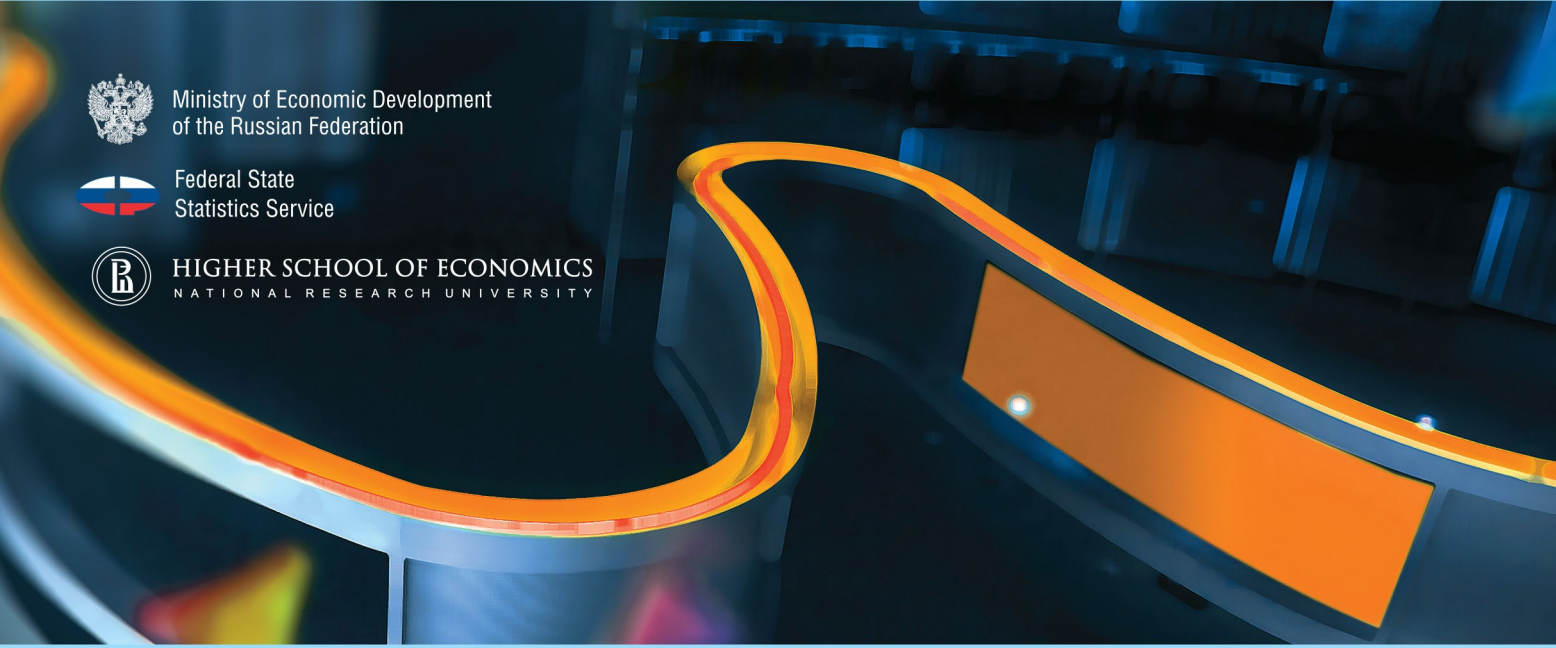

Ministry of Economic Development
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Federal State
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HIGHER SCHOOL OF ECONOMICS
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Indicators of Innovation in the Russian Federation

Data book

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Indicators of Innovation in the Russian Federation

Data book

Moscow 2014

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The data book presents the results of innovation surveys in the Russian Federation. It contains internationally compatible indicators characterising the level of innovative activity in industry and services. The publication comprises statistical data reflecting innovation expenditure and output, co-operational linkages, and factors hampering innovation. A specific chapter is devoted to ecological innovation. International comparisons with a wide range of innovation indicators are provided as well.

The data book includes information of the Federal State Statistics Service, Organisation for Economic Co-operation and Development, European Commission, Eurostat, national statistical agencies, and results of methodological and analytical studies conducted by the HSE Institute for Statistical Studies and Economics of Knowledge.

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INDICATORS OF INNOVATION IN THE RUSSIAN FEDERATION

Data Book

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Symbols used in tables:

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

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

MAIN INDICATORS OF INNOVATION

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Enterprises engaged in technological innovation as a percentage of all enterprises:													
Mining and quarrying, manufacturing, electricity, gas and water supply	10.6	9.6	9.8	10.3	10.5	9.3	9.4	9.4	9.6	9.4	9.3	9.6	9.9
Communications, computer and related activities*	12.1	12.2	13.5	14.3	14.7	15.3	12.5	11.2	10.9	10.1	10.8	9.9	10.3
Innovative goods and services as a percentage of total sales:													
Mining and quarrying, manufacturing, electricity, gas and water supply	4.4	4.2	4.3	4.7	5.4	5.0	5.5	5.5	5.1	4.6	4.9	6.1	7.8
Communications, computer and related activities	16.9	6.9	2.8	8.9	8.4	8.6	8.3	4.2	4.2	3.8	4.7	4.8	3.0
Expenditure on technological innovation, *million roubles*:													
Mining and quarrying, manufacturing, electricity, gas and water supply:													
at current prices	49428.0	61312.9	86394.6	105444.7	122850.5	125678.2	188492.2	207499.2	276262.3	358861.1	349763.3	469442.2	583660.6
at constant 1995 prices	10462.7	11140.3	13590.9	14576.3	14116.7	12105.3	15760.0	15245.3	17201.2	21906.1	18695.9	21725.7	24895.5
Communications, computer and related activities:													
at current prices	11794.1	6328.6	6049.3	14782.7	19495.3	17544.4	18892.4	25125.5	24148.0	32790.9	38684.0	137754.0	83230.6
at constant 1995 prices	2496.5	1149.9	951.6	2043.5	2240.2	1689.9	1579.6	1846.0	1503.6	2001.7	2067.8	6509.9	3550.1

(continued)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Expenditure on technological innovation as a percentage of total sales:													
Mining and quarrying, manufacturing, electricity, gas and water supply	1.4	1.4	1.8	1.6	1.5	1.2	1.4	1.2	1.4	1.9	1.5	1.5	1.8
Communications, computer and related activities	11.1	4.8	3.9	6.5	5.9	3.5	2.7	2.7	2.1	2.7	2.9	8.8	4.4
Innovative activity (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
Communications, computer and related activities	…	…	…	…	…	…	15.6	13.5	13.4	13.2	13.6	12.1	11.7
Enterprises engaged in organisational innovation during the reference year 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
Communications, computer and related activities	…	…	…	…	…	…	5.4	4.8	4.5	4.7	5.1	3.9	3.6

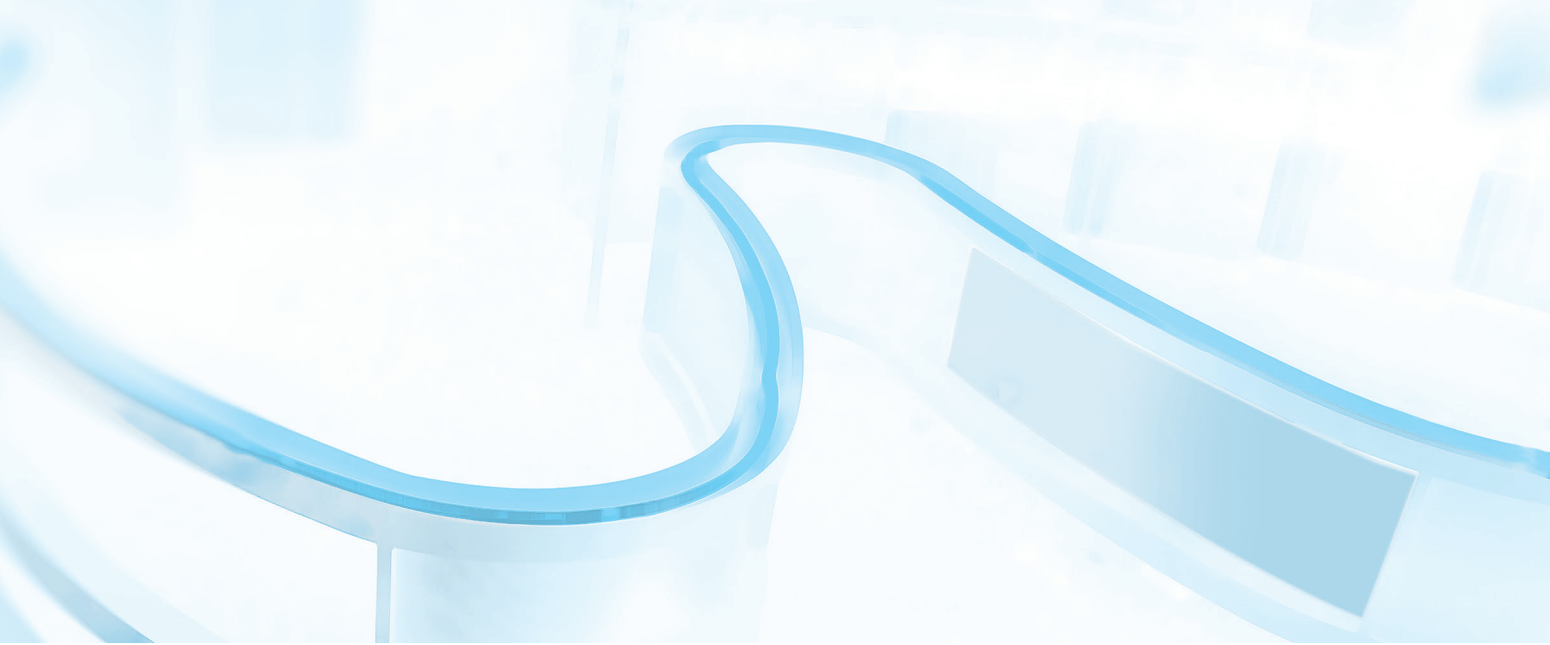
(continued)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
Communications, computer and related activities	…	…	…	…	…	…	4.4	4.5	4.5	4.7	4.7	3.9	3.2
Expenditure on technological, organisational and marketing 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
at constant 1995 prices	…	…	…	…	…	…	15998.2	15650.9	17632.9	22328.7	19038.0	21963.8	25180.5
Communications, computer and related activities:													
at current prices	…	…	…	…	…	…	20010.5	26405.2	27076.7	34821.9	40223.1	146419.4	86002.9
at constant 1995 prices	…	…	…	…	…	…	1673.1	1940.0	1685.9	2125.6	2150.0	6776.3	3668.4
Expenditure on technological, organisational and marketing innovation as a percentage of total sales:													
Mining and quarrying, manufacturing, electricity, gas and water supply	…	…	…	…	…	…	1.5	1.3	1.4	1.9	1.5	1.6	1.8
Communications, computer and related activities	…	…	…	…	…	…	2.7	2.8	2.3	2.8	3.0	9.4	8.6

(continued)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Small enterprises engaged in technological innovation as a percentage of all small enterprises:													
Mining and quarrying, manufacturing, electricity, gas and water supply	1.3	1.5	…	1.6	…	1.6	…	4.3	…	4.1	…	5.1	…
Innovative goods and services as a percentage of total sales of small enterprises:													
Mining and quarrying, manufacturing, electricity, gas and water supply	0.6	0.6	…	0.3	…	0.3	…	2.0	…	1.4	…	1.5	…
Expenditure on technological innovation of small enterprises, million roubles:													
Mining and quarrying, manufacturing, electricity, gas and water supply:													
at current prices	867.6	997.7	…	1296.5	…	1932.7	…	10608.2	…	6793.5	…	947.3	…
at constant 1995 prices	183.7	181.3	…	179.2	…	186.2	…	779.4	…	414.7	…	447.8	…
Expenditure on technological innovation as a percentage of total sales of small enterprises:													
Mining and quarrying, manufacturing, electricity, gas and water supply	0.6	0.5	…	0.4	…	0.2	…	1.7	…	0.9	…	0.9	…

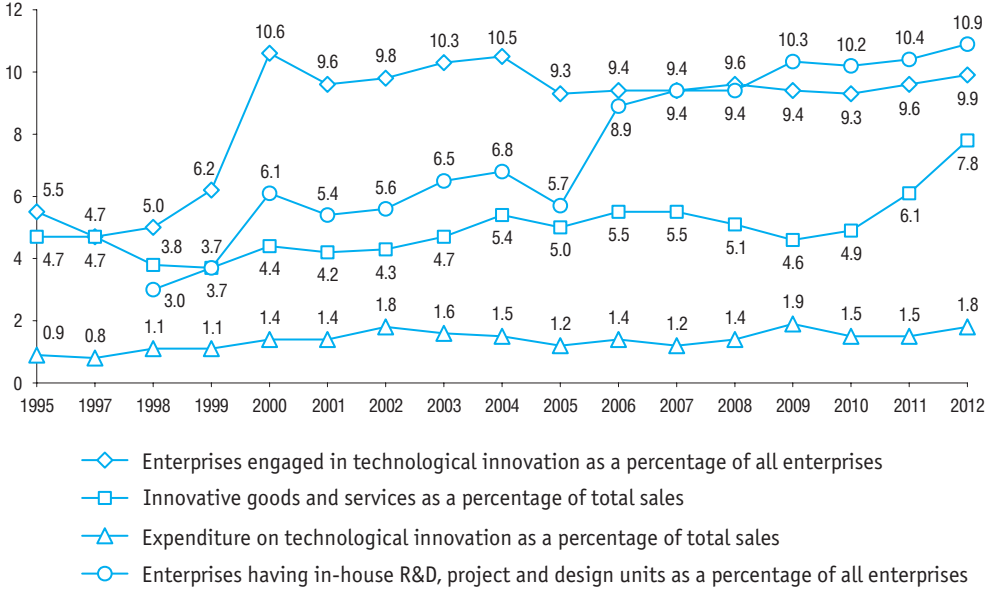
* In contrast with other service sectors, innovation in communications, computer and related activities was the subject of statistical observations during the entire period considered.



1. Main Innovation Trends

1.1. INNOVATIVE ACTIVITY OF ENTERPRISES

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



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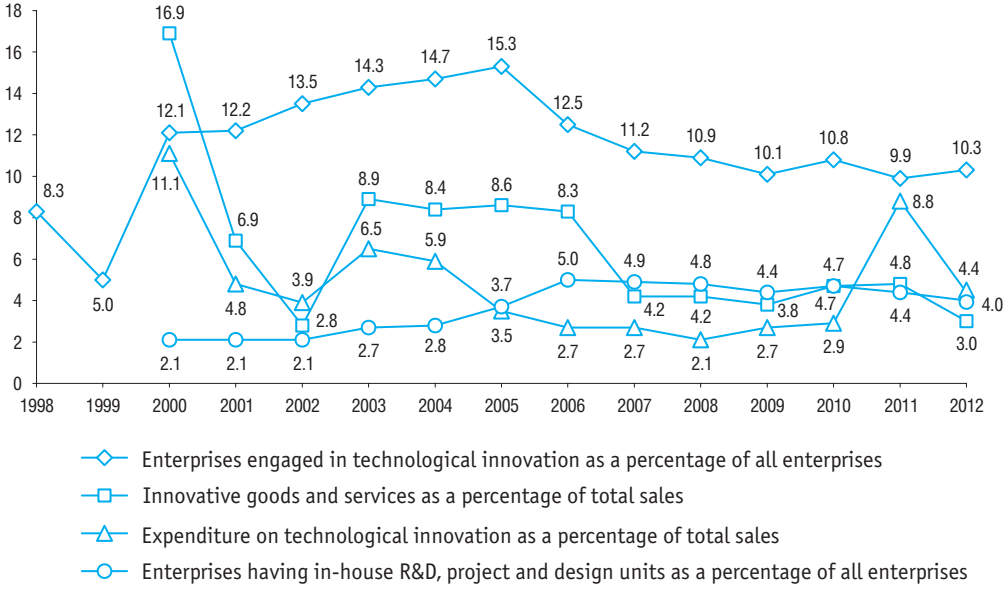
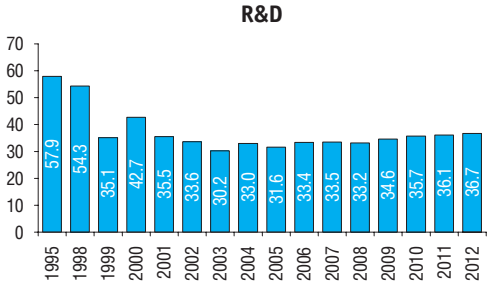
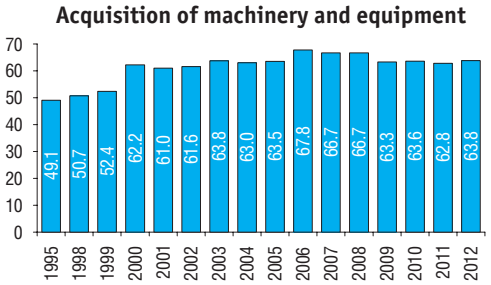
Communications, computer and related activities

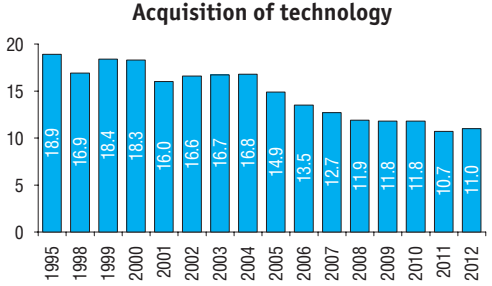


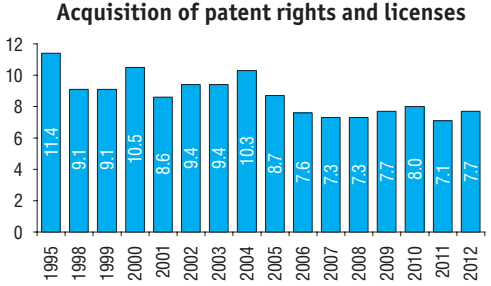
1.2. ENTERPRISES ENGAGED IN SELECTED TYPES OF INNOVATIVE ACTIVITY AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

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









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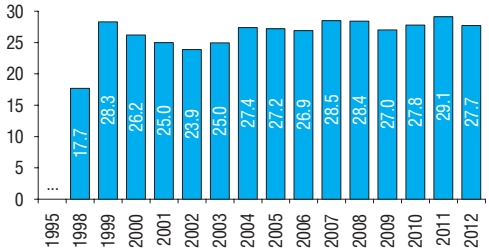
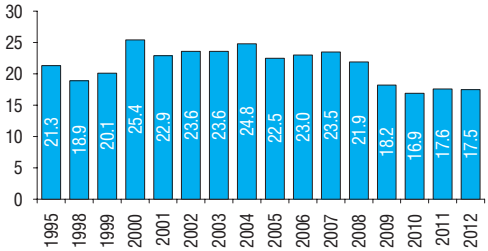
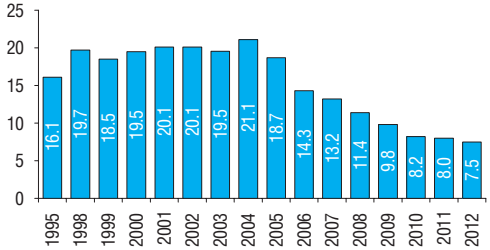
Acquisition of software



Personnel training



Market research



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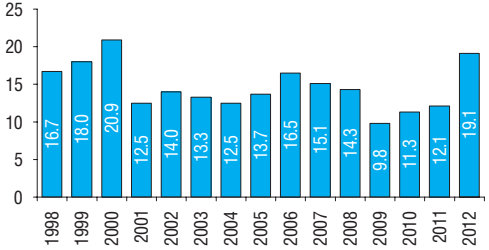
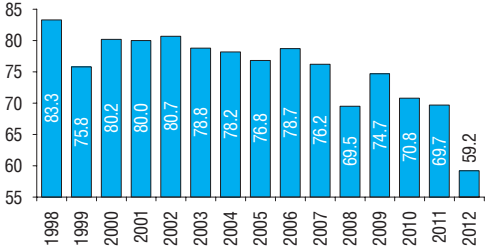
Communications, computer and related activities

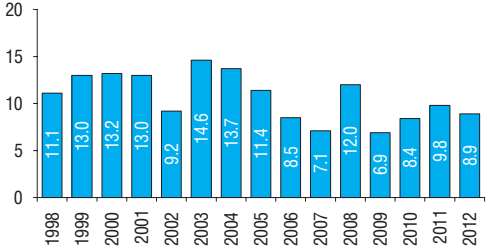
R&D



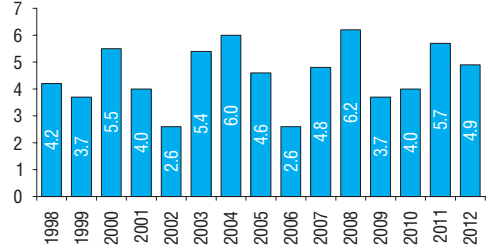
Acquisition of machinery and equipment



Acquisition of technology



Acquisition of patent rights and licenses



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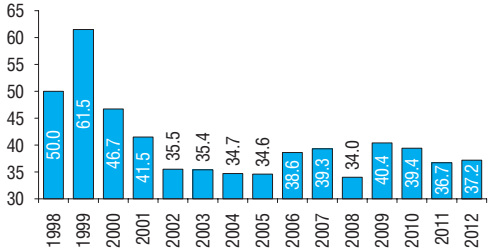
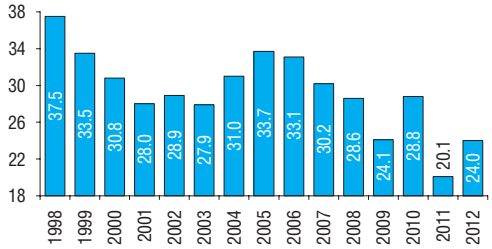
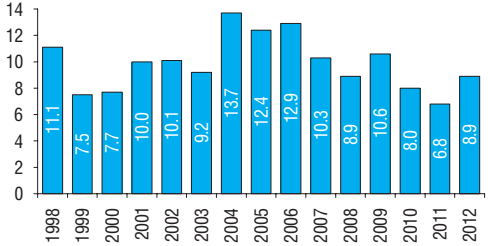
Acquisition of software



Personnel training



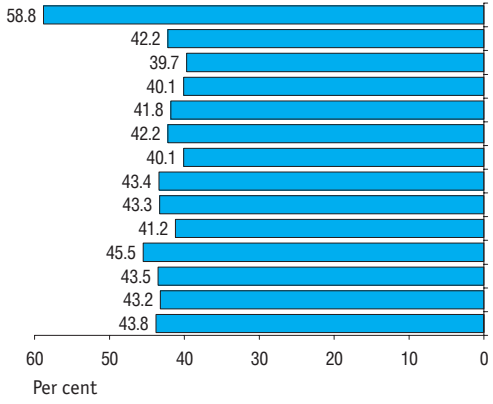
Market research



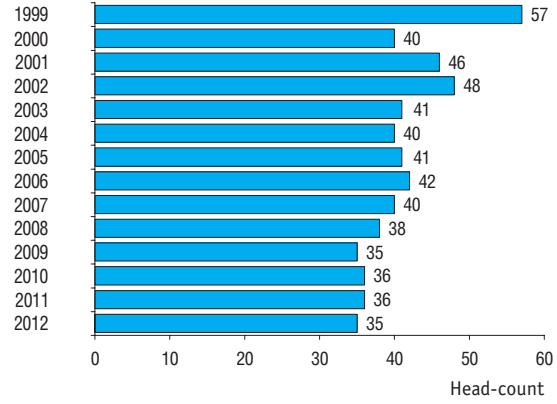
1.3. R&D UNITS AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply														
R&D units at enterprises	1570	2584	1852	1788	2048	2009	2083	2274	2360	2117	2248	2218	2234	2381
Employment in R&D units, *head-count*	89388	103367	85695	85902	84492	81052	86356	96188	94116	80106	79603	79993	80639	82760

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



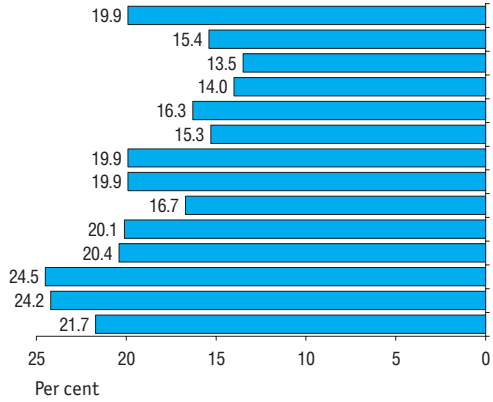
Average employment in R&D units



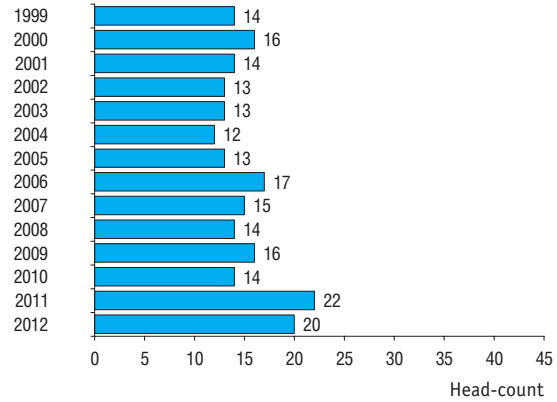
(continued)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Communications, computer and related activities														
R&D units at enterprises	45	39	36	51	62	72	108	101	95	116	87	114	134	151
Employment in R&D units, *head-count*	611	620	498	679	787	873	1450	1757	1385	1627	1357	1634	2888	3073

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



Average employment in R&D units

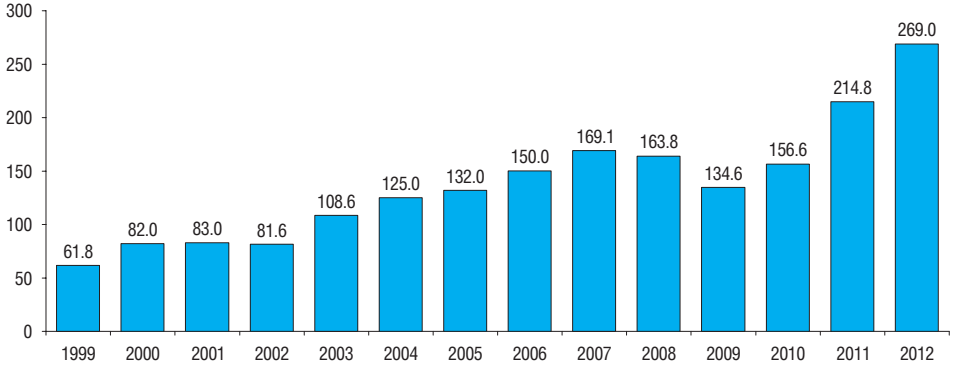


1.4. SALES OF INNOVATIVE GOODS AND SERVICES

(million roubles)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply														
Sales of innovative goods and services:														
at current prices	84379.6	154135.0	181826.1	206313.2	312692.0	433003.5	545540.0	714024.6	916131.6	1046960.0	877684.8	1165747.6	1847370.4	2509604.4
at constant 1995 prices	24576.8	32626.7	33037.1	32455.5	43225.3	49756.2	52546.2	59700.1	67309.7	65188.1	53576.8	62312.8	85495.9	107044.9
per rouble of expenditure on technological innovation, *roubles*	3.5	3.1	3.0	2.4	3.0	3.5	4.3	3.8	4.4	3.8	2.4	3.3	3.9	4.3

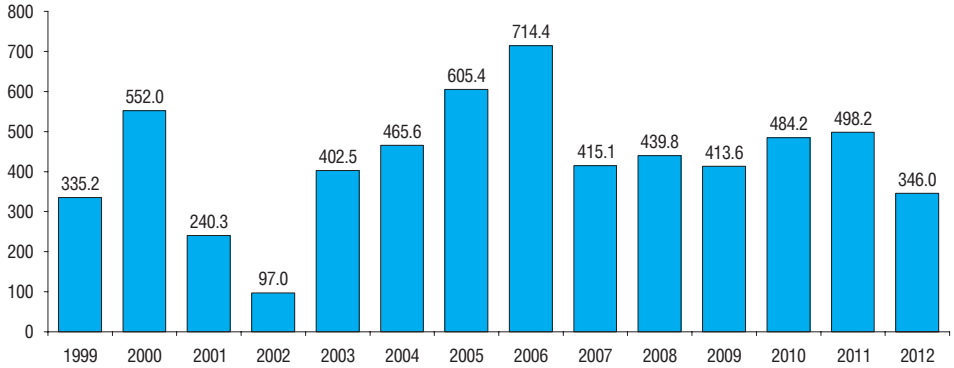
As a percentage of 1995 sales



(continued)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Communications, computer and related activities														
Sales of innovative goods and services:														
at current prices	7958.8	18033.2	9144.1	4261.9	20132.3	28020.0	43465.3	59086.3	39069.6	48839.0	46854.7	62636.4	74437.8	56092.2
at constant 1995 prices	2318.1	3817.2	1661.4	670.4	2783.0	3219.8	4186.6	4940.2	2870.5	3040.9	2860.2	3348.1	3445.0	2392.6
per rouble of expenditure on technological innovation, *roubles*	1.8	1.5	1.4	0.7	1.4	1.4	2.5	3.1	1.6	2.0	1.4	1.6	0.5	0.7

As a percentage of 1998 sales

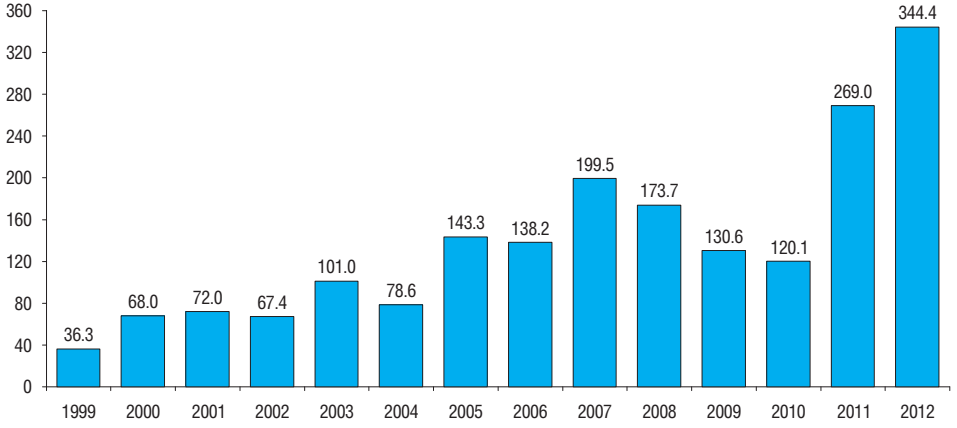


1.5. EXPORTS OF INNOVATIVE GOODS AND SERVICES

(million roubles)

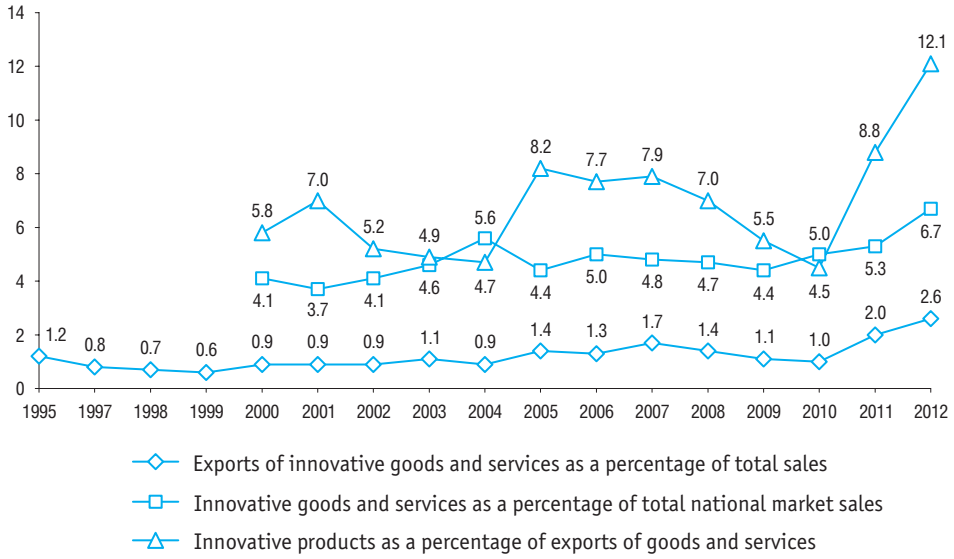
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply														
Exports of innovative goods and services:														
at current prices	12678.7	32672.3	40330.6	43597.2	74351.1	69557.8	151358.0	168176.0	276280.8	283792.5	217621.4	228644.5	591239.1	821409.9
at constant 1995 prices	3692.9	6915.9	7327.9	6858.4	10278.0	7992.9	14578.7	14061.3	20298.8	17670.1	13284.3	12221.8	27362.4	35036.5

As a percentage of 1995 sales



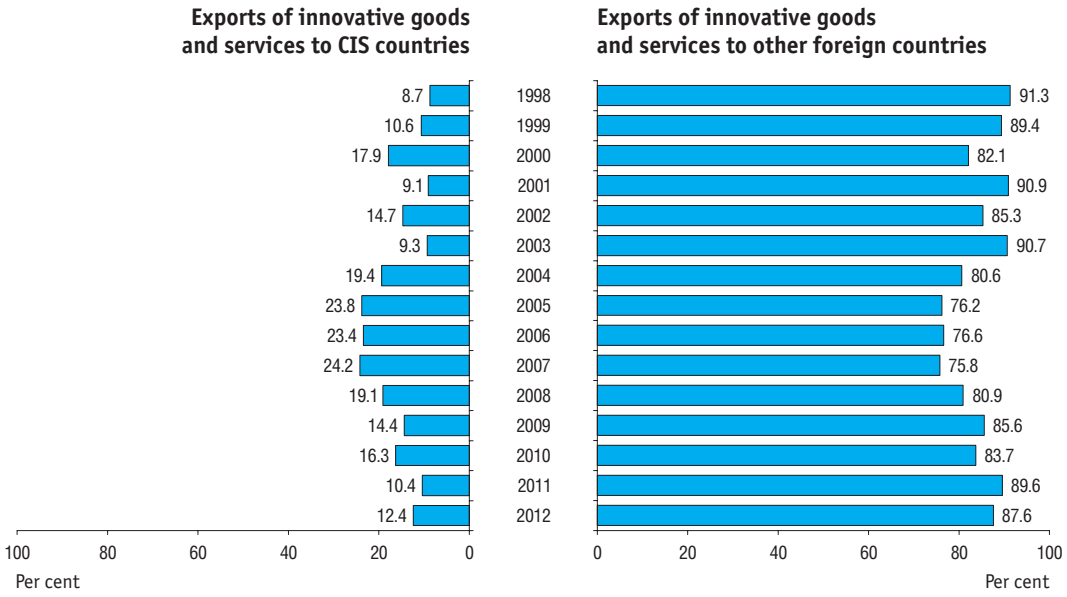
1.6. INNOVATIVE GOODS AND SERVICES AS A SHARE OF NATIONAL AND FOREIGN MARKET SALES

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



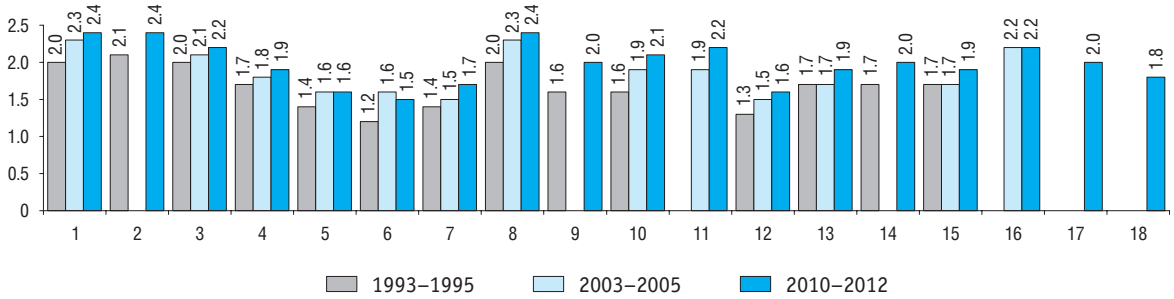
1.7. DISTRIBUTION OF EXPORTS OF INNOVATIVE GOODS AND SERVICES

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



1.8. EFFECTS OF TECHNOLOGICAL INNOVATION BY RANK OF IMPORTANCE

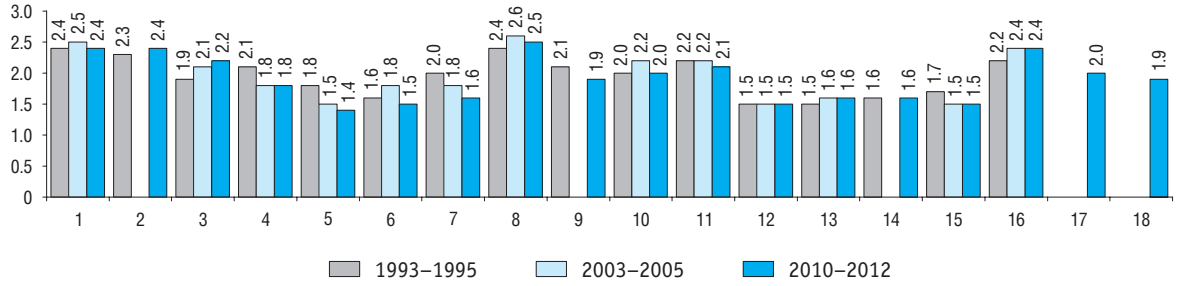
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Increasing range of goods and services
2 – Maintaining traditional market share
Increasing market share:
3 – in Russia
4 – in CIS countries
5 – in EU Member States, Iceland, Liechtenstein, Norway, and Switzerland
6 – in the United States and Canada
7 – in other countries
8 – Improving quality of goods and services
9 – Replacing products being phased out
10 – Increasing flexibility of production
11 – Increasing industrial capacity
12 – Reducing labour costs
13 – Reducing material costs
14 – Increasing energy efficiency (lower energy consumption or energy loss)
15 – Reducing environmental impacts
16 – Ensuring compliance with modern standards
Marketing innovation:
17 – introducing products and services to new markets and new consumer groups
18 – introducing products and services to new geographical markets

(continued)

Communications, computer and related activities



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3 – in Russia
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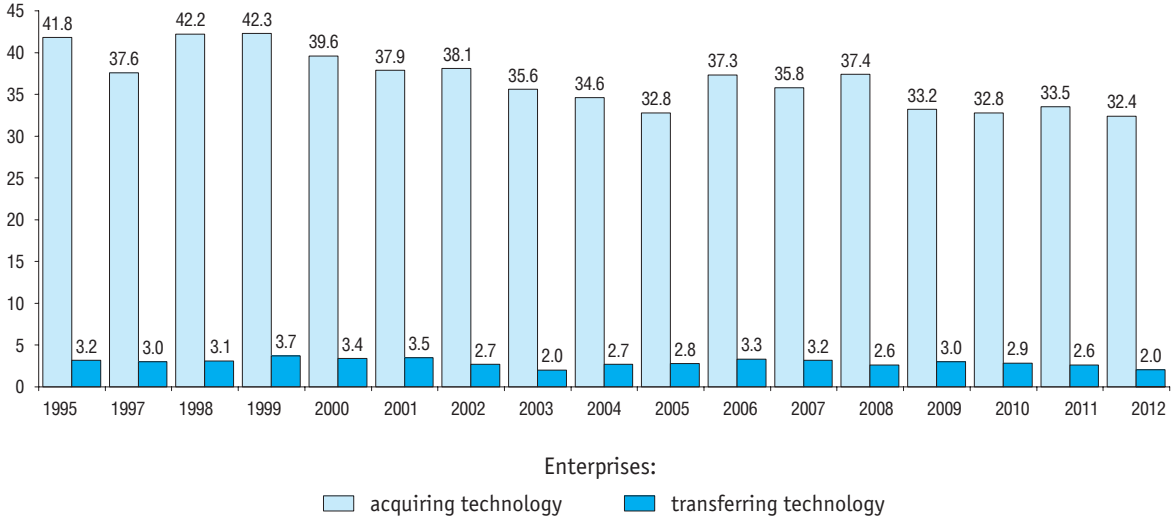
15 – Reducing environmental impacts
16 – Ensuring compliance with modern standards
Marketing innovation:
17 – introducing products and services to new markets and new consumer groups
18 – introducing products and services to new geographical markets

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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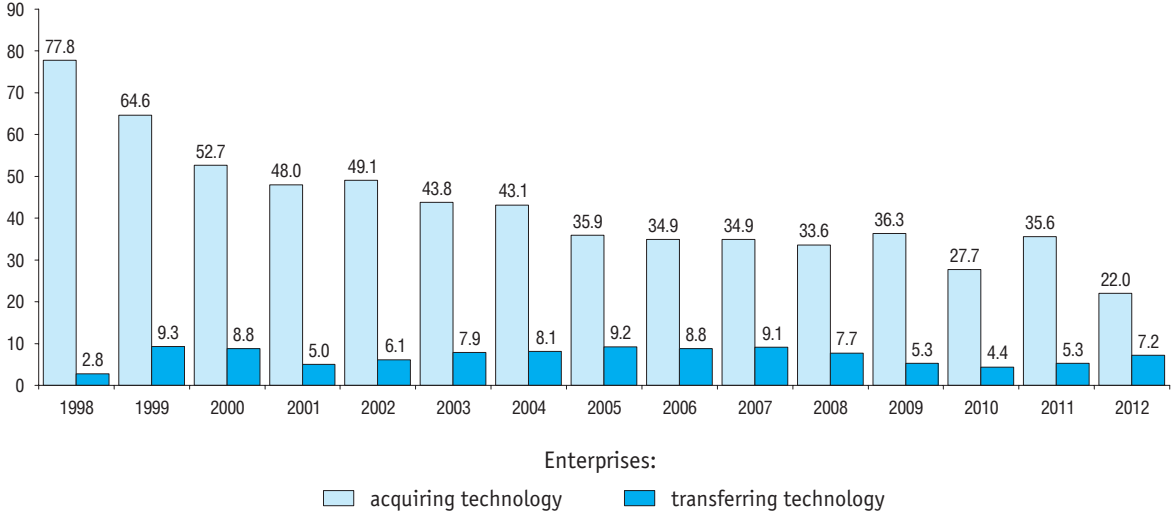
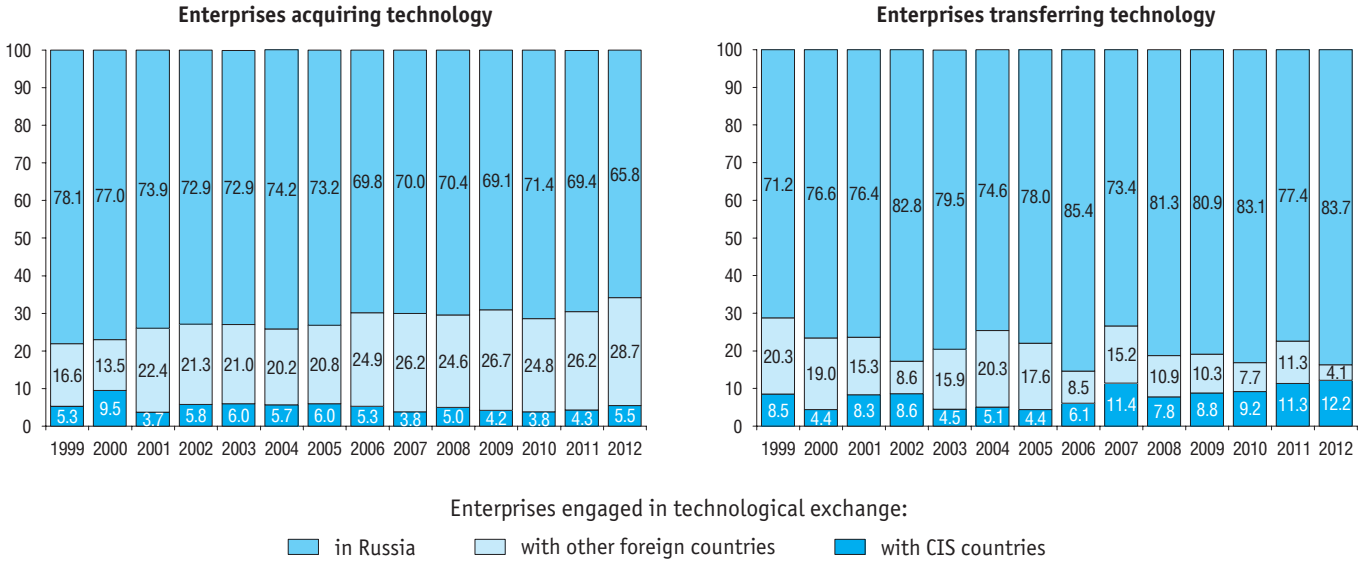
Communications, computer and related activities



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

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



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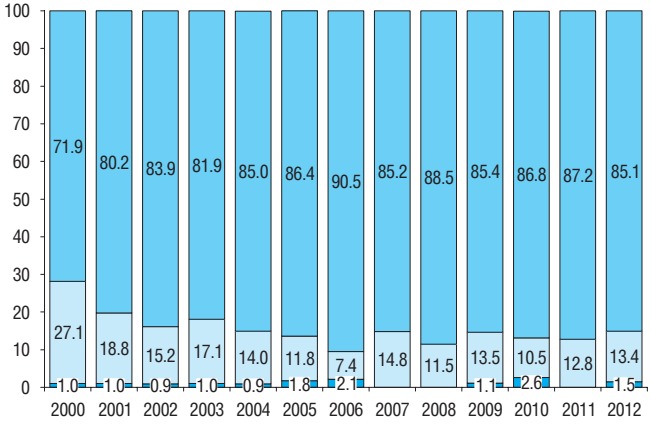
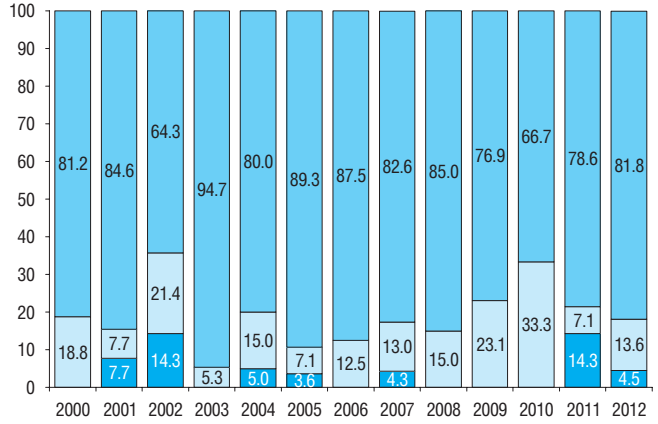
Communications, computer and related activities

Enterprises acquiring technology



Enterprises transferring technology



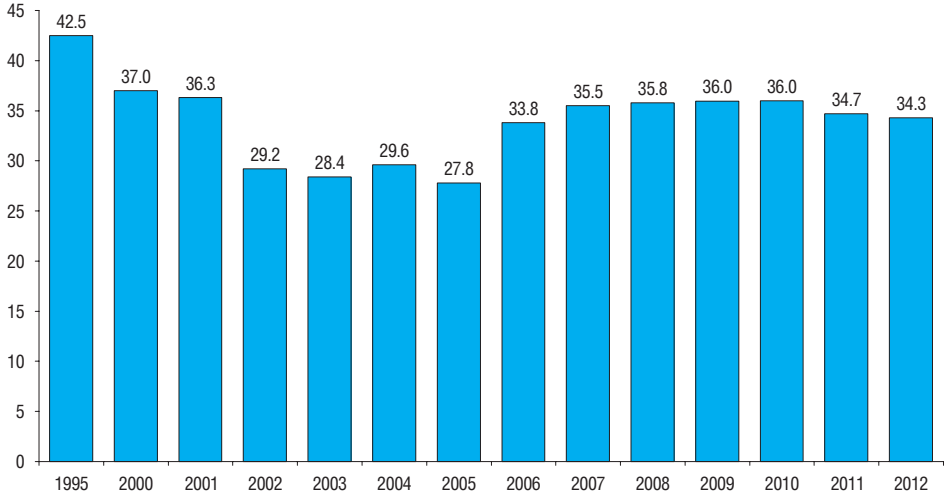
Enterprises engaged in technological exchange:

in Russia | with other foreign countries | with CIS countries

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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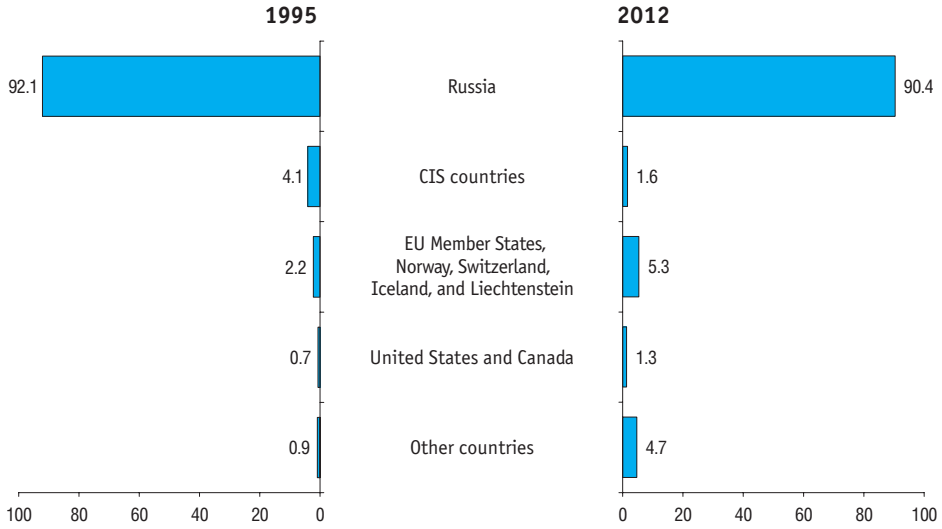
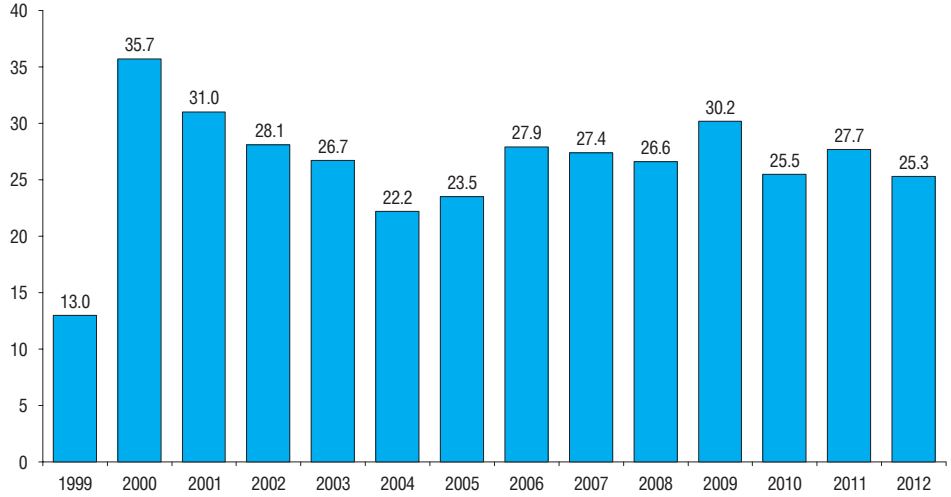
Percentage distribution of joint R&D projects by partner country



(continued)

Communications, computer and related activities

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



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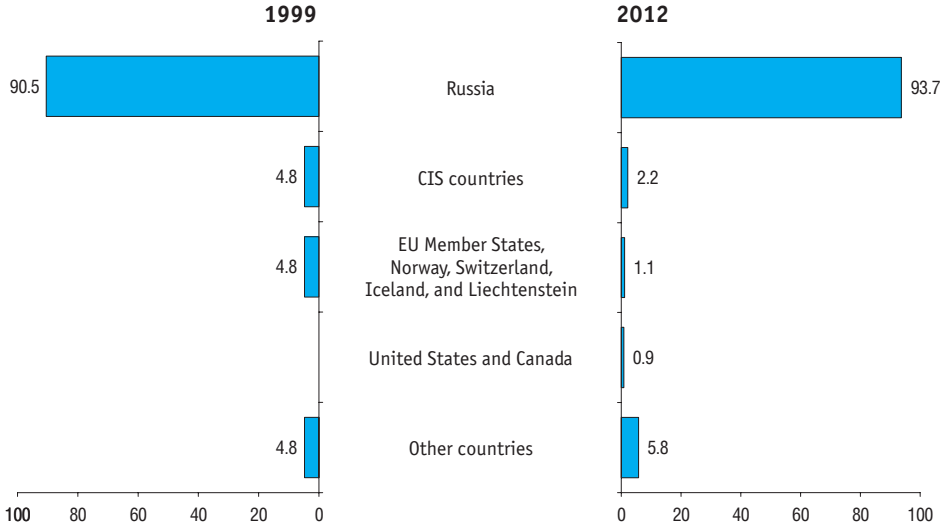
Percentage distribution of joint R&D projects by partner country

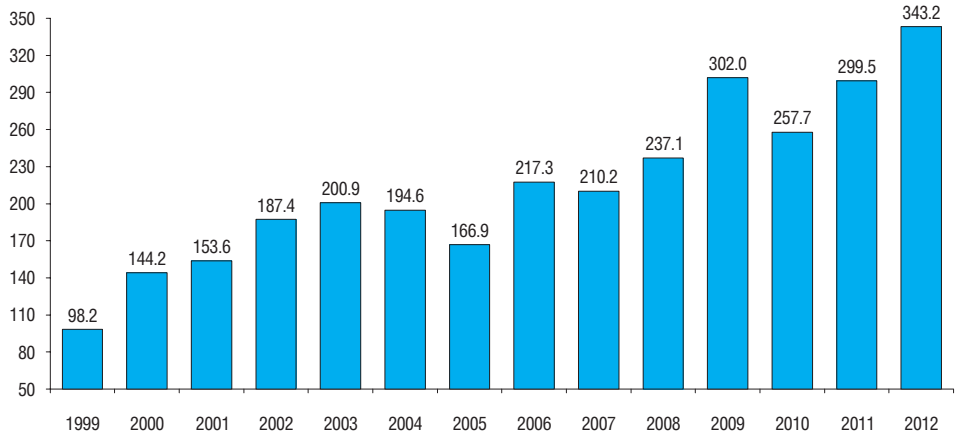


1.12. EXPENDITURE ON TECHNOLOGICAL INNOVATION

(million roubles)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply														
Expenditure on technological innovation:														
at current prices	24451.4	49428.0	61312.9	86394.6	105444.7	122850.5	125678.2	188492.2	207499.2	276262.3	358861.1	349763.3	469442.2	583660.6
at constant 1995 prices	7121.8	10462.7	11140.3	13590.9	14576.3	14116.7	12105.3	15760.0	15245.3	17201.2	21906.1	18695.9	21725.7	24895.5

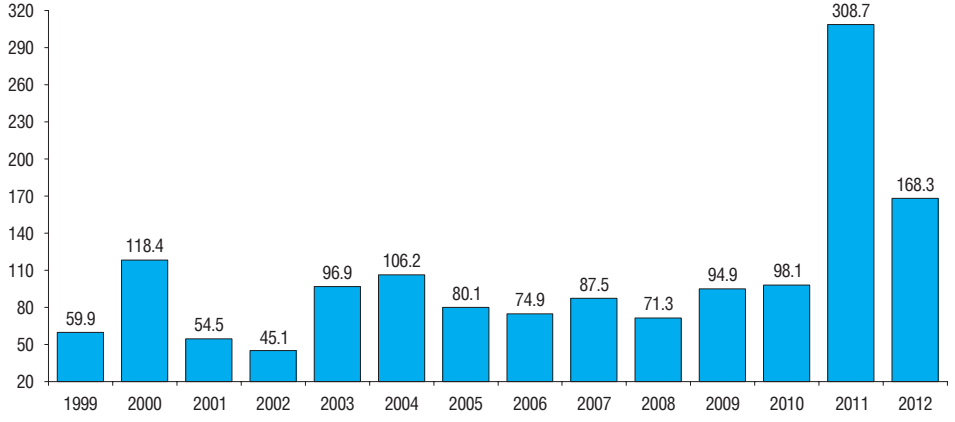
As a percentage of 1995 expenditure



(continued)

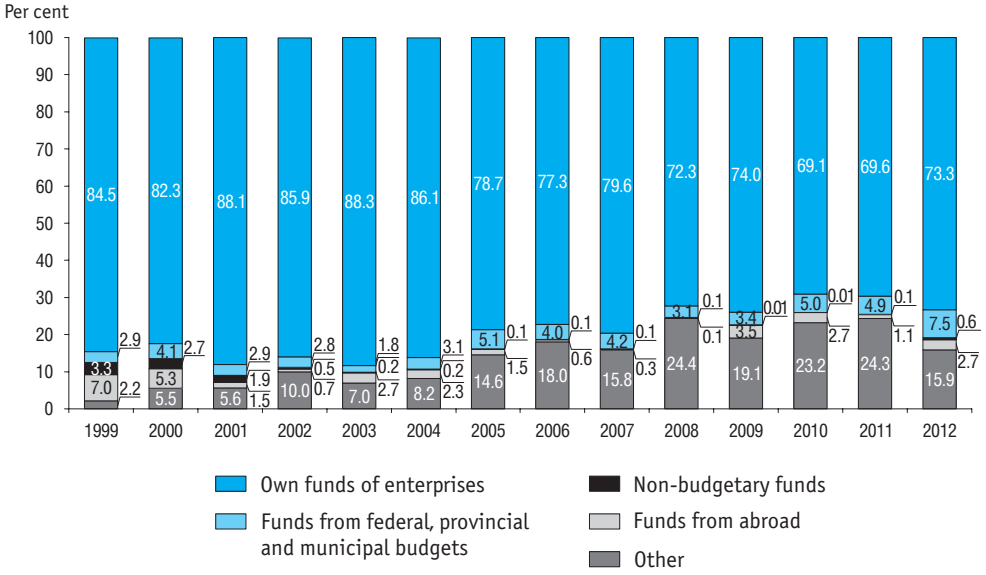
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Communications, computer and related activities														
Expenditure on technological innovation:														
at current prices	4336.5	11794.1	6328.6	6049.3	14782.7	19495.3	17544.4	18892.4	25125.5	24148.0	32790.9	38684.0	137754.0	83230.6
at constant 1995 prices	1263.1	2496.5	1149.9	951.6	2043.5	2240.2	1689.9	1579.6	1846.0	1503.6	2001.7	2067.8	6509.9	3550.1

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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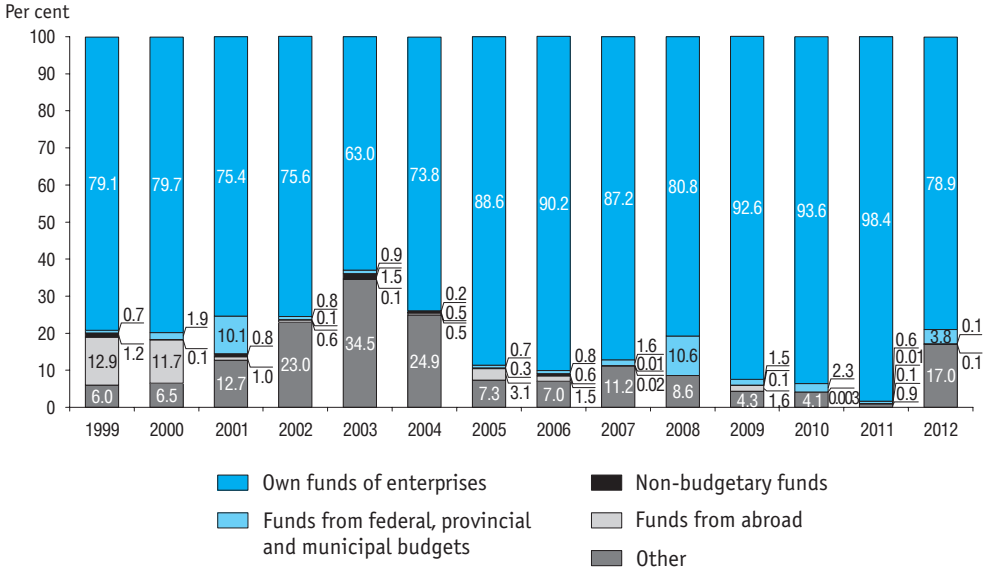
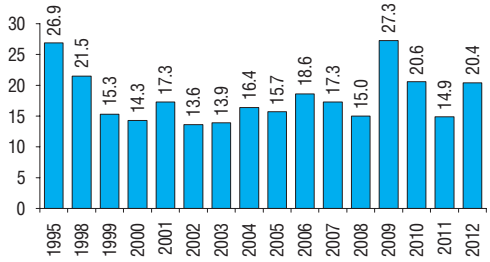
Communications, computer and related activities



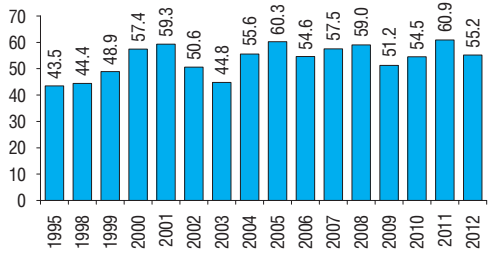
1.14. EXPENDITURE ON TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF TOTAL EXPENDITURE BY INNOVATIVE ACTIVITY

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

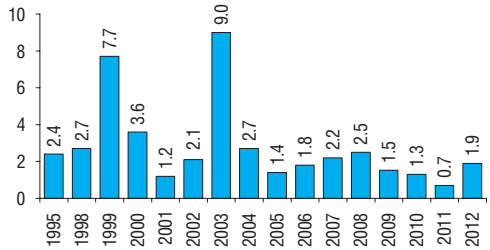
R&D



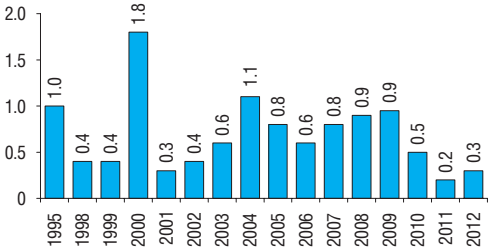
Acquisition of machinery and equipment



Acquisition of technology



Acquisition of patent rights and licenses



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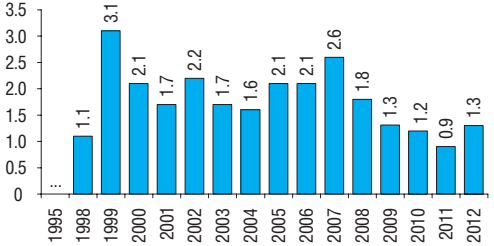
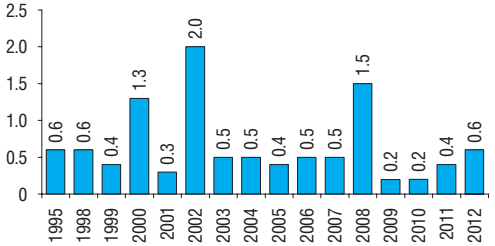
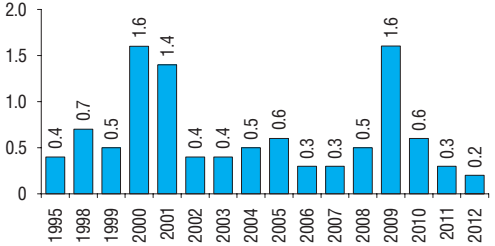
Acquisition of software



Personnel training

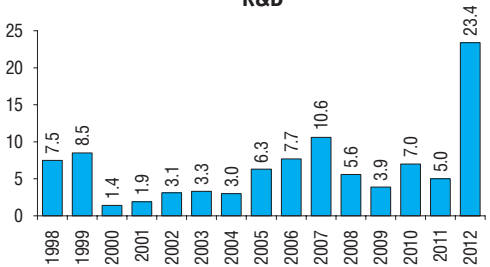


Market research

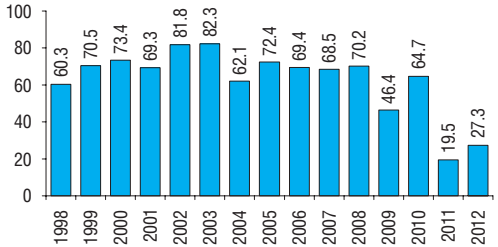


Communications, computer and related activities

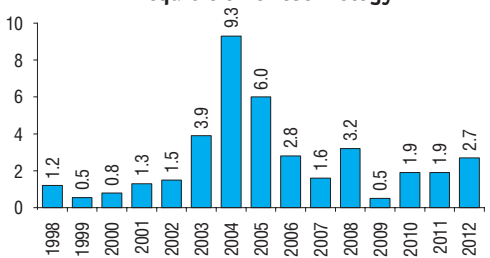
R&D



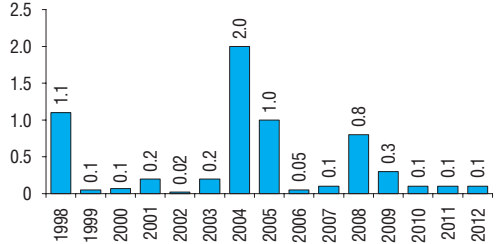
Acquisition of machinery and equipment



Acquisition of technology



Acquisition of patent rights and licenses



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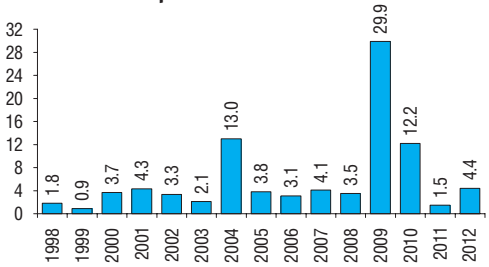
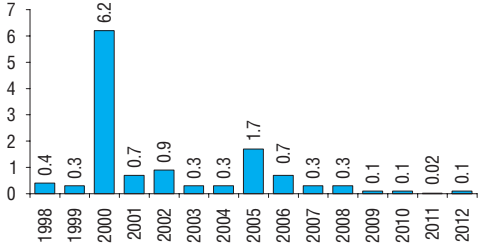
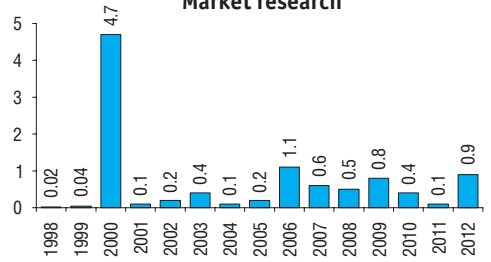
Acquisition of software



