

AI, automation and collaboration: Why tomorrow's talent is human + digital

A future of work paper





Introduction: A new kind of workforce

The dynamics of the workforce are changing more dramatically than any time since the Second World War. With remote working massively increasing our reliance on digital tools to get work done, predicted advances in workplace automation are happening much earlier than envisaged.

As a result, we're seeing the rapid emergence of a new kind of workforce. The traditional mix of permanent and contingent workers is evolving to become a mix of human and machine talent. Employers who can optimise that mix will be best placed to thrive in the new, post-COVID world.

In this paper: Three trends shaping the post-COVID workforce

At O₂, we're starting to see these changes play out in our organisation and others, and we're excited about the future possibilities they present. In this paper, we'd like to share three workforce trends we're seeing, with their likely near-term and longer-term developments:



The new dynamic workforce: Humans + AI



New skills imperatives: Upskilling, reskilling and new types of job



Of bots and bosses: New power dynamics in the workplace

We've combined primary and secondary research, analyst commentary and insights from industry experts to shed light on what's changing across workplaces today – and to provide ideas and considerations for your organisation going forward.

“The future workforce will combine private full-time workers, public freelancers, and bots.”¹

Jeanne Meister, Partner, Future Workplace



¹ <https://www.forbes.com/sites/jeannemeister/2019/03/14/the-future-of-work-humans-gigs-robots-are-the-new-blended-workforce/?sh=567fda38384c>





The new dynamic workforce: Humans + AI

The pace of evolution in machine learning and artificial intelligence point to a future in which people and robots will work collaboratively

The most effective workforces will combine the best of digital and human skills, with robots doing work that people typically find repetitive and boring, freeing people to focus on work that's more creative, meaningful and fulfilling.

“Computers are good at what we find hard, and bad at what we find easy.”²

Michael Priddis, Chief Executive, Faethm AI

The emergence of ‘digital talent’

We’re entering an age in which human talent is complemented by ‘digital talent’, with forward-thinking organisations already finding ways to combine them for greater efficiency, performance and customer satisfaction.

The new division of labour sees the digital workforce take on tasks that humans find difficult, boring or time-consuming, including:

- Scanning through masses of data:**
 Humans are very bad at looking for needles in haystacks. A survey of 1400 European executives found that 18% of the work of sifting large datasets for errors or actionable items is done by machines today, but this will rise to 27% by 2023. The work they’ll do includes assessing insurance risk, uncovering fraud and improving disease detection.³
- Responsive customer service:**
 As more customers turn to digital channels due to COVID-19⁴, we’re already seeing chatbots evolve from simple Q&A bots to intelligent assistants that feel almost human. By 2023, chatbots powered by sophisticated AI engines will resolve more enquiries faster, improving the customer experience and enhancing brand reputation.
- Automation of routine tasks:**
 Manual data entry will become a thing of the past, as robotic process automation (RPA) is increasingly used to extract data from one source and pipe it into others. In 2020, the World Economic Forum found ‘data entry clerk’ to be the job role experiencing the sharpest decrease in demand, with book-keeping and payroll clerks not far behind.⁵

² <https://www.ft.com/content/874c418f-62f8-44ac-acb9-8c744a89dda5>

³ <https://www.cognizant.com/whitepapers/the-work-ahead-europes-digital-ambition-scales-codex6155.pdf>

⁴ <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/survey-us-consumer-sentiment-during-the-coronavirus-crisis>

