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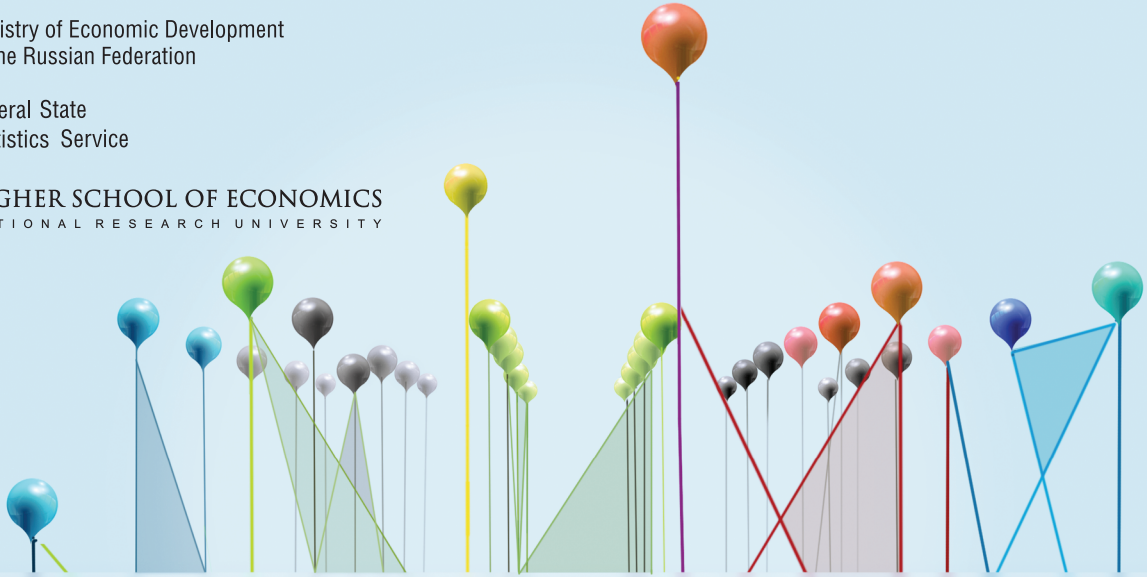

Indicators of Innovation in the Russian Federation

Data Book

15 years
Institute for Statistical Studies and Economics of Knowledge, HSE

Ministry of Economic Development
of the Russian Federation

Federal State
Statistics Service

HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY



Indicators of Innovation in the Russian Federation

Data Book

Moscow 2017

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Indicators of Innovation in the Russian Federation : Data Book / K. Ditkovsky, S. Fridlyanova, L. Gokhberg et al.; National Research University Higher School of Economics. – Moscow: HSE, 2017. – 328 p.

This data book presents the results of statistical surveys characterising innovation processes in the economy of the country. It shows the dynamics of consolidated indicators, produced in accordance with modern international standards of the Organisation for Economic Co-operation and Development (OECD) and Eurostat, showing the level of development of technological and non-technological innovation. The book contains statistical data reflecting the innovative activity of enterprises in the sphere of manufacturing, services and construction. The book focuses on resources provision, the effects and efficiency of innovative activity, co-operation ties, and economic, industrial and other factors hampering innovation. One chapter is specifically dedicated to ecological innovation. Separate chapters of the book are devoted to the characteristics of innovative activity in the regions of the Russian Federation and to international comparisons covering a wide range of indicators.

The data book includes information of the Federal State Statistics Service, the OECD, the European Commission, Eurostat, National Statistical Agencies of foreign countries, as well as in-house methodological and analytical studies conducted at Institute for Statistical Studies and Economics of Knowledge at National Research University Higher School of Economics.

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SYMBOLS USED IN TABLES:

… data not available and not included in the totals,
– data not applicable,
0.0 insignificant value.

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

MAIN INDICATORS OF INNOVATION

	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Enterprises engaged in technological innovation as a percentage of all enterprises:														
mining and quarrying, manufacturing, electricity, gas and water supply	10.6	10.3	10.5	9.3	9.4	9.4	9.6	9.4	9.3	9.6	9.9	9.7	9.7	9.5
communication, computer and information technology-related activities*	12.1	14.3	14.7	15.3	12.5	11.2	10.9	10.1	10.8	9.9	10.3	10.3	9.5	9.4
Innovative goods and services as a percentage of total goods and services sales:														
mining and quarrying, manufacturing, electricity, gas and water supply	4.4	4.7	5.4	5.0	5.5	5.5	5.1	4.6	4.9	6.1	7.8	8.9	8.2	7.9
communication, computer and information technology-related activities	16.9	8.9	8.4	8.6	8.3	4.2	4.2	3.8	4.7	4.8	3.0	3.9	3.3	4.3
Expenditure on technological innovation, *million roubles*:														
mining and quarrying, manufacturing, electricity, gas and water supply:														
at current prices	49428.0	105444.7	122850.5	125678.2	188492.2	207499.2	276262.3	358861.1	349763.3	469442.2	583660.6	746778.2	762774.1	735757.7
at constant 1995 prices	10462.7	14576.3	14116.7	12105.3	15760.0	15245.3	17201.2	21906.1	18695.9	21650.6	24855.3	30345.1	28913.3	25895.3
communication, computer and information technology-related activities:														
at current prices	11794.1	14782.7	19495.3	17544.4	18892.4	25125.5	24148.0	32790.9	38684.0	137754.0	83230.6	66133.4	47066.3	66722.8
at constant 1995 prices	2496.5	2043.5	2240.2	1689.9	1579.6	1846.0	1503.6	2001.7	2067.8	6353.2	3544.4	2687.3	1784.1	2348.3

(continued)

	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Expenditure on technological innovation as a percentage of total goods and services sales:														
mining and quarrying, manufacturing, electricity, gas and water supply	1.4	1.6	1.5	1.2	1.4	1.2	1.4	1.9	1.5	1.5	1.8	2.2	2.1	1.8
communication, computer and information technology-related activities	11.1	6.5	5.9	3.5	2.7	2.7	2.1	2.7	2.9	8.8	4.4	3.6	2.4	3.3
Overall share of innovative enterprise (enterprises engaged in technological, marketing, and organisational innovation as a percentage of all enterprises):														
mining and quarrying, manufacturing, electricity, gas and water supply	…	…	…	…	10.6	10.8	11.0	11.0	10.8	11.1	11.1	10.9	10.9	10.6
communication, computer and information technology-related activities	…	…	…	…	15.6	13.5	13.4	13.2	13.6	12.1	11.7	12.2	10.7	10.8
Enterprises engaged in marketing innovation as a percentage of all enterprises:														
mining and quarrying, manufacturing, electricity, gas and water supply	…	…	…	…	2.3	2.5	2.6	2.4	2.5	2.5	2.2	2.1	2.0	2.0
communication, computer and information technology-related activities	…	…	…	…	4.4	4.5	4.5	4.7	4.7	3.9	3.2	3.1	2.3	3.4

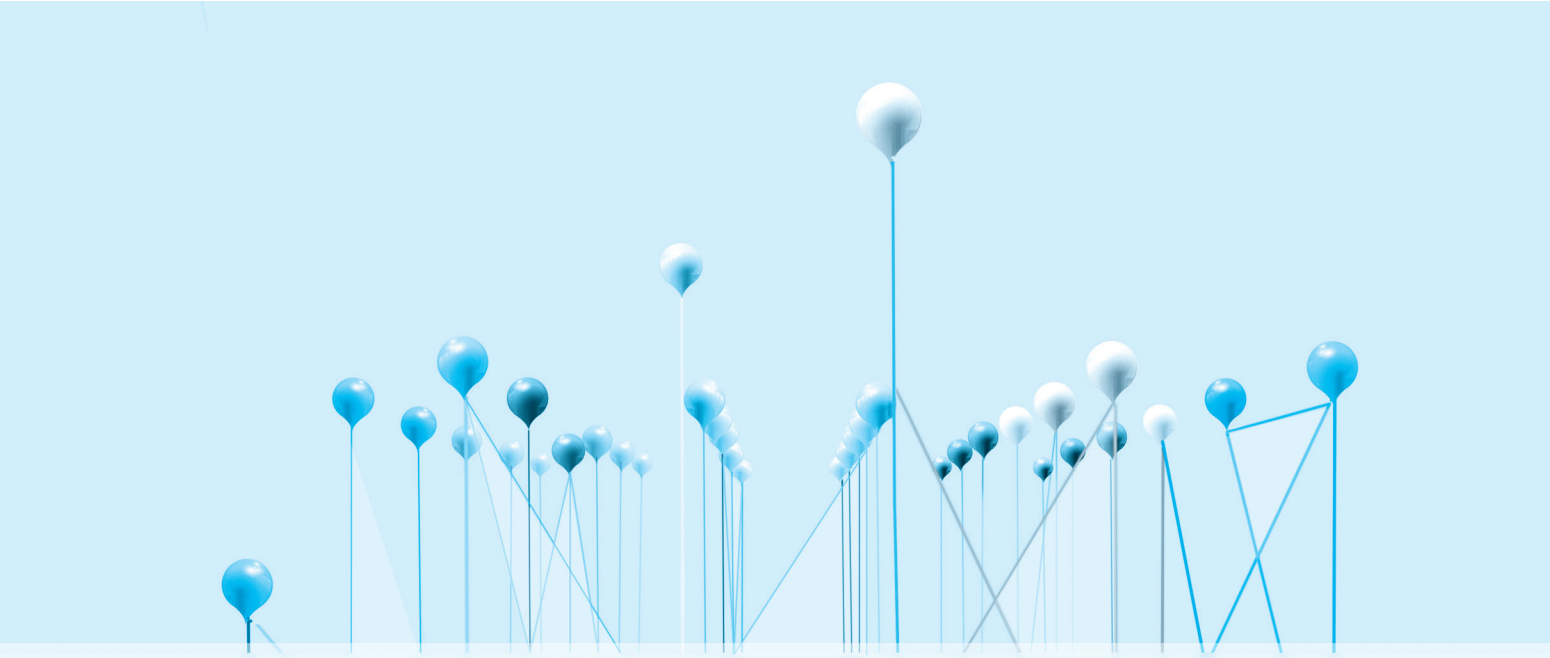
(continued)

	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Enterprises engaged in organisational innovation as a percentage of all enterprises:														
mining and quarrying, manufacturing, electricity, gas and water supply	…	…	…	…	3.2	3.5	3.5	3.7	3.4	3.5	3.2	3.1	3.0	2.9
communication, computer and information technology-related activities	…	…	…	…	5.4	4.8	4.5	4.7	5.1	3.9	3.6	3.5	3.4	3.8
Expenditure on technological, marketing, and organisational innovation, *million roubles:*														
mining and quarrying, manufacturing, electricity, gas and water supply:														
at current prices	…	…	…	…	191341.5	213020.1	283194.8	365785.1	356163.5	474587.1	590341.6	756183.9	778263.5	741283.8
at constant 1995 prices	…	…	…	…	15998.2	15650.9	17632.9	22328.7	19038.0	21887.9	25139.9	30727.3	29500.5	26089.8
communication, computer and information technology-related activities:														
at current prices	…	…	…	…	20010.5	26405.2	27076.7	34821.9	40223.1	146419.4	86002.9	68115.1	48612.3	67749.9
at constant 1995 prices	…	…	…	…	1673.1	1940.0	1685.9	2125.6	2150.0	6752.9	3662.5	2767.8	1842.7	2384.5
Expenditure on technological, marketing, and organisational innovation as a percentage of total goods and services sales:														
mining and quarrying, manufacturing, electricity, gas and water supply	…	…	…	…	1.5	1.3	1.4	1.9	1.5	1.6	1.8	2.2	2.1	1.8
communication, computer and information technology-related activities	…	…	…	…	2.7	2.8	2.3	2.8	3.0	9.4	8.6	3.7	2.5	3.4

(continued)

	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Small enterprises engaged in technological innovation as a percentage of all small enterprises:														
mining and quarrying, manufacturing, electricity, gas and water supply	1.3	1.6	…	1.6	…	4.3	…	4.1	…	5.1	…	4.8	…	4.5
Innovative goods and services as a percentage of total goods and services sales of small enterprises:														
mining and quarrying, manufacturing, electricity, gas and water supply	0.6	0.3	…	0.3	…	2.0	…	1.4	…	1.5	…	2.1	…	1.6
Expenditure on technological innovation of small enterprises, *million roubles:*														
mining and quarrying, manufacturing, electricity, gas and water supply:														
at current prices	867.6	1296.5	…	1932.7	…	10608.2	…	6793.5	…	9479.3	…	13510.5	…	12151.8
at constant 1995 prices	183.7	179.2	…	186.2	…	779.4	…	414.7	…	437.2	…	549.0	…	427.7
Expenditure on technological innovation as a percentage of total goods and services sales of small enterprises:														
mining and quarrying, manufacturing, electricity, gas and water supply	0.6	0.4	…	0.2	…	1.7	…	0.9	…	0.9	…	1.0	…	0.6

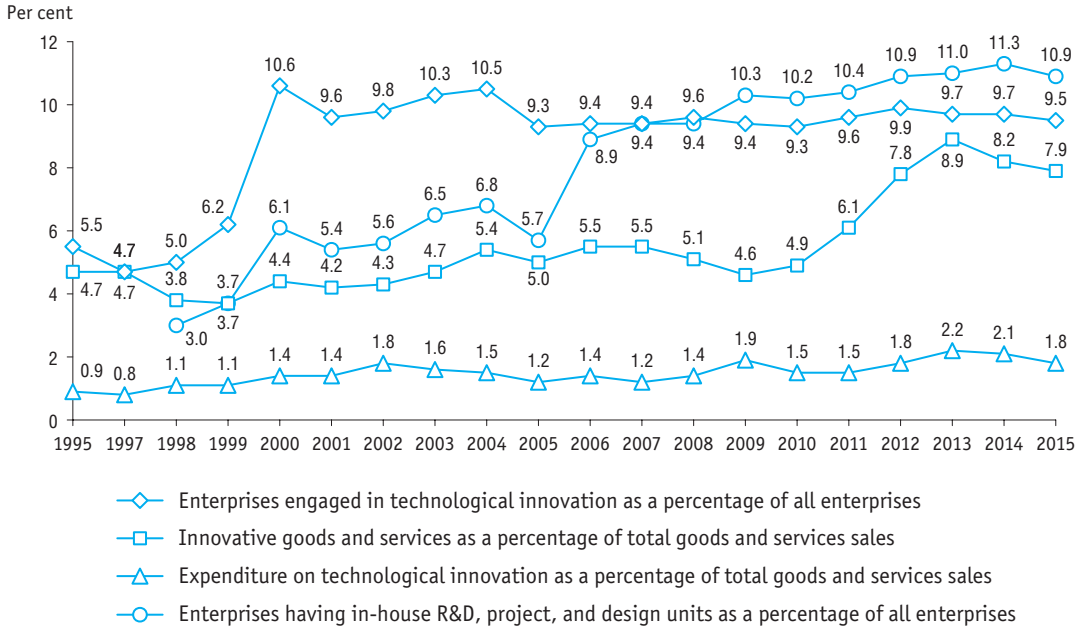
* Unlike other service sector firms the enterprises engaged in communication and computer and information technology-related activities were the focus of statistical monitoring in the sphere of service sector innovative activity during the entire period under review.



1. Main Innovation Trends

1.1. INNOVATIVE ACTIVITY OF ENTERPRISES

Mining and quarrying, manufacturing, electricity, gas and water supply



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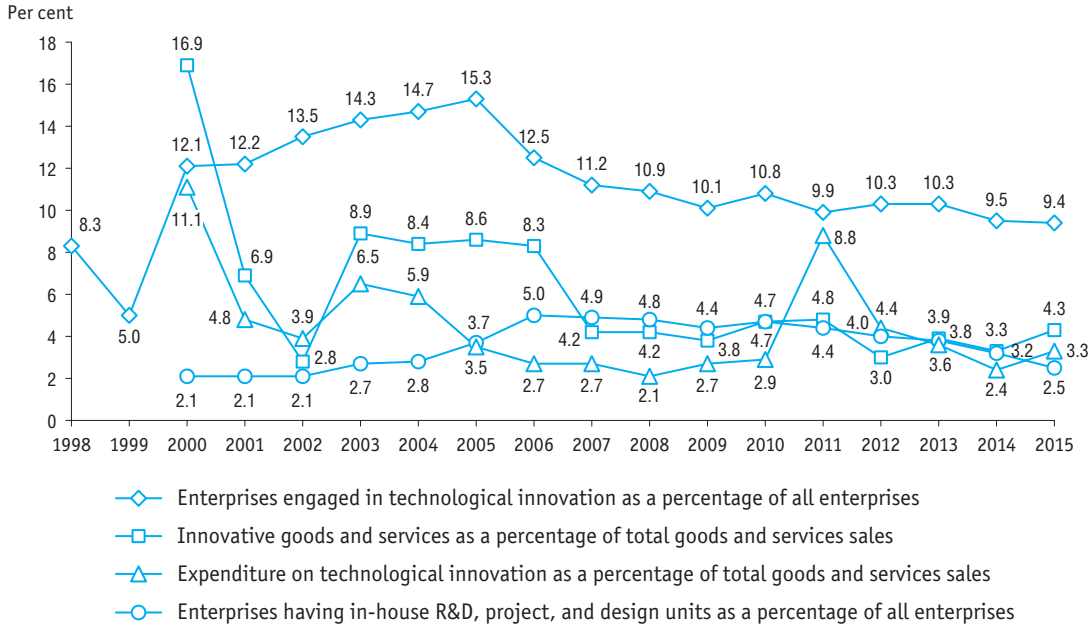
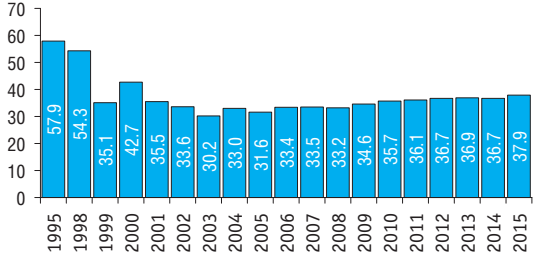
Communication, computer and information technology-related activities



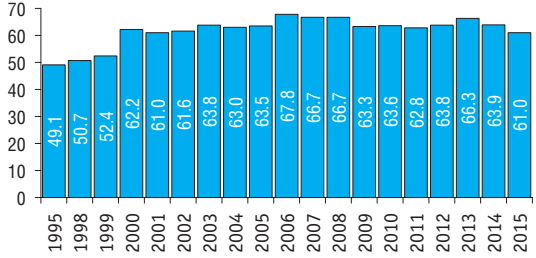
1.2. ENTERPRISES ENGAGED IN SELECTED TYPES OF INNOVATIVE ACTIVITY AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

Mining and quarrying, manufacturing, electricity, gas and water supply

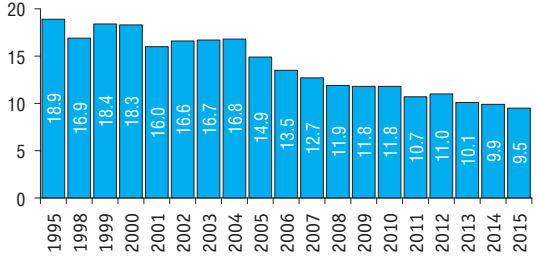
R&D



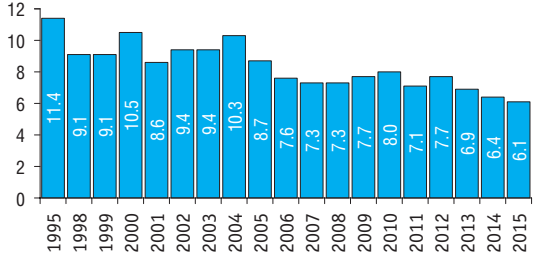
Acquisition of machinery and equipment



Acquisition of new technology



Acquisition of patent rights and licences



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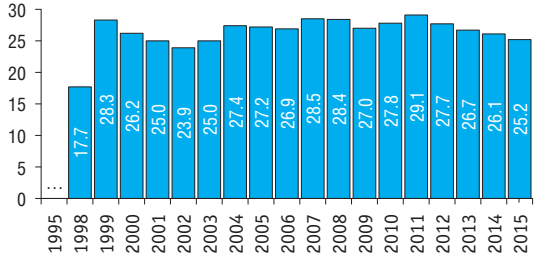
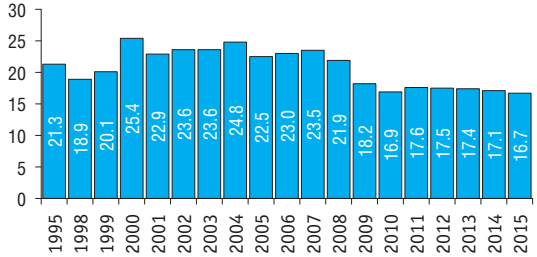
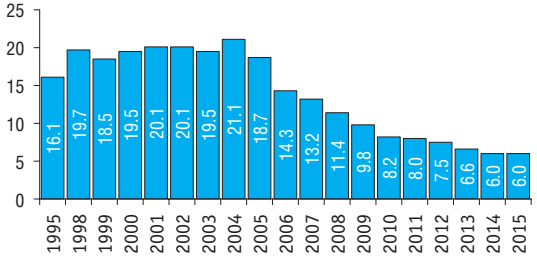
Acquisition of software



Personnel training



Marketing research



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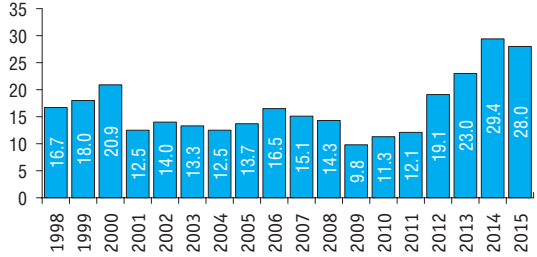
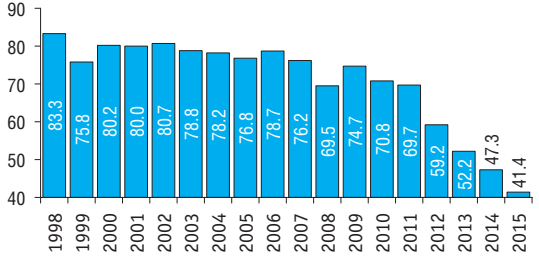
Communication, computer and information technology-related activities

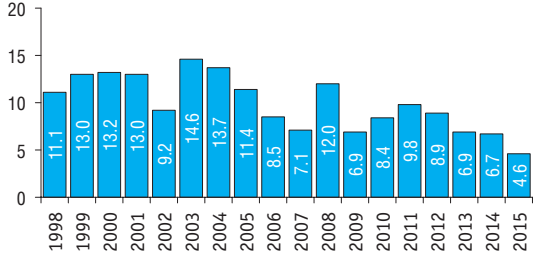
R&D



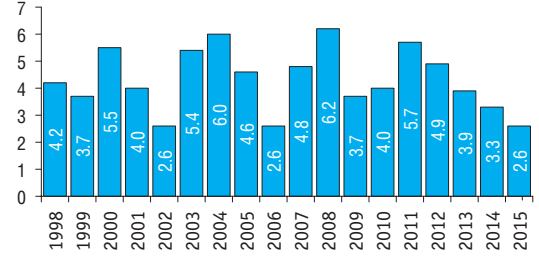
Acquisition of machinery and equipment



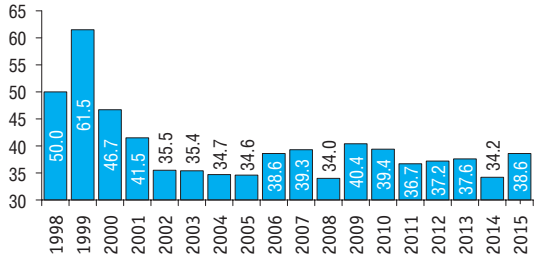
Acquisition of new technology



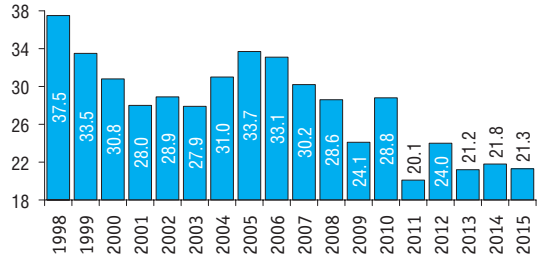
Acquisition of patent rights and licences



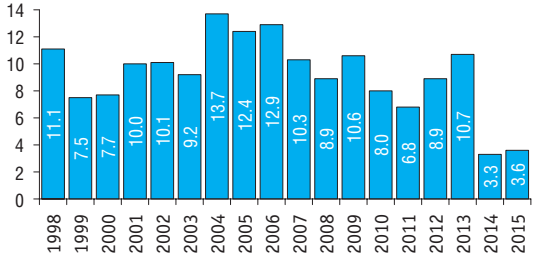
Acquisition of software



Personnel training



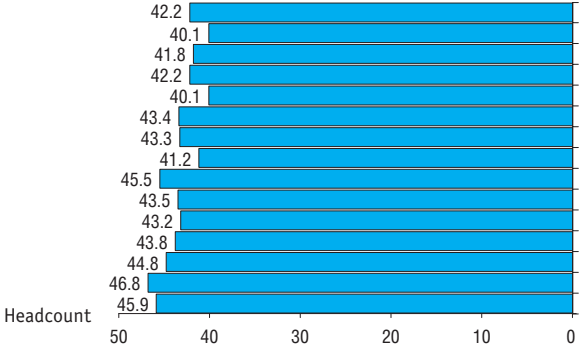
Marketing research



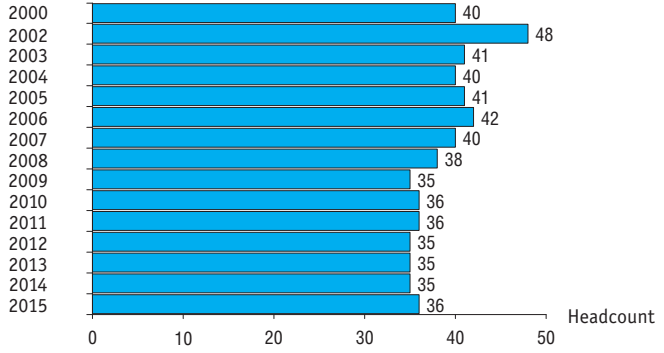
1.3. R&D UNITS AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply															
R&D units at enterprises	2584	1788	2048	2009	2083	2274	2360	2117	2248	2218	2234	2381	2614	2644	2738
Number of employees in R&D units, *headcount*	103367	85902	84492	81052	86356	96188	94116	80106	79603	79993	80639	82760	90238	92796	97733

Enterprises having in-house R&D, project, and design units as a percentage of all enterprises engaged in technological innovation



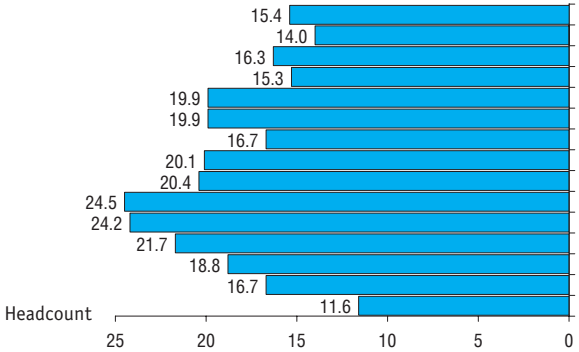
Average number of employees in R&D units



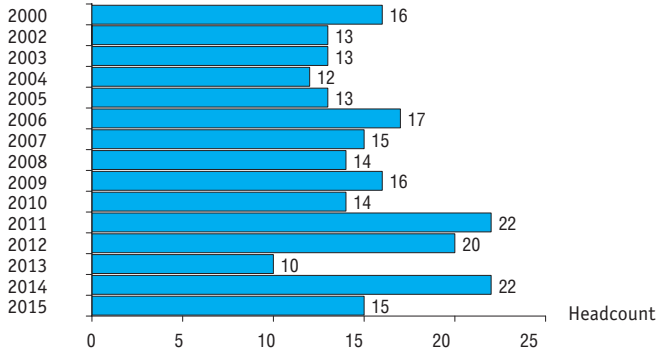
(continued)

	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Communication, computer and information technology-related activities															
R&D units at enterprises	39	51	62	72	108	101	95	116	87	114	134	151	245	136	214
Number of employees in R&D units, *headcount*	620	679	787	873	1450	1757	1385	1627	1357	1634	2888	3073	2389	2959	3160

Enterprises having in-house R&D, project, and design units as a percentage of all enterprises engaged in technological innovation



Average number of employees in R&D units

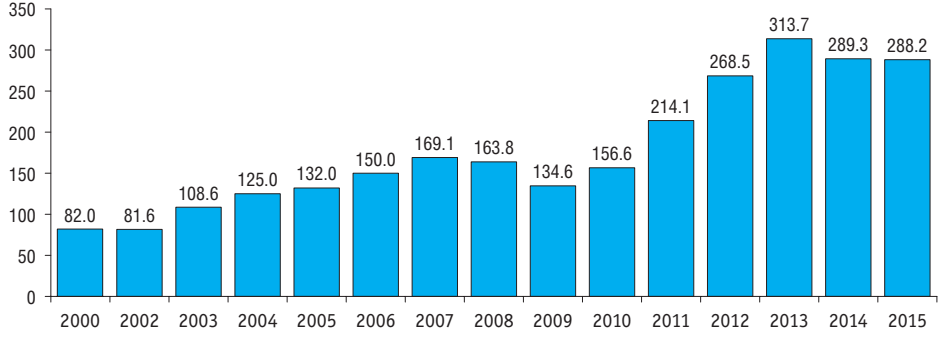


1.4. SALES OF INNOVATIVE GOODS AND SERVICES

(million roubles)

	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply															
Sales of innovative goods and services:															
at current prices	154135.0	206313.2	312692.0	433003.5	545540.0	714024.6	916131.6	1046960.0	877684.8	1165747.6	1847370.4	2509604.4	3072530.8	3037407.3	3258254.6
at constant 1995 prices	32626.7	32455.5	43225.3	49756.2	52546.2	59700.1	67309.7	65188.1	53576.8	62312.8	85200.6	106872.2	124851.4	115134.4	114675.6
per rouble of expenditure on technological innovation, *roubles*	3.1	2.4	3.0	3.5	4.3	3.8	4.4	3.8	2.4	3.3	3.9	4.3	4.1	4.0	4.4

As a percentage of 1995 sales



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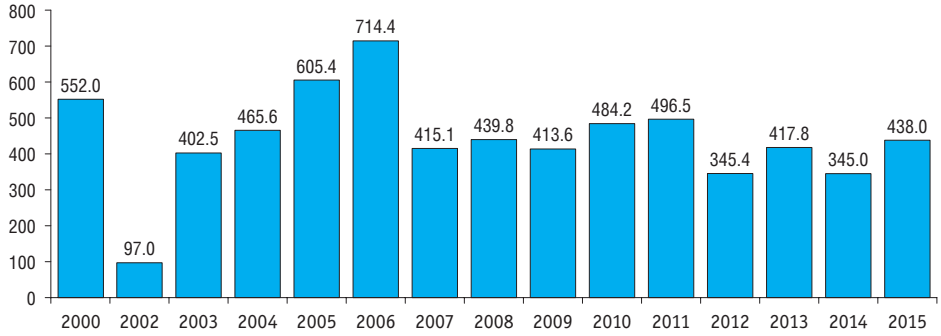
	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Communication, computer and information technology-related activities															
Sales of innovative goods and services:															
at current prices	18033.2	4261.9	20132.3	28020.0	43465.3	59086.3	39069.6	48839.0	46854.7	62636.4	74437.8	56092.2	71094.4	62928.5	86048.9
at constant 1995 prices	3817.2	670.4	2783.0	3219.8	4186.6	4940.2	2870.5	3040.9	2860.2	3348.1	3433.1	2388.7	2888.9	2385.3	3028.5
per rouble of expenditure on technological innovation, *roubles*	1.5	0.7	1.4	1.4	2.5	3.1	1.6	2.0	1.4	1.6	0.5	0.7	1.1	1.3	1.3

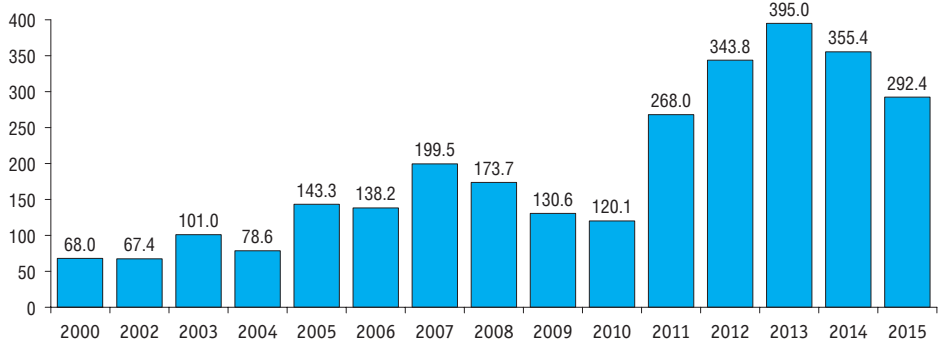
As a percentage of 1998 sales



1.5. EXPORTS OF INNOVATIVE GOODS AND SERVICES

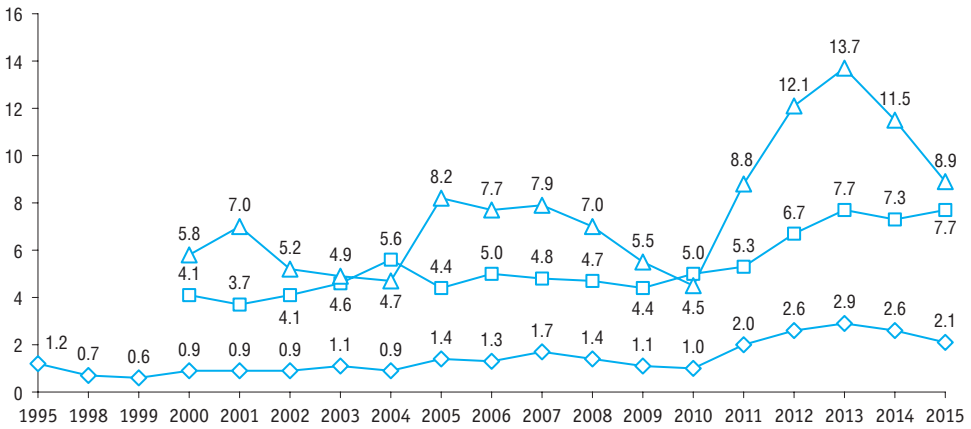
(million roubles)

	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply															
Exports of innovative goods and services:															
at current prices	32672.3	43597.2	74351.1	69557.8	151358.0	168176.0	276280.8	283792.5	217621.4	228644.5	591239.1	821409.9	988844.7	953877.4	845257.7
at constant 1995 prices	6915.9	6858.4	10278.0	7992.9	14578.7	14061.3	20298.8	17670.1	13284.3	12221.8	27267.9	34980.0	40181.4	36157.2	29749.2



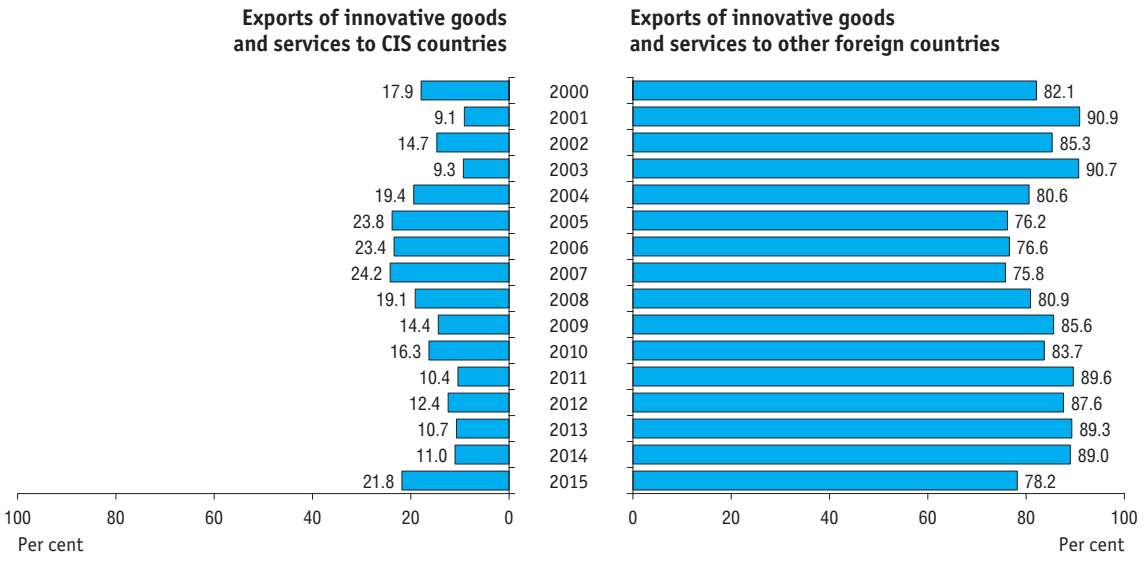
1.6. INNOVATIVE GOODS AND SERVICES AS A SHARE OF NATIONAL AND FOREIGN MARKET SALES

Mining and quarrying, manufacturing, electricity, gas and water supply



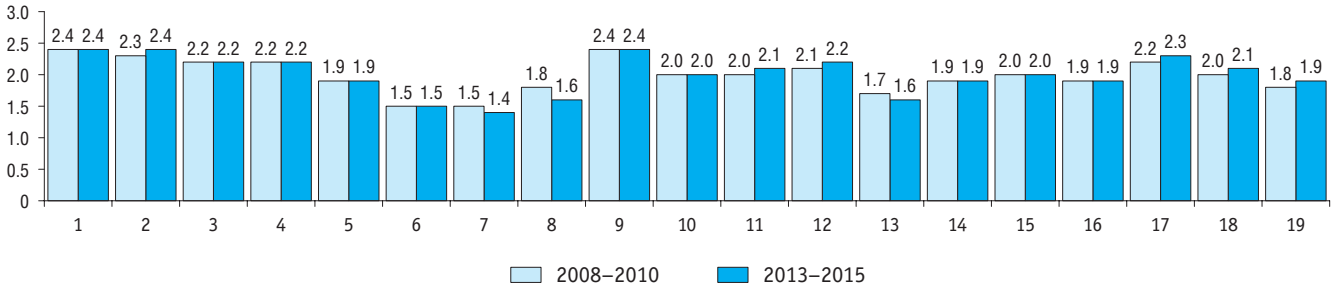
1.7. DISTRIBUTION OF INNOVATIVE GOODS AND SERVICES EXPORTS

Mining and quarrying, manufacturing, electricity, gas and water supply



1.8. EFFECTS OF TECHNOLOGICAL INNOVATION BY RANK OF IMPORTANCE

Mining and quarrying, manufacturing, electricity, gas and water supply



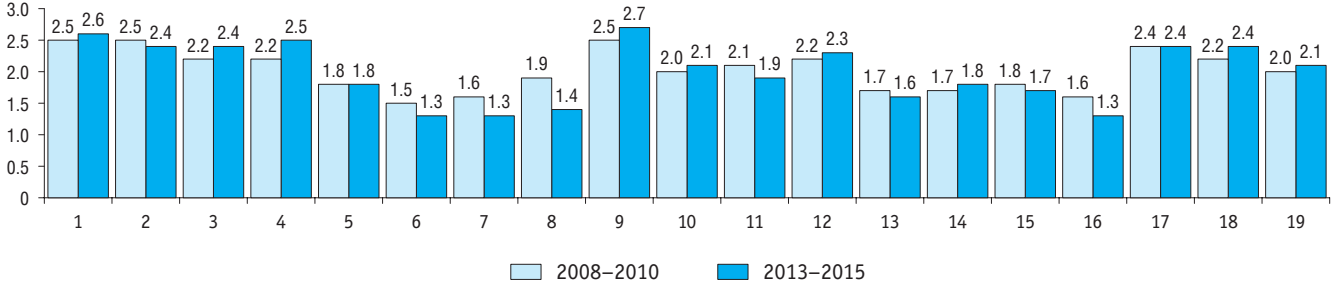
1 – Goods and services product-line expansion
2 – Traditional sales markets preservation
3 – Sales markets expansion
4 – Russia
5 – CIS countries
6 – EU countries, EU candidate countries: Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro, as well as Liechtenstein, Norway, Switzerland
7 – USA and Canada
8 – Other countries
9 – Goods and services quality improvement
10 – Obsolete products replacement
11 – Manufacturing flexibility increase
12 – Manufacturing capacity growth
13 – Salary costs reduction
14 – Material costs reduction
15 – Manufacturing energy efficiency improvement
16 – Environmental pollution abatement
17 – Modern technical regulations, rules and standards compliance

Marketing innovations:

18 – penetration of new sales markets and new segments of target customers with goods and services
19 – penetration of new geographical markets with goods and services

(continued)

Communication, computer and information technology-related activities



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2 – Traditional sales markets preservation
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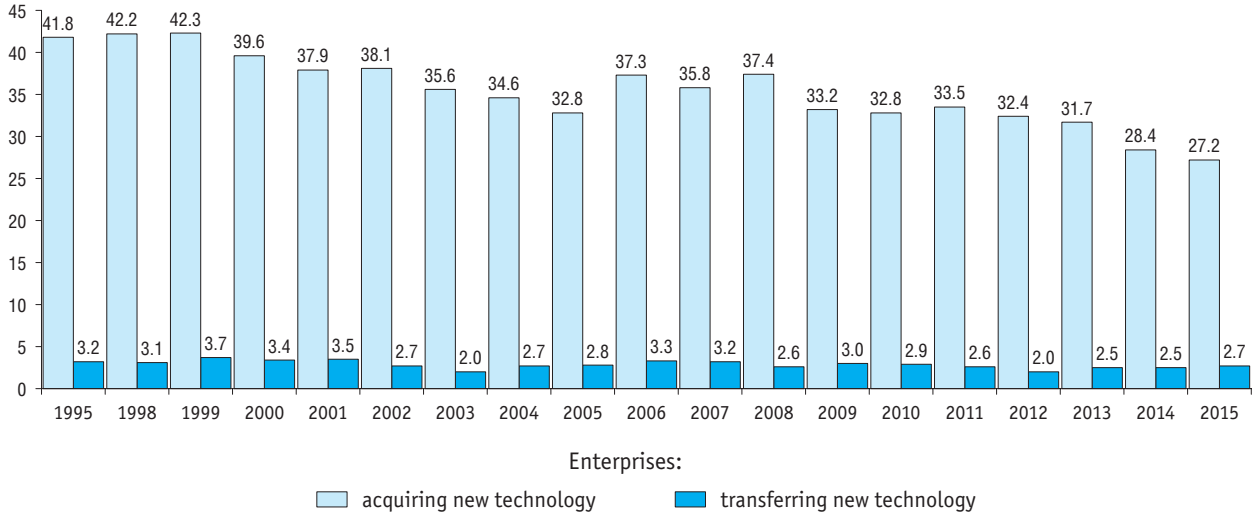
16 – Environmental pollution abatement
17 – Modern technical regulations, rules and standards compliance

Marketing innovations:

18 – penetration of new sales markets and new segments of target customers with goods and services
19 – penetration of new geographical markets with goods and services

1.9. ENTERPRISES ENGAGED IN TECHNOLOGY EXCHANGE AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

Mining and quarrying, manufacturing, electricity, gas and water supply



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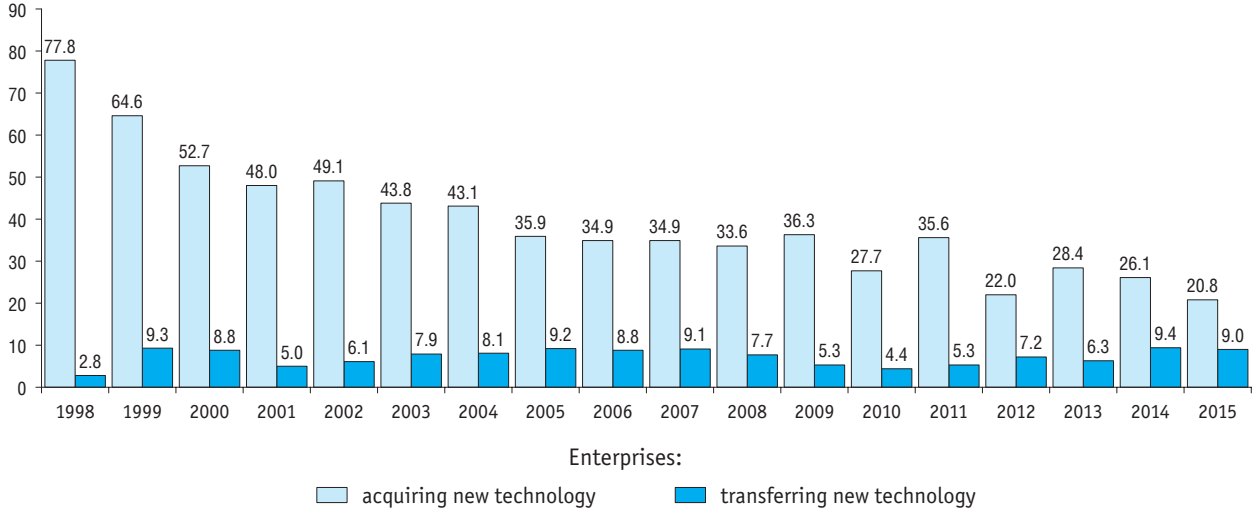
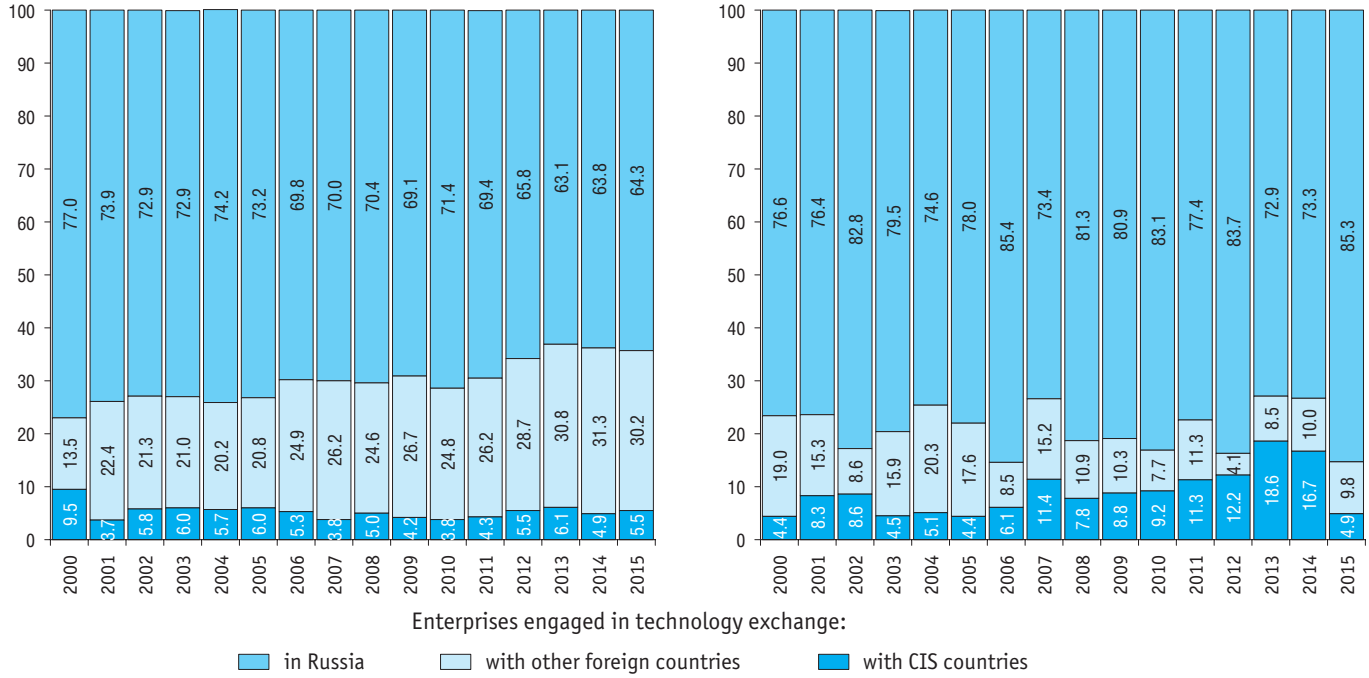
Communication, computer and information technology-related activities



1.10. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AND TECHNOLOGY EXCHANGE BY COUNTRY AND REGION

Mining and quarrying, manufacturing, electricity, gas and water supply



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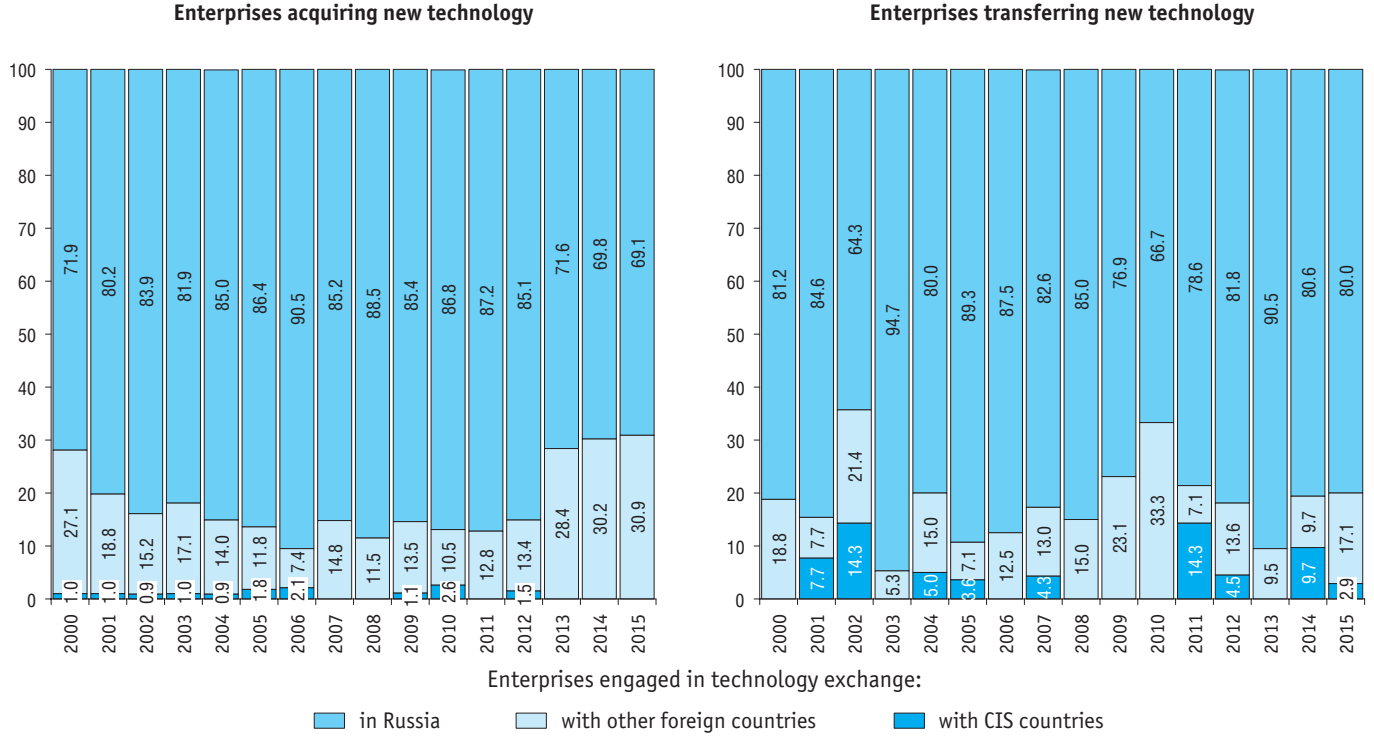
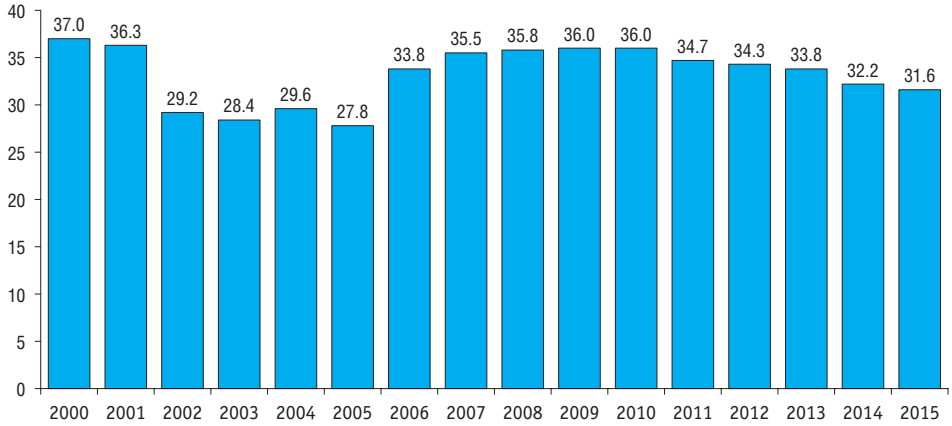
Communication, computer and information technology-related activities



1.11. JOINT R&D PROJECTS OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

Mining and quarrying, manufacturing, electricity, gas and water supply

Enterprises taking part in joint R&D projects as a percentage of all enterprises engaged in technological innovation



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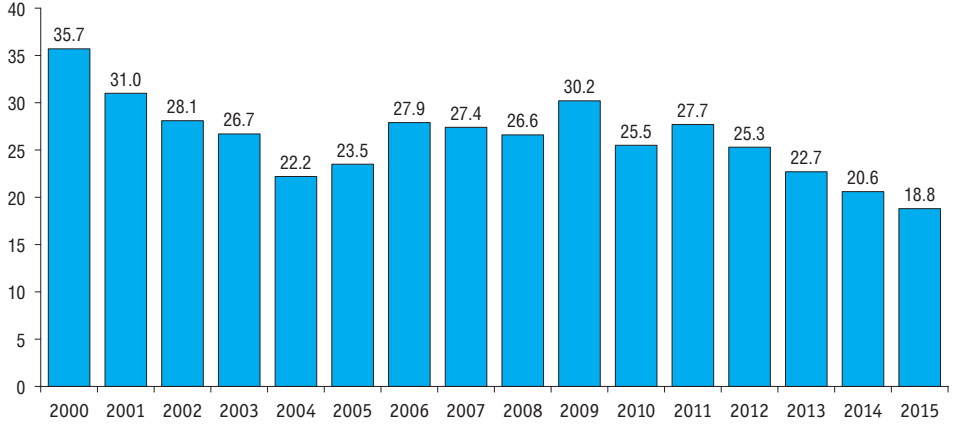
Communication, computer and information technology-related activities

Enterprises taking part in joint R&D projects as a percentage of all enterprises engaged in technological innovation

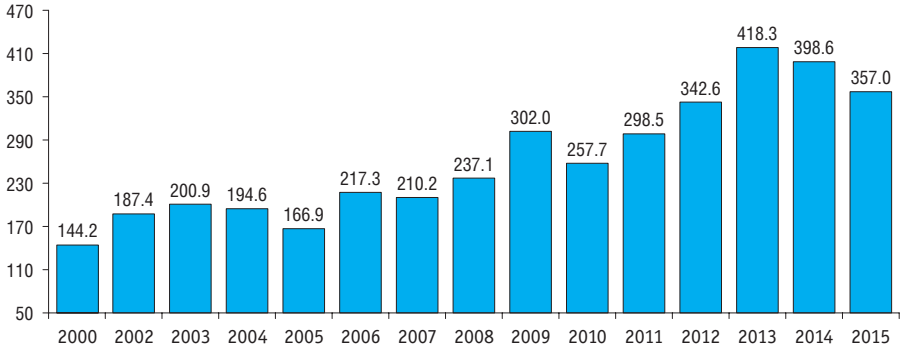


1.12. EXPENDITURE ON TECHNOLOGICAL INNOVATION

(million roubles)

	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply															
Expenditure on technological innovation:															
at current prices	49428.0	86394.6	105444.7	122850.5	125678.2	188492.2	207499.2	276262.3	358861.1	349763.3	469442.2	583660.6	746778.2	762774.1	735757.7
at constant 1995 prices	10462.7	13590.9	14576.3	14116.7	12105.3	15760.0	15245.3	17201.2	21906.1	18695.9	21650.6	24855.3	30345.1	28913.3	25895.3

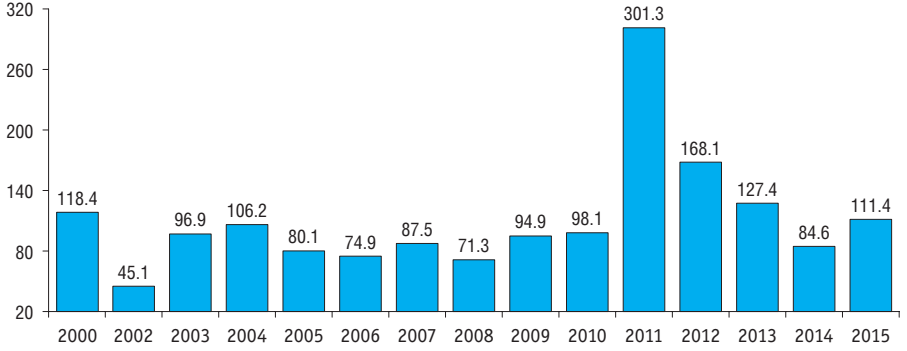
As a percentage of 1995 expenditure



(continued)

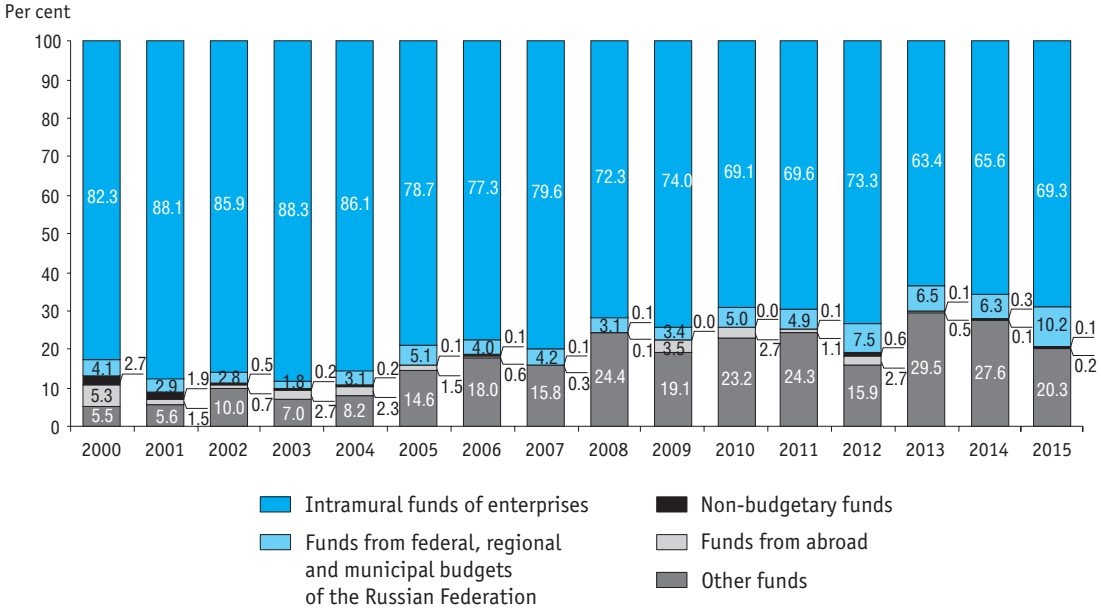
	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Communication, computer and information technology-related activities															
Expenditure on technological innovation:															
at current prices	11794.1	6049.3	14782.7	19495.3	17544.4	18892.4	25125.5	24148.0	32790.9	38684.0	137754.0	83230.6	66133.4	47066.3	66722.8
at constant 1995 prices	2496.5	951.6	2043.5	2240.2	1689.9	1579.6	1846.0	1503.6	2001.7	2067.8	6353.2	3544.4	2687.3	1784.1	2348.3

As a percentage of 1998 expenditure



1.13. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY SOURCE OF FUNDS

Mining and quarrying, manufacturing, electricity, gas and water supply



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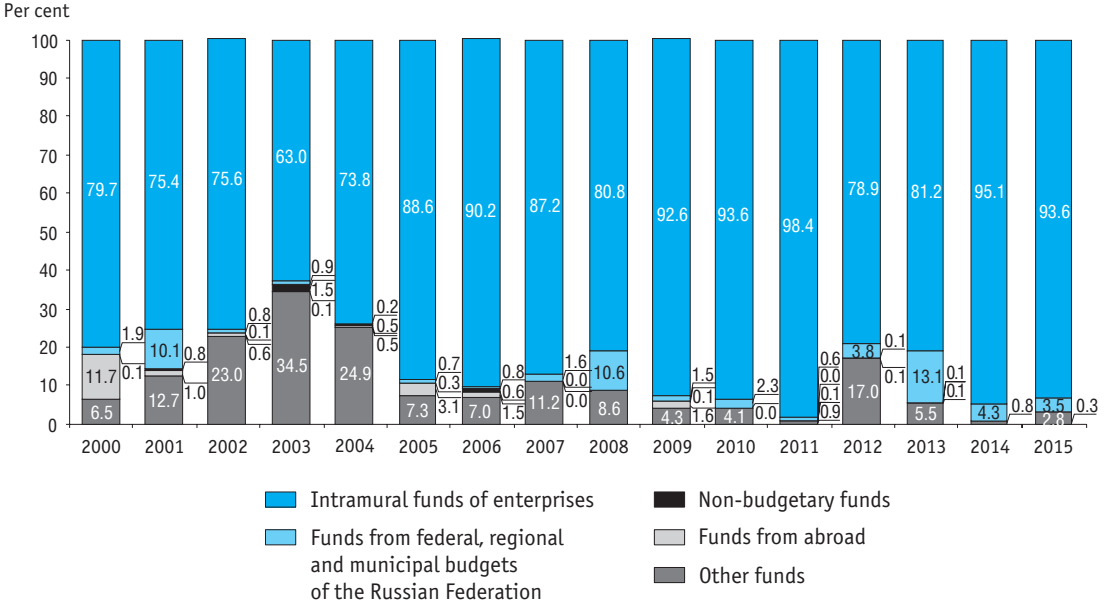
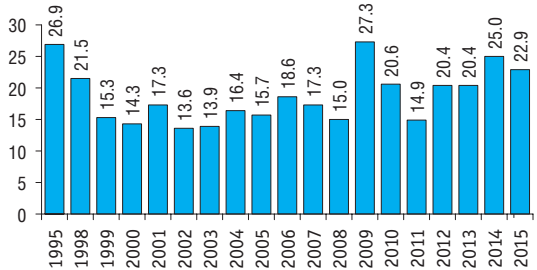
Communication, computer and information technology-related activities



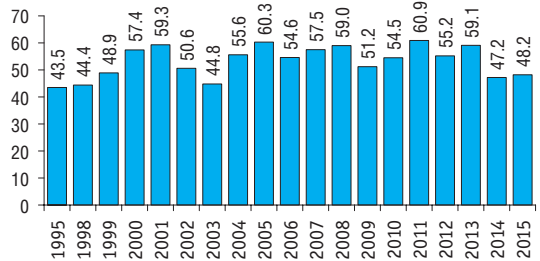
1.14. EXPENDITURE ON TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF TOTAL EXPENDITURE BY INNOVATIVE ACTIVITY