Personnel training

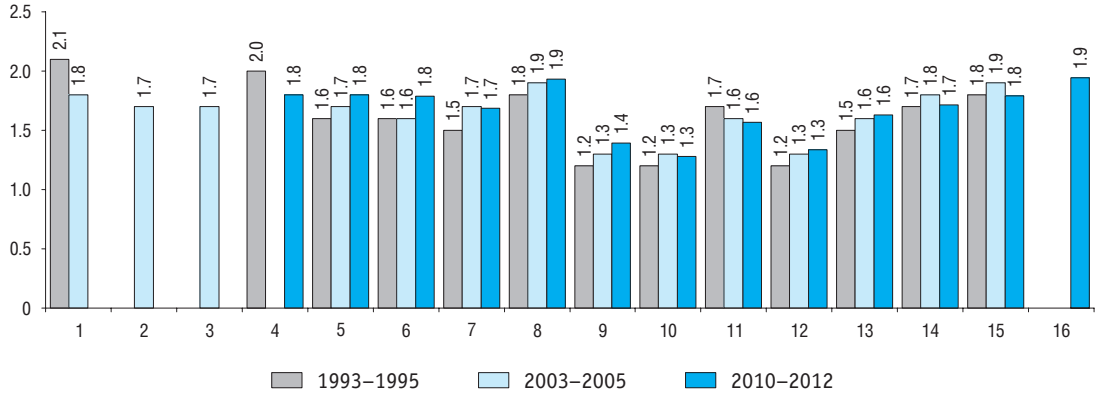


Market research



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

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



Internal sources within the enterprise:
- 1 – R&D units
- 2 – production units
- 3 – marketing units
- 4 – other internal sources
- 5 – other enterprises within the same enterprise group

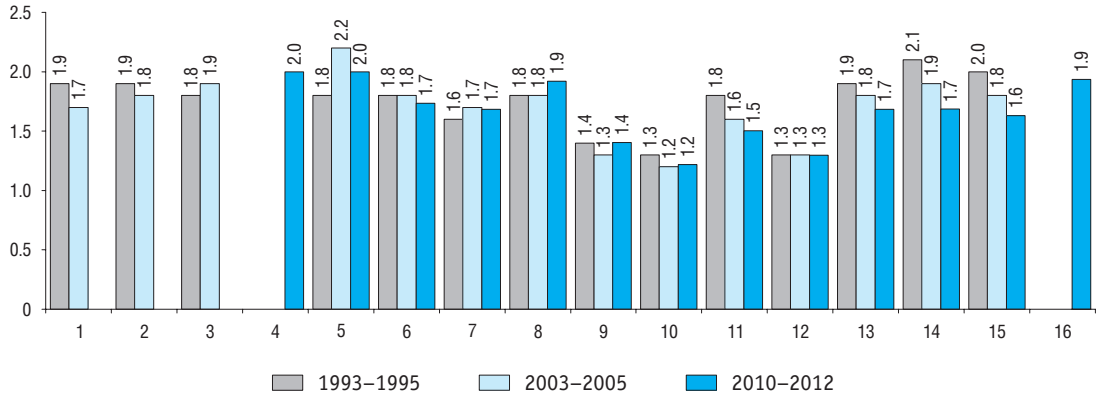
Market sources:
- 6 – suppliers of equipment, materials, components, software
- 7 – competitors within the same sector
- 8 – clients or customers
- 9 – consultancy, information firms

Institutional sources:
R&D institutions:
- 10 – Russian Academy of Sciences
- 11 – industry
- 12 – universities or other higher education institutions

General information sources:
- 13 – conferences, workshops, symposia
- 14 – science and technology literature
- 15 – exhibitions, trade fairs, and other advertising facilities
- 16 – Internet

(continued)

Communications, computer and related activities



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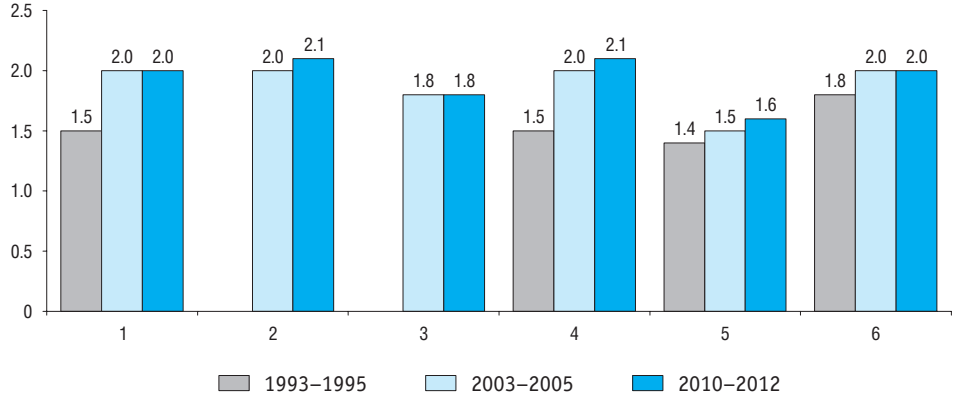
1.16. METHODS OF INNOVATION PROTECTION AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY RANK OF IMPORTANCE

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

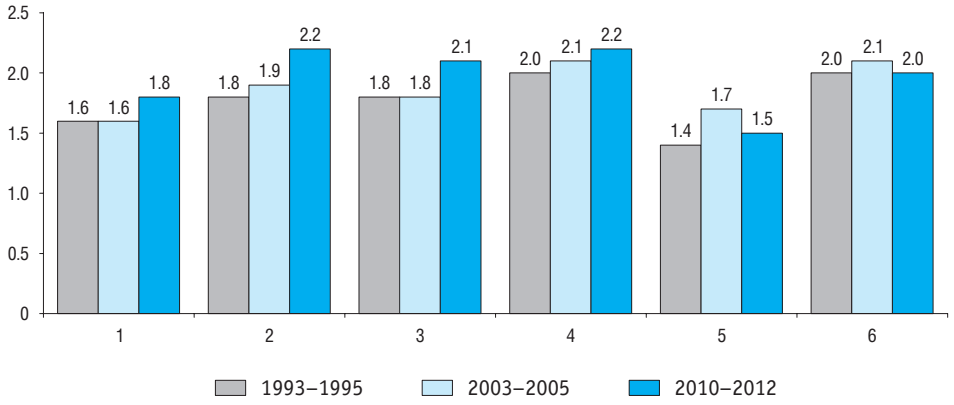


Formal methods:
1 – patenting inventions, industrial prototypes, and utility models
2 – registering trademarks
3 – protecting copyright

Informal methods:
4 – ensuring the confidentiality of commercial secrets and know-how
5 – ensuring complicated design of products
6 – ensuring time advantage over competitors

(continued)

Communications, computer and related activities



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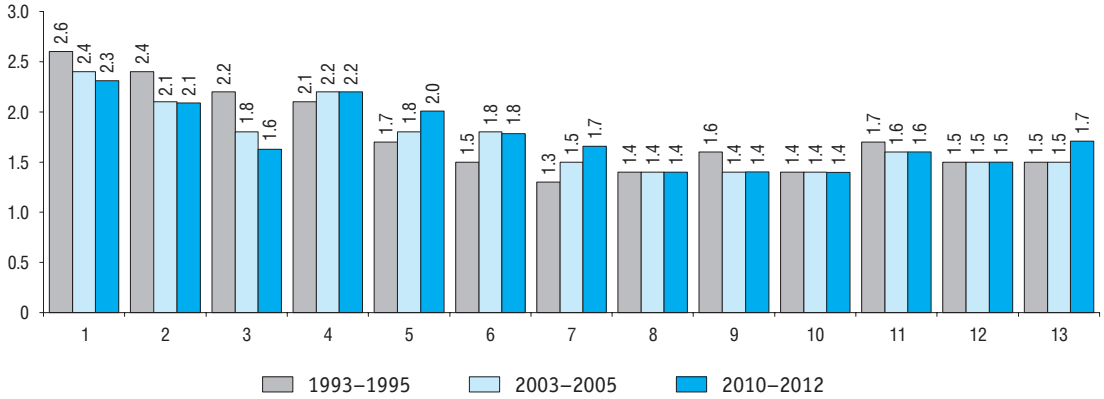
2 – registering trademarks
3 – protecting copyright

Informal methods:
4 – ensuring the confidentiality of commercial secrets
1 – and know-how
5 – ensuring complicated design of products
6 – ensuring time advantage over competitors

1.17. FACTORS HAMPERING TECHNOLOGICAL INNOVATION BY RANK OF IMPORTANCE

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



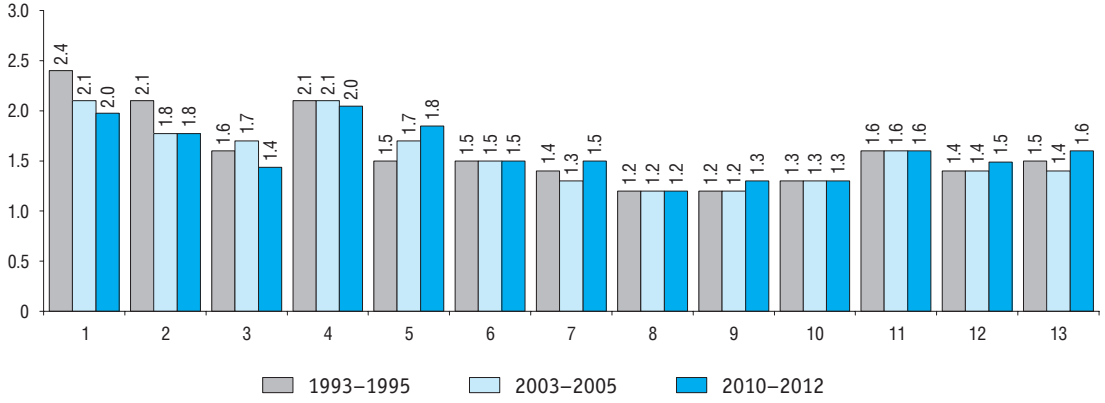
Economic factors:
- 1 – lack of funds within the enterprise
- 2 – lack of finance from the government
- 3 – low demand for new goods and services
- 4 – high innovation expenditure
- 5 – excessive perceived risk

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

Other factors:
- 11 – deficiencies in legislation
- 12 – underdevelopment of innovation infrastructure
- 13 – uncertainty of economic benefits

(continued)

Communications, computer and related activities



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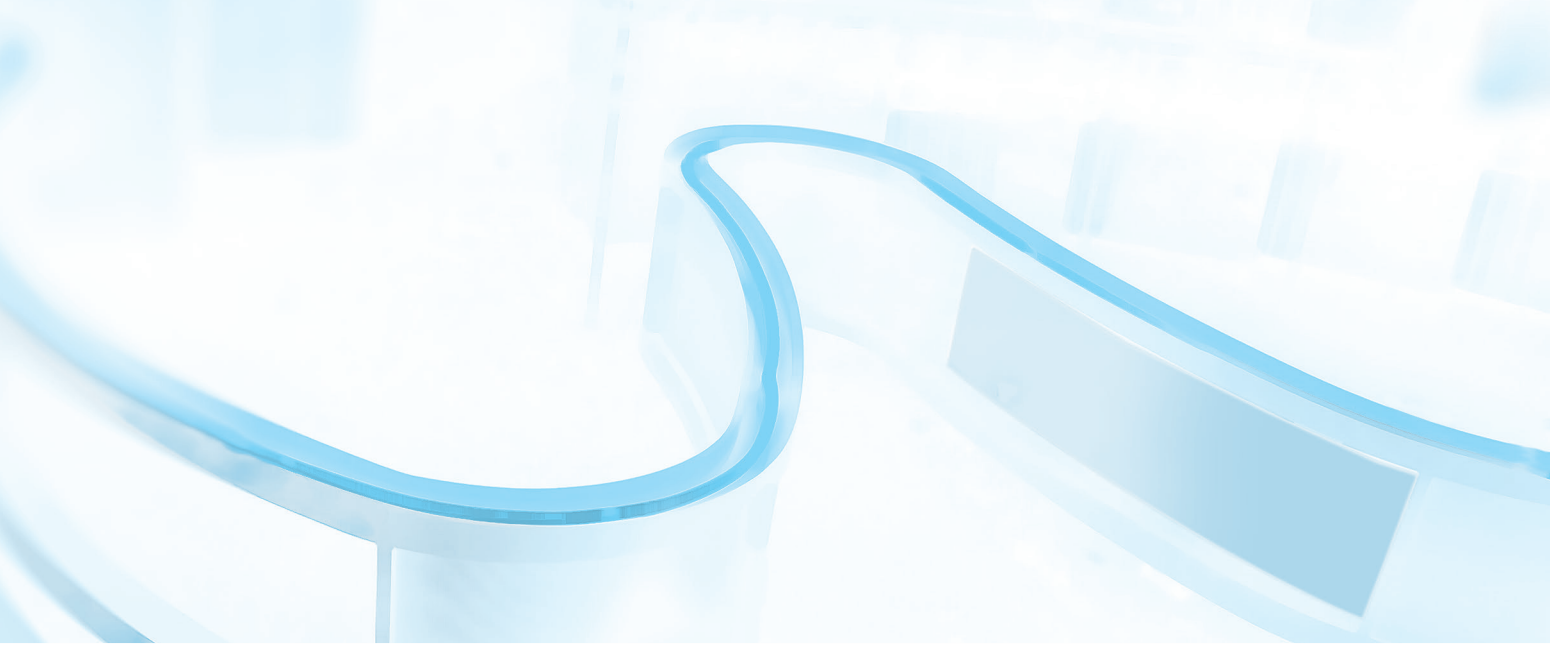


2. Innovative Activity of Enterprises

2.1. INNOVATIVE ACTIVITY OF ENTERPRISES BY ECONOMIC ACTIVITY

	Enterprises engaged in innovation of selected types as a percentage of all enterprises							
	Total		Technological		Marketing		Organisational	
	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**11.1**	**11.1**	**9.6**	**9.9**	**2.5**	**2.2**	**3.5**	**3.2**
Mining and quarrying	8.4	8.2	6.8	7.0	0.7	0.6	3.9	3.1
Mining and quarrying of energy producing materials	11.3	10.0	9.0	8.3	1.1	0.4	5.8	4.1
Mining and quarrying, except energy producing materials	4.5	5.8	3.9	5.0	0.2	0.8	1.2	1.8
Manufacturing	13.3	13.4	11.6	12.0	3.4	3.0	4.1	3.9
High tech	30.1	31.3	28.0	30.1	6.7	6.0	9.3	9.2
Manufacture of pharmaceuticals	24.7	23.3	22.4	23.3	8.8	6.7	4.7	3.9
Manufacture of office machinery and computers	27.5	27.3	25.0	25.0	7.5	4.5	10.0	6.8
Manufacture of radio, television and communication equipment and apparatus	36.1	36.3	33.5	35.0	5.2	5.4	9.7	10.5
Manufacture of medical, precision and optical instruments, watches and clocks	27.2	30.0	25.5	28.4	6.4	6.4	8.6	8.8
Manufacture of aircrafts, including spacecrafts	35.6	36.8	33.6	36.1	8.9	4.9	16.4	15.3
Medium high tech	19.7	19.3	17.6	17.7	4.6	3.8	6.3	5.6
Manufacture of chemicals and chemical products	23.2	22.7	21.1	20.9	4.1	4.7	6.8	6.1
Manufacture of machinery and equipment, n.e.c.	17.7	16.7	15.3	14.8	4.3	3.2	5.8	4.7
Manufacture of electrical machinery and apparatus	21.2	22.1	20.1	20.9	7.1	5.4	6.6	7.7

(continued)

	Enterprises engaged in innovation of selected types as a percentage of all enterprises							
	Total		Technological		Marketing		Organisational	
	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of motor vehicles, trailers and semi-trailers	24.4	23.7	22.2	22.3	3.3	2.7	7.9	5.4
Manufacture of other transport vehicles	13.9	15.0	12.0	13.9	3.0	2.2	5.6	4.5
Medium low tech	13.1	13.4	11.5	12.1	2.4	2.1	3.9	3.8
Manufacture of coke, refined petroleum products	31.7	31.7	31.7	31.7	5.8	3.8	11.5	9.6
Manufacture of rubber and plastic products	12.1	12.0	10.3	10.9	3.0	1.6	3.6	3.0
Manufacture of other non-metallic mineral products	9.7	10.3	8.4	8.9	1.9	1.9	2.8	2.4
Manufacture of basic metals	24.9	25.1	22.8	22.9	2.9	3.3	8.3	8.7
Manufacture of fabricated metal products	11.8	12.1	9.7	10.6	2.5	2.0	3.2	3.7
Construction and repair of vessels	14.4	15.1	14.4	15.1	1.2	2.5	3.6	5.0
Low tech	7.7	7.6	6.3	6.2	2.6	2.4	2.2	2.0
Manufacture of food products and beverages	11.7	11.8	9.4	9.1	4.7	4.4	3.1	2.9
Manufacture of tobacco products	36.8	35.0	31.6	35.0	15.8	–	5.3	5.0
Manufacture of textiles	11.6	12.4	11.0	10.1	1.6	4.0	2.3	4.0
Manufacture of wearing apparel, dressing and dyeing of fur	5.3	5.0	3.9	4.7	0.8	1.6	2.2	1.6
Manufacture of leather, leather products and footwear	8.0	6.8	5.8	3.8	2.2	2.3	3.6	3.0
Manufacture of wood and of products of wood and cork, except furniture	5.5	6.0	3.8	4.7	1.7	1.5	2.7	2.4
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	13.3	11.1	12.4	10.6	4.0	3.1	4.4	3.1

(continued)

	Enterprises engaged in innovation of selected types as a percentage of all enterprises							
	Total		Technological		Marketing		Organisational	
	2011	2012	2011	2012	2011	2012	2011	2012
Publishing and printing, reproduction of recorded media	2.7	2.7	2.1	2.3	0.6	0.6	0.7	0.6
Manufacture of furniture, manufacturing n.e.c.	12.2	11.1	9.9	9.9	33	2.4	2.8	2.6
Recycling	4.2	2.3	3.2	1.9	1.4	0.4	1.4	0.8
Electricity, gas and water supply	5.6	5.6	4.7	4.9	0.4	0.3	1.6	1.6
Communications, computer and related activities, research and development, other business activities								
Total	**9.2**	**9.0**	**7.8**	**8.0**	**1.9**	**1.6**	**3.0**	**2.6**
Communications	13.8	13.3	11.1	11.7	5.5	4.7	4.6	4.3
Computer and related activities	9.2	9.4	7.9	8.3	1.2	1.0	2.8	2.6
Research and development	29.8	30.1	28.8	29.1	4.6	4.2	8.5	7.2
Other business activities	4.9	4.0	3.6	3.0	0.9	0.6	1.9	1.3

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

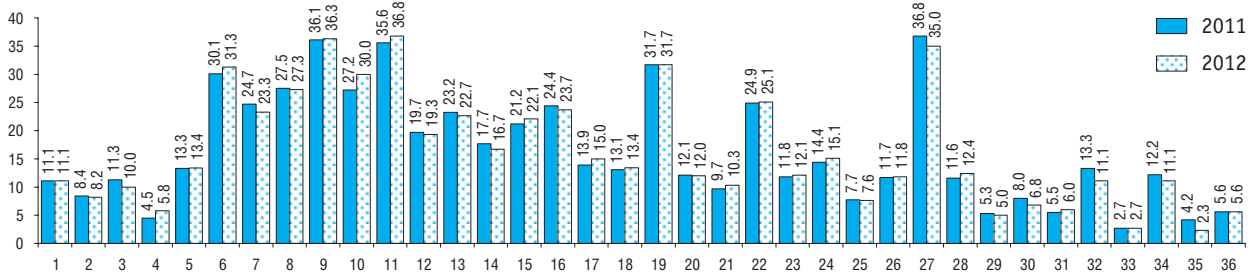
	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	4.7	4.8
Mining and quarrying of energy producing materials	3.6	3.4
Mining and quarrying, except energy producing materials	1.1	1.4
Manufacturing	82.8	82.6
High tech	13.9	14.6
Manufacture of pharmaceuticals	1.6	1.6
Manufacture of office machinery and computers	0.4	0.4
Manufacture of radio, television and communication equipment and apparatus	4.1	4.2
Manufacture of medical, precision and optical instruments, watches and clocks	5.8	6.4
Manufacture of aircrafts, including spacecrafts	1.9	2.0
Medium high tech	24.0	23.8
Manufacture of chemicals and chemical products	4.4	4.3
Manufacture of machinery and equipment, n.e.c.	9.9	9.3
Manufacture of electrical machinery and apparatus	5.1	5.4
Manufacture of motor vehicles, trailers and semi-trailers	3.3	3.3
Manufacture of other transport vehicles	1.4	1.5
Medium low tech	17.6	17.9
Manufacture of coke, refined petroleum products	1.2	1.2
Manufacture of rubber and plastic products	2.7	2.8
Manufacture of other non-metallic mineral products	5.0	5.3

(continued)

	2011	2012
Manufacture of basic metals	3.4	3.4
Manufacture of fabricated metal products	4.3	4.4
Construction and repair of vessels	0.9	0.9
Low tech	24.3	23.3
Manufacture of food products and beverages	14.1	13.8
Manufacture of tobacco products	0.3	0.3
Manufacture of textiles	1.3	1.4
Manufacture of wearing apparel, dressing and dyeing of fur	0.7	0.6
Manufacture of leather, leather products and footwear	0.4	0.3
Manufacture of wood and of products of wood and cork, except furniture	1.1	1.2
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1.1	0.9
Publishing and printing, reproduction of recorded media	3.0	2.9
Manufacture of furniture, manufacturing n.e.c.	1.9	1.7
Recycling	0.3	0.2
Manufacturing of other materials and substances, n.e.c.	3.0	3.0
Electricity, gas and water supply	12.6	12.6
Communications, computer and related activities, research and development, other business activities		
Total	**100**	**100**
Communications	17.3	17.0
Computer and related activities	6.9	8.0
Research and development	38.4	45.6
Other business activities	37.4	29.5

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

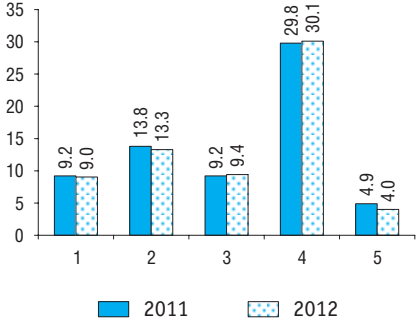
Mining and quarrying, manufacturing, electricity, gas and water supply



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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities



1 – Total

2 – Communications

3 – Computer and related activities

4 – Research and development

5 – Other business activities

2.4. INNOVATIVE ACTIVITY OF ENTERPRISES BY SIZE

	Enterprises engaged in innovation of selected types as a percentage of all enterprises							
	Total		Technological		Marketing		Organisational	
	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities								
Total	**10.4**	**10.3**	**8.9**	**9.1**	**2.3**	**1.9**	**3.3**	**3.0**
Number of employees, *head-count*:								
below 50	3.2	3.0	2.4	2.5	0.6	0.4	1.0	0.7
50–99	6.8	6.8	5.5	5.7	1.3	0.9	2.1	1.7
100–199	10.6	10.5	9.1	9.1	2.3	1.7	2.7	2.4
200–249	12.8	13.7	11.0	12.2	2.7	2.6	3.3	3.7
250–499	16.3	16.9	13.9	14.8	3.5	3.5	4.8	4.5
500–999	25.5	25.8	22.5	23.2	5.8	5.6	8.3	8.2
1000–4999	44.7	44.6	41.0	42.5	11.5	9.9	17.9	16.3
5000–9999	68.1	67.4	66.0	65.9	12.1	11.9	27.0	29.6
10 000 and over	78.4	85.4	76.5	83.3	15.7	18.8	45.1	47.9

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

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities		
Total	**100**	**100**
Number of employees, *head-count*:		
below 50	13.7	13.3
50–99	8.0	8.0
100–199	16.1	15.9
200–249	5.8	6.4
250–499	17.9	18.5
500–999	15.1	15.2
1000–4999	20.1	19.5
5000–9999	2.4	2.2
10 000 and over	1.0	1.0

2.6. INNOVATIVE ACTIVITY OF ENTERPRISES BY OWNERSHIP

	Enterprises engaged in innovation of selected types as a percentage of all enterprises							
	Total		Technological		Marketing		Organisational	
	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities								
Total	**10.4**	**10.3**	**8.9**	**9.1**	**2.3**	**1.9**	**3.3**	**3.0**
Russian ownership	10.4	10.4	9.0	9.3	2.2	1.9	3.3	3.0
Public ownership	12.0	12.2	10.7	11.1	2.1	1.9	3.8	3.4
Federal	17.7	18.1	16.3	16.9	3.3	3.0	5.5	4.9
Provincial	6.4	5.8	5.1	4.7	0.9	0.7	2.1	1.7
Municipal ownership	3.0	3.1	2.4	2.5	0.3	0.3	0.8	0.7
Ownership of voluntary associations	5.0	6.1	4.5	5.4	0.7	0.5	0.5	1.7
Private ownership	11.9	11.5	10.2	10.2	2.8	2.3	3.7	3.3
Ownership of Russian citizens permanently living abroad	–	–	–	–	–	–	–	–
Ownership of consumer cooperatives	4.7	9.1	3.3	4.9	2.0	2.1	1.3	2.8
Joint ownership	19.5	19.9	17.3	18.1	4.7	4.2	7.2	6.6
Joint ownership with a part of public ownership	18.9	19.4	16.6	17.4	4.2	3.5	6.9	6.3
Other	20.7	20.8	18.6	19.4	5.7	5.7	7.8	7.2
Ownership of state corporations	37.9	36.6	31.6	34.8	9.5	5.6	13.7	13.0
Foreign ownership	7.9	7.8	6.1	6.3	2.1	1.8	3.0	2.3
Joint ownership (with both Russian and foreign participation)	12.5	12.3	10.4	11.0	3.5	2.6	4.3	3.5

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

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities		
Total	**100**	**100**
Russian ownership	88.8	88.6
Public ownership	23.5	23.2
Federal	17.1	17.9
Provincial	6.3	5.3
Municipal ownership	5.8	6.0
Ownership of voluntary associations	0.5	0.6
Private ownership	45.3	44.6
Ownership of Russian citizens permanently living abroad	–	–
Ownership of consumer cooperatives	0.2	0.3
Joint ownership	12.7	12.4
Joint ownership with a part of public ownership	8.0	8.0
Other	4.6	4.4
Ownership of state corporations	0.9	1.4
Foreign ownership	4.9	5.1
Joint ownership (with both Russian and foreign participation)	6.3	6.3

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

	Million roubles		Per cent	
	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**474587.1**	**590341.6**	**100**	**100**
Mining and quarrying	70585.0	88092.8	14.9	14.9
Mining and quarrying of energy producing materials	66170.9	79627.2	13.9	13.5
Mining and quarrying, except energy producing materials	4414.1	8465.6	0.9	1.4
Manufacturing	374362.3	435997.1	78.9	73.9
High tech	39054.0	62469.7	8.2	10.6
Manufacture of pharmaceuticals	2381.2	5025.6	0.5	0.9
Manufacture of office machinery and computers	754.0	780.4	0.2	0.1
Manufacture of radio, television and communication equipment and apparatus	7736.5	12543.3	1.6	2.1
Manufacture of medical, precision and optical instruments, watches and clocks	12009.9	17752.0	2.5	3.0
Manufacture of aircrafts, including spacecrafts	16172.5	26368.3	3.4	4.5
Medium high tech	67152.6	86381.1	14.1	14.6
Manufacture of chemicals and chemical products	28583.8	36818.0	6.0	6.2
Manufacture of machinery and equipment, n.e.c.	11852.9	12574.4	2.5	2.1
Manufacture of electrical machinery and apparatus	7016.5	8736.2	1.5	1.5
Manufacture of motor vehicles, trailers and semi-trailers	15633.7	22817.5	3.3	3.9
Manufacture of other transport vehicles	4065.7	5434.9	0.9	0.9

(continued)

	Million roubles		Per cent	
	2011	2012	2011	2012
Medium low tech	213912.7	220650.1	45.1	37.4
Manufacture of coke, refined petroleum products	86139.0	103377.7	18.2	17.5
Manufacture of rubber and plastic products	7807.1	4863.3	1.6	0.8
Manufacture of other non-metallic mineral products	20635.7	13708.9	4.3	2.3
Manufacture of basic metals	89920.6	88388.3	18.9	15.0
Manufacture of fabricated metal products	3290.9	2336.7	0.7	0.4
Construction and repair of vessels	6119.4	7975.1	1.3	1.4
Low tech	28324.4	34599.4	6.0	5.9
Manufacture of food products and beverages	12884.8	17326.8	2.7	2.9
Manufacture of tobacco products	735.1	727.3	0.2	0.1
Manufacture of textiles	635.4	809.5	0.1	0.1
Manufacture of wearing apparel, dressing and dyeing of fur	131.8	110.0	0.03	0.02
Manufacture of leather, leather products and footwear	56.8	40.8	0.01	0.01
Manufacture of wood and of products of wood and cork, except furniture	2293.3	1391.8	0.5	0.2
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	7602.7	12445.9	1.6	2.1
Publishing and printing, reproduction of recorded media	1058.5	464.0	0.2	0.1
Manufacture of furniture, manufacturing n.e.c.	1213.3	814.2	0.3	0.1
Recycling	1712.6	469.0	0.4	0.1
Manufacturing of other materials and substances, n.e.c.	25918.5	31896.8	5.5	5.4
Electricity, gas and water supply	29639.8	66251.7	6.2	11.2

(continued)

	Million roubles		Per cent	
	2011	2012	2011	2012
Communications, computer and related activities, research and development, other business activities				
Total	**273953.0**	**325024.6**	**100**	**100**
Communications	138826.1	78577.1	50.7	24.2
Computer and related activities	7593.3	7425.7	2.8	2.3
Research and development	117157.6	227942.8	42.8	70.1
Other business activities	10376.0	11078.9	3.8	3.4

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

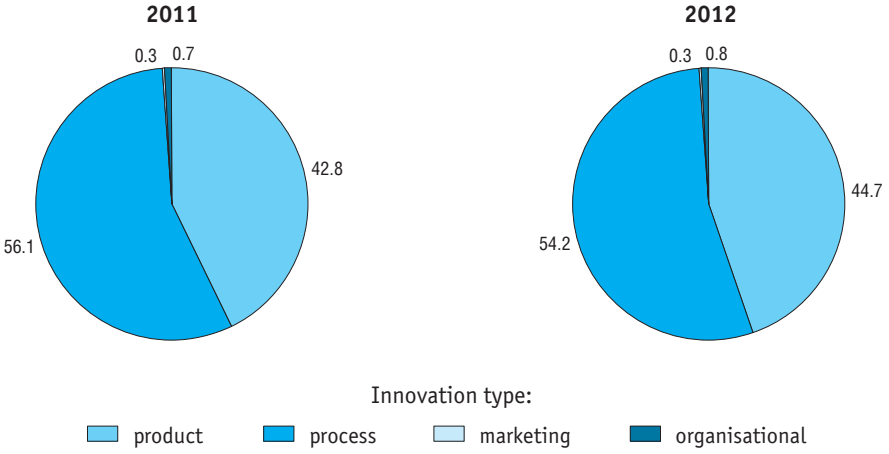
	Million roubles		Per cent	
	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities				
Total	**748540.1**	**915366.2**	**100**	**100**
Number of employees, *head-count:*				
below 50	9454.8	15970.9	1.3	1.7
50–99	6388.9	12069.9	0.9	1.3
100–199	20264.1	25361.0	2.7	2.8
200–249	7193.1	19889.1	1.0	2.2
250–499	33451.3	59563.6	4.5	6.5
500–999	60227.8	113031.7	8.0	12.3
1000–4999	432764.3	438137.1	57.8	47.9
5000–9999	64605.6	92946.7	8.6	10.2
10 000 and over	114190.2	138396.1	15.3	15.1

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

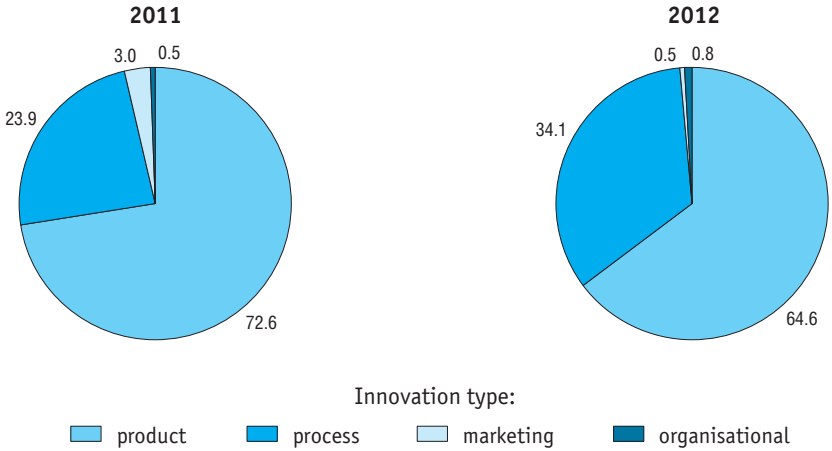
	Million roubles		Per cent	
	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities				
Total	**748540.1**	**915366.2**	**100**	**100**
Russian ownership	588555.4	761543.9	78.6	83.2
Public ownership	109492.8	234270.2	14.6	25.6
Federal	105833.6	228291.7	14.1	24.9
Provincial	3659.2	5978.6	0.5	0.7
Municipal ownership	1811.0	2928.3	0.2	0.3
Ownership of voluntary associations	97.2	1015.3	0.01	0.1
Private ownership	264468.2	346446.4	35.3	37.8
Ownership of Russian citizens permanently living abroad	–	–	–	–
Ownership of consumer cooperatives	13.7	22.6	0.0	0.0
Joint ownership	192492.7	150494.2	25.7	16.4
Joint ownership with a part of public ownership	59384.2	78433.2	7.9	8.6
Other	133108.5	72061.0	17.8	7.9
Ownership of state corporations	20179.7	26366.9	2.7	2.9
Foreign ownership	45200.2	63856.1	6.0	7.0
Joint ownership (with both Russian and foreign participation)	114784.4	89966.2	15.3	9.8

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

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



Communications, computer and related activities, research and development, other business activities



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

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	98.9	98.9	42.8	44.7	56.1	54.2	0.3	0.3	0.7	0.8
Mining and quarrying	99.5	99.6	15.7	16.5	83.8	83.2	0.02	0.01	0.5	0.3
Mining and quarrying of energy producing materials	99.5	99.9	12.7	13.1	86.8	86.8	0.03	0.0	0.5	0.1
Mining and quarrying, except energy producing materials	99.8	97.4	61.5	48.1	38.3	49.3	–	0.1	0.2	2.5
Manufacturing	98.8	98.7	49.3	54.3	49.5	44.4	0.4	0.5	0.7	0.8
High tech	98.5	99.1	63.3	66.7	35.2	32.4	0.4	0.2	1.2	0.7
Manufacture of pharmaceuticals	97.9	99.6	82.0	50.8	15.9	48.8	2.0	0.3	0.1	0.1
Manufacture of office machinery and computers	99.3	99.9	73.3	32.0	25.9	67.9	0.3	0.02	0.4	0.1
Manufacture of radio, television and communication equipment and apparatus	99.5	99.7	64.8	72.7	34.7	27.0	0.1	0.04	0.4	0.2
Manufacture of medical, precision and optical instruments, watches and clocks	99.1	99.5	74.3	74.2	24.9	25.3	0.2	0.2	0.6	0.3
Manufacture of aircrafts, including spacecrafts	97.6	98.4	51.2	62.8	46.4	35.6	0.4	0.3	2.1	1.3

(continued)

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Medium high tech	99.0	98.6	56.3	58.2	42.7	40.4	0.2	0.4	0.8	1.0
Manufacture of chemicals and chemical products	99.4	99.2	45.3	45.6	54.1	53.6	0.2	0.5	0.5	0.3
Manufacture of machinery and equipment, n.e.c.	99.1	97.7	71.6	66.5	27.5	31.2	0.2	0.6	0.8	1.7
Manufacture of electrical machinery and apparatus	98.9	98.3	77.3	69.6	21.6	28.7	0.3	0.4	0.8	1.3
Manufacture of motor vehicles, trailers and semi-trailers	98.6	98.5	58.0	73.3	40.5	25.2	0.4	0.3	1.1	1.2
Manufacture of other transport vehicles	98.4	98.1	46.6	42.5	51.8	55.6	0.1	0.1	1.5	1.8
Medium low tech	99.7	99.3	41.3	47.4	58.4	52.0	0.1	0.2	0.2	0.5
Manufacture of coke, refined petroleum products	99.7	99.7	47.9	37.9	51.8	61.8	0.2	0.2	0.1	0.1
Manufacture of rubber and plastic products	99.8	99.7	79.0	74.6	20.8	25.1	0.1	0.2	0.1	0.1
Manufacture of other non-metallic mineral products	99.7	97.8	8.1	23.0	91.7	74.8	0.2	0.3	0.1	1.9
Manufacture of basic metals	99.8	99.1	36.2	57.3	63.7	41.8	0.04	0.03	0.1	0.8
Manufacture of fabricated metal products	96.5	97.9	48.9	51.3	47.6	46.6	0.1	0.7	3.4	1.4
Construction and repair of vessels	99.8	99.8	85.8	83.3	13.9	16.5	0.01	0.0	0.2	0.2
Low tech	93.0	95.1	41.8	51.2	51.2	44.0	3.9	3.2	3.1	1.7
Manufacture of food products and beverages	91.8	93.4	46.3	53.7	45.5	39.7	4.2	3.9	3.9	2.7
Manufacture of tobacco products	99.6	99.7	78.8	93.5	20.8	6.2	–	–	0.4	0.3
Manufacture of textiles	96.7	92.6	61.0	27.4	35.7	65.2	0.1	1.1	3.2	6.3
Manufacture of wearing apparel, dressing and dyeing of fur	88.7	96.6	55.3	69.2	33.4	27.4	1.5	1.6	9.8	1.8

(continued)

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of leather, leather products and footwear	67.1	76.6	18.0	57.6	49.1	19.0	31.0	0.2	2.0	23.2
Manufacture of wood and of products of wood and cork, except furniture	85.6	86.5	24.7	41.3	60.8	45.2	0.1	12.4	14.4	1.0
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	98.1	99.0	42.6	47.9	55.5	51.1	1.9	0.9	0.1	0.1
Publishing and printing, reproduction of recorded media	97.9	84.3	45.2	27.0	52.7	57.3	2.0	14.5	0.2	1.2
Manufacture of furniture, manufacturing n.e.c.	69.9	89.5	43.4	68.8	26.5	20.7	29.8	8.3	0.3	2.2
Recycling	100	99.5	0.8	36.4	99.2	63.1	0.01	0.1	0.02	0.4
Electricity, gas and water supply	98.5	98.8	24.5	18.9	74.0	79.9	0.03	0.01	1.5	1.2
Communications, computer and related activities, research and development, other business activities										
Total	**96.5**	**98.7**	**72.6**	**64.6**	**23.9**	**34.1**	**3.0**	**0.5**	**0.5**	**0.8**
Communications	93.8	96.5	76.1	66.3	17.7	30.2	5.9	1.8	0.3	1.7
Computer and related activities	99.3	99.5	28.6	43.8	70.8	55.7	0.1	0.04	0.5	0.5
Research and development	99.5	99.5	72.0	64.5	27.5	35.0	0.1	0.1	0.5	0.4
Other business activities	97.3	98.3	65.7	70.0	31.6	28.3	0.1	0.3	2.6	1.4

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

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		process					
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities										
Total	**98.0**	**98.8**	**53.7**	**51.8**	**44.3**	**47.0**	**1.3**	**0.4**	**0.6**	**0.8**
Number of employees, *head-count*:										
below 50	97.2	98.3	84.1	46.4	13.0	51.8	1.3	1.4	1.5	0.4
50–99	97.8	99.6	45.0	46.1	52.8	53.5	1.2	0.1	1.1	0.3
100–199	96.4	96.6	63.7	51.4	32.7	45.2	1.0	1.5	2.6	2.0
200–249	89.9	98.1	54.2	37.3	35.7	60.8	0.7	1.4	9.4	0.5
250–499	95.4	98.1	63.5	58.3	31.9	39.8	2.4	1.3	2.2	0.6
500–999	98.2	98.7	45.5	40.0	52.6	58.7	0.9	0.4	0.9	0.9
1000–4999	97.9	98.9	58.0	55.5	39.8	43.4	1.8	0.3	0.3	0.8
5000–9999	99.4	99.4	50.7	53.2	48.6	46.2	0.1	0.1	0.5	0.5
10 000 and over	99.5	99.1	36.5	49.3	63.0	49.8	0.1	0.04	0.4	0.9

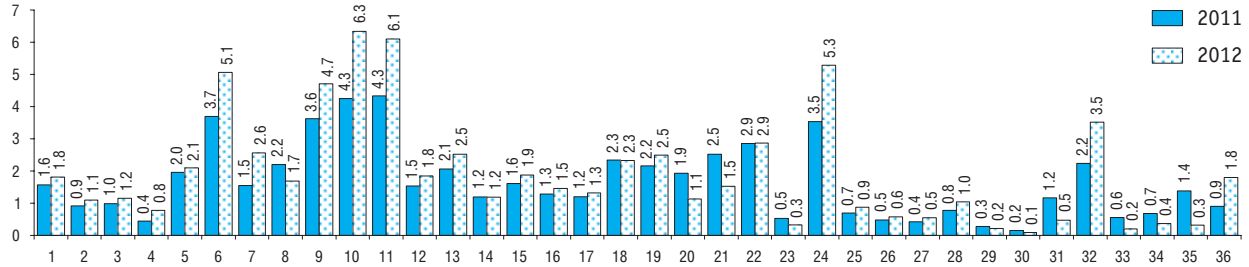
2.14. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL, ORGANISATIONAL, AND MARKETING INNOVATION BY INNOVATION TYPE AND OWNERSHIP OF ENTERPRISES

	Expenditure on innovation									
	Technological		Of which				Marketing		Organisational	
			product		product					
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities										
Total	**98.0**	**98.8**	**53.7**	**51.8**	**44.3**	**47.0**	**1.3**	**0.4**	**0.6**	**0.8**
Russian ownership	97.8	98.8	61.2	56.6	36.6	42.1	1.6	0.4	0.6	0.9
Public ownership	99.0	99.3	61.3	63.2	37.7	36.1	0.1	0.1	0.9	0.6
Federal	99.0	99.3	61.6	63.8	37.4	35.5	0.1	0.1	0.9	0.6
Provincial	98.7	98.9	54.2	41.7	44.6	57.2	0.2	0.3	1.1	0.8
Municipal ownership	97.7	98.4	16.6	13.1	81.1	85.3	0.1	0.3	2.2	1.3
Ownership of voluntary associations	99.9	98.6	27.2	5.1	72.6	93.5	–	0.03	0.1	1.4
Private ownership	98.9	98.9	50.3	50.0	48.6	48.9	0.4	0.3	0.6	0.8
Ownership of Russian citizens permanently living abroad	–	–	–	–	–	–	–	–	–	–
Ownership of consumer cooperatives	94.1	93.5	76.8	68.2	17.3	25.3	5.9	6.1	–	0.4
Joint ownership	95.4	97.5	74.2	60.6	21.2	36.9	4.2	0.9	0.4	1.6
Joint ownership with a part of public ownership	98.5	98.0	49.6	44.8	48.9	53.2	0.7	0.8	0.7	1.1
Other	94.0	96.9	85.1	77.7	8.9	19.2	5.7	1.1	5.7	2.1
Ownership of state corporations	99.2	99.9	83.2	69.8	16.0	30.0	0.05	0.03	0.05	0.1
Foreign ownership	98.6	98.8	25.8	32.9	72.8	66.0	0.3	0.6	1.1	0.6
Joint ownership (with both Russian and foreign participation)	99.1	99.1	26.4	24.1	72.7	75.0	0.5	0.6	0.5	0.3

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

(expenditure on technological, organisational, and marketing innovation as a percentage of total 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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

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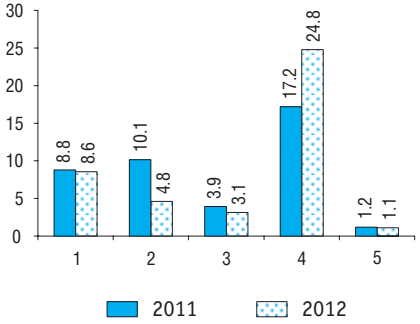
Communications, computer and related activities, research and development, other business activities

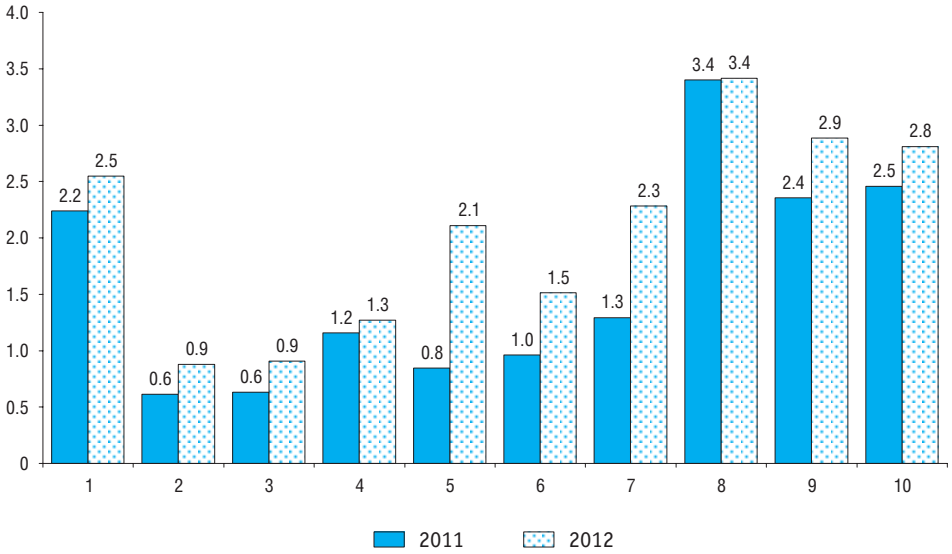


1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

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

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

Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities



1 – Total

Number of employees, *head-count*:

2 – below 50

3 – 50–99

4 – 100–199

5 – 200–249

6 – 250–499

7 – 500–999

8 – 1000–4999

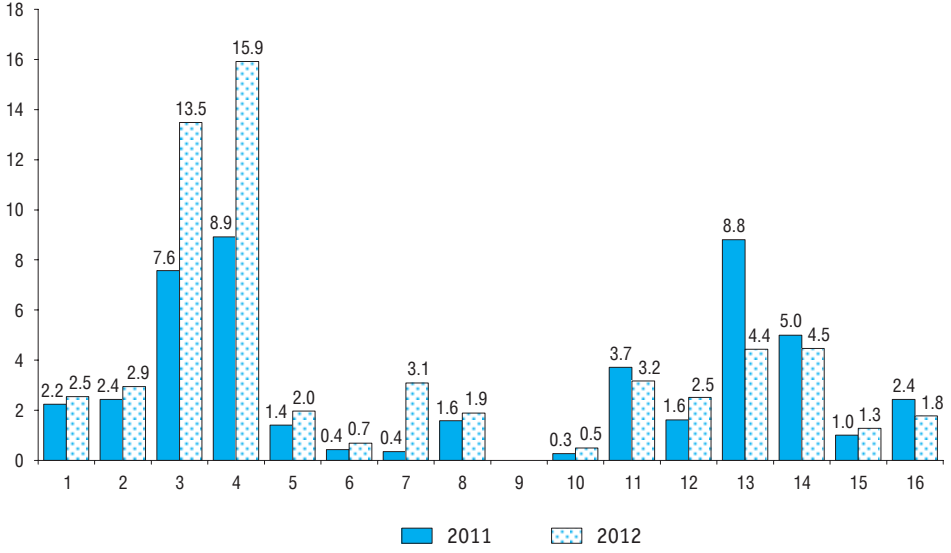
9 – 5000–9999

10 – 10 000 and over

2.17. INTENSITY OF EXPENDITURE ON TECHNOLOGICAL, ORGANISATIONAL, AND MARKETING INNOVATION BY OWNERSHIP OF ENTERPRISES

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

Mining and quarrying, manufacturing, electricity, gas and water supply; communications, computer and related activities, research and development, other business activities



1 – Total
2 – Russian ownership
3 – Public ownership
4 – Federal
5 – Provincial
6 – Municipal ownership
7 – Ownership of voluntary associations
8 – Private ownership
9 – Ownership of Russian citizens permanently living abroad
10 – Ownership of consumer cooperatives
11 – Joint ownership
12 – Joint with a part of public ownership
13 – Other joint
14 – Ownership of state corporations
15 – Foreign ownership
16 – Joint ownership (with both Russian and foreign partipation)

2.18. EFFECTS OF INNOVATION

	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
2009–2011									
Mining and quarrying, manufacturing, electricity, gas and water supply									
Increasing range of goods and services	1286	40.0	882	27.4	303	9.4	744	23.1	2.4
Maintaining traditional market share	1209	37.6	976	30.4	304	9.5	726	22.6	2.4
Increasing market share:	912	28.4	960	29.9	398	12.4	945	29.4	2.2
in Russia	904	28.1	896	27.9	416	12.9	999	31.1	2.2
in CIS countries	321	10.0	560	17.4	457	14.2	1877	58.4	1.9
in EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	78	2.4	146	4.5	291	9.1	2700	84.0	1.6
in the United States and Canada	58	1.8	108	3.4	273	8.5	2776	86.3	1.5
in other countries	172	5.3	233	7.2	362	11.3	2448	76.1	1.8
Improving quality of goods and services	1244	38.7	1056	32.8	286	8.9	629	19.6	2.4
Replacing outdated products	531	16.5	697	21.7	536	16.7	1451	5.1	2.0
Increasing employment	360	11.2	872	27.1	747	23.2	1236	38.4	1.8
Increasing flexibility of production	679	21.1	1090	33.9	545	17.0	901	28.0	2.1
Increasing industrial capacity	840	26.1	973	30.3	465	14.5	937	29.1	2.2
Reducing labour costs	204	6.3	672	20.9	836	26.0	1503	46.7	1.6
Reducing material costs	436	13.6	1027	31.9	689	21.4	1063	33.1	1.9
Increasing energy efficiency (lower energy consumption or energy loss)	581	18.1	955	29.7	620	19.3	1059	32.9	2.0

(continued)

	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
Improving health and safety	590	18.4	1057	32.9	570	17.7	998	31.0	2.0
Reducing time for interaction with customers or suppliers	328	10.2	791	24.6	661	20.6	1435	44.6	1.8
Increasing motivation for innovation activity	389	12.1	990	30.8	675	21.0	1161	36.1	1.9
Improving information links within the organisation or with other organisations	504	15.7	983	30.6	585	18.2	1143	35.6	2.0
Reducing environmental impacts	437	13.6	887	27.6	655	20.4	1236	38.4	1.9
Meeting regulatory requirements and standarts	1009	31.4	1033	32.1	423	13.2	750	23.3	2.2
Marketing innovation:									
introducing products and services to new markets and new consumer groups	441	13.7	635	19.8	405	12.6	1734	53.9	2.0
introducing products and services to new geographical markets	257	8.0	522	16.2	462	14.4	1974	61.4	1.8

(continued)

	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
Communications, computer and related activities, research and development, other business activities									
Increasing range of goods and services	483	35.1	405	29.4	153	11.1	337	24.5	2.3
Maintaining traditional market share	458	33.2	395	28.7	129	9.4	396	28.7	2.3
Increasing market share:	296	21.5	377	27.4	161	11.7	544	39.5	2.2
in Russia	287	20.8	367	26.6	159	11.5	565	41.0	2.2
in CIS countries	69	5.0	144	10.4	168	12.2	997	72.4	1.7
in EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	24	1.7	56	4.1	125	9.1	1173	85.1	1.5
in the United States and Canada	25	1.8	46	3.3	127	9.2	1180	85.6	1.5
in other countries	57	4.1	92	6.7	124	9.0	1105	80.2	1.8
Improving quality of goods and services	556	40.3	448	32.5	93	6.7	281	20.4	2.4
Replacing outdated products	197	14.3	275	20.0	183	13.3	723	52.5	2.0
Increasing employment	158	11.5	305	22.1	285	20.7	630	45.7	1.8
Increasing flexibility of production	220	16.0	381	27.6	233	16.9	544	39.5	2.0
Increasing industrial capacity	251	18.2	329	23.9	213	15.5	585	42.5	2.0
Reducing labour costs	53	3.8	195	14.2	326	23.7	804	58.3	1.5
Reducing material costs	110	8.0	313	22.7	324	23.5	631	45.8	1.7
Increasing energy efficiency (lower energy consumption or energy loss)	119	8.6	289	21.0	288	20.9	682	49.5	1.8

(continued)

	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
Improving health and safety	174	12.6	405	29.4	242	17.6	557	40.4	1.9
Reducing time for interaction with customers or suppliers	213	15.5	345	25.0	265	19.2	555	40.3	1.9
Increasing motivation for innovation activity	240	17.4	417	30.3	247	17.9	474	34.4	2.0
Improving information links within the organisation or with other organisations	365	26.5	444	32.2	186	13.5	383	27.8	2.2
Reducing environmental impacts	113	8.2	207	15.0	238	17.3	820	59.5	1.8
Meeting regulatory requirements and standarts	522	37.9	391	28.4	134	9.7	331	24.0	2.4
Marketing innovation:									
introducing products and services to new markets and new consumer groups	155	11.2	235	17.1	151	11.0	837	60.7	2.0
introducing products and services to new geographical markets	89	6.5	165	12.0	181	13.1	943	68.4	1.8

(continued)

	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
2010–2012									
Mining and quarrying, manufacturing, electricity, gas and water supply									
Increasing range of goods and services	1283	40.5	855	27.0	321	10.1	708	22.4	2.4
Maintaining traditional market share	1195	37.7	964	30.4	320	10.1	688	21.7	2.4
Increasing market share:	901	28.4	944	29.8	421	13.3	901	28.4	2.2
in Russia	933	29.5	872	27.5	426	13.5	936	29.6	2.2
in CIS countries	324	10.2	562	17.7	479	15.1	1802	56.9	1.9
in EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	80	2.5	132	4.2	310	9.8	2645	83.5	1.6
in the United States and Canada	52	1.6	117	3.7	287	9.1	2711	85.6	1.5
in other countries	147	4.6	246	7.8	365	11.5	2409	76.1	1.7
Improving quality of goods and services	1254	39.6	1070	33.8	276	8.7	567	17.9	2.4
Replacing outdated products	522	16.5	657	20.7	547	17.3	1441	45.5	2.0
Increasing employment	348	11.0	854	27.0	766	24.2	1199	37.9	1.8
Increasing flexibility of production	694	21.9	1082	34.2	567	17.9	824	26.0	2.1
Increasing industrial capacity	864	27.3	950	30.0	493	15.6	860	27.2	2.2
Reducing labour costs	196	6.2	672	21.2	843	26.6	1456	46.0	1.6
Reducing material costs	460	14.5	1046	33.0	694	21.9	967	30.5	1.9
Increasing energy efficiency (lower energy consumption or energy loss)	596	18.8	970	30.6	631	19.9	970	30.6	2.0

(continued)

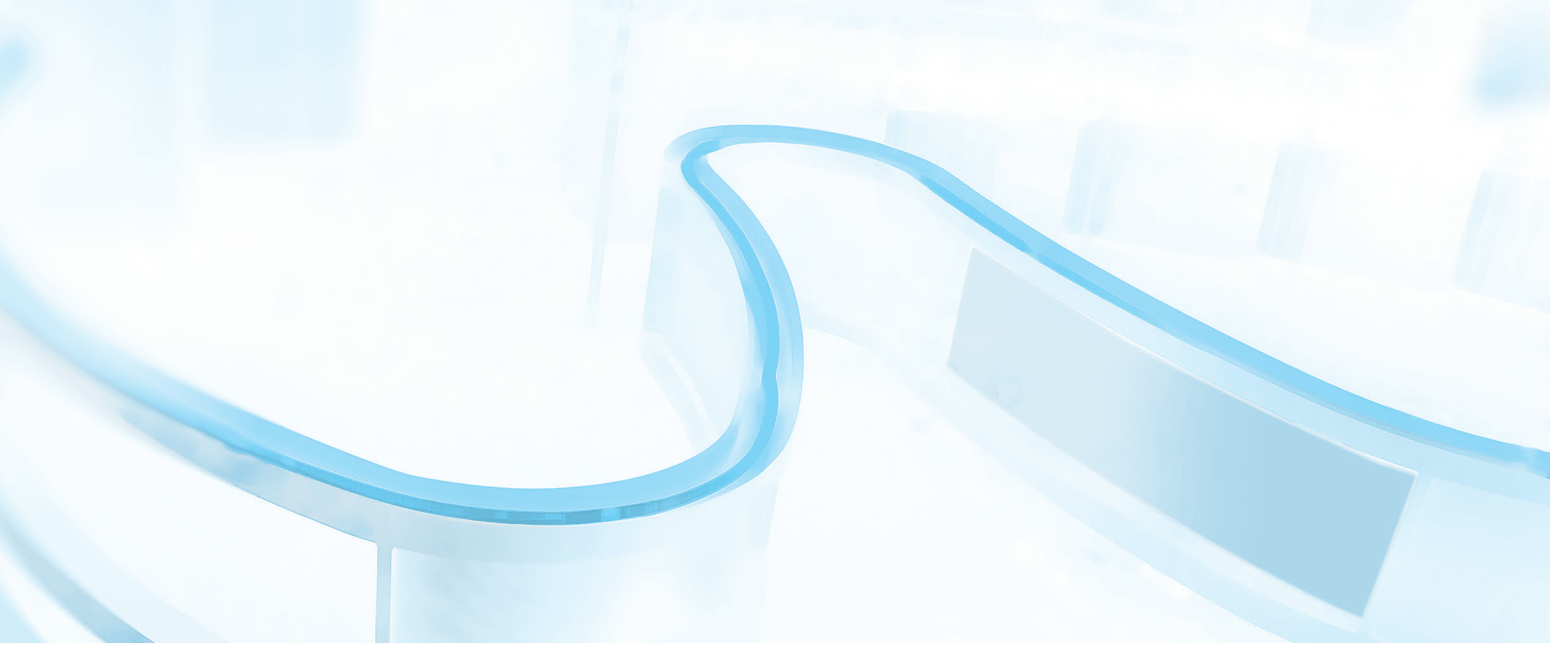
	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
Improving health and safety	592	18.7	1112	35.1	566	17.9	897	28.3	2.0
Reducing time for interaction with customers or suppliers	311	9.8	801	25.3	693	21.9	1362	43.0	1.8
Increasing motivation for innovation activity	384	12.1	1017	32.1	680	21.5	1086	34.3	1.9
Improving information links within the organisation or with other organisations	520	16.4	963	30.4	598	18.9	1086	34.3	2.0
Reducing environmental impacts	414	13.1	885	27.9	655	20.7	1213	38.3	1.9
Meeting regulatory requirements and standarts	1013	32.0	1041	32.9	417	13.2	696	22.0	2.2
Marketing innovation:									
introducing products and services to new markets and new consumer groups	411	13.0	663	20.9	411	13.0	1682	53.1	2.0
introducing products and services to new geographical markets	233	7.4	571	18.0	465	14.7	1898	59.9	1.8

(continued)

	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
Communications, computer and related activities, research and development, other business activities									
Increasing range of goods and services	527	33.6	485	30.9	204	13.0	352	22.4	2.3
Maintaining traditional market share	527	33.6	477	30.4	160	10.2	404	25.8	2.3
Increasing market share:	342	21.8	415	26.5	210	13.4	601	38.3	2.1
in Russia	333	21.2	407	26.0	211	13.5	617	39.3	2.1
in CIS countries	84	5.4	172	11.0	221	14.1	1091	69.6	1.7
in EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	35	2.2	67	4.3	174	11.1	1292	82.4	1.5
in the United States and Canada	29	1.8	60	3.8	168	10.7	1311	83.6	1.5
in other countries	81	5.2	111	7.1	172	11.0	1204	76.8	1.8
Improving quality of goods and services	639	40.8	529	33.7	112	7.1	288	18.4	2.4
Replacing outdated products	199	12.7	314	20.0	259	16.5	796	50.8	1.9
Increasing employment	181	11.5	351	22.4	375	23.9	661	42.2	1.8
Increasing flexibility of production	228	14.5	461	29.4	279	17.8	600	38.3	1.9
Increasing industrial capacity	277	17.7	416	26.5	255	16.3	620	39.5	2.0
Reducing labour costs	63	4.0	212	13.5	377	24.0	916	58.4	1.5
Reducing material costs	114	7.3	406	25.9	369	23.5	679	43.3	1.7
Increasing energy efficiency (lower energy consumption or energy loss)	140	8.9	321	20.5	380	24.2	727	46.4	1.7

(continued)

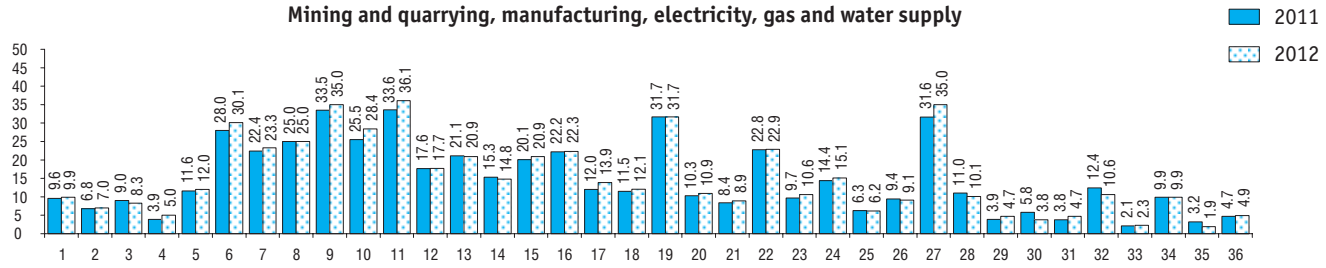
	High degree of impact		Medium degree of impact		Low degree of impact		No impact at all		Rank
	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	Enterprises	Per cent	
Improving health and safety of the employees	200	12.8	481	30.7	292	18.6	595	37.9	1.9
Reducing time for interaction with customers or suppliers	248	15.8	370	23.6	323	20.6	627	40.0	1.9
Increasing motivation for innovation activity	289	18.4	487	31.1	269	17.2	523	33.4	2.0
Improving information links within the organisation or with other organisations	431	27.5	527	33.6	210	13.4	400	25.5	2.2
Reducing environmental impacts	121	7.7	236	15.1	301	19.2	910	58.0	1.7
Meeting regulatory requirements and standarts	540	34.4	497	31.7	170	10.8	361	23.0	2.3
Marketing innovation:									
introducing products and services to new markets and new consumer groups	158	10.1	295	18.8	216	13.8	899	57.3	1.9
introducing products and services to new geographical markets	88	5.6	194	12.4	226	14.4	1060	67.6	1.7



3. Technological Innovation

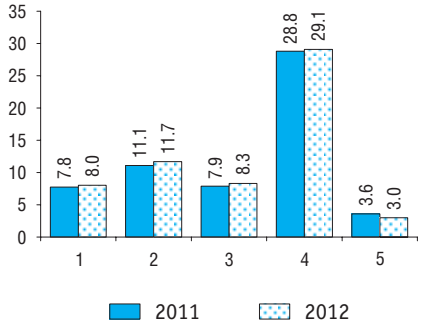
3.1. ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total

2 – Communications

3 – Computer and related activities

4 – Research and development

5 – Other business activities

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

	Enterprises engaged in product innovation		Enterprises engaged in process innovation	
	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**61.3**	**59.8**	**57.2**	**58.8**
Mining and quarrying	34.3	29.4	75.5	82.6
Mining and quarrying of energy producing materials	31.2	32.9	79.2	80.3
Mining and quarrying, except energy producing materials	44.0	21.2	64.0	87.9
Manufacturing	68.8	67.6	52.3	53.1
High tech	81.1	79.9	46.7	48.5
Manufacture of pharmaceuticals	92.1	92.9	36.8	26.2
Manufacture of office machinery and computers	70.0	90.9	50.0	45.5
Manufacture of radio, television and communication equipment and apparatus	87.5	84.5	42.3	48.2
Manufacture of medical, precision and optical instruments, watches and clocks	81.8	79.3	46.6	50.0
Manufacture of aircrafts, including spacecrafts	59.2	59.6	63.3	63.5
Medium high tech	75.6	74.7	47.3	48.0
Manufacture of chemicals and chemical products	63.9	59.8	61.1	63.6
Manufacture of machinery and equipment, n.e.c.	73.9	75.0	43.5	43.8

(continued)

	Enterprises engaged in product innovation		Enterprises engaged in process innovation	
	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	84.6	79.9	45.4	46.8
Manufacture of motor vehicles, trailers and semi-trailers	80.5	81.9	41.5	42.2
Manufacture of other transport vehicles	78.1	81.1	50.0	45.9
Medium low tech	59.3	56.9	60.3	62.2
Manufacture of coke, refined petroleum products	69.7	57.6	60.6	66.7
Manufacture of rubber and plastic products	69.8	69.1	49.2	51.5
Manufacture of other non-metallic mineral products	53.0	50.8	65.0	64.5
Manufacture of basic metals	55.3	51.2	65.9	70.2
Manufacture of fabricated metal products	56.3	60.2	58.3	61.2
Construction and repair of vessels	75.0	58.3	54.2	50.0
Low tech	58.6	57.1	55.5	53.9
Manufacture of food products and beverages	63.4	59.0	50.8	51.0
Manufacture of tobacco products	83.3	100	50.0	28.6
Manufacture of textiles	55.9	63.3	52.9	56.7
Manufacture of wearing apparel, dressing and dyeing of fur	50.0	73.3	64.3	33.3
Manufacture of leather, leather products and footwear	75.0	80.0	50.0	40.0
Manufacture of wood and of products of wood and cork, except furniture	45.0	44.0	80.0	72.0

(continued)

	Enterprises engaged in product innovation		Enterprises engaged in process innovation	
	2011	2012	2011	2012
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	32.1	50.0	71.4	58.3
Publishing and printing, reproduction of recorded media	46.9	41.8	67.2	67.2
Manufacture of furniture, manufacturing n.e.c.	69.0	64.3	47.6	47.6
Recycling	28.6	20.0	71.4	80.0
Electricity, gas and water supply	20.0	18.9	84.6	88.2
Communications, computer and related activities, research and development, other business activities				
Total	**52.8**	**56.7**	**64.3**	**60.7**
Communications	49.2	53.4	63.8	58.3
Computer and related activities	36.7	46.9	69.6	58.2
Research and development	72.4	70.9	54.6	54.8
Other business activities	31.5	34.3	76.8	74.4

3.3. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

	Enterprises engaged in technological innovation					
	Total		Product		Process	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**100**	**100**	**100**	**100**	**100**	**100**
Mining and quarrying	4.4	4.5	2.4	2.2	5.8	6.4
Mining and quarrying of energy producing materials	3.3	3.2	1.7	1.7	4.6	4.3
Mining and quarrying, except energy producing materials	1.1	1.4	0.8	0.5	1.2	2.1
Manufacturing	83.5	83.1	93.6	93.9	76.3	75.0
High tech	14.9	15.8	19.7	21.1	12.2	13.1
Manufacture of pharmaceuticals	1.6	1.8	2.4	2.7	1.0	0.8
Manufacture of office machinery and computers	0.4	0.5	0.5	0.7	0.4	0.4
Manufacture of radio, television and communication equipment and apparatus	4.4	4.6	6.3	6.5	3.3	3.8
Manufacture of medical, precision and optical instruments, watches and clocks	6.3	6.8	8.4	9.1	5.2	5.8
Manufacture of aircrafts, including spacecrafts	2.1	2.2	2.0	2.2	2.3	2.3
Medium high tech	24.9	24.6	30.6	30.7	20.5	20.1
Manufacture of chemicals and chemical products	4.6	4.5	4.8	4.5	4.9	4.8
Manufacture of machinery and equipment, n.e.c.	9.8	9.3	11.8	11.7	7.5	7.0

