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Technology and the future of work

Learn how artificial intelligence (AI), robots and automation are shaping the world of work, the ethical considerations and the role of people professionals

Introduction

Much has been said about the potential impact of AI, robots and automation on jobs and the future of work. A common view is that many jobs are at risk of being taken over by machines, potentially leading to large-scale job losses. Our research shows that while there are risks, there are at least as many opportunities to increase the number and quality of jobs. No doubt these technologies will change the nature of work as we know it. This change needs a proper people strategy led by people professionals.

This factsheet describes some of the technologies that are having an impact on the world of work. It looks at the ethical implications of using these technologies in the workplace and considers the role of people professionals in shaping the future of work for humans.

What are artificial intelligence, robots and automation?

From our literature review [The impact of artificial intelligence, robotics and automation technologies on work](#) we define these three technologies as:

- **Artificial intelligence (AI)** is the development of machines that can mimic human behaviours such as learning, reasoning and self-correction.
- **Robots** can help humans do physical tasks. Not all robots are physical robots. Robotic process automation (RPA) is software that can be configured to do specific tasks that humans do on computers.

- **Automation** are tasks done by machines instead of humans to increase efficiency and reduce mistakes.

How can these technologies improve performance?

Employers surveyed in our [People and machines](#) research generally saw one or more performance benefits from their technology investments. The most common benefits of introducing AI, robots and automation were improved quality of goods or services (52%), reduced costs (37%) and increased revenue (34%).

Our literature review [The impact of artificial intelligence, robotics and automation technologies on work](#) highlights many examples of how technology improved performance in routine administrative work, healthcare and transport. Examples include:

- **AI in customer service.** In the telecom industry, AI has been used to reduce the time spent tracking the reason for contract cancellations. AI is also used to improve the management of customer service calls.
- **Robot-assisted surgery.** Robot-assisted surgery is less invasive and appears to reduce patient recovery times. It's also been suggested that robotic surgery may be easier for a surgeon to learn.
- **Automated decision support system for air traffic controllers.** The system advised workers the optimal solutions in real time, increasing workers' performance and accuracy without increasing workload.

Can these technologies also reduce performance?

Workers' attitudes towards new technologies will be influenced by the trust they have in it, which can affect performance. One way to build trust is to consult early during the design and implementation stages with workers whose jobs will be affected. Our [Workplace technology: the employee experience](#) survey found that workers who were consulted were more likely to agree with the benefits of the new technology and feel more confident to raise concerns. Consulting early gave workers a chance to collectively come up with a better solution.

In some cases, conflict between human and machine interactions can reduce performance. One reason for this is the human instinct to resolve the conflict rather than consider alternative actions.

A French military experiment quoted in our [emerging technologies report](#) demonstrated this with a robot being used to identify a target. When the robot warned that its battery was low during a critical operation, the human operator ignored the warning and asked the robot to focus on the task in hand.

Such decisions to override robots may be life threatening, for example, by jeopardising human safety on aeroplanes. However, humans overriding technology may be exactly what is needed, as shown in numerous examples of satnav guiding drivers into dangerous situations. Organisations that use all three [methods of systematic and continuous learning](#) between humans and machines are five times more likely to see financial benefits than organisations that use a single method.

How are these technologies changing work?

The impact of AI and automation on work is a hotly debated topic. While some predict potentially [large scale job losses](#), others are [more modest in their estimates](#). What actually happens will depend on how governments, employers and workers respond to these predictions. Technology eliminates routine jobs and tasks. But it can also create new jobs and improve the quality of existing jobs.

Our [People and machines](#) research explores how and why employers have invested in these technologies in the last five years, and what the results have been for workers and their organisations. It provides evidence that while there are risks for some jobs, for now these technologies are creating slightly more jobs than they are destroying. Employers reported that workers whose jobs are affected by AI and automation tend to see an increase in their autonomy, job complexity and are better paid. However, our [Workplace technology](#) research showed that only half of the workers whose jobs were expected to change considerably because of automation were offered training.

Ethical considerations

The ethical implications of using AI and automation in the workplace and the impact they have on people must be considered seriously. People professionals need to act as 'critical friends' as well as the main stakeholders to ensure technology strategies are people focused.

There's ongoing debate around who is responsible for the actions of intelligent machines. Is it the human co-worker, even if the machine is significantly more intelligent? The people who built the system? Or the organisation that uses it? Currently these are grey areas that need to be addressed by government regulation.

There are also ongoing concerns around the security and use of data collected through new workplace technologies. Intelligent systems gather and store a huge amount of people data. Our [Workplace technology](#) research shows that employees are concerned about how workplace monitoring may compromise their privacy. Almost nine in ten UK workers expect monitoring to increase, but three-quarters believe that monitoring damages trust between workers and their employers.

