NATIONAL STATISTICAL COMMITTEE OF THE REPUBLIC OF BELARUS

SCIENCE AND INNOVATION ACTIVITY IN THE REPUBLIC OF BELARUS

Statistical book

Minsk

2013

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

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

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FOREWORD

The statistical book presents information on main indicators of scientific and innovation activities the Republic of Belarus in 2005-2012.

The book contains statistical data on main indicators of activity of organisations engaged in R&D. Given are statistical data on indicators reflecting innovation activity of organisations which main kind of economic activity is output of products in mining and manufacturing industries, production and distribution of electricity, gas and water (hereinafter referred to as industrial organisations); communications and computer-related activities (hereinafter referred to as service sector organisations).

The statistical book contains statistical information on training of personnel of highest qualification, size and composition of personnel performing R&D, on intramural expenditures on R&D by field of science, on intramural current expenditures on R&D by type of works and field of science, on volume of works undertaken, on sources of financing of intramural expenditures on R&D.

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

The chapter "International Comparisons" provides information on main indicators of scientific and innovation activities in the Republic of Belarus as compared with other countries.

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

Selected statistical indicators are provided with brief methodological explanations.

Explanation of symbols

–	not applicable
…	data not available
0,0	negligible magnitude

The discrepancy between the totals and the sum in some cases can be explained by using rounded off data

CONTENTS

1. INDICATORS OF SCIENCE AND INNOVATION DEVELOPMENT

Indicators are target-oriented 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 the like.

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 Board 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. INDICATORS OF SCIENCE AND INNOVATION DEVELOPMENT

1.1. Indicators of science development

	2005	2008	2009	2010	2011	2012
Intramural expenditures on R&D by source of financing, percent						
budgetary funds	58,1	52,9	61,9	57,8	45,0	43,6
extra-budgetary funds	5,1	1,1	0,6	0,9	0,5	0,3
Intramural expenditures on R&D per organization engaged in R&D, mln. rubles	1 371	2 925	1 981	2 437	4 155	6 675
Intramural expenditures on R&D per R&D employee, mln. rubles	15	31	27	36	67	116
Number of R&D personnel per organization engaged in R&D, persons	94	96	73	68	62	57
Number of R&D personnel per 10 000 employed in economy, persons	68,5	68,3	69,9	68,0	67,3	66,6
Share of education expenditure in total consolidated budget expenditure, percent	13,3	10,9	11,2	16,8	18,1	17,5
Share of population aged 5-18 in education in total number of population aged 5-18, percent	90,8	90,3	89,7	90,1	90,1	88,6
Ratio of nominal gross average monthly wages in education to nominal gross average monthly wages in economy as a whole, percent	86,1	73,3	71,6	73,4	78,6	75,6
Share of high education sector in intramural R&D expenditures, percent	17,0	14,1	13,6	12,6	9,6	10,0

1.2. Innovation indicators

	2005	2008	2009	2010	2011	2012
Rate of inventive activity (ratio of number of domestic patent applications for inventions received in Belarus to 10 000 population)	1,2	1,6	1,8	1,9	1,8	1,8
Share of organisations expending on technological innovations in total number of organisations surveyed, percent	14,1	17,7	12,0	15,2	21,7	22,7
of which with						
share of industrial organisations expending on technological innovations in total number of industrial organisations surveyed, percent	14,1	17,6	12,1	15,4	22,7	22,8
share of service sector organisations expending on technological innovations in total number of service sector organisations surveyed, percent	…	19,2	12,1	12,8	12,1	21,8
Share of industrial organisations expending on technological, organizational and marketing innovations in total number of industrial organisations surveyed, percent	…	…	…	18,1	24,3	24,8
Share of shipped innovative products (works, services) in total volume of products (works, services) shipped by industrial organisations, percent	15,2	14,2	10,9	14,5	14,4	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
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

1.3. Selected indicators for the Republic of Belarus calculated on the basis of the Innovation Union Scoreboard (IUS 2011) methodlogy

Main type / innovation dimension / indicator	2012
Enablers	
Human resources	
1.1.1. New doctorate graduates (ISCED 6) per 1000 population aged 25-34	0,8
1.1.2. Percentage population aged 30-34 having completed tertiary education	28,4
1.1.3 Percentage youth aged 20-24 having attained at least upper secondary level education	92,6
1.2.3. Share of non-EU doctoral students in total doctoral students[1)], percent	4,62
Finance and public support	
1.3.1. Share of public R&D expenditures as percent of GDP	0,21
1.3.2. Share of venture capital [2)] (early stage, expansion and replacement) as percent of GDP	–
Firm activities	
Firm investments	
2.1.1. Share of business R&D expenditure as percent of GDP	0,46
2.1.2. Share of non-R&D innovation expenditures in total volume of products (works, services) shipped	1,55
Cooperation and entrepreneurship	
2.2.1. Share of SMEs innovating in-house in total number of SMEs[3)], percent	4,70
2.2.2. Share of SMEs taking part in joint innovative projects in total number of organisations surveyed, percent	0,69
Outputs	
Innovation-active organisations	
3.1.1. Share of SMEs introducing product or process innovations in total number of SMEs, percent	4,21
3.1.2. Share of SMEs introducing marketing or organizational innovations in total number of SMEs, percent	0,99
Economic effects	
3.2.1. Employment in knowledge-intensive activities (manufacturing and services) as percent of total employment	27,36[4)]
3.2.2. Medium and high-tech product exports as percent of total product exports	37,20
3.2.3. Knowledge-intensive services exports as percent of total service exports	26,57
3.2.4. Share of new to market and new to firm innovations shipped in total volume of products shipped, percent	17,45

[1)] Percentage share of foreign nationals in total number of persons enrolled in postgraduate programmes.

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

[3)] SME – small and medium-sized enterprises.

[4)] End of 2012.

2. ORGANISATIONS AND HUMAN RESOURCES OF SCIENCE

Scientific research (research work) is a creative activity aimed at acquisition of new knowledge and methods of its application.

Basic scientific research is a theoretical and/or research aimed at acquisition of new knowledge on main regularities of development of nature, person, society and artificially created objects.

Applied research is research aimed at the application of basic research results for the achievement of specific practical goals.

Development is an activity aimed at creation or improvement of methods and means of process implementation in a specific area of practical activities, particularly at creation of new products and technologies. Scientific development supports creation of novel materials, products, devices, process technologies, systems and methods as well as their improvement.

Scientific and technical services include activities related to scientific and technical information, patents, licences, standardisation, metrology and quality control, scientific and technical consulting, other areas of activities facilitating acquisition, dissemination and application of scientific knowledge.

Researchers are R&D professionals directly engaged in the creation of new knowledge, products, methods and systems, and in the management of the above 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, conduction of experiments, trials and analyses, etc.).

Supporting staff perform auxiliary functions connected with R&D, and comprise the staff of planning and economic units, financial units, patent services, scientific and technical information units, scientific and technical libraries. Included are also workers performing the assembly, adjustment, maintenance and repairs of scientific equipment and apparatus; workers of experimental productions; laboratory assistants having no higher or secondary specialized education; workers performing functions which are a direct service to R&D (accounting, personnel, secretatial, logistics units).

Government sector comprises public administration bodies and non-commercial organisations subordinate to public administration bodies and other state 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 service provision (other than those of higher education sector) for commercial purposes, including organisation whose property is state-owned or with a state share in the authorised fund.

Higher education sector includes educational institutions providing higher education programms (i.e. classic university, specialised university (academy), institute, or higher college); organisations engaged in R&D under the jurisdiction of higher education establishments and/or the Ministry of Education; medical institutions affiliated to higher education establishments.

Private non-profit sector comprises organisations not pursuing profit generation as their main purpose and not distributing profit gained among partners excluding non-commercial organisations pertaining to government sector and higher education sector.

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

2.1. Main indicators of science

	2005	2008	2009	2010	2011	2012
Number of organisations engaged in R&D, entities	322	329	446	468	501	530
Number of R&D personnel, persons	30 222	31 473	32 441	31 712	31 194	30 437
of which:						
researchers	18 267	18 455	20 543	19 879	19 668	19 315
of which those having an academic degree:						
doctors of science	780	725	737	746	741	719
candidates of science	3 232	3 112	3 184	3 143	3 150	3 071
Number of postgraduate (adjunct) students, persons	5 042	4 281	4 571	4 725	5 779	5 456
Intramural R&D expenditures, billion rubles						
at actual prices	441,5	962,4	883,3	1 140,6	2 081,9	3 537,8
at constant prices of year 2005	441,5	634,8	551,4	641,2	683,5	664,1
as percent of GDP	0,68	0,74	0,64	0,69	0,76	0,67
Nominal gross average monthly wages of employed in the sphere Science and science services	603,6	1 256,5	1 390,0	1 706,6	2 653,6[1)]	4 905,6[1)]
Investment in fixed capital in the sphere Science and science services, billion rubles	43,8	217,2	167,4	266,6	361,8[1)]	630,6[1)]
Investment indices in fixed capital in the sphere Science and science services, percent	100,0	184,9	68,6	145,3	95,6[1)]	98,3[1)]
Commissioning of fixed assets in the sphere Science and science services, billion rubles	36,0	144,6	195,5	242,1	310,6[1)]	741,9[1)]
Profitability of sold goods, products, works and services in the sphere Science and science services, percent	9,6	14,0	17,9	17,5	27,9[2)]	21,5[2)]

[1)] Data refer to organisations with the main economic activity classified under division 73 "Scientific research and development".

[2)] Data refer to economic activity classified under division 73 "Scientific research and development".

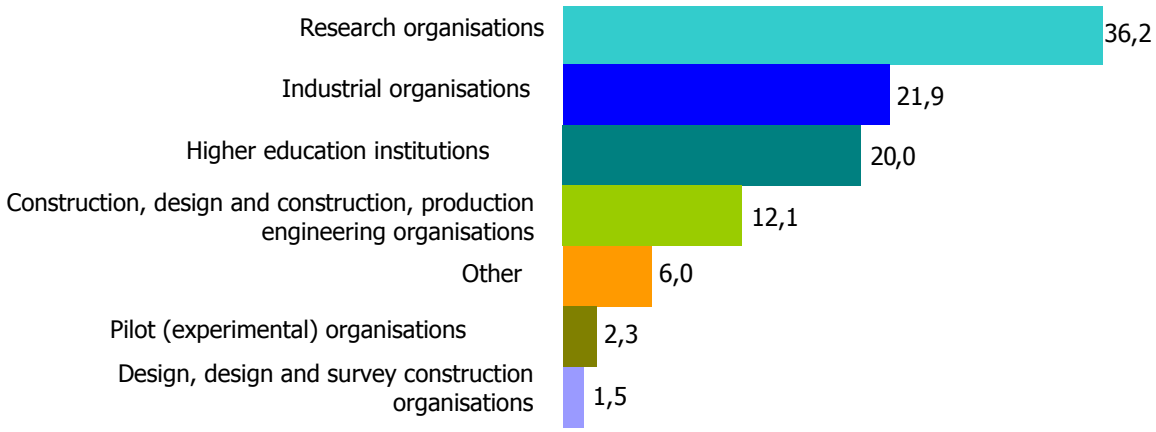
2.2. Number of organisations engaged in R&D by type of organisations

(entities)

	2005	2008	2009	2010	2011	2012
Republic of Belarus	322	329	446	468	501	530
of which:						
R&D organisations	168	166	114	106	105	106
construction, design and construction, production engineering organisations	36	33	37	35	33	32
design, design and survey organisations of construction	5	6	10	9	8	8
pilot (experimental) organisations	10	1	9	13	15	12
institutions of higher education	37	44	43	43	63	64
industrial organisations	49	65	92	113	116	116
other	17	14	141	149	161	192

2.3. Structure of R&D organisations by type in 2012

(percent)



2.4. Number of organisations engaged in R&D by regions and Minsk City

(entities)

	2005	2008	2009	2010	2011	2012
Republic of Belarus	322	329	446	468	501	530
Regions:						
Brest	18	22	26	29	30	28
Vitebsk	29	27	28	30	26	27
Gomel	27	29	32	35	38	36
Grodno	13	13	17	21	21	22
Minsk City	202	203	302	303	329	356
Minsk	19	20	22	29	37	40
Mogilev	14	15	19	21	20	21

2.5. Number of organisations engaged in R&D by sector of performance

(entities)

	2005	2008	2009	2010	2011	2012
Government sector						
Republic of Belarus	122	127	102	95	96	104
Regions:						
Brest	3	7	4	3	3	5
Vitebsk	6	7	5	4	4	5
Gomel	9	10	7	7	7	7
Grodno	3	4	2	4	4	4
Minsk City	93	83	70	70	70	73
Minsk	4	12	12	5	6	8
Mogilev	4	4	2	2	2	2
Business enterprise sector						
Republic of Belarus	144	140	277	304	331	352
Regions:						
Brest	12	11	18	22	23	19
Vitebsk	18	15	18	21	15	15
Gomel	12	12	19	21	24	22
Grodno	7	6	12	14	14	15
Minsk City	74	81	187	188	212	236
Minsk	15	8	10	24	31	32
Mogilev	6	7	13	14	12	13

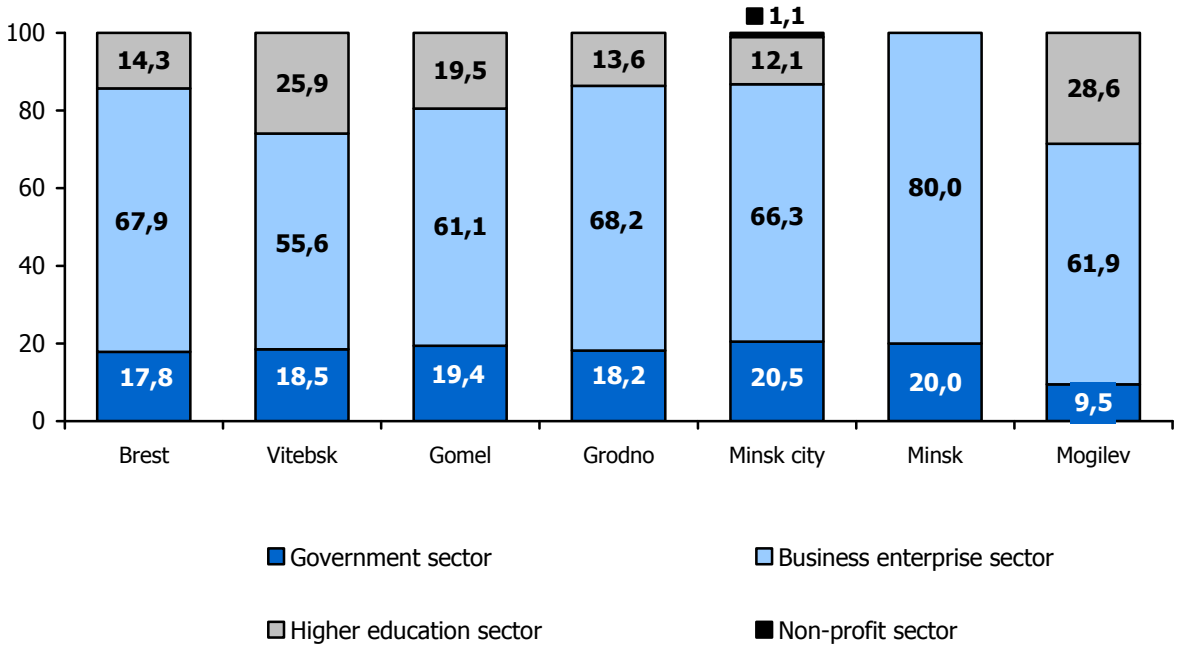
Continued

	2005	2008	2009	2010	2011	2012
Higher education sector						
Republic of Belarus	56	62	62	63	70	70
Regions:						
Brest	3	4	4	4	4	4
Vitebsk	5	5	5	5	7	7
Gomel	6	7	6	7	7	7
Grodno	3	3	3	3	3	3
Minsk City	35	39	40	39	43	43
Minsk	–	–	–	–	–	–
Mogilev	4	4	4	5	6	6

In 2012 four organisations carried out research and development in the non-profit sector.

2.6. Structure of R&D organisations by sector of performance in 2012

(percent)



2.7. R&D personnel by sector of performance

(persons)

	2005	2008	2009	2010	2011	2012
Republic of Belarus	30 222	31 473	32 441	31 712	31 194	30 437
of which						
government sector	12 720	13 875	9 885	8 294	8 150	8 041
business enterprise sector	14 585	14 311	19 551	20 510	19 995	19 479
higher education sector	2 917	3 287	2 995	2 902	3 046	2 908

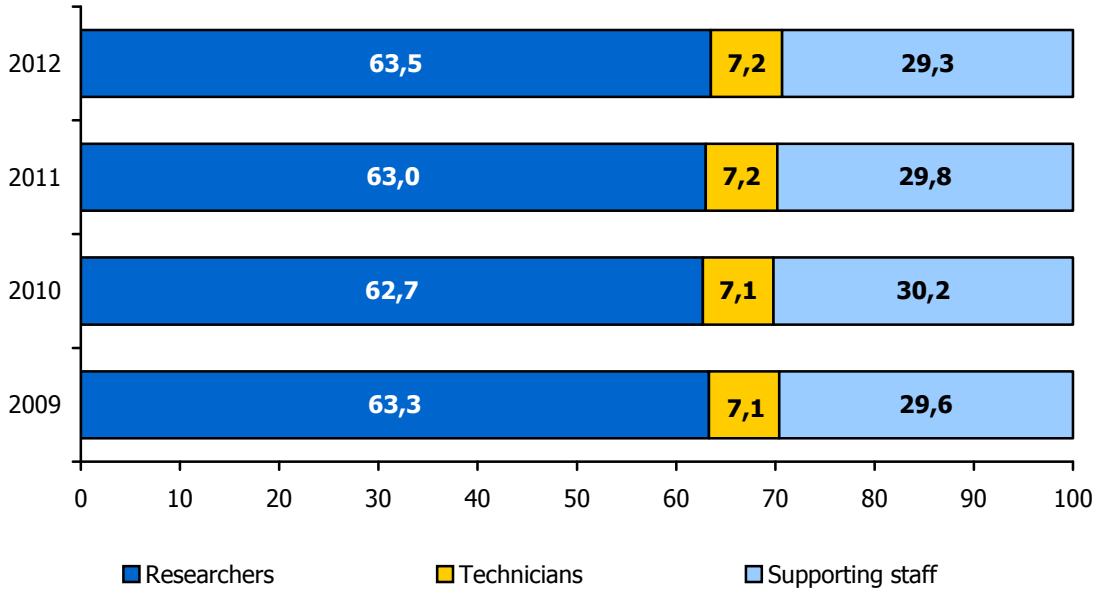
2.8. R&D personnel

(persons)

	2005	2008	2009	2010	2011	2012
Total	30 222	31 473	32 441	31 712	31 194	30 437
of which						
researchers	18 267	18 455	20 543	19 879	19 668	19 315
technicians	2 112	2 278	2 312	2 248	2 236	2 202
supporting staff	5 763	6 466	9 586	9 585	9 290	8 920

2.9. Structure of R&D personnel by category

(percent)



