The Future of Work

A report from Pega and Marketforce

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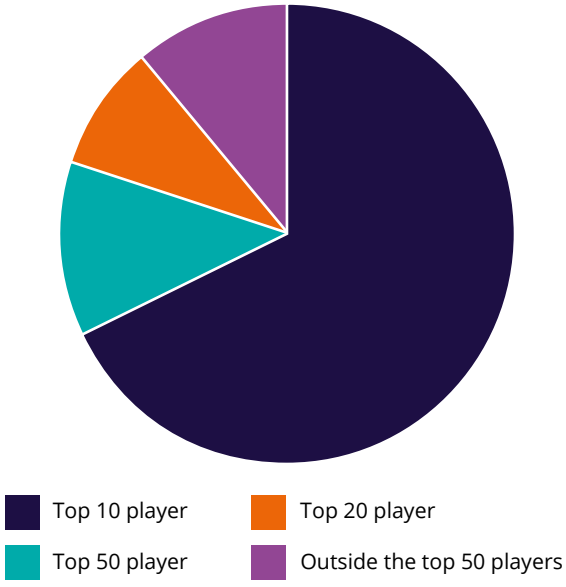
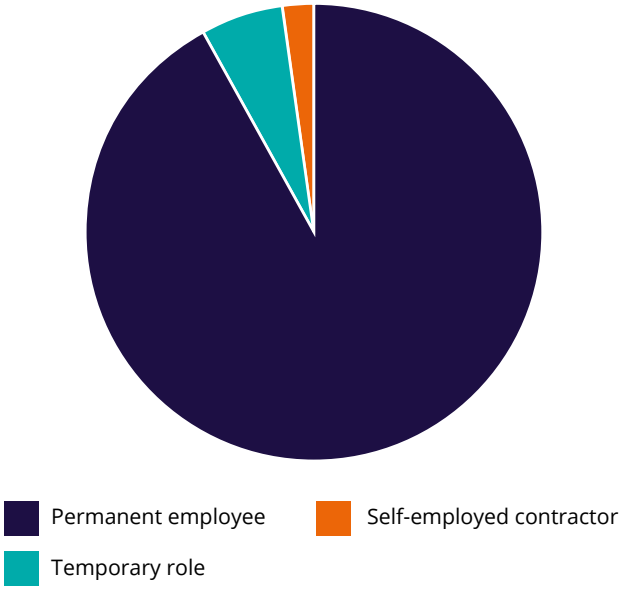
Methodology

In autumn 2017 Marketforce surveyed 845 senior executives working globally in Financial Services, Insurance, Manufacturing, Telecoms & Media, Technology, Public Sector, Healthcare & Life Sciences, Energy & Utilities, Travel, Transport & Logistics and Retail.

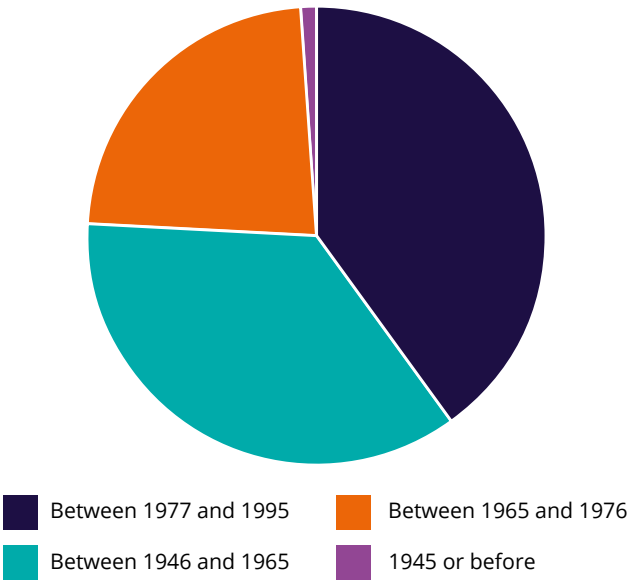
The ranking of the organisations that we surveyed:



Our respondents' employment status:



When our respondents were born:



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On the brink:
The fourth industrial revolution

The steam engine powered the first industrial revolution, electricity the second and digital computing the third. We now stand on the brink of a fourth industrial revolution, as smart machines, robotics and other emerging technologies, including 3D printing, nanotechnology and biotechnology, fundamentally disrupt existing economic models. How we respond to these forces will shape our society for many generations to come.

Revolutions are not new. History tells us that humans, and the companies we build, are remarkably successful at adapting to technological disruption and finding new opportunities amid the wreckage of the old order. Indeed, our survey shows that humans are already acclimatising to the hybrid workplace: almost seven out of ten of our respondents expect the term “workforce” to eventually encapsulate both human employees and intelligent machines, and 88 percent say they are comfortable at the prospect of working alongside intelligent machines – although they do not want to be managed by them.

We conducted this research with Pega to better understand how companies, and the people that make them tick, are coping with the changes already underway, from emerging automation to the fast-growing gig economy. These changes are only the beginning as the transformative impacts of artificial intelligence start to impact every aspect of work over the next decade.

In all, we surveyed 845 senior executives from around the world, representing a wide range of industries, including financial services, insurance, manufacturing, telecoms and media, public sector, healthcare & life sciences, energy & utilities, travel, transport & logistics and retail. The survey was conducted in the second half of 2017.

We hope you find the results as interesting as we do.

Describing a brave new world: Useful terms and definitions

Artificial Intelligence (AI) is a broad term that covers many sub-fields of computer science that aim to build machines that can do things that require intelligence when done by humans. These sub-fields include:

Machine learning - rooted in statistics and mathematical optimisation, machine learning is the ability of computer systems to improve their performance by exposure to data without the need to follow explicitly programmed instructions. Machine learning is the process of automatically spotting patterns in large amounts of data that can then be used to make predictions.

