 946	1 155

2.11. Share of researchers with an academic degree in total number of researchers

(percent)



2.12. Researchers with an academic degree by field of science

(persons)

Year	Number of researchers		Of which			
			doctors of science		candidates of science	
	total	of which women	total	of which women	total	of which women
Natural sciences						
2005	4 089	2 102	305	50	1 220	508
2009	3 794	1 899	282	52	1 100	477
2010	3 702	1 868	275	48	1 052	450
2011	3 596	1 809	273	47	1 054	457
2012	3 657	1 788	279	49	1 044	454
2013	3 411	1 727	267	47	1 007	436
Engineering sciences						
2005	10 380	3 568	196	8	923	134
2009	12 620	4 330	192	8	926	137
2010	12 257	4 170	205	15	945	171
2011	12 051	3 939	192	10	887	145
2012	11 601	3 706	162	7	829	141
2013	11 195	3 527	174	10	792	137

Continued

Year	Number of researchers		Of which			
			doctors of science		candidates of science	
	total	of which women	total	of which women	total	of which women
Medical sciences						
2005	836	552	91	20	275	171
2009	962	624	89	25	317	203
2010	924	567	79	22	304	175
2011	1 045	674	90	26	339	206
2012	994	610	96	28	304	178
2013	876	566	86	25	280	178
Agricultural sciences						
2005	1 255	710	74	14	392	162
2009	1 208	698	70	15	392	159
2010	1 206	678	74	16	399	168
2011	1 179	681	71	14	397	167
2012	1 137	672	70	14	379	163
2013	1 057	635	68	14	363	168
Socioeconomic and social sciences						
2005	1 203	667	41	8	219	81
2009	1 549	986	51	9	279	109
2010	1 401	885	61	11	281	114
2011	1 341	814	53	9	272	111
2012	1 458	881	53	8	321	126
2013	1 380	816	52	8	306	125
Humanities						
2005	504	298	73	18	203	105
2009	410	238	53	15	170	90
2010	389	224	52	15	162	78
2011	456	275	62	17	201	109
2012	468	287	59	17	194	106
2013	434	264	56	17	198	111

2.13. Share of researchers with an academic degree in total number of researchers by field of science

(percent)

Year	Number of researchers	Of which	
		doctors of science	candidates of science
Natural sciences			
2005	100	7,5	29,8
2009	100	7,4	29,0
2010	100	7,4	28,4
2011	100	7,6	29,3
2012	100	7,6	28,5
2013	100	7,8	29,5
Engineering sciences			
2005	100	1,9	8,9
2009	100	1,5	7,3
2010	100	1,7	7,7
2011	100	1,6	7,4
2012	100	1,4	7,1
2013	100	1,6	7,1
Medical sciences			
2005	100	10,9	32,9
2009	100	9,3	33,0
2010	100	8,5	32,9
2011	100	8,6	32,4
2012	100	9,7	30,6
2013	100	9,8	32,0
Agricultural sciences			
2005	100	5,9	31,2
2009	100	5,8	32,5
2010	100	6,1	33,1
2011	100	6,0	33,7
2012	100	6,2	33,3
2013	100	6,4	34,3

Continued

Year	Number of researchers	Of which	
		doctors of science	candidates of science
Socioeconomic and social sciences			
2005	100	3,4	18,2
2009	100	3,3	18,0
2010	100	4,4	20,1
2011	100	4,0	20,3
2012	100	3,6	22,0
2013	100	3,8	22,2
Humananities			
2005	100	14,5	40,3
2009	100	12,9	41,5
2010	100	13,4	41,6
2011	100	13,6	44,1
2012	100	12,6	41,5
2013	100	12,9	45,6

2.14. Researchers with an academic degree by age

(persons)

	2012			2013		
	number of researchers	of which		number of researchers	of which	
		doctors of science	candidates of science		doctors of science	candidates of science
Total	19 315	719	3 071	18 353	703	2 946
of which by age:						
29 and younger	4 657	–	88	4 427	–	69
30-39	3 970	4	631	3 899	4	630
40-49	2 762	29	515	2 526	24	505
50-54	2 290	62	348	2 106	58	313
55-59	2 320	112	447	2 136	100	403
60-69	2 499	259	761	2 518	274	752
70 and older	817	253	281	741	243	274

2.15. R&D personnel by category, by regions and Minsk city

(persons)

	2005	2009	2010	2011	2012	2013
Researchers						
Republic of Belarus	18 267	20 543	19 879	19 668	19 315	18 353
Regions:						
Brest	305	397	405	421	426	380
Vitebsk	782	705	688	707	598	545
Gomel	1 445	1 574	1 480	1 439	1 402	1 287
Grodno	239	367	319	310	264	233
Minsk city	14 382	15 638	15 182	14 880	14 603	14 024
Minsk	822	1 552	1 490	1 608	1 629	1 536
Mogilev	292	310	315	303	393	348
Technicians						
Republic of Belarus	2 112	2 312	2 248	2 236	2 202	2 162
Regions:						
Brest	59	68	81	90	74	86
Vitebsk	103	86	99	98	85	61
Gomel	159	183	187	168	149	100
Grodno	25	58	77	68	89	64
Minsk city	1 346	1 402	1 273	1 290	1 322	1 365
Minsk	329	411	413	424	393	400
Mogilev	91	104	118	98	90	86
Supporting staff						
Republic of Belarus	5 763	9 586	9 585	9 290	8 920	8 422
Regions:						
Brest	57	116	135	127	100	98
Vitebsk	260	270	307	259	228	209
Gomel	951	1 148	1 199	1 188	1 125	1 010
Grodno	88	150	161	153	120	145
Minsk city	3 956	6 972	6 408	6 385	6 181	5 764
Minsk	375	782	1 075	998	1 014	1 036
Mogilev	76	148	300	180	152	160

3. PERSONNEL TRAINING

Higher education institutions include classical universities, specialised universities (academies, music conservatories), institutes and higher colleges.

The higher education is divided into two stages.

The first stage provides education of specialists with basic and specialised knowledge and skills, with an award of qualification of a specialist with higher education.

The second stage (Master's degree programme) provides in-depth training, building of knowledge and skills in scientific educational practice and R&D work, with an award of Master's degree.

Postgraduate education consists of two stages:

Postgraduate (adjunct) programme is the first stage of the postgraduate education intended for training of professionals with planning and independent research skills, profound theoretical knowledge and ability to prepare a qualified research paper (thesis) for acquiring a Candidate of Science degree. A postgraduate (adjunct) education programme provides for the award of the scientific qualification of "researcher" and is implemented as a full-time or correspondence course, or in the form of degree-seeking.

Doctoral programme is the second stage of postgraduate education intended for training of professionals with organisational skills in new or existing relevant research areas, in analytical generalisation of research results, allowing for the preparation of a qualified research paper (thesis) for acquiring of a Doctor of Science degree. The programme is implemented as a full-time course or in the form of degree-seeking.

The number of postgraduate (adjunct) and doctoral students is given as of the end of the year.

3.1. Main indicators of higher education institutions

(beginning of academic year)

	2005/06	2009/10	2010/11	2011/12	2012/13	2013/14
Number of institutions	55	53	55	55	54	54
of which:						
universities	31	31	32	32	32	32
academies	7	7	7	7	7	7
Enrolment – total, thousand	383,0	430,4	442,9	445,6	428,4	395,3
of which by mode of study:						
full-time	192,5	216,4	221,7	221,7	209,3	198,3
evening	2,0	0,7	0,7	0,8	0,9	1,1
correspondence	188,5	213,3	220,5	223,1	218,3	195,9
Admissions – total, thousand	90,5	97,8	100,5	96,0	88,1	68,7
of which by mode of study:						
full-time	46,1	52,5	52,4	48,5	45,0	39,1
evening	0,2	0,2	0,1	0,3	0,3	0,5
correspondence	44,2	45,1	48,0	47,2	42,7	29,1
Graduates – total, thousand	53,6	74,0	73,3	75,8	84,6	82,7
of which by mode of study:						
full-time	31,3	35,4	37,0	37,4	45,6	39,2
evening	0,3	0,2	0,1	0,1	0,1	0,2
correspondence	22,0	38,4	36,2	38,2	38,8	43,3
Graduates from higher education per 10 000 employed population	122	159	157	163	185	182

3.2. Enrolment in higher education programmes by field of education

(beginning of academic year, thousand persons)

	2005/06	2009/10	2010/11	2011/12	2012/13	2013/14
Total enrolment	383,0	430,4	442,9	445,6	428,4	395,3
of which by field of education:						
teacher education	54,5	49,8	47,4	45,9	42,4	38,4
teacher education; vocational training	3,0	3,3	3,4	3,0	2,8	2,3
arts and design	5,7	7,4	7,5	7,4	7,1	7,0
humanities	15,3	17,5	17,5	17,0	16,6	15,3
communications; law; economics; administration; business administration	165,2	174,5	180,6	180,4	167,3	147,8
natural sciences	12,2	13,3	13,5	13,7	13,8	13,5
environmental sciences	2,2	3,2	3,4	3,5	3,7	3,8
engineering and technology	66,2	79,8	82,9	84,1	83,2	77,7
architecture and construction	13,1	17,6	19,1	20,6	20,9	20,6
agriculture and forestry; landscape architecture	20,6	27,4	27,8	28,0	28,1	27,1
health	12,0	18,1	19,6	20,8	21,7	21,7
social protection	2,6	3,7	3,8	3,6	3,4	3,4
physical training; tourism and hospitality	4,1	7,1	8,2	9,2	9,0	8,6
catering; personal services	0,7	0,8	0,8	0,9	0,9	1,0
security services	5,6	6,9	7,4	7,5	7,5	7,1

3.3. Admissions in higher education programmes by field of education

(thousand)

	2005	2009	2010	2011	2012	2013
Total admissions	90,5	97,8	100,5	96,0	88,1	68,7
of which by field of education:						
teacher education	12,7	10,5	9,9	9,1	8,9	5,9
teacher education; vocational training	0,6	1,1	0,9	0,5	0,6	0,4
arts and design	1,4	1,7	1,6	1,5	1,4	1,4
humanities	3,6	3,9	3,6	3,5	3,3	3,3
communications; law; economics; administration; business administration	37,0	37,4	40,0	38,6	32,7	23,7
natural sciences	2,7	3,3	3,1	3,0	3,0	2,9
environmental sciences	0,7	0,7	0,7	0,8	0,8	0,8
engineering and technology	16,5	19,8	20,2	19,6	18,3	13,4
architecture and construction	3,3	4,3	4,8	4,9	4,5	3,6
agriculture and forestry; landscape architecture	6,1	6,5	6,4	6,0	6,0	5,6
health	2,3	4,2	4,3	3,8	4,0	3,6
social protection	0,8	0,7	0,7	0,6	0,6	0,6
physical training; tourism and hospitality	1,3	1,6	2,2	2,1	2,2	1,9
catering; personal services	0,2	0,1	0,2	0,3	0,2	0,2
security services	1,3	2,0	1,9	1,7	1,6	1,4

3.4. Graduation from higher education programmes by field of education

(thousand persons)

	2005	2009	2010	2011	2012	2013
Total graduates from higher education	53,6	74,0	73,3	75,8	84,6	82,7
of which by field of education:						
teacher education	9,5	11,7	11,1	9,2	10,7	8,5
teacher education; vocational training	0,5	0,7	0,6	0,6	0,7	0,7
arts and design	0,7	1,2	1,2	1,3	1,4	1,1
humanities	2,4	2,8	2,9	3,0	3,3	3,2
communications; law; economics; administration; business administration	21,9	32,7	30,3	33,8	39,0	38,2
natural sciences	1,8	2,3	2,2	2,1	2,2	2,3
environmental sciences	0,3	0,5	0,4	0,6	0,5	0,6
engineering and technology	8,8	11,3	12,1	12,5	12,7	13,1
architecture and construction	1,7	2,2	2,4	2,4	2,6	2,6
agriculture and forestry; landscape architecture	3,1	3,6	4,6	4,5	4,6	5,1
health	1,6	2,3	2,5	2,4	2,8	3,2
social protection	0,2	0,5	0,6	0,7	0,7	0,5
physical training; tourism and hospitality	–	0,9	0,9	1,1	1,8	2,0
catering; personal services	0,1	0,1	0,2	0,2	0,1	0,1
security services	1,0	1,2	1,3	1,4	1,5	1,5

3.5. Enrolment in Master's programmes by field of education

(beginning of academic year; persons)

	2009/10	2010/11	2011/12	2012/13	2013/14
Total students studying Master's programmes	4 349	4 805	4 955	6 088	7 552
of which by field of education:					
teacher education; vocational training	476	489	436	545	571
arts and design	35	55	46	98	141
humanities	522	584	655	601	593
communications; law; economics; administration; business administration	1 704	1 821	1 846	2 546	3 324
natural sciences	332	391	372	367	427
environmental sciences	46	61	77	99	107
engineering and technology	890	962	976	1 160	1 577
architecture and construction	154	183	215	238	238
agriculture and forestry; landscape architecture	83	105	118	116	155
health	–	22	27	44	24
social protection	–	–	–	–	19
physical training; tourism and hospitality	–	–	16	30	31
security services	107	132	171	244	345

3.6. Graduation from Master's programmes by field of education

(persons)

	2009	2010	2011	2012	2013
Total graduates with Master's diploma	2 607	2 545	2 852	3 062	3 319
of which by field of education:					
teacher education; vocational training	284	268	285	257	308
arts and design	32	25	45	77	88
humanities	335	353	454	498	475
communications; law; economics; administration; business administration	1 110	952	960	1 011	1 248
natural sciences	246	258	284	264	267
environmental sciences	23	31	31	47	44
engineering and technology	378	440	503	533	510
architecture and construction	69	90	90	124	159
agriculture and forestry; landscape architecture	67	77	111	97	94
health	–	–	21	26	30
physical training; tourism and hospitality	–	–	–	11	20
security services	63	51	68	117	76

3.7. Main indicators of postgraduate (adjunct) education programmes

	2005	2009	2010	2011	2012	2013
Total						
Number of educational institutions (organisations) implementing postgraduate (adjunct) education programmes	119	117	119	120	121	118
Enrolment in postgraduate (adjunct) programmes, persons	5 042	4 571	4 725	5 779	5 456	5 265
Admissions in postgraduate (adjunct) programmes, persons	1 508	1 516	1 469	1 756	1 361	1 431
Graduation from postgraduate (adjunct) programmes, persons	1 296	1 091	1 015	1 099	1 075	1 172
Organisations implementing postgraduate education programmes						
Number of organisations implementing postgraduate (adjunct) education programmes	76	73	74	75	71	72
Enrolment in postgraduate (adjunct) programmes, persons	1 277	1 026	1 063	1 285	992	912
Admissions in postgraduate (adjunct) programmes, persons	388	335	340	362	225	237
Graduation from postgraduate (adjunct) programmes, persons	332	298	241	254	206	248
Educational institutions implementing postgraduate education programme						
Number of educational institutions implementing postgraduate (adjunct) education programmes	43	44	45	45	50	46
Enrolment in postgraduate (adjunct) programmes, persons	3 765	3 545	3 662	4 494	4 464	4 353
Admissions in postgraduate (adjunct) programmes, persons	1 120	1 181	1 129	1 394	1 136	1 194
Graduation from postgraduate (adjunct) programmes, persons	964	793	774	845	869	924

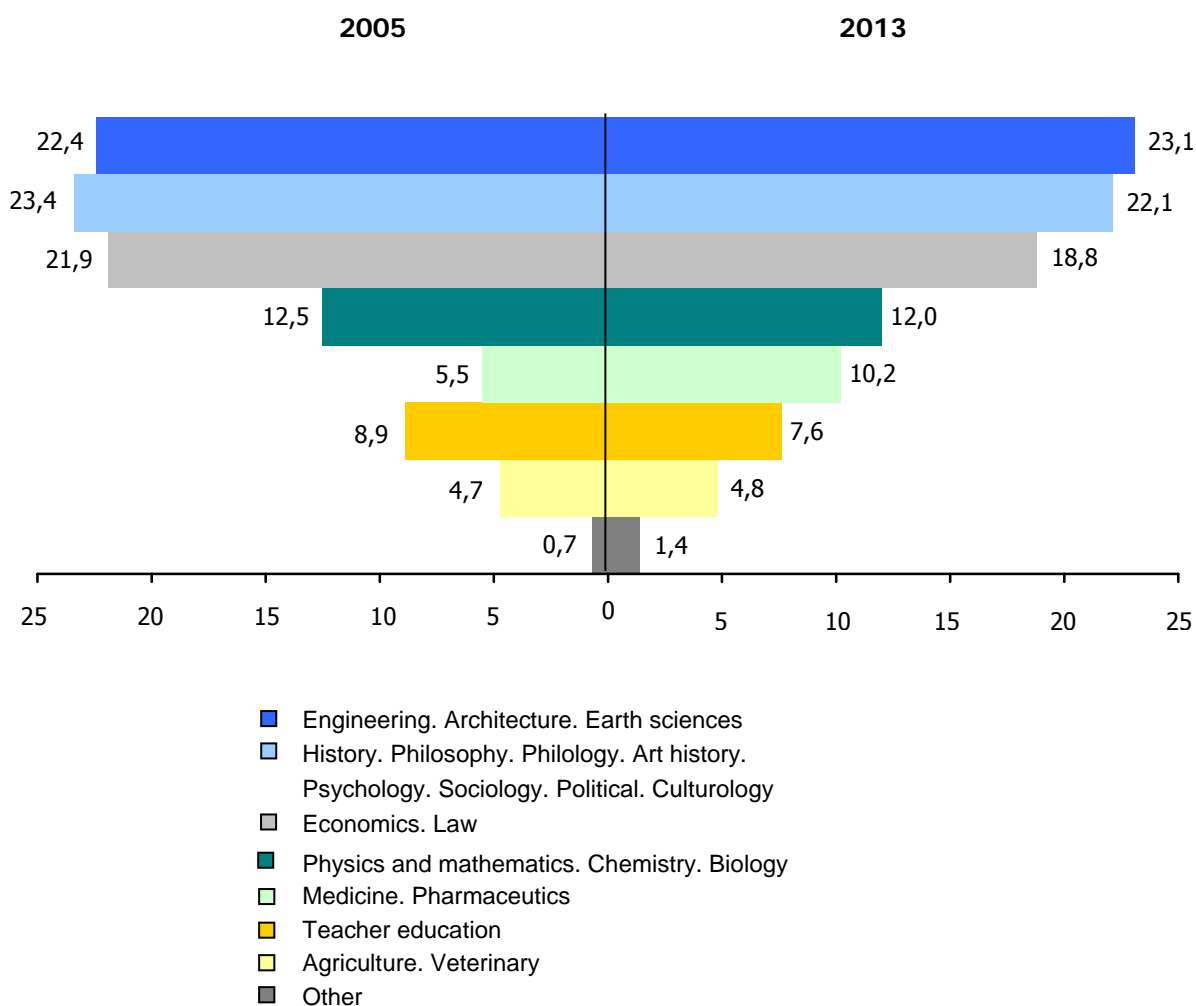
3.8. Enrolment in postgraduate (adjunct) education programmes by field of science

(end of year, persons)

