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Informační ekonomika v číslech - 2012

Český statistický úřad
2012

Dostupný z <http://www.nusl.cz/ntk/nusl-204130>

Dílo je chráněno podle autorského zákona č. 121/2000 Sb.

Tento dokument byl stažen z Národního úložiště šedé literatury (NUŠL).

Datum stažení: 02.05.2024

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INFORMATION ECONOMY

IN FIGURES

2012

CZECH REPUBLIC AND WORLD

ISBN: 978-80-250- 2348-8

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Introduction

The role of **information and communication technologies (ICT)** has received considerable attention in the last decade or so due to their exceptional role in enhancement of economic growth and social change. Even though the production and the expansion of ICT varies significantly among countries, a general agreement prevails that it is necessary to collect reliable and comprehensive ICT indicators in order to assess the impact of these technologies on growth, productivity or innovation.

The aim of **ICT statistics** is, on one hand, to provide data on the production of advanced ICTs, including data on investments, external trade or qualified human resources in this field (**information economy**) and, on the other hand, to track data on the penetration and usage of these technologies in particular sectors of society such as households, enterprise sector or public administration (**information society**).

This brochure, its **fifth edition**, was compiled again in order to provide a comprehensive overview of statistical indicators about the developments of the information economy in the Czech Republic and where possible also in other, mainly EU, countries.

The brochure consists of the following **five chapters**:

- Chapter A: '**ICT Specialists**' provides population estimates both ICT professionals and ICT technicians together with their monthly gross wages.
- Chapter B: '**ICT Expenditures**' includes information about type of expenditures in ICT equipment and services with emphasis on software investments.
- Chapter C: '**Science in ICT**' provides data on R&D expenditures in ICT equipment and software together with data about ICT related patents granted in the Czech Republic.
- Chapter D: '**ICT External Trade**' includes detail data about exports and imports both in the ICT goods and ICT services.
- Chapter E: '**ICT sector**' consists of main economic indicators for industries that are primarily engaged in the production of ICT goods and services.

Data given in this brochure were acquired, in most cases, from regular statistical surveys or databases of the Czech Statistical Office. International comparisons were compiled by the Czech Statistical Office based on freely available Eurostat, OECD or UN data sources.

Whenever possible, the data used in this brochure are based on the standards included in **The OECD Guide to Measuring the Information Society** (Paris, 2011). This publication summarizes the statistical standards and definitions developed by the OECD Working Party on Indicators for the Information Society.

For further information, please visit our website titled **Information Society**: http://www.czso.cz/eng/redakce.nsf/i/information_society

If you need any further information, do not hesitate to contact us directly. Your suggestions will be incentives for future releases.

In Prague, March 2013

Contacts:

Martin Mana

martin.mana@czso.cz

Eva Skarlandtová

eva.skarlandtova@czso.cz

Lucie Vinecká

lucie.vinecka@czso.cz

Czech Statistical Office

Department of Research, Development and Information Society Statistics

A ICT specialists

ICT professionals and technicians (hereafter ICT specialists) are all persons employed in the national economy, whose principal activity comes within the following two major groups of the International Standard Classification of Occupations (ISCO-08):

- **ICT professionals (25)**
 - Software and applications developers and analysts (251)
 - Database and network professionals (252)
- **ICT technicians (35)**
 - Information and communications technology operations and user support technicians (351)
 - Telecommunications and broadcasting technicians (352)

ICT professionals conduct research, plan, design, write, test, provide advice and improve information technology systems, hardware, software and related concepts for specific applications; and design, develop, control, maintain and support databases and other information systems to ensure optimal performance and data integrity and security.

ICT technicians provide support for the day-to-day running of computer systems, communications systems and networks. Tasks performed by workers in this group usually include: providing assistance to information and communications systems users; installing new programs and equipment; establishing, operating and maintaining network and other data communications systems; installing, monitoring and supporting Internet and Intranet websites or web server hardware or software; modifying web pages; and performing web server backup and recovery operations.

Data for the ICT professionals and technicians are available by gender, age, economic activity (NACE), level and field of education (ISCED) and other socio-demographic and economic characteristics.

Data on the **numbers and structure** of ICT specialists come from the **Labour Force Survey (LFS)** of the Czech Statistical Office (CZSO). Further information on the Czech LFSS can be found at: <http://www.czso.cz/csu/2012edicniplan.nsf/engp/3104-12>

The **Eurostat Labour Force Survey Database** was used as a data source for the international comparison. For more information see: http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/data/database

Data on **average monthly gross wages** of ICT specialists come from the **Structural Earnings Statistics (SES)**. Further information on the SES can be found at: <http://www.czso.cz/csu/2012edicniplan.nsf/engp/3110-12>

Data on the **university students and graduates of Computing** come from data sources of the **Ministry of Education, Youth and Sports of the CR**. The table contains the total number of university students and graduates at ISCED97 levels 5A and 6 in the field of *Computing* (ISCED97 group 48).

Data on students of universities are always related to 31 December of the relevant year; data on graduates apply to the entire school year.

International comparison of *Computing* students refers to the total tertiary level of education (ISCED97 levels 5 and 6). The **Eurostat Education and Training Database** was used. For more information see: <http://epp.eurostat.ec.europa.eu/portal/page/portal/education/data/database>

Further information on ICT specialists can be found at: http://www.czso.cz/csu/redakce.nsf/i/lidske_zdroje_pro_informacni_techologie

A ICT specialists

Table A1 ICT specialists in the Czech Republic

	thous. persons (HC)		
	2009	2010	2011
Total	114,2	121,6	126,6
Gender			
Males	101,8	108,7	115,2
Females	12,4	12,9	11,4
Age group			
15-24 years	9,7	10,3	9,8
25-34 years	52,9	54,5	52,2
35-44 years	28,6	32,0	36,3
45-54 years	14,4	17,2	20,2
55+ years	8,7	7,5	8,0
Level of education			
Tertiary	55,0	60,5	73,4
Upper secondary	50,7	53,6	47,1
Other	8,5	7,6	6,1
Field of education			
Basic programmes	6,8	5,8	6,2
Social and behavioral sciences	7,9	8,6	7,1
Computing	18,7	18,7	28,1
Engineering and engineering trades	50,8	55,7	56,0
Other	30,1	32,7	29,2

Figure A1 ICT specialists

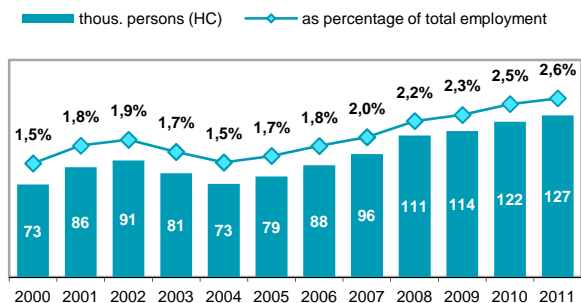
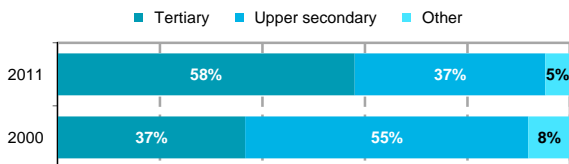


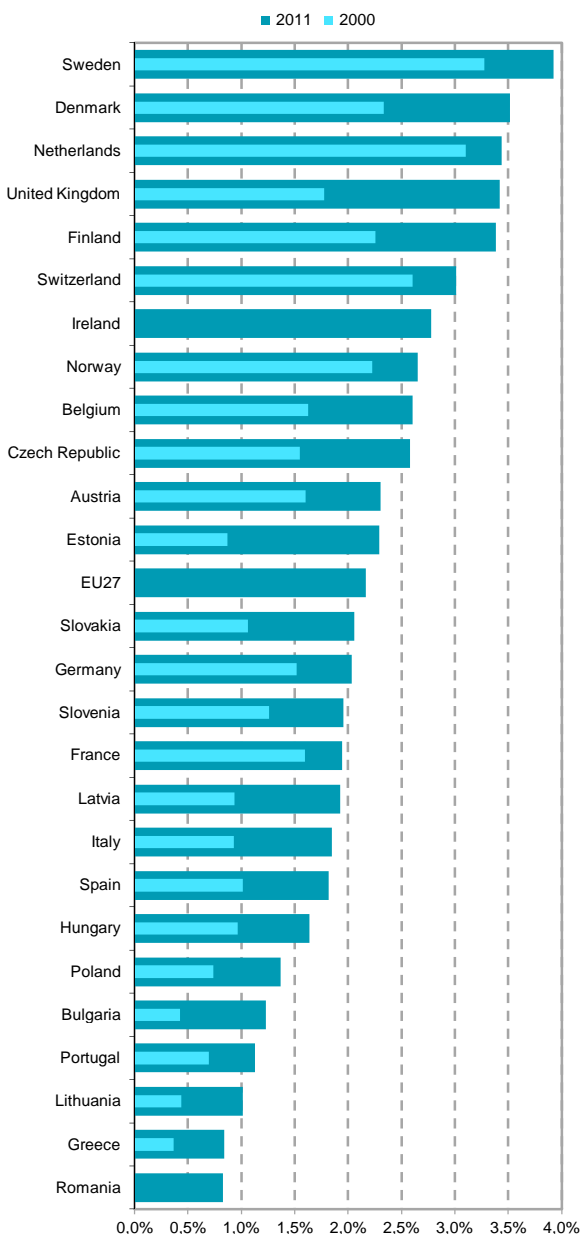
Figure A2 ICT specialists by level of education



Source: CZSO, Labour Force Survey

A ICT specialists

Figure A3 ICT specialists
(as a percentage of total national employment)



Source: Eurostat, European Labour Force Survey

A ICT specialists

Table A2 ICT specialists in the CR by occupation, 2011

thous. persons (HC)

	Total	ICT professionals	ICT technicians
Total	126,6	56,3	70,3
Gender			
Males	115,2	50,9	64,3
Females	11,4	5,4	6,0
Age group			
15-24 years	9,8	3,1	6,7
25-34 years	52,2	24,3	27,9
35-44 years	36,3	15,9	20,5
45-54 years	20,2	10,2	10,0
55+ years	8,0	2,8	4,7
Level of education			
Tertiary	73,4	48,0	25,4
Upper secondary	47,1	7,8	39,3
Other	6,1		
Field of education			
Basic programmes	6,2	2,8	3,4
Social and behavioral sciences	7,1	3,3	3,8
Computing	28,1	15,8	12,2
Engineering and engineering trades	56,0	21,4	34,6
Other	29,2	12,9	16,3

Figure A4 ICT specialists by occupation (thous. persons), 2011

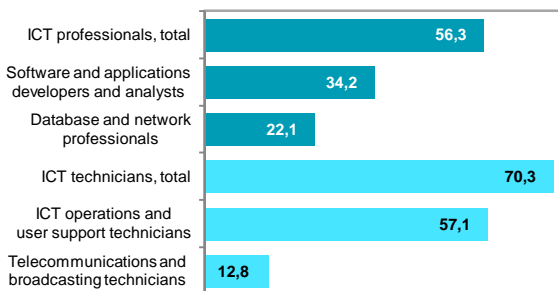
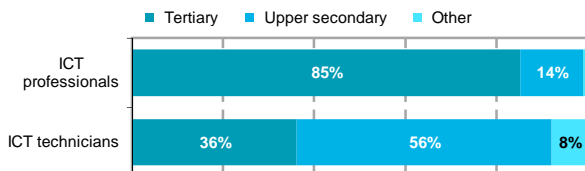


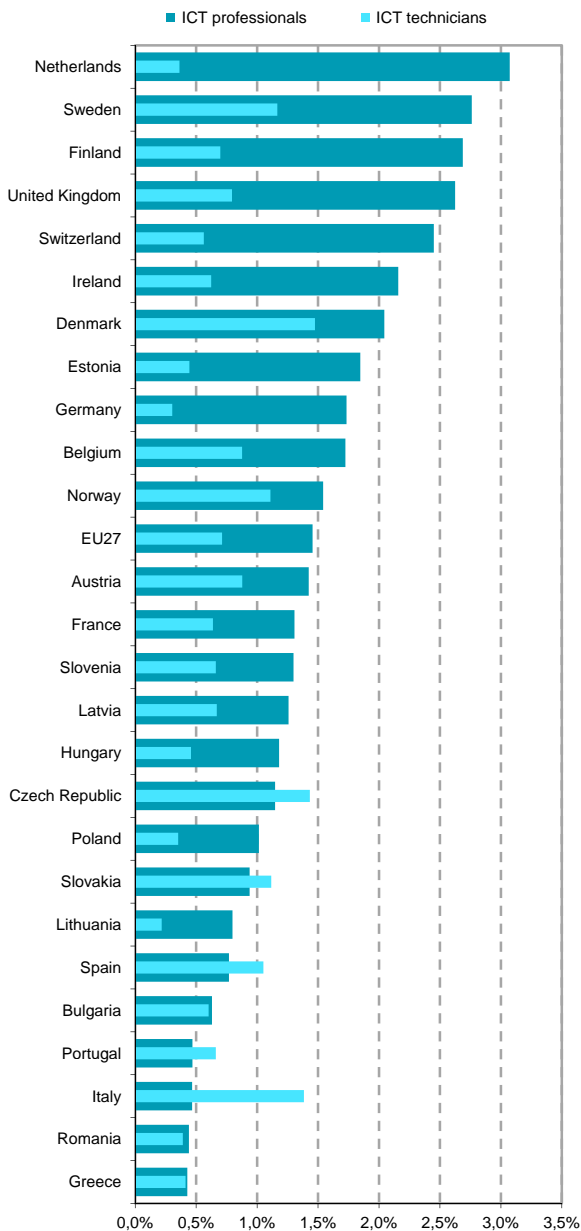
Figure A5 ICT specialists by level of education and occupation, 2011



Source: CZSO, Labour Force Survey

A ICT specialists

**Figure A6 ICT specialists by occupation, 2011
(as a percentage of total national employment)**



Source: Eurostat, European Labour Force Survey

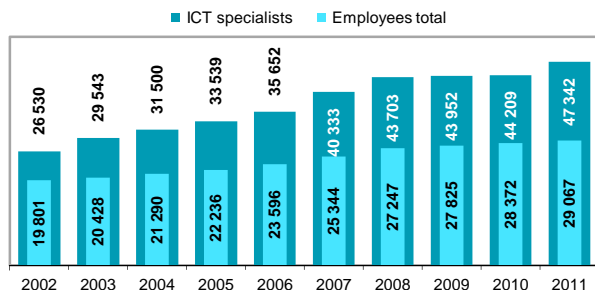
A ICT specialists

Table A3 Average monthly gross wage of ICT specialists

CZK

	2009	2010	2011
Total	43 952	44 209	47 342
Gender			
Males	45 590	45 934	48 977
Females	35 583	35 478	38 517
Age group			
20-24 years	25 950	25 132	27 406
25-29 years	36 126	34 960	37 601
30-34 years	47 800	46 739	49 260
35-39 years	51 992	52 204	55 191
40-44 years	50 031	51 381	54 586
45-49 years	47 111	48 209	50 102
50-54 years	44 269	45 161	47 376
55-59 years	41 308	42 076	44 385
60-64 years	44 182	44 206	45 424
Level of education			
Master and doctoral	53 784	53 800	57 592
Higher professional and bachelor	38 799	39 404	42 212
Upper secondary	36 907	37 221	40 014
other	26 056	27 576	32 353
Size class of enterprises			
10-49 employees	36 628	40 453	40 890
50-249 employees	42 013	40 829	47 840
250-999 employees	47 816	48 833	51 177
1 000-4 999 employees	40 974	40 547	45 615
5 000+ employees	44 202	45 791	43 841
Sector			
Business sector	45 443	45 654	49 011
Government sector	27 905	27 976	27 854

Figure A7 Average monthly gross wage of ICT specialists (CZK)



*Average monthly gross wage presented in this publication is different from average monthly gross wage in other documents. In this publication are presented data about the sample of the survey (not grossed up results) cover c. 1,7 mil. engaged persons.

Source: CZSO, Structural Earnings Statistics

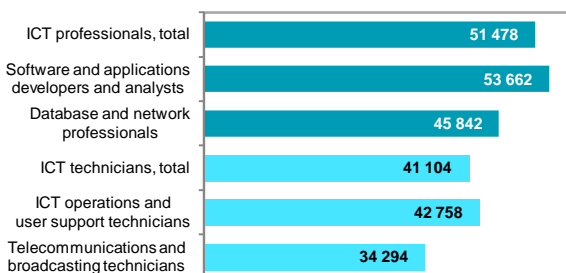
A ICT specialists

Table A4 Average monthly gross wage of ICT specialists by occupation, 2011

CZK

	Total	ICT professionals	ICT technicians
Total	47 342	51 478	41 104
Gender			
Males	48 977	52 865	42 973
Females	38 517	43 515	31 877
Age group			
20-24 years	27 406	29 975	24 839
25-29 years	37 601	39 483	33 877
30-34 years	49 260	52 517	42 884
35-39 years	55 191	60 772	46 895
40-44 years	54 586	60 760	46 512
45-49 years	50 102	55 915	42 977
50-54 years	47 376	53 473	40 384
55-59 years	44 385	49 772	38 972
60-64 years	45 424	50 051	40 670
Level of education			
Master and doctoral	57 592	58 390	55 197
Higher professional and bachelor	42 212	44 129	37 364
Upper secondary	40 014	44 211	36 163
other	32 353	38 119	31 248
Size class of enterprises			
10-49 employees	40 890	46 526	33 889
50-249 employees	47 840	52 143	40 202
250-999 employees	51 177	57 646	40 675
1 000-4 999 employees	45 615	47 307	42 807
5 000+ employees	43 841	46 894	40 771
Sector			
Business sector	49 011	53 096	42 723
Government sector	27 854	30 441	24 762

Figure A8 Average monthly gross wage of ICT specialists by occupation, 2011 (CZK)



Source: CZSO, Structural Earnings Statistics

A ICT specialists

Table A5 University students of Computing in the CR

	number		
	2009	2010	2011
Total	21 508	22 497	22 693
Gender			
Males	18 846	19 668	19 628
Females	2 662	2 829	3 065
Educational programme			
Bachelor and master programmes	20 436	21 189	21 398
Bachelor programmes	15 961	16 017	15 967
Master programmes	4 492	5 183	5 441
Doctoral programmes	1 072	1 309	1 299
Field of education			
Computer sciences	14 068	15 047	15 209
Computers usage	6 860	7 124	7 162
Nationality			
Czech Republic	18 564	19 235	19 298
Foreign	2 944	3 262	3 395

Figure A9 University students of Computing

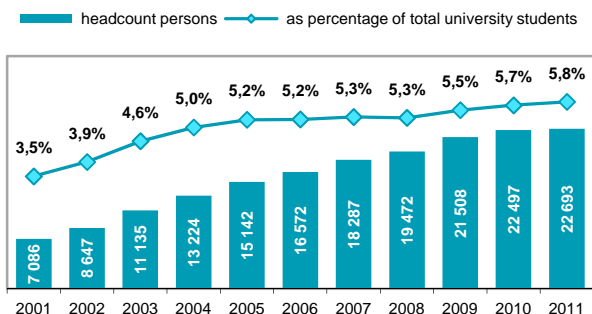
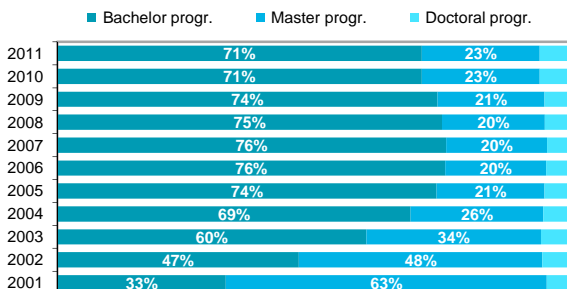


