

## OCCUPATION AND SKILLS IN THE INFORMATION ECONOMY

Two measures of ICT employment have been developed. One is a narrow measure, comprising ICT specialists whose job is directly focused on ICT, e.g. software engineers. The other is a broader measure where ICT is used regularly as part of the job, but where the job is not focused on ICT.

### Definition

The indicators in this section are based on the following three definitions:

1. ICT specialists, who have the capabilities to develop, operate and maintain ICT systems. ICT constitutes the main part of their job.
2. Advanced users: competent users of advanced, and often sector-specific software tools. ICT is not their main job but a tool.
3. Basic users: competent users of generic tools (e.g. Word, Excel, OpenOffice, Lotus Notes) needed for working life. Here too, ICT is a tool, not the main job.

In this section, the first category corresponds to the narrow measure of ICT-skilled employment, and the sum of all three categories to the broad measure of ICT-skilled employment.

### Long-term trends

Around 3-4% of total employment in most OECD countries was accounted for by ICT specialists in 2007. This share has risen consistently in recent years in most countries, despite the relative stagnation in the share of ICT sector employment in business sector employment. Although these data are not directly comparable, the divergences between the two suggest that there is ongoing occupational specialisation as higher level ICT skills are required. These skills are used partly in the ICT sector as it restructures around more advanced products and activities, and partly across the wider non-ICT economy as ICT specialist skills are needed to produce ICT products in non-ICT sectors (software in the banking industry for example) and non-ICT products with ICT embedded in them (automobile braking systems for example). The share of ICT specialists in total employment declined only in France, Ireland and Portugal. ICT-using occupations (including specialists) make up over 20% of total employment in most countries. These occupations include e.g. scientists and engineers, as well as office workers, but exclude teachers and medical specialists for whom the use of ICTs is in general not essential for their tasks. There remains a contrasting picture in terms of trends, with the share of ICT-using occupations declining in English-language countries (Australia, Canada, the United States) or remaining flat (the United Kingdom) over the period 1995-2007, whereas some other countries increased considerably (Denmark, Finland, Sweden, Ireland and Austria).

### Comparability

Data for EU countries are based on ISCO 88 (the International Standard Classification of Occupations), but data for the non-EU countries are based on national classification systems. The classification and the selection of occupations were not harmonised internationally as there are no official cross-classifications. Moreover, national classifications have more detail. The same logic and rationale were applied to each of the national classification systems to identify the occupations to be included in the narrow and broad definition of ICT-skilled employment.

This means, however, that the level of the indicators is not directly comparable across countries. Furthermore, there may be differences in ICT usage in occupations, both within and between countries, even when they are based on the same classification. For Europe, data from the European Labour Force Survey are based on three-digit ISCO 88. US data on employment by occupation are from the US Current Population Survey (CPS). However, as the 1990 Census Occupational Classification was replaced by one derived from the US Standard Occupational Classification (SOC) in January 2003, the 2007 data were estimated. Labour Force data for Canada are based on SOC 91-Canada. The data for Australia are based on four-digit ASCO (Australian Standard Classification of Occupations). Data for Korea are based on a new classification system, which is being revised. Finally, the Labour Force Survey data for Japan only distinguish a small number of occupations relative to the detail available in the occupational classifications of other countries.

### Sources

- OECD (2008), *OECD Information Technology Outlook 2008*, OECD, Paris.
- OECD (2007), *OECD Science, Technology and Industry Scoreboard 2007*, OECD, Paris.
- OECD (2004), *Information Technology Outlook 2004*, OECD, Paris.
- OECD (2006), *Information Technology Outlook 2006*, OECD, Paris.

### Further information

#### Analytical publications

- Van Welsum, D., and G. Vickery (2005), *New perspectives on ICT skills and employment*, DSTI Information Economy Working Paper, OECD, Paris.

#### Statistical publications

- *Guide to Measuring the Information Society*, OECD, Paris.

#### Websites

- OECD Key ICT indicators, [www.oecd.org/sti/ictindicators](http://www.oecd.org/sti/ictindicators).
- OECD Science, Technology and Industry, [www.oecd.org/sti](http://www.oecd.org/sti).



