

EXECUTIVE SUMMARY
April 2019

People and machines: from hype to reality



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1 A positive human future in a technology-driven world

Artificial intelligence (AI) and automation are sweeping through the world of work. Whether it's checking quality on production lines or walking customers through their options for switching a current account, the technology revolution is gathering pace by the day.

Businesses see the promise of higher productivity and lower costs. Always-on machines will transform how they work and compete. But there is much more to making a success of emerging technology than just the technology itself. To see the whole picture, we must look carefully at how it fits in with and changes people's jobs.

This research takes an objective view of the impacts of AI and automation in UK workplaces and the investment decisions that employers make. Some of the findings might surprise you. Our research shows AI and automation are more likely to create jobs than eliminate them. They tend to make jobs more skilled and interesting and give employees more autonomy and control over their work, not less. And far from weakening job security for employees, AI and automation can actually help strengthen job security.

Above all, we see that AI and automation have already brought major changes to how we work, clearly outstripping changes arising from other new technologies. We do not uphold the doom-filled view that an inevitable march of the robots will leave poor quality jobs and mass unemployment. There are positive opportunities in AI and automation, although these cannot be taken for granted. But the scale of change is undeniable.

To manage these changes and make the most of AI and automation, employers must consider the people perspective and integrate technology plans into a well-developed people strategy. HR professionals must take a leading role in this. Their focus has to be on ensuring their organisations make sure AI and automation bring success: both in terms of financial outcomes through performance and efficiency, and quality of work outcomes,

for those employed by the organisation. Unfortunately, many organisations are failing in these regards, not taking a strategic or people-centred approach to new technologies and sidelining the HR function.

There is much work to be done, and arguably the time is now to give the agenda the attention and focus it requires. The implications of effective or ineffective applications of AI and automation on the world of work are significant, not just for organisations and the economy; how we handle the disruption AI and automation brings will determine how far we can minimise social loss and maximise the social gains.

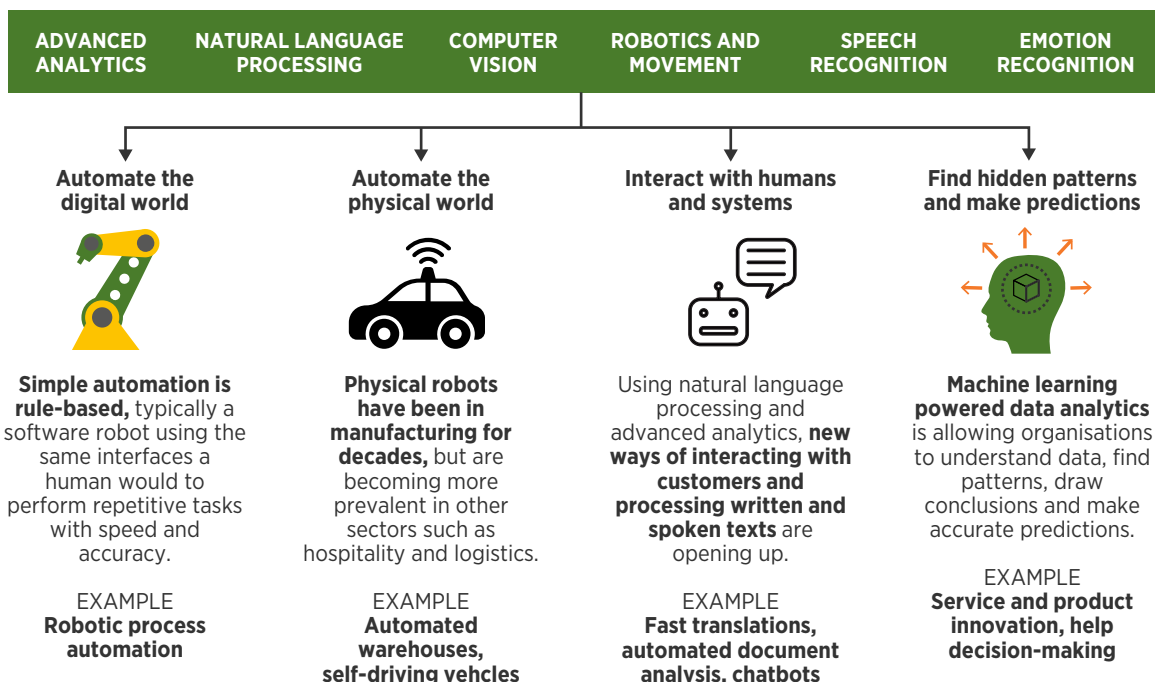
This summary provides the main results from the research. You can also read the full report at www.cipd.co.uk/peopleandmachines.