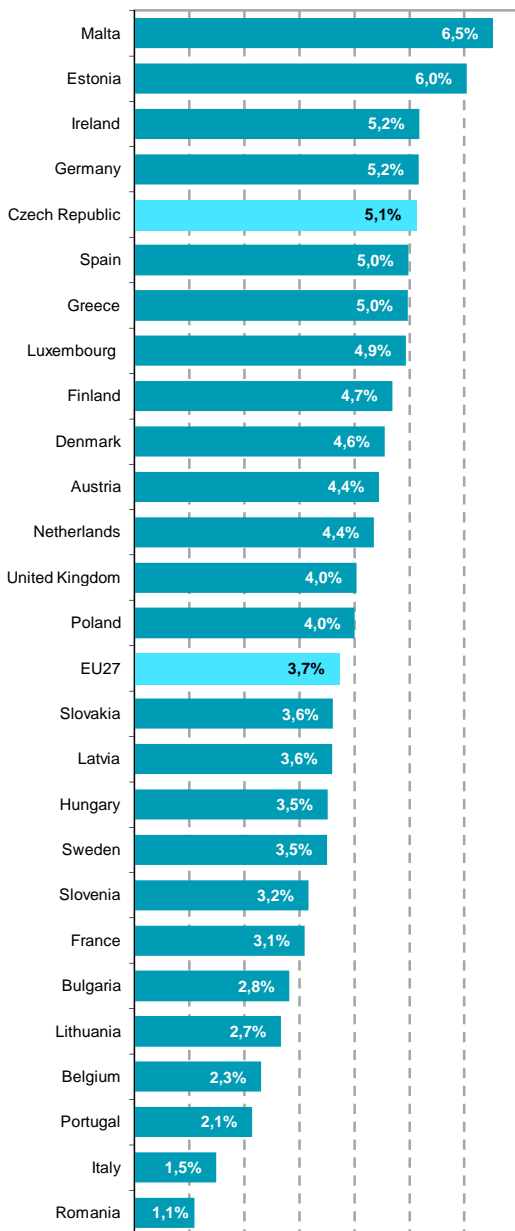
Figure A10 University students of Computing by educational programmes



Source: The Ministry of Education, Youth and Sports and CZSO calculations

A ICT specialists

Figure A11 Students of Computing in tertiary education, 2011
(as a percentage of total students in tertiary education)



Source: Eurostat

A ICT specialists

Table A6: University graduates of Computing in the CR

	number		
	2009	2010	2011
Total	3 735	3 808	3 961
Gender			
Males	3 240	3 332	3 478
Females	495	476	483
Educational programme			
Bachelor and master programmes	3 655	3 731	3 879
Bachelor programmes	2 480	2 526	2 549
Master programmes	1 177	1 205	1 330
Doctoral programmes	80	77	82
Field of education			
Computer sciences	2 307	2 357	2 463
Computers usage	1 431	1 451	1 494
Nationality			
Czech Republic	3 284	3 279	3 385
Foreign	451	529	576

Figure A12 University graduates of Computing

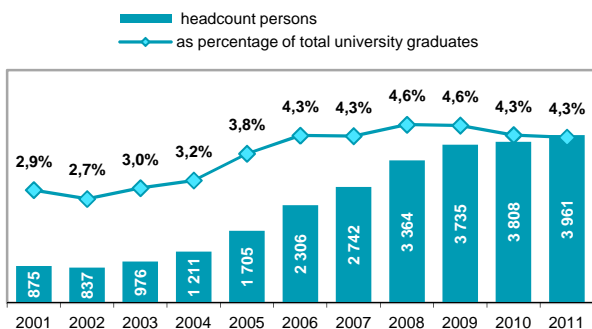
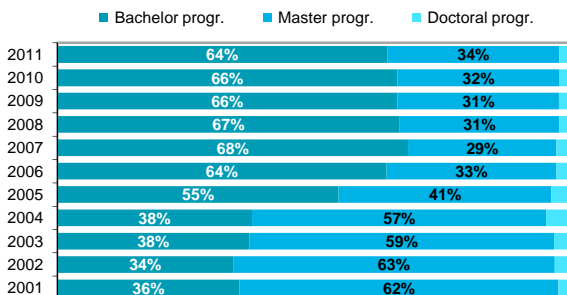


Figure A13 University graduates of Computing by educational programmes



Source: The Ministry of Education, Youth and Sports and CZSO calculations

B ICT expenditures

The Statistical Classification of Products by Activity in the European Economic Community, 2008 version (CPA 2008) is used to identify appropriate products for measuring ICT related expenditures including investments. ICT products can be classified into two main categories based on the following CPA 2008 divisions and groups:

- **ICT equipment:**
 - Computers and peripheral equipment (262)
 - Communication equipment (263)
 - *Other electronic and optical devices (261, 264 - 267)*
- **ICT services:**
 - Telecommunications services (61)
 - Computer programming, consultancy and related services (62)

*Since expenditure data, except for investment, from the **National Accounts Statistics** as main data source for this chapter, is available only at 2-digit level of CPA classification, category 'ICT equipment' includes the entire CPA section 26 (Computer, electronic and optical devices). For the same reason, expenditures on IT services do not include the following CPA groups: Software publishing (582), Data processing, hosting and related services, web portals (631) and Repair services of computers and communication equipment (951), which are in other statistics part of IT services.*

ICT expenditure by type of **supply** includes domestic production (P.1 minus export P.6), imports (P.7) and others (trade and transport margins, taxes and subsidies on products).

ICT expenditure by type of **use** includes intermediate consumption (P.2), final consumption (P.3), gross fixed capital formation (investment P.51) and changes in inventories (P.52).

Intermediate consumption (P.2) consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets. The goods and services may be either transformed or used up by the production process. Intermediate consumption excludes items treated as gross capital formation (investment). *Households do not make intermediate consumption but only final consumption expenditures.*

Final consumption expenditure (P3) consists of expenditure on goods or services that are used for the direct satisfaction of individual needs or wants or the collective needs of members of the community (**mainly households**). *Corporations do not make final consumption expenditures. Their purchases of the same kind of goods or services as used by households for final consumption are used for intermediate consumption. Households' consumption expenditures on IT services (software) are included under ICT equipment.*

ICT investment refers here to the Gross fixed capital formation (GFCF) and covers the acquisition of equipment and computer software used in production for more than one year. ICT has three components: IT equipment (computers and related hardware: CPA 262); communication equipment (CPA 263) and software (CPA 582 and 62). *Households do not make investment but only final consumption expenditures. None expenditures for Telecommunications services (CPA 61) can be considered as investment.*

Software includes acquisition of pre-packaged software, customized software and software developed in-house.

The data come from the **Annual National Accounts Statistics** of the Czech Statistical Office. **2011 data are preliminary.** For more information see: http://apl.czso.cz/pll/rocenka/rocenka.indexnu_en

B ICT expenditures

Table B1 Total ICT expenditure in the Czech Republic

CZK million

	2009	2010	2011
Total	616 273	678 942	659 341
ICT and other* electronic equipment	342 713	405 562	380 299
Telecommunication services	147 364	141 987	133 839
IT services**	126 196	131 393	145 203
Type of resources (supply side)			
Domestic output***	229 387	243 264	241 904
Imports	315 233	360 376	344 330
Others (trade margins, taxes, subsidies)	71 653	75 302	73 107
Type of expenditures (user side)			
Investment	102 188	103 773	106 669
Changes in inventories	3 946	1 239	-792
Households final consumption	97 282	97 339	93 367
Intermediate consumption	412 857	476 591	460 097

* Measuring, testing, navigating, optical and electromedical equipment

** Computer programming, consultancy and related services

***Excluding domestic production intended for exports

Figure B1 Total ICT expenditure (CZK billion)

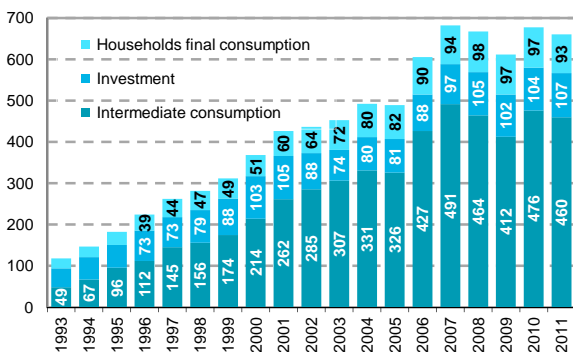
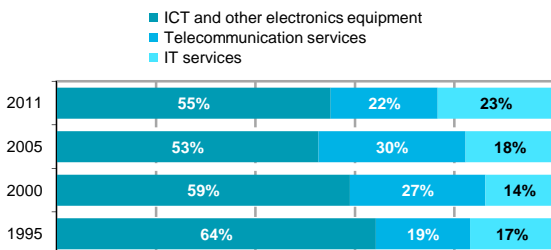


Figure B2 ICT expenditure by main categories of products



Source: CZSO, Annual National Accounts Statistics - Supply and use tables

B ICT expenditures

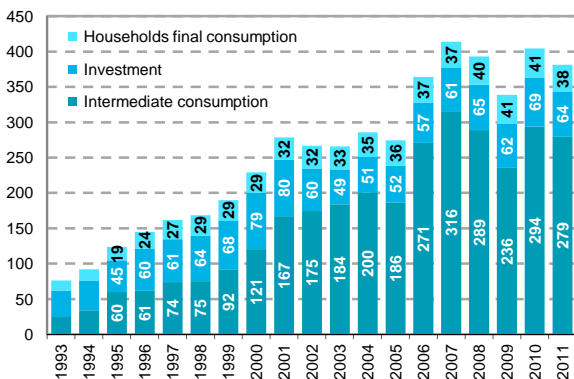
Table B2 Expenditure on ICT equipment in the Czech Republic

CZK million

	2009	2010	2011
Total	342 713	405 562	380 299
Type of resources (supply side)			
Domestic output*	12 656	24 794	19 058
Imports	287 243	334 766	318 780
Others (trade margins, taxes, subsidies)	42 814	46 002	42 461
Type of expenditures (user side)			
Investment, total	62 027	68 815	63 503
<i>thereof into IT equipment (CPA 262)</i>	26 914	28 786	30 763
Changes in inventories	3 946	1 239	-792
Households final consumption	40 897	41 477	38 348
Intermediate consumption, total	235 843	294 031	279 240
By Industry (CZ-NACE Sections):			
Agriculture, forestry and fishing	181	271	285
Mining and quarrying	115	163	158
Manufacturing, total	200 586	250 903	240 582
<i>thereof ICT manufacturing</i>	168 820	205 179	196 078
Electricity, gas and water supply	341	524	419
Construction	4 453	5 480	4 900
Wholesale and retail trade	2 245	3 331	2 930
Transportation and storage	1 881	2 486	2 285
Accommodation and food service activ.	2 487	2 881	2 437
Information and communication	10 323	11 686	10 527
Financial and insurance activities	2 134	3 059	2 880
Real estate activities	247	375	355
Profess., scientific and technical activ.	4 085	4 565	4 202
Administrative and support service activ.	408	432	414
Public administration and defence	1 198	1 887	1 582
Education	2 870	2 948	2 635
Human health and social work activities	1 363	1 776	1 538
Other community, social services	926	1 264	1 111

*Excluding domestic production intended for exports

Figure B3 Expenditure on ICT equipment (CZK billion)



Source: CZSO, Annual National Accounts Statistics - Supply and use tables

B ICT expenditures

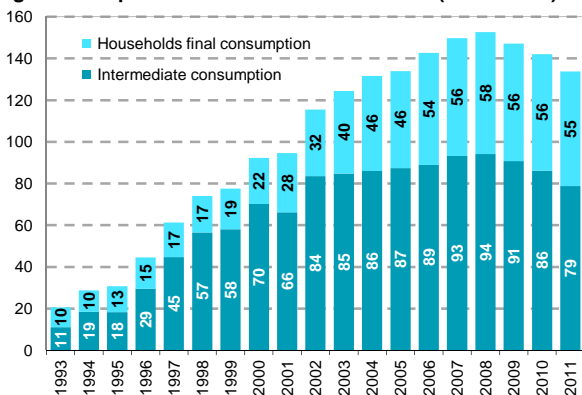
Table B3 Expenditure on Telecommunication services in CR

CZK million

	2009	2010	2011
Total	147 364	141 987	133 839
Type of resources (supply side)			
Domestic output*	125 777	120 673	112 787
Imports	10 942	10 490	10 470
Others (trade margins, taxes, subsidies)	10 645	10 824	10 582
Type of expenditures (user side)			
Investment			
Households final consumption	56 385	55 862	55 019
Intermediate consumption, total	90 979	86 125	78 820
By Industry (CZ-NACE Sections):			
Agriculture, forestry and fishing	551	568	610
Mining and quarrying	71	81	69
Manufacturing	5 322	5 590	5 464
Electricity, gas and water supply	1 108	1 168	1 090
Construction	2 237	1 999	1 794
Wholesale and retail trade	6 657	7 107	7 025
Transportation and storage	3 169	3 293	2 960
Accommodation and food service activ.	2 201	1 880	1 721
Information and communication, total	44 821	39 935	36 131
Telecommunications (CZ-NACE 61)	32 583	36 201	32 583
Financial and insurance activities	2 502	2 586	2 592
Real estate activities	2 000	2 129	1 969
Professional, scientific and technical activ.	4 974	4 712	4 376
Administrative and support service activ.	1 212	1 045	1 012
Public administration and defence	10 761	10 524	8 870
Education	1 017	1 057	940
Human health and social work activities	1 044	1 128	987
Other community, social services	1 332	1 323	1 210

* Excluding domestic production intended for exports

Figure B4 Expenditure on telecomm. services (CZK billion)



Source: CZSO, Annual National Accounts Statistics - Supply and use tables

B ICT expenditures

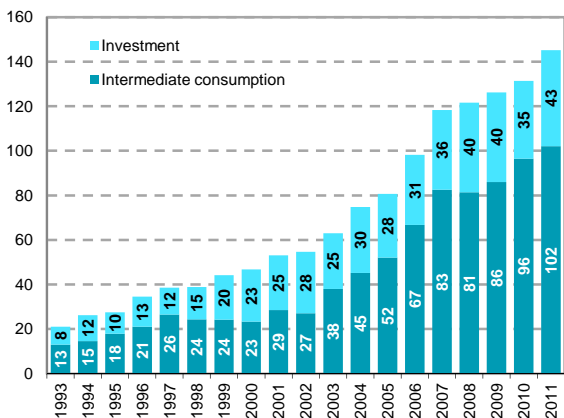
Table B4 Expenditure on IT services in the Czech Republic

CZK million

	2009	2010	2011
Total	126 196	131 393	145 203
Type of resources (supply side)			
Domestic output*	90 954	97 797	110 059
Imports	17 048	15 120	15 080
Others (trade margins, taxes, subsidies)	18 194	18 476	20 064
Type of expenditures (user side)			
Investment	40 161	34 958	43 166
Households final consumption			
Intermediate consumption, total	86 035	96 435	102 037
By Industry (CZ-NACE Sections):			
Agriculture, forestry and fishing	196	230	277
Mining and quarrying	44	57	48
Manufacturing	9 210	11 299	11 662
Electricity, gas and water supply	686	664	666
Construction	1 066	1 112	1 085
Wholesale and retail trade	7 235	8 924	10 259
Transportation and storage	1 713	2 014	2 007
Accommodation and food service activ.	298	292	292
Information and communication, total	34 817	37 862	40 787
<i>thereof IT services (CZ-NACE 62)</i>	<i>28 502</i>	<i>30 648</i>	<i>33 972</i>
Financial and insurance activities	13 503	16 792	17 319
Real estate activities	1 446	1 784	1 888
Professional, scientific and technical activ.	6 127	6 508	6 670
Administrative and support service activ.	1 430	1 400	1 517
Public administration and defence	3 212	1 721	1 589
Education	1 399	1 445	1 488
Human health and social work activities	624	741	720
Other community, social services	3 029	3 590	3 763

* Excluding domestic production intended for exports

Figure B5 Expenditure on IT services (CZK billion)



Source: CZSO, Annual National Accounts Statistics - Supply and use tables

B ICT expenditures

Table B5 Total ICT investment in the Czech Republic

CZK million

	2009	2010	2011
Total	83 113	83 063	83 788
ICT equipment	41 018	45 414	38 376
Telecommunication services			
Software	42 095	37 649	45 412
Industry (CZ-NACE section)			
Agriculture, forestry and fishing	367	405	440
Mining and quarrying	163	396	369
Manufacturing	8 360	7 542	8 209
Electricity, gas and water supply	2 761	3 820	2 536
Construction	1 123	1 876	1 582
Wholesale and retail trade	6 369	6 935	7 151
Transportation and storage	4 246	2 637	3 744
Accommodation and food service activ.	387	463	589
Information and communication, total	26 683	28 848	20 916
<i>thereof ICT services (CZ-NACE 61+62)</i>	<i>23 050</i>	<i>25 246</i>	<i>n.a.</i>
Financial and insurance activities	8 440	9 103	12 153
Real estate activities	624	1 668	849
Professional, scientific and technical activ.	6 117	5 680	9 028
Administrative and support service activ.	2 398	1 495	2 781
Public administration and defence	9 689	6 885	7 344
Education	2 171	1 918	2 568
Human health and social work activities	1 466	1 578	1 503
Other community, social services	1 749	1 814	2 026

Figure B6 Total ICT investment

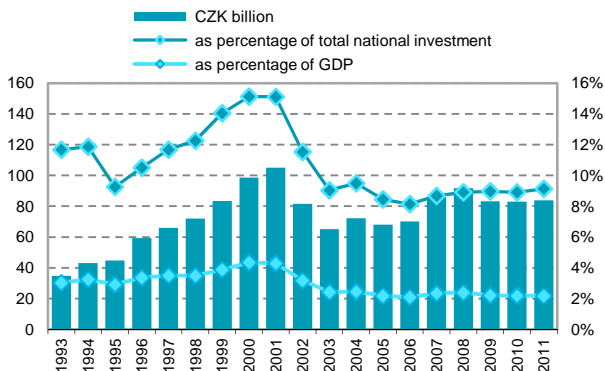
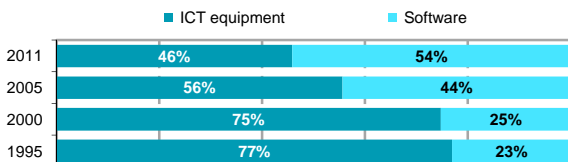


Figure B7 ICT investment by main categories of ICT products



Source: CZSO, Annual National Accounts Statistics - Supply and use tables

B ICT expenditures

Table B6 Investment in ICT equipment in the Czech Republic

CZK million

	2009	2010	2011
Total	41 018	45 414	38 376
Computers and peripheral equipment	26 914	28 786	30 763
Communication equipment	14 104	16 628	7 613
Industry (CZ-NACE section)			
Agriculture, forestry and fishing	284	185	317
Mining and quarrying	95	215	290
Manufacturing	3 337	2 349	2 907
Electricity, gas and water supply	1 517	2 524	1 326
Construction	829	1 120	598
Wholesale and retail trade	4 342	5 078	4 306
Transportation and storage	1 719	867	922
Accommodation and food service activ.	208	371	289
Information and communication	15 360	19 289	8 777
thereof ICT services (CZ-NACE 61+62)	13 528	17 251	n.a.
Financial and insurance activities	1 082	1 214	3 219
Real estate activities	415	1 390	209
Professional, scientific and technical activ.	4 463	3 862	6 629
Administrative and support service activ.	1 388	784	1 954
Public administration and defence	2 349	2 383	2 095
Education	1 491	1 545	2 005
Human health and social work activities	816	810	841
Other community, social services	1 323	1 428	1 692

