Skills for a Digital World
Objectives

Greater use of digital technologies increases demand for new skills. First, the production of digital products and services requires specialist skills in information and communication technologies (ICTs) to programme software, develop applications and manage networks. Second, workers across an increasing range of occupations need generic and/or advanced ICT skills to use such technologies effectively. Finally, the diffusion of digital technologies is changing how work is done, raising demand for complementary skills such as information processing, self-direction, problem solving and communication. Generic ICT skills and complementary skills are also crucial to individuals’ effective use of digital technologies in their daily lives.

These changes in demand for skills present major challenges to national skills development systems in formal education and training. They also call for the recognition of skills acquired through informal learning. At the same time, digital technologies can improve learning in the classroom and beyond, and social networking plays an increasing role. Open education platforms can broaden learning methods and give a larger population access to quality resources. Digital technologies also offer opportunities for dialogue among education professionals and strengthen feedback mechanisms and evaluation procedures.

The panel will focus on actions that can help to ensure that the diffusion of digital technologies is accompanied by the development of the skills needed for their effective use, an increase in the responsiveness of national skills development systems to changes in skills demand, and the seizing of new learning opportunities created by digital technologies.

Key issues

Many people in OECD countries do not use ICTs at work or do not have adequate ICT skills.

Promoting diffusion of digital technologies among firms and governments is essential to increase productivity. However, adoption needs to be accompanied by appropriate skills development to enable their effective use. On average, only a quarter of workers use office software (word processors, spreadsheets) daily. Of these, according to the OECD Survey of Adult Skills (PIAAC), over 40 % may lack the skills to use these tools effectively. There is also a gender gap in the use of ICTs and access of the Internet by women. Some businesses report difficulties in hiring ICT specialists with adequate skills. Women’s participation in ICT occupations remains low as well (18 % of ICT specialists in OECD).
**Q1:** What approaches can best help to ensure that the diffusion of digital technologies is accompanied by the skills development needed for their effective use?

The **diffusion of digital technologies challenges national skills development systems and raises the importance of complementary skills, such as information processing, self-direction, problem solving and communication.**

As increasing use of digital technologies reshapes business models and firms' organisation, complementary skills become more important. These skills are developed in formal education and in the workplace, through on-the-job training, and in leisure activities, through informal learning. Designing effective skills policies requires the active engagement of a range of government and non-governmental actors: employers, trade unions, education and training institutions, and individuals. Such policies need to improve the employability of all workers, promote a lifelong learning culture among employers and employees, and enable effective use of digital technologies by all individuals in their daily life.
Figure 2. Correlations between daily use of ICTs at work and other tasks
Average across countries

Note: A positive (negative) correlation means that workers using ICTs at work daily perform a given task more (less) often than the other workers. The higher its absolute value, the stronger the correlation between ICT use and the task in question.


Q2: What approaches can best help people identify and develop the skills they need in the digital world and receive recognition for the skills acquired through formal education and informal learning?

Digital technologies raise opportunities for more timely, innovative and collaborative learning, but are insufficiently used in this way.

Massive online open courses and open educational resources expand opportunities for learning more flexibly. Online educational games can help players to develop collaborative and communication skills. The use of digital technologies in formal education and vocational training has the potential to improve learning, although this depends on the capacity to link these tools to effective pedagogy.

E-learning experimentation in primary, secondary, vocational and tertiary education provides a useful laboratory for understanding how best to equip people with new skills. However, such initiatives have
been limited. Barriers to their adoption include limits on learners and teachers’ and trainers’ capacity to take advantage of these tools, concerns about the quality of online education, and lack of recognition of learning outcomes.

Policies to overcome these barriers and to ensure consistency and quality, especially in an international market, will be needed to grasp the learning opportunities created by digital technologies. Big data analytics can complement labour market information systems with more timely and precise monitoring of changing skills demand so as to adapt skills development and activation policies.

**Figure 3.** Individuals who participated in an online course, 2009 and 2013
As a percentage of individuals who used the Internet in the last three months


**Q3:** What approaches can best foster the diffusion and use of the new tools enabled by digital technologies to promote timely, relevant and effective skills development?