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SCIENCE AND INNOVATION ACTIVITY IN THE REPUBLIC OF BELARUS

Statistical book

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

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

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FOREWORD

The statistical book presents information on the key indicators of science and innovation activities in the Republic of Belarus for the years 2005 and 2010-2014.

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

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

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

The section "Assessment of technology development of economic sectors" provides the system of indicators that comprehensively characterise economic development of the country in the context of technological progress.

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

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

Selected statistical indicators are furnished with brief methodological explanations.

Explanation of symbols

- not applicable
- ... data not available
- 0.0 negligible magnitude

In certain cases minor discrepancies between the total and the sum of its components is explained by data rounding.

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1. ASSESSMENT OF TECHNOLOGY DEVELOPMENT OF ECONOMIC SECTORS

The system of indicators of the assessment of technology development of sectors of the economy provides comprehensive measures of the economic development of a country in terms of technological advances.

Industries are grouped according to technology level and knowledge intensity on the basis of NACE Rev.1.1 in compliance with Eurostat and OECD recommendations.¹⁾

High-tech manufacturing industries are classified into high-technology and medium high-technology industries.

The structure of the system of indicators comprises macroeconomic indicators, investment, innovation, high-tech products, energy efficiency, transport, communications and trade indicators.

The system of indicators of the assessment of technology development of economic sectors of the Republic of Belarus and related methodology, list of economic activities classified as high-technology, medium high-technology and knowledge-intensive, and list of codes of high-technology and medium high-technology products are available on the website of Belstat at www.belstat.gov.by under the heading “Methodology”.

¹⁾ http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an2.pdf

1.1. Indicators of technology development of the economy of Belarus

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-------|-------|-------|-------|-------|
| Share of high-technology (including medium high-technology) and knowledge-intensive economic sectors in GDP, % | 35.3 | 38.2 | 35.8 | 34.3 | ... |
| Share of high-technology (including medium high-technology) and knowledge-intensive industries in manufacturing value added, % | 3.5 | 3.5 | 3.6 | 4.0 | ... |
| Knowledge intensity of GDP, % | 0.69 | 0.70 | 0.67 | 0.67 | 0.52 |
| Innovative products shipped, BYR bn | 18.6 | 36.7 | 81.5 | 82.9 | 70.1 |
| Share of shipped innovative products in total products shipped, % | 14.5 | 14.4 | 17.8 | 17.8 | 13.9 |
| Share of nanotechnology-related innovative products in total innovative products shipped, % | – | 0.1 | 0.1 | 0.1 | 0.02 |
| Level of innovation activity of enterprises, % | 18.1 | 24.3 | 24.8 | 24.4 | 22.8 |
| Share of enterprises engaged in technological innovation in the reference year in total enterprises, % | 15.4 | 22.7 | 22.8 | 21.7 | 20.9 |
| Energy intensity of GDP, kg of fuel equivalent/BYR mln | 426.3 | 418.1 | 441.4 | 392.6 | 389.9 |
| Electricity intensity of GDP, kWh/BYR mln | 406.5 | 387.3 | 386.9 | 377.9 | 373.7 |
| Energy self-sufficiency rate, % | 14.0 | 14.5 | 13.3 | 14.5 | 13.5 |
| Proportion of primary energy generated from renewable sources in gross consumption of fuel and energy resources, % | 5.0 | 5.4 | 5.0 | 5.6 | 5.4 |
| Proportion of electricity generated from renewable sources in total electricity generation, % | 0.36 | 0.43 | 0.56 | 0.84 | 0.70 |
| Gross consumption of fuel and energy resources per capita, t of fuel equivalent | 4.15 | 4.31 | 4.63 | 4.16 | 4.19 |
| Proportion of own electricity consumption of power plants and loss in total electricity consumption, % | 16.1 | 14.9 | 14.6 | 14.6 | 14.2 |
| Share of loss in total heat energy consumption, % | 8.3 | 8.1 | 7.9 | 7.8 | 7.8 |

Continued

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|---------|---------|---------|---------|
| Capacity of generating facilities using renewable energy sources (hydropower plants, windmill electricity generating units and solar power plants) at 1 January, megawatt | 17 | 15 | 17 | 33 | 34 |
| Share of hard-surface motor roads at year-end, % | 86.4 | 86.5 | 85.7 | 86.0 | 85.9 |
| Share of electrified lines in total operational length of public railway tracks, % | 16.3 | 16.3 | 16.4 | 18.4 | 18.4 |
| Number of subscribers connected to IMS platform per 100 population (at year-end) | – | 0.9 | 2.4 | 5.4 | 8.9 |
| Number of mobile cellular telecommunication subscriptions per 100 population (at year-end) | 109 | 113 | 113 | 117 | 120 |
| Number of Internet subscribers (at year-end), '000 | 5 432.2 | 6 804.8 | 8 360.5 | 9 433.1 | 9 690.8 |
| of which: | | | | | |
| fixed Internet subscribers | 1 665.9 | 2 098.8 | 2 531.6 | 2 805.1 | 2 689.3 |
| broadband connection | 1 665.9 | 2 097.3 | 2 530.9 | 2 785.0 | 2 683.6 |
| wireless connection | 3 381.6 | 4 537.8 | 5 723.0 | 6 561.0 | 6 959.3 |
| Sales area of modern format per 1000 population, m ² | ... | ... | ... | ... | 116.3 |
| Share of retail turnover of online shops in total retail turnover of sales organisations, % | 0.8 | 1.0 | 1.3 | 1.5 | 1.3 |
| Share of retail turnover of retail chains in total retail turnover of sales organisations, % | 8.1 | 9.5 | 13.2 | 16.0 | 18.7 |
| Share of retail turnover as a result of paying for goods using bank cards or electronic money in total retail turnover of sales organisations, % | 32.1 | 35.3 | 37.2 | 31.3 | 30.4 |
| Share of high-technology and medium high-technology goods in total exports of goods, % | 8.9 | 9.0 | 10.5 | 11.2 | 12.6 |
| Share of ICT services in total service exports, % | 17 | 15 | 17 | 33 | 34 |

1.2. Indicators of technology development of economic sectors of Belarus

1.2.1. Index of labour productivity by economic activity

(as % of previous year)

| | 2010 | 2011 | 2012 | 2013 |
|--|-------|-------|-------|-------|
| Republic of Belarus | 108.2 | 107.6 | 103.3 | 101.4 |
| of which by activity: | | | | |
| Agriculture, hunting and forestry | 103.2 | 112.4 | 107.5 | 101.6 |
| Fishery | 101.5 | 105.3 | 79.4 | 89.8 |
| Mining | 147.4 | 101.3 | 100.0 | 97.6 |
| Manufacturing | 112.1 | 108.9 | 107.8 | 97.3 |
| Electricity, gas and water supply | 113.7 | 94.2 | 101.7 | 101.5 |
| Construction | 110.4 | 107.5 | 102.3 | 103.9 |
| Trade; repair of motor vehicles, of household and personal goods | 110.3 | 121.5 | 93.7 | 108.4 |
| Hotels and restaurants | 109.8 | 97.5 | 109.6 | 110.3 |
| Transport and communications | 110.4 | 112.4 | 107.4 | 100.9 |
| Financial activities | 105.9 | 118.9 | 121.4 | 92.7 |
| Real estate, renting and business services | 97.5 | 96.3 | 99.0 | 99.4 |
| Public administration | 101.4 | 99.9 | 99.5 | 100.0 |
| Education | 100.0 | 99.3 | 99.3 | 99.3 |
| Health and social work | 102.4 | 101.7 | 99.8 | 100.8 |
| Community, social and personal services | 109.2 | 99.6 | 109.7 | 103.7 |

1.2.2. Fixed assets turnover ratio by economic activity

(as % of previous year)

| | 2010 | 2011 | 2012 | 2013 |
|--|-------|-------|-------|-------|
| Republic of Belarus | 105.2 | 102.9 | 99.7 | 98.2 |
| of which by activity: | | | | |
| Agriculture, hunting and forestry | 100.6 | 106.5 | 104.0 | 94.5 |
| Fishery | 99.1 | 108.4 | 77.7 | 88.2 |
| Mining | 105.5 | 100.0 | 96.4 | 97.3 |
| Manufacturing | 109.2 | 106.2 | 103.8 | 92.0 |
| Electricity, gas and water supply | 109.8 | 89.6 | 99.2 | 97.7 |
| Construction | 112.8 | 105.8 | 90.0 | 102.9 |
| Trade; repair of motor vehicles, of household and personal goods | 109.8 | 116.3 | 92.3 | 107.1 |
| Hotels and restaurants | 109.9 | 97.1 | 109.1 | 103.8 |
| Transport and communications | 107.0 | 107.7 | 104.8 | 100.3 |
| Financial activities | 100.0 | 113.6 | 115.8 | 89.8 |
| Real estate, renting and business services | 100.0 | 97.7 | 97.7 | 97.3 |
| Public administration | 99.9 | 96.0 | 96.0 | 93.8 |
| Education | 96.9 | 98.7 | 97.5 | 92.9 |
| Health and social work | 99.3 | 99.1 | 98.4 | 95.5 |
| Community, social and personal services | 108.9 | 96.9 | 105.7 | 101.1 |

1.2.3. Proportion of employment in high-technology and knowledge-intensive economic activities

(percentage)

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|------|
| High-technology manufacturing industries | | | | | |
| High-technology industries | | | | | |
| Manufacture of pharmaceutical products | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Manufacture of office equipment and computing machinery | 0.05 | 0.04 | 0.04 | 0.04 | 0.03 |
| Manufacture of radio, television and communication equipment and apparatus | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 |
| Manufacture of medical, precision and optical instruments and equipment; watches and clocks | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 |
| Manufacture of aircraft, including spacecraft | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Medium high-technology industries | | | | | |
| Manufacture of chemicals and chemical products ²⁾ | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 |
| Manufacture of machinery and equipment | 3.6 | 3.6 | 3.8 | 3.7 | 3.5 |
| Manufacture of electrical machinery and equipment | 0.9 | 1.0 | 1.0 | 0.9 | 0.8 |
| Manufacture of motor vehicles, trailers and semi-trailers | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 |
| Manufacture of other transport vehicles ³⁾ | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| Knowledge-intensive services | | | | | |
| Knowledge-intensive services | | | | | |
| Water transport | 0.03 | 0.04 | 0.03 | 0.02 | 0.02 |
| Air transport | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Telecommunications | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 |
| Financial intermediation | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 |
| Insurance | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Activities auxiliary to financial intermediation and insurance | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 |
| Real estate activities | 2.1 | 2.2 | 2.2 | 2.2 | 1.9 |
| Renting of machinery and equipment without operator and of household and personal goods | 0.1 | 0.1 | 0.1 | 0.1 | 0.03 |
| Computer and related activities | 0.6 | 0.6 | 0.8 | 0.9 | 0.8 |
| Research and development | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 |
| Other business activities | 2.7 | 2.7 | 2.7 | 2.8 | 2.4 |
| Education | 10.8 | 10.8 | 10.9 | 10.7 | 10.6 |
| Health and social work | 7.4 | 7.5 | 7.7 | 7.6 | 7.6 |
| Recreational, cultural and sporting activities | 2.2 | 2.3 | 2.3 | 2.3 | 2.2 |

²⁾ Except manufacture of pharmaceutical products.

³⁾ Except building and repairing of ships and manufacture of aircraft and spacecraft.

1.2.4. Replacement of fixed assets by economic activity

(at constant prices; percentage)

| | 2010 | 2011 | 2012 | 2013 |
|--|------|------|------|------|
| Republic of Belarus | 5.0 | 5.3 | 5.6 | 5.7 |
| of which by activity: | | | | |
| Agriculture, hunting and forestry | 5.8 | 6.1 | 6.5 | 6.5 |
| Fishery | 2.1 | 2.8 | 1.2 | 1.7 |
| Mining | 6.7 | 9.6 | 8.1 | 8.4 |
| Manufacturing | 5.4 | 5.6 | 5.9 | 5.5 |
| Electricity, gas and water supply | 3.0 | 3.7 | 4.4 | 4.6 |
| Construction | 6.6 | 6.0 | 5.8 | 5.5 |
| Trade; repair of motor vehicles, of household and personal goods | 8.1 | 10.3 | 9.8 | 10.0 |
| Hotels and restaurants | 4.2 | 4.6 | 3.5 | 4.0 |
| Transport and communications | 3.7 | 3.3 | 3.9 | 3.8 |
| Financial activities | 16.0 | 13.0 | 10.0 | 8.4 |
| Real estate, renting and business services | 8.0 | 9.4 | 9.8 | 10.7 |
| Public administration | 3.5 | 3.4 | 3.6 | 3.4 |
| Education | 1.9 | 1.6 | 1.9 | 2.1 |
| Health and social work | 2.4 | 3.1 | 2.9 | 3.5 |
| Community, social and personal services | 4.1 | 3.6 | 3.2 | 4.0 |

**1.2.5. Commissioning of fixed assets
per BYR 1 million of investment
by economic activity**

(at current prices; BYR million)

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-------|-------|-------|-------|-------|
| Republic of Belarus | 0.851 | 0.786 | 0.908 | 0.782 | 0.929 |
| of which by activity: | | | | | |
| Agriculture, hunting and forestry | 0.953 | 0.940 | 0.953 | 0.929 | 0.959 |
| Fishery | 0.762 | 1.563 | 0.762 | 0.492 | 0.837 |
| Mining | 0.775 | 0.708 | 0.955 | 0.910 | 1.058 |
| Manufacturing | 0.888 | 0.770 | 0.867 | 0.798 | 0.746 |
| Electricity, gas and water supply | 0.580 | 0.619 | 1.637 | 0.501 | 1.733 |
| Construction | 0.813 | 0.769 | 0.688 | 0.794 | 0.873 |
| Trade; repair of motor vehicles, of household and personal goods | 0.857 | 1.001 | 0.808 | 0.673 | 0.917 |
| Hotels and restaurants | 0.457 | 0.218 | 0.165 | 0.628 | 1.376 |
| Transport and communications | 0.855 | 0.929 | 0.896 | 0.991 | 1.048 |
| Financial activities | 0.989 | 0.989 | 1.138 | 0.920 | 0.680 |
| Real estate, renting and business services | 0.840 | 0.713 | 0.841 | 0.698 | 0.892 |
| Public administration | 0.886 | 0.911 | 0.778 | 1.039 | 0.966 |
| Education | 0.640 | 0.888 | 1.199 | 0.801 | 0.884 |
| Health and social work | 0.948 | 1.276 | 1.046 | 1.067 | 0.943 |
| Community, social and personal services | 0.846 | 0.803 | 0.833 | 0.966 | 1.840 |

¹⁾ Hereinafter data on investment are given taking into account the principal activity of a unit.

1.2.6. Degree of depreciation of fixed assets by economic activity

(percentage)

| | 2010 | 2011 | 2012 | 2013 |
|--|------|------|------|------|
| Republic of Belarus | 42.1 | 39.3 | 38.8 | 38.6 |
| of which by activity: | | | | |
| Agriculture, hunting and forestry | 41.8 | 40.5 | 39.4 | 38.7 |
| Fishery | 54.1 | 53.3 | 54.6 | 54.7 |
| Mining | 64.0 | 47.1 | 45.8 | 45.9 |
| Manufacturing | 50.9 | 42.6 | 41.7 | 41.8 |
| Electricity, gas and water supply | 46.6 | 42.0 | 40.7 | 41.3 |
| Construction | 33.6 | 40.6 | 44.4 | 44.8 |
| Trade; repair of motor vehicles, of household and personal goods | 34.3 | 29.4 | 29.8 | 29.3 |
| Hotels and restaurants | 19.4 | 25.9 | 26.0 | 25.6 |
| Transport and communications | 49.6 | 45.9 | 46.9 | 48.0 |
| Financial activities | 29.5 | 26.8 | 27.0 | 27.2 |
| Real estate, renting and business services | 13.3 | 14.1 | 13.2 | 11.5 |
| Public administration | 39.7 | 39.2 | 39.3 | 39.7 |
| Education | 36.9 | 34.3 | 35.5 | 35.2 |
| Health and social work | 35.5 | 33.5 | 35.5 | 34.9 |
| Community, social and personal services | 35.4 | 34.5 | 32.5 | 33.0 |

1.2.7. Capital-labour ratio by economic activity

(as % of previous year)

| | 2010 | 2011 | 2012 | 2013 |
|--|-------|-------|-------|-------|
| Republic of Belarus | 102.0 | 103.1 | 103.9 | 103.8 |
| of which by activity: | | | | |
| Agriculture, hunting and forestry | 104.1 | 104.4 | 105.3 | 104.6 |
| Fishery | 101.9 | 108.3 | 104.3 | 103.1 |
| Mining | 139.9 | 101.9 | 102.8 | 100.7 |
| Manufacturing | 102.2 | 103.2 | 103.7 | 105.6 |
| Electricity, gas and water supply | 103.6 | 105.4 | 102.4 | 104.1 |
| Construction | 98.2 | 101.9 | 115.1 | 103.0 |
| Trade; repair of motor vehicles, of household and personal goods | 99.2 | 102.9 | 100.7 | 99.8 |
| Hotels and restaurants | 100.7 | 102.7 | 101.4 | 107.8 |
| Transport and communications | 102.4 | 103.7 | 102.8 | 101.1 |
| Financial activities | 105.2 | 105.5 | 105.0 | 104.1 |
| Real estate, renting and business services | 99.7 | 101.2 | 103.4 | 105.6 |
| Public administration | 100.8 | 104.2 | 103.9 | 106.7 |
| Education | 103.6 | 101.0 | 101.8 | 107.4 |
| Health and social work | 102.9 | 102.8 | 101.8 | 105.8 |
| Community, social and personal services | 100.2 | 103.0 | 104.8 | 102.8 |

**1.2.8. Share of investment directed to reconstruction
and modernisation
in total capital investment by economic activity
(percentage)**

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|------|
| Republic of Belarus | 29.6 | 31.9 | 33.3 | 30.8 | 28.5 |
| of which by activity: | | | | | |
| Agriculture, hunting and forestry | 12.8 | 12.2 | 20.7 | 19.4 | 14.3 |
| Fishery | 22.4 | 21.5 | 2.3 | 14.6 | 22.2 |
| Mining | 25.3 | 16.5 | 17.0 | 22.5 | 15.5 |
| Manufacturing | 54.8 | 56.2 | 49.6 | 51.5 | 46.7 |
| Electricity, gas and water supply | 48.8 | 29.5 | 52.3 | 29.1 | 42.7 |
| Construction | 25.8 | 38.5 | 20.6 | 17.0 | 13.9 |
| Trade; repair of motor vehicles, of household and personal goods | 33.5 | 33.8 | 36.0 | 36.3 | 27.0 |
| Hotels and restaurants | 69.2 | 74.5 | 52.3 | 23.9 | 12.1 |
| Transport and communications | 43.1 | 39.2 | 41.2 | 53.2 | 42.6 |
| Financial activities | 38.7 | 34.6 | 32.1 | 48.9 | 43.4 |
| Real estate, renting and business services | 15.1 | 13.2 | 19.8 | 15.9 | 15.3 |
| Public administration | 39.1 | 25.9 | 29.2 | 16.7 | 12.4 |
| Education | 33.0 | 28.0 | 39.9 | 54.8 | 38.7 |
| Health and social work | 40.0 | 57.2 | 50.4 | 51.4 | 53.4 |
| Community, social and personal services | 29.8 | 18.7 | 22.7 | 21.3 | 25.7 |

1.2.9. Share of investment in machinery and equipment in total fixed capital investment directed to reconstruction and modernisation by economic activity

(percentage)

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|------|------|------|------|------|
| Republic of Belarus | 44.9 | 55.2 | 46.0 | 43.6 | 43.6 |
| of which by activity: | | | | | |
| Agriculture, hunting and forestry | 22.1 | 26.2 | 24.9 | 22.4 | 24.9 |
| Fishery | 32.9 | 17.4 | 31.1 | 9.2 | 20.5 |
| Mining | 36.9 | 51.3 | 45.4 | 58.2 | 38.7 |
| Manufacturing | 67.3 | 74.4 | 69.7 | 67.2 | 62.6 |
| Electricity, gas and water supply | 41.8 | 41.2 | 41.6 | 36.5 | 22.0 |
| Construction | 53.9 | 62.8 | 44.1 | 51.6 | 45.3 |
| Trade; repair of motor vehicles, of household and personal goods | 38.1 | 35.1 | 45.7 | 42.0 | 39.9 |
| Hotels and restaurants | 9.8 | 5.2 | 8.2 | 13.6 | 23.4 |
| Transport and communications | 40.6 | 41.1 | 34.3 | 27.4 | 34.4 |
| Financial activities | 29.2 | 47.5 | 43.3 | 53.9 | 46.1 |
| Real estate, renting and business services | 14.5 | 13.8 | 12.8 | 9.2 | 15.6 |
| Public administration | 27.9 | 16.6 | 17.6 | 16.2 | 12.3 |
| Education | 15.6 | 15.7 | 18.6 | 15.5 | 22.8 |
| Health and social work | 63.1 | 69.4 | 63.0 | 65.4 | 70.7 |
| Community, social and personal services | 46.0 | 30.7 | 36.2 | 50.0 | 41.4 |

1.2.10. Volume index of fixed capital investment directed to reconstruction and modernisation by economic activity

(as % of previous year)

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-----------|-------|-------|---------|-------|
| Republic of Belarus | 112.5 | 122.8 | 93.2 | 100.1 | 91.5 |
| of which by activity: | | | | | |
| Agriculture, hunting and forestry | 136.6 | 74.5 | 182.1 | 89.5 | 51.2 |
| Fishery | 64.8 | 57.5 | 28.9 | в 3.5p. | 111.9 |
| Mining | 141.7 | 114.5 | 80.2 | 126.1 | 54.5 |
| Manufacturing | 96.1 | 172.9 | 75.2 | 102.4 | 104.0 |
| Electricity, gas and water supply | 127.7 | 85.0 | 99.1 | 94.7 | 89.4 |
| Construction | 143.8 | 128.8 | 39.6 | 123.5 | 78.8 |
| Trade; repair of motor vehicles, of household and personal goods | 109.4 | 134.6 | 124.9 | 104.4 | 87.5 |
| Hotels and restaurants | 3.2 times | 226.7 | 118.5 | 64.0 | 48.5 |
| Transport and communications | 124.8 | 95.2 | 98.5 | 123.6 | 85.0 |
| Financial activities | 87.1 | 94.2 | 113.2 | 135.4 | 112.4 |
| Real estate, renting and business services | 121.6 | 85.2 | 135.2 | 85.0 | 89.3 |
| Public administration | 124.6 | 72.0 | 130.6 | 147.5 | 174.1 |
| Education | 137.3 | 68.1 | 134.6 | 102.4 | 60.5 |
| Health and social work | 107.4 | 144.2 | 105.9 | 126.2 | 96.7 |
| Community, social and personal services | 75.0 | 47.8 | 102.8 | 94.9 | 123.6 |

**1.2.11. Volume index of investment in machinery and equipment
as part of reconstruction and modernisation activities
by economic activity**
(as % of previous year)

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-------|-------|-------|-------|-------|
| Republic of Belarus | 108.4 | 133.5 | 82.7 | 106.5 | 95.0 |
| of which by activity: | | | | | |
| Agriculture, hunting and forestry | 185.8 | 78.2 | 184.6 | 91.1 | 59.9 |
| Fishery | 63.2 | 26.8 | 55.1 | 111.9 | 256.9 |
| Mining | 163.3 | 140.8 | 75.7 | 176.9 | 37.0 |
| Manufacturing | 93.5 | 169.1 | 75.0 | 105.8 | 99.0 |
| Electricity, gas and water supply | 143.1 | 74.0 | 106.9 | 94.1 | 56.3 |
| Construction | 123.6 | 132.9 | 29.7 | 153.7 | 70.8 |
| Trade; repair of motor vehicles, of household and personal goods | 130.6 | 109.9 | 173.1 | 106.6 | 85.8 |
| Hotels and restaurants | 112.8 | 105.0 | 200.4 | 126.4 | 87.3 |
| Transport and communications | 140.6 | 85.2 | 87.6 | 107.1 | 110.4 |
| Financial activities | 87.1 | 135.8 | 110.0 | 184.7 | 97.8 |
| Real estate, renting and business services | 114.3 | 71.5 | 134.1 | 73.4 | 159.5 |
| Public administration | 267.5 | 37.8 | 147.8 | 155.2 | 136.4 |
| Education | 278.5 | 60.9 | 169.8 | 99.7 | 93.1 |
| Health and social work | 153.7 | 140.2 | 102.6 | 145.5 | 107.5 |
| Community, social and personal services | 58.7 | 28.2 | 129.3 | 150.0 | 106.0 |

1.2.12. Index of production in high-technology manufacturing industries

(as % of previous year)

| | 2011 | 2012 | 2013 | 2014 |
|---|-------|-------|-------|-------|
| High-technology and medium high-technology industries | 111.9 | 103.2 | 92.1 | 101.2 |
| High-technology industries | 100.5 | 104.3 | 112.5 | 106.3 |
| Manufacture of pharmaceutical products | 118.6 | 108.6 | 113.1 | 102.0 |
| Manufacture of office equipment and computing machinery | 39.0 | 119.5 | 91.8 | 69.2 |
| Manufacture of radio, television and communication equipment and apparatus | 124.6 | 142.2 | 78.0 | 108.5 |
| Manufacture of medical, precision and optical instruments and equipment; watches and clocks | 100.1 | 101.2 | 114.2 | 109.0 |
| Manufacture of aircraft, including spacecraft | 0.0 | 25.0 | 187.7 | 125.1 |
| Medium high-technology industries | 112.9 | 103.1 | 90.4 | 100.7 |
| Manufacture of chemicals and chemical products ⁴⁾ | 103.2 | 99.8 | 82.9 | 128.1 |
| Manufacture of machinery and equipment | 112.3 | 101.3 | 97.3 | 80.4 |
| Manufacture of electrical machinery and equipment | 120.0 | 104.1 | 111.1 | 79.5 |
| Manufacture of motor vehicles, trailers and semi-trailers | 138.4 | 114.9 | 90.8 | 78.3 |
| Manufacture of other transport vehicles ⁵⁾ | 109.8 | 147.3 | 78.1 | 55.0 |

⁴⁾ Except manufacture of pharmaceutical products.

⁵⁾ Except building and repairing of ships and manufacture of aircraft and spacecraft.

1.2.13. Manufacture of motor gasoline and diesel fuel by emission class in the Republic of Belarus

(thousand tonnes)

| | 2013 | 2014 |
|------------------------------------|-------|-------|
| Motor gasolines | 3 683 | 3 945 |
| of which: | | |
| class 2 | 201 | 21 |
| class 3 | 448 | 61 |
| class 5 | 3 035 | 3 445 |
| Diesel fuels (excluding biodiesel) | 7 264 | 7 437 |
| of which: | | |
| class 4 | 3 701 | 3 405 |
| class 5 | 3 487 | 3 936 |

1.2.14. Manufacture of selected biotechnological products, immune preparations and optoelectronic products in the Republic of Belarus

| | 2011 | 2012 | 2013 | 2014 |
|--|--------|---------|--------|--------|
| Insecticides and acaricides in the form of prepared preparations or goods, t | 371 | 616 | 856 | 658 |
| Herbicides in the form of prepared preparations or products, t | 8 883 | 11 952 | 11 053 | 9 091 |
| Fungicides, rodenticides and similar products in the form of prepared preparations or products, t | 856 | 2 081 | 2 476 | 1 869 |
| Diagnostic microbial and virus preparations (reagents); diagnostic sets, including immune preparations, kg | 6 821 | 180 735 | 18 099 | 10 732 |
| Sera and vaccines of a kind used in veterinary, '000 doses | 59 685 | 37 051 | 12 688 | 10 393 |
| Diodes; transistors, thyristors, dymistors (diode thyristors), symistors (triode thyristors), '000 units | 58 147 | 33 559 | 34 204 | 68 467 |
| Semiconductor devices, light emitting diodes, mounted piezo-electric crystals, '000 units | 1 119 | 648 | 604 | 658 |
| Optical fibre cables made up of individually sheathed fibres, t | 11 614 | 8 957 | 7 255 | 8 469 |

1.2.15. Rate of consumption of fuel and energy resources for manufacture of selected products

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|---------|---------|---------|---------|
| Oil refining, including gas condensate | | | | | |
| Boiler and furnace fuels, kg of fuel equivalent/t | 76.6 | 64.9 | 66.7 | 69.4 | 68.3 |
| Heat, MCal/t | 275.4 | 225.3 | 256.6 | 267.7 | 267.5 |
| Electricity, kWh/t | 64.4 | 54.1 | 59.2 | 59.9 | 56.3 |
| Rolled iron and steel | | | | | |
| Boiler and furnace fuels, kg of fuel equivalent/t | 37.0 | 37.1 | 36.9 | 37.2 | 38.4 |
| Heat, MCal/t | 1.3 | 1.2 | 1.1 | 1.1 | 1.0 |
| Electricity, kWh/t | 86.2 | 85.3 | 85.3 | 83.5 | 83.5 |
| Mineral fertilisers | | | | | |
| Heat, MCal/t | 443.9 | 443.8 | 455.4 | 491.9 | 409.7 |
| Electricity, kWh/t | 293.1 | 290.2 | 286.7 | 291.5 | 270.7 |
| Tyres | | | | | |
| Heat, MCal/unit | 115.7 | 109.1 | 108.0 | 104.1 | 96.5 |
| Electricity, kWh/unit | 52.5 | 52.0 | 50.7 | 47.9 | 45.8 |
| Concrete | | | | | |
| Boiler and furnace fuels, kg of fuel equivalent/t | 167.9 | 165.1 | 167.1 | 169.9 | 164.5 |
| Heat, MCal/t | 2.7 | 2.3 | 1.8 | 1.7 | 0.9 |
| Electricity, kWh/t | 116.4 | 112.3 | 118.6 | 132.4 | 136.4 |
| Automobiles | | | | | |
| Boiler and furnace fuels, kg of fuel equivalent/standard unit | 565.4 | 451.7 | 383.2 | 388.8 | 242.1 |
| Heat, MCal/standard unit | 3 209.7 | 2 561.7 | 2 298.7 | 2 324.4 | 1 623.8 |
| Electricity, kWh/standard unit | 6 726.2 | 5 759.2 | 4 958.0 | 4 648.9 | 3 227.4 |
| Tractors | | | | | |
| Boiler and furnace fuels, kg of fuel equivalent/standard unit | 520.6 | 477.0 | 440.5 | 416.0 | 450.5 |
| Heat, MCal/standard unit | 1 072.5 | 924.4 | 944.2 | 914.7 | 968.8 |
| Electricity, kWh/standard unit | 3 138.8 | 2 919.8 | 2 734.3 | 2 749.2 | 2 542.7 |

2. INDICATORS OF SCIENCE AND INNOVATION DEVELOPMENT

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

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

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

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

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

2.1. Indicators of science development

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-------|-------|-------|-------|-------|-------|
| Domestic R&D expenditure by source of funds, percent | 100 | 100 | 100 | 100 | 100 | 100 |
| budget | 58.1 | 57.8 | 45.0 | 43.6 | 47.6 | 48.0 |
| extra-budgetary funds | 5.1 | 0.9 | 0.5 | 0.3 | 0.7 | 1.2 |
| Domestic R&D expenditure per organisation engaged in R&D, million rubles | 1 371 | 2 437 | 4 155 | 6 675 | 9 071 | 8 913 |
| Domestic R&D expenditure per employee engaged in R&D, million rubles | 15 | 36 | 67 | 116 | 151 | 150 |
| Number of R&D personnel per organisation engaged in R&D | 94 | 68 | 62 | 57 | 60 | 60 |
| Number of R&D personnel per 10 000 employed population | 68.5 | 67.4 | 66.5 | 66.0 | 63.2 | 59.8 |
| Share of education expenditure in total expenditure of the consolidated budget, percent | 13.3 | 16.8 | 18.1 | 17.5 | 17.9 | 18.4 |
| Net enrolment ratio in education, ages 5-18, percent | 90.8 | 90.1 | 90.1 | 88.6 | 87.8 | 87.8 |
| Ratio of average monthly nominal gross wages in education to average monthly nominal gross wages in the economy, percent | 86.1 | 73.4 | 78.6 | 75.6 | 68.6 | 69.0 |
| Share of high education sector in domestic R&D expenditure, percent | 17.0 | 12.6 | 9.6 | 10.0 | 10.8 | 11.7 |

2.2. Innovation indicators

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|------|------|------|------|------|------|
| Rate of inventive activity (number of domestic patent applications for inventions registered in Belarus per 10 000 population) | 1.2 | 1.9 | 1.8 | 1.8 | 1.6 | 0.8 |
| Share of organisations having expenditure on technological innovations in total organisations surveyed, percent | 14.1 | 15.2 | 21.7 | 22.7 | 21.5 | 20.1 |
| of which: | | | | | | |
| share of industrial organisations having expenditure on technological innovations in total industrial organisations surveyed, percent | 14.1 | 15.4 | 22.7 | 22.8 | 21.7 | 20.9 |
| share of service sector organisations having expenditure on technological innovations in total service sector organisations surveyed, percent | ... | 12.8 | 12.1 | 21.8 | 19.2 | 14.0 |
| Share of industrial organisations having expenditure on technological, organisational and marketing innovations in total industrial organisations surveyed, percent | ... | 18.1 | 24.3 | 24.8 | 24.4 | 22.8 |
| Share of shipped innovative products (works, services) in total products (works, services) shipped by industrial organisations, percent | 15.2 | 14.5 | 14.4 | 17.8 | 17.8 | 13.9 |
| Share of shipped innovative products (works, services) novel to domestic market in total volume of products (works, services) shipped by industrial organisations, percent | ... | 53.2 | 60.0 | 43.6 | 44.6 | 46.0 |
| Share of shipped innovative products (works, services) novel to world market in total volume of products (works, services) shipped by industrial organisations, percent | ... | 0.8 | 1.1 | 0.7 | 0.6 | 1.2 |

2.3. Selected indicators for the Republic of Belarus calculated according to the Innovation Union Scoreboard (IUS 2014) methodology

| Main type / innovation dimension / indicator | 2012 | 2013 | 2014 |
|---|-------|-------|-------|
| Enablers | | | |
| Human resources | | | |
| 1.1.1. New doctorate graduates (ISCED 6) per 1000 population aged 25-34 | 0,8 | 0.8 | 0.8 |
| 1.1.2. Percentage population aged 30-34 having completed tertiary education | 28,4 | 28.4 | 28.4 |
| 1.1.3. Percentage youth aged 20-24 having attained at least upper secondary level education | 92,6 | 92.6 | 92.6 |
| 1.2.3. Non-EU doctorate students as % of all doctorate students ¹⁾ | 4.62 | 5.03 | 4.98 |
| Finance and public support | | | |
| 1.3.1. R&D expenditure in the public sector as % of GDP | 0.21 | 0.23 | 0.20 |
| 1.3.2. Venture capital ²⁾ (early stage, expansion and replacement) as % of GDP | – | – | – |
| Firm activities | | | |
| Firm investments | | | |
| 2.1.1. R&D expenditure in the business sector as % of GDP | 0.46 | 0.44 | 0.32 |
| 2.1.2. Non-R&D innovation expenditures as % of products (works, services) shipped | 1.55 | 1.95 | 1.90 |
| Linkages and entrepreneurship | | | |
| 2.2.1. SMEs innovating in-house as % of SMEs ³⁾ | 4.70 | 3.99 | 3.51 |
| 2.2.2. Innovative SMEs collaborating with others as % of total organisations surveyed | 0.69 | 0.52 | 0.40 |
| Outputs | | | |
| Innovators | | | |
| 3.1.1. SMEs introducing product or process innovations as % of SMEs | 4.21 | 3.47 | 3.07 |
| 3.1.2. SMEs introducing marketing or organisational innovations as % of SMEs | 0.99 | 1.19 | 0.87 |
| Economic effects | | | |
| 3.2.1. Employment in knowledge-intensive activities (manufacturing and services) as % of total employment | 27.36 | 27.36 | 28.49 |
| 3.2.2. Contribution of medium and high-tech products exports to the trade balance | -15.3 | 2.02 | 2.62 |
| 3.2.3. Knowledge-intensive services exports as % of total service exports | 26.36 | 25.73 | 28.46 |
| 3.2.4. Sales of new-to-market and new-to-firm innovations as % of turnover ⁴⁾ | 17.45 | 17.28 | 13.33 |

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

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

³⁾ SMEs – small and medium-sized enterprises.