Figure B8 Investment in ICT equipment

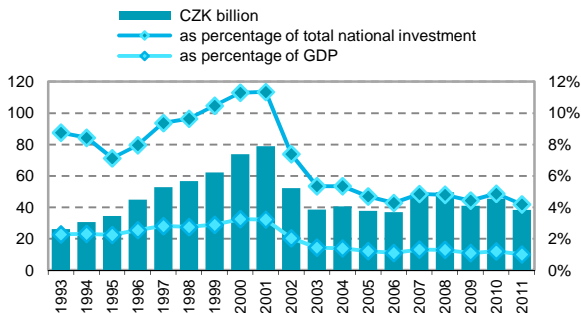
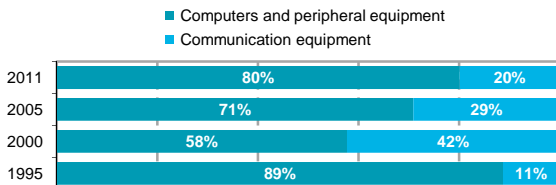


Figure B9 Investment in ICT equipment by products



Source: CZSO, Annual National Accounts Statistics - Supply and use tables

B ICT expenditures

Table B7 Software investment in the Czech Republic

CZK million

	2009	2010	2011
Total	42 095	37 649	45 412
Industry (CZ-NACE section)			
Agriculture, forestry and fishing	83	220	123
Mining and quarrying	68	181	79
Manufacturing	5 023	5 193	5 302
Electricity, gas and water supply	1 244	1 296	1 210
Construction	294	756	984
Wholesale and retail trade	2 027	1 857	2 845
Transportation and storage	2 527	1 770	2 822
Accommodation and food service activ.	179	92	300
Information and communication	11 323	9 559	12 139
thereof ICT services (CZ-NACE 61+62)	9 522	7 995	n.a.
Financial and insurance activities	7 358	7 889	8 934
Real estate activities	209	278	640
Professional, scientific and technical activ.	1 654	1 818	2 399
Administrative and support service activ.	1 010	711	827
Public administration and defence	7 340	4 502	5 249
Education	680	373	563
Human health and social work activities	650	768	662
Other community, social services	426	386	334

Figure B10 Software investment

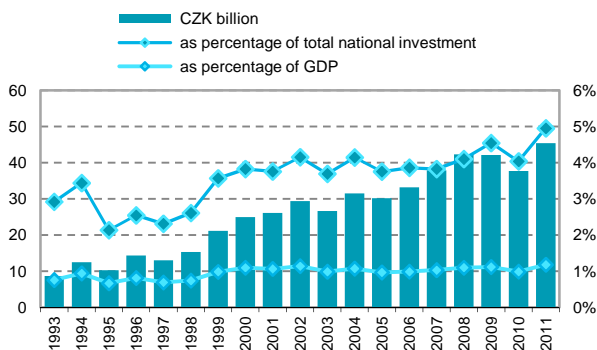
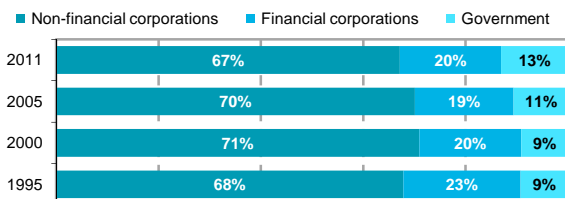


Figure B11 Software investment by institutional sectors



Source: CZSO, Annual National Accounts Statistics - Supply and use tables

C Science in ICT

This chapter includes data about **R&D expenditures** into ICT equipment and software and data about **patents** granted in the field of ICT.

Research and development (R&D) is a systematic creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of human beings, culture and society.

R&D expenditures includes all current (wage and other) and capital expenditures determined for R&D performed in observed institutions on the territory of a given country made during the reference year regardless the source of the funds.

Data about **ICT related R&D expenditures** are based on the results of the special module that is included in the Czech **Annual R&D survey**. Further information on the Czech R&D Survey can be found at:

http://www.czso.cz/csu/2012edicniplan.nsf/engpubl/9601-12-eng_r_2012

ICT products for R&D expenditures are classified into two main categories based on the following CPA 2008 divisions and groups:

- **ICT equipment** that includes Electronic components and boards (26.1); Computers and peripheral equipment (26.2); Communication equipment (26.3) and Consumer electronics (26.4)
- **Software** that includes Computer programming, consultancy and related services (62)

Software-related activities of a routine nature which do not involve scientific and/or technological advances or resolution of technological uncertainties are not to be included in R&D.

Patent statistics brings information about results and success of research, development and innovation activities in selected areas of technology.

A **patent** is a public deed issued by the relevant patent office, which provides legal protection to an invention for the period of up to 20 years (provided that maintenance fees are paid), namely on the territory for which it was issued by the office. Patent protection on the territory of the Czech Republic is ensured by the **Industrial Property Office of the Czech Republic** (hereinafter only IPO CR).

Data in this chapter were processed by the Czech Statistical Office based on data sources of the IPO CR. Patent data are broken down according to the **Patent Manual of the OECD (OECD, Paris 2009)**. Based on the International Patent Classification (IPC) it is possible to classify ICT related patents into four main categories as follows:

- Telecommunications
- Consumer electronics
- Computers and peripheral equipment
- Other ICT

Category 'other ICT' includes, compare to other chapters, invention in the field of ICT related medical and scientific equipment.

The Czech Statistical Office publishes additional information about the **Czech applicants** broken down e.g. by their **institutional sector** (business enterprise sector, government sector, higher education sector, and natural persons) or by region of residence of the patent holder. Further information on the Czech patent statistics can be found at:

http://www.czso.cz/csu/redakce.nsf/i/patentova_statistika.

The following **OECD web site** was used as a data source for the international comparison: www.oecd.org/sti/ipr-statistics.

C Science in ICT

Table C1 Total R&D expenditure in ICT in the Czech Republic

CZK million

	2009	2010	2011
Total	6 630	6 811	7 626
ICT equipment	3 327	3 147	3 951
Software	3 303	3 664	3 675
Sector of R&D performance			
Business enterprise	5 801	5 956	6 607
Government	209	180	204
Higher education	603	667	749
Private non-profit	17	9	66

Table C2 R&D expenditure in ICT in the Czech Republic funded by government

CZK million

	2009	2010	2011
Total	1 384	1 282	1 508
ICT equipment	1 041	947	1 117
Software	343	335	391
Sector of R&D performance			
Business enterprise	716	554	676
Government	184	162	187
Higher education	480	561	643
Private non-profit	4	5	3

Figure C1 R&D expenditure in ICT equipment and software

■ CZK million —◆— as percentage of total R&D expenditure (GERD)

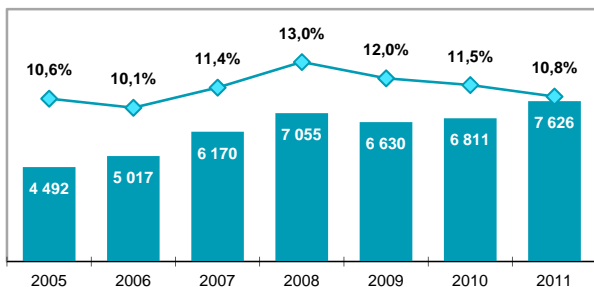
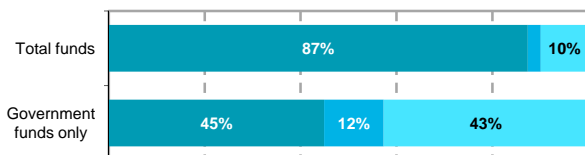


Figure C2 R&D expenditure in ICT by sector of performance and source of funds, 2011

■ Business enterprise ■ Government ■ Higher education



Source: CZSO, Annual R&D survey

Table C3 Total software R&D expenditure in the CR

CZK million

	2009	2010	2011
Total	3 303	3 664	3 675
Sector of R&D performance			
Business enterprise	3 105	3 415	3 382
Government	12	13	6
Higher education	174	235	282
Private non-profit	11	1	6

Table C4 Software R&D expenditure in the Czech Republic funded by government

CZK million

	2009	2010	2011
Total	343	335	391
Sector of R&D performance			
Business enterprise	205	137	143
Government	9	11	6
Higher education	125	187	242
Private non-profit	3	1	1

Figure C3 Software R&D expenditure

■ CZK million ◆ as percentage of total R&D expenditure (GERD)

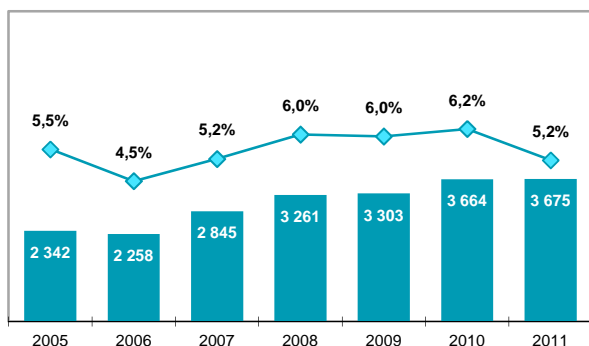
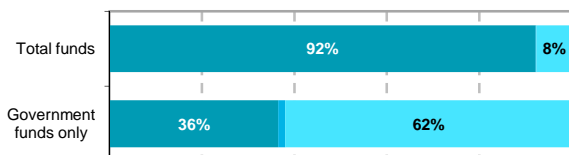


Figure C4 Software R&D expenditure by sector of performance and source of funds, 2011

■ Business enterprise ■ Government ■ Higher education



Source: CZSO, Annual R&D survey

Table C5 ICT patents granted or validated in the CR

	number		
	2009	2010	2011
Total	304	304	356
Telecommunications	83	79	91
Consumer electronics	25	33	40
Computers and peripheral equipment	70	41	62
Other ICT technologies	126	151	163
Country of the patent applicant			
Czech applicants	42	37	54
Business enterprise	21	7	11
Government	2	3	8
Higher education	17	26	33
Private persons	2	1	3
Foreign applicants	262	267	302
Germany	88	72	76
United states	44	53	65
Czech Republic	42	37	54
Japan	17	17	27

Figure C5 ICT patents granted or validated in the Czech Republic by type of technology

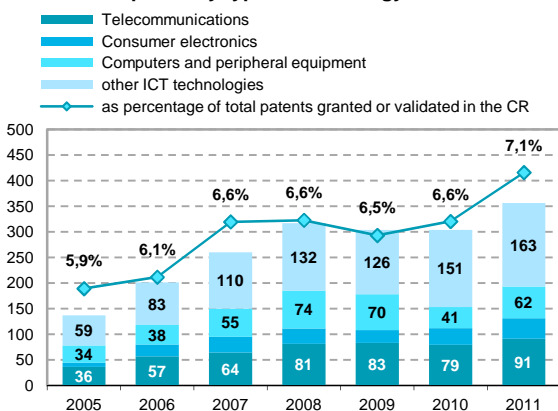
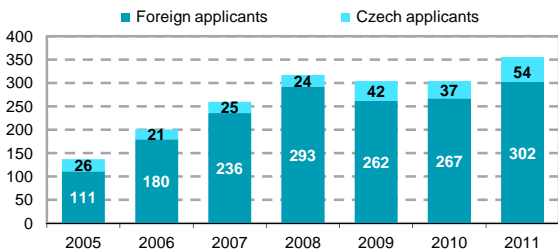


Figure C6 ICT patents granted or validated in the Czech Republic by applicant's nationality



Source: IPO of the Czech Republic and CZSO calculations

Table C6 Valid ICT patents in the CR as of 31.12.2011

	Total	Country of the patent applicant	
		Czech	Foreign
Total	1 625	187	1 438
Telecommunications	444	19	425
Consumer electronics	183	3	180
Computers and peripheral equipment	306	23	283
Other ICT technologies	692	142	550

Figure C7 ICT patents valid in the CR as of 31.12.2011 by type of technology and applicant's nationality

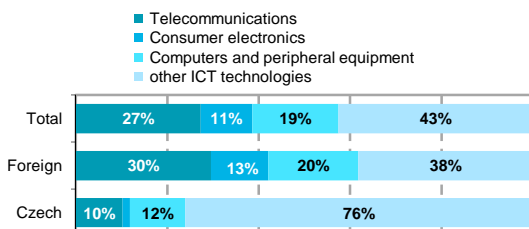
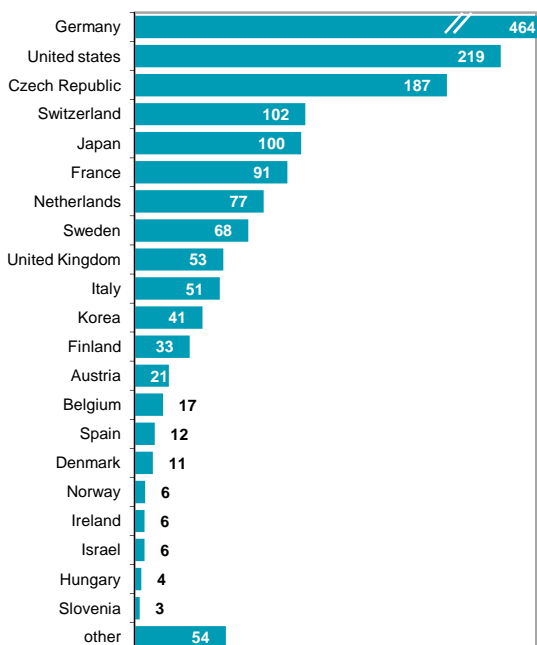
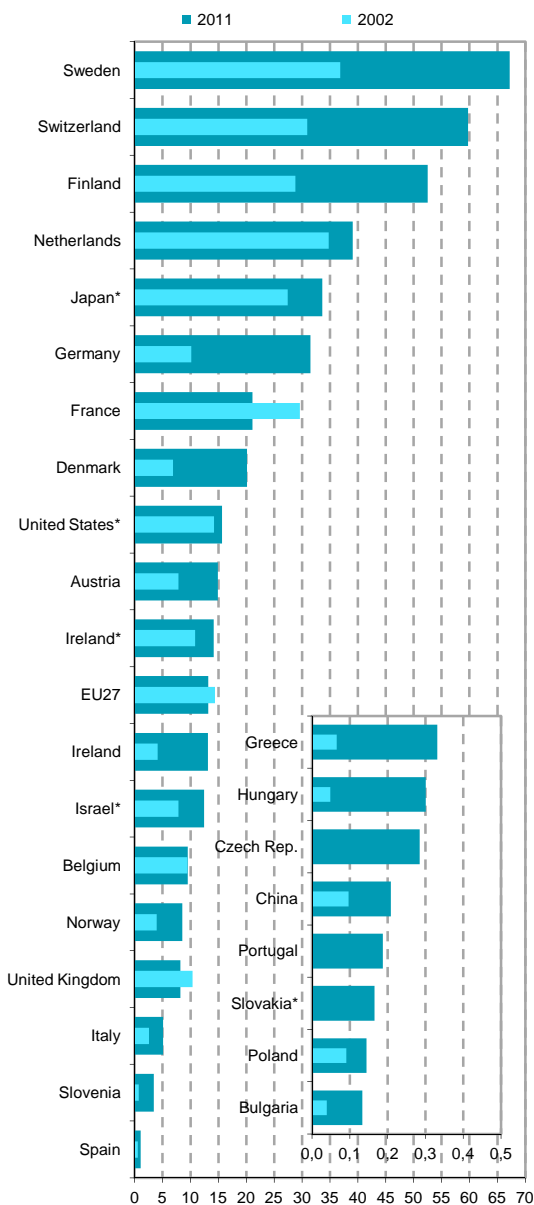


Figure C8 ICT patents valid in the Czech Republic as of 31.12.2011 by applicant's nationality



Source: IPO of the Czech Republic and CZSO calculations

**Figure C9 ICT patents granted by the European Patent Office
(per million inhabitants)**



* year 2010

Source: OECD

D ICT external trade

ICT external trade **contains** external trade in both ICT goods and ICT services. **ICT products** are defined as goods or services which must be primarily intended to fulfill or enable the function of information processing and communication by electronic means, including transmission and display (OECD 2008).

The new list of ICT goods used for the external trade statistics is based on the *Harmonized System (HS2007)*, an international classification standard used for trade statistics, and worked carried by the WPIIS expert group in 2010. List of ICT goods defined at 6-digit level of HS2007 (95 items) was further grouped into the five main categories as follows:

- Computers and peripheral equipment;
- Communication equipment;
- Consumer electronics;
- Electronic components; and
- Miscellaneous ICT components and parts.

The **External Trade Statistics Database** of the Czech Statistical Office (CZSO) was used as a data source for national data. **2011 data are preliminary.** For more information see:

<http://apl.czso.cz/pll/stazo/STAZO.STAZO?jazyk=EN>

The detail data on external trade in ICT goods at the level of sub-categories are published here only since the reference year 2007. This is due to substantial changes of respective items of the main ICT goods categories in the 2007 version of the Harmonized System.

The **UN Comtrade database** was used as a data source for the international comparison: <http://comtrade.un.org/db/>

Data on trade in ICT goods for main ICT categories published by the Czech Statistical Office differ slightly from the data published by OECD or UNCTAD as different classification of some ICT items was used.

Further information on ICT goods trade statistics can be found at:

http://www.czso.cz/eng/redakce.nsf/i/external_trade_in_ict_goods

Data on trade in **ICT services** are currently limited compared to data on trade in ICT goods. The current services classification is based on the Extended Balance of Payments Services Classification (EBOPS). The ICT services are subdivided into two fundamental categories as follows:

- Telecommunication services (code 247); and
- Computer services (code 263).

Since 2005 data about trade in ICT services in the Czech Republic comes from the **survey on exports and imports of services** carry out by the CZSO. Until 2004 data were based on the current account of the balance of payments (BOP) provided by the **Czech National Bank (CNB)**. The individual BOP items are defined in compliance with individual receipt and payment items and correspond with international codes of BPM5. For more information see: http://www.cnb.cz/en/statistics/bop_stat/

The **Eurostat Balance of Payments Database** was used as a data source for the international comparison. For more information see:

http://epp.eurostat.ec.europa.eu/portal/page/portal/balance_of_payments/data/database

Further information on ICT services trade statistics can be found at:

http://www.czso.cz/csu/redakce.nsf/i/zahranicni_obchod_s_ict_sluzbami.