(continued)

	Enterprises engaged in technological innovation					
	Total		Product		Process	
	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	5.6	5.8	7.7	7.7	4.4	4.6
Manufacture of motor vehicles, trailers and semi-trailers	3.5	3.5	4.6	4.7	2.5	2.5
Manufacture of other transport vehicles	1.4	1.5	1.7	2.1	1.2	1.2
Medium low tech	17.9	18.2	17.3	17.3	18.8	19.2
Manufacture of coke, refined petroleum products	1.4	1.4	1.6	1.3	1.5	1.6
Manufacture of rubber and plastic products	2.7	2.8	3.1	3.3	2.3	2.5
Manufacture of other non-metallic mineral products	5.0	5.2	4.3	4.4	5.7	5.7
Manufacture of basic metals	3.6	3.5	3.3	3.0	4.2	4.2
Manufacture of fabricated metal products	4.1	4.3	3.8	4.3	4.2	4.5
Construction and repair of vessels	1.0	1.0	1.3	1.0	1.0	0.9
Low tech	22.7	21.2	21.7	20.2	22.0	19.4
Manufacture of food products and beverages	13.2	12.0	13.6	11.8	11.7	10.4
Manufacture of tobacco products	0.3	0.3	0.3	0.5	0.2	0.1
Manufacture of textiles	1.5	1.3	1.3	1.3	1.3	1.2
Manufacture of wearing apparel, dressing and dyeing of fur	0.6	0.6	0.5	0.8	0.7	0.4
Manufacture of leather, leather products and footwear	0.3	0.2	0.4	0.3	0.3	0.1
Manufacture of wood and of products of wood and cork, except furniture	0.9	1.0	0.6	0.8	1.2	1.3

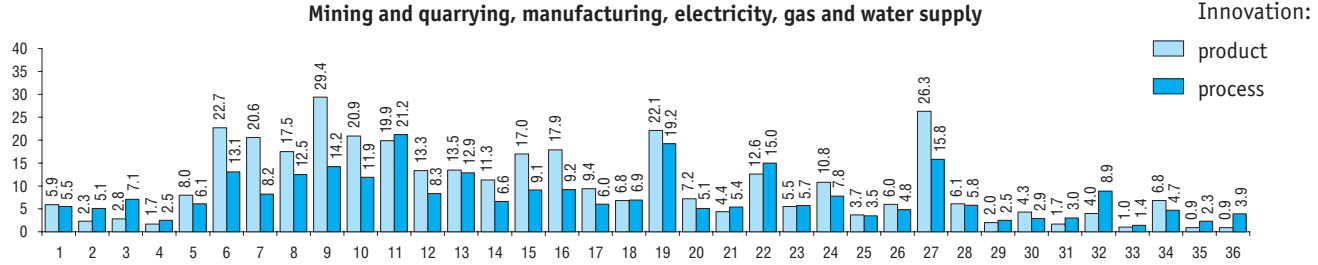
(continued)

	Enterprises engaged in technological innovation					
	Total		Product		Process	
	2011	2012	2011	2012	2011	2012
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1.2	1.0	0.6	0.8	1.5	1.0
Publishing and printing, reproduction of recorded media	2.7	2.8	2.1	2.0	3.2	3.2
Manufacture of furniture, manufacturing n.e.c.	1.8	1.8	2.0	1.9	1.5	1.4
Recycling	0.3	0.2	0.1	0.1	0.4	0.3
Manufacturing of other materials and substances, n.e.c.	3.1	3.3	4.2	4.5	2.7	3.2
Electricity, gas and water supply	12.2	12.4	4.0	3.9	18.0	18.6
Communications, computer and related activities, research and development, other business activities						
Total	**100**	**100**	**100**	**100**	**100**	**100**
Communications	16.5	16.8	15.4	15.8	16.4	16.2
Computer and related activities	7.1	8.0	4.9	6.6	7.6	7.7
Research and development	44.1	49.7	60.4	62.2	37.4	45.0
Other business activities	32.4	25.5	19.3	15.4	38.6	31.2

3.4. ENTERPRISES ENGAGED IN PRODUCT AND PROCESS INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

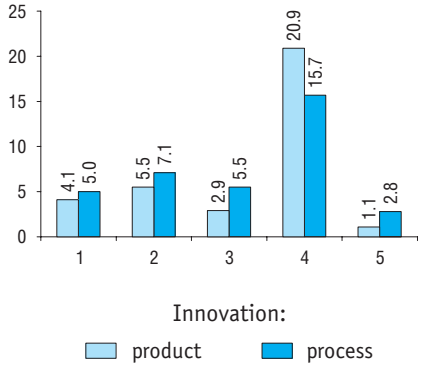
2011

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities

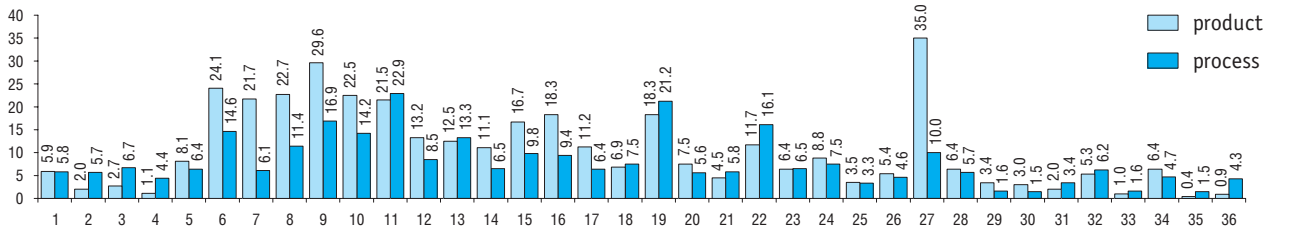


1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

(continued)

2012

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
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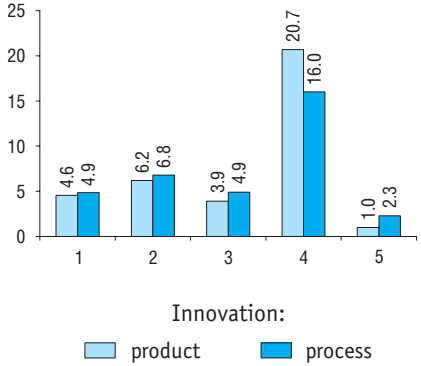
30 – Manufacture of leather, leather products and footwear
31 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

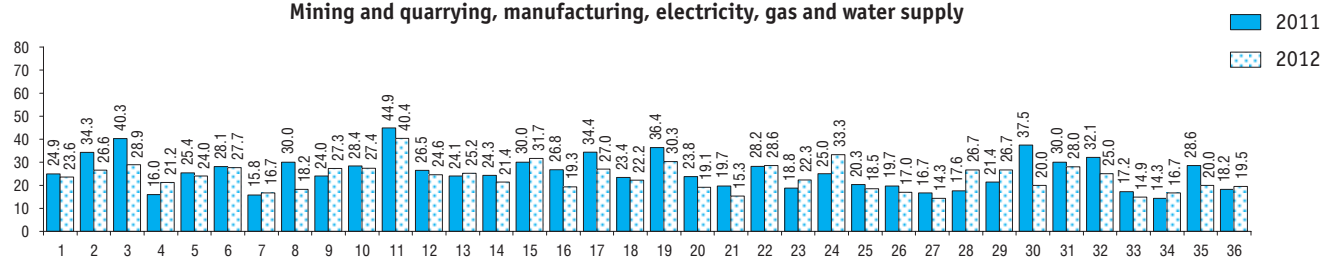
Communications, computer and related activities, research and development, other business activities



1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

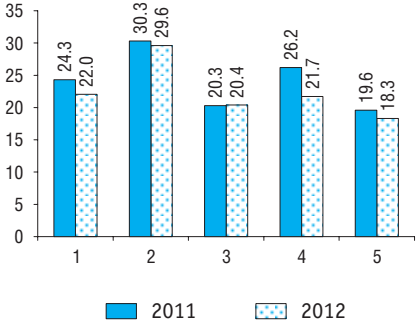
3.5. ENTERPRISES ENGAGED IN TECHNOLOGICAL AND ORGANISATIONAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

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

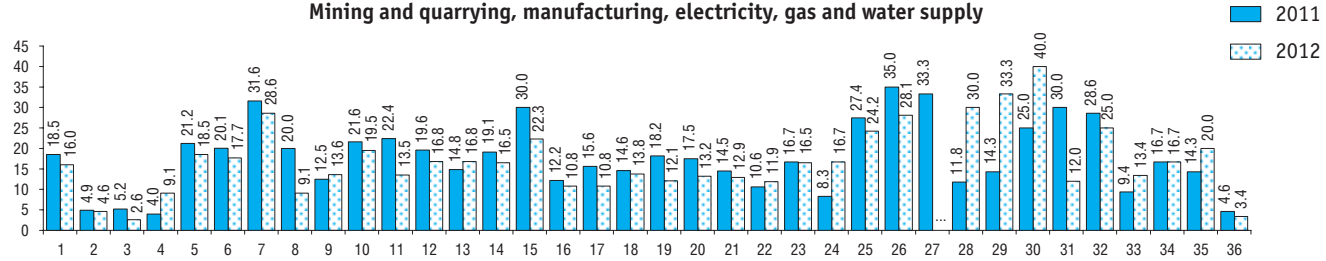
	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	6.0	5.1
Mining and quarrying of energy producing materials	5.3	3.9
Mining and quarrying, except energy producing materials	0.7	1.2
Manufacturing	85.1	84.6
High tech	16.8	18.6
Manufacture of pharmaceuticals	1.0	1.2
Manufacture of office machinery and computers	0.5	0.4
Manufacture of radio, television and communication equipment and apparatus	4.3	5.3
Manufacture of medical, precision and optical instruments, watches and clocks	7.2	8.0
Manufacture of aircrafts, including spacecrafts	3.8	3.7
Medium high tech	26.4	25.7
Manufacture of chemicals and chemical products	4.5	4.8
Manufacture of machinery and equipment, n.e.c.	9.6	8.5
Manufacture of electrical machinery and apparatus	6.7	7.8
Manufacture of motor vehicles, trailers and semi-trailers	3.8	2.8
Manufacture of other transport vehicles	1.9	1.8
Medium low tech	16.8	17.2
Manufacture of coke, refined petroleum products	2.1	1.8
Manufacture of rubber and plastic products	2.6	2.3
Manufacture of other non-metallic mineral products	3.9	3.4

(continued)

	2011	2012
Manufacture of basic metals	4.1	4.2
Manufacture of fabricated metal products	3.1	4.1
Construction and repair of vessels	1.0	1.4
Low tech	18.5	16.6
Manufacture of food products and beverages	10.4	8.7
Manufacture of tobacco products	0.2	0.2
Manufacture of textiles	1.0	1.4
Manufacture of wearing apparel, dressing and dyeing of fur	0.5	0.7
Manufacture of leather, leather products and footwear	0.5	0.2
Manufacture of wood and of products of wood and cork, except furniture	1.0	1.2
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1.5	1.1
Publishing and printing, reproduction of recorded media	1.9	1.8
Manufacture of furniture, manufacturing n.e.c.	1.0	1.2
Recycling	0.3	0.2
Manufacturing of other materials and substances, n.e.c.	6.7	6.5
Electricity, gas and water supply	8.9	10.3
Communications, computer and related activities, research and development, other business activities		
Total	**100**	**100**
Communications	20.6	22.6
Computer and related activities	5.9	7.4
Research and development	47.4	48.9
Other business activities	26.1	21.1

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

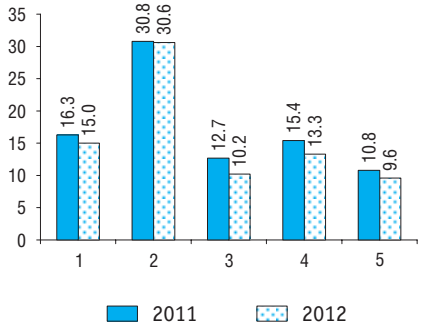
Mining and quarrying, manufacturing, electricity, gas and water supply



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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities



1 – Total

2 – Communications

3 – Computer and related activities

4 – Research and development

5 – Other business activities

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

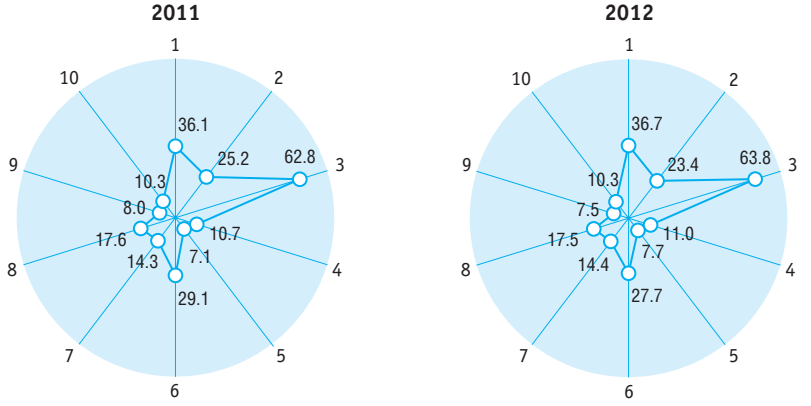
	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	1.2	1.3
Mining and quarrying of energy producing materials	0.9	0.5
Mining and quarrying, except energy producing materials	0.2	0.8
Manufacturing	95.8	96.1
High tech	16.2	17.4
Manufacture of pharmaceuticals	2.8	3.1
Manufacture of office machinery and computers	0.5	0.3
Manufacture of radio, television and communication equipment and apparatus	3.0	3.9
Manufacture of medical, precision and optical instruments, watches and clocks	7.4	8.3
Manufacture of aircrafts, including spacecrafts	2.5	1.8
Medium high tech	26.4	25.8
Manufacture of chemicals and chemical products	3.7	4.7
Manufacture of machinery and equipment, n.e.c.	10.2	9.6
Manufacture of electrical machinery and apparatus	9.0	8.1
Manufacture of motor vehicles, trailers and semi-trailers	2.3	2.3
Manufacture of other transport vehicles	1.2	1.0
Medium low tech	14.1	15.6
Manufacture of coke, refined petroleum products	1.4	1.0
Manufacture of rubber and plastic products	2.5	2.3
Manufacture of other non-metallic mineral products	3.9	4.2

(continued)

	2011	2012
Manufacture of basic metals	2.1	2.6
Manufacture of fabricated metal products	3.7	4.4
Construction and repair of vessels	0.5	1.0
Low tech	33.8	32.0
Manufacture of food products and beverages	25.0	21.1
Manufacture of tobacco products	0.5	–
Manufacture of textiles	0.9	2.3
Manufacture of wearing apparel, dressing and dyeing of fur	0.5	1.3
Manufacture of leather, leather products and footwear	0.5	0.5
Manufacture of wood and of products of wood and cork, except furniture	1.4	0.8
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1.9	1.6
Publishing and printing, reproduction of recorded media	1.4	2.3
Manufacture of furniture, manufacturing n.e.c.	1.6	1.8
Recycling	0.2	0.3
Manufacturing of other materials and substances, n.e.c.	5.3	5.2
Electricity, gas and water supply	3.0	2.6
Communications, computer and related activities, research and development, other business activities		
Total	**100**	**100**
Communications	31.3	34.2
Computer and related activities	5.5	5.4
Research and development	41.8	44.0
Other business activities	21.4	16.3

3.9. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY INNOVATIVE ACTIVITY

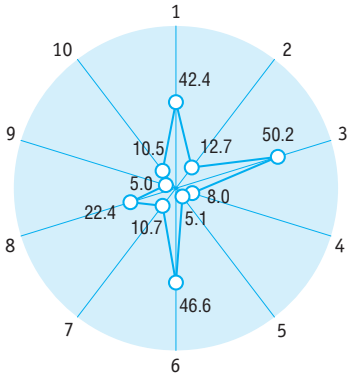
Mining and quarrying, manufacturing, electricity, gas and water supply



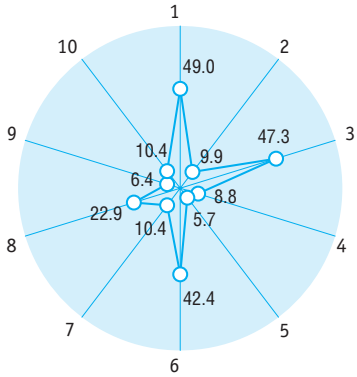
1 – R&D
2 – Industrial design
3 – Acquisition of machinery and equipment
4 – Acquisition of technology
5 – Of which acquisition of patent rights and patent licenses
6 – Acquisition of software
7 – Other types of pre-production
8 – Personnel training
9 – Market research
10 – Other

Communications, computer and related activities, research and development, other business activities

2011



2012



1 – R&D
2 – Industrial design
3 – Acquisition of machinery and equipment
4 – Acquisition of technology
5 – Of which acquisition of patent rights and patent licenses
6 – Acquisition of software
7 – Other types of pre-production
8 – Personnel training
9 – Market research
10 – Other

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

	Enterprises engaged in									
	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of pre-production	Personnel training	Market research	Other innovative activities
2011										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**36.1**	**25.2**	**62.8**	**10.7**	**7.1**	**29.1**	**14.3**	**17.6**	**8.0**	**10.3**
Mining and quarrying	44.1	17.6	52.0	9.8	5.9	26.5	8.8	6.9	2.0	9.8
Mining and quarrying of energy producing materials	48.1	14.3	46.8	7.8	3.9	24.7	7.8	9.1	1.3	7.8
Mining and quarrying, except energy producing materials	32.0	28.0	68.0	16.0	12.0	32.0	12.0	–	4.0	16.0
Manufacturing	39.1	27.5	63.2	11.3	8.1	28.5	15.6	19.5	9.4	9.5
High tech	57.6	30.9	65.0	13.8	11.2	37.5	16.6	28.9	11.7	7.4
Manufacture of pharmaceuticals	76.3	18.4	47.4	26.3	23.7	23.7	13.2	15.8	18.4	5.3
Manufacture of office machinery and computers	60.0	40.0	60.0	10.0	10.0	50.0	20.0	20.0	10.0	10.0
Manufacture of radio, television and communication equipment and apparatus	62.5	33.7	68.3	3.8	2.9	33.7	20.2	27.9	9.6	7.7
Manufacture of medical, precision and optical instruments, watches and clocks	54.7	27.7	59.5	18.2	15.5	38.5	15.5	25.7	12.2	8.1
Manufacture of aircrafts, including spacecrafts	40.8	42.9	89.8	12.2	6.1	51.0	14.3	53.1	10.2	6.1
Medium high tech	45.4	32.0	60.3	12.4	8.9	28.2	17.7	19.4	10.0	12.0
Manufacture of chemicals and chemical products	49.1	43.5	63.0	9.3	6.5	20.4	20.4	14.8	10.2	21.3
Manufacture of machinery and equipment, n.e.c.	40.0	24.8	53.0	12.2	7.8	29.1	15.7	19.6	11.3	7.0

(continued)

	Enterprises engaged in									
	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of pre-production	Personnel training	Market research	Other innovative activities
Manufacture of electrical machinery and apparatus	56.9	32.3	71.5	16.9	13.8	31.5	19.2	24.6	10.8	9.2
Manufacture of motor vehicles, trailers and semi-trailers	37.8	35.4	59.8	8.5	7.3	26.8	19.5	17.1	8.5	18.3
Manufacture of other transport vehicles	43.8	34.4	59.4	15.6	9.4	37.5	12.5	18.8	–	12.5
Medium low tech	33.0	25.1	67.2	12.7	7.7	24.2	15.8	16.5	5.0	11.7
Manufacture of coke, refined petroleum products	54.5	51.5	54.5	30.3	18.2	30.3	21.2	12.1	–	24.2
Manufacture of rubber and plastic products	33.3	23.8	63.5	14.3	11.1	25.4	20.6	14.3	4.8	9.5
Manufacture of other non-metallic mineral products	18.8	23.1	75.2	7.7	2.6	13.7	16.2	17.1	6.8	10.3
Manufacture of basic metals	49.4	23.5	64.7	16.5	11.8	29.4	10.6	15.3	2.4	21.2
Manufacture of fabricated metal products	26.0	18.8	65.6	8.3	4.2	21.9	15.6	16.7	7.3	4.2
Construction and repair of vessels	41.7	33.3	70.8	12.5	8.3	54.2	12.5	29.2	4.2	4.2
Low tech	21.4	19.7	62.4	6.8	4.9	24.2	11.1	13.5	9.6	6.2
Manufacture of food products and beverages	25.6	22.0	63.8	6.8	4.9	16.8	11.0	11.7	10.7	7.4
Manufacture of tobacco products	16.7	–	50.0	–	–	16.7	50.0	–	–	–
Manufacture of textiles	20.6	14.7	58.8	8.8	5.9	26.5	11.8	17.6	14.7	8.8
Manufacture of wearing apparel, dressing and dyeing of fur	28.6	28.6	64.3	–	–	35.7	7.1	14.3	28.6	–
Manufacture of leather, leather products and footwear	12.5	25.0	62.5	25.0	25.0	25.0	–	37.5	25.0	12.5

(continued)

	Enterprises engaged in									
	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of pre-production	Personnel training	Market research	Other innovative activities
Manufacture of wood and of products of wood and cork, except furniture	10.0	25.0	75.0	10.0	10.0	35.0	15.0	15.0	5.0	5.0
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	14.3	14.3	71.4	–	–	25.0	17.9	21.4	7.1	3.6
Publishing and printing, reproduction of recorded media	9.4	10.9	43.8	4.7	1.6	56.3	7.8	12.5	1.6	3.1
Manufacture of furniture, manufacturing n.e.c.	21.4	21.4	66.7	11.9	9.5	21.4	9.5	14.3	7.1	4.8
Recycling	14.3	14.3	100	–	–	14.3	–	28.6	–	–
Electricity, gas and water supply	12.3	12.3	63.5	7.4	1.1	34.0	7.4	7.7	0.4	15.8
Communications, computer and related activities, research and development, other business activities										
Total	**42.4**	**12.7**	**50.2**	**8.0**	**5.1**	**46.6**	**10.7**	**22.4**	**5.0**	**10.5**
Communications	7.0	22.7	78.9	8.1	3.8	33.0	13.5	19.5	8.1	23.2
Computer and related activities	24.1	16.5	48.1	13.9	10.1	45.6	13.9	21.5	3.8	5.1
Research and development	80.7	12.8	44.4	6.9	4.1	33.9	13.4	22.9	6.1	8.9
Other business activities	12.4	6.6	43.9	8.3	6.1	71.0	5.0	23.5	2.2	7.5

(continued)

	Enterprises engaged in									
	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other innovative activities
2012										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**36.7**	**23.4**	**63.8**	**11.0**	**7.7**	**27.7**	**14.4**	**17.5**	**7.5**	**10.3**
Mining and quarrying	37.6	14.7	51.4	9.2	6.4	23.9	5.5	9.2	–	13.8
Mining and quarrying of energy producing materials	43.4	11.8	46.1	10.5	6.6	21.1	5.3	9.2	–	11.8
Mining and quarrying, except energy producing materials	24.2	21.2	63.6	6.1	6.1	30.3	6.1	9.1	–	18.2
Manufacturing	39.4	25.6	65.0	11.5	8.6	27.1	15.9	18.3	9.0	9.2
High tech	57.5	28.0	67.8	11.1	8.7	33.8	19.8	25.6	10.8	5.5
Manufacture of pharmaceuticals	71.4	14.3	52.4	19.0	16.7	19.0	16.7	19.0	21.4	7.1
Manufacture of office machinery and computers	63.6	27.3	54.5	9.1	–	27.3	27.3	18.2	18.2	–
Manufacture of radio, television and communication equipment and apparatus	61.8	34.5	70.9	5.5	4.5	30.9	19.1	25.5	10.9	5.5
Manufacture of medical, precision and optical instruments, watches and clocks	56.1	24.4	65.9	12.2	11.0	35.4	19.5	21.3	8.5	6.1
Manufacture of aircrafts, including spacecrafts	40.4	36.5	82.7	13.5	5.8	48.1	23.1	46.2	7.7	3.8
Medium high tech	43.9	29.7	62.9	14.6	11.2	28.6	18.3	19.8	10.2	11.5
Manufacture of chemicals and chemical products	45.8	42.1	65.4	15.9	10.3	18.7	23.4	17.8	12.1	23.4
Manufacture of machinery and equipment, n.e.c.	37.5	26.3	58.0	11.2	8.9	33.9	18.3	21.4	10.7	9.4

(continued)

	Enterprises engaged in									
	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of pre-production	Personnel training	Market research	Other innovative activities
Manufacture of electrical machinery and apparatus	51.1	25.9	71.2	18.7	15.8	25.2	12.9	20.9	10.1	6.5
Manufacture of motor vehicles, trailers and semi-trailers	48.2	31.3	59.0	14.5	9.6	33.7	24.1	24.1	9.6	13.3
Manufacture of other transport vehicles	40.5	24.3	62.2	16.2	13.5	27.0	10.8	2.7	2.7	5.4
Medium low tech	34.2	24.1	68.1	11.2	7.8	27.5	16.3	17.7	4.6	11.2
Manufacture of coke, refined petroleum products	51.5	51.5	66.7	24.2	15.2	39.4	21.2	18.2	3.0	21.2
Manufacture of rubber and plastic products	33.8	23.5	57.4	16.2	14.7	17.6	17.6	17.6	5.9	10.3
Manufacture of other non-metallic mineral products	20.2	16.9	76.6	7.3	3.2	18.5	16.1	14.5	4.8	8.9
Manufacture of basic metals	54.8	22.6	66.7	11.9	9.5	34.5	8.3	21.4	3.6	23.8
Manufacture of fabricated metal products	27.2	23.3	65.0	6.8	4.9	27.2	22.3	16.5	4.9	1.0
Construction and repair of vessels	41.7	33.3	75.0	16.7	8.3	62.5	8.3	25.0	4.2	12.5
Low tech	21.9	19.3	61.8	7.1	5.3	17.5	8.5	9.4	9.6	6.3
Manufacture of food products and beverages	25.7	22.2	61.8	8.0	6.3	10.1	8.0	9.4	11.1	7.6
Manufacture of tobacco products	14.3	14.3	71.4	–	–	–	14.3	–	–	–
Manufacture of textiles	23.3	16.7	60.0	3.3	3.3	20.0	10.0	20.0	23.3	3.3
Manufacture of wearing apparel, dressing and dyeing of fur	20.0	20.0	60.0	–	–	13.3	–	13.3	20.0	6.7
Manufacture of leather, leather products and footwear	40.0	40.0	80.0	–	–	20.0	20.0	–	20.0	20.0

(continued)

	Enterprises engaged in									
	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other innovative activities
Manufacture of wood and of products of wood and cork, except furniture	8.0	12.0	88.0	12.0	8.0	20.0	12.0	16.0	4.0	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	12.5	20.8	83.3	–	–	16.7	20.8	16.7	8.3	4.2
Publishing and printing, reproduction of recorded media	13.4	11.9	38.8	4.5	1.5	49.3	6.0	3.0	4.5	4.5
Manufacture of furniture, manufacturing n.e.c.	23.8	16.7	64.3	14.3	11.9	21.4	7.1	7.1	–	7.1
Recycling	–	–	100	–	–	–	–	–	–	–
Electricity, gas and water supply	18.2	11.8	60.6	8.4	1.7	33.7	7.7	15.2	–	16.2
Communications, computer and related activities, research and development, other business activities										
Total	**49.0**	**9.9**	**47.3**	**8.8**	**5.7**	**42.4**	**10.4**	**22.9**	**6.4**	**10.4**
Communications	10.7	11.2	65.5	5.3	1.9	34.0	12.6	24.3	11.7	27.2
Computer and related activities	36.7	12.2	45.9	16.3	11.2	43.9	7.1	23.5	3.1	6.1
Research and development	82.4	11.8	47.0	9.5	6.4	32.2	11.7	22.5	6.9	7.4
Other business activities	12.8	4.5	36.2	7.4	5.1	67.6	7.4	22.4	2.9	6.4

3.11. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY INNOVATIVE AND ECONOMIC ACTIVITY

	Enterprises engaged in									
	R&D	industrial design	acquisition of machinery and equipment	acquisition of technology	of which acquisition of patent rights and licenses	acquisition of software	other types of pre-production	personnel training	market research	other innovative activities
2011										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Mining and quarrying	5.3	3.0	3.6	4.0	3.6	4.0	2.7	1.7	11.1	4.2
Mining and quarrying of energy producing materials	4.4	1.9	2.5	2.4	1.8	2.8	1.8	1.7	0.5	2.5
Mining and quarrying, except energy producing materials	0.9	1.2	1.2	1.6	1.8	1.2	0.9	–	0.5	1.7
Manufacturing	90.5	91.0	84.1	87.6	94.6	81.8	91.0	92.9	98.4	77.1
High tech	23.8	18.3	15.5	19.1	23.4	19.2	17.3	24.6	21.9	10.8
Manufacture of pharmaceuticals	3.4	1.2	1.2	4.0	5.4	1.3	1.5	1.5	3.7	0.8
Manufacture of office machinery and computers	0.7	0.7	0.4	0.4	0.6	0.7	0.6	0.5	0.5	0.4
Manufacture of radio, television and communication equipment and apparatus	7.7	5.9	4.8	1.6	1.8	5.1	6.3	7.1	5.3	3.3
Manufacture of medical, precision and optical instruments, watches and clocks	9.6	6.9	6.0	10.8	13.8	8.4	6.9	9.2	9.6	5.0
Manufacture of aircrafts, including spacecrafts	2.4	3.6	3.0	2.4	1.8	3.7	2.1	6.3	2.7	1.3
Medium high tech	31.3	31.5	23.9	28.7	31.1	24.1	30.7	27.5	31.0	29.2
Manufacture of chemicals and chemical products	6.3	8.0	4.6	4.0	4.2	3.2	6.6	3.9	5.9	9.6
Manufacture of machinery and equipment, n.e.c.	10.9	9.6	8.3	11.2	10.8	9.8	10.7	10.9	13.9	6.7

(continued)

	Enterprises engaged in									
	R&D	industrial design	acquisition of machinery and equipment	acquisition of technology	of which acquisition of patent rights and licenses	acquisition of software	other types of preproduction	personnel training	market research	other innovative activities
Manufacture of electrical machinery and apparatus	8.8	7.1	6.3	8.8	10.8	6.0	7.5	7.8	7.5	5.0
Manufacture of motor vehicles, trailers and semi-trailers	3.7	4.9	3.3	2.8	3.6	3.2	4.8	3.4	3.7	6.3
Manufacture of other transport vehicles	1.7	1.9	1.3	2.0	1.8	1.8	1.2	1.5	–	1.7
Medium low tech	16.4	17.8	19.1	21.1	19.2	14.8	19.7	16.8	11.2	20.4
Manufacture of coke, refined petroleum products	2.1	2.9	1.2	4.0	3.6	1.5	2.1	1.0	–	3.3
Manufacture of rubber and plastic products	2.5	2.5	2.7	3.6	4.2	2.3	3.9	2.2	1.6	2.5
Manufacture of other non-metallic mineral products	2.6	4.6	6.0	3.6	1.8	2.3	5.7	4.9	4.3	5.0
Manufacture of basic metals	5.0	3.4	3.7	5.6	6.0	3.7	2.7	3.2	1.1	7.5
Manufacture of fabricated metal products	3.0	3.0	4.3	3.2	2.4	3.1	4.5	3.9	3.7	1.7
Construction and repair of vessels	1.2	1.4	1.2	1.2	1.2	1.9	0.9	1.7	0.5	0.4
Low tech	13.5	17.8	22.6	14.3	15.6	18.9	17.6	17.5	27.3	13.8
Manufacture of food products and beverages	9.4	11.5	13.4	8.4	9.0	7.6	10.1	8.8	17.6	9.6
Manufacture of tobacco products	0.1	–	0.2	–	–	0.1	0.9	–	–	–
Manufacture of textiles	0.8	0.8	1.4	1.2	1.2	1.3	1.2	1.5	2.7	1.3
Manufacture of wearing apparel, dressing and dyeing of fur	0.5	0.7	0.6	–	–	0.7	0.3	0.5	2.1	–
Manufacture of leather, leather products and footwear	0.1	0.3	0.3	0.8	1.2	0.3	–	0.7	1.1	0.4

(continued)

	Enterprises engaged in									
	R&D	industrial design	acquisition of machinery and equipment	acquisition of technology	of which acquisition of patent rights and licenses	acquisition of software	other types of preproduction	personnel training	market research	other innovative activities
Manufacture of wood and of products of wood and cork, except furniture	0.2	0.8	1.0	0.8	1.2	1.0	0.9	0.7	0.5	0.4
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	0.5	0.7	1.4	–	–	1.0	1.5	1.5	1.1	0.4
Publishing and printing, reproduction of recorded media	0.7	1.2	1.9	1.2	0.6	5.3	1.5	1.9	0.5	0.8
Manufacture of furniture, manufacturing n.e.c.	1.1	1.5	1.9	2.0	2.4	1.3	1.2	1.5	1.6	0.8
Recycling	0.1	0.2	0.5	–	–	0.1	–	0.5	–	–
Manufacturing of other materials and substances, n.e.c.	5.6	5.8	3.0	4.4	5.4	4.7	5.7	6.6	7.0	2.9
Electricity, gas and water supply	4.1	5.9	12.3	8.4	1.8	14.2	6.3	5.4	0.5	18.8
Communications, computer and related activities, research and development, other business activities										
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Communications	2.7	29.6	26.0	16.7	12.3	11.7	20.8	14.3	26.8	36.4
Computer and related activities	4.0	9.2	6.8	12.2	14.0	6.9	9.2	6.8	5.4	3.4
Research and development	83.8	44.4	39.0	37.8	35.1	32.1	55.0	45.0	53.6	37.3
Other business activities	9.5	16.9	28.3	33.3	38.6	49.3	15.0	33.9	14.3	22.9

(continued)

	Enterprises engaged in									
	R&D	industrial design	acquisition of machinery and equipment	acquisition of technology	of which acquisition of patent rights and licenses	acquisition of software	other types of preproduction	personnel training	market research	other innovative activities
2012										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Mining and quarrying	4.7	2.9	3.7	3.8	3.8	3.9	1.7	2.4	–	6.1
Mining and quarrying of energy producing materials	3.8	1.6	2.3	3.0	2.7	2.4	1.2	1.7	–	3.6
Mining and quarrying, except energy producing materials	0.9	1.3	1.4	0.8	1.1	1.5	0.6	0.7	–	2.4
Manufacturing	89.2	90.9	84.6	86.7	93.5	81.1	91.6	86.9	100	74.5
High tech	24.8	18.9	16.8	15.9	17.9	19.2	21.7	23.1	22.8	8.5
Manufacture of pharmaceuticals	3.4	1.1	1.4	3.0	3.8	1.2	2.0	1.9	5.0	1.2
Manufacture of office machinery and computers	0.8	0.5	0.4	0.4	–	0.5	0.9	0.5	1.1	–
Manufacture of radio, television and communication equipment and apparatus	7.7	6.8	5.1	2.3	2.7	5.1	6.1	6.7	6.7	2.4
Manufacture of medical, precision and optical instruments, watches and clocks	10.5	7.1	7.1	7.6	9.8	8.7	9.2	8.3	7.8	4.0
Manufacture of aircrafts, including spacecrafts	2.4	3.4	2.8	2.7	1.6	3.8	3.5	5.7	2.2	0.8
Medium high tech	29.5	31.3	24.2	32.6	35.9	25.4	31.2	27.9	33.3	27.5
Manufacture of chemicals and chemical products	5.6	8.0	4.6	6.4	6.0	3.0	7.2	4.5	7.2	10.1
Manufacture of machinery and equipment, n.e.c.	9.6	10.5	8.5	9.5	10.9	11.4	11.8	11.4	13.3	8.5

(continued)

	Enterprises engaged in									
	R&D	industrial design	acquisition of machinery and equipment	acquisition of technology	of which acquisition of patent rights and licenses	acquisition of software	other types of pre-production	personnel training	market research	other innovative activities
Manufacture of electrical machinery and apparatus	8.1	6.4	6.5	9.8	12.0	5.3	5.2	6.9	7.8	3.6
Manufacture of motor vehicles, trailers and semi-trailers	4.6	4.6	3.2	4.5	4.3	4.2	5.8	4.8	4.4	4.5
Manufacture of other transport vehicles	1.7	1.6	1.5	2.3	2.7	1.5	1.2	0.2	0.6	0.8
Medium low tech	17.0	18.8	19.4	18.6	18.5	18.0	20.5	18.3	11.1	19.8
Manufacture of coke, refined petroleum products	1.9	3.0	1.4	3.0	2.7	2.0	2.0	1.4	0.6	2.8
Manufacture of rubber and plastic products	2.6	2.9	2.5	4.2	5.4	1.8	3.5	2.9	2.2	2.8
Manufacture of other non-metallic mineral products	2.8	3.8	6.2	3.4	2.2	3.5	5.8	4.3	3.3	4.5
Manufacture of basic metals	5.2	3.4	3.7	3.8	4.3	4.4	2.0	4.3	1.7	8.1
Manufacture of fabricated metal products	3.2	4.3	4.4	2.7	2.7	4.2	6.6	4.0	2.8	0.4
Construction and repair of vessels	1.1	1.4	1.2	1.5	1.1	2.3	0.6	1.4	0.6	1.2
Low tech	12.6	17.5	20.5	13.6	14.7	13.4	12.4	11.4	27.2	13.0
Manufacture of food products and beverages	8.4	11.4	11.6	8.7	9.8	4.4	6.6	6.4	17.8	8.9
Manufacture of tobacco products	0.1	0.2	0.3	–	–	–	0.3	–	–	–
Manufacture of textiles	0.8	0.9	1.2	0.4	0.5	0.9	0.9	1.4	3.9	0.4
Manufacture of wearing apparel, dressing and dyeing of fur	0.3	0.5	0.6	–	–	0.3	–	0.5	1.7	0.4
Manufacture of leather, leather products and footwear	0.2	0.4	0.3	–	–	0.2	0.3	–	0.6	0.4

(continued)

	Enterprises engaged in									
	R&D	industrial design	acquisition of machinery and equipment	acquisition of technology	of which acquisition of patent rights and licenses	acquisition of software	other types of preproduction	personnel training	market research	other innovative activities
Manufacture of wood and of products of wood and cork, except furniture	0.2	0.5	1.4	1.1	1.1	0.8	0.9	1.0	0.6	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	0.3	0.9	1.3	–	–	0.6	1.4	1.0	1.1	0.4
Publishing and printing, reproduction of recorded media	1.0	1.4	1.7	1.1	0.5	5.0	1.2	0.5	1.7	1.2
Manufacture of furniture, manufacturing n.e.c.	1.1	1.3	1.8	2.3	2.7	1.4	0.9	0.7	–	1.2
Recycling	–	–	0.3	–	–	–	–	–	–	–
Manufacturing of other materials and substances, n.e.c.	5.3	4.5	3.7	6.1	6.5	5.0	5.8	6.2	5.6	5.7
Electricity, gas and water supply	6.1	6.3	11.8	9.5	2.7	15.0	6.6	10.7	–	19.4
Communications, computer and related activities, research and development, other business activities										
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Communications	3.7	19.0	23.3	10.2	5.7	13.5	20.5	17.9	30.8	44.1
Computer and related activities	6.0	9.9	7.8	14.8	15.7	8.3	5.5	8.2	3.8	4.7
Research and development	83.7	59.5	49.4	53.7	55.7	37.7	55.9	48.9	53.8	35.4
Other business activities	6.7	11.6	19.5	21.3	22.9	40.6	18.1	25.0	11.5	15.7

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

	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**39.6**	**39.6**	**60.4**	**60.4**
Mining and quarrying	30.2	30.0	69.8	70.0
Mining and quarrying of energy producing materials	52.0	44.8	48.0	55.2
Mining and quarrying, except energy producing materials	15.8	19.5	84.2	80.2
Manufacturing	41.1	41.3	58.9	58.7
High tech	53.8	56.7	46.2	43.3
Manufacture of pharmaceuticals	55.8	58.0	44.2	42.0
Manufacture of office machinery and computers	55.6	52.4	44.4	47.6
Manufacture of radio, television and communication equipment and apparatus	56.8	56.0	43.2	44.0
Manufacture of medical, precision and optical instruments, watches and clocks	51.4	58.9	48.6	41.1
Manufacture of aircrafts, including spacecrafts	52.7	50.8	47.3	49.2
Medium high tech	39.4	39.8	60.6	60.2
Manufacture of chemicals and chemical products	49.3	47.4	50.7	52.6
Manufacture of machinery and equipment, n.e.c.	32.9	33.3	67.1	66.7

(continued)

	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	42.4	41.8	57.6	58.2
Manufacture of motor vehicles, trailers and semi-trailers	45.8	44.6	54.2	55.4
Manufacture of other transport vehicles	42.6	54.3	57.4	45.7
Medium low tech	32.8	31.3	67.2	68.7
Manufacture of coke, refined petroleum products	59.4	60.0	40.6	40.0
Manufacture of rubber and plastic products	39.7	38.4	60.3	61.6
Manufacture of other non-metallic mineral products	33.3	28.4	66.7	71.6
Manufacture of basic metals	42.6	41.4	57.4	58.6
Manufacture of fabricated metal products	21.6	22.2	78.4	77.8
Construction and repair of vessels	31.7	34.1	68.3	65.9
Low tech	34.3	30.6	65.7	69.4
Manufacture of food products and beverages	42.6	42.2	57.4	57.8
Manufacture of tobacco products	50.0	100	50.0	–
Manufacture of textiles	50.0	43.8	50.0	56.3
Manufacture of wearing apparel, dressing and dyeing of fur	25.0	18.8	75.0	81.3
Manufacture of leather, leather products and footwear	42.9	22.2	57.1	77.8

(continued)

	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	25.0	33.3	75.0	66.7
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	44.4	41.4	55.6	58.6
Publishing and printing, reproduction of recorded media	33.3	13.6	66.7	86.4
Manufacture of furniture, manufacturing n.e.c.	19.6	17.9	80.4	82.1
Recycling	25.0	25.0	75.0	75.0
Electricity, gas and water supply	21.4	17.0	78.6	83.0
Communications, computer and related activities, research and development, other business activities				
Total	**37.5**	**37.2**	**62.5**	**62.8**
Communications	61.4	66.1	38.6	33.9
Computer and related activities	43.8	43.9	56.3	56.1
Research and development	43.3	42.2	56.7	57.8
Other business activities	17.9	17.5	82.1	82.5

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

	Enterprises engaged in technological innovation				Enterprises not engaged in technological innovation			
	R&D units		Employment, *head-count*		R&D units		Employment, *head-count*	
	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**2234**	**2381**	**80639**	**82760**	**3310**	**2666**	**34971**	**39493**
Mining and quarrying	30	31	3831	4524	236	311	1545	1413
Mining and quarrying of energy producing materials	16	14	3663	3647	31	53	234	513
Mining and quarrying, except energy producing materials	14	17	168	877	205	258	1311	900
Manufacturing	2162	2316	75954	77616	2326	2110	31068	35116
High tech	788	903	26819	28363	415	422	7368	7771
Manufacture of pharmaceuticals	37	46	663	721	32	41	446	196
Manufacture of office machinery and computers	25	38	398	472	20	26	512	466
Manufacture of radio, television and communication equipment and apparatus	215	263	6384	6665	128	115	2256	2705
Manufacture of medical, precision and optical instruments, watches and clocks	316	390	11477	14290	186	189	2912	2146
Manufacture of aircrafts, including spacecrafts	195	166	7897	6215	49	51	1242	2258
Medium high tech	779	767	24310	23282	1128	772	13720	14881
Manufacture of chemicals and chemical products	150	136	3719	3500	105	104	2154	1887
Manufacture of machinery and equipment, n.e.c.	295	284	8609	7959	398	381	7504	8106

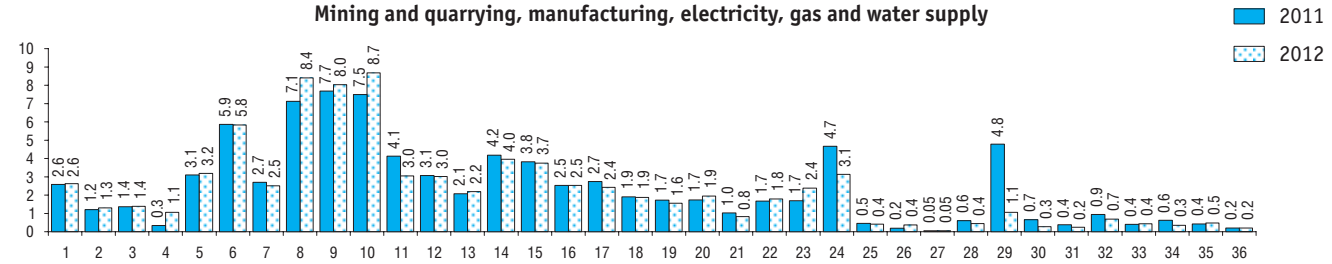
(continued)

	Enterprises engaged in technological innovation				Enterprises not engaged in technological innovation			
	R&D units		Employment, *head-count*		R&D units		Employment, *head-count*	
	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	189	194	4521	4555	172	168	2196	2825
Manufacture of motor vehicles, trailers and semi-trailers	96	104	5550	5495	84	80	1014	1187
Manufacture of other transport vehicles	49	49	1911	1773	369	39	852	876
Medium low tech	301	339	13424	13167	488	534	5730	7861
Manufacture of coke, refined petroleum products	25	28	1256	1235	13	16	163	211
Manufacture of rubber and plastic products	46	53	814	841	61	53	499	294
Manufacture of other non-metallic mineral products	63	58	709	586	111	116	933	1687
Manufacture of basic metals	85	77	6242	6583	72	74	1157	1821
Manufacture of fabricated metal products	61	99	1259	1541	201	244	2488	3376
Construction and repair of vessels	21	24	3144	2381	30	31	490	472
Low tech	112	107	1153	972	244	342	3145	3451
Manufacture of food products and beverages	43	50	288	500	54	107	1773	1749
Manufacture of tobacco products	1	1	2	2	1	–	29	–
Manufacture of textiles	12	7	82	54	12	11	74	56
Manufacture of wearing apparel, dressing and dyeing of fur	7	5	224	55	17	15	376	430
Manufacture of leather, leather products and footwear	4	2	24	5	5	9	30	52

(continued)

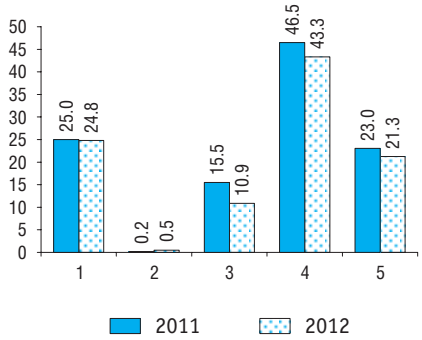
	Enterprises engaged in technological innovation				Enterprises not engaged in technological innovation			
	R&D units		Employment, *head-count*		R&D units		Employment, *head-count*	
	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	8	9	46	42	19	15	74	66
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	18	16	323	209	17	19	131	144
Publishing and printing, reproduction of recorded media	6	4	40	40	69	104	294	416
Manufacture of furniture, manufacturing n.e.c.	12	11	110	54	45	52	342	505
Recycling	1	2	14	11	5	10	22	33
Manufacturing of other materials and substances, n.e.c.	182	200	10248	11832	51	40	1105	1152
Electricity, gas and water supply	42	34	854	620	748	245	2358	2964
Communications, computer and related activities, research and development, other business activities								
Total	**6363**	**7657**	**158948**	**174396**	**6858**	**9841**	**91560**	**118423**
Communications	49	52	506	1275	101	40	790	381
Computer and related activities	85	99	2382	1798	59	74	1243	3877
Research and development	5603	6898	142126	157323	4507	5868	62843	82504
Other business activities	626	608	13934	14000	2191	3859	26684	31661

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



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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total

2 – Communications

3 – Computer and related activities

4 – Research and development

5 – Other business activities

3.15. CO-OPERATION IN DEVELOPMENT OF TECHNOLOGICAL INNOVATIONS

(as a percentage of the total number of enterprises having market-ready technological innovations during the last three years)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**21.9**	**23.2**	**30.0**	**30.4**	**50.1**	**49.9**
Mining and quarrying	42.5	39.7	42.5	39.7	17.5	22.9
Mining and quarrying of energy producing materials	50.0	41.7	38.1	42.9	14.3	15.5
Mining and quarrying, except energy producing materials	25.0	36.2	52.8	34.0	25.0	36.2
Manufacturing	16.2	17.4	29.8	29.9	55.8	56.0
High tech	13.1	11.2	29.2	33.2	60.0	59.9
Manufacture of pharmaceuticals	20.5	19.1	22.7	31.9	63.6	55.3
Manufacture of office machinery and computers	–	16.7	18.2	8.3	81.8	75.0
Manufacture of radio, television and communication equipment and apparatus	8.0	6.1	31.9	33.0	61.9	68.7
Manufacture of medical, precision and optical instruments, watches and clocks	12.9	10.8	25.9	31.3	62.9	59.7
Manufacture of aircrafts, including spacecrafts	21.2	15.7	42.3	47.1	38.5	41.2
Medium high tech	12.7	15.3	27.6	26.4	60.9	60.8
Manufacture of chemicals and chemical products	16.7	20.6	28.6	28.6	55.6	53.2
Manufacture of machinery and equipment, n.e.c.	10.2	12.5	22.1	22.6	68.6	67.4

(continued)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	11.7	12.2	32.5	23.3	57.7	64.5
Manufacture of motor vehicles, trailers and semi-trailers	11.9	15.5	28.7	36.1	60.4	56.7
Manufacture of other transport vehicles	23.4	28.6	40.4	34.7	38.3	36.7
Medium low tech	18.8	19.8	33.0	32.9	50.2	50.2
Manufacture of coke, refined petroleum products	36.1	38.2	50.0	52.9	13.9	11.8
Manufacture of rubber and plastic products	18.8	23.8	27.5	26.2	55.1	56.0
Manufacture of other non-metallic mineral products	21.6	22.4	32.7	35.9	47.1	42.9
Manufacture of basic metals	14.0	12.1	46.0	43.4	43.0	48.5
Manufacture of fabricated metal products	13.8	13.4	21.1	20.5	66.7	66.9
Construction and repair of vessels	20.0	26.9	32.0	30.8	56.0	50.0
Low tech	20.6	22.2	28.9	27.7	51.8	53.4
Manufacture of food products and beverages	18.9	20.4	30.0	30.1	51.8	53.0
Manufacture of tobacco products	–	–	50.0	37.5	50.0	62.5
Manufacture of textiles	26.3	15.8	18.4	26.3	60.5	63.2
Manufacture of wearing apparel, dressing and dyeing of fur	–	5.9	21.7	11.8	78.3	82.4
Manufacture of leather, leather products and footwear	11.1	22.2	44.4	22.2	44.4	77.8

(continued)

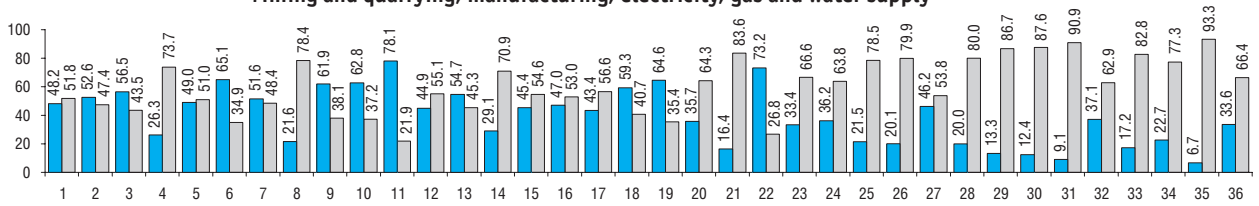
	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	33.3	19.4	26.7	38.7	40.0	45.2
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	11.4	25.0	45.7	34.4	42.9	40.6
Publishing and printing, reproduction of recorded media	38.5	42.5	20.5	15.0	42.3	45.0
Manufacture of furniture, manufacturing n.e.c.	17.9	20.8	21.4	17.0	66.1	64.2
Recycling	11.1	–	66.7	83.3	22.2	16.7
Electricity, gas and water supply	56.3	56.2	26.6	30.5	20.4	18.9
Communications, computer and related activities, research and development, other business activities						
Total	**24.7**	**27.6**	**29.7**	**28.0**	**47.7**	**47.6**
Communications	30.0	35.2	44.9	42.5	28.4	25.7
Computer and related activities	26.1	23.4	31.8	32.7	45.5	44.9
Research and development	5.5	4.8	24.2	25.6	72.5	73.0
Other business activities	48.3	60.0	26.8	21.1	26.0	21.8

3.16. SALES OF GOODS AND SERVICES OF ENTERPRISES ENGAGED AND NOT ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

(as a percentage of total sales for each type of enterprise)

2011

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



Enterprises: engaged in technological innovation; not engaged in technological innovation

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, refined petroleum products
20 – Manufacture of rubber and plastic products
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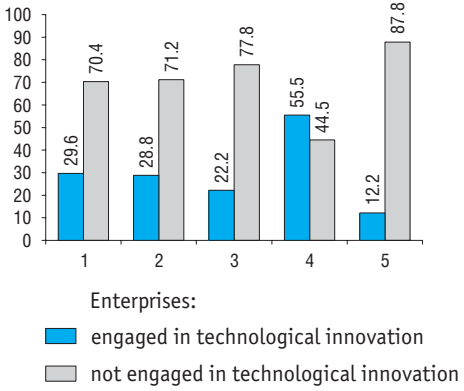
22 – Manufacture of basic metals
23 – Manufacture of fabricated metal products
24 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

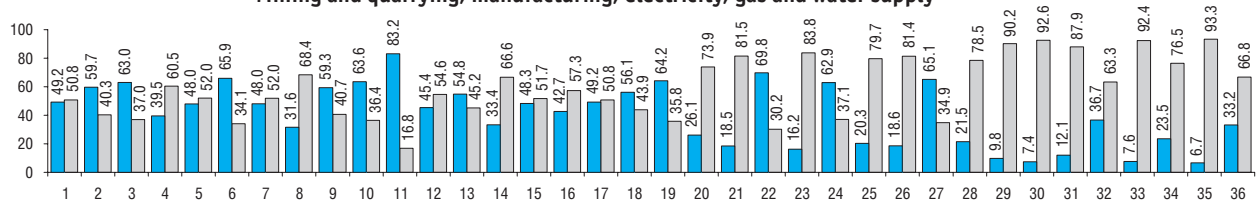
Communications, computer and related activities, research and development, other business activities



1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

2012

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



Enterprises: engaged in technological innovation not engaged in technological innovation

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
15 – Manufacture of electrical machinery and apparatus
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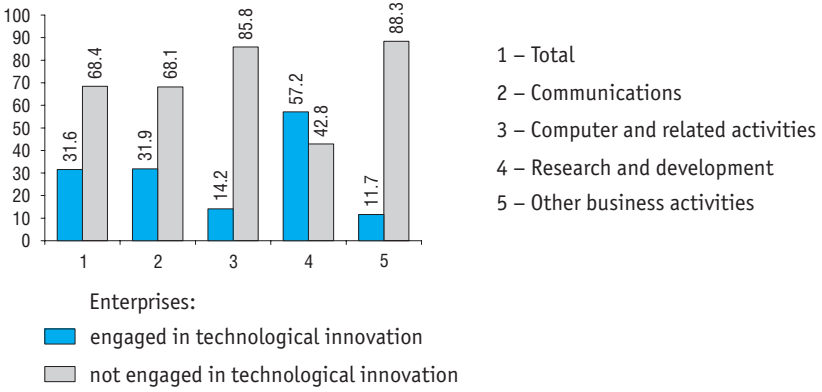
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities



3.17. SALES OF INNOVATIVE GOODS AND SERVICES BY ECONOMIC ACTIVITY

	Million roubles		As a percentage of total sales	
	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**1847370.4**	**2509604.4**	**6.1**	**7.8**
Mining and quarrying	516779.7	522890.9	6.7	6.5
Mining and quarrying of energy producing materials	506198.0	506171.9	7.5	7.3
Mining and quarrying, except energy producing materials	10581.7	16719.0	1.1	1.5
Manufacturing	1309228.6	1973535.6	6.8	9.6
High tech	128342.9	175318.2	12.1	14.3
Manufacture of pharmaceuticals	22813.0	30861.1	14.8	15.8
Manufacture of office machinery and computers	1136.6	1020.6	3.3	2.2
Manufacture of radio, television and communication equipment and apparatus	20837.9	27998.0	9.8	10.5
Manufacture of medical, precision and optical instruments, watches and clocks	38587.0	43128.0	13.7	15.2
Manufacture of aircrafts, including spacecrafts	44968.4	72310.5	12.1	16.7
Medium high tech	559925.7	785190.0	12.8	16.1
Manufacture of chemicals and chemical products	133944.3	134239.8	9.7	9.3
Manufacture of machinery and equipment, n.e.c.	58384.1	62289.4	5.9	6.0
Manufacture of electrical machinery and apparatus	27099.9	30060.2	6.2	6.6

(continued)

	Million roubles		As a percentage of total sales	
	2011	2012	2011	2012
Manufacture of motor vehicles, trailers and semi-trailers	288502.9	484900.4	23.7	31.4
Manufacture of other transport vehicles	51994.5	73700.2	15.4	18.3
Medium low tech	392457.2	756622.1	4.3	8.0
Manufacture of coke, refined petroleum products	93082.1	431537.3	2.3	10.4
Manufacture of rubber and plastic products	31746.0	44603.6	7.8	10.4
Manufacture of other non-metallic mineral products	21659.1	27049.7	2.6	2.9
Manufacture of basic metals	225270.9	201410.1	7.2	6.6
Manufacture of fabricated metal products	7670.0	19871.4	1.2	2.8
Construction and repair of vessels	13029.2	32150.0	7.5	21.3
Low tech	166260.9	157075.5	4.1	3.7
Manufacture of food products and beverages	109552.6	106977.7	4.1	3.8
Manufacture of tobacco products	6640.5	6205.0	3.8	4.7
Manufacture of textiles	2062.8	2139.2	2.5	2.7
Manufacture of wearing apparel, dressing and dyeing of fur	933.3	834.7	2.0	1.7
Manufacture of leather, leather products and footwear	531.5	470.0	1.4	1.4

(continued)

	Million roubles		As a percentage of total sales	
	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	2546.8	4676.6	1.3	1.8
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	12028.9	9551.4	3.5	2.7
Publishing and printing, reproduction of recorded media	19223.5	16619.3	10.1	8.6
Manufacture of furniture, manufacturing n.e.c.	7958.1	4639.4	4.5	2.4
Recycling	4783.0	4962.1	3.9	3.4
Manufacturing of other materials and substances, n.e.c.	62242.0	99329.9	12.7	13.4
Electricity, gas and water supply	21362.1	13177.9	0.6	0.4
Communications, computer and related activities, research and development, other business activities				
Total	**259370.3**	**363300.8**	**8.3**	**9.6**
Communications	49486.6	41444.1	3.6	2.5
Computer and related activities	24951.2	14648.1	12.9	6.2
Research and development	159410.0	283957.3	23.4	30.9
Other business activities	25522.6	23251.3	2.9	2.3

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

	Innovative goods and services, *million roubles*		Of which			
			technologically new or significantly improved		improved	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**1847370.4**	**2509604.4**	**1140247.2**	**1803855.3**	**707123.2**	**705749.0**
Mining and quarrying	516779.7	522890.9	327940.5	354303.5	188839.2	168587.4
Mining and quarrying of energy producing materials	506198.0	506171.9	317592.2	344856.4	188605.8	161315.5
Mining and quarrying, except energy producing materials	10581.7	16719.0	10348.3	9447.1	233.3	7271.9
Manufacturing	1309228.6	1973535.6	794853.2	1445676.6	514375.4	527859.1
High tech	128342.9	175318.2	89090.7	123763.1	39252.2	51555.1
Manufacture of pharmaceuticals	22813.0	30861.1	19207.7	26716.4	3605.3	4144.7
Manufacture of office machinery and computers	1136.6	1020.6	978.5	730.9	158.0	289.6
Manufacture of radio, television and communication equipment and apparatus	20837.9	27998.0	11321.7	14595.2	9516.2	13402.8
Manufacture of medical, precision and optical instruments, watches and clocks	38587.0	43128.0	27160.2	29465.8	11426.8	13662.2
Manufacture of aircrafts, including spacecrafts	44968.4	72310.5	30422.5	52254.8	14545.9	20055.7
Medium high tech	559925.7	785190.0	341669.2	549782.7	218256.4	235407.3
Manufacture of chemicals and chemical products	133944.3	134239.8	79470.4	72541.4	54473.9	61698.4
Manufacture of machinery and equipment, n.e.c.	58384.1	62289.4	37424.1	35981.6	20960.0	26307.8
Manufacture of electrical machinery and apparatus	27099.9	30060.2	20135.8	20709.5	6964.1	9350.7

(continued)

	Innovative goods and services, *million roubles*		Of which			
			technologically new or significantly improved		improved	
	2011	2012	2011	2012	2011	2012
Manufacture of motor vehicles, trailers and semi-trailers	288502.9	484900.4	154391.7	363947.7	134111.1	120952.7
Manufacture of other transport vehicles	51994.5	73700.2	50247.2	56602.5	1747.3	17097.6
Medium low tech	392457.2	756622.1	208633.5	592300.3	183823.6	164321.8
Manufacture of coke, refined petroleum products	93082.1	431537.3	20885.7	376324.0	72196.5	55213.4
Manufacture of rubber and plastic products	31746.0	44603.6	23911.4	35287.2	7834.6	9316.3
Manufacture of other non-metallic mineral products	21659.1	27049.7	15377.0	18237.8	6282.1	8811.9
Manufacture of basic metals	225270.9	201410.1	129573.5	113527.4	95697.4	87882.7
Manufacture of fabricated metal products	7670.0	19871.4	5860.8	16879.5	1809.2	2991.9
Construction and repair of vessels	13029.2	32150.0	13025.2	32044.4	3.9	105.7
Low tech	166260.9	157075.5	123803.8	115969.2	42457.1	41106.2
Manufacture of food products and beverages	109552.6	106977.7	88455.5	89531.1	21097.1	17446.6
Manufacture of tobacco products	6640.5	6205.0	1613.1	6092.4	5027.4	112.6
Manufacture of textiles	2062.8	2139.2	1818.7	1891.4	244.1	247.8
Manufacture of wearing apparel, dressing and dyeing of fur	933.3	834.7	708.0	368.1	225.3	466.6
Manufacture of leather, leather products and footwear	531.5	470.0	151.9	76.6	379.6	393.4

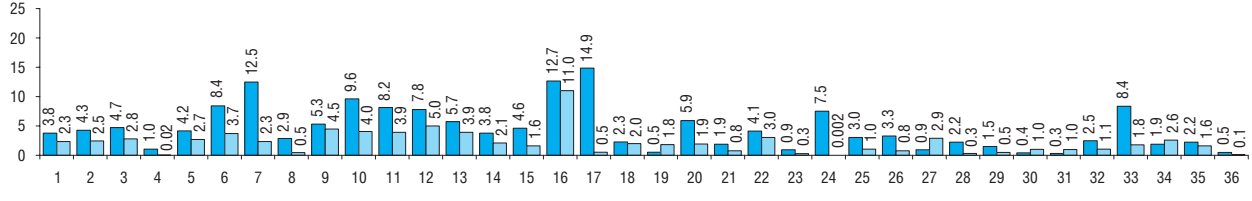
(continued)

	Innovative goods and services, *million roubles*		Of which			
			technologically new or significantly improved		improved	
	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	2546.8	4676.6	646.7	772.6	1900.1	3904.1
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	12028.9	9551.4	8453.2	9512.2	3575.7	39.2
Publishing and printing, reproduction of recorded media	19223.5	16619.3	15838.2	3307.5	3385.3	13311.8
Manufacture of furniture, manufacturing n.e.c.	7958.1	4639.4	3342.5	1458.3	4615.6	3181.1
Recycling	4783.0	4962.1	2776.1	2959.1	2006.9	2003.0
Manufacturing of other materials and substances, n.e.c.	62242.0	99329.9	31655.9	63861.2	30586.1	35468.8
Electricity, gas and water supply	21362.1	13177.9	17453.5	3875.3	3908.6	9302.6
Communications, computer and related activities, research and development, other business activities						
Total	**259370.3**	**363300.8**	**189175.1**	**203581.5**	**70195.2**	**159719.3**
Communications	49486.6	41444.1	39255.1	33022.8	10231.5	8421.3
Computer and related activities	24951.2	14648.1	21560.4	8917.7	3390.8	5730.4
Research and development	159410.0	283957.3	110513.3	146208.9	48896.6	137748.4
Other business activities	25522.6	23251.3	17846.2	15432.1	7676.3	7819.2

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

2011

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and beverages
27 – Manufacture of tobacco products
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
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31 – Manufacture of wood and of products of wood and cork, except furniture
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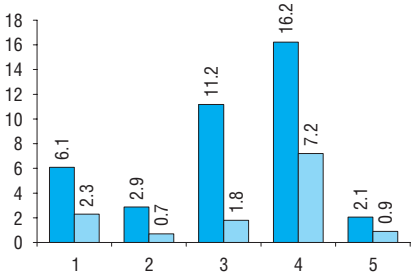
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities

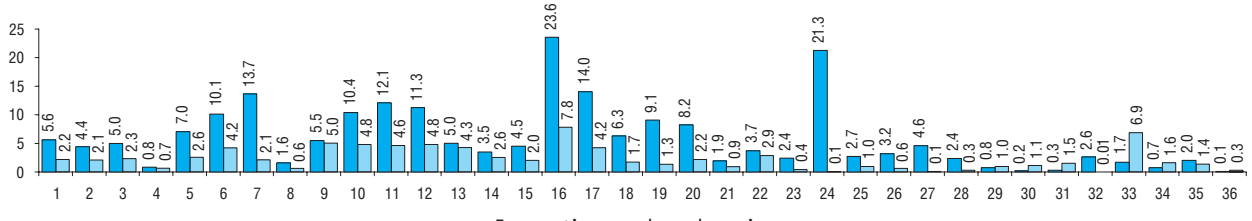


1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

Innovative goods and services:
technologically new or significantly improved
improved

2012

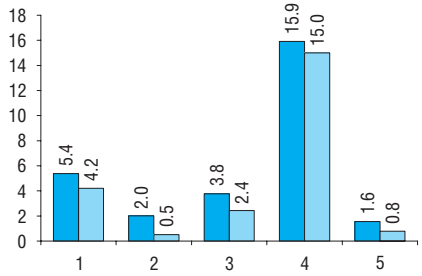
Mining and quarrying, manufacturing, electricity, gas and water supply



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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities



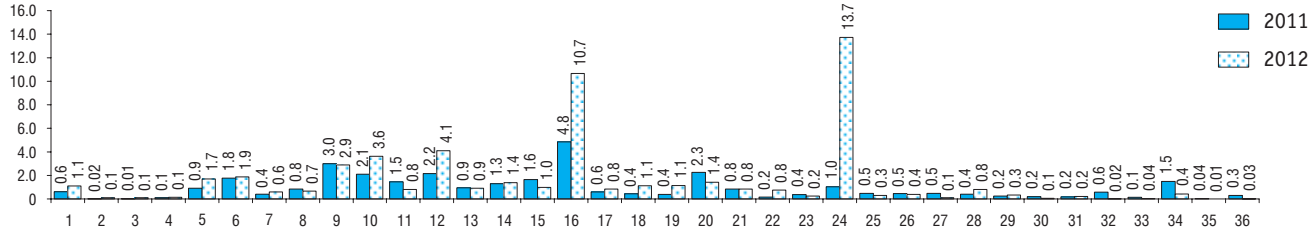
1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

Innovative goods and services:
technologically new or significantly improved
improved

3.20. TECHNOLOGICALLY NEW OR SIGNIFICANTLY IMPROVED GOODS AND SERVICES NEW TO THE ENTERPRISE'S MARKET BY ECONOMIC ACTIVITY

(as a percentage of total 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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
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14 – Manufacture of machinery and equipment, n.e.c.
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, 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
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25 – Low tech
26 – Manufacture of food products and beverages
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32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
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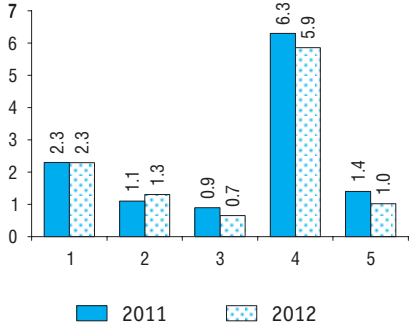
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities

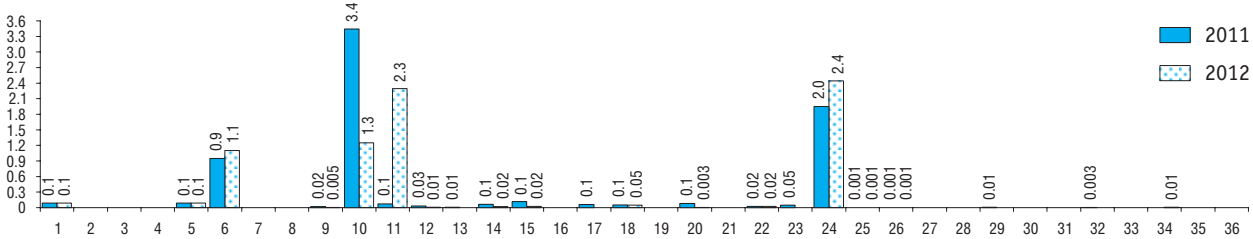


1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

3.21. TECHNOLOGICALLY NEW OR SIGNIFICANTLY IMPROVED GOODS AND SERVICES NEW TO THE WORLD MARKET BY ECONOMIC ACTIVITY

(as a percentage of total 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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
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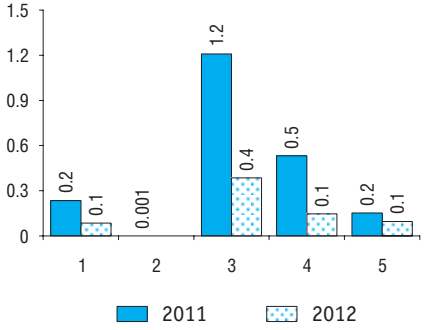
28 – Manufacture of textiles
29 – Manufacture of wearing apparel, dressing and dyeing of fur
30 – Manufacture of leather, leather products and footwear
31 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities



1 – Total

2 – Communications

3 – Computer and related activities

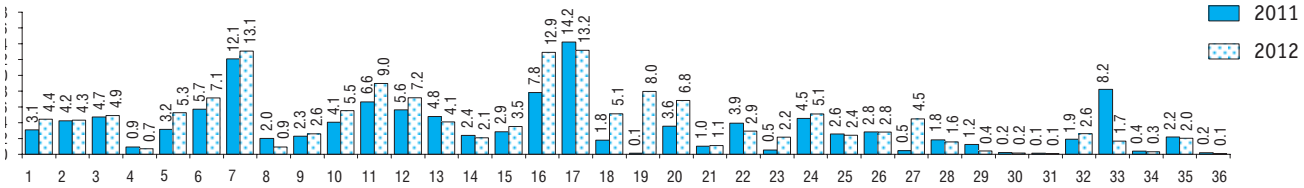
4 – Research and development

5 – Other business activities

3.22. TECHNOLOGICALLY NEW OR SIGNIFICANTLY IMPROVED INNOVATIVE GOODS AND SERVICES NEW TO THE ENTERPRISE BY ECONOMIC ACTIVITY

(as a percentage of total sales)

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



– Total
– Mining and quarrying
3 – Mining and quarrying of energy producing materials
4 – Mining and quarrying, except energy producing materials
– Manufacturing
6 – High tech
7 – Manufacture of pharmaceuticals
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
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33 – Publishing and printing, reproduction of recorded media
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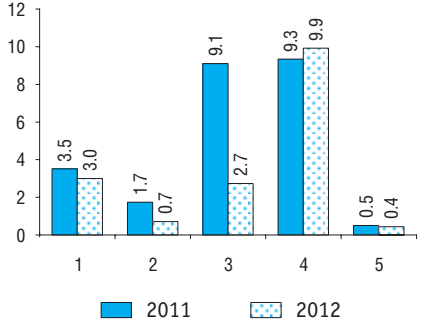
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities



1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

3.23. 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	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	6722313.7	6810560.6	591239.1	821409.9	8.8	12.1	6131074.6	5989150.8	91.2	87.9
Mining and quarrying	2402459.3	2438869.4	378392.4	425334.1	15.8	17.4	2024066.9	2013535.3	84.2	82.6
Mining and quarrying of energy producing materials	2131852.6	2176325.8	374925.7	419204.0	17.6	19.3	1756926.9	1757121.8	82.4	80.7
Mining and quarrying, except energy producing materials	270606.7	262543.7	3466.6	6130.1	1.3	2.3	267140.0	256413.5	98.7	97.7
Manufacturing	4315198.8	4368781.2	212846.8	396029.2	4.9	9.1	4102352.1	3972752.0	95.1	90.9
High tech	159875.1	170683.0	24146.6	40337.9	15.1	23.6	135728.6	130345.1	84.9	76.4
Manufacture of pharmaceuticals	8937.9	11054.4	2764.8	1755.4	30.9	15.9	6173.0	9299.0	69.1	84.1
Manufacture of office machinery and computers	179.3	1055.9	33.5	36.9	18.7	3.5	145.7	1019.1	81.3	96.5
Manufacture of radio, television and communication equipment and apparatus	8084.7	7095.9	3323.7	2054.6	41.1	29.0	4761.0	5041.3	58.9	71.0
Manufacture of medical, precision and optical instruments, watches and clocks	20746.3	28382.9	10916.2	7122.7	52.6	25.1	9830.1	21260.2	47.4	74.9
Manufacture of aircrafts, including spacecrafts	121927.0	123094.0	7108.3	29368.4	5.8	23.9	114818.7	93725.6	94.2	76.1
Medium high tech	692775.0	732512.0	90258.9	103701.6	13.0	14.2	602516.1	628810.4	87.0	85.8
Manufacture of chemicals and chemical products	556316.3	586797.6	62267.4	62997.1	11.2	10.7	494048.9	523800.5	88.8	89.3
Manufacture of machinery and equipment, n.e.c.	43811.4	43275.9	4620.4	3083.5	10.5	7.1	39191.0	40192.4	89.5	92.9

(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	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	14515.1	13910.4	1386.6	1224.3	9.6	8.8	13128.5	12686.1	90.4	91.2
Manufacture of motor vehicles, trailers and semi-trailers	37636.0	54373.2	18542.8	29858.5	49.3	54.9	19093.2	24514.8	50.7	45.1
Manufacture of other transport vehicles	40496.3	34154.9	3441.8	6538.3	8.5	19.1	37054.5	27616.6	91.5	80.9
Medium low tech	3112459.4	3095683.2	58233.8	194491.7	1.9	6.3	3054225.6	2901191.5	98.1	93.7
Manufacture of coke, refined petroleum products	1829920.5	1914290.4	11036.7	160642.3	0.6	8.4	1818883.8	1753648.1	99.4	91.6
Manufacture of rubber and plastic products	13537.8	19094.9	1501.5	2151.7	11.1	11.3	12036.3	16943.3	88.9	88.7
Manufacture of other non-metallic mineral products	26786.7	35756.9	903.9	1524.3	3.4	4.3	25882.9	34232.6	96.6	95.7
Manufacture of basic metals	1196309.9	1098441.1	39983.2	28803.0	3.3	2.6	1156326.7	1069638.1	96.7	97.4
Manufacture of fabricated metal products	14756.1	13014.4	322.1	268.7	2.2	2.1	14434.0	12745.7	97.8	97.9
Construction and repair of vessels	31148.4	15085.5	4486.5	1101.6	14.4	7.3	26661.9	13983.8	85.6	92.7
Low tech	263550.8	242590.2	13658.4	13957.9	5.2	5.8	249892.3	228632.4	94.8	94.2
Manufacture of food products and beverages	63228.8	63549.3	9597.2	10584.0	15.2	16.7	53631.6	52965.3	84.8	83.3
Manufacture of tobacco products	16984.5	17557.7	1216.7	798.5	7.2	4.5	15767.8	16759.2	92.8	95.5
Manufacture of textiles	3482.7	2531.0	74.9	112.6	2.1	4.4	3407.8	2418.3	97.9	95.6
Manufacture of wearing apparel, dressing and dyeing of fur	1226.6	631.1	139.2	95.3	11.4	15.1	1087.3	535.9	88.6	84.9
Manufacture of leather, leather products and footwear	3152.6	4816.8	6.3	0.1	0.2	0.0	3146.3	4816.8	99.8	100
Manufacture of wood and of products of wood and cork, except furniture	53215.4	57228.9	199.2	1649.0	0.4	2.9	53016.2	55579.9	99.6	97.1

(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	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	89494.0	77201.8	1195.5	423.8	1.3	0.5	88298.4	76778.0	98.7	99.5
Publishing and printing, reproduction of recorded media	1573.7	1702.7	17.6	19.2	1.1	1.1	1556.1	1683.5	98.9	98.9
Manufacture of furniture, manufacturing n.e.c.	22414.1	14122.4	12.9	47.0	0.1	0.3	22401.2	14075.4	99.9	99.7
Recycling	8778.4	3248.5	1198.9	228.5	13.7	7.0	7579.6	3020.0	86.3	93.0
Manufacturing of other materials and substances, n.e.c.	86538.5	127312.7	26549.1	43540.2	30.7	34.2	59989.4	83772.6	69.3	65.8
Electricity, gas and water supply	4655.6	2910.0	–	46.5	–	1.6	4655.6	2863.5	100	98.4
Communications, computer and related activities, research and development, other business activities										
Total	**115123.9**	**145496.8**	**39416.9**	**53992.2**	**34.2**	**37.1**	**75707.0**	**91504.5**	**65.8**	**62.9**
Communications	12525.1	30256.7	35.0	132.5	0.3	0.4	12490.2	30124.2	99.7	99.6
Computer and related activities	14850.8	23210.1	4011.5	4101.5	27.0	17.7	10839.3	19108.7	73.0	82.3
Research and development	69335.4	69347.2	33184.8	48105.5	47.9	69.4	36150.6	21241.7	52.1	30.6
Other business activities	18412.6	22682.8	2185.6	1652.8	11.9	7.3	16226.9	21030.0	88.1	92.7

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

	Exports of goods and services, *million roubles*		CIS countries				Other foreign countries			
			Million roubles		Per cent		Million roubles		Per cent	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**591239.1**	**821409.9**	**61194.5**	**101455.9**	**10.4**	**12.4**	**530044.6**	**719954.0**	**89.6**	**87.6**
Mining and quarrying	378392.4	425334.1	5208.9	15385.5	1.4	3.6	373183.4	409948.6	98.6	96.4
Mining and quarrying of energy producing materials	374925.7	419204.0	5208.7	15177.0	1.4	3.6	369717.0	404027.0	98.6	96.4
Mining and quarrying, except energy producing materials	3466.6	6130.1	0.2	208.6	0.01	3.4	3466.5	5921.6	99.99	96.6
Manufacturing	212846.8	396029.2	55985.6	86070.3	26.3	21.7	156861.2	309958.9	73.7	78.3
High tech	24146.6	40337.9	3938.5	8610.3	16.3	21.3	20208.0	31727.6	83.7	78.7
Manufacture of pharmaceuticals	2764.8	1755.4	205.4	1313.8	7.4	74.8	2559.4	441.6	92.6	25.2
Manufacture of office machinery and computers	33.5	36.9	32.0	12.1	95.3	32.7	1.6	24.8	4.7	67.3
Manufacture of radio, television and communication equipment and apparatus	3323.7	2054.6	88.9	1399.6	2.7	68.1	3234.8	654.9	97.3	31.9
Manufacture of medical, precision and optical instruments, watches and clocks	10916.2	7122.7	544.0	283.3	5.0	4.0	10372.2	6839.4	95.0	96.0
Manufacture of aircrafts, including spacecrafts	7108.3	29368.4	3068.2	5601.6	43.2	19.1	4040.1	23766.8	56.8	80.9
Medium high tech	90258.9	103701.6	25092.3	39163.5	27.8	37.8	65166.6	64538.1	72.2	62.2
Manufacture of chemicals and chemical products	62267.4	62997.1	4934.8	5446.7	7.9	8.6	57332.6	57550.3	92.1	91.4
Manufacture of machinery and equipment, n.e.c.	4620.4	3083.5	2595.5	1447.3	46.7	46.9	2024.8	1636.2	43.8	53.1

(continued)

	Exports of goods and services, *million roubles*		CIS countries				Other foreign countries			
			Million roubles		Per cent		Million roubles		Per cent	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	1386.6	1224.3	734.6	833.1	53.0	68.0	652.0	391.2	47.0	32.0
Manufacture of motor vehicles, trailers and semi-trailers	18542.8	29858.5	13933.8	28487.2	75.1	95.4	4608.9	1371.3	24.9	4.6
Manufacture of other transport vehicles	3441.8	6538.3	2893.6	2949.2	84.1	45.1	548.2	3589.1	15.9	54.9
Medium low tech	58233.8	194491.7	9055.8	18213.2	15.6	9.4	49178.0	176278.5	84.4	90.6
Manufacture of coke, refined petroleum products	11036.7	160642.3	220.7	9118.8	2.0	5.7	10816.0	151523.5	98.0	94.3
Manufacture of rubber and plastic products	1501.5	2151.7	1311.1	1275.4	87.3	59.3	190.4	876.3	12.7	40.7
Manufacture of other non-metallic mineral products	903.9	1524.3	809.6	1192.0	89.6	78.2	94.2	332.3	10.4	21.8
Manufacture of basic metals	39983.2	28803.0	6525.4	6404.5	16.3	22.2	33457.7	22398.5	83.7	77.8
Manufacture of fabricated metal products	322.1	268.7	157.8	116.8	49.0	43.4	164.2	152.0	51.0	56.6
Construction and repair of vessels	4486.5	1101.6	31.0	105.7	0.7	9.6	4455.5	996.0	99.3	90.4
Low tech	13658.4	13957.9	8922.7	10253.9	65.3	73.5	4735.8	3704.0	34.7	26.5
Manufacture of food products and beverages	9597.2	10584.0	6840.4	8766.5	71.3	82.8	2756.8	1817.5	28.7	17.2
Manufacture of tobacco products	1216.7	798.5	662.5	798.5	54.4	100	554.3	–	45.6	–
Manufacture of textiles	74.9	112.6	34.6	50.2	46.2	44.6	40.3	62.4	53.8	55.4
Manufacture of wearing apparel, dressing and dyeing of fur	139.2	95.3	114.2	89.2	82.0	93.7	25.1	6.0	18.0	6.3
Manufacture of leather, leather products and footwear	6.3	0.1	–	0.1	–	100	6.3	–	100	–
Manufacture of wood and of products of wood and cork, except furniture	199.2	1649.0	–	259.6	35.0	15.7	129.6	1389.4	65.0	84.3

(continued)

	Exports of goods and services, *million roubles*		CIS countries				Other foreign countries			
			Million roubles		Per cent		Million roubles		Per cent	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1195.5	423.8	312.2	22.3	26.1	5.3	883.3	401.5	73.9	94.7
Publishing and printing, reproduction of recorded media	17.6	19.2	17.6	18.6	100	97.2	–	0.5	–	2.8
Manufacture of furniture, manufacturing n.e.c.	12.9	47.0	7.4	32.7	57.2	69.6	5.5	14.3	42.8	30.4
Recycling	1198.9	228.5	864.3	216.1	72.1	94.6	334.6	12.4	27.9	5.4
Manufacturing of other materials and substances, n.e.c.	26549.1	43540.2	8976.3	9829.5	33.8	22.6	17572.8	33710.7	66.2	77.4
Electricity, gas and water supply	–	46.5	–	–	–	–	–	46.5	–	100
Communications, computer and related activities, research and development, other business activities										
Total	**39416.9**	**53992.2**	**2235.3**	**1623.0**	**5.7**	**3.0**	**37181.5**	**52369.2**	**94.3**	**97.0**
Communications	35.0	132.5	0.4	0.5	1.1	0.4	34.6	132.0	98.9	99.6
Computer and related activities	4011.5	4101.5	29.2	28.8	0.7	0.7	3982.3	4072.6	99.3	99.3
Research and development	33184.8	48105.5	1853.2	1094.7	5.6	2.3	31331.6	47010.8	94.4	97.7
Other business activities	2185.6	1652.8	352.5	499.0	16.1	30.2	1833.1	1153.8	83.9	69.8

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

	Enterprises acquiring technology				Enterprises transferring technology			
	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation		Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**73.4**	**74.6**	**26.6**	**25.4**	**79.5**	**73.1**	**20.5**	**26.9**
Mining and quarrying	68.5	62.5	31.5	37.5	100	100	–	–
Mining and quarrying of energy producing materials	70.0	65.9	30.0	34.1	100	100	–	–
Mining and quarrying, except energy producing materials	64.3	53.3	35.7	46.7	–	–	–	–
Manufacturing	75.4	76.8	24.6	23.2	78.9	75.0	21.1	25.0
High tech	85.3	91.4	14.7	8.6	85.7	72.2	14.3	27.8
Manufacture of pharmaceuticals	90.0	93.3	10.0	6.7	100	50.0	–	50.0
Manufacture of office machinery and computers	66.7	83.3	33.3	16.7	–	–	100	–
Manufacture of radio, television and communication equipment and apparatus	90.2	92.5	9.8	7.5	88.9	40.0	11.1	60.0
Manufacture of medical, precision and optical instruments, watches and clocks	83.3	92.2	16.7	7.8	85.7	87.5	14.3	12.5
Manufacture of aircrafts, including spacecrafts	85.7	88.9	14.3	11.1	100	100	–	–
Medium high tech	77.8	81.5	22.2	18.5	76.2	68.8	23.8	31.3
Manufacture of chemicals and chemical products	87.8	77.8	12.2	22.2	100	66.7	–	33.3

(continued)

	Enterprises acquiring technology				Enterprises transferring technology			
	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation		Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of machinery and equipment, n.e.c.	69.7	80.7	30.3	19.3	66.7	80.0	33.3	20.0
Manufacture of electrical machinery and apparatus	82.8	88.5	17.2	11.5	100	66.7	–	33.3
Manufacture of motor vehicles, trailers and semi-trailers	86.7	89.3	13.3	10.7	80.0	50.0	20.0	50.0
Manufacture of other transport vehicles	69.6	64.0	30.4	36.0	50.0	66.7	50.0	33.3
Medium low tech	76.6	75.0	23.4	25.0	66.7	63.6	33.3	36.4
Manufacture of coke, refined petroleum products	94.4	86.7	5.6	13.3	100	100	–	–
Manufacture of rubber and plastic products	75.0	70.4	25.0	29.6	33.3	–	66.7	100
Manufacture of other non-metallic mineral products	77.3	83.3	22.7	16.7	50.0	75.0	50.0	25.0
Manufacture of basic metals	75.6	81.8	24.4	18.2	83.3	75.0	16.7	25.0
Manufacture of fabricated metal products	64.7	60.4	35.3	39.6	50.0	–	50.0	100
Construction and repair of vessels	90.0	81.8	10.0	18.2	100	–	–	–
Low tech	61.6	58.0	38.4	42.0	100	88.9	–	11.1
Manufacture of food products and beverages	69.6	65.5	30.4	34.5	100	100	–	–
Manufacture of tobacco products	100	100	–	–	–	–	–	–
Manufacture of textiles	71.4	87.5	28.6	12.5	–	100	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	25.0	60.0	75.0	40.0	100	–	–	–
Manufacture of leather, leather products and footwear	25.0	100	75.0	–	–	–	–	–

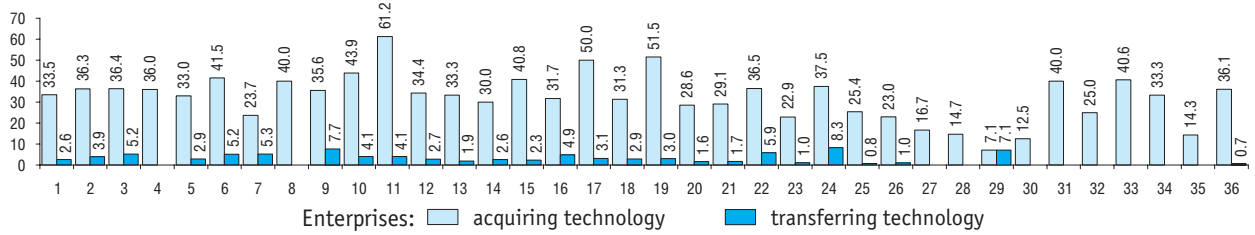
(continued)

	Enterprises acquiring technology				Enterprises transferring technology			
	Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation		Enterprises engaged in technological innovation		Enterprises not engaged in technological innovation	
	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	53.3	58.8	46.7	41.2	–	100	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	100	66.7	–	33.3	–	–	–	–
Publishing and printing, reproduction of recorded media	46.4	43.6	53.6	56.4	–	50.0	–	50.0
Manufacture of furniture, manufacturing n.e.c.	66.7	47.4	33.3	52.6	–	–	–	–
Recycling	50.0	–	50.0	100	–	–	–	–
Electricity, gas and water supply	64.8	67.9	35.2	32.1	66.7	40.0	33.3	60.0
Communications, computer and related activities, research and development, other business activities								
Total	**60.6**	**60.0**	**39.4**	**40.0**	**74.4**	**78.7**	**25.6**	**21.3**
Communications	78.0	63.8	22.0	36.2	66.7	66.7	33.3	33.3
Computer and related activities	56.6	55.6	43.4	44.4	60.0	78.3	40.0	21.7
Research and development	74.3	78.6	25.7	21.4	76.9	80.8	23.1	19.2
Other business activities	46.3	42.0	53.7	58.0	65.0	57.9	35.0	42.1

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

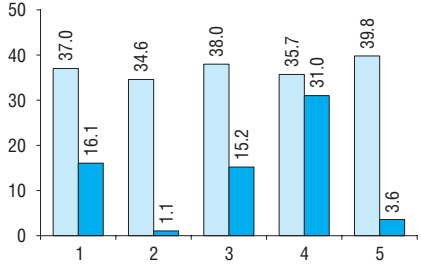
2011

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities

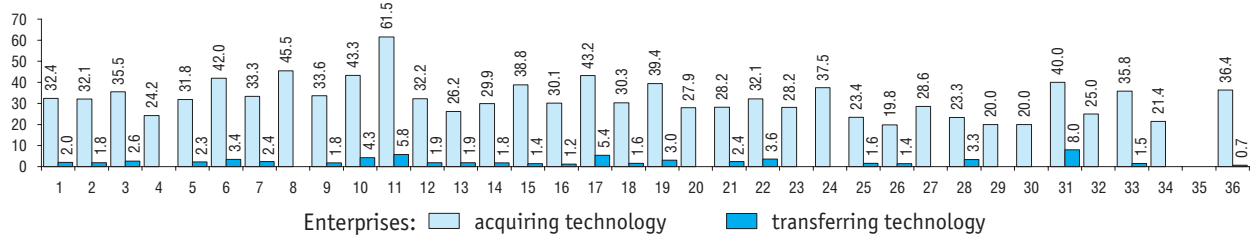


1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

(continued)

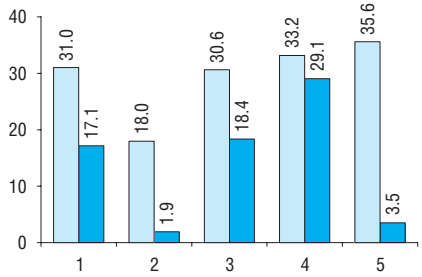
2012

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

Enterprises:
acquiring technology
transferring technology

3.27. ENTERPRISES ACQUIRING TECHNOLOGY OUTSIDE RUSSIA BY ECONOMIC ACTIVITY

(as a percentage of all enterprises engaged in technological innovation and technology acquisition)

	Total		From CIS countries		From other foreign countries	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**30.6**	**34.2**	**4.3**	**5.5**	**26.2**	**28.7**
Mining and quarrying	21.6	25.7	8.1	8.6	13.5	17.1
Mining and quarrying of energy producing materials	25.0	18.5	10.7	7.4	14.3	11.1
Mining and quarrying, except energy producing materials	11.1	50.0	–	12.5	11.1	37.5
Manufacturing	34.3	37.7	4.3	5.7	29.9	32.0
High tech	32.4	36.5	4.8	4.4	27.6	32.1
Manufacture of pharmaceuticals	44.4	42.9	11.1	7.1	33.3	35.7
Manufacture of office machinery and computers	25.0	–	–	–	25.0	–
Manufacture of radio, television and communication equipment and apparatus	27.0	35.1	2.7	5.4	24.3	29.7
Manufacture of medical, precision and optical instruments, watches and clocks	27.7	32.4	3.1	2.8	24.6	29.6
Manufacture of aircrafts, including spacecrafts	46.7	50.0	10.0	6.3	36.7	43.8
Medium high tech	39.5	33.2	4.0	4.7	35.5	28.4
Manufacture of chemicals and chemical products	52.8	42.9	2.8	-	50.0	42.9
Manufacture of machinery and equipment, n.e.c.	29.0	20.9	5.8	3.0	23.2	17.9

(continued)

	Total		From CIS countries		From other foreign countries	
	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	43.4	42.6	3.8	7.4	39.6	35.2
Manufacture of motor vehicles, trailers and semi-trailers	46.2	36.0	–	12.0	46.2	24.0
Manufacture of other transport vehicles	31.3	31.3	6.3	–	25.0	31.3
Medium low tech	33.6	49.2	4.6	9.8	29.0	39.4
Manufacture of coke, refined petroleum products	47.1	61.5	5.9	7.7	41.2	53.8
Manufacture of rubber and plastic products	16.7	52.6	–	–	16.7	52.6
Manufacture of other non-metallic mineral products	23.5	51.4	–	14.3	23.5	37.1
Manufacture of basic metals	45.2	55.6	9.7	22.2	35.5	33.3
Manufacture of fabricated metal products	27.3	37.9	–	–	27.3	37.9
Construction and repair of vessels	55.6	33.3	22.2	11.1	33.3	22.2
Low tech	26.7	35.3	3.7	4.2	23.0	31.1
Manufacture of food products and beverages	26.8	31.6	2.8	5.3	23.9	26.3
Manufacture of tobacco products	–	100	–	–	–	100
Manufacture of textiles	20.0	42.9	20.0	–	–	42.9
Manufacture of wearing apparel, dressing and dyeing of fur	–	66.7	–	–	–	66.7
Manufacture of leather, leather products and footwear	–	–	–	–	–	–

(continued)

	Total		From CIS countries		From other foreign countries	
	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	37.5	40.0	–	10.0	37.5	30.0
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	57.1	83.3	–	–	57.1	83.3
Publishing and printing, reproduction of recorded media	19.2	16.7	7.7	4.2	11.5	12.5
Manufacture of furniture, manufacturing n.e.c.	21.4	44.4	–	–	21.4	44.4
Recycling	100	–	–	–	100	–
Electricity, gas and water supply	10.7	16.7	2.9	3.7	7.8	13.0
Communications, computer and related activities, research and development, other business activities						
Total	**16.2**	**18.9**	**3.4**	**2.1**	**12.8**	**16.8**
Communications	14.1	13.5	–	2.7	14.1	10.8
Computer and related activities	10.0	16.7	–	–	10.0	16.7
Research and development	22.7	26.7	6.3	3.0	16.5	23.8
Other business activities	10.4	7.2	2.1	0.9	8.3	6.3

3.28. ENTERPRISES TRANSFERRING TECHNOLOGY OUTSIDE RUSSIA

(as a percentage of all enterprises engaged in technological innovation and technology transfer)

	Total		To CIS countries		To other foreign countries	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**22.6**	**16.3**	**11.3**	**12.2**	**11.3**	**4.1**
Mining and quarrying	–	–	–	–	–	–
Mining and quarrying of energy producing materials	–	–	–	–	–	–
Mining and quarrying, except energy producing materials	–	–	–	–	–	–
Manufacturing	25.0	17.8	12.5	13.3	12.5	4.4
High tech	38.9	15.4	16.7	15.4	22.2	–
Manufacture of pharmaceuticals	–	–	–	–	–	–
Manufacture of office machinery and computers	–	–	–	–	–	–
Manufacture of radio, television and communication equipment and apparatus	25.0	–	12.5	–	12.5	–
Manufacture of medical, precision and optical instruments, watches and clocks	50.0	28.6	33.3	28.6	16.7	–
Manufacture of aircrafts, including spacecrafts	100	–	–	–	100	–
Medium high tech	18.8	9.1	6.3	9.1	12.5	–
Manufacture of chemicals and chemical products	–	–	–	–	–	–
Manufacture of machinery and equipment, n.e.c.	–	25.0	–	25.0	–	–

(continued)

	Total		To CIS countries		To other foreign countries	
	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	–	–	–	–	–	–
Manufacture of motor vehicles, trailers and semi-trailers	75.0	–	25.0	–	50.0	–
Manufacture of other transport vehicles	–	–	–	–	–	–
Medium low tech	16.7	14.3	8.3	14.3	8.3	–
Manufacture of coke, refined petroleum products	–	–	–	–	–	–
Manufacture of rubber and plastic products	–	–	–	–	–	–
Manufacture of other non-metallic mineral products	50.0	33.3	50.0	33.3	–	–
Manufacture of basic metals	–	–	–	–	–	–
Manufacture of fabricated metal products	–	–	–	–	–	–
Construction and repair of vessels	50.0	–	–	–	50.0	–
Low tech	–	12.5	–	–	–	12.5
Manufacture of food products and beverages	–	–	–	–	–	–
Manufacture of tobacco products	–	–	–	–	–	–
Manufacture of textiles	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	–	–	–	–
Manufacture of leather, leather products and footwear	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	–	50.0	–	–	–	50.0

(continued)

	Total		To CIS countries		To other foreign countries	
	2011	2012	2011	2012	2011	2012
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	–	–	–	–	–	–
Publishing and printing, reproduction of recorded media	–	–	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	–	–	–	–	–	–
Recycling	–	–	–	–	–	–
Electricity, gas and water supply	–	–	–	–	–	–
Communications, computer and related activities, research and development, other business activities						
Total	**18.9**	**23.3**	**6.1**	**8.1**	**12.8**	**15.2**
Communications	50.0	–	50.0	–	–	–
Computer and related activities	16.7	22.2	8.3	5.6	8.3	16.7
Research and development	19.0	25.4	5.9	9.0	13.1	16.4
Other business activities	15.4	–	–	–	15.4	–

3.29. FORMS OF TECHNOLOGY ACQUISITION AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Purchase of equipment	Targeted hiring of skilled personnel	Other
2011						
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**23.7**	**13.6**	**4.2**	**63.3**	**12.1**	**22.5**
Mining and quarrying	27.0	37.8	–	54.1	5.4	21.6
Mining and quarrying of energy producing materials	21.4	42.9	–	57.1	7.1	17.9
Mining and quarrying, except energy producing materials	44.4	22.2	–	44.4	–	33.3
Manufacturing	24.2	12.4	5.1	65.1	14.1	21.1
High tech	18.6	17.9	4.1	71.7	22.1	23.4
Manufacture of pharmaceuticals	33.3	44.4	11.1	44.4	11.1	–
Manufacture of office machinery and computers	–	–	–	75.0	–	50.0
Manufacture of radio, television and communication equipment and apparatus	10.8	18.9	2.7	70.3	29.7	24.3
Manufacture of medical, precision and optical instruments, watches and clocks	21.5	18.5	4.6	72.3	20.0	24.6
Manufacture of aircrafts, including spacecrafts	20.0	10.0	3.3	80.0	23.3	23.3

(continued)

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Purchase of equipment	Targeted hiring of skilled personnel	Other
Medium high tech	27.0	14.0	5.0	61.5	13.0	19.5
Manufacture of chemicals and chemical products	22.2	19.4	13.9	52.8	5.6	22.2
Manufacture of machinery and equipment, n.e.c.	30.4	8.7	2.9	49.3	13.0	27.5
Manufacture of electrical machinery and apparatus	32.1	18.9	3.8	75.5	17.0	11.3
Manufacture of motor vehicles, trailers and semi-trailers	11.5	7.7	3.8	76.9	7.7	19.2
Manufacture of other transport vehicles	31.3	18.8	–	62.5	25.0	6.3
Medium low tech	22.9	12.2	9.2	60.3	11.5	22.1
Manufacture of coke, refined petroleum products	41.2	23.5	17.6	17.6	17.6	35.3
Manufacture of rubber and plastic products	33.3	16.7	5.6	44.4	11.1	16.7
Manufacture of other non-metallic mineral products	5.9	5.9	5.9	79.4	2.9	23.5
Manufacture of basic metals	32.3	22.6	12.9	54.8	16.1	22.6
Manufacture of fabricated metal products	13.6	–	4.5	72.7	9.1	13.6
Construction and repair of vessels	22.2	–	11.1	88.9	22.2	22.2
Low tech	25.9	6.7	2.2	65.2	8.1	22.2
Manufacture of food products and beverages	21.1	8.5	1.4	71.8	7.0	19.7
Manufacture of tobacco products	–	–	–	–	–	100
Manufacture of textiles	20.0	–	–	40.0	20.0	40.0
Manufacture of wearing apparel, dressing and dyeing of fur	100	100	–	100	100	–

(continued)

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Purchase of equipment	Targeted hiring of skilled personnel	Other
Manufacture of leather, leather products and footwear	–	–	–	100	–	–
Manufacture of wood and of products of wood and cork, except furniture	12.5	12.5	–	87.5	25.0	12.5
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	28.6	–	–	71.4	14.3	14.3
Publishing and printing, reproduction of recorded media	38.5	–	7.7	50.0	–	26.9
Manufacture of furniture, manufacturing n.e.c.	35.7	7.1	–	50.0	7.1	28.6
Recycling	–	–	–	100	–	–
Electricity, gas and water supply	19.4	12.6	–	55.3	1.9	32.0
Communications, computer and related activities, research and development, other business activities						
Total	**26.8**	**14.7**	**5.8**	**49.5**	**18.4**	**29.2**
Communications	20.3	9.4	1.6	68.8	4.7	14.1
Computer and related activities	40.0	16.7	–	30.0	16.7	33.3
Research and development	27.3	25.6	10.8	55.1	32.4	20.5
Other business activities	26.4	3.5	2.8	38.2	7.6	45.8

(continued)

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Purchase of equipment	Targeted hiring of skilled personnel	Other
	2012					
	Mining and quarrying, manufacturing, electricity, gas and water supply					
Total	**19.9**	**12.7**	**4.2**	**67.4**	**13.1**	**17.2**
Mining and quarrying	20.0	28.6	–	57.1	8.6	17.1
Mining and quarrying of energy producing materials	22.2	29.6	–	51.9	11.1	18.5
Mining and quarrying, except energy producing materials	12.5	25.0	–	75.0	–	12.5
Manufacturing	20.7	11.4	5.2	68.8	15.5	15.5
High tech	17.6	15.7	4.4	68.6	26.4	18.2
Manufacture of pharmaceuticals	28.6	28.6	7.1	42.9	14.3	14.3
Manufacture of office machinery and computers	40.0	20.0	–	60.0	–	–
Manufacture of radio, television and communication equipment and apparatus	13.5	10.8	–	67.6	40.5	21.6
Manufacture of medical, precision and optical instruments, watches and clocks	18.3	19.7	7.0	67.6	25.4	18.3
Manufacture of aircrafts, including spacecrafts	12.5	6.3	3.1	84.4	21.9	18.8

(continued)

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Purchase of equipment	Targeted hiring of skilled personnel	Other
Medium high tech	24.7	15.3	6.3	66.3	14.2	12.1
Manufacture of chemicals and chemical products	35.7	25.0	10.7	50.0	14.3	14.3
Manufacture of machinery and equipment, n.e.c.	23.9	10.4	3.0	67.2	13.4	14.9
Manufacture of electrical machinery and apparatus	18.5	9.3	3.7	75.9	13.0	9.3
Manufacture of motor vehicles, trailers and semi-trailers	24.0	20.0	16.0	60.0	16.0	12.0
Manufacture of other transport vehicles	31.3	31.3	6.3	68.8	18.8	6.3
Medium low tech	17.4	8.3	9.8	67.4	11.4	18.9
Manufacture of coke, refined petroleum products	38.5	7.7	30.8	30.8	23.1	38.5
Manufacture of rubber and plastic products	21.1	10.5	21.1	73.7	15.8	21.1
Manufacture of other non-metallic mineral products	2.9	2.9	2.9	85.7	8.6	11.4
Manufacture of basic metals	22.2	22.2	3.7	48.1	7.4	29.6
Manufacture of fabricated metal products	10.3	3.4	10.3	72.4	10.3	6.9
Construction and repair of vessels	44.4	–	–	77.8	11.1	22.2
Low tech	21.0	0.8	–	73.1	5.0	15.1
Manufacture of food products and beverages	21.1	1.8	–	77.2	5.3	10.5
Manufacture of tobacco products	–	–	–	100	–	–
Manufacture of textiles	–	–	–	85.7	14.3	28.6
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	–	100	–	–

(continued)

	Enterprises acquiring technology as a percentage of all enterprises engaged in technological innovation and technology acquisition					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Purchase of equipment	Targeted hiring of skilled personnel	Other
Manufacture of leather, leather products and footwear	–	–	–	100	–	–
Manufacture of wood and of products of wood and cork, except furniture	10.0	–	–	70.0	10.0	20.0
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	–	–	–	100	16.7	33.3
Publishing and printing, reproduction of recorded media	37.5	–	–	45.8	–	16.7
Manufacture of furniture, manufacturing n.e.c.	33.3	–	–	77.8	–	22.2
Recycling	–	–	–	–	–	–
Electricity, gas and water supply	15.7	15.7	–	63.0	0.9	27.8
Communications, computer and related activities, research and development, other business activities						
Total	**27.1**	**16.3**	**5.0**	**51.1**	**20.3**	**30.5**
Communications	18.9	8.1	–	70.3	13.5	24.3
Computer and related activities	40.0	6.7	–	40.0	10.0	36.7
Research and development	28.7	23.3	7.4	56.9	28.2	21.3
Other business activities	23.4	9.0	3.6	36.9	10.8	47.7

3.30. FORMS OF TECHNOLOGY TRANSFER AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Sale of equipment	Targeted transfer of skilled personnel	Other
	2011					
	Mining and quarrying, manufacturing, electricity, gas and water supply					
Total	**38.7**	**40.3**	**16.1**	**16.1**	**9.7**	**8.1**
Mining and quarrying	75.0	25.0	–	–	–	25.0
Mining and quarrying of energy producing materials	75.0	25.0	–	–	–	25.0
Mining and quarrying, except energy producing materials	–	–	–	–	–	–
Manufacturing	37.5	41.1	17.9	16.1	10.7	7.1
High tech	33.3	55.6	16.7	16.7	11.1	5.6
Manufacture of pharmaceuticals	100	–	–	–	–	–
Manufacture of office machinery and computers	–	–	–	–	–	–
Manufacture of radio, television and communication equipment and apparatus	37.5	87.5	25.0	12.5	12.5	–
Manufacture of medical, precision and optical instruments, watches and clocks	16.7	50.0	–	16.7	16.7	16.7
Manufacture of aircrafts, including spacecrafts	–	–	50.0	50.0	–	–

(continued)

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Sale of equipment	Targeted transfer of skilled personnel	Other
Medium high tech	31.3	50.0	25.0	6.3	6.3	12.5
Manufacture of chemicals and chemical products	–	100	–	–	–	–
Manufacture of machinery and equipment, n.e.c.	16.7	33.3	33.3	–	16.7	16.7
Manufacture of electrical machinery and apparatus	33.3	100	33.3	33.3	–	–
Manufacture of motor vehicles, trailers and semi-trailers	50.0	25.0	25.0	–	–	25.0
Manufacture of other transport vehicles	100	–	–	–	–	–
Medium low tech	50.0	16.7	8.3	8.3	16.7	8.3
Manufacture of coke, refined petroleum products	–	–	–	–	100	–
Manufacture of rubber and plastic products	–	100	–	–	–	–
Manufacture of other non-metallic mineral products	50.0	–	–	–	50.0	50.0
Manufacture of basic metals	80.0	20.0	–	–	–	–
Manufacture of fabricated metal products	–	–	100	–	–	–
Construction and repair of vessels	50.0	–	–	50.0	–	–
Low tech	50.0	50.0	–	50.0	–	–
Manufacture of food products and beverages	66.7	33.3	–	66.7	–	–
Manufacture of tobacco products	–	–	–	–	–	–
Manufacture of textiles	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	–	100	–	–	–	–

(continued)

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Sale of equipment	Targeted transfer of skilled personnel	Other
Manufacture of leather, leather products and footwear	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	–	–	–	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	–	–	–	–	–	–
Publishing and printing, reproduction of recorded media	–	–	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	–	–	–	–	–	–
Recycling	–	–	–	–	–	–
Electricity, gas and water supply	–	50.0	–	50.0	–	–
Communications, computer and related activities, research and development, other business activities						
Total	**27.8**	**66.7**	**16.7**	**13.9**	**5.6**	**4.4**
Communications	100	–	–	50.0	–	–
Computer and related activities	25.0	58.3	8.3	16.7	16.7	8.3
Research and development	28.1	68.6	17.0	13.7	5.2	3.9
Other business activities	15.4	61.5	23.1	7.7	–	7.7

(continued)

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Sale of equipment	Targeted transfer of skilled personnel	Other
	2012					
	Mining and quarrying, manufacturing, electricity, gas and water supply					
Total	**36.7**	**34.7**	**14.3**	**30.6**	**16.3**	**4.1**
Mining and quarrying	50.0	–	50.0	–	–	–
Mining and quarrying of energy producing materials	50.0	–	50.0	–	–	–
Mining and quarrying, except energy producing materials	–	–	–	–	–	–
Manufacturing	37.8	35.6	13.3	33.3	17.8	2.2
High tech	30.8	38.5	7.7	30.8	23.1	7.7
Manufacture of pharmaceuticals	–	100	–	–	–	–
Manufacture of office machinery and computers	–	–	–	–	–	–
Manufacture of radio, television and communication equipment and apparatus	–	100	–	–	–	–
Manufacture of medical, precision and optical instruments, watches and clocks	28.6	14.3	–	42.9	28.6	14.3
Manufacture of aircrafts, including spacecrafts	66.7	33.3	33.3	33.3	33.3	–

(continued)

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Sale of equipment	Targeted transfer of skilled personnel	Other
Medium high tech	45.5	36.4	18.2	36.4	9.1	–
Manufacture of chemicals and chemical products	–	100	–	–	–	–
Manufacture of machinery and equipment, n.e.c.	25.0	25.0	25.0	50.0	25.0	–
Manufacture of electrical machinery and apparatus	50.0	–	–	50.0	–	–
Manufacture of motor vehicles, trailers and semi-trailers	100	–	–	–	–	–
Manufacture of other transport vehicles	100	50.0	50.0	50.0	–	–
Medium low tech	28.6	28.6	–	28.6	28.6	–
Manufacture of coke, refined petroleum products	–	–	–	–	100	–
Manufacture of rubber and plastic products	–	–	–	–	–	–
Manufacture of other non-metallic mineral products	33.3	–	–	66.7	33.3	–
Manufacture of basic metals	33.3	66.7	–	–	–	–
Manufacture of fabricated metal products	–	–	–	–	–	–
Construction and repair of vessels	–	–	–	–	–	–
Low tech	37.5	25.0	–	50.0	12.5	–
Manufacture of food products and beverages	50.0	25.0	–	75.0	–	–
Manufacture of tobacco products	–	–	–	–	–	–
Manufacture of textiles	–	100	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	–	–	–	–

(continued)

	Enterprises transferring technology as a percentage of all enterprises engaged in technological innovation and technology transfer					
	Patent rights and licenses	R&D results	Know-how, technology transfer agreements	Sale of equipment	Targeted transfer of skilled personnel	Other
Manufacture of leather, leather products and footwear	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	–	–	–	50.0	50.0	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	–	–	–	–	–	–
Publishing and printing, reproduction of recorded media	100	–	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	–	–	–	–	–	–
Recycling	–	–	–	–	–	–
Electricity, gas and water supply	–	50.0	–	–	–	50.0
Communications, computer and related activities, research and development, other business activities						
Total	**29.5**	**67.1**	**14.8**	**10.0**	**3.3**	**4.8**
Communications	–	50.0	–	25.0	–	25.0
Computer and related activities	33.3	50.0	5.6	11.1	11.1	11.1
Research and development	30.5	69.5	16.4	9.6	2.3	3.4
Other business activities	18.2	63.6	9.1	9.1	9.1	9.1

3.31. TECHNOLOGY ACQUISITION AND TRANSFER BY ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

	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
2011								
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**10890**	**2289**	**186**	**2103**	**1513**	**78**	**11**	**67**
Patent rights and patent licenses	999	123	7	116	181	38	3	35
R&D results	933	41	14	27	883	7	4	3
Know-how, agreements on technology transfer	84	23	–	23	51	11	2	9
Purchase (sale) of equipment	6279	1806	134	1672	302	15	2	13
Targeted hiring (transfer) of skilled personnel	1045	54	21	33	79	2	–	2
Other	1550	242	10	232	17	5	–	5
Communications, computer and related activities, research and development, other business activities								
Total	**12004**	**644**	**37**	**607**	**4014**	**376**	**107**	**269**
Patent rights and patent licenses	1906	65	4	61	1009	55	7	48
R&D results	774	18	2	16	2237	285	90	195
Know-how, agreements on technology transfer	131	14	–	14	239	4	–	4
Purchase (sale) of equipment	4589	460	27	433	280	31	9	22
Targeted hiring (transfer) of skilled personnel	1890	68	2	66	102	–	–	–
Other	2714	19	2	17	147	1	1	–

(continued)

	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
2012								
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**11033**	**1899**	**225**	**1674**	**854**	**105**	**11**	**94**
Patent rights and patent licenses	859	151	11	140	220	86	5	81
R&D results	800	36	13	23	417	1	-	1
Know-how, agreements on technology transfer	80	32	–	32	57	14	3	11
Purchase (sale) of equipment	7124	1583	197	1386	80	3	2	1
Targeted hiring (transfer) of skilled personnel	858	40	3	37	71	–	–	–
Other	1312	57	1	56	9	1	1	–
Communications, computer and related activities, research and development, other business activities								
Total	**11276**	**726**	**10**	**716**	**4774**	**767**	**60**	**707**
Patent rights and patent licenses	1407	24	2	22	554	14	6	8
R&D results	847	19	4	15	3062	707	44	663
Know-how, agreements on technology transfer	102	2	–	2	245	10	2	8
Purchase (sale) of equipment	4159	647	2	645	786	35	7	28
Targeted hiring (transfer) of skilled personnel	1555	14	–	14	82	–	–	–
Other	3206	20	2	18	45	1	1	–

3.32. PARTICIPATION OF ENTERPRISES IN JOINT R&D PROJECTS

	Enterprises taking part 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
2011										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**1032**	**813**	**78.8**	**219**	**21.2**	**7259**	**6000**	**82.7**	**1259**	**17.3**
Of which with partners from:										
Russia	967	767	79.3	200	20.7	6364	5255	82.6	1109	17.4
CIS countries	127	98	77.2	29	22.8	232	148	63.8	84	36.2
EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	187	146	78.1	41	21.9	458	360	78.6	98	21.4
United States and Canada	53	41	77.4	12	22.6	127	93	73.2	34	26.8
India and China	44	33	75.0	11	25.0	120	86	71.7	34	28.3
other countries	59	41	69.5	18	30.5	166	116	69.9	50	30.1
Communications, computer and related activities, research and development, other business activities										
Total	**669**	**464**	**69.4**	**205**	**30.6**	**10955**	**8909**	**81.3**	**2046**	**18.7**
Of which with partners from:										
Russia	638	451	70.7	187	29.3	9770	7909	81.0	1861	19.0
CIS countries	88	69	78.4	19	21.6	253	200	79.1	53	20.9
EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	84	58	69.0	26	31.0	519	453	87.3	66	12.7
United States and Canada	52	39	75.0	13	25.0	153	133	86.9	20	13.1
India and China	49	37	75.5	12	24.5	118	83	70.3	35	29.7
other countries	69	46	66.7	23	33.3	219	175	79.9	44	20.1

(continued)

	Enterprises taking part 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
2012										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**1024**	**822**	**80.3**	**202**	**19.7**	**7564**	**6528**	**86.3**	**1036**	**13.7**
Of which with partners from:										
Russia	955	773	80.9	182	19.1	6836	5899	86.3	937	13.7
CIS countries	91	69	75.8	22	24.2	154	104	67.5	50	32.5
EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	176	142	80.7	34	19.3	431	349	81.0	82	19.0
United States and Canada	46	36	78.3	10	21.7	120	86	71.7	34	28.3
India and China	55	38	69.1	17	30.9	167	114	68.3	53	31.7
other countries	90	66	73.3	24	26.7	260	193	74.2	67	25.8
Communications, computer and related activities, research and development, other business activities										
Total	**832**	**532**	**63.9**	**300**	**36.1**	**14546**	**10425**	**71.7**	**4121**	**28.3**
Of which with partners from:										
Russia	799	516	64.6	283	35.4	13447	9739	72.4	3708	27.6
CIS countries	123	87	70.7	36	29.3	272	216	79.4	56	20.6
EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	115	71	61.7	44	38.3	360	222	61.7	138	38.3
United States and Canada	75	45	60.0	30	40.0	154	82	53.2	72	46.8
India and China	82	65	79.3	17	20.7	287	245	85.4	42	14.6
other countries	110	74	67.3	36	32.7	344	180	52.3	164	47.7

3.33. 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	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**4.2**	**4.2**	**34.7**	**34.3**	**1.0**	**0.9**
Mining and quarrying	4.5	4.3	41.2	41.3	1.8	1.5
Mining and quarrying of energy producing materials	5.6	5.3	44.2	44.7	1.8	1.7
Mining and quarrying, except energy producing materials	3.0	2.9	32.0	33.3	1.8	1.3
Manufacturing	5.3	5.2	36.4	35.3	1.2	1.1
High tech	18.0	18.0	53.6	52.8	4.1	3.0
Manufacture of pharmaceuticals	10.6	10.6	39.5	42.9	2.3	0.7
Manufacture of office machinery and computers	25.0	20.5	80.0	63.6	6.7	6.1
Manufacture of radio, television and communication equipment and apparatus	22.9	22.9	59.6	59.1	4.4	3.4
Manufacture of medical, precision and optical instruments, watches and clocks	15.7	15.4	48.6	47.0	4.4	2.9
Manufacture of aircrafts, including spacecrafts	23.3	25.7	61.2	63.5	4.1	4.3
Medium high tech	8.7	8.6	39.5	37.8	2.1	2.3
Manufacture of chemicals and chemical products	11.9	12.5	47.2	45.8	2.5	3.7
Manufacture of machinery and equipment, n.e.c.	7.2	6.5	37.4	34.8	1.8	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	
	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	9.4	9.8	36.2	34.5	2.7	3.2
Manufacture of motor vehicles, trailers and semi-trailers	10.0	9.7	39.0	36.1	1.7	2.1
Manufacture of other transport vehicles	7.1	8.2	43.8	48.6	2.1	1.7
Medium low tech	5.3	5.0	36.6	33.7	1.3	1.1
Manufacture of coke, refined petroleum products	25.0	23.1	69.7	66.7	4.2	2.8
Manufacture of rubber and plastic products	3.8	3.4	22.2	25.0	1.6	0.7
Manufacture of other non-metallic mineral products	3.4	2.7	27.4	22.6	1.2	0.8
Manufacture of basic metals	14.5	13.9	57.6	53.6	1.7	2.1
Manufacture of fabricated metal products	3.3	3.8	29.2	27.2	0.6	1.0
Construction and repair of vessels	6.6	6.9	29.2	29.2	2.8	3.0
Low tech	1.4	1.5	16.9	16.3	0.4	0.5
Manufacture of food products and beverages	2.2	2.2	17.8	16.7	0.5	0.8
Manufacture of tobacco products	15.8	10.0	33.3	28.6	7.7	–
Manufacture of textiles	1.6	2.3	8.8	20.0	0.7	0.4
Manufacture of wearing apparel, dressing and dyeing of fur	1.4	1.3	35.7	20.0	–	0.3
Manufacture of leather, leather products and footwear	2.2	2.3	25.0	20.0	0.8	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	
	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	0.6	1.1	10.0	12.0	0.2	0.6
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	5.8	4.9	39.3	29.2	1.0	2.0
Publishing and printing, reproduction of recorded media	0.4	0.4	9.4	11.9	0.2	0.1
Manufacture of furniture, manufacturing n.e.c.	0.9	0.9	7.1	7.1	0.3	0.3
Recycling	0.5	0.8	14.3	40.0	–	–
Electricity, gas and water supply	1.3	1.4	20.7	24.9	0.3	0.2
Communications, computer and related activities, research and development, other business activities						
Total	**4.6**	**5.4**	**41.5**	**43.4**	**1.5**	**2.1**
Communications	3.5	3.3	23.8	21.8	0.9	0.8
Computer and related activities	4.5	3.7	36.7	32.7	1.7	1.1
Research and development	26.6	28.1	66.7	66.8	10.3	12.1
Other business activities	1.1	1.4	17.1	15.4	0.5	1.0

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

	Percentage distribution of enterprises taking part in joint R&D projects by partner country											
	Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		Other	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply												
Total	**94.3**	**94.0**	**12.1**	**8.4**	**18.0**	**17.3**	**5.0**	**4.4**	**4.1**	**4.6**	**5.0**	**8.0**
Mining and quarrying	95.2	95.6	7.1	6.7	7.1	8.9	9.5	8.9	–	–	2.4	2.2
Mining and quarrying of energy producing materials	97.1	97.1	2.9	5.9	8.8	5.9	11.8	8.8	–	–	–	–
Mining and quarrying, except energy producing materials	87.5	90.9	25.0	9.1	–	18.2	–	9.1	–	–	12.5	9.1
Manufacturing	94.0	93.3	13.1	9.4	19.8	19.1	5.2	4.3	4.6	5.4	5.3	8.7
High tech	97.9	96.5	12.3	10.5	10.2	11.5	3.7	1.5	2.1	4.5	5.3	6.0
Manufacture of pharmaceuticals	93.3	94.4	33.3	33.3	13.3	27.8	–	5.6	–	11.1	–	11.1
Manufacture of office machinery and computers	100	100	12.5	–	–	–	–	–	12.5	–	12.5	–
Manufacture of radio, television and communication equipment and apparatus	98.4	98.5	8.1	6.2	6.5	3.1	4.8	–	1.6	–	3.2	–
Manufacture of medical, precision and optical instruments, watches and clocks	98.6	94.8	9.7	10.4	11.1	11.7	1.4	2.6	1.4	3.9	5.6	11.7
Manufacture of aircrafts, including spacecrafts	96.7	97.0	16.7	9.1	16.7	21.2	10.0	–	3.3	12.1	10.0	3.0
Medium high tech	95.2	93.3	14.3	8.5	21.7	19.7	7.0	4.9	7.0	7.6	6.1	12.6
Manufacture of chemicals and chemical products	96.1	91.8	7.8	8.2	31.4	22.4	7.8	6.1	-	4.1	2.0	14.3
Manufacture of machinery and equipment, n.e.c.	95.3	92.3	15.1	6.4	14.0	20.5	9.3	5.1	4.7	5.1	8.1	10.3

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner country											
	Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		Other	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of electrical machinery and apparatus	95.7	100	14.9	8.3	17.0	4.2	4.3	–	12.8	8.3	4.3	4.2
Manufacture of motor vehicles, trailers and semi-trailers	90.6	90.0	21.9	13.3	34.4	36.7	6.3	13.3	15.6	13.3	12.5	30.0
Manufacture of other transport vehicles	100	88.9	14.3	11.1	21.4	22.2	–	–	7.1	16.7	–	11.1
Medium low tech	87.6	89.1	17.0	11.6	27.5	24.5	7.2	10.2	5.2	6.1	6.5	8.2
Manufacture of coke, refined petroleum products	95.7	90.9	26.1	18.2	39.1	45.5	21.7	45.5	–	–	8.7	13.6
Manufacture of rubber and plastic products	78.6	94.1	7.1	5.9	14.3	5.9	–	5.9	7.1	5.9	7.1	5.9
Manufacture of other non-metallic mineral products	87.5	82.1	3.1	3.6	21.9	25.0	3.1	–	9.4	7.1	3.1	10.7
Manufacture of basic metals	85.7	91.1	22.4	20.0	32.7	26.7	8.2	4.4	–	6.7	8.2	6.7
Manufacture of fabricated metal products	85.7	85.7	17.9	3.6	21.4	17.9	–	3.6	7.1	3.6	3.6	3.6
Construction and repair of vessels	100	100	28.6	14.3	28.6	14.3	14.3	14.3	28.6	28.6	14.3	14.3
Low tech	90.0	90.4	6.7	6.0	27.8	30.1	3.3	–	4.4	2.4	4.4	8.4
Manufacture of food products and beverages	92.7	91.7	5.5	8.3	21.8	27.1	3.6	–	7.3	2.1	7.3	12.5
Manufacture of tobacco products	50.0	50.0	50.0	–	100	100	–	–	–	–	–	–
Manufacture of textiles	66.7	83.3	–	–	66.7	33.3	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	100	100	–	–	–	–	–	–	–	33.3	–	–
Manufacture of leather, leather products and footwear	100	100	–	–	–	–	–	–	–	–	–	–

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner country											
	Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		Other	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	100	100	50.0	–	50.0	33.3	–	–	–	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	72.7	85.7	–	14.3	63.6	71.4	9.1	–	–	–	–	14.3
Publishing and printing, reproduction of recorded media	100	100	–	–	–	–	–	–	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	100	100	33.3	–	33.3	33.3	–	–	–	–	–	–
Recycling	100	50.0	–	–	–	50.0	–	–	–	–	–	–
Electricity, gas and water supply	98.3	100	3.4	–	3.4	5.4	–	2.7	–	–	3.4	5.4
Communications, computer and related activities, research and development, other business activities												
Total	97.2	97.0	14.9	16.4	12.5	13.3	8.4	8.5	8.0	12.2	9.9	13.9
Communications	97.7	97.8	2.3	2.2	9.1	4.4	2.3	–	4.5	22.2	11.4	6.7
Computer and related activities	89.7	90.6	6.9	12.5	6.9	6.3	24.1	15.6	6.9	6.3	3.4	12.5
Research and development	97.3	97.3	19.1	19.4	14.6	15.0	9.4	8.8	9.7	12.8	11.2	15.0
Other business activities	100	97.9	4.8	6.3	6.5	12.5	–	8.3	1.6	2.1	4.8	12.5

3.35. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AND JOINT R&D PROJECTS BY PARTNER COUNTRY AND ECONOMIC ACTIVITY

	Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		Other	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply												
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Mining and quarrying	5.2	5.6	3.1	4.3	2.1	2.8	9.8	11.1	–	–	2.4	1.5
Mining and quarrying of energy producing materials	4.3	4.3	1.0	2.9	2.1	1.4	9.8	8.3	–	–	–	–
Mining and quarrying, except energy producing materials	0.9	1.3	2.0	1.4	–	1.4	–	2.8	–	–	2.4	1.5
Manufacturing	87.2	84.9	94.9	95.7	96.6	94.4	90.2	83.3	100	100	92.7	92.4
High tech	23.9	25.0	23.5	30.4	13.0	16.2	17.1	8.3	12.1	23.7	24.4	18.2
Manufacture of pharmaceuticals	1.8	2.2	5.1	8.7	1.4	3.5	–	2.8	–	5.3	–	3.0
Manufacture of office machinery and computers	1.0	0.9	1.0	–	–	–	–	–	3.0	–	2.4	–
Manufacture of radio, television and communication equipment and apparatus	8.0	8.3	5.1	5.8	2.7	1.4	7.3	–	3.0	–	4.9	–
Manufacture of medical, precision and optical instruments, watches and clocks	9.3	9.4	7.1	11.6	5.5	6.3	2.4	5.6	3.0	7.9	9.8	13.6
Manufacture of aircrafts, including spacecrafts	3.8	4.1	5.1	4.3	3.4	4.9	7.3	–	3.0	10.5	7.3	1.5

(continued)

	Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		Other	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Medium high tech	28.6	26.9	33.7	27.5	34.2	31.0	39.0	30.6	48.5	44.7	34.1	42.4
Manufacture of chemicals and chemical products	6.4	5.8	4.1	5.8	11.0	7.7	9.8	8.3	–	5.3	2.4	10.6
Manufacture of machinery and equipment, n.e.c.	10.7	9.3	13.3	7.2	8.2	11.3	19.5	11.1	12.1	10.5	17.1	12.1
Manufacture of electrical machinery and apparatus	5.9	6.2	7.1	5.8	5.5	1.4	4.9	–	18.2	10.5	4.9	3.0
Manufacture of motor vehicles, trailers and semi-trailers	3.8	3.5	7.1	5.8	7.5	7.7	4.9	11.1	15.2	10.5	9.8	13.6
Manufacture of other transport vehicles	1.8	2.1	2.0	2.9	2.1	2.8	–	–	3.0	7.9	–	3.0
Medium low tech	17.5	16.9	26.5	24.6	28.8	25.4	26.8	41.7	24.2	23.7	24.4	18.2
Manufacture of coke, refined petroleum products	2.9	2.6	6.1	5.8	6.2	7.0	12.2	27.8	–	–	4.9	4.5
Manufacture of rubber and plastic products	1.4	2.1	1.0	1.4	1.4	0.7	–	2.8	3.0	2.6	2.4	1.5
Manufacture of other non-metallic mineral products	3.7	3.0	1.0	1.4	4.8	4.9	2.4	–	9.1	5.3	2.4	4.5
Manufacture of basic metals	5.5	5.3	11.2	13.0	11.0	8.5	9.8	5.6	–	7.9	9.8	4.5
Manufacture of fabricated metal products	3.1	3.1	5.1	1.4	4.1	3.5	–	2.8	6.1	2.6	2.4	1.5
Construction and repair of vessels	0.9	0.9	2.0	1.4	1.4	0.7	2.4	2.8	6.1	5.3	2.4	1.5
Low tech	10.6	9.7	6.1	7.2	17.1	17.6	7.3	–	12.1	5.3	9.8	10.6
Manufacture of food products and beverages	6.6	5.7	3.1	5.8	8.2	9.2	4.9	–	12.1	2.6	9.8	9.1
Manufacture of tobacco products	0.1	0.1	1.0	–	1.4	1.4	–	–	–	–	–	–
Manufacture of textiles	0.3	0.6	–	–	1.4	1.4	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	0.7	0.4	–	–	–	–	–	–	–	2.6	–	–

(continued)

	Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		Other	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of leather, leather products and footwear	0.3	0.1	–	–	–	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	0.3	0.4	1.0	–	0.7	0.7	–	–	–	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1.0	0.8	–	1.4	4.8	3.5	2.4	–	–	–	–	1.5
Publishing and printing, reproduction of recorded media	0.8	1.0	–	–	–	–	–	–	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	0.4	0.4	1.0	–	0.7	0.7	–	–	–	–	–	–
Recycling	0.1	0.1	–	–	–	0.7	–	–	–	–	–	–
Manufacturing of other materials and substances, n.e.c.	6.8	6.3	5.1	5.8	3.4	4.2	–	2.8	3.0	2.6	–	3.0
Electricity, gas and water supply	7.6	9.6	2.0	–	1.4	2.8	–	5.6	–	–	4.9	6.1
Communications, computer and related activities, research and development, other business activities												
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Communications	9.5	8.5	1.4	1.1	6.9	2.8	2.6	–	5.4	15.4	10.9	4.1
Computer and related activities	5.8	5.6	2.9	4.6	3.4	2.8	17.9	11.1	5.4	3.1	2.2	5.4
Research and development	71.0	76.7	91.3	90.8	82.8	85.9	79.5	80.0	86.5	80.0	80.4	82.4
Other business activities	13.7	9.1	4.3	3.4	6.9	8.5	–	8.9	2.7	1.5	6.5	8.1

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

	Percentage distribution of enterprises taking part in joint R&D projects by partner						
	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
	2011						
	Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**32.6**	**24.8**	**43.5**	**10.3**	**12.1**	**45.6**	**27.6**
Mining and quarrying	47.6	11.9	47.6	4.8	11.9	64.3	40.5
Mining and quarrying of energy producing materials	55.9	14.7	47.1	5.9	11.8	61.8	38.2
Mining and quarrying, except energy producing materials	12.5	–	50.0	–	12.5	75.0	50.0
Manufacturing	32.7	27.4	41.7	11.4	11.7	45.6	28.1
High tech	40.1	37.4	40.1	15.0	8.0	49.2	33.7
Manufacture of pharmaceuticals	20.0	26.7	20.0	6.7	6.7	60.0	33.3
Manufacture of office machinery and computers	37.5	25.0	25.0	–	–	62.5	–
Manufacture of radio, television and communication equipment and apparatus	35.5	40.3	29.0	11.3	4.8	38.7	29.0
Manufacture of medical, precision and optical instruments, watches and clocks	45.8	38.9	47.2	15.3	8.3	55.6	37.5
Manufacture of aircrafts, including spacecrafts	46.7	36.7	60.0	30.0	16.7	46.7	43.3

