

A portrait of a woman with short, wavy, light brown hair and blue eyes, smiling slightly. She is wearing a teal-colored jacket. The portrait is set against a background of overlapping light blue and dark blue circular shapes, some of which contain a white network diagram of dots and lines. The text 'PEOPLE AND MACHINES' is overlaid on the lower part of the portrait.

# PEOPLE AND MACHINES

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**From hype to reality**

**Bringing Ingenuity to Life**  
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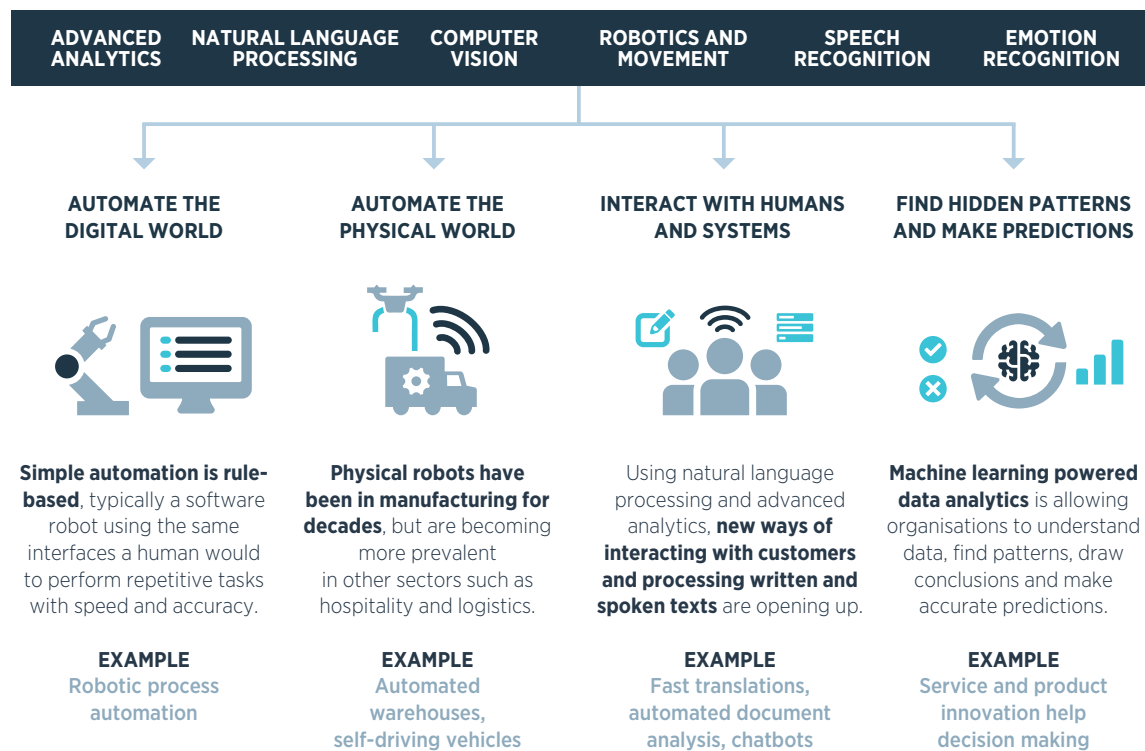


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Figure 1: Current applications of AI and automation



Source: PA Consulting

# INTRODUCTION

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## A positive human future in a technology-driven world

AI and automation can create a positive human future by providing people with higher skilled and more interesting roles, flexible ways of working and environments where their ingenuity can be unleashed.

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.

Organisations see the promise of higher productivity and lower costs. Always-on machines will transform how they work and compete (see Figure 1, page 4, for the range of applications). 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, carried out in partnership with the Chartered Institute of Personnel and Development (CIPD), 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 of over 750 UK employers 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. Rather than weakening job security for employees, AI and automation can actually help strengthen job security.

Far from the doom-filled view that an inevitable march of the robots will leave poor quality jobs and mass unemployment, we believe these new technologies can create a positive human future and social gains through higher skilled jobs, flexible ways of working and by creating environments where people's ingenuity can flourish.