D ICT external trade

Table D1 ICT goods exports from the Czech Republic

CZK million

	2009	2010	2011
Total	314 002	396 508	433 635
Communication equipment	27 953	35 220	56 129
Computers and peripherals	142 412	186 551	194 127
Consumer electronics	76 171	89 274	86 282
Electronic components	32 812	44 080	48 812
Miscellaneous ICT components and parts	34 655	41 383	48 286

Figure D1 ICT goods exports

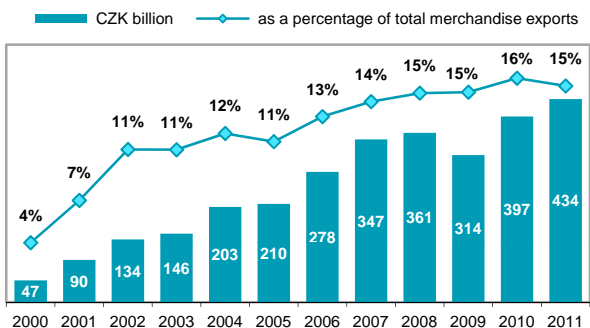


Figure D2 ICT goods exports by commodities

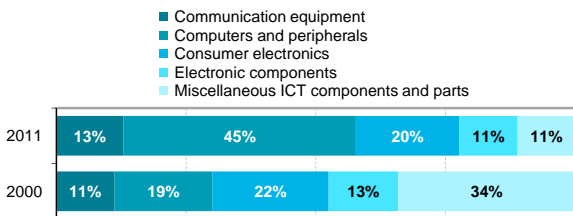
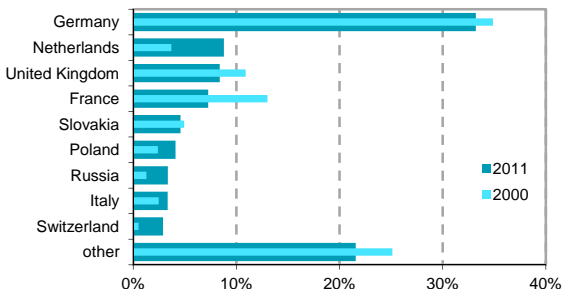


Figure D3 ICT goods exports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D2 ICT goods imports to the Czech Republic

CZK million

	2009	2010	2011
Total	315 247	432 179	421 575
Communication equipment	24 276	34 751	52 250
Computers and peripherals	91 653	123 278	149 272
Consumer electronics	29 644	30 825	32 778
Electronic components	73 223	114 187	76 201
Miscellaneous ICT components and parts	96 451	129 137	111 074

Figure D4 ICT goods imports

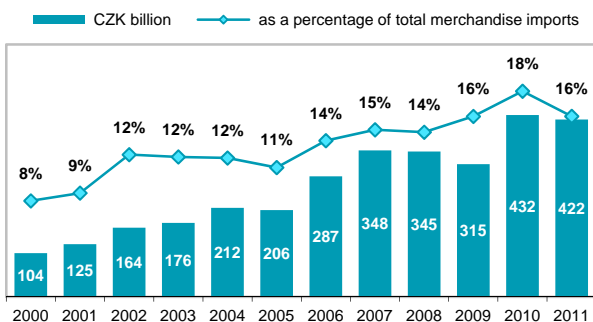


Figure D5 ICT goods imports by commodities

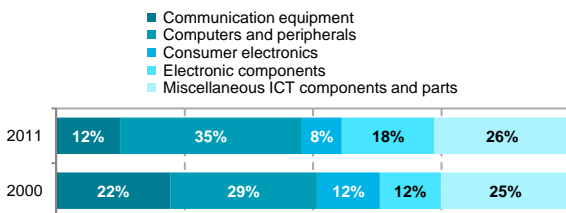
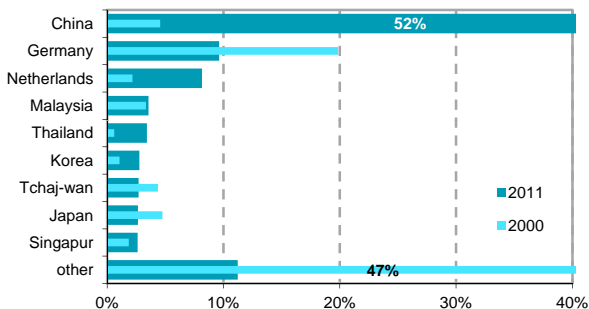


Figure D6 ICT goods imports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

**Figure D7 ICT goods exports
(as percentage of total merchandise exports)**

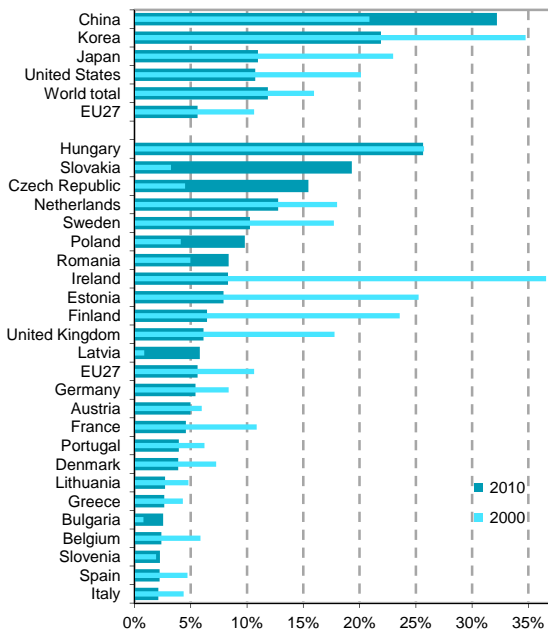
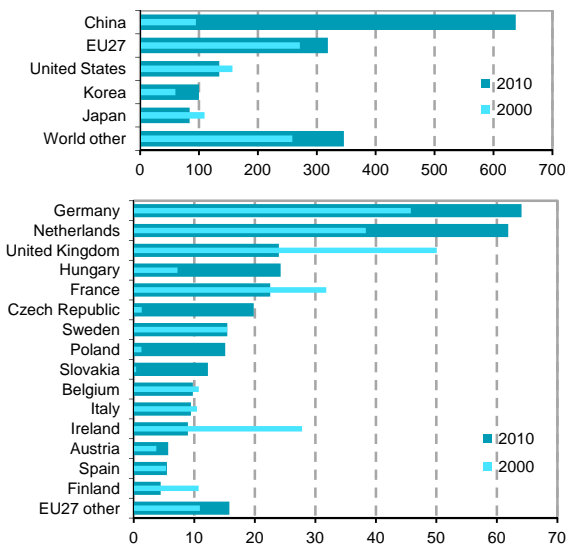


Figure D8 ICT goods exports (US\$ billion)



Source: UN, Comtrade database and CZSO calculations

D ICT external trade

**Figure D9 ICT goods imports
(as percentage of total merchandise imports)**

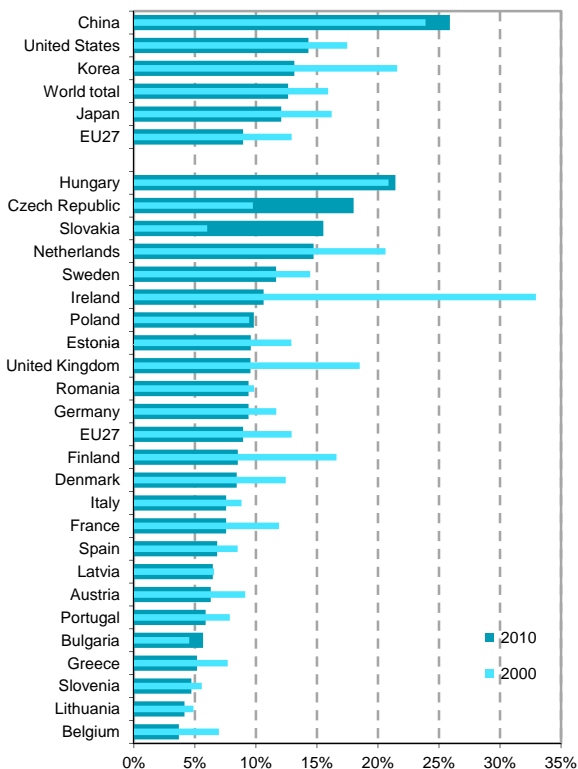
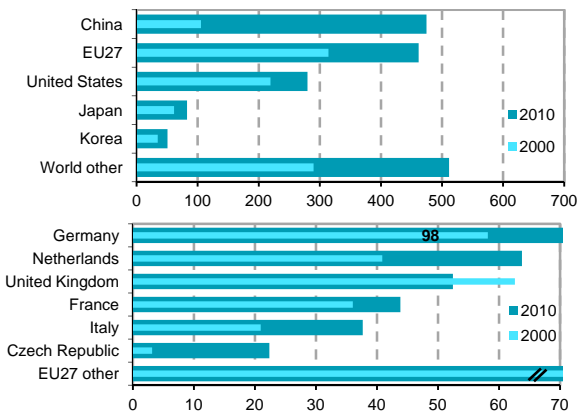


Figure D10 ICT goods imports (US\$ billion)



Source: UN, Comtrade database and CZSO calculations

D ICT external trade

Table D3 Communication equipment exports from the CR

CZK million

	2009	2010	2011
Total	27 953	35 220	56 129
Mobile phones	12 690	18 058	32 850
Other telecommunication equipment	1 951	1 221	1 184
Radio or television transmission apparatus	13 312	15 941	22 095

Figure D11 Communication equipment exports

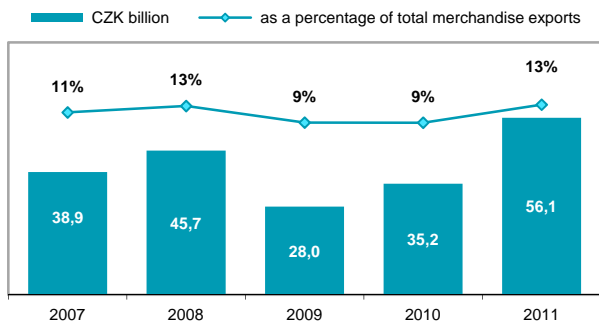


Figure D12 Communication equipment exp. by commodities

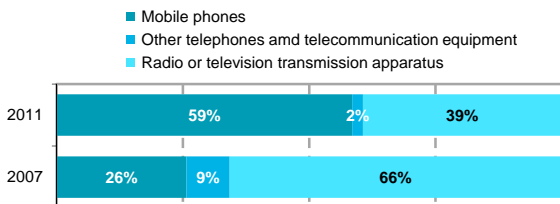
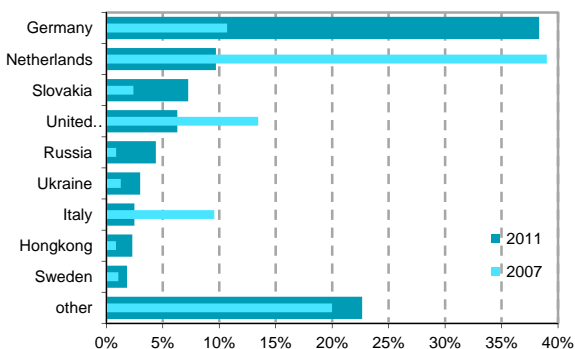


Figure D13 Communication equipment exports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D4 Communication equipment imports to the CR

	CZK million		
	2009	2010	2011
Total	24 276	34 751	52 250
Mobile phones	14 345	20 849	35 639
Other telecommunication equipment	2 249	2 424	2 002
Radio or television transmission apparatus	7 682	11 478	14 609

Figure D14 Communication equipment imports

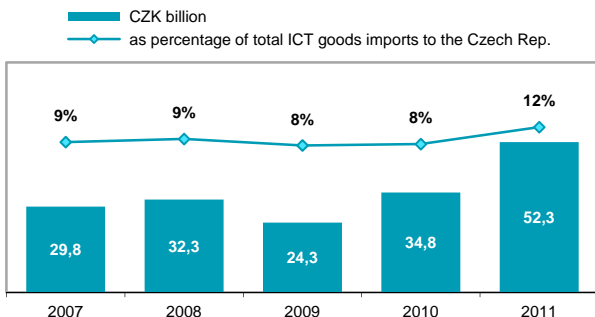


Figure D15 Communication equipment imp. by commodities

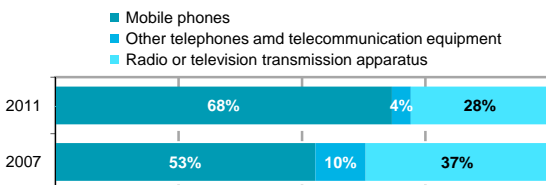
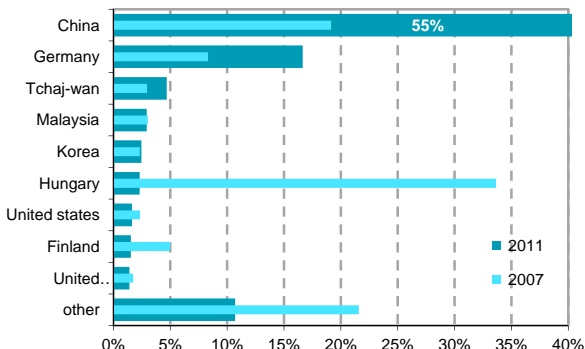


Figure D16 Communication equipment imports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D5 Computers and peripherals exports from the CR

CZK million

	2009	2010	2011
Total	142 412	186 551	194 127
Portable computers and tablets	14 684	42 260	55 688
Other computers	73 260	89 346	81 053
Computer peripherals, total	54 285	54 691	57 112
Storage units	21 948	33 946	33 233
Sound, video and similar PCs cards	14 031	5 891	7 759
Monitors and projectors	5 409	4 526	4 843
Printers and copiers used with PCs	5 462	5 579	5 267
Input or output peripherals. n.e.s*.	7 435	10 641	13 769

* Keyboards; joysticks, computer mice, scanners, optical readers, etc.

Figure D17 Computers and peripherals exports

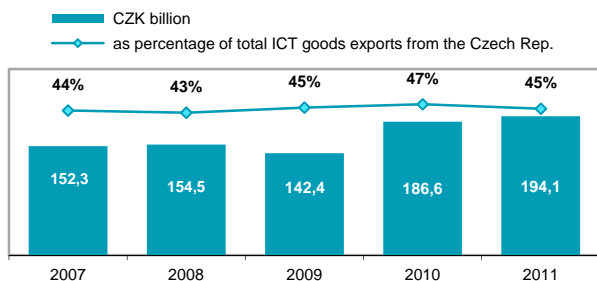


Figure D18 Computers and peripherals exports by commodities

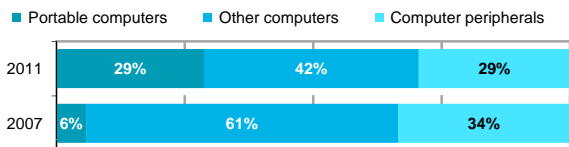
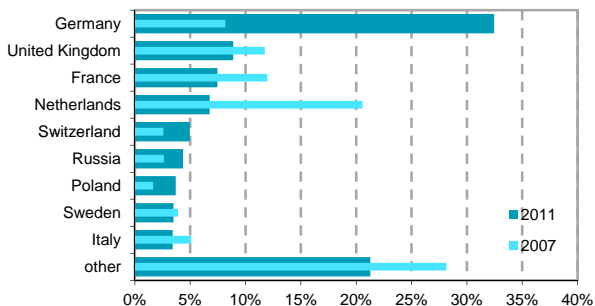


Figure D19 Computers and peripherals exports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D6 Computers and peripherals imports to the CR

CZK million

	2009	2010	2011
Total	91 653	123 278	149 272
Portable computers and tablets	22 054	44 876	69 882
Other computers	10 254	14 334	14 319
Computer peripherals, total	59 345	64 068	65 072
Storage units	27 801	40 453	34 777
Sound, video and similar PCs cards	10 471	7 007	9 216
Monitors and projectors	3 289	4 525	9 209
Printers and copiers used with PCs	6 223	7 004	7 204
Input or output peripherals. n.e.s*.	11 561	12 086	13 881

* Keyboards; joysticks, computer mice, scanners, optical readers, etc.

Figure D20 Computers and peripherals imports

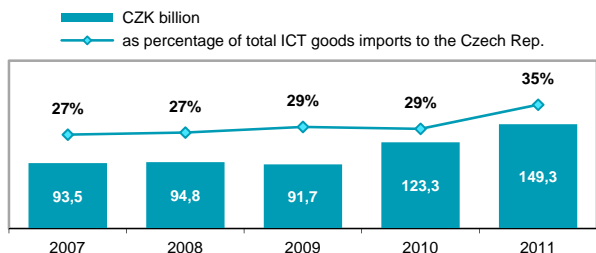


Figure D21 Computers and peripherals imports by commodities

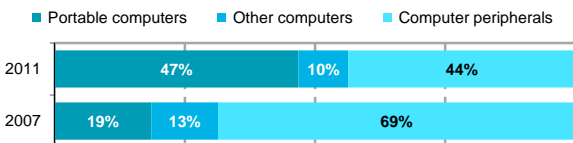
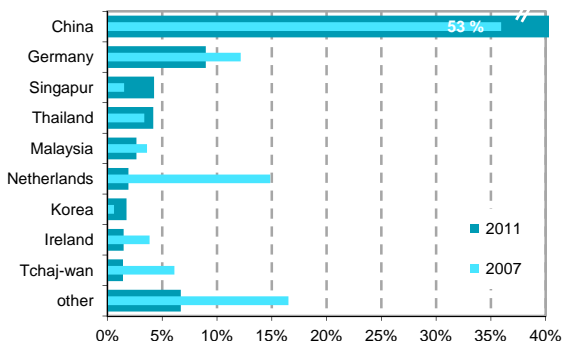


Figure D22 Computers and peripherals imports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D7 Consumer electronics exports from the CR

CZK million

	2009	2010	2011
Total	76 171	89 274	86 282
Radio and TV receivers	54 972	66 807	65 132
Sound, video and image recording and reproducing apparatus	13 764	15 714	15 742
Other consumer electronics*	7 435	6 753	5 408

* Monitors and projectors; Microphones and stands therefor; Loudspeakers; Headphones; Electric sound amplifier sets

Figure D23 Consumer electronics exports

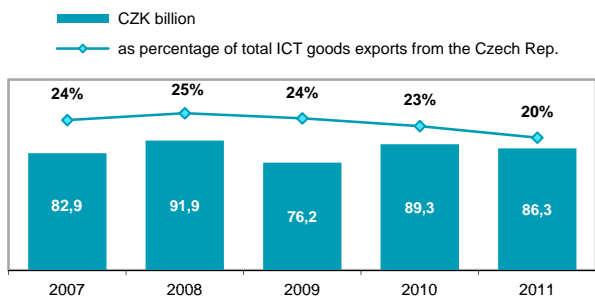


Figure D24 Consumer electronics exports by commodities

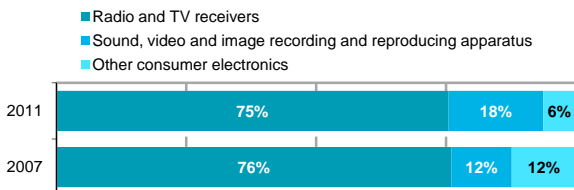
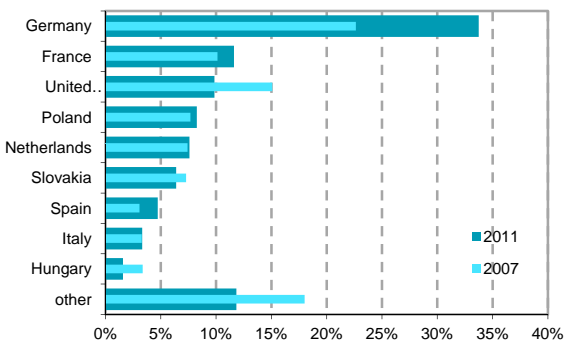


Figure D25 Consumer electronics exports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D8 Consumer electronics imports to the Czech Republic

CZK million

	2009	2010	2011
Total	29 644	30 825	32 778
Radio and TV receivers	13 368	11 746	15 884
Sound, video and image recording and reproducing apparatus	9 822	10 100	11 419
Other consumer electronics*	6 454	8 979	5 475

* Monitors and projectors; Microphones and stands therefor; Loudspeakers; Headphones; Electric sound amplifier sets

