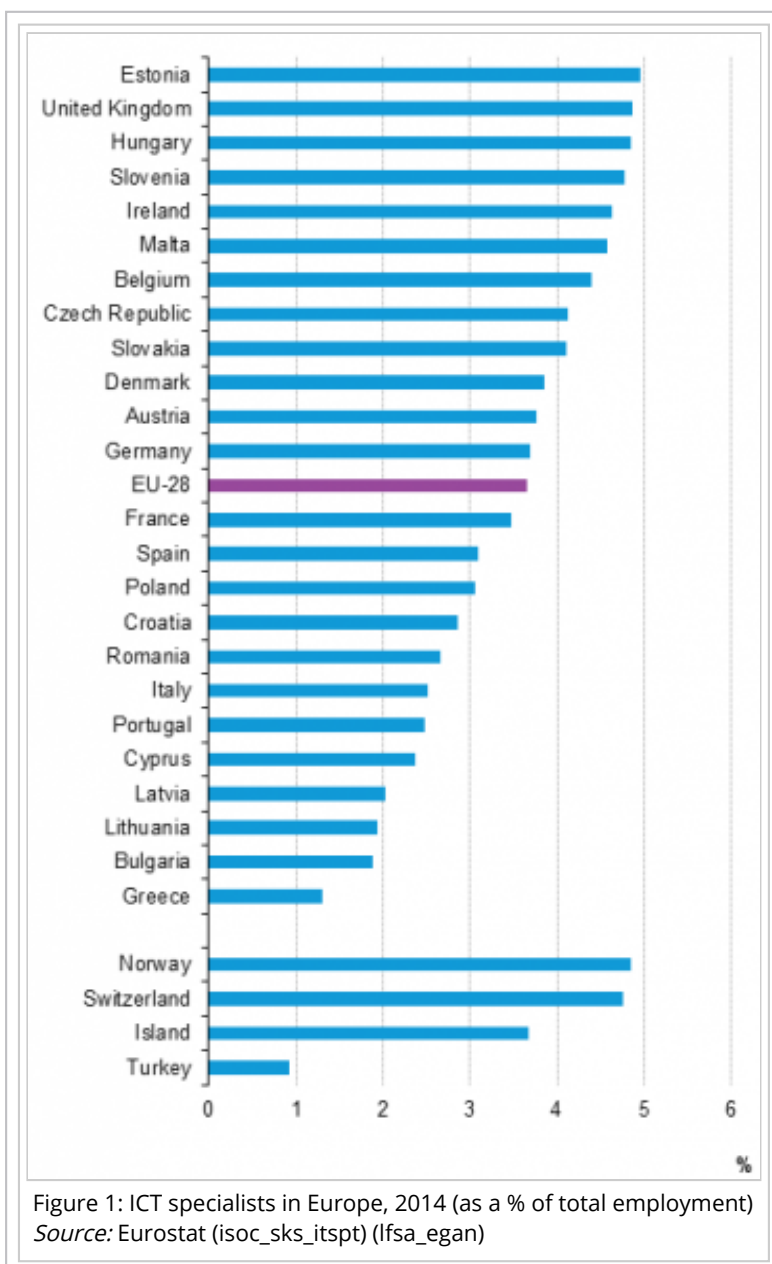


ICT specialists in employment

Data extracted in December 2015. Most recent data: Further Eurostat information, Main tables and Database. Planned article update: May 2016.