Deep learning – this is a relatively new and hugely powerful technique that involves a family of algorithms that processes information in deep "neural" networks where the output from one layer becomes the input for the next one. Deep learning algorithms have proved hugely successful in, for example, detecting cancerous cells or forecasting disease but with one huge caveat: there's no way to identify which factors the deep learning program uses to reach its conclusion.

Computer vision - the ability of computers to identify objects, scenes and activities in images using techniques to decompose the task of analysing images into manageable pieces, detecting the edges and textures of objects in an image and comparing images to known objects for classification.

Natural language/speech processing - the ability of computers to work with text and language the way humans do, for instance, extracting meaning from text/speech or even generating text that is readable, stylistically natural, and grammatically correct.

Cognitive computing – a relatively new term, favoured by IBM, cognitive computing applies knowledge from cognitive science to build an architecture of multiple AI subsystems – including machine learning, natural language processing, vision, and human-computer interaction – to simulate human thought processes with the aim of making high level decisions in complex situations. According to IBM, the aim is to help humans make better decisions, rather than making the decisions for them.

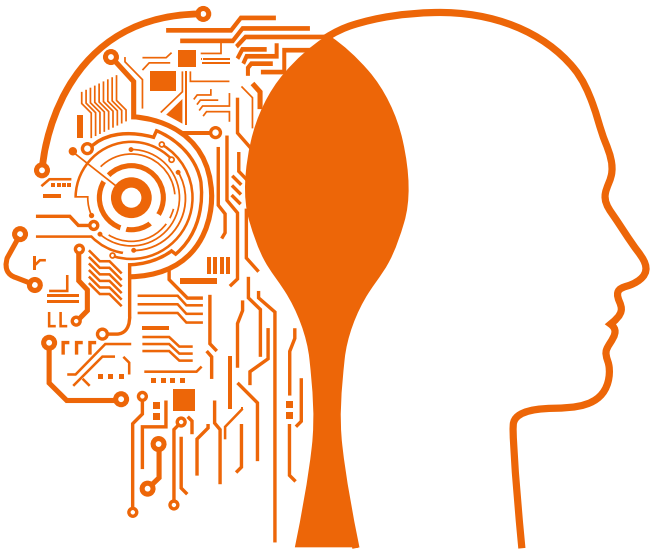
Robotic Process Automation (RPA): – computer software that is configured to automatically capture and interpret existing applications for processing a transaction, manipulating data, triggering responses and communicating with other digital systems. The key difference that distinguishes RPA from enterprise automation tools like business process management (BPM) is that RPA uses software or cognitive robots to perform and optimise process operations rather than human operators. Unlike BPM, RPA is a quick and highly effective fix that does not require invasive integration or changes to underlying systems, allowing organisations to rapidly deliver efficiencies and cost-savings mainly by replacing humans with software "robots". RPA can be deployed as a tool to debottleneck processes as part of a wider, more holistic BPM programme.

Chapter 1

A machine-led workforce

We live in a time of unprecedented comfort and prosperity. Our lives have been eased and cosseted by modern technologies and medical breakthroughs. Some pundits fear we may have reached an apex; however, technologies that have been gestating for decades - artificial intelligence and robotics – are fast maturing to a point where they could render skilled roles obsolete and cause huge social dislocation.

AI has, it seems, come of age. Feasting on the vast data sets generated by our hyperconnected world, from the outpourings of social media to warehouses of medical records and meteorological data points, the machines are getting smarter at a dizzying rate. Those who saw AlphaGo, an artificially intelligent computing system built by researchers at Google, beat world champion Lee Sedol at Go, a game that is exponentially more complex than chess, described it as "an inflection point for all human beings"[1].



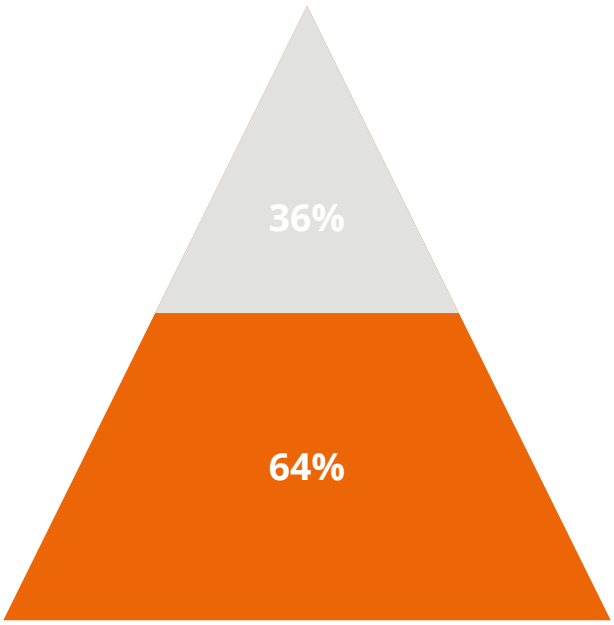
69% expect the term "workforce" to eventually encapsulate both human employees and intelligent machines

[1]Oh-hyoung Kwon, quoted in *The Sadness and Beauty of Watching Google's AI Play Go,* Wired, 2016

Be it advanced algorithms that improve the customer experience or robotic process automation that optimises business processes, smart machines are already disrupting the workplace. Even jobs once considered distinctly "human" are not immune: many white-collar professions could be transformed by smart algorithms that can make clinical diagnoses, underwriting decisions and frame legal arguments quicker and more accurately than any human. Our surveyed senior managers certainly expect advanced analytics and robotic process automation to augment their human workforce in the coming years: almost seven out of ten (69 percent) expect the term "workforce" to eventually encapsulate both human employees and intelligent machines.