	2005	2009	2010	2011	2012	2013
Total enrolment in postgraduate (adjunct) programmes	5 042	4 571	4 725	5 779	5 456	5 265
of which by field of science:						
physics and mathematics	293	254	258	291	253	270
chemistry	84	64	91	114	103	82
biology	256	256	270	318	284	280
engineering	1 023	855	969	1 152	1 127	994
agriculture	186	201	218	297	254	174
history	202	198	219	251	241	228
economics	796	619	607	774	724	653
philosophy	64	52	54	64	61	53
philology	406	328	329	394	372	394
law	308	264	262	359	383	338
teacher education	448	333	345	414	404	399
medicine	268	472	473	602	536	528
pharmaceutics	9	13	12	12	11	11
veterinary	51	71	64	60	49	77
art history	163	119	97	100	97	137
architecture	24	28	29	27	36	129
psychology	191	144	139	172	166	159
sociology	52	35	43	54	59	83
political	50	51	45	51	46	44
culturology	52	53	59	71	62	68
Earth sciences	81	75	46	71	74	90
other	35	86	96	131	114	74

3.9. Structure of enrolment in postgraduate (adjunct) education programmes by field of science

(percent of total enrolment)



3.10. Admissions in postgraduate (adjunct) education programmes by field of science

(persons)

	2005	2009	2010	2011	2012	2013
Total admissions in postgraduate (adjunct) programmes	1 508	1 516	1 469	1 756	1 361	1 431
of which by field of science:						
physics and mathematics	88	100	79	95	70	82
chemistry	31	28	36	34	21	18
biology	97	95	78	105	66	72
engineering	341	301	350	398	299	279
agriculture	63	68	64	79	47	39
history	56	77	65	68	65	56
economics	201	194	191	236	169	171
philosophy	19	18	18	22	9	11
philology	114	100	87	116	103	107
law	87	89	87	108	96	87
teacher education	116	90	109	119	98	91
medicine	68	125	119	150	131	152
pharmaceutics	4	2	3	2	4	2
veterinary	18	20	13	14	8	26
art history	61	32	27	36	29	42
architecture	9	10	6	8	8	43
psychology	43	54	41	44	40	42
sociology	18	11	19	16	18	20
political	17	14	14	15	14	13
culturology	19	19	19	19	14	23
Earth sciences	28	33	16	27	21	25
other	10	36	28	45	31	30

**3.11. Graduation from postgraduate (adjunct) education
programmes by field of science**
(persons)

	2005	2009	2010	2011	2012	2013
Total graduates from postgraduate (adjunct) programmes	1 296	1 091	1 015	1 099	1 075	1 172
of which by field of science:						
physics and mathematics	69	81	64	67	83	60
chemistry	31	23	14	19	23	25
biology	79	78	53	78	76	58
engineering	272	222	197	186	190	233
agriculture	56	61	44	66	66	70
history	55	41	41	56	57	53
economics	182	154	150	124	104	122
philosophy	18	15	14	13	7	17
philology	96	73	69	80	77	72
law	78	44	63	53	36	46
teacher education	116	90	78	70	65	75
medicine	74	75	87	159	151	157
pharmaceutics	4	1	4	4	3	1
veterinary	20	23	17	22	18	29
art history	29	18	24	19	22	19
architecture	4	2	5	3	3	22
psychology	43	23	34	22	23	31
sociology	16	15	8	12	10	11
political	7	11	15	10	11	10
culturology	19	7	8	8	13	11
Earth sciences	23	11	11	7	10	23
other	5	23	15	21	27	27

3.12. Main indicators of doctoral education programmes

	2005	2009	2010	2011	2012	2013
Total						
Total number of educational institutions (organisations) implementing doctoral programmes	38	39	37	59	56	56
Total enrolment in doctoral programmes, persons	131	110	98	220	218	242
Total admissions in doctoral programmes, persons	56	42	28	65	76	87
Total graduation from doctoral programmes, persons	29	53	33	58	65	44
Organisations implementing doctoral education programmes						
Total number of organisations implementing doctoral programmes	17	17	16	29	25	25
Total enrolment in doctoral programmes, persons	37	32	24	46	51	69
Total admissions in doctoral programmes, persons	18	9	6	12	22	30
Total graduation from doctoral programmes, persons	6	19	14	16	11	8
Educational institutions implementing doctoral education programmes						
Total number of educational institutions implementing doctoral programmes	21	22	21	30	31	31
Total enrolment in doctoral programmes, persons	94	78	74	174	167	173
Total admissions in doctoral programmes, persons	38	33	22	53	54	57
Total graduation from doctoral programmes, persons	23	34	19	42	54	36

3.13. Enrolment, admissions and graduation from doctoral education programmes by field of science

(persons)

	Enrolment		Admissions		Graduation	
	2005	2013	2005	2013	2005	2013
Total	131	242	56	87	29	44
of which by field of science:						
physics and mathematics	15	8	9	3	2	2
chemistry	–	3	–	1	–	–
biology	6	17	2	5	–	2
engineering	24	22	12	7	5	6
agriculture	6	6	4	–	–	–
history	7	12	3	4	2	3
economics	15	24	5	8	4	3
philosophy	1	7	–	3	–	–
philology	17	9	6	4	4	5
law	9	15	3	2	1	1
teacher education	13	10	4	6	9	2
medicine	4	78	3	30	1	10
pharmaceutics	–	1	–	–	–	–
veterinary	5	6	3	3	–	4
art history	1	4	–	1	1	2
architecture	–	2	–	–	–	1
psychology	3	4	–	1	–	3
sociology	2	4	–	4	–	–
political	1	1	–	1	–	–
culturology	1	3	1	2	–	–
Earth sciences	1	–	1	–	–	–
other	–	6	–	2	–	–

4. ECONOMIC INDICATORS OF SCIENTIFIC ACTIVITY

Domestic R&D expenditure (both current and capital) covers all actual expenditures on R&D performed in the country (including those financed from abroad, but excluding payments made abroad). Domestic expenditure is measured on the basis of statistical accounting of intramural expenditures on R&D performed during the reference year, whatever the source of funds.

Current expenditures comprise wages and salaries, social security payments, acquisition of special equipment, other tangible costs (costs of raw materials, components, semi-finished products, fuels, energy, industrial works and services, etc. purchased from outside), and other current costs.

Capital expenditures comprise acquisition of land sites, construction or purchase of buildings, acquisition of equipment to be included into fixed assets, etc.

Volume of scientific and technological works performed comprises the volume of performed research and experimental development and scientific and technological services (including the cost of works performed by co-executors) net of taxes and payments payable from revenues.

The indicator comprises data on works accepted by customers under acceptance certificates. Uncompleted works are reflected as an intermediate stage performed in the reference year, and are measured as the difference between the opening and closing work-in-progress.

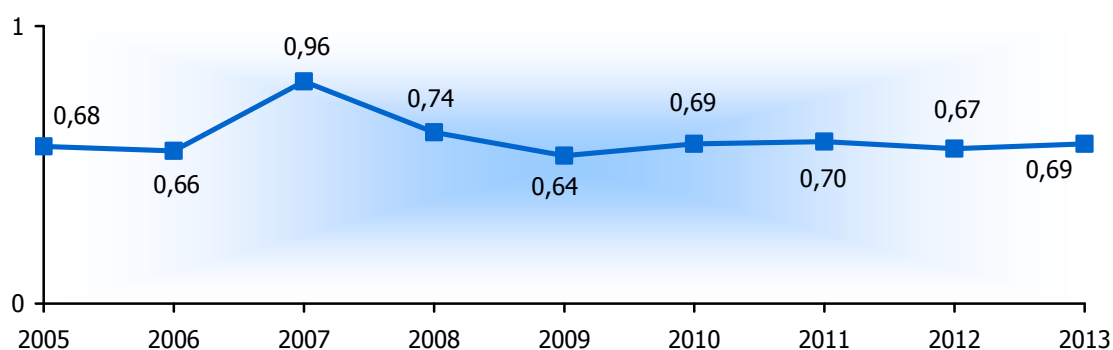
4.1. R&D expenditure

(million rubles)

	2005	2009	2010	2011	2012	2013
Domestic expenditure on R&D	441 491	883 332	1 140 638	2 081 884	3 537 757	4 372 305
of which:						
current expenditure	402 103	839 918	1 072 673	1 619 149	3 059 732	4 111 112
of which:						
labour costs	193 876	404 730	490 588	671 261	1 248 186	1 593 926
social security payments	68 897	134 238	162 434	218 628	411 275	524 606
costs of special equipment	8 675	12 489	22 225	23 421	76 114	51 764
of which equipment recorded as part of fixed assets	3 699	4 081	9 586	7 403	14 158	23 690
other tangible costs	63 931	158 551	235 553	378 049	834 100	1 353 967
other costs	66 724	129 910	161 873	327 790	490 057	586 849
capital expenditures	39 388	43 414	67 965	462 735	478 025	261 193
of which:						
land and buildings	3 157	1 447	651	3 314	16 108	6 126
equipment	34 656	29 210	47 779	61 642	129 332	189 841
other capital expenditures	1 575	12 757	19 535	397 779	332 585	65 226

4.2. Domestic R&D expenditure

(as percentage of GDP)



4.3. Domestic R&D expenditure by sector of performance

(million rubles)

	2005	2009	2010	2011	2012	2013
Government sector						
Domestic expenditure on R&D	170 196	264 656	304 185	427 116	738 405	1 041 489
of which:						
current expenditure	147 573	252 575	283 040	396 225	681 202	931 967
of which labour costs	76 792	139 814	153 747	216 045	370 773	486 302
of which of R&D personnel (excluding multiple job holders and civil-law contractors)	62 423	116 231	121 596	174 950	308 948	388 314
capital expenditures	22 623	12 081	21 145	30 891	57 203	109 522
Business enterprise sector						
Domestic expenditure on R&D	196 172	498 083	692 080	1 454 694	2 444 451	2 855 811
of which:						
current expenditure	186 670	472 565	649 843	1 031 354	2 048 863	2 741 352
of which labour costs	77 386	192 848	246 852	339 408	678 897	843 605
of which of R&D personnel (excluding multiple job holders and civil-law contractors)	71 430	173 659	218 963	287 012	583 126	782 208
capital expenditures	9 502	25 518	42 237	423 340	395 588	114 459
Higher education sector						
Domestic expenditure on R&D	75 123	120 293	144 092	199 559	354 107	474 006
of which:						
current expenditure	67 860	114 478	139 509	191 055	328 873	436 794
of which labour costs	39 698	71 881	89 813	115 570	198 023	263 474
of which of R&D personnel (excluding multiple job holders and civil-law contractors)	14 600	33 830	42 835	62 898	113 069	138 387
capital expenditures	7 263	5 815	4 583	8 504	25 234	37 212

4.4. Domestic R&D expenditure by source of funds

(million rubles)

	2005	2009	2010	2011	2012	2013
Total funding of domestic R&D expenditure	441 491	883 332	1 140 638	2 081 884	3 537 757	4 372 305
of which by source of funds:						
own funds	54 802	111 859	140 060	573 943	939 685	954 825
budget	256 455	546 988	659 846	936 368	1 542 563	2 079 694
extra-budgetary funds	22 416	5 635	9 936	10 140	9 483	30 379
foreign investment, including foreign credits and loans	27 610	75 002	154 845	182 049	336 312	347 520
funds of other organisations	80 208	142 704	169 078	374 465	699 385	652 113

4.5. Structure of domestic R&D expenditure by source of funds

(percent)



4.6. Domestic R&D expenditure by source of funds and sector of performance

(million rubles)

	2005	2009	2010	2011	2012	2013
Government sector						
Total funding of domestic R&D expenditure	170 196	264 656	304 185	427 116	738 405	1 041 489
of which by source of funds:						
own funds	8 884	6 329	1 872	7 952	14 576	31 248
budget	123 577	221 603	245 662	346 546	584 337	855 117
extra-budgetary funds	11 094	1 884	1 935	598	1 596	1 724
foreign investment, including foreign credits and loans	2 000	15 277	19 467	32 933	59 036	75 741
funds of other organisations	24 641	18 961	35 249	39 087	78 475	77 659
Business enterprise sector						
Total funding of domestic R&D expenditure	196 172	498 083	692 080	1 454 694	2 444 451	2 855 811
of which by source of funds:						
own funds	43 591	105 104	135 256	562 889	920 560	920 123
budget	88 041	246 431	317 504	456 808	723 799	899 141
extra-budgetary funds	9 608	3 661	7 968	9 304	7 696	24 706
foreign investment, including foreign credits and loans	23 786	54 219	127 796	133 891	247 357	239 661
funds of other organisations	31 146	88 147	96 691	286 883	535 095	464 406
Higher education sector						
Total funding of domestic R&D expenditure	75 123	120 293	144 092	199 559	354 107	474 006
of which by source of funds:						
own funds	2 327	426	2 908	3 102	4 549	3 454
budget	44 837	78 686	96 426	132 516	233 668	324 437
extra-budgetary funds	1 714	90	33	238	191	3 949
foreign investment, including foreign credits and loans	1 824	5 506	7 582	15 225	29 919	32 118
funds of other organisations	24 421	35 564	37 135	48 478	85 780	110 048

4.7. Domestic R&D expenditure by source of funds, by regions and Minsk city

(million rubles)

	2005	2009	2010	2011	2012	2013
Own funds						
Republic of Belarus	54 802	111 859	140 060	573 943	939 685	954 825
Regions:						
Brest	1 284	3 352	4 948	6 732	20 794	25 226
Vitebsk	1 829	4 770	4 824	5 646	13 142	18 568
Gomel	8 538	13 736	23 532	393 523	332 188	256 386
Grodno	1 710	4 831	5 911	14 932	18 237	20 142
Minsk city	35 125	74 772	86 529	127 638	478 259	550 344
Minsk	2 578	6 580	8 916	16 648	41 230	41 411
Mogilev	3 738	3 818	5 400	8 824	35 835	42 748
Budget						
Republic of Belarus	256 455	546 988	659 846	936 368	1 542 563	2 079 694
Regions:						
Brest	2 653	6 046	8 296	10 784	13 969	22 400
Vitebsk	7 124	11 544	15 747	19 756	34 140	45 779
Gomel	19 230	32 864	33 158	42 565	67 048	74 956
Grodno	4 042	8 529	9 367	11 615	30 349	38 029
Minsk city	201 732	442 511	537 389	766 601	1 274 993	1 741 876
Minsk	16 849	37 064	46 859	73 226	103 565	133 532
Mogilev	4 825	8 430	9 030	11 821	18 499	23 122

Continued

	2005	2009	2010	2011	2012	2013
Extra-budgetary funds						
Republic of Belarus	22 416	5 635	9 936	10 140	9 483	30 379
Regions:						
Brest	112	122	149	280	490	3 064
Vitebsk	183	60	–	180	145	154
Gomel	–	258	1 945	558	1 483	1 851
Grodno	46	317	359	239	179	788
Minsk city	21 243	3 722	3 330	8 423	6 218	23 152
Minsk	817	–	3 396	–	–	571
Mogilev	15	1 156	757	460	968	799

Foreign investment, including foreign credits and loans

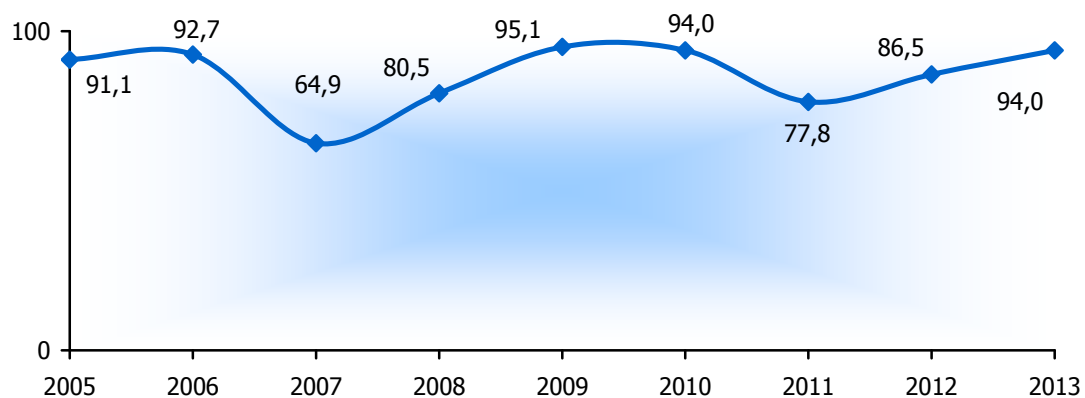
Republic of Belarus	27 610	75 002	154 845	182 049	336 312	347 520
Regions:						
Brest	–	–	–	2	9	–
Vitebsk	556	146	35	33	126	75
Gomel	4 327	7 986	12 388	16 826	44 761	50 434
Grodno	84	283	167	104	209	281
Minsk city	21 070	63 667	136 641	155 463	271 121	278 056
Minsk	713	2 156	4 978	7 195	16 930	17 947
Mogilev	860	764	636	2 426	3 156	727

Continued

	2005	2009	2010	2011	2012	2013
Funds of other organisations						
Republic of Belarus	80 208	142 704	169 078	374 465	699 385	652 113
Regions:						
Brest	1 176	2 701	536	1 235	804	839
Vitebsk	4 408	5 048	3 810	21 039	38 273	56 032
Gomel	11 705	30 445	32 439	72 563	96 128	125 830
Grodno	2 392	939	771	1 098	2 974	1 694
Minsk city	58 044	99 982	126 342	271 869	546 846	444 972
Minsk	1 838	1 707	1 955	2 603	7 470	10 080
Mogilev	645	1 882	3 225	4 058	6 890	12 666

4.8. Share of current domestic expenditure on R&D

(percentage of total domestic R&D expenditure)



4.9. Current domestic expenditure on R&D by type of activity and field of science

(million rubles)