Mining and quarrying, manufacturing, electricity, gas and water supply

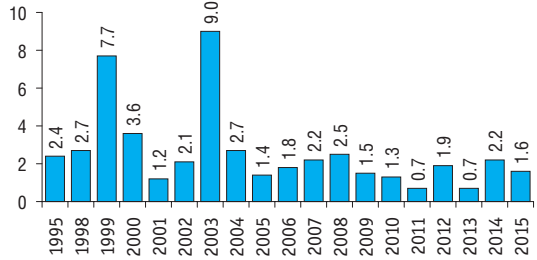
R&D



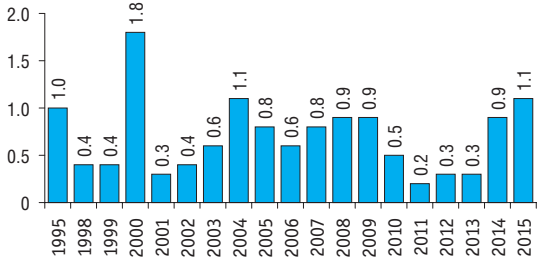
Acquisition of machinery and equipment



Acquisition of new technology



Acquisition of patent rights and licences



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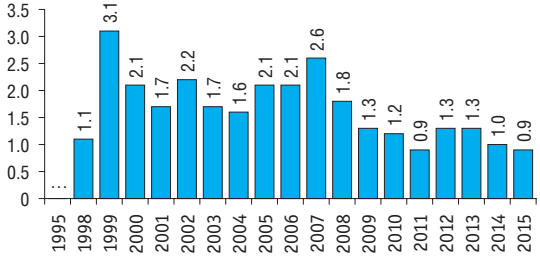
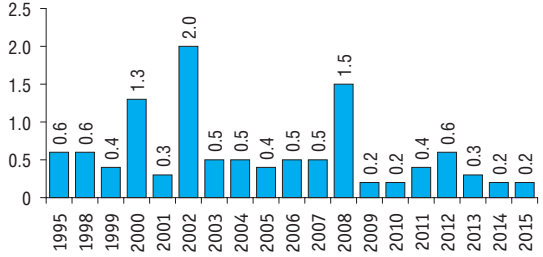
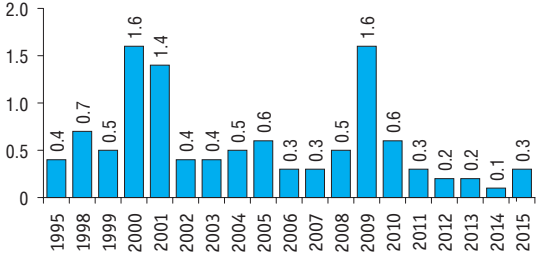
Acquisition of software



Personnel training



Marketing research



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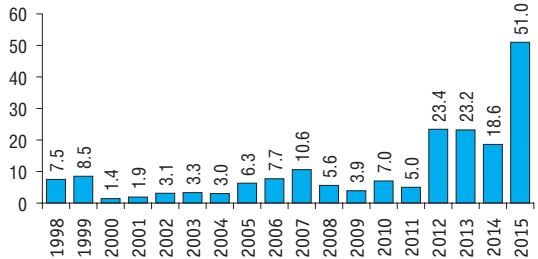
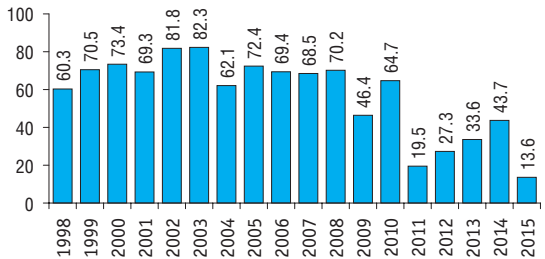
Communication, computer and information technology-related activities

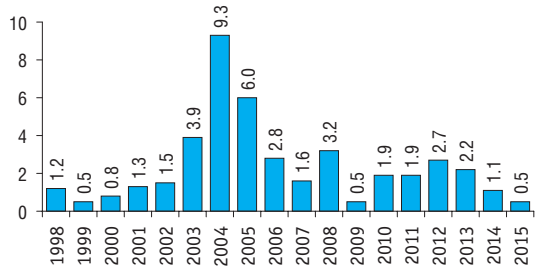
R&D



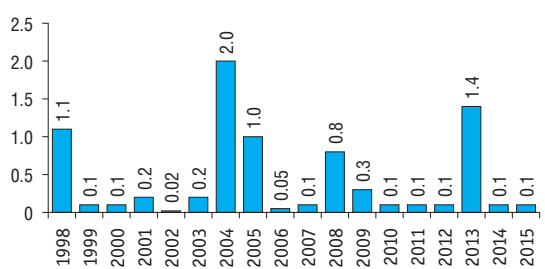
Acquisition of machinery and equipment



Acquisition of new technology



Acquisition of patent rights and licences



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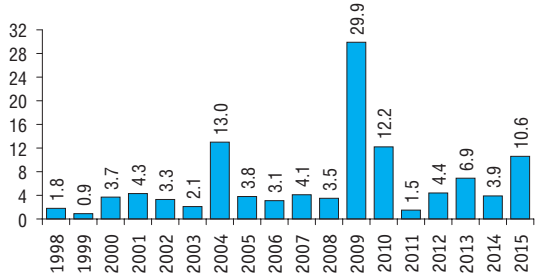
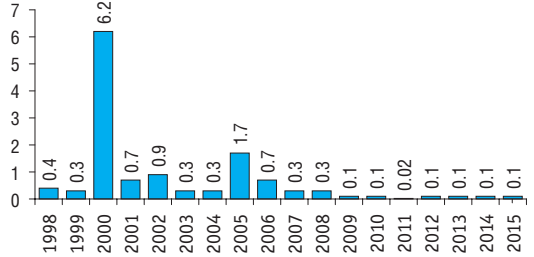
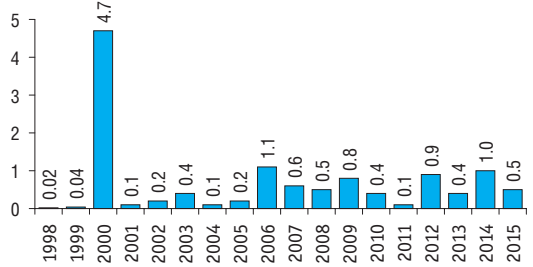
Acquisition of software



Personnel training

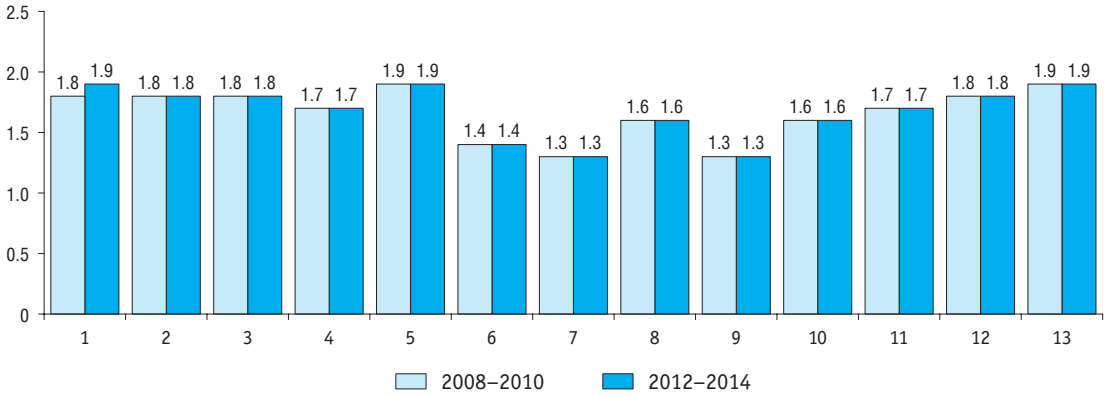


Marketing research



1.15. SOURCES OF INFORMATION FOR TECHNOLOGICAL INNOVATION BY RANK OF IMPORTANCE

Mining and quarrying, manufacturing, electricity, gas and water supply



Internal sources:
- 1 – internal sources within the enterprise
- 2 – enterprises within the same group

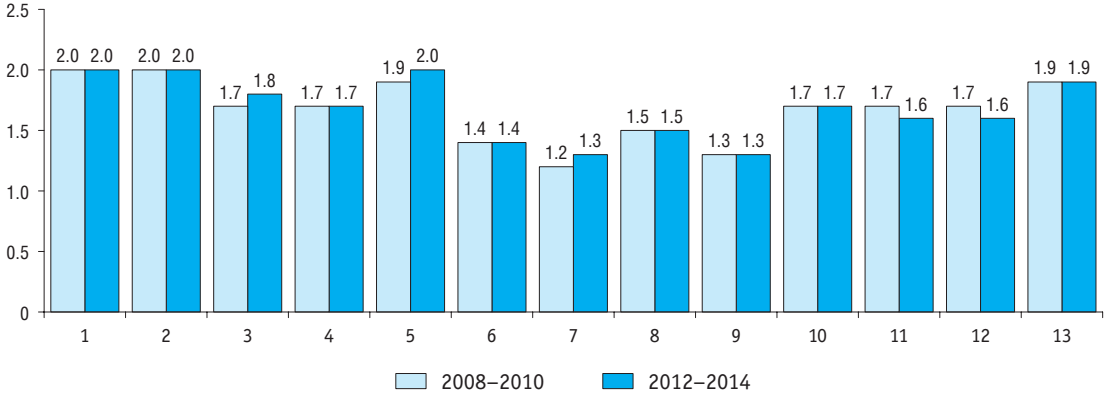
Market sources:
- 3 – suppliers of equipment, materials, components, software
- 4 – competitors within the same sector
- 5 – consumers of goods and services
- 6 – consulting firms and information organisations

R&D institutions:
- 7 – institutions of academic character
- 8 – institutions of industrial character
- 9 – higher education institutions

Publicly available information:
- 10 – conferences, seminars and symposia
- 11 – S&T literature
- 12 – exhibitions, fairs, other promotional activities
- 13 – the Internet

(continued)

Communication, computer and information technology-related activities



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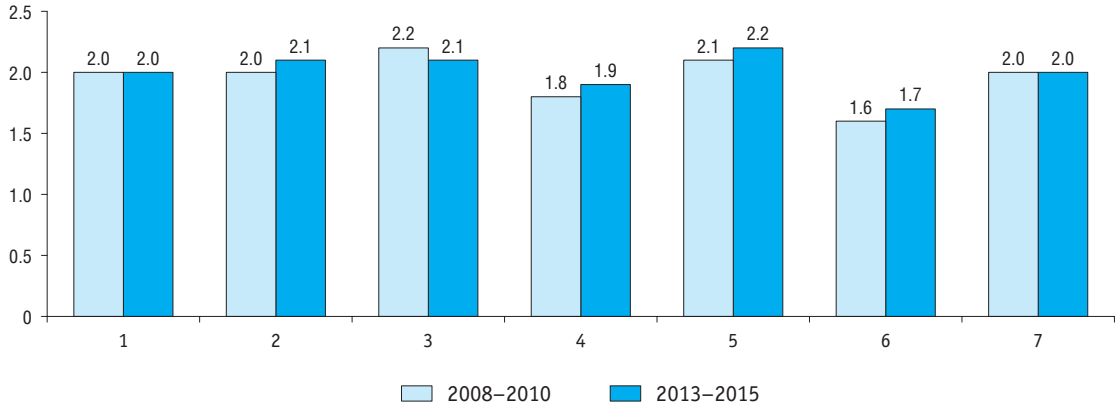
1.16. METHODS OF INNOVATION PROTECTION AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY RANK OF IMPORTANCE

Mining and quarrying, manufacturing, electricity, gas and water supply



Formal methods:

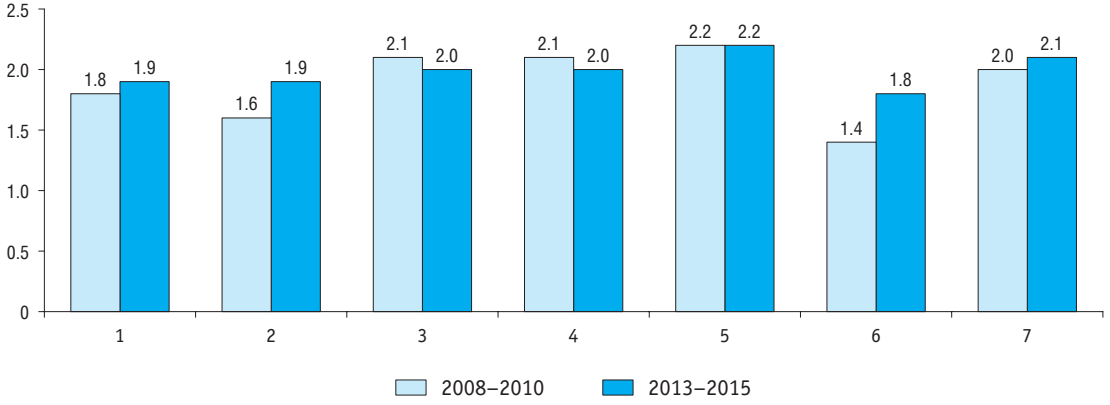
1 – inventions, industrial designs and utility models patenting
2 – valid patents maintenance
3 – trade mark registration
4 – copyright protection

Informal methods:

5 – preservation of trade secrets, confidentiality and know-how protection
6 – product design complexity
7 – gaining competitive advantage over competitors regarding goods and services development and launch terms

(continued)

Communication, computer and information technology-related activities



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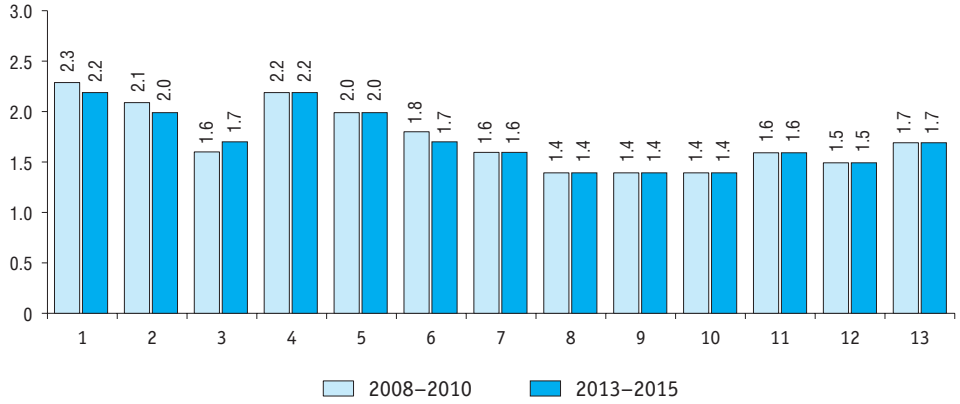
- 3 – trade mark registration
- 4 – copyright protection

Informal methods:
- 5 – preservation of trade secrets, confidentiality and know-how protection
- 6 – product design complexity
- 7 – gaining competitive advantage over competitors regarding goods and services development and launch terms

1.17. FACTORS HAMPERING TECHNOLOGICAL INNOVATION BY RANK OF IMPORTANCE

Mining and quarrying, manufacturing, electricity, gas and water supply



Economic factors:

1 – shortage of intramural funds within the enterprise

2 – lack of financial support from the government

3 – low demand for new goods and services

4 – high innovation costs

5 – high economic risks

Internal factors:

6 – low innovation potential of organisations

7 – shortage of qualified personnel

8 – lack of information about new technology

9 – lack of information about sales markets

10 – underdeveloped co-operation ties

Other factors:

11 – deficiencies in legislation regulating and promoting innovations

12 – underdeveloped infrastructure (intermediary, information, law, banking and other services) of innovation

13 – uncertainty of economic benefits resulting from intellectual property usage

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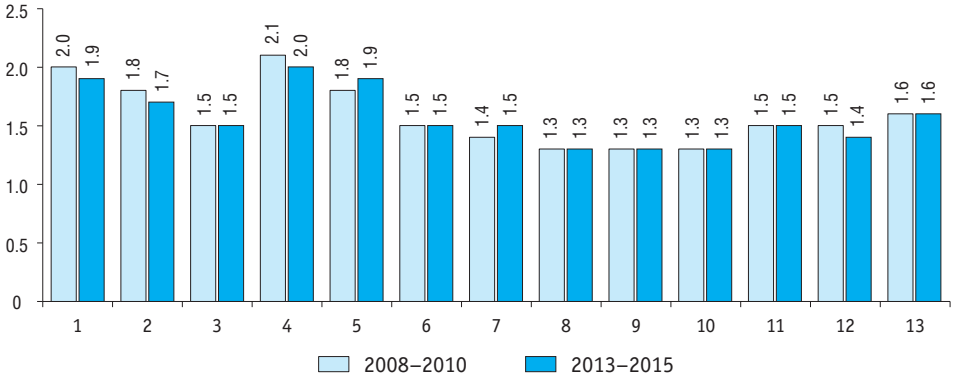
Communication, computer and information technology-related activities



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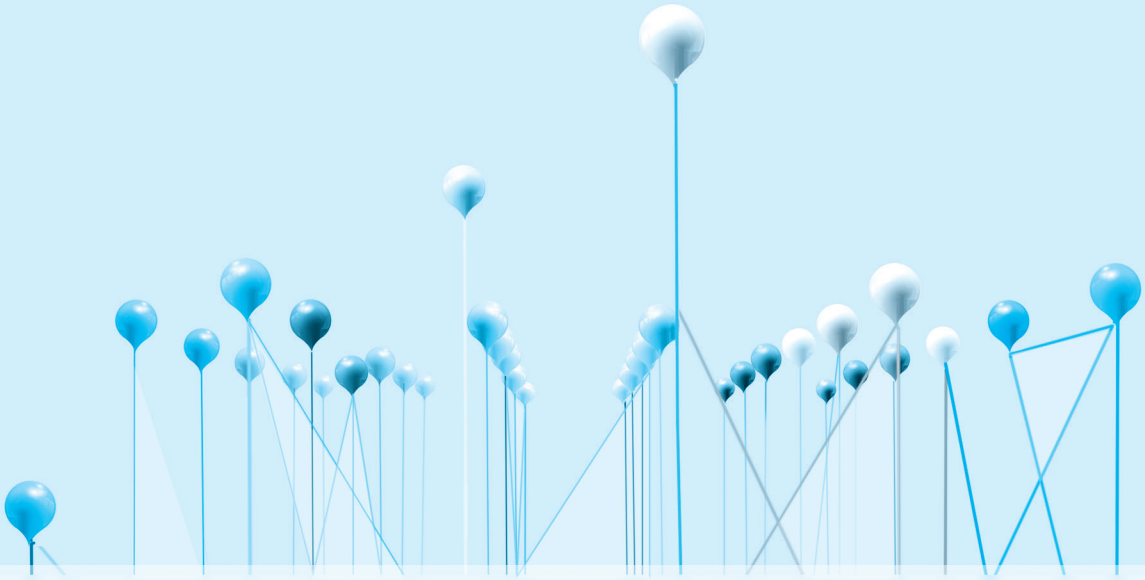


2. Innovative Activity of Enterprises

2.1. INNOVATIVE ACTIVITY OF ENTERPRISES BY ECONOMIC ACTIVITY

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises, *per cent*					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**10.9**	**10.6**	**9.7**	**9.5**	**2.0**	**2.0**	**3.0**	**2.9**
Mining and quarrying	7.5	6.9	6.5	5.8	0.5	0.5	2.3	2.6
Mining and quarrying of energy producing materials	8.5	7.6	7.4	6.3	0.5	0.6	2.6	2.7
Mining and quarrying, except energy producing materials	5.9	5.6	5.1	5.2	0.5	0.5	2.0	2.3
Manufacturing	13.6	13.3	12.2	12.1	2.8	2.9	3.6	3.6
High tech	32.0	31.7	30.6	30.3	5.8	5.9	9.0	9.2
Manufacture of pharmaceuticals and pharma¬ceutical products	28.0	31.3	26.5	29.0	9.5	5.1	6.9	4.5
Manufacture of office machinery and computers	25.0	21.7	22.7	21.7	9.1	8.7	6.8	4.3
Manufacture of radio, television and communication equipment and apparatus	35.5	34.2	34.2	33.2	4.9	5.4	7.8	9.2
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	30.4	30.0	29.0	28.4	5.7	6.6	9.2	9.2
Manufacture of aircraft, including spacecraft	37.5	36.6	36.8	35.9	2.6	3.9	13.8	15.7
Medium high tech	18.9	17.2	17.4	16.2	3.1	3.0	5.2	4.7
Manufacture of chemicals and chemical products	21.3	22.7	19.7	21.4	4.5	4.5	4.9	6.6
Manufacture of machinery and equipment	15.9	13.9	14.6	12.9	2.8	2.7	4.6	3.7
Manufacture of electrical machinery and apparatus	23.6	22.6	22.4	22.3	4.5	4.8	6.6	5.8

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises, *per cent*					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of motor vehicles, trailers and semi-trailers	25.4	21.4	22.8	20.2	2.4	2.0	6.5	5.5
Manufacture of other transport vehicles	12.5	9.8	10.8	7.9	0.6	0.5	4.0	3.7
Medium low tech	12.6	12.2	10.9	10.9	2.3	2.5	3.4	3.4
Manufacture of coke and refined petroleum products	25.7	21.6	23.0	21.6	1.8	2.2	9.7	8.6
Manufacture of rubber and plastic products	12.4	11.9	9.7	10.0	3.0	3.3	3.5	3.2
Manufacture of other non-metallic mineral products	9.3	9.3	7.9	7.9	1.6	2.0	2.1	2.3
Manufacture of basic metals	21.7	22.9	19.5	21.6	4.2	4.4	7.1	8.3
Manufacture of fabricated metal products	11.7	10.4	10.2	9.1	2.1	2.3	2.6	2.3
Building and repair of ships and boats	14.5	13.8	13.8	13.8	1.9	1.3	4.4	3.1
Low tech	7.8	7.8	6.5	6.6	2.3	2.4	1.7	1.8
Manufacture of food products, including beverages	12.3	11.9	10.1	10.0	4.3	4.1	2.4	2.2
Manufacture of tobacco products	36.8	47.6	36.8	47.6	5.3	9.5	5.3	4.8
Manufacture of textiles	12.3	14.8	8.1	11.4	3.8	4.7	5.0	4.2
Manufacture of wearing apparel, dressing and dyeing of fur	7.2	7.3	6.8	6.4	2.3	3.2	1.8	2.3
Manufacture of leather, leather products and footwear	12.6	12.1	11.7	11.1	1.8	2.0	1.8	2.0
Woodworking and manufacture of wood and of products of wood and cork, except furniture	7.4	8.6	6.0	7.6	1.2	1.5	3.0	3.3
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	12.0	12.2	11.6	10.0	2.6	2.6	3.0	4.4

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises, *per cent*					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Publishing and printing activities, reproduction of recorded media	2.3	2.0	2.1	1.8	0.3	0.3	0.3	0.4
Manufacture of furniture and other products n.e.c.	11.3	11.2	10.1	9.7	2.8	4.0	2.8	3.7
Recycling of secondary raw materials	1.0	1.7	0.3	1.7	0.3	0.4	0.7	0.4
Electricity, gas and water supply	5.1	4.9	4.5	4.3	0.3	0.3	1.5	1.5
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Total	**8.5**	**7.9**	**7.6**	**6.8**	**1.3**	**1.5**	**2.7**	**2.5**
Communication	12.2	13.3	10.7	11.2	3.3	5.5	4.5	5.3
Computer and information technology-related activities	8.8	8.0	8.0	7.3	1.0	0.9	2.1	2.0
Research and development	33.3	32.2	31.6	30.3	4.1	4.3	8.7	7.5
Other services of the business economy	3.5	3.1	2.7	2.3	0.5	0.5	1.3	1.3
Other economic activities								
Construction*	…	2.0	…	2.0	…	–	…	–

* Here and below we provide consolidated data on enterprises engaged in the following economic activities: erecting buildings and structures from prefabricated components; buildings and structures roofing; other construction under statistical monitoring since 2015.

2.2. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

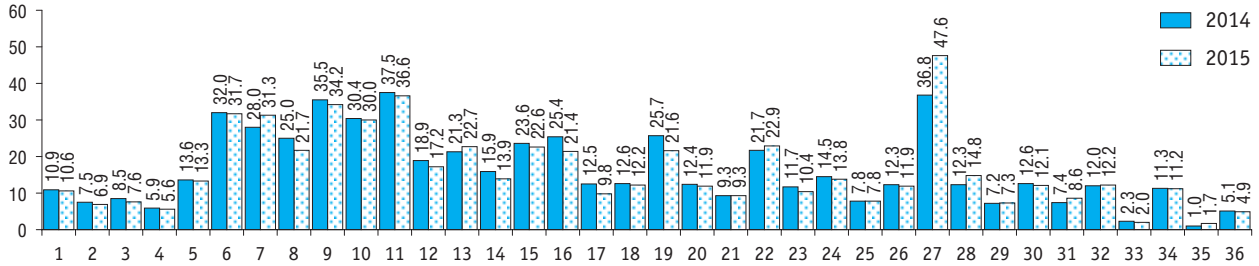
	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	4.6	4.5
Mining and quarrying of energy producing materials	3.1	3.1
Mining and quarrying, except energy producing materials	1.4	1.4
Manufacturing	83.0	82.7
High tech	15.2	15.6
Manufacture of pharmaceuticals and pharmaceutical products	2.0	2.2
Manufacture of office machinery and computers	0.4	0.4
Manufacture of radio, television and communication equipment and apparatus	4.1	4.0
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	6.5	6.8
Manufacture of aircraft, including spacecraft	2.2	2.2
Medium high tech	24.8	24.0
Manufacture of chemicals and chemical products	4.3	4.7
Manufacture of machinery and equipment	9.1	8.3
Manufacture of electrical machinery and apparatus	6.1	6.0
Manufacture of motor vehicles, trailers and semi-trailers	3.7	3.4
Manufacture of other transport vehicles	1.7	1.6
Medium low tech	17.0	16.7
Manufacture of coke and refined petroleum products	1.1	1.2
Manufacture of rubber and plastic products	2.8	2.7
Manufacture of other non-metallic mineral products	4.8	4.8
Manufacture of basic metals	3.3	3.5

(continued)

	2014	2015
Manufacture of fabricated metal products	4.2	3.7
Building and repair of ships and boats	0.9	0.9
Low tech	22.6	22.8
Manufacture of food products, including beverages	13.7	13.6
Manufacture of tobacco products	0.3	0.4
Manufacture of textiles	1.2	1.4
Manufacture of wearing apparel, dressing and dyeing of fur	0.6	0.6
Manufacture of leather, leather products and footwear	0.5	0.5
Woodworking and manufacture of wood and of products of wood and cork, except furniture	1.2	1.3
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	1.1	1.1
Publishing and printing activities, reproduction of recorded media	2.4	2.2
Manufacture of furniture and other products n.e.c.	1.5	1.5
Recycling of secondary raw materials	0.1	0.2
Manufacture of other materials and substances n.e.c.	3.3	3.7
Electricity, gas and water supply	12.5	12.7
Communication, computer and information technology-related activities, research and development, other services of the business economy		
Total	**100**	**100**
Communication	16.0	19.0
Computer and information technology-related activities	9.2	10.2
Research and development	47.4	43.9
Other services of the business economy	27.4	26.9

2.3. ENTERPRISES ENGAGED IN TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

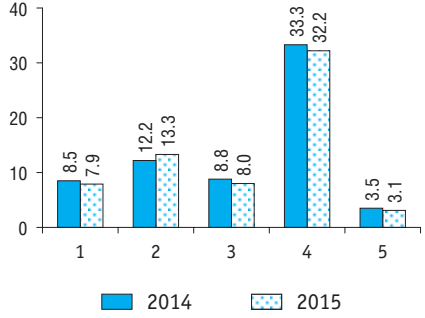
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

2.4. INNOVATIVE ACTIVITY OF ENTERPRISES BY SIZE

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction								
Total	**9.9**	**9.3**	**8.8**	**8.3**	**1.7**	**1.8**	**2.8**	**2.7**
Number of employees in an enterprise, *headcount*:								
less than 50	3.0	2.7	2.4	2.1	0.4	0.4	0.8	0.7
50–99	6.6	7.2	5.7	6.1	1.1	1.2	1.7	1.7
100–199	10.5	10.1	9.3	9.0	1.9	2.0	2.4	2.5
200–249	13.9	13.4	12.3	11.9	2.0	2.3	2.8	3.3
250–499	17.2	16.4	15.1	14.7	3.2	2.9	4.7	4.2
500–999	26.6	26.8	24.0	24.1	4.9	5.9	7.8	8.3
1000–4999	45.6	46.5	43.4	44.3	8.6	9.6	16.7	17.3
5000–9999	73.0	71.1	71.4	69.5	13.5	13.3	36.5	34.4
10 000 and above	82.2	83.7	82.2	83.7	17.8	14.0	37.8	48.8

2.5. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY SIZE

	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction		
Total	**100**	**100**
Number of employees in an enterprise, *headcount*:		
less than 50	14.4	14.4
50–99	8.2	8.9
100–199	15.9	15.9
200–249	6.5	6.4
250–499	18.0	17.0
500–999	15.3	15.6
1000–4999	18.7	18.7
5000–9999	2.2	2.2
10 000 and above	0.9	0.9

2.6. INNOVATIVE ACTIVITY OF ENTERPRISES BY TYPE OF OWNERSHIP

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises, *per cent*					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction								
Total	**9.9**	**9.3**	**8.8**	**8.3**	**1.7**	**1.8**	**2.8**	**2.7**
Russian ownership	9.8	9.2	8.7	8.1	1.7	1.7	2.8	2.7
Public ownership	11.4	10.4	10.2	9.3	1.4	1.4	3.2	2.8
Federal	17.3	16.1	16.1	14.9	2.0	2.1	4.7	3.9
Regional	5.2	4.6	4.0	3.4	0.8	0.8	1.5	1.7
Municipal ownership	2.8	2.7	2.3	2.3	0.4	0.3	0.9	0.9
Ownership of voluntary associations	5.1	4.4	4.5	4.1	0.3	0.6	0.9	0.3
Private ownership	11.0	10.0	9.7	8.9	2.1	2.1	2.8	2.8
Ownership of Russian citizens permanently living abroad	–	–	–	–	–	–	–	–
Ownership of consumers' co-operatives	7.0	4.1	7.0	4.1	1.6	2.0	–	–
Mixed ownership	19.3	19.6	17.8	18.0	3.2	4.9	7.7	7.6
Mixed ownership with a share of public ownership	21.6	22.0	19.9	20.1	3.7	6.1	8.6	8.6
Other mixed ownership	14.4	14.3	13.2	13.4	2.1	2.0	5.9	5.5
Ownership of state corporations	42.6	34.8	40.0	32.4	7.2	5.3	15.9	12.1
Foreign ownership	9.0	8.4	7.7	7.5	2.0	1.8	2.4	2.1
Joint ownership (with both Russian and foreign participation)	13.9	13.8	12.5	12.3	2.8	2.6	3.4	4.1

2.7. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY TYPE OF OWNERSHIP

	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction		
Total	**100**	**100**
Russian ownership	87.8	87.3
Public ownership	22.2	21.5
Federal	17.2	16.8
Regional	5.0	4.7
Municipal ownership	5.7	5.9
Ownership of voluntary associations	0.4	0.3
Private ownership	45.8	45.5
Ownership of Russian citizens permanently living abroad	–	–
Ownership of consumers' co-operatives	0.2	0.1
Mixed ownership	11.4	11.9
Mixed ownership with a share of public ownership	8.7	9.3
Other mixed ownership	2.7	2.7
Ownership of state corporations	2.0	2.1
Foreign ownership	6.0	6.4
Joint ownership (with both Russian and foreign participation)	6.2	6.3

2.8. EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

	Million roubles		Per cent	
	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**778263.5**	**741283.8**	**100**	**100**
Mining and quarrying	123971.9	125702.9	15.9	17.0
Mining and quarrying of energy producing materials	113087.2	119102.6	14.5	16.1
Mining and quarrying, except energy producing materials	10884.7	6600.3	1.4	0.9
Manufacturing	580622.9	568715.3	74.6	76.7
High tech	95083.8	107954.9	12.2	14.6
Manufacture of pharmaceuticals and pharmaceutical products	3501.7	5312.3	0.4	0.7
Manufacture of office machinery and computers	828.4	1511.9	0.1	0.2
Manufacture of radio, television and communication equipment and apparatus	21838.0	30537.8	2.8	4.1
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	24979.7	30198.7	3.2	4.1
Manufacture of aircraft, including spacecraft	43935.9	40394.2	5.6	5.4
Medium high tech	123627.5	130985.0	15.9	17.7
Manufacture of chemicals and chemical products	56951.1	42901.6	7.3	5.8
Manufacture of machinery and equipment	19478.1	18192.4	2.5	2.5
Manufacture of electrical machinery and apparatus	9342.0	9978.2	1.2	1.3
Manufacture of motor vehicles, trailers and semi-trailers	32954.3	58227.1	4.2	7.9
Manufacture of other transport vehicles	4901.9	1685.7	0.6	0.2

(continued)

	Million roubles		Per cent	
	2014	2015	2014	2015
Medium low tech	283838.1	234298.9	36.5	31.6
Manufacture of coke and refined petroleum products	210830.5	140389.1	27.1	18.9
Manufacture of rubber and plastic products	3830.7	7992.2	0.5	1.1
Manufacture of other non-metallic mineral products	10892.9	19136.9	1.4	2.6
Manufacture of basic metals	41427.7	44253.8	5.3	6.0
Manufacture of fabricated metal products	11114.9	16375.2	1.4	2.2
Building and repair of ships and boats	5741.4	6151.5	0.7	0.8
Low tech	39331.0	30114.3	5.1	4.1
Manufacture of food products, including beverages	25113.6	17270.5	3.2	2.3
Manufacture of tobacco products	3272.3	3929.1	0.4	0.5
Manufacture of textiles	794.6	1282.2	0.1	0.2
Manufacture of wearing apparel, dressing and dyeing of fur	170.2	260.2	0.02	0.04
Manufacture of leather, leather products and footwear	102.4	63.2	0.01	0.01
Woodworking and manufacture of wood and of products of wood and cork, except furniture	3036.0	2012.8	0.4	0.3
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	5215.2	3005.7	0.7	0.4
Publishing and printing activities, reproduction of recorded media	537.1	894.8	0.1	0.1
Manufacture of furniture and other products n.e.c.	1083.5	1308.7	0.1	0.2
Recycling of secondary raw materials	6.1	87.0	0.0	0.01
Manufacture of other materials and substances n.e.c.	38742.6	65362.1	5.0	8.8
Electricity, gas and water supply	73668.7	46865.6	9.5	6.3

(continued)

	Million roubles		Per cent	
	2014	2015	2014	2015
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**453213.4**	**469997.2**	**100**	**100**
Communication	39855.3	41685.4	8.8	8.9
Computer and information technology-related activities	8757.0	26064.5	1.9	5.5
Research and development	390004.2	384185.0	86.1	81.7
Other services of the business economy	14596.9	18062.3	3.2	3.8
Other economic activities				
Construction	…	13.4	…	100

2.9. EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY SIZE

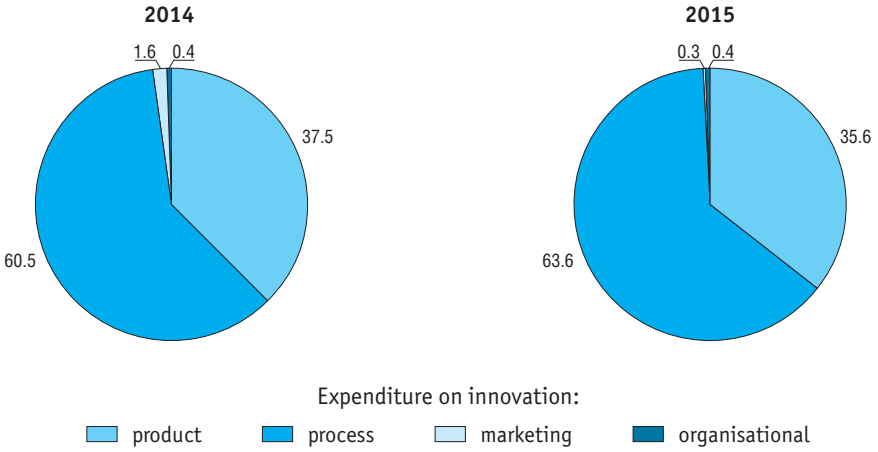
	Million roubles		Per cent	
	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction				
Total	**1231476.9**	**1211294.4**	**100**	**100**
Number of employees in an enterprise, *headcount:*				
less than 50	9995.9	8039.7	0.8	0.7
50–99	10032.9	17581.2	0.8	1.5
100–199	36717.0	32948.2	3.0	2.7
200–249	24133.2	12229.6	2.0	1.0
250–499	67796.7	62753.8	5.5	5.2
500–999	119045.9	162074.3	9.7	13.4
1000–4999	642824.0	580541.0	52.2	47.9
5000–9999	218000.9	188186.0	17.7	15.5
10 000 and above	102930.5	146940.5	8.4	12.1

2.10. EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY TYPE OF OWNERSHIP

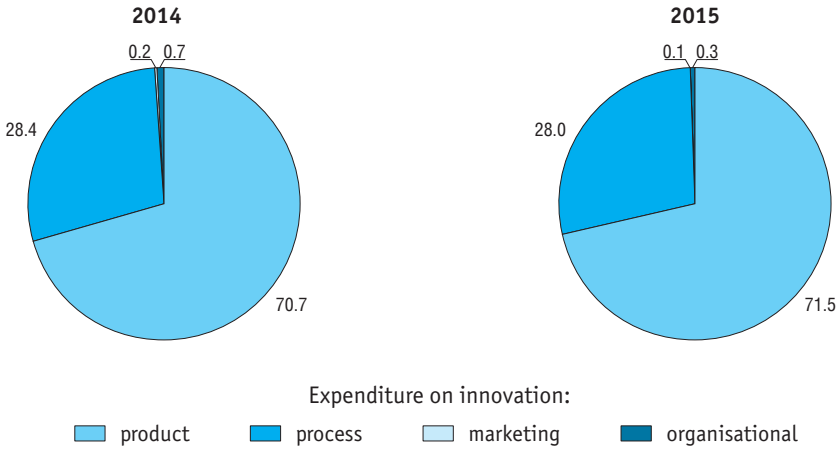
	Million roubles		Per cent	
	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction				
Total	**1231476.9**	**1211294.4**	**100**	**100**
Russian ownership	1020715.6	983496.7	82.9	81.2
Public ownership	315646.8	277881.4	25.6	22.9
Federal	308951.9	268540.3	25.1	22.2
Regional	6694.9	9341.1	0.5	0.8
Municipal ownership	1162.8	2278.4	0.1	0.2
Ownership of voluntary associations	89.2	34.1	0.01	0.0
Private ownership	479445.1	422804.5	38.9	34.9
Ownership of Russian citizens permanently living abroad	–	–	–	–
Ownership of consumers' co-operatives	16.1	0.5	0.0	0.0
Mixed ownership	185695.2	224291.5	15.1	18.5
Mixed ownership with a share of public ownership	143440.8	148026.5	11.6	12.2
Other mixed ownership	42254.4	76265.0	3.4	6.3
Ownership of state corporations	38660.3	56206.3	3.1	4.6
Foreign ownership	86028.8	99661.6	7.0	8.2
Joint ownership (with both Russian and foreign participation)	124732.5	128136.1	10.1	10.6

2.11. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY INNOVATION TYPE

Mining and quarrying, manufacturing, electricity, gas and water supply



Communication, computer and information technology-related activities, research and development, other services of the business economy



2.12. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY INNOVATION TYPE AND ECONOMIC ACTIVITY

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**98.0**	**99.3**	**37.5**	**35.6**	**60.5**	**63.6**	**1.6**	**0.3**	**0.4**	**0.4**
Mining and quarrying	99.9	99.9	10.4	9.7	89.5	90.2	0.03	0.01	0.03	0.1
Mining and quarrying of energy producing materials	100	100	8.8	7.5	91.2	92.4	0.01	0.01	0.02	0.03
Mining and quarrying, except energy producing materials	99.7	98.7	27.8	48.9	71.9	49.7	0.3	0.01	0.1	1.3
Manufacturing	97.4	99.1	47.6	43.9	49.8	55.2	2.1	0.4	0.5	0.5
High tech	89.7	98.9	63.4	64.1	26.3	34.9	9.8	0.6	0.5	0.5
Manufacture of pharmaceuticals and pharmaceutical products	97.0	97.0	61.0	79.1	36.0	17.9	2.6	0.9	0.4	2.1
Manufacture of office machinery and computers	95.5	97.2	54.2	72.0	41.4	25.2	3.2	2.2	1.3	0.6
Manufacture of radio, television and communication equipment and apparatus	99.9	99.7	67.7	70.9	32.2	28.8	0.02	0.02	0.1	0.3
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	99.3	99.6	81.2	80.1	18.2	19.5	0.1	0.1	0.6	0.3
Manufacture of aircraft, including spacecraft	78.5	98.2	51.5	44.6	27.0	53.6	20.9	1.2	0.6	0.6

(continued)

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Medium high tech	99.6	99.2	56.4	47.5	43.2	51.7	0.1	0.5	0.3	0.3
Manufacture of chemicals and chemical products	99.9	99.7	39.5	24.6	60.3	75.1	0.1	0.1	0.1	0.3
Manufacture of machinery and equipment	98.8	99.0	66.5	73.5	32.3	25.5	0.5	0.6	0.8	0.4
Manufacture of electrical machinery and apparatus	99.3	94.8	75.7	79.9	23.6	14.9	0.3	4.7	0.3	0.5
Manufacture of motor vehicles, trailers and semi-trailers	99.9	99.9	72.5	49.6	27.3	50.2	0.01	0.1	0.1	0.01
Manufacture of other transport vehicles	98.1	93.7	66.9	83.1	31.2	10.6	–	–	1.9	6.3
Medium low tech	99.6	99.3	34.3	24.5	65.3	74.8	0.1	0.05	0.4	0.7
Manufacture of coke and refined petroleum products	99.5	99.5	31.5	15.2	68.0	84.3	0.1	–	0.4	0.5
Manufacture of rubber and plastic products	99.1	99.4	57.6	67.2	41.4	32.2	0.8	0.5	0.1	0.1
Manufacture of other non-metallic mineral products	99.3	99.3	72.5	11.1	26.8	88.2	0.2	0.3	0.4	0.4
Manufacture of basic metals	99.5	98.5	21.1	22.2	78.5	76.3	0.1	0.01	0.3	1.5
Manufacture of fabricated metal products	99.9	99.7	76.9	82.8	23.0	16.9	0.05	0.04	0.02	0.3
Building and repair of ships and boats	99.9	99.9	60.7	84.9	39.2	15.0	0.0	0.0	0.1	0.1
Low tech	93.1	95.9	53.5	53.8	39.6	42.1	6.0	3.6	0.9	0.5
Manufacture of food products, including beverages	90.0	93.9	59.3	53.7	30.6	40.2	9.0	5.9	1.1	0.2
Manufacture of tobacco products	100	100	99.9	99.7	0.1	0.3	–	–	–	0.04
Manufacture of textiles	92.1	98.0	26.8	17.4	65.3	80.6	0.02	1.7	7.9	0.3
Manufacture of wearing apparel, dressing and dyeing of fur	58.7	96.3	39.3	28.2	19.4	68.1	40.0	3.0	1.3	0.7

(continued)

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of leather, leather products and footwear	99.5	98.7	69.4	43.3	30.1	55.4	0.3	0.4	0.3	0.9
Woodworking and manufacture of wood and of products of wood and cork, except furniture	99.7	98.4	28.0	31.7	71.7	66.8	0.2	0.1	0.1	1.5
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	100	99.8	19.6	15.2	80.4	84.6	0.01	–	0.01	0.2
Publishing and printing activities, reproduction of recorded media	98.8	96.3	30.1	66.4	68.7	30.0	0.9	2.1	0.3	1.6
Manufacture of furniture and other products n.e.c.	95.1	95.2	43.9	76.9	51.2	18.3	2.1	1.8	2.9	3.0
Recycling of secondary raw materials	100	100	100	–	–	100	–	0.02	–	–
Electricity, gas and water supply	99.5	99.6	3.5	5.2	96.0	94.4	0.01	0.0	0.5	0.4
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Total	**99.1**	**99.5**	**70.7**	**71.5**	**28.4**	**28.0**	**0.2**	**0.1**	**0.7**	**0.3**
Communication	96.4	97.7	54.8	40.1	41.5	57.6	0.3	0.4	3.3	1.8
Computer and information technology-related activities	98.9	99.7	52.0	71.6	46.9	28.1	0.3	0.1	0.8	0.2
Research and development	99.4	99.8	73.3	76.9	26.1	22.9	0.2	0.1	0.4	0.1
Other services of the business economy	97.4	97.7	55.6	30.2	41.8	67.5	0.2	0.4	2.3	1.9
Other economic activities										
Construction	…	100	…	89.9	…	10.1	…	–	…	–

2.13. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY INNOVATION TYPE AND SIZE

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction										
Total	**98.4**	**99.4**	**49.7**	**49.6**	**48.7**	**49.8**	**1.1**	**0.2**	**0.5**	**0.4**
Number of employees in an enterprise, *headcount*:										
less than 50	98.8	97.8	40.6	46.7	58.2	51.1	0.3	1.3	0.8	0.8
50–99	98.3	99.1	56.6	37.4	41.8	61.7	0.4	0.4	1.2	0.5
100–199	98.2	99.1	32.4	53.0	65.8	46.1	1.2	0.5	0.6	0.4
200–249	96.5	96.0	38.0	60.1	58.5	35.9	2.5	3.5	1.0	0.5
250–499	96.9	98.5	61.2	59.6	35.7	39.0	2.4	0.6	0.7	0.8
500–999	99.0	99.2	65.8	60.6	33.2	38.7	0.2	0.5	0.8	0.3
1000–4999	99.5	99.6	50.9	46.7	48.6	52.9	0.1	0.1	0.4	0.3
5000–9999	95.1	99.2	47.3	65.0	47.8	34.2	4.3	0.3	0.6	0.5
10 000 and above	99.3	99.5	30.3	24.6	69.0	74.8	0.1	0.01	0.6	0.5

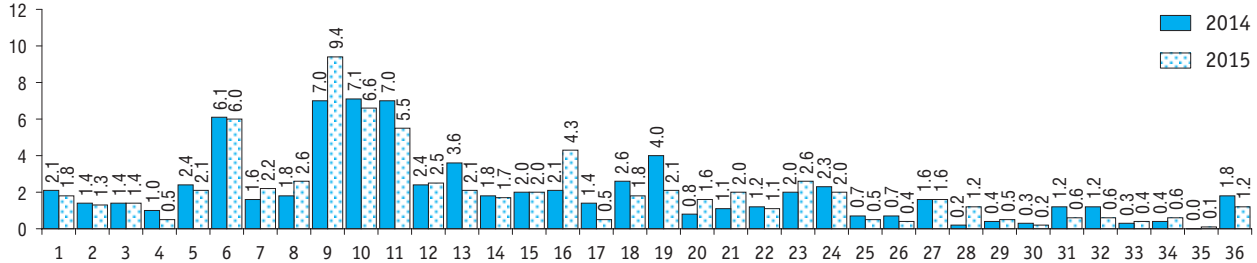
2.14. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY INNOVATION TYPE AND OWNERSHIP OF ENTERPRISES

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction										
Total	**98.4**	**99.4**	**49.7**	**49.6**	**48.7**	**49.8**	**1.1**	**0.2**	**0.5**	**0.4**
Russian ownership	98.3	99.4	54.0	55.1	44.4	44.3	1.1	0.2	0.6	0.4
Public ownership	99.3	99.6	72.3	72.3	27.0	27.3	0.1	0.1	0.6	0.3
Federal	99.3	99.7	73.1	73.6	26.2	26.1	0.1	0.1	0.6	0.3
Regional	97.3	97.7	33.2	36.0	64.2	61.7	0.2	0.2	2.5	2.2
Municipal ownership	94.0	97.8	11.7	9.6	82.2	88.2	0.9	0.1	5.2	2.1
Ownership of voluntary associations	99.6	99.8	43.9	33.2	55.8	66.6	–	–	0.4	0.2
Private ownership	97.7	99.4	38.1	37.2	59.6	62.2	2.2	0.4	0.2	0.2
Ownership of Russian citizens permanently living abroad	–	–	–	–	–	–	–	–	–	–
Ownership of consumers' co-operatives	99.0	63.0	81.7	13.4	17.2	49.6	1.0	37.0	–	–
Mixed ownership	98.1	98.9	60.7	66.5	37.4	32.4	0.2	0.1	1.7	1.0
Mixed ownership with a share of public ownership	97.9	98.6	58.1	62.4	39.8	36.2	0.2	0.1	2.0	1.2
Other mixed ownership	99.1	99.5	69.6	74.6	29.5	24.9	0.1	0.1	0.8	0.4
Ownership of state corporations	99.8	100	70.9	60.6	29.0	39.4	0.1	0.01	0.1	0.04
Foreign ownership	99.2	99.2	36.5	29.4	62.7	69.8	0.6	0.5	0.2	0.3
Joint ownership (with both Russian and foreign participation)	98.5	99.4	24.0	22.9	74.5	76.5	1.2	0.2	0.3	0.4

2.15. INTENSITY OF EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

(expenditure on technological, marketing, and organisational innovation as a percentage of total goods and services sales)

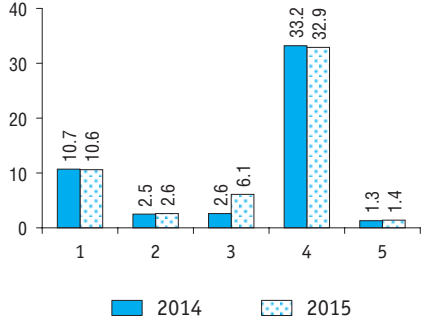
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

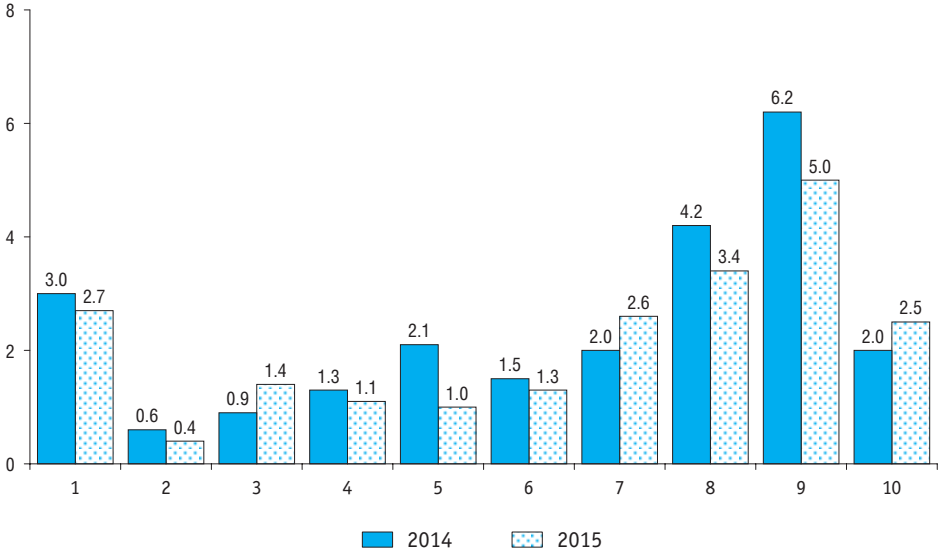
4 – Research and development

5 – Other services of the business economy

2.16. INTENCITY OF EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY SIZE

(expenditure on technological, marketing, and organisational innovation as a percentage of total goods and services sales)

Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction



1 – Total

Number of employees in an enterprise, *headcount*:

2 – less than 50

3 – 50–99

4 – 100–199

5 – 200–249

6 – 250–499

7 – 500–999

8 – 1000–4999

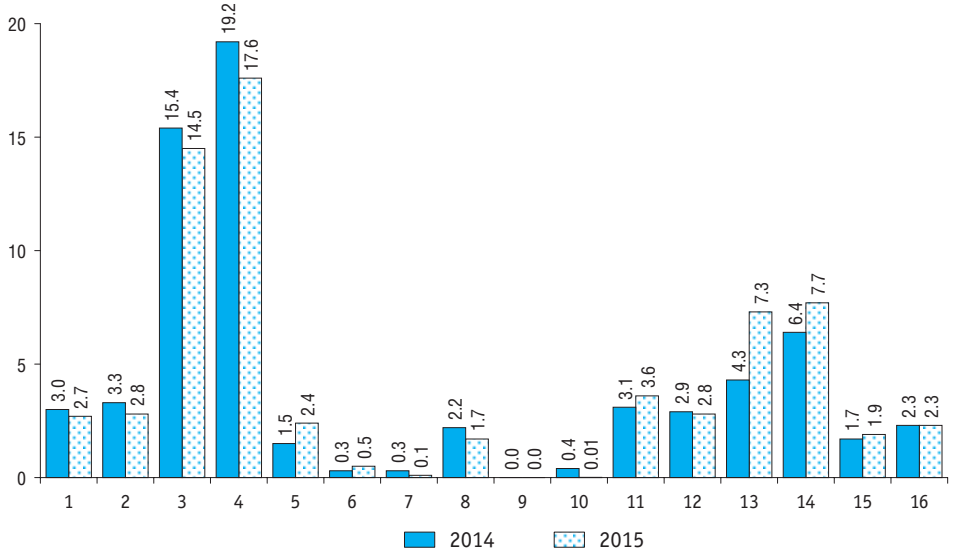
9 – 5000–9999

10 – 10 000 and above

2.17. INTENCITY OF EXPENDITURE ON TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION BY TYPE OF OWNERSHIP

(expenditure on technological, marketing, and organisational innovation as a percentage of total goods and services sales)

Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction



1 – Total
2 – Russian ownership
3 – Public ownership
4 – Federal
5 – Regional
6 – Municipal ownership
7 – Ownership of voluntary associations
8 – Private ownership
9 – Ownership of russian citizens permanently living abroad
10 – Ownership of consumers' co-operatives
11 – Mixed ownership
12 – Mixed ownership with a share of public ownership
13 – Other
14 – Ownership of state corporations
15 – Foreign ownership
16 – Joint ownership (with both Russian and foreign participation)

2.18. EFFECTS OF INNOVATION: 2013–2015

	High degree of impact		Medium degree of impact		Low degree of impact		No impact		Rank
	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	
Mining and quarrying, manufacturing, electricity, gas and water supply									
Goods and services product-line expansion	1302	42.4	822	26.8	313	10.2	632	20.6	2.4
Traditional sales markets preservation	1220	39.8	908	29.6	283	9.2	658	21.4	2.4
Sales markets expansion	899	29.3	954	31.1	364	11.9	852	27.8	2.2
Russia	898	29.3	947	30.9	353	11.5	871	28.4	2.2
CIS countries	331	10.8	572	18.6	489	15.9	1677	54.6	1.9
EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	83	2.7	152	5.0	373	12.2	2461	80.2	1.5
USA and Canada	51	1.7	102	3.3	334	10.9	2582	84.1	1.4
Other countries	125	4.1	213	6.9	403	13.1	2328	75.9	1.6
Goods and services quality improvement	1277	41.6	990	32.3	269	8.8	533	17.4	2.4
Obsolete products replacement	509	16.6	679	22.1	493	16.1	1388	45.2	2.0
Expansion of employment	355	11.6	837	27.3	747	24.3	1130	36.8	1.8
Manufacturing flexibility increase	705	23.0	1082	35.3	518	16.9	764	24.9	2.1
Manufacturing capacity growth	845	27.5	975	31.8	470	15.3	779	25.4	2.2
Salary costs reduction	201	6.5	668	21.8	792	25.8	1408	45.9	1.6
Material costs reduction	471	15.3	999	32.6	674	22.0	925	30.1	1.9
Manufacturing energy efficiency improvement (lower energy consumption or energy resources loss prevention)	609	19.8	964	31.4	614	20.0	882	28.7	2.0

* Here and elsewhere in the table: Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro.

(continued)

	High degree of impact		Medium degree of impact		Low degree of impact		No impact		Rank
	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	
Working and safety conditions improvement	615	20.0	1082	35.3	520	16.9	852	27.8	2.0
Customers and suppliers interaction time reduction	314	10.2	752	24.5	667	21.7	1336	43.5	1.8
Innovative activity motivation increase	418	13.6	1067	34.8	623	20.3	961	31.3	1.9
Information links improvement within an organisation or between organisations	528	17.2	949	30.9	556	18.1	1036	33.8	2.0
Environmental pollution abatement	438	14.3	819	26.7	659	21.5	1153	37.6	1.9
Modern technical regulations, rules and standards compliance	1077	35.1	995	32.4	391	12.7	606	19.7	2.3
Marketing innovations:									
penetration of new sales markets and new segments of target customers with goods and services	490	16.0	642	20.9	372	12.1	1565	51.0	2.1
penetration of new geographical markets with goods and services	258	8.4	543	17.7	423	13.8	1845	60.1	1.9

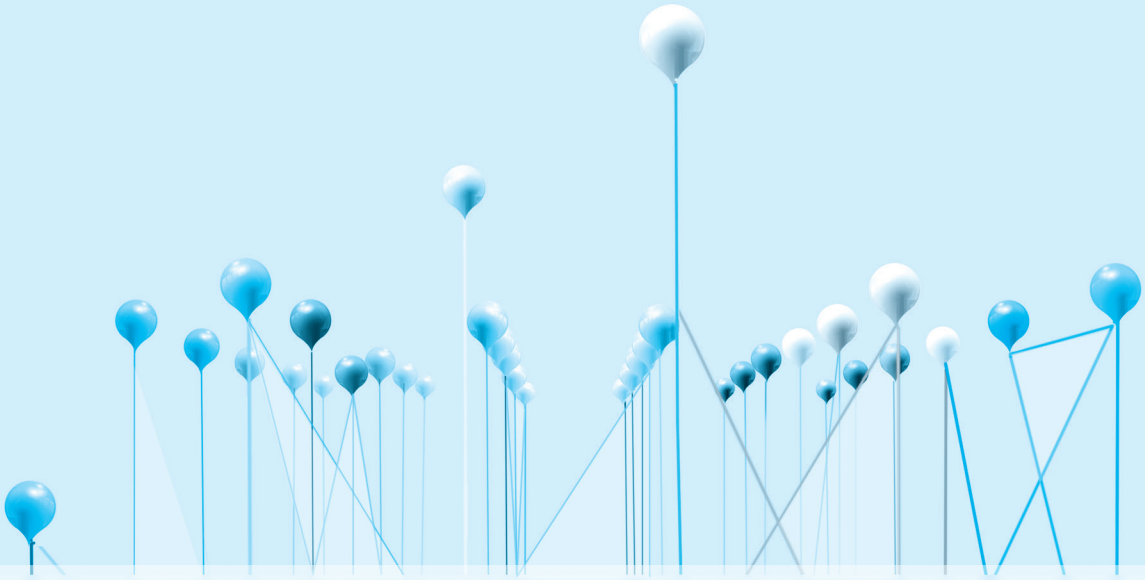
(continued)

	High degree of impact		Medium degree of impact		Low degree of impact		No impact		Rank
	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	
Communication, computer and information technology-related activities, research and development, other services of the business economy									
Goods and services product-line expansion	730	41.6	472	26.9	184	10.5	368	21.0	2.4
Traditional sales markets preservation	635	36.2	505	28.8	173	9.9	441	25.1	2.4
Sales markets expansion	442	25.2	487	27.8	220	12.5	605	34.5	2.2
Russia	461	26.3	465	26.5	212	12.1	616	35.1	2.2
CIS countries	93	5.3	205	11.7	254	14.5	1202	68.5	1.7
EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	34	1.9	69	3.9	211	12.0	1440	82.1	1.4
USA and Canada	23	1.3	58	3.3	200	11.4	1473	84.0	1.4
Other countries	59	3.4	111	6.3	227	12.9	1357	77.4	1.6
Goods and services quality improvement	824	47.0	534	30.4	92	5.2	304	17.3	2.5
Obsolete products replacement	259	14.8	316	18.0	270	15.4	909	51.8	2.0
Expansion of employment	201	11.5	432	24.6	387	22.1	734	41.8	1.8
Manufacturing flexibility increase	239	13.6	562	32.0	292	16.6	661	37.7	2.0
Manufacturing capacity growth	390	22.2	407	23.2	264	15.1	693	39.5	2.1
Salary costs reduction	74	4.2	311	17.7	408	23.3	961	54.8	1.6
Material costs reduction	115	6.6	521	29.7	378	21.6	740	42.2	1.7
Manufacturing energy efficiency improvement (lower energy consumption or energy resources loss prevention)	140	8.0	417	23.8	387	22.1	810	46.2	1.7

* Here and elsewhere in the table: Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro.