Changing how we work

Automation and artificial intelligence are coming: the cost savings are too compelling for companies to ignore. Robotic process automation (RPA), for example, is computer software that organisations configure to capture and interpret the actions of existing business process applications, such as claims processing or customer support. Once the "robot software" understands these tasks, it can take over running them – and it does so more far more quickly, accurately and tirelessly than any human. Studies by the London School of Economics suggest RPA can deliver a potential return on investment of between 30 and 200 per cent - and that's just in the first year[2]. Savings on this scale will prove hard to resist: last year Deloitte found while only nine per cent of surveyed companies had implemented RPA, almost 74 percent planned to investigate the technology in the next 12 months[3].

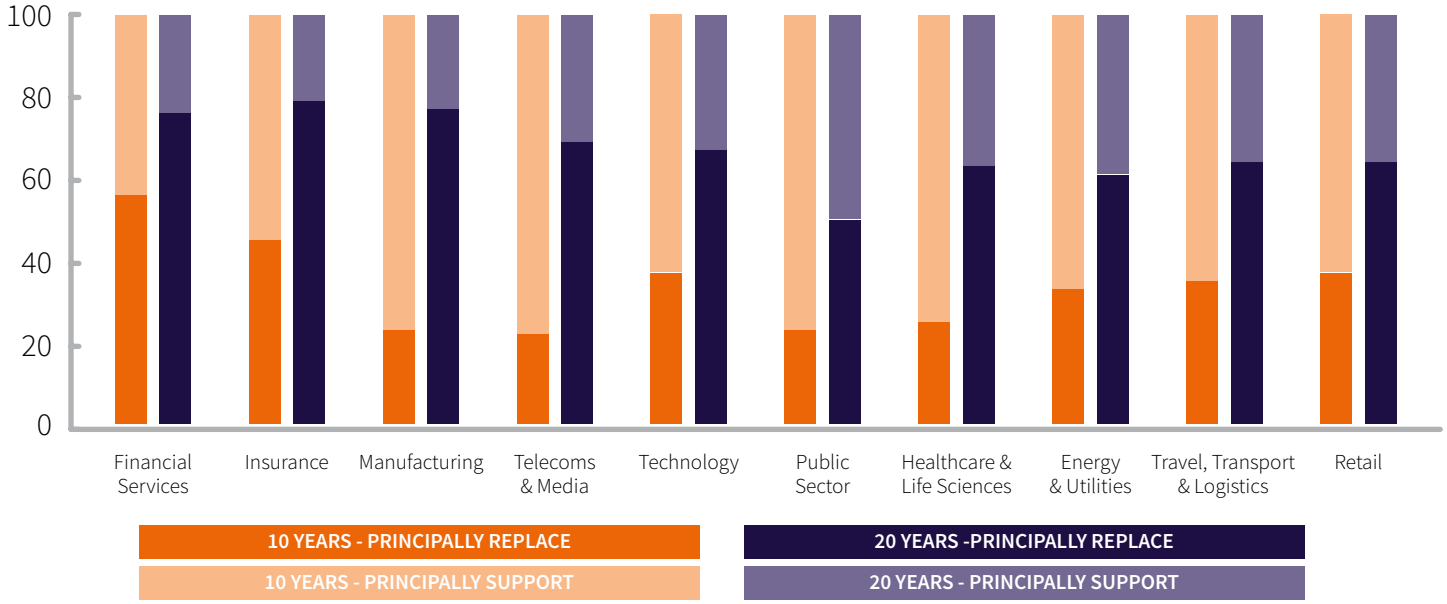


64% believe AI will allow staff to perform more varied roles by enabling them to find solutions to problems that would previously have been referred up the chain of command

[2]Leslie Willcocks, professor of technology, work, and globalization at the London School of Economics' department of management. Source: McKinsey.com, December 2016
[3]*The Robots are Here: meet your digital workforce,* Deloitte, 2016

Contrary to doomsday headlines about widespread job losses, our findings suggest AI and automation's impact will be much more nuanced and could even have a positive impact on how we work. First, the impact of automation very much depends on the type of role being automated. Some jobs require emotional intelligence, nuanced judgment and cultural understanding that smart machines just can't replace. So, while 70 percent of our respondents expect artificial intelligence to principally replace human workers in administrative roles within a 20-year time frame, a much smaller proportion, 41 percent, expect the same fate for human workers in customer-facing roles.

Within the next 10 and 20 years, **will robotic automation principally replace or support humans in administrative jobs** in the following sectors?

