



MINISTRY OF ECONOMIC DEVELOPMENT
OF THE RUSSIAN FEDERATION



FEDERAL STATE
STATISTICS SERVICE



HSE
UNIVERSITY



INDICATORS OF INNOVATION IN THE RUSSIAN FEDERATION

DATA BOOK

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This data book contains the most recent statistical data characterising innovation processes in the economy of the Russian Federation. The methodology for the main indicators is based on the latest recommendations of international organisations in statistical measurement of innovations (Oslo Manual, 4th edition) and Community Innovation Surveys in the EU countries.

The data book provides statistical data reflecting the innovative activity of Russian enterprises, sales of product and business process innovations, input and output of innovative activities, including the degree of novelty and sales markets, sales of innovative goods and services on users' orders. The publication also includes indicators reflecting the intensity of cooperation ties with external and internal partners, features and forms of open innovations, and assessments of factors hampering innovation. Separate chapters of the data book are devoted to the innovation activity in Russian regions, environmental innovation, and international comparisons covering a wide range of indicators.

The information is broken down by types of economic activity, taking into account the level of technological efficiency of industries.

The data book includes information of the Federal State Statistics Service, Organisation for Economic Co-operation and Development (OECD), European Commission, Eurostat, national statistical agencies of foreign countries, as well as methodological and analytical studies of the HSE Institute for Statistical Studies and Economics of Knowledge.

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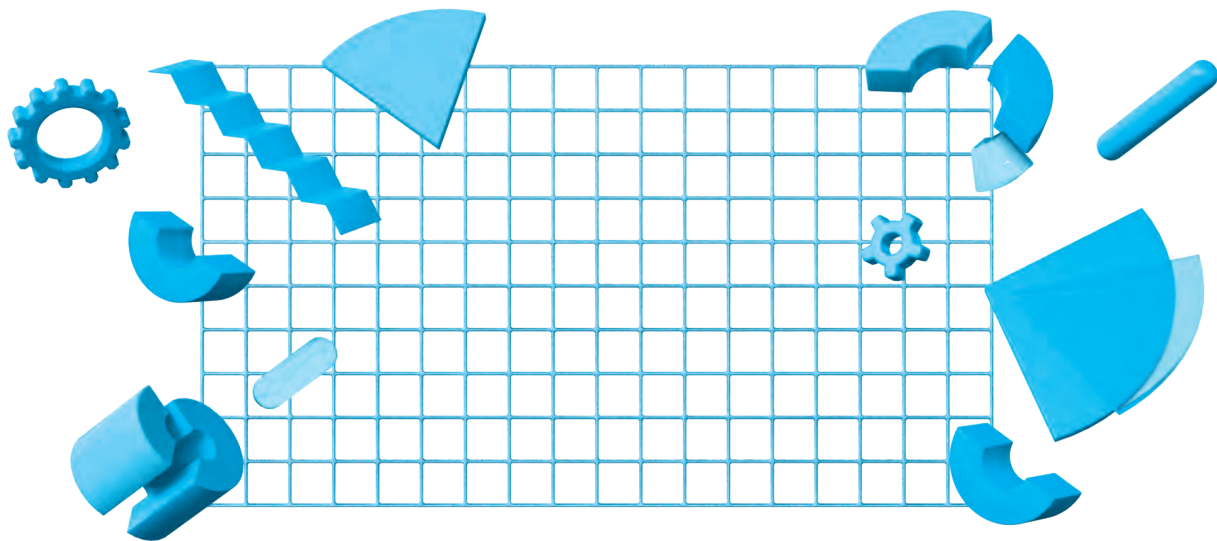
SYMBOLS USED IN TABLES ARE:

... data not available and not included in the totals,

– data not applicable,

0.0 insignificant value.

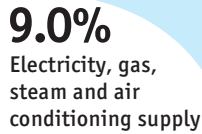
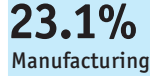
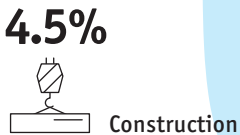
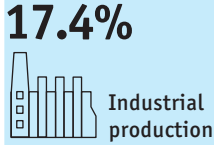
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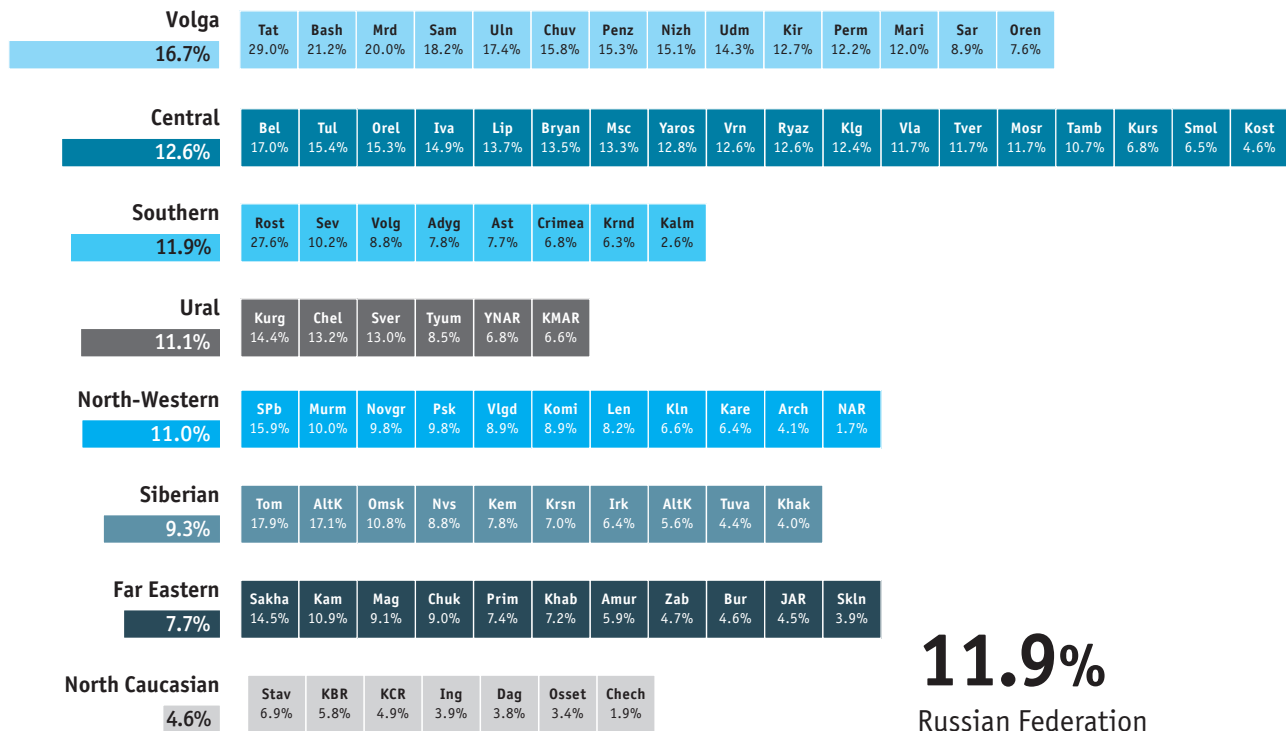
**INFOGRAPHICS ON THE
INNOVATION DEVELOPMENT:
2021 RESULTS**

INNOVATION ACTIVITY OF ENTERPRISES BY TYPE OF ECONOMIC ACTIVITY

11.9%



Federal districts*



11.9%
Russian Federation

* The list of Russian regions is provided as at the end of 2021.

12



Total

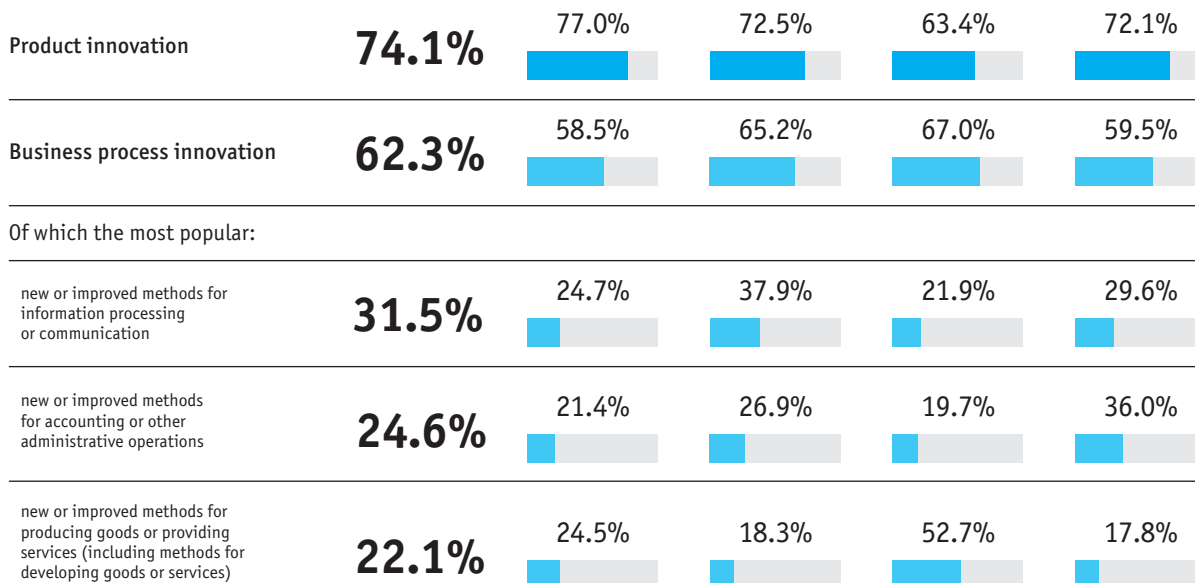
Industrial production

Services sector

Agriculture

Construction

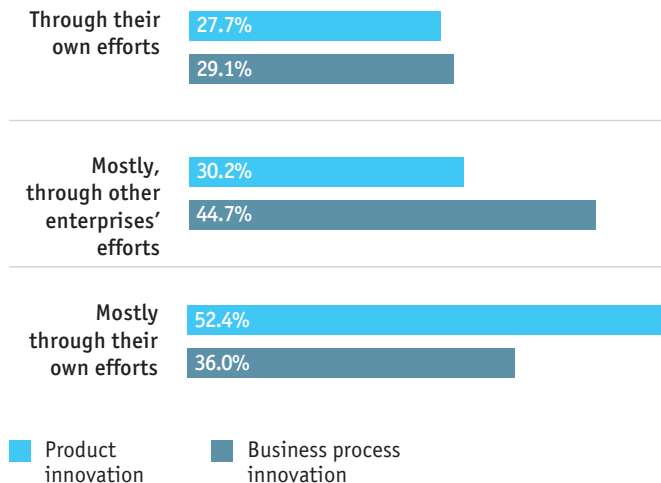
Enterprises that had:



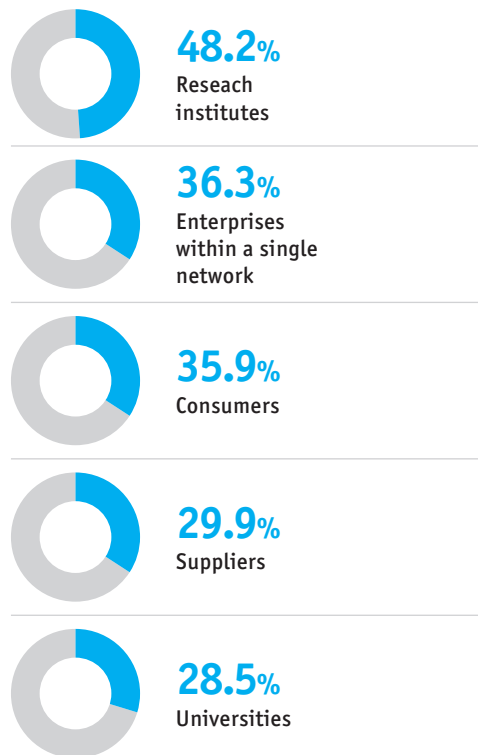
16.8%

of innovation-active enterprises that engaged in joint R&D projects in 2021

Enterprises that developed innovation in cooperation in 2019–2021

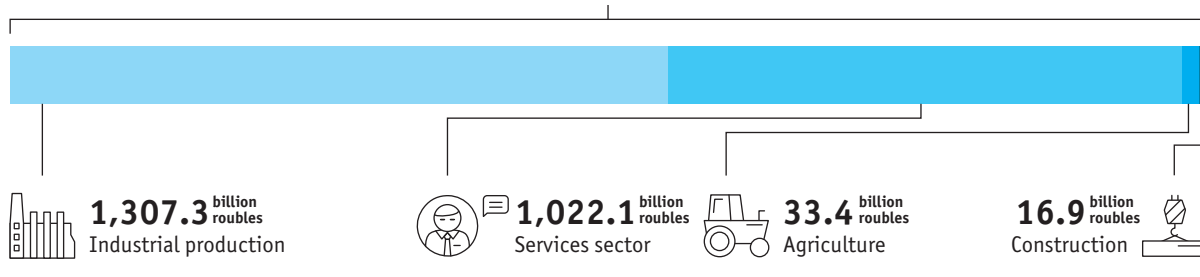


Main cooperation partners

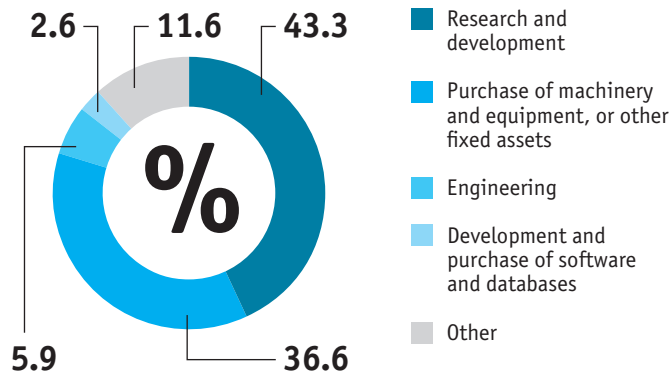


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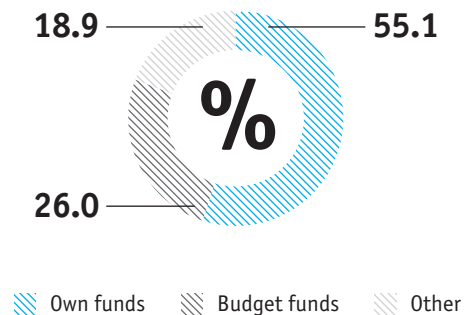
2,379.7 billion roubles

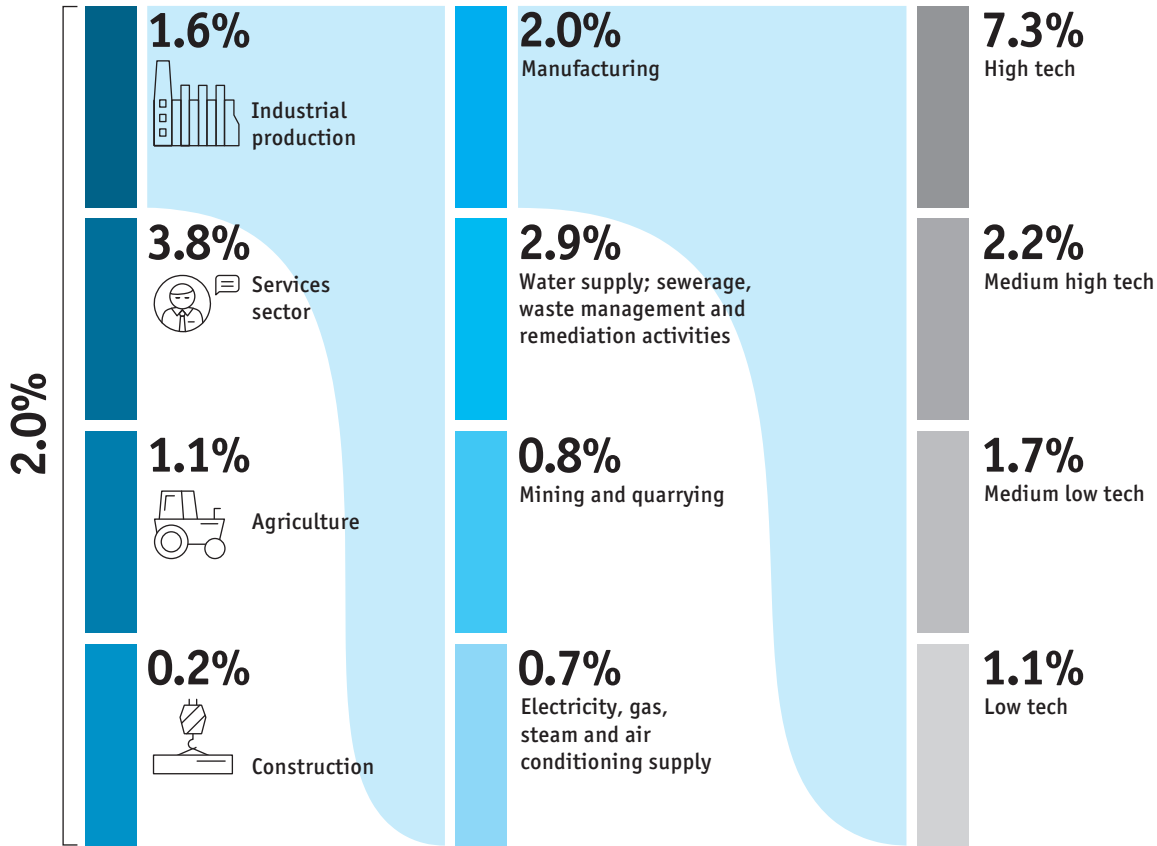


Main types of innovative activities



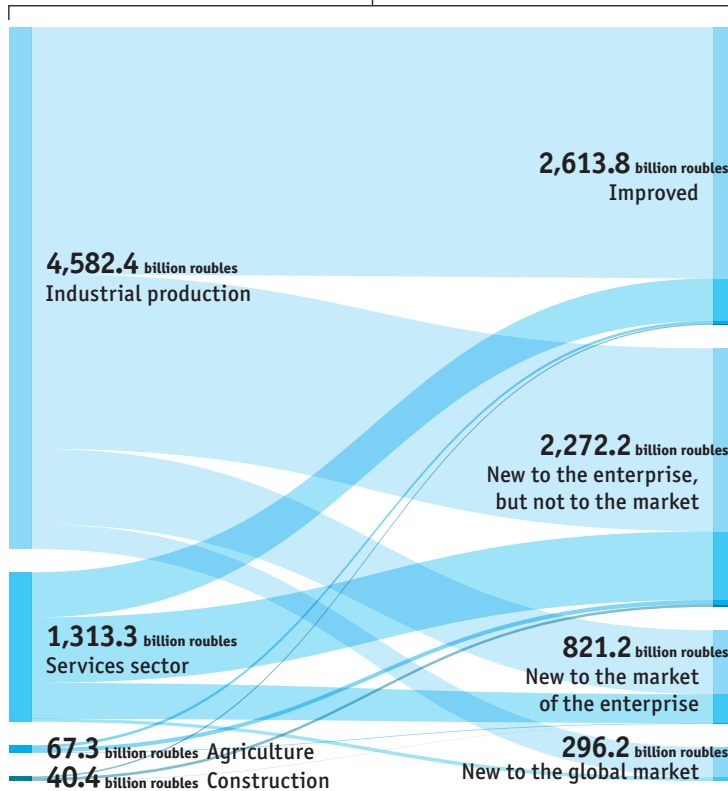
Sources of funds





INTENSITY OF INNOVATION EXPENDITURE
BY TYPE OF ECONOMIC ACTIVITIES

6,003.3 billion roubles



As a percentage of total sales

5.0%



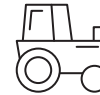
5.5%

Industrial production



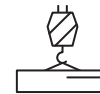
4.9%

Services sector



2.3%

Agriculture



0.6%

Construction

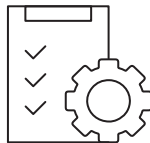
25.4 %

of enterprises that produced
customised innovative
goods and services in 2019–2021



6.6%

Jointly with users



23.7%

According
to orders of
specific users



1.7%

Through users'
own efforts

MAIN INDICATORS OF INNOVATION

	2010	2015	2016	2017	2018	2019	2020	2021
Innovation activity of enterprises, <i>percentage</i>	9.5	9.3	8.4	14.6	12.8	9.1	10.8	11.9
Industrial production	10.8	10.6	10.5	17.8	15.6	15.1	16.2	17.4
Telecommunications; computer programming, consultancy and related activities; IT industry	13.6	10.8	9.3	12.4	9.5	9.8	12.2	12.2
Construction	...	2.0	1.5	9.6	7.6	3.7	3.9	4.5
Agriculture	...	...	4.0	4.6	4.2	4.2	6.6	8.1
Transportation and storage	...	...	...	...	...	2.8	4.0	3.9
Human health and social work activities	...	...	...	...	...	5.3	8.6	11.0
Innovation expenditure, <i>million roubles:</i>								
at current prices	411008.8	1211294.4	1298444.5	1416922.8	1484901.1	1954133.3	2134038.4	2379709.9
at constant 2010 prices*	411008.8	790817.0	824618.6	854546.0	814135.2	1037170.7	1124776.5	1076596.9
Industrial production:								
at current prices	356163.5	741283.8	787232.5	856794.0	893881.3	984315.5	1168528.8	1307322.1
at constant 2010 prices	356163.5	483961.5	499957.1	516732.4	490093.4	522432.7	615890.4	591441.4
Telecommunications; computer programming, consultancy and related activities; IT industry								
at current prices	40223.1	67749.9	54681.7	55565.9	61734.7	100958.0	104003.4	147312.9
at constant 2010 prices	40223.1	44231.8	34727.4	33511.8	33847.6	53584.2	54816.5	66645.4
Construction:								
at current prices	...	13.4	7.3	196.4	49.7	10930.5	13520.9	16888.5
at constant 2010 prices	...	8.8	4.6	118.5	27.3	5801.4	7126.4	7640.4
Agriculture:								
at current prices	...	...	15073.6	15942.0	22033.3	49393.2	39692.8	33424.6
at constant 2010 prices	...	...	9573.0	9614.6	12080.3	26215.8	20920.7	15121.5

* Here and below, the data in constant prices are calculated taking into account the GDP deflator as at April 08, 2022.

(continued)

	2010	2015	2016	2017	2018	2019	2020	2021
Transportation and storage:								
at current prices	...	...	...	...	...	228822.7	203748.5	180625.9
at constant 2010 prices	...	...	...	...	...	121449.3	107388.7	81716.4
Human health and social work activities:								
at current prices	...	...	...	...	...	17763.8	34295.5	25607.9
at constant 2010 prices	...	...	...	...	...	9428.3	18076.0	11585.2
Expenditure on technological innovation as a percentage of total sales:	1.6	2.7	2.5	2.5	2.2	2.1	2.3	2.0
Industrial production	1.5	1.8	1.8	1.7	1.5	1.6	1.9	1.6
Telecommunications; computer programming, consultancy and related activities; IT industry	3.0	3.4	2.4	2.4	2.6	3.2	2.8	3.3
Construction	...	0.01	0.01	0.2	0.03	0.1	0.3	0.2
Agriculture	...	...	0.9	1.0	1.2	1.6	1.6	1.1
Transportation and storage	...	...	...	...	...	2.6	2.0	1.5
Human health and social work activities	...	...	...	...	...	0.9	1.6	0.9
Sales of innovative goods and services, million roubles:								
at current prices	1243712.5	3843428.7	4364321.7	4166998.7	4516276.4	4863381.9	5189046.2	6003342.0
at constant 2010 prices	1243712.5	2509256.8	2771701.8	2513116.6	2476164.5	2581275.9	2734963.5	2715952.8
Industrial production:								
at current prices	1165747.6	3258254.6	3723693.4	3403055.2	3693061.6	3871481.1	3999391.8	4582372.5
at constant 2010 prices	1165747.6	2127214.6	2364850.4	2052382.4	2024815.8	2054817.2	2107938.5	2073096.5

(continued)

	2010	2015	2016	2017	2018	2019	2020	2021
Telecommunications; computer programming, consultancy and related activities; IT industry								
at current prices	62636.4	86048.9	80955.8	111254.6	138610.7	200311.3	222389.1	370602.1
at constant 2010 prices	62636.4	56178.7	51413.6	67097.7	75996.9	106316.7	117213.5	167662.9
Construction:								
at current prices	...	600.3	2351.0	152.9	48.7	29952.4	30079.9	40351.1
at constant 2010 prices	...	391.9	1493.1	92.2	26.7	15897.4	15854.1	18255.1
Agriculture:								
at current prices	...	...	22222.9	28446.0	33829.1	69559.2	58855.8	67339.6
at constant 2010 prices	...	...	14113.4	17155.8	18547.7	36919.1	31020.8	30464.9
Transportation and storage:								
at current prices	...	...	...	...	...	47469.6	125550.2	82179.5
at constant 2010 prices	...	...	...	...	...	25194.8	66173.1	37178.6
Human health and social work activities:								
at current prices	...	...	...	...	...	13710.9	25249.8	15287.5
at constant 2010 prices	...	...	...	...	...	7277.1	13308.3	6916.2
Innovative goods and services as a percentage of total sales	4.8	8.4	8.5	7.2	6.5	5.3	5.7	5.0
Industrial production	4.9	7.9	8.4	6.7	6.0	6.1	6.4	5.5
Telecommunications; computer programming, consultancy and related activities; IT industry	4.7	4.3	3.5	4.8	5.7	6.4	6.0	8.3

(continued)

	2010	2015	2016	2017	2018	2019	2020	2021
Construction	...	0.6	1.7	0.1	0.03	0.4	0.6	0.6
Agriculture	...	...	1.4	1.8	1.9	2.3	2.3	2.3
Transportation and storage	...	...	...	...	...	0.5	1.2	0.7
Human health and social work activities	...	...	...	...	...	0.7	1.2	0.6
Enterprises engaged in technological innovation as a percentage of the total number of enterprises**	7.9	8.3	7.3	20.8	19.8	21.6	23.0	23.0
Industrial production	9.3	9.5	9.2	19.6	18.5	20.0	21.5	20.9
Telecommunications; computer programming, consultancy and related activities; IT industry	10.8	9.4	7.7	15.7	14.3	17.9	18.7	19.1
Construction	...	2.0	1.1	10.5	9.5	8.2	10.9	8.6
Agriculture	...	...	3.4	5.2	5.4	6.5	9.4	9.5
Expenditure on technological innovation as a percentage of total sales	1.6	2.6	2.5	2.4	2.1	1.9	2.1	1.8
Industrial production	1.5	1.8	1.8	1.7	1.4	1.4	1.6	1.4
Telecommunications; computer programming, consultancy and related activities; IT industry	2.9	3.3	2.3	2.3	2.5	2.2	2.1	2.4
Construction	...	0.01	0.01	0.2	0.03	0.1	0.3	0.2
Agriculture	...	...	0.9	1.0	1.2	1.5	1.5	1.1

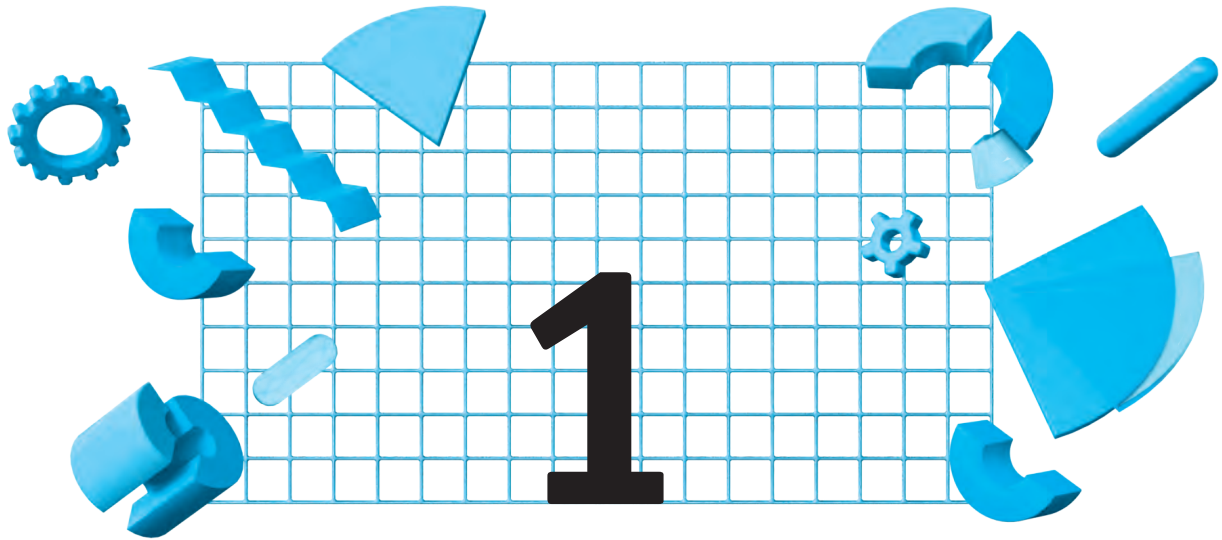
** Since 2018, the indicator is calculated according to the methodology approved by Order no. 788 of Rosstat of December 20, 2019 for the purpose of information support of Clause 1e of the Decree no. 204 of the President of the Russian Federation of May 07, 2018 'On the National Goals and Strategic Tasks of the Development of the Russian Federation until 2024'. Any changes in 2017 data are due to the recalculation indicators according to the specified method.

(continued)

	2010	2015	2016	2017	2018	2019	2020	2021
Innovation activity of small enterprises, <i>percentage</i> ***	...	4.5	...	5.2	...	5.8	...	6.9
Innovation expenditure of small enterprises, <i>million roubles</i> ****:								
at current prices	...	12151.8	...	19220.4	...	27340.2	...	54441.8
at constant 2010 prices	...	7933.6	...	11591.8	...	14511.0	...	24629.8
Innovation expenditure as a percentage of total sales in small enterprises	...	0.6	...	0.8	...	1.0	...	1.3
Sales of innovative goods and services in small enterprises, <i>million roubles</i> :								
at current prices	...	31270.9	...	37523.0	...	67055.9	...	118825.9
at constant 2010 prices	...	20415.8	...	22630.1	...	35590.4	...	53757.6
Innovative goods and services as a percentage of total sales in small enterprises	...	1.6	...	1.6	...	2.4	...	2.8

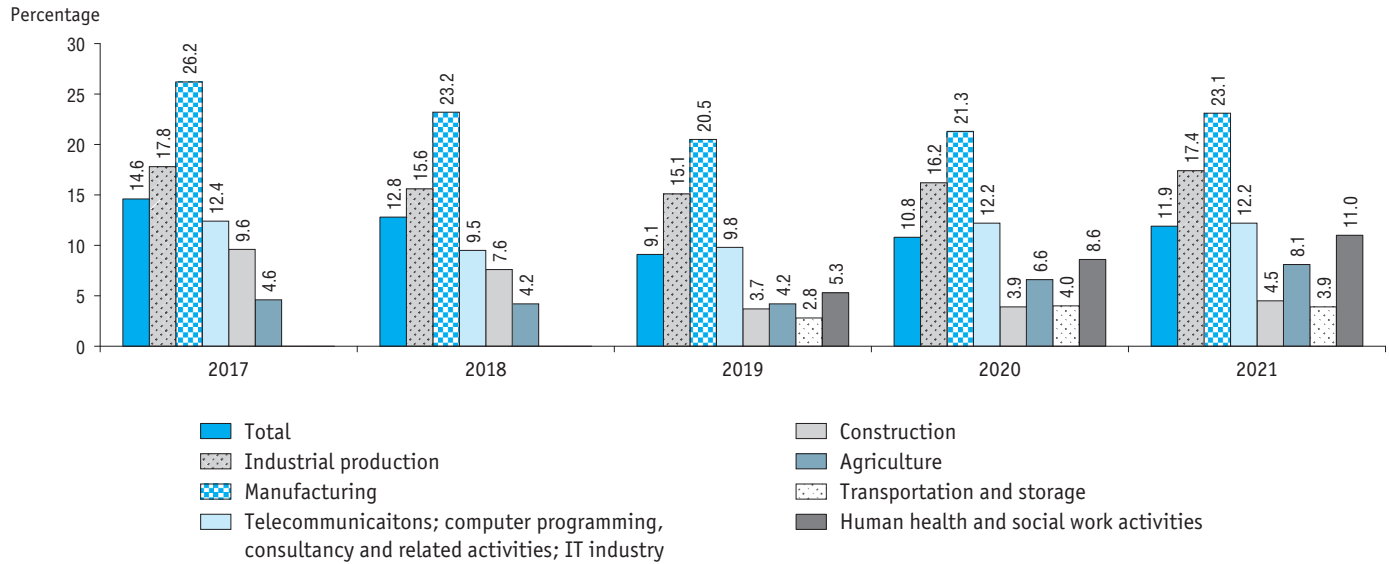
*** Until 2019, the indicator was calculated based on the data for small enterprises engaged in technological innovations

**** Until 2019, indicators showing innovation expenditure were calculated based on the data for expenditure on technological innovation.



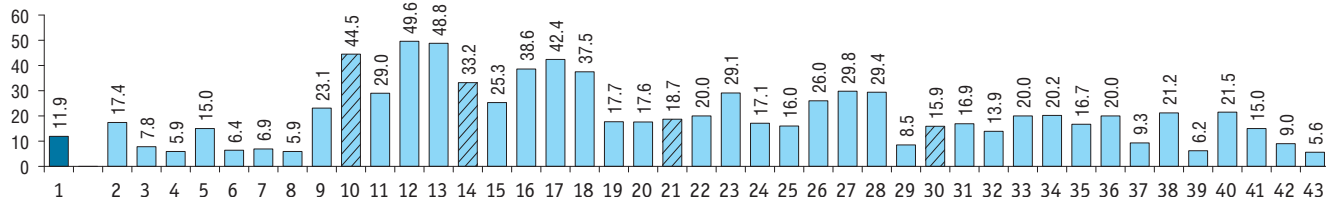
INNOVATION ACTIVITY OF ENTERPRISES

1.1. INNOVATION ACTIVITY OF ENTERPRISES



1.2. INNOVATION ACTIVITY OF ENTERPRISES BY TYPE OF ECONOMIC ACTIVITY: 2021

Percentage



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment*

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media**

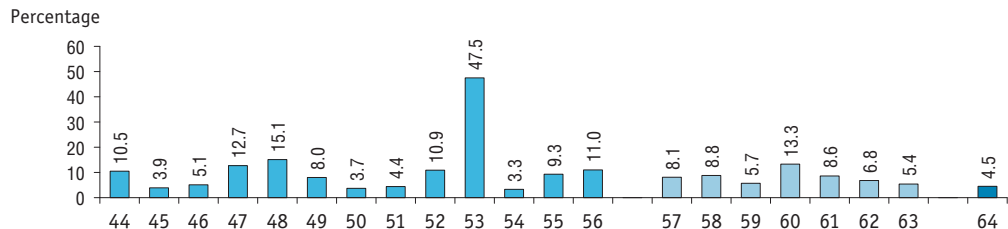
40 – manufacture of furniture

41 – other manufacturing***

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)

44 – **types of economic activity within services sector – total**

45 – transportation and storage

46 – publishing activities

47 – telecommunications

48 – computer programming, consultancy and related activities

49 – IT industry

50 – legal and accounting activities

51 – activities of head offices; management consultancy activities

52 – architectural and engineering activities; technical testing and analysis

53 – scientific research and development

54 – advertising and market research

55 – other professional, scientific and technical activities

56 – human health and social work activities

57 – **agriculture – total**

58 – growing of non-perennial crops

59 – growing of perennial crops

60 – plant propagation

61 – animal production

62 – mixed farming

63 – support activities to agriculture and post-harvest crop activities

64 – **construction – total**

* Here and below in sections 1–8, excluding building of ships and boats and manufacture of air and spacecraft and related machinery.

** Here and below in sections 1–8, excluding reproduction of recorded media.

*** Here and below in sections 1–8, excluding manufacture of medical and dental instruments and supplies.

1.3. PERCENTAGE DISTRIBUTION OF ENTERPRISES BY TYPE OF INNOVATIVE AND ECONOMIC ACTIVITY: 2021

(as a percentage of enterprises that had expenditure on innovative activities)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Total	30.8	48.5	5.4	11.0	2.8	9.3	25.6	27.6	3.3	11.0
Industrial production – total	35.5	46.5	6.9	11.5	4.6	13.7	21.9	34.2	3.1	10.2
Mining and quarrying	30.4	41.2	2.9	11.3	1.0	8.8	28.9	24.0	2.5	8.3
Mining of coal and lignite	10.0	40.0	–	–	–	20.0	20.0	20.0	–	10.0
Extraction of crude petroleum and natural gas	41.3	35.0	2.5	20.0	1.3	11.3	23.8	31.3	2.5	7.5
Mining of metal ores	50.0	40.0	5.0	10.0	–	15.0	35.0	15.0	–	5.0
Other mining and quarrying	7.1	64.3	10.7	3.6	3.6	3.6	32.1	10.7	7.1	14.3
Mining support service activities	24.2	39.4	–	6.1	–	4.5	33.3	24.2	1.5	7.6
Manufacturing	38.2	46.0	8.0	11.9	5.5	14.7	20.2	38.5	3.1	9.5
High tech	62.9	47.9	11.3	19.6	4.2	16.1	29.4	38.9	3.3	10.8
Manufacture of basic pharmaceutical products and pharmaceutical preparations	62.9	47.2	12.4	11.2	3.4	11.2	14.6	48.3	–	5.6
Production of computer, electronic and optical products	63.9	43.6	10.8	19.0	3.9	17.0	31.8	37.4	4.6	10.2
Manufacture of air and spacecraft and related machinery	57.6	71.2	11.9	35.6	6.8	18.6	39.0	32.2	1.7	22.0

* Here and below in table 1.4, acquisition of patent rights (alienation), licenses, industrial designs, utility models, selection achievements, integrated circuit designs, etc.; patenting (registration) of the results of intellectual activity.

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Medium high tech	47.3	44.9	8.3	12.3	5.1	20.1	19.8	36.4	3.0	10.1
Production of chemicals and chemical products	44.5	50.5	8.2	11.5	3.8	20.3	22.0	36.8	3.3	14.8
Manufacture of electrical equipment	55.0	46.8	11.1	14.0	5.8	24.6	21.1	30.4	5.3	4.1
Manufacture of machinery and equipment not elsewhere classified	48.0	40.7	9.5	11.8	5.9	16.7	18.6	42.5	2.3	8.6
Manufacture of motor vehicles, trailers and semi-trailers	44.0	50.4	6.4	12.0	5.6	20.8	20.8	34.4	1.6	14.4
Manufacture of other transport equipment	41.2	23.5	–	11.8	3.9	21.6	15.7	39.2	2.0	5.9
Manufacture of medical and dental instruments and supplies	36.4	45.5	4.5	13.6	–	9.1	9.1	22.7	–	18.2
Medium low tech	36.7	51.7	6.1	14.1	3.0	16.7	24.8	36.5	4.4	13.0
Reproduction of recorded media	–	–	–	–	–	–	–	100	–	–
Manufacture of coke and refined petroleum products	43.2	54.5	6.8	15.9	4.5	34.1	29.5	36.4	4.5	25.0
Manufacture of rubber and plastic products	35.7	57.1	4.1	6.1	4.1	11.2	12.2	40.8	3.1	3.1
Manufacture of other non-metallic mineral products	20.7	52.1	2.9	4.3	2.9	10.0	24.3	28.6	2.9	13.6
Manufacture of basic metals	43.1	52.9	4.9	17.6	1.0	24.5	32.4	46.1	3.9	18.6

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Manufacture of fabricated metal products, except machinery and equipment	43.2	51.9	9.5	21.8	2.9	18.5	25.9	35.0	5.3	10.7
Building of ships and boats	47.8	56.5	8.7	21.7	4.3	26.1	47.8	34.8	21.7	26.1
Repair and installation of machinery and equipment	30.6	38.9	4.2	9.7	4.2	6.9	18.1	37.5	1.4	13.9
Low tech	16.4	40.8	7.7	5.0	9.1	6.8	11.2	42.3	1.8	4.7
Manufacture of food products	16.3	35.6	9.4	5.0	11.0	5.7	9.2	45.9	2.1	5.5
Manufacture of beverages	12.9	30.6	12.9	3.5	14.1	10.6	11.8	64.7	1.2	2.4
Manufacture of tobacco products	25.0	50.0	–	–	25.0	25.0	–	25.0	–	–
Manufacture of textiles	37.5	42.5	2.5	2.5	–	5.0	15.0	32.5	2.5	–
Manufacture of wearing apparel	15.8	47.4	2.6	2.6	2.6	7.9	18.4	28.9	2.6	5.3
Manufacture of leather and related products	6.7	60.0	6.7	–	–	–	20.0	26.7	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	11.1	69.4	2.8	5.6	5.6	13.9	19.4	5.6	2.8	11.1
Manufacture of paper and paper products	15.7	54.9	3.9	7.8	3.9	7.8	9.8	31.4	2.0	3.9
Printing and reproduction of recorded media	15.4	61.5	–	7.7	–	–	7.7	15.4	–	7.7
Manufacture of furniture	6.1	48.5	–	9.1	6.1	3.0	15.2	42.4	–	6.1
Other manufacturing	24.1	48.3	6.9	6.9	10.3	10.3	10.3	41.4	–	–

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Electricity, gas, steam and air-conditioning supply	21.5	49.5	1.0	10.7	0.7	10.4	32.9	10.4	3.5	17.3
Water supply; sewerage, waste management and remediation activities	15.6	57.4	0.8	4.1	–	5.7	22.1	9.8	2.5	13.9
Types of economic activity within services sector – total	29.4	47.2	4.7	11.6	1.5	6.4	30.1	24.3	3.8	12.1
Transportation and storage	16.9	50.1	2.2	9.2	0.5	5.2	26.1	18.4	3.2	16.9
Publishing activities	20.5	36.1	2.4	3.6	9.6	1.2	36.1	15.7	20.5	10.8
Telecommunications	9.0	49.8	3.2	33.9	0.9	44.8	37.6	10.0	7.7	5.4
Computer programming, consultancy and related activities	27.9	38.5	12.6	14.1	2.8	4.1	49.7	33.3	3.1	13.3
IT industry	17.9	48.5	6.6	8.2	3.1	2.6	48.5	23.0	3.1	13.3
Legal and accounting activities	4.9	54.9	1.9	7.4	0.6	0.6	44.4	9.9	5.6	11.7
Activities of head offices; management consultancy activities	17.7	35.5	8.9	9.7	2.4	0.8	39.5	33.1	5.6	5.6
Architectural and engineering activities; technical testing and analysis	22.1	42.8	2.3	12.7	1.0	3.7	37.8	23.7	3.7	8.4
Scientific research and development	66.3	34.6	5.3	12.8	1.8	7.6	20.3	45.1	2.8	9.9
Advertising and market research	16.1	35.7	16.1	12.5	1.8	5.4	37.5	30.4	7.1	5.4
Other professional, scientific and technical activities	26.7	40.0	–	13.3	–	–	33.3	26.7	6.7	13.3
Human health and social work activities	15.1	64.3	2.3	7.3	0.3	1.7	21.6	8.2	2.4	15.5

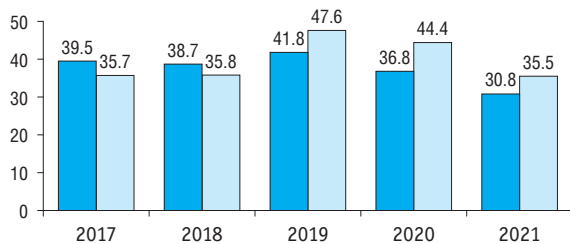
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	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Agriculture – total	11.9	72.7	1.6	1.9	1.1	2.4	12.7	10.5	0.3	7.3
Growing of non-perennial crops	11.2	72.7	0.6	1.2	–	0.6	13.0	9.9	–	5.0
Growing of perennial crops	–	55.6	–	–	–	–	22.2	33.3	–	–
Plant propagation	50.0	50.0	–	–	–	50.0	–	–	–	–
Animal production	9.0	74.8	3.2	0.6	1.9	3.2	12.3	11.6	0.6	10.3
Mixed farming	23.5	76.5	–	–	5.9	–	–	5.9	–	17.6
Support activities to agriculture and post-harvest crop activities	26.9	65.4	–	15.4	–	7.7	19.2	3.8	–	–
Construction – total	15.3	60.8	3.2	7.7	1.4	5.9	23.9	13.1	2.3	8.1

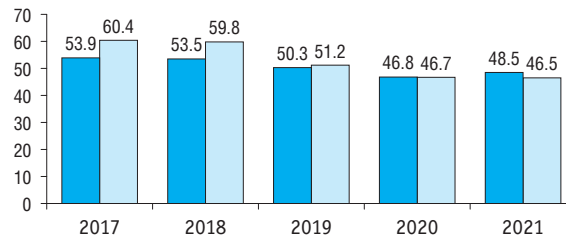
1.4. ENTERPRISES BY TYPE OF INNOVATIVE ACTIVITY*

(as a percentage of enterprises that had expenditure on innovative activities)

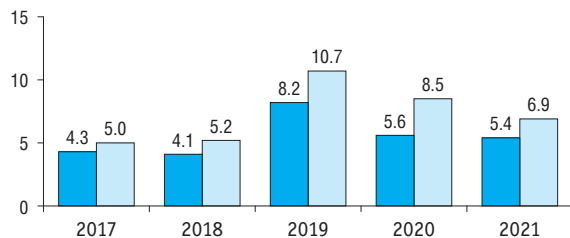
Research and development



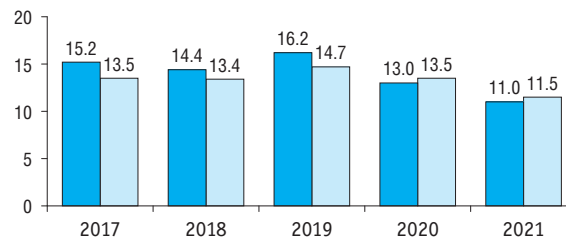
Purchase of machinery and equipment, or other fixed assets



Marketing and brand creation**



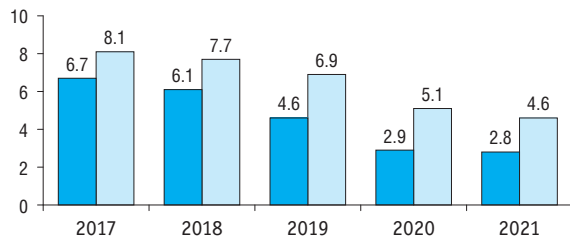
Education and training of personnel



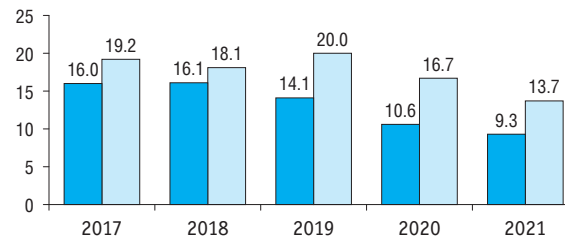
■ Total ■ Industrial production

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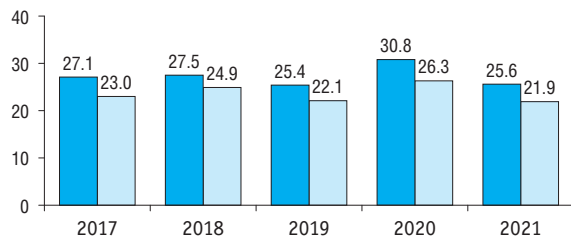
Design



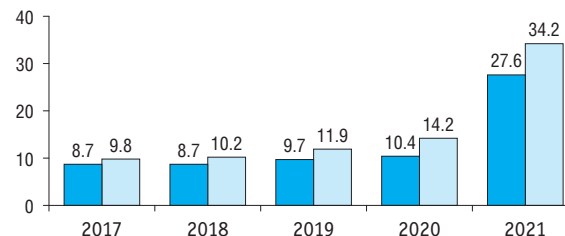
Engineering



Development and purchase of software and databases***



Acquisition of rights to the results of intellectual activity****



■ Total ■ Industrial production

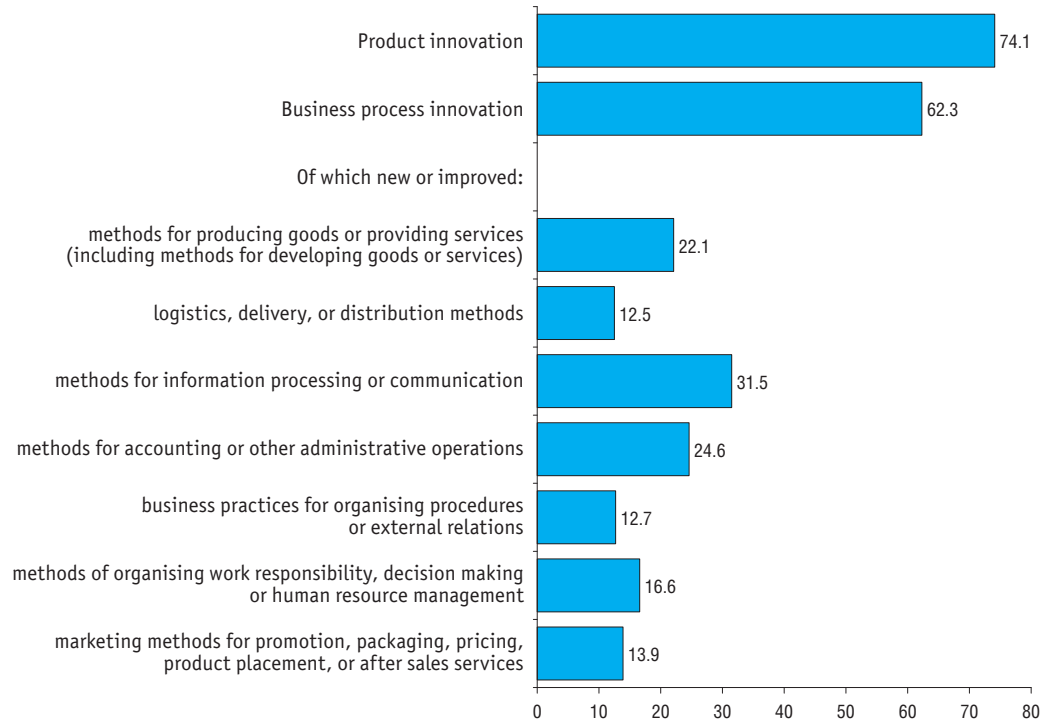
* Until 2019, these indicators are calculated as a percentage of enterprises that had expenditure on technological innovation.

