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Artificial intelligence and automation in the workplace

Learn how artificial intelligence (AI) and automation are shaping the world of work, associated ethical implications, and the role of HR professionals

Introduction

Much has been said about the potential impact of artificial intelligence (AI) and automation on jobs and the future of work. A common view is that many occupations are 'at risk' from AI, 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. But AI and automation unquestionably have a major impact on work. This change needs a proper people strategy and HR professionals should play a central part.

This factsheet describes some of the main forms of artificial intelligence and automation 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 HR and other people professionals in shaping a human future of work.

Explore our stance on automation, AI and technology in more detail, along with actions for Government and recommendations for employers.

What are artificial intelligence and automation?

Artificial intelligence (AI) and automation are often labelled emerging technologies. They have the capability to alter business and economic models through their use. In our review The impact of artificial intelligence, robotics and automation technologies on work

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we identify three forms of emerging technology:

- **Artificial Intelligence** has been defined as the development of computers to engage in human like thought processes, such as learning, reasoning, and self-correction. Others have defined AI as a 'broad suite of technologies that can match or surpass human capabilities, particularly those involving cognition.' All these definitions highlight the role of AI in modelling human behaviour and thought, but do not go as far as to talk about using AI technologies to build other smart technologies. It includes machine learning and cognitive computing.

- **Robots**, including service robots, robot-assisted procedures, and robotic process automation (RPA). Service robots provide assistance to a human to complete a physical task.

- **Automation** is the performance of tasks by machines (often computers) rather than human operators often to increase efficiency and reduce variability.

How can AI and automation contribute to performance?

Our People and machines survey of UK employers shows that improving quality and efficiency are the most common drivers of investment in AI and automation. There's good evidence that such performance benefits can be realised in practice, although it's worth noting that the majority come from the healthcare and transport sectors. Evidence from the transport sectors shows, for example, that:

- An automated decision support system for air traffic controllers, advising them on optimal solution in a real-time setting, increased their performance and accuracy without increasing their workload.

- A comparison of a realistic rail-signalling automation model and experienced human rail signal operators found that as automation increased, the perceived workload of human operators, both mentally and physically, decreased and the consistency of performance increased.

In some cases, conflict in human-tech interactions – when a machine and a person would make different decisions about which action to pursue – could have a negative impact on performance. One reason for this is the human instinct to resolve the conflict rather than consider alternative forms of action. The French military illustrated this in an experiment where a robot was used by humans to identify a target. When the robot ran low on battery and was programmed to return to the base to recharge, the human operator overruled it to focus on completing the task in hand, despite the issue. Such decisions by

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people to override robots may lead to serious negative outcomes, for example, jeopardising human safety on aircraft flights. However, overriding technology may be exactly what is needed, as shown in numerous examples of satellite navigation guiding motorists into dangerous situations.

Workers' attitudes and behaviours in relation to technology will be influenced by the trust they have in it. One way to build trust is to involve workers whose jobs will be affected by AI and automation early in the design and implementation of technology. It's important to address any concerns workers have and reduce the chance of glitches and unintended consequences for new technologies.

How are AI and automation 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. However, there are two major limitations of such analysis. First, they tend to consider jobs being affected by AI and automation purely as a 'risk' for that occupation, not recognising that in augmenting jobs, new technology can enhance them rather than make people redundant. Second, while predictions about the future are important, they are necessarily speculative, so we should also be looking at how employers are already making use of AI and automation and what impacts these are actually having in practice.

Our People and machines research explores this gap by investigating how and why employers have invested in AI and automation 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, in general AI and automation are creating slightly more jobs than they are destroying. Moreover, on average, workers whose jobs are affected by AI and automation tend to see an increase in their autonomy (i.e. they are more empowered to make decisions), have more interesting and skilled work and, in line with this, be better paid.

For many employees, AI and automation can free them up from routine, administrative or low-skilled tasks to create more value for their organisations and do more rewarding jobs. An example from the healthcare sector is of an automated dispensing system in a UK hospital. Here, automation reduced the amount of time pharmacists spent on technical tasks in the dispensary and increased the time they could spend on wards with patients.

