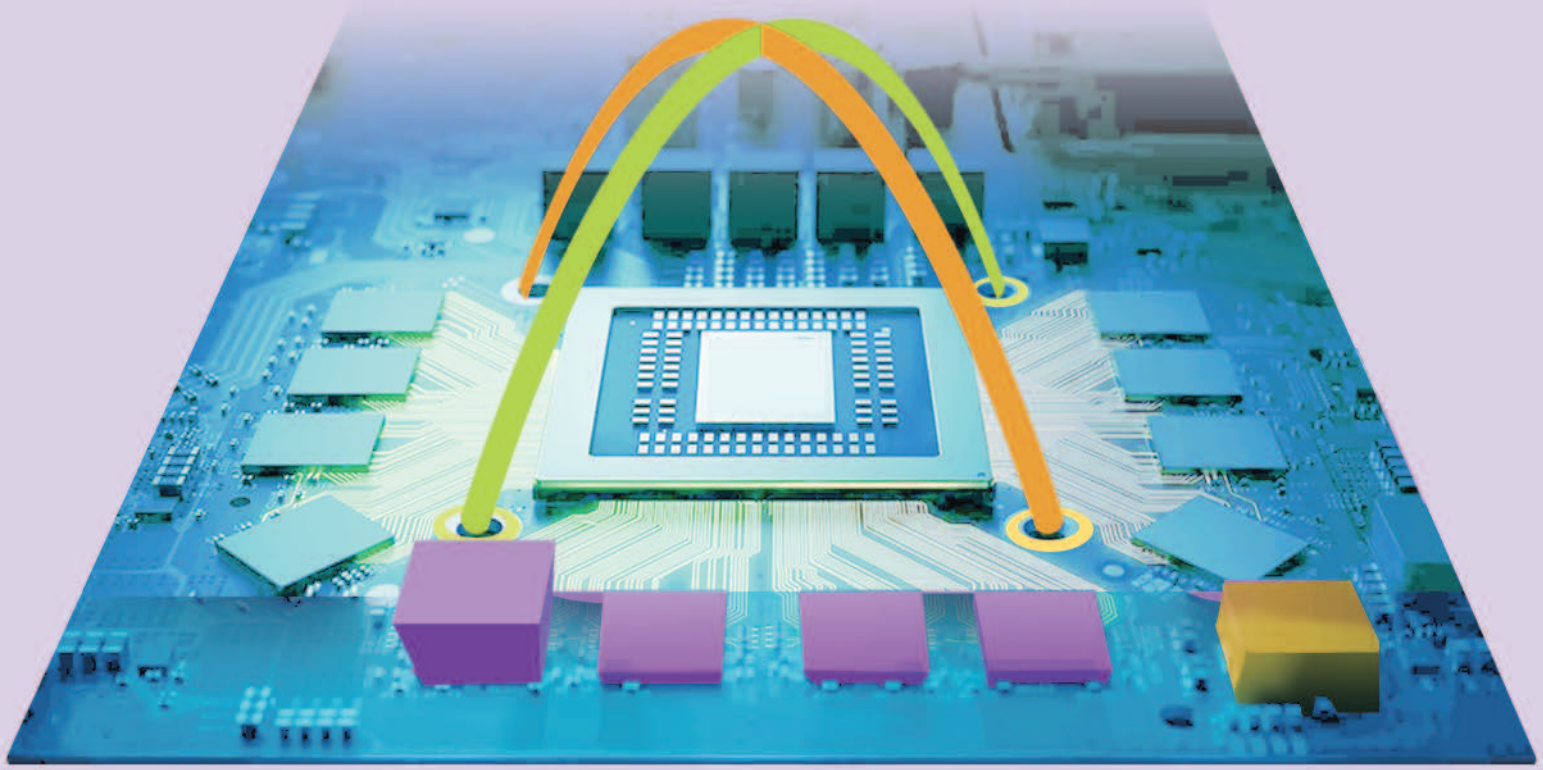
Ministry of Digital Development, Communications and Mass Media of the Russian Federation

Federal State Statistics Service

HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY



DIGITAL ECONOMY

Pocket Data Book

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and Mass Media of the Russian Federation

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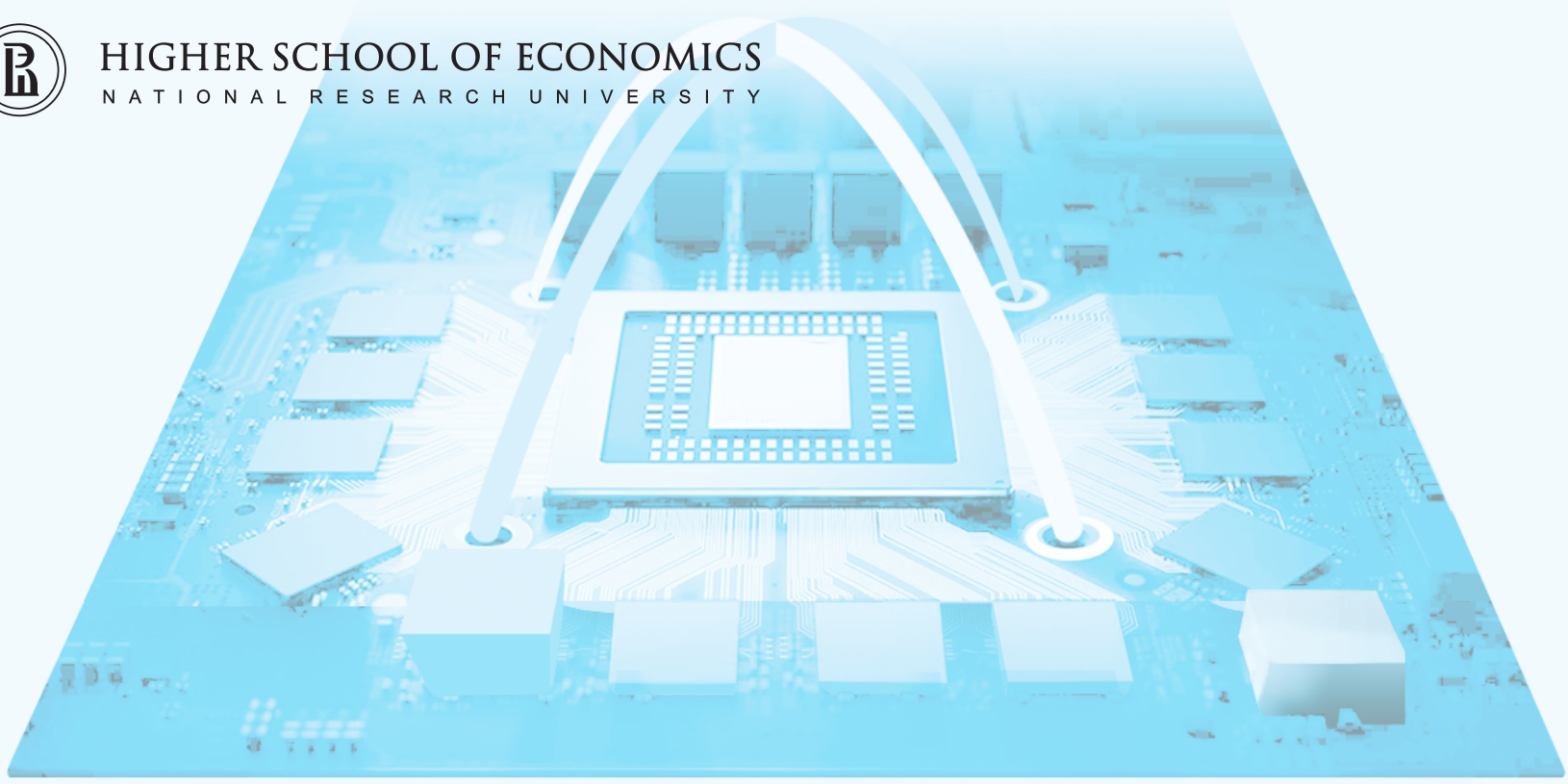

DIGITAL ECONOMY

Pocket Data Book

Moscow 2019

УДК 338:004(083.41)(470+571)
ББК 65.051
D56

Authors: Gulnara Abdrakhmanova, Anna Demyanova, Yury Dranev, Ekaterina Dyachenko, Svetlana Fridlyanova, Konstantin Fursov, Leonid Gokhberg, Maxim Kotsemir, Galina Kovaleva, Irina Kuznetsova, Tatyana Ratay, Zinaida Ryzhikova, Ekaterina Streltsova, Anton Suslov, and Konstantin Vishnevskiy

With contributions by: Daria Filatova, Natalia Kovaleva, and Vitaliy Roud

Digital Economy : Pocket Data Book / G. Abdrakhmanova, A. Demyanova, Y. Dranev et al.; D56 L. Gokhberg (ed.); National Research University Higher School of Economics. – Moscow : HSE, 2019. – 92 p. – 150 copies. – ISBN 978-5-7598-1979-0 (pbk).

The pocket data book contains main digital economy indicators for the Russian Federation. Contains information on the use of ICT by individuals and enterprises, e-government development, personnel for digital economy, telecommunications and ICT sector development. International comparisons are provided for a number of indicators.

The data book includes information of the Federal State Statistics Service (Rosstat), the Ministry of Digital Development, Communications and Mass Media of the Russian Federation, the Ministry of Education and Science of the Russian Federation, Bank of Russia, OECD, Eurostat, ITU, World Intellectual Property Organisation, and results of own methodological and analytical studies of the HSE Institute for Statistical Studies and Economics of Knowledge.

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Contents

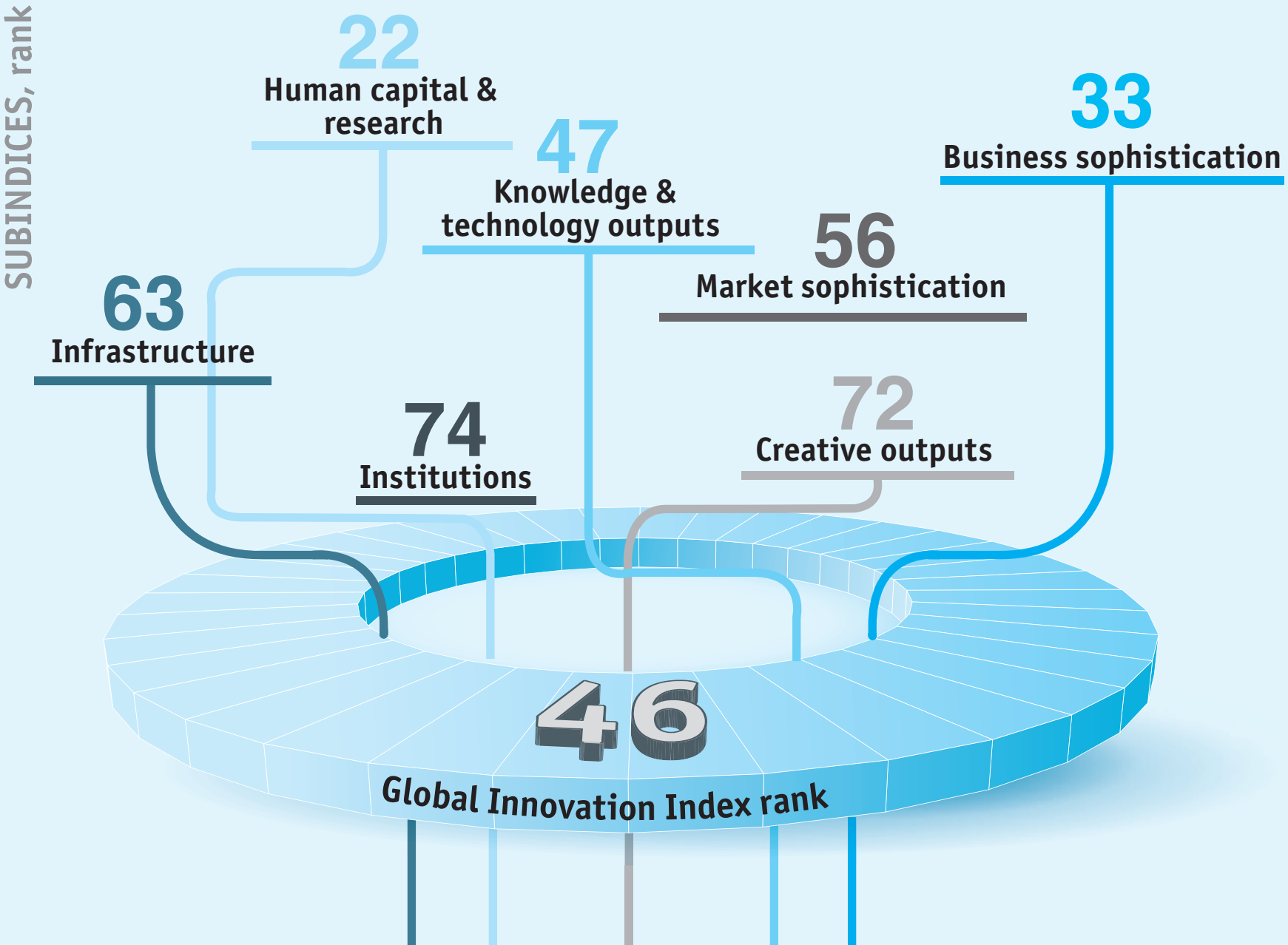
Symbols used in tables are:

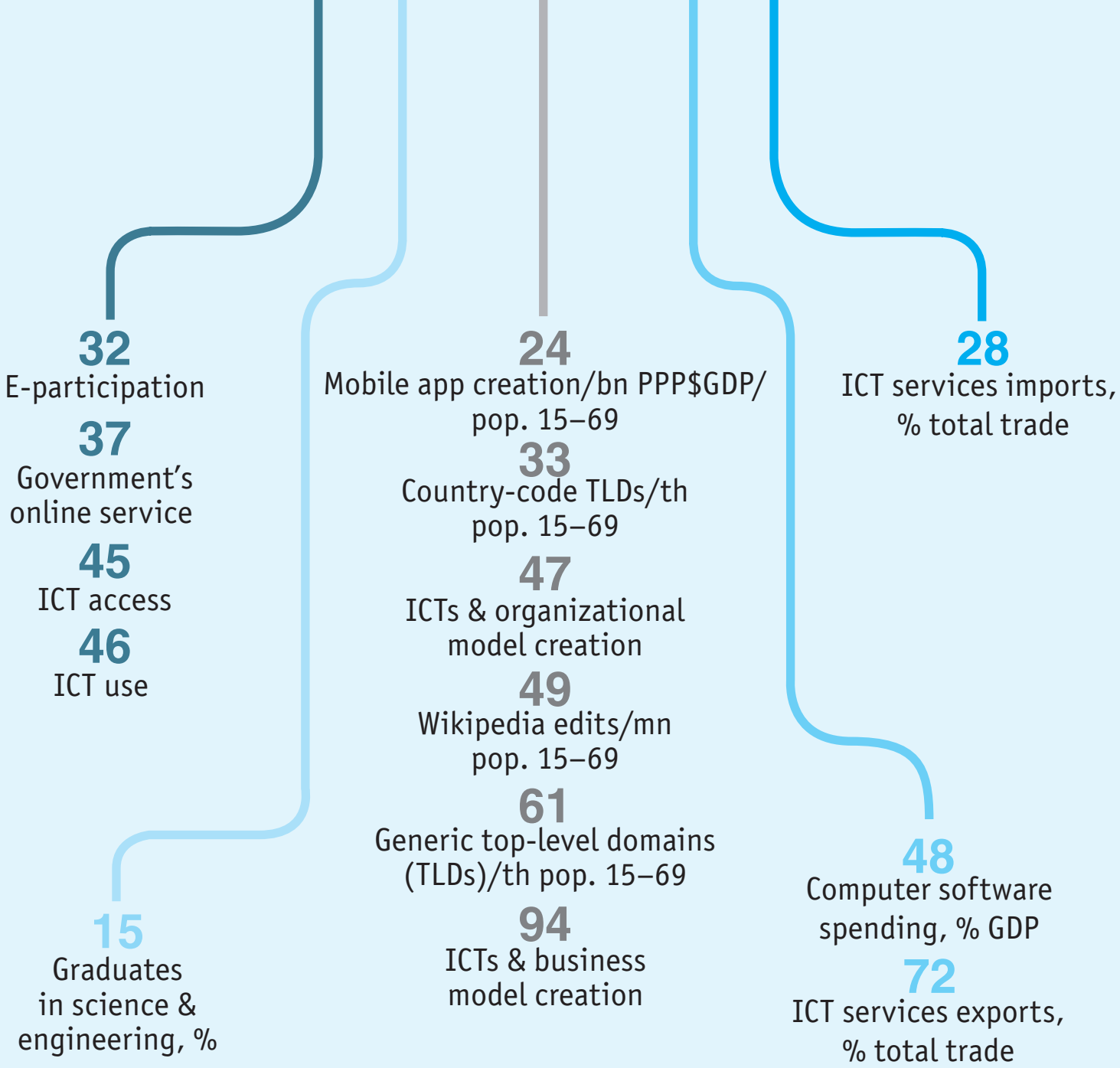
… data not available and not included in the totals,
– data not applicable,
0.0 insignificant value.

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

Digital technology input to economic development

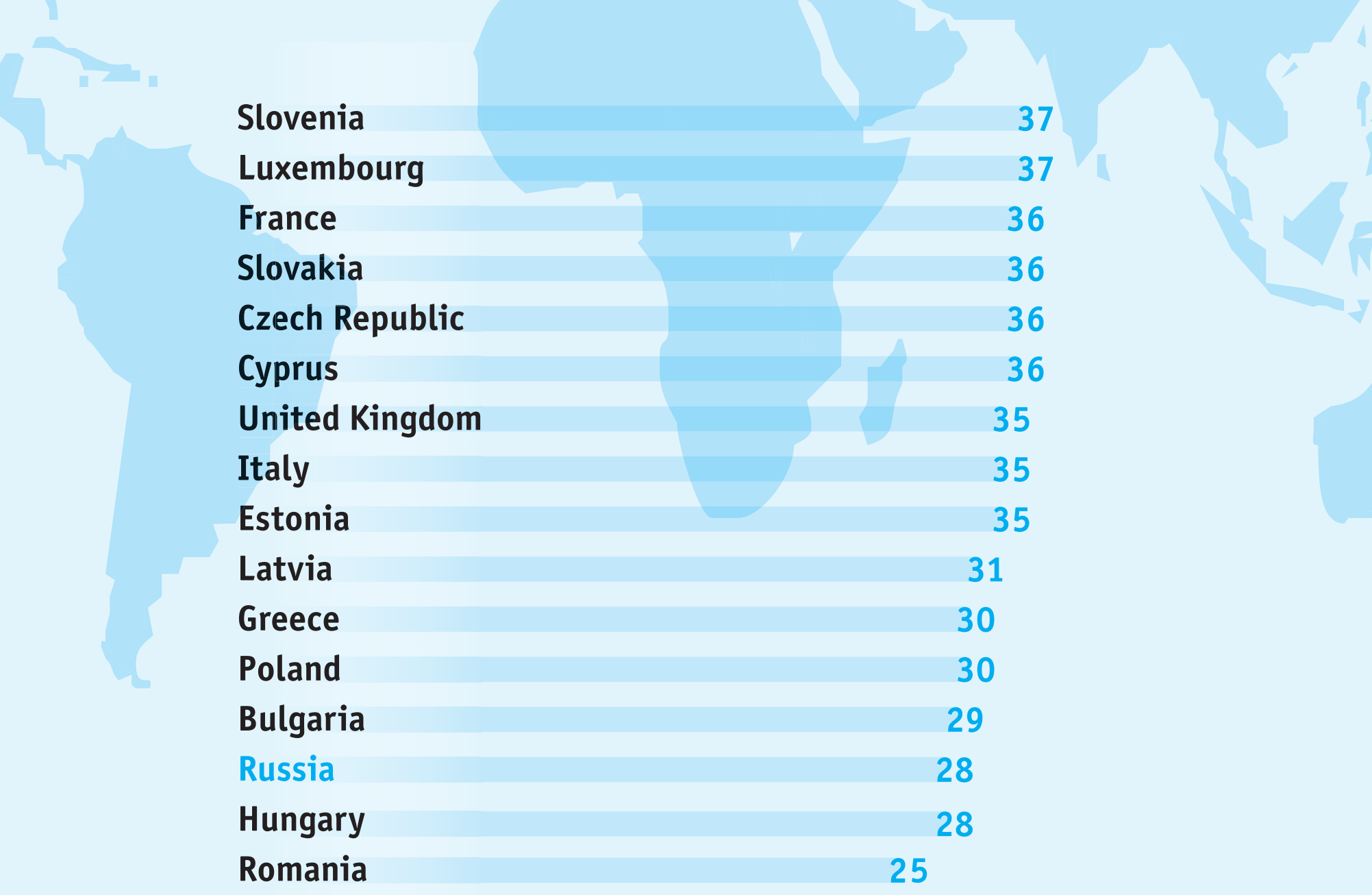
ICT Indicators of the Global Innovation Index in Russia: 2018





INDICATORS, rank

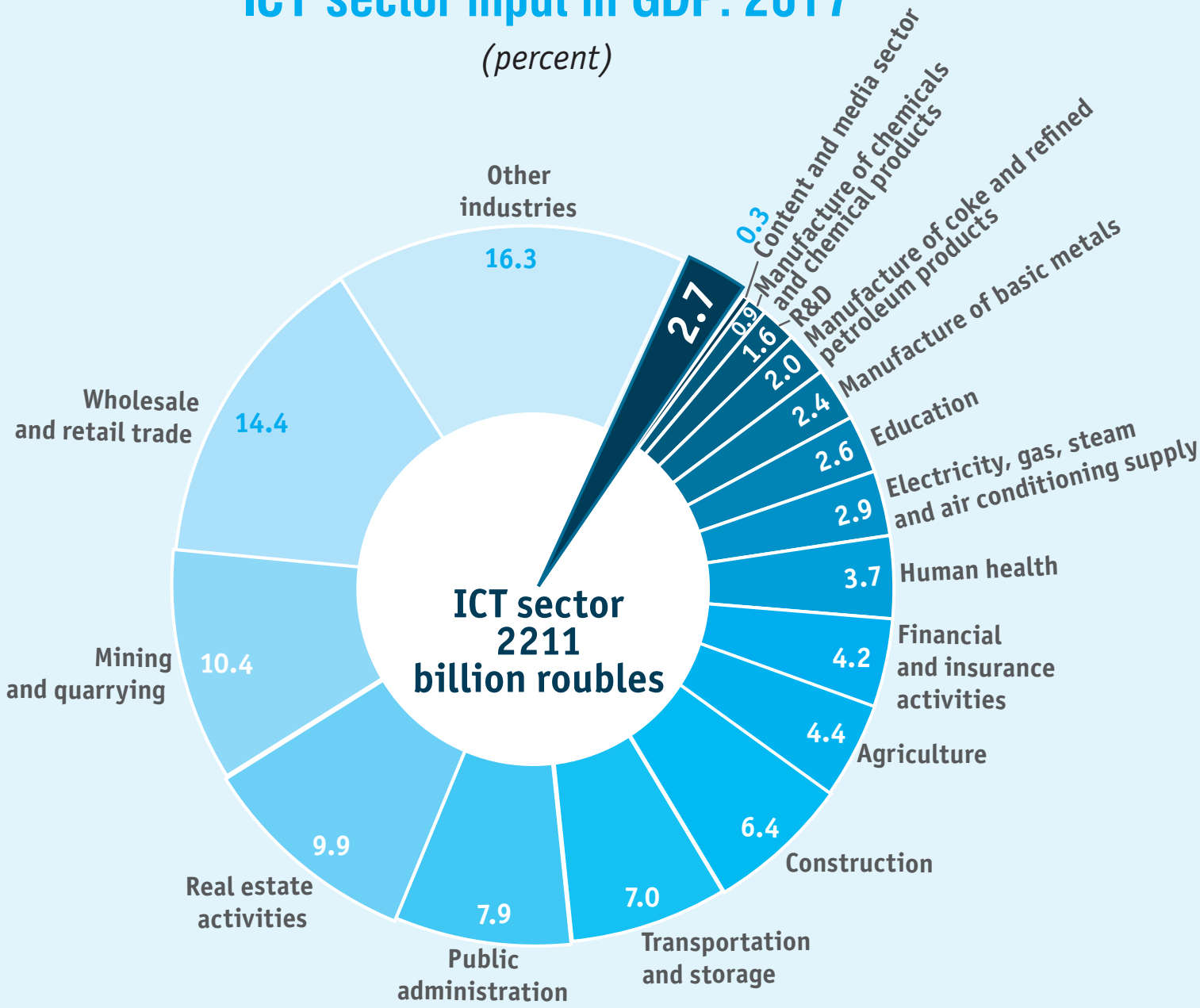
Digital Business Index: 2017*



* Digital Business Index is defined as the usage level of broadband Internet, cloud services, RFID-technologies, ERP software, and demand for e-Commerce by business enterprise sector units.

ICT sector input in GDP: 2017

(percent)

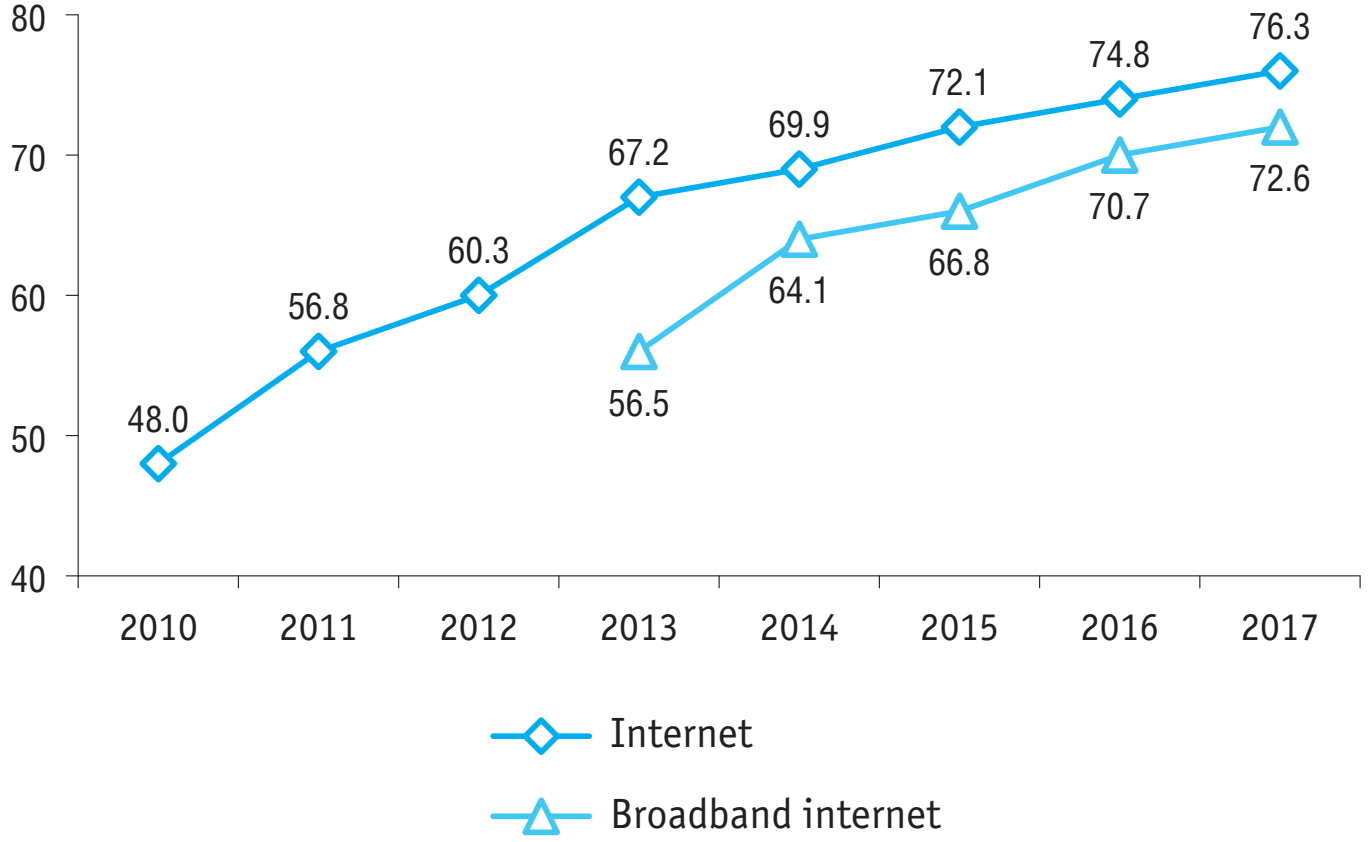


1

Population in the digital world

1.1. Households with internet access

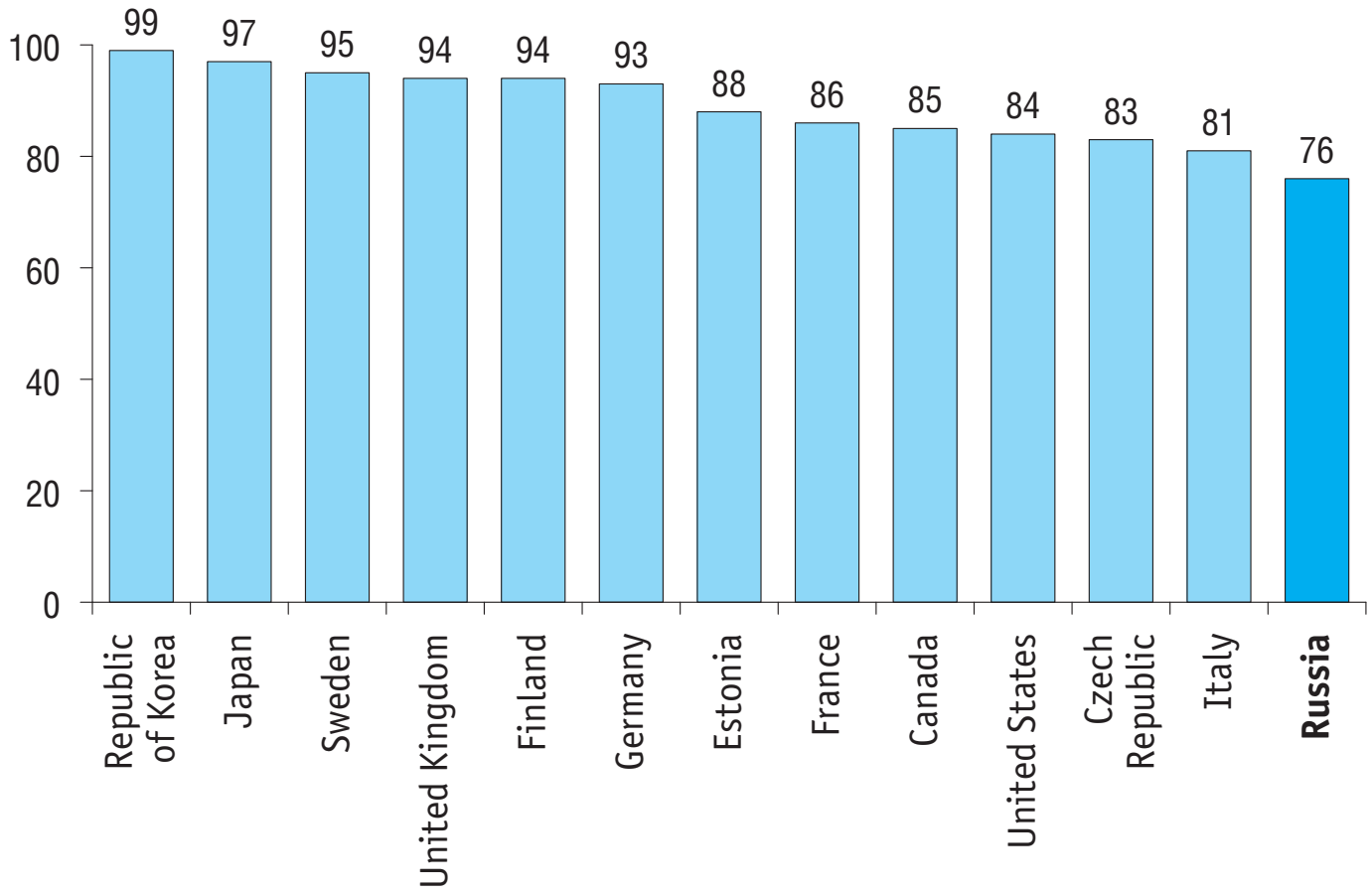
(as a percentage of all households)



Sources (here and below): Russia – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of Rosstat data; EU countries – Eurostat; countries other than Russia – OECD.

