



# CASE STUDY: PLANNING FOR THE FUTURE OF WORK

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## ABSTRACT

Technologies such as robotics and artificial intelligence are rapidly making their way into the workplace, creating winners and losers. Drawing on evidence and policy analysis by the OECD, this case study looks at the impact of automation on employment and its implications for the future of work.

## Key messages

- The greatest employment growth of any occupation between 2012 and 2019 was for information and communication technology professionals.
- There is no evidence that the adoption of new technologies leads to lower employment growth.
- Skills investments must match labour market needs, including forecasting skills needs in light of automation trends.

## Automation creates jobs in some sectors and destroys them in others

Technologies such as robotics and artificial intelligence are rapidly making their way into the workplace. They promise to increase productivity and improve the health and safety of workers, and even the quality of jobs in some cases. New technologies also contribute to uncertainty about the future of work. It is estimated that 14% of jobs in OECD countries are at high risk of automation, with another third at risk of significant change (Nedelkoska and Quintini, 2018<sub>[1]</sub>) (Figure 16.1). The highest employment growth was observed for information and communication technology (ICT) professionals (51.3%) between 2012 and 2019 (Georgieff and Milanez, 2021<sub>[2]</sub>). Over the past ten years, employment growth was lower in occupations at highest risk for automation, such as mobile plant operators and agricultural workers.

Evidence from advanced economies shows that while technology destroys some jobs, it also creates new ones. These are either entirely new, directly related to the development, maintenance and use of the technology, or are created because of technology boosting productivity, wages, and under certain conditions, demand for goods and services. However, the jobs created are different from those destroyed. Most of the job growth in advanced economies has been at the high end of the skills spectrum (OECD, 2019<sub>[3]</sub>). This is good news but also presents the challenge of ensuring that workers have the skills to take advantage of these new opportunities. The OECD estimates that six out of ten adults still lack basic ICT skills or have no computer experience (OECD, 2019<sub>[4]</sub>).

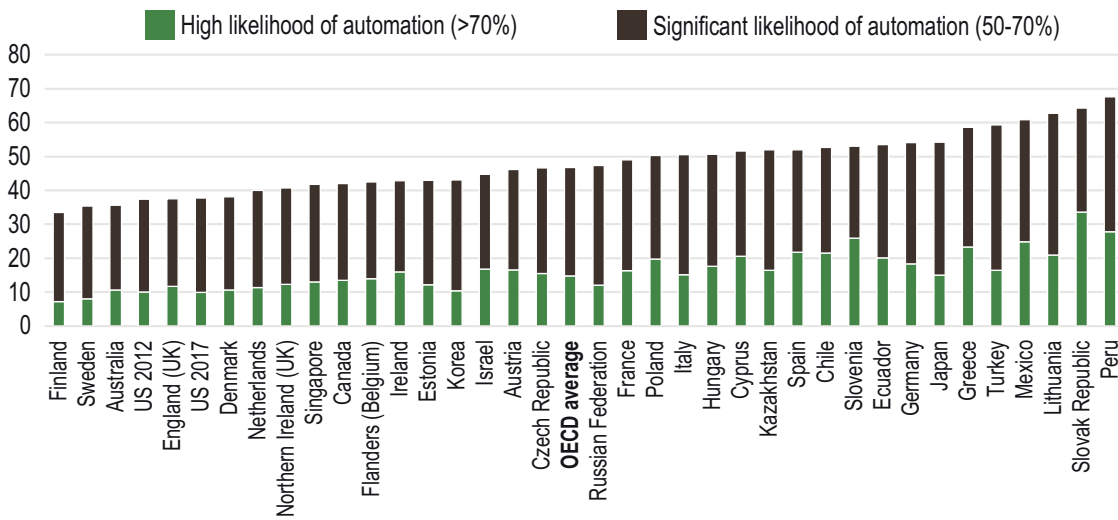
The risk of job loss from automation is higher in low- and middle-income countries than in advanced economies because many workers carry out routine tasks that can more easily be automated. Given the constraints on social safety nets, public employment services and training, automation could have a greater impact on workers and employment growth in low-income countries.