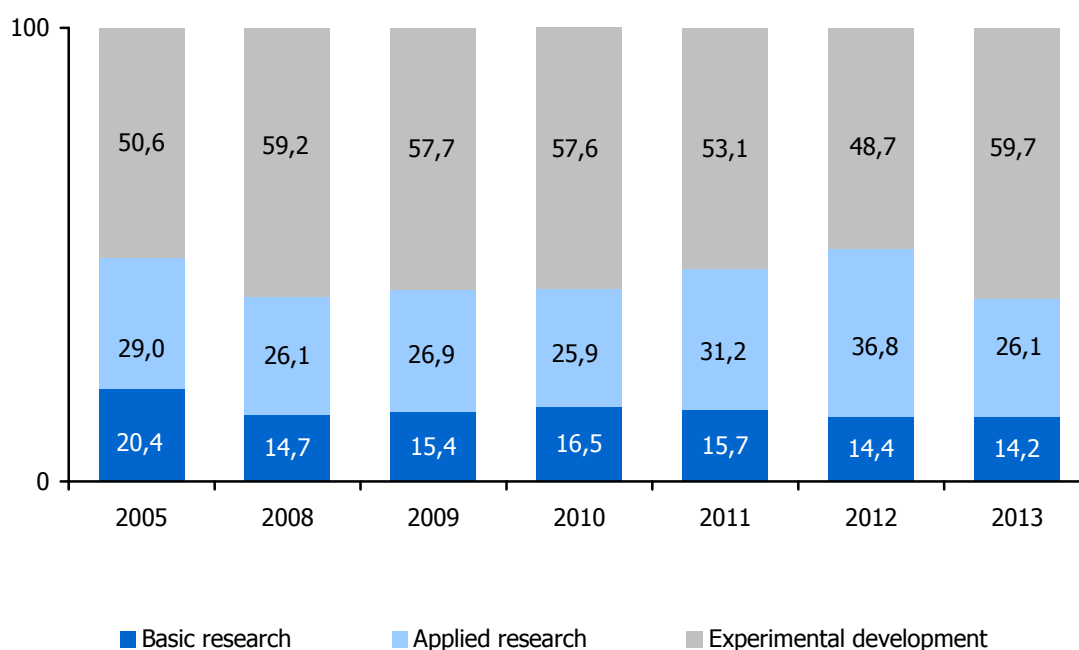
	2005	2009	2010	2011	2012	2013
Basic research						
Total	82 218	129 517	176 673	255 119	441 581	585 246
of which by field of science:						
natural	44 114	60 099	82 555	126 530	213 510	301 202
engineering	16 152	34 181	45 584	55 163	118 465	130 063
medical	6 575	11 267	12 755	20 018	20 898	29 752
agricultural	2 651	6 181	8 658	16 031	23 631	30 484
socioeconomic and social	6 834	8 585	14 527	21 419	35 487	53 735
humananities	5 892	9 204	12 594	15 958	29 590	40 010
Applied research						
Total	116 517	225 585	277 807	504 459	1 126 873	1 072 589
of which by field of science:						
natural	20 373	42 379	49 690	88 686	145 071	216 926
engineering	51 043	87 554	122 416	258 683	705 065	474 593
medical	8 730	24 213	28 494	42 473	78 366	122 454
agricultural	22 521	41 113	48 557	74 433	112 545	157 496
socioeconomic and social	13 019	29 750	27 981	37 770	81 366	95 244
humananities	831	576	669	2 414	4 460	5 876

Continued

	2005	2009	2010	2011	2012	2013
Experimental development						
Total	203 368	484 816	618 193	859 571	1 491 278	2 453 277
of which by field of science:						
natural	21 044	32 804	42 271	59 885	128 095	127 226
engineering	169 100	415 889	532 892	749 785	1 295 515	2 247 651
medical	3 083	14 361	17 007	17 785	24 270	23 618
agricultural	6 869	14 513	18 382	20 508	30 205	39 075
socioeconomic and social	2 610	6 860	7 279	10 946	11 871	13 642
humananities	662	389	362	662	1 322	2 065

4.10. Structure of current domestic expenditure on R&D by type of activity

(as percentage of total)



4.11. Current domestic expenditure on R&D by type of activity, by regions and Minsk city

	2005	2009	2010	2011	2012	2013
Million rubles						
Republic of Belarus	402 103	839 918	1 072 673	1 619 149	3 059 732	4 111 112
Regions:						
Brest	5 017	10 624	12 361	18 386	35 833	51 303
Vitebsk	12 587	20 499	23 632	45 978	82 294	113 664
Gomel	39 881	77 293	85 154	140 978	228 197	492 753
Grodno	7 095	14 080	14 564	21 554	37 510	52 202
Minsk city	307 459	655 412	856 371	1 276 419	2 460 597	3 129 113
Minsk	20 800	46 528	61 990	89 625	151 624	193 158
Mogilev	9 264	15 482	18 601	26 209	63 677	78 919
Basic research						
Republic of Belarus	82 218	129 517	176 673	255 119	441 581	585 246
Regions						
Brest	898	1 426	1 881	2 398	3 217	4 529
Vitebsk	2 015	2 060	2 315	3 184	5 836	9 543
Gomel	4 494	8 241	10 894	15 609	27 649	36 446
Grodno	3 511	2 807	4 028	5 273	7 577	10 674
Minsk city	67 823	108 520	148 469	214 643	377 970	499 853
Minsk	1 716	4 811	7 652	11 793	16 812	19 986
Mogilev	1 761	1 652	1 434	2 219	2 520	4 215
Applied research						
Republic of Belarus	116 517	225 585	277 807	504 459	1 126 873	1 072 589
Regions:						
Brest	1 664	2 985	2 923	6 380	7 553	9 141
Vitebsk	961	4 684	6 286	11 560	17 657	19 873
Gomel	8 072	29 987	33 407	52 894	120 595	156 480
Grodno	565	2 610	3 052	4 800	8 878	9 947
Minsk city	88 305	153 559	194 537	366 322	867 716	728 428
Minsk	13 584	26 373	30 284	54 637	91 471	133 394
Mogilev	3 366	5 387	7 318	7 866	13 003	15 326
Experimental development						
Republic of Belarus	203 368	484 816	618 193	859 571	1 491 278	2 453 277
Regions:						
Brest	2 455	6 213	7 557	9 608	25 063	37 633
Vitebsk	9 611	13 755	15 031	31 234	58 801	84 248
Gomel	27 315	39 065	40 853	72 475	79 953	299 827
Grodno	3 019	8 663	7 484	11 481	21 055	31 581
Minsk city	151 331	393 333	513 365	695 454	1 214 911	1 900 832
Minsk	5 500	15 344	24 054	23 195	43 341	39 778
Mogilev	4 137	8 443	9 849	16 124	48 154	59 378

Continued

	2005	2009	2010	2011	2012	2013
As percentage of total						
Republic of Belarus	100	100	100	100	100	100
Regions:						
Brest	1,2	1,3	1,2	1,1	1,2	1,2
Vitebsk	3,1	2,4	2,2	2,9	2,7	2,8
Gomel	9,9	9,2	7,9	8,7	7,5	12,0
Grodno	1,8	1,7	1,4	1,3	1,2	1,3
Minsk city	76,5	78,0	79,8	78,8	80,4	76,1
Minsk	5,2	5,5	5,8	5,6	5,0	4,7
Mogilev	2,3	1,9	1,7	1,6	2,0	1,9
Basic research						
Republic of Belarus	100	100	100	100	100	100
Regions:						
Brest	1,1	1,1	1,1	0,9	0,7	0,8
Vitebsk	2,4	1,6	1,3	1,3	1,3	1,6
Gomel	5,5	6,3	6,2	6,1	6,3	6,3
Grodno	4,3	2,2	2,3	2,1	1,7	1,8
Minsk city	82,5	83,8	84,0	84,1	85,6	85,4
Minsk	2,1	3,7	4,3	4,6	3,8	3,4
Mogilev	2,1	1,3	0,8	0,9	0,6	0,7
Applied research						
Republic of Belarus	100	100	100	100	100	100
Regions:						
Brest	1,4	1,3	1,1	1,3	0,7	0,9
Vitebsk	0,8	2,1	2,3	2,3	1,6	1,9
Gomel	6,9	13,3	12,0	10,5	10,7	14,6
Grodno	0,5	1,1	1,1	0,9	0,8	0,9
Minsk city	75,8	68,1	70,0	72,6	77,0	67,9
Minsk	11,7	11,7	10,9	10,8	8,1	12,4
Mogilev	2,9	2,4	2,6	1,6	1,1	1,4
Experimental development						
Republic of Belarus	100	100	100	100	100	100
Regions:						
Brest	1,2	1,3	1,2	1,1	1,7	1,5
Vitebsk	4,7	2,8	2,4	3,6	3,9	3,4
Gomel	13,4	8,1	6,6	8,4	5,4	12,2
Grodno	1,5	1,8	1,2	1,4	1,4	1,3
Minsk city	74,4	81,1	83,1	80,9	81,5	77,5
Minsk	2,7	3,2	3,9	2,7	2,9	1,7
Mogilev	2,1	1,7	1,6	1,9	3,2	2,4

4.12. Scientific and technological activities performed by R&D organisations by type

(million rubles)

	2005	2009	2010	2011	2012	2013
Total scientific and technological activities performed	832 670	1 162 788	1 427 796	2 225 615	4 368 097	5 651 273
of which:						
research and development	516 101	1 029 209	1 259 734	1 959 059	4 181 400	5 433 765
of which without subcontracting	447 260	865 578	1 082 228	1 684 977	3 746 758	4 928 912
scientific and technological services	56 545	79 111	107 287	158 603	186 697	217 508
of which without subcontracting	44 865	75 103	101 830	148 905	178 520	212 045

4.13. Scientific and technological activities performed by R&D organisations by sector of performance

(million rubles)

	2005	2009	2010	2011	2012	2013
Total						
Total scientific and technological activities performed	832 670	1 162 788	1 427 796	2 225 615	4 368 097	5 651 273
of which without subcontracting	746 151	992 265	1 241 206	1 941 206	3 925 278	5 140 957
Government sector						
Total scientific and technological activities performed	381 417	341 031	368 872	574 882	934 121	1 352 774
of which without subcontracting	344 732	281 763	296 179	446 440	741 807	1 095 011
Business enterprise sector						
Total scientific and technological activities performed	359 233	671 899	886 387	1 401 916	3 020 968	3 746 915
of which without subcontracting	317 679	577 802	790 487	1 274 508	2 814 072	3 546 766
Higher education sector						
Total scientific and technological activities performed	92 020	149 485	172 183	247 886	411 842	549 577
of which without subcontracting	83 740	132 327	154 285	219 613	368 663	498 102

4.14. Scientific and technological activities performed by R&D organisations by regions and Minsk city

(million rubles)

	2005	2009	2010	2011	2012	2013
Scientific and technological activities performed – total						
Republic of Belarus	832 670	1 162 788	1 427 796	2 225 615	4 368 097	5 651 273
Regions:						
Brest	6 436	12 486	16 147	23 413	51 755	70 422
Vitebsk	16 774	27 852	27 254	67 212	127 100	163 355
Gomel	59 737	117 789	146 983	289 959	637 932	595 976
Grodno	8 870	16 099	16 292	25 567	44 690	60 699
Minsk city	697 544	906 937	1 118 659	1 675 971	3 245 309	4 420 461
Minsk	30 912	61 829	80 379	113 687	182 290	242 786
Mogilev	12 397	19 796	22 082	29 806	79 021	97 574
of which without subcontracting						
Republic of Belarus	746 151	992 265	1 241 206	1 941 206	3 925 278	5 140 957
Regions:						
Brest	5 800	12 047	14 212	20 486	46 544	62 468
Vitebsk	14 515	22 816	23 199	63 214	121 038	155 253
Gomel	57 532	112 675	140 341	261 772	621 802	575 224
Grodno	8 342	14 874	15 069	24 948	43 984	58 702
Minsk city	622 077	758 360	958 408	1 442 551	2 857 826	3 993 207
Minsk	26 119	54 653	69 188	98 643	165 319	209 806
Mogilev	11 766	16 840	20 789	29 592	68 765	86 297

5. INNOVATION

Summary statistics on innovation activity are compiled on the basis of the annual state statistical survey results.

The methodology is based on the OECD Guidelines for Collecting and Interpreting Innovation Data (Oslo Manual).

An innovation is the implementation in the civil circulation or use for own needs of a new or improved product, a new or improved technology, a new service, a new organisational or technological solution of industrial, administrative, commercial or other nature.

An innovation-active organisation is an organisation having expenditures on technological innovations.

An innovation activity is an activity related to the transformation of a novelty into innovation.

Organisations carrying out technological innovations are organisations performing the development and implementation of new or improved products or technological processes.

Technological innovations comprise product and/or process innovations.

A product innovation is the introduction of a product or service that is new or significantly improved as regards its characteristics or intended uses.

A process innovation is the implementation of a new or significantly improved production (service provision) method.

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

A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product promotion or new pricing strategies.

Innovative products (works, services) are new products (works, services) or products (works, services) that have undergone significant technological changes over the past three years. They include:

new products (works, services) that have no analogues in Belarus or abroad;

products (works, services) that have undergone significant technological changes over the past three years: these products (works, services) already exist in Belarus, but they were assigned a new designation or name in connection with a significant improvement or modification of their properties, parameters, attributes or characteristics, as well as a changed application area, new or significantly different composition of materials and components used as compared with the previously produced products (works, services).

Technology is an information and know-how expressed as models, prototypes, drawings, diagrams, projects, instructions, software products, or intangibly as training, technical support (servicing) required for the development, production and use of a good.

New technologies is a system of production and other operations, methods and processes with higher qualitative characteristics as compared with best analogues available on the market, in selected market segments and niches, for which these technologies are new.

High technologies is a system of production and other operations, methods and processes with higher qualitative characteristics as compared with the best world analogues, and meeting emerging or future needs of an individual and the society.

A utility model is an equipment-related technical solution that is new and industrially applicable.

An industrial design is an art or art and design solution of an item that determines its physical configuration, is new and original.

Topology of an integrated circuit is a space-geometrical layout of the assembly of elements of an integrated circuit and connections between them recorded on a material medium.

Integrated circuit is a microelectronic item of finished or intermediate form designed to perform functions of an electronic circuit. Its elements and connections are inseparably formed within and/or on the surface of the material on the basis of which the item is manufactured.

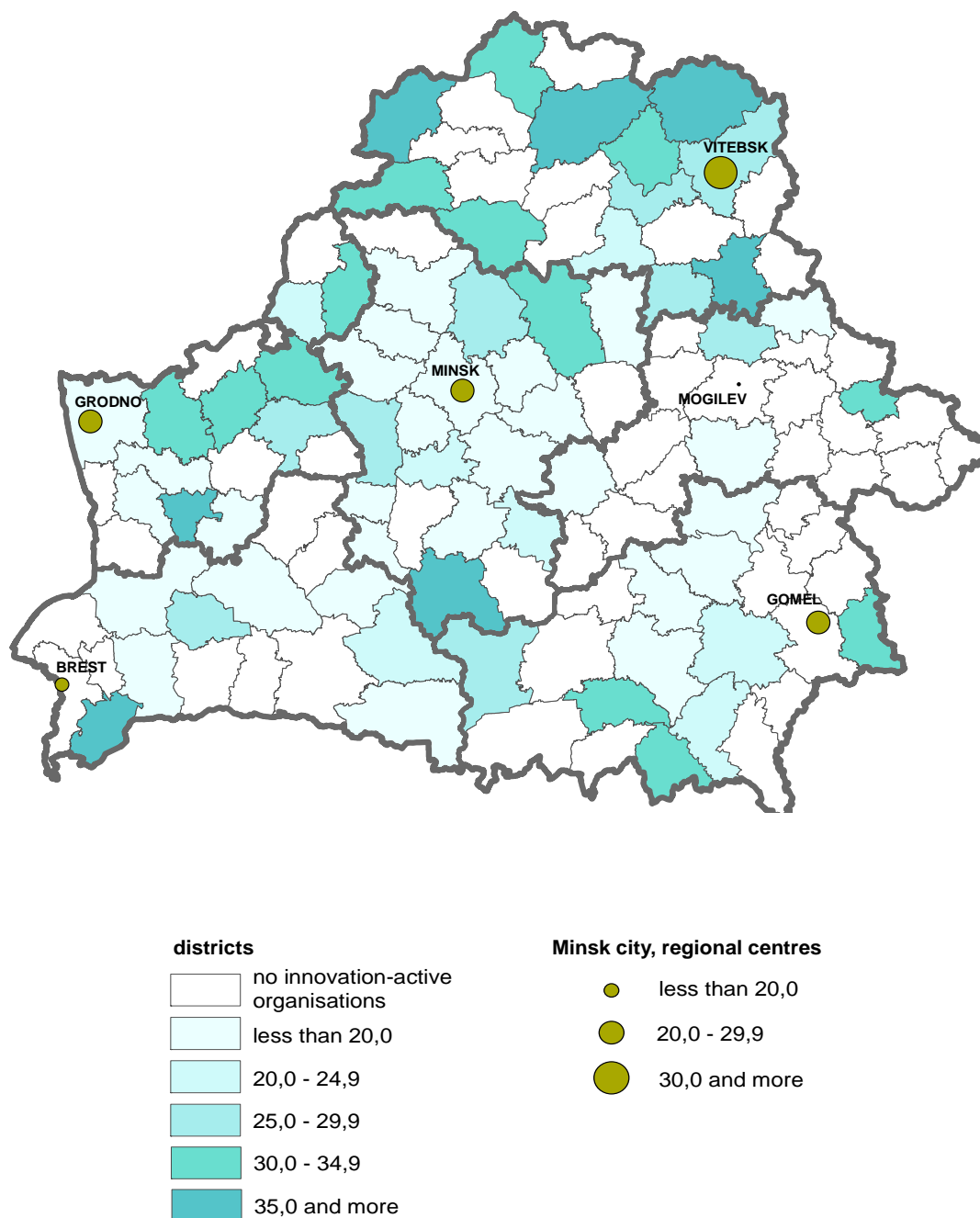
5.1. Indicators of intramural innovation and industrial activities

	2005	2009	2010	2011	2012	2013
Number of innovation-active industrial organisations	318	234	324	443	437	411
Share of innovation-active organisations in total industrial organisations surveyed, percent	14,1	12,1	15,4	22,7	22,8	21,7
Share of shipped innovative products in total industrial products shipped, percent	15,2	10,9	14,5	14,4	17,8	17,8
Intramural expenditures on technological innovations in industry, at current prices, billion rubles	2 362,1	2 700,4	2 793,3	8 763,7	7 937,5	9986,2
Gross domestic product, billion rubles	65 067,1	137 442,2	164 476,1	297 157,7	527 385,1	636784,2
of which gross value added of industry, billion rubles	20 269,0	38 429,8	44 895,0	91 792,1 ¹⁾	167 418,9	173 165,5
Fixed assets in the economy (at initial value at year-end), billion rubles ¹⁾	207 512,9	360 860,6	431 561,2	865 672,2	1 198 019,3	1 469 140,8
of which in industry	82 527,7	134 484,5	159 648,7	386 283,6 ²⁾	535 477 ²⁾	651 513,8 ²⁾
Fixed capital investment, billion rubles	15 095,8	43 377,6	55 380,8	98 664,9	154 442,4	209 574,6
of which in industry	4 781,1	13 170,5	16 321,8	39 832,7	53 139,6	75 582,8
Volume of industrial production (at current prices), billion rubles	64 502,2	129 373,8	166 953,1	347 655,5 ¹⁾	615 861,9 ¹⁾	605 634,5

¹⁾ Data do not include budgetary organisations, microorganisations and non-affiliated private small organisations.

²⁾ Data refer to organisations with the principal economic activity classified under divisions 10-41.