(continued)

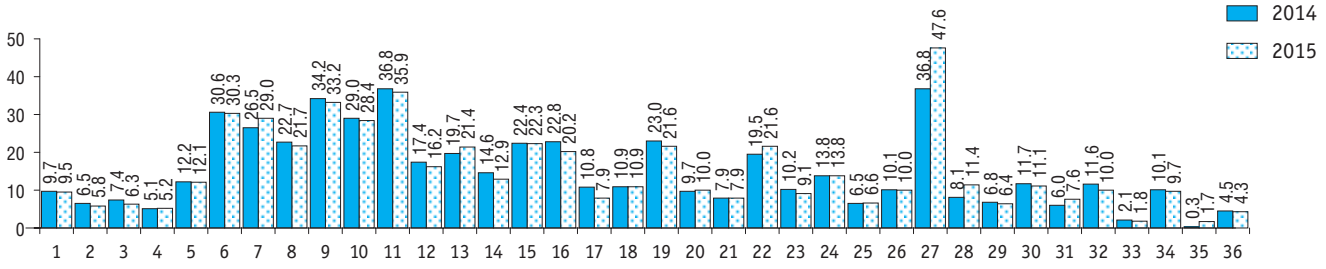
	High degree of impact		Medium degree of impact		Low degree of impact		No impact		Rank
	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	Number of enterprises	Per cent	
Working and safety conditions improvement	189	10.8	537	30.6	317	18.1	711	40.5	1.9
Customers and suppliers interaction time reduction	362	20.6	378	21.6	326	18.6	688	39.2	2.0
Innovative activity motivation increase	322	18.4	610	34.8	269	15.3	553	31.5	2.0
Information links improvement within an organisation or between organisations	591	33.7	542	30.9	210	12.0	411	23.4	2.3
Environmental pollution abatement	126	7.2	243	13.9	376	21.4	1009	57.5	1.7
Modern technical regulations, rules and standards compliance	690	39.3	486	27.7	177	10.1	401	22.9	2.4
Marketing innovations:									
penetration of new sales markets and new segments of target customers with goods and services	303	17.3	323	18.4	191	10.9	937	53.4	2.1
penetration of new geographical markets with goods and services	124	7.1	279	15.9	220	12.5	1131	64.5	1.8



3. Technological Innovation

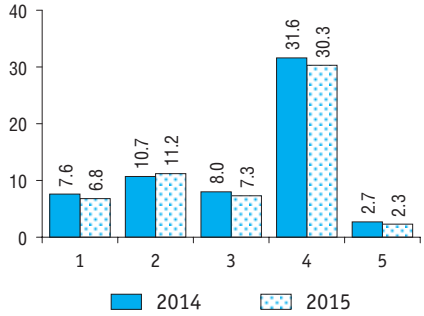
3.1. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
  3 – Mining and quarrying of energy producing materials
  4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
  6 – High tech
    7 – Manufacture of pharmaceuticals and pharmaceutical products
    8 – Manufacture of office machinery and computers
    9 – Manufacture of radio, television and communication equipment and apparatus
    10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
    11 – Manufacture of aircraft, including spacecraft
  12 – Medium high tech
    13 – Manufacture of chemicals and chemical products
    14 – Manufacture of machinery and equipment
    15 – Manufacture of electrical machinery and apparatus
    16 – Manufacture of motor vehicles, trailers and semi-trailers
    17 – Manufacture of other transport vehicles
  18 – Medium low tech
    19 – Manufacture of coke and refined petroleum products
    20 – Manufacture of rubber and plastic products
    21 – Manufacture of other non-metallic mineral products
    22 – Manufacture of basic metals
    23 – Manufacture of fabricated metal products
    24 – Building and repair of ships and boats
  25 – Low tech
    26 – Manufacture of food products, including beverages
    27 – Manufacture of tobacco products
    28 – Manufacture of textiles
    29 – Manufacture of wearing apparel, dressing and dyeing of fur
    30 – Manufacture of leather, leather products and footwear
    31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
    32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
    33 – Publishing and printing activities, reproduction of recorded media
    34 – Manufacture of furniture and other products n.e.c.
    35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

3.2. ENTERPRISES ENGAGED IN PRODUCT AND PROCESS INNOVATION-RELATED ACTIVITY AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

	Enterprises engaged in product innovation-related activity		Enterprises engaged in process innovation-related activity	
	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**60.5**	**59.7**	**58.6**	**59.2**
Mining and quarrying	25.7	24.5	81.0	81.6
Mining and quarrying of energy producing materials	25.0	26.2	80.6	81.5
Mining and quarrying, except energy producing materials	27.3	21.2	81.8	81.8
Manufacturing	67.7	67.5	53.9	53.9
High tech	77.9	76.9	52.2	53.6
Manufacture of pharmaceuticals and pharmaceutical products	84.0	84.3	42.0	31.4
Manufacture of office machinery and computers	70.0	70.0	70.0	60.0
Manufacture of radio, television and communication equipment and apparatus	80.0	80.6	52.4	59.2
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	81.1	81.0	50.6	51.5
Manufacture of aircraft, including spacecraft	60.7	52.7	62.5	69.1
Medium high tech	74.8	76.4	46.4	46.8
Manufacture of chemicals and chemical products	64.8	60.2	60.0	65.5
Manufacture of machinery and equipment	74.4	76.1	44.4	43.1

(continued)

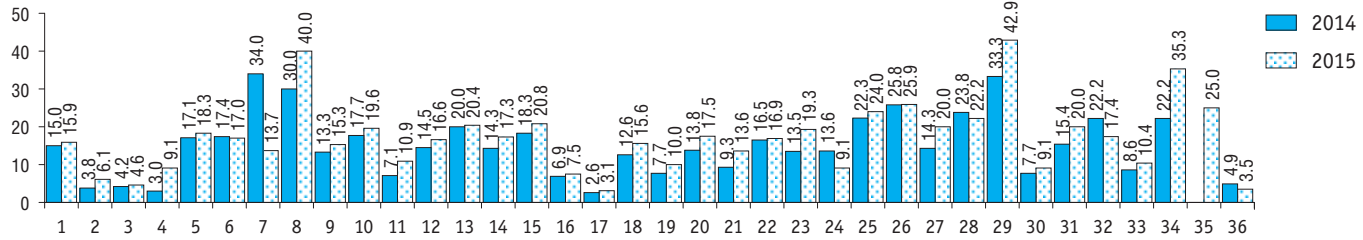
	Enterprises engaged in product innovation-related activity		Enterprises engaged in process innovation-related activity	
	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	79.1	86.6	47.7	43.6
Manufacture of motor vehicles, trailers and semi-trailers	81.6	81.3	34.5	36.3
Manufacture of other transport vehicles	71.1	75.0	42.1	43.8
Medium low tech	55.8	53.4	63.0	63.5
Manufacture of coke and refined petroleum products	65.4	53.3	65.4	80.0
Manufacture of rubber and plastic products	62.1	63.2	53.4	49.1
Manufacture of other non-metallic mineral products	53.7	46.6	60.2	68.0
Manufacture of basic metals	50.6	53.0	73.4	66.3
Manufacture of fabricated metal products	58.3	57.8	59.4	56.6
Building and repair of ships and boats	45.5	45.5	77.3	72.7
Low tech	58.4	59.1	54.8	53.0
Manufacture of food products, including beverages	59.4	63.3	50.7	47.2
Manufacture of tobacco products	85.7	70.0	14.3	40.0
Manufacture of textiles	76.2	70.4	52.4	48.1
Manufacture of wearing apparel, dressing and dyeing of fur	53.3	64.3	66.7	57.1
Manufacture of leather, leather products and footwear	53.8	36.4	53.8	72.7
Woodworking and manufacture of wood and of products of wood and cork, except furniture	50.0	46.7	65.4	73.3

(continued)

	Enterprises engaged in product innovation-related activity		Enterprises engaged in process innovation-related activity	
	2014	2015	2014	2015
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	44.4	39.1	66.7	73.9
Publishing and printing activities, reproduction of recorded media	55.2	52.1	69.0	58.3
Manufacture of furniture and other products n.e.c.	58.3	58.8	55.6	55.9
Recycling of secondary raw materials	100	–	–	100
Electricity, gas and water supply	24.4	19.4	82.6	86.9
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**59.1**	**58.4**	**60.2**	**60.0**
Communication	52.2	50.0	67.1	70.7
Computer and information technology-related activities	55.3	54.5	51.2	51.7
Research and development	74.5	73.0	53.6	53.2
Other services of the business economy	32.6	36.2	73.2	69.5
Other economic activities				
Construction	…	50.0	…	50.0

3.3. ENTERPRISES ENGAGED IN TECHNOLOGICAL AND MARKETING INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

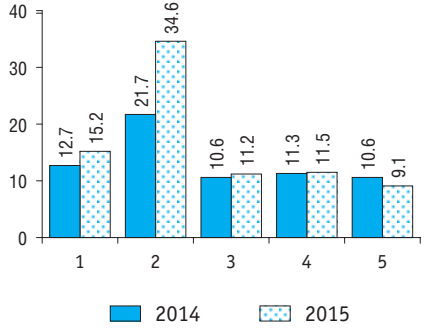
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

3.4. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL AND MARKETING INNOVATION BY ECONOMIC ACTIVITY

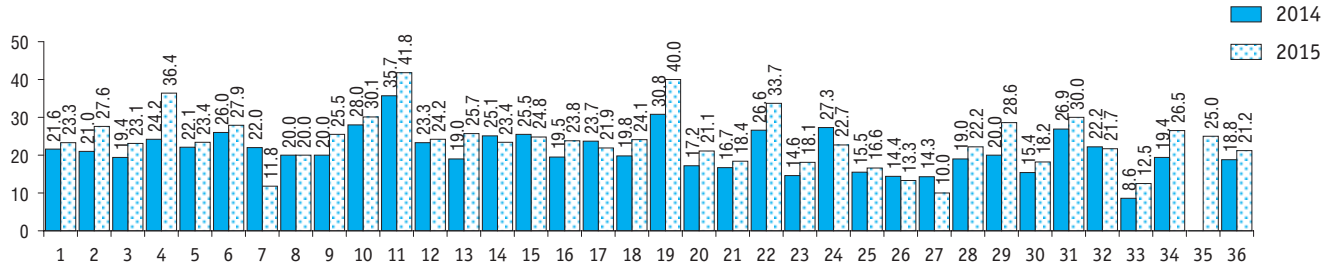
	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	1.1	1.6
Mining and quarrying of energy producing materials	0.8	0.8
Mining and quarrying, except energy producing materials	0.3	0.8
Manufacturing	94.9	95.6
High tech	18.9	17.6
Manufacture of pharmaceuticals and pharmaceutical products	4.8	1.9
Manufacture of office machinery and computers	0.8	1.1
Manufacture of radio, television and communication equipment and apparatus	4.0	4.1
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	8.2	8.8
Manufacture of aircraft, including spacecraft	1.1	1.6
Medium high tech	24.9	26.1
Manufacture of chemicals and chemical products	5.9	6.3
Manufacture of machinery and equipment	9.0	9.3
Manufacture of electrical machinery and apparatus	7.9	8.5
Manufacture of motor vehicles, trailers and semi-trailers	1.7	1.6
Manufacture of other transport vehicles	0.3	0.3
Medium low tech	13.8	16.2
Manufacture of coke and refined petroleum products	0.6	0.8
Manufacture of rubber and plastic products	2.3	2.7
Manufacture of other non-metallic mineral products	2.8	3.8

(continued)

	2014	2015
Manufacture of basic metals	3.7	3.8
Manufacture of fabricated metal products	3.7	4.4
Building and repair of ships and boats	0.8	0.5
Low tech	31.6	32.1
Manufacture of food products, including beverages	21.8	20.3
Manufacture of tobacco products	0.3	0.5
Manufacture of textiles	1.4	1.6
Manufacture of wearing apparel, dressing and dyeing of fur	1.4	1.6
Manufacture of leather, leather products and footwear	0.3	0.3
Woodworking and manufacture of wood and of products of wood and cork, except furniture	1.1	1.6
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	1.7	1.1
Publishing and printing activities, reproduction of recorded media	1.4	1.4
Manufacture of furniture and other products n.e.c.	2.3	3.3
Recycling of secondary raw materials	0.0	0.3
Manufacture of other materials and substances n.e.c.	5.6	3.6
Electricity, gas and water supply	4.0	2.7
Communication, computer and information technology-related activities, research and development, other services of the business economy		
Total	**100**	**100**
Communication	27.1	42.3
Computer and information technology-related activities	7.8	8.0
Research and development	45.2	36.3
Other services of the business economy	19.9	13.4

3.5. ENTERPRISES ENGAGED IN TECHNOLOGICAL AND ORGANISATIONAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

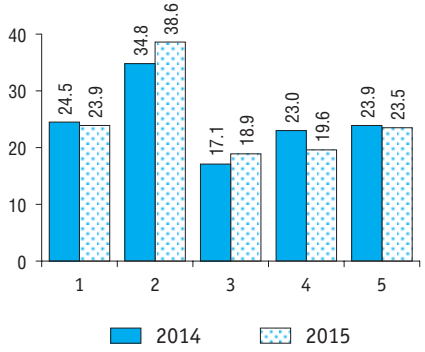
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

3.6. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL AND ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

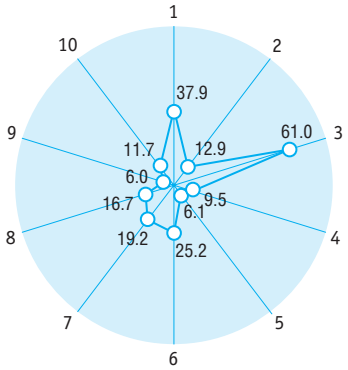
	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	4.3	5.1
Mining and quarrying of energy producing materials	2.7	2.8
Mining and quarrying, except energy producing materials	1.6	2.3
Manufacturing	85.1	83.7
High tech	19.6	19.7
Manufacture of pharmaceuticals and pharmaceutical products	2.2	1.1
Manufacture of office machinery and computers	0.4	0.4
Manufacture of radio, television and communication equipment and apparatus	4.1	4.7
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	9.0	9.2
Manufacture of aircraft, including spacecraft	3.9	4.3
Medium high tech	27.6	25.9
Manufacture of chemicals and chemical products	3.9	5.4
Manufacture of machinery and equipment	11.0	8.6
Manufacture of electrical machinery and apparatus	7.6	6.9
Manufacture of motor vehicles, trailers and semi-trailers	3.3	3.6
Manufacture of other transport vehicles	1.8	1.3
Medium low tech	15.1	17.1
Manufacture of coke and refined petroleum products	1.6	2.3
Manufacture of rubber and plastic products	2.0	2.3
Manufacture of other non-metallic mineral products	3.5	3.6

(continued)

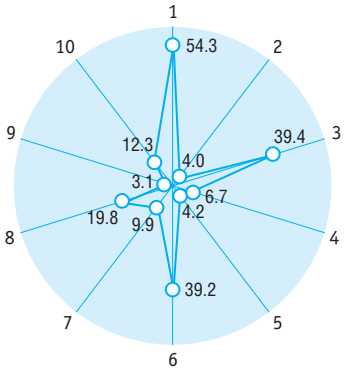
	2014	2015
Manufacture of basic metals	4.1	5.3
Manufacture of fabricated metal products	2.7	2.8
Building and repair of ships and boats	1.2	0.9
Low tech	15.3	15.2
Manufacture of food products, including beverages	8.4	7.1
Manufacture of tobacco products	0.2	0.2
Manufacture of textiles	0.8	1.1
Manufacture of wearing apparel, dressing and dyeing of fur	0.6	0.8
Manufacture of leather, leather products and footwear	0.4	0.4
Woodworking and manufacture of wood and of products of wood and cork, except furniture	1.4	1.7
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	1.2	0.9
Publishing and printing activities, reproduction of recorded media	1.0	1.1
Manufacture of furniture and other products n.e.c.	1.4	1.7
Recycling of secondary raw materials	0.0	0.2
Manufacture of other materials and substances n.e.c.	7.5	5.8
Electricity, gas and water supply	10.6	11.3
Communication, computer and information technology-related activities, research and development, other services of the business economy		
Total	**100**	**100**
Communication	22.6	30.1
Computer and information technology-related activities	6.6	8.5
Research and development	47.6	39.2
Other services of the business economy	23.2	22.2

3.7. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY INNOVATIVE ACTIVITY: 2015

Mining and quarrying, manufacturing, electricity, gas and water supply



Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – R&D
2 – Design
3 – Acquisition of machinery and equipment
4 – Acquisition of new technology
5 – Of which acquisition of patent rights and patent licences
6 – Acquisition of software
7 – Engineering
8 – Personnel training
9 – Marketing research
10 – Other

3.8. ENTERPRISES ENGAGED IN SELECTED TYPES OF INNOVATIVE ACTIVITY AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY: 2015

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**37.9**	**12.9**	**61.0**	**9.5**	**6.1**	**25.2**	**19.2**	**16.7**	**6.0**	**11.7**
Mining and quarrying	43.9	6.1	43.9	8.2	4.1	22.4	13.3	13.3	–	12.2
Mining and quarrying of energy producing materials	50.8	7.7	38.5	10.8	6.2	21.5	15.4	15.4	–	10.8
Mining and quarrying, except energy producing materials	30.3	3.0	54.5	3.0	–	24.2	9.1	9.1	–	15.2
Manufacturing	41.2	14.0	62.5	10.2	6.9	24.9	20.9	18.3	7.2	10.6
High tech	61.0	14.9	64.2	11.9	8.5	38.7	22.8	31.3	9.0	8.0
Manufacture of pharmaceuticals and pharmaceutical products	72.5	9.8	45.1	19.6	19.6	13.7	15.7	25.5	15.7	–
Manufacture of office machinery and computers	60.0	30.0	90.0	–	–	40.0	20.0	40.0	30.0	–
Manufacture of radio, television and communication equipment and apparatus	56.1	15.3	70.4	9.2	6.1	39.8	22.4	32.7	6.1	7.1
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	64.4	12.3	58.3	10.4	6.1	41.1	23.9	26.4	9.2	8.6
Manufacture of aircraft, including spacecraft	49.1	23.6	83.6	16.4	10.9	52.7	27.3	47.3	3.6	16.4
Medium high tech	48.2	13.5	58.3	11.6	7.7	21.7	24.0	18.7	7.5	11.7
Manufacture of chemicals and chemical products	54.0	14.2	66.4	5.3	2.7	18.6	32.7	14.2	8.8	16.8
Manufacture of machinery and equipment	45.7	13.2	52.8	11.2	6.6	24.9	21.8	23.4	9.6	9.6

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Manufacture of electrical machinery and apparatus	52.3	12.1	61.7	16.1	10.7	22.1	22.8	18.1	5.4	7.4
Manufacture of motor vehicles, trailers and semi-trailers	37.5	15.0	56.3	13.8	11.3	18.8	25.0	17.5	7.5	17.5
Manufacture of other transport vehicles	50.0	15.6	53.1	9.4	9.4	18.8	9.4	12.5	–	12.5
Medium low tech	33.1	7.7	67.2	10.8	6.6	24.3	22.8	14.6	5.3	14.0
Manufacture of coke and refined petroleum products	53.3	16.7	60.0	16.7	3.3	53.3	36.7	36.7	6.7	30.0
Manufacture of rubber and plastic products	28.1	7.0	64.9	12.3	8.8	17.5	21.1	10.5	7.0	3.5
Manufacture of other non-metallic mineral products	16.5	6.8	66.0	6.8	4.9	12.6	20.4	7.8	6.8	16.5
Manufacture of basic metals	49.4	3.6	67.5	13.3	8.4	30.1	32.5	14.5	2.4	15.7
Manufacture of fabricated metal products	28.9	9.6	73.5	10.8	7.2	19.3	14.5	14.5	3.6	7.2
Building and repair of ships and boats	50.0	9.1	63.6	9.1	4.5	54.5	13.6	27.3	9.1	27.3
Low tech	20.7	19.9	61.0	6.0	4.1	15.4	11.7	7.2	7.4	7.0
Manufacture of food products, including beverages	23.1	19.9	61.9	3.8	3.1	9.1	11.9	5.6	8.4	7.3
Manufacture of tobacco products	10.0	20.0	60.0	–	–	–	10.0	10.0	10.0	10.0
Manufacture of textiles	18.5	18.5	48.1	7.4	3.7	11.1	22.2	14.8	7.4	–
Manufacture of wearing apparel, dressing and dyeing of fur	42.9	14.3	50.0	14.3	14.3	21.4	–	14.3	21.4	7.1
Manufacture of leather, leather products and footwear	27.3	36.4	81.8	–	–	9.1	–	–	–	–

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Woodworking and manufacture of wood and of products of wood and cork, except furniture	6.7	16.7	86.7	3.3	–	23.3	10.0	10.0	6.7	6.7
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	17.4	8.7	82.6	4.3	4.3	17.4	30.4	21.7	8.7	4.3
Publishing and printing activities, reproduction of recorded media	12.5	27.1	35.4	10.4	4.2	47.9	6.3	–	2.1	6.3
Manufacture of furniture and other products n.e.c.	23.5	20.6	64.7	17.6	11.8	20.6	5.9	11.8	–	8.8
Recycling of secondary raw materials	–	–	25.0	25.0	25.0	25.0	25.0	–	25.0	50.0
Electricity, gas and water supply	13.4	7.4	56.5	5.7	1.4	28.3	9.9	7.1	0.4	19.1
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Total	**54.3**	**4.0**	**39.4**	**6.7**	**4.2**	**39.2**	**9.9**	**19.8**	**3.1**	**12.3**
Communication	20.7	1.6	48.0	2.4	0.8	35.0	11.0	23.2	3.3	28.5
Computer and information technology-related activities	40.6	9.1	30.1	8.4	5.6	44.8	7.7	18.2	4.2	16.1
Research and development	87.8	4.6	41.2	8.7	5.7	28.3	12.5	21.8	3.5	7.6
Other services of the business economy	17.4	2.3	32.9	5.0	3.0	63.1	4.7	13.8	1.7	7.4
Other economic activities										
Construction	–	–	50.0	–	–	50.0	–	–	–	–

3.9. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY INNOVATIVE AND ECONOMIC ACTIVITY: 2015

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Mining and quarrying	5.0	2.0	3.1	3.7	2.9	3.8	3.0	3.4	–	4.5
Mining and quarrying of energy producing materials	3.8	1.7	1.8	3.2	2.9	2.4	2.3	2.6	–	2.6
Mining and quarrying, except energy producing materials	1.2	0.3	1.3	0.5	–	1.4	0.7	0.8	–	1.9
Manufacturing	90.6	90.8	85.4	89.0	94.3	82.3	90.7	91.4	99.3	75.4
High tech	26.6	19.0	17.4	20.6	22.9	25.3	19.6	30.9	24.8	11.2
Manufacture of pharmaceuticals and pharmaceutical products	4.3	1.7	1.7	4.6	7.1	1.2	1.8	3.4	5.8	–
Manufacture of office machinery and computers	0.7	1.0	–	–	–	0.7	0.5	1.0	2.2	–
Manufacture of radio, television and communication equipment and apparatus	6.4	5.1	5.0	4.1	4.3	6.8	5.0	8.4	4.4	2.6
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	12.1	6.8	6.8	7.8	7.1	11.6	8.9	11.3	10.9	5.2
Manufacture of aircraft, including spacecraft	3.1	4.4	3.3	4.1	4.3	5.0	3.4	6.8	1.5	3.4
Medium high tech	31.8	26.2	23.9	30.3	31.4	21.5	31.2	28.0	31.4	25.0
Manufacture of chemicals and chemical products	7.1	5.4	5.4	2.8	2.1	3.6	8.4	4.2	7.3	7.1
Manufacture of machinery and equipment	10.4	8.8	7.5	10.1	9.3	8.5	9.8	12.0	13.9	7.1

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Manufacture of electrical machinery and apparatus	9.0	6.1	6.6	11.0	11.4	5.7	7.7	7.1	5.8	4.1
Manufacture of motor vehicles, trailers and semi-trailers	3.5	4.1	3.2	5.0	6.4	2.6	4.6	3.7	4.4	5.2
Manufacture of other transport vehicles	1.8	1.7	1.2	1.4	2.1	1.0	0.7	1.0	–	1.5
Medium low tech	14.5	9.9	18.2	18.8	17.9	16.0	19.6	14.4	14.6	19.8
Manufacture of coke and refined petroleum products	1.8	1.7	1.3	2.3	0.7	2.8	2.5	2.9	1.5	3.4
Manufacture of rubber and plastic products	1.8	1.4	2.7	3.2	3.6	1.7	2.7	1.6	2.9	0.7
Manufacture of other non-metallic mineral products	2.0	2.4	4.9	3.2	3.6	2.3	4.8	2.1	5.1	6.3
Manufacture of basic metals	4.7	1.0	4.0	5.0	5.0	4.3	6.2	3.1	1.5	4.9
Manufacture of fabricated metal products	2.8	2.7	4.4	4.1	4.3	2.8	2.7	3.1	2.2	2.2
Building and repair of ships and boats	1.3	0.7	1.0	0.9	0.7	2.1	0.7	1.6	1.5	2.2
Low tech	11.7	33.0	21.3	13.3	14.3	13.0	13.0	9.2	26.3	12.7
Manufacture of food products, including beverages	7.6	19.4	12.7	5.0	6.4	4.5	7.7	4.2	17.5	7.8
Manufacture of tobacco products	0.1	0.7	0.4	–	–	–	0.2	0.3	0.7	0.4
Manufacture of textiles	0.6	1.7	0.9	0.9	0.7	0.5	1.4	1.0	1.5	–
Manufacture of wearing apparel, dressing and dyeing of fur	0.7	0.7	0.5	0.9	1.4	0.5	–	0.5	2.2	0.4
Manufacture of leather, leather products and footwear	0.3	1.4	0.6	–	–	0.2	–	–	–	–

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Woodworking and manufacture of wood and of products of wood and cork, except furniture	0.2	1.7	1.9	0.5	–	1.2	0.7	0.8	1.5	0.7
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	0.5	0.7	1.4	0.5	0.7	0.7	1.6	1.3	1.5	0.4
Publishing and printing activities, reproduction of recorded media	0.7	4.4	1.2	2.3	1.4	4.0	0.7	–	0.7	1.1
Manufacture of furniture and other products n.e.c.	0.9	2.4	1.6	2.8	2.9	1.2	0.5	1.0	–	1.1
Recycling of secondary raw materials	–	–	0.1	0.5	0.7	0.2	0.2	–	0.7	0.7
Manufacture of other materials and substances n.e.c.	6.1	2.7	4.5	6.0	7.9	6.4	7.3	8.9	2.2	6.7
Electricity, gas and water supply	4.4	7.1	11.5	7.3	2.9	13.9	6.4	5.2	0.7	20.1
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Communication	7.1	7.5	22.7	6.8	3.6	16.6	20.6	21.8	19.5	42.9
Computer and information technology-related activities	8.1	24.5	8.3	13.6	14.5	12.4	8.4	9.9	14.6	14.1
Research and development	77.5	54.7	50.2	62.5	65.5	34.6	60.3	52.7	53.7	29.4
Other services of the business economy	7.3	13.2	18.8	17.0	16.4	36.4	10.7	15.6	12.2	13.5

3.10. ENTERPRISES HAVING IN-HOUSE R&D, PROJECT, AND DESIGN UNITS AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**40.3**	**40.0**	**59.7**	**60.0**
Mining and quarrying	35.4	30.6	64.6	69.4
Mining and quarrying of energy producing materials	38.2	30.8	61.8	69.2
Mining and quarrying, except energy producing materials	32.3	30.3	67.7	69.7
Manufacturing	41.7	41.8	58.3	58.2
High tech	59.1	58.5	40.9	41.5
Manufacture of pharmaceuticals and pharmaceutical products	68.5	66.0	31.5	34.0
Manufacture of office machinery and computers	62.5	52.6	37.5	47.4
Manufacture of radio, television and communication equipment and apparatus	55.2	56.3	44.8	43.7
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	58.4	56.3	41.6	43.7
Manufacture of aircraft, including spacecraft	61.4	67.8	38.6	32.2
Medium high tech	39.7	39.9	60.3	60.1
Manufacture of chemicals and chemical products	44.1	49.3	55.9	50.7
Manufacture of machinery and equipment	33.9	33.1	66.1	66.9

(continued)

	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	44.4	44.5	55.6	55.5
Manufacture of motor vehicles, trailers and semi-trailers	43.0	42.1	57.0	57.9
Manufacture of other transport vehicles	48.9	42.9	51.1	57.1
Medium low tech	30.8	28.4	69.2	71.6
Manufacture of coke and refined petroleum products	54.5	56.3	45.5	43.8
Manufacture of rubber and plastic products	37.8	35.2	62.2	64.8
Manufacture of other non-metallic mineral products	28.2	22.5	71.8	77.5
Manufacture of basic metals	39.3	45.9	60.7	54.1
Manufacture of fabricated metal products	23.6	19.3	76.4	80.7
Building and repair of ships and boats	29.3	21.1	70.7	78.9
Low tech	28.7	32.7	71.3	67.3
Manufacture of food products, including beverages	38.5	34.0	61.5	66.0
Manufacture of tobacco products	100	100	–	–
Manufacture of textiles	41.2	59.1	58.8	40.9
Manufacture of wearing apparel, dressing and dyeing of fur	21.1	25.0	78.9	75.0
Manufacture of leather, leather products and footwear	44.4	75.0	55.6	25.0

(continued)

	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2014	2015	2014	2015
Woodworking and manufacture of wood and of products of wood and cork, except furniture	20.8	28.6	79.2	71.4
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	36.7	36.7	63.3	63.3
Publishing and printing activities, reproduction of recorded media	14.3	23.8	85.7	76.2
Manufacture of furniture and other products n.e.c.	16.7	18.4	83.3	81.6
Recycling of secondary raw materials	50.0	–	50.0	100
Electricity, gas and water supply	21.4	18.2	78.6	81.8
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**36.5**	**35.2**	**63.5**	**64.8**
Communication	52.0	47.6	48.0	52.4
Computer and information technology-related activities	46.0	41.7	54.0	58.3
Research and development	42.9	41.4	57.1	58.6
Other services of the business economy	15.0	14.6	85.0	85.4
Other economic activities				
Construction	…	–	…	100

3.11. R&D UNITS AND THEIR EMPLOYMENT BY ECONOMIC ACTIVITY

	Enterprises engaged in technological innovation				Enterprises not engaged in technological innovation			
	R&D units		Employment, *headcount*		R&D units		Employment, *headcount*	
	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**2644**	**2738**	**92796**	**97733**	**3105**	**3059**	**43100**	**45308**
Mining and quarrying	33	32	5793	9397	63	64	1613	987
Mining and quarrying of energy producing materials	20	19	3890	7808	32	35	1293	649
Mining and quarrying, except energy producing materials	13	13	1903	1589	31	29	320	338
Manufacturing	2570	2674	86490	87878	2739	2456	38990	41071
High tech	974	1028	32698	35014	617	600	9554	8433
Manufacture of pharmaceuticals and pharmaceutical products	66	70	1243	948	48	48	337	375
Manufacture of office machinery and computers	43	48	887	870	34	17	434	179
Manufacture of radio, television and communication equipment and apparatus	235	251	8422	8906	143	300	2422	2890
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	426	458	13368	15863	350	196	2823	3372
Manufacture of aircraft, including spacecraft	204	201	8778	8427	42	39	3538	1617
Medium high tech	833	860	25500	21880	975	947	14736	18347
Manufacture of chemicals and chemical products	118	138	3079	3206	141	106	1847	1466
Manufacture of machinery and equipment	324	336	8307	8713	445	386	7680	7938

(continued)

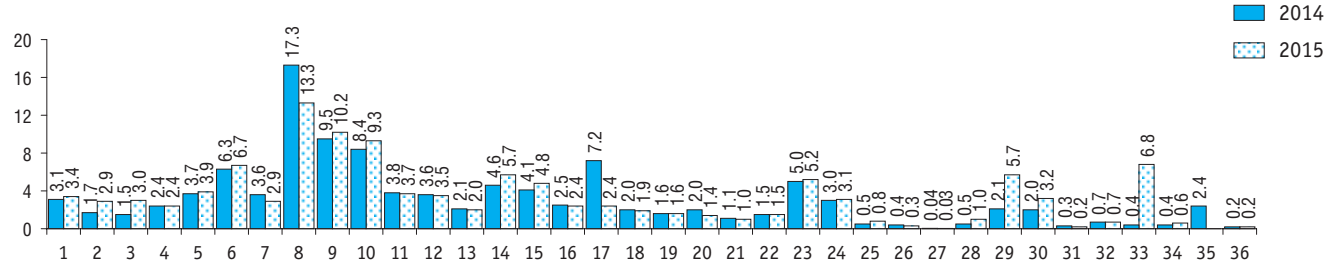
	Enterprises engaged in technological innovation				Enterprises not engaged in technological innovation			
	R&D units		Employment, *headcount*		R&D units		Employment, *headcount*	
	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	261	253	4330	4579	211	300	2591	3413
Manufacture of motor vehicles, trailers and semi-trailers	91	95	4917	4313	96	82	1682	1030
Manufacture of other transport vehicles	39	38	4867	1069	82	73	936	4500
Medium low tech	385	351	12891	11933	552	593	10016	9165
Manufacture of coke and refined petroleum products	34	34	1232	1156	17	16	179	294
Manufacture of rubber and plastic products	48	38	785	518	55	61	477	499
Manufacture of other non-metallic mineral products	56	43	644	573	130	108	2878	2145
Manufacture of basic metals	84	80	5291	4667	84	63	2431	1347
Manufacture of fabricated metal products	142	139	2828	2727	234	309	3476	4326
Building and repair of ships and boats	21	17	2111	2292	32	36	575	554
Low tech	102	113	1102	1675	553	267	3895	3813
Manufacture of food products, including beverages	36	28	522	370	44	62	2133	2067
Manufacture of tobacco products	1	1	2	2	–	–	–	–
Manufacture of textiles	8	19	37	131	17	17	113	70
Manufacture of wearing apparel, dressing and dyeing of fur	14	13	92	291	89	20	731	465
Manufacture of leather, leather products and footwear	5	8	121	172	7	2	38	5
Woodworking and manufacture of wood and of products of wood and cork, except furniture	6	7	35	43	281	17	335	53

(continued)

	Enterprises engaged in technological innovation				Enterprises not engaged in technological innovation			
	R&D units		Employment, *headcount*		R&D units		Employment, *headcount*	
	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	15	13	204	201	27	22	102	561
Publishing and printing activities, reproduction of recorded media	4	11	32	398	42	79	93	202
Manufacture of furniture and other products n.e.c.	12	13	48	67	45	46	349	342
Recycling of secondary raw materials	1	–	9	–	1	2	1	48
Manufacture of other materials and substances n.e.c.	276	322	14299	17376	42	49	789	1313
Electricity, gas and water supply	41	32	513	458	303	539	2497	3250
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Total	**8528**	**8414**	**178501**	**186452**	**8601**	**8998**	**127365**	**114087**
Communication	37	95	424	397	32	22	197	338
Computer and information technology-related activities	99	119	2535	2763	223	290	6186	4468
Research and development	7574	7471	162230	168325	6097	6486	87044	78642
Other services of the business economy	818	729	13312	14967	2249	2200	33938	30639
Other economic activities								
Construction	…	–	…	–	…	15	…	685

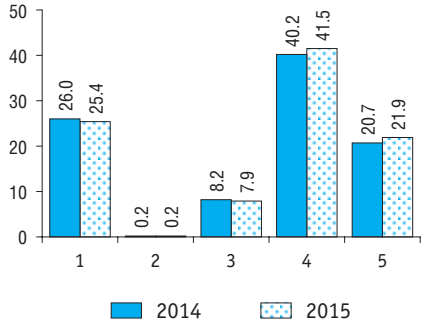
3.12. R&D PERSONNEL AS A PERCENTAGE OF TOTAL EMPLOYMENT AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

3.13. CO-OPERATION IN DEVELOPMENT OF TECHNOLOGICAL INNOVATIONS: 2015

(as a percentage of all enterprises that had market-ready technological innovations during the last three years)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**24.6**	**29.6**	**7.0**	**42.4**
Mining and quarrying	43.0	33.9	6.6	16.5
Mining and quarrying of energy producing materials	53.8	29.5	6.4	10.3
Mining and quarrying, except energy producing materials	23.3	41.9	7.0	27.9
Manufacturing	18.7	29.7	7.7	47.8
High tech	12.6	34.1	8.9	48.1
Manufacture of pharmaceuticals and pharmaceutical products	13.0	35.2	11.1	42.6
Manufacture of office machinery and computers	10.0	10.0	20.0	60.0
Manufacture of radio, television and communication equipment and apparatus	11.7	28.8	9.0	54.1
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	12.8	35.6	8.3	46.7
Manufacture of aircraft, including spacecraft	13.6	42.4	6.8	44.1
Medium high tech	15.9	27.4	6.6	53.6
Manufacture of chemicals and chemical products	20.9	38.0	1.6	44.2
Manufacture of machinery and equipment	12.9	19.2	7.8	62.4

(continued)

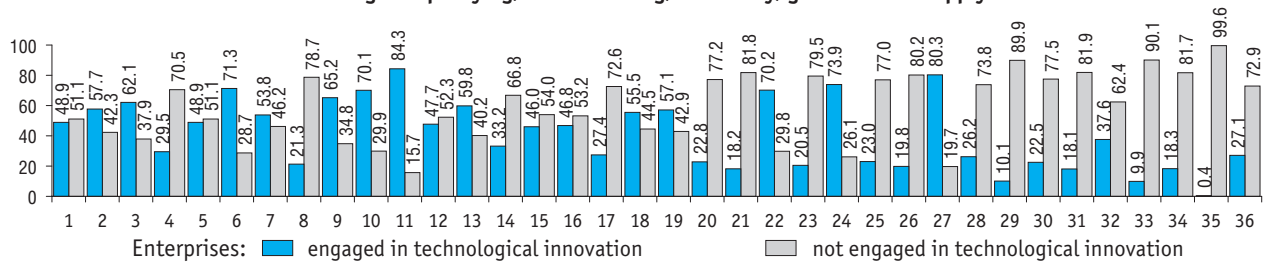
	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Manufacture of electrical machinery and apparatus	15.7	25.7	7.9	56.0
Manufacture of motor vehicles, trailers and semi-trailers	11.8	34.3	6.9	49.0
Manufacture of other transport vehicles	28.9	35.6	8.9	31.1
Medium low tech	22.8	31.5	5.9	42.4
Manufacture of coke and refined petroleum products	33.3	63.3	6.7	6.7
Manufacture of rubber and plastic products	19.7	18.4	3.9	59.2
Manufacture of other non-metallic mineral products	26.9	30.0	8.8	35.0
Manufacture of basic metals	14.1	44.6	5.4	39.1
Manufacture of fabricated metal products	19.3	27.7	5.0	52.1
Building and repair of ships and boats	39.3	14.3	–	46.4
Low tech	22.5	25.8	9.1	46.0
Manufacture of food products, including beverages	19.4	24.4	10.5	48.0
Manufacture of tobacco products	20.0	40.0	20.0	20.0
Manufacture of textiles	10.3	23.1	2.6	64.1
Manufacture of wearing apparel, dressing and dyeing of fur	21.1	26.3	–	57.9
Manufacture of leather, leather products and footwear	30.8	23.1	23.1	23.1

(continued)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Woodworking and manufacture of wood and of products of wood and cork, except furniture	24.3	29.7	5.4	40.5
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	43.3	33.3	3.3	33.3
Publishing and printing activities, reproduction of recorded media	38.2	30.9	7.4	33.8
Manufacture of furniture and other products n.e.c.	16.7	20.8	10.4	54.2
Recycling of secondary raw materials	66.7	33.3	–	–
Electricity, gas and water supply	58.4	27.4	2.8	14.8
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**25.8**	**30.2**	**6.1**	**42.5**
Communication	32.5	50.3	4.8	13.9
Computer and information technology-related activities	20.2	27.2	11.6	45.1
Research and development	7.0	24.7	5.2	69.1
Other services of the business economy	56.4	24.2	6.5	18.4
Other economic activities				
Construction	25.0	25.0	25.0	50.0

3.14. SALES OF GOODS AND SERVICES OF ENTERPRISES ENGAGED AND NOT ENGAGED IN TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF TOTAL GOODS AND SERVICES SALES BY ECONOMIC ACTIVITY: 2015

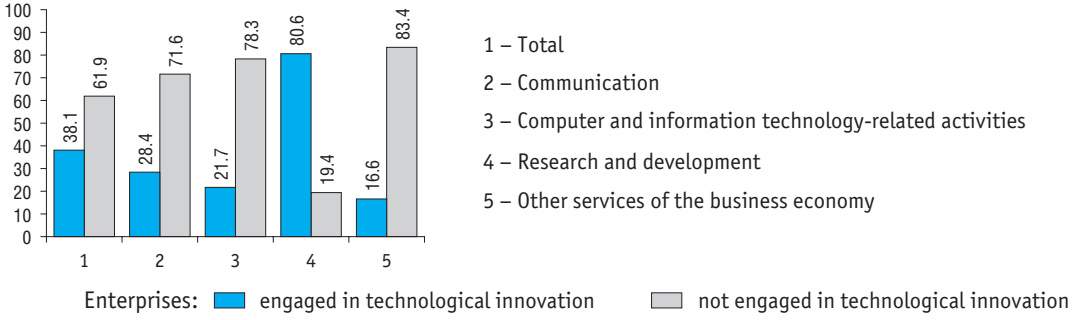
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



3.15. SALES OF INNOVATIVE GOODS AND SERVICES BY ECONOMIC ACTIVITY

	Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**3037407.3**	**3258254.6**	**8.2**	**7.9**
Mining and quarrying	648533.0	368402.5	7.2	3.7
Mining and quarrying of energy producing materials	635720.0	342386.8	8.0	4.0
Mining and quarrying, except energy producing materials	12813.0	26015.7	1.2	1.9
Manufacturing	2362387.8	2856252.2	9.9	10.6
High tech	274801.7	335907.9	17.7	18.6
Manufacture of pharmaceuticals and pharmaceutical products	19419.6	26707.4	9.1	11.3
Manufacture of office machinery and computers	4042.6	6355.7	8.9	11.1
Manufacture of radio, television and communication equipment and apparatus	50103.8	42851.4	16.0	13.3
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	65947.5	97994.9	18.7	21.4
Manufacture of aircraft, including spacecraft	135288.1	161998.6	21.6	22.3
Medium high tech	753460.7	727655.3	14.8	13.8
Manufacture of chemicals and chemical products	137851.2	186349.4	8.7	9.2
Manufacture of machinery and equipment	56181.6	56552.2	5.3	5.2
Manufacture of electrical machinery and apparatus	32031.0	36325.3	6.9	7.3

(continued)

	Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015
Manufacture of motor vehicles, trailers and semi-trailers	477349.1	409404.0	29.9	30.3
Manufacture of other transport vehicles	50047.9	39024.5	13.8	12.3
Medium low tech	968228.4	1354961.5	8.8	10.4
Manufacture of coke and refined petroleum products	540738.4	857606.2	10.3	12.8
Manufacture of rubber and plastic products	39971.9	52270.4	8.7	10.2
Manufacture of other non-metallic mineral products	48104.1	37619.4	4.9	4.0
Manufacture of basic metals	303195.9	345001.5	8.6	8.8
Manufacture of fabricated metal products	17091.9	29533.2	3.1	4.7
Building and repair of ships and boats	19126.2	32930.7	7.8	10.6
Low tech	226598.4	279021.7	4.1	4.6
Manufacture of food products, including beverages	145325.1	172294.9	4.3	4.2
Manufacture of tobacco products	34957.6	36994.4	17.2	14.9
Manufacture of textiles	4157.2	6901.7	0.8	6.4
Manufacture of wearing apparel, dressing and dyeing of fur	718.2	833.1	1.5	1.5
Manufacture of leather, leather products and footwear	1107.4	924.5	2.9	2.3

(continued)

	Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015
Woodworking and manufacture of wood and of products of wood and cork, except furniture	7508.1	15708.3	2.8	4.6
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	23487.3	32062.3	5.5	6.0
Publishing and printing activities, reproduction of recorded media	5440.6	10081.6	2.7	5.0
Manufacture of furniture and other products n.e.c.	3727.7	2972.6	1.4	1.4
Recycling of secondary raw materials	169.3	248.2	0.1	0.2
Manufacture of other materials and substances n.e.c.	139298.5	158705.8	18.6	17.4
Electricity, gas and water supply	26486.5	33599.9	0.6	0.8
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**542516.5**	**584573.8**	**12.8**	**13.2**
Communication	30563.5	39480.1	1.9	2.5
Computer and information technology-related activities	32365.0	46568.8	9.6	11.0
Research and development	464188.8	482298.5	39.5	41.3
Other services of the business economy	15399.2	16226.4	1.3	1.3
Other economic activities				
Construction	…	600.3	…	0.6

3.16. SALES OF INNOVATIVE GOODS AND SERVICES BY DEGREE OF NOVELTY AND ECONOMIC ACTIVITY

	Innovative goods and services, *million roubles*		Of which			
			new or technologically new		significantly improved	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**3037407.3**	**3258254.6**	**1600178.1**	**2233944.7**	**1437229.2**	**1024309.9**
Mining and quarrying	648533.0	368402.5	44511.8	153099.2	604021.2	215303.4
Mining and quarrying of energy producing materials	635720.0	342386.8	38585.7	146202.3	597134.3	196184.5
Mining and quarrying, except energy producing materials	12813.0	26015.7	5926.1	6896.9	6886.9	19118.8
Manufacturing	2362387.8	2856252.2	1532912.1	2052771.3	829475.6	803480.9
High tech	274801.7	335907.9	155194.9	260378.1	119606.8	75529.8
Manufacture of pharmaceuticals and pharmaceutical products	19419.6	26707.4	18834.0	25586.7	585.6	1120.7
Manufacture of office machinery and computers	4042.6	6355.7	3801.4	5633.7	241.2	722.0
Manufacture of radio, television and communication equipment and apparatus	50103.8	42851.4	25390.8	28923.0	24712.9	13928.4
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	65947.5	97994.9	51236.0	84780.1	14711.5	13214.8
Manufacture of aircraft, including spacecraft	135288.1	161998.6	55932.6	115454.6	79355.5	46543.9
Medium high tech	753460.7	727655.3	417272.0	452416.2	336188.8	275239.1
Manufacture of chemicals and chemical products	137851.2	186349.4	76634.8	98558.7	61216.4	87790.7
Manufacture of machinery and equipment	56181.6	56552.2	30616.3	29600.0	25565.3	26952.2
Manufacture of electrical machinery and apparatus	32031.0	36325.3	21677.9	27126.3	10353.1	9199.0

(continued)

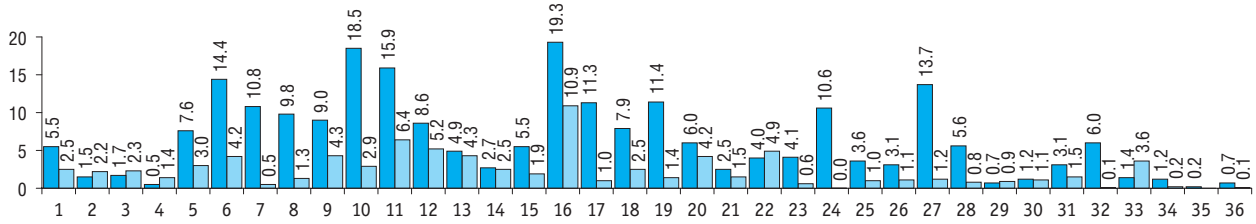
	Innovative goods and services, *million roubles*		Of which			
			new or technologically new		significantly improved	
	2014	2015	2014	2015	2014	2015
Manufacture of motor vehicles, trailers and semi-trailers	477349.1	409404.0	264755.0	261319.9	212594.1	148084.1
Manufacture of other transport vehicles	50047.9	39024.5	23588.0	35811.3	26459.9	3213.2
Medium low tech	968228.4	1354961.5	665758.4	1031310.0	302470.0	323651.5
Manufacture of coke and refined petroleum products	540738.4	857606.2	431449.4	762760.7	109289.0	94845.5
Manufacture of rubber and plastic products	39971.9	52270.4	22481.9	30748.8	17490.1	21521.6
Manufacture of other non-metallic mineral products	48104.1	37619.4	33944.9	23687.3	14159.2	13932.1
Manufacture of basic metals	303195.9	345001.5	146095.7	155649.8	157100.2	189351.7
Manufacture of fabricated metal products	17091.9	29533.2	12669.8	25534.9	4422.0	3998.3
Building and repair of ships and boats	19126.2	32930.7	19116.6	32928.4	9.6	2.2
Low tech	226598.4	279021.7	177294.0	216254.1	49304.4	62767.6
Manufacture of food products, including beverages	145325.1	172294.9	117486.2	127497.8	27839.0	44797.2
Manufacture of tobacco products	34957.6	36994.4	29110.8	33914.3	5846.8	3080.0
Manufacture of textiles	4157.2	6901.7	3731.1	6035.6	426.1	866.1
Manufacture of wearing apparel, dressing and dyeing of fur	718.2	833.1	409.8	356.9	308.4	476.2
Manufacture of leather, leather products and footwear	1107.4	924.5	654.2	473.7	453.2	450.8
Woodworking and manufacture of wood and of products of wood and cork, except furniture	7508.1	15708.3	4752.5	10605.3	2755.6	5103.0
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	23487.3	32062.3	17439.5	31774.9	6047.8	287.4

(continued)

	Innovative goods and services, *million roubles*		Of which			
			new or technologically new		significantly improved	
	2014	2015	2014	2015	2014	2015
Publishing and printing activities, reproduction of recorded media	5440.6	10081.6	596.2	2840.4	4844.4	7241.2
Manufacture of furniture and other products n.e.c.	3727.7	2972.6	2944.4	2507.0	783.2	465.6
Recycling of secondary raw materials	169.3	248.2	169.3	248.2	–	–
Manufacture of other materials and substances n.e.c.	139298.5	158705.8	117392.9	92413.0	21905.6	66292.9
Electricity, gas and water supply	26486.5	33599.9	22754.1	28074.2	3732.4	5525.7
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**542516.5**	**584573.8**	**331202.3**	**404652.3**	**211314.2**	**179921.5**
Communication	30563.5	39480.1	18299.6	34748.3	12263.9	4731.8
Computer and information technology-related activities	32365.0	46568.8	21501.9	22050.5	10863.1	24518.3
Research and development	464188.8	482298.5	285535.3	341708.5	178653.5	140590.0
Other services of the business economy	15399.2	16226.4	5865.6	6145.0	9533.7	10081.4
Other economic activities						
Construction	…	600.3	…	544.5	…	55.7

3.17. INNOVATIVE GOODS AND SERVICES AS A PERCENTAGE OF TOTAL GOODS AND SERVICES SALES BY DEGREE OF NOVELTY AND ECONOMIC ACTIVITY: 2015

Mining and quarrying, manufacturing, electricity, gas and water supply



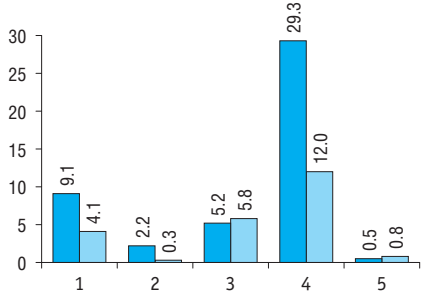
Innovative goods and services:

new or technologically new — significantly improved

1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



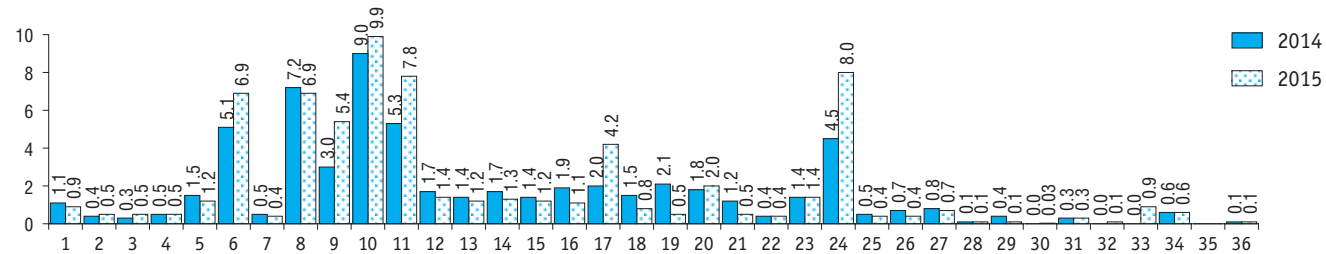
1 – Total
2 – Communication
3 – Computer and information technology-related activities
4 – Research and development
5 – Other services of the business economy

Innovative goods and services:
new or technologically new
significantly improved

3.18. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES NEW TO THE ENTERPRISE'S MARKET BY ECONOMIC ACTIVITY

(as a percentage of total goods and services sales)

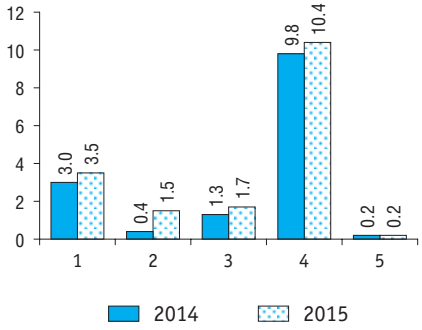
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

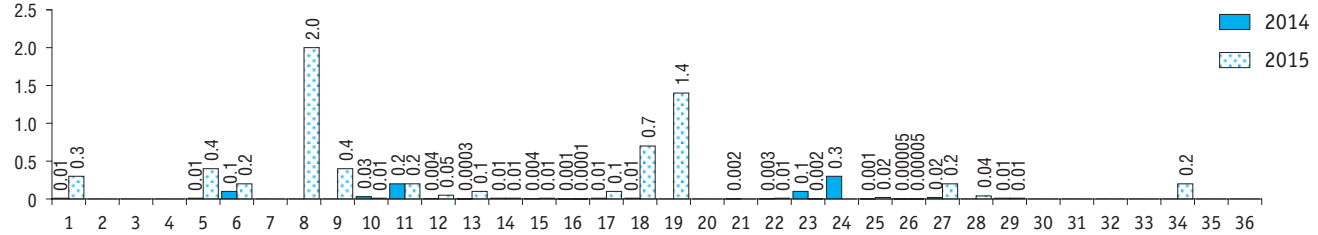
4 – Research and development

5 – Other services of the business economy

3.19. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES NEW TO THE WORLD MARKET BY ECONOMIC ACTIVITY

(as a percentage of total goods and services sales)

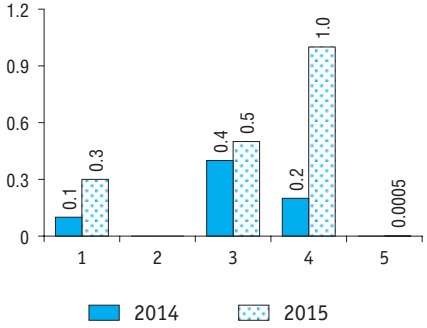
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

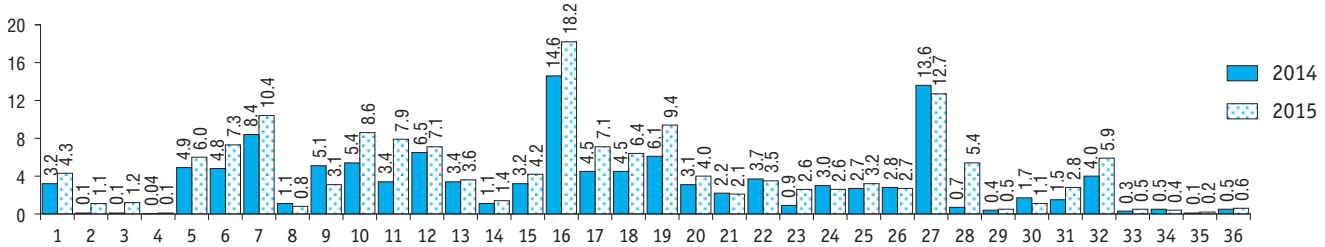
4 – Research and development

5 – Other services of the business economy

3.20. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES NEW TO THE ENTERPRISE BUT NOT NEW TO THE MARKET BY ECONOMIC ACTIVITY

(as a percentage of total goods and services sales)

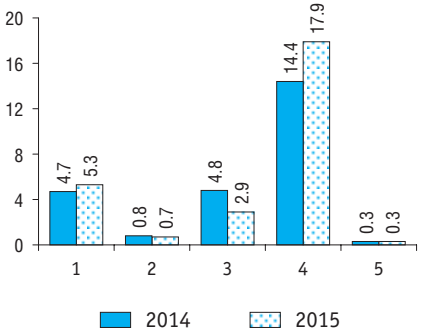
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

3.21. SALES OF INNOVATIVE GOODS AND SERVICES ACCORDING TO STATE AND MUNICIPAL CONTRACTS BY ECONOMIC ACTIVITY: 2015

	Million roubles	As a percentage of total innovative goods and services sales
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**101590.1**	**3.1**
Mining and quarrying	–	–
Mining and quarrying of energy producing materials	–	–
Mining and quarrying, except energy producing materials	–	–
Manufacturing	101590.1	3.6
High tech	64046.1	19.1
Manufacture of pharmaceuticals and pharmaceutical products	–	–
Manufacture of office machinery and computers	410.5	6.5
Manufacture of radio, television and communication equipment and apparatus	6357.5	14.8
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	12703.0	13.0
Manufacture of aircraft, including spacecraft	44575.1	27.5
Medium high tech	6974.7	1.0
Manufacture of chemicals and chemical products	–	–
Manufacture of machinery and equipment	5119.3	9.1
Manufacture of electrical machinery and apparatus	1652.6	4.5
Manufacture of motor vehicles, trailers and semi-trailers	202.8	0.05
Manufacture of other transport vehicles	–	–

(continued)

	Million roubles	As a percentage of total innovative goods and services sales
Medium low tech	11392.0	0.8
Manufacture of coke and refined petroleum products	–	–
Manufacture of rubber and plastic products	–	–
Manufacture of other non-metallic mineral products	–	–
Manufacture of basic metals	–	–
Manufacture of fabricated metal products	–	–
Building and repair of ships and boats	11392.0	34.6
Low tech	235.0	0.1
Manufacture of food products, including beverages	120.8	0.1
Manufacture of tobacco products	–	–
Manufacture of textiles	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	–	–
Manufacture of leather, leather products and footwear	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	–	–
Publishing and printing activities, reproduction of recorded media	114.2	1.1
Manufacture of furniture and other products n.e.c.	–	–
Recycling of secondary raw materials	–	–
Manufacture of other materials and substances n.e.c.	18942.3	11.9
Electricity, gas and water supply	–	–

3.22. EXPORTS OF INNOVATIVE AND TECHNOLOGICALLY UNCHANGED GOODS AND SERVICES BY ECONOMIC ACTIVITY

	Exports of goods and services, *million roubles*		Innovative goods and services				Technologically unchanged goods and services			
			Million roubles		Per cent		Million roubles		Per cent	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**8278884.5**	**9473402.9**	**953877.4**	**845257.7**	**11.5**	**8.9**	**7325007.1**	**8628145.2**	**88.5**	**91.1**
Mining and quarrying	2587092.3	2863285.5	533283.7	212123.4	20.6	7.4	2053808.6	2651162.2	79.4	92.6
Mining and quarrying of energy producing materials	2255517.8	2524088.4	525142.6	206547.3	23.3	8.2	1730375.2	2317541.1	76.7	91.8
Mining and quarrying, except energy producing materials	331574.5	339197.1	8141.1	5576.1	2.5	1.6	323433.4	333621.0	97.5	98.4
Manufacturing	5679679.5	6603592.5	420591.3	633129.3	7.4	9.6	5259088.3	5970463.1	92.6	90.4
High tech	219091.3	306995.5	58219.6	75520.7	26.6	24.6	160871.6	231474.8	73.4	75.4
Manufacture of pharmaceuticals and pharmaceutical products	17372.9	19084.0	503.4	221.4	2.9	1.2	16869.5	18862.6	97.1	98.8
Manufacture of office machinery and computers	3308.6	1505.7	39.4	1366.5	1.2	90.8	3269.2	139.2	98.8	9.2
Manufacture of radio, television and communication equipment and apparatus	11887.5	16508.1	4017.7	6812.8	33.8	41.3	7869.8	9695.3	66.2	58.7
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	25204.8	29117.2	1080.5	1133.2	4.3	3.9	24124.3	27983.9	95.7	96.1
Manufacture of aircraft, including spacecraft	161317.6	240780.6	52578.7	65986.8	32.6	27.4	108738.9	174793.8	67.4	72.6
Medium high tech	804082.9	1019491.6	95045.1	96733.3	11.8	9.5	709037.8	922758.3	88.2	90.5
Manufacture of chemicals and chemical products	643612.7	848026.6	49072.8	60650.2	7.6	7.2	594539.8	787376.4	92.4	92.8
Manufacture of machinery and equipment	59650.9	69185.3	3479.8	2865.7	5.8	4.1	56171.1	66319.6	94.2	95.9

(continued)

	Exports of goods and services, *million roubles*		Innovative goods and services				Technologically unchanged goods and services			
			Million roubles		Per cent		Million roubles		Per cent	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	19561.6	21279.7	1253.5	945.7	6.4	4.4	18308.2	20334.0	93.6	95.6
Manufacture of motor vehicles, trailers and semi-trailers	62945.6	69310.0	37038.8	31105.5	58.8	44.9	25906.8	38204.5	41.2	55.1
Manufacture of other transport vehicles	18312.1	11690.0	4200.2	1166.2	22.9	10.0	14112.0	10523.8	77.1	90.0
Medium low tech	3978974.0	4459727.6	195297.0	318078.8	4.9	7.1	3783677.0	4141648.9	95.1	92.9
Manufacture of coke and refined petroleum products	2630569.3	2963267.0	149305.7	232321.9	5.7	7.8	2481263.6	2730945.1	94.3	92.2
Manufacture of rubber and plastic products	16784.6	20921.9	1389.6	1232.2	8.3	5.9	15395.0	19689.7	91.7	94.1
Manufacture of other non-metallic mineral products	40182.6	48793.8	3979.7	4860.5	9.9	10.0	36202.9	43933.3	90.1	90.0
Manufacture of basic metals	1232603.4	1354815.6	38953.4	60675.4	3.2	4.5	1193650.1	1294140.2	96.8	95.5
Manufacture of fabricated metal products	20396.8	34809.2	450.8	11750.4	2.2	33.8	19945.9	23058.7	97.8	66.2
Building and repair of ships and boats	38437.4	37120.1	1217.9	7238.2	3.2	19.5	37219.5	29881.9	96.8	80.5
Low tech	481288.5	574519.7	24718.4	90195.1	5.1	15.7	456570.1	484324.7	94.9	84.3
Manufacture of food products, including beverages	111164.0	217696.5	13073.8	59840.2	11.8	27.5	98090.2	157856.3	88.2	72.5
Manufacture of tobacco products	24877.4	39783.2	1424.6	6340.0	5.7	15.9	23452.9	33443.2	94.3	84.1
Manufacture of textiles	93053.1	5496.7	129.7	383.0	0.1	7.0	92923.4	5113.7	99.9	93.0
Manufacture of wearing apparel, dressing and dyeing of fur	569.3	1203.0	11.2	26.7	2.0	2.2	558.2	1176.4	98.0	97.8
Manufacture of leather, leather products and footwear	3881.2	6566.2	3.1	1.3	0.1	0.02	3878.1	6565.0	99.9	100
Woodworking and manufacture of wood and of products of wood and cork, except furniture	107136.9	135173.9	3765.0	10522.2	3.5	7.8	103371.9	124651.6	96.5	92.2

(continued)

	Exports of goods and services, *million roubles*		Innovative goods and services				Technologically unchanged goods and services			
			Million roubles		Per cent		Million roubles		Per cent	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	89523.2	122445.5	5128.4	10374.7	5.7	8.5	84394.8	112070.8	94.3	91.5
Publishing and printing activities, reproduction of recorded media	7572.5	7977.8	972.0	2229.6	12.8	27.9	6600.6	5748.2	87.2	72.1
Manufacture of furniture and other products n.e.c.	40669.5	32982.3	210.6	477.3	0.5	1.4	40459.0	32504.9	99.5	98.6
Recycling of secondary raw materials	2841.3	5194.7	0.1	–	0.0	–	2841.1	5194.7	100	100
Manufacture of other materials and substances n.e.c.	196242.8	242858.0	47311.2	52601.5	24.1	21.7	148931.6	190256.5	75.9	78.3
Electricity, gas and water supply	12112.7	6524.9	2.5	5.0	0.02	0.08	12110.2	6519.9	99.98	99.9
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Total	**182877.5**	**171124.4**	**55605.0**	**60761.4**	**30.4**	**35.5**	**127272.6**	**110363.0**	**69.6**	**64.5**
Communication	15414.3	13277.1	0.2	–	0.0	–	15414.1	13277.1	100	100
Computer and information technology-related activities	38302.0	45785.3	9459.2	13995.2	24.7	30.6	28842.8	31790.1	75.3	69.4
Research and development	98182.0	78926.2	46046.0	46231.2	46.9	58.6	52136.0	32695.0	53.1	41.4
Other services of the business economy	30979.3	33135.7	99.7	535.0	0.3	1.6	30879.6	32600.7	99.7	98.4
Other economic activities										
Construction	…	2777.8	…	–	…	–	…	2777.8	…	100

3.23. EXPORTS OF INNOVATIVE GOODS AND SERVICES BY COUNTRY AND BY ECONOMIC ACTIVITY

	Exports of goods and services, *million roubles*		CIS countries				Other foreign countries			
			Million roubles		Per cent		Million roubles		Per cent	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**953877.4**	**845257.7**	**105402.5**	**184233.6**	**11.0**	**21.8**	**848474.9**	**661024.1**	**89.0**	**78.2**
Mining and quarrying	533283.7	212123.4	11229.6	13953.5	2.1	6.6	522054.0	198169.9	97.9	93.4
Mining and quarrying of energy producing materials	525142.6	206547.3	11124.2	13860.3	2.1	6.7	514018.4	192687.0	97.9	93.3
Mining and quarrying, except energy producing materials	8141.1	5576.1	105.4	93.1	1.3	1.7	8035.7	5482.9	98.7	98.3
Manufacturing	420591.3	633129.3	94172.7	170280.1	22.4	26.9	326418.5	462849.2	77.6	73.1
High tech	58219.6	75520.7	807.6	3975.3	1.4	5.3	57412.0	71545.4	98.6	94.7
Manufacture of pharmaceuticals and pharmaceutical products	503.4	221.4	470.6	185.2	93.5	83.7	32.8	36.2	6.5	16.3
Manufacture of office machinery and computers	39.4	1366.5	10.5	–	26.6	–	28.9	1366.5	73.4	100
Manufacture of radio, television and communication equipment and apparatus	4017.7	6812.8	143.0	364.7	3.6	5.4	3874.7	6448.1	96.4	94.6
Manufacture of medical products; measuring, moni-toring, testing and control instruments and appli-ances; optical instruments, photographic and cine equipment; watches and clocks	1080.5	1133.2	178.3	89.4	16.5	7.9	902.2	1043.8	83.5	92.1
Manufacture of aircraft, including spacecraft	52578.7	65986.8	5.2	3336.0	0.01	5.1	52573.5	62650.9	100	94.9
Medium high tech	95045.1	96733.3	32972.6	31785.2	34.7	32.9	62072.4	64948.1	65.3	67.1
Manufacture of chemicals and chemical products	49072.8	60650.2	8184.0	7252.0	16.7	12.0	40888.8	53398.2	83.3	88.0
Manufacture of machinery and equipment	3479.8	2865.7	718.1	1357.6	20.6	47.4	2761.7	1508.1	79.4	52.6

(continued)

