A ICT specialists

ICT specialists are **defined** as persons who have the ability to develop, operate and maintain ICT systems and for whom ICTs constitute the main part of their job. The occupations of ICT specialists are subdivided into **two major groups** and from 2011 are **assigned** to the groups, and subgroups of the **Classification of Occupations (CZ-ISCO)** as follows:

ICT managers, engineers and professionals
- 1330   Information and communications technology service managers;
- 2152   Electronics engineers;
- 2153   Telecommunications engineers;
- 2434   Information and communications technology sales professionals;

*Note: The 1330, 2152, 2153 and 2434 subgroups **are merged** into one category called **ICT managers, engineers and sales professionals**.*
- **25   Information and communications technology professionals**
    - 251 Software and applications developers and analysts;
    - 252 Database and network professionals.

ICT technicians, installers and servicers
- 3114   Electronics engineering technicians;
- **35   Information and communications technicians**
    - 351 ICT operations and user support technicians;
    - 352 Telecommunications and broadcasting technicians;
- 742   Electronics and telecommunications (ICT) installers and repairers.

*Note: Some data for the ICT specialists, such as wages, are available only for the ICT specialists defined **rather narrow**, which includes only two sub-major groups of CZ-ISCO: **25 ICT professionals** and **35 ICT technicians.***

Detail description of CZ-ISCO occupations is available here *(only in Czech)*: https://www.czso.cz/csu/czso/klasifikace_zamestnani_-cz_isco-Numbers

Numbers of ICT specialists
The data on the numbers of ICT specialists are taken from **the Labour Force Survey (LFS)**. *Note: In order to ensure higher reliability and to eliminate considerable year-on-year fluctuations of values for this group of employees, data is here provided as **three-year moving averages** (i.e., for example, the value for 2020 is calculated as an average from the values for 2019, 2020, and 2021).*

For further information on the **Czech LFS** see:
https://www.czso.cz/csu/czso/employment_unemployment_ekon

The **Eurostat LFS Database** was used for the **international comparison**. *Note: Data for the Czech Republic from Eurostat **differ slightly** from the data published by the Czech Statistical Office. For instance, data from Eurostat are given for the relevant year and not as three-year moving averages.*

Wages of ICT specialists
Data on wages (average gross monthly wage) of the ICT specialists come from **the Structure of Earnings Survey (SES)** which is generated by merging of databases of the sample survey of the Information System on Average Earnings (ISPV) which covers the **wage sphere**, and from the database of the Salary Information System which covers the **salary sphere**. For more information see: https://www.ispv.cz/en/homepage.aspx.

For further information on the **Czech SES** see:
https://www.czso.cz/csu/czso/structure-of-earnings-survey-2021

Data about ICT specialists is available by **several breakdowns**: by occupation and industry or by individual characteristics of ICT specialists such as gender, citizenship, age or highest education attainment.

For further information on ICT specialists see *(only in Czech)***:**
https://www.czso.cz/csu/czso/ict-odbornici

A ICT specialists

Table A1 ICT specialists in Czechia

Thousand persons*

	2018	2019	2020
Total	**200,5**	**209,5**	**219,8**
Women	18,7	19,3	20,8
Occupation			
ICT managers, engineers and professionals	99,3	108,4	119,1
ICT technicians, installers and servicers	101,2	101,1	100,6
Age group			
Under 25 years	10,5	10,1	9,9
25–34 years	65,0	65,2	66,4
35–44 years	71,5	76,9	79,8
45–54 years	33,2	35,6	41,9
55 + years	20,3	21,7	21,8
Highest level of education attainment			
Tertiary	109,6	114,8	123,5
Secondary with A-level examination	79,8	84,3	86,2
Other (lower)	11,1	10,3	10,1