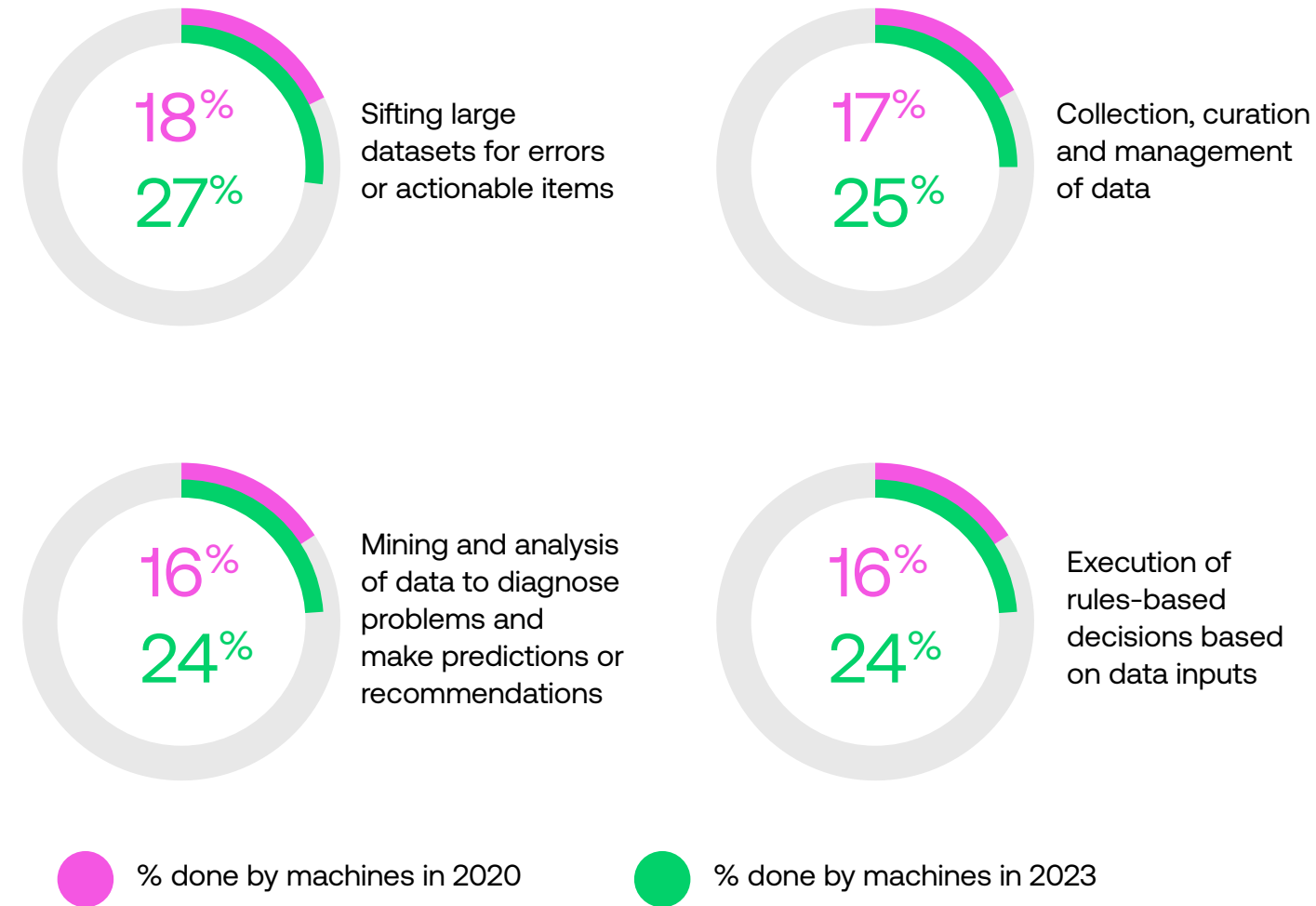
⁵ <https://www.weforum.org/reports/the-future-of-jobs-report-2020>





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Digital talent will take on more data-related tasks



(Cognizant, The Work Ahead: Europe's Digital Ambition Scales, January 2021)



Digital talent will take on more data-related tasks

With digital talent taking on more data analysis, query handling and data entry work, people will take on more work that plays to our uniquely human strengths.

One key role for us will be working out what we want our digital 'colleagues' to do, and building the bots, models, algorithms and datasets to perform those functions. It's no coincidence that the top three roles seeing increasing demand are data scientists, AI and machine learning specialists, and big data specialists.⁶

Top 5 jobs seeing increasing demand



1. Data analysts and scientists
2. AI and machine learning specialists
3. Big data specialists
4. Digital marketing and strategy specialists
5. Process automation specialists

Top 5 jobs seeing decreasing demand



1. Data entry clerks
2. Administrative and executive secretaries
3. Accounting, book-keeping and payroll clerks
4. Accountants and auditors
5. Assembly and factory workers

(World Economic Forum, The Future of Jobs Report 2020)

⁶ <https://www.weforum.org/reports/the-future-of-jobs-report-2020>





Changes play out across industries

We'll also spend more time on the high-value aspects of our work – a shift that's already taking place across job roles and industries:

- **In customer service**, we've seen the role of the contact centre agent evolve as chatbots handle routine enquiries, allowing human advisors to take on more complex and more rewarding cases.
- **In the legal profession**, lawyers will be able to spend more time preparing and arguing cases as their AI assistants sift through masses of documentation to surface relevant details.
- **In accountancy**, as software packages automate book-keeping and tax returns, accountants are reinventing themselves as business advisors, working with clients to help them achieve their business and personal goals.
- **In healthcare**, as the work of scanning through medical images falls to AI, a new role is emerging for radiologists. They not only have more time to focus on the anomalies that the AI highlights for inspection, but they can also work with data scientists to define new AI models and use cases that will improve diagnosis and enhance the patient experience.

TSB Smart Agent: Humans and AI working collaboratively

Built in just five days as COVID-19 struck, TSB Smart Agent combines a virtual assistant with a team of employees to answer customer questions live on TSB's website. In its first month, Smart Agent handled over 40,000 queries that would previously have required a call or a visit to a branch.⁷



“Artificial Intelligence will not replace the radiologist. Artificial Intelligence will augment the work of the radiologist.”⁸

Becoming Human, A Renaissance in Radiology, 2017

7. <https://newsroom.ibm.com/2020-05-01-TSB-launches-Smart-Agent-developed-with-IBM-to-help-customers-impacted-by-coronavirus>
8. <https://becominghuman.ai/a-renaissance-in-radiology-85abff6c73ea>





The emergence of Knowledge-as-a-Service

Longer term, intelligent automation company Blue Prism sees an opportunity for organisations to bundle their specialist human knowledge and provide it to others as a service, creating a new category it terms Knowledge-as-a-Service, or KaaS.

KaaS will see the introduction of new software solutions that “capture, codify and apply the abundant expertise currently locked in the minds of employees,” opening up new revenue streams for businesses.¹⁰

“KaaS will become a burgeoning new industry in the same way that SaaS has developed over the past two decades. We will see new players in every area of professional life, from law and medicine to accounting and consulting.”⁹

Blue Prism, Re-Imagining Work: Before and After COVID-19, 2020

Key takeaways: The new dynamic workforce

Our research suggests that these will be the key developments to prepare for over the next 1-3 and 5-10 years

1-3 years

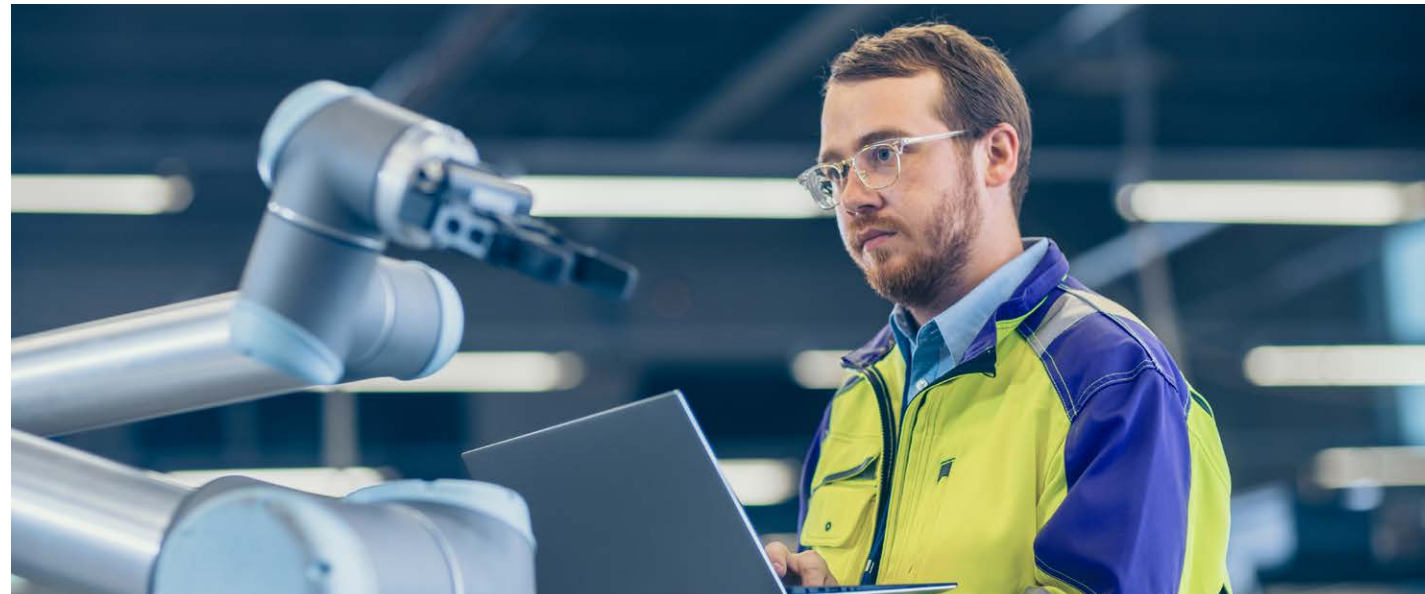
AI takes on more of the routine tasks that people find difficult, boring or time-consuming, while humans carry out work that requires higher-level thinking, empathy and creativity.