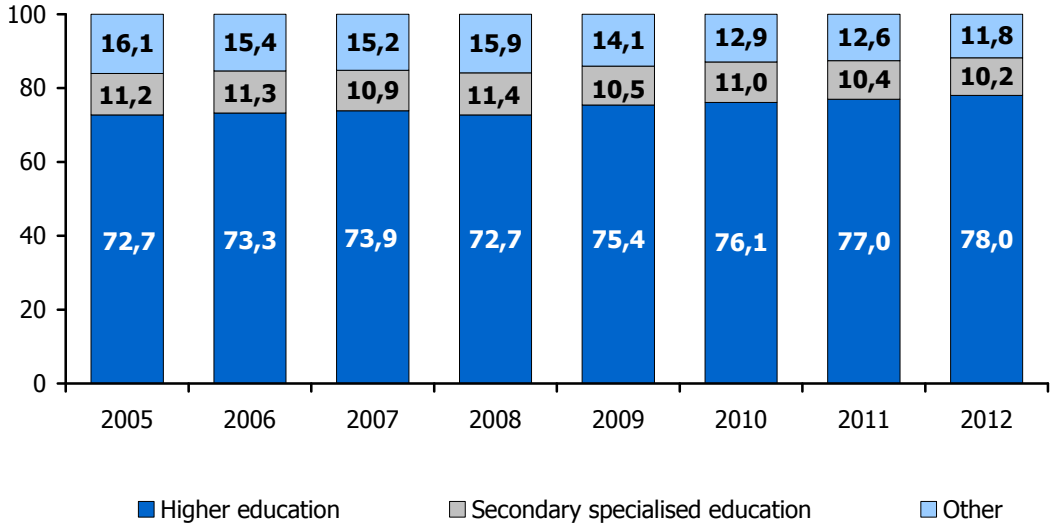
2.10. R&D personnel by educational attainment

(persons)

	2005	2008	2009	2010	2011	2012
Total	30 222	31 473	32 441	31 712	31 194	30 437
of which with completed education:						
higher	21 961	22 878	24 454	24 119	24 005	23 730
secondary specialised	3 398	3 587	3 413	3 476	3 260	3 095
other	4 863	5 008	4 574	4 117	3 929	3 612

2.11. Structure of R&D personnel by educational attainment

(percent)



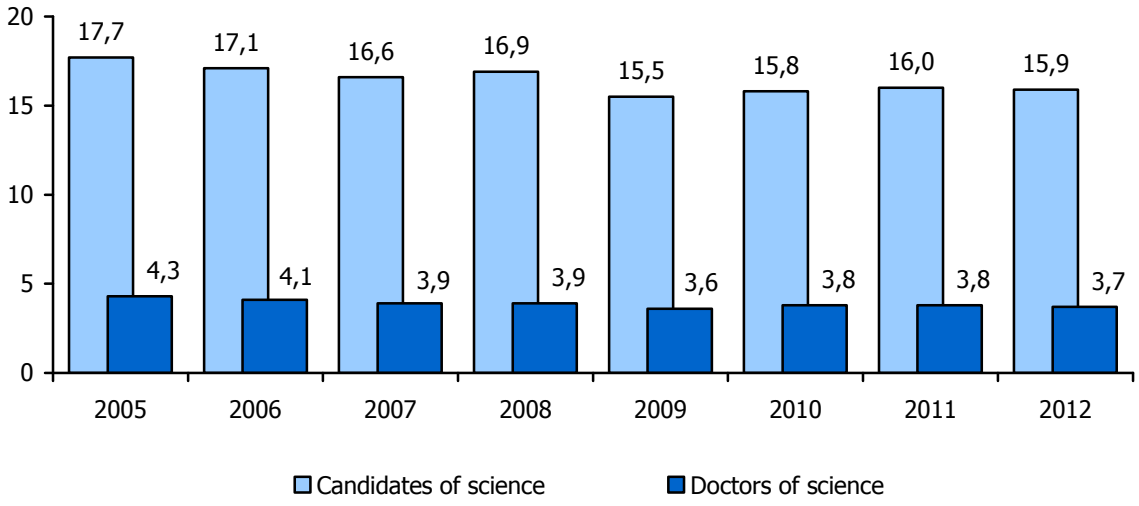
2.12. Number of researchers with academic degree

(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
2008	18 455	8 106	725	121	3 112	1 147
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

2.13. Share of researchers with academic degree in total number of researchers

(percent)



2.14. Distribution of researchers with academic degree by fields 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
2008	3 640	1 774	277	46	1 092	466
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
Engineering sciences						
2005	10 380	3 568	196	8	923	134
2008	10 977	3 929	191	11	921	146
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

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
2008	954	637	90	24	312	194
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
Agricultural sciences						
2005	1 255	710	74	14	392	162
2008	1 183	710	72	16	374	157
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
Socio-economic and social sciences						
2005	1 203	667	41	8	219	81
2008	1 324	839	43	9	255	103
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
Humananities						
2005	504	298	73	18	203	105
2008	377	217	52	15	158	81
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

2.15. Share of researchers with academic degree in total number of researchers by fields of science

(percent)

Year	Number of researchers	Of which	
		doctors of science	candidates of science
Natural sciences			
2005	100	7,5	29,8
2008	100	7,6	30,0
2009	100	7,4	29,0
2010	100	7,4	28,4
2011	100	7,6	29,3
2012	100	7,6	28,5
Engineering sciences			
2005	100	1,9	8,9
2008	100	1,7	8,4
2009	100	1,5	7,3
2010	100	1,7	7,7
2011	100	1,6	7,4
2012	100	1,4	7,1
Medical sciences			
2005	100	10,9	32,9
2008	100	9,4	32,7
2009	100	9,3	33,0
2010	100	8,5	32,9
2011	100	8,6	32,4
2012	100	9,7	30,6
Agricultural sciences			
2005	100	5,9	31,2
2008	100	6,1	31,6
2009	100	5,8	32,5
2010	100	6,1	33,1
2011	100	6,0	33,7
2012	100	6,2	33,3

Continued

Year	Number of researchers	Of which	
		doctors of science	candidates of science
Socio-economic and social sciences			
2005	100	3,4	18,2
2008	100	3,2	19,3
2009	100	3,3	18,0
2010	100	4,4	20,1
2011	100	4,0	20,3
2012	100	3,6	22,0
Humananities			
2005	100	14,5	40,3
2008	100	13,8	41,9
2009	100	12,9	41,5
2010	100	13,4	41,6
2011	100	13,6	44,1
2012	100	12,6	41,5

2.16. Distribution of researchers with academic degree by age

(people)

	2011			2012		
	number of researchers	of which		number of researchers	of which	
		doctors of science	candidates of science		doctors of science	candidates of science
Total	19 668	741	3 150	19 315	719	3 071
of which by age:						
20 and younger	4 865	–	84	4 657	–	88
30-39	3 846	3	659	3 970	4	631
40-49	2 957	39	513	2 762	29	515
50-54	2 484	71	388	2 290	62	348
55-59	2 326	114	478	2 320	112	447
60-69	2 443	254	762	2 499	259	761
70 and older	747	260	266	817	253	281

2.17. Structure of R&D personnel by category, regions and Minsk City

(persons)

	2005	2008	2009	2010	2011	2012
Researchers						
Republic of Belarus	18 267	18 455	20 543	19 879	19 668	19 315
Regions:						
Brest	305	364	397	405	421	426
Vitebsk	782	716	705	688	707	598
Gomel	1 445	1 468	1 574	1 480	1 439	1 402
Grodno	239	268	367	319	310	264
Minsk City	14 382	14 417	15 638	15 182	14 880	14 603
Minsk	822	859	1 552	1 490	1 608	1 629
Mogilev	292	363	310	315	303	393
Technicians						
Republic of Belarus	2 112	2 278	2 312	2 248	2 236	2 202
Regions:						
Brest	59	70	68	81	90	74
Vitebsk	103	100	86	99	98	85
Gomel	159	198	183	187	168	149
Grodno	25	32	58	77	68	89
Minsk City	1 346	1 416	1 402	1 273	1 290	1 322
Minsk	329	349	411	413	424	393
Mogilev	91	113	104	118	98	90
Supporting staff						
Republic of Belarus	5 763	6 466	9 586	9 585	9 290	8 920
Regions:						
Brest	57	48	116	135	127	100
Vitebsk	260	276	270	307	259	228
Gomel	951	888	1 148	1 199	1 188	1 125
Grodno	88	71	150	161	153	120
Minsk City	3 956	4 692	6 972	6 408	6 385	6 181
Minsk	375	407	782	1 075	998	1 014
Mogilev	76	84	148	300	180	152

3. STAFF TRAINING

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

The **higher education** is divided into two stages.

At the first stage the specialists with basic and specialized knowledge, skills and abilities are trained and conferred qualification of a specialist with higher education.

The second stage (graduate school) provides specialists with in-depth training, educational research and R&D knowledge and skills with conferring a master's degree.

Postgraduate education consists of two stages:

Postgraduate (adjunct) is the first stage of the postgraduate education intended for training of research personnel with planning and self-research skills, profound theoretical knowledge and ability for preparation of the qualified scientific work (thesis) for getting of a Candidate of Science degree. The postgraduate (adjunct) educational programme is provided at this stage of postgraduate education. This programme ensures the receiving of scientific qualification of "researcher"; the programme is provided as the full-time or part-time education or in the degree-seeking form.

Doctorate is the second stage of the postgraduate education intended for training of research personnel with R&D organizational skills at new or existing research spheres, abilities for analytical generalization of the scientific results and preparation of the qualified scientific work (thesis) for getting of a Doctor of Science degree. The programme is provided as the full-time education or in the degree-seeking form.

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

3.1. Higher education institutions

(beginning of academic year)

	2005/06	2008/09	2009/10	2010/11	2011/12	2012/13
Number of institutions, entities	55	53	53	55	55	54
of which						
universities	31	31	31	32	32	32
academies	7	7	7	7	7	7
Total enrolment, thousand persons	383,0	420,7	430,4	442,9	445,6	428,4
of which by education type:						
full-time	192,5	209,9	216,4	221,7	221,7	209,3
evening	2,0	0,7	0,7	0,7	0,8	0,9
correspondence	188,5	210,1	213,3	220,5	223,1	218,3
Total entrants, thousand persons	90,5	91,5	97,8	100,5	96,0	88,1
of which by education type:						
full-time	46,1	48,4	52,5	52,4	48,5	45,0
evening	0,2	0,2	0,2	0,1	0,3	0,3
correspondence	44,2	42,9	45,1	48,0	47,2	42,7
Total graduates with higher education, thousand persons	53,6	68,8	74,0	73,3	75,8	84,6
of which by education type:						
full-time	31,3	33,4	35,4	37,0	37,4	45,6
evening	0,3	0,3	0,2	0,1	0,1	0,1
correspondence	22,0	35,1	38,4	36,2	38,2	38,8
Graduates with higher education per 10 000 employed in economy	122	149	159	157	163	185

3.2. Higher education students by field of education

(beginning of academic year, thousand persons)

	2005/06	2008/09	2009/10	2010/11	2011/12	2012/13
Total enrolment	383,0	420,7	430,4	442,9	445,6	428,4
of which by field of education:						
pedagogics	54,5	52,1	49,8	47,4	45,9	42,4
pedagogics. Vocational training	3,0	3,1	3,3	3,4	3,0	2,8
arts and design	5,7	7,2	7,4	7,5	7,4	7,1
human sciences	15,3	17,1	17,5	17,5	17,0	16,6
communications. Law. Economics. Management. Economics and manufacturing management	165,2	173,7	174,5	180,6	180,4	167,3
natural sciences	12,2	13,1	13,3	13,5	13,7	13,8
ecological sciences	2,2	3,0	3,2	3,4	3,5	3,7
engineering and technologies	66,2	75,8	79,8	82,9	84,1	83,2
architecture and construction	13,1	16,4	17,6	19,1	20,6	20,9
agriculture and forestry. Landscape architecture	20,6	25,5	27,4	27,8	28,0	28,1
public health	12,0	16,4	18,1	19,6	20,8	21,7
social protection	2,6	3,7	3,7	3,8	3,6	3,4
physical training. Tourism and hospitality	4,1	6,6	7,1	8,2	9,2	9,0
public catering. Personal services	0,7	0,8	0,8	0,8	0,9	0,9
security services	5,6	6,2	6,9	7,4	7,5	7,5

3.3. Higher education entrants by field of education

(thousand persons)

	2005	2008	2009	2010	2011	2012
Total entrants	90,5	91,5	97,8	100,5	96,0	88,1
of which by field of education:						
pedagogics	12,7	9,8	10,5	9,9	9,1	8,9
pedagogics. Vocational training	0,6	0,7	1,1	0,9	0,5	0,6
arts and design	1,4	1,7	1,7	1,6	1,5	1,4
human sciences	3,6	3,9	3,9	3,6	3,5	3,3
communications. Law. Economics. Management. Economics and manufacturing management	37,0	36,2	37,4	40,0	38,6	32,7
natural sciences	2,7	3,1	3,3	3,1	3,0	3,0
ecological sciences	0,7	0,7	0,7	0,7	0,8	0,8
engineering and technologies	16,5	17,4	19,8	20,2	19,6	18,3
architecture and construction	3,3	4,0	4,3	4,8	4,9	4,5
agriculture and forestry. Landscape architecture	6,1	6,3	6,5	6,4	6,0	6,0
public health	2,3	3,7	4,2	4,3	3,8	4,0
social protection	0,8	0,8	0,7	0,7	0,6	0,6
physical training. Tourism and hospitality	1,3	1,4	1,6	2,2	2,1	2,2
public catering. Personal services	0,2	0,1	0,1	0,2	0,3	0,2
security services	1,3	1,7	2,0	1,9	1,7	1,6

3.4. Higher education graduates by field of education

(thousand persons)

	2005	2008	2009	2010	2011	2012
Total graduates with higher education	53,6	68,8	74,0	73,3	75,8	84,6
of which by field of education:						
pedagogics	9,5	10,6	11,7	11,1	9,2	10,7
pedagogics. Vocational training	0,5	0,6	0,7	0,6	0,6	0,7
arts and design	0,7	0,9	1,2	1,2	1,3	1,4
human sciences	2,4	2,5	2,8	2,9	3,0	3,3
communications. Law. Economics. Management. Economics and manufacturing management	21,9	31,6	32,7	30,3	33,8	39,0
natural sciences	1,8	2,1	2,3	2,2	2,1	2,2
ecological sciences	0,3	0,3	0,5	0,4	0,6	0,5
engineering and technologies	8,8	10,2	11,3	12,1	12,5	12,7
architecture and construction	1,7	2,1	2,2	2,4	2,4	2,6
agriculture and forestry. Landscape architecture	3,1	3,2	3,6	4,6	4,5	4,6
public health	1,6	2,1	2,3	2,5	2,4	2,8
social protection	0,2	0,5	0,5	0,6	0,7	0,7
physical training. Tourism and hospitality	–	0,8	0,9	0,9	1,1	1,8
public catering. Personal services	0,1	0,1	0,1	0,2	0,2	0,1
security services	1,0	1,2	1,2	1,3	1,4	1,5

3.5. Higher education students in Master's programmes by field of education

(beginning of academic year, persons)

	2008/09	2009/10	2010/11	2011/12	2012/13
Total students studying Master's programmes	4 043	4 349	4 805	4 955	6 088
of which by field of education:					
pedagogics	1	–	–	–	–
pedagogics. Vocational training	483	476	489	436	545
arts and design	37	35	55	46	98
human sciences	459	522	584	655	601
communications. Law. Economics. Management. Economics and manufacturing management	1 703	1 704	1 821	1 846	2 546
natural sciences	324	332	391	372	367
ecological sciences	34	46	61	77	99
engineering and technologies	693	890	962	976	1 160
architecture and construction	121	154	183	215	238
agriculture and forestry. Landscape architecture	84	83	105	118	116
public health	–	–	22	27	44
physical training. Tourism and hospitality	–	–	–	16	30
security services	104	107	132	171	244

3.6. Higher education graduates of Master's programmes by field of education

(persons)

	2008	2009	2010	2011	2012
Total graduates with Master's diploma	1 970	2 607	2 545	2 852	3 062
of which by field of education:					
pedagogics	1	–	–	–	–
pedagogics. Vocational training	180	284	268	285	257
arts and design	36	32	25	45	77
human sciences	282	335	353	454	498
communications. Law. Economics. Management. Economics and manufacturing management	777	1 110	952	960	1 011
natural sciences	190	246	258	284	264
ecological sciences	39	23	31	31	47
engineering and technologies	262	378	440	503	533
architecture and construction	71	69	90	90	124
agriculture and forestry. Landscape architecture	96	67	77	111	97
public health	–	–	–	21	26
physical training. Tourism and hospitality	–	–	–	–	11
security services	36	63	51	68	117

3.7. Main indicators of postgraduate (adjunct) education[1)]

	2005	2008	2009	2010	2011	2012
Total						
Number of educational institutions (organisations) providing postgraduate (adjunct) education programme, entities	119	116	117	119	120	121
Number of postgraduate (adjunct) students, persons	5 042	4 281	4 571	4 725	5 779	5 456
Postgraduate (adjunct) entrants, persons	1 508	1 317	1 516	1 469	1 756	1 361
Postgraduate (adjunct) graduates, persons	1 296	1 083	1 091	1 015	1 099	1 075
of which thesis defenders	74	38	35	36	51	54
Organisations providing postgraduate education programme						
Number of organisations providing postgraduate (adjunct) education programme, entities	76	73	73	74	75	71
Number of postgraduate (adjunct) students, persons	1 277	1 012	1 026	1 063	1 285	992
Postgraduate (adjunct) entrants, persons	388	273	335	340	362	225
Postgraduate (adjunct) graduates, persons	332	277	298	241	254	206
of which thesis defenders	17	5	6	6	12	12
Educational institutions providing postgraduate education programme						
Number of educational institutions providing postgraduate (adjunct) education programme, entities	43	43	44	45	45	50
Number of postgraduate (adjunct) students, persons	3 765	3 269	3 545	3 662	4 494	4 464
Postgraduate (adjunct) entrants, persons	1 120	1 044	1 181	1 129	1 394	1 136
Postgraduate (adjunct) graduates, persons	964	806	793	774	845	869
of which with thesis defended	57	33	29	30	39	42

[1)] Hereinafter: for 2011 the data on postgraduate (adjunct) programmes students, entrants and graduates included the data on persons receiving education in the degree-seeking form in accordance with the Code of Education of the Republic of Belarus.

