



Ministry of Telecom and Mass Communications  
of the Russian Federation



Federal State  
Statistics Service



HIGHER SCHOOL OF ECONOMICS  
NATIONAL RESEARCH UNIVERSITY



# Digital Economy Indicators in the Russian Federation

Data Book



Ministry of Telecom and Mass Communications  
of the Russian Federation



Federal State  
Statistics Service



HIGHER SCHOOL OF ECONOMICS  
NATIONAL RESEARCH UNIVERSITY



# Digital Economy Indicators in the Russian Federation

**Data Book**

Moscow 2017

**Editorial Board:**

Leonid Gokhberg, Ekaterina Zanozina, Yaroslav Kuzminov, and Konstantin Laykam

**Authors:**

Gulnara Abdrakhmanova, Leonid Gokhberg, Marina Kevesh, Galina Kovaleva, Maxim Kotsemir, Irina Kuznetsova, Inna Lola,

Georgy Ostapkovich, Zinaida Ryzhikova, and Svetlana Fridlyanova

With the contributions by Ekaterina Dyachenko, Svetlana Martynova, Tatyana Ratay, and Ekaterina Streltsova

**Digital Economy Indicators in the Russian Federation** : Data Book / G. Abdrakhmanova, L. Gokhberg, M. Kevesh et al.; National Research University Higher School of Economics. – Moscow: HSE, 2017. – 318 p.

This data book continues the series of annual publications of 'Information Society Indicators in the Russian Federation' by the Institute for Statistical Studies and Economics of Knowledge at the National Research University Higher School of Economics (HSE ISSEK). It presents statistical data concerning the activities of ICT sector enterprises, IT industry enterprises and content and media sector enterprises, ICT-related international trade in goods and services, as well as it includes the data concerning digital economy infrastructure indicators. It also presents the indicators of ICT usage by business enterprise sector enterprises, its usage in the social sphere, by public authorities, by households and individuals. Special attention is given to the statistical evaluation of e-commerce development and on-line interaction of business with individuals and public authorities. Special sections contain regional and international comparisons.

The data book contains information provided by the Federal State Statistics Service (Rosstat), the Ministry of Telecom and Mass Communications of the Russian Federation, The Ministry of Culture of the Russian Federation, the Ministry of Education and Science of the Russian Federation, the Central Bank of the Russian Federation (the Bank of Russia), the European Statistical Office (Eurostat), the Organisation for Economic Co-operation and Development (OECD), the International Telecommunication Union (ITU), the United Nations Department of Economic and Social Affairs, the World Economic Forum, the World Intellectual Property Organization (WIPO) as well as based on the results of analytical and methodological studies and special surveys by HSE ISSEK.

*The publication was prepared within the framework of the Basic Research Programme at the National Research University Higher School of Economics (HSE) and supported within the framework of a subsidy by the Russian Academic Excellence Project '5-100'.*

## CONTENTS

Digital Economy in Figures .....	16	1.10. Trends in gross value added of ICT sector enterprises .....	34
Main digital economy indicators .....	20	1.11. Sales of ICT sector enterprises by economic activity .....	35
<b>1. ICT Sector .....</b>	<b>23</b>	1.12. Distribution of ICT goods and services sales by type: 2015 .....	36
1.1. Main indicators of the ICT sector .....	24	1.13. Fixed capital investment in the ICT sector by economic activity .....	37
1.2. Percentage distribution of ICT sector .....	25	1.14. Trends in fixed capital investment in the ICT sector .....	38
1.3. ICT sector enterprises by economic activity .....	27	1.15. Main indicators of innovation in the ICT sector .....	39
1.4. Distribution of authorized share capital of the ICT sector by shareholders (founders): 2015 .....	28	1.16. Innovative activity in the ICT sector by economic activity .....	40
1.5. Employment in the ICT sector by economic activity .....	29	1.17. Enterprises engaged in innovation of selected types as a percentage of the total number of ICT sector enterprises engaged in technological innovation enterprises by economic activity: 2015 .....	41
1.6. Percentage distribution of ICT sector employment by age and economic activity: 2015 .....	30	1.18. Expenditure on technological innovation in the ICT sector by economic activity .....	42
1.7. Employees with higher education and secondary vocational education as a percentage of the total ICT sector employment by economic activity: 2015 .....	31	1.19. Distribution of enterprises ranking as main the following factors hampering technological innovation: 2015 .....	43
1.8. Average monthly salaries per employee in the ICT sector by economic activity .....	32		
1.9. Gross value added of ICT sector enterprises by economic activity .....	33		



1.20. Main financial effects of ICT sector enterprises' activities .....	44
1.21. Distribution of ICT sector enterprises by economic activity and financial result: 2015 .....	45
1.22. Return on assets of ICT sector enterprises by economic activity.....	46
<b>2. IT Industry .....</b>	<b>47</b>
2.1. Main indicators of the IT industry .....	48
2.2. Percentage distribution of the IT industry.....	49
2.3. IT industry enterprises by economic activity.....	50
2.4. Distribution of authorized share capital of the IT industry by shareholders (founders): 2015 .....	50
2.5. IT industry employment by economic activit.....	51
2.6. Percentage distribution of IT industry employment by age and economic activity: 2015.....	52
2.7. Employees with higher education and secondary vocational education as a percentage of the total IT industry employment by economic activity: 2015.....	53
2.8. Average monthly salaries per employee in IT industry enterprises by economic activity .....	54
2.9. Trends in gross value added of IT industry enterprises .....	55
2.10. Sales of IT industry enterprises by economic activity .....	56
2.11. Fixed capital investment in the IT industry by economic activity.....	57
2.12. Main financial effects of IT industry enterprises' activities .....	58
2.13. Distribution of IT industry enterprises by economic activity and financial result: 2015 .....	59
2.14. Return on assets of IT industry enterprises by economic activity.....	60
2.15. Business activity of enterprises rendering IT services .....	61
2.16. Assessment of the competitive advantages of enterprises rendering IT services: 2016 .....	62
<b>3. Content and Media Sector.....</b>	<b>63</b>
3.1. Main indicators of content and media sector enterprises' activity.....	64
3.2. Percentage distribution of content and media sector enterprises.....	65
3.3. Content and media sector enterprises by economic activity.....	66

3.4. Distribution of authorized share capital of the content and media sector by shareholders (founders): 2015 .....	66
3.5. Employment in content and media sector enterprises by economic activity.....	67
3.6. Average monthly salary in content and media sector enterprises by economic activity .....	67
3.7. Gross value added of content and media sector enterprises by economic activity .....	68
3.8. Trends in gross value added of content and media sector enterprises.....	68
3.9. Percentage distribution of gross value added of content and media sector enterprises by economic activity.....	69
3.10. Production of books, newspapers and magazines .....	70
3.11. Fixed capital investment in content and media sector enterprises by economic activity .....	71
3.12. Main financial effects of content and media sector enterprises by economic activity .....	72
3.13. Distribution of content and media sector enterprises by economic activity and financial result: 2015 .....	73
3.14. Profitability of assets of goods and services of ICT sector enterprises by economic activity.....	74

#### 4. International Trade in ICT Goods and Services..... 75

4.1. Exports of ICT goods .....	76
4.2. Distribution of ICT goods exports.....	77
4.3. Trends in exports of ICT goods .....	78
4.4. Imports of ICT goods.....	79
4.5. Distribution of ICT goods imports .....	79
4.6. Trends in imports of ICT goods.....	80
4.7. Exports to imports ratio for ICT goods.....	81
4.8. Exports and imports of computers.....	82
4.9. Trends in exports and imports of computers .....	82
4.10. Exports and imports of telephone and telegraph equipment.....	83
4.11. Trends in exports and imports of telephone and telegraph equipment.....	83
4.12. Exports and imports of TV receivers.....	84
4.13. Trends in exports and imports of TV receivers .....	84
4.14. Exports of ICT and content services .....	85
4.15. Distribution of ICT and content services exports .....	85
4.16. Trends in ICT and content services exports .....	86
4.17. Imports of ICT and content services .....	87

4.18. Distribution of ICT and content services imports .....	87	5.5. Level of network digitisation .....	97
4.19. Trends in ICT and content services imports .....	88	5.6. Satellite, television and radio hardware.....	98
4.20. Exports to imports ratio for ICT and content services .....	89	5.7. Coverage of the population by radio and television.....	99
4.21. Exports and imports of computer services .....	90	5.8. Coverage of the population by Russian popular television channels: 2015 .....	100
4.22. Trends in exports and imports of computer services .....	90	5.9. Internet subscriptions .....	101
4.23. Exports and imports of telecommunications services .....	91	5.10. Broadband Internet subscriptions .....	102
4.24. Trends in exports and imports of telecommunications services .....	91	5.11. Fixed broadband Internet subscriptions by Internet connection speed.....	103
4.25. Exports and imports of information services .....	92	5.12. Communication services by type .....	104
4.26. Trends in exports and imports of information services .....	92	5.13. Trends in communication services by type .....	105
<b>5. ICT Infrastructure .....</b>	<b>93</b>	5.14. Revenue from telecommunications services .....	106
5.1. Main indicators of ICT infrastructure .....	94	5.15. Distribution of revenue from telecommunications services by type .....	107
5.2. Fixed, mobile cellular telephones and public payphones.....	95	5.16. Average communication tariffs for individuals .....	108
5.3. Telephone density .....	95	5.17. Indices of communication tariffs for individuals .....	109
5.4. Active mobile cellular telephone subscriptions.....	96	5.18. Tariffs for communication services to average personal income ratio .....	110

<b>6. ICT Usage by Enterprises .....</b>	<b>111</b>
6.1. Enterprises using ICT .....	112
6.2. Main indicators of ICT usage by enterprises.....	113
6.3. Enterprises using ICT by sector of economy: 2015 .....	114
6.4. Enterprises using ICT by ownership: 2015 .....	115
6.5. Enterprises using ICT by size of employment: 2015.....	116
6.6. Distribution of enterprises by Internet connection speed and sector of economy: 2015 .....	117
6.7. Households using the Internet by type of access device and sector of economy: 2015 .....	118
6.8. Personal computers in enterprises .....	119
6.9. Enterprises using specialised software by sector of economy: 2015 .....	120
6.10. Enterprises using information security by type.....	123
6.11. Enterprises using information security by type and sector of economy: 2015 .....	124
6.12. Internet usage for general purposes by sector of economy: 2015 .....	125
6.13. ICT expenditure by type of costs .....	128
6.14. Trends in ICT expenditure .....	129

6.15. Percentage distribution of ICT expenditure in enterprises by type of costs by sector of economy: 2015 .....	130
6.16. Employees with an ICT-related job and secondary vocational or higher education by economic activity and age group: 2015 .....	131
6.17. Percentage distribution of employees with an ICT-related job and secondary vocational or higher education by age group and sector of economy: 2015 .....	132

## **7. ICT Usage in the Business Enterprise Sector ..... 133**

7.1. Main indicators of ICT usage by enterprises in the business enterprise sector .....	134
7.2. Enterprises of the business enterprise sector using ICT by economic activity: 2015.....	135
7.3. Enterprises using personal computers, servers by economic activity.....	136
7.4. Enterprises using local area networks by economic activity.....	137
7.5. Enterprises using the Internet by economic activity .....	137
7.6. Enterprises using broadband Internet connection by economic activity.....	138

7.7. Enterprises using fixed and mobile broadband Internet connection by economic activity: 2015.....	139	7.17. Availability of personal computers in enterprises of the business enterprise sector by economic activity .....	149
7.8. Distribution of enterprises by Internet connection speed and by economic activity: 2015 .....	140	7.18. Availability of personal computers with Internet access in enterprises of the business enterprise sector by economic activity .....	150
7.9. Share of employees in the business enterprise sector using ICT by economic activity: 2015 .....	141	7.19. Enterprises using specialised software by economic activity: 2015 .....	151
7.10. Enterprises providing their employees with mobile Internet connection .....	142	7.20. Enterprises using CRM, ERP, SCM systems by economic activity: 2015 .....	153
7.11. Enterprises with a website by economic activity.....	143	7.21. Internet usage for general purposes by enterprises in the business enterprise sector by economic activity: 2015 .....	154
7.12. Enterprises using internal and external communication via EDI by economic activity .....	144	7.22. ICT expenditure per enterprise in the business enterprise sector by economic activity.....	156
7.13. Enterprises using RFID by economic activity .....	145	7.23. Percentage distribution of ICT expenditure in enterprises by economic activity: 2015.....	157
7.14. Enterprises using cloud computing by economic activity.....	146	7.24. Internet usage by manufacturing enterprises by economic activity: 2015 .....	158
7.15. Personal computers with Internet access in enterprises of the business enterprise sector by economic activity .....	147	7.25. Manufacturing enterprises using specialised software by economic activity: 2015 .....	159
7.16. Acquisition of personal computers by enterprises of the business enterprise sector by economic activity .....	148	7.26. Internet usage for general purposes in manufacturing enterprises by economic activity: 2015 .....	161

7.27. ICT usage by enterprises engaged in computer and information technology-related activities: 2015 .....	163
7.28. Enterprises engaged in computer and information technology-related activities, using enterprises using specialised software: 2015 .....	164
7.29. Internet usage for general purposes in enterprises engaged in computer and information technology-related activities: 2015 .....	165
7.30. ICT usage in enterprises engaged in scientific research: 2015 .....	166
7.31. Enterprises, engaged in scientific research, using specialised software: 2015 .....	167
7.32. Internet usage for general purposes in enterprises engaged in scientific research: 2015 .....	168
<b>8. Electronic Commerce .....</b>	<b>169</b>
8.1. Internet usage by enterprises in the business enterprise sector for commercial purposes .....	170
8.2. Internet usage by enterprises in the business enterprise sector for communication with suppliers .....	171

8.3. Internet usage by enterprises in the business enterprise sector for communication with suppliers in enterprises by economic activity: 2015 .....	172
8.4. Internet usage by enterprises in the business enterprise sector for communication with consumers in enterprises .....	173
8.5. Internet usage by enterprises in the business enterprise sector for communication with consumers in enterprises by economic activity: 2015 .....	174
8.6. Usage of websites, extranet and EDI-systems for e-procurement and e-sales by enterprises in the business enterprise sector by economic activity: 2015 .....	175
8.7. Usage of websites, extranet and EDI-systems for e-procurement and e-sales by enterprises in the business enterprise sector by economic activity: 2015 .....	176
8.8. Distribution of enterprises in the business enterprise sector by share of electronic purchases in the total number of purchases by economic activity: 2015 .....	177

8.9. Distribution of enterprises in the business enterprise sector by share of electronic sales in the total number of sales by economic activity: 2015 .....	178
8.10. Internet usage by individuals to order goods or services by type of settlement .....	179
8.11. Internet usage for ordering goods and/or services by age group.....	179
8.12. Internet usage by individuals to order goods or services by type .....	180
8.13. Internet usage by individuals to order goods or services by type of payment .....	181
8.14. Factors hampering electronic purchases by individuals .....	182
<b>9. ICT Usage in the Social Sphere .....</b>	<b>183</b>
9.1. Main indicators of ICT usage by organisations in the social sphere.....	184
9.2. Organisations of the social sphere using ICT by economic activity: 2015 .....	185
9.3. Organisations of the social sphere using personal computers, servers by economic activity .....	186
9.4. Organisations of the social sphere using local area networks by economic activity .....	186
9.5. Organisations of the social sphere using the Internet by economic activity.....	187
9.6. Organisations of the social sphere using broadband Internet connection by economic activity .....	187
9.7. Organisations of the social sphere using fixed and mobile broadband Internet connection by economic activity: 2015 .....	188
9.8. Distribution of organisations of the social sphere by maximum Internet connection speed by economic activity: 2015 .....	189
9.9. Share of employees in the social sphere using ICT by economic activity: 2015 .....	190
9.10. Organisations of the social sphere providing their employees with mobile Internet connection by economic activity.....	191
9.11. Organisations of the social sphere with a website by economic activity.....	191
9.12. Organisations of the social sphere using internal and external communication via EDI by economic activity.....	192
9.13. Organisations of the social sphere using RFID by economic activity.....	192
9.14. Organisations of the social sphere using cloud computing by economic activity .....	193

9.15. Personal computers in organisations of the social sphere by economic activity.....	194
9.16. Personal computers with Internet access in organisations of the social sphere by economic activity.....	195
9.17. Acquisition of personal computers by organisations of the social sphere by economic activity.....	195
9.18. Availability of personal computers in organisations of the social sphere by economic activity.....	196
9.19. Availability of personal computers with Internet access in organisations of the social sphere by economic activity.....	196
9.20. Organisations of the social sphere using specialised software by economic activity: 2015 .....	197
9.21. Internet usage for general purposes by organisations of the social sphere by economic activity: 2015.....	198
9.22. ICT expenditure in the social sphere by economic activity.....	199
9.23. Percentage distribution of ICT expenditure in organisations of the social sphere by economic activity: 2015 .....	199
9.24. Health services institutions using ICT.....	200

9.25. Availability of personal computers in educational institutions of higher education .....	201
9.26. Educational institutions of higher education using specialised software: 2015.....	202
9.27. ICT usage in libraries: 2015 .....	203
9.28. The volume of e-catalogues of libraries available on the Internet .....	204
9.29. Digitisation of e-catalogues and museum collections .....	205
9.30. Number of museum showpieces available on the Internet, listed in e-catalogues and having digitised images .....	206

## **10. ICT Usage by Public Authorities ..... 207**

10.1. Main indicators of ICT usage by public authorities .....	208
10.2. Public authorities using ICT: 2015.....	209
10.3. Public authorities using personal computers, servers .....	210
10.4. Public authorities using local area networks .....	210
10.5. Public authorities using the Internet.....	211
10.6. Public authorities using broadband Internet connection.....	212
10.7. Public authorities using fixed and mobile broadband Internet connection: 2015.....	213



10.8. Distribution of public authorities by maximum Internet connection speed: 2015 .....	214
10.9. Public authorities providing their employees with mobile Internet connection .....	215
10.10. Public authorities with a website .....	215
10.11. Public authorities using internal and external communication via EDI .....	216
10.12. Public authorities using RFID .....	217
10.13. Public authorities using cloud computing.....	218
10.14. Personal computers used by public authorities .....	219
10.15. Personal computers with Internet access used by public authorities.....	220
10.16. Personal computers arrivals to public authorities.....	220
10.17. Availability of personal computers to the employees of public authorities .....	221
10.18. Availability of personal computers with Internet access to the employees of public authorities.....	221
10.19. Public authorities using specialised software: 2015 .....	222
10.20. Electronic document management within public authorities as a percentage of the total amount of interdepartmental document flow .....	224
10.21. Internet usage for general purposes by public authorities: 2015 .....	225

<b>11. On-line Interaction of Business Enterprise Sector and Individuals with Public Authorities.....</b>	<b>227</b>
11.1. Main indicators of on-line interaction of enterprises of the business enterprise sector with public authorities .....	228
11.2. On-line interaction of enterprises of the business enterprise sector with public authorities by economic activity: 2015 .....	229
11.3. Internet usage by enterprises of the business enterprise sector for receiving public services electronically .....	230
11.4. Internet usage by enterprises of the business enterprise sector for receiving public services electronically by economic activity: 2015.....	231
11.5. Assessment by enterprises of the business enterprise sector of the quality of electronic public services .....	232
11.6. Enterprises of the business enterprise sector using EDI to interact with public authorities by economic activity.....	233
11.7. Main indicators of online interaction of individuals with public authorities.....	234
11.8. Means of interaction of individuals with public authorities .....	235

11.9. Internet usage by individuals for receiving public services electronically by type of settlement.....	236
11.10. Internet usage by individuals for receiving public services electronically by age group .....	237
11.11. Internet usage by individuals for receiving public services electronically by the most demanded type of service: 2016.....	238
11.12. Usage of mobile devices to access official public services websites and portals by type of settlement .....	239
11.13. Purposes of online interaction of individuals with public authorities: 2016 .....	240
11.14. Assessment by individuals of the quality of electronic public services .....	241
11.15. Reasons why people refuse to use the Internet to receive public services: 2016 .....	242

## **12. ICT Usage by Households and Individuals..... 243**

12.1. Main indicators of ICT usage by households.....	244
12.2. Usage of personal computers and Internet usage by households by type of settlement: 2016 .....	244
12.3. Internet usage by households by type of access device and by type of settlement: 2016 .....	245

12.4. Factors hampering Internet usage in households: 2016.....	246
12.5. Main indicators of ICT usage by individuals.....	247
12.6. Usage of personal computers by individuals by type of settlement .....	248
12.7. Personal computer skills: 2016.....	249
12.8. Frequency of Internet usage by individuals by type of settlement .....	250
12.9. Places where individuals use the Internet: 2016 .....	251
12.10. Usage of mobile devices by individuals to access the Internet .....	252
12.11. Internet activities: 2016 .....	253
12.12. Information security threats.....	254
12.13. Usage of information security facilities by individuals .....	255
12.14. Factors hampering Internet usage by individuals: 2016.....	256

## **13. Main Digital Economy Indicators in Russian Regions ..... 257**

13.1. Russian regions by fixed and mobile broadband Internet subscription distribution: 2015 .....	258
--	-----

13.2. Main digital economy indicators in Russian regions .....	259
13.3. Russian regions distribution by main digital economy indicators .....	264
<b>14. International Comparisons.....</b>	<b>269</b>
14.1. International ICT level assessments by country: 2016 .....	270
14.2. Russia's rank in international digital economy development ratings: 2016 .....	271
14.3. Russia's ICT development index rank .....	272
14.4. ICT development index by country: 2016 .....	273
14.5. Russia's e-government development index rank .....	276
14.6. E-government development index by country: 2016 .....	277
14.7. Russia's networked readiness index rank .....	280
14.8. Networked readiness index by country: 2016 .....	281
14.9. Share of the ICT sector in the total employment in enterprises: 2015 .....	284
14.10. Share of the ICT sector in the gross value added: 2015 .....	284
14.11. Share of IT industry in the total number of employees in enterprises: 2015 .....	285
14.12. Share of IT industry in the gross value added: 2015.....	285
14.13. Share of content and media sector in the total employment in enterprises: 2015 .....	286
14.14. Share of content and media sector in the gross value added: 2015 .....	286
14.15. Daily newspapers publication: 2015 (one-time edition) .....	287
14.16. Internet usage by individuals for reading news on news sites, newspapers and magazines: 2016 .....	288
14.17. Telephone density .....	289
14.18. Broadband Internet subscriptions .....	292
14.19. Enterprises using the Internet: 2015 .....	295
14.20. Enterprises with a website: 2015 .....	296
14.21. Enterprises using cloud computing: 2015 .....	297
14.22. Enterprises using CRM, ERP, SCM systems: 2015 .....	298
14.23. Electronic commerce expansion: 2015 .....	299
14.24. Households using personal computers and the Internet .....	300

14.25. Internet usage by individuals by frequency: 2016 .....	303
14.26. Usage of mobile devices by individuals to access the Internet: 2016.....	304

<b>Technical Notes .....</b>	<b>305</b>
<b>Major HSE ISSEK publications on information society statistics.....</b>	<b>314</b>

---

**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 up to the total because  
of rounding.

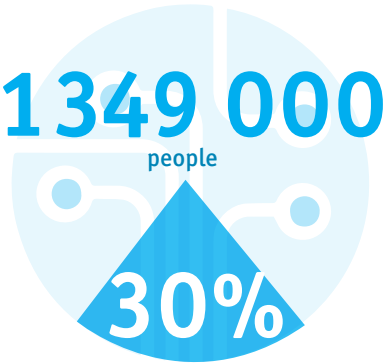
---

ICT SECTOR

3% —  
the share of the  
sector in the GDP

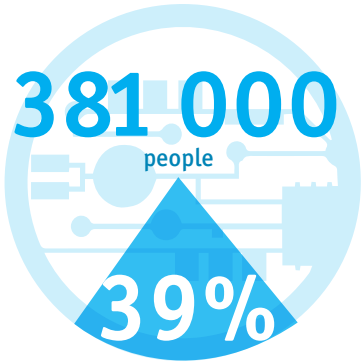
6% —  
innovative  
products

34 billion roubles  
expenditure  
on R&D



Young people under 30

IT INDUSTRY



Young people under 30

21% —  
value added  
(annual % growth)

BROADBAND INTERNET SUBSCRIPTIONS

(per 100 inhabitants)



12

2011

Fixed

19

2016



48

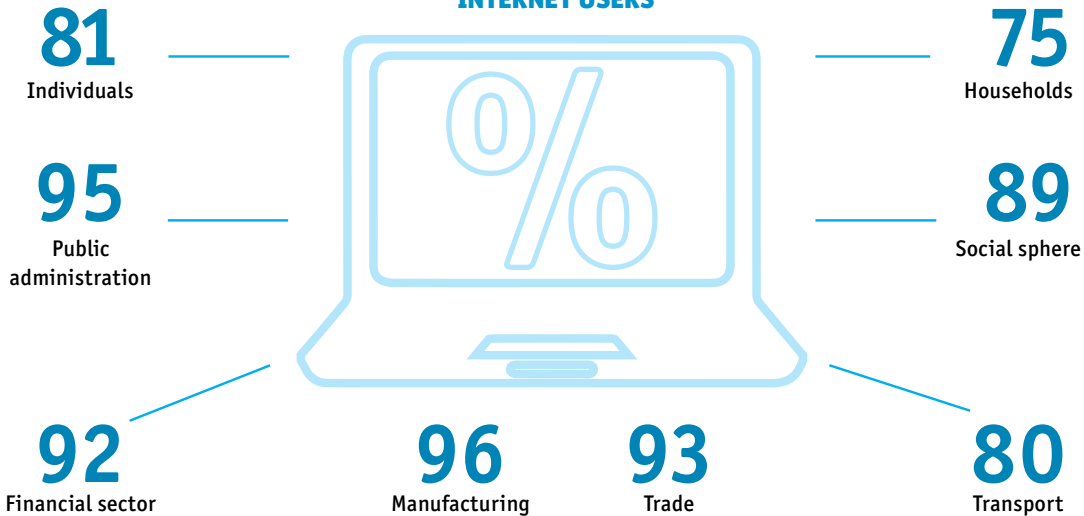
Mobile

72

## CLOUD COMPUTING



## INTERNET USERS

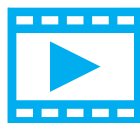


# INTERNET FOR INDIVIDUALS



56

Interactions  
on social  
networking  
sites



38

Downloading



32

Internet  
telephony



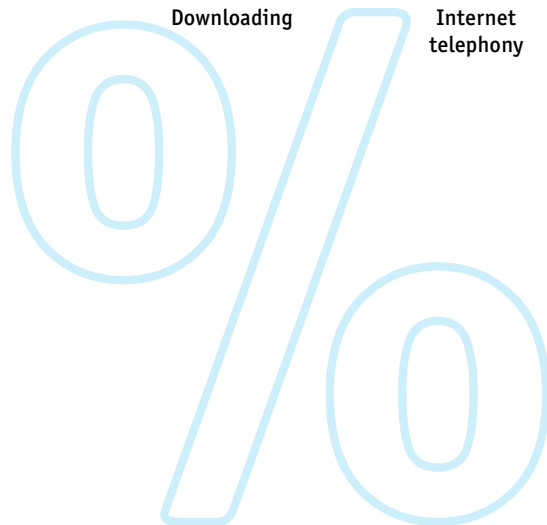
32

Searching  
for information  
about goods  
or services



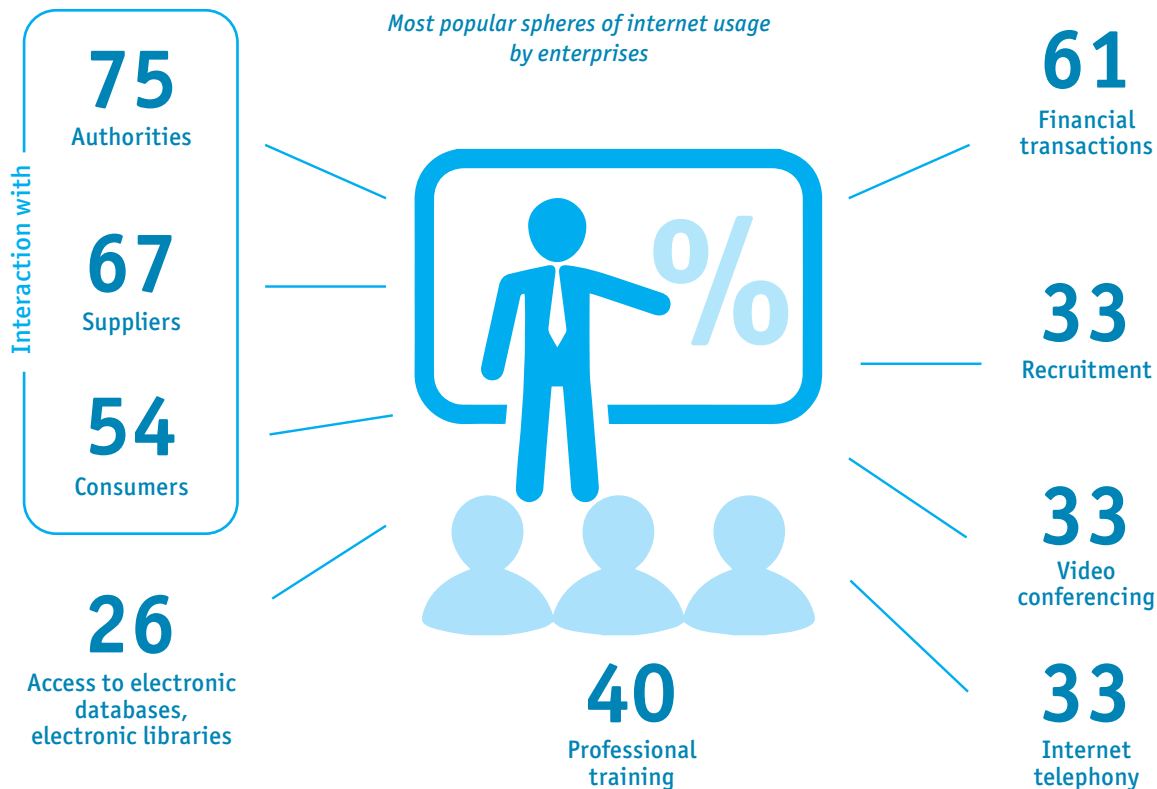
29

Electronic  
public services



## INTERNET FOR BUSINESS ENTERPRISE SECTOR

*Most popular spheres of internet usage  
by enterprises*





## MAIN DIGITAL ECONOMY INDICATORS

	2010	2011	2012	2013	2014	2015	2016
Gross value added in ICT Sector:							
at current prices, <i>billion roubles</i>	1354	1534	1780	1845	2149	2262	2258*
as a percentage of GDP	3.4	3.0	3.1	3.0	3.1	3.0	2.9*
Domestic expenditure on R&D in ICT Sector enterprises:							
at current prices, <i>million roubles</i>	6861	9405	20609	16103	19696	33664	...
as a percentage of the total domestic expenditure on R&D	1.3	1.5	2.9	2.1	2.3	3.7	...
Innovative goods and services as a percentage of total sales in the ICT sector	5.4	5.3	3.9	5.1	5.1	5.7	...
Publications by Russian authors in scientific journals in the field of computer science, indexed in Web of Science:							
total	385	365	374	467	518	739	818
as a percentage of the total number of publications by Russian authors in scientific journals, indexed in Web of Science	1.41	1.26	1.33	1.58	1.69	2.13	2.53
Patent applications in the field of computer science filed by Russian residents in the Russian Federation and abroad:							
total	467	528	664	715	839	792	...
as a percentage of the total number of patent applications filed by Russian residents in the Russian Federation and abroad	1.6	1.8	2.2	2.3	2.6	2.8	...
Fixed broadband Internet subscriptions per 100 inhabitants	...	12.2	14.4	16.5	17.0	18.3	18.7
Mobile broadband Internet subscriptions per 100 inhabitants	...	47.8	52.6	59.8	64.5	68.1	72.4

\* Preliminary data.

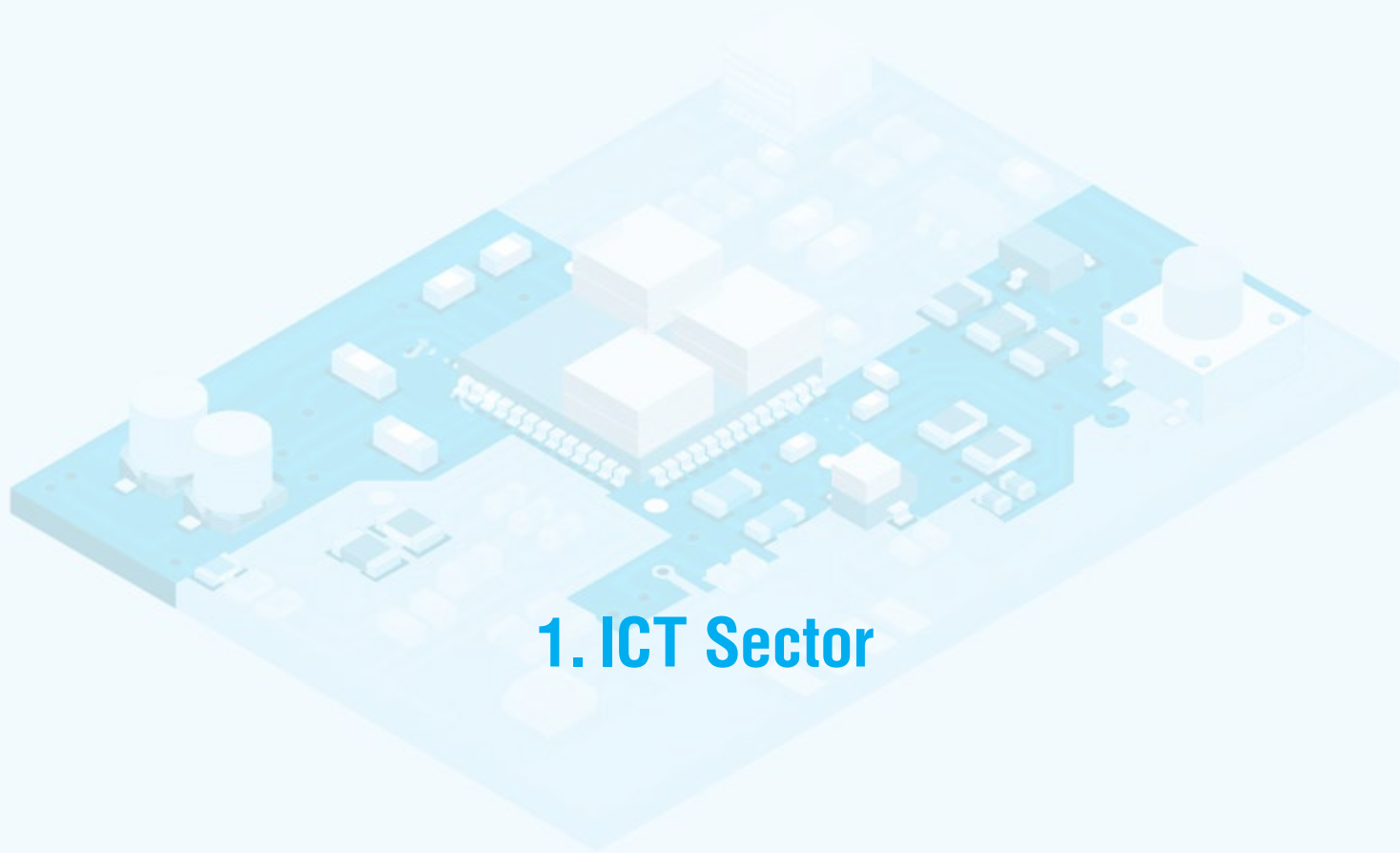
(continued)

	2010	2011	2012	2013	2014	2015	2016
Enterprises using broadband Internet connection as a percentage of the total number of such enterprises:							
total	56.7	63.4	76.6	79.4	81.2	79.5	...
business enterprise sector	63.8	68.7	79.3	80.8	81.4	78.9	...
social sphere	49.2	57.3	72.6	75.8	79.2	79.3	...
public authorities	55.2	64.3	80.0	84.0	85.9	84.5	...
Enterprises using cloud computing as a percentage of the total number of such enterprises:							
total	...	...	...	11.0	13.3	18.3	...
business enterprise sector	...	...	...	11.0	13.8	18.4	...
social sphere	...	...	...	12.0	14.1	20.0	...
public authorities	...	...	...	11.9	14.0	19.9	...
Enterprises of the business enterprise sector using the Internet to interact with clients as a percentage of the total number of such enterprises:							
with suppliers	69.4	69.9	70.1	70.7	69.2	67.4	...
with consumers	54.8	57.0	57.1	57.1	55.6	54.4	...
Museum showpieces listed in e-catalogues and having digitised images as a percentage of the total number of museum showpieces	...	6.1	6.6	8.8	11.0	12.6	...

(continued)

	2010	2011	2012	2013	2014	2015	2016
Households with personal computers as a percentage of the total number of households	55	60	67	71	71	73	74
Households with Internet access as a percentage of the total number of households	48	57	60	69	70	72	75
of which broadband	...	...	...	57	64	67	71
Individuals who have ever used a personal computer as a percentage of all individuals aged 15–72**	68	...	...	73	75	78	81
Individuals who have ever used the Internet as a percentage of all individuals aged 15–72**	49	58	66	71	74	78	81
Individuals who use the Internet every day or almost every day as a percentage of all individuals aged 15–72**	26	33	41	48	52	55	58
Individuals who used the Internet to order goods and/or services within the last 12 months as a percentage of all individuals aged 15–72	...	...	...	15	18	20	23
Individuals who used the Internet to receive public services electronically within the last 12 months as a percentage of all individuals aged 15–72 who received public services within the last 12 months	...	...	...	31	35	40	51

\*\* 2010, 2011 – aged 16–74, 2012 – aged 18–74.



# **1. ICT Sector**

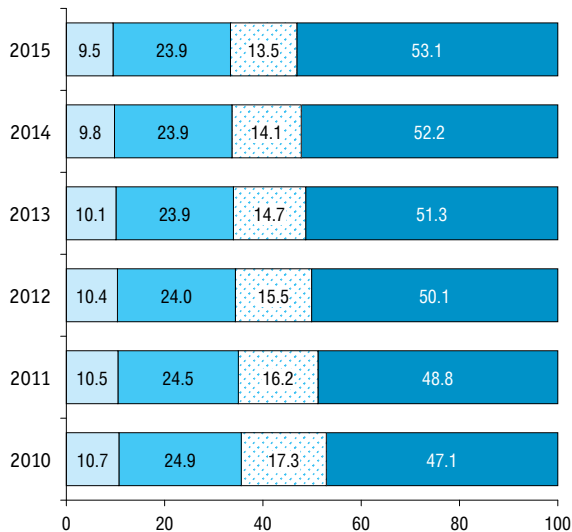
## 1.1. MAIN INDICATORS OF THE ICT SECTOR

	2010	2011	2012	2013	2014	2015
Number of enterprises, <i>thousand, at the end of the year</i>	138	145	150	155	159	166
Number of employees:						
thousand persons	1306	1268	1294	1323	1336	1349
as a percentage of the total employment	2.8	2.8	2.8	2.9	2.9	3.0
Gross value added:						
billion roubles	1354	1534	1780	1845	2149	2262
as a percentage of GDP	3.4	3.0	3.1	3.0	3.1	3.0
Sales, <i>billion roubles</i>	2347	2603	2932	3221	3404	3844
Fixed capital investment, <i>billion roubles</i>	297	353	409	398	437	476

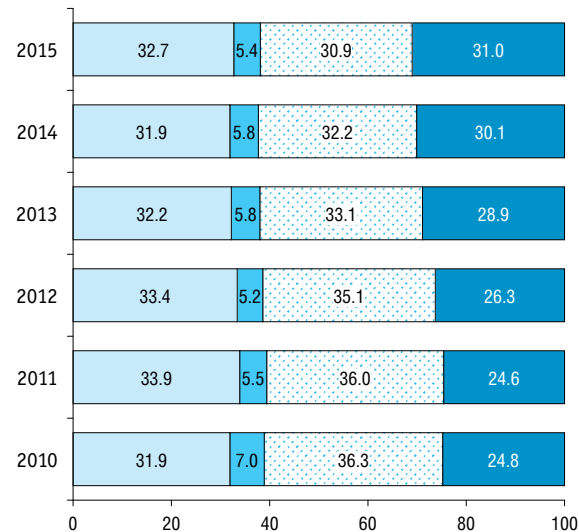
Source: here and below in sections – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

## 1.2. PERCENTAGE DISTRIBUTION OF ICT SECTOR

Number of enterprises



Number of employees

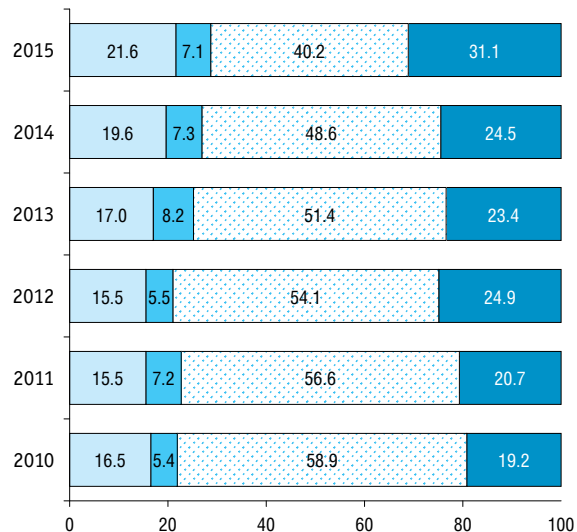


Manufacture of ICT equipment  
 Wholesale of ICT goods

Telecommunications  
 ICT services

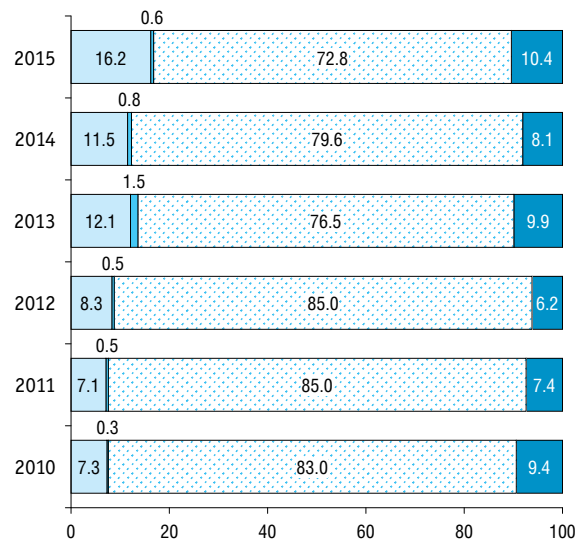
(continued)

Gross value added



Manufacture of ICT equipment  
Wholesale of ICT goods

Fixed capital investment



Telecommunications  
ICT services

### 1.3. ICT SECTOR ENTERPRISES BY ECONOMIC ACTIVITY\*

(thousand; at the end of the year)

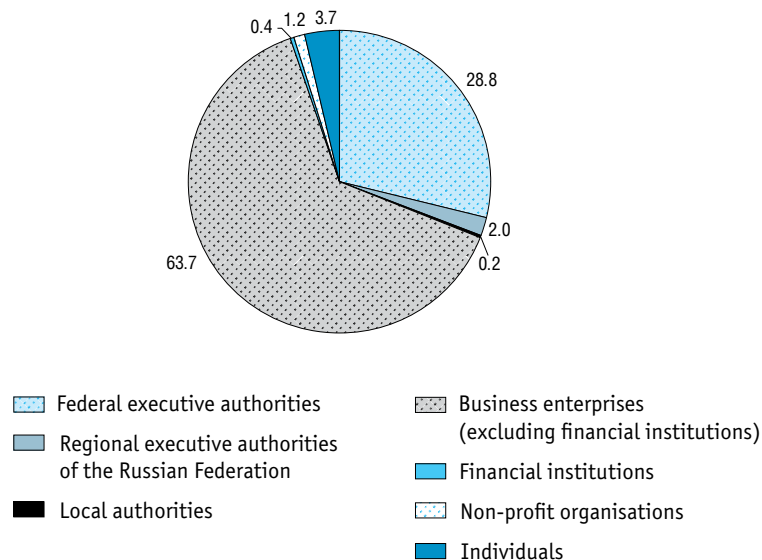
	2010	2011	2012	2013	2014	2015
<b>ICT sector – total</b>	<b>138.3</b>	<b>145.0</b>	<b>149.5</b>	<b>154.6</b>	<b>158.8</b>	<b>166.4</b>
Manufacture of office machinery and computers	3.3	3.3	3.3	3.2	3.1	3.0
Manufacture of insulated wires and cables	0.6	0.6	0.6	0.7	0.7	0.7
Manufacture of radio, television and communication	5.1	5.3	5.3	5.4	5.4	5.5
Manufacture of instruments and appliances for measuring, monitoring, testing, control, navigation and other purposes	5.1	5.3	5.5	5.6	5.7	5.8
Manufacture of industrial process control equipment	0.6	0.7	0.7	0.8	0.8	0.8
Wholesale of ICT goods	34.4	35.7	36.0	36.8	37.7	39.8
Telecommunications	24.0	23.4	23.1	22.8	22.4	22.4
Renting of office machinery and equipment, including computers	0.8	0.8	0.8	0.7	0.7	0.7
Computer and information technology-related activities	64.4	69.9	74.2	78.6	82.3	87.7

\* Here and below in the section – wholesale of ICT goods includes wholesale of radio and television equipment, data storage devices (with and without recorded information) (RCEA code (Rev. 1.1) – 51.43.2), wholesale of computers, computer peripheral equipment and software (51.84), wholesale of other electronic equipment and parts (51.86), wholesale of industrial electrical equipment, machinery, hardware and supplies (51.87.5).



**1.4. DISTRIBUTION OF AUTHORIZED SHARE CAPITAL OF THE ICT SECTOR BY SHAREHOLDERS (FOUNDERS): 2015\***

*(as a percentage of the total authorized share capital (authorized stock)  
of ICT sector enterprises; at the end of the year)*



\* Excluding data on small businesses.

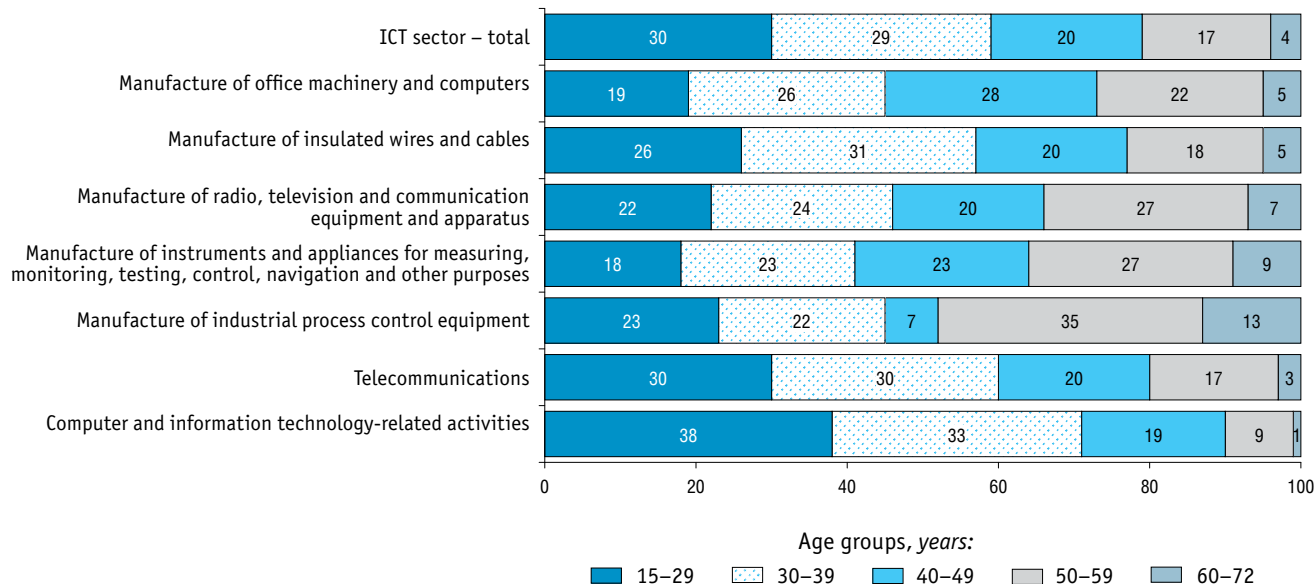
### 1.5. EMPLOYMENT IN THE ICT SECTOR BY ECONOMIC ACTIVITY

(thousand, headcount)

	2010	2011	2012	2013	2014	2015
<b>ICT sector – total</b>	<b>1306.5</b>	<b>1268.2</b>	<b>1294.2</b>	<b>1322.9</b>	<b>1336.4</b>	<b>1349.2</b>
Manufacture of office machinery and computers	17.3	19.0	20.1	20.6	18.9	18.7
Manufacture of insulated wires and cables	32.1	35.2	37.5	35.6	34.1	31.8
Manufacture of radio, television and communication equipment and apparatus	155.3	155.4	153.1	152.9	154.1	162.0
Manufacture of instruments and appliances for measuring, monitoring, testing, control, navigation and other purposes	210.4	218.1	219.6	211.7	214.3	224.2
Manufacture of industrial process control equipment	2.1	2.1	2.8	5.5	4.7	4.7
Wholesale of ICT goods	92.0	69.8	67.2	75.5	77.5	73.0
Telecommunications	473.8	456.8	454.0	438.3	430.5	416.8
Renting of office machinery and equipment, including computers	0.2	0.1	0.1	2.0	2.1	1.4
Computer and information technology-related activities	323.3	311.7	339.8	380.8	400.2	416.6

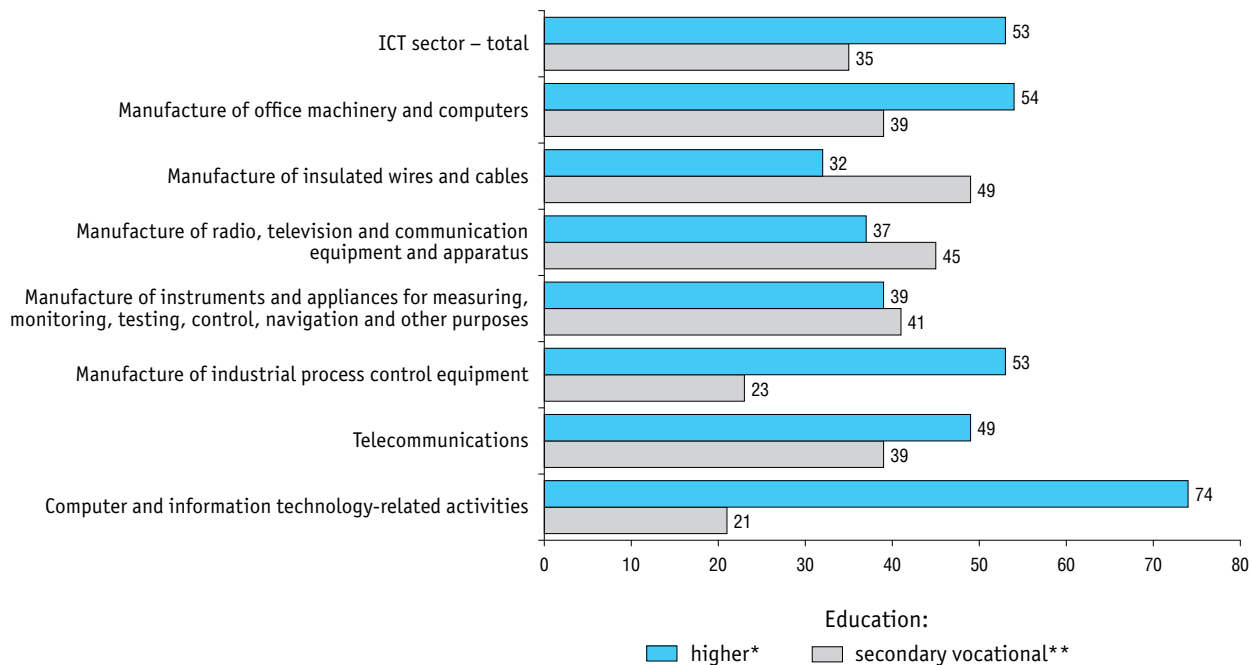
### 1.6. PERCENTAGE DISTRIBUTION OF ICT SECTOR EMPLOYMENT BY AGE AND ECONOMIC ACTIVITY: 2015\*

(as a percentage of the total ICT sector employment)



\* Here and below (1.7) – excluding those employed in the wholesale of ICT goods, and excluding those employed by enterprises renting office machinery and equipment, including computers.

### 1.7. EMPLOYEES WITH HIGHER EDUCATION AND SECONDARY VOCATIONAL EDUCATION AS A PERCENTAGE OF THE TOTAL ICT SECTOR EMPLOYMENT BY ECONOMIC ACTIVITY: 2015



\* Including postgraduate education.

\*\* Including secondary vocational education – programmes for skilled workers, junior technicians and employees.

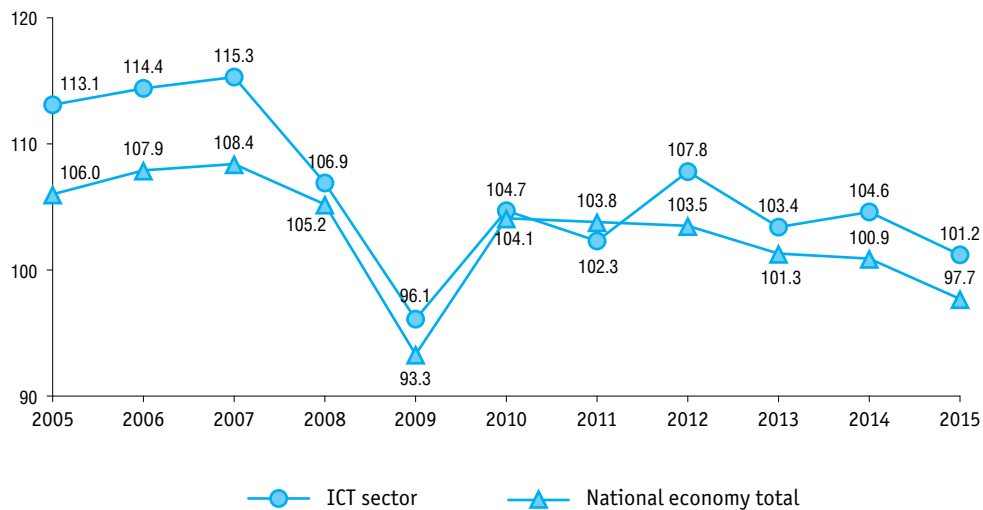
**1.8. AVERAGE MONTHLY SALARIES PER EMPLOYEE IN THE ICT SECTOR BY ECONOMIC ACTIVITY**  
*(thousand roubles)*

	2010	2011	2012	2013	2014	2015
<b>ICT sector – total</b>	<b>28.0</b>	<b>30.9</b>	<b>34.9</b>	<b>38.4</b>	<b>41.9</b>	<b>46.5</b>
Manufacture of office machinery and computers	27.3	28.1	32.1	36.5	41.6	50.3
Manufacture of insulated wires and cables	21.3	24.3	26.3	27.9	29.7	32.4
Manufacture of radio, television and communication equipment and apparatus	19.3	23.0	27.1	30.8	35.2	40.3
Manufacture of instruments and appliances for measuring, monitoring, testing, control, navigation and other purposes	21.3	24.6	27.6	31.9	35.8	40.1
Manufacture of industrial process control equipment	34.0	42.0	42.9	30.2	32.8	36.5
Wholesale of ICT goods	23.4	23.8	28.3	28.3	29.4	34.7
Telecommunications	32.0	35.1	37.3	40.9	43.9	46.3
Renting of office machinery and equipment, including computers	...	...	...	21.8	24.8	28.1
Computer and information technology-related activities	32.7	35.2	42.3	45.7	49.2	55.7

### 1.9. GROSS VALUE ADDED OF ICT SECTOR ENTERPRISES BY ECONOMIC ACTIVITY

(billion roubles)

	2010	2011	2012	2013	2014	2015
<b>ICT sector – total</b>	<b>1354.0</b>	<b>1534.4</b>	<b>1779.8</b>	<b>1845.5</b>	<b>2149.2</b>	<b>2262.3</b>
Manufacture of office machinery and computers	15.1	17.6	20.6	20.8	25.9	30.0
Manufacture of insulated wires and cables	17.5	14.8	20.4	21.1	20.1	29.8
Manufacture of radio, television and communication equipment and apparatus	70.5	93.0	90.3	108.6	167.9	167.0
Manufacture of instruments and appliances for measuring, monitoring, testing, control, navigation and other purposes	117.0	110.2	142.2	159.5	203.0	258.4
Manufacture of industrial process control equipment	2.7	2.7	2.9	3.9	4.5	4.1
Wholesale of ICT goods	73.6	109.9	98.1	150.7	157.4	159.4
Telecommunications	798.0	868.6	963.0	949.7	1043.3	909.7
Renting of office machinery and equipment, including computers	1.0	7.3	8.1	8.3	12.5	13.2
Computer and information technology-related activities	258.6	310.3	434.2	422.9	514.6	690.7

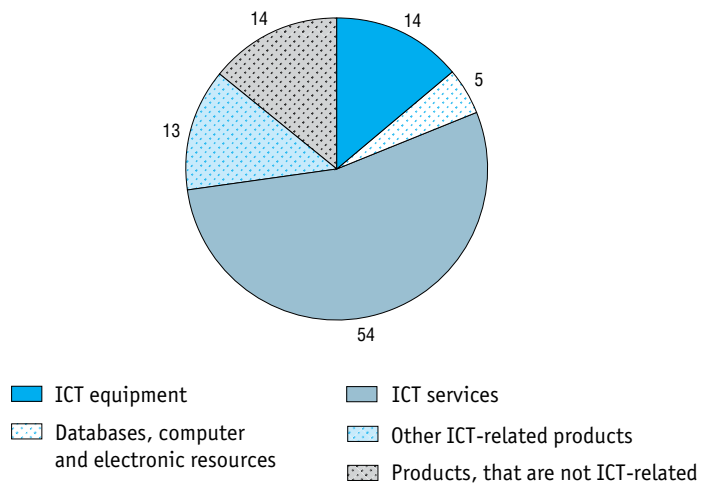
**1.10. TRENDS IN GROSS VALUE ADDED OF ICT SECTOR ENTERPRISES***(as a percentage of the previous year; at constant prices)*

### 1.11. SALES OF ICT SECTOR ENTERPRISES BY ECONOMIC ACTIVITY

(billion roubles)

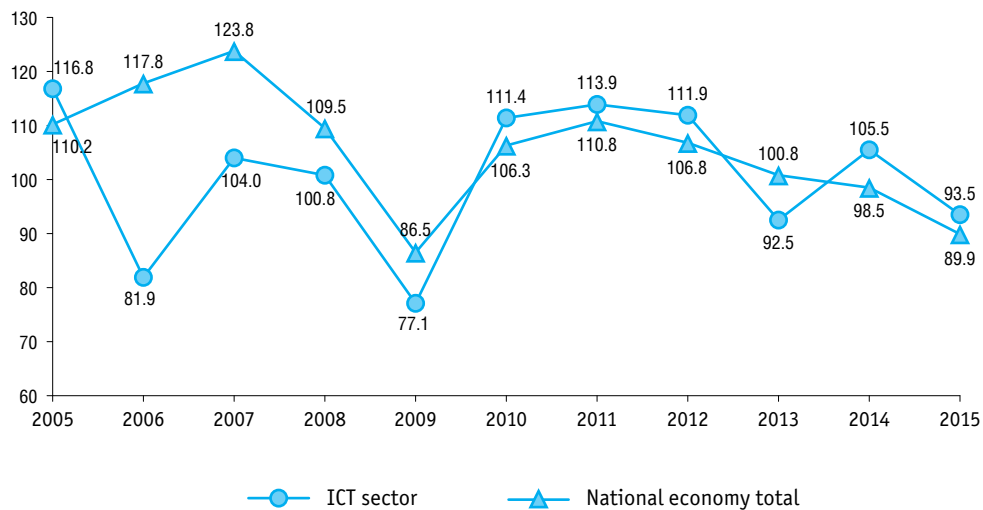
	2010	2011	2012	2013	2014	2015
<b>ICT sector – total</b>	<b>2347.0</b>	<b>2602.7</b>	<b>2931.6</b>	<b>3221.3</b>	<b>3403.8</b>	<b>475765</b>
Manufacture of office machinery and computers	31.6	41.0	53.9	52.5	56.1	7569
Manufacture of insulated wires and cables	109.3	143.8	152.4	146.3	151.3	6832
Manufacture of radio, television and communication equipment and apparatus	204.3	241.9	289.9	288.9	321.7	32692
Manufacture of instruments and appliances for measuring, monitoring, testing, control, navigation and other purposes	188.3	224.5	251.8	280.6	345.1	29537
Manufacture of industrial process control equipment	7.6	6.7	7.3	6.9	7.6	24
Wholesale of ICT goods	104.8	169.7	208.3	312.9	226.6	3005
Telecommunications	1365.4	1434.7	1580.0	1645.2	1668.5	352409
Renting of office machinery and equipment, including computers	2.0	1.0	2.1	2.3	2.6	239
Computer and information technology-related activities	333.7	339.4	385.9	485.7	624.3	43458



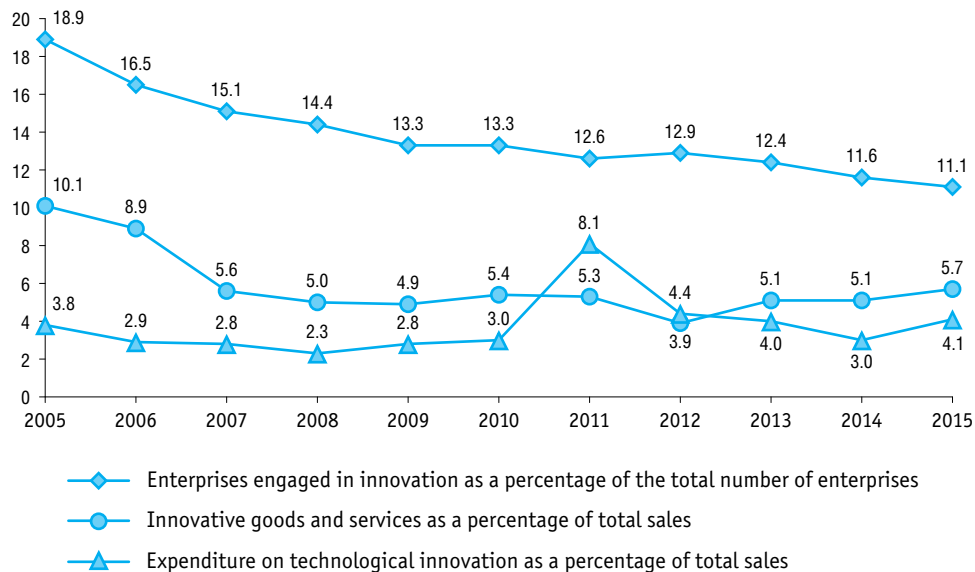
**1.12. DISTRIBUTION OF ICT GOODS AND SERVICES SALES BY TYPE: 2015***(as a percentage of the total ICT goods and services sales)*

### 1.13. FIXED CAPITAL INVESTMENT IN THE ICT SECTOR BY ECONOMIC ACTIVITY (million roubles)

	2010	2011	2012	2013	2014	2015
<b>ICT sector – total</b>	<b>297048</b>	<b>352909</b>	<b>408616</b>	<b>397556</b>	<b>437020</b>	<b>475765</b>
Manufacture of office machinery and computers	1396	1840	3159	4499	5376	7569
Manufacture of insulated wires and cables	1899	3394	5586	6740	5986	6832
Manufacture of radio, television and communication equipment and apparatus	9600	9200	10028	20073	18049	32692
Manufacture of instruments and appliances for measuring, monitoring, testing, control, navigation and other purposes	8742	10472	14897	16657	20650	29537
Manufacture of industrial process control equipment	56	32	74	18	262	24
Wholesale of ICT goods	785	1745	1993	6147	3215	3005
Telecommunications	246650	300019	347429	304013	347974	352409
Renting of office machinery and equipment, including computers	2220	1507	1460	2863	419	239
Computer and information technology-related activities	25700	24700	23990	36546	35089	43458

**1.14. TRENDS IN FIXED CAPITAL INVESTMENT IN THE ICT SECTOR***(as a percentage of the previous year; at constant prices)*

### 1.15. MAIN INDICATORS OF INNOVATION IN THE ICT SECTOR\*



\* Here and below (1.16–1.19) – the data on the ICT sector are presented for the types of economic activity with the following RCEA codes (Rev. 1.1): 30, 32, 64, 72 (the data on small businesses are excluded).