** Until 2019, market research.

*** Until 2019, purchase of software.

**** Until 2019, acquisition of new technologies.

1.5. ENTERPRISES THAT ENGAGED IN PRODUCT AND BUSINESS PROCESS INNOVATION: 2019–2021 (as a percentage of all enterprises that completed innovative activities)



1.6. PERCENTAGE DISTRIBUTION OF ENTERPRISES THAT ENGAGED IN PRODUCT AND BUSINESS PROCESS INNOVATION BY TYPE OF ECONOMIC ACTIVITY: 2019–2021

(as a percentage of all enterprises that completed innovative activities)

	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Total	74.1	62.3	22.1	12.5	31.5	24.6	12.7	16.6	13.9
Industrial production – total	77.0	58.5	24.5	14.4	24.7	21.4	11.4	16.6	15.9
Mining and quarrying	45.0	71.4	17.9	9.9	23.3	42.4	8.8	31.7	6.5
Mining of coal and lignite	72.7	54.5	9.1	–	9.1	27.3	9.1	18.2	–
Extraction of crude petroleum and natural gas	39.3	82.1	23.8	8.3	28.6	45.2	6.0	17.9	2.4
Mining of metal ores	50.0	63.2	18.4	10.5	26.3	26.3	5.3	18.4	2.6
Other mining and quarrying	41.9	77.4	32.3	29.0	38.7	25.8	29.0	25.8	29.0
Mining support service activities	45.9	65.3	9.2	6.1	14.3	53.1	6.1	52.0	5.1
Manufacturing	84.4	55.2	25.7	15.1	21.9	18.8	11.7	14.9	17.9
High tech	91.4	53.8	22.8	14.2	27.0	20.3	11.7	16.3	15.4
Manufacture of basic pharmaceutical products and pharmaceutical preparations	77.9	58.1	23.3	14.0	24.4	15.1	7.0	15.1	14.0

(continued)

	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Production of computer, electronic and optical products	95.4	50.2	21.2	13.4	26.1	19.4	10.6	13.8	14.8
Manufacture of air and spacecraft and related machinery	91.7	65.0	30.0	18.3	35.0	31.7	23.3	30.0	20.0
Medium high tech	88.6	50.8	23.4	13.3	20.0	16.5	10.4	12.1	14.6
Production of chemicals and chemical products	81.4	59.3	32.9	16.8	25.7	18.6	9.6	16.2	14.4
Manufacture of electrical equipment	95.5	50.8	22.3	14.0	21.2	14.5	12.3	10.6	15.1
Manufacture of machinery and equipment not elsewhere classified	91.3	43.7	19.8	10.3	16.3	15.9	10.7	11.9	15.9
Manufacture of motor vehicles, trailers and semi-trailers	86.7	52.3	21.9	14.1	19.5	15.6	9.4	11.7	13.3

(continued)

	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Manufacture of other transport equipment	82.2	55.6	17.8	13.3	20.0	24.4	8.9	8.9	11.1
Manufacture of medical and dental instruments and supplies	79.2	50.0	20.8	12.5	12.5	12.5	8.3	4.2	12.5
Medium low tech	80.7	59.1	27.5	14.5	24.3	21.1	13.5	17.1	16.1
Reproduction of recorded media	–	–	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	70.6	74.5	39.2	23.5	39.2	23.5	7.8	27.5	5.9
Manufacture of rubber and plastic products	87.6	52.4	25.7	14.3	6.7	11.4	14.3	8.6	19.0
Manufacture of other non-metallic mineral products	76.6	61.7	32.0	10.2	17.2	16.4	11.7	14.1	15.6
Manufacture of basic metals	70.9	72.8	36.9	15.5	31.1	26.2	18.4	20.4	16.5

(continued)

	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Manufacture of fabricated metal products, except machinery and equipment	85.7	52.4	21.6	14.7	27.3	24.2	11.3	17.7	17.3
Building of ships and boats	92.0	80.0	32.0	20.0	48.0	20.0	24.0	28.0	16.0
Repair and installation of machinery and equipment	79.4	51.4	20.6	13.1	24.3	23.4	15.0	16.8	15.9
Low tech	79.3	56.9	28.1	18.2	18.2	17.9	11.1	14.8	25.2
Manufacture of food products	81.3	55.2	28.1	16.2	18.0	16.5	9.1	14.7	24.8
Manufacture of beverages	85.5	66.7	23.2	33.3	20.3	27.5	30.4	11.6	44.9
Manufacture of tobacco products	66.7	83.3	33.3	33.3	33.3	50.0	–	–	–
Manufacture of textiles	78.9	36.8	23.7	13.2	13.2	7.9	7.9	13.2	15.8
Manufacture of wearing apparel	66.7	66.7	46.7	10.0	16.7	23.3	10.0	13.3	13.3

(continued)

	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Manufacture of leather and related products	69.2	69.2	38.5	15.4	23.1	15.4	7.7	15.4	38.5
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	61.1	58.3	25.0	19.4	19.4	25.0	8.3	8.3	16.7
Manufacture of paper and paper products	76.9	59.0	25.6	15.4	23.1	23.1	12.8	15.4	17.9
Printing and reproduction of recorded media	81.8	36.4	27.3	–	9.1	–	–	–	–
Manufacture of furniture	88.5	53.8	23.1	34.6	11.5	7.7	3.8	30.8	26.9
Other manufacturing	75.0	67.9	32.1	17.9	21.4	17.9	14.3	28.6	35.7

(continued)

	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Electricity, gas, steam and air-conditioning supply	46.5	75.2	21.5	12.9	47.2	25.4	9.2	18.5	7.9
Water supply; sewerage, waste management and remediation activities	62.2	61.5	21.0	14.0	31.5	23.1	14.7	17.5	12.6
Types of economic activity within services sector – total	72.5	65.2	18.3	10.2	37.9	26.9	13.4	16.3	12.1
Transportation and storage	61.9	68.2	17.9	20.0	44.3	29.0	14.6	19.0	13.2
Publishing activities	78.3	64.3	12.2	7.8	39.1	28.7	15.7	18.3	20.0
Telecommunications	89.8	82.6	33.8	6.9	41.0	43.7	9.6	8.4	10.2
Computer programming, consultancy and related activities	81.9	52.6	9.3	5.3	28.2	25.6	6.8	10.4	8.1
IT industry	68.5	69.5	8.9	8.5	46.9	37.1	21.6	19.7	14.6
Legal and accounting activities	49.0	74.1	15.0	8.8	36.1	49.0	12.9	21.1	10.9

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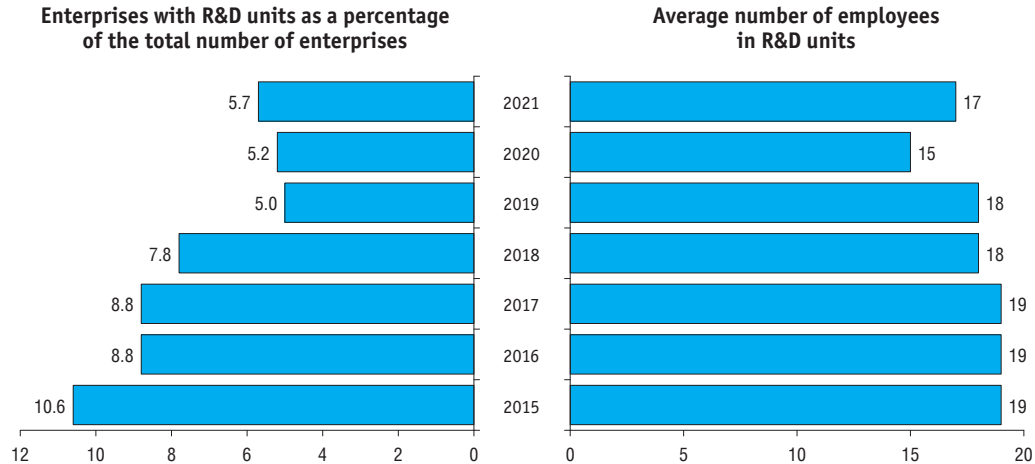
	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Activities of head offices; management consultancy activities	55.2	76.0	13.0	13.6	36.4	46.8	22.1	16.9	26.6
Architectural and engineering activities; technical testing and analysis	60.2	71.1	18.0	6.3	48.2	27.1	17.3	18.7	9.2
Research and development	90.7	49.4	22.1	8.3	26.0	14.9	12.0	13.2	9.6
Advertising and market research	75.8	62.1	15.2	13.6	39.4	28.8	28.8	21.2	27.3
Other professional, scientific and technical activities	88.9	44.4	11.1	5.6	5.6	11.1	27.8	5.6	5.6
Human health and social work activities	61.7	72.0	18.9	11.0	44.0	21.9	12.4	20.5	12.7
Agriculture – total	63.4	67.0	52.7	15.4	21.9	19.7	12.5	16.1	11.8
Growing of non-perennial crops	67.4	73.0	57.3	21.3	22.5	23.6	13.5	21.3	11.2

(continued)

	Product innovation	Business process innovation	Of which new or improved:						
			methods for producing goods or providing services (including methods for developing goods or services)	logistics, delivery, or distribution methods	methods for information processing or communication	methods for accounting or other administrative operations	business practices for organising procedures or external relations	methods of organising work responsibility, decision making or human resource management	marketing methods for promotion, packaging, pricing, product placement, or after sales services
Growing of perennial crops	71.4	85.7	71.4	14.3	28.6	14.3	14.3	14.3	14.3
Plant propagation	100	100	–	–	100	–	–	–	–
Animal production	62.3	63.7	51.4	13.7	20.5	19.9	11.0	14.4	12.3
Mixed farming	71.4	57.1	57.1	14.3	14.3	14.3	14.3	14.3	14.3
Support activities to agriculture and post-harvest crop activities	51.7	62.1	41.4	6.9	24.1	10.3	17.2	10.3	10.3
Construction – total	72.1	59.5	17.8	20.2	29.6	36.0	20.2	20.6	17.0

1.7. R&D UNITS IN ENTERPRISES

	2015	2016	2017	2018	2019	2020	2021
Number of R&D units	23224	23248	22473	24541	26649	31059	27677
Number of employees in R&D units	444265	433989	425795	446323	475544	467463	477709



1.8. ENTERPRISES WITH R&D UNITS BY TYPE OF ECONOMIC ACTIVITY: 2021

	Enterprises with R&D units, <i>percentage</i>	Number of R&D units	Number of employees in R&D units
Total	5.7	27677	477709
Industrial production – total	9.4	6355	146898
Mining and quarrying	2.0	90	4641
Mining of coal and lignite	1.0	2	29
Extraction of crude petroleum and natural gas	2.6	23	3357
Mining of metal ores	3.7	31	539
Other mining and quarrying	1.1	7	461
Mining support service activities	1.6	27	255
Manufacturing	13.9	6097	140379
High tech	36.4	2049	51877
Manufacture of basic pharmaceutical products and pharmaceutical preparations	18.1	144	1859
Production of computer, electronic and optical products	43.0	1683	38136
Manufacture of air and spacecraft and related machinery	38.7	222	11883
Medium high tech	25.3	1990	35600
Production of chemicals and chemical products	15.7	335	6706
Manufacture of electrical equipment	32.3	526	7580
Manufacture of machinery and equipment not elsewhere classified	36.0	782	13869
Manufacture of motor vehicles, trailers and semi-trailers	26.6	255	5951

(continued)

	Enterprises with R&D units, <i>percentage</i>	Number of R&D units	Number of employees in R&D units
Manufacture of other transport equipment	10.6	69	1277
Manufacture of medical and dental instruments and supplies	11.0	23	216
Medium low tech	11.6	1740	50132
Reproduction of recorded media	–	–	–
Manufacture of coke and refined petroleum products	18.4	55	1830
Manufacture of rubber and plastic products	8.4	111	1528
Manufacture of other non-metallic mineral products	7.3	155	1501
Manufacture of basic metals	17.1	199	6679
Manufacture of fabricated metal products, except machinery and equipment	22.1	995	29704
Building of ships and boats	25.0	80	5385
Repair and installation of machinery and equipment	4.6	145	3506
Low tech	3.2	318	2770
Manufacture of food products	1.3	64	829
Manufacture of beverages	0.5	6	42
Manufacture of tobacco products	–	–	–
Manufacture of textiles	6.8	33	250
Manufacture of wearing apparel	8.0	44	299
Manufacture of leather and related products	7.0	9	79
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1.6	12	48

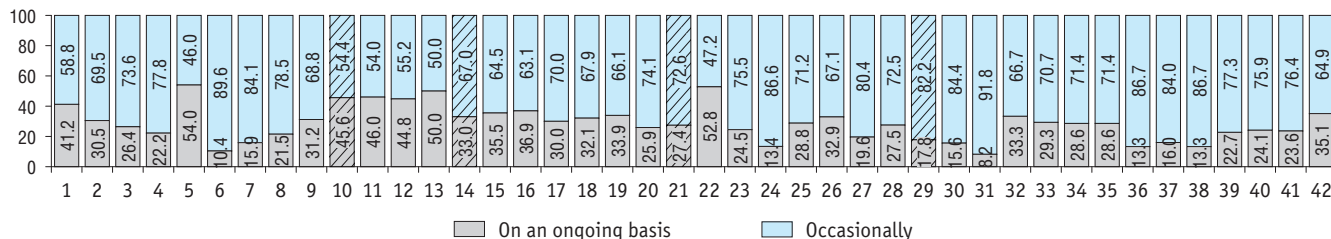
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	Enterprises with R&D units, <i>percentage</i>	Number of R&D units	Number of employees in R&D units
Manufacture of paper and paper products	8.5	37	474
Printing and reproduction of recorded media	1.8	10	72
Manufacture of furniture	15.2	70	420
Other manufacturing	8.5	33	258
Electricity, gas, steam and air-conditioning supply	2.1	109	1122
Water supply; sewerage, waste management and remediation activities	1.0	59	756
Types of economic activity within services sector – total	4.9	21053	327817
Transportation and storage	0.4	73	2700
Publishing activities	0.4	10	58
Telecommunications	0.9	47	495
Computer programming, consultancy and related activities	5.9	841	20526
IT industry	1.3	254	4429
Legal and accounting activities	0.3	18	129
Activities of head offices; management consultancy activities	1.2	113	2185
Architectural and engineering activities; technical testing and analysis	7.3	2340	38380
Scientific research and development	43.8	16411	254713
Advertising and market research	0.8	30	273
Other professional, scientific and technical activities	5.2	53	631
Human health and social work activities	0.9	863	3298

(continued)

	Enterprises with R&D units, <i>percentage</i>	Number of R&D units	Number of employees in R&D units
Agriculture – total	0.6	66	422
Growing of non-perennial crops	0.4	9	28
Growing of perennial crops	0.6	1	3
Plant propagation	6.7	3	3
Animal production	0.3	8	120
Mixed farming	0.7	3	3
Support activities to agriculture and post-harvest crop activities	2.2	42	265
Construction – total	1.9	203	2573

1.9. PERCENTAGE DISTRIBUTION OF ENTERPRISES BY R&D INTENSITY AND TYPE OF ECONOMIC ACTIVITY: 2021



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – manufacture of coke and refined petroleum products

23 – manufacture of rubber and plastic products

24 – manufacture of other nonmetallic mineral products

25 – manufacture of basic metals

26 – manufacture of fabricated metal products, except machinery and equipment

27 – building of ships and boats

28 – repair and installation of machinery and equipment

29 – low tech

30 – manufacture of food products

31 – manufacture of beverages

32 – manufacture of tobacco products

33 – manufacture of textiles

34 – manufacture of wearing apparel

35 – manufacture of leather and related products

36 – manufacture of wood and of products of wood and cork, except furniture;

manufacture of articles of straw and plaiting materials

37 – manufacture of paper and paper products

38 – printing and reproduction of recorded media

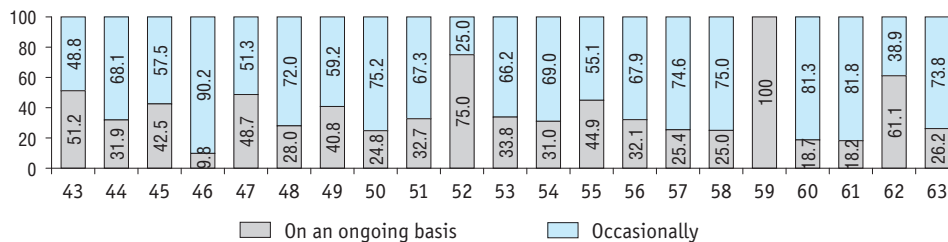
39 – manufacture of furniture

40 – other manufacturing

41 – electricity, gas, steam and airconditioning supply

42 – water supply; sewerage, waste management, and remediation activities

(continued)



43 – types of economic activity within services sector – total

44 – transportation and storage

45 – publishing activities

46 – telecommunications

47 – computer programming, consultancy and related activities

48 – IT industry

49 – legal and accounting activities

50 – activities of head offices; management consultancy activities

51 – architectural and engineering activities; technical testing and analysis

52 – scientific research and development

53 – advertising and market research

54 – other professional, scientific and technical activities

55 – human health and social work activities

56 – agriculture – total

57 – growing of non-perennial crops

58 – growing of perennial crops

59 – plant propagation

60 – animal production

61 – mixed farming

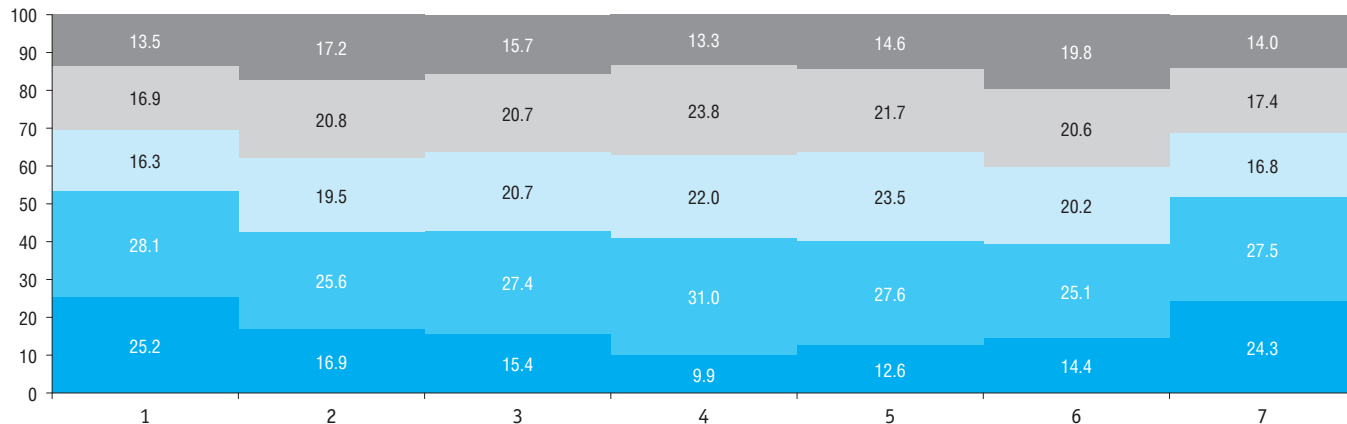
62 – support activities to agriculture and post-harvest crop activities

63 – construction – total

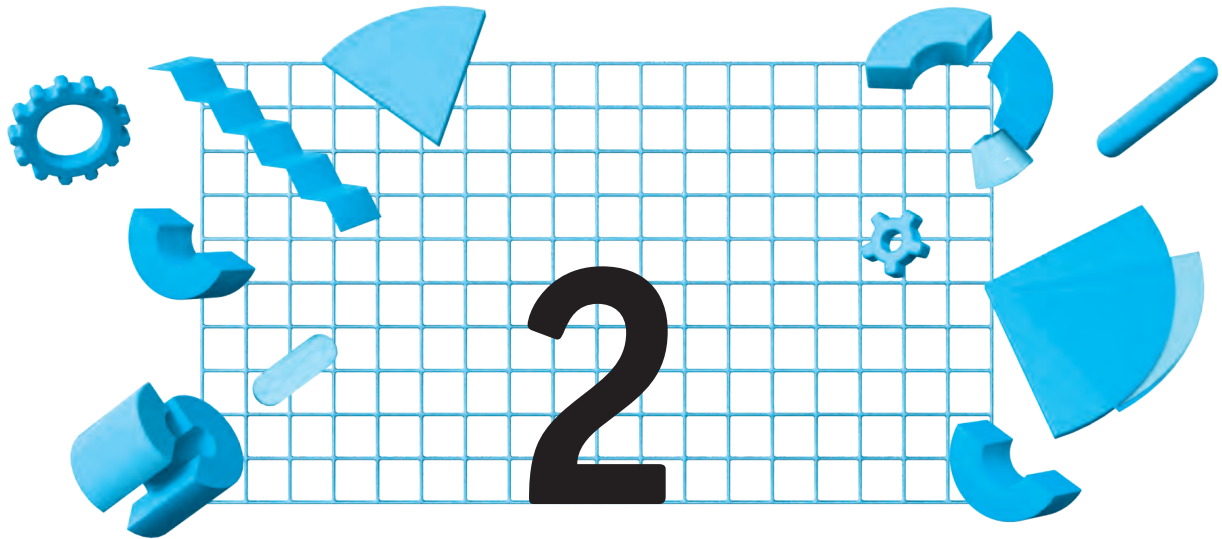
1.10. PRODUCT LIFE CYCLE IN ENTERPRISES THAT ENGAGED IN INNOVATIVE ACTIVITIES: 2021

(percentage distribution of enterprises by life cycle duration of the main good or service)

Percentage



- 1 year
- 2-5 years
- 11-20 years
- 6-10 years
- over 20 years
- 1 – total
- 2 – industrial production
- 3 – manufacturing
- 4 – high tech
- 5 – medium high tech
- 6 – medium low tech
- 7 – low tech

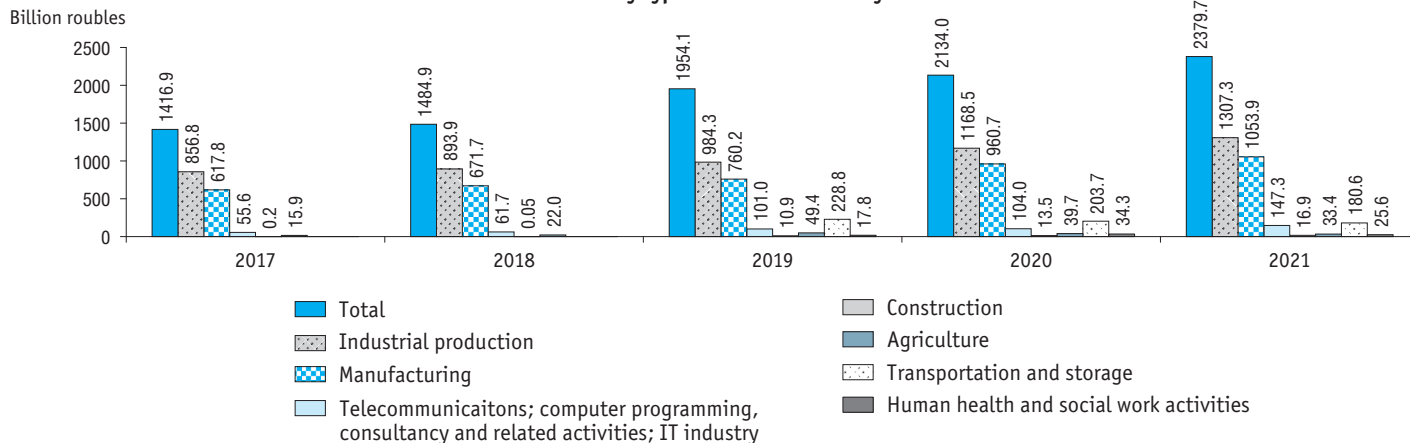


INNOVATION EXPENDITURE

2.1. INNOVATION EXPENDITURE

	2015	2016	2017	2018	2019	2020	2021
Innovation expenditure – total:							
at current prices, <i>million roubles</i>	1211294.4	1298444.5	1416922.8	1484901.1	1954133.3	2134038.4	2379709.9
at constant 2010 prices, <i>million roubles*</i>	790817.0	824618.6	854546.0	814135.2	1037170.7	1124776.5	1076596.9
as a percentage of 2010	192.4	200.6	207.9	198.1	252.3	273.7	261.9
as a percentage of total sales	2.7	2.5	2.5	2.2	2.1	2.3	2.0

By type of economic activity



* The data are calculated using GDP deflator as at April 8, 2022.

2.2. INNOVATION EXPENDITURE BY INNOVATION AND TYPE OF ECONOMIC ACTIVITY: 2021

	Innovation expenditure		Including by innovation			
	million roubles	percentage	product		business process	
			million roubles	percentage	million roubles	percentage
Total	2379709.9	100	1409549.4	100	970160.5	100
Industrial production – total	1307322.1	54.9	664181.6	47.1	643140.5	66.3
Mining and quarrying	180466.1	7.6	11793.5	0.8	168672.7	17.4
Mining of coal and lignite	535.5	0.02	527.4	0.04	8.0	0.0
Extraction of crude petroleum and natural gas	109537.8	4.6	2775.1	0.2	106762.7	11.0
Mining of metal ores	22436.2	0.9	5529.7	0.4	16906.6	1.7
Other mining and quarrying	5732.8	0.2	1232.7	0.1	4500.1	0.5
Mining support service activities	42223.8	1.8	1728.5	0.1	40495.2	4.2
Manufacturing	1053903.0	44.3	634747.8	45.0	419155.2	43.2
High tech	247262.8	10.4	175302.2	12.4	71960.6	7.4
Manufacture of basic pharmaceutical products and pharmaceutical preparations	57304.2	2.4	16760.8	1.2	40543.4	4.2
Production of computer, electronic and optical products	78914.9	3.3	70300.2	5.0	8614.6	0.9
Manufacture of air and spacecraft and related machinery	111043.7	4.7	88241.1	6.3	22802.6	2.4
Medium high tech	230358.4	9.7	121285.7	8.6	109072.7	11.2
Production of chemicals and chemical products	85509.7	3.6	31270.1	2.2	54239.6	5.6
Manufacture of electrical equipment	13798.0	0.6	12285.4	0.9	1512.6	0.2
Manufacture of machinery and equipment not elsewhere classified	31216.8	1.3	26782.4	1.9	4434.3	0.5
Manufacture of motor vehicles, trailers and semi-trailers	96847.3	4.1	48559.6	3.4	48287.6	5.0
Manufacture of other transport equipment	2685.0	0.1	2174.3	0.2	510.8	0.1
Manufacture of medical and dental instruments and supplies	301.7	0.01	213.9	0.02	87.7	0.01
Medium low tech	468892.5	19.7	291199.6	20.7	177692.9	18.3
Reproduction of recorded media	0.1	0.0	–	–	0.1	0.0
Manufacture of coke and refined petroleum products	176224.5	7.4	127984.0	9.1	48240.5	5.0

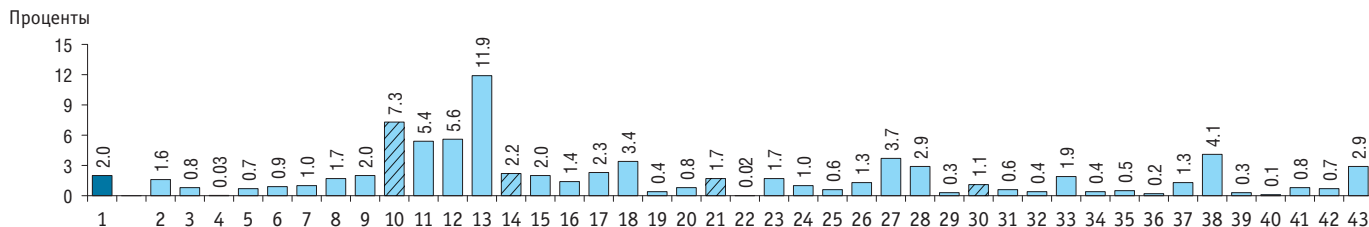
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	Innovation expenditure		Including by innovation			
	million roubles	percentage	product		business process	
			million roubles	percentage	million roubles	percentage
Manufacture of rubber and plastic products	12322.5	0.5	3045.9	0.2	9276.6	1.0
Manufacture of other non-metallic mineral products	8952.6	0.4	3669.9	0.3	5282.7	0.5
Manufacture of basic metals	132038.3	5.5	37178.5	2.6	94859.8	9.8
Manufacture of fabricated metal products, except machinery and equipment	119433.0	5.0	106471.4	7.6	12961.6	1.3
Building of ships and boats	17558.6	0.7	11024.9	0.8	6533.7	0.7
Repair and installation of machinery and equipment	2363.0	0.1	1825.0	0.1	538.0	0.1
Low tech	107389.3	4.5	46960.3	3.3	60429.0	6.2
Manufacture of food products	35901.4	1.5	24914.6	1.8	10986.8	1.1
Manufacture of beverages	3358.9	0.1	708.7	0.1	2650.3	0.3
Manufacture of tobacco products	4631.0	0.2	4609.6	0.3	21.4	0.0
Manufacture of textiles	1142.3	0.05	213.9	0.02	928.4	0.1
Manufacture of wearing apparel	578.6	0.02	197.9	0.01	380.7	0.04
Manufacture of leather and related products	126.8	0.01	109.4	0.01	17.4	0.0
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	11326.4	0.5	10233.0	0.7	1093.3	0.1
Manufacture of paper and paper products	48375.3	2.0	4991.7	0.4	43383.5	4.5
Printing and reproduction of recorded media	489.8	0.02	160.5	0.01	329.3	0.03
Manufacture of furniture	235.8	0.01	110.7	0.01	125.1	0.01
Other manufacturing	1223.1	0.1	710.4	0.1	512.7	0.1
Electricity, gas, steam and air-conditioning supply	38380.4	1.6	11613.4	0.8	26766.9	2.8
Water supply; sewerage, waste management and remediation activities	34572.6	1.5	6026.9	0.4	28545.7	2.9

(continued)

	Innovation expenditure		Including by innovation			
	million roubles	percentage	product		business process	
			million roubles	percentage	million roubles	percentage
Types of economic activity within services sector – total	1022074.7	42.9	729012.1	51.7	293062.5	30.2
Transportation and storage	180625.9	7.6	164653.8	11.7	15972.1	1.6
Publishing activities	337.3	0.01	165.7	0.01	171.5	0.02
Telecommunications	69052.1	2.9	12924.7	0.9	56127.4	5.8
Computer programming, consultancy and related activities	63816.8	2.7	51053.7	3.6	12763.1	1.3
IT industry	14444.0	0.6	10709.6	0.8	3734.5	0.4
Legal and accounting activities	815.6	0.03	338.7	0.02	476.9	0.05
Activities of head offices; management consultancy activities	43772.4	1.8	34631.8	2.5	9140.7	0.9
Architectural and engineering activities; technical testing and analysis	39391.3	1.7	8468.2	0.6	30923.1	3.2
Scientific research and development	577763.2	24.3	428747.2	30.4	149016.0	15.4
Advertising and market research	5142.8	0.2	3726.5	0.3	1416.2	0.1
Other professional, scientific and technical activities	1305.3	0.1	1242.6	0.1	62.7	0.01
Human health and social work activities	25607.9	1.1	12349.5	0.9	13258.5	1.4
Agriculture – total	33424.6	1.4	12164.7	0.9	21259.9	2.2
Growing of non-perennial crops	16608.4	0.7	6221.5	0.4	10387.0	1.1
Growing of perennial crops	4724.2	0.2	343.2	0.02	4381.0	0.5
Plant propagation	26.9	0.0	8.6	0.0	18.3	0.0
Animal production	9301.2	0.4	3550.1	0.3	5751.1	0.6
Mixed farming	1254.1	0.1	545.5	0.04	708.6	0.1
Support activities to agriculture and post-harvest crop activities	1509.8	0.1	1495.9	0.1	13.9	0.0
Construction – total	16888.5	0.7	4191.0	0.3	12697.5	1.3

2.3. INTENSITY OF INNOVATION EXPENDITURE BY TYPE OF ECONOMIC ACTIVITY: 2021

(innovation expenditure as a percentage of total sales)

1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

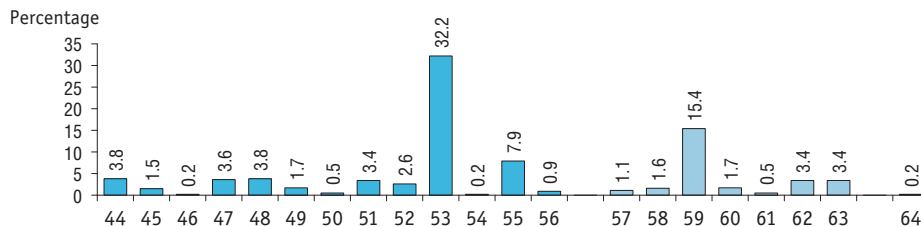
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)



44 – **types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – **agriculture – total**

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – **construction – total**

2.4. INNOVATION EXPENDITURE BY TYPE OF INNOVATIVE AND ECONOMIC ACTIVITY: 2021

(million roubles)

	Innovation expenditure	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Total	2379709.9	1031336.6	871347.9	5354.0	4560.9	5768.0	139713.9	61883.7	29577.6	4631.2	225536.0
Industrial production – total	1307322.1	437170.2	583516.7	3032.2	2937.2	5271.2	102780.9	12021.6	16698.9	2694.6	141198.7
Mining and quarrying	180466.1	20021.6	134412.0	49.3	796.5	20.7	7564.7	939.9	379.0	345.6	15936.9
Mining of coal and lignite	535.5	5.3	518.5	–	–	–	7.3	4.2	0.2	–	0.0
Extraction of crude petroleum and natural gas	109537.8	16406.0	73786.9	15.7	770.5	20.7	4457.5	728.6	235.8	152.4	12963.7
Mining of metal ores	22436.2	504.0	18692.3	2.9	0.5	–	2086.4	103.6	41.1	–	1005.6
Other mining and quarrying	5732.8	982.8	2930.5	30.7	12.8	0.1	938.1	3.6	91.2	183.6	559.4
Mining support service activities	42223.8	2123.5	38484.0	–	12.7	–	75.4	99.9	10.7	9.5	1408.2
Manufacturing	1053903.0	386025.4	418444.7	2980.2	2016.3	5222.5	92097.7	9661.2	16084.5	1463.8	119906.8
High tech	247262.8	131090.9	87296.2	1268.1	256.5	1333.2	11962.1	2443.8	3313.3	86.3	8212.5
Manufacture of basic pharmaceutical products and pharmaceutical preparations	57304.2	6960.7	39995.5	766.0	30.5	4.8	4126.9	285.9	2117.5	–	3016.5
Production of computer, electronic and optical products	78914.9	49523.6	20731.3	73.1	77.0	345.4	4027.0	1330.5	553.2	81.8	2171.9
Manufacture of air and spacecraft and related machinery	111043.7	74606.6	26569.5	429.0	149.0	982.9	3808.2	827.4	642.6	4.5	3024.1

* Here and below in table 2.5, 2.7, figure 2.6, expenditure on acquisition of patent rights (alienation), licenses, industrial designs, utility models, selection achievements, integrated circuit designs, etc.; patenting (registration) of the results of intellectual activity.

(continued)

	Innovation expenditure	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Medium high tech	230358.4	53039.0	91523.9	600.4	598.5	1447.2	34577.6	1922.7	8452.0	332.6	37864.5
Production of chemicals and chemical products	85509.7	6634.0	40632.1	134.4	280.8	16.2	27487.6	287.9	1655.0	35.6	8346.1
Manufacture of electrical equipment	13798.0	3599.2	2999.0	127.5	82.8	113.6	831.9	267.8	4724.0	238.9	813.4
Manufacture of machinery and equipment not elsewhere classified	31216.8	20540.2	6684.7	93.4	68.2	116.7	2218.7	435.1	733.5	54.0	272.2
Manufacture of motor vehicles, trailers and semi-trailers	96847.3	21017.7	40631.9	245.0	147.5	1002.9	3317.9	895.1	1226.1	2.4	28360.6
Manufacture of other transport equipment	2685.0	1176.5	397.6	–	18.5	197.8	718.8	29.6	107.7	1.8	36.6
Manufacture of medical and dental instruments and supplies	301.7	71.4	178.6	0.03	0.6	–	2.7	7.2	5.7	–	35.5
Medium low tech	468892.4	192190.0	162830.9	562.1	1129.6	535.3	39562.4	4820.3	2229.8	746.4	64285.5
Reproduction of recorded media	0.1	–	–	–	–	–	–	–	0.1	–	–
Manufacture of coke and refined petroleum products	176224.5	75146.7	59801.2	48.6	319.6	40.4	17983.2	1236.0	1077.8	255.0	20315.8
Manufacture of rubber and plastic products	12322.5	1307.7	9714.4	12.9	2.6	433.4	568.6	24.4	247.4	0.5	10.5
Manufacture of other non-metallic mineral products	8952.6	2816.5	5394.4	5.5	1.7	32.2	189.1	203.5	54.6	85.0	170.1
Manufacture of basic metals	132038.3	11240.0	66792.0	18.9	726.9	15.7	17834.6	2155.0	420.4	58.6	32776.1

(continued)

	Innovation expenditure	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Manufacture of fabricated metal products, except machinery and equipment	119433.0	91192.0	14287.1	473.6	62.1	12.1	2573.4	837.4	284.9	231.2	9479.0
Building of ships and boats	17558.6	9623.4	6343.9	2.3	8.2	0.1	405.7	231.7	10.1	114.9	818.3
Repair and installation of machinery and equipment	2363.0	863.6	497.9	0.3	8.4	1.4	7.8	132.3	134.5	1.2	715.6
Low tech	107389.3	9705.4	76793.7	549.6	31.7	1906.8	5995.7	474.5	2089.3	298.5	9544.2
Manufacture of food products	35901.4	3159.8	21370.1	194.1	23.7	397.4	510.9	260.3	597.2	38.8	9349.1
Manufacture of beverages	3358.9	105.6	1443.7	121.9	0.5	39.4	1394.5	19.4	142.8	0.1	91.1
Manufacture of tobacco products	4631.0	2612.2	624.3	–	–	1372.2	21.4	–	0.9	–	–
Manufacture of textiles	1142.3	185.8	942.3	0.5	0.1	–	0.8	5.6	7.0	0.1	–
Manufacture of wearing apparel	578.6	76.5	233.8	1.9	0.3	0.4	4.6	22.1	221.1	4.8	13.2
Manufacture of leather and related products	126.8	0.2	122.1	0.03	–	–	–	3.5	1.0	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	11326.4	43.5	7850.3	11.1	2.0	13.2	3374.5	3.8	0.1	15.4	12.5
Manufacture of paper and paper products	48375.3	3309.4	42728.6	218.4	2.9	77.6	562.2	139.1	1075.7	239.3	22.2

(continued)

	Innovation expenditure	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Printing and reproduction of recorded media	489.8	31.4	453.0	–	0.03	–	–	0.2	1.0	–	4.2
Manufacture of furniture	235.8	6.5	132.4	–	1.2	0.8	0.9	15.5	26.6	–	51.9
Other manufacturing	1223.1	174.5	893.1	1.8	1.1	5.8	125.8	5.0	15.9	–	–
Electricity, gas, steam and air-conditioning supply	38380.4	6057.0	24487.7	2.2	116.9	28.0	1568.3	1193.3	231.5	72.5	4623.0
Water supply; sewerage, waste management and remediation activities	34572.6	25066.2	6172.2	0.6	7.5	–	1550.2	227.2	3.9	812.8	732.1
Types of economic activity within services sector – total	1022074.7	583817.7	251905.3	2281.2	1616.6	495.2	36277.7	48244.4	12487.4	1929.5	83019.5
Transportation and storage	180625.9	16872.5	151171.9	24.8	968.0	0.01	2582.5	3209.8	393.9	132.2	5270.2
Publishing activities	337.3	11.8	150.6	0.2	0.1	1.7	2.5	70.0	4.4	88.0	7.9
Telecommunications	69052.1	2999.3	29435.4	622.7	69.7	0.5	24659.0	9597.3	102.5	15.6	1550.1
Computer programming, consultancy and related activities	63816.8	18457.1	3658.1	729.4	167.2	67.7	502.6	17351.2	1893.9	217.4	20772.2
IT industry	14444.0	3210.7	644.7	22.1	21.0	4.2	62.5	3021.9	1868.1	61.2	5527.6
Legal and accounting activities	815.6	52.2	325.9	10.4	0.7	0.2	38.0	267.9	4.2	45.8	70.3
Activities of head offices; management consultancy activities	43772.4	33634.9	2065.7	100.7	25.7	0.4	0.01	7169.0	325.4	13.5	437.2

(continued)

	Innovation expenditure	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Architectural and engineering activities; technical testing and analysis	39391.3	7852.2	2261.5	8.9	37.0	3.1	642.8	1290.7	241.3	32.4	27021.4
Scientific research and development	577763.2	493800.6	44960.9	563.6	278.1	414.7	7548.4	4726.0	7228.4	575.7	17666.7
Advertising and market research	5142.8	2720.4	1548.8	184.9	22.9	2.0	53.0	471.8	115.0	23.2	0.7
Other professional, scientific and technical activities	1305.3	914.5	176.2	–	2.0	–	–	170.2	11.4	0.4	30.5
Human health and social work activities	25607.9	3291.5	15505.6	13.6	24.2	0.7	186.5	898.5	298.8	724.0	4664.6
Agriculture – total	33424.6	1953.4	29324.9	34.2	1.6	0.9	121.6	1186.1	262.7	0.4	538.7
Growing of non-perennial crops	16608.4	906.9	14879.8	29.9	0.6	–	0.1	744.2	29.3	–	17.7
Growing of perennial crops	4724.2	–	4705.8	–	–	–	–	17.4	1.0	–	–
Plant propagation	26.9	8.5	0.04	–	–	–	18.3	–	–	–	–
Animal production	9301.2	693.7	7343.8	4.3	0.0	0.8	95.4	423.9	232.2	0.4	506.6
Mixed farming	1254.1	110.6	1128.8	–	–	0.1	–	–	0.2	–	14.3
Support activities to agriculture and post-harvest crop activities	1509.8	233.6	1266.6	–	1.0	–	7.8	0.7	0.1	–	–
Construction – total	16888.5	8395.3	6601.0	6.4	5.6	0.7	533.7	431.6	128.5	6.7	779.1

2.5. PERCENTAGE DISTRIBUTION OF INNOVATION EXPENDITURE BY TYPE OF INNOVATIVE AND ECONOMIC ACTIVITY: 2021

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Total	43.3	36.6	0.2	0.2	0.2	5.9	2.6	1.2	0.2	9.5
Industrial production – total	33.4	44.6	0.2	0.2	0.4	7.9	0.9	1.3	0.2	10.8
Mining and quarrying	11.1	74.5	0.03	0.4	0.01	4.2	0.5	0.2	0.2	8.8
Mining of coal and lignite	1.0	96.8	–	–	–	1.4	0.8	0.04	–	0.0
Extraction of crude petroleum and natural gas	15.0	67.4	0.01	0.7	0.02	4.1	0.7	0.2	0.1	11.8
Mining of metal ores	2.2	83.3	0.01	0.0	–	9.3	0.5	0.2	–	4.5
Other mining and quarrying	17.1	51.1	0.5	0.2	0.0	16.4	0.1	1.6	3.2	9.8
Mining support service activities	5.0	91.1	–	0.03	–	0.2	0.2	0.03	0.02	3.3
Manufacturing	36.6	39.7	0.3	0.2	0.5	8.7	0.9	1.5	0.1	11.4
High tech	53.0	35.3	0.5	0.1	0.5	4.8	1.0	1.3	0.03	3.3
Manufacture of basic pharmaceutical products and pharmaceutical preparations	12.1	69.8	1.3	0.1	0.01	7.2	0.5	3.7	–	5.3
Production of computer, electronic and optical products	62.8	26.3	0.1	0.1	0.4	5.1	1.7	0.7	0.1	2.8
Manufacture of air and spacecraft and related machinery	67.2	23.9	0.4	0.1	0.9	3.4	0.7	0.6	0.0	2.7
Medium high tech	23.0	39.7	0.3	0.3	0.6	15.0	0.8	3.7	0.1	16.4
Production of chemicals and chemical products	7.8	47.5	0.2	0.3	0.02	32.1	0.3	1.9	0.04	9.8
Manufacture of electrical equipment	26.1	21.7	0.9	0.6	0.8	6.0	1.9	34.2	1.7	5.9

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Manufacture of machinery and equipment not elsewhere classified	65.8	21.4	0.3	0.2	0.4	7.1	1.4	2.3	0.2	0.9
Manufacture of motor vehicles, trailers and semi-trailers	21.7	42.0	0.3	0.2	1.0	3.4	0.9	1.3	0.0	29.3
Manufacture of other transport equipment	43.8	14.8	–	0.7	7.4	26.8	1.1	4.0	0.1	1.4
Manufacture of medical and dental instruments and supplies	23.7	59.2	0.01	0.2	–	0.9	2.4	1.9	–	11.8
Medium low tech	41.0	34.7	0.1	0.2	0.1	8.4	1.0	0.5	0.2	13.7
Reproduction of recorded media	–	–	–	–	–	–	–	100	–	–
Manufacture of coke and refined petroleum products	42.6	33.9	0.03	0.2	0.02	10.2	0.7	0.6	0.1	11.5
Manufacture of rubber and plastic products	10.6	78.8	0.1	0.02	3.5	4.6	0.2	2.0	0.0	0.1
Manufacture of other non-metallic mineral products	31.5	60.3	0.1	0.02	0.4	2.1	2.3	0.6	0.9	1.9
Manufacture of basic metals	8.5	50.6	0.01	0.6	0.01	13.5	1.6	0.3	0.04	24.8
Manufacture of fabricated metal products, except machinery and equipment	76.4	12.0	0.4	0.1	0.01	2.2	0.7	0.2	0.2	7.9

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Building of ships and boats	54.8	36.1	0.01	0.05	0.0	2.3	1.3	0.1	0.7	4.7
Repair and installation of machinery and equipment	36.5	21.1	0.01	0.4	0.1	0.3	5.6	5.7	0.1	30.3
Low tech	9.0	71.5	0.5	0.03	1.8	5.6	0.4	1.9	0.3	8.9
Manufacture of food products	8.8	59.5	0.5	0.1	1.1	1.4	0.7	1.7	0.1	26.0
Manufacture of beverages	3.1	43.0	3.6	0.01	1.2	41.5	0.6	4.2	0.0	2.7
Manufacture of tobacco products	56.4	13.5	–	–	29.6	0.5	–	0.02	–	–
Manufacture of textiles	16.3	82.5	0.04	0.01	–	0.1	0.5	0.6	0.01	–
Manufacture of wearing apparel	13.2	40.4	0.3	0.1	0.1	0.8	3.8	38.2	0.8	2.3
Manufacture of leather and related products	0.1	96.3	0.02	–	–	–	2.7	0.8	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	0.4	69.3	0.1	0.02	0.1	29.8	0.03	0.0	0.1	0.1
Manufacture of paper and paper products	6.8	88.3	0.5	0.01	0.2	1.2	0.3	2.2	0.5	0.05
Printing and reproduction of recorded media	6.4	92.5	–	0.01	–	–	0.04	0.2	–	0.8
Manufacture of furniture	2.8	56.1	–	0.5	0.4	0.4	6.6	11.3	–	22.0
Other manufacturing	14.3	73.0	0.2	0.1	0.5	10.3	0.4	1.3	–	–

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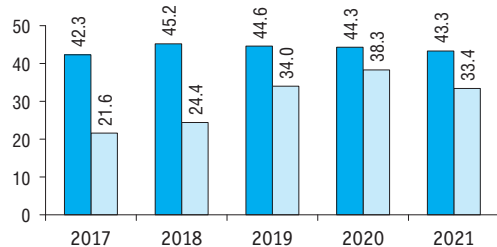
	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Electricity, gas, steam and air-conditioning supply	15.8	63.8	0.01	0.3	0.1	4.1	3.1	0.6	0.2	12.0
Water supply; sewerage, waste management and remediation activities	72.5	17.9	0.0	0.02	–	4.5	0.7	0.01	2.4	2.1
Types of economic activity within services sector – total	57.1	24.6	0.2	0.2	0.05	3.5	4.7	1.2	0.2	8.1
Transportation and storage	9.3	83.7	0.01	0.5	0.0	1.4	1.8	0.2	0.1	2.9
Publishing activities	3.5	44.7	0.1	0.04	0.5	0.7	20.8	1.3	26.1	2.3
Telecommunications	4.3	42.6	0.9	0.1	0.0	35.7	13.9	0.1	0.02	2.2
Computer programming, consultancy and related activities	28.9	5.7	1.1	0.3	0.1	0.8	27.2	3.0	0.3	32.5
IT industry	22.2	4.5	0.2	0.1	0.03	0.4	20.9	12.9	0.4	38.3
Legal and accounting activities	6.4	40.0	1.3	0.1	0.02	4.7	32.8	0.5	5.6	8.6
Activities of head offices; management consultancy activities	76.8	4.7	0.2	0.1	0.0	0.0	16.4	0.7	0.03	1.0

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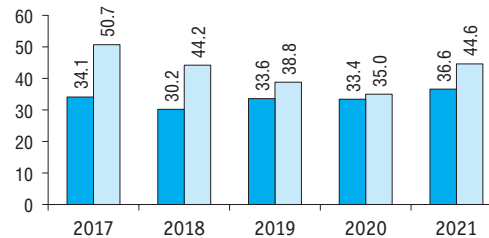
	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Architectural and engineering activities; technical testing and analysis	19.9	5.7	0.02	0.1	0.01	1.6	3.3	0.6	0.1	68.6
Scientific research and development	85.5	7.8	0.1	0.05	0.1	1.3	0.8	1.3	0.1	3.1
Advertising and market research	52.9	30.1	3.6	0.4	0.04	1.0	9.2	2.2	0.5	0.01
Other professional, scientific and technical activities	70.1	13.5	–	0.2	–	–	13.0	0.9	0.03	2.3
Human health and social work activities	12.9	60.5	0.1	0.1	0.0	0.7	3.5	1.2	2.8	18.2
Agriculture – total	5.8	87.7	0.1	0.0	0.0	0.4	3.5	0.8	0.0	1.6
Growing of non-perennial crops	5.5	89.6	0.2	0.0	–	0.0	4.5	0.2	–	0.1
Growing of perennial crops	–	99.6	–	–	–	–	0.4	0.02	–	–
Plant propagation	31.7	0.2	–	–	–	68.1	–	–	–	–
Animal production	7.5	79.0	0.05	0.0	0.01	1.0	4.6	2.5	0.0	5.4
Mixed farming	8.8	90.0	–	–	0.01	–	–	0.02	–	1.1
Support activities to agriculture and post-harvest crop activities	15.5	83.9	–	0.1	–	0.5	0.05	0.0	–	–
Construction – total	49.7	39.1	0.04	0.03	0.0	3.2	2.6	0.8	0.04	4.6

2.6. EXPENDITURE ON SELECTED TYPES OF INNOVATIVE ACTIVITIES AS A PERCENTAGE OF THE TOTAL INNOVATION EXPENDITURE*

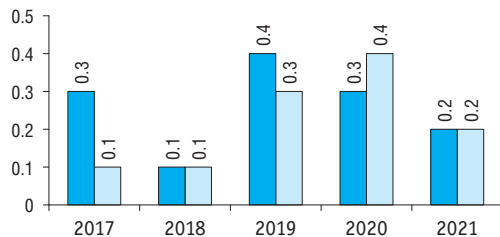
Research and development



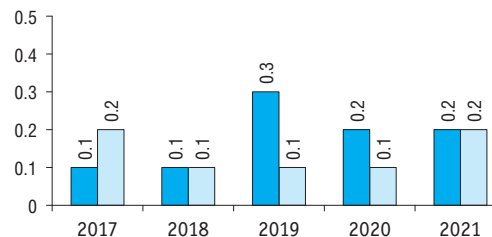
Purchase of machinery and equipment, or other fixed assets



Marketing and brand creation**



Education and training of personnel

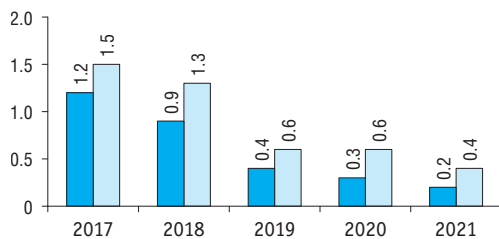


■ Total

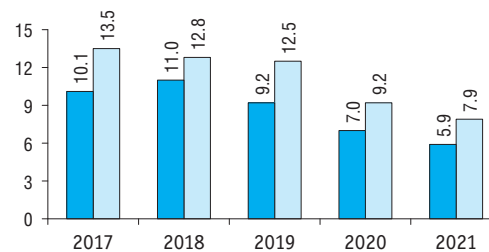
■ Industrial production

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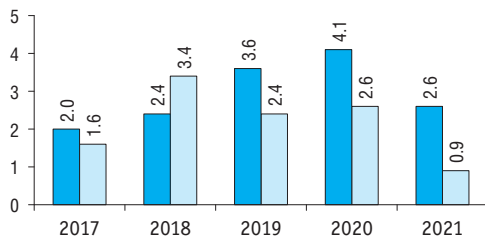
Design



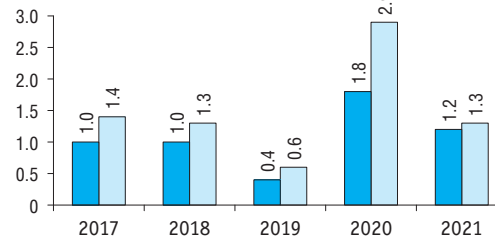
Engineering



Development and purchase of software and databases***



Acquisition of rights to the results of intellectual activity****



■ Total

■ Industrial production

* Until 2019, these indicators were calculated based on the data of expenditure on technological innovation.

** Until 2019, market research.

*** Until 2019, purchase of software.

**** Until 2019, acquisition of new technologies.

2.7. EXPENDITURE ON THIRD-PARTY SERVICES BY TYPE OF INNOVATIVE AND ECONOMIC ACTIVITY: 2021

(as a percentage of the total innovation expenditure on the corresponding innovative activity)

	Total on payment for services of third-party enterprises	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Total	42.8	33.9	50.8	51.0	75.0	22.6	78.6	54.7	54.6	53.3	24.9
Industrial production – total	46.6	40.0	50.5	55.2	72.0	22.0	77.3	59.4	59.3	81.4	26.0
Mining and quarrying	36.1	23.1	38.4	99.5	97.4	100	77.6	52.9	41.0	57.3	7.7
Mining of coal and lignite	7.1	100	4.6	–	–	–	62.2	96.2	94.4	–	100
Extraction of crude petroleum and natural gas	7.5	14.0	2.1	98.5	97.3	100	68.2	55.8	5.8	3.2	1.4
Mining of metal ores	74.9	77.8	72.2	100	100	–	87.2	39.8	99.4	–	100
Other mining and quarrying	32.0	40.4	5.7	100	100	100	100	51.9	99.8	100	2.3
Mining support service activities	90.4	72.7	94.7	–	99.9	–	92.9	43.0	92.0	100	1.9
Manufacturing	47.8	41.6	52.7	54.5	60.4	21.3	77.2	56.5	59.4	75.8	26.2
High tech	38.1	23.3	64.8	17.7	38.8	0.6	40.7	38.2	13.9	50.8	4.5
Manufacture of basic pharmaceutical products and pharmaceutical preparations	77.7	50.9	90.6	16.7	38.7	20.1	99.2	48.3	10.7	–	4.6
Production of computer, electronic and optical products	25.3	26.3	26.5	68.4	56.4	1.0	15.3	38.2	21.5	48.1	1.7
Manufacture of air and spacecraft and related machinery	26.7	18.8	55.7	10.9	29.7	0.3	4.4	34.8	18.1	100	6.4

(continued)

	Total on payment for services of third-party enterprises	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Medium high tech	47.9	35.8	51.4	63.3	35.3	11.9	80.4	60.2	75.2	61.9	21.1
Production of chemicals and chemical products	50.3	23.4	28.4	58.1	2.3	99.6	87.2	45.0	56.6	94.4	56.7
Manufacture of electrical equipment	54.3	31.7	40.5	5.7	10.0	2.0	9.7	66.5	99.8	60.1	0.8
Manufacture of machinery and equipment not elsewhere classified	34.5	30.1	35.4	66.6	68.0	0.7	56.9	41.3	79.5	48.8	15.9
Manufacture of motor vehicles, trailers and semi-trailers	48.9	44.9	77.4	95.0	93.3	15.3	61.5	72.8	7.6	100	11.2
Manufacture of other transport equipment	57.2	53.9	96.9	–	68.5	–	62.1	59.4	24.4	–	40.6
Manufacture of medical and dental instruments and supplies	50.4	2.5	75.9	100	8.9	–	–	7.0	7.1	–	39.0
Medium low tech	55.7	54.8	56.7	92.2	78.2	87.0	84.3	64.0	72.4	79.5	35.4
Reproduction of recorded media	–	–	–	–	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	96.0	92.1	98.8	87.6	100	82.5	99.9	80.0	92.4	100	100
Manufacture of rubber and plastic products	14.9	10.3	6.3	14.2	31.5	98.6	88.1	83.8	55.7	–	0.2
Manufacture of other non-metallic mineral products	25.9	9.1	33.2	72.0	34.8	4.4	53.7	7.7	59.5	52.4	43.2
Manufacture of basic metals	28.3	46.0	25.6	100	69.5	–	70.6	56.3	42.5	99.8	1.6

(continued)

	Total on payment for services of third-party enterprises	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Manufacture of fabricated metal products, except machinery and equipment	34.1	30.9	57.6	94.7	67.7	18.7	77.1	60.8	62.1	55.2	10.1
Building of ships and boats	49.9	22.0	84.2	100	85.6	100	51.0	92.4	11.7	93.7	94.3
Repair and installation of machinery and equipment	35.5	33.6	36.5	99.3	99.3	99.9	74.3	92.9	67.8	–	19.2
Low tech	35.4	57.3	31.9	90.9	73.9	24.4	83.8	60.4	54.1	89.2	2.6
Manufacture of food products	17.7	13.5	19.6	93.6	81.2	86.9	69.2	44.1	78.3	56.3	2.4
Manufacture of beverages	54.4	91.4	15.7	80.2	66.1	96.4	94.6	92.4	15.6	57.6	9.3
Manufacture of tobacco products	57.8	100	6.8	–	–	–	100	–	100	–	–
Manufacture of textiles	6.4	13.3	3.7	100	–	–	100	95.0	91.2	–	–
Manufacture of wearing apparel	19.6	16.0	40.0	–	100	–	13.1	1.4	2.8	–	–
Manufacture of leather and related products	4.6	100	1.6	100	–	–	–	86.1	68.4	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	39.9	86.7	16.0	–	–	0.03	95.3	33.9	53.2	32.0	0.7
Manufacture of paper and paper products	45.8	69.9	43.2	100	89.1	100	19.9	97.0	54.5	100	12.9

(continued)

	Total on payment for services of third-party enterprises	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Printing and reproduction of recorded media	3.4	28.2	1.7	–	–	–	–	100	3.9	–	1.2
Manufacture of furniture	25.3	15.3	11.9	–	–	–	–	24.2	96.5	–	25.7
Other manufacturing	20.4	17.2	21.5	73.0	100	83.1	–	100	95.6	–	–
Electricity, gas, steam and air-conditioning supply	76.7	92.7	72.4	100	98.3	100	63.0	81.9	80.1	99.7	80.9
Water supply; sewerage, waste management and remediation activities	34.3	16.5	77.4	100	98.7	–	99.6	91.6	29.2	100	50.0
Types of economic activity within services sector – total	38.6	29.8	54.5	46.0	80.4	29.2	82.1	52.3	49.6	14.1	23.3
Transportation and storage	72.2	42.5	76.6	99.6	99.2	100	88.4	40.7	42.3	19.7	50.4
Publishing activities	51.7	95.3	96.8	97.0	100	16.9	100	8.7	38.4	0.3	79.9
Telecommunications	49.9	1.5	2.8	5.8	70.8	17.5	99.2	93.2	17.1	84.8	4.1
Computer programming, consultancy and related activities	25.3	22.3	51.1	79.7	27.4	57.3	16.6	20.9	45.8	62.6	23.0
IT industry	51.5	21.9	57.7	48.8	87.8	91.2	47.9	27.5	93.4	2.8	67.3
Legal and accounting activities	61.2	50.5	67.1	98.6	40.7	–	100	74.2	46.4	7.9	1.7
Activities of head offices; management consultancy activities	49.8	41.5	44.2	11.4	52.7	46.0	–	94.9	12.2	9.2	15.5

(continued)

	Total on payment for services of third-party enterprises	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Architectural and engineering activities; technical testing and analysis	21.6	33.4	30.9	97.9	71.2	100	3.2	48.5	20.2	51.4	16.4
Scientific research and development	28.9	29.0	26.9	30.7	53.2	23.0	36.8	51.3	44.4	3.1	14.5
Advertising and market research	53.1	55.2	36.3	100	99.8	100	100	63.8	70.6	99.6	73.6
Other professional, scientific and technical activities	7.2	8.4	–	–	73.3	–	–	9.3	–	–	–
Human health and social work activities	21.4	8.2	25.3	61.2	51.6	93.1	22.6	15.1	5.0	4.3	22.6
Agriculture – total	25.4	22.9	23.0	10.5	100	87.1	71.8	98.6	3.6	100	3.5
Growing of non-perennial crops	17.5	37.5	12.2	–	100	–	46.6	98.8	27.2	–	0.03
Growing of perennial crops	77.0	–	76.9	–	–	–	–	99.5	11.2	–	–
Plant propagation	68.3	–	100	–	–	–	100	–	–	–	–
Animal production	19.3	2.2	17.3	82.3	100	84.8	64.3	98.4	0.5	100	3.7
Mixed farming	0.4	–	0.4	–	–	100	–	–	100	–	0.9
Support activities to agriculture and post-harvest crop activities	9.2	39.1	3.1	–	100	–	97.1	16.1	100	–	–
Construction – total	32.0	9.3	55.7	69.8	59.2	–	73.7	75.0	34.3	48.8	23.6

2.8. INNOVATION EXPENDITURE BY SOURCE OF FUNDS AND TYPE OF ECONOMIC ACTIVITY: 2021

(million roubles)

	Innovation expenditure	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Total	2379709.9	1310782.4	577463.4	39556.3	5409.0	16918.3	1266.2	144.2	429436.3
Industrial production – total	1307322.1	836354.9	158350.3	6923.4	977.0	8093.2	71.6	135.8	296487.7
Mining and quarrying	180466.1	115538.7	303.5	–	–	4261.9	–	–	60362.0
Mining of coal and lignite	535.5	535.5	–	–	–	–	–	–	–
Extraction of crude petroleum and natural gas	109537.8	51958.1	189.0	–	–	–	–	–	57390.7
Mining of metal ores	22436.2	17039.8	94.4	–	–	4261.9	–	–	1040.0
Other mining and quarrying	5732.8	4154.2	–	–	–	–	–	–	1578.7
Mining support service activities	42223.8	41851.2	20.0	–	–	–	–	–	352.6
Manufacturing	1053903.0	677161.1	156510.5	826.7	977.0	2154.4	71.6	135.8	216137.5
High tech	247262.8	138952.2	92472.2	326.5	163.2	15.8	–	–	15333.0
Manufacture of basic pharmaceutical products and pharmaceutical preparations	57304.2	54303.5	153.1	0.8	0.9	–	–	–	2845.9
Production of computer, electronic and optical products	78914.9	33697.9	41788.3	325.7	162.2	15.8	–	–	2924.8
Manufacture of air and spacecraft and related machinery	111043.7	50950.8	50530.7	–	–	–	–	–	9562.2

* Here and below in table 2.9, Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, and Türkiye.