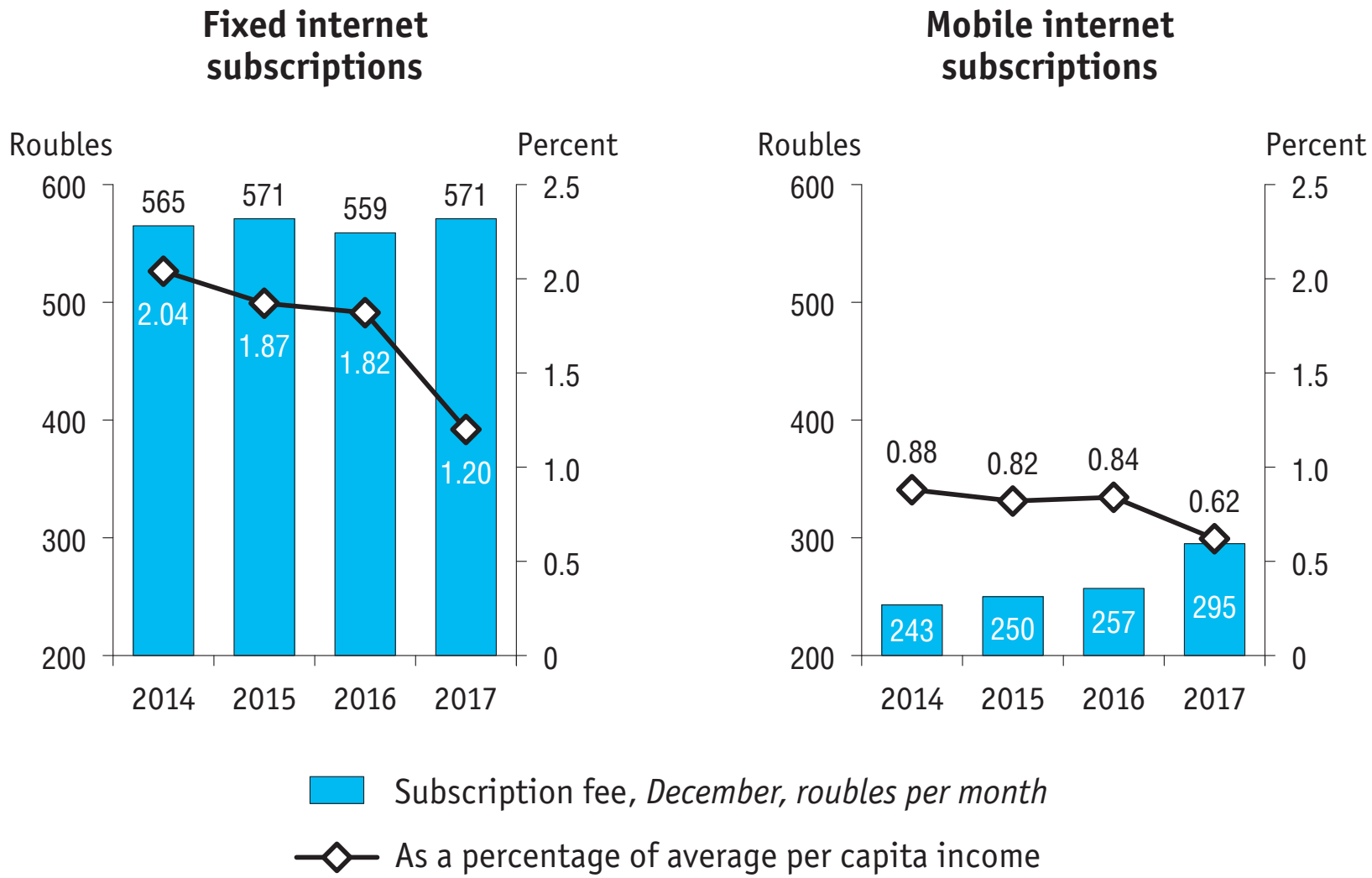
1.2. Households with internet access by country: 2017*

(as a percentage of all households)



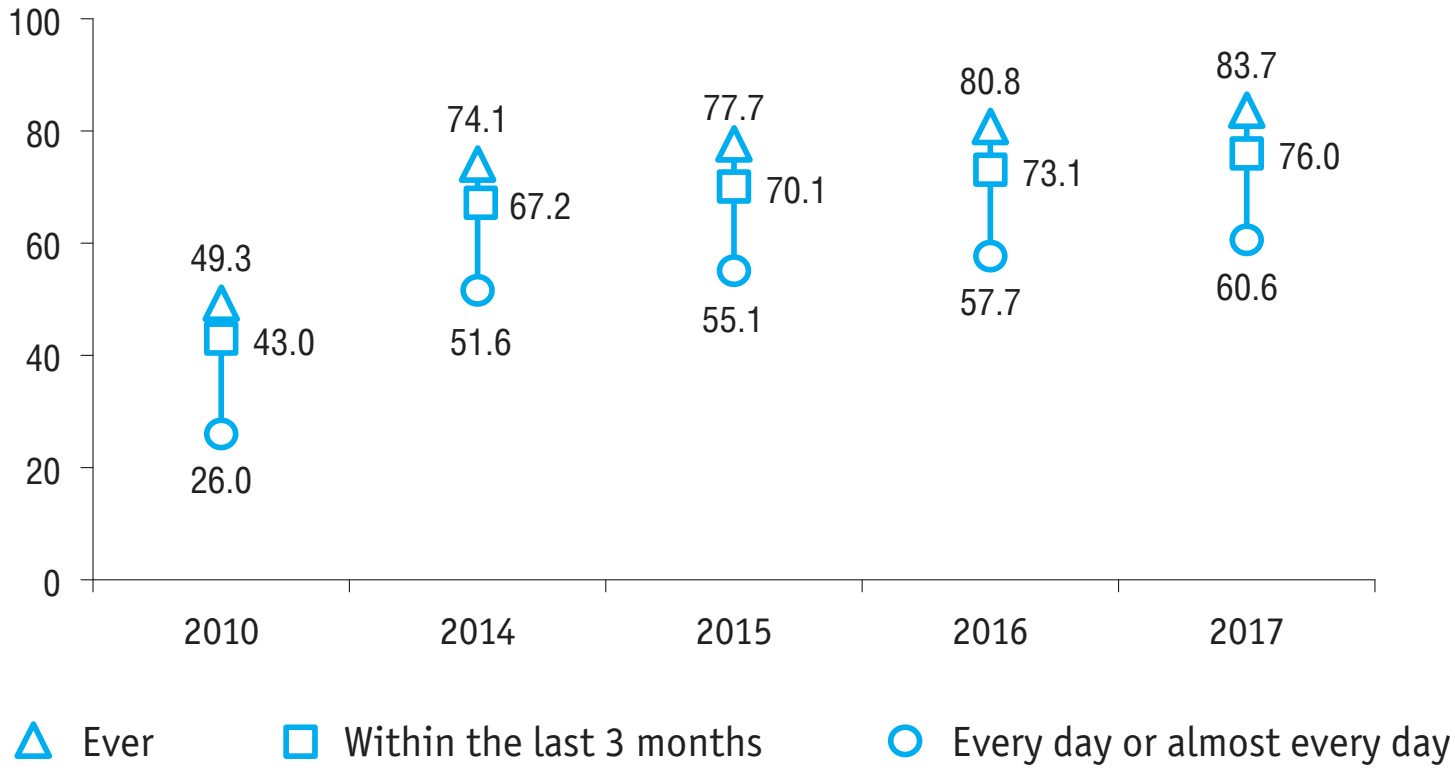
* Or nearest years for which data is available.

1.3. Ratio of internet access tariffs for individuals to average per capita income



1.4. Internet users

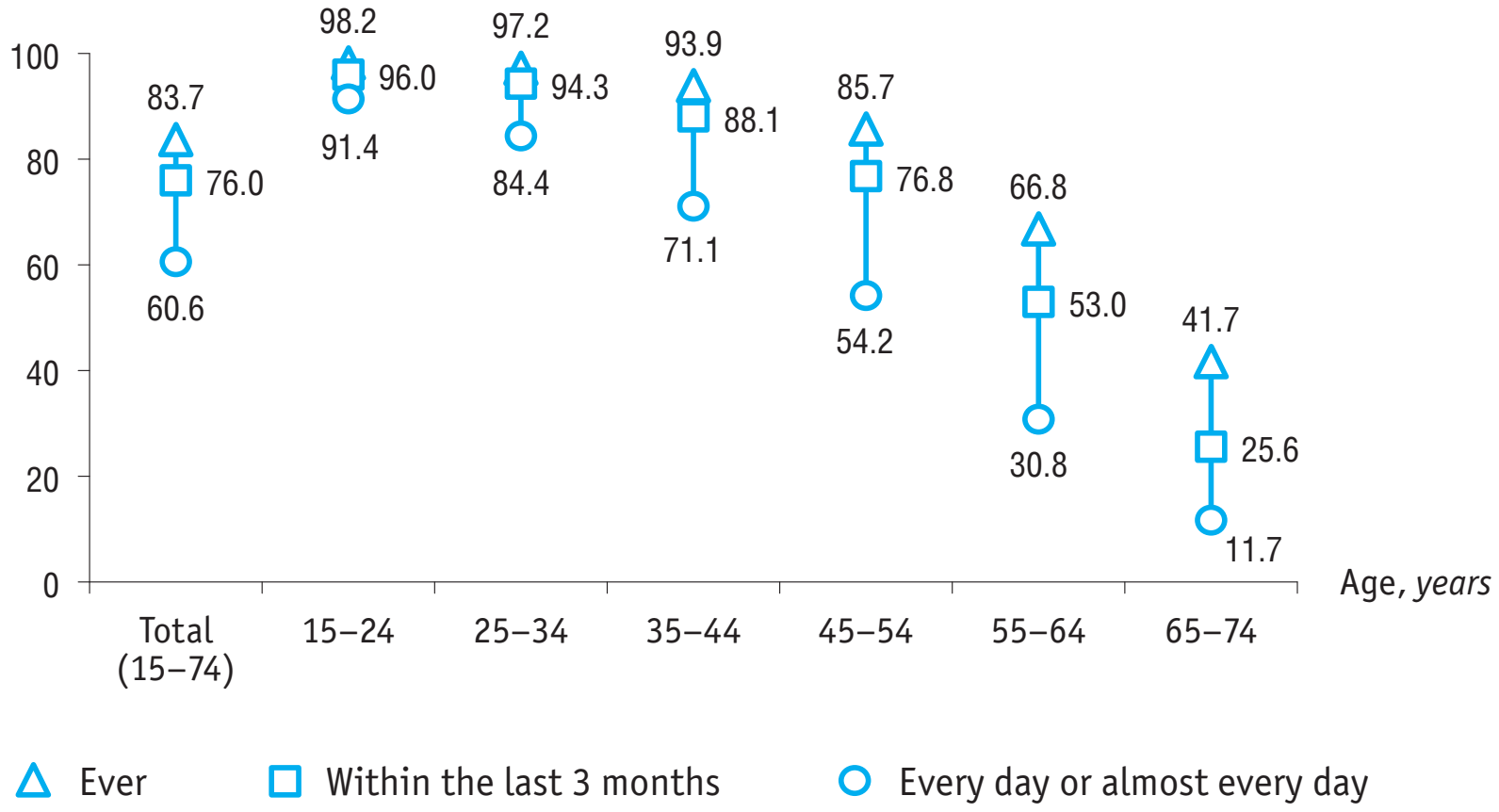
(as a percentage of all individuals aged 15–74)*



* Here and below in sections: 2010 for individuals aged 16–74, 2013–2016 for individuals aged 15–72.

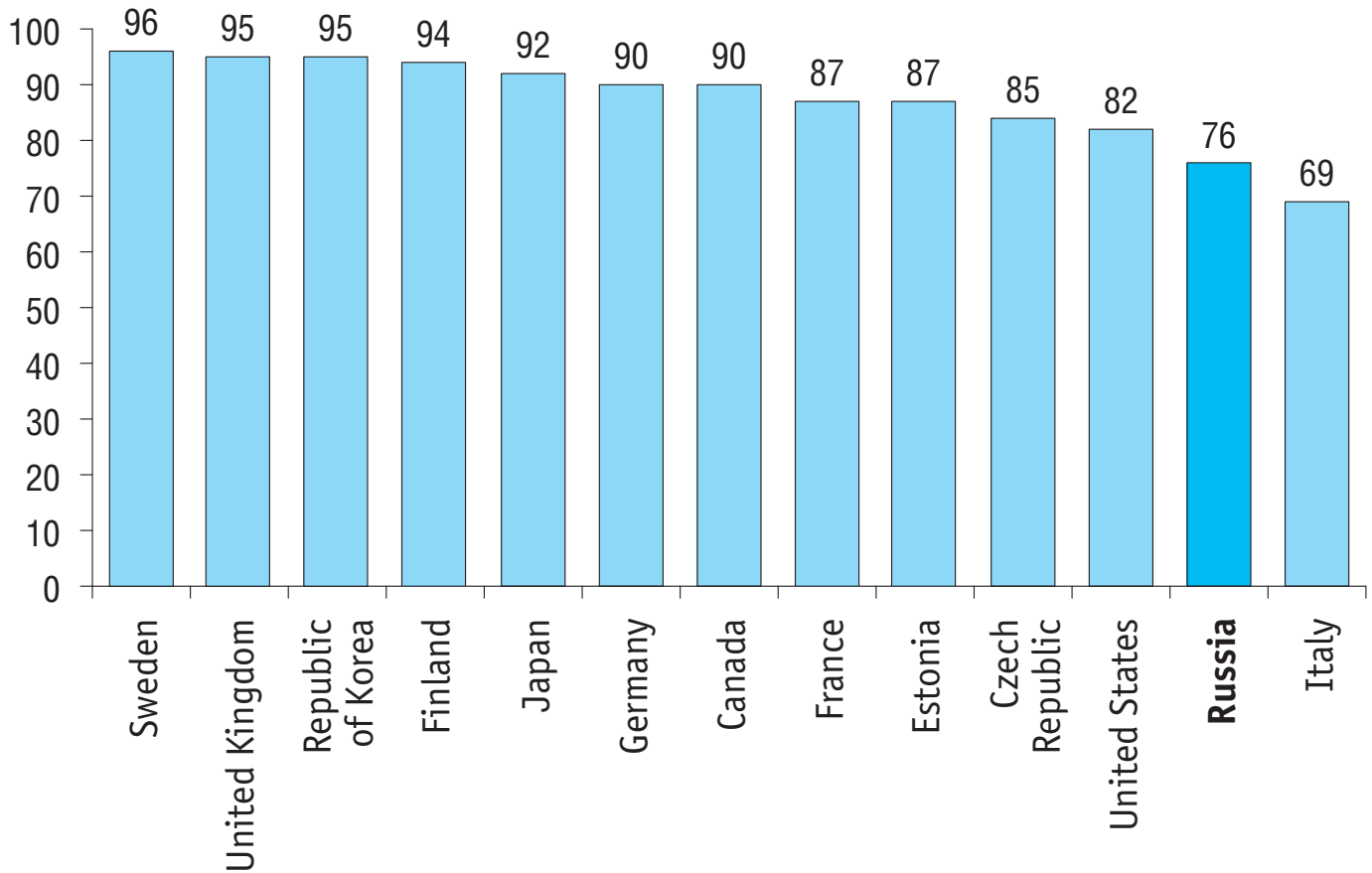
1.5. Internet users by age: 2017

(as a percentage of the population in each age group)



1.6. Internet users by country: 2017 *

*(as a percentage of all individuals aged 15-74**)*

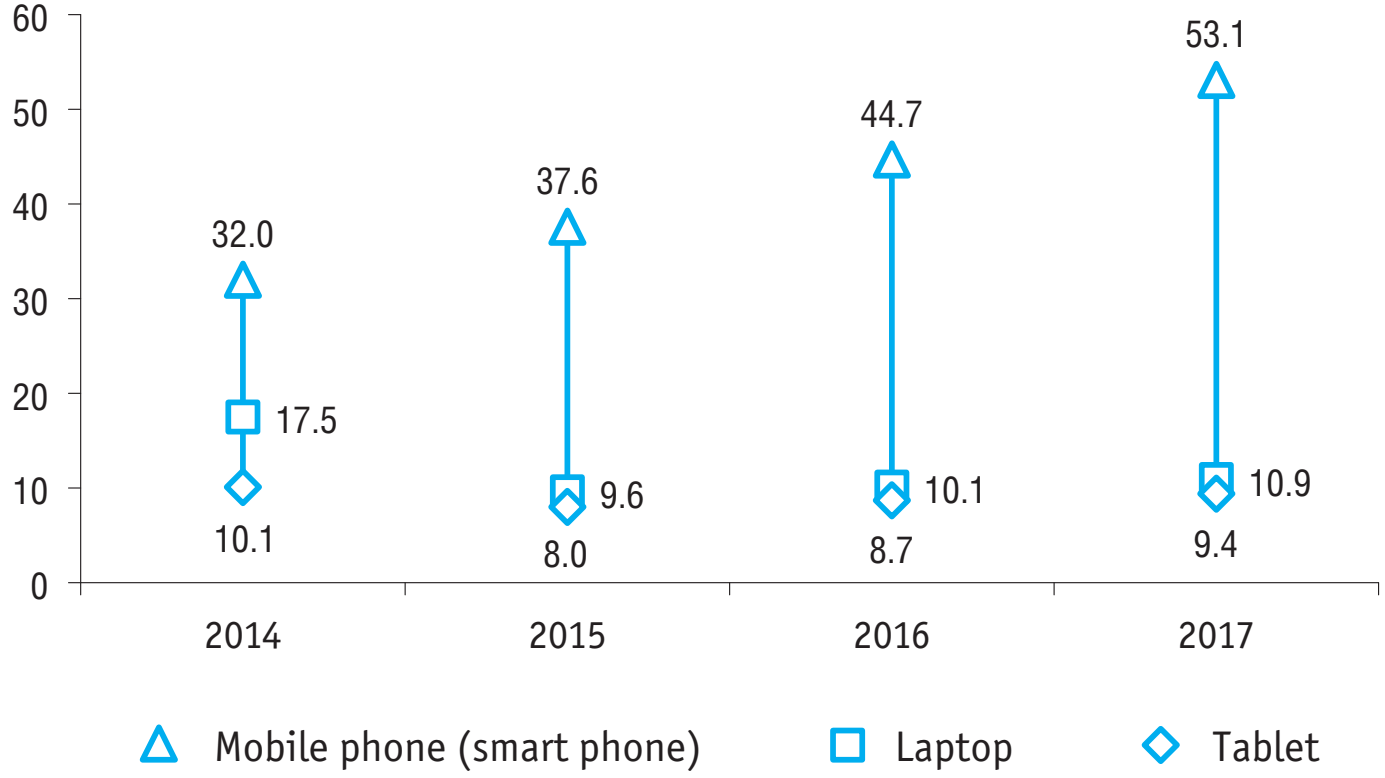


* Or nearest years for which data is available. Individuals who have used the internet in the last 3 months.

** Here and below in sections: countries other than Russia – aged 16–74.

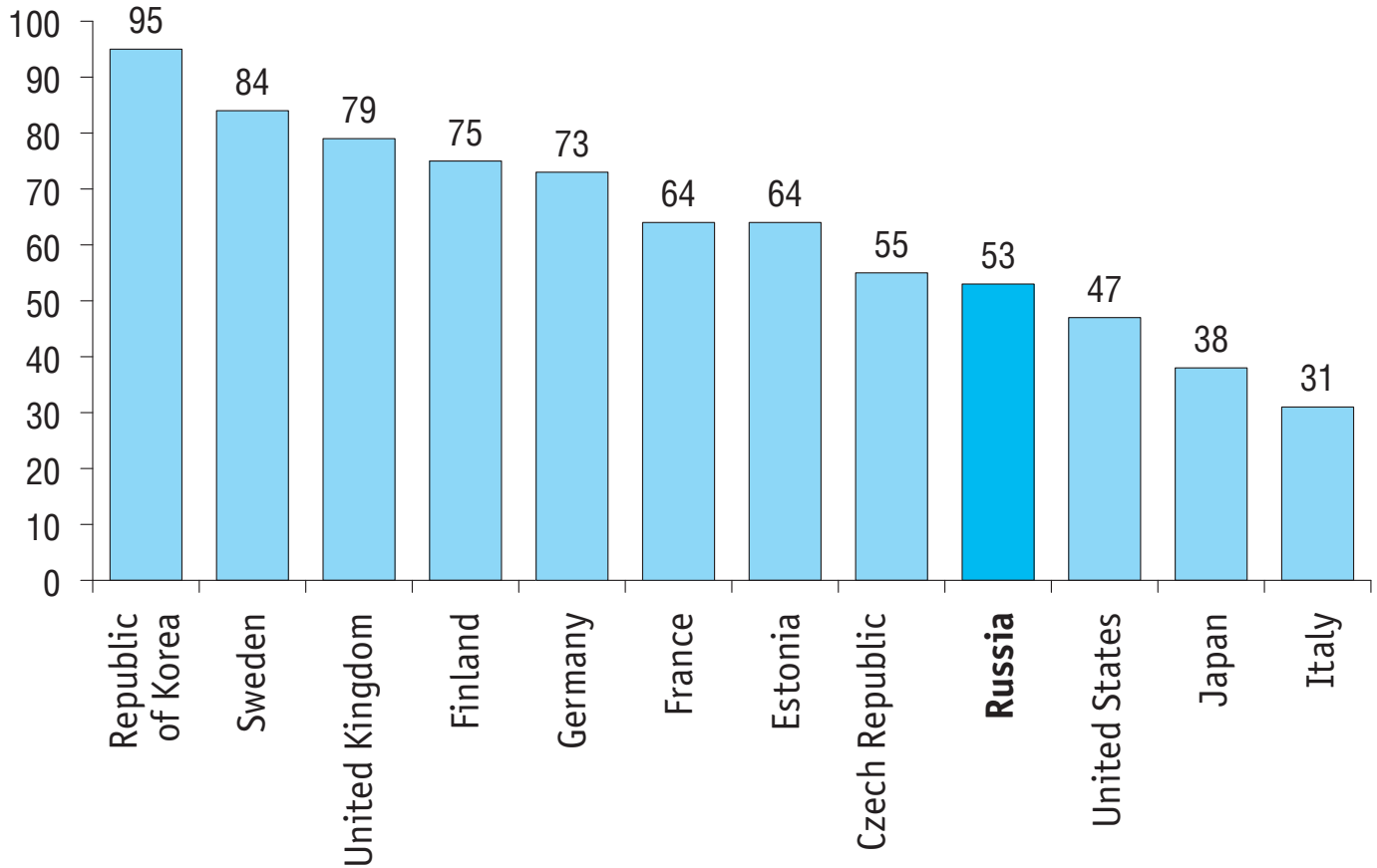
1.7. The use of mobile devices by individuals to access the internet

(as a percentage of all individuals aged 15–74)



1.8. The use of mobile devices by individuals to access the internet by country: 2017*

(as a percentage of all individuals aged 15–74)



* Or nearest years for which data is available.

1.9. E-skills

(as a percentage of all individuals aged 15–74)

	2014	2015	2016	2017
Working with a text editor	38.1	38.8	41.5	41.7
Transferring files between computer and other devices	23.8	27.6	29.0	27.4
Using spreadsheet software	19.6	21.7	22.9	22.7
Using software to edit photos, video or audio files	19.4	21.3	21.4	20.6
Connecting and installing new devices	7.2	8.4	8.9	9.7
Creating electronic presentations using special programmes	7.0	7.6	8.5	9.1
Changing software configuration settings or preferences	3.0	3.3	2.8	3.4
Installing or reinstalling an operating system	2.8	2.8	2.7	3.0
Writing software by oneself using programming languages	1.1	1.0	1.0	1.2

1.10. E-skills by country: 2017*

(as a percentage of all individuals aged 15–74)

	Working with a text editor	Transferring files between computer and other devices	Using software to edit photos, video or audio files
Russia	**42**	**27**	**21**
United Kingdom	65	58	50
Germany	62	64	46
Finland	70	67	54
France	54	60	33
Czech Republic	58	66	27
Sweden	70	53	47
Estonia	54	54	36

* Or nearest years for which data is available.

1.11. Individuals' internet activities related to communications by country: 2017*

(as a percentage of internet users aged 15–74)

	Participating in social networks	Making telephone or video calls	Sending / receiving e-mails
Russia	**78**	**49**	**44**
United Kingdom	75	53	91
Germany	56	54	93
Italy	61	39	77
Republic of Korea	72	49	57
United States	75	48	91
Finland	70	37	95
France	49	33	87
Czech Republic	57	42	93
Sweden	74	58	94
Estonia	68	50	89
Japan	88	53	83

* Or nearest years for which data is available.