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner						
	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Medium high tech	30.0	29.1	39.6	11.7	10.4	42.6	24.3
Manufacture of chemicals and chemical products	31.4	19.6	31.4	3.9	13.7	72.5	21.6
Manufacture of machinery and equipment, n.e.c.	19.8	31.4	34.9	15.1	5.8	25.6	25.6
Manufacture of electrical machinery and apparatus	31.9	25.5	31.9	14.9	8.5	48.9	23.4
Manufacture of motor vehicles, trailers and semi-trailers	40.6	43.8	78.1	9.4	18.8	18.8	18.8
Manufacture of other transport vehicles	57.1	28.6	35.7	14.3	14.3	71.4	42.9
Medium low tech	32.7	13.1	39.2	8.5	12.4	53.6	31.4
Manufacture of coke, refined petroleum products	30.4	8.7	39.1	8.7	34.8	87.0	47.8
Manufacture of rubber and plastic products	35.7	7.1	21.4	7.1	–	28.6	14.3
Manufacture of other non-metallic mineral products	31.3	12.5	43.8	3.1	3.1	31.3	18.8
Manufacture of basic metals	34.7	10.2	34.7	6.1	18.4	61.2	38.8
Manufacture of fabricated metal products	35.7	14.3	46.4	14.3	3.6	53.6	21.4
Construction and repair of vessels	14.3	57.1	57.1	28.6	-	42.9	57.1
Low tech	21.1	17.8	56.7	6.7	18.9	24.4	11.1
Manufacture of food products and beverages	29.1	21.8	52.7	1.8	25.5	25.5	7.3
Manufacture of tobacco products	–	–	50.0	50.0	50.0	–	–
Manufacture of textiles	–	33.3	66.7	33.3	–	33.3	33.3
Manufacture of wearing apparel, dressing and dyeing of fur	–	40.0	40.0	–	–	60.0	–

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner						
	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Manufacture of leather, leather products and footwear	–	–	–	–	–	–	100
Manufacture of wood and of products of wood and cork, except furniture	–	–	100	50.0	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	9.1	9.1	72.7	9.1	9.1	27.3	9.1
Publishing and printing, reproduction of recorded media	33.3	–	66.7	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	–	–	66.7	33.3	33.3	33.3	33.3
Recycling	–	–	100	–	–	–	100
Electricity, gas and water supply	20.3	3.4	62.7	1.7	16.9	32.2	11.9
Communications, computer and related activities, research and development, other business activities							
Total	**29.3**	**44.8**	**39.0**	**19.2**	**8.8**	**55.2**	**36.6**
Communications	43.2	9.1	77.3	15.9	9.1	9.1	11.4
Computer and related activities	20.7	51.7	37.9	17.2	24.1	3.4	3.4
Research and development	29.8	50.2	32.8	20.7	6.7	69.6	45.9
Other business activities	21.0	38.7	45.2	14.5	12.9	35.5	21.0

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner						
	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
2012							
Mining and quarrying, manufacturing, electricity, gas and water supply							
Total	**30.5**	**24.2**	**42.6**	**8.3**	**13.0**	**46.2**	**27.9**
Mining and quarrying	44.4	4.4	46.7	4.4	8.9	66.7	37.8
Mining and quarrying of energy producing materials	52.9	5.9	47.1	5.9	5.9	67.6	38.2
Mining and quarrying, except energy producing materials	18.2	–	45.5	–	18.2	63.6	36.4
Manufacturing	30.3	27.6	39.5	9.4	12.5	45.8	28.2
High tech	42.0	41.0	34.0	12.0	8.0	49.0	35.5
Manufacture of pharmaceuticals	38.9	22.2	22.2	11.1	5.6	72.2	16.7
Manufacture of office machinery and computers	28.6	57.1	57.1	–	–	28.6	28.6
Manufacture of radio, television and communication equipment and apparatus	33.8	44.6	18.5	4.6	3.1	49.2	30.8
Manufacture of medical, precision and optical instruments, watches and clocks	45.5	45.5	42.9	16.9	7.8	50.6	39.0
Manufacture of aircrafts, including spacecrafts	54.5	30.3	45.5	18.2	21.2	36.4	48.5

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner						
	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Medium high tech	26.0	30.0	36.3	9.9	10.8	40.4	25.1
Manufacture of chemicals and chemical products	32.7	24.5	36.7	2.0	18.4	65.3	22.4
Manufacture of machinery and equipment, n.e.c.	15.4	33.3	35.9	9.0	5.1	25.6	25.6
Manufacture of electrical machinery and apparatus	18.8	29.2	22.9	14.6	6.3	41.7	31.3
Manufacture of motor vehicles, trailers and semi-trailers	43.3	36.7	56.7	20.0	20.0	26.7	20.0
Manufacture of other transport vehicles	44.4	22.2	38.9	5.6	11.1	55.6	22.2
Medium low tech	24.5	10.2	37.4	4.1	17.0	57.8	29.3
Manufacture of coke, refined petroleum products	31.8	–	31.8	9.1	45.5	77.3	36.4
Manufacture of rubber and plastic products	23.5	5.9	29.4	–	5.9	47.1	17.6
Manufacture of other non-metallic mineral products	17.9	3.6	53.6	–	7.1	39.3	14.3
Manufacture of basic metals	22.2	13.3	33.3	2.2	20.0	68.9	44.4
Manufacture of fabricated metal products	32.1	21.4	39.3	7.1	7.1	46.4	10.7
Construction and repair of vessels	14.3	14.3	28.6	14.3	14.3	71.4	71.4
Low tech	20.5	10.8	62.7	4.8	19.3	18.1	12.0
Manufacture of food products and beverages	27.1	10.4	60.4	2.1	22.9	16.7	12.5
Manufacture of tobacco products	50.0	–	50.0	–	–	–	–
Manufacture of textiles	16.7	33.3	33.3	16.7	–	16.7	33.3
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	66.7	33.3	–	33.3	–

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by partner						
	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Manufacture of leather, leather products and footwear	–	–	–	–	–	–	100
Manufacture of wood and of products of wood and cork, except furniture	33.3	–	66.7	–	66.7	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	14.3	14.3	85.7	14.3	–	42.9	–
Publishing and printing, reproduction of recorded media	–	12.5	62.5	–	37.5	12.5	–
Manufacture of furniture, manufacturing n.e.c.	–	–	100	–	–	33.3	–
Recycling	–	–	100	–	–	–	50.0
Electricity, gas and water supply	24.3	4.1	68.9	–	20.3	37.8	18.9
Communications, computer and related activities, research and development, other business activities							
Total	**31.0**	**47.0**	**37.8**	**17.3**	**10.0**	**56.2**	**38.2**
Communications	33.3	17.8	73.3	15.6	8.9	13.3	13.3
Computer and related activities	21.9	43.8	46.9	12.5	21.9	12.5	9.4
Research and development	31.7	51.4	32.7	17.7	7.9	67.8	45.2
Other business activities	29.2	39.6	41.7	18.8	20.8	27.1	20.8

3.37. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION AND JOINT R&D PROJECTS BY PARTNER AND ECONOMIC ACTIVITY

	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
2011							
Mining and quarrying, manufacturing, electricity, gas and water supply							
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Mining and quarrying	7.5	2.5	5.6	2.4	5.1	7.3	7.6
Mining and quarrying of energy producing materials	7.2	2.5	4.5	2.4	4.1	5.7	5.8
Mining and quarrying, except energy producing materials	0.4	–	1.1	–	1.0	1.6	1.8
Manufacturing	87.9	96.5	83.9	96.4	84.7	87.6	89.3
High tech	28.3	34.7	21.2	33.3	15.3	24.8	28.1
Manufacture of pharmaceuticals	1.1	2.0	0.8	1.2	1.0	2.4	2.2
Manufacture of office machinery and computers	1.1	1.0	0.6	–	–	1.3	–
Manufacture of radio, television and communication equipment and apparatus	8.3	12.4	5.1	8.3	3.1	6.5	8.0
Manufacture of medical, precision and optical instruments, watches and clocks	12.5	13.9	9.6	13.1	6.1	10.8	12.1
Manufacture of aircrafts, including spacecrafts	5.3	5.4	5.1	10.7	5.1	3.8	5.8

(continued)

	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Medium high tech	26.0	33.2	25.7	32.1	24.5	26.4	25.0
Manufacture of chemicals and chemical products	6.0	5.0	4.5	2.4	7.1	10.0	4.9
Manufacture of machinery and equipment, n.e.c.	6.4	13.4	8.5	15.5	5.1	5.9	9.8
Manufacture of electrical machinery and apparatus	5.7	5.9	4.2	8.3	4.1	6.2	4.9
Manufacture of motor vehicles, trailers and semi-trailers	4.9	6.9	7.1	3.6	6.1	1.6	2.7
Manufacture of other transport vehicles	3.0	2.0	1.4	2.4	2.0	2.7	2.7
Medium low tech	18.9	9.9	16.9	15.5	19.4	22.1	21.4
Manufacture of coke, refined petroleum products	2.6	1.0	2.5	2.4	8.2	5.4	4.9
Manufacture of rubber and plastic products	1.9	0.5	0.8	1.2	–	1.1	0.9
Manufacture of other non-metallic mineral products	3.8	2.0	4.0	1.2	1.0	2.7	2.7
Manufacture of basic metals	6.4	2.5	4.8	3.6	9.2	8.1	8.5
Manufacture of fabricated metal products	3.8	2.0	3.7	4.8	1.0	4.0	2.7
Construction and repair of vessels	0.4	2.0	1.1	2.4	–	0.8	1.8
Low tech	7.2	7.9	14.4	7.1	17.3	5.9	4.5
Manufacture of food products and beverages	6.0	5.9	8.2	1.2	14.3	3.8	1.8
Manufacture of tobacco products	–	–	0.3	1.2	1.0	–	–
Manufacture of textiles	–	0.5	0.6	1.2	–	0.3	0.4
Manufacture of wearing apparel, dressing and dyeing of fur	–	1.0	0.6	–	–	0.8	–

(continued)

	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Manufacture of leather, leather products and footwear	–	–	–	–	–	–	0.9
Manufacture of wood and of products of wood and cork, except furniture	–	–	0.6	1.2	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	0.4	0.5	2.3	1.2	1.0	0.8	0.4
Publishing and printing, reproduction of recorded media	0.8	–	1.1	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	–	–	0.6	1.2	1.0	0.3	0.4
Recycling	–	–	0.3	–	–	–	0.4
Manufacturing of other materials and substances, n.e.c.	7.5	10.9	5.6	8.3	8.2	8.4	10.3
Electricity, gas and water supply	4.5	1.0	10.5	1.2	10.2	5.1	3.1
Communications, computer and related activities, research and development, other business activities							
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Communications	14.0	1.9	18.8	7.9	9.8	1.6	2.9
Computer and related activities	4.4	7.2	6.1	5.6	17.1	0.4	0.6
Research and development	72.1	79.3	59.7	76.4	53.7	89.5	88.8
Other business activities	9.6	11.5	15.5	10.1	19.5	8.6	7.6

(continued)

	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
				2012			
				Mining and quarrying, manufacturing, electricity, gas and water supply			
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Mining and quarrying	8.0	1.0	6.0	2.9	3.7	7.9	7.4
Mining and quarrying of energy producing materials	7.2	1.0	4.6	2.9	1.9	6.1	5.7
Mining and quarrying, except energy producing materials	0.8	–	1.4	–	1.9	1.8	1.7
Manufacturing	84.9	97.5	79.4	97.1	82.2	84.7	86.5
High tech	33.5	41.2	19.4	35.3	15.0	25.8	31.0
Manufacture of pharmaceuticals	2.8	2.0	1.1	2.9	0.9	3.4	1.3
Manufacture of office machinery and computers	0.8	2.0	1.1	–	–	0.5	0.9
Manufacture of radio, television and communication equipment and apparatus	8.8	14.6	3.4	4.4	1.9	8.4	8.7
Manufacture of medical, precision and optical instruments, watches and clocks	13.9	17.6	9.4	19.1	5.6	10.3	13.1
Manufacture of aircrafts, including spacecrafts	7.2	5.0	4.3	8.8	6.5	3.2	7.0

(continued)

	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Medium high tech	23.1	33.7	23.1	32.4	22.4	23.7	24.5
Manufacture of chemicals and chemical products	6.4	6.0	5.1	1.5	8.4	8.4	4.8
Manufacture of machinery and equipment, n.e.c.	4.8	13.1	8.0	10.3	3.7	5.3	8.7
Manufacture of electrical machinery and apparatus	3.6	7.0	3.1	10.3	2.8	5.3	6.6
Manufacture of motor vehicles, trailers and semi-trailers	5.2	5.5	4.9	8.8	5.6	2.1	2.6
Manufacture of other transport vehicles	3.2	2.0	2.0	1.5	1.9	2.6	1.7
Medium low tech	14.3	7.5	15.7	8.8	23.4	22.4	18.8
Manufacture of coke, refined petroleum products	2.8	–	2.0	2.9	9.3	4.5	3.5
Manufacture of rubber and plastic products	1.6	0.5	1.4	–	0.9	2.1	1.3
Manufacture of other non-metallic mineral products	2.0	0.5	4.3	–	1.9	2.9	1.7
Manufacture of basic metals	4.0	3.0	4.3	1.5	8.4	8.2	8.7
Manufacture of fabricated metal products	3.6	3.0	3.1	2.9	1.9	3.4	1.3
Construction and repair of vessels	0.4	0.5	0.6	1.5	0.9	1.3	2.2
Low tech	6.8	4.5	14.9	5.9	15.0	3.9	4.4
Manufacture of food products and beverages	5.2	2.5	8.3	1.5	10.3	2.1	2.6
Manufacture of tobacco products	0.4	–	0.3	–	–	–	–
Manufacture of textiles	0.4	1.0	0.6	1.5	–	0.3	0.9
Manufacture of wearing apparel, dressing and dyeing of fur	–	–	0.6	1.5	–	0.3	–

(continued)

	Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Manufacture of leather, leather products and footwear	–	–	–	–	–	–	0.4
Manufacture of wood and of products of wood and cork, except furniture	0.4	–	0.6	–	1.9	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	0.4	0.5	1.7	1.5	–	0.8	–
Publishing and printing, reproduction of recorded media	–	0.5	1.4	–	2.8	0.3	–
Manufacture of furniture, manufacturing n.e.c.	–	–	0.9	–	–	0.3	–
Recycling	–	–	0.6	–	–	–	0.4
Manufacturing of other materials and substances, n.e.c.	7.2	10.6	6.3	14.7	6.5	8.9	7.9
Electricity, gas and water supply	7.2	1.5	14.6	–	14.0	7.4	6.1
Communications, computer and related activities, research and development, other business activities							
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Communications	9.1	3.2	16.4	7.6	7.5	2.0	3.0
Computer and related activities	4.2	5.6	7.5	4.3	13.2	1.3	1.5
Research and development	78.2	83.6	66.2	78.3	60.4	92.3	90.6
Other business activities	8.5	7.6	10.0	9.8	18.9	4.3	4.9

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

	Percentage distribution of enterprises taking part in joint R&D projects by type of co-operation					
	Permanent co-operation		Co-operation within a specific project		One-time co-operation unrelated to any specific project	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**45.9**	**46.5**	**73.3**	**72.5**	**12.9**	**12.2**
Mining and quarrying	45.2	42.2	81.0	80.0	11.9	8.9
Mining and quarrying of energy producing materials	47.1	44.1	79.4	76.5	8.8	5.9
Mining and quarrying, except energy producing materials	37.5	36.4	87.5	90.9	25.0	18.2
Manufacturing	47.5	48.1	72.6	72.1	13.2	12.5
High tech	49.2	49.5	73.3	78.5	12.8	10.5
Manufacture of pharmaceuticals	26.7	50.0	80.0	72.2	20.0	16.7
Manufacture of office machinery and computers	62.5	85.7	62.5	42.9	–	–
Manufacture of radio, television and communication equipment and apparatus	46.8	41.5	71.0	83.1	11.3	6.2
Manufacture of medical, precision and optical instruments, watches and clocks	51.4	53.2	76.4	76.6	11.1	10.4
Manufacture of aircrafts, including spacecrafts	56.7	48.5	70.0	84.8	20.0	18.2

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by type of co-operation					
	Permanent co-operation		Co-operation within a specific project		One-time co-operation unrelated to any specific project	
	2011	2012	2011	2012	2011	2012
Medium high tech	46.1	44.8	78.7	72.6	10.9	13.5
Manufacture of chemicals and chemical products	43.1	40.8	78.4	79.6	15.7	14.3
Manufacture of machinery and equipment, n.e.c.	44.2	42.3	74.4	66.7	9.3	14.1
Manufacture of electrical machinery and apparatus	42.6	33.3	83.0	81.3	4.3	10.4
Manufacture of motor vehicles, trailers and semi-trailers	46.9	70.0	84.4	66.7	15.6	13.3
Manufacture of other transport vehicles	78.6	55.6	78.6	66.7	14.3	16.7
Medium low tech	46.4	46.9	69.9	74.8	13.1	13.6
Manufacture of coke, refined petroleum products	43.5	54.5	95.7	95.5	–	13.6
Manufacture of rubber and plastic products	35.7	52.9	71.4	52.9	–	11.8
Manufacture of other non-metallic mineral products	46.9	35.7	46.9	67.9	21.9	21.4
Manufacture of basic metals	46.9	44.4	71.4	80.0	16.3	15.6
Manufacture of fabricated metal products	50.0	53.6	67.9	64.3	10.7	3.6
Construction and repair of vessels	57.1	42.9	85.7	100	28.6	14.3
Low tech	40.0	53.0	65.6	54.2	15.6	8.4
Manufacture of food products and beverages	30.9	56.3	72.7	45.8	16.4	12.5
Manufacture of tobacco products	100	100	–	50.0	–	–
Manufacture of textiles	66.7	50.0	33.3	50.0	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	80.0	66.7	40.0	33.3	40.0	–

(continued)

	Percentage distribution of enterprises taking part in joint R&D projects by type of co-operation					
	Permanent co-operation		Co-operation within a specific project		One-time co-operation unrelated to any specific project	
	2011	2012	2011	2012	2011	2012
Manufacture of leather, leather products and footwear	50.0	100	–	–	50.0	–
Manufacture of wood and of products of wood and cork, except furniture	50.0	33.3	50.0	66.7	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	36.4	42.9	72.7	85.7	–	–
Publishing and printing, reproduction of recorded media	16.7	25.0	66.7	62.5	16.7	12.5
Manufacture of furniture, manufacturing n.e.c.	100	66.7	67.7	100	33.3	–
Recycling	100	50.0	100	100	–	–
Electricity, gas and water supply	27.1	33.8	76.3	71.6	10.2	10.8
Communications, computer and related activities, research and development, other business activities						
Total	**50.0**	**49.4**	**74.8**	**74.2**	**14.2**	**15.6**
Communications	65.9	57.8	50.0	51.1	6.8	6.7
Computer and related activities	62.1	53.1	51.7	56.3	13.8	15.6
Research and development	48.0	47.2	81.8	79.9	15.2	16.7
Other business activities	43.5	58.3	66.1	60.4	14.5	14.6

3.39. 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 Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		other countries	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply														
Total	**6000**	**6528**	**5255**	**5899**	**148**	**104**	**360**	**349**	**93**	**86**	**86**	**114**	**116**	**193**
Mining and quarrying	389	525	378	515	3	3	4	5	5	4	–	–	1	1
Mining and quarrying of energy producing materials	346	365	338	358	1	2	4	3	5	3	–	–	–	–
Mining and quarrying, except energy producing materials	43	160	40	157	2	1	–	2	–	1	–	–	1	1
Manufacturing	5352	5682	4625	5076	143	101	353	336	88	79	86	114	113	183
High tech	1398	1997	1261	1860	36	25	41	50	28	33	19	46	31	36
Manufacture of pharmaceuticals	87	104	77	88	10	7	2	6	–	2	–	3	–	5
Manufacture of office machinery and computers	35	37	32	37	1	–	–	–	–	–	1	–	1	–
Manufacture of radio, television and communication equipment and apparatus	495	415	459	408	10	5	9	2	7	–	1	–	13	–
Manufacture of medical, precision and optical instruments, watches and clocks	511	939	467	878	8	8	17	20	18	31	1	4	7	24
Manufacture of aircrafts, including spacecrafts	270	502	226	449	7	5	13	22	3	–	16	39	10	7

(continued)

	Joint R&D projects		Of which with partners from											
			Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		other countries	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Medium high tech	1481	1341	1228	1137	49	26	110	111	24	19	38	43	50	73
Manufacture of chemicals and chemical products	413	299	373	265	5	7	26	16	4	3	–	6	5	22
Manufacture of machinery and equipment, n.e.c.	425	340	344	269	18	7	28	33	15	10	17	19	13	22
Manufacture of electrical machinery and apparatus	221	186	184	175	11	5	12	2	2	–	11	7	3	4
Manufacture of motor vehicles, trailers and semi-trailers	336	415	249	336	13	5	39	49	3	6	9	7	29	20
Manufacture of other transport vehicles	86	101	78	92	2	2	5	11	–	–	1	4	–	5
Medium low tech	1276	1369	1070	1179	43	36	110	109	26	26	16	21	28	44
Manufacture of coke, refined petroleum products	326	386	271	334	12	7	32	41	13	18	–	–	2	5
Manufacture of rubber and plastic products	42	62	22	58	1	1	17	1	–	1	1	1	1	1
Manufacture of other non-metallic mineral products	111	85	82	66	1	1	17	19	3	–	5	4	4	12
Manufacture of basic metals	637	648	585	604	16	15	29	24	7	3	–	8	4	3
Manufacture of fabricated metal products	98	99	77	77	7	1	8	7	–	1	2	1	6	12
Construction and repair of vessels	62	89	33	40	6	11	7	17	3	3	8	7	11	11
Low tech	717	351	600	295	10	8	81	56	10	–	12	3	4	28
Manufacture of food products and beverages	371	264	306	230	5	6	36	28	8	–	12	2	4	20
Manufacture of tobacco products	11	7	1	1	2	–	8	7	–	–	–	–	–	–
Manufacture of textiles	15	18	6	17	–	–	9	9	–	–	–	–	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	16	7	16	6	–	–	–	–	–	–	–	1	–	–

(continued)

	Joint R&D projects		Of which with partners from											
			Russia		CIS countries		EU Member States, Iceland, Liechtenstein, Norway, and Switzerland		United States and Canada		India and China		other countries	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Manufacture of leather, leather products and footwear	2	1	2	1	–	–	–	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	20	4	15	4	2	–	3	1	–	–	–	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	243	20	222	11	–	2	19	6	2	–	–	–	–	8
Publishing and printing, reproduction of recorded media	8	13	8	13	–	–	–	–	–	–	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	23	14	16	10	1	–	6	4	–	–	–	–	–	–
Recycling	8	3	8	2	–	–	–	1	–	–	–	–	–	–
Manufacturing of other materials and substances, n.e.c.	480	624	466	605	5	6	11	10	–	1	1	1	–	2
Electricity, gas and water supply	259	321	252	308	2	–	3	8	–	3	–	–	2	9
Communications, computer and related activities, research and development, other business activities														
Total	**8909**	**10425**	**7909**	**9739**	**200**	**216**	**453**	**222**	**133**	**82**	**83**	**245**	**175**	**180**
Communications	294	346	282	333	1	5	6	3	1	–	2	15	5	7
Computer and related activities	218	192	175	171	3	7	2	3	13	5	5	4	20	5
Research and development	7867	9315	6948	8685	193	199	424	203	119	72	75	209	144	154
Other business activities	530	572	504	550	3	5	21	13	–	5	1	17	6	14

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

	Total	Of which by partner						
		Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
2011								
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**6000**	**964**	**1170**	**1975**	**403**	**311**	**1459**	**450**
Mining and quarrying	389	140	12	44	3	14	169	28
Mining and quarrying of energy producing materials	346	134	12	39	3	12	146	21
Mining and quarrying, except energy producing materials	43	6	–	5	–	2	23	7
Manufacturing	5352	785	1156	1825	399	281	1187	413
High tech	1398	201	385	483	89	22	285	118
Manufacture of pharmaceuticals	87	6	6	6	1	2	51	17
Manufacture of office machinery and computers	35	3	6	8	–	–	18	–
Manufacture of radio, television and communication equipment and apparatus	495	64	179	190	30	3	56	31
Manufacture of medical, precision and optical instruments, watches and clocks	511	103	160	136	28	11	121	53
Manufacture of aircrafts, including spacecrafts	270	25	34	143	30	6	39	17

(continued)

	Total	Of which by partner						
		Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Medium high tech	1481	230	304	539	144	38	247	92
Manufacture of chemicals and chemical products	413	79	47	166	4	13	106	19
Manufacture of machinery and equipment, n.e.c.	425	72	121	91	82	9	60	38
Manufacture of electrical machinery and apparatus	221	24	57	58	31	7	37	15
Manufacture of motor vehicles, trailers and semi-trailers	336	29	66	201	23	7	16	13
Manufacture of other transport vehicles	86	26	13	23	4	2	28	7
Medium low tech	1276	196	64	312	78	138	453	149
Manufacture of coke, refined petroleum products	326	26	3	133	3	44	105	30
Manufacture of rubber and plastic products	42	10	4	4	16	–	6	2
Manufacture of other non-metallic mineral products	111	14	17	37	10	8	19	12
Manufacture of basic metals	637	130	13	82	6	82	288	93
Manufacture of fabricated metal products	98	15	16	34	21	4	27	7
Construction and repair of vessels	62	1	11	22	22	–	8	5
Low tech	717	90	287	374	72	50	44	15
Manufacture of food products and beverages	371	85	83	126	5	45	31	8
Manufacture of tobacco products	11	–	–	6	3	2	–	–
Manufacture of textiles	15	–	2	12	1	–	2	1
Manufacture of wearing apparel, dressing and dyeing of fur	16	–	2	8	–	–	6	–

(continued)

	Total	Of which by partner						
		Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Manufacture of leather, leather products and footwear	2	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	20	–	–	8	12	–	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	243	3	200	182	50	2	4	2
Publishing and printing, reproduction of recorded media	8	2	–	6	–	–	–	–
Manufacture of furniture, manufacturing n.e.c.	23	–	–	19	1	1	1	1
Recycling	8	–	–	7	–	–	–	1
Manufacturing of other materials and substances, n.e.c.	480	68	116	117	16	33	158	39
Electricity, gas and water supply	259	39	2	106	1	16	103	9
Communications, computer and related activities, research and development, other business activities								
Total	**8909**	**867**	**2814**	**3240**	**483**	**166**	**2127**	**516**
Communications	294	213	4	68	12	13	8	8
Computer and related activities	218	23	71	57	13	55	2	4
Research and development	7867	580	2603	2970	353	74	2057	483
Other business activities	530	51	136	145	105	24	60	21

(continued)

	Total	Of which by partner						
		Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
2012								
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**6528**	**985**	**1157**	**2296**	**235**	**307**	**1596**	**559**
Mining and quarrying	525	138	3	93	3	6	248	53
Mining and quarrying of energy producing materials	365	130	3	81	3	2	135	29
Mining and quarrying, except energy producing materials	160	8	–	12	–	4	113	24
Manufacturing	5682	821	1151	2063	232	269	1243	483
High tech	1997	273	556	833	83	21	313	141
Manufacture of pharmaceuticals	104	15	9	6	10	1	58	7
Manufacture of office machinery and computers	37	12	15	8	–	–	11	2
Manufacture of radio, television and communication equipment and apparatus	415	63	225	67	4	2	84	26
Manufacture of medical, precision and optical instruments, watches and clocks	939	142	257	449	32	10	116	47
Manufacture of aircrafts, including spacecrafts	502	41	50	303	37	8	44	59

(continued)

	Total	Of which by partner						
		Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Medium high tech	1341	178	328	471	98	45	238	111
Manufacture of chemicals and chemical products	299	53	57	88	2	20	97	16
Manufacture of machinery and equipment, n.e.c.	340	50	98	90	46	6	45	30
Manufacture of electrical machinery and apparatus	186	20	54	33	35	3	44	26
Manufacture of motor vehicles, trailers and semi-trailers	415	21	84	244	14	12	24	31
Manufacture of other transport vehicles	101	34	35	16	1	4	28	8
Medium low tech	1369	203	55	399	29	145	424	139
Manufacture of coke, refined petroleum products	386	51	–	178	5	56	78	20
Manufacture of rubber and plastic products	62	8	7	5	–	3	39	3
Manufacture of other non-metallic mineral products	85	6	1	49	–	4	21	7
Manufacture of basic metals	648	119	14	101	5	78	241	93
Manufacture of fabricated metal products	99	18	28	29	2	3	27	4
Construction and repair of vessels	89	1	5	37	17	1	18	12
Low tech	351	63	74	153	4	33	31	12
Manufacture of food products and beverages	264	58	68	91	1	28	20	8
Manufacture of tobacco products	7	1	–	6	–	–	–	–
Manufacture of textiles	18	1	3	12	1	–	2	2
Manufacture of wearing apparel, dressing and dyeing of fur	7	–	–	5	1	–	1	–

(continued)

	Total	Of which by partner						
		Enterprises within the same enterprise group	Clients or customers	Suppliers of equipment, materials, components, software	Competitors within the same sector	Consultancy and information firms	R&D institutions	Universities and other higher education institutions
Manufacture of leather, leather products and footwear	1	–	–	–	–	–	–	1
Manufacture of wood and of products of wood and cork, except furniture	4	1	–	2	–	2	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	20	2	1	16	1	–	5	–
Publishing and printing, reproduction of recorded media	13	–	2	6	–	3	2	–
Manufacture of furniture, manufacturing n.e.c.	14	–	–	13	–	–	1	–
Recycling	3	–	–	2	–	–	–	1
Manufacturing of other materials and substances, n.e.c.	624	104	138	207	18	25	237	80
Electricity, gas and water supply	321	26	3	140	–	32	105	23
Communications, computer and related activities, research and development, other business activities								
Total	10425	1017	3916	3199	422	195	3022	684
Communications	346	213	39	67	13	4	15	17
Computer and related activities	192	28	48	41	12	65	7	8
Research and development	9315	742	3574	2917	302	98	2966	646
Other business activities	572	34	255	174	95	28	34	13

3.41. 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 co-operation unrelated to any specific project	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**2311**	**2767**	**3366**	**3258**	**352**	**562**
Mining and quarrying	144	162	236	260	10	103
Mining and quarrying of energy producing materials	137	142	202	219	8	4
Mining and quarrying, except energy producing materials	7	20	34	41	2	99
Manufacturing	2132	2472	2919	2827	328	436
High tech	685	931	659	972	63	111
Manufacture of pharmaceuticals	13	48	73	47	3	12
Manufacture of office machinery and computers	25	32	14	7	–	–
Manufacture of radio, television and communication equipment and apparatus	270	142	201	258	24	17
Manufacture of medical, precision and optical instruments, watches and clocks	205	620	281	289	27	39
Manufacture of aircrafts, including spacecrafts	172	89	90	371	9	43

(continued)

	Permanent co-operation		Co-operation within a specific project		One-time co-operation unrelated to any specific project	
	2011	2012	2011	2012	2011	2012
Medium high tech	601	453	777	771	110	125
Manufacture of chemicals and chemical products	175	81	223	185	17	35
Manufacture of machinery and equipment, n.e.c.	191	139	228	146	9	55
Manufacture of electrical machinery and apparatus	80	55	113	114	28	18
Manufacture of motor vehicles, trailers and semi-trailers	99	129	184	278	54	10
Manufacture of other transport vehicles	56	49	29	48	2	7
Medium low tech	408	562	782	673	92	153
Manufacture of coke, refined petroleum products	83	111	243	220	–	65
Manufacture of rubber and plastic products	5	37	37	25	–	2
Manufacture of other non-metallic mineral products	56	25	46	51	9	12
Manufacture of basic metals	193	306	380	282	64	62
Manufacture of fabricated metal products	55	55	33	43	14	2
Construction and repair of vessels	16	28	43	52	5	10
Low tech	239	215	455	130	23	12
Manufacture of food products and beverages	154	172	204	88	13	10
Manufacture of tobacco products	11	5	–	2	–	–
Manufacture of textiles	14	15	1	3	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	5	5	4	2	7	–

(continued)

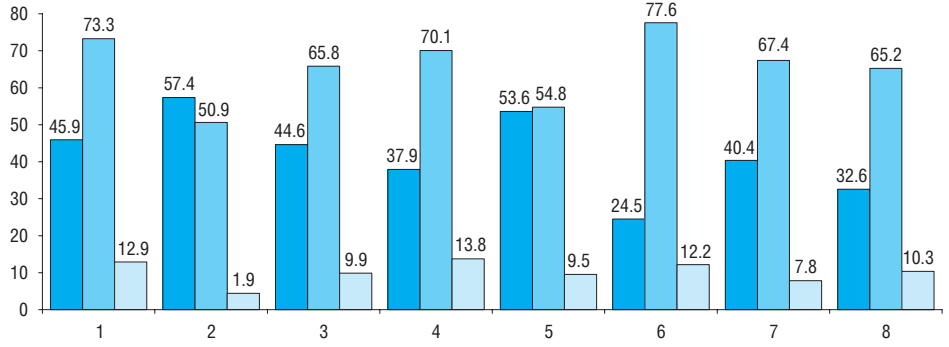
	Permanent co-operation		Co-operation within a specific project		One-time co-operation unrelated to any specific project	
	2011	2012	2011	2012	2011	2012
Manufacture of leather, leather products and footwear	1	1	–	–	1	–
Manufacture of wood and of products of wood and cork, except furniture	15	1	5	3	–	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	21	4	222	16	–	–
Publishing and printing, reproduction of recorded media	2	4	5	7	1	2
Manufacture of furniture, manufacturing n.e.c.	13	7	9	7	1	–
Recycling	3	1	5	2	–	–
Manufacturing of other materials and substances, n.e.c.	199	311	246	281	40	35
Electricity, gas and water supply	35	133	211	171	14	23
Communications, computer and related activities, research and development, other business activities						
Total	**4041**	**4198**	**3776**	**5990**	**1141**	**439**
Communications	241	245	56	83	7	19
Computer and related activities	145	126	59	52	17	17
Research and development	3391	3594	3411	5543	1097	369
Other business activities	264	233	250	312	20	34

3.42. TECHNOLOGICAL PARTNERSHIP IN R&D AT ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION

(as a percentage of the total number of enterprises having joint R&D projects)

2011

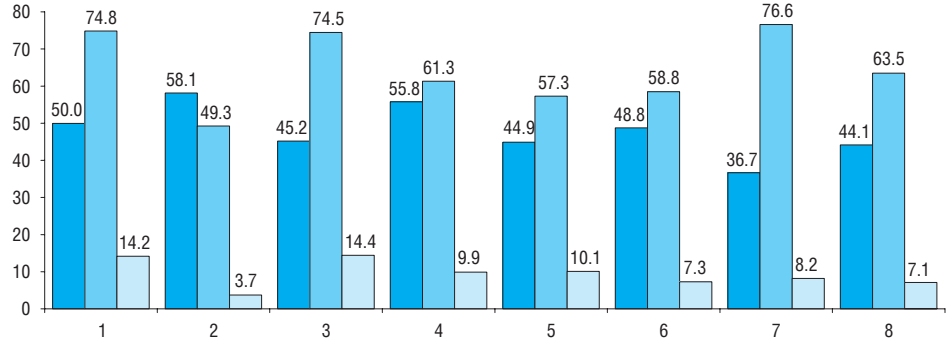
Mining and quarrying, manufacturing, electricity, gas and water supply



1 – Total
2 – Enterprises within the same enterprise group
3 – Clients or customers
4 – Suppliers of equipment, materials, components, software
5 – Competitors within the same sector
6 – Consultancy and information firms
7 – R&D institutions
8 – Universities and other higher education institutions

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

Communications, computer and related activities, research and development, other business activities



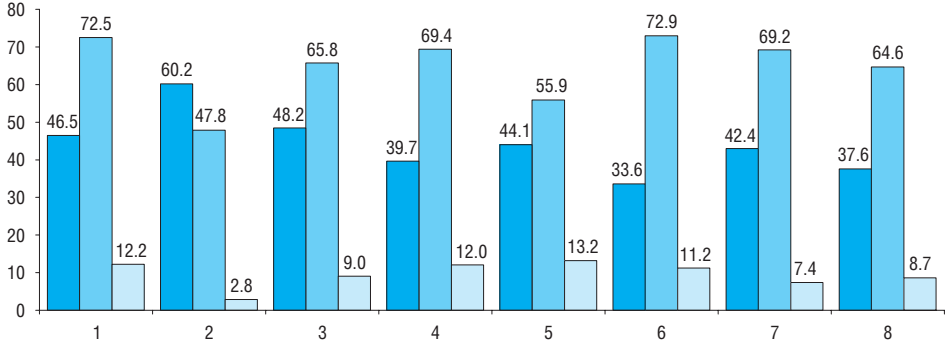
1 – Total
2 – Enterprises within the same enterprise group
3 – Clients or customers
4 – Suppliers of equipment, materials, components, software
5 – Competitors within the same sector
6 – Consultancy and information firms
7 – R&D institutions
8 – Universities and other higher education institutions

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

(continued)

2012

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

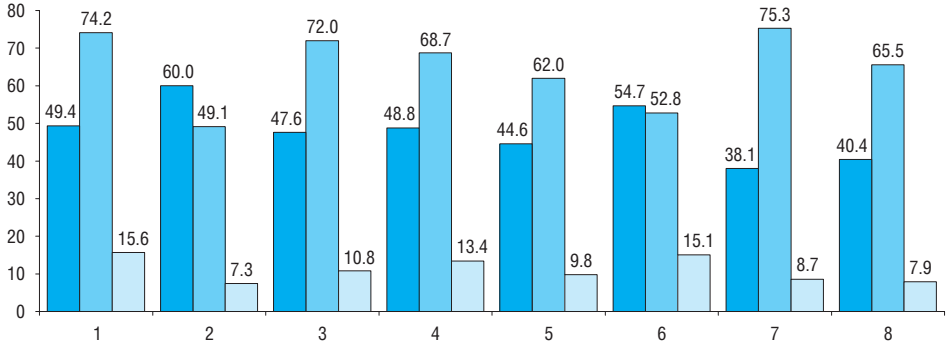


1 – Total
2 – Enterprises within the same enterprise group
3 – Clients or customers
4 – Suppliers of equipment, materials, components, software
5 – Competitors within the same sector
6 – Consultancy and information firms
7 – R&D institutions
8 – Universities and other higher education institutions

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

(continued)

Communications, computer and related activities, research and development, other business activities

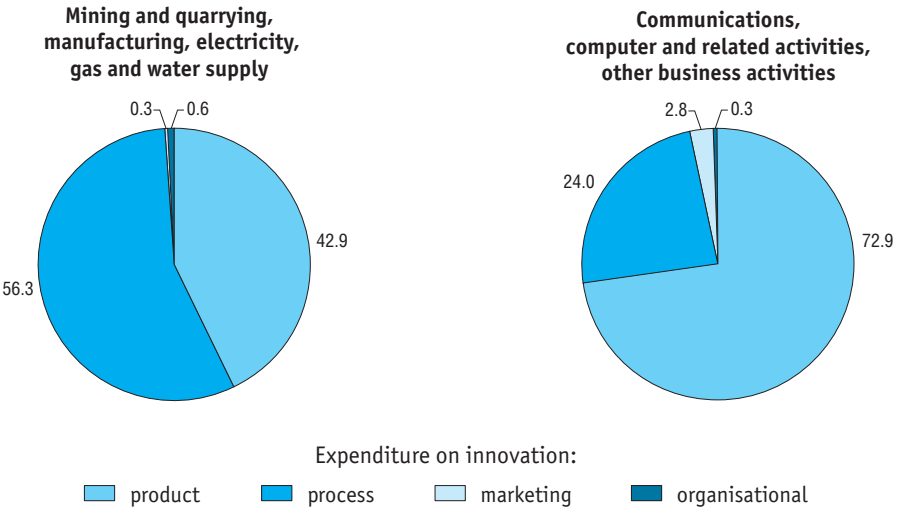


1 – Total
2 – Enterprises within the same enterprise group
3 – Clients or customers
4 – Suppliers of equipment, materials, components, software
5 – Competitors within the same sector
6 – Consultancy and information firms
7 – R&D institutions
8 – Universities and other higher education institutions

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

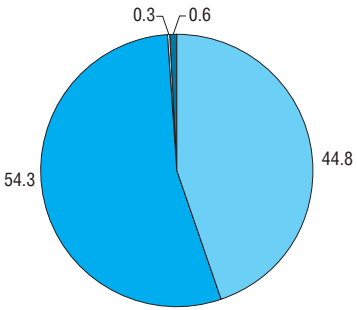
3.43. PERCENTAGE DISTRIBUTION OF EXPENDITURE OF ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION BY TYPE OF INNOVATION

2011

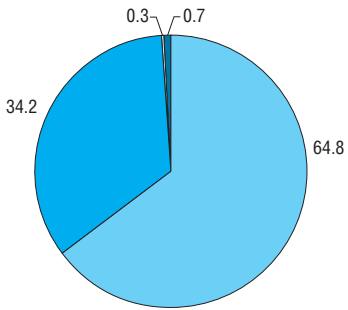


2012

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



Communications, computer and related activities, other business activities



Expenditure on innovation:

product | process | marketing | organisational

3.44. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

	Expenditure on technological innovation, *million roubles*		Of which			
			product		process	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**469442.2**	**583660.6**	**203066.9**	**263975.6**	**266375.3**	**319685.0**
Mining and quarrying	70239.3	87775.3	11110.9	14500.4	59128.5	73275.0
Mining and quarrying of energy producing materials	65836.2	79532.4	8398.0	10432.3	57438.3	69100.1
Mining and quarrying, except energy producing materials	4403.1	8242.9	2712.9	4068.0	1690.2	4174.9
Manufacturing	370006.0	430459.6	184706.3	236963.1	185299.7	193496.5
High tech	38460.7	61917.1	24718.6	41646.6	13742.2	20270.5
Manufacture of pharmaceuticals	2331.6	5006.5	1952.3	2554.2	379.3	2452.3
Manufacture of office machinery and computers	748.4	779.9	552.8	249.8	195.6	530.1
Manufacture of radio, television and communication equipment and apparatus	7697.1	12507.3	5015.3	9116.8	2681.8	3390.5
Manufacture of medical, precision and optical instruments, watches and clocks	11906.5	17670.4	8917.7	13172.4	2988.8	4498.1
Manufacture of aircrafts, including spacecrafts	15777.2	25953.1	8280.5	16553.5	7496.6	9399.6
Medium high tech	66501.1	85204.2	37833.2	50281.4	28667.9	34922.8
Manufacture of chemicals and chemical products	28407.1	36527.5	12953.3	16800.6	15453.9	19726.9
Manufacture of machinery and equipment, n.e.c.	11740.9	12280.5	8483.4	8358.8	3257.5	3921.6
Manufacture of electrical machinery and apparatus	6941.6	8588.0	5427.2	6077.7	1514.4	2510.3
Manufacture of motor vehicles, trailers and semi-trailers	15411.1	22475.2	9074.7	16732.1	6336.5	5743.1
Manufacture of other transport vehicles	4000.2	5333.1	1894.6	2312.2	2105.6	3020.9

(continued)

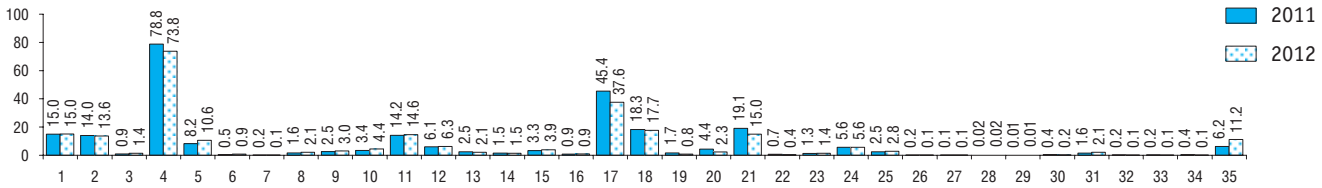
	Expenditure on technological innovation, *million roubles*		Of which			
			product		process	
	2011	2012	2011	2012	2011	2012
Medium low tech	213314.3	219170.9	88442.9	104481.1	124871.3	114689.8
Manufacture of coke, refined petroleum products	85891.6	103052.2	41237.8	39215.0	44653.8	63837.1
Manufacture of rubber and plastic products	7793.0	4847.0	6166.1	3626.5	1626.8	1220.5
Manufacture of other non-metallic mineral products	20582.3	13413.7	1666.0	3158.5	18916.3	10255.2
Manufacture of basic metals	89766.5	87608.1	32510.4	50636.9	57256.1	36971.3
Manufacture of fabricated metal products	3176.1	2287.7	1609.8	1199.5	1566.3	1088.2
Construction and repair of vessels	6104.8	7962.2	5252.8	6644.7	852.0	1317.6
Low tech	26347.8	32910.1	11836.8	17702.7	14511.0	15207.4
Manufacture of food products and beverages	11830.8	16183.1	5964.3	9306.2	5866.6	6877.0
Manufacture of tobacco products	732.0	724.8	579.4	679.9	152.6	44.9
Manufacture of textiles	614.4	749.8	387.3	221.9	227.1	527.9
Manufacture of wearing apparel, dressing and dyeing of fur	117.0	106.2	72.9	76.2	44.0	30.1
Manufacture of leather, leather products and footwear	38.1	31.3	10.2	23.5	27.9	7.7
Manufacture of wood and of products of wood and cork, except furniture	1962.2	1204.5	567.4	575.3	1394.8	629.2
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	7457.3	12323.6	3237.2	5963.5	4220.1	6360.2
Publishing and printing, reproduction of recorded media	1036.1	391.4	478.7	125.4	557.3	266.0
Manufacture of furniture, manufacturing n.e.c.	847.7	728.7	526.4	560.3	321.3	168.4
Recycling	1712.1	466.7	12.9	170.7	1699.2	296.0
Manufacturing of other materials and substances, n.e.c.	25382.1	31257.2	21874.7	22851.3	3507.4	8405.9
Electricity, gas and water supply	29196.9	65425.7	7249.8	12512.1	21947.2	52913.6

(continued)

	Expenditure on technological innovation, *million roubles*		Of which			
			product		process	
	2011	2012	2011	2012	2011	2012
Communications, computer and related activities, research and development, other business activities						
Total	**264373.7**	**320900.3**	**198920.9**	**210114.8**	**65452.9**	**110785.4**
Communications	130211.3	75842.6	105591.2	52109.6	24620.1	23733.0
Computer and related activities	7542.7	7388.1	2169.8	3254.3	5372.9	4133.8
Research and development	116525.5	226779.5	84346.2	146995.0	32179.3	79784.4
Other business activities	10094.3	10890.1	6813.7	7755.9	3280.6	3134.3

3.45. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

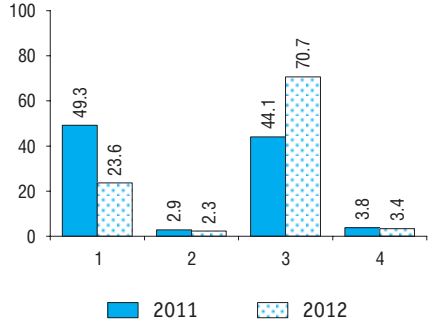
Mining and quarrying, manufacturing, electricity, gas and water supply



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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

(continued)

Communications, computer and related activities, research and development, other business activities

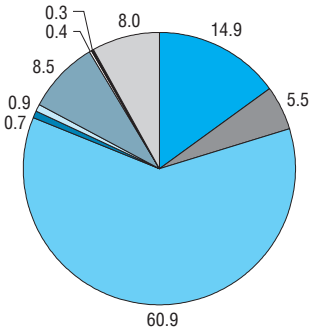


1 – Total
2 – Computer and related activities
3 – Research and development
4 – Other business activities

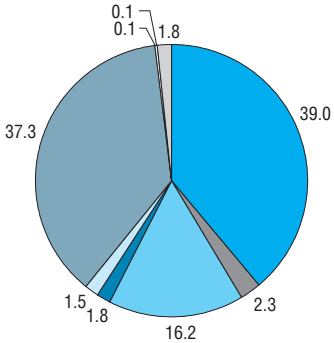
3.46. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY INNOVATIVE ACTIVITY

2011

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



Communications, computer and related activities, other business activities

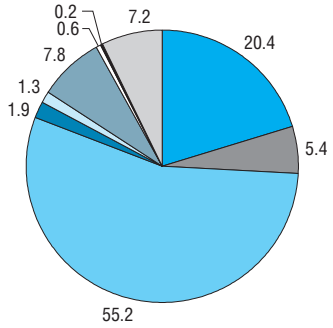


- R&D
- Industrial design
- Acquisition of machinery and equipment
- Acquisition of technology
- Acquisition of software
- Other types of pre-production
- Personnel training
- Market research
- Other

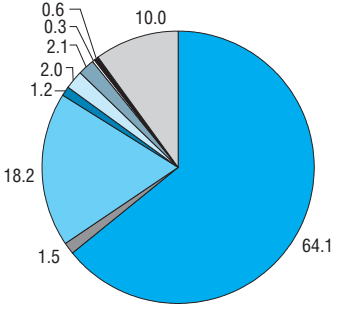
(continued)

2012

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



Communications, computer and related activities, other business activities



- R&D
- Industrial design
- Acquisition of machinery and equipment
- Acquisition of technology
- Acquisition of software
- Other types of pre-production
- Personnel training
- Market research
- Other

3.47. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY INNOVATIVE AND ECONOMIC ACTIVITY

(million roubles)

	Total expenditure	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
2011											
Mining and quarrying, manufacturing, electricity, gas and water supply											
Total	**469442.2**	**69831.0**	**25630.5**	**285897.7**	**3215.6**	**1034.8**	**4081.1**	**39894.7**	**1847.1**	**1473.3**	**37571.2**
Mining and quarrying	70239.3	10916.9	1228.6	53637.1	215.2	65.4	374.2	436.2	39.0	31.8	3360.4
Mining and quarrying of energy producing materials	65836.2	8540.7	1160.4	52184.5	153.9	38.3	359.4	378.4	39.0	0.01	3019.9
Mining and quarrying, except energy producing materials	4403.1	2376.2	68.1	1452.6	61.3	27.2	14.8	57.8	–	31.8	340.5
Manufacturing	370006.0	53818.5	23444.9	219588.2	1809.7	963.2	2883.8	38291.7	1244.1	949.7	27975.5
High tech	38460.7	15009.6	4636.9	15857.4	68.0	53.8	535.7	1361.0	186.6	84.0	721.5
Manufacture of pharmaceuticals	2331.6	991.5	17.0	1224.9	17.2	13.9	29.4	30.6	4.7	12.3	4.0
Manufacture of office machinery and computers	748.4	379.7	26.9	274.5	12.4	12.4	0.8	19.0	0.3	0.1	34.8
Manufacture of radio, television and communication equipment and apparatus	7697.1	3535.9	818.4	2842.7	1.6	0.4	63.6	94.1	20.6	9.3	310.9
Manufacture of medical, precision and optical instruments, watches and clocks	11906.5	7307.6	868.9	2862.9	28.9	23.0	108.1	400.5	38.2	30.2	261.3
Manufacture of aircrafts, including spacecrafts	15777.2	2794.9	2905.6	8652.5	8.0	4.2	333.9	816.8	122.9	32.1	110.5

(continued)

	Total expenditure	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Medium high tech	66501.1	13297.2	4864.9	29673.2	651.0	361.3	716.5	12271.6	151.9	547.3	4327.5
Manufacture of chemicals and chemical products	28407.1	1376.8	2596.4	13056.2	271.3	245.5	199.4	7838.4	7.5	46.9	3014.3
Manufacture of machinery and equipment, n.e.c.	11740.9	4403.7	414.4	5073.4	86.7	40.7	235.5	682.1	45.6	22.0	777.6
Manufacture of electrical machinery and apparatus	6941.6	2432.0	528.1	2746.9	211.6	65.4	113.7	343.8	52.6	450.1	62.9
Manufacture of motor vehicles, trailers and semi-trailers	15411.1	4206.0	961.8	6389.9	60.8	8.9	63.3	3260.7	44.4	28.3	396.0
Manufacture of other transport vehicles	4000.2	878.7	364.3	2406.8	20.7	0.9	104.6	146.5	1.9	–	76.8
Medium low tech	213314.3	12433.7	9279.2	150267.6	973.1	498.0	1225.5	18927.2	737.9	10.9	19459.3
Manufacture of coke, refined petroleum products	85891.6	4035.0	5531.4	49814.9	560.6	370.4	751.9	16351.2	632.7	–	8214.0
Manufacture of rubber and plastic products	7793.0	237.6	45.7	6015.2	29.6	26.5	97.0	768.8	1.8	0.1	597.2
Manufacture of other non-metallic mineral products	20582.3	897.1	1055.2	10474.3	211.8	27.6	55.8	347.4	7.7	3.9	7529.1
Manufacture of basic metals	89766.5	1716.3	2401.0	80991.5	98.7	65.6	204.2	1220.8	43.5	0.2	3090.4
Manufacture of fabricated metal products	3176.1	707.5	94.5	2054.2	70.1	7.7	30.6	184.0	17.6	5.8	11.9
Construction and repair of vessels	6104.8	4840.2	151.4	917.4	2.2	0.2	86.1	55.1	34.6	0.9	16.8
Low tech	26347.8	2290.5	2466.4	16176.3	79.0	32.0	169.7	3259.4	140.1	290.5	1476.0
Manufacture of food products and beverages	11830.8	1690.4	855.8	7147.7	48.6	5.1	73.7	1040.5	124.9	247.2	602.1
Manufacture of tobacco products	732.0	0.5	–	548.1	–	–	0.3	183.2	–	–	–
Manufacture of textiles	614.4	51.6	97.3	258.4	0.9	0.5	1.8	55.5	1.4	2.4	145.2
Manufacture of wearing apparel, dressing and dyeing of fur	117.0	27.3	41.7	42.8	–	–	2.2	0.03	1.3	1.7	–

(continued)

	Total expenditure	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Manufacture of leather, leather products and footwear	38.1	4.3	1.6	28.1	0.4	0.1	2.4	–	0.5	0.8	0.2
Manufacture of wood and of products of wood and cork, except furniture	1962.2	0.2	30.4	1121.9	0.6	0.3	5.5	81.5	2.3	0.01	719.8
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	7457.3	13.0	43.8	5597.9	–	–	9.3	1774.8	5.9	6.9	5.8
Publishing and printing, reproduction of recorded media	1036.1	106.8	149.0	610.6	0.3	0.3	44.6	123.0	1.3	0.4	0.1
Manufacture of furniture, manufacturing n.e.c.	847.7	384.4	35.3	332.7	28.2	25.6	29.8	0.9	2.4	31.2	2.9
Recycling	1712.1	12.0	1211.6	488.2	–	–	0.1	–	0.2	–	–
Manufacturing of other materials and substances, n.e.c.	25382.1	10787.6	2197.4	7613.8	38.6	18.1	236.4	2472.6	27.5	17.0	1991.2
Electricity, gas and water supply	29196.9	5095.6	957.1	12672.4	1190.7	6.2	823.1	1166.8	564.1	491.9	6235.4
Communications, computer and related activities, research and development, other business activities											
Total	**264373.7**	**103032.0**	**6031.2**	**42764.9**	**4658.1**	**493.6**	**4059.6**	**98667.3**	**317.7**	**185.0**	**4658.0**
Communications	130211.3	3741.3	2070.9	24450.9	2608.2	152.5	1964.3	92828.6	20.0	93.6	2433.6
Computer and related activities	7542.7	3079.2	338.5	2454.5	42.4	22.2	119.6	1418.0	9.3	12.7	68.5
Research and development	116525.5	91374.7	2318.4	14522.5	1847.8	300.0	1342.6	2699.4	241.0	47.8	2131.3
Other business activities	10094.3	4836.8	1303.5	1337.0	159.7	19.0	633.1	1721.4	47.4	30.9	24.5

(continued)

	Total expenditure	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
					2012						
					Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**583660.6**	**118810.5**	**31425.9**	**322178.8**	**11055.6**	**1692.2**	**7712.3**	**45484.0**	**3683.0**	**1053.7**	**42256.7**
Mining and quarrying	87775.3	36331.0	2399.0	37961.6	317.5	268.9	210.1	1121.0	121.2	–	9313.8
Mining and quarrying of energy producing materials	79532.4	33370.2	2276.6	33882.6	313.8	265.1	179.6	1104.8	120.8	–	8284.0
Mining and quarrying, except energy producing materials	8242.9	2960.8	122.4	4079.0	3.8	3.8	30.5	16.3	0.3	–	1029.8
Manufacturing	430459.6	76376.7	26939.1	240121.3	10422.6	1418.2	6487.5	38386.6	2714.9	1053.7	27957.2
High tech	61917.1	27144.4	5112.5	24538.9	255.4	186.5	736.4	2908.2	124.9	302.2	794.0
Manufacture of pharmaceuticals	5006.5	1072.4	75.7	3366.6	65.7	65.0	15.0	45.3	5.2	41.4	319.3
Manufacture of office machinery and computers	779.9	262.1	30.3	463.0	1.4	–	0.5	21.1	0.3	1.1	–
Manufacture of radio, television and communication equipment and apparatus	12507.3	7367.4	966.5	3636.3	7.2	3.2	131.1	343.5	23.1	12.3	19.9
Manufacture of medical, precision and optical instruments, watches and clocks	17670.4	10849.6	1189.6	3979.6	149.3	110.0	158.4	809.6	38.6	223.9	271.9
Manufacture of aircrafts, including spacecrafts	25953.1	7592.9	2850.4	13093.5	31.9	8.3	431.4	1688.8	57.7	23.5	183.0

(continued)

	Total expenditure	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Medium high tech	85204.2	15448.0	8407.2	39173.8	832.0	549.0	947.5	15613.6	326.5	296.4	4159.1
Manufacture of chemicals and chemical products	36527.5	2527.8	4297.6	16475.5	616.6	482.2	109.6	9943.6	55.6	159.6	2341.5
Manufacture of machinery and equipment, n.e.c.	12280.5	3402.3	1237.9	5645.4	45.1	12.8	275.8	708.0	44.7	27.5	893.8
Manufacture of electrical machinery and apparatus	8588.0	2746.3	482.9	4267.7	101.3	47.8	155.1	451.7	22.6	68.0	292.4
Manufacture of motor vehicles, trailers and semi-trailers	22475.2	5986.9	2144.3	8991.3	66.8	4.1	203.0	4214.6	198.9	41.1	628.4
Manufacture of other transport vehicles	5333.1	784.8	244.5	3793.9	2.3	2.1	204.0	295.7	4.7	0.3	3.0
Medium low tech	219170.9	14566.5	10068.2	145296.7	8594.5	554.7	1957.6	14979.7	2095.4	21.1	21591.2
Manufacture of coke, refined petroleum products	103052.2	3461.1	7370.0	62514.4	8306.6	456.5	836.8	9537.3	51.7	4.9	10969.4
Manufacture of rubber and plastic products	4847.0	442.5	261.9	2845.3	36.0	31.0	36.8	663.2	7.1	2.7	551.4
Manufacture of other non-metallic mineral products	13413.7	2488.3	438.0	9469.3	173.4	22.8	71.3	457.8	5.8	7.2	302.6
Manufacture of basic metals	87608.1	2038.8	1684.5	67392.7	52.5	32.3	830.8	4045.3	2013.5	1.9	9548.1
Manufacture of fabricated metal products	2287.7	547.8	146.3	1288.0	21.8	11.9	43.4	224.8	10.2	4.3	1.0
Construction and repair of vessels	7962.2	5588.0	167.5	1786.9	4.2	0.2	138.5	51.3	7.1	0.1	218.8
Low tech	32910.1	4305.1	2125.5	18606.2	87.7	24.9	2357.4	4140.7	104.4	392.9	790.3
Manufacture of food products and beverages	16183.1	3806.3	1915.7	8762.3	29.8	19.7	25.2	453.0	93.7	334.2	763.0
Manufacture of tobacco products	724.8	0.7	89.0	613.8	–	–	–	21.3	–	–	–
Manufacture of textiles	749.8	31.4	18.0	446.7	0.04	0.04	1.7	246.9	1.4	3.3	0.4
Manufacture of wearing apparel, dressing and dyeing of fur	106.2	34.0	22.8	43.0	–	–	1.6	–	2.9	1.1	0.8

(continued)

	Total expenditure	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Manufacture of leather, leather products and footwear	31.3	1.3	0.7	28.8	–	–	0.1	0.2	–	0.1	0.02
Manufacture of wood and of products of wood and cork, except furniture	1204.5	5.2	18.5	1103.0	46.6	4.3	2.3	27.0	1.6	0.3	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	12323.6	1.8	21.7	6587.1	–	–	2305.4	3385.1	4.2	1.1	17.2
Publishing and printing, reproduction of recorded media	391.4	14.5	33.0	257.6	7.1	0.6	18.2	6.9	0.6	52.8	0.6
Manufacture of furniture, manufacturing n.e.c.	728.7	409.8	6.2	297.3	4.1	0.3	2.9	0.3	0.2	–	8.1
Recycling	466.7	–	–	466.7	–	–	–	–	–	–	–
Manufacturing of other materials and substances, n.e.c.	31257.2	14912.7	1225.6	12505.7	652.9	103.1	488.5	744.2	63.6	41.2	622.6
Electricity, gas and water supply	65425.7	6102.8	2087.8	44095.9	315.5	5.1	1014.7	5976.4	846.9	–	4985.6
Communications, computer and related activities, research and development, other business activities											
Total	**320900.3**	**205844.1**	**4909.6**	**58499.7**	**3759.5**	**200.7**	**6500.8**	**6679.8**	**837.9**	**1770.9**	**32097.9**
Communications	75842.6	15990.6	1701.2	20146.3	2178.5	2.5	3169.9	2247.8	41.5	742.7	29624.1
Computer and related activities	7388.1	3516.5	397.0	2556.5	80.0	65.7	451.3	143.4	16.7	14.9	211.8
Research and development	226779.5	181036.7	2272.0	34282.8	1397.5	30.1	1675.2	2777.9	688.1	981.0	1668.2
Other business activities	10890.1	5300.3	539.4	1514.1	103.5	102.4	1204.4	1510.7	91.6	32.4	593.7

3.48. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY INNOVATIVE AND ECONOMIC ACTIVITY

	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
2011										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**14.9**	**5.5**	**60.9**	**0.7**	**0.2**	**0.9**	**8.5**	**0.4**	**0.3**	**8.0**
Mining and quarrying	15.5	1.7	76.4	0.3	0.1	0.5	0.6	0.1	0.05	4.8
Mining and quarrying of energy producing materials	13.0	1.8	79.3	0.2	0.1	0.5	0.6	0.1	0.0	4.6
Mining and quarrying, except energy producing materials	54.0	1.5	33.0	1.4	0.6	0.3	1.3	–	0.7	7.7
Manufacturing	14.5	6.3	59.3	0.5	0.3	0.8	10.3	0.3	0.3	7.6
High tech	39.0	12.1	41.2	0.2	0.1	1.4	3.5	0.5	0.2	1.9
Manufacture of pharmaceuticals	42.5	0.7	52.5	0.7	0.6	1.3	1.3	0.2	0.5	0.2
Manufacture of office machinery and computers	50.7	3.6	36.7	1.7	1.7	0.1	2.5	0.04	0.01	4.7
Manufacture of radio, television and communication equipment and apparatus	45.9	10.6	36.9	0.02	0.01	0.8	1.2	0.3	0.1	4.0
Manufacture of medical, precision and optical instruments, watches and clocks	61.4	7.3	24.0	0.2	0.2	0.9	3.4	0.3	0.3	2.2
Manufacture of aircrafts, including spacecrafts	17.7	18.4	54.8	0.1	0.03	2.1	5.2	0.8	0.2	0.7

(continued)

	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Medium high tech	20.0	7.3	44.6	1.0	0.5	1.1	18.5	0.2	0.8	6.5
Manufacture of chemicals and chemical products	4.8	9.1	46.0	1.0	0.9	0.7	27.6	0.03	0.2	10.6
Manufacture of machinery and equipment, n.e.c.	37.5	3.5	43.2	0.7	0.3	2.0	5.8	0.4	0.2	6.6
Manufacture of electrical machinery and apparatus	35.0	7.6	39.6	3.0	0.9	1.6	5.0	0.8	6.5	0.9
Manufacture of motor vehicles, trailers and semi-trailers	27.3	6.2	41.5	0.4	0.1	0.4	21.2	0.3	0.2	2.6
Manufacture of other transport vehicles	22.0	9.1	60.2	0.5	0.02	2.6	3.7	0.05	–	1.9
Medium low tech	5.8	4.4	70.4	0.5	0.2	0.6	8.9	0.3	0.01	9.1
Manufacture of coke, refined petroleum products	4.7	6.4	58.0	0.7	0.4	0.9	19.0	0.7	–	9.6
Manufacture of rubber and plastic products	3.0	0.6	77.2	0.4	0.3	1.2	9.9	0.02	0.0	7.7
Manufacture of other non-metallic mineral products	4.4	5.1	50.9	1.0	0.1	0.3	1.7	0.04	0.02	36.6
Manufacture of basic metals	1.9	2.7	90.2	0.1	0.1	0.2	1.4	0.05	0.0	3.4
Manufacture of fabricated metal products	22.3	3.0	64.7	2.2	0.2	1.0	5.8	0.6	0.2	0.4
Construction and repair of vessels	79.3	2.5	15.0	0.04	0.0	1.4	0.9	0.6	0.01	0.3
Low tech	8.7	9.4	61.4	0.3	0.1	0.6	12.4	0.5	1.1	5.6
Manufacture of food products and beverages	14.3	7.2	60.4	0.4	0.04	0.6	8.8	1.1	2.1	5.1
Manufacture of tobacco products	0.1	–	74.9	–	–	0.04	25.0	–	–	–
Manufacture of textiles	8.4	15.8	42.0	0.1	0.1	0.3	9.0	0.2	0.4	23.6
Manufacture of wearing apparel, dressing and dyeing of fur	23.3	35.6	36.6	–	–	1.9	0.03	1.1	1.4	–

(continued)

	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Manufacture of leather, leather products and footwear	11.4	4.1	73.6	1.1	0.3	6.2	–	1.3	2.0	0.4
Manufacture of wood and of products of wood and cork, except furniture	0.01	1.5	57.2	0.03	0.02	0.3	4.2	0.1	0.0	36.7
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	0.2	0.6	75.1	–	–	0.1	23.8	0.1	0.1	0.1
Publishing and printing, reproduction of recorded media	10.3	14.4	58.9	0.03	0.03	4.3	11.9	0.1	0.04	0.01
Manufacture of furniture, manufacturing n.e.c.	45.3	4.2	39.2	3.3	3.0	3.5	0.1	0.3	3.7	0.3
Recycling	0.7	70.8	28.5	–	–	0.0	–	0.01	–	–
Electricity, gas and water supply	17.5	3.3	43.4	4.1	0.02	2.8	4.0	1.9	1.7	21.4
Communications, computer and related activities, research and development, other business activities										
Total	**39.0**	**2.3**	**16.2**	**1.8**	**0.2**	**1.5**	**37.3**	**0.1**	**0.1**	**1.8**
Communications	2.9	1.6	18.8	2.0	0.1	1.5	71.3	0.02	0.1	1.9
Computer and related activities	40.8	4.5	32.5	0.6	0.3	1.6	18.8	0.1	0.2	0.9
Research and development	78.4	2.0	12.5	1.6	0.3	1.2	2.3	0.2	0.04	1.8
Other business activities	47.9	12.9	13.2	1.6	0.2	6.3	17.1	0.5	0.3	0.2

(continued)