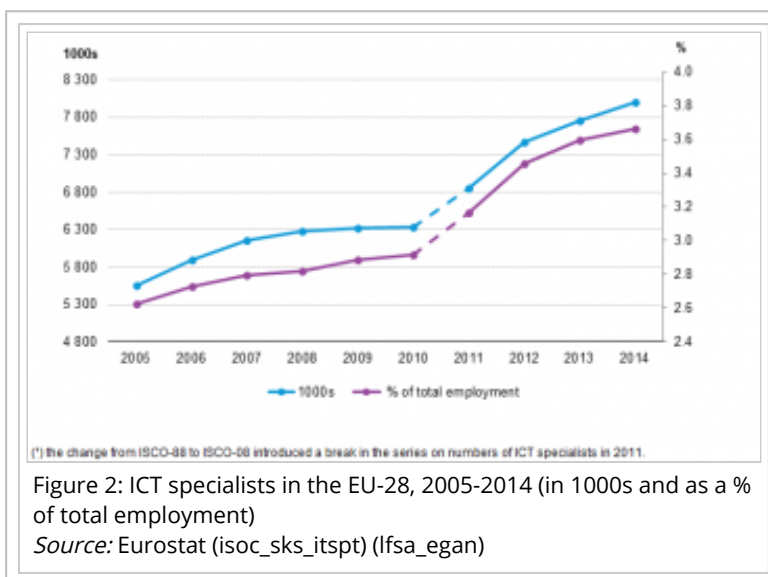
This article gives an overview of recent developments in the demand for Information and Communication Technology (ICT) specialists in Europe. ICT specialists are defined as those who *have the ability to develop, operate and maintain ICT systems and for whom ICTs constitute the main part of their job* (OECD, 2004).

ICT has been the cause of significant changes to both methods of production and patterns of employment, and policymakers and researchers therefore feel a natural interest in the employment of ICT professionals. Having a pool of specialised ICT workers is a critical factor in ensuring a country's comparative advantage in the development, installation and servicing of ICTs.



Main statistical findings

- Employment of ICT specialists has been largely unaffected by the uncertainty seen on global labour markets during and after the



	Men, %		Women, %		Tertiary education, %		Non tertiary		15 to 34 years, %		35 years or over, %	
	2005	2014	2005	2014	2005	2014	2005	2014	2005	2014	2005	2014
EU-28	75	82	22	18	53	58	38	38	43	37	57	57
Belgium	64	64	16	16	78	73	22	27	48	36	54	64
Bulgaria	70	66	30	32	63	72	27	28	55	48	45	52
Czech Republic	71	80	29	26	34	45	66	55	47	38	63	64
Denmark	79	85	21	17	51	51	49	47	39	39	61	72
Germany	80	82	20	18	51	45	48	54	37	36	63	64
Estonia	51	70	49	30	55	51	45	49	39	49	61	51
Ireland	70	79	30	21	78	71	21	25	62	35	38	65
Greece	75	85	25	17	53	67	47	33	58	48	44	54
Spain	81	82	19	18	72	77	28	23	57	40	43	60
France	82	83	18	17	75	68	25	32	48	37	51	63
Croatia	79	82	31	18	63	66	47	48	37	47	63	63
Italy	84	86	16	14	24	32	76	68	45	27	55	73
Cyprus	77	86	23	12	60	72	28	28	61	44	39	56
Lithuania	54	77	46	23	51	56	49	44	62	56	38	44
Latvia	66	77	32	23	58	79	44	36	45	62	55	48
Luxembourg	75	89	25	11	64	71	38	28	41	32	59	68
Hungary	62	75	38	25	36	47	64	53	48	49	52	60
Malta	90	73	10	27	31	38	69	62	72	69	28	40
Netherlands	86	97	14	13	53	57	46	42	39	34	61	66
Austria	79	85	21	15	36	58	65	42	49	42	51	58
Poland	67	79	33	21	57	61	43	38	53	47	59	47
Portugal	83	86	17	14	35	48	65	52	59	43	42	57
Romania	65	71	35	29	48	42	52	58	48	48	54	52
Slovenia	70	72	30	28	41	41	58	59	43	38	57	62
Slovakia	88	75	32	25	36	42	64	58	55	48	45	54
Finland	76	77	24	23	53	63	47	37	44	31	56	69
Sweden	79	80	21	26	43	56	57	48	34	31	66	69
United Kingdom	77	83	23	17	66	64	43	35	37	35	63	65
Iceland	77	79	23	21	56	54	48	48	47	37	53	63
Norway	81	83	19	17	59	60	41	40	41	31	59	69
Switzerland	84	96	15	14	55	58	45	42	42	38	58	62
Turkey	83	97	17	13	44	64	56	48	72	79	28	32

(*) a small percentage of ICT specialists did not report the information needed for the above breakdowns, and the percentages in the table may, therefore, not total 100 %.