Figure A1 ICT specialists*

Legend: ■ Thous. persons ◆ % of total employment in Czechia

- 2000: 75,6 — 1,6%
- 2005: 79,7 — 1,7%
- 2010: 135,3 — 2,8%
- 2015: 180,1 — 3,7%
- 2020: 219,8 — 4,2%
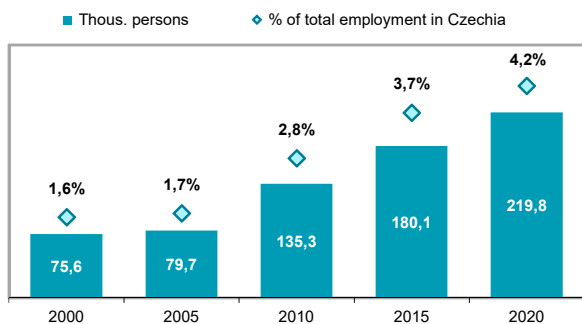
Figure A2 ICT specialists*, by occupation (thousands); 2020
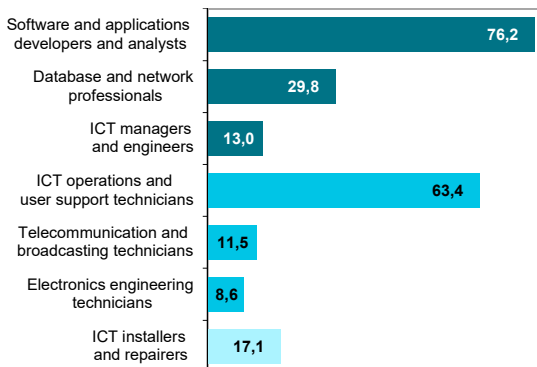
- Software and applications developers and analysts: 76,2
- Database and network professionals: 29,8
- ICT managers and engineers: 13,0
- ICT operations and user support technicians: 63,4
- Telecommunication and broadcasting technicians: 11,5
- Electronics engineering technicians: 8,6
- ICT installers and repairers: 17,1

* Three-year moving averages, see the methodological notes.

Source: CZSO, Labour Force Survey

A ICT specialists
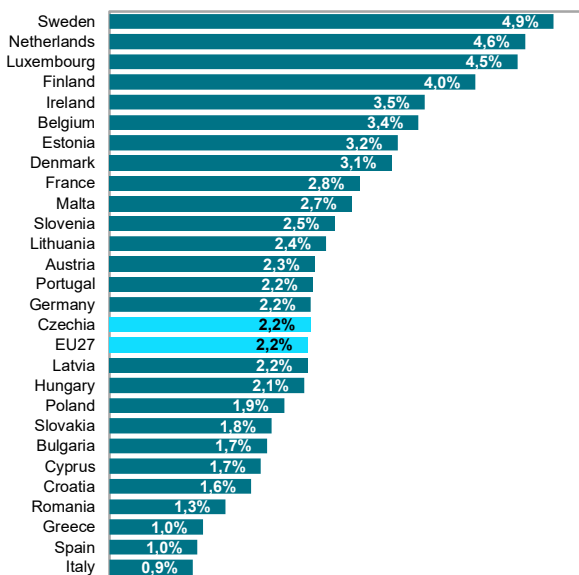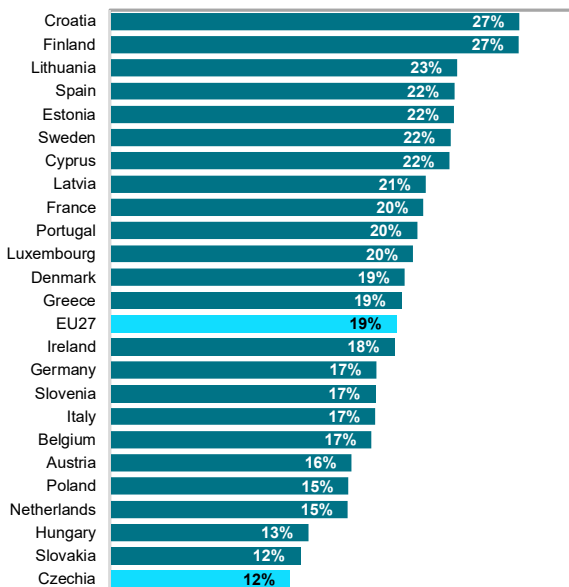
Figure A8 ICT professionals; 2021
(% of total employment)

Country	%
Sweden	4,9%
Netherlands	4,6%
Luxembourg	4,5%
Finland	4,0%
Ireland	3,5%
Belgium	3,4%
Estonia	3,2%
Denmark	3,1%
France	2,8%
Malta	2,7%
Slovenia	2,5%
Lithuania	2,4%
Austria	2,3%
Portugal	2,2%
Germany	2,2%
Czechia	2,2%
EU27	2,2%
Latvia	2,2%
Hungary	2,1%
Poland	1,9%
Slovakia	1,8%
Bulgaria	1,7%
Cyprus	1,7%
Croatia	1,6%
Romania	1,3%
Greece	1,0%
Spain	1,0%
Italy	0,9%