- IT and HR work together to identify the best division of labour between human and digital talent, and to implement the solutions that deliver the best results.
- HR leads the charge in mapping current and future skill requirements, and adapting hiring strategies to source the right kind of human talent.
- HR works with the business to develop new evaluation frameworks to assess the performance of human, digital and human + digital talent.

5-10 years

Knowledge-as-a-Service solutions emerge, packaging specialist human expertise and delivering it as a revenue-generating service.

- HR becomes a revenue-generating function, working with IT and Sales to identify, package and sell organisational knowledge.



9. https://www.blueprism.com/uploads/resources/white-papers/Reimagining-Work_Full-Report-Brochure_-Final-003.pdf

10. <https://www.blueprism.com/resources/blog/reimagining-work-before-and-after-covid-19/>





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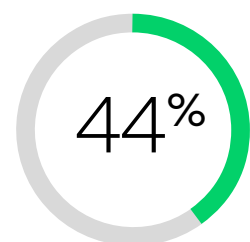


New skills imperatives: Upskilling, re-skilling and new types of job

While automation is freeing people to take on new and interesting types of work, the speed of change – further accelerated by the pandemic – can feel unsettling. That’s especially the case for people in roles like book-keeping and data entry, where a lot of existing tasks are being rapidly automated.

It’s clear that new skills will be needed to navigate the changing environment and find work that’s personally satisfying and financially rewarding. The WEF’s Future of Jobs 2020 survey found that by 2025, 44% of the skills employees need to perform their jobs effectively will change.¹¹

Re-skilling won’t be a one-time exercise. Rather, it’ll be an ongoing process of helping workers adapt to changes brought about not just by technology, but also by macro trends like increased longevity and climate change.



44%
of the skills employees need to perform their jobs effectively will change

World Economic Forum, Future of Jobs Report, 2020

Increased longevity will make continual reskilling essential

Referencing Lynda Gratton’s book *The 100-Year Life*, Deloitte’s US leader for the Future of Work, Jeff Schwartz, says that as we live longer and change jobs more frequently, the half-life of a skill is just five years. That means people will need to continually adapt their skillsets to remain employable.

Employers and policymakers will both have a key role to play in enabling that adaptability. The good news is that employers seem to be on board. Business leaders responding to the WEF’s Future of Jobs 2020 survey said they plan to transition up to 46% of workers into emerging opportunities, and provide upskilling and re-skilling opportunities to 73% of their staff.¹²

Figuring out how human workers and digital talent can work effectively together will be one of their key challenges, with Deloitte noting that this climbed the C-suite priority list during the pandemic. Pre-COVID, only 29% of executives said their focus was on re-imagining new combinations of people and technology to do new things. During COVID, that proportion increased to 61%.¹³

“The half-life of a skill is five years. We need support to be adaptable.”¹⁴

Jeff Schwartz, US Leader for the Future of Work, Deloitte

11. <https://www.weforum.org/reports/the-future-of-jobs-report-2020>
12. <https://www.weforum.org/reports/the-future-of-jobs-report-2020>
13. <https://thefutureorganization.com/how-to-thrive-in-a-post-covid-19-world/>
14. <https://thefutureorganization.com/how-to-thrive-in-a-post-covid-19-world/>





Manual and low-paid workers risk falling through the cracks

Their reskilling efforts may not catch everyone, however. A December 2020 report by the Fabian Society found that rates of UK worker participation in employer-based training and adult participation in further education are below EU average. It also notes that these rates are falling, and that “without action, seven million extra workers will have insufficient skills for their jobs by 2030.”¹⁵