	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
2012										
Mining and quarrying, manufacturing, electricity, gas and water supply										
Total	**20.4**	**5.4**	**55.2**	**1.9**	**0.3**	**1.3**	**7.8**	**0.6**	**0.2**	**7.2**
Mining and quarrying	41.4	2.7	43.2	0.4	0.3	0.2	1.3	0.1	–	10.6
Mining and quarrying of energy producing materials	42.0	2.9	42.6	0.4	0.3	0.2	1.4	0.2	–	10.4
Mining and quarrying, except energy producing materials	35.9	1.5	49.5	0.05	0.05	0.4	0.2	0.0	–	12.5
Manufacturing	17.7	6.3	55.8	2.4	0.3	1.5	8.9	0.6	0.2	6.5
High tech	43.8	8.3	39.6	0.4	0.3	1.2	4.7	0.2	0.5	1.3
Manufacture of pharmaceuticals	21.4	1.5	67.2	1.3	1.3	0.3	0.9	0.1	0.8	6.4
Manufacture of office machinery and computers	33.6	3.9	59.4	0.2	–	0.1	2.7	0.04	0.1	–
Manufacture of radio, television and communication equipment and apparatus	58.9	7.7	29.1	0.1	0.03	1.0	2.7	0.2	0.1	0.2
Manufacture of medical, precision and optical instruments, watches and clocks	61.4	6.7	22.5	0.8	0.6	0.9	4.6	0.2	1.3	1.5
Manufacture of aircrafts, including spacecrafts	29.3	11.0	50.5	0.1	0.03	1.7	6.5	0.2	0.1	0.7

(continued)

	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Medium high tech	18.1	9.9	46.0	1.0	0.6	1.1	18.3	0.4	0.3	4.9
Manufacture of chemicals and chemical products	6.9	11.8	45.1	1.7	1.3	0.3	27.2	0.2	0.4	6.4
Manufacture of machinery and equipment, n.e.c.	27.7	10.1	46.0	0.4	0.1	2.2	5.8	0.4	0.2	7.3
Manufacture of electrical machinery and apparatus	32.0	5.6	49.7	1.2	0.6	1.8	5.3	0.3	0.8	3.4
Manufacture of motor vehicles, trailers and semi-trailers	26.6	9.5	40.0	0.3	0.02	0.9	18.8	0.9	0.2	2.8
Manufacture of other transport vehicles	14.7	4.6	71.1	0.04	0.04	3.8	5.5	0.1	0.0	0.1
Medium low tech	6.6	4.6	66.3	3.9	0.3	0.9	6.8	1.0	0.01	9.9
Manufacture of coke, refined petroleum products	3.4	7.2	60.7	8.1	0.4	0.8	9.3	0.05	0.0	10.6
Manufacture of rubber and plastic products	9.1	5.4	58.7	0.7	0.6	0.8	13.7	0.1	0.1	11.4
Manufacture of other non-metallic mineral products	18.6	3.3	70.6	1.3	0.2	0.5	3.4	0.04	0.05	2.3
Manufacture of basic metals	2.3	1.9	76.9	0.1	0.04	0.9	4.6	2.3	0.0	10.9
Manufacture of fabricated metal products	23.9	6.4	56.3	1.0	0.5	1.9	9.8	0.4	0.2	0.04
Construction and repair of vessels	70.2	2.1	22.4	0.1	0.0	1.7	0.6	0.1	0.0	2.7
Low tech	13.1	6.5	56.5	0.3	0.1	7.2	12.6	0.3	1.2	2.4
Manufacture of food products and beverages	23.5	11.8	54.1	0.2	0.1	0.2	2.8	0.6	2.1	4.7
Manufacture of tobacco products	0.1	12.3	84.7	–	–	–	2.9	–	–	–
Manufacture of textiles	4.2	2.4	59.6	0.01	0.01	0.2	32.9	0.2	0.4	0.05
Manufacture of wearing apparel, dressing and dyeing of fur	32.0	21.4	40.5	–	–	1.5	–	2.7	1.0	0.8

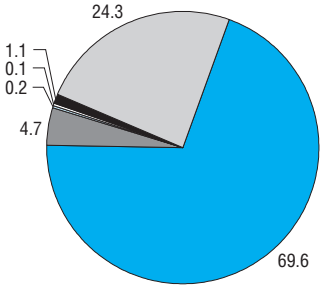
(continued)

	R&D	Industrial design	Acquisition of machinery and equipment	Acquisition of technology	Of which acquisition of patent rights and licenses	Acquisition of software	Other types of preproduction	Personnel training	Market research	Other
Manufacture of leather, leather products and footwear	4.2	2.2	92.1	–	–	0.4	0.7	–	0.3	0.1
Manufacture of wood and of products of wood and cork, except furniture	0.4	1.5	91.6	3.9	0.4	0.2	2.2	0.1	0.02	–
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	0.01	0.2	53.5	–	–	18.7	27.5	0.03	0.01	0.1
Publishing and printing, reproduction of recorded media	3.7	8.4	65.8	1.8	0.1	4.7	1.8	0.2	13.5	0.2
Manufacture of furniture, manufacturing n.e.c.	56.2	0.8	40.8	0.6	0.04	0.4	0.04	0.02	–	1.1
Recycling	–	–	100	–	–	–	–	–	–	–
Electricity, gas and water supply	9.3	3.2	67.4	0.5	0.01	1.6	9.1	1.3	–	7.6
Communications, computer and related activities, research and development, other business activities										
Total	**64.1**	**1.5**	**18.2**	**1.2**	**0.1**	**2.0**	**2.1**	**0.3**	**0.6**	**10.0**
Communications	21.1	2.2	26.6	2.9	0.0	4.2	3.0	0.1	1.0	39.1
Computer and related activities	47.6	5.4	34.6	1.1	0.9	6.1	1.9	0.2	0.2	2.9
Research and development	79.8	1.0	15.1	0.6	0.01	0.7	1.2	0.3	0.4	0.7
Other business activities	48.7	5.0	13.9	1.0	0.9	11.1	13.9	0.8	0.3	5.5

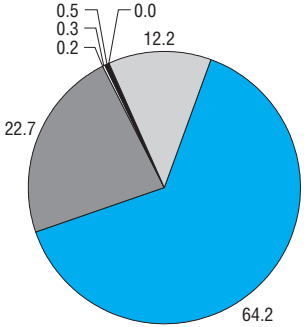
3.49. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY SOURCE OF FUNDS

2011

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



Communications, computer and related activities, other business activities

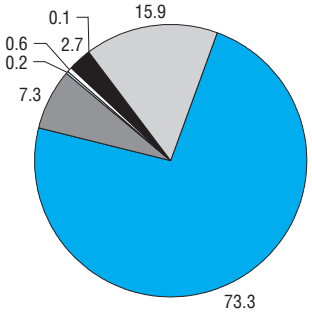


- Own funds of enterprises
- Federal budget
- Provincial and municipal budgets
- Non-budgetary funds
- Funds from abroad
- Venture funds
- Other

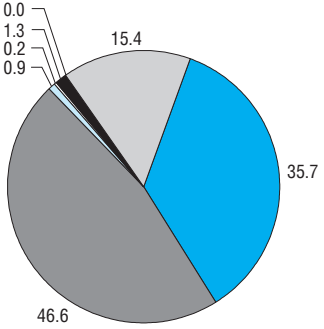
(continued)

2012

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



Communications, computer and related activities, other business activities



- Own funds of enterprises
- Federal budget
- Provincial and municipal budgets
- Non-budgetary funds
- Funds from abroad
- Venture funds
- Other

3.50. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY SOURCE OF FUNDS AND ECONOMIC ACTIVITY

(million roubles)

	Total expenditure	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
				2011					
				Mining and quarrying, manufacturing, electricity, gas and water supply					
Total	**469442.2**	**326642.0**	**22146.2**	**1167.7**	**349.0**	**5042.8**	**3253.4**	–	**114094.5**
Mining and quarrying	70239.3	57813.1	25.4	–	–	–	–	–	12400.8
Mining and quarrying of energy producing materials	65836.2	56000.8	25.4	–	–	–	–	–	9810.0
Mining and quarrying, except energy producing materials	4403.1	1812.3	–	–	–	–	–	–	2590.8
Manufacturing	370006.0	248360.7	21744.3	831.4	348.8	4644.6	3253.4	–	94076.2
High tech	38460.7	25829.3	7276.0	44.0	326.6	883.8	–	–	4101.0
Manufacture of pharmaceuticals	2331.6	1684.1	512.6	–	–	–	–	–	134.9
Manufacture of office machinery and computers	748.4	414.1	334.2	–	–	–	–	–	0.1
Manufacture of radio, television and communication equipment and apparatus	7697.1	4612.6	2068.0	32.5	–	9.5	–	–	974.6
Manufacture of medical, precision and optical instruments, watches and clocks	11906.5	7609.6	2602.7	11.6	–	789.1	–	–	893.4
Manufacture of aircrafts, including spacecrafts	15777.2	11508.9	1758.4	–	326.6	85.2	–	–	2098.0

(continued)

	Total expenditure	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Medium high tech	66501.1	55471.5	1701.2	253.5	5.4	19.2	19.2	–	9050.4
Manufacture of chemicals and chemical products	28407.1	24468.3	190.8	–	–	19.2	19.2	–	3728.8
Manufacture of machinery and equipment, n.e.c.	11740.9	9213.7	928.0	21.3	5.0	–	–	–	1572.9
Manufacture of electrical machinery and apparatus	6941.6	5968.0	465.0	69.2	–	–	–	–	439.5
Manufacture of motor vehicles, trailers and semi-trailers	15411.1	13060.6	12.8	–	–	–	–	–	2337.7
Manufacture of other transport vehicles	4000.2	2760.9	104.6	163.0	0.4	–	–	–	971.4
Medium low tech	213314.3	137161.7	1569.3	266.1	–	396.7	240.0	–	73920.5
Manufacture of coke, refined petroleum products	85891.6	54887.6	–	–	–	155.0	–	–	30849.0
Manufacture of rubber and plastic products	7793.0	4397.3	21.0	237.1	–	–	–	–	3137.6
Manufacture of other non-metallic mineral products	20582.3	13676.8	–	14.6	–	–	–	–	6890.9
Manufacture of basic metals	89766.5	60757.6	93.6	–	–	241.7	240.0	–	28673.7
Manufacture of fabricated metal products	3176.1	2100.1	143.8	14.1	–	–	–	–	918.2
Construction and repair of vessels	6104.8	1342.4	1310.9	0.3	–	–	–	–	3451.2
Low tech	26347.8	18784.1	24.0	10.0	1.7	3345.0	2994.2	–	4183.1
Manufacture of food products and beverages	11830.8	9862.7	5.3	5.8	–	268.4	49.8	–	1688.6
Manufacture of tobacco products	732.0	560.1	–	–	–	–	–	–	172.0
Manufacture of textiles	614.4	383.7	0.1	–	–	–	–	–	230.6
Manufacture of wearing apparel, dressing and dyeing of fur	117.0	106.9	8.4	–	–	–	–	–	1.7

(continued)

	Total expenditure	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Manufacture of leather, leather products and footwear	38.1	38.1	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	1962.2	540.6	–	1.7	1.7	132.1	–	–	1286.1
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	7457.3	3973.3	0.7	2.0	–	2944.4	2944.4	–	537.0
Publishing and printing, reproduction of recorded media	1036.1	921.9	1.0	0.4	–	–	–	–	112.7
Manufacture of furniture, manufacturing n.e.c.	847.7	814.1	8.5	–	–	–	–	–	25.2
Recycling	1712.1	1582.8	–	–	–	–	–	–	129.3
Manufacturing of other materials and substances, n.e.c.	25382.1	11114.0	11173.9	257.8	15.2	–	–	–	2821.2
Electricity, gas and water supply	29196.9	20468.3	376.5	336.3	0.2	398.2	–	–	7617.6
Communications, computer and related activities, research and development, other business activities									
Total	**264373.7**	**169689.9**	**59924.7**	**528.4**	**751.7**	**1204.3**	**122.8**	**1.0**	**32273.7**
Communications	130211.3	128284.5	670.3	100.7	2.4	–	–	–	1153.4
Computer and related activities	7542.7	7269.8	62.1	42.2	9.1	81.6	70.1	–	77.8
Research and development	116525.5	29501.4	58713.0	334.1	737.8	957.5	52.6	1.0	26280.8
Other business activities	10094.3	4634.3	479.3	51.4	2.4	165.2	–	–	4761.8

(continued)

	Total expenditure	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
				2012					
				Mining and quarrying, manufacturing, electricity, gas and water supply					
Total	**583660.6**	**427906.1**	**42500.6**	**1034.3**	**3463.7**	**15638.4**	**7075.8**	**392.4**	**92725.0**
Mining and quarrying	87775.3	65505.9	128.3	–	–	–	–	–	22141.2
Mining and quarrying of energy producing materials	79532.4	57384.1	63.3	–	–	–	–	–	22085.1
Mining and quarrying, except energy producing materials	8242.9	8121.8	65.0	–	–	–	–	–	56.1
Manufacturing	430459.6	315323.5	35320.9	555.0	3463.7	15638.4	7075.8	392.4	59765.7
High tech	61917.1	31280.7	17638.8	206.0	34.3	1460.2	–	–	11297.1
Manufacture of pharmaceuticals	5006.5	3257.3	540.3	–	29.9	–	–	–	1179.0
Manufacture of office machinery and computers	779.9	180.0	599.1	–	–	–	–	–	0.8
Manufacture of radio, television and communication equipment and apparatus	12507.3	5483.7	6372.7	20.2	4.4	–	–	–	626.3
Manufacture of medical, precision and optical instruments, watches and clocks	17670.4	8333.2	5981.6	185.8	–	1365.9	–	–	1803.9
Manufacture of aircrafts, including spacecrafts	25953.1	14026.6	4145.0	–	–	94.4	–	–	7687.1

(continued)

	Total expenditure	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Medium high tech	85204.2	66253.7	3594.7	109.7	47.5	5802.7	22.2	–	9395.9
Manufacture of chemicals and chemical products	36527.5	25450.9	918.9	–	–	5780.5	–	–	4377.3
Manufacture of machinery and equipment, n.e.c.	12280.5	8923.0	1788.0	17.3	–	22.2	22.2	–	1530.0
Manufacture of electrical machinery and apparatus	8588.0	7446.3	620.8	88.7	47.5	–	–	–	384.7
Manufacture of motor vehicles, trailers and semi-trailers	22475.2	20832.2	170.0	3.8	–	–	–	–	1469.3
Manufacture of other transport vehicles	5333.1	3601.2	97.1	–	–	–	–	–	1634.7
Medium low tech	219170.9	176855.9	3574.7	145.9	3380.4	3695.6	3607.0	392.4	31126.0
Manufacture of coke, refined petroleum products	103052.2	84751.2	4.2	–	–	–	–	–	18296.7
Manufacture of rubber and plastic products	4847.0	3664.7	89.5	16.1	14.4	48.9	–	145.5	867.9
Manufacture of other non-metallic mineral products	13413.7	7406.8	137.8	22.7	–	3623.5	3606.8	–	2222.8
Manufacture of basic metals	87608.1	78177.0	93.5	–	–	–	–	246.9	9090.7
Manufacture of fabricated metal products	2287.7	1536.4	245.5	7.9	–	23.3	0.3	–	474.7
Construction and repair of vessels	7962.2	1319.8	3004.2	99.2	3366.0	–	–	–	173.1
Low tech	32910.1	25127.2	39.9	92.1	0.1	3723.9	3437.9	–	3926.9
Manufacture of food products and beverages	16183.1	13947.7	21.6	6.1	–	394.2	108.2	–	1813.5
Manufacture of tobacco products	724.8	724.8	–	–	–	–	–	–	–
Manufacture of textiles	749.8	299.8	0.04	–	–	–	–	–	449.9
Manufacture of wearing apparel, dressing and dyeing of fur	106.2	93.4	12.8	–	–	–	–	–	–

(continued)

	Total expenditure	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Manufacture of leather, leather products and footwear	31.3	31.3	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	1204.5	440.2	–	–	–	–	–	–	764.3
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	12323.6	8373.8	–	–	–	3329.7	3329.7	–	620.2
Publishing and printing, reproduction of recorded media	391.4	241.4	0.01	86.0	–	–	–	–	63.9
Manufacture of furniture, manufacturing n.e.c.	728.7	678.8	5.4	–	0.1	–	–	–	44.4
Recycling	466.7	296.0	–	–	–	–	–	–	170.7
Manufacturing of other materials and substances, n.e.c.	31257.2	15806.0	10472.9	1.3	1.4	956.0	8.6	–	4019.7
Electricity, gas and water supply	65425.7	47076.8	7051.4	479.3	–	–	–	–	10818.1
Communications, computer and related activities, research and development, other business activities									
Total	**320900.3**	**114477.6**	**149398.6**	**2993.2**	**591.9**	**4075.2**	**230.2**	**0.9**	**49362.8**
Communications	75842.6	59715.8	2041.7	1.9	–	–	–	–	14083.2
Computer and related activities	7388.1	5974.7	862.0	288.5	96.9	98.4	86.5	0.3	67.3
Research and development	226779.5	45179.6	146143.6	2442.9	494.6	3948.2	140.7	0.6	28570.0
Other business activities	10890.1	3607.6	351.4	259.9	0.3	28.6	3.0	–	6642.4

3.51. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY SOURCE OF FUNDS AND ECONOMIC ACTIVITY

	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
				2011				
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**69.6**	**4.7**	**0.2**	**0.1**	**1.1**	**0.7**	–	**24.3**
Mining and quarrying	82.3	0.04	–	–	–	–	–	17.7
Mining and quarrying of energy producing materials	85.1	0.04	–	–	–	–	–	14.9
Mining and quarrying, except energy producing materials	41.2	–	–	–	–	–	–	58.8
Manufacturing	67.1	5.9	0.2	0.1	1.3	0.9	–	25.4
High tech	67.2	18.9	0.1	0.8	2.3	–	–	10.7
Manufacture of pharmaceuticals	72.2	22.0	–	–	–	–	–	5.8
Manufacture of office machinery and computers	55.3	44.7	–	–	–	–	–	0.01
Manufacture of radio, television and communication equipment and apparatus	59.9	26.9	0.4	–	0.1	–	–	12.7
Manufacture of medical, precision and optical instruments, watches and clocks	63.9	21.9	0.1	–	6.6	–	–	7.5
Manufacture of aircrafts, including spacecrafts	72.9	11.1	–	2.1	0.5	–	–	13.3

(continued)

	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Medium high tech	83.4	2.6	0.4	0.01	0.03	0.03	–	13.6
Manufacture of chemicals and chemical products	86.1	0.7	–	–	0.1	0.1	–	13.1
Manufacture of machinery and equipment, n.e.c.	78.5	7.9	0.2	0.04	–	–	–	13.4
Manufacture of electrical machinery and apparatus	86.0	6.7	1.0	–	–	–	–	6.3
Manufacture of motor vehicles, trailers and semi-trailers	84.7	0.1	–	–	–	–	–	15.2
Manufacture of other transport vehicles	69.0	2.6	4.1	0.01	–	–	–	24.3
Medium low tech	64.3	0.7	0.1	–	0.2	0.1	–	34.7
Manufacture of coke, refined petroleum products	63.9	–	–	–	0.2	–	–	35.9
Manufacture of rubber and plastic products	56.4	0.3	3.0	–	–	–	–	40.3
Manufacture of other non-metallic mineral products	66.4	–	0.1	–	–	–	–	33.5
Manufacture of basic metals	67.7	0.1	–	–	0.3	0.3	–	31.9
Manufacture of fabricated metal products	66.1	4.5	0.4	–	–	–	–	28.9
Construction and repair of vessels	22.0	21.5	0.0	–	–	–	–	56.5
Low tech	71.3	0.1	0.04	0.01	12.7	11.4	–	15.9
Manufacture of food products and beverages	83.4	0.04	0.05	–	2.3	0.4	–	14.3
Manufacture of tobacco products	76.5	–	–	–	–	–	–	23.5
Manufacture of textiles	62.5	0.02	–	–	–	–	–	37.5
Manufacture of wearing apparel, dressing and dyeing of fur	91.4	7.2	–	–	–	–	–	1.5

(continued)

	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Manufacture of leather, leather products and footwear	100	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	27.6	–	0.1	0.1	6.7	–	–	65.5
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	53.3	0.01	0.03	–	39.5	39.5	–	7.2
Publishing and printing, reproduction of recorded media	89.0	0.1	0.04	–	–	–	–	10.9
Manufacture of furniture, manufacturing n.e.c.	96.0	1.0	–	–	–	–	–	3.0
Recycling	92.4	–	–	–	–	–	–	7.6
Electricity, gas and water supply	70.1	1.3	1.2	0.0	1.4	–	–	26.1
Communications, computer and related activities, research and development, other business activities								
Total	**64.2**	**22.7**	**0.2**	**0.3**	**0.5**	**0.05**	**0.0**	**12.2**
Communications	98.5	0.5	0.1	0.0	–	–	–	0.9
Computer and related activities	96.4	0.8	0.6	0.1	1.1	0.9	–	1.0
Research and development	25.3	50.4	0.3	0.6	0.8	0.05	0.0	22.6
Other business activities	45.9	4.7	0.5	0.02	1.6	–	–	47.2

(continued)

	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
				2012				
Mining and quarrying, manufacturing, electricity, gas and water supply								
Total	**73.3**	**7.3**	**0.2**	**0.6**	**2.7**	**1.2**	**0.1**	**15.9**
Mining and quarrying	74.6	0.1	–	–	–	–	–	25.2
Mining and quarrying of energy producing materials	72.2	0.1	–	–	–	–	–	27.8
Mining and quarrying, except energy producing materials	98.5	0.8	–	–	–	–	–	0.7
Manufacturing	73.3	8.2	0.1	0.8	3.6	1.6	0.1	13.9
High tech	50.5	28.5	0.3	0.1	2.4	–	–	18.2
Manufacture of pharmaceuticals	65.1	10.8	–	0.6	–	–	–	23.5
Manufacture of office machinery and computers	23.1	76.8	–	–	–	–	–	0.1
Manufacture of radio, television and communication equipment and apparatus	43.8	51.0	0.2	0.04	–	–	–	5.0
Manufacture of medical, precision and optical instruments, watches and clocks	47.2	33.9	1.1	–	7.7	–	–	10.2
Manufacture of aircrafts, including spacecrafts	54.0	16.0	–	–	0.4	–	–	29.6

(continued)

	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Medium high tech	77.8	4.2	0.1	0.1	6.8	0.03	–	11.0
Manufacture of chemicals and chemical products	69.7	2.5	–	–	15.8	–	–	12.0
Manufacture of machinery and equipment, n.e.c.	72.7	14.6	0.1	–	0.2	0.2	–	12.5
Manufacture of electrical machinery and apparatus	86.7	7.2	1.0	0.6	–	–	–	4.5
Manufacture of motor vehicles, trailers and semi-trailers	92.7	0.8	0.02	–	–	–	–	6.5
Manufacture of other transport vehicles	67.5	1.8	–	–	–	–	–	30.7
Medium low tech	80.7	1.6	0.1	1.5	1.7	1.6	0.2	14.2
Manufacture of coke, refined petroleum products	82.2	0.0	–	–	–	–	–	17.8
Manufacture of rubber and plastic products	75.6	1.8	0.3	0.3	1.0	–	3.0	17.9
Manufacture of other non-metallic mineral products	55.2	1.0	0.2	–	27.0	26.9	–	16.6
Manufacture of basic metals	89.2	0.1	–	–	–	–	0.3	10.4
Manufacture of fabricated metal products	67.2	10.7	0.3	–	1.0	0.01	–	20.8
Construction and repair of vessels	16.6	37.7	1.2	42.3	–	–	–	2.2
Low tech	76.4	0.1	0.3	0.0	11.3	10.4	–	11.9
Manufacture of food products and beverages	86.2	0.1	0.04	–	2.4	0.7	–	11.2
Manufacture of tobacco products	100	–	–	–	–	–	–	–
Manufacture of textiles	40.0	0.01	–	–	–	–	–	60.0
Manufacture of wearing apparel, dressing and dyeing of fur	87.9	12.1	–	–	–	–	–	–

(continued)

	Own funds of enterprises	Federal budget	Regional and local budgets	Non-budgetary funds	Funds from abroad	Of which from EU Member States, Iceland, Liechtenstein, Norway, and Switzerland	Venture funds	Other
Manufacture of leather, leather products and footwear	100	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	36.5	–	–	–	–	–	–	63.5
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	67.9	–	–	–	27.0	27.0	–	5.0
Publishing and printing, reproduction of recorded media	61.7	0.0	22.0	–	–	–	–	16.3
Manufacture of furniture, manufacturing n.e.c.	93.2	0.7	–	0.01	–	–	–	6.1
Recycling	63.4	–	–	–	–	–	–	36.6
Electricity, gas and water supply	72.0	10.8	0.7	–	–	–	–	16.5
Communications, computer and related activities, research and development, other business activities								
Total	**35.7**	**46.6**	**0.9**	**0.2**	**1.3**	**0.1**	**0.0**	**15.4**
Communications	78.7	2.7	0.0	–	–	–	–	18.6
Computer and related activities	80.9	11.7	3.9	1.3	1.3	1.2	0.0	0.9
Research and development	19.9	64.4	1.1	0.2	1.7	0.1	0.0	12.6
Other business activities	33.1	3.2	2.4	0.0	0.3	0.03	–	61.0

3.52. INTENSITY OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY ECONOMIC ACTIVITY

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

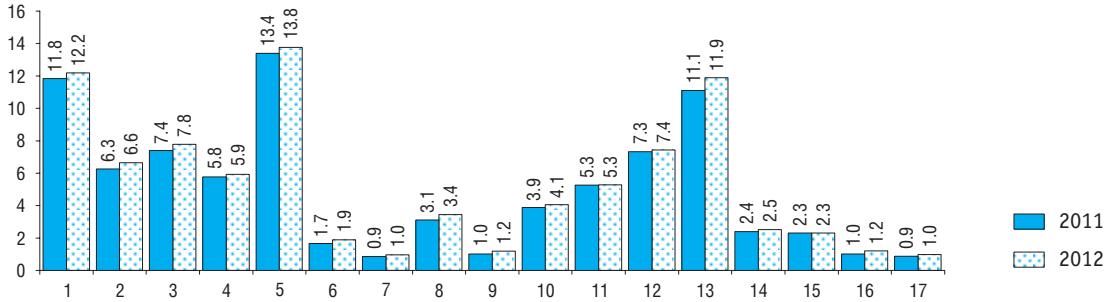
	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**1.5**	**1.8**
Mining and quarrying	0.9	1.1
Mining and quarrying of energy producing materials	1.0	1.2
Mining and quarrying, except energy producing materials	0.4	0.7
Manufacturing	1.9	2.1
High tech	3.6	5.1
Manufacture of pharmaceuticals	1.5	2.6
Manufacture of office machinery and computers	2.2	1.7
Manufacture of radio, television and communication equipment and apparatus	3.6	4.7
Manufacture of medical, precision and optical instruments, watches and clocks	4.2	6.2
Manufacture of aircrafts, including spacecrafts	4.2	6.0
Medium high tech	1.5	1.7
Manufacture of chemicals and chemical products	2.0	2.5
Manufacture of machinery and equipment, n.e.c.	1.2	1.2
Manufacture of electrical machinery and apparatus	1.6	1.9
Manufacture of motor vehicles, trailers and semi-trailers	1.3	1.5
Manufacture of other transport vehicles	1.2	1.3
Medium low tech	2.3	2.3
Manufacture of coke, refined petroleum products	2.2	2.5
Manufacture of rubber and plastic products	1.9	1.1
Manufacture of other non-metallic mineral products	2.5	1.4
Manufacture of basic metals	2.8	2.9
Manufacture of fabricated metal products	0.5	0.3
Construction and repair of vessels	3.5	5.3

(continued)

	2011	2012
Low tech	0.6	0.8
Manufacture of food products and beverages	0.4	0.6
Manufacture of tobacco products	0.4	0.5
Manufacture of textiles	0.8	0.9
Manufacture of wearing apparel, dressing and dyeing of fur	0.2	0.2
Manufacture of leather, leather products and footwear	0.1	0.1
Manufacture of wood and of products of wood and cork, except furniture	1.0	0.5
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	2.2	3.4
Publishing and printing, reproduction of recorded media	0.5	0.2
Manufacture of furniture, manufacturing n.e.c.	0.5	0.4
Recycling	1.4	0.3
Electricity, gas and water supply	0.8	1.8
Communications, computer and related activities, research and development, other business activities		
Total	**8.5**	**8.5**
Communications	9.5	4.6
Computer and related activities	3.9	3.1
Research and development	17.1	24.7
Other business activities	1.2	1.1

3.53. 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 enterprise group

Market sources:
- 3 – suppliers of equipment, materials, components, software
- 4 – competitors within the same sector
- 5 – clients or customers
- 6 – consultancy, information firms

Institutional sources:

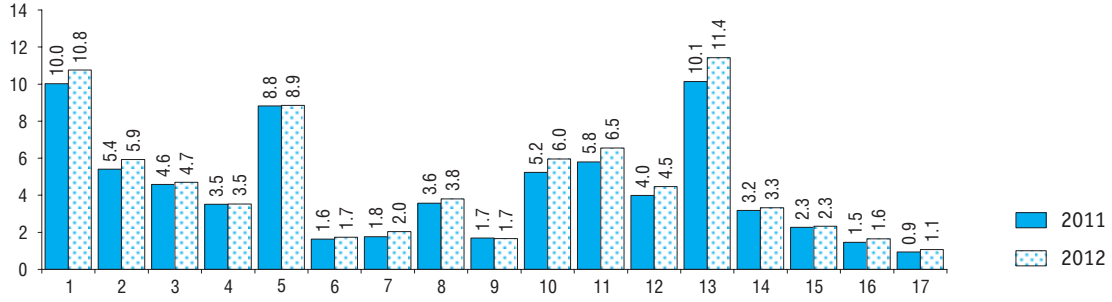
R&D institutions:
- 7 – Russian Academy of Sciences
- 8 – industry
- 9 – universities or other higher education institutions

Other sources:
- 10 – conferences, workshops, symposia
- 11 – science and technology literature
- 12 – exhibitions, trade fairs, and other advertising facilities
- 13 – Internet
- 14 – professional associations
- 15 – informal contacts
- 16 – patent information
- 17 – other sources

* Enterprises' assessment.

(continued)

Communications, computer and related activities, research and development, other business activities



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

Market sources:
- 3 – suppliers of equipment, materials, components, software
- 4 – competitors within the same sector
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- 6 – consultancy, information firms

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R&D institutions:
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Other sources:
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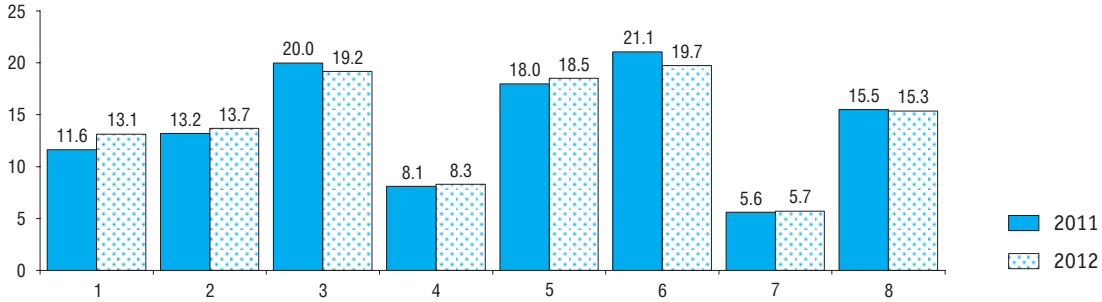
- 13 – Internet
- 14 – professional associations
- 15 – informal contacts
- 16 – patent information
- 17 – other sources

3.54. 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 – patenting inventions, industrial prototypes, and utility models
2 – keeping patents in force
3 – registering trademarks
4 – protecting copyright
5 – confidential agreements with personnel of enterprises and/or other organisations (specialists) engaged in the production of goods and services under contracts with the enterprise

Informal methods:

6 – ensuring the confidentiality of commercial secrets and know-how
7 – ensuring complicated design of products
8 – ensuring time advantage over competitors

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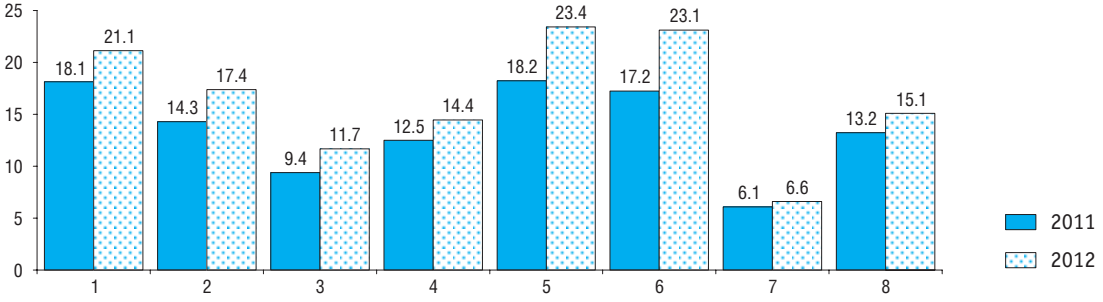
Communications, computer and related activities, research and development, other business activities



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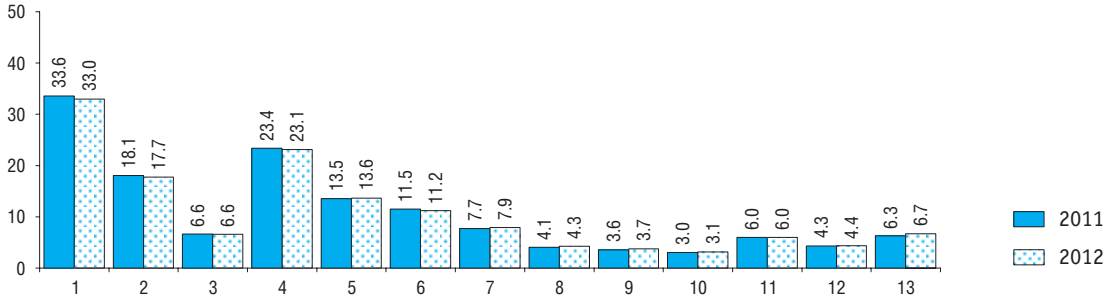
Informal methods:
- 6 – ensuring the confidentiality of commercial secrets and know-how
- 7 – ensuring complicated design of products
- 8 – ensuring time advantage over competitors

3.55. 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 – lack of funds within the enterprise
- 2 – lack of finance from the government
- 3 – low demand for new goods and services
- 4 – high innovation expenditure
- 5 – excessive perceived risks

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

Other factors:
- 11 – deficiencies in legislation
- 12 – underdevelopment of innovation infrastructure
- 13 – uncertainty of economic benefits

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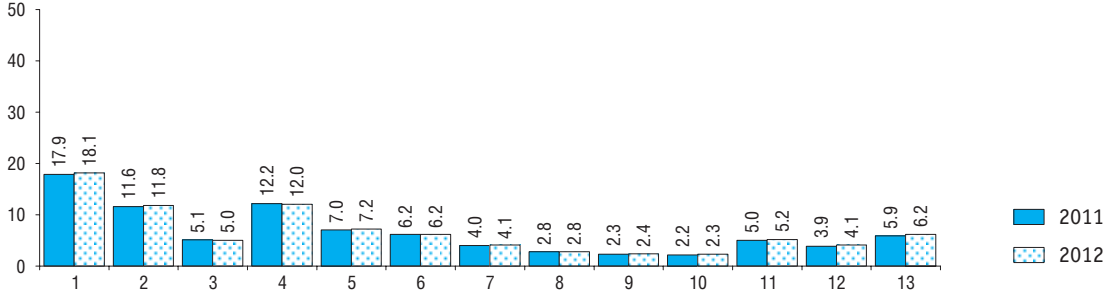
Communications, computer and related activities, research and development, other business activities



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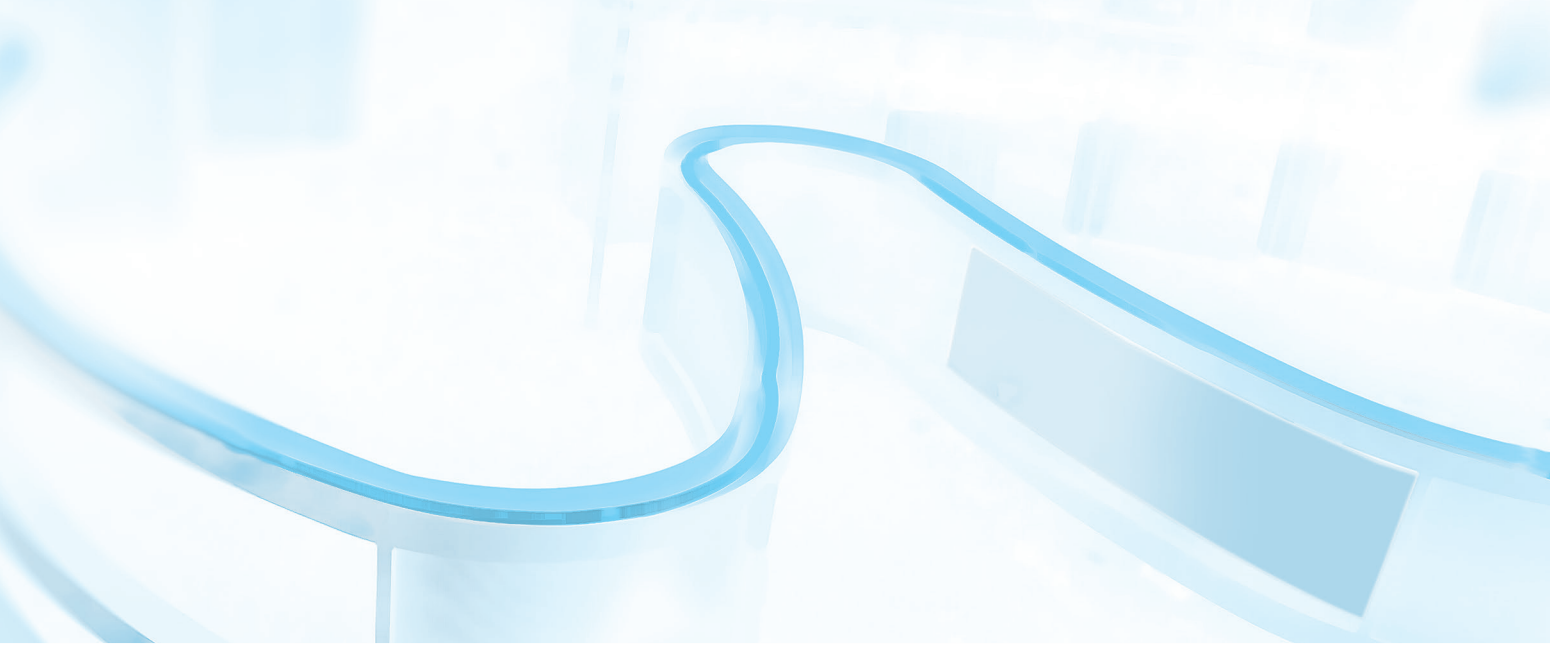
- 1 – lack of funds within the enterprise
- 2 – lack of finance from the government
- 3 – low demand for new goods and services
- 4 – high innovation expenditure
- 5 – excessive perceived risks

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

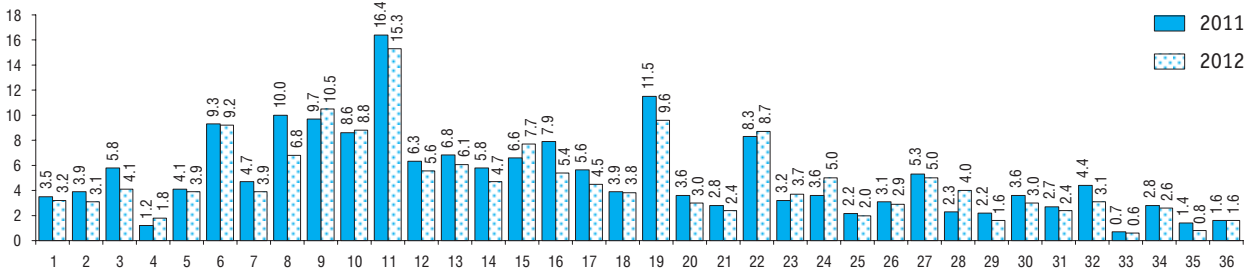
Other factors:
- 11 – deficiencies in legislation
- 12 – underdevelopment of innovation infrastructure
- 13 – uncertainty of economic benefits



4. Organisational Innovation

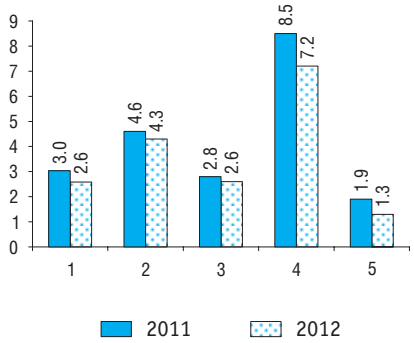
4.1. ENTERPRISES ENGAGED IN ORGANISATIONAL INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total

2 – Communications

3 – Computer and related activities

4 – Research and development

5 – Other business activities

4.2. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	6.8	6.2
Mining and quarrying of energy producing materials	5.9	4.7
Mining and quarrying, except energy producing materials	0.9	1.5
Manufacturing	81.6	81.1
High tech	13.6	14.7
Manufacture of pharmaceuticals	0.9	0.9
Manufacture of office machinery and computers	0.5	0.4
Manufacture of radio, television and communication equipment and apparatus	3.5	4.2
Manufacture of medical, precision and optical instruments, watches and clocks	5.9	6.5
Manufacture of aircrafts, including spacecrafts	2.8	2.8
Medium high tech	24.6	23.4
Manufacture of chemicals and chemical products	4.1	3.9
Manufacture of machinery and equipment, n.e.c.	10.2	9.0
Manufacture of electrical machinery and apparatus	5.1	6.5
Manufacture of motor vehicles, trailers and semi-trailers	3.4	2.5
Manufacture of other transport vehicles	1.8	1.5
Medium low tech	16.7	17.5
Manufacture of coke, refined petroleum products	1.4	1.3
Manufacture of rubber and plastic products	2.6	2.4
Manufacture of other non-metallic mineral products	4.6	4.2

(continued)

	2011	2012
Manufacture of basic metals	3.6	4.1
Manufacture of fabricated metal products	3.8	4.6
Construction and repair of vessels	0.7	1.0
Low tech	21.5	20.6
Manufacture of food products and beverages	11.9	11.5
Manufacture of tobacco products	0.1	0.1
Manufacture of textiles	0.8	1.5
Manufacture of wearing apparel, dressing and dyeing of fur	0.9	0.6
Manufacture of leather, leather products and footwear	0.6	0.5
Manufacture of wood and of products of wood and cork, except furniture	1.6	1.6
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1.2	0.9
Publishing and printing, reproduction of recorded media	2.6	2.2
Manufacture of furniture, manufacturing n.e.c.	1.4	1.4
Recycling	0.4	0.3
Manufacturing of other materials and substances, n.e.c.	5.2	4.9
Electricity, gas and water supply	11.6	12.7
Communications, computer and related activities, research and development, other business activities		
Total	**100**	**100**
Communications	17.4	19.2
Computer and related activities	6.4	7.8
Research and development	33.1	38.2
Other business activities	43.2	34.7

4.3. CO-OPERATION IN DEVELOPMENT OF ORGANISATIONAL INNOVATION

(as a percentage of the total number of enterprises having market-ready organisational innovations during the last three years)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**14.5**	**15.7**	**30.0**	**33.2**	**57.0**	**52.6**
Mining and quarrying	28.4	15.1	35.8	50.9	37.3	35.8
Mining and quarrying of energy producing materials	30.4	15.2	33.9	52.2	37.5	34.8
Mining and quarrying, except energy producing materials	18.2	14.3	45.5	42.9	36.4	42.9
Manufacturing	10.9	13.2	29.7	32.1	60.2	56.0
High tech	8.8	10.3	32.0	35.7	59.2	54.0
Manufacture of pharmaceuticals	–	22.2	25.0	22.2	75.0	55.6
Manufacture of office machinery and computers	–	–	–	–	100	100
Manufacture of radio, television and communication equipment and apparatus	11.8	11.4	29.4	40.0	58.8	48.6
Manufacture of medical, precision and optical instruments, watches and clocks	11.1	10.7	35.2	35.7	53.7	53.6
Manufacture of aircrafts, including spacecrafts	4.0	4.3	36.0	39.1	60.0	56.5

(continued)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Medium high tech	10.7	13.3	29.2	31.4	60.9	57.1
Manufacture of chemicals and chemical products	10.9	16.3	41.3	41.9	47.8	41.9
Manufacture of machinery and equipment n.e.c.	7.8	11.5	26.2	26.9	67.0	64.1
Manufacture of electrical machinery and apparatus	9.3	14.6	29.6	25.0	63.0	62.5
Manufacture of motor vehicles, trailers and semi-trailers	6.7	4.0	26.7	44.0	66.7	56.0
Manufacture of other transport vehicles	35.0	25.0	20.0	25.0	45.0	50.0
Medium low tech	11.6	11.7	30.7	33.5	59.3	55.3
Manufacture of coke, refined petroleum products	11.1	14.3	50.0	50.0	38.9	42.9
Manufacture of rubber and plastic products	20.0	11.1	20.0	33.3	60.0	55.6
Manufacture of other non-metallic mineral products	14.0	12.8	32.0	33.3	54.0	53.8
Manufacture of basic metals	11.6	11.1	32.6	37.8	60.5	51.1
Manufacture of fabricated metal products	5.0	7.0	30.0	30.2	67.5	62.8
Construction and repair of vessels	7.7	27.3	15.4	9.1	76.9	63.6
Low tech	12.5	18.4	28.5	28.7	59.0	54.0
Manufacture of food products and beverages	10.3	21.1	26.2	22.1	63.6	57.9
Manufacture of tobacco products	–	–	100	50.0	–	50.0
Manufacture of textiles	28.6	33.3	42.9	22.2	28.6	44.4
Manufacture of wearing apparel, dressing and dyeing of fur	10.0	–	50.0	50.0	40.0	50.0
Manufacture of leather, leather products and footwear	–	–	40.0	33.3	60.0	66.7

(continued)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	21.4	5.9	21.4	41.2	57.1	58.8
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	14.3	9.1	35.7	45.5	50.0	45.5
Publishing and printing, reproduction of recorded media	13.6	23.5	18.2	29.4	68.2	47.1
Manufacture of furniture, manufacturing n.e.c.	16.7	15.4	27.8	38.5	55.6	46.2
Recycling	–	33.3	50.0	33.3	50.0	33.3
Electricity, gas and water supply	30.4	31.4	28.8	32.2	46.4	39.0
Communications, computer and related activities, research and development, other business activities						
Total	**19.6**	**20.0**	**30.5**	**32.3**	**50.5**	**48.8**
Communications	13.7	17.3	43.1	45.5	43.1	39.1
Computer and related activities	15.2	34.3	45.5	34.3	42.4	31.4
Research and development	7.4	6.7	22.8	27.9	71.1	66.7
Other business activities	33.5	31.3	27.0	27.8	39.5	41.5

4.4. EXPENDITURE ON ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

(million roubles)

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**3483.9**	**4670.3**
Mining and quarrying	328.5	305.3
Mining and quarrying of energy producing materials	317.5	94.6
Mining and quarrying, except energy producing materials	11.0	210.7
Manufacturing	2721.7	3547.7
High tech	450.5	428.7
Manufacture of pharmaceuticals	2.1	4.5
Manufacture of office machinery and computers	3.4	0.5
Manufacture of radio, television and communication equipment and apparatus	32.2	31.2
Manufacture of medical, precision and optical instruments, watches and clocks	74.9	51.0
Manufacture of aircrafts, including spacecrafts	338.0	341.4
Medium high tech	510.6	832.4
Manufacture of chemicals and chemical products	132.5	119.1
Manufacture of machinery and equipment, n.e.c.	93.3	219.3
Manufacture of electrical machinery and apparatus	56.6	114.5
Manufacture of motor vehicles, trailers and semi-trailers	165.3	284.3
Manufacture of other transport vehicles	63.0	95.2
Medium low tech	381.2	1134.1
Manufacture of coke, refined petroleum products	111.0	74.8
Manufacture of rubber and plastic products	6.0	5.1
Manufacture of other non-metallic mineral products	17.5	258.8

(continued)

	2011	2012
Manufacture of basic metals	121.5	749.5
Manufacture of fabricated metal products	111.2	33.2
Construction and repair of vessels	13.9	12.7
Low tech	883.6	593.5
Manufacture of food products and beverages	506.9	475.4
Manufacture of tobacco products	3.1	2.5
Manufacture of textiles	20.4	50.6
Manufacture of wearing apparel, dressing and dyeing of fur	12.9	2.0
Manufacture of leather, leather products and footwear	1.1	9.5
Manufacture of wood and of products of wood and cork, except furniture	329.3	14.5
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	3.9	13.9
Publishing and printing, reproduction of recorded media	1.7	5.5
Manufacture of furniture, manufacturing n.e.c.	3.9	17.8
Recycling	0.4	1.7
Manufacturing of other materials and substances, n.e.c.	495.7	559.0
Electricity, gas and water supply	433.6	817.4
Communications, computer and related activities, research and development, other business activities		
Total	**1282.2**	**2514.1**
Communications	416.5	1359.4
Computer and related activities	41.6	34.8
Research and development	557.6	965.8
Other business activities	266.4	154.0

4.5. EXPENDITURE ON ORGANISATIONAL INNOVATION PER ENTERPRISE ENGAGED IN ORGANISATIONAL INNOVATION BY ECONOMIC ACTIVITY

(million roubles)

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**4.1**	**5.9**
Mining and quarrying	5.7	6.2
Mining and quarrying of energy producing materials	6.4	2.6
Mining and quarrying, except energy producing materials	1.4	17.6
Manufacturing	3.9	5.5
High tech	3.9	3.7
Manufacture of pharmaceuticals	0.3	0.6
Manufacture of office machinery and computers	0.8	0.2
Manufacture of radio, television and communication equipment and apparatus	1.1	0.9
Manufacture of medical, precision and optical instruments, watches and clocks	1.5	1.0
Manufacture of aircrafts, including spacecrafts	14.1	15.5
Medium high tech	2.4	4.5
Manufacture of chemicals and chemical products	3.8	3.8
Manufacture of machinery and equipment, n.e.c.	1.1	3.1
Manufacture of electrical machinery and apparatus	1.3	2.2
Manufacture of motor vehicles, trailers and semi-trailers	5.7	14.2
Manufacture of other transport vehicles	4.2	7.9
Medium low tech	2.7	8.2
Manufacture of coke, refined petroleum products	9.3	7.5
Manufacture of rubber and plastic products	0.3	0.3
Manufacture of other non-metallic mineral products	0.4	7.8

(continued)

	2011	2012
Manufacture of basic metals	3.9	23.4
Manufacture of fabricated metal products	3.5	0.9
Construction and repair of vessels	2.3	1.6
Low tech	4.8	3.6
Manufacture of food products and beverages	5.0	5.2
Manufacture of tobacco products	3.1	2.5
Manufacture of textiles	2.9	4.2
Manufacture of wearing apparel, dressing and dyeing of fur	1.6	0.4
Manufacture of leather, leather products and footwear	0.2	2.4
Manufacture of wood and of products of wood and cork, except furniture	23.5	1.1
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	0.4	2.0
Publishing and printing, reproduction of recorded media	0.1	0.3
Manufacture of furniture, manufacturing n.e.c.	0.3	1.6
Recycling	0.1	0.8
Electricity, gas and water supply	4.4	8.2
Communications, computer and related activities, research and development, other business activities		
Total	**2.9**	**6.4**
Communications	5.5	17.9
Computer and related activities	1.5	1.1
Research and development	3.8	6.4
Other business activities	1.4	1.1

4.6. ENTERPRISES ENGAGED IN ORGANISATIONAL INNOVATION BY INNOVATION TYPE AND ECONOMIC ACTIVITY

(as a percentage of the total number of enterprises having market-ready organisational innovations during the last three years)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
						2011						
						Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**40.7**	**61.3**	**57.6**	**20.4**	**63.4**	**31.4**	**15.3**	**26.0**	**69.3**	**24.5**	**31.4**	**7.5**
Mining and quarrying	32.8	56.7	56.7	17.9	38.8	23.9	13.4	40.3	74.6	19.4	49.3	7.5
Mining and quarrying of energy producing materials	28.6	62.5	55.4	16.1	42.9	25.0	16.1	41.1	78.6	21.4	55.4	7.1
Mining and quarrying, except energy producing materials	54.5	27.3	63.6	27.3	18.2	18.2	–	36.4	54.5	9.1	18.2	9.1
Manufacturing	42.2	61.1	59.1	22.1	68.2	33.9	17.3	26.1	70.3	27.0	30.6	7.4
High tech	50.4	68.8	65.6	20.0	66.4	20.8	28.0	21.6	69.6	36.8	28.8	8.0
Manufacture of pharmaceuticals	37.5	75.0	62.5	–	75.0	25.0	–	25.0	87.5	12.5	12.5	12.5
Manufacture of office machinery and computers	100	100	100	–	75.0	25.0	75.0	50.0	100	25.0	–	–
Manufacture of radio, television and communication equipment and apparatus	32.4	61.8	58.8	23.5	67.6	17.6	35.3	14.7	52.9	32.4	26.5	8.8

(continued)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Manufacture of medical, precision and optical instruments, watches and clocks	55.6	64.8	63.0	22.2	66.7	24.1	29.6	18.5	70.4	37.0	24.1	3.7
Manufacture of aircrafts, including spacecrafts	60.0	80.0	76.0	20.0	60.0	16.0	16.0	32.0	80.0	52.0	52.0	16.0
Medium high tech	44.3	61.7	61.7	23.7	75.5	38.3	22.5	26.9	72.3	32.0	32.8	7.5
Manufacture of chemicals and chemical products	43.5	52.2	60.9	10.9	71.7	39.1	32.6	26.1	65.2	23.9	37.0	8.7
Manufacture of machinery and equipment, n.e.c.	44.7	65.0	62.1	30.1	79.6	35.9	16.5	30.1	68.0	35.0	29.1	4.9
Manufacture of electrical machinery and apparatus	42.6	70.4	59.3	25.9	75.9	42.6	33.3	24.1	79.6	35.2	35.2	7.4
Manufacture of motor vehicles, trailers and semi-trailers	40.0	46.7	60.0	13.3	66.7	53.3	16.7	26.7	76.7	30.0	36.7	6.7
Manufacture of other transport vehicles	55.0	65.0	70.0	30.0	75.0	15.0	10.0	20.0	85.0	30.0	30.0	20.0

(continued)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Medium low tech	38.1	59.8	53.4	20.6	64.0	33.3	12.7	28.6	74.1	25.9	31.7	6.9
Manufacture of coke, refined petroleum products	55.6	83.3	77.8	11.1	77.8	44.4	27.8	66.7	77.8	44.4	61.1	11.1
Manufacture of rubber and plastic products	44.0	52.0	44.0	16.0	80.0	44.0	12.0	28.0	76.0	24.0	28.0	12.0
Manufacture of other non-metallic mineral products	26.0	48.0	42.0	22.0	60.0	28.0	14.0	18.0	70.0	28.0	14.0	2.0
Manufacture of basic metals	32.6	58.1	55.8	23.3	48.8	27.9	7.0	25.6	67.4	20.9	48.8	7.0
Manufacture of fabricated metal products	42.5	67.5	55.0	25.0	65.0	32.5	12.5	30.0	75.0	22.5	27.5	5.0
Construction and repair of vessels	53.8	69.2	69.2	15.4	76.9	38.5	7.7	23.1	100	23.1	23.1	15.4
Low tech	35.5	55.5	55.0	24.5	61.0	36.0	8.5	24.5	62.0	12.5	27.0	5.0
Manufacture of food products and beverages	31.8	52.3	55.1	23.4	72.9	45.8	8.4	28.0	65.4	13.1	31.8	2.8
Manufacture of tobacco products	–	–	100	100	100	–	–	–	100	–	100	–
Manufacture of textiles	42.9	42.9	28.6	42.9	42.9	14.3	14.3	28.6	42.9	28.6	–	–
Manufacture of wearing apparel, dressing and dyeing of fur	10.0	40.0	30.0	–	20.0	–	–	–	40.0	–	20.0	10.0

(continued)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Manufacture of leather, leather products and footwear	20.0	80.0	20.0	–	40.0	20.0	20.0	20.0	40.0	20.0	40.0	–
Manufacture of wood and of products of wood and cork, except furniture	42.9	64.3	50.0	35.7	64.3	7.1	14.3	14.3	57.1	7.1	21.4	14.3
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	64.3	85.7	71.4	28.6	57.1	35.7	7.1	35.7	85.7	7.1	28.6	14.3
Publishing and printing, reproduction of recorded media	36.4	59.1	54.5	22.7	36.4	36.4	4.5	36.4	54.5	22.7	22.7	–
Manufacture of furniture, manufacturing n.e.c.	44.4	50.0	77.8	27.8	55.6	33.3	11.1	5.6	55.6	5.6	16.7	11.1
Recycling	50.0	50.0	50.0	50.0	50.0	50.0	–	–	100	–	–	–
Electricity, gas and water supply	35.2	64.8	48.0	10.4	44.8	19.2	3.2	17.6	60.0	11.2	27.2	8.8

(continued)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Communications, computer and related activities, research and development, other business activities												
Total	**43.1**	**63.8**	**58.6**	**19.8**	**56.1**	**18.1**	**22.0**	**35.6**	**73.1**	**29.6**	**29.4**	**7.9**
Communications	60.8	66.7	65.7	24.5	47.1	22.5	11.8	55.9	80.4	24.5	48.0	4.9
Computer and related activities	27.3	63.6	54.5	30.3	51.5	9.1	9.1	27.3	69.7	18.2	27.3	3.0
Research and development	53.0	71.1	69.8	22.1	75.2	22.8	46.3	38.9	81.2	45.6	30.2	10.1
Other business activities	28.1	56.2	46.5	13.5	46.5	13.5	10.3	23.2	63.2	21.6	18.9	8.6

(continued)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
2012												
Mining and quarrying, manufacturing, electricity, gas and water supply												
Total	**36.6**	**61.8**	**54.9**	**19.1**	**63.9**	**31.1**	**16.6**	**28.4**	**71.6**	**25.6**	**33.7**	**9.1**
Mining and quarrying	26.4	50.9	47.2	3.8	47.2	20.8	9.4	35.8	67.9	20.8	47.2	11.3
Mining and quarrying of energy producing materials	21.7	52.2	43.5	4.3	45.7	17.4	8.7	34.8	65.2	19.6	45.7	10.9
Mining and quarrying, except energy producing materials	57.1	42.9	71.4	–	57.1	42.9	14.3	42.9	85.7	28.6	57.1	14.3
Manufacturing	38.3	62.1	57.2	21.3	68.9	33.5	18.8	28.5	73.4	27.7	33.2	8.4
High tech	39.7	72.2	59.5	20.6	69.0	29.4	28.6	27.8	73.0	34.1	31.0	7.1
Manufacture of pharmaceuticals	22.2	77.8	44.4	–	77.8	33.3	11.1	33.3	100	11.1	11.1	22.2
Manufacture of office machinery and computers	100	100	66.7	66.7	66.7	66.7	–	66.7	66.7	33.3	–	–
Manufacture of radio, television and communication equipment and apparatus	31.4	65.7	62.9	20.0	68.6	25.7	34.3	25.7	68.6	31.4	28.6	5.7

(continued)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Manufacture of medical, precision and optical instruments, watches and clocks	50.0	71.4	60.7	23.2	69.6	30.4	30.4	19.6	71.4	33.9	30.4	3.6
Manufacture of aircrafts, including spacecrafts	26.1	78.3	56.5	17.4	65.2	26.1	26.1	43.5	73.9	47.8	47.8	13.0
Medium high tech	40.5	63.3	65.2	22.4	75.2	34.3	23.8	31.4	78.1	32.9	38.6	9.0
Manufacture of chemicals and chemical products	34.9	51.2	65.1	23.3	69.8	30.2	30.2	25.6	74.4	20.9	46.5	14.0
Manufacture of machinery and equipment, n.e.c.	41.0	65.4	65.4	25.6	79.5	29.5	17.9	34.6	76.9	41.0	39.7	5.1
Manufacture of electrical machinery and apparatus	41.7	75.0	58.3	20.8	77.1	41.7	37.5	29.2	83.3	31.3	22.9	8.3
Manufacture of motor vehicles, trailers and semi-trailers	44.0	48.0	68.0	16.0	76.0	44.0	12.0	44.0	76.0	28.0	56.0	12.0
Manufacture of other transport vehicles	43.8	75.0	81.3	18.8	62.5	31.3	12.5	18.8	81.3	37.5	31.3	12.5

(continued)

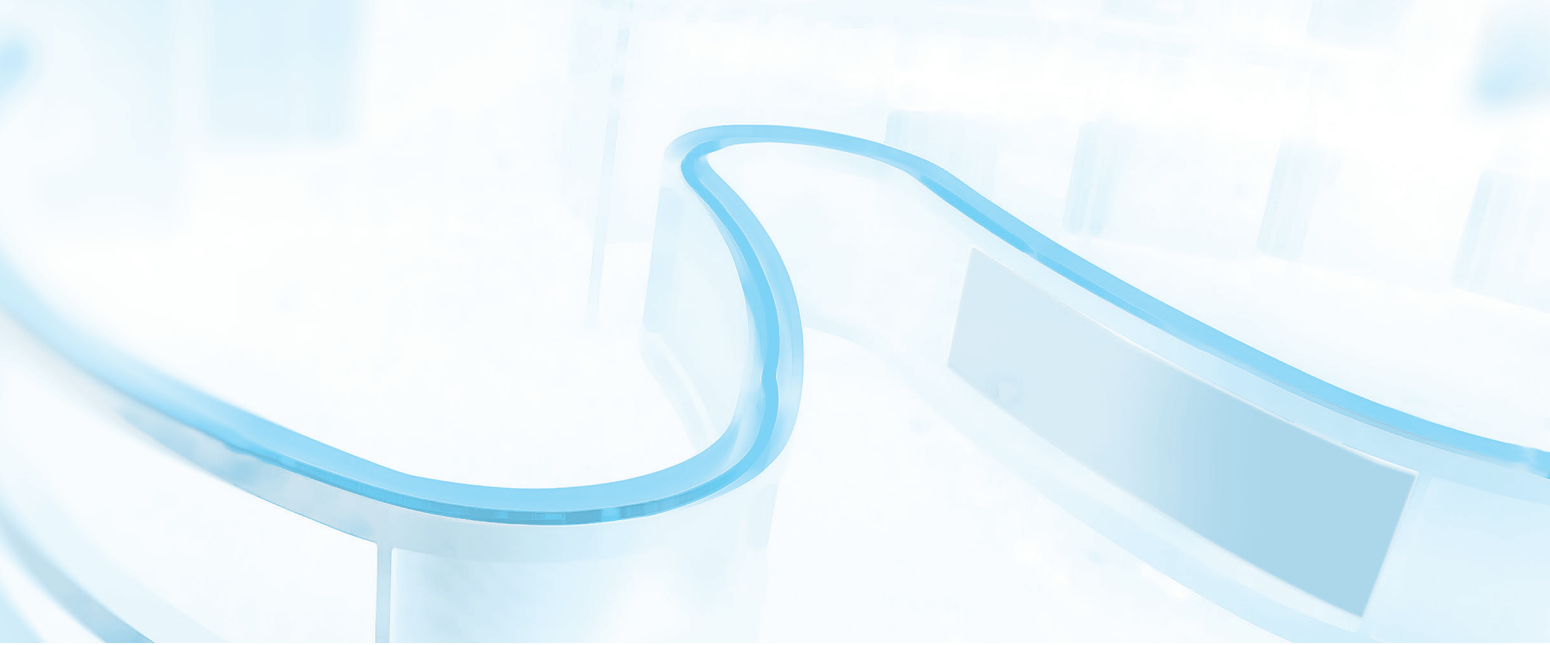
	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation in the use of shift work	Use of modern systems of quality control, certification of goods and services	Introduction of modern systems of logistics and supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Medium low tech	38.5	61.5	53.1	20.1	64.8	29.1	15.6	29.1	72.1	23.5	31.3	6.7
Manufacture of coke, refined petroleum products	42.9	57.1	71.4	14.3	42.9	14.3	21.4	71.4	71.4	28.6	71.4	7.1
Manufacture of rubber and plastic products	37.0	55.6	44.4	18.5	85.2	55.6	11.1	14.8	74.1	29.6	18.5	7.4
Manufacture of other non-metallic mineral products	30.8	56.4	48.7	17.9	66.7	33.3	10.3	28.2	74.4	23.1	17.9	2.6
Manufacture of basic metals	35.6	64.4	53.3	22.2	51.1	20.0	22.2	26.7	68.9	17.8	44.4	8.9
Manufacture of fabricated metal products	41.9	69.8	53.5	25.6	69.8	27.9	16.3	27.9	69.8	25.6	25.6	4.7
Construction and repair of vessels	63.6	54.5	63.6	9.1	72.7	9.1	9.1	27.3	81.8	18.2	27.3	18.2
Low tech	30.5	52.3	46.0	23.0	63.2	39.7	8.6	25.3	66.7	17.8	28.2	8.6
Manufacture of food products and beverages	32.6	53.7	43.0	24.2	71.6	48.4	10.5	28.4	70.5	18.9	26.3	6.3
Manufacture of tobacco products	–	50.0	100	–	100	50.0	–	50.0	100	–	100	–
Manufacture of textiles	11.1	55.6	33.3	11.1	33.3	11.1	11.1	11.1	55.6	11.1	–	11.1
Manufacture of wearing apparel, dressing and dyeing of fur	25.0	50.0	25.0	25.0	50.0	–	–	–	50.0	25.0	25.0	25.0
Manufacture of leather, leather products and footwear	33.3	100	66.7	33.3	100	33.3	33.3	33.3	66.7	33.3	66.7	–

(continued)

	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation 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 supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Manufacture of wood and of products of wood and cork, except furniture	29.4	35.3	41.2	29.4	58.8	11.8	5.9	11.8	58.8	–	35.3	5.9
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	54.5	81.8	63.6	18.2	72.7	45.5	9.1	45.5	81.8	18.2	45.5	18.2
Publishing and printing, reproduction of recorded media	23.5	41.2	52.9	5.9	35.3	35.3	–	29.4	41.2	23.5	29.4	11.8
Manufacture of furniture, manufacturing n.e.c.	23.1	46.2	53.8	30.8	53.8	46.2	7.7	15.4	69.2	30.8	23.1	15.4
Recycling	33.3	33.3	33.3	66.7	33.3	33.3	–	–	100	–	–	–
Electricity, gas and water supply	30.5	64.4	44.1	12.7	40.7	21.2	5.9	24.6	61.9	14.4	30.5	12.7

(continued)