Box 1 – The research

The CIPD carried out both quantitative and qualitative research. We ran a broadly representative survey of UK employers using the YouGov panel. This focused on employers’ investments in new technologies – in AI and automation in particular, but not exclusively. The survey covered how these organisations made investment decisions, which jobs were affected and what the outcomes were – for performance-related factors and for employees’ working lives.

We also explored the experience and impact of introducing AI and automation for two organisations: NHS Greater Glasgow and Clyde (NHSGGC) and design, engineering and project management consultancy Atkins. NHSGGC uses robotics to partly automate the distribution of pharmaceuticals. Atkins uses AI and automation in various activities. We carried out in-depth interviews and surveys of the employees affected by AI and automation.

Figure 1: Current applications of AI and automation



(Credit: PA Consulting)

2 Unleashing the full potential of AI and automation

Our survey shows that nearly a third of UK organisations (32%) have invested in AI and automation in the last five years – this is split fairly evenly between equipment that’s used for cognitive tasks (22%) and for physical tasks (20%).

Increased performance is clearly the main driver for investment in AI and automation, especially for improvements in quality and cost savings. Our research shows that employers generally see benefits of some kind, with improved quality the most common benefit (cost comes second). What’s more, AI and automation are more likely to bring such benefits than other technologies, and far more likely to increase revenue. They represent a major opportunity to improve organisation productivity.

Box 2: The impact of AI and automation on performance

Improved quality of goods and/or services

Half of employers (52%) who invested in AI and automation saw this benefit – more often if it carried out physical tasks (57%, compared with 48% for cognitive tasks).

Reduced costs

More than one in three who invested in AI and automation saw this (37%) – more for those using the technology for cognitive tasks (42%, compared with 32% for physical tasks).

Increased revenue

One in three employers (34%) saw an income benefit from AI and automation.

3 The impact on job numbers

In line with research by the OECD, our research shows that AI and automation are likely to lead to a net gain in job numbers. As some types of job disappear, new ones will emerge. Our survey finds:

- Among employers that have introduced AI and automation in the last five years, more than two-fifths (43%) report job creation and slightly fewer (40%) report job destruction.
- Overall, 35% of these employers saw more jobs as a result, whereas 25% saw fewer jobs.
- Forty-four per cent believe the jobs most affected by AI and automation have become more secure (18% said they’ve become less secure).

Contrary to the common rhetoric that ‘robots are taking over’ our jobs and may lead to mass unemployment, our evidence shows that the picture is more complex. But the broad picture is clearly more positive than negative.

It is also striking that these impacts are much greater than those from other new technologies; while AI and automation has more potential to remove jobs, it also has greater potential to create them. Our findings confirm that AI and automation are not simply another technological innovation, but stand to quite radically change the shape of work tasks and jobs.