3.8. Postgraduate (adjunct) students by field of science

(year-end, persons)

	2005	2008	2009	2010	2011	2012
Total postgraduate (adjunct) students	5 042	4 281	4 571	4 725	5 779	5 456
of which by field of science:						
physics and mathematics	293	238	254	258	291	253
chemistry	84	58	64	91	114	103
biology	256	237	256	270	318	284
engineering	1 023	821	855	969	1 152	1 127
agriculture	186	198	201	218	297	254
history	202	166	198	219	251	241
economy	796	613	619	607	774	724
philosophy	64	54	52	54	64	61
philology	406	291	328	329	394	372
law	308	256	264	262	359	383
pedagogics	448	328	333	345	414	404
medicine	268	437	472	473	602	536
pharmacy	9	12	13	12	12	11
veterinary	51	75	71	64	60	49
art history	163	119	119	97	100	97
architecture	24	16	28	29	27	36
psychology	191	112	144	139	172	166
sociology	52	38	35	43	54	59

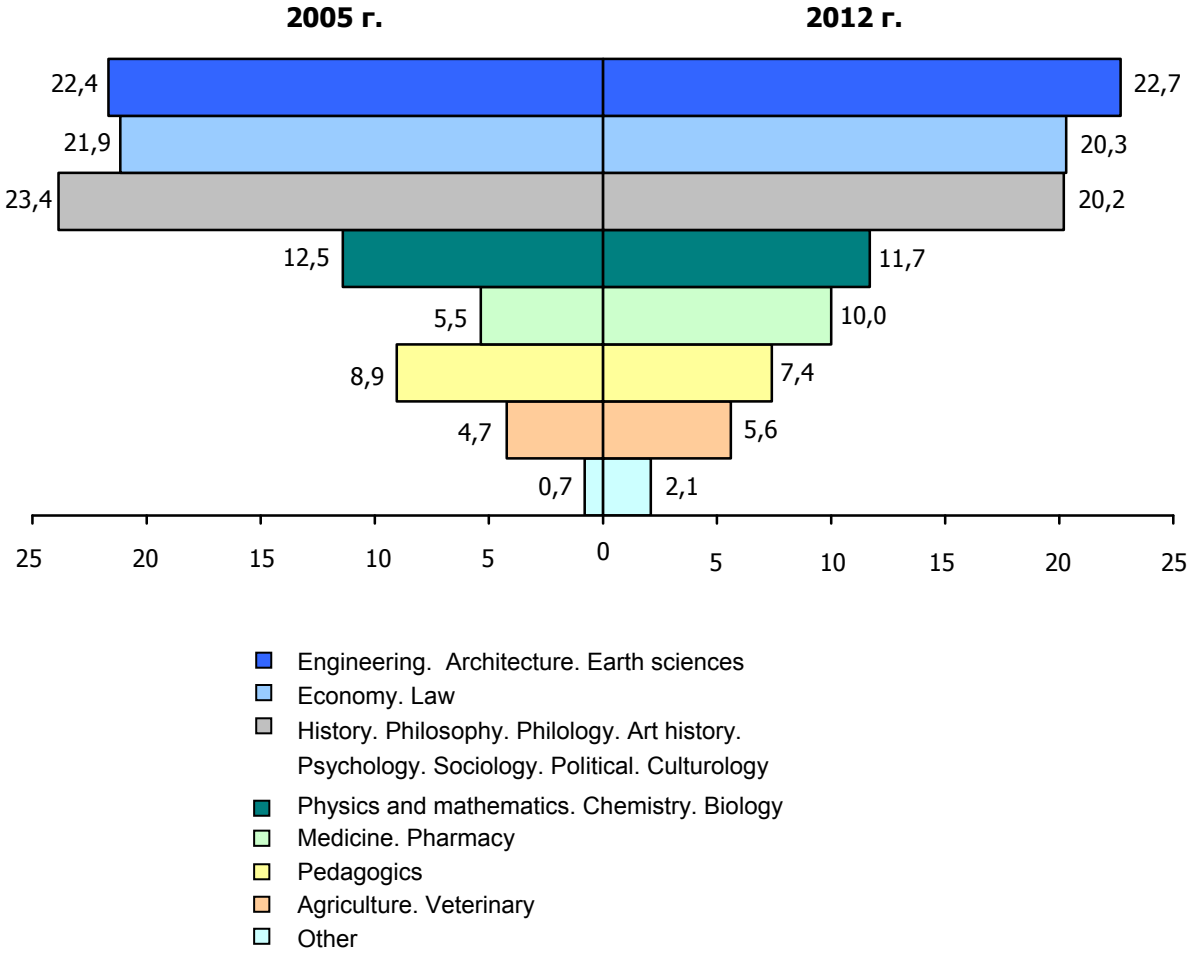
Continued

	2005	2008	2009	2010	2011	2012
political	50	54	51	45	51	46
culturology	52	42	53	59	71	62
Earth sciences [1)]	81	57	75	…	…	…
geology and mineralogy	…	…	…	15	31	27
geography	…	…	…	31	40	47
other	35	59	86	96	131	114

[1)] Hereinafter: before 2010 Earth sciences included geology and mineralogy and geography sciences.

3.9. Structure of postgraduate (adjunct) students by field of science

(as percent of total number of students)



3.10. Postgraduate (adjunct) entrants by field of science

(persons)

	2005	2008	2009	2010	2011	2012
Total postgraduate (adjunct) entrants	1 508	1 317	1 516	1 469	1 756	1 361
of which by field of science:						
physics and mathematics	88	76	100	79	95	70
chemistry	31	21	28	36	34	21
biology	97	72	95	78	105	66
engineering	341	247	301	350	398	299
agriculture	63	54	68	64	79	47
history	56	65	77	65	68	65
economy	201	158	194	191	236	169
philosophy	19	14	18	18	22	9
philology	114	90	100	87	116	103
law	87	56	89	87	108	96
pedagogics	116	89	90	109	119	98
medicine	68	199	125	119	150	131
pharmacy	4	6	2	3	2	4
veterinary	18	18	20	13	14	8
art history	61	36	32	27	36	29
architecture	9	6	10	6	8	8
psychology	43	35	54	41	44	40
sociology	18	9	11	19	16	18
political	17	14	14	14	15	14
culturology	19	15	19	19	19	14
Earth science	28	15	33	…	…	…
geology and mineralogy	…	…	…	6	15	6
geography	…	…	…	10	12	15
other	10	22	36	28	45	31

3.11. Postgraduate (adjunct) graduates by field of science

(persons)

	2005	2008	2009	2010	2011	2012
Total postgraduate (adjunct) graduates	1 296	1 083	1 091	1 015	1 099	1 075
of which by field of science:						
physics and mathematics	69	77	81	64	67	83
chemistry	31	27	23	14	19	23
biology	79	65	78	53	78	76
engineering	272	242	222	197	186	190
agriculture	56	53	61	44	66	66
history	55	48	41	41	56	57
economy	182	131	154	150	124	104
philosophy	18	15	15	14	13	7
philology	96	99	73	69	80	77
law	78	42	44	63	53	36
pedagogics	116	71	90	78	70	65
medicine	74	66	75	87	159	151
pharmacy	4	4	1	4	4	3
veterinary	20	16	23	17	22	18
art history	29	23	18	24	19	22
architecture	4	5	2	5	3	3
psychology	43	32	23	34	22	23
sociology	16	13	15	8	12	10
political	7	9	11	15	10	11
culturology	19	13	7	8	8	13
Earth science	23	21	11	…	…	…
geology and mineralogy	…	…	…	3	3	2
geography	…	…	…	8	4	8
other	5	11	23	15	21	27

3.12. Main indicators of doctoral education[1)]

	2005	2008	2009	2010	2011	2012
Total						
Total number of educational institutions (organisations) providing doctoral education programme, entities	38	38	39	37	59	56
Total doctoral students, persons	131	124	110	98	220	218
Total doctoral entrants, persons	56	34	42	28	65	76
Total doctoral graduates, persons	29	53	53	33	58	65
of which thesis defenders	1	4	–	2	9	4
Organisations providing doctoral education programme						
Total number of organisations providing doctoral education programme, entities	17	18	17	16	29	25
Total doctoral students, persons	37	43	32	24	46	51
Total doctoral entrants, persons	18	9	9	6	12	22
Total doctoral graduates, persons	6	18	19	14	16	11
of which thesis defenders	1	2	–	2	2	–
Educational institutions providing doctoral education programme						
Total number of educational institutions providing doctoral education programme, entities	21	20	22	21	30	31
Total doctoral students, persons	94	81	78	74	174	167
Total doctoral entrants, persons	38	25	33	22	53	54
Total doctoral graduates, persons	23	35	34	19	42	54
of which thesis defenders	–	2	–	–	7	4

[1)] Hereinafter: for 2011 the data on doctoral programme students, entrants and graduates included the data on persons receiving education in the degree-seeking form in accordance with the Code of Education of the Republic of Belarus.

3.13. Doctoral students, entrants and graduates by field of science

(persons)

	Doctoral students		Doctoral entrants		Doctoral graduates	
	2005	2012	2005	2012	2005	2012
Total	131	218	56	76	29	65
of which by field of science:						
physics and mathematics	15	6	9	3	2	6
chemistry	–	2	–	–	–	2
biology	6	17	2	8	–	3
engineering	24	27	12	9	5	8
agriculture	6	8	4	4	–	3
history	7	12	3	6	2	1
economy	15	24	5	4	4	3
philosophy	1	5	–	3	–	1
philology	17	12	6	4	4	6
law	9	13	3	6	1	1
pedagogics	13	6	4	2	9	1
medicine	4	58	3	21	1	23
pharmacy	–	1	–	1	–	–
veterinary	5	5	3	–	–	1
art history	1	8	–	2	1	–
psychology	3	9	–	3	–	2
sociology	2	–	–	–	–	–
political	1	–	–	–	–	–
culturology	1	1	1	–	–	2
Earth science	1	…	1	…	–	…
geology and mineralogy	…	–	…	–	…	1
other	–	4	–	–	–	1

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 financed from the foreign funds, but excluding payments made abroad). Expenditure assessment is based on statistical accounting of expenditures on R&D performed by organisations without subcontracting during the reference year regardless of the funding source.

Current expenditures comprise labour remuneration, social contributions, spending on purchases of special equipment, other material costs (costs of raw stuff, materials, components, semi-finished products, fuels, energy, industrial works and services, etc. purchased from outside), and other current expenditures.

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

Volume of R&D works performed comprises the volume of performed scientific research and experimental development and research, development services (including the cost of works performed by co-executors) net of taxes and payments out of revenue.

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

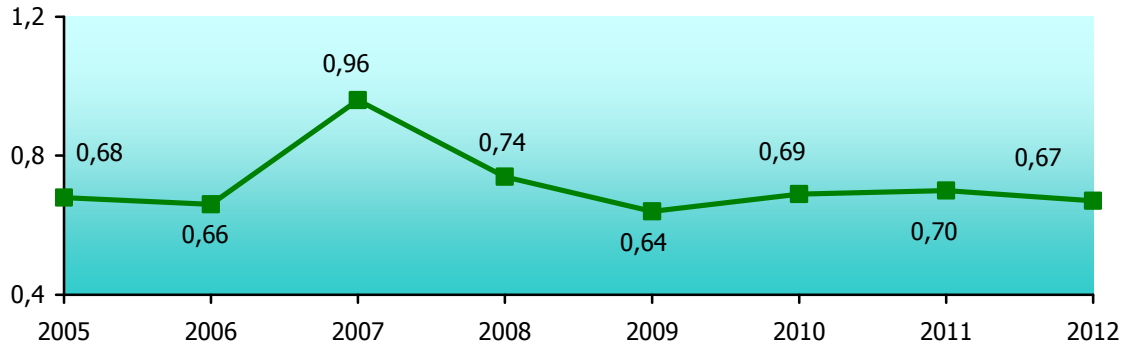
4.1. R&D expenditure

(million rubles)

	2005	2008	2009	2010	2011	2012
Domesric R&D expenditure	441 491	962 361	883 332	1 140 638	2 081 884	3 537 757
of which						
current domestic R&D expenditure	402 103	774 822	839 918	1 072 673	1 619 149	3 059 732
of which						
labour cost	193 876	364 553	404 730	490 588	671 261	1 248 186
social contributions	68 897	127 898	134 238	162 434	218 628	411 275
spending on special equipment	8 675	11 595	12 489	22 225	23 421	76 114
of which on equipment recorded as part of fixed assets	3 699	4 449	4 081	9 586	7 403	14 158
other material costs	63 931	166 679	158 551	235 553	378 049	834 100
other expenditures	66 724	104 097	129 910	161 873	327 790	490 057
capital R&D expenditure	39 388	187 539	43 414	67 965	462 735	478 025
of which						
land and buildings	3 157	345	1 447	651	3 314	16 108
equipment	34 656	43 663	29 210	47 779	61 642	129 332
other capital expenditures	1 575	143 531	12 757	19 535	397 779	332 585

4.2. Domestic R&D expenditure

(as percent of GDP)



4.3. Domestic R&D expenditure by sector of performance

(million rubles)

	2005	2008	2009	2010	2011	2012
Government sector						
Domestic R&D expenditure	170 196	306 062	264 656	304 185	427 116	738 405
of which:						
current domestic R&D expenditure	147 573	275 278	252 575	283 040	396 225	681 202
of which labour cost	76 792	149 407	139 814	153 747	216 045	370 773
of which for R&D personnel (excluding multiple job holders and persons working under civil-law contracts)	62 423	126 507	116 231	121 596	174 950	308 948
capital R&D expenditure	22 623	30 784	12 081	21 145	30 891	57 203
Business enterprise sector						
Domestic R&D expenditure	196 172	520 383	498 083	692 080	1 454 694	2 444 451
of which:						
current domestic R&D expenditure	186 670	373 964	472 565	649 843	1 031 354	2 048 863
of which labour cost	77 386	144 480	192 848	246 852	339 408	678 897
of which for R&D personnel (excluding multiple job holders and persons working under civil-law contracts)	71 430	115 842	173 659	218 963	287 012	583 126
capital R&D expenditure	9 502	146 419	25 518	42 237	423 340	395 588
Higher education sector						
Domestic R&D expenditure	75 123	135 916	120 293	144 092	199 559	354 107
of which:						
current domestic R&D expenditure	67 860	125 580	114 478	139 509	191 055	328 873
of which labour cost	39 698	70 666	71 881	89 813	115 570	198 023
of which for R&D personnel (excluding multiple job holders and persons working under civil-law contracts)	14 600	32 582	33 830	42 835	62 898	113 069
capital R&D expenditure	7 263	10 336	5 815	4 583	8 504	25 234

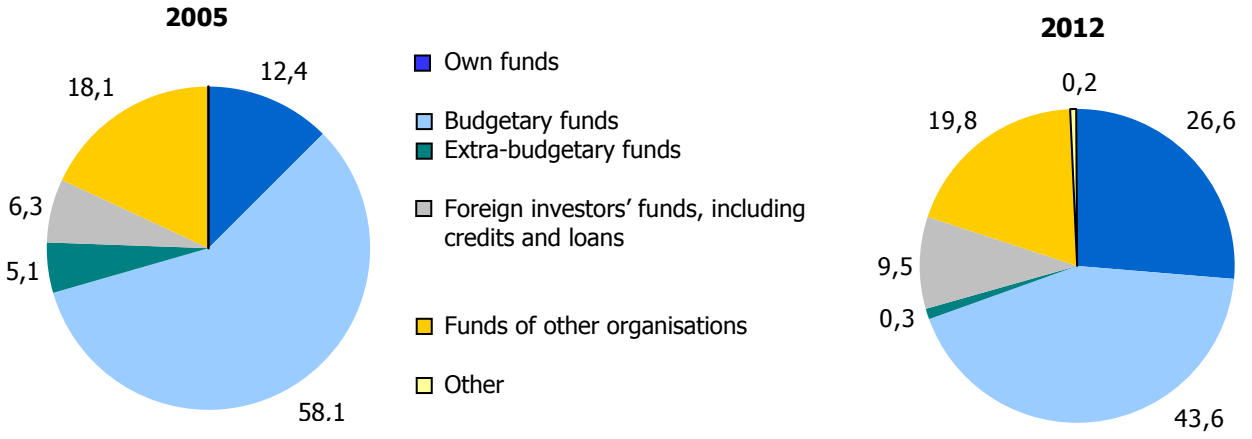
4.4. Domestic R&D expenditure by source of funding

(million rubles)

	2005	2008	2009	2010	2011	2012
Volume of financing of domestic R&D expenditure	441 491	962 361	883 332	1 140 638	2 081 884	3 537 757
of which by source of financing						
internal funds	54 802	264 010	111 859	140 060	573 943	939 685
budgetary funds	256 455	508 913	546 988	659 846	936 368	1 542 563
extra-budgetary funds	22 416	10 625	5 635	9 936	10 140	9 483
foreign investors' funds including foreign credits and loans	27 610	53 119	75 002	154 845	182 049	336 312
funds of other organisations	80 208	125 694	142 704	169 078	374 465	699 385

4.5. Distribution of domestic R&D expenditure by source of funding

(percent)



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

(million rubles)

	2005	2008	2009	2010	2011	2012
Government sector						
Volume of financing of domestic R&D expenditure	170 196	306 062	264 656	304 185	427 116	738 405
of which by source of financing						
internal funds	8 884	14 345	6 329	1 872	7 952	14 576
budgetary funds	123 577	240 741	221 603	245 662	346 546	584 337
extra-budgetary funds	11 094	6 569	1 884	1 935	598	1 596
foreign investors' funds including foreign credits and loans	2 000	12 217	15 277	19 467	32 933	59 036
funds of other organisations	24 641	32 190	18 961	35 249	39 087	78 475
Business enterprise sector						
Volume of financing of domestic R&D expenditure	196 172	520 383	498 083	692 080	1 454 694	2 444 451
of which by source of financing						
internal funds	43 591	235 856	105 104	135 256	562 889	920 560
budgetary funds	88 041	194 416	246 431	317 504	456 808	723 799
extra-budgetary funds	9 608	1 421	3 661	7 968	9 304	7 696
foreign investors' funds including foreign credits and loans	23 786	37 821	54 219	127 796	133 891	247 357
funds of other organisations	31 146	50 869	88 147	96 691	286 883	535 095
Higher education sector						
Volume of financing of domestic R&D expenditure	75 123	135 916	120 293	144 092	199 559	354 107
of which by source of financing						
internal funds	2 327	13 809	426	2 908	3 102	4 549
budgetary funds	44 837	73 756	78 686	96 426	132 516	233 668
extra-budgetary funds	1 714	2 635	90	33	238	191
foreign investors' funds including foreign credits and loans	1 824	3 081	5 506	7 582	15 225	29 919
funds of other organisations	24 421	42 635	35 564	37 135	48 478	85 780

4.7. Domestic R&D expenditure by source of funding, by regions and Minsk City

(million rubles)

	2005	2008	2009	2010	2011	2012
Internal funds						
Republic of Belarus	54 802	264 010	111 859	140 060	573 943	939 685
Regions:						
Brest	1 284	2 944	3 352	4 948	6 732	20 794
Vitebsk	1 829	3 171	4 770	4 824	5 646	13 142
Gomel	8 538	138 873	13 736	23 532	393 523	332 188
Grodno	1 710	5 529	4 831	5 911	14 932	18 237
Minsk City	35 125	87 723	74 772	86 529	127 638	478 259
Minsk	2 578	7 625	6 580	8 916	16 648	41 230
Mogilev	3 738	18 145	3 818	5 400	8 824	35 835
Budgetary funds						
Republic of Belarus	256 455	508 913	546 988	659 846	936 368	1 542 563
Regions:						
Brest	2 653	5 698	6 046	8 296	10 784	13 969
Vitebsk	7 124	11 599	11 544	15 747	19 756	34 140
Gomel	19 230	36 783	32 864	33 158	42 565	67 048
Grodno	4 042	7 484	8 529	9 367	11 615	30 349
Minsk City	201 732	411 865	442 511	537 389	766 601	1 274 993
Minsk	16 849	29 738	37 064	46 859	73 226	103 565
Mogilev	4 825	5 746	8 430	9 030	11 821	18 499