“Without action, seven million extra workers will have insufficient skills for their jobs by 2030”

Fabian Society, Sharing the Future: Workers and Technology in the 2020s, December 2020

The shortfall in training mostly affects people in lower-paid and manual fields, many of whom are at high risk of seeing significant amounts of their work automated. The Institute for the Future of Work highlights the same issue, calling on government policymakers to provide “much higher levels of incentives, investment and experimentation in adult retraining and reskilling.” It warns that “demographic groups and regions at higher risk of automation will need targeted assistance.”¹⁶

As a partial solution, the Department for Education introduced a new Lifetime Skills Guarantee programme in January 2021, aimed at increasing the level of technical skills in the country, and supporting alternatives to university – such as apprenticeships – as routes into a high-skilled technical career.¹⁷

Climate change will create new opportunities in the ‘green economy’

One sector where those skills will be required is the green economy, where the government aims to create 250,000 new jobs as the UK works towards a target of Net Zero carbon emissions by 2050.¹⁸ Environmental

sustainability is a key area where brand new ‘green collar’ jobs are fast emerging, requiring new combinations of skills, knowledge and expertise.

Five new green collar jobs for a sustainable future

1. **Ethical sourcing officer:** Ensuring that corporate spending aligns with ethics and sustainability standards expected by customers and employees, and codified through corporate ethics boards.
2. **Smart home design manager:** Creating living spaces that reduce energy consumption or allocate it in the most efficient way possible.
3. **Tidewater architect:** Designing, building and maintaining environmentally-sound municipal tide works, using state-of-the-art technologies to regulate tidal floods.
4. **Vertical farm consultant:** Combining technology skills with community organisation skills to advise on the setup, maintenance and efficient use of vertical farms.
5. **Highway controller:** Responsible for monitoring, regulating, planning and manipulating air and road space, as well as overseeing AI platforms for space management of autonomous cars and drones.

15. <https://fabians.org.uk/publication/sharing-the-future-full-report/>

16. <https://www.ifow.org/publications/automation-politics-and-the-future-of-work>

17. <https://www.gov.uk/government/publications/skills-for-jobs-lifelong-learning-for-opportunity-and-growth>

18. <https://www.bbc.co.uk/news/business-54978454>

19. <https://www.cognizant.com/futureofwork/article/5-green-collar-jobs-of-the-future>





Key takeaways: Upskilling, reskilling and new types of job

Our research suggests that these will be the key developments to prepare for over the next 1-3 and 5-10 years

1-3 years

Employers establish a mix of human and digital talent to achieve organisational objectives. Workers transition into new roles as existing tasks continue to be automated:

- HR works with the business to identify new skills requirements and career pathways, and to devise upskilling and reskilling programmes.
- Businesses work more closely with schools, colleges and universities to ensure new skill requirements are reflected in vocational courses.
- Government continues to adapt education policy to encourage more vocational courses aligned with emerging skills requirements.
- Uptake of apprenticeships increases as 'on the job' learning becomes essential due to the pace of change of skills.

5-10 years

Longer careers and more frequent job changes lead to continuous upskilling:

- HR works with the business to devise programmes of continuous learning and development.
- Job rotation becomes more prevalent as people increasingly move between departments based on where their skills are most in demand.

The drive for Net Zero carbon emissions creates hundreds of thousands of new jobs requiring new skills:

- HR works with Operations to identify and hire the new roles needed to help the organisation meet its sustainability objectives.





Of bots and bosses: New power dynamics in the workplace

One of the most intriguing aspects of the future digital workforce is its impact on the organisation's management hierarchy. Gartner has identified two main trends: one around employees delegating daily tasks to virtual-assistants, and the other around AI removing layers of middle management.



“Workers want to be able to self-serve, self-help and make their own choices at work, like they do in their personal lives with Amazon and WhatsApp. A virtual employee assistant can answer this need.”²³

Angus Gregory, Chief Executive, Biomni

Our new virtual assistants

Virtual assistants will become a common phenomenon in the workplace, according to Gartner, which in 2019 predicted that 25% of employees would be using one on a daily basis by 2021 – up from less than 2% in 2019.²⁰

(It's worth noting that this prediction dates from before the pandemic, which some commentators believe has accelerated uptake.²¹)

Assistants currently range from Microsoft's Cortana, which can help with scheduling and managing Teams meetings, to Nokia's MIKA, a voice-controlled assistant for telecoms engineers that can retrieve useful information to help with network maintenance, troubleshooting and planning.