## Share of ICT-related occupations in the total economy

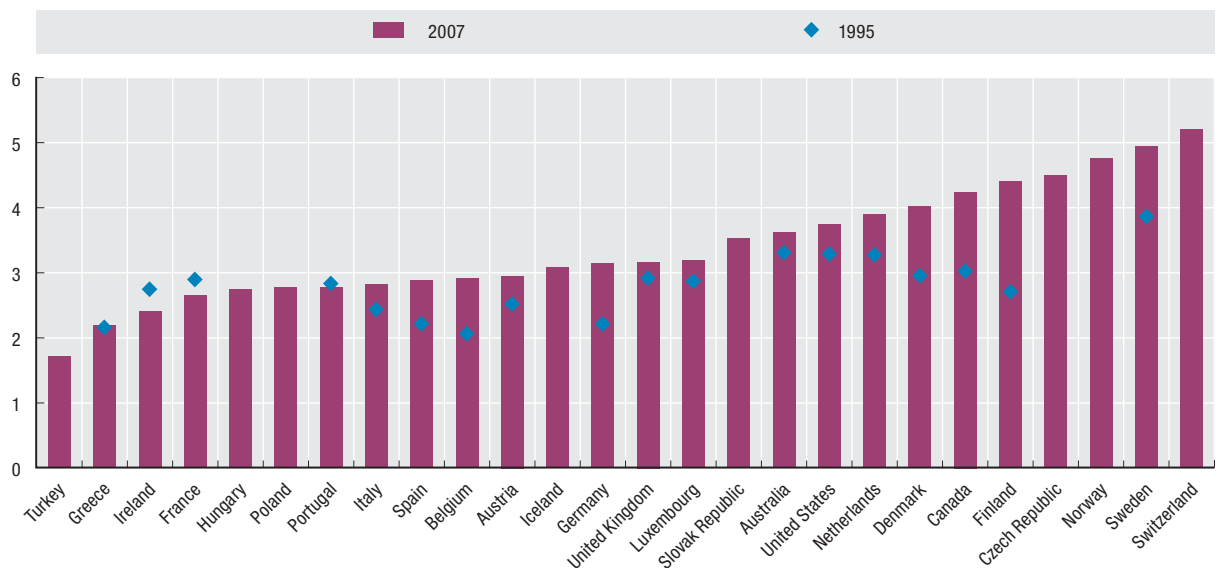
As a percentage of total employment

	Narrow definition		Broad definition	
	1995	2007	1995	2007
Australia	3.3	3.6	21.1	20.8
Austria	2.5	3.0	15.1	20.5
Belgium	2.1	2.9	18.7	21.7
Canada	3.0	4.2	20.6	20.5
Czech Republic	..	4.5	..	22.4
Denmark	3.0	4.0	20.4	27.2
Finland	2.7	4.4	20.0	24.9
France	2.9	2.6	18.6	20.1
Germany	2.2	3.1	20.4	21.6
Greece	2.2	2.2	10.3	14.9
Hungary	..	2.7	..	22.6
Iceland	..	3.1	..	22.5
Ireland	2.8	2.4	14.5	20.9
Italy	2.4	2.8	20.9	22.2
Luxembourg	2.9	3.2	23.0	30.6
Netherlands	3.3	3.9	23.0	23.4
Norway	..	4.8	..	23.8
Poland	..	2.8	..	17.9
Portugal	2.8	2.8	16.4	14.3
Slovak Republic	..	3.5	..	19.1
Spain	2.2	2.9	15.8	18.6
Sweden	3.9	4.9	20.4	24.6
Switzerland	..	5.2	..	23.0
Turkey	..	1.7	..	11.8
United Kingdom	2.9	3.2	27.8	28.0
United States	3.3	3.7	21.2	20.2

StatLink <http://dx.doi.org/10.1787/543461725577>

## Share of ICT-related occupations in the total economy, narrow definition

As a percentage of total employment



StatLink <http://dx.doi.org/10.1787/537148603274>



From:  
**OECD Factbook 2009**  
Economic, Environmental and Social Statistics

Access the complete publication at:  
<https://doi.org/10.1787/factbook-2009-en>

**Please cite this chapter as:**

OECD (2009), "Occupation and skills in the information economy", in *OECD Factbook 2009: Economic, Environmental and Social Statistics*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/factbook-2009-60-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to [rights@oecd.org](mailto:rights@oecd.org). Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at [info@copyright.com](mailto:info@copyright.com) or the Centre français d'exploitation du droit de copie (CFC) at [contact@cfcopies.com](mailto:contact@cfcopies.com).