	Exports of goods and services, *million roubles*		CIS countries				Other foreign countries			
			Million roubles		Per cent		Million roubles		Per cent	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	1253.5	945.7	587.3	744.7	46.9	78.7	666.2	201.0	53.1	21.3
Manufacture of motor vehicles, trailers and semi-trailers	37038.8	31105.5	19566.5	21512.8	52.8	69.2	17472.3	9592.6	47.2	30.8
Manufacture of other transport vehicles	4200.2	1166.2	3916.7	918.0	93.3	78.7	283.4	248.2	6.7	21.3
Medium low tech	195297.0	318078.8	35419.6	61663.2	18.1	19.4	159877.4	256415.5	81.9	80.6
Manufacture of coke and refined petroleum products	149305.7	232321.9	20663.0	46024.6	13.8	19.8	128642.7	186297.3	86.2	80.2
Manufacture of rubber and plastic products	1389.6	1232.2	1063.4	919.4	76.5	74.6	326.2	312.8	23.5	25.4
Manufacture of other non-metallic mineral products	3979.7	4860.5	3678.3	2194.8	92.4	45.2	301.4	2665.7	7.6	54.8
Manufacture of basic metals	38953.4	60675.4	9852.3	11486.4	25.3	18.9	29101.1	49189.0	74.7	81.1
Manufacture of fabricated metal products	450.8	11750.4	154.4	1037.9	34.2	8.8	296.4	10712.5	65.8	91.2
Building and repair of ships and boats	1217.9	7238.2	8.2	–	0.7	–	1209.6	7238.2	99.3	100
Low tech	24718.4	90195.1	13538.2	66750.6	54.8	74.0	11180.2	23444.4	45.2	26.0
Manufacture of food products, including beverages	13073.8	59840.2	10511.0	59052.3	80.4	98.7	2562.7	787.9	19.6	1.3
Manufacture of tobacco products	1424.6	6340.0	1317.0	6249.8	92.5	98.6	107.5	90.2	7.5	1.4
Manufacture of textiles	129.7	383.0	85.9	76.8	66.2	20.0	43.8	306.2	33.8	80.0
Manufacture of wearing apparel, dressing and dyeing of fur	11.2	26.7	5.6	22.0	49.9	82.4	5.6	4.7	50.1	17.6
Manufacture of leather, leather products and footwear	3.1	1.3	3.1	1.1	100	86.2	–	0.2	–	13.8
Woodworking and manufacture of wood and of products of wood and cork, except furniture	3765.0	10522.2	409.6	578.5	10.9	5.5	3355.3	9943.7	89.1	94.5

(continued)

	Exports of goods and services, *million roubles*		CIS countries				Other foreign countries			
			Million roubles		Per cent		Million roubles		Per cent	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	5128.4	10374.7	1039.7	671.3	20.3	6.5	4088.7	9703.5	79.7	93.5
Publishing and printing activities, reproduction of recorded media	972.0	2229.6	–	–	–	–	972.0	2229.6	100	100
Manufacture of furniture and other products n.e.c.	210.6	477.3	166.2	98.8	78.9	20.7	44.3	378.5	21.1	79.3
Recycling of secondary raw materials	0.1	–	–	–	–	–	0.1	–	100	–
Manufacture of other materials and substances n.e.c.	47311.2	52601.5	11434.7	6105.7	24.2	11.6	35876.5	46495.7	75.8	88.4
Electricity, gas and water supply	2.5	5.0	0.1	–	5.9	–	2.4	5.0	94.1	100
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Total	**55605.0**	**60761.4**	**1700.9**	**4880.9**	**3.1**	**8.0**	**53904.0**	**55880.5**	**96.9**	**92.0**
Communication	0.2	–	0.01	–	4.2	–	0.2	–	95.8	–
Computer and information technology-related activities	9459.2	13995.2	816.2	549.9	8.6	3.9	8643.0	13445.3	91.4	96.1
Research and development	46046.0	46231.2	874.3	4314.2	1.9	9.3	45171.6	41917.0	98.1	90.7
Other services of the business economy	99.7	535.0	10.4	16.8	10.5	3.1	89.3	518.2	89.5	96.9

3.24. ENTERPRISES ENGAGED IN TECHNOLOGY EXCHANGE AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

	Enterprises acquiring new technology				Enterprises transferring new technology			
	engaged in technological innovation		not engaged in technological innovation		engaged in technological innovation		not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**79.1**	**77.7**	**20.9**	**22.3**	**76.9**	**77.2**	**23.1**	**22.8**
Mining and quarrying	63.0	61.8	37.0	38.2	100	100	–	–
Mining and quarrying of energy producing materials	63.6	66.7	36.4	33.3	100	100	–	–
Mining and quarrying, except energy producing materials	61.5	50.0	38.5	50.0	–	–	–	–
Manufacturing	82.7	78.8	17.3	21.2	75.3	79.2	24.7	20.8
High tech	95.1	87.7	4.9	12.3	85.7	74.1	14.3	25.9
Manufacture of pharmaceuticals and pharmaceutical products	87.5	77.3	12.5	22.7	100	33.3	–	66.7
Manufacture of office machinery and computers	100	57.1	–	42.9	100	50.0	–	50.0
Manufacture of radio, television and communication equipment and apparatus	93.2	94.4	6.8	5.6	77.8	90.9	22.2	9.1
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	95.4	88.0	4.6	12.0	85.7	70.0	14.3	30.0
Manufacture of aircraft, including spacecraft	100	93.5	–	6.5	100	100	–	–
Medium high tech	85.3	82.4	14.7	17.6	65.0	83.3	35.0	16.7
Manufacture of chemicals and chemical products	96.2	89.7	3.8	10.3	66.7	50.0	33.3	50.0

(continued)

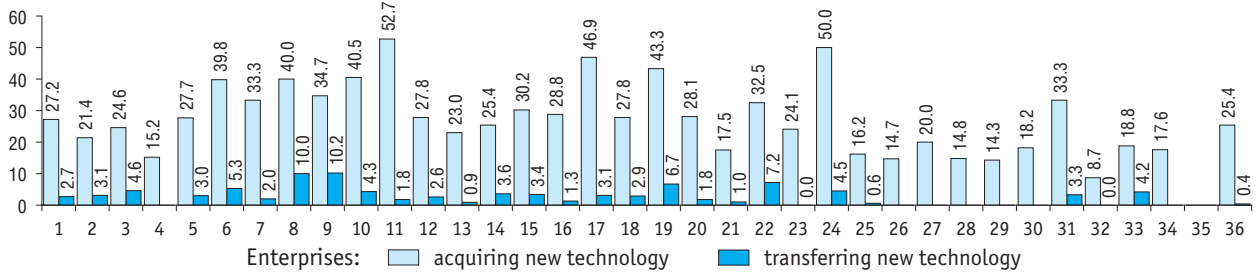
	Enterprises acquiring new technology				Enterprises transferring new technology			
	engaged in technological innovation		not engaged in technological innovation		engaged in technological innovation		not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of machinery and equipment	84.1	75.8	15.9	24.2	75.0	100	25.0	–
Manufacture of electrical machinery and apparatus	85.0	88.2	15.0	11.8	62.5	71.4	37.5	28.6
Manufacture of motor vehicles, trailers and semi-trailers	88.5	82.1	11.5	17.9	100	100	–	–
Manufacture of other transport vehicles	68.8	78.9	31.3	21.1	–	100	100	–
Medium low tech	75.8	76.1	24.2	23.9	70.6	78.6	29.4	21.4
Manufacture of coke and refined petroleum products	91.7	86.7	8.3	13.3	100	100	–	–
Manufacture of rubber and plastic products	63.6	80.0	36.4	20.0	50.0	100	50.0	–
Manufacture of other non-metallic mineral products	77.4	64.3	22.6	35.7	50.0	50.0	50.0	50.0
Manufacture of basic metals	76.5	77.1	23.5	22.9	85.7	75.0	14.3	25.0
Manufacture of fabricated metal products	76.3	71.4	23.7	28.6	60.0	–	40.0	–
Building and repair of ships and boats	75.0	91.7	25.0	8.3	–	100	–	–
Low tech	69.1	61.2	30.9	38.8	50.0	60.0	50.0	40.0
Manufacture of food products, including beverages	73.6	67.7	26.4	32.3	50.0	–	50.0	100
Manufacture of tobacco products	100	100	–	–	–	–	–	–
Manufacture of textiles	40.0	66.7	60.0	33.3	–	–	100	–
Manufacture of wearing apparel, dressing and dyeing of fur	66.7	100	33.3	–	–	–	–	–
Manufacture of leather, leather products and footwear	100	100	–	–	–	–	–	–

(continued)

	Enterprises acquiring new technology				Enterprises transferring new technology			
	engaged in technological innovation		not engaged in technological innovation		engaged in technological innovation		not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015	2014	2015
Woodworking and manufacture of wood and of products of wood and cork, except furniture	100	90.9	–	9.1	100	100	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	83.3	50.0	16.7	50.0	–	–	–	100
Publishing and printing activities, reproduction of recorded media	50.0	36.0	50.0	64.0	–	–	–	–
Manufacture of furniture and other products n.e.c.	62.5	46.2	37.5	53.8	–	–	–	–
Recycling of secondary raw materials	50.0	–	50.0	100	–	–	–	–
Electricity, gas and water supply	63.7	75.8	36.3	24.2	100	25.0	–	75.0
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Total	**61.6**	**58.7**	**38.4**	**41.3**	**76.1**	**72.6**	**23.9**	**27.4**
Communication	71.7	46.7	28.3	53.3	100	100	–	–
Computer and information technology-related activities	57.3	58.2	42.7	41.8	75.0	69.8	25.0	30.2
Research and development	79.7	75.8	20.3	24.2	77.8	74.7	22.2	25.3
Other services of the business economy	42.2	45.8	57.8	54.2	60.9	54.2	39.1	45.8
Other economic activities								
Construction	…	66.7	…	33.3	…	–	…	100

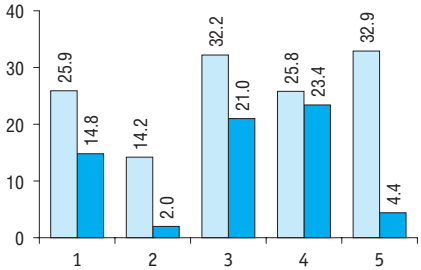
3.25. ENTERPRISES ENGAGED IN TECHNOLOGY EXCHANGE AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY: 2015

Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
  3 – Mining and quarrying of energy producing materials
  4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
  6 – High tech
    7 – Manufacture of pharmaceuticals and pharmaceutical products
    8 – Manufacture of office machinery and computers
    9 – Manufacture of radio, television and communication equipment and apparatus
    10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
    11 – Manufacture of aircraft, including spacecraft
  12 – Medium high tech
    13 – Manufacture of chemicals and chemical products
    14 – Manufacture of machinery and equipment
    15 – Manufacture of electrical machinery and apparatus
    16 – Manufacture of motor vehicles, trailers and semi-trailers
    17 – Manufacture of other transport vehicles
  18 – Medium low tech
    19 – Manufacture of coke and refined petroleum products
    20 – Manufacture of rubber and plastic products
    21 – Manufacture of other non-metallic mineral products
    22 – Manufacture of basic metals
    23 – Manufacture of fabricated metal products
    24 – Building and repair of ships and boats
  25 – Low tech
    26 – Manufacture of food products, including beverages
    27 – Manufacture of tobacco products
    28 – Manufacture of textiles
    29 – Manufacture of wearing apparel, dressing and dyeing of fur
    30 – Manufacture of leather, leather products and footwear
    31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
    32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
    33 – Publishing and printing activities, reproduction of recorded media
    34 – Manufacture of furniture and other products n.e.c.
    35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total
2 – Communication
3 – Computer and information technology-related activities
4 – Research and development
5 – Other services of the business economy

Enterprises: acquiring new technology transferring new technology

3.26. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION ACQUIRING TECHNOLOGY OUTSIDE RUSSIA BY ECONOMIC ACTIVITY

	Enterprises acquiring new technology outside Russia as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	total		from CIS countries		from other foreign countries	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**36.2**	**35.6**	**4.9**	**5.5**	**31.3**	**30.2**
Mining and quarrying	24.1	23.8	–	–	24.1	23.8
Mining and quarrying of energy producing materials	19.0	6.3	–	–	19.0	6.3
Mining and quarrying, except energy producing materials	37.5	80.0	–	–	37.5	80.0
Manufacturing	40.9	40.4	5.4	6.3	35.4	34.2
High tech	38.7	42.0	6.5	8.0	32.3	34.0
Manufacture of pharmaceuticals and pharmaceutical products	42.9	41.2	–	11.8	42.9	29.4
Manufacture of office machinery and computers	–	75.0	–	–	–	75.0
Manufacture of radio, television and communication equipment and apparatus	29.3	26.5	4.9	–	24.4	26.5
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	46.8	39.4	9.7	9.1	37.1	30.3
Manufacture of aircraft, including spacecraft	38.2	62.1	5.9	13.8	32.4	48.3
Medium high tech	38.1	30.8	5.4	3.8	32.7	27.0
Manufacture of chemicals and chemical products	40.0	34.6	4.0	7.7	36.0	26.9
Manufacture of machinery and equipment	39.7	30.0	8.6	6.0	31.0	24.0

(continued)

	Enterprises acquiring new technology outside Russia as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	total		from CIS countries		from other foreign countries	
	2014	2015	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	37.3	24.4	2.0	–	35.3	24.4
Manufacture of motor vehicles, trailers and semi-trailers	43.5	52.2	8.7	4.3	34.8	47.8
Manufacture of other transport vehicles	18.2	13.3	–	–	18.2	13.3
Medium low tech	45.1	47.6	6.2	6.7	38.9	41.0
Manufacture of coke and refined petroleum products	54.5	76.9	9.1	–	45.5	76.9
Manufacture of rubber and plastic products	64.3	62.5	14.3	6.3	50.0	56.3
Manufacture of other non-metallic mineral products	50.0	50.0	8.3	11.1	41.7	38.9
Manufacture of basic metals	38.5	44.4	7.7	14.8	30.8	29.6
Manufacture of fabricated metal products	44.8	35.0	–	–	44.8	35.0
Building and repair of ships and boats	11.1	18.2	–	–	11.1	18.2
Low tech	43.8	50.6	4.2	7.6	39.6	43.0
Manufacture of food products, including beverages	32.1	38.1	1.9	2.4	30.2	35.7
Manufacture of tobacco products	100	100	–	50.0	100	50.0
Manufacture of textiles	100	25.0	–	–	100	25.0
Manufacture of wearing apparel, dressing and dyeing of fur	50.0	50.0	–	–	50.0	50.0
Manufacture of leather, leather products and footwear	66.7	100	–	–	66.7	100

(continued)

	Enterprises acquiring new technology outside Russia as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	total		from CIS countries		from other foreign countries	
	2014	2015	2014	2015	2014	2015
Woodworking and manufacture of wood and of products of wood and cork, except furniture	66.7	80.0	22.2	10.0	44.4	70.0
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	60.0	100	–	–	60.0	100
Publishing and printing activities, reproduction of recorded media	40.0	33.3	6.7	11.1	33.3	22.2
Manufacture of furniture and other products n.e.c.	60.0	83.3	–	33.3	60.0	50.0
Recycling of secondary raw materials	100	–	–	–	100	–
Electricity, gas and water supply	4.2	4.2	2.8	1.4	1.4	2.8
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**20.9**	**20.2**	**2.7**	**1.8**	**18.2**	**18.4**
Communication	41.9	45.7	–	–	41.9	45.7
Computer and information technology-related activities	18.6	19.6	–	–	18.6	19.6
Research and development	22.2	20.9	3.8	3.1	18.4	17.8
Other services of the business economy	10.3	10.2	3.1	1.0	7.2	9.2

3.27. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION TRANSFERRING TECHNOLOGY OUTSIDE RUSSIA BY ECONOMIC ACTIVITY

	Enterprises transferring new technology outside Russia as a percentage of all enterprises engaged in technological innovation and technology transfer					
	total		to CIS countries		to other foreign countries	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**26.7**	**14.8**	**16.7**	**4.9**	**10.0**	**9.8**
Mining and quarrying	–	–	–	–	–	–
Mining and quarrying of energy producing materials	–	–	–	–	–	–
Mining and quarrying, except energy producing materials	–	–	–	–	–	–
Manufacturing	27.3	14.0	18.2	5.3	9.1	8.8
High tech	27.8	20.0	22.2	10.0	5.6	10.0
Manufacture of pharmaceuticals and pharmaceutical products	–	–	–	–	–	–
Manufacture of office machinery and computers	50.0	100	50.0	100	–	–
Manufacture of radio, television and communication equipment and apparatus	14.3	20.0	–	–	14.3	20.0
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	33.3	14.3	33.3	14.3	–	–
Manufacture of aircraft, including spacecraft	50.0	–	50.0	–	–	–
Medium high tech	30.8	13.3	15.4	6.7	15.4	6.7
Manufacture of chemicals and chemical products	–	–	–	–	–	–
Manufacture of machinery and equipment	33.3	–	33.3	–	–	–

(continued)

	Enterprises transferring new technology outside Russia as a percentage of all enterprises engaged in technological innovation and technology transfer					
	total		to CIS countries		to other foreign countries	
	2014	2015	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	20.0	20.0	–	20.0	20.0	–
Manufacture of motor vehicles, trailers and semi-trailers	66.7	100	33.3	–	33.3	100
Manufacture of other transport vehicles	–	–	–	–	–	–
Medium low tech	25.0	9.1	8.3	–	16.7	9.1
Manufacture of coke and refined petroleum products	–	–	–	–	–	–
Manufacture of rubber and plastic products	–	–	–	–	–	–
Manufacture of other non-metallic mineral products	–	100	–	–	–	100
Manufacture of basic metals	33.3	–	16.7	–	16.7	–
Manufacture of fabricated metal products	33.3	–	–	–	33.3	–
Building and repair of ships and boats	–	–	–	–	–	–
Low tech	–	–	–	–	–	–
Manufacture of food products, including beverages	–	–	–	–	–	–
Manufacture of tobacco products	–	–	–	–	–	–
Manufacture of textiles	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	–	–	–	–
Manufacture of leather, leather products and footwear	–	–	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	–	–	–	–	–	–

(continued)

	Enterprises transferring new technology outside Russia as a percentage of all enterprises engaged in technological innovation and technology transfer					
	total		to CIS countries		to other foreign countries	
	2014	2015	2014	2015	2014	2015
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	–	–	–	–	–	–
Publishing and printing activities, reproduction of recorded media	–	–	–	–	–	–
Manufacture of furniture and other products n.e.c.	–	–	–	–	–	–
Recycling of secondary raw materials	–	–	–	–	–	–
Electricity, gas and water supply	33.3	100	–	–	33.3	100
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**17.8**	**17.3**	**7.5**	**3.6**	**10.3**	**13.8**
Communication	–	–	–	–	–	–
Computer and information technology-related activities	20.0	23.3	10.0	3.3	10.0	20.0
Research and development	17.9	16.2	6.5	3.4	11.3	12.8
Other services of the business economy	14.3	23.1	14.3	7.7	–	15.4

3.28. FORMS OF TECHNOLOGY ACQUISITION BY ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY: 2015

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	patent rights, licence to use inventions, industrial designs and utility models	R&D results	know-how, technology transfer agreements	purchase of equipment	targeted hiring of skilled personnel	other
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**17.9**	**16.1**	**3.9**	**66.8**	**12.1**	**16.5**
Mining and quarrying	9.5	42.9	4.8	52.4	9.5	23.8
Mining and quarrying of energy producing materials	12.5	50.0	–	50.0	6.3	31.3
Mining and quarrying, except energy producing materials	–	20.0	20.0	60.0	20.0	–
Manufacturing	19.0	14.6	4.2	67.9	13.5	15.0
High tech	22.0	15.3	4.0	70.0	24.0	18.0
Manufacture of pharmaceuticals and pharmaceutical products	47.1	23.5	5.9	47.1	5.9	5.9
Manufacture of office machinery and computers	25.0	25.0	–	100	–	–
Manufacture of radio, television and communication equipment and apparatus	11.8	14.7	5.9	76.5	44.1	17.6
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	21.2	16.7	3.0	65.2	22.7	21.2
Manufacture of aircraft, including spacecraft	20.7	6.9	3.4	82.8	17.2	20.7
Medium high tech	20.1	17.6	3.8	66.0	8.2	8.2
Manufacture of chemicals and chemical products	23.1	34.6	–	65.4	3.8	11.5

(continued)

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	patent rights, licence to use inventions, industrial designs and utility models	R&D results	know-how, technology transfer agreements	purchase of equipment	targeted hiring of skilled personnel	other
Manufacture of machinery and equipment	20.0	16.0	–	70.0	10.0	10.0
Manufacture of electrical machinery and apparatus	24.4	6.7	6.7	62.2	8.9	6.7
Manufacture of motor vehicles, trailers and semi-trailers	13.0	30.4	4.3	60.9	–	4.3
Manufacture of other transport vehicles	13.3	6.7	13.3	73.3	20.0	6.7
Medium low tech	17.1	17.1	6.7	56.2	11.4	22.9
Manufacture of coke and refined petroleum products	30.8	30.8	23.1	30.8	7.7	53.8
Manufacture of rubber and plastic products	18.8	6.3	6.3	68.8	6.3	12.5
Manufacture of other non-metallic mineral products	5.6	5.6	–	77.8	5.6	5.6
Manufacture of basic metals	18.5	18.5	3.7	44.4	18.5	33.3
Manufacture of fabricated metal products	20.0	15.0	10.0	70.0	15.0	15.0
Building and repair of ships and boats	9.1	36.4	–	36.4	9.1	18.2
Low tech	11.4	5.1	1.3	81.0	6.3	11.4
Manufacture of food products, including beverages	9.5	2.4	–	88.1	7.1	4.8
Manufacture of tobacco products	–	–	–	100	–	–
Manufacture of textiles	–	25.0	–	75.0	25.0	25.0
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	–	100	–	–
Manufacture of leather, leather products and footwear	–	–	–	100	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	20.0	–	–	90.0	10.0	–

(continued)

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	patent rights, licence to use inventions, industrial designs and utility models	R&D results	know-how, technology transfer agreements	purchase of equipment	targeted hiring of skilled personnel	other
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	50.0	–	–	50.0	–	50.0
Publishing and printing activities, reproduction of recorded media	22.2	–	–	55.6	–	22.2
Manufacture of furniture and other products n.e.c.	–	33.3	16.7	50.0	–	50.0
Recycling of secondary raw materials	–	–	–	–	–	–
Electricity, gas and water supply	12.5	19.4	1.4	62.5	2.8	25.0
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**30.4**	**14.6**	**4.1**	**45.0**	**18.4**	**25.4**
Communication	8.6	5.7	–	71.4	2.9	20.0
Computer and information technology-related activities	37.0	17.4	–	37.0	19.6	30.4
Research and development	30.1	22.7	6.1	51.5	25.8	19.0
Other services of the business economy	35.7	3.1	4.1	28.6	11.2	35.7
Other economic activities						
Construction	–	–	–	50.0	–	50.0

3.29. FORMS OF TECHNOLOGY TRANSFER AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY: 2015

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	patent rights licence to use inventions, industrial designs and utility models	R&D results	know-how, technology transfer agreements	sale of equipment	targeted hiring of skilled personnel	other
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**37.7**	**29.5**	**14.8**	**21.3**	**6.6**	**16.4**
Mining and quarrying	100	–	–	–	–	–
Mining and quarrying of energy producing materials	100	–	–	–	–	–
Mining and quarrying, except energy producing materials	–	–	–	–	–	–
Manufacturing	35.1	31.6	15.8	22.8	7.0	15.8
High tech	15.0	50.0	15.0	20.0	10.0	10.0
Manufacture of pharmaceuticals and pharmaceutical products	100	100	–	–	–	100
Manufacture of office machinery and computers	–	100	–	100	–	–
Manufacture of radio, television and communication equipment and apparatus	10.0	50.0	10.0	20.0	–	10.0
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	14.3	28.6	28.6	14.3	28.6	–
Manufacture of aircraft, including spacecraft	–	100	–	–	–	–

(continued)

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	patent rights licence to use inventions, industrial designs and utility models	R&D results	know-how, technology transfer agreements	sale of equipment	targeted hiring of skilled personnel	other
Medium high tech	40.0	26.7	20.0	33.3	–	13.3
Manufacture of chemicals and chemical products	100	–	–	–	–	–
Manufacture of machinery and equipment	28.6	28.6	–	57.1	–	–
Manufacture of electrical machinery and apparatus	40.0	40.0	40.0	20.0	–	20.0
Manufacture of motor vehicles, trailers and semi-trailers	100	–	100	–	–	–
Manufacture of other transport vehicles	–	–	–	–	–	100
Medium low tech	45.5	9.1	9.1	9.1	9.1	45.5
Manufacture of coke and refined petroleum products	50.0	–	–	–	50.0	100
Manufacture of rubber and plastic products	100	–	–	–	–	100
Manufacture of other non-metallic mineral products	–	–	–	100	–	–
Manufacture of basic metals	50.0	16.7	16.7	–	–	16.7
Manufacture of fabricated metal products						
Building and repair of ships and boats	–	–	–	–	–	100
Low tech	33.3	66.7	–	33.3	33.3	–
Manufacture of food products, including beverages	–	–	–	–	–	–
Manufacture of tobacco products	–	–	–	–	–	–
Manufacture of textiles	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	–	–	–	–
Manufacture of leather, leather products and footwear	–	–	–	–	–	–

(continued)

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	patent rights licence to use inventions, industrial designs and utility models	R&D results	know-how, technology transfer agreements	sale of equipment	targeted hiring of skilled personnel	other
Woodworking and manufacture of wood and of products of wood and cork, except furniture	–	–	–	–	100	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	–	–	–	–	–	–
Publishing and printing activities, reproduction of recorded media	50.0	100	–	50.0	–	–
Manufacture of furniture and other products n.e.c.	–	–	–	–	–	–
Recycling of secondary raw materials	–	–	–	–	–	–
Electricity, gas and water supply	–	–	–	–	–	100
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**28.1**	**64.3**	**11.7**	**9.7**	**0.5**	**12.8**
Communication	40.0	–	–	–	–	60.0
Computer and information technology-related activities	23.3	40.0	–	20.0	–	30.0
Research and development	29.1	75.0	13.5	7.4	0.7	5.4
Other services of the business economy	23.1	23.1	23.1	15.4	–	38.5

3.30. TECHNOLOGY ACQUISITION AND TRANSFER BY ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION: 2015

	Number of technologies acquired	Of which from outside Russia			Number of technologies transferred	Of which outside Russia		
		total	from CIS countries	from other foreign countries		total	to CIS countries	to other foreign countries
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**7368**	**1716**	**104**	**1612**	**664**	**59**	**9**	**50**
Patent rights and licence to use inventions, industrial designs and utility models	720	187	13	174	160	–	–	–
R&D results	929	224	33	191	113	7	–	7
Know-how, agreements on technology transfer	168	15	–	15	21	8	7	1
Purchase (sale) of equipment	3826	1174	34	1140	320	42	2	40
Targeted hiring (transfer) of skilled personnel	791	30	22	8	13	–	–	–
Other	934	86	2	84	37	2	–	2
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Total	**8858**	**1272**	**120**	**1152**	**5744**	**95**	**19**	**76**
Patent rights and licence to use inventions, industrial designs and utility models	1744	141	11	130	1579	15	2	13
R&D results	1294	10	1	9	3207	64	13	51
Know-how, agreements on technology transfer	53	1	–	1	161	3	–	3
Purchase (sale) of equipment	2252	498	106	392	570	6	–	6
Targeted hiring (transfer) of skilled personnel	1437	13	2	11	92	–	–	–
Other	2078	609	–	609	135	7	4	3

3.31. ENTERPRISES ENGAGED IN JOINT R&D PROJECTS: 2015

	Enterprises engaged in joint R&D projects					Joint R&D projects of enterprises				
	total	engaged in technological innovation		not engaged in technological innovation		total	engaged in technological innovation		not engaged in technological innovation	
		number	per cent	number	per cent		number	per cent	number	per cent
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**888**	**722**	**81.3**	**166**	**18.7**	**8263**	**7272**	**88.0**	**991**	**12.0**
Of which with partners from:										
Russia	827	677	81.9	150	18.1	7581	6656	87.8	925	12.2
CIS countries	59	47	79.7	12	20.3	153	131	85.6	22	14.4
EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	133	114	85.7	19	14.3	436	408	93.6	28	6.4
USA and Canada	32	31	96.9	1	3.1	72	71	98.6	1	1.4
India and China	35	33	94.3	2	5.7	60	51	85.0	9	15.0
Other countries	60	48	80.0	12	20.0	142	113	79.6	29	20.4
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Total	**883**	**548**	**62.1**	**335**	**37.9**	**20470**	**14511**	**70.9**	**5959**	**29.1**
Of which with partners from:										
Russia	838	524	62.5	314	37.5	19264	13794	71.6	5470	28.4
CIS countries	121	84	69.4	37	30.6	238	170	71.4	68	28.6
EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	150	93	62.0	57	38.0	480	289	60.2	191	39.8
USA and Canada	81	48	59.3	33	40.7	196	99	50.5	97	49.5
India and China	87	55	63.2	32	36.8	163	92	56.4	71	43.6
Other countries	126	81	64.3	45	35.7	319	208	65.2	111	34.8

* Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro.

3.32. ENTERPRISES TAKING PART IN JOINT R&D PROJECTS BY ECONOMIC ACTIVITY

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of all enterprises engaged in technological innovation		as a percentage of all enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**3.8**	**3.7**	**32.2**	**31.6**	**0.8**	**0.8**
Mining and quarrying	3.9	3.8	38.1	38.8	1.5	1.6
Mining and quarrying of energy producing materials	4.4	4.5	37.5	44.6	1.8	1.9
Mining and quarrying, except energy producing materials	3.1	2.7	39.4	27.3	1.1	1.3
Manufacturing	4.8	4.8	33.2	33.0	0.9	0.9
High tech	16.4	17.4	47.5	49.6	2.6	3.3
Manufacture of pharmaceuticals and pharmaceutical products	8.5	11.9	26.0	25.5	2.2	6.4
Manufacture of office machinery and computers	13.6	13.0	40.0	40.0	5.9	5.6
Manufacture of radio, television and communication equipment and apparatus	20.8	20.0	54.3	53.1	3.5	3.6
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	14.3	15.9	44.5	50.3	2.0	2.2
Manufacture of aircraft, including spacecraft	25.7	25.5	64.3	65.5	3.1	3.1
Medium high tech	7.1	6.9	34.0	34.3	1.5	1.6
Manufacture of chemicals and chemical products	11.0	10.8	41.0	39.8	3.7	2.9
Manufacture of machinery and equipment	5.7	5.8	33.2	34.0	1.0	1.6

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of all enterprises engaged in technological innovation		as a percentage of all enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Manufacture of electrical machinery and apparatus	7.6	7.5	29.4	28.9	1.3	1.4
Manufacture of motor vehicles, trailers and semi-trailers	9.2	8.1	35.6	36.3	1.4	0.9
Manufacture of other transport vehicles	4.3	3.7	34.2	37.5	0.6	0.8
Medium low tech	4.7	4.3	33.4	31.7	1.2	0.9
Manufacture of coke and refined petroleum products	17.7	15.1	65.4	66.7	3.4	0.9
Manufacture of rubber and plastic products	3.3	2.8	24.1	21.1	1.1	0.8
Manufacture of other non-metallic mineral products	2.6	2.5	25.0	21.4	0.7	0.8
Manufacture of basic metals	13.8	13.5	57.0	51.8	3.4	3.0
Manufacture of fabricated metal products	2.7	1.9	18.8	16.9	0.8	0.4
Building and repair of ships and boats	7.5	6.3	40.9	40.9	2.2	0.7
Low tech	1.2	1.1	14.9	12.7	0.3	0.2
Manufacture of food products, including beverages	1.9	1.4	14.1	10.8	0.5	0.3
Manufacture of tobacco products	10.5	9.5	28.6	20.0	–	–
Manufacture of textiles	1.5	2.1	14.3	14.8	0.4	0.5
Manufacture of wearing apparel, dressing and dyeing of fur	2.7	1.8	33.3	28.6	0.5	–
Manufacture of leather, leather products and footwear	1.8	2.0	15.4	18.2	–	–

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of all enterprises engaged in technological innovation		as a percentage of all enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Woodworking and manufacture of wood and of products of wood and cork, except furniture	1.4	1.8	19.2	16.7	0.2	0.5
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	3.9	2.2	29.6	13.0	0.5	1.0
Publishing and printing activities, reproduction of recorded media	0.2	0.4	8.6	14.6	0.04	0.1
Manufacture of furniture and other products n.e.c.	0.8	0.9	8.3	8.8	–	–
Recycling of secondary raw materials	–	0.4	–	25.0	–	–
Electricity, gas and water supply	1.2	1.0	23.0	20.1	0.2	0.2
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**5.0**	**4.5**	**43.0**	**41.5**	**1.9**	**1.8**
Communication	2.5	2.0	16.9	13.0	0.8	0.6
Computer and information technology-related activities	3.3	3.2	26.8	28.7	1.2	1.2
Research and development	31.0	31.5	66.8	66.7	14.4	16.3
Other services of the business economy	1.0	0.9	16.1	17.8	0.6	0.5

3.33. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AND JOINT R&D PROJECTS BY PARTNER COUNTRY BY ECONOMIC ACTIVITY

	Percentage distribution of enterprises taking part in joint R&D projects by partner country											
	Russia		CIS countries		EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland		USA and Canada		India and China		other	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply												
Total	**94.1**	**93.8**	**7.6**	**6.5**	**18.7**	**15.8**	**3.7**	**4.3**	**3.7**	**4.6**	**4.7**	**6.6**
Mining and quarrying	95.0	97.4	5.0	–	15.0	2.6	–	2.6	–	2.6	–	7.9
Mining and quarrying of energy producing materials	100	100	–	–	11.1	–	–	3.4	–	–	–	3.4
Mining and quarrying, except energy producing materials	84.6	88.9	15.4	–	23.1	11.1	–	–	–	11.1	–	22.2
Manufacturing	93.6	93.1	8.4	7.3	20.4	17.5	4.1	4.8	4.1	5.1	5.2	7.2
High tech	96.2	96.3	8.7	7.0	7.1	10.2	–	3.2	2.2	3.2	3.3	4.3
Manufacture of pharmaceuticals and pharmaceutical products	92.3	84.6	30.8	23.1	–	23.1	–	7.7	–	–	–	–
Manufacture of office machinery and computers	100	75.0	–	–	–	25.0	–	–	–	–	–	–
Manufacture of radio, television and communication equipment and apparatus	98.2	98.1	5.3	5.8	5.3	5.8	–	1.9	–	1.9	3.5	3.8
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	94.5	96.3	8.2	7.3	8.2	8.5	–	4.9	2.7	4.9	1.4	2.4
Manufacture of aircraft, including spacecraft	97.2	100	8.3	2.8	11.1	13.9	–	–	5.6	2.8	8.3	11.1
Medium high tech	92.2	92.3	8.3	9.2	26.7	19.9	4.9	5.1	7.8	7.7	4.9	8.7
Manufacture of chemicals and chemical products	90.7	93.3	9.3	4.4	41.9	20.0	11.6	4.4	4.7	2.2	4.7	11.1

* Here and elsewhere in the table: Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro.

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner country											
	Russia		CIS countries		EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland		USA and Canada		India and China		other	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of machinery and equipment	95.9	91.0	10.8	13.4	18.9	16.4	4.1	4.5	5.4	6.0	2.7	6.0
Manufacture of electrical machinery and apparatus	95.6	93.0	6.7	7.0	17.8	16.3	2.2	2.3	8.9	11.6	4.4	7.0
Manufacture of motor vehicles, trailers and semi-trailers	83.9	89.7	6.5	6.9	35.5	24.1	3.2	10.3	16.1	10.3	9.7	17.2
Manufacture of other transport vehicles	84.6	100	–	16.7	30.8	41.7	–	8.3	7.7	16.7	7.7	–
Medium low tech	93.1	92.5	9.2	5.0	25.4	19.2	9.2	7.5	3.1	3.3	8.5	8.3
Manufacture of coke and refined petroleum products	100	100	–	–	41.2	25.0	29.4	15.0	–	–	5.9	10.0
Manufacture of rubber and plastic products	92.9	100	7.1	–	14.3	33.3	–	–	–	–	7.1	–
Manufacture of other non-metallic mineral products	77.8	77.3	11.1	9.1	29.6	22.7	3.7	4.5	3.7	–	7.4	9.1
Manufacture of basic metals	95.6	95.3	11.1	7.0	26.7	14.0	11.1	9.3	–	2.3	8.9	9.3
Manufacture of fabricated metal products	100	85.7	5.6	–	16.7	14.3	–	–	11.1	14.3	11.1	7.1
Building and repair of ships and boats	100	100	22.2	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
Low tech	86.7	80.6	4.0	4.8	30.7	30.6	4.0	1.6	1.3	1.6	4.0	9.7
Manufacture of food products, including beverages	90.5	83.9	2.4	3.2	26.2	22.6	2.4	–	–	–	4.8	6.5
Manufacture of tobacco products	50.0	–	–	–	100	100	–	–	–	–	–	–
Manufacture of textiles	100	100	–	–	66.7	50.0	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	100	100	20.0	25.0	–	–	–	–	–	–	–	25.0
Manufacture of leather, leather products and footwear	100	50.0	–	–	50.0	100	–	–	–	–	–	–

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner country											
	Russia		CIS countries		EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland		USA and Canada		India and China		other	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Woodworking and manufacture of wood and of products of wood and cork, except furniture	80.0	40.0	20.0	–	20.0	40.0	–	–	20.0	20.0	20.0	40.0
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	50.0	100	–	–	62.5	33.3	25.0	–	–	–	–	33.3
Publishing and printing activities, reproduction of recorded media	100	85.7	–	–	–	28.6	–	14.3	–	–	–	–
Manufacture of furniture and other products n.e.c.	100	100	–	33.3	33.3	33.3	–	–	–	–	–	–
Recycling of secondary raw materials	–	100	–	–	–	–	–	–	–	–	–	–
Electricity, gas and water supply	98.5	98.2	1.5	1.8	4.5	5.3	1.5	–	1.5	–	3.0	–
Communication, computer and information technology-related activities, research and development, other services of the business economy												
Total	**97.5**	**95.6**	**14.8**	**15.3**	**18.0**	**17.0**	**9.8**	**8.8**	**11.3**	**10.0**	**15.4**	**14.8**
Communication	97.1	96.9	–	–	14.3	9.4	–	–	2.9	15.6	31.4	34.4
Computer and information technology-related activities	93.9	90.2	3.0	7.3	6.1	12.2	15.2	12.2	9.1	7.3	6.1	2.4
Research and development	98.0	96.7	18.1	18.2	20.1	18.5	11.1	9.7	13.1	10.9	16.3	15.6
Other services of the business economy	96.0	90.6	4.0	7.5	10.0	13.2	2.0	3.8	2.0	1.9	2.0	5.7

3.34. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AND JOINT R&D PROJECTS BY TYPE OF PARTNER AND ECONOMIC ACTIVITY: 2015

	Enterprises engaged in technological innovation and joint R&D projects as a percentage of all enterprises by type of partner						
	Enterprises within the same group	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consulting firms and information organisations	R&D institutions	Higher education institutions
Mining and quarrying, manufacturing, electricity, gas and water supply							
Total	**33.7**	**24.2**	**41.8**	**6.8**	**12.2**	**45.8**	**27.0**
Mining and quarrying	52.6	–	50.0	7.9	10.5	60.5	7.9
Mining and quarrying of energy producing materials	55.2	–	51.7	6.9	3.4	58.6	6.9
Mining and quarrying, except energy producing materials	44.4	–	44.4	11.1	33.3	66.7	11.1
Manufacturing	34.3	27.6	39.9	7.2	12.3	45.9	29.3
High tech	42.8	36.4	32.6	8.6	4.8	46.0	32.6
Manufacture of pharmaceuticals and pharmaceutical products	30.8	38.5	23.1	–	–	61.5	7.7
Manufacture of office machinery and computers	25.0	25.0	75.0	–	–	25.0	25.0
Manufacture of radio, television and communication equipment and apparatus	32.7	40.4	19.2	7.7	3.8	40.4	28.8
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	53.7	35.4	34.1	8.5	3.7	50.0	32.9
Manufacture of aircraft, including spacecraft	38.9	33.3	47.2	13.9	11.1	41.7	47.2

(continued)

	Enterprises engaged in technological innovation and joint R&D projects as a percentage of all enterprises by type of partner						
	Enterprises within the same group	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consulting firms and information organisations	R&D institutions	Higher education institutions
Medium high tech	32.1	30.1	41.3	8.2	11.2	38.8	23.5
Manufacture of chemicals and chemical products	35.6	13.3	44.4	4.4	15.6	64.4	31.1
Manufacture of machinery and equipment	29.9	32.8	44.8	6.0	7.5	23.9	25.4
Manufacture of electrical machinery and apparatus	23.3	41.9	27.9	7.0	4.7	41.9	18.6
Manufacture of motor vehicles, trailers and semi-trailers	41.4	31.0	41.4	20.7	20.7	20.7	13.8
Manufacture of other transport vehicles	41.7	33.3	58.3	8.3	16.7	58.3	25.0
Medium low tech	32.5	11.7	32.5	4.2	16.7	59.2	37.5
Manufacture of coke and refined petroleum products	45.0	10.0	30.0	–	35.0	80.0	35.0
Manufacture of rubber and plastic products	25.0	16.7	41.7	8.3	8.3	50.0	16.7
Manufacture of other non-metallic mineral products	27.3	4.5	50.0	–	4.5	27.3	18.2
Manufacture of basic metals	30.2	9.3	25.6	7.0	18.6	76.7	60.5
Manufacture of fabricated metal products	42.9	28.6	35.7	–	7.1	42.9	7.1
Building and repair of ships and boats	22.2	11.1	11.1	11.1	22.2	44.4	55.6
Low tech	12.9	14.5	61.3	8.1	30.6	19.4	14.5
Manufacture of food products, including beverages	12.9	19.4	61.3	3.2	32.3	22.6	12.9
Manufacture of tobacco products	50.0	–	50.0	–	–	–	–
Manufacture of textiles	25.0	50.0	75.0	50.0	–	25.0	25.0
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	50.0	–	25.0	25.0	50.0
Manufacture of leather, leather products and footwear	50.0	–	50.0	–	50.0	–	50.0

(continued)

	Enterprises engaged in technological innovation and joint R&D projects as a percentage of all enterprises by type of partner						
	Enterprises within the same group	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consulting firms and information organisations	R&D institutions	Higher education institutions
Woodworking and manufacture of wood and of products of wood and cork, except furniture	20.0	–	60.0	–	20.0	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	–	–	66.7	–	66.7	33.3	–
Publishing and printing activities, reproduction of recorded media	–	14.3	57.1	28.6	42.9	14.3	14.3
Manufacture of furniture and other products n.e.c.	–	–	100	–	–	33.3	–
Recycling of secondary raw materials	–	–	–	–	100	–	–
Electricity, gas and water supply	14.0	3.5	57.9	1.8	12.3	35.1	14.0
Communication, computer and information technology-related activities, research and development, other services of the business economy							
Total	**34.7**	**42.3**	**36.3**	**16.2**	**8.0**	**59.9**	**40.0**
Communication	43.8	6.3	78.1	37.5	9.4	9.4	18.8
Computer and information technology-related activities	19.5	43.9	43.9	12.2	22.0	14.6	14.6
Research and development	36.7	46.7	31.5	15.4	5.9	72.7	46.9
Other services of the business economy	24.5	28.3	43.4	13.2	13.2	22.6	17.0

3.35. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AND JOINT R&D PROJECTS BY TYPE OF CO-OPERATION AND ECONOMIC ACTIVITY

	Enterprises engaged in technological innovation and joint R&D projects as a percentage of all enterprises by type of co-operation					
	Permanent co-operation		Co-operation within a specific project		One-time informal co-operation unrelated to any specific project	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**44.9**	**44.5**	**76.0**	**76.5**	**11.3**	**10.7**
Mining and quarrying	40.0	44.7	82.5	76.3	10.0	18.4
Mining and quarrying of energy producing materials	29.6	41.4	92.6	79.3	7.4	17.2
Mining and quarrying, except energy producing materials	61.5	55.6	61.5	66.7	15.4	22.2
Manufacturing	47.3	46.6	75.8	76.1	11.5	10.7
High tech	41.5	42.2	82.0	81.3	7.7	7.5
Manufacture of pharmaceuticals and pharmaceutical products	23.1	23.1	76.9	76.9	–	7.7
Manufacture of office machinery and computers	50.0	50.0	75.0	75.0	–	25.0
Manufacture of radio, television and communication equipment and apparatus	31.6	36.5	87.7	84.6	3.5	5.8
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	53.4	50.0	76.7	78.0	12.3	7.3
Manufacture of aircraft, including spacecraft	38.9	38.9	86.1	86.1	8.3	8.3

(continued)

	Enterprises engaged in technological innovation and joint R&D projects as a percentage of all enterprises by type of co-operation					
	Permanent co-operation		Co-operation within a specific project		One-time informal co-operation unrelated to any specific project	
	2014	2015	2014	2015	2014	2015
Medium high tech	52.4	51.0	72.8	74.0	14.1	13.8
Manufacture of chemicals and chemical products	48.8	46.7	79.1	82.2	14.0	15.6
Manufacture of machinery and equipment	55.4	56.7	74.3	68.7	16.2	16.4
Manufacture of electrical machinery and apparatus	42.2	39.5	75.6	76.7	8.9	11.6
Manufacture of motor vehicles, trailers and semi-trailers	54.8	48.3	67.7	72.4	16.1	10.3
Manufacture of other transport vehicles	76.9	83.3	46.2	66.7	15.4	8.3
Medium low tech	48.5	42.5	75.4	77.5	10.8	12.5
Manufacture of coke and refined petroleum products	52.9	50.0	88.2	85.0	11.8	15.0
Manufacture of rubber and plastic products	92.9	66.7	21.4	66.7	–	–
Manufacture of other non-metallic mineral products	25.9	31.8	74.1	68.2	25.9	22.7
Manufacture of basic metals	48.9	48.8	82.2	76.7	6.7	9.3
Manufacture of fabricated metal products	55.6	28.6	77.8	85.7	5.6	7.1
Building and repair of ships and boats	22.2	11.1	100	88.9	11.1	22.2
Low tech	37.3	41.9	64.0	61.3	9.3	8.1
Manufacture of food products, including beverages	38.1	38.7	61.9	64.5	9.5	6.5
Manufacture of tobacco products	100	100	50.0	–	–	–
Manufacture of textiles	66.7	75.0	33.3	25.0	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	20.0	25.0	80.0	100	20.0	–

(continued)

	Enterprises engaged in technological innovation and joint R&D projects as a percentage of all enterprises by type of co-operation					
	Permanent co-operation		Co-operation within a specific project		One-time informal co-operation unrelated to any specific project	
	2014	2015	2014	2015	2014	2015
Manufacture of leather, leather products and footwear	100	100	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	20.0	40.0	80.0	40.0	20.0	20.0
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	25.0	33.3	75.0	66.7	–	33.3
Publishing and printing activities, reproduction of recorded media	20.0	28.6	60.0	71.4	20.0	14.3
Manufacture of furniture and other products n.e.c.	33.3	33.3	100	100	–	–
Recycling of secondary raw materials	–	–	–	100	–	–
Electricity, gas and water supply	24.2	21.1	74.2	80.7	10.6	5.3
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**50.0**	**48.9**	**79.5**	**79.7**	**14.8**	**14.4**
Communication	68.6	65.6	45.7	43.8	5.7	–
Computer and information technology-related activities	45.5	48.8	72.7	73.2	6.1	14.6
Research and development	50.2	49.1	84.4	85.1	15.2	15.2
Other services of the business economy	38.0	37.7	64.0	64.2	24.0	17.0

3.36. JOINT R&D PROJECTS OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

	Joint R&D projects		Of which with partners from											
			Russia		CIS countries		EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland		USA and Canada		India and China		other	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply														
Total	**7273**	**7272**	**6658**	**6656**	**134**	**131**	**422**	**408**	**48**	**71**	**44**	**51**	**112**	**113**
Mining and quarrying	566	369	556	358	2	–	8	1	–	2	–	3	–	7
Mining and quarrying of energy producing materials	446	263	443	260	–	–	3	–	–	2	–	–	–	1
Mining and quarrying, except energy producing materials	120	106	113	98	2	–	5	1	–	–	–	3	–	6
Manufacturing	6474	6739	5876	6140	128	128	411	402	47	69	42	48	109	106
High tech	2166	1976	2104	1880	25	25	31	82	–	17	5	7	28	27
Manufacture of pharmaceuticals and pharmaceutical products	78	66	68	58	10	4	–	3	–	1	–	–	–	–
Manufacture of office machinery and computers	27	37	27	26	–	–	–	11	–	–	–	–	–	–
Manufacture of radio, television and communication equipment and apparatus	466	532	456	505	5	12	7	11	–	1	–	1	12	8
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	900	916	880	878	6	8	13	9	–	15	2	5	1	3
Manufacture of aircraft, including spacecraft	695	425	673	413	4	1	11	48	–	–	3	1	15	16

*Here and elsewhere in the table: Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro.

(continued)

	Joint R&D projects		Of which with partners from											
			Russia		CIS countries		EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland		USA and Canada		India and China		other	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Medium high tech	1896	2229	1618	1983	41	47	197	146	16	11	24	25	19	33
Manufacture of chemicals and chemical products	684	990	630	957	7	2	36	20	8	2	2	1	6	11
Manufacture of machinery and equipment	476	485	398	425	23	32	54	18	4	4	6	8	2	6
Manufacture of electrical machinery and apparatus	344	311	299	257	8	5	29	39	1	1	7	6	2	3
Manufacture of motor vehicles, trailers and semi-trailers	300	330	209	250	3	3	70	58	3	3	8	8	8	13
Manufacture of other transport vehicles	92	113	82	94	–	5	8	11	–	1	1	2	1	–
Medium low tech	1469	1499	1297	1338	50	43	108	103	26	29	9	8	44	27
Manufacture of coke and refined petroleum products	301	393	275	378	–	–	17	9	8	5	–	–	1	3
Manufacture of rubber and plastic products	73	95	65	85	1	–	12	16	–	–	–	–	1	–
Manufacture of other non-metallic mineral products	78	77	56	54	3	2	19	19	1	1	1	–	6	2
Manufacture of basic metals	685	695	652	655	7	5	14	13	7	13	–	1	10	9
Manufacture of fabricated metal products	209	118	185	103	2	–	6	6	–	–	3	2	20	7
Building and repair of ships and boats	123	121	64	63	37	36	40	40	10	10	5	5	6	6
Low tech	270	222	227	183	3	3	47	42	3	1	1	1	5	8
Manufacture of food products, including beverages	167	100	149	91	1	1	17	11	1	–	–	–	2	2
Manufacture of tobacco products	7	8	1	–	–	–	7	8	–	–	–	–	–	–
Manufacture of textiles	26	28	25	26	–	–	9	10	–	–	–	–	–	–

(continued)

	Joint R&D projects		Of which with partners from											
			Russia		CIS countries		EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland		USA and Canada		India and China		other	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Manufacture of wearing apparel, dressing and dyeing of fur	13	9	13	9	1	1	–	–	–	–	–	–	–	1
Manufacture of leather, leather products and footwear	2	4	2	1	–	–	1	4	–	–	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	16	16	10	8	1	–	1	3	–	–	1	1	3	4
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	20	12	8	9	–	–	10	2	2	–	–	–	–	1
Publishing and printing activities, reproduction of recorded media	10	36	10	33	–	–	–	2	–	1	–	–	–	–
Manufacture of furniture and other products n.e.c.	9	7	9	4	–	1	2	2	–	–	–	–	–	–
Recycling of secondary raw materials	–	2	–	2	–	–	–	–	–	–	–	–	–	–
Manufacture of other materials and substances n.e.c.	673	813	630	756	9	10	28	29	2	11	3	7	13	11
Electricity, gas and water supply	233	164	226	158	4	3	3	5	1	–	2	–	3	–

(continued)

	Joint R&D projects		Of which with partners from											
			Russia		CIS countries		EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland		USA and Canada		India and China		other	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Communication, computer and information technology-related activities, research and development, other services of the business economy														
Total	**14894**	**14511**	**14054**	**13794**	**193**	**170**	**377**	**289**	**109**	**99**	**111**	**92**	**222**	**208**
Communication	392	182	364	148	–	–	6	3	–	–	1	5	22	31
Computer and information technology-related activities	318	415	290	381	1	6	3	5	14	18	5	4	5	4
Research and development	13594	12812	12822	12193	190	158	357	248	94	76	104	82	194	165
Other services of the business economy	590	1102	578	1072	2	6	11	33	1	5	1	1	1	8

3.37. JOINT R&D PROJECTS OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY TYPE OF PARTNER AND ECONOMIC ACTIVITY: 2015

	Total	Of which by type of partner						
		enterprises within the same group	consumers of goods and services	suppliers of equipment, materials, components, software	competitors within the same sector	consulting firms and information organisations	R&D institutions	Higher education institutions
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**7272**	**1087**	**1952**	**2521**	**210**	**299**	**1660**	**480**
Mining and quarrying	369	75	–	93	6	21	163	30
Mining and quarrying of energy producing materials	263	68	–	81	4	1	113	11
Mining and quarrying, except energy producing materials	106	7	–	12	2	20	50	19
Manufacturing	6739	1000	1948	2366	202	255	1449	432
High tech	1976	313	921	448	77	16	378	116
Manufacture of pharmaceuticals and pharmaceutical products	66	13	10	6	–	–	41	1
Manufacture of office machinery and computers	37	1	9	18	–	–	7	2
Manufacture of radio, television and communication equipment and apparatus	532	66	336	28	13	6	88	29
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	916	184	456	217	30	4	164	50
Manufacture of aircraft, including spacecraft	425	49	110	179	34	6	78	34
Medium high tech	2229	230	672	960	67	45	264	76
Manufacture of chemicals and chemical products	990	41	246	593	2	13	110	19

(continued)

	Total	Of which by type of partner						
		enterprises within the same group	consumers of goods and services	suppliers of equipment, materials, components, software	competitors within the same sector	consulting firms and information organisations	R&D institutions	Higher education institutions
Manufacture of machinery and equipment	485	114	184	133	10	9	37	24
Manufacture of electrical machinery and apparatus	311	38	106	76	20	3	64	15
Manufacture of motor vehicles, trailers and semi-trailers	330	20	88	141	27	15	29	11
Manufacture of other transport vehicles	113	17	48	17	8	5	24	7
Medium low tech	1499	299	151	465	42	147	465	126
Manufacture of coke and refined petroleum products	393	52	4	189	–	64	65	19
Manufacture of rubber and plastic products	95	6	15	38	3	2	28	3
Manufacture of other non-metallic mineral products	77	11	2	53	–	1	9	4
Manufacture of basic metals	695	175	10	56	4	77	337	93
Manufacture of fabricated metal products	118	53	70	19	–	1	20	2
Building and repair of ships and boats	121	2	50	110	35	2	6	5
Low tech	222	11	28	109	11	38	25	12
Manufacture of food products, including beverages	100	7	13	38	1	25	18	5
Manufacture of tobacco products	8	1	–	7	–	–	–	–
Manufacture of textiles	28	1	10	13	4	–	2	1
Manufacture of wearing apparel, dressing and dyeing of fur	9	–	–	4	–	2	1	2
Manufacture of leather, leather products and footwear	4	1	–	3	–	1	–	1
Woodworking and manufacture of wood and of products of wood and cork, except furniture	16	1	–	14	–	1	–	–

(continued)

	Total	Of which by type of partner						
		enterprises within the same group	consumers of goods and services	suppliers of equipment, materials, components, software	competitors within the same sector	consulting firms and information organisations	R&D institutions	Higher education institutions
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	12	–	–	7	–	4	1	–
Publishing and printing activities, reproduction of recorded media	36	–	5	17	6	3	2	3
Manufacture of furniture and other products n.e.c.	7	–	–	6	–	–	1	–
Recycling of secondary raw materials	2	–	–	–	–	2	–	–
Manufacture of other materials and substances n.e.c.	813	147	176	384	5	9	317	102
Electricity, gas and water supply	164	12	4	62	2	23	48	18
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Total	**14511**	**1961**	**5486**	**3814**	**419**	**202**	**3510**	**807**
Communication	182	81	4	51	34	6	3	8
Computer and information technology-related activities	415	89	74	138	7	108	7	12
Research and development	12812	1562	4796	3412	329	79	3464	772
Other services of the business economy	1102	229	612	213	49	9	36	15

3.38. JOINT R&D PROJECTS OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY TYPE OF CO-OPERATION AND ECONOMIC ACTIVITY

	Permanent co-operation		Co-operation within a specific project		One-time informal co-operation unrelated to any specific project	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**3316**	**2933**	**3659**	**4007**	**357**	**371**
Mining and quarrying	194	107	340	211	32	54
Mining and quarrying of energy producing materials	126	57	316	190	4	17
Mining and quarrying, except energy producing materials	68	50	24	21	28	37
Manufacturing	3058	2782	3163	3681	308	312
High tech	1229	848	906	1056	45	88
Manufacture of pharmaceuticals and pharmaceutical products	10	7	68	34	–	25
Manufacture of office machinery and computers	17	15	10	11	–	11
Manufacture of radio, television and communication equipment and apparatus	163	172	291	337	12	25
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	564	458	317	454	23	13
Manufacture of aircraft, including spacecraft	475	196	220	220	10	14

(continued)

	Permanent co-operation		Co-operation within a specific project		One-time informal co-operation unrelated to any specific project	
	2014	2015	2014	2015	2014	2015
Medium high tech	761	807	1010	1322	142	114
Manufacture of chemicals and chemical products	265	285	397	688	24	17
Manufacture of machinery and equipment	239	205	204	255	44	39
Manufacture of electrical machinery and apparatus	106	121	187	144	51	46
Manufacture of motor vehicles, trailers and semi-trailers	89	118	199	203	16	9
Manufacture of other transport vehicles	62	78	23	32	7	3
Medium low tech	657	646	777	799	41	57
Manufacture of coke and refined petroleum products	84	82	214	306	4	6
Manufacture of rubber and plastic products	63	66	10	29	–	–
Manufacture of other non-metallic mineral products	15	11	56	59	10	9
Manufacture of basic metals	352	387	321	288	12	20
Manufacture of fabricated metal products	82	40	127	71	2	7
Building and repair of ships and boats	61	60	49	46	13	15
Low tech	126	81	137	136	7	5
Manufacture of food products, including beverages	80	27	83	71	4	2
Manufacture of tobacco products	5	8	2	–	–	–
Manufacture of textiles	25	27	1	1	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	1	3	11	6	1	–

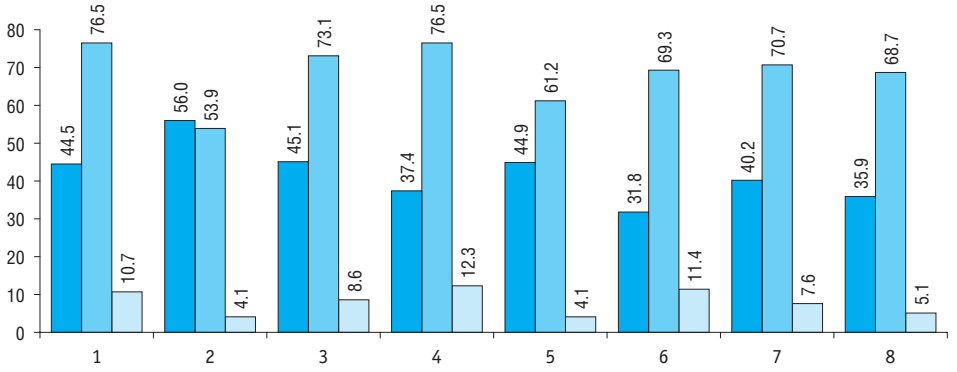
(continued)

	Permanent co-operation		Co-operation within a specific project		One-time informal co-operation unrelated to any specific project	
	2014	2015	2014	2015	2014	2015
Manufacture of leather, leather products and footwear	2	4	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	2	4	13	11	1	1
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	6	1	14	10	–	1
Publishing and printing activities, reproduction of recorded media	2	5	7	30	1	1
Manufacture of furniture and other products n.e.c.	3	2	6	5	–	–
Recycling of secondary raw materials	–	–	–	2	–	–
Manufacture of other materials and substances n.e.c.	285	400	333	368	73	48
Electricity, gas and water supply	64	44	156	115	17	5
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**6107**	**5289**	**8264**	**8219**	**666**	**1168**
Communication	316	159	79	24	6	–
Computer and information technology-related activities	114	236	195	164	13	20
Research and development	5514	4603	7591	7453	619	910
Other services of the business economy	163	291	399	578	28	238

3.39. TECHNOLOGICAL PARTNERSHIP IN R&D AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION: 2015

(as a percentage of all enterprises having joint R&D projects)

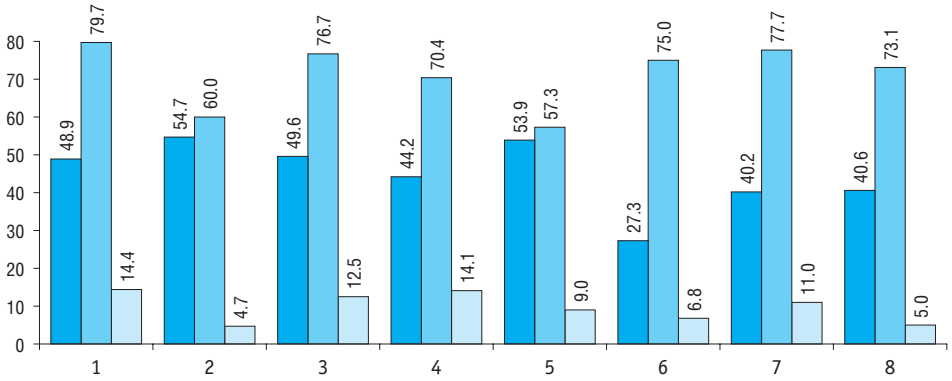
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Enterprises within the same group
3 – Consumers of goods and services
4 – Suppliers of equipment, materials, components, software
5 – Competitors within the same sector
6 – Consulting firms and information organisations
7 – R&D institutions
8 – Higher education institutions

Permanent co-operation
Co-operation within a specific project
One-time informal co-operation unrelated to any specific project

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total
2 – Enterprises within the same group
3 – Consumers of goods and services
4 – Suppliers of equipment, materials, components, software
5 – Competitors within the same sector
6 – Consulting firms and information organisations
7 – R&D institutions
8 – Higher education institutions

Permanent co-operation
Co-operation within a specific project
One-time informal co-operation unrelated to any specific project

3.40. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

	Expenditure on technological innovation, *million roubles*		Of which			
			product		process	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**762774.1**	**735757.7**	**291794.6**	**264180.8**	**470979.5**	**471576.9**
Mining and quarrying	123898.8	125575.3	12937.9	12193.4	110960.8	113381.8
Mining and quarrying of energy producing materials	113049.1	119061.2	9910.5	8963.0	103138.6	110098.2
Mining and quarrying, except energy producing materials	10849.7	6514.1	3027.4	3230.5	7822.2	3283.6
Manufacturing	565581.1	563489.9	276264.8	249530.2	289316.3	313959.7
High tech	85307.2	106807.2	60263.7	69150.0	25043.4	37657.2
Manufacture of pharmaceuticals and pharmaceutical products	3395.8	5155.2	2136.9	4202.6	1258.9	952.5
Manufacture of office machinery and computers	791.2	1469.0	448.6	1088.3	342.6	380.7
Manufacture of radio, television and communication equipment and apparatus	21811.3	30449.4	14784.1	21661.3	7027.1	8788.1
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	24814.5	30072.5	20280.6	24179.4	4534.0	5893.1
Manufacture of aircraft, including spacecraft	34494.3	39661.1	22613.5	18018.4	11880.8	21642.7
Medium high tech	123105.7	129957.5	69724.1	62196.6	53381.6	67760.9
Manufacture of chemicals and chemical products	56865.8	42752.2	22517.4	10551.7	34348.4	32200.5
Manufacture of machinery and equipment	19241.1	18012.0	12955.2	13377.0	6285.8	4635.1
Manufacture of electrical machinery and apparatus	9280.6	9457.4	7076.0	7969.7	2204.7	1487.8
Manufacture of motor vehicles, trailers and semi-trailers	32908.3	58157.0	23896.3	28898.3	9011.9	29258.8
Manufacture of other transport vehicles	4810.0	1578.8	3279.2	1400.0	1530.7	178.8

(continued)