As bot-building technologies become more accessible, we'll see more organisations building custom virtual assistants to support everyday tasks. At Canadian grocery firm Loblaw, for example, the software team built a text bot called Jeanie that lives inside Slack and can carry out routine tasks for employees – from removing product listings on the company's website to reporting on product assortment levels.²²

20. <https://www.businessinsider.in/careers/news/the-boss-machine-is-here-ai-is-all-set-to-eliminate-middle-managers-in-8-years/articleshow/73474729.cms>

21. <https://mytechdecisions.com/unified-communications/virtual-assistants-workforce/>

22. <https://slack.com/intl/en-gb/blog/collaboration/loblaw-streamlines-tasks-customized-slack-tools>

23. <https://www.raconteur.net/sponsored/virtual-assistants-will-power-the-future-workforce/>





Rise of the ‘boss bot’

More controversially, a number of trend-watchers believe that AI could start to do a lot of the work currently undertaken by middle management – like allocating work among team members, supervising quality, and filing reports to senior management.

Blue Prism believes this will be a long-term outcome of delegating data-centric tasks to AI²⁴, while Gartner and Infosys note: “We will need fewer people managers, as management tasks such as collecting data, supervising actions and ensuring compliances will be completed by algorithm and robosses.”²⁵

“In the longer term, intelligent automation could help to remove layers of middle management.”

Blue Prism, Re-imagining work: Before and after COVID-19, December 2020

Employees may not be averse to having a bot for a boss. Oracle’s AI at Work survey in 2019 found that 64% of people would trust a robot more than their manager, with 26% saying that robots are better at providing unbiased information. Meanwhile, over a third (34%) say they’re better at maintaining work schedules, 29% rate them better at problem solving, and 26% rate them better at managing budgets.²⁶

What, then, might become of the middle managers of today? Like everyone else, they’ll either have to transition into a different role, or find a way to complement the work done by their AI colleagues. That may involve using more of the soft skills that AI finds difficult. “People managers will focus on people-related activities that require intuition, empathy and interpersonal skills,” notes Gartner.²⁷

Key takeaways: The new dynamic workforce

Our research suggests that these will be the key developments to prepare for over the next 1-3 and 5-10 years

1-3 years

Employees make more use of virtual assistants to get work done faster and more efficiently:

- IT works with the business to identify areas where virtual assistants can make tasks more efficient.
- IT develops inhouse capabilities to build custom bots and assistants that help employees across the organisation work more efficiently.

5-10 years

‘Bot bosses’ start to displace middle management by taking on more of their routine work:

- IT works with the business to build or buy AI solutions that conduct tasks like allocating work based on individual employee capacity, evaluating the quality of work conducted, and providing constructive feedback.

Middle managers transition into other roles or focus on the interpersonal aspects of the manager role:

- HR works with the business to develop new career pathways and reskilling programmes for supervisors and middle managers.

24. <https://www.blueprism.com/resources/blog/reimagining-work-before-and-after-covid-19/>

25. <https://www.businessinsider.in/careers/news/the-boss-machine-is-here-ai-is-all-set-to-eliminate-middle-managers-in-8-years/articleshow/73474729.cms>

26. <https://www.oracle.com/corporate/pressrelease/robots-at-work-101519.html>

27. <https://www.businessinsider.in/careers/news/the-boss-machine-is-here-ai-is-all-set-to-eliminate-middle-managers-in-8-years/articleshow/73474729.cms>





Get ready now for the new dynamic workforce

The digital acceleration prompted by COVID-19 means that AI and automation trends once thought to be far in the future are happening now. There are many opportunities to combine new technologies with human expertise to build a dynamic and resilient workforce for the future.

Thriving in this new world will mean identifying the right mix of human and digital talent to achieve your organisational goals. That will include re-looking at existing processes to see how they can be improved with technology, not just replicated. It will mean understanding what AI and automation are capable of today, and how that might evolve in future – and planning technology investments and skills initiatives accordingly.





Talk to us about your digital workforce journey

These are all challenges that we're currently navigating at O₂, and we'd love to discuss and share our experiences with other organisations.

Discover more insights at virginmediao2business.co.uk

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