## 1.16. INNOVATIVE ACTIVITY IN THE ICT SECTOR BY ECONOMIC ACTIVITY

*(per cent)*

	Overall share of innovative enterprises			Enterprises engaged in innovation of selected types as a percentage of the total number of enterprises								
				Technological			Marketing			Organisational		
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
<b>ICT sector – total</b>	<b>14.2</b>	<b>12.8</b>	<b>12.4</b>	<b>12.4</b>	<b>11.6</b>	<b>11.1</b>	<b>3.2</b>	<b>2.6</b>	<b>3.5</b>	<b>4.0</b>	<b>3.8</b>	<b>4.1</b>
Manufacture of office machinery and computers	14.6	25.0	21.7	12.5	22.7	21.7	2.1	9.1	8.7	4.2	6.8	4.3
Manufacture of radio, television and communication equipment and apparatus	34.2	35.5	34.2	33.5	34.2	33.2	4.7	4.9	5.4	9.7	7.8	9.2
Communication	14.2	12.2	13.3	11.8	10.7	11.2	4.7	3.3	5.5	4.3	4.5	5.3
Computer and information technology related activities	9.6	8.8	8.0	8.4	8.0	7.3	0.8	1.0	0.9	2.4	2.1	2.0

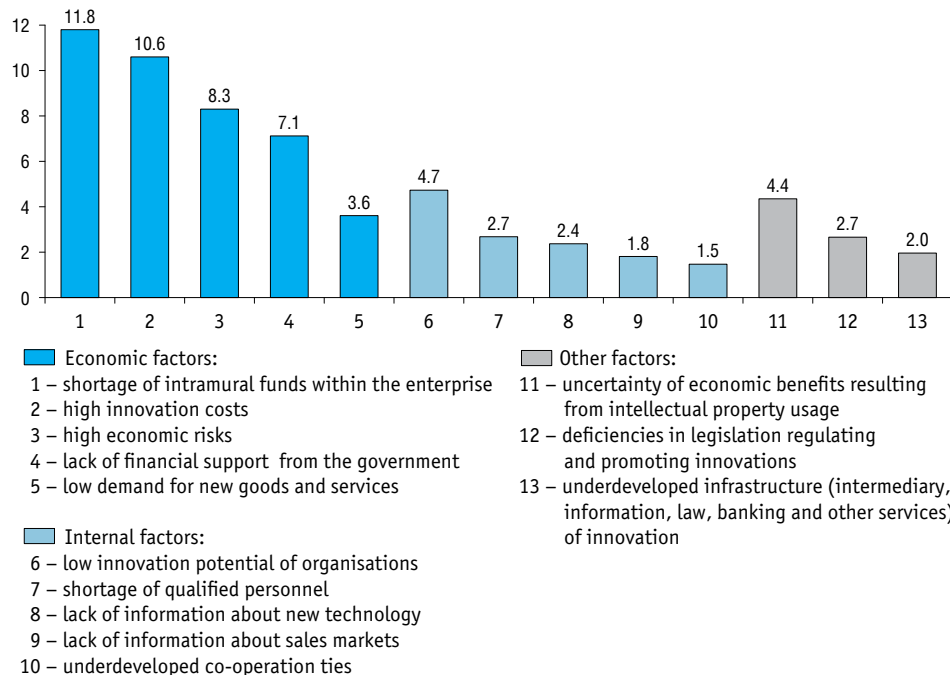
### 1.17. ENTERPRISES ENGAGED IN INNOVATION OF SELECTED TYPES AS A PERCENTAGE OF THE TOTAL NUMBER OF ICT SECTOR ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATION ENTERPRISES BY ECONOMIC ACTIVITY: 2015

	R&D	Design	Acquisition of machinery and equipment	Acquisition of new technology	Of which acquisition of patent rights and licences	Acquisition of software	Engineering	Personnel training	Market research	Other
<b>ICT sector – total</b>	<b>34.2</b>	<b>7.0</b>	<b>48.1</b>	<b>5.4</b>	<b>3.2</b>	<b>38.8</b>	<b>12.5</b>	<b>23.9</b>	<b>4.6</b>	<b>20.1</b>
Manufacture of office machinery and computers	60.0	30.0	90.0	–	–	40.0	20.0	40.0	30.0	–
Manufacture of radio, television and communication equipment and apparatus	56.1	15.3	70.4	9.2	6.1	39.8	22.4	32.7	6.1	7.1
Communication	20.7	1.6	48.0	2.4	0.8	35.0	11.0	23.2	3.3	28.5
Computer and information technology related activities	40.6	9.1	30.1	8.4	5.6	44.8	7.7	18.2	4.2	16.1

## 1.18. EXPENDITURE ON TECHNOLOGICAL INNOVATION IN THE ICT SECTOR BY ECONOMIC ACTIVITY

	Million roubles			As a percentage of total sales		
	2013	2014	2015	2013	2014	2015
<b>ICT sector – total</b>	<b>85789.2</b>	<b>69668.8</b>	<b>98641.2</b>	<b>4.0</b>	<b>3.0</b>	<b>4.1</b>
Manufacture of office machinery and computers	440.0	791.2	1469.0	0.9	1.7	2.6
Manufacture of radio, television and communication equipment and apparatus	19215.8	21811.3	30449.4	6.8	7.0	9.4
Communication	45550.0	38403.8	40738.4	3.0	2.4	2.6
Computer and information technology related activities	20583.4	8662.5	25984.4	6.9	2.6	6.1

### 1.19. DISTRIBUTION OF ENTERPRISES RANKING AS MAIN THE FOLLOWING FACTORS HAMPERING TECHNOLOGICAL INNOVATION: 2015 (as a percentage of the total number of ICT sector enterprise)





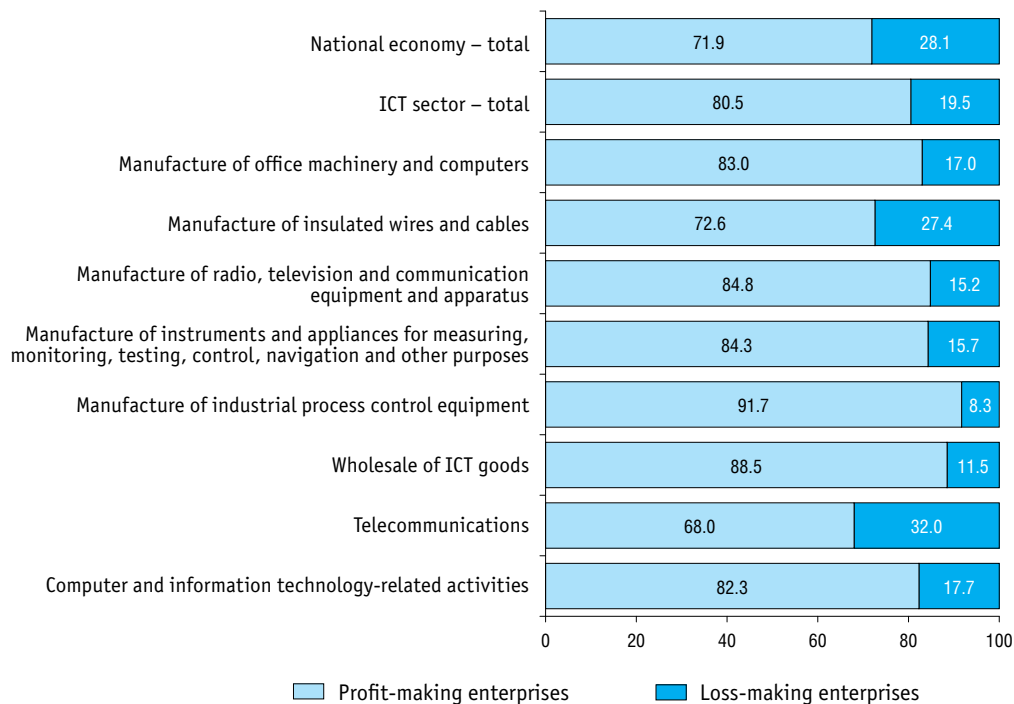
## 1.20. MAIN FINANCIAL EFFECTS OF ICT SECTOR ENTERPRISES' ACTIVITIES\*

	2010	2011	2012	2013	2014	2015
The total number of enterprises surveyed	1890	1975	2018	2041	2059	1850
profit-making enterprises	1540	1571	1595	1639	1588	1490
loss-making enterprises	350	404	423	402	471	360
As a percentage of the total number of enterprises surveyed:						
profit-making enterprises	81.5	79.5	79.0	80.3	77.1	80.5
loss-making enterprises	18.5	20.5	21.0	19.7	22.9	19.5
Balance (profit minus loss) of enterprises' activities, <i>million roubles</i>	323989	341824	363237	391519	306537	358727
Total profits, <i>million roubles</i>	360422	399601	434342	450172	460764	406366
Total losses, <i>million roubles</i>	36433	57777	71105	58653	154227	47639
Return on assets, <i>per cent</i>	10.8	8.8	8.5	8.6	6.1	7.2

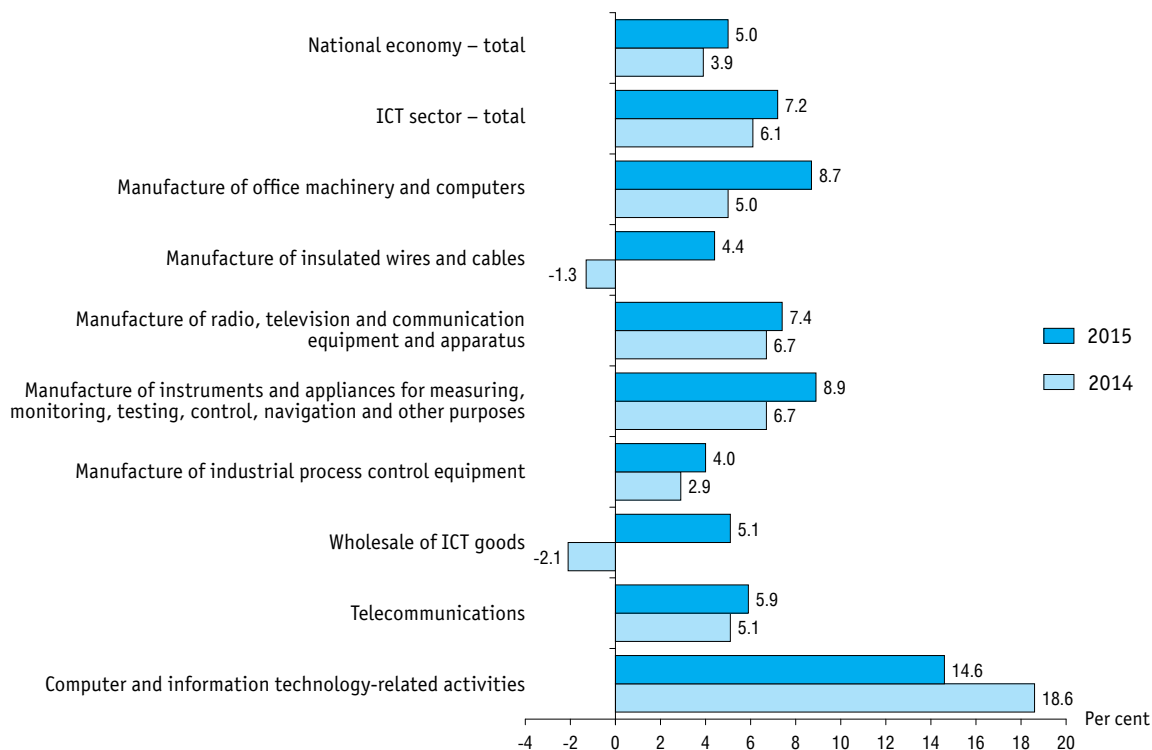
\* Here and below (1.21, 1.22) – the data on small businesses are excluded.

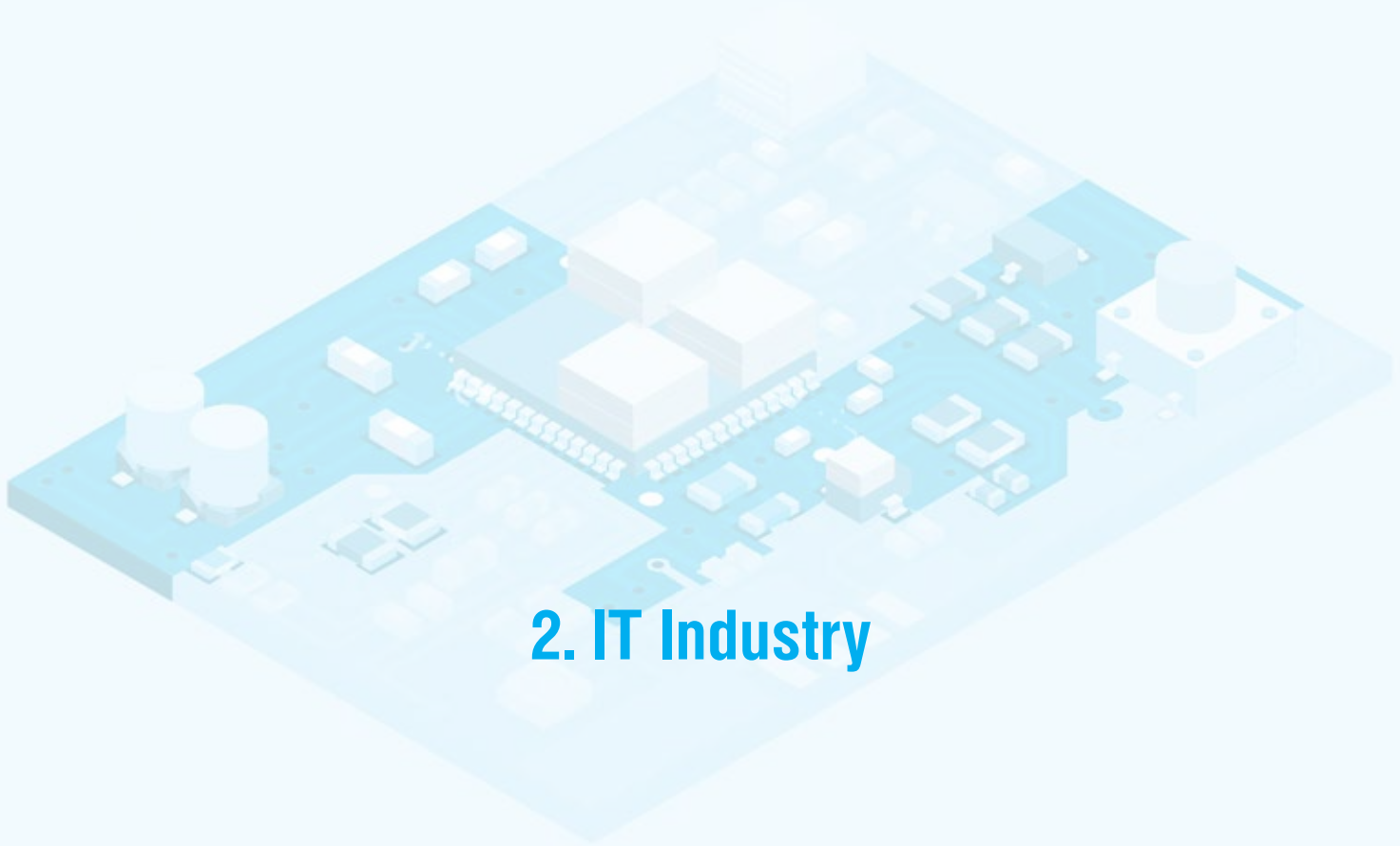
### 1.21. DISTRIBUTION OF ICT SECTOR ENTERPRISES BY ECONOMIC ACTIVITY AND FINANCIAL RESULT: 2015

(as a percentage of the total number of enterprises)



## 1.22. RETURN ON ASSETS OF ICT SECTOR ENTERPRISES BY ECONOMIC ACTIVITY





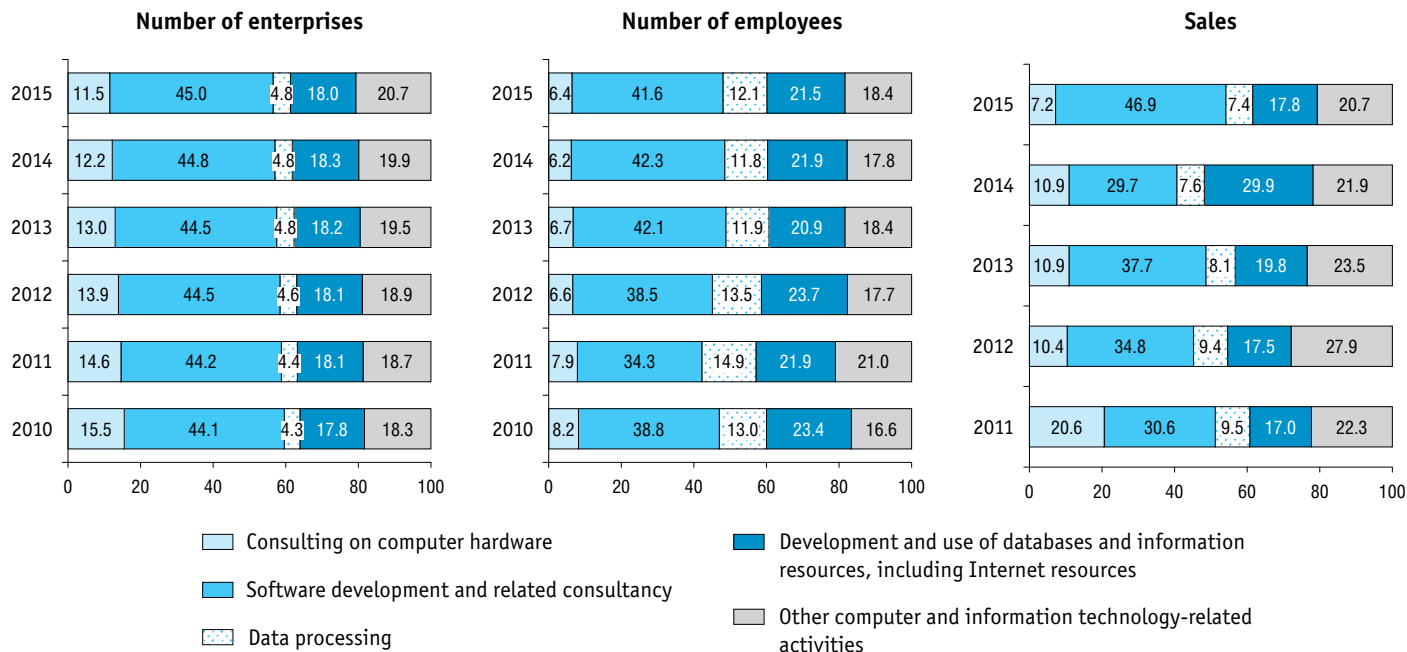
## 2. IT Industry

## 2.1. MAIN INDICATORS OF THE IT INDUSTRY

	2010	2011	2012	2013	2014	2015
Number of enterprises, <i>thousand, at the end of the year</i>	52	57	61	65	68	73
Number of employees						
thousand persons	294	281	304	343	366	381
as a percentage of the total employment	0.6	0.6	0.7	0.7	0.8	0.8
Gross value added						
billion roubles	250	299	426	418	499	671
as a percentage of GDP	0.6	0.6	0.7	0.7	0.7	0.9
Sales, <i>billion roubles</i>	317	322	369	460	595	808
Fixed capital investment, <i>billion roubles</i>	...	...	24	36	35	43

Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

## 2.2. PERCENTAGE DISTRIBUTION OF THE IT INDUSTRY\*



\* Here and below in the section – the IT Industry is defined according to order № 502 of the Ministry of Telecom and Mass Communications of the Russian Federation.

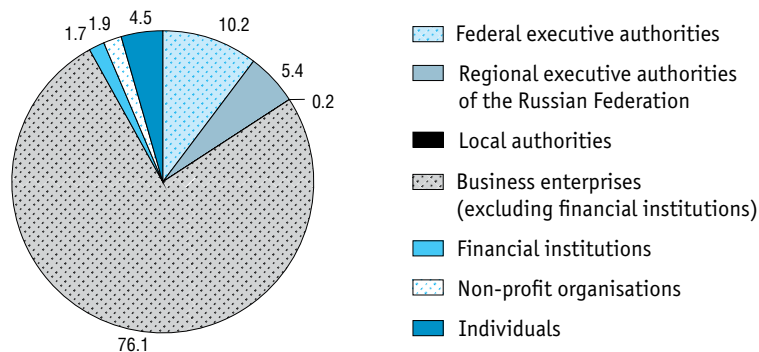
## 2.3. IT INDUSTRY ENTERPRISES BY ECONOMIC ACTIVITY

(thousand; at the end of the year)

	2010	2011	2012	2013	2014	2015
<b>IT industry – total</b>	<b>52.1</b>	<b>57.1</b>	<b>60.8</b>	<b>64.7</b>	<b>68.2</b>	<b>73.1</b>
Consulting on computer hardware	8.0	8.4	8.4	8.4	8.3	8.4
Software development and related consultancy	23.0	25.2	27.1	28.8	30.5	32.9
Data processing	2.3	2.5	2.8	3.1	3.3	3.5
Development and use of databases and information resources, including Internet resources	9.3	10.3	11.0	11.8	12.5	13.2
Other computer and information technology-related activities	9.5	10.7	11.5	12.6	13.6	15.1

## 2.4. DISTRIBUTION OF AUTHORIZED SHARE CAPITAL OF THE IT INDUSTRY BY SHAREHOLDERS (FOUNDERS): 2015\*

(per cent; at the end of the year)



\* The data on small businesses are excluded.

## 2.5. IT INDUSTRY EMPLOYMENT BY ECONOMIC ACTIVIT

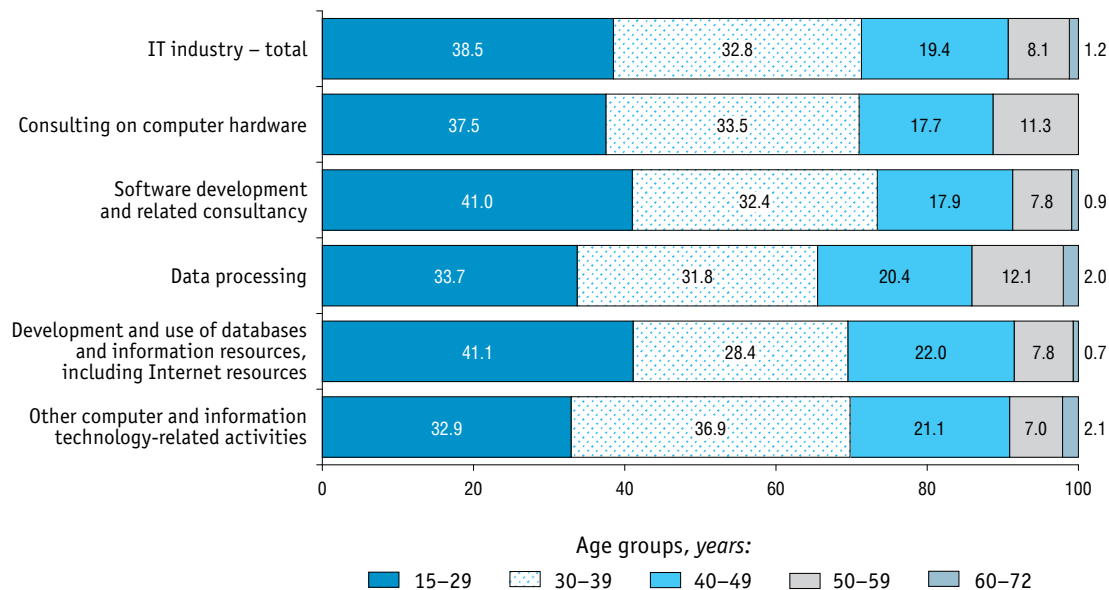
(thousand)

	2010	2011	2012	2013	2014	2015
<b>IT industry – total</b>	<b>294.1</b>	<b>281.1</b>	<b>304.2</b>	<b>342.5</b>	<b>365.9</b>	<b>381.1</b>
Consulting on computer hardware	24.2	22.2	20.1	23.0	22.6	24.3
Software development and related consultancy	114.1	96.4	117.2	144.1	154.7	158.4
Data processing	38.2	41.8	40.9	40.6	43.0	46.1
Development and use of databases and information resources, including Internet resources	68.9	61.7	72.2	71.8	80.3	82.0
Other computer and information technology-related activities	48.7	59.0	53.8	63.0	65.3	70.3

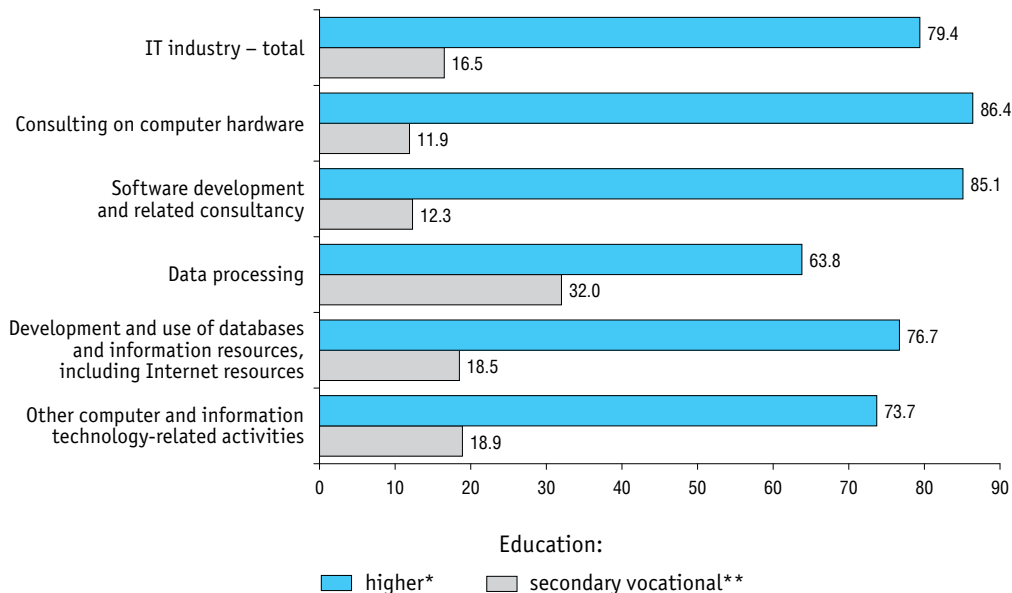


## 2.6. PERCENTAGE DISTRIBUTION OF IT INDUSTRY EMPLOYMENT BY AGE AND ECONOMIC ACTIVITY: 2015

(as a percentage of the total IT Industry employment)



## 2.7. EMPLOYEES WITH HIGHER EDUCATION AND SECONDARY VOCATIONAL EDUCATION AS A PERCENTAGE OF THE TOTAL IT INDUSTRY EMPLOYMENT BY ECONOMIC ACTIVITY: 2015



\* Including postgraduate education.

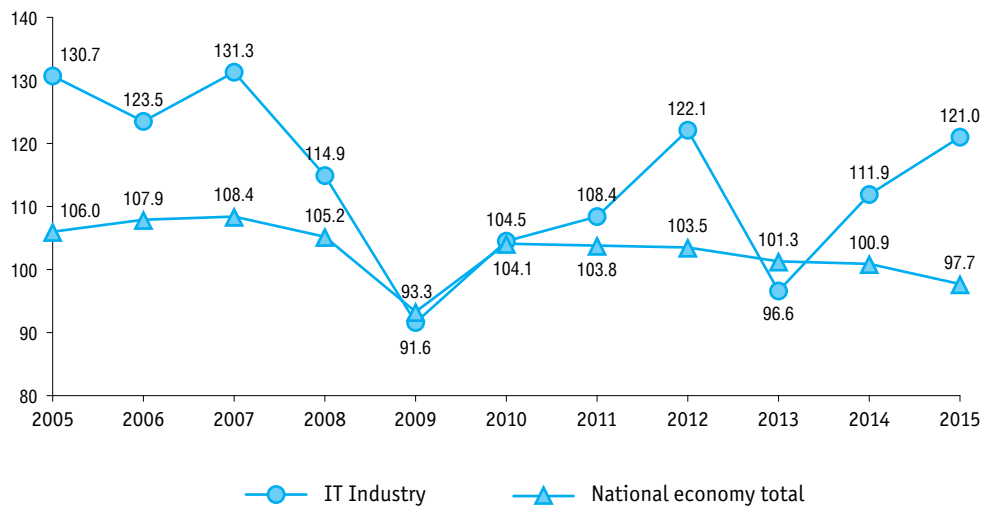
\*\* Including secondary vocational education – programmes for skilled workers, junior technicians and employees.

**2.8. AVERAGE MONTHLY SALARIES PER EMPLOYEE IN IT INDUSTRY ENTERPRISES BY ECONOMIC ACTIVITY**  
*(thousand roubles)*

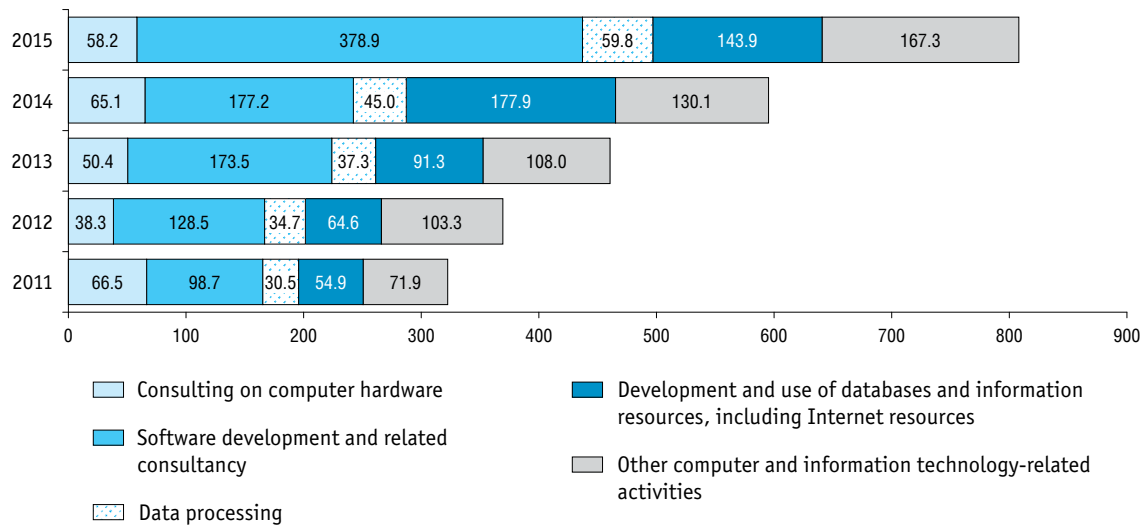
	2010	2011	2012	2013	2014	2015
<b>IT industry – total</b>	<b>34.0</b>	<b>37.0</b>	<b>44.8</b>	<b>48.2</b>	<b>51.5</b>	<b>58.5</b>
Consulting on computer hardware	26.7	32.3	48.1	48.9	49.1	47.8
Software development and related consultancy	41.3	44.3	49.9	52.2	59.5	70.7
Data processing	22.2	23.1	27.2	32.6	34.3	36.6
Development and use of databases and information resources, including Internet resources	27.2	36.5	44.6	48.8	48.4	52.7
Other computer and information technology-related activities	39.4	37.0	46.3	48.1	48.8	55.9

## 2.9. TRENDS IN GROSS VALUE ADDED OF IT INDUSTRY ENTERPRISES

(as a percentage of the previous year; at constant prices)

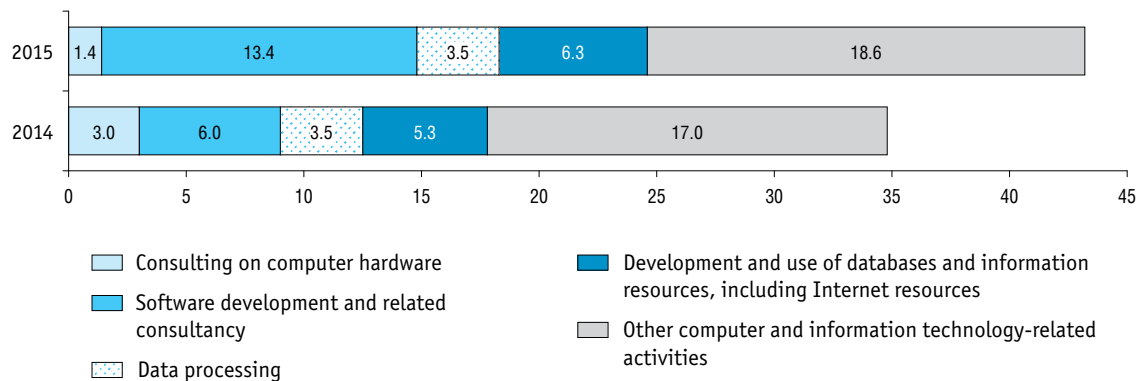


## 2.10. SALES OF IT INDUSTRY ENTERPRISES BY ECONOMIC ACTIVITY

*(billion roubles)*

## 2.11. FIXED CAPITAL INVESTMENT IN THE IT INDUSTRY BY ECONOMIC ACTIVITY

(billion roubles)



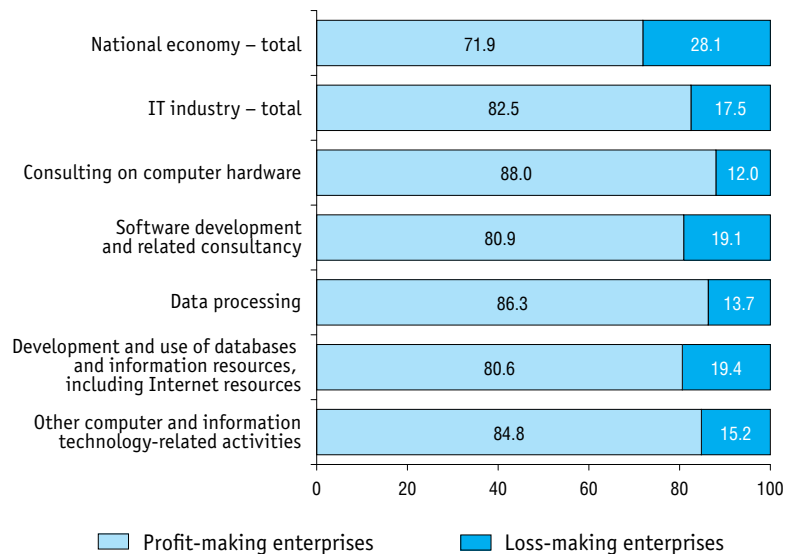
## 2.12. MAIN FINANCIAL EFFECTS OF IT INDUSTRY ENTERPRISES' ACTIVITIES\*

	2014	2015
The total number of enterprises surveyed	519	567
profit-making enterprises	425	468
loss-making enterprises	94	99
As a percentage of the total number of enterprises surveyed:		
profit-making enterprises	81.9	82.5
loss-making enterprises	18.1	17.5
Balance (profit minus loss) of enterprises' activities, <i>million roubles</i>	67245	71803
Total profits, <i>million roubles</i>	71375	80057
Total losses, <i>million roubles</i>	4130	8254
Return on assets, <i>per cent</i>	19.4	15.1

\* Here and below (2.13, 2.14) – the data on small businesses are excluded.

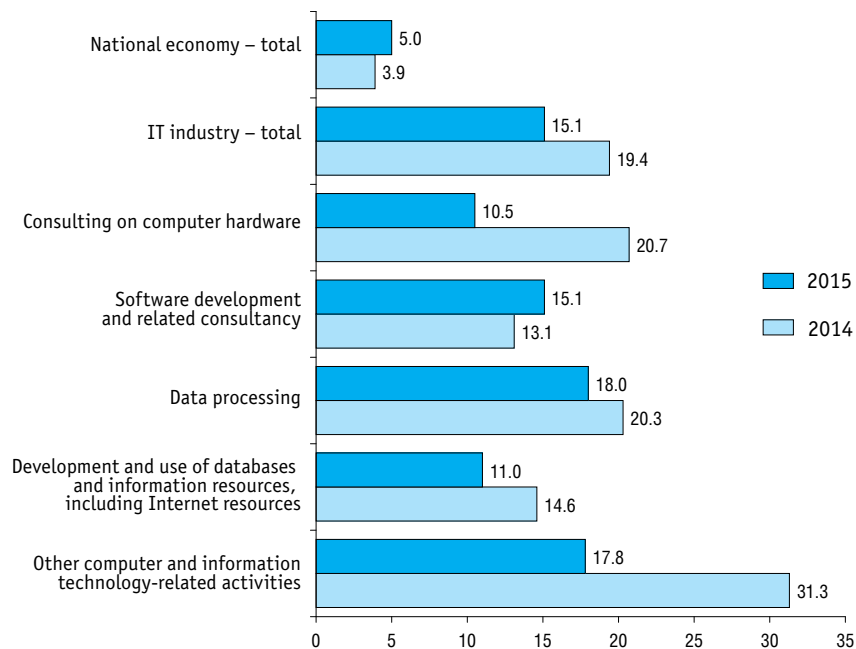
## 2.13. DISTRIBUTION OF IT INDUSTRY ENTERPRISES BY ECONOMIC ACTIVITY AND FINANCIAL RESULT: 2015

(as a percentage of the total number of enterprises)





## 2.14. RETURN ON ASSETS OF IT INDUSTRY ENTERPRISES BY ECONOMIC ACTIVITY



## 2.15. BUSINESS ACTIVITY OF ENTERPRISES RENDERING IT SERVICES\*

(balances\*\*, per cent)

	Level***			Trends					
				During the year			Expectations for the next year		
	2014	2015	2016	2014	2015	2016	2015	2016	2017
Demand for enterprises' services	-30	-35	-32	-9	-21	-10	+14	-5	+7
Number of contracts (customers)	-32	-37	-32	-7	-21	-14	+19	-2	+9
Cost of services	-23	-31	-29	-1	-15	-9	+19	+7	+6
Prices (tariffs) for services	-9	-12	-12	+4	+6	+2	+15	+16	+12
Number of employees	-14	-18	-16	-4	-9	-5	+6	+2	+6
Competitiveness	-3	+2	+1	+2	+5	+4	+5	+7	+15
Investment	-31	-37	-32	-8	-14	-8	+1	-8	-6
Economic status of enterprises	-28	-26	-21	-7	-18	-8	+11	-4	+4

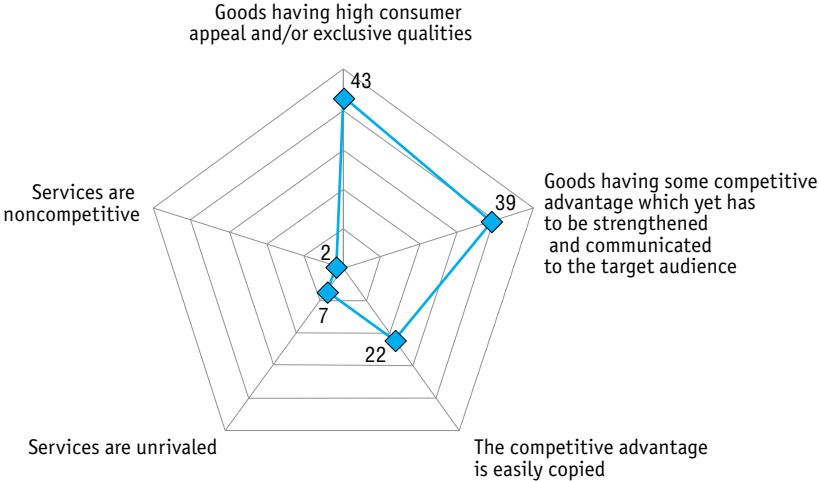
\* Enterprises engaged in computer and information technology-related activities (RCEA code (Rev. 1.1) – 72).

\*\* Balance is the difference between the respondents giving positive responses ('increase' compared to the previous period or 'above normal' current level) and those who gave negative responses ('decrease' compared to the previous period or 'below normal' current level), *per cent*.

\*\*\* Implies a level that is acceptable, regular, sufficient under the current conditions of activity during the surveyed period.

Source: here and below (2.16) – the results of specialized surveys of organisations, conducted by HSE Institute for Statistical Studies and Economics of Knowledge with the participation of ANO 'Statistics of Russia' in the framework of the project 'Monitoring business environment of real sector and service sector enterprises' within the HSE Basic Research Programme.

2.16. ASSESSMENT OF THE COMPETITIVE ADVANTAGES OF ENTERPRISES RENDERING IT SERVICES: 2016  
(as a percentage of the total number of enterprises surveyed)





### **3. Content and Media Sector**

## 3.1. MAIN INDICATORS OF CONTENT AND MEDIA SECTOR ENTERPRISES' ACTIVITY

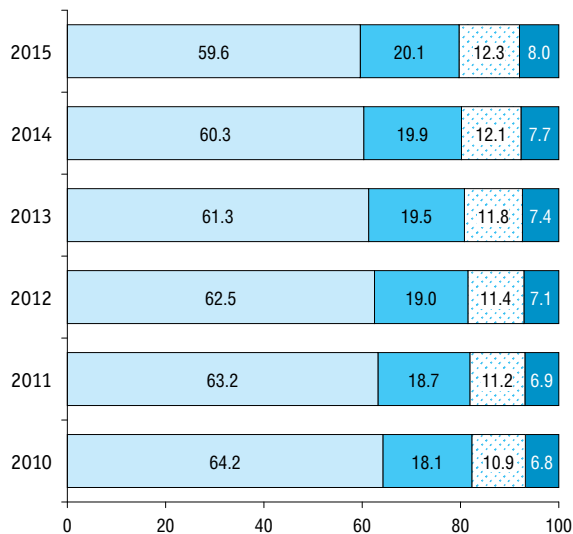
	2010	2011	2012	2013	2014	2015
Number of enterprises, <i>thousand, at the end of the year</i>	51.3	51.4	50.9	50.2	48.3	47.3
Number of employees						
thousand persons	261.2	250.8	226.0	223.8	218.7	210.1
as a percentage of the total employment	0.6	0.5	0.5	0.5	0.5	0.5
Gross value added*						
billion roubles	206.4	203.6	218.6	237.3	213.8	242.3
as a percentage of GDP	0.5	0.4	0.4	0.4	0.3	0.3
Fixed capital investment, <i>billion roubles</i>	6.5	7.9	8.1	21.4	28.2	27.1

\* Excluding news agencies' activities (RCEA code (Rev. 1.1) – 92.4).

Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

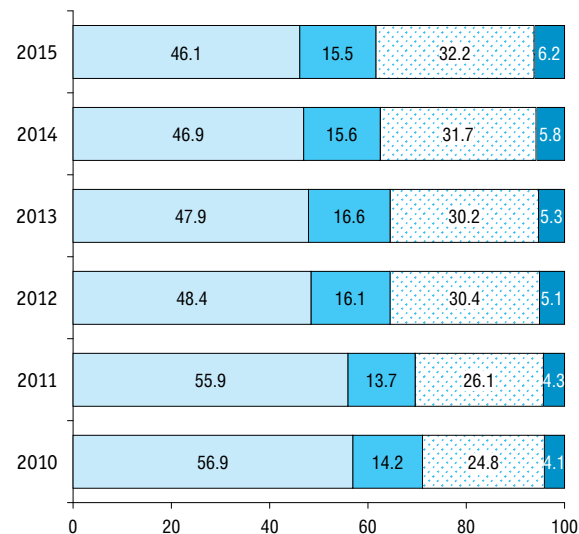
### 3.2. PERCENTAGE DISTRIBUTION OF CONTENT AND MEDIA SECTOR ENTERPRISES

Number of enterprises



Publishing activities  
 Motion pictures production, distribution and showing

Number of employees



Radio and TV broadcasting  
 News agencies' activities

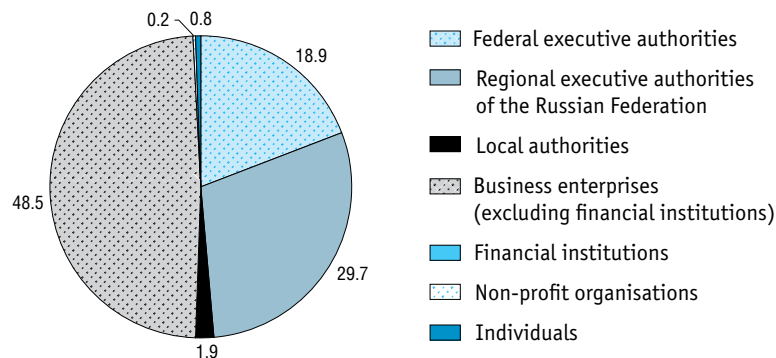
### 3.3. CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY

(thousand; at the end of the year)

	2010	2011	2012	2013	2014	2015
<b>Total</b>	<b>51.3</b>	<b>51.4</b>	<b>50.9</b>	<b>50.2</b>	<b>48.3</b>	<b>47.3</b>
Publishing activities	32.9	32.5	31.8	30.8	29.1	28.2
Motion pictures production, distribution and showing	9.3	9.6	9.7	9.8	9.6	9.5
Radio and TV broadcasting	5.6	5.7	5.8	5.9	5.8	5.8
News agencies' activities	3.5	3.6	3.6	3.7	3.8	3.8

### 3.4. DISTRIBUTION OF AUTHORIZED SHARE CAPITAL OF THE CONTENT AND MEDIA SECTOR BY SHAREHOLDERS (FOUNDERS): 2015\*

(as a percentage of the total authorized share capital (authorized stock) of ICT sector enterprises; at the end of the year)



\* The data on small businesses are excluded.

### 3.5. EMPLOYMENT IN CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY (thousand)

	2010	2011	2012	2013	2014	2015
<b>Total</b>	<b>261.2</b>	<b>250.8</b>	<b>226.0</b>	<b>223.8</b>	<b>218.7</b>	<b>210.1</b>
Publishing activities	148.5	140.2	109.3	107.2	102.6	96.8
Motion pictures production, distribution and showing	37.2	34.3	36.4	37.2	34.2	32.6
Radio and TV broadcasting	64.7	65.5	68.7	67.5	69.3	67.7
News agencies' activities	10.8	10.8	11.6	11.9	12.6	13.0

### 3.6. AVERAGE MONTHLY SALARY IN CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY (thousand roubles)

	2010	2011	2012	2013	2014	2015
<b>Total</b>	<b>23.4</b>	<b>28.8</b>	<b>33.7</b>	<b>35.8</b>	<b>38.3</b>	<b>38.7</b>
Publishing activities	20.8	26.9	32.5	33.7	33.2	30.9
Motion pictures production, distribution and showing	12.3	17.8	19.2	19.4	24.6	23.6
Radio and TV broadcasting	34.1	38.1	42.0	45.9	49.4	52.7
News agencies' activities	33.2	32.6	41.9	48.9	55.3	60.9



### 3.7. GROSS VALUE ADDED OF CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY\*

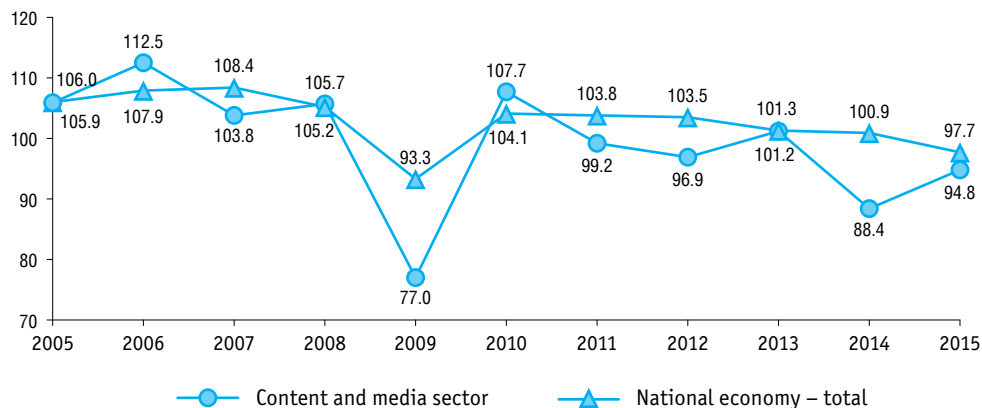
(billion roubles)

	2010	2011	2012	2013	2014	2015
<b>Total</b>	<b>206.4</b>	<b>203.6</b>	<b>218.6</b>	<b>237.3</b>	<b>213.8</b>	<b>242.3</b>
Publishing activities	70.1	61.7	74.8	76.7	67.4	74.4
Motion pictures production, distribution and showing and radio and TV broadcasting	136.3	141.9	143.8	160.6	146.4	167.9

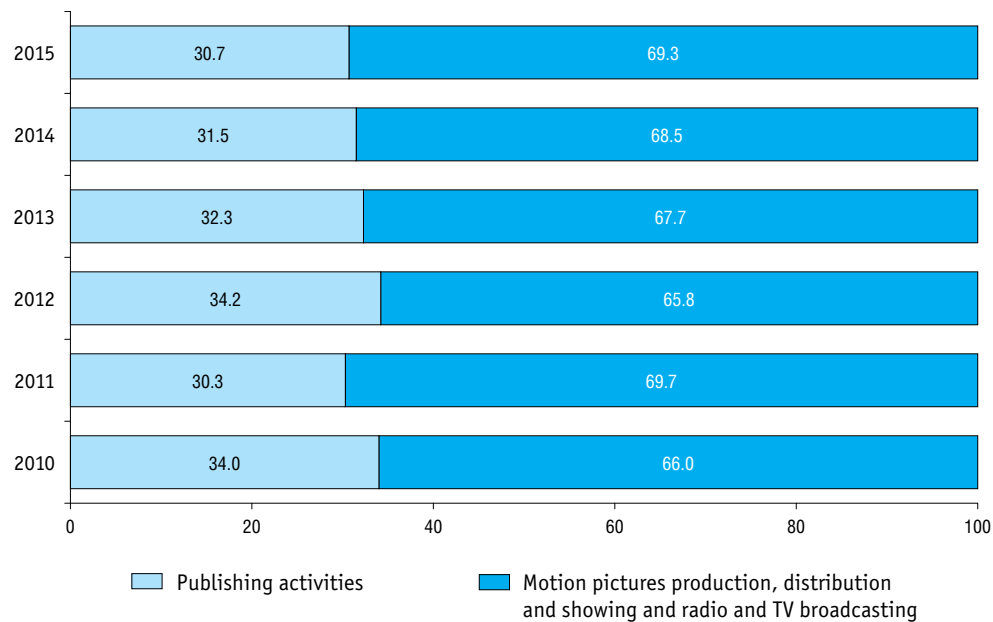
\* Here and below (3.8, 3.9) – excluding news agencies' activities (RCEA code (Rev. 1.1) – 92.4).

### 3.8. TRENDS IN GROSS VALUE ADDED OF CONTENT AND MEDIA SECTOR ENTERPRISES

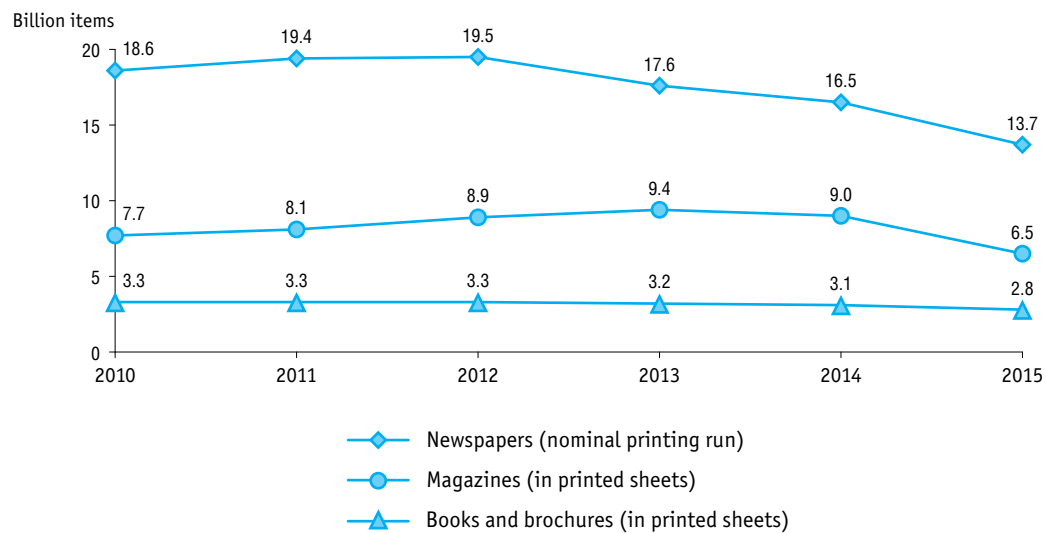
(as a percentage to the previous year; at constant prices)



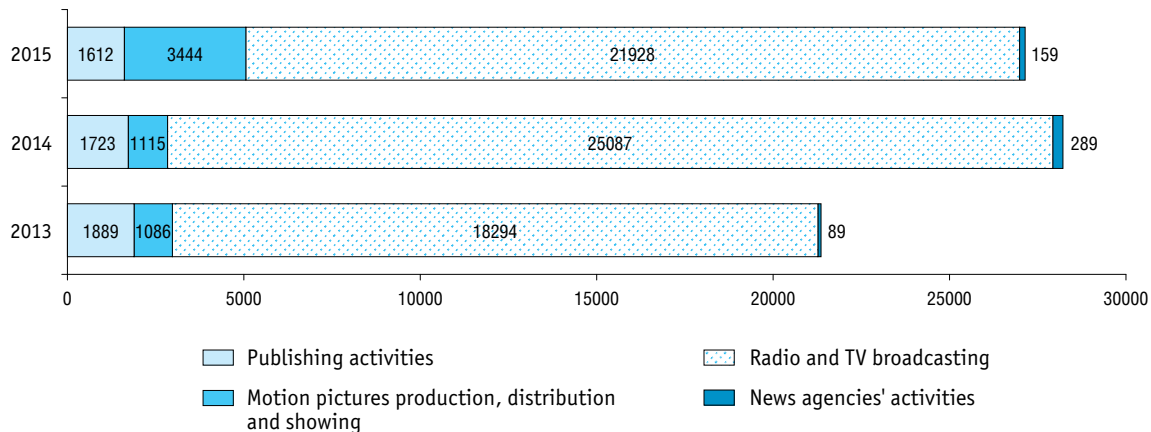
### 3.9. PERCENTAGE DISTRIBUTION OF GROSS VALUE ADDED OF CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY



## 3.10. PRODUCTION OF BOOKS, NEWSPAPERS AND MAGAZINES



### 3.11. FIXED CAPITAL INVESTMENT IN CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY (million roubles)



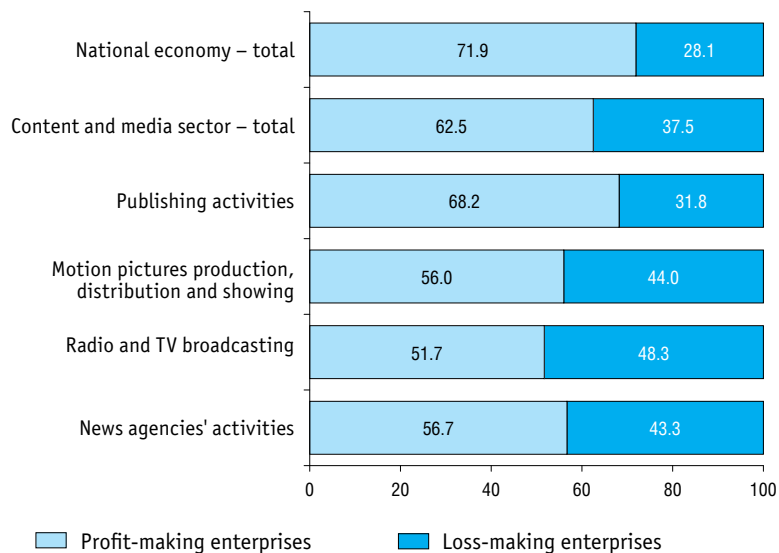
## 3.12. MAIN FINANCIAL EFFECTS OF CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY\*

	2014	2015
The total number of enterprises surveyed	896	811
profit-making enterprises	588	507
loss-making enterprises	308	304
As a percentage of the total number of enterprises surveyed:		
profit-making enterprises	65.6	62.5
loss-making enterprises	34.4	37.5
Balance (profit minus loss) of enterprises' activities, <i>million roubles</i>	21669	26427
Total profits, <i>million roubles</i>	45833	35281
Total losses, <i>million roubles</i>	24164	8854
Return on assets, <i>per cent</i>	5.7	6.9

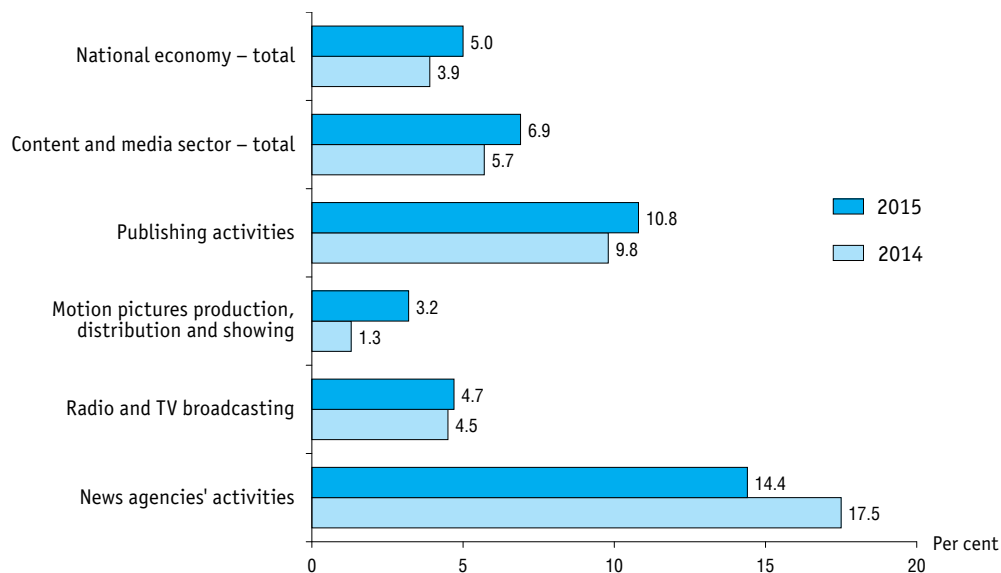
\* Here and below (3.13, 3.14) – the data on small businesses are excluded.

### 3.13. DISTRIBUTION OF CONTENT AND MEDIA SECTOR ENTERPRISES BY ECONOMIC ACTIVITY AND FINANCIAL RESULT: 2015

(as a percentage of the total number of enterprises)



## 3.14. PROFITABILITY OF ASSETS OF GOODS AND SERVICES OF ICT SECTOR ENTERPRISES BY ECONOMIC ACTIVITY





## **4. International Trade in ICT Goods and Services**



#### 4.1. EXPORTS OF ICT GOODS

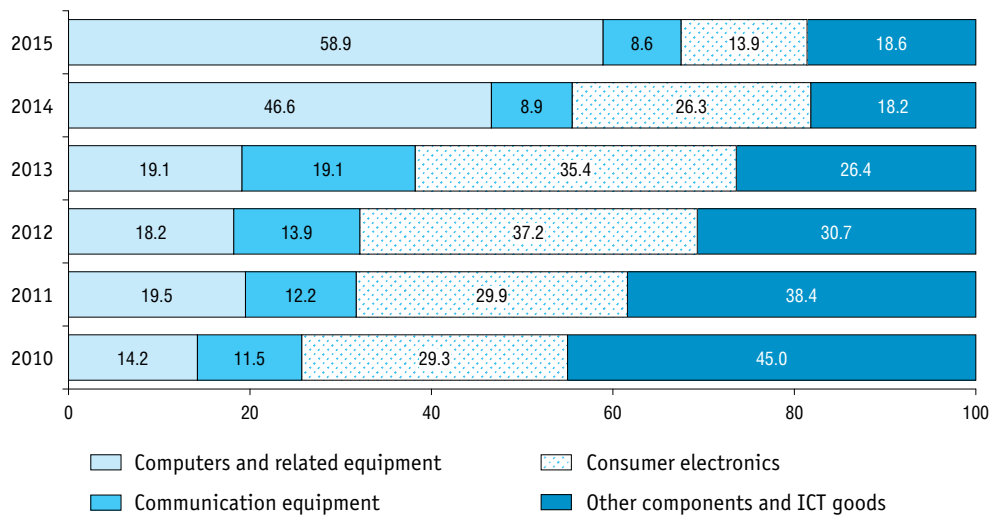
(million US dollars)

	2010	2011	2012	2013	2014	2015
<b>ICT goods – total</b>	<b>1033.9</b>	<b>1469.0</b>	<b>1639.6</b>	<b>2196.3</b>	<b>3953.6</b>	<b>2769.2</b>
Computers and related equipment	146.5	287.0	298.5	419.0	1842.8	1632.0
Of which computers	99.0	222.0	217.7	298.5	1098.2	444.7
Communication equipment	119.2	178.8	228.5	420.1	352.2	238.0
Of which telephone and telegraph equipment	82.9	123.3	182.4	330.8	291.1	184.2
Consumer electronics	303.0	439.3	609.2	778.3	1038.1	384.6
Of which TV receivers	260.0	376.1	505.7	633.5	453.4	247.9
Other components and ICT goods	465.2	563.9	503.4	578.9	720.5	514.6

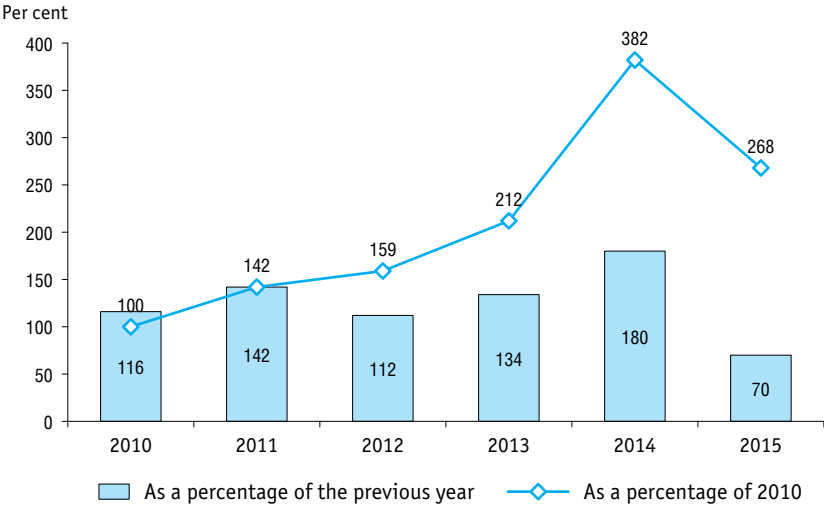
Source: here and below (4.2–4.13) – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

## 4.2. DISTRIBUTION OF ICT GOODS EXPORTS

(as a percentage of total ICT goods exports)



4.3. TRENDS IN EXPORTS OF ICT GOODS



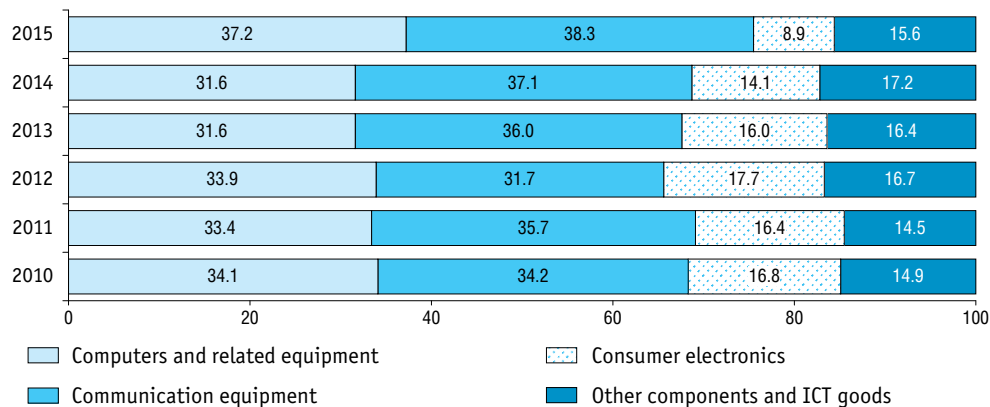
#### 4.4. IMPORTS OF ICT GOODS

(million US dollars)

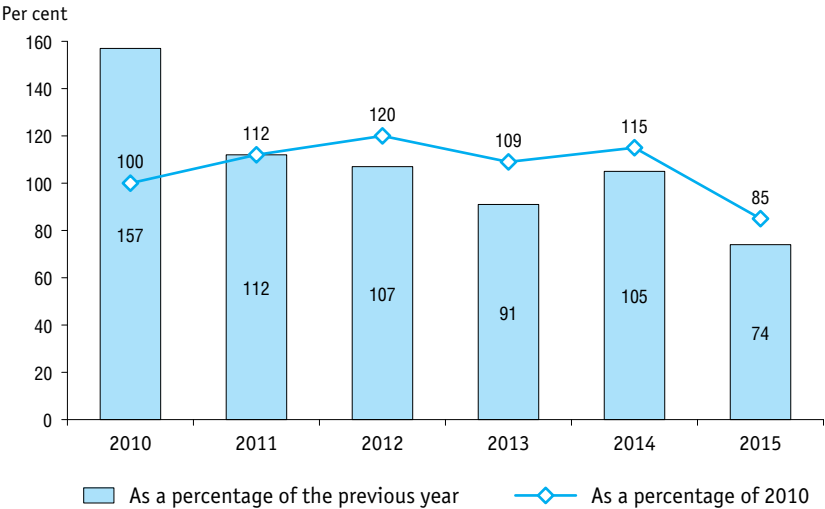
	2010	2011	2012	2013	2014	2015
<b>ICT goods – total</b>	<b>19519.6</b>	<b>21925.0</b>	<b>23470.0</b>	<b>21362.6</b>	<b>22385.7</b>	<b>16558.5</b>
Computers and related equipment	6659.8	7332.9	7967.6	6751.5	7080.4	6162.3
Of which computers	4816.6	5286.6	5825.8	4933.2	5082.1	4034.8
Communication equipment	6681.1	7826.7	7431.5	7691.5	8297.6	6343.2
Of which telephone and telegraph equipment	6606.7	7745.9	7335.1	7607.2	8236.3	6308.1
Consumer electronics	3283.0	3596.3	4157.1	3417.4	3150.6	1470.4
Of which TV receivers	742.0	640.1	839.2	771.1	637.1	315.5
Other components and ICT goods	2895.7	3169.1	3913.8	3502.2	3857.1	2582.6

#### 4.5. DISTRIBUTION OF ICT GOODS IMPORTS

(as a percentage of total ICT goods imports)

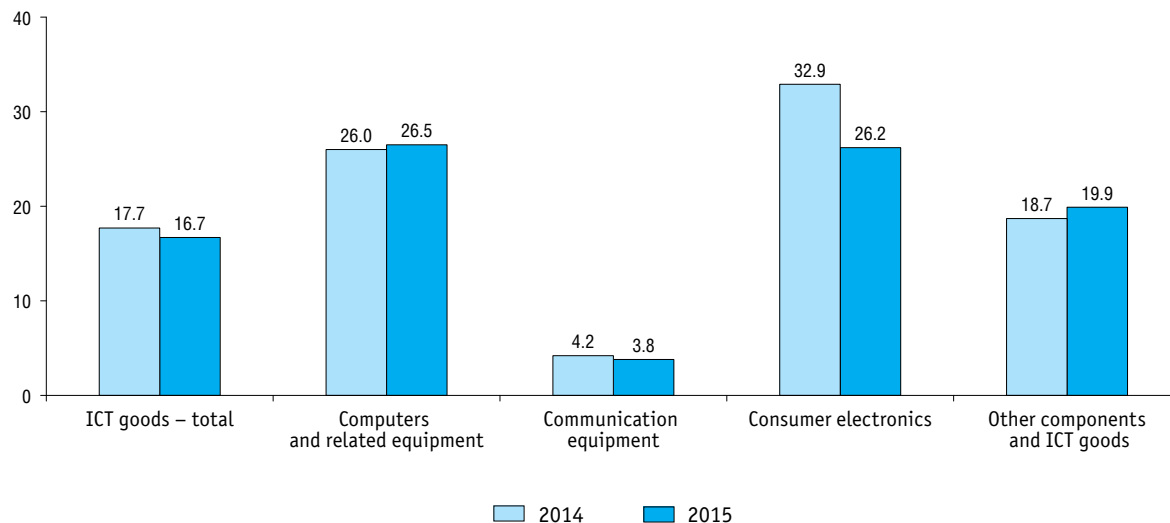


4.6. TRENDS IN IMPORTS OF ICT GOODS



#### 4.7. EXPORTS TO IMPORTS RATIO FOR ICT GOODS

*(exports of goods as a percentage of imports)*

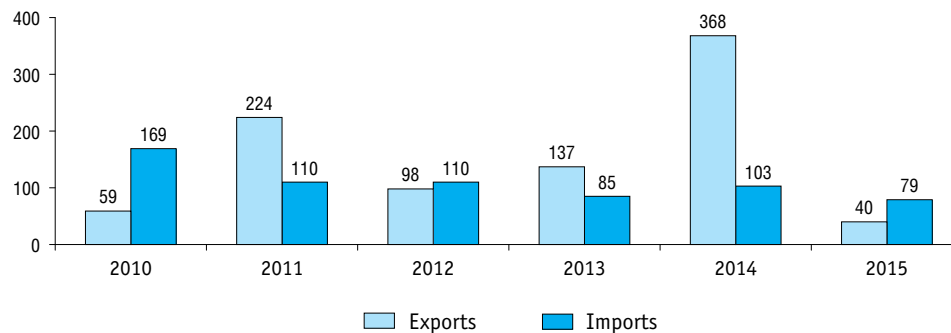


## 4.8. EXPORTS AND IMPORTS OF COMPUTERS

*(million US dollars)*

	2010	2011	2012	2013	2014	2015
<b>Exports – total</b>	<b>99.0</b>	<b>222.0</b>	<b>217.7</b>	<b>298.5</b>	<b>1098.2</b>	<b>444.7</b>
Of which to:						
CIS countries	22.6	37.0	43.8	85.6	54.3	31.9
other foreign countries	76.4	185.0	173.9	212.9	1043.9	412.8
<b>Imports – total</b>	<b>4816.6</b>	<b>5286.6</b>	<b>5825.8</b>	<b>4933.2</b>	<b>5082.1</b>	<b>4034.8</b>
Of which from:						
CIS countries	7.7	18.4	120.6	131.7	435.0	56.0
other foreign countries	4808.9	5268.2	5705.2	4801.5	4647.1	3978.8

## 4.9. TRENDS IN EXPORTS AND IMPORTS OF COMPUTERS

*(as a percentage of the previous year)*

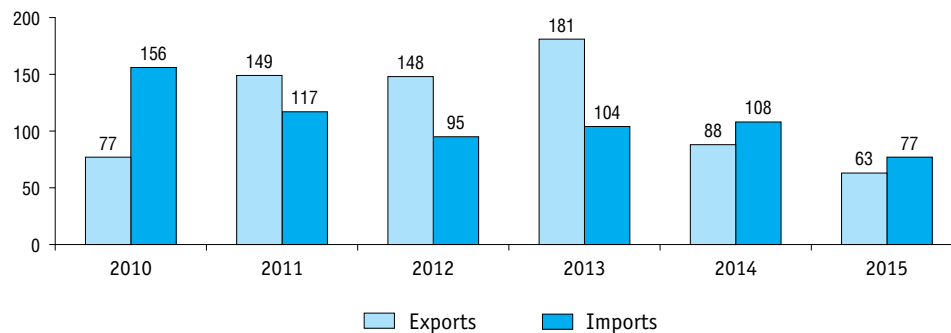
#### 4.10. EXPORTS AND IMPORTS OF TELEPHONE AND TELEGRAPH EQUIPMENT

(million US dollars)

	2010	2011	2012	2013	2014	2015
<b>Exports – total</b>	<b>82.9</b>	<b>123.3</b>	<b>182.4</b>	<b>330.8</b>	<b>291.1</b>	<b>184.2</b>
Of which to:						
CIS countries	27.0	33.2	75.2	146.1	147.0	111.3
other foreign countries	55.9	90.1	107.2	184.7	144.1	72.9
<b>Imports – total</b>	<b>6606.7</b>	<b>7745.9</b>	<b>7335.1</b>	<b>7607.2</b>	<b>8236.3</b>	<b>6308.1</b>
Of which from:						
CIS countries	3.3	10.5	8.9	46.9	227.9	27.1
other foreign countries	6603.4	7735.4	7326.2	7560.3	8008.4	6281.0

#### 4.11. TRENDS IN EXPORTS AND IMPORTS OF TELEPHONE AND TELEGRAPH EQUIPMENT

(as a percentage of the previous year)



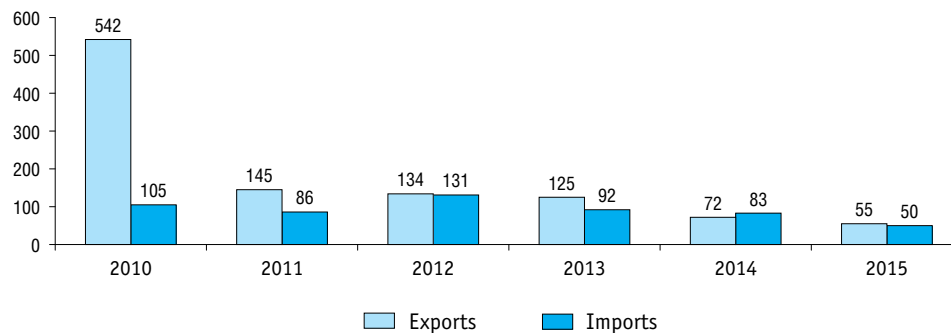


## 4.12. EXPORTS AND IMPORTS OF TV RECEIVERS

*(million US dollars)*

	2010	2011	2012	2013	2014	2015
<b>Exports – total</b>	<b>260.0</b>	<b>376.1</b>	<b>505.7</b>	<b>633.5</b>	<b>453.4</b>	<b>247.9</b>
Of which to:						
CIS countries	256.0	358.5	486.5	611.5	449.9	220.8
other foreign countries	4.0	17.6	19.2	22.0	3.5	27.1
<b>Imports – total</b>	<b>742.0</b>	<b>640.1</b>	<b>839.2</b>	<b>771.1</b>	<b>637.1</b>	<b>315.5</b>
Of which from:						
CIS countries	98.4	163.1	303.6	253.0	167.8	10.5
other foreign countries	643.6	477.0	535.6	518.1	469.3	305.0

## 4.13. TRENDS IN EXPORTS AND IMPORTS OF TV RECEIVERS

*(as a percentage of the previous year)*

#### 4.14. EXPORTS OF ICT AND CONTENT SERVICES

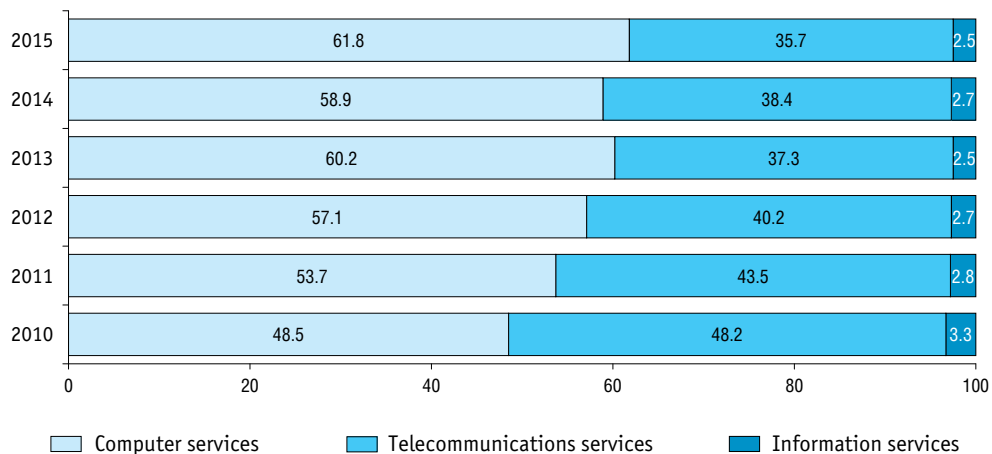
(million US dollars)

	2010	2011	2012	2013	2014	2015
<b>Exports of ICT and content services – total</b>	<b>2624</b>	<b>3101</b>	<b>3494</b>	<b>4164</b>	<b>4504</b>	<b>3972</b>
Computer services	1273	1666	1995	2508	2651	2455
Telecommunications services	1265	1349	1406	1553	1732	1418
Information services	86	86	93	103	121	99

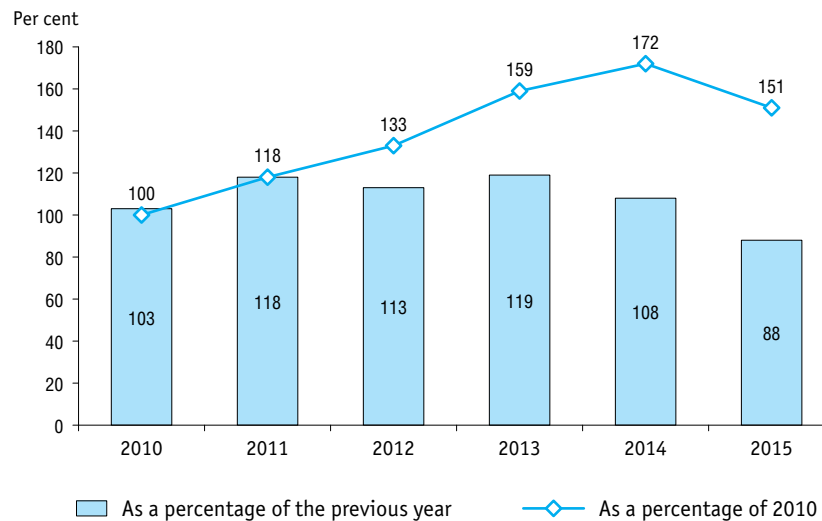
Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Bank of Russia.