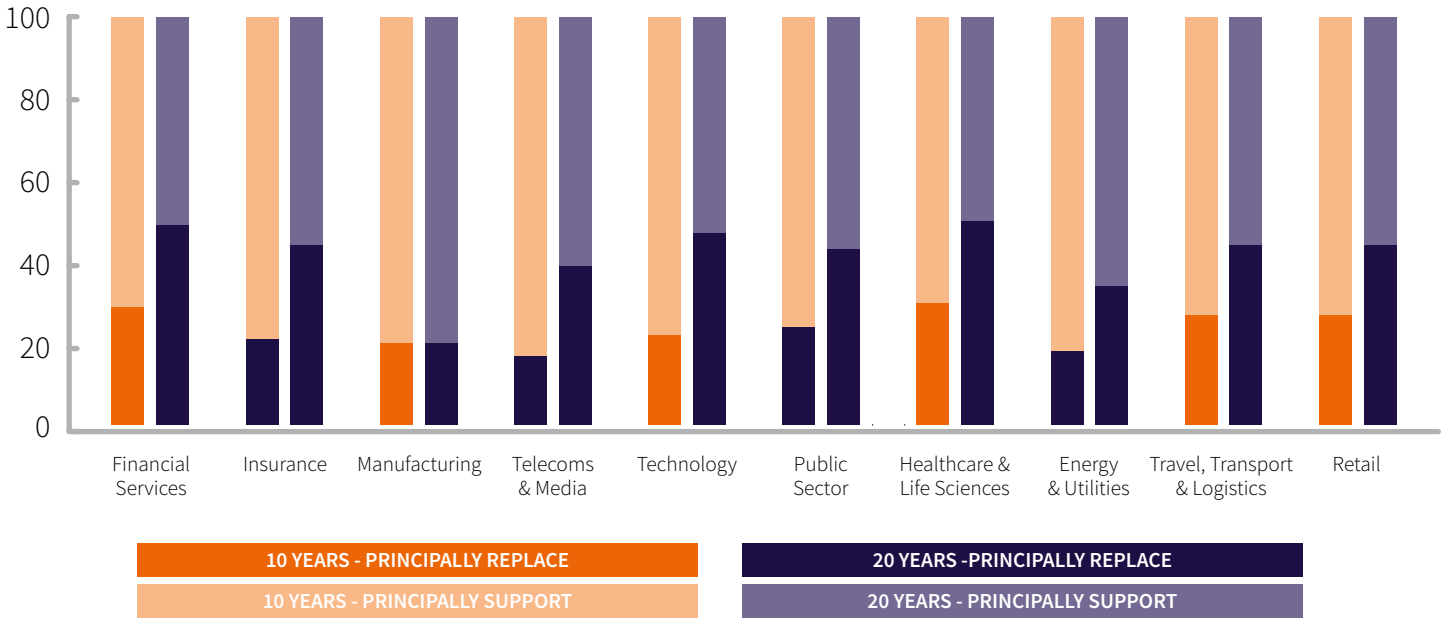


Second, the advent of automation may not mean humans are displaced from the workforce but rather that they are diverted to other areas of the business. Almost seven out of ten (69 percent) of our respondents expect that automating processes that currently require manual completion will make a significant difference in enabling staff to perform much more varied roles. This is not only good for the organisation, creating more flexible working patterns and a focus on higher value tasks, but also good for the staff member, who may find their new duties more stimulating.

Customer-facing employees may also find smart machines eliminate the mundanity and frustrations of their day-to-day role. In fact, 64 percent of our respondents believe AI will allow staff to perform more varied roles by enabling them to find solutions to problems that would previously have been referred up the chain of command and more than three-quarters (77 percent) think that within five years it will become standard practice for AI to be used to suggest next-best-actions to customer service agents.

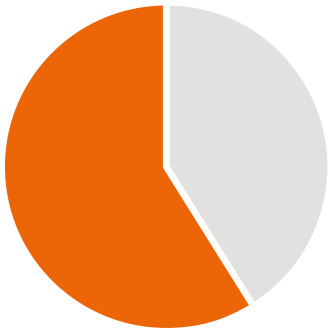
The smart machine won't tell the agent what to say but will anticipate the customer's needs and ensure the human has access to all relevant data to meet those needs, without the need to rekey data or flick between screens, creating disappointing and disjointed customer journeys.

Within the next 10 and 20 years, **will robotic automation principally replace or support humans in customer-facing jobs** in the following sectors?



Our respondents expect both AI and automation to have a positive impact on business performance. Indeed, almost eight out of ten (79 percent) of our respondents expect RPA to deliver significant efficiency improvements and 59 percent expect to see an enhanced customer experience by relieving staff of repetitive manual processes such as data inputting. AI is expected to have a similar effect, with 73 percent expecting it to improve efficiency and 62 percent expecting an improved customer experience.

By relieving staff of repetitive manual processes such as data inputting, **79%** expect RPA to deliver significant efficiency improvements



59% expect to RPA to lead to an enhanced customer experience

Deployment to date

RPA is a proven and mature technology and there are now a range of RPA tools in the marketplace that can deliver compelling ROIs. Our research finds over half, 55 percent, of organisations already deploy RPA to some extent, although only 6 percent report that it is in common use.

Cognitive computing, however, is more of a challenge. It requires smart machines to think like humans, capable of understanding natural language and establishing context to make insights, judgements and predictions. The marketplace for these advanced algorithms is less advanced but maturing rapidly. Organisations, it seems, are keen to experiment with this still maturing technology: 52 percent say their organisation already deploys AI to either support or replace human decision making, and a further 31 percent say that they are using AI to reach decisions without human input. As yet, however, these deployments are very much limited in scope: just five percent said they widely deploy AI to support decision making and even fewer, 2 percent, trust it to reach decisions without human input across their organisation.

However, as the technology develops over the next decade, and confidence grows, the deployment of these technologies is expected to become commonplace, with 53 percent expecting AI to be in common use in five years and 76 percent within ten years.

Hey, Alexa

For many people, it is the AI-powered virtual assistants Alexa and Siri, now household names, that mark our gentle introduction to the world of smart machines. One study in the financial services sector found that three-quarters of senior executives believe the likes of Siri are a gateway to getting customers to engage with automated assistance and advice[4].

Despite the growing popularity of this technology to navigate our phones or smart homes, our research predicts a surprisingly slow take-up in the workplace: just 8 percent expect to use this kind of technology in their business in the next two years, although this leaps to 51 percent in five years, 58 percent in ten and 90 percent within 20 years.

It is more of a leap to imagine a world where we work alongside humanlike robots. While some pioneers may be trialling humanoid-robots that provide basic customer service functions, such innovation, while impressive, remains little more than a gimmick. And it looks to stay that way, for now: just 39 percent expect to see widespread use of humanoid robots in the next ten years, although this leaps to 72 percent by 2037.