Continued

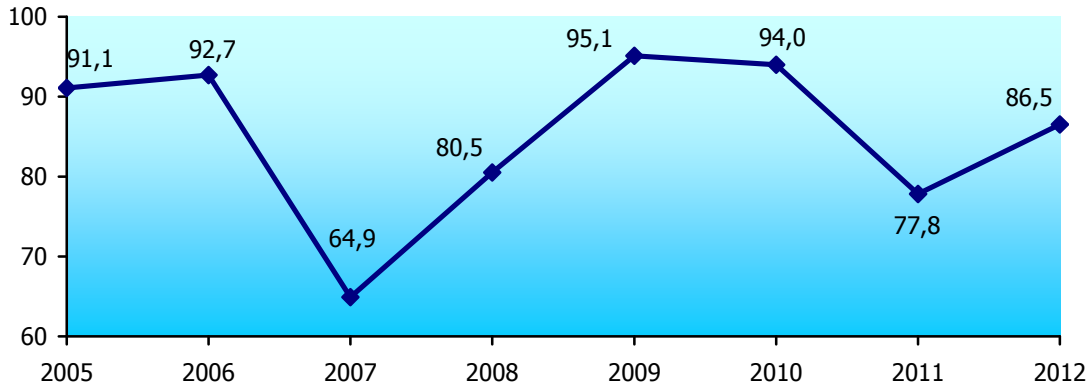
	2005	2008	2009	2010	2011	2012
Extra-budgetary funds						
Republic of Belarus	22 416	10 625	5 635	9 936	10 140	9 483
Regions:						
Brest	112	10	122	149	280	490
Vitebsk	183	–	60	–	180	145
Gomel	–	–	258	1 945	558	1 483
Grodno	46	252	317	359	239	179
Minsk City	21 243	10 162	3 722	3 330	8 423	6 218
Minsk	817	–	–	3 396	–	–
Mogilev	15	201	1 156	757	460	968
Foreign investors' funds including foreign credits and loans						
Republic of Belarus	27 610	53 119	75 002	154 845	182 049	336 312
Regions:						
Brest	–	297	–	–	2	9
Vitebsk	556	377	146	35	33	126
Gomel	4 327	7 266	7 986	12 388	16 826	44 761
Grodno	84	142	283	167	104	209
Minsk City	21 070	41 371	63 667	136 641	155 463	271 121
Minsk	713	2 615	2 156	4 978	7 195	16 930
Mogilev	860	1 051	764	636	2 426	3 156

Continued

	2005	2008	2009	2010	2011	2012
Funds of other organisations						
Republic of Belarus	80 208	125 694	142 704	169 078	374 465	699 385
Regions:						
Brest	1 176	872	2 701	536	1 235	804
Vitebsk	4 408	6 954	5 048	3 810	21 039	38 273
Gomel	11 705	23 492	30 445	32 439	72 563	96 128
Grodno	2 392	1 190	939	771	1 098	2 974
Minsk City	58 044	87 648	99 982	126 342	271 869	546 846
Minsk	1 838	2 340	1 707	1 955	2 603	7 470
Mogilev	645	3 198	1 882	3 225	4 058	6 890

4.8. Share of current domestic R&D expenditure in total domestic R&D expenditure

(percent)



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

(million rubles)

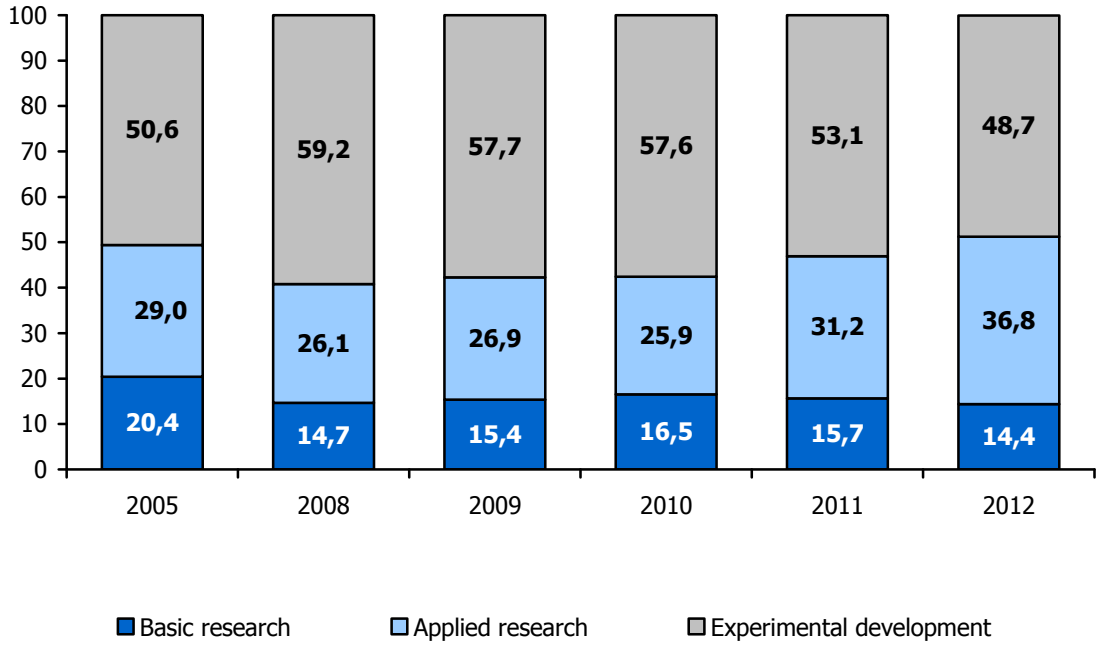
	2005	2008	2009	2010	2011	2012
Basic research						
Total	82 218	114 171	129 517	176 673	255 119	441 581
of which by field of science						
natural sciences	44 114	52 226	60 099	82 555	126 530	213 510
engineering sciences	16 152	29 240	34 181	45 584	55 163	118 465
medical sciences	6 575	12 949	11 267	12 755	20 018	20 898
agricultural sciences	2 651	4 521	6 181	8 658	16 031	23 631
socio-economic and social sciences	6 834	6 594	8 585	14 527	21 419	35 487
humananities	5 892	8 641	9 204	12 594	15 958	29 590
Applied research						
Total	116 517	201 846	225 585	277 807	504 459	1 126 873
of which by field of science						
natural sciences	20 373	39 142	42 379	49 690	88 686	145 071
engineering sciences	51 043	85 591	87 554	122 416	258 683	705 065
medical sciences	8 730	14 490	24 213	28 494	42 473	78 366
agricultural sciences	22 521	36 479	41 113	48 557	74 433	112 545
socio-economic and social sciences	13 019	25 524	29 750	27 981	37 770	81 366
humanities	831	620	576	669	2 414	4 460

Continued

	2005	2008	2009	2010	2011	2012
Experimental development						
Total	203 368	458 805	484 816	618 193	859 571	1 491 278
of which by field of science						
natural sciences	21 044	23 243	32 804	42 271	59 885	128 095
engineering sciences	169 100	407 007	415 889	532 892	749 785	1 295 515
medical sciences	3 083	8 130	14 361	17 007	17 785	24 270
agricultural sciences	6 869	12 572	14 513	18 382	20 508	30 205
socio-economic and social sciences	2 610	7 345	6 860	7 279	10 946	11 871
humanities	662	508	389	362	662	1 322

4.10. Current domestic R&D expenditure by type of work

(as percent of total)



4.11. Current domestic R&D expenditure by type of works, by regions and Minsk City

	2005	2008	2009	2010	2011	2012
Total, million rubles						
Republic of Belarus	402 103	774 822	839 918	1 072 673	1 619 149	3 059 732
Regions						
Brest	5 017	8 954	10 624	12 361	18 386	35 833
Vitebsk	12 587	20 121	20 499	23 632	45 978	82 294
Gomel	39 881	68 168	77 293	85 154	140 978	228 197
Grodno	7 095	12 851	14 080	14 564	21 554	37 510
Minsk City	307 459	597 875	655 412	856 371	1 276 419	2 460 597
Minsk	20 800	40 016	46 528	61 990	89 625	151 624
Mogilev	9 264	26 837	15 482	18 601	26 209	63 677
Basic research						
Republic of Belarus	82 218	114 171	129 517	176 673	255 119	441 581
Regions						
Brest	898	1 449	1 426	1 881	2 398	3 217
Vitebsk	2 015	1 722	2 060	2 315	3 184	5 836
Gomel	4 494	7 016	8 241	10 894	15 609	27 649
Grodno	3 511	2 033	2 807	4 028	5 273	7 577
Minsk City	67 823	96 069	108 520	148 469	214 643	377 970
Minsk	1 716	4 210	4 811	7 652	11 793	16 812
Mogilev	1 761	1 672	1 652	1 434	2 219	2 520
Applied research						
Republic of Belarus	116 517	201 846	225 585	277 807	504 459	1 126 873
Regions						
Brest	1 664	3 818	2 985	2 923	6 380	7 553
Vitebsk	961	4 526	4 684	6 286	11 560	17 657
Gomel	8 072	33 034	29 987	33 407	52 894	120 595
Grodno	565	2 779	2 610	3 052	4 800	8 878
Minsk City	88 305	132 431	153 559	194 537	366 322	867 716
Minsk	13 584	22 078	26 373	30 284	54 637	91 471
Mogilev	3 366	3 180	5 387	7 318	7 866	13 003
Experimental development						
Republic of Belarus	203 368	458 805	484 816	618 193	859 571	1 491 278
Regions						
Brest	2 455	3 687	6 213	7 557	9 608	25 063
Vitebsk	9 611	13 873	13 755	15 031	31 234	58 801
Gomel	27 315	28 118	39 065	40 853	72 475	79 953
Grodno	3 019	8 039	8 663	7 484	11 481	21 055
Minsk City	151 331	369 375	393 333	513 365	695 454	1 214 911
Minsk	5 500	13 728	15 344	24 054	23 195	43 341
Mogilev	4 137	21 985	8 443	9 849	16 124	48 154

Continued

	2005	2008	2009	2010	2011	2012
Total, as percent of total						
Republic of Belarus	100	100	100	100	100	100
Regions						
Brest	1,2	1,1	1,3	1,2	1,1	1,2
Vitebsk	3,1	2,6	2,4	2,2	2,9	2,7
Gomel	9,9	8,8	9,2	7,9	8,7	7,5
Grodno	1,8	1,6	1,7	1,4	1,3	1,2
Minsk City	76,5	77,2	78,0	79,8	78,8	80,4
Minsk	5,2	5,2	5,5	5,8	5,6	5,0
Mogilev	2,3	3,5	1,9	1,7	1,6	2,0
Basic research						
Republic of Belarus	100	100	100	100	100	100
Regions						
Brest	1,1	1,3	1,1	1,1	0,9	0,7
Vitebsk	2,4	1,5	1,6	1,3	1,3	1,3
Gomel	5,5	6,1	6,3	6,2	6,1	6,3
Grodno	4,3	1,8	2,2	2,3	2,1	1,7
Minsk City	82,5	84,1	83,8	84,0	84,1	85,6
Minsk	2,1	3,7	3,7	4,3	4,6	3,8
Mogilev	2,1	1,5	1,3	0,8	0,9	0,6
Applied research						
Republic of Belarus	100	100	100	100	100	100
Regions						
Brest	1,4	1,9	1,3	1,1	1,3	0,7
Vitebsk	0,8	2,2	2,1	2,3	2,3	1,6
Gomel	6,9	16,4	13,3	12,0	10,5	10,7
Grodno	0,5	1,4	1,1	1,1	0,9	0,8
Minsk City	75,8	65,6	68,1	70,0	72,6	77,0
Minsk	11,7	10,9	11,7	10,9	10,8	8,1
Mogilev	2,9	1,6	2,4	2,6	1,6	1,1
Experimental development						
Republic of Belarus	100	100	100	100	100	100
Regions						
Brest	1,2	0,8	1,3	1,2	1,1	1,7
Vitebsk	4,7	3,0	2,8	2,4	3,6	3,9
Gomel	13,4	6,1	8,1	6,6	8,4	5,4
Grodno	1,5	1,8	1,8	1,2	1,4	1,4
Minsk City	74,4	80,5	81,1	83,1	80,9	81,5
Minsk	2,7	3,0	3,2	3,9	2,7	2,9
Mogilev	2,1	4,8	1,7	1,6	1,9	3,2

4.12. Volume of R&D works performed by R&D organisations by type of works

(million rubles)

	2005	2008	2009	2010	2011	2012
Volume of R&D works performed	832 670	1 252 474	1 162 788	1 427 796	2 225 615	4 368 097
of which:						
research and development	516 101	863 843	1 029 209	1 259 734	1 959 059	4 181 400
of which without subcontracting	447 260	741 656	865 578	1 082 228	1 684 977	3 746 758
R&D services	56 545	115 782	79 111	107 287	158 603	186 697
of which without subcontracting	44 865	93 391	75 103	101 830	148 905	178 520

4.13. Volume of R&D works performed by R&D organisations by sector of performance

(million rubles)

	2005	2008	2009	2010	2011	2012
Republic of Belarus						
Volume of R&D works performed	832 670	1 252 474	1 162 788	1 427 796	2 225 615	4 368 097
of which without subcontracting	746 151	1 099 743	992 265	1 241 206	1 941 206	3 925 278
Government sector						
Volume of R&D works performed	381 417	427 491	341 031	368 872	574 882	934 121
of which without subcontracting	344 732	365 327	281 763	296 179	446 440	741 807
Business enterprise sector						
Volume of R&D works performed	359 233	640 016	671 899	886 387	1 401 916	3 020 968
of which without subcontracting	317 679	585 555	577 802	790 487	1 274 508	2 814 072
Higher education sector						
Volume of R&D works performed	92 020	184 967	149 485	172 183	247 886	411 842
of which without subcontracting	83 740	148 861	132 327	154 285	219 613	368 663

4.14. Volume of R&D works performed by R&D organisations by regions and Minsk City

(million rubles)

	2005	2008	2009	2010	2011	2012
Volume of R&D works performed – total						
Republic of Belarus	832 670	1 252 474	1 162 788	1 427 796	2 225 615	4 368 097
Regions:						
Brest	6 436	11 746	12 486	16 147	23 413	51 755
Vitebsk	16 774	26 268	27 852	27 254	67 212	127 100
Gomel	59 737	104 160	117 789	146 983	289 959	637 932
Grodno	8 870	14 088	16 099	16 292	25 567	44 690
Minsk City	697 544	1 005 401	906 937	1 118 659	1 675 971	3 245 309
Minsk	30 912	48 701	61 829	80 379	113 687	182 290
Mogilev	12 397	42 110	19 796	22 082	29 806	79 021
of which without subcontracting						
Republic of Belarus	746 151	1 099 743	992 265	1 241 206	1 941 206	3 925 278
Regions:						
Brest	5 800	10 587	12 047	14 212	20 486	46 544
Vitebsk	14 515	20 996	22 816	23 199	63 214	121 038
Gomel	57 532	99 998	112 675	140 341	261 772	621 802
Grodno	8 342	12 810	14 874	15 069	24 948	43 984
Minsk City	622 077	870 809	758 360	958 408	1 442 551	2 857 826
Minsk	26 119	44 684	54 653	69 188	98 643	165 319
Mogilev	11 766	39 859	16 840	20 789	29 592	68 765

5. INNOVATIONS

Summary statistical data on innovation activity are complied based on the annual state statistical observation.

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

An **innovation** is the introduced in the civil circulation or used for own needs new or improved product, new or improved technology, new service, or new organisational and technical solution of industrial, administrative, commercial or other nature.

An innovation-active organisation is an organisation expending on technological innovations.

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

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

Product and/or process innovations are referred to as technological innovations.

A product innovation is the introduction of a product or service that is new or significantly improved with respect to 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 pricing.

Innovative products (works, services) are new products (works, services) or products (works, services) that were significantly affected by technological changes over the past 3 years comprising:

new products (works, services): these are products (works, services) that have no analogues in the Republic of Belarus or abroad;

products (works, services) that were significantly affected by technological changes over the past 3 years: these are products (works, services) already existing in the Republic of Belarus but with 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 applied materials and components as compared with 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 studying, 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 the highest qualitative characteristics as compared with best world analogues, and satisfying growing or future needs of a person and society.

Useful models are equipment-related technical solutions that are new and industrially applicable.

Industrial design is an artistic or artistic and construction solution of the item specifying its physical configuration and being new and original.

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

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 in the volume of and/or on the surface of the material on the basis of which the item is manufactured.

5.1. Indicators of innovation and industrial activity of organisations

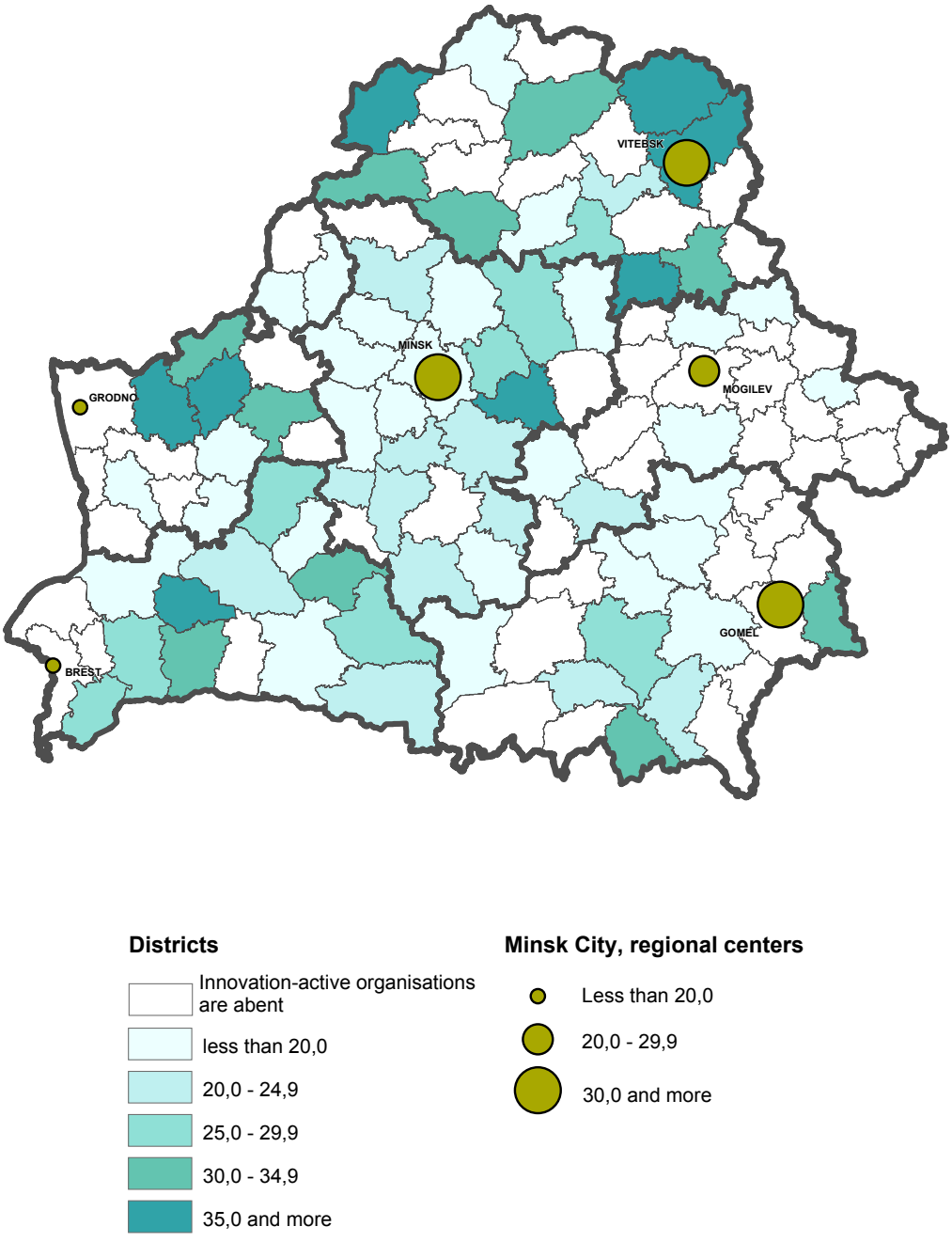
	2005	2008	2009	2010	2011	2012
Number of innovation active industrial organisations, entities	318	371	234	324	443	437
Share of innovation-active organisations in total number of industrial organisations surveyed, percent	14,1	17,6	12,1	15,4	22,7	22,8
Share of shipped innovative production in total volume of shipped industrial production, percent	15,2	14,2	10,9	14,5	14,4	17,8
Expenditures on technological innovations of industrial organisations at actual prices, billion rubles	2 362,1	2 947,6	2 700,4	2 793,3	8 763,7	7 937,5
Gross domestic product, billion rubles	65 067,1	129 790,8	137 442,2	164 476,1	297 157,7	527 385,1
of which gross value added of industry, billion rubles	18 509,2	36 398,5	35 122,5	40 992,2	91 792,1[1)]	167 418,9
Fixed assets in the economy (at initial value at year-end), billion rubles [1)]	207 512,9	319 400,9	360 860,6	431 561,2	865 672,2	1 198 019,3
of which in industry	82 527,7	120 128,6	134 484,5	159 648,7	386 283,6[2)]	535 477[2)]
Fixed capital investment, billion rubles	15 095,8	37 202,3	43 377,6	55 380,8	98 664,9	154 442,4
of which in industry	4 369,6	10 406,8	11 642,0	14 097,5	39 832,7	53 139,6
Volume of industrial production (at actual prices), billion rubles	62 545,4	130 829,8	127 315,7	165 213,8	347 655,5[1)]	615 861,9[1)]