⁴⁾ New to market and new to firm innovations shipped as a percentage of total volume of products shipped.

3. ORGANISATIONS AND HUMAN RESOURCES OF SCIENCE

The official statistical information on research activities is compiled on the basis of data of the annual state statistical survey. The methodology builds on the Frascati Manual, an international document providing guidelines for measuring science and technology activities.

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

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

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

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

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

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

Technicians participate in R&D by performing technical tasks, normally under the supervision of researchers (operation and service of scientific instruments and apparatus,

laboratory equipment and computer machinery, preparation of materials and drawings, conducting of experiments, trials and analyses, etc.).

Supporting staff perform auxiliary functions connected with R&D; these include the staff of planning and economic units, financial units, patent services, scientific and technical information units, scientific and technical libraries; workers performing the assembly, adjustment, maintenance and repairs of scientific equipment and apparatus; workers of pilot (experimental) production units; laboratory assistants without higher or secondary specialised education; workers performing functions which are a direct service to R&D (accounting, personnel, secretarial, logistics units).

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

Business enterprise (entrepreneurial) sector comprises organisations pursuing profit generation as their primary objective of their activity and/or distributing the profit gained among partners; organisations whose activity is the market production of goods and services (other than higher education) for sale, including organisations fully or partially owned by government units.

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

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

Starting from 2010 official statistics on organisations engaged in R&D include micro- and small entities.

3.1. Main indicators of science development

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|--------|---------|---------|---------|---------|---------|
| Number of organisations engaged in R&D | 322 | 468 | 501 | 530 | 482 | 457 |
| Number of R&D personnel | 30 222 | 31 712 | 31 194 | 30 437 | 28 937 | 27 208 |
| of which: | | | | | | |
| researchers | 18 267 | 19 879 | 19 668 | 19 315 | 18 353 | 17 372 |
| of which with academic degree: | | | | | | |
| doctor of science | 780 | 746 | 741 | 719 | 703 | 671 |
| candidate of science | 3 232 | 3 143 | 3 150 | 3 071 | 2 946 | 2 867 |
| Enrollment in postgraduate (adjunct) programmes, persons | 5 042 | 4 725 | 5 779 | 5 456 | 5 265 | 4 900 |
| Domestic R&D expenditure, BYR billion | | | | | | |
| at current prices | 441.5 | 1 140.6 | 2 081.9 | 3 537.8 | 4 372.3 | 4 073.1 |
| at constant prices of 2005 | 441.5 | 641.2 | 683.5 | 662.1 | 675.2 | 533.0 |
| as % of GDP | 0.68 | 0.69 | 0.70 | 0.67 | 0.67 | 0.52 |
| Nominal gross average monthly wages and salaries in "Research and development", BYR thousand | 641.1 | 1 777.2 | 2 653.6 | 4 905.6 | 6 830.7 | 7 974.0 |
| Fixed capital investment in "Research and development", BYR billion | 43.8 | 266.6 | 361.8 | 630.6 | 810.2 | 763.5 |
| Indices of fixed capital investment in "Research and development", % of previous year; at constant prices | 100.0 | 145.3 | 95.6 | 98.3 | 96.9 | 81.2 |
| Commissioning of fixed assets in "Research and development", BYR billion | 36.0 | 242.1 | 310.6 | 741.9 | 513.9 | 666.2 |
| Profitability of sold goods, products, works and services, for organisations with principal activity "Research and development", % | 9.6 | 17.5 | 27.9 | 21.5 | 23.9 | 26.2 |

3.2. R&D organisations by regions and Minsk city

(entities)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---------------------|------|------|------|------|------|------|
| Republic of Belarus | 322 | 468 | 501 | 530 | 482 | 457 |
| Regions: | | | | | | |
| Brest | 18 | 29 | 30 | 28 | 26 | 26 |
| Vitebsk | 29 | 30 | 26 | 27 | 26 | 23 |
| Gomel | 27 | 35 | 38 | 36 | 34 | 32 |
| Grodno | 13 | 21 | 21 | 22 | 19 | 16 |
| Minsk city | 202 | 303 | 329 | 356 | 320 | 307 |
| Minsk | 19 | 29 | 37 | 40 | 39 | 36 |
| Mogilev | 14 | 21 | 20 | 21 | 18 | 17 |

3.3. R&D organisations by sector of performance

(entities)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------------------|------|------|------|------|------|------|
| Government sector | | | | | | |
| Republic of Belarus | 122 | 95 | 96 | 104 | 98 | 94 |
| Regions: | | | | | | |
| Brest | 3 | 3 | 3 | 5 | 4 | 3 |
| Vitebsk | 6 | 4 | 4 | 5 | 4 | 4 |
| Gomel | 9 | 7 | 7 | 7 | 6 | 6 |
| Grodno | 3 | 4 | 4 | 4 | 1 | 1 |
| Minsk city | 93 | 70 | 70 | 73 | 73 | 71 |
| Minsk | 4 | 5 | 6 | 8 | 8 | 7 |
| Mogilev | 4 | 2 | 2 | 2 | 2 | 2 |
| Business enterprise sector | | | | | | |
| Republic of Belarus | 144 | 304 | 331 | 352 | 317 | 294 |
| Regions: | | | | | | |
| Brest | 12 | 22 | 23 | 19 | 18 | 19 |
| Vitebsk | 18 | 21 | 15 | 15 | 15 | 12 |
| Gomel | 12 | 21 | 24 | 22 | 21 | 19 |
| Grodno | 7 | 14 | 14 | 15 | 15 | 12 |
| Minsk city | 74 | 188 | 212 | 236 | 205 | 192 |
| Minsk | 15 | 24 | 31 | 32 | 31 | 29 |
| Mogilev | 6 | 14 | 12 | 13 | 12 | 11 |

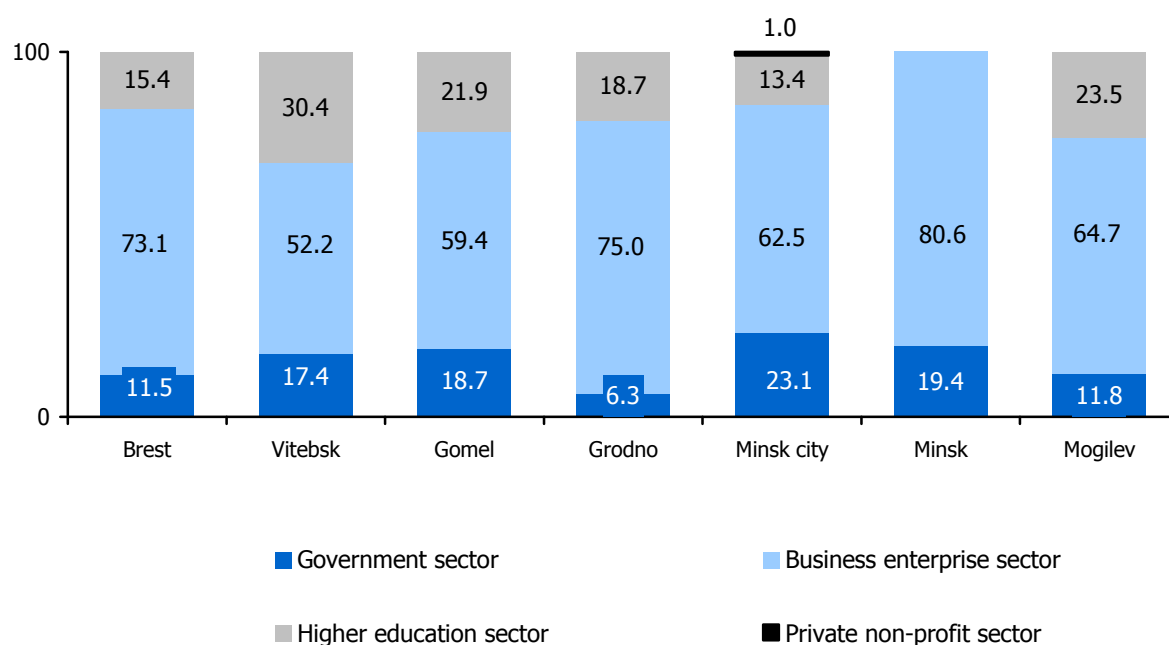
Continued

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------------------|------|------|------|------|------|------|
| Higher education sector | | | | | | |
| Republic of Belarus | 56 | 63 | 70 | 70 | 64 | 66 |
| Regions: | | | | | | |
| Brest | 3 | 4 | 4 | 4 | 4 | 4 |
| Vitebsk | 5 | 5 | 7 | 7 | 7 | 7 |
| Gomel | 6 | 7 | 7 | 7 | 7 | 7 |
| Grodno | 3 | 3 | 3 | 3 | 3 | 3 |
| Minsk city | 35 | 39 | 43 | 43 | 39 | 41 |
| Minsk | – | – | – | – | – | – |
| Mogilev | 4 | 5 | 6 | 6 | 4 | 4 |

In 2014 three organisations carried out research and development in the private non-profit sector.

3.4. Structure of R&D organisations by sector of performance in 2014

(percent)



3.5. R&D personnel by sector of performance

(persons)

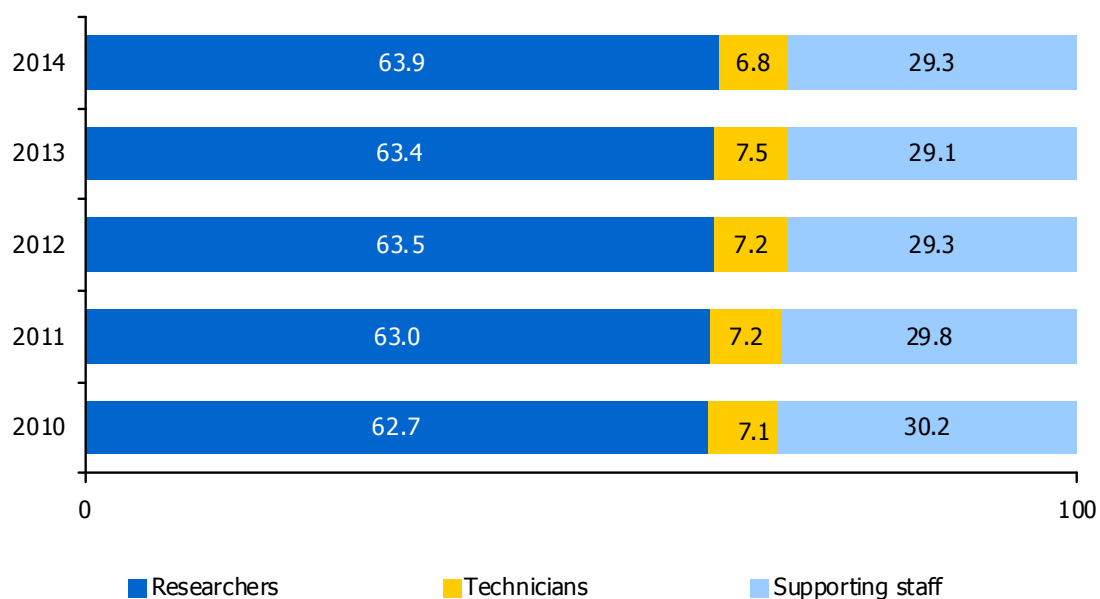
| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|----------------------------|--------|--------|--------|--------|--------|--------|
| Republic of Belarus | 30 222 | 31 712 | 31 194 | 30 437 | 28 937 | 27 208 |
| of which: | | | | | | |
| government sector | 12 720 | 8 294 | 8 150 | 8 041 | 7 533 | 7 135 |
| business enterprise sector | 14 585 | 20 510 | 19 995 | 19 479 | 18 690 | 17 313 |
| higher education sector | 2 917 | 2 902 | 3 046 | 2 908 | 2 705 | 2 749 |

3.6. R&D personnel by category

(persons)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------------|--------|--------|--------|--------|--------|--------|
| Total | 30 222 | 31 712 | 31 194 | 30 437 | 28 937 | 27 208 |
| of which: | | | | | | |
| researchers | 18 267 | 19 879 | 19 668 | 19 315 | 18 353 | 17 372 |
| technicians | 2 112 | 2 248 | 2 236 | 2 202 | 2 162 | 1 854 |
| supporting staff | 5 763 | 9 585 | 9 290 | 8 920 | 8 422 | 7 982 |

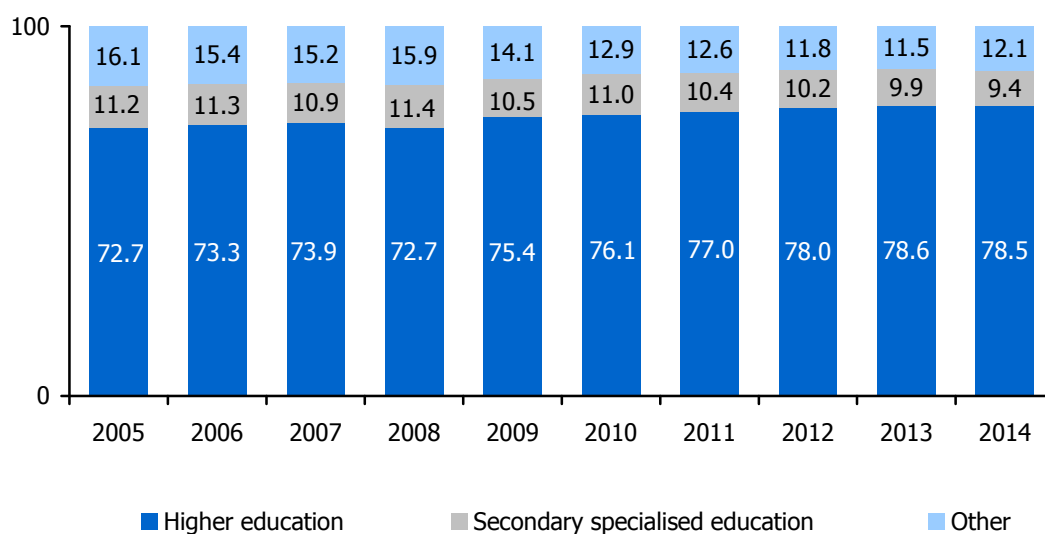
3.7. Structure of R&D personnel by category (percent)



3.8. R&D personnel by educational attainment (persons)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------------------------------|--------|--------|--------|--------|--------|--------|
| Total | 30 222 | 31 712 | 31 194 | 30 437 | 28 937 | 27 208 |
| of which with completed education: | | | | | | |
| higher | 21 961 | 24 119 | 24 005 | 23 730 | 22 744 | 21 355 |
| secondary specialised | 3 398 | 3 476 | 3 260 | 3 095 | 2 867 | 2 566 |
| other | 4 863 | 4 117 | 3 929 | 3 612 | 3 326 | 3 287 |

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

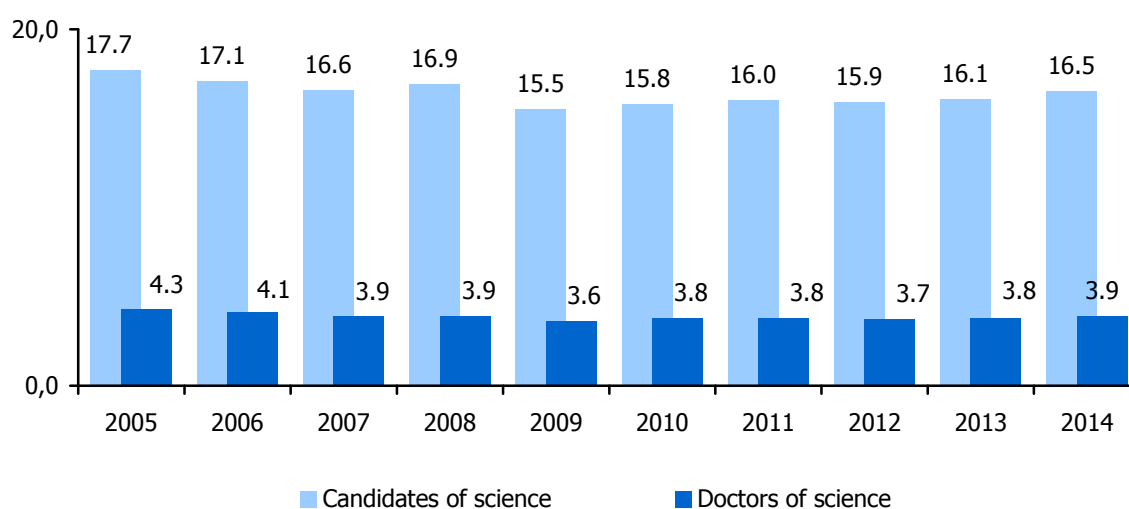


3.10. Number of researchers with academic degree (persons)

| 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 |
| 2010 | 19 879 | 8 392 | 746 | 127 | 3 143 | 1 156 |
| 2011 | 19 668 | 8 192 | 741 | 123 | 3 150 | 1 195 |
| 2012 | 19 315 | 7 944 | 719 | 123 | 3 071 | 1 168 |
| 2013 | 18 353 | 7 535 | 703 | 121 | 2 946 | 1 155 |
| 2014 | 17 372 | 7 156 | 671 | 119 | 2 867 | 1 128 |

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

(percent)



3.12. Researchers with academic degree by field of science

(persons)

| Year | Number of researchers | | Of which | | | |
|-----------------------------|-----------------------|----------------|--------------------|----------------|-----------------------|----------------|
| | | | doctors of science | | candidates of science | |
| | total | of which women | total | of which women | total | of which women |
| Natural sciences | | | | | | |
| 2005 | 4 089 | 2 102 | 305 | 50 | 1 220 | 508 |
| 2010 | 3 702 | 1 868 | 275 | 48 | 1 052 | 450 |
| 2011 | 3 596 | 1 809 | 273 | 47 | 1 054 | 457 |
| 2012 | 3 657 | 1 788 | 279 | 49 | 1 044 | 454 |
| 2013 | 3 411 | 1 727 | 267 | 47 | 1 007 | 436 |
| 2014 | 3 335 | 1 638 | 255 | 47 | 983 | 423 |
| Engineering sciences | | | | | | |
| 2005 | 10 380 | 3 568 | 196 | 8 | 923 | 134 |
| 2010 | 12 257 | 4 170 | 205 | 15 | 945 | 171 |
| 2011 | 12 051 | 3 939 | 192 | 10 | 887 | 145 |
| 2012 | 11 601 | 3 706 | 162 | 7 | 829 | 141 |
| 2013 | 11 195 | 3 527 | 174 | 10 | 792 | 137 |
| 2014 | 10 435 | 3 348 | 164 | 12 | 767 | 137 |

Continued

| Year | Number of researchers | | Of which | | | |
|--|-----------------------|----------------|--------------------|----------------|-----------------------|----------------|
| | | | doctors of science | | candidates of science | |
| | total | of which women | total | of which women | total | of which women |
| Medical sciences | | | | | | |
| 2005 | 836 | 552 | 91 | 20 | 275 | 171 |
| 2010 | 924 | 567 | 79 | 22 | 304 | 175 |
| 2011 | 1 045 | 674 | 90 | 26 | 339 | 206 |
| 2012 | 994 | 610 | 96 | 28 | 304 | 178 |
| 2013 | 876 | 566 | 86 | 25 | 280 | 178 |
| 2014 | 957 | 602 | 82 | 21 | 294 | 175 |
| Agricultural sciences | | | | | | |
| 2005 | 1 255 | 710 | 74 | 14 | 392 | 162 |
| 2010 | 1 206 | 678 | 74 | 16 | 399 | 168 |
| 2011 | 1 179 | 681 | 71 | 14 | 397 | 167 |
| 2012 | 1 137 | 672 | 70 | 14 | 379 | 163 |
| 2013 | 1 057 | 635 | 68 | 14 | 363 | 168 |
| 2014 | 982 | 587 | 59 | 13 | 353 | 167 |
| Socioeconomic and social sciences | | | | | | |
| 2005 | 1 203 | 667 | 41 | 8 | 219 | 81 |
| 2010 | 1 401 | 885 | 61 | 11 | 281 | 114 |
| 2011 | 1 341 | 814 | 53 | 9 | 272 | 111 |
| 2012 | 1 458 | 881 | 53 | 8 | 321 | 126 |
| 2013 | 1 380 | 816 | 52 | 8 | 306 | 125 |
| 2014 | 1 165 | 665 | 49 | 7 | 273 | 116 |
| Humanities | | | | | | |
| 2005 | 504 | 298 | 73 | 18 | 203 | 105 |
| 2010 | 389 | 224 | 52 | 15 | 162 | 78 |
| 2011 | 456 | 275 | 62 | 17 | 201 | 109 |
| 2012 | 468 | 287 | 59 | 17 | 194 | 106 |
| 2013 | 434 | 264 | 56 | 17 | 198 | 111 |
| 2014 | 498 | 316 | 62 | 19 | 197 | 110 |

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

(percent)

| Year | Total researchers | Of which | |
|-----------------------|-------------------|--------------------|-----------------------|
| | | doctors of science | candidates of science |
| Natural sciences | | | |
| 2005 | 100 | 7.5 | 29.8 |
| 2010 | 100 | 7.4 | 28.4 |
| 2011 | 100 | 7.6 | 29.3 |
| 2012 | 100 | 7.6 | 28.5 |
| 2013 | 100 | 7.8 | 29.5 |
| 2014 | 100 | 7.6 | 29.5 |
| Engineering sciences | | | |
| 2005 | 100 | 1.9 | 8.9 |
| 2010 | 100 | 1.7 | 7.7 |
| 2011 | 100 | 1.6 | 7.4 |
| 2012 | 100 | 1.4 | 7.1 |
| 2013 | 100 | 1.6 | 7.1 |
| 2014 | 100 | 1.6 | 7.3 |
| Medical sciences | | | |
| 2005 | 100 | 10.9 | 32.9 |
| 2010 | 100 | 8.5 | 32.9 |
| 2011 | 100 | 8.6 | 32.4 |
| 2012 | 100 | 9.7 | 30.6 |
| 2013 | 100 | 9.8 | 32.0 |
| 2014 | 100 | 8.6 | 30.7 |
| Agricultural sciences | | | |
| 2005 | 100 | 5.9 | 31.2 |
| 2010 | 100 | 6.1 | 33.1 |
| 2011 | 100 | 6.0 | 33.7 |
| 2012 | 100 | 6.2 | 33.3 |
| 2013 | 100 | 6.4 | 34.3 |
| 2014 | 100 | 6.0 | 35.9 |

Continued

| Year | Total researchers | Of which | |
|-----------------------------------|-------------------|--------------------|-----------------------|
| | | doctors of science | candidates of science |
| Socioeconomic and social sciences | | | |
| 2005 | 100 | 3.4 | 18.2 |
| 2010 | 100 | 4.4 | 20.1 |
| 2011 | 100 | 4.0 | 20.3 |
| 2012 | 100 | 3.6 | 22.0 |
| 2013 | 100 | 3.8 | 22.2 |
| 2014 | 100 | 4.2 | 23.4 |
| Humanities | | | |
| 2005 | 100 | 14.5 | 40.3 |
| 2010 | 100 | 13.4 | 41.6 |
| 2011 | 100 | 13.6 | 44.1 |
| 2012 | 100 | 12.6 | 41.5 |
| 2013 | 100 | 12.9 | 45.6 |
| 2014 | 100 | 12.4 | 39.6 |

3.14. Researchers with academic degree by age

(persons)

| | 2013 | | | 2014 | | |
|------------------|-----------------------|--------------------|-----------------------|-----------------------|--------------------|-----------------------|
| | number of researchers | of which | | number of researchers | of which | |
| | | doctors of science | candidates of science | | doctors of science | candidates of science |
| Total | 18 353 | 703 | 2 946 | 17 372 | 671 | 2 867 |
| of which by age: | | | | | | |
| 29 and younger | 4 427 | – | 69 | 4 050 | – | 63 |
| 30-39 | 3 899 | 4 | 630 | 3 809 | 1 | 611 |
| 40-49 | 2 526 | 24 | 505 | 2 353 | 21 | 528 |
| 50-54 | 2 106 | 58 | 313 | 1 851 | 44 | 267 |
| 55-59 | 2 136 | 100 | 403 | 2 015 | 77 | 372 |
| 60-69 | 2 518 | 274 | 752 | 2 588 | 289 | 757 |
| 70 and over | 741 | 243 | 274 | 706 | 239 | 269 |

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

(persons)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|----------------------------|--------|--------|--------|--------|--------|--------|
| Researchers | | | | | | |
| Republic of Belarus | 18 267 | 19 879 | 19 668 | 19 315 | 18 353 | 17 372 |
| Regions: | | | | | | |
| Brest | 305 | 405 | 421 | 426 | 380 | 376 |
| Vitebsk | 782 | 688 | 707 | 598 | 545 | 530 |
| Gomel | 1 445 | 1 480 | 1 439 | 1 402 | 1 287 | 1 075 |
| Grodno | 239 | 319 | 310 | 264 | 233 | 211 |
| Minsk city | 14 382 | 15 182 | 14 880 | 14 603 | 14 024 | 13 157 |
| Minsk | 822 | 1 490 | 1 608 | 1 629 | 1 536 | 1 649 |
| Mogilev | 292 | 315 | 303 | 393 | 348 | 374 |
| Technicians | | | | | | |
| Republic of Belarus | 2 112 | 2 248 | 2 236 | 2 202 | 2 162 | 1 854 |
| Regions: | | | | | | |
| Brest | 59 | 81 | 90 | 74 | 86 | 64 |
| Vitebsk | 103 | 99 | 98 | 85 | 61 | 66 |
| Gomel | 159 | 187 | 168 | 149 | 100 | 97 |
| Grodno | 25 | 77 | 68 | 89 | 64 | 54 |
| Minsk city | 1 346 | 1 273 | 1 290 | 1 322 | 1 365 | 1 178 |
| Minsk | 329 | 413 | 424 | 393 | 400 | 320 |
| Mogilev | 91 | 118 | 98 | 90 | 86 | 75 |
| Supporting staff | | | | | | |
| Republic of Belarus | 5 763 | 9 585 | 9 290 | 8 920 | 8 422 | 7 982 |
| Regions: | | | | | | |
| Brest | 57 | 135 | 127 | 100 | 98 | 89 |
| Vitebsk | 260 | 307 | 259 | 228 | 209 | 178 |
| Gomel | 951 | 1 199 | 1 188 | 1 125 | 1 010 | 890 |
| Grodno | 88 | 161 | 153 | 120 | 145 | 91 |
| Minsk city | 3 956 | 6 408 | 6 385 | 6 181 | 5 764 | 5 746 |
| Minsk | 375 | 1 075 | 998 | 1 014 | 1 036 | 818 |
| Mogilev | 76 | 300 | 180 | 152 | 160 | 170 |

4. PERSONNEL TRAINING

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

The higher education programmes are implemented in two stages.

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

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

Higher education enrolment is the enrolment in higher education programmes of stage I.

Enrolment in Master's programmes is the enrolment in higher education programmes of stage II. Master's enrolment is not included in the general higher education enrolment.

Postgraduate education consists of two stages:

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

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

The number of postgraduate (adjunct) and doctoral students is given as of the end of the year, before 2013 including the nationals of the CIS countries, and from 2013 including the nationals of other foreign countries as well.

In compliance with the Education Code of the Republic of Belarus, starting from 2011 the indicators of postgraduate (adjunct) and doctoral programmes include data on the training of researchers of higher qualification in the form of degree-seeking.