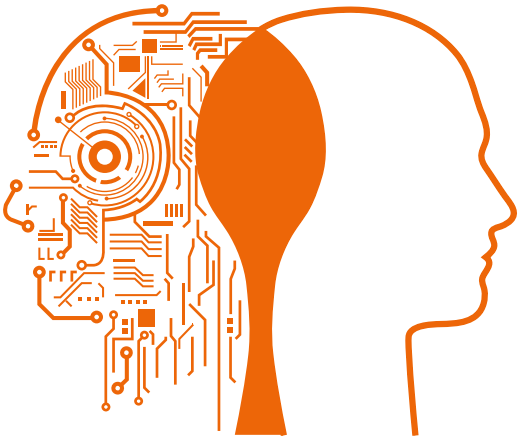
72% expect to see widespread use of humanoid robots by 2037

[4]*The Future of Retail Financial Services, A report by Pega, Cognizant and Marketforce, 2015*

Human and machine, working together in harmony?

Our research indicates that humans do not resent or fear the introduction of machine co-workers: 88 percent say they are comfortable with the prospect of working with intelligent machines and 91 percent are comfortable with the prospect of managing intelligent machines.

It's clear, however, that the humans want to stay in control: four out of five say they would not be comfortable with an intelligent machine managing them. This is understandable: we are hardwired to be suspicious of smart machines that overreach themselves and turn their superior intelligence and ruthless logic on their human creators. And this fear isn't just the product of watching too many science fiction films: Professor Stephen Hawking, PayPal founder and Tesla CEO Elon Musk, and Cambridge University's Centre for Existential Studies have all warned of the potential dangers of unchecked AI and called for proper oversight. We find our respondents in tune with this call for better governance: 78 percent claim they would be more comfortable with the prospect of being managed by an intelligent machine if there was complete transparency and auditability as to how it reached its decisions.



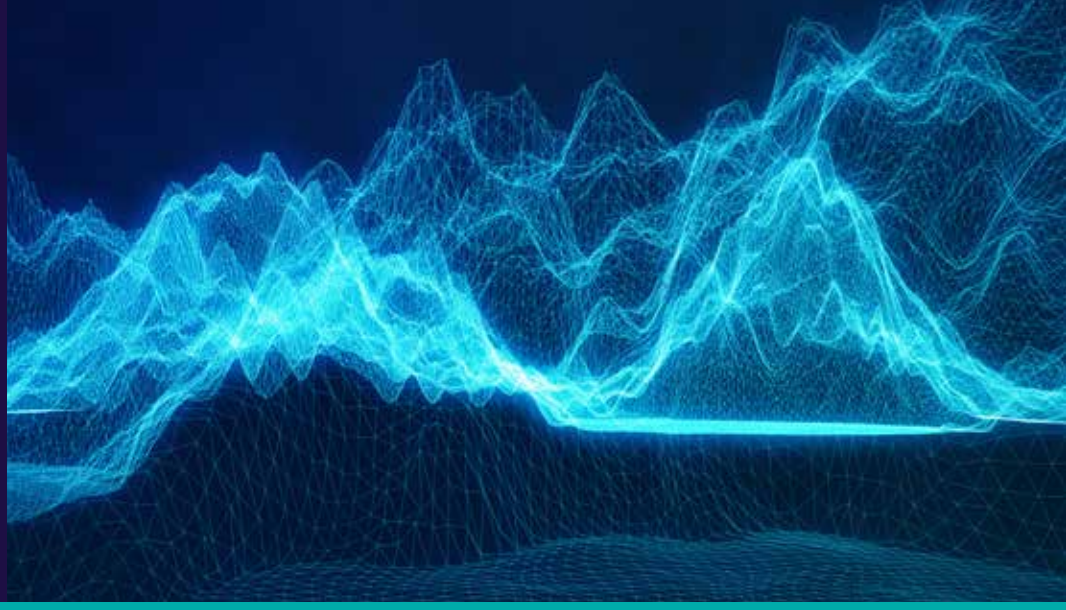
88% are comfortable with the prospect of working alongside intelligent machines....

...but **4 out of 5** say they would not be comfortable with an intelligent machine managing them.

Next steps for success

Rather than fearing the introduction of increased automation in the workplace, our findings suggest many will welcome the opportunity to hand off routine or repetitive tasks to fast, accurate and tireless smart machines. Humans will find the workplace enhanced as monotony is replaced with more challenging and varied work while interactions with customers are eased by advanced algorithms that reduce friction and suggest next best steps. A smooth transition to an AI-enhanced workplace will involve frontline staff to identify those tasks best suited to automation: start small, learn fast and work with technology and people to get the best results.

Chapter 2



Management in the age of advanced analytics and AI

Automation has taken a long and unforgiving toll on blue-collar jobs. Between 2000 and 2010, for example, around 5.6 million manufacturing jobs were shed in the US, 85 percent of them as a result of automation and technological change[5].

According to our research, 72 percent think the increasing use of AI and robotics will dramatically reduce the number of middle managers in most organisations over the next decade. While this is bad news for middle management, it's good news for those below them: almost eight out of ten (78 percent) believe support from artificial intelligence will allow workers to make informed decisions at a more junior level, leading to a flattening of traditional hierarchies.

76% believe support from AI will allow workers to make informed decisions at a more junior level, leading to a flattening of traditional hierarchies

[5]Center for Business and Economic Research, Ball State University

Optimising operations

In the next five years our respondents expect it will become standard practice to deploy AI for a wide range of management functions, from quality control to the scheduling and coordination of work to quality control.

The proportion who expect it will be standard practice for AI to be used for each of the following tasks within 5 years

Scheduling & coordination of work
79%

Allocation of tasks across a mixed workforce of humans and machines
69%

Matching customer service agents with customers
75%

Quality control
76%

But to limit AI to scheduling, resource matching and quality control would be a huge waste of its capabilities. More than nine out of ten (91 percent) believe that advanced analytics will also create new chances to find commercial opportunities for collaboration between teams or organisations within 10 years; 57 percent think this will happen within five years. Indeed, it's clear that operational strategy will increasingly fall to the machines: more than seven out of ten (71 percent) believe AI will be commonly used to identify opportunities for operational improvements in the next five years.

