

# OECD *Multilingual Summaries* Measuring the Digital Economy A New Perspective

Summary in English



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With lacklustre growth across much of the globe, monitoring and understanding the role of ICTs and the Internet in the broader economy is a priority. *Measuring the Digital Economy* maps existing indicators against digital economy policy issues, identifies gaps in the measurement framework, assesses progress, and proposes a forward-looking international measurement agenda.

## *ICTs have triggered deep changes in economies and societies*

The number of Internet users in OECD countries increased from fewer than 60% of adults in 2005 to about 80% in 2013, reaching 95% among young people with large differences across and within countries. In 2013, more than 90% of individuals accessed the Internet in Luxembourg, the Netherlands, the Nordic countries, and Switzerland against 60% or less in Greece, Italy, Mexico and Turkey. The gap between Internet uptake among the elderly and the younger population generally remained high in the lagging countries compared to the leaders.

Fifteen-year-olds in the OECD spend about 3 hours on the Internet on a typical weekday and more than 70% use the Internet at school. In OECD countries, 62% of Internet users participate in social networks and 35% use e-government services. About half of individuals in OECD countries purchase goods and services online, and almost 20% in Denmark, Korea, Sweden and the United Kingdom use a mobile device to do so.

In 2012-13, 77% of enterprises in the OECD area had a website or home page and 21% sold their products electronically. Over 80% of enterprises used e-government services.

## *Technological developments are feeding further penetration*

Higher speed Internet, lower unit prices and smart devices have favoured new and more data-intensive applications. Wireless broadband subscriptions in the OECD area increased over twofold in just four years: by December 2013, almost 3 out of 4 individuals in the OECD area had a mobile wireless broadband subscription.

Mobile broadband is also widely available in many emerging and less developed countries. In sub-Saharan Africa, for example, subscriptions grew from 14 million in 2010 to 117 million in 2013.

In less than two years, the number of pages viewed from mobile devices and tablets is estimated to have risen from 15% to over 30% of total. In 2013, over 75% of active Facebook users connected via a mobile device.

International differences in speed and prices remain significant, however, even among OECD countries. In December 2013, the share of high-speed broadband subscribers (above 10 Mbit/s) ranged from over 70% to under 2% across OECD countries. Depending on country, smartphone users in the OECD may pay up to seven times more for a comparable basket of mobile services.

## *ICTs are fostering innovations across industries and sciences*

ICT-producing industries, together with publishing, digital media and content industries, accounted for about one-quarter of total OECD business expenditure in R&D (BERD) in 2011. In 2014, patents in ICT-related technologies accounted for a third of all applications to main patent offices. In the last ten years, the share of data mining in total patents more than tripled, and the share of machine-to-machine (M2M) communication patents increased six times.

Many emergent technologies rely on innovations in ICTs. In the OECD countries, about 25% of ICT patents also belong to non-ICT areas. For example the deployment of second-generation genome sequencing techniques with embedded data-mining algorithms resulted in the cost per human-like genome sequence dropping from a million to a thousand dollars in just five years (2009-14).

## *The digital economy has been resilient in the crisis*

In 2012, information industries accounted for about 6% of total value added, around 4% of total employment and 12% of total fixed investment in the OECD area. Labour productivity in the information economy sector is about 60% higher than in the total economy.

The ICT sector outperformed the rest of the economy in terms of net business population growth between 2009 and 2012 and involved relatively high shares of medium and high-growth firms. New ICT enterprises have also higher survival rates than their counterparts in manufacturing and services.

The crisis does not seem to have significantly affected the revenues of the world's top-250 ICT firms. However, they have substantially reduced their R&D expenditures compared to the beginning of the decade, perhaps due to the shift from manufacturing to services.

Over 2000-12, computers and peripherals fell from almost 38% to under 30% of world ICT exports, while the share of communication equipment and consumer electronics grew from 26% to almost 35%. Over the same period, China's share in global ICT exports grew from 4.4% to above 30%. However, in terms of value added, China's share was only 17% since it has to import a significant amount of intermediate goods and services.

## *Employment creation has been sluggish*

Despite the dynamism of the sector, employment in ICT industries never regained the 2001 peak of 4.1% of total employment and remained just below 3.8% in 2012. These sluggish employment dynamics reflected the downsizing of manufacturing and telecom services and the growth of IT services. Yet ICT industries account for less than half of ICT-related occupations in OECD countries.

From 2003 to 2013, employment in ICT occupations grew by 25% or more in Australia and Canada, about 15% in the United States, and 16% to 30% in OECD countries in Europe, performing better than total employment through the crisis. Yet, several studies highlight the potentially disruptive effects of ICTs on employment, given the progress in automation and machine learning.

## *New skills for workers, firms and users are required*

While the use of ICTs at work is generalised, over 60% of the EU labour force reported their computer skills as insufficient to apply for a new job, rising to over 80% of people with low education compared to below 40% of those with a tertiary education. ICT industries employ on average 30% of business sector researchers, but only 3% of OECD tertiary graduates attained a degree in computer sciences in 2012.

The Internet has opened up new opportunities for education and training. In 2013, 9.3% of Internet users followed an online course in the 30 OECD countries for which data are available, and hundreds of universities now propose online programmes and massive open online courses (MOOCs).

Security skills also need to be improved. Security is cited as the main reason for not buying online by over one-third of Internet users in the European Union. However, in 2013 only about one-third of Internet users in the European Union had ever changed the security settings of their browsers. Similarly, in 2010

only 9% of adult Internet users in the European Union used a parental control or web-filtering software to protect their children online.

### *New statistical tools are needed to measure the digital economy*

While existing statistics measure the diffusion of ICTs, they are less able to keep up with new and rapidly evolving technologies and usage by individuals and firms. A forward-looking international measurement agenda should be built around six areas:

- 1. Improve the measurement of ICT investment and its link to macroeconomic performance.
- 2. Define and measure skill needs for the digital economy.
- 3. Develop metrics to monitor issues of security, privacy and consumer protection.
- 4. Promote the measurement of ICT for social goals and the impact of the digital economy on society.
- 5. Invest in a comprehensive, high-quality data infrastructure for measuring impacts.
- 6. Build a statistical quality framework suited to exploiting the Internet as a data source.

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