From 2013 data on postgraduate (adjunct) and doctoral programmes are provided by the State Committee on Science and Technology of the Republic of Belarus for relevant education institutions/ organisations that engage in training of researchers of higher qualification on the basis of budgetary funding.

Data on degree award are provided by the Higher Appraisal Commission of the Republic of Belarus.

4.1. Main indicators of higher education institutions

(beginning of academic year)

| | 2005/06 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 |
|---|---------|---------|---------|---------|---------|---------|
| Number of institutions | 55 | 55 | 55 | 54 | 54 | 54 |
| of which: | | | | | | |
| universities | 31 | 32 | 32 | 32 | 32 | 34 |
| academies | 7 | 7 | 7 | 7 | 7 | 7 |
| Enrolment – total, thousand | 383.0 | 442.9 | 445.6 | 428.4 | 395.3 | 362.9 |
| of which by mode of study: | | | | | | |
| full-time | 192.5 | 221.7 | 221.7 | 209.3 | 198.3 | 185.0 |
| evening | 2.0 | 0.7 | 0.8 | 0.9 | 1.1 | 1.2 |
| correspondence | 188.5 | 220.5 | 223.1 | 218.3 | 195.9 | 176.7 |
| Admissions – total, thousand | 90.5 | 100.5 | 96.0 | 88.1 | 68.7 | 63.4 |
| of which by mode of study: | | | | | | |
| full-time | 46.1 | 52.4 | 48.5 | 45.0 | 39.1 | 37.9 |
| evening | 0.2 | 0.1 | 0.3 | 0.3 | 0.5 | 0.3 |
| correspondence | 44.2 | 48.0 | 47.2 | 42.7 | 29.1 | 25.2 |
| Graduates – total, thousand | 53.6 | 73.3 | 75.8 | 84.6 | 82.7 | 81.1 |
| of which by mode of study: | | | | | | |
| full-time | 31.3 | 37.0 | 37.4 | 45.6 | 39.2 | 41.4 |
| evening | 0.3 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 |
| correspondence | 22.0 | 36.2 | 38.2 | 38.8 | 43.3 | 39.7 |
| Graduates from higher education per 10 000 employed population | 122 | 156 | 162 | 183 | 181 | 178 |

4.2. Enrolment in higher education programmes by field of education

(beginning of academic year, thousand persons)

| | 2005/06 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 |
|---|---------|---------|---------|---------|---------|---------|
| Total enrolment | 383.0 | 442.9 | 445.6 | 428.4 | 395.3 | 362.9 |
| of which by field of education: | | | | | | |
| teacher education | 54.5 | 47.4 | 45.9 | 42.4 | 38.4 | 34.0 |
| teacher education; vocational training | 3.0 | 3.4 | 3.0 | 2.8 | 2.3 | 2.2 |
| art and design | 5.7 | 7.5 | 7.4 | 7.1 | 7.0 | 7.0 |
| humanities | 15.3 | 17.5 | 17.0 | 16.6 | 15.3 | 14.5 |
| communications; law; economics; management; business administration | 165.2 | 180.6 | 180.4 | 167.3 | 147.8 | 132.0 |
| natural sciences | 12.2 | 13.5 | 13.7 | 13.8 | 13.5 | 12.7 |
| environmental sciences | 2.2 | 3.4 | 3.5 | 3.7 | 3.8 | 3.5 |
| engineering and technology | 66.2 | 82.9 | 84.1 | 83.2 | 77.7 | 70.8 |
| architecture and construction | 13.1 | 19.1 | 20.6 | 20.9 | 20.6 | 18.9 |
| agriculture and forestry; landscape architecture | 20.6 | 27.8 | 28.0 | 28.1 | 27.1 | 26.3 |
| human health | 12.0 | 19.6 | 20.8 | 21.7 | 21.7 | 21.8 |
| social protection | 2.6 | 3.8 | 3.6 | 3.4 | 3.4 | 3.1 |
| physical training; tourism and hospitality | 4.1 | 8.2 | 9.2 | 9.0 | 8.6 | 8.3 |
| catering; personal services | 0.7 | 0.8 | 0.9 | 0.9 | 1.0 | 1.1 |
| security services | 5.6 | 7.4 | 7.5 | 7.5 | 7.1 | 6.7 |

4.3. Admissions in higher education programmes by field of education

(thousand)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|-------|------|------|------|------|
| Total admissions | 90.5 | 100.5 | 96.0 | 88.1 | 68.7 | 63.4 |
| of which by field of education: | | | | | | |
| teacher education | 12.7 | 9.9 | 9.1 | 8.9 | 5.9 | 5.6 |
| teacher education; vocational training | 0.6 | 0.9 | 0.5 | 0.6 | 0.4 | 0.4 |
| art and design | 1.4 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 |
| humanities | 3.6 | 3.6 | 3.5 | 3.3 | 3.3 | 3.0 |
| communications; law; economics; management; business administration | 37.0 | 40.0 | 38.6 | 32.7 | 23.7 | 22.2 |
| natural sciences | 2.7 | 3.1 | 3.0 | 3.0 | 2.9 | 2.5 |
| environmental sciences | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.6 |
| engineering and technology | 16.5 | 20.2 | 19.6 | 18.3 | 13.4 | 11.6 |
| architecture and construction | 3.3 | 4.8 | 4.9 | 4.5 | 3.6 | 3.1 |
| agriculture and forestry; landscape architecture | 6.1 | 6.4 | 6.0 | 6.0 | 5.6 | 5.5 |
| human health | 2.3 | 4.3 | 3.8 | 4.0 | 3.6 | 3.9 |
| social protection | 0.8 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 |
| physical training; tourism and hospitality | 1.3 | 2.2 | 2.1 | 2.2 | 1.9 | 1.5 |
| catering; personal services | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 |
| security services | 1.3 | 1.9 | 1.7 | 1.6 | 1.4 | 1.5 |

4.4. Graduates from higher education programmes by field of education

(thousand)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|------|------|
| Total graduates from higher education | 53.6 | 73.3 | 75.8 | 84.6 | 82.7 | 81.1 |
| of which by field of education: | | | | | | |
| teacher education | 9.5 | 11.1 | 9.2 | 10.7 | 8.5 | 8.6 |
| teacher education; vocational training | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.5 |
| art and design | 0.7 | 1.2 | 1.3 | 1.4 | 1.1 | 1.4 |
| humanities | 2.4 | 2.9 | 3.0 | 3.3 | 3.2 | 3.0 |
| communications; law; economics; management; business administration | 21.9 | 30.3 | 33.8 | 39.0 | 38.2 | 34.6 |
| natural sciences | 1.8 | 2.2 | 2.1 | 2.2 | 2.3 | 2.4 |
| environmental sciences | 0.3 | 0.4 | 0.6 | 0.5 | 0.6 | 0.6 |
| engineering and technology | 8.8 | 12.1 | 12.5 | 12.7 | 13.1 | 14.3 |
| architecture and construction | 1.7 | 2.4 | 2.4 | 2.6 | 2.6 | 3.2 |
| agriculture and forestry; landscape architecture | 3.1 | 4.6 | 4.5 | 4.6 | 5.1 | 5.3 |
| human health | 1.6 | 2.5 | 2.4 | 2.8 | 3.2 | 3.4 |
| social protection | 0.2 | 0.6 | 0.7 | 0.7 | 0.5 | 0.6 |
| physical training; tourism and hospitality | – | 0.9 | 1.1 | 1.8 | 2.0 | 1.5 |
| catering; personal services | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| security services | 1.0 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 |

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

(beginning of academic year; persons)

| | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 |
|---|---------|---------|---------|---------|---------|
| Enrolment in Master's programmes – total | 4 805 | 4 955 | 6 088 | 7 552 | 8 855 |
| of which by field of education: | | | | | |
| teacher education; vocational training | 489 | 436 | 545 | 571 | 575 |
| art and design | 55 | 46 | 98 | 141 | 153 |
| humanities | 584 | 655 | 601 | 593 | 614 |
| communications; law; economics; management; business administration | 1 821 | 1 846 | 2 546 | 3 324 | 3 997 |
| natural sciences | 391 | 372 | 367 | 427 | 533 |
| environmental sciences | 61 | 77 | 99 | 107 | 118 |
| engineering and technology | 962 | 976 | 1 160 | 1 577 | 1 963 |
| architecture and construction | 183 | 215 | 238 | 238 | 299 |
| agriculture and forestry; landscape architecture | 105 | 118 | 116 | 155 | 189 |
| human health | 22 | 27 | 44 | 24 | 34 |
| social protection | – | – | – | 19 | 11 |
| physical training; tourism and hospitality | – | 16 | 30 | 31 | 30 |
| security services | 132 | 171 | 244 | 345 | 339 |

4.6. Graduates from Master's programmes by field of education

(persons)

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-------|-------|-------|-------|-------|
| Graduates from Master's programmes – total | 2 545 | 2 852 | 3 062 | 3 319 | 3 761 |
| of which by field of education: | | | | | |
| teacher education; vocational training | 268 | 285 | 257 | 308 | 324 |
| art and design | 25 | 45 | 77 | 88 | 107 |
| humanities | 353 | 454 | 498 | 475 | 438 |
| communications; law; economics; management; business administration | 952 | 960 | 1 011 | 1 248 | 1 609 |
| natural sciences | 258 | 284 | 264 | 267 | 273 |
| environmental sciences | 31 | 31 | 47 | 44 | 53 |
| engineering and technology | 440 | 503 | 533 | 510 | 616 |
| architecture and construction | 90 | 90 | 124 | 159 | 110 |
| agriculture and forestry; landscape architecture | 77 | 111 | 97 | 94 | 84 |
| human health | – | 21 | 26 | 30 | 22 |
| social protection | – | – | – | – | 12 |
| physical training; tourism and hospitality | – | – | 11 | 20 | 20 |
| security services | 51 | 68 | 117 | 76 | 93 |

4.7. Main indicators of postgraduate (adjunct) programmes

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-------|-------|-------|-------|-------|-------|
| Total | | | | | | |
| Education institutions and organisations implementing postgraduate (adjunct) programmes | 119 | 119 | 120 | 121 | 118 | 119 |
| Enrolment in postgraduate (adjunct) programmes, persons | 5 042 | 4 725 | 5 779 | 5 456 | 5 265 | 4 900 |
| Admissions in postgraduate (adjunct) programmes, persons | 1 508 | 1 469 | 1 756 | 1 361 | 1 431 | 1 342 |
| Graduates from postgraduate (adjunct) programmes, persons | 1 296 | 1 015 | 1 099 | 1 075 | 1 172 | 1 148 |
| of which thesis defenders | 74 | 36 | 51 | 54 | ... | 67 |
| Organisations implementing postgraduate programmes | | | | | | |
| Organisations implementing postgraduate (adjunct) programmes | 76 | 74 | 75 | 71 | 72 | 73 |
| Enrolment in postgraduate (adjunct) programmes, persons | 1 277 | 1 063 | 1 285 | 992 | 912 | 812 |
| Admissions in postgraduate (adjunct) programmes, persons | 388 | 340 | 362 | 225 | 237 | 218 |
| Graduates from postgraduate (adjunct) programmes, persons | 332 | 241 | 254 | 206 | 248 | 236 |
| of which thesis defenders | 17 | 6 | 12 | 12 | ... | 14 |
| Education institutions implementing postgraduate programme | | | | | | |
| Education institutions implementing postgraduate (adjunct) programmes | 43 | 45 | 45 | 50 | 46 | 46 |
| Enrolment in postgraduate (adjunct) programmes, persons | 3 765 | 3 662 | 4 494 | 4 464 | 4 353 | 4 088 |
| Admissions in postgraduate (adjunct) programmes, persons | 1 120 | 1 129 | 1 394 | 1 136 | 1 194 | 1 124 |
| Graduates from postgraduate (adjunct) programmes, persons | 964 | 774 | 845 | 869 | 924 | 912 |
| of which thesis defenders | 57 | 30 | 39 | 42 | ... | 53 |

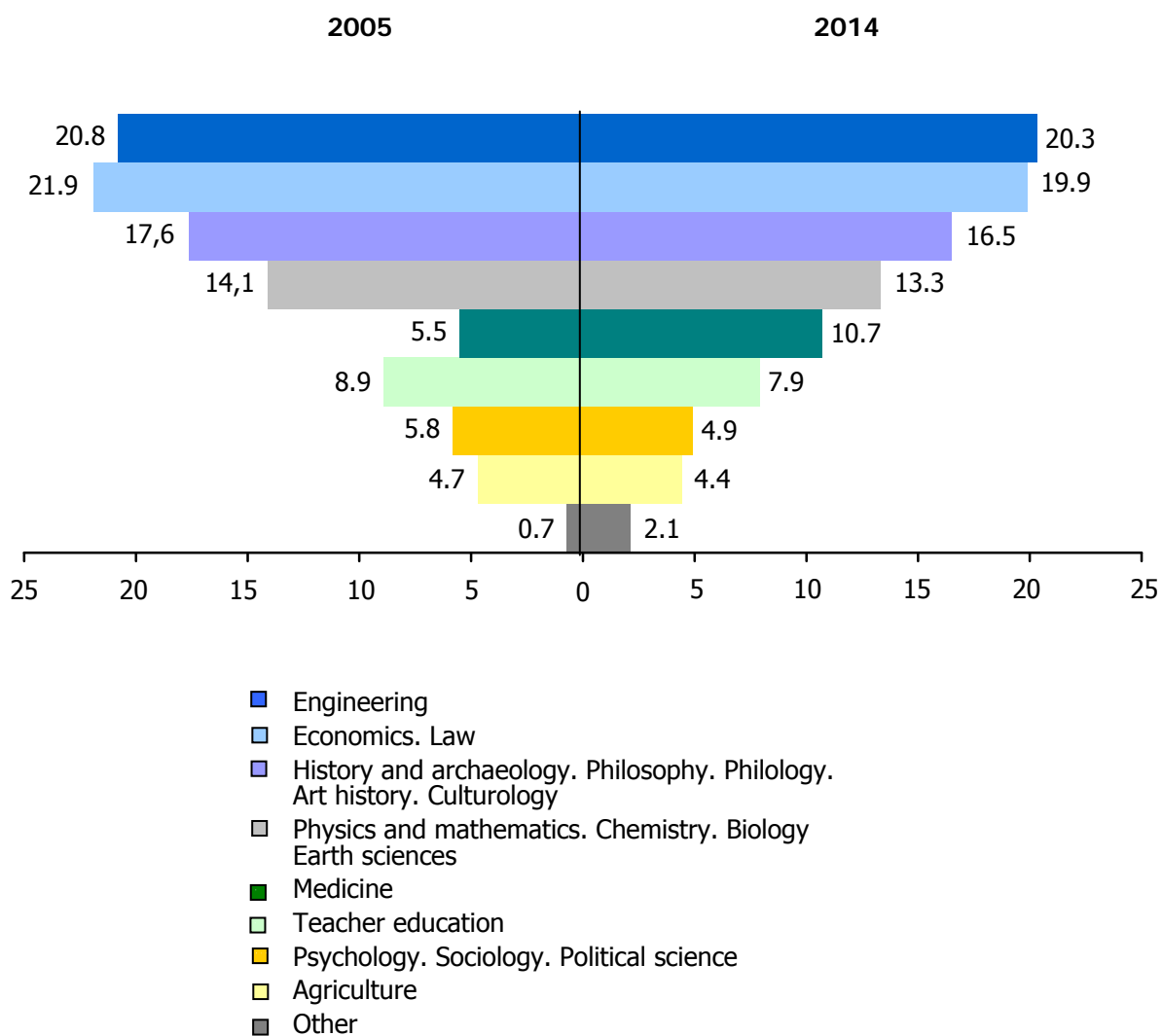
4.8. Enrolment in postgraduate (adjunct) programmes by field of science

(persons)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-------|-------|-------|-------|-------|-------|
| Total enrolment in postgraduate (adjunct) programmes | 5 042 | 4 725 | 5 779 | 5 456 | 5 265 | 4 900 |
| of which by field of science: | | | | | | |
| physics and mathematics | 293 | 258 | 291 | 253 | 270 | 275 |
| chemistry | 84 | 91 | 114 | 103 | 82 | 72 |
| biology | 256 | 270 | 318 | 284 | 280 | 228 |
| engineering | 1 047 | 998 | 1 179 | 1 163 | 1 123 | 996 |
| of which construction and architecture | 24 | 29 | 27 | 36 | 129 | 128 |
| agriculture | 237 | 282 | 357 | 303 | 251 | 218 |
| of which veterinary and animal science | 51 | 64 | 60 | 49 | 77 | 78 |
| history and archaeology | 202 | 219 | 251 | 241 | 228 | 176 |
| economics | 796 | 607 | 774 | 724 | 653 | 629 |
| philosophy | 64 | 54 | 64 | 61 | 53 | 49 |
| philology | 406 | 329 | 394 | 372 | 394 | 365 |
| law | 308 | 262 | 359 | 383 | 338 | 348 |
| teacher education | 448 | 345 | 414 | 404 | 399 | 385 |
| medicine | 277 | 485 | 614 | 547 | 539 | 525 |
| of which pharmaceuticals | 9 | 12 | 12 | 11 | 11 | 6 |
| art history | 163 | 97 | 100 | 97 | 137 | 145 |
| psychology | 191 | 139 | 172 | 166 | 159 | 143 |
| sociology | 52 | 43 | 54 | 59 | 83 | 55 |
| political science | 50 | 45 | 51 | 46 | 44 | 40 |
| culturology | 52 | 59 | 71 | 62 | 68 | 75 |
| Earth sciences | 81 | 46 | 71 | 74 | 90 | 75 |
| other | 35 | 96 | 131 | 114 | 74 | 101 |

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

(percent of total enrolment)



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

(persons)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-------|-------|-------|-------|-------|-------|
| Total admissions in postgraduate (adjunct) programmes | 1 508 | 1 469 | 1 756 | 1 361 | 1 431 | 1 342 |
| of which by field of science: | | | | | | |
| physics and mathematics | 88 | 79 | 95 | 70 | 82 | 78 |
| chemistry | 31 | 36 | 34 | 21 | 18 | 22 |
| biology | 97 | 78 | 105 | 66 | 72 | 64 |
| engineering | 350 | 356 | 406 | 307 | 322 | 299 |
| of which construction and architecture | 9 | 6 | 8 | 8 | 43 | 36 |
| agriculture | 81 | 77 | 93 | 55 | 65 | 52 |
| of which veterinary and animal science | 18 | 13 | 14 | 8 | 26 | 23 |
| history and archaeology | 56 | 65 | 68 | 65 | 56 | 38 |
| economics | 201 | 191 | 236 | 169 | 171 | 190 |
| philosophy | 19 | 18 | 22 | 9 | 11 | 10 |
| philology | 114 | 87 | 116 | 103 | 107 | 84 |
| law | 87 | 87 | 108 | 96 | 87 | 94 |
| teacher education | 116 | 109 | 119 | 98 | 91 | 104 |
| medicine | 72 | 122 | 152 | 135 | 154 | 128 |
| of which pharmaceuticals | 4 | 3 | 2 | 4 | 2 | – |
| art history | 61 | 27 | 36 | 29 | 42 | 46 |
| psychology | 43 | 41 | 44 | 40 | 42 | 39 |
| sociology | 18 | 19 | 16 | 18 | 20 | 20 |
| political science | 17 | 14 | 15 | 14 | 13 | 9 |
| culturology | 19 | 19 | 19 | 14 | 23 | 26 |
| Earth sciences | 28 | 16 | 27 | 21 | 25 | 17 |
| other | 10 | 28 | 45 | 31 | 30 | 22 |

4.11. Graduates from postgraduate (adjunct) programmes by field of science

(persons)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-------|-------|-------|-------|-------|-------|
| Total graduates from postgraduate (adjunct) programmes | 1 296 | 1 015 | 1 099 | 1 075 | 1 172 | 1 148 |
| of which by field of science: | | | | | | |
| physics and mathematics | 69 | 64 | 67 | 83 | 60 | 93 |
| chemistry | 31 | 14 | 19 | 23 | 25 | 26 |
| biology | 79 | 53 | 78 | 76 | 58 | 58 |
| engineering | 276 | 202 | 189 | 193 | 255 | 274 |
| of which construction and architecture | 4 | 5 | 3 | 3 | 22 | 29 |
| agriculture | 76 | 61 | 88 | 84 | 99 | 67 |
| of which veterinary and animal science | 20 | 17 | 22 | 18 | 29 | 29 |
| history and archaeology | 55 | 41 | 56 | 57 | 53 | 46 |
| economics | 182 | 150 | 124 | 104 | 122 | 117 |
| philosophy | 18 | 14 | 13 | 7 | 17 | 10 |
| philology | 96 | 69 | 80 | 77 | 72 | 67 |
| law | 78 | 63 | 53 | 36 | 46 | 51 |
| teacher education | 116 | 78 | 70 | 65 | 75 | 89 |
| medicine | 78 | 91 | 163 | 154 | 158 | 119 |
| of which pharmaceuticals | 4 | 4 | 4 | 3 | 1 | 4 |
| art history | 29 | 24 | 19 | 22 | 19 | 31 |
| psychology | 43 | 34 | 22 | 23 | 31 | 30 |
| sociology | 16 | 8 | 12 | 10 | 11 | 18 |
| political science | 7 | 15 | 10 | 11 | 10 | 14 |
| culturology | 19 | 8 | 8 | 13 | 11 | 9 |
| Earth sciences | 23 | 11 | 7 | 10 | 23 | 11 |
| other | 5 | 15 | 21 | 27 | 27 | 18 |

4.12. Main indicators of doctoral programmes

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|------|------|
| Total | | | | | | |
| Education institutions and organisations implementing doctoral programmes | 38 | 37 | 59 | 56 | 56 | 55 |
| Enrolment in doctoral programmes, persons | 131 | 98 | 220 | 218 | 242 | 282 |
| Admissions in doctoral programmes, persons | 56 | 28 | 65 | 76 | 87 | 105 |
| Graduates from doctoral programmes, persons | 29 | 33 | 58 | 65 | 44 | 51 |
| of which thesis defenders | 1 | 2 | 9 | 4 | ... | 9 |
| Organisations implementing doctoral programmes | | | | | | |
| Organisations implementing doctoral programmes | 17 | 16 | 29 | 25 | 25 | 25 |
| Enrolment in doctoral programmes, persons | 37 | 24 | 46 | 51 | 69 | 64 |
| Admissions in doctoral programmes, persons | 18 | 6 | 12 | 22 | 30 | 15 |
| Graduates from doctoral programmes, persons | 6 | 14 | 16 | 11 | 8 | 11 |
| of which thesis defenders | 1 | 2 | 2 | – | ... | – |
| Education institutions implementing doctoral programmes | | | | | | |
| Educational institutions implementing doctoral programmes | 21 | 21 | 30 | 31 | 31 | 30 |
| Enrolment in doctoral programmes, persons | 94 | 74 | 174 | 167 | 173 | 218 |
| Admissions in doctoral programmes, persons | 38 | 22 | 53 | 54 | 57 | 90 |
| Graduates from doctoral programmes, persons | 23 | 19 | 42 | 54 | 36 | 40 |
| of which thesis defenders | – | – | 7 | 4 | ... | 9 |

4.13. Enrolment, admissions and graduates from doctoral programmes by field of science

(persons)

| | Enrolment | | Admissions | | Graduates | |
|--|-----------|------|------------|------|-----------|------|
| | 2005 | 2014 | 2005 | 2014 | 2005 | 2014 |
| Total | 131 | 282 | 56 | 105 | 29 | 51 |
| of which by field of science: | | | | | | |
| physics and mathematics | 15 | 7 | 9 | 1 | 2 | 2 |
| chemistry | – | 3 | – | 1 | – | 1 |
| biology | 6 | 23 | 2 | 10 | – | 3 |
| engineering | 24 | 26 | 12 | 11 | 5 | 7 |
| agriculture | 11 | 11 | 7 | 1 | – | 2 |
| of which veterinary and animal science | 5 | – | 3 | – | – | – |
| history | 7 | 15 | 3 | 6 | 2 | 3 |
| economics | 15 | 26 | 5 | 12 | 4 | 7 |
| philosophy | 1 | 7 | – | 1 | – | 1 |
| philology | 17 | 14 | 6 | 5 | 4 | – |
| law | 9 | 13 | 3 | 5 | 1 | 5 |
| teacher education | 13 | 16 | 4 | 8 | 9 | 2 |
| medicine | 4 | 100 | 3 | 39 | 1 | 12 |
| art history | 1 | 2 | – | – | 1 | 2 |
| psychology | 3 | 6 | – | 2 | – | 1 |
| sociology | 2 | 4 | – | 1 | – | – |
| political science | 1 | 1 | – | – | – | – |
| culturology | 1 | 3 | 1 | 1 | – | 1 |
| Earth sciences | 1 | – | 1 | – | – | – |
| other | – | 5 | – | 1 | – | 2 |

4.14. Award of academic degrees

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------------|------|------|------|------|------|
| Academic degrees awarded | | | | | |
| Candidate of Science | 587 | 520 | 494 | 512 | 491 |
| Doctor of Science | 45 | 47 | 46 | 39 | 45 |

4.15. Candidates of Science and Doctors of Science employed in organisations of the Republic of Belarus by economic activity¹⁾

(end of year; persons)

| | Candidates of science | | | Doctors of science | | |
|--|-----------------------|--------|--------|--------------------|-------|-------|
| | 2010 | 2012 | 2014 | 2010 | 2012 | 2014 |
| Total | 14 682 | 14 248 | 13 685 | 2 358 | 2 311 | 2 194 |
| agriculture, hunting and forestry | 92 | 82 | 51 | 4 | 3 | 4 |
| fishery | – | 1 | – | – | – | – |
| industry | 447 | 435 | 366 | 43 | 38 | 34 |
| mining | 2 | 2 | 22 | 1 | 1 | 1 |
| manufacturing | 419 | 412 | 331 | 41 | 37 | 33 |
| electricity, gas and water supply | 26 | 21 | 13 | 1 | – | – |
| construction | 35 | 24 | 24 | 2 | 3 | 2 |
| trade; repair of motor vehicles, of household and personal goods | 87 | 97 | 87 | 7 | 10 | 12 |
| hotels and restaurants | 4 | 1 | 7 | 1 | – | – |
| transport and communications | 27 | 33 | 32 | 2 | 2 | 1 |
| land transport | 13 | 15 | 13 | 1 | 1 | 1 |
| air transport | 2 | 3 | 2 | – | 1 | – |
| supporting and auxiliary transport activities | 4 | 4 | 9 | 1 | – | – |
| communications | 8 | 11 | 8 | – | – | – |
| financial activities | 92 | 80 | 78 | 6 | 4 | 5 |
| real estate, renting and business services | 2 980 | 2 838 | 2 675 | 681 | 660 | 615 |
| research and development | 2 714 | 2 574 | 2 396 | 663 | 643 | 599 |
| public administration | 313 | 258 | 247 | 36 | 35 | 21 |
| education | 9 930 | 9 705 | 9 503 | 1 511 | 1 503 | 1 453 |
| health and social work | 571 | 558 | 510 | 55 | 46 | 43 |
| community, social and personal services | 104 | 136 | 105 | 10 | 7 | 4 |

¹⁾ Excluding micro entities.