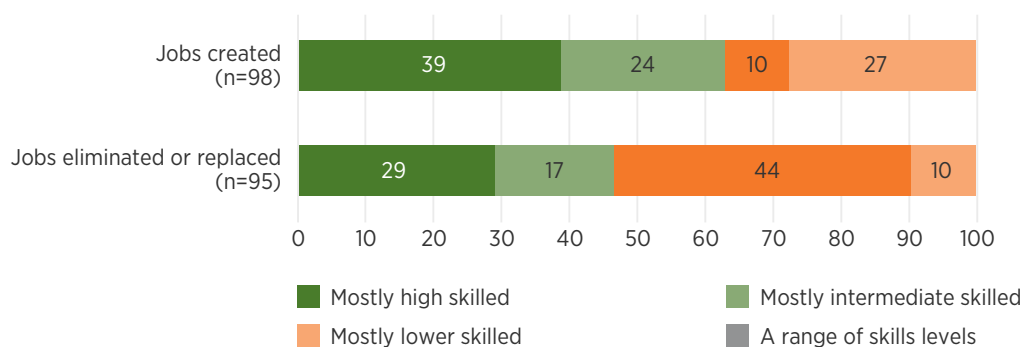
4 The impact on skills and job quality

Our evidence indicates that AI and automation are having a net upskilling effect on UK jobs. Our survey shows that many low-skilled jobs are being replaced and the new jobs tend to be higher skilled. Indeed, 61% of employers reported that staff whose jobs are affected by AI and automation need more skills and knowledge as a result. As one might imagine, cognitive automation is more likely to create high-skilled jobs, whereas physical automation is more likely to replace low-skilled jobs.

Related to this, we find evidence that AI and automation are contributing to job quality or ‘good work’.¹ Specifically, we see that jobs are becoming more complex and interesting with greater learning opportunities, and giving employees more autonomy or control over how and when they work.

Looking at other aspects of job quality, our two case study organisations show that AI and automation have led to greater workloads for some and lighter workloads for others, but we see a clear trend towards a faster pace of work: 45% of workers affected by AI and automation think their work has sped up, whereas just 16% said it has slowed down. Despite this, the net impact of AI and automation on both physical and mental well-being is seen to be positive.

Figure 2: Skills levels of jobs created and replaced by AI (%)



Box 3: How AI and automation affect people’s well-being and job satisfaction

Job quality is a critical component of a productive and healthy workplace. Our case studies show positive views from employees on the impact AI and automation is having:

- **43%** said they spend more time on learning new things (just 6% spend less)
- **33%** noted an increase in the number of interesting tasks (6% a decrease)
- **50%** said the number of monotonous tasks has decreased (15% an increase)
- **28%** said the number of complex tasks they are completing has increased (13% a decrease).

At a national level, **61%** of employers that have introduced AI and automation said employees need more skills and knowledge as a result and **41%** said it gives employees more control over working hours.

¹ See the CIPD survey of job quality, *UK Working Lives*, at www.cipd.co.uk/workinglives

5 Who is most affected?

Of course, not all jobs are affected by AI and automation equally. The types of occupations most likely to see these technologies are professional and higher technical staff – for example, doctors, accountants, teachers and systems analysts. Following this are intermediate-level managers and administrators (for example, sales managers or government officers); semi-skilled and unskilled manual workers (for example, machine operators, postal workers and call centre workers); and junior managers and clerks (for example office staff, student doctors and student teachers). Occupations least likely to be affected include skilled manual workers and foremen or supervisors.

Interestingly, when we look at which parts of the organisation see most AI and automation, we find that HR is relatively untouched. Various commentators have argued that HR processes such as sourcing and rating applicants are ripe for the picking to be automated, but so far this has not hit the mainstream.

Box 4: Which roles are most likely to be affected by AI and automation?