1.12. Individuals' internet activities related to accessing digital content by country: 2017*

(as a percentage of internet users aged 15–74)

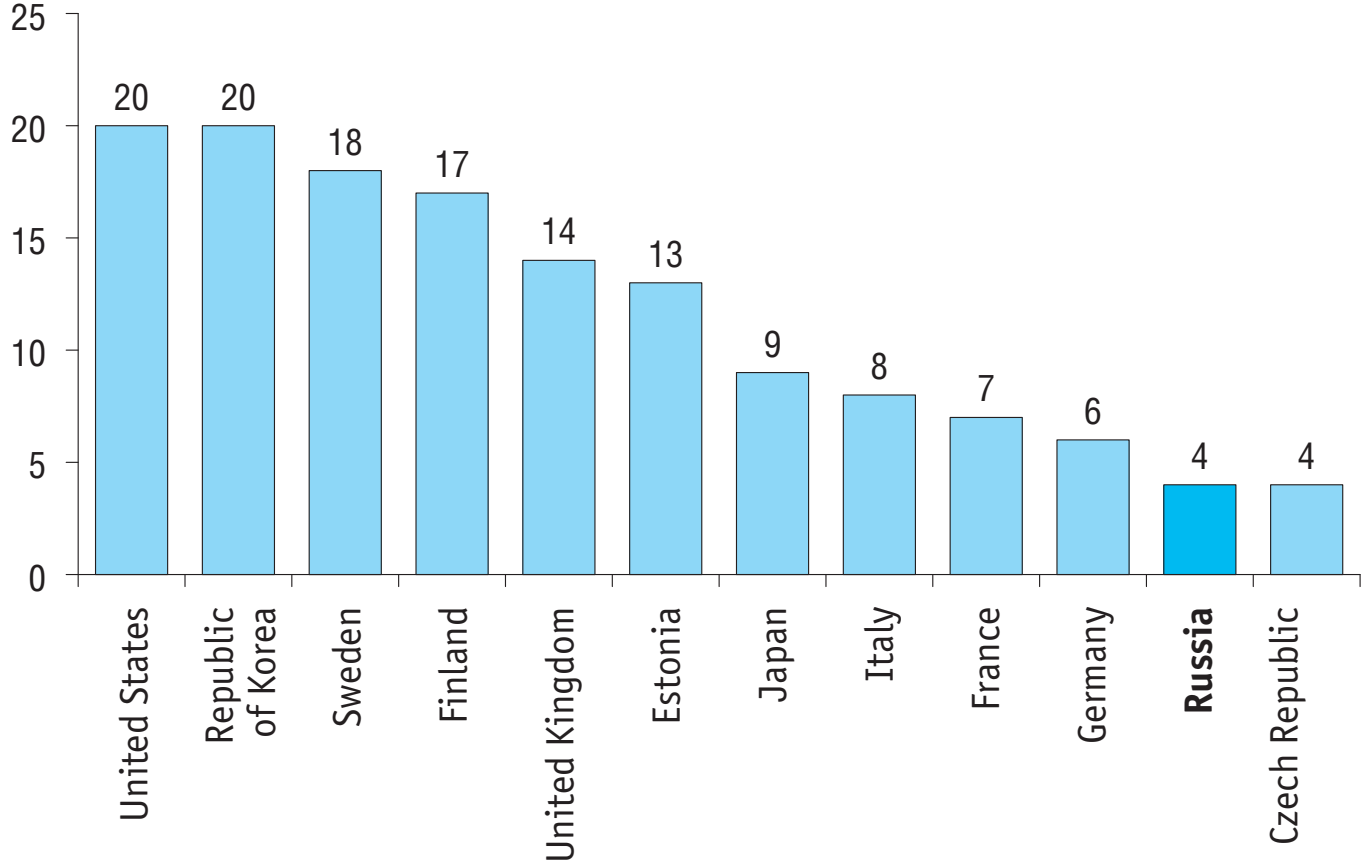
	Downloading movies, images, music; watching videos; listening to music, the radio**	Playing or downloading games for mobile phones	Reading or downloading online newspapers / magazines / e-books
Russia	**53**	**31**	**25**
United Kingdom	69	37	72
Germany	69	35	74
Italy	72	31	56
Republic of Korea	52	…	86
Finland	87	34	90
France	61	36	61
Czech Republic	61	26	91
Sweden	88	39	88
Estonia	75	27	90
Japan	55	…	60

* Or nearest years for which data is available.

** Countries other than Russia – watching internet streamed TV or videos.

1.13. Individuals' internet activities related to e-learning by country: 2017*

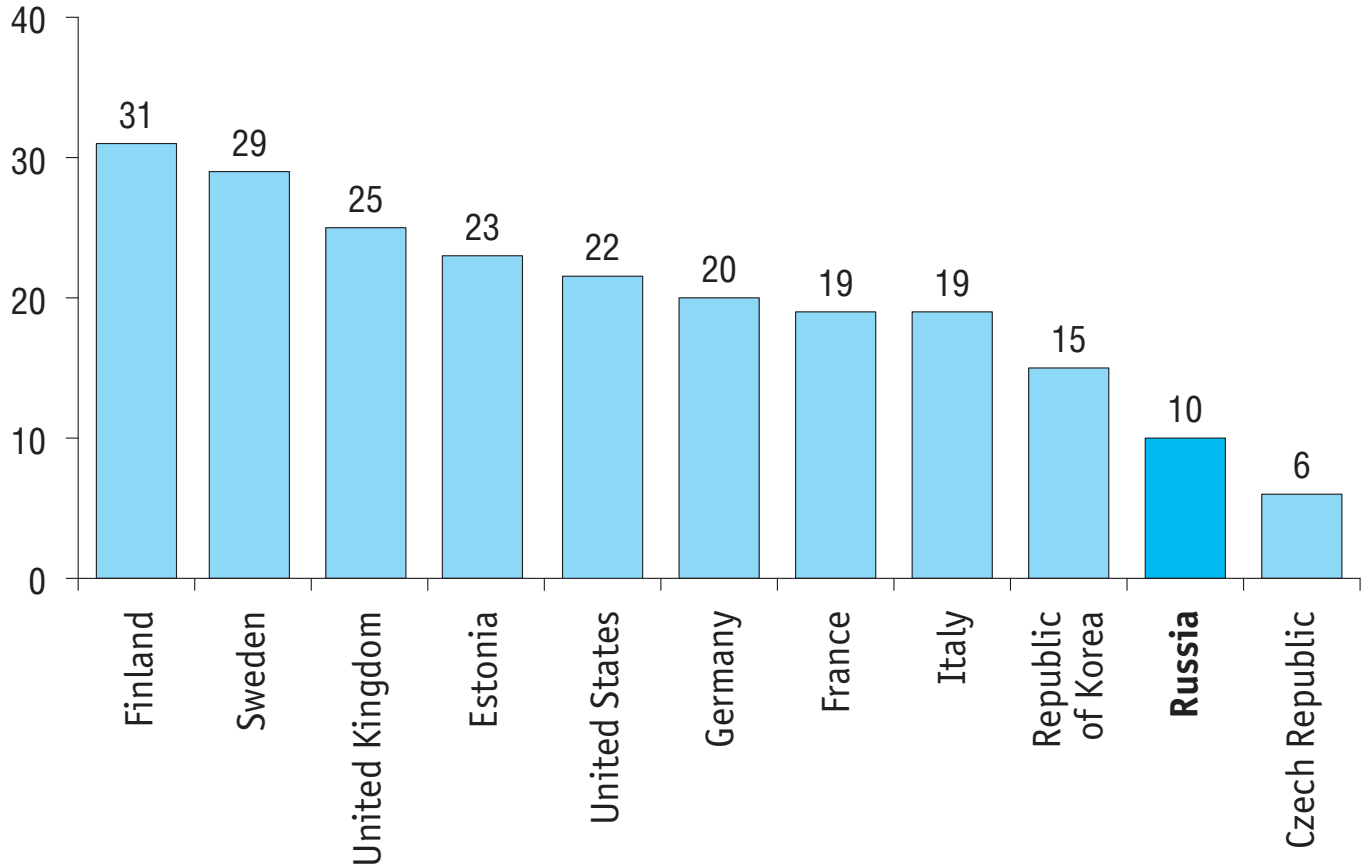
(as a percentage of internet users aged 15–74)



* Or nearest years for which data is available.

1.14. Individuals' internet activities related to searching and applying for a job by country: 2017*

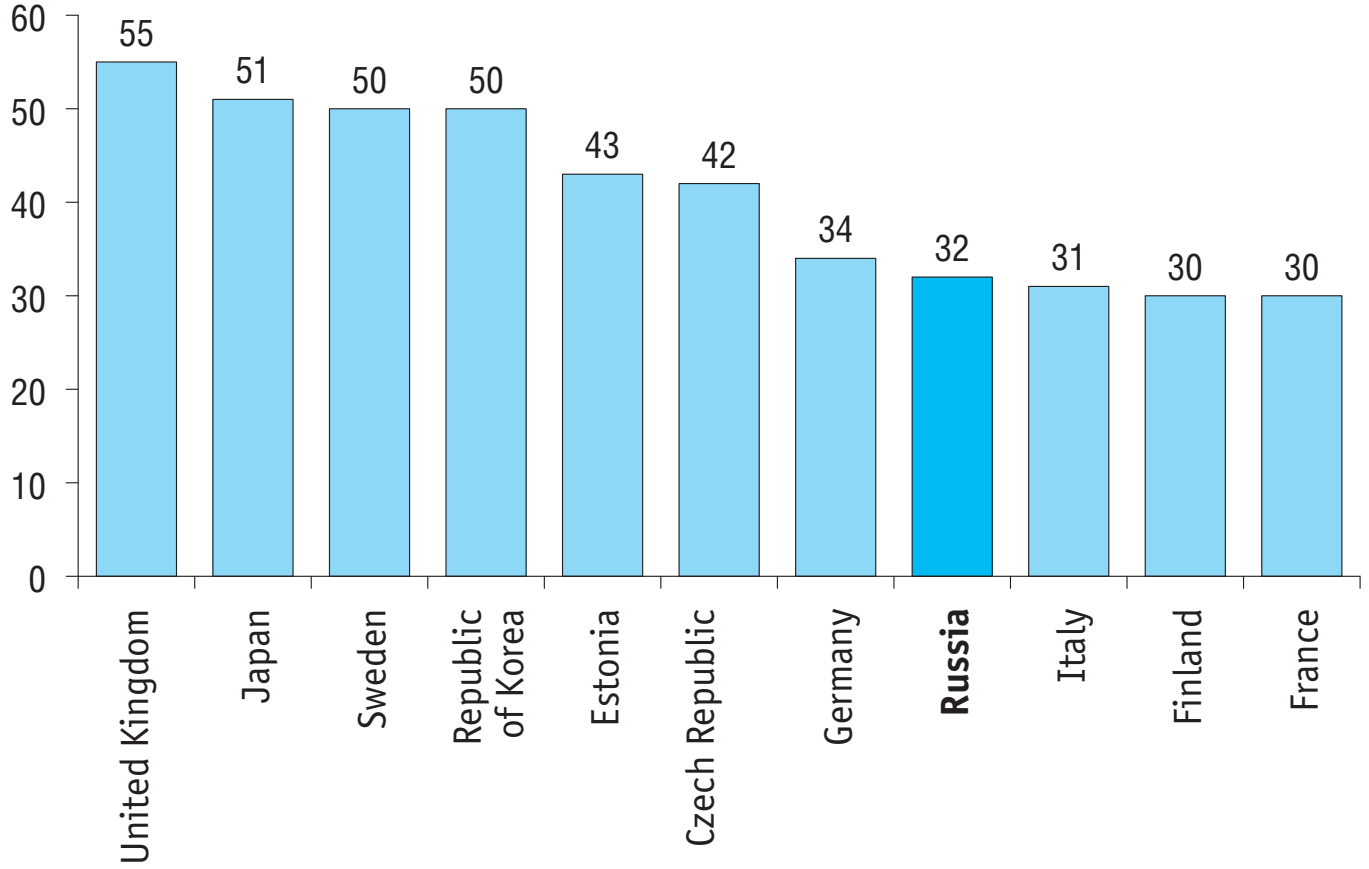
(as a percentage of internet users aged 15–74)



* Or nearest years for which data is available.

1.15. Individuals' internet activities related to uploading user-generated content to websites to share by country: 2017*

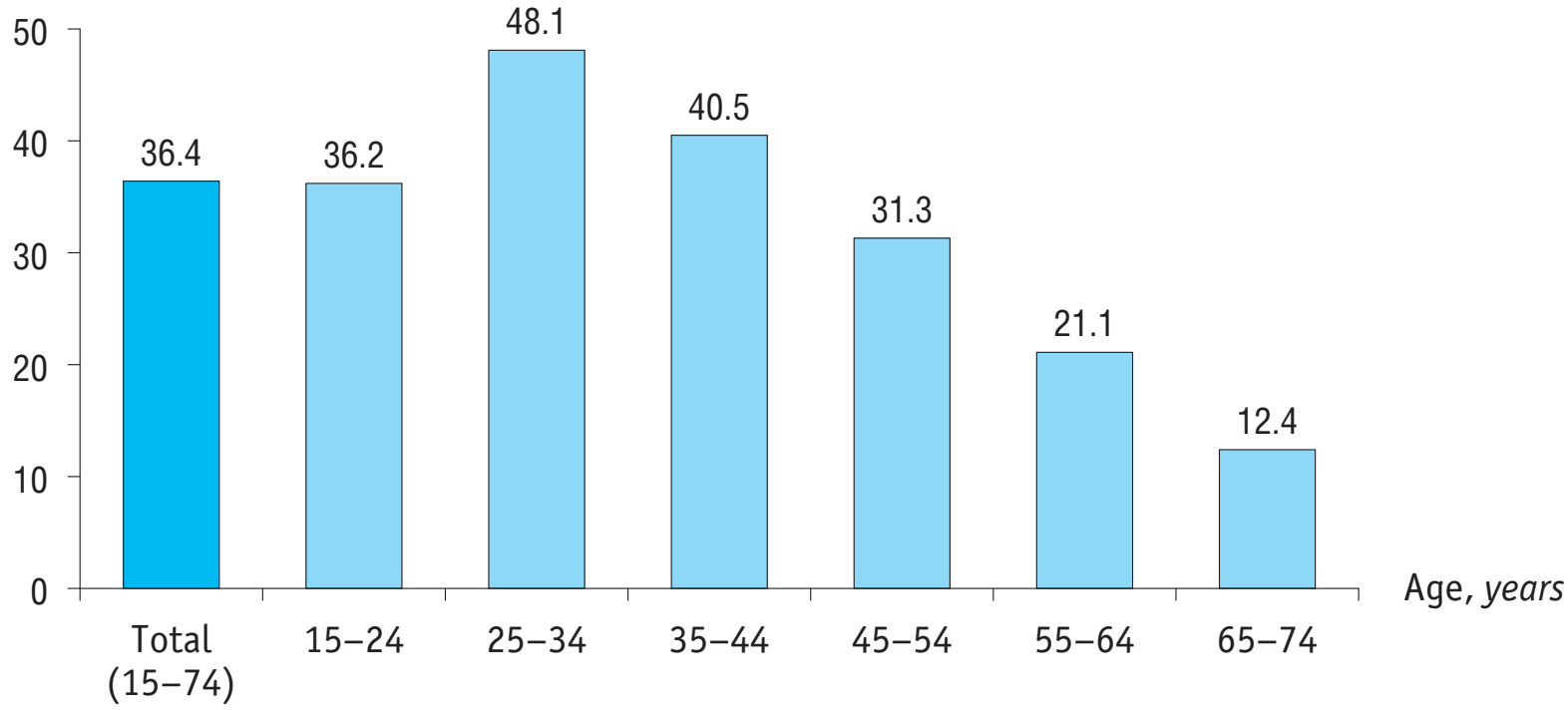
(as a percentage of internet users aged 15–74)



* Or nearest years for which data is available.

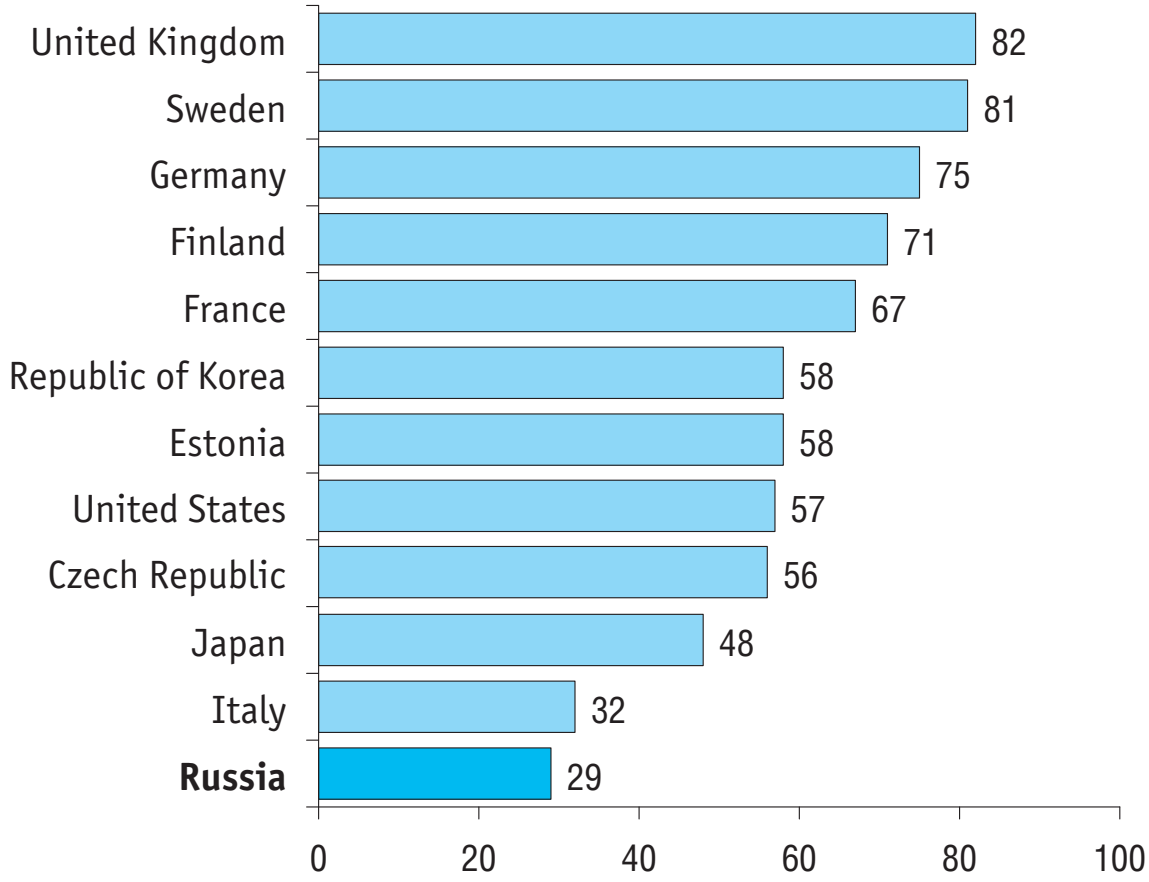
1.16. Individuals' internet activities related to ordering goods or services by age: 2017

(as a percentage of the population in each age group using the internet)



1.17. Individuals' internet activities related to ordering goods or services by country: 2017*

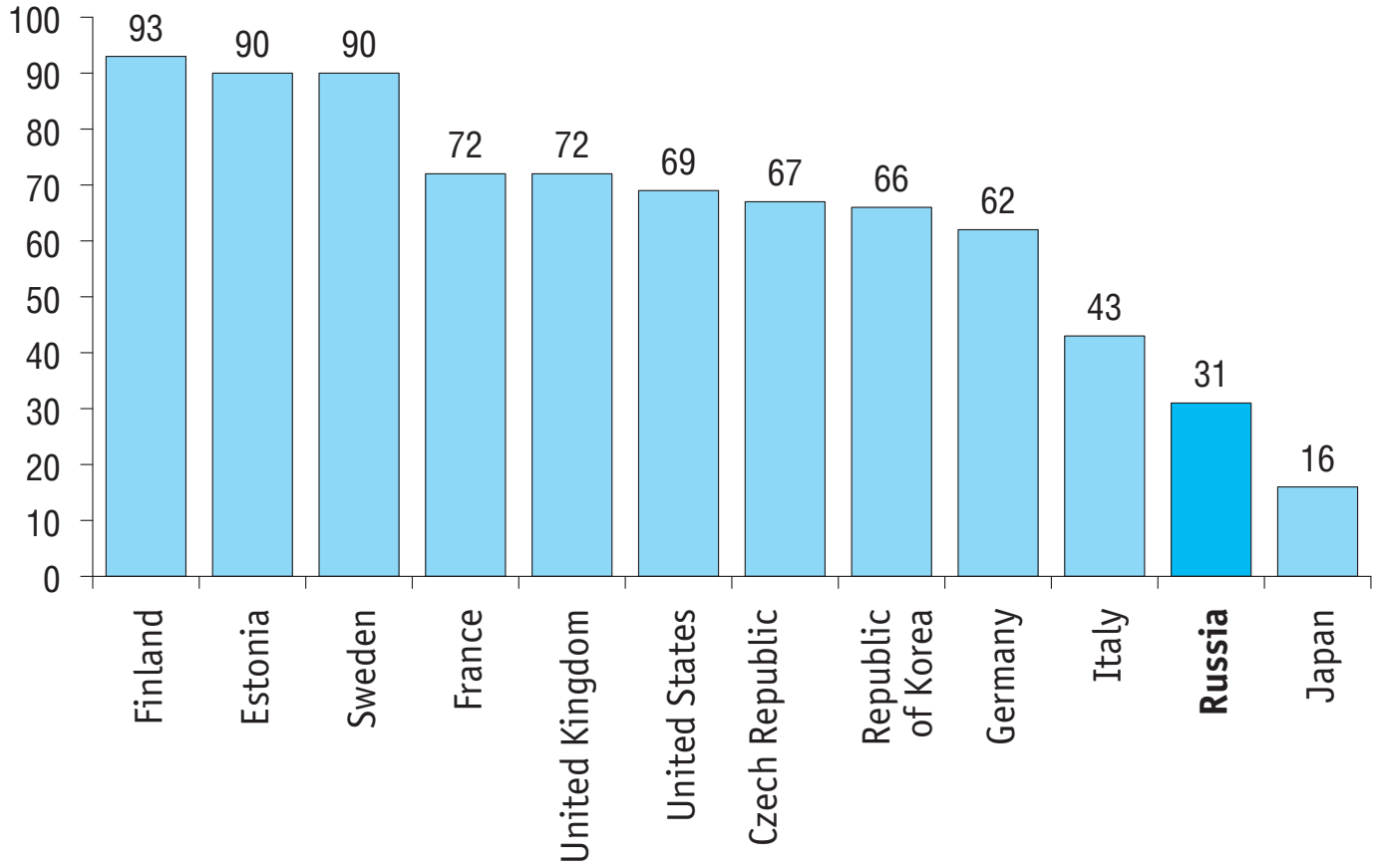
(as a percentage of all individuals aged 15–74)



* Or nearest years for which data is available.

1.18. Individuals' internet activities related to banking transactions by country: 2017*

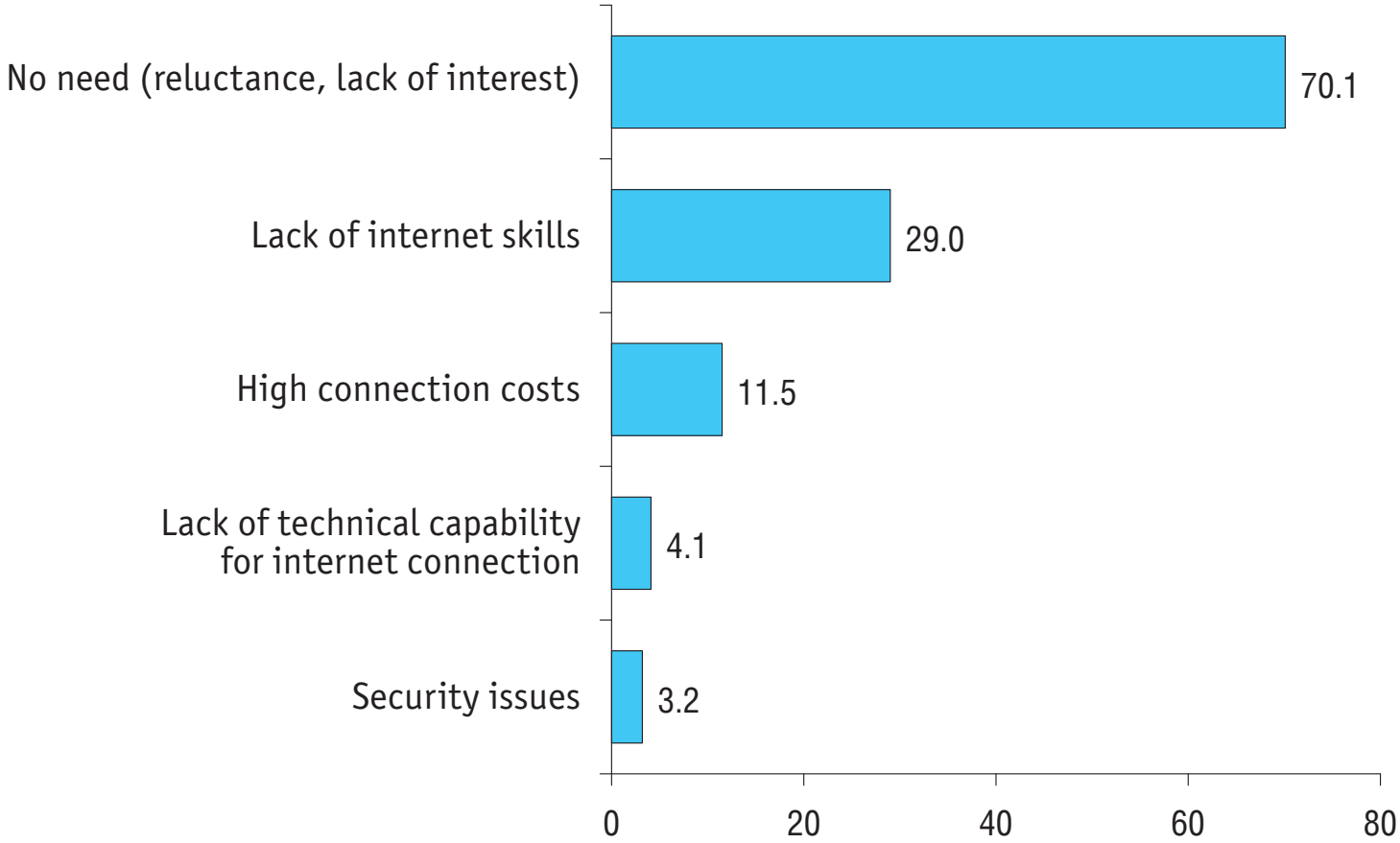
(as a percentage of internet users aged 15–74)



* Or nearest years for which data is available.

1.19. Reasons why individuals refrain from using the internet: 2017

(as a percentage of individuals who used the internet more than 12 months ago or never used it aged 15–74)

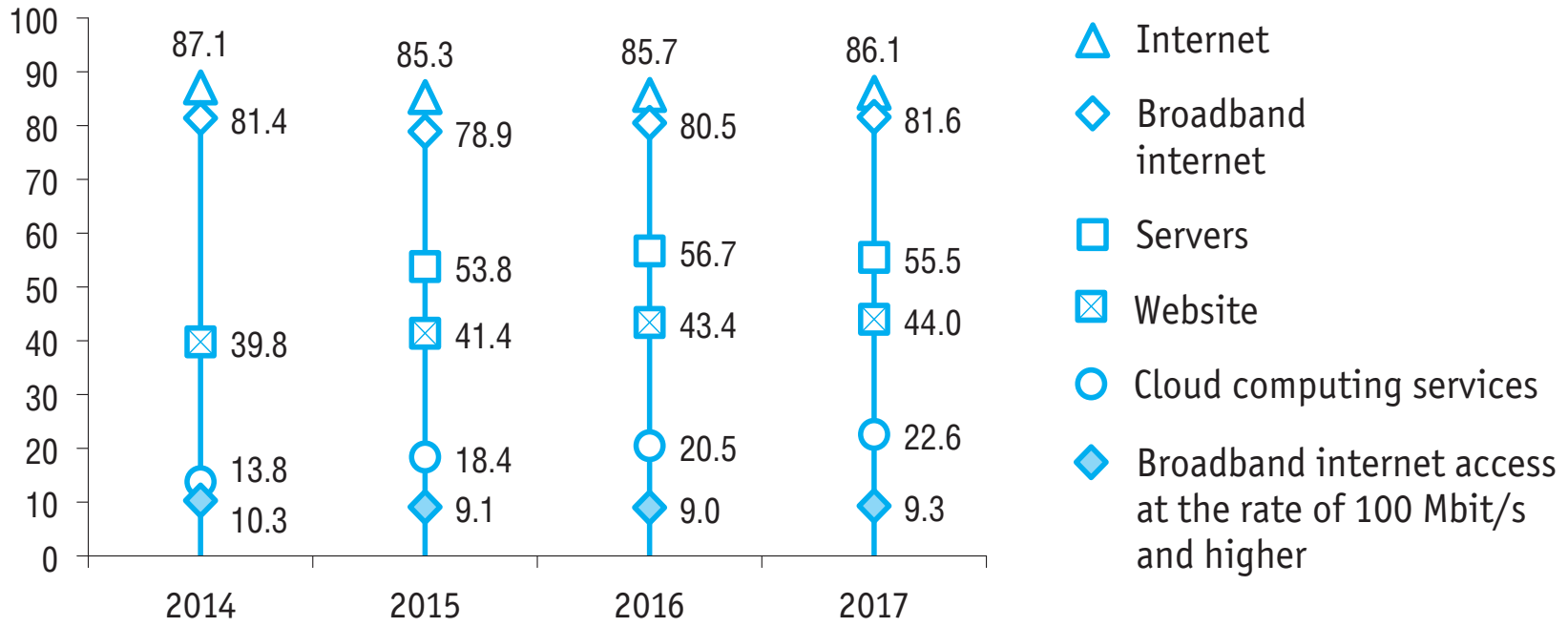


2

E-business

2.1. ICT usage in enterprises*

(as a percentage of all business enterprise sector units)



* Here and below in the section: business enterprise sector untis are given by types of economic activity with the Russian Classification of Economic Activities codes (OKVED): 2015, 2016 – OKVED Rev. 1.1 / ISIC Rev. 3.1 – C, D, E, F, G, H, I, K; OKVED2 / ISIC Rev. 4 – B, C, D, E, F, G, H, I, J, L, N, 69, 70, 71, 72, 73, 74, 95.