	Expenditure on technological innovation, *million roubles*		Of which			
			product		process	
	2014	2015	2014	2015	2014	2015
Medium low tech	282565.2	232655.9	97323.6	57386.5	185241.7	175269.4
Manufacture of coke and refined petroleum products	209874.1	139664.4	66443.0	21302.0	143431.2	118362.3
Manufacture of rubber and plastic products	3795.6	7943.4	2208.1	5373.2	1587.5	2570.2
Manufacture of other non-metallic mineral products	10818.1	18995.2	7901.8	2122.2	2916.3	16873.0
Manufacture of basic metals	41235.8	43591.0	8734.4	9807.8	32501.4	33783.1
Manufacture of fabricated metal products	11106.8	16319.2	8552.4	13559.4	2554.4	2759.8
Building and repair of ships and boats	5734.8	6142.6	3483.9	5221.8	2250.9	920.8
Low tech	36605.9	28888.6	21037.1	16198.3	15568.8	12690.3
Manufacture of food products, including beverages	22592.1	16215.7	14902.4	9265.8	7689.8	6949.9
Manufacture of tobacco products	3272.3	3927.4	3270.2	3915.7	2.1	11.6
Manufacture of textiles	731.5	1256.7	212.6	222.7	518.9	1034.0
Manufacture of wearing apparel, dressing and dyeing of fur	99.9	250.6	66.9	73.4	33.1	177.2
Manufacture of leather, leather products and footwear	101.8	62.4	71.0	27.4	30.8	35.0
Woodworking and manufacture of wood and of products of wood and cork, except furniture	3027.0	1981.0	850.4	637.3	2176.6	1343.7
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	5214.4	3000.5	1020.6	456.4	4193.8	2544.1
Publishing and printing activities, reproduction of recorded media	530.5	861.9	161.8	593.9	368.7	268.0
Manufacture of furniture and other products n.e.c.	1030.3	1245.5	475.3	1005.9	555.0	239.6
Recycling of secondary raw materials	6.1	87.0	6.1	–	–	87.0
Manufacture of other materials and substances n.e.c.	37997.0	65180.8	27916.3	44598.8	10080.8	20582.0
Electricity, gas and water supply	73294.2	46692.5	2591.8	2457.2	70702.4	44235.3

(continued)

	Expenditure on technological innovation, *million roubles*		Of which			
			product		process	
	2014	2015	2014	2015	2014	2015
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**449123.0**	**467867.0**	**320454.5**	**336201.9**	**128668.5**	**131665.1**
Communication	38403.8	40738.4	21849.9	16727.2	16554.0	24011.2
Computer and information technology-related activities	8662.5	25984.4	4554.2	18671.1	4108.3	7313.3
Research and development	387832.4	383495.7	285930.9	295353.5	101901.5	88142.2
Other services of the business economy	14224.3	17648.5	8119.5	5450.1	6104.8	12198.4
Other economic activities						
Construction	…	13.4	…	12.1	…	1.4

3.41. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY INNOVATIVE AND ECONOMIC ACTIVITY: 2015

(million roubles)

	Total expenditure on technological innovation	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other expenditure
Mining and quarrying, manufacturing, electricity, gas and water supply											
Total	**735757.7**	**168841.5**	**14714.4**	**354675.8**	**11653.7**	**7838.5**	**6895.8**	**88064.3**	**1418.7**	**1840.2**	**87653.4**
Mining and quarrying	125575.3	24271.8	571.3	87121.6	1270.2	18.5	1099.5	1267.3	654.5	–	9319.1
Mining and quarrying of energy producing materials	119061.2	20014.3	289.1	86042.6	1270.1	18.5	1094.2	767.0	654.3	–	8929.6
Mining and quarrying, except energy producing materials	6514.1	4257.5	282.3	1079.0	0.1	–	5.3	500.3	0.2	–	389.5
Manufacturing	563489.9	132509.1	13600.3	246685.4	9660.1	7800.6	5344.6	83027.0	727.2	1840.1	70096.1
High tech	106807.2	41261.6	3996.0	30634.1	4291.5	4033.2	812.9	19695.9	169.3	123.7	5822.1
Manufacture of pharmaceuticals and pharmaceutical products	5155.2	1687.3	2.7	1502.2	1783.4	1783.4	25.3	136.2	9.4	8.8	–
Manufacture of office machinery and computers	1469.0	1022.3	14.1	366.5	–	–	15.1	48.8	0.5	1.7	–
Manufacture of radio, television and communication equipment and apparatus	30449.4	8632.6	1481.0	6717.6	2234.9	2231.6	138.3	8581.1	41.9	15.5	2606.3
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	30072.5	18393.6	717.4	7683.0	211.9	8.4	313.2	2108.8	74.3	90.3	480.0
Manufacture of aircraft, including spacecraft	39661.1	11525.7	1780.9	14364.8	61.4	9.9	321.0	8820.9	43.2	7.5	2735.8
Medium high tech	129957.5	34102.6	4259.5	52791.6	1440.2	730.6	574.9	18725.4	180.3	1460.4	16422.6
Manufacture of chemicals and chemical products	42752.2	2438.7	390.5	14113.9	997.3	527.9	108.6	12303.5	7.2	15.7	12376.8

(continued)

	Total expenditure on technological innovation	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other expenditure
Manufacture of machinery and equipment	18012.0	6802.4	1443.7	6081.9	178.2	28.0	158.2	1102.9	74.2	40.5	2130.0
Manufacture of electrical machinery and apparatus	9457.4	3954.0	1126.4	2950.0	201.3	114.7	88.2	912.7	16.2	39.2	169.3
Manufacture of motor vehicles, trailers and semi-trailers	58157.0	19718.8	1231.1	29492.8	62.7	59.5	165.6	4394.4	81.2	1364.9	1645.5
Manufacture of other transport vehicles	1578.8	1188.7	67.8	153.0	0.6	0.6	54.3	11.9	1.5	–	101.0
Medium low tech	232655.9	17249.0	1831.0	127727.7	999.4	299.4	3105.9	37229.1	304.0	93.5	44116.2
Manufacture of coke and refined petroleum products	139664.4	3172.7	834.2	71473.7	535.6	11.4	2362.1	26709.4	183.5	10.7	34382.4
Manufacture of rubber and plastic products	7943.4	558.9	20.6	6717.7	70.7	10.0	19.9	385.0	0.9	0.9	168.8
Manufacture of other non-metallic mineral products	18995.2	933.1	125.0	11299.4	51.6	51.1	17.9	5639.9	5.4	76.0	846.8
Manufacture of basic metals	43591.0	2661.4	771.7	33102.0	271.6	201.8	410.4	4205.0	100.6	0.8	2067.5
Manufacture of fabricated metal products	16319.2	6025.5	44.5	4347.9	58.1	25.2	157.5	187.9	10.0	4.5	5483.4
Building and repair of ships and boats	6142.6	3897.4	35.1	787.0	11.7	0.01	138.1	101.9	3.6	0.6	1167.3
Low tech	28888.6	3414.3	1697.0	18430.5	199.6	75.0	99.5	2492.4	25.9	153.2	2376.2
Manufacture of food products, including beverages	16215.7	2919.8	328.6	9779.6	95.4	5.4	48.0	1288.0	17.0	126.8	1612.4
Manufacture of tobacco products	3927.4	0.8	1290.6	2630.1	–	–	–	2.1	0.4	2.3	1.1
Manufacture of textiles	1256.7	44.6	27.6	435.4	0.5	0.2	4.3	741.8	0.4	2.0	–
Manufacture of wearing apparel, dressing and dyeing of fur	250.6	125.6	2.9	109.5	0.1	0.1	1.2	–	1.3	3.2	6.9
Manufacture of leather, leather products and footwear	62.4	2.1	1.1	59.2	–	–	0.01	–	–	–	–

(continued)

	Total expenditure on technological innovation	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other expenditure
Woodworking and manufacture of wood and of products of wood and cork, except furniture	1981.0	3.5	26.6	1870.4	0.0	–	6.6	51.4	0.9	1.1	20.7
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	3000.5	44.4	7.2	1988.7	0.2	0.2	29.1	202.7	3.5	0.05	724.7
Publishing and printing activities, reproduction of recorded media	861.9	252.2	4.2	393.0	2.2	1.0	0.8	205.4	–	1.8	2.3
Manufacture of furniture and other products n.e.c.	1245.5	21.3	8.3	1161.9	34.2	1.2	9.5	0.2	2.4	–	7.8
Recycling of secondary raw materials	87.0	–	–	2.9	66.9	66.9	0.0	0.8	–	16.0	0.3
Manufacture of other materials and substances n.e.c.	65180.8	36481.6	1816.8	17101.6	2729.4	2662.3	751.3	4884.2	47.7	9.3	1358.9
Electricity, gas and water supply	46692.5	12060.6	542.7	20868.8	723.4	19.4	451.7	3769.9	37.0	0.1	8238.3
Communication, computer and information technology-related activities, research and development, other services of the business economy											
Total	**467867.0**	**365970.8**	**6772.6**	**42547.4**	**2621.5**	**183.8**	**11522.7**	**18271.7**	**402.6**	**536.0**	**19221.8**
Communication	40738.4	14778.3	93.7	8395.5	12.0	0.1	4747.3	5058.4	32.3	310.1	7310.8
Computer and information technology-related activities	25984.4	19230.3	988.3	657.8	298.4	45.3	2346.7	240.3	17.9	6.1	2198.7
Research and development	383495.7	327391.7	4964.1	30388.0	1942.7	21.9	2908.8	12673.5	322.9	170.1	2734.0
Other services of the business economy	17648.5	4570.5	726.5	3106.1	368.5	116.5	1519.9	299.5	29.5	49.7	6978.2
Other economic activities											
Construction	13.4	–	–	12.7	–	–	0.7	–	–	–	–

3.42. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY INNOVATIVE AND ECONOMIC ACTIVITY: 2015

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other expenditure
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**22.9**	**2.0**	**48.2**	**1.6**	**1.1**	**0.9**	**12.0**	**0.2**	**0.3**	**11.9**
Mining and quarrying	19.3	0.5	69.4	1.0	0.01	0.9	1.0	0.5	–	7.4
Mining and quarrying of energy producing materials	16.8	0.2	72.3	1.1	0.02	0.9	0.6	0.5	–	7.5
Mining and quarrying, except energy producing materials	65.4	4.3	16.6	0.0	–	0.1	7.7	0.0	–	6.0
Manufacturing	23.5	2.4	43.8	1.7	1.4	0.9	14.7	0.1	0.3	12.4
High tech	38.6	3.7	28.7	4.0	3.8	0.8	18.4	0.2	0.1	5.5
Manufacture of pharmaceuticals and pharmaceutical products	32.7	0.1	29.1	34.6	34.6	0.5	2.6	0.2	0.2	–
Manufacture of office machinery and computers	69.6	1.0	24.9	–	–	1.0	3.3	0.04	0.1	–
Manufacture of radio, television and communication equipment and apparatus	28.4	4.9	22.1	7.3	7.3	0.5	28.2	0.1	0.1	8.6
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	61.2	2.4	25.5	0.7	0.03	1.0	7.0	0.2	0.3	1.6
Manufacture of aircraft, including spacecraft	29.1	4.5	36.2	0.2	0.03	0.8	22.2	0.1	0.02	6.9

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other expenditure
Medium high tech	26.2	3.3	40.6	1.1	0.6	0.4	14.4	0.1	1.1	12.6
Manufacture of chemicals and chemical products	5.7	0.9	33.0	2.3	1.2	0.3	28.8	0.02	0.04	29.0
Manufacture of machinery and equipment	37.8	8.0	33.8	1.0	0.2	0.9	6.1	0.4	0.2	11.8
Manufacture of electrical machinery and apparatus	41.8	11.9	31.2	2.1	1.2	0.9	9.7	0.2	0.4	1.8
Manufacture of motor vehicles, trailers and semi-trailers	33.9	2.1	50.7	0.1	0.1	0.3	7.6	0.1	2.3	2.8
Manufacture of other transport vehicles	75.3	4.3	9.7	0.04	0.04	3.4	0.8	0.1	–	6.4
Medium low tech	7.4	0.8	54.9	0.4	0.1	1.3	16.0	0.1	0.04	19.0
Manufacture of coke and refined petroleum products	2.3	0.6	51.2	0.4	0.01	1.7	19.1	0.1	0.01	24.6
Manufacture of rubber and plastic products	7.0	0.3	84.6	0.9	0.1	0.3	4.8	0.01	0.01	2.1
Manufacture of other non-metallic mineral products	4.9	0.7	59.5	0.3	0.3	0.1	29.7	0.03	0.4	4.5
Manufacture of basic metals	6.1	1.8	75.9	0.6	0.5	0.9	9.6	0.2	0.0	4.7
Manufacture of fabricated metal products	36.9	0.3	26.6	0.4	0.2	1.0	1.2	0.06	0.03	33.6
Building and repair of ships and boats	63.4	0.6	12.8	0.2	0.0	2.2	1.7	0.1	0.01	19.0
Low tech	11.8	5.9	63.8	0.7	0.3	0.3	8.6	0.1	0.5	8.2
Manufacture of food products, including beverages	18.0	2.0	60.3	0.6	0.03	0.3	7.9	0.1	0.8	9.9
Manufacture of tobacco products	0.02	32.9	67.0	–	–	–	0.1	0.01	0.1	0.03
Manufacture of textiles	3.6	2.2	34.6	0.04	0.01	0.3	59.0	0.03	0.2	–
Manufacture of wearing apparel, dressing and dyeing of fur	50.1	1.1	43.7	0.03	0.03	0.5	–	0.5	1.3	2.8

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other expenditure
Manufacture of leather, leather products and footwear	3.4	1.8	94.8	–	–	0.01	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	0.2	1.3	94.4	0.0	–	0.3	2.6	0.04	0.1	1.0
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	1.5	0.2	66.3	0.01	0.01	1.0	6.8	0.1	0.0	24.2
Publishing and printing activities, reproduction of recorded media	29.3	0.5	45.6	0.3	0.1	0.1	23.8	–	0.2	0.3
Manufacture of furniture and other products n.e.c.	1.7	0.7	93.3	2.7	0.1	0.8	0.02	0.2	–	0.6
Recycling of secondary raw materials	–	–	3.3	76.9	76.9	0.0	0.9	–	18.4	0.4
Electricity, gas and water supply	25.8	1.2	44.7	1.5	0.04	1.0	8.1	0.1	0.0	17.6
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Total	**78.2**	**1.4**	**9.1**	**0.6**	**0.04**	**2.5**	**3.9**	**0.1**	**0.1**	**4.1**
Communication	36.3	0.2	20.6	0.03	0.0	11.7	12.4	0.1	0.8	17.9
Computer and information technology-related activities	74.0	3.8	2.5	1.1	0.2	9.0	0.9	0.1	0.02	8.5
Research and development	85.4	1.3	7.9	0.5	0.01	0.8	3.3	0.1	0.04	0.7
Other services of the business economy	25.9	4.1	17.6	2.1	0.7	8.6	1.7	0.2	0.3	39.5
Other economic activities										
Construction	–	–	94.6	–	–	5.4	–	–	–	–

3.43. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY SOURCE OF FUNDS AND ECONOMIC ACTIVITY: 2015

(million roubles)

	Expenditure on technological innovation	Intramural funds of enterprises	Federal budget	Regional and municipal budgets of the Russian Federation	Non-budgetary funds	Funds from abroad	Of which from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	Venture funds	Other funds
Mining and quarrying, manufacturing, electricity, gas and water supply									
Total	**735757.7**	**509639.9**	**72770.2**	**2110.9**	**603.6**	**1562.4**	**152.4**	0.1	**149070.5**
Mining and quarrying	125575.3	73644.0	0.1	–	–	0.2	–	–	51931.0
Mining and quarrying of energy producing materials	119061.2	68338.7	0.1	–	–	0.2	–	–	50722.2
Mining and quarrying, except energy producing materials	6514.1	5305.3	–	–	–	–	–	–	1208.8
Manufacturing	563489.9	398425.6	72731.7	885.4	603.6	1562.2	152.4	0.1	89281.3
High tech	106807.2	58921.7	30691.6	11.7	11.4	244.2	–	–	16926.5
Manufacture of pharmaceuticals and pharmaceutical products	5155.2	4869.0	102.8	–	–	–	–	–	183.4
Manufacture of office machinery and computers	1469.0	534.4	934.6	–	–	–	–	–	–
Manufacture of radio, television and communication equipment and apparatus	30449.4	15703.0	7465.8	10.8	–	–	–	–	7269.8
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	30072.5	15263.0	10313.1	0.6	–	–	–	–	4495.8
Manufacture of aircraft, including spacecraft	39661.1	22552.4	11875.3	0.3	11.4	244.2	–	–	4977.5

* Here and elsewhere in the table: Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro.

(continued)

	Expenditure on technological innovation	Intramural funds of enterprises	Federal budget	Regional and municipal budgets of the Russian Federation	Non-budgetary funds	Funds from abroad	Of which from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	Venture funds	Other funds
Medium high tech	129957.5	112358.5	6515.1	690.7	77.7	380.6	152.4	0.1	9934.8
Manufacture of chemicals and chemical products	42752.2	40107.6	1431.3	4.4	–	36.2	36.2	–	1172.7
Manufacture of machinery and equipment	18012.0	11232.5	3063.7	7.5	67.6	297.2	69.0	0.1	3343.3
Manufacture of electrical machinery and apparatus	9457.4	7202.9	1286.5	48.0	–	–	–	–	920.0
Manufacture of motor vehicles, trailers and semi-trailers	58157.0	52243.7	733.5	630.8	3.2	47.1	47.1	–	4498.8
Manufacture of other transport vehicles	1578.8	1571.9	–	–	6.9	–	–	–	–
Medium low tech	232655.9	175813.7	3485.6	44.9	305.0	269.1	–	–	52737.5
Manufacture of coke and refined petroleum products	139664.4	115398.8	–	–	–	–	–	–	24265.5
Manufacture of rubber and plastic products	7943.4	3477.1	1053.0	8.1	243.4	55.0	–	–	3106.9
Manufacture of other non-metallic mineral products	18995.2	8250.7	–	–	–	30.7	–	–	10713.8
Manufacture of basic metals	43591.0	29592.8	107.3	–	–	0.9	–	–	13890.0
Manufacture of fabricated metal products	16319.2	15288.6	79.6	7.3	–	182.5	–	–	761.3
Building and repair of ships and boats	6142.6	3805.8	2245.7	29.5	61.6	–	–	–	–
Low tech	28888.6	22271.6	1068.5	138.0	–	668.3	–	–	4742.2
Manufacture of food products, including beverages	16215.7	12010.3	801.3	136.2	–	–	–	–	3267.8
Manufacture of tobacco products	3927.4	3927.4	–	–	–	–	–	–	–
Manufacture of textiles	1256.7	244.4	–	0.5	–	–	–	–	1011.7
Manufacture of wearing apparel, dressing and dyeing of fur	250.6	152.4	98.1	0.1	–	–	–	–	–
Manufacture of leather, leather products and footwear	62.4	38.8	3.8	–	–	–	–	–	19.8

(continued)

	Expenditure on technological innovation	Intramural funds of enterprises	Federal budget	Regional and municipal budgets of the Russian Federation	Non-budgetary funds	Funds from abroad	Of which from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	Venture funds	Other funds
Woodworking and manufacture of wood and of products of wood and cork, except furniture	1981.0	1731.2	–	–	–	–	–	–	249.9
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	3000.5	2955.0	–	–	–	–	–	–	45.4
Publishing and printing activities, reproduction of recorded media	861.9	697.2	161.5	1.1	–	–	–	–	2.1
Manufacture of furniture and other products n.e.c.	1245.5	514.6	3.8	–	–	668.3	–	–	58.8
Recycling of secondary raw materials	87.0	0.3	–	–	–	–	–	–	86.7
Manufacture of other materials and substances n.e.c.	65180.8	29060.1	30971.0	–	209.5	–	–	–	4940.3
Electricity, gas and water supply	46692.5	37570.4	38.4	1225.5	–	–	–	–	7858.2
Communication, computer and information technology-related activities, research and development, other services of the business economy									
Total	**467867.0**	**134440.3**	**258042.8**	**1321.9**	**15220.3**	**5926.6**	**311.2**	**2.6**	**52912.4**
Communication	40738.4	39470.9	1139.9	1.6	-	-	-	-	126.0
Computer and information technology-related activities	25984.4	22971.3	1151.8	83.1	–	18.3	6.5	2.6	1757.3
Research and development	383495.7	64442.8	253587.2	1059.7	15212.9	5906.6	303.0	–	43286.5
Other services of the business economy	17648.5	7555.4	2164.0	177.5	7.4	1.7	1.7	–	7742.6
Other economic activities									
Construction	13.4	13.4	–	–	–	–	–	–	–

3.44. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY SOURCE OF FUNDS AND ECONOMIC ACTIVITY: 2015

	Intramural funds of enterprises	Federal budget	Regional and municipal budgets of the Russian Federation	Non-budgetary funds	Funds from abroad	Of which from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	Venture funds	Other funds
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**69.3**	**9.9**	**0.3**	**0.1**	**0.2**	**0.02**	0.0	**20.3**
Mining and quarrying	58.6	0.0	–	–	0.0	–	–	41.4
Mining and quarrying of energy producing materials	57.4	0.0	–	–	0.0	–	–	42.6
Mining and quarrying, except energy producing materials	81.4	–	–	–	–	–	–	18.6
Manufacturing	70.7	12.9	0.2	0.1	0.3	0.03	0.0	15.8
High tech	55.2	28.7	0.01	0.01	0.2	–	–	15.8
Manufacture of pharmaceuticals and pharmaceutical products	94.4	2.0	–	–	–	–	–	3.6
Manufacture of office machinery and computers	36.4	63.6	–	–	–	–	–	–
Manufacture of radio, television and communication equipment and apparatus	51.6	24.5	0.04	–	–	–	–	23.9
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	50.8	34.3	0.0	–	–	–	–	14.9
Manufacture of aircraft, including spacecraft	56.9	29.9	0.0	0.03	0.6	–	–	12.6

* Here and elsewhere in the table: Albania, Bosnia and Herzegovina, Iceland, Kosovo, Macedonia, Serbia, Turkey, Montenegro.

(continued)

	Intramural funds of enterprises	Federal budget	Regional and municipal budgets of the Russian Federation	Non-budgetary funds	Funds from abroad	Of which from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	Venture funds	Other funds
Medium high tech	86.5	5.0	0.5	0.1	0.3	0.1	0.0	7.6
Manufacture of chemicals and chemical products	93.8	3.3	0.01	–	0.1	0.1	–	2.7
Manufacture of machinery and equipment	62.4	17.0	0.04	0.4	1.7	0.4	0.0	18.6
Manufacture of electrical machinery and apparatus	76.2	13.6	0.5	–	–	–	–	9.7
Manufacture of motor vehicles, trailers and semi-trailers	89.8	1.3	1.1	0.01	0.1	0.1	–	7.7
Manufacture of other transport vehicles	99.6	–	–	0.4	–	–	–	–
Medium low tech	75.6	1.5	0.02	0.1	0.1	–	–	22.7
Manufacture of coke and refined petroleum products	82.6	–	–	–	–	–	–	17.4
Manufacture of rubber and plastic products	43.8	13.3	0.1	3.1	0.7	–	–	39.1
Manufacture of other non-metallic mineral products	43.4	–	–	–	0.2	–	–	56.4
Manufacture of basic metals	67.9	0.2	–	–	0.0	–	–	31.9
Manufacture of fabricated metal products	93.7	0.5	0.04	–	1.1	–	–	4.7
Building and repair of ships and boats	62.0	36.6	0.5	1.0	–	–	–	–
Low tech	77.1	3.7	0.5	–	2.3	–	–	16.4
Manufacture of food products, including beverages	74.1	4.9	0.8	–	–	–	–	20.2
Manufacture of tobacco products	100	–	–	–	–	–	–	–
Manufacture of textiles	19.4	–	0.04	–	–	–	–	80.5
Manufacture of wearing apparel, dressing and dyeing of fur	60.8	39.1	0.1	–	–	–	–	–

(continued)

	Intramural funds of enterprises	Federal budget	Regional and municipal budgets of the Russian Federation	Non-budgetary funds	Funds from abroad	Of which from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland	Venture funds	Other funds
Manufacture of leather, leather products and footwear	62.2	6.1	–	–	–	–	–	31.7
Woodworking and manufacture of wood and of products of wood and cork, except furniture	87.4	–	–	–	–	–	–	12.6
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	98.5	–	–	–	–	–	–	1.5
Publishing and printing activities, reproduction of recorded media	80.9	18.7	0.1	–	–	–	–	0.2
Manufacture of furniture and other products n.e.c.	41.3	0.3	–	–	53.7	–	–	4.7
Recycling of secondary raw materials	0.4	–	–	–	–	–	–	99.6
Electricity, gas and water supply	80.5	0.1	2.6	–	–	–	–	16.8
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Total	**28.7**	**55.2**	**0.3**	**3.3**	**1.3**	**0.1**	**0.0**	**11.3**
Communication	96.9	2.8	0.0	–	–	–	–	0.3
Computer and information technology-related activities	88.4	4.4	0.3	–	0.1	0.03	0.01	6.8
Research and development	16.8	66.1	0.3	4.0	1.5	0.1	–	11.3
Other services of the business economy	42.8	12.3	1.0	0.04	0.01	0.01	–	43.9
Other economic activities								
Construction	100	–	–	–	–	–	–	–

3.45. INTENSITY OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

(expenditure on technological innovation as a percentage of total goods and services sales)

	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**2.1**	**1.8**
Mining and quarrying	1.4	1.3
Mining and quarrying of energy producing materials	1.4	1.4
Mining and quarrying, except energy producing materials	1.0	0.5
Manufacturing	2.4	2.1
High tech	5.5	5.9
Manufacture of pharmaceuticals and pharmaceutical products	1.6	2.2
Manufacture of office machinery and computers	1.7	2.6
Manufacture of radio, television and communication equipment and apparatus	7.0	9.4
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	7.0	6.6
Manufacture of aircraft, including spacecraft	5.5	5.4
Medium high tech	2.4	2.5
Manufacture of chemicals and chemical products	3.6	2.1
Manufacture of machinery and equipment	1.8	1.6
Manufacture of electrical machinery and apparatus	2.0	1.9
Manufacture of motor vehicles, trailers and semi-trailers	2.1	4.3
Manufacture of other transport vehicles	1.3	0.5
Medium low tech	2.6	1.8
Manufacture of coke and refined petroleum products	4.0	2.1
Manufacture of rubber and plastic products	0.8	1.5
Manufacture of other non-metallic mineral products	1.1	2.0
Manufacture of basic metals	1.2	1.1
Manufacture of fabricated metal products	2.0	2.6
Building and repair of ships and boats	2.3	2.0

(continued)

	2014	2015
Low tech	0.7	0.5
Manufacture of food products, including beverages	0.7	0.4
Manufacture of tobacco products	1.6	1.6
Manufacture of textiles	0.1	1.2
Manufacture of wearing apparel, dressing and dyeing of fur	0.2	0.5
Manufacture of leather, leather products and footwear	0.3	0.2
Woodworking and manufacture of wood and of products of wood and cork, except furniture	1.1	0.6
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	1.2	0.6
Publishing and printing activities, reproduction of recorded media	0.3	0.4
Manufacture of furniture and other products n.e.c.	0.4	0.6
Recycling of secondary raw materials	0.0	0.1
Electricity, gas and water supply	1.8	1.1
Communication, computer and information technology-related activities, research and development, other services of the business economy		
Total	**10.6**	**10.5**
Communication	2.4	2.6
Computer and information technology-related activities	2.6	6.1
Research and development	33.0	32.9
Other services of the business economy	1.2	1.4
Other economic activities		
Construction	…	0.01

3.46. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN PATENT ACTIVITIES: 2015

	Enterprises engaged in patent activities as a percentage of all enterprises				Enterprises engaged in patent activities as a percentage of all enterprises engaged in technological innovation			
	with valid titles of protection	of which		that applied for titles of protection	with valid titles of protection	of which		that applied for titles of protection
		those received in the reporting year	those maintained valid			those received in the reporting year	those maintained valid	
Mining and quarrying, manufacturing, electricity, gas and water supply								
Inventions	3.5	1.5	3.3	2.7	24.4	12.0	23.0	13.5
Utility models	3.1	1.2	2.9	1.9	21.0	8.5	19.8	9.8
Industrial designs	1.4	0.4	1.3	1.1	8.8	2.8	8.3	3.1
Computer software, databases, integrated circuit topographies	0.9	0.5	–	1.1	6.7	4.3	–	4.0
Trade mark	3.0	0.7	2.8	1.3	17.8	4.2	16.9	5.4
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Inventions	4.3	3.0	4.0	4.2	37.0	27.9	34.8	28.1
Utility models	2.8	1.3	2.6	2.3	25.1	13.3	23.6	14.9
Industrial designs	0.7	0.2	0.6	1.0	5.7	2.0	5.2	2.3
Computer software, databases, integrated circuit topographies	2.3	1.6	–	2.4	20.2	15.0	–	15.5
Trade mark	1.7	0.3	1.6	0.9	15.9	2.3	15.2	3.6
Other economic activities – Construction								
Inventions	0.5	–	0.5	1.5	–	–	–	–
Utility models	0.5	–	0.5	1.0	–	–	–	–
Industrial designs	–	–	–	1.0	–	–	–	–
Computer software, databases, integrated circuit topographies	–	–	–	1.0	–	–	–	–
Trade mark	0.5	–	0.5	1.5	–	–	–	–

3.47. ENTERPRISES ENGAGED IN PATENT ACTIVITIES AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY: 2015

	Enterprises with valid patents	Of which		Enterprises that applied for patents
		those received in the reporting year	those maintained valid	
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**24.4**	**12.0**	**23.0**	**13.5**
Mining and quarrying	23.5	15.3	22.4	16.3
Mining and quarrying of energy producing materials	30.8	21.5	29.2	23.1
Mining and quarrying, except energy producing materials	9.1	3.0	9.1	3.0
Manufacturing	27.4	13.2	26.0	14.7
High tech	45.9	23.1	44.0	24.1
Manufacture of pharmaceuticals and pharmaceutical products	51.0	27.5	51.0	21.6
Manufacture of office machinery and computers	40.0	–	40.0	20.0
Manufacture of radio, television and communication equipment and apparatus	44.9	22.4	41.8	20.4
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	42.9	22.1	41.1	25.2
Manufacture of aircraft, including spacecraft	52.7	27.3	50.9	30.9
Medium high tech	28.9	12.6	27.5	13.0
Manufacture of chemicals and chemical products	37.2	15.9	36.3	18.6

(continued)

	Enterprises with valid patents	Of which		Enterprises that applied for patents
		those received in the reporting year	those maintained valid	
Manufacture of machinery and equipment	28.9	15.2	27.4	14.7
Manufacture of electrical machinery and apparatus	26.2	8.7	24.8	8.1
Manufacture of motor vehicles, trailers and semi-trailers	22.5	10.0	20.0	10.0
Manufacture of other transport vehicles	28.1	9.4	28.1	12.5
Medium low tech	25.7	11.9	24.9	15.6
Manufacture of coke and refined petroleum products	63.3	30.0	60.0	33.3
Manufacture of rubber and plastic products	14.0	7.0	14.0	10.5
Manufacture of other non-metallic mineral products	10.7	3.9	10.7	5.8
Manufacture of basic metals	50.6	20.5	49.4	31.3
Manufacture of fabricated metal products	15.7	10.8	14.5	9.6
Building and repair of ships and boats	18.2	9.1	18.2	13.6
Low tech	5.1	1.8	3.7	3.9
Manufacture of food products, including beverages	4.2	1.0	3.5	3.5
Manufacture of tobacco products	–	–	–	–
Manufacture of textiles	3.7	–	3.7	7.4

(continued)

	Enterprises with valid patents	Of which		Enterprises that applied for patents
		those received in the reporting year	those maintained valid	
Manufacture of wearing apparel, dressing and dyeing of fur	14.3	14.3	7.1	14.3
Manufacture of leather, leather products and footwear	9.1	–	9.1	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	–	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	8.7	4.3	4.3	–
Publishing and printing activities, reproduction of recorded media	2.1	2.1	–	4.2
Manufacture of furniture and other products n.e.c.	14.7	2.9	11.8	8.8
Recycling of secondary raw materials	25.0	25.0	–	–
Electricity, gas and water supply	4.2	3.2	3.2	4.2
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**37.0**	**27.9**	**34.8**	**28.1**
Communication	0.4	–	0.4	1.2
Computer and information technology-related activities	2.8	0.7	2.1	1.4
Research and development	71.4	55.0	67.1	54.0
Other services of the business economy	10.7	6.4	10.4	8.1

3.48. INTELLECTUAL PROPERTY AT ENTERPRISES: 2015

	Total				In Enterprises engaged in technological innovation			
	Number of valid titles of protection	Of which		Number of applications for titles of protection	Number of valid titles of protection	Of which		Number of applications for titles of protection
		those received in the repor-ting year	those maintained valid			those received in the repor-ting year	those maintained valid	
Mining and quarrying, manufacturing, electricity, gas and water supply								
Inventions	19976	1847	18129	2626	17034	1612	15422	1494
Utility models	8642	1107	7535	1807	6598	752	5846	948
Industrial designs	3187	574	2613	953	2285	422	1863	274
Computer software, databases, integrated circuit topographies	2523	511	–	1110	2200	429	–	468
Trade mark	11086	923	10163	1669	5706	530	5176	821
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Inventions	25578	3943	21635	4842	18890	2736	16154	2768
Utility models	6484	1165	5319	1836	4524	682	3842	811
Industrial designs	746	124	622	709	444	63	381	73
Computer software, databases, integrated circuit topographies	8029	2091	–	2481	6332	1415	–	1314
Trade mark	1537	164	1373	676	722	101	621	131
Other economic activities – Construction								
Inventions	6	–	6	9	–	–	–	–
Utility models	1	–	1	8	–	–	–	–
Industrial designs	–	–	–	8	–	–	–	–
Computer software, databases, integrated circuit topographies	–	–	–	8	–	–	–	–
Trade mark	3	–	3	9	–	–	–	–

3.49. PATENTED INVENTIONS OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY: 2015

	Number of valid patents	Of which		Number of applications for patents
		those received in the reporting year	those maintained valid	
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**17034**	**1612**	**15422**	**1494**
Mining and quarrying	1874	249	1625	232
Mining and quarrying of energy producing materials	1773	246	1527	230
Mining and quarrying, except energy producing materials	101	3	98	2
Manufacturing	14942	1330	13612	1183
High tech	4126	470	3656	387
Manufacture of pharmaceuticals and pharmaceutical products	824	53	771	41
Manufacture of office machinery and computers	8	–	8	2
Manufacture of radio, television and communication equipment and apparatus	801	80	721	64
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	1402	161	1241	181
Manufacture of aircraft, including spacecraft	1091	176	915	99
Medium high tech	3305	272	3033	294
Manufacture of chemicals and chemical products	860	52	808	61
Manufacture of machinery and equipment	1286	131	1155	141

(continued)

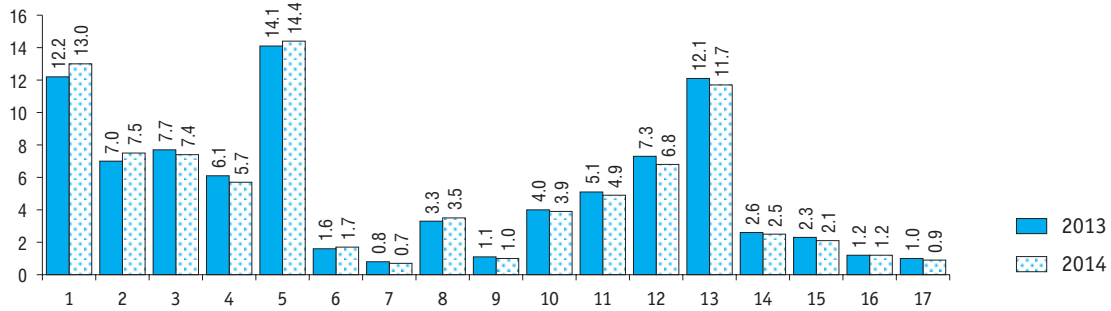
	Number of valid patents	Of which		Number of applications for patents
		those received in the reporting year	those maintained valid	
Manufacture of electrical machinery and apparatus	340	34	306	40
Manufacture of motor vehicles, trailers and semi-trailers	613	48	565	38
Manufacture of other transport vehicles	206	7	199	14
Medium low tech	3155	289	2866	235
Manufacture of coke and refined petroleum products	226	45	181	72
Manufacture of rubber and plastic products	83	4	79	9
Manufacture of other non-metallic mineral products	198	18	180	14
Manufacture of basic metals	2351	184	2167	96
Manufacture of fabricated metal products	237	32	205	37
Building and repair of ships and boats	60	6	54	7
Low tech	224	32	192	59
Manufacture of food products, including beverages	152	9	143	29
Manufacture of tobacco products	–	–	–	–
Manufacture of textiles	1	–	1	2
Manufacture of wearing apparel, dressing and dyeing of fur	31	6	25	7

(continued)

	Number of valid patents	Of which		Number of applications for patents
		those received in the reporting year	those maintained valid	
Manufacture of leather, leather products and footwear	1	–	1	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	–	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	5	1	4	–
Publishing and printing activities, reproduction of recorded media	8	8	–	9
Manufacture of furniture and other products n.e.c.	19	1	18	12
Recycling of secondary raw materials	7	7	–	–
Manufacture of other materials and substances n.e.c.	4132	267	3865	208
Electricity, gas and water supply	218	33	185	79
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**18890**	**2736**	**16154**	**2768**
Communication	1	–	1	9
Computer and information technology-related activities	40	9	31	2
Research and development	18242	2648	15594	2643
Other services of the business economy	607	79	528	114

3.50. ENTERPRISES CONSIDERING SOURCES OF INFORMATION AS PRINCIPAL FOR TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES

Mining and quarrying, manufacturing, electricity, gas and water supply



Internal sources:
- 1 – internal sources within the enterprise
- 2 – enterprises within the same group

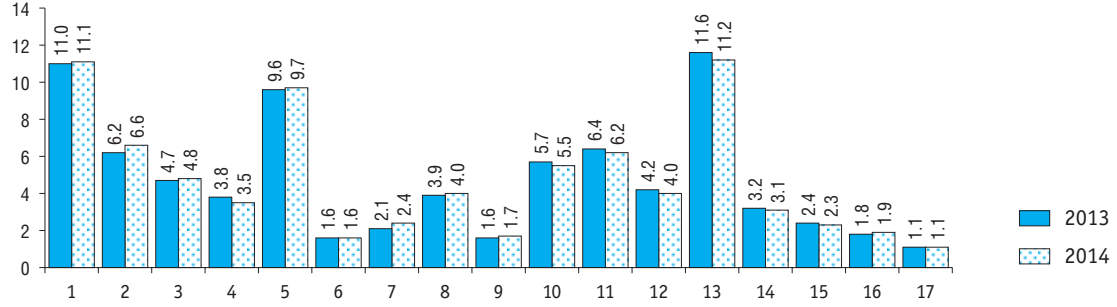
Market sources:
- 3 – suppliers of equipment, materials, components, software
- 4 – competitors within the same sector
- 5 – consumers of goods and services
- 6 – consulting firms and information organisations

R&D institutions:
- 7 – institutions of academic character
- 8 – institutions of industrial character
- 9 – higher education institutions

Publicly available information:
- 10 – conferences, seminars and symposia
- 11 – S&T literature
- 12 – exhibitions, fairs, other promotional activities
- 13 – the Internet
- 14 – professional associations
- 15 – informal contacts
- 16 – patent information
- 17 – other sources

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



Internal sources:
- 1 – internal sources within the enterprise
- 2 – enterprises within the same group

Market sources:
- 3 – suppliers of equipment, materials, components, software
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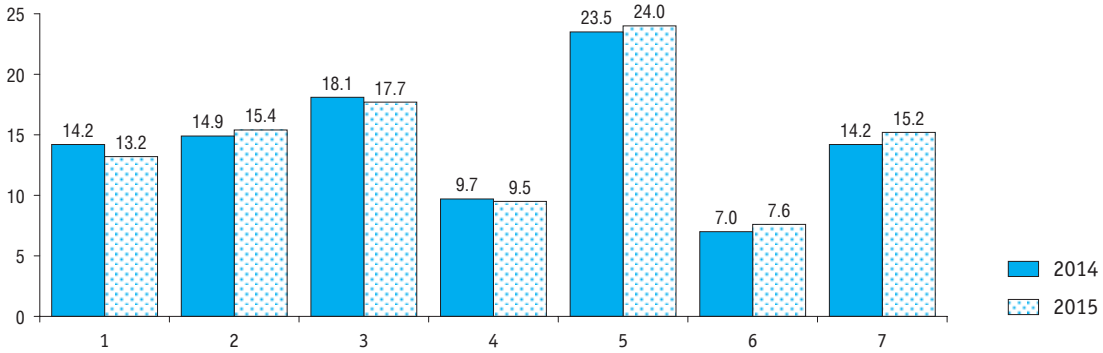
- 17 – other sources

3.51. ENTERPRISES CONSIDERING METHODS USED TO PROTECT VALUE OF INNOVATION AS PRINCIPAL AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

Mining and quarrying, manufacturing, electricity, gas and water supply



Formal methods:
- 1 – inventions, industrial designs and utility models patenting
- 2 – valid patents maintenance
- 3 – trade mark registration
- 4 – copyright protection

Informal methods:
- 5 – preservation of trade secrets, confidentiality and know-how protection
- 6 – product design complexity
- 7 – gaining competitive advantage over competitors regarding goods and services development and launch terms

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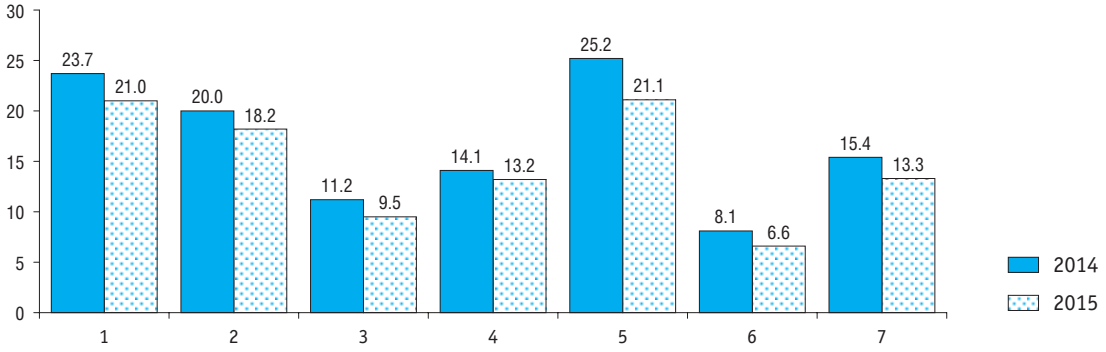
Communication, computer and information technology-related activities, research and development, other services of the business economy



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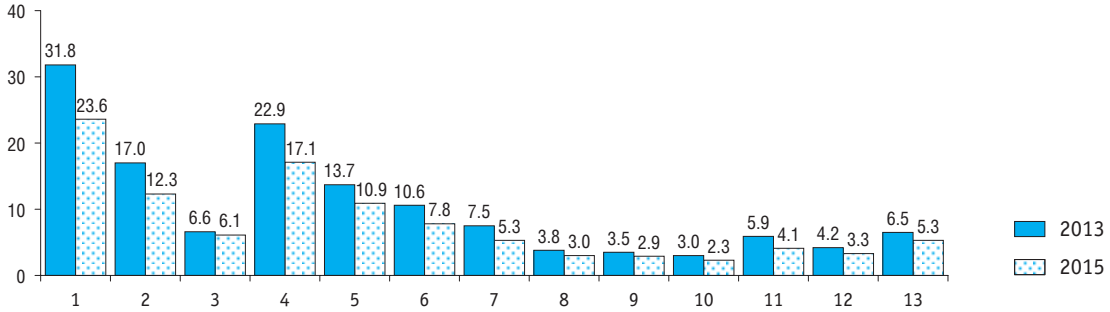
Informal methods:
- 5 – preservation of trade secrets, confidentiality and know-how protection
- 6 – product design complexity
- 7 – gaining competitive advantage over competitors regarding goods and services development and launch terms

3.52. ENTERPRISES CONSIDERING FACTORS HAMPERING TECHNOLOGICAL INNOVATION AS PRINCIPAL AS A PERCENTAGE OF ALL ENTERPRISES

Mining and quarrying, manufacturing, electricity, gas and water supply



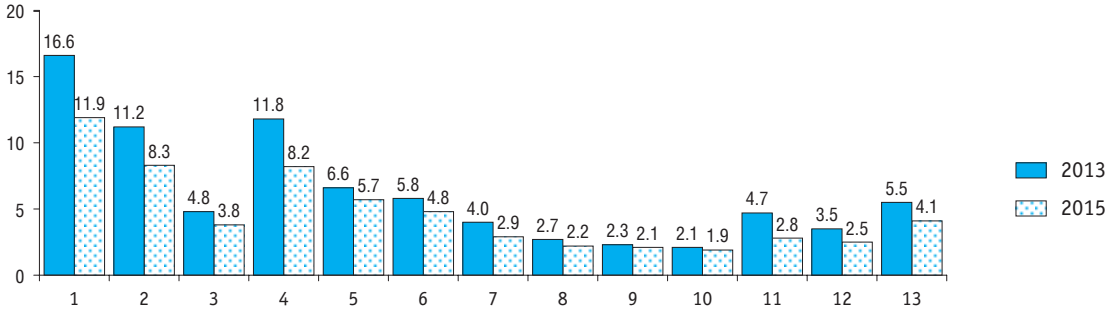
Economic factors:
- 1 – shortage of intramural funds within the enterprise
- 2 – lack of financial support from the government
- 3 – low demand for new goods and services
- 4 – high innovation costs
- 5 – high economic risks

Internal factors:
- 6 – low innovation potential of organisations
- 7 – shortage of qualified personnel
- 8 – lack of information about new technology
- 9 – lack of information about sales markets
- 10 – underdeveloped co-operation ties

Other factors:
- 11 – deficiencies in legislation regulating and promoting innovations
- 12 – underdeveloped infrastructure (intermediary, information, law, banking and other services) of innovation
- 13 – uncertainty of economic benefits

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



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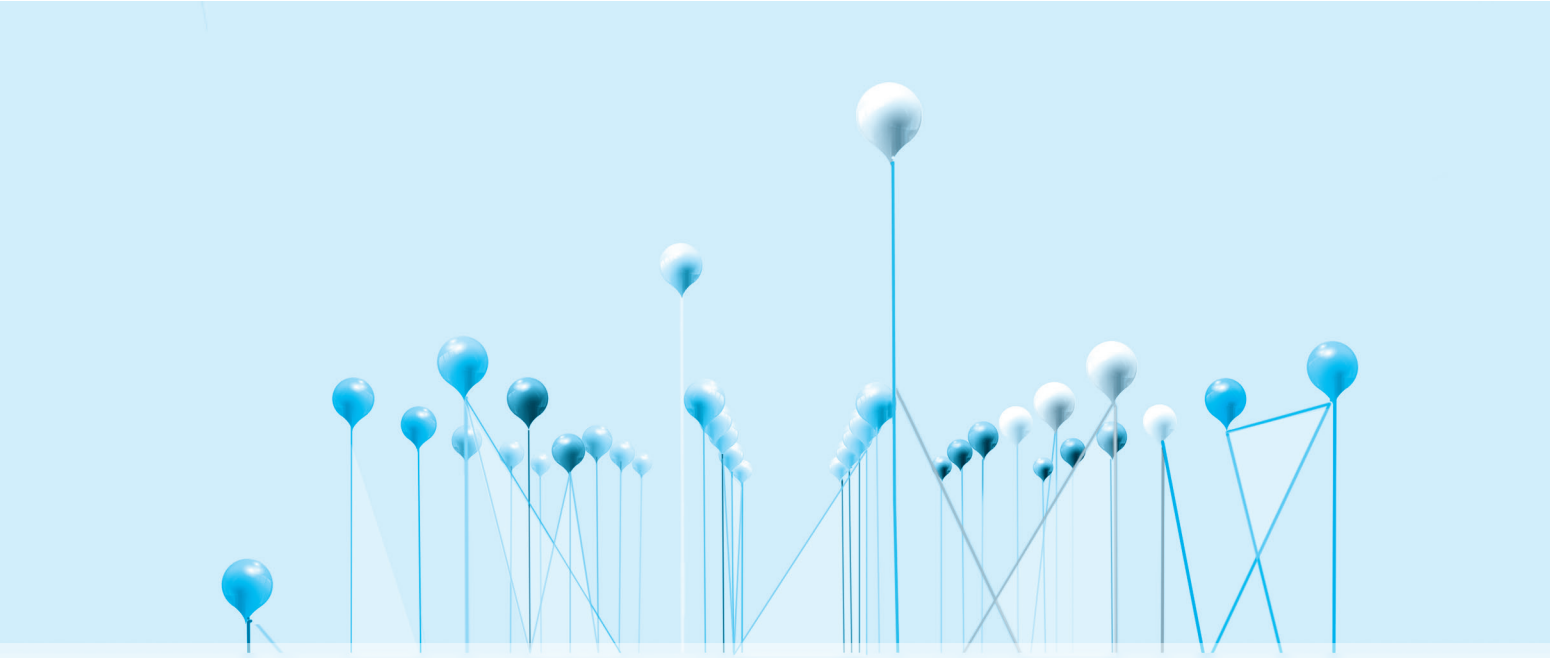
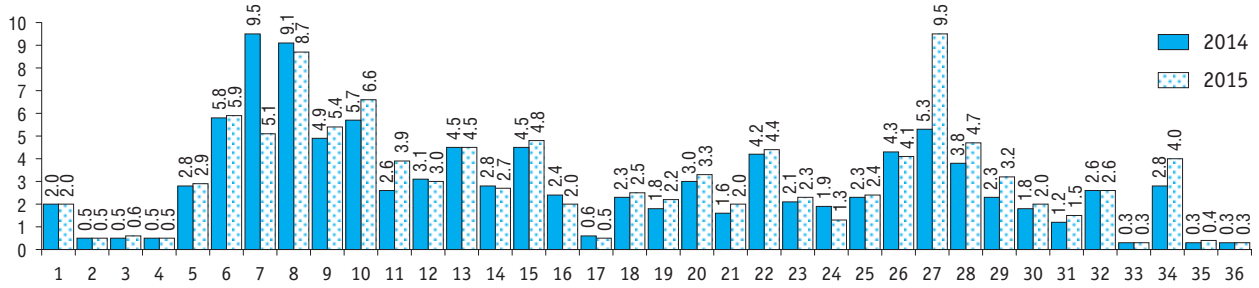


4. Marketing Innovation

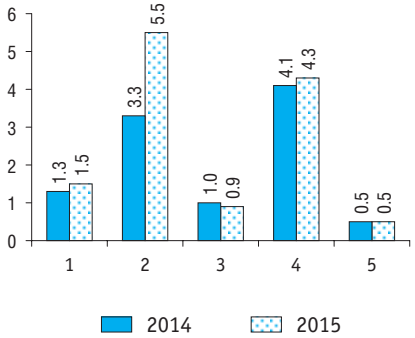
4.1. ENTERPRISES ENGAGED IN MARKETING INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

4.2. CO-OPERATION IN DEVELOPMENT OF MARKETING INNOVATION: 2015

(as a percentage of all enterprises that had market-ready marketing innovations during the last three years)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**10.4**	**33.1**	**7.7**	**51.2**
Mining and quarrying	14.3	57.1	–	28.6
Mining and quarrying of energy producing materials	20.0	60.0	–	20.0
Mining and quarrying, except energy producing materials	–	50.0	–	50.0
Manufacturing	10.0	33.1	7.4	52.0
High tech	7.8	39.0	10.4	51.9
Manufacture of pharmaceuticals and pharmaceutical products	20.0	70.0	–	10.0
Manufacture of office machinery and computers	–	–	25.0	75.0
Manufacture of radio, television and communication equipment and apparatus	–	44.4	11.1	55.6
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	7.9	31.6	7.9	57.9
Manufacture of aircraft, including spacecraft	14.3	42.9	28.6	57.1

(continued)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Medium high tech	5.7	25.2	5.7	64.2
Manufacture of chemicals and chemical products	7.4	29.6	7.4	59.3
Manufacture of machinery and equipment	4.7	23.3	7.0	65.1
Manufacture of electrical machinery and apparatus	7.0	20.9	4.7	67.4
Manufacture of motor vehicles, trailers and semi-trailers	–	40.0	–	60.0
Manufacture of other transport vehicles	–	–	–	–
Medium low tech	11.2	31.5	5.6	52.8
Manufacture of coke and refined petroleum products	–	66.7	33.3	–
Manufacture of rubber and plastic products	10.5	31.6	–-	57.9
Manufacture of other non-metallic mineral products	7.7	42.3	7.7	42.3
Manufacture of basic metals	18.8	31.3	6.3	43.8
Manufacture of fabricated metal products	9.5	14.3	4.8	76.2
Building and repair of ships and boats	25.0	25.0	–	50.0
Low tech	13.1	35.9	6.6	44.9
Manufacture of food products, including beverages	15.5	35.9	6.3	43.0
Manufacture of tobacco products	–	100	–	–-
Manufacture of textiles	–	11.1	–	88.9
Manufacture of wearing apparel, dressing and dyeing of fur	–	57.1	–	42.9
Manufacture of leather, leather products and footwear	100	–	–	–

(continued)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Woodworking and manufacture of wood and of products of wood and cork, except furniture	20.0	40.0	40.0	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	25.0	25.0	–	50.0
Publishing and printing activities, reproduction of recorded media	–	25.0	16.7	58.3
Manufacture of furniture and other products n.e.c.	–	58.3	–	41.7
Recycling of secondary raw materials	–	–	–	100
Electricity, gas and water supply	27.3	18.2	27.3	27.3
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**9.4**	**37.7**	**1.9**	**52.6**
Communication	8.2	41.0	0.7	50.0
Computer and information technology-related activities	23.5	29.4	–	47.1
Research and development	2.1	28.4	4.2	70.5
Other services of the business economy	18.8	46.9	1.6	32.8

4.3. SALES OF GOODS AND SERVICES PRODUCED USING MARKETING INNOVATION BY ECONOMIC ACTIVITY

	Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**125282.7**	**106980.8**	**0.3**	**0.3**
Mining and quarrying	6383.1	6626.6	0.1	0.1
Mining and quarrying of energy producing materials	6222.3	6569.3	0.1	0.1
Mining and quarrying, except energy producing materials	160.8	57.4	0.01	0.0
Manufacturing	96142.8	73341.6	0.4	0.3
High tech	15334.9	9118.8	1.0	0.5
Manufacture of pharmaceuticals and pharmaceutical products	942.2	–	0.4	–
Manufacture of office machinery and computers	–	4.2	–	0.01
Manufacture of radio, television and communication equipment and apparatus	2.0	2.3	0.0	0.0
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	3576.4	7684.5	1.0	1.7
Manufacture of aircraft, including spacecraft	10814.3	1427.9	1.7	0.2
Medium high tech	46304.1	31937.0	0.9	0.6
Manufacture of chemicals and chemical products	27102.6	30135.6	1.7	1.5
Manufacture of machinery and equipment	13989.1	1004.6	1.3	0.1
Manufacture of electrical machinery and apparatus	4718.9	587.6	1.0	0.1
Manufacture of motor vehicles, trailers and semi-trailers	419.2	207.7	0.03	0.02
Manufacture of other transport vehicles	74.3	1.6	0.02	0,0
Medium low tech	7896.0	9644.7	0.1	0.1
Manufacture of coke and refined petroleum products	–	–	–	–
Manufacture of rubber and plastic products	1305.7	2107.9	0.3	0.4
Manufacture of other non-metallic mineral products	2405.4	3714.6	0.2	0.4

(continued)

	Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015
Manufacture of basic metals	2572.1	2202.2	0.1	0.1
Manufacture of fabricated metal products	1612.8	1620.0	0.3	0.3
Building and repair of ships and boats	–	–	–	–
Low tech	26604.6	22611.1	0.5	0.4
Manufacture of food products, including beverages	18586.4	15228.0	0.5	0.4
Manufacture of tobacco products	3536.9	3080.0	1.7	1.2
Manufacture of textiles	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	1036.8	1093.8	2.2	2.0
Manufacture of leather, leather products and footwear	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	2612.1	1381.2	1.0	0.4
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	710.4	1337.1	0.2	0.3
Publishing and printing activities, reproduction of recorded media	69.9	34.3	0.03	0.02
Manufacture of furniture and other products n.e.c.	52.1	456.5	0.02	0.2
Recycling of secondary raw materials	–	–	–	-
Manufacture of other materials and substances n.e.c.	3.1	30.0	0.0	0.0
Electricity, gas and water supply	22756.7	27012.6	0.6	0.7
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**29441.5**	**22975.2**	**0.7**	**0.5**
Communication	3838.0	1904.6	0.2	0.1
Computer and information technology-related activities	4061.3	1013.8	1.2	0.2
Research and development	18721.1	16949.7	1.6	1.5
Other services of the business economy	2821.1	3107.2	0.2	0.2

4.4. EXPENDITURE ON MARKETING INNOVATION BY ECONOMIC ACTIVITY

(million roubles)

	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**12168.6**	**2510.5**
Mining and quarrying	39.1	6.5
Mining and quarrying of energy producing materials	11.9	6.0
Mining and quarrying, except energy producing materials	27.3	0.5
Manufacturing	12123.1	2503.1
High tech	9336.4	613.4
Manufacture of pharmaceuticals and pharmaceutical products	90.7	45.5
Manufacture of office machinery and computers	26.8	33.3
Manufacture of radio, television and communication equipment and apparatus	5.1	4.7
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	22.4	37.4
Manufacture of aircraft, including spacecraft	9191.5	492.5
Medium high tech	163.2	677.8
Manufacture of chemicals and chemical products	38.4	29.6
Manufacture of machinery and equipment	90.9	116.4
Manufacture of electrical machinery and apparatus	29.7	467.3
Manufacture of motor vehicles, trailers and semi-trailers	4.2	64.5
Manufacture of other transport vehicles	–	–
Medium low tech	237.6	110.2
Manufacture of coke and refined petroleum products	119.4	–
Manufacture of rubber and plastic products	31.5	41.0
Manufacture of other non-metallic mineral products	27.2	55.9

(continued)

	2014	2015
Manufacture of basic metals	54.2	6.2
Manufacture of fabricated metal products	5.4	7.0
Building and repair of ships and boats	0.0	0.1
Low tech	2356.4	1088.7
Manufacture of food products, including beverages	2253.1	1014.7
Manufacture of tobacco products	–	–
Manufacture of textiles	0.1	21.9
Manufacture of wearing apparel, dressing and dyeing of fur	68.0	7.7
Manufacture of leather, leather products and footwear	0.3	0.3
Woodworking and manufacture of wood and of products of wood and cork, except furniture	7.0	1.5
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	0.5	–
Publishing and printing activities, reproduction of recorded media	4.9	18.9
Manufacture of furniture and other products n.e.c.	22.3	23.7
Recycling of secondary raw materials	–	–
Manufacture of other materials and substances n.e.c.	29.5	13.0
Electricity, gas and water supply	6.3	1.0
Communication, computer and information technology-related activities, research and development, other services of the business economy		
Total	**790.5**	**503.6**
Communication	116.5	180.8
Computer and information technology-related activities	28.8	33.3
Research and development	609.4	225.0
Other services of the business economy	35.9	64.5

4.5. ENTERPRISES INTRODUCING SELECTED TYPES OF MARKETING CHANGES AS A PERCENTAGE OF ALL ENTERPRISES THAT HAD MARKET-READY MARKETING INNOVATIONS DURING THE LAST THREE YEARS BY INNOVATION AND ECONOMIC ACTIVITY: 2015

	Significant changes in design of goods or services	Significant changes in packaging	New marketing strategies for target customers number and market expansion	New product promotion techniques	New distribution channels	New product presentation concepts	New pricing strategies for selling goods and services	Other marketing innovations
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**50.8**	**46.0**	**66.9**	**63.8**	**49.8**	**53.8**	**51.9**	**8.1**
Mining and quarrying	28.6	14.3	57.1	42.9	71.4	42.9	57.1	14.3
Mining and quarrying of energy producing materials	40.0	20.0	60.0	40.0	80.0	60.0	60.0	20.0
Mining and quarrying, except energy producing materials	–	–	50.0	50.0	50.0	–	50.0	––
Manufacturing	51.8	47.4	67.1	64.3	49.4	54.0	52.0	8.0
High tech	41.6	26.0	67.5	62.3	57.1	62.3	54.5	9.1
Manufacture of pharmaceuticals and pharmaceutical products	70.0	70.0	80.0	80.0	70.0	80.0	70.0	10.0
Manufacture of office machinery and computers	50.0	25.0	50.0	100	75.0	75.0	75.0	–
Manufacture of radio, television and communication equipment and apparatus	27.8	16.7	66.7	50.0	55.6	61.1	44.4	22.2

(continued)

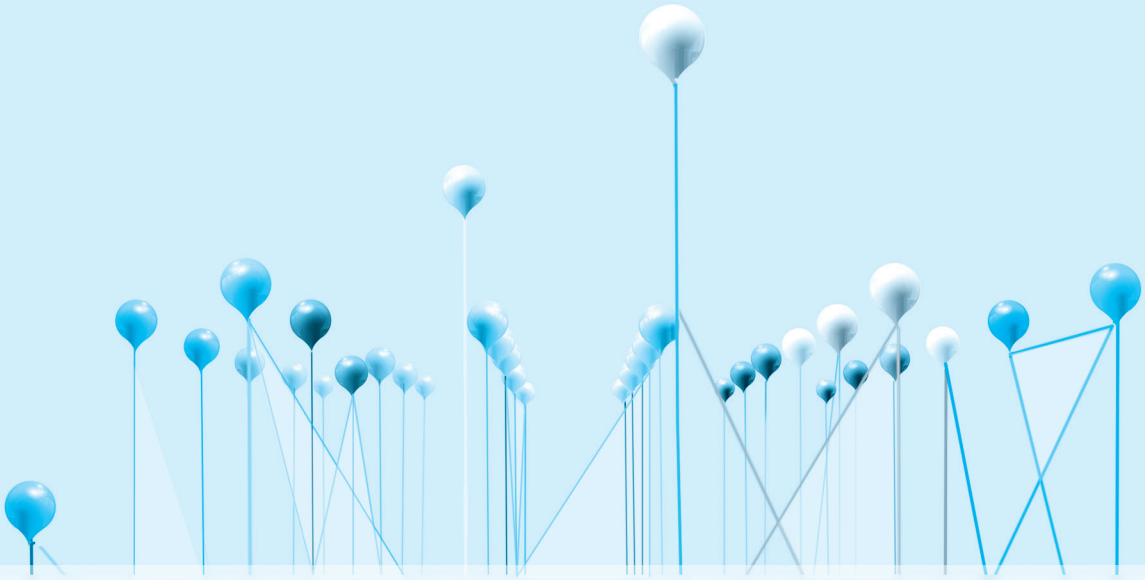
	Significant changes in design of goods or services	Significant changes in packaging	New marketing strategies for target customers number and market expansion	New product promotion techniques	New distribution channels	New product presentation concepts	New pricing strategies for selling goods and services	Other marketing innovations
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	47.4	23.7	65.8	65.8	50.0	55.3	57.9	5.3
Manufacture of aircraft, including spacecraft	–	–	71.4	28.6	71.4	71.4	28.6	–
Medium high tech	48.8	41.5	73.2	65.9	56.9	61.8	55.3	6.5
Manufacture of chemicals and chemical products	63.0	70.4	66.7	70.4	40.7	63.0	55.6	3.7
Manufacture of machinery and equipment	46.5	39.5	83.7	62.8	67.4	74.4	55.8	7.0
Manufacture of electrical machinery and apparatus	41.9	34.9	65.1	62.8	53.5	46.5	58.1	7.0
Manufacture of motor vehicles, trailers and semi-trailers	50.0	–	80.0	80.0	70.0	70.0	40.0	10.0
Manufacture of other transport vehicles	–	–	–	–	–	–	–	–
Medium low tech	39.3	36.0	71.9	65.2	48.3	56.2	53.9	9.0
Manufacture of coke and refined petroleum products	33.3	33.3	66.7	100	33.3	33.3	33.3	–
Manufacture of rubber and plastic products	36.8	36.8	94.7	68.4	52.6	47.4	63.2	10.5
Manufacture of other non-metallic mineral products	42.3	50.0	61.5	65.4	57.7	53.8	53.8	11.5
Manufacture of basic metals	31.3	31.3	81.3	62.5	31.3	37.5	50.0	–
Manufacture of fabricated metal products	47.6	28.6	52.4	57.1	52.4	81.0	52.4	14.3
Building and repair of ships and boats	25.0	–	100	75.0	25.0	75.0	50.0	–

