

Digital skills

Almost one and a half million additional ICT specialists employed in the EU in five years

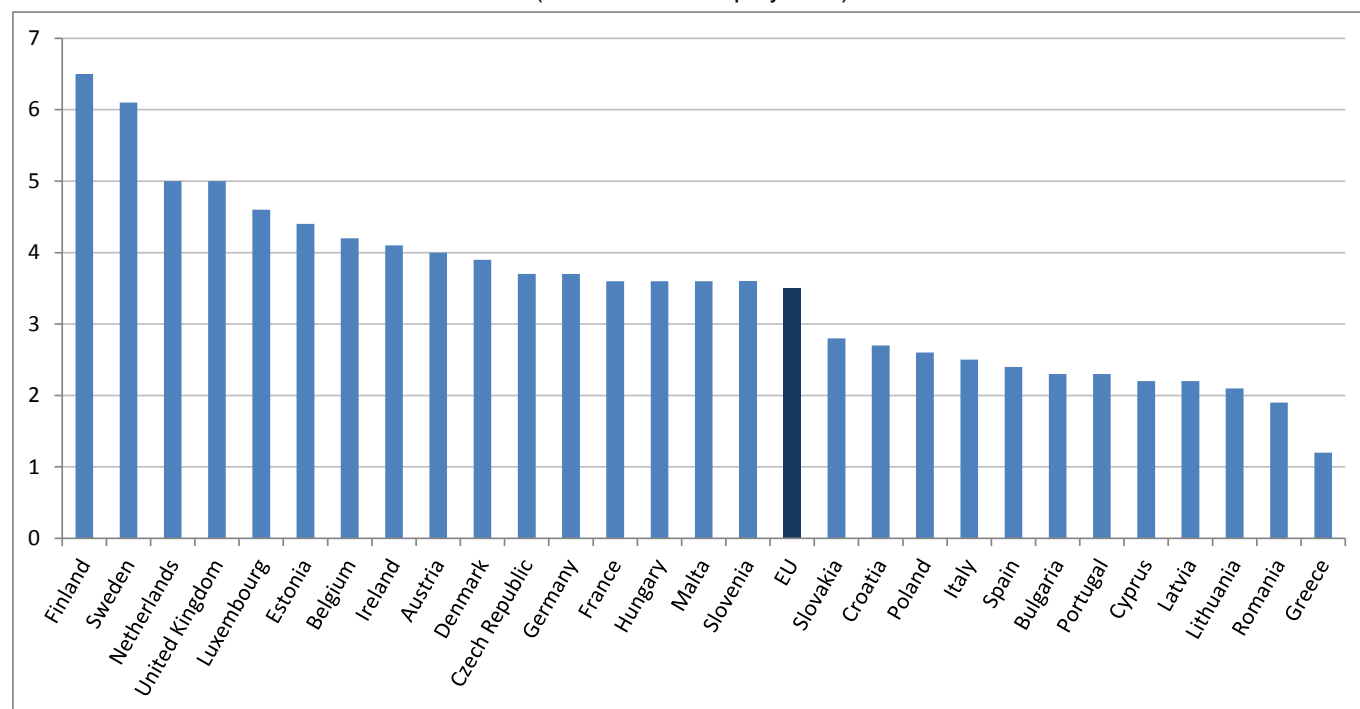
A largely male profession

In the **European Union (EU)**, nearly 8 million persons were employed in 2015 as Information and Communication Technology (ICT) specialists, representing 3.5% of total employment. Over recent years, both the number and the share of ICT specialists in total employment have continuously increased to better adapt to an ever digitalised world.

This profession continues to be largely made up of men, accounting in 2015 for more than 8 ICT specialists out of 10 employed in the **EU** (83.9%). It also employed mainly highly educated people, with 6 ICT specialists out of 10 (60.5%) employed in the **EU** having tertiary level education.

These data come from an [article](#) issued by **Eurostat, the statistical office of the European Union**, and are used for several EU policies, in particular initiatives under the Digital Single Market strategy. The uptake of new information and communication technologies has been a significant driver of changes to both production methods and employment patterns. In light of the competitiveness of the European economy and EU employment strategies, policymakers and researchers feel a natural interest in the employment of ICT professionals, a small but strategically important segment of employment.