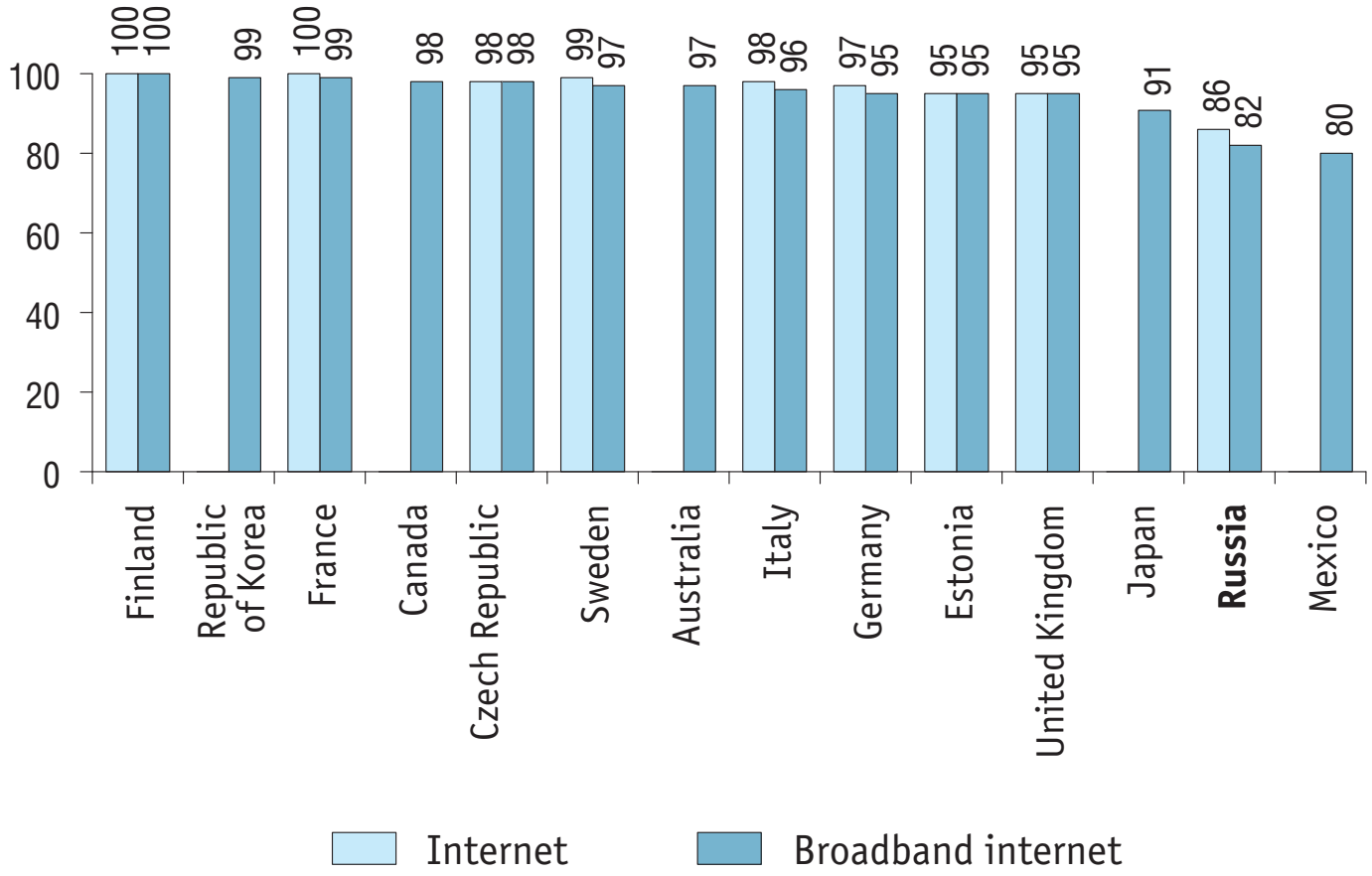
2.2. Enterprises with broadband internet access: 2017

(as a percentage of all business enterprise sector units)

	Total	By top speed access			By connection types	
		256 Kbp/s – 1.9 Mbp/s	2.0–100.0 Mbp/s	Over 100 Mbp/s	Fixed	Mobile
Business enterprise sector	**81.6**	**21.0**	**51.3**	**9.3**	**78.3**	**47.4**
Mining and quarrying	85.5	17.4	60.7	7.4	80.8	55.9
Manufacturing	91.6	13.8	70.7	7.1	86.4	53.4
Electricity, gas, steam and air conditioning supply	84.0	21.6	57.9	4.6	79.5	49.3
Water supply; sewerage, waste management and remediation activities	71.2	27.5	39.7	4.0	67.1	36.4
Construction	81.8	19.1	55.8	6.9	75.3	50.4
Wholesale and retail trade	90.2	25.0	51.6	13.6	84.9	58.4
Transportation and storage	81.1	20.3	52.2	8.6	77.2	45.1
Accommodation and food service activities	78.9	21.5	50.0	7.3	72.9	51.2
Telecommunications	91.5	7.3	46.3	37.9	89.0	59.0
Information technology industry	93.9	10.5	64.7	18.8	88.8	48.7
Real estate activities	54.4	19.7	30.6	4.1	51.5	24.3
Professional, scientific and technical activities	85.1	20.4	55.7	9.0	80.9	43.8

2.3. Enterprises with internet access by country: 2017*

(as a percentage of all business enterprise sector units)

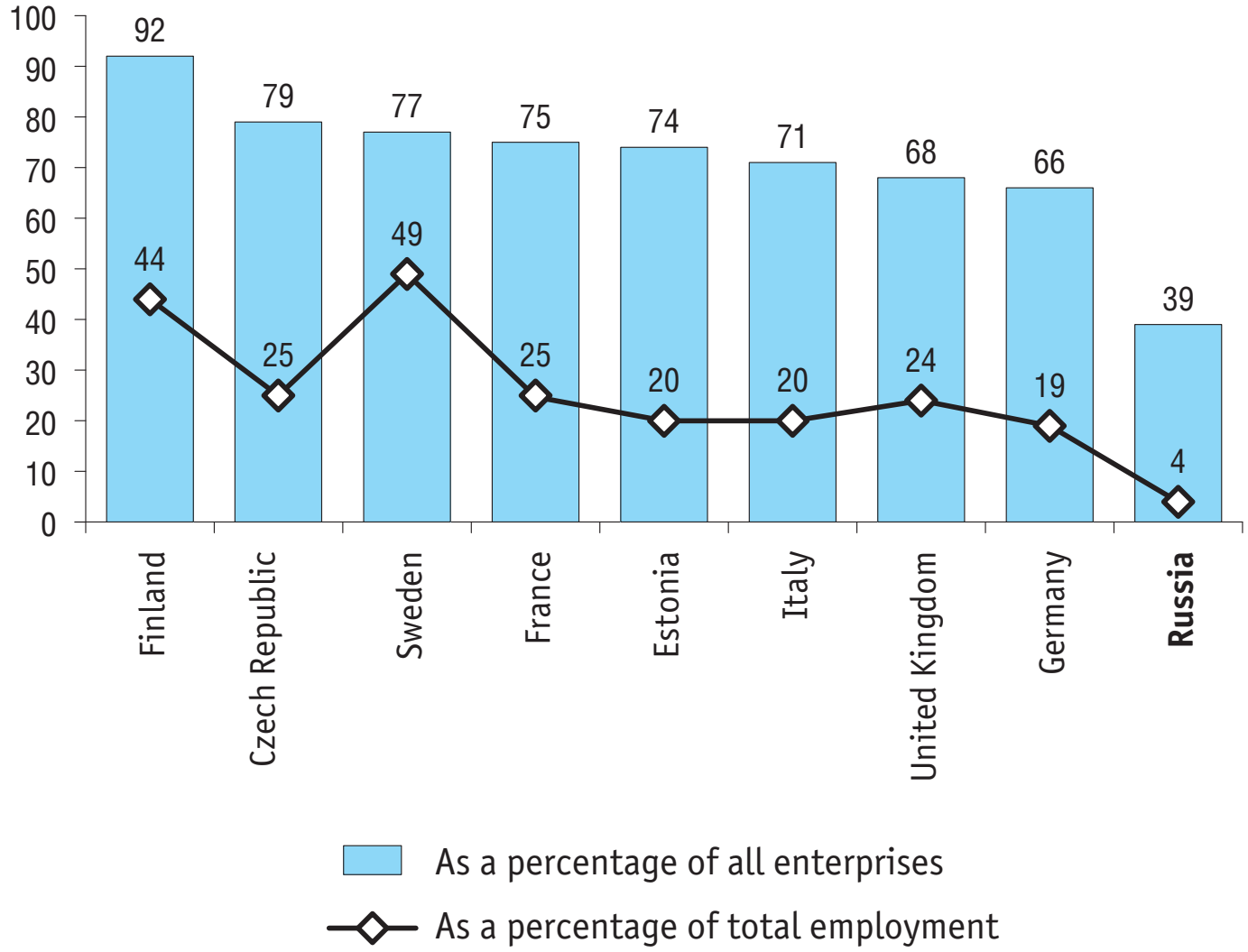


* Or nearest years for which data is available.

2.4. Provision of mobile devices to personnel by business enterprise sector units to access the internet: 2017

	As a percentage of all enterprises	As a percentage of total employment
Business enterprise sector	**39.2**	**4.1**
Mining and quarrying	49.2	2.5
Manufacturing	50.3	2.3
Electricity, gas, steam and air conditioning supply	44.3	2.4
Water supply; sewerage, waste management and remediation activities	28.3	1.4
Construction	44.2	3.2
Wholesale and retail trade	48.4	8.8
Transportation and storage	39.6	2.1
Accommodation and food service activities	43.7	4.4
Telecommunications	58.8	11.3
Information technology industry	51.1	21.6
Real estate activities	15.4	2.5
Professional, scientific and technical activities	34.2	5.4

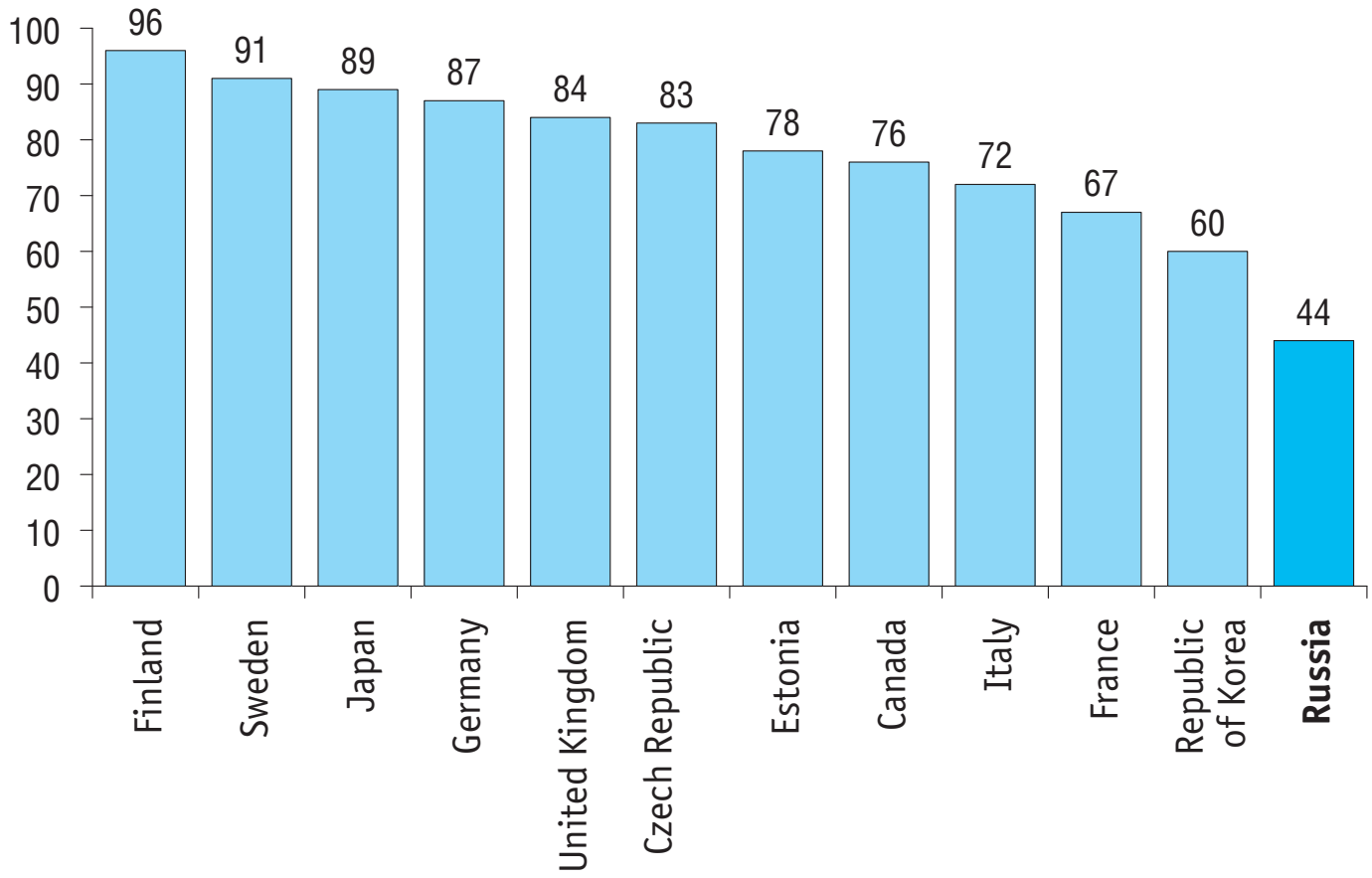
2.5. Provision of mobile devices to personnel by business enterprise sector units to access the internet by country: 2017*



* Or nearest years for which data is available.

2.6. Enterprises with a website by country: 2017*

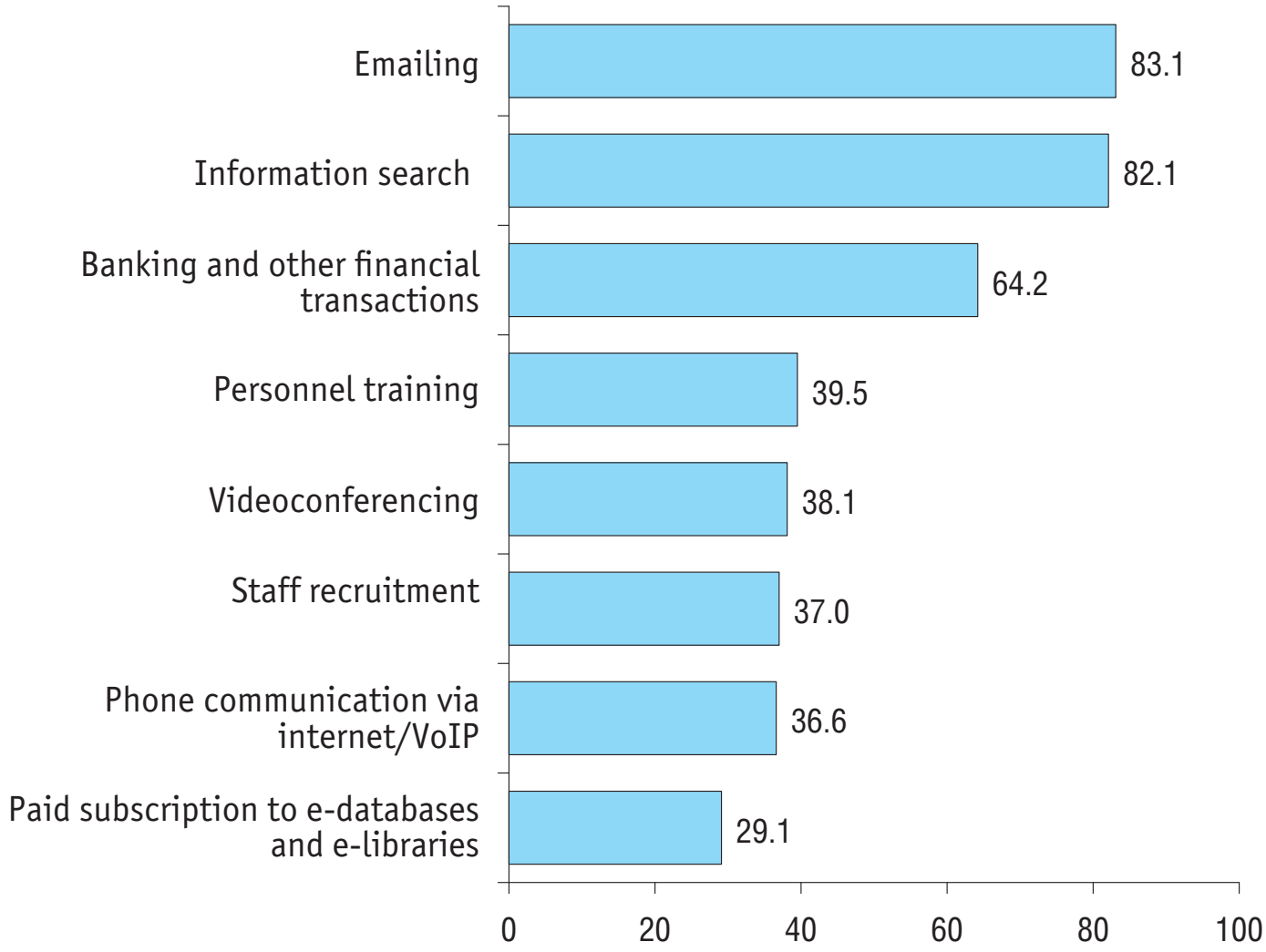
(as a percentage of all business enterprise sector units)



* Or nearest years for which data is available.

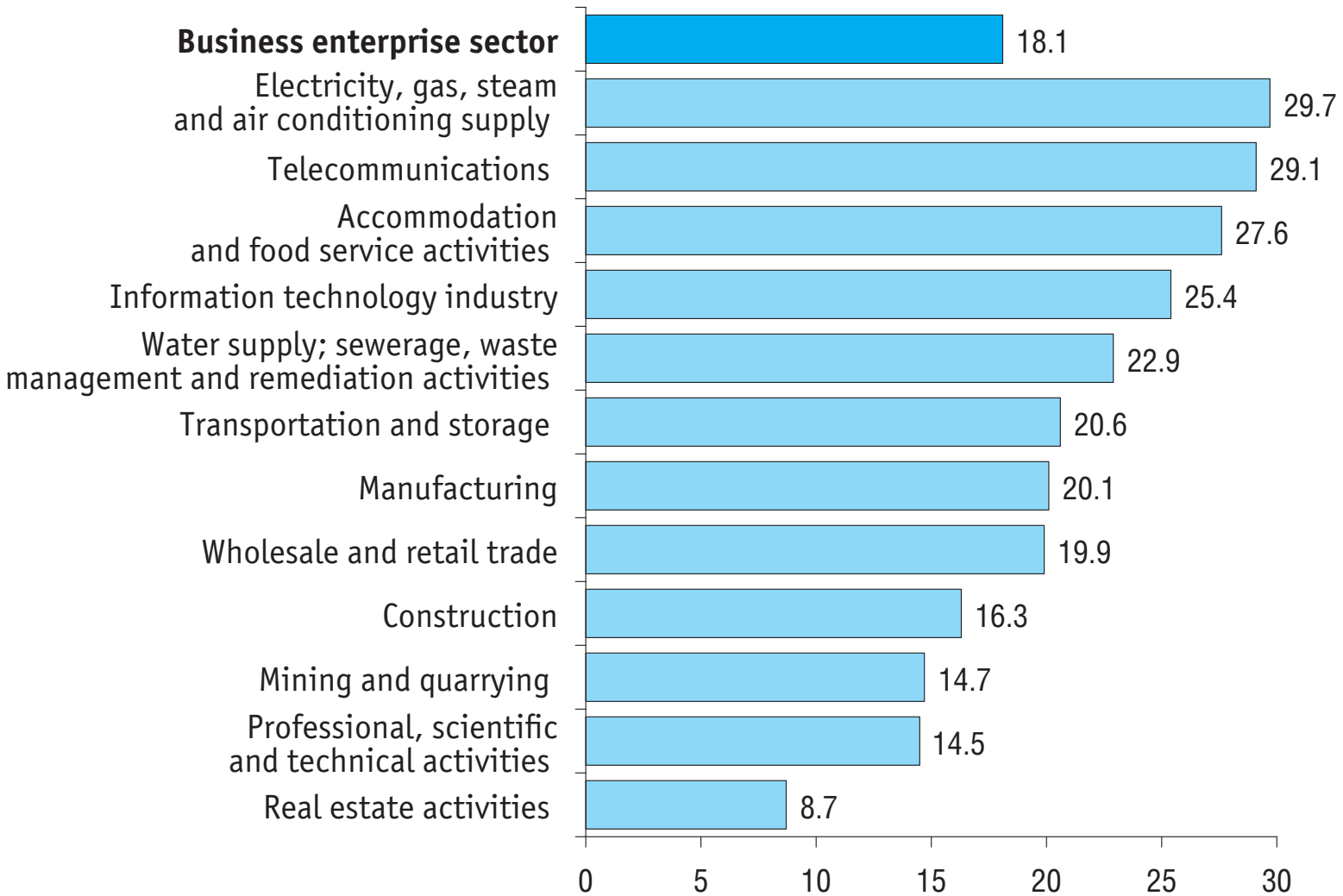
2.7. Purposes of internet usage in enterprises: 2017

(as a percentage of all business enterprise sector units)



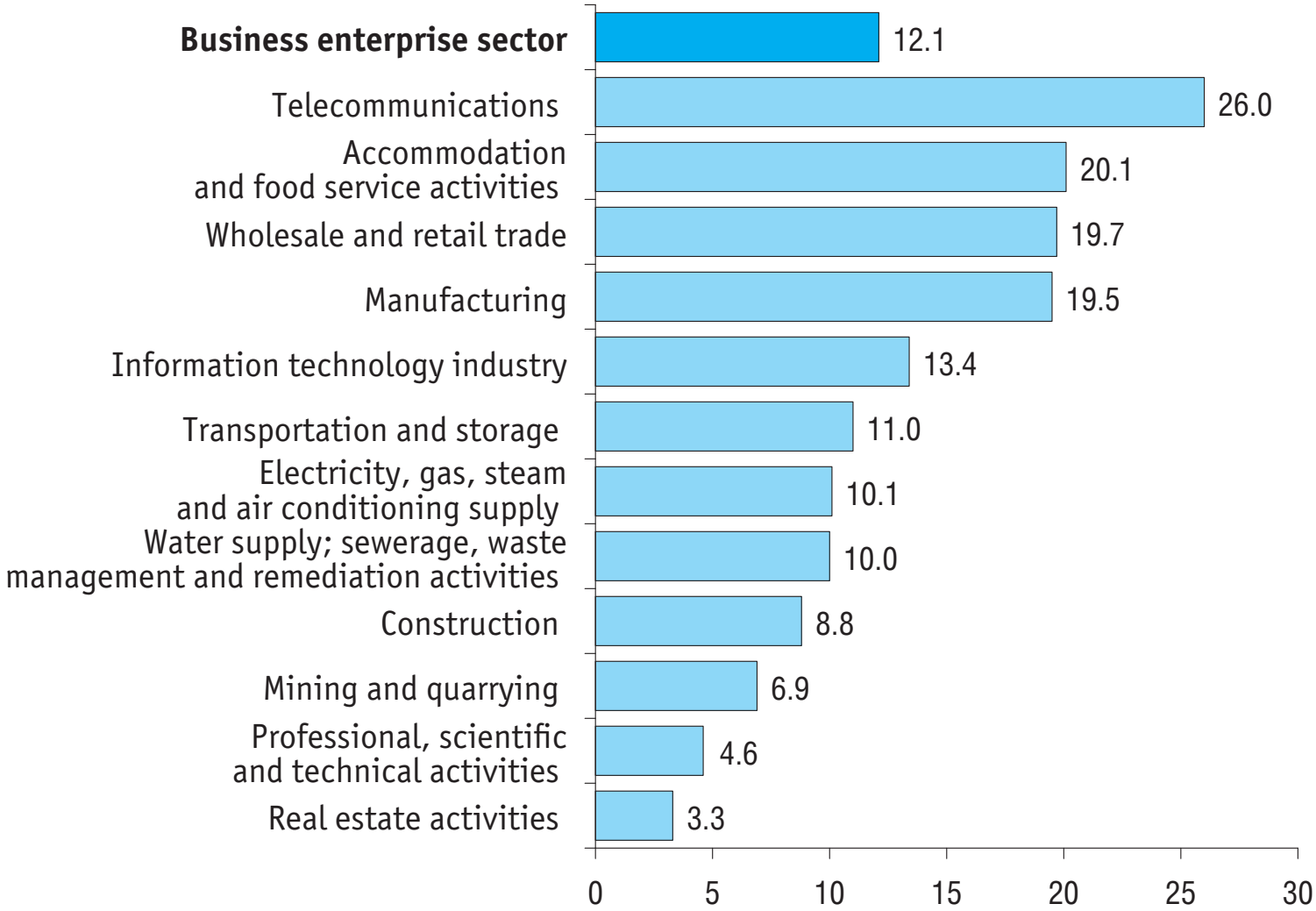
2.8. Enterprises' internet activities related to purchasing goods or services: 2017

(as a percentage of all business enterprise sector units)



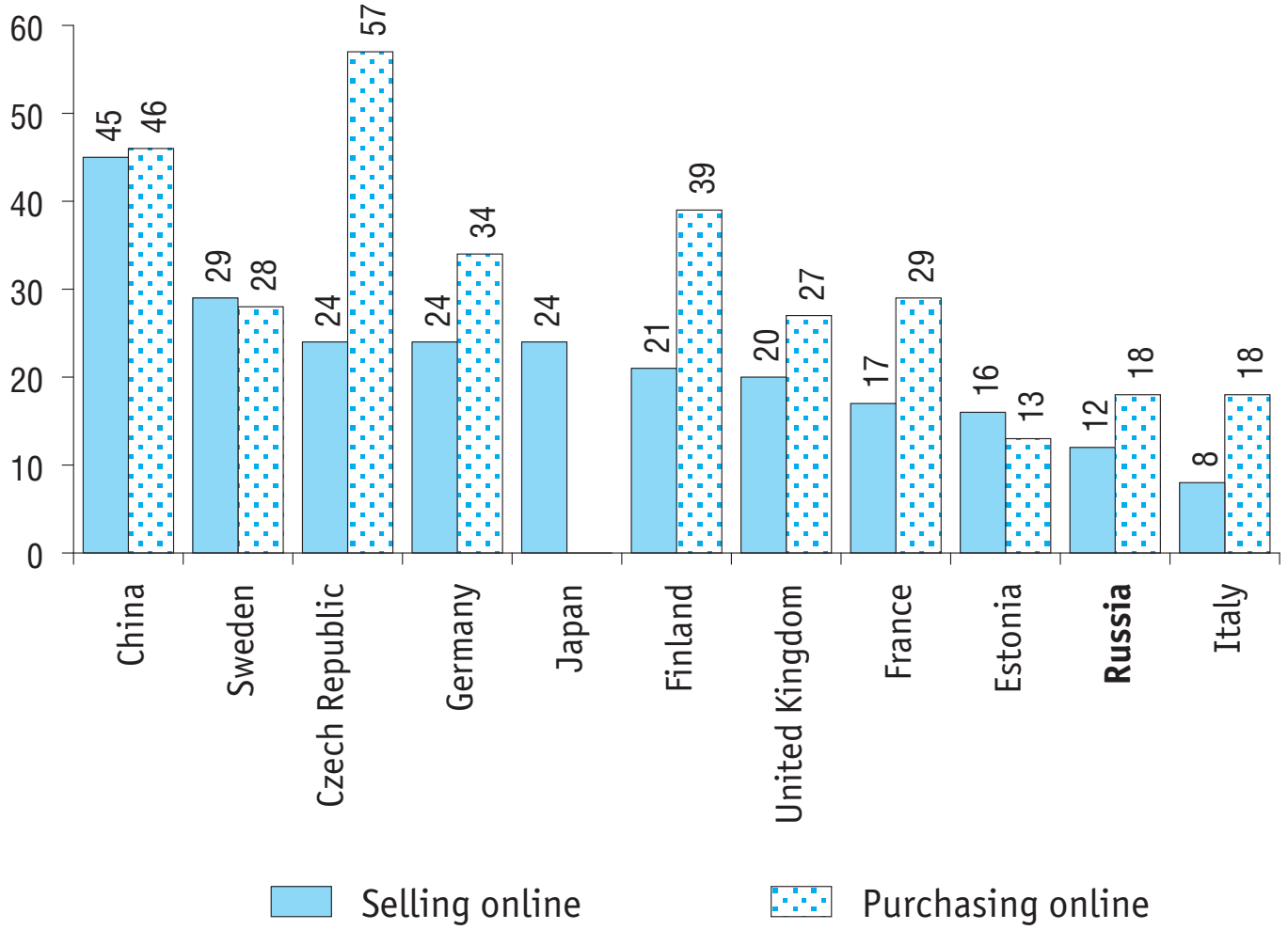
2.9. Enterprises' internet activities related to selling goods or services: 2017