(continued)

	Innovation expenditure	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Medium high tech	230358.4	152534.1	14318.7	459.7	348.1	1408.0	–	–	61289.8
Production of chemicals and chemical products	85509.7	46047.6	763.6	239.1	–	1266.5	–	–	37192.8
Manufacture of electrical equipment	13798.0	11376.7	2229.3	12.8	–	–	–	–	179.2
Manufacture of machinery and equipment not elsewhere classified	31216.8	17697.2	9333.5	12.5	90.0	141.4	–	–	3942.1
Manufacture of motor vehicles, trailers and semi-trailers	96847.3	74624.0	1904.7	195.3	258.1	–	–	–	19865.2
Manufacture of other transport equipment	2685.0	2512.1	69.2	–	–	–	–	–	103.8
Manufacture of medical and dental instruments and supplies	301.7	276.5	18.5	–	–	–	–	–	6.7
Medium low tech	468892.4	296551.3	49109.9	1.2	59.1	279.4	71.6	135.8	122755.8
Reproduction of recorded media	0.1	0.1	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	176224.5	70496.1	–	–	0.04	–	–	–	105728.3
Manufacture of rubber and plastic products	12322.5	5689.0	878.6	–	–	–	–	–	5754.9
Manufacture of other non-metallic mineral products	8952.6	7097.5	627.2	1.2	–	71.6	71.6	35.7	1119.4
Manufacture of basic metals	132038.3	123591.1	369.6	–	–	–	–	–	8077.6

(continued)

	Innovation expenditure	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Manufacture of fabricated metal products, except machinery and equipment	119433.0	72136.3	45640.4	–	59.1	207.8	–	100.0	1289.4
Building of ships and boats	17558.6	15204.0	1568.8	–	–	–	–	–	785.9
Repair and installation of machinery and equipment	2363.0	2337.2	25.4	–	0.04	–	–	–	0.3
Low tech	107389.3	89123.5	609.7	39.3	406.5	451.3	–	–	16758.9
Manufacture of food products	35901.4	28296.6	258.8	18.0	–	202.6	–	–	7125.3
Manufacture of beverages	3358.9	3233.3	0.8	–	–	–	–	–	124.8
Manufacture of tobacco products	4631.0	4631.0	–	–	–	–	–	–	–
Manufacture of textiles	1142.3	1043.8	–	–	–	–	–	–	98.6
Manufacture of wearing apparel	578.6	486.6	69.3	–	16.5	–	–	–	6.2
Manufacture of leather and related products	126.8	126.8	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	11326.4	2001.2	–	–	390.0	–	–	–	8935.2
Manufacture of paper and paper products	48375.3	47917.1	9.0	–	–	248.7	–	–	200.4

(continued)

	Innovation expenditure	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Printing and reproduction of recorded media	489.8	489.8	–	–	–	–	–	–	–
Manufacture of furniture	235.8	185.1	–	–	–	–	–	–	50.8
Other manufacturing	1223.1	712.3	271.8	21.3	–	–	–	–	217.7
Electricity, gas, steam and air-conditioning supply	38380.4	37519.8	1.9	167.9	–	–	–	–	690.8
Water supply; sewerage, waste management and remediation activities	34572.6	6135.2	1534.4	5928.8	–	1676.8	–	–	19297.4
Types of economic activity within services sector – total	1022074.7	446415.2	416578.3	30459.7	4432.0	8747.5	1149.0	8.4	115433.5
Transportation and storage	180625.9	167617.1	7958.0	780.6	3.0	–	–	–	4267.2
Publishing activities	337.3	228.9	0.8	102.9	–	–	–	–	4.7
Telecommunications	69052.1	56777.4	631.9	80.8	–	–	–	–	11562.0
Computer programming, consultancy and related activities	63816.8	57609.6	1082.6	891.2	295.6	481.3	16.7	–	3456.5
IT industry	14444.0	11089.1	1361.7	564.9	–	902.9	902.9	–	525.5
Legal and accounting activities	815.6	641.7	2.8	170.4	0.2	–	–	–	0.6
Activities of head offices; management consultancy activities	43772.4	9679.9	30010.8	71.0	0.4	–	–	–	4010.3

(continued)

	Innovation expenditure	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries*, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Architectural and engineering activities; technical testing and analysis	39391.3	36516.6	1316.9	551.1	5.8	0.1	0.1	–	1000.8
Scientific research and development	577763.2	97189.2	366409.8	14877.0	4110.8	7363.2	229.2	7.0	87806.3
Advertising and market research	5142.8	4957.0	–	21.2	–	–	–	–	164.5
Other professional, scientific and technical activities	1305.3	813.9	465.7	0.5	–	–	–	–	25.2
Human health and social work activities	25607.9	3294.9	7337.3	12348.3	16.2	–	–	1.4	2609.8
Agriculture – total	33424.6	20292.2	592.5	333.8	–	45.7	45.7	–	12160.4
Growing of non-perennial crops	16608.4	9790.8	21.7	68.1	–	–	–	–	6727.9
Growing of perennial crops	4724.2	1738.5	401.1	55.1	–	–	–	–	2529.5
Plant propagation	26.9	26.9	–	–	–	–	–	–	–
Animal production	9301.2	6476.0	131.4	187.2	–	45.7	45.7	–	2460.9
Mixed farming	1254.1	793.2	–	19.8	–	–	–	–	441.1
Support activities to agriculture and post-harvest crop activities	1509.8	1466.9	38.3	3.6	–	–	–	–	1.0
Construction – total	16888.5	7720.0	1942.3	1839.4	–	31.9	–	–	5354.8

2.9. PERCENTAGE DISTRIBUTION OF INNOVATION EXPENDITURE BY SOURCE OF FUNDS AND TYPE OF ECONOMIC ACTIVITY: 2021

	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Total	55.1	24.3	1.7	0.2	0.7	0.1	0.01	18.0
Industrial production – total	64.0	12.1	0.5	0.1	0.6	0.01	0.01	22.7
Mining and quarrying	64.0	0.2	–	–	2.4	–	–	33.4
Mining of coal and lignite	100	–	–	–	–	–	–	–
Extraction of crude petroleum and natural gas	47.4	0.2	–	–	–	–	–	52.4
Mining of metal ores	75.9	0.4	–	–	19.0	–	–	4.6
Other mining and quarrying	72.5	–	–	–	–	–	–	27.5
Mining support service activities	99.1	0.05	–	–	–	–	–	0.8
Manufacturing	64.3	14.9	0.1	0.1	0.2	0.01	0.01	20.5
High tech	56.2	37.4	0.1	0.1	0.01	–	–	6.2
Manufacture of basic pharmaceutical products and pharmaceutical preparations	94.8	0.3	0.04	0.0	–	–	–	5.0
Production of computer, electronic and optical products	42.7	53.0	0.4	0.2	0.02	–	–	3.7
Manufacture of air and spacecraft and related machinery	45.9	45.5	–	–	–	–	–	8.6
Medium high tech	66.2	6.2	0.2	0.2	0.6	–	–	26.6
Production of chemicals and chemical products	53.9	0.9	0.3	–	1.5	–	–	43.5
Manufacture of electrical equipment	82.5	16.2	0.1	–	–	–	–	1.3

(continued)

	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Manufacture of machinery and equipment not elsewhere classified	56.7	29.9	0.04	0.3	0.5	–	–	12.6
Manufacture of motor vehicles, trailers and semi-trailers	77.1	2.0	0.2	0.3	–	–	–	20.5
Manufacture of other transport equipment	93.6	2.6	–	–	–	–	–	3.9
Manufacture of medical and dental instruments and supplies	91.7	6.1	–	–	–	–	–	2.2
Medium low tech	63.2	10.5	0.0	0.01	0.1	0.02	0.03	26.2
Reproduction of recorded media	100	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	40.0	–	–	–	–	–	–	60.0
Manufacture of rubber and plastic products	46.2	7.1	–	–	–	–	–	46.7
Manufacture of other non-metallic mineral products	79.3	7.0	0.01	–	0.8	0.8	0.4	12.5
Manufacture of basic metals	93.6	0.3	–	–	–	–	–	6.1
Manufacture of fabricated metal products, except machinery and equipment	60.4	38.2	–	0.05	0.2	–	0.1	1.1
Building of ships and boats	86.6	8.9	–	–	–	–	–	4.5
Repair and installation of machinery and equipment	98.9	1.1	–	0.0	–	–	–	0.01

(continued)

	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Low tech	83.0	0.6	0.04	0.4	0.4	–	–	15.6
Manufacture of food products	78.8	0.7	0.1	–	0.6	–	–	19.8
Manufacture of beverages	96.3	0.02	–	–	–	–	–	3.7
Manufacture of tobacco products	100	–	–	–	–	–	–	–
Manufacture of textiles	91.4	–	–	–	–	–	–	8.6
Manufacture of wearing apparel	84.1	12.0	–	2.9	–	–	–	1.1
Manufacture of leather and related products	100	–	–	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	17.7	–	–	3.4	–	–	–	78.9
Manufacture of paper and paper products	99.1	0.02	–	–	0.5	–	–	0.4
Printing and reproduction of recorded media	100	–	–	–	–	–	–	–
Manufacture of furniture	78.5	–	–	–	–	–	–	21.5
Other manufacturing	58.2	22.2	1.7	–	–	–	–	17.8

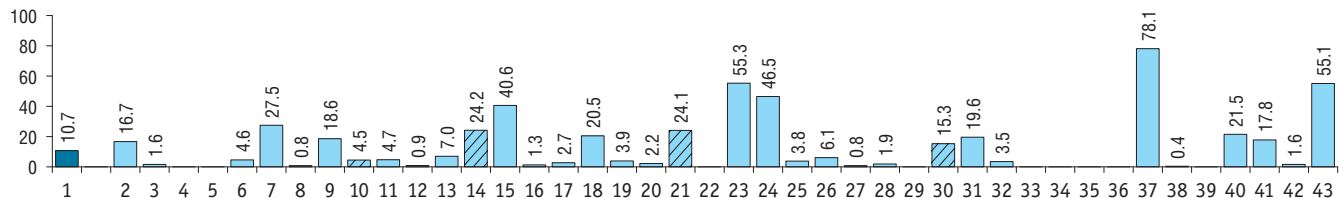
(continued)

	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Electricity, gas, steam and air-conditioning supply	97.8	0.0	0.4	–	–	–	–	1.8
Water supply; sewerage, waste management and remediation activities	17.7	4.4	17.1	–	4.9	–	–	55.8
Types of economic activity within services sector – total	43.7	40.8	3.0	0.4	0.9	0.1	0.0	11.3
Transportation and storage	92.8	4.4	0.4	0.0	–	–	–	2.4
Publishing activities	67.9	0.2	30.5	–	–	–	–	1.4
Telecommunications	82.2	0.9	0.1	–	–	–	–	16.7
Computer programming, consultancy and related activities	90.3	1.7	1.4	0.5	0.8	0.03	–	5.4
IT industry	76.8	9.4	3.9	–	6.3	6.3	–	3.6
Legal and accounting activities	78.7	0.3	20.9	0.02	–	–	–	0.1
Activities of head offices; management consultancy activities	22.1	68.6	0.2	0.0	–	–	–	9.2
Architectural and engineering activities; technical testing and analysis	92.7	3.3	1.4	0.01	0.0	0.0	–	2.5
Scientific research and development	16.8	63.4	2.6	0.7	1.3	0.04	0.0	15.2
Advertising and market research	96.4	–	0.4	–	–	–	–	3.2
Other professional, scientific and technical activities	62.4	35.7	0.04	–	–	–	–	1.9
Human health and social work activities	12.9	28.7	48.2	0.1	–	–	0.01	10.2

(continued)

	Enterprises' own funds	Federal budget	Regional and local budgets of the Russian Federation	Foundations for S&T and innovation	Funds from abroad	Including from EU countries, EU candidate countries, Liechtenstein, Norway, Switzerland, United Kingdom	Venture capital and private equity funds	Other
Agriculture – total	60.7	1.8	1.0	–	0.1	0.1	–	36.4
Growing of non-perennial crops	59.0	0.1	0.4	–	–	–	–	40.5
Growing of perennial crops	36.8	8.5	1.2	–	–	–	–	53.5
Plant propagation	100	–	–	–	–	–	–	–
Animal production	69.6	1.4	2.0	–	0.5	0.5	–	26.5
Mixed farming	63.2	–	1.6	–	–	–	–	35.2
Support activities to agriculture and post-harvest crop activities	97.2	2.5	0.2	–	–	–	–	0.1
Construction – total	45.7	11.5	10.9	–	0.2	–	–	31.7

2.10. LOANS AND BORROWINGS AS A PERCENTAGE OF THE TOTAL INNOVATION EXPENDITURE BY TYPE OF ECONOMIC ACTIVITY: 2021



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

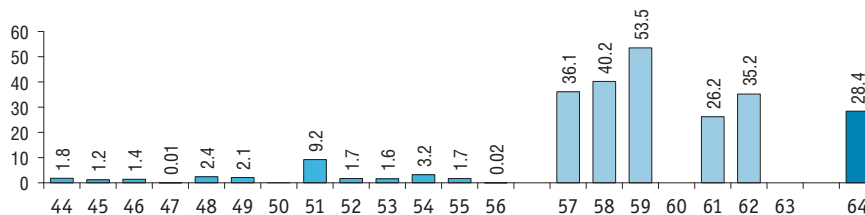
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)

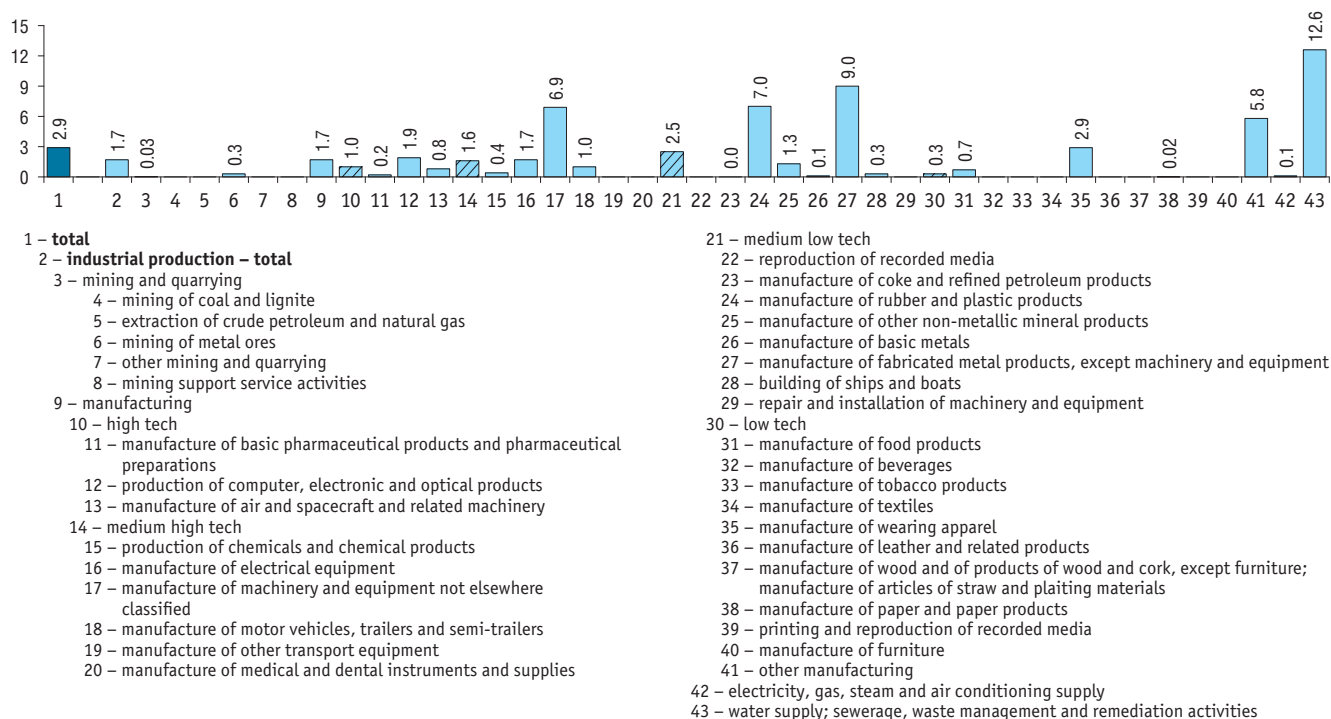


44 – types of economic activity within services sector – total

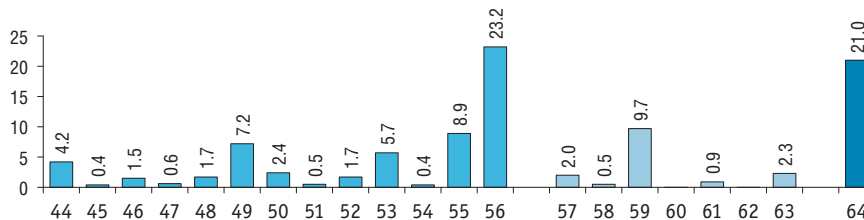
- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

- 54 – advertising and market research
- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities
- 57 – agriculture – total
- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities
- 64 – construction – total

2.11. SUBSIDIES AS A PERCENTAGE OF THE TOTAL INNOVATION EXPENDITURE BY TYPE OF ECONOMIC ACTIVITY: 2021



(continued)



44 – types of economic activity within services sector – total

45 – transportation and storage

46 – publishing activities

47 – telecommunications

48 – computer programming, consultancy and related activities

49 – IT industry

50 – legal and accounting activities

51 – activities of head offices; management consultancy activities

52 – architectural and engineering activities; technical testing and analysis

53 – scientific research and development

54 – advertising and market research

55 – other professional, scientific and technical activities

56 – human health and social work activities

57 – agriculture – total

58 – growing of non-perennial crops

59 – growing of perennial crops

60 – plant propagation

61 – animal production

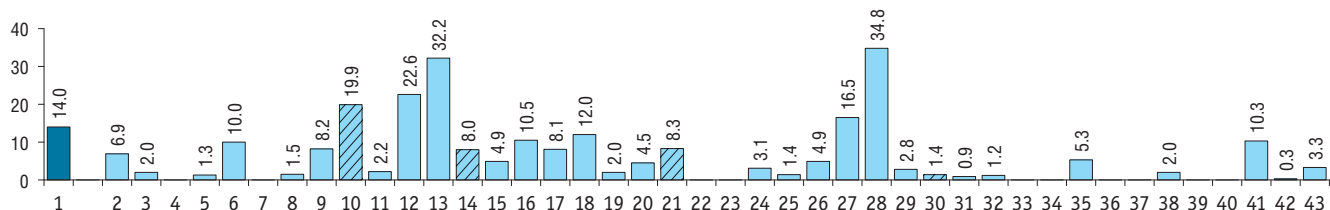
62 – mixed farming

63 – support activities to agriculture and post-harvest crop activities

64 – construction – total

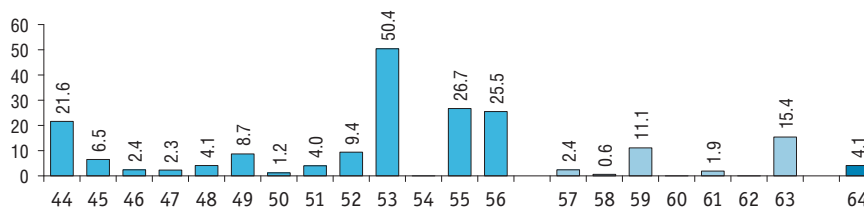
2.12. ENTERPRISES THAT RECEIVED FUNDS FROM THE FEDERAL BUDGET BY TYPE OF ECONOMIC ACTIVITY: 2021

(as a percentage of all enterprises that have had innovation expenditure)



- 1 – total
- 2 – industrial production – total
- 3 – mining and quarrying
 - 4 – mining of coal and lignite
 - 5 – extraction of crude petroleum and natural gas
 - 6 – mining of metal ores
 - 7 – other mining and quarrying
 - 8 – mining support service activities
- 9 – manufacturing
 - 10 – high tech
 - 11 – manufacture of basic pharmaceutical products and pharmaceutical preparations
 - 12 – production of computer, electronic and optical products
 - 13 – manufacture of air and spacecraft and related machinery
 - 14 – medium high tech
 - 15 – production of chemicals and chemical products
 - 16 – manufacture of electrical equipment
 - 17 – manufacture of machinery and equipment not elsewhere classified
 - 18 – manufacture of motor vehicles, trailers and semi-trailers
 - 19 – manufacture of other transport equipment
 - 20 – manufacture of medical and dental instruments and supplies
- 21 – medium low tech
 - 22 – reproduction of recorded media
 - 23 – manufacture of coke and refined petroleum products
 - 24 – manufacture of rubber and plastic products
 - 25 – manufacture of other non-metallic mineral products
 - 26 – manufacture of basic metals
 - 27 – manufacture of fabricated metal products, except machinery and equipment
 - 28 – building of ships and boats
 - 29 – repair and installation of machinery and equipment
- 30 – low tech
 - 31 – manufacture of food products
 - 32 – manufacture of beverages
 - 33 – manufacture of tobacco products
 - 34 – manufacture of textiles
 - 35 – manufacture of wearing apparel
 - 36 – manufacture of leather and related products
 - 37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
 - 38 – manufacture of paper and paper products
 - 39 – printing and reproduction of recorded media
 - 40 – manufacture of furniture
 - 41 – other manufacturing
- 42 – electricity, gas, steam and air conditioning supply
- 43 – water supply; sewerage, waste management and remediation activities

(continued)

**44 – types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

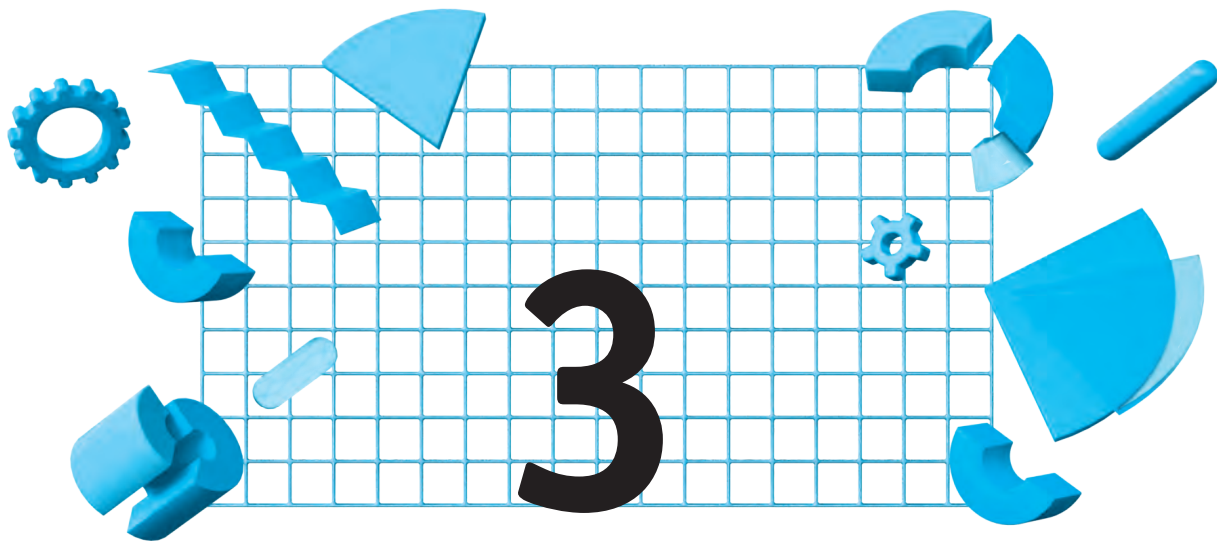
54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – agriculture – total

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – construction – total

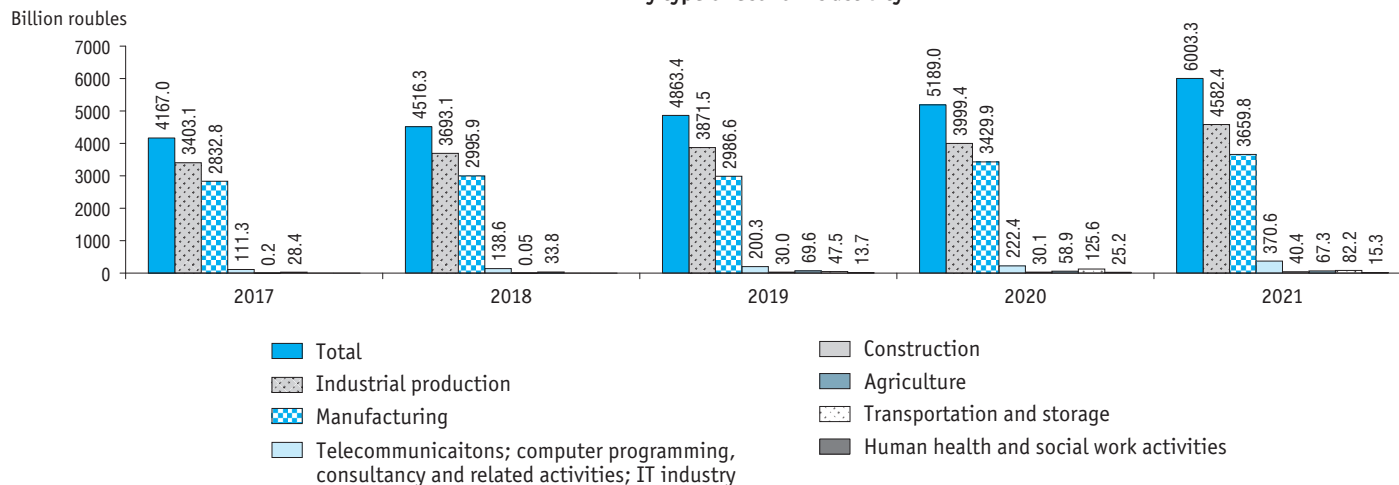


INNOVATION OUTPUT

3.1. SALES OF INNOVATIVE GOODS AND SERVICES

	2015	2016	2017	2018	2019	2020	2021
Sales of innovative goods and services – total:							
at current prices, <i>million roubles</i>	3843428.7	4364321.7	4166998.7	4516276.4	4863381.9	5189046.2	6003342.0
at constant 2010 prices, <i>million roubles*</i>	2509256.8	2771701.8	2513116.6	2476164.5	2581275.9	2734963.5	2715952.8
as a percentage of 2010	201.8	222.9	202.1	199.1	207.5	219.9	218.4
as a percentage of total sales	8.4	8.5	7.2	6.5	5.3	5.7	5.0

By type of economic activity



* Here and below in table 3.9, the data are calculated taking into account the GDP deflator as of April 08, 2022.

3.2. SALES OF INNOVATIVE GOODS AND SERVICES BY DEGREE OF NOVELTY AND TYPE OF ECONOMIC ACTIVITY: 2021

	Million roubles			As a percentage of total sales		
	total	new or technologically new	significantly improved	total	new or technologically new	significantly improved
Total	6003342.0	3389581.3	2613760.7	5.0	2.8	2.2
Industrial production – total	4582372.5	2470281.8	2112090.7	5.5	3.0	2.6
Mining and quarrying	874336.9	91614.0	782722.8	3.6	0.4	3.3
Mining of coal and lignite	3703.3	15.7	3687.5	0.2	0.0	0.2
Extraction of crude petroleum and natural gas	794600.8	74806.3	719794.5	4.9	0.5	4.4
Mining of metal ores	70954.3	11998.8	58955.5	2.7	0.5	2.2
Other mining and quarrying	1222.2	1177.7	44.5	0.2	0.2	0.01
Mining support service activities	3856.3	3615.5	240.8	0.2	0.1	0.01
Manufacturing	3659812.3	2346795.3	1313017.0	7.1	4.5	2.5
High tech	622869.3	436932.7	185936.5	18.4	12.9	5.5
Manufacture of basic pharmaceutical products and pharmaceutical preparations	130223.0	125772.0	4451.0	12.3	11.9	0.4
Production of computer, electronic and optical products	247215.1	150799.0	96416.1	17.7	10.8	6.9
Manufacture of air and spacecraft and related machinery	245431.2	160361.8	85069.4	26.3	17.2	9.1
Medium high tech	1138984.2	512571.4	626412.8	11.0	5.0	6.1
Production of chemicals and chemical products	321231.0	118141.3	203089.8	7.4	2.7	4.7
Manufacture of electrical equipment	102578.6	67354.1	35224.6	10.1	6.7	3.5
Manufacture of machinery and equipment not elsewhere classified	172398.5	74351.0	98047.5	13.0	5.6	7.4

(continued)

	Million roubles			As a percentage of total sales		
	total	new or technologically new	significantly improved	total	new or technologically new	significantly improved
Manufacture of motor vehicles, trailers and semi-trailers	427213.8	179352.5	247861.3	14.8	6.2	8.6
Manufacture of other transport equipment	109373.3	71529.7	37843.7	15.0	9.8	5.2
Manufacture of medical and dental instruments and supplies	6188.9	1843.0	4346.0	16.9	5.0	11.8
Medium low tech	1429446.6	1113726.5	315720.1	5.1	4.0	1.1
Reproduction of recorded media	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	383845.7	364268.5	19577.2	3.6	3.5	0.2
Manufacture of rubber and plastic products	51822.6	29349.8	22472.8	4.2	2.4	1.8
Manufacture of other non-metallic mineral products	54441.9	32738.3	21703.5	3.6	2.2	1.4
Manufacture of basic metals	468931.0	337874.5	131056.5	4.8	3.4	1.3
Manufacture of fabricated metal products, except machinery and equipment	305337.0	197953.3	107383.7	9.4	6.1	3.3
Building of ships and boats	136496.6	127563.7	8932.9	22.2	20.7	1.5
Repair and installation of machinery and equipment	28571.8	23978.3	4593.5	3.1	2.6	0.5
Low tech	468512.2	283564.6	184947.6	4.6	2.8	1.8
Manufacture of food products	322511.1	220406.3	102104.8	5.3	3.6	1.7
Manufacture of beverages	20798.8	10769.2	10029.6	2.6	1.3	1.3
Manufacture of tobacco products	2118.6	848.9	1269.8	0.9	0.4	0.5
Manufacture of textiles	13156.6	9992.6	3163.9	4.8	3.7	1.2
Manufacture of wearing apparel	333.1	135.0	198.0	0.3	0.1	0.2
Manufacture of leather and related products	355.8	289.1	66.6	0.6	0.5	0.1

(continued)

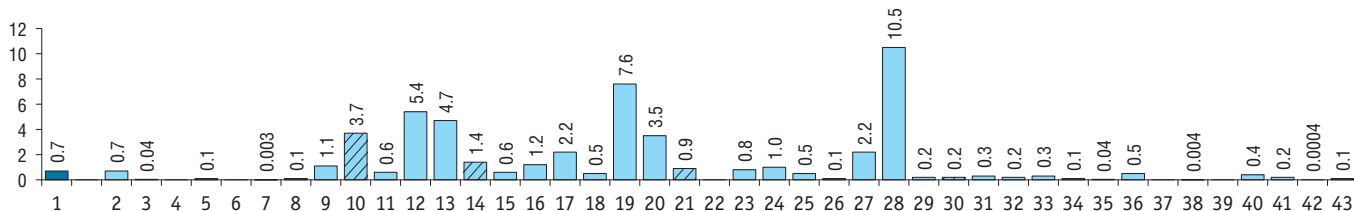
	Million roubles			As a percentage of total sales		
	total	new or technologically new	significantly improved	total	new or technologically new	significantly improved
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	16681.7	6706.9	9974.8	2.0	0.8	1.2
Manufacture of paper and paper products	66440.3	17168.0	49272.3	5.7	1.5	4.2
Printing and reproduction of recorded media	20033.4	11970.3	8063.0	10.6	6.3	4.3
Manufacture of furniture	4210.5	3716.3	494.3	1.9	1.7	0.2
Other manufacturing	1872.3	1561.9	310.4	1.2	1.0	0.2
Electricity, gas, steam and air-conditioning supply	28345.2	16443.9	11901.4	0.5	0.3	0.2
Water supply; sewerage, waste management and remediation activities	19878.1	15428.7	4449.5	1.7	1.3	0.4
Types of economic activity within services sector – total	1313278.8	853645.3	459633.6	4.9	3.2	1.7
Transportation and storage	82179.5	60071.7	22107.8	0.7	0.5	0.2
Publishing activities	201.1	180.7	20.4	0.1	0.1	0.01
Telecommunications	210726.7	182240.2	28486.5	11.0	9.5	1.5
Computer programming, consultancy and related activities	118790.3	60893.3	57897.0	7.0	3.6	3.4
IT industry	41085.1	20450.4	20634.7	4.8	2.4	2.4
Legal and accounting activities	1390.2	1035.3	354.9	0.8	0.6	0.2

(continued)

	Million roubles			As a percentage of total sales		
	total	new or technologically new	significantly improved	total	new or technologically new	significantly improved
Activities of head offices; management consultancy activities	4620.3	4058.5	561.8	0.4	0.3	0.04
Architectural and engineering activities; technical testing and analysis	18357.4	16686.7	1670.8	1.2	1.1	0.1
Scientific research and development	697996.7	501570.0	196426.7	38.9	27.9	10.9
Advertising and market research	121838.2	1289.8	120548.4	4.8	0.1	4.7
Other professional, scientific and technical activities	805.8	326.0	479.8	4.9	2.0	2.9
Human health and social work activities	15287.5	4842.7	10444.9	0.6	0.2	0.4
Agriculture – total	67339.6	35206.6	32133.0	2.3	1.2	1.1
Growing of non-perennial crops	25823.0	9242.1	16580.9	2.5	0.9	1.6
Growing of perennial crops	940.1	6.7	933.4	3.1	0.02	3.0
Plant propagation	0.1	0.1	–	0.0	0.0	–
Animal production	39624.3	25319.6	14304.7	2.3	1.4	0.8
Mixed farming	515.0	230.5	284.6	1.4	0.6	0.8
Support activities to agriculture and post-harvest crop activities	437.2	407.8	29.4	1.0	0.9	0.1
Construction – total	40351.1	30447.6	9903.4	0.6	0.4	0.1

3.3. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES INTRODUCED TO THE MARKET OF THE ENTERPRISE BY TYPE OF ECONOMIC ACTIVITY: 2021

(as a percentage of total sales)



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture;

manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

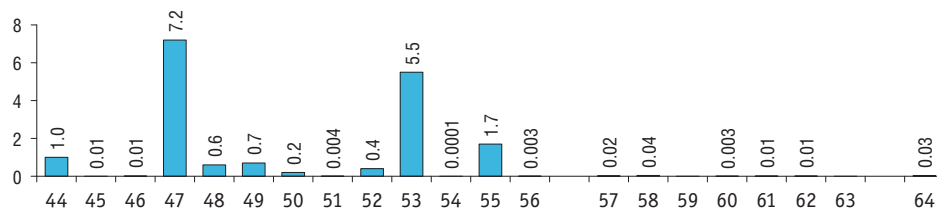
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)



44 – types of economic activity within services sector – total

45 – transportation and storage

46 – publishing activities

47 – telecommunications

48 – computer programming, consultancy and related activities

49 – IT industry

50 – legal and accounting activities

51 – activities of head offices; management consultancy activities

52 – architectural and engineering activities; technical testing and analysis

53 – scientific research and development

54 – advertising and market research

55 – other professional, scientific and technical activities

56 – human health and social work activities

57 – agriculture – total

58 – growing of non-perennial crops

59 – growing of perennial crops

60 – plant propagation

61 – animal production

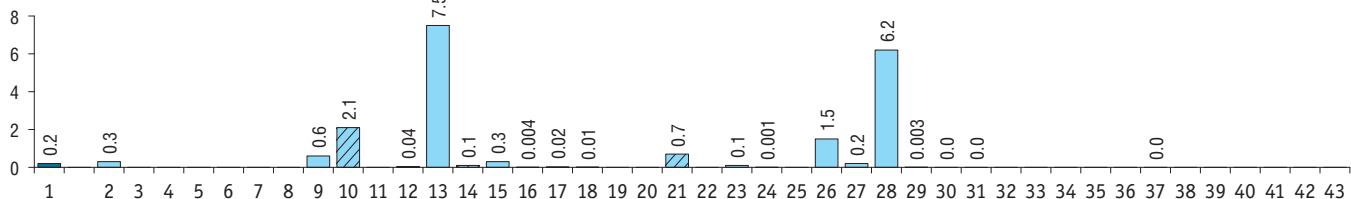
62 – mixed farming

63 – support activities to agriculture and post-harvest crop activities

64 – construction – total

3.4. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES INTRODUCED TO THE GLOBAL MARKET OF THE ENTERPRISE BY TYPE OF ECONOMIC ACTIVITY: 2021

(as a percentage of total sales)



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

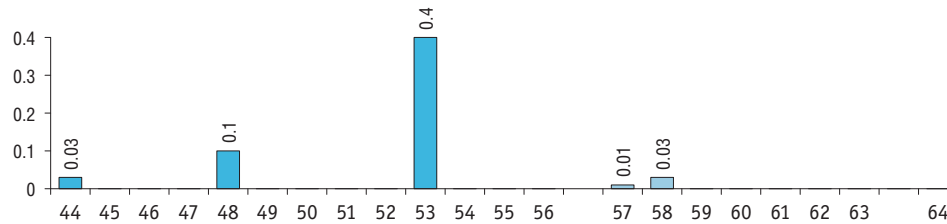
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)



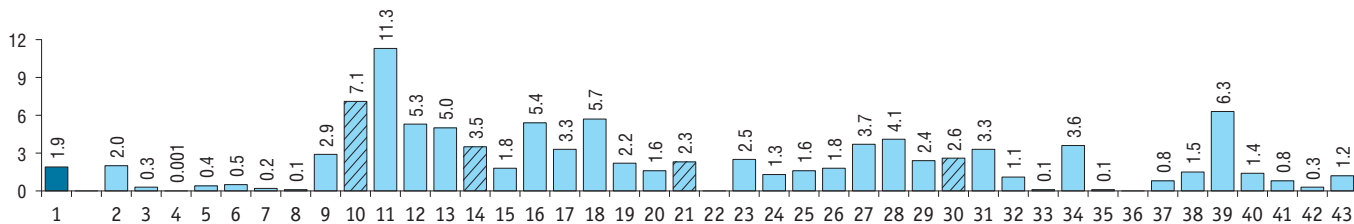
44 – **types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

- 54 – advertising and market research
- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities
- 57 – **agriculture – total**
- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities
- 64 – **construction – total**

3.5. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES NEW TO THE ENTERPRISE BUT NOT TO THE MARKET BY TYPE OF ECONOMIC ACTIVITY: 2021

(as a percentage of total sales)



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

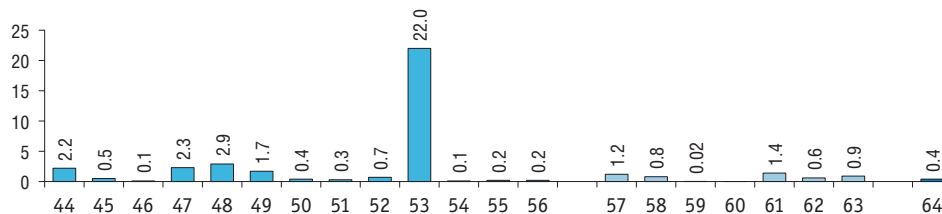
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)

**44 – types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – agriculture – total

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – construction – total

3.6. SALES OF INNOVATIVE GOODS AND SERVICES UNDER STATE AND MUNICIPAL CONTRACTS BY TYPE OF ECONOMIC ACTIVITY: 2021

	Million roubles	As a percentage of total sales
Total	567123.6	9.4
Industrial production – total	335878.8	7.3
Mining and quarrying	–	–
Mining of coal and lignite	–	–
Extraction of crude petroleum and natural gas	–	–
Mining of metal ores	–	–
Other mining and quarrying	–	–
Mining support service activities	–	–
Manufacturing	331799.7	9.1
High tech	144745.1	23.2
Manufacture of basic pharmaceutical products and pharmaceutical preparations	4522.1	3.5
Production of computer, electronic and optical products	69267.2	28.0
Manufacture of air and spacecraft and related machinery	70955.8	28.9
Medium high tech	49795.9	4.4
Production of chemicals and chemical products	3576.6	1.1
Manufacture of electrical equipment	1322.9	1.3
Manufacture of machinery and equipment not elsewhere classified	31967.0	18.5
Manufacture of motor vehicles, trailers and semi-trailers	11492.6	2.7
Manufacture of other transport equipment	70.6	0.1
Manufacture of medical and dental instruments and supplies	1366.2	22.1
Medium low tech	136888.4	9.6
Reproduction of recorded media	–	–

(continued)

	Million roubles	As a percentage of total sales
Manufacture of coke and refined petroleum products	–	–
Manufacture of rubber and plastic products	1718.9	3.3
Manufacture of other non-metallic mineral products	787.7	1.4
Manufacture of basic metals	–	–
Manufacture of fabricated metal products, except machinery and equipment	110828.8	36.3
Building of ships and boats	22443.1	16.4
Repair and installation of machinery and equipment	1110.0	3.9
Low tech	370.2	0.1
Manufacture of food products	–	–
Manufacture of beverages	–	–
Manufacture of tobacco products	–	–
Manufacture of textiles	306.0	2.3
Manufacture of wearing apparel	7.5	2.3
Manufacture of leather and related products	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	3.2	0.02
Manufacture of paper and paper products	–	–
Printing and reproduction of recorded media	–	–
Manufacture of furniture	–	–
Other manufacturing	53.5	2.9
Electricity, gas, steam and air-conditioning supply	62.9	0.2
Water supply; sewerage, waste management and remediation activities	4016.2	20.2

(continued)

	Million roubles	As a percentage of total sales
Types of economic activity within services sector – total	229139.4	17.4
Transportation and storage	7328.5	8.9
Publishing activities	–	–
Telecommunications	647.5	0.3
Computer programming, consultancy and related activities	13316.1	11.2
IT industry	355.1	0.9
Legal and accounting activities	5.4	0.4
Activities of head offices; management consultancy activities	3165.1	68.5
Architectural and engineering activities; technical testing and analysis	1222.7	6.7
Scientific research and development	201416.4	28.9
Advertising and market research	–	–
Other professional, scientific and technical activities	420.3	52.2
Human health and social work activities	1262.2	8.3
Agriculture – total	6.0	0.01
Growing of non-perennial crops	–	–
Growing of perennial crops	–	–
Plant propagation	–	–
Animal production	–	–
Mixed farming	–	–
Support activities to agriculture and post-harvest crop activities	6.0	1.4
Construction – total	2099.5	5.2

3.7. SALES OF INNOVATIVE GOODS AND SERVICES CREATED USING RESULTS OF INTELLECTUAL ACTIVITY THAT HAVE RUSSIAN COPYRIGHT HOLDERS BY TYPE OF ECONOMIC ACTIVITY: 2021

	Million roubles	As a percentage of total sales
Total	1428117.6	23.8
Industrial production – total	1064186.0	23.2
Mining and quarrying	584154.5	66.8
Mining of coal and lignite	–	–
Extraction of crude petroleum and natural gas	524458.4	66.0
Mining of metal ores	58955.5	83.1
Other mining and quarrying	–	–
Mining support service activities	740.6	19.2
Manufacturing	472784.5	12.9
High tech	191876.0	30.8
Manufacture of basic pharmaceutical products and pharmaceutical preparations	48328.2	37.1
Production of computer, electronic and optical products	94416.7	38.2
Manufacture of air and spacecraft and related machinery	49131.1	20.0
Medium high tech	67322.9	5.9
Production of chemicals and chemical products	37741.8	11.7
Manufacture of electrical equipment	8489.8	8.3
Manufacture of machinery and equipment not elsewhere classified	17677.1	10.3
Manufacture of motor vehicles, trailers and semi-trailers	2860.3	0.7
Manufacture of other transport equipment	305.7	0.3
Manufacture of medical and dental instruments and supplies	248.3	4.0

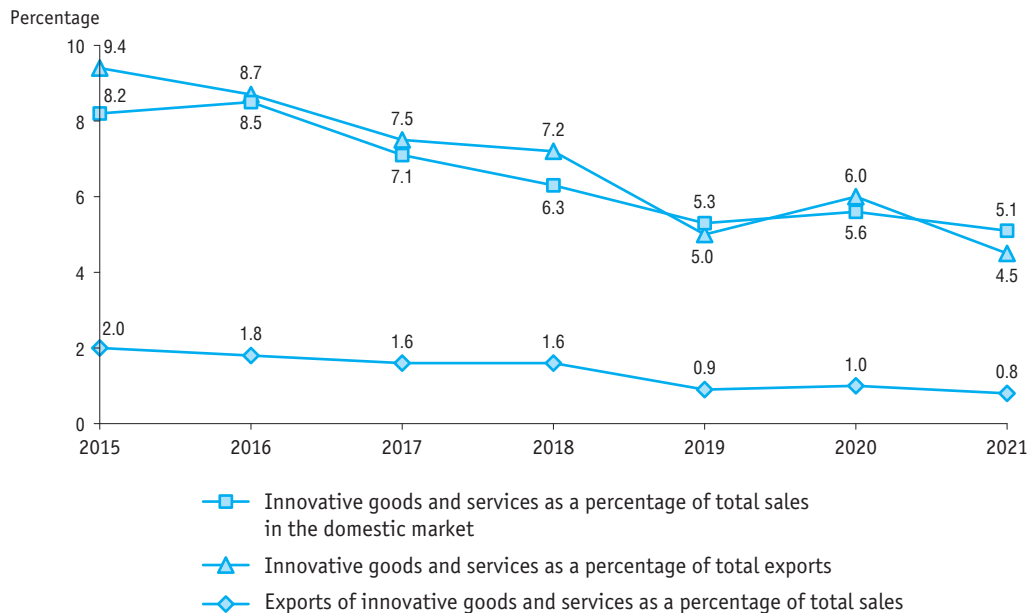
(continued)

	Million roubles	As a percentage of total sales
Medium low tech	197270.6	13.8
Reproduction of recorded media	–	–
Manufacture of coke and refined petroleum products	6045.3	1.6
Manufacture of rubber and plastic products	4362.0	8.4
Manufacture of other non-metallic mineral products	1700.5	3.1
Manufacture of basic metals	9855.7	2.1
Manufacture of fabricated metal products, except machinery and equipment	97300.9	31.9
Building of ships and boats	74608.6	54.7
Repair and installation of machinery and equipment	3397.6	11.9
Low tech	16315.0	3.5
Manufacture of food products	1569.6	0.5
Manufacture of beverages	684.8	3.3
Manufacture of tobacco products	–	–
Manufacture of textiles	3281.1	24.9
Manufacture of wearing apparel	–	–
Manufacture of leather and related products	289.1	81.3
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	–	–
Manufacture of paper and paper products	–	–
Printing and reproduction of recorded media	10394.7	51.9
Manufacture of furniture	–	–
Other manufacturing	95.7	5.1
Electricity, gas, steam and air-conditioning supply	3354.6	11.8
Water supply; sewerage, waste management and remediation activities	3892.4	19.6

(continued)

	Million roubles	As a percentage of total sales
Types of economic activity within services sector – total	363903.1	27.7
Transportation and storage	39367.8	47.9
Publishing activities	78.1	38.8
Telecommunications	502.7	0.2
Computer programming, consultancy and related activities	46244.1	38.9
IT industry	11197.8	27.3
Legal and accounting activities	274.5	19.7
Activities of head offices; management consultancy activities	645.1	14.0
Architectural and engineering activities; technical testing and analysis	4550.1	24.8
Scientific research and development	254712.4	36.5
Advertising and market research	1354.3	1.1
Other professional, scientific and technical activities	1.6	0.2
Human health and social work activities	4974.7	32.5
Agriculture – total	4.4	0.01
Growing of non-perennial crops	0.3	0.0
Growing of perennial crops	–	–
Plant propagation	–	–
Animal production	–	–
Mixed farming	–	–
Support activities to agriculture and post-harvest crop activities	4.1	0.9
Construction – total	24.1	0.1

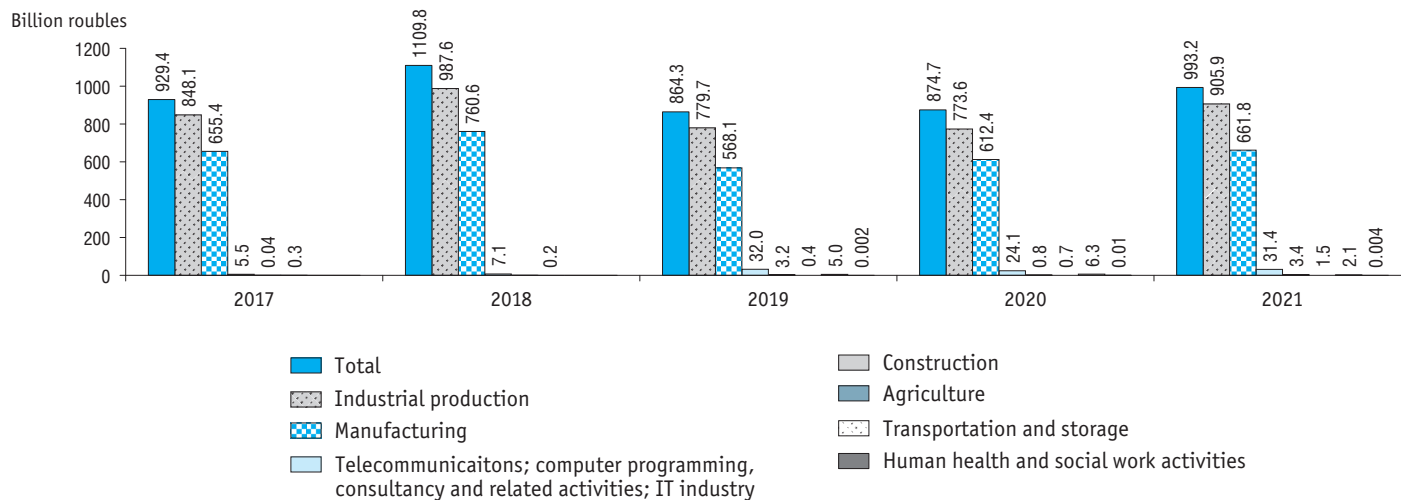
3.8. SALES OF INNOVATIVE GOODS AND SERVICES IN DOMESTIC AND FOREIGN MARKETS



3.9. EXPORTS OF INNOVATIVE GOODS AND SERVICE

	2015	2016	2017	2018	2019	2020	2021
Exports of innovative goods and services – total:							
at current prices, <i>million roubles</i>	906019.1	918541.0	929442.9	1109780.2	864329.5	874672.3	993248.6
at constant 2010 prices, <i>million roubles</i>	591512.1	583348.8	560546.9	608465.5	458749.3	461009.0	449352.4
as a percentage of 2010	253.4	249.9	240.1	260.6	196.5	197.5	192.5

By type of economic activity



3.10. EXPORTS OF INNOVATIVE GOODS AND SERVICES BY TYPE OF ECONOMIC ACTIVITY: 2021

	Million roubles	As a percentage of total sales of innovative goods and services	As a percentage of total exports of innovative goods and services
Total	993248.6	16.5	4.5
Industrial production – total	905925.2	19.8	4.7
Mining and quarrying	244103.4	27.9	3.9
Mining of coal and lignite	3001.4	81.0	0.3
Extraction of crude petroleum and natural gas	186024.6	23.4	4.2
Mining of metal ores	55077.4	77.6	10.0
Other mining and quarrying	–	–	–
Mining support service activities	–	–	–
Manufacturing	661821.8	18.1	5.2
High tech	132643.6	21.3	22.4
Manufacture of basic pharmaceutical products and pharmaceutical preparations	1734.1	1.3	3.8
Production of computer, electronic and optical products	25921.3	10.5	16.5
Manufacture of air and spacecraft and related machinery	104988.2	42.8	27.0
Medium high tech	178609.4	15.7	8.6
Production of chemicals and chemical products	103097.4	32.1	6.0
Manufacture of electrical equipment	4052.9	4.0	6.7
Manufacture of machinery and equipment not elsewhere classified	6386.9	3.7	5.5
Manufacture of motor vehicles, trailers and semi-trailers	44459.1	10.4	32.5
Manufacture of other transport equipment	20077.2	18.4	34.8
Manufacture of medical and dental instruments and supplies	535.8	8.7	53.7

(continued)

	Million roubles	As a percentage of total sales of innovative goods and services	As a percentage of total exports of innovative goods and services
Medium low tech	294680.0	20.6	3.3
Reproduction of recorded media	–	–	–
Manufacture of coke and refined petroleum products	24048.3	6.3	0.6
Manufacture of rubber and plastic products	2238.4	4.3	1.5
Manufacture of other non-metallic mineral products	6804.9	12.5	6.6
Manufacture of basic metals	197556.0	42.1	4.9
Manufacture of fabricated metal products, except machinery and equipment	62555.8	20.5	21.9
Building of ships and boats	600.4	0.4	2.8
Repair and installation of machinery and equipment	876.2	3.1	2.7
Low tech	55888.7	11.9	4.3
Manufacture of food products	16179.1	5.0	4.0
Manufacture of beverages	365.7	1.8	0.9
Manufacture of tobacco products	87.5	4.1	0.2
Manufacture of textiles	6.4	0.05	0.03
Manufacture of wearing apparel	1.8	0.5	0.1
Manufacture of leather and related products	–	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	6972.0	41.8	1.5
Manufacture of paper and paper products	25236.7	38.0	9.4
Printing and reproduction of recorded media	6836.0	34.1	29.7
Manufacture of furniture	5.8	0.1	0.04
Other manufacturing	197.6	10.6	0.8
Electricity, gas, steam and air-conditioning supply	–	–	–
Water supply; sewerage, waste management and remediation activities	–	–	–

(continued)

	Million roubles	As a percentage of total sales of innovative goods and services	As a percentage of total exports of innovative goods and services
Types of economic activity within services sector – total	82438.0	6.3	2.9
Transportation and storage	2092.2	2.5	0.1
Publishing activities	–	–	–
Telecommunications	1.8	0.0	0.01
Computer programming, consultancy and related activities	30943.8	26.0	7.8
IT industry	451.7	1.1	0.2
Legal and accounting activities	–	–	–
Activities of head offices; management consultancy activities	12.9	0.3	0.02
Architectural and engineering activities; technical testing and analysis	3280.7	17.9	7.0
Scientific research and development	45357.0	6.5	44.3
Advertising and market research	288.2	0.2	0.4
Other professional, scientific and technical activities	5.2	0.7	0.7
Human health and social work activities	4.4	0.03	0.03
Agriculture – total	1466.3	2.2	2.1
Growing of non-perennial crops	1390.5	5.4	4.2
Growing of perennial crops	–	–	–
Plant propagation	–	–	–
Animal production	–	–	–
Mixed farming	–	–	–
Support activities to agriculture and post-harvest crop activities	75.8	17.3	26.2
Construction – total	3419.2	8.5	3.6

3.11. EXPORTS OF INNOVATIVE GOODS AND SERVICES BY COUNTRY AND TYPE OF ECONOMIC ACTIVITY: 2021

	Total, <i>million roubles</i>	EAEU countries*		Foreign countries excluding the CIS countries, Baltic States, Republic of Georgia	
		Million roubles	Percentage	Million roubles	Percentage
Total	993248.6	114101.3	11.5	879147.3	88.5
Industrial production – total	905925.2	111576.4	12.3	794348.7	87.7
Mining and quarrying	244103.4	9238.6	3.8	234864.8	96.2
Mining of coal and lignite	3001.4	–	–	3001.4	100
Extraction of crude petroleum and natural gas	186024.6	5622.1	3.0	180402.5	97.0
Mining of metal ores	55077.4	3616.6	6.6	51460.8	93.4
Other mining and quarrying	–	–	–	–	–
Mining support service activities	–	–	–	–	–
Manufacturing	661821.8	102337.8	15.5	559484.0	84.5
High tech	132643.6	7518.2	5.7	125125.4	94.3
Manufacture of basic pharmaceutical products and pharmaceutical preparations	1734.1	1137.2	65.6	596.9	34.4
Production of computer, electronic and optical products	25921.3	2442.2	9.4	23479.1	90.6
Manufacture of air and spacecraft and related machinery	104988.2	3938.8	3.8	101049.4	96.2
Medium high tech	178609.4	51260.0	28.7	127349.4	71.3
Production of chemicals and chemical products	103097.4	7856.8	7.6	95240.6	92.4
Manufacture of electrical equipment	4052.9	1114.5	27.5	2938.5	72.5
Manufacture of machinery and equipment not elsewhere classified	6386.9	3114.1	48.8	3272.8	51.2
Manufacture of motor vehicles, trailers and semi-trailers	44459.1	37843.0	85.1	6616.1	14.9
Manufacture of other transport equipment	20077.2	1326.3	6.6	18750.9	93.4
Manufacture of medical and dental instruments and supplies	535.8	5.3	1.0	530.6	99.0
Medium low tech	294680.0	30222.7	10.3	264457.3	89.7
Reproduction of recorded media	–	–	–	–	–

* Here and below in table 3.12, Armenia, Belarus, Kazakhstan, and Kyrgyzstan.