Figure A9 Share of women among ICT professionals; 2021

Country	%
Croatia	27%
Finland	27%
Lithuania	23%
Spain	22%
Estonia	22%
Sweden	22%
Cyprus	22%
Latvia	21%
France	20%
Portugal	20%
Luxembourg	20%
Denmark	19%
Greece	19%
EU27	19%
Ireland	18%
Germany	17%
Slovenia	17%
Italy	17%
Belgium	17%
Austria	16%
Poland	15%
Netherlands	15%
Hungary	13%
Slovakia	12%
Czechia	12%

Source: CZSO calculation based on Eurostat LFS Database

A ICT specialists
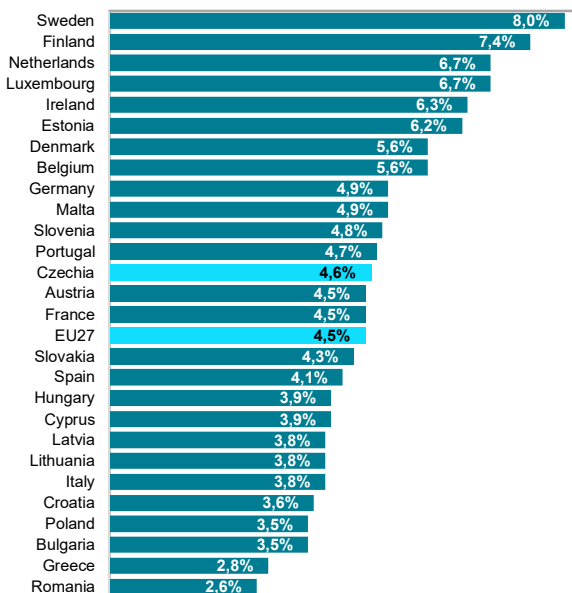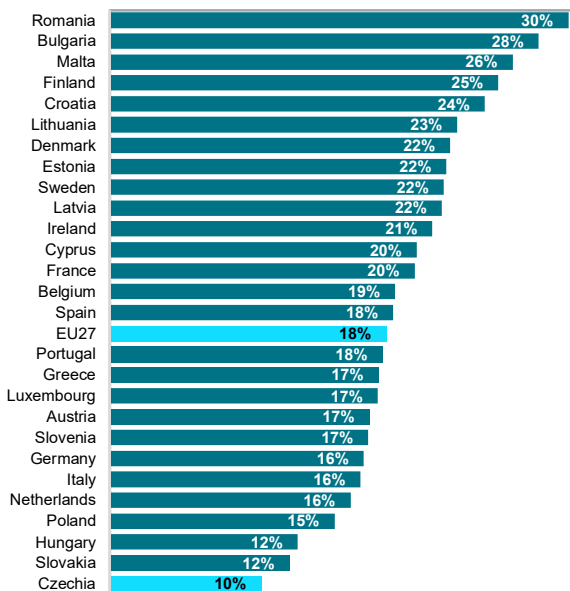
Figure A3 ICT specialists; 2021
(% of total emloyment)

Country	%
Sweden	8,0%
Finland	7,4%
Netherlands	6,7%
Luxembourg	6,7%
Ireland	6,3%
Estonia	6,2%
Denmark	5,6%
Belgium	5,6%
Germany	4,9%
Malta	4,9%
Slovenia	4,8%
Portugal	4,7%
Czechia	4,6%
Austria	4,5%
France	4,5%
EU27	4,5%
Slovakia	4,3%
Spain	4,1%
Hungary	3,9%
Cyprus	3,9%
Latvia	3,8%
Lithuania	3,8%
Italy	3,8%
Croatia	3,6%
Poland	3,5%
Bulgaria	3,5%
Greece	2,8%
Romania	2,6%