(as a percentage of all business enterprise sector units)



2.10. Enterprises' internet activities related to purchasing and selling goods or services by country: 2017*

(as a percentage of all business enterprise sector units)



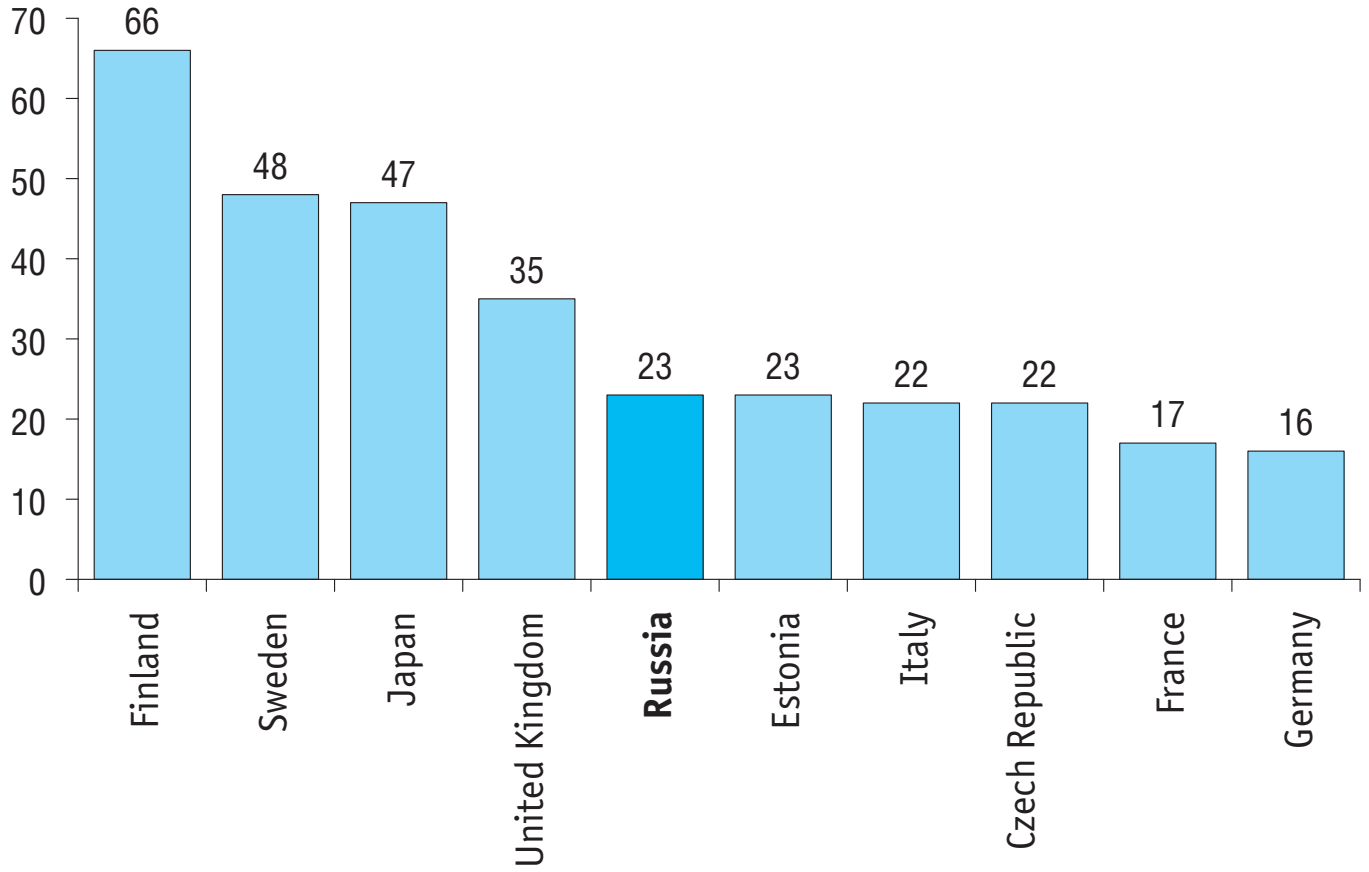
* Or nearest years for which data is available.

2.11. Use of cloud computing services in enterprises: 2017

(as a percentage of all business enterprise sector units)

2.12. Use of cloud computing services in enterprises by country: 2017*

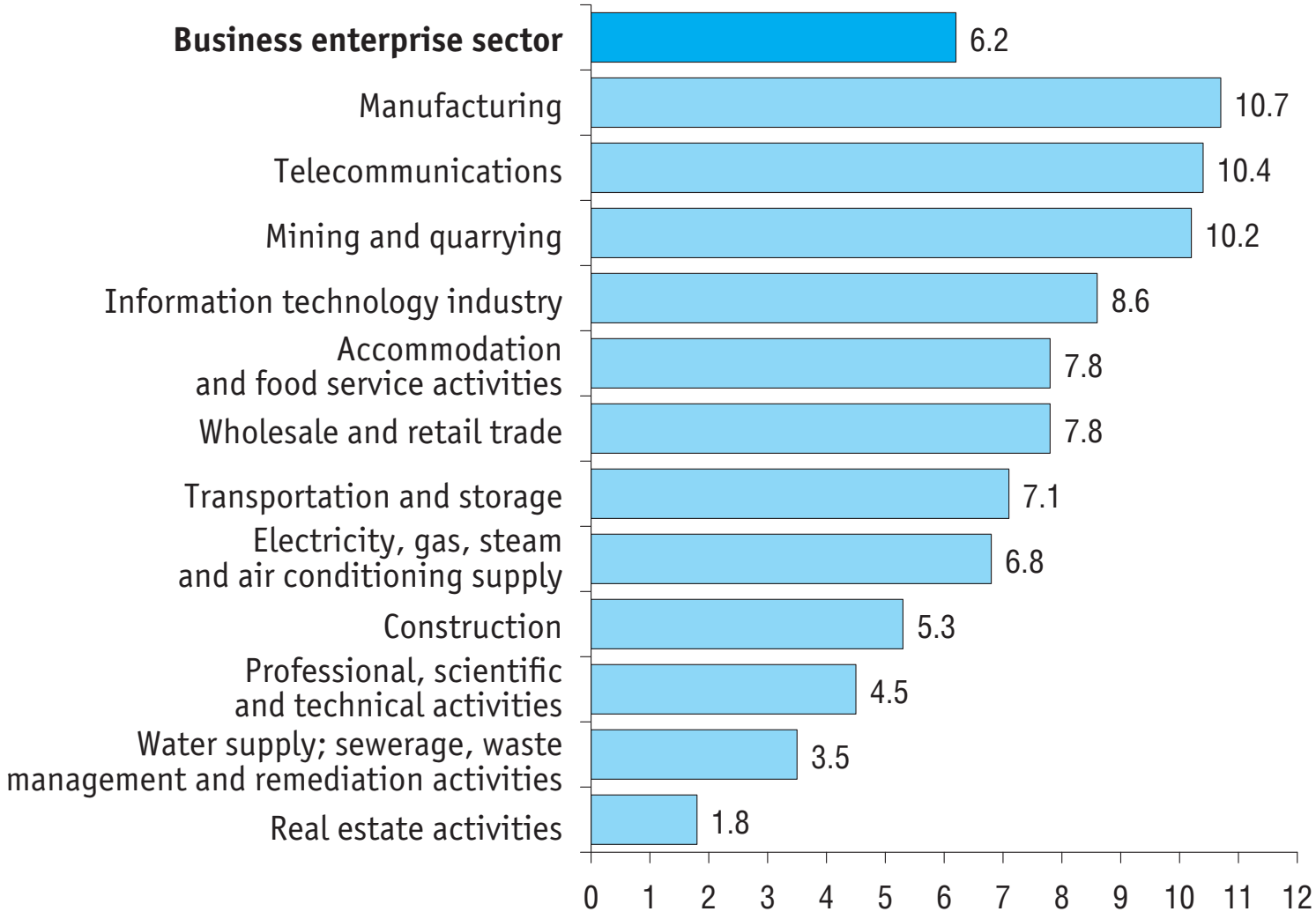
(as a percentage of all business enterprise sector units)



* Or nearest years for which data is available.

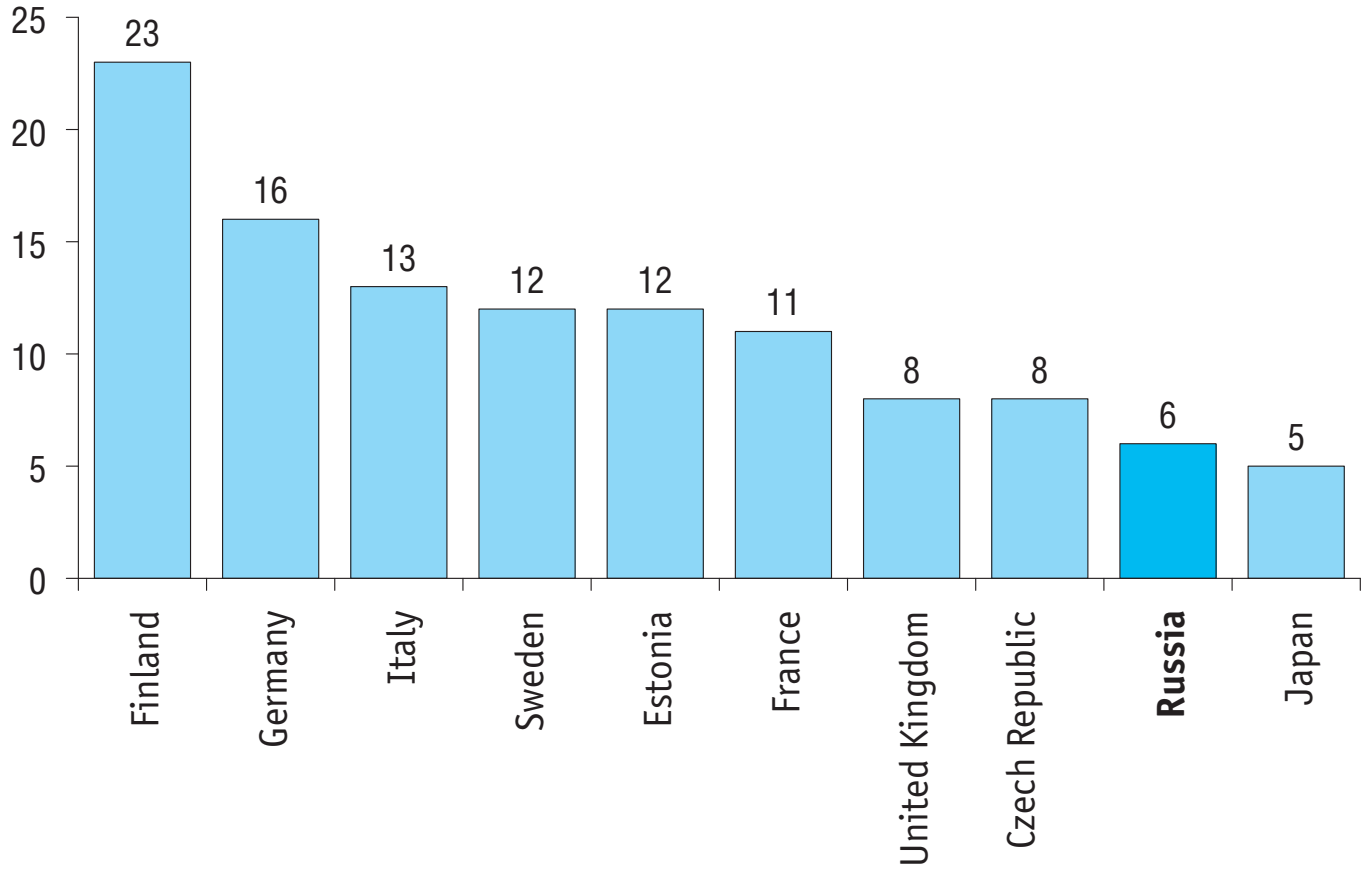
2.13. Use of Radio Frequency Identification (RFID) technologies in enterprises: 2017

(as a percentage of all business enterprise sector units)



2.14. Use of Radio Frequency Identification (RFID) technologies in enterprises by country: 2017*

(as a percentage of all business enterprise sector units)



* Or nearest years for which data is available.

2.15. Use of specialised software in enterprises to carry out business activities: 2017

(as a percentage of all business enterprise sector units)

	Electronic payment transactions	Computer-aided management systems	Paid subscription to e-databases and e-libraries
Business enterprise sector	**53.7**	**52.7**	**27.5**
Mining and quarrying	55.6	58.7	24.0
Manufacturing	69.3	66.4	28.9
Electricity, gas, steam and air conditioning supply	63.3	62.6	31.4
Water supply; sewerage, waste management and remediation activities	52.3	44.3	24.9
Construction	57.1	51.7	22.4
Wholesale and retail trade	52.4	53.7	33.7
Transportation and storage	55.3	61.4	26.1
Accommodation and food service activities	58.0	50.9	34.1
Telecommunications	64.0	72.1	44.0
Information technology industry	54.8	62.3	33.5
Real estate activities	35.7	32.8	15.3
Professional, scientific and technical activities	56.1	52.0	24.4

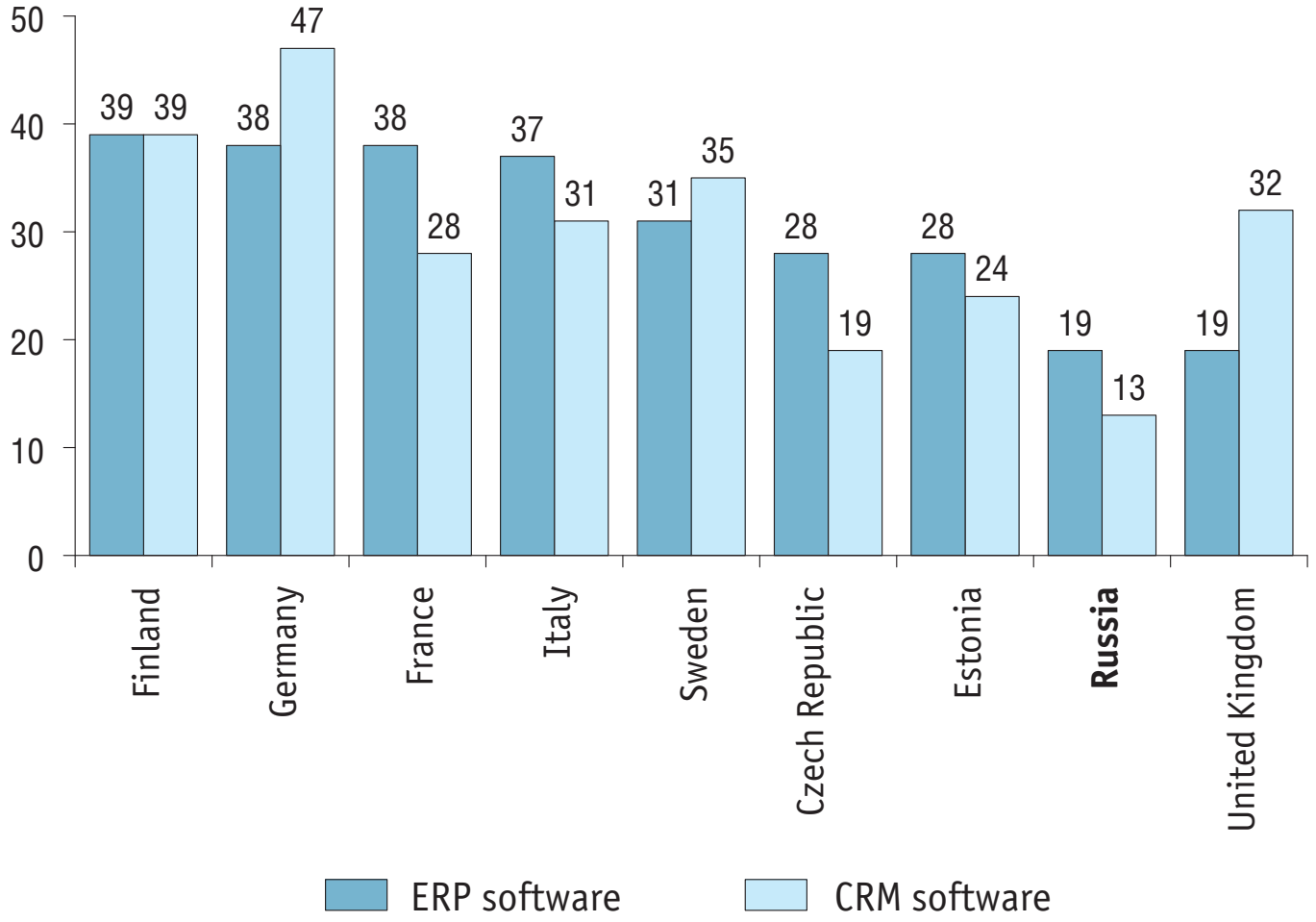
2.16. Use of ERP, CRM, and SCM software in enterprises: 2017

(as a percentage of all business enterprise sector units)

	ERP software	CRM software	SCM software
Business enterprise sector	**19.2**	**13.0**	**7.1**
Mining and quarrying	25.6	12.5	8.2
Manufacturing	27.1	17.6	6.9
Electricity, gas, steam and air conditioning supply	17.9	13.9	5.0
Water supply; sewerage, waste management and remediation activities	6.1	4.1	3.1
Construction	9.2	6.8	3.7
Wholesale and retail trade	33.6	21.5	14.3
Transportation and storage	18.5	9.9	6.9
Accommodation and food service activities	17.1	12.1	9.0
Telecommunications	45.9	43.8	15.0
Information technology industry	22.9	17.9	6.2
Real estate activities	2.9	2.5	1.2
Professional, scientific and technical activities	12.0	8.2	3.5

2.17. Use of ERP and CRM software in enterprises by country: 2017*

(as a percentage of all business enterprise sector units)



* Or nearest years for which data is available.

2.18. Use of information security tools in enterprises: 2017

(as a percentage of all business enterprise sector units)

	Automatically updated anti-virus software	Electronic digital signatures	Firewalls (software or hardware)
Business enterprise sector	**75.6**	**72.1**	**55.8**
Mining and quarrying	81.8	70.0	67.8
Manufacturing	85.1	84.5	69.0
Electricity, gas, steam and air conditioning supply	84.7	80.6	65.5
Water supply; sewerage, waste management and remediation activities	64.9	74.1	33.2
Construction	74.4	72.2	52.2
Wholesale and retail trade	83.3	69.3	68.8
Transportation and storage	82.5	75.2	63.1
Accommodation and food service activities	71.0	72.8	47.5
Telecommunications	89.9	75.2	80.7
Information technology industry	87.6	80.8	75.8
Real estate activities	44.9	54.0	22.7
Professional, scientific and technical activities	77.4	78.2	54.0

(continued)

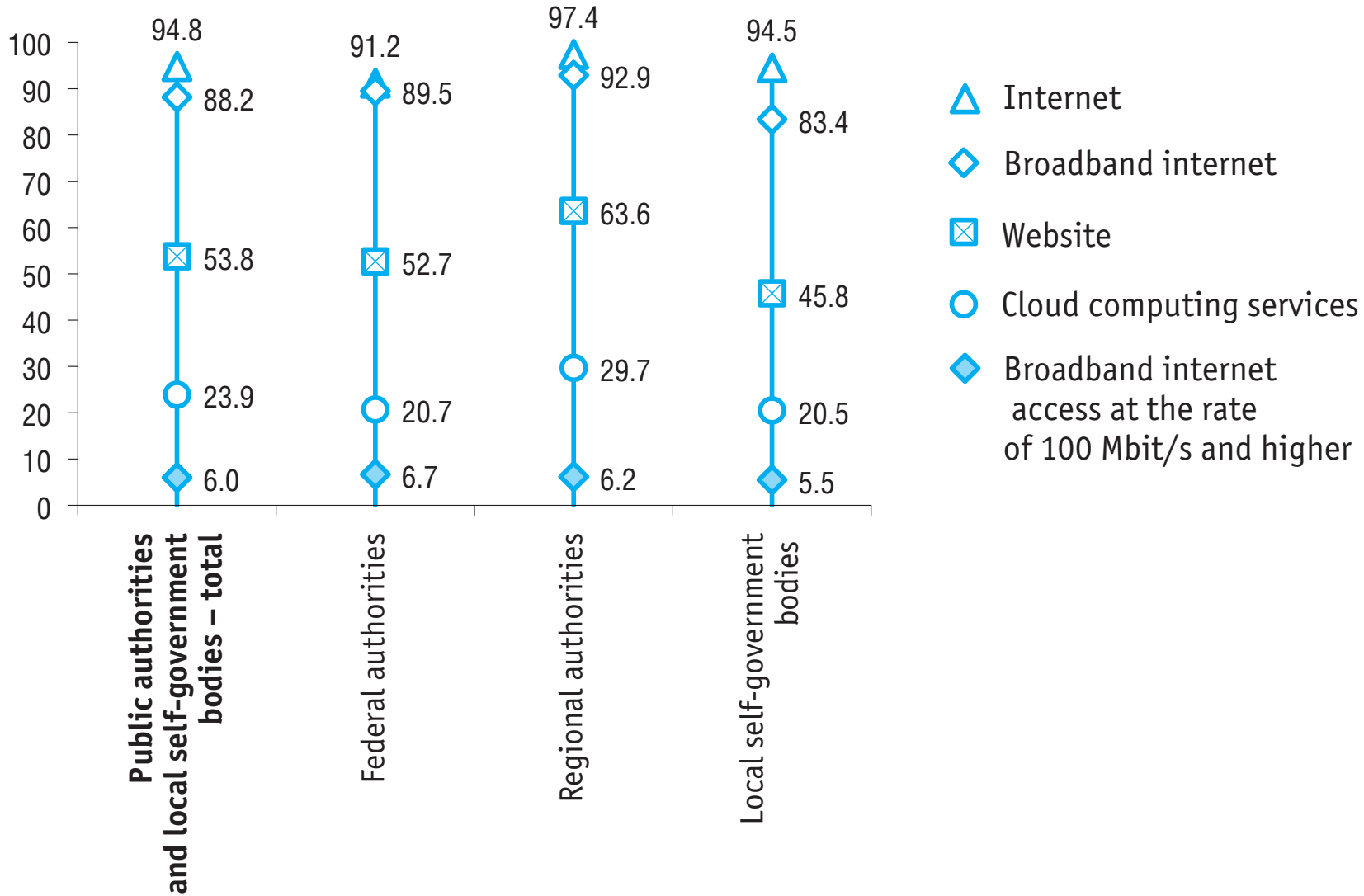
	Spam-filters	Data encryption for confidentiality facilities	Intrusion detection systems	Automated IT security control and analysis software
Business enterprise sector	**51.1**	**44.2**	**38.7**	**30.1**
Mining and quarrying	61.1	48.1	44.9	35.7
Manufacturing	61.0	53.9	45.2	33.6
Electricity, gas, steam and air conditioning supply	56.5	53.1	41.8	31.2
Water supply; sewerage, waste management and remediation activities	26.7	28.5	19.8	19.1
Construction	46.2	38.5	36.2	29.7
Wholesale and retail trade	68.7	52.8	51.4	36.2
Transportation and storage	53.7	47.6	43.5	34.0
Accommodation and food service activities	43.3	35.5	35.0	29.0
Telecommunications	73.8	70.6	57.9	58.1
Information technology industry	67.7	69.5	57.8	47.9
Real estate activities	20.6	20.1	15.2	13.5
Professional, scientific and technical activities	47.5	43.9	35.2	28.3

3

E-government

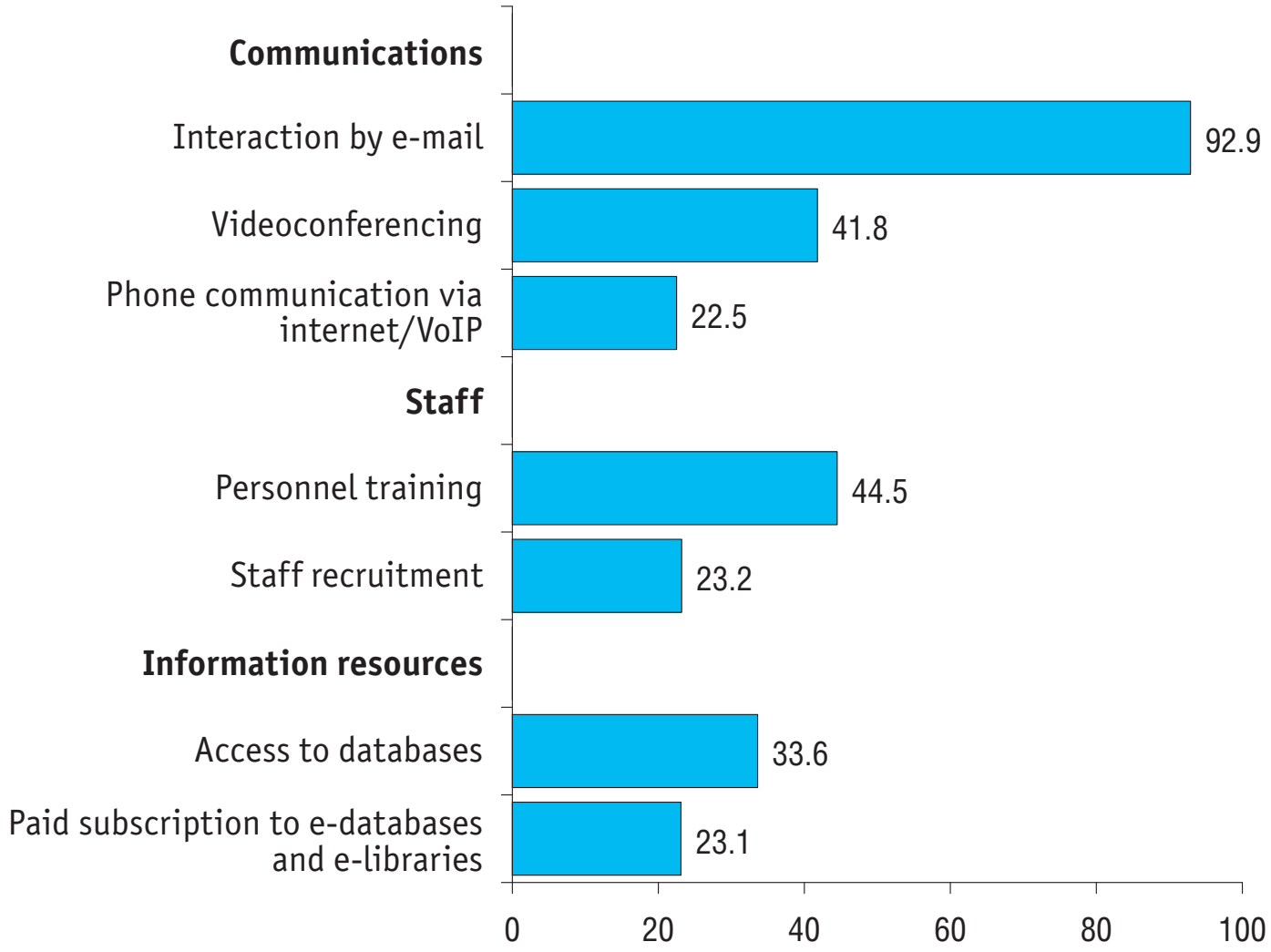
3.1. Use of ICT by public authorities: 2017

(as a percentage of all public authorities and local self-government bodies))



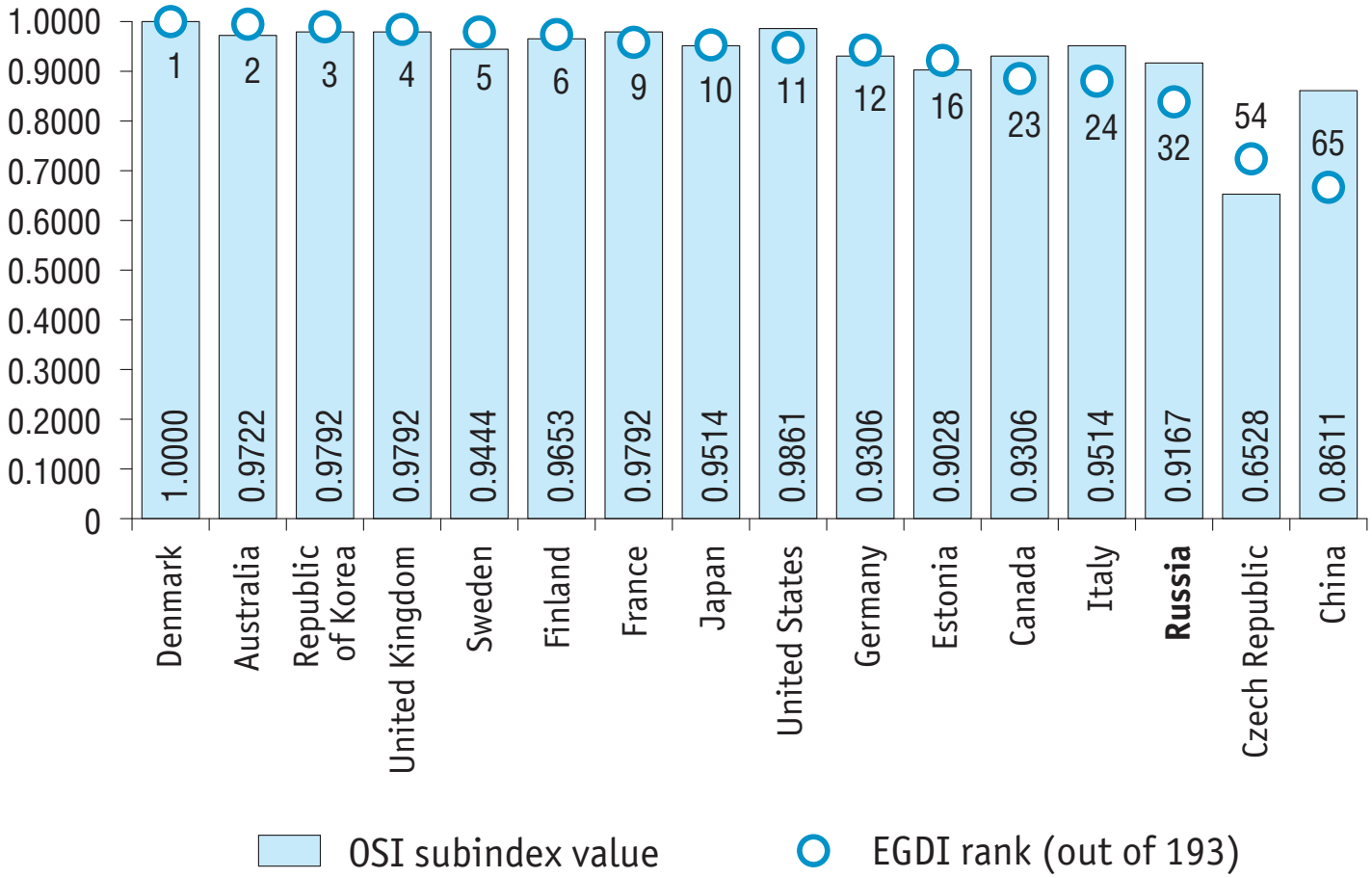
3.2. Purposes of internet usage by public authorities: 2017

(as a percentage of all public authorities and local self-government bodies)



3.3. Online Service Index (OSI) by countries: 2018

(subindex of the E-Government Development Index, EGDI)



Source: data are taken from the United Nations Department of Economic and Social Affairs (UN DESA). Online Service Index values were calculated for all 193 Member States of the United Nations.