## Employment trends in relation to automation and platforms

At the country level, there is no evidence in advanced economies that automation has had a negative overall impact on employment (Georgieff and Milanez, 2021<sub>[2]</sub>) (Figure 16.2). But education is a crucial factor for staying employed: the risk of automation is at least three times higher for workers without a secondary qualification than for workers with a tertiary qualification (Nedelkoska and Quintini, 2018<sub>[1]</sub>).<sup>1</sup>

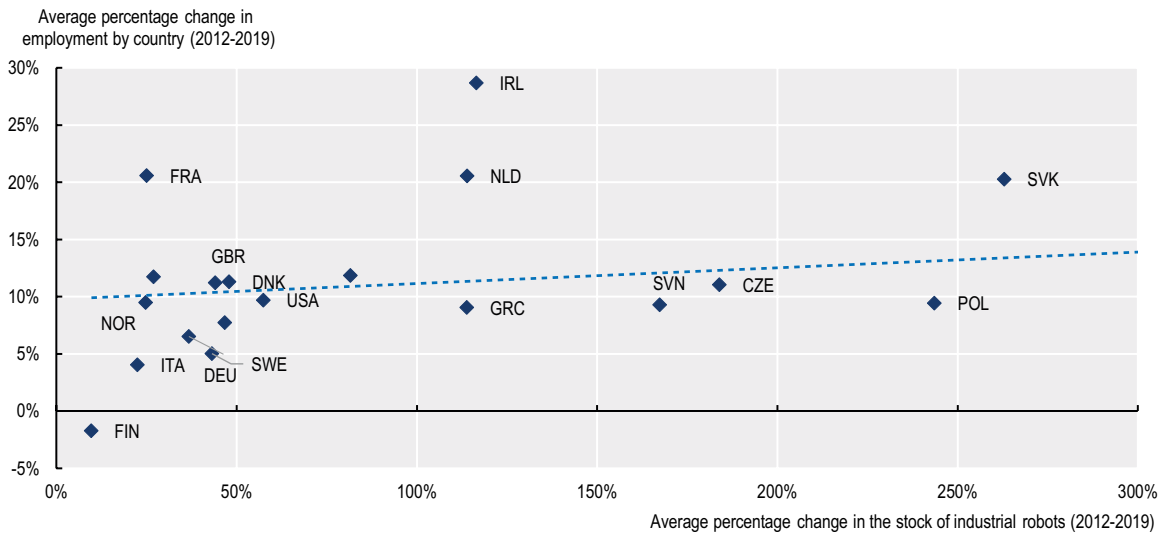
From a social policy perspective, automation contributes to employment uncertainty for specific demographic groups that work on routine tasks, meaning that workers' welfare is at increased risk in countries where social safety nets, public employment services and training are less well developed (OECD, 2019<sub>[4]</sub>). The COVID-19 crisis might have added to this uncertainty by accelerating automation as companies tried to rely less on human labour and contact between workers or to re-shore some production (Georgieff and Milanez, 2021<sub>[2]</sub>). Thus, automation reduces labour demand in some sectors and puts downward pressure on employment and wages, known as 'the displacement effect'. This might lead to overall productivity gains for the economy, but these may not be

Figure 16.1. Automation is likely to affect 50% of jobs on average



Source: Nedelkoska, L. and G. Quintini (2018<sup>[11]</sup>), "Automation, skills use and training", *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris, <https://doi.org/10.1787/2e2f4eea-en>.

Figure 16.2. Automation has not negatively impacted employment growth in advanced economies, 2012-19



Source: OECD (2019<sup>[6]</sup>), "The Future of Work in Figures", <https://www.oecd.org/future-of-work/Future-of-work-infographic-web-full-size.pdf>.

reflected in workers' wages at the same rate (Acemoglu and Restrepo, 2017<sup>[5]</sup>).