5.2. Share of innovation-active organisations in total organisations surveyed in 2013 (percent)



5.3. Innovation-active organisations by innovation activity (entities)

	2005	2009	2010	2011	2012	2013
Industry						
Total innovation-active organisations	318	234	324	443	437	411
of which engaged in:						
research and development of new products, services and methods of their production (transfer), of new production processes	153	149	191	249	115	113
acquisition of machinery and equipment linked to technological innovation	227	145	203	242	241	240
acquisition of new and high technologies ¹⁾	35	14	20	11	13	16
of which acquisition of property rights to inventions, useful models, industrial designs, topology of integrated circuits under assignment agreements; acquisition of rights to their use under licence agreements	12	4	4	3	4	6
acquisition of computer software and databases linked to technological innovation	53	23	38	29	30	34
production designing, other preparation activities for production of new products, introduction of new services or methods of their production (transfer)	114	101	136	169	229	195
training, retraining and advanced training linked to technological innovations	50	39	47	58	60	51
marketing research linked to technological innovation	60	38	39	39	41	43
other expenditures on technological innovation	46	34	16	21	13	24

	2005	2009	2010	2011	2012	2013
Service sector						
Total innovation-active organisations	...	16	25	24	45	43
of which engaged in:						
research and development of new products, services and methods of their production (transfer), of new production processes	...	4	14	12	8	7
acquisition of machinery and equipment linked to technological innovation	...	13	14	13	24	21
acquisition of new and high technologies ¹⁾	...	1	3	4	2	2
of which acquisition of property rights to inventions, useful models, industrial designs, topology of integrated circuits under assignment agreements; acquisition of rights to their use under licence agreements	...	1	1	2	2	1
acquisition of computer software and databases linked to technological innovation	...	3	3	4	10	7
production designing, other preparation activities for production of new products, introduction of new services or methods of their production (transfer)	...	7	7	8	18	19
personnel training linked to technological innovation	...	2	6	5	11	13
marketing research linked to technological innovation	...	1	3	2	2	1
other expenditures on technological innovation	...	2	1	1	1	2

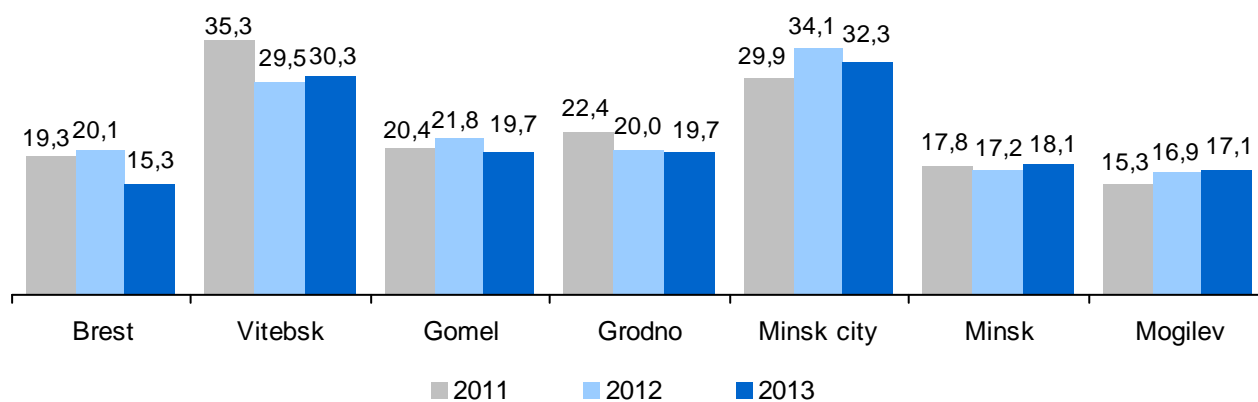
¹⁾ Data for 2005-2009 refer to "acquisition of new technologies".

5.4. Innovation-active organisations by regions and Minsk city (entities)

	2005	2009	2010	2011	2012	2013
Industry						
Republic of Belarus	318	234	324	443	437	411
Regions:						
Brest	53	48	47	58	60	45
Vitebsk	31	21	46	85	71	71
Gomel	42	38	45	58	59	53
Grodno	40	29	39	51	46	45
Minsk city	74	50	65	91	102	97
Minsk	53	32	55	67	64	66
Mogilev	25	16	27	33	35	34
Service sector						
Republic of Belarus	...	16	25	24	45	43
Regions:						
Brest	...	1	3	3	3	3
Vitebsk	...	1	1	1	1	1
Gomel	...	1	1	2	2	1
Grodno	...	1	1	1	1	1
Minsk city	...	9	18	16	34	34
Minsk	...	2	–	–	–	–
Mogilev	...	1	1	1	4	3

5.5. Share of innovation-active industrial organisations by regions and Minsk city

(in total industrial organisations surveyed, percent)



5.6. Organisations having intramural expenditures on innovations in industry by economic activity in 2013

	Organisations having expenditure on:		
	technological innovation	organisational innovation	marketing innovation
Number of organisations			
Total	411	69	102
of which:			
Mining	6	1	1
extraction of fossil fuels	3	1	-
extraction of minerals, except fossil fuels	3	-	1
Manufacturing	399	63	100
manufacture of food products, including beverages, and tobacco	53	14	24
manufacture of textiles and apparel	37	6	7
manufacture of leather, of products of leather and manufacture of footwear	9	1	3
manufacture of wood and of products of wood	6	2	1
manufacture of paper and paper products, publishing	9	2	2
manufacture of coke, petroleum products and nuclear materials	3	-	-
manufacture of chemicals and chemical products	24	5	4
manufacture of rubber and plastics products	13	-	-
manufacture of other non-metallic mineral products	23	4	4
manufacture of basic metals and fabricated metal products	31	3	7
manufacture of machinery and equipment	93	12	18
manufacture of electrical machinery, electronic and optical equipment	55	6	14
manufacture of transport vehicles and equipment	30	4	8
other manufacture	13	4	8
Production and distribution of electricity, gas and water	6	5	1

Continued

	Organisations having expenditure on:		
	technological innovation	organisational innovation	marketing innovation
Percent			
Total	70,6	11,9	17,5
of which:			
Mining	75,0	12,5	12,5
extraction of fossil fuels	75,0	25,0	-
extraction of minerals, except fossil fuels	75,0	-	25,0
Manufacturing	71,0	11,2	17,8
manufacture of food products, including beverages, and tobacco	58,2	15,4	26,4
manufacture of textiles and apparel	74,0	12,0	14,0
manufacture of leather, of products of leather and manufacture of footwear	69,2	7,7	23,1
manufacture of wood and of products of wood	66,7	22,2	11,1
manufacture of paper and paper products, publishing	69,2	15,4	15,4
manufacture of coke, petroleum products and nuclear materials	100	-	-
manufacture of chemicals and chemical products	72,7	15,2	12,1
manufacture of rubber and plastics products	100	-	-
manufacture of other non-metallic mineral products	74,2	12,9	12,9
manufacture of basic metals and fabricated metal products	75,6	7,3	17,1
manufacture of machinery and equipment	75,6	9,8	14,6
manufacture of electrical machinery, electronic and optical equipment	73,3	8,0	18,7
manufacture of transport vehicles and equipment	71,4	9,5	19,1
other manufacture	52,0	16,0	32,0
Production and distribution of electricity, gas and water	50,0	41,7	8,3

5.7. Organisations having intramural expenditures on innovations in industry by regions and Minsk city in 2013

	Organisations having expenditure on:		
	technological innovation	organisational innovation	marketing innovation
Number of organisations			
Republic of Belarus	411	69	102
Regions:			
Brest	45	19	22
Vitebsk	71	9	19
Gomel	53	7	11
Grodno	45	5	9
Minsk city	97	11	22
Minsk	66	14	15
Mogilev	34	4	4
Percent			
Republic of Belarus	70,6	11,9	17,5
Regions:			
Brest	52,3	22,1	25,6
Vitebsk	71,7	9,1	19,2
Gomel	74,6	9,9	15,5
Grodno	76,3	8,5	15,2
Minsk city	74,6	8,5	16,9
Minsk	69,5	14,7	15,8
Mogilev	81,0	9,5	9,5

5.8. Intramural innovation activity in industry by type of technological innovation and economic activity in 2013

(as percentage of total)

	Innovation-active organisations having expenditure on technological innovation	Of which having expenditure on		
		product innovations	process innovations	product and process innovations
Total	100	66,2	18,0	15,8
of which:				
Mining	100	33,3	50,0	16,7
extraction of fossil fuels	100	33,3	66,7	-
extraction of minerals, except fossil fuels	100	33,3	33,3	33,3
Manufacturing	100	66,9	17,0	16,0
manufacture of food products, including beverages, and tobacco	100	73,6	17,0	9,4
manufacture of textiles and textile articles	100	59,5	24,3	16,2
manufacture of leather, of products of leather and manufacture of footwear	100	88,9	-	11,1
manufacture of wood and of products of wood	100	50,0	50,0	-
manufacture of paper and paper products, publishing	100	66,7	22,2	11,1
manufacture of coke, petroleum products and nuclear materials	100	-	66,7	33,3
manufacture of chemicals and chemical products	100	70,8	4,2	25,0
manufacture of rubber and plastics products	100	61,5	15,4	23,1
manufacture of other non-metallic mineral products	100	78,3	17,4	4,3
manufacture of basic metals and fabricated metal products	100	67,7	22,6	9,7
manufacture of machinery and equipment	100	69,9	10,8	19,4
manufacture of electrical, electronic and optical equipment	100	58,2	16,4	25,5
manufacture of transport vehicles and equipment	100	66,7	16,7	16,7
other manufacture	100	61,5	38,5	-
Production and distribution of electricity, gas and water	100	50,0	50,0	-

5.9. Intramural innovation activity in industry by type of technological innovation, by regions and Minsk city

(as percentage of total)

	Innovation-active organisations having expenditure on technological innovation	Of which having expenditure on		
		product innovations	process innovations	product and process innovations ¹⁾
Republic of Belarus				
2005	100	31,4	49,1	19,5
2009	100	45,7	32,9	21,4
2010	100	52,2	25,3	22,5
2011	100	69,3	12,9	17,8
2012	100	75,3	10,1	14,6
2013	100	66,2	10,8	15,8
Brest region				
2005	100	24,5	64,2	11,3
2009	100	41,7	47,9	10,4
2010	100	57,4	27,7	14,9
2011	100	69,0	15,5	15,5
2012	100	73,3	15,0	11,7
2013	100	48,9	40,0	11,1
Vitebsk region				
2005	100	45,2	41,9	12,9
2009	100	52,4	19,0	28,6
2010	100	56,5	13,1	30,4
2011	100	82,4	4,7	12,9
2012	100	84,5	1,4	14,1
2013	100	77,5	8,5	14,1
Gomel region				
2005	100	21,5	57,1	21,4
2009	100	39,5	39,5	21,0
2010	100	51,1	35,6	13,3
2011	100	62,1	19,0	18,9
2012	100	81,4	8,5	10,1
2013	100	58,5	22,6	18,9

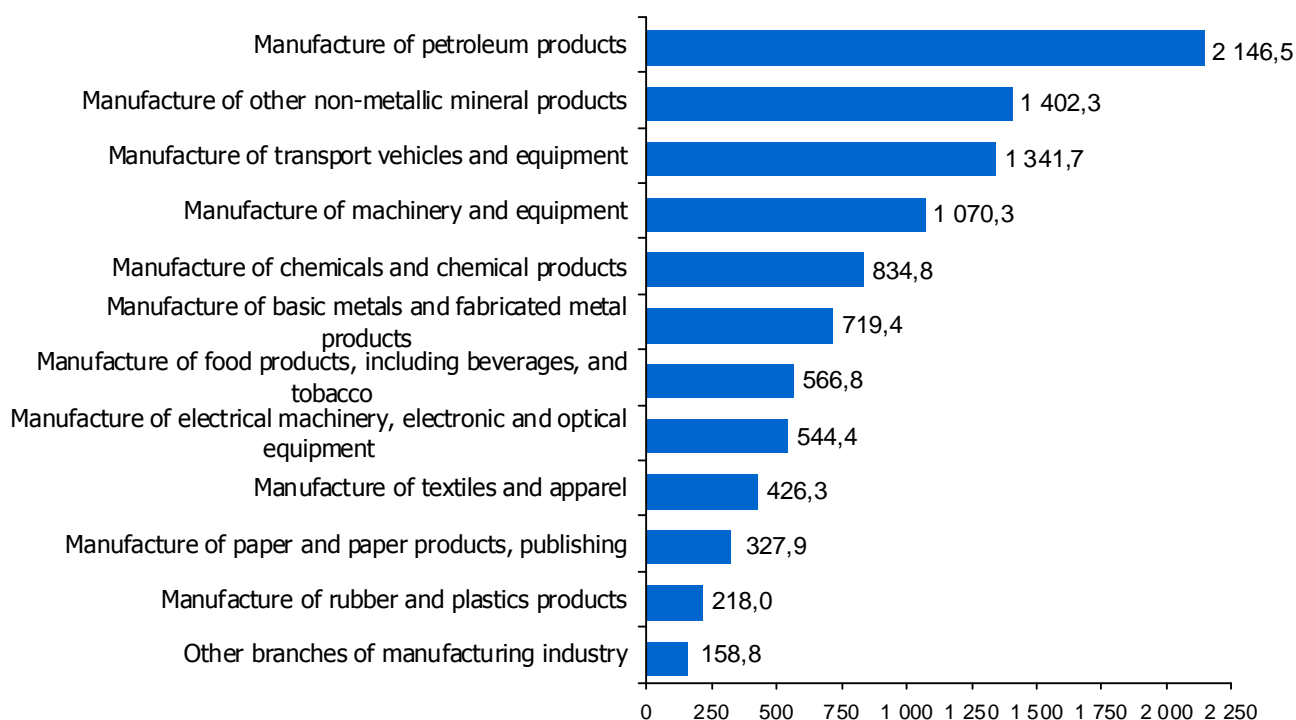
¹⁾ Hereinafter data refer to organisations incurring expenditure on product and process innovations at the same time.

INNOVATION

Continued				
	Innovation-active organisations having expenditure on technological innovation	Of which having expenditure on		
		product innovations	process innovations	product and process innovations
Grodno region				
2005	100	42,5	27,5	30,0
2009	100	48,3	41,4	10,3
2010	100	46,2	33,3	20,5
2011	100	76,5	7,8	15,7
2012	100	80,4	6,5	13,1
2013	100	77,8	6,7	15,6
Minsk city				
2005	100	25,7	50,0	24,3
2009	100	44,0	24,0	32,0
2010	100	50,8	18,4	30,8
2011	100	63,7	12,1	24,2
2012	100	69,6	9,8	20,6
2013	100	62,9	19,6	17,5
Minsk region				
2005	100	32,1	54,7	13,2
2009	100	50,0	28,1	21,9
2010	100	52,7	30,9	16,4
2011	100	64,2	19,4	16,4
2012	100	68,8	17,2	14,0
2013	100	62,1	21,2	16,7
Mogilev region				
2005	100	44,0	32,0	24,0
2009	100			
2010	100	56,3	12,5	31,2
2011	100	48,2	18,5	33,3
2012	100	63,6	15,2	21,2
2013	100	79,4	5,9	14,7

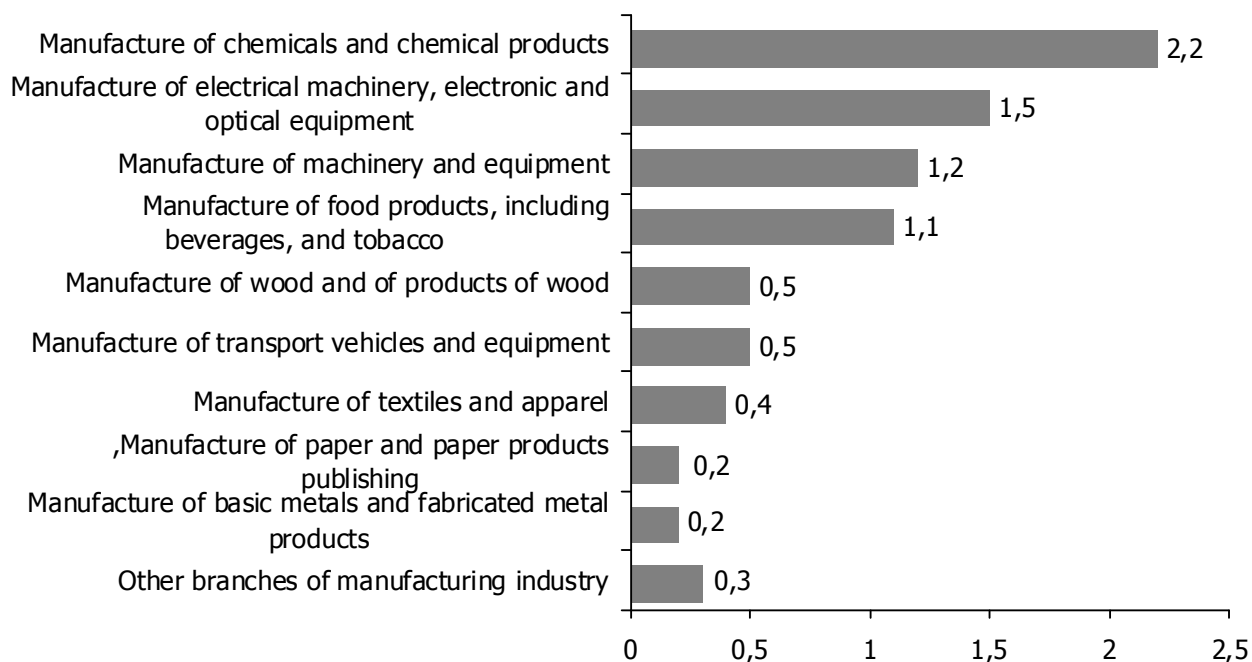
5.10. Expenditure on technological innovations in manufacturing industry

(billions roubles)



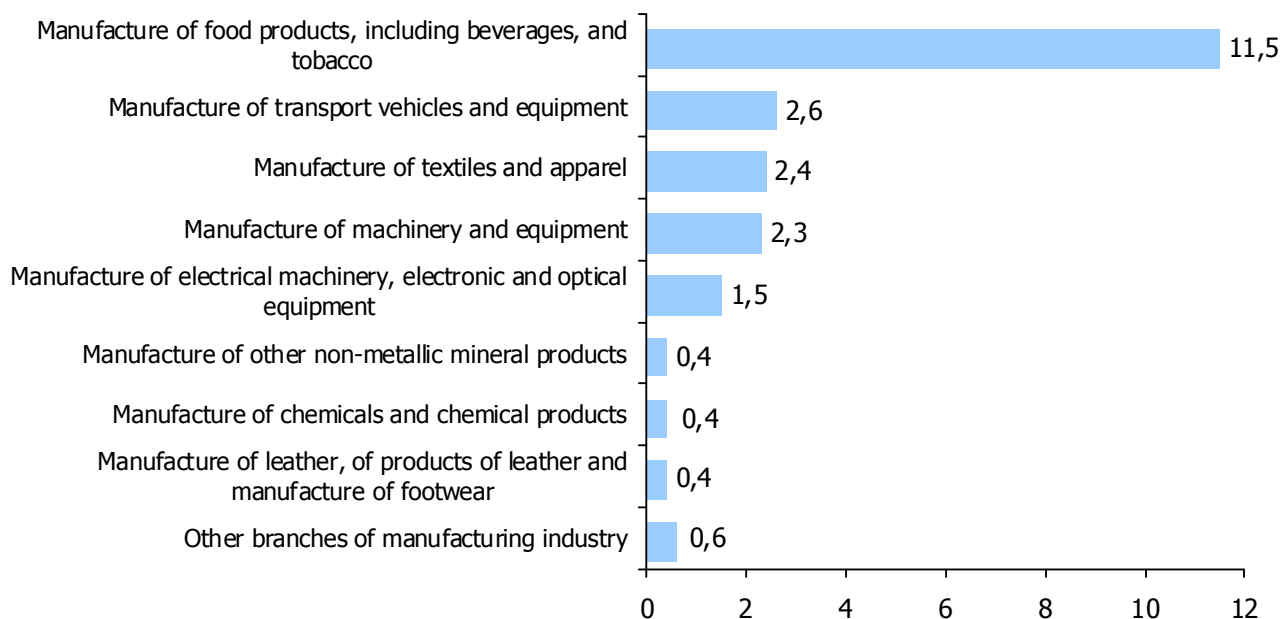
5.11. Expenditure on organizational innovations in manufacturing industry