5. ECONOMIC INDICATORS OF SCIENTIFIC ACTIVITY

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

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

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

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

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

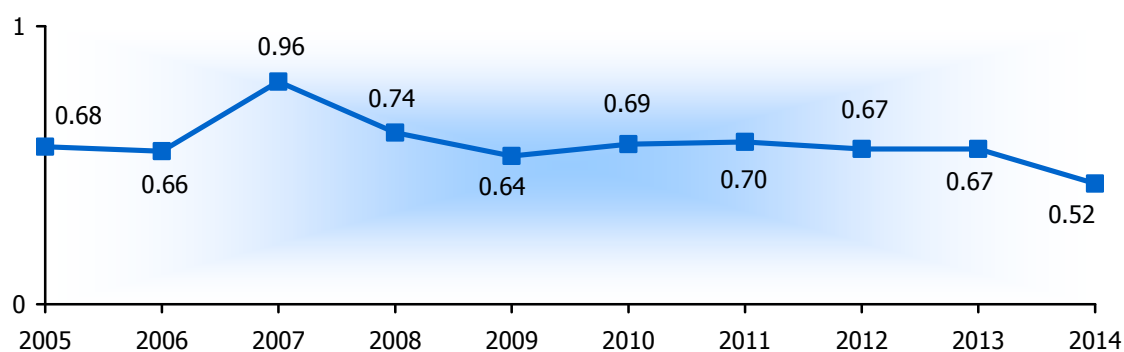
5.1. R&D expenditure

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|-----------|-----------|-----------|-----------|-----------|
| Domestic expenditure on R&D | 441 491 | 1 140 638 | 2 081 884 | 3 537 757 | 4 372 305 | 4 073 119 |
| of which: | | | | | | |
| current expenditure | 402 103 | 1 072 673 | 1 619 149 | 3 059 732 | 4 111 112 | 3 809 277 |
| of which: | | | | | | |
| labour costs | 193 876 | 490 588 | 671 261 | 1 248 186 | 1 593 926 | 1 698 892 |
| social security payments | 68 897 | 162 434 | 218 628 | 411 275 | 524 606 | 556 904 |
| costs of special equipment | 8 675 | 22 225 | 23 421 | 76 114 | 51 764 | 44 538 |
| of which equipment recorded as part of fixed assets | 3 699 | 9 586 | 7 403 | 14 158 | 23 690 | 20 817 |
| other tangible costs | 63 931 | 235 553 | 378 049 | 834 100 | 1 353 967 | 906 337 |
| other costs | 66 724 | 161 873 | 327 790 | 490 057 | 586 849 | 602 606 |
| capital expenditures | 39 388 | 67 965 | 462 735 | 478 025 | 261 193 | 263 842 |
| of which: | | | | | | |
| land and buildings | 3 157 | 651 | 3 314 | 16 108 | 6 126 | 16 361 |
| equipment | 34 656 | 47 779 | 61 642 | 129 332 | 189 841 | 202 411 |
| other capital expenditures | 1 575 | 19 535 | 397 779 | 332 585 | 65 226 | 45 070 |

5.2. Domestic R&D expenditure

(as percentage of GDP)



5.3. Domestic R&D expenditure by sector of performance

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|---------|---------|-----------|-----------|-----------|-----------|
| Government sector | | | | | | |
| Domestic expenditure on R&D | 170 196 | 304 185 | 427 116 | 738 405 | 1 041 489 | 1 074 623 |
| of which: | | | | | | |
| current expenditure | 147 573 | 283 040 | 396 225 | 681 202 | 931 967 | 957 981 |
| of which labour costs | 76 792 | 153 747 | 216 045 | 370 773 | 486 302 | 504 077 |
| of which of R&D personnel (excluding multiple job holders and civil-law contractors) | 62 423 | 121 596 | 174 950 | 308 948 | 388 314 | 445 887 |
| capital expenditures | 22 623 | 21 145 | 30 891 | 57 203 | 109 522 | 116 642 |
| Business enterprise sector | | | | | | |
| Domestic expenditure on R&D | 196 172 | 692 080 | 1 454 694 | 2 444 451 | 2 855 811 | 2 522 204 |
| of which: | | | | | | |
| current expenditure | 186 670 | 649 843 | 1 031 354 | 2 048 863 | 2 741 352 | 2 414 849 |
| of which labour costs | 77 386 | 246 852 | 339 408 | 678 897 | 843 605 | 927 230 |
| of which of R&D personnel (excluding multiple job holders and civil-law contractors) | 71 430 | 218 963 | 287 012 | 583 126 | 782 208 | 859 161 |
| capital expenditures | 9 502 | 42 237 | 423 340 | 395 588 | 114 459 | 107 355 |
| Higher education sector | | | | | | |
| Domestic expenditure on R&D | 75 123 | 144 092 | 199 559 | 354 107 | 474 006 | 475 456 |
| of which: | | | | | | |
| current expenditure | 67 860 | 139 509 | 191 055 | 328 873 | 436 794 | 435 611 |
| of which labour costs | 39 698 | 89 813 | 115 570 | 198 023 | 263 474 | 267 208 |
| of which of R&D personnel (excluding multiple job holders and civil-law contractors) | 14 600 | 42 835 | 62 898 | 113 069 | 138 387 | 139 968 |
| capital expenditures | 7 263 | 4 583 | 8 504 | 25 234 | 37 212 | 39 845 |

5.4. Domestic R&D expenditure by source of funds

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|-----------|-----------|-----------|-----------|-----------|
| Total funding of domestic R&D expenditure | 441 491 | 1 140 638 | 2 081 884 | 3 537 757 | 4 372 305 | 4 073 119 |
| of which by source of funds: | | | | | | |
| own funds | 54 802 | 140 060 | 573 943 | 939 685 | 954 825 | 728 858 |
| budget | 256 455 | 659 846 | 936 368 | 1 542 563 | 2 079 694 | 1 954 322 |
| extra-budgetary funds | 22 416 | 9 936 | 10 140 | 9 483 | 30 379 | 47 673 |
| foreign investment, including foreign credits and loans | 27 610 | 154 845 | 182 049 | 336 312 | 347 520 | 504 414 |
| funds of other organisations | 80 208 | 169 078 | 374 465 | 699 385 | 652 113 | 831 382 |

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

(percent)



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

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|---------|-----------|-----------|-----------|-----------|
| Government sector | | | | | | |
| Total funding of domestic R&D expenditure | 170 196 | 304 185 | 427 116 | 738 405 | 1 041 489 | 1 074 623 |
| of which by source of funds: | | | | | | |
| own funds | 8 884 | 1 872 | 7 952 | 14 576 | 31 248 | 55 621 |
| budget | 123 577 | 245 662 | 346 546 | 584 337 | 855 117 | 817 455 |
| extra-budgetary funds | 11 094 | 1 935 | 598 | 1 596 | 1 724 | 11 834 |
| foreign investment, including foreign credits and loans | 2 000 | 19 467 | 32 933 | 59 036 | 75 741 | 83 981 |
| funds of other organisations | 24 641 | 35 249 | 39 087 | 78 475 | 77 659 | 100 912 |
| Business enterprise sector | | | | | | |
| Total funding of domestic R&D expenditure | 196 172 | 692 080 | 1 454 694 | 2 444 451 | 2 855 811 | 2 522 204 |
| of which by source of funds: | | | | | | |
| own funds | 43 591 | 135 256 | 562 889 | 920 560 | 920 123 | 668 190 |
| budget | 88 041 | 317 504 | 456 808 | 723 799 | 899 141 | 824 421 |
| extra-budgetary funds | 9 608 | 7 968 | 9 304 | 7 696 | 24 706 | 33 034 |
| foreign investment, including foreign credits and loans | 23 786 | 127 796 | 133 891 | 247 357 | 239 661 | 390 473 |
| funds of other organisations | 31 146 | 96 691 | 286 883 | 535 095 | 464 406 | 604 436 |
| Higher education sector | | | | | | |
| Total funding of domestic R&D expenditure | 75 123 | 144 092 | 199 559 | 354 107 | 474 006 | 475 456 |
| of which by source of funds: | | | | | | |
| own funds | 2 327 | 2 908 | 3 102 | 4 549 | 3 454 | 4 728 |
| budget | 44 837 | 96 426 | 132 516 | 233 668 | 324 437 | 311 951 |
| extra-budgetary funds | 1 714 | 33 | 238 | 191 | 3 949 | 2 805 |
| foreign investment, including foreign credits and loans | 1 824 | 7 582 | 15 225 | 29 919 | 32 118 | 29 948 |
| funds of other organisations | 24 421 | 37 135 | 48 478 | 85 780 | 110 048 | 126 024 |

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

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---------------------|---------|---------|---------|-----------|-----------|-----------|
| Own funds | | | | | | |
| Republic of Belarus | 54 802 | 140 060 | 573 943 | 939 685 | 954 825 | 728 858 |
| Regions: | | | | | | |
| Brest | 1 284 | 4 948 | 6 732 | 20 794 | 25 226 | 31 750 |
| Vitebsk | 1 829 | 4 824 | 5 646 | 13 142 | 18 568 | 16 403 |
| Gomel | 8 538 | 23 532 | 393 523 | 332 188 | 256 386 | 52 395 |
| Grodno | 1 710 | 5 911 | 14 932 | 18 237 | 20 142 | 6 732 |
| Minsk city | 35 125 | 86 529 | 127 638 | 478 259 | 550 344 | 484 779 |
| Minsk | 2 578 | 8 916 | 16 648 | 41 230 | 41 411 | 86 481 |
| Mogilev | 3 738 | 5 400 | 8 824 | 35 835 | 42 748 | 50 318 |
| Budget | | | | | | |
| Republic of Belarus | 256 455 | 659 846 | 936 368 | 1 542 563 | 2 079 694 | 1 954 322 |
| Regions: | | | | | | |
| Brest | 2 653 | 8 296 | 10 784 | 13 969 | 22 400 | 19 206 |
| Vitebsk | 7 124 | 15 747 | 19 756 | 34 140 | 45 779 | 36 940 |
| Gomel | 19 230 | 33 158 | 42 565 | 67 048 | 74 956 | 94 652 |
| Grodno | 4 042 | 9 367 | 11 615 | 30 349 | 38 029 | 20 351 |
| Minsk city | 201 732 | 537 389 | 766 601 | 1 274 993 | 1 741 876 | 1 599 512 |
| Minsk | 16 849 | 46 859 | 73 226 | 103 565 | 133 532 | 158 437 |
| Mogilev | 4 825 | 9 030 | 11 821 | 18 499 | 23 122 | 25 224 |

Continued

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------------------------|--------|-------|--------|-------|--------|--------|
| Extra-budgetary funds | | | | | | |
| Republic of Belarus | 22 416 | 9 936 | 10 140 | 9 483 | 30 379 | 47 673 |
| Regions: | | | | | | |
| Brest | 112 | 149 | 280 | 490 | 3 064 | 1 200 |
| Vitebsk | 183 | – | 180 | 145 | 154 | 85 |
| Gomel | – | 1 945 | 558 | 1 483 | 1 851 | 2 047 |
| Grodno | 46 | 359 | 239 | 179 | 788 | 568 |
| Minsk city | 21 243 | 3 330 | 8 423 | 6 218 | 23 152 | 43 005 |
| Minsk | 817 | 3 396 | – | – | 571 | 660 |
| Mogilev | 15 | 757 | 460 | 968 | 799 | 108 |

Foreign investment, including foreign credits and loans

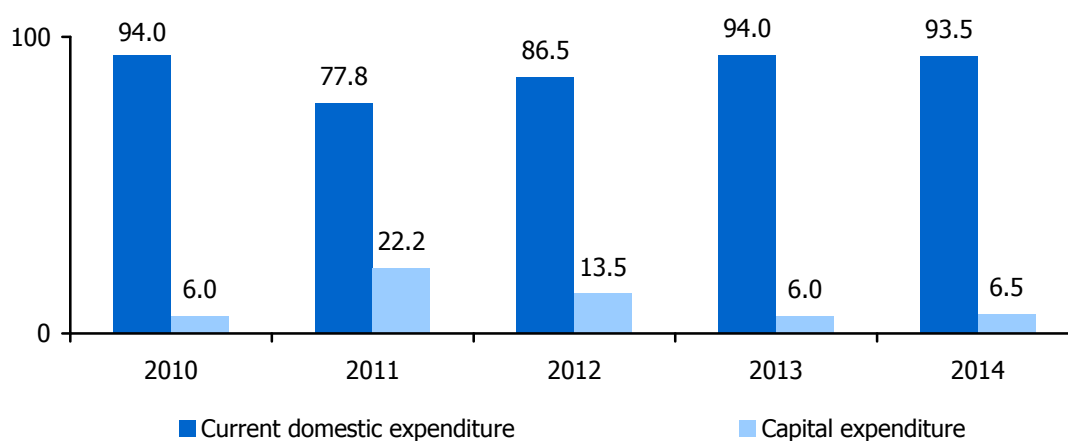
| | | | | | | |
|----------------------------|--------|---------|---------|---------|---------|---------|
| Republic of Belarus | 27 610 | 154 845 | 182 049 | 336 312 | 347 520 | 504 414 |
| Regions: | | | | | | |
| Brest | – | – | 2 | 9 | – | 259 |
| Vitebsk | 556 | 35 | 33 | 126 | 75 | 34 |
| Gomel | 4 327 | 12 388 | 16 826 | 44 761 | 50 434 | 60 348 |
| Grodno | 84 | 167 | 104 | 209 | 281 | 1 220 |
| Minsk city | 21 070 | 136 641 | 155 463 | 271 121 | 278 056 | 422 958 |
| Minsk | 713 | 4 978 | 7 195 | 16 930 | 17 947 | 17 883 |
| Mogilev | 860 | 636 | 2 426 | 3 156 | 727 | 1 712 |

Continued

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------------------------------------|--------|---------|---------|---------|---------|---------|
| Funds of other organisations | | | | | | |
| Republic of Belarus | 80 208 | 169 078 | 374 465 | 699 385 | 652 113 | 831 382 |
| Regions: | | | | | | |
| Brest | 1 176 | 536 | 1 235 | 804 | 839 | 1 902 |
| Vitebsk | 4 408 | 3 810 | 21 039 | 38 273 | 56 032 | 80 631 |
| Gomel | 11 705 | 32 439 | 72 563 | 96 128 | 125 830 | 128 924 |
| Grodno | 2 392 | 771 | 1 098 | 2 974 | 1 694 | 2 121 |
| Minsk city | 58 044 | 126 342 | 271 869 | 546 846 | 444 972 | 604 008 |
| Minsk | 1 838 | 1 955 | 2 603 | 7 470 | 10 080 | 4 133 |
| Mogilev | 645 | 3 225 | 4 058 | 6 890 | 12 666 | 9 663 |

5.8. Share of current domestic and capital expenditure on R&D

(percentage of total domestic R&D expenditure)



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

(million rubles)

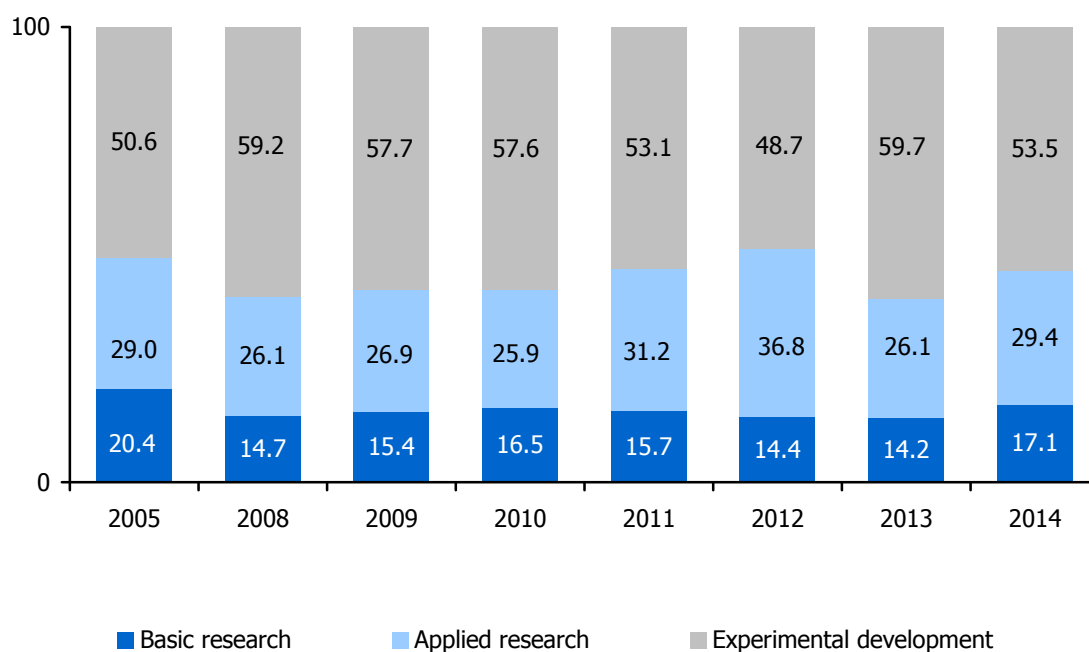
| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------------------------------|---------|---------|---------|-----------|-----------|-----------|
| Basic research | | | | | | |
| Total | 82 218 | 176 673 | 255 119 | 441 581 | 585 246 | 649 954 |
| of which by field of science: | | | | | | |
| natural | 44 114 | 82 555 | 126 530 | 213 510 | 301 202 | 309 831 |
| engineering | 16 152 | 45 584 | 55 163 | 118 465 | 130 063 | 167 481 |
| medical | 6 575 | 12 755 | 20 018 | 20 898 | 29 752 | 45 199 |
| agricultural | 2 651 | 8 658 | 16 031 | 23 631 | 30 484 | 38 844 |
| socioeconomic and social | 6 834 | 14 527 | 21 419 | 35 487 | 53 735 | 42 012 |
| humananities | 5 892 | 12 594 | 15 958 | 29 590 | 40 010 | 46 587 |
| Applied research | | | | | | |
| Total | 116 517 | 277 807 | 504 459 | 1 126 873 | 1 072 589 | 1 122 056 |
| of which by field of science: | | | | | | |
| natural | 20 373 | 49 690 | 88 686 | 145 071 | 216 926 | 230 166 |
| engineering | 51 043 | 122 416 | 258 683 | 705 065 | 474 593 | 509 818 |
| medical | 8 730 | 28 494 | 42 473 | 78 366 | 122 454 | 103 122 |
| agricultural | 22 521 | 48 557 | 74 433 | 112 545 | 157 496 | 166 108 |
| socioeconomic and social | 13 019 | 27 981 | 37 770 | 81 366 | 95 244 | 105 511 |
| humananities | 831 | 669 | 2 414 | 4 460 | 5 876 | 7 331 |

Continued

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---------------------------------|---------|---------|---------|-----------|-----------|-----------|
| Experimental development | | | | | | |
| Total | 203 368 | 618 193 | 859 571 | 1 491 278 | 2 453 277 | 2 037 267 |
| of which by field of science: | | | | | | |
| natural | 21 044 | 42 271 | 59 885 | 128 095 | 127 226 | 146 824 |
| engineering | 169 100 | 532 892 | 749 785 | 1 295 515 | 2 247 651 | 1 856 898 |
| medical | 3 083 | 17 007 | 17 785 | 24 270 | 23 618 | 11 338 |
| agricultural | 6 869 | 18 382 | 20 508 | 30 205 | 39 075 | 15 142 |
| socioeconomic and social | 2 610 | 7 279 | 10 946 | 11 871 | 13 642 | 5 441 |
| humananities | 662 | 362 | 662 | 1 322 | 2 065 | 1 624 |

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

(as percentage of total)



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

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---------------------------------|---------|-----------|-----------|-----------|-----------|-----------|
| Million rubles | | | | | | |
| Republic of Belarus | 402 103 | 1 072 673 | 1 619 149 | 3 059 732 | 4 111 112 | 3 809 277 |
| Regions: | | | | | | |
| Brest | 5 017 | 12 361 | 18 386 | 35 833 | 51 303 | 54 220 |
| Vitebsk | 12 587 | 23 632 | 45 978 | 82 294 | 113 664 | 131 057 |
| Gomel | 39 881 | 85 154 | 140 978 | 228 197 | 492 753 | 317 039 |
| Grodno | 7 095 | 14 564 | 21 554 | 37 510 | 52 202 | 29 212 |
| Minsk city | 307 459 | 856 371 | 1 276 419 | 2 460 597 | 3 129 113 | 2 945 205 |
| Minsk | 20 800 | 61 990 | 89 625 | 151 624 | 193 158 | 249 029 |
| Mogilev | 9 264 | 18 601 | 26 209 | 63 677 | 78 919 | 83 515 |
| Basic research | | | | | | |
| Republic of Belarus | 82 218 | 176 673 | 255 119 | 441 581 | 585 246 | 649 954 |
| Regions | | | | | | |
| Brest | 898 | 1 881 | 2 398 | 3 217 | 4 529 | 5 091 |
| Vitebsk | 2 015 | 2 315 | 3 184 | 5 836 | 9 543 | 10 258 |
| Gomel | 4 494 | 10 894 | 15 609 | 27 649 | 36 446 | 40 534 |
| Grodno | 3 511 | 4 028 | 5 273 | 7 577 | 10 674 | 10 357 |
| Minsk city | 67 823 | 148 469 | 214 643 | 377 970 | 499 853 | 547 990 |
| Minsk | 1 716 | 7 652 | 11 793 | 16 812 | 19 986 | 31 232 |
| Mogilev | 1 761 | 1 434 | 2 219 | 2 520 | 4 215 | 4 492 |
| Applied research | | | | | | |
| Republic of Belarus | 116 517 | 277 807 | 504 459 | 1 126 873 | 1 072 589 | 1 122 056 |
| Regions: | | | | | | |
| Brest | 1 664 | 2 923 | 6 380 | 7 553 | 9 141 | 11 987 |
| Vitebsk | 961 | 6 286 | 11 560 | 17 657 | 19 873 | 16 730 |
| Gomel | 8 072 | 33 407 | 52 894 | 120 595 | 156 480 | 83 406 |
| Grodno | 565 | 3 052 | 4 800 | 8 878 | 9 947 | 10 650 |
| Minsk city | 88 305 | 194 537 | 366 322 | 867 716 | 728 428 | 841 025 |
| Minsk | 13 584 | 30 284 | 54 637 | 91 471 | 133 394 | 142 962 |
| Mogilev | 3 366 | 7 318 | 7 866 | 13 003 | 15 326 | 15 296 |
| Experimental development | | | | | | |
| Republic of Belarus | 203 368 | 618 193 | 859 571 | 1 491 278 | 2 453 277 | 2 037 267 |
| Regions: | | | | | | |
| Brest | 2 455 | 7 557 | 9 608 | 25 063 | 37 633 | 37 142 |
| Vitebsk | 9 611 | 15 031 | 31 234 | 58 801 | 84 248 | 104 069 |
| Gomel | 27 315 | 40 853 | 72 475 | 79 953 | 299 827 | 193 099 |
| Grodno | 3 019 | 7 484 | 11 481 | 21 055 | 31 581 | 8 205 |
| Minsk city | 151 331 | 513 365 | 695 454 | 1 214 911 | 1 900 832 | 1 556 190 |
| Minsk | 5 500 | 24 054 | 23 195 | 43 341 | 39 778 | 74 835 |
| Mogilev | 4 137 | 9 849 | 16 124 | 48 154 | 59 378 | 63 727 |

Continued

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---------------------------------|------|------|------|------|------|------|
| As percentage of total | | | | | | |
| Republic of Belarus | 100 | 100 | 100 | 100 | 100 | 100 |
| Regions: | | | | | | |
| Brest | 1.2 | 1.2 | 1.1 | 1.2 | 1.2 | 1.4 |
| Vitebsk | 3.1 | 2.2 | 2.9 | 2.7 | 2.8 | 3.4 |
| Gomel | 9.9 | 7.9 | 8.7 | 7.5 | 12.0 | 8.3 |
| Grodno | 1.8 | 1.4 | 1.3 | 1.2 | 1.3 | 0.8 |
| Minsk city | 76.5 | 79.8 | 78.8 | 80.4 | 76.1 | 77.3 |
| Minsk | 5.2 | 5.8 | 5.6 | 5.0 | 4.7 | 6.6 |
| Mogilev | 2.3 | 1.7 | 1.6 | 2.0 | 1.9 | 2.2 |
| Basic research | | | | | | |
| Republic of Belarus | 100 | 100 | 100 | 100 | 100 | 100 |
| Regions: | | | | | | |
| Brest | 1.1 | 1.1 | 0.9 | 0.7 | 0.8 | 0.8 |
| Vitebsk | 2.4 | 1.3 | 1.3 | 1.3 | 1.6 | 1.6 |
| Gomel | 5.5 | 6.2 | 6.1 | 6.3 | 6.3 | 6.2 |
| Grodno | 4.3 | 2.3 | 2.1 | 1.7 | 1.8 | 1.6 |
| Minsk city | 82.5 | 84.0 | 84.1 | 85.6 | 85.4 | 84.3 |
| Minsk | 2.1 | 4.3 | 4.6 | 3.8 | 3.4 | 4.8 |
| Mogilev | 2.1 | 0.8 | 0.9 | 0.6 | 0.7 | 0.7 |
| Applied research | | | | | | |
| Republic of Belarus | 100 | 100 | 100 | 100 | 100 | 100 |
| Regions: | | | | | | |
| Brest | 1.4 | 1.1 | 1.3 | 0.7 | 0.9 | 1.1 |
| Vitebsk | 0.8 | 2.3 | 2.3 | 1.6 | 1.9 | 1.5 |
| Gomel | 6.9 | 12.0 | 10.5 | 10.7 | 14.6 | 7.4 |
| Grodno | 0.5 | 1.1 | 0.9 | 0.8 | 0.9 | 0.9 |
| Minsk city | 75.8 | 70.0 | 72.6 | 77.0 | 67.9 | 75.0 |
| Minsk | 11.7 | 10.9 | 10.8 | 8.1 | 12.4 | 12.7 |
| Mogilev | 2.9 | 2.6 | 1.6 | 1.1 | 1.4 | 1.4 |
| Experimental development | | | | | | |
| Republic of Belarus | 100 | 100 | 100 | 100 | 100 | 100 |
| Regions: | | | | | | |
| Brest | 1.2 | 1.2 | 1.1 | 1.7 | 1.5 | 1.8 |
| Vitebsk | 4.7 | 2.4 | 3.6 | 3.9 | 3.4 | 5.1 |
| Gomel | 13.4 | 6.6 | 8.4 | 5.4 | 12.2 | 9.5 |
| Grodno | 1.5 | 1.2 | 1.4 | 1.4 | 1.3 | 0.4 |
| Minsk city | 74.4 | 83.1 | 80.9 | 81.5 | 77.5 | 76.4 |
| Minsk | 2.7 | 3.9 | 2.7 | 2.9 | 1.7 | 3.7 |
| Mogilev | 2.1 | 1.6 | 1.9 | 3.2 | 2.4 | 3.1 |

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

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|-----------|-----------|-----------|-----------|-----------|
| Total scientific and technological activities performed | 832 670 | 1 427 796 | 2 225 615 | 4 368 097 | 5 651 273 | 4 994 130 |
| of which: | | | | | | |
| research and development | 516 101 | 1 259 734 | 1 959 059 | 4 181 400 | 5 433 765 | 4 733 235 |
| of which without subcontracting | 447 260 | 1 082 228 | 1 684 977 | 3 746 758 | 4 928 912 | 4 231 408 |
| scientific and technological services | 56 545 | 107 287 | 158 603 | 186 697 | 217 508 | 260 895 |
| of which without subcontracting | 44 865 | 101 830 | 148 905 | 178 520 | 212 045 | 255 606 |

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

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---------|-----------|-----------|-----------|-----------|-----------|
| Total | | | | | | |
| Total scientific and technological activities performed | 832 670 | 1 427 796 | 2 225 615 | 4 368 097 | 5 651 273 | 4 994 130 |
| of which without subcontracting | 746 151 | 1 241 206 | 1 941 206 | 3 925 278 | 5 140 957 | 4 487 014 |
| Government sector | | | | | | |
| Total scientific and technological activities performed | 381 417 | 368 872 | 574 882 | 934 121 | 1 352 774 | 1 375 043 |
| of which without subcontracting | 344 732 | 296 179 | 446 440 | 741 807 | 1 095 011 | 1 138 060 |
| Business enterprise sector | | | | | | |
| Total scientific and technological activities performed | 359 233 | 886 387 | 1 401 916 | 3 020 968 | 3 746 915 | 3 089 777 |
| of which without subcontracting | 317 679 | 790 487 | 1 274 508 | 2 814 072 | 3 546 766 | 2 856 512 |
| Higher education sector | | | | | | |
| Total scientific and technological activities performed | 92 020 | 172 183 | 247 886 | 411 842 | 549 577 | 528 408 |
| of which without subcontracting | 83 740 | 154 285 | 219 613 | 368 663 | 498 102 | 491 741 |

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

(million rubles)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|---------|-----------|-----------|-----------|-----------|-----------|
| Scientific and technological activities performed – total | | | | | | |
| Republic of Belarus | 832 670 | 1 427 796 | 2 225 615 | 4 368 097 | 5 651 273 | 4 994 130 |
| Regions: | | | | | | |
| Brest | 6 436 | 16 147 | 23 413 | 51 755 | 70 422 | 88 408 |
| Vitebsk | 16 774 | 27 254 | 67 212 | 127 100 | 163 355 | 202 751 |
| Gomel | 59 737 | 146 983 | 289 959 | 637 932 | 595 976 | 431 316 |
| Grodno | 8 870 | 16 292 | 25 567 | 44 690 | 60 699 | 32 224 |
| Minsk city | 697 544 | 1 118 659 | 1 675 971 | 3 245 309 | 4 420 461 | 3 787 861 |
| Minsk | 30 912 | 80 379 | 113 687 | 182 290 | 242 786 | 349 823 |
| Mogilev | 12 397 | 22 082 | 29 806 | 79 021 | 97 574 | 101 747 |
| of which without subcontracting | | | | | | |
| Republic of Belarus | 746 151 | 1 241 206 | 1 941 206 | 3 925 278 | 5 140 957 | 4 487 014 |
| Regions: | | | | | | |
| Brest | 5 800 | 14 212 | 20 486 | 46 544 | 62 468 | 76 527 |
| Vitebsk | 14 515 | 23 199 | 63 214 | 121 038 | 155 253 | 191 863 |
| Gomel | 57 532 | 140 341 | 261 772 | 621 802 | 575 224 | 420 203 |
| Grodno | 8 342 | 15 069 | 24 948 | 43 984 | 58 702 | 30 339 |
| Minsk city | 622 077 | 958 408 | 1 442 551 | 2 857 826 | 3 993 207 | 3 398 499 |
| Minsk | 26 119 | 69 188 | 98 643 | 165 319 | 209 806 | 280 023 |
| Mogilev | 11 766 | 20 789 | 29 592 | 68 765 | 86 297 | 89 560 |

6. INNOVATION

The official statistical information on innovation activity is compiled on the basis of the annual state statistical survey results.

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

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

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

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

Organisations carrying out technological innovations are organisations that engage in development and implementation of new or improved products or technological processes.

Technological innovations comprise product and/or process innovations.

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

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

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

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

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

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

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

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

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

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

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

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

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

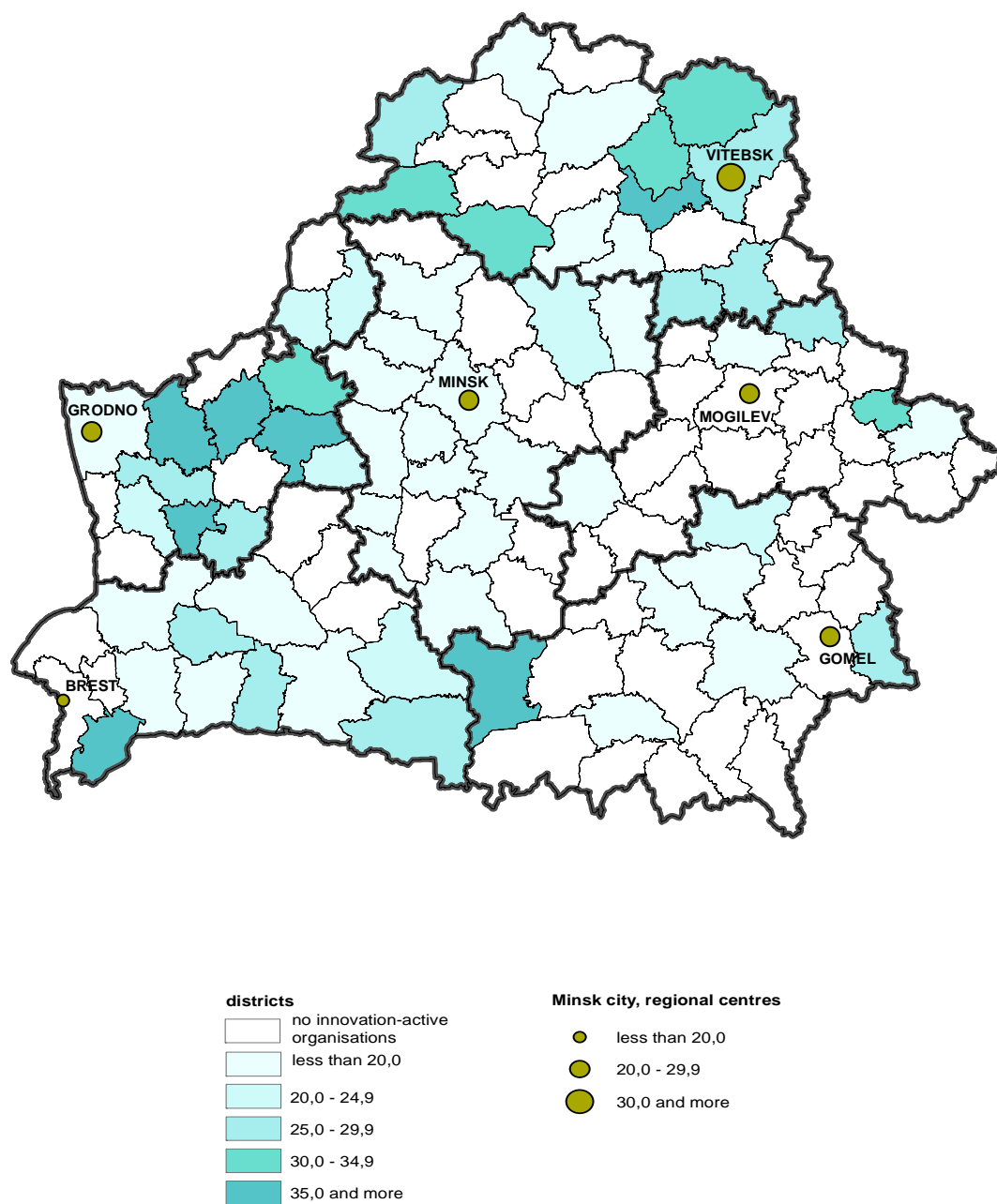
Integrated circuit is a microelectronic item of finished or intermediate form designed to perform functions of an electronic circuit. Its elements and connections are inseparably formed within and/or on the surface of the material on the basis of which the item is manufactured.