Job type

- professional and higher technical staff: **28%**
- intermediate-level managers and administrators: **20%**
- semi-skilled and unskilled manual workers: **15%**
- junior managers and clerks: **13%**
- senior managers and directors: **8%**
- sales and service occupations: **5%**
- skilled manual work: **5%**
- foremen or supervisors: **2%**

Department

- production or operations: **32%**
- IT: **17%**
- research and development: **9%**
- marketing and sales: **9%**
- accounting and finance: **8%**
- HR: **6%**
- purchasing and procurement: **4%**

6 AI and automation need a people strategy

AI and automation are already having a greater impact on people's jobs and working lives than other new technologies. This is true for both the number and types of jobs and the skills that will be needed. In the future, it is inevitable that this impact will become even larger.

To prepare workforces for the future, it's crucial that employers connect their technology strategies to well-developed people strategies. AI and automation will make it unnecessary

² For example, Reilly, P. (2018) *The impact of artificial intelligence on the HR function*. IES Perspectives on HR. Brighton: Institute for Employment Studies. Available at: www.employment-studies.co.uk/resource/impact-artificial-intelligence-hr-function
CognitionX. (2018) *An examination of artificial intelligence and its impact on human resources*. London: CognitionX.



for people to carry out certain tasks, but this can free them to do higher-skilled, more value-added tasks instead. How employers make use of these wider opportunities depends on the quality of the organisation's people strategy.

Employers shouldn't underestimate the level of change involved. For one thing, people tend to view major change with suspicion. It can lead to resistance and, at worst, even active sabotage. There are also specific risks attached to technological innovations, as they can lead to an overload of tools, repetition of work or disrupted workflows. Our case studies show technical limitations are a particular issue when the sizable investments in technology lead to an expectation people will use it, regardless of its efficiency. Equally, maintaining technology could create extra work and require additional technologies: dealing with technical glitches, errors and breakdown could be a real source of frustration.

7 Enter HR?

That's where HR comes in. Or at least, it should. HR has a pivotal role to play in making AI and automation work, for people as well as business. After all, new AI and automation are bound to have an impact on people's jobs – changing them at best, eliminating them at worst. Changes in aspects such as the nature of tasks, the skills and numbers of people needed, and employees' autonomy all relate intimately to the remit of HR.

Moreover, to realise the potential of AI and automation, it's not enough for employers to understand how the technology works. They also need to consider how people interact with the new technology and incorporate it into their jobs. The human-technology interface is crucial and, again, this is integrally linked to people management.

However, our survey shows that HR is the department least likely to be involved in decisions on AI and automation. It is the least likely to have been involved both in decisions to invest in AI and automation (55%) and in the implementation (45%). Relatively speaking, HR has been sidelined.

8 What can HR do?

HR professionals can play a central role in developing a long-term strategy that integrates workforce planning and people management with AI and automation; and then play an equally important role in managing the transformation involved. We identify five key areas in which HR can make practical contributions:

- 1 **People strategy for AI and automation:** HR should work with operations and technology leaders to consider how the workforce will need to change, how they can work effectively alongside machines.
- 2 **Job quality:** HR should ensure that the opportunities are taken to use AI and automation to create meaningful, stimulating and high-quality jobs.
- 3 **Innovation culture:** HR should help develop a culture that supports innovation and adaptability. If an organisation's culture doesn't empower people and engage them in the new technology, you risk losing talent.
- 4 **Involve employees in technology decisions:** HR should consult employees affected by AI and automation on how best to design and implement the new systems, to ensure they dovetail with other work processes and to reduce the risks of glitches.
- 5 **Learning and development:** HR should plan and provide training and support for employees, ensuring learning opportunities keep pace with the rise of technology and embedding process transformations to ensure long-lasting success.

If HR leaders are to influence the conversation from the outset, they need to equip themselves with knowledge of AI and automation. They don't need to be experts in AI. The key will be to understand enough so that they can relate the applications of new technologies to the people management considerations that are their core terrain.

Employers need to do more than configure AI and automation, plug it in and switch it on. They need to understand where and how they will get real benefits, align emerging technologies with people management and prepare their workforces for change. As a key player in this, HR has a new mission: to help businesses map their future with work technology and help people find their feet in this new landscape of work.

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