**Our research shows AI and automation are more likely to create jobs than eliminate them**

To manage these changes and make the most of AI and automation, business leaders and 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 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's much work to be done, and the time is now to give the agenda the attention and focus it requires. Get this right, and organisations will be able to better utilise and realise the benefits of new technologies. And they'll be able to unlock the talent within their organisations – upskilling them, giving them varied and interesting work and enabling them to solve complex problems and unleash their ingenuity.

What follows is a summary of the findings from the main report, which can be accessed at [www.cipd.co.uk/peopleandmachines](http://www.cipd.co.uk/peopleandmachines)



# RESEARCH FINDINGS

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## The impact of AI and automation on performance

### OUTCOMES OF NEW DIGITAL TECHNOLOGIES

#### 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 increased revenue.

Our survey shows 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 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 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, and to increase revenue, than other technologies such as new IT hardware, online communications platforms and new software. They represent a major opportunity to improve organisational productivity.

## The impact on job numbers

Our research shows AI and automation are likely to lead to a net gain in job numbers, in line with findings from *The Organisation for Economic Co-operation and Development* (OECD).

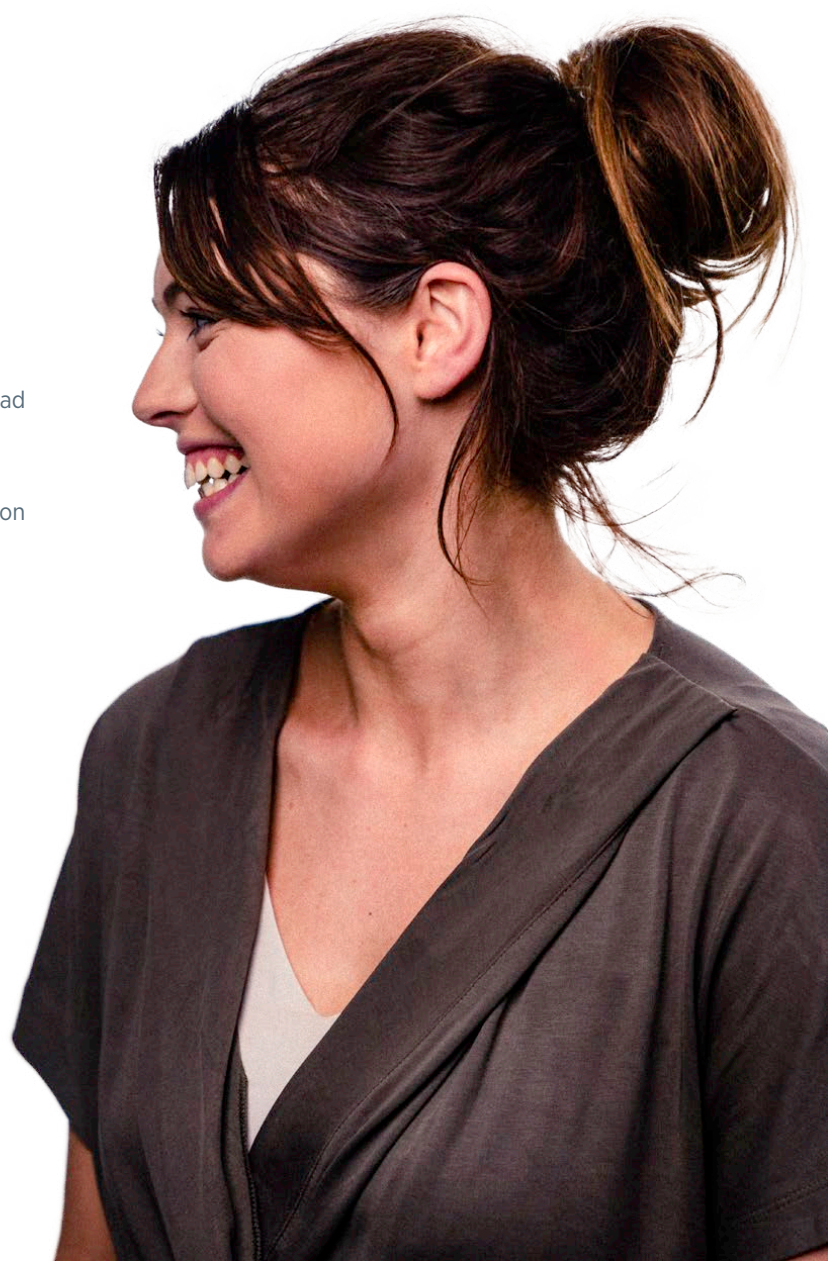
As some types of jobs disappear, new ones will emerge. Our survey finds:

- 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
- and 44% 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 the picture is more complex – and the broad picture is clearly more positive than negative.

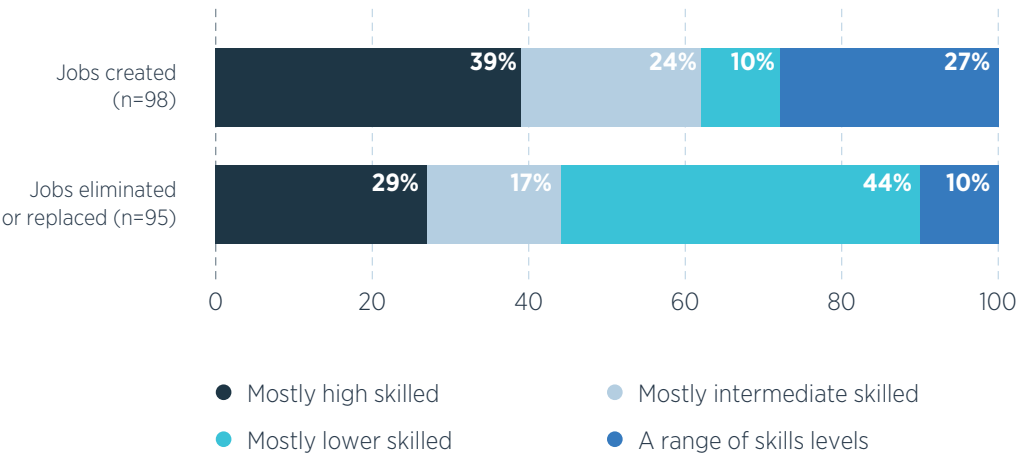
It's also striking that these impacts are much greater than those from other new technologies; while AI and automation have more potential to remove jobs, they have greater potential to create them. Our findings confirm that AI and automation are not simply another technological fad but stand to radically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

**35%** of employers who have introduced AI and automation in the last five years saw more jobs as a result



Jobs are becoming more complex and interesting, with greater learning opportunities

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



Source: PA Consulting and CIPD



## 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 (see Figure 2, page 8). 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'.<sup>1</sup> 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 case studies show that AI and automation have led to greater workloads for some and lighter workloads for others, but we see a clear trend overall 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 wellbeing is seen to be positive.

These positive impacts from AI and automation cannot be taken for granted but it's important to communicate the opportunity both to senior management and employees more generally. HR has a key role to play in this, so that organisations can work towards a future that both makes good use of new technologies and creates good work.



## How AI and automation affect people's wellbeing 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 are 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% saw a decrease)
- 50% said the number of monotonous tasks has decreased (15% saw 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.

**43%** of employees using AI and automation said they spend more time on learning new things as a result



## Who is most affected?

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), where organisations are attempting to use AI and automation largely to augment human capabilities for cognitive tasks.

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, perhaps because of the central aspect of managing people. To a lesser extent, sales and service occupations also remain relatively untouched, perhaps because they are strongly customer-facing, as do skilled manual workers, whose work centres on craft skills.