6.1. Indicators of intramural innovation and industrial activities

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-----------|-----------|-------------------------|-------------------------|-------------|-------------|
| Number of innovation-active industrial organisations | 318 | 324 | 443 | 437 | 411 | 383 |
| Share of innovation-active organisations in total industrial organisations surveyed, % | 14,1 | 15,4 | 22,7 | 22,8 | 21,7 | 20.9 |
| Share of shipped innovative output in total industrial output shipped, % | 15.2 | 14.5 | 14.4 | 17.8 | 17.8 | 13.9 |
| Intramural expenditures on technological innovations in industry, at current prices, BYR billion | 2 362.1 | 2 793.3 | 8 763.7 | 7 937.5 | 9986.2 | 10 281.9 |
| Gross domestic product, BYR billion | 65 067.1 | 164 476.1 | 297 157.7 | 527 385.1 | 636784.2 | 778 455.5 |
| of which gross value added in industry, BYR billion | 20 269.0 | 44 895.0 | 91 792.1 ¹⁾ | 167 418.9 | 173 165.5 | 209 153.0 |
| Fixed assets in the economy (at initial value at year-end) ¹⁾ , BYR billion | 207 512.9 | 431 561.2 | 865 672.2 | 1 198 019.3 | 1 469 140.8 | 1 648 586.1 |
| of which in industry | 82 527.7 | 159 648.7 | 386 283.6 | 535 477 | 651 513.8 | 751 118.3 |
| Fixed capital investment, BYR billion | 15 095.8 | 55 380.8 | 98 664.9 | 154 442.4 | 209 574.6 | 225 658.9 |
| of which in industry | 4 781.1 | 16 321.8 | 39 832.7 | 53 139.6 | 75 582.8 | 82 038.2 |
| Industrial output (at current prices), BYR billion | 64 502.2 | 166 953.1 | 347 655.5 ¹⁾ | 615 861.9 ¹⁾ | 605 634.5 | 673 850.1 |

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

6.2. Share of innovation-active organisations in total organisations surveyed in 2014 (percent)



6.3. Innovation-active organisations by innovation activity

(entities)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|------|------|------|------|------|------|
| Industry | | | | | | |
| Total innovation-active organisations | 318 | 324 | 443 | 437 | 411 | 383 |
| of which engaged in: | | | | | | |
| research and development of new products, services and methods of their production (transfer), of new production processes | 153 | 191 | 249 | 115 | 113 | 110 |
| acquisition of machinery and equipment linked to technological innovation | 227 | 203 | 242 | 241 | 240 | 203 |
| acquisition of new and high technologies ¹⁾ | 35 | 20 | 11 | 13 | 16 | 12 |
| of which acquisition of property rights to inventions, useful models, industrial designs, topology of integrated circuits under assignment agreements; acquisition of rights to their use under licence agreements | 12 | 4 | 3 | 4 | 6 | 8 |
| acquisition of computer software and databases linked to technological innovation | 53 | 38 | 29 | 30 | 34 | 23 |
| production designing, other pre-production activities for introducing new products or services or methods of their production (transfer) | 114 | 136 | 169 | 229 | 195 | 206 |
| training, retraining and advanced training linked to technological innovations | 50 | 47 | 58 | 60 | 51 | 40 |
| marketing research linked to technological innovation | 60 | 39 | 39 | 41 | 43 | 38 |
| other expenditures on technological innovation | 46 | 16 | 21 | 13 | 24 | 34 |

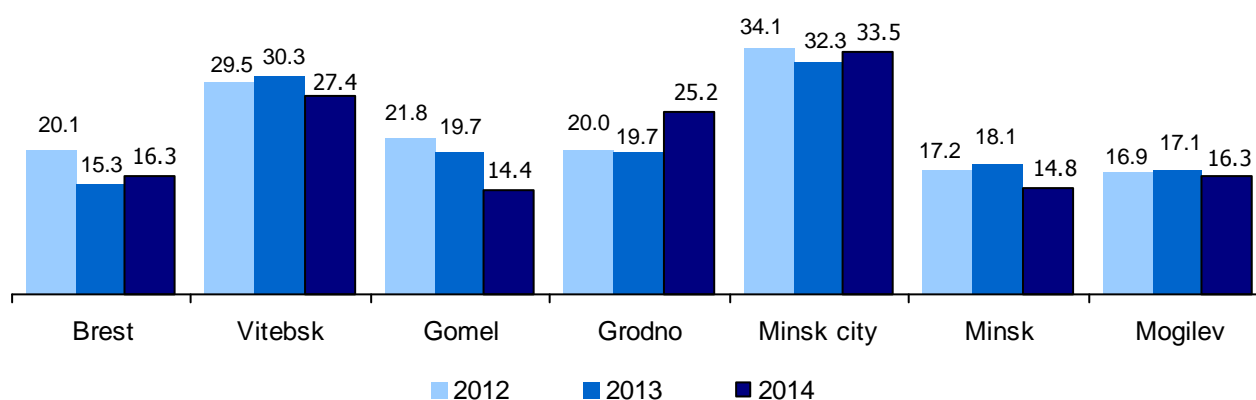
| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|------|------|------|------|------|------|
| Service sector | | | | | | |
| Total innovation-active organisations | ... | 25 | 24 | 45 | 43 | 32 |
| of which engaged in: | | | | | | |
| research and development of new products, services and methods of their production (transfer), of new production processes | ... | 14 | 12 | 8 | 7 | 6 |
| acquisition of machinery and equipment linked to technological innovation | ... | 14 | 13 | 24 | 21 | 17 |
| acquisition of new and high technologies ¹⁾ | ... | 3 | 4 | 2 | 2 | 1 |
| of which acquisition of property rights to inventions, useful models, industrial designs, topology of integrated circuits under assignment agreements; acquisition of rights to their use under licence agreements | ... | 1 | 2 | 2 | 1 | 1 |
| acquisition of computer software and databases linked to technological innovation | ... | 3 | 4 | 10 | 7 | 6 |
| production designing, other pre-production activities for introducing new products or services or methods of their production (transfer) | ... | 7 | 8 | 18 | 19 | 13 |
| personnel training linked to technological innovation | ... | 6 | 5 | 11 | 13 | 8 |
| marketing research linked to technological innovation | ... | 3 | 2 | 2 | 1 | 1 |
| other expenditures on technological innovation | ... | 1 | 1 | 1 | 2 | 2 |

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

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

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|------|------|
| Industry | | | | | | |
| Republic of Belarus | 318 | 324 | 443 | 437 | 411 | 383 |
| Region: | | | | | | |
| Brest | 53 | 47 | 58 | 60 | 45 | 47 |
| Vitebsk | 31 | 46 | 85 | 71 | 71 | 62 |
| Gomel | 42 | 45 | 58 | 59 | 53 | 38 |
| Grodno | 40 | 39 | 51 | 46 | 45 | 57 |
| Minsk city | 74 | 65 | 91 | 102 | 97 | 95 |
| Minsk | 53 | 55 | 67 | 64 | 66 | 52 |
| Mogilev | 25 | 27 | 33 | 35 | 34 | 32 |
| Service sector | | | | | | |
| Republic of Belarus | ... | 25 | 24 | 45 | 43 | 32 |
| Region: | | | | | | |
| Brest | ... | 3 | 3 | 3 | 3 | 3 |
| Vitebsk | ... | 1 | 1 | 1 | 1 | 1 |
| Gomel | ... | 1 | 2 | 2 | 1 | 1 |
| Grodno | ... | 1 | 1 | 1 | 1 | 1 |
| Minsk city | ... | 18 | 16 | 34 | 34 | 23 |
| Minsk | ... | – | – | – | – | – |
| Mogilev | ... | 1 | 1 | 4 | 3 | 3 |

6.5. Share of innovation-active industrial organisations by regions and Minsk city (% of total industrial organisations surveyed)



6.6. Industrial organisations having intramural expenditure on innovations by economic activity in 2014

| | Organisations having expenditure on: | | |
|--|--------------------------------------|---------------------------|----------------------|
| | technological innovation | organisational innovation | marketing innovation |
| Number of organisations | | | |
| Total | 383 | 52 | 78 |
| of which: | | | |
| Mining | 6 | 2 | – |
| extraction of fossil fuels | 3 | 1 | – |
| extraction of minerals, except fossil fuels | 3 | 1 | – |
| Manufacturing | 369 | 47 | 78 |
| manufacture of food products, including beverages, and tobacco | 60 | 7 | 27 |
| manufacture of textiles and textile articles | 25 | 7 | 10 |
| manufacture of leather, of products of leather and manufacture of footwear | 9 | – | 1 |
| manufacture of wood and of products of wood | 7 | 5 | 2 |
| manufacture of paper and paper products, publishing | 6 | – | – |
| manufacture of coke, petroleum products and nuclear materials | 3 | 1 | 2 |
| manufacture of chemicals and chemical products | 27 | 2 | 4 |
| manufacture of rubber and plastics products | 9 | – | – |
| manufacture of other non-metallic mineral products | 26 | 1 | 3 |
| manufacture of basic metals and fabricated metal products | 25 | 4 | 2 |
| manufacture of machinery and equipment | 78 | 6 | 12 |
| manufacture of electrical machinery, electronic and optical equipment | 57 | 5 | 5 |
| manufacture of transport vehicles and equipment | 25 | 4 | 6 |
| other manufacture | 12 | 5 | 4 |
| Electricity, gas and water supply | 8 | 3 | – |

| | Organisations having expenditure on: | | |
|--|--------------------------------------|---------------------------|----------------------|
| | technological innovation | organisational innovation | marketing innovation |
| As % of total organisations having innovation expenditure | | | |
| Total | 74.7 | 10.1 | 15.2 |
| of which: | | | |
| Mining | 75.0 | 25.0 | – |
| extraction of fossil fuels | 75.0 | 25.0 | – |
| extraction of minerals, except fossil fuels | 75.0 | 25.0 | – |
| Manufacturing | 74.7 | 9.5 | 15.8 |
| manufacture of food products, including beverages, and tobacco | 63.8 | 7.5 | 28.7 |
| manufacture of textiles and textile articles | 59.5 | 16.7 | 23.8 |
| manufacture of leather, of products of leather and manufacture of footwear | 90.0 | – | 10.0 |
| manufacture of wood and of products of wood | 50.0 | 35.7 | 14.3 |
| manufacture of paper and paper products, publishing | 100 | – | – |
| manufacture of coke, petroleum products and nuclear materials | 50.0 | 16.7 | 33.3 |
| manufacture of chemicals and chemical products | 81.8 | 6.1 | 12.1 |
| manufacture of rubber and plastics products | 100 | – | – |
| manufacture of other non-metallic mineral products | 86.7 | 3.3 | 10.0 |
| manufacture of basic metals and fabricated metal products | 80.6 | 12.9 | 6.5 |
| manufacture of machinery and equipment | 81.3 | 6.2 | 12.5 |
| manufacture of electrical machinery, electronic and optical equipment | 85.0 | 7.5 | 7.5 |
| manufacture of transport vehicles and equipment | 71.4 | 11.5 | 17.1 |
| other manufacture | 57.1 | 23.8 | 19.1 |
| Electricity, gas and water supply | 72.7 | 27.3 | – |

6.7. Industrial organisations having intramural expenditure on innovations by regions and Minsk city in 2014

| | Organisations having expenditure on: | | |
|--|--------------------------------------|---------------------------|----------------------|
| | technological innovation | organisational innovation | marketing innovation |
| Number of organisations | | | |
| Republic of Belarus | 383 | 52 | 78 |
| Region: | | | |
| Brest | 47 | 12 | 16 |
| Vitebsk | 62 | 10 | 13 |
| Gomel | 38 | 7 | 12 |
| Grodno | 57 | – | 5 |
| Minsk city | 95 | 10 | 17 |
| Minsk | 52 | 7 | 9 |
| Mogilev | 32 | 6 | 6 |
| As % of total organisations having innovation expenditure | | | |
| Republic of Belarus | 74.7 | 10.1 | 15.2 |
| Region: | | | |
| Brest | 62.7 | 16.0 | 21.3 |
| Vitebsk | 72.9 | 11.8 | 15.3 |
| Gomel | 66.7 | 12.3 | 21.0 |
| Grodno | 91.9 | – | 8.1 |
| Minsk city | 77.9 | 8.2 | 13.9 |
| Minsk | 76.5 | 10.3 | 13.2 |
| Mogilev | 72.8 | 13.6 | 13.6 |

6.8. Intramural innovation activity in industry by type of technological innovation and economic activity in 2014

(as percentage of total)

| | Innovation-active organisations having expenditure on technological innovation | Of which having expenditure on | | |
|--|--|--------------------------------|---------------------|--|
| | | product innovations | process innovations | product and process innovations ⁶ |
| Total | 100 | 68.4 | 17.0 | 14.6 |
| of which: | | | | |
| Mining | 100 | 50.0 | 33.3 | 16.7 |
| extraction of fossil fuels | 100 | 33.3 | 33.3 | 33.3 |
| extraction of minerals, except fossil fuels | 100 | 66.7 | 33.3 | – |
| Manufacturing | 100 | 69.4 | 15.7 | 14.9 |
| manufacture of food products, including beverages, and tobacco | 100 | 70.0 | 20.0 | 10.0 |
| manufacture of textiles and textile articles | 100 | 80.0 | 4.0 | 16.0 |
| manufacture of leather, of products of leather and manufacture of footwear | 100 | 88.9 | – | 11.1 |
| manufacture of wood and of products of wood | 100 | 57.1 | 42.9 | – |
| manufacture of paper and paper products, publishing | 100 | 66.7 | 33.3 | – |
| manufacture of coke, petroleum products and nuclear materials | 100 | 66.7 | 33.3 | – |
| manufacture of chemicals and chemical products | 100 | 66.7 | 11.1 | 22.2 |
| manufacture of rubber and plastics products | 100 | 33.3 | 55.6 | 11.1 |
| manufacture of other non-metallic mineral products | 100 | 69.2 | 19.2 | 11.5 |
| manufacture of basic metals and fabricated metal products | 100 | 76.0 | 20.0 | 4.0 |
| manufacture of machinery and equipment | 100 | 71.8 | 7.7 | 20.5 |
| manufacture of electrical, electronic and optical equipment | 100 | 64.9 | 14.0 | 21.1 |
| manufacture of transport vehicles and equipment | 100 | 68.0 | 12.0 | 20.0 |
| other manufacture | 100 | 66.7 | 33.3 | – |
| Electricity, gas and water supply | 100 | 37,5 | 62,5 | – |

⁶ Hereinafter organisations incurring expenditure on product and process innovations at the same time.

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

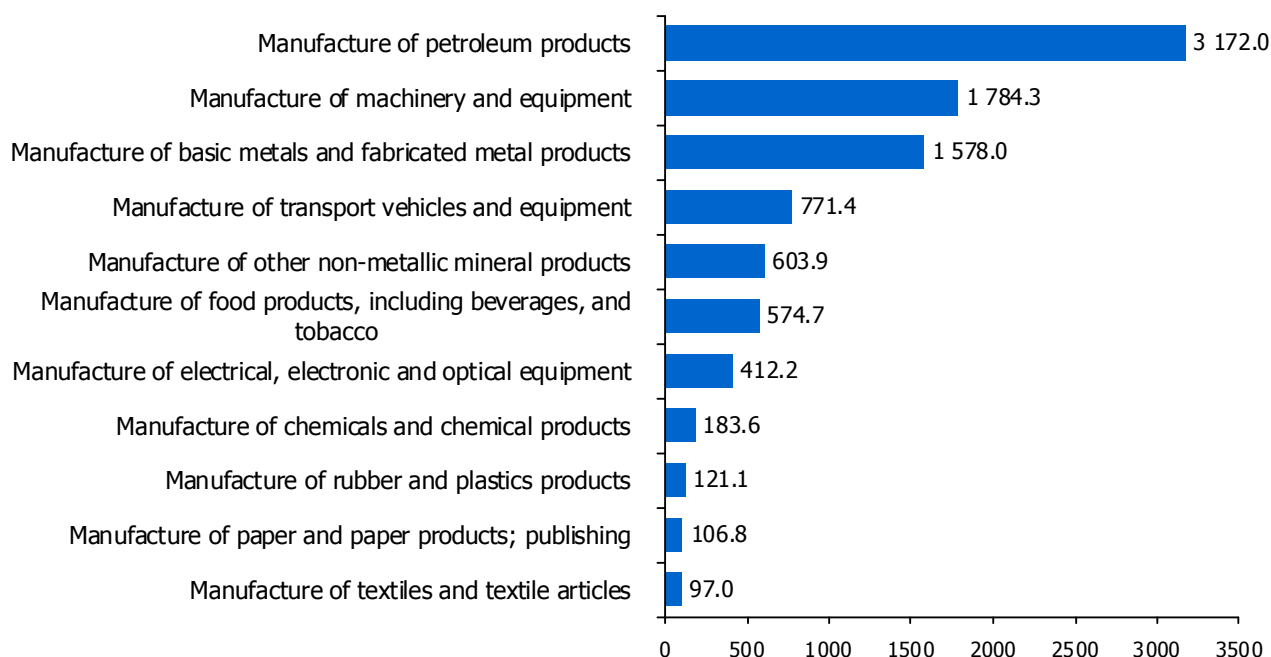
(as percentage of total)

| | Innovation-active organisations having expenditure on technological innovation | Of which having expenditure on | | |
|---------------------|--|--------------------------------|---------------------|---------------------------------|
| | | product innovations | process innovations | product and process innovations |
| Republic of Belarus | | | | |
| 2005 | 100 | 31.4 | 49.1 | 19.5 |
| 2010 | 100 | 52.2 | 25.3 | 22.5 |
| 2011 | 100 | 69.3 | 12.9 | 17.8 |
| 2012 | 100 | 75.3 | 10.1 | 14.6 |
| 2013 | 100 | 66.2 | 10.8 | 15.8 |
| 2014 | 100 | 68.4 | 17.0 | 14.6 |
| Brest region | | | | |
| 2005 | 100 | 24.5 | 64.2 | 11.3 |
| 2010 | 100 | 57.4 | 27.7 | 14.9 |
| 2011 | 100 | 69.0 | 15.5 | 15.5 |
| 2012 | 100 | 73.3 | 15.0 | 11.7 |
| 2013 | 100 | 48.9 | 40.0 | 11.1 |
| 2014 | 100 | 57.4 | 29.8 | 12.8 |
| Vitebsk region | | | | |
| 2005 | 100 | 45.2 | 41.9 | 12.9 |
| 2010 | 100 | 56.5 | 13.1 | 30.4 |
| 2011 | 100 | 82.4 | 4.7 | 12.9 |
| 2012 | 100 | 84.5 | 1.4 | 14.1 |
| 2013 | 100 | 77.5 | 8.5 | 14.1 |
| 2014 | 100 | 82.3 | 8.1 | 9.6 |
| Gomel region | | | | |
| 2005 | 100 | 21.5 | 57.1 | 21.4 |
| 2010 | 100 | 51.1 | 35.6 | 13.3 |
| 2011 | 100 | 62.1 | 19.0 | 18.9 |
| 2012 | 100 | 81.4 | 8.5 | 10.1 |
| 2013 | 100 | 58.5 | 22.6 | 18.9 |
| 2014 | 100 | 57.9 | 18.4 | 23.7 |

| | Innovation-active organisations having expenditure on technological innovation | Of which having expenditure on | | |
|----------------|--|--------------------------------|---------------------|---------------------------------|
| | | product innovations | process innovations | product and process innovations |
| Grodno region | | | | |
| 2005 | 100 | 42.5 | 27.5 | 30.0 |
| 2010 | 100 | 46.2 | 33.3 | 20.5 |
| 2011 | 100 | 76.5 | 7.8 | 15.7 |
| 2012 | 100 | 80.4 | 6.5 | 13.1 |
| 2013 | 100 | 77.8 | 6.7 | 15.6 |
| 2014 | 100 | 87.7 | 8.8 | 3.5 |
| Minsk city | | | | |
| 2005 | 100 | 25.7 | 50.0 | 24.3 |
| 2010 | 100 | 50.8 | 18.4 | 30.8 |
| 2011 | 100 | 63.7 | 12.1 | 24.2 |
| 2012 | 100 | 69.6 | 9.8 | 20.6 |
| 2013 | 100 | 62.9 | 19.6 | 17.5 |
| 2014 | 100 | 68.4 | 13.7 | 17.9 |
| Minsk region | | | | |
| 2005 | 100 | 32.1 | 54.7 | 13.2 |
| 2010 | 100 | 52.7 | 30.9 | 16.4 |
| 2011 | 100 | 64.2 | 19.4 | 16.4 |
| 2012 | 100 | 68.8 | 17.2 | 14.0 |
| 2013 | 100 | 62.1 | 21.2 | 16.7 |
| 2014 | 100 | 48.1 | 32.7 | 19.2 |
| Mogilev region | | | | |
| 2005 | 100 | 44.0 | 32.0 | 24.0 |
| 2010 | 100 | 48.2 | 18.5 | 33.3 |
| 2011 | 100 | 63.6 | 15.2 | 21.2 |
| 2012 | 100 | 71.4 | 14.3 | 14.3 |
| 2013 | 100 | 79.4 | 5.9 | 14.7 |
| 2014 | 100 | 68.8 | 12.5 | 18.7 |

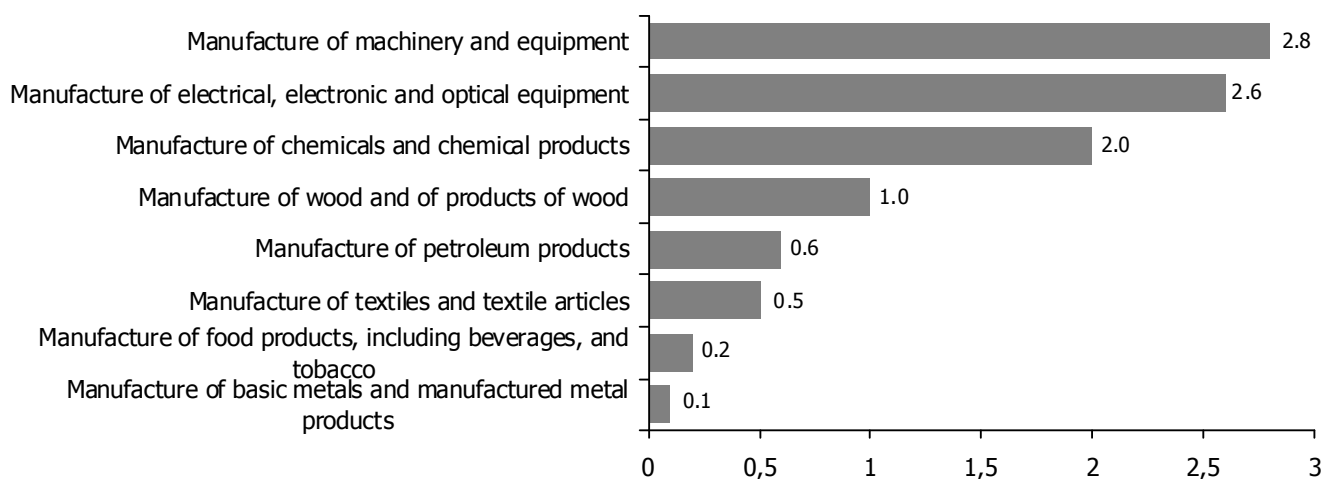
6.10. Intramural expenditure on technological innovations in manufacturing industry

(BYR billion)



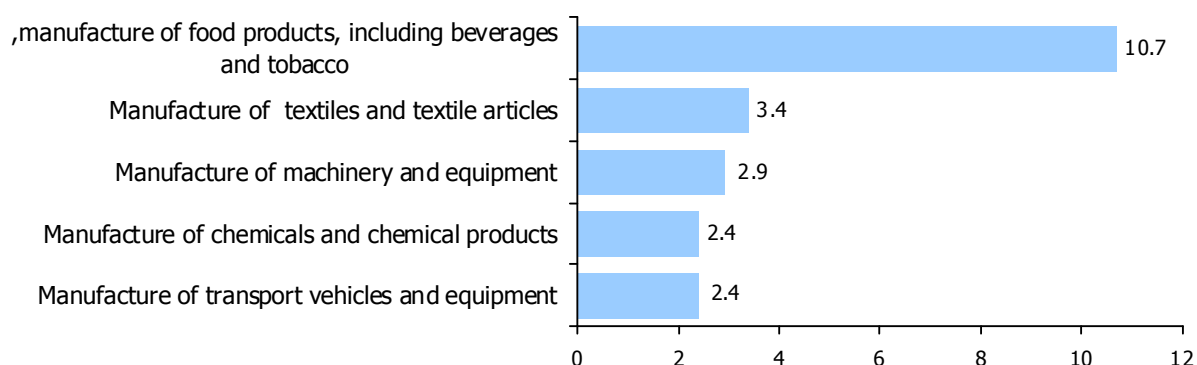
6.11. Intramural expenditure on organisational innovations in manufacturing industry

(BYR billion)



6.12. Intramural expenditure on marketing innovations in manufacturing industry

(BYR billion)



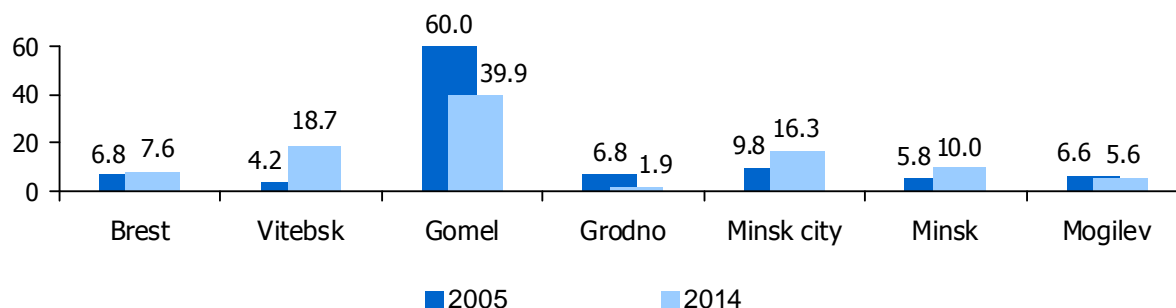
6.13. Intramural expenditure on technological innovations by regions and Minsk city

(BYR million)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|-----------|-----------|-----------|-----------|-----------|------------|
| Industry | | | | | | |
| Republic of Belarus | 2 362 063 | 2 793 302 | 8 763 697 | 7 937 546 | 9 986 209 | 10 281 912 |
| Region: | | | | | | |
| Brest | 160 400 | 471 841 | 561 477 | 554 341 | 571 465 | 777 649 |
| Vitebsk | 98 836 | 346 638 | 730 854 | 1 612 337 | 1 997 198 | 1 917 604 |
| Gomel | 1 416 466 | 734 299 | 3 673 703 | 2 420 439 | 2 203 494 | 4 107 198 |
| Grodno | 161 945 | 482 711 | 1 875 650 | 726 170 | 170 861 | 200 411 |
| Minsk city | 231 526 | 455 857 | 1 023 397 | 1 035 191 | 1 242 268 | 1 677 516 |
| Minsk | 136 056 | 137 964 | 299 601 | 559 580 | 1 119 424 | 1 027 239 |
| Mogilev | 156 834 | 163 992 | 599 015 | 1 029 488 | 2 681 499 | 574 295 |
| Service sector | | | | | | |
| Republic of Belarus | ... | 129 711 | 252 268 | 551 209 | 741 783 | 432 443 |
| Region: | | | | | | |
| Brest | ... | 10 586 | 18 924 | 43 890 | 103 532 | 30 770 |
| Vitebsk | ... | 34 581 | 38 710 | 45 660 | 42 216 | 41 598 |
| Gomel | ... | 174 | 35 037 | 2 402 | 151 379 | 31 854 |
| Grodno | ... | 58 | 8 578 | 59 651 | 70 795 | 1 995 |
| Minsk city | ... | 82 026 | 143 283 | 364 233 | 315 737 | 313 489 |
| Minsk | ... | — | — | — | — | — |
| Mogilev | ... | 2 286 | 7 736 | 35 373 | 58 124 | 12 737 |

6.14. Share of intramural expenditure on technological innovations in industry by regions and Minsk city

(as % of total expenditure on technological innovations)



6.15. Intramural expenditure on technological innovations in industry by regions and Minsk city

| | Intramural expenditure on technological innovations | Of which | |
|---------------------|---|---------------------|---------------------|
| | | product innovations | process innovations |
| BYR million | | | |
| Republic of Belarus | | | |
| 2005 | 2 362 063 | 1 590 405 | 771 658 |
| 2010 | 2 793 302 | 1 086 800 | 1 706 502 |
| 2011 | 8 763 697 | 4 754 968 | 4 008 729 |
| 2012 | 7 937 546 | 4 518 996 | 3 418 550 |
| 2013 | 9 986 209 | 5 844 150 | 4 142 059 |
| 2014 | 10 281 912 | 4 973 167 | 5 308 745 |
| Brest region | | | |
| 2005 | 160 400 | 29 001 | 131 399 |
| 2010 | 471 841 | 208 174 | 263 667 |
| 2011 | 561 477 | 544 614 | 16 863 |
| 2012 | 554 341 | 211 016 | 343 325 |
| 2013 | 571 465 | 106 280 | 465 185 |
| 2014 | 777 649 | 184 220 | 593 429 |
| Vitebsk region | | | |
| 2005 | 98 836 | 15 803 | 83 033 |
| 2010 | 346 638 | 58 697 | 287 941 |
| 2011 | 730 854 | 134 901 | 595 953 |
| 2012 | 1 612 337 | 157 766 | 1 454 571 |
| 2013 | 1 997 198 | 246 780 | 1 750 418 |
| 2014 | 1 917 604 | 287 821 | 1 629 783 |

| | Intramural expenditure on technological innovations | Of which | |
|----------------|---|---------------------|---------------------|
| | | product innovations | process innovations |
| Gomel region | | | |
| 2005 | 1 416 466 | 1 182 299 | 234 167 |
| 2010 | 734 299 | 253 071 | 481 228 |
| 2011 | 3 673 703 | 2 871 049 | 802 654 |
| 2012 | 2 420 439 | 2 043 167 | 377 272 |
| 2013 | 2 203 494 | 1 415 742 | 787 752 |
| 2014 | 4 107 198 | 2 390 129 | 1 717 069 |
| Grodno region | | | |
| 2005 | 161 945 | 110 491 | 51 454 |
| 2010 | 482 711 | 183 165 | 299 546 |
| 2011 | 1 875 650 | 276 423 | 1 599 227 |
| 2012 | 726 170 | 412 665 | 313 505 |
| 2013 | 170 861 | 142 641 | 28 220 |
| 2014 | 200 411 | 181 421 | 18 990 |
| Minsk city | | | |
| 2005 | 231 526 | 70 053 | 161 473 |
| 2010 | 455 857 | 174 289 | 281 568 |
| 2011 | 1 023 397 | 322 416 | 700 981 |
| 2012 | 1 035 191 | 421 037 | 614 154 |
| 2013 | 1 242 268 | 481 489 | 760 779 |
| 2014 | 1 677 516 | 698 934 | 978 582 |
| Minsk region | | | |
| 2005 | 136 056 | 83 315 | 52 741 |
| 2010 | 137 964 | 80 097 | 57 867 |
| 2011 | 299 601 | 203 496 | 96 105 |
| 2012 | 559 580 | 415 892 | 143 688 |
| 2013 | 1 119 424 | 868 396 | 251 028 |
| 2014 | 1 027 239 | 769 440 | 257 799 |
| Mogilev region | | | |
| 2005 | 156 834 | 99 443 | 57 391 |
| 2010 | 163 992 | 129 307 | 34 685 |
| 2011 | 599 015 | 402 069 | 196 946 |
| 2012 | 1 029 488 | 857 453 | 172 035 |
| 2013 | 2 681 499 | 2 582 822 | 98 677 |
| 2014 | 574 295 | 461 202 | 113 093 |

| | Intramural expenditure on technological innovations | Of which | |
|---------------------|---|---------------------|---------------------|
| | | product innovations | process innovations |
| As % of total | | | |
| Republic of Belarus | | | |
| 2005 | 100 | 67.3 | 32.7 |
| 2010 | 100 | 38.9 | 61.1 |
| 2011 | 100 | 54.3 | 45.7 |
| 2012 | 100 | 56.9 | 43.1 |
| 2013 | 100 | 58.5 | 41.5 |
| 2014 | 100 | 48.4 | 51.6 |
| Brest region | | | |
| 2005 | 100 | 18.1 | 81.9 |
| 2010 | 100 | 44.1 | 55.9 |
| 2011 | 100 | 97.0 | 3.0 |
| 2012 | 100 | 38.1 | 61.9 |
| 2013 | 100 | 18.6 | 81.4 |
| 2014 | 100 | 23.7 | 76.3 |
| Vitebsk region | | | |
| 2005 | 100 | 16.0 | 84.0 |
| 2010 | 100 | 16.9 | 83.1 |
| 2011 | 100 | 18.5 | 81.5 |
| 2012 | 100 | 9.8 | 90.2 |
| 2013 | 100 | 12.4 | 87.6 |
| 2014 | 100 | 15.0 | 85.0 |
| Gomel region | | | |
| 2005 | 100 | 83.5 | 16.5 |
| 2010 | 100 | 34.5 | 65.5 |
| 2011 | 100 | 78.2 | 21.8 |
| 2012 | 100 | 84.4 | 15.6 |
| 2013 | 100 | 64.2 | 35.8 |
| 2014 | 100 | 58.2 | 41.8 |

| | Intramural expenditure on technological innovations | Of which | |
|----------------|---|---------------------|---------------------|
| | | product innovations | process innovations |
| Grodno region | | | |
| 2005 | 100 | 68.2 | 31.8 |
| 2010 | 100 | 37.9 | 62.1 |
| 2011 | 100 | 14.7 | 85.3 |
| 2012 | 100 | 56.8 | 43.2 |
| 2013 | 100 | 83.5 | 16.5 |
| 2014 | 100 | 90.5 | 9.5 |
| Minsk city | | | |
| 2005 | 100 | 30.3 | 69.7 |
| 2010 | 100 | 38.2 | 61.8 |
| 2011 | 100 | 31.5 | 68.5 |
| 2012 | 100 | 40.7 | 59.3 |
| 2013 | 100 | 38.8 | 61.2 |
| 2014 | 100 | 41.7 | 58.3 |
| Minsk region | | | |
| 2005 | 100 | 61.2 | 38.8 |
| 2010 | 100 | 58.1 | 41.9 |
| 2011 | 100 | 67.9 | 32.1 |
| 2012 | 100 | 74.3 | 25.7 |
| 2013 | 100 | 77.6 | 22.4 |
| 2014 | 100 | 74.9 | 25.1 |
| Mogilev region | | | |
| 2005 | 100 | 63.4 | 36.6 |
| 2010 | 100 | 78.8 | 21.2 |
| 2011 | 100 | 67.1 | 32.9 |
| 2012 | 100 | 83.3 | 16.7 |
| 2013 | 100 | 96.3 | 3.7 |
| 2014 | 100 | 80.3 | 19.7 |