Figure A4 Share of women among ICT specialists; 2021

Country	%
Romania	30%
Bulgaria	28%
Malta	26%
Finland	25%
Croatia	24%
Lithuania	23%
Denmark	22%
Estonia	22%
Sweden	22%
Latvia	22%
Ireland	21%
Cyprus	20%
France	20%
Belgium	19%
Spain	18%
EU27	18%
Portugal	18%
Greece	17%
Luxembourg	17%
Austria	17%
Slovenia	17%
Germany	16%
Italy	16%
Netherlands	16%
Poland	15%
Hungary	12%
Slovakia	12%
Czechia	10%

Source: CZSO calculation based on the Eurostat LFS Database

A ICT specialists

Table A2 ICT managers, engineers and professionals in Czechia

Thousand persons*

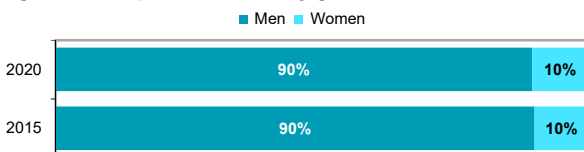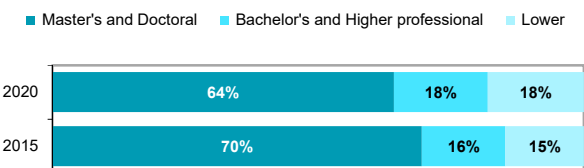|	2018	2019	2020
Total	**99,3**	**108,4**	**119,1**
Women	10,1	11,2	13,0
Occupation			
ICT professionals, total	**84,5**	**95,8**	**106,1**
Software and app. developers and analysts	57,8	67,8	76,2
Database and network professionals	26,6	27,9	29,8
ICT managers, engineers and sales professionals	**14,8**	**12,7**	**13,0**
Age group			
25–34 years	33,6	35,2	38,3
35–44 years	37,8	41,8	44,0
45–54 years	15,7	18,1	23,1
55 + years	9,4	10,4	11,0
Highest level of education attainment			
Master's and Doctoral	68,0	72,0	77,6
Bachelor's and Higher professional	14,5	16,1	19,9
Other (lower)	16,4	20,1	21,4

Figure A5 ICT professionals*

■ Thous. persons ◆ % of total employment in Czechia

	0,8%	0,8%	1,1%	1,4%	2,0%
	35,8	37,8	53,1	67,3	106,1
	2000	2005	2010	2015	2020

Figure A6 ICT professionals*, by gender

■ Men ■ Women

2020	Men 90%	Women 10%
2015	Men 90%	Women 10%

Figure A7 ICT professionals*, by level of education

■ Master's and Doctoral ■ Bachelor's and Higher professional ■ Lower

2020	64%	18%	18%
2015	70%	16%	15%

* Three-year moving averages, see the methodological notes.

Source: CZSO, Labour Force Survey

A ICT specialists

Table A3 ICT technicians, installers and servicers in Czechia

Thousand persons*

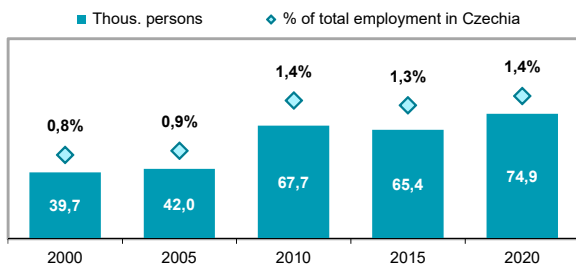|	2018	2019	2020
Total	**101,2**	**101,1**	**100,6**
Women	8,5	8,1	7,8
Occupation			
ICT technicians, total	**74,8**	**75,0**	**74,9**
ICT operations and user support technicians	61,0	62,7	63,4
Telecomm. and broadcasting technicians	13,7	12,2	11,5
Electronics engineering technicians	**8,4**	**8,1**	**8,6**
ICT installers and repairers	**17,9**	**18,0**	**17,1**
Age group			
Under 25 years	7,7	7,2	7,2
25–34 years	31,4	30,0	28,1
35–44 years	33,7	35,1	35,8
45–54 years	17,5	17,5	18,8
55 + years	10,9	11,3	10,8
Highest level of education attainment			
Tertiary	27,1	26,7	26,0
Secondary with A-level examination	63,4	64,2	64,8
Other (lower)	10,7	10,1	9,8