(billions roubles)



5.12. Expenditure on marketing innovations in manufacturing industry

(billions roubles)



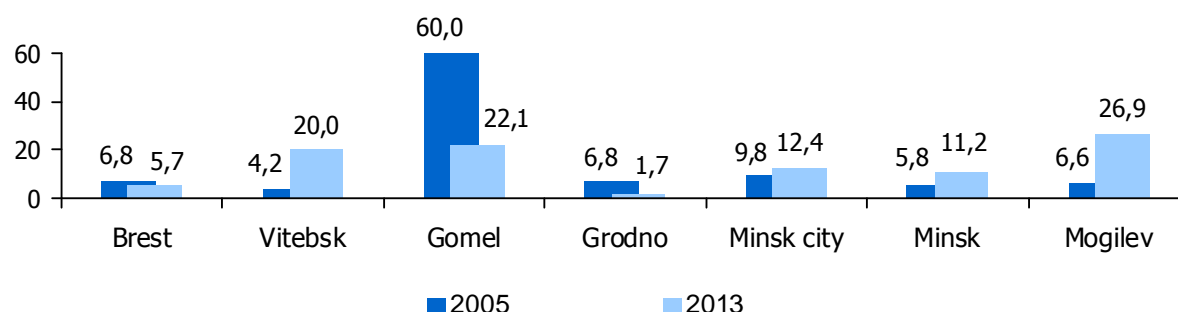
5.13. Intramural expenditures on technological innovations by regions and Minsk city

(million rubles)

	2005	2009	2010	2011	2012	2013
Industry						
Republic of Belarus	2 362 063	2 700 352	2 793 302	8 763 697	7 937 546	9 986 209
Regions:						
Brest	160 400	500 126	471 841	561 477	554 341	571 465
Vitebsk	98 836	388 985	346 638	730 854	1 612 337	1 997 198
Gomel	1 416 466	1 041 592	734 299	3 673 703	2 420 439	2 203 494
Grodno	161 945	237 819	482 711	1 875 650	726 170	170 861
Minsk city	231 526	342 926	455 857	1 023 397	1 035 191	1 242 268
Minsk	136 056	144 022	137 964	299 601	559 580	1 119 424
Mogilev	156 834	44 882	163 992	599 015	1 029 488	2 681 499
Service sector						
Republic of Belarus	...	109 290	129 711	252 268	551 209	741 783
Regions:						
Brest	...	5 339	10 586	18 924	43 890	103 532
Vitebsk	...	15 671	34 581	38 710	45 660	42 216
Gomel	...	2 743	174	35 037	2 402	151 379
Grodno	...	4 623	58	8 578	59 651	70 795
Minsk city	...	77 826	82 026	143 283	364 233	315 737
Minsk	...	304	—	—	—	—
Mogilev	...	2 784	2 286	7 736	35 373	58 124

5.14. Share of intramural expenditures on technological innovations in industry by regions and Minsk city

(percent)



5.15. Intramural expenditures on technological innovations in industry by regions and Minsk city

	Intramural expenditures on technological innovations	Of which	
		product innovations	process innovations
Million rubles			
Republic of Belarus			
2005	2 362 063	1 590 405	771 658
2009	2 700 352	969 256	1 731 096
2010	2 793 302	1 086 800	1 706 502
2011	8 763 697	4 754 968	4 008 729
2012	7 937 546	4 518 996	3 418 550
2013	9 986 209	5 844 150	4 142 059
Brest region			
2005	160 400	29 001	131 399
2009	500 126	217 681	282 445
2010	471 841	208 174	263 667
2011	561 477	544 614	16 863
2012	554 341	211 016	343 325
2013	571 465	106 280	465 185
Vitebsk region			
2005	98 836	15 803	83 033
2009	388 985	27 197	361 788
2010	346 638	58 697	287 941
2011	730 854	134 901	595 953
2012	1 612 337	157 766	1 454 571
2013	1 997 198	246 780	1 750 418

Continued

	Intramural expenditures on technological innovations	Of which	
		product innovations	process innovations
Gomel region			
2005	1 416 466	1 182 299	234 167
2009	1 041 592	406 244	635 348
2010	734 299	253 071	481 228
2011	3 673 703	2 871 049	802 654
2012	2 420 439	2 043 167	377 272
2013	2 203 494	1 415 742	787 752
Grodno region			
2005	161 945	110 491	51 454
2009	237 819	60 375	177 444
2010	482 711	183 165	299 546
2011	1 875 650	276 423	1 599 227
2012	726 170	412 665	313 505
2013	170 861	142 641	28 220
Minsk city			
2005	231 526	70 053	161 473
2009	342 926	146 832	196 094
2010	455 857	174 289	281 568
2011	1 023 397	322 416	700 981
2012	1 035 191	421 037	614 154
2013	1 242 268	481 489	760 779
Minsk region			
2005	136 056	83 315	52 741
2009	144 022	76 441	67 581
2010	137 964	80 097	57 867
2011	299 601	203 496	96 105
2012	559 580	415 892	143 688
2013	1 119 424	868 396	251 028
Mogilev region			
2005	156 834	99 443	57 391
2009	44 882	34 486	10 396
2010	163 992	129 307	34 685
2011	599 015	402 069	196 946
2012	1 029 488	857 453	172 035
2013	2 681 499	2 582 822	98 677

Continued

	Intramural expenditures on technological innovations	Of which	
		product innovations	process innovations
As percentage of total			
Republic of Belarus			
2005	100	67,3	32,7
2009	100	35,9	64,1
2010	100	38,9	61,1
2011	100	54,3	45,7
2012	100	56,9	43,1
2013	100	58,5	41,5
Brest region			
2005	100	18,1	81,9
2009	100	43,5	56,5
2010	100	44,1	55,9
2011	100	97,0	3,0
2012	100	38,1	61,9
2013	100	18,6	81,4
Vitebsk region			
2005	100	16,0	84,0
2009	100	7,0	93,0
2010	100	16,9	83,1
2011	100	18,5	81,5
2012	100	9,8	90,2
2013	100	12,4	87,6
Gomel region			
2005	100	83,5	16,5
2009	100	39,0	61,0
2010	100	34,5	65,5
2011	100	78,2	21,8
2012	100	84,4	15,6
2013		64,2	35,8

Continued

	Intramural expenditures on technological innovations	Of which	
		product innovations	process innovations
Grodno region			
2005	100	68,2	31,8
2009	100	25,4	74,6
2010	100	37,9	62,1
2011	100	14,7	85,3
2012	100	56,8	43,2
2013	100	83,5	16,5
Minsk city			
2005	100	30,3	69,7
2009	100	42,8	57,2
2010	100	38,2	61,8
2011	100	31,5	68,5
2012	100	40,7	59,3
2013	100	38,8	61,2
Minsk region			
2005	100	61,2	38,8
2009	100	53,1	46,9
2010	100	58,1	41,9
2011	100	67,9	32,1
2012	100	74,3	25,7
2013	100	77,6	22,4
Mogilev region			
2005	100	63,4	36,6
2009	100	76,8	23,2
2010	100	78,8	21,2
2011	100	67,1	32,9
2012	100	83,3	16,7
2013	100	96,3	3,7

5.16. Intramural expenditures on innovations in industry by economic activity in 2013

(million rubles)

	Intramural expenditures on innovations	Of which		
		technological innovations	organisational innovations	marketing innovations
Total	10 066 556	9 986 209	58246	22 101
of which:				
Mining	102 773	52 778	49 990	5
extraction of fossil fuels	75 978	25 988	49 990	–
extraction of minerals, except fossil fuels	26 795	26 790	–	5
Manufacturing	9 787 296	9 757 074	8 127	22 095
manufacture of food products, including beverages, and tobacco	579 329	566 762	1 079	11 488
manufacture of textiles and textile articles	429 123	426 331	397	2 395
manufacture of leather, of products of leather and manufacture of footwear	13 883	13 508	18	357
manufacture of wood and of products of wood	19 110	18 605	481	24
manufacture of paper and paper products, publishing	328 104	327 853	217	34
manufacture of coke, petroleum products and nuclear materials	2 146 490	2 146 490	–	–

	Intramural expenditures on innovations	Of which		
		technological innovations	organisational innovations	marketing innovations
manufacture of chemicals and chemical products	837 367	834 773	2 225	369
manufacture of rubber and plastics products	218 038	218 038	–	–
manufacture of other non-metallic mineral products	1 402 766	1 402 280	61	425
manufacture of basic metals and fabricated metal products	719 694	719 427	175	92
manufacture of machinery and equipment	1 073 789	1 070 305	1 221	2 263
manufacture of electrical, electronic and optical equipment	547 348	544 380	1 518	1 450
manufacture of transport vehicles and equipment	1 344 728	1 341 655	460	2 613
other manufacture	127 527	126 667	275	585
Production and distribution of electricity, gas and water	176 487	176 357	129	1

5.17. Intramural expenditures on innovations in industry by regions and Minsk city in 2013

(million rubles)

	Intramural expenditures on innovations	Of which		
		technological innovations	organisational innovations	marketing innovations
Republic of Belarus	10 066 556	9 986 209	58 246	22 101
Regions:				
Brest	575 119	571 465	750	2 904
Vitebsk	2 005 535	1 997 198	1 525	6 812
Gomel	2 254 539	2 203 494	50 188	857
Grodno	171 703	170 861	437	405
Minsk city	1 250 458	1 242 268	2 159	6 031
Minsk	1 122 507	1 119 424	1 353	1 730
Mogilev	2 686 695	2 681 499	1 834	3 362

5.18. Intramural expenditures on technological innovations by source of funds

(million rubles)

	2005	2009	2010	2011	2012	
Industry						
Funding of expenditures on technological innovation	2 362 063	2 700 352	2 793 302	8 763 697	7 937 546	9 986 209
of which out of:						
own funds	1 839 372	1 425 105	1 085 953	5 303 613	3 813 918	5 024 469
republican budget	138 632	395 818	181 478	263 701	507 599	728 424
of which innovation funds	...	271 083	120 183	116 985	267 713	221 956
local budget	10 893	18 263	7 407	5 491	8 535	33 837
of which innovation funds	...	7 572	5 007	2 514	6 646	31 614
budget of the Union State	6 014	733	1 213	20 846	50 489	40 714
extra-budgetary funds	3 355	–	–	39 380	1 435	37 486
credits and loans	...	672 377	1 029 901	2 656 084	2 299 348	2 401 384
foreign investment, including foreign credits and loans	26 615	120 695	446 916	453 655	1 240 019	1 650 842
other	337 182	67 361	40 434	20 927	16 203	69 053
Service sector						
Funding of expenditures on technological innovation	...	109 290	129 711	252 268	551 209	741 783
of which out of:						
own funds	...	46 940	71 870	122 696	518 287	718 033
republican budget	...	10 078	637	7 587	7 605	14 122
of which innovation funds	...	4 363	332	4 453	1 966	8 981
local budgets	...	–	137	204	–	–
of which innovation funds	...	–	–	–	–	–
budget of the Union State	...	–	–	–	–	–
extra-budgetary funds	...	–	–	–	–	1316
credits and loans	...	–	32 614	27 270	23 020	6 583
foreign investment, including foreign credits and loans	...	52 272	24 453	94 511	2 297	179
other	...	–	–	–	–	1 550

5.19. Structure of intramural expenditures on technological innovations by source of funds

(as percentage of total)

	2005	2009	2010	2011	2012	2013
Industry						
Funding of expenditures on technological innovations	100	100	100	100	100	100
of which out of:						
own funds	77,9	52,8	38,9	60,5	48,0	50,3
republican budget	5,9	14,6	6,5	3,0	6,5	7,3
of which innovation funds	...	10,0	4,3	1,3	3,4	2,2
local budget	0,5	0,7	0,3	0,1	0,1	0,3
of which innovation funds	...	0,3	0,2	0,03	0,1	0,3
budget of the Union State	0,2	0,0	0,0	0,2	0,6	0,4
extra-budgetary funds	0,1	–	–	0,5	0,0	0,4
credits and loans	...	24,9	36,9	30,3	29,0	24,0
foreign investment, including foreign credits and loans	1,1	4,5	16,0	5,2	15,6	16,5
other	14,3	2,5	1,4	0,2	0,2	0,7
Service sector						
Funding of expenditures on technological innovations	...	100	100	100	100	100
of which out of:						
own funds	...	43,0	55,4	48,6	94,0	96,8
republican budget	...	9,2	0,5	3,0	1,4	1,9
of which innovation funds	...	4,0	0,3	1,8	0,4	1,2
local budgets	...	–	–	0,1	–	–
of which innovation funds	...	–	–	–	–	–
budget of the Union State	...	–	–	–	–	–
extra-budgetary funds	...	–	–	–	–	0,2
credits and loans	...	–	25,1	10,8	4,2	0,9
foreign investment, including foreign credits and loans	...	47,8	18,9	37,5	0,4	0,02
other	...	–	–	–	–	0,2

5.20. Intramural expenditures on technological innovations in industry by source of funds and economic activity in 2013

	Funding of expenditure s on technologica l innovations	Of which out of					
		own funds	republican budget	local budget	credits and loans	foreign investment, including foreign credits and loans	other
Million rubles							
Total	9 986 209	5 024 469	728 424	33 837	2 401 384	1 650 842	69 053
of which:							
Mining	52 778	41 178	9 758	-	-	-	-
extraction of fossil fuels	25 988	21 527	2 619	-	-	-	-
extraction of minerals, except fossil fuels	26 790	19 651	7 139	-	-	-	-
Manufacturing	9 757 074	4 982 523	691 061	33 837	2 258 293	1 645 949	69 053
manufacture of food products, including beverages, and tobacco	566 762	201 106	6 403	6 322	352 931	-	-
manufacture of textiles and textile articles	426 331	118 234	186 991	6 396	92 839	18 280	3 475
manufacture of leather, of products of leather and manufacture of footwear	13 508	13 508	-	-	-	-	-
manufacture of wood and of products of wood	18 605	14 370	-	409	3 826	-	-
manufacture of paper and paper products, publishing	327 853	18 775	993	-	305 854	-	2 231
manufacture of coke, petroleum products and nuclear materials	2 146 490	1 758 003	-	-	24 337	343 133	20 917
manufacture of chemicals and chemical products	834 773	549 640	45 565	-	239 568	-	-
manufacture of rubber and plastics products	218 038	116 714	81 794	1 176	17 754	-	-

Continued

	Funding of expenditures on technological innovations	Of which out of					
		own funds	republican budget	local budget	credits and loans	foreign investment including foreign credits and loans	other
manufacture of other non-metallic mineral products	1 402 280	449 007	87 056	130	655 327	166 811	39 663
manufacture of basic metals and fabricated metal products	719 427	285 080	8 527	818	66 425	344 293	294
manufacture of machinery and equipment	1 070 305	686 521	170 344	10 163	123 731	70 626	746
manufacture of electrical, electronic and optical equipment	544 380	356 601	85 632	-	51 702	5 169	759
manufacture of transport vehicles and equipment	1 341 655	311 029	17 618	3 581	306 247	697 637	968
other manufacture	126 667	103 935	138	4 842	17 752	-	-
Production and distribution of electricity, gas and water	176 357	768	27 605	-	143 091	4 893	-
As percentage of total							
Total	100	50,3	7,3	0,3	24,0	16,5	0,7
of which:							
Mining	100	78,0	18,5	-	-	-	-
extraction of fossil fuels	100	82,8	10,1	-	-	-	-
extraction of minerals, except fossil fuels	100	73,4	26,6	-	-	-	-
Manufacturing	100	51,1	7,1	0,3	23,1	16,9	0,7
manufacture of food products, including beverages, and tobacco	100	35,5	1,1	1,1	62,3	-	-
manufacture of textiles and textile articles	100	27,7	43,9	1,5	21,8	4,3	0,8
manufacture of leather, of products of leather and manufacture of footwear	100	100	-	-	-	-	-

	<i>Funding of expenditures on technological innovations</i>	Of which out of					
		own funds	republican budget	local budget	credits and loans	foreign investment including foreign credits and loans	other
manufacture of wood and of products of wood	100	77,2	-	2,2	20,6	-	-
manufacture of paper and paper products, publishing	100	5,7	0,3	-	93,3	-	0,7
manufacture of coke, petroleum products and nuclear materials	100	81,9	-	-	1,1	16,0	1,0
manufacture of chemicals and chemical products	100	65,8	5,5	-	28,7	-	-
manufacture of rubber and plastics products	100	53,5	37,5	0,5	8,1	-	-
manufacture of other non-metallic mineral products	100	32,0	6,2	0,01	46,7	11,9	2,8
manufacture of basic metals and fabricated metal products	100	39,6	1,2	0,1	9,2	47,9	0,04
manufacture of machinery and equipment	100	64,1	15,9	0,9	11,6	6,6	0,1
manufacture of electrical, electronic and optical equipment	100	65,5	15,7	-	9,5	0,9	0,1
manufacture of transport vehicles and equipment	100	23,2	1,3	0,3	22,8	52,0	0,1
other manufacture	100	82,1	0,1	3,8	14,0	-	-
Production and distribution of electricity, gas and water	100	0,4	15,7	-	81,1	2,8	-

5.21. Intramural expenditures on technological innovations in industry by source of funds, by regions and Minsk city

	Funding of expenditures on technological innovations	Of which out of						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investment including foreign credits and loans	other
Million rubles								
Republic of Belarus								
2005	2 362 063	1 839 372	138 632	10 893	6 013	...	26 616	337 182
2009	2 700 352	1 425 105	395 818	18 263	733	672 377	120 695	67 361
2010	2 793 302	1 085 953	181 478	7 407	1 213	1 029 901	446 916	40 434
2011	8 763 697	5 303 613	263 701	5 491	20 846	2 656 084	453 655	20 927
2012	7 937 546	3 813 918	507 599	8 535	50 489	2 299 348	1 240 019	16 203
2013	9 986 209	5 024 469	728 424	33 837	40 714	2 401 384	1 650 842	69 053
Brest region								
2005	160 400	69 756	2 467	3 729	–	...	–	82 623
2009	500 126	107 354	36 178	2 769	–	295 184	–	58 641
2010	471 841	91 132	7 410	204	192	278 353	69 850	24 700
2011	561 477	159 684	5 833	2 734	498	392 478	–	250
2012	554 341	249 754	19 861	4 082	1 305	271 943	–	7 396
2013	571 465	163 383	42 790	818	1 551	310 169	-	46 337
Vitebsk region								
2005	98 836	78 926	767	74	81	...	–	18 988
2009	388 985	181 052	114 556	187	–	93 099	–	91
2010	346 638	183 261	26 279	1 040	–	136 058	–	–
2011	730 854	578 351	23 677	528	–	96 160	32 136	2
2012	1 612 337	718 369	103 572	740	–	331 524	451 900	6 232
2013	1 997 198	1 238 549	204 701	18 1998	-	158 513	373 455	294