Interestingly, when we look at which parts of the organisation are most impacted by 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.<sup>2</sup>

### 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%



# RECOMMENDATIONS

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## AI and automation need a people strategy

AI and automation are already making an impact on people's jobs and working lives. This is true for both the number and types of jobs and the skills that will be needed. In the future, 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 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, which can be found in the full report, showed the sizeable investment behind these new technologies means some people feel compelled to use them even when technical limitations reduce their efficacy. Another concern is that ongoing maintenance and upkeep could create extra work and require additional technologies; dealing with technical glitches, errors and breakdown could be a real source of frustration.

## 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.

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. This is the case both for decisions to invest in AI and automation (55%) and in the implementation (45%). Relatively speaking, HR has been sidelined.

## 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've identified six key areas in which HR can make practical contributions:

1. **Shape a people strategy for AI and automation:** work with operations and technology leaders to consider how the workforce will need to change to work effectively alongside machines.
2. **Design future-focused careers:** Ensure opportunities are taken to use AI and automation to create meaningful, stimulating and high-quality jobs.
3. **Embed innovation in your DNA:** Develop a culture that supports innovation and adaptability.
4. **Co-create workforce solutions:** Consult employees affected by AI and automation on how best to design and implement new systems.
5. **Identify tomorrow's skills, today:** Plan and provide training and support for employees to ensure learning keeps pace with the rise of technology, recognising the evolving skills needed for success.
6. **Bust myths and communicate the positives:** Bust the fallacy of new technologies taking jobs and convey the positive benefits of new technologies on wellbeing and personal development.

**HR has a new mission: to lead on helping organisations map their future with new technologies and help people find their feet in this new landscape**

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 lead on helping organisations map their future with new technologies and help people find their feet in this new landscape.



## ABOUT THE REPORT

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We partnered with the Chartered Institute of Personnel and Development (CIPD), the professional body for HR and people development, who carried out both quantitative and qualitative research using a broad representative survey of more than 750 business leaders from a range of industries across the UK using the YouGov panel. Questions 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.

Together, 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. The research included in-depth interviews and surveys of the employees affected by AI and automation.

## ACKNOWLEDGEMENTS

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We're delighted to partner with the CIPD on this research and would like to thank all those involved in the case study research and further analyses.



The CIPD is the professional body for HR and people development.

The not-for-profit organisation champions better work and working lives and has been setting the benchmark for excellence in people and organisation development for more than 100 years. It has 150,000 members across the world, provides thought leadership through independent research on the world of work, and offers professional training and accreditation for those working in HR and learning and development.

## End notes

1 *UK working lives* by CIPD, published April 2018

2 For example, *The impact of artificial intelligence on the HR function*. IES Perspectives on HR. Brighton: Institute for Employment Studies, published 2018



## GET IN TOUCH

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At PA, we believe in the power of ingenuity to build a positive human future in a technology-driven world.

We can help you get the most from your talent and prepare for a future marked by continuous and disruptive workplace change.

Contact the team to discuss our research, recommendations and how we can help you with your people-centred transformation.



**Katharine Henley**  
Workforce transformation expert

+44 207 881 3800  
katharine.henley@paconsulting.com



**Jennifer Cable**  
Talent management expert

+44 207 333 5304  
jennifer.cable@paconsulting.com

To find out more, visit [www.paconsulting.com/people-centred](http://www.paconsulting.com/people-centred)  
or contact us at [people-centred@paconsulting.com](mailto:people-centred@paconsulting.com)



## About PA.

An innovation and transformation consultancy, we believe in the power of ingenuity to build a positive human future in a technology-driven world.

As strategies, technologies and innovation collide, we create opportunity from complexity.

Our diverse teams of experts combine innovative thinking and breakthrough technologies to progress further, faster. Our clients adapt and transform, and together we achieve enduring results.

We are over 2,800 specialists in consumer, defence and security, energy and utilities, financial services, government, healthcare, life sciences, manufacturing, and transport, travel and logistics. And we operate globally from offices across the Americas, Europe, the Nordics and the Gulf.

**PA. Bringing Ingenuity to Life.**

## Corporate headquarters

10 Bressenden Place  
London SW1E 5DN  
United Kingdom  
+44 20 7730 9000

**paconsulting.com**

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