(continued)

	Total, <i>million roubles</i>	EAEU countries*		Foreign countries excluding the CIS countries, Baltic States, Republic of Georgia	
		Million roubles	Percentage	Million roubles	Percentage
Manufacture of coke and refined petroleum products	24048.3	14155.0	58.9	9893.3	41.1
Manufacture of rubber and plastic products	2238.4	791.0	35.3	1447.4	64.7
Manufacture of other non-metallic mineral products	6804.9	2912.1	42.8	3892.8	57.2
Manufacture of basic metals	197556.0	8949.8	4.5	188606.2	95.5
Manufacture of fabricated metal products, except machinery and equipment	62555.8	3377.3	5.4	59178.4	94.6
Building of ships and boats	600.4	14.2	2.4	586.2	97.6
Repair and installation of machinery and equipment	876.2	23.3	2.7	852.9	97.3
Low tech	55888.7	13337.0	23.9	42551.8	76.1
Manufacture of food products	16179.1	6957.9	43.0	9221.2	57.0
Manufacture of beverages	365.7	146.2	40.0	219.6	60.0
Manufacture of tobacco products	87.5	–	–	87.5	100
Manufacture of textiles	6.4	6.4	100	–	–
Manufacture of wearing apparel	1.8	–	–	1.8	100
Manufacture of leather and related products	–	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	6972.0	206.8	3.0	6765.2	97.0
Manufacture of paper and paper products	25236.7	5619.4	22.3	19617.3	77.7
Printing and reproduction of recorded media	6836.0	289.3	4.2	6546.6	95.8
Manufacture of furniture	5.8	5.8	100	–	–
Other manufacturing	197.6	105.1	53.2	92.5	46.8
Electricity, gas, steam and air-conditioning supply	–	–	–	–	–
Water supply; sewerage, waste management and remediation activities	–	–	–	–	–

(continued)

	Total, <i>million roubles</i>	EAEU countries*		Foreign countries excluding the CIS countries, Baltic States, Republic of Georgia	
		Million roubles	Percentage	Million roubles	Percentage
Types of economic activity within services sector – total	82438.0	2521.9	3.1	79916.1	96.9
Transportation and storage	2092.2	271.7	13.0	1820.5	87.0
Publishing activities	–	–	–	–	–
Telecommunications	1.8	–	–	1.8	100
Computer programming, consultancy and related activities	30943.8	1572.7	5.1	29371.1	94.9
IT industry	451.7	31.7	7.0	420.0	93.0
Legal and accounting activities	–	–	–	–	–
Activities of head offices; management consultancy activities	12.9	–	–	12.9	100
Architectural and engineering activities; technical testing and analysis	3280.7	172.7	5.3	3108.0	94.7
Scientific research and development	45357.0	471.8	1.0	44885.2	99.0
Advertising and market research	288.2	–	–	288.2	100
Other professional, scientific and technical activities	5.2	–	–	5.2	100
Human health and social work activities	4.4	1.2	27.9	3.2	72.1
Agriculture – total	1466.3	–	–	1466.3	100
Growing of non-perennial crops	1390.5	–	–	1390.5	100
Growing of perennial crops	–	–	–	–	–
Plant propagation	–	–	–	–	–
Animal production	–	–	–	–	–
Mixed farming	–	–	–	–	–
Support activities to agriculture and post-harvest crop activities	75.8	–	–	75.8	100
Construction – total	3419.2	3.0	0.1	3416.1	99.9

3.12. ASSESSMENT OF INNOVATION OUTCOMES: 2019–2021

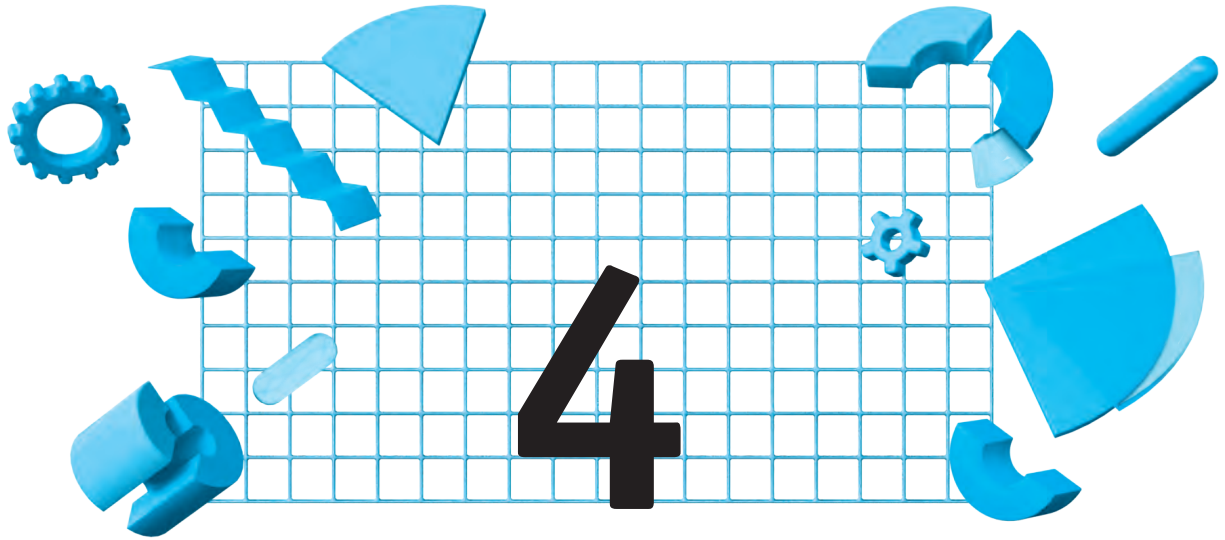
	Enterprises indicating impact of the following innovation outcomes on their development, <i>percentage</i>			
	high	medium	low	no impact
Expansion of goods and services range	29.5	27.6	10.8	32.2
Retaining traditional sales markets	30.8	26.8	10.7	31.7
Market expansion:	22.5	28.4	12.0	37.0
in Russia	25.1	25.9	11.2	37.8
in EAEU countries	5.6	12.2	14.1	68.2
in EU countries, EU candidate countries*, Great Britain, Liechtenstein, Norway, Switzerland	2.1	5.2	10.7	81.9
in BRICS countries**	2.4	5.2	10.2	82.2
in the United States and Canada	1.5	3.5	9.8	85.3
in other countries	3.1	6.5	11.8	78.7
Goods and services quality improvement	34.4	30.6	7.4	27.5
Higher manufacturing flexibility	17.3	31.3	12.8	38.5
Production capacity increase	18.8	28.9	13.1	39.2
Lower salary costs	4.9	17.6	21.2	56.2
Lower inventory and/or material costs	9.1	25.8	20.4	44.7
Better energy efficiency in production processes (lower energy consumption or energy losses)	11.4	24.2	18.9	45.4
Better working environment and occupational health and safety	15.9	28.8	14.2	41.2
More rapid customer and supplier interaction	13.5	24.7	17.4	44.4
Improvements in internal and external communications	20.4	28.7	13.4	37.5
Expanding opportunities for data survey, processing, and analysis	18.6	30.7	13.6	37.1

(continued)

	Enterprises indicating impact of the following innovation outcomes on their development, <i>percentage</i>			
	high	medium	low	no impact
Compliance with advanced technical standards, rules, and regulations and with sanitation, veterinary and phytosanitary requirements	17.4	21.1	10.8	50.8
Higher yield and/or productivity of livestock, poultry, and aquaculture	2.8	4.9	6.2	86.1
Preservation, restoration and improvement of soil fertility of agricultural lands	2.4	4.9	6.1	86.7
Lower effects of seasonality on agricultural production; reducing dependence on weather, climate, and other environmental conditions	1.9	4.7	6.4	87.0
Minimisation of losses of nutrition value when storing, transporting, and processing agricultural products	2.2	5.7	6.5	85.6

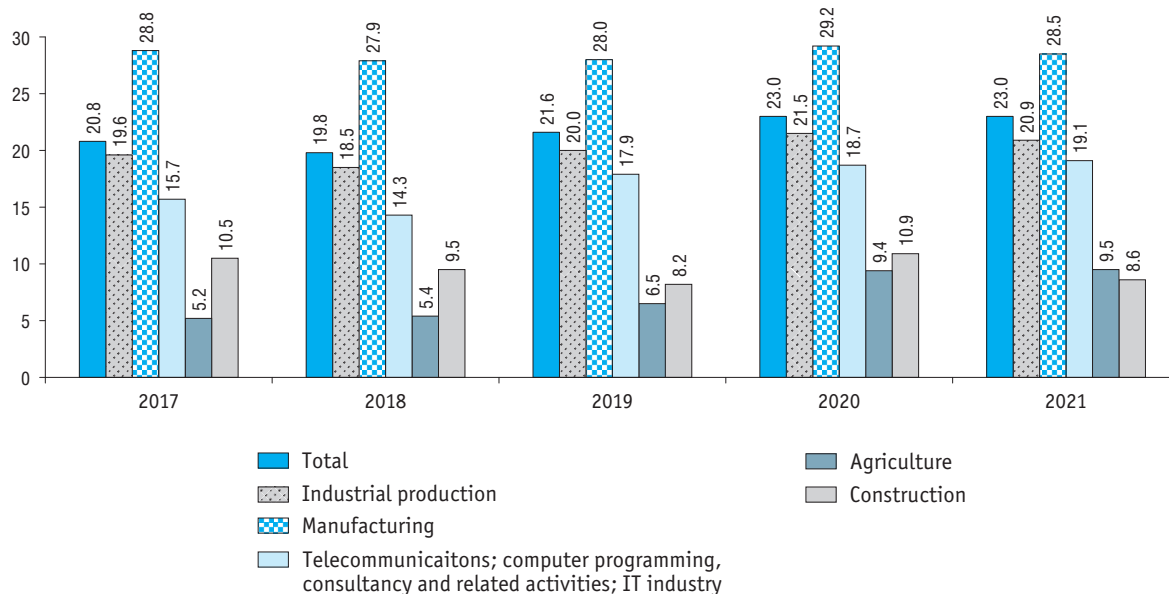
* Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, and Türkiye.

** Brazil, India, China, and South Africa.



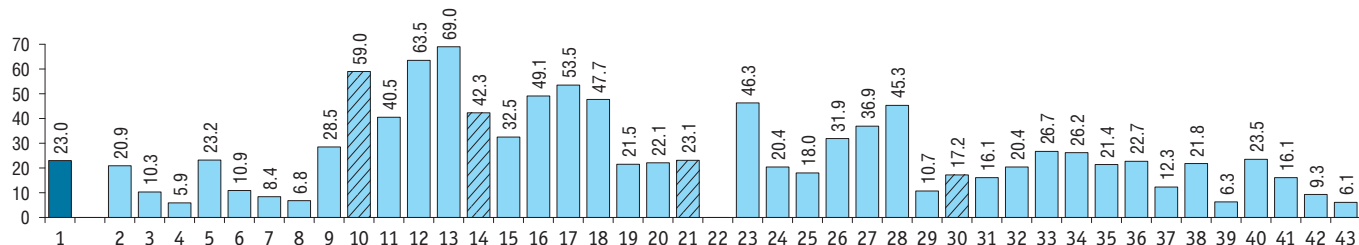
**TECHNOLOGICAL
INNOVATION**

4.1. ENTERPRISES THAT ENGAGED IN TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF THE TOTAL NUMBER OF ENTERPRISES*



* Here and in figure 4.2, the data are calculated according to the methodology approved by Order no. 788 of Rosstat of December 20, 2019, with amendments no. 813 of December 18, 2020.

4.2. ENTERPRISES THAT ENGAGED IN TECHNOLOGICAL INNOVATION AS A PERCENTAGE OF THE TOTAL NUMBER OF ENTERPRISES BY TYPE OF ECONOMIC ACTIVITY: 2021



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

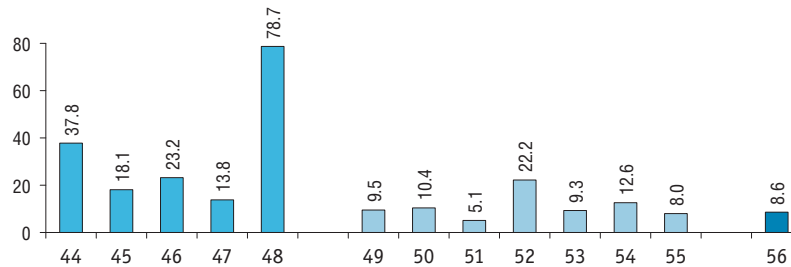
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)

**44 – types of economic activity within services sector – total**

45 – telecommunications

46 – computer programming, consultancy and related activities

47 – IT industry

48 – scientific research and development

49 – agriculture – total

50 – growing of non-perennial crops

51 – growing of perennial crops

52 – plant propagation

53 – animal production

54 – mixed farming

55 – support activities to agriculture and post-harvest crop activities

56 – construction – total

4.3. ENTERPRISES THAT ENGAGED IN TECHNOLOGICAL INNOVATION BY TYPE OF INNOVATIVE AND ECONOMIC ACTIVITY: 2021

(as a percentage of enterprises that had expenditure on technological innovation)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations*
Total	40.4	63.6	14.4	3.7	12.2	13.7
Industrial production – total	46.5	60.9	15.0	6.1	17.9	14.0
Mining and quarrying	40.8	55.3	15.1	1.3	11.8	8.6
Mining of coal and lignite	16.7	66.7	–	–	33.3	–
Extraction of crude petroleum and natural gas	49.3	41.8	23.9	1.5	13.4	10.4
Mining of metal ores	58.8	47.1	11.8	–	17.6	5.9
Other mining and quarrying	10.0	90.0	5.0	5.0	5.0	20.0
Mining support service activities	38.1	61.9	9.5	–	7.1	2.4
Manufacturing	49.9	60.0	15.5	7.2	19.2	14.7
High tech	73.3	55.8	22.9	4.9	18.8	14.9
Manufacture of basic pharmaceutical products and pharmaceutical preparations	75.7	56.8	13.5	4.1	13.5	9.5
Production of computer, electronic and optical products	74.7	51.0	22.2	4.6	19.9	16.5
Manufacture of air and spacecraft and related machinery	63.0	77.8	38.9	7.4	20.4	14.8

* Here and below, marketing and brand creation, development and purchase of software and databases, acquisition of patent rights (alienation), licenses, industrial designs, utility models, selection achievements, integrated circuit designs, etc.; patenting (registration) of the results of intellectual activity; other activities, related to introducing new or significantly improved products or services, new or significantly improved processes or methods of production (transfer) of services.

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations*
Medium high tech	56.9	54.0	14.8	6.1	24.1	14.8
Production of chemicals and chemical products	54.7	62.2	14.2	4.7	25.0	21.6
Manufacture of electrical equipment	63.1	53.7	16.1	6.7	28.2	14.1
Manufacture of machinery and equipment not elsewhere classified	58.9	50.0	14.4	7.2	20.6	12.8
Manufacture of motor vehicles, trailers and semi-trailers	51.9	59.4	14.2	6.6	24.5	16.0
Manufacture of other transport equipment	52.5	30.0	15.0	5.0	27.5	5.0
Manufacture of medical and dental instruments and supplies	42.1	52.6	15.8	–	10.5	–
Medium low tech	47.2	66.7	18.2	3.9	21.6	16.0
Reproduction of recorded media	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	48.7	61.5	17.9	5.1	38.5	17.9
Manufacture of rubber and plastic products	46.7	74.7	8.0	5.3	14.7	9.3
Manufacture of other non-metallic mineral products	29.6	74.5	6.1	4.1	14.3	8.2
Manufacture of basic metals	53.7	65.9	22.0	1.2	30.5	29.3
Manufacture of fabricated metal products, except machinery and equipment	53.8	64.6	27.2	3.6	23.1	16.4
Building of ships and boats	52.4	61.9	23.8	4.8	28.6	28.6
Repair and installation of machinery and equipment	43.1	54.9	13.7	5.9	9.8	11.8

(continued)

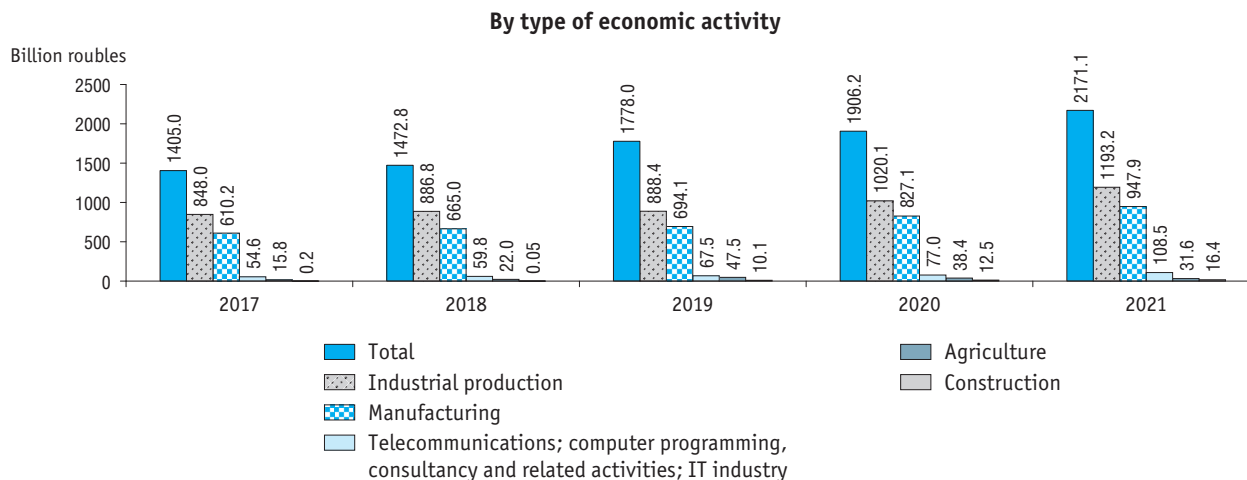
	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations*
Low tech	25.6	63.6	7.8	14.2	10.6	12.8
Manufacture of food products	26.7	58.3	8.3	18.0	9.4	15.0
Manufacture of beverages	23.9	56.5	6.5	26.1	19.6	21.7
Manufacture of tobacco products	25.0	50.0	–	25.0	25.0	–
Manufacture of textiles	46.9	53.1	3.1	–	6.3	3.1
Manufacture of wearing apparel	23.1	69.2	3.8	3.8	11.5	15.4
Manufacture of leather and related products	9.1	81.8	–	–	–	18.2
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	12.9	80.6	6.5	6.5	16.1	3.2
Manufacture of paper and paper products	21.6	75.7	10.8	5.4	10.8	2.7
Printing and reproduction of recorded media	20.0	80.0	10.0	–	–	10.0
Manufacture of furniture	11.1	88.9	16.7	11.1	5.6	11.1
Other manufacturing	36.8	73.7	10.5	15.8	15.8	10.5
Electricity, gas, steam and air-conditioning supply	28.8	66.5	14.4	0.9	14.0	14.4
Water supply; sewerage, waste management and remediation activities	20.4	75.3	5.4	–	7.5	7.5

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations*
Types of economic activity within services sector – total	59.8	51.2	20.0	2.7	14.4	18.2
Telecommunications	10.4	57.0	38.9	1.0	51.3	32.1
Computer programming, consultancy and related activities	42.1	57.9	21.2	4.2	6.2	23.9
IT industry	25.5	69.3	11.7	4.4	3.6	21.2
Scientific research and development	84.5	44.2	16.3	2.2	9.7	12.2
Agriculture – total	14.1	85.9	2.2	1.3	2.9	4.2
Growing of non-perennial crops	13.2	86.0	1.5	–	0.7	3.7
Growing of perennial crops	–	100	–	–	–	20.0
Plant propagation	50.0	50.0	–	–	50.0	–
Animal production	10.8	89.2	0.8	2.3	3.8	4.6
Mixed farming	25.0	81.3	–	6.3	–	6.3
Support activities to agriculture and post-harvest crop activities	29.2	70.8	16.7	–	8.3	–
Construction – total	18.9	75.0	9.4	1.7	7.2	8.9

4.4. EXPENDITURE ON TECHNOLOGICAL INNOVATION

	2017	2018	2019	2020	2021
Expenditure on technological innovation – total:					
at current prices, <i>million roubles</i>	1404985.3	1472822.3	1777978.0	1906233.7	2171148.6
at constant 2010 prices, <i>million roubles*</i>	847346.5	807512.7	943674.9	1004708.6	982242.4
as a percentage of 2010	211.4	201.5	235.4	250.7	245.1
as a percentage of total sales	2.4	2.1	1.9	2.1	1.8



* The data are calculated using GDP deflator as at April 8, 2022.

4.5. EXPENDITURE ON TECHNOLOGICAL INNOVATION BY TYPE OF INNOVATIVE AND ECONOMIC ACTIVITY: 2021

(million roubles)

	Expenditure on technological innovation	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Total	2171148.6	1031336.6	871347.9	4560.9	5768.0	139713.9	118421.2
Industrial production – total	1193245.3	437170.2	583516.7	2937.2	5271.2	102780.9	61569.2
Mining and quarrying	176338.5	20021.6	134412.0	796.5	20.7	7564.7	13523.0
Mining of coal and lignite	531.0	5.3	518.5	–	–	7.3	–
Extraction of crude petroleum and natural gas	108387.5	16406.0	73786.9	770.5	20.7	4457.5	12946.0
Mining of metal ores	21285.8	504.0	18692.3	0.5	–	2086.4	2.6
Other mining and quarrying	5438.7	982.8	2930.5	12.8	0.1	938.1	574.4
Mining support service activities	40695.6	2123.5	38484.0	12.7	–	75.4	0.0
Manufacturing	947915.6	386025.4	418444.7	2016.3	5222.5	92097.7	44109.0
High tech	232910.2	131090.9	87296.2	256.5	1333.2	11962.1	971.4
Manufacture of basic pharmaceutical products and pharmaceutical preparations	51214.8	6960.7	39995.5	30.5	4.8	4126.9	96.4
Production of computer, electronic and optical products	75194.6	49523.6	20731.3	77.0	345.4	4027.0	490.3
Manufacture of air and spacecraft and related machinery	106500.8	74606.6	26569.5	149.0	982.9	3808.2	384.7
Medium high tech	216604.5	53039.0	91523.9	598.5	1447.2	34577.6	35418.3
Production of chemicals and chemical products	76873.7	6634.0	40632.1	280.8	16.2	27487.6	1822.9
Manufacture of electrical equipment	12532.1	3599.2	2999.0	82.8	113.6	831.9	4905.7
Manufacture of machinery and equipment not elsewhere classified	29787.0	20540.2	6684.7	68.2	116.7	2218.7	158.5

(continued)

	Expenditure on technological innovation	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Manufacture of motor vehicles, trailers and semi-trailers	94645.3	21017.7	40631.9	147.5	1002.9	3317.9	28527.3
Manufacture of other transport equipment	2513.2	1176.5	397.6	18.5	197.8	718.8	3.9
Manufacture of medical and dental instruments and supplies	253.2	71.4	178.6	0.6	–	2.7	–
Medium low tech	401730.9	192190.0	162830.9	1129.6	535.3	39562.4	5482.7
Reproduction of recorded media	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	155868.3	75146.7	59801.2	319.6	40.4	17983.2	2577.1
Manufacture of rubber and plastic products	12034.7	1307.7	9714.4	2.6	433.4	568.6	8.0
Manufacture of other non-metallic mineral products	8451.1	2816.5	5394.4	1.7	32.2	189.1	17.2
Manufacture of basic metals	97588.8	11240.0	66792.0	726.9	15.7	17834.6	979.5
Manufacture of fabricated metal products, except machinery and equipment	109135.6	91192.0	14287.1	62.1	12.1	2573.4	1008.9
Building of ships and boats	17204.7	9623.4	6343.9	8.2	0.1	405.7	823.4
Repair and installation of machinery and equipment	1447.8	863.6	497.9	8.4	1.4	7.8	68.6
Low tech	96669.9	9705.4	76793.7	31.7	1906.8	5995.7	2236.7
Manufacture of food products	27602.4	3159.8	21370.1	23.7	397.4	510.9	2140.5
Manufacture of beverages	3067.1	105.6	1443.7	0.5	39.4	1394.5	83.5
Manufacture of tobacco products	4630.1	2612.2	624.3	–	1372.2	21.4	–
Manufacture of textiles	1129.1	185.8	942.3	0.1	–	0.8	0.02
Manufacture of wearing apparel	324.0	76.5	233.8	0.3	0.4	4.6	8.4

(continued)

	Expenditure on technological innovation	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Manufacture of leather and related products	122.6	0.2	122.1	–	–	–	0.3
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	11283.9	43.5	7850.3	2.0	13.2	3374.5	0.4
Manufacture of paper and paper products	46683.5	3309.4	42728.6	2.9	77.6	562.2	2.9
Printing and reproduction of recorded media	484.6	31.4	453.0	0.03	–	–	0.2
Manufacture of furniture	142.2	6.5	132.4	1.2	0.8	0.9	0.3
Other manufacturing	1200.6	174.5	893.1	1.1	5.8	125.8	0.2
Electricity, gas, steam and air-conditioning supply	35723.6	6057.0	24487.7	116.9	28.0	1568.3	3465.7
Water supply; sewerage, waste management and remediation activities	33267.6	25066.2	6172.2	7.5	–	1550.2	471.5
Types of economic activity within services sector – total	929921.5	583817.7	251905.3	1616.6	495.2	36277.7	55808.9
Transportation and storage	174085.0	16872.5	151171.9	968.0	0.01	2582.5	2490.0
Publishing activities	231.8	11.8	150.6	0.1	1.7	2.5	65.0
Telecommunications	61230.2	2999.3	29435.4	69.7	0.5	24659.0	4066.3
Computer programming, consultancy and related activities	43066.2	18457.1	3658.1	167.2	67.7	502.6	20213.5
IT industry	4239.5	3210.7	644.7	21.0	4.2	62.5	296.4

(continued)

	Expenditure on technological innovation	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Legal and accounting activities	457.1	52.2	325.9	0.7	0.2	38.0	40.1
Activities of head offices; management consultancy activities	35780.5	33634.9	2065.7	25.7	0.4	0.01	53.9
Architectural and engineering activities; technical testing and analysis	34572.3	7852.2	2261.5	37.0	3.1	642.8	23775.8
Scientific research and development	549137.3	493800.6	44960.9	278.1	414.7	7548.4	2134.6
Advertising and market research	4698.2	2720.4	1548.8	22.9	2.0	53.0	351.1
Other professional, scientific and technical activities	1092.8	914.5	176.2	2.0	–	–	–
Human health and social work activities	21330.6	3291.5	15505.6	24.2	0.7	186.5	2322.2
Agriculture – total	31602.8	1953.4	29324.9	1.6	0.9	121.6	200.4
Growing of non-perennial crops	15824.2	906.9	14879.8	0.6	–	0.1	36.8
Growing of perennial crops	4723.1	–	4705.8	–	–	–	17.3
Plant propagation	26.9	8.5	0.04	–	–	18.3	–
Animal production	8279.9	693.7	7343.8	0.0	0.8	95.4	146.2
Mixed farming	1239.6	110.6	1128.8	–	0.1	–	0.1
Support activities to agriculture and post-harvest crop activities	1509.0	233.6	1266.6	1.0	–	7.8	–
Construction – total	16379.0	8395.3	6601.0	5.6	0.7	533.7	842.7

4.6. PERCENTAGE DISTRIBUTION OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY TYPE OF INNOVATIVE AND ECONOMIC ACTIVITY: 2021

	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Total	47.5	40.1	0.2	0.3	6.4	5.5
Industrial production – total	36.6	48.9	0.2	0.4	8.6	5.2
Mining and quarrying	11.4	76.2	0.5	0.01	4.3	7.7
Mining of coal and lignite	1.0	97.6	–	–	1.4	–
Extraction of crude petroleum and natural gas	15.1	68.1	0.7	0.02	4.1	11.9
Mining of metal ores	2.4	87.8	0.0	–	9.8	0.01
Other mining and quarrying	18.1	53.9	0.2	0.0	17.2	10.6
Mining support service activities	5.2	94.6	0.03	–	0.2	0.0
Manufacturing	40.7	44.1	0.2	0.6	9.7	4.7
High tech	56.3	37.5	0.1	0.6	5.1	0.4
Manufacture of basic pharmaceutical products and pharmaceutical preparations	13.6	78.1	0.1	0.01	8.1	0.2
Production of computer, electronic and optical products	65.9	27.6	0.1	0.5	5.4	0.7
Manufacture of air and spacecraft and related machinery	70.1	24.9	0.1	0.9	3.6	0.4
Medium high tech	24.5	42.3	0.3	0.7	16.0	16.4
Production of chemicals and chemical products	8.6	52.9	0.4	0.02	35.8	2.4

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Manufacture of electrical equipment	28.7	23.9	0.7	0.9	6.6	39.1
Manufacture of machinery and equipment not elsewhere classified	69.0	22.4	0.2	0.4	7.4	0.5
Manufacture of motor vehicles, trailers and semi-trailers	22.2	42.9	0.2	1.1	3.5	30.1
Manufacture of other transport equipment	46.8	15.8	0.7	7.9	28.6	0.2
Manufacture of medical and dental instruments and supplies	28.2	70.5	0.3	–	1.0	–
Medium low tech	47.8	40.5	0.3	0.1	9.8	1.4
Reproduction of recorded media	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	48.2	38.4	0.2	0.03	11.5	1.7
Manufacture of rubber and plastic products	10.9	80.7	0.02	3.6	4.7	0.1
Manufacture of other non-metallic mineral products	33.3	63.8	0.02	0.4	2.2	0.2
Manufacture of basic metals	11.5	68.4	0.7	0.02	18.3	1.0
Manufacture of fabricated metal products, except machinery and equipment	83.6	13.1	0.1	0.01	2.4	0.9
Building of ships and boats	55.9	36.9	0.05	0.0	2.4	4.8
Repair and installation of machinery and equipment	59.7	34.4	0.6	0.1	0.5	4.7

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Low tech	10.0	79.4	0.03	2.0	6.2	2.3
Manufacture of food products	11.4	77.4	0.1	1.4	1.9	7.8
Manufacture of beverages	3.4	47.1	0.01	1.3	45.5	2.7
Manufacture of tobacco products	56.4	13.5	–	29.6	0.5	–
Manufacture of textiles	16.5	83.5	0.01	–	0.1	0.0
Manufacture of wearing apparel	23.6	72.2	0.1	0.1	1.4	2.6
Manufacture of leather and related products	0.1	99.6	–	–	–	0.3
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	0.4	69.6	0.02	0.1	29.9	0.0
Manufacture of paper and paper products	7.1	91.5	0.01	0.2	1.2	0.01
Printing and reproduction of recorded media	6.5	93.5	0.01	–	–	0.04
Manufacture of furniture	4.6	93.1	0.8	0.6	0.7	0.2
Other manufacturing	14.5	74.4	0.1	0.5	10.5	0.02
Electricity, gas, steam and air-conditioning supply	17.0	68.5	0.3	0.1	4.4	9.7
Water supply; sewerage, waste management and remediation activities	75.3	18.6	0.02	–	4.7	1.4

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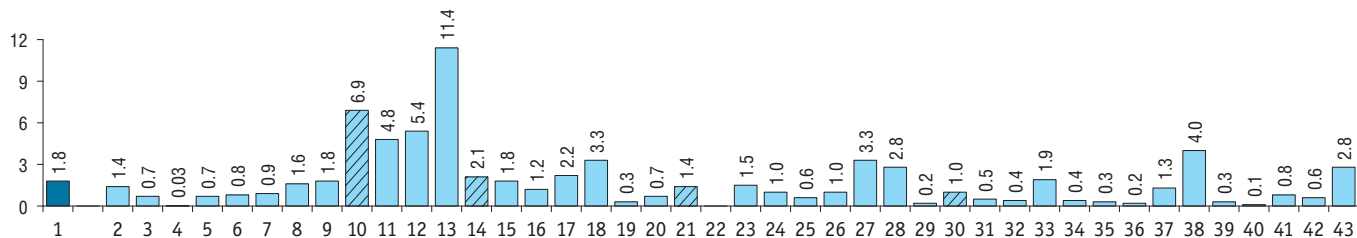
	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Types of economic activity within services sector – total	62.8	27.1	0.2	0.1	3.9	6.0
Transportation and storage	9.7	86.8	0.6	0.0	1.5	1.4
Publishing activities	5.1	65.0	0.1	0.7	1.1	28.1
Telecommunications	4.9	48.1	0.1	0.0	40.3	6.6
Computer programming, consultancy and related activities	42.9	8.5	0.4	0.2	1.2	46.9
IT industry	75.7	15.2	0.5	0.1	1.5	7.0
Legal and accounting activities	11.4	71.3	0.2	0.04	8.3	8.8
Activities of head offices; management consultancy activities	94.0	5.8	0.1	0.0	0.0	0.2
Architectural and engineering activities; technical testing and analysis	22.7	6.5	0.1	0.01	1.9	68.8
Scientific research and development	89.9	8.2	0.1	0.1	1.4	0.4
Advertising and market research	57.9	33.0	0.5	0.04	1.1	7.5

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Education and training of personnel	Design	Engineering	Other activities related to introducing technological innovations
Other professional, scientific and technical activities	83.7	16.1	0.2	–	–	–
Human health and social work activities	15.4	72.7	0.1	0.0	0.9	10.9
Agriculture – total	6.2	92.8	0.0	0.0	0.4	0.6
Growing of non-perennial crops	5.7	94.0	0.0	–	0.0	0.2
Growing of perennial crops	–	99.6	–	–	–	0.4
Plant propagation	31.7	0.2	–	–	68.1	–
Animal production	8.4	88.7	0.0	0.01	1.2	1.8
Mixed farming	8.9	91.1	–	0.01	–	0.01
Support activities to agriculture and post-harvest crop activities	15.5	83.9	0.1	–	0.5	–
Construction – total	51.3	40.3	0.03	0.0	3.3	5.1

4.7. INTENSITY OF EXPENDITURE ON TECHNOLOGICAL INNOVATION BY TYPE OF ECONOMIC ACTIVITY: 2021

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



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

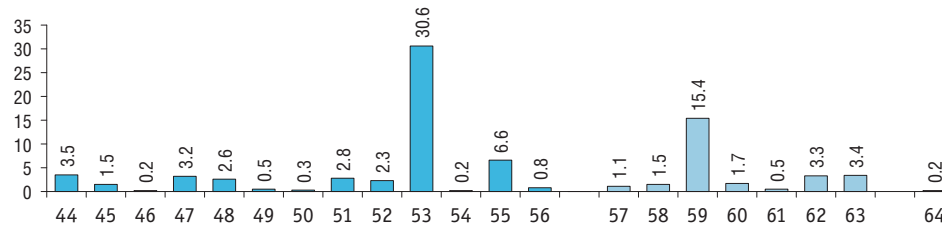
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)

**44 – types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

55 – other professional, scientific and technical activities

56 – human health and social work activities

57 – agriculture – total

58 – growing of non-perennial crops

59 – growing of perennial crops

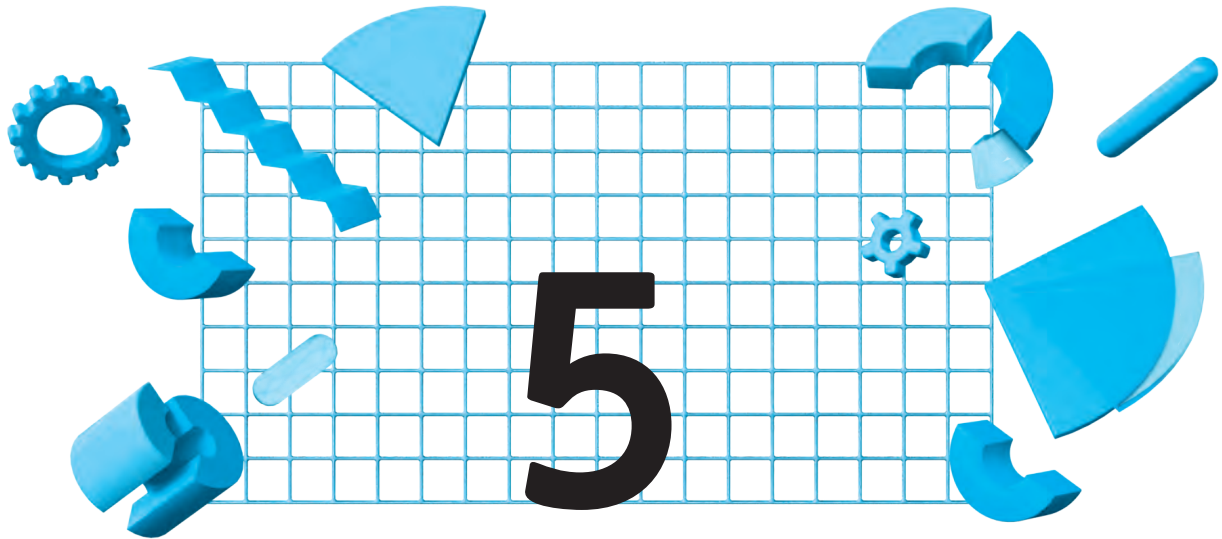
60 – plant propagation

61 – animal production

62 – mixed farming

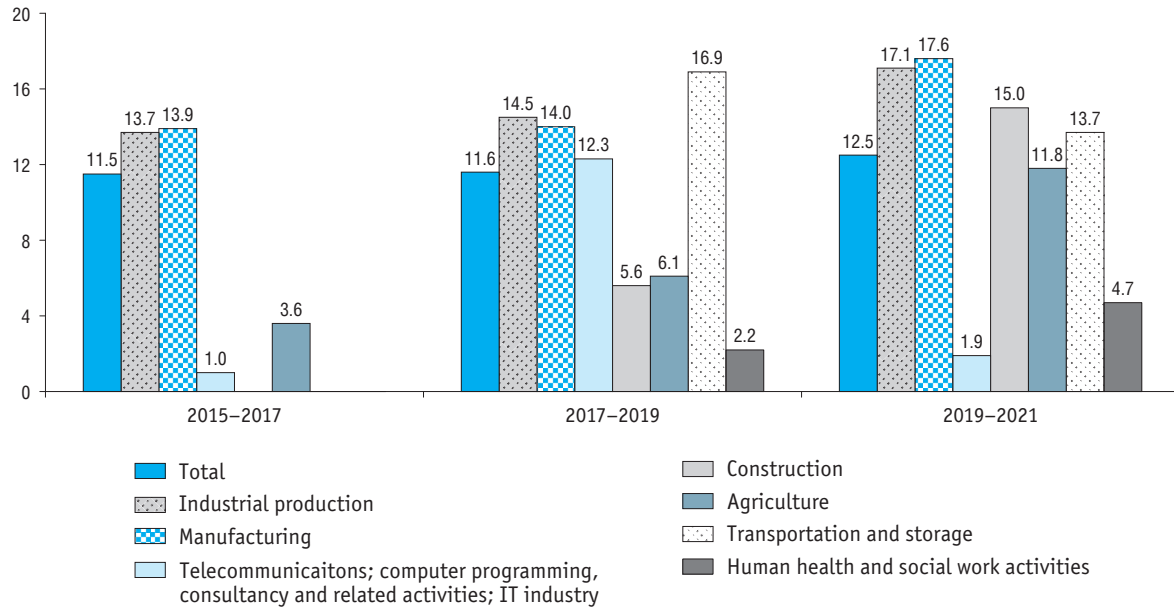
63 – support activities to agriculture and post-harvest crop activities

64 – construction – total

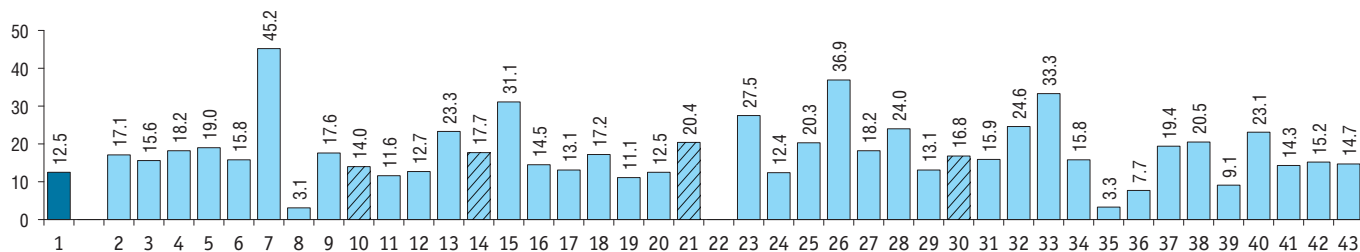


**ENVIRONMENTAL
INNOVATION**

5.1. ENTERPRISES THAT ENGAGED IN ENVIRONMENTAL INNOVATION AS A PERCENTAGE OF THE TOTAL NUMBER OF ENTERPRISES THAT COMPLETED INNOVATIVE ACTIVITIES



5.2. ENTERPRISES THAT ENGAGED IN ENVIRONMENTAL INNOVATION AS A PERCENTAGE OF THE TOTAL NUMBER OF ENTERPRISES THAT COMPLETED INNOVATIVE ACTIVITIES BY TYPE OF ECONOMIC ACTIVITY: 2019–2021



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

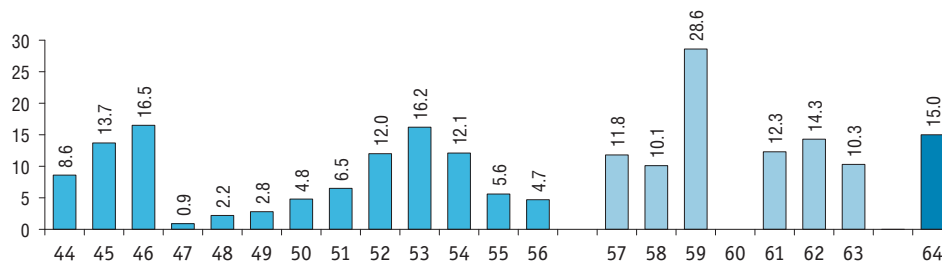
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)

**44 – types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – agriculture – total

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – construction – total

5.3. ENTERPRISES THAT ENGAGED IN INNOVATION THAT IMPROVED ECOLOGICAL PROTECTION DURING THE PRODUCTION OF GOODS AND SERVICES: 2019–2021

(as a percentage of all enterprises that engaged in environmental innovation)

	Replacing materials with less hazardous or non-hazardous substitutes	Recycling waste, water or materials	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing carbon dioxide emission	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Conserving and replenishing natural resources used in agriculture
Total	46.7	46.0	74.0	48.1	54.1	53.7	43.5
Industrial production – total	46.0	49.7	76.0	43.9	51.2	53.8	37.2
Mining and quarrying	34.1	48.8	70.7	53.7	43.9	43.9	46.3
Mining of coal and lignite	–	50.0	100	–	–	–	–
Extraction of crude petroleum and natural gas	25.0	37.5	75.0	56.3	50.0	43.8	25.0
Mining of metal ores	–	50.0	50.0	50.0	–	–	16.7
Other mining and quarrying	64.3	57.1	71.4	64.3	57.1	71.4	78.6
Mining support service activities	33.3	66.7	66.7	33.3	66.7	33.3	100
Manufacturing	46.6	53.0	76.4	43.0	52.3	56.4	36.6
High tech	51.7	41.7	71.7	35.0	56.7	48.3	21.7
Manufacture of basic pharmaceutical products and pharmaceutical preparations	40.0	70.0	90.0	50.0	30.0	60.0	30.0
Production of computer, electronic and optical products	55.6	33.3	61.1	30.6	58.3	41.7	19.4
Manufacture of air and spacecraft and related machinery	50.0	42.9	85.7	35.7	71.4	57.1	21.4

(continued)

	Replacing materials with less hazardous or non-hazardous substitutes	Recycling waste, water or materials	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing carbon dioxide emission	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Conserving and replenishing natural resources used in agriculture
Medium high tech	46.1	52.5	68.1	40.4	51.8	57.4	32.6
Production of chemicals and chemical products	40.4	50.0	75.0	42.3	48.1	53.8	34.6
Manufacture of electrical equipment	46.2	53.8	61.5	38.5	53.8	50.0	30.8
Manufacture of machinery and equipment not elsewhere classified	57.6	54.5	63.6	48.5	57.6	69.7	33.3
Manufacture of motor vehicles, trailers and semi-trailers	45.5	63.6	63.6	36.4	59.1	63.6	40.9
Manufacture of other transport equipment	20.0	20.0	80.0	20.0	20.0	40.0	–
Manufacture of medical and dental instruments and supplies	66.7	33.3	66.7	–	33.3	33.3	–
Medium low tech	37.3	52.3	83.7	40.5	44.4	50.3	41.2
Reproduction of recorded media	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	35.7	57.1	100	42.9	42.9	42.9	57.1
Manufacture of rubber and plastic products	76.9	76.9	84.6	61.5	46.2	61.5	46.2
Manufacture of other non-metallic mineral products	23.1	53.8	76.9	30.8	61.5	57.7	42.3
Manufacture of basic metals	26.3	60.5	89.5	42.1	23.7	42.1	42.1

(continued)

	Replacing materials with less hazardous or non-hazardous substitutes	Recycling waste, water or materials	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing carbon dioxide emission	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Conserving and replenishing natural resources used in agriculture
Manufacture of fabricated metal products, except machinery and equipment	40.5	35.7	83.3	33.3	47.6	45.2	31.0
Building of ships and boats	16.7	33.3	83.3	33.3	33.3	66.7	33.3
Repair and installation of machinery and equipment	57.1	57.1	64.3	57.1	64.3	64.3	50.0
Low tech	56.9	60.3	79.3	53.4	61.2	67.2	43.1
Manufacture of food products	60.3	65.1	77.8	55.6	58.7	66.7	36.5
Manufacture of beverages	82.4	88.2	88.2	88.2	94.1	88.2	76.5
Manufacture of tobacco products	–	100	100	100	100	100	–
Manufacture of textiles	33.3	33.3	83.3	16.7	33.3	33.3	16.7
Manufacture of wearing apparel	100	100	100	–	100	100	100
Manufacture of leather and related products	–	–	100	–	–	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	14.3	57.1	42.9	42.9	57.1	42.9	57.1
Manufacture of paper and paper products	37.5	25.0	87.5	37.5	25.0	50.0	37.5
Printing and reproduction of recorded media	–	–	100	–	–	100	–
Manufacture of furniture	83.3	33.3	66.7	–	83.3	83.3	66.7
Other manufacturing	50.0	25.0	100	75.0	50.0	75.0	25.0

(continued)

	Replacing materials with less hazardous or non-hazardous substitutes	Recycling waste, water or materials	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing carbon dioxide emission	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Conserving and replenishing natural resources used in agriculture
Electricity, gas, steam and air-conditioning supply	37.0	17.4	69.6	39.1	43.5	41.3	26.1
Water supply; sewerage, waste management and remediation activities	76.2	47.6	90.5	57.1	57.1	42.9	57.1
Types of economic activity within services sector – total	46.0	39.0	70.9	52.0	59.0	52.8	50.8
Transportation and storage	47.4	41.0	74.4	53.8	48.7	48.7	53.8
Publishing activities	21.1	26.3	94.7	94.7	100	94.7	94.7
Telecommunications	–	–	–	–	33.3	–	–
Computer programming, consultancy and related activities	30.0	40.0	60.0	50.0	50.0	70.0	50.0
IT industry	33.3	66.7	50.0	66.7	66.7	66.7	33.3
Legal and accounting activities	85.7	85.7	85.7	85.7	100	85.7	85.7
Activities of head offices; management consultancy activities	30.0	10.0	60.0	30.0	50.0	40.0	30.0
Architectural and engineering activities; technical testing and analysis	67.6	35.3	82.4	64.7	67.6	67.6	55.9
Scientific research and development	41.5	38.5	70.4	40.7	53.3	42.2	43.7
Advertising and market research	–	12.5	25.0	12.5	37.5	12.5	12.5
Other professional, scientific and technical activities	100	100	100	100	100	100	100
Human health and social work activities	65.1	46.5	65.1	62.8	72.1	65.1	55.8

(continued)

	Replacing materials with less hazardous or non-hazardous substitutes	Recycling waste, water or materials	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing carbon dioxide emission	Reducing material costs per unit of goods and services output	Reducing power consumption per unit of goods and services output	Conserving and replenishing natural resources used in agriculture
Agriculture – total	51.5	51.5	75.8	51.5	45.5	57.6	63.6
Growing of non-perennial crops	77.8	55.6	88.9	88.9	88.9	88.9	77.8
Growing of perennial crops	50.0	50.0	100	50.0	50.0	50.0	50.0
Plant propagation	–	–	–	–	–	–	–
Animal production	38.9	55.6	66.7	27.8	22.2	38.9	55.6
Mixed farming	–	–	100	100	100	100	100
Support activities to agriculture and post-harvest crop activities	66.7	33.3	66.7	66.7	33.3	66.7	66.7
Construction – total	59.5	51.4	70.3	73.0	59.5	56.8	54.1

5.4. ENTERPRISES THAT ENGAGED IN INNOVATION IMPROVING ENVIRONMENTAL PROTECTION AS A RESULT OF THE CUSTOMER'S USE OF INNOVATIVE GOODS AND SERVICES: 2019–2021
((as a percentage of all enterprises that engaged in environmental innovation))

	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing energy consumption or loss of energy resources	Improving the possibilities of recycling goods after use
Total	64.2	58.1	37.5
Industrial production – total	61.8	55.2	36.3
Mining and quarrying	46.3	39.0	34.1
Mining of coal and lignite	–	–	–
Extraction of crude petroleum and natural gas	37.5	37.5	25.0
Mining of metal ores	33.3	–	–
Other mining and quarrying	57.1	64.3	57.1
Mining support service activities	100	33.3	66.7
Manufacturing	61.5	56.2	37.4
High tech	55.0	51.7	23.3
Manufacture of basic pharmaceutical products and pharmaceutical preparations	60.0	60.0	40.0
Production of computer, electronic and optical products	47.2	47.2	22.2
Manufacture of air and spacecraft and related machinery	71.4	57.1	14.3
Medium high tech	58.2	58.2	39.0
Production of chemicals and chemical products	65.4	48.1	34.6
Manufacture of electrical equipment	38.5	61.5	50.0
Manufacture of machinery and equipment not elsewhere classified	60.6	69.7	39.4
Manufacture of motor vehicles, trailers and semi-trailers	63.6	59.1	40.9
Manufacture of other transport equipment	60.0	80.0	20.0
Manufacture of medical and dental instruments and supplies	33.3	33.3	33.3
Medium low tech	65.4	52.3	31.4
Reproduction of recorded media	–	–	–

(continued)

	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing energy consumption or loss of energy resources	Improving the possibilities of recycling goods after use
Manufacture of coke and refined petroleum products	64.3	35.7	21.4
Manufacture of rubber and plastic products	53.8	53.8	61.5
Manufacture of other non-metallic mineral products	65.4	50.0	34.6
Manufacture of basic metals	71.1	47.4	15.8
Manufacture of fabricated metal products, except machinery and equipment	61.9	52.4	28.6
Building of ships and boats	83.3	83.3	50.0
Repair and installation of machinery and equipment	64.3	71.4	50.0
Low tech	63.8	61.2	50.9
Manufacture of food products	63.5	61.9	47.6
Manufacture of beverages	82.4	82.4	82.4
Manufacture of tobacco products	100	100	100
Manufacture of textiles	33.3	33.3	16.7
Manufacture of wearing apparel	100	100	100
Manufacture of leather and related products	100	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	42.9	42.9	42.9
Manufacture of paper and paper products	37.5	25.0	25.0
Printing and reproduction of recorded media	–	–	–
Manufacture of furniture	83.3	83.3	83.3
Other manufacturing	75.0	75.0	25.0
Electricity, gas, steam and air-conditioning supply	63.0	63.0	17.4
Water supply; sewerage, waste management and remediation activities	95.2	47.6	57.1

(continued)

	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing energy consumption or loss of energy resources	Improving the possibilities of recycling goods after use
Types of economic activity within services sector – total	67.5	61.3	36.4
Transportation and storage	71.8	55.1	34.6
Publishing activities	94.7	94.7	21.1
Telecommunications	33.3	33.3	–
Computer programming, consultancy and related activities	70.0	80.0	50.0
IT industry	66.7	66.7	50.0
Legal and accounting activities	71.4	71.4	71.4
Activities of head offices; management consultancy activities	20.0	20.0	20.0
Architectural and engineering activities; technical testing and analysis	76.5	70.6	52.9
Scientific research and development	63.7	54.8	28.1
Advertising and market research	25.0	75.0	–
Other professional, scientific and technical activities	100	–	100
Human health and social work activities	72.1	74.4	60.5
Agriculture – total	63.6	54.5	51.5
Growing of non-perennial crops	88.9	88.9	66.7
Growing of perennial crops	50.0	50.0	50.0
Plant propagation	–	–	–
Animal production	50.0	27.8	50.0
Mixed farming	100	100	–
Support activities to agriculture and post-harvest crop activities	66.7	100	33.3
Construction – total	70.3	75.7	54.1

5.5. PERCENTAGE DISTRIBUTION OF ENTERPRISES THAT ENGAGED IN ENVIRONMENTAL INNOVATION BY OBJECTIVE AND TYPE OF ECONOMIC ACTIVITY: 2019–2021

	Enterprises that engaged in environmental innovation by objective					
	ensuring compliance with modern technical regulations, rules, and standards	ensuring compliance with expected tightening of legal provisions	availability of government grants, subsidies, or other financial incentives following introduction of environmental innovation	compliance with the market (consumers) requirements that force to introduce environmental innovations	voluntary adherence to the general principles of environmental protection	minimisation of the consequences of adverse climate changes, as well as the consequences of natural and man-made emergencies
Total	80.0	50.7	21.9	53.1	75.6	50.4
Industrial production – total	82.4	54.5	17.1	51.0	78.0	46.7
Mining and quarrying	85.4	58.5	24.4	41.5	78.0	51.2
Mining of coal and lignite	100	–	–	–	–	–
Extraction of crude petroleum and natural gas	81.3	43.8	6.3	31.3	75.0	43.8
Mining of metal ores	83.3	50.0	16.7	16.7	100	50.0
Other mining and quarrying	100	92.9	50.0	71.4	78.6	71.4
Mining support service activities	33.3	33.3	33.3	33.3	100	33.3
Manufacturing	84.0	56.6	17.0	53.0	78.3	47.2
High tech	85.0	53.3	11.7	40.0	76.7	40.0
Manufacture of basic pharmaceutical products and pharmaceutical preparations	80.0	60.0	10.0	30.0	90.0	50.0
Production of computer, electronic and optical products	86.1	52.8	8.3	36.1	75.0	36.1
Manufacture of air and spacecraft and related machinery	85.7	50.0	21.4	57.1	71.4	42.9

(continued)

	Enterprises that engaged in environmental innovation by objective					
	ensuring compliance with modern technical regulations, rules, and standards	ensuring compliance with expected tightening of legal provisions	availability of government grants, subsidies, or other financial incentives following introduction of environmental innovation	compliance with the market (consumers) requirements that force to introduce environmental innovations	voluntary adherence to the general principles of environmental protection	minimisation of the consequences of adverse climate changes, as well as the consequences of natural and man-made emergencies
Medium high tech	80.9	51.8	13.5	52.5	78.7	46.1
Production of chemicals and chemical products	73.1	44.2	7.7	44.2	76.9	40.4
Manufacture of electrical equipment	84.6	57.7	3.8	65.4	73.1	34.6
Manufacture of machinery and equipment not elsewhere classified	84.8	54.5	21.2	54.5	87.9	60.6
Manufacture of motor vehicles, trailers and semi-trailers	86.4	59.1	27.3	54.5	72.7	45.5
Manufacture of other transport equipment	80.0	60.0	–	60.0	100	60.0
Manufacture of medical and dental instruments and supplies	100	33.3	33.3	33.3	66.7	66.7
Medium low tech	86.9	58.8	17.6	55.6	81.0	49.7
Reproduction of recorded media	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	85.7	78.6	14.3	57.1	78.6	57.1
Manufacture of rubber and plastic products	69.2	53.8	30.8	46.2	76.9	46.2
Manufacture of other non-metallic mineral products	84.6	53.8	19.2	65.4	88.5	50.0
Manufacture of basic metals	92.1	63.2	13.2	65.8	81.6	47.4

(continued)

	Enterprises that engaged in environmental innovation by objective					
	ensuring compliance with modern technical regulations, rules, and standards	ensuring compliance with expected tightening of legal provisions	availability of government grants, subsidies, or other financial incentives following introduction of environmental innovation	compliance with the market (consumers) requirements that force to introduce environmental innovations	voluntary adherence to the general principles of environmental protection	minimisation of the consequences of adverse climate changes, as well as the consequences of natural and man-made emergencies
Manufacture of fabricated metal products, except machinery and equipment	90.5	42.9	11.9	40.5	73.8	50.0
Building of ships and boats	66.7	66.7	16.7	50.0	100	50.0
Repair and installation of machinery and equipment	92.9	85.7	35.7	64.3	85.7	50.0
Low tech	83.6	61.2	23.3	56.9	75.0	49.1
Manufacture of food products	87.3	63.5	20.6	57.1	71.4	44.4
Manufacture of beverages	88.2	88.2	70.6	76.5	88.2	70.6
Manufacture of tobacco products	100	100	–	100	100	100
Manufacture of textiles	33.3	–	–	16.7	66.7	33.3
Manufacture of wearing apparel	100	–	–	100	100	100
Manufacture of leather and related products	100	100	–	–	100	100
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	85.7	42.9	14.3	42.9	85.7	28.6
Manufacture of paper and paper products	75.0	37.5	–	50.0	50.0	25.0
Printing and reproduction of recorded media	100	–	–	–	100	–
Manufacture of furniture	83.3	66.7	–	66.7	66.7	66.7
Other manufacturing	75.0	75.0	25.0	50.0	100	75.0