(*) the change from ISCO-88 to ISCO-08 introduced a break in the series on numbers of ICT specialists in 2011.

Table 1: ICT specialists by level of education, age and gender (as a % of the total employment of ICT specialists)
Source: Eurostat (isoc_sks_itsps) (isoc_sks_itspe) (isoc_sks_itspa)

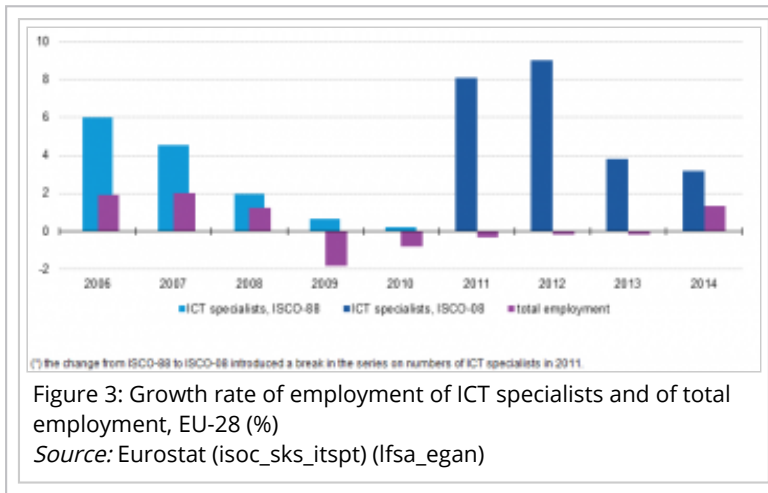
economic crisis: the employment growth rate for ICT specialists has remained on an upwards path averaging 4% growth per annum since 2006, i.e. it was more than twelve times higher than the average growth rate of total employment over the same period.

- Almost half of ICT specialists – 44 % in 2014 – do not have tertiary-level education.
- 63 % of ICT specialists in the EU-28 are aged over 35. The proportion of ICT specialists over the age of 35 has increased by 6 percentage points since 2005.
- The majority of jobs for ICT specialists are held by men. The proportion of women working in this segment of the labour market in the EU-28 has declined since 2005, to 18 % in 2014.

General trend in demand for ICT specialists

During the last decade, employment of ICT specialists in the EU-28 has resisted the effects of the downturn and of uncertainty on global labour markets, and remained on an upwards path. Growth in the employment of ICT specialists averaged 4 % over the nine-year period 2006-2014, more

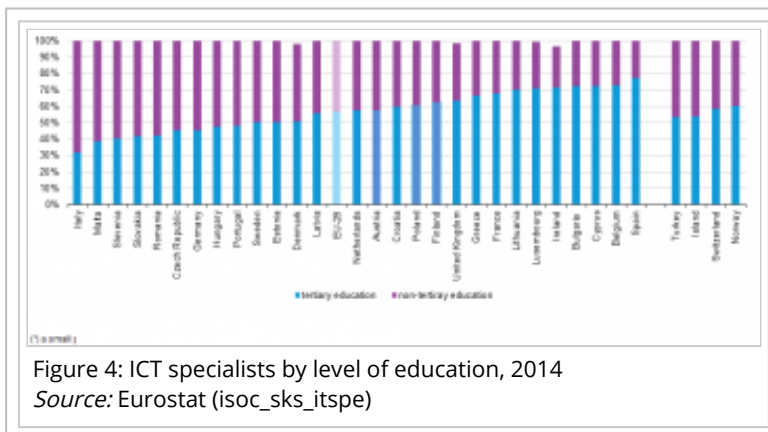
than
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average growth rate for total employment over the same period. While employment of ICT specialists has, similarly to total employment, evolved cyclically (see Figure 3), it never turned negative. The rapid growth in total employment of specialists in this area confirms the increasing importance of ICTs in the global economy.