3.4. Online interaction of individuals with public authorities by country: 2017

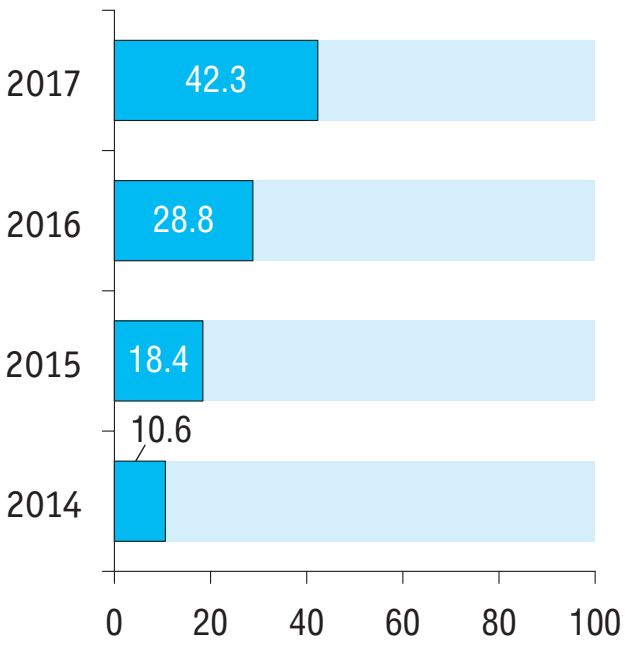
(as a percentage of all individuals aged 15–72)*

	Total	Of which		
		obtaining information from websites or apps	downloading/ printing official forms	submitting completed forms online
Russia	**33**	**29**	**13**	**12**
United Kingdom	49	35	25	35
Germany	53	52	34	18
Italy	25	20	17	13
Finland	83	79	69	66
France	68	47	39	53
Czech Republic	46	44	18	14
Sweden	84	76	51	72
Estonia	78	65	40	70

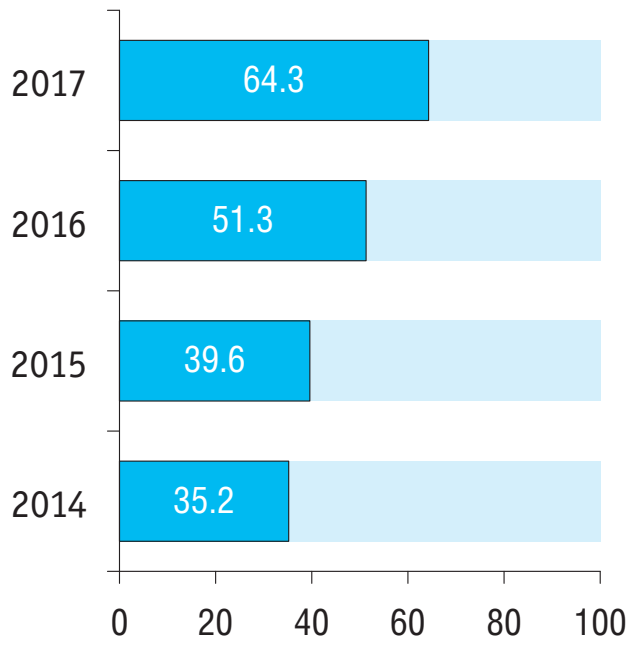
* Countries other than Russia – aged 16–74.

3.5. Public and municipal services received by individuals in digital form

As a percentage of all individuals aged 15–72

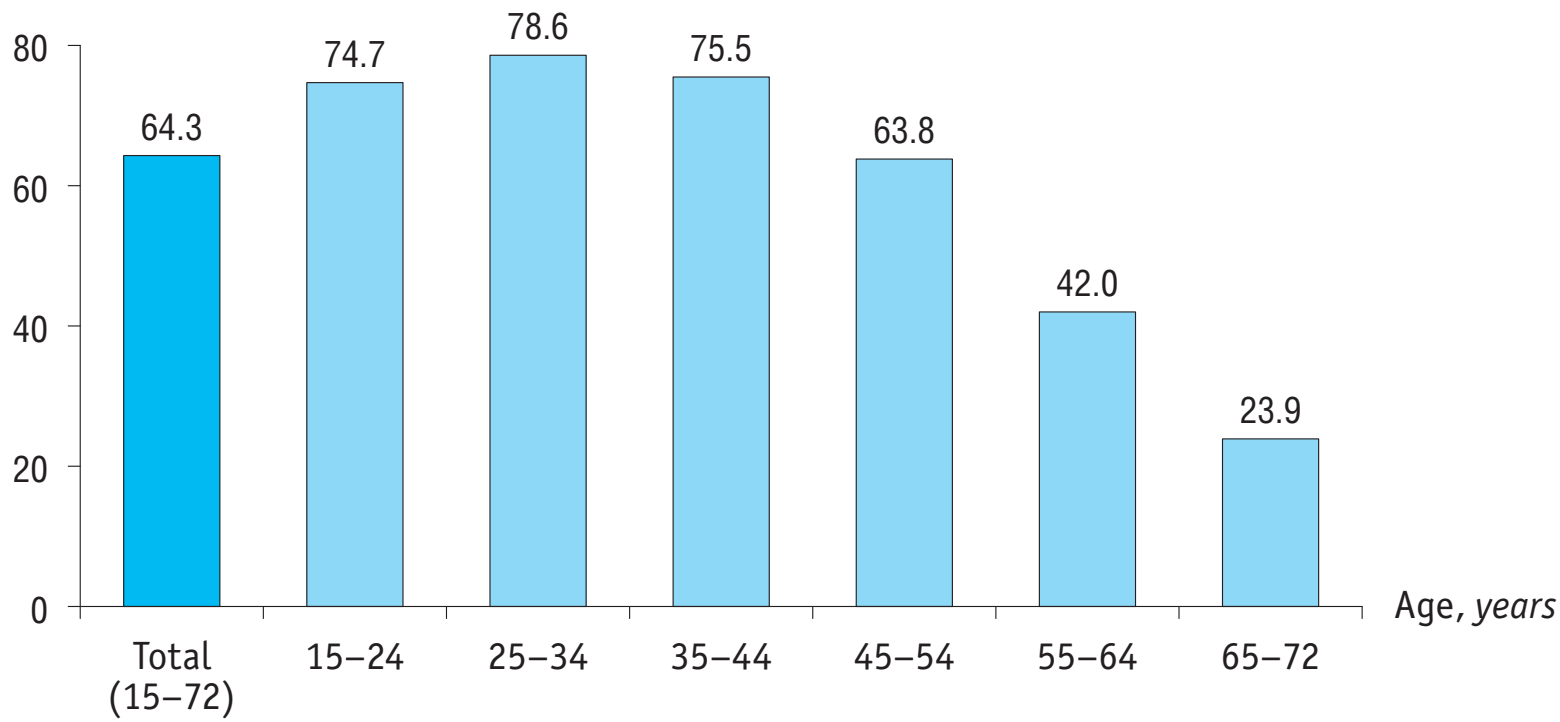


As a percentage of all individuals aged 15–72 who have received public and municipal services in the last 12 months



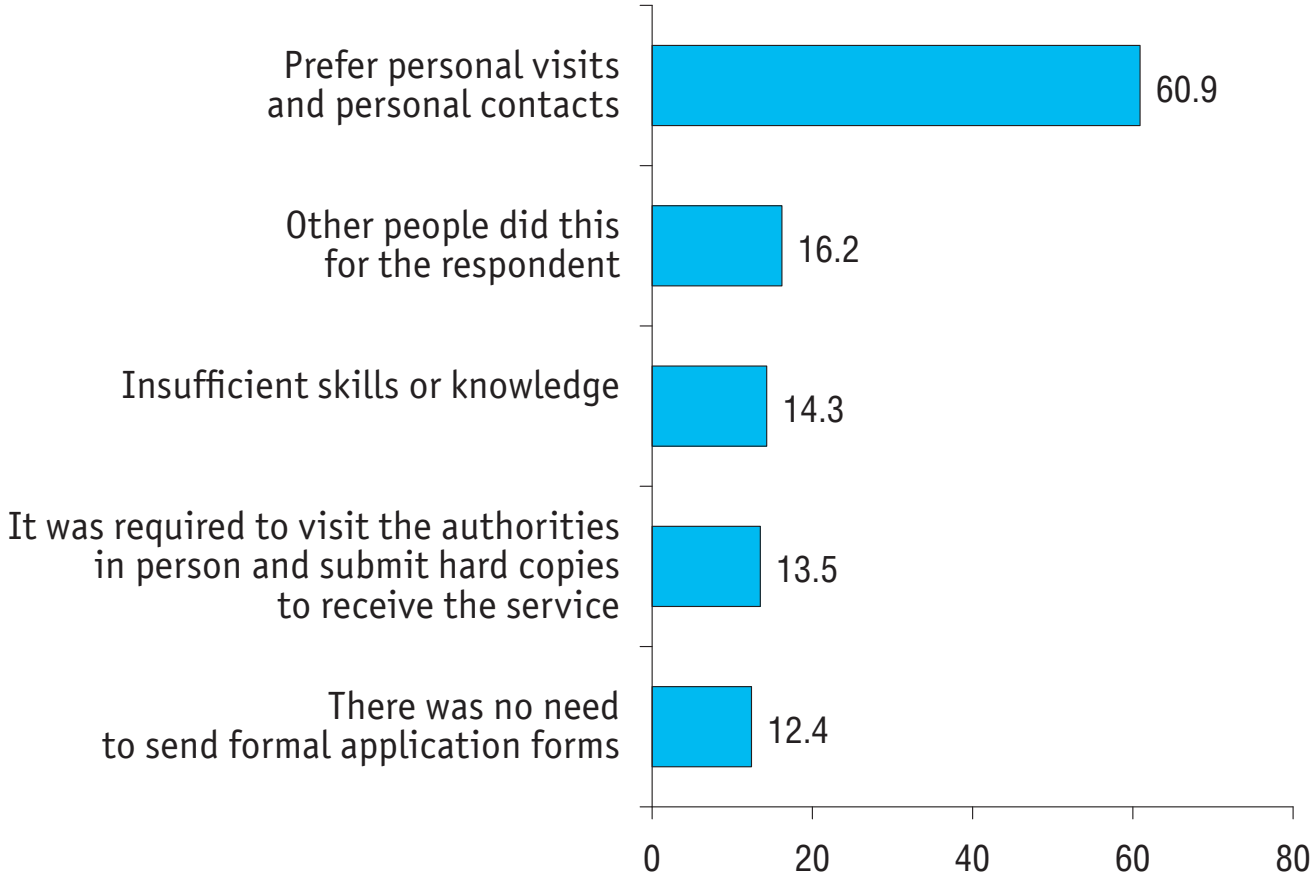
3.6. Public and municipal services received by individuals in digital form by age group: 2017

(as a percentage of the population in each age group who have received state and municipal services in the last 12 months)



3.7. Reasons why individuals refrain from receiving public and municipal services in digital form: 2017

(as a percentage of all individuals aged 15–72 who have not used the internet to receive public and municipal services in the last 12 months)



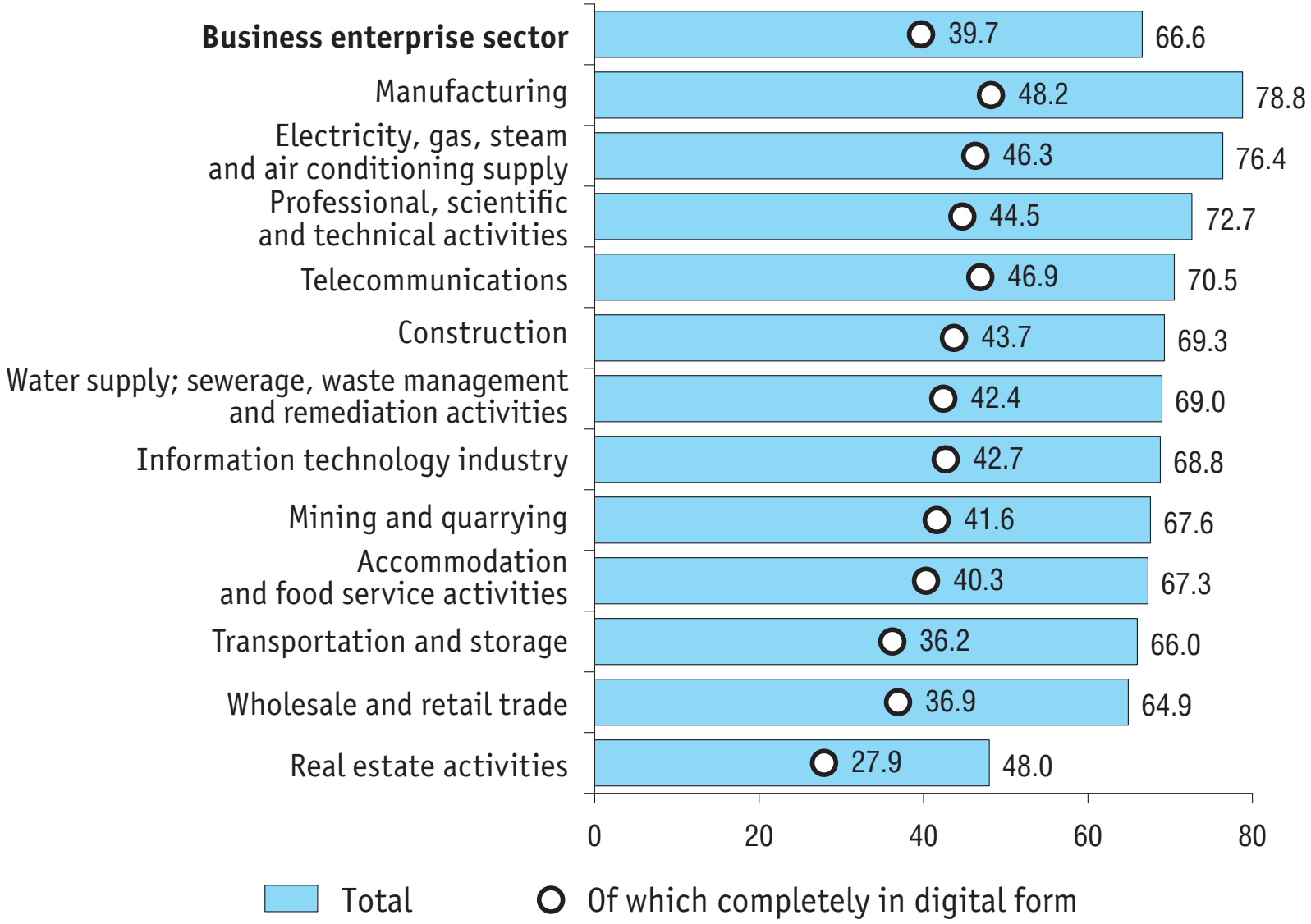
3.8. Online interaction of enterprises with public authorities by country: 2017

(as a percentage of all business enterprise sector units)

	Submitting completed forms online	Downloading/ printing official forms	Obtaining information from websites or apps	E-procurement
Business enterprise sector	**67.8**	**67.6**	**58.0**	**26.2**
Mining and quarrying	69.3	68.8	59.3	14.5
Manufacturing	81.7	81.3	68.0	25.6
Electricity, gas, steam and air conditioning supply	75.5	75.9	69.3	38.8
Water supply; sewerage, waste management and remediation activities	71.8	72.4	59.4	44.4
Construction	70.8	70.0	56.6	30.0
Wholesale and retail trade	65.4	65.1	57.8	16.5
Transportation and storage	66.1	66.8	56.7	25.6
Accommodation and food service activities	69.6	69.5	58.1	34.9
Telecommunications	71.8	70.9	65.9	45.4
Information technology industry	71.4	72.1	65.3	32.6
Real estate activities	50.1	49.1	39.6	15.2
Professional, scientific and technical activities	73.8	73.9	62.9	36.5

3.9. Public services received by enterprises in digital form: 2017

(as a percentage of all business enterprise sector units)



4

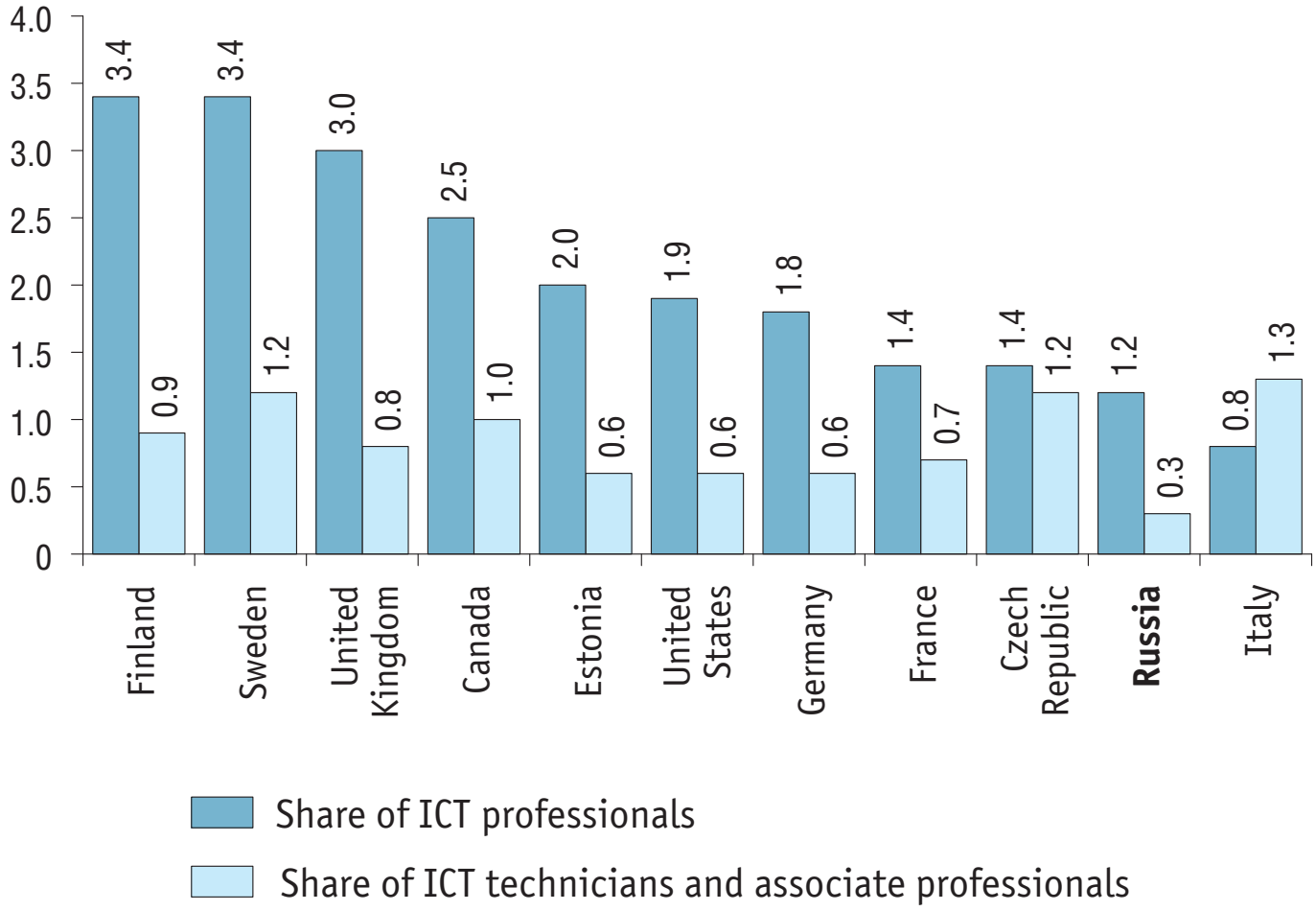
Personnel

4.1. Employment of ICT specialists across the economy: 2017

	Thousand headcount	As a percentage of the total
Total	**1077**	**100**
ICT professionals	849	78.8
Software and multimedia developers and analysts	598	55.5
Database specialists and systems administrators	251	23.3
ICT technicians and associate professionals	228	21.2
ICT operations and user support technicians	154	14.3
Communications technicians	74	6.9

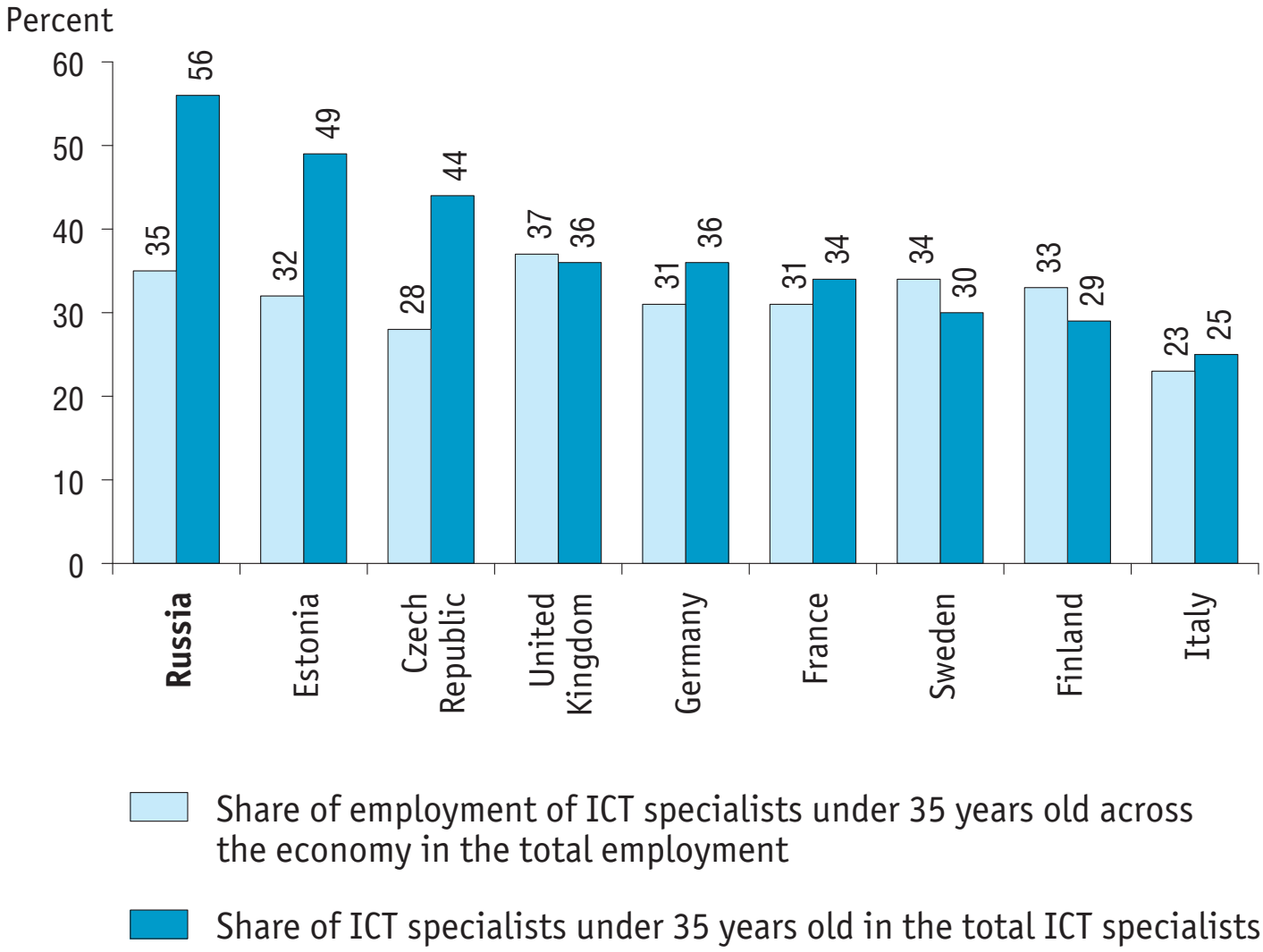
4.2. ICT specialists by country: 2017*

(as a percentage of the total employment)



* Or nearest years for which data is available.

