

# Digitisation in the workplace

## Introduction

Much of the research on the impact of digitalisation on work and employment has focused on quantifying the potential job losses resulting from increased automation and digitisation. This has influenced the policy debate on the implications of the digital revolution for the future of work. Taking a qualitative approach, this research explored different use cases revolving around three key technologies that are crucial to the digitisation of business and work processes, clearly impacting on aspects of work organisation and job quality: the internet of things (IoT), 3D printing, and virtual and augmented reality (VR/AR). In the case studies, the emphasis is not only on the impact of these technologies on work, but also on the motivations behind technology adoption, how digitisation evolves in the workplace and the extent of employee involvement.

## Policy context

The national and European policy debate around digitalisation is often two-sided: digital technologies are viewed as key drivers of innovation, competitiveness and environmental sustainability but also as a potential source of disruption for businesses and workers.

The European Commission has launched several initiatives aimed at fostering digitalisation and the uptake of novel digital technologies. Since the adoption of the Digital Single Market Strategy in 2015, the European Commission has highlighted the role of digital technologies in economic and sustainable growth. The digital transformation of the EU economy and society features prominently in European Commission communications on shaping Europe's digital future and Europe's digital compass, which sets specific targets in areas such as skills and business use of digital technologies. The Commission has pinned its ambitions for the post-COVID-19 recovery on digital and green

technologies, and the NextGenerationEU fund – part of the post-COVID-19 EU recovery package – will play an important role in boosting the quality of the digital infrastructure and supporting skills policies and the roll-out of new technologies, particularly in small and medium-sized enterprises (SMEs).

While the European Commission's action plan for the implementation of the European Pillar of Social Rights underlines the important role of digital technologies in Europe's economic and social recovery post pandemic, the declaration of the EU's Porto Social Summit in May 2021 reaffirmed the need for a digital, green and fair transition.

## Key findings

- Although none of the three digitisation technologies can be considered mainstream, IoT is the most established, providing a range of applications, particularly in manufacturing. The research shows the complementarity and versatility of these technologies, which can be applied to different contexts and activities, depending on company specificities and needs.
- Elements underpinning the successful implementation of digitisation in the workplace include the adoption of an explicit digitisation strategy with a phased approach to implementation based on experimentation and piloting, early communication and employee involvement, the provision of upskilling, reskilling and training on an ongoing basis, and strategic partnerships and collaborations with other companies and relevant organisations. These elements were embedded to varying extents in the establishments investigated. The approaches used tended to be top-down, with limited opportunities for employees to voice concerns and provide feedback based on their experiences.

- From a work organisation perspective, the technologies intensified communication and collaboration between different departments and teams and had a positive impact on workflows, quality control and standards. The technologies also impacted on task definition and content: IoT cut down on manual and routine tasks and put greater emphasis on managerial and analytical tasks; 3D printing reduced physically demanding tasks and shifted the emphasis to pre-processing/pre-production tasks; and VR/AR enriched or simplified existing tasks.
- All digitisation technologies have extensive logging, reporting and monitoring capabilities. While these can be leveraged for the benefit of workers (for example, to reduce physical effort and hazardous situations), they can also pose challenges, particularly in relation to data protection and privacy. IoT raises most concerns, especially when the data collected are used when making important decisions about wages, contract renewals and even dismissals.
- The overall impact of the three technologies on job quality was positive. With regard to the physical environment, IoT technologies decreased physical risks but potentially increased exposure to ergonomic risks associated with more sedentary work. The physical risks associated with 3D printing were offset by a range of preventive measures in the establishments investigated. Although the adoption of the technologies did not alter working time arrangements, performance slowed down and work intensity increased, particularly in the initial phase of deployment. IoT adoption drove the upgrading of skills, particularly for managerial and engineering positions and less so for lower skilled and blue-collar workers. The use of 3D printing resulted in a skills shift, with greater emphasis on 3D design and planning skills and production workers being more reliant on 3D designers and planners.
- Public financial support and innovation policies are important enablers of digitisation, by supporting companies' upskilling, reskilling and training efforts and favouring the development of strategic partnerships and innovation ecosystems or clusters. Public policies should also incentivise value and supply chain diversity and the involvement of start-ups and SMEs (both commercially oriented and social enterprises).
- The role of social dialogue in digitisation – particularly at establishment level – should be further strengthened to ensure that employees reap the benefits of technological change and job quality is not compromised. Employee involvement – whether through formal employee representation bodies or direct participation – results in greater acceptance of technological change and employee buy-in, leading ultimately to a more effective approach to digitisation.
- Support for workers through upskilling, reskilling and training on an ongoing basis is a necessity as technologies evolve quickly. An investment in lifelong learning will support the transition of workers to new technologies, especially low qualified workers, older workers and temporary workers, who are most at risk of being left behind. Close collaboration between training and education bodies and companies can boost the supply of interdisciplinary business and technical skills to drive the adoption of technology in a way that benefits both employees and employers.
- Digitisation poses new regulatory challenges that need to be addressed by policymakers in order to build greater trust in the technologies. The data collection and processing capabilities of digitisation technologies call for strong safeguards to preserve employees' data protection and privacy rights, provide adequate mechanisms to contest decisions and redress options, and enable greater enforcement of existing provisions. Regulatory and policy solutions are also required to improve harmonised and interoperability standards and encourage greater coordination of technical committee standardisation bodies.

## Policy pointers

- While digitisation technologies provide opportunities to increase business competitiveness, businesses tend to take a more conservative stance as the benefits of the technologies are relatively unknown. Governments at all levels have an important role to play in encouraging dissemination of good practices grounded in valid business cases and supporting investments in technology uptake.

### Further information

The report *Digitisation in the workplace* is available at <http://eurofound.link/ef21001>

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