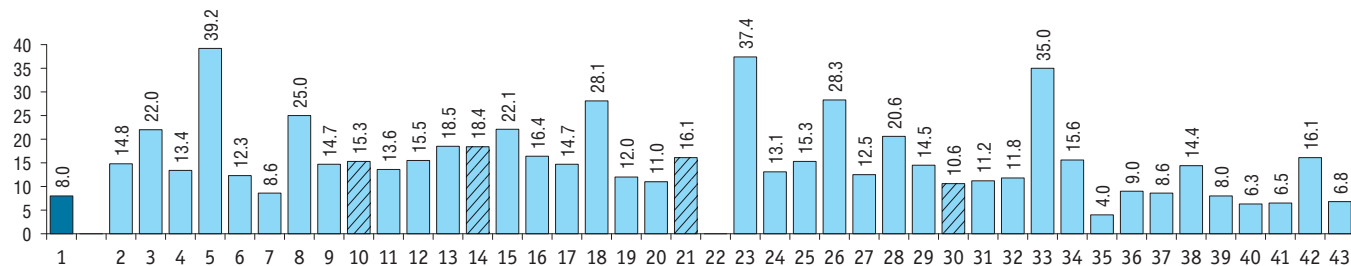
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	Enterprises that engaged in environmental innovation by objective					
	ensuring compliance with modern technical regulations, rules, and standards	ensuring compliance with expected tightening of legal provisions	availability of government grants, subsidies, or other financial incentives following introduction of environmental innovation	compliance with the market (consumers) requirements that force to introduce environmental innovations	voluntary adherence to the general principles of environmental protection	minimisation of the consequences of adverse climate changes, as well as the consequences of natural and man-made emergencies
Electricity, gas, steam and air-conditioning supply	67.4	41.3	13.0	43.5	71.7	39.1
Water supply; sewerage, waste management and remediation activities	71.4	28.6	14.3	42.9	85.7	42.9
Types of economic activity within services sector – total	78.0	45.5	27.7	56.2	73.4	57.1
Transportation and storage	78.2	50.0	25.6	55.1	75.6	50.0
Publishing activities	94.7	21.1	21.1	94.7	94.7	100
Telecommunications	–	–	–	–	33.3	33.3
Computer programming, consultancy and related activities	30.0	30.0	10.0	40.0	60.0	40.0
IT industry	33.3	33.3	16.7	50.0	83.3	50.0
Legal and accounting activities	71.4	57.1	57.1	57.1	57.1	57.1
Activities of head offices; management consultancy activities	50.0	10.0	10.0	20.0	30.0	10.0
Architectural and engineering activities; technical testing and analysis	88.2	32.4	17.6	41.2	82.4	70.6
Scientific research and development	81.5	47.4	31.1	60.0	71.1	57.8
Advertising and market research	37.5	25.0	–	25.0	37.5	25.0
Other professional, scientific and technical activities	100	100	100	100	100	100
Human health and social work activities	88.4	69.8	41.9	62.8	83.7	60.5

(continued)

	Enterprises that engaged in environmental innovation by objective					
	ensuring compliance with modern technical regulations, rules, and standards	ensuring compliance with expected tightening of legal provisions	availability of government grants, subsidies, or other financial incentives following introduction of environmental innovation	compliance with the market (consumers) requirements that force to introduce environmental innovations	voluntary adherence to the general principles of environmental protection	minimisation of the consequences of adverse climate changes, as well as the consequences of natural and man-made emergencies
Agriculture – total	78.8	42.4	27.3	54.5	69.7	51.5
Growing of non-perennial crops	77.8	77.8	55.6	77.8	77.8	77.8
Growing of perennial crops	–	–	–	–	–	–
Plant propagation	–	–	–	–	–	–
Animal production	88.9	33.3	22.2	50.0	77.8	38.9
Mixed farming	100	100	–	–	100	100
Support activities to agriculture and post-harvest crop activities	66.7	–	–	66.7	33.3	66.7
Construction – total	64.9	48.6	35.1	54.1	64.9	43.2

5.6. ENTERPRISES THAT USE ENVIRONMENTAL POLLUTION CONTROL SYSTEM AS A PERCENTAGE OF THE TOTAL NUMBER OF ENTERPRISES BY TYPE OF ECONOMIC ACTIVITY: 2021



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture;

manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

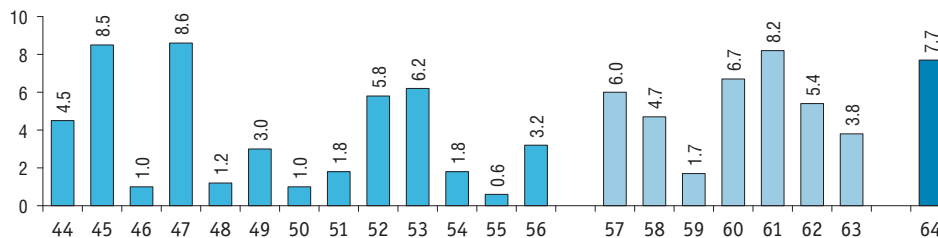
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)



44 – types of economic activity within services sector – total

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – agriculture – total

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – construction – total

5.7. SPECIAL EXPENDITURE RELATED TO ENVIRONMENTAL INNOVATION BY TYPE OF ECONOMIC ACTIVITY: 2021

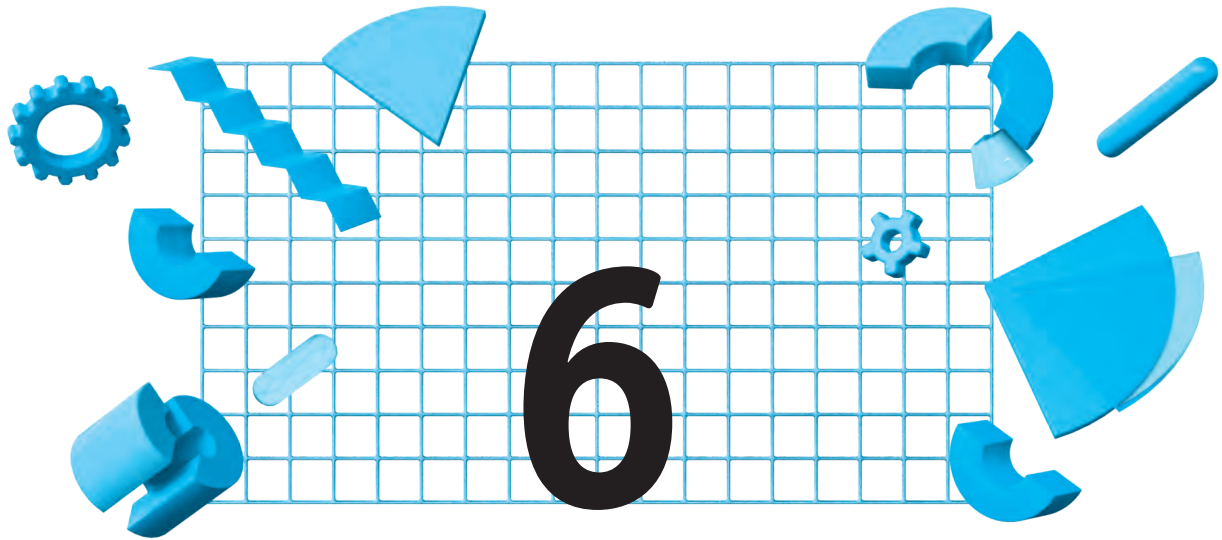
	Million roubles	Percentage
Total	20315.2	100
Industrial production – total	18260.0	89.9
Mining and quarrying	1369.2	6.7
Mining of coal and lignite	0.6	0.0
Extraction of crude petroleum and natural gas	701.5	3.5
Mining of metal ores	14.8	0.1
Other mining and quarrying	652.3	3.2
Mining support service activities	0.0	0.0
Manufacturing	16414.1	80.8
High tech	200.1	1.0
Manufacture of basic pharmaceutical products and pharmaceutical preparations	47.6	0.2
Production of computer, electronic and optical products	38.0	0.2
Manufacture of air and spacecraft and related machinery	114.5	0.6
Medium high tech	5565.9	27.4
Production of chemicals and chemical products	4597.4	22.6
Manufacture of electrical equipment	122.0	0.6
Manufacture of machinery and equipment not elsewhere classified	45.8	0.2
Manufacture of motor vehicles, trailers and semi-trailers	800.1	3.9
Manufacture of other transport equipment	0.6	0.0
Manufacture of medical and dental instruments and supplies	0.0	0.0
Medium low tech	6397.4	31.5
Reproduction of recorded media	–	–
Manufacture of coke and refined petroleum products	4681.0	23.0

(continued)

	Million roubles	Percentage
Manufacture of rubber and plastic products	12.0	0.1
Manufacture of other non-metallic mineral products	298.2	1.5
Manufacture of basic metals	1069.5	5.3
Manufacture of fabricated metal products, except machinery and equipment	151.1	0.7
Building of ships and boats	162.2	0.8
Repair and installation of machinery and equipment	23.5	0.1
Low tech	4250.7	20.9
Manufacture of food products	959.9	4.7
Manufacture of beverages	114.9	0.6
Manufacture of tobacco products	–	–
Manufacture of textiles	3.6	0.02
Manufacture of wearing apparel	0.01	0.0
Manufacture of leather and related products	3.8	0.02
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	198.7	1.0
Manufacture of paper and paper products	2969.7	14.6
Printing and reproduction of recorded media	0.0	0.0
Manufacture of furniture	0.0	0.0
Other manufacturing	0.0	0.0
Electricity, gas, steam and air-conditioning supply	76.0	0.4
Water supply; sewerage, waste management and remediation activities	400.7	2.0

(continued)

	Million roubles	Percentage
Types of economic activity within services sector – total	1960.9	9.7
Transportation and storage	1411.1	6.9
Publishing activities	0.01	0.0
Telecommunications	0.01	0.0
Computer programming, consultancy and related activities	53.6	0.3
IT industry	0.1	0.0
Legal and accounting activities	0.02	0.0
Activities of head offices; management consultancy activities	106.1	0.5
Architectural and engineering activities; technical testing and analysis	200.9	1.0
Scientific research and development	106.4	0.5
Advertising and market research	0.1	0.0
Other professional, scientific and technical activities	1.8	0.01
Human health and social work activities	80.7	0.4
Agriculture – total	86.3	0.4
Growing of non-perennial crops	5.5	0.03
Growing of perennial crops	–	–
Plant propagation	–	–
Animal production	53.0	0.3
Mixed farming	27.8	0.1
Support activities to agriculture and post-harvest crop activities	–	–
Construction – total	7.9	0.04



**COOPERATION
AND OPEN INNOVATIONS**

6.1. COOPERATION IN PRODUCT AND BUSINESS PROCESS INNOVATION DEVELOPMENT BY TYPE OF ECONOMIC ACTIVITY: 2019–2021

(as a percentage of all enterprises that completed innovation activities of each type)

	Enterprises for which product innovations were developed				Enterprises for which business process innovations were developed			
	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts
Total	30.2	27.7	8.5	52.4	44.7	29.1	9.7	36.0
Industrial production – total	23.3	27.1	7.7	58.5	37.4	34.1	8.4	37.3
Mining and quarrying	42.4	33.1	5.9	35.6	50.8	42.8	4.3	16.0
Mining of coal and lignite	62.5	37.5	25.0	25.0	83.3	16.7	16.7	33.3
Extraction of crude petroleum and natural gas	54.5	27.3	6.1	24.2	63.8	27.5	1.4	18.8
Mining of metal ores	10.5	36.8	5.3	68.4	41.7	50.0	8.3	20.8
Other mining and quarrying	61.5	7.7	–	38.5	41.7	50.0	4.2	12.5
Mining support service activities	37.8	42.2	4.4	31.1	40.6	56.3	4.7	10.9
Manufacturing	19.9	27.8	8.0	61.0	31.1	34.1	9.2	43.4
High tech	14.3	35.2	6.1	58.4	23.4	32.5	9.1	46.3
Manufacture of basic pharmaceutical products and pharmaceutical preparations	20.9	32.8	6.0	47.8	32.0	26.0	4.0	44.0
Production of computer, electronic and optical products	13.0	33.3	4.4	64.4	23.2	31.0	7.7	50.7
Manufacture of air and spacecraft and related machinery	12.7	47.3	14.5	41.8	12.8	46.2	20.5	33.3

(continued)

	Enterprises for which product innovations were developed				Enterprises for which business process innovations were developed			
	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts
Medium high tech	18.9	24.3	8.8	62.6	33.4	35.9	9.4	41.6
Production of chemicals and chemical products	21.3	30.1	4.4	54.4	36.4	37.4	5.1	33.3
Manufacture of electrical equipment	14.6	24.6	7.0	69.0	29.7	29.7	8.8	46.2
Manufacture of machinery and equipment not elsewhere classified	15.2	16.1	9.6	70.4	30.0	30.0	12.7	49.1
Manufacture of motor vehicles, trailers and semi-trailers	29.7	26.1	13.5	52.3	35.8	49.3	9.0	37.3
Manufacture of other transport equipment	21.6	43.2	13.5	48.6	40.0	44.0	16.0	36.0
Manufacture of medical and dental instruments and supplies	15.8	31.6	10.5	57.9	41.7	33.3	8.3	41.7
Medium low tech	23.0	31.2	8.4	57.0	32.3	36.6	10.4	42.2
Reproduction of recorded media	–	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	30.6	36.1	–	36.1	36.8	52.6	–	18.4
Manufacture of rubber and plastic products	26.1	22.8	10.9	60.9	34.5	14.5	12.7	49.1
Manufacture of other non-metallic mineral products	21.4	29.6	6.1	60.2	30.4	30.4	10.1	46.8
Manufacture of basic metals	19.2	45.2	5.5	43.8	20.0	42.7	5.3	42.7

(continued)

	Enterprises for which product innovations were developed				Enterprises for which business process innovations were developed			
	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts
Manufacture of fabricated metal products, except machinery and equipment	16.7	35.9	7.6	58.1	26.4	38.8	9.9	43.0
Building of ships and boats	43.5	30.4	13.0	30.4	40.0	50.0	5.0	25.0
Repair and installation of machinery and equipment	30.6	17.6	15.3	74.1	56.4	38.2	25.5	49.1
Low tech	21.7	23.2	7.7	65.3	31.8	30.5	7.9	44.8
Manufacture of food products	22.1	20.9	8.4	66.0	31.7	31.2	7.8	42.7
Manufacture of beverages	22.0	27.1	6.8	67.8	28.3	23.9	8.7	56.5
Manufacture of tobacco products	–	–	–	100	20.0	40.0	–	40.0
Manufacture of textiles	23.3	30.0	3.3	63.3	28.6	28.6	–	42.9
Manufacture of wearing apparel	25.0	5.0	5.0	70.0	35.0	10.0	20.0	45.0
Manufacture of leather and related products	11.1	33.3	–	55.6	22.2	22.2	–	55.6
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	13.6	27.3	18.2	54.5	28.6	33.3	4.8	47.6
Manufacture of paper and paper products	13.3	30.0	–	63.3	21.7	52.2	–	26.1
Printing and reproduction of recorded media	44.4	66.7	11.1	44.4	75.0	50.0	25.0	50.0
Manufacture of furniture	30.4	21.7	8.7	56.5	57.1	28.6	14.3	35.7
Other manufacturing	19.0	23.8	9.5	76.2	36.8	31.6	10.5	63.2

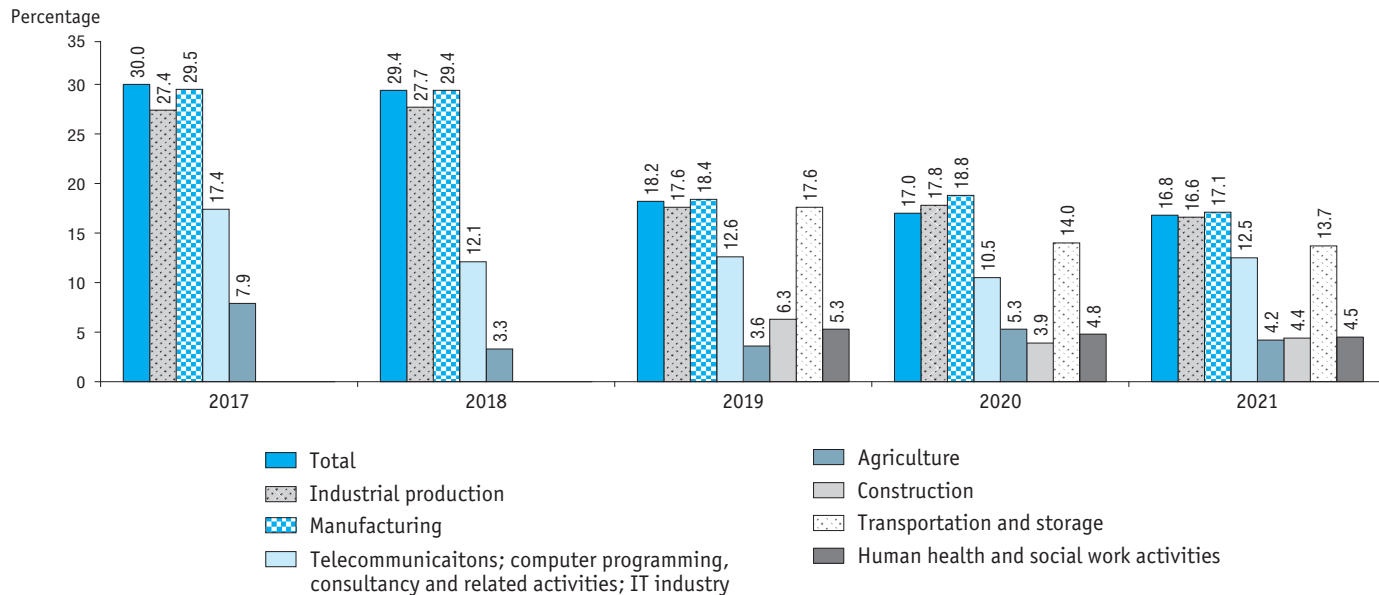
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	Enterprises for which product innovations were developed				Enterprises for which business process innovations were developed			
	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts
Electricity, gas, steam and air-conditioning supply	53.9	15.6	5.0	37.6	60.1	29.4	5.3	20.6
Water supply; sewerage, waste management and remediation activities	36.0	19.1	9.0	57.3	55.7	27.3	10.2	25.0
Types of economic activity within services sector – total	34.5	28.7	8.3	47.7	48.1	25.6	10.2	35.8
Transportation and storage	48.3	39.2	8.5	25.9	55.9	29.1	9.5	25.3
Publishing activities	40.0	20.0	6.7	57.8	54.1	18.9	9.5	43.2
Telecommunications	38.3	11.7	5.0	48.3	68.5	7.6	–	24.6
Computer programming, consultancy and related activities	12.6	29.3	10.5	57.8	14.6	19.7	25.1	52.7
IT industry	32.9	29.5	8.2	45.9	42.6	27.0	8.8	37.8
Legal and accounting activities	56.9	18.1	12.5	48.6	69.7	22.9	11.0	25.7
Activities of head offices; management consultancy activities	40.0	32.9	12.9	43.5	38.5	35.0	10.3	41.0
Architectural and engineering activities; technical testing and analysis	35.1	35.1	11.1	42.7	49.0	24.8	14.4	32.7
Scientific research and development	14.3	36.2	4.1	66.2	23.6	31.9	8.8	61.8
Advertising and market research	44.0	30.0	8.0	30.0	53.7	17.1	7.3	36.6
Other professional, scientific and technical activities	18.8	18.8	–	75.0	37.5	37.5	–	37.5
Human health and social work activities	60.5	20.9	12.7	31.5	60.4	28.9	9.6	24.7

(continued)

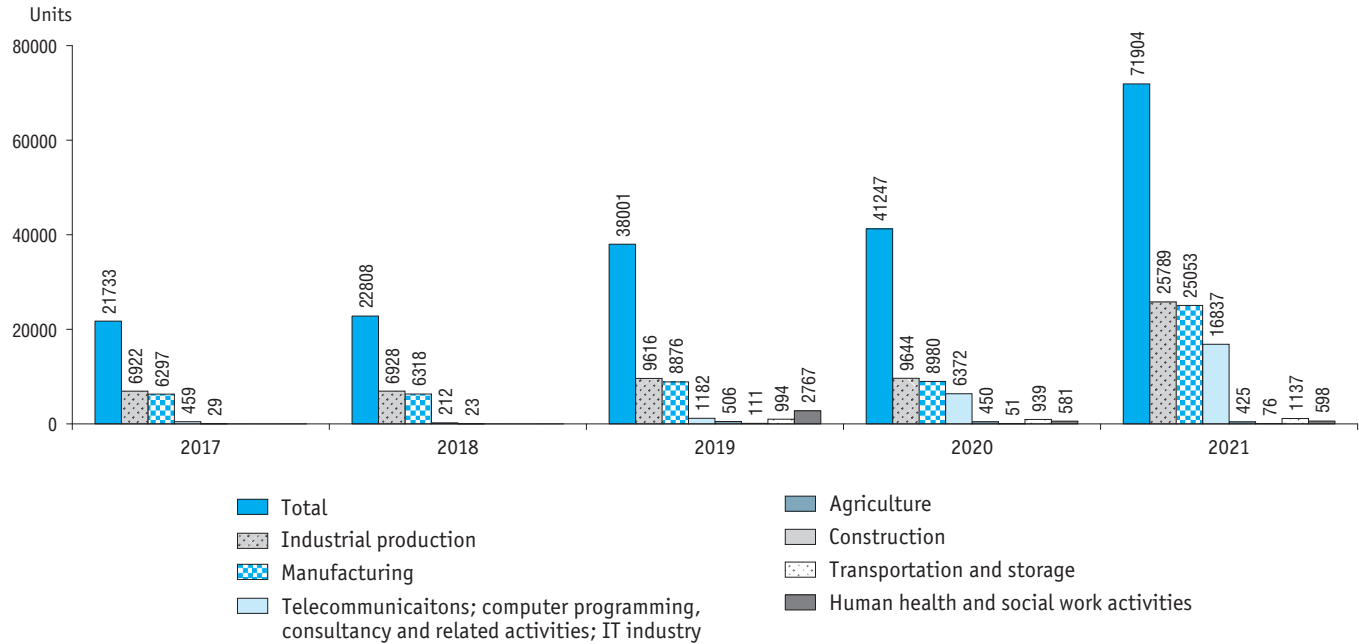
	Enterprises for which product innovations were developed				Enterprises for which business process innovations were developed			
	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts	mainly by other enterprises	jointly with other enterprises	by changing or modifying products developed by another enterprise	mostly through their own efforts
Agriculture – total	42.4	23.7	11.3	53.1	55.1	31.6	11.2	29.9
Growing of non-perennial crops	46.7	21.7	11.7	50.0	52.3	27.7	6.2	33.8
Growing of perennial crops	40.0	60.0	20.0	60.0	33.3	50.0	16.7	50.0
Plant propagation	100	–	–	–	100	100	–	–
Animal production	36.3	23.1	11.0	58.2	54.8	33.3	15.1	28.0
Mixed farming	60.0	20.0	–	20.0	75.0	25.0	–	–
Support activities to agriculture and post-harvest crop activities	53.3	26.7	13.3	46.7	66.7	27.8	11.1	27.8
Construction – total	47.8	23.6	18.5	42.7	66.7	23.8	17.0	31.3

6.2. ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS*

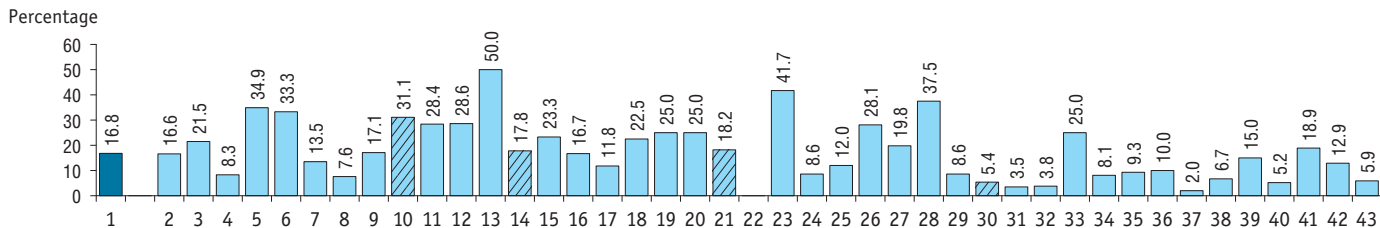


* Here and below in figures 6.3, 6.4, 6.10, tables 6.5, 6.6, 6.7, 6.8, 6.9, the indicators are calculated for enterprises that engaged in innovative activities; until 2019, the indicators are calculated for enterprises that engaged in technological innovation.

6.3. JOINT R&D PROJECTS



6.4. ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS BY TYPE OF ECONOMIC ACTIVITY: 2021



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

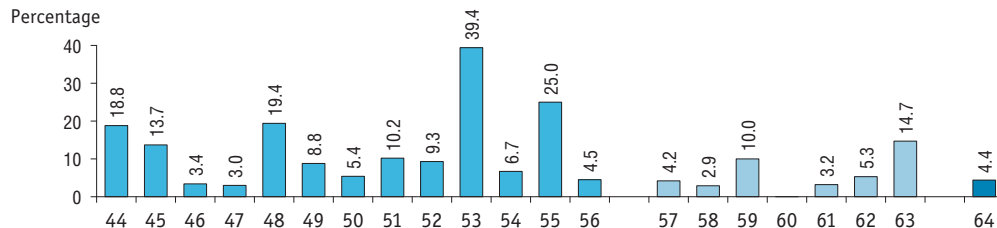
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)



44 – **types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – **agriculture – total**

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – **construction – total**

6.5. PERCENTAGE DISTRIBUTION OF ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS BY PARTNER AND TYPE OF ECONOMIC ACTIVITY: 2021

	Enterprises within a single network (group of companies, holding company, consortium, association, etc.)	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting firms, IT services providers	Research institutes	Higher education institutions
Total	36.3	35.9	29.9	7.7	10.9	48.2	28.5
Industrial production – total	40.9	28.6	34.2	6.4	11.1	41.4	24.5
Mining and quarrying	54.7	1.9	39.6	–	5.7	43.4	15.1
Mining of coal and lignite	–	–	–	–	–	100	–
Extraction of crude petroleum and natural gas	56.7	–	43.3	–	–	33.3	10.0
Mining of metal ores	36.4	–	45.5	–	9.1	81.8	27.3
Other mining and quarrying	40.0	20.0	20.0	–	40.0	40.0	40.0
Mining support service activities	100	–	33.3	–	–	16.7	–
Manufacturing	41.4	32.6	34.2	7.4	11.5	40.0	25.4
High tech	42.9	41.0	29.2	11.3	5.2	36.3	28.3
Manufacture of basic pharmaceutical products and pharmaceutical preparations	22.6	19.4	16.1	3.2	12.9	48.4	19.4
Production of computer, electronic and optical products	45.7	45.7	31.4	12.9	2.1	32.1	25.7
Manufacture of air and spacecraft and related machinery	48.8	41.5	31.7	12.2	9.8	41.5	43.9

(continued)

	Enterprises within a single network (group of companies, holding company, consortium, association, etc.)	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting firms, IT services providers	Research institutes	Higher education institutions
Medium high tech	34.0	33.6	31.2	5.7	12.1	39.3	23.5
Production of chemicals and chemical products	27.4	17.7	32.3	4.8	17.7	56.5	30.6
Manufacture of electrical equipment	28.6	42.9	26.5	6.1	10.2	32.7	26.5
Manufacture of machinery and equipment not elsewhere classified	30.5	39.0	27.1	5.1	11.9	37.3	18.6
Manufacture of motor vehicles, trailers and semi-trailers	41.2	39.2	39.2	7.8	7.8	27.5	21.6
Manufacture of other transport equipment	66.7	38.9	22.2	–	11.1	44.4	16.7
Manufacture of medical and dental instruments and supplies	25.0	12.5	50.0	12.5	12.5	25.0	12.5
Medium low tech	51.5	26.9	37.4	7.0	13.2	49.8	27.3
Reproduction of recorded media	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	52.0	4.0	36.0	–	24.0	60.0	36.0
Manufacture of rubber and plastic products	46.2	46.2	30.8	–	15.4	15.4	–
Manufacture of other non-metallic mineral products	51.9	14.8	44.4	3.7	14.8	29.6	14.8
Manufacture of basic metals	46.7	13.3	28.9	4.4	17.8	68.9	42.2

(continued)

	Enterprises within a single network (group of companies, holding company, consortium, association, etc.)	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting firms, IT services providers	Research institutes	Higher education institutions
Manufacture of fabricated metal products, except machinery and equipment	54.5	40.9	40.9	11.4	9.1	54.5	29.5
Building of ships and boats	40.0	26.7	46.7	20.0	13.3	46.7	20.0
Repair and installation of machinery and equipment	64.3	28.6	28.6	–	–	14.3	7.1
Low tech	25.9	18.5	53.7	1.9	25.9	16.7	14.8
Manufacture of food products	27.8	22.2	55.6	–	33.3	16.7	16.7
Manufacture of beverages	25.0	25.0	50.0	–	50.0	–	–
Manufacture of tobacco products	–	–	100	–	–	–	100
Manufacture of textiles	–	40.0	40.0	–	–	60.0	20.0
Manufacture of wearing apparel	–	40.0	60.0	20.0	40.0	40.0	–
Manufacture of leather and related products	–	–	100	–	50.0	–	50.0
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	100	–	–	–	–	–	–
Manufacture of paper and paper products	40.0	–	60.0	–	40.0	–	–
Printing and reproduction of recorded media	33.3	–	33.3	–	–	–	66.7
Manufacture of furniture	33.3	33.3	66.7	–	–	–	–
Other manufacturing	42.9	–	42.9	–	14.3	14.3	–

(continued)

	Enterprises within a single network (group of companies, holding company, consortium, association, etc.)	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting firms, IT services providers	Research institutes	Higher education institutions
Electricity, gas, steam and air-conditioning supply	26.9	3.8	30.8	–	11.5	50.0	23.1
Water supply; sewerage, waste management and remediation activities	9.1	9.1	27.3	–	9.1	81.8	18.2
Types of economic activity within services sector – total	32.6	41.8	25.9	8.7	10.8	54.6	32.2
Transportation and storage	29.7	20.3	29.7	–	15.6	15.6	20.3
Publishing activities	75.0	–	–	–	25.0	–	25.0
Telecommunications	11.1	44.4	66.7	11.1	33.3	22.2	22.2
Computer programming, consultancy and related activities	49.1	45.3	29.2	4.7	17.0	8.5	10.4
IT industry	45.0	50.0	35.0	–	15.0	10.0	5.0
Legal and accounting activities	10.0	20.0	30.0	20.0	80.0	20.0	20.0
Activities of head offices; management consultancy activities	41.2	52.9	29.4	5.9	35.3	23.5	29.4
Architectural and engineering activities; technical testing and analysis	30.2	22.2	42.9	4.8	9.5	31.7	15.9
Scientific research and development	31.6	45.4	21.1	10.0	6.9	70.9	38.8
Advertising and market research	40.0	20.0	40.0	–	20.0	–	20.0
Other professional, scientific and technical activities	25.0	50.0	62.5	25.0	12.5	37.5	12.5
Human health and social work activities	16.3	36.7	44.9	16.3	18.4	51.0	38.8

(continued)

	Enterprises within a single network (group of companies, holding company, consortium, association, etc.)	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting firms, IT services providers	Research institutes	Higher education institutions
Agriculture – total	27.8	38.9	38.9	5.6	5.6	33.3	11.1
Growing of non-perennial crops	–	–	40.0	–	–	60.0	–
Growing of perennial crops	–	–	100	–	–	–	–
Plant propagation	–	–	–	–	–	–	–
Animal production	66.7	33.3	50.0	16.7	16.7	33.3	16.7
Mixed farming	100	–	–	–	–	–	–
Support activities to agriculture and post-harvest crop activities	–	100	20.0	–	–	20.0	20.0
Construction – total	50.0	22.2	55.6	5.6	16.7	5.6	16.7

6.6. JOINT R&D PROJECTS BY PARTNER AND TYPE OF ECONOMIC ACTIVITY: 2021

	Joint R&D projects – total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institutions
Total	71904	21863	30884	25808	637	1033	8602	2403
Industrial production – total	25789	17803	2301	19183	256	465	1924	716
Mining and quarrying	477	197	1	90	–	4	163	27
Mining of coal and lignite	1	–	–	–	–	–	1	–
Extraction of crude petroleum and natural gas	331	165	–	63	–	–	90	13
Mining of metal ores	59	6	–	19	–	1	27	9
Other mining and quarrying	56	2	1	1	–	3	44	5
Mining support service activities	30	24	–	7	–	–	1	–
Manufacturing	25053	17587	2296	19007	256	443	1664	644
High tech	3417	504	908	1276	94	166	584	186
Manufacture of basic pharmaceutical products and pharmaceutical preparations	366	27	23	10	1	135	152	18
Production of computer, electronic and optical products	2471	347	763	1171	82	16	232	67
Manufacture of air and spacecraft and related machinery	580	130	122	95	11	15	200	101
Medium high tech	17709	16240	663	16290	51	81	318	128
Production of chemicals and chemical products	314	65	30	42	21	33	92	36
Manufacture of electrical equipment	389	51	223	36	12	8	54	20

(continued)

	Joint R&D projects – total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institutions
Manufacture of machinery and equipment not elsewhere classified	559	62	138	226	6	24	86	40
Manufacture of motor vehicles, trailers and semi-trailers	16352	16034	234	15976	11	10	63	27
Manufacture of other transport equipment	77	25	34	4	–	3	19	4
Manufacture of medical and dental instruments and supplies	18	3	4	6	1	3	4	1
Medium low tech	3445	808	661	1135	76	172	745	320
Reproduction of recorded media	–	–	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	315	53	1	73	–	62	59	77
Manufacture of rubber and plastic products	105	36	19	23	–	4	23	–
Manufacture of other non-metallic mineral products	223	30	17	123	4	13	42	7
Manufacture of basic metals	766	192	44	102	2	79	256	132
Manufacture of fabricated metal products, except machinery and equipment	1723	351	514	672	31	12	348	99

(continued)

	Joint R&D projects – total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institutions
Building of ships and boats	167	15	59	133	39	2	15	4
Repair and installation of machinery and equipment	146	131	7	9	–	–	2	1
Low tech	482	35	64	306	35	24	17	10
Manufacture of food products	110	10	7	76	–	12	8	3
Manufacture of beverages	14	3	3	7	–	2	–	–
Manufacture of tobacco products	1	–	–	1	–	–	–	1
Manufacture of textiles	15	–	6	5	–	–	3	1
Manufacture of wearing apparel	276	–	46	188	35	5	2	–
Manufacture of leather and related products	6	–	–	2	–	1	–	3
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1	1	–	–	–	–	–	–
Manufacture of paper and paper products	31	10	–	18	–	3	–	–
Printing and reproduction of recorded media	7	4	–	1	–	–	–	2
Manufacture of furniture	6	2	2	2	–	–	–	–
Other manufacturing	15	5	–	6	–	1	4	–

(continued)

	Joint R&D projects – total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institutions
Electricity, gas, steam and air-conditioning supply	163	18	3	28	–	17	83	18
Water supply; sewerage, waste management and remediation activities	96	1	1	58	–	1	14	27
Types of economic activity within services sector – total	45614	4024	28328	6561	378	540	6532	1681
Transportation and storage	1137	756	54	146	–	43	159	177
Publishing activities	9	5	–	–	–	2	–	2
Telecommunications	126	5	53	28	1	33	4	3
Computer programming, consultancy and related activities	1252	514	334	212	13	125	73	40
IT industry	15459	104	15056	280	–	24	5	1
Legal and accounting activities	87	1	35	25	4	17	2	3
Activities of head offices; management consultancy activities	1733	76	1535	11	1	17	90	22
Architectural and engineering activities; technical testing and analysis	533	57	69	216	7	12	140	49
Scientific research and development	24407	2431	11092	5142	291	237	5941	1285
Advertising and market research	25	12	1	11	–	1	–	5
Other professional, scientific and technical activities	248	51	33	177	24	1	17	1
Human health and social work activities	598	12	66	313	37	28	101	93

(continued)

	Joint R&D projects – total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institutions
Agriculture – total	425	20	237	26	1	1	144	2
Growing of non-perennial crops	7	–	–	4	–	–	3	–
Growing of perennial crops	1	–	–	1	–	–	–	–
Plant propagation	–	–	–	–	–	–	–	–
Animal production	38	19	2	18	1	1	2	1
Mixed farming	1	1	–	–	–	–	–	–
Support activities to agriculture and post-harvest crop activities	378	–	235	3	–	–	139	1
Construction – total	76	16	18	38	2	27	2	4

6.7. PERCENTAGE DISTRIBUTION OF ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS BY PARTNER COUNTRY AND TYPE OF ECONOMIC ACTIVITY: 2021

	Russia	EAEU countries*	EU countries, EU candidate countries**, Iceland, Liechtenstein, Norway, Switzerland, United Kingdom	BRICS countries***	Canada and United States	Other countries
Total	93.3	10.3	14.6	8.5	6.4	10.4
Industrial production – total	93.6	5.3	10.5	5.0	4.2	5.0
Mining and quarrying	100	1.9	5.7	1.9	1.9	1.9
Mining of coal and lignite	100	–	–	–	–	–
Extraction of crude petroleum and natural gas	100	–	–	–	–	–
Mining of metal ores	100	9.1	18.2	9.1	9.1	–
Other mining and quarrying	100	–	20.0	–	–	20.0
Mining support service activities	100	–	–	–	–	–
Manufacturing	92.6	5.8	11.8	5.7	4.7	5.4
High tech	95.3	4.7	3.3	4.2	1.9	2.8
Manufacture of basic pharmaceutical products and pharmaceutical preparations	77.4	9.7	9.7	12.9	3.2	9.7
Production of computer, electronic and optical products	97.9	4.3	2.1	3.6	2.1	2.1
Manufacture of air and spacecraft and related machinery	100	2.4	2.4	–	–	–
Medium high tech	90.7	6.5	14.6	6.5	5.7	5.7
Production of chemicals and chemical products	87.1	4.8	19.4	4.8	12.9	9.7

(continued)

	Russia	EAEU countries*	EU countries, EU candidate countries**, Iceland, Liechtenstein, Norway, Switzerland, United Kingdom	BRICS countries***	Canada and United States	Other countries
Manufacture of electrical equipment	93.9	–	10.2	2.0	2.0	2.0
Manufacture of machinery and equipment not elsewhere classified	91.5	8.5	11.9	5.1	5.1	5.1
Manufacture of motor vehicles, trailers and semi-trailers	90.2	13.7	19.6	15.7	2.0	7.8
Manufacture of other transport equipment	94.4	5.6	11.1	–	–	–
Manufacture of medical and dental instruments and supplies	87.5	–	–	12.5	12.5	–
Medium low tech	93.8	6.6	14.1	7.0	6.2	6.6
Reproduction of recorded media	–	–	–	–	–	–
Manufacture of coke and refined petroleum products	100	–	16.0	–	20.0	4.0
Manufacture of rubber and plastic products	76.9	–	23.1	30.8	7.7	15.4
Manufacture of other non-metallic mineral products	70.4	7.4	37.0	7.4	–	3.7
Manufacture of basic metals	97.8	–	20.0	6.7	6.7	11.1
Manufacture of fabricated metal products, except machinery and equipment	100	9.1	3.4	6.8	3.4	2.3
Building of ships and boats	93.3	13.3	6.7	6.7	6.7	13.3
Repair and installation of machinery and equipment	92.9	21.4	14.3	–	7.1	14.3

(continued)

	Russia	EAEU countries*	EU countries, EU candidate countries**, Iceland, Liechtenstein, Norway, Switzerland, United Kingdom	BRICS countries***	Canada and United States	Other countries
Low tech	85.2	3.7	22.2	1.9	5.6	9.3
Manufacture of food products	88.9	–	22.2	–	–	5.6
Manufacture of beverages	100	–	–	–	–	–
Manufacture of tobacco products	–	–	–	–	–	100
Manufacture of textiles	100	–	–	–	–	–
Manufacture of wearing apparel	100	20.0	20.0	20.0	40.0	20.0
Manufacture of leather and related products	50.0	–	100	–	–	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	–	–	–	–	–	100
Manufacture of paper and paper products	100	–	40.0	–	20.0	–
Printing and reproduction of recorded media	100	33.3	–	–	–	–
Manufacture of furniture	33.3	–	66.7	–	–	–
Other manufacturing	85.7	–	14.3	–	–	14.3
Electricity, gas, steam and air-conditioning supply	100	1.9	–	–	–	–
Water supply; sewerage, waste management and remediation activities	100	–	–	–	–	18.2

(continued)

	Russia	EAEU countries*	EU countries, EU candidate countries**, Iceland, Liechtenstein, Norway, Switzerland, United Kingdom	BRICS countries***	Canada and United States	Other countries
Types of economic activity within services sector – total	93.2	14.4	17.8	11.3	8.1	15.0
Transportation and storage	96.9	1.6	1.6	1.6	–	1.6
Publishing activities	100	–	–	25.0	–	–
Telecommunications	100	11.1	11.1	–	–	11.1
Computer programming, consultancy and related activities	80.2	14.2	17.0	4.7	13.2	11.3
IT industry	95.0	5.0	10.0	–	10.0	5.0
Legal and accounting activities	100	–	10.0	–	10.0	–
Activities of head offices; management consultancy activities	94.1	5.9	17.6	5.9	5.9	11.8
Architectural and engineering activities; technical testing and analysis	98.4	7.9	23.8	11.1	3.2	19.0
Scientific research and development	93.8	17.3	19.8	14.4	8.7	17.2
Advertising and market research	80.0	–	20.0	–	–	–
Other professional, scientific and technical activities	100	25.0	12.5	–	–	–
Human health and social work activities	98.0	8.2	10.2	6.1	8.2	16.3

(continued)

	Russia	EAEU countries*	EU countries, EU candidate countries**, Iceland, Liechtenstein, Norway, Switzerland, United Kingdom	BRICS countries***	Canada and United States	Other countries
Agriculture – total	94.4	5.6	22.2	11.1	11.1	–
Growing of non-perennial crops	100	–	–	–	–	–
Growing of perennial crops	100	–	–	–	–	–
Plant propagation	–	–	–	–	–	–
Animal production	83.3	16.7	16.7	33.3	16.7	–
Mixed farming	100	–	–	–	–	–
Support activities to agriculture and post-harvest crop activities	100	–	60.0	–	20.0	–
Construction – total	88.9	11.1	11.1	–	5.6	5.6

* Here and below in table 6.8, Armenia, Belarus, Kazakhstan, and Kyrgyzstan.

** Here and below in table 6.8, Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, and Türkiye.

*** Here and below in table 6.8, Brazil, China, India, and South Africa.

6.8. PERCENTAGE DISTRIBUTION OF JOINT R&D PROJECTS BY PARTNER COUNTRY: 2021

	Joint R&D projects – total	Of which by partner country, <i>percentage</i>					
		Russiaa	EAEU countries	EU countries, EU candidate countries, Iceland, Liechtenstein, Norway, Switzerland, United Kingdom	BRICS countries	Canada and United States	other countries
Total	71904	95.2	0.9	2.5	0.6	0.5	0.9
Industrial production – total	25789	97.0	0.6	1.7	0.4	0.4	0.3
Manufacturing	25053	97.0	0.6	1.7	0.4	0.4	0.3
Types of economic activity within services sector – total	45614	94.5	1.0	2.7	0.7	0.5	1.2
Telecommunications; computer programming, consultancy and related activities; IT industry	16837	99.1	0.2	0.2	0.1	0.2	0.1
Transportation and storage	1137	99.6	0.1	0.1	0.2	–	0.1
Human health and social work activities	598	90.0	1.5	3.3	1.0	4.3	3.2
Agriculture – total	425	57.6	0.2	41.2	0.5	1.2	–
Construction – total	76	93.4	2.6	3.9	–	13.2	1.3

6.9. PERCENTAGE DISTRIBUTION OF ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS BY TYPE OF COOPERATION AND ECONOMIC ACTIVITY: 2021

	Permanent cooperation	Project-based cooperation	Informal cooperation
Total	43.1	76.4	9.7
Industrial production – total	43.5	75.5	6.9
Mining and quarrying	45.3	71.7	5.7
Mining of coal and lignite	–	100	–
Extraction of crude petroleum and natural gas	46.7	63.3	3.3
Mining of metal ores	54.5	81.8	18.2
Other mining and quarrying	40.0	80.0	–
Mining support service activities	33.3	83.3	–
Manufacturing	45.7	74.3	7.4
High tech	45.3	77.4	4.7
Manufacture of basic pharmaceutical products and pharmaceutical preparations	29.0	77.4	–
Production of computer, electronic and optical products	47.9	77.9	6.4
Manufacture of air and spacecraft and related machinery	48.8	75.6	2.4
Medium high tech	43.3	72.5	10.1
Production of chemicals and chemical products	35.5	79.0	9.7
Manufacture of electrical equipment	42.9	73.5	16.3
Manufacture of machinery and equipment not elsewhere classified	44.1	69.5	5.1
Manufacture of motor vehicles, trailers and semi-trailers	39.2	72.5	11.8
Manufacture of other transport equipment	61.1	61.1	11.1
Manufacture of medical and dental instruments and supplies	87.5	62.5	–
Medium low tech	50.7	74.0	5.7
Reproduction of recorded media	–	–	–

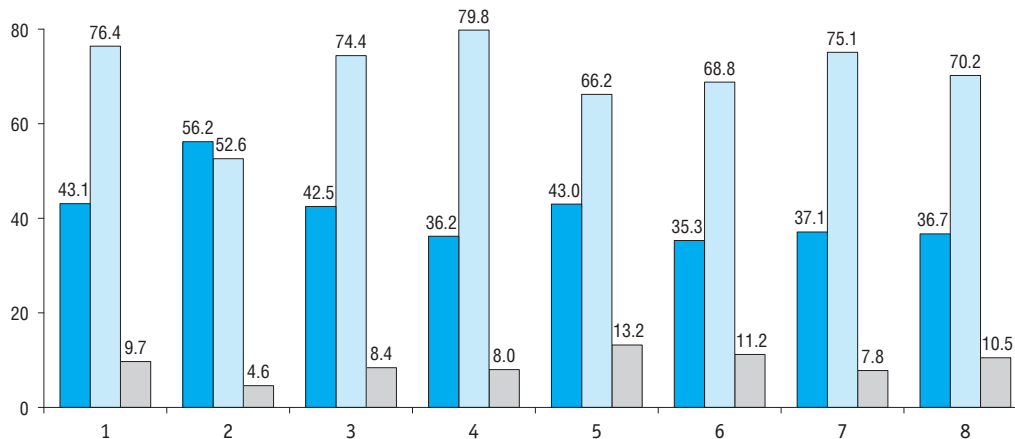
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	Permanent cooperation	Project-based cooperation	Informal cooperation
Manufacture of coke and refined petroleum products	60.0	76.0	–
Manufacture of rubber and plastic products	69.2	46.2	15.4
Manufacture of other non-metallic mineral products	37.0	74.1	3.7
Manufacture of basic metals	53.3	80.0	2.2
Manufacture of fabricated metal products, except machinery and equipment	52.3	73.9	6.8
Building of ships and boats	33.3	86.7	13.3
Repair and installation of machinery and equipment	42.9	64.3	7.1
Low tech	37.0	72.2	13.0
Manufacture of food products	33.3	72.2	27.8
Manufacture of beverages	50.0	75.0	25.0
Manufacture of tobacco products	–	100	–
Manufacture of textiles	20.0	80.0	–
Manufacture of wearing apparel	40.0	100	20.0
Manufacture of leather and related products	50.0	50.0	–
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	100	–	–
Manufacture of paper and paper products	40.0	60.0	–
Printing and reproduction of recorded media	33.3	66.7	–
Manufacture of furniture	66.7	33.3	–
Other manufacturing	28.6	85.7	–
Electricity, gas, steam and air-conditioning supply	11.5	94.2	1.9
Water supply; sewerage, waste management and remediation activities	36.4	81.8	–

(continued)

	Permanent cooperation	Project-based cooperation	Informal cooperation
Types of economic activity within services sector – total	42.3	77.8	11.9
Transportation and storage	29.7	75.0	4.7
Publishing activities	100	25.0	–
Telecommunications	33.3	77.8	11.1
Computer programming, consultancy and related activities	58.5	63.2	7.5
IT industry	65.0	70.0	25.0
Legal and accounting activities	30.0	30.0	90.0
Activities of head offices; management consultancy activities	47.1	82.4	11.8
Architectural and engineering activities; technical testing and analysis	25.4	84.1	3.2
Scientific research and development	42.3	81.0	12.2
Advertising and market research	60.0	40.0	–
Other professional, scientific and technical activities	12.5	75.0	37.5
Human health and social work activities	36.7	77.6	14.3
Agriculture – total	66.7	38.9	11.1
Growing of non-perennial crops	20.0	60.0	20.0
Growing of perennial crops	100	–	–
Plant propagation	–	–	–
Animal production	66.7	33.3	16.7
Mixed farming	100	–	–
Support activities to agriculture and post-harvest crop activities	100	40.0	–
Construction – total	50.0	72.2	5.6

6.10. R&D COOPERATION BY TYPE: 2019

(as a percentage of all enterprises that engaged in joint projects)

1 – total

2 – enterprises within a single network (group of companies, holding company, consortium, association, etc.)

3 – consumers of goods and services

4 – suppliers of equipment, materials, components, software

5 – competitors in the industry

6 – consulting firms, IT services providers

7 – research institutes

8 – higher education institutions

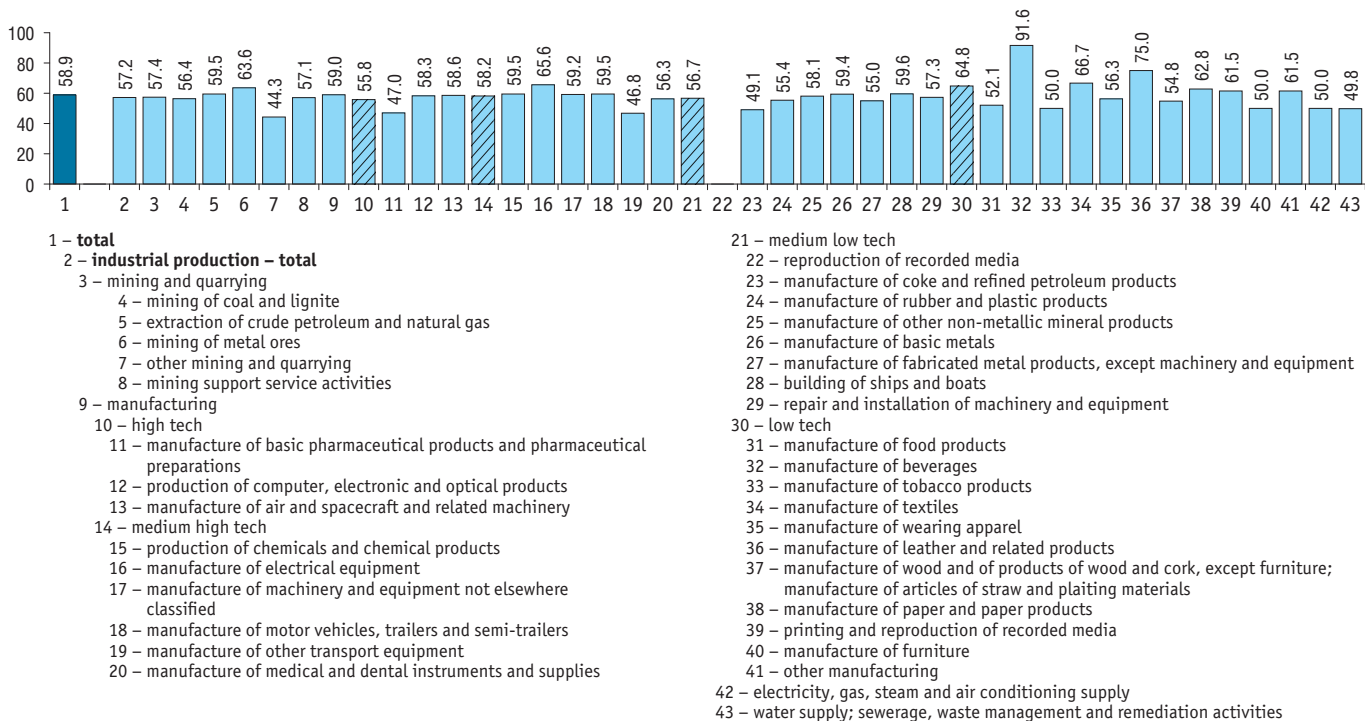
Permanent cooperation

Project-based cooperation

Informal cooperation

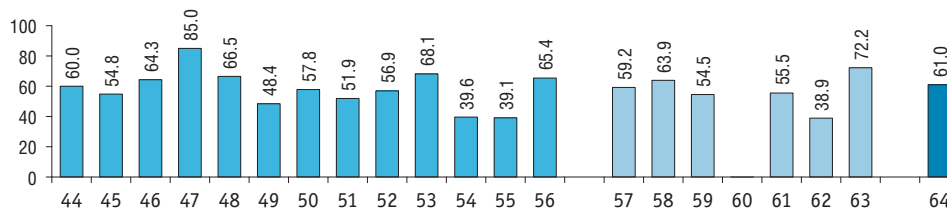
6.11. ENTERPRISES THAT ENGAGED IN COOPERATION WITHIN A SINGLE NETWORK* BY TYPE OF ECONOMIC ACTIVITY: 2021

(as a percentage of all enterprises that belong to a network)



* Acquisition (transfer) of scientific and technical knowledge (technologies), financial resources, business functions (production functions); exchange of employees.

(continued)



44 – **types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

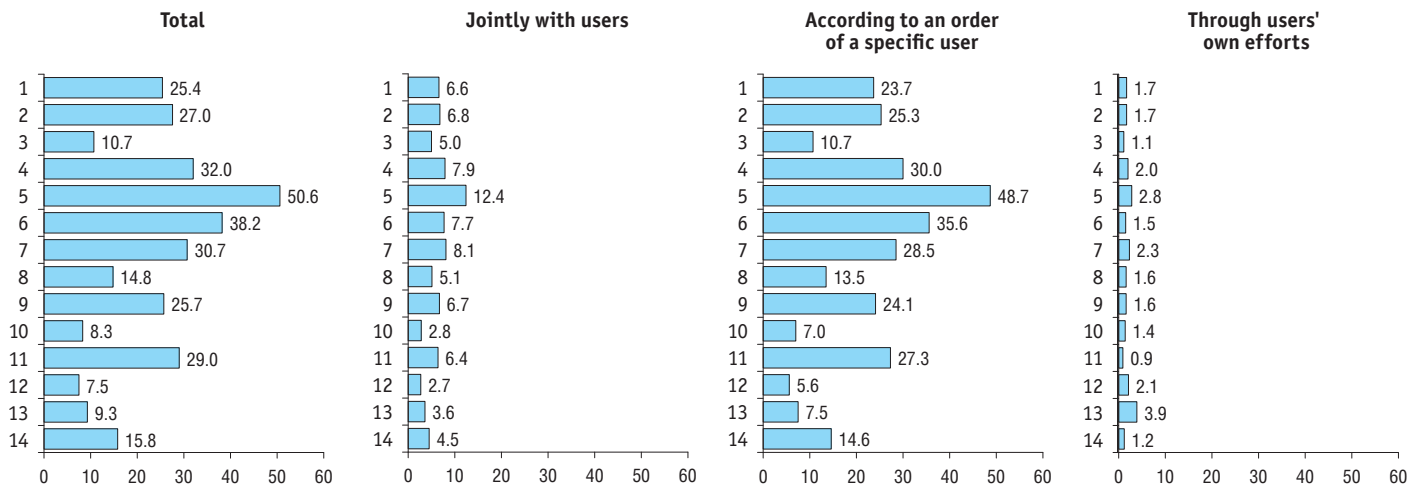
57 – **agriculture – total**

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – **construction – total**

6.12. ENTERPRISES THAT SOLD CUSTOMISED INNOVATIVE GOODS AND SERVICES BY TYPE OF ECONOMIC ACTIVITY: 2019–2021

(as a percentage of all enterprises that completed innovative activities)

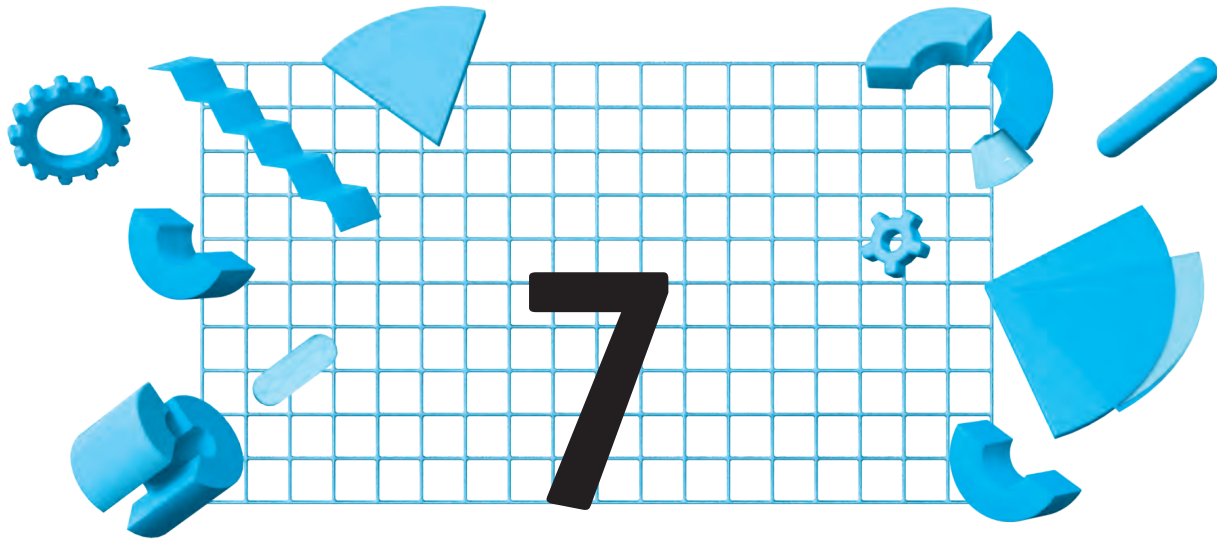


- 1 – total
- 2 – industrial production – total
- 3 – mining and quarrying
- 4 – manufacturing
- 5 – high tech
- 6 – medium high tech
- 7 – medium low tech
- 8 – low tech

- 9 – types of economic activity within services sector – total
- 10 – transportation and storage
- 11 – telecommunicaitions; computer programming, consultancy and related activities; IT industry
- 12 – human health and social work activities
- 13 – agriculture – total
- 14 – construction – total

6.13. ASSESSMENT OF INFORMATION SOURCES FOR INNOVATION: 2018–2020

	Enterprises indicating significance of the information source, <i>percentage</i>			
	main or decisive	significant	insignificant	not in use
In-house sources				
Enterprise's own sources	8.5	18.2	13.7	59.7
Enterprises within a single network (group of companies, holding company, consortium, association, etc.)	5.0	9.8	8.5	76.8
Market sources				
consumers of goods and services	6.6	18.6	13.2	61.5
Suppliers of equipment, materials, components, software	3.0	18.8	16.6	61.6
Suppliers of raw materials	2.7	16.3	16.9	64.2
Competitors in the industry	2.4	15.1	16.8	65.6
Facilitating agencies (trade, distribution, sales)	1.5	8.2	17.7	72.6
Consulting firms, it services providers	1.3	7.8	17.9	72.9
Institutional sources				
Law and executive authorities	3.7	13.3	15.0	68.0
Research institutes	1.8	7.3	13.3	77.6
higher education institutions	1.5	8.1	15.3	75.2
Other sources				
Internet (social networks, web portals, crowdsourcing, etc.)	4.1	21.6	16.8	57.5
Standardisation documents	3.4	14.1	13.7	68.8
Scientific and technical literature	2.1	13.9	17.2	66.8
Conferences, seminars, and symposia	2.0	15.5	18.9	63.5
Exhibitions, fairs, other promotional activities	1.7	13.3	18.5	66.4
Professional associations	1.6	10.9	16.9	70.7
Open source software	1.4	10.5	17.3	70.8
Informal methods	1.2	7.4	20.4	71.0
Information about patents	1.1	6.0	15.9	77.0
Reverse engineering	0.9	3.9	12.0	83.1
Other	0.9	4.0	22.6	72.5



**FACTORS HAMPERING
INNOVATION DEVELOPMENT**

7.1. ASSESSMENT OF FACTORS HAMPERING INNOVATION ACTIVITY

	Enterprises indicating significance of factors hampering their innovation activity by degree*, <i>percentage</i>			
	main or decisive	significant	insignificant	no such factors
Economic factors				
Lack of own funds	9.8	17.0	10.7	38.8
High cost of introducing innovations	8.1	18.4	7.4	38.0
No business operations	6.6	7.5	9.3	51.4
High economic risks	6.4	16.8	9.3	38.5
Lack of financial support from the government	5.9	13.4	11.3	42.3
Extremely competitive market	4.9	14.6	12.4	39.4
Low demand for new goods and services	4.6	10.5	12.5	43.7
Lack of loans or direct investment	3.6	10.3	13.3	45.5
Internal factors				
Low innovation potential of the enterprise	5.1	10.1	14.0	41.7
Inconsistency with enterprise's priorities	4.8	6.5	12.2	45.1
Lack of qualified personnel	4.0	11.1	15.6	43.7
Lack of information about new technologies	2.5	7.2	17.9	44.7
Lack of information about sales markets	2.3	6.7	16.5	46.3
Underdeveloped cooperation links	2.3	5.9	14.3	45.9
Other factors				
Unclear economic benefits from the use of intellectual property	3.5	10.1	11.4	41.7
Delayed effects of S&T innovations	3.0	8.7	10.7	44.3

* Excluding enterprises that did not know how to answer.