Figure D26 Consumer electronics imports

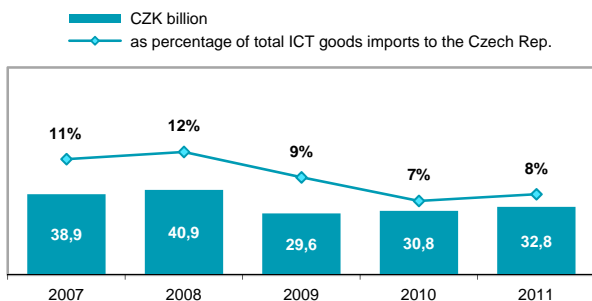


Figure D27 Consumer electronics imports by commodities

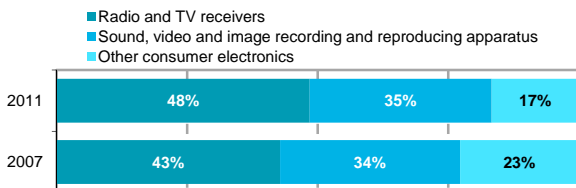
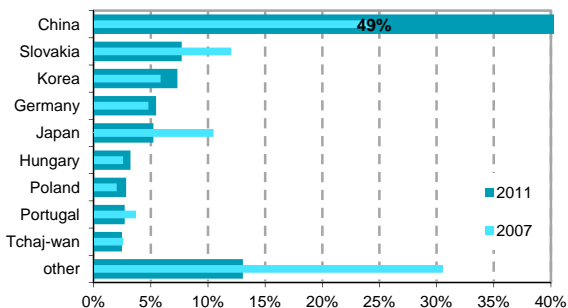


Figure D28 Consumer electronics imports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D9 Electronic components exports from the CR

CZK million

	2009	2010	2011
Total	32 812	44 080	48 812
Electronic integrated circuits	15 621	19 473	24 686
<i>thereof processors</i>	12 000	14 915	21 232
Printed circuits	2 639	2 960	3 254
Other electronic components	14 551	21 647	20 608

Figure D29 Electronic components exports

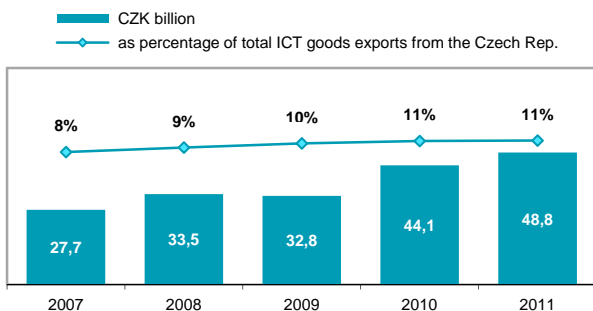


Figure D30 Electronic components exports by commodities

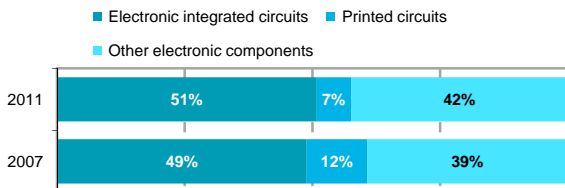
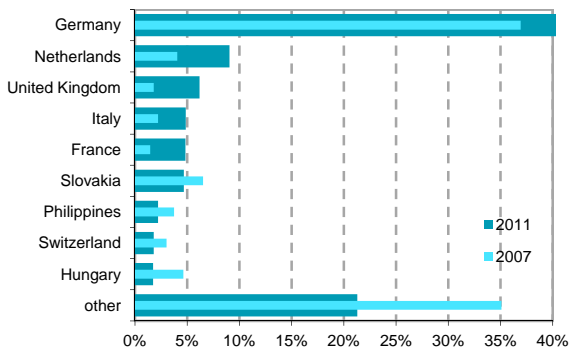


Figure D31 Electronic components exports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D10 Electronic components imports to the CR

CZK million

	2009	2010	2011
Total	73 223	114 187	76 201
Electronic integrated circuits	35 643	45 127	46 618
<i>thereof processors</i>	28 877	36 286	38 935
Printed circuits	6 549	7 389	6 718
Other electronic components	31 031	61 671	22 866

Figure D32 Electronic components imports

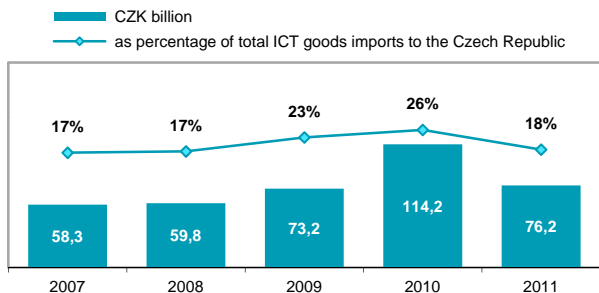


Figure D33 Electronic components imports by commodities

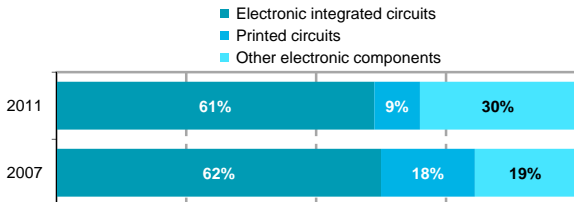
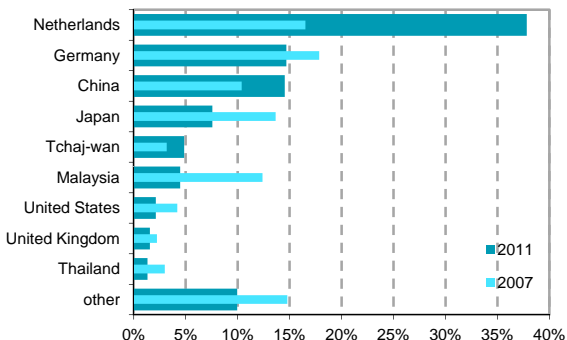


Figure D34 Electronic components imports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D11 Miscellaneous ICT components and parts exports from the Czech Republic

	CZK million		
	2009	2010	2011
Total	34 655	41 383	48 286
Parts and accessories of			
- computing machines	17 393	23 902	32 746
- telecommunication equipment	7 206	7 688	7 366
- consumer electronics	10 056	9 794	8 174

Figure D35 Miscellaneous ICT components and parts exports

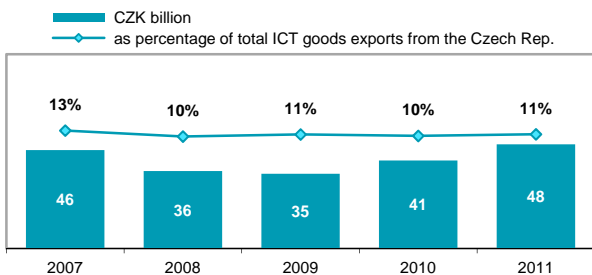


Figure D36 Miscellaneous ICT components and parts exports by commodities

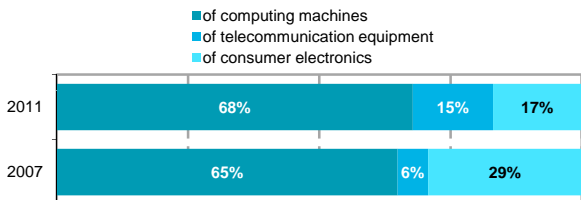
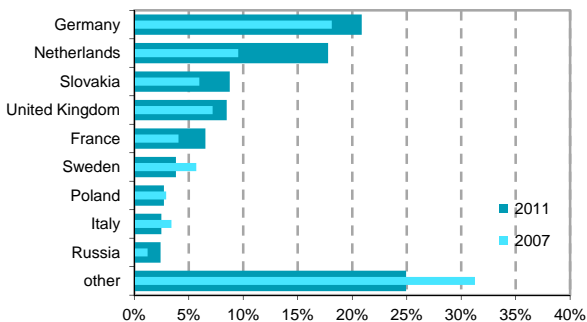


Figure D37 Miscellaneous ICT components and parts exports by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

Table D12 Miscellaneous ICT components and parts imports to the Czech Republic

	CZK million		
	2009	2010	2011
Total	96 451	129 137	111 074
Parts and accessories of			
- computing machines	48 653	62 513	58 227
- telecommunication equipment	4 632	7 151	7 656
- consumer electronics	43 166	59 473	45 191

Figure D38 Miscellaneous ICT components and parts imports

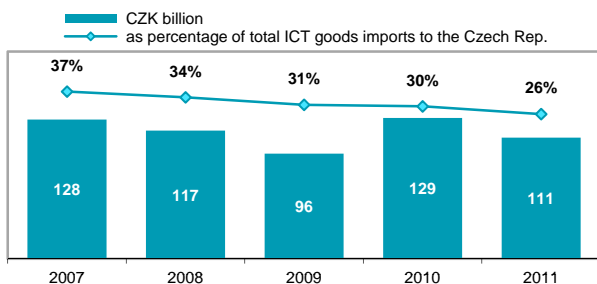


Figure D39 Miscellaneous ICT components and parts imports by commodities

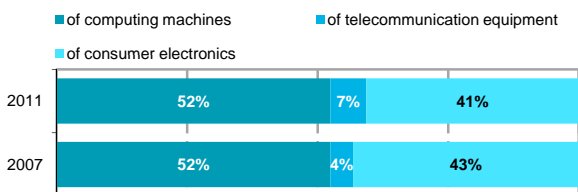
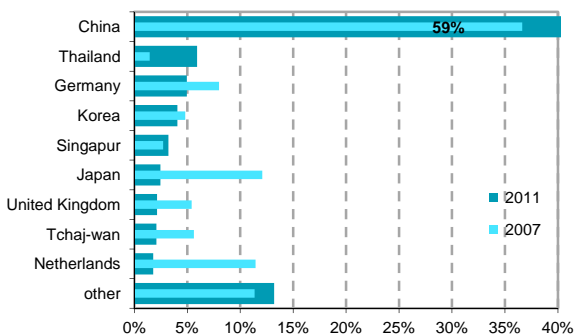


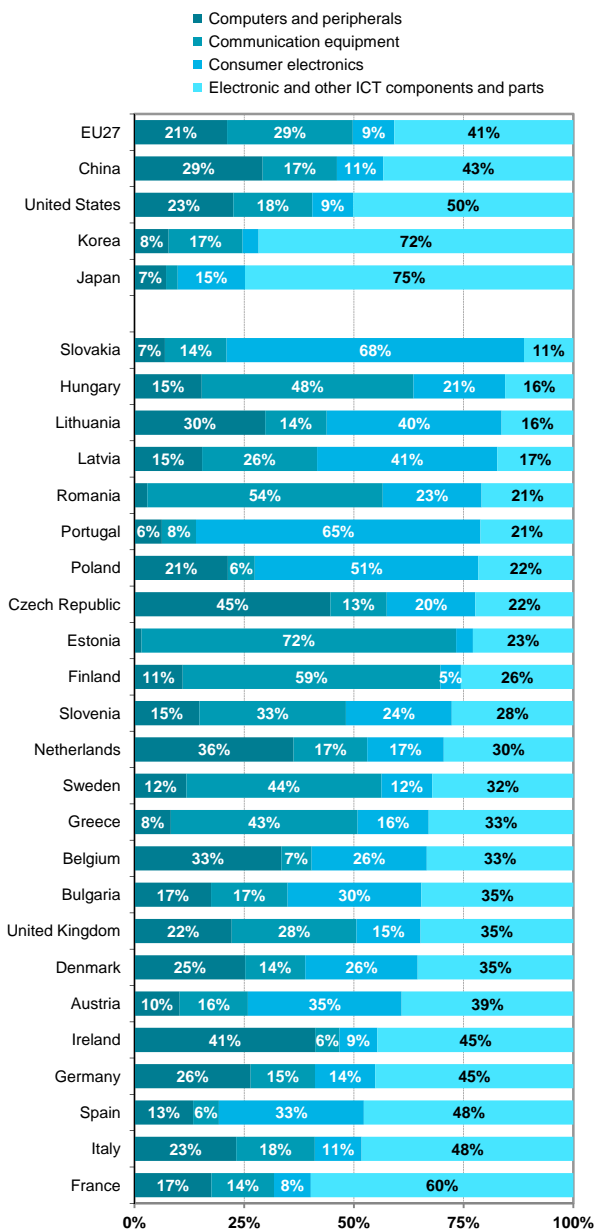
Figure D40 Miscellaneous ICT components and parts by countries



Source: CZSO, External Trade Statistics Database

D ICT external trade

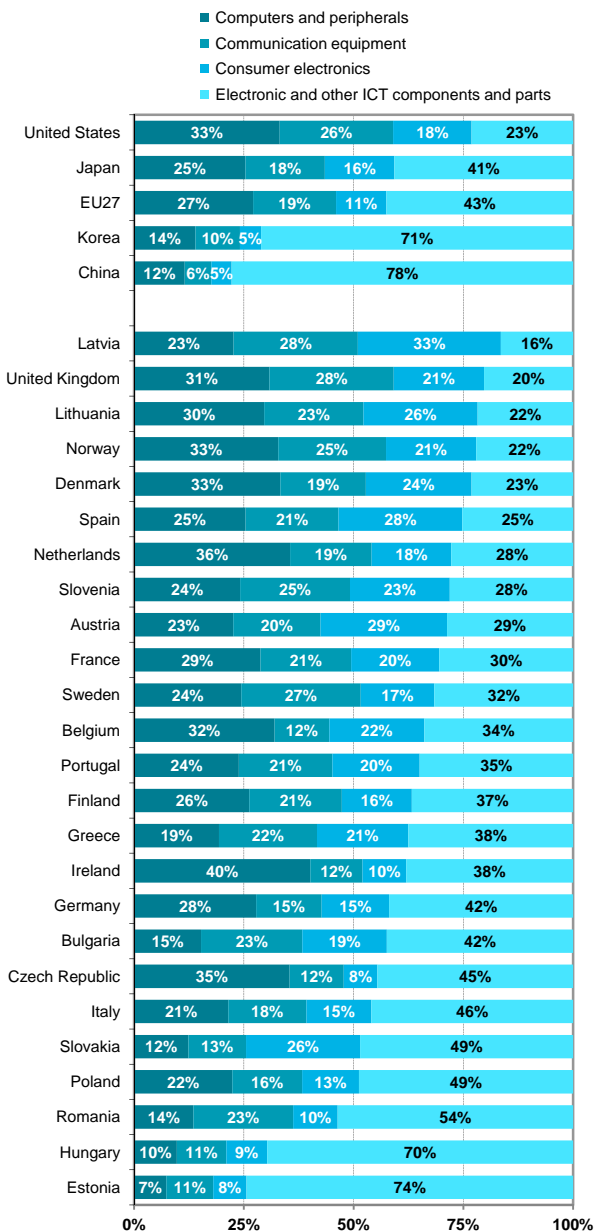
Figure D41 ICT goods exports by commodities, 2011



Source: UN, Comtrade database and CZSO calculations

D ICT external trade

Figure D42 ICT goods imports by commodities, 2011



Source: UN, Comtrade database and CZSO calculations

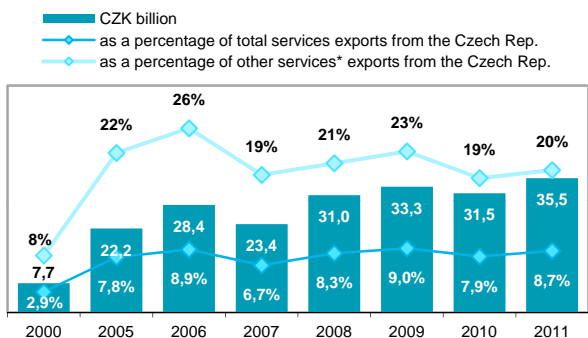
D ICT external trade

Table D13 ICT services exports from the Czech Republic

CZK million

	2009	2010	2011
Total	33 266	31 506	35 471
<i>from enterprises under foreign control</i>	29 315	28 926	32 725
Type of service			
Telecommunication services	9 346	9 156	8 128
Computer services	23 920	22 351	27 342
Size class of enterprises			
Small (0-49 employees)	1 920	1 857	3 109
Medium (50-249 employees)	6 682	7 402	6 451
Large (250+ employees)	24 664	22 248	25 911

Figure D43 ICT services exports



* Other services do not include Travel and Transport services

Figure D44 ICT services exports by type of service

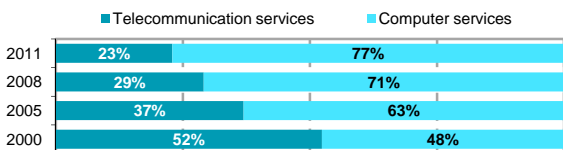
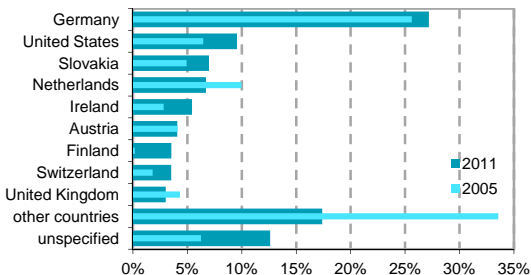


Figure D45 ICT services exports by countries



Source: CZSO, Survey on exports and imports of services and CNB

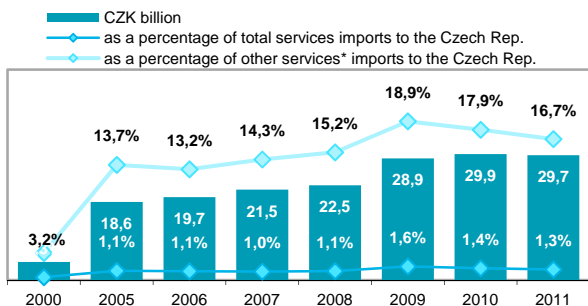
D ICT external trade

Table D14 ICT services imports to the Czech Republic

CZK million

	2009	2010	2011
Total	28 913	29 944	29 666
<i>to enterprises under foreign control</i>	<i>26 850</i>	<i>28 057</i>	<i>28 728</i>
Type of service			
Telecommunication services	10 780	10 433	10 417
Computer services	18 133	19 511	19 249
Size class of enterprises			
Small (0-49 employees)	2 315	1 892	1 364
Medium (50-249 employees)	4 055	5 813	5 257
Large (250+ employees)	22 543	22 239	23 045

Figure D46 ICT services imports



* Other services do not include Travel and Transport services

Figure D47 ICT services imports by type of service

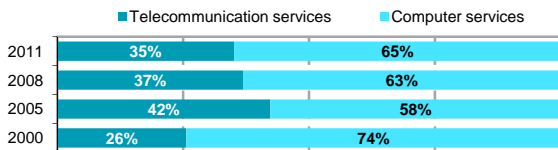
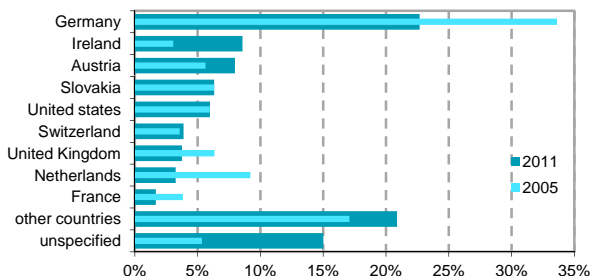