A smarter talent spotter

The recruitment industry has already felt the disruption of technology. Online recruitment agencies and talent platforms, such as LinkedIn and Monster.com, increasingly act as clearinghouses that more effectively connect individuals with work opportunities. Automation will only accelerate these trends: more than seven out of ten (71 percent) believe the use of AI will become standard practice for the evaluation of CVs in order to shortlist candidates for interview within 5 years.

65% believe it will become standard practice for AI to be used to conduct interviews and shortlist candidates in the next 10 years

And why stop there? From psychometric testing to highly detailed lists of attributes and qualifications, so much of recruitment has already become a tick-box process that could be handed off to smart machines. Almost two-thirds (65 percent) of our respondents think it will become standard practice for AI to be used to conduct interviews and shortlist candidates in the next 10 years and 37 percent think this will happen within five years – and there is even a significant minority (30 percent) that believes AI will be used to make final decisions on who to hire within the next decade.

Towards a logical, transparent meritocracy?

Organisations are increasingly under scrutiny for the diversity of their workforces, particularly at more senior levels. Globally, the proportion of senior business roles held by women is 25 percent, two-thirds of the board seats of Fortune 500 companies are held by white men and the privately-educated continue to dominate professional jobs[6].

More than seven out of ten think it will be common to use AI to evaluate employee performance and set rewards in the next ten years

This is where AI, with its unbiased and ruthless logic, could prove a leveller, not only in the selection and recruitment of candidates but also in ongoing performance reviews and remuneration policies. Our cohort clearly sees a case for advanced analytics: almost three quarters (74 percent) think that within 10 years it will become standard practice for AI to be used for evaluating employee performance and 72 percent predict it will be commonly used to set appropriate employee rewards.

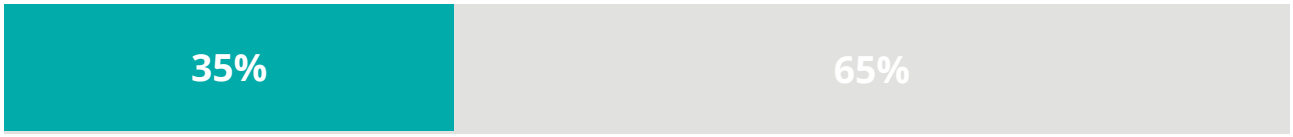
These rewards will be more clearly matched to the actual outputs of every individual, not just in a once-a-year performance evaluation but in real-time and down to the minute. Almost nine out of ten (87 percent) think that within 10 years AI will be frequently used to evaluate employee productivity; indeed, over half (52 percent) think this will happen within five years.

Of course, an employee's worth can't be reduced to an algorithm. Many factors, such as creative flair, empathy with customers and the ability to inspire colleagues, contribute to an organisation's success but they can't be quantified in a productivity calculation. However, our respondents have confidence that cognitive automation will in time be able to understand and quantify these abilities, with 84 percent agreeing that it will be commonplace for AI to calculate the true value added by each worker within a decade, while 44 percent expect to see this in a five year timeframe."

[6]Sources: *Women in Business,* Grant Thornton, March 2017; Alliance for Board Diversity, 2016 numbers; *Leading People 2016,* The Sutton Trust

66% believe the widespread use of AI will give rise to a more transparent meritocracy in the work place...

...and **35%** look forward to a decline in office politics



Could decades-long arguments about privilege and bias be resolved by the application of machine learning? Two-thirds of our respondents think so, agreeing that as the use of AI becomes common in evaluating the contribution and skill of employees, we will see the rise of a more transparent meritocracy. And for those who find office life stressful, the machines offer hope: 35 percent think that AI will even lead to a decline in office politics.

Yet it's important to sound a warning: intelligent systems built by non-diverse workforces may well inherit implicit bias that undermines their claims to meritocracy, while deep learning black box solutions will need governance to ensure the outputs are consistent with the company's values and equality laws. Companies planning to deploy advanced analytics in the workplace must ensure they are as focused on the ethics and oversight of AI as they are on its promised bottom-line benefits.

Next steps for success

AI has the potential to transform recruitment and remuneration. Advanced algorithms, acting without bias, fueled by data about an employee's contribution on a minute-by-minute basis, will spot and promote talent with a proven track record in adding value. But a note of caution: while many recruitment and performance monitoring tasks are ripe for automation, companies must ensure they have the right governance and oversight in place before they deploy more sophisticated deep learning computing. Without proper governance of the algorithms underpinning their outputs, these "blackbox" solutions could leave companies at risk of non-compliance with data protection and employment laws.

Chapter 3

New ways of working for new kinds of customers

In a bid to align their operations with customer expectations for a 24/7 service that's personal, responsive and where they are, many companies have embraced flexible working patterns. It's a way to rapidly respond to fluctuating demand and seasonal conditions to ensure the customer experience is timely and flawless, whether a customer wants to manage their finances in the middle of the night or have their shopping waiting for collection when they get home from work.

Done well, it's a win-win for both sides. Workers get the flexibility of shifts that fit around family or other personal commitments while companies can tap into a pool of talent to meet dynamic on-demand market conditions. Getting it right, however, requires investment in best-in-class customer relationship management systems and workforce intelligence and optimisation tools to make sure flexibility doesn't jeopardise the customer experience.

This is an issue companies will need to address. The so-called gig economy, where people are hired for specific projects rather than being permanent employees, is growing: some estimates indicate the independent workforce now accounts for up to 30 percent of the working-age population in the US and Europe[7]. And our research suggests there are no signs of this growth slowing, with our respondents expecting almost half, 46 percent, of the working age population to be part of the gig economy by 2027.