(continued)

	Enterprises indicating significance of factors hampering their innovation activity by degree*, <i>percentage</i>			
	main or decisive	significant	insignificant	no such factors
Lack of legislative documents regulating and stimulating innovation activity, imperfect existing technical regulations, rules, standards when it comes to advanced manufacturing technologies	2.6	8.0	13.3	41.8
Underdeveloped innovation infrastructure (intermediary, information, legal, banking, and other services)	2.4	8.1	14.6	42.0
Regulatory risks associated with ensuring the consistency of the quality of agricultural products	2.1	3.8	7.5	57.8
Natural, climatic, and biological risks associated with living systems used in agricultural activities	1.9	3.4	7.7	59.1

7.2. ENTERPRISES THAT TERMINATED INNOVATIVE ACTIVITIES BY TYPE OF ECONOMIC ACTIVITY: 2019–2021

	Enterprises which innovative activities have been seriously delayed, stopped, or have not started as a percentage of the total number of enterprises			Number of innovative projects		
	seriously delayed	stopped	not started	seriously delayed	stopped	not started
Total	5.4	4.9	5.6	20675	19423	21338
Industrial production – total	6.9	6.0	6.7	7029	6480	7129
Mining and quarrying	4.6	4.5	5.1	499	524	526
Mining of coal and lignite	4.5	4.5	6.4	30	30	40
Extraction of crude petroleum and natural gas	3.7	4.7	5.2	44	80	61
Mining of metal ores	3.1	2.7	2.5	57	54	53
Other mining and quarrying	6.9	5.6	7.1	108	99	102
Mining support service activities	4.8	4.6	5.0	260	261	270
Manufacturing	8.3	7.0	7.6	5067	4573	5107
High tech	12.9	10.1	9.3	607	474	426
Manufacture of basic pharmaceutical products and pharmaceutical preparations	10.1	9.0	7.4	91	122	64
Production of computer, electronic and optical products	14.2	10.5	10.4	444	313	335
Manufacture of air and spacecraft and related machinery	11.9	9.5	6.5	72	39	27
Medium high tech	10.6	7.9	8.4	1269	1076	1262
Production of chemicals and chemical products	9.1	7.5	8.7	250	214	238
Manufacture of electrical equipment	13.4	10.1	10.0	365	294	390

(continued)

	Enterprises which innovative activities have been seriously delayed, stopped, or have not started as a percentage of the total number of enterprises			Number of innovative projects		
	seriously delayed	stopped	not started	seriously delayed	stopped	not started
Manufacture of machinery and equipment not elsewhere classified	11.2	8.5	8.6	335	311	375
Manufacture of motor vehicles, trailers and semi-trailers	12.2	6.3	6.3	159	108	111
Manufacture of other transport equipment	6.9	6.9	6.9	87	83	74
Manufacture of medical and dental instruments and supplies	7.7	5.5	8.2	73	66	74
Medium low tech	7.0	5.9	6.7	1467	1310	1500
Reproduction of recorded media	–	–	20.0	–	–	1
Manufacture of coke and refined petroleum products	8.3	5.8	6.3	31	27	22
Manufacture of rubber and plastic products	7.3	5.4	7.1	216	185	207
Manufacture of other non-metallic mineral products	7.5	7.3	7.8	335	324	388
Manufacture of basic metals	7.6	5.9	6.0	183	170	173
Manufacture of fabricated metal products, except machinery and equipment	9.7	7.8	8.9	447	368	450
Building of ships and boats	11.0	6.6	8.1	32	12	19
Repair and installation of machinery and equipment	3.7	3.7	4.3	223	224	240

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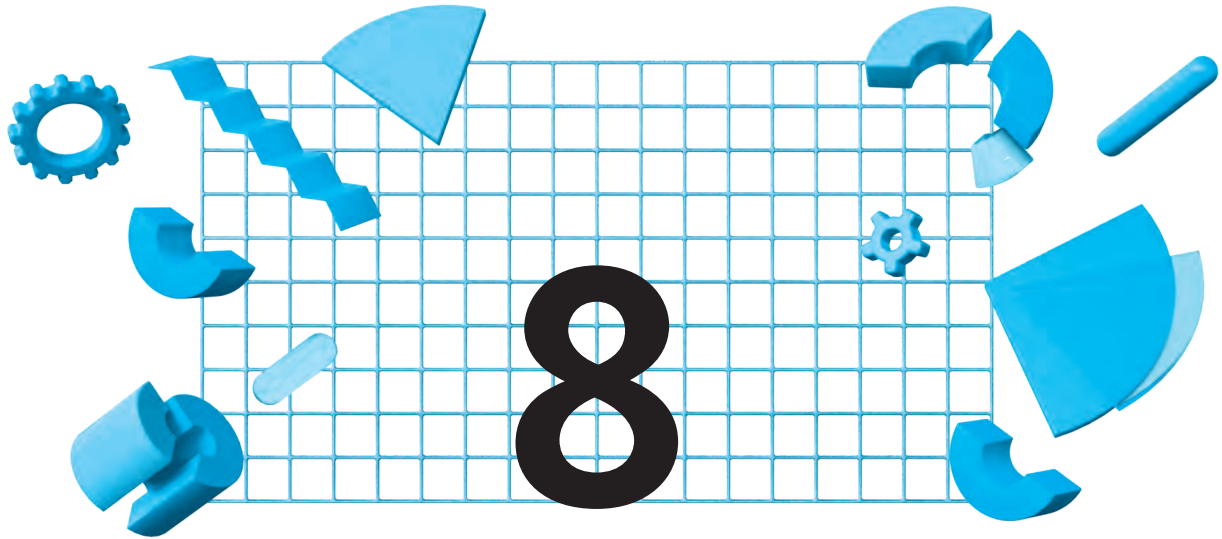
	Enterprises which innovative activities have been seriously delayed, stopped, or have not started as a percentage of the total number of enterprises			Number of innovative projects		
	seriously delayed	stopped	not started	seriously delayed	stopped	not started
Low tech	7.0	6.7	7.7	1724	1713	1919
Manufacture of food products	7.6	7.4	8.1	813	819	845
Manufacture of beverages	6.7	7.1	7.6	320	323	334
Manufacture of tobacco products	10.0	–	–	2	–	–
Manufacture of textiles	5.5	4.2	6.8	59	52	61
Manufacture of wearing apparel	5.9	5.9	6.8	58	58	57
Manufacture of leather and related products	9.0	8.0	8.0	60	59	61
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	5.6	5.6	6.7	87	91	220
Manufacture of paper and paper products	6.2	5.1	6.5	75	70	78
Printing and reproduction of recorded media	6.5	6.5	7.7	165	170	174
Manufacture of furniture	5.6	5.6	7.8	33	33	39
Other manufacturing	9.8	6.9	9.8	52	38	50
Electricity, gas, steam and air-conditioning supply	4.4	4.2	4.9	899	850	903
Water supply; sewerage, waste management and remediation activities	4.6	4.4	5.8	564	533	593

(continued)

	Enterprises which innovative activities have been seriously delayed, stopped, or have not started as a percentage of the total number of enterprises			Number of innovative projects		
	seriously delayed	stopped	not started	seriously delayed	stopped	not started
Types of economic activity within services sector – total	4.8	4.4	4.9	10486	9816	10926
Transportation and storage	3.5	3.4	3.9	1328	1315	1616
Publishing activities	4.4	4.3	5.0	537	468	556
Telecommunications	4.1	3.7	3.9	269	256	258
Computer programming, consultancy and related activities	5.9	5.5	5.3	595	544	520
IT industry	4.1	3.2	4.1	337	321	494
Legal and accounting activities	4.2	4.2	4.7	1096	1083	1100
Activities of head offices; management consultancy activities	4.1	3.9	4.4	506	492	525
Architectural and engineering activities; technical testing and analysis	3.6	3.5	3.9	845	839	875
Scientific research and development	11.7	9.3	10.2	1721	1394	1722
Advertising and market research	4.2	4.1	4.3	376	350	348
Other professional, scientific and technical activities	4.7	4.1	4.7	58	55	38
Human health and social work activities	5.0	4.9	5.7	2818	2699	2874

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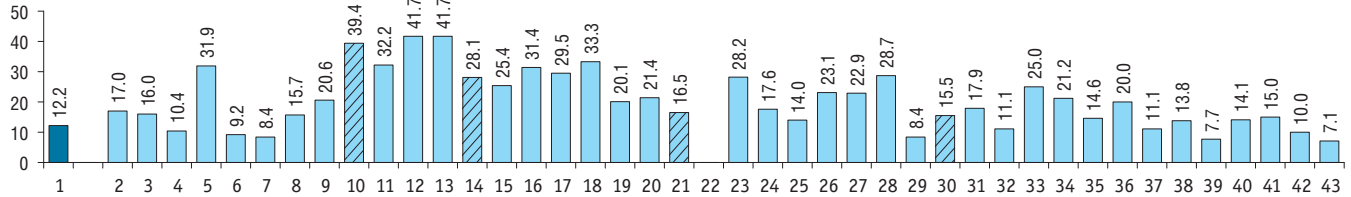
	Enterprises which innovative activities have been seriously delayed, stopped, or have not started as a percentage of the total number of enterprises			Number of innovative projects		
	seriously delayed	stopped	not started	seriously delayed	stopped	not started
Agriculture – total	6.4	6.2	7.3	1760	1751	1825
Growing of non-perennial crops	6.6	6.5	7.5	737	738	768
Growing of perennial crops	10.3	8.0	9.2	45	38	42
Plant propagation	–	–	–	–	–	–
Animal production	6.5	6.6	7.5	715	716	742
Mixed farming	5.0	4.7	6.1	44	42	46
Support activities to agriculture and post-harvest crop activities	4.9	4.6	5.7	219	217	227
Construction – total	3.9	3.8	4.5	1400	1376	1458



**INNOVATIVE AND
NON-INNOVATIVE ENTERPRISES:
DEVELOPMENT POTENTIAL**

8.1. ENTERPRISES THAT PLAN TO ENGAGE IN INNOVATIVE ACTIVITIES WITHIN THE NEXT THREE YEARS: 2021

Percentage



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

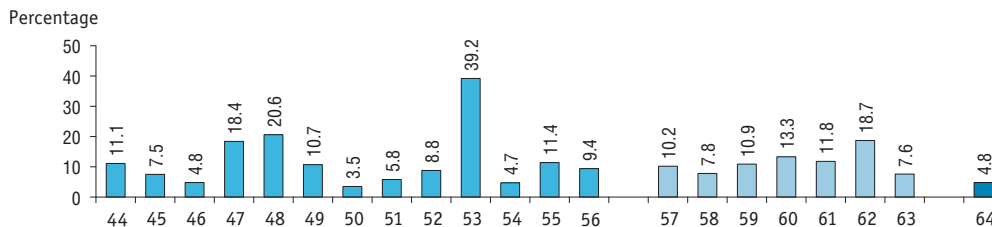
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)



44 – **types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

54 – advertising and market research

- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – **agriculture – total**

- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities

64 – **construction – total**

8.2. AVERAGE NUMBER OF EMPLOYEES IN ENTERPRISES BY LEVEL OF EDUCATION AND TYPE OF ECONOMIC ACTIVITY: 2021

	Enterprises that engaged in innovative activities		Enterprises that did not engage in innovative activities	
	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>
Total	6681123	42.1	10614989	35.8
Industrial production – total	4246854	38.2	3583145	32.0
Mining and quarrying	462303	42.6	579678	33.0
Mining of coal and lignite	22862	23.3	126654	23.9
Extraction of crude petroleum and natural gas	265683	49.0	66399	57.0
Mining of metal ores	73229	29.0	106457	23.8
Other mining and quarrying	31786	30.6	58040	24.2
Mining support service activities	68743	44.0	222128	37.7
Manufacturing	3201960	36.7	1942626	31.3
High tech	607018	45.7	93420	51.6
Manufacture of basic pharmaceutical products and pharmaceutical preparations	52671	56.9	34634	52.0
Production of computer, electronic and optical products	319797	47.9	45258	51.0
Manufacture of air and spacecraft and related machinery	234549	40.1	13528	52.3
Medium high tech	904615	35.7	313672	34.0
Production of chemicals and chemical products	255727	39.7	65765	42.3
Manufacture of electrical equipment	139193	35.9	52309	36.7
Manufacture of machinery and equipment not elsewhere classified	218617	38.8	69148	34.4

(continued)

	Enterprises that engaged in innovative activities		Enterprises that did not engage in innovative activities	
	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>
Manufacture of motor vehicles, trailers and semi-trailers	200616	29.9	62014	29.3
Manufacture of other transport equipment	86156	28.4	57203	25.4
Manufacture of medical and dental instruments and supplies	4305	40.3	7232	42.5
Medium low tech	1230294	35.8	727124	31.7
Reproduction of recorded media	118	81.4	77	92.4
Manufacture of coke and refined petroleum products	108331	55.1	19538	49.9
Manufacture of rubber and plastic products	66480	28.9	91031	30.5
Manufacture of other non-metallic mineral products	103521	27.9	172021	26.4
Manufacture of basic metals	406574	32.4	97588	29.6
Manufacture of fabricated metal products, except machinery and equipment	342701	39.2	133400	31.4
Building of ships and boats	134353	29.3	32896	31.6
Repair and installation of machinery and equipment	68216	40.0	180573	37.0
Low tech	460033	29.2	808410	27.5
Manufacture of food products	251494	28.9	461491	26.9
Manufacture of beverages	37646	38.9	54749	42.2
Manufacture of tobacco products	2530	42.1	3275	51.7
Manufacture of textiles	21041	28.1	30072	23.1

(continued)

	Enterprises that engaged in innovative activities		Enterprises that did not engage in innovative activities	
	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>
Manufacture of wearing apparel	21358	26.2	26998	20.5
Manufacture of leather and related products	9308	17.4	13893	26.3
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	25575	19.6	91085	21.0
Manufacture of paper and paper products	51271	30.6	49133	30.5
Printing and reproduction of recorded media	6446	38.6	22846	36.3
Manufacture of furniture	22278	27.5	34955	23.0
Other manufacturing	11086	32.8	19914	33.5
Electricity, gas, steam and air-conditioning supply	486665	44.3	776598	35.3
Water supply, sewerage, waste management and remediation activities	95925	34.5	284243	26.3
Types of economic activity within services sector – total	2161525	51.8	5412645	41.2
Transportation and storage	575606	36.9	1625697	31.7
Publishing activities	5468	66.5	36393	70.4
Telecommunications	174487	57.1	133812	61.4
Computer programming, consultancy and related activities	92658	87.9	202120	84.3

(continued)

	Enterprises that engaged in innovative activities		Enterprises that did not engage in innovative activities	
	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>	Average number of employees, <i>headcount</i>	Of whom with higher education, <i>percentage</i>
IT industry	39262	75.4	176886	77.2
Legal and accounting activities	12031	76.6	172669	75.6
Activities of head offices; management consultancy activities	33370	72.6	126145	67.8
Architectural and engineering activities; technical testing and analysis	110381	79.8	236550	67.9
Scientific research and development	576648	68.5	43267	69.4
Advertising and market research	8669	61.2	66408	64.8
Other professional, scientific and technical activities	2140	82.1	5348	72.3
Human health and social work activities	530806	32.0	2587353	32.7
Agriculture – total	143263	18.7	649860	19.5
Growing of non-perennial crops	48490	19.9	223179	17.5
Growing of perennial crops	3730	16.9	13155	16.9
Plant propagation	883	9.6	387	24.1
Animal production	84499	17.4	368560	18.7
Mixed farming	2524	12.3	11010	15.7
Support activities to agriculture and post-harvest crop activities	3137	43.7	33569	43.2
Construction – total	129482	32.5	969339	30.4

8.3. EMPLOYEES IN ENTERPRISES THAT ENGAGED IN R&D BY TYPE OF ECONOMIC ACTIVITY: 2021

(percentage)

	Employees who performed R&D	
	as a percentage of the total number of employees in enterprises	as a percentage of the number of employees in enterprises that engaged in innovative activities
Total	2.8	7.2
Industrial production – total	1.9	3.5
Mining and quarrying	0.4	1.0
Mining of coal and lignite	0.02	0.1
Extraction of crude petroleum and natural gas	1.0	1.3
Mining of metal ores	0.3	0.7
Other mining and quarrying	0.5	1.5
Mining support service activities	0.1	0.4
Manufacturing	2.7	4.4
High tech	7.4	8.5
Manufacture of basic pharmaceutical products and pharmaceutical preparations	2.1	3.5
Production of computer, electronic and optical products	10.4	11.9
Manufacture of air and spacecraft and related machinery	4.8	5.1
Medium high tech	2.9	3.9
Production of chemicals and chemical products	2.1	2.6
Manufacture of electrical equipment	4.0	5.4
Manufacture of machinery and equipment not elsewhere classified	4.8	6.3
Manufacture of motor vehicles, trailers and semi-trailers	2.3	3.0

(continued)

	Employees who performed R&D	
	as a percentage of the total number of employees in enterprises	as a percentage of the number of employees in enterprises that engaged in innovative activities
Manufacture of other transport equipment	0.9	1.5
Manufacture of medical and dental instruments and supplies	1.9	5.0
Medium low tech	2.6	4.1
Reproduction of recorded media	–	–
Manufacture of coke and refined petroleum products	1.4	1.7
Manufacture of rubber and plastic products	1.0	2.3
Manufacture of other non-metallic mineral products	0.5	1.4
Manufacture of basic metals	1.3	1.6
Manufacture of fabricated metal products, except machinery and equipment	6.2	8.7
Building of ships and boats	3.2	4.0
Repair and installation of machinery and equipment	1.4	5.1
Low tech	0.2	0.6
Manufacture of food products	0.1	0.3
Manufacture of beverages	0.05	0.1
Manufacture of tobacco products	–	–
Manufacture of textiles	0.5	1.2
Manufacture of wearing apparel	0.6	1.4
Manufacture of leather and related products	0.3	0.8
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	0.04	0.2
Manufacture of paper and paper products	0.5	0.9

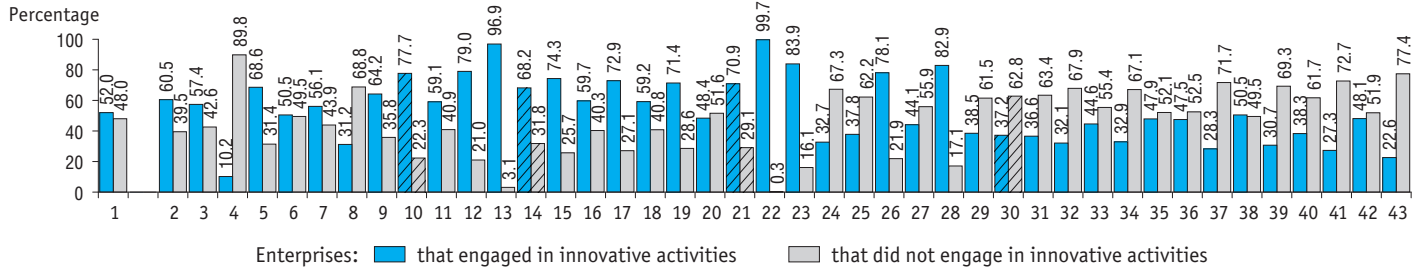
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	Employees who performed R&D	
	as a percentage of the total number of employees in enterprises	as a percentage of the number of employees in enterprises that engaged in innovative activities
Printing and reproduction of recorded media	0.2	1.1
Manufacture of furniture	0.7	1.9
Other manufacturing	0.8	2.3
Electricity, gas, steam and air-conditioning supply	0.1	0.2
Water supply; sewerage, waste management and remediation activities	0.2	0.8
Types of economic activity within services sector – total	4.3	15.2
Transportation and storage	0.1	0.5
Publishing activities	0.1	1.1
Telecommunications	0.2	0.3
Computer programming, consultancy and related activities	7.0	22.2
IT industry	2.0	11.3
Legal and accounting activities	0.1	1.1
Activities of head offices; management consultancy activities	1.4	6.5
Architectural and engineering activities; technical testing and analysis	11.1	34.8
Scientific research and development	41.1	44.2
Advertising and market research	0.4	3.1
Other professional, scientific and technical activities	8.4	29.5
Human health and social work activities	0.1	0.6

(continued)

	Employees who performed R&D	
	as a percentage of the total number of employees in enterprises	as a percentage of the number of employees in enterprises that engaged in innovative activities
Agriculture – total	0.1	0.3
Growing of non-perennial crops	0.01	0.1
Growing of perennial crops	0.02	0.1
Plant propagation	0.2	0.3
Animal production	0.03	0.1
Mixed farming	0.02	0.1
Support activities to agriculture and post-harvest crop activities	0.7	8.4
Construction – total	0.2	2.0

8.4. SALES OF GOODS AND SERVICES PRODUCED THROUGH ENTERPRISES' OWN EFFORTS BY TYPE OF ECONOMIC ACTIVITY: 2021



1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

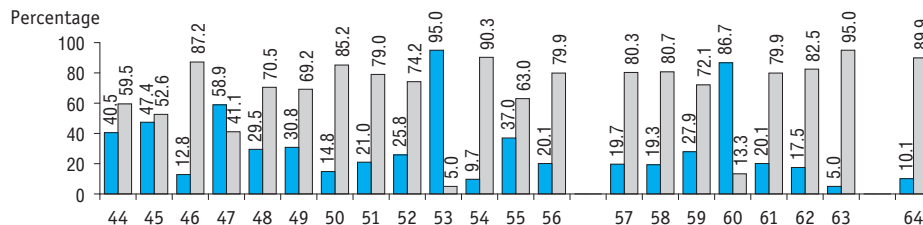
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

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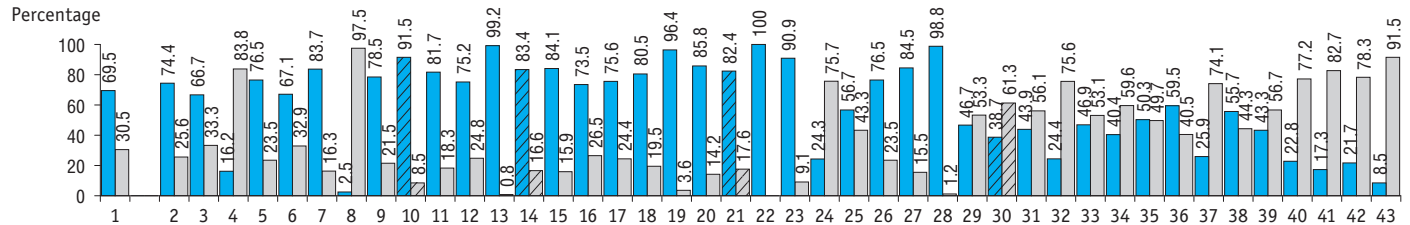
Enterprises: ■ that engaged in innovative activities ■ that did not engage in innovative activities

44 – **types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

- 54 – advertising and market research
- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities
- 57 – **agriculture – total**
- 58 – growing of non-perennial crops
- 59 – growing of perennial crops
- 60 – plant propagation
- 61 – animal production
- 62 – mixed farming
- 63 – support activities to agriculture and post-harvest crop activities
- 64 – **construction – total**

8.5. EXPORTS OF GOODS AND SERVICES PRODUCED THROUGH ENTERPRISES' OWN EFFORTS



Enterprises: ■ that engaged in innovative activities ■ that did not engage in innovative activities

1 – total

2 – industrial production – total

3 – mining and quarrying

4 – mining of coal and lignite

5 – extraction of crude petroleum and natural gas

6 – mining of metal ores

7 – other mining and quarrying

8 – mining support service activities

9 – manufacturing

10 – high tech

11 – manufacture of basic pharmaceutical products and pharmaceutical preparations

12 – production of computer, electronic and optical products

13 – manufacture of air and spacecraft and related machinery

14 – medium high tech

15 – production of chemicals and chemical products

16 – manufacture of electrical equipment

17 – manufacture of machinery and equipment not elsewhere classified

18 – manufacture of motor vehicles, trailers and semi-trailers

19 – manufacture of other transport equipment

20 – manufacture of medical and dental instruments and supplies

21 – medium low tech

22 – reproduction of recorded media

23 – manufacture of coke and refined petroleum products

24 – manufacture of rubber and plastic products

25 – manufacture of other non-metallic mineral products

26 – manufacture of basic metals

27 – manufacture of fabricated metal products, except machinery and equipment

28 – building of ships and boats

29 – repair and installation of machinery and equipment

30 – low tech

31 – manufacture of food products

32 – manufacture of beverages

33 – manufacture of tobacco products

34 – manufacture of textiles

35 – manufacture of wearing apparel

36 – manufacture of leather and related products

37 – manufacture of wood and of products of wood and cork, except furniture;

manufacture of articles of straw and plaiting materials

38 – manufacture of paper and paper products

39 – printing and reproduction of recorded media

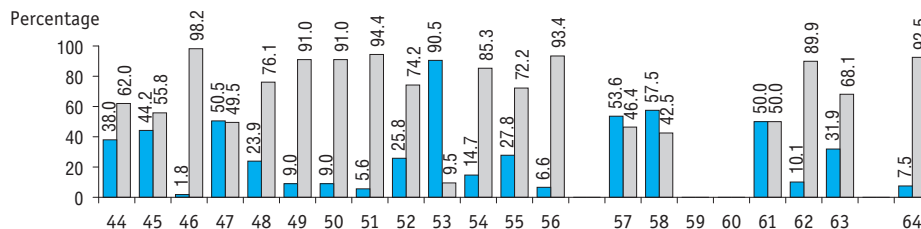
40 – manufacture of furniture

41 – other manufacturing

42 – electricity, gas, steam and air conditioning supply

43 – water supply; sewerage, waste management and remediation activities

(continued)



Enterprises: ■ that engaged in innovative activities ■ that did not engage in innovative activities

44 – **types of economic activity within services sector – total**

- 45 – transportation and storage
- 46 – publishing activities
- 47 – telecommunications
- 48 – computer programming, consultancy and related activities
- 49 – IT industry
- 50 – legal and accounting activities
- 51 – activities of head offices; management consultancy activities
- 52 – architectural and engineering activities; technical testing and analysis
- 53 – scientific research and development

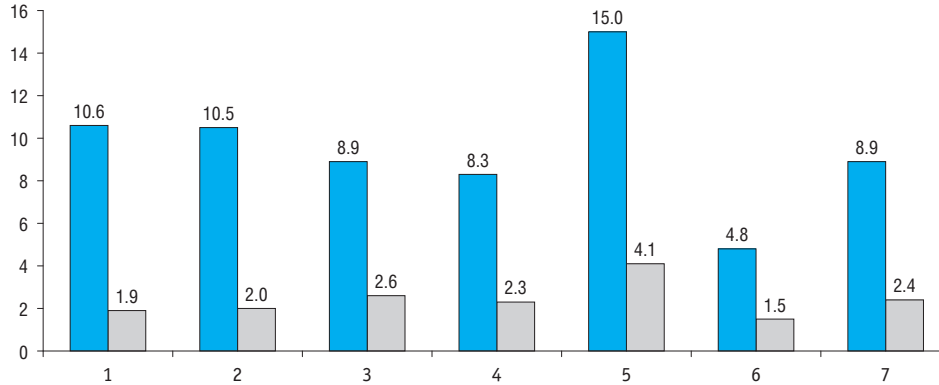
- 54 – advertising and market research
- 55 – other professional, scientific and technical activities
- 56 – human health and social work activities

57 – **agriculture – total**

- 58 – growing of non-perennial crops
 - 59 – growing of perennial crops
 - 60 – plant propagation
 - 61 – animal production
 - 62 – mixed farming
 - 63 – support activities to agriculture and post-harvest crop activities
- 64 – **construction – total**

**8.6. ENTERPRISES INDICATING THE FOLLOWING INVENTIONS
AND R&D RESULTS PROTECTION METHODS AS MAIN: 2019–2021**

(as a percentage of the total number of enterprises that engaged and did not engage in innovative activities)



Enterprises:

■ that engaged in innovative activities

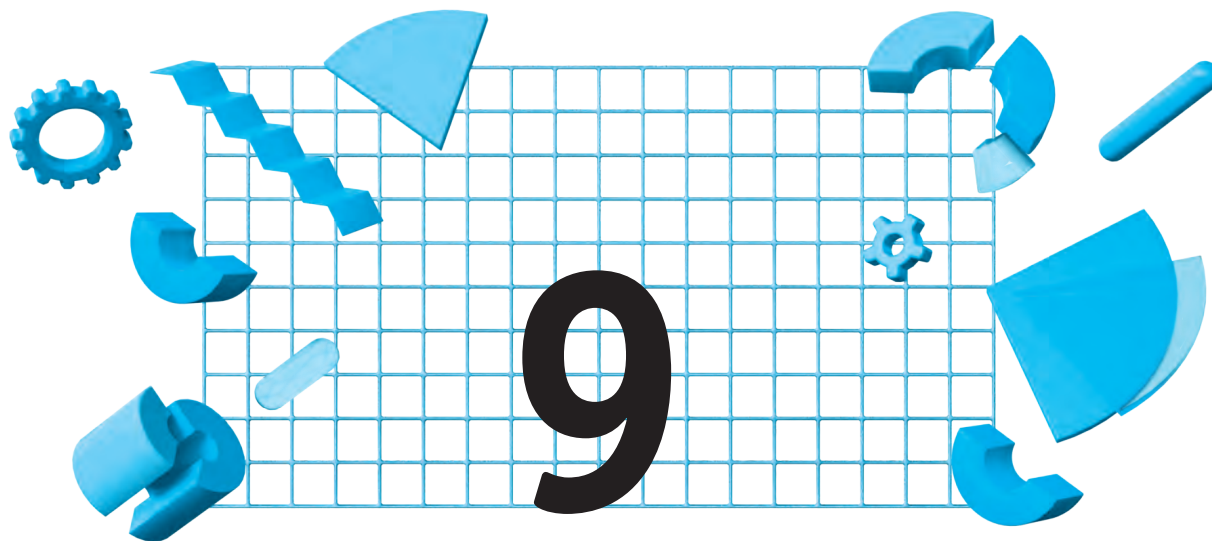
■ that did not engage in innovative activities

Formal methods:

- 1 – inventions, industrial designs and utility models patenting (in the reporting year)
- 2 – valid patents maintenance
- 3 – trade mark registration
- 4 – copyright protection

Informal methods:

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



INNOVATION ACTIVITY IN RUSSIAN REGIONS

9.1. ENTERPRISES THAT ENGAGED AND PLAN TO BE ENGAGED IN INNOVATIVE ACTIVITIES WITHIN THE NEXT THREE YEARS: 2021*
(percentage)

	Innovation activity of enterprises	Enterprises that plan to implement innovative activities within the next three years as a percentage of the total number of enterprises
Russia	11.9	12.2
Central Federal District	12.6	12.9
Belgorod Region	17.0	12.8
Bryansk Region	13.5	14.1
Vladimir Region	11.7	11.5
Voronezh Region	12.6	12.6
Ivanovo Region	14.9	12.4
Kaluga Region	12.4	13.3
Kostroma Region	4.6	8.6
Kursk Region	6.8	11.2
Lipetsk Region	13.7	14.7
Moscow Region	11.7	11.3
Orel Region	15.3	10.9
Ryazan Region	12.6	11.5
Smolensk Region	6.5	9.4
Tambov Region	10.7	10.7
Tver Region	11.7	14.1
Tula Region	15.4	12.7
Yaroslavl Region	12.8	12.4
Moscow	13.3	14.3
North-Western Federal District	11.0	12.5
Republic of Karelia	6.4	9.0
Komi Republic	8.9	12.7

* Here and below in this section, the list of Russian regions is given as at the end of 2021.

(continued)

	Innovation activity of enterprises	Enterprises that plan to implement innovative activities within the next three years as a percentage of the total number of enterprises
Arkhangelsk Region	4.1	9.7
Nenets Autonomous Region	1.7	10.6
Vologda Region	8.9	12.5
Kaliningrad Region	6.6	8.5
Leningrad Region	8.2	11.7
Murmansk Region	10.0	10.0
Novgorod Region	9.8	12.9
Pskov Region	9.8	9.0
St Petersburg	15.9	15.1
Southern Federal District	11.9	8.8
Republic of Adygea	7.8	13.2
Republic of Kalmykia	2.6	7.7
Republic of Crimea	6.8	7.9
Krasnodar Region	6.3	7.5
Astrakhan Region	7.7	9.6
Volgograd Region	8.8	8.4
Rostov Region	27.6	10.8
Sevastopol	10.2	8.1
North Caucasian Federal District	4.6	10.0
Republic of Dagestan	3.8	13.7
Republic of Ingushetia	3.9	7.8
Kabardino-Balkarian Republic	5.8	10.2
Karachay-Cherkess Republic	4.9	7.3
Republic of North Ossetia–Alania	3.4	8.4
Chechen Republic	1.9	5.1
Stavropol Region	6.9	10.0

(continued)

	Innovation activity of enterprises	Enterprises that plan to implement innovative activities within the next three years as a percentage of the total number of enterprises
Volga Federal District	16.7	14.7
Republic of Bashkortostan	21.2	13.6
Mari El Republic	12.0	15.3
Republic of Mordovia	20.0	20.6
Republic of Tatarstan	29.0	17.2
Udmurt Republic	14.3	16.3
Chuvash Republic	15.8	16.3
Perm Region	12.2	12.5
Kirov Region	12.7	13.0
Nizhny Novgorod Region	15.1	15.1
Orenburg Region	7.6	10.9
Penza Region	15.3	19.4
Samara Region	18.2	15.8
Saratov Region	8.9	8.8
Ulyanovsk Region	17.4	16.6
Ural Federal District	11.1	12.5
Kurgan Region	14.4	15.8
Sverdlovsk Region	13.0	13.6
Tyumen Region	8.5	11.5
Khanty-Mansi Autonomous Region – Yugra	6.6	9.8
Yamal-Nenets Autonomous Region	6.8	11.0
Chelyabinsk Region	13.2	12.0
Siberian Federal District	9.3	11.0
Altai Republic	5.6	9.1
Republic of Tuva	4.4	7.4

(continued)

	Innovation activity of enterprises	Enterprises that plan to implement innovative activities within the next three years as a percentage of the total number of enterprises
Republic of Khakassia	4.0	7.1
Altai Region	17.1	12.9
Krasnoyarsk Region	7.0	9.0
Irkutsk Region	6.4	11.1
Kemerovo Region	7.8	10.1
Novosibirsk Region	8.8	11.5
Omsk Region	10.8	12.4
Tomsk Region	17.9	15.8
Far Eastern Federal District	7.7	10.4
Republic of Buryatia	4.6	11.4
Republic of Sakha (Yakutia)	14.5	15.6
Trans-Baikal Region	4.7	7.9
Kamchatka Region	10.9	17.0
Primorsky Region	7.4	8.1
Khabarovsk Region	7.2	9.6
Amur Region	5.9	8.0
Magadan Region	9.1	12.8
Sakhalin Region	3.9	6.3
Jewish Autonomous Region	4.5	10.7
Chukotka Autonomous Region	9.0	12.7

9.2. PERCENTAGE DISTRIBUTION OF ENTERPRISES BY TYPE OF INNOVATIVE ACTIVITY: 2021

(as a percentage of enterprises that had expenditure on innovative activities)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Russia	30.8	48.5	5.4	11.0	2.8	9.3	25.6	27.6	3.3	11.0
Central Federal District	37.4	41.5	7.9	11.7	3.3	9.2	25.2	38.0	3.6	9.8
Belgorod Region	25.5	50.0	4.3	11.7	2.1	4.3	13.8	34.0	2.1	11.7
Bryansk Region	15.0	43.3	6.7	5.0	1.7	21.7	6.7	33.3	–	3.3
Vladimir Region	50.0	42.9	2.9	14.3	1.4	10.0	17.1	22.9	1.4	14.3
Voronezh Region	27.7	50.0	5.4	10.7	1.8	8.0	29.5	17.9	2.7	14.3
Ivanovo Region	16.7	50.0	–	4.2	–	6.3	18.8	14.6	–	8.3
Kaluga Region	58.5	45.3	11.3	15.1	7.5	17.0	32.1	17.0	7.5	13.2
Kostroma Region	12.5	43.8	–	–	–	31.3	31.3	25.0	–	–
Kursk Region	34.6	65.4	7.7	15.4	7.7	15.4	46.2	7.7	7.7	19.2
Lipetsk Region	18.6	82.9	2.9	11.4	1.4	10.0	17.1	14.3	2.9	1.4
Moscow Region	44.5	36.5	7.1	11.9	3.7	11.9	17.6	49.3	3.4	7.9
Orel Region	14.8	68.5	5.6	11.1	1.9	7.4	18.5	–	13.0	9.3
Ryazan Region	42.6	40.7	11.1	14.8	5.6	9.3	11.1	50.0	3.7	9.3
Smolensk Region	46.2	42.3	7.7	15.4	11.5	26.9	23.1	23.1	7.7	15.4
Tambov Region	52.2	52.2	6.5	10.9	–	13.0	10.9	2.2	2.2	2.2
Tver Region	34.0	56.6	–	15.1	–	9.4	24.5	5.7	–	9.4
Tula Region	22.9	64.8	8.6	17.1	2.9	12.4	41.0	12.4	1.9	12.4
Yaroslavl Region	41.1	49.3	6.8	6.8	4.1	11.0	17.8	43.8	5.5	13.7
Moscow	40.4	32.4	10.1	11.6	3.6	6.4	30.3	49.2	3.8	10.0

* Acquisition of patent rights (alienation), licenses, industrial designs, utility models, selection achievements, integrated circuit designs, etc.; patenting (registration) of the results of intellectual activity.

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
North-Western Federal District	39.2	44.7	5.6	14.8	3.5	11.9	25.9	23.4	3.8	11.9
Republic of Karelia	25.0	55.0	–	10.0	5.0	15.0	15.0	20.0	5.0	10.0
Komi Republic	11.1	62.2	–	13.3	–	6.7	20.0	20.0	2.2	6.7
Arkhangelsk Region	40.9	45.5	13.6	22.7	9.1	18.2	40.9	27.3	4.5	13.6
Nenets Autonomous Region	–	–	–	–	–	100	–	–	–	–
Vologda Region	22.0	60.0	–	4.0	–	8.0	30.0	4.0	–	20.0
Kaliningrad Region	19.5	39.0	–	14.6	–	7.3	24.4	34.1	7.3	9.8
Leningrad Region	40.9	51.5	6.1	9.1	3.0	22.7	12.1	19.7	3.0	9.1
Murmansk Region	15.4	41.0	–	10.3	2.6	12.8	25.6	20.5	–	15.4
Novgorod Region	43.5	56.5	–	13.0	8.7	13.0	13.0	4.3	4.3	17.4
Pskov Region	17.2	44.8	10.3	10.3	6.9	6.9	24.1	27.6	–	–
St Petersburg	50.4	39.5	7.7	17.9	4.0	11.4	29.0	26.8	4.7	12.4
Southern Federal District	17.6	58.5	3.2	6.5	2.0	5.8	28.1	18.5	2.7	6.9
Republic of Adygea	7.1	64.3	7.1	–	7.1	21.4	7.1	14.3	–	21.4
Republic of Kalmykia	40.0	20.0	–	–	–	20.0	–	40.0	–	20.0
Republic of Crimea	27.6	34.5	10.3	6.9	6.9	10.3	24.1	51.7	–	3.4
Krasnodar Region	24.5	36.1	4.5	13.5	3.2	3.9	18.1	40.0	3.9	9.7
Astrakhan Region	28.6	52.4	–	9.5	4.8	4.8	14.3	4.8	–	9.5
Volgograd Region	20.2	69.0	4.8	4.8	1.2	9.5	28.6	10.7	6.0	3.6
Rostov Region	13.8	65.5	2.3	4.8	1.3	5.2	33.0	12.5	2.3	5.4
Sevastopol	28.6	50.0	–	7.1	–	–	14.3	–	–	35.7

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
North Caucasian Federal District	25.9	44.6	3.6	8.9	1.8	14.3	10.7	28.6	1.8	10.7
Republic of Dagestan	14.3	39.3	3.6	14.3	–	10.7	7.1	21.4	–	17.9
Republic of Ingushetia	–	100	–	100	–	100	–	–	–	–
Kabardino-Balkarian Republic	71.4	28.6	–	14.3	–	42.9	–	–	–	–
Karachay-Cherkess Republic	–	100	–	–	–	50.0	–	–	–	–
Republic of North Ossetia–Alania	50.0	75.0	–	25.0	–	25.0	–	–	–	25.0
Chechen Republic	11.1	22.2	–	–	–	11.1	22.2	66.7	–	–
Stavropol Region	27.9	47.5	4.9	4.9	3.3	9.8	13.1	32.8	3.3	9.8
Volga Federal District	24.5	55.6	4.3	10.0	2.5	8.3	27.1	23.3	1.9	10.7
Republic of Bashkortostan	16.1	44.2	1.5	6.7	0.9	4.8	49.4	26.7	0.9	8.8
Mari El Republic	25.9	44.4	–	7.4	7.4	18.5	25.9	22.2	3.7	7.4
Republic of Mordovia	30.8	53.8	9.0	15.4	6.4	12.8	19.2	14.1	1.3	14.1
Republic of Tatarstan	17.6	68.6	2.8	5.3	0.9	5.5	19.8	16.4	0.6	9.8
Udmurt Republic	26.5	48.2	9.6	12.0	2.4	9.6	27.7	36.1	4.8	6.0
Chuvash Republic	33.3	56.4	7.7	15.4	3.8	15.4	20.5	34.6	3.8	11.5
Perm Region	50.6	48.2	4.8	19.3	1.2	18.1	30.1	25.3	2.4	18.1
Kirov Region	31.9	52.8	4.2	12.5	6.9	12.5	15.3	15.3	2.8	22.2
Nizhny Novgorod Region	33.5	50.3	6.8	12.0	1.6	9.4	19.9	37.7	3.1	7.3
Orenburg Region	29.8	47.4	1.8	12.3	1.8	7.0	17.5	24.6	1.8	17.5
Penza Region	23.1	46.3	6.5	14.8	10.2	13.0	30.6	29.6	1.9	10.2

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Samara Region	24.7	60.5	4.6	9.5	2.3	7.9	28.0	13.2	3.3	14.1
Saratov Region	33.3	36.2	5.8	14.5	2.9	8.7	15.9	50.7	2.9	7.2
Ulyanovsk Region	23.0	67.8	3.4	14.9	3.4	3.4	28.7	17.2	–	3.4
Ural Federal District	34.6	38.5	4.2	12.5	3.1	9.8	24.6	36.4	3.7	14.6
Kurgan Region	20.5	46.2	5.1	12.8	10.3	10.3	23.1	41.0	–	–
Sverdlovsk Region	49.3	36.2	2.7	10.9	3.2	7.7	22.6	52.5	5.0	6.8
Tyumen Region	23.9	38.5	2.6	13.2	1.3	9.0	29.5	19.2	3.0	23.1
Khanty-Mansi Autonomous Region – Yugra	23.4	37.7	2.6	13.0	1.3	6.5	26.0	15.6	2.6	26.0
Yamal-Nenets Autonomous Region	25.9	27.6	1.7	10.3	1.7	12.1	31.0	27.6	5.2	13.8
Chelyabinsk Region	33.1	40.5	9.9	14.0	4.1	14.9	19.0	38.8	4.1	17.4
Siberian Federal District	31.4	50.2	5.3	10.7	2.9	12.1	25.2	18.9	3.9	13.7
Altai Republic	16.7	50.0	–	16.7	–	16.7	16.7	–	–	33.3
Republic of Tuva	–	50.0	–	–	–	16.7	33.3	16.7	–	–
Republic of Khakassia	18.2	36.4	–	–	–	9.1	18.2	27.3	–	9.1
Altai Region	22.3	68.6	3.4	5.7	1.7	3.4	17.7	16.0	2.9	5.7
Krasnoyarsk Region	31.6	47.4	3.9	17.1	1.3	10.5	43.4	23.7	6.6	13.2
Irkutsk Region	25.8	37.1	3.2	9.7	4.8	14.5	25.8	25.8	3.2	16.1
Kemerovo Region	38.8	31.3	3.0	9.0	1.5	9.0	20.9	17.9	3.0	14.9
Novosibirsk Region	35.5	46.2	12.9	14.0	6.5	33.3	30.1	16.1	3.2	14.0
Omsk Region	40.4	57.7	5.8	21.2	3.8	13.5	25.0	11.5	7.7	13.5
Tomsk Region	40.4	43.0	6.1	9.6	2.6	8.8	23.7	22.8	4.4	24.6

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Far Eastern Federal District	30.4	53.2	3.3	13.4	1.1	11.1	21.2	11.7	7.8	16.2
Republic of Buryatia	50.0	50.0	7.1	7.1	–	14.3	21.4	–	–	21.4
Republic of Sakha (Yakutia)	38.9	49.6	2.3	10.7	1.5	3.1	17.6	10.7	14.5	17.6
Trans-Baikal Region	21.1	68.4	5.3	5.3	–	10.5	15.8	5.3	5.3	10.5
Kamchatka Region	18.5	70.4	–	22.2	–	14.8	29.6	11.1	–	7.4
Primorsky Region	18.4	51.0	10.2	16.3	4.1	18.4	28.6	12.2	6.1	14.3
Khabarovsk Region	31.3	58.3	2.1	20.8	–	20.8	27.1	14.6	8.3	27.1
Amur Region	20.0	50.0	3.3	10.0	–	6.7	23.3	13.3	3.3	10.0
Magadan Region	46.2	15.4	–	7.7	–	7.7	15.4	23.1	–	23.1
Sakhalin Region	28.6	57.1	–	28.6	–	21.4	21.4	21.4	–	14.3
Jewish Autonomous Region	16.7	50.0	–	–	–	33.3	–	16.7	–	–
Chukotka Autonomous Region	12.5	75.0	–	–	–	12.5	–	–	–	–

9.3. INNOVATION EXPENDITURE: 2021

	Million roubles	As a percentage of total sales
Russia	2379709.9	2.0
Central Federal District	1038697.8	2.4
Belgorod Region	30798.6	1.9
Bryansk Region	2525.8	0.6
Vladimir Region	7359.9	1.0
Voronezh Region	19090.7	2.0
Ivanovo Region	544.1	0.2
Kaluga Region	7733.3	0.7
Kostroma Region	9253.5	4.2
Kursk Region	1829.8	0.3
Lipetsk Region	53767.7	4.1
Moscow Region	207162.0	3.1
Orel Region	2979.6	1.2
Ryazan Region	4323.7	0.8
Smolensk Region	3228.8	0.8
Tambov Region	3436.8	1.0
Tver Region	4305.7	0.8
Tula Region	22241.6	1.7
Yaroslavl Region	12947.3	2.1
Moscow	645168.7	2.6
North-Western Federal District	209651.0	1.5
Republic of Karelia	9465.6	2.5
Komi Republic	4106.9	0.4
Arkhangelsk Region	2014.5	0.2
Nenets Autonomous Region	1.9	0.0

(continued)

	Million roubles	As a percentage of total sales
Vologda Region	2363.7	0.2
Kaliningrad Region	3908.6	0.4
Leningrad Region	25044.4	1.3
Murmansk Region	1434.7	0.1
Novgorod Region	2463.1	0.7
Pskov Region	381.1	0.2
St Petersburg	158468.3	2.8
Southern Federal District	74980.5	1.3
Republic of Adygea	345.1	0.5
Republic of Kalmykia	95.5	0.7
Republic of Crimea	3355.8	1.4
Krasnodar Region	32301.9	1.3
Astrakhan Region	1426.9	0.3
Volgograd Region	3324.3	0.4
Rostov Region	32956.7	2.1
Sevastopol	1174.3	3.4
North Caucasian Federal District	7494.5	0.7
Republic of Dagestan	1278.0	1.0
Republic of Ingushetia	23.4	0.3
Kabardino-Balkarian Republic	414.7	0.7
Karachay-Cherkess Republic	6.6	0.01
Republic of North Ossetia–Alania	42.4	0.1
Chechen Republic	22.8	0.02
Stavropol Region	5706.6	0.8

(continued)

	Million roubles	As a percentage of total sales
Volga Federal District	589803.8	3.3
Republic of Bashkortostan	20819.6	0.8
Mari El Republic	1377.2	0.8
Republic of Mordovia	5510.7	1.4
Republic of Tatarstan	203075.6	4.7
Udmurt Republic	5093.1	0.7
Chuvash Republic	5088.2	1.7
Perm Region	54866.4	2.7
Kirov Region	41175.8	9.2
Nizhny Novgorod Region	146562.6	8.3
Orenburg Region	16818.0	1.3
Penza Region	8110.2	2.2
Samara Region	69821.7	3.1
Saratov Region	3375.2	0.4
Ulyanovsk Region	8109.5	1.9
Ural Federal District	158096.0	0.9
Kurgan Region	818.0	0.4
Sverdlovsk Region	46949.6	1.4
Tyumen Region	83260.6	0.7
Khanty-Mansi Autonomous Region – Yugra	69903.7	1.1
Yamal-Nenets Autonomous Region	3674.4	0.1
Chelyabinsk Region	27067.8	1.1
Siberian Federal District	167933.4	1.3
Altai Republic	507.6	3.5
Republic of Tuva	402.6	0.9

(continued)

	Million roubles	As a percentage of total sales
Republic of Khakassia	887.7	0.3
Altai Region	8673.3	1.5
Krasnoyarsk Region	51924.5	1.6
Irkutsk Region	51990.8	1.7
Kemerovo Region	8132.0	0.3
Novosibirsk Region	13198.1	1.3
Omsk Region	11782.5	1.0
Tomsk Region	20434.2	3.2
Far Eastern Federal District	133052.9	2.2
Republic of Buryatia	11292.0	4.9
Republic of Sakha (Yakutia)	10063.7	0.6
Trans-Baikal Region	478.8	0.1
Kamchatka Region	2044.2	1.4
Primorsky Region	7136.1	0.9
Khabarovsk Region	36229.0	4.8
Amur Region	1589.2	0.4
Magadan Region	686.7	0.2
Sakhalin Region	59817.7	5.0
Jewish Autonomous Region	124.0	0.2
Chukotka Autonomous Region	3591.5	2.4
Land territories of the Arctic zone of the Russian Federation	20640.7	0.2

9.4. PERCENTAGE DISTRIBUTION OF INNOVATION EXPENDITURE BY TYPE OF INNOVATIVE ACTIVITY: 2021

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Russia	43.3	36.6	0.2	0.2	0.2	5.9	2.6	1.2	0.2	9.5
Central Federal District	50.3	32.2	0.4	0.2	0.1	4.1	4.1	1.3	0.2	7.2
Belgorod Region	6.9	66.1	0.02	1.5	0.03	2.4	0.7	0.2	0.1	22.1
Bryansk Region	9.7	54.5	0.1	0.01	0.01	16.6	0.1	10.2	–	8.7
Vladimir Region	49.3	18.5	4.3	0.04	0.0	1.4	0.6	4.8	0.6	20.4
Voronezh Region	51.9	44.2	0.02	0.03	0.01	2.0	0.6	0.3	0.2	0.8
Ivanovo Region	47.6	39.7	–	0.02	–	6.0	5.3	1.2	–	0.1
Kaluga Region	63.8	16.1	0.05	0.04	0.4	6.0	1.6	0.1	0.2	11.6
Kostroma Region	1.7	62.1	–	–	–	36.0	0.1	0.02	–	–
Kursk Region	56.2	18.6	0.01	0.2	0.0	3.8	8.4	0.02	7.9	4.9
Lipetsk Region	2.9	92.8	0.4	0.1	0.2	3.0	0.3	0.04	0.2	0.0
Moscow Region	83.8	11.7	0.4	0.03	0.1	1.1	1.4	1.2	0.1	0.2
Orel Region	4.0	41.7	0.2	0.4	0.01	6.4	22.3	–	22.2	2.8
Ryazan Region	28.8	45.2	0.3	0.5	0.5	9.9	7.0	1.2	0.4	6.2
Smolensk Region	37.9	41.4	0.3	0.1	0.2	8.9	0.4	0.1	0.1	10.6
Tambov Region	20.6	43.7	0.6	0.1	–	34.3	0.6	0.04	0.1	0.1
Tver Region	49.3	44.2	–	0.1	–	1.6	2.1	0.02	–	2.6
Tula Region	66.1	22.0	0.4	0.1	0.02	8.1	2.6	0.2	0.2	0.1
Yaroslavl Region	52.2	24.7	0.1	0.1	0.02	18.4	0.3	1.4	0.2	2.6
Moscow	46.2	31.8	0.4	0.2	0.04	4.1	5.7	1.6	0.1	9.9

* Acquisition of patent rights (alienation), licenses, industrial designs, utility models, selection achievements, integrated circuit designs, etc.; patenting (registration) of the results of intellectual activity

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
North-Western Federal District	40.1	44.5	0.1	0.1	0.9	3.7	1.8	1.0	0.5	7.2
Republic of Karelia	24.9	55.3	–	0.0	0.0	19.4	0.2	0.02	0.0	0.1
Komi Republic	4.8	90.3	–	0.03	–	2.9	0.7	0.04	0.5	0.8
Arkhangelsk Region	5.4	75.1	1.9	0.5	0.6	1.3	10.2	0.8	0.1	4.2
Nenets Autonomous Region	–	–	–	–	–	100	–	–	–	–
Vologda Region	25.2	67.2	–	0.02	–	2.6	3.0	0.9	–	1.2
Kaliningrad Region	35.4	58.2	–	0.04	–	2.2	1.9	0.4	0.03	1.9
Leningrad Region	5.8	70.1	0.03	0.03	0.04	8.6	0.3	0.2	0.02	14.9
Murmansk Region	11.9	19.8	–	0.3	0.5	35.3	1.8	0.3	–	30.0
Novgorod Region	14.5	61.5	–	0.1	0.01	21.2	0.7	0.4	0.2	1.5
Pskov Region	4.7	79.6	1.1	0.2	0.5	6.0	6.8	1.1	–	–
St Petersburg	48.9	37.5	0.1	0.2	1.2	1.5	2.1	1.3	0.6	6.7
Southern Federal District	31.7	47.4	0.1	0.4	0.5	12.2	1.1	1.7	0.05	4.8
Republic of Adygea	8.4	75.2	0.1	–	0.1	1.5	0.1	12.4	–	2.2
Republic of Kalmykia	18.1	0.9	–	–	–	78.7	–	0.01	–	2.3
Republic of Crimea	19.1	32.9	0.02	0.1	0.04	46.5	0.7	0.1	–	0.6
Krasnodar Region	42.7	36.8	0.1	0.05	0.02	14.3	0.6	0.3	0.03	5.2
Astrakhan Region	0.4	33.3	–	0.0	2.0	1.2	0.1	0.02	–	63.0
Volgograd Region	11.6	34.9	0.1	8.1	9.7	19.3	5.1	5.8	0.1	5.3
Rostov Region	24.2	62.4	0.1	0.1	0.1	6.8	1.0	3.0	0.1	2.3
Sevastopol	78.1	6.4	–	0.01	–	–	11.8	–	–	3.7