Figure D48 ICT services imports by countries



Source: CZSO, Survey on exports and imports of services and CNB

D ICT external trade

**Figure D49 ICT services exports
(as percentage of total services exports)**

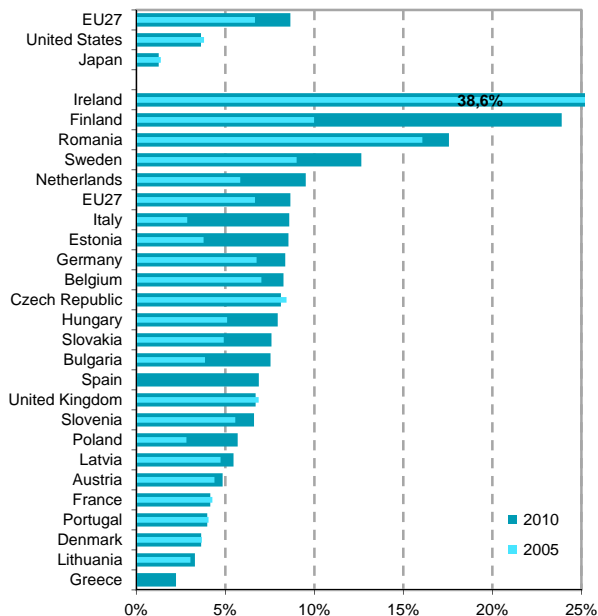
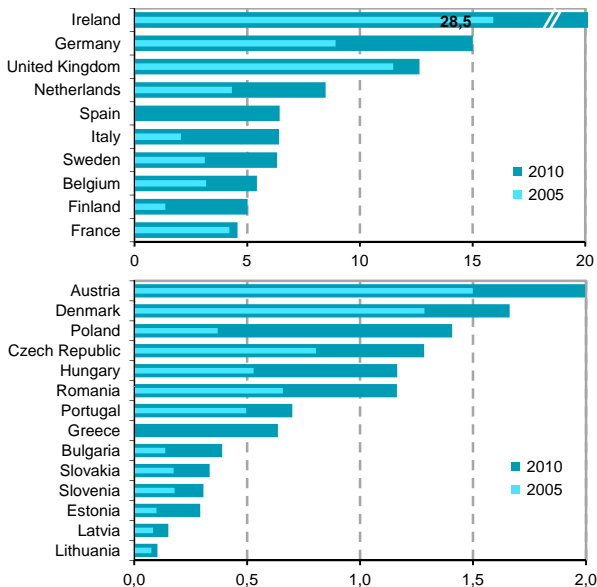


Figure D50 ICT services exports (US\$ billion)



Source: Eurostat

D ICT external trade

**Figure D51 ICT services imports
(as percentage of total services imports)**

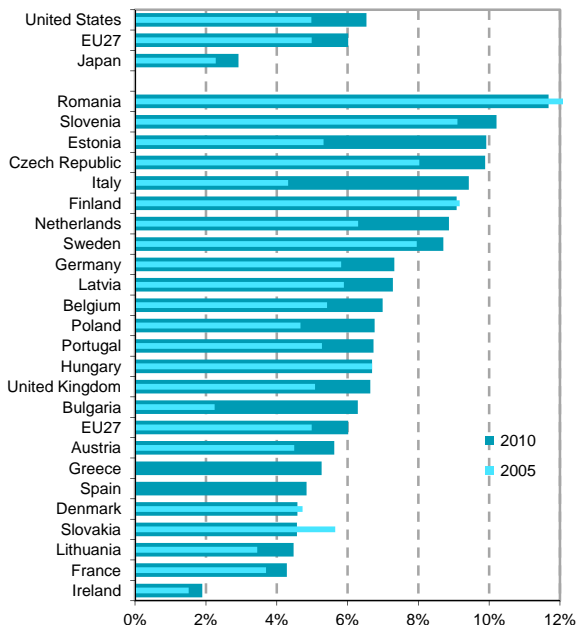
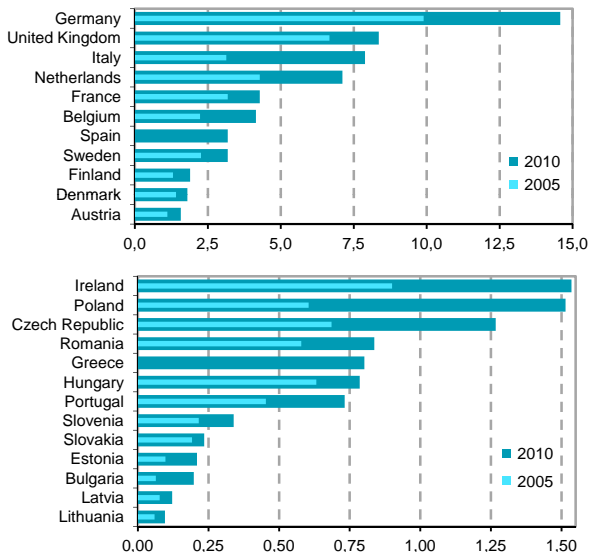


Figure D52 ICT services imports (US\$ billion)



Source: Eurostat

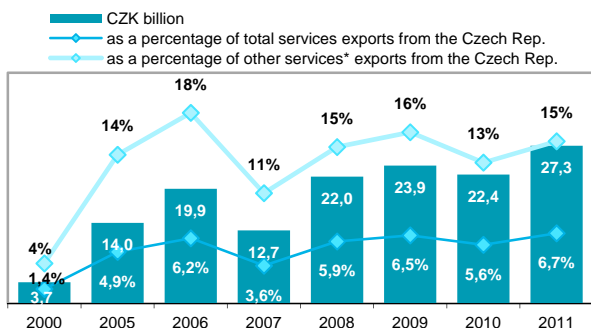
D ICT external trade

Table D15 Computer services exports from the Czech Republic

CZK million

	2009	2010	2011
Total	23 920	22 351	27 342
Computer HW&SW consulting and support	.	.	15 202
Data processing, hosting and related services	.	.	9 835
Maintenance and repair of computers	.	.	2 306
Ownership of enterprises			
National enterprises	3 484	2 143	2 721
Enterprises under foreign control	20 436	20 207	24 621
Size class of enterprises			
Small (0-49 employees)	1 569	1 385	2 888
Medium (50-249 employees)	5 874	6 882	5 822
Large (250+ employees)	16 478	14 084	18 633

Figure D53 Computer services exports



* Other services do not include Travel and Transport services

Figure D54 Computer services exports by ownership of exporting enterprises

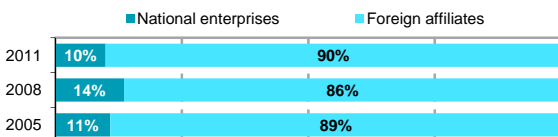
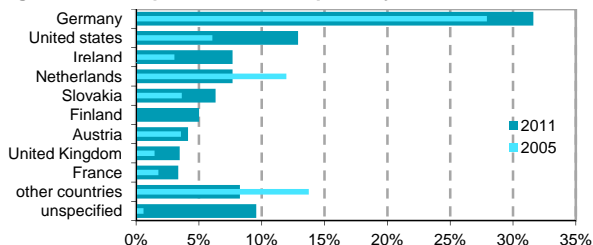


Figure D55 Computer services exports by countries



Source: CZSO, Survey on exports and imports of services and CNB

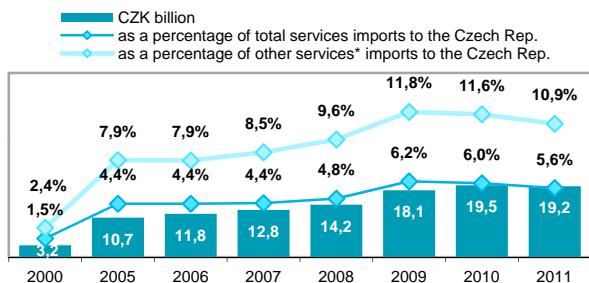
D ICT external trade

Table D16 Computer services imports to the Czech Republic

CZK million

	2009	2010	2011
Total	18 133	19 511	19 249
Computer HW&SW consulting and support	.	.	13 681
Data processing, hosting and related services	.	.	4 428
Maintenance and repair of computers	.	.	1 140
Ownership of enterprises			
National enterprises	1 987	1 797	870
Enterprises under foreign control	16 146	17 714	18 380
Size class of enterprises			
Small (0-49 employees)	2 042	1 423	1 123
Medium (50-249 employees)	2 671	5 195	3 770
Large (250+ employees)	13 420	12 894	14 357

Figure D56 Computer services imports



* Other services do not include Travel and Transport services

Figure D57 Computer services imports by ownership of importing enterprises

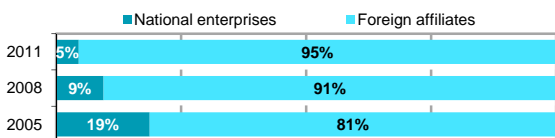
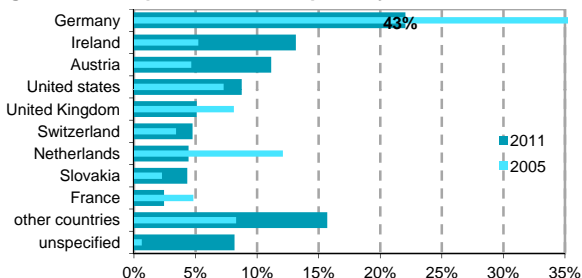


Figure D58 Computer services imports by countries



Source: CZSO, Survey on exports and imports of services and CNB

D ICT external trade

**Figure D59 Computer services exports
(as percentage of total services exports)**

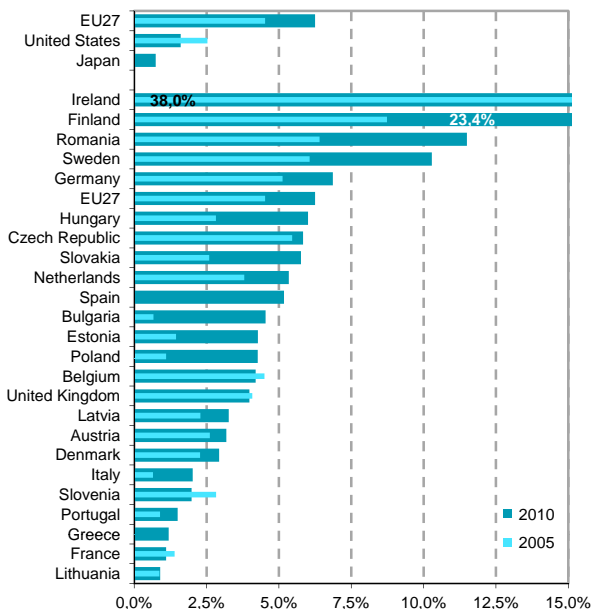
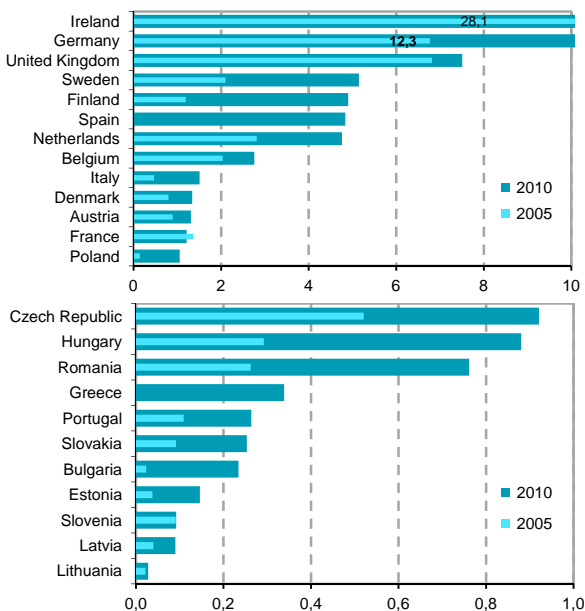


Figure D60 Computer services exports (EUR billion)



Source: Eurostat

E ICT sector

In general, **the term ICT sector** includes a combination of ICT manufacturing and ICT services industries which are associated with the production and/or distribution of information and communication technologies and a provision of related services.

The list of ICT sector's industries is decided on the following OECD definition: "The production (goods and services) of a candidate industry must primarily be intended to fulfill or enable the function of information processing and communication by electronic means including transmission and display".

In 2007 the ICT sector together with Content and media sector (information economy) was recognized by the United Nation Statistics Division as a new alternative grouping of economic activities defined within the International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4. For more information see following web page:

http://unstats.un.org/unsd/cr/registry/docs/i4_information_economy.pdf

The activities (industries) in the ICT sector can be grouped into the following **four main categories**: ICT manufacturing industries, ICT trade industries and ICT services industries. ICT sector involves all businesses whose dominating activities belong to the **CZ-NACE groups** as follows:

ICT manufacturing industries:

- Manufacture of electronic components and boards (26.1)
- Manufacture of computers and peripheral equipment (26.2)
- Manufacture of communication equipment (26.3)
- Manufacture of consumer electronics and media (26.4 and 26.8)

ICT trade industries (ICT wholesale):

- Wholesale of information and communication equipment (46.5)

Telecommunications:

- Wired telecommunications activities (61.1)
- Wireless telecommunications activities (61.2)
- Satellite and other telecommunications activities. (61.3 and 61.9)

IT services industries:

- Software publishing; Computer programming, consultancy and related activities (58.2 and 62.0)
- Data processing, hosting and related activities; web portals (63.1)
- Repair of computers and communication equipment (95.1)

Data for this chapter, except for R&D expenditure (source: R&D annual survey), were obtained from the annual structural survey of business entities from selected production industries (**SBS – Structural Business Statistics**). In the case of SBS the first reference period for data processing according to the new classification CZ-NACE was the year 2008. Data for 2005–2007 are based on the retroactive conversion of structural data. **2011 data are preliminary.**

Data prior to the year 2005 are estimates based on the **Annual National Accounts Statistics**. More information about this data source is available at: http://apl.czso.cz/pll/rocenka/rocenka.indexnu_en

The **Eurostat Structural Business Statistics Database** was used as a data source for the international comparison. More information about the data from the SBS, including definitions of individual indicators, is available at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/en/sbs_esms.htm

Further information on ICT sector statistics can be found at:

http://www.czso.cz/eng/redakce.nsf/i/ict_sector

E ICT sector

Table E1 Employment in ICT sector in the Czech Republic

	headcount persons		
	2009	2010	2011
Total	141 068	138 596	140 592
ICT manufacturing, total	34 432	29 375	29 435
<i>in enterprises under foreign control</i>	25 739	20 973	21 582
Size class of enterprises			
small (0-49 employees)	6 710	6 627	5 787
medium (50-249 employees)	6 491	5 596	5 385
large (250+ employees)	21 231	17 152	18 263
ICT wholesale, total	10 389	10 975	11 173
<i>in enterprises under foreign control</i>	3 204	3 503	3 385
Size class of enterprises			
small (0-49 employees)	7 028	7 471	7 258
medium (50-249 employees)	3 055	3 226	3 130
large (250+ employees)	305	278	785
Telecommunications, total	21 859	21 264	19 955
<i>in enterprises under foreign control</i>	16 963	16 610	14 879
Size class of enterprises			
small (0-49 employees)	3 796	3 383	3 404
medium (50-249 employees)	1 634	1 836	1 555
large (250+ employees)	16 429	16 045	14 996
IT services total	74 388	76 983	80 029
<i>in enterprises under foreign control</i>	29 094	29 637	31 087
Size class of enterprises			
small (0-49 employees)	38 963	39 308	39 689
medium (50-249 employees)	17 456	18 982	18 020
large (250+ employees)	17 969	18 693	22 319

Figure E1 Employment in ICT sector

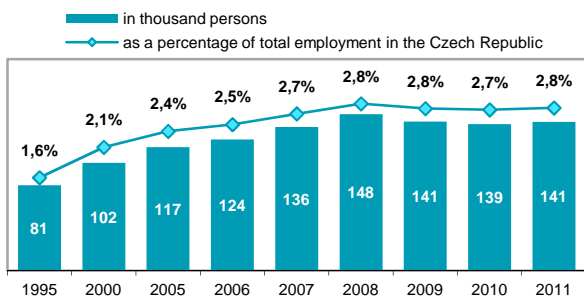
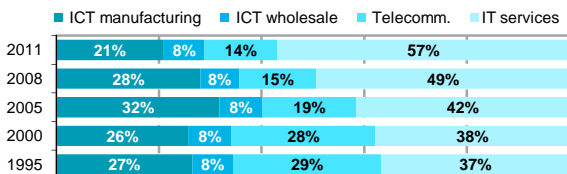


Figure E2 ICT sector employment by main industries



Source: CZSO, Structural Business Statistics and Annual National Accounts

E ICT sector

Figure E3 Employment in ICT manufacturing



Figure E4 Employment in Telecommunications

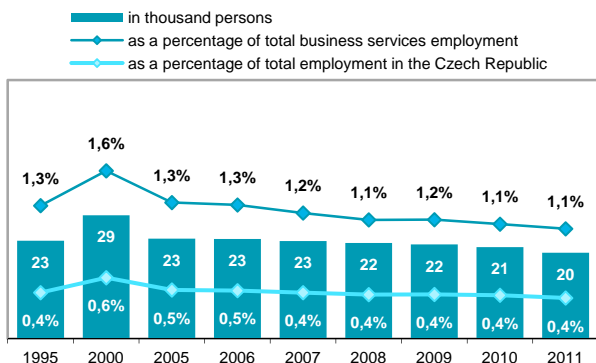
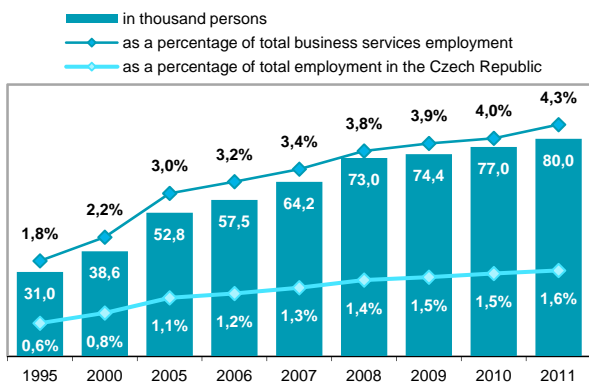