ICT specialists by level of education

The

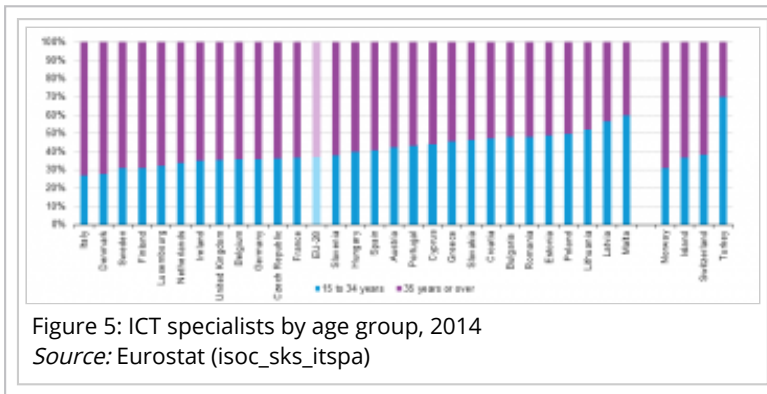


majority of ICT specialists in the EU-28 have completed tertiary-level education, with the proportion of workers with this level of education increasing slightly since 2005 to reach 57 % in 2014. The relative number of ICT specialists having each of the two levels of education — tertiary and post-secondary non-tertiary — varies among countries. The proportion of ICT specialists with tertiary-level education is lowest in Italy (32 %), Malta (39 %) and Slovenia (41 %) and highest in Spain (77 %), Belgium (73 %) and Cyprus (72 %). Some countries have seen an increase in the proportion of ICT specialists with tertiary education since 2005, with Austria, Lithuania and Greece, recording changes of +22, +14 and +13 percentage points respectively. In other countries, meanwhile, the proportion of ICT specialists with tertiary education declined, the most pronounced falls being recorded in Cyprus (-8 percentage points), France and Ireland (-7 percentage points each). Given that these latter three countries were in the top part of the distribution, i.e. had a relatively high proportion of highly educated ICT specialists compared to other countries, these findings could be attributed to the oversupply of highly-qualified ICT-specialised labour during the period 2005-2014.

ICT specialists by age groups

The age distribution of ICT specialists is assessed using two age groups: 15-34 years and over 35 years. The majority of ICT specialists in the EU-28 (63 %) belong to the latter group. Moreover, the proportion of ICT specialists in the older age group increased by 6 percentage points between 2005 and 2014, suggesting an ageing of this segment of the European labour market. The countries that had the highest proportion of ICT specialists in the older age group in 2014 are Italy (27 %), Denmark

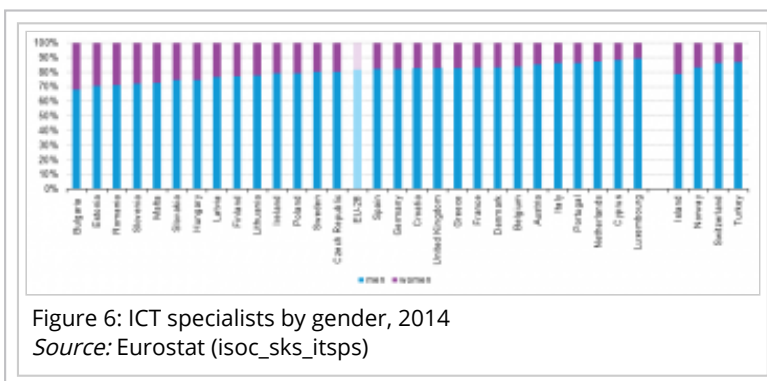
(28 %)
and



Sweden (31 %). The highest proportion of younger workers (15-34 years) was found in Turkey, Malta and Latvia, where they accounted for 70 %, 60 % and 56 % respectively of ICT specialists.