The model, once confined to the likes of Uber and Deliveroo, is expected to swallow even the largest corporations. We asked our respondents how they expect current trends to impact the average number of permanent employees at a Fortune 500 company, which currently stands at 53,000: they told us they expect this to more than halve, to 24,000, by 2030.

And it's not just permanent workers that will feel the pinch. Traditional outsourcing models will unravel as employers tap into the gig economy to access the expertise they need, when they need, for as long as they need. More than four out of five of our respondents (82 percent) expect outsourcing to large third-party providers to have been largely replaced by the use of a flexible, freelance workforce within 10 years; 45 percent think this will happen within five years.

[7]McKinsey Global Institute

Flexible work, dynamic pay

The benefit of permanent staff is that they are always there, when you need them. As companies look instead to the gig economy, there will be times when the required skill sets are in short supply. Matching supply to demand on an as-needed basis increasingly means that old remuneration models, of a fixed rate per hour, are no longer fit-for-purpose. Instead, just as Uber adopted surge pricing for periods of peak demand, so almost half of our respondents (48 percent) expect moment-by-moment dynamic pricing of work to become standard practice in their sector within five years. Ten years out and 81 percent expect dynamic pay models based on demand to be commonplace in their sector.

On call, 24/7

Few people start life with a burning desire to work in a call centre, and, with a reputation for high stress, low pay and repetitive work, it seems many of those that already do are keen to leave as soon as possible. It's estimated that 26 percent of front-line agents are replaced each year across the industry[8], an expensive and damaging rate of churn that impacts costs, morale and service levels.

The gig economy could reinvent the call centre, however, replacing long shifts with flexible working patterns from the comfort of one's own home. Almost nine out of ten of our respondents (88 percent) think that within 10 years large-scale permanent call centres will have been largely replaced with flexible freelancers working remotely. Indeed, more than half, 55 percent, expect this change to happen within the next five years.

This is expected to be good news for today's demanding customers: 85 percent expect the use of flexible freelance customer service staff to make it easier to uphold a 24/7 service and 82 percent forecast faster response times as a result. And for workers, the flexibility, wedded to dynamic pricing for high demand or unpopular hours, could make call centre work, if not a dream career, at least a more rewarding and less stressful proposition.

Staying focused on the customer

The shift from a permanent staff to an increasingly flexible and fragmented freelance workforce will create new challenges for management. Companies have spent recent years trying to emulate the superlative customer experiences that the likes of Amazon – the self-proclaimed customer-obsessed retail giant – have pioneered, setting new benchmarks in personalisation and seamless journeys that other industries are still scrambling to match. Yet how can a company share its customer-centric values with a workforce that may change not just week by week but even shift by shift?

[8]Blogpost from Evaluagent, March 2016

81% believe the growth of a freelance workforce and the resulting decline in a company's permanent staff will make it harder to ensure that the customer is always at the heart of their company culture

Are recent gains in customer experience at risk from the rise of gig working? Our respondents think so. Eight out of ten (81 percent) believe the growth of a freelance workforce and the resulting decline in a company's permanent staff will make it harder to ensure that the customer is always at the heart of their company culture, 54 percent think a flexible freelance workforce will make it harder to build ongoing relationships with customers and a significant minority (41 percent) believe it will become harder to improve the quality of customer service.

Technology will be key to make sure every employee, whatever their employment status, however long their gig, not only understands the importance of excellent customer experience but is also given clear, on-the-spot guidance on how to deliver that experience. According to our research, there's overwhelming backing for algorithms that generate guidance for freelancers about the appropriate course of action (84 percent) and quality CRM systems (90 percent) in order to ensure the customer-centric approach is maintained among freelance staff. Nine out of ten also say it will be important to use high quality data analytics so that a remote freelancer can provide a level of personalisation on their first shift that a customer can't distinguish from that of a long-term permanent staffer.

90% believe companies will need quality CRM systems in order to ensure the customer-centric approach is maintained among freelance staff

This won't work without appropriate monitoring and oversight: 68 percent of our respondents believe it will be important to use remote desktop monitoring to check on the quality of service being delivered and 87 percent would want to use high-quality data analytics to assess the impact of each freelancer on customer satisfaction. Only with this level of granularity will companies have the confidence to embrace gig economy solutions to fulfil their frontline customer-facing roles.

Flexibility that works

The drive to offer family-friendly flexible working patterns means there has been increased use of freelancers and remote workers in recent years in a bid to attract and retain talent. One survey of workers found that almost half (47 percent) cite flexible working as the most desirable workplace

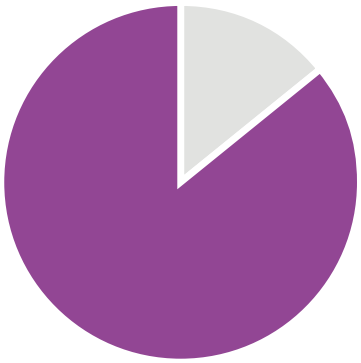
benefit[9] yet many employers remain suspicious that when it comes to home-working, there's too much home and not enough work.

Technology, however, should eliminate fears that home-workers are shirking their duties: more than nine out of ten believe the use of AI and advanced analytics to assess workers' activity on their desktop and provide guidance will help organisations become more comfortable with using remote workers and freelancers.

Workers should welcome this too. Studies suggest that 40 percent of employees who work from home feel disconnected from the company's strategic direction and one third feel like they don't get support from bosses[10]. By providing real-time support and guidance, AI and advanced analytics will help workers feel more connected and supported in their work, further improving motivation and productivity.