Continued

	Funding of expenditures on technological innovations	Of which out of						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investment including foreign credits and loans	other
Gomel region								
2005	1 416 466	1 309 261	15 311	2 203	245	...	26 616	62 830
2009	1 041 592	698 376	135 734	78	–	126 026	73 519	7 859
2010	734 299	306 346	27 799	443	–	219 110	167 623	12 978
2011	3 673 703	3 167 657	15 899	–	–	270 404	179 334	1 029
2012	2 420 439	1 546 587	97 954	–	–	751 573	22 703	278
2013	2 203 494	1 376 586	58 304	1 592	116	602 879	138 814	20 917
Grodno region								
2005	161 945	99 349	55 127	35	458	...	–	6 620
2009	237 819	88 770	23 344	9 036	77	97 796	18 747	49
2010	482 711	132 805	37 043	627	30	265 512	46 694	–
2011	1 875 650	214 431	95 380	–	–	1 565 711	–	128
2012	726 170	166 131	100 902	–	–	455 744	3 393	–
2013	170 861	71 353	29 441	6 396	–	53 656	9 415	–
Minsk city								
2005	231 526	161 233	18 050	3 655	5 230	...	–	43 348
2009	342 926	270 865	35 976	6 193	656	14 933	13 582	721
2010	455 857	239 431	54 497	3 546	991	37 404	117 957	2 031
2011	1 023 397	755 502	69 501	1 901	18 822	61 925	111 381	4 365
2012	1 035 191	631 904	134 858	1 446	45 306	62 674	159 003	–
2013	1 242 268	760 182	220 781	2 133	38 947	181 938	30 912	–
Minsk region								
2005	136 056	107 598	10 957	744	–	...	–	15 594
2009	144 022	53 886	47 806	–	–	38 640	3 690	–
2010	137 964	80 066	19 291	1 330	–	32 220	4 332	725
2011	299 601	185 157	15 459	328	1 526	86 254	10 551	326
2012	559 580	287 643	44 926	2 267	3 878	205 699	12 870	2 297
2013	1 119 424	680 924	18 043	2 255	100	399 198	16 868	1 505
Mogilev region								
2005	156 834	13 249	35 953	453	–	...	–	107 179
2009	44 882	24 802	2 224	–	–	6 699	11 157	–
2010	163 992	52 912	9 159	217	–	61 244	40 460	–
2011	599 015	242 831	37 952	–	–	183 152	120 253	14 827
2012	1 029 488	213 530	5 526	–	–	220 191	590 150	–
2013	2 681 499	733 492	154 364	2 445	–	695 031	1 081 378	–

	Funding of expenditures on technological innovations	Of which out of						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investment including foreign credits and loans	other
As percentage of total								
Republic of Belarus								
2005	100	77,9	5,9	0,5	0,2	...	1,1	14,3
2009	100	52,8	14,6	0,7	0,0	24,9	4,5	2,5
2010	100	38,9	6,5	0,3	0,0	36,9	16,0	1,4
2011	100	60,5	3,0	0,1	0,2	30,3	5,2	0,2
2012	100	48,0	6,5	0,1	0,6	29,0	15,6	0,2
2013	100	50,3	7,3	0,3	0,4	24,0	16,5	0,7
Brest region								
2005	100	43,5	1,6	2,3	–	...	–	51,5
2009	100	21,5	7,2	0,6	–	59,0	–	11,7
2010	100	19,3	1,6	0,0	0,0	59,0	14,8	5,3
2011	100	28,4	1,0	0,5	0,1	69,9	–	0,04
2012	100	45,1	3,6	0,7	0,2	49,1	–	1,3
2013	100	28,6	7,5	0,1	0,3	54,3	-	8,1
Vitebsk region								
2005	100	79,8	0,8	0,1	0,1	...	–	19,2
2009	100	46,6	29,4	0,1	–	23,9	–	0,0
2010	100	52,9	7,6	0,3	–	39,2	–	–
2011	100	79,1	3,2	0,1	–	13,2	4,4	–
2012	100	44,6	6,4	0,0	–	20,6	28,0	0,4
2013	100	62,0	10,2	0,9	-	7,9	18,7	0,01
Gomel region								
2005	100	92,4	1,1	0,2	0,0	...	1,9	4,4
2009	100	67,0	13,0	0,0	–	12,1	7,1	0,8
2010	100	41,7	3,8	0,1	–	29,8	22,8	1,8
2011	100	86,2	0,4	–	–	7,4	4,9	0,03
2012	100	63,9	4,1	–	–	31,1	0,9	0,01
2013	100	62,5	2,6	0,1	0,01	27,4	6,3	0,9

	Funding of expenditures on technological innovations	Of which out of						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investment including foreign credits and loans	other
Grodno region								
2005	100	61,4	34,0	0,0	0,3	...	–	4,1
2009	100	37,4	9,8	3,8	0,0	41,1	7,9	0,0
2010	100	27,5	7,7	0,1	0,0	55,0	9,7	–
2011	100	11,4	5,1	–	–	83,5	–	0,01
2012	100	22,9	13,9	–	–	62,7	0,5	–
2013	100	41,8	17,2	3,7	-	31,4	5,5	-
Minsk city								
2005	100	69,6	7,8	1,6	2,3	...	–	18,7
2009	100	79,0	10,5	1,8	0,2	4,3	4,0	0,2
2010	100	52,5	12,0	0,8	0,2	8,2	25,9	0,4
2011	100	73,8	6,8	0,2	1,8	6,1	10,9	0,4
2012	100	61,0	13,0	0,1	4,4	6,1	15,4	–
2013	100	61,2	17,8	0,2	3,1	14,6	2,5	-
Minsk region								
2005	100	79,1	8,0	0,5	–	...	–	11,5
2009	100	37,4	33,2	–	–	26,8	2,6	–
2010	100	58,0	14,0	1,0	–	23,4	3,1	0,5
2011	100	61,8	5,2	0,1	0,5	28,8	3,5	0,1
2012	100	51,4	8,0	0,4	0,7	36,8	2,3	0,4
2013	100	60,8	1,6	0,2	0,01	35,7	1,5	0,1
Mogilev region								
2005	100	8,5	22,9	0,3	–	...	–	68,3
2009	100	55,3	5,0	–	–	14,9	24,8	–
2010	100	32,3	5,6	0,1	–	37,3	24,7	–
2011	100	40,5	6,3	–	–	30,6	20,1	2,5
2012	100	20,7	0,6	–	–	21,4	57,3	–
2013	100	27,4	5,8	0,1	-	25,9	40,3	-

5.22. Intramural expenditures on technological innovations in service sector by source of funds, by regions and Minsk city

	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investment, including foreign credits and loans	other
Million rubles							
Republic of Belarus							
2005	...	...	...	...	...	...	...
2009	109 290	46 940	10 078	—	—	52 272	—
2010	129 711	71 870	637	137	32 614	24 453	—
2011	252 268	122 696	7 587	204	27 270	94 511	—
2012	551 209	518 287	7 605	—	23 020	2 297	—
2013	741 783	718 033	14 122	-	6 583	179	1 550
Brest region							
2005	...	...	...	...	...	...	...
2009	5 339	5 339	—	—	—	—	—
2010	10 586	10 376	73	137	—	—	—
2011	18 924	16 472	2 248	204	—	—	—
2012	43 890	43 522	368	—	—	—	—
2013	103 532	102 938	594	-	-	-	-
Vitebsk region							
2005	...	...	...	...	...	...	...
2009	15 671	6 456	9 215	—	—	—	—
2010	34 581	23 840	—	—	10 741	—	—
2011	38 710	20 211	—	—	18 499	—	—
2012	45 660	24 936	—	—	20 724	—	—
2013	42 216	42 216	-	-	-	-	-
Gomel region							
2005	...	...	...	...	...	...	...
2009	2 743	2 743	—	—	—	—	—
2010	174	174	—	—	—	—	—
2011	35 037	15 610	1 770	—	—	17 657	—
2012	2 402	2 271	131	—	—	—	—
2013	151 379	151 379	-	-	-	-	-

	Funding of expenditures on technological innovations	Of which out of					
		own funds	republican budget	local budget	credits and loans	foreign investment, including foreign credits and loans	other
Grodno region							
2005	...	...	...	...	...	...	...
2009	4 623	4 623	—	—	—	—	—
2010	58	58	—	—	—	—	—
2011	8 578	3 886	82	—	—	4 610	—
2012	59 651	57 366	—	—	—	2 285	—
2013	70 795	70 795	-	-	-	-	-
Minsk city							
2005	...	...	...	...	...	...	...
2009	77 826	24 991	563	—	—	52 272	—
2010	82 026	35 136	564	—	21 873	24 453	—
2011	143 283	58 781	3 487	—	8 771	72 244	—
2012	364 233	355 461	6 464	—	2 296	12	—
2013	315 737	293 140	12 969	-	6 583	179	1 550
Minsk region							
2005	...	...	...	...	...	...	...
2009	304	4	300	—	—	—	—
2010	—	—	—	—	—	—	—
2011	—	—	—	—	—	—	—
2012	—	—	—	—	—	—	—
2013	-	-	-	-	-	-	-
Mogilev region							
2005	...	...	...	...	...	...	...
2009	2 784	2 784	—	—	—	—	—
2010	2 286	2 286	—	—	—	—	—
2011	7 736	7 736	—	—	—	—	—
2012	35 373	34 731	642	—	—	—	—
2013	58 124	57 565	559	-	-	-	-

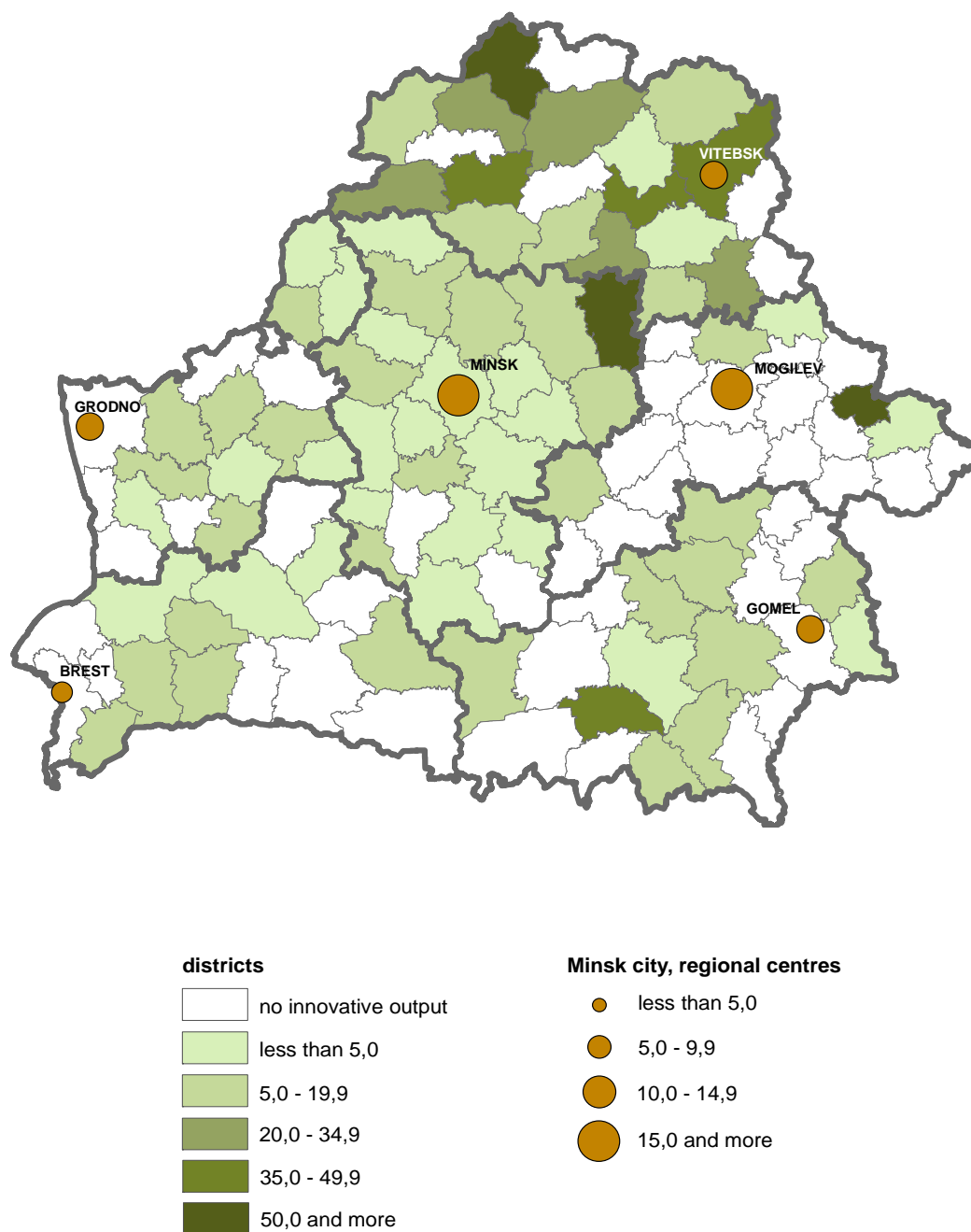
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	Funding of expenditures on technological innovations	Of which out of					
		own funds	republican budget	local budget	credits and loans	foreign investment, including foreign credits and loans	other
As percentage of total							
Republic of Belarus							
2005	...	...	...	...	...	...	...
2009	100	43,0	9,2	–	–	47,8	–
2010	100	55,4	0,5	0,1	25,1	18,9	–
2011	100	48,6	3,0	0,1	10,8	37,5	–
2012	100	94,0	1,4	–	4,2	0,4	–
2013	100	96,8	1,9	-	0,9	0,02	0,2
Brest region							
2005	...	...	...	...	...	...	...
2009	100	100,0	–	–	–	–	–
2010	100	98,0	0,7	1,3	–	–	–
2011	100	87,0	11,9	1,1	–	–	–
2012	100	99,2	0,8	–	–	–	–
2013	100	99,4	0,6	-	-	-	-
Vitebsk region							
2005	...	...	...	...	...	...	...
2009	100	41,2	58,8	–	–	–	–
2010	100	68,9	–	–	31,1	–	–
2011	100	52,2	–	–	47,8	–	–
2012	100	54,6	–	–	45,4	–	–
2013	100	100	-	-	-	-	-
Gomel region							
2005	...	...	...	...	...	...	...
2009	100	100,0	–	–	–	–	–
2010	100	100,0	–	–	–	–	–
2011	100	44,5	5,1	–	–	50,4	–
2012	100	94,5	5,5	–	–	–	–
2013	100	100	-	-	-	-	-

	Funding of expenditures on technological innovations	Of which out of					
		own funds	republican budget	local budget	credits and loans	foreign investment, including foreign credits and loans	other
Grodno region							
2005	...	...	...	...	...	...	...
2009	100	100,0	–	–	–	–	–
2010	100	100,0	–	–	–	–	–
2011	100	45,3	1,0	–	–	53,7	–
2012	100	96,2	–	–	–	3,8	–
2013	100	100	-	-	-	-	-
Minsk city							
2005	...	...	...	...	...	...	...
2009	100	32,1	0,7	–	–	67,2	–
2010	100	42,8	0,7	–	26,7	29,8	–
2011	100	41,0	2,5	–	6,1	50,4	–
2012	100	97,6	1,8	–	0,6	0,0	–
2013	100	92,8	4,1	-	2,1	0,1	0,5
Minsk region							
2005	...	...	...	...	...	...	...
2009	100	1,3	98,7	–	–	–	–
2010	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–
2013	100	-	-	-	-	-	-
Mogilev region							
2005	...	...	...	...	...	...	...
2009	100	100,0	–	–	–	–	–
2010	100	100,0	–	–	–	–	–
2011	100	100,0	–	–	–	–	–
2012	100	98,2	1,8	–	–	–	–
2013	100	99,0	1,0	-	-	-	-

5.23. Share of shipped innovative products and supplied innovative services in 2013

(in total products shipped and services supplied, percent)



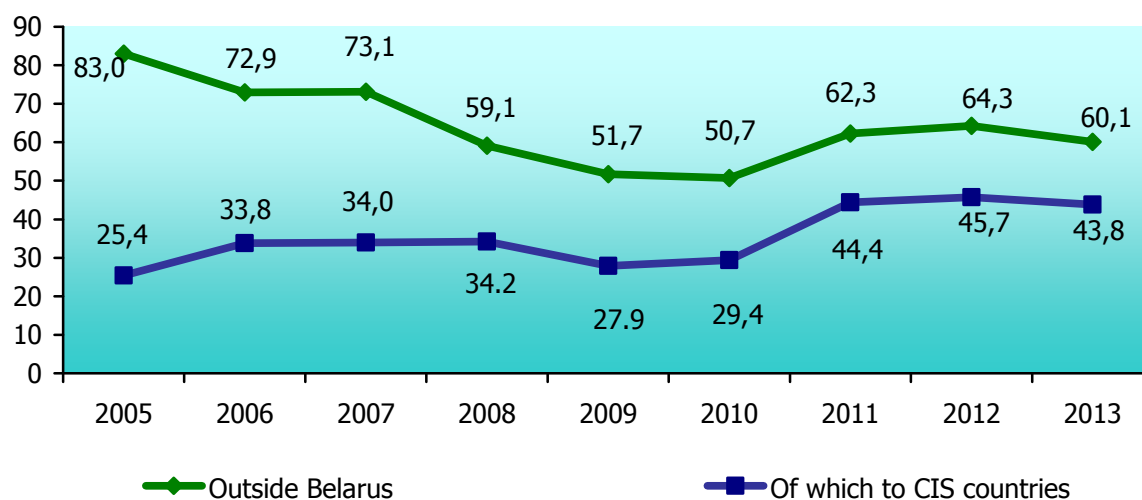
5.24. Volume of shipped innovative products in industry

(million rubles)

	2005	2009	2010	2011	2012	2013
Own products shipped	46 063 141	92 803 624	128 232 050	254 957 867	456 883 683	464 558 344
of which innovative products	7 003 571	10 089 195	18 609 492	36 723 378	81 510 140	82 903 730
of which:						
to domestic market	1 191 675	4 871 079	9 175 875	13 861 241	29 077 624	33 064 559
outside Belarus	5 811 896	5 218 116	9 433 617	22 862 137	52 432 516	49 839 171
to CIS countries	1 778 654	2 811 202	5 465 140	16 314 817	37 225 775	36 306 746
to Russian Federation	1 238 779	1 863 759	3 811 890	11 921 218	25 720 220	24 660 990

5.25. Share of exports in total volume of shipped innovative products in industry

(as percentage of total)



5.26. Volume of shipped innovative products in industry by economic activity in 2013

(million rubles)