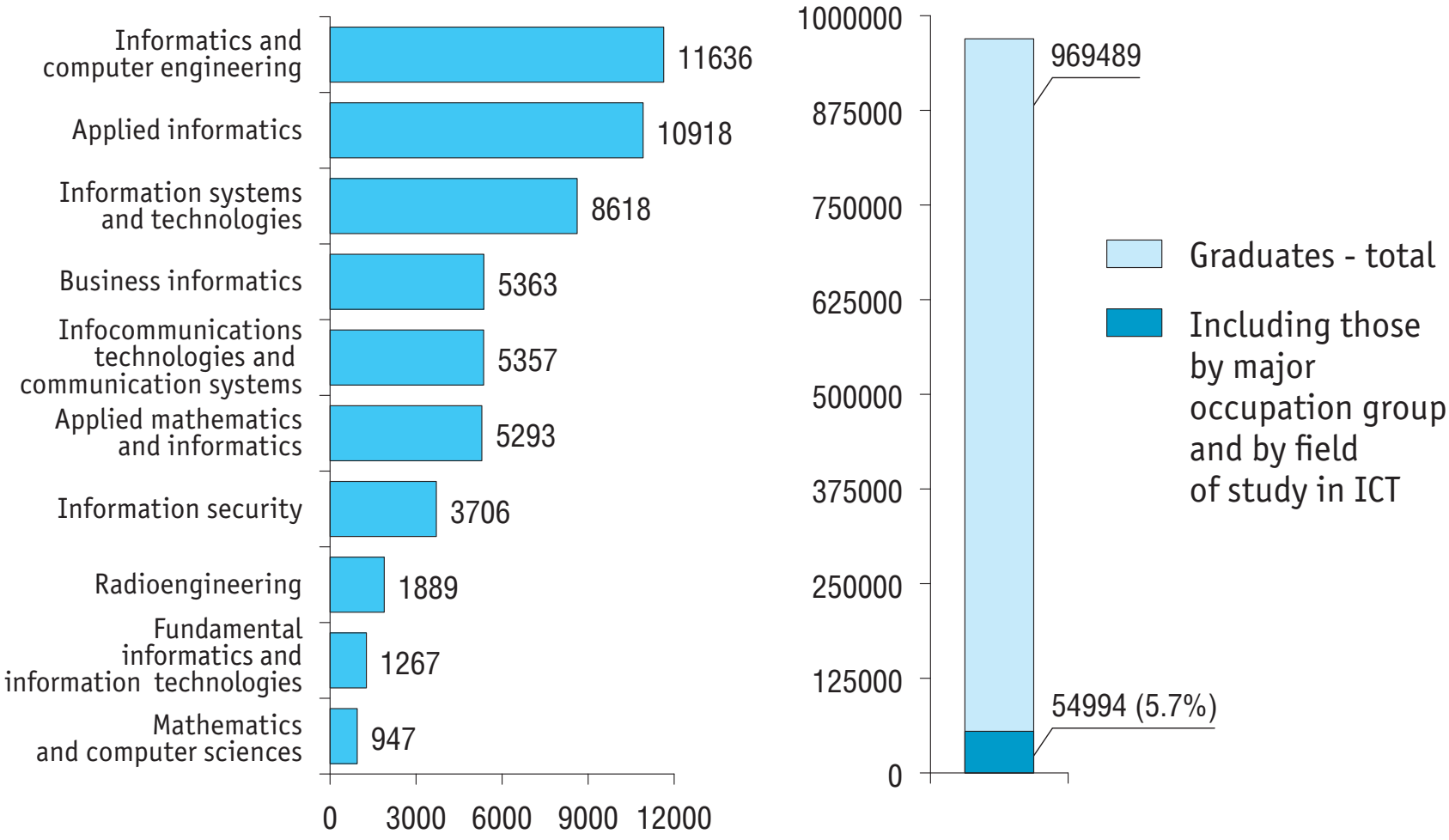
4.3. ICT specialists under 35 years old by country: 2017*



* Or nearest years for which data is available.

4.4. Higher education graduates: bachelor's, specialist's and master's programmes by major occupation group and by field of study in ICT: 2017

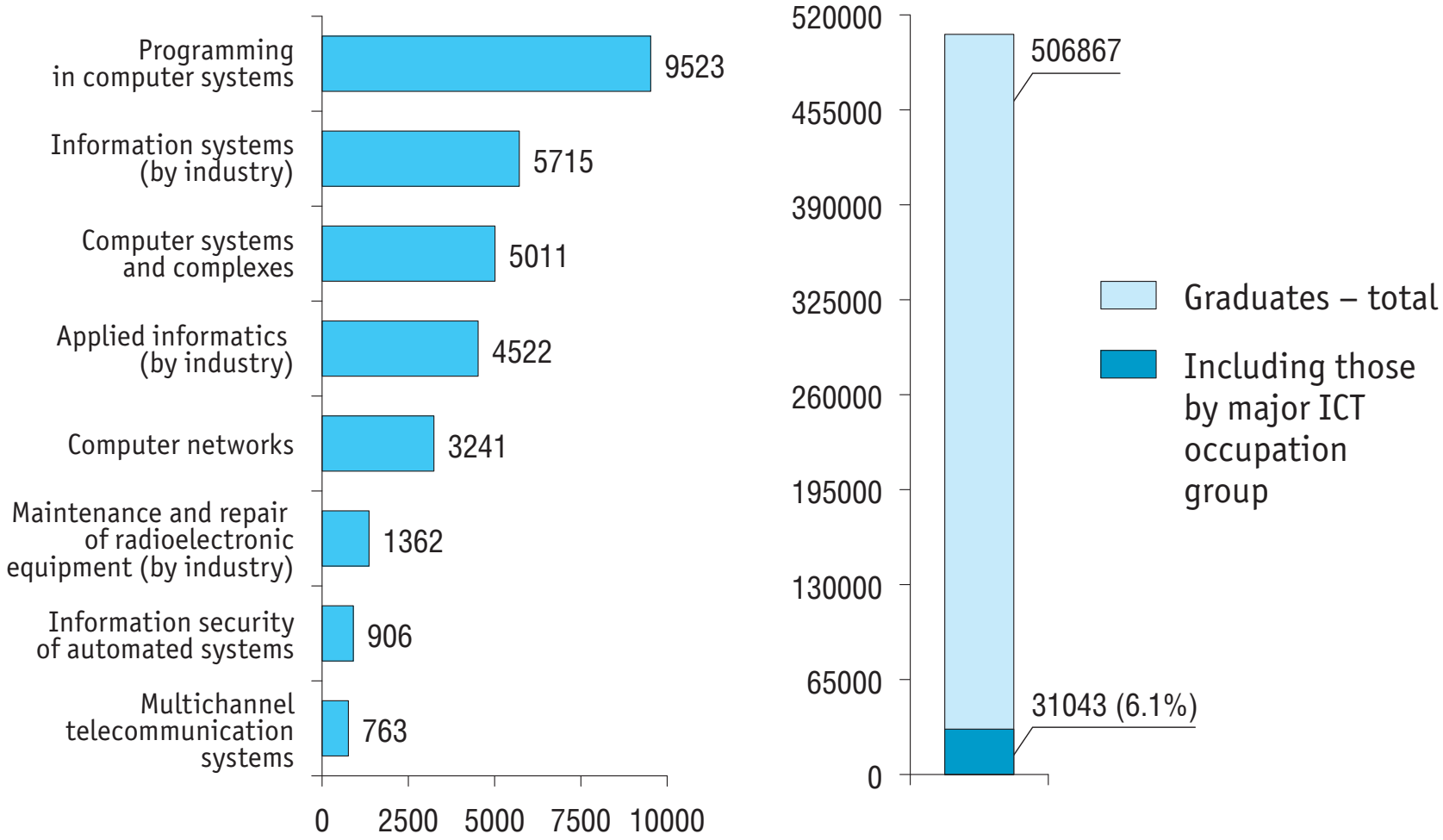
(headcount)



Source (here and below in 4.5): Russia – Estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of the Ministry of Education and Science of the Russian Federation data.

4.5. Secondary vocational education graduates (programmes for mid-career professionals) by major ICT occupation group: 2017

(headcount)

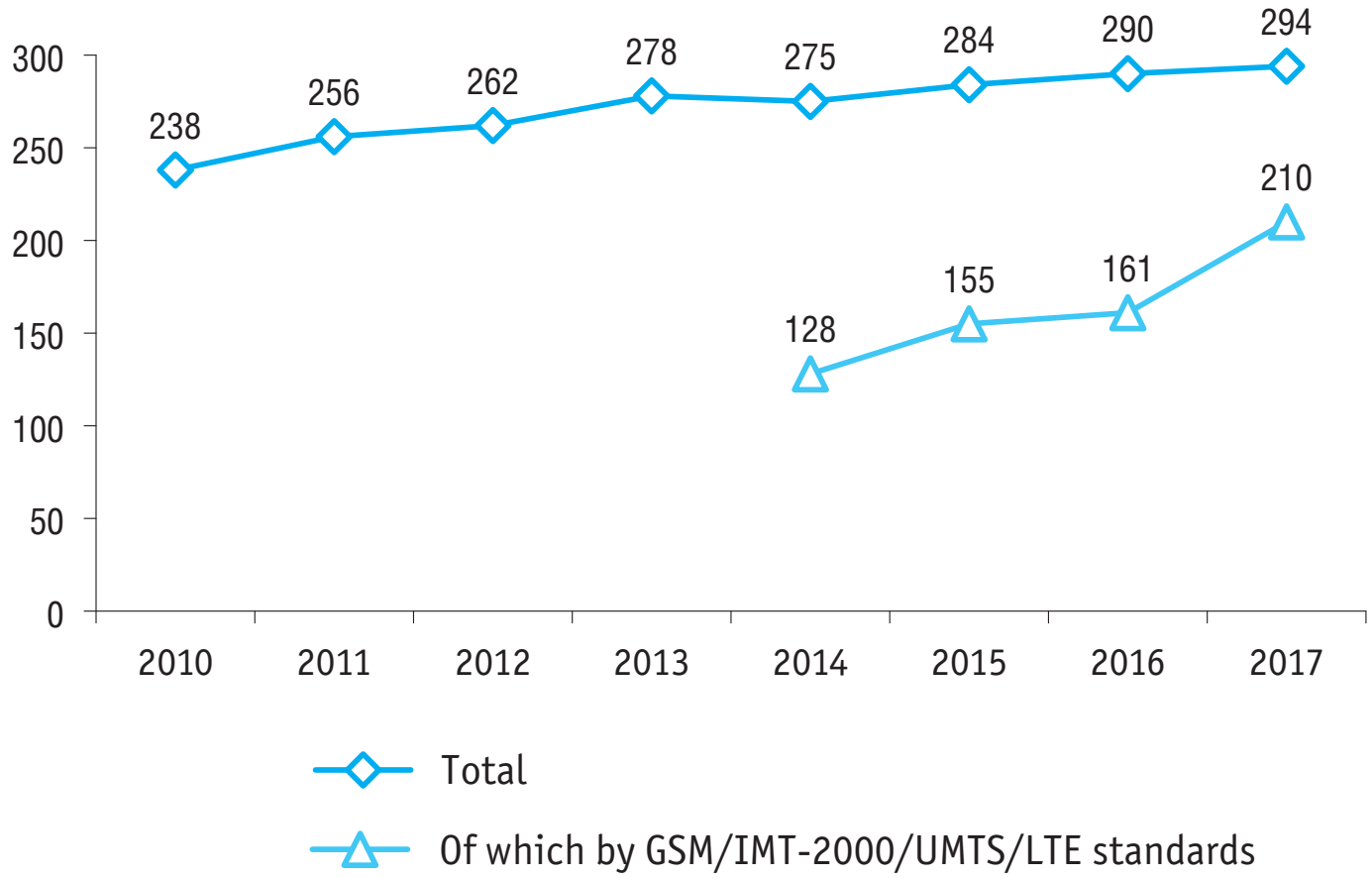


5

Infrastructure

5.1. Mobile cellular subscriptions

(million of units; at the year-end)



Sources (here and below in section): Russia – the Ministry of Digital Development, Communications and Mass Media of the Russian Federation; countries other than Russia – ITU.

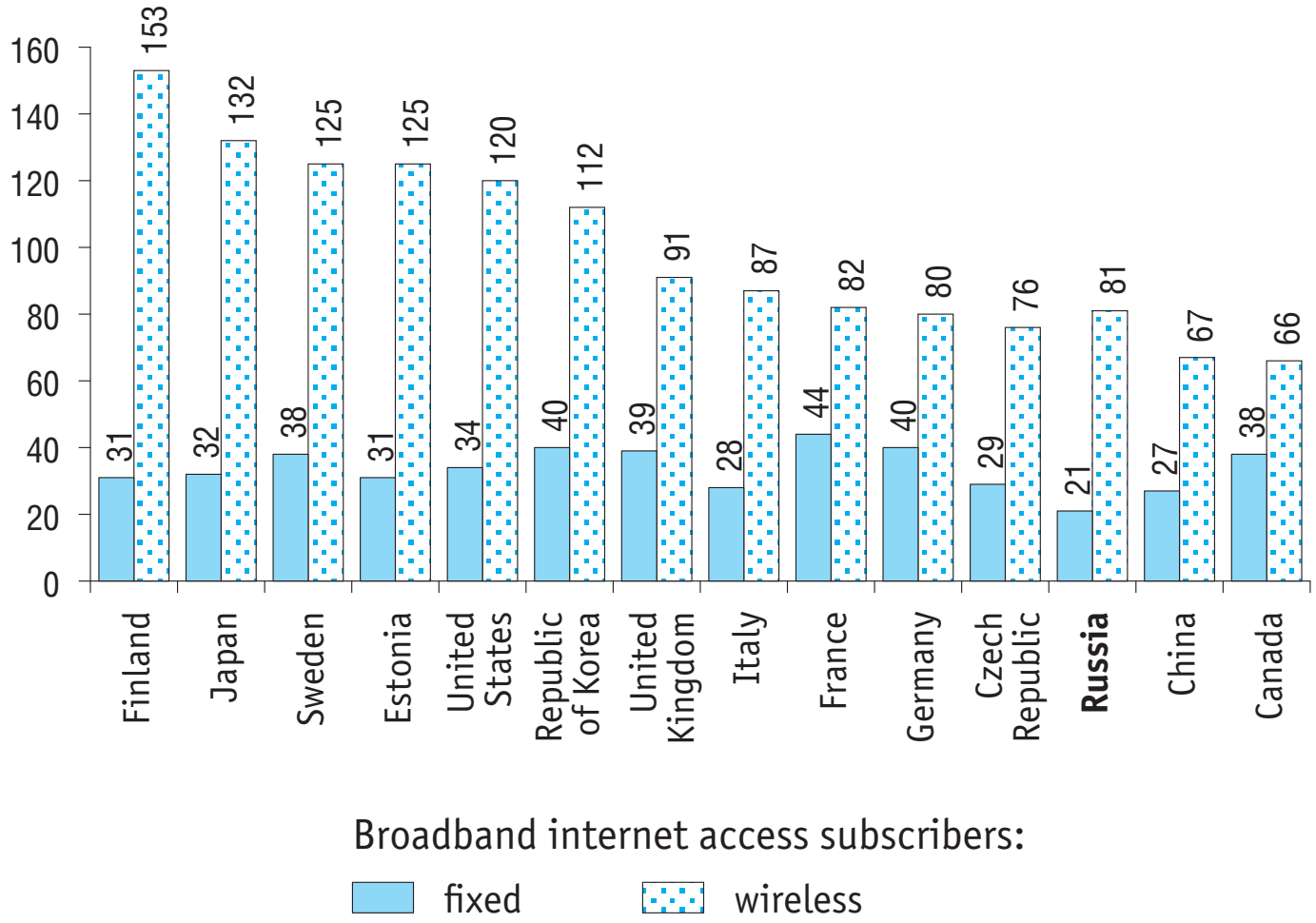
5.2. Internet access subscribers

(thousands of units; at the year-end)

	Total			Of which broadband internet access		
	2015	2016	2017	2015	2016	2017
Internet access subscribers – total	**138881**	**145743**	**157761**	**128062**	**133621**	**148935**
Of which:						
fixed	26944	27493	31084	26756	27293	30877
mobile	109926	115813	122828	99793	104391	117406
satellite	82	49	67	23	30	41
wireless terrestrial fixed	107	203	186	103	199	180
wireless terrestrial mobile	1822	2185	1809	1387	1708	1741

5.3. Broadband internet access subscribers by country: 2017*

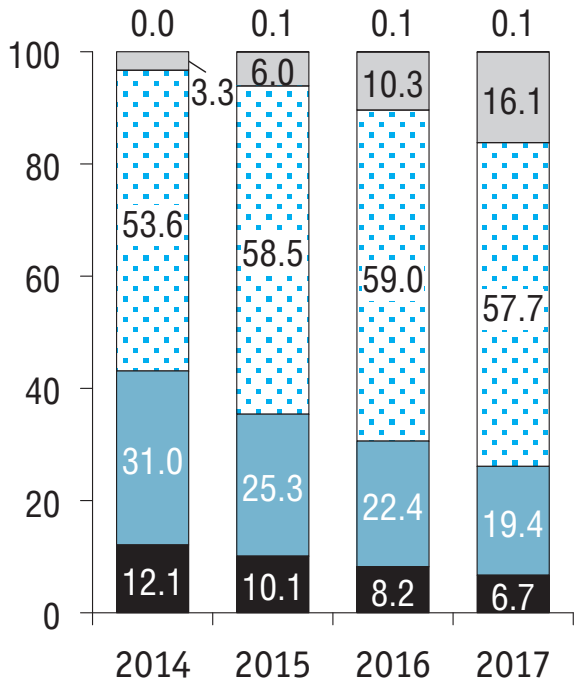
(per 100 inhabitants; at the year-end)



* Or nearest years for which data is available.

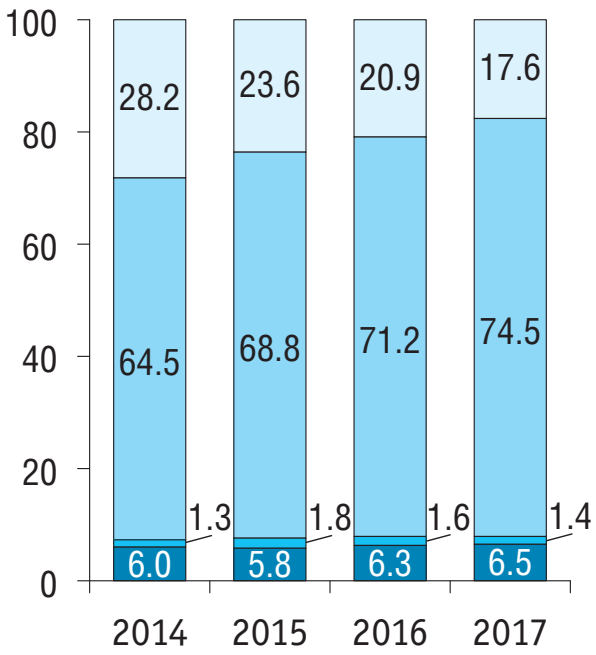
5.4. Broadband internet access subscribers

(as a percentage of all broadband internet access subscribers; at the year-end)



By access rate:

- Over 1 Gbp/s
- 100 Mbp/s – less than 1 Gbp/s
- 10 Mbp/s – less than 100 Mbp/s
- 2 Mbp/s – less than 10 Mbp/s
- 256 Kbp/s – less than 2 Mbp/s

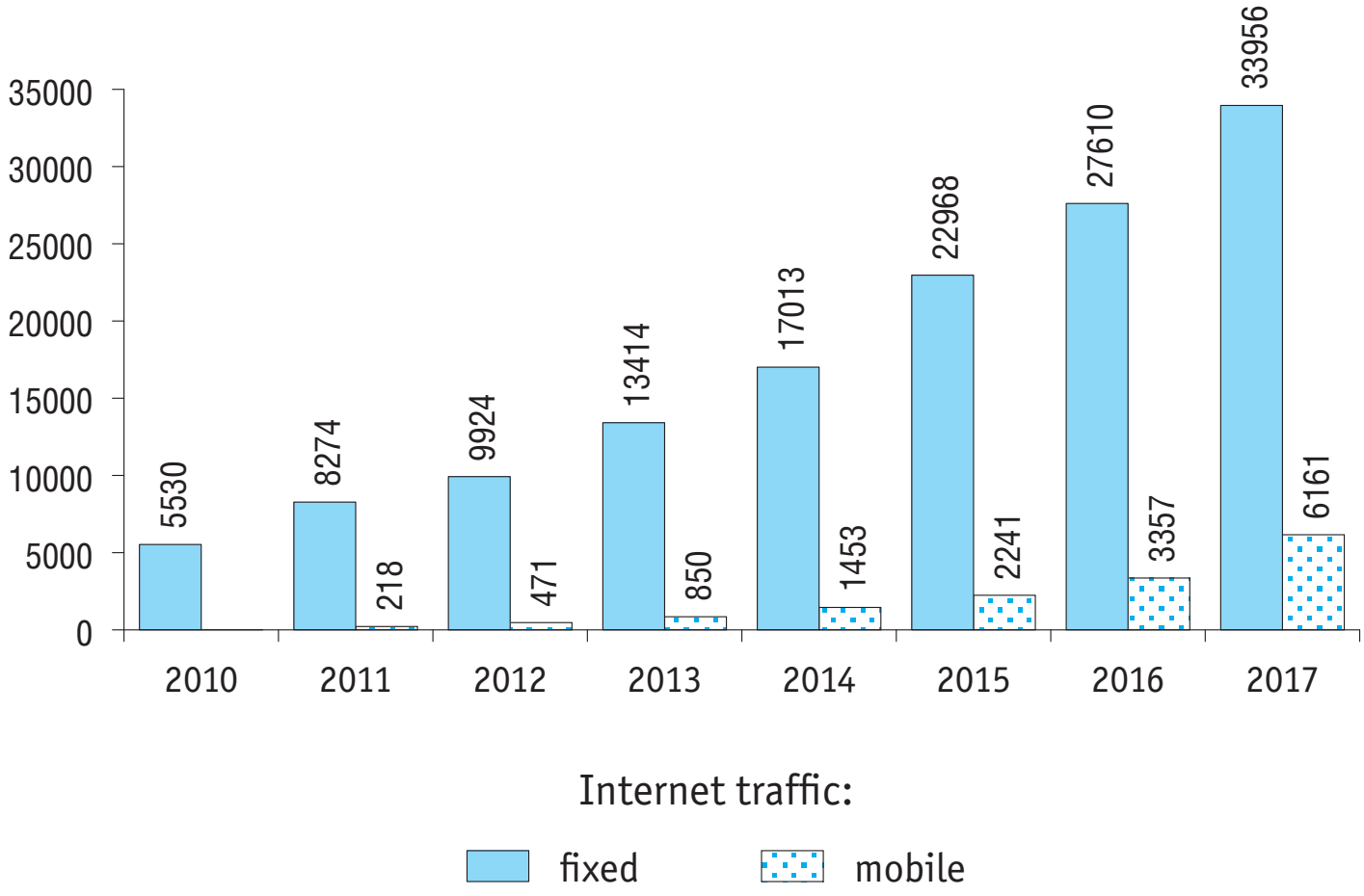


By types of connection:

- xDSL
- FTTH/ FTTB (FTTx)
- Cable modem
- By other cable types of connection

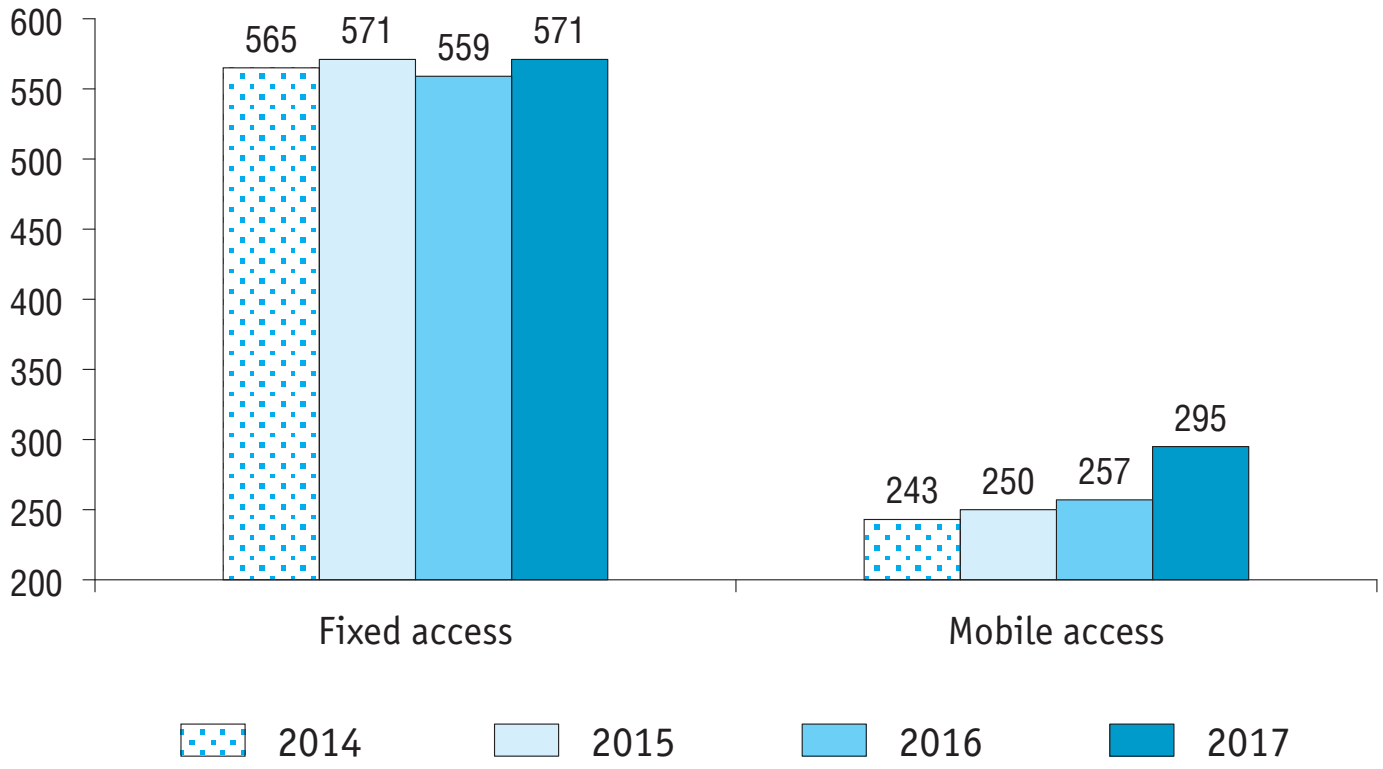
5.5. Internet traffic

(PByte/s)



5.6. Internet access subscription fee

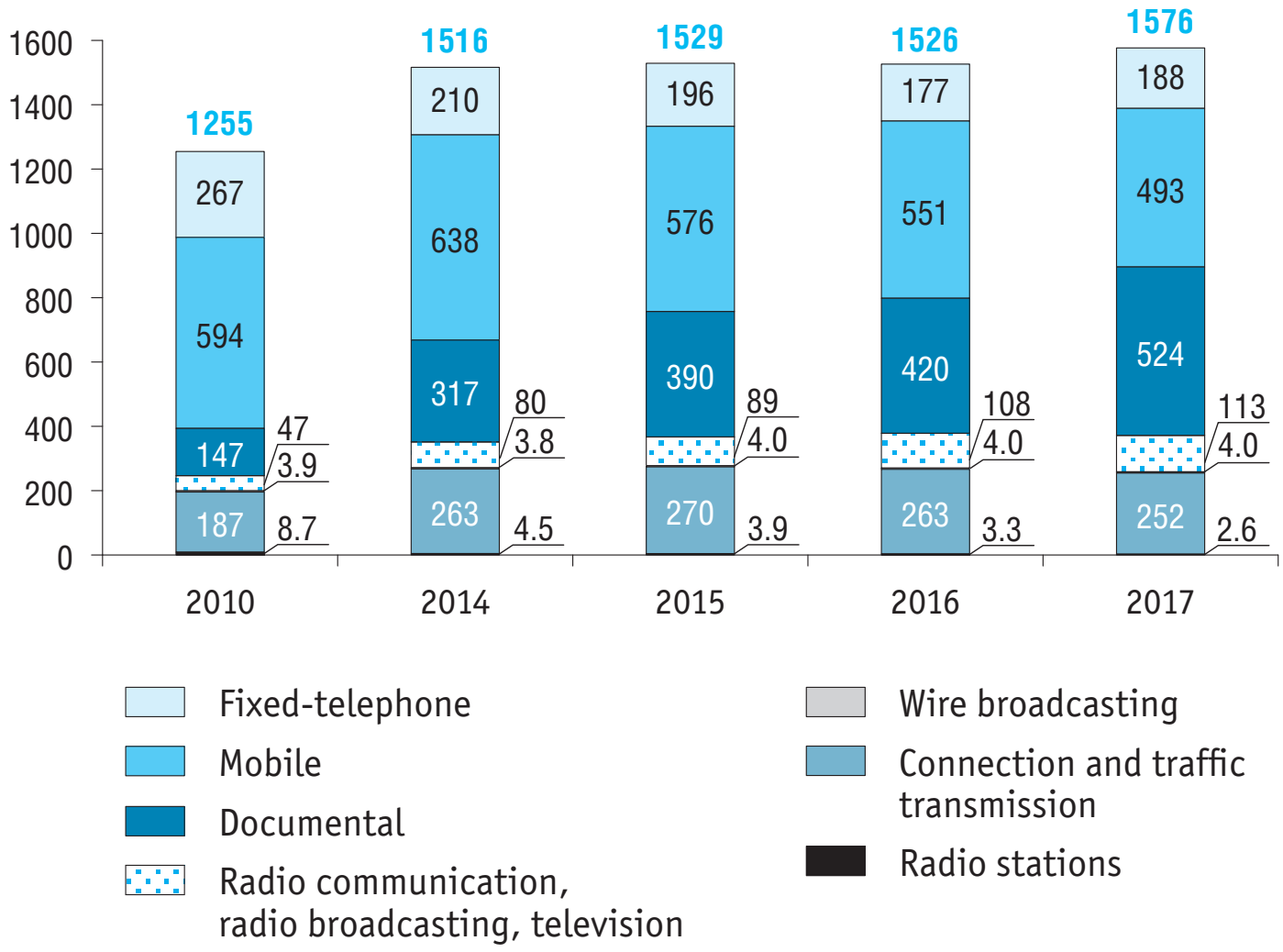
(roubles per month; December)



Source: Rosstat.