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
North Caucasian Federal District	24.3	65.5	0.1	0.01	0.04	4.8	0.4	1.5	0.2	3.1
Republic of Dagestan	14.2	72.0	0.0	0.1	–	4.6	0.02	5.1	–	4.0
Republic of Ingushetia	–	5.0	–	0.05	–	95.0	–	–	–	–
Kabardino-Balkarian Republic	95.5	0.6	–	0.0	–	3.9	–	–	–	–
Karachay-Cherkess Republic	–	55.5	–	–	–	44.5	–	–	–	–
Republic of North Ossetia–Alania	11.5	60.6	–	0.02	–	26.3	–	–	–	1.6
Chechen Republic	8.8	37.4	–	–	–	1.2	44.4	8.3	–	–
Stavropol Region	21.7	69.2	0.1	0.0	0.1	4.4	0.4	0.8	0.2	3.2
Volga Federal District	44.7	31.2	0.1	0.1	0.3	7.5	1.4	1.7	0.04	13.1
Republic of Bashkortostan	29.4	49.4	0.4	0.3	0.5	10.7	6.8	0.8	0.02	1.9
Mari El Republic	14.8	57.3	–	0.02	21.8	3.3	2.6	0.1	0.01	0.02
Republic of Mordovia	10.2	64.7	0.4	0.2	3.6	4.9	13.9	0.2	0.01	1.9
Republic of Tatarstan	34.0	24.2	0.1	0.01	0.01	11.6	1.0	0.9	0.01	28.2
Udmurt Republic	32.5	40.8	0.5	0.1	0.1	13.2	2.2	0.4	0.1	10.0
Chuvash Republic	45.8	32.8	0.1	0.1	0.2	3.1	1.6	0.8	0.1	15.4
Perm Region	49.0	33.3	0.2	0.1	0.0	3.7	2.2	9.6	0.0	1.9
Kirov Region	76.9	2.3	0.0	0.0	0.01	0.3	0.02	0.02	0.04	20.4
Nizhny Novgorod Region	58.4	35.9	0.3	0.2	0.0	2.8	0.5	1.3	0.1	0.5
Orenburg Region	8.0	72.8	0.0	0.04	0.04	16.3	1.7	0.03	0.03	1.1
Penza Region	53.5	33.3	0.1	0.1	0.3	3.4	6.5	1.0	0.04	1.7

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and databases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Samara Region	41.8	38.1	0.04	0.1	1.5	10.5	1.1	0.5	0.04	6.4
Saratov Region	57.7	19.6	0.4	0.3	0.02	3.9	2.5	6.3	0.5	8.8
Ulyanovsk Region	33.1	27.4	0.04	0.1	0.03	4.2	1.6	0.2	–	33.4
Ural Federal District	34.1	47.1	0.04	0.6	0.1	6.6	2.3	0.6	0.3	8.2
Kurgan Region	21.0	53.7	0.1	0.1	0.2	22.8	1.8	0.3	–	–
Sverdlovsk Region	51.2	32.4	0.02	0.3	0.2	8.8	4.6	1.1	0.6	0.9
Tyumen Region	19.9	62.4	0.02	1.0	0.04	5.9	1.3	0.2	0.2	9.1
Khanty-Mansi Autonomous Region – Yugra	20.7	69.2	0.02	1.1	0.02	4.1	0.2	0.0	0.01	4.6
Yamal-Nenets Autonomous Region	22.7	25.9	0.01	0.1	0.0	32.0	9.2	3.9	4.0	2.2
Chelyabinsk Region	48.5	25.6	0.1	0.3	0.1	4.2	1.6	1.1	0.03	18.4
Siberian Federal District	40.5	41.2	0.1	0.1	0.6	9.3	1.8	0.6	0.3	5.5
Altai Republic	2.7	55.5	–	0.02	–	2.2	0.04	–	–	39.6
Republic of Tuva	–	99.9	–	–	–	0.04	0.04	0.0	–	–
Republic of Khakassia	3.2	95.5	–	–	–	1.2	0.02	0.03	–	0.0
Altai Region	19.0	54.4	0.2	0.1	0.1	1.6	4.5	0.2	0.6	19.3
Krasnoyarsk Region	81.5	12.5	0.0	0.05	0.0	1.8	2.0	0.3	0.05	1.9
Irkutsk Region	7.6	80.5	0.0	0.01	1.6	7.0	0.7	1.0	0.0	1.8
Kemerovo Region	39.5	42.1	0.04	0.1	0.0	1.3	6.2	0.4	0.01	10.4
Novosibirsk Region	33.9	23.4	1.1	0.1	0.2	14.1	3.0	0.1	0.03	24.0
Omsk Region	33.0	51.6	0.1	0.1	1.0	4.5	1.5	2.4	3.0	2.8
Tomsk Region	41.7	10.4	0.1	0.1	0.03	41.0	0.6	0.2	0.02	5.8

(continued)

	Research and development	Purchase of machinery and equipment, or other fixed assets	Marketing and brand creation	Education and training of personnel	Design	Engineering	Development and purchase of software and data-bases	Acquisition of rights to the results of intellectual activity*	Planning, development, and implementation of new business methods, organisation of workplaces and networking	Other
Far Eastern Federal District	10.4	56.8	0.03	0.1	0.0	7.7	0.2	0.1	0.2	24.5
Republic of Buryatia	85.9	13.8	0.0	0.0	–	0.3	0.04	–	–	0.04
Republic of Sakha (Yakutia)	17.9	58.6	0.3	0.3	0.0	10.6	0.4	0.9	2.7	8.3
Trans-Baikal Region	51.9	39.8	0.02	0.01	–	1.0	0.1	0.1	0.0	7.1
Kamchatka Region	2.6	31.5	–	0.2	–	64.5	0.6	0.02	–	0.5
Primorsky Region	1.8	55.3	0.1	0.1	0.01	35.9	0.9	0.04	0.3	5.6
Khabarovsk Region	2.2	9.0	0.0	0.03	–	5.5	0.1	0.2	0.04	82.9
Amur Region	27.4	18.6	0.05	0.6	–	0.7	1.8	0.05	0.1	50.5
Magadan Region	75.0	7.7	–	0.4	–	1.0	1.3	0.4	–	14.3
Sakhalin Region	0.1	99.2	–	0.01	–	0.1	0.0	0.01	–	0.6
Jewish Autonomous Region	36.7	59.8	–	–	–	3.5	–	0.0	–	–
Chukotka Autonomous Region	2.7	9.7	–	–	–	87.6	–	–	–	–
Land territories of the Arctic zone of the Russian Federation	19.8	40.2	0.2	0.1	0.1	32.3	2.8	0.8	0.8	3.0

9.5. INNOVATION EXPENDITURE FROM BUDGET FUNDS OF ALL LEVELS: 2021

(as a percentage of the total innovation expenditure)

	Budget funds – total	Of which	
		federal budget	regional and local budgets
Russia	25.9	24.3	1.7
Central Federal District	36.0	34.8	1.2
Belgorod Region	1.8	1.0	0.8
Bryansk Region	15.9	10.7	5.3
Vladimir Region	26.1	23.2	2.9
Voronezh Region	45.0	43.9	1.1
Ivanovo Region	8.5	1.6	6.9
Kaluga Region	24.0	23.9	0.1
Kostroma Region	0.0	0.0	–
Kursk Region	1.9	1.8	0.1
Lipetsk Region	1.5	0.8	0.7
Moscow Region	57.9	56.5	1.3
Orel Region	64.7	62.7	2.0
Ryazan Region	9.7	9.7	0.01
Smolensk Region	41.5	41.5	–
Tambov Region	15.1	14.7	0.3
Tver Region	41.2	31.0	10.1
Tula Region	42.8	42.6	0.2
Yaroslavl Region	26.4	26.3	0.1
Moscow	34.2	33.0	1.1
North-Western Federal District	14.9	13.8	1.1
Republic of Karelia	0.6	0.0	0.6
Komi Republic	11.2	–	11.2

(continued)

	Budget funds – total	Of which	
		federal budget	regional and local budgets
Arkhangelsk Region	10.5	3.0	7.4
Nenets Autonomous Region	–	–	–
Vologda Region	20.6	19.8	0.8
Kaliningrad Region	5.0	1.4	3.5
Leningrad Region	0.5	0.1	0.4
Murmansk Region	12.3	5.6	6.7
Novgorod Region	27.0	26.9	0.1
Pskov Region	38.2	5.8	32.4
St Petersburg	18.1	17.4	0.7
Southern Federal District	25.0	18.9	6.1
Republic of Adygea	0.3	–	0.3
Republic of Kalmykia	17.5	17.5	–
Republic of Crimea	78.4	30.6	47.8
Krasnodar Region	3.8	3.3	0.5
Astrakhan Region	0.7	0.6	0.1
Volgograd Region	15.6	15.1	0.5
Rostov Region	43.1	34.7	8.4
Sevastopol	8.9	8.6	0.2
North Caucasian Federal District	22.4	14.7	7.7
Republic of Dagestan	71.4	44.6	26.8
Republic of Ingushetia	–	–	–
Kabardino-Balkarian Republic	10.0	10.0	–
Karachay-Cherkess Republic	–	–	–
Republic of North Ossetia–Alania	52.2	52.2	–
Chechen Republic	0.04	0.04	–
Stavropol Region	12.4	8.2	4.1

(continued)

	Budget funds – total	Of which	
		federal budget	regional and local budgets
Volga Federal District	20.4	18.2	2.2
Republic of Bashkortostan	6.9	4.3	2.5
Mari El Republic	–	–	–
Republic of Mordovia	8.0	0.8	7.2
Republic of Tatarstan	3.1	2.7	0.3
Udmurt Republic	20.3	16.2	4.0
Chuvash Republic	12.3	8.8	3.5
Perm Region	34.7	34.2	0.5
Kirov Region	7.7	7.6	0.1
Nizhny Novgorod Region	36.8	31.3	5.5
Orenburg Region	0.8	0.7	0.1
Penza Region	48.9	44.4	4.5
Samara Region	41.3	38.3	3.0
Saratov Region	25.0	24.9	0.04
Ulyanovsk Region	8.8	6.8	2.0
Ural Federal District	14.5	13.8	0.7
Kurgan Region	26.6	26.6	0.03
Sverdlovsk Region	21.6	21.2	0.4
Tyumen Region	1.4	0.4	1.0
Khanty-Mansi Autonomous Region – Yugra	0.1	0.04	0.05
Yamal-Nenets Autonomous Region	2.2	0.2	2.0
Chelyabinsk Region	42.4	41.9	0.5

(continued)

	Budget funds – total	Of which	
		federal budget	regional and local budgets
Siberian Federal District	26.5	23.9	2.6
Altai Republic	46.3	46.3	0.03
Republic of Tuva	4.8	0.0	4.7
Republic of Khakassia	6.4	2.0	4.4
Altai Region	13.5	6.2	7.3
Krasnoyarsk Region	60.9	60.6	0.2
Irkutsk Region	7.1	1.7	5.4
Kemerovo Region	8.8	7.2	1.6
Novosibirsk Region	22.0	21.4	0.6
Omsk Region	13.1	12.2	0.9
Tomsk Region	12.7	10.6	2.1
Far Eastern Federal District	2.9	1.7	1.2
Republic of Buryatia	0.7	0.5	0.2
Republic of Sakha (Yakutia)	15.1	4.3	10.8
Trans-Baikal Region	27.2	21.2	6.0
Kamchatka Region	15.8	13.8	2.1
Primorsky Region	1.1	1.1	0.03
Khabarovsk Region	1.8	1.8	0.05
Amur Region	27.5	23.2	4.3
Magadan Region	27.8	5.1	22.8
Sakhalin Region	0.3	0.1	0.2
Jewish Autonomous Region	44.4	44.4	–
Chukotka Autonomous Region	6.0	4.5	1.5

9.6. SALES OF INNOVATIVE GOODS AND SERVICES: 2021

	Million roubles	As a percentage of total sales
Russia	6003342.0	5.0
Central Federal District	1980925.7	4.6
Belgorod Region	190335.9	11.6
Bryansk Region	35265.2	7.9
Vladimir Region	27132.8	3.8
Voronezh Region	38083.6	4.0
Ivanovo Region	12964.0	5.7
Kaluga Region	35790.5	3.3
Kostroma Region	1836.8	0.8
Kursk Region	17028.5	2.6
Lipetsk Region	46904.1	3.6
Moscow Region	502758.0	7.6
Orel Region	5315.3	2.1
Ryazan Region	30078.4	5.5
Smolensk Region	8819.3	2.2
Tambov Region	20395.6	6.0
Tver Region	48113.1	9.4
Tula Region	134432.4	10.3
Yaroslavl Region	30375.2	5.0
Moscow	795297.0	3.2
North-Western Federal District	939508.0	6.5
Republic of Karelia	12791.3	3.3
Komi Republic	4469.3	0.4
Arkhangelsk Region	31172.4	2.8
Nenets Autonomous Region	14.1	0.0

(continued)

	Million roubles	As a percentage of total sales
Vologda Region	14113.4	1.0
Kaliningrad Region	5495.5	0.5
Leningrad Region	78900.9	4.1
Murmansk Region	149144.6	12.1
Novgorod Region	18289.6	4.9
Pskov Region	1077.9	0.5
St Petersburg	624053.1	11.1
Southern Federal District	210083.1	3.6
Republic of Adygea	3145.9	4.4
Republic of Kalmykia	162.1	1.1
Republic of Crimea	898.9	0.4
Krasnodar Region	40872.1	1.6
Astrakhan Region	807.5	0.2
Volgograd Region	21503.9	2.4
Rostov Region	140659.1	8.9
Sevastopol	2033.6	5.8
North Caucasian Federal District	76758.9	7.1
Republic of Dagestan	2855.8	2.2
Republic of Ingushetia	140.1	1.7
Kabardino-Balkarian Republic	490.2	0.8
Karachay-Cherkess Republic	356.5	0.6
Republic of North Ossetia–Alania	427.0	1.0
Chechen Republic	148.2	0.2
Stavropol Region	72341.1	10.5

(continued)

	Million roubles	As a percentage of total sales
Volga Federal District	1860814.1	10.3
Republic of Bashkortostan	202445.2	8.0
Mari El Republic	10641.6	6.2
Republic of Mordovia	94884.8	24.5
Republic of Tatarstan	789134.2	18.3
Udmurt Republic	60779.1	7.9
Chuvash Republic	25231.1	8.2
Perm Region	90236.6	4.4
Kirov Region	22640.0	5.0
Nizhny Novgorod Region	186004.6	10.6
Orenburg Region	82401.6	6.3
Penza Region	27841.4	7.6
Samara Region	199173.1	8.9
Saratov Region	17793.6	2.0
Ulyanovsk Region	51607.3	12.3
Ural Federal District	485138.8	2.6
Kurgan Region	5827.3	2.8
Sverdlovsk Region	227236.2	6.9
Tyumen Region	230745.1	1.8
Khanty-Mansi Autonomous Region – Yugra	23738.7	0.4
Yamal-Nenets Autonomous Region	3544.8	0.1
Chelyabinsk Region	21330.1	0.8
Siberian Federal District	312160.6	2.4
Altai Republic	1202.3	8.2
Republic of Tuva	274.7	0.6

(continued)

	Million roubles	As a percentage of total sales
Republic of Khakassia	611.4	0.2
Altai Region	14531.2	2.5
Krasnoyarsk Region	92423.9	2.8
Irkutsk Region	4054.6	0.1
Kemerovo Region	22753.3	0.9
Novosibirsk Region	34081.5	3.3
Omsk Region	123819.4	11.0
Tomsk Region	18408.2	2.9
Far Eastern Federal District	137952.8	2.3
Republic of Buryatia	8419.1	3.7
Republic of Sakha (Yakutia)	3122.1	0.2
Trans-Baikal Region	1063.1	0.3
Kamchatka Region	3148.4	2.1
Primorsky Region	18576.3	2.4
Khabarovsk Region	96448.2	12.7
Amur Region	1916.6	0.5
Magadan Region	1906.4	0.6
Sakhalin Region	2464.9	0.2
Jewish Autonomous Region	155.3	0.3
Chukotka Autonomous Region	732.4	0.5
Land territories of the Arctic zone of the Russian Federation	191531.8	1.9

9.7. ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS BY PARTNER: 2021

(as a percentage of enterprises that engaged in innovative activities)

	Total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institution
Russia	16.8	6.1	6.0	5.0	1.3	1.8	8.1	4.8
Central Federal District	20.6	7.5	8.3	6.7	2.0	2.5	10.3	5.6
Belgorod Region	10.5	4.1	2.9	4.7	1.8	2.3	6.4	3.5
Bryansk Region	10.8	6.5	3.2	2.2	–	–	1.1	1.1
Vladimir Region	18.8	5.4	8.0	8.9	–	1.8	10.7	3.6
Voronezh Region	14.2	4.9	6.8	5.6	0.6	0.6	6.8	1.2
Ivanovo Region	7.1	1.2	2.4	–	–	–	4.8	2.4
Kaluga Region	31.2	9.2	6.4	10.1	3.7	4.6	17.4	6.4
Kostroma Region	4.2	4.2	–	–	–	–	–	–
Kursk Region	12.2	2.0	6.1	4.1	–	2.0	2.0	4.1
Lipetsk Region	8.7	2.2	3.3	2.2	–	1.1	4.3	2.2
Moscow Region	23.3	9.1	10.2	8.4	2.8	3.0	14.0	5.4
Orel Region	3.6	1.2	1.2	–	–	–	1.2	–
Ryazan Region	17.4	10.5	2.3	8.1	1.2	1.2	5.8	2.3
Smolensk Region	28.3	8.7	13.0	10.9	–	–	6.5	2.2
Tambov Region	14.3	6.3	–	1.6	–	–	4.8	6.3
Tver Region	21.2	13.1	8.1	4.0	3.0	2.0	8.1	3.0
Tula Region	13.4	4.2	4.2	4.2	1.4	2.1	4.9	4.2
Yaroslavl Region	22.3	7.1	6.3	6.3	1.8	4.5	8.9	9.8
Moscow	24.7	8.7	10.9	7.8	2.6	3.2	12.5	7.6

(continued)

	Total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institution
North-Western Federal District	21.5	8.6	7.5	6.1	1.5	1.6	10.2	6.0
Republic of Karelia	16.1	3.2	12.9	3.2	–	–	6.5	3.2
Komi Republic	7.1	4.3	1.4	1.4	–	–	2.9	–
Arkhangelsk Region	15.0	7.5	2.5	7.5	2.5	2.5	–	–
Nenets Autonomous Region	–	–	–	–	–	–	–	–
Vologda Region	10.4	2.6	2.6	3.9	–	–	7.8	3.9
Kaliningrad Region	21.3	11.5	6.6	4.9	1.6	3.3	3.3	4.9
Leningrad Region	21.6	8.1	5.4	6.3	1.8	2.7	11.7	4.5
Murmansk Region	12.7	4.2	7.0	1.4	–	1.4	7.0	1.4
Novgorod Region	17.8	13.3	15.6	–	–	–	4.4	–
Pskov Region	4.4	2.2	–	2.2	–	–	2.2	–
St Petersburg	26.8	10.2	9.1	8.0	2.1	1.8	13.4	8.9
Southern Federal District	9.3	2.3	3.1	3.1	0.5	0.9	4.0	2.2
Republic of Adygea	8.7	–	–	8.7	–	–	–	–
Republic of Kalmykia	16.7	–	16.7	–	–	–	–	–
Republic of Crimea	20.0	6.7	5.0	6.7	1.7	–	11.7	3.3
Krasnodar Region	12.3	2.7	3.2	3.6	0.9	0.9	5.0	3.6
Astrakhan Region	14.6	4.9	7.3	–	–	2.4	7.3	4.9
Volgograd Region	12.6	5.5	5.5	4.7	0.8	1.6	3.1	3.1
Rostov Region	6.3	1.0	2.1	2.3	0.2	0.8	3.1	1.3
Sevastopol	4.2	4.2	–	–	–	–	–	–

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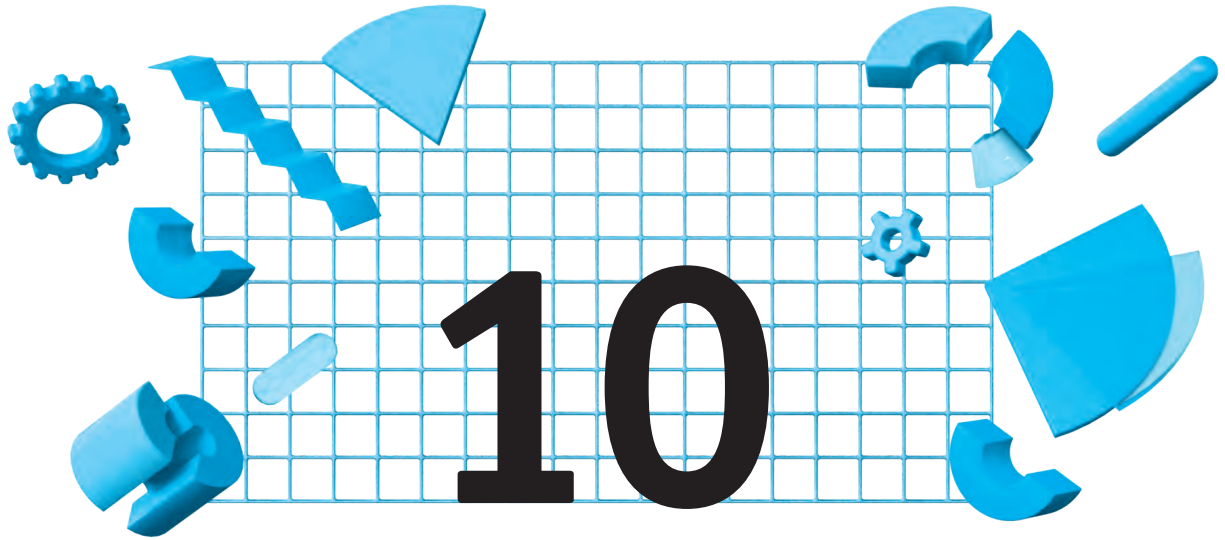
	Total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institution
North Caucasian Federal District	11.6	4.7	3.2	2.1	-	0.5	6.3	3.7
Republic of Dagestan	10.9	4.3	2.2	2.2	-	-	4.3	2.2
Republic of Ingushetia	-	-	-	-	-	-	-	-
Kabardino-Balkarian Republic	10.0	-	-	-	-	-	10.0	-
Karachay-Cherkess Republic	7.1	-	-	-	-	-	7.1	7.1
Republic of North Ossetia–Alania	10.0	-	-	-	-	-	10.0	-
Chechen Republic	-	-	-	-	-	-	-	-
Stavropol Region	15.5	8.3	6.0	3.6	-	1.2	7.1	6.0
Volga Federal District	12.5	5.0	4.4	4.3	1.1	1.5	4.8	3.5
Republic of Bashkortostan	8.3	3.4	2.1	2.1	0.8	0.5	3.1	2.3
Mari El Republic	7.5	5.0	7.5	-	-	-	-	-
Republic of Mordovia	9.4	0.9	4.7	5.7	0.9	1.9	1.9	2.8
Republic of Tatarstan	9.2	4.6	3.5	3.8	0.9	1.4	4.0	2.8
Udmurt Republic	15.3	8.1	4.0	5.6	1.6	2.4	4.8	4.8
Chuvash Republic	18.5	5.6	6.5	5.6	1.9	1.9	6.5	4.6
Perm Region	17.0	6.7	6.2	6.2	0.5	4.1	6.2	6.2
Kirov Region	10.2	4.1	4.1	4.1	2.0	2.0	3.1	2.0
Nizhny Novgorod Region	20.0	6.4	9.2	6.4	1.4	1.4	8.1	5.8
Orenburg Region	11.6	3.5	1.2	1.2	1.2	-	10.5	4.7
Penza Region	9.3	6.2	3.1	4.7	2.3	2.3	3.1	1.6

(continued)

	Total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institution
Samara Region	13.1	5.7	3.1	5.2	0.5	1.5	5.4	4.1
Saratov Region	16.3	3.3	7.3	4.1	0.8	0.8	6.5	2.4
Ulyanovsk Region	13.1	6.2	3.8	3.1	1.5	0.8	2.3	2.3
Ural Federal District	17.0	6.1	4.4	4.8	0.7	1.7	8.6	4.2
Kurgan Region	14.5	7.2	2.9	2.9	1.4	1.4	5.8	2.9
Sverdlovsk Region	22.0	6.2	6.5	4.7	0.6	1.5	12.8	6.5
Tyumen Region	11.4	4.9	2.8	4.3	0.9	1.8	4.9	1.2
Khanty-Mansi Autonomous Region – Yugra	4.7	2.8	–	0.9	–	–	3.7	–
Yamal-Nenets Autonomous Region	17.6	8.1	2.7	5.4	–	1.4	4.1	–
Chelyabinsk Region	18.5	7.4	4.2	6.0	0.5	1.9	8.3	5.6
Siberian Federal District	19.0	6.5	6.9	3.9	1.2	2.3	11.1	6.2
Altai Republic	9.1	–	9.1	–	–	–	–	9.1
Republic of Tuva	10.0	–	–	–	–	–	10.0	–
Republic of Khakassia	11.8	5.9	5.9	–	–	–	5.9	–
Altai Region	7.9	1.5	3.0	3.5	–	1.0	5.4	1.5
Krasnoyarsk Region	19.6	9.2	4.9	4.9	1.2	3.1	11.7	4.9
Irkutsk Region	24.5	5.9	5.9	4.9	–	3.9	17.6	6.9
Kemerovo Region	13.6	5.5	2.7	4.5	–	0.9	4.5	3.6
Novosibirsk Region	29.2	7.9	16.3	5.6	3.4	4.5	20.2	11.2
Omsk Region	13.6	5.9	4.2	1.7	1.7	1.7	5.1	5.1
Tomsk Region	28.6	11.4	10.0	2.9	2.1	1.4	14.3	11.4

























































































(continued)

	Total	Of which by partner						
		enterprises within a single network (group of companies, holding company, consortium, association, etc.)	consumers of goods and services	suppliers of equipment, materials, components, software	competitors in the industry	consulting firms, IT services providers	research institutes	higher education institution
Far Eastern Federal District	14.5	3.6	3.4	2.5	0.2	0.9	7.7	7.2
Republic of Buryatia	18.5	11.1	3.7	–	3.7	–	11.1	11.1
Republic of Sakha (Yakutia)	9.1	1.9	2.6	1.9	–	1.3	7.1	3.9
Trans-Baikal Region	10.0	6.7	3.3	3.3	–	–	–	6.7
Kamchatka Region	8.3	2.8	2.8	–	–	–	5.6	2.8
Primorsky Region	24.7	3.2	6.5	4.3	–	1.1	14.0	12.9
Khabarovsk Region	17.1	2.9	1.4	1.4	–	2.9	5.7	11.4
Amur Region	16.3	4.7	4.7	4.7	–	–	7.0	2.3
Magadan Region	18.5	3.7	3.7	3.7	–	–	11.1	3.7
Sakhalin Region	14.8	7.4	3.7	3.7	–	–	7.4	11.1
Jewish Autonomous Region	–	–	–	–	–	–	–	–
Chukotka Autonomous Region	6.7	–	–	–	–	–	–	6.7



INTERNATIONAL COMPARISONS

10.1. RUSSIAN IN THE GLOBAL INNOVATION INDEX: 2022

































































































	Global Innovation Index*		Innovation Input Sub-Index		Innovation Output Sub-Index		Innovation performance, percentage**
	Rank	Value	Rank	Value	Rank	Value	
Russia	47	 34.3	46	 42.6	50	 26.0	 61.0
Switzerland	1	 64.6	3	 67.5	1	 61.7	 91.4
United States	2	 61.8	2	 69.0	5	 54.6	 79.1
Sweden	3	 61.6	4	 66.3	2	 56.8	 85.7
United Kingdom	4	 59.7	7	 63.6	3	 55.8	 87.7
Netherlands	5	 58.0	10	 62.4	6	 53.7	 86.1
Republic of Korea	6	 57.8	16	 60.7	4	 54.9	 90.4
Singapore	7	 57.3	1	 70.6	14	 43.9	 62.2
Germany	8	 57.2	12	 60.9	7	 53.5	 87.8
Finland	9	 56.9	6	 64.5	9	 49.3	 76.4
Denmark	10	 55.9	8	 62.8	10	 49.1	 78.2
China	11	 55.3	21	 57.5	8	 53.1	 92.3
France	12	 55.0	13	 60.9	11	 49.0	 80.5
Japan	13	 53.6	11	 61.4	12	 45.8	 74.6
Hong Kong (China)	14	 51.8	5	 65.3	25	 38.2	 58.5
Canada	15	 50.8	9	 62.5	23	 39.0	 62.4
Israel	16	 50.2	22	 57.3	16	 43.2	 75.4
Austria	17	 50.2	17	 59.6	21	 40.7	 68.3
Estonia	18	 50.2	15	 60.7	22	 39.7	 65.4
Luxembourg	19	 49.8	20	 57.5	18	 42.1	 73.2
Iceland	20	 49.5	24	 55.9	17	 43.1	 77.1
Malta	21	 49.2	27	 52.9	13	 45.4	 85.8

* The ranking includes 132 countries.

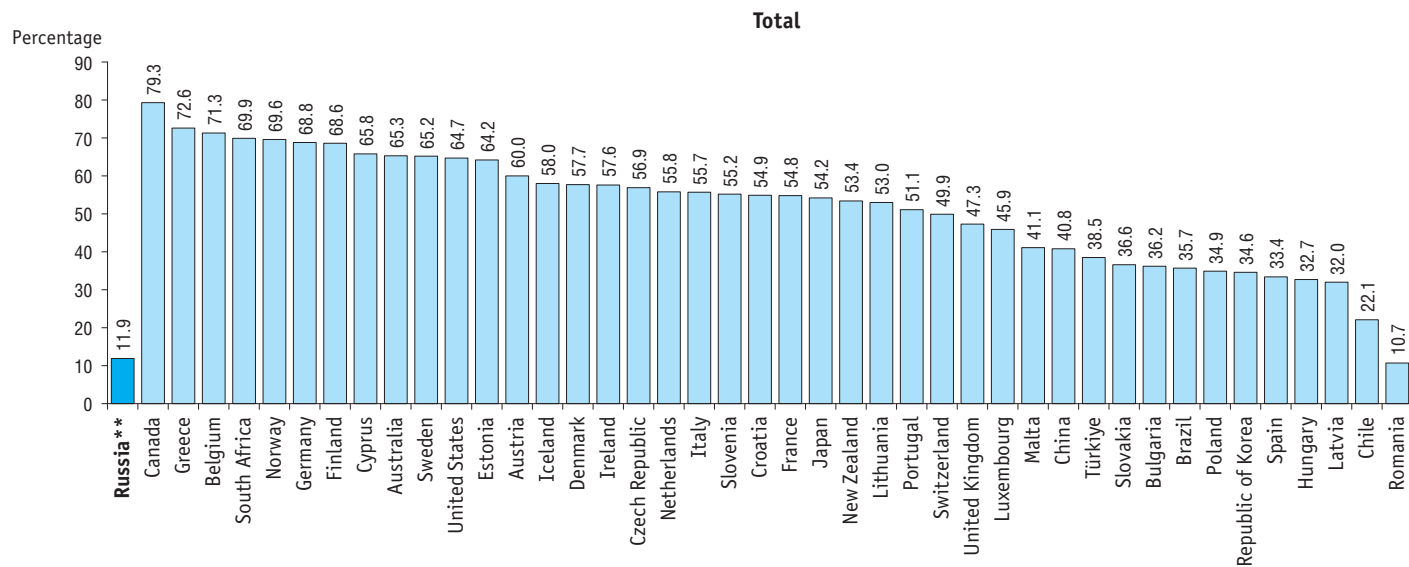
** The ratio of Innovation Output to Innovation Input.

Source: <https://www.globalinnovationindex.org/>

(continued)

	Global Innovation Index*		Innovation Input Sub-Index		Innovation Output Sub-Index		Innovation performance, percentage**
	Rank	Value	Rank	Value	Rank	Value	
Norway	22	 48.8	14	 60.8	29	 36.9	 60.7
Ireland	23	 48.5	25	 55.8	19	 41.3	 74.0
New Zealand	24	 47.2	23	 57.1	28	 37.2	 65.1
Australia	25	 47.1	19	 59.3	32	 35.0	 59.0
Belgium	26	 46.9	26	 55.3	24	 38.5	 69.6
Cyprus	27	 46.2	29	 51.3	20	 41.1	 80.1
Italy	28	 46.1	31	 48.9	15	 43.3	 88.5
Spain	29	 44.6	28	 51.8	26	 37.4	 72.2
Czech Republic	30	 42.8	33	 48.4	27	 37.3	 77.1
United Arab Emirates	31	 42.1	18	 59.4	52	 24.8	 41.8
Portugal	32	 42.1	32	 48.5	31	 35.7	 73.6
Slovenia	33	 40.6	30	 50.2	35	 30.9	 61.6
Hungary	34	 39.8	36	 46.9	34	 32.8	 69.9
Bulgaria	35	 39.5	47	 42.2	30	 36.9	 87.4
Malaysia	36	 38.7	35	 48.0	37	 29.5	 61.5
Türkiye	37	 38.1	49	 41.8	33	 34.5	 82.5
Poland	38	 37.6	41	 44.3	36	 30.8	 69.5
Lithuania	39	 37.4	34	 48.2	47	 26.6	 55.2
India	40	 36.6	42	 44.1	39	 29.1	 66.0
Latvia	41	 36.5	39	 44.8	42	 28.3	 63.2
Croatia	42	 35.6	45	 42.7	40	 28.5	 66.7
Thailand	43	 34.9	48	 42.2	44	 27.6	 65.4
Greece	44	 34.5	44	 43.0	49	 26.1	 60.7
Mauritius	45	 34.4	40	 44.4	54	 24.5	 55.2

10.2. INNOVATION ACTIVITY OF ENTERPRISES: 2021*

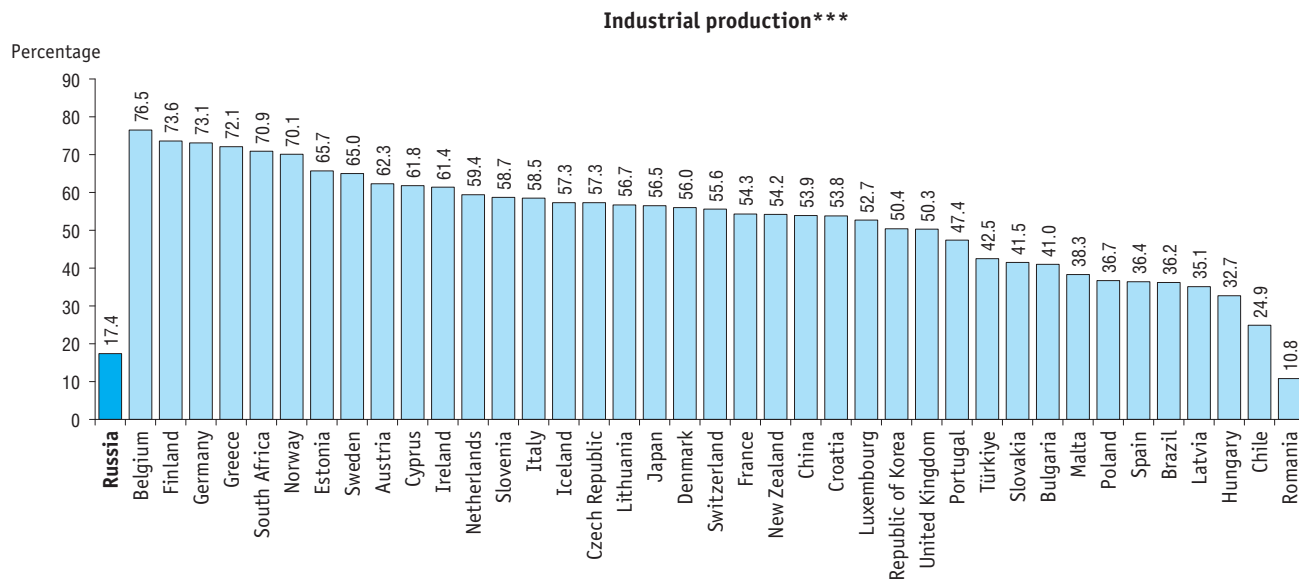


* Here and below in this section, the country-specific data for Norway, Türkiye are based on the European Innovation Survey (for 2018–2020 or nearest years for which data are available). The data for the Iceland, Switzerland, and United Kingdom are based on the European Innovation Survey (2014–2016). For other countries: Australia (2018–2019), Brazil (2015–2017), Canada (2015–2017), Chile (2017–2018), China (2018), Japan (2017–2019), New Zealand (2017–2018), Republic of Korea (2017–2019 / 2018–2020), South Africa (2014–2016), and United States (2015–2017).

** Here and below in this section, for Russia, the aggregate data for enterprises (legal entities, excluding small businesses) refer to the following types of observed economic activity under OKVED2: codes 01.1, 01.2, 01.3, 01.4, 01.5, 01.6, Sections B, C, D (excluding 35.14; 35.23; 35.30.6), E, F, H, codes 58, 61, 62, 63, 69, 70, 71, 72, 73, 74, 86.

Source: Eurostat; materials of national statistical services (as at November 17, 2022).

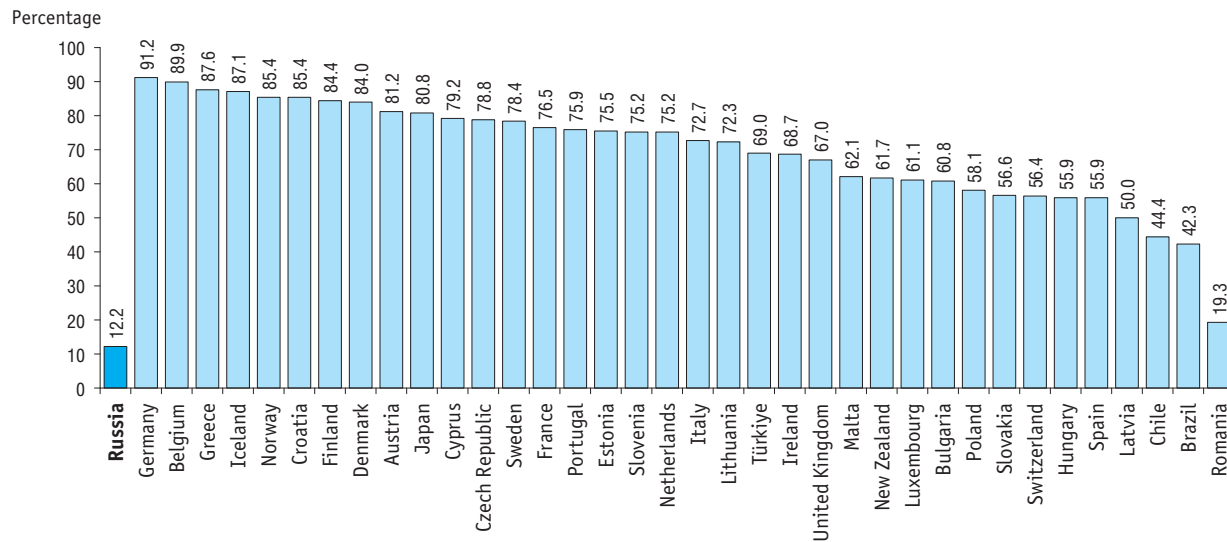
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*** The data for Brazil, Chile, China, New Zealand, Republic of Korea, South Africa, and United Kingdom refer to manufacturing enterprises.

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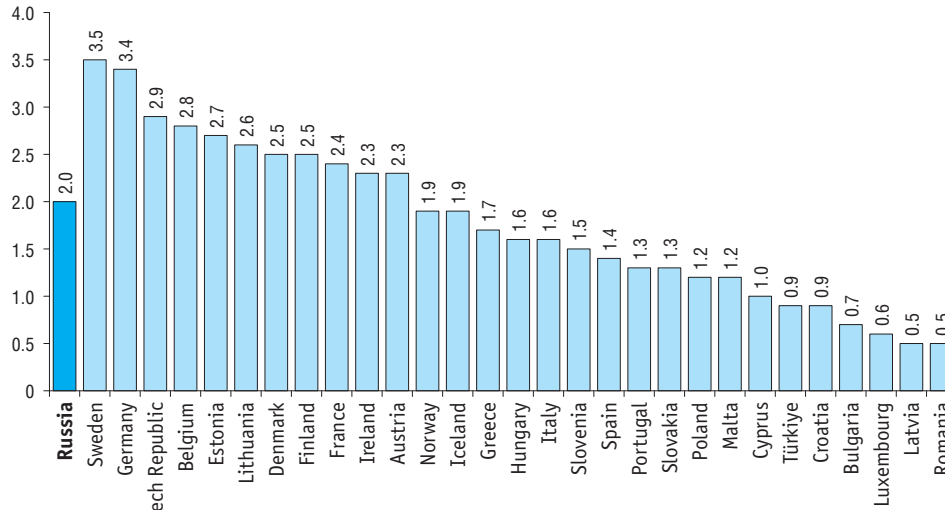
**Telecommunications; computer programming,
consultancy and related activities; IT industry**



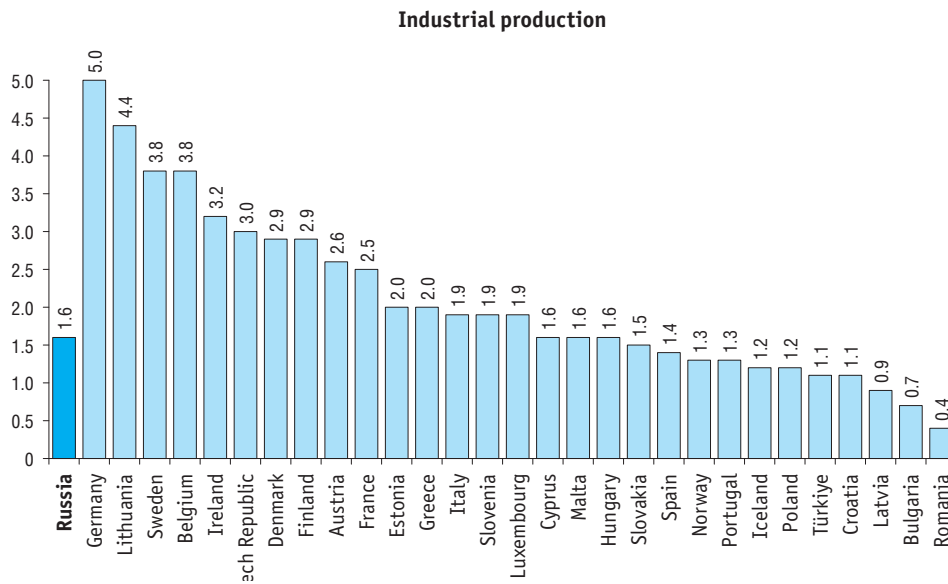
10.3. INTENSITY OF INNOVATION EXPENDITURE: 2020*

(innovation expenditure as a percentage of total sales)

Total

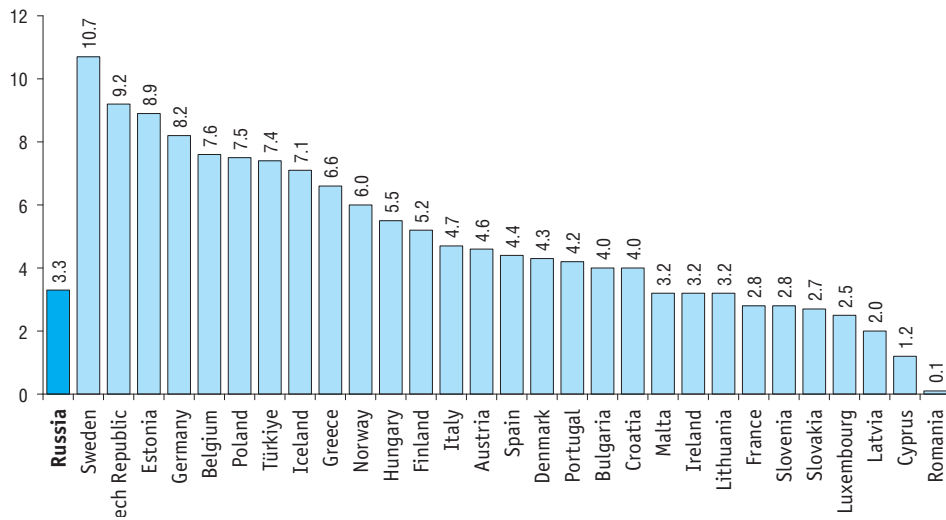


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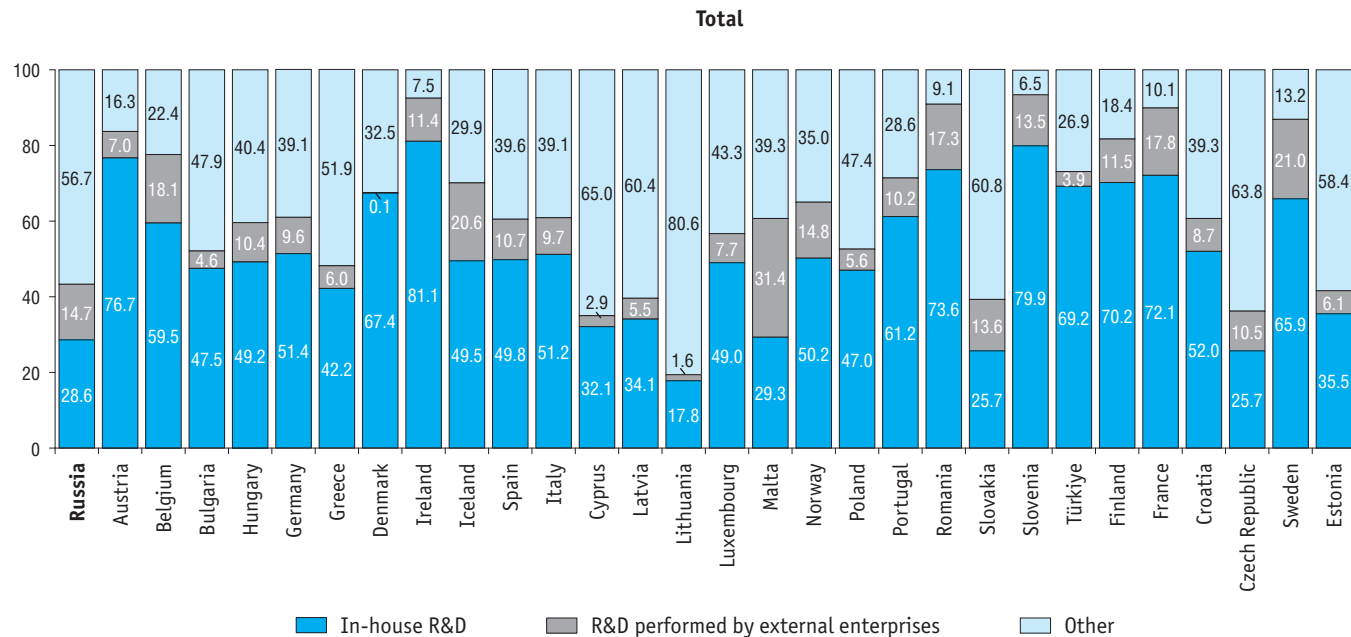


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Telecommunications; computer programming, consultancy and related activities; IT industry

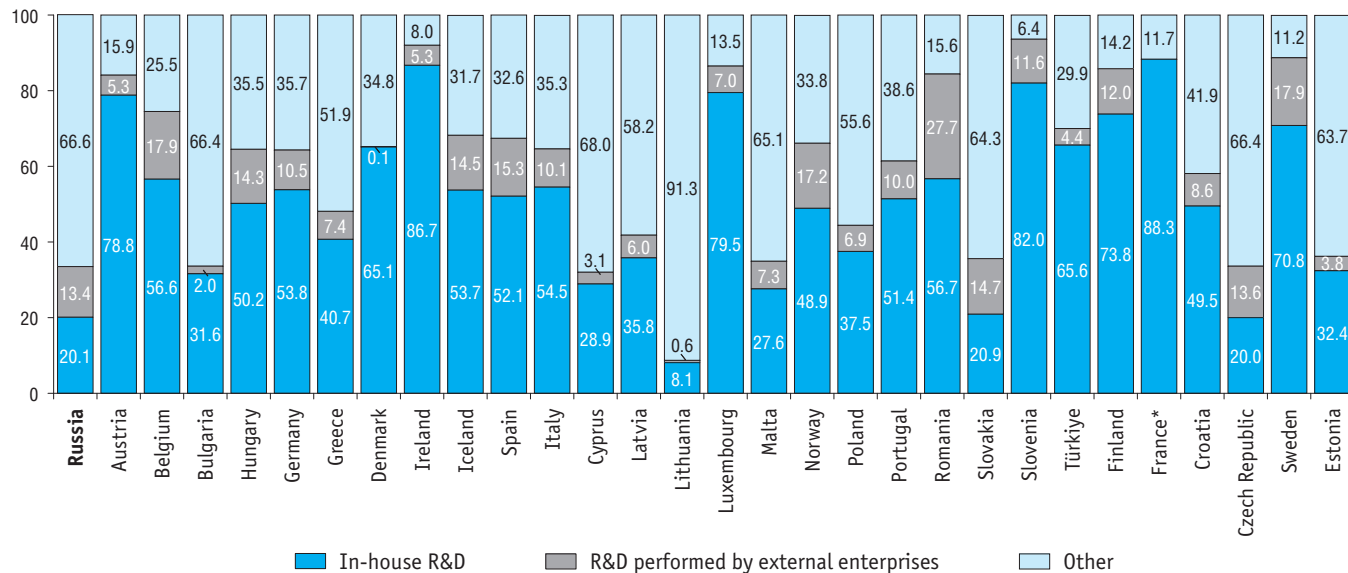


10.4. PERCENTAGE DISTRIBUTION OF INNOVATION EXPENDITURE BY TYPE OF INNOVATIVE ACTIVITY: 2021



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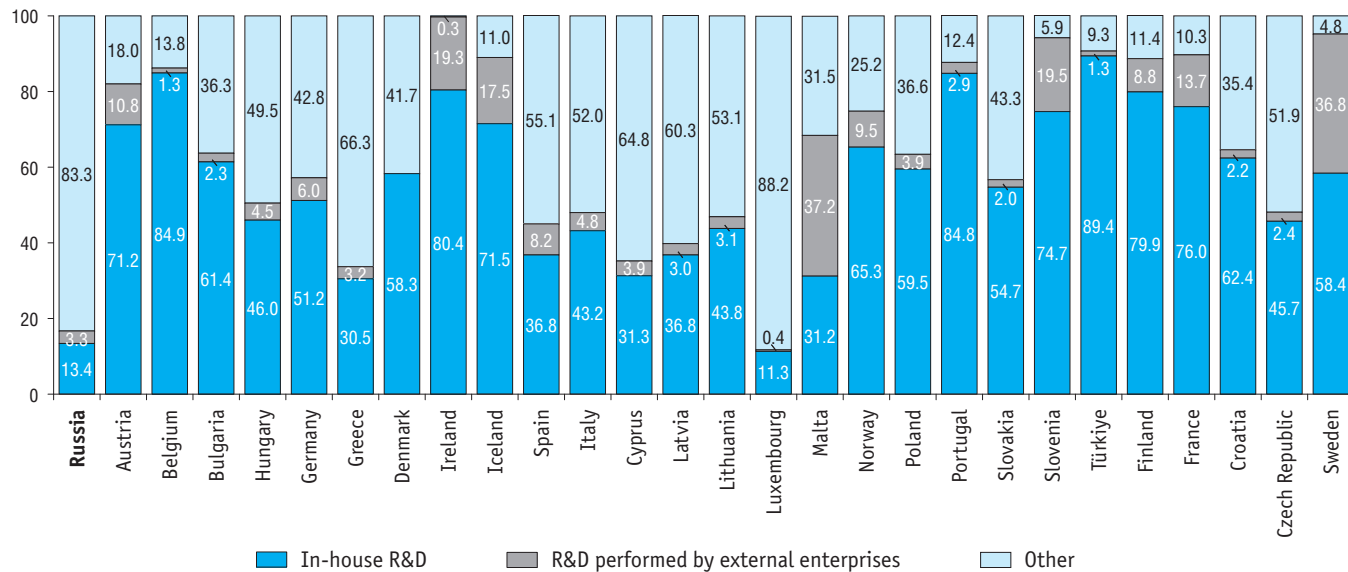
Industrial production



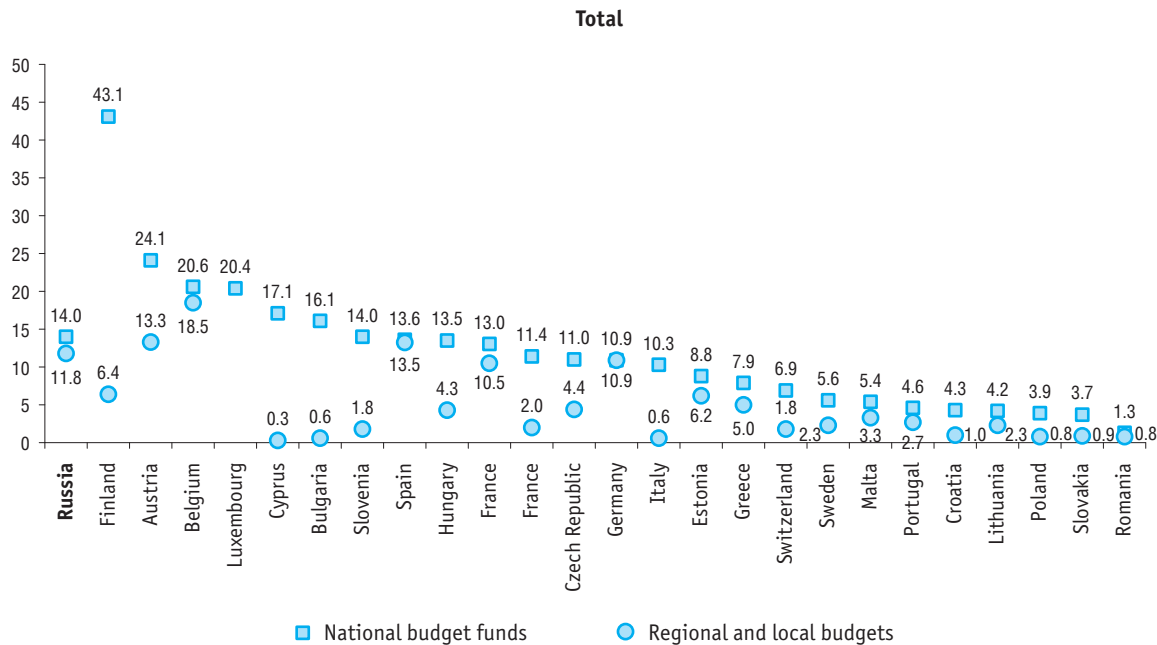
* The data refer to expenditure on research and development and other innovation expenditure.