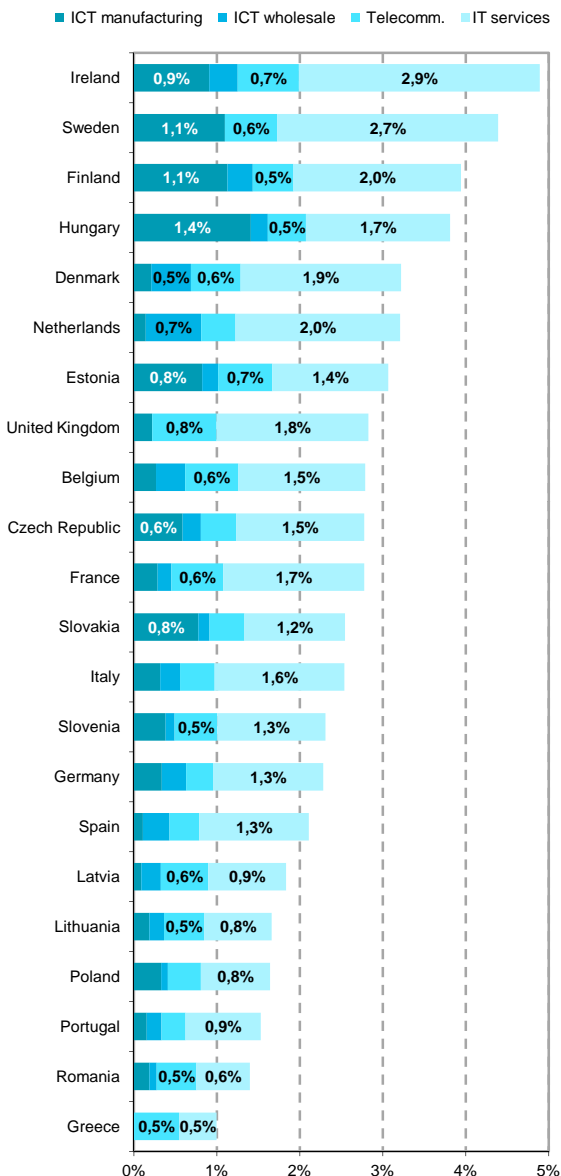
Figure E5 Employment in IT services



Source: CZSO, *Structural Business Statistics and Annual National Accounts*

E ICT sector

**Figure E6 Employment in ICT sector, 2010
(as a percentage of total national employment)**

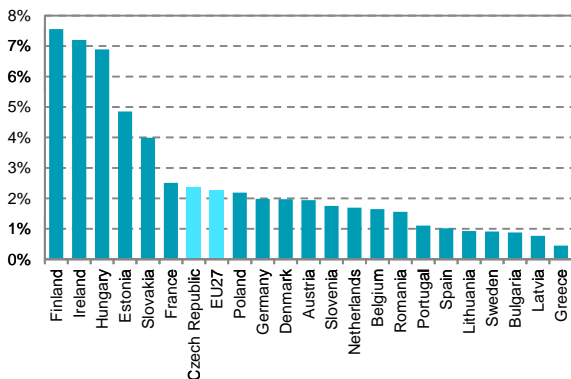


Note: Sweden for ICT manufacturing and Ireland for IT services year 2008 and based on NACE Rev. 1.1 classification

Source: Eurostat, Structural Business Statistics

E ICT sector

Figure E7 Employment in ICT manufacturing*, 2010



* as a percentage of total manufacturing industries

Figure E8 Employment in Telecommunications, 2010**

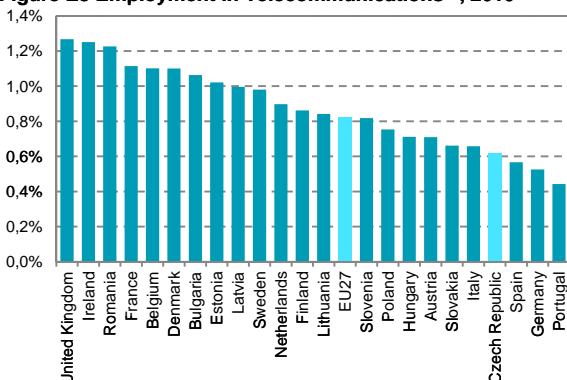
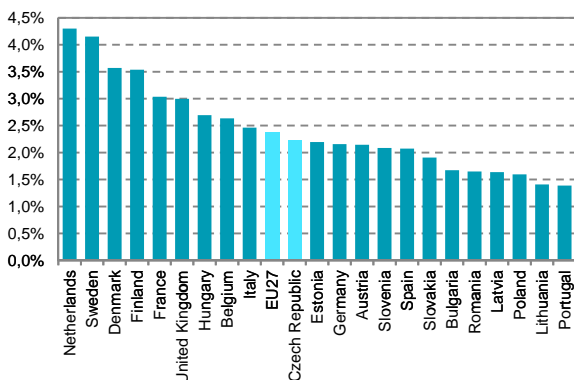


Figure E9 Employment in IT Services, 2010**



** as a percentage of total business enterprise sector (excluding Financial and Insurance Services)

Source: Eurostat, Structural Business Statistics

E ICT sector

Table E2 Production value in ICT sector in the Czech Republic

CZK million

	2009	2010	2011
Total	520 114	541 483	522 306
ICT manufacturing, total	221 865	247 721	222 906
<i>in enterprises under foreign control</i>	210 614	233 963	210 875
Size class of enterprises			
small (0-49 employees)	10 420	10 866	10 363
medium (50-249 employees)	10 801	14 683	11 676
large (250+ employees)	200 644	222 172	200 867
ICT wholesale, total	17 842	19 104	21 517
<i>in enterprises under foreign control</i>	8 722	9 437	9 690
Size class of enterprises			
small (0-49 employees)	11 468	11 582	12 341
medium (50-249 employees)	5 759	7 032	7 386
large (250+ employees)	616	489	1 790
Telecommunications, total	132 683	124 712	116 029
<i>in enterprises under foreign control</i>	123 781	116 137	103 308
Size class of enterprises			
small (0-49 employees)	9 780	9 081	9 254
medium (50-249 employees)	4 907	5 337	4 769
large (250+ employees)	117 996	110 295	102 006
IT services total	147 723	149 946	161 854
<i>in enterprises under foreign control</i>	80 616	78 941	83 319
Size class of enterprises			
small (0-49 employees)	58 087	58 073	62 075
medium (50-249 employees)	36 034	37 891	35 735
large (250+ employees)	53 602	53 981	64 045

Figure E10 Production value in ICT sector

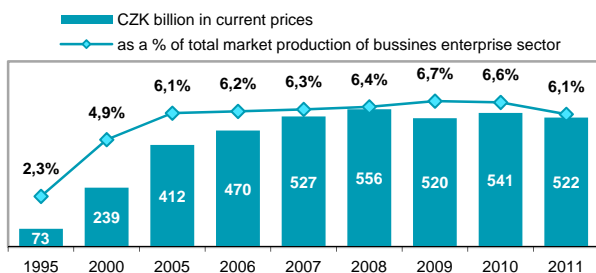
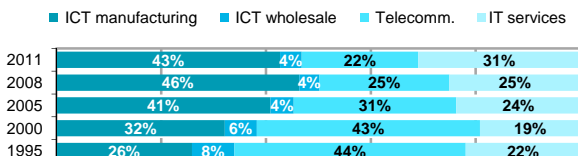


Figure E11 Production in ICT sector by main industries



Source: CZSO, Structural Business Statistics and Annual National Accounts

E ICT sector

Figure E12 Production value in ICT manufacturing

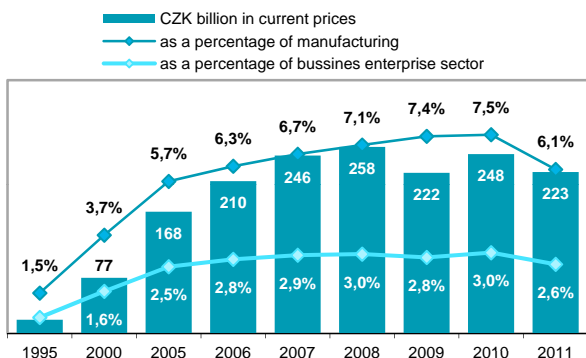


Figure E13 Production value in Telecommunications

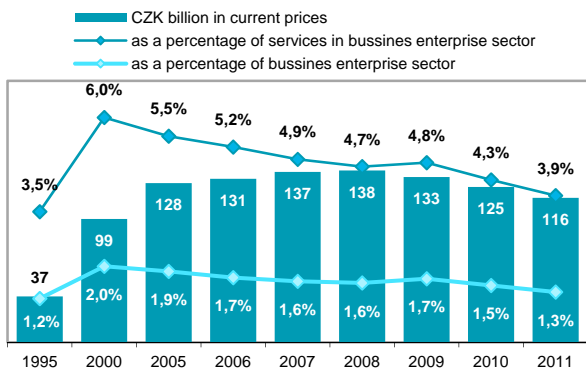
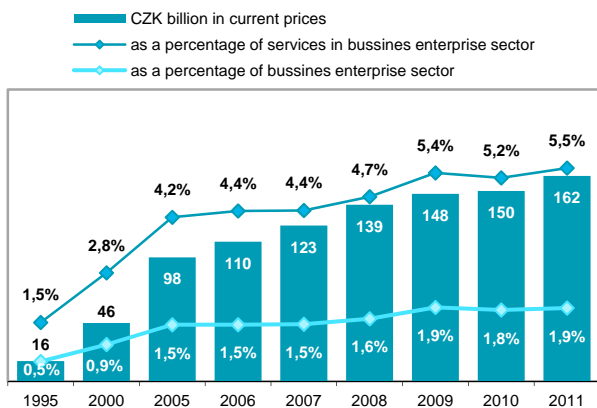


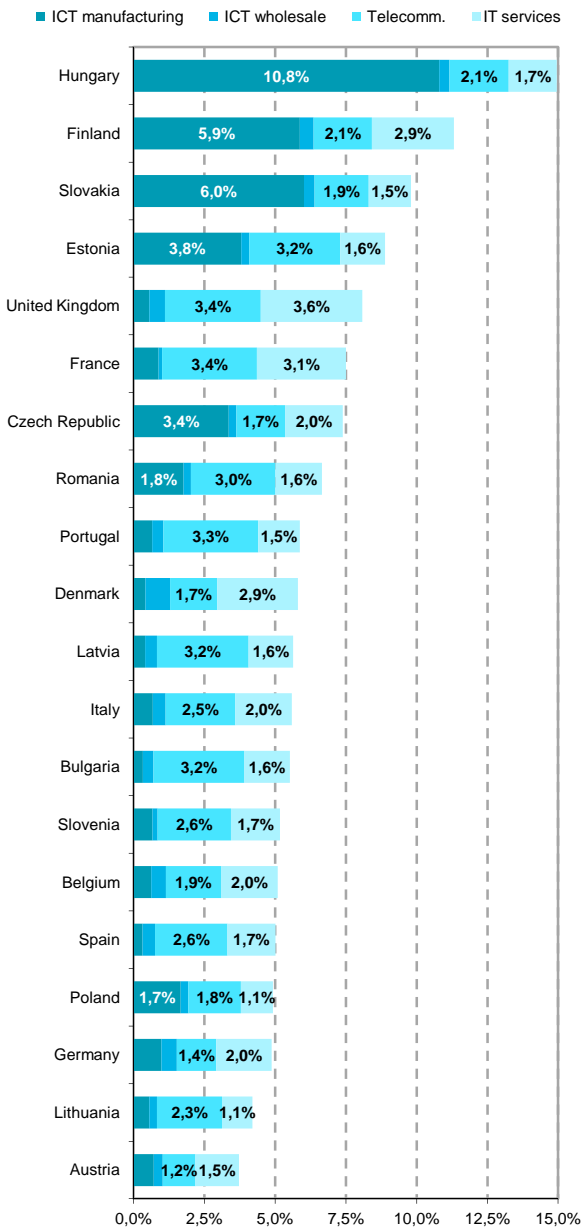
Figure E14 Production value in IT services



Source: CZSO, *Structural Business Statistics and Annual National Accounts*

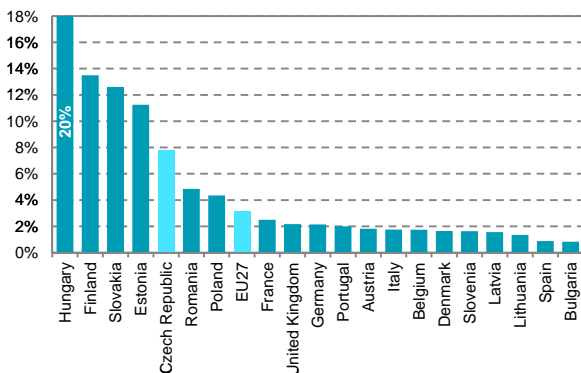
E ICT sector

**Figure E15 Production value in ICT sector, 2010
(as a percentage of total bussines enterprise sector)**



Source: Eurostat, Structural Business Statistics

Figure E16 Production value in ICT manufacturing*, 2010



* as a percentage of total manufacturing industries

Figure E17 Production value in Telecommunications, 2010**

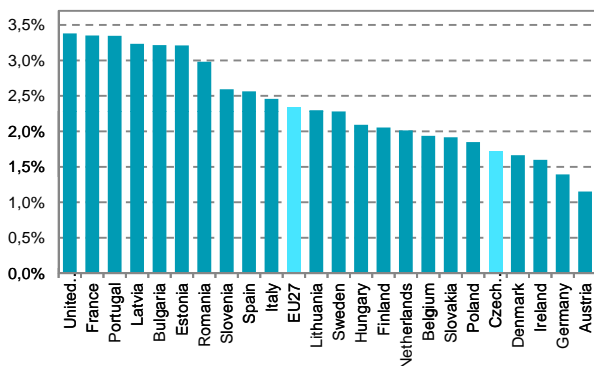
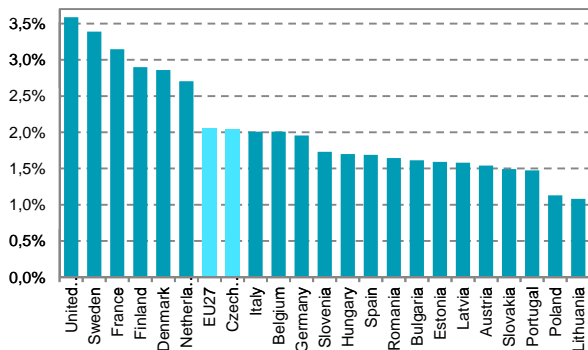


Figure E18 Production value in IT services, 2010**



** as a percentage of total business enterprise sector (excluding Financial and Insurance Services)

Source: Eurostat, Structural Business Statistics

E ICT sector

Table E3 Value added in ICT sector in the Czech Republic

CZK million

	2009	2010	2011
Total	160 328	158 778	160 531
ICT manufacturing, total	11 758	13 807	12 148
<i>in enterprises under foreign control</i>	7 911	9 582	8 055
Size class of enterprises			
small (0-49 employees)	3 070	3 107	3 085
medium (50-249 employees)	2 896	3 180	2 725
large (250+ employees)	5 792	7 521	6 338
ICT wholesale, total	8 012	8 478	10 188
<i>in enterprises under foreign control</i>	3 649	3 942	4 139
Size class of enterprises			
small (0-49 employees)	5 198	5 313	5 753
medium (50-249 employees)	2 591	2 980	3 581
large (250+ employees)	223	185	854
Telecommunications, total	70 079	65 866	60 480
<i>in enterprises under foreign control</i>	66 703	62 717	55 526
Size class of enterprises			
small (0-49 employees)	3 014	2 518	2 603
medium (50-249 employees)	1 716	2 111	1 848
large (250+ employees)	65 349	61 236	56 029
IT services total	70 478	70 627	77 715
<i>in enterprises under foreign control</i>	38 042	36 166	39 144
Size class of enterprises			
small (0-49 employees)	24 637	23 665	26 521
medium (50-249 employees)	18 704	19 903	19 685
large (250+ employees)	27 137	27 059	31 509

Figure E19 Value added in ICT sector

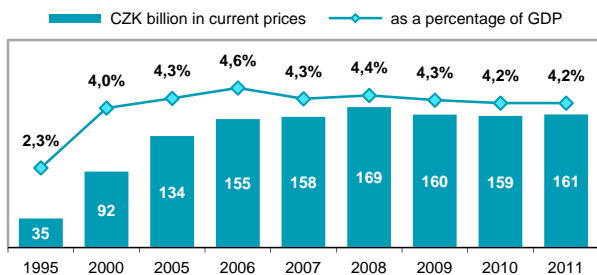
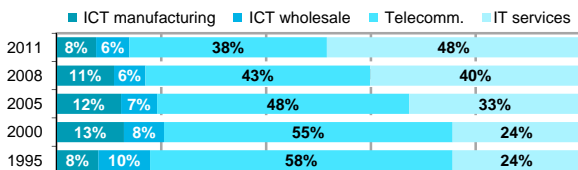


Figure E20 Value added in ICT sector by main groups of industries



Source: CZSO, Structural Business Statistics and Annual National Accounts

E ICT sector

Figure E21 Value added in ICT manufacturing

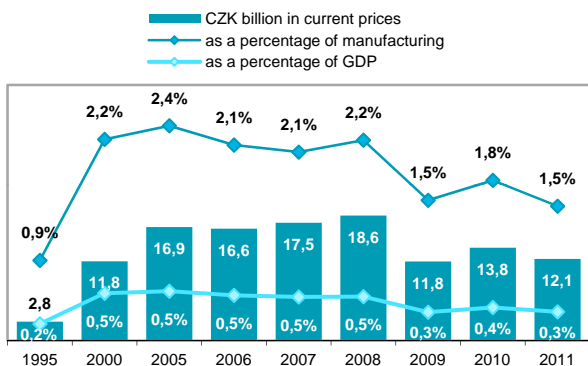


Figure E22 Value added in Telecommunications

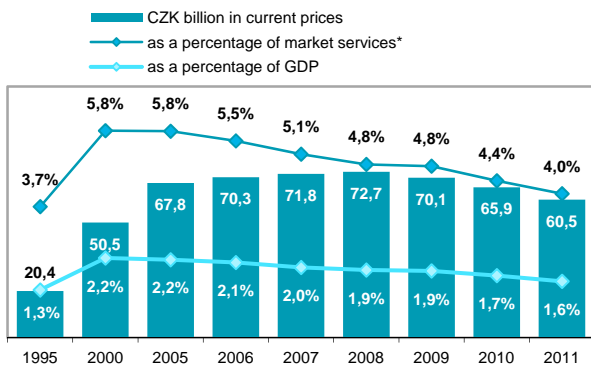
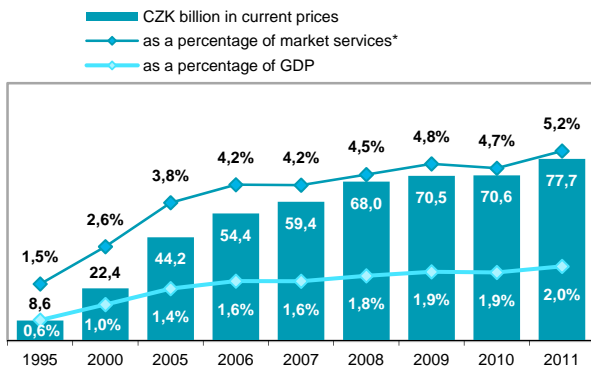