#### 4.15. DISTRIBUTION OF ICT AND CONTENT SERVICES EXPORTS

(as a percentage of the total ICT and content services exports)



## 4.16. TRENDS IN ICT AND CONTENT SERVICES EXPORTS



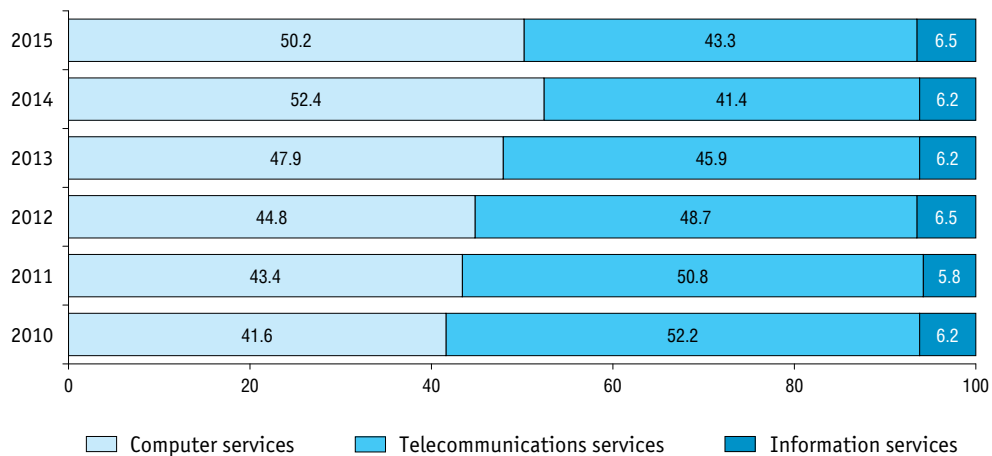
#### 4.17. IMPORTS OF ICT AND CONTENT SERVICES

(million US dollars)

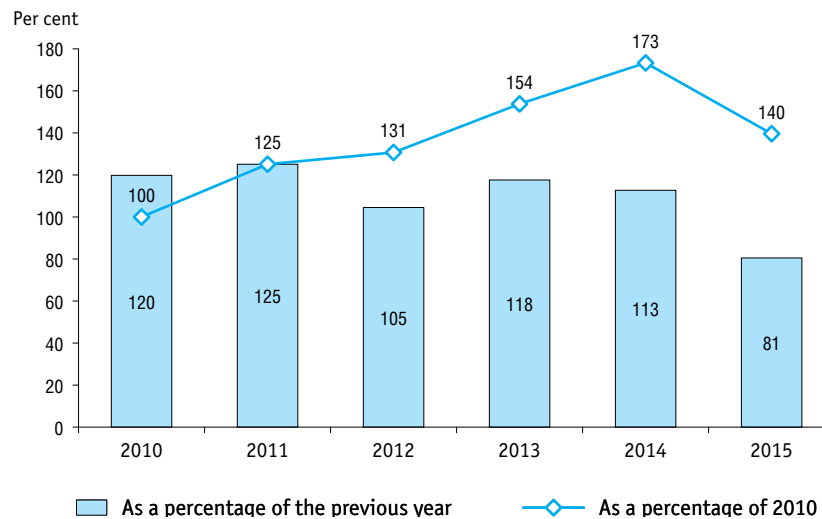
	2010	2011	2012	2013	2014	2015
<b>Exports of ICT and content services – total</b>	<b>3955</b>	<b>4946</b>	<b>5169</b>	<b>6081</b>	<b>6855</b>	<b>5521</b>
Computer and information services	1644	2144	2313	2909	3590	2772
Telecommunications services	2065	2513	2518	2792	2839	2388
Information services	246	289	338	380	426	361

#### 4.18. DISTRIBUTION OF ICT AND CONTENT SERVICES IMPORTS

(as a percentage of the total ICT and content services imports)

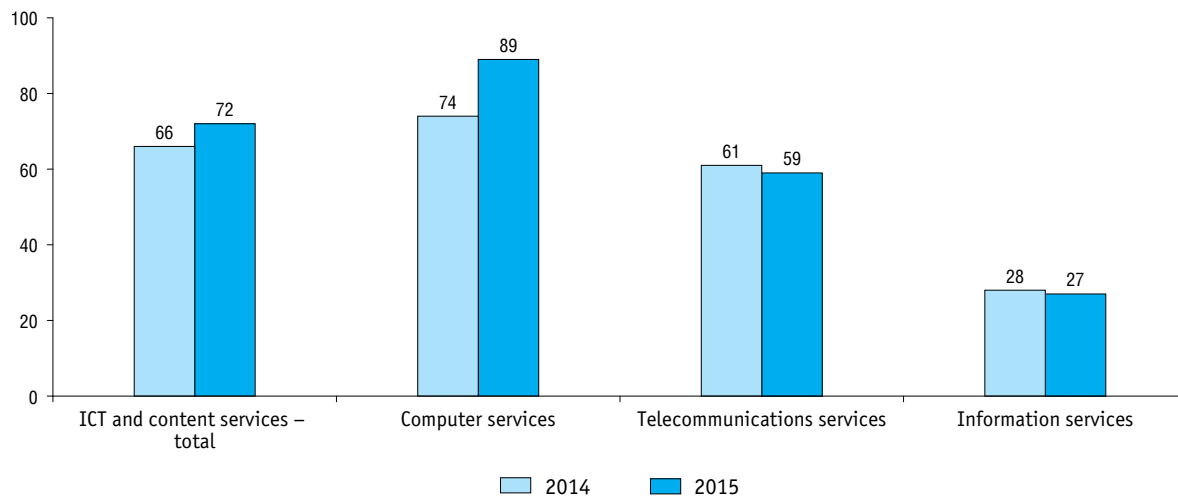


## 4.19. TRENDS IN ICT AND CONTENT SERVICES IMPORTS



#### 4.20. EXPORTS TO IMPORTS RATIO FOR ICT AND CONTENT SERVICES

*(exports of services as a percentage of imports)*

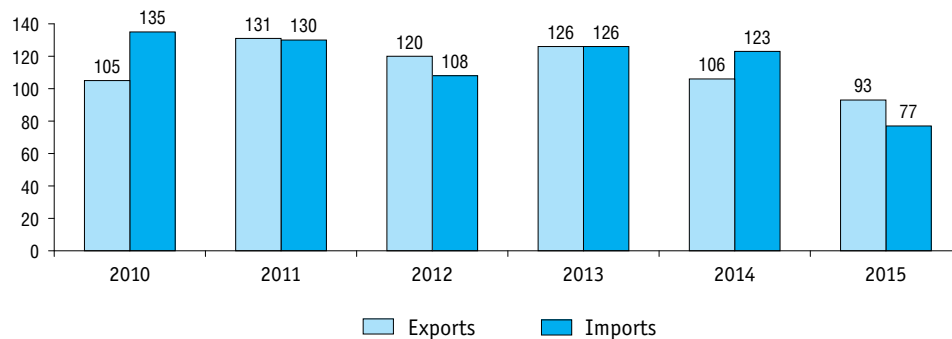


## 4.21. EXPORTS AND IMPORTS OF COMPUTER SERVICES

*(million US dollars)*

	2010	2011	2012	2013	2014	2015
<b>Exports – total</b>	<b>1273</b>	<b>1666</b>	<b>1995</b>	<b>2508</b>	<b>2651</b>	<b>2455</b>
Of which to:						
CIS countries	96	137	193	189	190	168
other foreign countries	1177	1529	1802	2319	2461	2287
<b>Imports – total</b>	<b>1644</b>	<b>2144</b>	<b>2313</b>	<b>2909</b>	<b>3590</b>	<b>2772</b>
Of which from:						
CIS countries	45	53	110	163	175	132
other foreign countries	1599	2091	2203	2746	3415	2640

## 4.22. TRENDS IN EXPORTS AND IMPORTS OF COMPUTER SERVICES

*(as a percentage of the previous year)*

#### 4.23. EXPORTS AND IMPORTS OF TELECOMMUNICATIONS SERVICES

(million US dollars)

	2010	2011	2012	2013	2014	2015
<b>Exports – total</b>	<b>1265</b>	<b>1349</b>	<b>1406</b>	<b>1553</b>	<b>1732</b>	<b>1418</b>
Of which to:						
CIS countries	273	241	252	297	354	392
other foreign countries	992	1108	1154	1256	1378	1026
<b>Imports – total</b>	<b>2065</b>	<b>2513</b>	<b>2518</b>	<b>2792</b>	<b>2839</b>	<b>2388</b>
Of which from:						
CIS countries	535	618	662	716	819	802
other foreign countries	1530	1895	1856	2076	2020	1586

#### 4.24. TRENDS IN EXPORTS AND IMPORTS OF TELECOMMUNICATIONS SERVICES

(as a percentage of the previous year)



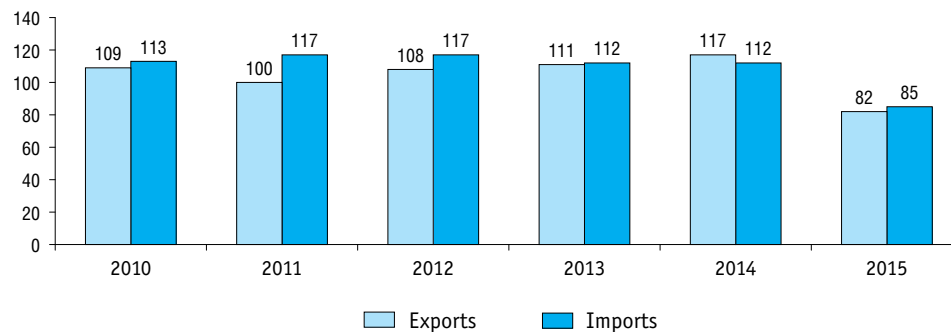


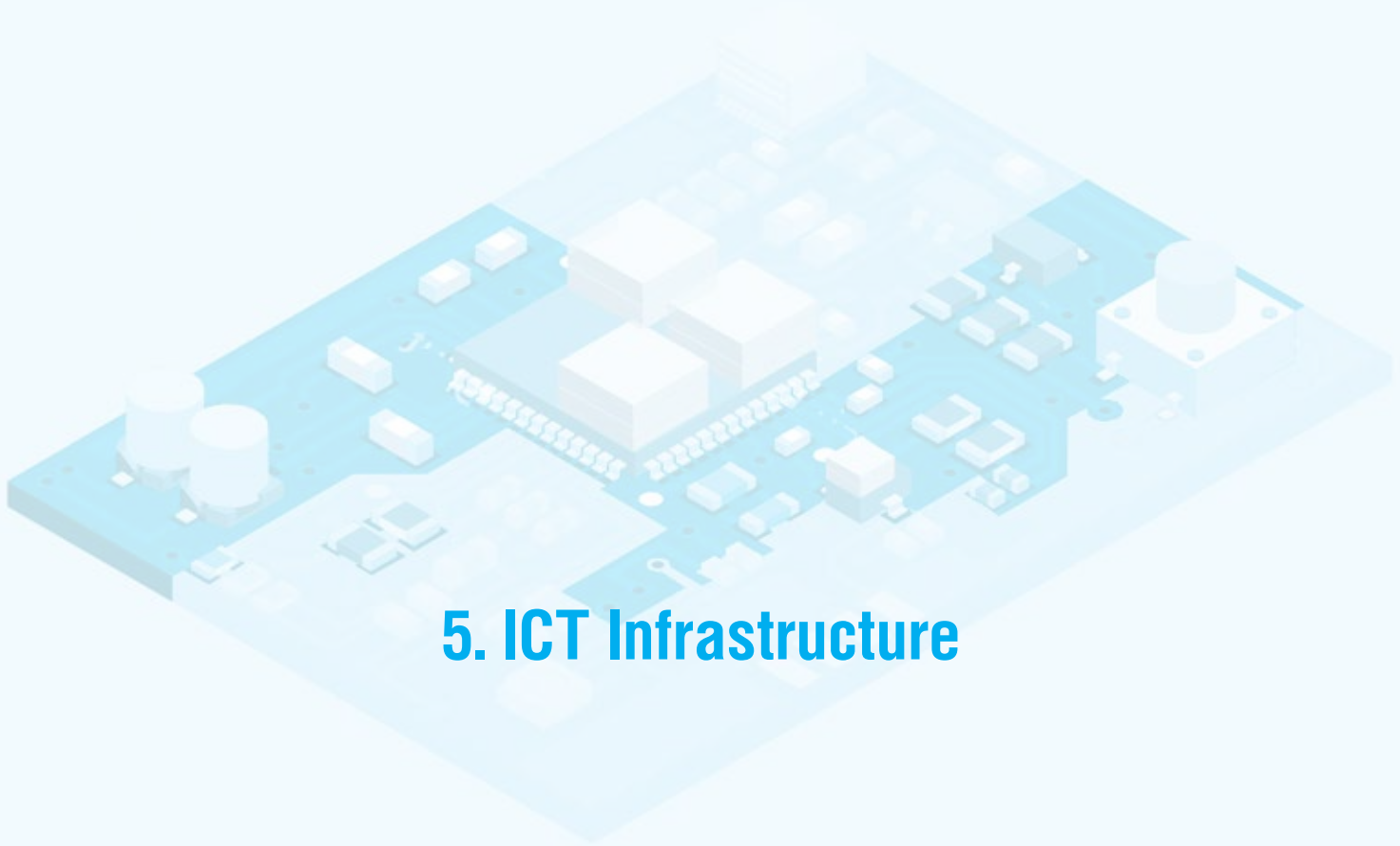
## 4.25. EXPORTS AND IMPORTS OF INFORMATION SERVICES

*(million US dollars)*

	2010	2011	2012	2013	2014	2015
<b>Exports – total</b>	<b>86</b>	<b>86</b>	<b>93</b>	<b>103</b>	<b>121</b>	<b>99</b>
Of which to:						
CIS countries	9	16	24	19	19	13
other foreign countries	77	70	69	84	102	86
<b>Imports – total</b>	<b>246</b>	<b>289</b>	<b>338</b>	<b>380</b>	<b>426</b>	<b>361</b>
Of which from:						
CIS countries	7	7	13	13	12	9
other foreign countries	239	282	325	367	414	352

## 4.26. TRENDS IN EXPORTS AND IMPORTS OF INFORMATION SERVICES

*(as a percentage of the previous year)*



## **5. ICT Infrastructure**

## 5.1. MAIN INDICATORS OF ICT INFRASTRUCTURE

*(at the end of the year)*

	2010	2011	2012	2013	2014	2015
Fixed telephones (including public payphones) per 100 inhabitants	31.4	30.9	30.1	28.9	26.8	24.8
Mobile cellular telephones per 100 inhabitants	166.4	179.0	182.7	193.3	190.8	193.8
Fixed Internet subscriptions per 100 inhabitants	...	12.6	14.7	16.8	17.1	18.4
Of which broadband	...	12.2	14.4	16.5	17.0	18.3
Mobile Internet subscriptions per 100 inhabitants	...	59.1	63.6	70.9	73.5	75.0
Of which broadband	...	47.8	52.6	59.8	64.5	68.1
Level of network digitisation, <i>per cent</i>	81.0	85.3	86.4	87.9	88.7	89.7
Rural areas having telephony, <i>as a percentage of the total</i>	90.1	90.1	90.0	89.0	89.1	88.7
Percentage of the population covered by:						
radio	96.1	95.9	94.1	93.9	90.8	89.1
air analogue television	98.6	98.7	98.9	97.9	97.2	97.6
over-the-air digital television	6.0	18.3	30.8	44.0	61.5	71.0
cable television	12.4	12.5	18.3	35.7	38.3	36.5

Source: here and below (5.2 – 5.15) – the data are provided by the Ministry of Telecom and Mass Communications of the Russian Federation.

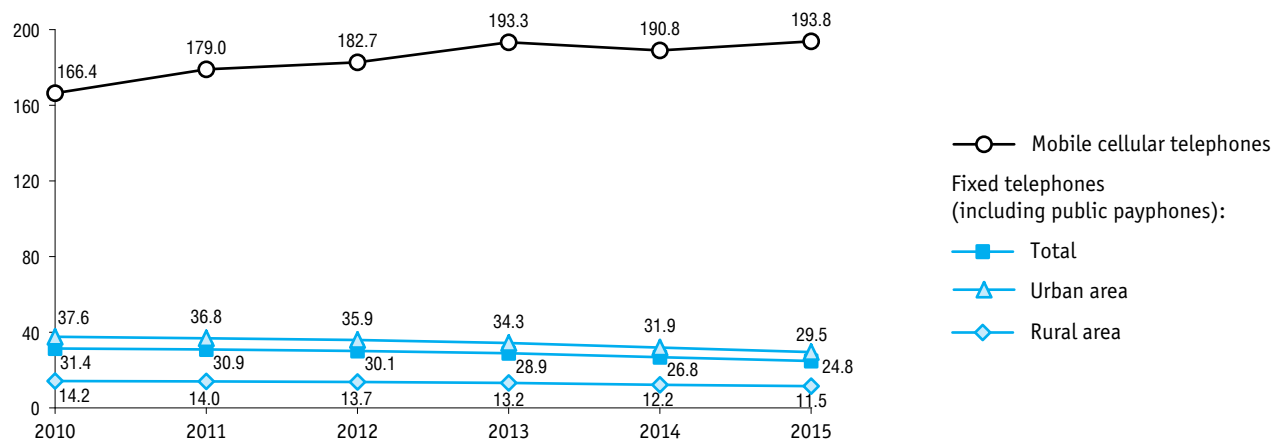
## 5.2. FIXED, MOBILE CELLULAR TELEPHONES AND PUBLIC PAYPHONES

(at the end of the year)

	2010	2011	2012	2013	2014	2015
Fixed telephones of local telephone network, <i>thousand</i>	44.9	44.1	43.2	41.5	39.1	36.4
Of which home telephones	33.2	32.3	31.2	29.3	27.1	25.0
Mobile cellular telephones, <i>thousand</i>	237.7	256.1	261.9	277.7	274.8	284.0
Of which complying with GSM/IMT-2000/UMTS/LTE standards	...	...	...	...	128.0	154.7

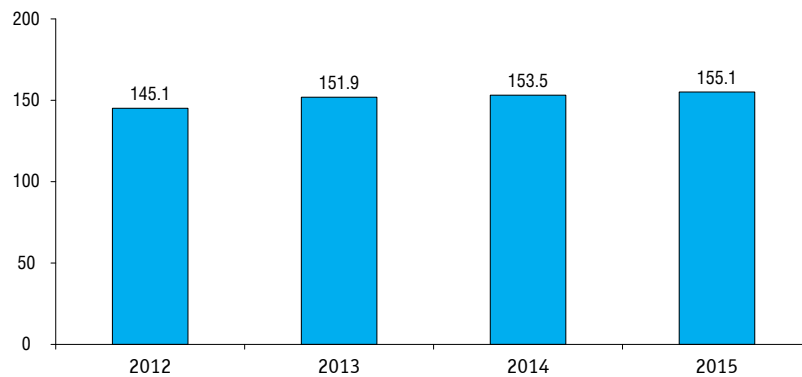
## 5.3. TELEPHONE DENSITY

(units per 100 inhabitants; at the end of the year)



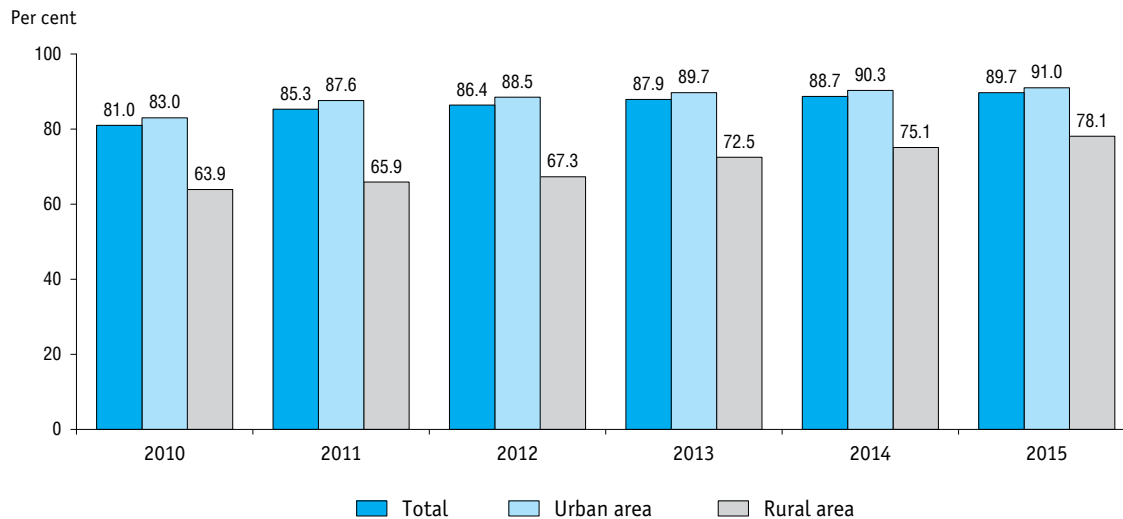
#### 5.4. ACTIVE MOBILE CELLULAR TELEPHONE SUBSCRIPTIONS

*(per 100 inhabitants; at the end of the year)*



### 5.5. LEVEL OF NETWORK DIGITISATION

(at the end of the year)



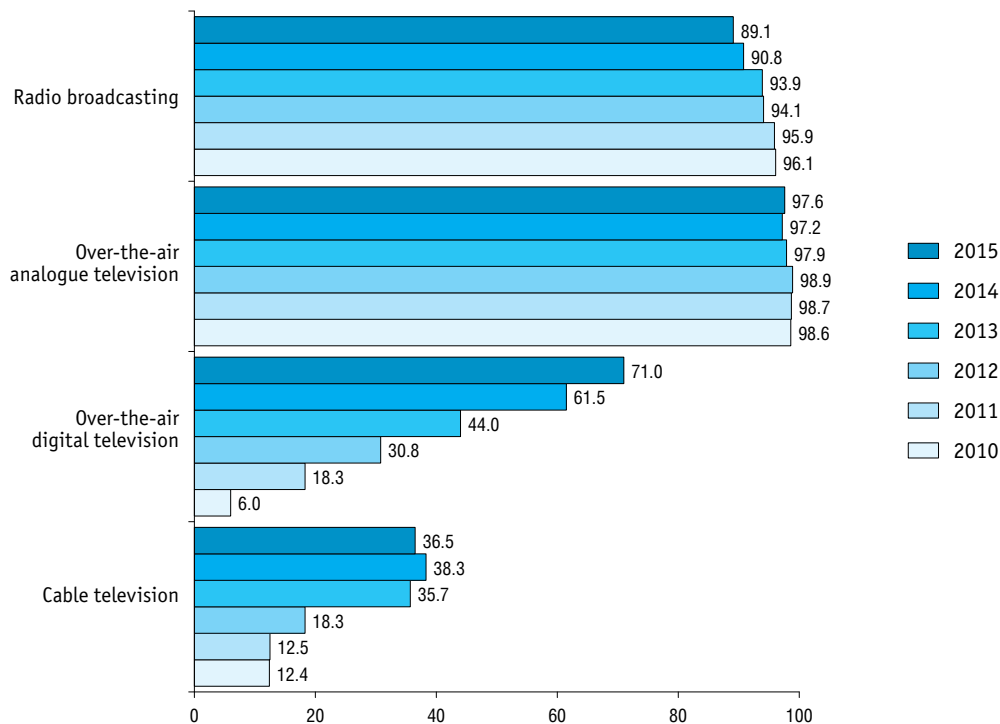
### 5.6. SATELLITE, TELEVISION AND RADIO HARDWARE

(at the end of the year)

	2010	2011	2012	2013	2014	2015
Satellite transmitting-receiving and transmitting stations working within Russian PSTN, <i>units</i>	11048	14800	27377	23615	25922	28756
of which:						
fixed satellite systems	10999	14737	27315	23563	25855	28680
central (regional) land-mobile satellite services	19	25	22	10	11	13
central (regional) up-link direct television and radio transmission stations	30	38	40	41	48	51
Russian spacecraft working within Russian PSTN, <i>units</i>	15	15	14	12	13	16
Television transmitters, <i>units</i> :						
analogue	16896	17583	17469	17768	17877	18197
digital	142	692	1 202	1 698	3 045	4 392
Radio transmitters, <i>units</i> :						
long and medium wave	313	336	312	180	132	114
short wave	156	137	129	95	76	147
Main radio broadcasting stations, <i>mln units</i>	8.0	7.0	6.2	5.7	5.2	4.7

### 5.7. COVERAGE OF THE POPULATION BY RADIO AND TELEVISION

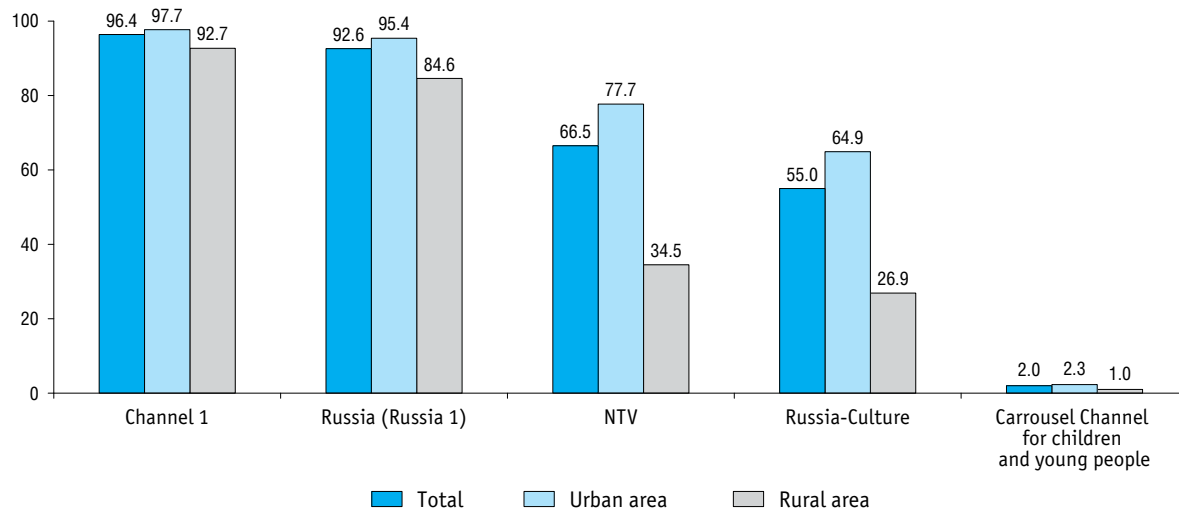
(as a percentage of the total number of inhabitants; at the end of the year)





### 5.8. COVERAGE OF THE POPULATION BY RUSSIAN POPULAR TELEVISION CHANNELS: 2015\*

(as a percentage of the total number of inhabitants; at the end of the year)

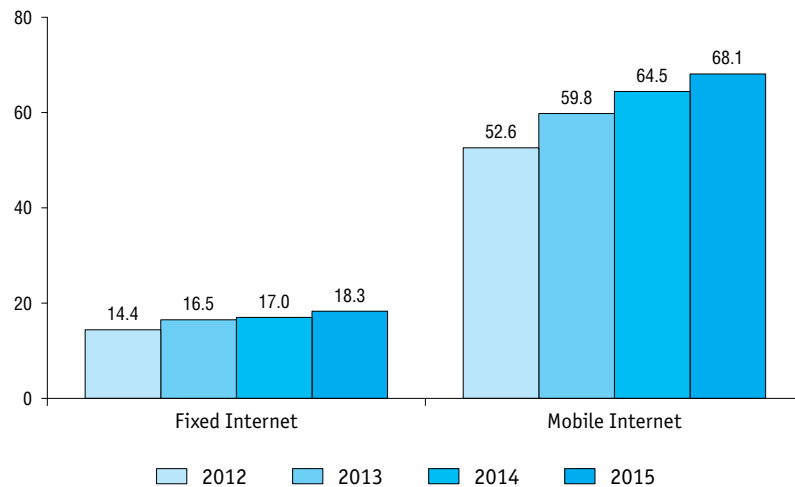


\* Here we take into account only over-the-air analogue television.

### 5.9. INTERNET SUBSCRIPTIONS

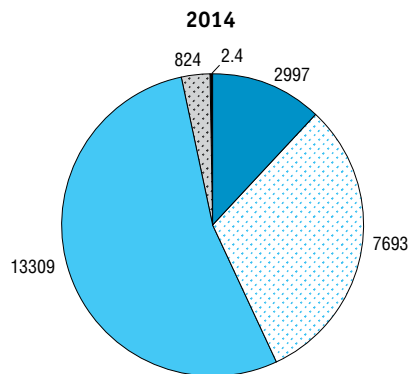
(thousand; at the end of the year)

	2012	2013	2014	2015
<b>Fixed Internet</b>				
Total	21111	24115	25044	26944
Of which:				
broadband	20704	23745	24825	26756
Of which by type of connection:				
xDSL	7854	7654	7002	6315
FTTH/FTTB (ETTx)	11063	14078	16014	18407
cable modem	372	331	318	487
by other cable connection	1415	1682	1491	1547
<b>Wireless Internet</b>				
Total	91384	102098	107059	111937
Of which:				
mobile	91217	101919	105828	109926
of which broadband	75442	85908	92795	99793
satellite	27	18	30	82
of which broadband	23	16	17	23
terrestrial fixed wireless	140	161	113	107
of which broadband	122	146	108	103
terrestrial mobile wireless	...	...	1088	1822
of which broadband	...	...	983	1387

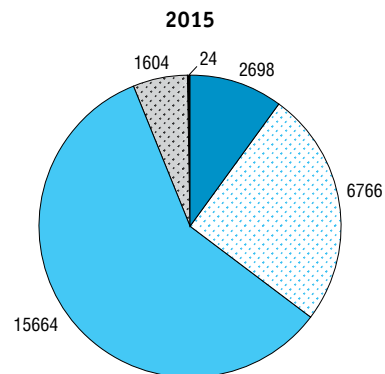
**5.10. BROADBAND INTERNET SUBSCRIPTIONS***(units per 100 population; at the end of the year)*

### 5.11. FIXED BROADBAND INTERNET SUBSCRIPTIONS BY INTERNET CONNECTION SPEED

(thousand; at the end of the year)



- 256 Kbps – less than 2 Mbps
- 2 Mbps – less than 10 Mbps
- 10 Mbps – less than 100 Mbps



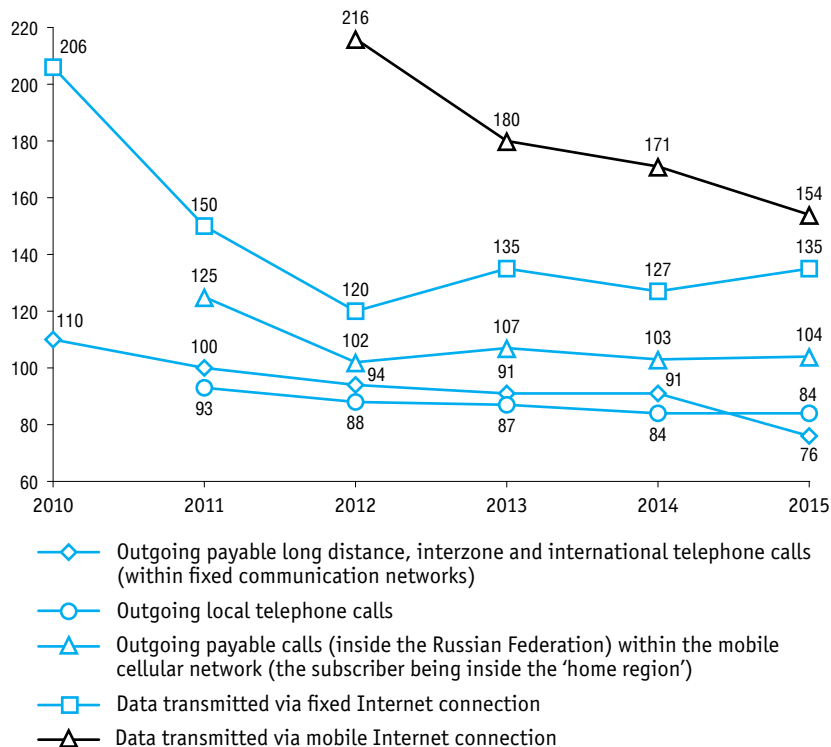
- 100 Mbps – less than 1 Gbps
- above 1 Gbps

## 5.12. COMMUNICATION SERVICES BY TYPE

	2010	2011	2012	2013	2014	2015
Outgoing payable long distance, interzone and international telephone calls (within fixed communication networks), <i>million minutes</i>	595.6	592.8	559.4	509.9	466.4	355.2
Of which:						
intrazone telephone calls	332.8	336.0	321.0	283.9	249.1	202.5
long distance telephone calls	216.9	215.4	201.8	188.0	179.1	140.4
international telephone calls	45.9	41.4	36.6	38.0	38.2	12.3
Outgoing local telephone calls, <i>million minutes</i>	2020	1885	1663	1449	1218	1024
Outgoing payable calls (inside the Russian Federation) within the mobile cellular network (the subscriber being inside the 'home region'), <i>million minutes</i>	4744	5928	6035	6483	6679	6924
Data transmitted via the Internet, <i>PBytes</i> :						
fixed Internet	5530	8274	9924	13414	17013	22968
mobile Internet	...	218	471	850	1453	2241

### 5.13. TRENDS IN COMMUNICATION SERVICES BY TYPE

(as a percentage of the previous year)

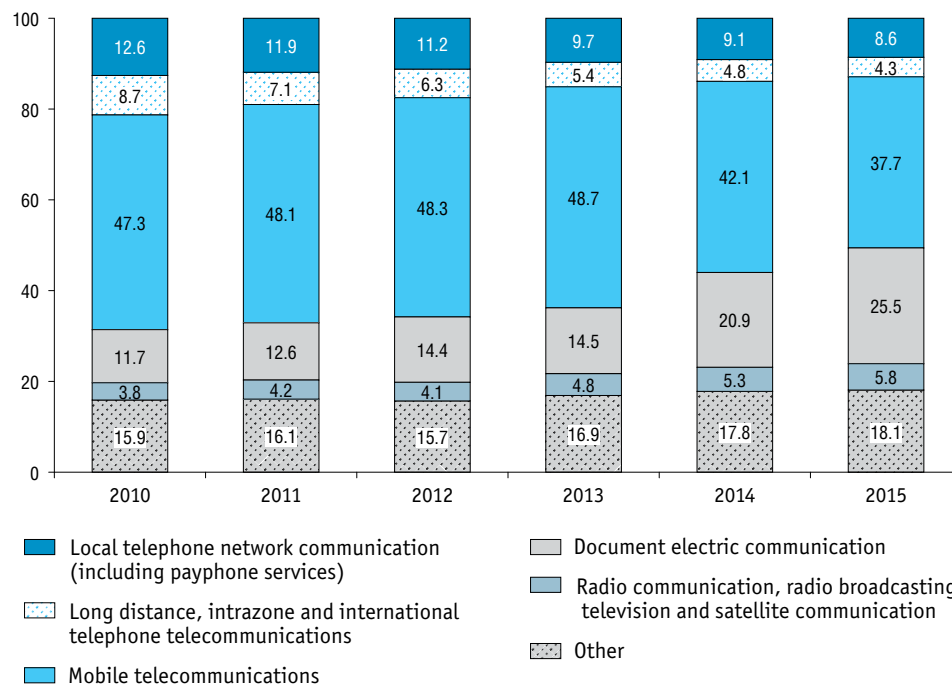


## 5.14. REVENUE FROM TELECOMMUNICATIONS SERVICES

*(billion roubles)*

	2010	2011	2012	2013	2014	2015
<b>Revenue from all telecommunications services – total</b>	<b>1255.2</b>	<b>1308.9</b>	<b>1404.8</b>	<b>1476.5</b>	<b>1515.8</b>	<b>1528.6</b>
Local telephone network communication (including payphone services)	158.3	156.4	157.6	143.5	138.0	131.2
Long distance, intrazone and international telephone telecommunications	109.2	93.4	88.6	79.4	72.4	65.0
Mobile telecommunications	593.7	629.3	679.2	718.6	637.5	576.1
Document electric communication	147.3	164.9	202.1	214.2	317.2	389.7
Radio communication, radio broadcasting, television and satellite communication	47.4	54.8	57.4	70.4	79.6	88.7
Wire broadcasting	3.9	4.0	3.9	3.8	3.8	4.0
Interconnection and outgoing traffic transmission	186.7	196.4	212.4	243.0	262.8	270.0
Radio frequency spectrum and radio-electronic equipment regulation	8.7	9.7	3.6	3.6	4.5	3.9

### 5.15. DISTRIBUTION OF REVENUE FROM TELECOMMUNICATIONS SERVICES BY TYPE (as a percentage of the total revenue of telecommunications services)





## 5.16. AVERAGE COMMUNICATION TARIFFS FOR INDIVIDUALS

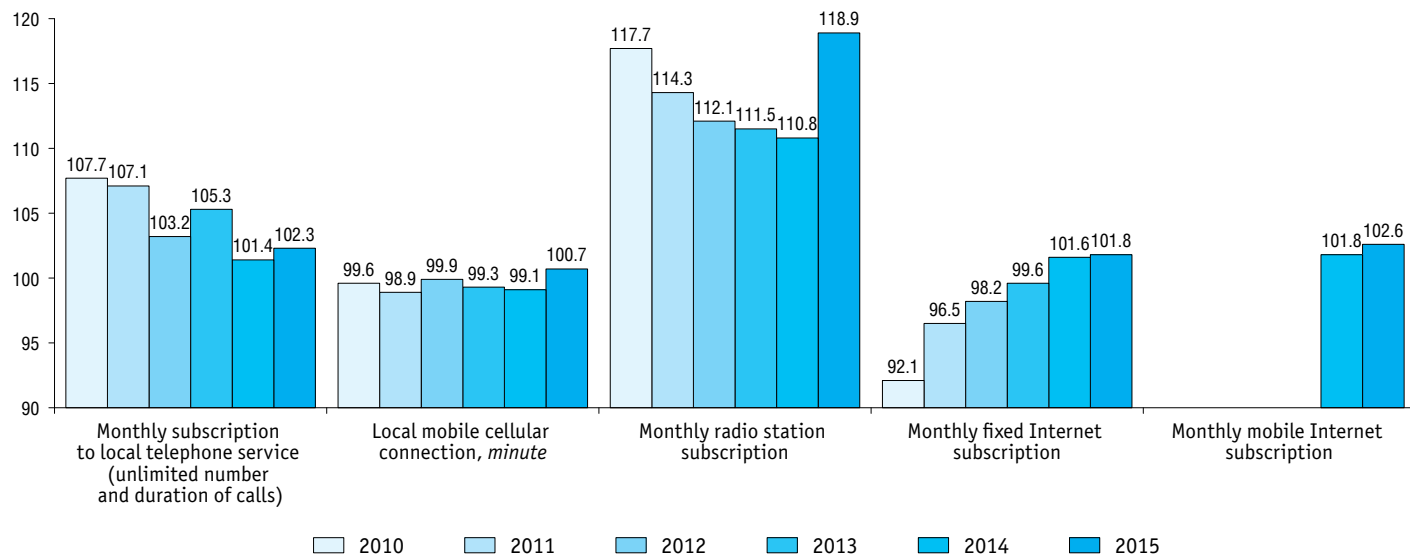
(roubles; December)

	2010	2011	2012	2013	2014	2015
Monthly subscription to local telephone service (unlimited number and duration of calls)	348.8	377.4	397.0	417.0	423.0	430.8
Automatic long-distance calls to locations between 1201–3000 km, <i>minute</i>	5.2	5.0	5.0	5.0	4.9	4.9
Local mobile cellular connection, <i>minute</i>	2.3	1.6	1.4	1.3	1.2	1.1
Monthly radio station subscription	54.4	60.6	65.4	76.5	79.9	94.7
Monthly fixed Internet subscription	599.4	555.6	537.1	538.7	565.4	571.1
Monthly mobile Internet subscription	...	...	...	...	243.3	249.9

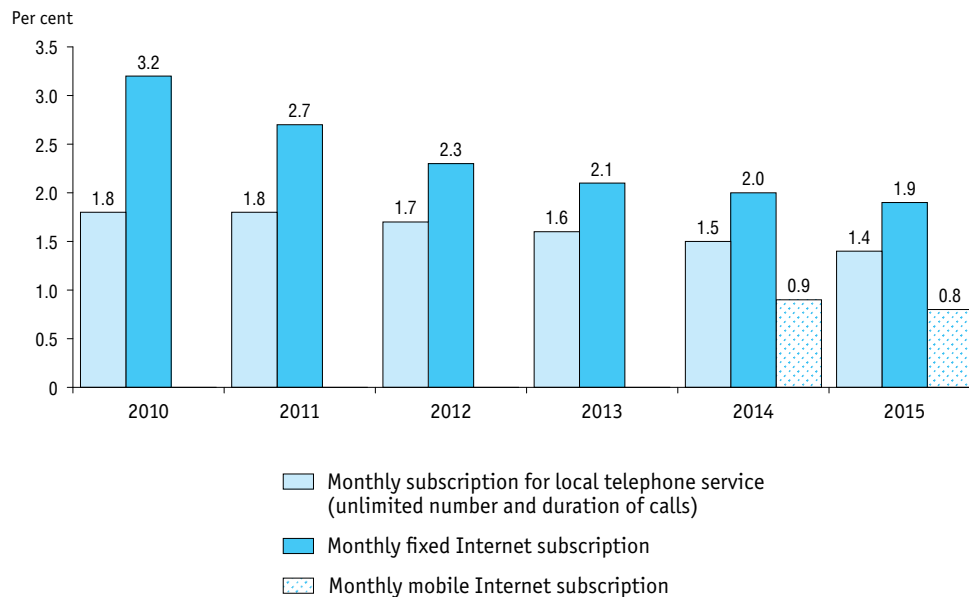
Source: here and below (5.17) – the data are provided by the Federal State Statistics Service.

### 5.17. INDICES OF COMMUNICATION TARIFFS FOR INDIVIDUALS

(as a percentage of the previous year)



## 5.18. TARIFFS FOR COMMUNICATION SERVICES TO AVERAGE PERSONAL INCOME RATIO



Source: estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.



## 6. ICT Usage by Enterprises

### 6.1. ENTERPRISES USING ICT\*

(units)

	2010	2011	2012	2013	2014	2015
<b>Enterprises surveyed</b>	<b>176684</b>	<b>178331</b>	<b>185053</b>	<b>193419</b>	<b>198379</b>	<b>207356</b>
Of which:						
personal computers	165809	167861	174011	181736	186090	191436
servers**	32070	35165	35067	38134	52678	98903
local area networks	120825	127062	132681	141919	133319	131643
global information networks	147311	152738	162012	171567	178186	184475
Of which:						
Internet	145509	151261	160892	170331	176638	182627
of which broadband	100220	113003	141815	153583	161000	164893
Intranet	23143	28782	27209	32369	33255	39869
Extranet	9452	10850	11905	14835	28355	35065
other global networks	11085	12313	11489	13199	16655	20235
e-mail	144741	148218	157664	167345	166940	174180
website	50324	58908	69905	79797	79964	88361
Internal and external communication via Electronic Data Interchange	...	...	45006	49707	104464	123685
RFID	...	...	...	...	7941	10050
Cloud computing	...	...	...	21218	26372	37931

\* Here and below (6.2–6.15) – the data on small businesses are excluded.

\*\* 2010–2014 – computers other than personal computers.

Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

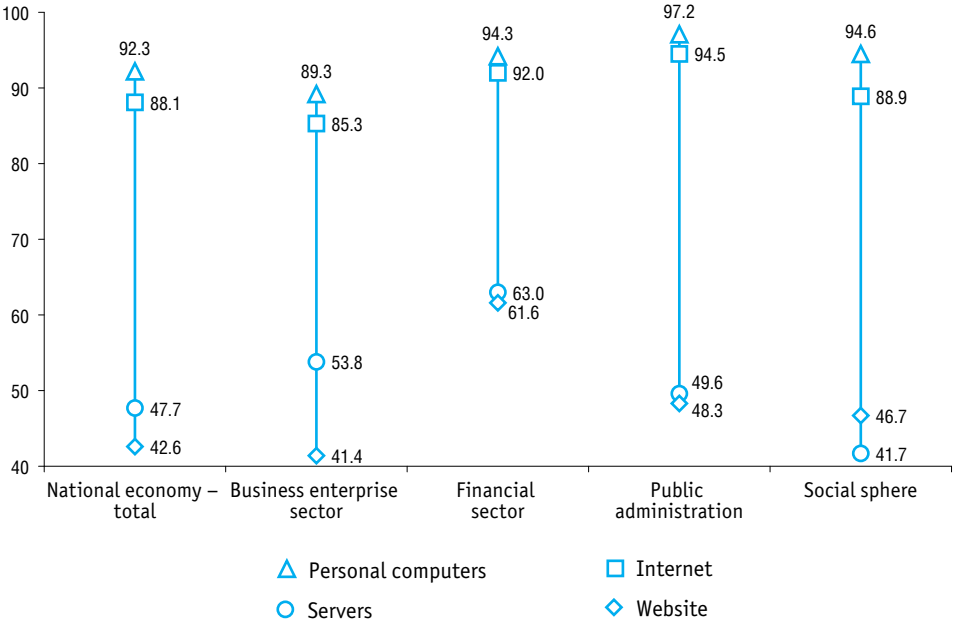
## 6.2. MAIN INDICATORS OF ICT USAGE BY ENTERPRISES

(as a percentage of the total number of enterprises)

	2010	2011	2012	2013	2014	2015
<b>Personal computers</b>	<b>93.8</b>	<b>94.1</b>	<b>94.0</b>	<b>94.0</b>	<b>93.8</b>	<b>92.3</b>
Servers*	18.2	19.7	18.9	19.7	26.6	47.7
Local area networks	68.4	71.3	71.7	73.4	67.2	63.5
Global information networks	83.4	85.6	87.5	88.7	89.8	89.0
Of which:						
Internet	82.4	84.8	86.9	88.1	89.0	88.1
of which broadband	56.7	63.4	76.6	79.4	81.2	79.5
Intranet	13.1	16.1	14.7	16.7	16.8	19.2
Extranet	5.3	6.1	6.4	7.7	14.3	16.9
other global networks	6.3	6.9	6.2	6.8	8.4	9.8
E-mail	81.9	83.1	85.2	86.5	84.2	84.0
Website	28.5	33.0	37.8	41.3	40.3	42.6
Internal and external communication via Electronic Data Interchange	...	...	24.3	25.7	52.7	59.6
RFID	...	...	...	...	4.0	4.8
Cloud computing	...	...	...	11.0	13.3	18.3

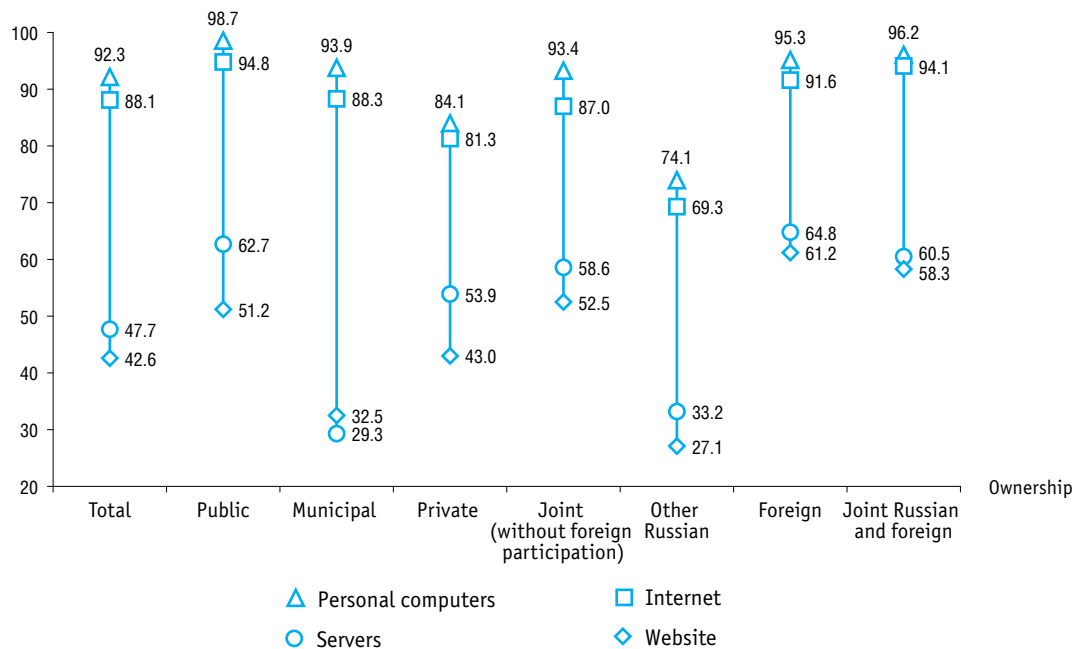
\* 2010–2014 – computers other than personal computers.

6.3. ENTERPRISES USING ICT BY SECTOR OF ECONOMY: 2015  
(as a percentage of the total number of enterprises)



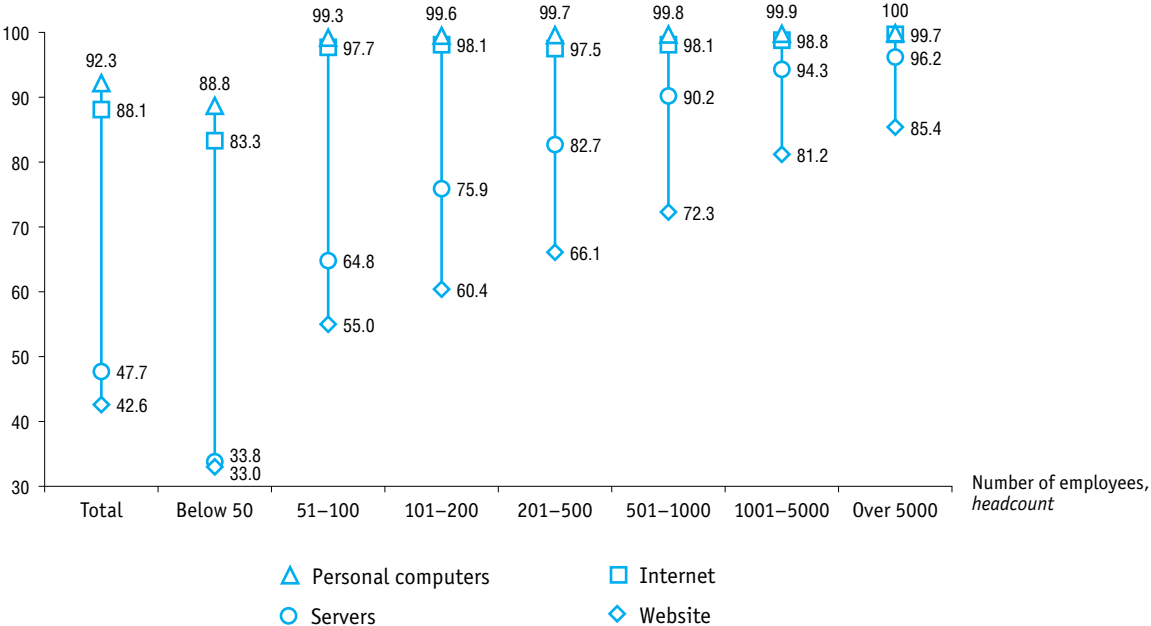
#### 6.4. ENTERPRISES USING ICT BY OWNERSHIP: 2015

(as a percentage of the total number of enterprises)



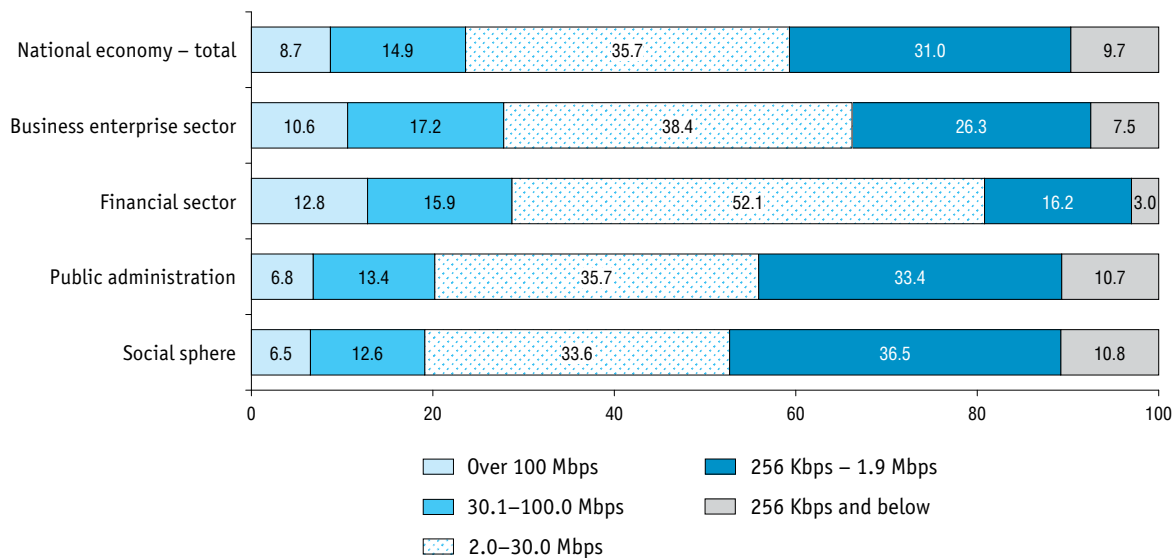


6.5. ENTERPRISES USING ICT BY SIZE OF EMPLOYMENT: 2015  
(as a percentage of the total number of enterprises)

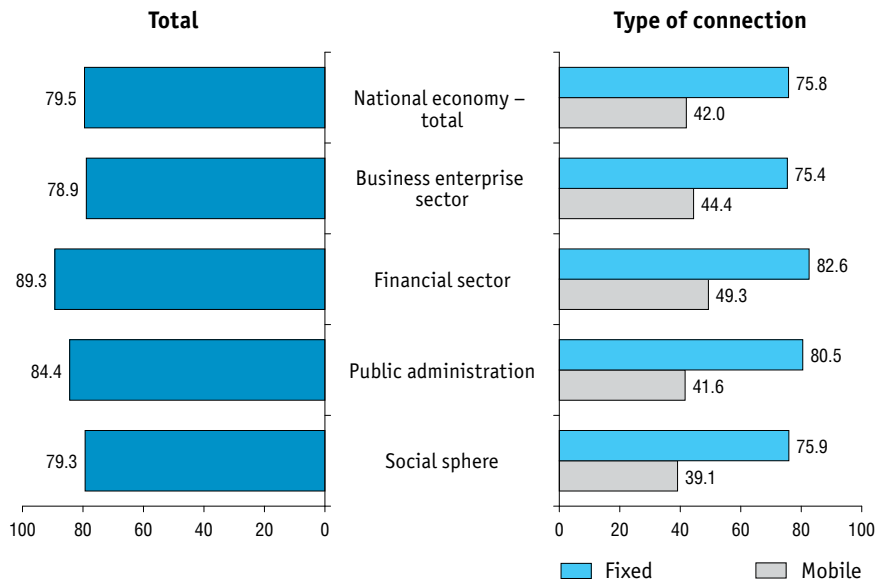


## 6.6. DISTRIBUTION OF ENTERPRISES BY INTERNET CONNECTION SPEED AND SECTOR OF ECONOMY: 2015

(as a percentage of the total number of enterprises using the Internet)



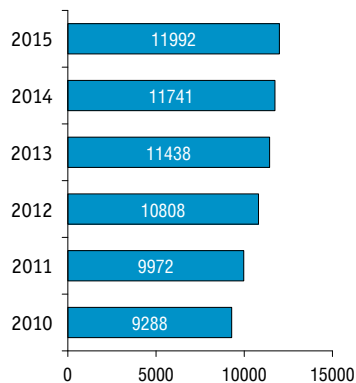
## 6.7. HOUSEHOLDS USING THE INTERNET BY TYPE OF ACCESS DEVICE AND SECTOR OF ECONOMY: 2015

*(as a percentage of the total number of enterprises)*

## 6.8. PERSONAL COMPUTERS IN ENTERPRISES

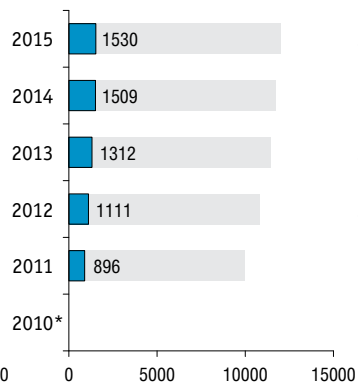
(thousand)

**Personal computers – total**

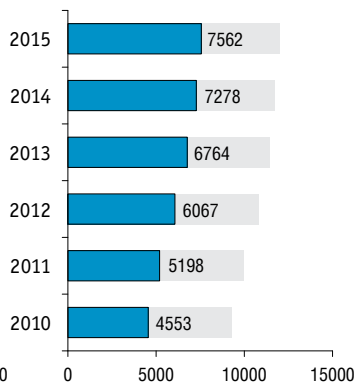


**Laptops and other portable personal computers – total, of which:**

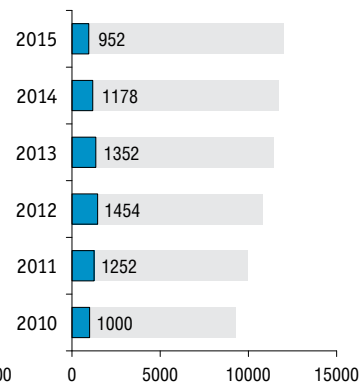
**laptops and other portable personal computers**



**personal computers with Internet access**

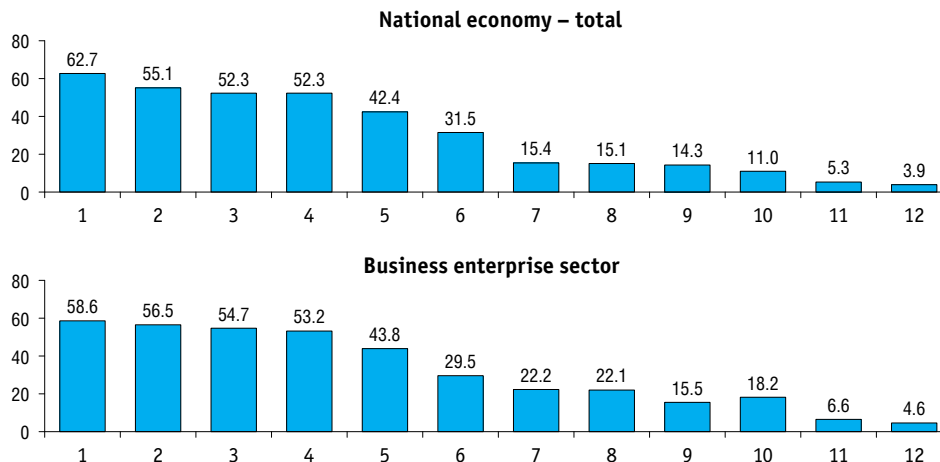


**personal computers acquired in the reference year**



\* Data not available.