6.16. Intramural expenditure on innovations in industry by economic activity in 2014

(BYR million)

| | Intramural expenditure on innovations | Of which | | |
|---|---|------------------------------|-------------------------------|--------------------------|
| | | technological innovations | organisational innovations | marketing innovations |
| Total | 10 318 849 | 10 281 912 | 13 743 | 23 194 |
| of which: | | | | |
| Mining | 287 977 | 286 933 | 1 044 | – |
| extraction of fossil fuels | 271 748 | 270 745 | 1 003 | – |
| extraction of minerals, except fossil fuels | 16 229 | 16 188 | 41 | – |
| Manufacturing | 9 757 522 | 9 721 826 | 12 502 | 23 194 |
| manufacture of food products, including beverages, and tobacco | 585 714 | 574 717 | 248 | 10 749 |
| manufacture of textiles and textile articles | 100 879 | 97 038 | 480 | 3 361 |
| manufacture of leather, of products of leather and manufacture of footwear | 23 427 | 23 384 | – | 43 |
| manufacture of wood and of products of wood | 152 003 | 151 006 | 986 | 11 |
| manufacture of paper and paper products, publishing | 106 764 | 106 764 | – | – |
| manufacture of coke, petroleum products and nuclear materials | 3 172 704 | 3 172 019 | 564 | 121 |

| | Intramural expenditure on innovations | Of which | | |
|--|---|------------------------------|-------------------------------|--------------------------|
| | | technological innovations | organisational innovations | marketing innovations |
| manufacture of chemicals and chemical products | 187 948 | 183 559 | 2 000 | 2 389 |
| manufacture of rubber and plastics products | 121 112 | 121 112 | – | – |
| manufacture of other non-metallic mineral products | 603 978 | 603 901 | 46 | 31 |
| manufacture of basic metals and fabricated metal products | 1 578 133 | 1 578 045 | 83 | 5 |
| manufacture of machinery and equipment | 1 789 965 | 1 784 338 | 2 770 | 2 857 |
| manufacture of electrical, electronic and optical equipment | 414 943 | 412 249 | 2 580 | 114 |
| manufacture of transport vehicles and equipment | 773 954 | 771 380 | 195 | 2 379 |
| other manufacture | 145 998 | 142 314 | 2 550 | 1 134 |
| Electricity, gas and water supply | 273 350 | 273 153 | 197 | – |

6.17. Intramural expenditure on innovations in industry by regions and Minsk city in 2014

(BYR million)

| | Intramural expenditure on innovations | Of which | | |
|---------------------|--|------------------------------|-------------------------------|--------------------------|
| | | technological innovations | organisational innovations | marketing innovations |
| Republic of Belarus | 10 318 849 | 10 281 912 | 13 743 | 23 194 |
| Region: | | | | |
| Brest | 781 241 | 777 649 | 1 168 | 2 424 |
| Vitebsk | 1 924 701 | 1 917 604 | 2 285 | 4 812 |
| Gomel | 4 114 657 | 4 107 198 | 1 626 | 5 833 |
| Grodno | 201 503 | 200 411 | – | 1 092 |
| Minsk city | 1 683 627 | 1 677 516 | 2 055 | 4 056 |
| Minsk | 1 030 158 | 1 027 239 | 875 | 2 044 |
| Mogilev | 582 962 | 574 295 | 5 734 | 2 933 |

6.18. Intramural expenditure on technological innovations by source of funds

(BYR million)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-----------|-----------|-----------|-----------|-----------|------------|
| Industry | | | | | | |
| Funding of expenditure on technological innovation | 2 362 063 | 2 793 302 | 8 763 697 | 7 937 546 | 9 986 209 | 10 281 912 |
| of which out of: | | | | | | |
| own funds | 1 839 372 | 1 085 953 | 5 303 613 | 3 813 918 | 5 024 469 | 5 566 559 |
| republican budget | 138 632 | 181 478 | 263 701 | 507 599 | 728 424 | 641 469 |
| of which innovation funds | ... | 120 183 | 116 985 | 267 713 | 221 956 | 286 045 |
| local budget | 10 893 | 7 407 | 5 491 | 8 535 | 33 837 | 140 274 |
| of which innovation funds | ... | 5 007 | 2 514 | 6 646 | 31 614 | 98 501 |
| budget of the Union State | 6 014 | 1 213 | 20 846 | 50 489 | 40 714 | 11 111 |
| extra-budgetary funds | 3 355 | – | 39 380 | 1 435 | 37 486 | 39 882 |
| credits and loans | ... | 1 029 901 | 2 656 084 | 2 299 348 | 2 401 384 | 2 668 765 |
| foreign investment, including foreign credits and loans | 26 615 | 446 916 | 453 655 | 1 240 019 | 1 650 842 | 1 151 377 |
| other sources | 337 182 | 40 434 | 20 927 | 16 203 | 69 053 | 62 475 |
| Service sector | | | | | | |
| Funding of expenditure on technological innovation | ... | 129 711 | 252 268 | 551 209 | 741 783 | 432 443 |
| of which out of: | | | | | | |
| own funds | ... | 71 870 | 122 696 | 518 287 | 718 033 | 389 277 |
| republican budget | ... | 637 | 7 587 | 7 605 | 14 122 | 15 721 |
| of which innovation funds | ... | 332 | 4 453 | 1 966 | 8 981 | 8 358 |
| local budgets | ... | 137 | 204 | – | – | – |
| of which innovation funds | ... | – | – | – | – | – |
| budget of the Union State | ... | – | – | – | – | – |
| extra-budgetary funds | ... | – | – | – | 1316 | 5 896 |
| credits and loans | ... | 32 614 | 27 270 | 23 020 | 6 583 | 5 257 |
| foreign investment, including foreign credits and loans | ... | 24 453 | 94 511 | 2 297 | 179 | 16 292 |
| other sources | ... | – | – | – | 1 550 | – |

6.19. Structure of intramural expenditure on technological innovations by source of funds

(as percentage of total)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|------|------|
| Industry | | | | | | |
| Funding of expenditure on technological innovations | 100 | 100 | 100 | 100 | 100 | 100 |
| of which out of: | | | | | | |
| own funds | 77.9 | 38.9 | 60.5 | 48.0 | 50.3 | 54.1 |
| republican budget | 5.9 | 6.5 | 3.0 | 6.5 | 7.3 | 6.2 |
| of which innovation funds | ... | 4.3 | 1.3 | 3.4 | 2.2 | 2.8 |
| local budget | 0.5 | 0.3 | 0.1 | 0.1 | 0.3 | 1.4 |
| of which innovation funds | ... | 0.2 | 0.03 | 0.1 | 0.3 | 1.0 |
| budget of the Union State | 0.2 | 0.0 | 0.2 | 0.6 | 0.4 | 0.1 |
| extra-budgetary funds | 0.1 | – | 0.5 | 0.0 | 0.4 | 0.4 |
| credits and loans | ... | 36.9 | 30.3 | 29.0 | 24.0 | 26.0 |
| foreign investment, including foreign credits and loans | 1.1 | 16.0 | 5.2 | 15.6 | 16.5 | 11.2 |
| other sources | 14.3 | 1.4 | 0.2 | 0.2 | 0.7 | 0.6 |
| Service sector | | | | | | |
| Funding of expenditure on technological innovations | ... | 100 | 100 | 100 | 100 | 100 |
| of which out of: | | | | | | |
| own funds | ... | 55.4 | 48.6 | 94.0 | 96.8 | 90.0 |
| republican budget | ... | 0.5 | 3.0 | 1.4 | 1.9 | 3.6 |
| of which innovation funds | ... | 0.3 | 1.8 | 0.4 | 1.2 | 1.9 |
| local budgets | ... | – | 0.1 | – | – | – |
| of which innovation funds | ... | – | – | – | – | – |
| budget of the Union State | ... | – | – | – | – | – |
| extra-budgetary funds | ... | – | – | – | 0.2 | 1.4 |
| credits and loans | ... | 25.1 | 10.8 | 4.2 | 0.9 | 1.2 |
| foreign investment, including foreign credits and loans | ... | 18.9 | 37.5 | 0.4 | 0.02 | 3.8 |
| other sources | ... | – | – | – | 0.2 | – |

6.20. Intramural expenditure on technological innovations in industry by source of funds and economic activity in 2014

| | Funding of expenditure on technological innovations | Of which out of | | | | | |
|--|---|-----------------|-------------------|--------------|-------------------|---|---------------|
| | | own funds | republican budget | local budget | credits and loans | foreign investment, including foreign credits and loans | other sources |
| BYR million | | | | | | | |
| Total | 10 281 912 | 5 566 559 | 641 469 | 140 274 | 2 668 765 | 1 151 377 | 62 475 |
| of which: | | | | | | | |
| Mining | 286 933 | 245 965 | 11 898 | — | — | — | — |
| extraction of fossil fuels | 270 745 | 230 061 | 11 614 | — | — | — | — |
| extraction of minerals, except fossil fuels | 16 188 | 15 904 | 284 | — | — | — | — |
| Manufacturing | 9 721 826 | 5 275 826 | 537 996 | 133 475 | 2 538 754 | 1 151 377 | 62 475 |
| manufacture of food products, including beverages, and tobacco | 574 717 | 139 584 | 3 003 | 48 903 | 381 196 | 924 | 477 |
| manufacture of textiles and textile articles | 97 038 | 70 143 | 4 983 | 3 601 | 18 226 | — | — |
| manufacture of leather, of products of leather and manufacture of footwear | 23 384 | 23 124 | — | — | 260 | — | — |
| manufacture of wood and of products of wood | 151 006 | 97 379 | — | — | 107 | 53 520 | — |
| manufacture of paper and paper products, publishing | 106 764 | 5 197 | 4 696 | — | 96 871 | — | — |
| manufacture of coke, petroleum products and nuclear materials | 3 172 019 | 2 414 267 | 842 | — | 709 921 | 46 989 | — |
| manufacture of chemicals and chemical products | 183 559 | 114 980 | 28 330 | 949 | 38 200 | — | 1 100 |
| manufacture of rubber and plastics products | 121 112 | 52 241 | 46 575 | — | 6 698 | — | 15 598 |

| | Funding of expenditure on technological innovations | Of which out of | | | | | |
|--|---|-----------------|-------------------|--------------|-------------------|--|---------------|
| | | own funds | republican budget | local budget | credits and loans | foreign investment including foreign credits and loans | other sources |
| manufacture of other non-metallic mineral products | 603 901 | 261 535 | 217 899 | – | 114 139 | – | 10 328 |
| manufacture of basic metals and fabricated metal products | 1 578 045 | 91 303 | 4 829 | – | 624 350 | 839 321 | 18 242 |
| manufacture of machinery and equipment | 1 784 338 | 1 244 403 | 129 661 | 9 036 | 385 481 | 15 649 | – |
| manufacture of electrical, electronic and optical equipment | 412 249 | 264 524 | 32 608 | 64 494 | 3 200 | 14 021 | 13 789 |
| manufacture of transport vehicles and equipment | 771 380 | 354 832 | 64 570 | 6 492 | 160 105 | 180 953 | 2 941 |
| other manufacture | 142 314 | 142 314 | – | – | – | – | – |
| Electricity, gas and water supply | 273 153 | 44 768 | 91 575 | 6 799 | 130 011 | – | – |
| As % of total | | | | | | | |
| Total | 100 | 54.1 | 6.2 | 1.4 | 26.0 | 11.2 | 0.6 |
| of which: | | | | | | | |
| Mining | 100 | 85.7 | 4.1 | – | – | – | – |
| extraction of fossil fuels | 100 | 85.0 | 4.3 | – | – | – | – |
| extraction of minerals, except fossil fuels | 100 | 98.2 | 1.8 | – | – | – | – |
| Manufacturing | 100 | 54.3 | 5.5 | 1.4 | 26.1 | 11.8 | 0.6 |
| manufacture of food products, including beverages, and tobacco | 100 | 24.3 | 0.5 | 8.5 | 66.3 | 0.2 | 0.1 |
| manufacture of textiles and textile articles | 100 | 72.3 | 5.1 | 3.7 | 18.8 | – | – |
| manufacture of leather, of products of leather and manufacture of footwear | 100 | 98.9 | – | – | 1.1 | – | – |

| | Funding of expenditure on technological innovations | Of which out of | | | | | |
|---|---|-----------------|-------------------|--------------|-------------------|--|---------------|
| | | own funds | republican budget | local budget | credits and loans | foreign investment including foreign credits and loans | other sources |
| manufacture of wood and of products of wood | 100 | 64.5 | – | – | 0.1 | 35.4 | – |
| manufacture of paper and paper products, publishing | 100 | 4.9 | 4.4 | – | 90.7 | – | – |
| manufacture of coke, petroleum products and nuclear materials | 100 | 76.1 | 0.03 | – | 22.4 | 1.5 | – |
| manufacture of chemicals and chemical products | 100 | 62.6 | 15.4 | 0.5 | 20.8 | – | 0.6 |
| manufacture of rubber and plastics products | 100 | 43.1 | 38.5 | – | 5.5 | – | 12.9 |
| manufacture of other non-metallic mineral products | 100 | 43.3 | 36.1 | – | 18.9 | – | 1.7 |
| manufacture of basic metals and fabricated metal products | 100 | 5.8 | 0.3 | – | 39.6 | 53.2 | 1.2 |
| manufacture of machinery and equipment | 100 | 69.7 | 7.3 | 0.5 | 21.6 | 0.9 | – |
| manufacture of electrical, electronic and optical equipment | 100 | 64.2 | 7.9 | 15.6 | 0.8 | 3.4 | 3.3 |
| manufacture of transport vehicles and equipment | 100 | 46.0 | 8.4 | 0.8 | 20.8 | 23.5 | 0.4 |
| other manufacture | 100 | 100 | – | – | – | – | – |
| Electricity, gas and water supply | 100 | 16.4 | 33.5 | 2.5 | 47.6 | – | – |

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

| | Funding of expenditure on technological innovations | Of which out of | | | | | | |
|---------------------|---|-----------------|-------------------|--------------|---------------------------|-------------------|--|---------------|
| | | own funds | republican budget | local budget | budget of the Union State | credits and loans | foreign investment including foreign credits and loans | other sources |
| BYR million | | | | | | | | |
| Republic of Belarus | | | | | | | | |
| 2005 | 2 362 063 | 1 839 372 | 138 632 | 10 893 | 6 013 | ... | 26 616 | 337 182 |
| 2010 | 2 793 302 | 1 085 953 | 181 478 | 7 407 | 1 213 | 1 029 901 | 446 916 | 40 434 |
| 2011 | 8 763 697 | 5 303 613 | 263 701 | 5 491 | 20 846 | 2 656 084 | 453 655 | 20 927 |
| 2012 | 7 937 546 | 3 813 918 | 507 599 | 8 535 | 50 489 | 2 299 348 | 1 240 019 | 16 203 |
| 2013 | 9 986 209 | 5 024 469 | 728 424 | 33 837 | 40 714 | 2 401 384 | 1 650 842 | 69 053 |
| 2014 | 10 281 912 | 5 566 559 | 641 469 | 140 274 | 11 111 | 2 668 765 | 1 151 377 | 62 475 |
| Brest region | | | | | | | | |
| 2005 | 160 400 | 69 756 | 2 467 | 3 729 | – | ... | – | 82 623 |
| 2010 | 471 841 | 91 132 | 7 410 | 204 | 192 | 278 353 | 69 850 | 24 700 |
| 2011 | 561 477 | 159 684 | 5 833 | 2 734 | 498 | 392 478 | – | 250 |
| 2012 | 554 341 | 249 754 | 19 861 | 4 082 | 1 305 | 271 943 | – | 7 396 |
| 2013 | 571 465 | 163 383 | 42 790 | 818 | 1 551 | 310 169 | - | 46 337 |
| 2014 | 777 649 | 315 552 | 103 014 | 44 713 | – | 269 078 | – | 14 105 |
| Vitebsk region | | | | | | | | |
| 2005 | 98 836 | 78 926 | 767 | 74 | 81 | ... | – | 18 988 |
| 2010 | 346 638 | 183 261 | 26 279 | 1 040 | – | 136 058 | – | – |
| 2011 | 730 854 | 578 351 | 23 677 | 528 | – | 96 160 | 32 136 | 2 |
| 2012 | 1 612 337 | 718 369 | 103 572 | 740 | – | 331 524 | 451 900 | 6 232 |
| 2013 | 1 997 198 | 1 238 549 | 204 701 | 18 1998 | – | 158 513 | 373 455 | 294 |
| 2014 | 1 917 604 | 1 461 547 | 8 731 | 6 761 | – | 379 899 | 52 617 | – |

| | Funding of expenditure on technological innovations | Of which out of | | | | | | |
|----------------|---|-----------------|-------------------|--------------|---------------------------|-------------------|--|---------------|
| | | own funds | republican budget | local budget | budget of the Union State | credits and loans | foreign investment including foreign credits and loans | other sources |
| Gomel region | | | | | | | | |
| 2005 | 1 416 466 | 1 309 261 | 15 311 | 2 203 | 245 | ... | 26 616 | 62 830 |
| 2010 | 734 299 | 306 346 | 27 799 | 443 | – | 219 110 | 167 623 | 12 978 |
| 2011 | 3 673 703 | 3 167 657 | 15 899 | – | – | 270 404 | 179 334 | 1 029 |
| 2012 | 2 420 439 | 1 546 587 | 97 954 | – | – | 751 573 | 22 703 | 278 |
| 2013 | 2 203 494 | 1 376 586 | 58 304 | 1 592 | 116 | 602 879 | 138 814 | 20 917 |
| 2014 | 4 107 198 | 1 662 038 | 233 303 | – | 85 | 1 365 797 | 844 875 | 1 100 |
| Grodno region | | | | | | | | |
| 2005 | 161 945 | 99 349 | 55 127 | 35 | 458 | ... | – | 6 620 |
| 2010 | 482 711 | 132 805 | 37 043 | 627 | 30 | 265 512 | 46 694 | – |
| 2011 | 1 875 650 | 214 431 | 95 380 | – | – | 1 565 711 | – | 128 |
| 2012 | 726 170 | 166 131 | 100 902 | – | – | 455 744 | 3 393 | – |
| 2013 | 170 861 | 71 353 | 29 441 | 6 396 | – | 53 656 | 9 415 | – |
| 2014 | 200 411 | 128 131 | 2 140 | 3 601 | – | 8 644 | 57 357 | – |
| Minsk city | | | | | | | | |
| 2005 | 231 526 | 161 233 | 18 050 | 3 655 | 5 230 | ... | – | 43 348 |
| 2010 | 455 857 | 239 431 | 54 497 | 3 546 | 991 | 37 404 | 117 957 | 2 031 |
| 2011 | 1 023 397 | 755 502 | 69 501 | 1 901 | 18 822 | 61 925 | 111 381 | 4 365 |
| 2012 | 1 035 191 | 631 904 | 134 858 | 1 446 | 45 306 | 62 674 | 159 003 | – |
| 2013 | 1 242 268 | 760 182 | 220 781 | 2 133 | 38 947 | 181 938 | 30 912 | – |
| 2014 | 1 677 516 | 906 725 | 215 242 | 68 776 | 11 026 | 397 620 | 65 174 | 12 953 |
| Minsk region | | | | | | | | |
| 2005 | 136 056 | 107 598 | 10 957 | 744 | – | ... | – | 15 594 |
| 2010 | 137 964 | 80 066 | 19 291 | 1 330 | – | 32 220 | 4 332 | 725 |
| 2011 | 299 601 | 185 157 | 15 459 | 328 | 1 526 | 86 254 | 10 551 | 326 |
| 2012 | 559 580 | 287 643 | 44 926 | 2 267 | 3 878 | 205 699 | 12 870 | 2 297 |
| 2013 | 1 119 424 | 680 924 | 18 043 | 2 255 | 100 | 399 198 | 16 868 | 1 505 |
| 2014 | 1 027 239 | 920 720 | 31 648 | 5 741 | – | 68 206 | 924 | – |
| Mogilev region | | | | | | | | |
| 2005 | 156 834 | 13 249 | 35 953 | 453 | – | ... | – | 107 179 |
| 2010 | 163 992 | 52 912 | 9 159 | 217 | – | 61 244 | 40 460 | – |
| 2011 | 599 015 | 242 831 | 37 952 | – | – | 183 152 | 120 253 | 14 827 |
| 2012 | 1 029 488 | 213 530 | 5 526 | – | – | 220 191 | 590 150 | – |
| 2013 | 2 681 499 | 733 492 | 154 364 | 2 445 | – | 695 031 | 1 081 378 | – |
| 2014 | 574 295 | 171 846 | 47 391 | 10 682 | – | 179 521 | 130 430 | 34 317 |

| | Funding of expenditure on technological innovations | Of which out of | | | | | | |
|---------------------|---|-----------------|-------------------|--------------|---------------------------|-------------------|--|---------------|
| | | own funds | republican budget | local budget | budget of the Union State | credits and loans | foreign investment including foreign credits and loans | other sources |
| As % of total | | | | | | | | |
| Republic of Belarus | | | | | | | | |
| 2005 | 100 | 77.9 | 5.9 | 0.5 | 0.2 | ... | 1.1 | 14.3 |
| 2010 | 100 | 38.9 | 6.5 | 0.3 | 0.0 | 36,9 | 16.0 | 1.4 |
| 2011 | 100 | 60.5 | 3.0 | 0.1 | 0,2 | 30.3 | 5.2 | 0.2 |
| 2012 | 100 | 48.0 | 6.5 | 0.1 | 0.6 | 29.0 | 15.6 | 0.2 |
| 2013 | 100 | 50.3 | 7.3 | 0.3 | 0.4 | 24.0 | 16.5 | 0.7 |
| 2014 | 100 | 54.1 | 6.2 | 1.4 | 0.1 | 26.0 | 11.2 | 0.6 |
| Brest region | | | | | | | | |
| 2005 | 100 | 43.5 | 1.6 | 2.3 | – | ... | – | 51.5 |
| 2010 | 100 | 19.3 | 1.6 | 0.0 | 0.0 | 59.0 | 14.8 | 5.3 |
| 2011 | 100 | 28.4 | 1.0 | 0.5 | 0.1 | 69.9 | – | 0.04 |
| 2012 | 100 | 45.1 | 3.6 | 0.7 | 0.2 | 49.1 | – | 1.3 |
| 2013 | 100 | 28.6 | 7.5 | 0.1 | 0.3 | 54.3 | – | 8.1 |
| 2014 | 100 | 40.6 | 13.2 | 5.7 | – | 34.6 | – | 1.8 |
| Vitebsk region | | | | | | | | |
| 2005 | 100 | 79.8 | 0.8 | 0.1 | 0.1 | ... | – | 19.2 |
| 2010 | 100 | 52.9 | 7.6 | 0.3 | – | 39.2 | – | – |
| 2011 | 100 | 79.1 | 3.2 | 0.1 | – | 13.2 | 4.4 | – |
| 2012 | 100 | 44.6 | 6.4 | 0.0 | – | 20.6 | 28.0 | 0.4 |
| 2013 | 100 | 62.0 | 10.2 | 0.9 | – | 7.9 | 18.7 | 0.01 |
| 2014 | 100 | 76.2 | 0.5 | 0.4 | – | 19.8 | 2.7 | – |
| Gomel region | | | | | | | | |
| 2005 | 100 | 92.4 | 1.1 | 0.2 | 0.0 | ... | 1.9 | 4.4 |
| 2010 | 100 | 41.7 | 3.8 | 0.1 | – | 29.8 | 22.8 | 1.8 |
| 2011 | 100 | 86.2 | 0.4 | – | – | 7.4 | 4.9 | 0.03 |
| 2012 | 100 | 63.9 | 4.1 | – | – | 31.1 | 0.9 | 0.01 |
| 2013 | 100 | 62.5 | 2.6 | 0.1 | 0.01 | 27.4 | 6.3 | 0.9 |
| 2014 | 100 | 40.5 | 5.7 | – | 0.0 | 33.3 | 20.6 | 0.03 |

| | Funding of expenditure on technological innovations | Of which out of | | | | | | |
|----------------|---|-----------------|-------------------|--------------|---------------------------|-------------------|--|---------------|
| | | own funds | republican budget | local budget | budget of the Union State | credits and loans | foreign investment including foreign credits and loans | other sources |
| Grodno region | | | | | | | | |
| 2005 | 100 | 61.4 | 34.0 | 0.0 | 0.3 | ... | – | 4.1 |
| 2010 | 100 | 27.5 | 7.7 | 0.1 | 0.0 | 55.0 | 9.7 | – |
| 2011 | 100 | 11.4 | 5.1 | – | – | 83.5 | – | 0.01 |
| 2012 | 100 | 22.9 | 13.9 | – | – | 62.7 | 0.5 | – |
| 2013 | 100 | 41.8 | 17.2 | 3.7 | – | 31.4 | 5.5 | – |
| 2014 | 100 | 63.9 | 1.1 | 1.8 | – | 4.3 | 28.6 | – |
| Minsk city | | | | | | | | |
| 2005 | 100 | 69.6 | 7.8 | 1.6 | 2.3 | ... | – | 18.7 |
| 2010 | 100 | 52.5 | 12.0 | 0.8 | 0.2 | 8.2 | 25.9 | 0.4 |
| 2011 | 100 | 73.8 | 6.8 | 0.2 | 1.8 | 6.1 | 10.9 | 0.4 |
| 2012 | 100 | 61.0 | 13.0 | 0.1 | 4.4 | 6.1 | 15.4 | – |
| 2013 | 100 | 61.2 | 17.8 | 0.2 | 3.1 | 14.6 | 2.5 | – |
| 2014 | 100 | 54.1 | 12.8 | 4.1 | 0.7 | 23.7 | 3.9 | 0.8 |
| Minsk region | | | | | | | | |
| 2005 | 100 | 79.1 | 8.0 | 0.5 | – | ... | – | 11.5 |
| 2010 | 100 | 58.0 | 14.0 | 1.0 | – | 23.4 | 3.1 | 0.5 |
| 2011 | 100 | 61.8 | 5.2 | 0.1 | 0.5 | 28.8 | 3.5 | 0.1 |
| 2012 | 100 | 51.4 | 8.0 | 0.4 | 0.7 | 36.8 | 2.3 | 0.4 |
| 2013 | 100 | 60.8 | 1.6 | 0.2 | 0.01 | 35.7 | 1.5 | 0.1 |
| 2014 | 100 | 89.6 | 3.1 | 0.6 | – | 6.6 | 0.1 | – |
| Mogilev region | | | | | | | | |
| 2005 | 100 | 8.5 | 22.9 | 0.3 | – | ... | – | 68.3 |
| 2010 | 100 | 32.3 | 5.6 | 0.1 | – | 37.3 | 24.7 | – |
| 2011 | 100 | 40.5 | 6.3 | – | – | 30.6 | 20.1 | 2.5 |
| 2012 | 100 | 20.7 | 0.6 | – | – | 21.4 | 57.3 | – |
| 2013 | 100 | 27.4 | 5.8 | 0.1 | – | 25.9 | 40.3 | – |
| 2014 | 100 | 29.9 | 8.3 | 1.9 | – | 31.3 | 22.7 | 6.0 |

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

| | Funding of expenditure on technological innovations | Of which | | | | | |
|---------------------|---|-----------|-------------------|--------------|-------------------|---|---------------|
| | | own funds | republican budget | local budget | credits and loans | foreign investment, including foreign credits and loans | other sources |
| BYR million | | | | | | | |
| Republic of Belarus | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 129 711 | 71 870 | 637 | 137 | 32 614 | 24 453 | — |
| 2011 | 252 268 | 122 696 | 7 587 | 204 | 27 270 | 94 511 | — |
| 2012 | 551 209 | 518 287 | 7 605 | — | 23 020 | 2 297 | — |
| 2013 | 741 783 | 718 033 | 14 122 | — | 6 583 | 179 | 1 550 |
| 2014 | 432 443 | 389 277 | 15 721 | — | 5 257 | 16 292 | — |
| Brest region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 10 586 | 10 376 | 73 | 137 | — | — | — |
| 2011 | 18 924 | 16 472 | 2 248 | 204 | — | — | — |
| 2012 | 43 890 | 43 522 | 368 | — | — | — | — |
| 2013 | 103 532 | 102 938 | 594 | — | — | — | — |
| 2014 | 30 770 | 29 853 | 917 | — | — | — | — |
| Vitebsk region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 34 581 | 23 840 | — | — | 10 741 | — | — |
| 2011 | 38 710 | 20 211 | — | — | 18 499 | — | — |
| 2012 | 45 660 | 24 936 | — | — | 20 724 | — | — |
| 2013 | 42 216 | 42 216 | — | — | — | — | — |
| 2014 | 41 598 | 41 598 | — | — | — | — | — |
| Gomel region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 174 | 174 | — | — | — | — | — |
| 2011 | 35 037 | 15 610 | 1 770 | — | — | 17 657 | — |
| 2012 | 2 402 | 2 271 | 131 | — | — | — | — |
| 2013 | 151 379 | 151 379 | — | — | — | — | — |
| 2014 | 31 854 | 15 562 | — | — | — | 16 292 | — |