Share of ICT specialists in the EU Member States, 2015
(as % of total employment)



Share of ICT specialists in employment highest in Finland and Sweden, lowest in Greece

In 2015, ICT specialists in the EU were mainly employed in the **United Kingdom** (1.54 million persons), **Germany** (1.47 million) and **France** (0.95 million). These three Member States accounted for slightly more than half of all ICT specialists employed in the **EU** in 2015.

In relative terms, the highest shares in 2015 of ICT specialists in total employment were recorded in **Finland** (6.5%) and **Sweden** (6.1%), followed by the **Netherlands** and the **United Kingdom** (both 5.0%), **Luxembourg** (4.6%) and **Estonia** (4.4%). At the opposite end of the scale, **Greece** (1.2%), **Romania** (1.9%), **Lithuania** (2.1%), **Cyprus** and **Latvia** (both 2.2%), **Bulgaria** and **Portugal** (both 2.3%), **Spain** (2.4%) and **Italy** (2.5%) registered the lowest proportions.

Compared with 2011, both the absolute number and the share of ICT specialists in total employment increased in nearly all Member States by 2015, notably in **Germany, France, Estonia, Hungary, Portugal** and **Finland**. At **EU** level, the number of ICT specialists rose by almost 1.5 million persons between 2011 and 2015, and their share in total employment grew from 3.0% to 3.5%.

ICT specialists in the EU Member States, 2011 and 2015

	In 1000 persons		As percentage of total employment (%)	
	2011	2015	2011	2015
EU	6 385.2	7 734.4	3.0	3.5
Belgium	159.2	188.4	3.5	4.2
Bulgaria	54.0	69.6	1.8	2.3
Czech Republic	158.6	184.6	3.3	3.7
Denmark	99.5	106.4	3.7	3.9
Germany	1 000.3	1 465.6	2.6	3.7
Estonia	20.8	28.5	3.4	4.4
Ireland	77.2	79.8	4.2	4.1
Greece	50.7	43.7	1.3	1.2
Spain	489.3	426.8	2.7	2.4
France	636.6	950.1	2.5	3.6
Croatia	38.8	43.0	2.4	2.7
Italy	523.8	558.3	2.3	2.5
Cyprus	8.1	7.9	2.0	2.2
Latvia	17.7	19.4	2.1	2.2
Lithuania	22.9	27.9	1.8	2.1
Luxembourg	9.8	12.0	4.3	4.6
Hungary	102.0	152.6	2.7	3.6
Malta	5.4	6.7	3.2	3.6
Netherlands	365.4	412.7	4.4	5.0
Austria	145.0	166.6	3.6	4.0
Poland	354.5	423.7	2.3	2.6
Portugal	66.1	104.3	1.4	2.3
Romania	124.8	160.8	1.5	1.9
Slovenia	33.1	32.9	3.6	3.6
Slovakia	62.3	68.1	2.7	2.8
Finland	137.9	157.7	5.6	6.5
Sweden	258.3	293.8	5.6	6.1
United Kingdom	1 363.0	1 542.6	4.7	5.0
Iceland	5.4	7.2	3.3	3.9
Norway	109.9	112.3	4.3	4.3
Switzerland	189.3	219.5	4.4	4.8
Turkey	184.8	247.7	0.8	0.9

The source dataset can be found [here](#).

Highest share of male ICT specialists in the Czech Republic...

In 2015, an overwhelming majority (83.9%) of ICT specialists employed in the **EU** were men. This was the case in every EU Member State, with proportions ranging from less than 75% in **Bulgaria** (72.3%) and **Romania** (72.8%) to around 90% in the **Czech Republic** (90.1%), **Slovakia** (88.6%), **Hungary** (88.1%), **Luxembourg** (87.4%) and the **Netherlands** (87.0%).

The above figures show that women are under-represented among ICT specialists in all EU Member States, most particularly in the **Czech Republic**, **Slovakia**, the **Netherlands**, **Hungary**, **Luxembourg**, **Austria**, **Poland** and **Portugal**, a striking contrast with total employment, where the genders are broadly balanced.

... of ICT specialists with tertiary education in Lithuania...

In the **EU** in 2015, more than half (60.5%) of ICT specialists had tertiary level education. This was also the case in a majority of Member States. The highest proportion was registered in **Lithuania** (79.8% of ICT specialists had tertiary level education in 2015), ahead of **Spain** (78.7%), **Ireland** (77.5%), **France** (76.9%) and **Belgium** (76.2%). At the opposite end of the scale, the lowest proportion of ICT specialists having completed tertiary education was recorded in **Italy** (33.1%), followed at a distance by **Germany** (48.1%), **Portugal** (51.4%), **Denmark** (52.1%) and **Sweden** (52.6%).