## 6.9. ENTERPRISES USING SPECIALISED SOFTWARE BY SECTOR OF ECONOMY: 2015

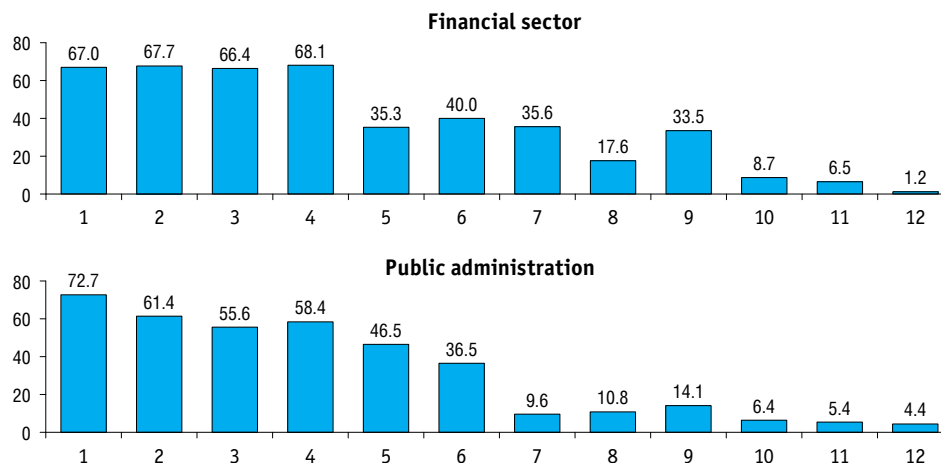
*(as a percentage of the total number of enterprises)*

Specialised software:

- 1 – electronic document management systems
- 2 – software for electronic payment transactions
- 3 – computer-aided management systems
- 4 – electronic legal reference information systems
- 5 – software for managing purchase of goods and services
- 6 – software for access to databases via global information networks

- 7 – CRM, ERP, SCM systems
- 8 – computer-aided manufacturing systems
- 9 – training and educational programmes
- 10 – computer-aided design systems
- 11 – desk-top publishing systems
- 12 – software for scientific research

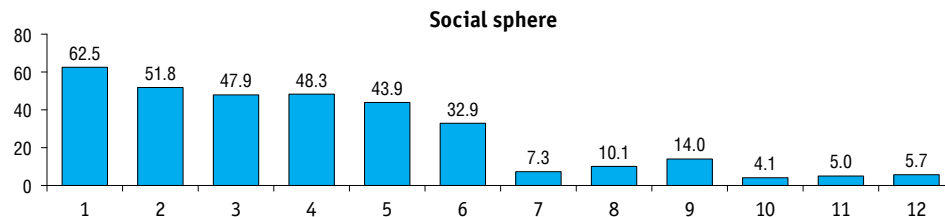
(continued)



Specialised software:

- |  |  |
|--|--|
| 1 – electronic document management systems                           | 7 – CRM, ERP, SCM systems                |
| 2 – software for electronic payment transactions                     | 8 – computer-aided manufacturing systems |
| 3 – computer-aided management systems                                | 9 – training and educational programmes  |
| 4 – electronic legal reference information systems                   | 10 – computer-aided design systems       |
| 5 – software for managing purchase of goods and services             | 11 – desk-top publishing systems         |
| 6 – software for access to databases via global information networks | 12 – software for scientific research    |

(continued)



Specialised software:

- 1 – electronic document management systems
- 2 – software for electronic payment transactions
- 3 – computer-aided management systems
- 4 – electronic legal reference information systems
- 5 – software for managing purchase of goods and services
- 6 – software for access to databases via global information networks

- 7 – CRM, ERP, SCM systems
- 8 – computer-aided manufacturing systems
- 9 – training and educational programmes
- 10 – computer-aided design systems
- 11 – desk-top publishing systems
- 12 – software for scientific research

## 6.10. ENTERPRISES USING INFORMATION SECURITY BY TYPE

*(as a percentage of the total number of enterprises)*

	2010	2011	2012	2013	2014	2015
Electronic digital signature	66.8	73.9	75.2	77.2	76.5	75.3
Regularly updated antivirus software	...	...	73.6	76.7	76.1	74.1
User identification and authentication facilities	...	...	41.6	47.0	48.2	53.9
Anti-malware software and hardware	...	...	40.8	44.9	45.8	49.4
Strong authentication	...	...	35.2	37.6	37.5	46.5
Encryption facilities	35.3	39.8	39.4	39.9	39.3	41.0
Spam filters	...	...	31.2	34.7	39.2	40.4
Security breaches detection systems	...	...	25.8	28.0	28.8	31.4
Automated IT security control and analysis software	...	...	20.3	21.6	24.1	26.1
Offsite data backup	...	...	20.1	21.1	20.1	24.3
Biometric authentication	...	...	4.7	3.5	4.2	4.8



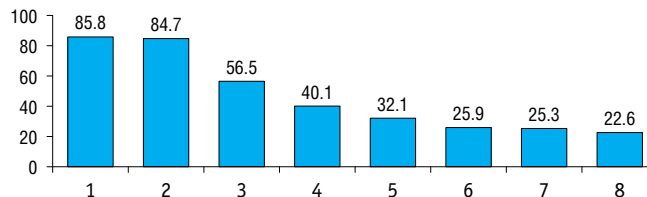
**6.11. ENTERPRISES USING INFORMATION SECURITY BY TYPE AND SECTOR OF ECONOMY: 2015***(as a percentage of the total number of enterprises)*

	National economy – total	Business enterprise sector	Financial sector	Public administration	Social sphere
Electronic digital signature	75.3	71.1	76.9	84.9	77.3
Regularly updated antivirus software	74.1	73.5	86.7	80.5	72.1
User identification and authentication facilities	53.9	55.2	70.8	54.1	50.6
Anti-malware software and hardware	49.4	54.0	76.8	51.3	42.9
Strong authentication	46.5	49.2	75.5	45.9	39.2
Encryption facilities	41.0	42.2	69.6	45.4	37.7
Spam filters	40.4	46.9	69.7	38.2	31.5
Security breaches detection systems	31.4	35.9	60.1	30.3	23.8
Automated IT security control and analysis software	26.1	28.7	53.3	25.6	20.2
Offsite data backup	24.3	27.2	41.6	21.1	19.3
Biometric authentication	4.8	5.6	9.3	4.0	3.6

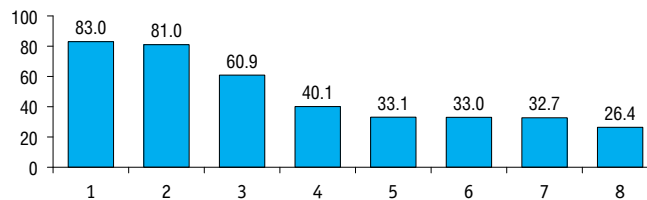
## 6.12. INTERNET USAGE FOR GENERAL PURPOSES BY SECTOR OF ECONOMY: 2015

(as a percentage of the total number of enterprises)

### National economy – total



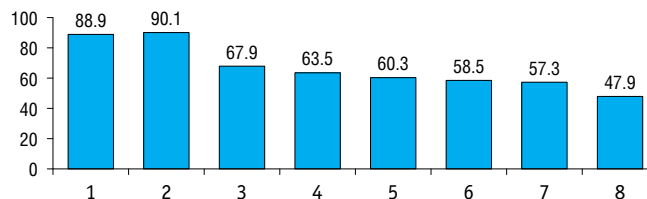
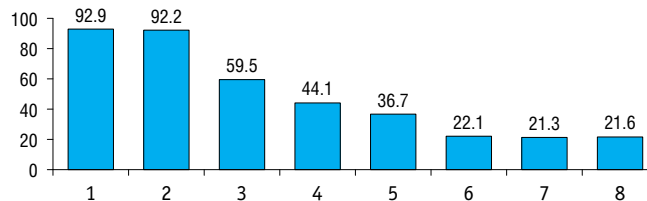
### Business enterprise sector



- 1 – E-mailing
- 2 – Information search
- 3 – Banking and other financial transactions
- 4 – Personnel training
- 5 – Videoconferencing

- 6 – Internal or external recruitment
- 7 – Telephone communication via the Internet/VoIP
- 8 – Paid subscription to access to electronic databases, electronic libraries

(continued)

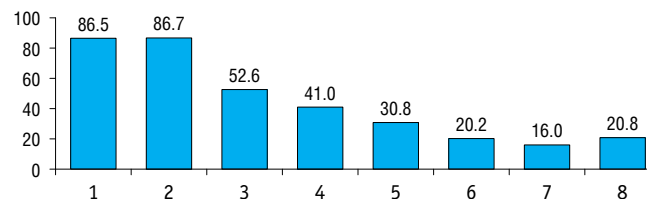
**Financial sector****Public administration**

- 1 – E-mailing
- 2 – Information search
- 3 – Banking and other financial transactions
- 4 – Personnel training
- 5 – Videoconferencing

- 6 – Internal or external recruitment
- 7 – Telephone communication via the Internet/VoIP
- 8 – Paid subscription to access to electronic databases, electronic libraries

(continued)

### Social sphere



1 – E-mailing

2 – Information search

3 – Banking and other financial transactions

4 – Personnel training

5 – Videoconferencing

6 – Internal or external recruitment

7 – Telephone communication via  
the Internet/VoIP

8 – Paid subscription to access to electronic  
databases, electronic libraries

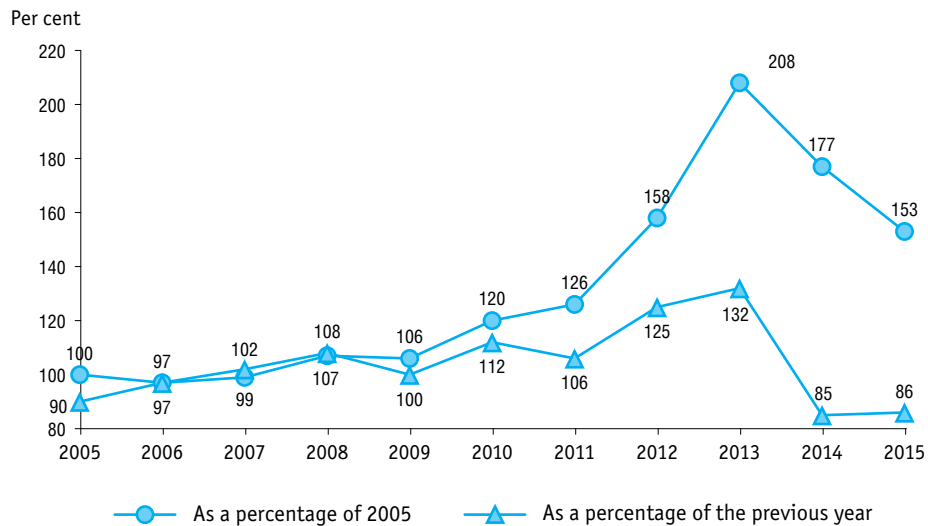
### 6.13. ICT EXPENDITURE BY TYPE OF COSTS

(million roubles)

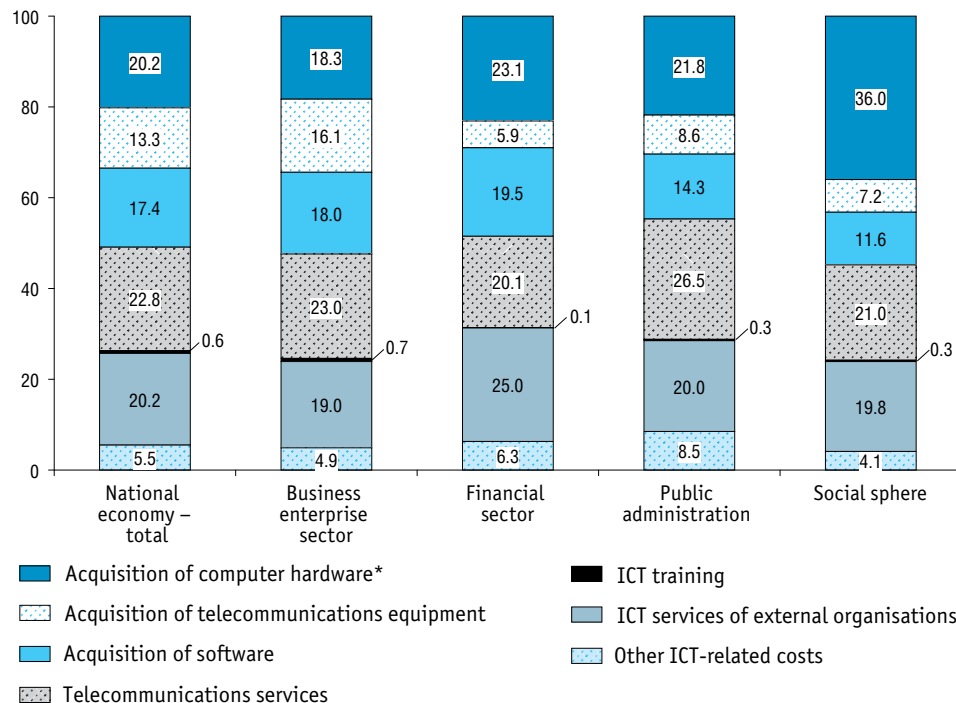
	2010	2011	2012	2013	2014	2015
<b>Total</b>	<b>515648</b>	<b>603007</b>	<b>842674</b>	<b>1245705</b>	<b>1174913</b>	<b>1184184</b>
Acquisition of computer hardware*	112726	139501	200625	322424	259623	239036
Acquisition of telecommunications equipment	...	...	...	...	154384	157085
Acquisition of software	81228	104197	169025	170112	162424	206598
Of which – Russian software	...	...	...	...	...	42747
Telecommunications services	167923	184834	250461	405110	279296	270341
Of which – payment for Internet access	39171	53336	64198	170769	73037	73528
ICT training	3733	4683	5648	4638	12153	6823
ICT services of external organisations and consultants (excluding telecommunications services and training)	98919	120012	147432	267706	200036	239156
Of which – payment for cloud computing services	...	...	...	...	...	20014
Other ICT-related expenditure	51119	49780	69483	75715	106997	65145

\* Here and below in the section – the data provided for 2005–2013 include the expenditure on the acquisition of telecommunications equipment.

#### 6.14. TRENDS IN ICT EXPENDITURE (at constant prices)

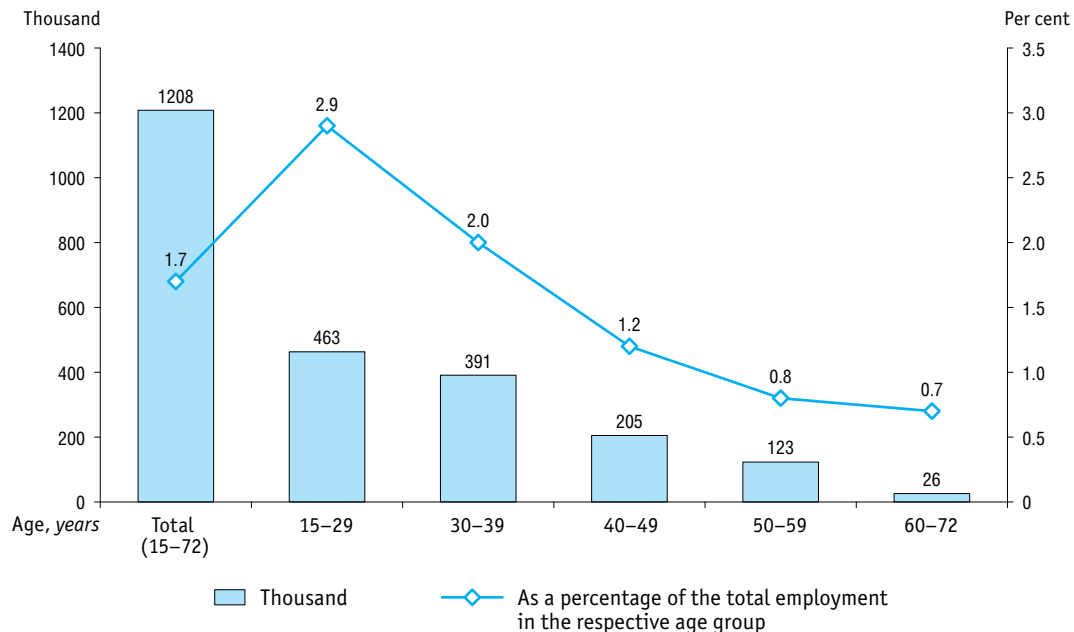


**6.15. PERCENTAGE DISTRIBUTION OF ICT EXPENDITURE IN ENTERPRISES BY TYPE OF COSTS BY SECTOR OF ECONOMY: 2015**  
*(as a percentage of enterprises' total expenditure on ICT)*



\* Here and below in the section – the data provided for 2005–2013 include the expenditure on the acquisition of telecommunications equipment.

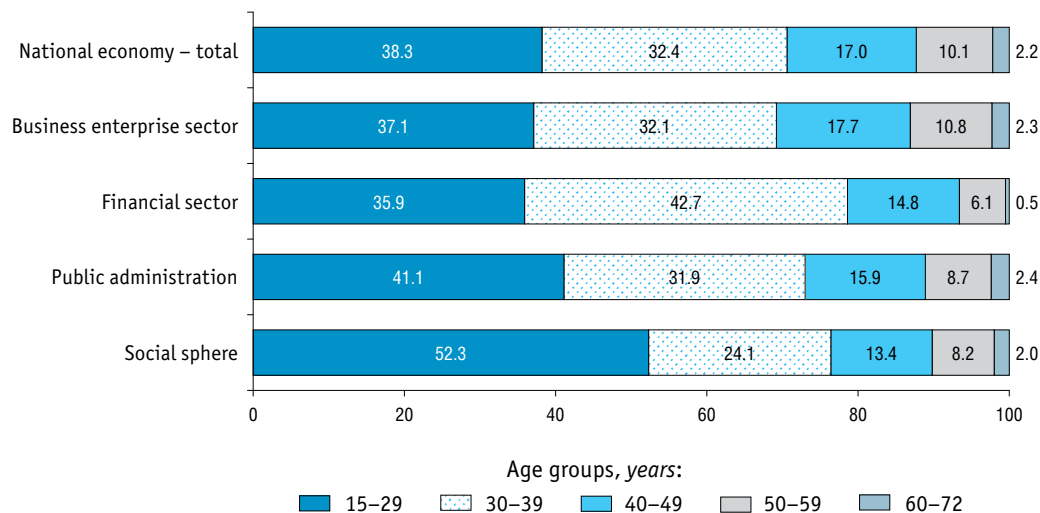
### 6.16. EMPLOYEES WITH AN ICT-RELATED JOB AND SECONDARY VOCATIONAL OR HIGHER EDUCATION BY ECONOMIC ACTIVITY AND AGE GROUP: 2015\* (annual average)



\* Here and below (6.17) – in accordance with the Russian Classification of Occupations (RCO, codes 251, 252, 351, 352).



### 6.17. PERCENTAGE DISTRIBUTION OF EMPLOYEES WITH AN ICT-RELATED JOB AND SECONDARY VOCATIONAL OR HIGHER EDUCATION BY AGE GROUP AND SECTOR OF ECONOMY: 2015





## **7. ICT Usage in the Business Enterprise Sector**

**7.1. MAIN INDICATORS OF ICT USAGE BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR\****(as a percentage of the total number of enterprises in the business enterprise sector)*

	2010	2011	2012	2013	2014	2015
<b>Personal computers</b>	<b>92.2</b>	<b>92.4</b>	<b>91.9</b>	<b>91.6</b>	<b>91.4</b>	<b>89.3</b>
Servers**	20.8	22.9	21.5	22.2	28.4	53.8
Local area networks	72.3	74.6	74.4	75.5	69.2	65.1
Global information networks	85.2	86.5	87.4	87.9	88.5	86.8
Of which:						
Internet	84.1	85.4	86.5	86.8	87.1	85.3
of which broadband	63.8	68.7	79.3	80.8	81.4	78.9
Intranet	15.8	19.4	17.9	20.5	20.7	23.7
Extranet	6.7	7.6	8.0	9.5	16.6	19.3
other global networks	6.7	7.3	6.9	7.4	9.7	11.5
E-mail	83.5	84.0	85.3	86.0	83.6	82.7
Website	33.8	36.0	38.7	40.5	39.8	41.4
Internal and external communication via Electronic Data Interchange	...	...	23.1	24.1	53.1	59.2
RFID	...	...	...	...	5.2	6.2
Cloud computing	...	...	...	11.0	13.8	18.4

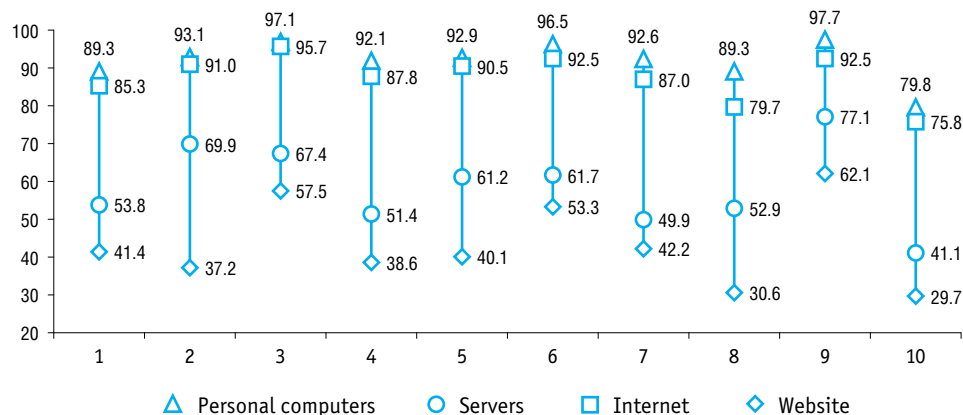
\* Here and below in this section – data on small businesses are excluded.

\*\* 2010–2014 – computers other than personal computers.

Source: here and below in the section – own calculations of HSE Institute for Statistical Studies and Economics of Knowledge based on the data provided by the Federal State Statistics Service.

## 7.2. ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR USING ICT BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises in the business enterprise sector)



1 – Business Enterprise Sector – total

2 – Mining and quarrying

3 – Manufacturing

4 – Electricity, gas and water supply

5 – Construction

6 – Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods

7 – Hotels and restaurants

8 – Transport

9 – Communication

10 – Real estate, renting and business activities

## 7.3. ENTERPRISES USING PERSONAL COMPUTERS, SERVERS BY ECONOMIC ACTIVITY

*(as a percentage of the total number of enterprises in the business enterprise sector)*

	Personal computers						Servers
	2010	2011	2012	2013	2014	2015	2015
<b>Business enterprise sector – total</b>	<b>92.2</b>	<b>92.4</b>	<b>91.9</b>	<b>91.6</b>	<b>91.4</b>	<b>89.3</b>	<b>53.8</b>
Mining and quarrying	93.9	94.6	93.7	95.6	95.0	93.1	69.9
Manufacturing	97.0	97.3	97.0	97.2	97.5	97.1	67.4
Electricity, gas and water supply	90.5	91.4	91.5	92.0	92.4	92.1	51.4
Construction	96.6	96.0	94.7	94.3	94.1	92.9	61.2
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	93.1	93.9	94.4	94.5	96.5	96.5	61.7
Hotels and restaurants	91.4	92.0	92.6	92.3	92.5	92.6	49.9
Transport	94.5	93.6	93.4	92.2	92.0	89.3	52.9
Communication	97.8	98.9	99.3	98.8	98.7	97.7	77.1
Real estate, renting and business activities	86.8	87.0	85.9	85.4	83.8	79.8	41.1

#### 7.4. ENTERPRISES USING LOCAL AREA NETWORKS BY ECONOMIC ACTIVITY

(as a percentage of the total number of enterprises in the business enterprise sector)

	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>72.3</b>	<b>74.6</b>	<b>74.4</b>	<b>75.5</b>	<b>69.2</b>	<b>65.1</b>
Mining and quarrying	82.2	85.1	84.7	86.3	81.5	78.3
Manufacturing	81.8	84.2	84.1	85.2	79.8	76.6
Electricity, gas and water supply	64.0	67.3	69.2	70.7	65.6	65.3
Construction	79.6	82.7	80.7	81.6	73.2	68.3
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	72.6	75.9	76.8	79.9	76.0	74.7
Hotels and restaurants	61.4	65.6	66.5	67.9	59.7	57.5
Transport	77.9	79.2	78.9	79.7	72.6	69.3
Communication	90.5	92.6	91.7	92.3	86.9	86.2
Real estate, renting and business activities	63.7	65.5	64.9	65.2	58.2	51.6

#### 7.5. ENTERPRISES USING THE INTERNET BY ECONOMIC ACTIVITY

(as a percentage of the total number of enterprises in the business enterprise sector)

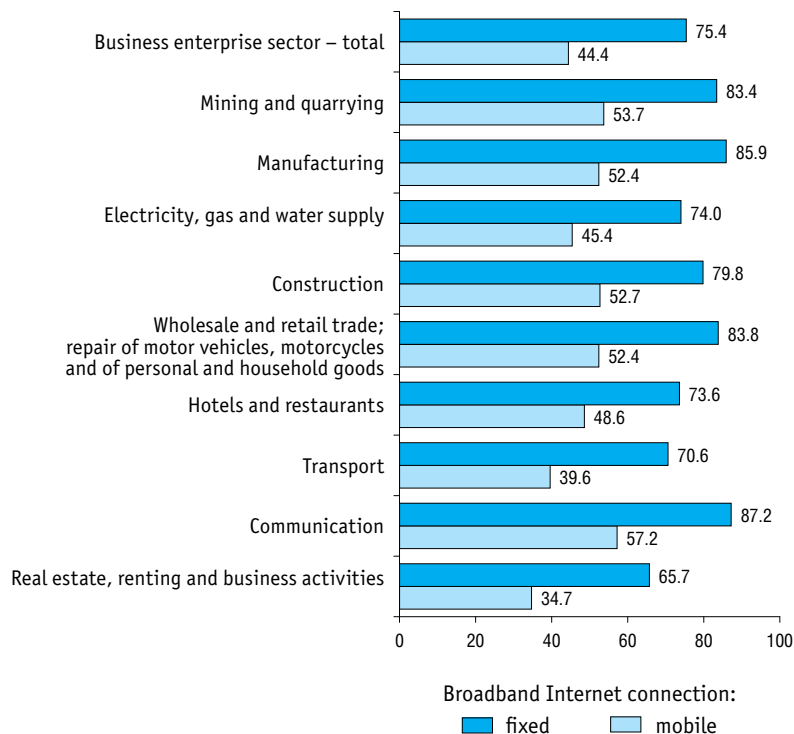
	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>84.1</b>	<b>85.4</b>	<b>86.5</b>	<b>86.8</b>	<b>87.1</b>	<b>85.3</b>
Mining and quarrying	90.4	91.2	91.1	92.4	93.5	91.0
Manufacturing	93.2	93.9	94.7	94.9	95.9	95.7
Electricity, gas and water supply	77.1	82.0	84.7	86.1	87.6	87.8
Construction	91.5	91.8	91.7	91.3	91.5	90.5
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	87.5	88.6	90.1	91.4	92.8	92.5
Hotels and restaurants	77.7	80.3	83.8	84.7	86.8	87.0
Transport	80.3	79.9	82.0	80.9	81.3	79.7
Communication	93.8	94.7	93.9	94.8	94.2	92.5
Real estate, renting and business activities	77.0	78.8	79.6	79.9	79.3	75.8

**7.6. ENTERPRISES USING BROADBAND INTERNET CONNECTION BY ECONOMIC ACTIVITY***(as a percentage of the total number of enterprises in the business enterprise sector)*

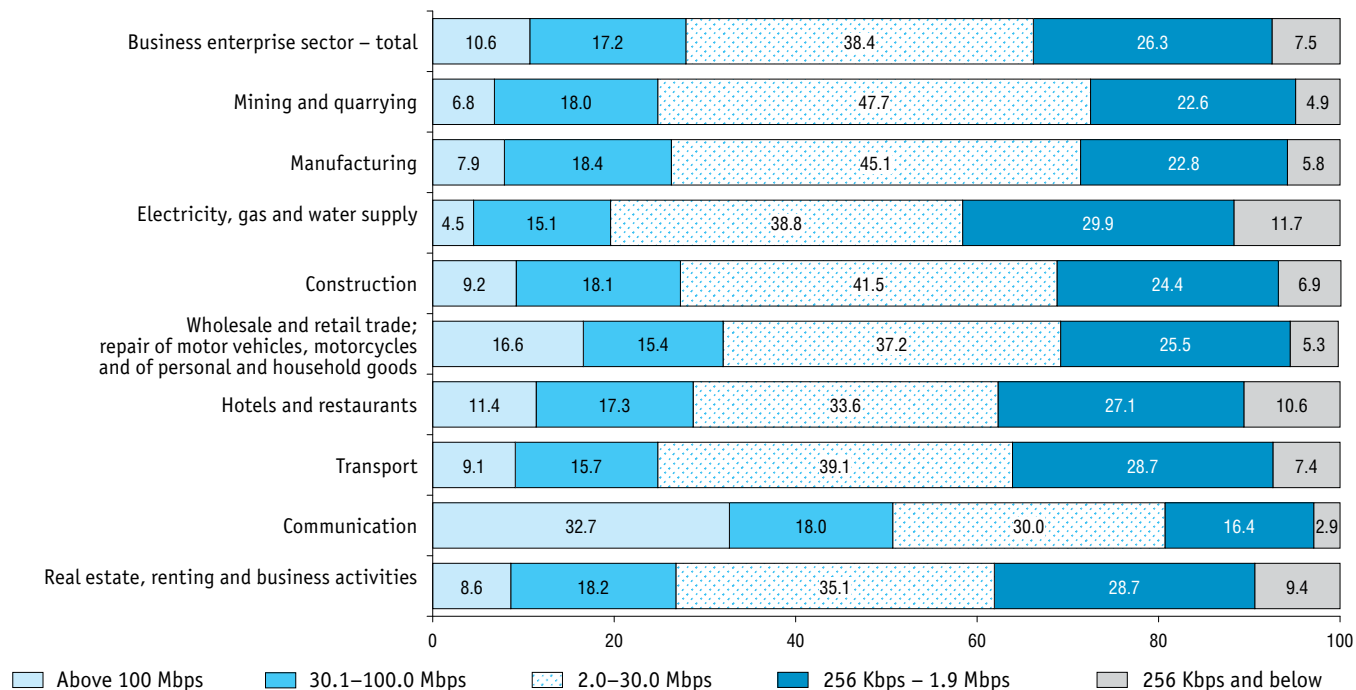
	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>63.8</b>	<b>68.7</b>	<b>79.3</b>	<b>80.8</b>	<b>81.4</b>	<b>78.9</b>
Mining and quarrying	70.1	75.9	84.2	87.6	88.7	86.6
Manufacturing	73.5	78.5	88.1	89.7	90.9	90.2
Electricity, gas and water supply	53.6	61.8	72.8	75.5	78.8	77.6
Construction	69.1	72.5	84.1	85.1	85.3	84.3
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	69.6	74.0	84.6	86.6	88.3	87.6
Hotels and restaurants	53.2	58.4	73.3	74.7	78.3	77.7
Transport	58.5	63.1	74.7	74.6	75.8	73.8
Communication	84.2	86.6	90.7	92.3	92.1	89.9
Real estate, renting and business activities	56.4	61.3	72.3	73.9	73.3	68.7

## 7.7. ENTERPRISES USING FIXED AND MOBILE BROADBAND INTERNET CONNECTION BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises in the business enterprise sector)

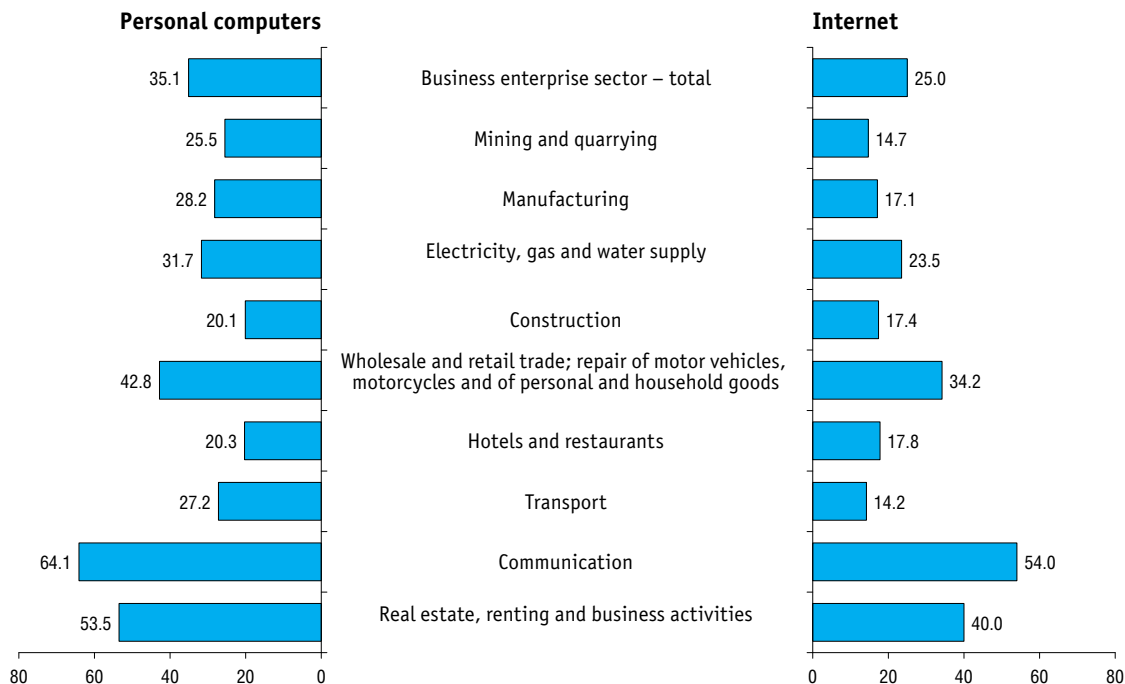




**7.8. DISTRIBUTION OF ENTERPRISES BY INTERNET CONNECTION SPEED AND BY ECONOMIC ACTIVITY: 2015***(as a percentage of the total number of enterprises in the business enterprise sector, using the Internet)*

### 7.9. SHARE OF EMPLOYEES IN THE BUSINESS ENTERPRISE SECTOR USING ICT BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of employees in the business enterprise sector)



**7.10. ENTERPRISES PROVIDING THEIR EMPLOYEES WITH MOBILE INTERNET CONNECTION***(as a percentage of the total number of enterprises in the business enterprise sector)*

	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>18.4</b>	<b>19.1</b>	<b>28.5</b>	<b>32.4</b>	<b>35.1</b>
Mining and quarrying	28.5	30.0	42.3	45.0	45.3
Manufacturing	21.2	21.9	33.1	39.1	43.9
Electricity, gas and water supply	16.5	17.1	27.3	30.2	34.7
Construction	23.9	25.8	36.9	41.2	42.3
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	20.5	22.5	33.2	40.1	44.0
Hotels and restaurants	13.5	13.3	23.8	28.8	35.6
Transport	16.5	18.2	29.2	31.2	32.5
Communication	40.6	38.9	47.3	53.4	55.7
Real estate, renting and business activities	13.8	13.6	20.3	22.3	24.2

### 7.11. ENTERPRISES WITH A WEBSITE BY ECONOMIC ACTIVITY

(as a percentage of the total number of enterprises in the business enterprise sector)

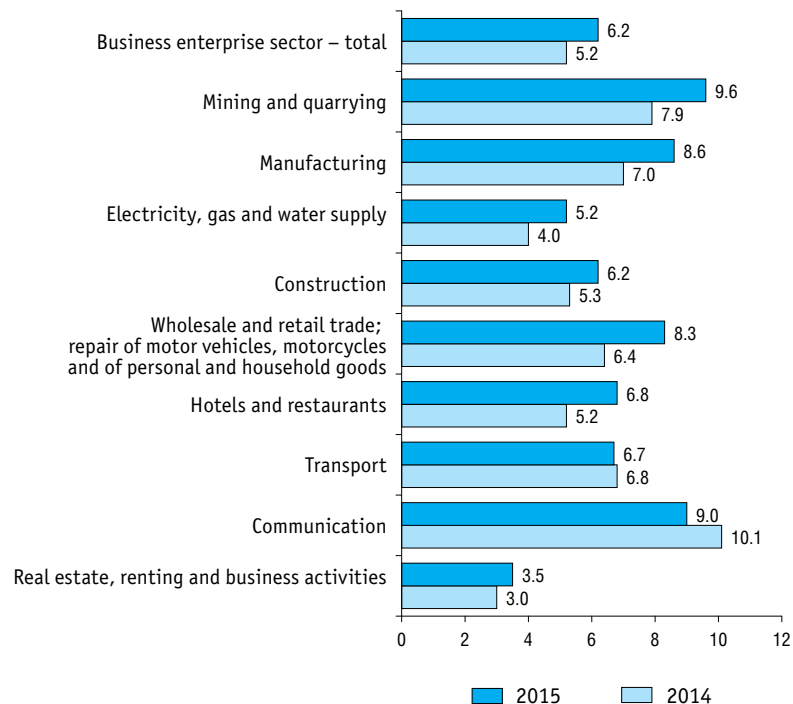
	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>33.8</b>	<b>36.0</b>	<b>38.7</b>	<b>40.5</b>	<b>39.8</b>	<b>41.4</b>
Mining and quarrying	27.9	30.0	33.2	36.8	34.5	37.2
Manufacturing	50.8	53.3	56.5	57.9	55.9	57.5
Electricity, gas and water supply	24.0	29.2	33.8	35.7	34.2	38.6
Construction	31.2	34.3	37.0	38.7	37.1	40.1
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	35.7	35.5	39.5	43.9	48.5	53.3
Hotels and restaurants	28.5	31.5	35.3	36.8	38.2	42.2
Transport	23.2	24.4	28.3	29.4	28.8	30.6
Communication	62.5	65.7	65.1	67.8	63.6	62.1
Real estate, renting and business activities	26.4	29.1	30.6	31.7	29.9	29.7

**7.12. ENTERPRISES USING INTERNAL AND EXTERNAL COMMUNICATION VIA EDI BY ECONOMIC ACTIVITY***(as a percentage of the total number of enterprises in the business enterprise sector)*

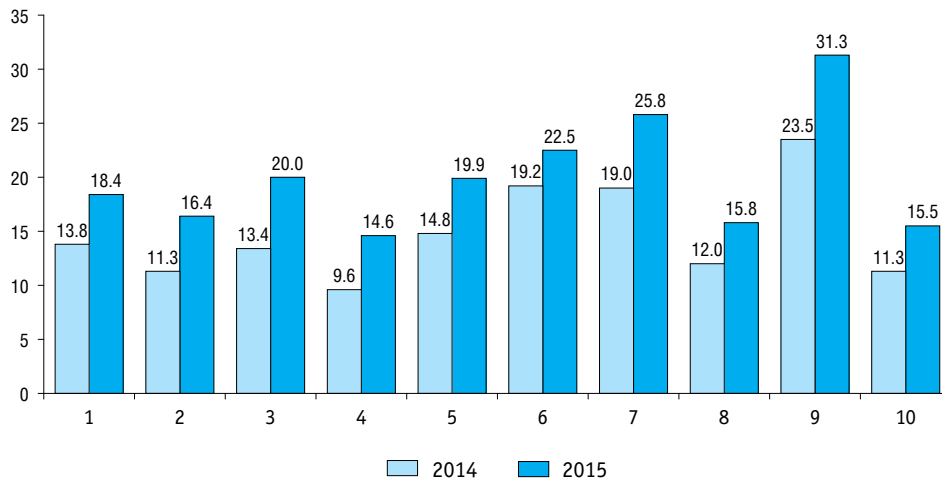
	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>23.1</b>	<b>24.1</b>	<b>53.1</b>	<b>59.2</b>
Mining and quarrying	20.5	22.0	55.8	61.7
Manufacturing	24.4	26.1	61.6	69.7
Electricity, gas and water supply	20.6	22.4	52.7	58.9
Construction	21.0	22.8	57.5	63.5
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	30.1	29.6	59.3	67.9
Hotels and restaurants	21.8	25.0	56.3	61.8
Transport	22.8	23.2	47.5	52.3
Communication	35.3	33.8	58.1	61.9
Real estate, renting and business activities	19.7	20.9	45.6	50.4

### 7.13. ENTERPRISES USING RFID BY ECONOMIC ACTIVITY

(as a percentage of the total number of enterprises in the business enterprise sector)



## 7.14. ENTERPRISES USING CLOUD COMPUTING BY ECONOMIC ACTIVITY

*(as a percentage of the total number of enterprises in the business enterprise sector)*

- 1 – Business Enterprise Sector – total
- 2 – Mining and quarrying
- 3 – Manufacturing
- 4 – Electricity, gas and water supply
- 5 – Construction
- 6 – Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods

- 7 – Hotels and restaurants
- 8 – Transport
- 9 – Communication
- 10 – Real estate, renting and business activities

## 7.15. PERSONAL COMPUTERS WITH INTERNET ACCESS IN ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY

*(as a percentage of the total number of computers)*

	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>52.8</b>	<b>56.0</b>	<b>59.9</b>	<b>62.9</b>	<b>64.9</b>	<b>65.7</b>
Mining and quarrying	42.7	46.2	46.2	51.7	54.8	56.0
Manufacturing	48.4	51.6	53.6	55.3	59.3	55.5
Electricity, gas and water supply	54.0	60.0	64.8	66.2	69.5	71.3
Construction	66.4	69.3	74.7	76.9	79.5	79.7
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	62.2	66.7	74.7	79.2	77.4	77.7
Hotels and restaurants	60.8	65.0	67.5	68.1	66.2	76.5
Transport	36.8	37.5	42.7	44.8	49.0	49.9
Communication	73.8	75.0	74.1	74.8	78.6	80.3
Real estate, renting and business activities	49.9	53.4	57.0	61.3	62.0	67.4



## 7.16. ACQUISITION OF PERSONAL COMPUTERS BY ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY

*(as a percentage of the total number of computers)*

	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>11.1</b>	<b>12.5</b>	<b>12.6</b>	<b>11.6</b>	<b>10.6</b>	<b>8.8</b>
Mining and quarrying	10.9	12.0	11.3	11.7	9.4	10.6
Manufacturing	9.9	11.6	11.1	10.4	9.6	7.3
Electricity, gas and water supply	11.9	11.5	10.5	10.8	9.3	7.4
Construction	13.4	14.2	14.0	12.5	10.8	10.0
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	13.1	14.8	17.2	14.0	14.1	10.9
Hotels and restaurants	12.5	11.8	11.4	10.0	6.8	12.4
Transport	9.9	12.2	11.0	9.5	9.2	8.7
Communication	10.7	10.2	12.8	10.8	8.6	7.1
Real estate, renting and business activities	11.5	13.2	12.7	12.5	11.3	9.7

**7.17. AVAILABILITY OF PERSONAL COMPUTERS IN ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY**  
*(computers per 100 employees)*

	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>28.7</b>	<b>31.4</b>	<b>34.3</b>	<b>35.2</b>	<b>37.8</b>	<b>39.5</b>
Mining and quarrying	23.9	24.4	26.3	26.2	27.2	28.8
Manufacturing	22.5	24.4	25.9	28.2	30.1	32.1
Electricity, gas and water supply	26.6	28.0	30.3	31.1	33.5	35.0
Construction	16.4	17.5	18.4	19.5	20.6	23.0
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	28.1	39.3	43.1	38.8	41.6	42.8
Hotels and restaurants	15.4	16.7	19.6	19.3	21.5	19.5
Transport	22.0	22.5	24.1	24.2	26.1	27.7
Communication	58.5	57.9	64.0	69.2	71.8	73.7
Real estate, renting and business activities	52.4	56.3	60.9	61.8	66.2	67.0

### 7.18. AVAILABILITY OF PERSONAL COMPUTERS WITH INTERNET ACCESS IN ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY

(computers per 100 employees)

	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>15.1</b>	<b>17.6</b>	<b>20.6</b>	<b>22.2</b>	<b>24.5</b>	<b>25.9</b>
Mining and quarrying	10.2	11.3	12.1	13.6	14.9	16.1
Manufacturing	10.9	12.6	13.9	15.6	17.9	17.9
Electricity, gas and water supply	14.4	16.8	19.6	20.6	23.3	24.9
Construction	10.9	12.1	13.7	15.0	16.4	18.3
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	17.5	26.2	32.2	30.7	32.2	33.2
Hotels and restaurants	9.3	10.9	13.2	13.1	14.2	14.9
Transport	8.1	8.4	10.3	10.8	12.8	13.8
Communication	43.2	43.4	47.4	51.7	56.4	59.2
Real estate, renting and business activities	26.1	30.1	34.7	37.9	41.1	45.1

## 7.19. ENTERPRISES USING SPECIALISED SOFTWARE BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises in the business enterprise sector)

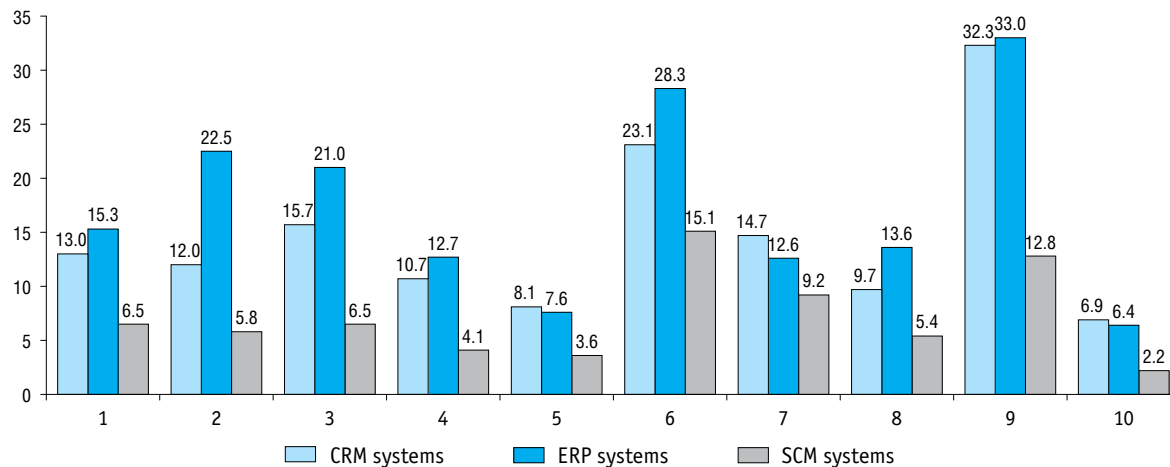
	Electronic document management systems	Software for electronic payment transactions	Computer-aided management systems	Electronic legal reference information systems	Software for managing purchase of goods and services	Software for access to databases via global information networks
<b>Business enterprise sector – total</b>	<b>58.6</b>	<b>56.5</b>	<b>54.7</b>	<b>53.2</b>	<b>43.8</b>	<b>29.5</b>
Mining and quarrying	62.1	60.7	62.6	66.9	42.8	27.7
Manufacturing	64.2	69.8	63.9	64.8	51.8	31.8
Electricity, gas and water supply	65.4	58.0	55.8	55.9	44.8	31.3
Construction	59.1	63.3	56.9	62.4	35.9	27.2
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	60.6	61.1	62.9	54.7	68.6	37.8
Hotels and restaurants	61.0	60.2	56.1	50.5	49.6	34.0
Transport	60.8	54.6	57.9	57.0	38.5	25.9
Communication	70.8	64.6	73.4	71.3	60.1	44.0
Real estate, renting and business activities	51.9	46.4	43.2	43.0	27.5	23.7

(continued)

	CRM, ERP, SCM systems	Computer-aided manufacturing systems	Computer-aided design systems	Training and educational programmes	Desk-top publishing systems	Software for scientific research
<b>Business enterprise sector – total</b>	<b>22.2</b>	<b>22.1</b>	<b>18.2</b>	<b>15.5</b>	<b>6.6</b>	<b>4.6</b>
Mining and quarrying	27.8	42.9	35.1	29.4	6.2	6.3
Manufacturing	28.2	40.9	30.9	16.5	15.1	6.1
Electricity, gas and water supply	18.9	24.4	23.9	20.0	4.0	2.5
Construction	13.3	20.7	38.4	12.8	4.1	3.6
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	40.0	19.0	12.5	16.3	6.9	3.5
Hotels and restaurants	17.0	18.2	9.2	15.3	3.0	1.7
Transport	18.3	29.2	14.3	23.5	4.0	2.0
Communication	42.6	49.5	29.9	39.0	11.4	2.9
Real estate, renting and business activities	11.3	10.7	12.3	9.9	3.8	6.0

## 7.20. ENTERPRISES USING CRM, ERP, SCM SYSTEMS BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises in the business enterprise sector)



- 1 – Business enterprise sector – total
- 2 – Mining and quarrying
- 3 – Manufacturing
- 4 – Electricity, gas and water supply
- 5 – Construction
- 6 – Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods

- 7 – Hotels and restaurants
- 8 – Transport
- 9 – Communication
- 10 – Real estate, renting and business activities

**7.21. INTERNET USAGE FOR GENERAL PURPOSES BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY: 2015***(as a percentage of the total number of enterprises in the business enterprise sector)*

	E-mailing	Information search	Banking and other financial transactions	Personnel training
<b>Business enterprise sector – total</b>	<b>83.0</b>	<b>81.0</b>	<b>60.9</b>	<b>40.1</b>
Mining and quarrying	88.0	88.1	66.1	46.5
Manufacturing	94.1	93.9	75.4	46.3
Electricity, gas and water supply	85.9	86.0	62.7	41.2
Construction	88.5	87.9	68.2	40.0
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	90.5	82.0	64.7	48.7
Hotels and restaurants	84.7	84.4	65.1	38.0
Transport	76.2	76.5	53.6	37.0
Communication	90.2	91.4	68.4	66.4
Real estate, renting and business activities	73.3	72.6	51.8	31.3

(continued)

	Videoconferencing	Internal or external hire of personnel	Telephone communication via the Internet/VoIP	Paid subscription to electronic databases, electronic libraries
<b>Business enterprise sector – total</b>	<b>33.1</b>	<b>33.0</b>	<b>32.7</b>	<b>26.4</b>
Mining and quarrying	42.9	38.7	39.8	37.1
Manufacturing	38.5	42.1	40.9	33.5
Electricity, gas and water supply	30.2	24.4	25.4	26.0
Construction	27.0	36.6	30.2	29.7
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	46.1	49.8	51.9	33.0
Hotels and restaurants	23.6	33.9	25.3	26.2
Transport	24.9	26.6	25.1	19.8
Communication	65.6	60.1	56.5	41.1
Real estate, renting and business activities	24.9	20.6	20.6	19.5



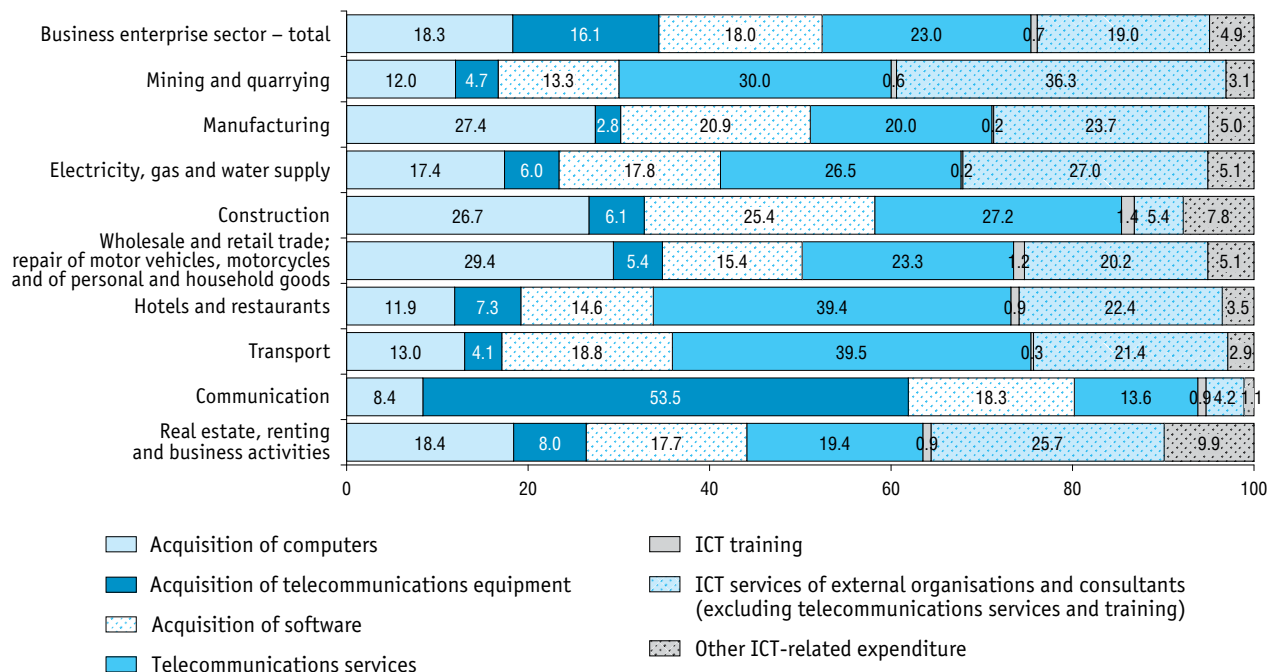
## 7.22. ICT EXPENDITURE PER ENTERPRISE IN THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY

*(thousand roubles)*

	2010	2011	2012	2013	2014	2015
<b>Business enterprise sector – total</b>	<b>4973</b>	<b>4572</b>	<b>6154</b>	<b>9803</b>	<b>7090</b>	<b>7908</b>
Mining and quarrying	16911	18915	29190	32686	22072	29360
Manufacturing	4013	3558	5644	5337	7215	9965
Electricity, gas and water supply	4223	5317	7816	7373	5679	5652
Construction	2457	4952	3048	2851	3942	8133
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	2865	3248	5145	5386	4508	3829
Hotels and restaurants	782	1157	1271	1513	1105	1031
Transport	4610	3928	6665	6445	9737	8141
Communication	39517	39591	49043	211387	50530	74535
Real estate, renting and business activities	2828	2899	3100	3959	4992	4437

### 7.23. PERCENTAGE DISTRIBUTION OF ICT EXPENDITURE IN ENTERPRISES BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total ICT expenditure in the business enterprise sector)



## 7.24. INTERNET USAGE BY MANUFACTURING ENTERPRISES BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of enterprises)*

	Personal computers	Servers	Internet	Website	Cloud computing	Internal and external communication via Electronic Data Interchange
<b>Manufacturing – total</b>	<b>97.1</b>	<b>67.4</b>	<b>95.7</b>	<b>57.5</b>	<b>20.0</b>	<b>69.7</b>
Manufacture of food products, beverages and tobacco products	97.7	74.8	96.7	53.4	23.7	73.6
Manufacture of textiles and wearing apparel	95.6	57.4	93.6	53.4	18.9	64.4
Manufacture of leather, leather products and footwear	97.0	71.0	96.0	49.0	15.0	72.0
Manufacture of wood and products of wood	94.2	62.7	92.4	45.1	20.4	74.1
Manufacture of pulp, paper, paper products, printing and publishing	97.9	43.6	96.5	51.0	20.9	63.9
Manufacture of chemicals and chemical products	96.8	77.2	96.6	62.9	24.1	73.4
Manufacture of rubber and plastic products	97.9	79.9	96.9	62.4	25.1	79.9
Manufacture of basic metals and fabricated metal products	96.8	76.7	95.9	67.5	18.9	72.9
Manufacture of machinery and equipment	97.2	70.1	95.7	60.8	18.5	68.1
Manufacture of electrical machinery and apparatus, electrical and optical equipment	98.4	78.9	97.3	67.4	16.8	70.1
Manufacture of transport vehicles and equipment	94.2	68.0	89.3	53.8	14.5	62.1

## 7.25. MANUFACTURING ENTERPRISES USING SPECIALISED SOFTWARE BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises)

	Software for electronic payment transactions	Electronic legal reference information systems	Electronic document management systems	Computer-aided management systems	Software for managing purchase of goods and services	Computer-aided manufacturing systems
<b>Manufacturing – total</b>	<b>69.8</b>	<b>64.8</b>	<b>64.2</b>	<b>63.9</b>	<b>51.8</b>	<b>40.9</b>
Manufacture of food products, beverages and tobacco products	73.1	69.4	69.6	65.1	59.8	46.1
Manufacture of textiles and wearing apparel	69.0	58.2	60.2	60.2	43.1	32.3
Manufacture of leather, leather products and footwear	66.0	58.0	58.0	54.0	45.0	29.0
Manufacture of wood and products of wood	70.0	63.5	63.2	62.2	47.6	45.6
Manufacture of pulp, paper, paper products, printing and publishing	60.8	43.7	63.5	49.9	41.5	15.4
Manufacture of chemicals and chemical products	75.6	76.8	60.9	71.8	59.9	49.6
Manufacture of rubber and plastic products	73.8	69.3	64.0	69.8	59.6	48.0
Manufacture of basic metals and fabricated metal products	74.8	73.5	63.5	68.7	52.8	50.0
Manufacture of machinery and equipment	67.5	67.5	62.5	64.0	47.2	40.1
Manufacture of electrical machinery and apparatus, electrical and optical equipment	73.5	75.3	63.7	72.4	57.5	51.0
Manufacture of transport vehicles and equipment	71.9	68.3	64.1	69.5	48.6	47.4

(continued)

	Software for access to databases via global information networks	Computer-aided design systems	CRM, ERP, SCM systems	Training and educational programmes	Desk-top publishing systems	Software for scientific research
<b>Manufacturing – total</b>	<b>31.8</b>	<b>30.9</b>	<b>28.2</b>	<b>16.5</b>	<b>15.1</b>	<b>6.1</b>
Manufacture of food products, beverages and tobacco products	38.1	15.5	31.2	14.6	6.2	4.2
Manufacture of textiles and wearing apparel	28.1	21.5	16.5	7.9	3.7	2.0
Manufacture of leather, leather products and footwear	26.0	19.0	19.0	8.0	3.0	6.0
Manufacture of wood and products of wood	31.2	27.5	24.7	10.8	2.8	3.5
Manufacture of pulp, paper, paper products, printing and publishing	33.6	6.4	12.4	14.1	49.4	2.1
Manufacture of chemicals and chemical products	35.6	34.7	39.5	22.7	8.1	18.1
Manufacture of rubber and plastic products	34.7	32.2	32.9	14.6	8.5	6.1
Manufacture of basic metals and fabricated metal products	31.3	54.3	33.3	20.4	7.6	6.6
Manufacture of machinery and equipment	25.7	48.2	31.6	18.0	6.3	5.9
Manufacture of electrical machinery and apparatus, electrical and optical equipment	26.7	57.1	35.5	19.4	8.6	13.3
Manufacture of transport vehicles and equipment	28.0	44.7	32.9	24.4	9.1	5.9

## 7.26. INTERNET USAGE FOR GENERAL PURPOSES IN MANUFACTURING ENTERPRISES BY ECONOMIC ACTIVITY: 2015

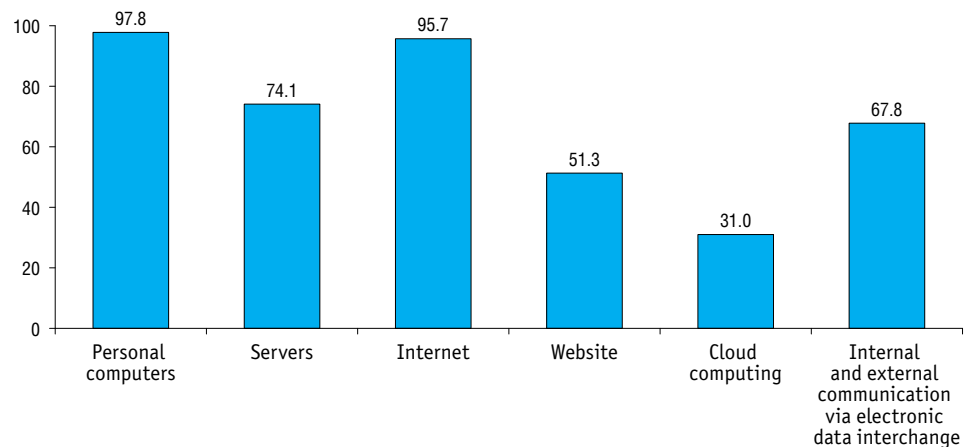
(as a percentage of the total number of enterprises)

	E-mailing	Information search	Banking and other financial transactions	Personnel training
<b>Manufacturing – total</b>	<b>94.1</b>	<b>93.9</b>	<b>75.4</b>	<b>46.3</b>
Manufacture of food products, beverages and tobacco products	94.8	94.9	78.6	48.4
Manufacture of textiles and wearing apparel	92.3	90.8	77.8	36.5
Manufacture of leather, leather products and footwear	95.0	94.0	75.0	45.0
Manufacture of wood and products of wood	91.4	89.7	78.1	44.6
Manufacture of pulp, paper, paper products, printing and publishing	94.9	93.9	68.8	37.4
Manufacture of chemicals and chemical products	95.0	94.8	83.1	55.7
Manufacture of rubber and plastic products	96.5	95.5	79.2	49.0
Manufacture of basic metals and fabricated metal products	94.8	94.9	80.2	48.4
Manufacture of machinery and equipment	93.3	95.0	73.8	48.6
Manufacture of electrical machinery and apparatus, electrical and optical equipment	95.9	96.4	80.4	52.2
Manufacture of transport vehicles and equipment	87.6	87.0	68.3	48.5

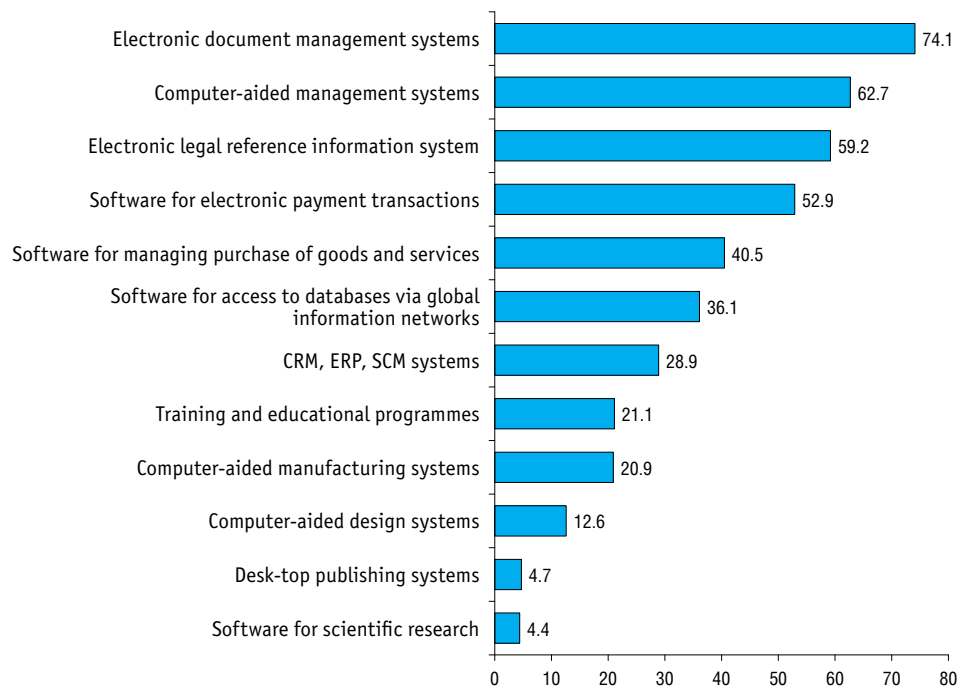
(continued)

	Internal or external hire of personnel	Telephone communication via the Internet / VoIP	Videoconferencing	Paid subscription to electronic databases, electronic libraries
<b>Manufacturing – total</b>	<b>42.1</b>	<b>40.9</b>	<b>38.5</b>	<b>33.5</b>
Manufacture of food products, beverages and tobacco products	49.7	45.4	42.2	36.2
Manufacture of textiles and wearing apparel	33.0	36.9	26.4	23.3
Manufacture of leather, leather products and footwear	42.0	33.0	28.0	26.0
Manufacture of wood and products of wood	40.8	40.3	31.5	33.2
Manufacture of pulp, paper, paper products, printing and publishing	19.4	20.5	20.7	20.1
Manufacture of chemicals and chemical products	58.3	56.9	55.2	49.2
Manufacture of rubber and plastic products	54.1	54.6	49.2	39.2
Manufacture of basic metals and fabricated metal products	51.1	47.9	42.5	40.5
Manufacture of machinery and equipment	44.7	43.1	40.5	35.7
Manufacture of electrical machinery and apparatus, electrical and optical equipment	50.8	46.8	45.4	37.6
Manufacture of transport vehicles and equipment	43.2	47.5	49.9	33.5

**7.27. ICT USAGE BY ENTERPRISES ENGAGED IN COMPUTER AND INFORMATION TECHNOLOGY-RELATED ACTIVITIES: 2015**  
(as a percentage of the total number of enterprises)

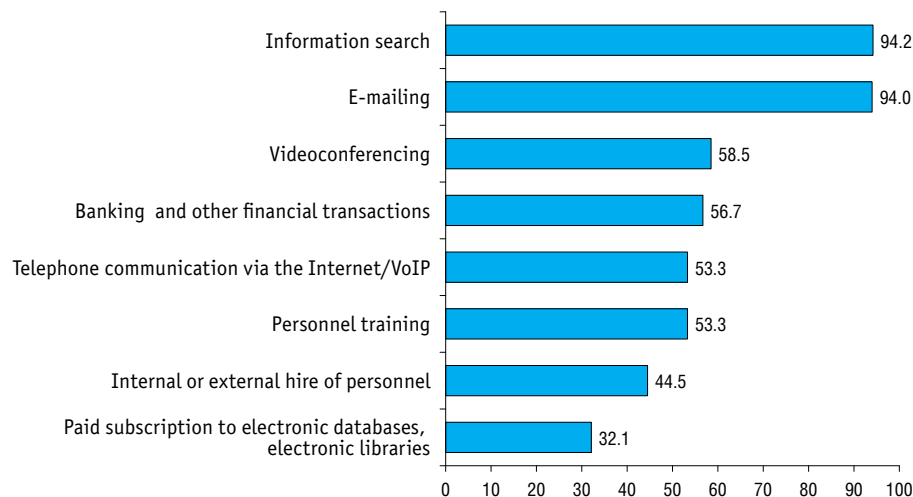


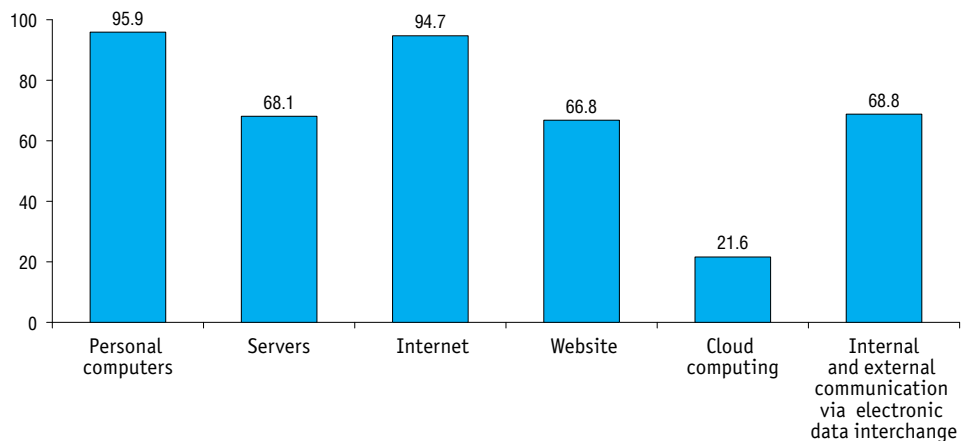


**7.28. ENTERPRISES ENGAGED IN COMPUTER AND INFORMATION TECHNOLOGY-RELATED ACTIVITIES, USING ENTERPRISES USING SPECIALISED SOFTWARE: 2015***(as a percentage of the total number of enterprises)*

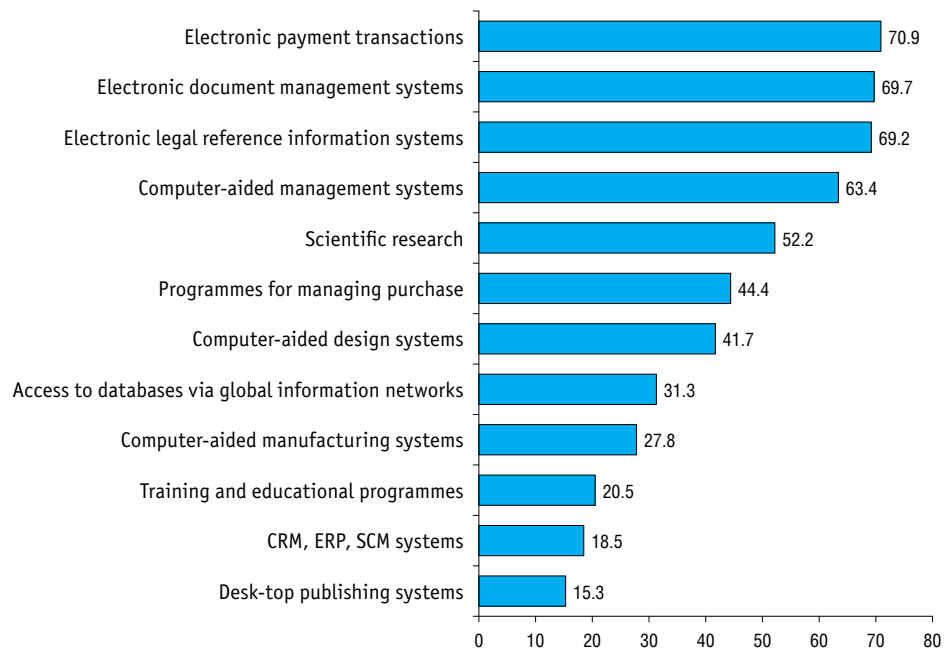
### 7.29. INTERNET USAGE FOR GENERAL PURPOSES IN ENTERPRISES ENGAGED IN COMPUTER AND INFORMATION TECHNOLOGY-RELATED ACTIVITIES: 2015

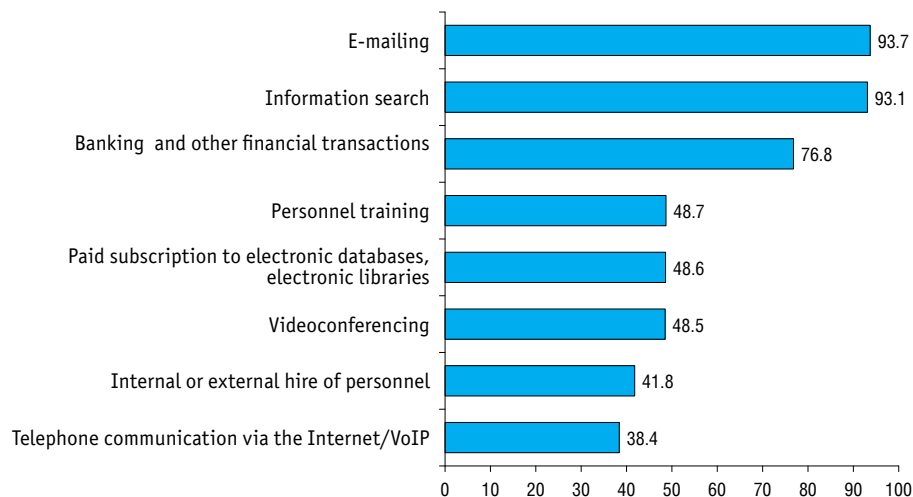
*(as a percentage of the total number of enterprises)*



**7.30. ICT USAGE IN ENTERPRISES ENGAGED IN SCIENTIFIC RESEARCH: 2015***(as a percentage of the total number of R&D-performing enterprises)*

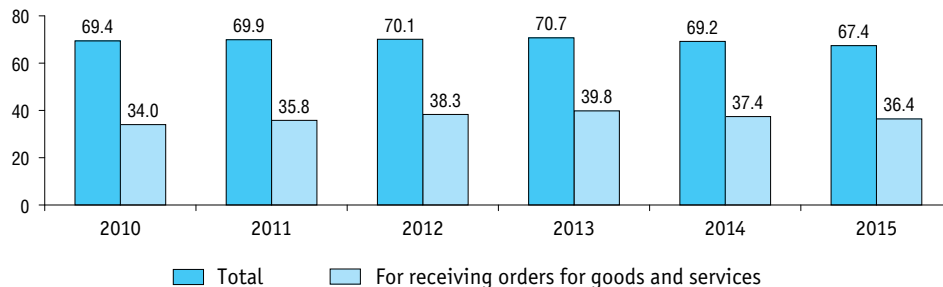
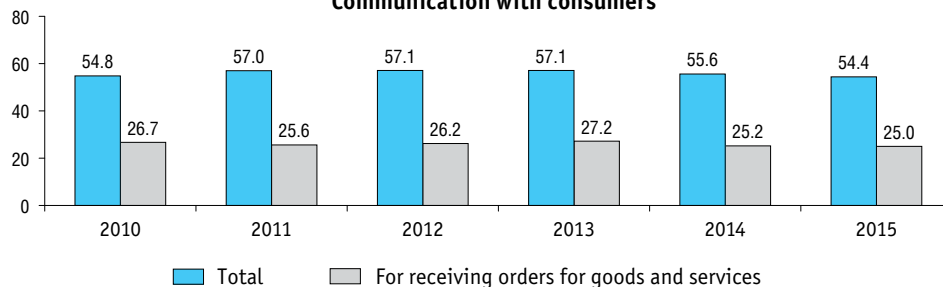
**7.31. ENTERPRISES, ENGAGED IN SCIENTIFIC RESEARCH, USING SPECIALISED SOFTWARE: 2015**  
(as a percentage of the total number of R&D-performing enterprises)



**7.32. INTERNET USAGE FOR GENERAL PURPOSES IN ENTERPRISES ENGAGED IN SCIENTIFIC RESEARCH: 2015***(as a percentage of the total number of R&D-performing enterprises)*



## 8. Electronic Commerce

**8.1. INTERNET USAGE BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR FOR COMMERCIAL PURPOSES\****(as a percentage of the total number of enterprises in the business enterprise sector)***Communication with suppliers****Communication with consumers**

\* Here and below (8.2–8.9) – the data on small businesses are excluded.

Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

## 8.2. INTERNET USAGE BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR FOR COMMUNICATION WITH SUPPLIERS

*(as a percentage of the total number of enterprises in the business enterprise sector)*

	2010	2011	2012	2013	2014	2015
Getting information about goods and services	63.7	63.0	63.5	64.4	62.9	61.5
Providing information about the enterprise's needs for goods and services	44.1	45.9	46.7	48.6	46.7	45.0
Paying for goods and services	33.1	35.7	38.0	40.9	40.3	41.2
Placing orders for goods and services	34.0	35.8	38.3	39.8	37.4	36.4
Acquiring electronic products	26.8	25.9	26.1	27.2	27.2	28.0



### 8.3. INTERNET USAGE BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR FOR COMMUNICATION WITH SUPPLIERS IN ENTERPRISES BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of enterprises in the business enterprise sector)*

	Getting information about goods and services	Providing information about the enterprise's needs for goods and services	Paying for goods and services	Placing orders for goods and services	Acquiring electronic products
<b>Business enterprise sector – total</b>	<b>61.5</b>	<b>45.0</b>	<b>41.2</b>	<b>36.4</b>	<b>28.0</b>
Mining and quarrying	73.6	51.9	45.2	34.4	38.8
Manufacturing	79.2	57.3	52.2	41.7	35.9
Electricity, gas and water supply	64.4	48.6	43.4	42.3	33.7
Construction	72.0	49.3	49.1	34.4	29.8
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	67.0	53.8	47.6	42.8	29.9
Hotels and restaurants	67.2	50.7	49.1	41.8	27.3
Transport	58.7	41.5	36.2	33.9	25.2
Communication	76.2	63.9	49.1	54.7	41.7
Real estate, renting and business activities	48.7	33.4	32.2	29.5	22.0

#### 8.4. INTERNET USAGE BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR FOR COMMUNICATION WITH CONSUMERS IN ENTERPRISES

*(as a percentage of the total number of enterprises in the business enterprise sector)*

	2010	2011	2012	2013	2014	2015
Providing information about the enterprise and its goods and services	48.6	49.6	51.0	51.5	50.5	49.1
Electronic payment transactions with consumers	25.3	25.1	27.2	28.5	27.8	28.6
Receiving orders for goods and services	26.7	25.6	26.2	27.2	25.2	25.0
Aftersales service	7.0	9.1	7.9	8.1	7.6	7.3
Distribution of electronic products	5.8	7.1	6.5	6.7	6.7	6.5

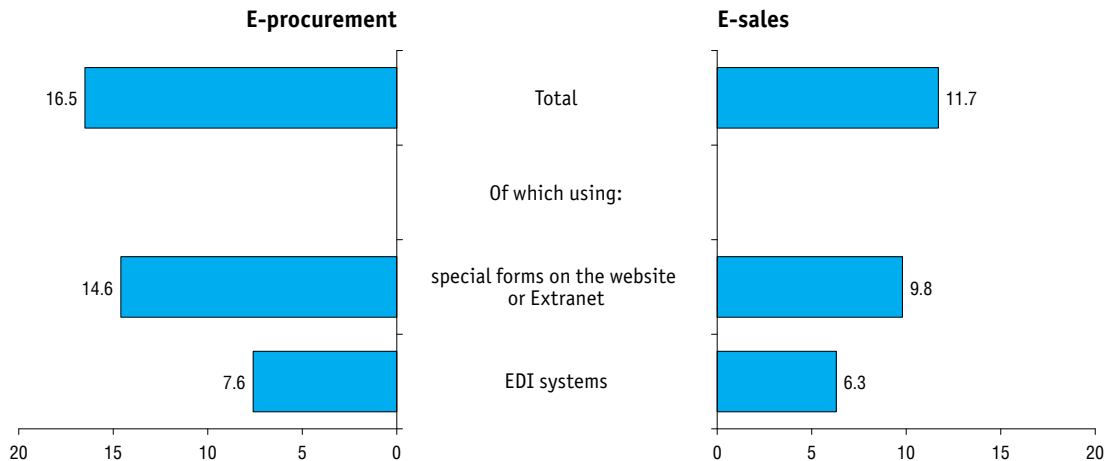
### 8.5. INTERNET USAGE BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR FOR COMMUNICATION WITH CONSUMERS IN ENTERPRISES BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of enterprises in the business enterprise sector)*

	Providing information about the enterprise and its goods and services	Electronic payment transactions with consumers	Receiving orders for goods and services	Aftersales service	Distribution of electronic products
<b>Business enterprise sector – total</b>	<b>49.1</b>	<b>28.6</b>	<b>25.0</b>	<b>7.3</b>	<b>6.5</b>
Mining and quarrying	49.1	31.4	21.4	5.5	3.9
Manufacturing	70.2	40.7	42.0	10.0	8.7
Electricity, gas and water supply	51.4	29.2	15.5	3.3	2.5
Construction	50.9	32.8	25.7	5.2	4.3
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	58.5	38.7	36.4	11.2	10.1
Hotels and restaurants	56.3	30.3	31.5	6.4	6.1
Transport	40.7	24.8	20.7	4.6	4.6
Communication	66.6	38.9	42.2	27.7	21.2
Real estate, renting and business activities	35.6	17.6	13.3	4.7	4.4

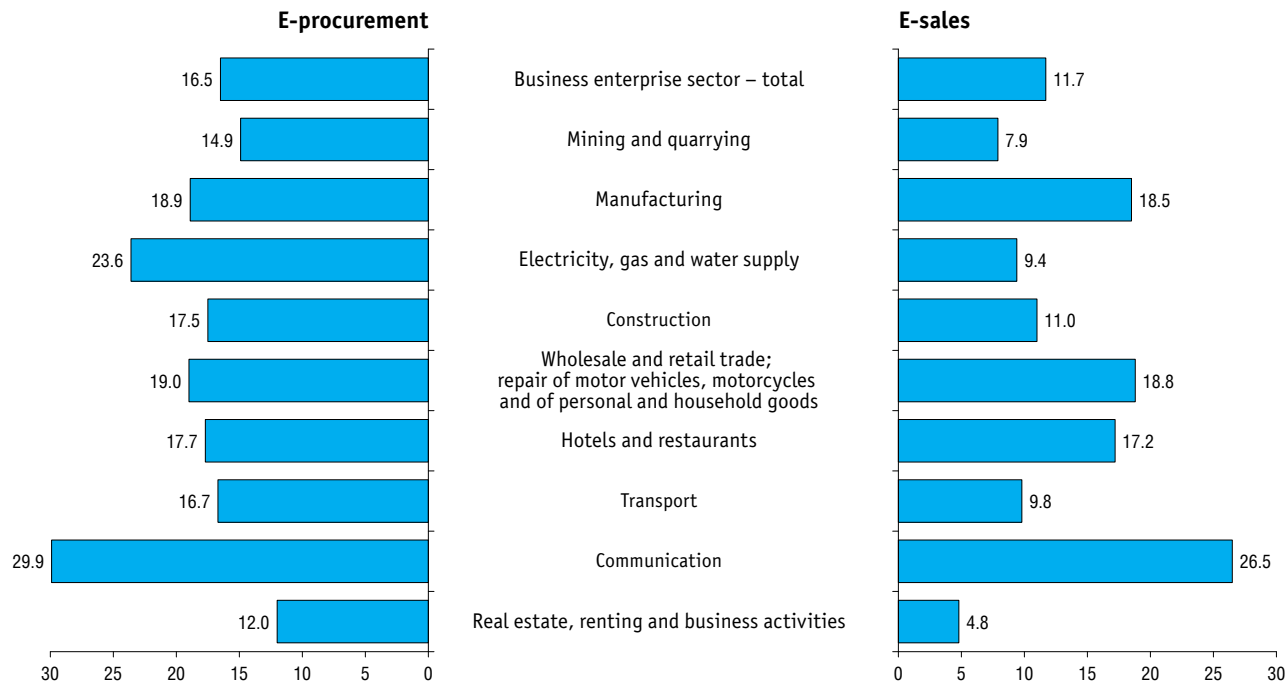
## 8.6. USAGE OF WEBSITES, EXTRANET AND EDI-SYSTEMS FOR E-PROCUREMENT AND E-SALES BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of enterprises in the business enterprise sector)*



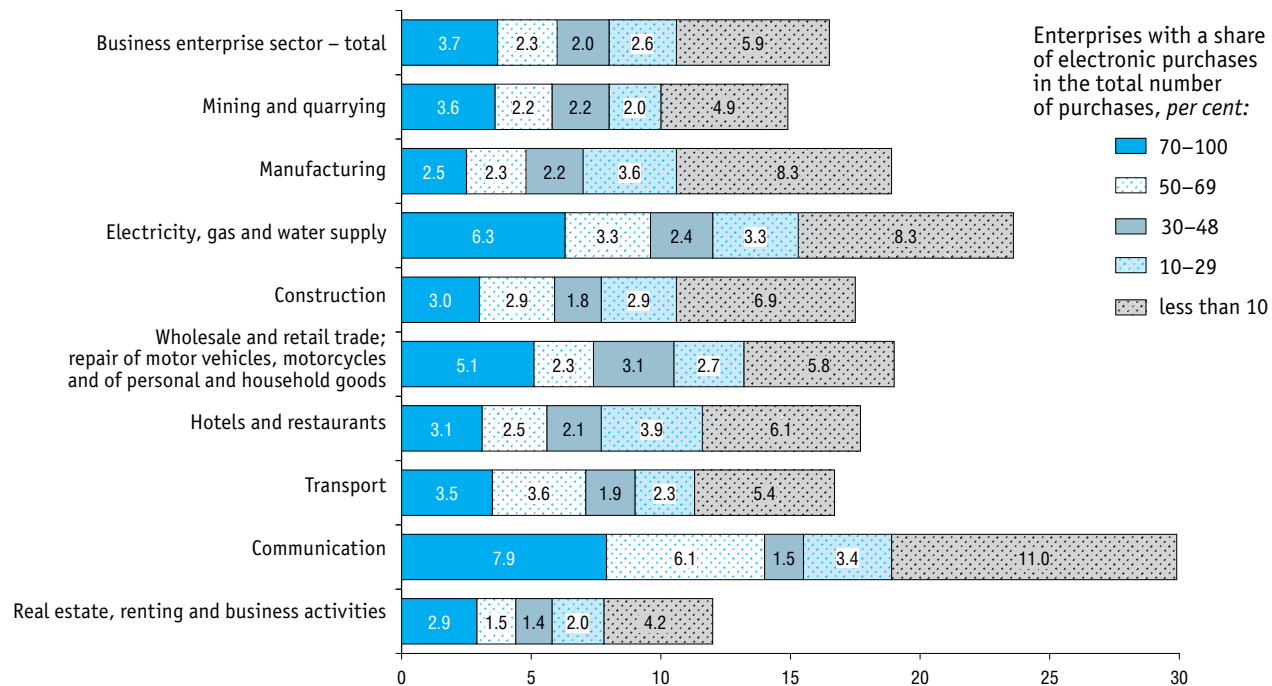
### 8.7. USAGE OF WEBSITES, EXTRANET AND EDI-SYSTEMS FOR E-PROCUREMENT AND E-SALES BY ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises in the business enterprise sector)



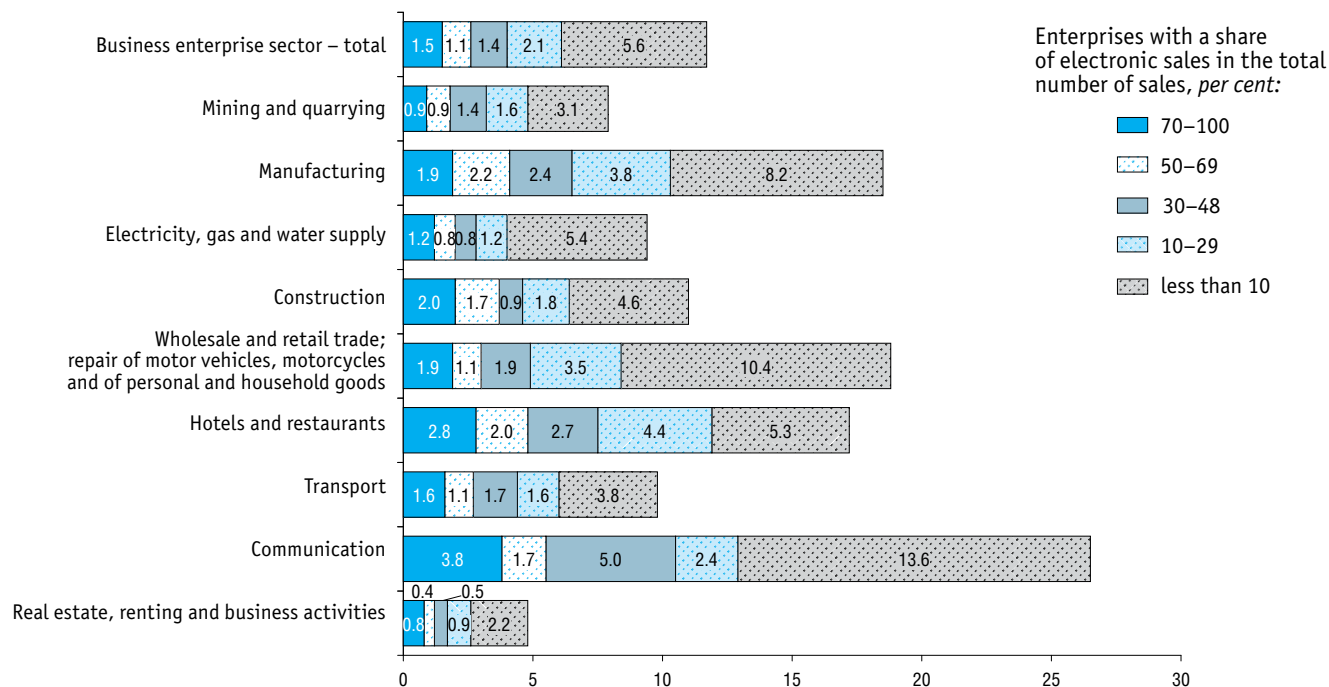
## 8.8. DISTRIBUTION OF ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR BY SHARE OF ELECTRONIC PURCHASES IN THE TOTAL NUMBER OF PURCHASES BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises in the business enterprise sector)



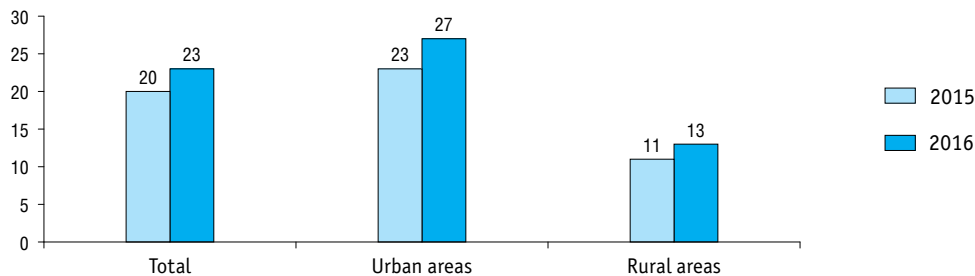
### 8.9. DISTRIBUTION OF ENTERPRISES IN THE BUSINESS ENTERPRISE SECTOR BY SHARE OF ELECTRONIC SALES IN THE TOTAL NUMBER OF SALES BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of enterprises in the business enterprise sector)



### 8.10. INTERNET USAGE BY INDIVIDUALS TO ORDER GOODS OR SERVICES BY TYPE OF SETTLEMENT\*

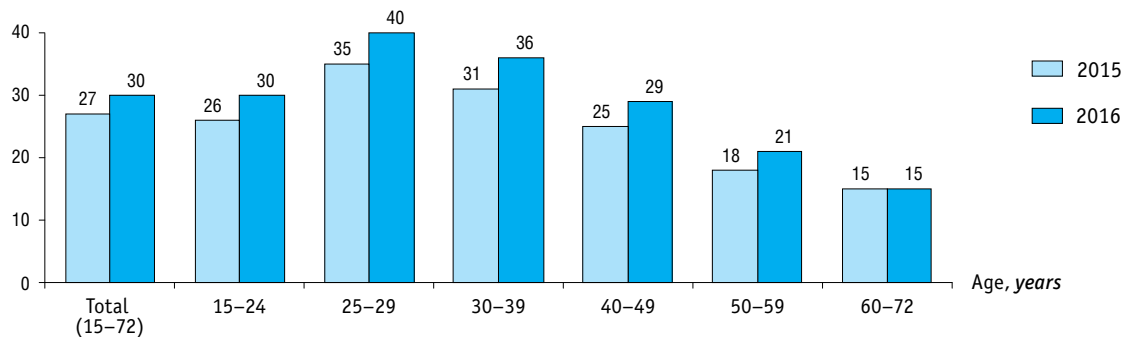
(as a percentage of the total number of inhabitants aged 15–72)



\* Here and below in the section – within the last 12 months.

### 8.11. INTERNET USAGE FOR ORDERING GOODS AND/OR SERVICES BY AGE GROUP

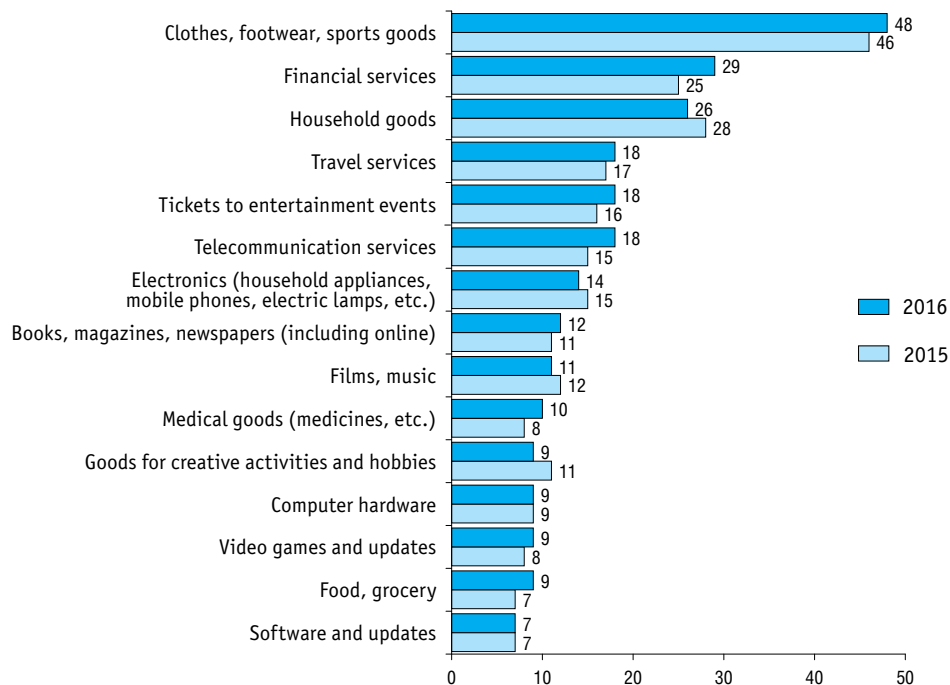
(as a percentage of the total number of inhabitants in the respective age group who used the Internet within the last 12 months)





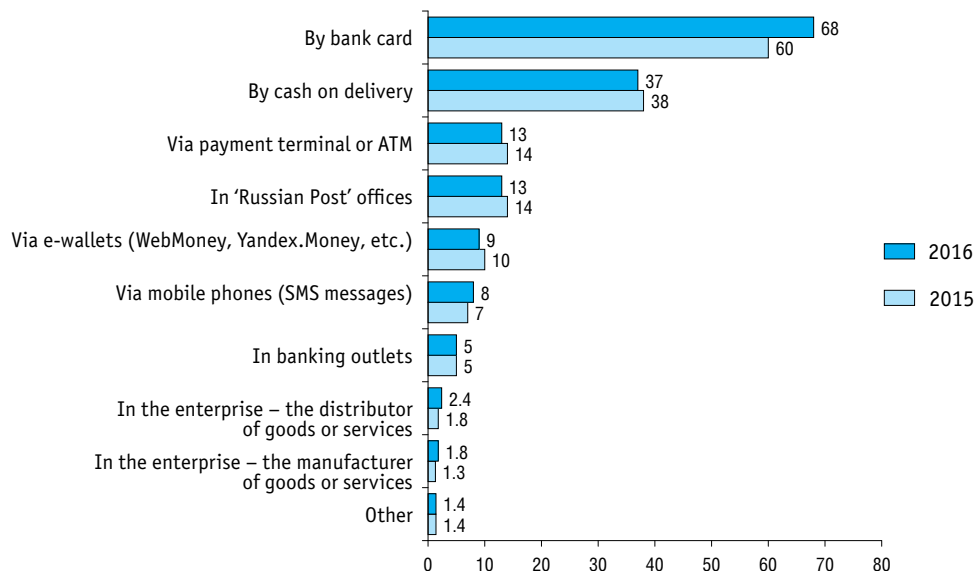
**8.12. INTERNET USAGE BY INDIVIDUALS TO ORDER GOODS OR SERVICES BY TYPE**

*(as a percentage of the total number of inhabitants aged 15–72 who ordered goods or services via the Internet within the last 12 months)*



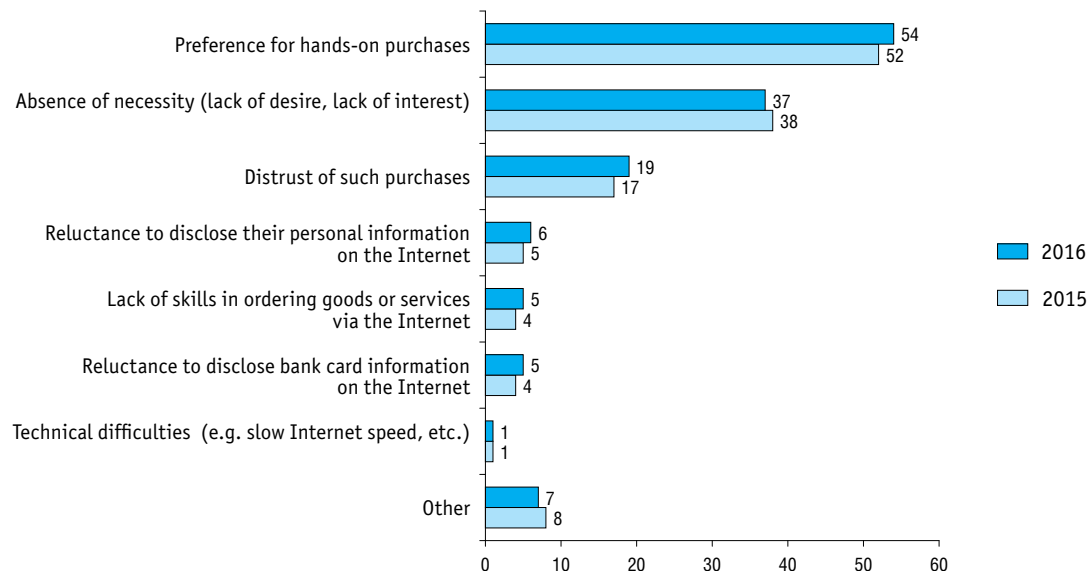
### 8.13. INTERNET USAGE BY INDIVIDUALS TO ORDER GOODS OR SERVICES BY TYPE OF PAYMENT

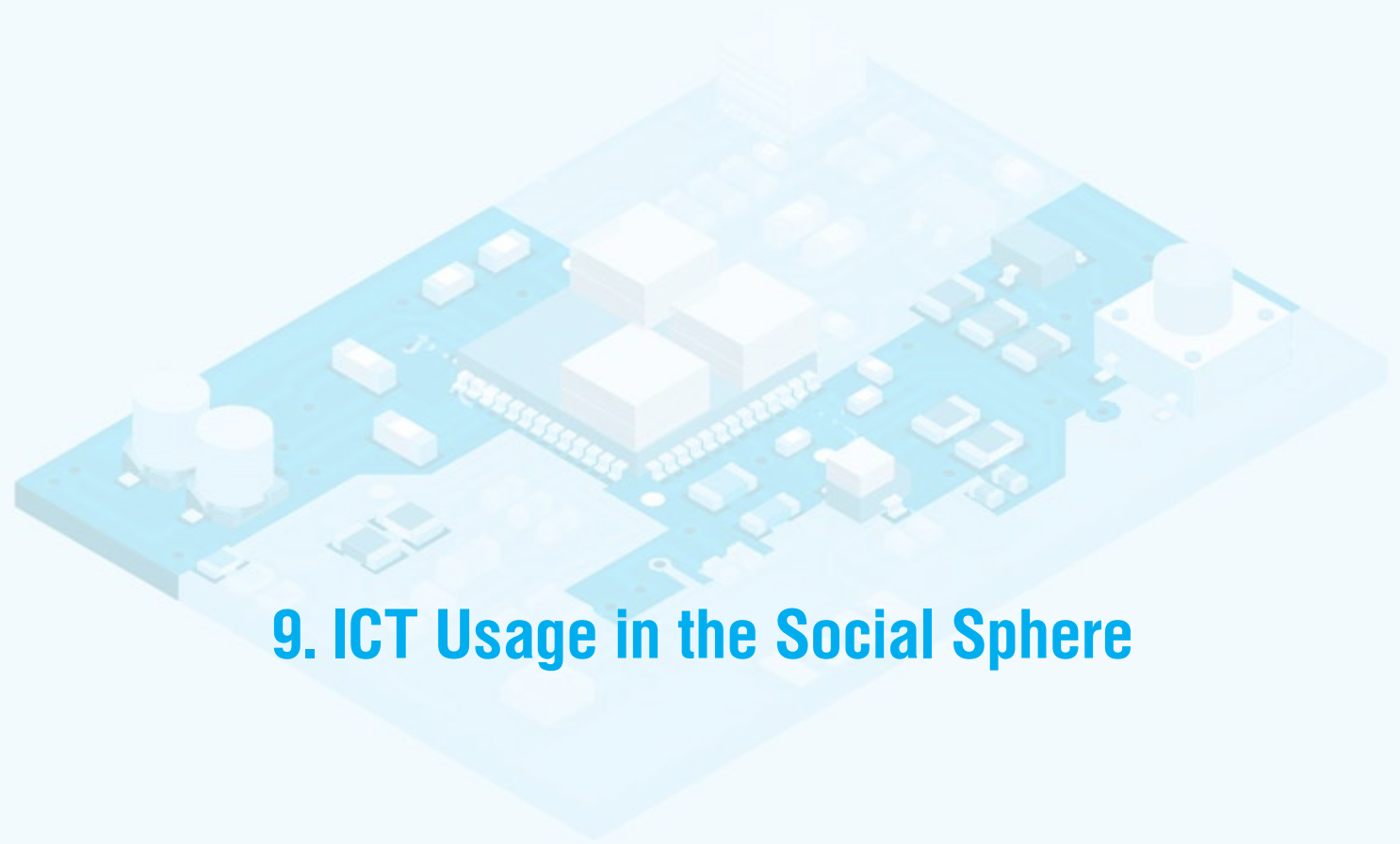
(as a percentage of the total number of inhabitants aged 15–72 who ordered goods or services via the Internet within the last 12 months)



**8.14. FACTORS HAMPERING ELECTRONIC PURCHASES BY INDIVIDUALS**

*(as a percentage of the total number of inhabitants aged 15–72 who did not use the Internet to order goods or services)*





## **9. ICT Usage in the Social Sphere**

**9.1. MAIN INDICATORS OF ICT USAGE BY ORGANISATIONS IN THE SOCIAL SPHERE\****(as a percentage of the total number of organisations)*

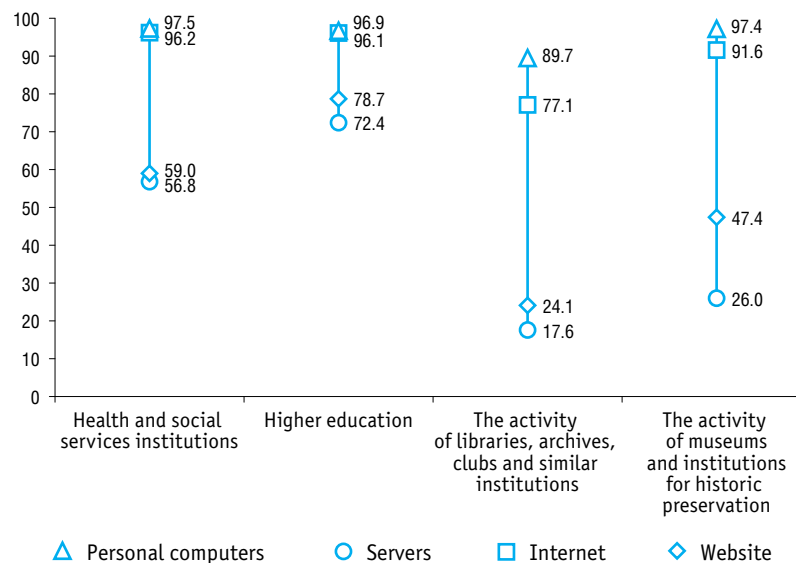
	2010	2011	2012	2013	2014	2015
Personal computers	92.0	92.9	94.0	94.2	95.2	94.6
Servers*	12.1	14.0	14.7	16.0	24.4	41.7
Local area networks	63.1	66.3	67.0	68.4	63.6	60.6
Global information networks	78.8	81.1	84.2	85.8	88.6	89.0
of which:						
Internet	78.5	81.0	84.0	85.7	88.4	88.9
of which broadband	49.2	57.3	72.6	75.8	79.2	79.3
Intranet	6.8	9.8	7.9	8.7	8.6	10.2
Extranet	2.7	3.5	3.5	4.4	10.8	13.0
other global networks	4.2	5.2	4.5	5.4	6.2	6.9
E-mail	76.4	77.8	80.6	82.2	81.3	82.6
Website	23.9	28.8	35.1	40.7	41.7	46.7
Internal and external communication via Electronic Data Interchange	...	...	22.5	23.9	49.8	57.6
RFID	...	...	...	...	3.2	3.9
Cloud computing	...	...	...	12.0	14.1	20.0

\* 2010–2014 – computers other than personal computers.

Source: here and below (9.2–9.24) – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

## 9.2. ORGANISATIONS OF THE SOCIAL SPHERE USING ICT BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of organisations)



**9.3. ORGANISATIONS OF THE SOCIAL SPHERE USING PERSONAL COMPUTERS, SERVERS BY ECONOMIC ACTIVITY***(as a percentage of the total number of organisations)*

	Personal computers						Servers
	2010	2011	2012	2013	2014	2015	2015
Health and social services institutions	98.0	97.9	98.4	98.1	98.2	97.5	56.8
Higher education	98.8	98.8	99.2	98.9	98.5	96.9	72.4
The activity of libraries, archives, clubs and similar institutions	78.7	82.2	85.5	87.3	90.1	89.7	17.6
The activity of museums and institutions for historic preservation	94.2	95.7	97.3	97.3	97.4	97.4	26.0

**9.4. ORGANISATIONS OF THE SOCIAL SPHERE USING LOCAL AREA NETWORKS BY ECONOMIC ACTIVITY***(as a percentage of the total number of organisations)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	80.4	83.7	85.2	87.4	81.6	79.0
Higher education	91.3	92.9	92.7	92.0	87.7	84.2
The activity of libraries, archives, clubs and similar institutions	25.9	31.4	34.6	38.7	35.9	32.7
The activity of museums and institutions for historic preservation	43.2	47.7	49.6	54.4	52.5	46.4

### 9.5. ORGANISATIONS OF THE SOCIAL SPHERE USING THE INTERNET BY ECONOMIC ACTIVITY

*(as a percentage of the total number of organisations)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	93.0	94.4	95.9	96.5	96.7	96.2
Higher education	97.1	97.6	98.1	97.8	97.6	96.1
The activity of libraries, archives, clubs and similar institutions	47.9	54.2	62.3	67.8	74.9	77.1
The activity of museums and institutions for historic preservation	66.6	73.6	81.5	87.8	91.1	91.6

### 9.6. ORGANISATIONS OF THE SOCIAL SPHERE USING BROADBAND INTERNET CONNECTION BY ECONOMIC ACTIVITY

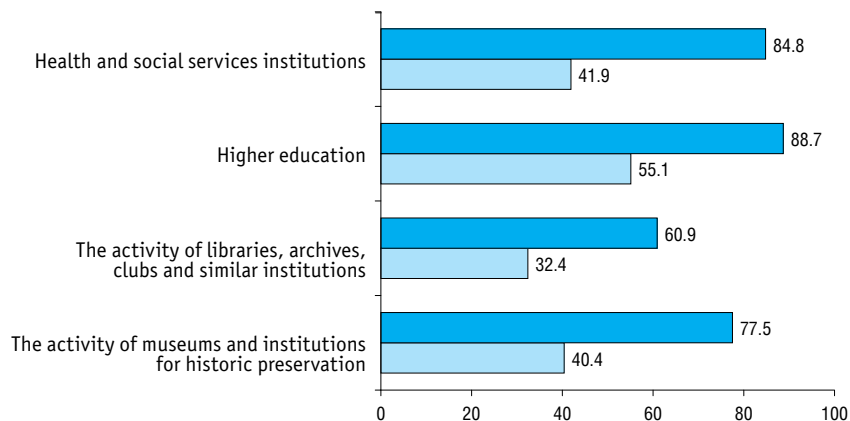
*(as a percentage of the total number of organisations)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	58.0	68.1	84.6	87.8	89.1	88.4
Higher education	84.3	87.7	94.2	94.7	94.6	92.5
The activity of libraries, archives, clubs and similar institutions	25.2	32.1	49.4	55.5	62.6	64.2
The activity of museums and institutions for historic preservation	38.0	49.1	68.9	75.4	80.6	81.3



### 9.7. ORGANISATIONS OF THE SOCIAL SPHERE USING FIXED AND MOBILE BROADBAND INTERNET CONNECTION BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of organisations)*

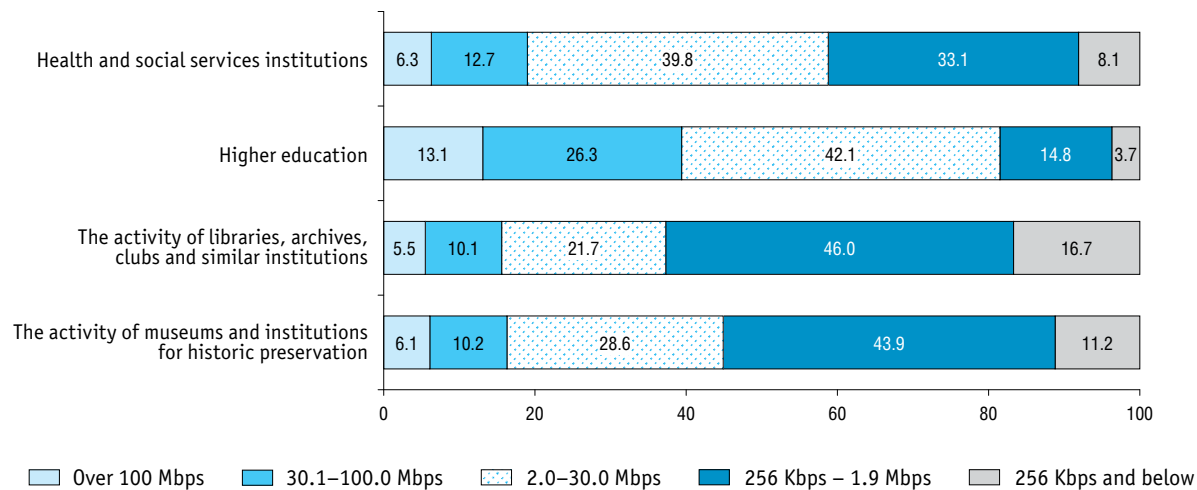


Broadband Internet connection:

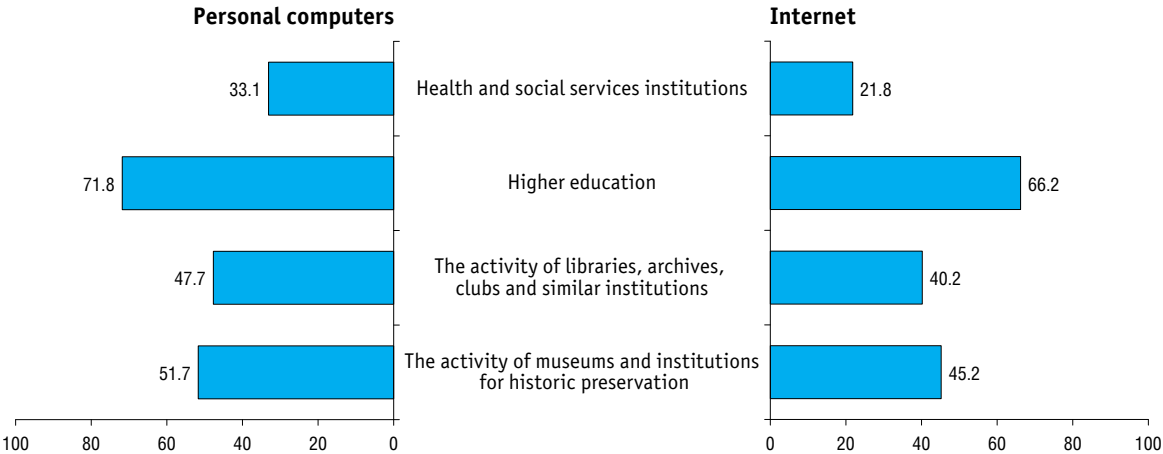
■ fixed ■ mobile

## 9.8. DISTRIBUTION OF ORGANISATIONS OF THE SOCIAL SPHERE BY MAXIMUM INTERNET CONNECTION SPEED BY ECONOMIC ACTIVITY: 2015

(as a percentage of the total number of organisations using the Internet)



9.9. SHARE OF EMPLOYEES IN THE SOCIAL SPHERE USING ICT BY ECONOMIC ACTIVITY: 2015  
*(as a percentage of the total number of employees in the social sphere)*



### 9.10. ORGANISATIONS OF THE SOCIAL SPHERE PROVIDING THEIR EMPLOYEES WITH MOBILE INTERNET CONNECTION BY ECONOMIC ACTIVITY

*(as a percentage of the total number of organisations)*

	2011	2012	2013	2014	2015
Health and social services institutions	8.4	8.8	16.1	20.6	25.8
Higher education	28.6	26.6	34.0	40.0	44.0
The activity of libraries, archives, clubs and similar institutions	3.9	4.3	9.1	10.7	16.0
The activity of museums and institutions for historic preservation	8.8	8.8	13.6	15.4	21.4

### 9.11. ORGANISATIONS OF THE SOCIAL SPHERE WITH A WEBSITE BY ECONOMIC ACTIVITY

*(as a percentage of the total number of organisations)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	18.1	31.6	41.0	50.6	52.7	59.0
Higher education	77.2	79.1	83.2	82.4	77.2	78.7
The activity of libraries, archives, clubs and similar institutions	9.3	12.0	15.8	19.1	19.9	24.1
The activity of museums and institutions for historic preservation	27.0	31.2	36.5	40.6	44.6	47.4

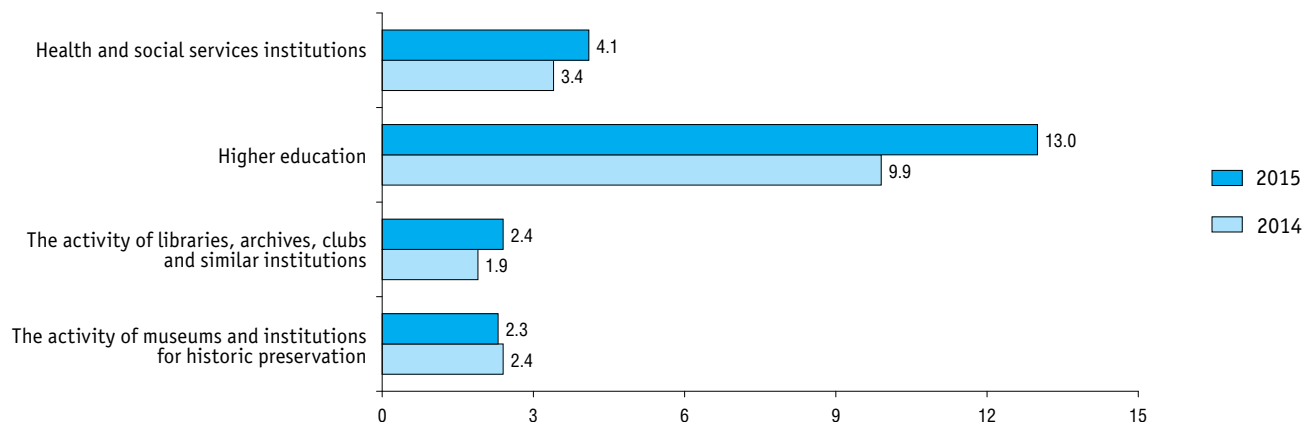
### 9.12. ORGANISATIONS OF THE SOCIAL SPHERE USING INTERNAL AND EXTERNAL COMMUNICATION VIA EDI BY ECONOMIC ACTIVITY

(as a percentage of the total number of organisations)

	2012	2013	2014	2015
Health and social services institutions	28.9	31.7	60.7	69.2
Higher education	31.7	31.5	64.3	70.6
The activity of libraries, archives, clubs and similar institutions	9.9	11.0	33.2	40.4
The activity of museums and institutions for historic preservation	1.8	2.0	40.1	47.8

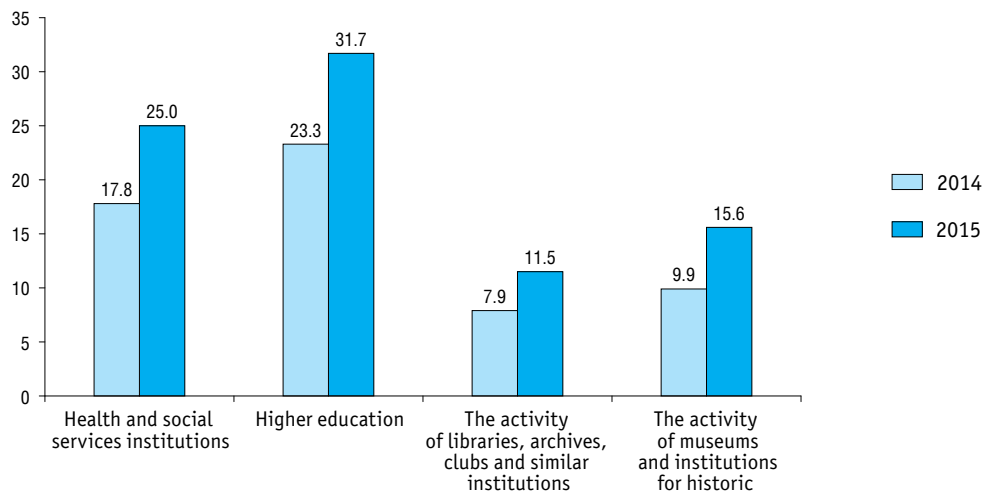
### 9.13. ORGANISATIONS OF THE SOCIAL SPHERE USING RFID BY ECONOMIC ACTIVITY

(as a percentage of the total number of organisations)



#### 9.14. ORGANISATIONS OF THE SOCIAL SPHERE USING CLOUD COMPUTING BY ECONOMIC ACTIVITY

*(as a percentage of the total number of organisations)*



## 9.15. PERSONAL COMPUTERS IN ORGANISATIONS OF THE SOCIAL SPHERE BY ECONOMIC ACTIVITY

*(thousand)*

	2010	2011	2012	2013	2014	2015
<b>Personal computers - total</b>						
Health and social services institutions	589.9	675.2	856.6	1005.1	1066.8	1118.7
Higher education	879.5	947.2	987.4	992.2	1015.6	1009.9
The activity of libraries, archives, clubs and similar institutions	78.9	95.8	118.3	140.7	157.4	166.7
The activity of museums and institutions for historic preservation	18.7	23.1	23.8	26.8	31.3	30.1
<b>Of which: laptops and other portable personal computers</b>						
Health and social services institutions	...	42.3	59.7	76.3	97.3	95.1
Higher education	...	99.1	124.8	129.3	151.3	148.5
The activity of libraries, archives, clubs and similar institutions	...	10.6	16.3	23.6	30.9	33.8
The activity of museums and institutions for historic preservation	...	2.6	3.0	4.1	5.9	5.4

### 9.16. PERSONAL COMPUTERS WITH INTERNET ACCESS IN ORGANISATIONS OF THE SOCIAL SPHERE BY ECONOMIC ACTIVITY

*(as a percentage of the total number of computers)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	32.7	39.6	44.7	51.3	57.0	60.5
Higher education	71.4	74.1	77.4	79.9	81.3	82.7
The activity of libraries, archives, clubs and similar institutions	50.1	55.8	60.4	63.9	68.2	70.1
The activity of museums and institutions for historic preservation	52.9	60.2	67.2	70.5	70.3	78.6

### 9.17. ACQUISITION OF PERSONAL COMPUTERS BY ORGANISATIONS OF THE SOCIAL SPHERE BY ECONOMIC ACTIVITY

*(as a percentage of the total number of computers)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	10.8	13.1	22.8	14.5	8.4	7.1
Higher education	8.0	10.9	9.5	8.2	7.2	6.5
The activity of libraries, archives, clubs and similar institutions	11.6	16.3	16.2	12.6	10.9	7.1
The activity of museums and institutions for historic preservation	10.4	12.9	12.9	12.0	8.8	7.6



**9.18. AVAILABILITY OF PERSONAL COMPUTERS IN ORGANISATIONS OF THE SOCIAL SPHERE BY ECONOMIC ACTIVITY**  
*(computers per 100 employees)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	16.1	18.2	23.2	26.4	27.7	29.9
Higher education	91.9	99.4	107.7	116.0	127.4	136.9
The activity of libraries, archives, clubs and similar institutions	28.8	33.4	37.8	44.0	51.7	55.6
The activity of museums and institutions for historic preservation	38.3	41.2	44.4	49.2	56.1	55.0

**9.19. AVAILABILITY OF PERSONAL COMPUTERS WITH INTERNET ACCESS IN ORGANISATIONS OF THE SOCIAL SPHERE BY ECONOMIC ACTIVITY**  
*(computers per 100 employees)*

	2010	2011	2012	2013	2014	2015
Health and social services institutions	5.3	7.2	10.4	13.5	15.8	18.1
Higher education	65.6	73.6	83.4	92.7	103.6	113.1
The activity of libraries, archives, clubs and similar institutions	14.4	18.7	22.8	28.1	35.3	38.9
The activity of museums and institutions for historic preservation	20.3	24.8	29.8	34.7	39.4	43.2

## 9.20. ORGANISATIONS OF THE SOCIAL SPHERE USING SPECIALISED SOFTWARE BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of organisations)*

	Electronic document management systems	Electronic payment transactions	Computer-aided management systems	Electronic legal reference information systems	Access to databases via global information networks	Training and educational programmes	Desk-top publishing systems
Health and social services institutions	73.6	68.8	60.1	62.1	38.1	13.1	3.3
Higher education	71.8	69.4	71.3	75.6	46.3	71.2	30.0
The activity of libraries, archives, clubs and similar institutions	46.5	27.4	28.7	26.6	24.5	6.7	3.1
The activity of museums and institutions for historic preservation	52.4	33.3	33.6	29.9	24.2	7.3	5.3

**9.21. INTERNET USAGE FOR GENERAL PURPOSES BY ORGANISATIONS OF THE SOCIAL SPHERE BY ECONOMIC ACTIVITY: 2015***(as a percentage of the total number of organisations)*

	E-mailing	Information search	Banking and other financial transactions	Personnel training
Health and social services institutions	95.0	94.2	69.6	50.4
Higher education	95.6	95.3	78.4	67.7
The activity of libraries, archives, clubs and similar institutions	72.5	74.4	26.8	24.5
The activity of museums and institutions for historic preservation	89.4	89.8	34.1	31.6

**(continued)**

	Videoconferencing	Internal or external hire of personnel	Telephone communication via the Internet / VoIP	Paid subscription to electronic databases, electronic libraries
Health and social services institutions	43.5	28.1	20.6	25.2
Higher education	70.7	41.6	47.1	65.2
The activity of libraries, archives, clubs and similar institutions	8.9	6.9	5.2	8.3
The activity of museums and institutions for historic preservation	11.6	9.8	8.8	11.9

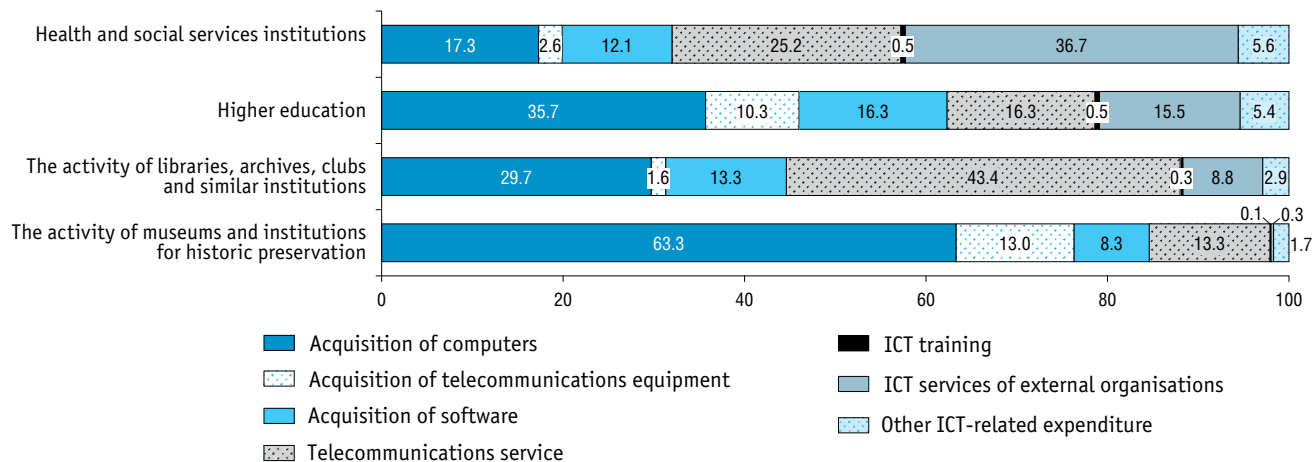
## 9.22. ICT EXPENDITURE IN THE SOCIAL SPHERE BY ECONOMIC ACTIVITY

(per organisation; thousand roubles)

	2010	2011	2012	2013	2014	2015
Health and social services institutions	1051	1247	2279	3035	2082	2244
Higher education	4007	6990	8222	6178	7255	6180
The activity of libraries, archives, clubs and similar institutions	111	355	221	419	342	419
The activity of museums and institutions for historic preservation	1005	2608	424	956	1063	17053

## 9.23. PERCENTAGE DISTRIBUTION OF ICT EXPENDITURE IN ORGANISATIONS OF THE SOCIAL SPHERE BY ECONOMIC ACTIVITY: 2015

(as a percentage of organisations' total ICT expenditure)



## 9.24. HEALTH SERVICES INSTITUTIONS USING ICT

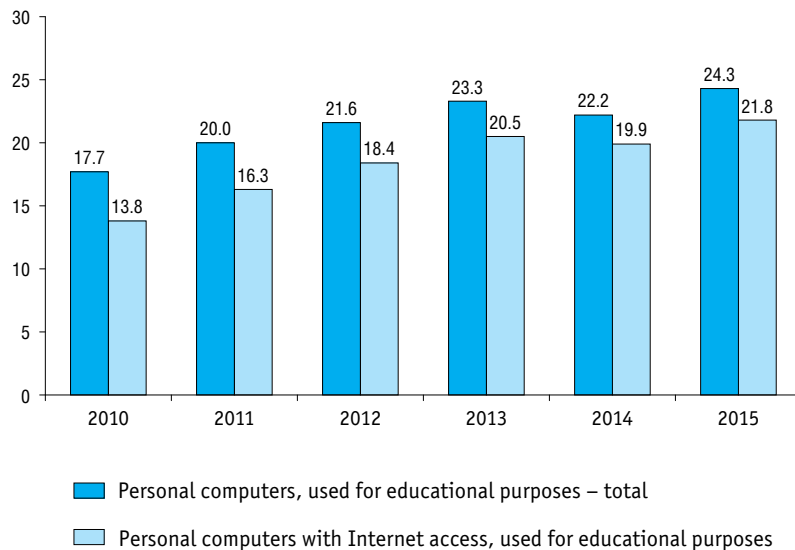
*(as a percentage of the total number of health services institutions)*

	2010	2011	2012	2013	2014	2015
Personal computers	97.2	97.3	97.9	98.0	98.3	99.0
Servers*	17.4	21.3	25.9	31.2	38.9	72.9
Local area networks	72.7	88.5	90.8	92.4	87.9	87.6
Global information networks	87.6	94.1	95.6	96.4	96.5	97.1
of which:						
Internet	86.8	93.9	95.4	96.2	96.4	96.9
of which broadband	56.2	73.5	87.5	90.5	91.4	92.1
Intranet	14.0	12.6	11.4	13.7	13.8	16.6
Extranet	2.5	5.1	5.2	7.7	15.9	19.5
other global networks	2.5	6.8	7.0	9.8	10.9	12.5
E-mail	81.8	92.5	94.3	95.2	91.7	92.5
Website	20.7	47.2	59.3	69.3	68.3	74.1
Internal and external communication via Electronic Data Interchange	...	...	30.8	33.7	62.4	71.8
Technical means of mobile Internet access provided to employees	...	9.8	10.8	20.0	25.2	30.7
RFID	...	...	...	...	4.1	4.7
Cloud computing	...	...	...	18.0	20.7	29.1

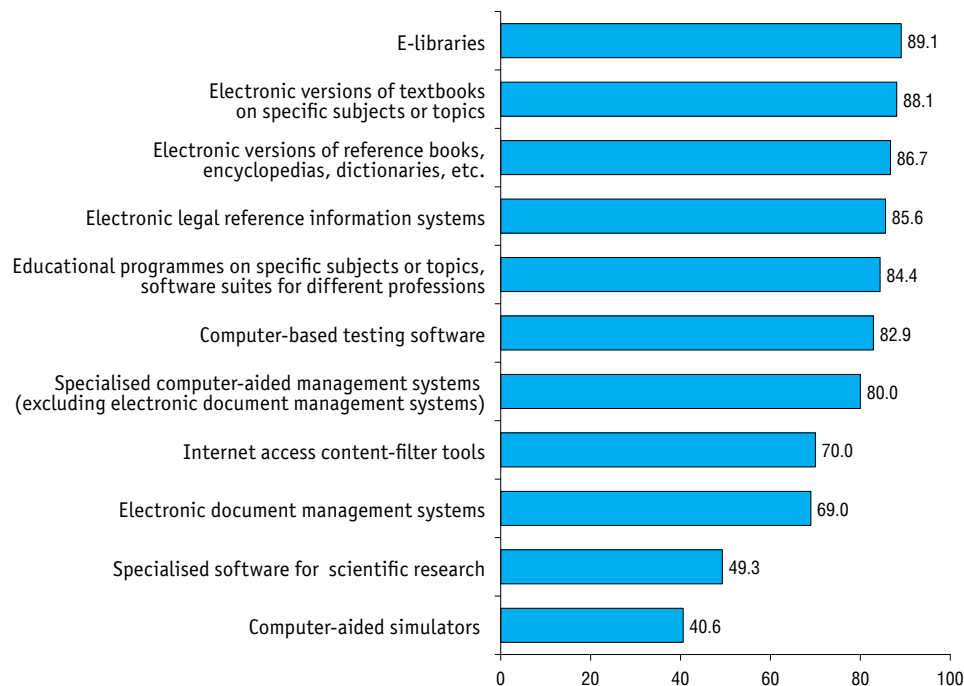
\* 2010–2014 – computers other than personal computers.

### 9.25. AVAILABILITY OF PERSONAL COMPUTERS IN EDUCATIONAL INSTITUTIONS OF HIGHER EDUCATION

(computers per 100 students; at the end of the year)

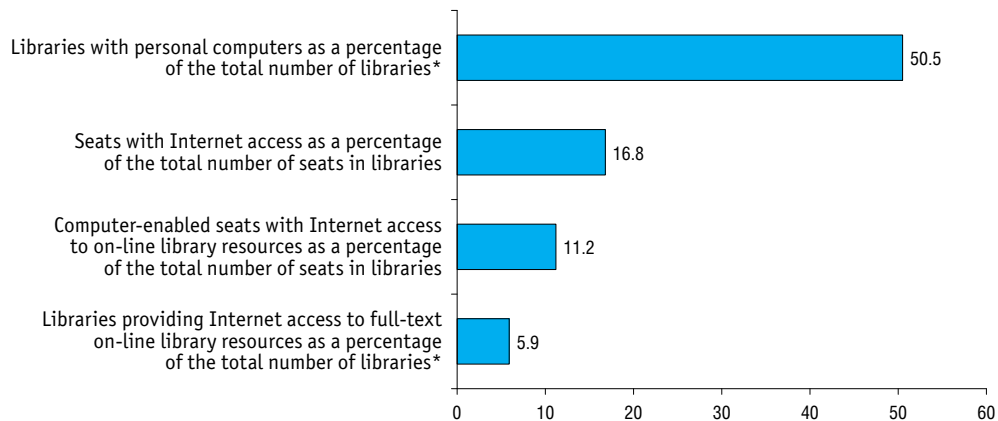


Source: here and below (9.26) – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Ministry of Education and Science of the Russian Federation.

**9.26. EDUCATIONAL INSTITUTIONS OF HIGHER EDUCATION USING SPECIALISED SOFTWARE: 2015***(as a percentage of the total number of educational institutions of higher education; at the end of the year)*

### 9.27. ICT USAGE IN LIBRARIES: 2015

(per cent)

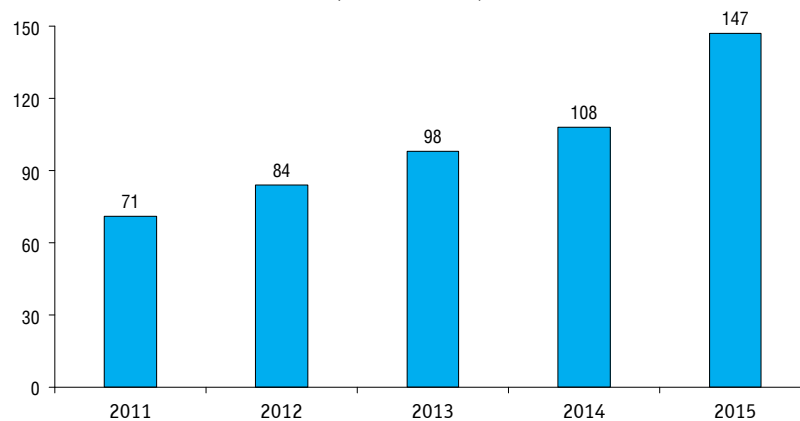


\* The data are given for 2014.

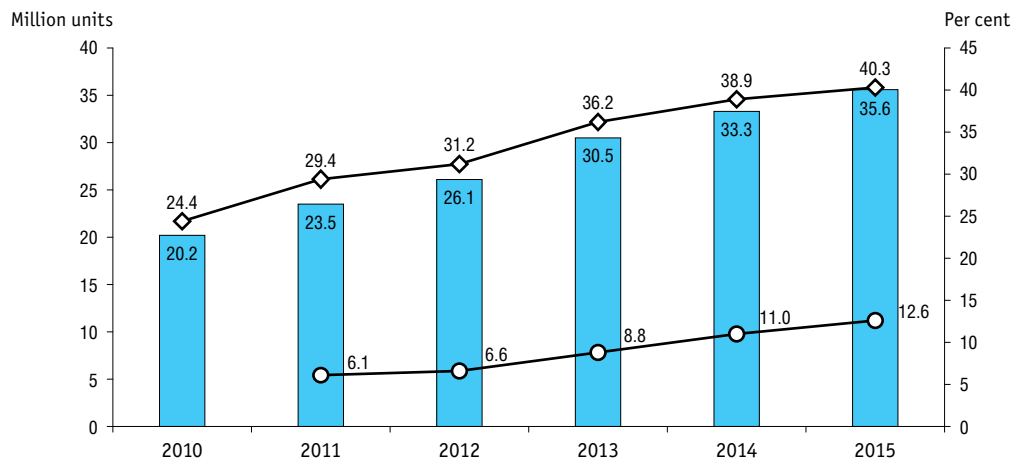
Source: here and below (9.28–9.31) – data provided by The Ministry of Culture of the Russian Federation.



**9.28. THE VOLUME OF E-CATALOGUES OF LIBRARIES AVAILABLE ON THE INTERNET**  
(million entries)



### 9.29. DIGITISATION OF E-CATALOGUES AND MUSEUM COLLECTIONS

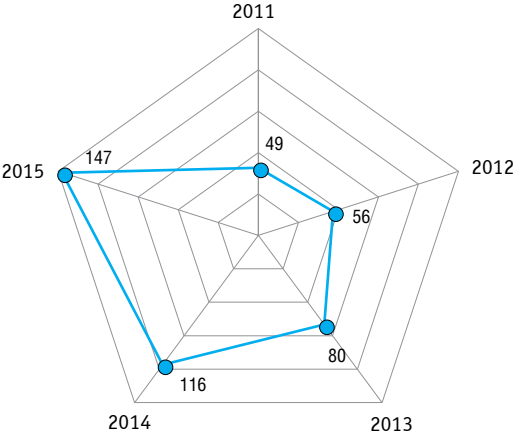


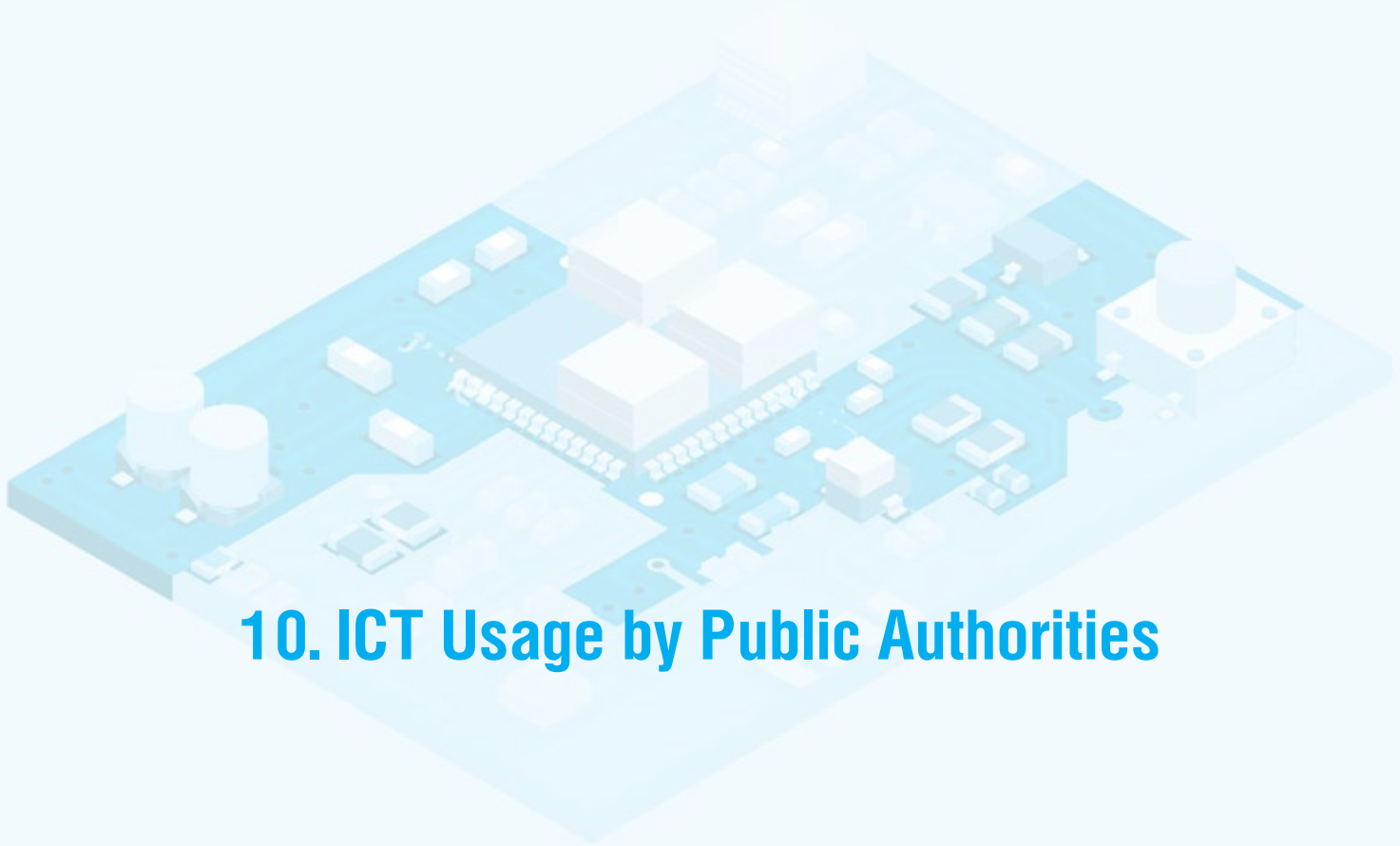
■ Number of museum showpieces listed in e-catalogues, *million units*

◆ Museum showpieces listed in e-catalogues as a percentage of the total number of museum showpieces, *per cent*

○ Museum showpieces listed in e-catalogues and having digitised images as a percentage of the total number of museum showpieces, *per cent*

9.30. NUMBER OF MUSEUM SHOWPIECES AVAILABLE ON THE INTERNET, LISTED IN E-CATALOGUES AND HAVING DIGITISED IMAGES  
*(per 1000 showpieces of the main collection)*





## **10. ICT Usage by Public Authorities**

## 10.1. MAIN INDICATORS OF ICT USAGE BY PUBLIC AUTHORITIES

*(as a percentage of the total number of public authorities)*

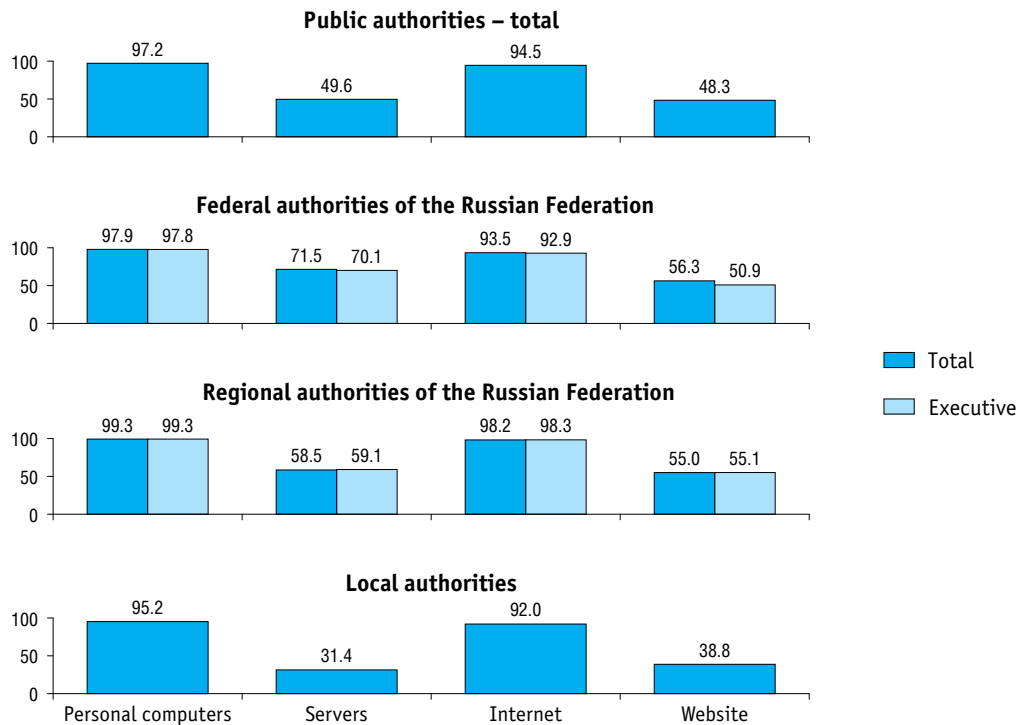
	2010	2011	2012	2013	2014	2015
<b>Personal computers</b>	<b>97.8</b>	<b>98.1</b>	<b>98.0</b>	<b>98.3</b>	<b>97.9</b>	<b>97.2</b>
Servers*	18.5	20.3	19.2	20.6	28.5	49.6
Local area networks	72.7	76.7	77.5	80.3	73.8	70.5
Global information networks	87.8	91.2	93.4	94.9	95.4	94.9
of which:						
Internet	86.8	90.5	93.0	94.6	95.0	94.5
of which broadband	55.2	64.3	80.0	84.0	85.9	84.5
of which with maximum Internet connection speed of 2 Mbps and over	22.4	24.4	45.7	50.3	51.5	53.1
Intranet	11.8	15.5	13.4	15.2	15.2	17.0
Extranet	4.6	5.7	5.9	7.2	14.1	16.5
Other global networks	6.6	7.4	6.3	7.2	8.3	9.3
E-mail	87.4	89.4	91.7	93.4	89.8	89.9
Website	27.1	34.0	41.3	47.0	45.5	48.3
Internal and external communication via Electronic Data Interchange	...	...	27.9	30.3	57.5	65.4
RFID	...	...	...	...	3.4	4.1
Cloud computing	...	...	...	11.9	14.0	19.9
Information security						
Encryption facilities	35.7	42.3	42.0	43.8	43.4	...
Electronic digital signature	74.5	83.2	84.4	86.9	85.9	84.9

\* 2010–2014 – computers other than personal computers.

Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

## 10.2. PUBLIC AUTHORITIES USING ICT: 2015

(as a percentage of the total number of public authorities)



## 10.3. PUBLIC AUTHORITIES USING PERSONAL COMPUTERS, SERVERS

*(as a percentage of the total number of public authorities)*

	Personal computers						Servers
	2010	2011	2012	2013	2014	2015	2015
<b>Public authorities – total</b>	<b>97.8</b>	<b>98.1</b>	<b>98.0</b>	<b>98.3</b>	<b>97.9</b>	<b>97.2</b>	<b>49.6</b>
Federal authorities of the Russian Federation	99.4	99.5	99.3	99.3	99.0	97.9	71.5
of which executive	99.3	99.3	99.2	99.1	99.1	97.8	70.1
Regional authorities of the Russian Federation	99.3	99.2	99.1	99.2	99.2	99.3	58.5
of which executive	99.3	99.3	99.1	99.2	99.2	99.3	59.1
Local authorities	95.9	96.5	96.6	97.2	96.4	95.2	31.4

## 10.4. PUBLIC AUTHORITIES USING LOCAL AREA NETWORKS

*(as a percentage of the total number of public authorities)*

	2010	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>72.7</b>	<b>76.7</b>	<b>77.5</b>	<b>80.3</b>	<b>73.8</b>	<b>70.5</b>
Federal authorities of the Russian Federation	92.3	93.9	93.1	93.7	89.1	86.5
of which executive	90.3	91.7	91.2	91.8	87.4	84.5
Regional authorities of the Russian Federation	81.8	85.1	86.4	88.5	82.8	79.8
of which executive	82.3	85.6	87.0	89.0	83.2	80.4
Local authorities	55.7	61.2	63.8	67.6	59.0	54.8

### 10.5. PUBLIC AUTHORITIES USING THE INTERNET

*(as a percentage of the total number of public authorities)*

	2010	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>86.8</b>	<b>90.5</b>	<b>93.0</b>	<b>94.6</b>	<b>95.0</b>	<b>94.5</b>
Federal authorities of the Russian Federation	92.8	94.8	96.3	96.5	95.5	93.5
of which executive	93.4	95.4	95.4	95.5	95.0	92.9
Regional authorities of the Russian Federation	95.6	96.8	97.2	97.8	97.9	98.2
of which executive	95.9	97.0	97.4	97.9	98.0	98.3
Local authorities	77.4	83.6	88.3	91.2	92.4	92.0



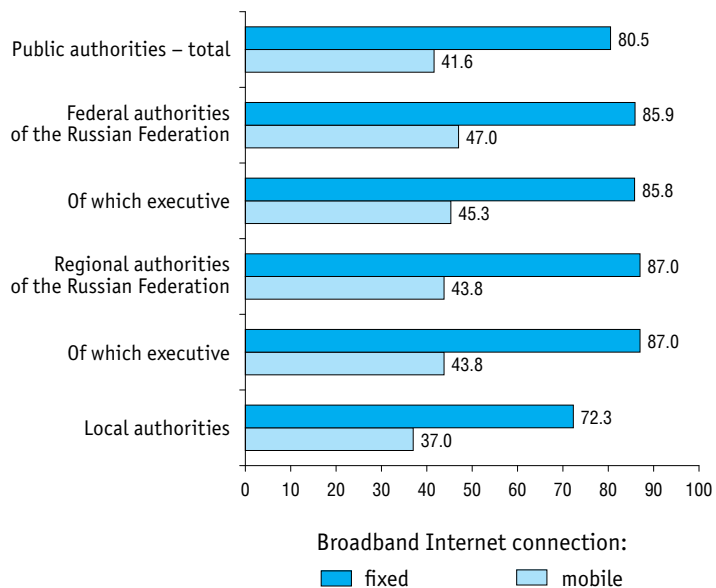
## 10.6. PUBLIC AUTHORITIES USING BROADBAND INTERNET CONNECTION

*(as a percentage of the total number of public authorities)*

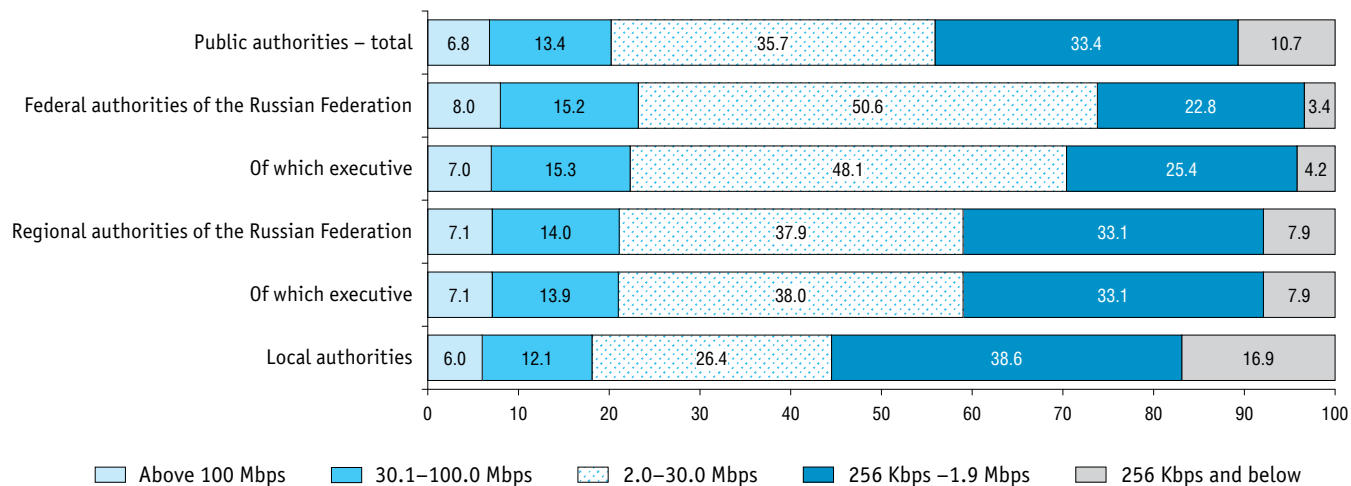
	2010	2011	2012	2013	2014	2015
<b>Total</b>						
<b>Public authorities – total</b>	<b>55.2</b>	<b>64.3</b>	<b>80.0</b>	<b>84.0</b>	<b>85.9</b>	<b>84.5</b>
Federal authorities of the Russian Federation	73.2	80.9	91.5	93.2	92.6	90.3
of which executive	71.2	79.7	89.7	91.5	91.4	89.0
Regional authorities of the Russian Federation	62.1	70.9	86.5	89.6	90.7	90.4
of which executive	62.1	70.9	86.7	89.7	90.6	90.5
Local authorities	40.8	50.4	69.9	75.3	78.3	76.4
<b>Of which with maximum Internet connection speed of 2Mbps and over</b>						
<b>Public authorities – total</b>	<b>22.4</b>	<b>24.4</b>	<b>45.7</b>	<b>50.3</b>	<b>51.5</b>	<b>53.1</b>
Federal authorities of the Russian Federation	34.4	44.3	67.4	69.8	70.2	69.0
of which executive	31.1	40.4	62.6	65.1	65.8	65.4
Regional authorities of the Russian Federation	19.7	24.5	49.3	53.7	54.4	58.0
of which executive	19.5	24.4	49.3	53.7	54.3	58.0
Local authorities	10.2	13.5	33.9	38.8	39.9	40.9

## 10.7. PUBLIC AUTHORITIES USING FIXED AND MOBILE BROADBAND INTERNET CONNECTION: 2015

(as a percentage of the total number of public authorities)



## 10.8. DISTRIBUTION OF PUBLIC AUTHORITIES BY MAXIMUM INTERNET CONNECTION SPEED: 2015

*(as a percentage of the total number of public authorities using the Internet)*

### 10.9. PUBLIC AUTHORITIES PROVIDING THEIR EMPLOYEES WITH MOBILE INTERNET CONNECTION

*(as a percentage of the total number of public authorities)*

	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>12.1</b>	<b>12.1</b>	<b>20.3</b>	<b>24.1</b>	<b>28.9</b>
Federal authorities of the Russian Federation	21.0	24.5	35.2	41.2	42.9
of which executive	20.3	22.6	32.1	37.9	39.8
Regional authorities of the Russian Federation	12.2	12.3	20.5	24.9	30.6
of which executive	12.0	12.1	20.3	24.6	30.4
Local authorities	7.2	6.8	13.5	15.4	20.6

### 10.10. PUBLIC AUTHORITIES WITH A WEBSITE

*(as a percentage of the total number of public authorities)*

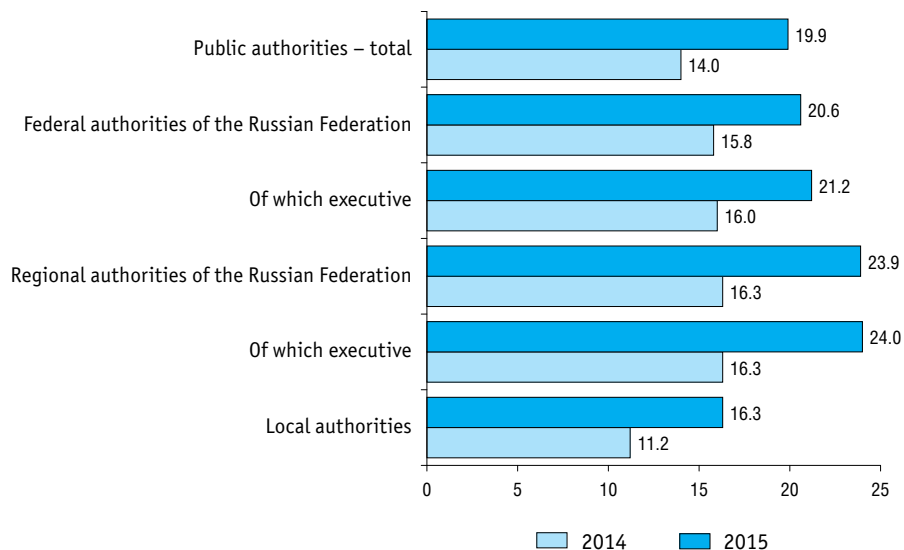
	2010	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>27.1</b>	<b>34.0</b>	<b>41.3</b>	<b>47.0</b>	<b>45.5</b>	<b>48.3</b>
Federal authorities of the Russian Federation	42.9	49.2	57.2	58.6	55.5	56.3
of which executive	40.4	47.4	51.6	52.7	50.2	50.9
Regional authorities of the Russian Federation	27.6	35.3	42.9	49.8	50.3	55.0
of which executive	27.0	34.9	42.7	49.8	50.4	55.1
Local authorities	18.3	24.8	33.4	39.6	36.7	38.8

**10.11. PUBLIC AUTHORITIES USING INTERNAL AND EXTERNAL COMMUNICATION VIA EDI***(as a percentage of the total number of public authorities)*

### 10.12. PUBLIC AUTHORITIES USING RFID

(as a percentage of the total number of public authorities)



**10.13. PUBLIC AUTHORITIES USING CLOUD COMPUTING***(as a percentage of the total number of public authorities)*

## 10.14. PERSONAL COMPUTERS USED BY PUBLIC AUTHORITIES

(thousand)

	2010	2011	2012	2013	2014	2015
<b>Personal computers – total</b>						
<b>Public authorities – total</b>	<b>4377.0</b>	<b>4877.5</b>	<b>4652.8</b>	<b>4953.7</b>	<b>5243.7</b>	<b>5237.8</b>
Federal authorities of the Russian Federation	3090.9	3427.3	2922.2	3046.6	3232.7	3140.6
of which executive	1907.6	2022.1	2084.9	2190.4	2337.0	2312.7
Regional authorities of the Russian Federation	789.7	933.8	1199.2	1374.8	1489.0	1586.4
of which executive	763.7	903.3	1166.0	1342.2	1455.4	1552.5
Local authorities	496.4	516.4	531.4	532.3	522.0	510.8
<b>Of which laptops and other portable personal computers</b>						
<b>Public authorities – total</b>	...	386.8	432.3	496.6	613.0	573.7
Federal authorities of the Russian Federation	...	256.2	263.4	294.9	368.7	336.0
of which executive	...	165.5	195.1	211.5	266.7	254.2
Regional authorities of the Russian Federation	...	80.3	106.4	133.3	166.5	164.6
of which executive	...	75.4	100.2	126.1	158.5	156.4
Local authorities	...	50.3	62.5	68.5	77.8	73.1



**10.15. PERSONAL COMPUTERS WITH INTERNET ACCESS USED BY PUBLIC AUTHORITIES***(as a percentage of the total number of computers)*

	2010	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>43.9</b>	<b>47.6</b>	<b>55.7</b>	<b>58.5</b>	<b>61.9</b>	<b>64.0</b>
Federal authorities of the Russian Federation	41.9	44.4	53.9	55.2	58.0	59.2
of which executive	47.7	51.5	54.8	55.8	58.4	60.6
Regional authorities of the Russian Federation	47.7	52.4	54.6	60.2	64.5	68.2
of which executive	47.4	52.4	54.6	60.3	64.6	68.3
Local authorities	50.4	60.2	68.6	73.3	78.2	81.1

**10.16. PERSONAL COMPUTERS ARRIVALS TO PUBLIC AUTHORITIES***(as a percentage of the total number of computers)*

	2010	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>10.4</b>	<b>12.1</b>	<b>13.2</b>	<b>12.0</b>	<b>9.2</b>	<b>6.7</b>
Federal authorities of the Russian Federation	10.3	11.6	11.5	11.5	9.5	6.3
of which executive	9.3	9.7	10.4	10.6	8.8	6.1
Regional authorities of the Russian Federation	11.3	14.5	18.1	14.0	9.2	7.7
of which executive	11.3	14.3	18.2	14.0	9.2	7.7
Local authorities	9.4	10.7	11.9	9.9	7.5	5.7

### 10.17. AVAILABILITY OF PERSONAL COMPUTERS TO THE EMPLOYEES OF PUBLIC AUTHORITIES

(computers per 100 employees)

	2010	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>58.4</b>	<b>61.6</b>	<b>58.8</b>	<b>60.3</b>	<b>62.4</b>	<b>63.6</b>
Federal authorities of the Russian Federation	72.2	79.1	78.7	81.2	86.0	88.8
of which executive	60.1	64.8	70.7	73.5	78.2	80.4
Regional authorities of the Russian Federation	33.3	33.7	34.6	36.2	36.8	38.3
of which executive	32.5	32.8	33.9	35.6	36.2	37.7
Local authorities	59.5	63.3	72.9	79.9	86.2	91.9

### 10.18. AVAILABILITY OF PERSONAL COMPUTERS WITH INTERNET ACCESS TO THE EMPLOYEES OF PUBLIC AUTHORITIES

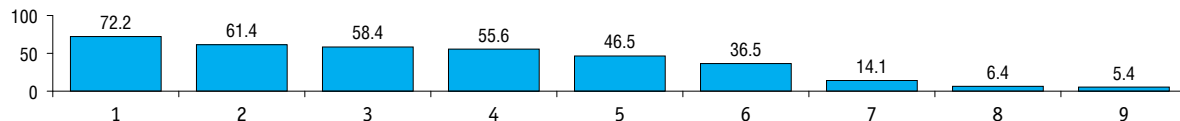
(computers per 100 employees)

	2010	2011	2012	2013	2014	2015
<b>Public authorities – total</b>	<b>25.7</b>	<b>47.5</b>	<b>45.3</b>	<b>35.3</b>	<b>38.6</b>	<b>40.7</b>
Federal authorities of the Russian Federation	30.3	63.6	63.6	44.8	49.9	52.6
of which executive	28.7	49.9	55.6	41.1	45.6	48.8
Regional authorities of the Russian Federation	15.9	24.0	24.5	21.8	23.8	26.1
of which executive	15.4	23.3	23.9	21.4	23.4	25.7
Local authorities	30.0	42.6	51.2	58.5	67.4	74.6

## 10.19. PUBLIC AUTHORITIES USING SPECIALISED SOFTWARE: 2015

*(as a percentage of the total number of public authorities)*

## Public authorities – total



## Federal authorities of the Russian Federation



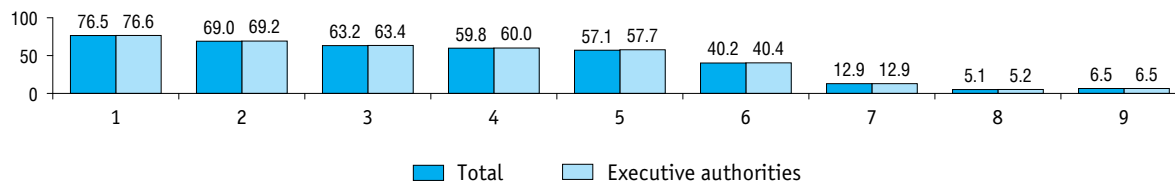
## Specialised software:

- 1 – electronic document management systems
- 2 – software for electronic payment transactions
- 3 – electronic legal reference information systems
- 4 – computer-aided management systems
- 5 – software for managing purchase of goods and services

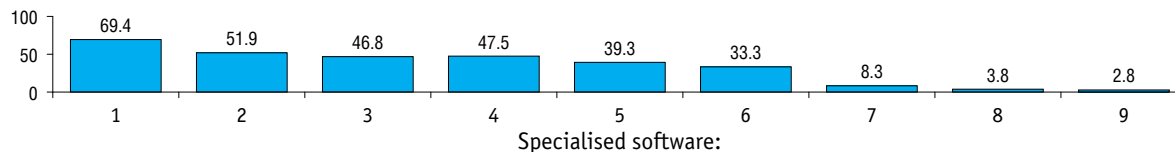
- 6 – software for access to databases via global information networks
- 7 – training and educational programmes
- 8 – computer-aided design systems
- 9 – desk-top publishing systems

(continued)

### Regional authorities of the Russian Federation



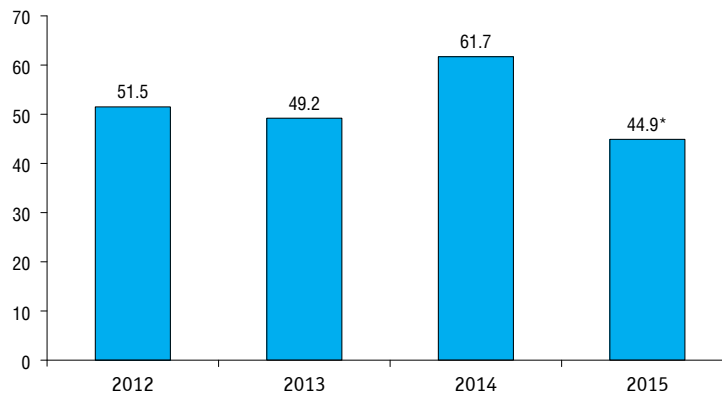
### Local authorities



Specialised software:

- 1 – electronic document management systems
- 2 – software for electronic payment transactions
- 3 – electronic legal reference information systems
- 4 – computer-aided management systems
- 5 – software for managing purchase of goods and services

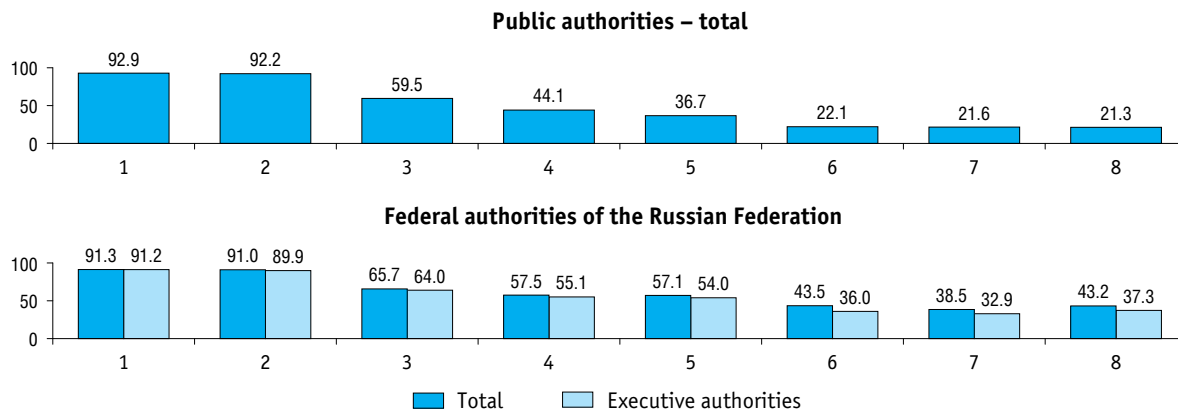
- 6 – software for access to databases via global information networks
- 7 – training and educational programmes
- 8 – computer-aided design systems
- 9 – desk-top publishing systems

**10.20. ELECTRONIC DOCUMENT MANAGEMENT WITHIN PUBLIC AUTHORITIES AS A PERCENTAGE OF THE TOTAL AMOUNT OF INTERDEPARTMENTAL DOCUMENT FLOW**

\* In 2015 the data concerning the usage of interdepartmental electronic document management are included.

## 10.21. INTERNET USAGE FOR GENERAL PURPOSES BY PUBLIC AUTHORITIES: 2015

(as a percentage of the total number of public authorities)

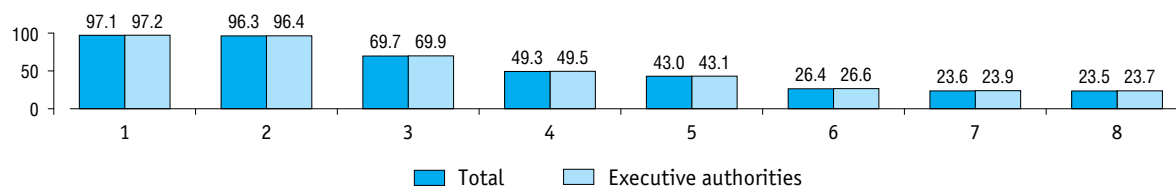


- 1 – E-mailing
- 2 – Information search
- 3 – Banking and other financial transactions
- 4 – Personnel training
- 5 – Videoconferencing

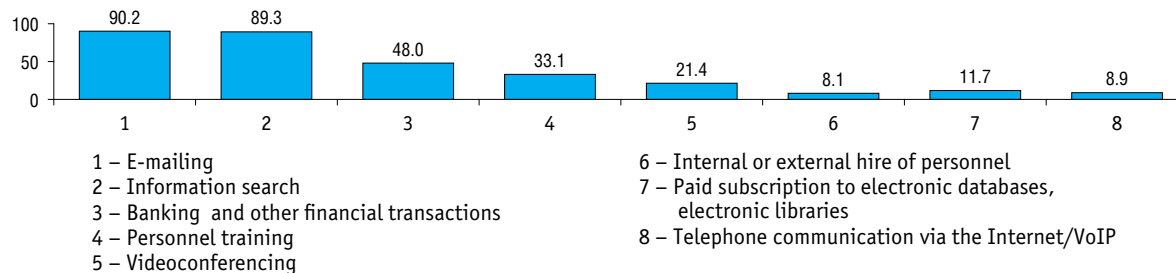
- 6 – Internal or external hire of personnel
- 7 – Paid subscription to electronic databases, electronic libraries
- 8 – Telephone communication via the Internet/VoIP

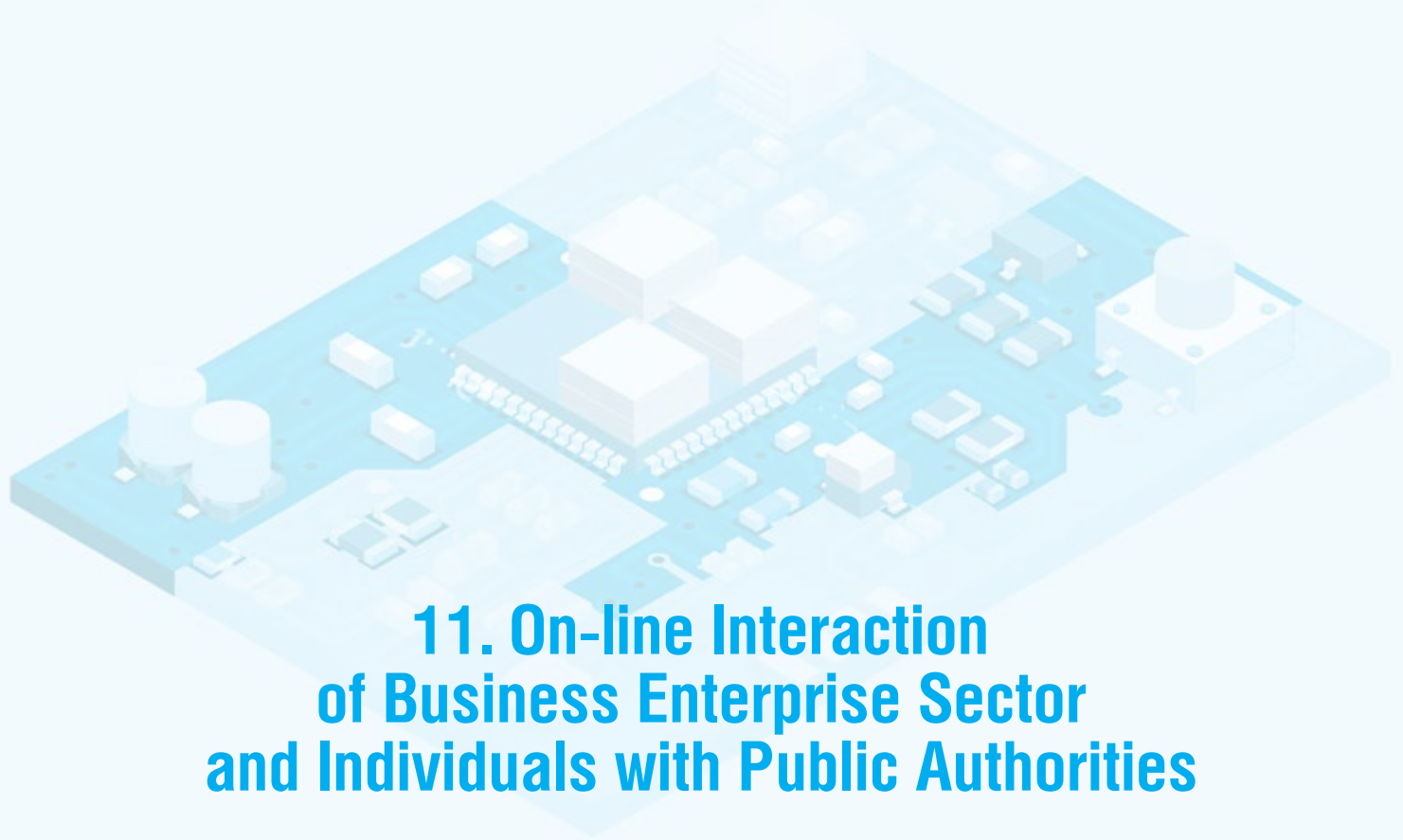
(continued)

## Regional authorities of the Russian Federation



## Local authorities





## **11. On-line Interaction of Business Enterprise Sector and Individuals with Public Authorities**



### 11.1. MAIN INDICATORS OF ON-LINE INTERACTION OF ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR WITH PUBLIC AUTHORITIES\*

(as a percentage of the total number of enterprises in the business enterprise sector)

	2010	2011	2012	2013	2014	2015
Enterprises using the internet for the following:						
Getting information about the activities of public authorities	51.2	53.8	54.9	56.0	57.4	57.7
Getting blank forms (e.g. statistical forms, tax forms)	68.8	69.8	70.4	71.1	70.6	69.5
Submission of completed forms	66.6	67.8	69.3	70.2	71.2	69.4
Participation in government procurement	24.5	18.8	22.4	24.9	25.9	28.7
Receiving public services in a fully electronic format, including payments if necessary	...	28.8	31.5	34.3	34.3	36.3

\* Here and below (11.2–11.6) – the data on small businesses are excluded.

\*\* Without the necessity of using paper document flow to get the service.

Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

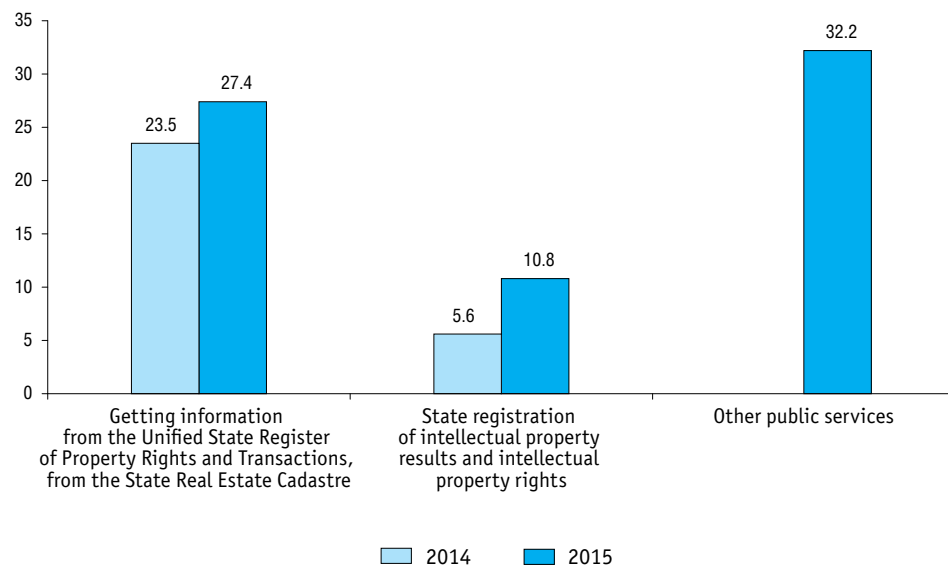
## 11.2. ON-LINE INTERACTION OF ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR WITH PUBLIC AUTHORITIES BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of enterprises in the business enterprise sector)*

	Getting blank forms (e.g. statistical forms, tax forms)	Submission of completed forms	Getting information about the activities of public authorities	Receiving public services in a fully electronic format	Participation in government procurement
<b>Business enterprise sector – total</b>	<b>69.5</b>	<b>69.4</b>	<b>57.7</b>	<b>36.3</b>	<b>28.7</b>
Mining and quarrying	77.5	77.8	63.7	42.4	19.5
Manufacturing	83.7	84.0	69.0	44.1	30.6
Electricity, gas and water supply	76.3	75.7	65.4	36.2	35.6
Construction	76.5	77.4	59.5	42.3	33.4
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	66.6	67.8	55.7	35.1	21.3
Hotels and restaurants	74.4	75.3	59.6	42.2	34.6
Transport	64.3	63.6	52.1	32.2	25.1
Communication	77.3	74.7	67.9	39.3	39.5
Real estate, renting and business activities	62.6	61.9	52.2	33.0	30.1

### 11.3. INTERNET USAGE BY ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR FOR RECEIVING PUBLIC SERVICES ELECTRONICALLY

(as a percentage of the total number of enterprises in the business enterprise sector)



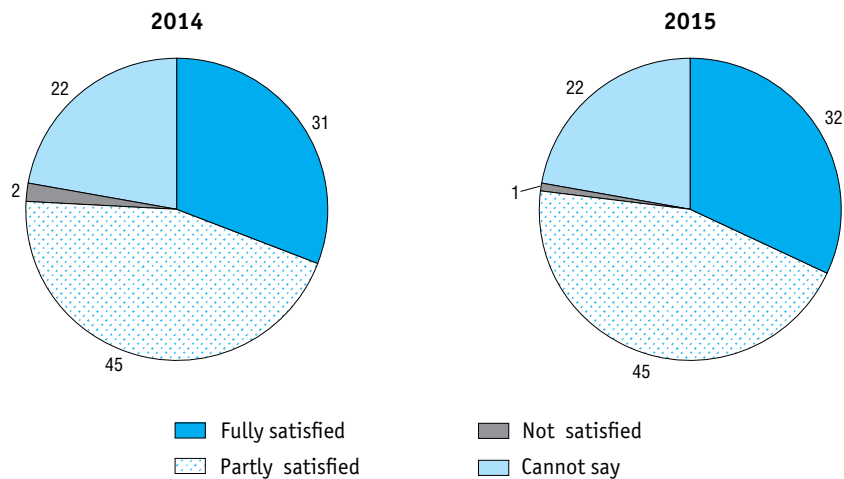
#### 11.4. INTERNET USAGE BY ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR FOR RECEIVING PUBLIC SERVICES ELECTRONICALLY BY ECONOMIC ACTIVITY: 2015

*(as a percentage of the total number of enterprises in the business enterprise sector)*

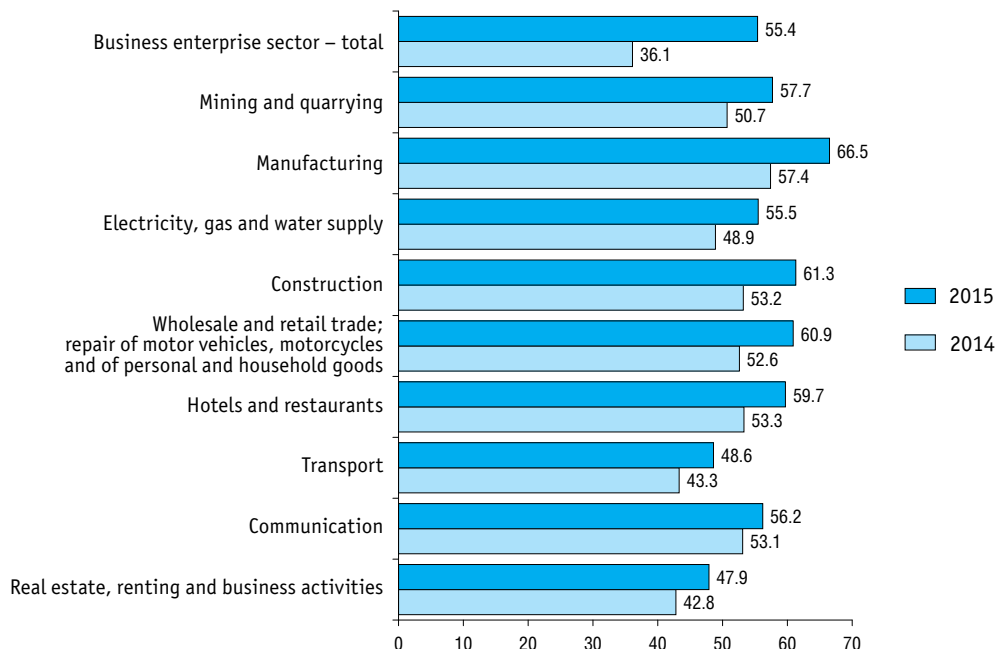
	Getting information from the Unified State Register of Property Rights and Transactions, from the State Real Estate Cadastre	State registration of intellectual property results and intellectual property rights	Other public services
<b>Business enterprise sector – total</b>	<b>27.4</b>	<b>10.8</b>	<b>32.2</b>
Mining and quarrying	34.5	14.0	38.1
Manufacturing	33.1	14.3	37.2
Electricity, gas and water supply	28.6	9.5	34.3
Construction	33.4	11.6	35.7
Wholesale and retail trade; repair of motor vehicles, motorcycles and of personal and household goods	29.7	10.9	33.5
Hotels and restaurants	23.0	10.0	30.0
Transport	22.6	7.6	28.2
Communication	34.1	17.0	31.8
Real estate, renting and business activities	23.5	9.6	29.2

### 11.5. ASSESSMENT BY ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR OF THE QUALITY OF ELECTRONIC PUBLIC SERVICES

(as a percentage of the total number of enterprises in the business enterprise sector)



### 11.6. ENTERPRISES OF THE BUSINESS ENTERPRISE SECTOR USING EDI TO INTERACT WITH PUBLIC AUTHORITIES BY ECONOMIC ACTIVITY (as a percentage of the total number of enterprises in the business enterprise sector)



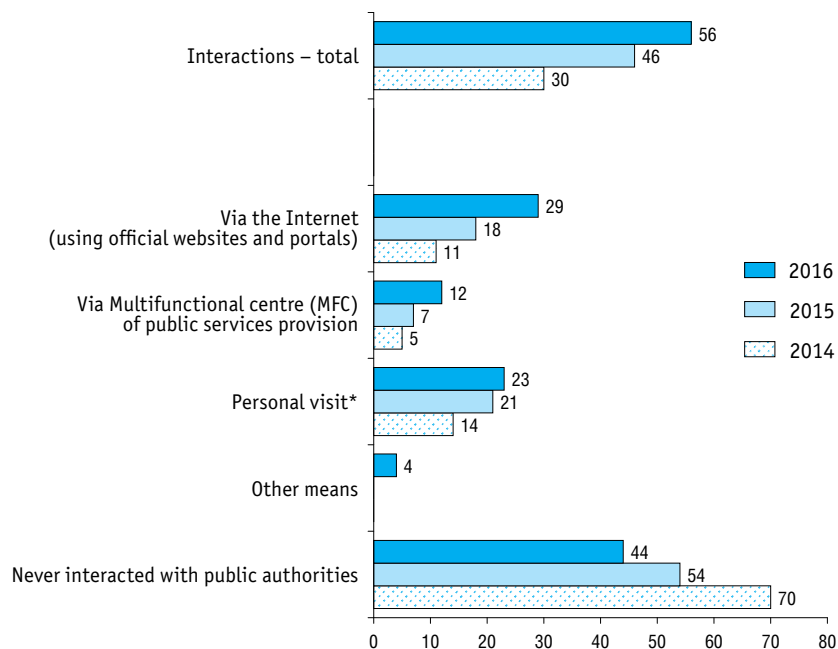
## 11.7. MAIN INDICATORS OF ONLINE INTERACTION OF INDIVIDUALS WITH PUBLIC AUTHORITIES

*(per cent)*

	2013	2014	2015	2016
Individuals who used the Internet to receive public services electronically as a percentage of individuals aged 15–72	11	11	18	29
Individuals (as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months) who use the Internet for the following:				
receiving public services electronically	31	35	40	51
getting information from official public services websites and portals	72	77	66	67
downloading official fill-out forms	43	38	27	27
electronic submission of completed forms or other documents	40	41	27	24
visiting websites and portals of public authorities via mobile devices	...	17	22	32

### 11.8. MEANS OF INTERACTION OF INDIVIDUALS WITH PUBLIC AUTHORITIES

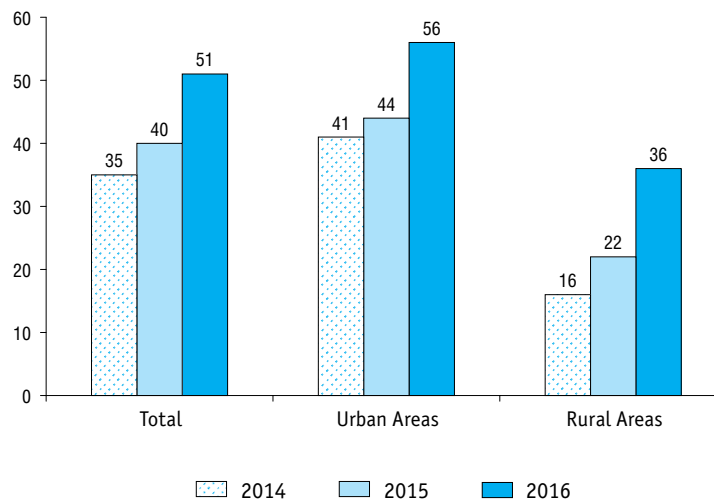
(as a percentage of the total number of inhabitants aged 15–72)



\* 2014 – including conventional mail, fax, etc.

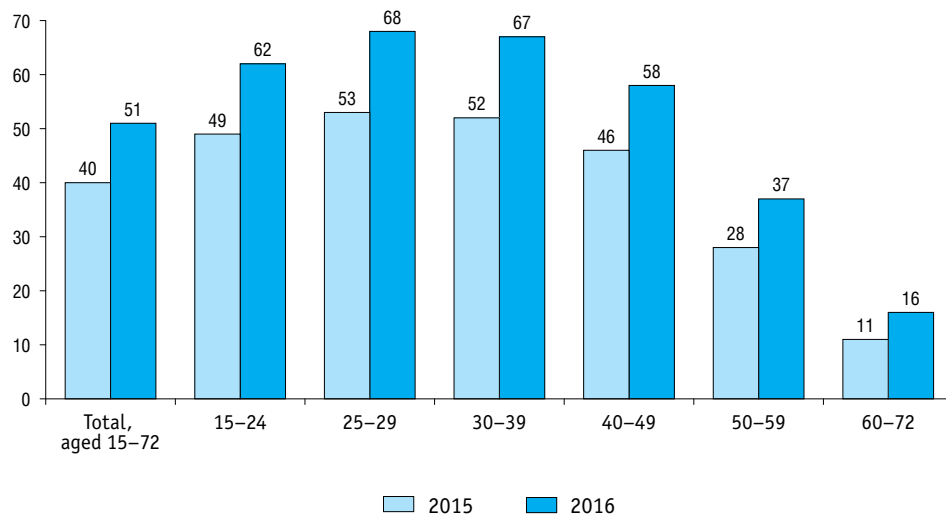


**11.9. INTERNET USAGE BY INDIVIDUALS FOR RECEIVING PUBLIC SERVICES ELECTRONICALLY BY TYPE OF SETTLEMENT**  
*(as a percentage of the total number of inhabitants aged 15–72 who received public services within the last 12 months)*



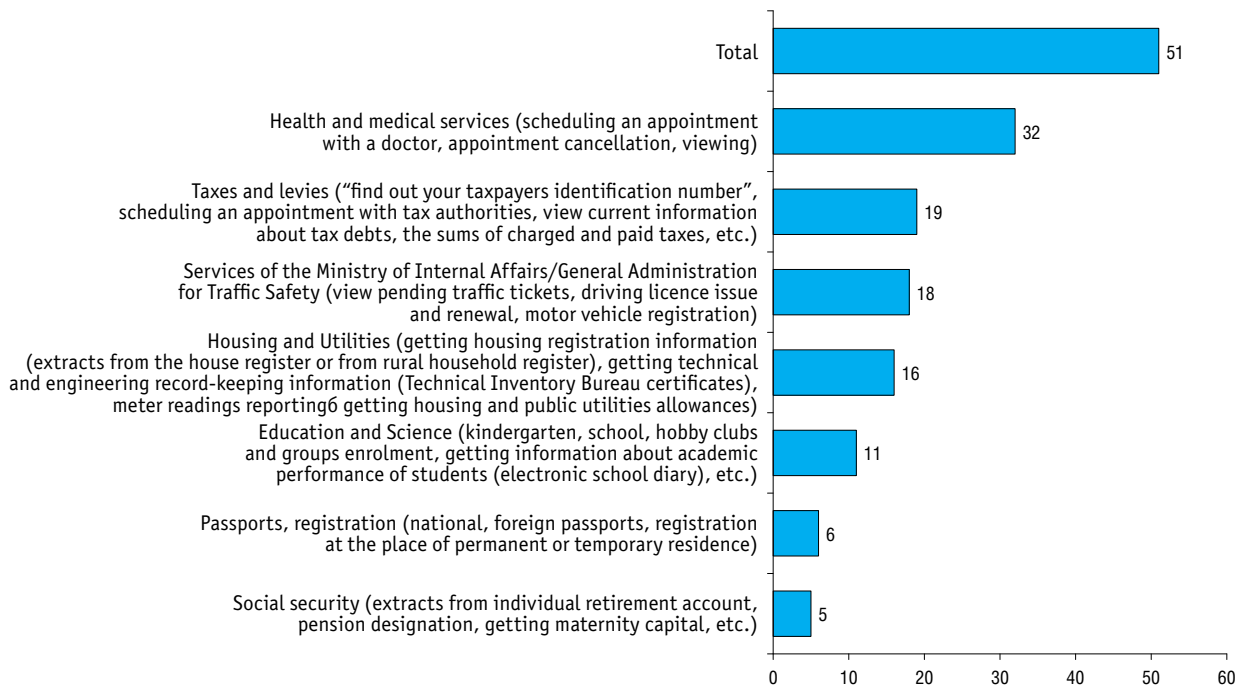
### 11.10. INTERNET USAGE BY INDIVIDUALS FOR RECEIVING PUBLIC SERVICES ELECTRONICALLY BY AGE GROUP

(as a percentage of the total number of inhabitants in the respective age group who received public services within the last 12 months)



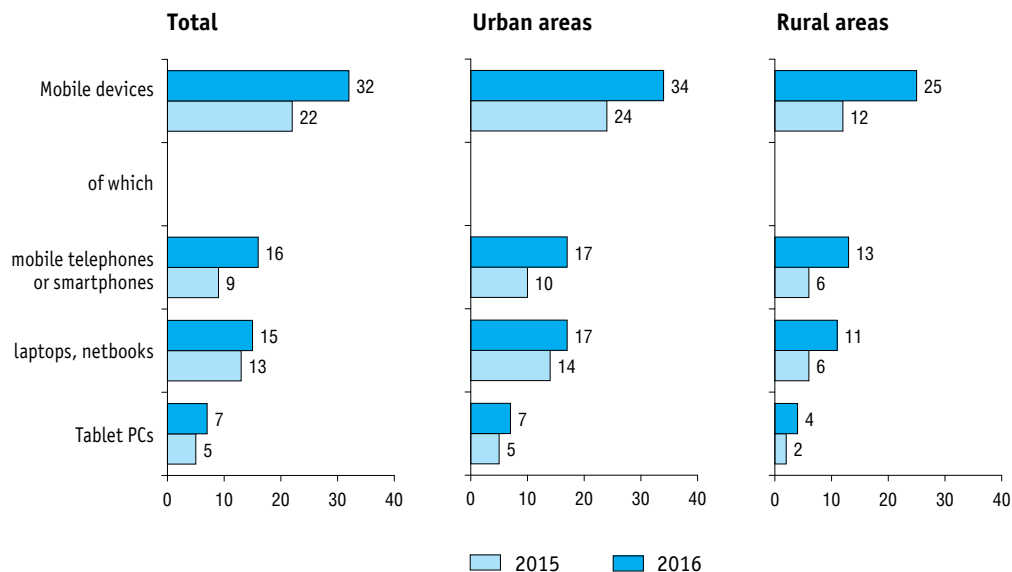
### 11.11. INTERNET USAGE BY INDIVIDUALS FOR RECEIVING PUBLIC SERVICES ELECTRONICALLY BY THE MOST DEMANDED TYPE OF SERVICE: 2016

*(as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months)*



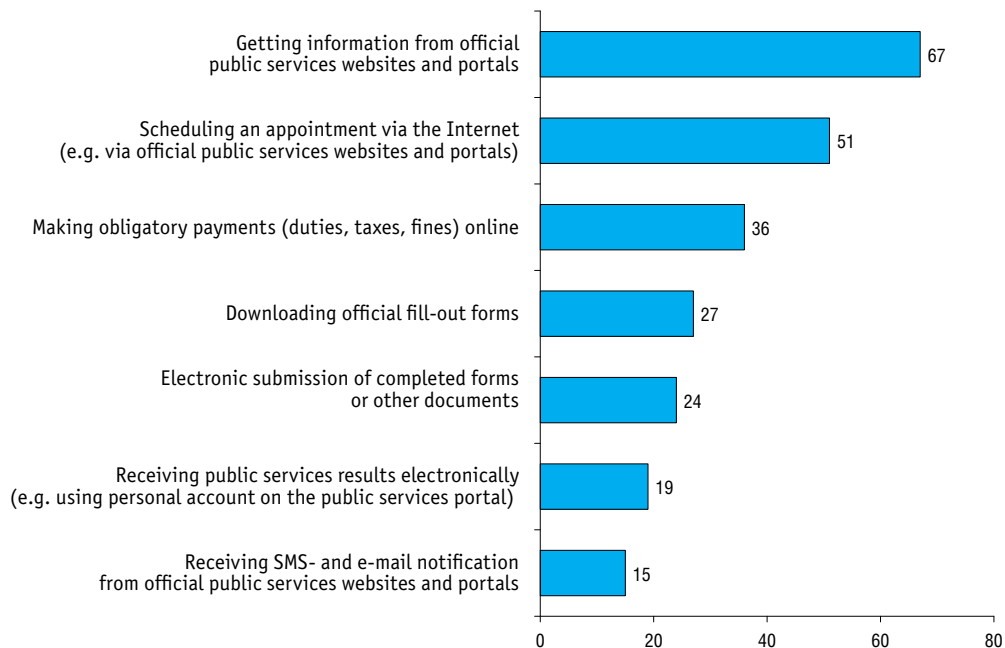
### 11.12. USAGE OF MOBILE DEVICES TO ACCESS OFFICIAL PUBLIC SERVICES WEBSITES AND PORTALS BY TYPE OF SETTLEMENT

(as a percentage of the total number of inhabitants aged 15–72 who received public services within the last 12 months)



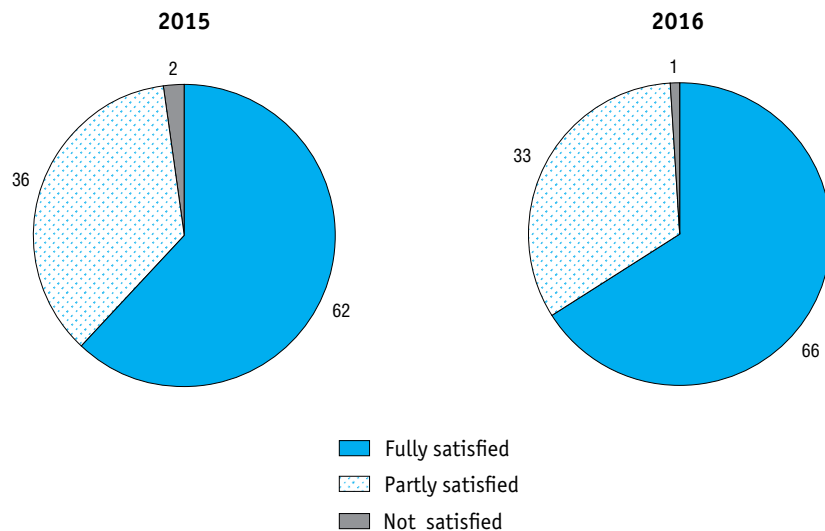
**11.13. PURPOSES OF ONLINE INTERACTION OF INDIVIDUALS WITH PUBLIC AUTHORITIES: 2016**

*(as a percentage of the total number of inhabitants aged 15–72 who received public services within the last 12 months)*



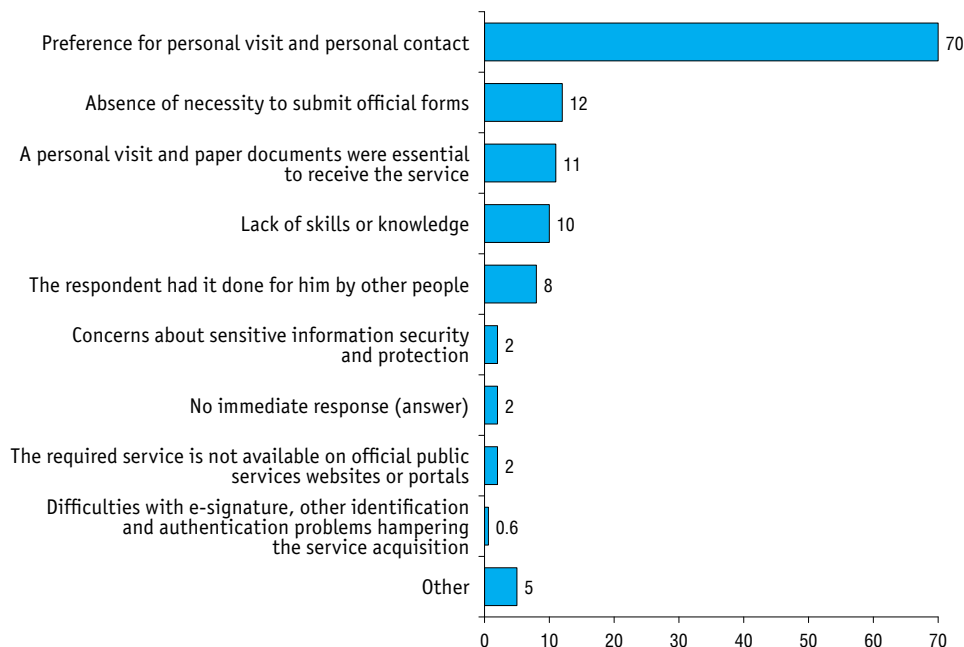
#### 11.14. ASSESSMENT BY INDIVIDUALS OF THE QUALITY OF ELECTRONIC PUBLIC SERVICES

(as a percentage of the total number of inhabitants aged 15–72 who received public services within the last 12 months)



**11.15. REASONS WHY PEOPLE REFUSE TO USE THE INTERNET TO RECEIVE PUBLIC SERVICES: 2016**

*(as a percentage of the total number of inhabitants aged 15–72 who do not use the Internet to receive public services)*





## **12. ICT Usage by Households and Individuals**



## 12.1. MAIN INDICATORS OF ICT USAGE BY HOUSEHOLDS

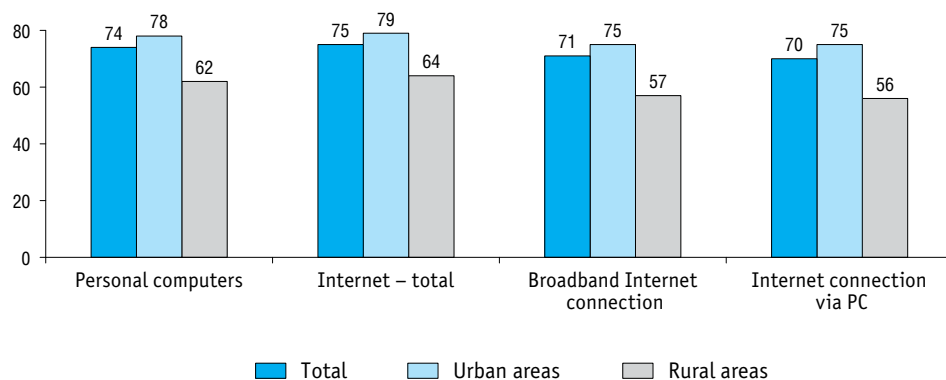
(per cent)

	2010	2011	2012	2013	2014	2015	2016
Households, as a percentage of the total number of households, having:							
personal computers	55	60	67	71	71	73	74
internet connection	48	57	60	69	70	72	75
of which from the personal computer	41	50	59	65	67	68	70
fixed telephones	70	69	65	63	59	34	...
mobile cellular telephones	93	95	96	97	98	99	...

Source: here and below in the section – the data of the Federal State Statistics Service.

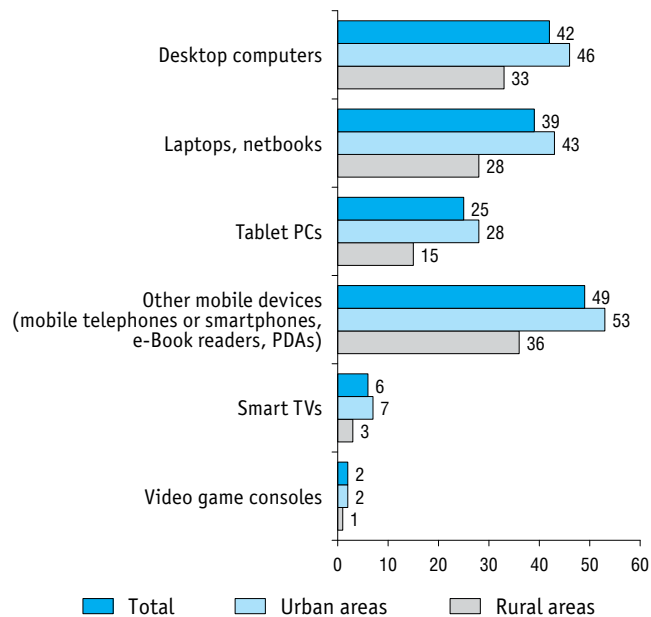
## 12.2. USAGE OF PERSONAL COMPUTERS AND INTERNET USAGE BY HOUSEHOLDS BY TYPE OF SETTLEMENT: 2016

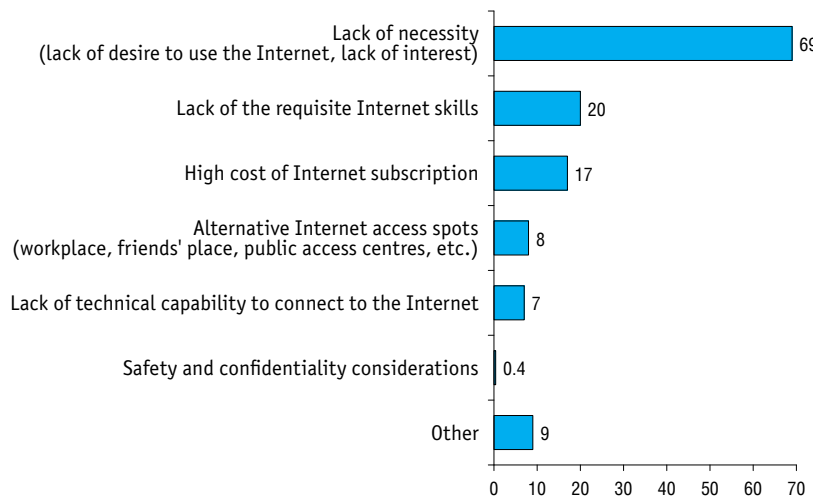
(as a percentage of the total number of households)



### 12.3. INTERNET USAGE BY HOUSEHOLDS BY TYPE OF ACCESS DEVICE AND BY TYPE OF SETTLEMENT: 2016

(as a percentage of the total number of households)



**12.4. FACTORS HAMPERING INTERNET USAGE IN HOUSEHOLDS: 2016***(a percentage of the total number of households that don't use the Internet)*

## 12.5. MAIN INDICATORS OF ICT USAGE BY INDIVIDUALS

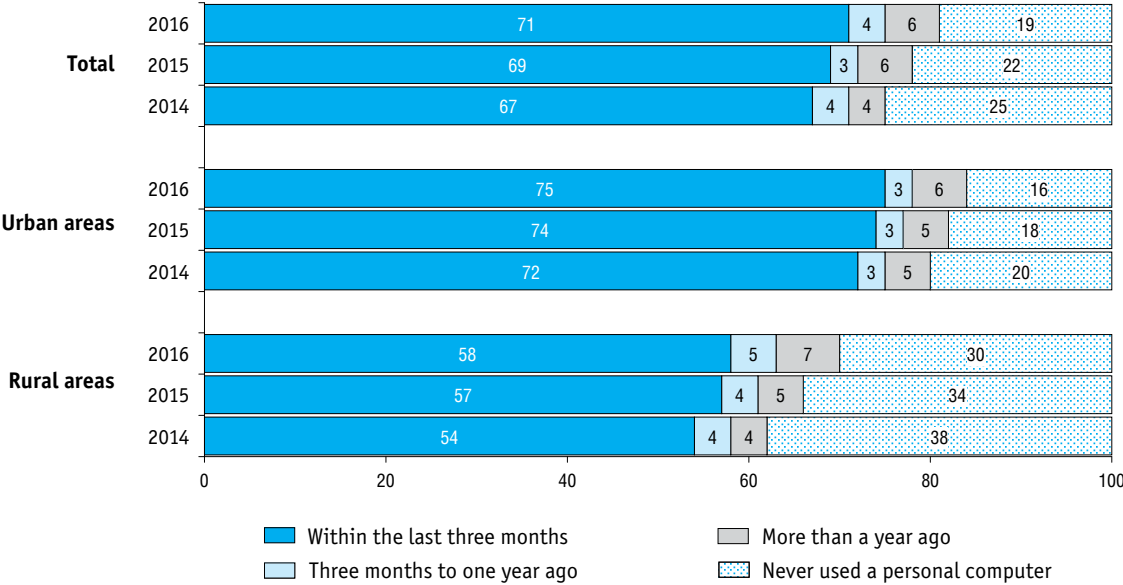
(per cent)

	2010	2011	2012	2013	2014	2015	2016
Individuals who have ever used a personal computer as a percentage of all individuals aged 15–72 *	68	...	...	73	75	78	81
Individuals who have never used a personal computer as a percentage of all individuals aged 15–72 *	32	...	...	27	25	22	19
Individuals who have ever used the Internet as a percentage of all individuals aged 15–72 *	49	58	66	71	74	78	81
Individuals using the Internet every day or almost every day as a percentage of all individuals aged 15–72 *	26	33	41	48	52	55	58
Individuals who have never used the Internet as a percentage of all individuals aged 15–72 *	51	42	34	29	26	22	19
Individuals who have used mobile devices to access the Internet as a percentage of all individuals aged 15–72:	...	...	...	31	43	43	49

\* 2010–2011 – aged 16–74, 2012 – aged 18–74.

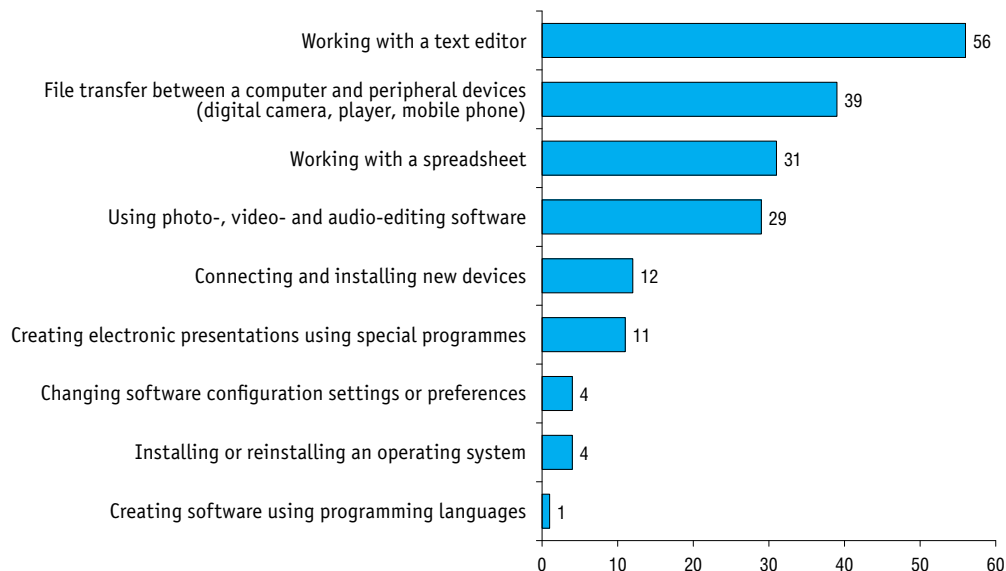
Source: here and below in the section – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service.