Advances in technology and innovation in business models have led to the rise of the platform economy, in which workers and clients use digital platforms to exchange labour for money – typically short tasks (or gigs) (see Chapter 17). Many of these tasks can be carried out entirely online. There has

been strong growth in employment mediated through these platforms, boosted further by the COVID-19 pandemic and associated digitalisation. The number of job postings on five of the largest online freelance labour platforms increased by about 50% since 2017 (The iLabour Project, n.d.<sup>[6]</sup>). Freelance labour platforms offer lower market entry barriers, creating opportunities for individuals to

sell their services, including in software development, customer service, design, and legal and accounting services.

At the same time, however, employment in the platform economy represents only a very small share of overall employment. It accounts for about 1-2% of total employment in advanced economies (OECD, 2019<sup>[3]</sup>). There are also concerns around the quality of jobs in the platform economy. While platform jobs may offer some opportunities for formalisation (through the digitalisation of transactions), most of the jobs created are likely to remain precarious and self-employed, providing few rights and protections to workers. The OECD estimates that such self-employment, part-time and temporary work tends to be 50% less likely to be unionised than standard employment. In some countries, people in these types of jobs are also 40-50% less likely to receive income support when out of work (OECD, 2019<sup>[3]</sup>).

While the potential for automation is high in low-income countries, technology adoption may be slower than in more advanced economies, which could hamper productivity and economic growth. Several factors constrain investments in new technologies in low-income countries (Alonso Soto, 2020<sup>[7]</sup>). The availability of a large and young workforce and low wage costs mean that firms have less incentive to replace workers with robots. In addition, as a large share of firms in low-income countries are small-sized, the cost of adopting new technologies is a significant barrier. Finally, limited skills to develop and work with robots and artificial intelligence deters such investments. Of robots being installed around the world, 80% are in advanced economies (Alonso Soto, 2020<sup>[7]</sup>).

### **Social, education and labour market policy considerations for the future of work**

To date, in advanced economies, there is no evidence that the adoption of new technology has resulted in lower employment growth. New technologies have contributed

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to structural change in the labour market and strong growth in high-skilled jobs. Investments in digital infrastructure and basic digital skills necessary to promote technology adoption (i.e. not only advanced technical skills required to develop and maintain such technologies) are still important everywhere. Even in advanced economies, 50% of adults struggle to use computers (OECD, 2013<sup>[8]</sup>). While technological advances create new and better jobs, they also result in some job destruction. This creates both winners and losers, highlighting how important it is for policy makers to ensure that skills investments for prospective workers match the needs of the labour market, including by forecasting skills needs in light of automation trends (Georgieff and Milanez, 2021<sup>[2]</sup>).

The challenge for all governments, therefore, is to ensure that individuals who lose from digitalisation and automation receive help to seize the new opportunities that arise. Evidence suggests that successful transitions in the labour market depend on three factors (OECD, 2019<sup>[3]</sup>):

1. An adequate social safety net prevents individuals who lose their job from falling into poverty. It also gives them the time and resources to look for a job that matches

- their skills and preferences, factors that improve retention and productivity.
2. Adequate social protection needs to be combined with expectations that a worker will participate in measures, such as training, to improve their employability.
  3. Transitions from sectors and occupations that are declining to those that are expanding tend to be smoother in countries where employer organisations and unions are representative of their constituents, and where social dialogue is constructive.

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## NOTE

1. This is an estimate based on [https://www.oecd-ilibrary.org/employment/automation-skills-use-and-training\\_2e2f4eea-en](https://www.oecd-ilibrary.org/employment/automation-skills-use-and-training_2e2f4eea-en).



**From:**  
**Development Co-operation Report 2021**  
Shaping a Just Digital Transformation

**Access the complete publication at:**

<https://doi.org/10.1787/ce08832f-en>

**Please cite this chapter as:**

Broecke, Stijn (2021), “Case study: Planning for the future of work”, in OECD, *Development Co-operation Report 2021: Shaping a Just Digital Transformation*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/ff4b8bd3-en>

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