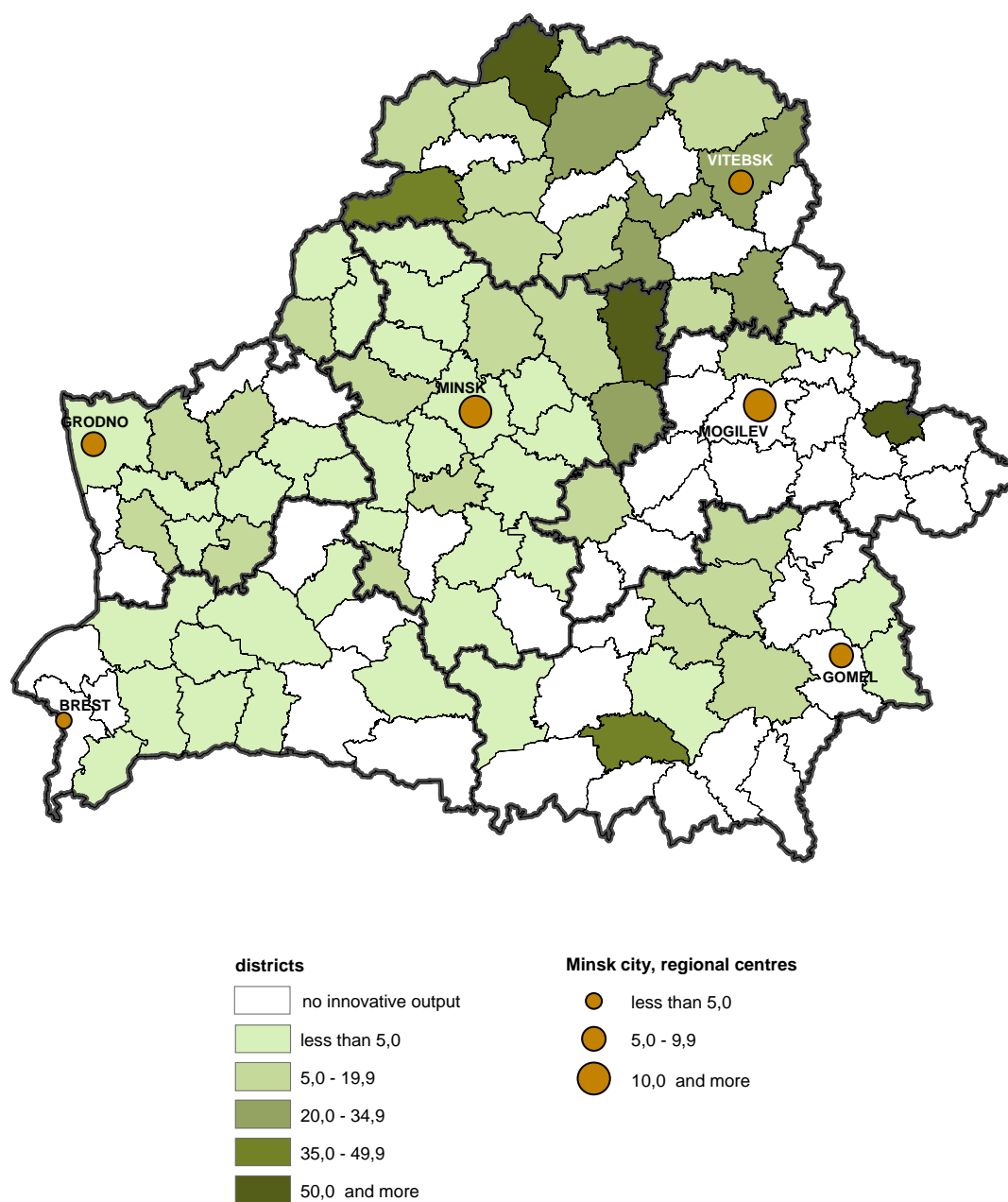
| | Funding of expenditure on technological innovations | Of which out of | | | | | |
|----------------|---|-----------------|-------------------|--------------|-------------------|---|---------------|
| | | own funds | republican budget | local budget | credits and loans | foreign investment, including foreign credits and loans | other sources |
| Grodno region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 58 | 58 | — | — | — | — | — |
| 2011 | 8 578 | 3 886 | 82 | — | — | 4 610 | — |
| 2012 | 59 651 | 57 366 | — | — | — | 2 285 | — |
| 2013 | 70 795 | 70 795 | — | — | — | — | — |
| 2014 | 1 995 | 1 995 | — | — | — | — | — |
| Minsk city | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 82 026 | 35 136 | 564 | — | 21 873 | 24 453 | — |
| 2011 | 143 283 | 58 781 | 3 487 | — | 8 771 | 72 244 | — |
| 2012 | 364 233 | 355 461 | 6 464 | — | 2 296 | 12 | — |
| 2013 | 315 737 | 293 140 | 12 969 | — | 6 583 | 179 | 1 550 |
| 2014 | 313 489 | 292 798 | 13 863 | — | 932 | — | — |
| Minsk region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | — | — | — | — | — | — | — |
| 2011 | — | — | — | — | — | — | — |
| 2012 | — | — | — | — | — | — | — |
| 2013 | — | — | — | — | — | — | — |
| 2014 | — | — | — | — | — | — | — |
| Mogilev region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 2 286 | 2 286 | — | — | — | — | — |
| 2011 | 7 736 | 7 736 | — | — | — | — | — |
| 2012 | 35 373 | 34 731 | 642 | — | — | — | — |
| 2013 | 58 124 | 57 565 | 559 | — | — | — | — |
| 2014 | 12 737 | 7 471 | 941 | — | 4 325 | — | — |

| | Funding of expenditure on technological innovations | Of which out of | | | | | |
|---------------------|---|-----------------|-------------------|--------------|-------------------|---|---------------|
| | | own funds | republican budget | local budget | credits and loans | foreign investment, including foreign credits and loans | other sources |
| As % of total | | | | | | | |
| Republic of Belarus | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 100 | 55.4 | 0.5 | 0.1 | 25.1 | 18.9 | — |
| 2011 | 100 | 48.6 | 3.0 | 0.1 | 10.8 | 37.5 | — |
| 2012 | 100 | 94.0 | 1.4 | — | 4.2 | 0.4 | — |
| 2013 | 100 | 96.8 | 1.9 | — | 0.9 | 0.02 | 0.2 |
| 2014 | 100 | 90.0 | 3.6 | — | 1.2 | 3.8 | — |
| Brest region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 100 | 98.0 | 0.7 | 1.3 | — | — | — |
| 2011 | 100 | 87.0 | 11.9 | 1.1 | — | — | — |
| 2012 | 100 | 99.2 | 0.8 | — | — | — | — |
| 2013 | 100 | 99.4 | 0.6 | — | — | — | — |
| 2014 | 100 | 97.0 | 3.0 | — | — | — | — |
| Vitebsk region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 100 | 68.9 | — | — | 31.1 | — | — |
| 2011 | 100 | 52.2 | — | — | 47.8 | — | — |
| 2012 | 100 | 54.6 | — | — | 45.4 | — | — |
| 2013 | 100 | 100 | — | — | — | — | — |
| 2014 | 100 | 100 | — | — | — | — | — |
| Gomel region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 100 | 100.0 | — | — | — | — | — |
| 2011 | 100 | 44.5 | 5.1 | — | — | 50.4 | — |
| 2012 | 100 | 94.5 | 5.5 | — | — | — | — |
| 2013 | 100 | 100 | — | — | — | — | — |
| 2014 | 100 | 48.9 | — | — | — | 51.1 | — |

| | Funding of expenditure on technological innovations | Of which out of | | | | | |
|----------------|---|-----------------|-------------------|--------------|-------------------|---|---------------|
| | | own funds | republican budget | local budget | credits and loans | foreign investment, including foreign credits and loans | other sources |
| Grodno region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 100 | 100.0 | – | – | – | – | – |
| 2011 | 100 | 45.3 | 1.0 | – | – | 53.7 | – |
| 2012 | 100 | 96.2 | – | – | – | 3.8 | – |
| 2013 | 100 | 100 | – | – | – | – | – |
| 2014 | 100 | 100 | – | – | – | – | – |
| Minsk city | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 100 | 42.8 | 0.7 | – | 26.7 | 29.8 | – |
| 2011 | 100 | 41.0 | 2.5 | – | 6.1 | 50.4 | – |
| 2012 | 100 | 97.6 | 1.8 | – | 0.6 | 0.0 | – |
| 2013 | 100 | 92.8 | 4.1 | – | 2.1 | 0.1 | 0.5 |
| 2014 | 100 | 93.4 | 4.4 | – | 0.3 | – | – |
| Minsk region | | | | | | | |
| 2006 | 100 | 40.1 | 52.5 | 0.5 | – | – | 6.9 |
| 2010 | – | – | – | – | – | – | – |
| 2011 | – | – | – | – | – | – | – |
| 2012 | – | – | – | – | – | – | – |
| 2013 | – | – | – | – | – | – | – |
| 2014 | – | – | – | – | – | – | – |
| Mogilev region | | | | | | | |
| 2005 | ... | ... | ... | ... | ... | ... | ... |
| 2010 | 100 | 100.0 | – | – | – | – | – |
| 2011 | 100 | 100.0 | – | – | – | – | – |
| 2012 | 100 | 98.2 | 1.8 | – | – | – | – |
| 2013 | 100 | 99.0 | 1.0 | – | – | – | – |
| 2014 | 100 | 58.7 | 7.4 | – | 34.0 | – | – |

6.23. Share of shipped innovative output of industrial and service sectors in 2014

(% of total shipped output)



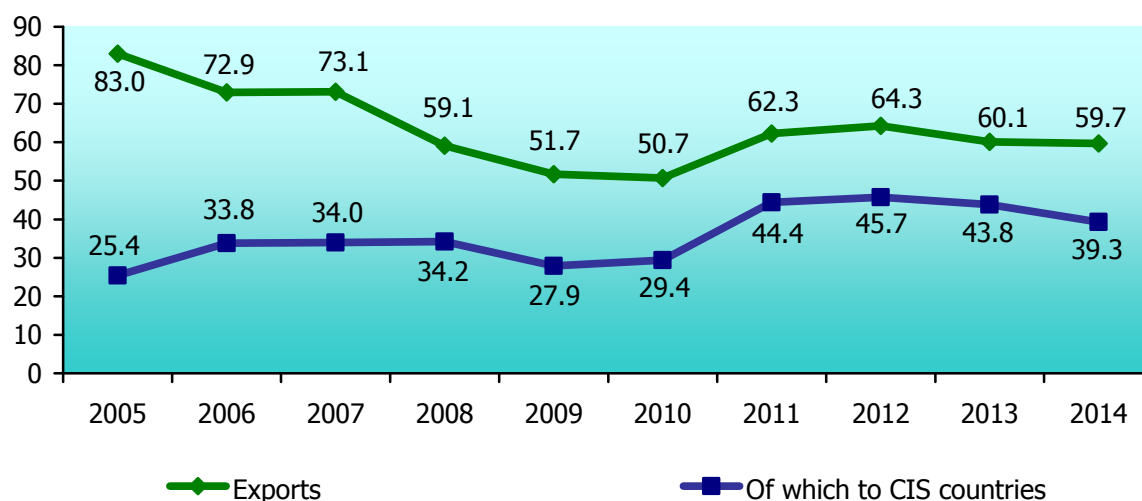
6.24. Shipped innovative output of industrial sector

(BYR million)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|----------------------------|------------|-------------|-------------|-------------|-------------|-------------|
| Own products shipped | 46 063 141 | 128 232 050 | 254 957 867 | 456 883 683 | 464 558 344 | 504 810 073 |
| of which innovative | 7 003 571 | 18 609 492 | 36 723 378 | 81 510 140 | 82 903 730 | 70 111 439 |
| of which: | | | | | | |
| shipped to domestic market | 1 191 675 | 9 175 875 | 13 861 241 | 29 077 624 | 33 064 559 | 28 222 926 |
| exported | 5 811 896 | 9 433 617 | 22 862 137 | 52 432 516 | 49 839 171 | 41 888 513 |
| to CIS countries | 1 778 654 | 5 465 140 | 16 314 817 | 37 225 775 | 36 306 746 | 27 546 135 |
| to Russian Federation | 1 238 779 | 3 811 890 | 11 921 218 | 25 720 220 | 24 660 990 | 17 624 851 |

6.25. Share of exports in total shipped innovative output of industrial sector

(as percentage of total)



6.26. Shipped innovative output of industrial sector by economic activity in 2014

(BYR million)

| | Own output shipped | Of which innovative output | | | | |
|--|--------------------|----------------------------|--------------------|------------|---------------|--------------------|
| | | total | to domestic market | exported | of which to | |
| | | | | | CIS countries | Russian Federation |
| Total | 504 810 073 | 70 111 439 | 28 222 926 | 41 888 513 | 27 546 135 | 17 624 851 |
| of which: | | | | | | |
| Mining | 11 980 810 | 36 859 | 34 422 | 2 437 | 2 245 | 2 052 |
| extraction of fossil fuels | 9 190 660 | 15 | 15 | – | – | – |
| extraction of minerals, except fossil fuels | 2 790 150 | 36 844 | 34 407 | 2 437 | 2 245 | 2 052 |
| Manufacturing | 436 969 830 | 70 070 381 | 28 184 305 | 41 886 076 | 27 543 890 | 17 622 799 |
| manufacture of food products, including beverages, and tobacco | 119 818 111 | 5 748 938 | 4 163 233 | 1 585 705 | 1 484 484 | 1 445 722 |
| manufacture of textiles and textile articles | 12 556 489 | 771 690 | 197 357 | 574 333 | 418 090 | 395 925 |
| manufacture of leather, of products of leather and manufacture of footwear | 4 203 331 | 286 177 | 231 003 | 55 174 | 52 758 | 51 960 |
| manufacture of wood and of products of wood | 6 121 022 | 120 196 | 66 820 | 53 376 | 50 212 | 31 818 |
| manufacture of paper and paper products, publishing | 4 972 793 | 224 800 | 132 208 | 92 592 | 52 348 | 45 076 |
| manufacture of coke, petroleum products and nuclear materials | 67 302 484 | 27 703 813 | 11 333 699 | 16 370 114 | 8 925 649 | 1 575 979 |
| manufacture of chemicals and chemical products | 58 182 862 | 4 234 272 | 1 015 267 | 3 219 005 | 687 504 | 533 851 |
| manufacture of rubber and plastics products | 13 687 127 | 856 127 | 290 682 | 565 445 | 560 669 | 410 763 |
| manufacture of other non-metallic mineral products | 24 039 562 | 3 966 923 | 2 408 984 | 1 557 939 | 1 460 573 | 1 304 278 |
| manufacture of basic metals and fabricated metal products | 29 387 899 | 3 928 469 | 501 810 | 3 426 659 | 324 657 | 296 028 |
| manufacture of machinery and equipment | 45 109 018 | 9 824 704 | 3 429 525 | 6 395 179 | 5 936 253 | 4 881 749 |
| manufacture of electrical, electronic and optical equipment | 14 843 596 | 3 365 357 | 1 383 382 | 1 981 975 | 1 691 344 | 1 554 775 |
| manufacture of transport vehicles and equipment | 22 789 740 | 8 886 935 | 2 972 802 | 5 914 133 | 5 805 592 | 5 027 435 |
| other manufacture | 13 955 796 | 151 980 | 57 533 | 94 447 | 93 757 | 67 440 |
| Electricity, gas and water supply | 55 859 433 | 4 199 | 4 199 | – | – | – |

6.27. Shipped innovative output of industrial and service sectors by regions and Minsk city in 2014

(BYR million)

| | Own output shipped | Of which innovative output | | | | |
|---------------------|--------------------|----------------------------|--------------------|------------|---------------|---------------|
| | | total | to domestic market | exported | of which to | |
| | | | | | CIS countries | CIS countries |
| Industry | | | | | | |
| Republic of Belarus | 504 810 073 | 70 111 439 | 28 222 926 | 41 888 513 | 27 546 135 | 17 624 851 |
| Regions: | | | | | | |
| Brest | 54 284 060 | 1 106 027 | 646 411 | 459 616 | 424 249 | 333 618 |
| Vitebsk | 72 118 367 | 20 061 158 | 10 699 964 | 9 361 194 | 3 002 611 | 1 721 099 |
| Gomel | 103 986 283 | 19 275 400 | 5 205 829 | 14 069 571 | 9 352 555 | 2 859 964 |
| Grodno | 56 408 111 | 3 812 900 | 1 745 014 | 2 067 886 | 1 088 362 | 999 089 |
| Minsk city | 86 512 210 | 13 697 338 | 5 707 517 | 7 989 821 | 7 448 113 | 6 559 615 |
| Minsk | 83 649 453 | 6 461 576 | 1 286 560 | 5 175 016 | 3 570 879 | 2 796 913 |
| Mogilev | 47 851 589 | 5 697 040 | 2 931 631 | 2 765 409 | 2 659 366 | 2 354 553 |
| Service sector | | | | | | |
| Republic of Belarus | 25 598 252 | 615 096 | 367 539 | 247 557 | 118 931 | 118 676 |
| Regions: | | | | | | |
| Brest | 942 957 | 39 547 | 6 128 | 33 419 | — | — |
| Vitebsk | 842 192 | 2 581 | 2 581 | — | — | — |
| Gomel | 1 004 141 | 1 171 | 1 171 | — | — | — |
| Grodno | 761 317 | 158 | 158 | — | — | — |
| Minsk city | 21 209 026 | 505 252 | 292 836 | 212 416 | 118 931 | 118 676 |
| Minsk | 68 569 | — | — | — | — | — |
| Mogilev | 770 050 | 66 387 | 64 665 | 1 722 | — | — |

6.28 Shipped innovative output of service sector

(BYR million)

| | 2006 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-----------|-----------|-----------|------------|------------|------------|
| Service output (according to principal activity) | 2 915 402 | 6 126 985 | 8 851 877 | 15 576 419 | 21 416 489 | 25 598 252 |
| of which innovative | 567 510 | 127 500 | 219 964 | 920 505 | 1 091 378 | 615 096 |
| of which: | | | | | | |
| supplied to domestic market | 415 545 | 115 433 | 198 710 | 575 108 | 320 325 | 367 539 |
| exported | 151 965 | 12 067 | 21 254 | 345 397 | 771 053 | 247 557 |
| of which to CIS countries | 98 336 | 484 | 407 | 42 722 | 100 669 | 118 931 |
| of which to Russian Federation | 79 115 | 182 | 213 | 42 042 | 98 184 | 118 676 |

6.29. Data on shipped innovative output of industrial sector by economic activity in 2014

| | Shipped innovative output, BYR million | Of which | | | |
|---|--|------------------------|---|---------------------|---|
| | | new to domestic market | | new to world market | |
| | | total, BYR million | as % of total innovative output shipped | total, BYR million | as % of total innovative output shipped |
| Total | 70 111 439 | 32 222 910 | 46.0 | 844 295 | 1.2 |
| of which: | | | | | |
| Mining | 36 859 | 34 462 | 93.5 | – | – |
| extraction of fossil fuels | 15 | 15 | 100 | – | – |
| extraction of minerals, except fossil fuels | 36 844 | 34 447 | 93.5 | – | – |

Continued

| | Shipped innovative output, BYR million | Of which | | | |
|--|--|------------------------|---|---------------------|---|
| | | new to domestic market | | new to world market | |
| | | total, BYR million | as % of total innovative output shipped | total, BYR million | as % of total innovative output shipped |
| Manufacturing | 70 070 381 | 32 188 448 | 45.9 | 844 295 | 1.2 |
| manufacture of food products, including beverages, and tobacco | 5 748 938 | 1 901 801 | 33.1 | 1 918 | 0.03 |
| manufacture of textiles and textile articles | 771 690 | 540 874 | 70.1 | — | — |
| manufacture of leather, of products of leather and manufacture of footwear | 286 177 | 224 051 | 78.3 | — | — |
| manufacture of wood and of products of wood | 120 196 | 19 160 | 15.9 | — | — |
| manufacture of paper and paper products, publishing | 224 800 | 39 403 | 17.5 | — | — |
| manufacture of coke, petroleum products and nuclear materials | 27 703 813 | 12 808 467 | 46.2 | — | — |
| manufacture of chemicals and chemical products | 4 234 272 | 2 245 968 | 53.0 | 619 985 | 14.6 |
| manufacture of rubber and plastics products | 856 127 | 270 582 | 31.6 | — | — |
| manufacture of other non-metallic mineral products | 3 966 923 | 394 030 | 9.9 | — | — |
| manufacture of basic metals and fabricated metal products | 3 928 469 | 123 951 | 3.2 | — | — |
| manufacture of machinery and equipment | 9 824 704 | 4 995 532 | 50.8 | 98 683 | 1.0 |
| manufacture of electrical, electronic and optical equipment | 3 365 357 | 1 972 145 | 58.6 | 3 169 | 0.1 |
| manufacture of transport vehicles and equipment | 8 886 935 | 6 628 853 | 74.6 | 120 540 | 1.4 |
| other manufacture | 151 980 | 23 631 | 15.5 | — | — |
| Electricity, gas and water supply | 4 199 | — | — | — | — |

6.30. Data on shipped innovative output of industrial sector by regions and Minsk city in 2014

| | Shipped innovative output, BYR million | Of which | | | |
|---------------------|---|------------------------|---|--------------------------|---|
| | | new to domestic market | | new to world market | |
| | | total, BYR million | as % of total innovative output shipped | total, BYR million | as % of total innovative output shipped |
| Republic of Belarus | 70 111 439 | 32 222 910 | 46.0 | 844 295 | 1.2 |
| Region: | | | | | |
| Brest | 1 106 027 | 446 105 | 40.3 | – | – |
| Vitebsk | 20 061 158 | 2 336 591 | 11.6 | 58 364 | 0.3 |
| Gomel | 19 275 400 | 14 735 871 | 76.4 | – | – |
| Grodno | 3 812 900 | 1 003 648 | 26.3 | 39 867 | 1.0 |
| Minsk city | 13 697 338 | 9 705 336 | 70.9 | 63 715 | 0.5 |
| Minsk | 6 461 576 | 1 845 313 | 28.6 | 682 349 | 10.6 |
| Mogilev | 5 697 040 | 2 150 046 | 37.7 | – | – |

6.31. Data on shipped innovative output of service sector by regions and Minsk city in 2014

| | Shipped innovative output (according to principal activity), BYR million | Of which | | | |
|---------------------|---|------------------------|---|-----------------------|---|
| | | new to domestic market | | new to world market | |
| | | total, BYR million | as % of total innovative output shipped | total, BYR million | as % of total innovative output shipped |
| Republic of Belarus | 615 096 | 141 473 | 23.0 | 35 141 | 5.7 |
| Region: | | | | | |
| Brest | 39 547 | 37 849 | 95.7 | 33 419 | 84.5 |
| Vitebsk | 2 581 | – | – | – | – |
| Gomel | 1 171 | – | – | – | – |
| Gomel | 158 | – | – | – | – |
| Minsk city | 505 252 | 101 902 | 20.2 | – | – |
| Mogilev | 66 387 | 1 722 | 2.6 | 1 722 | 2.6 |

6.32. Number of new and high technologies acquired (transferred) in industrial sector by economic activity in 2014

(units)

| | Number of acquired technologies, software tools | Of which | | Number of transferred technologies, software tools | Of which | |
|--|---|---------------------|----------------------|--|---------------------|----------------------|
| | | new technologies | high technologies | | new technologies | high technologies |
| Total | 67 | 11 | 6 | 18 | 15 | 3 |
| of which: | | | | | | |
| Manufacturing | 65 | 11 | 6 | 18 | 15 | 3 |
| manufacture of food products, including beverages, and tobacco | 5 | 1 | – | 3 | 3 | – |
| manufacture of leather, of products of leather and footwear | 1 | – | – | – | – | – |
| manufacture of other non- metallic mineral products | 2 | 2 | – | – | – | – |
| manufacture of basic metals and fabricated metal products | 12 | – | – | – | – | – |
| manufacture of machinery and equipment | 12 | 1 | 5 | 15 | 12 | 3 |
| manufacture of electrical, electronic and optical equipment | 11 | 1 | 1 | – | – | – |
| manufacture of transport vehicles and equipment | 3 | 2 | – | – | – | – |
| manufacture of coke, petroleum products and nuclear materials | 15 | 2 | – | – | – | – |
| manufacture of chemicals and chemical products | 2 | 2 | – | – | – | – |
| other manufacture | 2 | – | – | – | – | – |

6.33. Patent applications filed and patents granted ¹⁾

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---------------------------------|-------|-------|-------|-------|-------|-------|
| Total patent applications filed | 1 340 | 1 933 | 1 871 | 1 871 | 1 634 | 757 |
| of which from applicants: | | | | | | |
| national | 1 166 | 1 759 | 1 725 | 1 681 | 1 489 | 652 |
| foreign | 174 | 174 | 146 | 190 | 145 | 105 |
| Invention patents granted | 955 | 1 222 | 1 474 | 1 291 | 1 117 | 980 |
| of which to applicants: | | | | | | |
| national | 811 | 1 126 | 1 365 | 1 186 | 1 027 | 887 |
| foreign | 144 | 96 | 109 | 105 | 90 | 93 |
| Valid patents | 3 794 | 4 444 | 4 842 | 4 694 | 4 478 | 3 913 |

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

6.34. Results of innovations implemented in industrial sector by economic activity in 2014

| | Organisations with innovations implemented resulting in | | | | | |
|--|---|--------------------------------------|-----------------------------|--------------------------------------|---------------------------------|--------------------------------------|
| | reduction of wage costs | as % of total organisations surveyed | reduction of tangible costs | as % of total organisations surveyed | reduction of energy consumption | as % of total organisations surveyed |
| Total | 115 | 6.3 | 171 | 9.3 | 172 | 9.4 |
| of which: | | | | | | |
| Mining | 2 | 6.9 | 2 | 6.9 | 2 | 6.9 |
| extraction of fossil fuels | 1 | 6.3 | 1 | 6.3 | 1 | 6.3 |
| extraction of minerals, except fossil fuels | 1 | 7.7 | 1 | 7.7 | 1 | 7.7 |
| Manufacturing | 109 | 6.7 | 168 | 10.3 | 168 | 10.3 |
| manufacture of food products, including beverages, and tobacco | 12 | 3.7 | 23 | 7.1 | 21 | 6.5 |
| manufacture of textiles and textile articles | 11 | 4.6 | 9 | 3.8 | 10 | 4.2 |

Continued

| | Organisations with innovations implemented resulting in | | | | | |
|---|---|--------------------------------------|-----------------------------|--------------------------------------|---------------------------------|--------------------------------------|
| | reduction of wage costs | as % of total organisations surveyed | reduction of tangible costs | as % of total organisations surveyed | reduction of energy consumption | as % of total organisations surveyed |
| manufacture of leather, of products of leather and footwear | 1 | 2.6 | 1 | 2.6 | 3 | 7.9 |
| manufacture of wood and of products of wood | 2 | 2.8 | 3 | 4.2 | 2 | 2.8 |
| manufacture of paper and paper products; publishing | 1 | 1.7 | 2 | 3.4 | – | – |
| manufacture of coke, petroleum products and nuclear materials | 1 | 20.0 | 1 | 20.0 | 1 | 20.0 |
| manufacture of chemicals and chemical products | 3 | 6.0 | 5 | 10.0 | 4 | 8 |
| manufacture of rubber and plastics products | 6 | 10.3 | 4 | 6.9 | 6 | 10.3 |
| manufacture of other non-metallic mineral products | 6 | 4.4 | 12 | 8.9 | 9 | 6.7 |
| manufacture of basic metals and fabricated metal products | 13 | 9.7 | 14 | 10.4 | 14 | 10.4 |
| manufacture of machinery and equipment | 25 | 11.4 | 48 | 21.8 | 51 | 23.2 |
| manufacture of electrical, electronic and optical equipment | 13 | 10.8 | 29 | 24.2 | 31 | 25.8 |
| manufacture of transport vehicles and equipment | 12 | 20.3 | 12 | 20.3 | 11 | 18.6 |
| other manufacture | 3 | 2.7 | 5 | 4.5 | 5 | 4.5 |
| Electricity, gas and water supply | 4 | 2.2 | 1 | 0.6 | 2 | 1.1 |

6.35 Results of innovations implemented in industrial sector by regions and Minsk city in 2014

| | Organisations with innovations implemented resulting in | | | | | |
|---------------------|---|--------------------------------------|-----------------------------|--------------------------------------|---------------------------------|--------------------------------------|
| | reduction of wage costs | as % of total organisations surveyed | reduction of tangible costs | as % of total organisations surveyed | reduction of energy consumption | as % of total organisations surveyed |
| Republic of Belarus | 115 | 6.3 | 171 | 9.3 | 172 | 9.4 |
| Region: | | | | | | |
| Brest | 19 | 6.6 | 34 | 11.8 | 28 | 9.7 |
| Vitebsk | 18 | 8.0 | 27 | 12.0 | 29 | 12.9 |
| Gomel | 7 | 2.7 | 10 | 3.8 | 12 | 4.6 |
| Grodno | 16 | 7.1 | 19 | 8.4 | 20 | 8.8 |
| Minsk city | 25 | 8.9 | 43 | 15.3 | 42 | 14.9 |
| Minsk | 21 | 6.0 | 26 | 7.4 | 28 | 8.0 |
| Mogilev | 9 | 4.6 | 12 | 6.1 | 13 | 6.6 |

6.36. Innovation activity of small and medium-sized businesses in manufacturing industry by economic activity

| | Medium-sized businesses | | | | Small businesses | | | |
|--|-------------------------|------|------|------|------------------|------|------|------|
| | 2011 | 2012 | 2013 | 2014 | 2011 | 2012 | 2013 | 2014 |
| Number of businesses implementing technological innovations | | | | | | | | |
| Manufacturing | 85 | 88 | 88 | 75 | 57 | 53 | 50 | 48 |
| of which: | | | | | | | | |
| manufacture of food products, including beverages, and tobacco | 4 | 10 | 8 | 7 | 5 | 4 | 6 | 5 |
| manufacture of textiles and textile articles | 11 | 7 | 6 | 3 | 3 | 2 | 2 | 3 |
| manufacture of leather, of products of leather, and footwear | 1 | 1 | 1 | – | – | – | – | – |
| manufacture of wood and of products of wood | 2 | 2 | 3 | 2 | 1 | 2 | – | 1 |
| manufacture of paper and paper products; publishing | 1 | 2 | 1 | 3 | 2 | 3 | 6 | 2 |
| manufacture of chemicals and chemical products | 7 | 7 | 7 | 8 | 3 | 6 | 8 | 13 |

Continued

| | Medium-sized businesses | | | | Small businesses | | | |
|---|-------------------------|------|------|------|------------------|------|------|------|
| | 2011 | 2012 | 2013 | 2014 | 2011 | 2012 | 2013 | 2014 |
| manufacture of rubber and plastics products | 5 | 3 | 5 | 3 | 1 | 1 | 1 | 2 |
| manufacture of other non-metallic mineral products | 6 | 5 | 4 | 4 | 2 | 5 | 2 | 1 |
| manufacture of basic metals and fabricated metal products | 11 | 14 | 10 | 7 | 3 | 4 | – | 2 |
| manufacture of machinery and equipment | 19 | 18 | 24 | 19 | 11 | 7 | 9 | 5 |
| manufacture of electrical, electronic and optical equipment | 9 | 12 | 9 | 12 | 21 | 14 | 11 | 9 |
| manufacture of transport vehicles and equipment | 4 | 4 | 6 | 5 | 3 | 2 | 4 | 4 |

Share of shipped innovative output in total shipped output by activity, %

| | | | | | | | | |
|--|------|------|------|------|-----|------|------|------|
| Manufacturing | 3.8 | 5.3 | 6.9 | 4.1 | 0.8 | 1.3 | 1.3 | 3.6 |
| of which: | | | | | | | | |
| manufacture of food products, including beverages, and tobacco | 5.6 | 8.6 | 11.9 | 2.8 | 0.4 | 0.5 | 0.2 | 2.5 |
| manufacture of textiles and textile articles | 2.9 | 3.8 | 2.6 | 1.6 | 0.1 | 0.4 | 0.4 | 0.2 |
| manufacture of leather, of products of leather, and footwear | 0.3 | 0.5 | 1.0 | 0.4 | – | – | – | – |
| manufacture of wood and of products of wood | 1.8 | 3.4 | 1.8 | 0.1 | 0.1 | 0.03 | 0.05 | 0.04 |
| manufacture of paper and paper products; publishing | 1.5 | 4.1 | 2.6 | 1.0 | 1.5 | 1.9 | 1.0 | 0.4 |
| manufacture of chemicals and chemical products | 4.4 | 10.4 | 21.7 | 17.4 | 1.1 | 2.9 | 2.8 | 6.8 |
| manufacture of rubber and plastics products | 2.3 | 2.5 | 1.5 | 1.3 | 0.1 | 0.2 | 0.2 | 0.03 |
| manufacture of other non-metallic mineral products | 2.6 | 2.5 | 4.0 | 2.7 | 0.3 | 0.7 | 0.01 | 0.04 |
| manufacture of basic metals and fabricated metal products | 1.5 | 3.2 | 4.6 | 3.3 | 0.2 | 0.04 | 0.04 | 0.1 |
| manufacture of machinery and equipment | 4.9 | 6.8 | 9.4 | 10.2 | 1.2 | 3.3 | 2.6 | 2.5 |
| manufacture of electrical, electronic and optical equipment | 1.6 | 4.1 | 4.0 | 4.5 | 2.0 | 2.3 | 1.9 | 2.0 |
| manufacture of transport vehicles and equipment | 12.1 | 12.1 | 4.0 | 3.5 | 8.8 | 6.6 | 15.9 | 53.3 |