	Own products shipped	Of which innovative products supplied to				
		total	domestic market	outside Belarus	of which to CIS countries	Russian Federation
Total	464 558 344	82 903 730	33 064 559	49 839 171	36 306 746	24 660 990
of which:						
Mining	11 360 986	283 641	281 998	1 643	1 514	1 284
extraction of fossil fuels	8 756 809	8	—	—	—	—
extraction of minerals, except fossil fuels	2 604 177	283 633	281 990	1 643	1 514	1 284
Manufacturing	406 983 135	82 618 103	32 780 575	49 837 528	36 305 232	24 659 706
manufacture of food products, including beverages, and tobacco	104 457 993	5 698 075	4 396 518	1 301 557	1 204 117	1 120 134
manufacture of textiles and textile articles	12 480 871	680 313	342 529	337 784	299 932	272 994
manufacture of leather, of products of leather and manufacture of footwear	4 046 027	266 900	184 711	82 189	78 920	76 924
manufacture of wood and of products of wood	5 234 501	234 497	106 824	127 673	101 249	55 926
manufacture of paper and paper products, publishing	4 804 509	312 831	223 213	89 618	61 425	56 089
manufacture of coke, petroleum products and nuclear materials	62 540 940	29 628 256	11 415 537	18 212 719	10 641 716	3 917 135
manufacture of chemicals and chemical products	42 328 770	3 235 923	1 257 142	1 978 781	675 954	553 023
manufacture of rubber and plastics products	14 910 358	923 833	319 526	604 307	556 931	416 262
manufacture of other non-metallic mineral products	23 227 451	3 050 865	2 093 159	957 706	941 843	858 058
manufacture of basic metals and fabricated metal products	28 713 835	4 315 545	1 502 726	2 812 819	637 838	579 656
manufacture of machinery and equipment	50 996 939	19 270 027	5 739 192	13 530 835	11 555 601	8 781 951
manufacture of electrical, electronic and optical equipment	15 567 142	4 125 140	1 688 532	2 436 608	2 262 875	2 113 619
manufacture of transport vehicles and equipment	25 043 716	10 685 667	3 453 859	7 231 808	7 154 540	5 777 664
other manufacture	12 630 083	190 231	57 107	133 124	132 291	80 271
Production and distribution of electricity, gas and water	46 214 223	1 986	1 986	—	—	—

5.27. Volume of innovative products shipped and innovative services supplied by regions and Minsk city in 2013

(million rubles)

	Own products shipped	Of which innovative products supplied to				
		total	to domestic market	outside Belarus	of which to	
					CIS countries	CIS countries
Industry						
Republic of Belarus	464 558 344	82 903 730	33 064 559	49 839 171	36 306 746	24 660 990
Regions:						
Brest	46 657 433	1 861 516	1 440 081	421 435	407 780	336 818
Vitebsk	71 096 911	22 208 955	12 541 789	9 667 166	3 841 394	3 053 300
Gomel	95 683 058	20 298 349	5 788 211	14 510 138	10 534 092	3 996 153
Grodno	51 517 665	3 541 061	1 857 005	1 684 056	866 862	741 380
Minsk city	85 998 131	21 500 575	6 344 309	15 156 266	13 771 213	10 627 145
Minsk	66 137 689	6 562 314	1 324 623	5 237 691	4 035 880	3 390 751
Mogilev	47 467 457	6 930 960	3 768 541	3 162 419	2 849 525	2 515 443
Service sector						
Republic of Belarus	21 416 486	1 091 378	320 325	771 053	100 669	98 184
Regions:						
Brest	782 492	43 062	21 354	21 708	-	-
Vitebsk	700 869	6 620	6 620	-	-	-
Gomel	867 212	42 334	36 205	6 129	6 092	4 229
Grodno	626 962	23 394	19 006	4 388	3 034	2 412
Minsk city	17 752 428	952 919	215 042	737 877	91 543	91 543
Minsk	54 667	-	-	-	-	-
Mogilev	631 856	23 049	22 098	951	-	-

5.28 Volume of supplied innovative services in service sector

(million rubles)

	2006	2009	2010	2011	2012	2013
Services supplied (according to principal activity)	2 915 402	5 063 741	6 126 985	8 851 877	15 576 419	21 416 489
of which innovative services	567 510	32 662	127 500	219 964	920 505	1 091 378
of which:						
to domestic market	415 545	25 393	115 433	198 710	575 108	320 325
outside Belarus	151 965	7 269	12 067	21 254	345 397	771 053
of which to CIS countries	98 336	427	484	407	42 722	100 669
of which to Russian Federation	79 115	427	182	213	42 042	98 184

5.29. Data on shipped innovative products in industry by economic activity in 2013

	Volume of innovative products (works, services) shipped, million rubles	Of which			
		new to domestic market		new to world market	
		total, million rubles	as percentage of total innovative products (works, service) shipped	total, million rubles	as percentage of total innovative products (works, service) shipped
Total	82 903 730	36 992 192	44,6	456 911	0,6
of which:					
Mining	283 641	282 392	99,6	—	—
extraction of fossil fuels	8	8	100,0	—	—
extraction of minerals, except fossil fuels	283 633	282 384	99,6	—	—

Continued

	Volume of innovative products (works, services) shipped, million rubles	Of which			
		new to domestic market		new to world market	
		total, million rubles	as percentage of total innovative products (works, service) shipped	total, million rubles	as percentage of total innovative products (works, service) shipped
Manufacturing	82 618 103	36 709 800	44,4	456 911	0,6
manufacture of food products, including beverages, and tobacco	5 698 075	1 468 513	25,8	1 407	0,02
manufacture of textiles and textile articles	680 313	294 131	43,2	2 475	0,4
manufacture of leather, of products of leather and manufacture of footwear	266 900	198 713	74,5	953	0,4
manufacture of wood and of products of wood	234 497	109 460	46,7	–	–
manufacture of paper and paper products, publishing	312 831	56 045	17,9	–	–
manufacture of coke, petroleum products and nuclear materials	29 628 256	13 120 411	44,3	–	–
manufacture of chemicals and chemical products	3 235 923	1 477 765	45,7	281 730	8,7
manufacture of rubber and plastics products	923 833	305 030	33,0	–	–
manufacture of other non-metallic mineral products	3 050 865	605 116	19,8	–	–
manufacture of basic metals and fabricated metal products	4 315 545	944 480	21,9	3 450	0,1
manufacture of machinery and equipment	19 270 027	6 524 605	33,9	49 442	0,3
manufacture of electrical, electronic and optical equipment	4 125 140	2 007 951	48,7	47 460	1,2
manufacture of transport vehicles and equipment	10 685 667	9 585 150	89,7	69 994	0,7
other manufacture	190 231	12 430	6,5	–	–
Production and distribution of electricity, gas and water	1986	–	–	–	–

5.30. Data on shipped innovative products in industry by regions and Minsk city in 2013

	Volume of innovative products (works, services) shipped, million rubles	Of which			
		new to domestic market		new to world market	
		total, million rubles	as percentage of total innovative products (works, service) shipped	total, million rubles	as percentage of total innovative products (works, service) shipped
Republic of Belarus	82 903 730	36 992 192	44,6	456 911	0,6
Regions:					
Brest	1 861 516	938 732	50,4	–	–
Vitebsk	22 208 955	2 095 133	9,4	38 445	0,2
Gomel	20 298 349	16 572 743	81,6	4 055	0,02
Grodno	3 541 061	1 153 147	32,6	96 902	2,7
Minsk city	21 500 575	11 874 763	55,2	32 956	0,2
Minsk	6 562 314	723 140	110,	284 553	4,3
Mogilev	6 930 960	3 634 534	52,4	284 553	4,3

5.31. Data on supplied innovative services in service sector by regions and Minsk City in 2013

	Innovative services supplied (according to principal activity), million rubles	Of which			
		new to domestic market		new to world market	
		total, million rubles	as percentage of total innovative services supplied	total, million rubles	as percentage of total innovative services supplied
Republic of Belarus	1 091 378	236 393	21,7	29 932	2,7
Regions:					
Brest	43 062	22 332	51,9	21 708	50,4
Vitebsk	6 620	–	–	–	–
Gomel	42 334	–	–	–	–
Gomel	23 394	–	–	–	–
Minsk city	952 919	191 012	20,0	7 273	0,8
Mogilev	23 049	23 049	100,0	951	4,1

5.32. Number of new and high technologies acquired (transferred) in industry by economic activity in 2013

(units)

	Number of acquired technologies	Of which		Number of transferred technologies	Of which	
		new technologies	high technologies		new technologies	high technologies
Total	23	17	6	15	13	2
of which:						
Manufacturing	23	17	6	15	13	2
<i>manufacture of food products, including beverages, and tobacco</i>	2	2	–	–	–	–
<i>manufacture of other non-metallic mineral products</i>	1	1	–	–	–	–
<i>manufacture of machinery and equipment</i>	3	1	2	–	–	–
<i>manufacture of electrical, electronic and optical equipment</i>	7	3	4	15	13	2
manufacture of transport vehicles and equipment	1	1	–	–	–	–

5.33. Patent applications filed and patents granted ¹⁾

	2005	2009	2010	2011	2012	2013
Total patent applications filed	1 340	1 926	1 933	1 871	1 871	1 634
of which from applicants:						
national	1 166	1 753	1 759	1 725	1 681	1 489
foreign	174	173	174	146	190	145
Invention patents granted	955	1 297	1 222	1 474	1 291	1 117
of which to applicants:						
national	811	1 188	1 126	1 365	1 186	1 027
foreign	144	109	96	109	105	90
Valid patents	3 794	4 666	4 444	4 842	4 694	4 478

¹⁾ According to the State Committee on Science and Technologies of the Republic of Belarus.

5.34. Results of innovation implementation of industrial organisations by economic activity in 2013

	Number of rganisations benefiting from innovation implementation resulting in					
	reduction of wage costs	as percentage of total organisations surveyed	reduction of tangible costs	as percentage of total organisations surveyed	reduction of energy consumption	as percentage of total organisations surveyed
Total	111	27,0	192	46,7	191	46,5
of which:						
Mining	2	7,1	1	3,6	1	3,6
extraction of fossil fuels	1	6,3	-	-	-	-
extraction of minerals, except fossil fuels	1	8,3	1	8,3	1	8,3
Manufacturing	105	6,3	190	11,3	188	11,2
manufacture of food products, including beverages, and tobacco	8	2,4	25	7,4	29	8,6
manufacture of textiles and textile articles	11	4,3	14	5,4	18	7,0

Continued

	Number of organisations benefiting from innovation implementation resulting in					
	reduction of wage costs	as percentage of total organisations surveyed	reduction of tangible costs	as percentage of total organisations surveyed	reduction of energy consumption	as percentage of total organisations surveyed
manufacture of leather, of products of leather and manufacture of footwear	2	5,1	3	7,7	3	7,7
manufacture of wood and of products of wood	2	2,6	4	5,1	2	2,6
manufacture of paper and paper products, publishing	1	1,7	3	5,1	2	3,4
manufacture of coke, petroleum products and nuclear materials	1	16,7	1	16,7	1	16,7
manufacture of chemicals and chemical products	2	3,8	8	15,4	6	11,5
manufacture of rubber and plastics products	5	8,6	6	10,3	7	12,1
manufacture of other non-metallic mineral products	5	3,6	11	8,0	9	6,6
manufacture of basic metals and fabricated metal products	8	5,7	19	13,5	20	14,2
manufacture of machinery and equipment	28	12,6	45	20,3	42	18,9
manufacture of electrical, electronic and optical equipment	16	13,2	33	27,3	31	25,6
manufacture of transport vehicles and equipment	12	21,1	13	22,8	13	22,8
other manufacture	4	3,5	5	4,4	5	4,4
Production and distribution of electricity, gas and water	4	2,2	1	0,6	2	1,1

5.35 Results of innovation implementation of industrial organisations by regions and Minsk city in 2013

	Number of organisations benefiting from innovation implementation resulting in					
	reduction of wage costs	as percentage of total organisations surveyed	reduction of tangible costs	as percentage of total organisations surveyed	reduction of energy consumption	as percentage of total organisations surveyed
Republic of Belarus	111	27,0	192	46,7	191	46,5
Regions:						
Brest	23	51,1	30	66,7	29	64,4
Vitebsk	11	15,5	34	47,9	33	46,5
Gomel	11	20,8	19	35,8	23	43,4
Grodno	15	33,3	19	42,2	17	37,8
Minsk city	28	28,9	46	47,4	43	44,3
Minsk	17	25,8	31	47,0	32	48,5
Mogilev	6	17,69	13	38,2	14	41,2

5.36. Rating of factors hampering innovation in industry in 2013

(entities)

	Number of industrial organisations assessing selected factors hampering innovation as		
	main or crucial	significant	insignificant
Economic factors			
lack of funds within the organisation	759	573	305
lack of financial support from public sources	228	549	548
low effective demand for new products	146	475	585
cost too high	488	690	256
excessive perceived risks	308	672	399
long payback time of innovations	296	715	384

	Number of industrial organisations assessing selected factors hampering innovation as		
	main or crucial	significant	insignificant
Production factors			
low innovative potential of the organisation	264	472	664
lack of qualified personnel	169	501	774
lack of information on new technologies	88	365	924
lack of information on markets	89	380	904
non-responsiveness of the organisation to innovation	66	216	929
lack of opportunities to cooperate with other organisations	68	264	836
Other factors			
low demand for innovative products (works, services)	108	383	638
shortcomings in legislation regarding regulation and stimulation of innovation activity	66	291	640
uncertainty of the period of innovation process	90	359	618
underdeveloped innovation infrastructure (intermediary, information, legal, banking and other services)	84	399	626
underdeveloped technology market	123	413	564

5.37. Industrial organisations that implemented innovations improving the environment or preventing negative environmental impacts in 2013

	Number of organisations that implemented environmental innovations	Organisations that implemented environmental innovations as percentage of total industrial organisations
Increased environmental safety in the process of production		
reduced tangible costs per unit of product	179	64,2
reduced energy consumption per unit of product	183	65,6
reduced carbon dioxide (CO ₂) emission	71	25,4
raw materials and supplies replaced with non-hazardous or less hazardous	70	25,1
lower environmental pollution (ambient air, land, water; noise reduction)	132	47,3
recycling of industrial waste, water or materials	104	37,3
Increased environmental safety as a result of using innovative products		
reduced energy consumption or energy loss	119	42,7
lower air, land or water pollution, reduced noise	83	29,7
better recycling of products after use	38	13,6
Purpose of environmental innovation		
comply with up-to-date technical regulations, rules and standards (requirements of environmental legislation)	176	63,1
comply with expected strengthening of legal provisions	75	26,9
availability of government grants, subsidies and other financial incentives for implementing environmental innovations	25	9,0
meet market (consumer) demands urging to implement environmental innovations	104	37,3
follow voluntarily general principles of environmental protection	195	69,9

6. INTERNATIONAL COMPARISONS**6.1. Number of R&D personnel****CIS countries**

(persons)

	2005	2007	2008	2009	2010	2011
Azerbaijan	18 164	18 079	17 942	17 401	17 924	18 687
Armenia	6 892	5 669	6 899	6 926	6 558	5 718
Belarus¹⁾	30 222	31 294	31 473	32 441	31 712	31 194
Kazakhstan	18 912	17 774	16 304	15 793	17 021	18 003
Kyrgyzstan	3 419	3 140	3 076	3 533	3 129	3 333
Moldova, Republic of	4 672	4 587	5 315	5 424	5 114	5 216
Russia	813 207	801 135	761 252	742 433	736 540	735 340
Tajikistan	3 220	2 075	2 447	2 791	2 827	2 537
Ukraine	170 579	155 549	149 699	146 800	141 086	134 741

Non-CIS countries

(full-time equivalent; man-years)

	2005	2007	2008	2009	2010	2011
Australia	...	...	137 138	...	...	...
Austria	47 625	53 252	58 014	56 438	58 992	60 378
Argentina	45 361	53 187	56 987	59 683	65 761	...
Belgium	53 517	57 963	58 476	59 756	58 896	59 991
Bulgaria	15 853	16 940	17 219	18 230	16 574	16 986
Brazil	196 283	214 349	225 292	245 465	266 709	...
Canada	218 590	248 640	256 650	235 320	221 360	...
China	1 364 799	1 736 155	1 965 357	2 291 252	2 553 829	2 882 903
Czech Republic	43 370	49 192	50 808	50 961	52 290	55 697
Denmark	43 499	46 897	58 589	54 918	57 310	57 170
Estonia	4 362	5 002	5 086	5 430	5 277	5 666
Finland	57 471	56 243	56 698	56 069	55 897	54 526
France	349 681	375 235	382 653	390 214	392 875	...

	2005	2007	2008	2009	2010	2011
Germany	475 278	506 450	522 688	534 565	548 526	562 600
Greece	33 603	35 531	...	...	...	...
Hungary	23 239	25 954	27 403	29 795	31 480	33 960
Ireland	16 690	18 157	20 018	20 326	19 721	21 817
Italy	175 248	208 376	...	226 527	225 632	231 914
Japan	896 855	912 202	882 739	878 418	877 928	...
Korea, Republic of	215 345	269 409	294 440	309 063	335 228	...
Latvia	5 483	6 193	6 533	5 485	5 563	5 432
Lithuania	11 002	12 656	12 632	12 094	12 316	11 173
Luxembourg	4 392	4 605	4 652	4 711	4 988	4 988
Mexico	83 685	70 293	75 370	83 642	79 601	79 256
Netherlands	93 599	93 788	93 432	87 874	100 544	112 546
New Zealand	18 929	21 000	...	23 800	...	...
Norway	29 966	33 635	35 485	36 091	36 121	36 882
Poland	76 761	75 309	74 596	73 581	81 843	85 219
Portugal	25 728	35 334	47 882	51 347	52 348	52 944
Romania	33 222	28 977	30 390	28 398	26 171	29 749
Spain	174 773	201 108	215 676	220 777	222 022	215 079
Slovakia	14 404	15 421	15 576	15 952	18 188	18 112
Slovenia	8 994	10 369	11 594	12 410	12 940	15 269
Switzerland	...	...	62 066	...	...	...
Sweden	77 704	74 437	79 549	75 849	77 418	78 480
South Africa	28 798	31 352	30 802	30 891	...	...
Turkey	49 251	63 377	67 244	73 521	81 792	...
United Kingdom	324 917	343 855	342 086	347 486	350 766	358 583

¹⁾ Year 2012 – 30 437; year 2013 – 28 937.