12.6. USAGE OF PERSONAL COMPUTERS BY INDIVIDUALS BY TYPE OF SETTLEMENT  
(as a percentage of the total number of inhabitants aged 15–72)

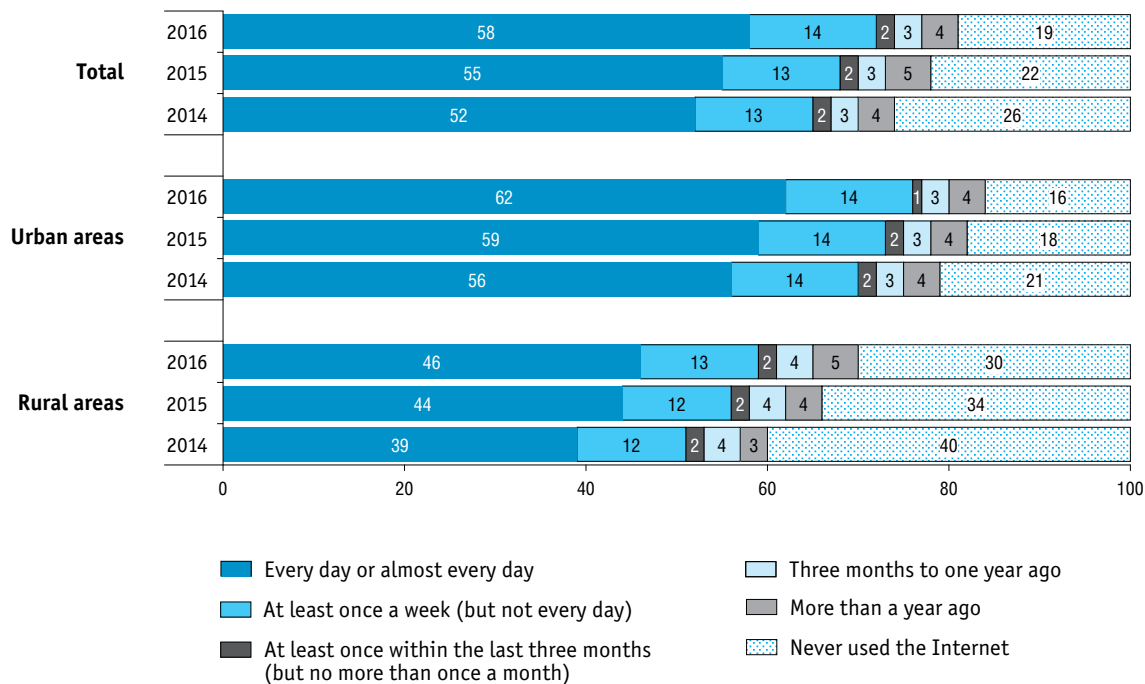


### 12.7. PERSONAL COMPUTER SKILLS: 2016

*(as a percentage of the total number of inhabitants aged 15–72 who used personal computers within the last 12 months)*

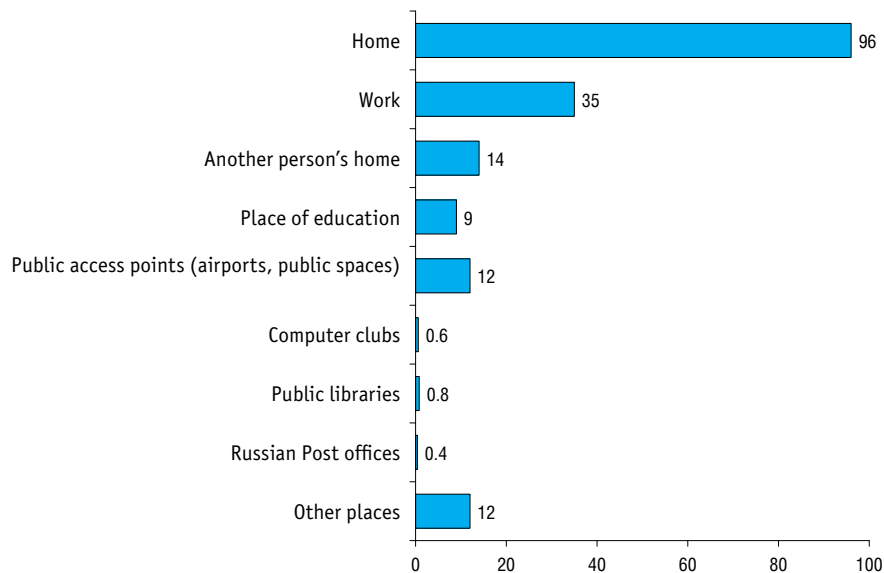


## 12.8. FREQUENCY OF INTERNET USAGE BY INDIVIDUALS BY TYPE OF SETTLEMENT

*(as a percentage of the total number of inhabitants aged 15–72)*

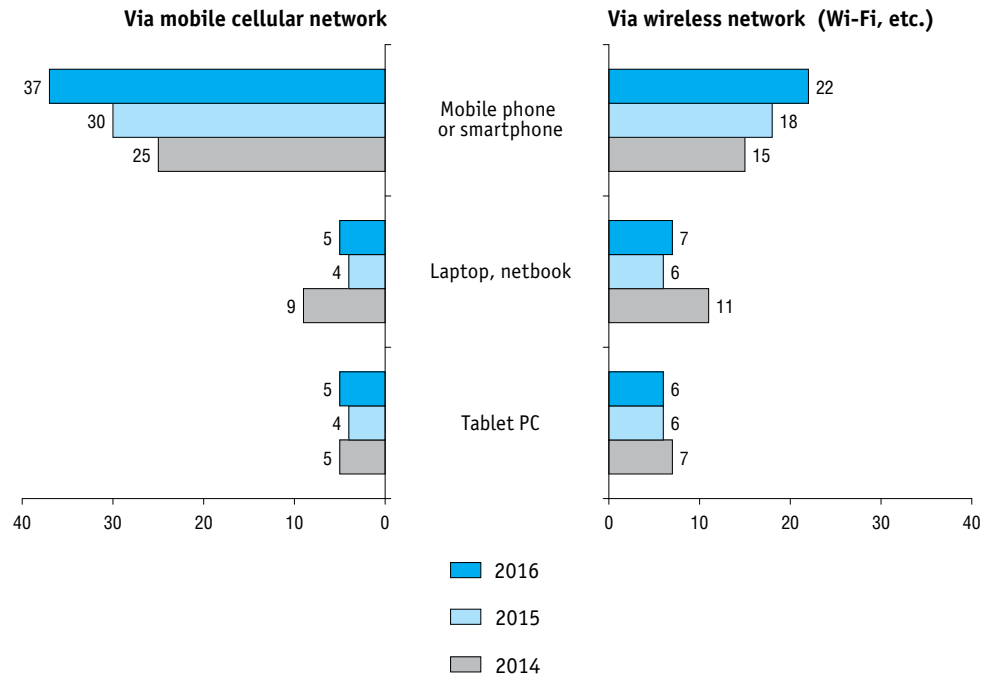
### 12.9. PLACES WHERE INDIVIDUALS USE THE INTERNET: 2016

*(a percentage of the total number of inhabitants aged 15–72 who used the Internet within the last three months)*



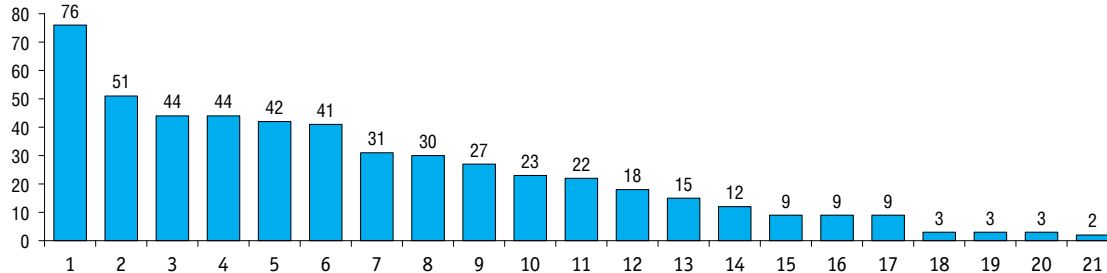


12.10. USAGE OF MOBILE DEVICES BY INDIVIDUALS TO ACCESS THE INTERNET  
*(as a percentage of the total number of inhabitants aged 15–72)*



### 12.11. INTERNET ACTIVITIES: 2016

*(undertaken by individuals; as a percentage of the total number of inhabitants aged 15–72 who used the Internet within the last three months)*

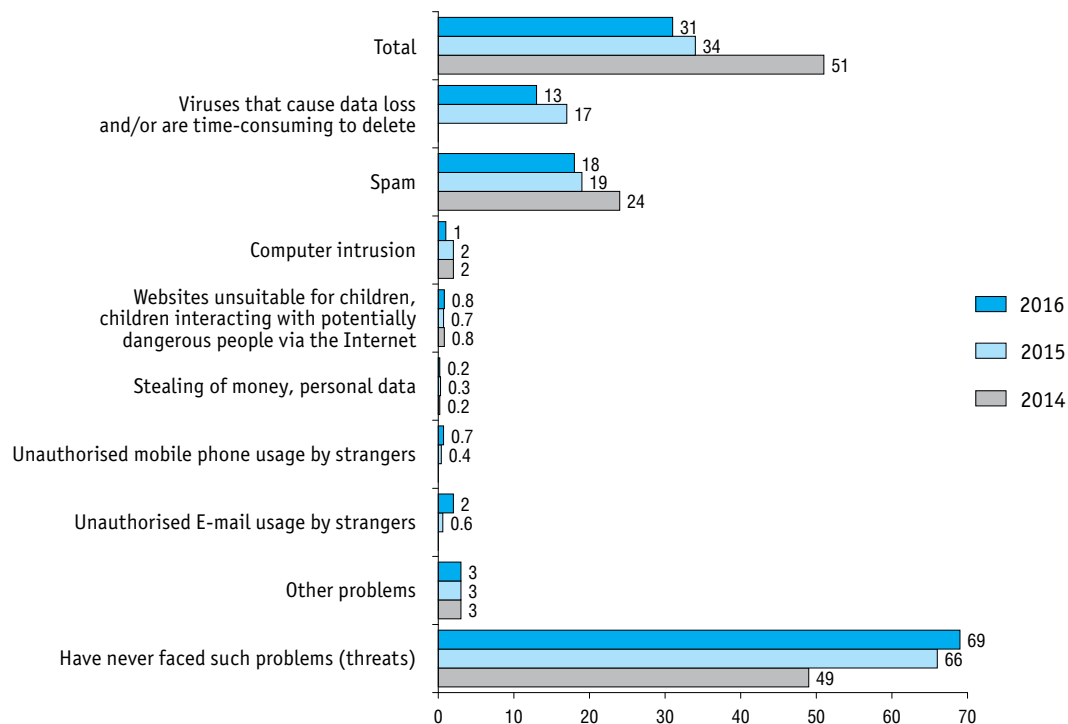


- 1 – Communicating in social networks
- 2 – Downloading films, pictures, music; watching videos; listening to music/radio
- 3 – Searching for information about goods or services
- 4 – Making telephone or video calls over the Internet (e.g. by Skype)
- 5 – Sending or receiving e-mail
- 6 – Getting information on any topic using Wikipedia, online encyclopedias
- 7 – Playing or downloading video games or computer games
- 8 – Uploading personal files (books, photos, video, software, etc.) to websites, social networks, clouds for public access
- 9 – Searching for information on health or health care services
- 10 – Financial operations

- 11 – Reading or downloading online newspapers or magazines, e-books
- 12 – Selling or buying goods or services (including online auction sites)
- 13 – Communicating via instant messengers (online chatrooms, ICQ, QIP, etc.)
- 14 – Searching for information on cultural sites, events, etc.
- 15 – Downloading software (except computer games)
- 16 – Searching for job vacancies
- 17 – Searching for information on education, training courses, workshops
- 18 – Taking part in online voting or consultations on social and political issues
- 19 – Communicating in professional networks, on forums
- 20 – Distance learning
- 21 – Posting opinions on social and political issues on websites

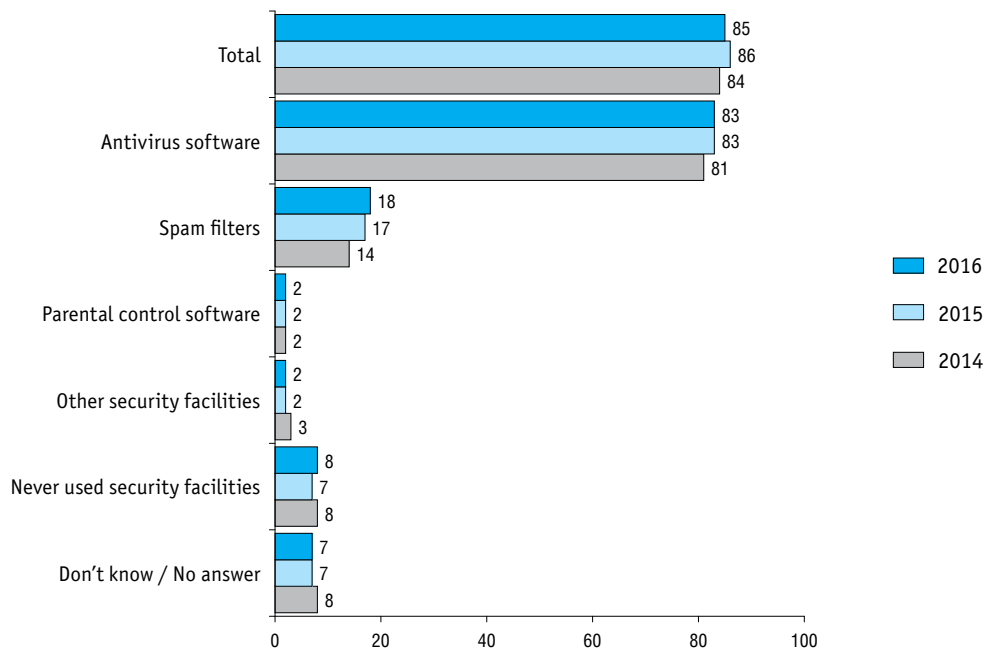
## 12.12. INFORMATION SECURITY THREATS

(as a percentage of the total number of inhabitants aged 15–72 who used the Internet within the last 12 months)



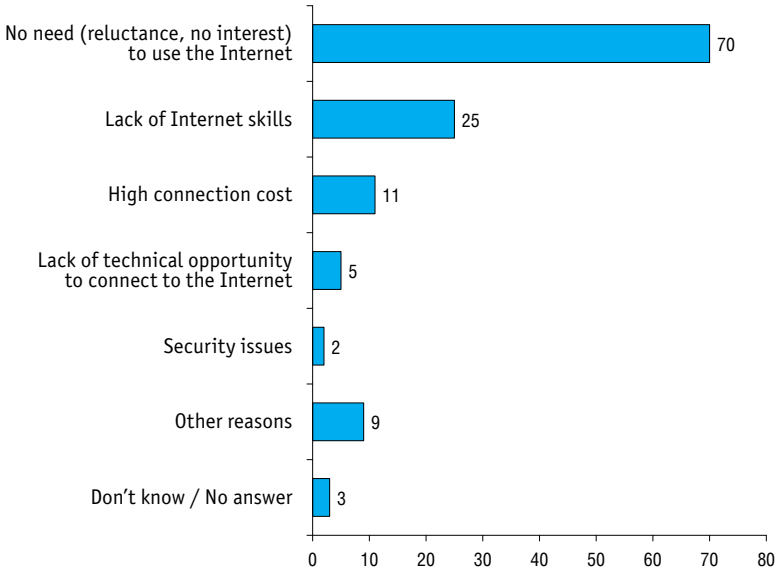
### 12.13. USAGE OF INFORMATION SECURITY FACILITIES BY INDIVIDUALS

(as a percentage of the total number of inhabitants aged 15–72 who used the Internet within the last 12 months)



12.14. FACTORS HAMPERING INTERNET USAGE BY INDIVIDUALS: 2016

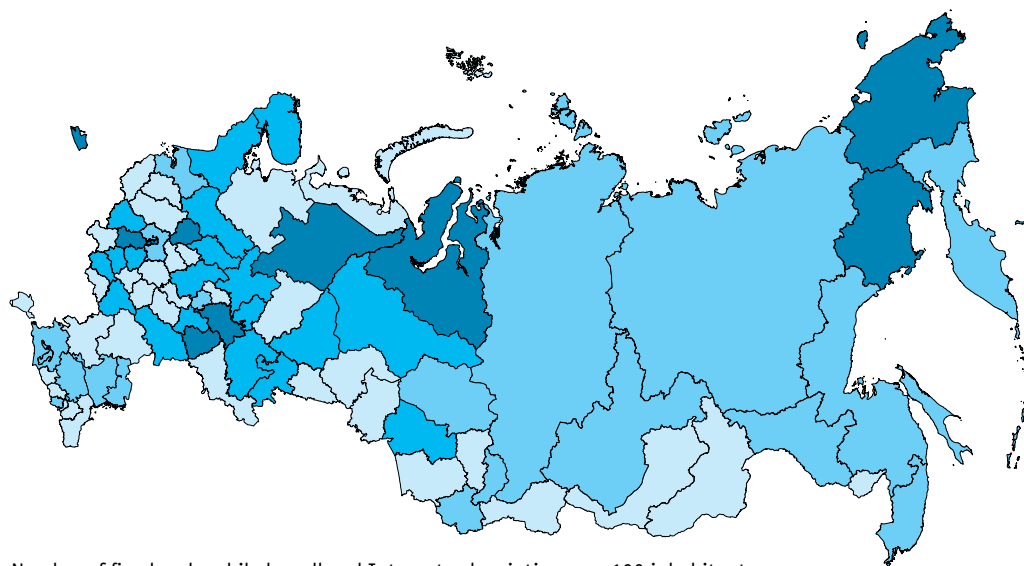
(as a percentage of the total number of inhabitants aged 15–72 who used the Internet more than 12 months ago or who have never used the Internet)





## **13. Main Digital Economy Indicators in Russian Regions**

## 13.1. RUSSIAN REGIONS BY FIXED AND MOBILE BROADBAND INTERNET SUBSCRIPTION DISTRIBUTION: 2015



Number of fixed and mobile broadband Internet subscriptions per 100 inhabitants:

- higher than Russian average fixed and mobile broadband internet subscription indicators
- higher than Russian average fixed broadband Internet subscription indicators and lower than Russian average mobile broadband Internet subscription indicators
- higher than Russian average mobile broadband Internet subscription indicators and lower than Russian average fixed broadband Internet subscription indicators
- lower than Russian average fixed and mobile broadband Internet subscription indicators
- no data

### 13.2. MAIN DIGITAL ECONOMY INDICATORS IN RUSSIAN REGIONS

	2015					2016			
	Number of employees in the IT industry enterprises, thousand persons	Broadband Internet subscriptions (per 100 inhabitants, units):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of household	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
<b>Russian Federation</b>	<b>381.1</b>	<b>18</b>	<b>68</b>	<b>80</b>	<b>18</b>	<b>71</b>	<b>81</b>	<b>23</b>	<b>51</b>
<b>Central Federal District</b>	<b>158.8</b>	<b>20</b>	<b>79</b>	<b>83</b>	<b>20</b>	<b>73</b>	<b>82</b>	<b>26</b>	<b>56</b>
Belgorod Region	2.3	18	48	83	21	66	77	25	51
Bryansk Region	1.5	13	47	79	15	64	76	11	44
Vladimir Region	1.9	14	52	89	24	70	73	19	63
Voronezh Region	3.6	20	41	83	21	77	78	12	64
Ivanovo Region	1.3	18	65	77	19	67	79	21	44
Kaluga Region	1.3	21	69	83	21	59	74	12	69
Kostroma Region	0.9	19	59	69	2	70	76	21	26
Kursk Region	1.3	23	43	74	15	71	82	26	54
Lipetsk Region	2.5	15	43	82	18	72	82	22	44
Moscow Region	10.2	11	104*	86	22	73	84	24	44
Oryol Region	1.3	20	50	82	12	65	71	17	38
Ryazan Region	1.9	17	64	84	18	58	71	12	48
Smolensk Region	1.1	19	61	82	20	68	76	17	47
Tambov Region	1.2	16	44	78	17	68	78	20	53
Tver Region	1.9	13	65	71	14	70	78	19	26
Tula Region	3.6	21	63	80	22	78	81	29	61
Yaroslavl Region	4.4	21	69	86	23	74	78	22	60
Moscow	116.5	30	104*	95	30	79	89	37	65

\* Summary data for Moscow and Moscow Region.



(continued)

	2015					2016			
	Number of employees in the IT industry enterprises, thousand persons	Broadband Internet subscriptions (per 100 inhabitants, units):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of household	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
<b>Northwestern Federal District</b>	<b>55.5</b>	<b>22</b>	<b>72</b>	<b>85</b>	<b>20</b>	<b>77</b>	<b>84</b>	<b>28</b>	<b>44</b>
Republic of Karelia	1.0	29	52	91	15	78	80	28	31
Komi Republic	1.4	27	75	84	17	80	81	32	37
Arkhangelsk Region	2.0	18	52	77	19	71	80	30	30
of which Nenets Autonomous District	0.2	...	...	83	11	60	80	35	19
Vologda Region	1.3	20	62	82	17	65	70	19	60
Kaliningrad Region	1.8	22	82	85	23	74	83	18	49
Leningrad Region	1.3	10	80**	88	22	73	82	23	39
Murmansk Region	1.2	23	61	89	16	78	88	42	32
Novgorod Region	1.1	16	67	76	22	66	77	26	45
Pskov Region	1.0	9	57	85	21	69	80	28	31
Saint-Petersburg	43.4	29	80**	91	23	85	91	30	49
<b>Southern Federal District</b>	<b>16.1</b>	<b>16</b>	<b>72</b>	<b>75</b>	<b>17</b>	<b>75***</b>	<b>81***</b>	<b>24***</b>	<b>48***</b>
Republic of Adygeya	0.3	7	72	88	18	70	71	7	35
Republic of Kalmykia	0.2	10	68	78	15	64	80	28	38
Krasnodar Krai	5.5	17	87	77	18	72	81	22	52
Astrakhan Region	1.3	13	73	79	21	73	82	14	33
Volgograd Region	3.6	15	62	64	15	75	79	23	45
Rostov Region	5.2	16	59	79	18	80	83	36	57

\*\* Summary data for Saint-Petersburg and Leningrad Region.

\*\*\* Including Republic of Crimea and Sevastopol.

(continued)

	2015					2016			
	Number of employees in the IT industry enterprises, thousand persons	Broadband Internet subscriptions (per 100 inhabitants, units):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of household	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
<b>North Caucasian Federal District</b>	<b>5.4</b>	<b>6</b>	<b>62</b>	<b>81</b>	<b>20</b>	<b>62</b>	<b>81</b>	<b>14</b>	<b>46</b>
Republic of Dagestan	0.3	2	52	70	15	62	77	11	22
Republic of Ingushetia	0.1	0.3	57	77	17	53	78	17	54
Kabardino-Balkar Republic	0.3	10	67	79	25	58	79	18	38
Karachai-Cherkess Republic	0.3	9	58	77	20	73	75	12	19
Republic of North Ossetia – Alania	0.7	9	68	79	15	68	83	21	60
Chechen Republic	0.8	1	65	80	15	41	91	6	54
Stavropol Krai	3.0	13	69	90	27	66	82	16	60
<b>Volga Federal District</b>	<b>73.0</b>	<b>20</b>	<b>62</b>	<b>79</b>	<b>16</b>	<b>69</b>	<b>78</b>	<b>20</b>	<b>55</b>
Republic of Bashkortostan	6.8	20	66	87	19	68	80	20	61
Republic of Mari El	1.2	16	64	82	17	68	69	17	41
Republic of Mordovia	1.3	17	54	63	17	67	76	16	61
Republic of Tatarstan	14.5	24	69	83	22	79	86	28	80
Udmurt Republic	3.1	19	50	84	6	69	76	24	43
Chuvash Republic	2.2	17	69	81	13	67	79	33	69
Perm Krai	7.8	14	43	82	20	68	76	20	39
Kirov Region	1.4	19	58	66	6	67	76	25	44
Nizhny Novgorod Region	11.3	24	62	86	20	66	74	17	49
Orenburg Region	2.8	16	68	86	9	74	76	19	51
Penza Region	3.6	18	60	79	18	67	75	15	48
Samara Region	9.4	20	71	65	15	65	82	19	43

(continued)

	2015					2016			
	Number of employees in the IT industry enterprises, thousand persons	Broadband Internet subscriptions (per 100 inhabitants, units):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of household	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
Saratov Region	4.3	20	64	77	19	63	76	15	26
Ulyanovsk Region	3.2	20	56	81	12	67	73	8	54
<b>Ural Federal District</b>	<b>25.7</b>	<b>22</b>	<b>54</b>	<b>82</b>	<b>20</b>	<b>73</b>	<b>83</b>	<b>27</b>	<b>53</b>
Kurgan Region	0.7	17	54	59	12	54	73	16	33
Sverdlovsk Region	10.5	23	52	88	22	73	82	24	42
Tyumen Region	8.8	9	26	85	20	78	87	35	68
Of which:									
Khanty-Mansi Autonomous District – Yugra	4.4	20	66	86	22	81	91	37	74
Yamalo-Nenets Autonomous District	1.7	20	78	87	17	86	94	32	40
Chelyabinsk Region	5.7	23	41	85	21	72	82	23	55
<b>Siberian Federal District</b>	<b>36.3</b>	<b>17</b>	<b>65</b>	<b>75</b>	<b>18</b>	<b>64</b>	<b>78</b>	<b>19</b>	<b>41</b>
Republic of Altai	0.1	6	74	81	25	63	68	19	56
Republic of Buryatia	0.9	9	45	74	17	59	77	14	31
Republic of Tyva	0.2	2	57	69	12	58	73	18	30
Republic of Khakassia	0.8	10	73	85	24	63	78	13	38
Altai Krai	3.0	16	65	75	19	60	77	19	31
Zabaikalye Krai	1.0	15	58	79	25	62	75	15	35
Krasnoyarsk Krai	5.1	16	71	81	19	63	81	21	32
Irkutsk Region	3.3	16	102	77	25	68	77	20	52
Kemerov Region	4.8	17	53	80	19	63	80	22	33

(continued)

	2015					2016			
	Number of employees in the IT industry enterprises, <i>thousand persons</i>	Broadband Internet subscriptions (per 100 inhabitants, <i>units</i> ):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of household	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
Novosibirsk Region	11.3	31	60	75	19	70	79	18	51
Omsk Region	3.4	14	43	62	8	68	78	16	55
Tomsk Region	2.5	17	72	74	21	62	81	28	48
<b>Far Eastern Federal District</b>	<b>8.5</b>	<b>16</b>	<b>82</b>	<b>74</b>	<b>16</b>	<b>70</b>	<b>81</b>	<b>26</b>	<b>48</b>
Republic of Sakha (Yakutia)	1.6	13	88	61	14	73	84	32	38
Kamchatka Krai	0.4	11	101	72	20	65	83	42	50
Primorye Krai	1.7	17	76	77	16	77	82	28	60
Khabarovsk Krai	3.0	18	82	87	20	72	86	24	36
Amur Region	0.8	10	79	72	21	66	76	16	62
Magadan Region	0.3	21	98	72	11	49	84	28	20
Sakhalin Region	0.5	17	91	84	18	59	74	22	43
Jewish Autonomous Region	0.2	14	60	67	3	59	68	12	16
Chukotka Autonomous District	0.0	20	89	70	12	36	87	44	21
<b>Crimean Federal District</b>	<b>1.9</b>	<b>3</b>	<b>1</b>	<b>90</b>	<b>22</b>	–	–	–	–
Republic of Crimea	0.7	2	1	96	24	74	79	14	23
Sevastopol	1.2	4	...	78	18	81	83	29	30

## 13.3. RUSSIAN REGIONS DISTRIBUTION BY MAIN DIGITAL ECONOMY INDICATORS

	Russian Region rank in 2015–2016 by indicator*:								
	Number of employees in the IT industry enterprises, <i>thousand persons</i>	Broadband internet subscriptions (per 100 inhabitants, <i>units</i> ):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of households	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
Central Federal District	1	3-4	2	3	2-5	3-4	3	3-4	1
Belgorod Region	34	31–35	72	28–32	20–27	53–57	53–58	26–27	29–31
Bryansk Region	44	60–64	73	46–52	61–69	62–63	59–68	81–82	42–46
Vladimir Region	37–39	56–59	65–69	6–7	7–9	32–36	75–78	48–54	8
Voronezh Region	20–23	17–26	80–81	28–32	20–27	13–14	46–52	76–80	7
Ivanovo Region	47–54	31–35	37–40	56–63	35–42	47–52	40–45	40–43	42–46
Kaluga Region	47–54	13–16	25–29	28–32	20–27	74–77	72–74	76–80	3–4
Kostroma Region	64–65	27–30	53–54	76–77	85	32–36	59–68	40–43	76–78
Kursk Region	47–54	8–11	76–79	67–69	61–69	30–31	19–27	24–25	22–25
Lipetsk Region	32–33	53–55	76–79	33–38	43–50	26–29	19–27	35–39	42–46
Moscow Region	7	65–66	1–2	14–18	13–19	20–25	11–13	28–31	42–46
Oryol Region	47–54	17–26	70–71	33–38	73–77	58–61	79–81	59–63	55–59
Ryazan Region	37–39	36–44	41–43	24–27	43–50	78–80	79–81	76–80	36–38
Smolensk Region	58–60	27–30	48–49	33–38	28–34	39–46	59–68	59–63	39
Tambov Region	55–57	45–52	75	53–55	51–58	39–46	46–52	44–47	26
Tver Region	37–39	60–64	37–40	73	70–71	32–36	46–52	48–54	76–78
Tula Region	20–23	13–16	44	43–45	13–19	9–12	28–32	15–16	10–12

\* The ranks of separate Federal Districts / regions of the Russian Federation are defined on the basis of indicator ranking; the first place is assigned to the Federal district / region of the Russian Federation with the maximum indicator value, if the indicator values are equal interval groups are given (for example, 41–42).

(continued)

	Russian Region rank in 2015–2016 by indicator*:								
	Number of employees in the IT industry enterprises, thousand persons	Broadband internet subscriptions (per 100 inhabitants, units):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of households	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
Yaroslavl Region	17–18	13–16	25–29	14–18	10–12	16–19	46–52	35–39	13–17
Moscow	1	2	1–2	2	1	7–8	5	4–5	6
<b>Northwestern Federal District</b>	<b>3</b>	<b>1–2</b>	<b>3–4</b>	<b>2</b>	<b>2–5</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>7</b>
Republic of Karelia	61–63	3–4	65–69	3–4	61–69	9–12	33–39	17–19	69–72
Komi Republic	45–46	5	17	24–28	51–58	5–6	28–32	10–12	60
Arkhangelsk Region	36	31–35	65–69	56–63	35–42	30–31	33–39	13–14	73–75
of which Nenets Autonomous District	79–82	–	–	28–32	78–79	72–73	33–39	7–8	83–84
Vologda Region	47–54	17–26	45–47	33–38	51–58	58–61	82	48–54	13–17
Kaliningrad Region	40	12	10–11	19–23	10–12	16–19	14–18	55–58	33–35
Leningrad Region	47–54	67–71	12–13	8–10	13–19	20–25	19–27	32–34	53–54
Murmansk Region	55–57	8–11	48–49	6–7	59–60	9–12	6	2–3	67–68
Novgorod Region	58–60	45–52	33–34	64	13–19	53–57	53–58	24–25	40–41
Pskov Region	61–63	72–76	58–60	19–23	20–27	37–38	33–39	20–23	69–72
Saint-Petersburg	2	3–4	12–13	3–4	10–12	2	2–4	13–14	33–35
<b>Southern Federal District</b>	<b>6</b>	<b>6–7</b>	<b>3–4</b>	<b>7–8</b>	<b>7</b>	<b>2</b>	<b>4–6</b>	<b>5</b>	<b>4–5</b>
Republic of Adygeya	74–78	77	21–22	8–10	43–50	32–36	79–81	84	62–63
Republic of Kalmykia	79–82	67–71	30–32	53–55	61–69	62–63	33–39	20–23	55–59
Krasnodar Krai	13	36–44	9	56–63	43–50	26–29	28–32	35–39	27–28
Astrakhan Region	47–54	60–64	19–20	46–52	20–27	20–25	19–27	72–74	64–66
Volgograd Region	20–23	53–55	45–47	81	61–69	15	40–45	32–34	40–41
Rostov Region	14	45–52	53–54	46–52	43–50	5–6	14–18	6	18

(continued)

	Russian Region rank in 2015–2016 by indicator*:								
	Number of employees in the IT industry enterprises, <i>thousand persons</i>	Broadband internet subscriptions (per 100 inhabitants, <i>units</i> ):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of households	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
<b>North Caucasian Federal District</b>	<b>8</b>	<b>8</b>	<b>6–7</b>	<b>5</b>	<b>2–5</b>	<b>8</b>	<b>4–6</b>	<b>8</b>	<b>6</b>
Republic of Dagestan	74–78	80–82	65–69	74–75	61–69	69–71	53–58	81–82	80
Republic of Ingushetia	83–84	84	58–60	56–63	51–58	82	46–52	59–63	22–25
Kabardino-Balkar Republic	74–78	67–71	33–34	46–52	3–6	78–80	40–45	55–58	55–59
Karachai-Cherkess Republic	74–78	72–76	55–57	56–63	28–34	20–25	69–71	76–80	83–84
Republic of North Ossetia – Alania	69–71	72–76	30–32	46–52	61–69	39–46	14–18	40–43	13–17
Chechen Republic	66–68	83	37–40	43–45	61–69	84	2–4	85	22–25
Stavropol Krai	28–30	60–64	25–29	5	2	53–57	19–27	64–68	13–17
<b>Volga Federal District</b>	<b>2</b>	<b>3–4</b>	<b>6–7</b>	<b>6</b>	<b>8–9</b>	<b>6</b>	<b>7–8</b>	<b>6</b>	<b>2</b>
Republic of Bashkortostan	11	17–26	35–36	11–13	35–42	39–46	33–39	44–47	10–12
Republic of Mari El	55–57	45–52	41–43	33–38	51–58	39–46	83	59–63	51
Republic of Mordovia	47–54	36–44	62–63	82	51–58	47–52	59–68	64–68	10–12
Republic of Tatarstan	3	6–7	25–29	28–32	13–19	7–8	9–10	17–19	1
Udmurt Republic	27	27–30	70–71	24–28	82–83	37–38	59–68	28–31	47–49
Chuvash Republic	35	36–44	25–29	39–42	72	47–52	40–45	9	3–4
Perm Krai	10	56–59	76–79	33–38	28–34	39–46	59–68	44–47	53–54
Kirov Region	45–46	27–30	55–57	79	82–83	47–52	59–68	26–27	42–46
Nizhny Novgorod Region	4–5	6–7	45–47	14–18	28–34	53–57	72–74	59–63	33–35
Orenburg Region	31	45–52	30–32	14–18	80	16–19	59–68	48–54	29–31
Penza Region	20–23	31–35	50–52	46–52	43–50	47–52	69–71	69–71	36–38

(continued)

	Russian Region rank in 2015–2016 by indicator*:								
	Number of employees in the IT industry enterprises, <i>thousand persons</i>	Broadband internet subscriptions (per 100 inhabitants, <i>units</i> ):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of households	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
Samara Region	8	17–26	23–24	80	61–69	58–61	19–27	48–54	47–49
Saratov Region	19	17–26	41–43	56–63	35–42	64–68	59–68	69–71	76–78
Ulyanovsk Region	26	17–26	61	39–42	73–77	47–52	75–78	83	22–25
<b>Ural Federal District</b>	<b>5</b>	<b>1-2</b>	<b>8</b>	<b>4</b>	<b>2-5</b>	<b>3-4</b>	<b>2</b>	<b>2</b>	<b>3</b>
Kurgan Region	69–71	36–44	62–63	85	73–77	81	75–78	64–68	64–66
Sverdlovsk Region	6	8–11	65–69	8–10	13–19	20–25	19–27	28–31	50
Tyumen Region	9	72–76	82	19–23	28–34	9–12	7–8	7–8	5
of which:									
Khanty-Mansi Autonomous District – Yugra	17–18	17–26	35–36	14–18	13–19	3–4	2–4	4–5	2
Yamalo-Nenets Autonomous District	41–42	17–26	15	11–13	51–58	1	1	10–12	52
Chelyabinsk Region	12	8–11	80–81	19–23	20–27	26–29	19–27	32–34	20–21
<b>Siberian Federal District</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>7-8</b>	<b>6</b>	<b>7</b>	<b>7-8</b>	<b>7</b>	<b>8</b>
Republic of Altai	83–84	78	18	39–42	3–6	64–68	84–85	48–54	19
Republic of Buryatia	64–65	72–76	74	67–69	51–58	74–77	53–58	72–74	69–72
Republic of Tyva	79–82	80–82	58–60	76–77	73–77	78–80	75–78	55–58	73–75
Republic of Khakassia	66–68	67–71	19–20	19–23	7–9	64–68	46–52	75	55–59
Altai Krai	28–30	45–52	37–40	65–66	35–42	72–73	53–58	48–54	69–72
Zabaikalye Krai	61–63	53–55	55–57	46–52	3–6	69–71	69–71	69–71	62–63
Krasnoyarsk Krai	15	45–52	23–24	39–42	35–42	64–68	28–32	40–43	67–68



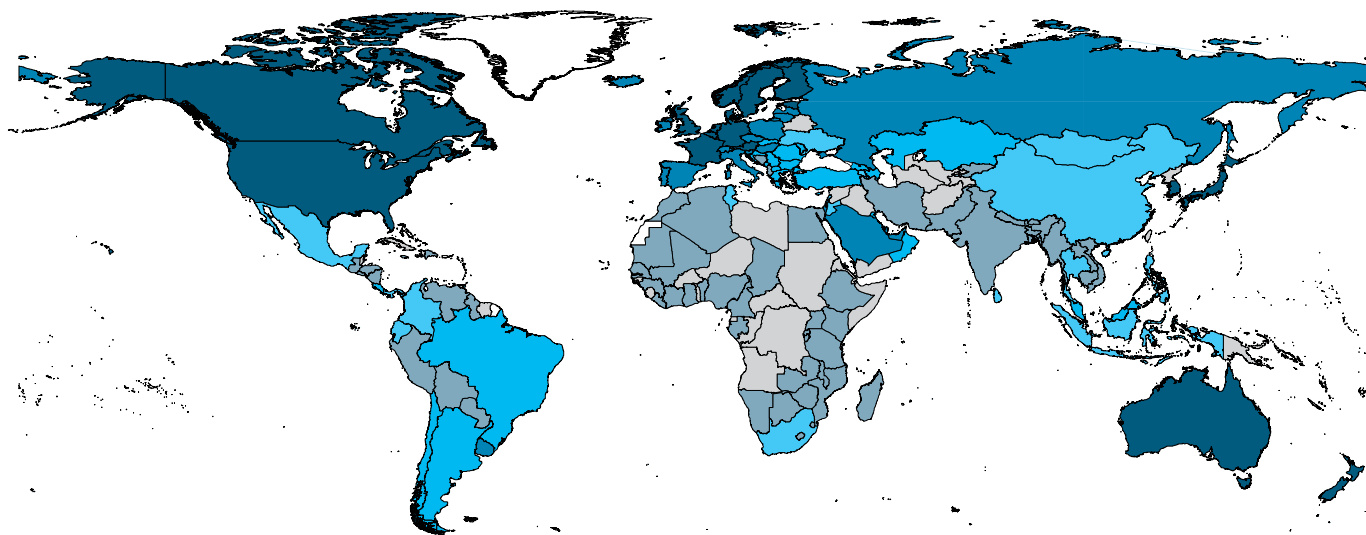
(continued)

	Russian Region rank in 2015–2016 by indicator*:								
	Number of employees in the IT industry enterprises, <i>thousand persons</i>	Broadband internet subscriptions (per 100 inhabitants, <i>units</i> ):		Enterprises using the following (as a percentage of the total number of enterprises):		Households with broadband Internet access as a percentage of the total number of households	Individuals who have ever used the Internet as a percentage of all individuals aged 15–72	Individuals who use the Internet to order goods and services as a percentage of all individuals aged 15–72	Individuals who use the Internet to receive public services electronically as a percentage of individuals aged 15–72 who received public services electronically within the last 12 months
		fixed	mobile	broadband internet connection	cloud computing				
Irkutsk Region	25	45–52	3	56–63	3–6	39–46	53–58	44–47	27–28
Kemerov Region	16	36–44	64	43–45	35–42	64–68	33–39	35–39	64–66
Novosibirsk Region	4–5	1	50–52	65–66	35–42	32–36	40–45	55–58	29–31
Omsk Region	24	56–59	76–79	83	81	39–46	46–52	64–68	20–21
Tomsk Region	32–33	36–44	21–22	67–69	20–27	69–71	28–32	20–23	36–38
<b>Far Eastern Federal District</b>	<b>7</b>	<b>6–7</b>	<b>1</b>	<b>9</b>	<b>8–9</b>	<b>5</b>	<b>4–6</b>	<b>3–4</b>	<b>4–5</b>
Republic of Sakha (Yakutia)	43	60–64	8	84	70–71	20–25	11–13	10–12	55–59
Kamchatka Krai	73	65–66	4	70–72	28–34	58–61	14–18	2–3	32
Primorye Krai	41–42	36–44	16	56–63	59–60	13–14	19–27	17–19	13–17
Khabarovsk Krai	28–30	31–35	10–11	11–13	28–34	26–29	9–10	28–31	61
Amur Region	66–68	67–71	14	70–72	20–27	53–57	59–68	64–68	9
Magadan Region	74–78	13–16	5	70–72	78–79	83	11–13	20–23	82
Sakhalin Region	72	36–44	6	24–28	43–50	74–77	72–74	35–39	47–49
Jewish Autonomous Region	79–82	56–59	50–52	78	84	74–77	84–85	76–80	85
Chukotka Autonomous District	85	17–26	7	74–75	73–77	85	7–8	1	81
<b>Crimean Federal District</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>1</b>	<b>1</b>	–	–	–	–
Republic of Crimea	69–71	80–82	83	1	7–9	16–19	40–45	72–74	79
Sevastopol	58–60	79	–	53–55	43–50	3–4	14–18	15–16	73–75



## 14. International Comparisons

## 14.1. INTERNATIONAL ICT LEVEL ASSESSMENTS BY COUNTRY: 2016

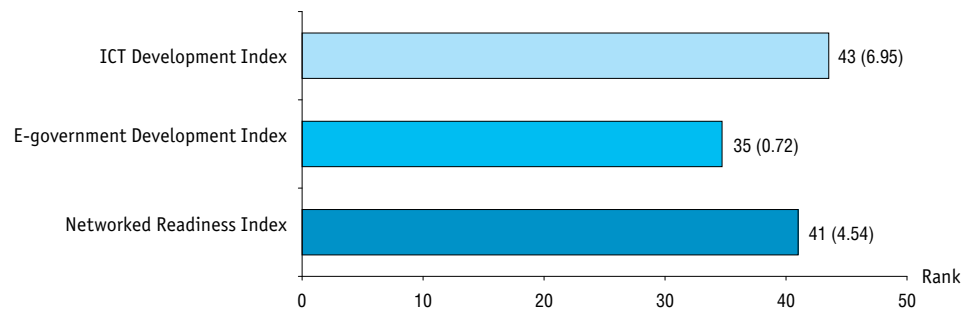


Country's rank in digital economy development ratings by ICT Development Index, e-Government Development Index and by Networked Readiness Index:

- |                                   |   |
|-----------------------------------|---|
| ■ top-25 in all the three ratings | ■ below 75 in all the three ratings           |
| ■ 1–50 in all the three ratings   | ■ listed in one or two ratings                |
| ■ 25–75 in all the three ratings  | ■ is not present in the international ratings |
| ■ 50–125 in all the three ratings |   |

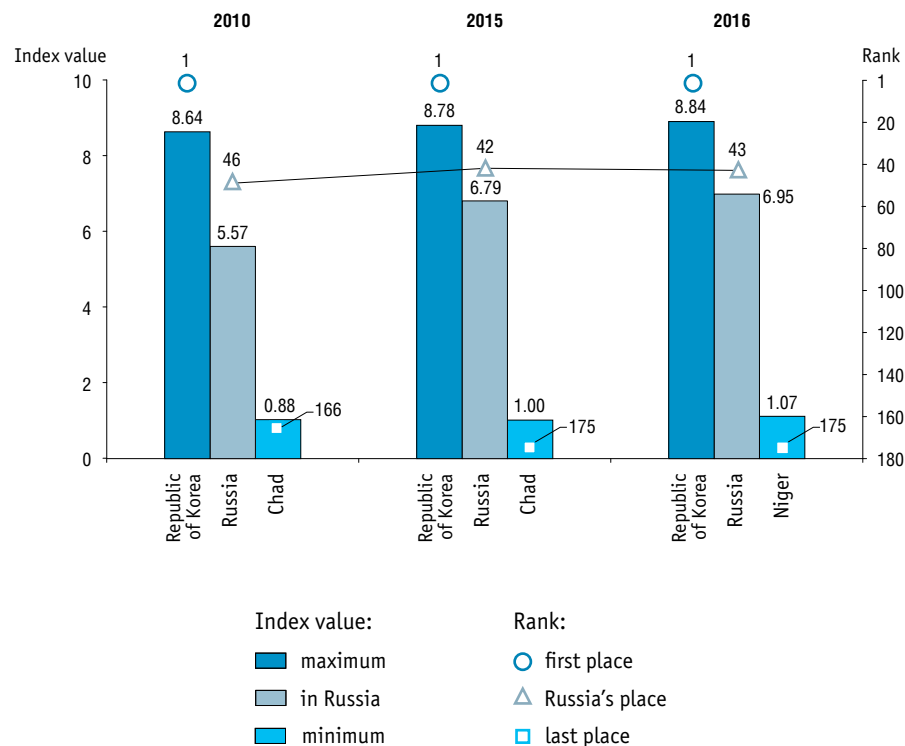
Sources: here and below (14.2) – the data provided by the International Telecommunication Union, the United Nations Department of Economic and Social Affairs, the World Economic Forum.

#### 14.2. RUSSIA'S RANK IN INTERNATIONAL DIGITAL ECONOMY DEVELOPMENT RATINGS: 2016\*



\* In the parentheses, the value of the relevant Index is indicated.

## 14.3. RUSSIA'S ICT DEVELOPMENT INDEX RANK



Source: here and below (14.4) – the data provided by the International Telecommunication Union.

#### 14.4. ICT DEVELOPMENT INDEX BY COUNTRY: 2016\*

	ICT Development Index		Of which sub-indices					
	Rank (change as compared to 2015)	Value	ICT access		ICT usage		Practical ICT skills	
			Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value
<b>Russia</b>	<b>43 (-1)</b>	<b>6.95</b>	<b>49 (-2)</b>	<b>7.23</b>	<b>45 (-3)</b>	<b>5.87</b>	<b>14 (0)</b>	<b>8.55</b>
Argentina	55 (+1)	6.52	65 (-3)	6.77	57 (+3)	5.45	28 (0)	8.18
Armenia	71 (0)	5.60	70 (+3)	6.57	85 (-5)	3.85	60 (0)	7.17
Australia	14 (-2)	8.19	21 (-4)	8.23	16 (-1)	7.70	2 (0)	9.10
Austria	23 (+1)	7.69	15 (+5)	8.35	30 (-2)	6.67	21 (0)	8.38
Azerbaijan	58 (-3)	6.28	63 (-4)	6.78	50 (-9)	5.70	72 (0)	6.47
Belarus	31 (+2)	7.26	36 (0)	7.80	44 (+3)	5.88	5 (0)	8.96
Belgium	22 (0)	7.83	16 (-1)	8.34	24 (0)	7.10	26 (0)	8.27
Brazil	63 (+2)	5.99	74 (+1)	6.42	52 (+2)	5.60	91 (0)	5.89
Bulgaria	49 (+1)	6.69	59 (-3)	6.86	47 (+2)	5.84	34 (0)	8.04
Canada	25 (-2)	7.62	28 (-4)	7.99	26 (-1)	6.85	17 (0)	8.44
Chile	56 (+1)	6.35	61 (0)	6.81	64 (-2)	4.91	25 (0)	8.30
China	81 (+3)	5.19	91 (0)	5.45	67 (+6)	4.58	92 (0)	5.89
Croatia	41 (0)	7.04	41 (+3)	7.58	41 (-3)	6.13	38 (0)	7.79
Cyprus	54 (-1)	6.53	56 (-1)	7.02	55 (+3)	5.46	43 (0)	7.68
Czech Republic	32 (-1)	7.25	43 (0)	7.46	31 (-2)	6.55	27 (0)	8.25
Denmark	3 (-1)	8.74	14 (-1)	8.52	1 (0)	8.91	6 (0)	8.87
Estonia	18 (0)	8.07	27 (+2)	8.02	14 (-2)	7.87	15 (0)	8.54

\* Full list of countries in the rating is presented in the analytical report by the International Telecommunication Union 'Measuring the Information Society 2016'.

(continued)

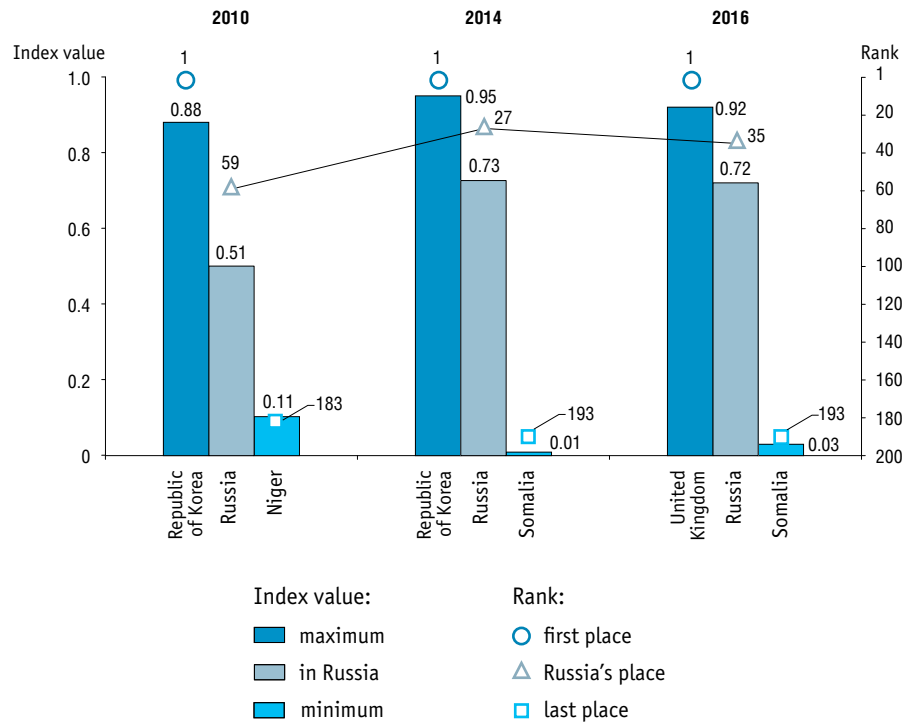
	ICT Development Index		Of which sub-indices					
			ICT access		ICT usage		Practical ICT skills	
	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value
Finland	17 (-3)	8.08	39 (-4)	7.69	7 (-2)	8.18	10 (0)	8.65
France	16 (+1)	8.11	12 (0)	8.70	17 (+3)	7.61	36 (0)	7.94
Georgia	72 (0)	5.59	78 (-2)	6.29	80 (+3)	4.00	53 (0)	7.34
Germany	12 (+1)	8.31	5 (0)	9.09	21 (+1)	7.49	23 (0)	8.36
Greece	36 (+4)	7.13	34 (+4)	7.85	56 (-1)	5.46	4 (0)	9.01
Hungary	48 (-2)	6.72	40 (+1)	7.62	60 (-8)	5.28	37 (0)	7.82
Iceland	2 (+1)	8.83	2 (0)	9.42	5 (+2)	8.44	20 (0)	8.40
India	138 (-3)	2.69	139 (+1)	3.32	142 (+1)	1.25	122 (0)	4.29
Ireland	21 (0)	7.92	23 (-7)	8.19	23 (0)	7.38	16 (0)	8.48
Italy	37 (-1)	7.11	38 (-1)	7.69	38 (+2)	6.25	41 (0)	7.69
Japan	10 (+1)	8.37	10 (+1)	8.80	8 (+2)	8.14	35 (0)	7.97
Kazakhstan	52 (0)	6.57	42 (0)	7.56	62 (-5)	5.15	50 (0)	7.41
Kyrgyzstan	113 (-5)	3.99	121 (-2)	4.25	118 (-5)	2.25	66 (0)	6.96
Latvia	40 (-3)	7.08	45 (+1)	7.38	37 (-1)	6.27	32 (0)	8.12
Lithuania	39 (-5)	7.10	54 (0)	7.08	33 (-1)	6.40	13 (0)	8.55
Luxembourg	11 (-1)	8.36	1 (0)	9.54	10 (-1)	8.05	70 (0)	6.59
Mexico	92 (+4)	4.87	97 (+2)	5.08	74 (+8)	4.24	99 (0)	5.74
Netherlands	8 (0)	8.43	7 (+2)	9.02	15 (-1)	7.77	12 (0)	8.56

(continued)

	ICT Development Index		Of which sub-indices					
			ICT access		ICT usage		Practical ICT skills	
	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value
New Zealand	13 (+3)	8.29	17 (+5)	8.32	11 (+5)	8.03	8 (0)	8.77
Norway	9 (0)	8.42	22 (-4)	8.21	4 (-1)	8.48	9 (0)	8.70
Poland	50 (-3)	6.65	53 (-1)	7.09	59 (-8)	5.35	24 (0)	8.35
Portugal	44 (+1)	6.94	30 (+3)	7.93	51 (+2)	5.67	47 (0)	7.51
Republic of Korea	1 (0)	8.84	8 (0)	8.99	3 (-1)	8.57	3 (0)	9.08
Republic of Moldova	68 (-1)	5.75	68 (+2)	6.64	73 (-4)	4.26	64 (0)	6.97
Romania	60 (0)	6.26	57 (+3)	6.90	63 (0)	5.08	51 (0)	7.37
Singapore	20 (-1)	7.95	11 (+3)	8.70	19 (-1)	7.54	56 (0)	7.27
Slovakia	42 (+2)	6.96	50 (+3)	7.22	34 (+3)	6.38	45 (0)	7.57
Slovenia	33 (-1)	7.23	29 (-2)	7.93	49 (-3)	5.71	7 (0)	8.87
Spain	26 (+1)	7.62	31 (+1)	7.92	25 (+2)	6.93	19 (0)	8.41
Sweden	7 (-1)	8.45	13 (-3)	8.69	6 (-2)	8.36	30 (0)	8.17
Switzerland	4 (+1)	8.68	9 (-2)	8.95	2 (+4)	8.67	31 (0)	8.15
Turkey	70 (-1)	5.69	81 (-1)	6.20	76 (-2)	4.18	39 (0)	7.72
Ukraine	76 (0)	5.33	71 (0)	6.48	114 (-7)	2.57	11 (0)	8.57
United Kingdom	5 (-1)	8.57	3 (+1)	9.24	9 (-1)	8.09	29 (0)	8.18
USA	15 (0)	8.17	19 (+2)	8.27	18 (+1)	7.57	1 (0)	9.18
Venezuela	79 (-4)	5.27	92 (-3)	5.42	81 (-9)	3.95	44 (0)	7.63



14.5. RUSSIA'S E-GOVERNMENT DEVELOPMENT INDEX RANK



Source: here and below (14.6) – the data are provided by the World Economic Forum.

## 14.6. E-GOVERNMENT DEVELOPMENT INDEX BY COUNTRY: 2016\*

	E-Government Development Index		Of which sub-indices					
			Online Service Index		Telecommunications Infrastructure Index		Human Capital Index	
	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value
<b>Russia</b>	<b>35 (-8)</b>	<b>0.7215</b>	<b>37 (-10)</b>	<b>0.7319</b>	<b>37 (0)</b>	<b>0.8234</b>	<b>38 (-5)</b>	<b>0.6091</b>
Argentina	41 (+5)	0.6978	43 (+12)	0.7101	17 (+12)	0.8802	58 (0)	0.5031
Armenia	87 (-26)	0.5179	103 (-60)	0.4275	69 (-3)	0.7338	83 (-3)	0.3923
Australia	2 (0)	0.9143	2 (+6)	0.9783	1 (+1)	1.0000	12 (+2)	0.7646
Austria	16 (+4)	0.8208	11 (+12)	0.9130	32 (-8)	0.8396	23 (-3)	0.7098
Azerbaijan	56 (+12)	0.6274	48 (+29)	0.6812	79 (-10)	0.7158	64 (-2)	0.4853
Belarus	49 (+6)	0.6625	90 (+14)	0.4855	24 (-6)	0.8716	33 (+7)	0.6304
Belgium	19 (+6)	0.7874	43 (-12)	0.7101	2 (+12)	0.9712	27 (+1)	0.6808
Brazil	51 (+6)	0.6377	37 (+12)	0.7319	105 (-27)	0.6787	59 (+2)	0.5025
Bulgaria	52 (+21)	0.6376	76 (+53)	0.5652	49 (+3)	0.7875	50 (-9)	0.5602
Canada	14 (-3)	0.8285	4 (+6)	0.9565	28 (-15)	0.8572	28 (-3)	0.6717
Chile	42 (-9)	0.6949	28 (-12)	0.7754	41 (+4)	0.8124	61 (-5)	0.4971
China	63 (+7)	0.6071	31 (+16)	0.7681	99 (+12)	0.6860	92 (-3)	0.3673
Croatia	37 (+10)	0.7162	33 (+38)	0.7464	44 (+10)	0.8050	41 (-5)	0.5974
Cyprus	64 (-6)	0.6023	80 (-11)	0.5362	54 (+6)	0.7782	62 (-8)	0.4923
Czech Republic	50 (+3)	0.6454	92 (-1)	0.4783	25 (-4)	0.8627	42 (+4)	0.5952
Denmark	9 (+7)	0.8510	28 (+7)	0.7754	3 (+7)	0.9530	5 (0)	0.8247

\* Full list of countries in the rating is presented in the analytical report by the United Nations Department of Economic and Social Affairs, 'UN E-Government Survey 2016'.

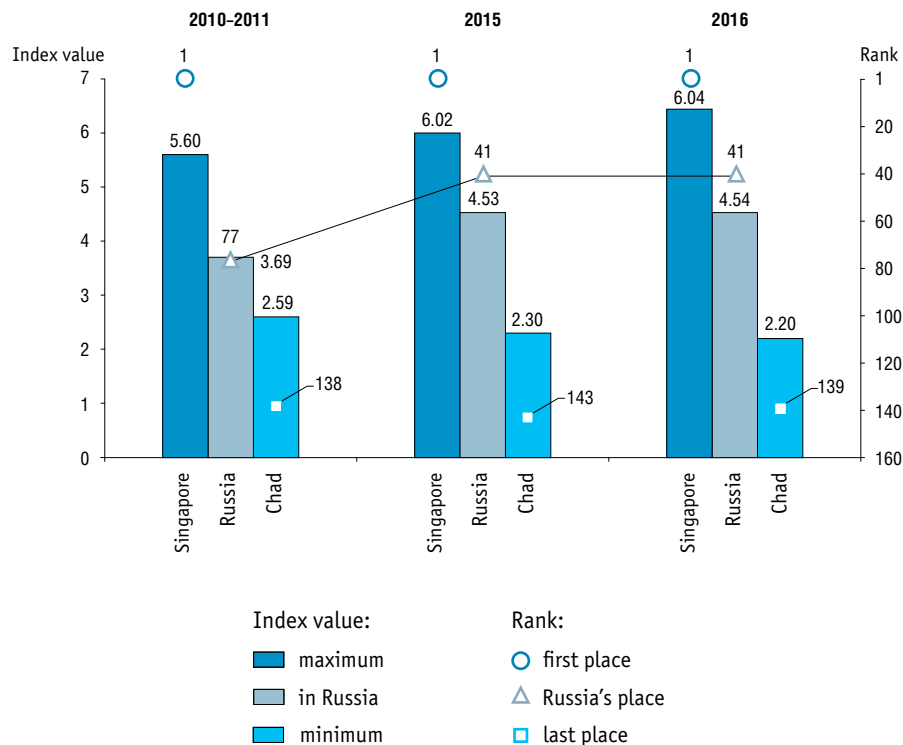
(continued)

	E-Government Development Index		Of which sub-indices					
			Online Service Index		Telecommunications Infrastructure Index		Human Capital Index	
	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value
Estonia	13 (+2)	0.8334	13 (+5)	0.8913	20 (-5)	0.8761	18 (-1)	0.7330
Finland	5 (+5)	0.8817	5 (+13)	0.9420	4 (+8)	0.9440	13 (-6)	0.7590
France	10 (-6)	0.8456	5 (-4)	0.9420	30 (-11)	0.8445	15 (+1)	0.7502
Georgia	61 (-5)	0.6108	57 (-8)	0.6377	56 (-1)	0.7763	76 (-5)	0.4184
Germany	15 (+6)	0.8210	21 (+13)	0.8406	14 (+3)	0.8883	17 (-2)	0.7342
Greece	43 (-9)	0.6910	73 (-26)	0.5797	13 (+9)	0.8901	40 (-8)	0.6032
Hungary	46 (-7)	0.6746	59 (-6)	0.6304	35 (-12)	0.8317	49 (0)	0.5615
Iceland	27 (-8)	0.7662	62 (-19)	0.6232	12 (-4)	0.8940	10 (-2)	0.7814
India	107 (+11)	0.4638	33 (+24)	0.7464	146 (+13)	0.5019	154 (-5)	0.1430
Ireland	26 (-4)	0.7689	39 (-8)	0.7246	7 (-4)	0.9219	29 (-2)	0.6602
Italy	22 (+1)	0.7764	17 (+6)	0.8696	40 (-8)	0.8126	31 (-2)	0.6469
Japan	11 (-5)	0.8440	15 (-11)	0.8768	36 (-11)	0.8274	4 (+5)	0.8277
Kazakhstan	33 (-5)	0.7250	31 (-8)	0.7681	31 (-5)	0.8401	48 (-1)	0.5668
Kyrgyzstan	97 (+4)	0.4969	103 (+17)	0.4275	62 (+13)	0.7508	105 (-22)	0.3123
Latvia	45 (-14)	0.6810	64 (-36)	0.6087	29 (+13)	0.8512	46 (-9)	0.5831
Lithuania	23 (+6)	0.7747	22 (-1)	0.8261	23 (+8)	0.8717	34 (+14)	0.6262
Luxembourg	25 (-1)	0.7705	40 (+2)	0.7174	57 (+2)	0.7750	6 (0)	0.8190
Malta	30 (+10)	0.7424	26 (+57)	0.7971	71 (-14)	0.7310	24 (-6)	0.6992
Mexico	59 (+4)	0.6195	19 (+16)	0.8478	89 (-16)	0.6993	106 (-8)	0.3114
Netherlands	7 (-2)	0.8659	9 (-1)	0.9275	9 (-2)	0.9183	14 (-2)	0.7517

(continued)

	E-Government Development Index		Of which sub-indices					
			Online Service Index		Telecommunications Infrastructure Index		Human Capital Index	
	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value	Rank (change as compared to 2014)	Value
New Zealand	8 (+1)	0.8653	5 (+10)	0.9420	5 (-4)	0.9402	22 (-1)	0.7136
Norway	18 (-5)	0.8117	25 (-4)	0.8044	10 (-5)	0.9031	20 (-7)	0.7276
Poland	36 (+6)	0.7211	45 (+12)	0.7029	22 (+14)	0.8747	44 (+6)	0.5857
Portugal	38 (-1)	0.7144	33 (+6)	0.7464	39 (+7)	0.8129	45 (-6)	0.5838
Republic of Korea	3 (-2)	0.8915	5 (-2)	0.9420	18 (-12)	0.8795	2 (0)	0.8530
Republic of Moldova	65 (+1)	0.5995	69 (-9)	0.5942	76 (+14)	0.7191	65 (+7)	0.4850
Romania	75 (-11)	0.5611	94 (-19)	0.4565	58 (-9)	0.7736	69 (+1)	0.4533
Singapore	4 (-1)	0.8828	3 (-1)	0.9710	34 (0)	0.8360	3 (+1)	0.8414
Slovakia	67 (-16)	0.5915	100 (-34)	0.4420	50 (-6)	0.7822	51 (+4)	0.5504
Slovenia	21 (+20)	0.7769	19 (+60)	0.8478	11 (0)	0.8952	43 (-5)	0.5877
Spain	17 (-5)	0.8135	11 (-7)	0.9130	19 (-10)	0.8782	30 (+1)	0.6493
Sweden	6 (+8)	0.8704	15 (+13)	0.8768	8 (+12)	0.9210	8 (-5)	0.8134
Switzerland	28 (+2)	0.7525	66 (-1)	0.6015	27 (+3)	0.8579	9 (+2)	0.7980
Tajikistan	139 (-10)	0.3366	168 (+3)	0.1232	87 (+1)	0.7001	136 (-15)	0.1866
Turkey	68 (+3)	0.5900	66 (-13)	0.6015	48 (+46)	0.7910	88 (-2)	0.3775
Turkmenistan	140 (-12)	0.3337	176 (-9)	0.0870	113 (-43)	0.6583	115 (+10)	0.2559
Ukraine	62 (+25)	0.6076	72 (+50)	0.5870	33 (-6)	0.8390	82 (0)	0.3968
United Kingdom	1 (+7)	0.9193	1 (+10)	1.0000	6 (+22)	0.9402	7 (+3)	0.8177
USA	12 (-5)	0.8420	9 (-5)	0.9275	16 (-12)	0.8816	21 (+2)	0.7170
Uzbekistan	80 (+20)	0.5434	47 (+26)	0.6884	92 (-6)	0.6954	119 (0)	0.2463
Venezuela	90 (-23)	0.5129	102 (-47)	0.4348	64 (0)	0.7498	94 (-3)	0.3540

## 14.7. RUSSIA'S NETWORKED READINESS INDEX RANK



Source: here and below (14.8) – the data are provided by the World Economic Forum.

## 14.8. NETWORKED READINESS INDEX BY COUNTRY: 2016\*

	Networked Readiness Index		Of which sub-indices							
			A. Environment		B. Readiness		C. Usage		D. Impact	
	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value
<b>Russia</b>	<b>41 (0)</b>	<b>4.54</b>	<b>67 (-4)</b>	<b>4.01</b>	<b>32 (-5)</b>	<b>5.55</b>	<b>40 (-1)</b>	<b>4.45</b>	<b>41 (+1)</b>	<b>4.14</b>
Argentina	89 (+2)	3.79	124 (+4)	3.30	78 (+1)	4.69	73 (+3)	3.84	92 (+2)	3.36
Armenia	56 (+2)	4.27	78 (0)	3.88	43 (+1)	5.40	65 (0)	3.95	54 (0)	3.87
Australia	18 (-2)	5.49	16 (+1)	5.25	10 (-3)	6.18	22 (-2)	5.38	21 (-2)	5.16
Austria	20 (0)	5.45	25 (-1)	5.00	6 (0)	6.34	21 (-3)	5.43	24 (+2)	5.02
Azerbaijan	53 (+4)	4.31	74 (0)	3.94	67 (-3)	4.85	41 (0)	4.43	46 (+2)	4.01
Belgium	23 (+1)	5.37	22 (-1)	5.14	17 (-3)	6.09	27 (0)	5.24	23 (+2)	5.03
Brazil	72 (+12)	4.01	118 (-7)	3.41	55 (+36)	5.07	57 (+3)	4.04	79 (-4)	3.54
Bulgaria	69 (+4)	4.11	66 (+10)	4.01	72 (-1)	4.77	64 (+9)	3.95	68 (+9)	3.71
Canada	14 (-3)	5.56	10 (-2)	5.43	8 (+3)	6.19	26 (0)	5.24	11 (+2)	5.39
Chile	38 (0)	4.62	32 (-5)	4.72	65 (+9)	4.89	39 (-2)	4.48	35 (0)	4.37
China	59 (+3)	4.24	83 (-6)	3.85	75 (+1)	4.74	51 (+6)	4.15	39 (+8)	4.23
Croatia	54 (0)	4.29	57 (+1)	4.10	47 (-8)	5.25	58 (-2)	4.04	64 (-1)	3.75
Cyprus	40 (-4)	4.57	43 (-4)	4.39	21 (-1)	5.91	52 (-2)	4.15	56 (-6)	3.85
Czech Republic	36 (+7)	4.74	40 (+7)	4.48	22 (+14)	5.88	37 (+8)	4.49	43 (+10)	4.10
Denmark	11 (+4)	5.60	14 (+2)	5.32	12 (+1)	6.14	10 (-1)	5.76	17 (+4)	5.19

\* Full list of countries in the rating is presented in the analytical report by the World Economic Forum and INSEAD international business school 'The Global Information Technology Report 2016'.