6.37. Rating of factors hampering innovation in industrial sector in 2014

| | Number of industrial organisations assessing selected factors hampering innovation as | | |
|--|---|-------------|---------------|
| | main or crucial | significant | insignificant |
| Economic factors | | | |
| lack of funds within the organisation | 761 | 565 | 263 |
| lack of financial support from public sources | 230 | 556 | 496 |
| low consumer demand for new products | 169 | 503 | 519 |
| cost too high | 482 | 689 | 230 |
| excessive perceived risks | 326 | 674 | 349 |
| long payback time of innovations | 281 | 713 | 362 |
| Production factors | | | |
| innovation potential insufficient | 278 | 465 | 621 |
| lack of qualified personnel | 173 | 480 | 756 |
| lack of information on new technology | 75 | 365 | 913 |
| lack of information on markets | 86 | 397 | 877 |
| non-responsiveness of the organisation to innovation | 67 | 237 | 902 |
| difficulty in finding co-operation partners | 65 | 280 | 816 |
| Other factors | | | |
| low demand for innovative products | 119 | 414 | 588 |
| shortcomings in legislation regulating and stimulating innovation activity | 64 | 289 | 627 |
| uncertainty of the period of innovation process | 93 | 366 | 594 |
| undeveloped innovation infrastructure (intermediary, information, legal, banking and other services) | 91 | 386 | 614 |
| undeveloped technology market | 126 | 391 | 565 |

6.38. Information on environmental innovations in industrial sector in 2014

| | Number of organisations that implemented environmental innovations | Organisations that implemented environmental innovations as % of total industrial organisations |
|--|--|---|
| Increased environmental safety of production | | |
| reduced tangible costs per unit of product | 171 | 9.3 |
| reduced energy consumption per unit of product | 172 | 9.4 |
| reduced carbon dioxide (CO ²) emission | 55 | 3.0 |
| raw materials and supplies replaced with non-hazardous or less hazardous | 59 | 3.2 |
| lower environmental pollution (of air, land, water; noise reduction) | 126 | 6.9 |
| recycling of industrial waste, water or materials | 85 | 4.6 |
| Increased environmental safety as a result of using innovative products | | |
| reduced energy consumption or energy loss | 113 | 6.2 |
| lower air, land or water pollution, reduced noise | 89 | 4.8 |
| better recycling of products after use | 35 | 1.9 |
| Purpose of environmental innovation | | |
| to comply with up-to-date technical regulations, rules and standards (requirements of environmental legislation) | 174 | 9.5 |
| to comply with anticipated changes in legal regulations | 80 | 4.4 |
| to benefit from government grants, subsidies and other financial incentives for implementing environmental innovations | 27 | 1.5 |
| to meet market/ consumer demands urging to implement environmental innovations | 96 | 5.2 |
| to follow voluntarily general principles of environmental protection | 183 | 10.0 |

7. INTERNATIONAL COMPARISONS

7.1. Number of R&D personnel

| | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|---------------|---------------|---------------|---------------|---------------|-----------|
| CIS countries (persons) | | | | | | |
| Armenia | 18 164 | 17 942 | 17 401 | 17 924 | 18 687 | 21 573 |
| Azerbaijan | 6 892 | 6 899 | 6 926 | 6 558 | 5 718 | 5 600 |
| Belarus¹⁾ | 30 222 | 31 473 | 32 441 | 31 712 | 31 194 | 30 437 |
| Kazakhstan | 18 912 | 16 304 | 15 793 | 17 021 | 18 003 | 20 404 |
| Kyrgyzstan | 3 419 | 3 076 | 3 533 | 3 129 | 3 333 | 3 264 |
| Moldova, Republic of | 4 672 | 5 315 | 5 424 | 5 114 | 5 216 | 5 121 |
| Russia | 813 207 | 761 252 | 742 433 | 736 540 | 735 340 | 726 318 |
| Tajikistan | 3 220 | 2 447 | 2 791 | 2 827 | 2 537 | 3 500 |
| Ukraine | 170 579 | 149 699 | 146 800 | 141 086 | 134 741 | 129 900 |
| Non-CIS countries (in full-time equivalent; man-years) | | | | | | |
| Argentina | 45 361 | 56 987 | 59 683 | 65 761 | 69 693 | ... |
| Australia | ... | 137 489 | ... | ... | ... | ... |
| Austria | 47 625 | 58 014 | 56 438 | 58 992 | 61 171 | 63 682 |
| Belgium | 53 517 | 58 476 | 59 756 | 60 075 | 62 895 | 65 979 |
| Brazil | 196 283 | 225 292 | 245 465 | 266 709 | ... | ... |
| Bulgaria | 15 853 | 17 219 | 18 230 | 16 574 | 16 986 | 16 746 |
| Canada | 218 590 | 256 650 | 236 760 | 229 090 | 228 970 | ... |
| China | 1 364 799 | 1 965 357 | 2 291 252 | 2 553 829 | 2 882 903 | 3 246 840 |
| Czech Republic | 43 370 | 50 808 | 50 961 | 52 290 | 55 697 | 60 223 |
| Denmark | 43 499 | 58 589 | 55 918 | 56 623 | 56 126 | 55 711 |
| Estonia | 4 362 | 5 086 | 5 430 | 5 277 | 5 724 | 5 841 |
| Finland | 57 471 | 56 698 | 56 069 | 55 897 | 54 526 | 54 047 |
| France | 349 681 | 382 653 | 390 214 | 397 756 | 402 318 | ... |

Continued

| | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------------|---------|---------|---------|---------|---------|---------|
| Germany | 475 278 | 522 688 | 534 565 | 548 526 | 574 701 | 579 200 |
| Greece | 33 603 | ... | ... | ... | 36 913 | 37 361 |
| Hungary | 23 239 | 27 403 | 29 795 | 31 480 | 33 960 | 35 732 |
| Ireland | 16 690 | 20 018 | 19 705 | 19 722 | 21 560 | 22 791 |
| Italy | 175 248 | 221 115 | 226 527 | 225 632 | 228 094 | 233 927 |
| Japan | 896 855 | 882 739 | 878 418 | 877 928 | 869 825 | ... |
| Korea, Republic of | 215 345 | 294 440 | 309 063 | 335 228 | 361 374 | ... |
| Latvia | 5 483 | 6 533 | 5 485 | 5 563 | 5 432 | 5 593 |
| Lithuania | 11 002 | 12 504 | 11 936 | 12 315 | 11 173 | 10 675 |
| Luxembourg | 4 392 | 4 652 | 4 711 | 4 988 | 5 318 | 5 634 |
| Mexico | 83 685 | 75 370 | 83 642 | 79 601 | 79 256 | ... |
| Netherlands | 93 599 | 93 432 | 87 874 | 100 544 | 116 326 | 116 666 |
| New Zealand | 18 929 | ... | 23 800 | ... | ... | ... |
| Norway | 29 966 | 35 485 | 36 091 | 36 121 | 36 950 | 37 804 |
| Poland | 76 761 | 74 596 | 73 581 | 81 843 | 85 219 | 90 716 |
| Portugal | 25 728 | 47 882 | 51 347 | 52 348 | 55 612 | 56 192 |
| Romania | 33 222 | 30 390 | 28 398 | 26 171 | 29 749 | 31 135 |
| Slovakia | 14 404 | 15 576 | 15 952 | 18 188 | 18 112 | 18 127 |
| Slovenia | 8 994 | 11 594 | 12 410 | 12 940 | 15 269 | 15 333 |
| South Africa | 28 798 | 30 802 | 30 891 | 29 486 | ... | ... |
| Spain | 174 773 | 215 676 | 220 777 | 222 022 | 215 079 | 208 349 |
| Sweden | 77 704 | 79 549 | 76 711 | 77 418 | 77 950 | 81 272 |
| Switzerland | ... | 62 066 | ... | ... | ... | ... |
| Turkey | 49 251 | 67 244 | 73 521 | 81 792 | 92 801 | ... |
| United Kingdom | 324 917 | 342 086 | 347 486 | 350 766 | 356 258 | 358 045 |

¹⁾ Year 2013 – 28 937; year 2014 – 27 208.

7.2. Domestic R&D expenditure

(as percentage of GDP)

| | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|-----------------------------|------|------|------|------|------|------|
| CIS countries | | | | | | |
| Armenia | 0.26 | 0.22 | 0.29 | 0.24 | 0.27 | 0.24 |
| Azerbaijan | 0.22 | 0.17 | 0.25 | 0.22 | 0.21 | 0.21 |
| Belarus¹⁾ | 0.68 | 0.74 | 0.64 | 0.69 | 0.70 | 0.67 |
| Kazakhstan | 0.28 | 0.22 | 0.23 | 0.15 | 0.16 | 0.17 |
| Kyrgyzstan | 0.20 | 0.19 | 0.16 | 0.16 | 0.16 | 0.20 |
| Moldova, Republic of | 0.40 | 0.53 | 0.53 | 0.44 | 0.41 | 0.42 |
| Russia | 1.07 | 1.04 | 1.25 | 1.64 | 1.12 | 1.12 |
| Tajikistan | 0.10 | 0.07 | 0.09 | 0.09 | 0.12 | 0.10 |
| Ukraine | 1.17 | 0.85 | 0.86 | 0.83 | 0.73 | 0.70 |
| Non-CIS countries | | | | | | |
| Argentina | 0.46 | 0.52 | 0.60 | 0.62 | 0.65 | ... |
| Australia | 2.46 | 2.67 | 2.71 | 2.80 | 2.77 | 2.84 |
| Austria | 2.46 | 2.67 | 2.71 | 2.80 | 2.77 | 2.84 |
| Belgium | 1.83 | 1.97 | 2.03 | 2.10 | 2.21 | 2.24 |
| Brazil | 0.97 | 1.11 | 1.17 | 1.16 | 1.21 | ... |
| Bulgaria | 0.46 | 0.47 | 0.53 | 0.60 | 0.57 | 0.64 |
| Canada | 2.04 | 1.92 | 1.97 | 1.86 | 1.79 | 1.73 |
| China | 1.32 | 1.47 | 1.70 | 1.76 | 1.84 | 1.98 |
| Czech Republic | 1.22 | 1.30 | 1.35 | 1.40 | 1.64 | 1.88 |
| Denmark | 2.46 | 2.85 | 3.16 | 3.00 | 2.98 | 2.98 |
| Estonia | 0.93 | 1.28 | 1.41 | 1.62 | 2.37 | 2.18 |
| Finland | 3.48 | 3.70 | 3.94 | 3.90 | 3.80 | 3.55 |
| France | 2.11 | 2.12 | 2.27 | 2.24 | 2.25 | 2.26 |

| | 2005 | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------------|------|------|------|------|------|------|
| Germany | 2.51 | 2.69 | 2.82 | 2.80 | 2.84 | 2.92 |
| Greece | 0.60 | ... | ... | ... | 0.67 | 0.69 |
| Hungary | 0.94 | 1.00 | 1.17 | 1.17 | 1.22 | 1.30 |
| Ireland | 1.25 | 1.45 | 1.69 | 1.69 | 1.66 | 1.72 |
| Israel | 4.31 | 4.40 | 4.17 | 3.97 | 3.97 | 3.93 |
| Italy | 1.09 | 1.21 | 1.26 | 1.26 | 1.25 | 1.27 |
| Japan | 3.31 | 3.47 | 3.36 | 3.25 | 3.39 | ... |
| Korea, Republic of | 2.79 | 3.36 | 3.56 | 3.74 | 4.04 | ... |
| Latvia | 2.79 | 3.36 | 3.56 | 3.74 | 4.04 | ... |
| Lithuania | 0.75 | 0.80 | 0.84 | 0.80 | 0.92 | 0.90 |
| Luxembourg | 1.56 | 1.66 | 1.74 | 1.51 | 1.41 | 1.44 |
| Mexico | 0.40 | 0.40 | 0.43 | 0.46 | 0.43 | ... |
| Netherlands | 1.90 | 1.77 | 1.82 | 1.86 | 2.03 | |
| New Zealand | 1.14 | ... | 1.30 | ... | ... | |
| Norway | 1.51 | 1.58 | 1.76 | 1.68 | 1.65 | |
| Poland | 0.57 | 0.60 | 0.67 | 0.74 | 0.76 | |
| Portugal | 0.78 | 1.50 | 1.64 | 1.59 | 1.52 | |
| Romania | 0.41 | 0.58 | 0.47 | 0.46 | 0.50 | |
| Slovakia | 0.51 | 0.47 | 0.48 | 0.63 | 0.68 | 0.82 |
| Slovenia | 1.44 | 1.65 | 1.86 | 2.11 | 2.47 | 2.80 |
| South Africa | 0.90 | 0.93 | 0.87 | 0.76 | ... | ... |
| Spain | 1.12 | 1.35 | 1.39 | 1.40 | 1.36 | 1.30 |
| Sweden | 3.56 | 3.70 | 3.62 | 3.39 | 3.39 | 3.41 |
| Switzerland | ... | 2.87 | ... | ... | ... | ... |
| Turkey | 0.59 | 0.73 | 0.85 | 0.84 | 0.86 | ... |
| United Kingdom | 1.70 | 1.75 | 1.82 | 1.77 | 1.78 | 1.72 |
| United States | 2.51 | 2.77 | 2.82 | 2.74 | 2.76 | 2.79 |

¹⁾ Year 2013 – 0.67; year 2014 – 0.69.

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

(percent)

| | Total | Government sector | Business enterprise sector | Higher education sector | Private non-profit sector |
|-----------------------------|-------|-------------------|----------------------------|-------------------------|---------------------------|
| CIS countries | | | | | |
| Armenia | 100 | 89.1 | – | 10.9 | – |
| Azerbaijan | 100 | 72.4 | 17.8 | 9.8 | – |
| Belarus²⁾ | 100 | 26.4 | 61.9 | 11.7 | 0.0 |
| Kazakhstan | 100 | 25.0 | 51.6 | 16.4 | 7.0 |
| Kyrgyzstan | 100 | 62.0 | 23.3 | 14.6 | – |
| Moldova, Republic of | 100 | 70.0 | 19.0 | 11.0 | – |
| Russia | 100 | 32.2 | 58.3 | 9.3 | 0.2 |
| Tajikistan | 100 | 67.0 | – | 33.0 | – |
| Ukraine | 100 | 37.9 | 55.8 | 6.3 | – |
| Non-CIS countries | | | | | |
| Argentina | 100 | 42.3 | 24.6 | 31.4 | 1.7 |
| Australia | 100 | 12.4 | 58.0 | 26.6 | 3.0 |
| Austria | 100 | 5.1 | 68.8 | 25.6 | 0.5 |
| Belgium | 100 | 8.2 | 67.8 | 23.2 | 0.9 |
| Bulgaria | 100 | 30.0 | 60.5 | 8.0 | 1.4 |
| Canada | 100 | 9.0 | 52.3 | 38.3 | 0.4 |
| China | 100 | 16.3 | 76.2 | 7.6 | – |
| Czech Republic | 100 | 18.4 | 53.6 | 27.5 | 0.5 |
| Denmark | 100 | 2.2 | 65.7 | 31.8 | 0.4 |
| Estonia | 100 | 9.3 | 57.4 | 32.2 | 1.1 |
| Finland | 100 | 9.0 | 68.7 | 21.6 | 0.7 |
| France | 100 | 13.7 | 64.2 | 20.8 | 1.2 |

INTERNATIONAL COMPARISONS

Continued

| | Total | Government sector | Business enterprise sector | Higher education sector | Private non-profit sector |
|--------------------|-------|-------------------|----------------------------|-------------------------|---------------------------|
| Germany | 100 | 14.8 | 66.9 | 18.3 | – |
| Greece | 100 | 24.8 | 34.3 | 39.9 | 1.0 |
| Hungary | 100 | 14.4 | 65.6 | 18.4 | – |
| Italy | 100 | 13.7 | 54.5 | 28.6 | 3.1 |
| Japan | 100 | 8.4 | 77.0 | 13.2 | 1.5 |
| Korea, Republic of | 100 | 11.7 | 76.5 | 10.1 | 1.6 |
| Latvia | 100 | 27.1 | 22.6 | 50.3 | – |
| Lithuania | 100 | 19.7 | 26.6 | 53.7 | – |
| Luxembourg | 100 | 18.0 | 69.4 | 12.6 | – |
| Mexico | 100 | 30.5 | 39.0 | 28.9 | 1.6 |
| Netherlands | 100 | 10.7 | 56.6 | 32.7 | – |
| New Zealand | 100 | 25.7 | 41.4 | 32.8 | 0.1 |
| Norway | 100 | 16.4 | 52.4 | 31.2 | – |
| Poland | 100 | 28.0 | 37.2 | 34.4 | 0.4 |
| Portugal | 100 | 6.5 | 47.0 | 38.7 | 7.8 |
| Romania | 100 | 40.9 | 39.0 | 19.7 | 0.4 |
| Slovakia | 100 | 24.5 | 41.3 | 34.0 | 0.1 |
| Slovenia | 100 | 12.3 | 77.2 | 10.4 | – |
| South Africa | 100 | 21.6 | 53.2 | 24.3 | 0.9 |
| Sweden | 100 | 4.8 | 67.8 | 27.1 | 0.3 |
| Switzerland | 100 | 0.7 | 73.5 | 24.2 | 1.6 |
| Turkey | 100 | 11.3 | 43.2 | 45.5 | – |
| United Kingdom | 100 | 8.2 | 63.4 | 26.5 | 1.8 |
| United States | 100 | 12.3 | 69.8 | 13.8 | 4.0 |

¹⁾ Latest data available.

²⁾ Data for 2014.

7.4. Level of innovativeness¹⁾

(percent)

| | Share of organisations implementing technological innovation in total industrial organisations | Share of innovative output in total shipped output |
|-----------------------------|--|--|
| Austria | 39.3 | 11.9 |
| Belarus²⁾ | 20.9 | 13.9 |
| Belgium | 46.5 | 12.4 |
| Bulgaria | 16.9 | 7.6 |
| Croatia | 25.0 | 10.5 |
| Cyprus | 29.9 | 14.7 |
| Czech Republic | 35.6 | 15.3 |
| Denmark | 38.4 | 15.0 |
| Estonia | 38.4 | 12.3 |
| Finland | 44.6 | 15.3 |
| France | 36.7 | 14.7 |
| Germany | 55.0 | 15.5 |
| Greece | 34.3 | – |
| Hungary | 16.4 | 13.7 |
| Ireland | 42.3 | 9.3 |
| Italy | 41.5 | 14.9 |
| Latvia | 19.5 | 3.1 |
| Lithuania | 18.9 | 6.6 |
| Luxembourg | 48.5 | 8.3 |
| Malta | 35.9 | 7.4 |
| Netherlands | 44.5 | 10.5 |
| Norway | 31.2 | 6.1 |
| Poland | 16.1 | 8.0 |
| Portugal | 41.3 | 14.4 |
| Romania | 6.3 | 14.3 |
| Russia | 8.9 | 9.2 |
| Serbia | 31.2 | 11.8 |
| Slovakia | 19.7 | 23.4 |
| Slovenia | 32.7 | 10.7 |
| Spain | 23.2 | 19.0 |
| Sweden | 45.2 | 8.4 |
| Turkey | 27.0 | – |
| United Kingdom | 34.0 | 5.2 |

¹⁾ Latest data available.²⁾ 2014.

7.5. Selected indicators of the Innovation Union Scoreboard (IUS 2014)

| | New doctorate graduates (ISCED 6) per 1000 population aged 25-34 | Percentage population aged 30-34 having completed tertiary education | Percentage youth aged 20-24 having attained at least upper secondary level education | Non-EU doctorate students as % of all doctorate students | R&D expenditure in the public sector as % of GDP | Venture capital (early stage, expansion and replacement) as % of GDP |
|----------------|--|--|---|--|---|--|
| Belarus | 0.8 | 28.4 | 92.6 | 4.98 | 0.20 | – |
| Austria | 2.2 | 26.3 | 86.6 | 8.6 | 0.88 | 0.134 |
| Belgium | 1.5 | 43.9 | 82.8 | 21.0 | 0.70 | 0.307 |
| Bulgaria | 0.6 | 26.9 | 85.8 | 3.8 | 0.24 | 0.038 |
| Croatia | 1.4 | 23.7 | 94.8 | 2.4 | 0.41 | ... |
| Cyprus | 0.3 | 49.9 | 87.8 | 1.7 | 0.34 | ... |
| Czech Republic | 1.5 | 25.6 | 90.9 | 4.1 | 0.87 | 0.056 |
| Denmark | 2.3 | 43.0 | 72.0 | 17.7 | 1.02 | 0.296 |
| Estonia | 1.3 | 39.1 | 81.3 | 4.2 | 0.90 | ... |
| Finland | 2.7 | 45.8 | 86.3 | 6.8 | 1.09 | 0.310 |
| France | 1.6 | 43.6 | 84.4 | 31.5 | 0.78 | 0.307 |
| Germany | 2.8 | 31.9 | 76.2 | 11.2 | 0.96 | 0.223 |
| Greece | 1.1 | 30.9 | 85.4 | 1.0 | 0.45 | 0.045 |
| Hungary | 0.8 | 29.9 | 83.5 | 2.7 | 0.43 | 0.224 |
| Iceland | 0.8 | 42.8 | 58.3 | 23.4 | 1.07 | ... |
| Ireland | 1.9 | 51.1 | 87.2 | 20.5 | 0.53 | 0.196 |
| Italy | 1.5 | 21.7 | 77.6 | 8.4 | 0.53 | 0.138 |
| Latvia | 1.0 | 37.0 | 84.3 | 0.2 | 0.51 | ... |

The data source is the publication of the European Commission "Innovation Union Scoreboard 2014". The electronic version of the publication is available at http://ec.europa.eu/enterprise/policies/innovation/files/ius/ius-2014_en.pdf.

Estimates for Belarus are produced by Belstat based on the IUS methodology.

INTERNATIONAL COMPARISONS

Continued

| | New doctorate graduates (ISCED 6) per 1000 population aged 25-34 | Percentage population aged 30-34 having completed tertiary education | Percentage youth aged 20-24 having attained at least upper secondary level education | Non-EU doctorate students as % of all doctorate students | R&D expenditure in the public sector as % of GDP | Venture capital (early stage, expansion and replacement) as % of GDP |
|---|--|--|---|--|---|--|
| Lithuania | 0.9 | 48.7 | 89.3 | 0.0 | 0.66 | 0.9 |
| Luxembourg | 0.8 | 49.6 | 71.5 | 20.3 | 0.49 | 0.8 |
| Macedonia, former Yugoslav Republic of | 0.6 | 21.7 | 87.1 | 7.0 | 0.20 | ... |
| Malta | 0.3 | 22.4 | 73.6 | 1.4 | 0.33 | ... |
| Netherlands | 1.9 | 42.3 | 78.9 | 20.9 | 0.93 | 0.300 |
| Norway | 2.0 | 47.6 | 71.3 | 31.5 | 0.79 | 0.231 |
| Poland | 0.5 | 39.1 | 89.8 | 1.9 | 0.56 | 0.234 |
| Portugal | 1.6 | 27.2 | 67.5 | 12.0 | 0.68 | 0.213 |
| Romania | 1.7 | 21.8 | 79.6 | 2.1 | 0.30 | 0.137 |
| Serbia | 0.7 | 24.7 | 83.4 | 7.1 | 0.72 | ... |
| Slovakia | 1.9 | 23.7 | 92.7 | 1.4 | 0.48 | ... |
| Slovenia | 1.7 | 39.2 | 90.1 | 6.4 | 0.63 | ... |
| Spain | 1.2 | 40.1 | 62.8 | 18.0 | 0.61 | 0.192 |
| Sweden | 2.9 | 47.9 | 86.4 | 21.9 | 1.08 | 0.289 |
| Switzerland | 3.1 | 43.8 | 84.3 | 31.5 | 0.79 | 0.289 |
| Turkey | 0.4 | 18.0 | 58.3 | 3.2 | 0.49 | ... |
| United Kingdom | 2.4 | 47.1 | 81.8 | 30.6 | 0.60 | 0.419 |

Continued

| | R&D expenditure in the business sector as % of GDP | Non-R&D innovation expenditures as % of turnover | SMEs innovating in-house as % of SMEs | Innovative SMEs collaborating with others as % of SMEs | SMEs introducing product or process innovations as % of SMEs | SMEs introducing marketing or organisational innovations as % of SMEs |
|----------------|--|--|---------------------------------------|--|--|---|
| Belarus | 0.32 | 1.90 | 3.51 | 0.40 | 3.07 | 0.87 |
| Austria | 1.95 | 0.35 | 36.3 | 20.5 | 42.2 | 42.3 |
| Belgium | 1.52 | 0.53 | 39.8 | 20.1 | 50.3 | 41.7 |
| Bulgaria | 0.39 | 0.28 | 13.0 | 3.3 | 16.6 | 16.3 |
| Croatia | 0.34 | 0.61 | 25.1 | 9.3 | 30.4 | 31.9 |
| Cyprus | 0.06 | 1.66 | 41.6 | 21.5 | 34.8 | 37.0 |
| Czech Republic | 1.01 | 0.69 | 27.2 | 10.3 | 33.0 | 41.1 |
| Denmark | 1.96 | 0.51 | 40.8 | 15.5 | 41.6 | 42.6 |
| Estonia | 1.25 | 1.03 | 33.6 | 18.5 | 45.6 | 36.0 |
| Finland | 2.33 | 0.51 | 33.2 | 16.5 | 44.8 | 38.9 |
| France | 1.45 | 0.25 | 29.9 | 11.1 | 32.7 | 42.8 |
| Germany | 1.95 | 0.88 | 45.2 | 14.0 | 57.0 | 60.5 |
| Greece | 0.24 | 0.74 | 32.7 | 13.3 | 37.3 | 51.3 |
| Hungary | 0.85 | 0.40 | 11.4 | 6.7 | 16.8 | 22.4 |
| Iceland | 1.26 | ... | ... | 17.4 | 55.1 | 45.9 |
| Ireland | 1.20 | 0.30 | 38.8 | 11.9 | 45.5 | 45.0 |
| Italy | 0.69 | 0.59 | 34.8 | 4.4 | 39.8 | 43.0 |
| Latvia | 0.15 | 0.36 | 14.4 | 4.2 | 15.8 | 22.7 |
| Lithuania | 0.24 | 1.27 | 15.7 | 8.8 | 21.4 | 26.4 |

Continued

| | R&D expenditure in the business sector as % of GDP | Non-R&D innovation expenditures as % of turnover | SMEs innovating in-house as % of SMEs | Innovative SMEs collaborating with others as % of SMEs | SMEs introducing product or process innovations as % of SMEs | SMEs introducing marketing or organisational innovations as % of SMEs |
|--|--|--|---------------------------------------|--|--|---|
| Luxembourg | 1.00 | 0.19 | 40.5 | 14.7 | 47.9 | 58.7 |
| Macedonia, former Yugoslav Republic of | 0.02 | 0.90 | 11.3 | 9.6 | 39.2 | 30.8 |
| Malta | 0.50 | 0.96 | 22.5 | 4.6 | 29.0 | 31.0 |
| Netherlands | 1.22 | 0.61 | 39.1 | 14.9 | 46.0 | 36.9 |
| Norway | 0.87 | 0.14 | 23.2 | 9.6 | 32.8 | 29.1 |
| Poland | 0.33 | 1.02 | 11.3 | 4.2 | 14.4 | 19.9 |
| Portugal | 0.70 | 0.53 | 34.1 | 8.1 | 45.6 | 47.4 |
| Romania | 0.12 | 0.46 | 10.8 | 2.9 | 13.2 | 25.5 |
| Serbia | 0.24 | 1.06 | 30.6 | 7.5 | 36.0 | 39.1 |
| Slovakia | 0.34 | 0.65 | 21.8 | 8.3 | 26.0 | 27.3 |
| Slovenia | 2.16 | 0.56 | ... | 13.6 | 32.6 | 37.7 |
| Spain | 0.68 | 0.39 | 22.1 | 5.8 | 28.1 | 27.7 |
| Sweden | 2.31 | 0.64 | 37.7 | 17.5 | 47.4 | 42.1 |
| Switzerland | 2.11 | 1.77 | 45.2 | 9.4 | 49.2 | ... |
| Turkey | 0.37 | 0.16 | 28.2 | 5.3 | 29.5 | 50.3 |
| United Kingdom | 1.14 | ... | ... | 22.3 | 21.3 | 30.6 |

Continued

| | Employment in knowledge-intensive activities (manufacturing and services) as % of total employment | Contribution of medium and high-tech products exports to the trade balance | Knowledge-intensive services exports as % of total service exports | Sales of new-to-market and new-to-firm innovations as % of turnover |
|--|--|--|--|---|
| Belarus | 28.49 | 2.62 | 28.46 | 13.33 |
| Austria | 14.2 | 3.55 | 23.8 | 11.9 |
| Belgium | 15.2 | 2.27 | 42.3 | 12.4 |
| Bulgaria | 8.3 | -5.23 | 25.5 | 7.6 |
| Croatia | 10.4 | 1.03 | 17.3 | 10.5 |
| Cyprus | 16.9 | 2.39 | 42.9 | 14.7 |
| Czech Republic | 12.5 | 3.79 | 29.2 | 15.3 |
| Denmark | 15.5 | -3.34 | 65.1 | 15.0 |
| Estonia | 10.8 | -2.94 | 36.4 | 12.3 |
| Finland | 15.5 | 1.24 | 34.9 | 15.3 |
| France | 14.3 | 5.23 | 33.7 | 14.7 |
| Germany | 15.8 | 9.24 | 55.6 | 15.5 |
| Greece | 12.3 | -5.41 | 53.0 | 19.2 |
| Hungary | 12.5 | 5.56 | 26.3 | 13.7 |
| Iceland | 17.5 | -10.47 | 51.0 | 6.1 |
| Ireland | 20.1 | 1.99 | 67.4 | 9.3 |
| Italy | 13.2 | 4.82 | 27.5 | 14.9 |
| Latvia | 10.3 | -4.89 | 32.8 | 4.8 |
| Lithuania | 9.1 | -0.85 | 12.5 | 6.6 |
| Luxembourg | 20.5 | -4.43 | 67.4 | 8.3 |
| Macedonia, former Yugoslav Republic of | 7.0 | 5.92 | 22.5 | 9.9 |
| Malta | 17.0 | 3.42 | 11.2 | 7.4 |
| Netherlands | 15.2 | 0.88 | 28.8 | 10.4 |
| Norway | 15.3 | -10.47 | 49.4 | 6.1 |
| Poland | 9.7 | 0.58 | 28.3 | 8.0 |
| Portugal | 9.0 | -0.28 | 30.1 | 14.3 |
| Romania | 6.5 | 0.38 | 45.2 | 14.3 |
| Serbia | 14.4 | -3.50 | 45.2 | 11.7 |
| Slovakia | 10.1 | 3.88 | 22.1 | 19.2 |
| Slovenia | 14.1 | 6.54 | 21.4 | 10.6 |
| Spain | 11.9 | 3.31 | 21.6 | 19.0 |
| Sweden | 17.6 | 1.80 | 39.8 | 8.4 |
| Switzerland | 20.5 | 8.08 | 25.1 | 16.1 |
| Turkey | 5.0 | -3.13 | 21.9 | 15.8 |
| United Kingdom | 17.8 | 4.25 | 61.2 | 7.3 |