(continued)

	Significant changes in design of goods or services	Significant changes in packaging	New marketing strategies for target customers number and market expansion	New product promotion techniques	New distribution channels	New product presentation concepts	New pricing strategies for selling goods and services	Other marketing innovations
Low tech	64.6	66.2	62.6	64.6	41.4	45.5	48.5	8.1
Manufacture of food products, including beverages	67.6	73.9	58.5	66.2	38.0	42.3	43.0	9.2
Manufacture of tobacco products	–	–	–	–	–	–	100	–
Manufacture of textiles	33.3	55.6	88.9	44.4	44.4	33.3	55.6	–
Manufacture of wearing apparel, dressing and dyeing of fur	71.4	71.4	57.1	71.4	57.1	85.7	85.7	28.6
Manufacture of leather, leather products and footwear	100	–	–	–	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	40.0	60.0	80.0	20.0	60.0	20.0	20.0	–
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	87.5	37.5	75.0	75.0	25.0	50.0	75.0	12.5
Publishing and printing activities, reproduction of recorded media	58.3	33.3	66.7	58.3	58.3	58.3	58.3	–
Manufacture of furniture and other products n.e.c.	58.3	50.0	91.7	91.7	66.7	75.0	66.7	–
Recycling of secondary raw materials	–	–	–	–	–	–	100	–
Electricity, gas and water supply	18.2	–	63.6	54.5	54.5	54.5	45.5	9.1

(continued)

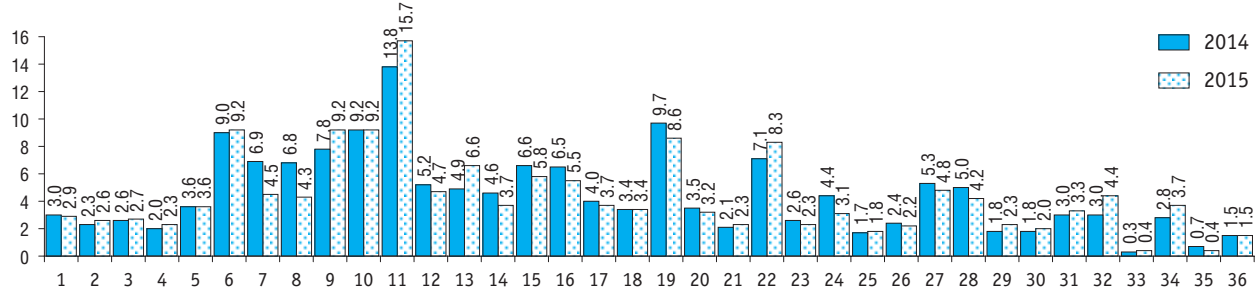
	Significant changes in design of goods or services	Significant changes in packaging	New marketing strategies for target customers number and market expansion	New product promotion techniques	New distribution channels	New product presentation concepts	New pricing strategies for selling goods and services	Other marketing innovations
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Total	**42.9**	**33.2**	**76.5**	**79.4**	**51.0**	**64.8**	**56.1**	**8.7**
Communication	64.9	65.7	91.8	94.0	73.9	73.1	85.8	3.7
Computer and information technology-related activities	47.1	5.9	64.7	88.2	47.1	64.7	58.8	–
Research and development	24.2	10.5	64.2	66.3	41.1	58.9	33.7	12.6
Other services of the business economy	23.4	6.3	65.6	65.6	18.8	56.3	26.6	15.6



5. Organisational Innovation

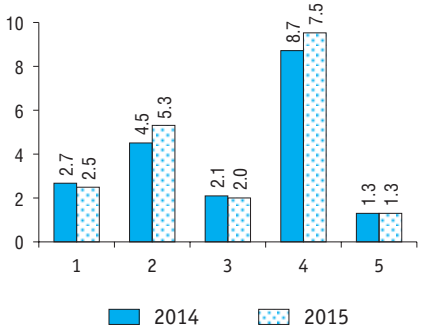
5.1. ENTERPRISES ENGAGED IN ORGANISATIONAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

5.2. CO-OPERATION IN DEVELOPMENT OF ORGANISATIONAL INNOVATION: 2015

(as a percentage of all enterprises that had market-ready organisational innovations during the last three years)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**15.5**	**31.9**	**7.1**	**47.7**
Mining and quarrying	29.5	43.2	2.3	25.0
Mining and quarrying of energy producing materials	43.3	40.0	–	16.7
Mining and quarrying, except energy producing materials	–	50.0	7.1	42.9
Manufacturing	11.3	30.8	7.4	52.5
High tech	11.0	29.9	9.4	55.1
Manufacture of pharmaceuticals and pharmaceutical products	18.2	27.3	–	54.5
Manufacture of office machinery and computers	–	–	–	100
Manufacture of radio, television and communication equipment and apparatus	6.7	30.0	16.7	53.3
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	10.3	29.3	6.9	55.2
Manufacture of aircraft, including spacecraft	15.4	34.6	11.5	53.8

(continued)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Medium high tech	11.8	27.0	5.2	56.4
Manufacture of chemicals and chemical products	15.0	37.5	5.0	42.5
Manufacture of machinery and equipment	5.3	28.9	5.3	60.5
Manufacture of electrical machinery and apparatus	16.0	14.0	6.0	64.0
Manufacture of motor vehicles, trailers and semi-trailers	–	28.6	3.6	67.9
Manufacture of other transport vehicles	41.2	29.4	5.9	29.4
Medium low tech	8.8	30.7	9.5	51.8
Manufacture of coke and refined petroleum products	20.0	26.7	13.3	40.0
Manufacture of rubber and plastic products	13.0	39.1	–	47.8
Manufacture of other non-metallic mineral products	6.7	33.3	13.3	46.7
Manufacture of basic metals	2.7	35.1	13.5	51.4
Manufacture of fabricated metal products	12.0	16.0	8.0	64.0
Building and repair of ships and boats	–	28.6	–	71.4
Low tech	15.4	34.6	5.1	45.6
Manufacture of food products, including beverages	19.5	33.8	2.6	45.5
Manufacture of tobacco products	–	100	–	–
Manufacture of textiles	–	33.3	11.1	55.6
Manufacture of wearing apparel, dressing and dyeing of fur	–	33.3	–	66.7
Manufacture of leather, leather products and footwear	–	50.0	–	50.0

(continued)

	Enterprises for which the innovations were developed			
	mainly by external organisations	jointly with other organisations	by changing or modifying products developed by an external organisation	mainly in-house
Woodworking and manufacture of wood and of products of wood and cork, except furniture	7.1	50.0	7.1	35.7
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	10.0	20.0	20.0	50.0
Publishing and printing activities, reproduction of recorded media	11.1	22.2	11.1	55.6
Manufacture of furniture and other products n.e.c.	30.0	30.0	–	40.0
Recycling of secondary raw materials	–	100	–	–
Electricity, gas and water supply	33.9	33.9	7.8	28.7
Communication, computer and information technology-related activities, research and development, other services of the business economy				
Total	**17.3**	**37.9**	**5.6**	**41.1**
Communication	15.0	57.1	4.8	23.1
Computer and information technology-related activities	20.4	30.6	8.2	40.8
Research and development	5.0	32.2	6.5	60.3
Other services of the business economy	32.2	30.5	4.5	34.5

5.3. EXPENDITURE ON ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

(million roubles)

	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**3320.7**	**3015.6**
Mining and quarrying	34.0	121.2
Mining and quarrying of energy producing materials	26.2	35.4
Mining and quarrying, except energy producing materials	7.7	85.8
Manufacturing	2918.7	2722.3
High tech	440.2	534.4
Manufacture of pharmaceuticals and pharmaceutical products	15.3	111.6
Manufacture of office machinery and computers	10.4	9.6
Manufacture of radio, television and communication equipment and apparatus	21.7	83.6
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	142.8	88.9
Manufacture of aircraft, including spacecraft	250.1	240.6
Medium high tech	358.6	349.8
Manufacture of chemicals and chemical products	46.9	119.8
Manufacture of machinery and equipment	146.1	64.0
Manufacture of electrical machinery and apparatus	31.7	53.5
Manufacture of motor vehicles, trailers and semi-trailers	41.9	5.6
Manufacture of other transport vehicles	92.0	107.0
Medium low tech	1035.2	1532.8
Manufacture of coke and refined petroleum products	836.9	724.8
Manufacture of rubber and plastic products	3.7	7.8

(continued)

	2014	2015
Manufacture of other non-metallic mineral products	47.6	85.8
Manufacture of basic metals	137.7	656.7
Manufacture of fabricated metal products	2.7	49.0
Building and repair of ships and boats	6.6	8.8
Low tech	368.7	137.1
Manufacture of food products, including beverages	268.4	40.2
Manufacture of tobacco products	–	1.7
Manufacture of textiles	63.0	3.7
Manufacture of wearing apparel, dressing and dyeing of fur	2.3	1.9
Manufacture of leather, leather products and footwear	0.3	0.5
Woodworking and manufacture of wood and of products of wood and cork, except furniture	2.0	30.3
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	0.3	5.3
Publishing and printing activities, reproduction of recorded media	1.7	14.0
Manufacture of furniture and other products n.e.c.	30.9	39.4
Recycling of secondary raw materials	–	–
Manufacture of other materials and substances n.e.c.	716.0	168.3
Electricity, gas and water supply	368.1	172.1

(continued)

	2014	2015
Communication, computer and information technology-related activities, research and development, other services of the business economy		
Total	**3299.9**	**1626.6**
Communication	1335.0	766.2
Computer and information technology-related activities	65.8	46.8
Research and development	1562.5	464.2
Other services of the business economy	336.7	349.3

5.4. ENTERPRISES INTRODUCING SELECTED TYPES OF ORGANISATIONAL CHANGES AS A PERCENTAGE OF ALL ENTERPRISES THAT HAD MARKET-READY ORGANISATIONAL INNOVATIONS DURING THE LAST THREE YEARS BY TYPE OF INNOVATION AND ECONOMIC ACTIVITY: 2015

	Implementation of new or significantly changed corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or significantly changed organisational structures	Changes in the use of shift work	Use of modern systems of quality control, certification of goods and services	Introduction of modern systems of logistics and of materials and components supply	Creation of specialised R&D units and units engaged in practical implementation of S&T advancements	Implementation of corporate knowledge management systems	Personnel development programmes	Implementation of new forms of strategic alliances, partner¬ships and other co-operation ties with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Mining and quarrying, manufacturing, electricity, gas and water supply												
Total	**33.1**	**58.6**	**53.4**	**20.0**	**62.3**	**29.4**	**17.0**	**29.8**	**72.3**	**24.4**	**33.7**	**12.1**
Mining and quarrying	22.7	52.3	29.5	11.4	40.9	9.1	6.8	43.2	75.0	9.1	38.6	6.8
Mining and quarrying of energy producing materials	26.7	50.0	26.7	6.7	43.3	6.7	6.7	53.3	76.7	6.7	26.7	3.3
Mining and quarrying, except energy producing materials	14.3	54.1	35.7	21.4	35.7	14.3	7.1	21.4	71.4	14.3	64.3	14.3
Manufacturing	35.5	60.9	57.6	22.2	66.8	34.2	20.1	30.6	74.4	28.6	32.9	10.4
High tech	39.4	66.9	66.1	23.6	70.9	29.1	33.9	30.7	76.4	38.6	41.7	10.2
Manufacture of pharmaceuticals and pharmaceutical products	36.4	45.5	54.5	27.3	72.7	18.2	45.5	18.2	63.6	27.3	36.4	9.1
Manufacture of office machinery and computers	100	100	100	–	100	100	50.0	50.0	100	100	100	–

(continued)

	Implementation of new or significantly changed corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or significantly changed organisational structures	Changes in the use of shift work	Use of modern systems of quality control, certification of goods and services	Introduction of modern systems of logistics and of materials and components supply	Creation of specialised R&D units and units engaged in practical implementation of S&T advancements	Implementation of corporate knowledge management systems	Personnel development programmes	Implementation of new forms of strategic alliances, partner¬ships and other co-operation ties with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Manufacture of radio, television and communication equipment and apparatus	50.0	73.3	70.0	33.3	70.0	36.7	50.0	46.7	70.0	50.0	43.3	16.7
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	34.5	65.5	67.2	20.7	75.9	24.1	27.6	27.6	81.0	31.0	36.2	10.3
Manufacture of aircraft, including spacecraft	34.6	69.2	61.5	19.2	57.7	30.8	23.1	23.1	76.9	42.3	50.0	3.8
Medium high tech	37.0	57.8	58.3	27.0	66.4	35.1	22.7	29.9	73.5	27.0	34.1	10.0
Manufacture of chemicals and chemical products	20.0	55.0	67.5	25.0	55.0	30.0	22.5	25.0	70.0	10.0	37.5	12.5
Manufacture of machinery and equipment	40.8	59.2	55.3	27.6	68.4	36.8	28.9	34.2	75.0	38.2	32.9	5.3
Manufacture of electrical machinery and apparatus	44.0	58.0	62.0	32.0	72.0	38.0	28.0	26.0	82.0	28.0	24.0	12.0
Manufacture of motor vehicles, trailers and semi-trailers	42.9	64.3	57.1	28.6	71.4	42.9	7.1	32.1	67.9	25.0	35.7	10.7

(continued)

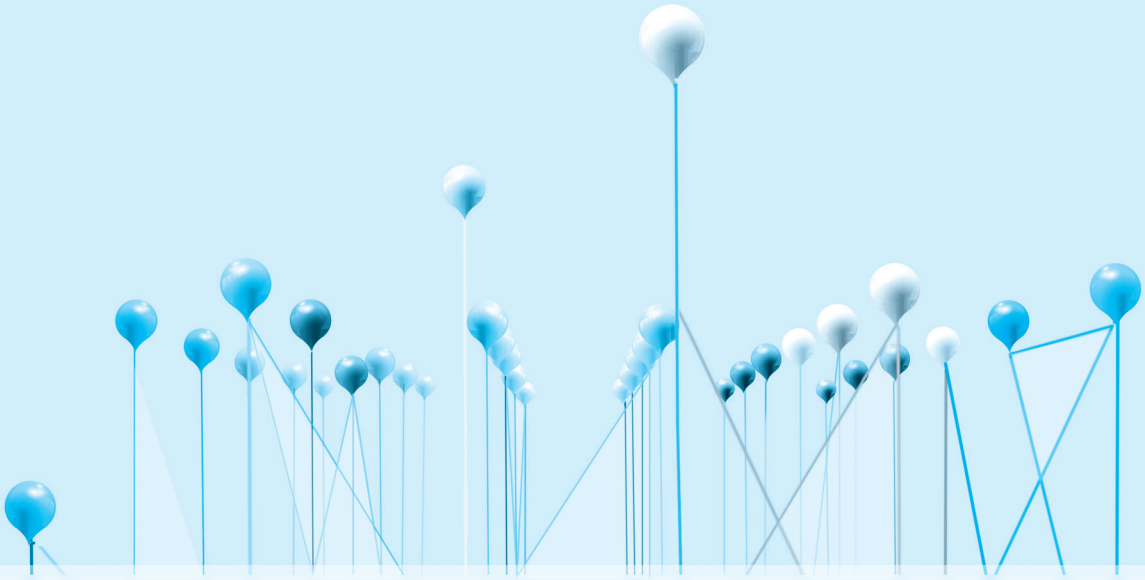
	Implementation of new or significantly changed corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or significantly changed organisational structures	Changes in the use of shift work	Use of modern systems of quality control, certification of goods and services	Introduction of modern systems of logistics and of materials and components supply	Creation of specialised R&D units and units engaged in practical implementation of S&T advancements	Implementation of corporate knowledge management systems	Personnel development programmes	Implementation of new forms of strategic alliances, partner¬ships and other co-operation ties with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Manufacture of other transport vehicles	29.4	47.1	41.2	11.8	58.8	17.6	5.9	29.4	58.8	17.6	58.8	17.6
Medium low tech	35.8	56.9	56.9	18.2	65.0	29.9	13.9	29.9	81.8	28.5	34.3	9.5
Manufacture of coke and refined petroleum products	40.0	60.0	66.7	20.0	53.3	13.3	20.0	53.3	80.0	13.3	40.0	26.7
Manufacture of rubber and plastic products	26.1	56.5	47.8	21.7	82.6	47.8	4.3	17.4	87.0	26.1	34.8	8.7
Manufacture of other non-metallic mineral products	36.7	56.7	46.7	10.0	66.7	30.0	10.0	26.7	73.3	23.3	26.7	–
Manufacture of basic metals	40.5	48.6	64.9	27.0	56.8	29.7	13.5	24.3	83.8	24.3	43.2	10.8
Manufacture of fabricated metal products	40.0	72.0	60.0	12.0	68.0	28.0	28.0	44.0	84.0	52.0	32.0	12.0
Building and repair of ships and boats	14.3	42.9	57.1	14.3	57.1	14.3	–	14.3	85.7	28.6	14.3	–
Low tech	27.9	61.0	42.6	20.6	64.7	40.4	8.1	30.9	63.2	19.1	24.3	10.3
Manufacture of food products, including beverages	19.5	58.4	33.8	14.3	70.1	39.0	3.9	31.2	55.8	15.6	18.2	10.4
Manufacture of tobacco products	–	100	100	–	100	–	–	–	100	–	100	–
Manufacture of textiles	22.2	33.3	66.7	11.1	33.3	11.1	22.2	11.1	77.8	11.1	11.1	–

(continued)

	Implementation of new or significantly changed corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or significantly changed organisational structures	Changes in the use of shift work	Use of modern systems of quality control, certification of goods and services	Introduction of modern systems of logistics and of materials and components supply	Creation of specialised R&D units and units engaged in practical implementation of S&T advancements	Implementation of corporate knowledge management systems	Personnel development programmes	Implementation of new forms of strategic alliances, partner¬ships and other co-operation ties with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Manufacture of wearing apparel, dressing and dyeing of fur	33.3	100	100	33.3	66.7	66.7	33.3	–	66.7	66.7	66.7	33.3
Manufacture of leather, leather products and footwear	–	–	–	–	100	–	50.0	–	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	42.9	78.6	50.0	35.7	64.3	42.9	14.3	35.7	78.6	28.6	28.6	7.1
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	50.0	80.0	60.0	30.0	70.0	60.0	10.0	70.0	80.0	30.0	50.0	10.0
Publishing and printing activities, reproduction of recorded media	55.6	66.7	44.4	22.2	55.6	66.7	–	33.3	66.7	22.2	33.3	–
Manufacture of furniture and other products n.e.c.	40.0	60.0	50.0	40.0	50.0	40.0	10.0	20.0	70.0	20.0	30.0	30.0
Recycling of secondary raw materials	–	–	–	100	–	–	–	–	100	–	–	–
Electricity, gas and water supply	23.5	47.8	39.1	10.4	45.2	10.4	3.5	20.0	59.1	6.1	36.5	23.5

(continued)

	Implementation of new or significantly changed corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or significantly changed organisational structures	Changes in the use of shift work	Use of modern systems of quality control, certification of goods and services	Introduction of modern systems of logistics and of materials and components supply	Creation of specialised R&D units and units engaged in practical implementation of S&T advancements	Implementation of corporate knowledge management systems	Personnel development programmes	Implementation of new forms of strategic alliances, partner¬ships and other co-operation ties with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Communication, computer and information technology-related activities, research and development, other services of the business economy												
Total	**43.7**	**66.6**	**62.2**	**14.7**	**53.0**	**24.1**	**25.0**	**38.1**	**74.8**	**25.7**	**32.0**	**10.1**
Communication	59.2	58.5	72.8	12.9	43.5	23.1	14.3	57.1	74.8	23.8	40.1	8.2
Computer and information technology-related activities	38.8	81.6	67.3	18.4	40.8	18.4	22.4	38.8	79.6	28.6	38.8	4.1
Research and development	47.2	71.4	66.3	13.1	67.8	30.7	41.7	35.7	77.9	39.7	30.2	11.1
Other services of the business economy	28.2	63.8	47.5	16.9	47.5	19.2	15.8	24.9	70.1	10.7	25.4	12.4



6. Innovative Activity in Russian Regions

6.1. ENTERPRISES ENGAGED IN TECHNOLOGICAL, MARKETING, AND ORGANISATIONAL INNOVATION

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply								
Russian Federation	**10.9**	**10.6**	**9.7**	**9.5**	**2.0**	**2.0**	**3.0**	**2.9**
Central Federal District	**11.5**	**11.6**	**10.3**	**10.5**	**2.1**	**2.3**	**3.1**	**3.0**
Belgorod Region	13.9	16.2	12.6	15.1	2.0	2.9	2.7	2.6
Bryansk Region	11.5	10.9	9.5	10.2	4.4	2.5	4.1	2.5
Vladimir Region	15.8	12.5	14.1	11.4	3.0	3.7	5.3	4.8
Voronezh Region	11.7	12.4	11.5	12.1	1.4	1.3	2.2	2.2
Ivanovo Region	6.1	4.5	5.2	4.5	–	0.5	1.3	1.5
Kaluga Region	11.9	12.0	10.3	10.7	3.9	3.3	5.5	3.3
Kostroma Region	7.4	6.6	6.5	6.1	1.4	1.4	1.4	1.4
Kursk Region	10.4	7.4	8.1	6.8	1.7	1.1	5.2	2.8
Lipetsk Region	25.3	25.0	23.1	23.3	3.8	4.0	3.3	3.4
Moscow Region	9.0	8.0	7.8	7.3	2.2	2.0	2.8	2.3
Oryol Region	12.2	14.2	11.1	11.0	1.1	1.9	1.7	2.6
Ryazan Region	12.2	12.2	10.1	10.8	0.4	1.8	3.8	4.1
Smolensk Region	8.0	8.4	7.2	7.1	1.2	1.3	1.6	1.7
Tambov Region	12.2	13.2	10.4	11.2	1.7	2.0	2.2	2.0
Tver Region	7.3	8.0	6.5	6.6	0.8	0.5	1.6	1.9
Tula Region	15.2	16.3	14.5	15.0	1.9	2.7	3.5	5.4
Yaroslavl Region	11.6	12.2	10.5	10.6	2.6	3.8	4.5	4.2
Moscow	15.7	18.5	15.1	17.2	2.9	3.9	3.5	4.7

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Northwestern Federal District	**9.9**	**9.6**	**8.4**	**8.2**	**1.9**	**2.1**	**2.6**	**2.7**
Republic of Karelia	3.5	6.3	2.3	4.2	–	–	1.2	3.2
Komi Republic	9.3	4.5	8.1	4.1	0.8	0.4	0.8	1.2
Arkhangelsk Region	5.0	6.6	4.7	5.8	0.4	0.4	1.2	1.2
Nenets Autonomous District	2.6	5.9	2.6	5.9	–	2.9	–	–
Vologda Region	6.8	6.1	5.9	6.1	1.4	1.8	3.2	2.6
Kaliningrad Region	1.5	4.7	0.8	4.3	0.4	–	0.4	2.1
Leningrad Region	9.5	10.5	8.7	9.4	1.9	2.3	3.2	3.1
Murmansk Region	12.3	10.8	8.4	7.8	1.3	–	5.8	3.6
Novgorod Region	7.2	8.4	6.5	7.1	1.3	0.6	0.7	0.6
Pskov Region	11.2	9.9	10.0	9.4	1.8	2.3	1.8	0.6
Saint-Petersburg	17.0	15.7	14.5	13.0	4.1	5.5	4.2	4.5
Southern Federal District	**9.0**	**10.0**	**7.9**	**9.1**	**1.4**	**0.9**	**2.4**	**2.5**
Republic of Adygeya	10.0	8.8	6.0	7.4	4.0	2.9	2.0	1.5
Republic of Kalmykia	–	–	–	–	–	–	–	–
Krasnodar Krai	8.3	10.7	6.6	8.7	1.4	1.0	3.1	4.7
Astrakhan Region	12.2	10.8	11.6	10.8	–	–	2.1	1.7
Volgograd Region	6.3	7.0	5.6	6.8	1.1	0.2	1.5	1.3
Rostov Region	11.1	11.9	10.5	11.2	1.8	1.3	2.4	1.3
North Caucasian Federal District	**5.4**	**3.6**	**4.6**	**3.3**	**1.3**	**0.8**	**1.1**	**0.5**
Republic of Dagestan	9.5	6.5	4.8	4.8	6.3	3.2	3.2	1.6
Republic of Ingushetia	–	–	–	–	–	–	–	–
Kabardino-Balkar Republic	5.7	1.9	5.7	1.9	2.3	1.0	2.3	1.0
Karachai-Cherkess Republic	–	–	–	–	–	–	–	–

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Republic of North Ossetia – Alania	5.4	1.3	4.1	1.3	–	–	1.4	–
Chechen Republic	–	–	–	–	–	–	–	–
Stavropol Krai	7.2	5.9	6.6	5.6	1.2	0.9	0.9	0.6
Volga Federal District	**13.6**	**12.9**	**12.4**	**11.8**	**2.7**	**2.5**	**3.4**	**3.6**
Republic of Bashkortostan	11.9	10.8	9.9	9.9	2.6	2.7	4.2	3.2
Republic of Mari El	8.8	10.8	7.3	9.4	2.2	1.4	2.2	3.6
Republic of Mordovia	20.7	19.7	18.7	18.7	4.9	4.4	6.4	5.9
Republic of Tatarstan	22.1	24.3	20.6	23.3	5.2	5.5	4.7	4.5
Udmurt Republic	15.1	14.0	14.8	12.5	3.9	3.9	5.3	5.7
Chuvash Republic	29.7	29.4	28.8	28.0	4.6	7.8	4.1	6.0
Perm Krai	13.6	13.3	12.1	12.0	2.6	4.1	3.5	5.2
Kirov Region	11.2	10.7	9.5	9.2	2.0	1.8	3.1	1.8
Nizhny Novgorod Region	15.6	13.9	13.7	11.9	2.2	1.7	4.3	4.9
Orenburg Region	12.3	11.6	11.6	11.3	2.5	1.8	3.2	4.2
Penza Region	19.5	16.3	18.8	14.2	3.0	1.4	4.1	4.2
Samara Region	7.6	6.9	7.0	6.5	1.2	0.9	1.3	1.8
Saratov Region	9.3	8.6	8.8	7.5	1.4	1.1	2.3	2.5
Ulyanovsk Region	6.4	6.0	5.2	5.0	2.0	0.7	1.5	1.2
Ural Federal District	**10.5**	**10.2**	**8.6**	**8.8**	**1.9**	**2.0**	**3.8**	**3.5**
Kurgan Region	11.0	10.6	8.9	10.0	2.7	1.2	1.4	0.6
Sverdlovsk Region	11.3	9.8	9.5	9.2	2.4	1.1	4.5	3.9
Tyumen Region	9.6	9.0	7.4	7.2	1.2	1.7	3.2	2.5
Khanty-Mansi Autonomous District – Yugra	6.8	6.9	4.9	5.0	0.3	0.6	3.3	2.8
Yamalo-Nenets Autonomous District	11.2	9.1	11.2	7.7	0.9	1.4	2.6	3.5

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Chelyabinsk Region	10.5	12.1	9.2	10.3	2.1	3.5	4.3	5.3
Siberian Federal District	**9.2**	**8.6**	**8.4**	**7.9**	**1.7**	**1.7**	**3.0**	**2.8**
Republic of Altai	17.8	21.4	17.8	21.4	–	–	2.2	–
Republic of Buryatia	9.2	5.2	8.3	3.7	1.7	2.2	4.2	3.7
Republic of Tyva	–	3.6	–	3.6	–	–	–	–
Republic of Khakassia	4.9	1.3	4.9	1.3	1.6	–	1.6	–
Altai Krai	12.2	12.7	11.7	12.7	2.7	3.2	3.8	3.5
Zabaikalye Krai	4.6	5.3	3.0	4.2	1.0	–	2.0	2.1
Krasnoyarsk Krai	11.4	10.5	10.8	9.5	2.2	2.5	3.5	3.8
Irkutsk Region	7.0	8.6	5.9	7.9	0.7	0.7	3.3	2.5
Kemerov Region	8.1	4.5	6.2	4.1	1.2	0.4	3.1	1.7
Novosibirsk Region	8.0	7.6	7.7	6.9	1.5	1.5	0.8	1.8
Omsk Region	10.6	10.4	9.9	9.4	1.3	1.6	3.0	3.9
Tomsk Region	13.3	12.8	12.8	11.5	4.4	4.3	6.2	5.1
Far Eastern Federal District	**10.1**	**8.9**	**9.0**	**8.2**	**1.1**	**1.1**	**2.0**	**2.1**
Republic of Sakha (Yakutia)	10.6	6.2	9.1	6.2	1.5	1.1	2.5	2.3
Kamchatka Krai	6.5	8.2	6.5	8.2	–	1.6	–	–
Primorye Krai	13.0	10.8	10.5	9.6	2.5	0.8	2.9	1.6
Khabarovsk Krai	10.8	9.3	10.2	8.7	0.6	1.9	3.6	3.1
Amur Region	5.7	5.8	5.7	4.3	0.7	1.4	0.7	2.2
Magadan Region	16.3	18.8	15.2	17.6	1.1	1.2	3.3	3.5
Sakhalin Region	4.3	3.8	4.3	3.8	–	–	–	–
Jewish Autonomous Region	3.1	4.5	3.1	4.5	–	–	–	–
Chukotka Autonomous District	33.3	26.1	33.3	26.1	–	4.3	–	13.0

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Crimean Federal District	**10.9**	**4.1**	**10.9**	**3.4**	**–**	**2.2**	**–**	**1.5**
Republic of Crimea	13.6	4.7	13.6	3.8	–	2.5	–	1.7
Sevastopol	–	–	–	–	–	–	–	–
Communication, computer and information technology-related activities, research and development, other services of the business economy								
Russian Federation	**8.5**	**7.9**	**7.6**	**6.8**	**1.3**	**1.5**	**2.7**	**2.5**
Central Federal District	**9.9**	**10.1**	**9.1**	**9.0**	**1.7**	**2.0**	**2.9**	**3.0**
Belgorod Region	5.6	5.5	5.6	4.7	0.8	0.8	0.8	1.6
Bryansk Region	3.9	4.1	3.0	3.3	0.4	0.8	0.9	1.2
Vladimir Region	7.5	9.6	7.5	8.3	1.6	1.8	1.1	1.8
Voronezh Region	8.6	9.4	8.0	8.8	2.5	1.6	2.2	1.9
Ivanovo Region	6.7	4.2	5.3	2.1	2.0	2.1	2.0	2.1
Kaluga Region	6.3	9.1	4.3	6.5	2.4	3.8	2.9	4.8
Kostroma Region	4.0	9.8	4.0	8.5	1.3	5.4	2.0	4.0
Kursk Region	9.2	7.3	5.4	4.0	2.3	2.7	4.6	4.0
Lipetsk Region	4.6	9.8	4.6	9.8	–	1.2	–	1.2
Moscow Region	8.3	8.0	7.3	7.0	1.1	1.3	3.2	2.6
Oryol Region	3.6	4.4	2.1	3.7	0.7	1.5	0.7	0.7
Ryazan Region	15.6	13.9	14.4	12.2	5.6	6.1	1.1	3.5
Smolensk Region	3.9	5.5	3.1	4.7	2.4	2.3	2.4	2.3
Tambov Region	6.0	6.7	6.0	6.3	–	0.4	–	0.8
Tver Region	9.4	7.9	9.4	7.9	0.5	1.9	2.6	2.8
Tula Region	8.4	6.5	8.4	5.9	1.9	2.0	0.9	2.0
Yaroslavl Region	8.2	4.8	8.2	4.0	1.8	1.1	1.2	1.8
Moscow	21.0	20.7	20.1	19.4	2.7	2.5	6.4	5.8

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Northwestern Federal District	**10.9**	**9.8**	**9.6**	**8.1**	**1.6**	**2.1**	**3.5**	**3.8**
Republic of Karelia	12.2	8.0	9.8	6.3	2.4	1.8	7.3	5.4
Komi Republic	8.1	6.5	6.1	2.9	1.0	3.6	1.0	0.7
Arkhangelsk Region	5.0	5.1	3.8	3.5	2.1	1.6	2.1	2.3
Nenets Autonomous District	3.8	4.2	3.8	4.2	–	–	–	–
Vologda Region	4.0	4.8	2.6	3.6	0.7	0.6	2.6	3.0
Kaliningrad Region	3.8	3.5	2.7	2.5	0.5	1.0	2.2	2.5
Leningrad Region	4.9	9.1	4.9	5.1	–	3.0	1.2	5.1
Murmansk Region	8.5	8.3	8.0	7.8	1.1	0.5	0.5	1.4
Novgorod Region	8.5	9.5	8.5	7.8	2.5	1.7	3.4	4.3
Pskov Region	4.9	2.0	3.7	2.0	1.2	–	–	–
Saint-Petersburg	21.4	19.1	19.7	17.1	2.3	3.8	6.8	7.1
Southern Federal District	**6.2**	**5.5**	**5.2**	**4.7**	**0.9**	**0.8**	**2.2**	**1.8**
Republic of Adygeya	4.8	6.5	4.8	2.2	–	2.2	4.8	6.5
Republic of Kalmykia	3.5	3.4	3.5	3.4	–	1.7	1.8	1.7
Krasnodar Krai	4.3	3.4	3.2	2.6	0.8	0.5	2.0	1.4
Astrakhan Region	12.7	13.7	11.5	13.1	1.9	0.7	3.2	3.3
Volgograd Region	6.5	5.4	5.4	4.7	0.7	0.3	3.1	1.9
Rostov Region	7.4	7.3	6.5	6.7	0.9	1.4	1.6	1.4
North Caucasian Federal District	**9.0**	**7.0**	**8.5**	**6.7**	**1.1**	**1.6**	**3.1**	**1.9**
Republic of Dagestan	21.1	10.0	21.1	10.0	–	5.0	5.3	5.0
Republic of Ingushetia	28.6	8.3	28.6	8.3	–	–	14.3	–
Kabardino-Balkar Republic	8.5	3.6	8.5	3.6	2.1	1.8	4.3	1.8
Karachai-Cherkess Republic	11.1	9.7	8.3	6.5	2.8	3.2	5.6	3.2

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Republic of North Ossetia – Alania	8.1	7.5	8.1	7.5	1.6	1.9	1.6	1.9
Chechen Republic	1.2	3.5	1.2	3.5	–	1.2	1.2	1.2
Stavropol Krai	12.2	9.5	11.2	9.5	1.0	0.9	3.1	1.7
Volga Federal District	**8.1**	**7.7**	**7.3**	**6.5**	**1.3**	**1.6**	**2.8**	**2.6**
Republic of Bashkortostan	8.2	7.2	7.4	5.9	1.0	0.6	1.5	2.3
Republic of Mari El	4.5	5.0	4.5	5.0	–	2.0	1.1	2.0
Republic of Mordovia	12.6	10.1	12.6	7.1	1.1	3.0	3.4	5.1
Republic of Tatarstan	16.7	13.9	14.9	12.8	3.1	3.0	5.3	4.1
Udmurt Republic	5.0	6.0	4.1	5.6	0.4	0.4	3.3	2.0
Chuvash Republic	15.9	17.3	14.7	16.2	7.1	7.5	8.2	6.9
Perm Krai	7.5	6.9	6.6	6.0	1.2	0.9	3.0	1.7
Kirov Region	7.1	8.5	6.7	7.1	–	0.9	1.3	2.4
Nizhny Novgorod Region	12.5	12.9	10.9	10.0	1.9	2.8	4.9	4.7
Orenburg Region	12.5	8.7	8.3	6.8	2.8	2.9	6.9	4.9
Penza Region	13.9	12.6	12.9	9.5	2.0	3.6	2.5	3.2
Samara Region	3.1	2.8	2.7	2.5	0.5	0.4	1.5	1.3
Saratov Region	4.2	4.0	4.0	3.3	–	0.4	1.0	1.3
Ulyanovsk Region	3.1	4.0	3.1	3.2	0.4	1.2	0.8	1.6
Ural Federal District	**6.7**	**5.4**	**5.1**	**4.3**	**1.7**	**1.2**	**2.9**	**2.2**
Kurgan Region	1.8	1.1	1.4	1.1	–	–	0.5	0.3
Sverdlovsk Region	10.6	7.1	7.6	6.2	2.1	1.3	4.8	3.0
Tyumen Region	6.8	6.9	4.8	4.6	2.7	2.1	3.2	3.0
Khanty-Mansi Autonomous District – Yugra	3.4	2.6	2.3	1.9	1.1	0.7	1.1	0.7
Yamalo-Nenets Autonomous District	3.9	5.7	2.9	4.9	–	–	2.0	2.5

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Chelyabinsk Region	4.4	4.3	4.4	4.3	0.7	0.3	1.4	1.3
Siberian Federal District	**8.2**	**7.3**	**7.2**	**6.3**	**1.1**	**1.3**	**2.0**	**1.8**
Republic of Altai	7.0	5.7	7.0	5.7	–	1.1	–	–
Republic of Buryatia	7.7	4.4	7.7	3.0	1.1	0.7	2.2	2.2
Republic of Tyva	3.3	6.1	3.3	4.5	1.7	3.0	–	3.0
Republic of Khakassia	13.2	5.6	10.5	5.6	2.6	1.9	–	1.9
Altai Krai	9.0	10.5	9.0	9.8	–	1.3	0.8	–
Zabaikalye Krai	6.5	7.1	4.8	3.9	–	0.6	1.6	3.2
Krasnoyarsk Krai	7.4	7.2	6.2	6.3	1.6	1.3	1.8	2.0
Irkutsk Region	5.0	6.7	4.6	5.0	0.5	1.3	1.4	2.5
Kemerov Region	4.5	3.0	3.2	2.0	0.9	1.3	2.3	1.0
Novosibirsk Region	12.2	12.1	11.2	11.4	1.4	1.7	2.4	2.4
Omsk Region	6.1	3.3	5.2	3.3	0.9	0.7	2.1	1.2
Tomsk Region	14.2	12.9	12.3	11.7	2.4	1.7	4.3	2.1
Far Eastern Federal District	**7.9**	**6.0**	**6.9**	**5.3**	**0.5**	**0.3**	**1.8**	**1.5**
Republic of Sakha (Yakutia)	6.8	7.7	5.5	5.8	0.8	–	2.1	3.4
Kamchatka Krai	17.6	14.5	16.2	13.3	–	–	2.9	3.6
Primorye Krai	6.5	3.9	5.5	3.7	0.3	0.2	1.6	0.6
Khabarovsk Krai	10.2	10.2	10.2	9.5	0.8	0.7	1.6	2.9
Amur Region	6.5	5.2	5.9	5.2	–	–	1.2	0.5
Magadan Region	13.5	10.1	8.1	5.6	1.4	2.2	5.4	4.5
Sakhalin Region	3.9	1.8	3.9	1.8	–	–	0.7	–
Jewish Autonomous Region	8.5	5.7	8.5	5.7	–	–	–	–
Chukotka Autonomous District	22.2	9.1	22.2	9.1	11.1	–	–	–

(continued)

	Overall share of innovative enterprises, *per cent*		Enterprises engaged in innovation of selected types as a percentage of all enterprises					
			Technological		Marketing		Organisational	
	2014	2015	2014	2015	2014	2015	2014	2015
Crimean Federal District	**5.6**	**6.5**	**5.6**	**6.5**	–	**2.2**	–	–
Republic of Crimea	–	7.5	–	7.5	–	2.5	–	–
Sevastopol	10.0	–	10.0	–	–	–	–	–
			Construction					
Russian Federation	**...**	**2.0**	**...**	**2.0**	**...**	–	**...**	–
Central Federal District	**...**	**2.4**	**...**	**2.4**	**...**	–	**...**	–
Moscow Region	...	6.7	...	6.7	...	–	...	–
Northwestern Federal District	**...**	–	**...**	–	**...**	–	**...**	–
Southern Federal District	**...**	–	**...**	–	**...**	–	**...**	–
North Caucasian Federal District	**...**	–	**...**	–	**...**	–	**...**	–
Volga Federal District	**...**	**1.9**	**...**	**1.9**	**...**	–	**...**	–
Republic of Tatarstan	...	9.1	...	9.1	...	–	...	–
Ural Federal District	**...**	–	**...**	–	**...**	–	**...**	–
Siberian Federal District	**...**	**7.4**	**...**	**7.4**	**...**	–	**...**	–
Krasnoyarsk Krai	...	7.7	...	7.7	...	–	...	–
Omsk Region	...	25.0	...	25.0	...	–	...	–
Far Eastern Federal District	**...**	–	**...**	–	**...**	–	**...**	–
Crimean Federal District	**...**	–	**...**	–	**...**	–	**...**	–

6.2. ENTERPRISES ENGAGED IN SELECTED TYPES OF INNOVATIVE ACTIVITY AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION: 2015

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Mining and quarrying, manufacturing, electricity, gas and water supply; communication, computer and information technology-related activities, research and development, other services of the business economy; construction										
Russian Federation	**43.9**	**9.6**	**53.1**	**8.5**	**5.4**	**30.4**	**15.8**	**17.9**	**4.9**	**11.9**
Central Federal District	**50.5**	**10.7**	**51.0**	**8.8**	**5.9**	**30.3**	**14.2**	**19.8**	**6.2**	**9.1**
Belgorod Region	40.4	17.0	38.3	6.4	2.1	17.0	8.5	8.5	12.8	8.5
Bryansk Region	29.7	8.1	48.6	2.7	2.7	18.9	18.9	5.4	2.7	13.5
Vladimir Region	40.8	6.1	55.1	8.2	8.2	30.6	10.2	18.4	4.1	10.2
Voronezh Region	42.5	5.5	49.3	9.6	5.5	39.7	11.0	23.3	2.7	8.2
Ivanovo Region	25.0	25.0	50.0	8.3	–	16.7	–	8.3	16.7	–
Kaluga Region	52.3	9.1	70.5	15.9	13.6	45.5	20.5	20.5	6.8	13.6
Kostroma Region	12.5	6.3	78.1	6.3	6.3	28.1	6.3	25.0	3.1	6.3
Kursk Region	44.4	5.6	33.3	–	–	38.9	11.1	16.7	11.1	22.2
Lipetsk Region	26.5	18.4	73.5	4.1	–	16.3	24.5	18.4	6.1	2.0
Moscow Region	56.0	11.5	52.7	11.0	8.8	30.8	14.3	22.0	6.6	8.8
Oryol Region	27.3	18.2	68.2	–	–	13.6	9.1	13.6	13.6	–
Ryazan Region	57.9	13.2	52.6	10.5	7.9	26.3	18.4	23.7	10.5	7.9
Smolensk Region	60.9	–	52.2	4.3	–	13.0	17.4	13.0	–	8.7

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Tambov Region	30.8	7.7	51.3	2.6	–	20.5	33.3	20.5	7.7	7.7
Tver Region	53.7	12.2	43.9	7.3	4.9	22.0	12.2	22.0	2.4	9.8
Tula Region	50.9	13.2	52.8	7.5	3.8	39.6	13.2	24.5	–	11.3
Yaroslavl Region	45.5	11.4	59.1	6.8	4.5	27.3	15.9	18.2	6.8	18.2
Moscow	67.0	10.2	41.2	11.6	7.5	35.7	12.2	21.1	6.8	8.5
Northwestern Federal District	**48.4**	**10.4**	**46.7**	**10.1**	**6.6**	**33.1**	**15.0**	**21.6**	**5.2**	**11.5**
Republic of Karelia	54.5	–	27.3	9.1	9.1	45.5	9.1	–	–	18.2
Komi Republic	14.3	–	78.6	–	–	7.1	14.3	14.3	–	28.6
Arkhangelsk Region	26.1	–	47.8	8.7	4.3	39.1	4.3	4.3	4.3	21.7
Nenets Autonomous District	33.3	–	33.3	–	–	33.3	–	–	–	–
Vologda Region	30.0	20.0	35.0	10.0	10.0	35.0	5.0	25.0	–	20.0
Kaliningrad Region	20.0	13.3	46.7	6.7	–	33.3	6.7	33.3	–	6.7
Leningrad Region	28.9	13.2	55.3	15.8	13.2	26.3	28.9	18.4	13.2	7.9
Murmansk Region	33.3	–	50.0	3.3	–	33.3	6.7	6.7	–	26.7
Novgorod Region	45.0	5.0	55.0	5.0	–	35.0	15.0	20.0	–	5.0
Pskov Region	22.2	16.7	44.4	–	–	44.4	11.1	11.1	–	5.6
Saint-Petersburg	67.8	13.0	43.5	13.0	8.5	33.3	17.5	28.8	7.3	7.3
Southern Federal District	**39.6**	**6.9**	**49.5**	**8.4**	**3.6**	**31.3**	**12.7**	**10.9**	**3.6**	**13.5**
Republic of Adygeya	–	33.3	66.7	–	–	33.3	33.3	33.3	16.7	16.7
Republic of Kalmykia	50.0	–	100	–	–	100	–	–	–	50.0
Krasnodar Krai	30.2	9.3	47.7	8.1	3.5	29.1	7.0	14.0	4.7	12.8

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Astrakhan Region	20.5	2.6	43.6	2.6	–	30.8	10.3	2.6	–	15.4
Volgograd Region	32.6	8.7	39.1	10.9	2.2	41.3	15.2	10.9	–	15.2
Rostov Region	61.5	4.2	56.3	10.4	6.3	27.1	16.7	10.4	5.2	11.5
North Caucasian Federal District	**32.0**	**10.0**	**62.0**	**8.0**	**4.0**	**16.0**	**18.0**	**8.0**	**2.0**	**8.0**
Republic of Dagestan	20.0	–	60.0	–	–	20.0	20.0	–	–	–
Republic of Ingushetia	–	–	100	–	–	–	–	–	–	–
Kabardino-Balkar Republic	25.0	–	75.0	25.0	–	–	–	–	–	–
Karachai-Cherkess Republic	–	–	100	–	–	–	–	–	–	–
Republic of North Ossetia – Alania	80.0	–	40.0	–	–	–	–	–	20.0	–
Stavropol Krai	66.7	–	66.7	–	–	–	33.3	33.3	–	–
Chechen Republic	26.7	16.7	60.0	10.0	6.7	23.3	23.3	10.0	–	13.3
Volga Federal District	**41.0**	**10.0**	**57.2**	**9.1**	**6.0**	**29.0**	**19.1**	**17.0**	**4.7**	**12.4**
Republic of Bashkortostan	38.7	8.6	43.0	10.8	6.5	26.9	10.8	12.9	3.2	15.1
Republic of Mari El	11.1	16.7	72.2	–	–	16.7	33.3	33.3	5.6	5.6
Republic of Mordovia	35.6	15.6	57.8	4.4	–	24.4	20.0	13.3	8.9	6.7
Republic of Tatarstan	42.3	4.7	63.1	8.7	7.4	18.8	22.1	18.1	3.4	9.4
Udmurt Republic	20.4	10.2	59.2	12.2	8.2	36.7	18.4	20.4	8.2	8.2
Chuvash Republic	41.6	7.9	65.2	5.6	4.5	40.4	22.5	18.0	5.6	9.0
Perm Krai	53.2	6.3	62.0	11.4	8.9	27.8	19.0	20.3	3.8	17.7
Kirov Region	52.5	5.0	45.0	–	–	10.0	15.0	5.0	–	2.5
Nizhny Novgorod Region	50.0	8.8	60.5	10.5	6.1	34.2	19.3	22.8	3.5	20.2

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Orenburg Region	30.8	12.8	61.5	10.3	5.1	33.3	25.6	10.3	7.7	5.1
Penza Region	32.3	22.6	41.9	8.1	4.8	51.6	8.1	12.9	8.1	12.9
Samara Region	40.8	17.1	57.9	17.1	9.2	22.4	23.7	18.4	5.3	10.5
Saratov Region	43.8	10.4	54.2	6.3	4.2	35.4	25.0	14.6	4.2	10.4
Ulyanovsk Region	46.4	7.1	53.6	10.7	10.7	14.3	7.1	14.3	3.6	35.7
Ural Federal District	**49.8**	**8.8**	**56.3**	**8.0**	**6.5**	**29.9**	**13.4**	**18.8**	**4.2**	**17.6**
Kurgan Region	42.9	14.3	71.4	–	–	33.3	14.3	4.8	9.5	14.3
Sverdlovsk Region	53.9	5.6	60.7	10.1	7.9	36.0	16.9	19.1	5.6	16.9
Tyumen Region	50.0	9.8	47.6	2.4	2.4	22.0	7.3	18.3	–	17.1
Khanty-Mansi Autonomous District – Yugra	47.8	8.7	52.2	–	–	26.1	8.7	21.7	–	21.7
Yamalo-Nenets Autonomous District	64.7	5.9	35.3	5.9	5.9	23.5	11.8	29.4	–	11.8
Chelyabinsk Region	46.4	10.1	56.5	14.5	11.6	30.4	15.9	23.2	5.8	20.3
Siberian Federal District	**38.4**	**10.2**	**52.0**	**6.9**	**4.4**	**30.9**	**19.3**	**18.2**	**4.2**	**12.2**
Republic of Altai	14.3	7.1	28.6	7.1	–	71.4	–	–	–	7.1
Republic of Buryatia	22.2	11.1	44.4	11.1	–	22.2	–	22.2	–	22.2
Republic of Tyva	–	–	60.0	–	–	20.0	–	–	–	20.0
Republic of Khakassia	50.0	–	25.0	–	–	25.0	–	–	–	25.0
Altai Krai	31.8	21.2	57.6	4.5	4.5	27.3	15.2	22.7	10.6	9.1
Zabaikalye Krai	28.6	7.1	57.1	14.3	7.1	28.6	7.1	7.1	–	21.4
Krasnoyarsk Krai	32.5	5.0	45.0	3.8	2.5	43.8	20.0	12.5	1.3	12.5
Irkutsk Region	29.5	4.5	56.8	6.8	–	25.0	20.5	13.6	–	18.2

(continued)

	Enterprises engaged in									
	R&D	design	acquisition of machinery and equipment	acquisition of new technology	of which acquisition of patent rights and licences	acquisition of software	engineering	personnel training	marketing research	other innovative activities
Kemerov Region	38.5	3.8	69.2	7.7	3.8	23.1	26.9	30.8	–	3.8
Novosibirsk Region	47.2	13.5	48.3	6.7	4.5	22.5	25.8	18.0	4.5	11.2
Omsk Region	38.6	9.1	54.5	4.5	2.3	36.4	34.1	25.0	4.5	13.6
Tomsk Region	61.8	10.9	54.5	14.5	14.5	27.3	10.9	23.6	9.1	10.9
Far Eastern Federal District	**22.2**	**2.4**	**59.9**	**4.2**	**0.6**	**34.7**	**7.2**	**13.8**	**3.0**	**18.6**
Republic of Sakha (Yakutia)	30.4	8.7	52.2	8.7	–	34.8	4.3	17.4	4.3	26.1
Kamchatka Krai	–	6.3	75.0	6.3	–	37.5	–	6.3	–	12.5
Primorye Krai	25.6	2.3	65.1	–	–	37.2	9.3	9.3	2.3	18.6
Khabarovsk Krai	22.2	–	59.3	3.7	–	48.1	11.1	37.0	3.7	14.8
Amur Region	56.3	–	56.3	–	–	18.8	–	12.5	–	25.0
Magadan Region	10.0	–	50.0	10.0	–	15.0	20.0	–	10.0	5.0
Sakhalin Region	12.5	–	50.0	12.5	12.5	50.0	–	12.5	–	25.0
Jewish Autonomous Region	16.7	–	66.7	–	–	33.3	–	–	–	33.3
Chukotka Autonomous District	–	–	62.5	–	–	37.5	–	12.5	–	25.0
Crimean Federal District	**41.7**	**16.7**	**41.7**	**8.3**	–	**33.3**	**33.3**	**16.7**	**8.3**	**8.3**
Republic of Crimea	41.7	16.7	41.7	8.3	–	33.3	33.3	16.7	8.3	8.3
Sevastopol	–	–	–	–	–	–	–	–	–	–

6.3. SALES OF INNOVATIVE GOODS AND SERVICES

	Sales of innovative goods and services: mining and quarrying, manufacturing, electricity, gas and water supply				Sales of innovative goods and services: communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Russian Federation	**3037407.3**	**3258254.6**	**8.2**	**7.9**	**542516.5**	**584573.8**	**12.8**	**13.2**
Central Federal District	**783922.3**	**1147708.9**	**8.4**	**12.0**	**307248.0**	**343827.2**	**15.4**	**16.6**
Belgorod Region	20786.8	29245.4	4.1	5.1	2311.4	102.7	12.3	0.5
Bryansk Region	8131.1	25245.7	7.1	18.0	181.2	199.6	1.5	1.4
Vladimir Region	15605.5	20719.3	6.2	8.0	7176.6	6296.0	32.4	26.3
Voronezh Region	9999.4	26559.8	3.5	7.6	14743.0	23560.7	25.4	42.9
Ivanovo Region	757.4	1268.8	1.0	1.5	37.8	73.8	0.4	0.8
Kaluga Region	3973.8	5236.7	0.8	1.2	9750.4	9597.1	32.3	30.4
Kostroma Region	2083.1	1593.1	1.8	1.4	421.7	605.3	5.6	8.8
Kursk Region	13329.7	14933.7	6.9	6.6	33.5	153.5	0.3	1.4
Lipetsk Region	63078.8	64020.6	14.0	12.4	203.3	809.6	1.6	7.0
Moscow Region	150875.5	147421.3	8.6	8.3	117583.7	146610.8	35.2	40.0
Oryol Region	858.4	695.0	1.1	0.9	26.7	53.4	0.4	0.8
Ryazan Region	6648.2	6737.7	3.2	3.2	645.4	1504.9	4.0	7.4
Smolensk Region	10349.9	5421.2	6.1	2.7	88.9	118.4	0.9	1.2
Tambov Region	6172.9	6244.1	7.0	5.9	105.1	921.3	1.0	7.9
Tver Region	3285.6	10587.0	1.4	4.8	1204.0	2247.7	6.6	11.7
Tula Region	41315.1	61964.9	10.0	12.7	566.2	1145.9	3.1	5.6
Yaroslavl Region	23387.9	16624.4	10.0	7.0	3413.1	1433.5	15.8	6.6
Moscow	403283.1	703190.3	11.0	19.8	148756.0	148393.0	10.8	10.5

(continued)

	Sales of innovative goods and services: mining and quarrying, manufacturing, electricity, gas and water supply				Sales of innovative goods and services: communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Northwestern Federal District	**303880.4**	**328389.7**	**7.8**	**6.0**	**50232.6**	**47224.7**	**10.8**	**9.1**
Republic of Karelia	90.3	91.1	0.1	0.1	103.2	96.6	1.6	1.3
Komi Republic	23073.7	16724.2	5.5	3.4	117.6	228.5	0.6	0.9
Arkhangelsk Region	5194.6	11869.2	1.4	2.9	216.4	283.0	1.0	0.8
Nenets Autonomous District	–	–	–	–	–	5.4	–	0.1
Vologda Region	78988.2	108849.6	19.1	22.1	150.3	194.6	1.3	1.8
Kaliningrad Region	188.6	955.1	0.1	0.3	188.0	316.3	2.1	3.3
Leningrad Region	31983.5	12390.4	5.9	1.8	793.1	1516.3	7.2	15.5
Murmansk Region	4863.1	3698.2	2.4	1.6	3436.6	674.8	13.1	2.8
Novgorod Region	3439.3	5364.7	2.7	3.4	1396.5	1290.1	20.6	14.5
Pskov Region	348.4	712.4	0.7	1.1	–	–	–	–
Saint-Petersburg	155710.8	167734.8	11.9	6.8	43830.9	42624.5	12.4	11.1
Southern Federal District	**81356.6**	**119681.2**	**4.2**	**5.3**	**21488.8**	**28722.5**	**10.0**	**12.9**
Republic of Adygeya	2505.2	4088.6	10.2	11.3	12.7	39.5	0.5	1.3
Republic of Kalmykia	–	–	–	–	3.7	19.5	0.4	1.9
Krasnodar Krai	7643.0	5072.9	1.3	0.7	2139.0	2327.5	2.4	2.7
Astrakhan Region	8477.7	10456.5	4.9	5.4	520.7	591.3	4.5	5.0
Volgograd Region	3871.1	3905.6	0.7	0.6	9114.3	13375.4	20.0	25.3
Rostov Region	58859.6	96157.5	10.5	13.9	9698.4	12369.3	14.6	18.4

(continued)

	Sales of innovative goods and services: mining and quarrying, manufacturing, electricity, gas and water supply				Sales of innovative goods and services: communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
North Caucasian Federal District	**27351.0**	**40406.2**	**8.7**	**9.8**	**610.5**	**1031.1**	**1.2**	**2.0**
Republic of Dagestan	116.6	89.2	1.1	0.6	3.3	61.9	0.03	0.6
Republic of Ingushetia	–	–	–	–	6.1	5.4	0.3	0.3
Kabardino-Balkar Republic	700.8	902.8	2.6	3.3	51.4	424.3	1.1	8.3
Karachai-Cherkess Republic	–	–	–	–	19.7	43.0	0.7	1.6
Republic of North Ossetia – Alania	–	–	–	–	19.1	33.9	0.3	0.6
Chechen Republic	–	–	–	–	103.8	100	22.3	2.8
Stavropol Krai	26533.6	39414.3	12.1	14.6	407.1	362.6	1.6	1.5
Volga Federal District	**1081082.1**	**1089486.3**	**13.6**	**12.7**	**98463.2**	**109395.0**	**16.8**	**17.1**
Republic of Bashkortostan	107932.9	134317.8	8.3	11.0	3938.8	5013.5	5.9	7.0
Republic of Mari El	9882.2	10174.1	11.0	9.5	43.5	149.1	0.8	2.6
Republic of Mordovia	29329.5	33365.1	27.4	28.3	171.7	311.6	6.6	4.8
Republic of Tatarstan	332333.4	365965.3	21.5	21.3	5725.1	7206.0	5.6	6.8
Udmurt Republic	42601.9	16692.2	11.6	4.1	403.7	617.2	2.6	3.1
Chuvash Republic	15568.8	16598.4	12.4	12.5	1170.8	1236.6	8.9	9.2
Perm Krai	98947.3	83057.6	9.0	6.9	10068.2	13287.1	17.9	23.6
Kirov Region	11238.2	8670.7	7.5	4.9	107.9	281.7	0.9	2.3
Nizhny Novgorod Region	160701.4	135798.1	18.2	13.1	54980.3	49965.7	41.5	36.1
Orenburg Region	6808.0	14545.6	1.1	2.3	80.9	125.9	0.3	0.5
Penza Region	3873.5	5745.2	3.8	4.5	4294.0	6687.4	27.6	36.5

(continued)

	Sales of innovative goods and services: mining and quarrying, manufacturing, electricity, gas and water supply				Sales of innovative goods and services: communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Samara Region	231868.5	217788.9	21.7	19.7	13711.0	15164.1	14.8	14.3
Saratov Region	7473.6	16110.5	2.4	4.3	1011.3	7066.8	3.7	18.1
Ulyanovsk Region	22523.1	30656.8	11.9	13.5	2756.0	2282.4	13.0	10.3
Ural Federal District	**146553.2**	**200239.9**	**2.1**	**2.7**	**22820.0**	**16082.4**	**6.5**	**3.7**
Kurgan Region	1910.4	5587.6	2.6	3.7	165.9	110.0	2.5	1.6
Sverdlovsk Region	74796.1	95513.9	5.3	7.8	14331.4	7142.7	11.6	4.2
Tyumen Region	22244.1	39975.7	0.5	0.8	4827.3	5170.1	2.8	2.5
Khanty-Mansi Autonomous District – Yugra	7512.3	8419.9	0.3	0.3	187.5	1854.5	0.3	3.1
Yamalo-Nenets Autonomous District	264.1	2032.8	0.03	0.2	171.0	615.7	1.0	3.2
Chelyabinsk Region	47602.6	59162.8	4.4	5.1	3495.3	3659.7	7.3	7.4
Siberian Federal District	**146453.8**	**193523.9**	**3.0**	**3.7**	**39571.4**	**35798.0**	**8.7**	**10.1**
Republic of Altai	–	–	–	–	10.3	9.6	0.7	0.7
Republic of Buryatia	10979.6	2168.3	11.5	1.8	35.6	143.5	0.5	1.8
Republic of Tyva	–	–	–	–	1.4	22.9	0.1	1.3
Republic of Khakassia	62.0	33.1	0.1	0.02	28.0	68.1	0.03	0.8
Altai Krai	9611.1	11211.3	4.4	4.1	482.7	555.9	2.6	2.6
Zabaikalye Krai	7564.3	9677.7	8.6	10.6	592.7	749.9	2.5	2.8
Krasnoyarsk Krai	20339.5	36170.1	1.8	2.6	29480.6	22122.3	28.2	24.1
Irkutsk Region	10775.5	22562.8	1.7	3.0	472.7	405.3	1.1	1.2
Kemerov Region	21144.4	32075.5	1.6	3.0	201.8	359.5	0.6	1.1

(continued)

	Sales of innovative goods and services: mining and quarrying, manufacturing, electricity, gas and water supply				Sales of innovative goods and services: communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Novosibirsk Region	35114.8	37567.8	10.9	10.7	3725.1	4859.3	5.5	6.7
Omsk Region	22328.4	27086.5	3.4	3.9	1985.7	3565.5	6.7	11.7
Tomsk Region	8534.3	14970.9	2.9	4.7	2554.9	2936.3	11.5	12.8
Far Eastern Federal District	**466656.8**	**138076.9**	**26.7**	**7.3**	**2075.1**	**2462.5**	**1.6**	**1.8**
Republic of Sakha (Yakutia)	5897.6	2427.4	1.6	0.6	246.7	398.9	1.4	2.1
Kamchatka Krai	11.5	16.7	0.03	0.04	583.5	155.3	6.9	1.7
Primorye Krai	380.7	142.4	0.2	0.1	403.6	634.0	1.4	2.4
Khabarovsk Krai	29262.5	29127.8	14.0	12.1	308.8	475.3	1.1	1.5
Amur Region	4925.6	5319.4	5.0	2.9	317.3	165.8	2.7	1.5
Magadan Region	–	8570.9	–	10.9	49.7	388.5	0.6	8.0
Sakhalin Region	426148.3	92342.9	62.4	14.5	124.9	185.9	0.5	0.6
Jewish Autonomous Region	–	32.2	–	0.6	40.4	48.1	3.0	3.4
Chukotka Autonomous District	30.6	97.2	0.05	0.1	–	10.8	–	0.9
Crimean Federal District	**151.2**	**741.7**	**0.7**	**1.0**	**7.0**	**30.4**	**2.7**	**0.6**
Republic of Crimea	151.2	741.6	0.7	1.2	–	30.4	–	2.4
Sevastopol	–	0.02	–	0.0	7.0	–	33.5	–

6.4. ENTERPRISES TAKING PART IN JOINT R&D PROJECTS

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Mining and quarrying, manufacturing, electricity, gas and water supply						
Russian Federation	**3.8**	**3.7**	**32.2**	**31.6**	**0.8**	**0.8**
Central Federal District	**3.9**	**3.9**	**31.7**	**30.8**	**0.7**	**0.8**
Belgorod Region	4.4	3.7	29.7	19.5	0.8	0.9
Bryansk Region	4.7	4.2	39.3	37.9	1.1	0.4
Vladimir Region	4.3	5.2	27.9	35.5	0.4	1.3
Voronezh Region	3.0	2.2	23.8	17.8	0.3	–
Ivanovo Region	–	1.0	–	22.2	–	–
Kaluga Region	3.9	4.3	28.1	31.3	1.1	1.1
Kostroma Region	2.8	2.3	42.9	38.5	–	–
Kursk Region	1.7	1.1	14.3	8.3	0.6	0.6
Lipetsk Region	3.3	2.8	11.9	12.2	0.7	–
Moscow Region	2.7	2.5	29.9	29.6	0.4	0.3
Oryol Region	2.8	2.6	15.0	11.8	1.3	1.4
Ryazan Region	5.5	4.1	41.7	33.3	1.4	0.5
Smolensk Region	3.6	2.9	44.4	41.2	0.4	–
Tambov Region	3.5	3.4	33.3	26.1	–	0.5
Tver Region	1.8	2.2	28.0	29.2	–	0.3
Tula Region	7.1	7.5	44.4	40.9	0.8	1.6
Yaroslavl Region	7.5	5.4	50.0	36.4	2.5	1.8
Moscow	7.7	10.1	40.4	44.8	1.9	3.0