[1)] *Data exclude budget organisations, microorganisations and small organisations without departmental affiliation.*

[2)] *Data refer to organisations with the main economic activity classified under divisions 10-41.*

5.2. Share of innovation-active organisations in total organisations surveyed in 2012

(percent)



5.3. Number of innovation-active organisations by innovation activity

(entities)

	2005	2008	2009	2010	2011	2012
Industrial organisations						
Total innovation-active organisations	318	371	234	324	443	437
of which engaged in						
research and development of new products, services and methods of their production (transfer), of new production processes	153	157	149	191	249	115
acquisition of technological innovation-related machinery and equipment	227	266	145	203	242	241
acquisition of new and high technologies [1)]	35	17	14	20	11	13
of which acquisition of property rights to inventions, useful models, industrial designs, topology of integrated circuits under assignment agreement, acquisition of rights to their use under licence agreement	12	5	4	4	3	4
acquisition of technological innovation-related computer software and databases	53	52	23	38	29	30
production designing, other kinds of new product preproduction, implementation of new services or methods of their production (transfer)	114	137	101	136	169	229
technological innovation-related personnel training	50	48	39	47	58	60
technological innovation-related marketing research	60	54	38	39	39	41
other expenditures on technological innovation	46	45	34	16	21	13

Continued

	2005	2008	2009	2010	2011	2012
Service sector organisations						
Total innovation-active organisations	…	25	16	25	24	45
of which engaged in						
research and development of new products, services and methods of their production (transfer), of new production processes	…	4	4	14	12	8
acquisition of technological innovation-related machinery and equipment	…	18	13	14	13	24
acquisition of new and high technologies [1)]	…	3	1	3	4	2
of which acquisition of property rights to inventions, useful models, industrial designs, topography of integrated circuits under assignment agreement, acquisition of rights to their use under licence agreement	…	3	1	1	2	2
acquisition of technological innovation-related computer software and databases	…	5	3	3	4	10
production designing, other kinds of new product preproduction, implementation of new services or methods of their production (transfer)	…	8	7	7	8	18
technological innovation-related personnel training	…	5	2	6	5	11
technological innovation-related marketing research	…	–	1	3	2	2
other expenditures on technological innovation	…	5	2	1	1	1

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

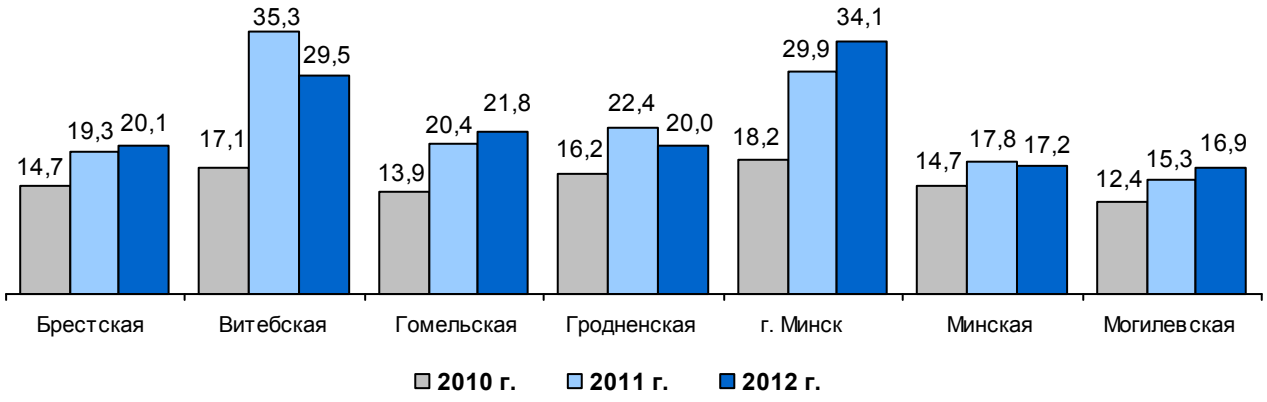
5.4. Number of innovation-active organisations by regions and Minsk City

(entities)

	2005	2008	2009	2010	2011	2012
Industrial organisations						
Republic of Belarus	318	371	234	324	443	437
Regions:						
Brest	53	72	48	47	58	60
Vitebsk	31	35	21	46	85	71
Gomel	42	57	38	45	58	59
Grodno	40	34	29	39	51	46
Minsk City	74	76	50	65	91	102
Minsk	53	60	32	55	67	64
Mogilev	25	37	16	27	33	35
Service sector organisations						
Republic of Belarus	…	25	16	25	24	45
Regions:						
Brest	…	1	1	3	3	3
Vitebsk	…	2	1	1	1	1
Gomel	…	3	1	1	2	2
Grodno	…	1	1	1	1	1
Minsk City	…	12	9	18	16	34
Minsk	…	4	2	–	–	–
Mogilev	…	2	1	1	1	4

5.5. Share of innovation-active industrial organisations in total number of industrial organisations surveyed by regions and Minsk City

(percent)



5.6. Number of industrial organisations expending on innovation by economic activity in 2012

	Number of organisations expending on:		
	technological innovation	technological innovation	technological innovation
Entities			
Total	437	57	77
of which			
Mining	5	1	–
extraction of fossil fuels	2	1	–
extraction of minerals, except fossil fuels	3	–	–
Manufacturing	428	54	77
manufacture of food products, including beverages, and tobacco	73	9	23
manufacture of textiles and apparel	38	5	8
manufacture of leather, of products of leather and manufacture of footwear	11	2	2
manufacture of wood and of products of wood	7	2	1
manufacture of paper and paper products, publishing activities	9	–	1
manufacture of coke, petroleum products and nuclear materials	3	1	1
manufacture of chemicals and chemical products	27	5	1
manufacture of rubber and plastics products	10	–	2
manufacture of other non-metallic mineral products	28	3	7
manufacture of basic metals and of fabricated metal products	39	6	5
manufacture of machinery and equipment	91	8	10
manufacture of electrical machinery, electronic and optical equipment	61	6	5
manufacture of transport vehicles and equipment	20	1	5
other manufacture	11	6	6
Production and distribution of electricity, gas and water	4	2	–

Continued

	Number of organisations expending on:		
	technological innovation	technological innovation	technological innovation
Percent			
Total	92,0	12,0	16,2
of which			
Mining	100,0	20,0	–
extraction of fossil fuels	100,0	50,0	–
extraction of minerals, except fossil fuels	100,0	–	–
Manufacturing	91,8	11,6	16,5
manufacture of food products, including beverages, and tobacco	82,0	10,1	25,8
manufacture of textiles and apparel	88,4	11,6	18,6
manufacture of leather, of products of leather and manufacture of footwear	100,0	18,2	18,2
manufacture of wood and of products of wood	87,5	25,0	12,5
manufacture of paper and paper products, publishing activities	90,0	–	10,0
manufacture of coke, petroleum products and nuclear materials	100,0	33,3	33,3
manufacture of chemicals and chemical products	100,0	18,5	3,7
manufacture of rubber and plastics products	90,9	–	18,2
manufacture of other non-metallic mineral products	87,5	9,4	21,9
manufacture of basic metals and of fabricated metal products	95,1	14,6	12,2
manufacture of machinery and equipment	97,8	8,6	10,8
manufacture of electrical machinery, electronic and optical equipment	98,4	9,7	8,1
manufacture of transport vehicles and equipment	95,2	4,8	23,8
other manufacture	73,3	40,0	40,0
Production and distribution of electricity, gas and water	100,0	50,0	–

5.7. Number of industrial organisations, expending on innovations, by regions and Minsk City in 2012

	Number of organisations expending on:		
	technological innovation	organisational innovation	marketing innovation
Entities			
Republic of Belarus	437	57	77
Regions			
Brest	60	23	28
Vitebsk	71	7	9
Gomel	59	3	6
Grodno	46	6	9
Minsk City	102	7	10
Minsk	64	7	11
Mogilev	35	4	4
Percent			
Republic of Belarus	92,0	12,0	16,2
Regions			
Brest	72,3	27,7	33,7
Vitebsk	98,6	9,7	12,5
Gomel	98,3	5,0	10,0
Grodno	90,2	11,8	17,6
Minsk City	98,1	6,7	9,6
Minsk	92,8	10,1	15,9
Mogilev	97,2	11,1	11,1

5.8. Structure of innovation activity of industrial organisations by type of technological innovation and economic activity in 2012

(as percent of total)

	Innovation-active organisations expending on technological innovations	Of which expending on		
		product innovations	process innovations	product and process innovations
Total	100	75,3	10,1	14,6
of which				
Mining	100	40,0	40,0	20,0
extraction of fossil fuels	100	–	100,0	–
extraction of minerals, except fossil fuels	100	66,7	–	33,3
Manufacturing	100	76,4	8,9	14,7
manufacture of food products, including beverages, and tobacco	100	84,9	11,0	4,1
manufacture of textiles and apparel	100	73,7	7,9	18,4
manufacture of leather, of products of leather and manufacture of footwear	100	81,8	–	18,2
manufacture of wood and of products of wood	100	85,7	14,3	–
manufacture of paper and paper products, publishing activities	100	88,9	–	11,1
manufacture of coke, petroleum products and nuclear materials	100	33,3	33,3	33,3
manufacture of chemicals and chemical products	100	70,4	11,1	18,5
manufacture of rubber and plastics products	100	70,0	10,0	20,0
manufacture of other non-metallic mineral products	100	75,0	10,7	14,3
manufacture of basic metals and of fabricated metal products	100	82,1	7,7	10,2
manufacture of machinery and equipment	100	74,7	7,7	17,6
manufacture of electrical machinery, electronic and optical equipment	100	70,5	8,2	21,3
manufacture of transport vehicles and equipment	100	70,0	5,0	25,0
other manufacture	100	81,8	18,2	–
Production and distribution of electricity, gas and water	100	–	100,0	–

5.9. Structure of innovation activity of industrial organisations by type of technological innovation, by regions and Minsk City

(as percent of total)

	Innovation-active organisations expending on technological innovations	Of which expending on		
		product innovations	process innovations	product and process innovations [1)]
Republic of Belarus				
2005	100	31,4	49,1	19,5
2008	100	35,6	46,4	18,0
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
Brest				
2005	100	24,5	64,2	11,3
2008	100	23,6	59,7	16,7
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
Vitebsk				
2005	100	45,2	41,9	12,9
2008	100	37,1	48,6	14,3
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
Gomel				
2005	100	21,5	57,1	21,4
2008	100	35,1	49,1	15,8
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

[1)] Hereinafter data refer to organisations expending on product and process innovations at the same time.

Continued

	Innovation-active organisations expending on technological innovations	Of which expending on		
		product innovations	process innovations	product and process innovations
Grodno				
2005	100	42,5	27,5	30,0
2008	100	67,7	23,5	8,8
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
Minsk City				
2005	100	25,7	50,0	24,3
2008	100	38,2	36,8	25,0
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
Minsk				
2005	100	32,1	54,7	13,2
2007	100	36,5	49,2	14,3
2008	100	31,7	50,0	18,3
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
Mogilev				
2005	100	44,0	32,0	24,0
2008	100	29,7	48,7	21,6
2009	100	56,3	12,5	31,2
2010	100	48,2	18,5	33,3
2011	100	63,6	15,2	21,2
2012	100	71,4	14,3	14,3

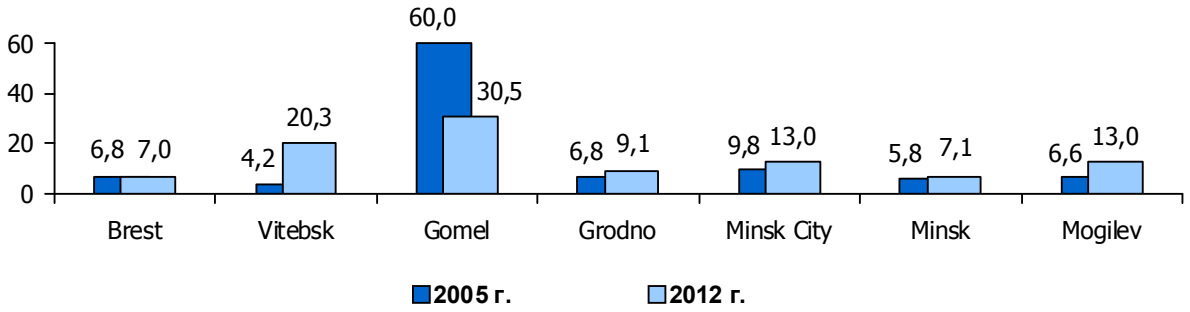
5.10. Expenditures of organisations on technological innovations by regions and Minsk City

(million rubles)

	2005	2008	2009	2010	2011	2012
Industrial organisations						
Republic of Belarus	2 362 063	2 947 572	2 700 352	2 793 302	8 763 697	7 937 546
Regions						
Brest	160 400	230 084	500 126	471 841	561 477	554 341
Vitebsk	98 836	353 187	388 985	346 638	730 854	1 612 337
Gomel	1 416 466	1 504 080	1 041 592	734 299	3 673 703	2 420 439
Grodno	161 945	101 180	237 819	482 711	1 875 650	726 170
Minsk City	231 526	388 332	342 926	455 857	1 023 397	1 035 191
Minsk	136 056	185 166	144 022	137 964	299 601	559 580
Mogilev	156 834	185 543	44 882	163 992	599 015	1 029 488
Service sector organisations						
Republic of Belarus	…	337 670	109 290	129 711	252 268	551 209
Regions						
Brest	…	12 400	5 339	10 586	18 924	43 890
Vitebsk	…	31 498	15 671	34 581	38 710	45 660
Gomel	…	61 919	2 743	174	35 037	2 402
Grodno	…	48 079	4 623	58	8 578	59 651
Minsk City	…	60 733	77 826	82 026	143 283	364 233
Minsk	…	72 980	304	–	–	–
Mogilev	…	50 061	2 784	2 286	7 736	35 373

5.11. Share of expenditures of industrial organisations on technological innovations by regions and Minsk City

(percent)



5.12. Expenditures of industrial organisations on technological innovations by regions and Minsk City

	Total expenditures on technological innovations	Of which	
		product innovations	process innovations
	Million rubles		
Republic of Belarus			
2005	2 362 063	1 590 405	771 658
2008	2 947 572	1 550 748	1 396 824
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
Brest			
2005	160 400	29 001	131 399
2008	230 084	64 059	166 025
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

Continued

	Total expenditures on technological innovations	Of which	
		product innovations	process innovations
Vitebsk			
2005	98 836	15 803	83 033
2008	353 187	25 233	327 954
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
Gomel			
2005	1 416 466	1 182 299	234 167
2008	1 504 080	1 111 774	392 306
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
Grodno			
2005	161 945	110 491	51 454
2008	101 180	63 568	37 612
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
Minsk City			
2005	231 526	70 053	161 473
2008	388 332	180 028	208 304
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
Minsk			
2005	136 056	83 315	52 741
2008	185 166	74 027	111 139
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
Mogilev			
2005	156 834	99 443	57 391
2008	185 543	32 059	153 484
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

Continued

	Total expenditures on technological innovations	Of which	
		product innovations	process innovations
	As percent of total		
Republic of Belarus			
2005	100	67,3	32,7
2008	100	52,6	47,4
2009	100	35,9	64,1
2010	100	38,9	61,1
2011	100	54,3	45,7
2012	100	56,9	43,1
Brest			
2005	100	18,1	81,9
2008	100	27,8	72,2
2009	100	43,5	56,5
2010	100	44,1	55,9
2011	100	97,0	3,0
2012	100	38,1	61,9
Vitebsk			
2005	100	16,0	84,0
2008	100	7,1	92,9
2009	100	7,0	93,0
2010	100	16,9	83,1
2011	100	18,5	81,5
2012	100	9,8	90,2
Gomel			
2005	100	83,5	16,5
2008	100	73,9	26,1
2009	100	39,0	61,0
2010	100	34,5	65,5
2011	100	78,2	21,8
2012	100	84,4	15,6

Continued

	Total expenditures on technological innovations	Of which	
		product innovations	process innovations
Grodno			
2005	100	68,2	31,8
2008	100	62,8	37,2
2009	100	25,4	74,6
2010	100	37,9	62,1
2011	100	14,7	85,3
2012	100	56,8	43,2
Minsk City			
2005	100	30,3	69,7
2008	100	46,4	53,6
2009	100	42,8	57,2
2010	100	38,2	61,8
2011	100	31,5	68,5
2012	100	40,7	59,3
Minsk			
2005	100	61,2	38,8
2008	100	40,0	60,0
2009	100	53,1	46,9
2010	100	58,1	41,9
2011	100	67,9	32,1
2012	100	74,3	25,7
Mogilev			
2005	100	63,4	36,6
2008	100	17,3	82,7
2009	100	76,8	23,2
2010	100	78,8	21,2
2011	100	67,1	32,9
2012	100	83,3	16,7

5.13. Expenditures of industrial organisations on innovations by economic activity in 2012

(million rubles)

	Expenditures on technological, organisational and marketing innovations	Of which		
		technological innovations	organisational innovations	marketing innovations
Total	8 035 689	7 937 546	80 037	18 106
of which:				
Mining	224 949	172 993	51 956	–
extraction of fossil fuels	78 142	26 186	51 956	–
extraction of minerals, except fossil fuels	146 807	146 807	–	–
Manufacturing	7 809 658	7 763 471	28 081	18 106
manufacture of food products, including beverages, and tobacco	272 577	239 973	23 694	8 910
manufacture of textiles and apparel	333 920	332 695	184	1 041
manufacture of leather, of products of leather and manufacture of footwear	16 604	15 836	–	–
manufacture of wood and of products of wood	280 631	280 624	7	–
manufacture of paper and paper products, publishing activities	70 815	70 813	–	2
manufacture of coke, petroleum products and nuclear materials	1 803 856	1 803 856	–	–