Figure A10 ICT technicians*

■ Thous. persons   ◇ % of total employment in Czechia
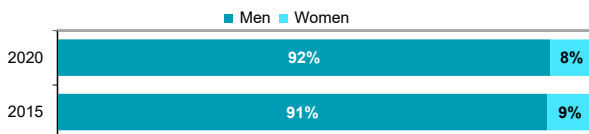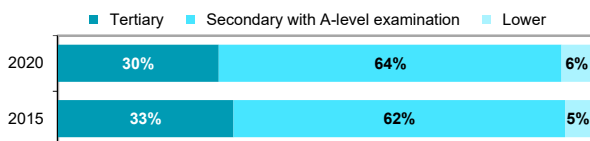
	2000	2005	2010	2015	2020
Thous. persons	39,7	42,0	67,7	65,4	74,9
% of total employment	0,8%	0,9%	1,4%	1,3%	1,4%

Figure A11 ICT technicians*, by gender

■ Men ■ Women

	Men	Women
2020	92%	8%
2015	91%	9%

Figure A12 ICT technicians*, by level of education

■ Tertiary ■ Secondary with A-level examination ■ Lower

	Tertiary	Secondary with A-level examination	Lower
2020	30%	64%	6%
2015	33%	62%	5%

* Three-year moving averages, see the methodological notes.

Source: CZSO, Labour Force Survey

A ICT specialists

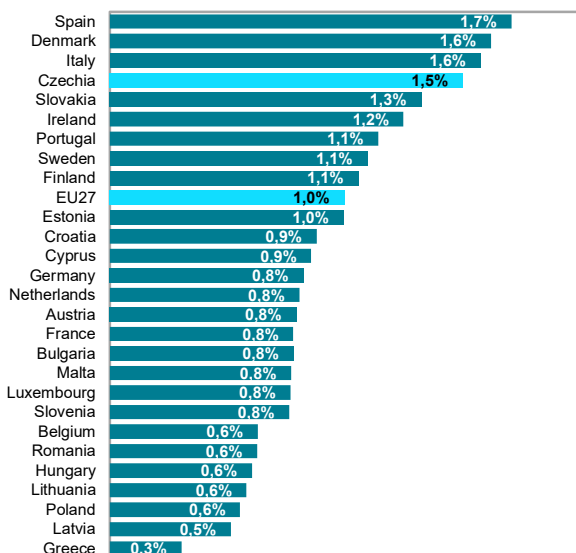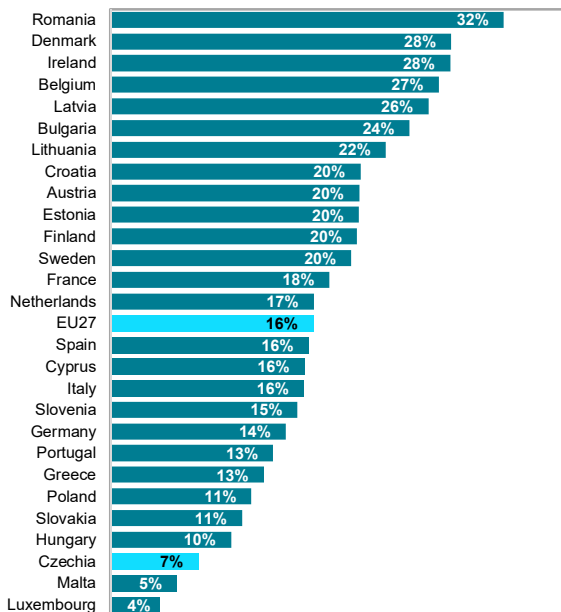**Figure A13 ICT technicians; 2021**
(% of total employment)

Country	%
Spain	1,7%
Denmark	1,6%
Italy	1,6%
Czechia	1,5%
Slovakia	1,3%
Ireland	1,2%
Portugal	1,1%
Sweden	1,1%
Finland	1,1%
EU27	1,0%
Estonia	1,0%
Croatia	0,9%
Cyprus	0,9%
Germany	0,8%
Netherlands	0,8%
Austria	0,8%
France	0,8%
Bulgaria	0,8%
Malta	0,8%
Luxembourg	0,8%
Slovenia	0,8%
Belgium	0,6%
Romania	0,6%
Hungary	0,6%
Lithuania	0,6%
Poland	0,6%
Latvia	0,5%
Greece	0,3%