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Northwestern Federal District	**3.3**	**3.4**	**30.8**	**32.2**	**0.8**	**0.8**
Republic of Karelia	4.7	2.1	100	25.0	2.4	1.1
Komi Republic	–	0.4	–	10.0	–	–
Arkhangelsk Region	1.9	2.1	8.3	14.3	1.6	1.3
Nenets Autonomous District	–	–	–	–	–	–
Vologda Region	3.6	3.5	46.2	50.0	1.0	0.5
Kaliningrad Region	0.8	2.1	50.0	40.0	0.4	0.4
Leningrad Region	3.7	4.0	36.4	36.4	0.6	0.6
Murmansk Region	3.2	3.0	30.8	23.1	0.7	1.3
Novgorod Region	3.9	2.6	50.0	27.3	0.7	0.7
Pskov Region	1.2	1.2	11.8	12.5	–	–
Saint-Petersburg	6.0	6.3	35.4	38.6	1.0	1.4
Southern Federal District	**2.4**	**2.4**	**27.8**	**25.0**	**0.2**	**0.1**
Republic of Adygeya	2.0	2.9	33.3	40.0	–	–
Republic of Kalmykia	–	–	–	–	–	–
Krasnodar Krai	2.4	2.3	30.4	25.8	0.5	–
Astrakhan Region	0.5	0.6	4.5	5.3	–	–
Volgograd Region	2.4	2.2	38.5	29.0	0.2	0.2
Rostov Region	3.1	3.2	29.2	26.9	–	0.2
North Caucasian Federal District	**1.9**	**1.5**	**41.2**	**40.0**	–	**0.1**
Republic of Dagestan	3.2	3.2	66.7	66.7	–	–
Republic of Ingushetia	–	–	–	–	–	–
Kabardino-Balkar Republic	3.4	1.0	60.0	50.0	–	–
Karachai-Cherkess Republic	–	–	–	–	–	–

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Republic of North Ossetia – Alania	1.4	1.3	33.3	100	–	–
Chechen Republic	–	–	–	–	–	–
Stavropol Krai	2.3	2.1	34.8	31.6	–	0.3
Volga Federal District	**4.7**	**4.6**	**32.2**	**31.8**	**0.8**	**1.0**
Republic of Bashkortostan	3.9	5.4	34.4	33.9	0.5	2.3
Republic of Mari El	1.5	2.2	20.0	23.1	–	–
Republic of Mordovia	6.9	7.4	34.2	31.6	0.6	1.8
Republic of Tatarstan	8.8	8.2	37.3	31.6	1.4	1.1
Udmurt Republic	5.3	4.7	33.3	34.3	0.4	0.4
Chuvash Republic	7.3	6.9	23.8	24.6	0.6	–
Perm Krai	6.7	6.0	46.4	43.1	1.2	0.9
Kirov Region	3.1	2.6	25.0	28.0	0.7	–
Nizhny Novgorod Region	4.9	5.2	30.2	33.8	0.9	1.3
Orenburg Region	2.8	3.5	18.2	25.0	0.8	0.8
Penza Region	3.4	2.1	16.0	12.2	0.5	0.4
Samara Region	3.1	2.8	39.7	37.9	0.4	0.4
Saratov Region	4.1	4.1	35.9	39.4	1.0	1.2
Ulyanovsk Region	2.7	3.0	38.1	35.0	0.8	1.3
Ural Federal District	**4.9**	**4.7**	**39.3**	**40.4**	**1.7**	**1.3**
Kurgan Region	2.1	3.5	7.7	35.3	1.5	–
Sverdlovsk Region	7.2	6.5	47.6	46.4	3.0	2.5
Tyumen Region	2.5	2.0	25.9	24.1	0.6	0.3
Khanty-Mansi Autonomous District – Yugra	1.4	1.1	16.7	16.7	0.6	0.3
Yamalo-Nenets Autonomous District	6.9	5.6	53.8	63.6	1.0	0.8
Chelyabinsk Region	6.0	6.8	50.9	51.8	1.5	1.6

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Siberian Federal District	**3.5**	**3.4**	**33.3**	**35.6**	**0.8**	**0.6**
Republic of Altai	6.7	4.8	37.5	22.2	–	–
Republic of Buryatia	0.8	–	10.0	–	–	–
Republic of Tyva	3.8	3.6	–	–	3.8	3.7
Republic of Khakassia	–	–	–	–	–	–
Altai Krai	2.5	2.7	17.3	17.6	0.5	0.6
Zabaikalye Krai	1.0	1.1	16.7	25.0	0.5	–
Krasnoyarsk Krai	5.2	5.5	42.0	46.7	0.7	1.2
Irkutsk Region	3.7	4.4	48.1	50.0	0.9	0.5
Kemerov Region	3.5	2.7	33.3	45.0	1.5	0.9
Novosibirsk Region	2.8	2.5	30.4	34.1	0.5	0.2
Omsk Region	4.6	4.9	40.0	41.4	0.7	1.1
Tomsk Region	5.8	5.1	44.8	40.7	–	0.5
Far Eastern Federal District	**2.7**	**1.9**	**23.5**	**15.9**	**0.6**	**0.6**
Republic of Sakha (Yakutia)	3.0	1.7	33.3	27.3	–	–
Kamchatka Krai	4.8	3.3	75.0	–	–	3.6
Primorye Krai	2.9	2.0	20.0	20.8	0.9	–
Khabarovsk Krai	6.0	5.0	35.3	35.7	2.7	2.0
Amur Region	1.4	0.7	25.0	–	–	0.8
Magadan Region	1.1	1.2	7.1	6.7	–	–
Sakhalin Region	–	–	–	–	–	–
Jewish Autonomous Region	–	–	–	–	–	–
Chukotka Autonomous District	–	–	–	–	–	–

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Crimean Federal District	**7.3**	**1.9**	**66.7**	**33.3**	–	**0.8**
Republic of Crimea	9.1	2.1	66.7	33.3	–	0.9
Sevastopol	–	–	–	–	–	–
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Russian Federation	**5.0**	**4.5**	**43.0**	**41.5**	**1.9**	**1.8**
Central Federal District	**6.3**	**6.3**	**52.6**	**46.0**	**1.7**	**2.3**
Belgorod Region	0.8	1.6	14.3	16.7	–	0.8
Bryansk Region	0.4	1.6	–	37.5	0.4	0.4
Vladimir Region	5.3	4.1	71.4	38.9	–	1.0
Voronezh Region	3.8	2.8	40.0	32.1	0.7	–
Ivanovo Region	1.3	2.1	–	–	1.4	2.1
Kaluga Region	5.8	7.0	77.8	58.3	2.5	3.4
Kostroma Region	–	–	–	–	–	–
Kursk Region	3.1	2.0	42.9	33.3	0.8	0.7
Lipetsk Region	1.1	1.2	25.0	12.5	–	–
Moscow Region	6.0	7.0	66.7	63.6	1.2	2.8
Oryol Region	0.7	0.7	33.3	20.0	–	–
Ryazan Region	4.4	4.3	23.1	21.4	1.3	2.0
Smolensk Region	1.6	0.8	50.0	16.7	–	–
Tambov Region	1.7	1.6	21.4	18.8	0.5	0.4
Tver Region	5.2	5.1	38.9	41.2	1.7	2.0
Tula Region	2.8	2.0	33.3	33.3	–	–
Yaroslavl Region	4.7	2.9	42.9	54.5	1.3	0.8
Moscow	17.3	16.9	63.0	56.6	5.8	7.3

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Northwestern Federal District	**6.4**	**5.4**	**46.2**	**43.0**	**2.1**	**2.1**
Republic of Karelia	9.8	8.9	50.0	57.1	5.4	5.7
Komi Republic	1.0	1.4	–	25.0	1.1	0.7
Arkhangelsk Region	2.1	1.9	44.4	44.4	0.4	0.4
Nenets Autonomous District	–	–	–	–	–	–
Vologda Region	1.3	0.6	–	–	1.4	0.6
Kaliningrad Region	1.6	0.5	40.0	20.0	0.6	–
Leningrad Region	4.9	4.0	50.0	60.0	2.6	1.1
Murmansk Region	3.7	4.1	13.3	17.6	2.9	3.0
Novgorod Region	4.2	3.4	40.0	33.3	0.9	0.9
Pskov Region	–	–	–	–	–	–
Saint-Petersburg	14.4	12.8	57.1	52.1	4.0	4.6
Southern Federal District	**2.5**	**2.2**	**33.0**	**34.1**	**0.8**	**0.6**
Republic of Adygeya	–	–	–	–	–	–
Republic of Kalmykia	–	–	–	–	–	–
Krasnodar Krai	2.3	1.5	40.0	37.5	1.1	0.6
Astrakhan Region	1.9	3.9	16.7	20.0	–	1.5
Volgograd Region	1.4	1.3	18.8	20.0	0.4	0.3
Rostov Region	4.3	4.4	48.3	51.7	1.2	1.0
North Caucasian Federal District	**3.7**	**5.1**	**20.0**	**56.0**	**2.2**	**1.4**
Republic of Dagestan	–	10.0	–	50.0	–	5.6
Republic of Ingushetia	–	8.3	–	100	–	–
Kabardino-Balkar Republic	6.4	7.1	–	50.0	7.0	5.6
Karachai-Cherkess Republic	5.6	6.5	–	50.0	6.1	3.4

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Republic of North Ossetia – Alania	–	3.8	–	50.0	–	–
Chechen Republic	2.4	3.5	100	100	1.2	–
Stavropol Krai	6.1	4.3	45.5	45.5	1.1	–
Volga Federal District	**3.9**	**3.5**	**36.9**	**36.7**	**1.3**	**1.2**
Republic of Bashkortostan	3.6	3.0	34.5	32.3	1.1	1.2
Republic of Mari El	1.1	1.0	25.0	20.0	–	–
Republic of Mordovia	5.7	6.1	36.4	42.9	1.3	3.3
Republic of Tatarstan	10.5	8.3	47.1	47.1	4.1	2.6
Udmurt Republic	2.5	1.6	30.0	21.4	1.3	0.4
Chuvash Republic	1.2	2.3	8.0	10.7	–	0.7
Perm Krai	4.2	3.4	31.8	28.6	2.3	1.8
Kirov Region	0.9	2.4	13.3	26.7	–	0.5
Nizhny Novgorod Region	9.5	7.9	68.1	65.1	2.3	1.6
Orenburg Region	1.4	1.9	16.7	28.6	–	–
Penza Region	4.0	5.0	26.9	28.6	0.6	2.5
Samara Region	1.8	1.7	40.0	50.0	0.8	0.4
Saratov Region	2.7	2.2	25.0	26.7	1.8	1.4
Ulyanovsk Region	1.9	2.0	50.0	37.5	0.4	0.8
Ural Federal District	**5.0**	**3.8**	**47.4**	**44.9**	**2.7**	**2.0**
Kurgan Region	0.9	0.8	33.3	50.0	0.5	0.3
Sverdlovsk Region	11.5	8.0	66.7	60.6	7.0	4.6
Tyumen Region	2.8	2.6	31.0	32.1	1.4	1.2
Khanty-Mansi Autonomous District – Yugra	1.1	0.7	33.3	40.0	0.4	–
Yamalo-Nenets Autonomous District	2.0	0.8	33.3	16.7	1.0	–
Chelyabinsk Region	2.7	2.3	38.5	30.8	1.1	1.0

(continued)

	Enterprises taking part in joint R&D projects					
	as a percentage of all enterprises		as a percentage of enterprises engaged in technological innovation		as a percentage of enterprises not engaged in technological innovation	
	2014	2015	2014	2015	2014	2015
Siberian Federal District	**5.6**	**5.0**	**39.2**	**41.6**	**3.0**	**2.5**
Republic of Altai	–	1.1	–	20.0	–	–
Republic of Buryatia	7.7	4.4	42.9	50.0	4.8	3.1
Republic of Tyva	–	–	–	–	–	–
Republic of Khakassia	5.3	5.6	25.0	33.3	2.9	3.9
Altai Krai	3.8	3.9	25.0	26.7	1.7	1.4
Zabaikalye Krai	2.4	2.6	16.7	16.7	1.7	2.0
Krasnoyarsk Krai	6.2	5.2	37.5	35.3	4.1	3.2
Irkutsk Region	1.8	2.1	30.0	33.3	0.5	0.4
Kemerov Region	5.0	3.0	28.6	16.7	4.2	2.7
Novosibirsk Region	9.5	9.3	46.8	52.1	4.8	3.8
Omsk Region	2.7	2.4	35.3	42.9	1.0	1.0
Tomsk Region	10.9	12.1	61.5	60.7	3.8	5.7
Far Eastern Federal District	**4.7**	**3.6**	**32.9**	**31.6**	**2.6**	**2.0**
Republic of Sakha (Yakutia)	4.2	4.3	46.2	41.7	1.8	2.1
Kamchatka Krai	5.9	2.4	36.4	9.1	–	1.4
Primorye Krai	5.2	2.9	29.4	36.8	3.8	1.6
Khabarovsk Krai	6.3	6.6	15.4	23.1	5.2	4.8
Amur Region	4.7	4.1	40.0	40.0	2.5	2.2
Magadan Region	6.8	3.4	33.3	40.0	4.4	1.2
Sakhalin Region	1.3	3.0	33.3	33.3	–	2.4
Jewish Autonomous Region	4.3	1.4	25.0	25.0	2.3	–
Chukotka Autonomous District	11.1	4.5	50.0	50.0	–	–
Crimean Federal District	**11.1**	**4.3**	–	–	**11.8**	**4.7**
Republic of Crimea	25.0	5.0	–	–	25.0	5.4
Sevastopol	–	–	–	–	–	–

6.5. EXPENDITURE ON TECHNOLOGICAL INNOVATION

	Mining and quarrying, manufacturing, electricity, gas and water supply				Communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Russian Federation	**762774.1**	**735757.7**	**2.1**	**1.8**	**449123.0**	**467867.0**	**10.6**	**10.5**
Central Federal District	**112677.2**	**126012.2**	**1.2**	**1.3**	**265206.1**	**285453.7**	**13.3**	**13.7**
Belgorod Region	4065.8	2367.3	0.8	0.4	43.0	25.6	0.2	0.1
Bryansk Region	1119.3	1332.6	1.0	1.0	126.9	128.2	1.1	0.9
Vladimir Region	2893.0	6400.0	1.1	2.5	3013.6	3578.7	13.6	14.9
Voronezh Region	2964.9	3004.0	1.0	0.9	3804.9	6901.2	6.6	12.6
Ivanovo Region	65.5	27.2	0.1	0.03	159.5	255.6	1.7	2.7
Kaluga Region	5871.9	5069.6	1.2	1.2	7620.0	6535.2	25.3	20.7
Kostroma Region	389.0	1465.4	0.3	1.3	97.4	241.0	1.3	3.5
Kursk Region	4408.9	929.7	2.3	0.4	136.9	92.7	1.1	0.8
Lipetsk Region	11156.7	9301.4	2.5	1.8	275.6	425.1	2.2	3.7
Moscow Region	22017.5	31805.1	1.3	1.8	85676.1	102508.8	25.7	28.0
Oryol Region	684.5	390.9	0.9	0.5	10.0	14.7	0.1	0.2
Ryazan Region	9949.6	5032.6	4.8	2.4	732.1	881.3	4.6	4.3
Smolensk Region	1436.0	2300.7	0.9	1.2	305.5	335.3	3.2	3.5
Tambov Region	2076.7	3003.3	2.4	2.9	264.3	414.2	2.4	3.6
Tver Region	1612.7	1617.8	0.7	0.7	1481.2	1566.6	8.1	8.2
Tula Region	9932.3	11460.8	2.4	2.4	67.8	48.9	0.4	0.2
Yaroslavl Region	14518.3	10121.4	6.2	4.3	1430.3	1548.1	6.6	7.2
Moscow	17514.7	30382.3	0.5	0.9	159961.1	159952.3	11.6	11.3

(continued)

	Mining and quarrying, manufacturing, electricity, gas and water supply				Communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Northwestern Federal District	**38595.3**	**39584.4**	**1.0**	**0.7**	**54321.3**	**48293.2**	**11.6**	**9.3**
Republic of Karelia	6.9	61.4	0.01	0.1	56.9	62.0	0.9	0.8
Komi Republic	1713.4	502.9	0.4	0.1	49.5	350.5	0.2	1.3
Arkhangelsk Region	3131.6	1352.7	0.8	0.3	267.7	160.1	1.2	0.5
Nenets Autonomous District	2.5	17.9	0.0	0.01	13.0	11.9	0.2	0.2
Vologda Region	2331.7	224.4	0.6	0.05	281.7	354.0	2.4	3.2
Kaliningrad Region	36.9	905.5	0.01	0.3	212.3	160.9	2.4	1.7
Leningrad Region	6728.7	12009.3	1.2	1.7	282.5	630.0	2.6	6.4
Murmansk Region	1433.4	1054.6	0.7	0.5	815.5	184.3	3.1	0.8
Novgorod Region	1910.9	1391.5	1.5	0.9	534.4	425.0	7.9	4.8
Pskov Region	200.3	202.8	0.4	0.3	0.3	0.4	0.05	0.05
Saint-Petersburg	21101.5	21879.2	1.6	0.9	51820.4	45965.9	14.7	11.9
Southern Federal District	**58770.0**	**62013.1**	**3.0**	**2.8**	**8595.7**	**8056.9**	**4.0**	**3.6**
Republic of Adygeya	135.1	83.6	0.5	0.2	2.4	0.01	0.1	0.0
Republic of Kalmykia	–	–	–	–	15.2	4.4	1.7	0.4
Krasnodar Krai	4413.5	3714.5	0.7	0.5	1176.0	1800.9	1.3	2.1
Astrakhan Region	3537.8	1911.1	2.1	1.0	131.2	240.5	1.1	2.0
Volgograd Region	38496.3	30528.0	6.8	4.8	234.8	177.1	0.5	0.3
Rostov Region	12187.3	25775.8	2.2	3.7	7036.1	5834.1	10.6	8.7

(continued)

	Mining and quarrying, manufacturing, electricity, gas and water supply				Communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
North Caucasian Federal District	**8006.6**	**5176.7**	**2.5**	**1.3**	**1739.5**	**732.5**	**3.4**	**1.4**
Republic of Dagestan	48.2	47.8	0.5	0.3	479.4	6.0	4.9	0.1
Republic of Ingushetia	–	–	–	–	77.3	0.8	4.3	0.05
Kabardino-Balkar Republic	179.2	4.7	0.7	0.02	42.5	0.8	0.9	0.02
Karachai-Cherkess Republic	–	–	–	–	69.7	271.4	2.4	9.9
Republic of North Ossetia – Alania	7.8	3.8	0.05	0.02	176.0	23.7	3.1	0.4
Chechen Republic	–	–	–	–	108.6	78.8	23.4	2.2
Stavropol Krai	7771.4	5120.4	3.6	1.9	785.9	351.0	3.1	1.4
Volga Federal District	**275837.2**	**235260.3**	**3.5**	**2.7**	**55470.9**	**64852.1**	**9.4**	**10.1**
Republic of Bashkortostan	28163.0	22470.8	2.2	1.8	1846.8	2849.9	2.8	4.0
Republic of Mari El	971.9	713.1	1.1	0.7	19.0	31.0	0.4	0.6
Republic of Mordovia	5209.4	4756.8	4.9	4.0	1107.6	439.2	42.7	6.8
Republic of Tatarstan	92182.5	49451.5	6.0	2.9	3538.2	3890.3	3.5	3.7
Udmurt Republic	8200.6	5612.5	2.2	1.4	169.0	432.2	1.1	2.1
Chuvash Republic	4101.5	4790.2	3.3	3.6	845.2	891.0	6.4	6.6
Perm Krai	50690.4	35987.8	4.6	3.0	8040.6	9936.7	14.3	17.6
Kirov Region	2187.4	2504.8	1.5	1.4	590.2	963.5	4.9	8.0
Nizhny Novgorod Region	29704.6	31328.2	3.4	3.0	16122.8	24367.2	12.2	17.6
Orenburg Region	5184.4	11018.3	0.9	1.7	66.3	119.3	0.3	0.5
Penza Region	1662.1	1911.6	1.6	1.5	4695.8	6003.6	30.2	32.7

(continued)

	Mining and quarrying, manufacturing, electricity, gas and water supply				Communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Samara Region	40174.4	47448.8	3.8	4.3	17383.9	13732.5	18.8	13.0
Saratov Region	4251.6	14131.1	1.4	3.8	578.0	715.5	2.1	1.8
Ulyanovsk Region	3153.5	3134.8	1.7	1.4	467.4	480.2	2.2	2.2
Ural Federal District	**103923.7**	**99516.4**	**1.5**	**1.3**	**19029.0**	**20615.0**	**5.4**	**4.7**
Kurgan Region	568.6	1016.0	0.8	0.7	111.8	125.1	1.7	1.9
Sverdlovsk Region	20347.5	34406.5	1.5	2.8	8487.3	5262.9	6.9	3.1
Tyumen Region	58817.2	57939.8	1.3	1.2	5166.9	6490.3	3.0	3.1
Khanty-Mansi Autonomous District – Yugra	54284.4	55168.9	1.8	1.9	21.6	1997.8	0.04	3.3
Yamalo-Nenets Autonomous District	1433.3	1281.0	0.2	0.1	82.5	226.8	0.5	1.2
Chelyabinsk Region	24190.4	6154.2	2.3	0.5	5263.0	8736.8	10.9	17.7
Siberian Federal District	**110558.4**	**104753.4**	**2.3**	**2.0**	**39755.4**	**35477.0**	**8.8**	**10.0**
Republic of Altai	465.7	251.4	12.9	4.1	2.3	18.9	0.2	1.3
Republic of Buryatia	641.8	628.9	0.7	0.5	282.8	223.7	3.6	2.9
Republic of Tyva	–	0.3	–	0.0	4.1	0.7	0.3	0.04
Republic of Khakassia	26.6	8.8	0.02	0.01	131.4	53.0	0.1	0.6
Altai Krai	2204.9	2898.6	1.0	1.1	449.3	420.3	2.4	1.9
Zabaikalye Krai	90.0	328.4	0.1	0.4	908.5	1563.1	3.9	5.9
Krasnoyarsk Krai	55658.5	38043.8	4.9	2.7	29060.1	22005.3	27.8	24.0
Irkutsk Region	20182.2	18406.2	3.1	2.5	802.7	329.4	1.9	0.9
Kemerov Region	976.2	3738.3	0.1	0.3	208.2	161.3	0.6	0.5

(continued)

	Mining and quarrying, manufacturing, electricity, gas and water supply				Communication, computer and information technology-related activities, research and development, other services of the business economy			
	Million roubles		As a percentage of total goods and services sales		Million roubles		As a percentage of total goods and services sales	
	2014	2015	2014	2015	2014	2015	2014	2015
Novosibirsk Region	2911.5	2712.9	0.9	0.8	1536.9	2356.4	2.3	3.2
Omsk Region	23634.8	29295.9	3.6	4.2	3295.5	5150.3	11.2	16.9
Tomsk Region	3766.2	8440.0	1.3	2.6	3073.7	3194.7	13.8	13.9
Far Eastern Federal District	**54147.4**	**63040.2**	**3.1**	**3.3**	**5005.0**	**4190.8**	**3.8**	**3.1**
Republic of Sakha (Yakutia)	3531.0	1564.3	0.9	0.4	53.2	67.9	0.3	0.4
Kamchatka Krai	58.7	522.9	0.1	1.1	511.2	16.8	6.1	0.2
Primorye Krai	762.2	680.7	0.4	0.3	1090.5	359.8	3.8	1.3
Khabarovsk Krai	4206.7	4264.1	2.0	1.8	2317.1	3323.2	8.3	10.5
Amur Region	3309.5	3450.8	3.3	1.9	380.3	280.5	3.3	2.5
Magadan Region	210.1	882.8	0.4	1.1	35.4	26.1	0.4	0.5
Sakhalin Region	42045.4	50964.4	6.2	8.0	542.2	76.9	2.1	0.3
Jewish Autonomous Region	0.4	32.7	0.01	0.6	63.6	22.9	4.7	1.6
Chukotka Autonomous District	23.4	677.4	0.04	0.9	11.5	16.7	0.9	1.3
Crimean Federal District	**258.3**	**401.0**	**1.1**	**0.5**	**0.1**	**195.8**	**0.04**	**4.1**
Republic of Crimea	258.3	401.0	1.2	0.6	–	195.8	–	15.4
Sevastopol	–	–	–	–	0.1	–	0.5	–

6.6. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY TYPE OF INNOVATIVE ACTIVITY: 2015

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Mining and quarrying, manufacturing, electricity, gas and water supply										
Russian Federation	**22.9**	**2.0**	**48.2**	**1.6**	**1.1**	**0.9**	**12.0**	**0.2**	**0.3**	**11.9**
Central Federal District	**40.3**	**2.5**	**28.5**	**5.5**	**5.4**	**1.4**	**11.5**	**0.2**	**0.2**	**9.9**
Belgorod Region	7.5	4.6	45.4	0.2	0.01	0.4	2.7	0.01	0.1	39.1
Bryansk Region	31.9	0.6	40.8	0.01	0.01	0.2	25.8	0.03	0.3	0.4
Vladimir Region	14.9	0.3	15.7	67.3	67.3	0.3	1.1	0.1	–	0.4
Voronezh Region	21.3	0.2	47.3	1.0	0.01	0.8	14.7	0.1	0.0	14.8
Ivanovo Region	29.4	38.5	28.5	1.5	–	1.4	–	–	0.7	–
Kaluga Region	11.4	0.2	40.1	44.5	44.3	0.4	2.4	0.2	0.01	0.7
Kostroma Region	1.0	0.3	85.0	2.7	2.7	1.2	9.5	0.1	0.3	0.0
Kursk Region	73.1	0.6	12.5	–	–	2.9	5.6	0.6	4.5	0.1
Lipetsk Region	10.0	8.1	71.9	0.4	–	1.4	7.9	0.1	0.2	–
Moscow Region	30.8	0.1	19.8	0.3	0.2	0.8	25.2	0.1	0.2	22.7
Oryol Region	20.4	10.7	64.1	–	–	1.9	2.0	0.3	0.6	–
Ryazan Region	46.0	1.8	48.5	0.7	0.4	0.1	2.0	0.2	0.2	0.4
Smolensk Region	38.2	–	51.6	0.01	–	1.0	9.1	0.1	–	0.03
Tambov Region	7.7	5.9	26.5	0.1	–	0.4	57.5	0.8	1.0	0.1
Tver Region	59.9	14.2	19.6	0.0	0.0	2.7	0.7	0.2	0.01	2.7
Tula Region	69.0	3.2	17.7	0.3	0.0	1.3	5.3	0.1	–	3.2
Yaroslavl Region	38.7	1.8	26.9	0.01	0.01	1.2	1.6	0.05	0.01	29.8
Moscow	66.9	3.5	18.7	0.5	0.3	3.2	5.4	0.5	0.3	1.1

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Northwestern Federal District	**22.7**	**7.2**	**47.5**	**0.7**	**0.3**	**1.3**	**9.5**	**0.1**	**0.1**	**10.9**
Republic of Karelia	45.6	–	25.2	0.01	0.01	–	–	–	–	29.1
Komi Republic	8.8	–	84.5	–	–	–	1.9	0.6	–	4.2
Arkhangelsk Region	4.5	–	33.5	0.0	0.0	6.8	0.5	0.01	–	54.7
Nenets Autonomous District	–	–	98.8	–	–	1.2	–	–	–	–
Vologda Region	57.3	1.3	25.7	5.0	5.0	0.05	0.9	0.1	–	9.7
Kaliningrad Region	1.3	0.2	15.9	0.01	–	3.0	1.3	0.2	–	78.1
Leningrad Region	6.1	0.5	75.0	0.04	0.03	0.6	5.3	0.02	0.4	12.1
Murmansk Region	4.5	–	16.5	–	–	1.3	70.7	–	–	7.0
Novgorod Region	29.6	2.5	50.6	0.0	–	0.1	17.0	0.2	–	–
Pskov Region	4.7	8.8	22.5	–	–	0.6	3.2	0.5	–	59.6
Saint-Petersburg	34.4	12.4	35.5	1.2	0.5	1.3	9.6	0.2	0.02	5.3
Southern Federal District	**10.0**	**1.1**	**29.5**	**2.6**	**0.05**	**0.3**	**2.4**	**0.1**	**0.1**	**54.0**
Republic of Adygeya	–	1.3	79.9	–	–	11.3	5.7	0.7	1.0	0.1
Republic of Kalmykia	–	–	–	–	–	–	–	–	–	–
Krasnodar Krai	3.1	1.6	49.4	16.5	0.0	2.7	0.7	0.3	0.7	25.0
Astrakhan Region	12.1	0.7	20.3	50.0	–	0.01	1.6	–	–	15.4
Volgograd Region	0.2	1.8	35.6	0.0	–	0.1	2.6	0.03	–	59.6
Rostov Region	22.6	0.1	19.9	0.1	0.1	0.2	2.4	0.05	0.04	54.5
North Caucasian Federal District	**4.7**	**0.2**	**76.1**	**9.1**	**0.0**	**0.1**	**9.2**	**0.0**	–	**0.6**
Republic of Dagestan	–	–	95.4	–	–	–	4.6	–	–	–
Republic of Ingushetia	–	–	–	–	–	–	–	–	–	–
Kabardino-Balkar Republic	27.7	–	53.2	19.1	–	–	–	–	–	–
Karachai-Cherkess Republic	–	–	–	–	–	–	–	–	–	–

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Republic of North Ossetia – Alania	100	–	–	–	–	–	–	–	–	–
Chechen Republic	–	–	–	–	–	–	–	–	–	–
Stavropol Krai	4.7	0.2	76.0	9.2	0.0	0.1	9.3	0.01	–	0.6
Volga Federal District	**20.4**	**1.7**	**50.0**	**0.8**	**0.3**	**1.1**	**17.7**	**0.4**	**0.6**	**7.4**
Republic of Bashkortostan	5.7	0.1	71.9	0.8	0.0	6.1	6.4	0.02	0.0	9.0
Republic of Mari El	16.9	20.5	55.7	–	–	0.9	5.8	0.1	0.03	–
Republic of Mordovia	4.4	1.3	15.8	1.0	–	0.7	74.5	0.2	0.1	2.0
Republic of Tatarstan	28.3	0.6	37.3	0.7	0.7	0.3	9.8	0.2	0.02	22.8
Udmurt Republic	4.6	19.9	52.9	4.9	0.1	2.5	14.7	0.1	0.01	0.4
Chuvash Republic	19.5	1.5	44.3	1.0	0.2	0.7	29.0	0.1	0.1	3.8
Perm Krai	18.9	0.1	35.5	0.6	0.0	0.5	41.3	1.6	0.02	1.5
Kirov Region	7.8	0.5	52.4	–	–	0.1	22.8	0.02	–	16.6
Nizhny Novgorod Region	41.1	0.6	40.4	0.2	0.1	1.0	10.6	0.3	0.01	5.8
Orenburg Region	9.0	0.9	82.2	0.5	–	1.1	3.5	0.04	0.02	2.7
Penza Region	20.3	12.6	54.8	0.03	0.03	1.0	7.4	0.5	0.1	3.4
Samara Region	17.8	1.6	59.1	1.4	0.5	0.2	16.4	0.2	2.9	0.5
Saratov Region	7.6	0.8	77.5	0.0	0.0	0.4	13.5	0.02	0.02	0.2
Ulyanovsk Region	12.3	26.6	28.3	0.6	0.01	1.9	15.8	0.2	0.03	14.3
Ural Federal District	**28.0**	**1.6**	**60.2**	**0.3**	**0.3**	**1.2**	**1.8**	**0.1**	**0.01**	**6.8**
Kurgan Region	15.7	0.2	70.6	–	–	0.6	10.8	0.0	0.03	2.1
Sverdlovsk Region	22.7	2.6	53.3	0.9	0.8	0.7	2.8	0.05	0.01	17.1
Tyumen Region	32.8	0.8	64.0	0.0	0.0	1.5	0.1	0.1	–	0.6
Khanty-Mansi Autonomous District – Yugra	33.3	0.6	64.8	–	–	0.5	0.1	0.1	–	0.6
Yamalo-Nenets Autonomous District	33.8	0.05	22.0	0.01	0.01	43.9	0.02	0.1	–	0.1
Chelyabinsk Region	–	4.0	61.2	0.5	0.2	1.0	10.1	0.3	0.1	8.9

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Siberian Federal District	**21.3**	**2.1**	**43.4**	**0.1**	**0.02**	**0.5**	**23.2**	**0.05**	**0.04**	**9.3**
Republic of Altai	95.0	0.01	4.2	–	–	0.7	–	–	–	–
Republic of Buryatia	0.04	87.5	7.9	0.03	–	–	–	–	–	4.5
Republic of Tyva	–	–	100	–	–	–	–	–	–	–
Republic of Khakassia	100	–	–	–	–	–	–	–	–	–
Altai Krai	26.6	2.1	54.3	0.01	0.01	0.3	14.0	0.2	0.2	2.3
Zabaikalye Krai	0.2	4.0	94.4	0.4	0.1	0.1	0.6	0.1	–	0.01
Krasnoyarsk Krai	48.6	0.01	47.6	0.01	0.0	0.2	2.7	0.1	0.0	0.8
Irkutsk Region	1.4	1.7	58.4	0.2		1.0	35.9	0.01	–	1.5
Kemerov Region	1.0	0.04	97.9	0.02	0.01	0.1	0.6	0.1	–	0.2
Novosibirsk Region	19.6	27.9	24.0	0.02	0.02	4.4	4.4	0.3	0.5	18.8
Omsk Region	1.5	0.9	22.2	0.0	0.0	0.4	45.9	0.02	0.0	29.1
Tomsk Region	17.9	3.3	45.3	0.2	0.2	0.2	32.1	0.04	0.2	0.7
Far Eastern Federal District	**7.1**	**0.5**	**86.7**	**0.01**	**0.0**	**0.1**	**0.2**	**0.01**	**0.04**	**5.4**
Republic of Sakha (Yakutia)	9.3	18.1	49.4	0.01	–	0.3	0.4	0.1	1.4	21.0
Kamchatka Krai	–	0.02	100	–	–	–	–	–	–	–
Primorye Krai	41.6	0.4	43.3	–	–	5.1	7.4	0.5	–	1.6
Khabarovsk Krai	9.0	–	46.8	–	–	0.2	2.1	0.03	0.0	41.9
Amur Region	83.9	–	7.2	–	–	0.01	–	–	–	8.9
Magadan Region	84.9	–	11.7	0.7	–	0.01	0.4	–	–	2.3
Sakhalin Region	–	–	99.1	0.0	0.0	0.01	–	0.0	–	0.8
Jewish Autonomous Region	1.5	–	98.4	–	–	0.1	–	–	–	–
Chukotka Autonomous District	–	–	19.4	–	–	0.0	–	0.03	–	80.6

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Crimean Federal District	**0.9**	**0.3**	**66.0**	**0.03**	–	**0.5**	32.1	0.03	0.01	0.2
Republic of Crimea	0.9	0.3	66.0	0.03	–	0.5	32.1	0.03	0.01	0.2
Sevastopol	–	–	–	–	–	–	–	–	–	–
Communication, computer and information technology-related activities, research and development, other services of the business economy										
Russian Federation	**78.2**	**1.4**	**9.1**	**0.6**	**0.04**	**2.5**	**3.9**	**0.1**	**0.1**	**4.1**
Central Federal District	**78.3**	**0.8**	**8.0**	**0.8**	**0.1**	**3.2**	**3.5**	**0.1**	**0.2**	**5.2**
Belgorod Region	81.8	–	3.7	–	–	6.6	–	1.1	0.5	6.3
Bryansk Region	98.7	–	–	–	–	0.6	–	–	–	0.7
Vladimir Region	51.4	–	18.6	–	–	0.6	15.8	0.01	2.0	11.5
Voronezh Region	82.7	0.0	16.1	0.01	0.01	0.9	0.1	0.1	–	0.1
Ivanovo Region	37.8	–	52.2	–	–	0.04	–	0.1	9.8	–
Kaluga Region	85.8	–	8.5	–	–	1.4	3.5	0.2	0.4	0.4
Kostroma Region	91.0	–	8.9	–	–	0.01	–	0.02	–	0.01
Kursk Region	1.1	–	40.1	–	–	0.2	–	–	–	58.6
Lipetsk Region	12.8	–	79.5	–	–	4.8	–	0.3	–	2.6
Moscow Region	92.6	0.2	2.4	0.7	0.01	0.3	3.5	0.03	0.03	0.2
Oryol Region	0.5	–	92.0	–	–	–	–	–	7.5	–
Ryazan Region	82.0	0.2	17.2	–	–	0.04	–	0.1	0.02	0.5
Smolensk Region	45.5	–	53.8	–	–	–	0.7	0.1	–	–
Tambov Region	33.6	–	64.9	–	–	0.1	0.9	0.05	–	0.5
Tver Region	84.9	0.4	4.8	0.1	0.03	5.2	0.3	0.03	–	4.3
Tula Region	9.9	0.8	51.8	–	–	35.2	–	0.9	–	1.4
Yaroslavl Region	97.1	–	0.1	0.4	–	0.4	–	0.0	–	2.0
Moscow	69.4	1.3	10.5	1.0	0.1	5.3	3.5	0.1	0.2	8.7

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Northwestern Federal District	**82.1**	**4.0**	**7.2**	**0.1**	**0.01**	**1.2**	**3.8**	**0.1**	**0.04**	**1.6**
Republic of Karelia	95.3	–	0.4	–	–	2.1	0.7	–	–	1.5
Komi Republic	–	–	80.6	–	–	0.02	0.1	–	–	19.2
Arkhangelsk Region	93.2	–	3.5	0.3	–	1.7	–	–	0.9	0.4
Nenets Autonomous District	100	–	–	–	–	–	–	–	–	–
Vologda Region	26.8	1.4	42.0	–	–	0.4	–	0.3	–	29.1
Kaliningrad Region	80.0	0.4	19.5	–	–	0.03	–	0.1	–	–
Leningrad Region	78.2	–	16.2	–	–	0.2	–	0.03	–	5.4
Murmansk Region	58.8	–	15.9	1.2	–	4.9	–	0.2	–	19.0
Novgorod Region	86.4	–	8.8	–	–	2.1	–	0.1	–	2.5
Pskov Region	–	–	–	–	–	100	–	–	–	–
Saint-Petersburg	83.2	4.2	6.2	0.1	0.01	1.2	4.0	0.1	0.04	1.1
Southern Federal District	**62.3**	**-**	**22.5**	**0.4**	**0.01**	**1.9**	**0.4**	**0.04**	**-**	**12.5**
Republic of Adygeya	–	–	–	–	–	100	–	–	–	–
Republic of Kalmykia	11.0	–	12.1	–	–	4.4	–	–	–	72.5
Krasnodar Krai	78.5	–	15.2	1.0	0.01	4.2	–	0.1	–	1.0
Astrakhan Region	42.2	–	56.7	–	–	0.8	–	0.03	–	0.3
Volgograd Region	13.1	–	43.6	2.0	0.3	10.0	10.3	0.5	–	20.5
Rostov Region	59.6	–	22.7	0.2	0.01	1.0	0.2	0.01	–	16.3
North Caucasian Federal District	**37.6**	**-**	**47.6**	**0.0**	**0.0**	**1.7**	**9.5**	**0.7**	**0.03**	**2.8**
Republic of Dagestan	14.3	–	44.2	–	–	41.4	–	–	–	–
Republic of Ingushetia	–	–	100	–	–	–	–	–	–	–
Kabardino-Balkar Republic	–	–	100	–	–	–	–	–	–	–

(continued)

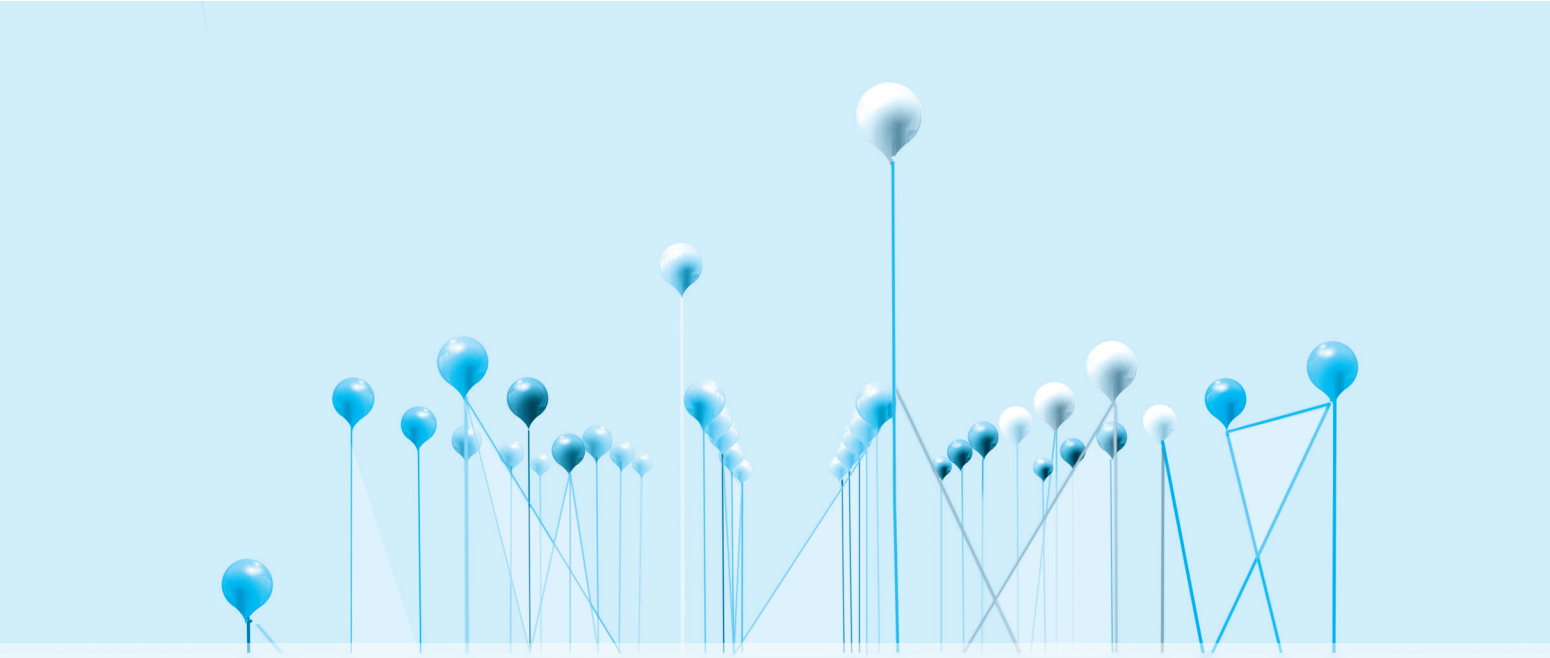
	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Karachai-Cherkess Republic	–	–	100	–	–	–	–	–	–	–
Republic of North Ossetia – Alania	40.4	–	58.8	–	–	–	–	–	0.8	–
Chechen Republic	71.5	–	15.3	–	–	–	7.8	5.4	–	–
Stavropol Krai	59.5	–	13.4	0.01	0.01	2.8	18.1	0.3	–	5.8
Volga Federal District	**73.6**	**3.7**	**10.1**	**0.1**	**0.01**	**1.6**	**8.9**	**0.1**	**0.02**	**1.9**
Republic of Bashkortostan	63.3	3.0	20.4	0.1	0.1	11.1	1.7	0.4	–	0.03
Republic of Mari El	24.1	–	36.6	–	–	5.0	33.7	0.6	–	0.1
Republic of Mordovia	73.4	–	6.5	–	–	7.3	2.4	–	–	10.4
Republic of Tatarstan	63.4	0.4	29.5	0.03	0.01	1.6	4.4	0.2	–	0.3
Udmurt Republic	78.4	–	17.2	0.01	0.01	0.1	3.6	0.2	0.5	–
Chuvash Republic	85.8	–	11.8	–	–	1.0	1.0	0.1	–	0.4
Perm Krai	66.4	21.5	7.2	0.1	0.0	1.7	0.8	0.02	–	2.2
Kirov Region	98.5	–	0.05	–	–	0.1	1.4	–	–	–
Nizhny Novgorod Region	78.6	0.6	9.3	0.0	0.0	1.4	7.4	0.2	0.04	2.6
Orenburg Region	2.7	–	79.9	0.8	0.8	0.02	16.6	–	–	–
Penza Region	35.9	–	4.6	0.4	–	0.2	56.0	0.1	0.04	2.7
Samara Region	90.0	–	8.5	0.01	–	0.5	0.8	0.2	–	0.1
Saratov Region	92.0	0.01	6.7	0.05	–	0.2	1.0	0.03	–	–
Ulyanovsk Region	27.9	–	11.5	–	–	1.7	26.7	0.3	–	32.1
Ural Federal District	**83.4**	**0.9**	**9.4**	**0.8**	**0.01**	**1.8**	**1.6**	**0.1**	**0.01**	**2.0**
Kurgan Region	93.7	0.3	5.2	–	–	0.1	0.1	–	0.03	0.6
Sverdlovsk Region	69.9	2.9	15.0	0.01	0.0	3.4	5.2	0.1	0.03	3.5
Tyumen Region	83.0	0.7	10.8	–	–	1.5	0.5	0.1	–	3.5

(continued)

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Khanty-Mansi Autonomous District – Yugra	67.2	–	28.1	–	–	0.04	–	0.01	–	4.7
Yamalo-Nenets Autonomous District	73.1	–	9.5	–	–	0.01	1.0	0.1	–	16.4
Chelyabinsk Region	91.8	–	4.9	1.8	0.02	1.2	0.1	0.1	0.01	0.1
Siberian Federal District	**90.7**	**0.03**	**5.8**	**0.01**	**0.0**	**0.3**	**0.7**	**0.1**	**0.01**	**2.3**
Republic of Altai	97.0	–	0.4	1.3	–	1.3	–	–	–	0.04
Republic of Buryatia	4.9	–	93.7	–	–	0.5	–	0.4	–	0.6
Republic of Tyva	–	–	49.3	–	–	47.4	–	–	–	3.3
Republic of Khakassia	7.5	–	92.2	–	–	0.01	–	–	–	0.3
Altai Krai	82.6	–	10.8	–	–	0.4	3.5	0.1	–	2.5
Zabaikalye Krai	47.4	–	11.7	–	–	0.02	–	–	–	40.9
Krasnoyarsk Krai	99.0	0.0	0.1	0.0	0.0	0.2	0.3	0.02	–	0.4
Irkutsk Region	42.7	–	36.9	0.01	–	19.1	0.5	0.7	–	–
Kemerov Region	30.8	–	47.2	–	–	0.1	21.9	0.04	–	–
Novosibirsk Region	76.8	0.5	18.6	0.1	–	0.6	1.8	0.1	0.1	1.4
Omsk Region	86.1	–	11.2	–	–	0.1	2.0	0.1	0.02	0.5
Tomsk Region	88.9	–	10.5	0.01	0.01	0.1	0.1	0.1	–	0.2
Far Eastern Federal District	**7.1**	**-**	**85.3**	**1.6**	**-**	**2.5**	**0.03**	**0.4**	**0.0**	**3.1**
Republic of Sakha (Yakutia)	52.2	–	27.8	0.4	–	12.3	–	1.4	–	5.9
Kamchatka Krai	–	–	31.2	0.03	–	35.0	–	0.1	–	33.5
Primorye Krai	34.4	–	34.6	–	–	14.8	0.03	0.02	0.03	16.2
Khabarovsk Krai	1.0	–	94.8	2.0	–	1.0	–	0.5	–	0.7
Amur Region	25.0	–	67.5	–	–	0.1	–	0.1	–	7.3
Magadan Region	34.7	–	61.6	–	–	0.1	3.6	–	0.01	–

(continued)

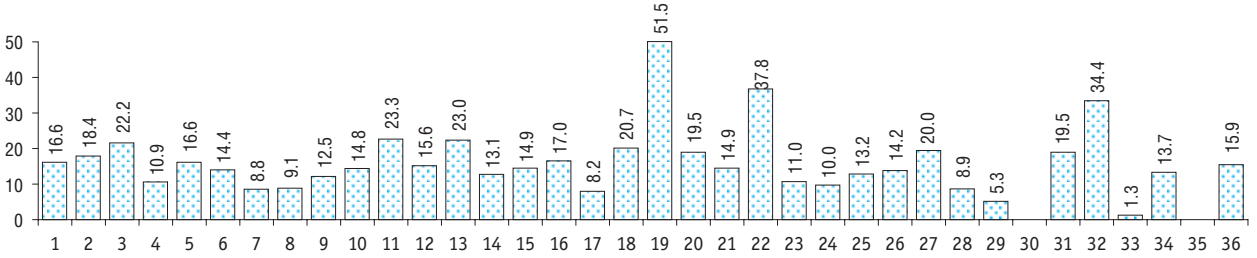
	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Marketing research	Other innovative activities
Sakhalin Region	30.2	–	61.7	–	–	0.03	–	–	–	8.1
Jewish Autonomous Region	–	–	42.5	–	–	0.1	–	–	–	57.4
Chukotka Autonomous District	–	–	73.4	–	–	26.6	–	–	–	–
Crimean Federal District	**96.1**	**0.7**	–	–	–	**3.2**	–	–	–	–
Republic of Crimea	96.1	0.7	–	–	–	3.2	–	–	–	–
Sevastopol	–	–	–	–	–	–	–	–	–	–



7. Ecological Innovation

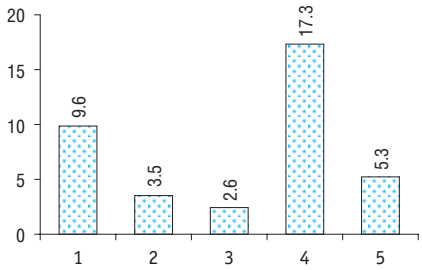
7.1. ENTERPRISES ENGAGED IN ECOLOGICAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES THAT HAD MARKET-READY INNOVATIONS DURING THE LAST THREE YEARS: 2015

Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

5 – Other services of the business economy

7.2. ENTERPRISES ENGAGED IN INNOVATIONS PROVIDING INCREASED ENVIRONMENTAL SAFETY IN THE PROCESS OF PRODUCTION OF GOODS OR SERVICES: 2015

(as a percentage of all enterprises engaged in ecological innovation)

	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Reducing carbon dioxide emission	Replacing materials with less hazardous or non-hazardous substitutes	Reducing environmental pollution (air, soil, water or noise pollution)	Recycling waste, water or materials
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**45.2**	**56.4**	**43.8**	**39.3**	**81.7**	**51.3**
Mining and quarrying	32.0	60.0	52.0	28.0	88.0	76.0
Mining and quarrying of energy producing materials	30.0	55.0	50.0	20.0	85.0	70.0
Mining and quarrying, except energy producing materials	40.0	80.0	60.0	60.0	100	100
Manufacturing	47.0	56.8	44.9	38.2	80.8	53.9
High tech	41.0	60.7	37.7	36.1	75.4	39.3
Manufacture of pharmaceuticals and pharmaceutical products	–	20.0	60.0	20.0	80.0	–
Manufacture of office machinery and computers	100	100	–	–	100	100
Manufacture of radio, television and communication equipment and apparatus	35.7	50.0	28.6	28.6	78.6	28.6
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	55.6	74.1	37.0	51.9	66.7	51.9
Manufacture of aircraft, including spacecraft	28.6	57.1	42.9	21.4	85.7	35.7

(continued)

	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Reducing carbon dioxide emission	Replacing materials with less hazardous or non-hazardous substitutes	Reducing environmental pollution (air, soil, water or noise pollution)	Recycling waste, water or materials
Medium high tech	51.3	59.0	43.6	48.7	84.6	53.0
Manufacture of chemicals and chemical products	61.3	61.3	41.9	41.9	87.1	61.3
Manufacture of machinery and equipment	40.0	60.0	51.4	45.7	85.7	40.0
Manufacture of electrical machinery and apparatus	58.6	58.6	37.9	69.0	82.8	51.7
Manufacture of motor vehicles, trailers and semi-trailers	55.6	61.1	50.0	38.9	83.3	61.1
Manufacture of other transport vehicles	–	25.0	–	25.0	75.0	75.0
Medium low tech	46.9	53.1	38.9	28.3	81.4	63.7
Manufacture of coke and refined petroleum products	35.3	29.4	35.3	23.5	58.8	58.8
Manufacture of rubber and plastic products	75.0	75.0	50.0	68.8	87.5	68.8
Manufacture of other non-metallic mineral products	50.0	53.8	23.1	11.5	76.9	69.2
Manufacture of basic metals	45.9	59.5	45.9	21.6	91.9	70.3
Manufacture of fabricated metal products	35.7	50.0	42.9	42.9	78.6	50.0
Building and repair of ships and boats	–	–	33.3	–	100	–
Low tech	50.5	63.2	54.7	42.1	74.7	54.7
Manufacture of food products, including beverages	44.3	63.9	54.1	42.6	67.2	52.5
Manufacture of tobacco products	–	100	–	–	50.0	50.0
Manufacture of textiles	25.0	25.0	25.0	75.0	75.0	–
Manufacture of wearing apparel, dressing and dyeing of fur	100	100	100	100	100	–

(continued)

	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Reducing carbon dioxide emission	Replacing materials with less hazardous or non-hazardous substitutes	Reducing environmental pollution (air, soil, water or noise pollution)	Recycling waste, water or materials
Manufacture of leather, leather products and footwear	–	–	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	87.5	75.0	75.0	25.0	87.5	75.0
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	63.6	63.6	54.5	45.5	100	81.8
Publishing and printing activities, reproduction of recorded media	–	–	–	100	100	100
Manufacture of furniture and other products n.e.c.	71.4	57.1	71.4	28.6	85.7	42.9
Recycling of secondary raw materials	–	–	–	–	–	–
Electricity, gas and water supply	38.1	52.4	33.3	50.8	85.7	23.8
Communication, computer and information technology-related activities, research and development, other services of the business economy						
Total	**45.8**	**54.2**	**40.5**	**44.0**	**73.8**	**32.1**
Communication	46.2	53.8	46.2	38.5	46.2	23.1
Computer and information technology-related activities	40.0	40.0	20.0	60.0	20.0	40.0
Research and development	48.0	56.0	40.8	46.4	78.4	32.8
Other services of the business economy	36.0	48.0	40.0	32.0	76.0	32.0

7.3. ENTERPRISES ENGAGED IN INNOVATIONS PROVIDING INCREASED ENVIRONMENTAL SAFETY AS A RESULT OF USING INNOVATIVE GOODS OR SERVICES: 2015

(as a percentage of all enterprises engaged in ecological innovation)

	Reducing power consumption or energy loss	Reducing air, water, soil or noise pollution	Improved recycling of used products
Mining and quarrying, manufacturing, electricity, gas and water supply			
Total	**51.5**	**58.5**	**25.0**
Mining and quarrying	48.0	68.0	52.0
Mining and quarrying of energy producing materials	45.0	65.0	40.0
Mining and quarrying, except energy producing materials	60.0	80.0	100
Manufacturing	51.8	58.4	26.1
High tech	49.2	57.4	19.7
Manufacture of pharmaceuticals and pharmaceutical products	–	60.0	–
Manufacture of office machinery and computers	100	100	100
Manufacture of radio, television and communication equipment and apparatus	42.9	42.9	7.1
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	59.3	59.3	25.9
Manufacture of aircraft, including spacecraft	50.0	64.3	21.4
Medium high tech	53.8	54.7	24.8
Manufacture of chemicals and chemical products	48.4	64.5	35.5
Manufacture of machinery and equipment	57.1	48.6	17.1
Manufacture of electrical machinery and apparatus	55.2	51.7	20.7
Manufacture of motor vehicles, trailers and semi-trailers	61.1	61.1	22.2
Manufacture of other transport vehicles	25.0	25.0	50.0

(continued)

	Reducing power consumption or energy loss	Reducing air, water, soil or noise pollution	Improved recycling of used products
Medium low tech	46.0	60.2	27.4
Manufacture of coke and refined petroleum products	29.4	70.6	17.6
Manufacture of rubber and plastic products	56.3	62.5	43.8
Manufacture of other non-metallic mineral products	57.7	57.7	30.8
Manufacture of basic metals	40.5	45.9	21.6
Manufacture of fabricated metal products	50.0	78.6	28.6
Building and repair of ships and boats	33.3	100	33.3
Low tech	54.7	58.9	32.6
Manufacture of food products, including beverages	50.8	52.5	27.9
Manufacture of tobacco products	50.0	50.0	50.0
Manufacture of textiles	50.0	75.0	–
Manufacture of wearing apparel, dressing and dyeing of fur	100	100	–
Manufacture of leather, leather products and footwear	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	87.5	87.5	37.5
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	54.5	72.7	72.7
Publishing and printing activities, reproduction of recorded media	100	–	100
Manufacture of furniture and other products n.e.c.	42.9	57.1	14.3
Recycling of secondary raw materials	–	–	–
Electricity, gas and water supply	50.8	55.6	6.3

(continued)

	Reducing power consumption or energy loss	Reducing air, water, soil or noise pollution	Improved recycling of used products
Communication, computer and information technology-related activities, research and development, other services of the business economy			
Total	**60.1**	**73.2**	**26.8**
Communication	69.2	53.8	15.4
Computer and information technology-related activities	40.0	40.0	20.0
Research and development	60.8	76.8	28.8
Other services of the business economy	56.0	72.0	24.0

7.4. ENTERPRISES ENGAGED IN ECOLOGICAL INNOVATION BY PURPOSE AND ECONOMIC ACTIVITY: 2015

(as a percentage of all enterprises engaged in ecological innovation)

	Enterprises engaged in ecological innovation by purpose:				
	ensuring compliance with modern technical regulations, rules and standards	ensuring compliance with the expected tightening of legal provisions	availability of government grants, subsidies or other financial incentives following the introduction of environmental innovations	compliance with the market (consumers) requirements leading to the introduction of environmental innovations	voluntary adherence to the general principles of environmental protection
Mining and quarrying, manufacturing, electricity, gas and water supply					
Total	**85.3**	**46.6**	**10.6**	**46.8**	**83.1**
Mining and quarrying	92.0	76.0	16.0	44.0	88.0
Mining and quarrying of energy producing materials	90.0	80.0	10.0	35.0	85.0
Mining and quarrying, except energy producing materials	100	60.0	40.0	80.0	100
Manufacturing	84.8	47.0	10.9	49.6	83.8
High tech	80.3	39.3	9.8	42.6	88.5
Manufacture of pharmaceuticals and pharmaceutical products	40.0	–	–	20.0	80.0
Manufacture of office machinery and computers	100	100	–	100	100
Manufacture of radio, television and communication equipment and apparatus	85.7	42.9	–	42.9	92.9
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	77.8	44.4	7.4	44.4	88.9
Manufacture of aircraft, including spacecraft	92.9	35.7	28.6	42.9	85.7
Medium high tech	81.2	53.8	10.3	55.6	82.9
Manufacture of chemicals and chemical products	87.1	67.7	6.5	51.6	93.5
Manufacture of machinery and equipment	74.3	48.6	20.0	45.7	85.7

(continued)

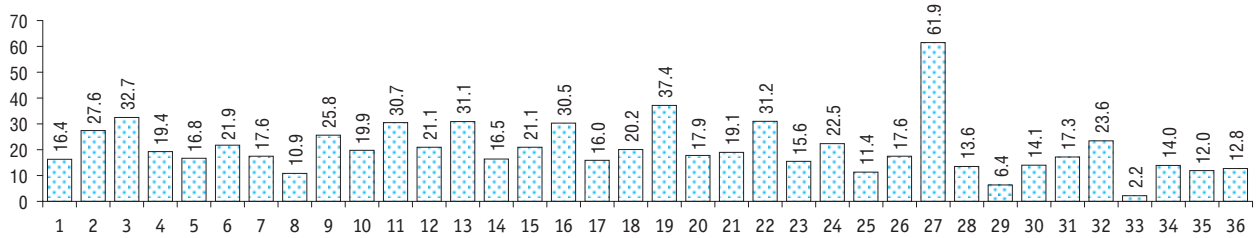
	Enterprises engaged in ecological innovation by purpose:				
	ensuring compliance with modern technical regulations, rules and standards	ensuring compliance with the expected tightening of legal provisions	availability of government grants, subsidies or other financial incentives following the introduction of environmental innovations	compliance with the market (consumers) requirements leading to the introduction of environmental innovations	voluntary adherence to the general principles of environmental protection
Manufacture of electrical machinery and apparatus	82.8	44.8	6.9	65.5	79.3
Manufacture of motor vehicles, trailers and semi-trailers	83.3	50.0	5.6	61.1	61.1
Manufacture of other transport vehicles	75.0	75.0	–	75.0	100
Medium low tech	89.4	48.7	11.5	47.8	83.2
Manufacture of coke and refined petroleum products	94.1	64.7	17.6	41.2	88.2
Manufacture of rubber and plastic products	87.5	37.5	6.3	50.0	87.5
Manufacture of other non-metallic mineral products	88.5	50.0	11.5	53.8	84.6
Manufacture of basic metals	91.9	56.8	8.1	40.5	75.7
Manufacture of fabricated metal products	85.7	21.4	21.4	57.1	92.9
Building and repair of ships and boats	66.7	33.3	–	66.7	66.7
Low tech	84.2	47.4	14.7	53.7	85.3
Manufacture of food products, including beverages	83.6	44.3	16.4	55.7	82.0
Manufacture of tobacco products	100	100	50.0	50.0	100
Manufacture of textiles	100	25.0	–	50.0	75.0
Manufacture of wearing apparel, dressing and dyeing of fur	100	100	–	100	100
Manufacture of leather, leather products and footwear	–	–	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	75.0	37.5	–	75.0	87.5
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	81.8	63.6	18.2	45.5	90.9

(continued)

	Enterprises engaged in ecological innovation by purpose:				
	ensuring compliance with modern technical regulations, rules and standards	ensuring compliance with the expected tightening of legal provisions	availability of government grants, subsidies or other financial incentives following the introduction of environmental innovations	compliance with the market (consumers) requirements leading to the introduction of environmental innovations	voluntary adherence to the general principles of environmental protection
Publishing and printing activities, reproduction of recorded media	100	100	100	100	100
Manufacture of furniture and other products n.e.c.	85.7	42.9	–	14.3	100
Recycling of secondary raw materials	–	–	–	–	–
Electricity, gas and water supply	85.7	31.7	6.3	28.6	76.2
Communication, computer and information technology-related activities, research and development, other services of the business economy					
Total	**86.9**	**46.4**	**19.6**	**54.2**	**81.0**
Communication	92.3	30.8	15.4	30.8	69.2
Computer and information technology-related activities	60.0	40.0	20.0	40.0	100
Research and development	88.0	48.0	21.6	60.0	83.2
Other services of the business economy	84.0	48.0	12.0	40.0	72.0

7.5. ENTERPRISES USING SYSTEMS OF ENVIRONMENTAL POLLUTION CONTROL AS A PERCENTAGE OF ALL ENTERPRISES: 2015

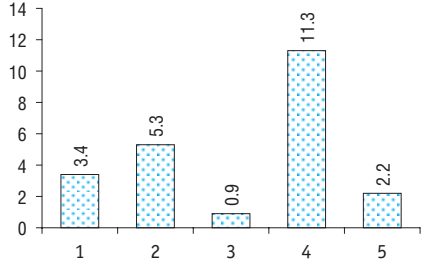
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
5 – Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals and pharmaceutical products
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks
11 – Manufacture of aircraft, including spacecraft
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment
15 – Manufacture of electrical machinery and apparatus
16 – Manufacture of motor vehicles, trailers and semi-trailers
17 – Manufacture of other transport vehicles
18 – Medium low tech
19 – Manufacture of coke and refined petroleum products
20 – Manufacture of rubber and plastic products
21 – Manufacture of other non-metallic mineral products
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Building and repair of ships and boats
25 – Low tech
26 – Manufacture of food products, including beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Woodworking and manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and products thereof
33 – Publishing and printing activities, reproduction of recorded media
34 – Manufacture of furniture and other products n.e.c.
35 – Recycling of secondary raw materials
36 – Electricity, gas and water supply

(continued)

Communication, computer and information technology-related activities, research and development, other services of the business economy



1 – Total

2 – Communication

3 – Computer and information technology-related activities

4 – Research and development

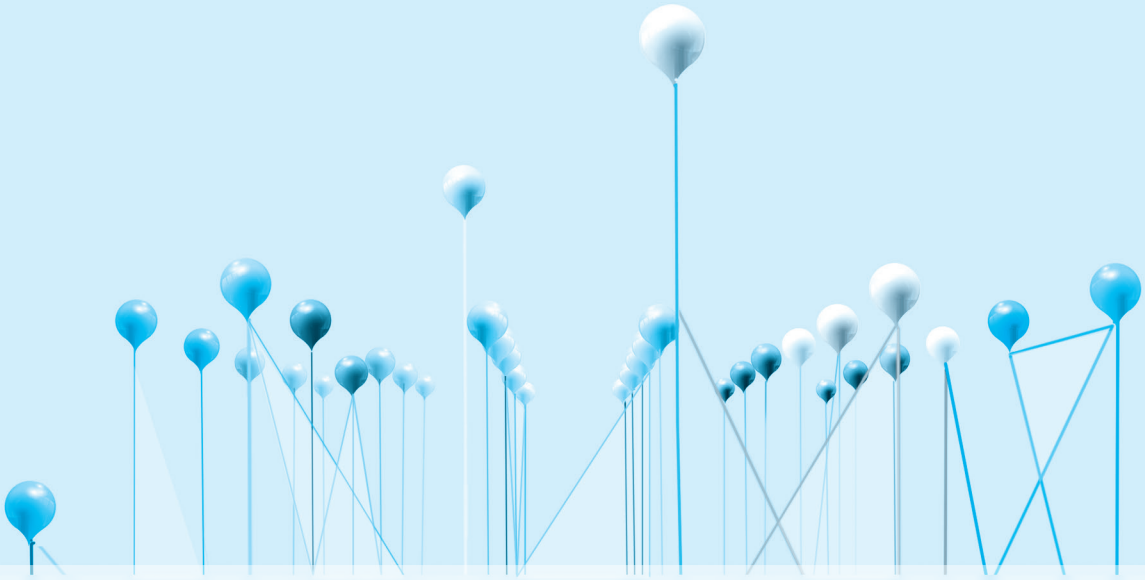
5 – Other services of the business economy

7.6. EXPENDITURE ON ECOLOGICAL INNOVATION: 2015

	Expenditure on ecological innovation		Expenditure on ecological innovation per enterprise, *million roubles*
	Million roubles	Per cent	
Mining and quarrying, manufacturing, electricity, gas and water supply			
Total	**21479.7**	**100**	**101.3**
Mining and quarrying	4910.2	22.9	491.0
Mining and quarrying of energy producing materials	4841.6	22.5	691.7
Mining and quarrying, except energy producing materials	68.7	0.3	22.9
Manufacturing	14478.9	67.4	81.8
High tech	552.2	2.6	18.4
Manufacture of pharmaceuticals and pharmaceutical products	39.5	0.2	19.8
Manufacture of office machinery and computers	–	–	––
Manufacture of radio, television and communication equipment and apparatus	369.7	1.7	52.8
Manufacture of medical products; measuring, monitoring, testing and control instruments and appliances; optical instruments, photographic and cine equipment; watches and clocks	33.3	0.2	3.0
Manufacture of aircraft, including spacecraft	109.7	0.5	11.0
Medium high tech	1065.3	5.0	24.8
Manufacture of chemicals and chemical products	653.3	3.0	43.6
Manufacture of machinery and equipment	33.8	0.2	2.8
Manufacture of electrical machinery and apparatus	244.6	1.1	40.8
Manufacture of motor vehicles, trailers and semi-trailers	133.6	0.6	13.4
Manufacture of other transport vehicles	–	–	–
Medium low tech	11560.4	53.8	210.2
Manufacture of coke and refined petroleum products	6247.1	29.1	780.9
Manufacture of rubber and plastic products	3.9	0.02	0.8
Manufacture of other non-metallic mineral products	282.3	1.3	23.5

(continued)

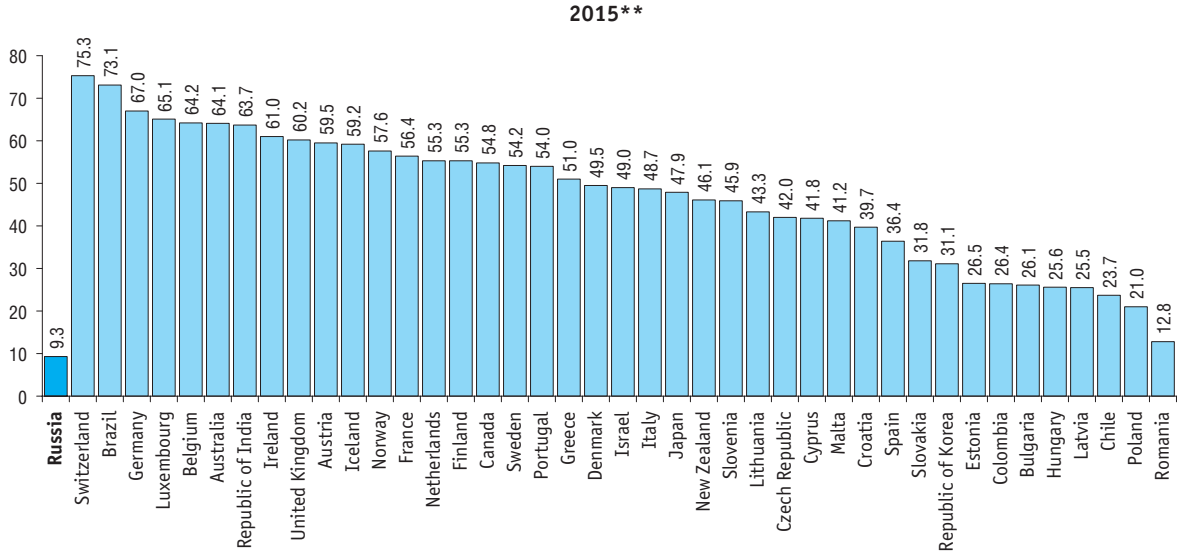
	Expenditure on ecological innovation		Expenditure on ecological innovation per enterprise, *million roubles*
	Million roubles	Per cent	
Manufacture of basic metals	5003.9	23.3	217.6
Manufacture of fabricated metal products	10.7	0.05	2.1
Building and repair of ships and boats	12.4	0.1	6.2
Low tech	1109.2	5.2	41.1
Manufacture of food products, including beverages	72.4	0.3	4.5
Manufacture of tobacco products	2.3	0.01	2.3
Manufacture of textiles	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	–
Manufacture of leather, leather products and footwear	–	–	–
Woodworking and manufacture of wood and of products of wood and cork, except furniture	43.7	0.2	10.9
Manufacture of cellulose, wood pulp, paper and cardboard and products thereof	988.0	4.6	247.0
Publishing and printing activities, reproduction of recorded media	–	–	–
Manufacture of furniture and other products n.e.c.	2.8	0.01	1.4
Recycling of secondary raw materials	–	–	–
Electricity, gas and water supply	2090.5	9.7	83.6
Communication, computer and information technology-related activities, research and development, other services of the business economy			
Total	**499.5**	**100**	**10.4**
Communication	15.9	3.2	4.0
Computer and information technology-related activities	0.2	0.05	0.2
Research and development	482.5	96.6	12.1
Other services of the business economy	0.9	0.2	0.3



8. International Comparisons

8.1. INNOVATIVE ACTIVITY OF ENTERPRISES*

(per cent)

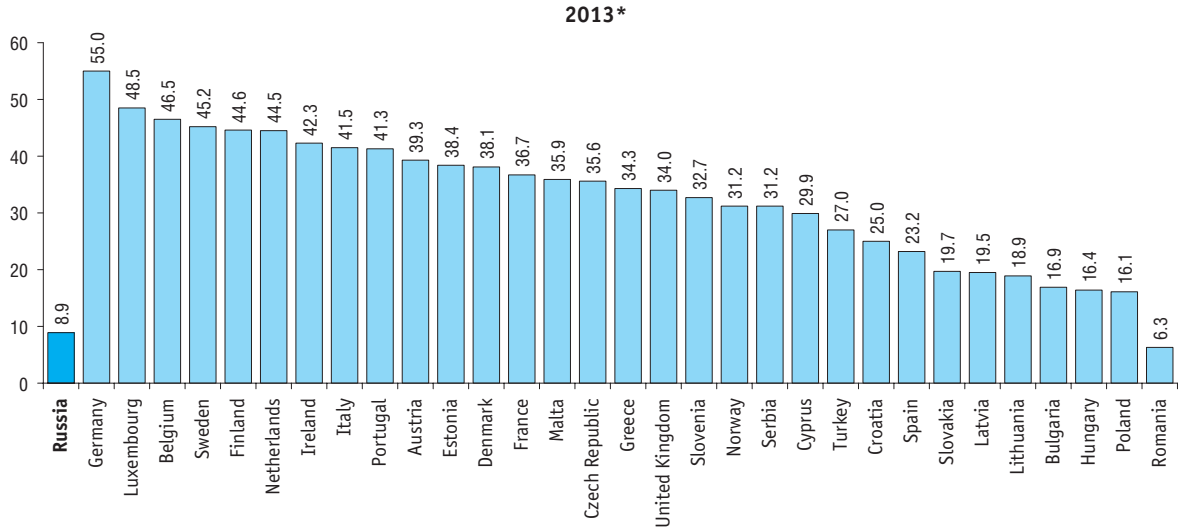


* This section provides consolidated data on enterprises engaged in the following economic activities: mining and quarrying, manufacturing, electricity, gas and water supply, services and construction. The data based on the results of the Community Innovation Survey (2012–2014) are calculated as of 19.01.2017.