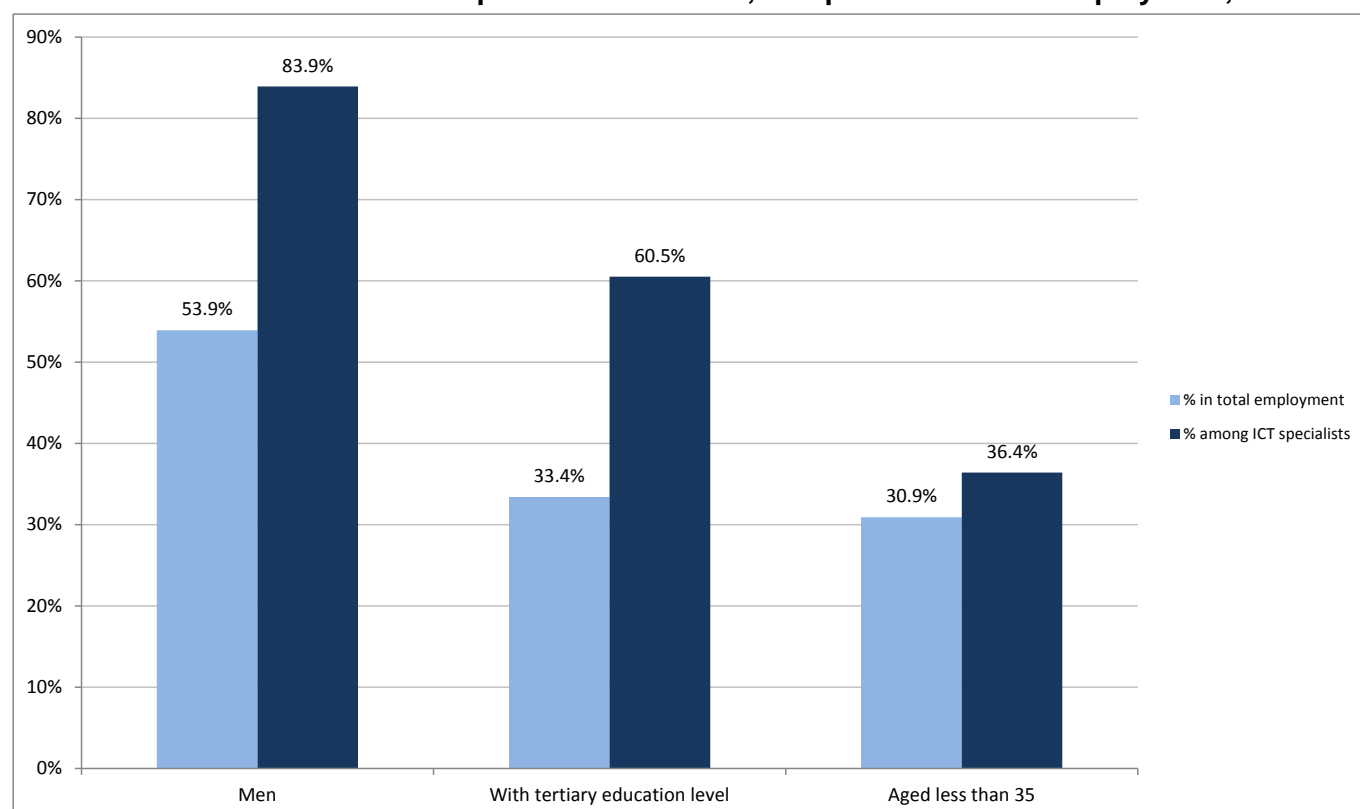
Persons with tertiary level education had a higher share in 2015 among ICT specialists than in total employment in all EU Member States, notably in **Romania**, **Slovakia**, the **Czech Republic**, **Poland** and **Bulgaria**.

... and of ICT specialists aged less than 35 in Malta, Lithuania and Bulgaria

In 2015, more than 1 ICT specialist out of 3 (36.4%) was aged less than 35 in the **EU**. Across Member States, more than half of all ICT specialists employed were aged less than 35 in **Malta** (58.0%), **Lithuania** (55.3%), **Bulgaria** (54.6%), **Latvia** (52.2%), **Estonia** (52.0%) and **Romania** (51.4%). In contrast, persons aged less than 35 accounted for fewer than a third of all ICT specialists employed in **Italy** (25.4%), **Denmark** (28.6%), **Sweden** (30.1%), **Finland** (30.3%), the **Netherlands** (32.5%), **Ireland** (32.8%) and **Luxembourg** (33.0%).