Uberisation, coming to a workplace near you

We have already noted that Uber-like surge pricing will emerge for in-demand gig workers. As the gig economy matures, Uber-style platforms that automatically match available talent to market demand will be developed: within five years, half our respondents expect algorithmic matching of tasks to the most suitable freelance worker to become standard practice, and this jumps to 86 percent within ten years.Over the same time frame, nine out of ten think it will be standard practice to use online marketplaces that automatically match workers to jobs based on data on their skills and aptitude.

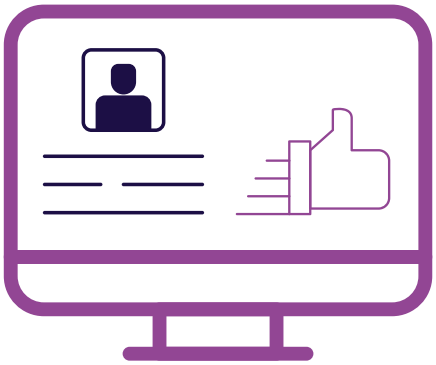


86% expect algorithmic matching of tasks to the most suitable worker to become standard practice in the next ten years.

Swipe right to hire

Technology created the gig economy; it also has the power to transform it. Over-egged CVs filled with questionable claims will become obsolete and new systems will emerge to best match talent to opportunity: 84 percent of our respondents expect to see the emergence of dynamic data-driven online profiles that can be transferred to third parties, facilitating rapid switching between gigs for high performers.

[9]CV-Library, January 2017
[10]Study by University of Arizona



84% expect to see the emergence of dynamic data-driven transferable online profiles...

...and **86%** anticipate TripAdvisor-style ratings of frontline staff based on customer feedback will become standard practice within 10 years

And just as Uber drivers are rated for their service, so customer-facing staff will be rated on their performance. More than nine out of ten of our respondents think that customer feedback will be used to continuously update a worker's online profile, allowing would-be employers to quickly rate the suitability of potential workers. Indeed, 86 percent anticipate TripAdvisor-style ratings of customer-facing workers based on customer feedback will become standard practice within 10 years. And it's not just customers who will have input into a worker's online profile: 90 percent of our respondents expect feedback from peers and 88 percent feedback from managers to be continuously fed into online profiles.

Ratings will not just be value judgements from potentially flawed or biased humans. Smart machines that monitor every task and every customer interaction will provide unbiased insight into an individual's performance: more than half, 55 percent, predict algorithmically-generated ratings of workers based on past effectiveness will be commonplace within five years, rising to 87 percent over a ten-year timeframe. The machines will empower high performers to demand better pay and better conditions within a transparent and dynamic gig economy.

Equipping employees for a customer-focused future

In this reinvented gig economy, employers will no longer hold all the power. New data marketplaces will emerge to trade insights about what it's really like to work for a particular team or company. Our respondents clearly expect further services to emerge to help gig workers pick the right gig for them: almost two-thirds (65 percent) predict that it will be standard practice for there to be TripAdvisor-style ratings of organisations based on employee feedback in the next five years. This may even prove conservative given the huge success of Glassdoor.com, the jobs site that pioneered star ratings for companies based on millions of employee reviews and which now boasts more than 41 million unique users a month. Clearly there is a huge appetite for more transparency about what really goes on in the workplace: 83 percent of our respondents even expect TripAdvisor-style ratings of management based on employee feedback to be standard within ten years.

These ratings will not just focus on pay, rewards and culture. Empowered gig workers looking to boost their own star ratings will increasingly scrutinise the tools that will allow them to deliver five-star service. More than nine out of ten (91 percent) agree that, as customer feedback plays a more influential role in career progression, the quality of a company's customer engagement tools and technologies will become a much more significant factor in how attractive a company is to potential candidates.

Companies serious about attracting the best talent do not have long to implement best-in-class technology solutions: almost two-thirds (64 percent) of our respondents predict that in just five years the quality of the technology platform will be more influential than the location of a company's premises when it comes to attracting the best staff – and 8 percent report this is already true in their sector.

As the voice of the customer grows ever louder, companies cannot afford to lose their best performers to rivals with higher rated technology solutions and management.

91% agree that as customer feedback plays a more influential role in career progression, the quality of a company's customer engagement tools and technology platform will become key to attracting the best candidates

Next steps for success

Digital technology has given rise to a new workforce: the flexible on-demand entrepreneur who uses emerging technology platforms to match their skills to market demand. Our survey suggests the gig economy is only going to grow, both in scale and sophistication, with the customer voice empowering star performers to demand not just higher rates of pay but also access to the best tools to do their job better. Those companies that wish to attract and retain the best talent will increasingly need to focus on the platforms underpinning their customer experience solutions. This means making the right investment in the right technology solutions now in order to attract the right talent to deliver tomorrow's best-in-class customer experience.

Conclusion

The world of work is changing. These changes are already well underway in many workplaces around the world, but are set to accelerate as the deployment of AI and automation become mainstream. Headlines may focus on potential job losses but our research shows many companies expect smart machines to augment rather than replace existing human workforces in order to deliver improved experiences for customers and create more varied and rewarding jobs for employees. Organisations have the potential to flatten outdated hierarchies, to become truly meritocratic and diverse, thereby generating more innovative and relevant solutions in a fast-changing world.

Workplaces are set to become more flexible, agile and responsive, with AI-powered "managers" spotting the best talent, allocating work and optimising schedules based on real-time feedback from customers in order to deliver superlative experiences around the clock. Our research shows best-in-class CRM solutions will be essential to ensure fragmented freelance workforces can still realise customer-centric ambitions – and with the gig economy continuing to erode the proportion of permanent workers in the typical corporation, this investment needs to happen now.

The good news is the empowered customer will have an ever-louder voice to influence the future – and that means companies will have no choice but to pick those technology solutions that enable machine and human to work together to deliver customer-centric solutions. We think that's a good thing.

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