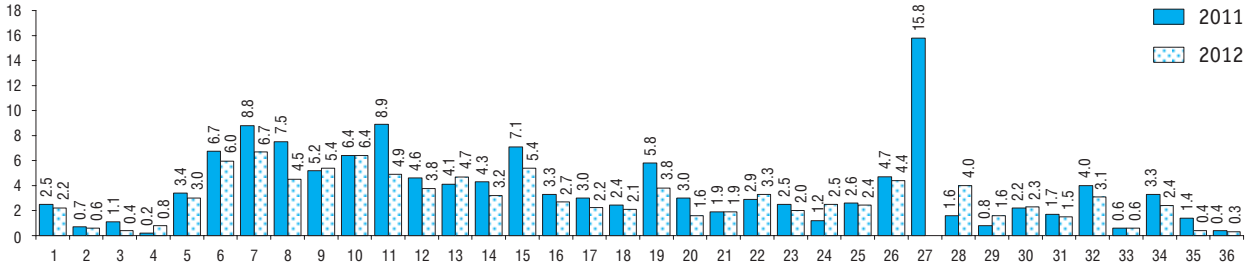
	Implementation of new or improved corporate strategy	Introduction of modern ICT-based management techniques	Introduction of new or improved organisational structures	Innovation in the use of shift work	Use of modern systems of quality control, certification of goods and services	Introduction of modern systems of logistics and supply of materials and components	Establishment of specialised units for R&D and practical implementation of S&T achievements	Implementation of corporate knowledge management systems	Personnel development	Implementation of new forms of strategic alliances, partnerships and other cooperative linkages with consumers, suppliers, Russian and foreign manufacturers	Outsourcing	Other organisational innovations
Communications, computer and related activities, research and development, other business activities												
Total	**36.2**	**61.9**	**56.8**	**14.8**	**53.3**	**20.4**	**22.0**	**33.5**	**73.5**	**27.0**	**28.8**	**12.1**
Communications	45.5	62.7	67.3	20.9	46.4	21.8	15.5	43.6	82.7	16.4	43.6	10.9
Computer and related activities	28.6	65.7	51.4	20.0	45.7	11.4	8.6	34.3	68.6	25.7	5.7	5.7
Research and development	44.8	64.2	62.4	16.4	68.5	30.3	43.0	39.4	80.0	46.1	27.3	12.7
Other business activities	23.9	58.5	46.0	8.5	44.9	11.9	9.1	21.6	62.5	15.9	21.6	13.6



5. Marketing Innovation

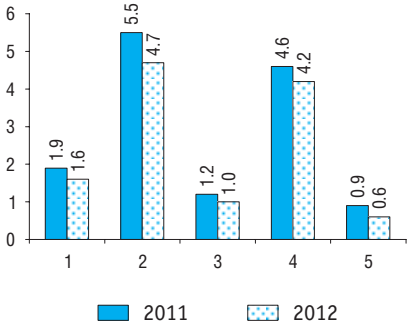
5.1. ENTERPRISES ENGAGED IN MARKETING INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES BY ECONOMIC ACTIVITY

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total

2 – Communications

3 – Computer and related activities

4 – Research and development

5 – Other business activities

5.2. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN MARKETING INNOVATION BY ECONOMIC ACTIVITY

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**100**	**100**
Mining and quarrying	1.6	1.7
Mining and quarrying of energy producing materials	1.5	0.8
Mining and quarrying, except energy producing materials	0.2	0.9
Manufacturing	93.9	94.3
High tech	13.8	14.2
Manufacture of pharmaceuticals	2.5	2.3
Manufacture of office machinery and computers	0.5	0.4
Manufacture of radio, television and communication equipment and apparatus	2.6	3.2
Manufacture of medical, precision and optical instruments, watches and clocks	6.1	7.0
Manufacture of aircrafts, including spacecrafts	2.1	1.3
Medium high tech	25.0	23.7
Manufacture of chemicals and chemical products	3.4	4.6
Manufacture of machinery and equipment, n.e.c.	10.7	9.3
Manufacture of electrical machinery and apparatus	7.6	6.8
Manufacture of motor vehicles, trailers and semi-trailers	2.0	1.9
Manufacture of other transport vehicles	1.3	1.1
Medium low tech	14.6	14.4
Manufacture of coke, refined petroleum products	1.0	0.8
Manufacture of rubber and plastic products	3.0	1.9
Manufacture of other non-metallic mineral products	4.4	4.9

(continued)

	2011	2012
Manufacture of basic metals	1.8	2.3
Manufacture of fabricated metal products	4.1	3.8
Construction and repair of vessels	0.3	0.8
Low tech	36.5	38.1
Manufacture of food products and beverages	25.5	26.2
Manufacture of tobacco products	0.5	–
Manufacture of textiles	0.8	2.3
Manufacture of wearing apparel, dressing and dyeing of fur	0.5	0.9
Manufacture of leather, leather products and footwear	0.5	0.6
Manufacture of wood and of products of wood and cork, except furniture	1.5	1.5
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1.5	1.3
Publishing and printing, reproduction of recorded media	3.0	3.2
Manufacture of furniture, manufacturing n.e.c.	2.3	1.9
Recycling	0.5	0.2
Manufacturing of other materials and substances, n.e.c.	4.1	3.8
Electricity, gas and water supply	4.4	4.0
Communications, computer and related activities, research and development, other business activities		
Total	**100**	**100**
Communications	33.3	33.9
Computer and related activities	4.4	4.9
Research and development	28.6	35.5
Other business activities	33.7	25.7

5.3. CO-OPERATION IN DEVELOPMENT OF MARKETING INNOVATION

(as a percentage of the total number of enterprises having market–ready marketing innovations during the last three years)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**11.4**	**10.5**	**32.1**	**34.9**	**56.9**	**56.2**
Mining and quarrying	–	25.0	66.7	25.0	33.3	50.0
Mining and quarrying of energy producing materials	–	50.0	66.7	50.0	33.3	–
Mining and quarrying, except energy producing materials	–	–	–	–	–	100
Manufacturing	11.4	10.6	32.2	34.7	56.9	56.3
High tech	11.1	6.0	25.9	41.0	63.0	53.0
Manufacture of pharmaceuticals	8.3	–	58.3	70.0	33.3	30.0
Manufacture of office machinery and computers	33.3	–	–	50.0	66.7	50.0
Manufacture of radio, television and communication equipment and apparatus	6.3	–	18.8	31.8	75.0	68.2
Manufacture of medical, precision and optical instruments, watches and clocks	15.4	9.5	17.9	35.7	66.7	54.8
Manufacture of aircrafts, including spacecrafts	–	14.3	36.4	57.1	63.6	28.6

(continued)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Medium high tech	4.8	3.8	30.4	27.7	64.9	70.0
Manufacture of chemicals and chemical products	7.7	3.8	42.3	38.5	50.0	57.7
Manufacture of machinery and equipment, n.e.c.	2.8	6.0	23.6	22.0	73.6	76.0
Manufacture of electrical machinery and apparatus	4.4	–	35.6	28.6	60.0	71.4
Manufacture of motor vehicles, trailers and semi-trailers	6.3	7.7	18.8	15.4	75.0	76.9
Manufacture of other transport vehicles	11.1	–	44.4	50.0	44.4	50.0
Medium low tech	11.2	10.4	26.5	33.3	63.3	58.3
Manufacture of coke, refined petroleum products	–	–	83.3	100	16.7	25.0
Manufacture of rubber and plastic products	–	–	–	14.3	100	85.7
Manufacture of other non-metallic mineral products	15.2	15.6	21.2	28.1	63.6	56.3
Manufacture of basic metals	9.1	7.1	45.5	42.9	45.5	50.0
Manufacture of fabricated metal products	6.9	11.1	27.6	33.3	69.0	59.3
Construction and repair of vessels	60.0	20.0	20.0	40.0	20.0	40.0
Low tech	16.5	16.6	37.3	35.3	46.5	49.8
Manufacture of food products and beverages	14.3	18.0	42.3	41.6	44.0	42.9
Manufacture of tobacco products	33.3	–	66.7	–	–	–
Manufacture of textiles	–	14.3	11.1	21.4	88.9	64.3
Manufacture of wearing apparel, dressing and dyeing of fur	14.3	–	42.9	20.0	42.9	80.0
Manufacture of leather, leather products and footwear	–	–	50.0	33.3	50.0	66.7

(continued)

	Enterprises with innovations developed					
	mainly by external organisations		jointly with other organisations		mainly in-house	
	2011	2012	2011	2012	2011	2012
Manufacture of wood and of products of wood and cork, except furniture	30.0	27.3	20.0	18.2	50.0	54.5
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	15.4	11.1	30.8	11.1	53.8	77.8
Publishing and printing, reproduction of recorded media	36.8	15.8	26.3	31.6	36.8	52.6
Manufacture of furniture, manufacturing n.e.c.	16.7	8.3	22.2	16.7	61.1	75.0
Recycling	50.0	–	–	–	50.0	100
Electricity, gas and water supply	15.0	5.0	25.0	40.0	60.0	55.0
Communications, computer and related activities, research and development, other business activities						
Total	**13.9**	**14.7**	**31.7**	**39.6**	**55.2**	**51.4**
Communications	8.2	13.5	35.5	55.9	57.3	44.1
Computer and related activities	38.5	42.9	30.8	28.6	30.8	28.6
Research and development	6.4	8.2	28.2	22.4	66.7	70.6
Other business activities	25.0	19.1	30.0	36.8	45.0	44.1

5.4. SALES OF GOODS AND SERVICES PRODUCED WITH THE USE OF MARKETING INNOVATION BY ECONOMIC ACTIVITY

	Million roubles		As a percentage of total sales	
	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**561396.9**	**652631.9**	**1.9**	**2.0**
Mining and quarrying	450996.3	529681.9	5.9	6.6
Mining and quarrying of energy producing materials	449811.8	529668.2	6.7	7.7
Mining and quarrying, except energy producing materials	1184.5	13.7	0.1	0.0
Manufacturing	76395.9	96698.5	0.4	0.5
High tech	15310.2	16743.9	1.4	1.4
Manufacture of pharmaceuticals	24.9	–	0.02	–
Manufacture of office machinery and computers	30.0	–	0.1	–
Manufacture of radio, television and communication equipment and apparatus	737.7	48.8	0.3	0.02
Manufacture of medical, precision and optical instruments, watches and clocks	13092.7	13401.4	4.6	4.7
Manufacture of aircrafts, including spacecrafts	1425.0	3293.7	0.4	0.8
Medium high tech	38871.7	49220.6	0.9	1.0
Manufacture of chemicals and chemical products	29958.6	33642.8	2.2	2.3
Manufacture of machinery and equipment, n.e.c.	3457.0	13180.2	0.3	1.3
Manufacture of electrical machinery and apparatus	3278.3	2037.5	0.8	0.4
Manufacture of motor vehicles, trailers and semi-trailers	1783.3	237.5	0.1	0.02
Manufacture of other transport vehicles	394.5	122.6	0.1	0.03
Medium low tech	5612.1	8899.5	0.1	0.1
Manufacture of coke, refined petroleum products	–	–	–	–
Manufacture of rubber and plastic products	2110.5	1622.0	0.5	0.4
Manufacture of other non-metallic mineral products	511.4	2079.8	0.1	0.2

(continued)

	Million roubles		As a percentage of total sales	
	2011	2012	2011	2012
Manufacture of basic metals	1506.1	2047.8	0.05	0.1
Manufacture of fabricated metal products	1482.6	2275.1	0.2	0.3
Construction and repair of vessels	1.4	874.8	0.0	0.6
Low tech	16005.3	21751.4	0.4	0.5
Manufacture of food products and beverages	10597.4	13588.9	0.4	0.5
Manufacture of tobacco products	256.5	–	0.1	–
Manufacture of textiles	0.7	728.5	0.0	0.9
Manufacture of wearing apparel, dressing and dyeing of fur	1111.1	1369.7	2.3	2.8
Manufacture of leather, leather products and footwear	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	1602.7	2377.7	0.8	0.9
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	1083.8	1772.0	0.3	0.5
Publishing and printing, reproduction of recorded media	697.1	1453.9	0.4	0.8
Manufacture of furniture, manufacturing n.e.c.	656.1	460.7	0.4	0.2
Recycling	–	–	–	–
Manufacturing of other materials and substances, n.e.c.	596.7	83.2	0.1	0.01
Electricity, gas and water supply	34004.6	26251.4	1.0	0.7
Communications, computer and related activities, research and development, other business activities				
Total	**19522.4**	**28525.4**	**0.6**	**0.8**
Communications	7507.0	8073.6	0.5	0.5
Computer and related activities	492.1	1619.0	0.3	0.7
Research and development	5392.6	12032.9	0.8	1.3
Other business activities	6130.8	6799.9	0.7	0.7

5.5. EXPENDITURE ON MARKETING INNOVATION BY ECONOMIC ACTIVITY

(million roubles)

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**1661.0**	**2010.7**
Mining and quarrying	17.2	12.2
Mining and quarrying of energy producing materials	17.2	0.2
Mining and quarrying, except energy producing materials	–	12.1
Manufacturing	1634.6	1989.8
High tech	142.7	124.0
Manufacture of pharmaceuticals	47.6	14.6
Manufacture of office machinery and computers	2.2	0.1
Manufacture of radio, television and communication equipment and apparatus	7.2	4.9
Manufacture of medical, precision and optical instruments, watches and clocks	28.5	30.6
Manufacture of aircrafts, including spacecrafts	57.3	73.8
Medium high tech	140.9	344.5
Manufacture of chemicals and chemical products	44.2	171.5
Manufacture of machinery and equipment, n.e.c.	18.7	74.7
Manufacture of electrical machinery and apparatus	18.3	33.7
Manufacture of motor vehicles, trailers and semi-trailers	57.2	58.0
Manufacture of other transport vehicles	2.5	6.6
Medium low tech	217.2	345.0
Manufacture of coke, refined petroleum products	136.3	250.7
Manufacture of rubber and plastic products	8.1	11.2
Manufacture of other non-metallic mineral products	35.9	36.5

(continued)

	2011	2012
Manufacture of basic metals	32.6	30.7
Manufacture of fabricated metal products	3.6	15.8
Construction and repair of vessels	0.7	0.1
Low tech	1093.0	1095.8
Manufacture of food products and beverages	547.0	668.3
Manufacture of tobacco products	–	–
Manufacture of textiles	0.6	9.2
Manufacture of wearing apparel, dressing and dyeing of fur	2.0	1.7
Manufacture of leather, leather products and footwear	17.6	0.07
Manufacture of wood and of products of wood and cork, except furniture	1.8	172.8
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	141.5	108.4
Publishing and printing, reproduction of recorded media	20.7	67.1
Manufacture of furniture, manufacturing n.e.c.	361.7	67.7
Recycling	0.1	0.7
Manufacturing of other materials and substances, n.e.c.	40.7	80.5
Electricity, gas and water supply	9.2	8.7
Communications, computer and related activities, research and development, other business activities		
Total	**8297.0**	**1610.3**
Communications	8198.3	1375.1
Computer and related activities	9.1	2.9
Research and development	74.4	197.5
Other business activities	15.3	34.8

5.6. EXPENDITURE ON MARKETING INNOVATION PER ENTERPRISE ENGAGED IN MARKETING INNOVATION BY ECONOMIC ACTIVITY

(million roubles)

	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**2.7**	**3.8**
Mining and quarrying	1.7	1.4
Mining and quarrying of energy producing materials	1.9	0.04
Mining and quarrying, except energy producing materials	–	2.4
Manufacturing	2.9	4.0
High tech	1.7	1.7
Manufacture of pharmaceuticals	3.2	1.2
Manufacture of office machinery and computers	0.7	0.1
Manufacture of radio, television and communication equipment and apparatus	0.5	0.3
Manufacture of medical, precision and optical instruments, watches and clocks	0.8	0.8
Manufacture of aircrafts, including spacecrafts	4.4	10.5
Medium high tech	0.9	2.8
Manufacture of chemicals and chemical products	2.1	7.1
Manufacture of machinery and equipment, n.e.c.	0.3	1.5
Manufacture of electrical machinery and apparatus	0.4	0.9
Manufacture of motor vehicles, trailers and semi-trailers	4.8	5.8
Manufacture of other transport vehicles	0.3	1.1
Medium low tech	2.4	4.5
Manufacture of coke, refined petroleum products	22.7	62.7
Manufacture of rubber and plastic products	0.5	1.1
Manufacture of other non-metallic mineral products	1.3	1.4

(continued)

	2011	2012
Manufacture of basic metals	3.0	2.6
Manufacture of fabricated metal products	0.1	0.8
Construction and repair of vessels	0.4	0.03
Low tech	4.9	5.5
Manufacture of food products and beverages	3.5	4.8
Manufacture of tobacco products	–	–
Manufacture of textiles	0.1	0.8
Manufacture of wearing apparel, dressing and dyeing of fur	0.7	0.3
Manufacture of leather, leather products and footwear	5.9	0.02
Manufacture of wood and of products of wood and cork, except furniture	0.2	21.6
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	15.7	15.5
Publishing and printing, reproduction of recorded media	1.2	3.9
Manufacture of furniture, manufacturing n.e.c.	25.8	6.8
Recycling	0.04	0.7
Electricity, gas and water supply	0.3	0.4
Communications, computer and related activities, research and development, other business activities		
Total	**30.4**	**6.6**
Communications	90.1	16.6
Computer and related activities	0.8	0.2
Research and development	1.0	2.3
Other business activities	0.2	0.6

5.7. ENTERPRISES ENGAGED IN MARKETING INNOVATION BY INNOVATION TYPE AND ECONOMIC ACTIVITY

(as a percentage of the total number of enterprises having market–ready marketing innovations during the last three years)

	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
				2011				
				Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**50.8**	**51.0**	**69.4**	**65.4**	**51.8**	**57.1**	**53.7**	**7.9**
Mining and quarrying	–	–	100	33.3	–	–	33.3	–
Mining and quarrying of energy producing materials	–	–	100	33.3	–	–	33.3	–
Mining and quarrying, except energy producing materials	–	–	–	–	–	–	–	–
Manufacturing	52.4	52.8	70.2	66.6	52.8	58.0	54.9	7.1
High tech	43.2	42.0	70.4	74.1	61.7	67.9	59.3	12.3
Manufacture of pharmaceuticals	66.7	66.7	66.7	75.0	58.3	50.0	50.0	8.3
Manufacture of office machinery and computers	33.3	66.7	66.7	100	66.7	66.7	33.3	–
Manufacture of radio, television and communication equipment and apparatus	6.3	12.5	75.0	68.8	50.0	50.0	43.8	18.8

(continued)

	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
Manufacture of medical, precision and optical instruments, watches and clocks	53.8	46.2	64.1	74.4	64.1	74.4	69.2	10.3
Manufacture of aircrafts, including spacecrafts	36.4	36.4	90.9	72.7	72.7	90.9	63.6	18.2
Medium high tech	41.7	44.0	79.8	69.0	59.5	66.7	57.7	6.0
Manufacture of chemicals and chemical products	53.8	65.4	76.9	69.2	65.4	61.5	73.1	3.8
Manufacture of machinery and equipment, n.e.c.	34.7	31.9	80.6	69.4	59.7	76.4	58.3	5.6
Manufacture of electrical machinery and apparatus	53.3	55.6	86.7	68.9	62.2	55.6	57.8	4.4
Manufacture of motor vehicles, trailers and semi-trailers	37.5	37.5	75.0	81.3	50.0	68.8	50.0	18.8
Manufacture of other transport vehicles	11.1	33.3	55.6	44.4	44.4	55.6	22.2	–
Medium low tech	40.8	48.0	71.4	71.4	56.1	58.2	54.1	7.1
Manufacture of coke, refined petroleum products	50.0	50.0	66.7	66.7	83.3	50.0	66.7	–
Manufacture of rubber and plastic products	42.9	50.0	78.6	71.4	50.0	42.9	50.0	14.3
Manufacture of other non-metallic mineral products	57.6	63.6	66.7	72.7	54.5	69.7	63.6	–
Manufacture of basic metals	18.2	54.5	81.8	63.6	45.5	63.6	27.3	27.3
Manufacture of fabricated metal products	27.6	34.5	72.4	72.4	55.2	55.2	51.7	3.4
Construction and repair of vessels	40.0	–	60.0	80.0	80.0	40.0	60.0	20.0

(continued)

	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
Low tech	66.9	64.6	63.5	61.9	42.7	48.8	51.2	5.0
Manufacture of food products and beverages	76.0	77.7	65.7	64.0	42.3	44.0	53.7	4.0
Manufacture of tobacco products	100	100	33.3	33.3	33.3	33.3	33.3	–
Manufacture of textiles	33.3	55.6	66.7	66.7	55.6	77.8	66.7	11.1
Manufacture of wearing apparel, dressing and dyeing of fur	57.1	42.9	42.9	57.1	42.9	71.4	42.9	14.3
Manufacture of leather, leather products and footwear	50.0	25.0	50.0	50.0	75.0	50.0	75.0	–
Manufacture of wood and of products of wood and cork, except furniture	20.0	30.0	80.0	60.0	50.0	50.0	40.0	10.0
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	53.8	46.2	53.8	61.5	30.8	30.8	61.5	7.7
Publishing and printing, reproduction of recorded media	57.9	21.1	68.4	57.9	47.4	73.7	47.4	5.3
Manufacture of furniture, manufacturing n.e.c.	50.0	38.9	50.0	55.6	38.9	66.7	27.8	5.6
Recycling	–	–	50.0	50.0	–	–	–	–
Electricity, gas and water supply	10.0	–	40.0	35.0	25.0	35.0	20.0	35.0

(continued)

	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
Communications, computer and related activities, research and development, other business activities								
Total	**31.7**	**13.5**	**73.0**	**72.2**	**49.8**	**60.1**	**56.6**	**6.4**
Communications	34.5	16.4	86.4	86.4	70.0	70.9	81.8	4.5
Computer and related activities	38.5	23.1	69.2	76.9	38.5	76.9	69.2	7.7
Research and development	34.6	17.9	69.2	66.7	43.6	64.1	44.9	6.4
Other business activities	23.8	3.8	58.8	57.5	30.0	38.8	31.3	8.8

(continued)

	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
				2012				
				Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**51.3**	**49.6**	**70.7**	**67.9**	**51.1**	**56.5**	**55.8**	**7.1**
Mining and quarrying	–	25.0	75.0	50.0	75.0	25.0	25.0	–
Mining and quarrying of energy producing materials	–	–	50.0	–	50.0	–	–	–
Mining and quarrying, except energy producing materials	–	50.0	100	100	100	50.0	50.0	–
Manufacturing	53.1	51.3	71.4	68.8	52.2	57.7	57.1	6.9
High tech	42.2	37.3	67.5	65.1	56.6	56.6	54.2	7.2
Manufacture of pharmaceuticals	80.0	80.0	60.0	80.0	50.0	40.0	50.0	10.0
Manufacture of office machinery and computers	50.0	50.0	50.0	50.0	50.0	50.0	100	50.0
Manufacture of radio, television and communication equipment and apparatus	9.1	27.3	81.8	63.6	68.2	50.0	36.4	9.1

(continued)

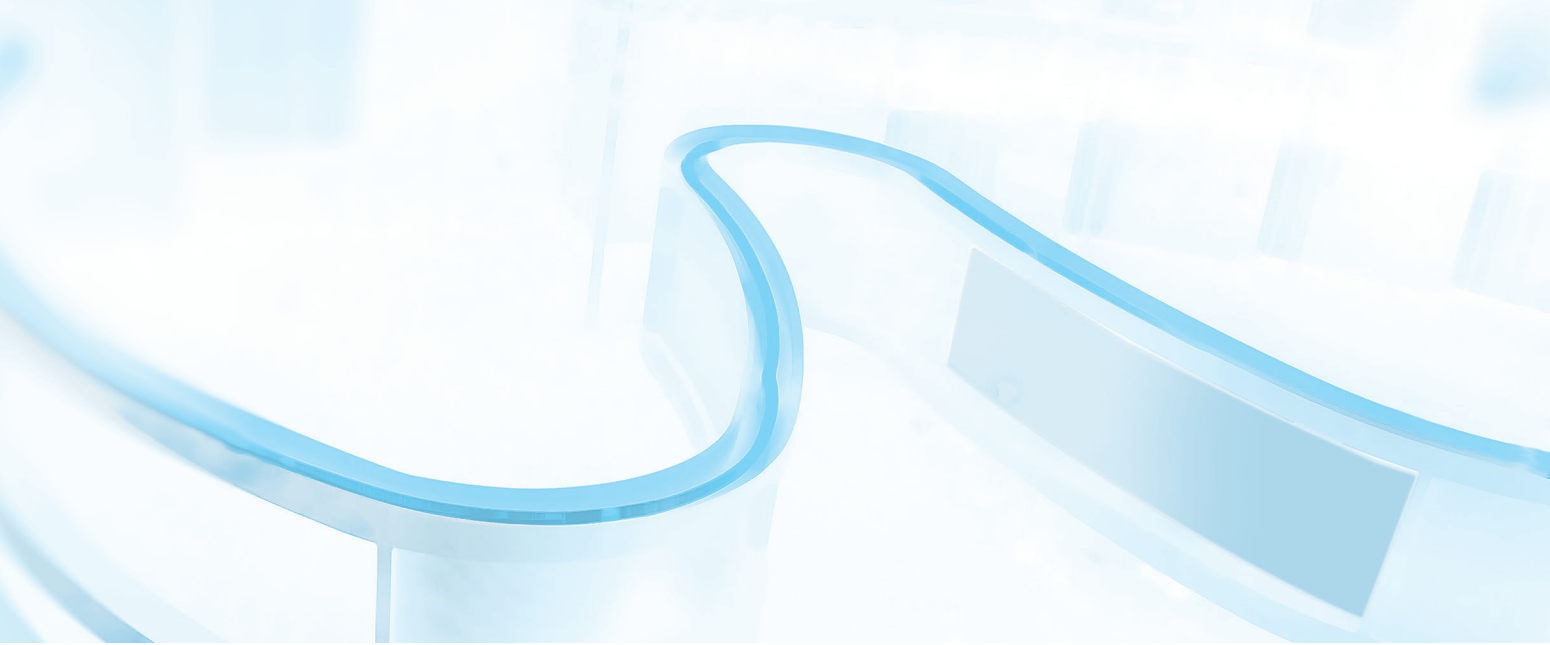
	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
Manufacture of medical, precision and optical instruments, watches and clocks	50.0	33.3	59.5	61.9	52.4	57.1	59.5	2.4
Manufacture of aircrafts, including spacecrafts	42.9	28.6	85.7	71.4	57.1	100	71.4	14.3
Medium high tech	41.5	42.3	79.2	71.5	52.3	63.8	56.9	7.7
Manufacture of chemicals and chemical products	65.4	61.5	73.1	73.1	46.2	69.2	61.5	7.7
Manufacture of machinery and equipment, n.e.c.	28.0	30.0	82.0	70.0	46.0	64.0	62.0	8.0
Manufacture of electrical machinery and apparatus	42.9	51.4	88.6	71.4	65.7	65.7	60.0	8.6
Manufacture of motor vehicles, trailers and semi-trailers	46.2	30.8	69.2	76.9	53.8	53.8	38.5	7.7
Manufacture of other transport vehicles	33.3	33.3	50.0	66.7	50.0	50.0	16.7	–
Medium low tech	44.8	44.8	74.0	67.7	56.3	66.7	58.3	6.3
Manufacture of coke, refined petroleum products	75.0	50.0	100	75.0	100	50.0	50.0	–
Manufacture of rubber and plastic products	42.9	64.3	92.9	78.6	50.0	64.3	78.6	14.3
Manufacture of other non-metallic mineral products	56.3	59.4	65.6	68.8	59.4	78.1	68.8	3.1
Manufacture of basic metals	28.6	35.7	78.6	64.3	57.1	64.3	50.0	14.3
Manufacture of fabricated metal products	40.7	29.6	66.7	63.0	51.9	59.3	44.4	–
Construction and repair of vessels	20.0	–	80.0	60.0	40.0	60.0	40.0	20.0

(continued)

	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
Low tech	68.1	64.7	67.2	71.1	46.0	50.6	57.0	6.0
Manufacture of food products and beverages	75.2	77.0	67.1	72.0	43.5	49.1	60.2	5.0
Manufacture of tobacco products	–	–	–	–	–	–	–	–
Manufacture of textiles	42.9	50.0	64.3	50.0	35.7	57.1	35.7	14.3
Manufacture of wearing apparel, dressing and dyeing of fur	80.0	40.0	40.0	100	80.0	80.0	60.0	20.0
Manufacture of leather, leather products and footwear	66.7	66.7	100	100	100	66.7	100	–
Manufacture of wood and of products of wood and cork, except furniture	36.4	27.3	81.8	63.6	54.5	45.5	36.4	9.1
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	33.3	44.4	77.8	77.8	22.2	33.3	55.6	–
Publishing and printing, reproduction of recorded media	68.4	21.1	68.4	63.2	63.2	57.9	63.2	10.5
Manufacture of furniture, manufacturing n.e.c.	58.3	50.0	58.3	83.3	50.0	58.3	33.3	–
Recycling	–	–	–	–	–	–	100	–
Electricity, gas and water supply	10.0	5.0	50.0	45.0	15.0	30.0	25.0	15.0

(continued)

	Significant changes in design of goods or services	Significant changes in packaging	New strategies for market expansion	New techniques for product promotion	New distribution channels	New methods for product presentation	New methods of pricing goods or services	Other marketing innovations
Communications, computer and related activities, research and development, other business activities								
Total	**34.2**	**20.1**	**73.0**	**72.7**	**49.3**	**63.3**	**57.9**	**11.2**
Communications	43.2	30.6	86.5	87.4	68.5	71.2	83.8	12.6
Computer and related activities	35.7	7.1	50.0	78.6	57.1	78.6	57.1	7.1
Research and development	30.6	20.0	70.6	70.6	41.2	68.2	44.7	9.4
Other business activities	23.5	5.9	58.8	50.0	26.5	41.2	32.4	11.8

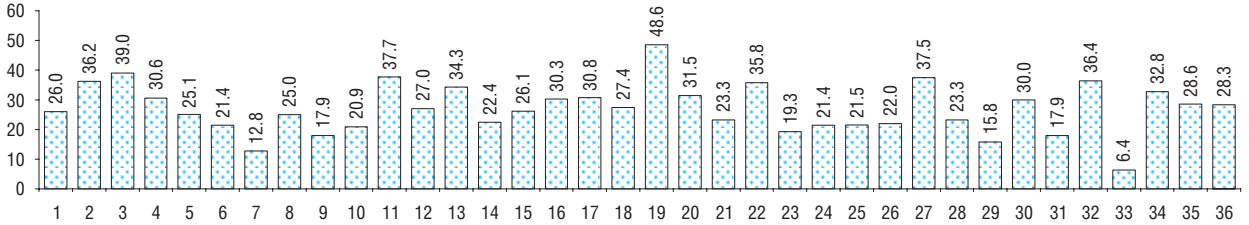


6. Ecological Innovation

6.1. ENTERPRISES ENGAGED IN ECOLOGICAL INNOVATION: 2012

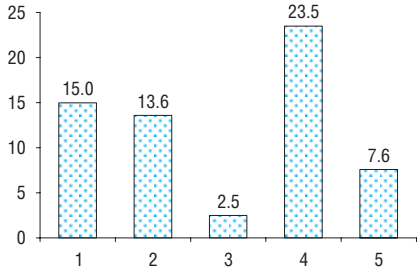
(as a percentage of all enterprises having market-ready innovations during the last three years)

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

6.2. ENTERPRISES HAVING INTRODUCED INNOVATION WITH ENVIRONMENTAL BENEFITS FROM THE PRODUCTION OF GOODS OR SERVICES

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

	Reduced material use per unit of output	Reduced energy use per unit of output	Reduced CO_2 'footprint' (total CO_2 production)	Replaced materials with less polluting or hazardous substitutes	Reduced soil, water, noise, or air pollution	Recycled waste, water, or materials
			2011			
			Mining and quarrying, manufacturing, electricity, gas and water supply			
Total	**57.1**	**59.6**	**36.3**	**38.3**	**66.3**	**42.2**
Mining and quarrying	43.8	43.8	39.7	23.3	74.0	47.9
Mining and quarrying of energy producing materials	45.3	50.9	49.1	28.3	75.5	45.3
Mining and quarrying, except energy producing materials	40.0	25.0	15.0	10.0	70.0	55.0
Manufacturing	59.4	60.8	37.0	39.6	66.6	45.6
High tech	58.6	62.1	32.5	44.3	63.5	37.4
Manufacture of pharmaceuticals	36.8	36.8	15.8	36.8	73.7	42.1
Manufacture of office machinery and computers	100	100	16.7	33.3	83.3	33.3
Manufacture of radio, television and communication equipment and apparatus	63.2	63.2	29.8	45.6	61.4	40.4
Manufacture of medical, precision and optical instruments, watches and clocks	64.2	65.4	33.3	48.1	63.0	33.3
Manufacture of aircrafts, including spacecrafts	45.0	60.0	45.0	40.0	60.0	40.0

(continued)

	Reduced material use per unit of output	Reduced energy use per unit of output	Reduced CO_2 'footprint' (total CO_2 production)	Replaced materials with less polluting or hazardous substitutes	Reduced soil, water, noise, or air pollution	Recycled waste, water, or materials
Medium high tech	60.1	60.5	38.1	44.0	70.3	48.8
Manufacture of chemicals and chemical products	63.3	60.8	30.4	41.8	82.3	64.6
Manufacture of machinery and equipment, n.e.c.	61.5	63.1	40.2	39.7	65.9	47.5
Manufacture of electrical machinery and apparatus	51.5	55.7	36.1	47.4	61.9	43.3
Manufacture of motor vehicles, trailers and semi-trailers	66.1	61.3	43.5	54.8	75.8	46.8
Manufacture of other transport vehicles	58.3	58.3	41.7	41.7	83.3	33.3
Medium low tech	54.3	57.9	36.6	31.1	66.2	52.1
Manufacture of coke, refined petroleum products	66.7	55.6	40.7	33.3	70.4	51.9
Manufacture of rubber and plastic products	54.9	66.7	41.2	37.3	62.7	64.7
Manufacture of other non-metallic mineral products	48.0	48.0	30.6	25.5	57.1	57.1
Manufacture of basic metals	55.4	63.5	37.8	28.4	79.7	55.4
Manufacture of fabricated metal products	57.8	64.1	40.6	37.5	62.5	35.9
Construction and repair of vessels	50.0	42.9	28.6	28.6	78.6	28.6
Low tech	63.5	62.0	37.8	38.3	61.7	40.6
Manufacture of food products and beverages	58.1	62.3	38.1	37.3	61.9	39.4
Manufacture of tobacco products	71.4	100	100	42.9	85.7	57.1
Manufacture of textiles	68.2	54.5	22.7	36.4	50.0	54.5
Manufacture of wearing apparel, dressing and dyeing of fur	80.0	70.0	50.0	50.0	70.0	30.0

(continued)

	Reduced material use per unit of output	Reduced energy use per unit of output	Reduced CO_2 'footprint' (total CO_2 production)	Replaced materials with less polluting or hazardous substitutes	Reduced soil, water, noise, or air pollution	Recycled waste, water, or materials
Manufacture of leather, leather products and footwear	60.0	100	40.0	60.0	60.0	40.0
Manufacture of wood and of products of wood and cork, except furniture	64.7	58.8	29.4	41.2	70.6	64.7
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	70.0	45.0	40.0	35.0	60.0	65.0
Publishing and printing, reproduction of recorded media	81.5	70.4	40.7	40.7	63.0	18.5
Manufacture of furniture, manufacturing n.e.c.	70.7	56.1	31.7	41.5	56.1	24.4
Recycling	71.4	57.1	28.6	14.3	71.4	85.7
Electricity, gas and water supply	46.0	57.3	29.9	35.1	61.1	17.1
Communications, computer and related activities, research and development, other business activities						
Total	**51.6**	**55.0**	**25.3**	**36.7**	**53.0**	**26.9**
Communications	45.1	43.9	29.3	35.4	43.9	22.0
Computer and related activities	38.1	61.9	14.3	28.6	19.0	14.3
Research and development	58.5	63.9	26.0	42.6	62.5	31.8
Other business activities	42.6	41.0	23.0	25.4	43.4	21.3

(continued)

	Reduced material use per unit of output	Reduced energy use per unit of output	Reduced CO_2 'footprint' (total CO_2 production)	Replaced materials with less polluting or hazardous substitutes	Reduced soil, water, noise, or air pollution	Recycled waste, water, or materials
			2012			
			Mining and quarrying, manufacturing, electricity, gas and water supply			
Total	**55.7**	**61.0**	**42.8**	**42.8**	**75.7**	**45.6**
Mining and quarrying	31.5	59.3	51.9	29.6	85.2	53.7
Mining and quarrying of energy producing materials	35.9	69.2	61.5	33.3	87.2	56.4
Mining and quarrying, except energy producing materials	20.0	33.3	26.7	20.0	80.0	46.7
Manufacturing	58.5	61.7	43.5	43.5	75.0	49.6
High tech	60.2	63.6	36.4	40.9	73.9	35.2
Manufacture of pharmaceuticals	50.0	50.0	50.0	50.0	100	50.0
Manufacture of office machinery and computers	66.7	100	–	33.3	33.3	33.3
Manufacture of radio, television and communication equipment and apparatus	61.9	57.1	23.8	57.1	71.4	28.6
Manufacture of medical, precision and optical instruments, watches and clocks	68.4	76.3	44.7	47.4	68.4	36.8
Manufacture of aircrafts, including spacecrafts	45.0	45.0	35.0	10.0	85.0	35.0

(continued)

	Reduced material use per unit of output	Reduced energy use per unit of output	Reduced CO_2 'footprint' (total CO_2 production)	Replaced materials with less polluting or hazardous substitutes	Reduced soil, water, noise, or air pollution	Recycled waste, water, or materials
Medium high tech	58.0	62.3	46.9	49.3	75.8	51.2
Manufacture of chemicals and chemical products	61.7	61.7	34.0	46.8	85.1	55.3
Manufacture of machinery and equipment, n.e.c.	61.8	69.1	57.4	45.6	70.6	51.5
Manufacture of electrical machinery and apparatus	54.3	60.9	37.0	54.3	60.9	43.5
Manufacture of motor vehicles, trailers and semi-trailers	53.3	56.7	60.0	63.3	96.7	63.3
Manufacture of other transport vehicles	50.0	50.0	43.8	31.3	75.0	37.5
Medium low tech	58.0	61.8	43.3	42.0	77.1	60.5
Manufacture of coke, refined petroleum products	52.9	58.8	58.8	41.2	82.4	58.8
Manufacture of rubber and plastic products	67.9	71.4	35.7	60.7	71.4	78.6
Manufacture of other non-metallic mineral products	40.0	42.5	35.0	40.0	80.0	62.5
Manufacture of basic metals	64.1	74.4	48.7	35.9	89.7	74.4
Manufacture of fabricated metal products	70.4	66.7	40.7	40.7	55.6	29.6
Construction and repair of vessels	50.0	50.0	66.7	16.7	83.3	16.7
Low tech	57.7	60.1	41.1	39.9	70.8	44.0
Manufacture of food products and beverages	52.4	55.3	45.6	40.8	72.8	42.7
Manufacture of tobacco products	100	100	100	–	100	66.7
Manufacture of textiles	70.0	70.0	30.0	30.0	70.0	30.0
Manufacture of wearing apparel, dressing and dyeing of fur	66.7	66.7	33.3	66.7	66.7	33.3

(continued)

	Reduced material use per unit of output	Reduced energy use per unit of output	Reduced CO_2 'footprint' (total CO_2 production)	Replaced materials with less polluting or hazardous substitutes	Reduced soil, water, noise, or air pollution	Recycled waste, water, or materials
Manufacture of leather, leather products and footwear	–	66.7	–	100	33.3	33.3
Manufacture of wood and of products of wood and cork, except furniture	71.4	85.7	42.9	42.9	71.4	42.9
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	66.7	50.0	33.3	41.7	75.0	75.0
Publishing and printing, reproduction of recorded media	83.3	100	–	16.7	66.7	16.7
Manufacture of furniture, manufacturing n.e.c.	63.2	57.9	31.6	42.1	57.9	47.4
Recycling	50.0	50.0	100	–	100	50.0
Electricity, gas and water supply	51.3	58.3	34.8	45.2	75.7	19.1
Communications, computer and related activities, research and development, other business activities						
Total	**51.5**	**59.1**	**36.2**	**39.1**	**66.8**	**31.9**
Communications	38.5	46.2	43.6	25.6	56.4	33.3
Computer and related activities	33.3	66.7	–	–	33.3	–
Research and development	60.0	63.9	36.8	44.5	70.3	33.5
Other business activities	31.6	52.6	28.9	34.2	65.8	26.3

6.3. ENTERPRISES HAVING INTRODUCED INNOVATION WITH ENVIRONMENTAL BENEFITS FROM THE AFTER SALES USE OF A GOOD OR SERVICE BY THE END USER

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

	Reduced energy use or energy loss	Reduced air, water, soil or noise pollution	Improved recycling of product after use
2011			
Mining and quarrying, manufacturing, electricity, gas and water supply			
Total	**50.2**	**47.6**	**21.9**
Mining and quarrying	31.5	41.1	21.9
Mining and quarrying of energy producing materials	35.8	41.5	24.5
Mining and quarrying, except energy producing materials	20.0	40.0	15.0
Manufacturing	50.6	49.2	23.6
High tech	54.7	45.3	19.2
Manufacture of pharmaceuticals	31.6	36.8	15.8
Manufacture of office machinery and computers	66.7	83.3	16.7
Manufacture of radio, television and communication equipment and apparatus	63.2	49.1	21.1
Manufacture of medical, precision and optical instruments, watches and clocks	58.0	44.4	19.8
Manufacture of aircrafts, including spacecrafts	45.0	40.0	17.5
Medium high tech	50.8	53.7	24.0
Manufacture of chemicals and chemical products	43.0	54.4	30.4
Manufacture of machinery and equipment, n.e.c.	55.3	51.4	20.7
Manufacture of electrical machinery and apparatus	52.6	52.6	24.7
Manufacture of motor vehicles, trailers and semi-trailers	53.2	61.3	29.0
Manufacture of other transport vehicles	29.2	54.2	12.5

(continued)

	Reduced energy use or energy loss	Reduced air, water, soil or noise pollution	Improved recycling of product after use
Medium low tech	50.0	46.3	24.7
Manufacture of coke, refined petroleum products	48.1	77.8	25.9
Manufacture of rubber and plastic products	62.7	49.0	31.4
Manufacture of other non-metallic mineral products	42.9	40.8	18.4
Manufacture of basic metals	47.3	37.8	27.0
Manufacture of fabricated metal products	56.3	48.4	28.1
Construction and repair of vessels	42.9	50.0	14.3
Low tech	47.7	46.7	24.7
Manufacture of food products and beverages	50.8	48.3	26.7
Manufacture of tobacco products	42.9	42.9	14.3
Manufacture of textiles	50.0	45.5	27.3
Manufacture of wearing apparel, dressing and dyeing of fur	60.0	50.0	20.0
Manufacture of leather, leather products and footwear	60.0	40.0	–
Manufacture of wood and of products of wood and cork, except furniture	41.2	41.2	17.6
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	60.0	55.0	45.0
Publishing and printing, reproduction of recorded media	40.7	40.7	18.5
Manufacture of furniture, manufacturing n.e.c.	29.3	39.0	12.2
Recycling	28.6	57.1	42.9
Electricity, gas and water supply	54.0	39.3	10.4

(continued)

	Reduced energy use or energy loss	Reduced air, water, soil or noise pollution	Improved recycling of product after use
Communications, computer and related activities, research and development, other business activities			
Total	**58.0**	**47.6**	**17.3**
Communications	46.3	25.6	9.8
Computer and related activities	66.7	19.0	9.5
Research and development	63.2	58.8	22.7
Other business activities	52.5	41.8	11.5

(continued)

	Reduced energy use or energy loss	Reduced air, water, soil or noise pollution	Improved recycling of product after use
	2012		
	Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**55.5**	**57.8**	**26.5**
Mining and quarrying	42.6	72.2	37.0
Mining and quarrying of energy producing materials	46.2	71.8	43.6
Mining and quarrying, except energy producing materials	33.3	73.3	20.0
Manufacturing	57.1	58.3	28.5
High tech	55.7	59.1	20.5
Manufacture of pharmaceuticals	33.3	66.7	16.7
Manufacture of office machinery and computers	33.3	33.3	33.3
Manufacture of radio, television and communication equipment and apparatus	61.9	61.9	23.8
Manufacture of medical, precision and optical instruments, watches and clocks	68.4	60.5	18.4
Manufacture of aircrafts, including spacecrafts	35.0	55.0	20.0
Medium high tech	55.6	58.9	27.1
Manufacture of chemicals and chemical products	40.4	53.2	29.8
Manufacture of machinery and equipment, n.e.c.	64.7	61.8	27.9
Manufacture of electrical machinery and apparatus	63.0	56.5	23.9
Manufacture of motor vehicles, trailers and semi-trailers	60.0	76.7	33.3
Manufacture of other transport vehicles	31.3	37.5	12.5

(continued)

	Reduced energy use or energy loss	Reduced air, water, soil or noise pollution	Improved recycling of product after use
Medium low tech	59.9	59.9	33.8
Manufacture of coke, refined petroleum products	52.9	100	35.3
Manufacture of rubber and plastic products	75.0	50.0	50.0
Manufacture of other non-metallic mineral products	52.5	57.5	35.0
Manufacture of basic metals	66.7	59.0	41.0
Manufacture of fabricated metal products	55.6	48.1	7.4
Construction and repair of vessels	33.3	66.7	16.7
Low tech	57.1	53.6	28.0
Manufacture of food products and beverages	56.3	56.3	28.2
Manufacture of tobacco products	100	100	66.7
Manufacture of textiles	60.0	30.0	–
Manufacture of wearing apparel, dressing and dyeing of fur	33.3	–	–
Manufacture of leather, leather products and footwear	100	–	–
Manufacture of wood and of products of wood and cork, except furniture	71.4	71.4	28.6
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	50.0	58.3	66.7
Publishing and printing, reproduction of recorded media	66.7	66.7	16.7
Manufacture of furniture, manufacturing n.e.c.	52.6	47.4	26.3
Recycling	–	50.0	–
Electricity, gas and water supply	52.2	47.8	9.6

(continued)

	Reduced energy use or energy loss	Reduced air, water, soil or noise pollution	Improved recycling of product after use
Communications, computer and related activities, research and development, other business activities			
Total	**65.1**	**57.0**	**20.0**
Communications	64.1	15.4	10.3
Computer and related activities	100	–	–
Research and development	63.9	67.1	23.9
Other business activities	68.4	63.2	15.8

6.4. PERCENTAGE DISTRIBUTION OF ENTERPRISES ENGAGED IN ECOLOGICAL INNOVATION BY PURPOSE AND ECONOMIC ACTIVITY

	Complying with the existing environmental regulations or taxes on pollution	Complying with the environmental regulations or taxes expected to be introduced in the future	Availability of government grants, subsidies or other financial incentives for environmental innovation	Current or expected market demand from customers for environmental innovations	Voluntary codes or agreements for environmental good practice within sector
			2011		
			Mining and quarrying, manufacturing, electricity, gas and water supply		
Total	**77.9**	**38.2**	**10.4**	**42.5**	**71.4**
Mining and quarrying	75.3	47.9	12.3	31.5	75.3
Mining and quarrying of energy producing materials	79.2	49.1	13.2	35.8	83.0
Mining and quarrying, except energy producing materials	65.0	45.0	10.0	20.0	55.0
Manufacturing	78.1	38.4	10.4	44.7	72.1
High tech	78.8	40.4	9.4	38.4	69.0
Manufacture of pharmaceuticals	84.2	57.9	10.5	36.8	63.2
Manufacture of office machinery and computers	100	50.0	16.7	16.7	100
Manufacture of radio, television and communication equipment and apparatus	77.2	31.6	8.8	35.1	63.2
Manufacture of medical, precision and optical instruments, watches and clocks	75.3	45.7	8.6	44.4	69.1
Manufacture of aircrafts, including spacecrafts	82.5	32.5	10.0	35.0	75.0
Medium high tech	80.7	43.1	10.0	48.1	75.1
Manufacture of chemicals and chemical products	83.5	44.3	13.9	45.6	79.7
Manufacture of machinery and equipment, n.e.c.	78.8	40.8	7.8	45.8	74.3

(continued)

	Complying with the existing environmental regulations or taxes on pollution	Complying with the environmental regulations or taxes expected to be introduced in the future	Availability of government grants, subsidies or other financial incentives for environmental innovation	Current or expected market demand from customers for environmental innovations	Voluntary codes or agreements for environmental good practice within sector
Manufacture of electrical machinery and apparatus	80.4	37.1	12.4	55.7	70.1
Manufacture of motor vehicles, trailers and semi-trailers	82.3	56.5	8.1	51.6	75.8
Manufacture of other transport vehicles	83.3	45.8	8.3	33.3	83.3
Medium low tech	77.1	35.1	7.9	47.0	71.0
Manufacture of coke, refined petroleum products	92.6	74.1	14.8	70.4	74.1
Manufacture of rubber and plastic products	78.4	29.4	5.9	49.0	70.6
Manufacture of other non-metallic mineral products	65.3	23.5	2.0	43.9	64.3
Manufacture of basic metals	87.8	41.9	13.5	50.0	82.4
Manufacture of fabricated metal products	75.0	32.8	9.4	40.6	67.2
Construction and repair of vessels	78.6	35.7	7.1	28.6	71.4
Low tech	74.0	33.9	13.0	43.1	70.4
Manufacture of food products and beverages	73.3	35.6	15.7	42.8	67.8
Manufacture of tobacco products	100	57.1	–	85.7	100
Manufacture of textiles	68.2	22.7	9.1	27.3	63.6
Manufacture of wearing apparel, dressing and dyeing of fur	70.0	50.0	10.0	40.0	80.0
Manufacture of leather, leather products and footwear	80.0	20.0	–	60.0	100
Manufacture of wood and of products of wood and cork, except furniture	94.1	35.3	23.5	64.7	64.7
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	90.0	35.0	5.0	50.0	75.0
Publishing and printing, reproduction of recorded media	77.8	22.2	3.7	44.4	81.5

(continued)

	Complying with the existing environmental regulations or taxes on pollution	Complying with the environmental regulations or taxes expected to be introduced in the future	Availability of government grants, subsidies or other financial incentives for environmental innovation	Current or expected market demand from customers for environmental innovations	Voluntary codes or agreements for environmental good practice within sector
Manufacture of furniture, manufacturing n.e.c.	61.0	29.3	9.8	31.7	73.2
Recycling	57.1	42.9	14.3	42.9	57.1
Electricity, gas and water supply	77.3	33.6	9.5	31.3	64.9
Communications, computer and related activities, research and development, other business activities					
Total	**74.1**	**36.7**	**12.2**	**45.8**	**71.1**
Communications	63.4	28.0	1.2	26.8	73.2
Computer and related activities	57.1	42.9	14.3	38.1	57.1
Research and development	82.3	39.4	16.6	53.1	74.4
Other business activities	65.6	35.2	9.0	43.4	64.8

(continued)

	Complying with the existing environmental regulations or taxes on pollution	Complying with the environmental regulations or taxes expected to be introduced in the future	Availability of government grants, subsidies or other financial incentives for environmental innovation	Current or expected market demand from customers for environmental innovations	Voluntary codes or agreements for environmental good practice within sector
	2012				
	Mining and quarrying, manufacturing, electricity, gas and water supply				
Total	**80.7**	**42.8**	**13.2**	**51.1**	**77.2**
Mining and quarrying	85.2	64.8	18.5	48.1	85.2
Mining and quarrying of energy producing materials	89.7	74.4	23.1	51.3	82.1
Mining and quarrying, except energy producing materials	73.3	40.0	6.7	40.0	93.3
Manufacturing	80.5	43.2	14.0	53.4	78.0
High tech	85.2	53.4	21.6	50.0	81.8
Manufacture of pharmaceuticals	83.3	66.7	16.7	50.0	66.7
Manufacture of office machinery and computers	66.7	66.7	100	100	100
Manufacture of radio, television and communication equipment and apparatus	85.7	42.9	28.6	47.6	90.5
Manufacture of medical, precision and optical instruments, watches and clocks	92.1	63.2	18.4	57.9	84.2
Manufacture of aircrafts, including spacecrafts	75.0	40.0	10.0	30.0	70.0
Medium high tech	80.2	41.5	9.2	55.6	78.3
Manufacture of chemicals and chemical products	80.9	42.6	10.6	51.1	85.1
Manufacture of machinery and equipment, n.e.c.	77.9	47.1	11.8	54.4	79.4

(continued)

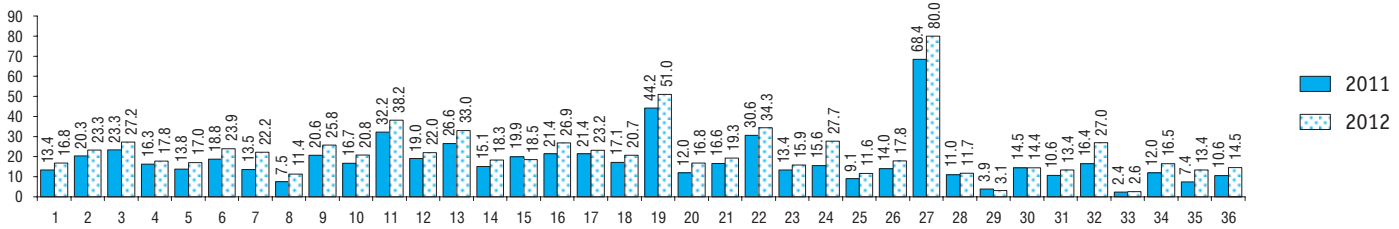
	Complying with the existing environmental regulations or taxes on pollution	Complying with the environmental regulations or taxes expected to be introduced in the future	Availability of government grants, subsidies or other financial incentives for environmental innovation	Current or expected market demand from customers for environmental innovations	Voluntary codes or agreements for environmental good practice within sector
Manufacture of electrical machinery and apparatus	78.3	26.1	2.2	58.7	78.3
Manufacture of motor vehicles, trailers and semi-trailers	83.3	56.7	13.3	70.0	80.0
Manufacture of other transport vehicles	87.5	31.3	6.3	37.5	50.0
Medium low tech	84.1	45.2	15.9	55.4	82.2
Manufacture of coke, refined petroleum products	100	82.4	23.5	70.6	100
Manufacture of rubber and plastic products	92.9	35.7	21.4	60.7	89.3
Manufacture of other non-metallic mineral products	85.0	47.5	10.0	47.5	67.5
Manufacture of basic metals	82.1	46.2	23.1	61.5	89.7
Manufacture of fabricated metal products	66.7	33.3	3.7	48.1	77.8
Construction and repair of vessels	83.3	16.7	16.7	33.3	66.7
Low tech	74.4	36.9	13.7	53.6	72.6
Manufacture of food products and beverages	69.9	37.9	16.5	55.3	68.0
Manufacture of tobacco products	100	100	–	33.3	100
Manufacture of textiles	80.0	40.0	20.0	60.0	90.0
Manufacture of wearing apparel, dressing and dyeing of fur	66.7	33.3	–	33.3	66.7
Manufacture of leather, leather products and footwear	100	33.3	–	33.3	100
Manufacture of wood and of products of wood and cork, except furniture	100	28.6	–	42.9	71.4
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	91.7	41.7	–	58.3	83.3
Publishing and printing, reproduction of recorded media	100	33.3	16.7	50.0	66.7

(continued)

	Complying with the existing environmental regulations or taxes on pollution	Complying with the environmental regulations or taxes expected to be introduced in the future	Availability of government grants, subsidies or other financial incentives for environmental innovation	Current or expected market demand from customers for environmental innovations	Voluntary codes or agreements for environmental good practice within sector
Manufacture of furniture, manufacturing n.e.c.	63.2	21.1	15.8	47.4	73.7
Recycling	50.0	50.0	–	100	100
Electricity, gas and water supply	80.0	30.4	6.1	39.1	68.7
Communications, computer and related activities, research and development, other business activities					
Total	77.9	46.0	14.9	54.0	77.9
Communications	69.2	35.9	–	17.9	84.6
Computer and related activities	33.3	–	33.3	33.3	33.3
Research and development	80.0	49.0	18.7	61.9	78.7
Other business activities	81.6	47.4	13.2	60.5	71.1

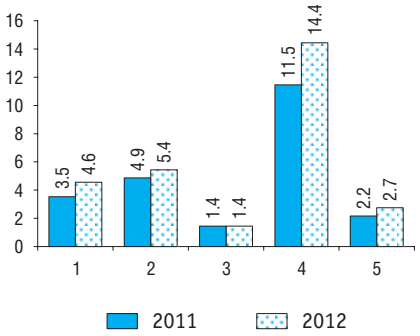
6.5. ENTERPRISES HAVING UTILISED SYSTEMS OF ENVIRONMENTAL POLLUTION CONTROL AS A PERCENTAGE OF ALL ENTERPRISES

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
8 – Manufacture of office machinery and computers
9 – Manufacture of radio, television and communication equipment and apparatus
10 – Manufacture of medical, precision and optical instruments, watches and clocks
11 – Manufacture of aircrafts, including spacecrafts
12 – Medium high tech
13 – Manufacture of chemicals and chemical products
14 – Manufacture of machinery and equipment, n.e.c.
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, 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 – Construction and repair of vessels
25 – Low tech
26 – Manufacture of food products and 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 – Manufacture of wood and of products of wood and cork, except furniture
32 – Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products
33 – Publishing and printing, reproduction of recorded media
34 – Manufacture of furniture; manufacturing n.e.c.
35 – Recycling
36 – Electricity, gas and water supply

Communications, computer and related activities, research and development, other business activities



1 – Total
2 – Communications
3 – Computer and related activities
4 – Research and development
5 – Other business activities

6.6. EXPENDITURE ON ECOLOGICAL INNOVATION

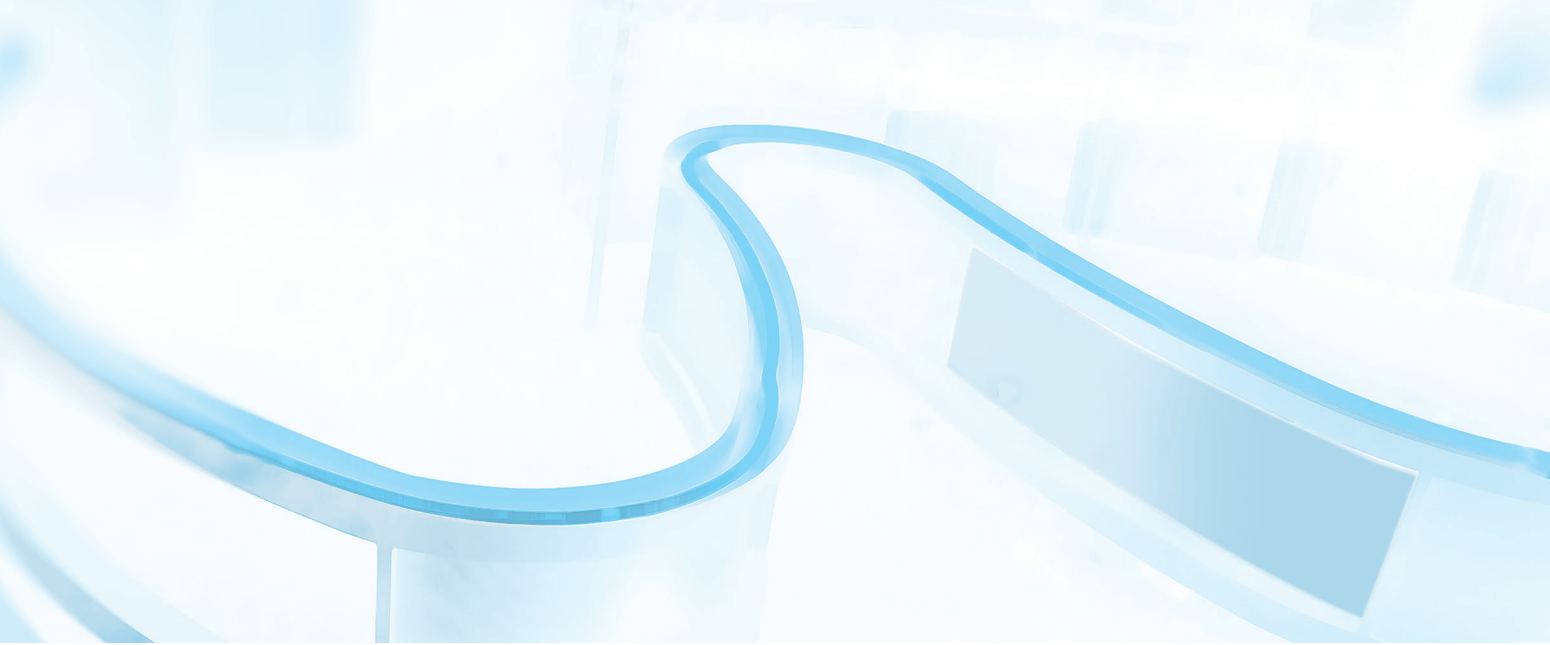
	Expenditure on ecological innovation				Expenditure on ecological innovation per enterprise, *million roubles*	
	Million roubles		Per cent			
	2011	2012	2011	2012	2011	2012
Mining and quarrying, manufacturing, electricity, gas and water supply						
Total	**23861.5**	**27327.6**	**100**	**100**	**51.8**	**73.9**
Mining and quarrying	9066.7	9659.8	38.0	35.3	259.0	333.1
Mining and quarrying of energy producing materials	8957.4	9624.0	37.5	35.2	308.9	458.3
Mining and quarrying, except energy producing materials	109.4	35.7	0.5	0.1	18.2	4.5
Manufacturing	13838.5	14353.7	58.0	52.5	36.3	47.2
High tech	258.1	140.9	1.1	0.5	4.4	2.7
Manufacture of pharmaceuticals	12.3	11.5	0.1	0.04	2.0	1.9
Manufacture of office machinery and computers	0.1	0.0	0.0	0.0	0.1	0.0
Manufacture of radio, television and communication equipment and apparatus	81.7	79.8	0.3	0.3	4.5	5.3
Manufacture of medical, precision and optical instruments, watches and clocks	68.6	22.4	0.3	0.1	3.8	1.1
Manufacture of aircrafts, including spacecrafts	95.4	27.2	0.4	0.1	6.4	2.7
Medium high tech	2173.3	1953.4	9.1	7.1	19.9	20.1
Manufacture of chemicals and chemical products	1617.2	953.4	6.8	3.5	59.9	38.1
Manufacture of machinery and equipment, n.e.c.	62.3	339.1	0.3	1.2	1.9	11.3
Manufacture of electrical machinery and apparatus	100.3	54.6	0.4	0.2	3.6	2.6
Manufacture of motor vehicles, trailers and semi-trailers	253.5	540.5	1.1	2.0	15.8	33.8
Manufacture of other transport vehicles	140.1	65.9	0.6	0.2	28.0	13.2

(continued)

	Expenditure on ecological innovation				Expenditure on ecological innovation per enterprise, *million roubles*	
	Million roubles		Per cent			
	2011	2012	2011	2012	2011	2012
Medium low tech	10340.1	10937.6	43.3	40.0	104.4	151.9
Manufacture of coke, refined petroleum products	2596.0	6477.5	10.9	23.7	216.3	539.8
Manufacture of rubber and plastic products	9.6	38.8	0.04	0.1	0.7	4.8
Manufacture of other non-metallic mineral products	134.2	254.2	0.6	0.9	4.8	19.6
Manufacture of basic metals	7575.9	4137.5	31.7	15.1	270.6	165.5
Manufacture of fabricated metal products	21.2	12.9	0.1	0.05	1.5	1.4
Construction and repair of vessels	3.1	16.7	0.01	0.1	0.8	3.3
Low tech	587.1	841.6	2.5	3.1	6.8	13.8
Manufacture of food products and beverages	156.9	48.3	0.7	0.2	3.1	1.4
Manufacture of tobacco products	10.1	6.9	0.04	0.03	5.1	3.5
Manufacture of textiles	5.3	4.8	0.02	0.02	0.8	2.4
Manufacture of wearing apparel, dressing and dyeing of fur	0.2	0.0	0.0	0.0	0.1	0.0
Manufacture of leather, leather products and footwear	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture	114.6	13.8	0.5	0.1	16.4	3.4
Manufacture of cellulose, wood pulp, paper and cardboard and appropriate paper products	296.3	731.6	1.2	2.7	49.4	182.9
Publishing and printing, reproduction of recorded media	0.4	0.0	0.0	0.0	0.1	0.0

(continued)

	Expenditure on ecological innovation				Expenditure on ecological innovation per enterprise, *million roubles*	
	Million roubles		Per cent			
	2011	2012	2011	2012	2011	2012
Manufacture of furniture, manufacturing n.e.c.	3.2	36.2	0.01	0.1	0.6	3.6
Recycling	0.2	0.0	0.0	0.0	0.2	0.0
Electricity, gas and water supply	956.3	3314.1	4.0	12.1	21.3	89.6
Communications, computer and related activities, research and development, other business activities						
Total	**269.9**	**441.1**	**100**	**100**	**2.8**	**4.3**
Communications	44.9	89.0	16.6	20.2	3.0	8.9
Computer and related activities	–	0.002	–	0.0	–	0.002
Research and development	159.3	346.9	59.0	78.6	2.8	4.8
Other business activities	65.7	5.2	24.4	1.2	2.4	0.3

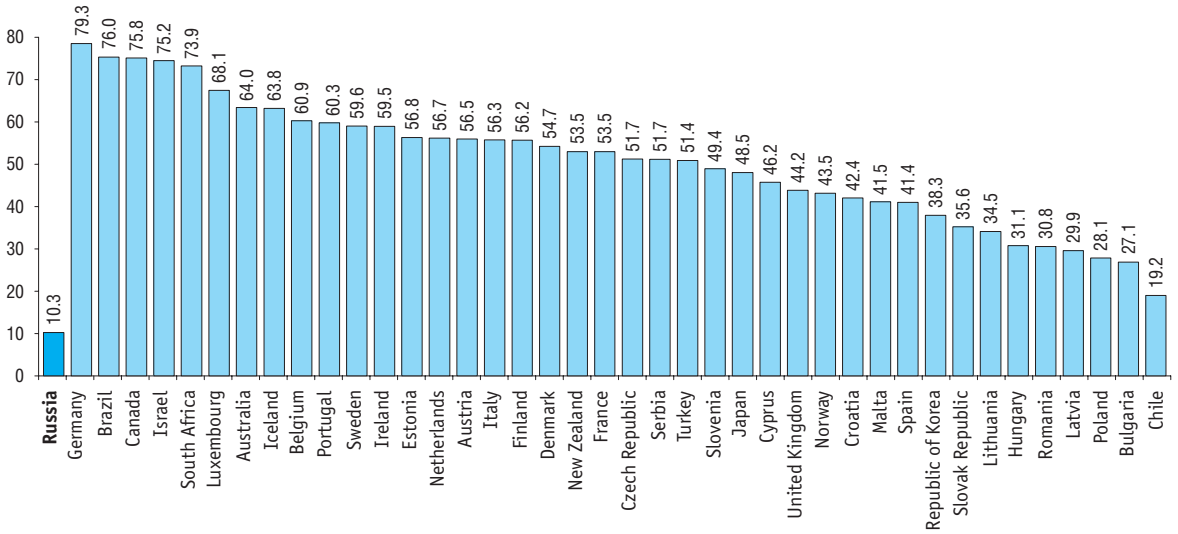


7. International Comparisons

7.1. INNOVATIVE ACTIVITY OF ENTERPRISES*

(enterprises engaged in technological, organisational, marketing innovation as a percentage of all enterprises)

2012**

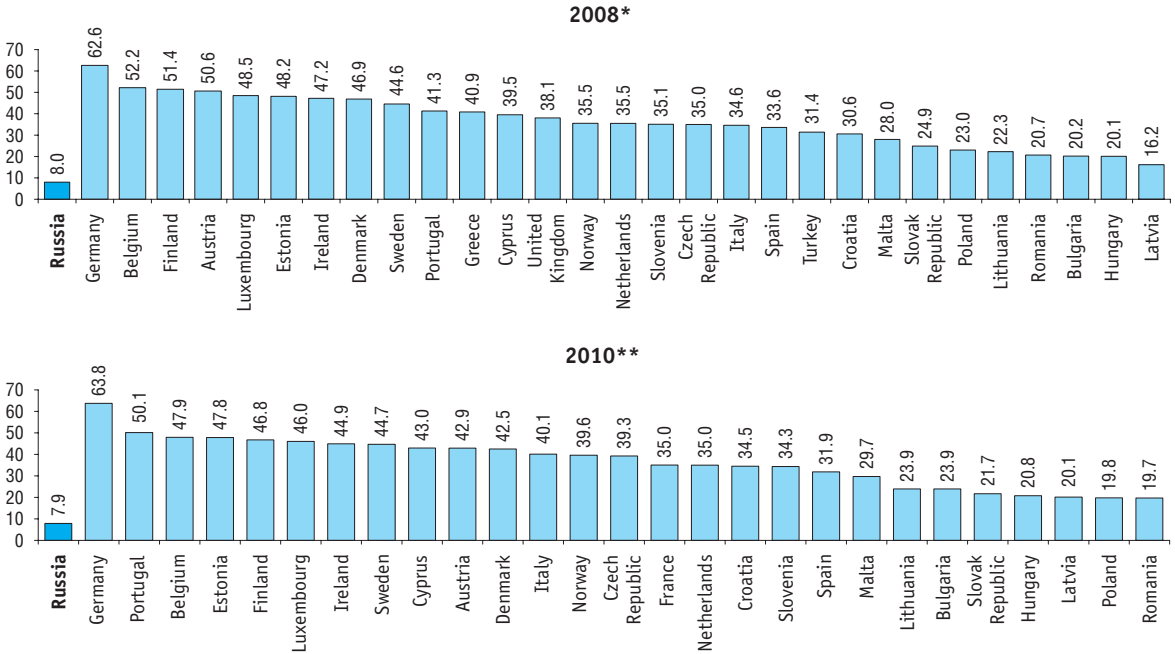


* This section summarizes data on enterprises engaged in the following economic activities: mining and quarrying, manufacturing, electricity, gas and water supply, and services.