Continued

	Expenditures on technological, organisational and marketing innovations	Of which		
		technological innovations	organisational innovations	marketing innovations
manufacture of chemicals and chemical products	600 442	600 049	387	6
manufacture of rubber and plastics products	112 967	112 854	–	113
manufacture of other non-metallic mineral products	455 455	451 459	623	3 373
manufacture of basic metals and of fabricated metal products	536 714	534 659	1 482	573
manufacture of machinery and equipment	1 387 681	1 386 568	476	637
manufacture of electrical machinery, electronic and optical equipment	465 393	464 705	371	317
manufacture of transport vehicles and equipment	998 661	996 325	15	2 321
other manufacture	473 942	473 055	627	260
Production and distribution of electricity, gas and water	1 082	1 082	–	–

5.14. Expenditures of industrial organisations, on innovations by regions and Minsk City in 2012

(million rubles)

	Expenditures on technological, organisational and marketing innovations	Of which		
		technological innovations	organisational innovations	marketing innovations
Republic of Belarus	8 035 689	7 937 546	80 037	18 106
Regions:				
Brest	560 920	554 341	1 097	5 482
Vitebsk	1 615 459	1 612 337	413	2 709
Gomel	2 473 110	2 420 439	51 961	710
Grodno	729 153	726 170	604	2 379
Minsk City	1 037 354	1 035 191	1 249	914
Minsk	586 049	559 580	24 141	2 328
Mogilev	1 033 644	1 029 488	572	3 584

5.15. Expenditures on technological innovations by source of funding

(million rubles)

	2005	2008	2009	2010	2011	2012
Industrial organisations						
Funding of expenditures on technological innovation	2 362 063	2 947 572	2 700 352	2 793 302	8 763 697	7 937 546
of which out of :						
own funds	1 839 372	1 806 099	1 425 105	1 085 953	5 303 613	3 813 918
republican budget	138 632	506 962	395 818	181 478	263 701	507 599
of which innovation funds	…	338 938	271 083	120 183	116 985	267 713
local budget	10 893	31 456	18 263	7 407	5 491	8 535
of which innovation funds	…	10 321	7 572	5 007	2 514	6 646
budget of the Union State	6 014	7 454	733	1 213	20 846	50 489
non-budgetary funds	3 355	63	–	–	39 380	1 435
credits and loans	…	437 267	672 377	1 029 901	2 656 084	2 299 348
foreign investments including foreign credits and loans	26 615	144 406	120 695	446 916	453 655	1 240 019
other	337 182	13 865	67 361	40 434	20 927	16 203
Service sector organisations						
Funding of expenditures on technological innovation	…	337 670	109 290	129 711	252 268	551 209
of which out of :						
own funds	…	190 361	46 940	71 870	122 696	518 287
republican budget	…	103 473	10 078	637	7 587	7 605
of which innovation funds	…	72 245	4 363	332	4 453	1 966
local budgets	…	5 590	–	137	204	–
of which innovation funds	…	–	–	–	–	–
budget of the Union State	…	–	–	–	–	–
non-budgetary funds	…	–	–	–	–	–
credits and loans	…	10 903	–	32 614	27 270	23 020
foreign investments including foreign credits and loans	…	27 343	52 272	24 453	94 511	2 297
other	…	–	–	–	–	–

5.16. Structure of expenditures on technological innovations by source of funding

(as percent of total)

	2005	2008	2009	2010	2011	2012
Industrial organisations						
Funding of expenditures on technological innovations	100	100	100	100	100	100
of which out of						
own funds	77,9	61,3	52,8	38,9	60,5	48,0
republican budget	5,9	17,2	14,6	6,5	3,0	6,5
of which innovation funds	…	11,5	10,0	4,3	1,3	3,4
local budget	0,5	1,1	0,7	0,3	0,1	0,1
of which innovation funds	…	0,4	0,3	0,2	0,03	0,1
budget of the Union State	0,2	0,2	0,0	0,0	0,2	0,6
non-budgetary funds	0,1	0,0	–	–	0,5	0,0
credits and loans	…	14,8	24,9	36,9	30,3	29,0
foreign investments including foreign credits and loans	1,1	4,9	4,5	16,0	5,2	15,6
other	14,3	0,5	2,5	1,4	0,2	0,2
Service sector organisations						
Funding of expenditures on technological innovations	…	100	100	100	100	100
of which out of :						
own funds	…	56,4	43,0	55,4	48,6	94,0
republican budget	…	30,6	9,2	0,5	3,0	1,4
of which innovation funds	…	21,4	4,0	0,3	1,8	0,4
local budgets	…	1,7	–	–	0,1	–
of which innovation funds	…	–	–	–	–	–
budget of the Union State	…	–	–	–	–	–
non-budgetary funds	…	–	–	–	–	–
credits and loans	…	3,2	–	25,1	10,8	4,2
foreign investments including foreign credits and loans	…	8,1	47,8	18,9	37,5	0,4
other	…	–	–	–	–	–

5.17. Expenditures of industrial organisations on technological innovations by source of funding, by regions and Minsk City

Year	Funding of expenditures on technological innovations	Of which						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investments 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
2008	2 947 572	1 806 099	506 962	31 456	7 454	437 267	144 406	13 865
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
Brest								
2005	160 400	69 756	2 467	3 729	–	…	–	82 623
2008	230 084	62 258	33 624	13 405	–	119 432	–	1 365
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
Vitebsk								
2005	98 836	78 926	767	74	81	…	–	18 988
2008	353 187	152 268	93 768	1 770	8	104 176	–	1 197
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

Continued

Year	Funding of expenditures on technological innovations	Of which						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investments including foreign credits and loans	other
Gomel								
2005	1 416 466	1 309 261	15 311	2 203	245	…	26 616	62 830
2008	1 504 080	1 196 272	152 864	393	–	81 237	69 591	3 723
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
Grodno								
2005	161 945	99 349	55 127	35	458	…	–	6 620
2008	101 180	42 732	33 124	330	–	24 869	–	125
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	–
Minsk City								
2005	231 526	161 233	18 050	3 655	5 230	…	–	43 348
2008	388 332	227 299	58 751	14 111	7 446	44 608	28 749	7 305
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	–
Minsk								
2005	136 056	107 598	10 957	744	–	…	–	15 594
2008	185 166	40 321	99 976	764	–	41 069	2 886	150
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
Mogilev								
2005	156 834	13 249	35 953	453	–	…	–	107 179
2008	185 543	84 949	34 855	683	–	21 876	43 180	–
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	–

Continued

Year	Funding of expenditures on technological innovations	Of which						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investments including foreign credits and loans	other
				As percent of total				
Republic of Belarus								
2005	100	77,9	5,9	0,5	0,2	…	1,1	14,3
2008	100	61,3	17,2	1,1	0,2	14,8	4,9	0,5
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
Brest								
2005	100	43,5	1,6	2,3	–	…	–	51,5
2008	100	27,1	14,6	5,8	–	51,9	–	0,6
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
Vitebsk								
2005	100	79,8	0,8	0,1	0,1	…	–	19,2
2008	100	43,1	26,5	0,5	0,0	29,5	–	0,3
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
Gomel								
2005	100	92,4	1,1	0,2	0,0	…	1,9	4,4
2008	100	79,5	10,2	0,0	–	5,4	4,6	0,3
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

Continued

Year	Funding of expenditures on technological innovations	Of which						
		own funds	republican budget	local budget	budget of the Union State	credits and loans	foreign investments including foreign credits and loans	other
Grodno								
2005	100	61,4	34,0	0,0	0,3	…	–	4,1
2008	100	42,2	32,8	0,3	–	24,6	–	0,1
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	–
Minsk City								
2005	100	69,6	7,8	1,6	2,3	…	–	18,7
2008	100	58,6	15,1	3,6	1,9	11,5	7,4	1,9
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	–
Minsk								
2005	100	79,1	8,0	0,5	–	…	–	11,5
2008	100	21,8	54,0	0,4	–	22,2	1,5	0,1
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
Mogilev								
2005	100	8,5	22,9	0,3	–	…	–	68,3
2008	100	45,8	18,8	0,3	–	11,8	23,3	–
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	–

5.18. Expenditures of industrial organisations on technological innovations by source of funding and economic activity in 2012

	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investments including foreign credits and loans	other
	Million rubles						
Total	7 937 546	3 813 918	507 599	8 535	2 299 348	1 240 019	16 203
of which:							
Mining	172 993	109 506	4 956	–	58 531	–	–
extraction of fossil fuels	26 186	21 230	4 956	–	–	–	–
extraction of minerals, except fossil fuels	146 807	88 276	–	–	58 531	–	–
Manufacturing	7 763 471	3 704 203	502 213	8 092	2 240 817	1 240 019	16 203
manufacture of food products, including beverages, and tobacco	239 973	116 033	12 212	144	108 191	3 393	–
manufacture of textiles and apparel	332 695	177 300	62 540	4 082	81 766	–	7 007
manufacture of leather, of products of leather and manufacture of footwear	15 836	15 836	–	–	–	–	–
manufacture of wood and of products of wood	280 624	52 494	–	–	202 425	25 705	–
manufacture of paper and paper products, publishing activities	70 813	41 370	1 851	–	27 592	–	–
manufacture of coke, petroleum products and nuclear materials	1 803 856	1 048 346	6 067	–	311 055	438 388	–
manufacture of chemicals and chemical products	600 049	223 207	41 672	–	329 668	–	5 502
manufacture of rubber and plastics products	112 854	80 346	7 620	–	6 471	18 417	–

Continued

	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investments including foreign credits and loans	other
manufacture of other non-metallic mineral products	451 459	69 549	73 109	–	308 201	600	–
manufacture of basic metals and of fabricated metal products	534 659	402 713	31 987	1 602	98 266	–	–
manufacture of machinery and equipment	1 386 568	988 680	125 217	222	44 082	224 489	–
manufacture of electrical machinery, electronic and optical equipment	464 705	234 313	113 024	1 302	56 856	8 303	3 222
manufacture of transport vehicles and equipment	996 325	251 194	26 837	–	197 098	520 724	472
other manufacture	473 055	2 822	77	740	469 416	–	–
Production and distribution of electricity, gas and water	1 082	209	430	443	–	–	–
	As percent of total						
Total	100	48,0	6,5	0,1	29,0	15,6	0,2
of which:							
Mining	100	63,3	2,9	–	33,8	–	–
extraction of fossil fuels	100	81,1	18,9	–	–	–	–
extraction of minerals, except fossil fuels	100	60,1	–	–	39,9	–	–
Manufacturing	100	47,7	6,5	0,1	28,9	16,0	0,2
manufacture of food products, including beverages, and tobacco	100	48,4	5,1	0,1	45,0	1,4	–
manufacture of textiles and apparel	100	53,3	18,8	1,2	24,6	–	2,1
manufacture of leather, of products of leather and manufacture of footwear	100	100,0	–	–	–	–	–

Continued

	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investments including foreign credits and loans	other
manufacture of wood and of products of wood	100	18,7	–	–	72,1	9,2	–
manufacture of paper and paper products, publishing activities	100	58,4	2,6	–	39,0	–	–
manufacture of coke, petroleum products and nuclear materials	100	58,1	0,4	–	17,2	24,3	-
manufacture of chemicals and chemical products	100	37,2	6,9	–	54,9	–	1,0
manufacture of rubber and plastics products	100	71,2	6,8	–	5,7	16,3	–
manufacture of other non-metallic mineral products	100	15,4	16,2	–	68,3	0,1	–
manufacture of basic metals and of fabricated metal products	100	75,3	6,0	0,3	18,4	–	–
manufacture of machinery and equipment	100	71,3	9,0	0,0	3,2	16,2	–
manufacture of electrical machinery, electronic and optical equipment	100	50,4	24,3	0,3	12,2	1,8	0,7
производство manufacture of transport vehicles and equipment	100	25,2	2,7	–	19,8	52,3	0,0
other manufacture	100	0,6	0,0	0,2	99,2	–	–
Production and distribution of electricity, gas and water	100	19,3	39,8	40,9	–	–	–

5.19. Expenditures of service sector organisations on technological innovations by source of funding, by regions and Minsk City

Year	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investments including foreign credits and loans	other
				Million rubles			
Republic of Belarus							
2005	…	…	…	…	…	…	…
2008	337 670	190 361	103 473	5 590	10 903	27 343	–
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	–
Brest							
2005	…	…	…	…	…	…	…
2008	12 400	1 737	6 724	–	3 939	–	–
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	–	–	–	–
Vitebsk							
2005	…	…	…	…	…	…	…
2008	31 498	25 797	5 701	–	–	–	–
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	–	–
Gomel							
2005	…	…	…	…	…	…	…
2008	61 919	28 360	26 810	–	6 749	–	–
2009	2 743	2 743	–	–	–	–	–
2010	174	174	–	–	–	–	–
2011	35 037	15 610	1 770	–	–	17 657	–
2012	2 402	2 271	131	–	–	–	–

Continued

Year	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investments including foreign credits and loans	other
Grodno							
2005	…	…	…	…	…	…	…
2008	48 079	29 853	9 618	5 163	–	3 445	–
2009	4 623	4 623	–	–	–	–	–
2010	58	58	–	–	–	–	–
2011	8 578	3 886	82	–	–	4 610	–
2012	59 651	57 366	–	–	–	2 285	–
Minsk City							
2005	…	…	…	…	…	…	…
2008	60 733	51 092	168	–	215	9 258	–
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	–
Minsk							
2005	…	…	…	…	…	…	…
2008	72 980	30 171	34 201	427	–	8 181	–
2009	304	4	300	–	–	–	–
2010	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–
Mogilev							
2005	…	…	…	…	…	…	…
2008	50 061	23 351	20 251	–	–	6 459	–
2009	2 784	2 784	–	–	–	–	–
2010	2 286	2 286	–	–	–	–	–
2011	7 736	7 736	–	–	–	–	–
2012	35 373	34 731	642	–	–	–	–

Continued

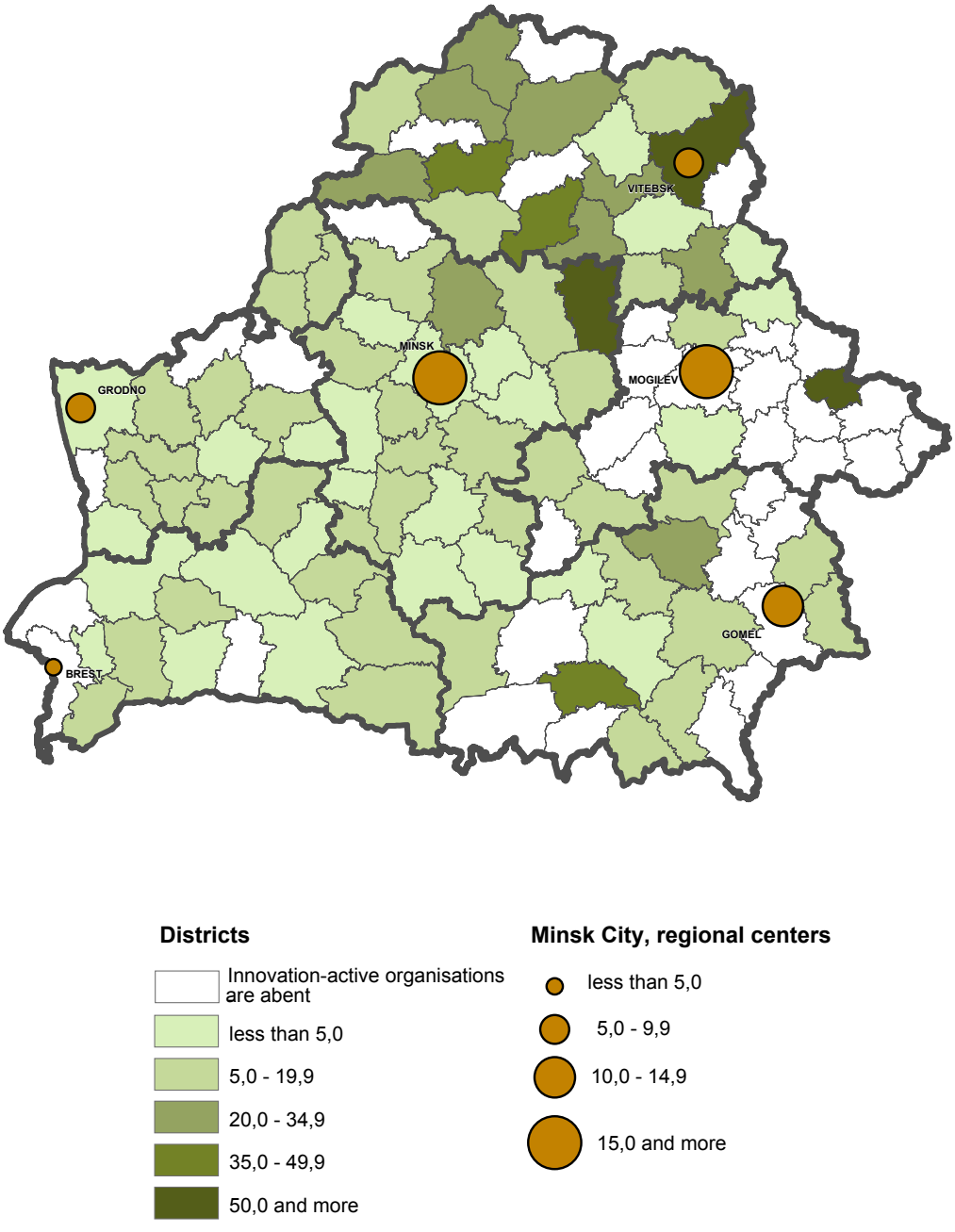
Year	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investments including foreign credits and loans	other
				As percent of total			
Republic of Belarus							
2005	…	…	…	…	…	…	…
2008	100	56,4	30,6	1,7	3,2	8,1	–
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	–
Brest							
2005	…	…	…	…	…	…	…
2008	100	14,0	54,2	–	31,8	–	–
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	–	–	–	–
Vitebsk							
2005	…	…	…	…	…	…	…
2008	100	81,9	18,1	–	–	–	–
2009	100	41,2	58,8	–	–	–	–
2010	100	68,9	–	–	31,1	–	–
2011	100	52,2	–	–	47,8	–	–
2012	100	54,6	–	–	45,4	–	–
Gomel							
2005	…	…	…	…	…	…	…
2008	100	45,8	43,3	–	–	10,9	–
2009	100	100,0	–	–	–	–	–
2010	100	100,0	–	–	–	–	–
2011	100	44,5	5,1	–	–	50,4	–
2012	100	94,5	5,5	–	–	–	–