** The data for the EU countries, Iceland, Norway, Switzerland are based on the results of the Community Innovation Survey (2010–2012). The data for other countries refer to the following periods: 2012–2013 for Australia, 2009–2011 for Brazil, 2010–2012 for Israel, 2012–2014 for Canada, 2011-2012 for Colombia (manufacturing), 2013 for New Zealand, 2010–2011 for the Republic of India, 2011–2013 for the Republic of Korea (manufacturing), 2011–2012 for Chile, 2009–2011 for Japan.

Sources: Eurostat; national statistical agencies.

8.2. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES



* The data for the EU countries, Norway, Serbia, and Turkey are based on the results of the Community Innovation Survey (2010–2012).

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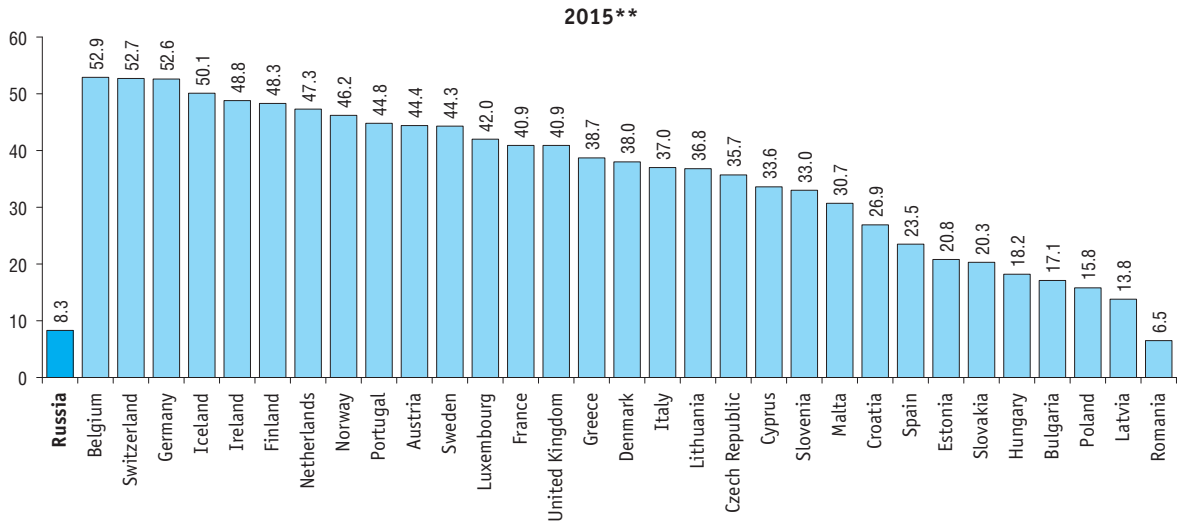
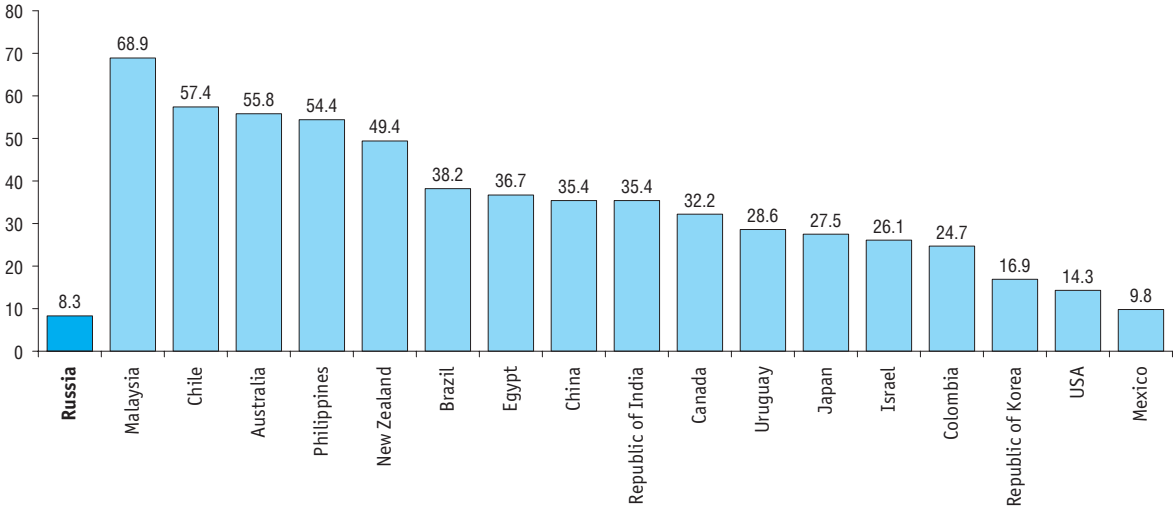


** The data for the EU countries, Iceland, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

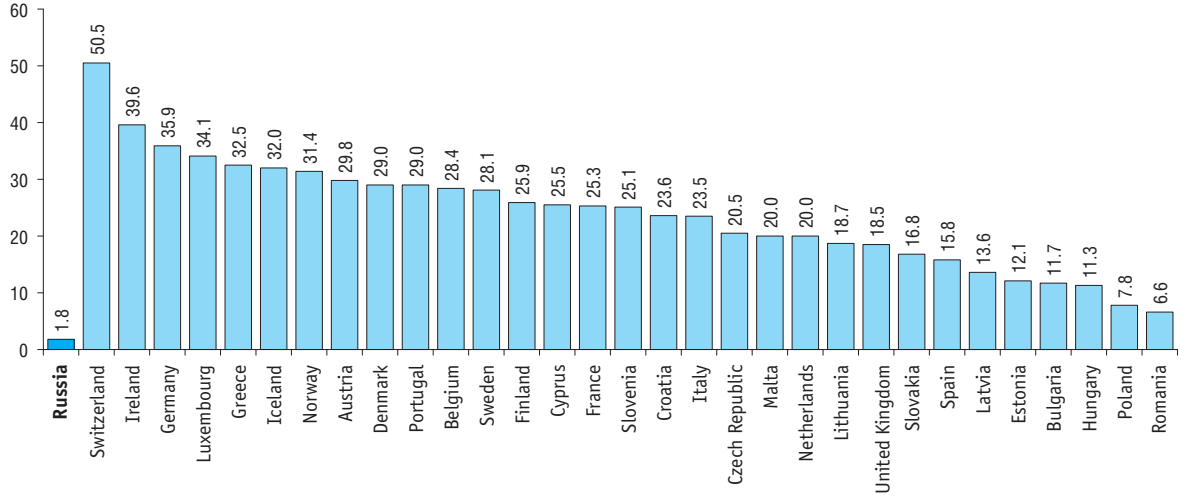
8.3. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES IN NON-EU COUNTRIES: 2015*



* The data refer to the following periods: 2012–2013 for Australia, 2009–2011 for Brazil, 2012–2014 for Egypt (manufacturing), 2010–2012 for Israel, 2012–2014 for Canada (product innovation), 2012–2014 for China (manufacturing), 2011–2012 for Colombia (manufacturing), 2012–2014 for Malaysia (manufacturing), 2012–2013 for New Zealand, Mexico (manufacturing), 2009–2010 for the Republic of India, 2011–2013 for the Republic of Korea, 2009–2011 for the USA, 2008–2010 for the Philippines, Uruguay (manufacturing), 2009–2010 for Chile, 2009–2011 for Japan.

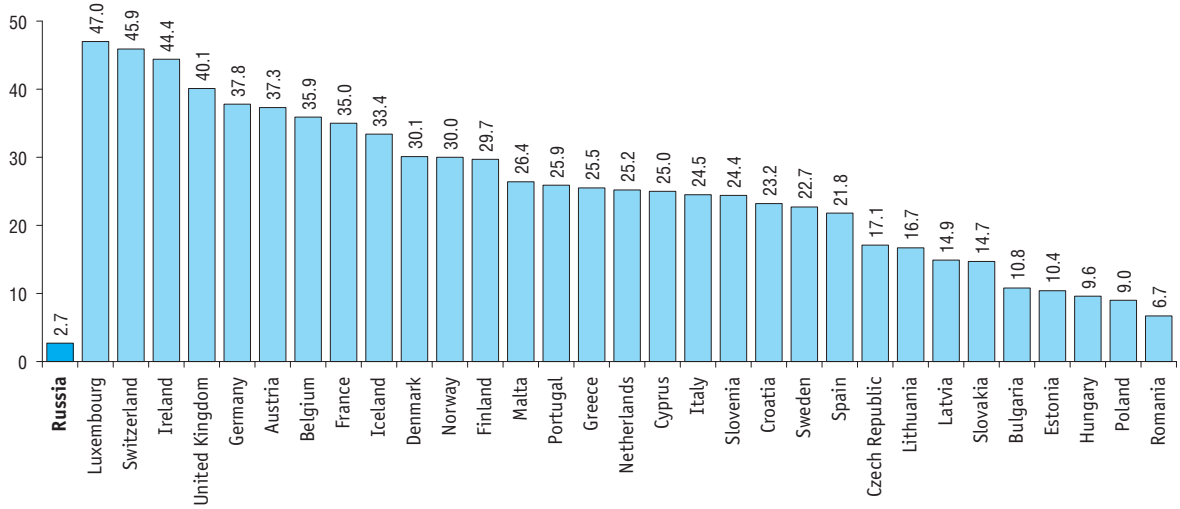
Source: national statistical agencies.

8.4. ENTERPRISES ENGAGED IN MARKETING INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES: 2015*



* The data for the EU countries, Iceland, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

8.5. ENTERPRISES ENGAGED IN ORGANISATIONAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES: 2015*



* The data for the EU countries, Iceland, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

8.6. MAIN INDICATORS OF INNOVATION FOR CIS COUNTRIES: 2015*

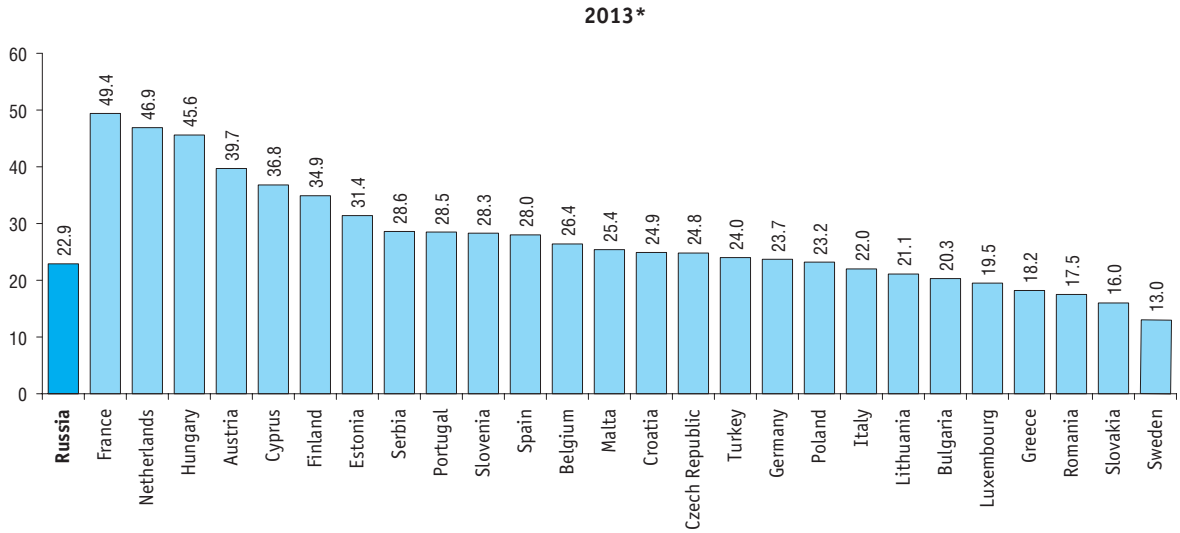
(per cent)

	Overall share of innovative enterprises	Enterprises engaged in technological innovation as a percentage of all enterprises	Expenditure on R&D as a percentage of total expenditure on technological innovation	Expenditure on machinery, equipment and software acquisition as a percentage of total expenditure on technological innovation	Innovative goods and services as a percentage of total goods and services sales	New or technologically new innovative goods and services as a percentage of all innovative goods and services		Exports of innovative goods and services as a percentage of total innovative goods and services sales
						New to the market	New to the enterprise but not to the market	
Russia	**9.3**	**8.3**	**44.4**	**34.5**	**8.4**	**17.1**	**82.9**	**23.6**
Belarus	21.1	19.6	–	–	13.1	37.5	62.5	64.0
Kazakhstan	8.1	5.6	7.7	50.9	–	54.8	45.2	9.2
Kyrgyzstan	–	8.4	–	85.4	–	–	–	–
Ukraine	17.3	–	14.8	80.6	1.4	31.6	68.4	46.7

* The data refer to the following periods: 2015 for Belarus (industrial production), 2015 for Kazakhstan, 2013 for Kyrgyzstan (industrial production), 2015 for Ukraine (industrial production).

Source: national statistical agencies.

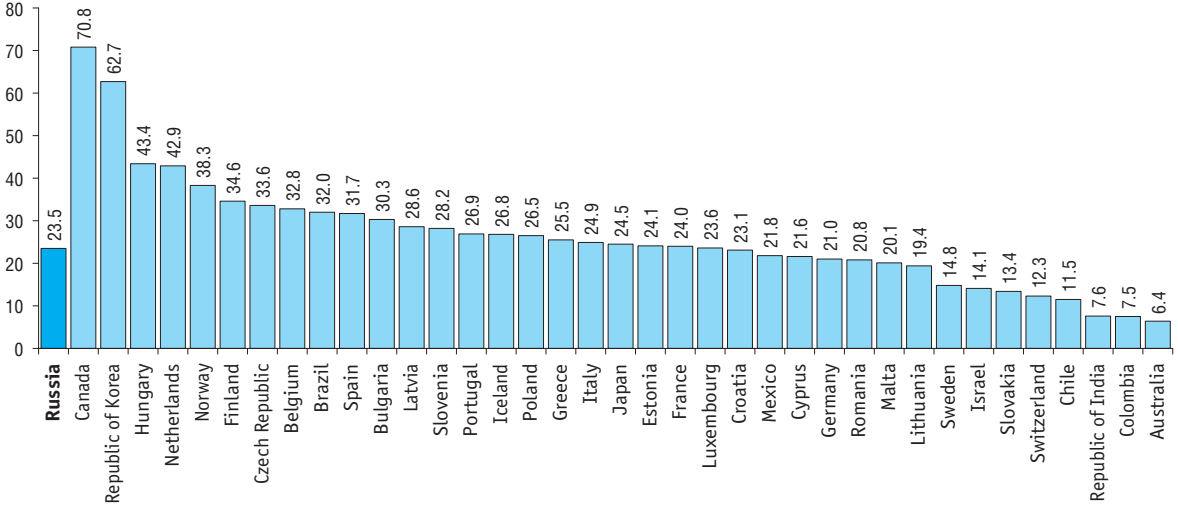
8.7. ENTERPRISES HAVING RECEIVED FEDERAL BUDGET APPROPRIATIONS AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION



* The data for the EU countries, Serbia, and Turkey are based on the results of the Community Innovation Survey (2010–2012).

(continued)

2015**



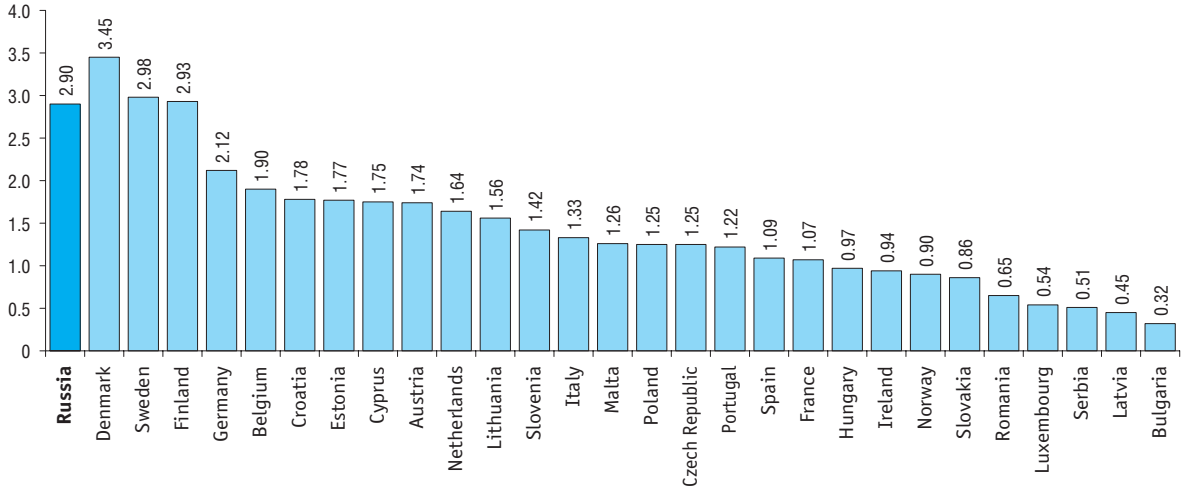
** The data for the EU countries, Iceland, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014). The data for other countries refer to the following periods: 2012–2013 for Australia, 2009–2011 for Brazil, 2010–2012 for Israel, Canada, 2011–2012 for Colombia (manufacturing), 2010–2011 for Mexico, the Republic of India, 2011–2012 for the Republic of Korea, 2009–2011 for Japan.

Source: Eurostat, national statistical agencies.

8.8. INTENSITY OF EXPENDITURE ON TECHNOLOGICAL INNOVATION

(expenditure on technological innovation as a percentage of total goods and services sales)

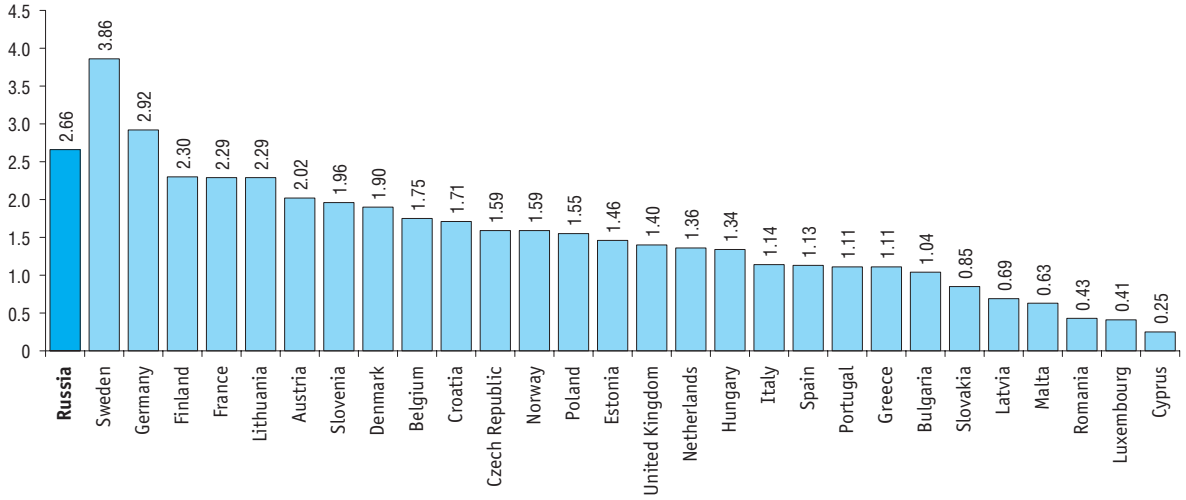
2013*



* The data for the EU countries, Norway, and Serbia are based on the results of the Community Innovation Survey (2008–2010).

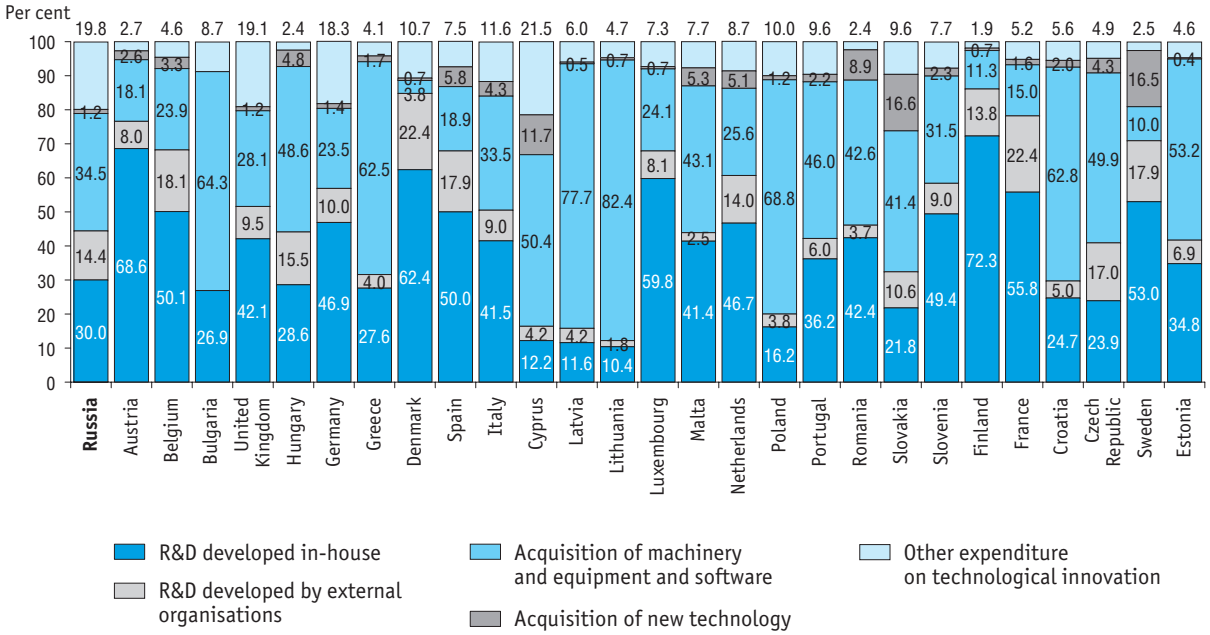
(continued)

2015**



* The data for the EU countries, Norway are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

8.9. DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY TYPE OF INNOVATION: 2015*



* The data for the EU countries, Norway are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

8.10. INNOVATIVE GOODS AND SERVICES AS A PERCENTAGE OF TOTAL GOODS AND SERVICES SALES

	2005*	2007**	2009***	2011****	2013*****	2015******
Russia	**5.2**	**4.6**	**4.5**	**6.3**	**9.2**	**8.4**
Austria	10.6	13.6	11.2	11.9	9.8	12.0
Belgium	12.9	9.3	9.5	12.4	11.2	7.6
Bulgaria	12.5	10.3	14.2	7.6	4.2	4.8
Croatia	–	13.0	14.4	10.5	10.0	4.9
Cyprus	5.6	12.3	16.1	14.7	11.4	4.5
Czech Republic	15.5	14.7	18.7	15.3	13.4	14.6
Denmark	11.0	7.8	11.4	15.0	13.9	7.0
Estonia	11.9	13.7	10.2	12.3	7.8	10.5
Finland	14.9	15.7	15.6	15.3	11.1	9.3
France	11.7	–	13.2	11.3	13.5	15.0
Germany	17.6	19.2	17.4	15.5	13.0	13.3
Greece	11.0	25.7	–	–	11.8	12.8
Hungary	7.0	10.5	16.4	13.7	9.7	12.5
Iceland	12.7	–	11.9	6.1	–	–
Ireland	10.1	12.6	11.0	9.3	–	18.1
Italy	11.9	9.1	11.8	14.9	11.0	10.1
Latvia	5.1	3.4	5.9	3.1	5.0	5.3
Lithuania	9.7	12.4	9.6	6.6	5.5	8.6
Luxembourg	15.6	12.5	8.9	8.3	7.9	6.5
Malta	22.2	28.6	15.2	7.4	10.2	4.1
Netherlands	8.4	10.9	8.9	10.4	11.8	10.8
Norway	7.2	4.8	4.6	6.1	5.2	6.2

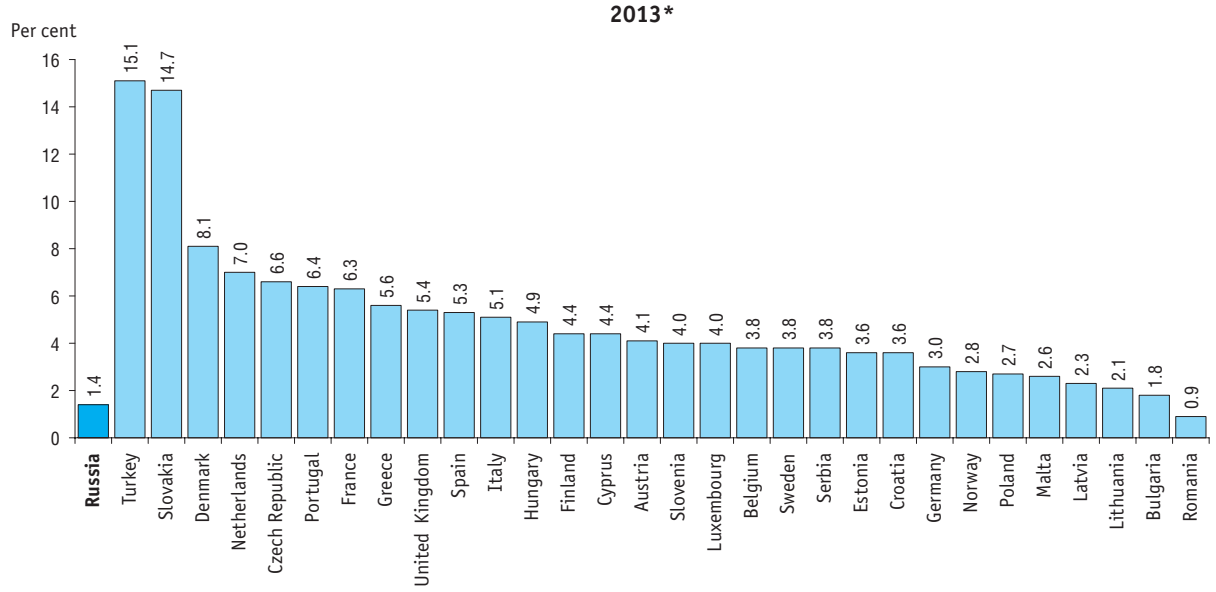
(continued)

	2005*	2007**	2009***	2011****	2013*****	2015******
Poland	13.5	10.1	9.8	8.0	6.3	6.4
Portugal	10.0	13.3	15.6	14.4	12.4	6.3
Romania	16.6	18.5	14.9	14.3	5.4	6.5
Serbia	–	–	–	11.8	12.4	–
Slovakia	19.2	16.7	15.8	23.3	19.6	19.1
Slovenia	14.3	13.3	16.3	10.6	10.5	12.4
Spain	13.8	15.9	15.9	19.0	14.3	15.9
Sweden	13.4	15.0	9.2	8.4	6.1	6.9
Switzerland	–	–	–	–	–	19.6
Turkey	–	15.8	–	–	33.6	–
United Kingdom	13.9	8.5	7.3	5.2	14.1	20.8

* The data for the EU countries, Iceland, and Norway are based on the results of the Community Innovation Survey (2002–2004).
** The data for the EU countries, Norway, Turkey, and Croatia are based on the results of the Community Innovation Survey (2004–2006).
*** The data for the EU countries, Iceland, Norway, and Croatia are based on the results of the Community Innovation Survey (2006–2008).
**** The data for the EU countries, Iceland, Norway, and Serbia are based on the results of the Community Innovation Survey (2008–2010).
***** The data for the EU countries, Norway, Serbia, and Turkey are based on the results of the Community Innovation Survey (2010–2012).
****** The data for the EU countries, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

8.11. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES NEW TO THE WORLD MARKET

(as a percentage of total goods and services sales)



* The data for the EU countries, Norway, Serbia, and Turkey are based on the results of the Community Innovation Survey (2010–2012).

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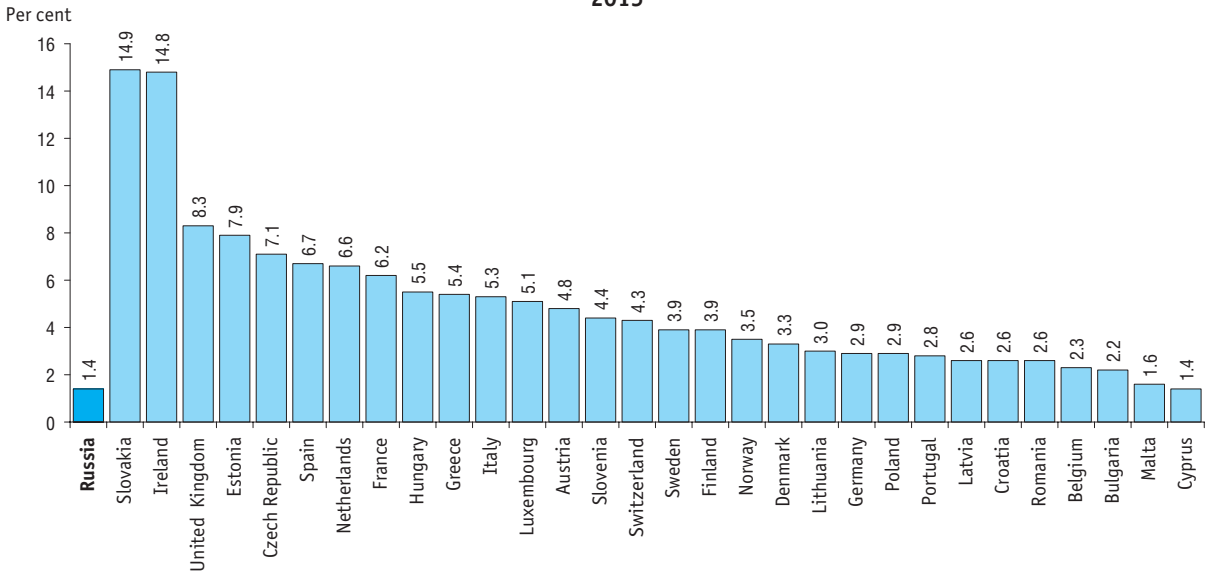
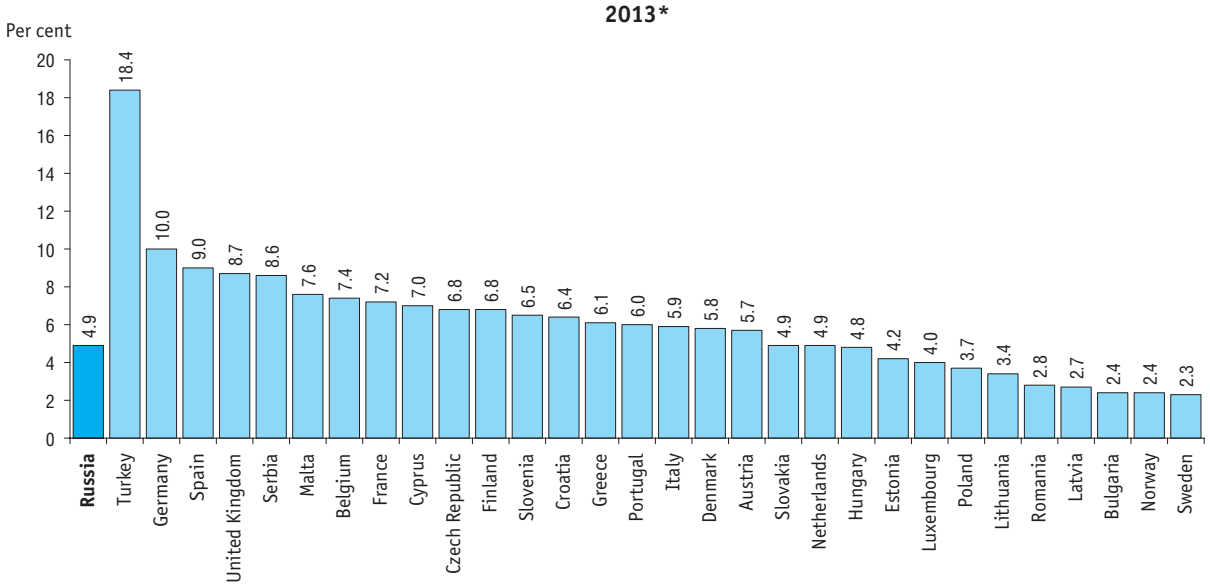
2015**



** The data for the EU countries, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

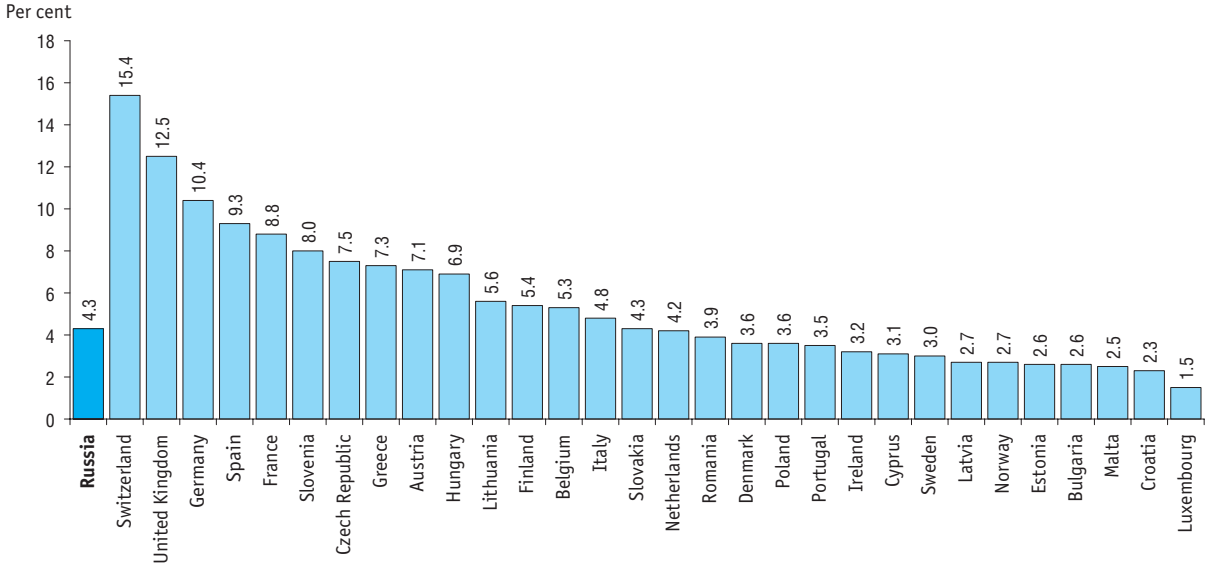
8.12. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES NEW TO THE ENTERPRISE BUT NOT NEW TO THE MARKET

(as a percentage of total goods and services sales)



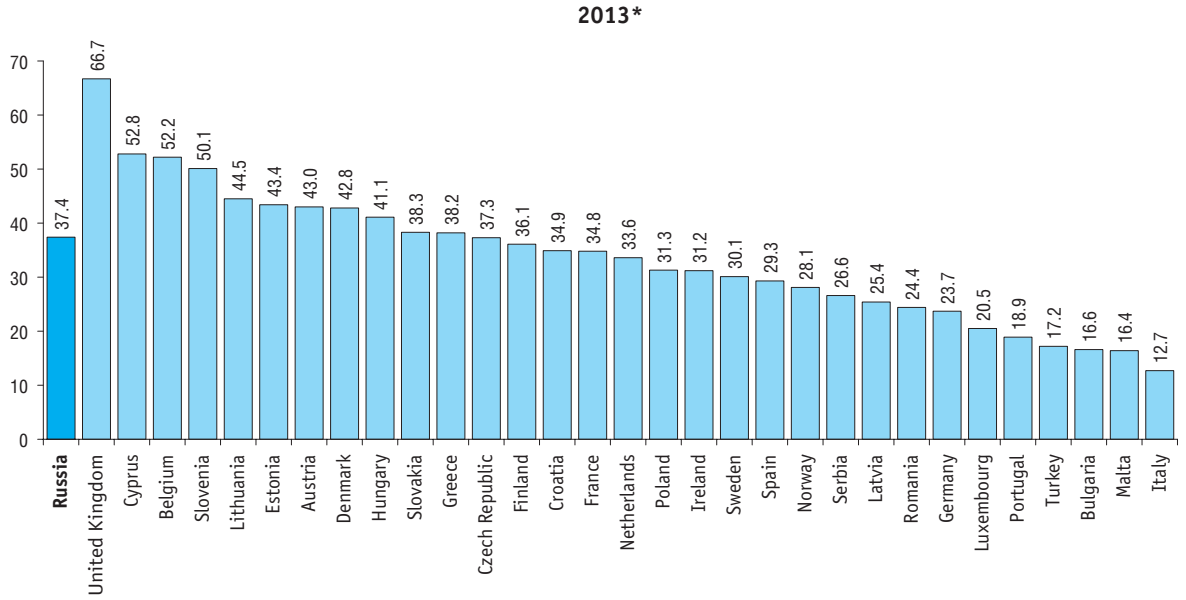
* The data for the EU countries, Norway, Serbia, and Turkey are based on the results of the Community Innovation Survey (2010–2012).

2015**



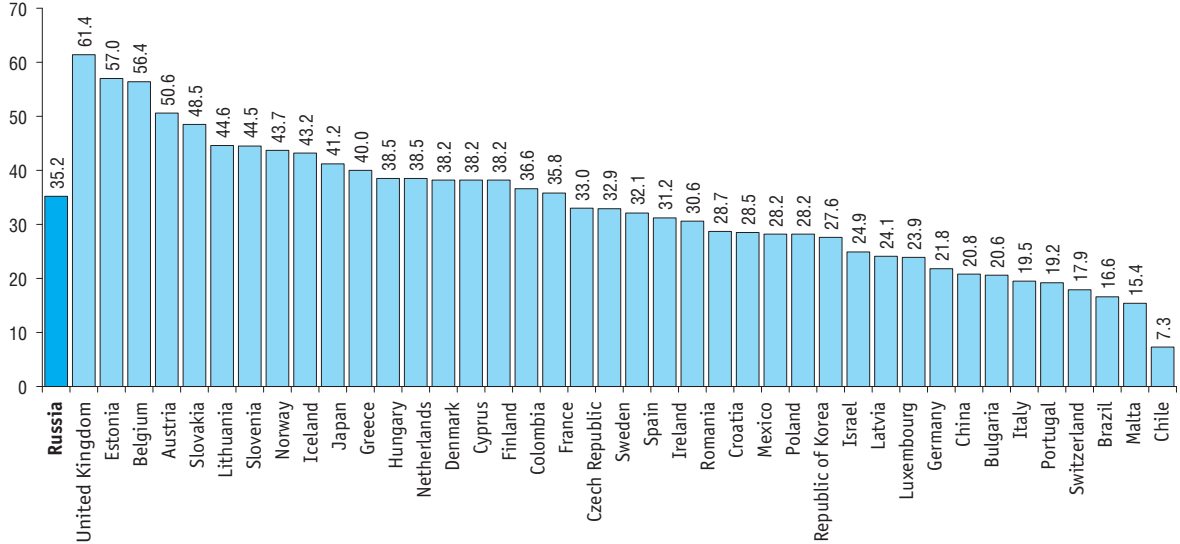
** The data for the EU countries, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

8.13. ENTERPRISES TAKING PART IN JOINT R&D PROJECTS AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION



* The data for the EU countries, Norway, Serbia, and Turkey and are based on the results of the Community Innovation Survey (2010–2012).

2015**

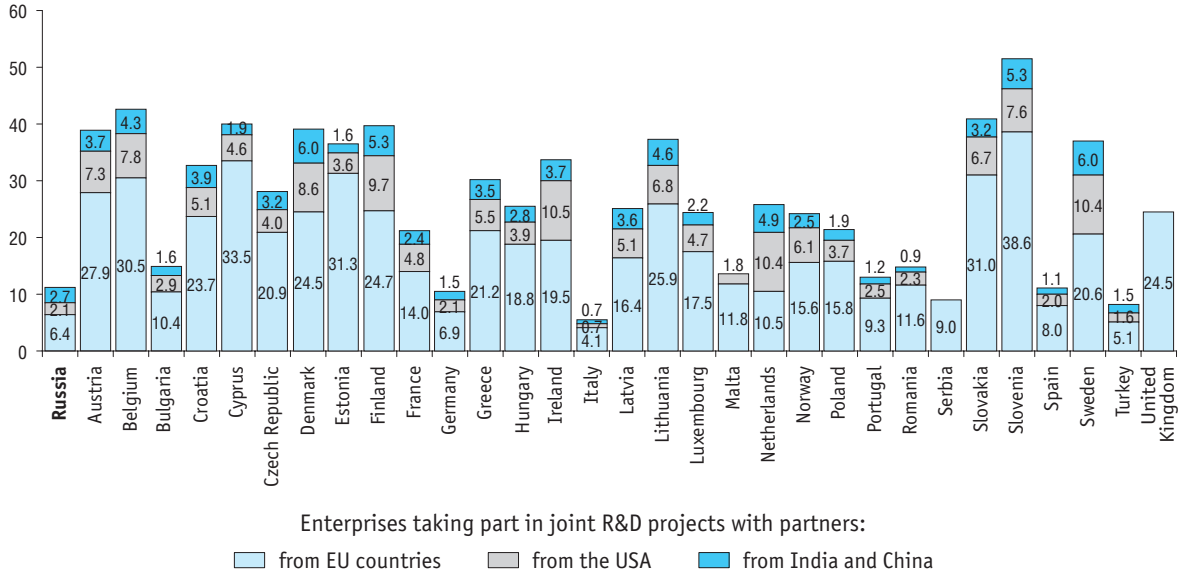


** The data for the EU countries, Norway, Iceland, and Switzerland are based on the results of the Community Innovation Survey (2012–2014). The data for other countries: 2012–2013 for Australia, 2009–2011 for Brazil, 2010–2012 for Israel, 2004–2006 for China (industrial production), 2011–2012 for Colombia (manufacturing), 2008–2009 for Mexico, 2011–2013 for the Republic of Korea, 2011–2012 for Chile, 2009–2011 for Japan.

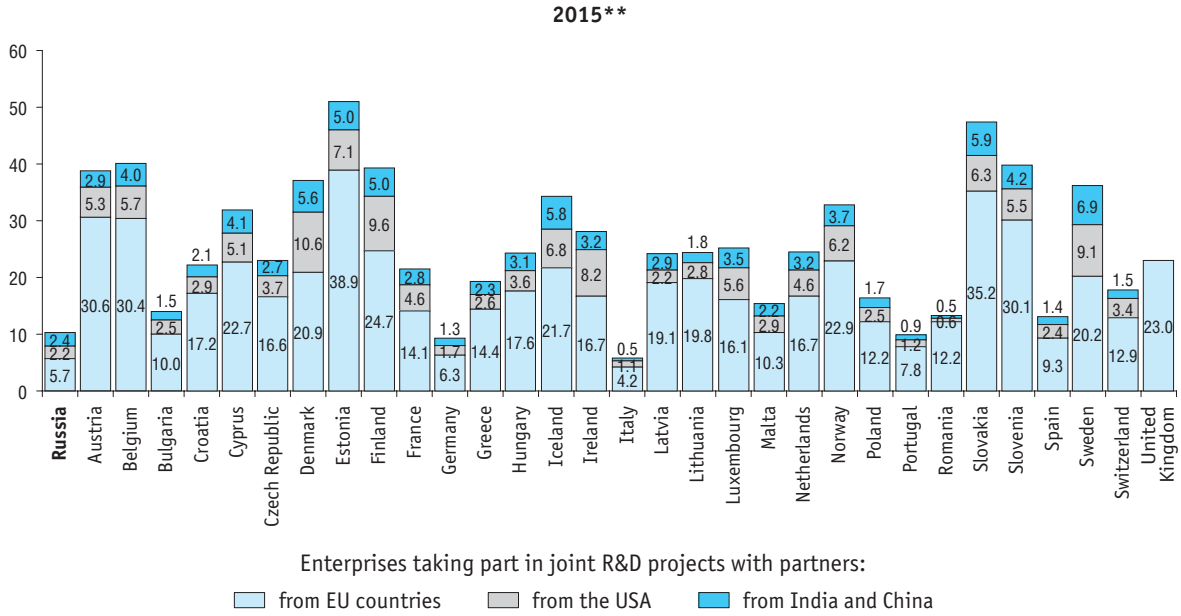
Sources: Eurostat; national statistical agencies.

8.14. ENTERPRISES TAKING PART IN JOINT R&D PROJECTS AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY PARTNER COUNTRY

2013*



* The data for the EU countries, Norway, Serbia, and Turkey are based on the results of the Community Innovation Survey (2010–2012).



** The data for the EU countries, Iceland, Norway, and Switzerland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

8.15. ENTERPRISES ENGAGED IN ECOLOGICAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES THAT HAD MARKET-READY INNOVATIONS DURING THE LAST THREE YEARS BY TYPE OF INNOVATION AND COUNTRY: 2013–2015*

	Increasing environmental safety in the process of production of goods or services					Increasing environmental safety as a result of using innovative goods or services		
	Reducing material costs per unit of goods and services output	Reducing carbon dioxide emission power and reducing consumption per unit of goods and services output	Replacing materials with less hazardous or non-hazardous substitutes	Reducing environmental pollution (air, soil, water or noise pollution)	Recycling waste, water or materials	Reducing power consumption or energy loss	Reducing air, water, soil or noise pollution	Improved recycling of used products
Russia	**6.4**	**13.9**	**5.7**	**11.2**	**6.5**	**7.5**	**8.7**	**3.6**
Austria	29.0	27.7	27.1	19.2	16.6	23.9	24.5	35.8
Bulgaria	6.4	10.3	10.3	7.9	7.1	9.4	8.9	9.3
Hungary	13.6	15.7	14.6	11.5	9.3	13.9	17.2	16.8
Germany	32.8	29.1	30.9	20.0	18.5	28.3	18.7	51.9
Greece	21.6	17.4	17.5	15.7	23.2	21.8	17.3	24.0
Denmark	13.4	12.2	8.3	8.5	4.6	11.5	7.1	16.2
Iceland	24.7	22.2	18.4	15.0	16.3	16.1	20.9	24.1
Italy	22.3	35.8	28.0	19.4	13.8	8.4	23.7	18.5
Cyprus	10.9	13.2	14.4	8.8	10.2	21.8	11.1	19.5
Latvia	13.0	14.2	16.2	14.4	10.8	13.8	14.9	20.4
Lithuania	19.7	15.0	26.8	18.9	10.2	11.6	13.6	36.7
Luxembourg	20.6	20.0	19.9	16.3	19.8	24.2	16.3	26.6
Malta	11.7	14.6	7.1	6.6	14.3	17.7	12.9	17.7
Poland	14.5	15.2	14.0	12.4	9.2	15.6	12.3	17.7
Portugal	22.1	25.7	27.3	19.5	28.7	48.5	25.1	29.4

(continued)

	Increasing environmental safety in the process of production of goods or services					Increasing environmental safety as a result of using innovative goods or services		
	Reducing material costs per unit of goods and services output	Reducing carbon dioxide emission power and reducing consumption per unit of goods and services output	Replacing materials with less hazardous or non-hazardous substitutes	Reducing environmental pollution (air, soil, water or noise pollution)	Recycling waste, water or materials	Reducing power consumption or energy loss	Reducing air, water, soil or noise pollution	Improved recycling of used products
Romania	6.7	9.8	14.9	9.5	7.5	12.5	7.0	13.4
Slovakia	14.0	19.2	18.7	12.0	10.7	18.2	10.4	19.6
Slovenia	32.5	31.1	28.9	25.8	17.1	24.4	29.8	36.1
Finland	36.9	29.1	23.5	25.7	23.9	25.8	20.6	37.7
Croatia	21.5	24.4	24.1	22.6	21.3	26.5	20.0	26.8
Czech Republic	20.5	20.9	19.1	14.2	16.0	24.9	14.4	27.9
Sweden	28.9	18.2	22.9	23.5	15.7	23.0	22.0	28.6
Estonia	19.3	18.2	13.7	12.6	10.2	16.7	16.4	24.3

* The data for the EU countries, Iceland are based on the results of the Community Innovation Survey (2012–2014).
Source: Eurostat.

TECHNICAL NOTES

Innovative activity of enterprises describes the involvement degree of enterprises (organisations) in general or specific innovative activity during a given period of time. The involvement degree of an enterprise is usually evaluated as a ratio of the number of enterprises (organisations) engaged in technological, marketing, and organisational innovation to the total number of enterprises (organisations) under review in a country, industry, sector, region, etc. during a given period of time.

Innovative activity is an activity connected with the transformation of ideas (which is usually the result of research and development or of another type of S&T advances) into technologically new or significantly improved goods and services, introduced into the market, into new (technologically new) or significantly improved production processes or services delivery (provision) methods, used in practice. Innovative activity includes a broad range of scientific, technological, organisational, financial and commercial activities which collectively lead to innovation.

In statistics, the following main **types of innovative activities** are distinguished:

- research and development;
- design is an activity connected with the change of the form, appearance or userfriendliness (usability) of products and services;
- acquisition of tangible technology – acquisition of machinery and equipment whose technological purposes are related to technological and other innovation;
- acquisition of intangible technology from outside in the form of patents, licences (contracts) for the use of inventions, industrial designs, utility models, know-how, and technological services as well as the acquisition of software related to technological innovation;
- engineering, including pre-FEED and FEED, project development and design studies of technological items and solutions during the innovation implementation stage, post-project services during installation, commissioning and start-up work, etc.;
- personnel training and retraining for the purposes of technological innovation;
- marketing research.

Innovative goods and services are goods and services, either new or those that underwent different technological improvements within the last three years. Following the degree of novelty there can be distinguished two types of innovative goods and services – new (those newly introduced) or technologically new (those that have undergone substantial technological change) and those significantly improved.

New (or technologically new) goods and services are goods and services based on new (including radically new) technology or on a combination of new and existing technology. For the products in question the designated area of application, operational characteristics, features, structural design and the composition of used materials and components are to be new or considerably different from what was characteristic of the previous products.

Significantly improved goods and services are based on the introduction of new or significantly improved production methods, including the methods of products delivery or transfer, involving the use of

new manufacturing equipment, new methods of production processes engineering or a combination thereof.

The classification of innovative goods and services by the degree of novelty is also carried out from the market perspective. According to the type of novelty in the market there can be distinguished innovative goods and services that are new to the world market, new to the sales market of the enterprise, and new to the enterprise but not new to the market.

Expenditure on innovation is the actual expenditure in monetary form, connected with the implementation of different types of innovative activity performed on the scale of an organisation (industry, region, country). Expenditure on innovation includes current expenditure and capital expenditure. The statistics studies expenditure on technological, marketing, and organisational innovations.

Marketing innovation includes implemented marketing methods, either new or significantly improved, that cover substantial changes in the design and packaging of goods and services; also, usage of new goods and services sales strategies and new goods and services presentation methods, goods and services launch and promotion in the target market; new price strategies developing. Marketing innovations are aimed at completely satisfying the needs of the target customers and at the target audience expansion, as well as at the new markets development in order to increase sales.

Economic activities under review. The data concerning innovative activity of enterprises are presented taken as a whole as well as separately by certain types of industry:

- mining and quarrying, manufacturing, electricity, gas and water supply (except for electricity supply and fuel gas supply through supply network);
- communication, computer and information technology-related activities, research and development, other services of the business economy (including activities in the field of law, accounting and audit; activities in the field of architecture; design and engineering; geological exploration and geophysical works; geodetic and cartographic activities; activities in the field of standardisation and metrology; activities in the field of hydrometeorology and related areas; advertising and promotional activities, etc.);
- construction (including the erection of buildings and structures from prefabricated components; buildings and structures roofing; other construction).

Enterprises (organisations, institutions) engaged in technological innovation are enterprises (organisations, institutions) that develop and implement new (technologically new) or significantly improved goods and services, production processes or services delivery (provision) methods, as well as those that perform other types of innovative activities.

Organisational innovation includes the implementation of new business practices, new workplace organisation and external relations management methods, that are aimed at enterprises' (organisations') efficiency increase in performance as a result of cutting administrative costs and transaction costs, workplace engineering optimisation (working hours rationalisation) and, hence, a better performance and a rise in labour productivity, access to the assets that are not on the market, cost saving regarding delivery and supply.

Ranks of importance (ratings) of the results of innovative activity, as well as of sources of information for technological innova-

tion, methods of S&T innovations protection, and factors hampering technological innovation are calculated following the assessments of industrial and service enterprises.

Overall share of innovative enterprises is defined as the proportion of the number of enterprises carrying out all types of innovative activities (technological, marketing, and organisational innovation) or selected types (combinations) of innovative activities (innovation) to the total number of organisations under review during a given period of time.

Technological innovation is the final result of innovative activity, presented in the form of new (technologically new) or significantly improved goods and services, introduced into the market, or of new (technologically new) or significantly improved production processes or services delivery (provision) methods, used in practice. Innovation is considered implemented if it is launched into the market or used in production process.

In the industrial production and manufacturing and in service sector there are distinguished two types of technological innovation: product innovation and process innovation.

Industrial production and manufacturing

Product innovation includes the introduction of new or significantly improved products. The introduction of a new product is defined as a radically new product innovation if the designated area of application of the in question, its functional characteristics, properties, construction or used materials and components substantially distinguish it from the previously manufactured products. Such innovations may be based on radically new technology or on a combination of new and existing technology, applied in a new way. Technological improvements affect an existing product, the quality or cost of which were significantly improved due to the use of more efficient components and materials, partial change of one or of a number of technological subsystems (for complex products).

Process innovation is the implementation of new (technologically new) or significantly improved production and manufacturing methods, including the methods of product delivery. Such innovations are usually aimed at increasing the efficiency of production or of delivery of already existing products, but they can also be designed to produce and deliver new or significantly improved products which are not produced or supplied using conventional production and/or manufacturing methods.

Service sector

Product innovation includes development and introduction of radically new services, improvement of existing services by adding new functions or features, significant improvements in the provision of services (for example, in terms of their efficiency or speed).

Process innovation includes the development and implementation of new (technologically new) or significantly improved methods of production and service delivery.

Construction

Product innovation encompasses the usage of new constructional materials with improved functional performance characteristics and consumer appeal (heatsaving, soundproofing, cost efficiency, etc.)

Process innovation includes the implementation of new efficient civil engineering practices that result in high productivity, construction time reduction, etc.

Technology exchange is the total amount of new technology or separate engineering achievements acquired (transferred) by an enterprise within one year. Technology exchange includes deals concerning the acquisition and transfer of scientific and technical expertise and experience in order to provide knowledge-based services, implement production processes, produce goods and services either on a non-contractual basis or on terms determined by an agreement between the parties.

Ecological innovation covers novelties implemented within a framework of technological, organisational or marketing innovations, aimed at improving the environmental safety connected with production and manufacturing process or with the usage of innovative products.

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