** Data for the EU countries, Iceland, Norway, Turkey and Serbia is based on the results of the Community Innovation Survey 2008 – 2010. Data for other countries refers to the following periods: 2010–2011 for Australia, 2006–2008 for Brazil, 2006–2008 for Israel, 2007–2009 for Canada, 2009–2011 for New Zealand, 2005–2007 (manufacturing) for the Republic of Korea, 2009–2010 for Chile, 2005–2007 for South Africa, 2009–2011 for Japan.

Sources: Eurostat; national statistical agencies.

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



* Here and below innovation data for the EU countries, Norway, Turkey, and Croatia is based on the results of the Community Innovation Survey 2004–2006.

** Here and below innovation data for the EU countries, Norway, and Croatia is based on the results of the Community Innovation Survey 2006–2008.

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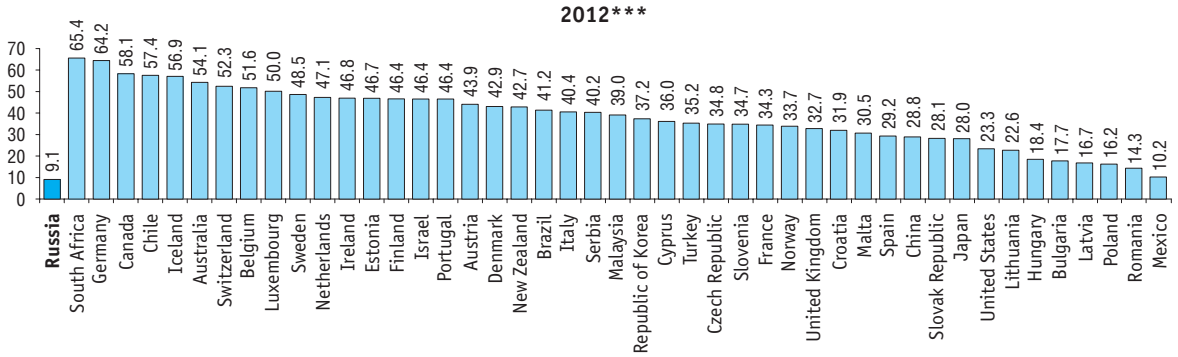
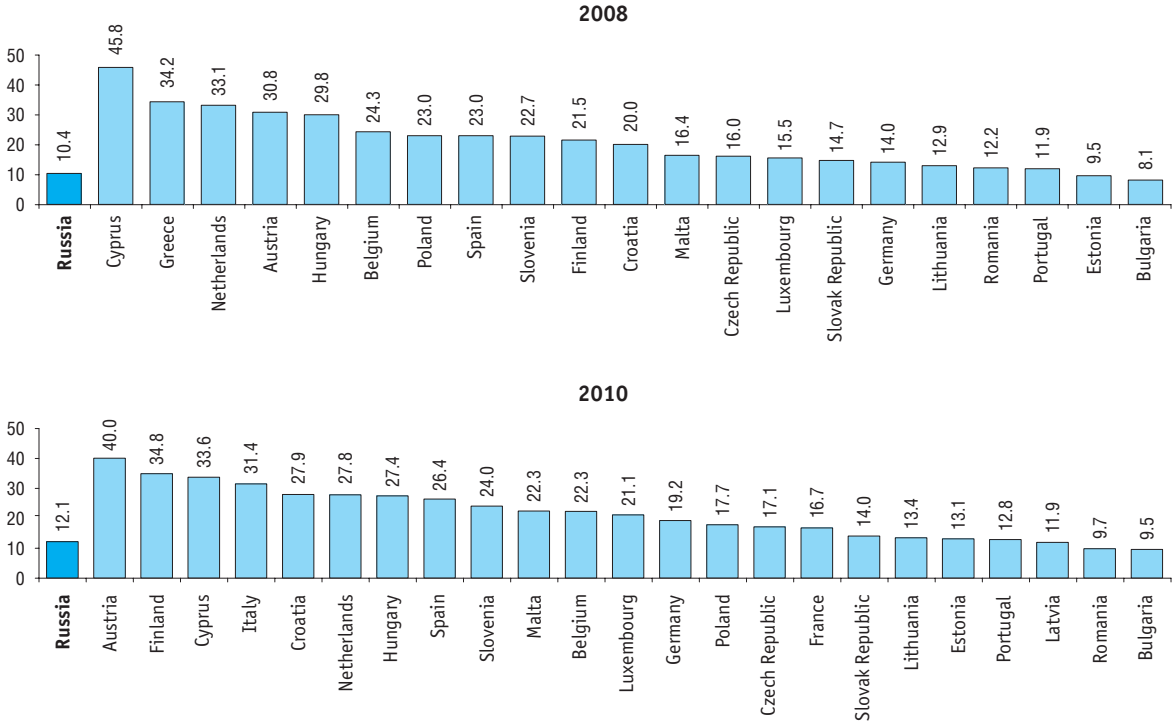


*** Here and below innovation data for the EU countries, Iceland, Norway, Turkey, and Serbia is based on the results of the Community Innovation Survey 2008–2010. Data for other countries refers to the following periods: 2010–2011 for Australia, 2006–2008 for Brazil, 2006–2008 for Israel, 2007–2009 for Canada, 2004–2006 (industry) for China, 2007–2009 (manufacturing) for Malaysia, 2008–2009 for Mexico, 2009–2011 for New Zealand, 2005–2007 (manufacturing) for the Republic of Korea, 2008–2010 for the USA, 2009–2010 for Chile, 2009–2011 for Switzerland, 2005–2007 for South Africa, 2009–2011 for Japan.

Sources: Eurostat; national statistical agencies.

7.3. ENTERPRISES HAVING RECEIVED FEDERAL BUDGET APPROPRIATIONS AS A PERCENTAGE OF ALL ENTERPRISES



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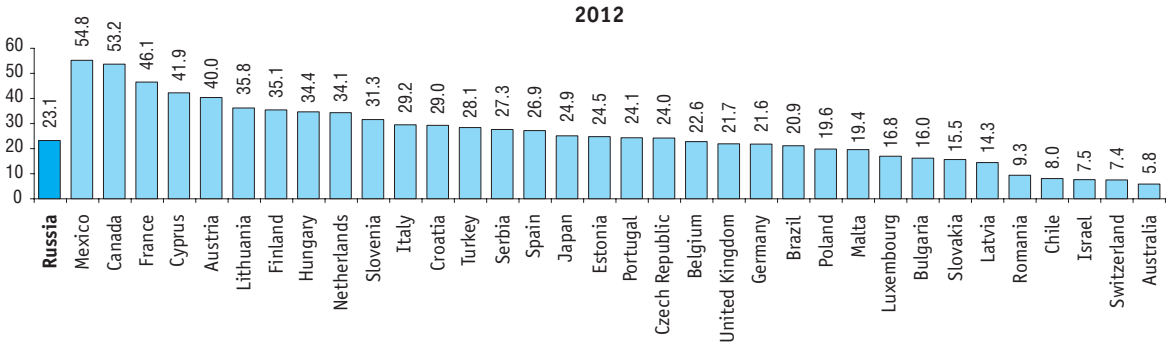
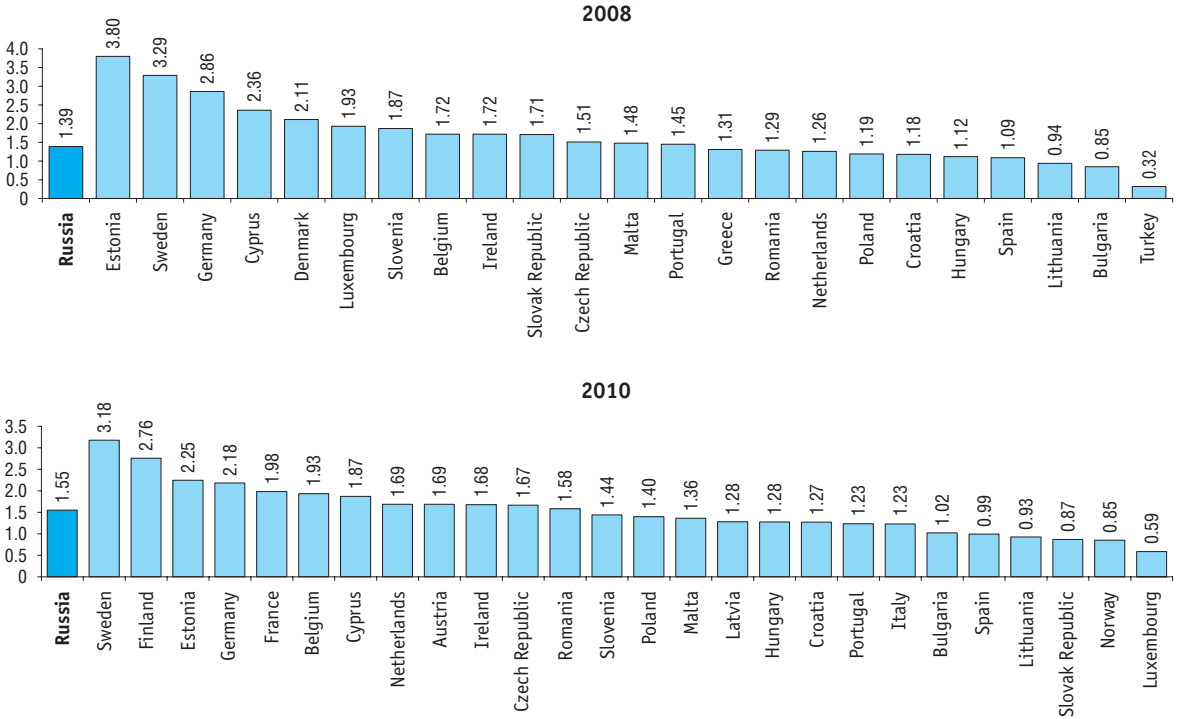

2012
60
50
40
30
20
10
0
Russia 23.1
Mexico 54.8
Canada 53.2
France 46.1
Cyprus 41.9
Austria 40.0
Lithuania 35.8
Finland 35.1
Hungary 34.4
Netherlands 34.1
Slovenia 31.3
Italy 29.2
Croatia 29.0
Turkey 28.1
Serbia 27.3
Spain 26.9
Japan 24.9
Estonia 24.5
Portugal 24.1
Czech Republic 24.0
Belgium 22.6
United Kingdom 21.7
Germany 21.6
Brazil 20.9
Poland 19.6
Malta 19.4
Luxembourg 16.8
Bulgaria 16.0
Slovakia 15.5
Latvia 14.3
Romania 9.3
Chile 8.0
Israel 7.5
Switzerland 7.4
Australia 5.8

7.4. INTENSITY OF EXPENDITURE ON TECHNOLOGICAL INNOVATION

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



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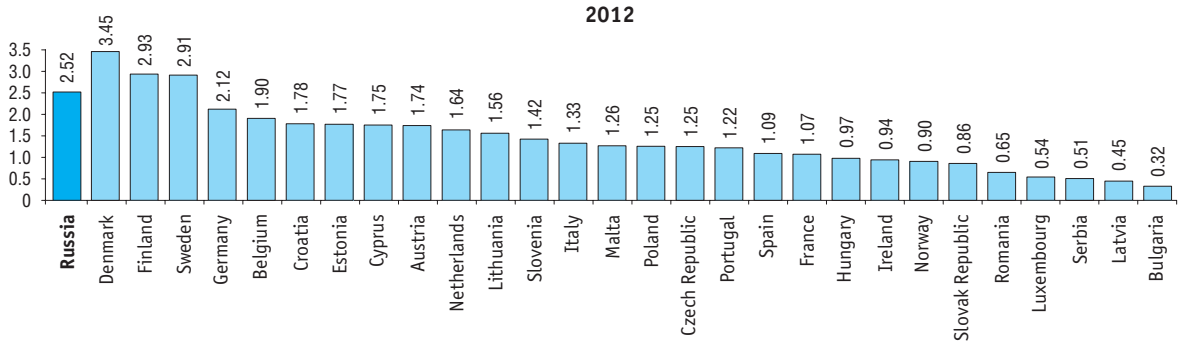
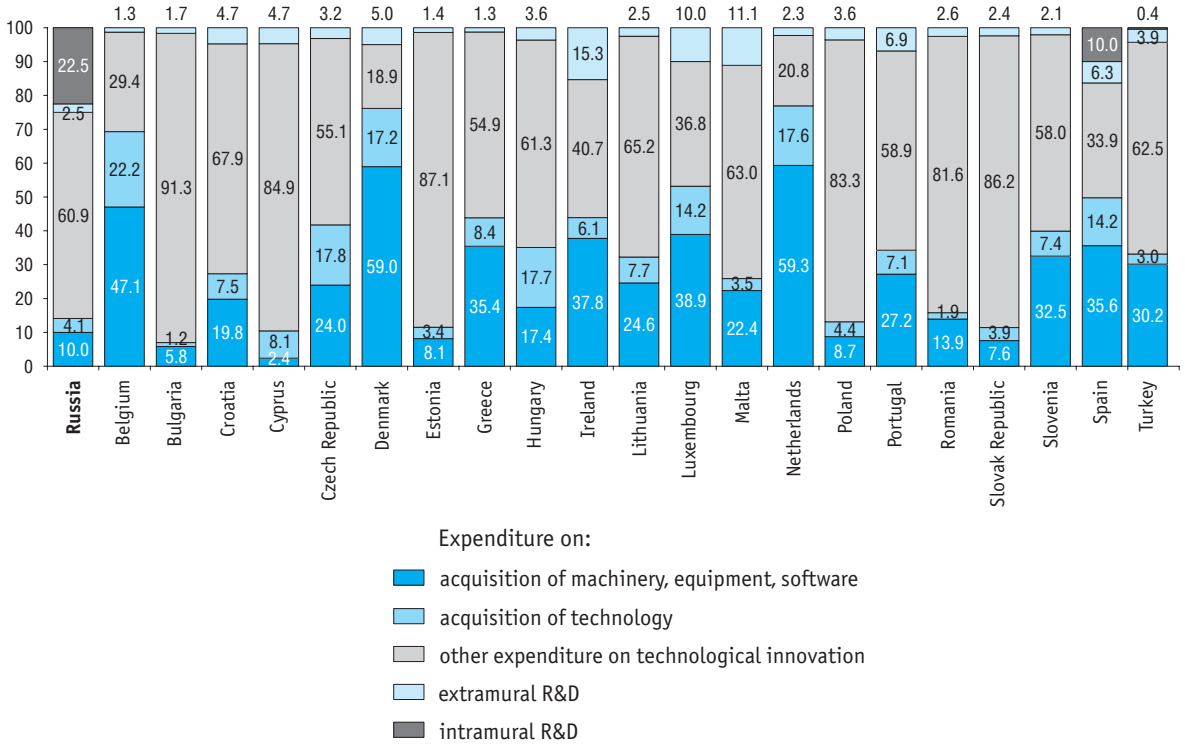

2012
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
Russia 2.52
Denmark 3.45
Finland 2.93
Sweden 2.91
Germany 2.12
Belgium 1.90
Croatia 1.78
Estonia 1.77
Cyprus 1.75
Austria 1.74
Netherlands 1.64
Lithuania 1.56
Slovenia 1.42
Italy 1.33
Malta 1.26
Poland 1.25
Czech Republic 1.25
Portugal 1.22
Spain 1.09
France 1.07
Hungary 0.97
Ireland 0.94
Norway 0.90
Slovak Republic 0.86
Romania 0.65
Luxembourg 0.54
Serbia 0.51
Latvia 0.45
Bulgaria 0.32

7.5. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY INNOVATIVE ACTIVITY

2008



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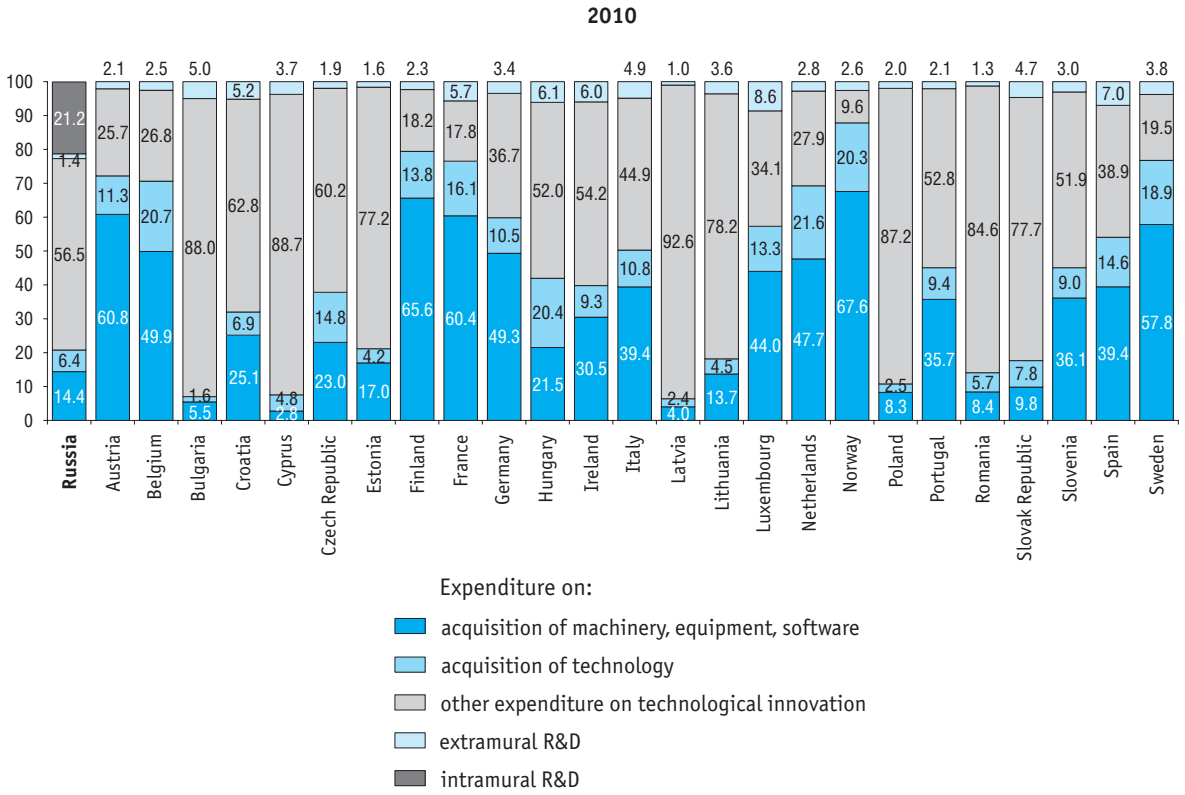
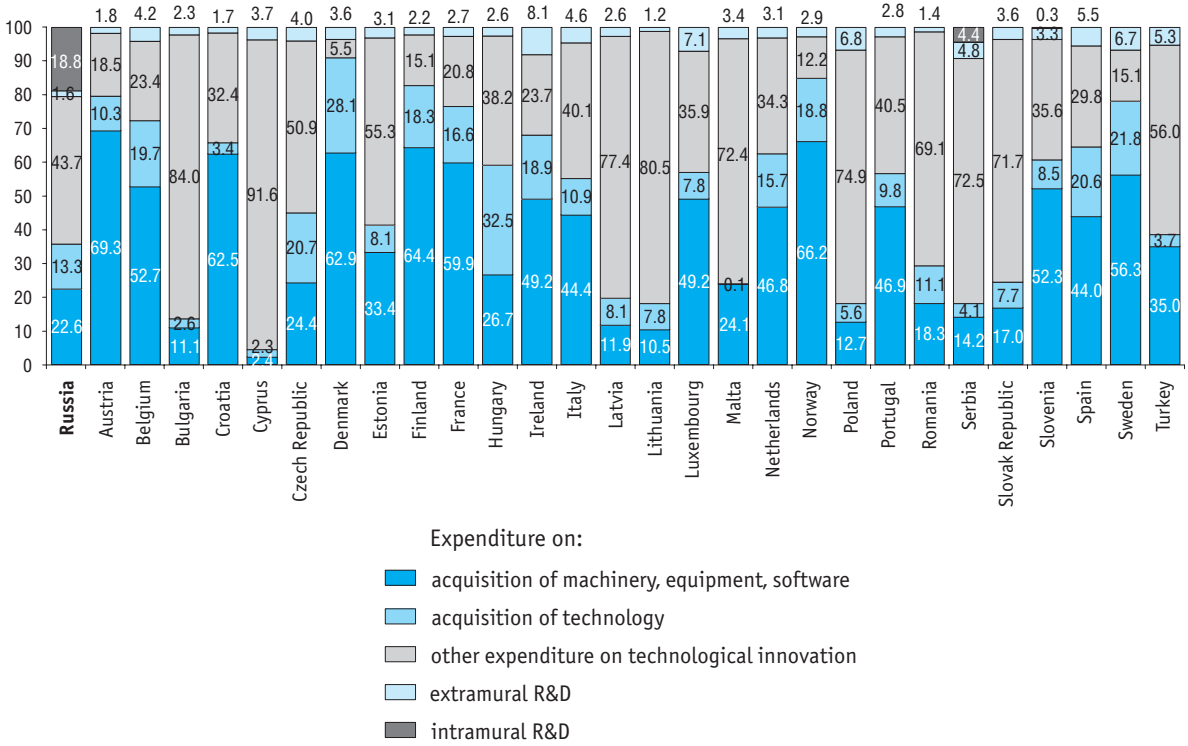
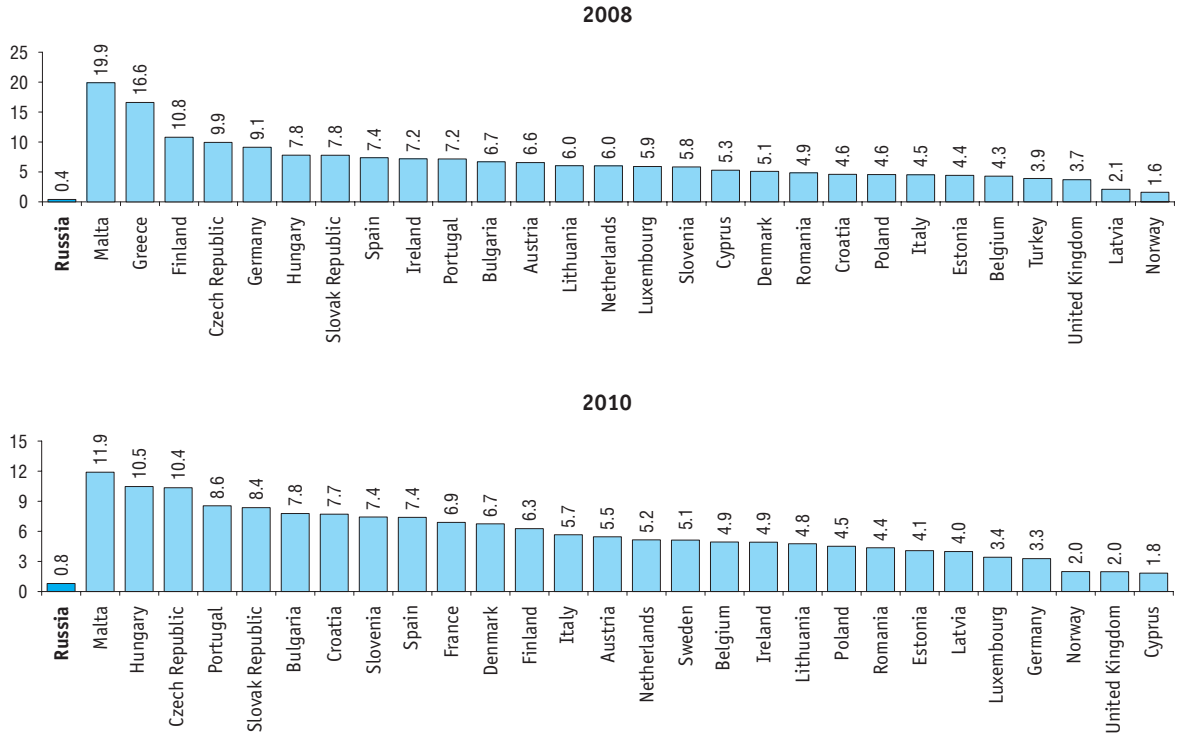

2010
Russia 21.2 1.4 56.5 6.4 14.4 2.1
Austria 25.7 11.3 60.8
Belgium 26.8 20.7 49.9 2.5
Bulgaria 88.0 1.6 5.5 5.0
Croatia 5.2 62.8 6.9 25.1
Cyprus 88.7 4.8 2.8 3.7
Czech Republic 60.2 14.8 23.0 1.9
Estonia 77.2 4.2 17.0 1.6
Finland 18.2 13.8 65.6 2.3
France 5.7 17.8 16.1 60.4
Germany 36.7 10.5 49.3 3.4
Hungary 6.1 52.0 20.4 21.5
Ireland 6.0 54.2 9.3 30.5
Italy 44.9 10.8 39.4 4.9
Latvia 92.6 2.4 4.0 1.0
Lithuania 78.2 4.5 13.7 3.6
Luxembourg 8.6 34.1 13.3 44.0
Netherlands 27.9 21.6 47.7 2.8
Norway 9.6 20.3 67.6 2.6
Poland 87.2 2.5 8.3 2.0
Portugal 52.8 9.4 35.7 2.1
Romania 84.6 5.7 8.4 1.3
Slovak Republic 77.7 7.8 9.8 4.7
Slovenia 51.9 9.0 36.1 3.0
Spain 38.9 14.6 39.4 7.0
Sweden 19.5 18.9 57.8 3.8
0 10 20 30 40 50 60 70 80 90 100
Expenditure on:
acquisition of machinery, equipment, software
acquisition of technology
other expenditure on technological innovation
extramural R&D
intramural R&D

2012


100
90
80
70
60
50
40
30
20
10
0
Russia 18.8 1.6 43.7 13.3 22.6
Austria 1.8 18.5 10.3 69.3
Belgium 4.2 23.4 19.7 52.7
Bulgaria 2.3 84.0 2.6 11.1
Croatia 1.7 32.4 3.4 62.5
Cyprus 3.7 91.6 2.3 2.21
Czech Republic 4.0 50.9 20.7 24.4
Denmark 3.6 5.5 28.1 62.9
Estonia 3.1 55.3 8.1 33.4
Finland 2.2 15.1 18.3 64.4
France 2.7 20.8 16.6 59.9
Hungary 2.6 38.2 32.5 26.7
Ireland 8.1 23.7 18.9 49.2
Italy 4.6 40.1 10.9 44.4
Latvia 2.6 77.4 8.1 11.9
Lithuania 1.2 80.5 7.8 10.5
Luxembourg 7.1 35.9 7.8 49.2
Malta 3.4 72.4 0.1 24.1
Netherlands 3.1 34.3 15.7 46.8
Norway 2.9 12.2 18.8 66.2
Poland 6.8 74.9 5.6 12.7
Portugal 2.8 40.5 9.8 46.9
Romania 1.4 69.1 11.1 18.3
Serbia 4.4 4.8 72.5 4.1 14.2
Slovak Republic 3.6 71.7 7.7 17.0
Slovenia 0.3 3.3 35.6 8.5 52.3
Spain 5.5 29.8 20.6 44.0
Sweden 6.7 15.1 21.8 56.3
Turkey 5.3 56.0 3.7 35.0
Expenditure on:
acquisition of machinery, equipment, software
acquisition of technology
other expenditure on technological innovation
extramural R&D
intramural R&D

7.6. TECHNOLOGICALLY NEW OR SIGNIFICANTLY IMPROVED INNOVATIVE GOODS AND SERVICES NEW TO THE MARKET

(as a percentage of total sales)

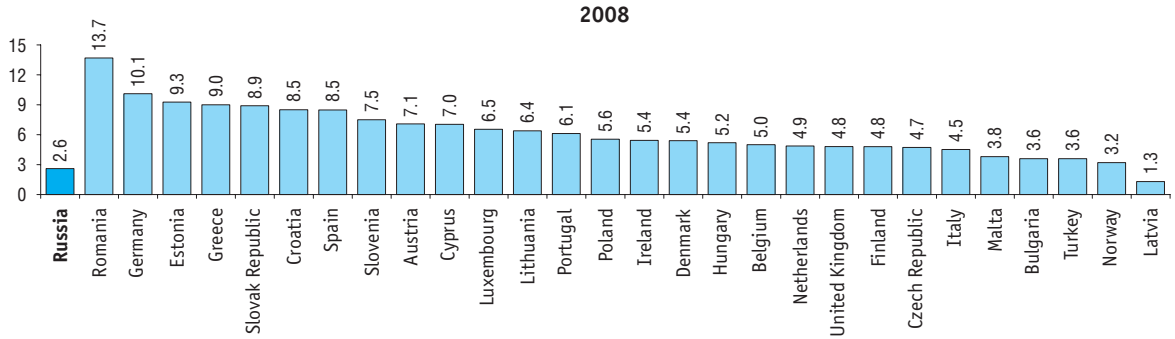


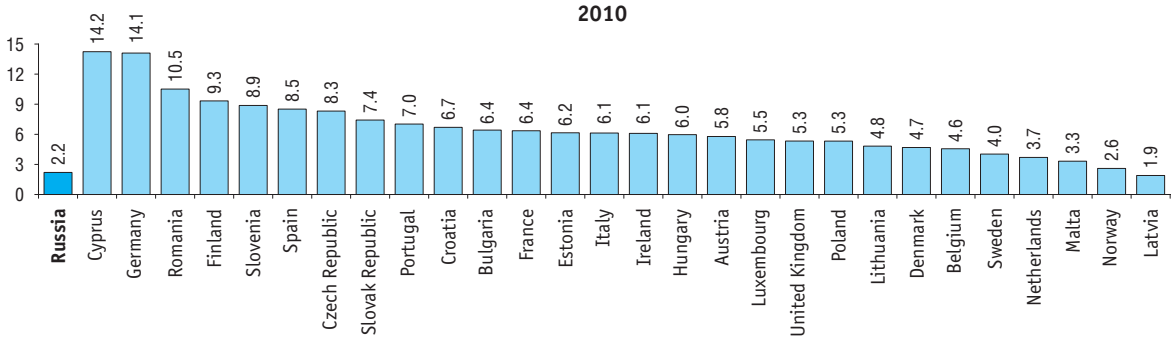
(continued)

2012
15
12
9
6
3
0
1.3
13.6
9.2
8.9
8.4
7.6
7.4
7.3
7.2
6.3
6.3
6.0
5.3
5.1
4.8
4.6
4.5
4.4
4.3
4.2
4.2
4.0
3.9
3.7
3.7
3.5
3.2
2.5
2.5
1.5
1.4
Russia
Slovak Republic
Hungary
Spain
Finland
Italy
Czech Republic
Portugal
Denmark
Cyprus
Luxembourg
Belgium
Netherlands
Austria
Slovenia
Poland
Romania
Ireland
Serbia
Sweden
Estonia
Croatia
Bulgaria
Malta
Germany
France
Norway
Iceland
Lithuania
Latvia
United Kingdom

7.7. TECHNOLOGICALLY NEW OR SIGNIFICANTLY IMPROVED INNOVATIVE GOODS AND SERVICES NEW TO THE ENTERPRISE

(as a percentage of total sales)

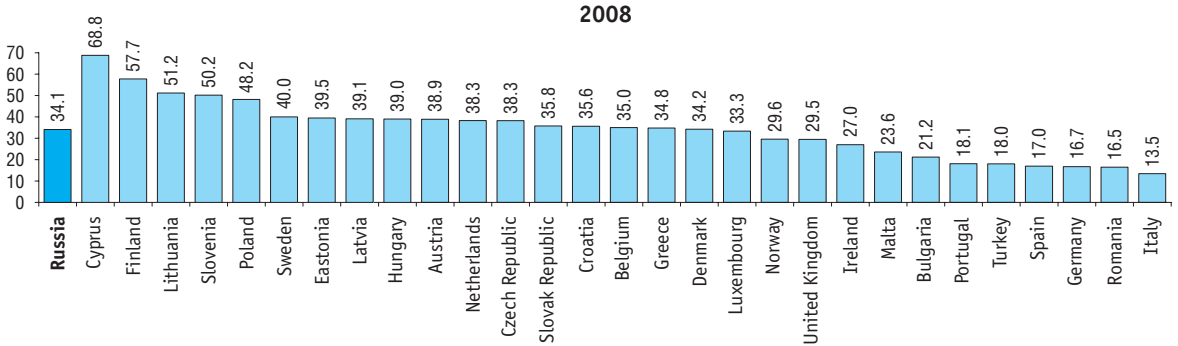


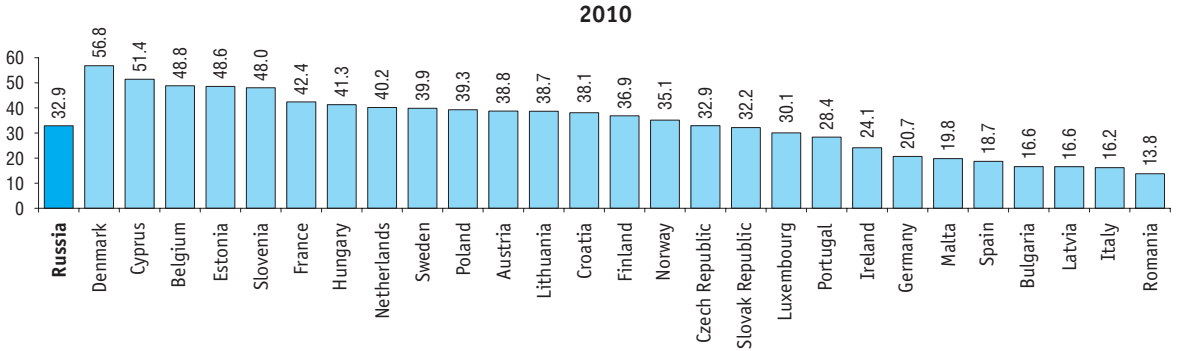


(continued)

2012
15
12
9
6
3
0
Russia 4.3
Germany 11.8
France 11.3
Spain 10.1
Romania 9.8
Slovak Republic 9.8
Cyprus 8.4
Estonia 8.1
Czech Republic 7.8
Denmark 7.7
Serbia 7.6
Italy 7.3
Portugal 7.0
Finland 6.9
Austria 6.8
Croatia 6.6
Belgium 6.4
Slovenia 5.8
Netherlands 5.1
Ireland 4.9
Hungary 4.5
Lithuania 4.2
Sweden 4.1
United Kingdom 3.8
Malta 3.7
Bulgaria 3.7
Iceland 3.6
Poland 3.4
Norway 2.9
Luxembourg 2.0
Latvia 1.7

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

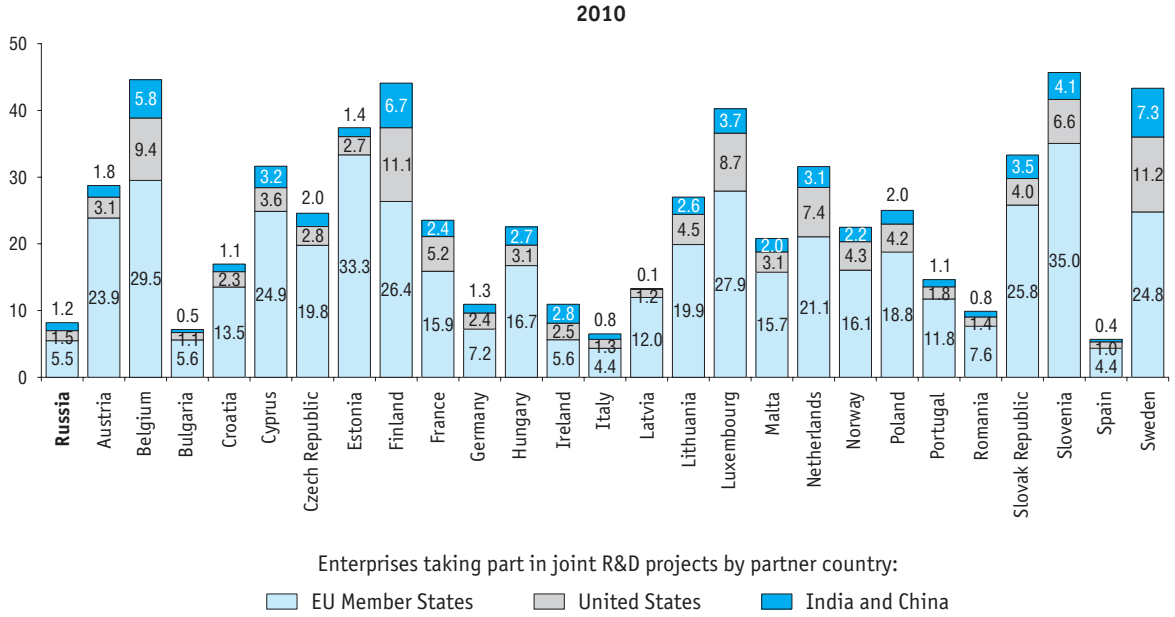


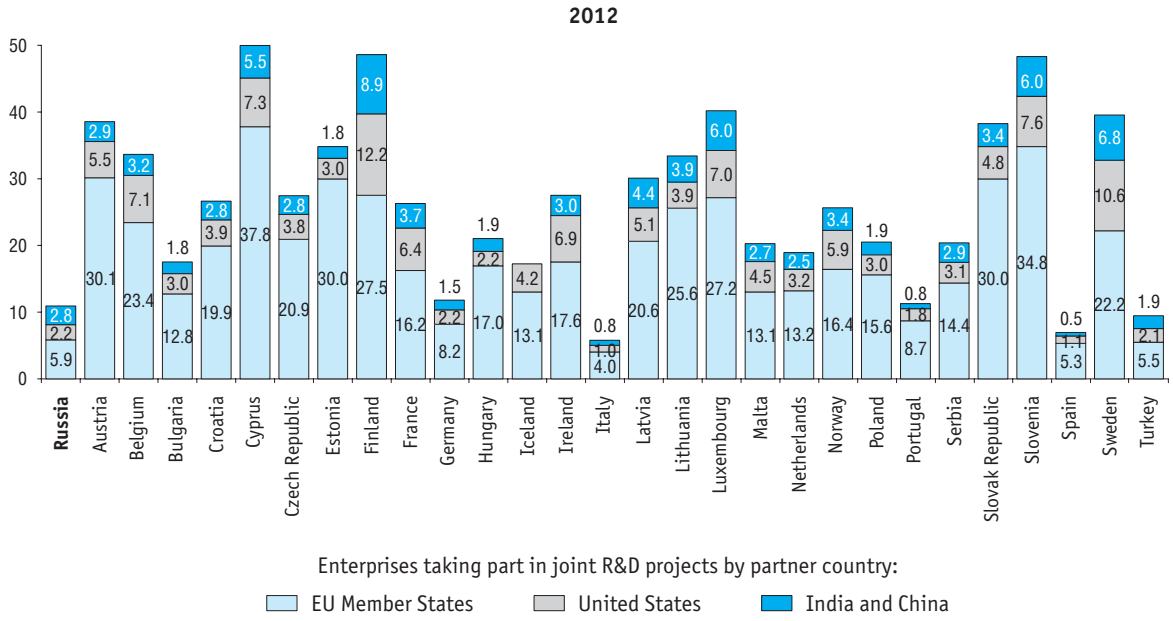


(continued)

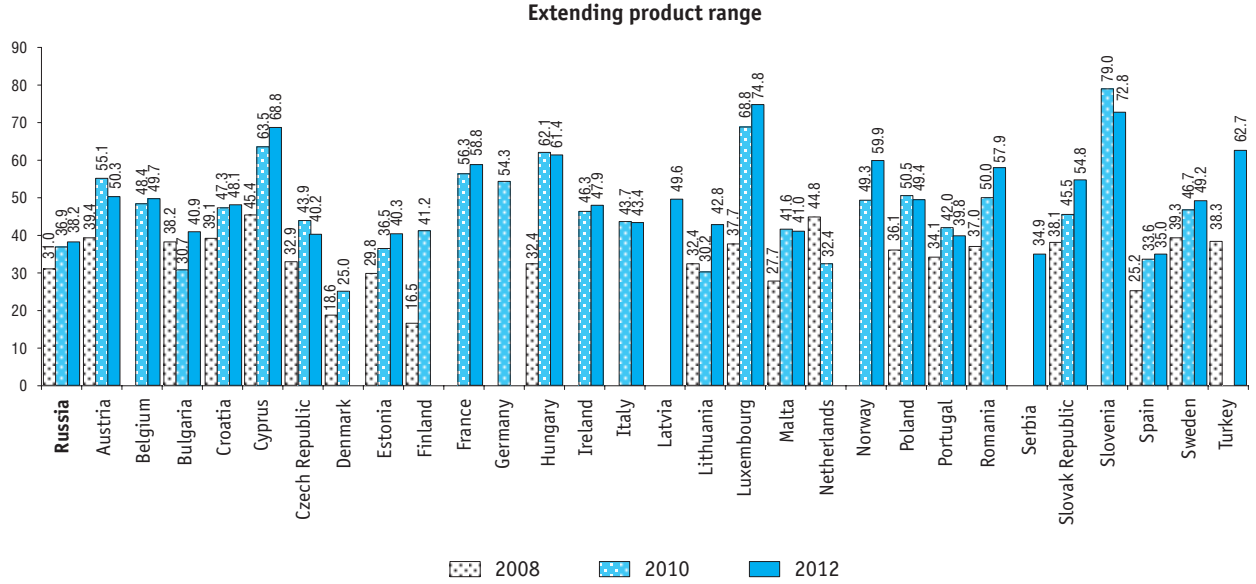
2012
70
60
50
40
30
20
10
0
Russia 37.4
United Kingdom 66.3
Cyprus 62.3
Austria 51.0
Slovenia 44.7
Lithuania 43.3
Hungary 43.2
Israel 42.3
Belgium 42.3
Estonia 42.1
Japan 41.9
Finland 39.8
Denmark 39.7
Sweden 38.8
France 36.1
Slovak Republic 34.7
Czech Republic 34.2
Netherlands 33.5
Poland 33.5
Republic of Korea 33.0
Croatia 32.6
Luxembourg 32.2
Iceland 32.2
New Zealand 31.4
Norway 30.6
Latvia 29.1
Ireland 28.5
Mexico 28.5
South Africa 27.6
Serbia 24.9
Germany 24.3
Australia 24.2
Romania 24.0
Bulgaria 22.4
Switzerland 22.3
Spain 22.3
China 20.8
Portugal 19.5
Turkey 18.7
Malta 18.5
Chile 18.0
Italy 12.1
Brazil 10.3

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




2012
50
40
30
20
10
0
Russia
Austria
Belgium
Bulgaria
Croatia
Cyprus
Czech Republic
Estonia
Finland
France
Germany
Hungary
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands
Norway
Poland
Portugal
Serbia
Slovak Republic
Slovenia
Spain
Sweden
Turkey
Enterprises taking part in joint R&D projects by partner country:
EU Member States
United States
India and China

7.10. ENTERPRISES THAT INDICATED HIGHLY IMPORTANT EFFECTS OF INNOVATION AS A PERCENTAGE OF ALL ENTERPRISES



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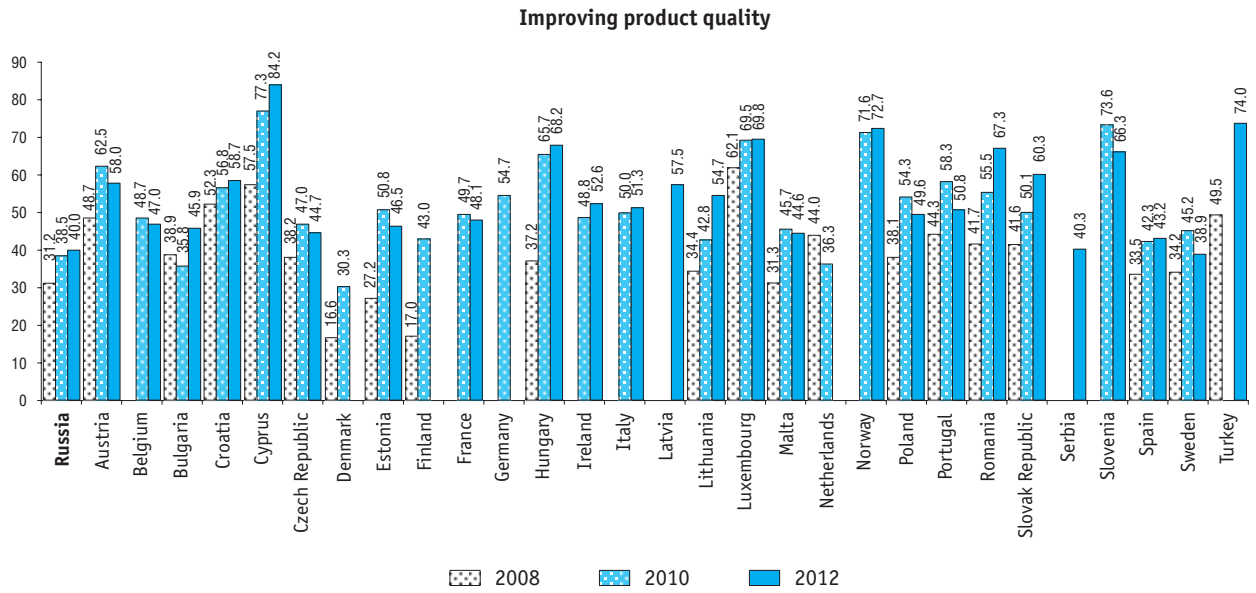
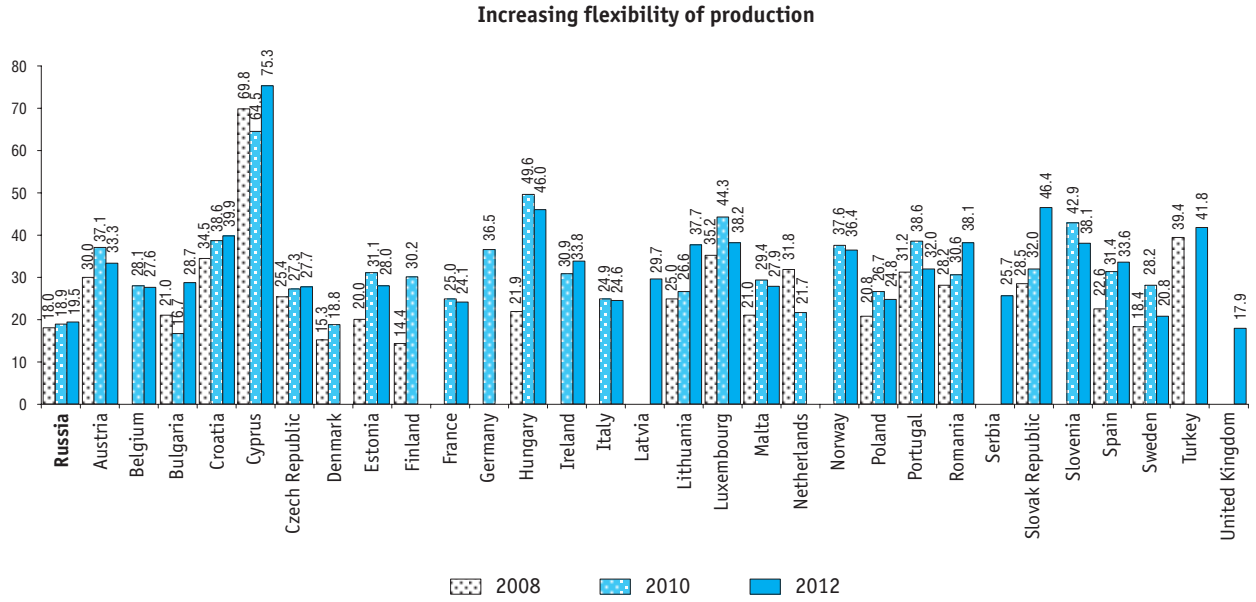
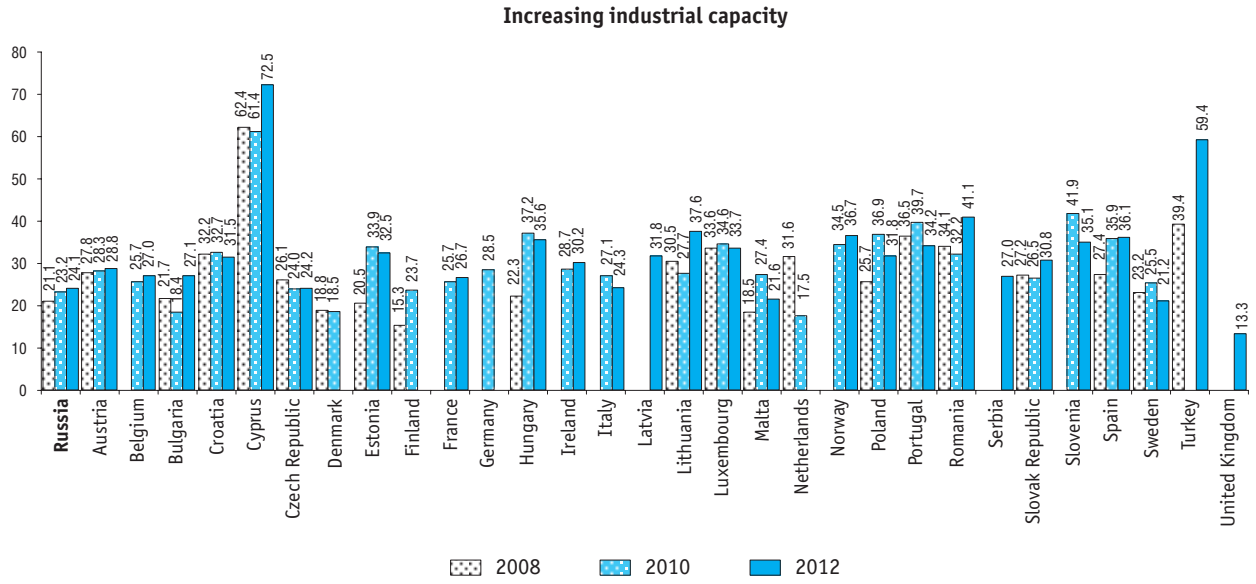

Improving product quality
90
80
70
60
50
40
30
20
10
0
Russia 31.2 38.5 40.0
Austria 48.7 62.5 58.0
Belgium 48.7 47.0
Bulgaria 38.9 35.8 45.9
Croatia 52.3 56.8 58.7
Cyprus 57.5 77.3 84.2
Czech Republic 38.2 47.0 44.7
Denmark 16.6 30.3
Estonia 27.2 50.8 46.5
Finland 17.0 43.0
France 49.7 48.1
Germany 54.7
Hungary 37.2 65.7 68.2
Ireland 48.8 52.6
Italy 50.0 51.3
Latvia 57.5
Lithuania 34.4 42.8 54.7
Luxembourg 62.1 69.5 69.8
Malta 31.3 45.7 44.6
Netherlands 44.0 36.3
Norway 71.6 72.7
Poland 38.1 54.3 49.6
Portugal 44.3 58.3 50.8
Romania 41.7 55.5 67.3
Slovak Republic 41.6 50.1 60.3
Serbia 40.3
Slovenia 73.6 66.3
Spain 33.5 42.3 43.2
Sweden 34.2 45.2 38.9
Turkey 49.5 74.0
2008
2010
2012

(continued)

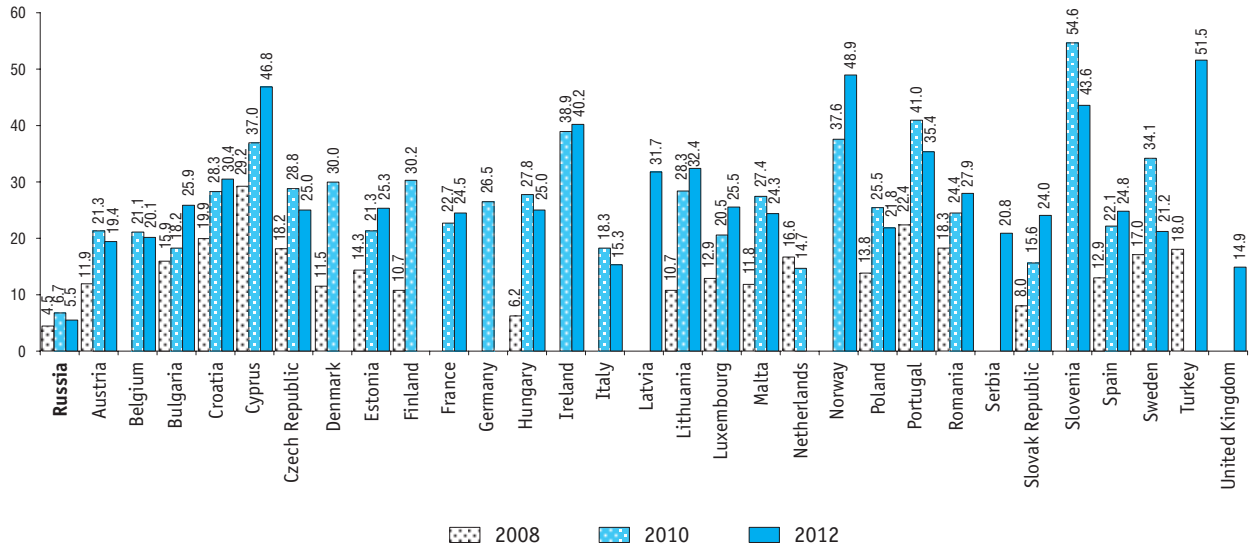

Increasing flexibility of production
80
70
60
50
40
30
20
10
0
Russia 18.0 18.9 19.5
Austria 30.0 37.1 33.3
Belgium 28.1 27.6
Bulgaria 21.0 16.7 28.7
Croatia 34.5 38.6 39.9
Cyprus 69.8 64.5 75.3
Czech Republic 25.4 27.3 27.7
Denmark 15.3 18.8
Estonia 20.0 31.1 28.0
Finland 14.4 30.2
France 25.0 24.1
Germany 36.5
Hungary 21.9 49.6 46.0
Ireland 30.9 33.8
Italy 24.9 24.6
Latvia
Lithuania 29.7 25.0 26.6 37.7
Luxembourg 35.2 44.3 38.2
Malta 21.0 29.4 27.9
Netherlands 31.8 21.7
Norway 37.6 36.4
Poland 20.8 26.7 24.8
Portugal 31.2 38.6 32.0
Romania 28.2 30.6 38.1
Serbia
Slovak Republic 25.7 28.5 32.0 46.4
Slovenia 42.9 38.1
Spain 22.6 31.4 33.6
Sweden 18.4 28.2 20.8
Turkey 39.4 41.8
United Kingdom 17.9
2008
2010
2012

(continued)


Increasing industrial capacity
80
70
60
50
40
30
20
10
0
Russia 21.1 23.2 24.1
Austria 27.8 28.3 28.8
Belgium 25.7 27.0
Bulgaria 21.7 18.4 27.1
Croatia 32.2 32.2 31.5
Cyprus 62.4 61.4 72.5
Czech Republic 26.1 24.0 24.2
Denmark 18.8 18.5
Estonia 20.5 33.9 32.5
Finland 15.3 23.7
France 25.7 26.7
Germany 28.5
Hungary 22.3 37.2 35.6
Ireland 28.7 30.2
Italy 27.1 24.3
Latvia 31.8
Lithuania 30.5 27.7 37.6
Luxembourg 33.6 34.9 33.7
Malta 18.5 27.4 21.6
Netherlands 31.6 17.5
Norway 34.5 36.7
Poland 25.7 31.8 36.9
Portugal 31.8 36.5 39.7
Romania 34.1 32.2 41.1
Serbia 27.0
Slovak Republic 26.2 26.5 30.8
Slovenia 41.9 35.1
Spain 27.4 35.9 36.1
Sweden 23.2 25.5 21.2
Turkey 39.4 59.4
United Kingdom 13.3
2008
2010
2012

(continued)

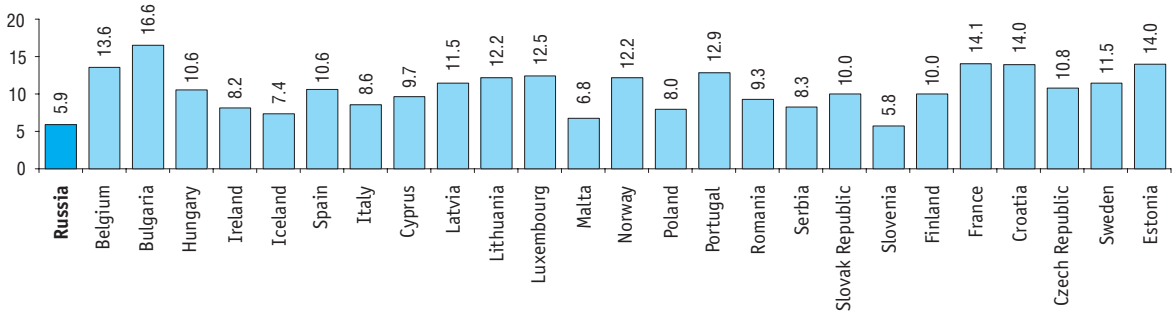
Reducing labour costs



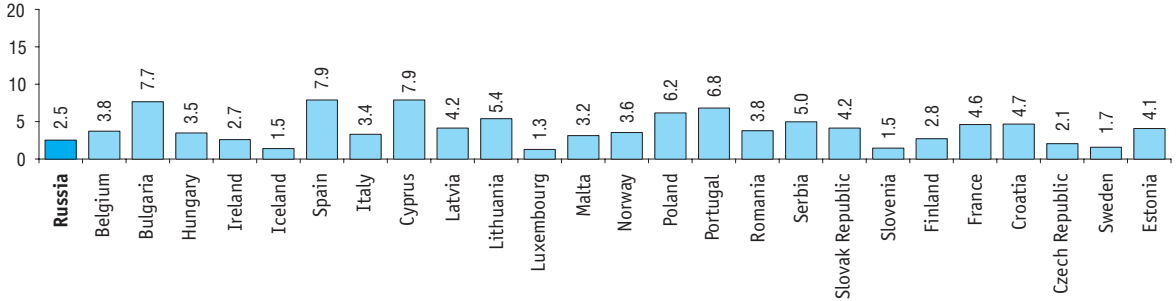
7.11. ENTERPRISES CONSIDERING FACTORS HAMPERING INNOVATION AS PRINCIPAL: 2012

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

Lack of qualified personnel

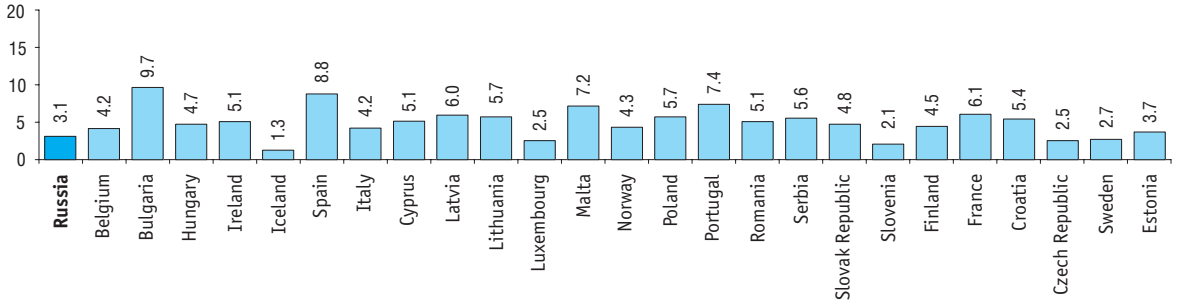


Lack of information about new technologies

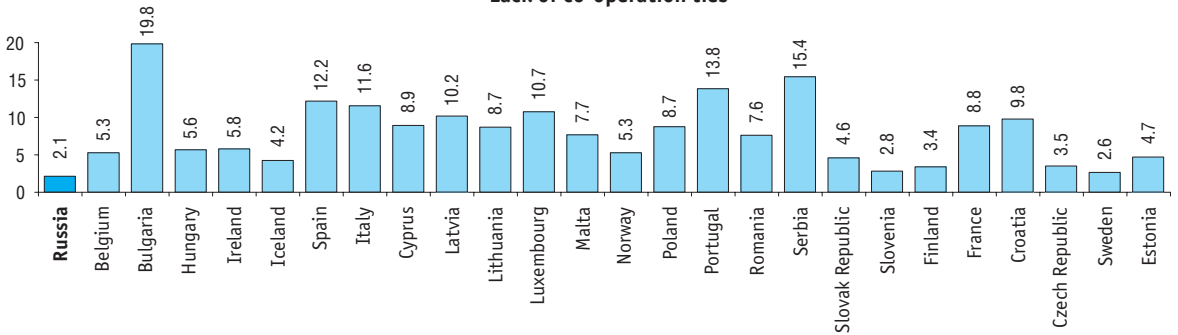


(continued)

Lack of information about sales markets



Lack of co-operation ties



Innovative activity of an enterprise characterises the degree of involvement an enterprise has in innovation in general, or in specific innovative activities, within a certain period. The level of innovative activity is generally defined as the ratio of enterprises engaged in technological, organisational, and marketing innovations to the total of enterprises surveyed in the country, sector, region, etc. within a specific period of time.

Innovative activities are all types of economic activities related to the transformation of ideas (usually the results of research and development or other scientific achievements) into technologically new or significantly improved goods and services, introduced to the market, as well as new or significantly improved technological processes used in service production (transfer) or implemented in manufacturing modes. Innovation activities incorporate scientific, technological, organisational, financial and commercial actions that lead to innovation.

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

- research and development;
- an instrumental prearrangement and organisation of production, covering acquisition of production equipment and instruments and changes in them as well as in the procedures, methods and standards of production and quality control needed to manufacture a new product or implement a new process;
- industrial design, graphic design and other developments (non-R&D) of new products, services, and methods of manufacturing (transfer), new processes, including the preparation of plans and drawings provided to determine the production procedures, technical specifications, operational characteristics needed to create the concept, design, manufacturing and marketing of new products, processes, and services;
- acquisition of machinery and equipment for technological purposes related to technological innovation and other innovations;
- acquisition of technologies in the form of patents, licenses (contracts) for the utilisation of inventions, prototypes, utility models, know-how, and technological services as well as acquisition of software related to technological innovation;
- personnel training for the purposes of technological innovation;
- market research.

Innovative goods and services are products (goods and services) that have undergone technological modification in the last three years. These include newly introduced (or technologically modified) and improved products.

Technologically new or significantly improved goods and services are goods and services, based on new (including principally new) technologies or a combination of new and existing technologies. Range of application, operational characteristics, features, constructive implementation and composition of materials and components of products must be new or considerably different from previous products.

Improved goods and services are based on the introduction of new or significantly improved production methods involving the use of new production equipment, new methods of production or a combination of both.

Classification of innovative goods and services is developed according to the degree of novelty and market position. Types of novelty in the market of innovative goods and services include those that are entirely new to the firm's market or new to the firm, but not new to the market.

Expenditure on innovation is the actual expenditure related to implementation of various types of innovative activity performed within an enterprise (a sector, region, country). Innovation expenditure comprises current and capital expenditure. Innovation statistics covers the expenditure of technological, organisational and marketing innovations.

Marketing innovation includes newly implemented or significantly improved marketing methods that incorporate major changes in product package and design, innovative sales as well as the presentation and promotion of products, and new pricing strategies. Marketing innovations are aimed at better addressing customer needs and the expansion of consumer goods and services, and developing new markets with the objective of increasing a range of sales.

Enterprises engaged in innovative activity are those involved in development and introduction of technologically new or improved products or services, technologically new or improved processes or techniques of service production (transfer), and other types of innovative activities.

Organisational innovations is the implementation of a new organisational method in a firm's business practices, workplace organisation or external relations. Organisational innovations are aimed at increasing organisational performance by reducing administrative and transaction costs, improving workplace organisation (working time) and thereby increasing labour productivity, gaining access to the market assets, and reducing supply costs.

Ratings of the results of innovative activity, sources of information for technological innovation, methods used to protect value of innovation, and factors hampering technological innovation are calculated from assessments of enterprises of industry and services.

Technological innovations are the final result of innovative activities, embodied in a technologically new or improved product or service introduced on a market, a technologically new or improved process or technique of service production (transfer) used in practice. An accomplished innovation is one introduced to the marked or implemented into the production process.

Technology exchange – technologies or individual technical achievements acquired (transferred) by an enterprise in a reference year (or in a one year period). Technology exchange includes the acquisition and transfer of scientific and technical knowledge and experience to provide knowledge-based services, to use technological process, and to produce goods and services on a non-contractual basis or in terms determined by an agreement between the parties.

Environmental innovation covers novelties that improve the environmental safety and reduce or prevent environmental impact and damage within completed technological, organisational and marketing innovation projects.