Continued

Year	Funding of expenditures on technological innovations	Of which					
		own funds	republican budget	local budget	credits and loans	foreign investments including foreign credits and loans	other
Grodno							
2005	…	…	…	…	…	…	…
2008	100	62,1	20,0	10,7	–	7,2	–
2009	100	100,0	–	–	–	–	–
2010	100	100,0	–	–	–	–	–
2011	100	45,3	1,0	–	–	53,7	–
2012	100	96,2	–	–	–	3,8	–
Minsk City							
2005	…	…	…	…	…	…	…
2008	100	84,1	0,3	–	0,4	15,2	–
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	–
Minsk							
2005	…	…	…	…	…	…	…
2008	100	41,3	46,9	0,6	–	11,2	–
2009	100	1,3	98,7	–	–	–	–
2010	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–
Mogilev							
2005	…	…	…	…	…	…	…
2008	100	46,6	40,5	–	–	12,9	–
2009	100	100,0	–	–	–	–	–
2010	100	100,0	–	–	–	–	–
2011	100	100,0	–	–	–	–	–
2012	100	98,2	1,8	–	–	–	–

5.20. Share of shipped innovative products and supplied innovative services in total products shipped and services supplied in 2012

(percent)



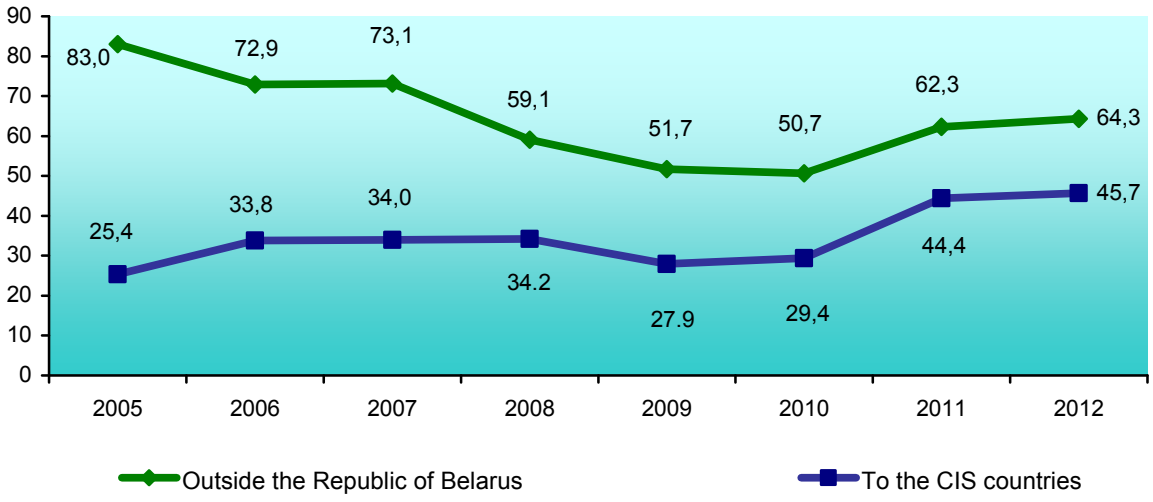
5.21. Volume of innovative production shipped by industrial organisations

(million rubles)

	2005	2008	2009	2010	2011	2012
Own production shipped	46 063 141	94 281 676	92 803 624	128 232 050	254 957 867	456 883 683
of which innovative production	7 003 571	13 410 197	10 089 195	18 609 492	36 723 378	81 510 140
of which:						
to domestic market	1 191 675	5 481 986	4 871 079	9 175 875	13 861 241	29 077 624
outside the Republic of Belarus	5 811 896	7 928 211	5 218 116	9 433 617	22 862 137	52 432 516
to the CIS countries	1 778 654	4 581 337	2 811 202	5 465 140	16 314 817	37 225 775
to the Russian Federation	1 238 779	3 737 804	1 863 759	3 811 890	11 921 218	25 720 220

5.22. Share of exports in total volume of innovative production shipped by industrial organisations

(as percent of total)



5.23. Volume of innovative products shipped by industrial organisations by economic activity in 2012

(million rubles)

	Own production shipped	Of which innovative production				
		total	to domestic market	outside the Republic of Belarus	of which	
					to the CIS countries	to the Russian Federation
Total	456 883 683	81 510 140	29 077 624	52 432 516	37 225 775	25 720 220
of which:						
Mining	9 662 440	191 669	189 858	1 811	1 811	1 806
extraction of fossil fuels	7 631 012	–	–	–	–	–
extraction of minerals, except fossil fuels	2 031 428	191 669	189 858	1 811	1 811	1 806
Manufacturing	406 453 696	81 317 319	28 886 614	52 430 705	37 223 964	25 718 414
manufacture of food products, including beverages, and tobacco	87 391 070	6 388 384	4 695 841	1 692 543	1 510 658	1 367 067
manufacture of textiles and apparel	11 759 620	691 388	354 948	336 440	295 873	268 994
manufacture of leather, of products of leather and manufacture of footwear	3 676 894	140 438	85 029	55 409	53 117	51 486
manufacture of wood and of products of wood	3 801 612	254 541	127 662	126 879	102 388	53 237
manufacture of paper and paper products, publishing activities	4 944 047	345 590	271 436	74 154	58 840	53 197
manufacture of coke, petroleum products and nuclear materials	76 159 610	23 754 067	7 474 499	16 279 568	8 128 401	1 444 260
manufacture of chemicals and chemical products	53 524 179	3 526 975	1 460 190	2 066 785	955 366	739 898
manufacture of rubber and plastics products	14 088 919	1 563 204	631 486	931 718	733 922	600 530
manufacture of other non-metallic mineral products	19 856 840	3 436 713	2 163 433	1 273 280	1 244 505	1 102 136
manufacture of basic metals and of fabricated metal products	27 763 803	4 982 260	1 268 503	3 713 757	1 396 384	1 327 538
manufacture of machinery and equipment	51 712 698	21 976 007	5 050 983	16 925 024	14 273 149	11 364 304
manufacture of electrical machinery, electronic and optical equipment	14 376 585	4 639 518	1 614 713	3 024 805	2 761 099	2 640 938
manufacture of transport vehicles and equipment	26 257 988	9 291 872	3 574 145	5 717 727	5 550 758	4 597 688
other manufacture	11 139 831	326 362	113 746	212 616	159 504	107 141
Production and distribution of electricity, gas and water	40 767 547	1 152	1 152	–	–	–

5.24. Volume of innovative products shipped and innovative services supplied by regions and Minsk City in 2012

(million rubles)

	Own production shipped	Of which innovative production				
		total	to domestic market	outside the Republic of Belarus	of which	
					to the CIS countries	to the Russian Federation
Industrial organisations						
Republic of Belarus	456 883 683	81 510 140	29 077 624	52 432 516	37 225 775	25 720 220
Regions						
Brest	39 484 975	1 937 739	1 555 225	382 514	355 842	303 247
Vitebsk	66 714 558	16 487 377	7 572 462	8 914 915	2 709 302	1 906 922
Gomel	90 639 505	21 057 318	6 401 286	14 656 032	10 204 096	3 944 454
Grodno	42 516 489	4 277 423	2 303 051	1 974 372	1 464 395	1 305 340
Minsk City	107 901 161	22 122 293	6 223 260	15 899 033	13 807 456	10 899 403
Minsk	67 187 383	8 399 324	1 421 950	6 977 374	5 490 079	4 766 156
Mogilev	42 439 612	7 228 666	3 600 390	3 628 276	3 194 605	2 594 607
Service sector organisations						
Republic of Belarus	15 576 419	920 505	575 108	345 397	42 722	42 042
Regions						
Brest	587 687	192 542	175 194	17 348	–	–
Vitebsk	537 257	1 287	1 287	–	–	–
Gomel	683 124	43 039	3 480	39 559	1 697	1 346
Grodno	469 959	5 311	3 496	1 815	1 460	1 135
Minsk City	12 738 836	649 145	363 106	286 039	39 565	39 561
Minsk	43 539	32	32	–	–	–
Mogilev	516 017	29 149	28 513	636	–	–

5.25 Volume of innovative services supplied by service sector organisations

(million rubles)

	2006	2008	2009	2010	2011	2012
Services provided (under main kind of activity)	2 915 402	4 771 782	5 063 741	6 126 985	8 851 877	15 576 419
of which innovating	567 510	881 044	32 662	127 500	219 964	920 505
of which:						
to domestic market	415 545	626 602	25 393	115 433	198 710	575 108
outside the Republic of Belarus	151 965	254 442	7 269	12 067	21 254	345 397
of which to the CIS countries	98 336	169 372	427	484	407	42 722
of which to the Russian Federation	79 115	137 477	427	182	213	42 042

5.26. Data on innovative products shipped by industrial organisations by economic activity in 2012

	Volume of innovative products (works, services) shipped, million rubles	Of which			
		new production to domestic market		new production to world market	
		total, million rubles	share in total volume of innovative products (works, service) shipped, percent	total, million rubles	share in total volume of innovative products (works, service) shipped, percent
Total	81 510 140	35 562 729	43,6	540 195	0,7
of which:					
Mining	191 669	191 669	100,0	–	–
extraction of fossil fuels	–	–	–	–	–
extraction of minerals, except fossil fuels	191 669	191 669	100,0	–	–

Continued

	Volume of innovative products (works, services) shipped, million rubles	Of which			
		new production to domestic market		new production to world market	
		total, million rubles	share in total volume of innovative products (works, service) shipped, percent	total, million rubles	share in total volume of innovative products (works, service) shipped, percent
Manufacturing	81 317 319	35 371 060	43,5	540 195	0,7
manufacture of food products, including beverages, and tobacco	6 388 384	1 430 756	22,4	–	–
manufacture of textiles and apparel	691 388	361 290	52,3	–	–
manufacture of leather, of products of leather and manufacture of footwear	140 438	105 894	75,4	–	–
manufacture of wood and of products of wood	254 541	125 785	49,4	–	–
manufacture of paper and paper products, publishing activities	345 590	78 506	22,7	–	–
manufacture of coke, petroleum products and nuclear materials	23 754 067	12 391 673	52,2	–	–
manufacture of chemicals and chemical products	3 526 975	1 523 698	43,2	453 081	12,8
manufacture of rubber and plastics products	1 563 204	614 174	39,3	–	–
manufacture of other non-metallic mineral products	3 436 713	954 147	27,8	–	–
manufacture of basic metals and of fabricated metal products	4 982 260	816 288	16,4	3 342	0,1
manufacture of machinery and equipment	21 976 007	6 369 942	29,0	21 414	0,1
manufacture of electrical machinery, electronic and optical equipment	4 639 518	2 063 362	44,5	52 389	1,1
manufacture of transport vehicles and equipment	9 291 872	8 527 788	91,8	9 969	0,1
other manufacture	326 362	7 757	2,4	–	–
Production and distribution of electricity, gas and water	1 152	–	–	–	–

5.27. Data on innovative products shipped by industrial organisations by regions and Minsk City in 2012

	Volume of innovative products (works, services) shipped, million rubles	Of which			
		new production to domestic market		new production to world market	
		total, million rubles	share in total volume of innovative products (works, service) shipped, percent	total, million rubles	share in total volume of innovative products (works, service) shipped, percent
Republic of Belarus	81 510 140	35 562 729	43,6	540 195	0,7
Regions:					
Brest	1 937 739	961 171	49,6	–	–
Vitebsk	16 487 377	1 987 585	12,1	–	–
Gomel	21 057 318	16 143 956	76,7	432	0,0
Grodno	4 277 423	1 445 853	33,8	73 803	1,7
Minsk City	22 122 293	10 985 836	49,7	9 969	0,0
Minsk	8 399 324	1 054 687	12,6	455 991	5,4
Mogilev	7 228 666	2 983 641	41,3	–	–

5.28. Data on innovative services supplied by service sector organisations by regions and Minsk City in 2012

	Innovative services supplied (under principal activity), million rubles	Of which innovating			
		new to domestic market		new to world market	
		total, million rubles	share in total volume of innovating services provided	total, million rubles	share in total volume of innovating services provided
Republic of Belarus	920 505	294 304	32,0	38 573	4,2
Regions:					
Brest	192 542	17 752	9,2	17 348	9,0
Vitebsk	1 287	–	–	–	–
Gomel	43 039	20 589	100,0	20 589	100,0
Gomel	5 311	–	–	–	–
Minsk City	649 145	226 814	34,9	–	–
Minsk	32	–	–	–	–
Mogilev	29 149	29 149	100,0	636	2,2

5.29. Number of new and high technologies acquired (transferred) by industrial organisations by economic activity in 2012

(entities)

	Number of acquired technologies	Of which		Number of transferred technologies	Of which	
		new technologies	high technologies		new technologies	high technologies
Total	17	14	3	14	1	13
of which:						
Manufacturing	17	14	3	14	1	13
manufacture of food products, including beverages, and tobacco	2	2	–	–	–	–
manufacture of other non-metallic mineral products	3	3	–	-	–	–
manufacture of machinery and equipment	8	6	2	14	1	13
manufacture of electrical machinery, electronic and optical equipment	2	2	–	–	–	–
manufacture of transport vehicles and equipment	2	1	1	–	–	–

5.30. Patent applications filed and patents granted [1)]

	2005	2008	2009	2010	2011	2012
Total patent applications filed	1 340	1 730	1 926	1 933	1 871	1 871
of which from applicants:						
national	1 166	1 510	1 753	1 759	1 725	1 681
foreign	174	220	173	174	146	190
Invention patents granted	955	1 252	1 297	1 222	1 474	1 291
of which to applicants:						
national	811	1 139	1 188	1 126	1 365	1 186
foreign[)]	144	113	109	96	109	105
Valid patents	3 794	4 140	4 666	4 444	4 842	4 694

[1)] Data of the State Committee on Science and Technologies of the Republic of Belarus.

5.31. Distribution of industrial organisations according to results of innovation implementation by economic activity in 2012

	Organisations benefiting from innovation implementation resulting in					
	reduction of wage costs	percentage share in total surveyed	reduction of material costs	percentage share in total surveyed	reduction of energy expenditures	percentage share in total surveyed
Total	68	3,5	130	6,8	143	7,5
of which:						
Mining	1	3,4	2	6,9	4	13,8
extraction of fossil fuels	1	6,3	2	12,5	2	12,5
extraction of minerals, except fossil fuels	–	–	–	–	2	15,4
Manufacturing	66	3,9	128	7,5	137	8,0
manufacture of food products, including beverages, and tobacco	4	1,1	14	4,0	14	40

Continued

	Number of organisations benefiting from innovation implementation resulting in					
	reduction of wage costs	percentage share in total surveyed	reduction of material costs	percentage share in total surveyed	reduction of energy expenditures	percentage share in total surveyed
manufacture of textiles and apparel	9	3,4	10	3,7	13	4,9
manufacture of leather, of products of leather and manufacture of footwear	1	2,4	1	2,4	1	2,4
manufacture of wood and of products of wood	1	1,3	2	2,5	2	2,5
manufacture of paper and paper products, publishing activities	–	–	1	1,6	–	–
manufacture of chemicals and chemical products	1	1,9	4	7,4	7	13,0
manufacture of rubber and plastics products	3	5,2	4	6,9	6	10,3
manufacture of other non-metallic mineral products	4	2,8	10	6,9	11	7,6
manufacture of basic metals and of fabricated metal products	6	4,4	15	11,1	17	12,6
manufacture of machinery and equipment	17	7,5	29	12,8	30	13,3
manufacture of electrical machinery, electronic and optical equipment	14	11,9	23	19,5	21	17,8
manufacture of transport vehicles and equipment	5	8,9	10	17,9	10	17,9
other manufacture	1	1,0	5	4,9	5	4,9
Production and distribution of electricity, gas and water	1	0,5	–	–	2	1,1

5.32. . Distribution of industrial organisations according to results of innovation implementation by regions and Minsk City in 2012

	Number of organisations benefiting from innovation implementation resulting in					
	reduction of wage costs	percentage share in total surveyed	reduction of material costs	percentage share in total surveyed	reduction of energy expenditures	percentage share in total surveyed
Republic of Belarus	68	3,5	130	6,8	143	7,5
Regions:						
Brest	12	4,0	19	6,4	19	6,4
Vitebsk	8	3,3	20	8,3	27	11,2
Gomel	7	2,6	15	5,5	13	4,5
Grodno	7	3,0	13	5,7	15	6,5
Minsk City	16	5,4	25	8,4	29	9,7
Minsk	9	2,4	26	7,0	27	7,3
Mogilev	9	4,3	12	5,8	13	6,3

5.33. Factors impeding innovations in order of importance as assessed by industrial organisations in 2012

(entities)

	Number of organisations assessing selected factors impeding innovations as		
	main or crucial	significant	insignificant
Economic factors			
lack of own monetary assets	739	610	289
lack of state financial support	202	531	453
low effective demand for new products	119	392	565
high cost of innovations	448	681	244
high economic risk	275	621	385
long payback time of innovations	267	657	375

Continued

	Number of organisations assessing selected factors impeding innovations as		
	main or crucial	significant	insignificant
Production factors			
low innovative potential of the organisation	261	431	614
lack of skilled personnel	153	446	769
lack of information on new technologies	76	317	875
lack of information on sales markets	72	292	853
insensitivity of the organisation to innovations	46	175	824
lack of opportunities to cooperate with other organisations	57	229	714
Other factors			
low demand for innovative products (works, services)	90	324	573
shortcomings in legislation regarding regulation and stimulation of innovation activity	76	234	529
uncertainty in time of innovation process	75	298	549
underdevelopment of innovation infrastructure (intermediary, information, legal, banking and other services)	92	299	550
underdevelopment of technology market	120	351	496

6. INTERNATIONAL COMPARISONS

6.1. Number of R&D personnel

CIS countries

(persons)

	2005	2006	2007	2008	2009	2010
Azerbaijan	18 164	17 973	18 079	17 942	17 401	…
Armenia	6 892	6 723	5 669	6 899	6 926	…
Belarus[1)]	**30 222**	**30 544**	**31 294**	**31 473**	**32 441**	**31 712**
Kazakhstan	18 912	19 563	17 774	16 304	15 793	…
Kyrgyzstan	3 419	3 287	3 140	3 076	3 533	…
Moldova, Republic of	4 672	4 505	4 587	5 315	5 424	…
Russia	813 207	807 066	801 135	761 252	742 433	736 540
Tajikistan	3 220	3 110	2 075	2 447	2 791	…
Ukraine	170 579	160 788	155 549	149 699	146 800	…

Non-CIS countries

(full-time equivalent; man-years)

	2005	2006	2007	2008	2009	2010
Australia	…	126 702	…	137 138	…	…
Austria	47 625	49 377	53 252	58 014	56 438	58 519
Argentina	45 361	49 359	53 187	56 987	59 683	…
Belgium	53 517	55 714	57 963	58 476	59 756	59 851
Bulgaria	15 853	16 321	16 940	17 219	18 230	…
Brazil	196 293	203 855	214 352	225 293	245 471	265 246
Canada	218 605	229 166	245 183	242 686	…	…
China	1 364 799	1 502 472	1 736 155	1 965 357	2 291 252	…
Czech Republic	43 370	47 729	49 192	50 808	50 961	52 290
Denmark	43 499	44 878	46 897	58 589	54 391	53 191
Estonia	4 362	4 741	5 002	5 086	5 430	5 261
Finland	57 471	58 257	56 243	56 698	56 069	55 897
France	349 681	365 814	375 235	382 653	390 374	…

Continued

	2005	2006	2007	2008	2009	2010
Germany	475 278	487 935	506 450	522 688	534 565	550 300
Greece	33 603	35 140	35 531	…	…	…
Hungary	23 239	25 971	25 954	27 403	29 795	31 480
Ireland	16 690	17 507	18 212	20 120	20 331	20 242
Italy	175 248	192 002	208 376	…	226 285	218 837
Japan	896 855	910 375	912 202	882 739	878 418	…
Korea, Republic of	215 345	237 599	269 409	294 440	309 063	335 228
Latvia	5 483	6 520	6 378	6 533	5 485	5 409
Lithuania	11 002	11 443	12 656	12 632	12 094	11 822
Luxembourg	4 392	4 377	4 605	4 652	4 711	4 889
Mexico	83 685	66 967	70 293	75 370	83 642	…
Netherlands	93 599	97 835	93 788	93 432	87 874	98 074
New Zealand	23 178	…	24 700	…	28 600	…
Norway	29 966	31 231	33 635	35 485	36 091	36 245
Poland	76 761	73 554	75 309	74 596	73 581	81 843
Portugal	25 728	30 531	35 334	47 882	51 347	52 378
Romania	33 222	29 340	28 977	30 390	28 398	26 171
Spain	174 773	188 978	201 108	215 676	220 777	222 022
Slovakia	14 404	15 028	15 421	15 576	15 952	18 188
Slovenia	8 994	9 793	10 369	11 594	12 410	12 940
Switzerland	…	…	…	62 066	…	…
Sweden	77 704	78 715	74 437	79 549	75 849	77 418
South Africa	28 798	30 984	31 352	30 802	…	…
Turkey	49 251	54 444	63 377	67 244	73 521	81 792
United Kingdom	324 917	334 804	343 855	342 086	347 486	319 487

[1)] Year 2011 – 31 194; year 2012 – 30 437.