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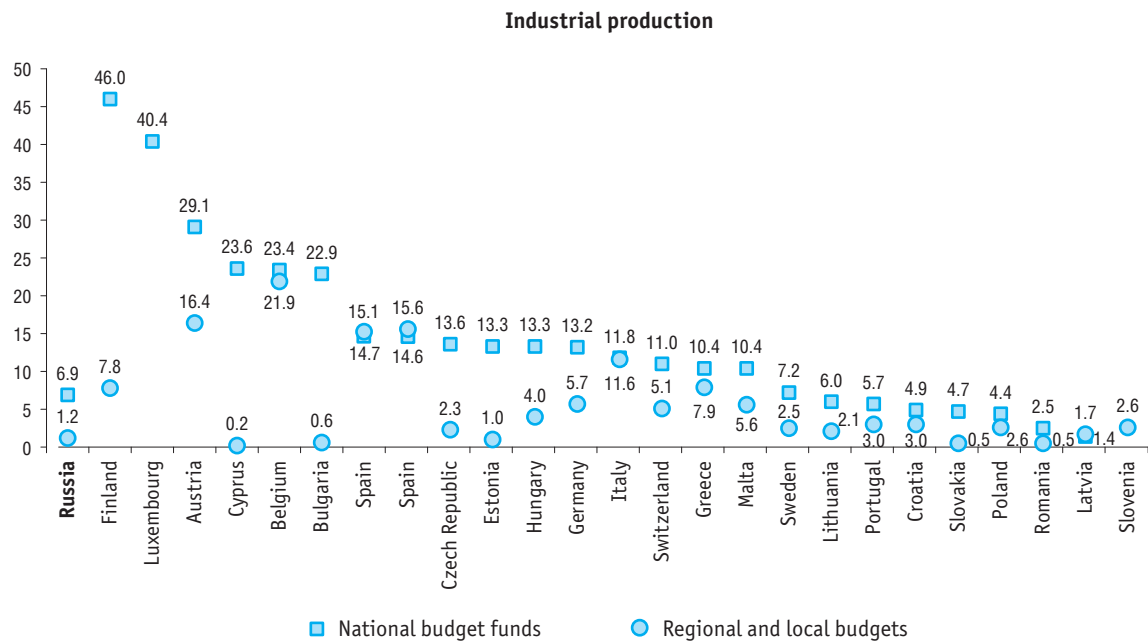
**Telecommunications; computer programming,
consultancy and related activities; IT industry**



10.5. ENTERPRISES THAT RECEIVED FUNDS FROM THE BUDGET: 2021 (as a percentage of all enterprises that have had innovation expenditure)

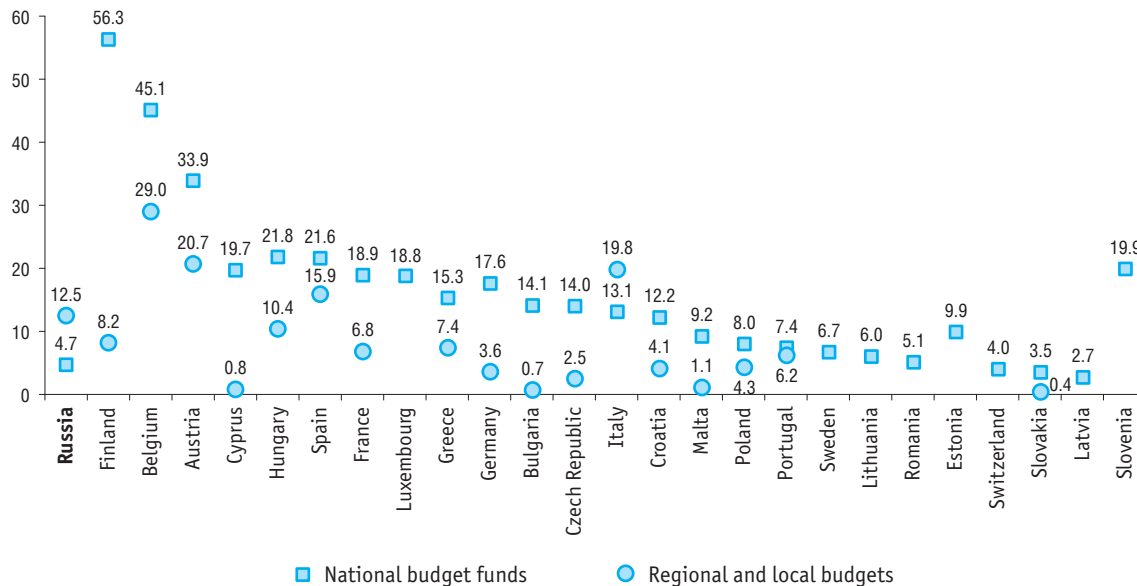


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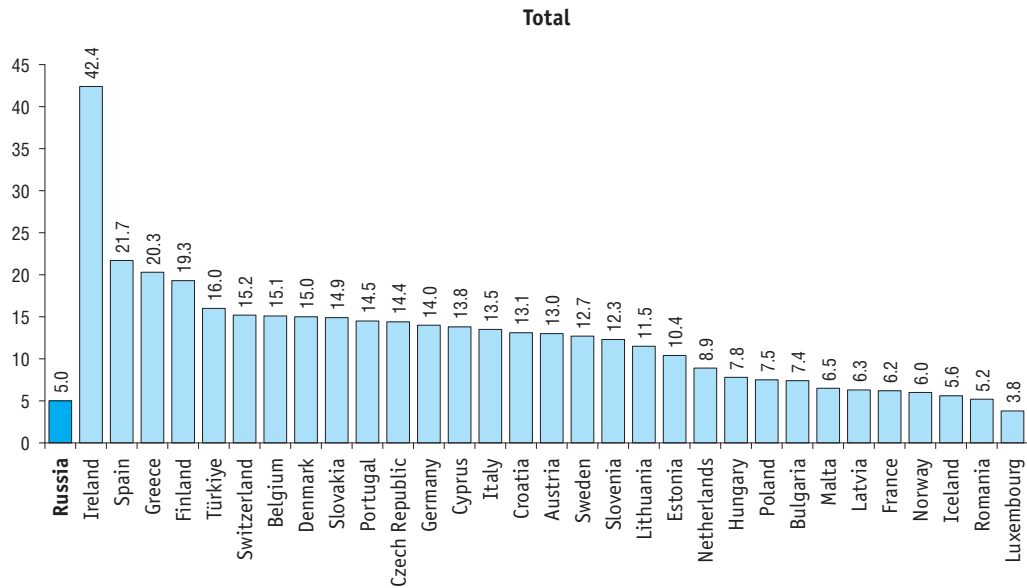


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Telecommunications; computer programming, consultancy and related activities; IT industry

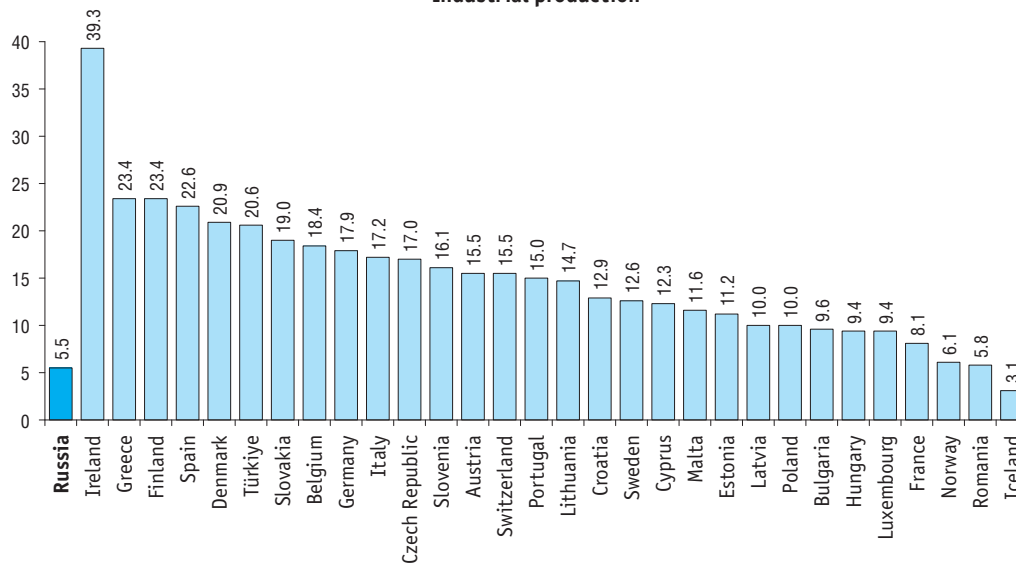


10.6. INNOVATIVE GOODS AND SERVICES AS A PERCENTAGE OF TOTAL SALES: 2021



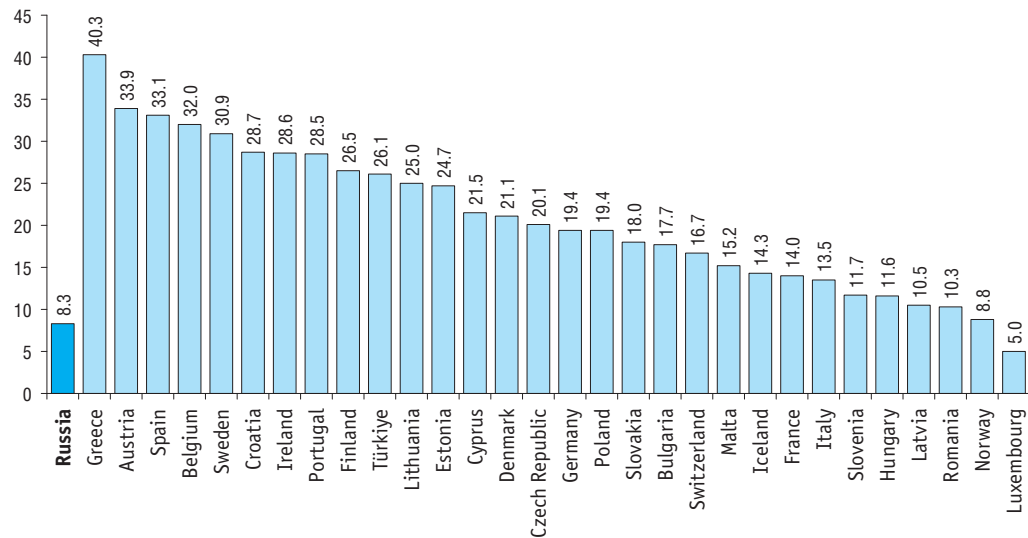
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Industrial production



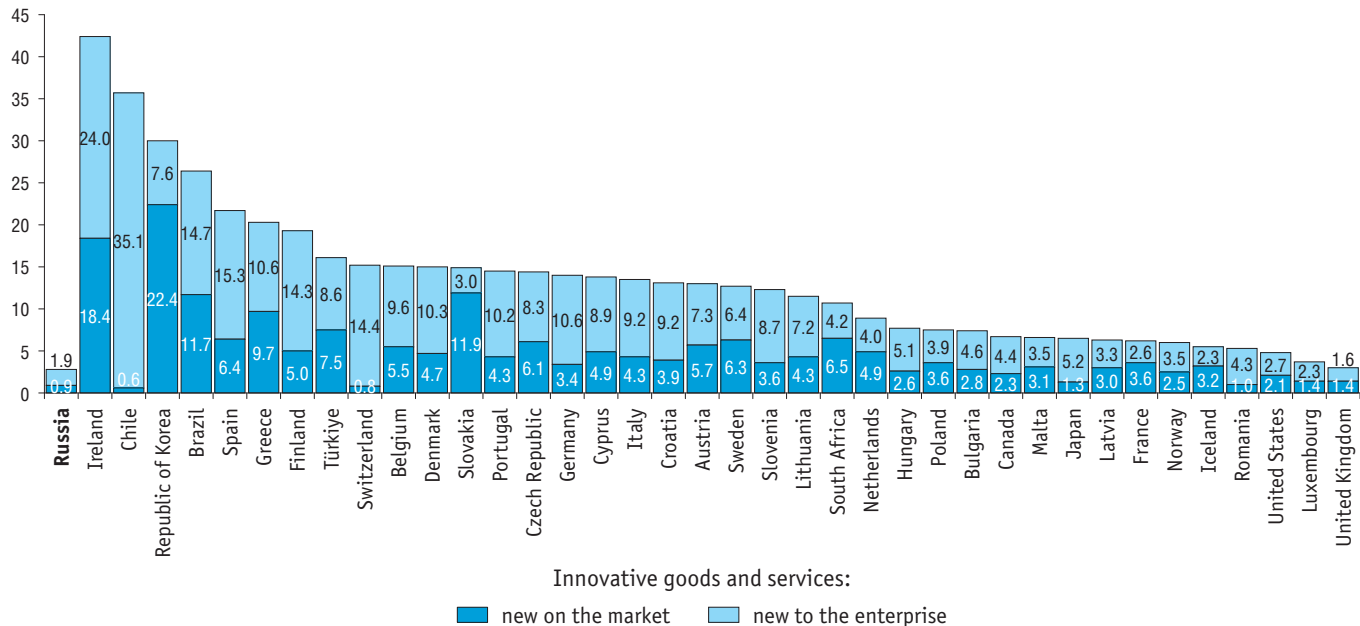
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**Telecommunications; computer programming,
consultancy and related activities; IT industry**



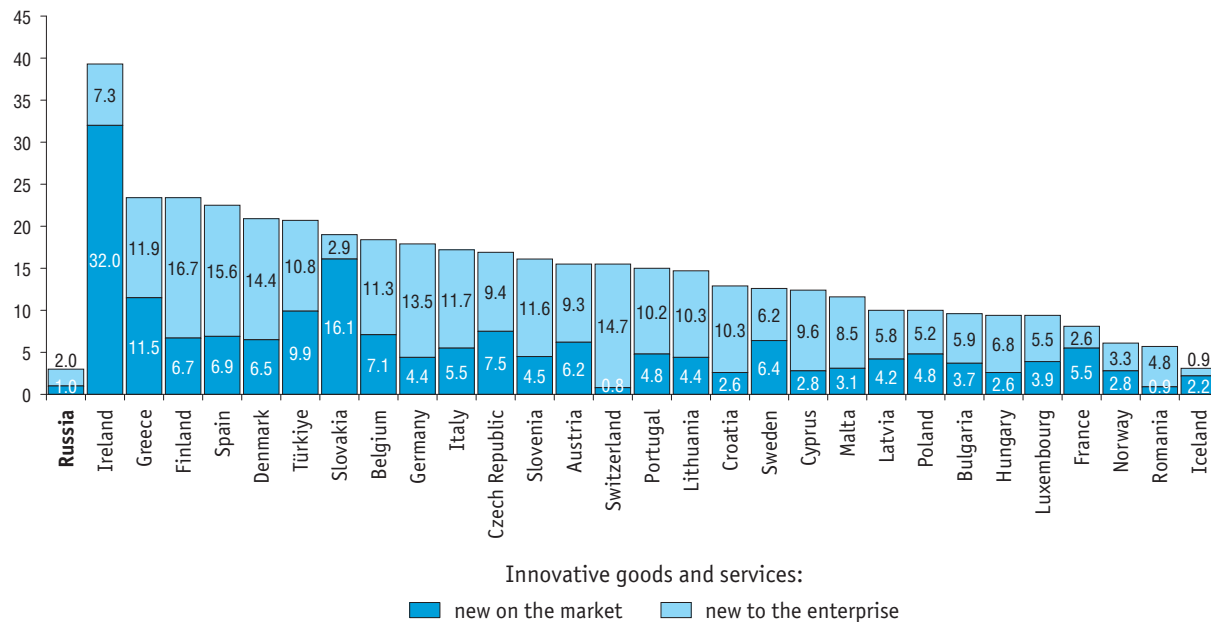
10.7. NEW OR TECHNOLOGICALLY NEW INNOVATIVE GOODS AND SERVICES BY DEGREE OF NOVELTY AS A PERCENTAGE OF TOTAL SALES: 2021

Total



(continued)

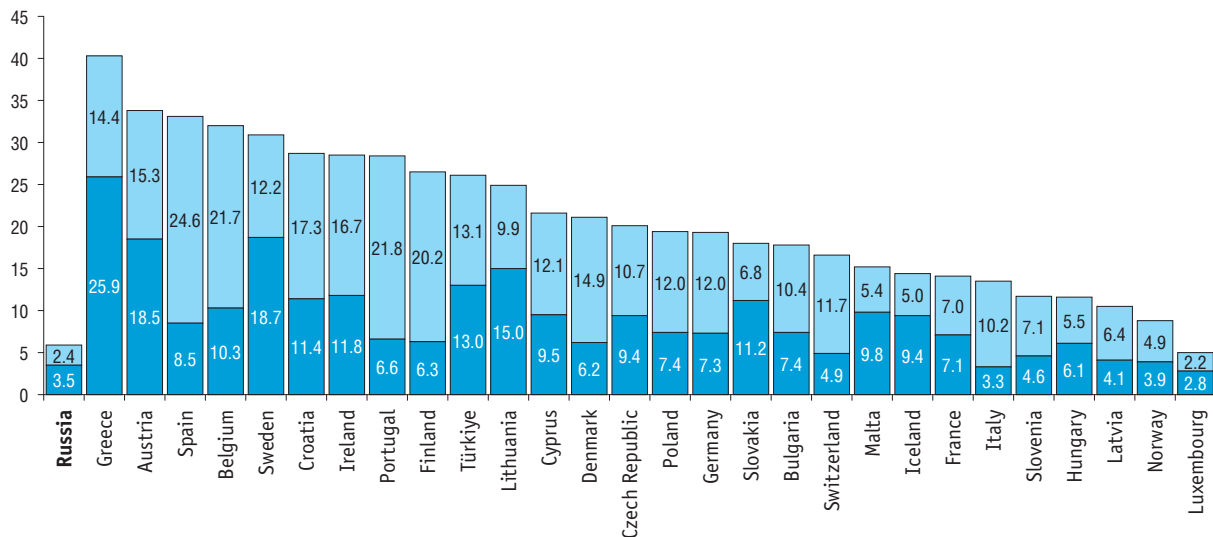
Industrial production



(continued)

Telecommunications; computer programming, consultancy and related activities; IT industry

Проценты



Innovative goods and services:

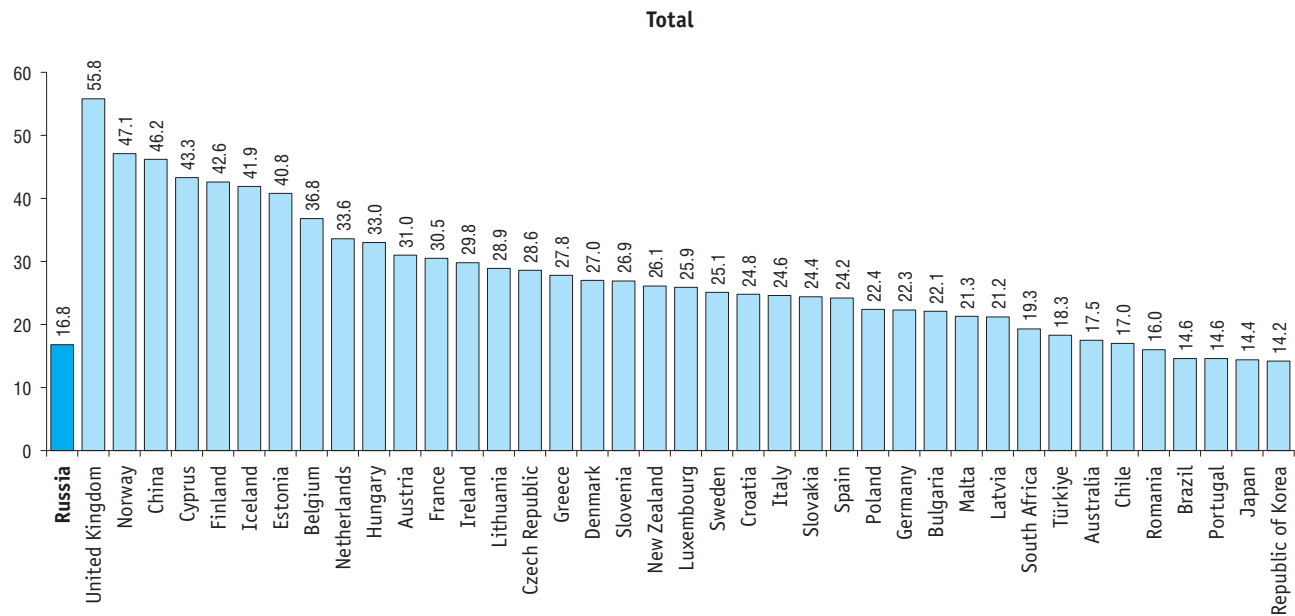
■ new on the market ■ new to the enterprise

10.8. ENTERPRISES INDICATING SELECTED INNOVATION OUTCOMES AS MAIN: 2019–2021

(as a percentage of all enterprises that engaged in innovative activities)

	Goods and services quality improvement	Retaining traditional sales markets	Expansion of goods and services range	Market expansion
Russia	34.4	30.8	29.5	22.5
Bulgaria	61.2	54.7	26.7	47.6
Hungary	83.2	77.7	26.8	53.4
Germany	67.8	47.0	26.4	29.5
Greece	67.3	60.8	25.6	47.5
Denmark	56.8	69.2	18.6	37.0
Spain	56.8	50.5	21.0	44.1
Italy	39.9	46.4	21.8	11.1
Cyprus	85.6	85.6	36.6	55.1
Latvia	58.7	65.5	29.9	52.1
Lithuania	58.0	48.8	18.7	48.0
Luxembourg	71.9	75.6	31.5	54.2
Malta	82.3	77.5	30.3	63.3
Poland	64.5	56.4	24.8	55.5
Portugal	72.5	70.8	30.5	58.7
Romania	72.2	66.5	25.5	56.3
Slovakia	65.0	73.8	19.2	54.0
Slovenia	73.6	73.6	29.6	56.3
Türkiye	76.1	76.1	41.7	67.1
France	48.1	49.0	19.5	31.9
Croatia	–	67.7	24.9	–
Czech Republic	68.4	72.4	20.1	45.6
Sweden	65.0	51.1	14.2	28.6
Estonia	62.4	68.8	24.8	41.8

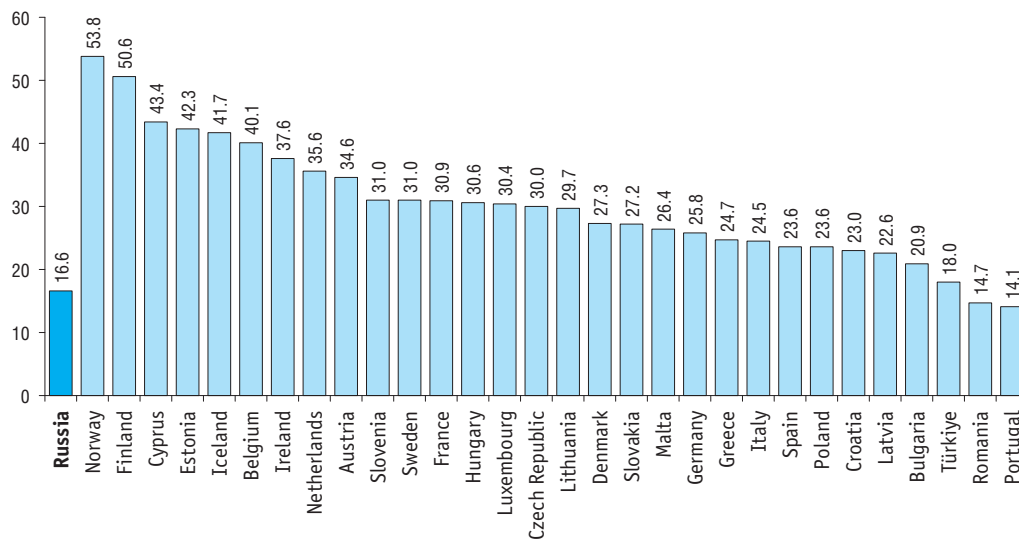
10.9. ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS AS A PERCENTAGE OF THE TOTAL NUMBER OF ENTERPRISES THAT ENGAGED IN INNOVATIVE ACTIVITIES: 2021 *



* For all countries other than Russia, the data refer to enterprises' participation in joint R&D projects and other types of innovative activities.

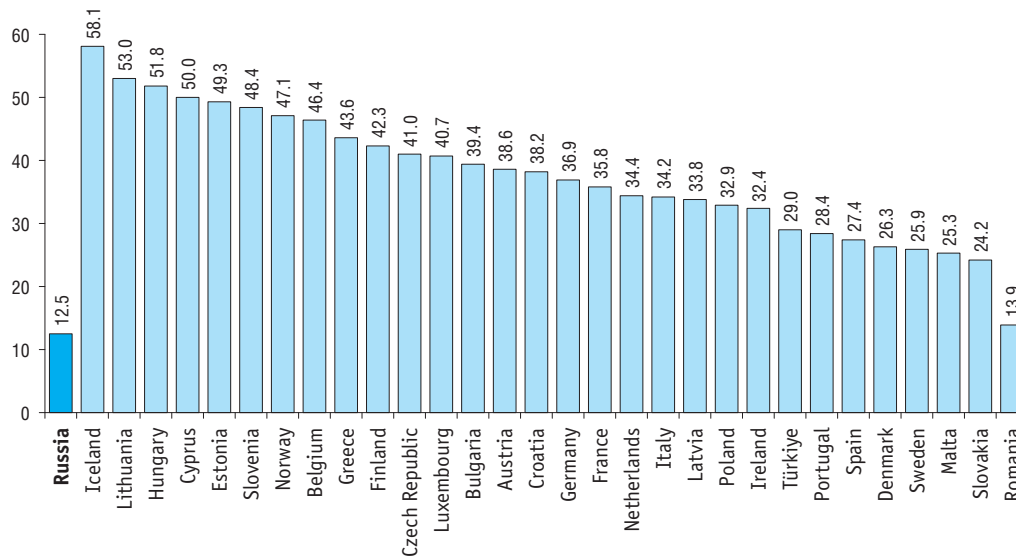
(continued)

Industrial production

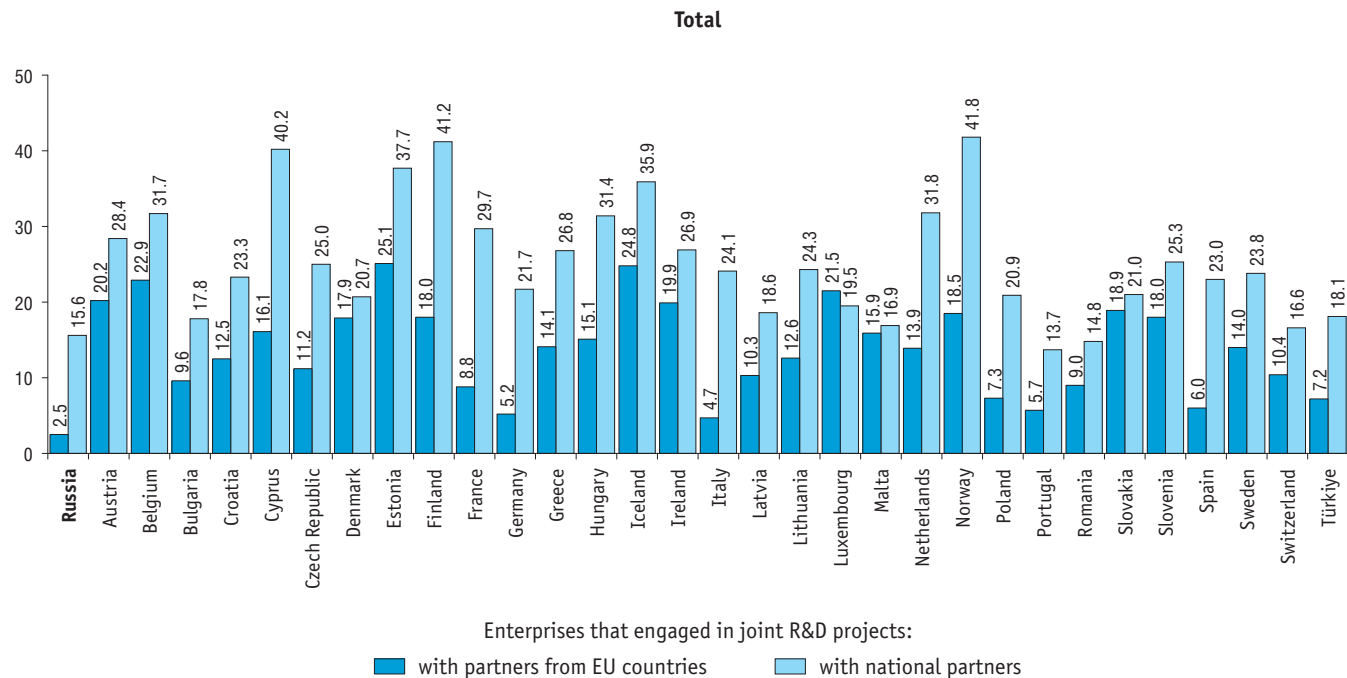


(continued)

Telecommunications; computer programming, consultancy and related activities; IT industry

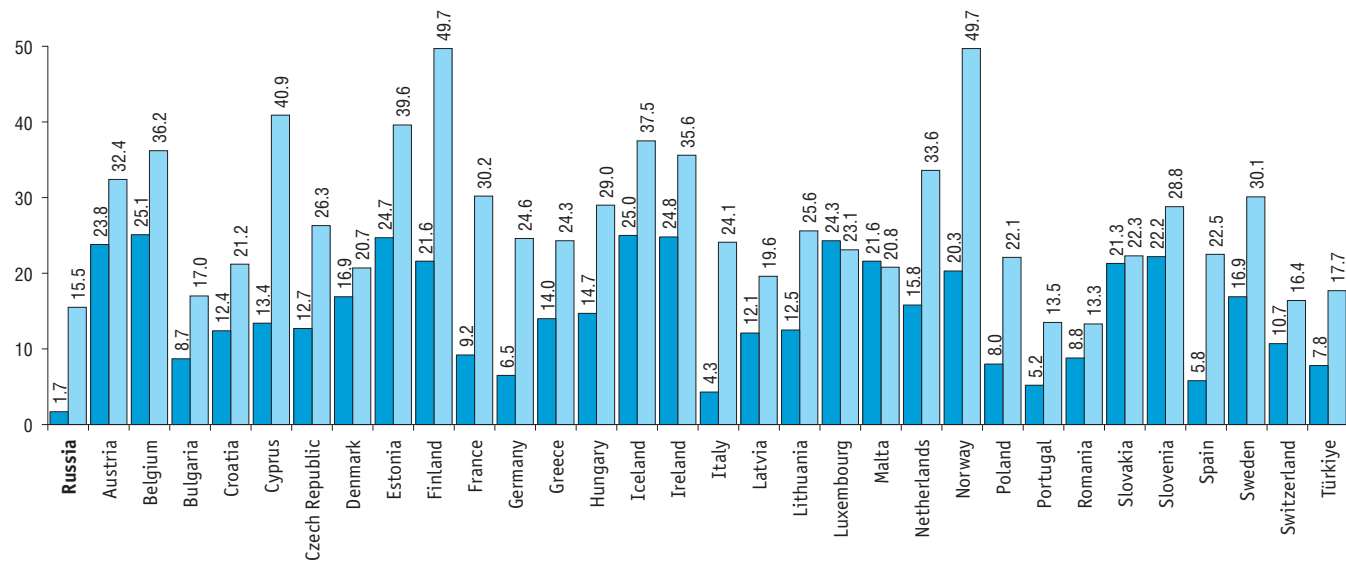


10.10. ENTERPRISES THAT ENGAGED IN JOINT R&D PROJECTS AS A PERCENTAGE OF THE TOTAL NUMBER OF ENTERPRISES THAT ENGAGED IN INNOVATIVE ACTIVITIES BY PARTNER COUNTRY: 2021



(continued)

Industrial production

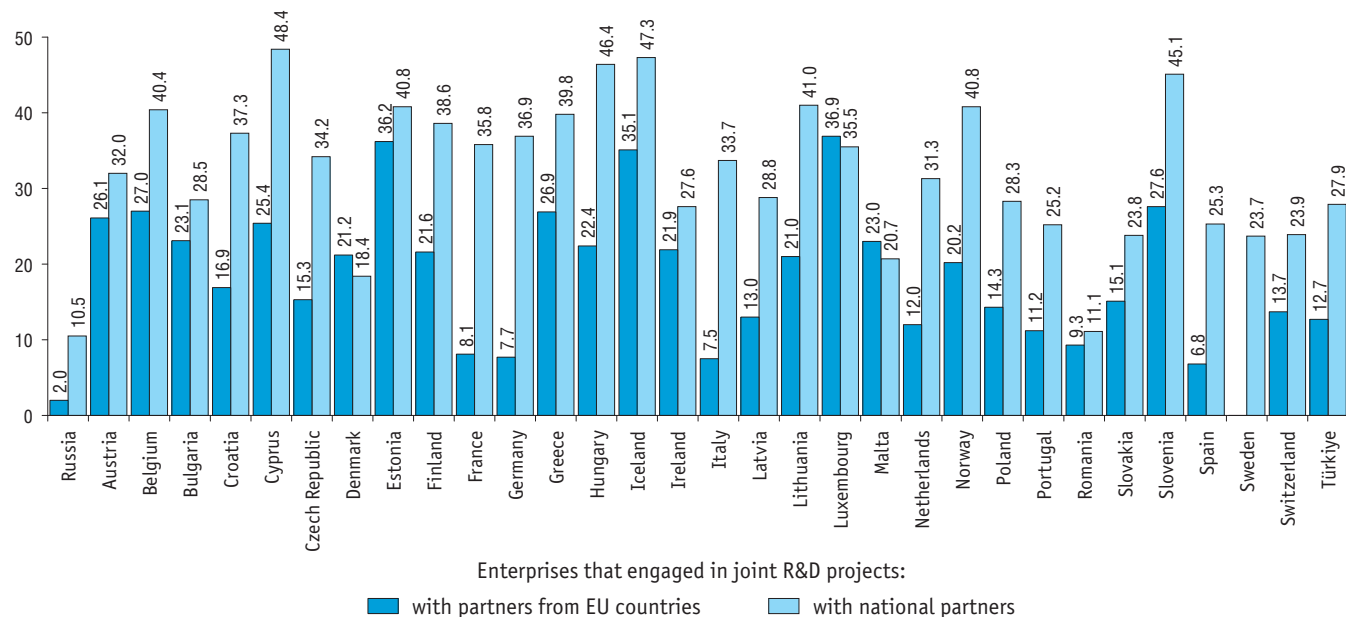


Enterprises that engaged in joint R&D projects:

■ with partners from EU countries ■ with national partners

(continued)

Telecommunications; computer programming, consultancy and related activities; IT industry



10.11. PERCENTAGE DISTRIBUTION OF ENTERPRISES THAT ENGAGED IN INNOVATIVE ACTIVITIES AND JOINT R&D PROJECTS BY PARTNER: 2021

	Enterprises within a single network	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting and IT services providers	Research institutes	Higher education institutions
Total							
Russia	36.3	35.9	29.9	7.7	10.9	48.2	28.5
Austria	54.6	42.7	64.7	20.9	64.3	34.4	57.6
Belgium	62.8	32.0	–	15.2	56.3	27.5	39.5
Bulgaria	29.5	35.3	50.4	12.2	28.0	9.5	17.9
Hungary	28.9	48.9	67.6	19.0	52.6	11.1	33.6
Germany	30.3	27.5	32.4	24.0	34.3	23.8	59.1
Greece	27.3	55.1	87.3	20.6	74.1	25.6	36.1
Denmark	54.4	49.8	61.4	32.5	40.5	32.6	40.3
Ireland	72.6	63.5	80.8	34.0	87.9	44.7	55.0
Spain	24.7	23.7	43.6	8.0	42.4	18.9	27.9
Italy	26.9	30.8	63.2	10.6	70.7	15.1	32.7
Cyprus	22.9	29.3	83.5	6.6	29.5	3.0	9.4
Latvia	41.7	44.5	56.4	27.0	56.4	19.0	42.9
Lithuania	33.8	39.2	57.1	17.2	49.3	19.9	30.5
Luxembourg	57.9	46.7	65.4	25.8	55.4	27.5	32.5
Malta	35.3	43.1	70.6	14.7	50.0	15.7	30.4
Netherlands	54.7	26.0	68.7	26.9	51.6	18.8	25.3
Norway	40.0	27.7	45.4	11.0	40.6	20.4	20.0
Poland	48.2	31.2	45.1	12.7	43.3	21.1	33.0
Portugal	40.2	37.2	57.2	11.7	46.7	24.7	46.0
Romania	31.0	53.0	74.1	23.1	47.6	25.4	34.7

(continued)

	Enterprises within a single network	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting and IT services providers	Research institutes	Higher education institutions
Slovakia	42.3	58.8	83.9	31.4	41.2	13.5	29.1
Slovenia	46.4	59.2	82.1	20.0	63.0	40.7	51.4
Türkiye	72.9	71.7	83.0	61.9	82.5	57.1	58.0
Finland	36.1	55.1	68.6	15.4	69.8	24.9	45.2
France	33.3	39.8	66.4	11.7	56.2	19.8	33.2
Croatia	32.4	47.6	70.5	16.8	53.6	14.5	34.0
Czech Republic	36.3	35.4	53.2	5.1	33.7	13.4	34.4
Sweden	54.2	98.6	98.2	15.0	72.1	31.4	45.9
Estonia	53.6	47.7	58.4	10.9	32.6	12.6	30.2
Industrial production							
Russia	40.9	28.6	34.2	6.4	11.1	41.4	24.5
Austria	56.5	37.7	67.7	17.5	63.8	31.7	63.9
Belgium	60.6	33.8	–	15.3	63.0	34.5	47.5
Bulgaria	23.8	35.7	49.1	9.8	27.4	7.6	15.5
Hungary	30.1	48.5	68.5	15.8	55.6	10.7	37.3
Germany	29.4	29.1	34.6	19.0	36.1	24.4	61.3
Greece	26.1	52.4	87.6	21.4	77.9	30.7	46.7
Denmark	47.1	47.3	65.3	30.6	44.9	26.9	41.8
Ireland	68.8	64.0	84.8	32.6	91.3	46.9	59.0
Spain	27.8	24.2	42.6	6.7	48.5	19.4	29.6
Italy	23.7	29.3	63.2	9.5	73.7	15.3	32.8
Cyprus	13.2	22.2	86.8	9.0	25.9	2.6	11.6
Latvia	40.1	40.8	58.0	25.5	64.3	17.2	39.5
Lithuania	24.7	36.5	60.6	13.7	54.6	22.0	30.9
Luxembourg	57.1	51.8	69.6	26.8	55.4	48.2	46.4

(continued)

	Enterprises within a single network	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting and IT services providers	Research institutes	Higher education institutions
Malta	36.4	54.5	72.7	12.1	60.6	15.2	54.5
Netherlands	56.4	24.7	71.5	27.4	50.1	17.3	25.9
Norway	40.7	25.2	50.6	10.9	45.5	24.9	22.4
Poland	46.6	31.9	43.7	10.4	43.8	26.4	39.8
Portugal	37.6	33.1	59.3	9.4	47.2	25.1	48.6
Romania	29.6	52.4	74.8	26.7	48.1	22.8	31.6
Slovakia	40.6	56.4	82.6	24.7	41.0	11.3	28.2
Slovenia	45.6	60.0	81.4	18.8	64.2	46.5	55.8
Türkiye	73.2	72.1	83.3	61.8	84.3	57.7	58.2
Finland	37.5	54.3	78.0	12.6	75.2	31.5	53.2
France	35.6	39.9	70.4	9.0	60.3	17.6	34.1
Croatia	30.3	46.4	75.7	11.2	61.0	20.3	38.8
Czech Republic	36.7	37.6	47.4	3.8	35.0	13.8	39.1
Sweden	59.1	98.2	99.2	13.6	73.2	36.3	51.4
Estonia	50.9	45.7	64.4	9.5	35.6	12.5	31.0
Telecommunications; computer programming, consultancy and related activities; IT industry							
Russia	45.9	45.9	32.6	4.4	17.8	9.6	10.4
Austria	49.9	52.2	48.5	29.5	57.9	42.8	51.3
Belgium	57.7	34.6	–	17.5	48.7	25.9	38.6
Bulgaria	41.8	43.7	54.5	–	35.1	–	26.5
Hungary	31.5	54.9	54.0	20.1	40.7	10.8	30.6
Germany	23.8	22.3	19.6	36.9	23.9	26.5	67.2
Greece	40.8	51.0	76.7	23.3	57.3	37.4	51.5
Denmark	79.1	59.2	54.1	30.1	32.1	30.6	32.1

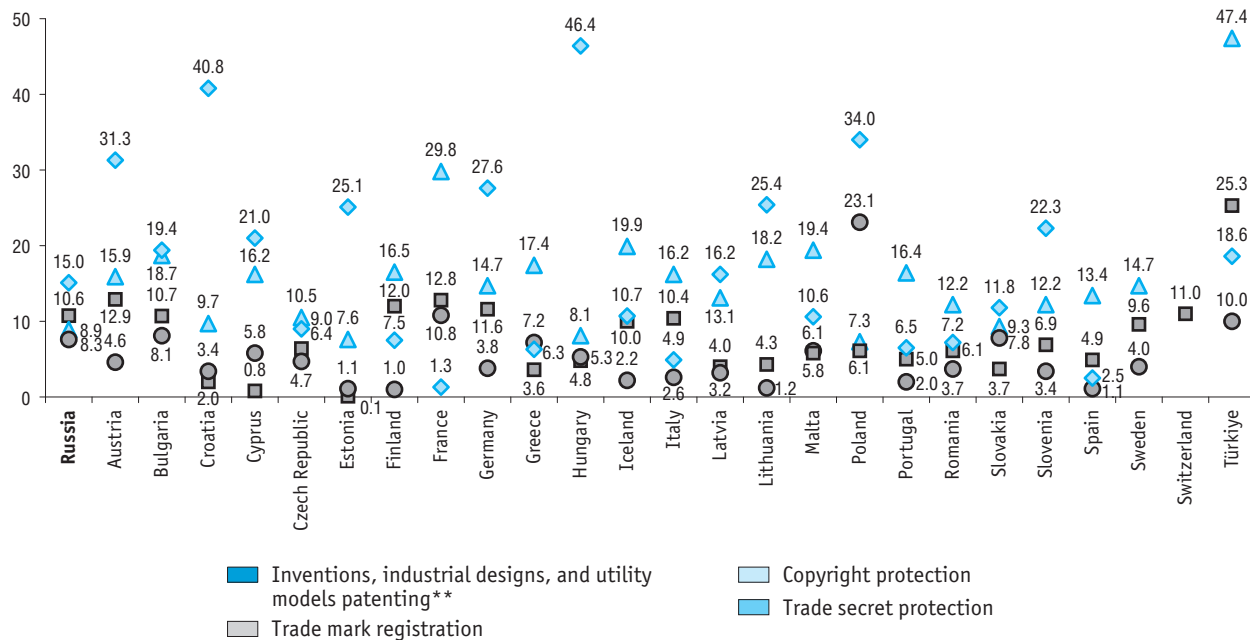
(continued)

	Enterprises within a single network	Consumers of goods and services	Suppliers of equipment, materials, components, software	Competitors in the industry	Consulting and IT services providers	Research institutes	Higher education institutions
Ireland	76.9	58.3	67.6	29.6	87.0	41.7	49.1
Spain	21.9	33.5	33.0	11.3	34.1	19.5	29.5
Italy	28.6	37.8	46.2	14.5	64.0	18.0	48.2
Cyprus	52.5	59.0	78.7	9.8	50.8	11.5	19.7
Latvia	55.8	53.8	34.6	32.7	44.2	7.7	50.0
Lithuania	41.5	37.1	47.2	16.4	37.1	15.7	27.0
Luxembourg	62.7	70.1	73.1	44.8	70.1	31.3	41.8
Malta	36.4	68.2	54.5	22.7	50.0	13.6	27.3
Netherlands	52.8	25.8	54.6	21.7	43.7	20.4	24.5
Norway	41.4	40.0	27.0	11.4	33.9	17.8	20.4
Poland	57.8	32.0	42.2	10.2	36.6	17.0	32.2
Portugal	45.2	48.2	41.2	13.6	33.8	23.7	57.5
Slovakia	32.8	64.2	65.7	52.2	52.2	16.4	32.8
Slovenia	47.1	56.3	79.0	24.4	63.0	20.2	37.0
Türkiye	69.8	73.4	84.9	55.3	77.2	56.0	68.1
Finland	41.5	62.9	44.4	18.2	63.2	16.5	35.3
France	23.7	46.2	53.4	19.8	49.9	21.9	41.4
Croatia	32.9	61.9	61.9	18.7	46.5	8.4	28.4
Czech Republic	41.2	35.9	48.4	8.5	23.3	8.2	31.7
Sweden	50.6	99.5	96.6	19.4	–	–	42.1
Estonia	66.7	69.5	64.8	18.1	37.1	4.8	25.7

10.12. ENTERPRISES INDICATING SELECTED FACTORS HINDERING THEIR INNOVATIVE ACTIVITIES AS MAIN: 2019–2021 (as a percentage of all enterprises)

	Lack of own funds	High cost of introducing innovations	Lack of financial support from the government	Extremely competitive market	Inconsistency with enterprise's priorities	Lack of qualified personnel	Lack of loans or direct investment	Underdeveloped cooperation links
Russia	■ 9.8	■ 8.1	■ 5.9	■ 4.9	■ 4.8	■ 4.0	■ 3.6	■ 2.3
Austria	■ 7.2	■ 10.2	■ 7.4	■ 8.5	■ 16.0	■ 18.6	■ 3.6	■ 3.9
Bulgaria	■ 11.8	■ 18.7	■ 13.7	■ 11.2	■ 6.0	■ 12.4	■ 6.8	■ 6.6
Hungary	■ 14.6	■ 22.5	■ 16.8	■ 11.4	■ 6.5	■ 17.1	■ 8.8	■ 4.6
Greece	■ 29.9	■ 28.5	■ 29.3	■ 25.1	■ 16.9	■ 15.5	■ 25.8	■ 11.9
Denmark	■ 8.1	■ 8.6	■ 4.7	■ 6.4	■ 9.8	■ 7.4	■ 5.6	■ 1.4
Ireland	■ 6.4	■ 6.1	■ 4.6	■ 3.4	■ 10.4	■ 7.3	■ 3.0	■ 1.5
Spain	■ 14.9	■ 26.6	■ 19.9	■ 17.2	■ 42.0	■ 14.6	■ 12.7	■ 8.7
Italy	■ 9.7	■ 12.7	■ 7.9	■ 11.0	■ 10.1	■ 8.0	■ 6.9	■ 4.6
Cyprus	■ 18.0	■ 25.3	■ 17.6	■ 25.6	■ 28.3	■ 15.4	■ 13.0	■ 5.3
Latvia	■ 16.4	■ 21.4	■ 12.6	■ 11.1	■ 16.6	■ 8.4	■ 9.0	■ 4.4
Lithuania	■ 20.5	■ 16.6	■ 12.3	■ 9.8	■ 3.8	■ 13.3	■ 10.6	■ 6.6
Luxembourg	■ 9.0	■ 11.5	■ 5.3	■ 8.9	■ 27.4	■ 12.3	■ 4.7	■ 4.3
Malta	■ 7.5	■ 11.5	■ 6.5	■ 10.2	■ 11.9	■ 10.9	■ 3.6	■ 2.4
Poland	■ 7.9	■ 11.9	■ 9.2	■ 6.9	■ 3.0	■ 8.9	■ 6.1	■ 3.9
Portugal	■ 15.9	■ 25.5	■ 15.7	■ 18.8	■ 14.6	■ 14.3	■ 11.3	■ 9.2
Romania	■ 13.2	■ 18.1	■ 13.7	■ 11.0	■ 12.3	■ 11.1	■ 11.0	■ 7.8
Slovakia	■ 23.7	■ 26.0	■ 19.1	■ 13.8	■ 10.9	■ 14.9	■ 11.6	■ 7.8
Slovenia	■ 11.1	■ 15.1	■ 12.6	■ 13.6	■ 7.7	■ 14.4	■ 7.0	■ 5.7
Türkiye	■ 27.4	■ 55.5	■ 25.9	■ 35.1	■ 19.1	■ 22.2	■ 22.8	■ 14.5
Finland	■ 6.7	■ 6.1	■ 3.9	■ 5.8	■ 6.8	■ 7.2	■ 3.8	■ 1.8
France	■ 20.1	■ 20.7	■ 17.4	■ 12.6	■ 24.7	■ 19.6	■ 15.9	■ 9.6
Croatia	■ 20.5	■ 24.6	■ 15.3	■ 13.3	■ 16.0	■ 16.9	■ 14.3	■ 9.7
Czech Republic	■ 19.2	■ 24.8	■ 14.4	■ 14.1	■ 15.9	■ 17.9	■ 6.3	■ 7.5
Switzerland	■ 10.0	■ 18.6	–	–	–	■ 20.4	■ 7.9	–
Sweden	■ 5.6	■ 7.4	■ 5.2	■ 4.0	■ 13.8	■ 5.8	■ 4.9	■ 2.0
Estonia	■ 11.1	■ 21.1	■ 9.7	■ 11.5	–	■ 21.1	■ 6.6	■ 3.9

10.13. ENTERPRISES INDICATING THE FOLLOWING INVENTIONS AND R&D RESULTS PROTECTION METHODS AS MAIN: 2021
(as a percentage of all enterprises that engaged in innovative activities)



* For countries other than Russia, the data refer to the number of enterprises that patented their innovations.

10.14. ENTERPRISES THAT ENGAGED IN ENVIRONMENTAL INNOVATION AS A PERCENTAGE OF ENTERPRISES THAT HAVE HAD COMPLETED INNOVATIVE ACTIVITIES WITHIN THE LAST THREE YEARS BY TYPE OF ENVIRONMENTAL BENEFITS: 2021

	Improving ecological protection during the production of goods and services					Improving ecological protection during the use of innovative goods and services by consumer		
	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing material costs per unit of goods and services output	Reducing carbon dioxide emission	Replacing materials with less hazardous or non-hazardous substitutes	Recycling waste, water or materials	Reducing environmental pollution (air, soil, water or noise pollution)	Reduction of energy consumption or loss of energy resources	Improving the possibilities of recycling goods after use
Russia	9.3	6.8	6	5.8	5.8	8	7.3	4.7
Austria	11	10.9	22.4	11.9	11.1	10.2	19.2	12.2
Bulgaria	4.6	4.6	5.3	4.6	5.1	4.9	5.4	5.1
Croatia	11.9	10.4	11.5	11	11.6	10.6	10.5	10.4
Cyprus	6.5	6.5	7	4.9	10	2.7	3.2	4.4
Czech Republic	10.9	10.4	17.6	6.1	9.7	8.6	12.9	7.1
Denmark	4.6	5.2	7.6	5.5	7.3	8.1	11.3	5.7
Estonia	16.7	18.2	20.4	13.9	15.5	15.6	21.6	15.4
Finland	4.6	6.1	12.2	5.1	5.6	5.5	12.7	6
France	8.9	8.9	14.7	8.8	15.1	8.7	14.1	14.3
Germany	10	6.3	15	4.2	8.2	8.9	13.2	7.5
Hungary	6.1	5.2	10.5	7.2	6.1	4.8	8	5.9
Italy	16.6	13.9	19.2	17.5	15.1	15	16.5	13.4
Latvia	19	19.6	27.2	23.6	15.2	20	23.6	13.9
Lithuania	10.8	8.3	17.3	10.4	7.7	10.8	16.3	8.3
Luxembourg	7.9	9.4	14.1	6.8	11.6	8.4	11.6	10.1
Malta	6.1	9.4	13.6	7.5	11.9	5.8	11.5	10.2
Poland	6.6	6.6	7.5	7	7.3	7.8	8.4	5.3

(continued)

	Improving ecological protection during the production of goods and services					Improving ecological protection during the use of innovative goods and services by consumer		
	Reducing environmental pollution (air, soil, water or noise pollution)	Reducing material costs per unit of goods and services output	Reducing carbon dioxide emission	Replacing materials with less hazardous or non-hazardous substitutes	Recycling waste, water or materials	Reducing environmental pollution (air, soil, water or noise pollution)	Reduction of energy consumption or loss of energy resources	Improving the possibilities of recycling goods after use
Portugal	16.2	13.7	17	15	23.4	13.5	14.9	17.7
Romania	17.1	15.9	16.4	10.7	25.1	14	15	15.4
Slovakia	14.4	10.9	15.3	11.9	17.5	11.1	13.2	13.4
Slovenia	18.1	17.1	21.9	16.8	15.9	12.6	17.6	13.2
Spain	6.7	6.3	9.2	8.6	11.2	6.3	7.2	14.1
Sweden	3.8	4.1	10.8	4.7	5.2	4.2	11.7	5.1

* For countries other than Russia, the data refer to the reduction of carbon dioxide emissions and better energy efficiency in manufacturing one unit of goods or services.

TECHNICAL NOTES

Innovation activity describes the involvement degree of enterprises (organisations) in general or specific innovative activity during a given period of time. **Innovation activity of enterprises** is calculated as a ratio of the number of innovation-active enterprises to the total number of surveyed enterprises in the reporting year. The methodology for calculating the indicator was approved by Rosstat Order no. 818 of December 27, 2019. Any changes in 2017 data are due to the recalculation of the indicator according to the specified method.

Innovative activity of enterprises includes all developmental (R&D), financial or commercial activity related to creation of technologically new or significantly improved goods or services that have been introduced on the market and differ significantly from the previously produced goods and services; or technologically new or significantly improved business processes that differ significantly from the previously used business processes.

The following main types of innovative activity are distinguished in statistics:

- research and development of new goods, services, and methods of their production (transfer), new manufacturing processes;
- purchase of machinery, equipment, and other fixed assets related to innovative activities;
- marketing and brand creation (implementation of new or significantly improved marketing methods, methods of maintaining and developing the brand);
- education and training of personnel related to innovative activities;

- design (activity of developing a new or modified shape, appearance, or usability of goods or services);
- engineering, including pre-FEED and FEED, project development and design studies of technological items and solutions at the innovation implementation stage, post-project services during installation, commissioning and start-up work, other engineering (not related to scientific R&D) of new goods, services, and methods of their production (transfer), new manufacturing processes;
- development and purchase of computer programmes and databases related to innovative activities;
- acquisition of patent rights (alienation), licenses, industrial designs, utility models, selection achievements, integrated circuit designs, etc.; patenting (registration) of the results of intellectual activity;
- planning, development, and implementation of new business methods, organisation of workplaces and networking.

Innovative goods and services are products (goods and services) that are new or have undergone technological (and/or biological for agricultural enterprises) modification in the last three years (including the reporting period). According to the degree of novelty, there are two types of innovative goods, works, and services – those newly introduced (or those that have undergone substantial technological changes) and those significantly improved.

New or technologically new goods and services are goods and services based on new (including fundamentally new) technologies or

on a combination of new technologies with existing ones. For this products, the scope of application (use), operational characteristics, features, design, as well as the composition of the materials and components used, have to be new or significantly different in comparison with those in previously manufactured products.

Significantly improved goods and services are based on the introduction of new or significantly improved manufacturing methods, including methods of product transfer involving the use of new production equipment and/or software, new production technologies, new production processes, or their combination.

Classification of innovative goods and services according to the degree of their novelty is also performed from market positions. The following innovative goods and services are distinguished according to the type of novelty for the market: new to the world market, new to the sales market of the enterprise, as well as innovative goods and services, new for the enterprise, but not new to the market.

Innovation expenditure is the actual expenditure in monetary form, connected with the implementation of different or all types of innovative activities (research and development, acquisition of machinery and equipment, engineering, etc.) performed within an organisation. Innovation expenditure includes current expenditure and capital expenditure. The stage of the innovation process does not matter, whether at the final stage, when the equipment is already commissioned and mastered in operation, i.e. production is organised and goods (works or services) are produced, or at the initial or intermediate stage, for example, when new equipment is

still being installed or is only ready for operation, but has not been put into work, tested and used in the production of goods (works or services).

The surveyed **types of economic activity**. Information on innovation activity is provided both in general for the surveyed set of enterprises (legal entities, excluding small enterprises), and for individual types of economic activity:

- industrial production (including mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply (excluding trade of electricity; trade of gas through mains, steam and air conditioning supply (thermal energy)); water supply; sewerage, waste management and remediation activities) (after 2017, according to OKVED2: Sections B, C, D (excluding 35.14, 35.23, 35.30.6), E; until 2017, according to OKVED: Sections C, D, E (from 2012, excluding 40.13.2, 40.22.2));
- services sector activities (including transportation and storage; human health and social work activities; publishing activities; telecommunications; computer programming, consultancy and related activities; information technology activities; legal and accounting activities; activities of head offices; management consultancy activities; architectural and engineering activities; technical testing and analysis; scientific research and development; advertising and market research; other professional, scientific and technical activities), human health and social work activities (in 2021, according to OKVED2: Section H, codes 58, 61, 62, 63, 69, 70, 71, 72, 73,

74, 86; in 2019–2020, Sections H and Q, codes 58, 61, 62, 63, 69, 70, 71, 72, 73, 74; 2017–2018, codes 58, 61, 62, 63, 69, 70, 71, 72, 73, 74; until 2017, according to OKVED: codes 64, 72, 73 (from 2011), 74).

- agriculture (including the growing of non-perennial crops; growing of perennial crops; plant propagation; animal production; mixed farming; support activities to agriculture and post-harvest crop activities) (from 2017, according to OKVED2: codes 01.1, 01.2, 01.3, 01.4, 01.5, 01.6; until 2017, according to OKVED: codes 01.1, 01.2, 01.3, 01.4);
- construction (from 2019, according to OKVED2: Section F; in 2017–2018, codes 43.91, 43.99; until 2017, according to OKVED: codes 45.21.7, 45.22, 45.25).

Product innovation is a new or improved good or service that differs significantly from the previous goods or services and that has been introduced on the market.

Business process innovation is a new or improved business process that differs significantly from the previous business processes and that has been brought into use.

Business process innovations include:

- new or improved methods for producing goods or providing services (including methods and development of agricultural goods or services);
- new or improved logistics, delivery, or distribution methods; of raw materials, components, goods and services;

- new or improved methods of processing and transmitting information, that are common to the enterprise;
- new or improved methods of doing business, corporate governance, accounting and financial accounting;
- new or improved business relations and external relations practices;
- new or improved methods of human resource management;
- new or improved marketing methods for promoting, presenting, and pricing products.

The Oslo Manual is the main methodological principles for the statistical measurement of innovation activity prepared by the OECD and Eurostat and recognised as an international standard in the field of innovation statistics. The latest, fourth edition of the Oslo Manual (Oslo Manual: Guidelines for collecting, reporting and using data on innovation), published in 2018, is used as a basis for updating the national programme and tools of the federal statistical monitoring of innovation activity of enterprises.

Technological innovation is a new or significantly improved product (good or service) introduced to the market, a new or improved business process or method of production (transfer) of products (goods or services) used in practice.

Environmental innovation is a new or significantly improved good, service, or method of their production (transfer), a new or significantly improved business process or a combination of them that improve environmental safety and management or prevent negative impacts on the environment.

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Data Book

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