ICT specialists by gender

The



majority of jobs for ICT specialists are held by men. There has been a 5 % increase in the proportion of men since 2005, with men accounting for 82 % of ICT specialists in 2014. The countries with the most pronounced gender inequality in 2014 were Luxembourg, Cyprus and the Netherlands, with proportions of men in the ICT-specialist workforce of 89 %, 88 % and 87 % respectively. Bulgaria has the highest proportion of female ICT specialists (32 %), closely followed by Estonia (30 %) and Romania (29 %).

Data sources and availability

The data used in this article come from the secondary statistics on ICT specialists, which are derived from the Labour Force Survey (LFS) data on employment. ICT specialists' data covers all sectors of economic activity, but does not provide any sector breakdowns. The aggregates for ICT specialists are constructed based on the OECD-Eurostat statistical definition, given in terms of International Standard Classification of Occupations (ISCO). Data matching the statistical definition of ICT specialists is obtained from the LFS data on the basis of the occupations/education taxonomies (see reference metadata on ICT specialists for more details). The comparability of the data over time is affected by the break in the series in 2011, which occurred due to the introduction of the latest version of ISCO. LFS reference metadata should be consulted for all questions relating to the underlying primary source data.

Context

In recent years, EU policies have given greater attention to ICT skills, and in particular to the employment of ICT specialists. The recently updated Digital Single Market strategy emphasises the need for policies designed to boost stability in European labour markets and improve the EU's competitive position. Monitoring the employment of ICT specialists has therefore become increasingly important. The Agenda for New Skills and

Jobs (2010) — part of the overall Europe 2020 strategy — addresses structural change in the labour market and suggests specific measures for adapting European workers' e-skills to the changing working environment. In its Employment package published in April 2012, the European Commission presented new measures and identified the critical opportunities for stimulating a job-rich recovery. One of the objectives of the European employment policy is to ensure that EU workers acquire the higher-end skills needed in order to prevent the loss of key ICT jobs to other regions of the world. Policymakers' growing awareness of the importance of the employment of ICT specialists was reflected in the Grand Coalition for Digital Jobs, launched by the European Commission in April 2013. This multi-stakeholder partnership aims to address the shortfall in the number of people with professional-level ICT skills in Europe. Other EU policies have also recommended that further action be taken in this area. These include, in particular, the Digital Agenda for Europe, the e-Skills Strategy, the Employment Package and the EU Skills Panorama.

See also

- ICT specialists - statistics on hard-to-fill vacancies in enterprises
- ICT specialists – statistical definition and its application to the LFS data

Further Eurostat information

Database

- Information society, see:

E-skills and ICT specialists (isoc_sk)
ICT specialists in the labour force (isoc_sks)
ICT specialists - total (isoc_sks_itspt)
ICT specialists by gender (isoc_sks_itsps)
ICT specialists by level of education (isoc_sks_itspe)
ICT specialists by age (isoc_sks_itspa)

Dedicated section

- Information society

Methodology / Metadata

- ICT specialists in the labour force (ESMS metadata file - isoc_sks_esms)

Source data for tables and figures (MS Excel)

 ICT specialists in employment

Other information

- ICT employment statistics in Europe: measuring methodology
- ICT specialists in OECD countries, 2014

External links

- Europe 2020
- Digital Agenda for Europe
- Digital Single market
- Agenda for New Skills and Jobs

- The Grand Coalition for Digital Jobs
- E-skills for the 21st century: fostering competitiveness, growth and jobs
- European e-Competence Framework
- the e-Skills Strategy
- the EU Skills Panorama

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