6.2. Domestic R&D expenditure

(as percentage of GDP)

CIS countries

	2005	2007	2008	2009	2010	2011
Azerbaijan	0,22	0,17	0,17	0,25	0,22	0,22
Armenia	0,26	0,21	0,22	0,29	0,24	0,27
Belarus¹⁾	0,68	0,96	0,74	0,64	0,69	0,70
Kazakhstan	0,28	0,21	0,22	0,23	0,15	0,16
Kyrgyzstan	0,20	0,23	0,19	0,16	0,16	0,16
Moldova, Republic of	0,40	0,55	0,53	0,53	0,44	0,41
Russia	1,07	1,12	1,04	1,25	1,64	1,12
Tajikistan	0,10	0,07	0,07	0,09	0,09	0,12
Ukraine	1,17	0,85	0,85	0,86	0,83	0,73

Non-CIS countries

	2005	2007	2008	2009	2010	2011
Australia	...	...	2,41	...	2,38	...
Austria	2,46	2,51	2,67	2,71	2,79	2,75
Argentina	0,46	0,51	0,52	0,60	0,62	...
Belgium	1,83	1,89	1,97	2,03	2,00	2,04
Bulgaria	0,46	0,45	0,47	0,53	0,60	0,57
Brazil	0,97	1,10	1,11	1,17	1,16	...
Canada	2,04	1,96	1,92	1,94	1,85	1,74
China	1,32	1,40	1,47	1,70	1,76	1,84
Czech Republic	1,35	1,48	1,41	1,47	1,55	1,84
Denmark	2,46	2,58	2,85	3,16	3,07	3, 09
Estonia	0,93	1,08	1,28	1,43	1,63	2,38
Finland	3,48	3,47	3,70	3,94	3,90	3,78
France	2,11	2,08	2,12	2,27	2,24	2,25

Continued

	2005	2007	2008	2009	2010	2011
Germany	2,51	2,53	2,69	2,82	2,80	2,84
Greece	0,60	0,60	...	...	...	...
Hungary	0,94	0,98	1,00	1,17	1,16	1,20
Israel	4,42	4,84	4,77	4,49	4,35	4,39
Ireland	1,24	1,28	1,45	1,77	1,71	1,75
Italy	1,09	1,17	1,21	1,26	1,26	1,25
Japan	3,31	3,46	3,47	3,36	3,26	...
Korea, Republic of	2,79	3,21	3,36	3,56	3,74	...
Latvia	0,56	0,59	0,61	0,46	0,60	0,70
Lithuania	0,75	0,81	0,80	0,84	0,80	0,92
Luxembourg	1,56	1,58	1,66	1,72	1,48	1,43
Mexico	0,41	0,37	0,41	0,44	0,48	0,46
Netherlands	1,90	1,81	1,77	1,82	1,85	2,04
New Zealand	1,14	1,19	...	1,30	...	...
Norway	1,51	1,59	1,58	1,78	1,69	1,66
Poland	0,57	0,57	0,60	0,67	0,74	0,77
Portugal	0,78	1,17	1,50	1,64	1,59	1,50
Romania	0,41	0,53	0,58	0,47	0,46	0,48
Spain	1,12	1,27	1,35	1,38	1,39	1,33
Slovakia	0,51	0,46	0,47	0,48	0,63	0,68
Slovenia	1,44	1,45	1,65	1,86	2,11	2,51
Switzerland	...	...	2,87	...	...	...
Sweden	3,56	3,40	3,70	3,60	3,39	3,37
South Africa	0,90	0,92	0,93	0,87	...	...
Turkey	0,59	0,72	0,73	0,85	0,84	...
United Kingdom	1,72	1,77	1,78	1,84	1,80	1,77
United States	2,59	2,72	2,86	2,91	2,83	2,77

¹⁾ Year 2012– 0,67; year 2013– 0,69.

6.3. Domestic R&D expenditure by sector of performance ¹⁾

(percent)

CIS countries

	Total	Government sector	Business enterprise sector	Higher education sector	Private non-profit sector
Azerbaijan	100	72,4	17,8	9,8	–
Armenia	100	89,1	–	10,9	–
Belarus²⁾	100	23,8	65,3	10,8	0,1
Kazakhstan	100	25,0	51,6	16,4	7,0
Kyrgyzstan	100	62,0	23,4	14,6	–
Moldova, Republic of	100	70,0	19,0	11,0	–
Russia	100	29,8	61,0	9,00	0,2
Tajikistan	100	67,0	–	33,0	–
Ukraine	100	37,9	55,8	6,3	–

Non-CIS countries

	Total	Government sector	Business enterprise sector	Higher education sector	Private non-profit sector
Australia	100	12,4	58,0	26,6	3,0
Austria	100	5,3	68,1	26,1	0,5
Argentina	100	44,3	23,2	30,9	1,6
Belgium	100	9,0	67,1	22,9	1,0
Bulgaria	100	35,8	53,2	10,3	0,7
Canada	100	10,1	51,3	38,1	0,5
China	100	16,3	75,7	7,9	0,1
Czech Republic	100	17,5	60,3	21,6	0,6
Denmark	100	2,2	67,6	29,8	0,4
Estonia	100	8,3	62,6	28,2	0,9
Finland	100	8,8	70,5	20,0	0,7
France	100	14,1	63,4	21,3	1,2

INTERNATIONAL COMPARISONS

	Continued				
	Total	Government sector	Business enterprise sector	Higher education sector	Private non-profit sector
Germany	100	14,8	67,0	18,2	–
Greece	100	20,9	28,6	49,2	1,3
Hungary	100	15,8	62,4	20,2	1,6
Italy	100	13,7	54,2	28,6	3,5
Japan	100	9,0	76,5	12,9	1,6
Korea, Republic of	100	12,7	74,8	10,8	1,7
Latvia	100	23,3	27,8	48,9	–
Lithuania	100	19,6	26,1	54,3	–
Luxembourg	100	19,2	68,5	12,3	–
Mexico	100	28,8	42,1	26,8	2,3
Netherlands	100	10,8	52,2	37,0	–
New Zealand	100	25,7	41,4	32,8	0,1
Norway	100	16,5	51,7	31,8	–
Poland	100	34,5	30,1	35,1	0,3
Portugal	100	7,5	45,9	38,3	8,3
Romania	100	40,7	36,0	22,9	0,4
Slovakia	100	27,7	37,2	34,9	0,2
Slovenia	100	14,3	73,9	11,8	–
Switzerland	100	0,7	73,5	24,2	1,6
Sweden	100	4,3	69,3	26,0	0,4
South Africa	100	21,6	53,2	24,3	0,9
Turkey	100	11,4	42,5	46,0	0,1
United Kingdom	100	9,3	61,5	26,9	2,3
United States	100	12,1	68,3	15,2	4,4

¹⁾ Latest data available.

²⁾ Data for 2013

6.4. Invention patents applied for by national and foreign applicants

	Patent applications filed		
	to national patent authorities	of which from applicants	
		national	foreign
Belarus			
2000	1 198	994	204
2011	1 871	1 725	146
2012	1 871	1 681	190
2013	1 634	1 489	145
Russia			
2000	28 688	23 377	5 311
2010	42 500	28 722	13 778
2011	41 414	26 495	14 919
2012	44 211	28 701	15 510
Austria			
2000	2 301	1 961	340
2009	2 555	2 263	292
2010	2 673	2 424	249
2011	2 430	2 154	276
Belgium			
2000	820	577	243
2009	817	669	148
2010	760	620	140
2011	763	636	127
Bulgaria			
2000	940	231	709
2009	266	242	24
2010	260	243	17
2011	283	262	21
Hungary			
2000	4 937	810	4 127
2009	787	757	30
2010	696	649	47
2011	698	662	36
Germany			
2000	62 142	51 736	10 406
2009	59 583	47 859	11 724
2010	59 245	47 047	12 198
2011	59 444	46 986	12 458
Greece			
2000	340	306	34
2009	720	698	22
2010	744	728	16

	Patent applications filed		
	to national patent authorities	of which from applicants	
		national	foreign
Denmark			
2000	1 870	1 730	140
2009	1 649	1 518	131
2010	1 768	1 626	142
2011	1 771	1 574	197
Ireland			
2000	1 080	925	155
2009	961	908	53
2010	792	733	59
2011	561	494	67
Spain			
2000	3 194	2 710	484
2009	3 803	3 596	207
2010	3 779	3 566	213
2011	3 626	3 430	196
Latvia			
2000	179	98	81
2009	151 ¹⁾	114 ¹⁾	37 ¹⁾
2010	185	178	7
2011	183	173	10
Lithuania			
2000	127	66	61
2009	107	91	18
2010	114	108	6
2011	108	93	15
Luxembourg			
2000	176	85	91
2009	84	60	24
2010	100	79	21
2011	128	85	43
Netherlands			
2000	2 994	2 465	529
2009	2 584	2 575	279
2010	2 767	2 527	240
2011	2 895	2 585	310
Poland			
2000	7 303	2 404	4 899
2009	3 140	2 899	241
2010	3 430	3 203	227
2011	4 123	3 879	244
Portugal			
2000	146	81	65
2009	405 ²⁾	381 ²⁾	24 ²⁾
2010	545	499	46
2011	646	571	75

Continued

	Patent applications filed		
	to national patent authorities	of which from applicants	
		national	foreign
Romania			
2000	1 290	1 003	287
2009	1 091	1 054	37
2010	1 418	1 382	36
2011	1 463	1 424	39
Slovakia			
2000	2 040	236	1 804
2009	239	176	63
2010	282	234	48
2011	257	224	33
Slovenia			
2000	431	307	124
2009	385	373	12
2010	453	442	11
United Kingdom			
2000	32 747	22 050	10 697
2009	22 465	15 985	6 480
2010	21 929	15 490	6 439
2011	22 259	15 343	6 916
Finland			
2000	2 903	2 579	324
2009	1 933	1 806	127
2010	1 833	1 731	102
2011	1 774	1 650	124
France			
2000	17 353	13 870	3 483
2009	16 104	14 295	1 809
2010	16 580	14 748	1 832
2011	16 754	14 655	2 099
Czech Republic			
2000	4 939	555	4 384
2009	881	789	92
2010	982	868	114
2011	880	783	97
Sweden			
2000	5 068	4 224	844
2009	2 855 ²⁾	2 549 ²⁾	306 ²⁾
2010	2 549	2 196	353
2011	2 341	2 004	337

¹⁾ 2006²⁾ 2008

6.5. Level of innovativeness

(percent)

	Percentage of organisations carrying out technological innovation in total industrial organisations ¹⁾	Percentage of organisations carrying out technological innovation in total service sector organisations ²⁾
Austria	49,9	86,4
Belarus	21,7	19,2
Belgium	58,9	48,1
Bulgaria	22,3	19,4
Hungary	19,2	23,2
Germany	69,8	84,9
Denmark	47,1	60,9
Ireland	56,7	59,2
Spain	33,4	42,2
Italy	45,4	73,9
Cyprus	38,9	71,4
Latvia	19,2	15,2
Lithuania	22,8	27,9
Luxembourg	52,6	61,4
Malta	37,5	80,0
Netherlands	53,2	52,0
Poland	18,1	35,2
Portugal	43,9	64,8
Romania	16,2	25,0
Russia	9,9	8,0
Slovakia	30,2	41,4
Slovenia	42,3	48,6
Finland	52,0	66,7
France	40,2	40,7
Czech Republic	38,3	60,9
Sweden	50,9	61,4
Estonia	52,5	86,7

¹⁾ According to the 2008-2010 surveys; for Russia – 2012; for Belarus – 2013.

²⁾ According to the 2006-2008 surveys; for Russia – 2012; for Belarus – 2013.

6.6. Selected indicators of the Innovation Union Scoreboard (IUS 2013)

	New doctorate graduates (ISCED 6) per 1000 population aged 25-34	Percentage population aged 30-34 having completed tertiary education	Percentage youth aged 20-24 having attained at least upper secondary level education	Non-EU doctorate students as % of all doctorate holders	R&D expenditure in the public sector as % of GDP	Venture capital (early stage, expansion and replacement) as % of GDP
Belarus	0,8	28,4	92,6	5,03	0,24	–
Austria	2,3	23,8	85,4	8,78	0,87	0,022
Belgium	1,5	42,6	81,6	19,69	0,65	0,090
Bulgaria	0,5	27,3	85,5	4,13	0,26	0,007
Cyprus	0,2	45,8	87,7	1,64	0,33	...
Croatia	1,4	24,5	95,6	2,21	0,42	...
Czech Republic	1,3	23,8	91,7	4,00	0,72	0,010
Denmark	2,1	41,2	70,0	15,43	0,99	0,104
Estonia	0,9	40,3	82,6	4,55	0,87	...
Finland	2,6	46,0	85,4	5,91	1,09	0,108
France	1,5	43,4	83,8	31,56	0,80	0,105
Germany	2,7	30,7	75,8	...	0,94	0,057
Greece	1,2	28,9	83,6	1,00	0,43	0,004
Hungary	0,8	28,1	83,3	2,61	0,43	0,030
Ireland	1,6	49,4	86,9	22,25	0,55	0,026
Iceland	0,8	44,6	56,9	20,77	1,10	...
Italy	1,6	20,3	76,9	6,24	0,53	0,020

Data source by the EU Members States, Iceland, the Former Yugoslav Republic of Macedonia, Norway, Serbia, Turkey and Switzerland is the publication of the European Commission «Innovation Union Scoreboard 2013». The electronic version of the publication is available at http://ec.europa.eu/enterprise/policies/innovation/files/ius-2013_en.pdf.

Continued

	New doctorate graduates (ISCED 6) per 1000 population aged 25-34	Percentage population aged 30-34 having completed tertiary education	Percentage youth aged 20-24 having attained at least upper secondary level education	Non-EU doctorate students as % of all doctorate holders	R&D expenditure in the public sector as % of GDP	Venture capital (early stage, expansion and replacement) as % of GDP
Latvia	0,4	35,7	80,4	0,60	0,50	...
Lithuania	0,9	45,4	86,9	0,24	0,68	...
Luxembourg	0,8	48,2	73,3	20,39	0,45	0,243
Malta	0,2	21,1	59,2	4,05	0,24	...
Norway	1,9	48,8	71,2	30,93	0,84	0,069
Netherlands	1,9	41,1	78,2	...	0,97	0,105
Poland	0,5	36,9	90,0	1,91	0,53	0,051
Portugal	1,9	26,1	64,4	10,59	0,69	0,032
Romania	1,4	20,4	79,6	1,98	0,31	0,033
Spain	1,2	40,6	61,7	17,33	0,64	0,050
Serbia	0,6	20,6	84,0	7,05	0,68	...
Slovakia	3,1	23,4	93,3	1,39	0,43	...
Slovenia	1,5	37,9	90,1	6,54	0,64	...
Sweden	2,9	47,5	88,7	19,99	10,03	0,156
Switzerland	3,1	44,0	83,0	31,56	0,79	0,094
Turkey	0,4	16,3	54,3	2,52	0,49	...
Former Yugoslav Republic of macedonia	0,5	20,4	85,3	7,04	0,14	...

	Continued					
	R&D expenditure in the business sector as % of GDP	Non-R&D innovation expenditures as % of turnover	SMEs innovating in-house as % of SMEs	Innovative SMEs collaborating with others as % of SMEs	SMEs introducing product or process innovations as % of SMEs	SMEs introducing marketing or organisational innovations as % of SMEs
Belarus	0,45	1,95	3,99	0,52	3,47	1,19
Austria	1,87	0,35	36,35	20,52	42,20	42,33
Belgium	1,37	0,53	39,80	20,15	50,34	41,73
Bulgaria	0,30	0,28	12,98	3,33	16,59	16,31
Cyprus	0,08	1,66	41,55	21,49	34,80	36,99
Czech Republic	1,11	0,69	27,21	10,26	33,01	41,12
Croatia	0,34	0,61	25,08	9,26	30,40	31,91
Denmark	2,09	0,51	40,81	15,46	41,60	42,64
Estonia	1,49	1,03	33,57	18,52	45,56	35,99
Finland	2,32	0,51	33,18	16,50	44,75	38,89
France	1,43	0,25	29,95	11,09	32,68	42,80
Germany	0,90	0,88	45,25	14,01	57,00	60,55
Greece	0,17	0,74	32,70	13,31	37,31	51,29
Hungary	0,75	0,40	11,40	6,68	16,76	22,36
Iceland	1,64	...	...	17,44	55,13	45,90
Italy	0,68	0,59	34,79	4,41	39,80	43,04
Ireland	1,17	0,30	38,76	11,93	45,50	45,04
Latvia	0,19	0,36	14,44	4,19	15,78	22,68

	Continued					
	R&D expenditure in the business sector as % of GDP	Non-R&D innovation expenditures as % of turnover	SMEs innovating in-house as % of SMEs ¹⁾	Innovative SMEs collaborating with others as % of SMEs	SMEs introducing product or process innovations as % of SMEs	SMEs introducing marketing or organisational innovations as % of SMEs
Lithuania	0,24	1,27	15,67	8,76	21,39	26,39
Luxembourg	0,98	0,19	40,54	14,69	47,90	58,67
Malta	0,49	0,96	22,49	4,56	28,96	30,96
Norway	0,86	0,14	23,22	9,56	32,79	29,13
Netherlands	0,89	0,61	39,10	14,87	46,02	36,91
Poland	0,23	1,02	11,34	4,15	14,36	19,95
Portugal	0,73	0,53	34,10	8,09	45,57	47,38
Romania	0,17	0,46	10,75	2,93	13,17	25,54
Serbia	0,10	1,06	30,59	7,49	36,0	39,06
Slovakia	0,25	0,65	21,84	8,29	26,02	27,25
Slovenia	1,42	0,56	...	13,63	32,61	37,65
Spain	0,67	0,39	22,06	5,81	28,09	27,74
Sweden	2,34	0,64	37,68	17,47	47,38	42,15
Switzerland	2,11	1,16	28,20	9,40	57,00	...
Turkey	0,36	0,16	28,18	5,28	29,52	50,31
Former Yugoslav Republic of macedonia	0,04	0,90	11,30	9,60	39,20	30,80

	Employment in knowledge-intensive activities (manufacturing and services) as % of total employment	Contribution of medium and high-tech products exports to the trade balance	Knowledge-intensive services exports as % of total service exports	Continued Sales of new-to-market and new-to-firm innovations as % of turnover
Belarus	27,36	2,02	25,73	17,28
Austria	14,00	0,18	22,21	11,92
Belgium	14,80	2,37	41,32	12,36
Bulgaria	8,40	-4,78	26,84	7,58
Cyprus	15,00	1,72	48,48	14,70
Croatia	10,30	2,98	14,99	10,54
Czech Republic	12,30	3,82	27,26	15,25
Denmark	15,60	-2,77	63,33	14,96
Estonia	10,70	-2,70	37,40	12,31
Macedonia, Republic of	7,20	5,42	27,85	9,90
Finland	15,30	1,69	35,93	15,29
France	14,40	4,65	32,58	14,73
Germany	15,10	8,54	56,70	15,50
Greece	11,30	-5,69	5,38	19,23
Hungary	13,10	5,84	26,55	13,68
Ireland	19,80	2,57	16,43	9,32
Iceland	18,50	-8,87	50,32	6,07
Italy	13,40	4,96	27,19	14,86
Latvia	9,10	-5,42	35,32	3,14
Lithuania	9,00	-1,27	13,69	6,64
Luxembourg	20,00	-3,35	67,43	8,27
Malta	16,40	0,92	13,63	7,41
Norway	15,10	-8,87	49,40	6,09
Netherlands	14,90	1,68	26,31	10,45
Poland	9,30	0,88	26,14	8,00
Portugal	9,10	-1,20	28,99	14,30
Romania	6,50	0,38	43,03	14,28
Spain	11,80	3,05	21,61	18,97
Serbia	12,48	...	45,20	11,71
Slovakia	10,50	4,35	19,63	19,23
Slovenia	13,70	6,05	20,91	10,65
Sweden	17,40	2,02	38,70	8,37
Switzerland	20,00	8,44	26,51	19,23
Turkey	4,70	-2,22	18,76	15,82
Former Yugoslav Republic of macedonia	7,20	5,42	27,85	9,90