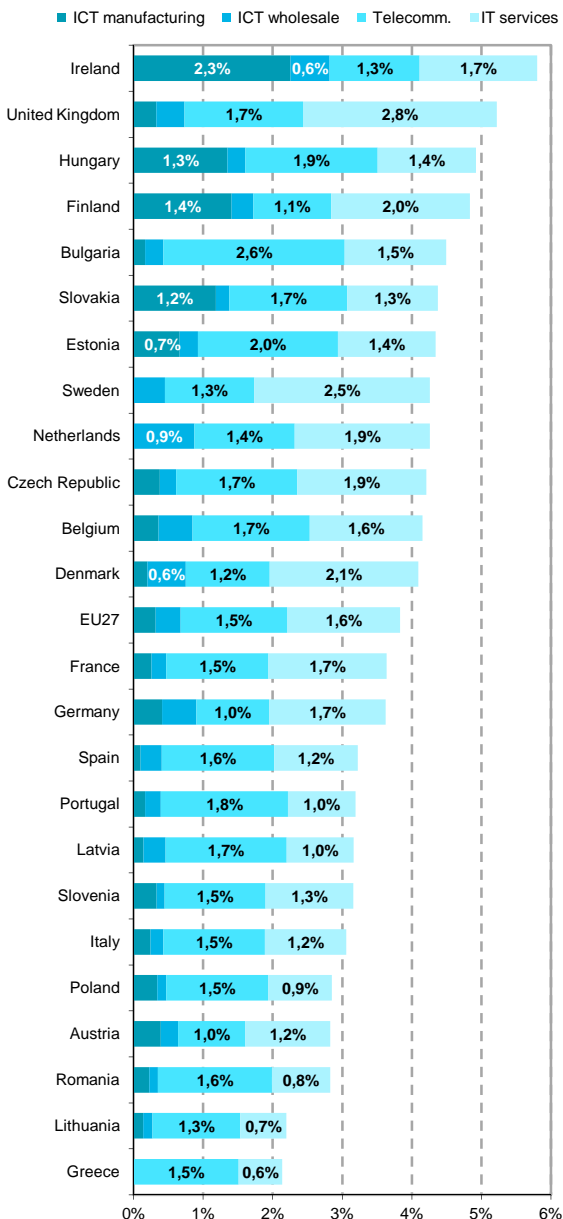
Figure E23 Value added in IT services



* includes CZ-NACE Sections G to N and Division 95

Source: CZSO, Structural Business Statistics and Annual National Accounts

**Figure E24 Value added in ICT sector, 2010
(as a percentage of GDP)**

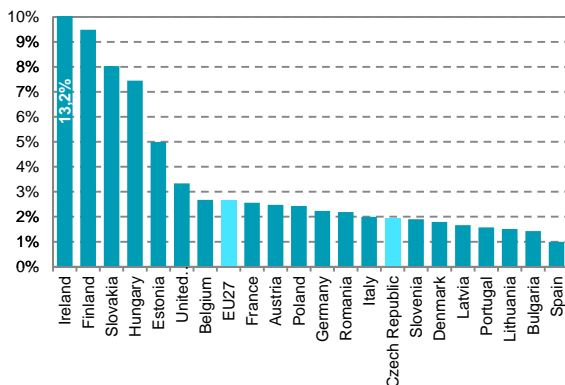


Note: the Netherlands and Sweden without ICT manufacturing

Source: Eurostat, Structural Business Statistics

E ICT sector

Figure E25 Value added in ICT manufacturing*, 2010



* as a percentage of total manufacturing industries

Figure E26 Value added in Telecommunications, 2010**

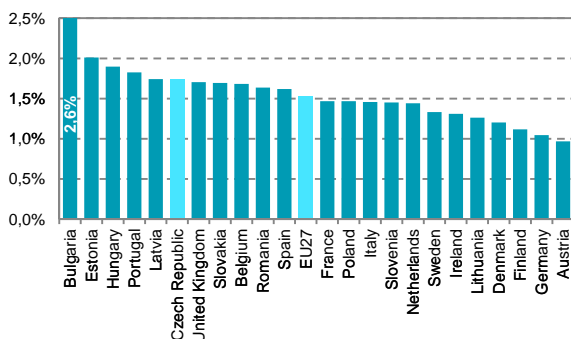
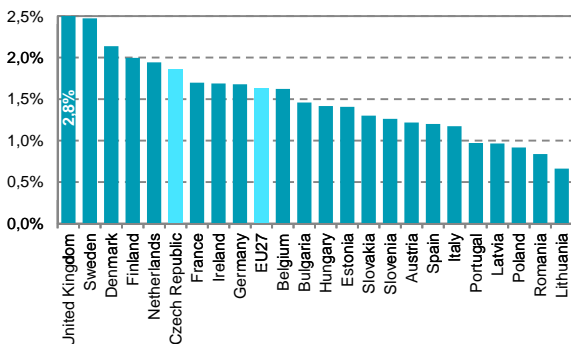


Figure E27 Value added in IT services, 2010**



** as a percentage of total business enterprise sector (excluding Financial and Insurance Services)

Source: Eurostat, Structural Business Statistics

E ICT sector

Table E4 R&D expenditure in ICT sector in the Czech Republic

CZK million

	2009	2010	2011
Total	4 732	4 790	5 643
ICT manufacturing, total	802	592	567
<i>in enterprises under foreign control</i>	471	303	232
Size class of enterprises			
small (0-49 employees)	93	80	110
medium (50-249 employees)	297	297	326
large (250+ employees)	412	214	131
ICT wholesale, total	85	82	101
Telecommunications, total	405	519	549
<i>in enterprises under foreign control</i>	393	501	533
Size class of enterprises			
small (0-49 employees)	2	2	3
medium (50-249 employees)	6	14	11
large (250+ employees)	397	504	535
IT services total	3 440	3 597	4 427
<i>in enterprises under foreign control</i>	1 621	1 625	1 955
Size class of enterprises			
small (0-49 employees)	778	897	1 212
medium (50-249 employees)	2 133	1 851	1 582
large (250+ employees)	529	849	1 633

Figure E28 R&D expenditure in ICT sector

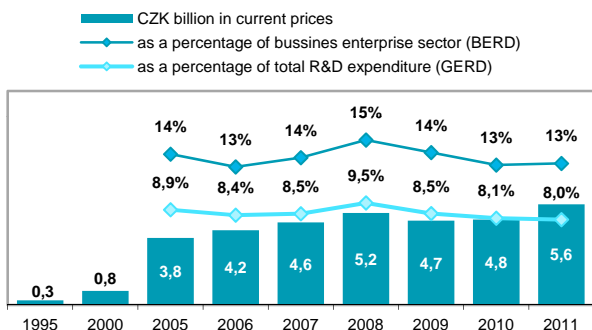
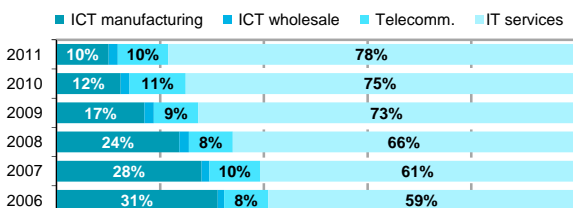


Figure E29 R&D expenditure in ICT sector by main industries



Source: CZSO, Annual R&D survey

Figure E30 R&D expenditure in ICT manufacturing

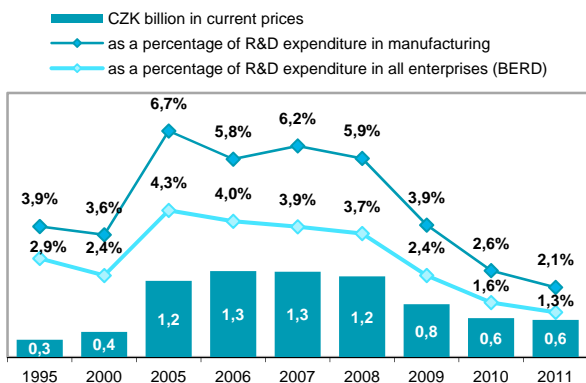


Figure E31 R&D expenditure in Telecommunications

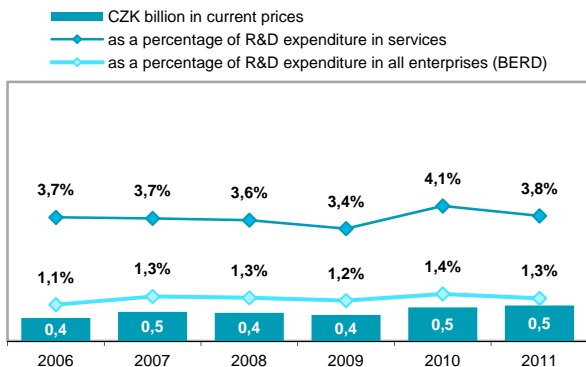
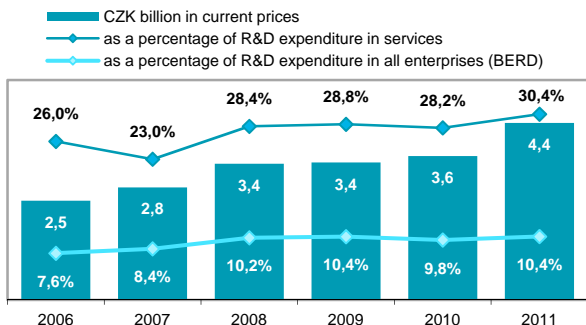


Figure E32 R&D expenditure in IT services



Source: CZSO, Annual R&D survey

E ICT sector

Figure E33 R&D expenditure in ICT sector, 2010
(% of total R&D expenditure in business enterprise sector)

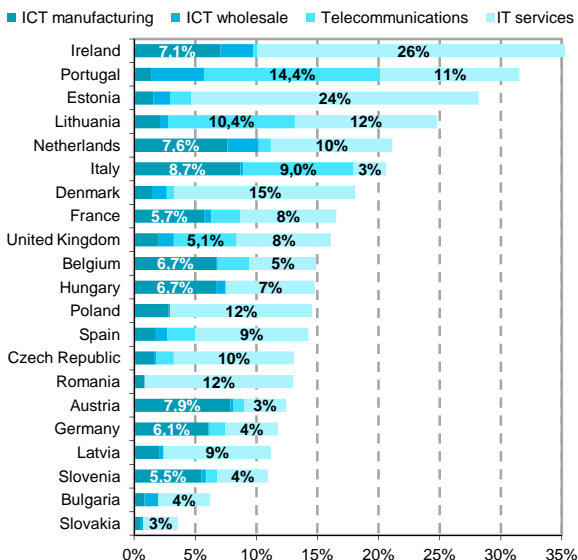
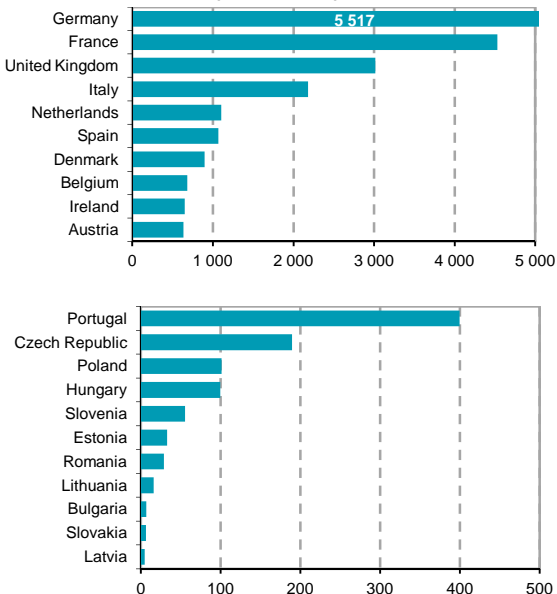


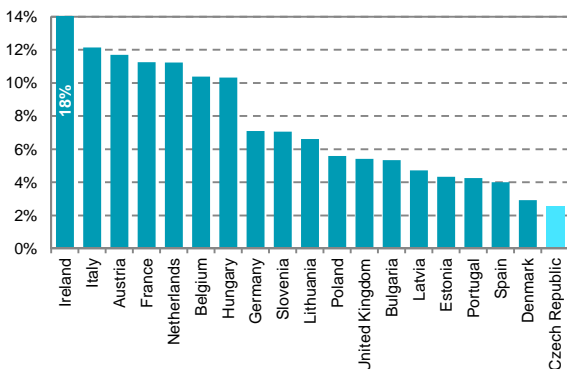
Figure E34 R&D expenditure in ICT sector, 2010
(EUR million)



Source: Eurostat

E ICT sector

Figure E35 R&D expenditure in ICT manufacturing*, 2010



* as a percentage of total manufacturing industries

Figure E36 R&D expenditure in Telecommunications, 2010**

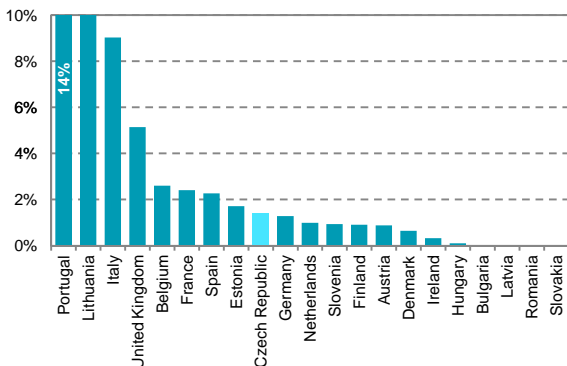
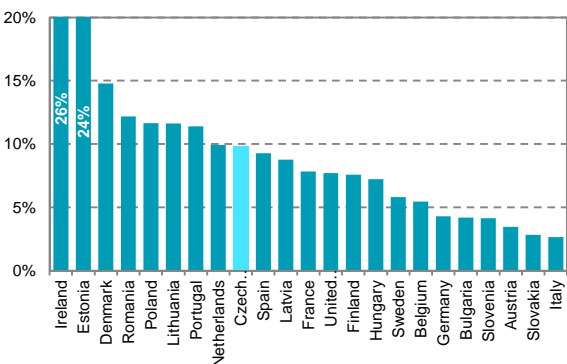


Figure E37 R&D expenditure in IT services, 2010**



** as a percentage of total business enterprise sector (BERD)

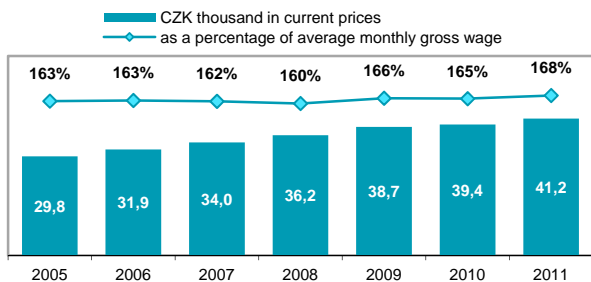
Source: Eurostat

E ICT sector

Table E5 Average monthly gross wage in ICT sector in the CR

	2009	2010	2011
Total	38 659	39 408	41 173
ICT manufacturing, total	23 885	23 880	24 337
<i>Ownership of enterprises</i>			
National enterprises	22 661	23 526	26 066
Enterprises under foreign control	24 191	23 983	23 878
<i>Size class of enterprises</i>			
small (0-49 employees)	22 307	21 984	23 188
medium (50-249 employees)	23 306	25 104	27 238
large (250+ employees)	24 390	23 980	23 751
ICT wholesale, total	32 606	34 580	35 126
<i>Ownership of enterprises</i>			
National enterprises	28 461	28 381	29 489
Enterprises under foreign control	40 912	46 221	46 704
<i>Size class of enterprises</i>			
small (0-49 employees)	30 273	32 391	32 204
medium (50-249 employees)	36 038	38 131	38 011
large (250+ employees)	43 648	41 017	45 912
Telecommunications, total	44 277	45 078	45 963
<i>Ownership of enterprises</i>			
National enterprises	25 149	25 634	29 009
Enterprises under foreign control	48 837	49 860	51 170
<i>Size class of enterprises</i>			
small (0-49 employees)	25 145	25 099	24 844
medium (50-249 employees)	36 538	34 512	35 407
large (250+ employees)	48 446	49 677	51 045
IT services total	45 713	45 208	47 960
<i>Ownership of enterprises</i>			
National enterprises	34 628	35 111	36 550
Enterprises under foreign control	57 919	56 690	60 747
<i>Size class of enterprises</i>			
small (0-49 employees)	32 469	32 790	34 572
medium (50-249 employees)	52 560	51 782	52 392
large (250+ employees)	56 934	54 808	58 951

Figure E38 Average monthly gross wage in ICT sector



Source: CZSO, Structural Business Statistics

E ICT sector

Figure E39 Average monthly gross wage in ICT manufacturing

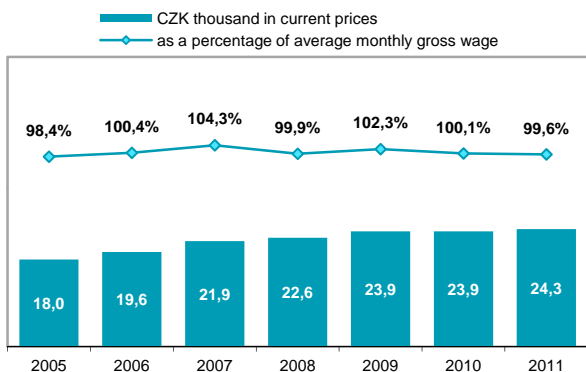


Figure E40 Average monthly gross wage in Telecommunications

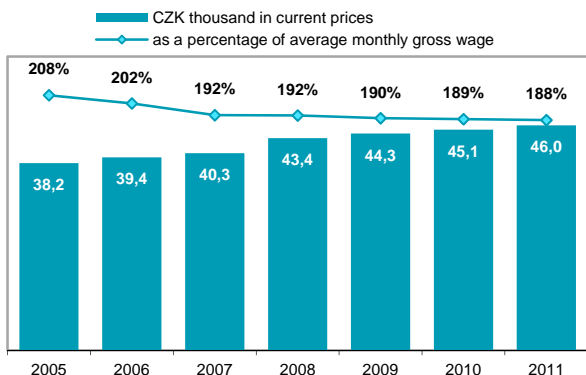
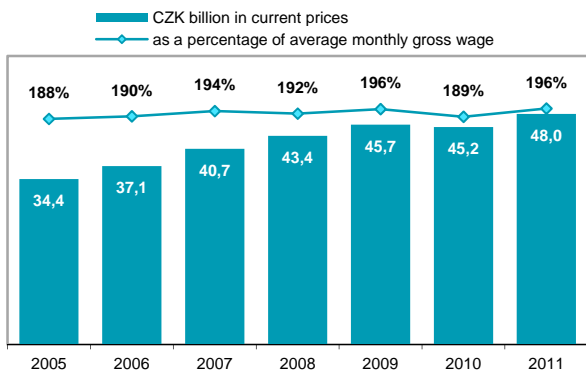


Figure E41 Average monthly gross wage in IT services



Source: CZSO, Structural Business Statistics

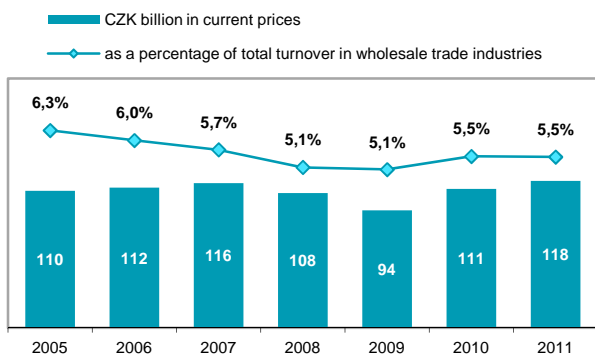
E ICT sector

Table E6 Turnover in ICT wholesale in the Czech Republic

CZK million

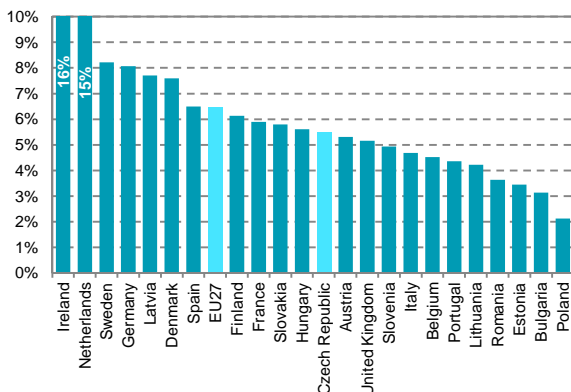
	2009	2010	2011
Total	94 287	111 453	117 972
Ownership of enterprises			
National enterprises	56 558	67 685	74 983
Foreign affiliates	37 728	43 768	42 989
Size class of enterprises			
Small (0-49 employees)	48 401	62 624	68 981
Medium (50-249 employees)	40 694	44 749	34 377
Large (250+ employees)	5 192	4 080	14 614

Figure E42 Turnover in ICT wholesale industries



Source: CZSO, Structural Business Statistics

**Figure E43 Turnover in ICT wholesale industries, 2010
(as a percentage of total turnover in wholesale industries)**



Source: Eurostat, Structural Business Statistics