6.2. Domestic R&D expenditure

(as percent of GDP)

CIS countries

	2005	2006	2007	2008	2009	2010
Azerbaijan	0,22	0,17	0,17	0,17	0,25	…
Armenia	0,21	0,21	0,19	0,21	0,27	…
Belarus[1)]	**0,68**	**0,66**	**0,96**	**0,74**	**0,64**	**0,69**
Kazakhstan	0,28	0,24	0,21	0,22	0,23	…
Kyrgyzstan	0,20	0,23	0,23	0,19	0,16	…
Russia	1,07	1,07	1,12	1,04	1,25	1,64
Tajikistan	0,10	0,11	0,07	0,07	0,09	…
Ukraine	1,17	0,95	0,85	0,85	0,86	…

Non-CIS countries

	2005	2006	2007	2008	2009	2010
Australia	...	2,17	...	2,37	…	…
Austria	2,46	2,44	2,51	2,67	2,72	2,76
Argentina	0,46	0,49	0,51	0,52	0,60	…
Belgium	1,83	1,86	1,89	1,97	2,03	1,99
Bulgaria	0,46	0,46	0,46	0,47	0,53	0,60
Brazil	0,97	1,01	1,10	1,11	1,19	1,19
Canada	2,04	2,00	1,96	1,86	1,92	1,80
China	1,32	1,39	1,40	1,47	1,70	…
Czech Republic	1,41	1,55	1,54	1,47	1,53	1,61
Denmark	2,46	2,48	2,58	2,85	3,06	3,06
Estonia	0,93	1,13	1,10	1,29	1,42	1,60
Finland	3,48	3,48	3,48	3,70	3,93	3,88
France	2,11	2,11	2,08	2,12	2,26	2,26

Continued

	2005	2006	2007	2008	2009	2010
Germany	2,51	2,54	2,53	2,69	2,82	2,82
Greece	0,60	0,59	0,60	…	…	…
Hungary	0,94	1,01	0,98	1,00	1,17	1,16
Israel	4,41	4,49	4,84	4,76	4,44	4,40
Ireland	1,24	1,24	1,28	1,45	1,74	1,80
Italy	1,09	1,13	1,17	1,21	1,26	1,26
Japan	3,32	3,40	3,44	3,45	3,36	…
Korea, Republic of	2,79	3,01	3,21	3,36	3,56	3,74
Latvia	0,56	0,70	0,59	0,61	0,46	0,60
Lithuania	0,75	0,79	0,81	0,80	0,84	0,80
Luxembourg	1,56	1,66	1,58	1,57	1,66	1,63
Mexico	0,41	0,39	0,37	0,35	0,40	…
Netherlands	1,90	1,88	1,81	1,77	1,82	1,83
New Zealand	1,14	...	1,19	...	1,30	…
Norway	1,51	1,48	1,59	1,58	1,78	1,69
Poland	0,57	0,56	0,57	0,60	0,68	0,74
Portugal	0,78	0,99	1,17	1,50	1,64	1,59
Romania	0,41	0,45	0,53	0,59	0,48	0,47
Spain	1,12	1,20	1,27	1,35	1,38	1,37
Slovakia	0,51	0,49	0,46	0,47	0,48	0,63
Slovenia	1,44	1,56	1,45	1,65	1,86	2,11
Switzerland	...	...	...	2,99	…	…
Sweden	3,56	3,68	3,40	3,70	3,61	3,43
South Africa	0,90	0,93	0,92	0,93	…	…
Turkey	0,59	0,58	0,72	0,73	0,85	0,84
United Kingdom	1,73	1,75	1,78	1,79	1,86	1,76
United States	2,59	2,63	2,70	2,82	2,86	…

[1)] Year 2011– 0,70; year 2012– 0,67.

6.3. Distribution of 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	71,1	22,2	6,7	–
Armenia	100	88,8	–	11,2	–
Belarus[2)]	100	20,9	69,1	10,0	0,0
Kazakhstan	100	38,6	32,7	15,2	13,5
Kyrgyzstan	100	64,5	23,4	12,1	–
Russia	100	31,0	60,4	8,4	0,2
Tajikistan	100	88,2	–	11,8	–
Ukraine	100	38,7	54,8	6,5	–

Non-CIS countries

	Total	Government sector	Business enterprise sector	Higher education sector	Private non-profit sector
Australia	100	12,2	61,3	23,9	2,6
Austria	100	5,3	68,1	26,1	0,5
Argentina	100	44,7	22,3	31,3	1,7
Belgium	100	9,4	66,3	23,3	1,0
Bulgaria	100	37,3	50,1	11,9	0,7
Canada	100	10,5	50,7	38,2	0,6
China	100	18,7	73,2	8,1	–
Czech Republic	100	19,5	62,0	18,0	0,5
Denmark	100	2,1	68,1	29,4	0,4
Estonia	100	10,7	49,8	38,2	1,3
Finland	100	9,3	69,6	20,4	0,7
France	100	16,3	61,2	21,3	1,2

Continued

	Total	Government sector	Business enterprise sector	Higher education sector	Private non-profit sector
Germany	100	14,7	67,3	18,0	–
Greece	100	20,9	28,6	49,2	1,3
Hungary	100	18,6	59,8	19,9	1,7
Italy	100	14,2	53,6	29,0	3,2
Japan	100	9,2	75,8	13,4	1,6
Korea, Republic of	100	12,7	74,8	10,8	1,7
Latvia	100	23,1	37,2	39,7	–
Lithuania	100	17,6	29,2	53,2	–
Luxembourg	100	17,8	70,8	11,4	–
Mexico	100	24,6	44,2	28,4	2,8
Netherlands	100	11,9	47,3	40,8	–
New Zealand	100	25,7	41,4	32,8	–
Norway	100	16,4	51,3	32,3	–
Poland	100	35,9	26,6	37,2	0,3
Portugal	100	7,1	45,5	37,0	10,4
Romania	100	36,8	38,3	24,5	0,4
Slovakia	100	30,0	42,2	27,6	0,2
Slovenia	100	18,2	67,9	13,9	–
Switzerland	100	0,7	73,5	24,2	1,6
Sweden	100	4,9	68,8	26,3	0,0
South Africa	100	20,3	58,7	19,9	1,1
Turkey	100	11,5	42,5	46,0	–
United Kingdom	100	9,5	60,9	27,2	2,4
United States	100	11,8	70,3	13,5	4,4

[1)] Latest data available.
[2)] Data for 2012.

6.4. Patenting of inventions in the Republic of Belarus and selected foreign countries

	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
Russia			
2000	28 688	23 377	5 311
2010	42 500	28 722	13 778
2011	41 414	26 495	14 919
Austria			
2000	2 301	1 961	340
2009	2 555	2 263	292
2010	2 673	2 424	249
Belgium			
2000	820	577	243
2009	817	669	148
2010	760	620	140
Bulgaria			
2000	940	231	709
2009	266	242	24
2010	260	243	17
Hungary			
2000	4 937	810	4 127
2009	787	757	30
2010	696	649	47
Germany			
2000	62 142	51 736	10 406
2009	59 583	47 859	11 724
2010	59 245	47 047	12 198
Greece			
2000	340	306	34
2009	720	698	22
2010	744	728	16

Continued

	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
Ireland			
2000	1 080	925	155
2009	961	908	53
2010	792	733	59
Spain			
2000	3 194	2 710	484
2009	3 803	3 596	207
2010	3 779	3 566	213
Latvia			
2000	179	98	81
2009	151[1)]	114[1)]	37[1)]
2010	185	178	7
Lithuania			
2000	127	66	61
2009	107	91	18
2010	114	108	6
Luxembourg			
2000	176	85	91
2009	84	60	24
2010	100	79	21
Netherlands			
2000	2 994	2 465	529
2009	2 584	2 575	279
2010	2 767	2 527	240
Poland			
2000	7 303	2 404	4 899
2009	3 140	2 899	241
2010	3 430	3 203	227
Portugal			
2000	146	81	65
2009	405[2)]	381[2)]	24[2)]
2010	545	499	46
Romania			
2000	1 290	1 003	287
2009	1 091	1 054	37
2010	1 418	1 382	36

Continued

	Patent applications filed		
	to national patent authorities	of which from applicants	
		national	foreign
Slovakia			
2000	2 040	236	1 804
2009	239	176	63
2010	282	234	48
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
Finland			
2000	2 903	2 579	324
2009	1 933	1 806	127
2010	1 833	1 731	102
France			
2000	17 353	13 870	3 483
2009	16 104	14 295	1 809
2010	16 580	14 748	1 832
Czech Republic			
2000	4 939	555	4 384
2009	881	789	92
2010	982	868	114
Sweden			
2000	5 068	4 224	844
2009	2 855[2)]	2 549[2)]	306[2)]
2010	2 549	2 196	353

[1)] 2006
[2)] 2008

6.5. Level of innovativeness

(percent)

	Share of organisations carrying out technological innovation in total industrial organisations[1)]	Share of organisations carrying out technological innovation in total service sector organisations[2)]
Belarus	22,8	21,8
Austria	49,9	86,4
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	9,6	11,1
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) Based on the survey data for 2008-2010; for Russia – for 2011; for Belarus – for 2012.

2) Based on the survey data for 2006-2008; for Russia – for 2011; for Belarus – for 2012.

6.6. Selected indicators of the Innovation Union Scoreboard (IUS 2011)

	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	Share of non-EU doctoral students in total doctoral students, percent	Share of public R&D expenditures as percent of GDP	Share of venture capital (early stage, expansion and replacement) as percent of GDP [1)]
Belarus[2)]	0,8	28,4	92,6	4,62[3)]	0,21	–
Austria	2,1	23,5	85,6	11,13	0,87	0,029
Belgium	1,4	44,4	82,5	19,34	0,65	0,130
Bulgaria	0,6	27,7	84,4	3,93	0,29	0,015
Cyprus	0,2	45,1	86,3	1,81	0,35	…
Croatia	0,9	22,6	95,3	2,55	0,41	…
Czech Republic	1,4	20,4	91,9	3,74	0,58	0,011
Denmark	1,7	47,0	68,3	10,48	0,96	0,115
Former Yugoslav Republic of Macedonia	0,4	17,1	82,8	1,31	0,14	…
Estonia	0,8	40,0	83,2	3,00	0,79	…
Finland	2,9	45,7	84,2	5,12	1,10	0,145
France	1,5	43,5	82,8	30,62	0,85	0,103
Germany	2,6	29,8	74,4	…	0,92	0,051
Greece	0,8	28,4	83,4	1,00	0,43	0,007
Hungary	0,9	25,7	84,0	2,76	0,44	0,020
Ireland	1,5	49,9	88,0	…	0,57	0,027
Iceland	0,7	40,9	53,4	23,05	1,10	…
Italy	1,6	19,8	76,3	6,24	0,54	0,035

[1)] Here and further capital invested in novel and high-risk projects which cannot be funded from traditional external sources; it is generally invested in startup or reorganised companies, including high-potential small businesses, or in high-risk shares.

[2)] Here and further data for 2012.

[3)] Share of foreign nationals in total students enrolled in postgraduate programmes.

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	Share of non-EU doctoral students in total doctoral students, percent	Share of public R&D expenditures as percent of GDP	Share of venture capital (early stage, expansion and replacement) as percent of GDP
Latvia	0,5	32,3	79,9	0,49	0,38	…
Lithuania	0,9	43,8	86,9	0,61	0,56	…
Luxembourg	…	46,1	73,4	…	0,48	0,160
Malta	0,3	18,6	53,3	4,05	0,25	…
Norway	1,7	47,3	71,1	29,07	0,83	0,088
Netherlands	1,7	41,4	77,6	…	0,97	0,097
Poland	0,8	35,3	91,1	1,98	0,53	0,034
Portugal	2,7	23,5	58,7	10,01	0,70	0,077
Romania	1,3	18,1	78,2	2,06	0,29	0,041
Spain	1,0	40,6	61,2	17,10	0,67	0,056
Serbia	0,5	20,5	84,9	4,13	0,78	…
Slovakia	2,1	22,1	93,2	1,44	0,36	…
Slovenia	1,5	34,8	89,1	6,62	0,67	…
Sweden	3,1	45,8	85,9	18,27	1,07	0,212
Switzerland	3,1	44,2	82,3	30,62	0,74	0,107
Turkey	0,3	15,5	51,1	2,85	0,51	…
United Kingdom	2,2	43,0	80,4	30,62	0,65	0,231

Continued

	Share of business R&D expenditure as percent of GDP	Share of non-R&D innovation expenditures in total volume of products (works, services) shipped	Share of SMEs innovating in-house in total number of SMEs[1)], percent	Share of SMEs taking part in joint innovative projects in total number of organisations surveyed, percent	Share of SMEs introducing product or process innovations in total number of SMEs, percent	Share of SMEs introducing marketing or organizational innovations in total number of SMEs, percent
Belarus	0,46	1,55	4,70	0,69	4,21	0,99
Austria	1,88	0,47	34,37	14,71	39,55	42,78
Belgium	1,32	0,57	40,24	22,23	44,01	44,08
Bulgaria	0,30	0,95	17,09	3,50	20,72	17,35
Cyprus	0,09	1,73	41,55	21,31	42,24	47,34
Czech Republic	0,97	1,04	29,58	11,28	34,86	45,87
Croatia	0,32	0,86	25,60	11,88	31,48	32,46
Denmark	2,08	0,51	40,81	22,23	37,63	40,02
Estonia	0,81	1,77	33,97	22,23	43,92	34,10
Finland	2,35	0,57	38,60	15,30	41,83	31,49
France	1,39	0,47	29,95	13,52	32,09	38,51
Former Yugoslav Republic of Macedonia	0,04	0,90	11,30	9,60	39,20	30,80
Germany	1,90	0,88	46,03	8,95	53,61	62,63
Greece	0,17	0,74	32,70	13,31	37,31	51,29
Hungary	0,69	0,74	12,60	7,15	16,82	20,52
Iceland	1,64	…	…	14,05	…	…
Italy	0,67	0,61	34,09	5,98	36,91	40,62
Ireland	1,22	1,01	38,76	9,82	27,34	41,55
United Kingdom	1,08	…	…	22,23	25,10	31,06

[1)] SME – small and medium-sized enterprises.

Continued

	Share of business R&D expenditure as percent of GDP	Share of non-R&D innovation expenditures in total volume of products (works, services) shipped	Share of SMEs innovating in-house in total number of SMEs[1)], percent	Share of SMEs taking part in joint innovative projects in total number of organisations surveyed, percent	Share of SMEs introducing product or process innovations in total number of SMEs, percent	Share of SMEs introducing marketing or organizational innovations in total number of SMEs, percent
Latvia	0,22	1,20	14,44	3,29	17,22	13,95
Lithuania	0,23	0,76	19,39	8,03	21,93	21,39
Luxembourg	1,16	0,25	37,39	12,33	41,49	53,02
Malta	0,37	1,06	21,56	5,19	25,94	25,63
Norway	0,88	0,10	25,42	13,06	28,91	30,80
Netherlands	0,87	0,52	26,27	12,97	31,58	28,62
Poland	0,20	1,25	13,76	6,40	17,55	18,65
Portugal	0,72	0,68	34,10	13,31	47,73	43,84
Romania	0,18	1,36	16,66	2,27	18,03	25,80
Serbia	0,13	0,80	27,83	3,50	18,32	18,05
Slovakia	0,27	0,72	14,98	5,76	19,04	28,34
Slovenia	1,43	0,79	…	14,24	31,02	39,37
Spain	0,72	0,46	22,06	5,34	27,50	30,35
Sweden	2,35	0,74	37,02	16,51	40,59	36,73
Switzerland	2,20	1,16	28,20	9,40	54,37	…
Turkey	0,34	0,16	28,18	5,28	29,52	50,31

Continued

	Employment in knowledge-intensive activities (manufacturing and services) as percent of total employment	Medium and high-tech product exports as percent of total product exports	Knowledge-intensive services exports as percent of total service exports	Sales of new-to-market and new-to-firm innovations as percent of turnover
Belarus	27,36	37,20	26,57	17,45[1)]
Austria	14,40	52,30	24,70	11,24
Belgium	14,60	48,07	41,58	9,50
Bulgaria	8,60	25,66	23,48	14,20
Cyprus	14,40	39,97	49,06	16,07
Croatia	9,90	45,17	14,01	14,41
Czech Republic	11,80	62,10	38,03	18,67
Denmark	16,10	37,77	61,60	11,44
Estonia	9,80	34,51	42,40	10,23
Former Yugoslav Republic of Macedonia	10,60	53,43	29,35	9,90
Finland	15,20	45,61	38,50	15,60
France	13,80	58,56	32,58	13,25
Germany	15,30	63,18	57,63	17,38
Greece	10,90	28,64	5,60	19,23
Hungary	12,80	68,03	28,88	16,44
Ireland	19,50	49,36	70,53	11,01
Iceland	18,10	16,70	53,00	12,69
Italy	13,70	50,36	31,47	11,79
Latvia	9,60	30,46	39,34	5,88
Lithuania	8,70	31,82	17,25	9,59
Luxembourg	19,90	31,74	70,53	8,87
Malta	15,80	71,35	33,65	15,22
Norway	14,20	16,70	53,96	4,79
Netherlands	15,20	40,46	33,25	8,85
Poland	9,10	52,39	33,05	9,84
Portugal	8,60	36,62	29,89	15,57
Romania	6,00	50,72	48,35	14,87
Spain	11,50	49,16	29,55	15,91
Serbia	12,32	26,08	45,20	10,01
Slovakia	10,10	62,27	23,13	15,79
Slovenia	13,40	56,84	27,11	16,31
Sweden	17,10	50,99	42,74	9,16
Switzerland	19,90	63,62	31,02	19,23
Turkey	4,80	38,61	18,83	15,82
United Kingdom	17,00	50,60	65,80	7,31

[1)] Share of new to market and new to firm innovations shipped in total volume of products shipped, percent.