Figure A14 Share of women among ICT technicians; 2021

Country	%
Romania	32%
Denmark	28%
Ireland	28%
Belgium	27%
Latvia	26%
Bulgaria	24%
Lithuania	22%
Croatia	20%
Austria	20%
Estonia	20%
Finland	20%
Sweden	20%
France	18%
Netherlands	17%
EU27	16%
Spain	16%
Cyprus	16%
Italy	16%
Slovenia	15%
Germany	14%
Portugal	13%
Greece	13%
Poland	11%
Slovakia	11%
Hungary	10%
Czechia	7%
Malta	5%
Luxembourg	4%

Source: CZSO calculation based on Eurostat LFS Database

Table A4 Wages of ICT professionals in Czechia

Average gross monthly wage in CZK

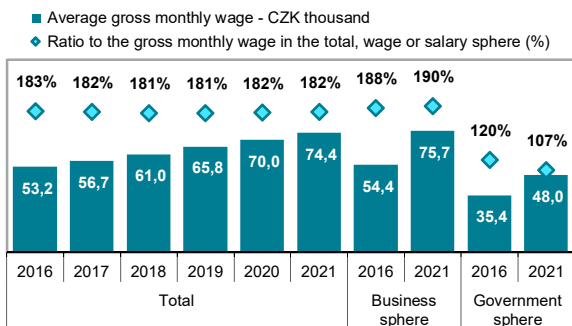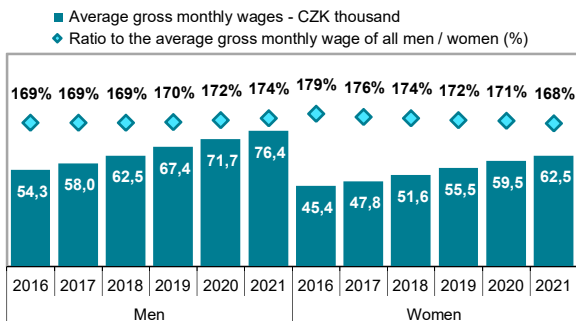|	2019	2020	2021
Total	**65 787**	**70 018**	**74 357**
Men	67 439	71 707	76 360
Women	55 512	59 507	62 499
Citizenship			
Czech citizens	63 439	67 204	70 733
Foreigners	79 941	85 220	92 688
Sphere of activity (remuneration)			
Business (wage) sphere	66 964	71 258	75 718
Government (salary) sphere	44 351	47 347	47 968
Age group			
25–34 years	59 311	64 022	67 447
35–44 years	74 702	78 322	83 448
45–54 years	71 122	75 550	79 959
55 + years	58 588	60 666	64 402
Highest level of education attainment			
Master's and Doctoral	72 620	76 933	81 694
Bachelor's and Higher professional	62 025	66 575	70 524
Secondary with A-level examination	58 258	59 895	62 720

Figure A15 Wages of ICT professionals

■ Average gross monthly wage - CZK thousand
◆ Ratio to the gross monthly wage in the total, wage or salary sphere (%)

Figure A16 Wages of ICT professionals, by gender

■ Average gross monthly wages - CZK thousand
◆ Ratio to the average gross monthly wage of all men / women (%)

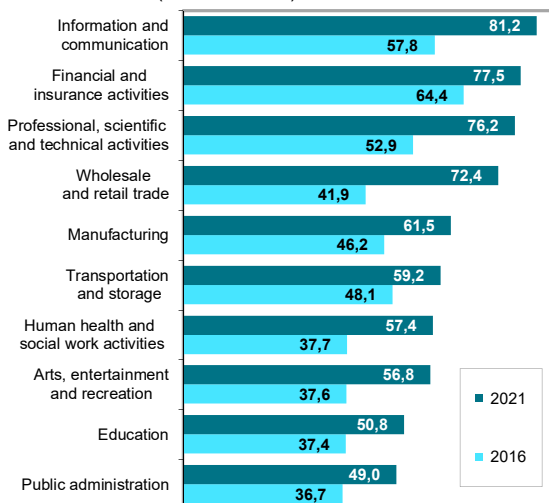*Source: CZSO, Structural Earnings Statistics*