5.7. Revenue from all telecommunication services

(billion roubles)

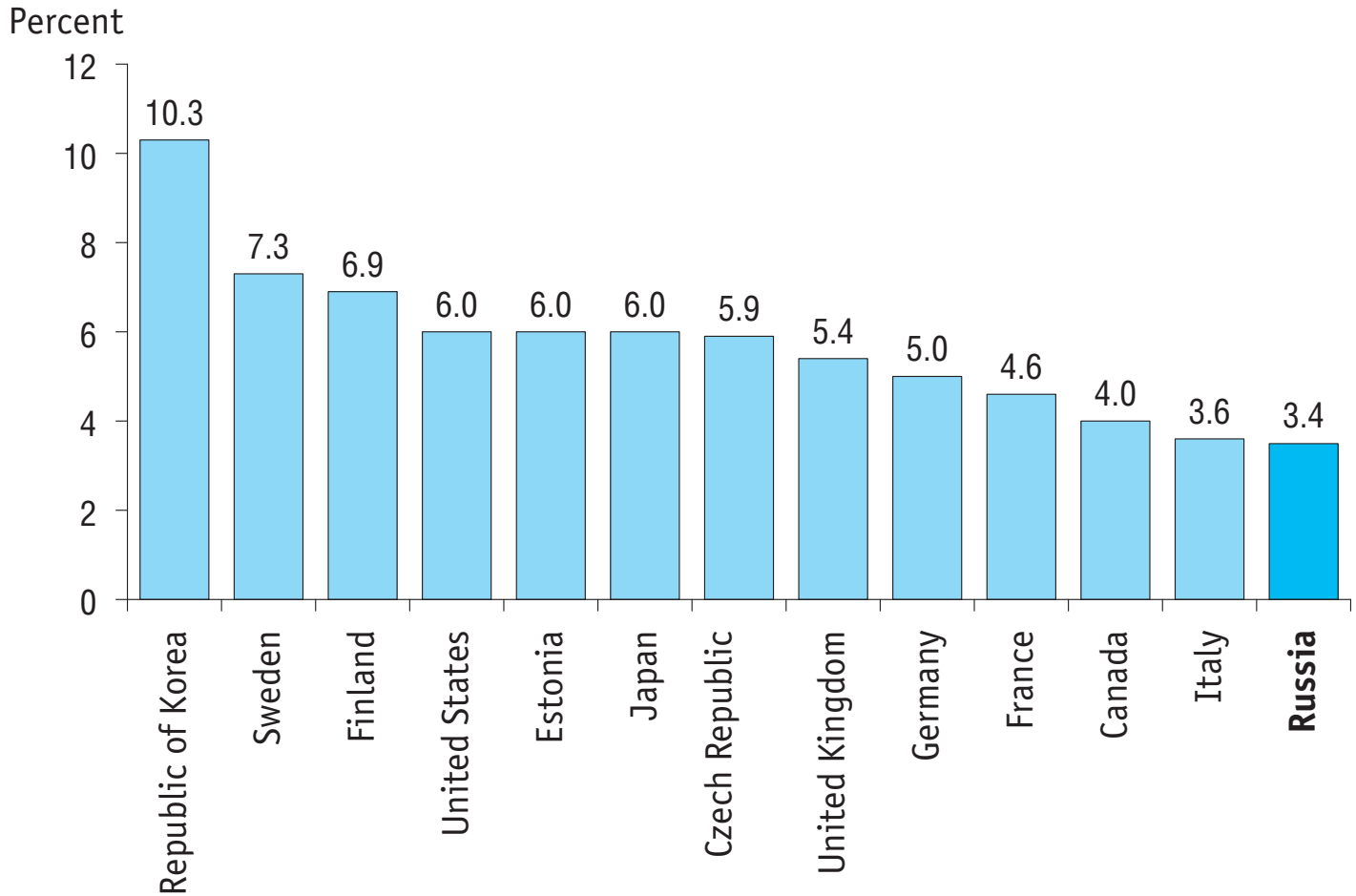


6 ICT sector

6.1. Main indicators of the ICT sector

	2015	2016	2017
Number of employees			
Thousand persons	1220	1245	1220
As a percentage of total employment	1.7	1.7	1.7
Gross value added			
Billion roubles	1973	2053	2211
As a percentage of GDP	2.6	2.6	2.7
Fixed capital investment			
Billion roubles	…	456	426
As a percentage of total investment	…	4.0	3.5

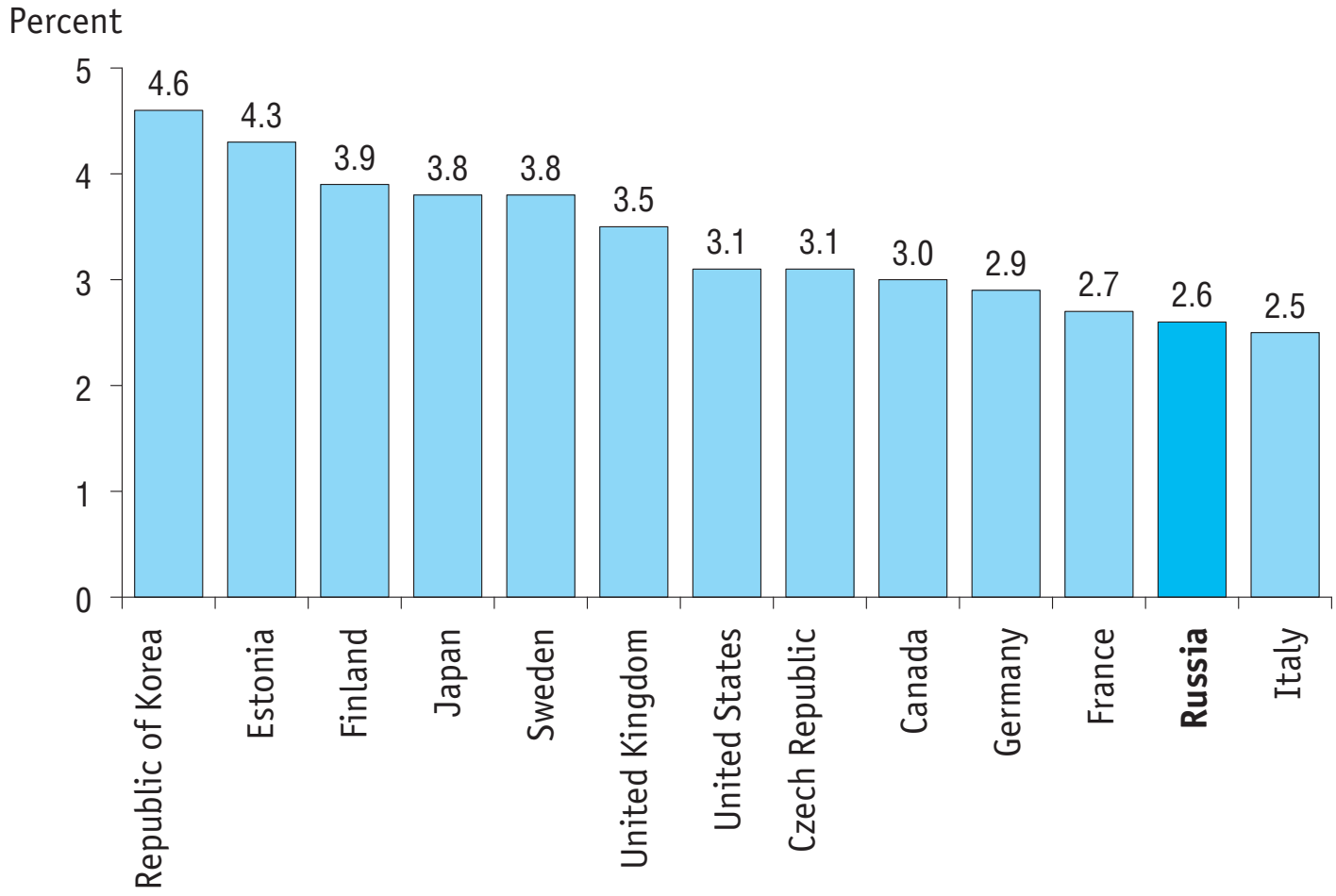
6.2. ICT sector share in the business enterprise sector gross value added by country: 2017*



* Or nearest years for which data is available. Here and below in 6.3, ICT sector data are given by types of economic activity with the Russian Classification of Economic Activities codes Rev.2 (OKVED2): 26.1–26.4, 26.8, 58.2, 61, 62, 63.11, 63.12 (ISIC Rev. 4: 261–264, 268, 582, 61, 62, 6311, 6312).

Source (here and below in 6.3–6.6, 6.9): countries other than Russia – OECD.

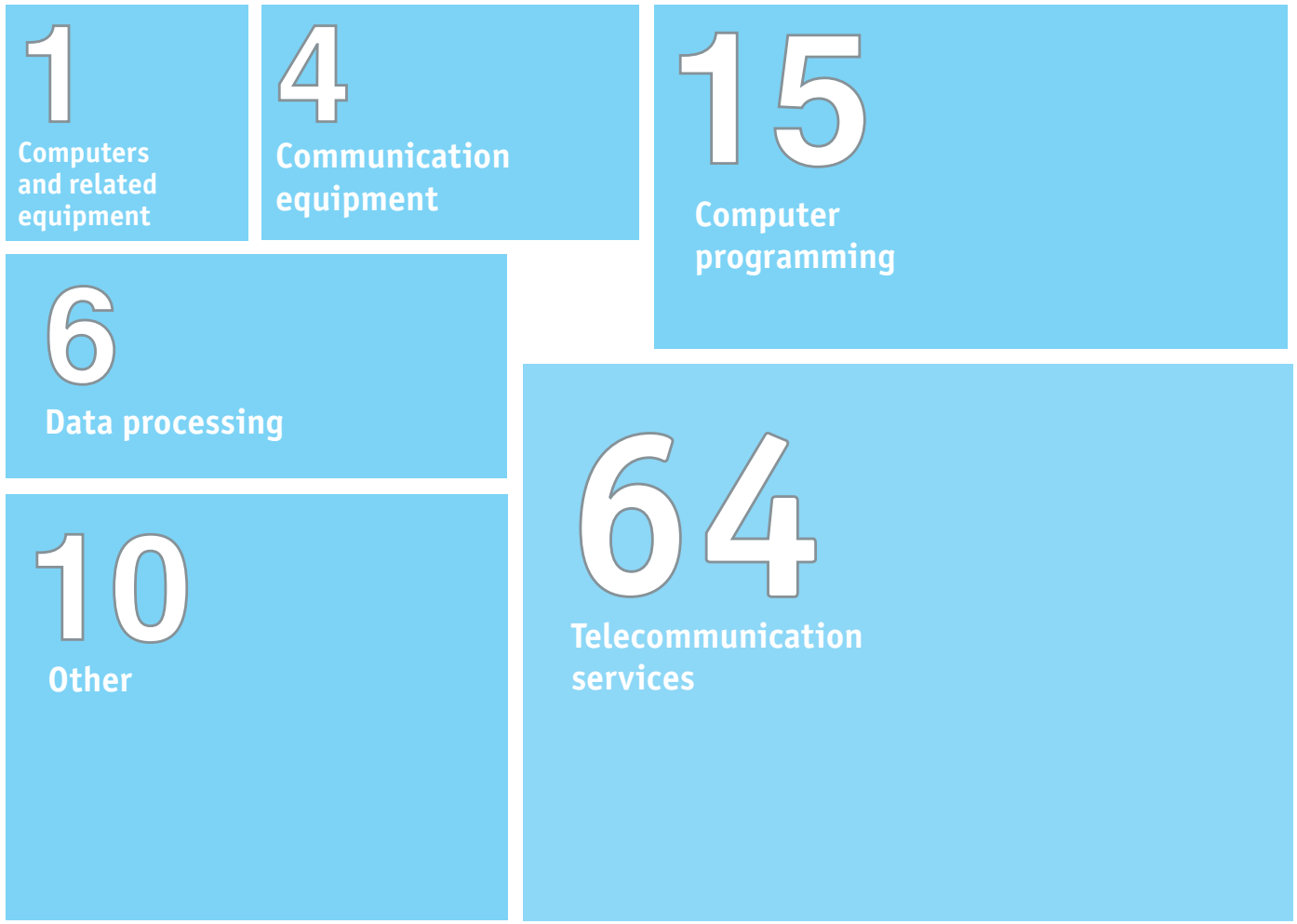
6.3. ICT sector share in the business enterprise sector employment by country: 2017*



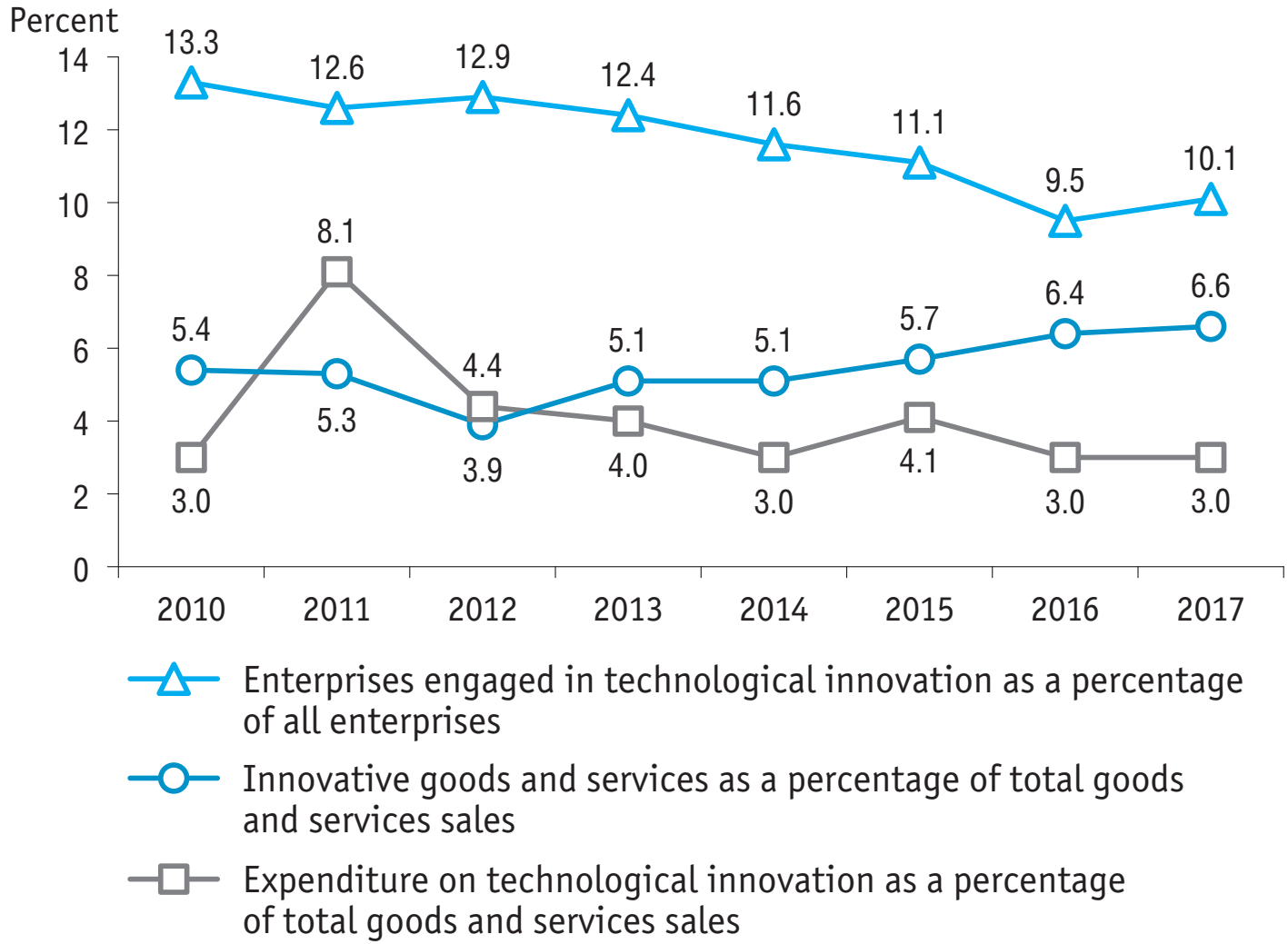
* Or nearest years for which data is available.

6.4. Distribution of goods and services in the ICT sector

(percent)

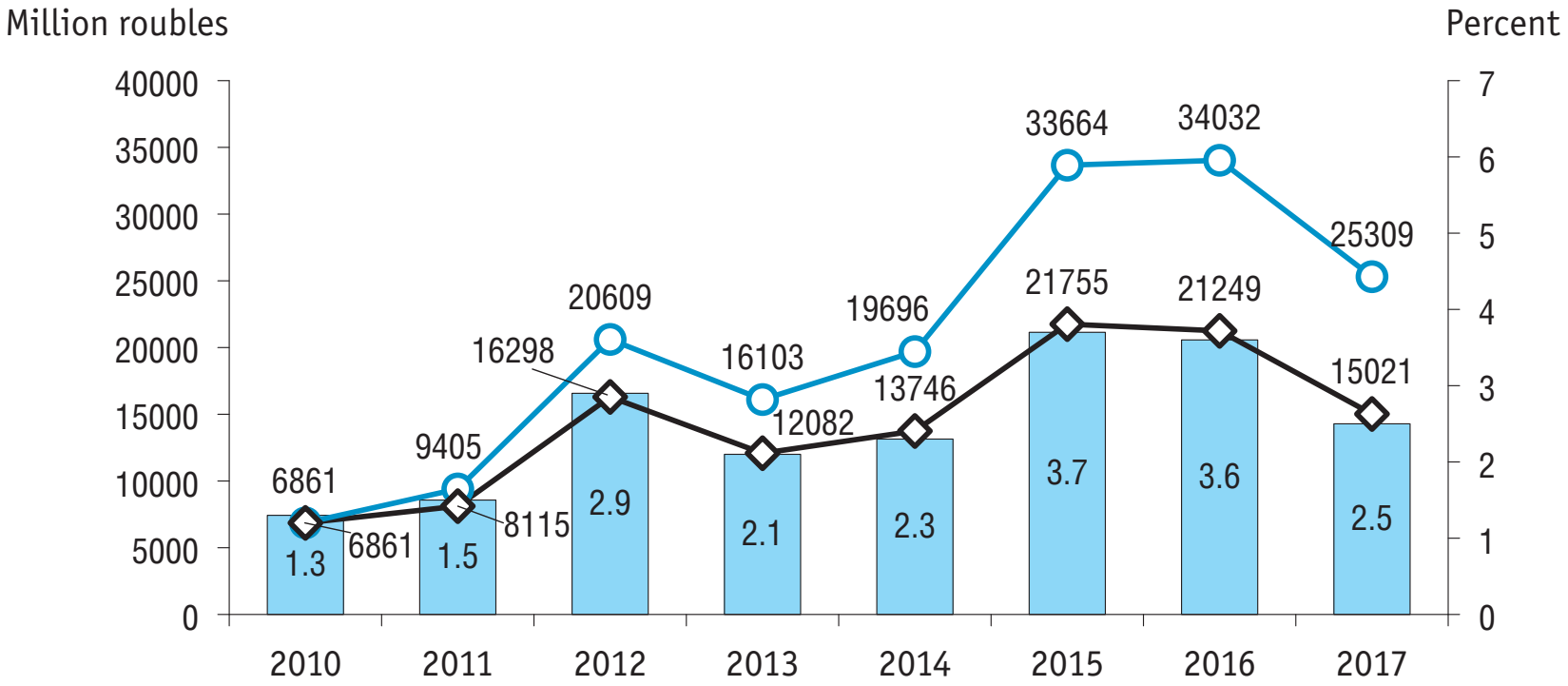


6.5. Main innovation indicators of the ICT sector*



* Here, ICT sector data are given by types of economic activities with the Russian Classification of Economic Activities codes: 2010–2016 – OKVED Rev. 1.1 / ISIC Rev. 3.1: 30, 32, 64, 72; 2017 – OKVED2: 26.1–26.4, 26.8, 58.2, 61, 62, 63.11, 63.12 (ISIC Rev. 4: 261–264, 268, 582, 61, 62, 6311, 6312).

6.6. R&D in the ICT sector



6.7. R&D outputs in computer science and technology

	2014	2015	2016	2017
Publications of Russian authors in scientific journals indexed in Web of Science, in the field of Computer Science				
Number	2593	3678	3927	4036
As a percentage of all papers by Russian authors	6.5	7.9	7.2	7.0
Patent applications in the field of Computer Technology filed by Russian residents				
Number	836	870	660	…
As a percentage of the total number of patent applications filed by Russian residents in the country and abroad	2.5	3.0	2.4	…

Sources: Web of Science; World Intellectual Property Organisation.

6.8. Exports and imports of ICT goods and services

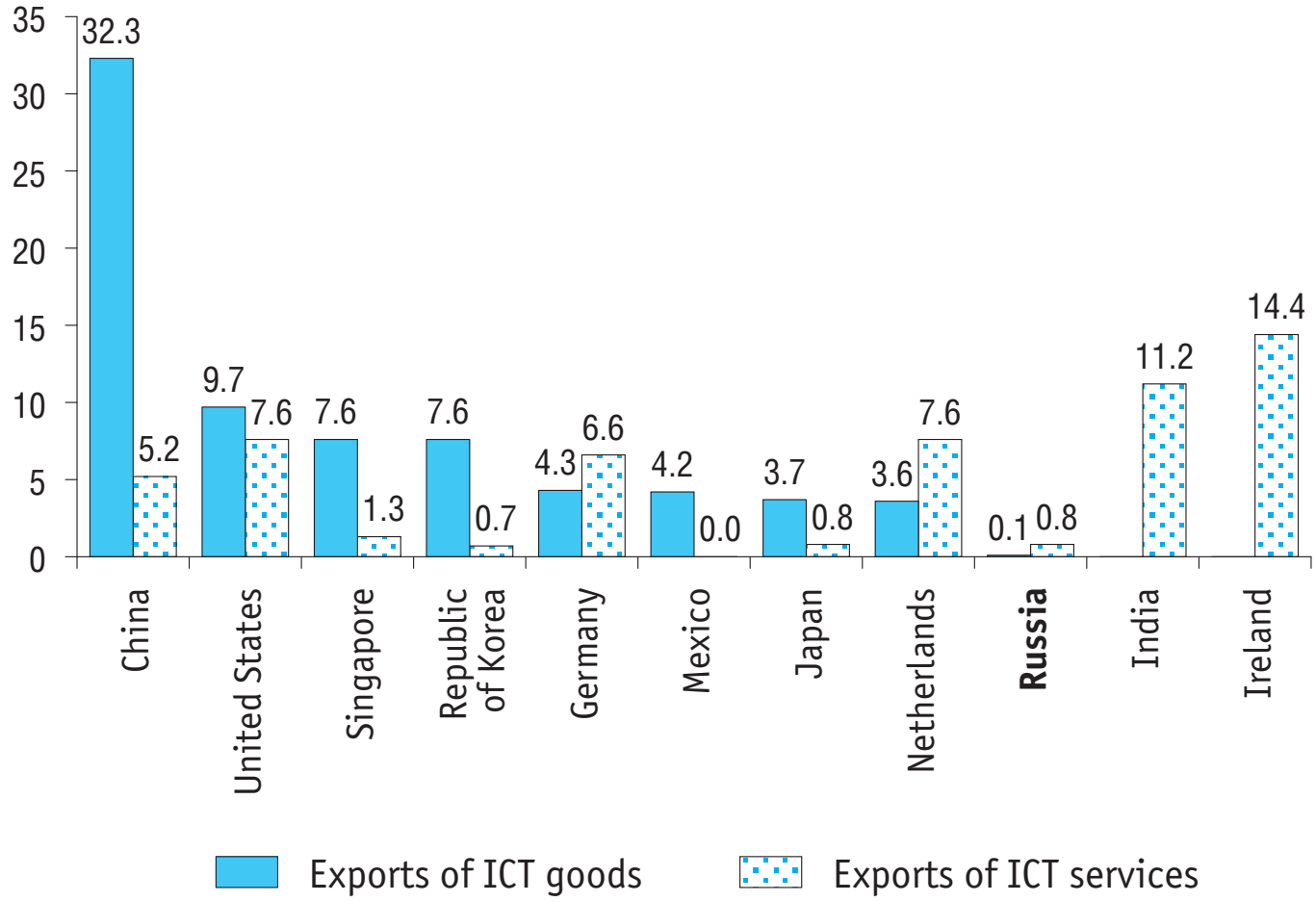
(million US dollars)

	Exports	Imports
ICT goods – total	**2061**	**20837**
Computers and related equipment	363	7423
Communication equipment	476	8433
Consumer electronic equipment	446	1995
Other ICT and related goods	776	2986
ICT services – total	**4789**	**5315**
Computer services	3417	3399
Telecommunication services	1247	1470
Information services	125	446

Source: Estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of Rosstat and Bank of Russia data.

6.9. Exports of ICT goods and services by country: 2016

(as a percentage of total world exports)



Technical notes

Bibliometric indicators are calculated on the basis of the Web of Science Core Collection (indices SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH). Publications considered include articles, reviews and proceedings papers. A publication is associated with a country if this country is mentioned in the business address of the author or one of the co-authors and was recognised by the Web of Science system. The information is provided as for September, 15th, 2018.

Broadband internet access includes xDSL technologies, cable TV connection, leased lines connection, fiber optic channels connection, satellite connection, extended fixed wired and wireless access (WiMax connection, etc.), high-speed mobile phone networks, and other types of access with the advertised download speed of 256 Kbps and higher.

Cloud services are technologies of distributed data processing that provide computer resources and powers to users as internet services.

E-government Development Index (EGDI) is based on a comprehensive UN survey of the online presence of 193 United Nations Member States, which assesses national websites and how e-government policies and strategies are applied in general and in specific sectors for delivery of essential services (for details see https://publicadministration.un.org/egovkb/en-us/About/Methodology). The data for 2018 were published in the United Nations E-Government Survey 2018 'Gearing E-Government to support transformation towards sustainable and resilient societies' (available at: https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018).

Global Innovation Index (GII) is formed on the basis of 80 indicators which reflect the key factors of innovative development of countries. It includes a wide range of indicators of various nature, including statistical data on scientific and innovative activities and the results of specialised surveys that characterise the quality of institutions and business climate. It is developed by Cornell University, INSEAD Business School and the World Intellectual Property Organization (WIPO). The 2018 results are provided in the report 'The Global Innovation Index 2018: Energizing the World with Innovation': http://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2018.pdf.

Gross domestic expenditure on R&D is the actual expenditure in monetary form on research and development inside the country (including R&D funded from abroad but excluding payments made abroad). The estimation is based on the statistical accounting for research and development performed by organisations using their own intramural resources within a reporting year regardless of the source of funds.

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

Online Service Index (OSI) is the subindex of the E-Government Development Index (EGDI). OSI is calculated based on web-monitoring of national portals, portals for electronic services and electronic participation, as well as websites of the national

ministries of education, labor, social services, health, finance and the environment by the United Nations Department of Economic and Social Development (for details see https://publicadministration.un.org/egovkb/en-us/About/Methodology). The 2018 data were published in the United Nations E-Government Survey 2018.

Patent for an invention is a title of protection granted to an invention and establishing priority, authorship and exclusive usage right during the patent's term of validity. Invention is a technical solution in any sphere pertaining to a product (namely, a device, material (substance), strain of organism, plant and animal cell culture) or to a method (the process of manipulating material objects with the help of material means). An invention should be characterised by novelty and the inventive level and it should be industrially applicable.

Purchase (sale) of goods, works, services by enterprises over the Internet – purchase (sale) of goods, works, services following orders submitted (received) through the website or extranet with the use of automated exchange systems between organisations (EDI-systems). Purchases (sales) made over the phone, fax or e-mail are not taken into account.

RFID technologies are technologies for automatic identification of objects which enable reading or recording data stored in RFID tags by means of radio signals.

Public and municipal services in digital form – services rendered via the infrastructure which provides for data exchange and information systems technological interaction, including the Public Services Portal of the Russian Federation and (or) regional public and municipal services portals.

Subscribers of internet (broadband internet) access are individuals and legal entities having a contract / contracts on the use of data transmission network concluded at the end of the reporting period.

Subscribers of wireless internet access are active subscribers of mobile, satellite, wireless terrestrial fixed and mobile internet access services.

Digital Economy

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Desk-top publishing *T. Koltsova*

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