Other ethical concerns focus on:

- Algorithmic decision making, for example in recruitment. While data-driven tools can improve processes and redress human bias, using historical data to make decisions can replicate structural inequality.
- Humanoid robots that imitate the behaviours and mannerisms of humans, especially with vulnerable people who may have difficulty in knowing whether they're interacting with a robot or a human.
- Robot rights – the idea that intelligent robots should have the same rights as animals.
- AI systems becoming more intelligent than humans and humans losing control over the machines they have created.

Legal and policy-making approaches have traditionally been reactive rather than proactive. There have been calls by some to design machines with a moral status. The [European Parliament](#) has adopted recommendations to create AI regulation around ethics, liability and intellectual property rights that boosts innovation and trust in technology. The UK needs to have a similar approach and should develop a framework for the safe use of these technologies.

The people profession's role in managing technology-driven change

Although the impact of AI, robots and automation on work and jobs is more positive than many make out, there are nonetheless risks. It's clear from our [People and machines](#) research that these impacts, both positive and negative, are far greater than those

employers see from other types of new technology. These major changes need to be managed effectively to maximise opportunities for more value-added jobs, help workers manage any risks for their jobs, and reduce the risks to performance from conflict in human-tech interactions. To do this, employers need to integrate their technology strategies with well-developed people strategies.

People professionals thus have a critical role to play in informing decisions on technology investments and how it will be implemented. Unfortunately, our People and machines research finds that the people function is the least likely of major departments to be involved in these decisions.

This presents a clear challenge to people professionals. They need to keep up to date with the rapid developments in this field, rely on robust evidence, and proactively engage with critical organisational stakeholders to shape a people-focussed technology strategy. They should also act as 'critical friends' and be a sounding board where technology might impact jobs. The challenge for people professionals is to balance the needs and expectations of their organisations and workers, and ensure that any use of technology is for the benefit of both.

Rapid advances in technology also mean addressing the skills gap that currently exists within the UK labour market, which will have an impact of how organisations recruit and retain individuals. [Digital skills for the economy](#), published by the Department for Business, Innovation & Skills in 2016, revealed that nearly three-quarters of large companies and half of SMEs are suffering technology skill gaps. People professionals are crucial in identifying the skills gaps within their organisations and putting systems, internal or external, in place to address the issue. They should also proactively engage and consult with policy-makers to address the skills shortages that exist within the UK labour market more generally.

Listen to our podcast [HR tech revolution: friend or foe?](#) in which we chat with three experts about how technology is affecting work and working lives, and the new opportunities it presents to HR and L&D.

How do these technologies impact the people profession?

Advances in technology present new opportunities for people professionals to free themselves from routine low value tasks and focus on more complex human-centred tasks. HR systems are becoming increasingly sophisticated, allowing more automated reporting, self-service options for employees and connections with other business

systems. [Digital learning platforms](#) make collaboration and knowledge sharing across dispersed workforce easier than ever. With better reporting tools, people professionals are increasingly expected to use people analytics as part of an evidence-based approach to solve organisational problems

However, our [People and machines](#) research found HR activities appear less likely to use AI and automation. Just 14% of employers who had invested in AI and automation had applied them to HR processes, compared to almost half to operations and one quarter to IT processes.

People professionals need to consider how best to use these technologies as they continue to develop. Technology should not just be implemented for technology's sake. It should be aligned to the organisation's and workers' needs, underpinned by ethical considerations.

Useful contacts and further reading

Contacts

[Capterra](#) – software directory and reviews

[Centre for Data Ethics and Innovation](#)

[CognitionX](#) – the AI advice platform

[Future Work Centre](#)

[Institute for the Future of Work](#)

[IPPR – The Progressive Policy Think Tank – jobs and skills](#)

[The Oxford Martin Programme on Technology and Employment](#)

Books and reports

ACAS (2019) [*New technology and the world of work: the winners and the losers*](#). London: Acas.

[*Managing automation: employment, inequality and ethics in the digital age*](#). Podcast. (2017) IPPR: The Progressive Policy Think Tank.

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SWANN, A. (2018) *The human workplace: people-centred organizational development*. London: Kogan Page.

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WEATHERBURN, M. (2017) [Don't believe the hype: work, robots, history](#). Resolution Foundation.

WILLIS TOWERS WATSON. (2018) [The future of work: debunking myths and navigating new realities](#). Willis Towers Watson.

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Journal articles

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DAUGHERTY, P.R., WILSON, H.J. and CHOWDHURY, R. (2019) Using artificial intelligence to promote diversity. *MIT Sloan Management Review*. Vol 80, No 2, Winter. Reviewed in [In a Nutshell, issue 84](#).

DAVENPORT, T.H. and RONANKI, R. (2018) Artificial intelligence for the real world. *Harvard Business Review*. Vol 96, No 1, pp108-116.

HOWLETT, E. (2019) [Employers need diverse AI teams to guard against unethical use of technology](#). *People Management* (online). 9 August.

HOWLETT, E. (2019) [Most workers feel automation has 'made work life better'](#). *People Management* (online). 3 September.

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