Ethical considerations

The ethical implications of using AI and automation in the workplace and the impact they have on people must be considered seriously. It's crucial that HR and other people

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professionals act as 'critical friends' as well as the main stakeholders ensure technology strategies are people-focussed.

For example, concerns are already being raised about the impact any technology may have on workers' well-being and privacy. As the use of intelligent systems such as AI increases, they present risks and opportunities for employers and employees, and there is an urgent need for further research on how these systems can be used ethically.

There is ongoing debate around who is responsible for their actions of intelligent machines: the human co-worker – even if the machine is significantly more intelligent? Or the people who built the system, or the organisation that uses it? Currently, these are grey areas, but they need to be addressed by government regulation and legislation.

Other ethical concerns centre on:

- humanoid robots that imitate the behaviours and mannerisms of humans, especially in situations involving vulnerable people who may have difficulty in determining whether they are interacting with a robot or a human.
- the ability of intelligent systems like AI to gather and store immense amount of people data and how secure might this be
- robot rights – the idea that intelligent robots should have the same rights as animals
- AI systems becoming more intelligent than humans – potentially creating their own successor systems, which may be able to self-modify their goals acquiring a level of autonomy. Some scientist warn of the danger of losing control over machines (for example highly intelligent drones/lethal autonomous weapon machines) in the future.

Legal and policy-making approaches have traditionally been reactive rather than holistic/proactive. There have been calls by some to design machines with a moral status. The EU has proposed legislation to allow it 'to fully exploit the economic potential of robotics and artificial intelligence', while simultaneously guaranteeing a 'standard level of safety and security'. The UK needs to have a similar approach and should develop a framework for the safe usage of these technologies.

The role of HR professionals

Although the impact of AI and automation on work and jobs is more positive than many make out, there are nonetheless risks. It's also 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

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human-tech interactions. To do this, employers need to integrate their technology strategies with well developed people strategies.

This presents a clear challenge to HR and people professionals. They need to keep aware and 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 need act as 'critical friends' and be a sounding board in times of technological transformation. The challenge for HR professionals is to balance the needs and expectations of their organisation and employees, and ensure that any use of technology is for the benefit of both. Additionally, HR professionals need to be aware of how technology is impacting their own profession and upskill themselves to add value (see section below on HR and L&D technology).

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 72% of large companies and 49% of SMEs are suffering tech skill gaps. HR and L&D 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.

People professionals should also ask themselves:

- What's the evidence for the impact of technology on the world of work and on the profession?
- What impact might this have on your organisation specifically?
- Do you have the knowledge and insights to make evidence-based decisions around implementing such technologies?
- What's being considered when making these decisions in your organisation? For instance, are people factors being given equal consideration as efficiency measures?
- Does your organisation have a strategy for accessing the skills needed to work with AI and automation?
    - If yes, how could this be further developed in consultation with employees?
    - If no, is a skills audit planned to identify the gaps?
- Are you able to community these messages to critical organisational stakeholders?

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.

HR and L&D technology

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Advances in technology present new opportunities for HR and L&D professionals. HR systems are becoming increasingly sophisticated, allowing more automated reporting, self-service options for employees and connections with other business systems. For L&D practitioners, digital learning platforms make collaboration and knowledge sharing across dispersed work force easier than ever.

To date, HR functions are relatively unlikely to see applications of AI and automation. Our People and machines research shows that just 14% of employers who had invested in AI and automation had applied them to HR functions, compared to 44% to operations and 28% to IT processes.

Practitioners need to consider how best to use AI and automation as they continue to develop. This includes ethical considerations, as highlighted in the previous section, but also using technology to align with business and individual needs, and not just implemented for technology's sake.

In our report, The future of technology and learning, we looked at the research evidence and key considerations for learning technologies. It explored the digital tools L&D practitioners use now and are planning to use in future and found a gap between strategic ambition and practice. To combat this, the report emphasised the need to apply what we know about offline learning to digital strategy.

Useful contacts and further reading

Contacts

CognitionX- the AI advice platform

Future Work Centre

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.

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Journal articles

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