In 2015, there were proportionally more persons younger than 35 among ICT specialists than in total employment in a majority of Member States, with the only exceptions being **Denmark**, the **Netherlands**, **Sweden**, the **United Kingdom**, **Finland**, **Luxembourg** and **Ireland**.

Main characteristics of ICT specialists in the EU, compared with total employment, 2015



ICT specialists in the EU Member States, by gender, age and education level, 2015 (%)

	Men		With tertiary education level		Aged less than 35	
	In total employment	Among ICT specialists	In total employment	Among ICT specialists	In total employment	Among ICT specialists
EU	53.9	83.9	33.4	60.5	30.9	36.4
Belgium	53.3	84.9	43.2	76.2	31.5	33.4
Bulgaria	52.9	72.3	32.2	69.3	27.8	54.6
Czech Republic	56.2	90.1	23.3	57.4	28.3	42.6
Denmark	52.6	81.5	35.1	52.1	34.2	28.6
Germany	53.1	83.7	28.2	48.1	30.5	36.2
Estonia	51.7	79.7	39.5	58.1	33.2	52.0
Ireland	53.7	81.4	46.6	77.5	33.2	32.8
Greece	57.7	86.8	34.0	61.6	26.9	45.3
Spain	54.6	82.6	41.9	78.7	26.2	37.7
France	51.6	83.4	38.7	76.9	30.8	38.1
Croatia	53.9	83.5	27.5	59.1	30.9	43.5
Italy	57.9	86.2	21.0	33.1	22.8	25.4
Cyprus	50.8	82.9	45.5	71.2	36.8	47.7
Latvia	49.7	75.3	35.1	65.0	33.3	52.2
Lithuania	49.0	79.9	43.8	79.8	31.8	55.3
Luxembourg	54.7	87.4	42.4	68.8	34.6	33.0
Hungary	54.2	88.1	26.9	66.0	28.9	34.9
Malta	60.9	83.9	25.2	56.6	41.5	58.0
Netherlands	53.4	87.0	35.6	58.8	36.3	32.5
Austria	52.7	85.8	33.0	57.9	35.4	40.7
Poland	55.0	86.5	33.0	71.7	34.3	49.2
Portugal	50.6	84.7	26.1	51.4	27.7	39.6
Romania	57.1	72.8	20.8	69.9	31.5	51.4
Slovenia	54.5	84.0	33.9	56.0	31.3	41.3
Slovakia	55.6	88.6	23.0	61.8	32.2	49.9
Finland	50.9	77.6	43.0	67.6	32.7	30.3
Sweden	51.9	81.1	39.3	52.6	33.7	30.1
United Kingdom	53.0	83.8	42.4	62.2	36.5	33.7
Iceland	51.8	77.4	34.3	48.5	37.7	37.9
Norway	52.4	83.0	43.3	62.6	35.3	31.4
Switzerland	53.1	85.4	39.4	59.0	34.8	36.6
Turkey	69.7	88.4	21.5	54.0	45.1	67.1

The source dataset can be found [here](#) for data by gender, [here](#) for data by level of education and [here](#) for data by age group.

Geographical information

The **European Union** (EU) includes Belgium, Bulgaria, the Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden and the United Kingdom.

Methods and definitions

The data used in this article mainly come from the secondary statistics on ICT specialists, which are derived from the EU-Labour Force Survey (LFS) data on employment. ICT specialists' data covers persons aged 15 to 74 employed in all sectors of economic activity. The aggregates for ICT specialists are constructed based on the Eurostat-OECD statistical definition, given in terms of International Standard Classification of Occupations (ISCO). Data are available starting from 2004. However, due to a change in classification which occurred in 2011, data prior to 2011 are not fully comparable with the most recent ones.

ICT specialists are defined as those who have the ability to develop, operate and maintain ICT systems and for whom ICTs constitute the main part of their job (see [OECD Information Technology Outlook, 2004](#)).

For more information

Eurostat [website section](#) on digital economy and society statistics.

Eurostat [database](#) on digital economy and society.

Eurostat [Statistics Explained article](#) on ICT specialists in employment.

European Commission [digital scoreboard](#) and [Digital Single Market strategy](#).

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