Table A5 Wages of ICT professionals in Czechia by occupation and industry

Average gross monthly wage in CZK

	2019	2020	2021
Total	**65 787**	**70 018**	**74 357**
Occupation			
Software and app. developers & analysts	**69 035**	**73 719**	**78 049**
Systems analysts	72 136	73 181	76 980
Software developers	70 788	78 136	84 925
Web and multimedia developers	61 266	68 922	59 692
Applications programmers	64 315	68 899	72 915
Other software developers and analysts	64 788	66 959	71 415
Database and network professionals	**57 610**	**60 715**	**64 829**
Database designers	64 852	69 303	68 113
Systems administrators	55 160	57 329	62 082
Computer network professionals	62 793	69 570	70 574
Data security professionals	71 428	73 289	79 419
Industry (CZ-NACE Section)			
Manufacturing (C)	56 459	58 447	61 486
Wholesale and retail trade (G)	67 329	65 435	72 415
Transporting and storage (H)	55 837	56 268	59 176
Information and communication (J)	70 290	76 344	81 184
Financial and insurance activities (K)	74 932	76 476	77 515
Professional, scientific and techn. act. (M)	66 387	69 778	76 211
Public administration (O)	46 037	48 516	49 029
Education (P)	47 924	50 999	50 788
Human health and social work act. (Q)	46 445	54 968	57 417
Arts, entertainment and recreation (R)	43 074	52 094	56 843

Figure A17 Average gross monthly wage of ICT professionals in selected industries (CZK thousand)

Industry	2021	2016
Information and communication	81,2	57,8
Financial and insurance activities	77,5	64,4
Professional, scientific and technical activities	76,2	52,9
Wholesale and retail trade	72,4	41,9
Manufacturing	61,5	46,2
Transportation and storage	59,2	48,1
Human health and social work activities	57,4	37,7
Arts, entertainment and recreation	56,8	37,6
Education	50,8	37,4
Public administration	49,0	36,7

Source: CZSO, Structural Earnings Statistics

Table A6 Wages of ICT technicians in Czechia

Average gross monthly wage in CZK

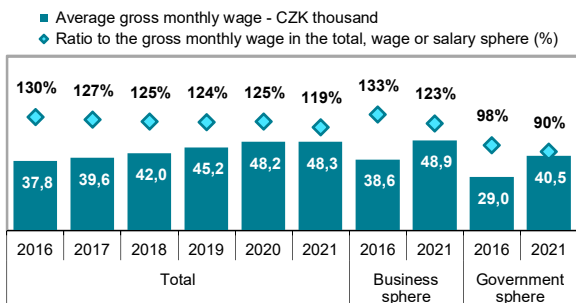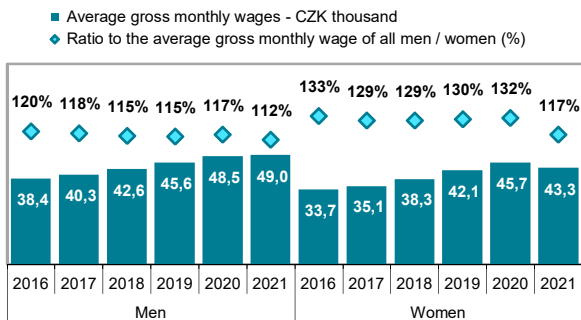|	2019	2020	2021
Total	**45 219**	**48 175**	**48 322**
Men	45 644	48 503	49 046
Women	42 068	45 710	43 312
Citizenship			
Czech citizens	44 170	46 649	47 031
Foreigners	56 840	62 263	59 890
Sphere of activity (remuneration)			
Business (wage) sphere	45 999	48 906	48 923
Government (salary) sphere	36 802	39 692	40 527
Age group			
25–34 years	42 302	45 476	45 525
35–44 years	49 204	52 992	51 697
45–54 years	49 829	52 598	53 203
55 + years	42 926	44 403	45 724
Highest level of education attainment			
Master's and Doctoral	55 485	59 284	57 542
Bachelor's and Higher professional	45 944	51 049	52 228
Secondary with A-level examination	41 710	43 888	43 658
Other (lower)	36 371	37 337	39 776

Figure A18 Wages of ICT technicians

- Average gross monthly wage - CZK thousand
- Ratio to the gross monthly wage in the total, wage or salary sphere (%)

Figure A19 Wages of ICT technicians, by gender

- Average gross monthly wages - CZK thousand
- Ratio to the average gross monthly wage of all men / women (%)

Source: CZSO, Structural Earnings Statistics