(continued)

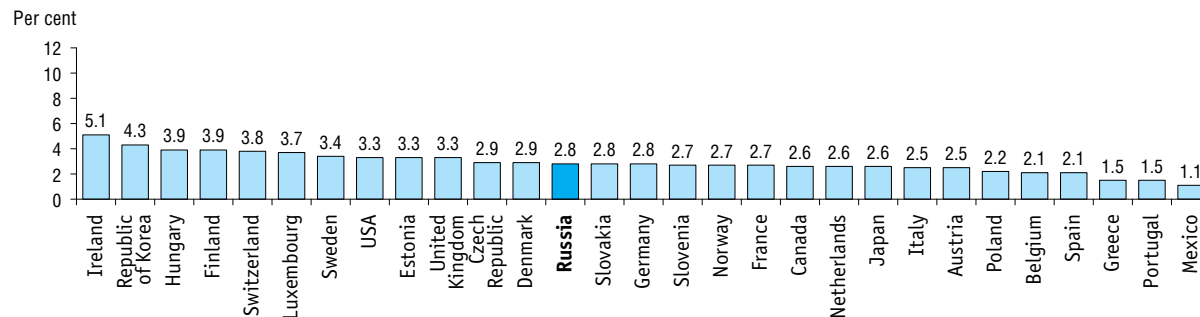
	Networked Readiness Index		Of which sub-indices							
			A. Environment		B. Readiness		C. Usage		D. Impact	
	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value
Estonia	22 (0)	5.41	23 (0)	5.02	18 (+4)	5.98	23 (0)	5.38	16 (-2)	5.25
Finland	2 (0)	5.96	5 (-2)	5.58	1 (0)	6.63	7 (-4)	5.84	4 (-1)	5.78
France	24 (+2)	5.34	26 (0)	4.98	27 (-1)	5.78	20 (+4)	5.43	19 (+4)	5.18
Georgia	58 (+2)	4.25	56 (+6)	4.12	46 (-1)	5.30	72 (0)	3.84	63 (+1)	3.76
Germany	15 (-2)	5.55	20 (-1)	5.18	13 (-4)	6.14	14 (0)	5.61	15 (+2)	5.29
Greece	70 (-4)	4.07	92 (-4)	3.79	77 (-17)	4.71	62 (+1)	3.98	61 (+7)	3.78
Hungary	50 (+3)	4.36	51 (-3)	4.21	58 (+10)	5.03	48 (+1)	4.22	47 (+2)	3.98
Iceland	16 (+3)	5.55	18 (+4)	5.22	3 (0)	6.41	18 (+3)	5.48	22 (0)	5.09
India	91 (-2)	3.75	99 (+2)	3.69	88 (-5)	4.44	103 (0)	3.25	73 (0)	3.62
Ireland	25 (0)	5.34	11 (+1)	5.41	29 (0)	5.74	28 (0)	5.20	26 (-2)	5.00
Italy	45 (+10)	4.43	85 (+5)	3.85	41 (-9)	5.47	43 (+3)	4.43	48 (+18)	3.96
Japan	10 (0)	5.65	17 (+1)	5.24	15 (0)	6.12	2 (+2)	5.93	14 (-3)	5.30
Kazakhstan	39 (+1)	4.59	47 (+8)	4.27	39 (-4)	5.47	44 (-4)	4.41	40 (+4)	4.20
Kyrgyzstan	95 (+3)	3.69	95 (+7)	3.74	79 (+3)	4.69	104 (+11)	3.23	110 (+4)	3.08
Latvia	32 (+1)	4.83	37 (+4)	4.56	31 (+7)	5.61	35 (+1)	4.63	31 (+1)	4.53
Lithuania	29 (+2)	4.92	36 (+6)	4.59	42 (-11)	5.45	31 (+1)	4.87	28 (+1)	4.77
Luxembourg	9 (0)	5.67	9 (+1)	5.48	19 (0)	5.95	5 (+2)	5.86	12 (0)	5.38
Mexico	76 (-7)	3.99	79 (+2)	3.88	84 (-26)	4.61	74 (+5)	3.81	70 (+2)	3.68
Netherlands	6 (-2)	5.81	8 (-1)	5.51	23 (-5)	5.87	3 (+2)	5.91	2 (0)	5.96

(continued)

	Networked Readiness Index		Of which sub-indices							
			A. Environment		B. Readiness		C. Usage		D. Impact	
	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value	Rank (change as compared to 2015)	Value
New Zealand	17 (0)	5.50	2 (0)	5.65	24 (0)	5.86	17 (-1)	5.48	25 (-5)	5.02
Norway	4 (+1)	5.83	6 (0)	5.55	4 (+1)	6.39	9 (-1)	5.81	9 (+1)	5.56
Poland	42 (+8)	4.50	48 (+5)	4.24	28 (+2)	5.78	49 (+5)	4.18	59 (+10)	3.80
Portugal	30 (-2)	4.92	30 (0)	4.74	33 (0)	5.54	34 (0)	4.70	29 (-1)	4.68
Republic of Korea	13 (-1)	5.57	31 (+3)	4.74	14 (+2)	6.13	6 (0)	5.84	10 (-5)	5.55
Republic of Moldova	71 (-3)	4.03	111 (+1)	3.52	52 (+1)	5.12	76 (-5)	3.79	71 (-4)	3.67
Romania	66 (-3)	4.15	65 (-1)	4.02	53 (-6)	5.11	68 (-2)	3.91	77 (+3)	3.55
Singapore	1 (0)	6.04	1 (0)	5.95	16 (-8)	6.11	1 (+1)	6.01	1 (0)	6.07
Slovakia	47 (+12)	4.39	61 (+6)	4.07	59 (+6)	5.00	45 (+3)	4.39	44 (+14)	4.10
Slovenia	37 (0)	4.73	45 (+6)	4.35	25 (-2)	5.84	42 (0)	4.43	37 (+2)	4.31
Spain	35 (-1)	4.77	41 (+9)	4.42	34 (0)	5.53	32 (+1)	4.75	34 (0)	4.38
Sweden	3 (0)	5.85	12 (+1)	5.35	7 (-3)	6.33	4 (-3)	5.90	3 (+1)	5.82
Switzerland	7 (-1)	5.75	7 (+2)	5.53	9 (+1)	6.19	12 (-1)	5.72	8 (0)	5.57
Tajikistan	114 (+3)	3.28	70 (+22)	3.99	121 (+3)	3.01	116 (+5)	2.91	99 (0)	3.20
Turkey	48 (0)	4.39	49 (-5)	4.23	40 (+1)	5.47	59 (+3)	4.04	58 (+1)	3.81
Ukraine	64 (+7)	4.17	94 (+10)	3.75	30 (-2)	5.66	88 (+6)	3.56	69 (+13)	3.69
United Kingdom	8 (0)	5.72	3 (+1)	5.60	20 (+1)	5.94	11 (+1)	5.74	7 (+2)	5.61
USA	5 (+2)	5.82	13 (+1)	5.33	5 (+7)	6.37	8 (+2)	5.83	5 (+1)	5.77
Venezuela	108 (-5)	3.37	139 (+2)	2.56	85 (-13)	4.56	98 (-1)	3.31	112 (-4)	3.05



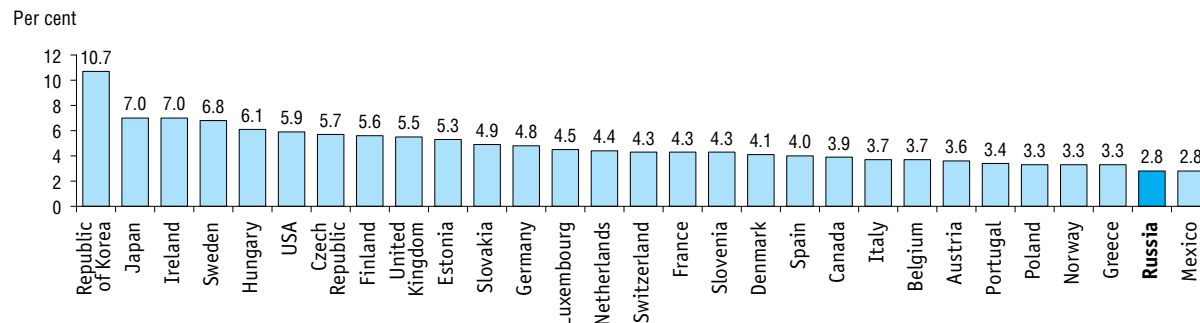
## 14.9. SHARE OF THE ICT SECTOR IN THE TOTAL EMPLOYMENT IN ENTERPRISES: 2015\*



\* Or the previous or following years for which the data are available. The data for ICT sector exclude wholesale of ICT goods.

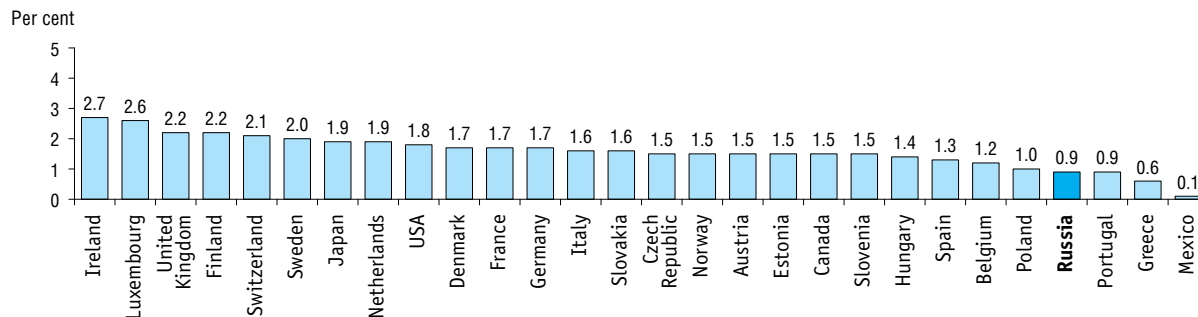
Sources: here and below (14.10–14.14) – Russia – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service; foreign countries – the data are provided by the OECD.

## 14.10. SHARE OF THE ICT SECTOR IN THE GROSS VALUE ADDED: 2015\*



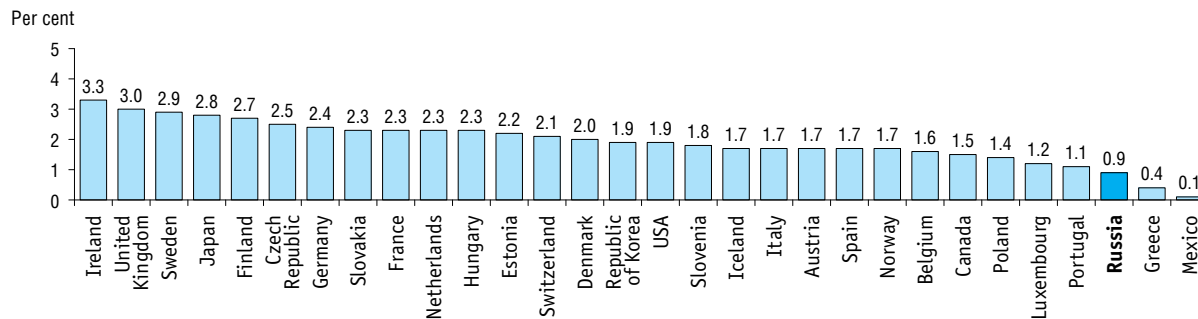
\* Or the previous or following years for which the data are available. The data for ICT sector exclude wholesale of ICT goods.

#### 14.11. SHARE OF IT INDUSTRY IN THE TOTAL NUMBER OF EMPLOYEES IN ENTERPRISES: 2015\*



\* Or the nearest years for which data are available.

#### 14.12. SHARE OF IT INDUSTRY IN THE GROSS VALUE ADDED: 2015\*



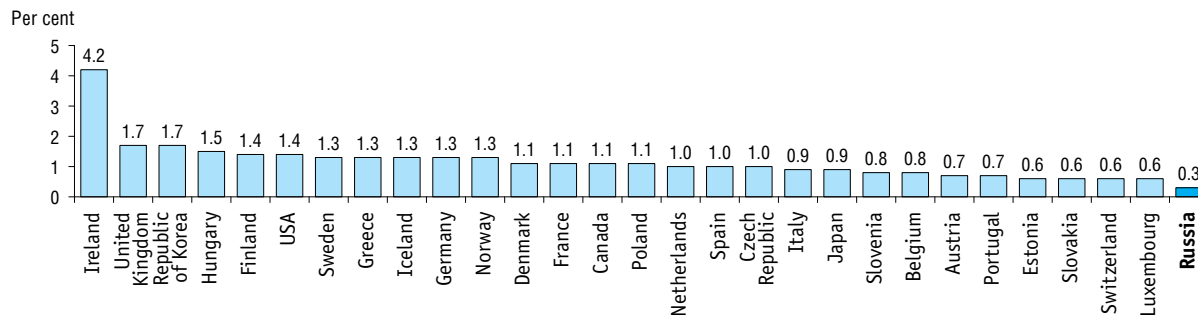
\* Or the previous or following years for which the data are available.

## 14.13. SHARE OF CONTENT AND MEDIA SECTOR IN THE TOTAL EMPLOYMENT IN ENTERPRISES: 2015\*



\* Or the previous or following years for which the data are available.

## 14.14. SHARE OF CONTENT AND MEDIA SECTOR IN THE GROSS VALUE ADDED: 2015\*



\* Or the previous or following years for which the data are available.

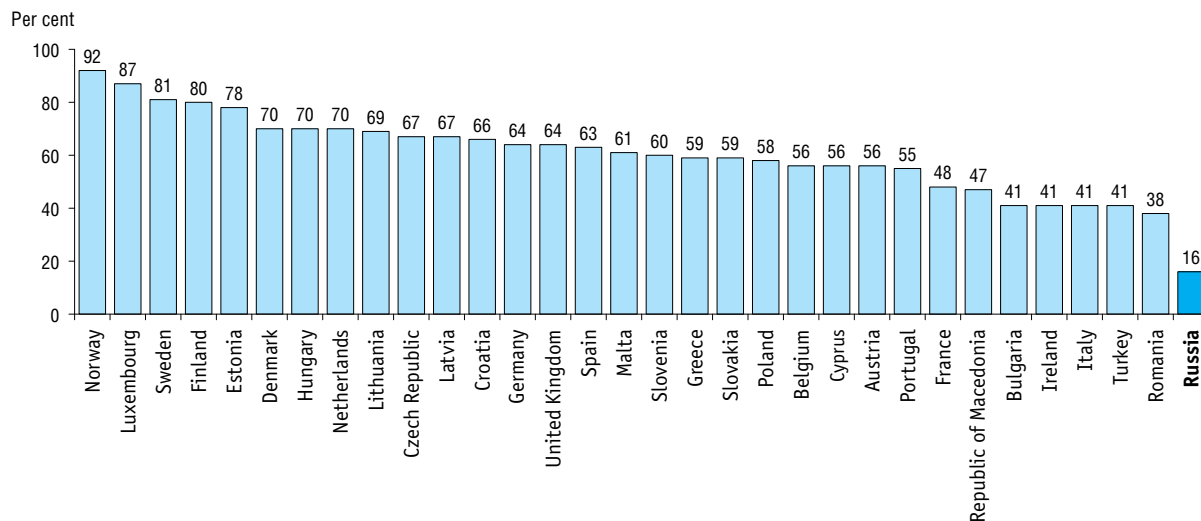
#### 14.15. DAILY NEWSPAPERS PUBLICATION: 2015\* (ONE-TIME EDITION)

	Total, thousand copies	Per 1000 inhabitants, copies		Total, thousand copies	Per 1000 inhabitants, copies
<b>Russia</b>	<b>12011</b>	<b>82</b>	Hungary	2195	217
Argentina	1363	36	Italy	8017	137
Armenia	57	19	Japan	70446	551
Australia	3114	155	Lithuania	219	74
Austria	2570	311	Mexico	9251	93
Belarus	595	63	Netherlands	5001	308
Belgium	1706	165	Norway	1726	348
Brazil	6552	36	Poland	2475	64
Bulgaria	481	75	Republic of Moldova	30	8
Canada	5578	175	Romania	1528	70
China	96704	74	Sweden	4324	481
Denmark	1906	353	Tajikistan	33	4
Finland	1551	285	Ukraine	4380	103
France	9973	164	United Kingdom	17375	290
Germany	22100	267	USA	46278	151

\* Or the previous or following years for which the data are available.

Source: for Russia – the data are provided by the Federal State Institution of Science 'Russian Central Institute of Bibliography', other countries – the assessments and the data are provided by UNESCO and national statistical services.

**14.16. INTERNET USAGE BY INDIVIDUALS FOR READING NEWS ON NEWS SITES, NEWSPAPERS AND MAGAZINES: 2016**  
*(as a percentage of the total number of respondents aged 16–74\*)*



\* For Russia – people aged 15–72.

Sources: data for Russia – own calculations of the Institute for Statistical Studies and Economics of Knowledge based on the Federal State Statistics Service data; for foreign countries – OECD.

### 14.17. TELEPHONE DENSITY (per 100 inhabitants)

	Telephones of public telephone network, <i>units</i>			Mobile cellular telephones, <i>units</i>		
	2010	2014	2015	2010	2014	2015
<b>Russia</b>	<b>31.4</b>	<b>26.8</b>	<b>24.8</b>	<b>132.2</b>	<b>153.5</b>	<b>155.1</b>
Argentina	24.6	23.5	23.9	141.4	146.5	146.7
Armenia	20.0	19.2	18.4	130.4	115.9	115.9
Australia	47.4	38.9	38.0	100.4	131.2	132.8
Austria	40.4	38.2	42.2	145.7	151.9	157.4
Azerbaijan	16.6	18.9	18.7	100.1	110.9	111.3
Belarus	43.6	48.5	49.0	108.9	122.5	123.6
Belgium	42.4	40.7	40.1	111.1	114.3	115.7
Brazil	21.6	21.8	21.4	100.9	139.0	126.6
Bulgaria	29.3	25.3	23.3	138.0	132.4	129.3
Canada	53.9	46.2	43.5	75.7	81.0	83.0
Chile	20.2	19.3	19.2	115.8	133.2	129.5
China	21.6	17.9	16.5	63.2	92.3	92.2
Croatia	43.0	36.7	34.7	113.6	104.4	103.8
Cyprus	37.4	28.4	27.8	93.7	96.3	95.4
Czech Republic	22.4	18.6	17.6	122.6	129.5	123.2
Denmark	47.1	33.2	29.9	115.7	127.0	128.3
Estonia	37.1	31.7	30.3	127.3	147.8	148.7
Finland	23.3	11.7	9.8	156.3	139.7	135.4
France	64.2	60.0	59.9	91.4	101.2	102.6
Germany	63.7	56.9	54.9	106.5	120.4	116.7

(continued)

	Telephones of public telephone network, <i>units</i>			Mobile cellular telephones, <i>units</i>		
	2010	2014	2015	2010	2014	2015
Greece	53.1	47.8	47.3	110.6	109.1	113.0
Hungary	29.7	30.3	31.2	119.9	118.1	118.9
Iceland	60.9	51.5	49.9	107.2	111.1	114.0
India	2.9	2.1	2.0	62.4	74.5	78.1
Ireland	46.5	43.2	40.9	105.2	105.0	103.7
Italy	37.2	33.7	33.1	154.8	154.3	142.1
Japan	51.5	50.0	50.2	96.8	122.2	126.5
Kazakhstan	25.5	26.2	24.7	121.9	172.2	156.9
Latvia	25.5	19.6	17.5	110.3	116.8	127.5
Lithuania	24.6	19.5	18.7	159.4	141.9	139.5
Luxembourg	53.6	50.5	51.0	143.1	149.5	148.5
Mexico	16.9	15.5	15.9	77.5	84.7	86.0
Netherlands	43.5	41.3	41.3	115.4	116.4	123.5
New Zealand	43.0	40.6	40.2	107.8	112.1	121.8
Norway	33.7	21.2	18.4	114.5	112.7	111.1
Poland	20.1	25.5	23.7	122.9	148.9	142.7
Portugal	42.4	43.2	44.1	115.3	112.1	110.4
Republic of Korea	58.9	59.5	58.1	104.8	115.7	118.5
Republic of Moldova	32.5	35.2	35.0	71.4	108.0	108.0
Romania	20.6	21.1	19.8	111.4	105.9	107.1

(continued)

	Telephones of public telephone network, <i>units</i>			Mobile cellular telephones, <i>units</i>		
	2010	2014	2015	2010	2014	2015
Slovakia	20.2	16.8	15.9	109.0	116.9	122.3
Slovenia	44.3	37.1	36.2	103.3	112.1	113.2
Spain	43.7	41.2	41.5	111.3	107.9	108.2
Sweden	50.5	39.2	36.7	117.2	127.8	130.4
Switzerland	62.7	53.6	50.3	123.2	136.7	136.5
Turkey	22.5	16.5	15.0	85.6	94.8	96.0
Ukraine	28.1	24.6	21.6	117.1	144.1	144.0
United Kingdom	53.8	52.4	52.0	123.6	123.6	124.1
USA	47.9	39.8	38.4	91.3	110.2	117.6
Uzbekistan	6.8	8.6	9.5	75.5	73.8	73.3
Venezuela	24.4	25.3	24.9	96.0	99.0	93.0

Sources: here and below (14.18) – for Russia calculations by the HSE Institute for Statistical Studies and Economics of Knowledge on the basis of the data provided by the Ministry of Telecom and Mass Communications of the Russian Federation; foreign countries – the data are provided by the International Telecommunication Union.



**14.18. BROADBAND INTERNET SUBSCRIPTIONS**  
(units per 100 inhabitants)

	Fixed broadband Internet subscriptions			Wireless broadband Internet subscriptions		
	2010	2014	2015	2010	2014	2015
<b>Russia</b>	<b>12.2*</b>	<b>17.0</b>	<b>18.3</b>	<b>52.7**</b>	<b>65.2</b>	<b>69.1</b>
Argentina	10.0	15.6	16.3	5.0	53.6	67.3
Armenia	3.2	9.1	9.6	11.9	34.2	41.3
Australia	24.6	27.7	28.5	55.5	112.2	112.9
Austria	24.4	27.7	28.7	32.9	67.2	68.6
Azerbaijan	5.2	19.9	19.8	5.0	61.5	60.9
Belarus	17.6	28.8	31.4	12.6	55.0	61.8
Belgium	30.8	36.0	36.8	9.5	57.8	66.6
Brazil	7.2	11.7	12.2	10.6	78.2	88.6
Bulgaria	15.2	20.7	22.7	34.9	66.4	81.3
Canada	31.7	35.4	36.3	29.4	54.3	56.3
Chile	10.4	14.0	15.2	8.4	50.1	57.6
China	9.3	14.4	19.8	3.5	41.8	56.0
Croatia	19.3	23.0	23.2	7.0	68.5	74.4
Cyprus	17.6	21.1	22.4	...	42.1	54.8
Czech Republic	21.4	27.9	27.3	7.6	66.7	68.8
Denmark	38.1	41.5	42.5	63.9	109.7	116.8
Estonia	26.8	28.9	30.0	24.8	117.0	114.3
Finland	29.1	32.3	31.7	84.3	138.5	144.1
France	33.7	40.2	41.3	36.2	66.3	74.7

\* 2011.

\*\* 2012.

(continued)

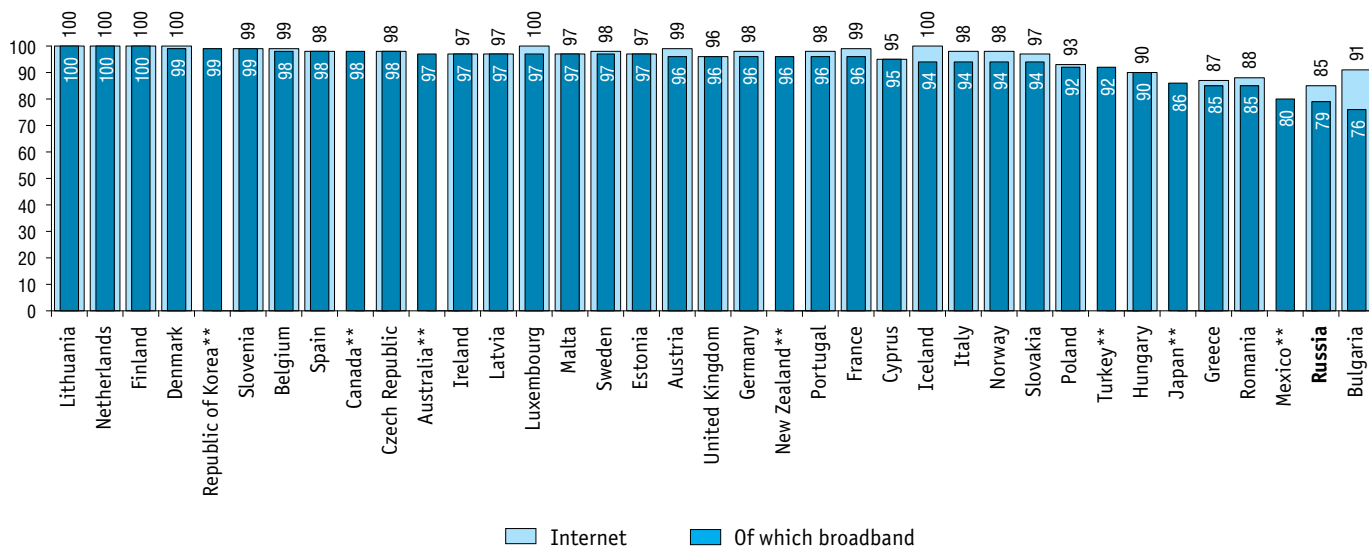
	Fixed broadband Internet subscriptions			Wireless broadband Internet subscriptions		
	2010	2014	2015	2010	2014	2015
Germany	31.5	35.8	37.2	25.5	63.6	75.1
Greece	20.3	28.4	30.9	25.1	41.0	45.6
Hungary	21.6	26.0	27.4	7.8	34.0	39.8
Iceland	34.3	35.9	37.0	45.6	85.3	93.4
India	0.9	1.2	1.3	0.0	5.5	9.4
Ireland	22.8	26.9	27.7	49.2	81.0	95.0
Italy	21.6	23.5	24.4	37.8	70.6	82.1
Japan	26.8	29.8	30.7	87.6	121.4	126.4
Kazakhstan	5.5	12.9	13.7	23.2	59.4	60.0
Latvia	20.8	24.7	24.8	29.7	61.2	67.0
Lithuania	22.1	26.7	27.8	9.1	70.2	74.2
Luxembourg	33.2	34.8	35.9	50.0	88.9	83.3
Mexico	9.0	10.2	11.6	4.1	41.5	50.4
Netherlands	38.1	40.8	41.7	38.0	69.2	70.5
New Zealand	25.0	31.0	31.6	38.6	92.7	114.2
Norway	35.2	38.8	39.7	74.3	88.8	92.8
Poland	15.3	18.9	19.0	50.2	55.7	60.2
Portugal	20.1	25.7	29.6	24.2	44.8	52.0
Republic of Korea	35.5	38.8	40.2	97.7	108.6	109.7
Republic of Moldova	7.6	14.7	15.5	3.3	49.4	51.9

(continued)

	Fixed broadband Internet subscriptions			Wireless broadband Internet subscriptions		
	2010	2014	2015	2010	2014	2015
Romania	13.7	18.6	19.8	9.3	49.3	63.5
Slovakia	16.1	21.8	23.3	20.8	59.5	67.5
Slovenia	22.9	26.8	27.6	24.1	46.7	52.0
Spain	23.1	27.6	28.7	23.8	77.3	82.1
Sweden	32.0	34.1	36.1	83.8	116.3	122.1
Switzerland	37.2	42.5	45.1	30.1	86.8	97.6
Turkey	9.8	11.7	12.4	10.0	42.7	50.9
Ukraine	6.4	9.3	11.8	4.1	7.5	8.1
United Kingdom	30.9	37.4	38.6	43.2	88.8	87.8
USA	27.1	30.3	31.0	60.1	102.7	109.2
Uzbekistan	0.4	2.8	6.0	...	25.0	28.7

### 14.19. ENTERPRISES USING THE INTERNET: 2015\*

(as a percentage of the total number of enterprises in the business enterprise sector)

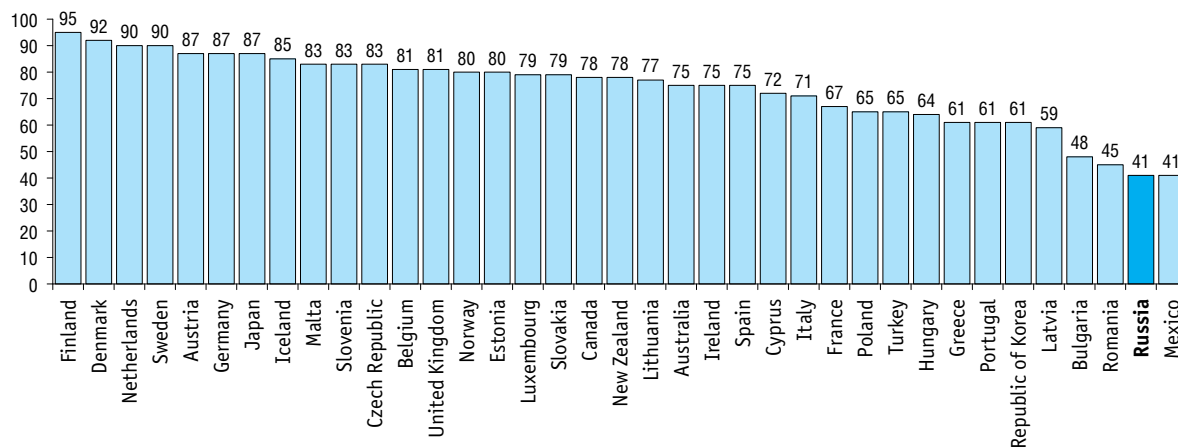


\* Or the previous or following years for which the data are available.

\*\* Here we present the data only concerning broadband Internet usage.

Sources: here and below (14.20–14.23) – Russia – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service; foreign countries – the data are provided by the OECD, Eurostat.

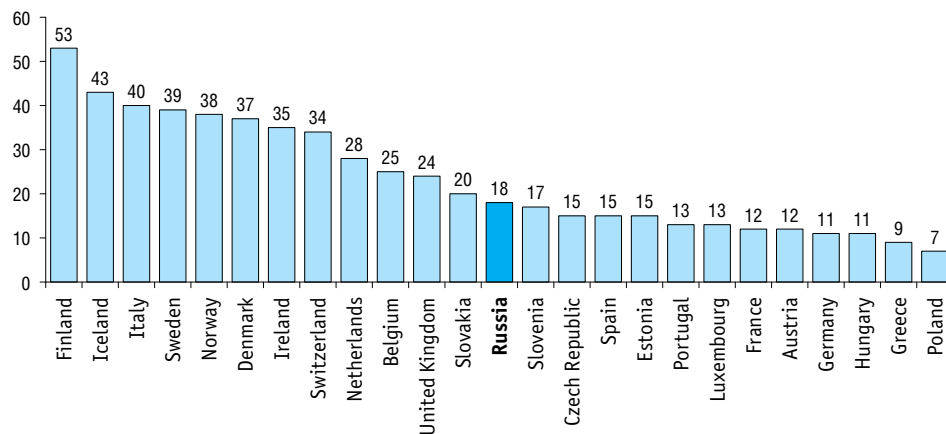
## 14.20. ENTERPRISES WITH A WEBSITE: 2015\*

*(as a percentage of the total number of enterprises in the business enterprise sector)*

\* Or the previous or following years for which the data are available.

#### 14.21. ENTERPRISES USING CLOUD COMPUTING: 2015\*

(as a percentage of the total number of enterprises in the business enterprise sector)

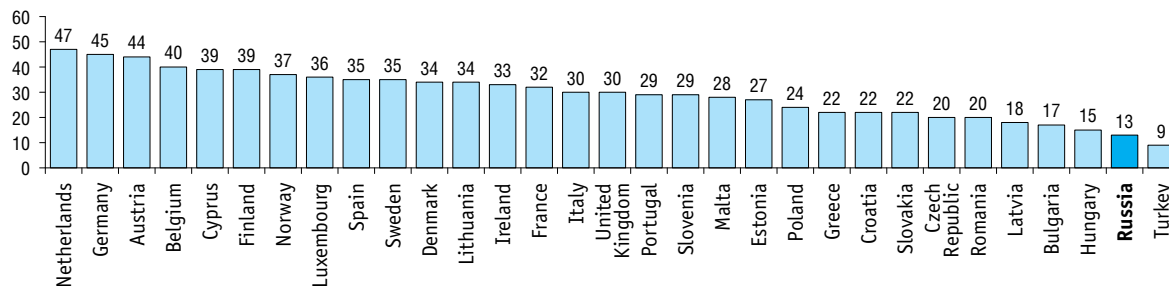


\* Or the previous or following years for which the data are available.

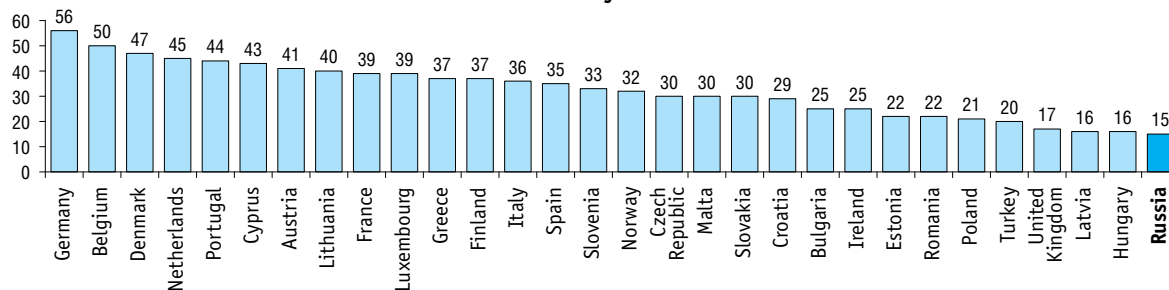
## 14.22. ENTERPRISES USING CRM, ERP, SCM SYSTEMS: 2015

*(as a percentage of the total number of enterprises in the business enterprise sector)*

## CRM systems

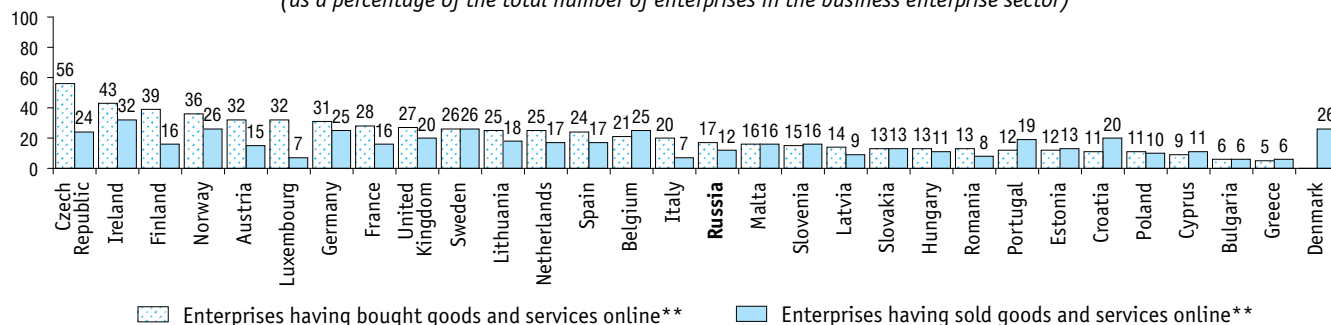


## ERP systems

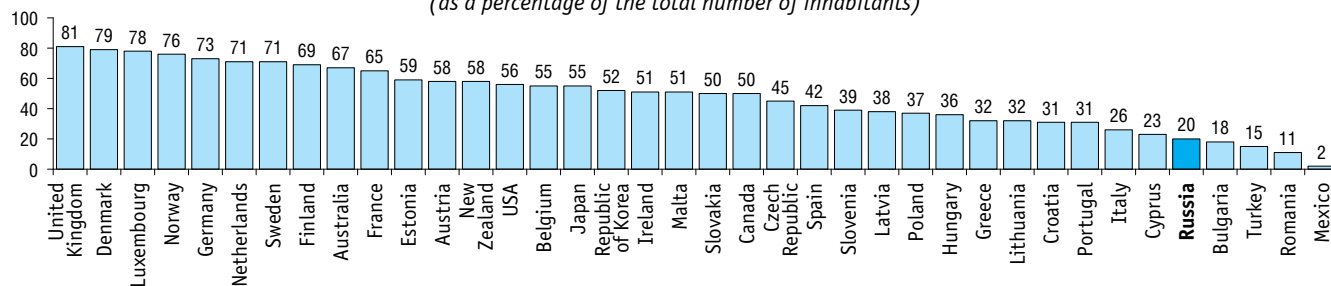


### 14.23. ELECTRONIC COMMERCE EXPANSION: 2015\*

**Enterprises using the Internet for selling or buying goods and services**  
(as a percentage of the total number of enterprises in the business enterprise sector)



**Individuals using the Internet to order goods and services\*\***  
(as a percentage of the total number of inhabitants)



\* Or the previous or following years for which the data are available.

\*\* We consider only orders places within the last 12 months.



**14.24. HOUSEHOLDS USING PERSONAL COMPUTERS AND THE INTERNET***(as a percentage of the total number of households)*

	Personal computers			Internet		
	2010	2014	2015	2010	2014	2015
<b>Russia</b>	<b>55</b>	<b>71</b>	<b>73</b>	<b>48</b>	<b>70</b>	<b>72</b>
Argentina	47	62	65	34	52	56
Armenia	20	57	65	14	52	56
Australia	81	81	80	74	84	86
Austria	76	...	82	73	81	82
Azerbaijan	30	60	62	37	76	77
Belarus	41	60	63	31	57	59
Belgium	77	...	82	73	83	82
Brazil	35	51	54	27	50	55
Bulgaria	35	...	59	33	57	59
Canada	83	84	85	78	85	87
Chile	47	60	64	35	57	60
China	35	47	50	24	47	54
Croatia	60	...	77	56	68	77
Cyprus	61	...	71	54	69	71
Czech Republic	64	...	79	61	78	79
Denmark	88	...	92	86	93	92
Estonia	68	...	88	67	83	88
Finland	82	...	89	81	90	90
France	76	...	82	74	83	83
Germany	86	...	91	82	89	90

(continued)

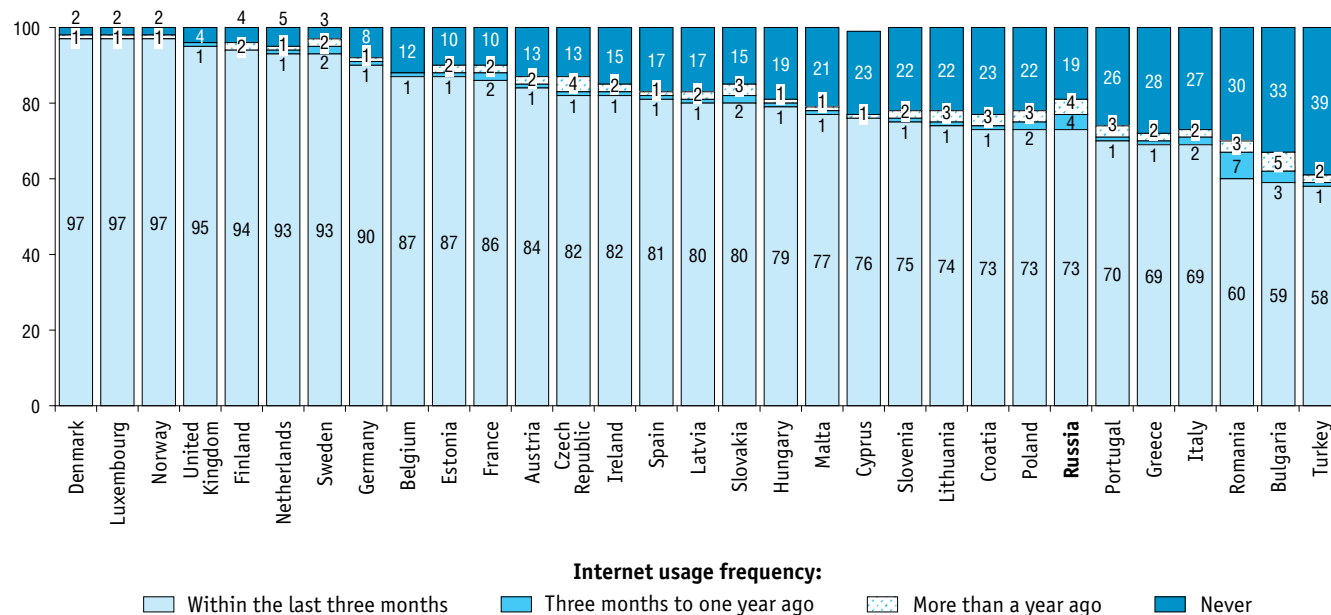
	Personal computers			Internet		
	2010	2014	2015	2010	2014	2015
Greece	53	...	69	46	66	68
Hungary	64	...	75	58	73	76
Iceland	93	...	...	92	96	...
India	6	13	14	4	17	20
Ireland	76	...	84	72	82	85
Italy	65	...	73	59	73	75
Japan	83	79	80	81	96	97
Kazakhstan	46	70	74	44	82	82
Latvia	63	...	76	60	73	76
Lithuania	59	...	68	61	66	68
Luxembourg	90	...	95	90	96	97
Mexico	30	45	45	22	34	39
Netherlands	92	...	96	91	96	96
New Zealand	80	80	82	77	80	83
Norway	91	...	96	90	93	97
Poland	69	...	78	63	75	76
Portugal	59	...	71	54	65	70
Republic of Korea	82	78	77	97	99	99
Republic of Moldova	37	42	46	35	48	49
Romania	48	...	69	42	61	68

(continued)

	Personal computers			Internet		
	2010	2014	2015	2010	2014	2015
Slovakia	72	...	80	67	78	79
Slovenia	70	...	78	68	77	78
Spain	67	...	76	58	74	79
Sweden	90	...	88	88	90	91
Turkey	44	...	51	42	60	70
Ukraine	25	56	59	22	48	51
United Kingdom	83	...	90	80	90	91
USA	76	85	87	71	80	82
Uzbekistan	...	37	43	...	45	53
Venezuela	9	44	47	5	34	35

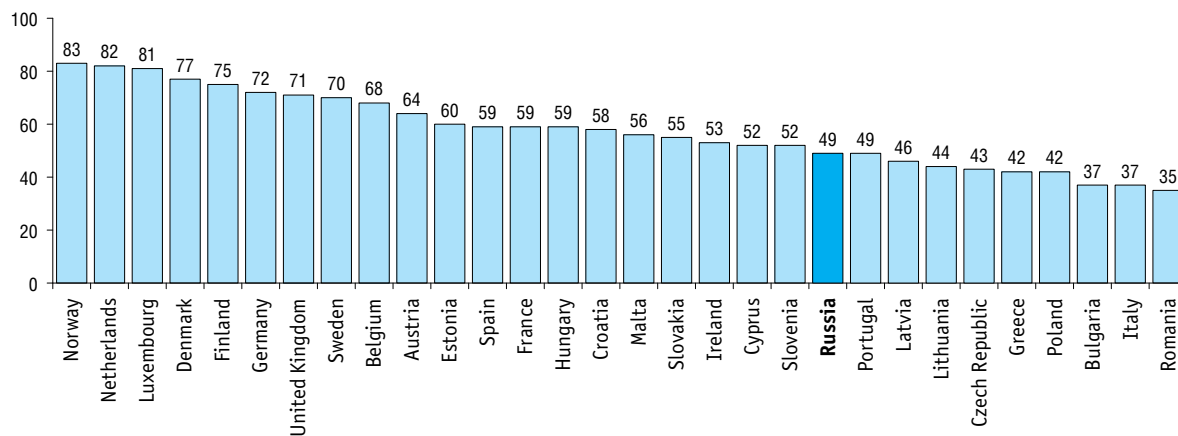
Sources: Russia – the data are provided by the Federal State Statistics Service; EU countries – the data are provided by Eurostat, other foreign countries – the data are provided by the International Telecommunication Union.

### 14.25. INTERNET USAGE BY INDIVIDUALS BY FREQUENCY: 2016 (as a percentage of the total number of respondents aged 16–74\*)



\* Here and below in this section: for Russia – people aged 15–72.

Sources: here and below in the section – Russia – estimated by HSE Institute for Statistical Studies and Economics of Knowledge on the basis of data provided by the Federal State Statistics Service; foreign countries – the data are provided by Eurostat.

**14.26. USAGE OF MOBILE DEVICES BY INDIVIDUALS TO ACCESS THE INTERNET: 2016***(as a percentage of the total number of respondents aged 16–74)*

## TECHNICAL NOTES

**Active subscriptions to telecommunications services** are subscribers who have used telecommunications services at least once within the last three months or those who have paid the subscription fee at least once during the said period.

**Anti-spam filters** are specialised software or a function of the software in use intended for filtering and hiding unwanted advertisements when visiting Internet sites, receiving e-mail and using messaging programmes.

**Antivirus software (tools)** are specialised programmes designed for detection of computer viruses and unwanted (malware) programmes and for restoration of files infected (modified) by such programmes, as well as for prevention of infection (modification) of files or operating system with (by) malicious content.

**Average monthly accrued salaries (average monthly nominal accrued salaries)** are calculated by dividing the fund of accrued employee wages by the average annual number of employees and by 12. The wages fund includes accrued employee wages both in monetary and in non-monetary form for the time worked and non-worked, compensatory payments, bonuses, lump sum incentive payments, as well as systematic payments for food and accommodation.

**Average number of employees** (number of employees, employment) is the average number of employees of an enterprise, defined as the sum of the average number of employees of an enterprise within 12 months of the reporting year divided by 12. Number of employees includes hired personnel working under a labour contract and performing

regular, temporary or seasonal work one day or more as well as working owners of enterprises on the payroll of the enterprise in question.

**Balance (balanced financial result, profit minus loss)** is a final financial result of economic activity of an enterprise. Balance represents the sum of profits (losses) from sales of goods, services, capital assets, other property and income from non-operational deals minus expenditure on these operations. Non-operational deals are: penalties, fines, losses for contract terms violations; profit (loss) of previous years revealed in the current year, exchange rates fluctuations, etc.

**Broadband Internet access** includes xDSL-technology, connection via cable TV networks, leased lines, fiber optics, satellite connection, advanced fixed wired and wireless access (WiMax connection, etc.), connection via high-speed mobile phone networks and other forms of access with declared download speed of 256 Kbps or above.

**Broadband Internet subscriptions** are active subscribers of mobile wireless communication networks (mobile cellular telephones), who use internet access services.

**Business enterprise sector** involves organisations and enterprises involved in manufacturing, construction, trade, transportation and communication, catering, as well as hotels, enterprises involved in real estate activities and in renting and services provision, in motion pictures production, distribution and showing, in radio and TV broadcasting. The classification proposed for ICT in the business enterprise sector is based on RCEA code (Rev. 1.1), sections C, D, E, F, G, H, I, K, codes 92.1, 92.2, 92.4.

**Cloud computing** is distributed data processing technology, where computer resources and capacities are provided to users as Internet services.

**Computer-aided simulators** are special programmes for computer-aided (virtual) simulators that help to practice basic skills of working with equipment, carry out various processes and activities.

**Content and media sector** is an aggregate of enterprises engaged in economic activities related to production, publication and/or distribution of content (information, cultural products and products intended for entertainment purposes).

The composition of content and media sector by economic activity is defined based on the international statistics standards based on RCEA code (Rev. 1.1):

- Publishing activities (RCEA code (Rev. 1.1) – 22.1);
- Motion pictures production, distribution and showing (92.1);
- Radio and TV broadcasting (92.2);
- News agencies' activities (92.4).

**Coverage of the population by radio and television** describes the ratio of inhabitants able to receive TV and radio programmes to the total population of the Russian region under consideration.

**CRM system** (Customer Relationship Management) is a system for managing a company's interactions with customers. It is used to collect and process information on different aspects of customers' activity: availability of / demand for goods and services, sales cycles, prices, etc.

**E-government Development Index** characterises the level of electronic services implementation and the conditions that are created

in different countries to promote them. It is developed by the UN Department of Economic and Social Affairs. It is published in analytical reports 'UN E-Government Survey': <http://unpan3.un.org/egovkb/en-us/Global-Survey>.

**Electronic purchases (buying) of goods and services** include buying of goods and services according to orders submitted by means of special forms on websites or Extranet that use EDI-systems. They do not include purchases following orders submitted by telephone, fax or e-mail.

**Electronic sales of goods and services** include selling of goods and services according to orders submitted by means of special forms on websites or Extranet that use EDI-systems. They do not include sales following orders submitted by telephone, fax or e-mail.

**E-libraries in educational institutions of higher education** are databases containing textbooks, courseware and other literature used in education.

**ERP system** (Enterprise Resource Planning) consists of one or several software applications that integrate information and business activities (workflow) of an enterprise's divisions. Typically, ERP integrates planning, procurement, sales, marketing, customer relationship, finance, human resources, etc.

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

**Exports (imports) of computers and telecommunications services** – the data on exports (imports) of computers and telecommunications services are put up by the Bank of Russia within the calculation of the balance of payments. According to the Manual on Statistics of International Trade in Services 2010 (MSITS 2010), **telecommunications services** encompass the transmission of sound, images, data, or other information by telephone, telex, telegraph, radio and television cable and translational broadcasting, satellite, e-mail, fax, etc., including business network services maintenance, teleconferencing and related services provision; **computer services** include services related to hardware, software, and data processing; **information services** include the services of news agencies and services connected with the development, storage and dissemination of data and databases (both online and on magnetic carriers, optical and printed media), services connected with information search on the Internet, subscription to newspapers and magazines via post (mail), electronic channels of information dissemination and other means, as well as other information services.

**Exports (imports) of ICT goods** – ICT goods exports (imports) are grouped by according to the Commodity Nomenclature of Foreign Economic Activity (CNFEA) in line with the OECD classification of ICT goods which is based on the Harmonised Commodity Description and Coding System (HS 2007):

- Computers and related equipment (Codes of Commodity Nomenclature of Foreign Economic Activity – 844331, 844332, 847050, 8471, 847290, 847330, 847350, 852351, 852841, 852851, 852861);

of which – computers (8471);

- Communication equipment (8517, 852550, 852560, 853110);

of which – telephone and telegraph equipment (8517);

- Consumer electronics (8518, 8519, 8521, 8522, 852580, 8527, 852849, 852859, 852869, 852871, 852872, 852873);

of which – TV receivers (852871, 852872, 852873);

- Other components and ICT goods (Codes of Commodity Nomenclature of Foreign Economic Activity – 852321, 852352, 852359, 852380, 8529, 8534, 8540, 8541, 8542, 901320).

**Extranet** is an extension of the Intranet with dedicated sections accessible to external users. E.g., external users may be granted partial access to corporate data concerning their orders processing, or concerning the availability of products in stock.

**Financial sector** characterises the usage of ICT in the financial sector which is based on organisations (enterprises) in sector J of RCEA code (Rev. 1.1).

**Fixed broadband Internet subscriptions** are active subscribers of broadband internet services using any wired internet access technology, the connection speed of which as stated in the subscription plan contract (incoming traffic towards the subscriber) is 256 kbps and above.

**Fixed capital investment** is total expenditure on purchase of capital goods or the replacement of depreciated capital goods (construction of new buildings, extension, reconstruction and upgrading of facilities, which increase their original value and are added to the company's additional capital; acquisition of machinery, equipment, vehicles, etc.).



**Fixed Internet subscriptions** are subscribers to internet services using any wired internet access technology, including telephone lines (dial-up) at any speed.

**Global information network** incorporates an aggregate of computers which can be located in any part of the world, connected with each other via telecommunications channels provided by telephone companies or other communications enterprises. A global network can be either generally accessible (e.g. the Internet) or closed (e.g. corporate networks such as Extranet and Intranet).

**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 regarding research and development performed by organisations using their own intramural resources during the year under report regardless of the source of funds.

**Gross value added** is calculated as goods and services output minus intermediate consumption at the level of industries and sectors of the economy. Output is the total value of goods and services produced as a result of the residents' activities in the national economy within the reported period. Intermediate consumption is the total monetary value of goods and services consumed or transformed (used up as inputs in production) within the reported period. Fixed capital consumption is not included in intermediate consumption.

**Home telephones** are telephones installed in apartments (houses).

**ICT Development Index** characterises the level of ICT infrastructure development worldwide. It is developed by the UN International

Telecommunication Union. It is published in special analytical reports 'Measuring the Information Society': <http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2016.aspx>.

**ICT expenditure** is the enterprise's (industry's, region's, country's) actual expenses related to acquiring computer hardware and software, paying for communication services, personnel training in ICT, paying for ICT services of external organisations and professionals as well as other ICT-related expenses including those on in-house software development. Both current expenditure and capital expenditure are taken into account. The data concerning ICT expenditure in value terms are presented at actual current prices.

**ICT sector** is a set of enterprises involved in economic activities related to the production of ICT and the provision of services in this sphere. The results of these activities are:

**products** that meet one of the following requirements:

- are designed for telecommunications maintenance or information processing, including its transmission and displaying;
- use electronic devices to detect, change and/or describe physical phenomena, or control physical processes;
- constitute individual components intended primarily to be used in the products described above;

**services** that enable the processing and transmission of information via electronic devices, including those related to trade or leasing of hardware, as well as the direct application of ICT.

In Russian information society statistics, the ICT sector is presented by economic activity according to the international statistics standards and the Russian Classification of Economic Activities – RCEA (Rev. 1.1):

- Manufacture of office machinery and computers (RCEA code (Rev. 1.1) – 30);
- Manufacture of insulated wires and cables (31.3);
- Manufacture of radio, television and communication equipment and apparatus (32);
- Manufacture of instruments and appliances for measuring, monitoring, testing, control, navigation and other purposes (33.2);
- Manufacture of industrial process control equipment (33.3);
- Wholesale of radio and television equipment, data storage devices (with and without recorded information) (51.43.2);
- Wholesale of computers, computer peripheral equipment and software (51.84);
- Wholesale of other electronic equipment and parts (51.86);
- Wholesale of industrial electrical equipment, machinery, hardware and supplies (51.87.5);
- Telecommunications (64.2);
- Renting of office machinery and equipment, including computers (71.33);
- Computer and information technology-related activities (72).

**Information and communication technologies (ICT)** imply technologies using microelectronics for collecting, storing, processing, retrieving, transmitting, and presentation data, texts, images, and sound.

**Innovative activity** is an activity connected with the transformation of ideas (which is usually the result of research and development or of another type of S&T advances) into new (technologically new) or significantly improved goods and services, introduced into the market,

into new (technologically new) or significantly improved production processes or services delivery (provision) methods, used in practice. Innovative activity includes a broad range of scientific, technological, organisational, financial and commercial activities which collectively lead to innovation.

**Innovative activity of enterprises** describes the involvement degree of enterprises (organisations) in general or specific innovative activity during a given period of time. The involvement degree of an enterprise is usually evaluated as a ratio of the number of enterprises (organisations) engaged in technological, marketing, and organisational innovation to the total number of enterprises (organisations) under review in a country, industry, sector, region, etc. during a given period of time. Enterprises (organisations) are said to be involved in **technological innovation** when they are involved in development and implementation of new (technologically new) or significantly improved goods and services, production processes or services delivery (provision) methods or in other types of innovative activity. **Organisational innovation** includes the implementation of new business practices, new workplace organisation and external relations management methods. Organisational innovations are aimed at enterprises' (organisations') efficiency increase in performance as a result of cutting administrative costs and transaction costs, workplace engineering optimisation (working hours rationalisation) and, hence, a better performance and a rise in labour productivity, access to the assets that are not on the market, cost saving regarding delivery and supply. **Marketing innovation** includes implemented marketing methods, either new or significantly improved, that cover substantial changes in the design and packaging

of goods and services; also, usage of new goods and services sales strategies and new goods and services presentation methods, goods and services launch and promotion in the target market; new price strategies developing. Marketing innovations are aimed at completely satisfying the needs of the target customers and at the target audience expansion, as well as at the new markets development in order to increase sales.

**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.

**Internal and external communication via EDI** (Electronic data interchange) is electronic data interchange between internal and external IT systems that allows to send and receive messages (e.g. payment and billing documents, tax forms, orders, etc.) in the standardised or agreed upon format (EDIFACT, EANCOM, ANSI X12; XML-based standards, e.g., ebXML, RosettaNet, UBL, papiNET; agreed upon proprietary standards, etc.) that ensures their automated processing.

**Internet access content-filter tools** include hardware devices with integrated software (firmware) and software programmes that restrict access to Internet resources, inconsistent with the aims of education and formation of students.

**Internet** is a worldwide (global) network of independent computer networks connected with each other to exchange data via standard open protocols.

**Internet subscriptions** are subscriptions of individuals or legal entities that have entered into a contract or contracts for using data network services at the end of the surveyed period.

**Internet usage for electronic submission of completed forms** includes completing forms directly on the websites of public authorities or sending completed forms via e-mail or by means of other communication technologies that use networks.

**Internet usage for getting blank forms** includes the usage of the network to get blank forms with the purpose of subsequent completing and submission thereof to corresponding public authorities. These documents can be present on websites of public authorities, can be sent via e-mail or by means of other communication technologies that use networks.

**Internet usage for participation in government procurement** encompasses networks usage to submit auction bids; for entering into contracts for goods supply, services provision or concerning state or municipal needs.

**Intranet** is a distributed corporate computer network based on Internet technologies, characterised by intensive data security authorised access; it is designed to provide personnel with access to corporate electronic information resources.

**IT industry** is a set of enterprises, the activity of which results in services mainly intended for (or contributing to) electronic collection, conversion, storage, and presentation of data and information. According to order № 502 of the Ministry of Telecom and Mass Communications of Russian Federation as of 30.12.2014, the following types of economic activities are included into IT industry – RCEA (Rev. 1.1.):

- Consulting on computer hardware (RCEA (Rev. 1.1.) – 72.1);
- Software development and related consultancy (72.2);
- Data processing (72.3);
- Development and use of databases and information resources, including Internet resources (72.4);
- Other computer and information technology-related activities (72.6).

**Level of network digitisation** is the ratio of the installed capacity of digital telephone stations to the total installed capacity of telephone stations.

**Local area network** connects two or more computers (possibly of different types) as well as printers, scanners, fire and security alarm systems and other equipment and peripheral devices located within one building or several adjacent buildings, without using public communication facilities. The connection of one computer with equipment and peripheral devices is not a local or global network.

**Maximum Internet connection speed** is the highest possible data transfer rate with bandwidth as its main characteristic measured by the number of bits transmitted per unit time (bit per second).

**Mobile broadband Internet subscriptions** are active subscribers of mobile wireless communication networks (mobile cellular telephones), whose subscription plans provide them with Internet connection speed of 256 Kbps and above.

**Mobile cellular telephones (user terminal)** is a telephone with an installed SIM-card.

**Museum showpieces listed in e-catalogues** are museum showpieces the scientific description of which is included into

e-catalogues of museum showpieces, maintained by museums on their own.

**Networked Readiness Index** characterises the conditions and the level of ICT development in the world. It is developed by the World Economic Forum and INSEAD international business school. It is published in special analytical reports 'The Global Information Technology Report': <https://www.weforum.org/reports/the-global-information-technology-report-2016>.

**Official public services portals (websites)** ([www.gosuslugi.ru](http://www.gosuslugi.ru)) is a state information system providing public services online (in electronic format) as well as granting to applicants access to public records that are disseminated via the Internet and various public information systems that ensure public record keeping.

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

**Parental control software or Internet resources filtering tools** encompass a set of rules and measures to prevent the negative impact of the Internet and the computer on the person who is to be protected (usually a minor).

**Patent for an invention** is a title of protection, granted to an invention and establishing priority, authorship and exclusive usage right during the duration of the patent. Invention is a technical and/or engineering solution pertaining to a product (namely, a device, material (substance), strain of organism, human and animal cell culture)

or to a method (process of manipulating material objects with the help of material means). An invention should be characterised by novelty, a level of invention and it should be industrially implementable.

**Personal computer** is a non-portable desktop computer (a device that requires to be constantly plugged in and is typically stationary – e.g. different desktop computers (base units and monitor screens are different devices, connected with wires), single unit computers (all-in-one PCs), etc.) or a portable computer (a device that does not require to be constantly plugged in – e.g. laptops, netbooks, smart books, tablet PC). Here do not belong such devices as mobile cellular telephones, smartphones, PDAs, TV sets.

**Personnel using personal computers** (the Internet) within statistical framework are employees using personal computers during working hours at least once a week.

**Providing public services online (in electronic format)** is the process of providing public services with the help of information and telecommunications technology, including the united official public services portal and/or regional public services portals.

**Public administration** includes Federal authorities of the Russian Federation, regional authorities of the Russian Federation and local authorities. The data concerning ICT usage in public administration are presented in accordance with All-Russian Classifier of Public Authorities: 'Federal authorities of the Russian Federation' (codes: 1000000, 2000000, 3000000).

**Return on assets** is the ratio of a company's balance (profit minus loss) to the value of its assets. When the balance is negative, unprofitability occurs.

**Revenue from telecommunications services** are the worth of telecommunications services rendered by telecommunications services providers at actual current prices (minus vat).

**RFID** is radio-frequency identification technology that uses electromagnetic signals to automatically receive and track data, stored with the help of RFID tags.

**Sales** comprise the value of sales of manufactured goods and provided services as well as revenues from exchange (according to a barter agreement) of **own-produced goods and services**. The data are presented in actual selling prices minus VAT, excise duties and similar compulsory payments.

**SCM system** (Supply Chain Management) is a system providing automatic communication with suppliers'/customers' orders management system.

**Servers** are server equipment, manufactured or assembled industrially (except personal computers and network servers based on personal computers). Servers include standard servers, servers based on reduced instruction set computer (RISC) architecture (IBM Power, Oracle T series), supercomputers, special hardware and software suites (HP Superdome, Oracle Exadata).

**Social sphere** includes educational institutions, health services and culture. The data concerning ICT usage in the organisations of the social sphere are formed based on educational institutions of higher education, health services organisations, libraries, archives, clubs and similar cultural institutions, museums and institutions for historic preservation of places and buildings in accordance with RCEA code (Rev. 1.1), codes 80, 85, 92.51, 92.52.

**Specialised software** is used to solve special tasks regardless of whether this software is developed within the enterprise, acquired from other software developers or ordered from external organisations or professionals, or acquired on any other terms. This group of software does not include general purpose software like operation systems, compiler programmes, standard software used for special purposes (e.g. text or graphic editors, electronic spreadsheets, databases management programme) unless any specialised software applications, antivirus and e-mail programmes, etc. are developed on their basis.

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

**Telephone density** is calculated as the ratio of the number of telephones (including mobile cellular telephones) to the total population.

**Telephones** comprise general and additional (coupled) telephony devices connected to the network or to the enterprises' telephony

stations linked to the network, and all types of public payphones that enable local, intrazone, long distance and international communication.

The term '**publication**', unless indicated otherwise, includes three types of documents, indexed in Web of Science, namely 'articles', 'reviews' and 'proceeding papers' ('conference papers'). The publication is considered to originate from a country, which is stated in the dateline as the country of work of the author or one of the co-authors and was recognised by the Web of Science system. The data concerning publication activities are calculated based on the Web of Science database and analytical substructure InCites by Clarivate Analytics. The data given in the present book reflect the databases situation as of February 3<sup>rd</sup>, 2017.

**Website** is an Internet location which has a specific address and an owner, and comprises web pages. For statistical purposes, an enterprise is considered to have a website if it has at least one Internet page with regularly (at least once every six months) updated information.

**Wireless Internet subscriptions** are active subscriptions to mobile, satellite, terrestrial fixed wireless and terrestrial mobile wireless Internet services.

## MAJOR HSE ISSEK PUBLICATIONS ON INFORMATION SOCIETY STATISTICS

## 2001–2005

*Gaslikova I.R., Gokhberg L.M.* Information Technology in Russia. Moscow, 2001. (in Russian)

The Use of Information Networks in the Russian Economy : Data Book. Moscow: State University – Higher School of Economics, 2004. (in Russian)

Information and Communication Technologies in the Russian Economy : Data Book. Moscow: State University – Higher School of Economics, 2005. (in Russian)

Information Technology in Russia. 2001.

Internet Usage in the Russian Economy : Data Book. Moscow: State University – Higher School of Economics, 2004.

*Gokhberg L., Shuvalova O.* Russian Public Opinion of the Knowledge Economy: Science, Innovation, Information Technology and Education as Drivers of Economic Growth and Quality of Life. The British Council, 2004.

Indicators for the Information Society in the Baltic Region 2005. Action Line 6. Copenhagen, 2005.

## 2006–2010

Information and Communication Technology in the Russian Economy : Data Book. 2006. (in Russian)

Information Society Statistics in the Russian Federation: Harmonization with International Standards / ed. by L. Gokhberg and P. Bøegh-Nielsen. 2007. (in Russian)

Information and Communication Technology in the Russian Economy : Data Book. 2007. (in Russian)

Information Society Indicators in the Russian Federation : Data Book. Moscow: State University – Higher School of Economics, 2009. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. Moscow: State University – Higher School of Economics, 2009. (in Russian)

Information Society Indicators in the Russian Federation : Data Book. Moscow: State University – Higher School of Economics, 2010. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. Moscow: State University – Higher School of Economics, 2010. (in Russian)

Business Climate in the sphere of IT services : informational and analytical data. 2010. (in Russian)

Information Society Statistics in the Russian Federation: Harmonization with International Standards / ed. by L. Gokhberg and P. Bøegh-Nielsen. 2007.

Information and Communication Technology in the Russian Economy : Data Book. 2007.

Science and Technology. Innovation. Information Society : Pocket Data Book. 2009.

Science and Technology. Innovation. Information Society : Pocket Data Book. 2010.

## 2011–2015

Information Society Indicators in the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2011. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2011. (in Russian)

Russian Innovation Index / ed. by. L. Gokhberg. Moscow: National Research University – Higher School of Economics (HSE), 2011. (in Russian)

Business Climate in the sphere of IT services in the 1st half of 2011 : informational and analytical data. 2011. (in Russian)

*Abdrakhmanova G., Kovaleva G.* The Use of Information and Communication Technologies in the System of Vocational Education // Monitoring of Education Markets and Organizations: Newsletter. 2012. № 1 (55). (in Russian)

Information Society Indicators in the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2012. (in Russian)

Information Society : Development Trends : Analyt. overview. Moscow: National Research University – Higher School of Economics (HSE), 2012. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2012.

Knowledge Economy in Statistical Terms: Science, Technology, Innovation, Education, Information Society : A Dictionary / ed. by L. Gokhberg. Moscow: Economics, 2012. (in Russian)

Long-term Priorities of Applied Science in Russia / ed. by L. Gokhberg. Moscow: National Research University – Higher School of Economics (HSE), 2013. (in Russian)

Information Society Indicators in the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2013. (in Russian)

Internet Usage by Individuals : quick outlook. № 1 (2013). 2013. (in Russian)

Internet Usage by Enterprises : quick outlook. № 2 (2013). 2013. (in Russian)

Electronic public services: the demand on the part of individuals and enterprises : quick outlook. № 3 (2013). 2013. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. 2013. Moscow: State University – Higher School of Economics, 2013. (in Russian)

Russian S&T Foresight 2030. Information and Communications Technology / ed. by L. Gokhberg, I. Agamirzyan. Moscow: Russian Ministry of Education and Science, Higher School of Economics, 2014. (in Russian)

Information Society Indicators in the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2014. (in Russian)



Information Society: Trends in the Regions of the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2014. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2014. (in Russian)

Information Society Indicators in the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2014. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2015. (in Russian)

Information Society Indicators in the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2015. (in Russian)

Information Society: Trends in the Regions of the Russian Federation. Issue 2 : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2015. (in Russian)

Information Society: Demand for Information and Communication Technologies by the Russian Population : Analyt. report / ed. by L. Gokhberg, E. Zanozina. Moscow: National Research University – Higher School of Economics (HSE), 2015. (in Russian)

Business Climate in small enterprises of the sphere of IT services : informational and analytical data. 2015. (in Russian)

The Internet and its role and place in the lives of Russian people : news bulletin. № 1. 2015. (in Russian)

Information structure and telecommunications structure: the main condition of information society and digital economy development : news bulletin. № 2. 2015. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. 2011.

Information Society Outlook / L. Gokhberg and C. Leonard (eds.). 2012. Science and Technology. Innovation. Information Society : Pocket Data Book. 2012.

Information Society Indicators in the Russian Federation : Data Book. 2013.

Science and Technology. Innovation. Information Society : Pocket Data Book. 2013.

Information Society Indicators in the Russian Federation : Data Book. 2014.

Information Society: Trends in Regions of the Russian Federation : Data book. 2014.

Science and Technology. Innovation. Information Society : Pocket Data Book. 2014.

## 2016–2017

Information Society Indicators in the Russian Federation : Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2016. (in Russian)

Business Climate in the enterprises of the sphere of IT services : informational and analytical data. 2016. (in Russian)

Telecommunications: the growth of modern communication services: news bulletin. № 1 (6). 2016. (in Russian)

Russia in ICT development ratings : news bulletin. № 2 (7). 2016. (in Russian)

Gender factor in digital economy : news bulletin. № 3 (8). 2016. (in Russian)

Internet-economy in Russia : news bulletin. № 4 (9). 2016. (in Russian)

Russia in e-government development ratings : news bulletin. № 5 (10). 2016. (in Russian)

Internet-economy in Russia : the 2015 results : news bulletin. № 5. 2016. (in Russian)

IT industry development : quick outlook / series 'Science and Technology. Innovation.' № 27. 09.11.2016. (in Russian)

Russia in ICT development ratings: 2016 : quick outlook / series 'Science and Technology. Innovation.' № 30. 30.11.2016. (in Russian)

Methodological recommendations concerning the studies in the field of structure and volume of Internet economy in Russia. 2016. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. Moscow: National Research University – Higher School of Economics (HSE), 2016. (in Russian)

The strategy of statistical monitoring of the development of the Russian segment of the Internet. 2017. (in Russian)

E-commerce in Russia : quick outlook / series 'Science and Technology. Innovation.' № 55. 09.06.2017. (in Russian)

Science and Technology. Innovation. Information Society : Pocket Data Book. 2016.

Science and Technology. Innovation. Information Society : Pocket Data Book. 2017.

## DIGITAL ECONOMY INDICATORS IN THE RUSSIAN FEDERATION

Data Book

Edited by *A. Kukovskaya, T. Magala*

Design *P. Shelegheda*

Desk-top publishing *V. Parshina*

National Research University Higher School of Economics (HSE)

Institute for Statistical Studies and Economics of Knowledge

20 Myasnitskaya st., Moscow, 101000, Russia

Tel.: +7(495) 621-28-73

<http://issek.hse.ru>

e-mail: [issek@hse.ru](mailto:issek@hse.ru)