



Rise of the humans

Digital and human labor and its impact on the global workforce

KPMG International

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Foreword

The *Rise of the Humans* series is a very welcome addition to our thinking on the changing world of work. It offers many useful insights on the opportunities and challenges tomorrow's business leaders face. How will we adjust the shape and size of our workforce to make the most of new technologies? How do we best prepare workers for the future? How can we benefit from the opportunities, while safeguarding the wellbeing of employees?

We are already witnessing many of the changes identified by the *Rise of the Humans*. Technology is having an impact on all businesses. With AI we are only at the start of the journey, but the advantages are clear. To take just one example, in healthcare, AI solutions are being developed to automate image analysis and diagnosis, and to provide basic advice direct to patients. AI has particular potential in remote locations where medical services are limited. Similar advantages are emerging across all industries.

The opportunities are evident, but there are many challenges too. As *Rise of the Humans* emphasizes, we all need to be agile and adapt our business thinking to be ready for them. Many of these challenges arise in the wider world. We are witnessing an increase in geopolitical events and instability as well as natural and man-made disasters. These risks are occurring even in places once thought of as safe.

Those who travel on business face particular risks. Despite global communication, business travel remains at a high level. In many companies, the percentage of employees engaged in either business travel or longer term assignments are set to rise substantially. Air passenger numbers alone are expected to double to eight billion in the next 20 years; many of these passengers will be business travellers.

This all means more employees facing a variety of risks. These range from major incidents, like earthquakes, to every-day events, such as food safety scares and traffic accidents. The risks and consequences tend to be greater in remote and unfamiliar locations. Regardless, employees do welcome the opportunity to travel and work abroad. It offers life-changing personal and professional opportunities.

The risks are real and are being recognized. The latest *Business Resilience Trends Watch* found that 63 percent of mobility professionals believe that travel risks have increased over the past year. Security threats are the most commonly reported reason for modified travel itineraries (58 percent). Natural disasters (43 percent) and country risk ratings (42 percent) also account for a significant proportion of changed travel plans.

The range of people travelling, and the choice of destination, is changing.

Whatever the destination, or size of project, employers have a clear duty of care to safeguard their employees. Especially as the physical and mental welfare of all employees will remain a focus for tomorrow's business leaders. The changing work environment will inevitably bring extra pressures. Many employees might find it difficult to adapt to these new ways of working. Mental health issues are already escalating. Increases in rates of obesity, diabetes and non-communicable diseases are being noted in many regions too. These will all present further challenges, and costs.

As *Rise of the Humans* so clearly sets out, each aspect of our businesses should be reviewed to prepare for the future — and let's not forget the human side. Now more than ever policies and procedures that ensure the health, security, safety and wellbeing of all employees, in all locations, at all times, are equally important to be a sustainable business.

As we meet the challenges posed by our changing world, we will be best placed to take advantage of the opportunities it offers. If properly prepared, we humans can certainly rise.

Amaud Vaissié

Co-Founder, Chairman and CEO,
International SOS

Rise of the humans

**The integration of digital
and human labor**



In brief

- Despite doom and gloom scenarios for massive unemployment, cognitive technologies can spur new jobs and enhance human skills and expertise.
- The kind of jobs will likely change, however, especially middle-income routine jobs that are likely to be replaced by cognitive platforms.
- The challenge for leaders is to integrate and make the most of both kinds of labor.
- A five-stage process of inquiry can help leaders systematically think through how the shape and size of their workforce should change.
- Arguments range as to whether digital labor will remove or grow jobs, and in truth the jury is still out.

Many jobs will be reconfigured and redesigned, causing job dislocations and requiring employees to learn new skills.

Hardly a day goes by, it seems, without apocalyptic warnings that robots in the workplace will create a dystopian destiny.

The convergence of artificial intelligence, robotic process automation (RPA), machine learning, and cognitive platforms is potentially so disruptive that Klaus Schwab, founder of the World Economic Forum, calls it the “Fourth Industrial Revolution.”¹

Proponents of this vision point out that:

- Between now and 2025, up to two-thirds of the US\$9 trillion knowledge worker marketplace may be affected.²
- The Bank of England estimates that robotic automation will eliminate 15 million jobs from the United Kingdom economy in the next 20 years.³
- Digital technologies will conceivably offset the jobs of 130 million knowledge workers — or 47 percent of total US employment — by 2025. Across the Organization for Economic Cooperation and Development (OECD), some 57 percent of jobs are threatened. In China, that number soars to 77 percent.⁴

As businesses and governments seek to streamline processes and reduce operating costs, cognitive technologies are rapidly creating a new class of digital labor. Many jobs will be reconfigured and redesigned, causing job dislocations and requiring employees to learn new skills.

But underlying this scenario is a series of potentially positive outcomes. Cognitive technologies can spur a growth in jobs overall and enhance human skills and expertise. Ultimately they can make every employee an innovator and transform the enterprise into an engine of unconstrained innovation.

¹ Klaus Schwab, *The Fourth Industrial Revolution*, World Economic Forum, 2016.

² McKinsey Global Institute, *Disruptive technologies: Advances that will transform life, business and the global economy*, May 2013.

³ “Robots Threaten 15m UK Jobs, Says Bank of England’s Chief Economist,” *The Guardian*, Nov. 12, 2015.

⁴ Carl Benedikt Frey and Michael A. Osborne, “The Future of Employment: How Susceptible Are Jobs to Computerisation?” University of Oxford, Sept. 17, 2013.

How will jobs be affected?

Perhaps the most salient feature of today's Fourth Industrial Revolution is the widespread impact of computerization on all kinds of jobs, from butchers to nuclear power plant operators, from accountants to equipment assemblers.

What is clear is that middle-ranking jobs are just as likely to be affected as those jobs with obvious susceptibility to automation, such as bank tellers, repetitive manufacturing, and customer service representatives in call centers.

According to Frey and Osborne's touchstone research, cognitive automation or augmentation can replace almost anyone whose job does not require one or some of these characteristics:

- **Perception and manipulation** of things requiring high manual dexterity and discrimination between different objects in a cluttered environment; for example, a hairdresser (because you don't want your ear to be cut off by mistake), a street sweeper, and an occupational therapist.
- **Creativity**, particularly fine art creativity and high-order originality; for example, a landscape photographer and classical musician.
- **Social interaction and social intelligence**; for example, a social worker, a primary school teacher, and a mental health nurse.

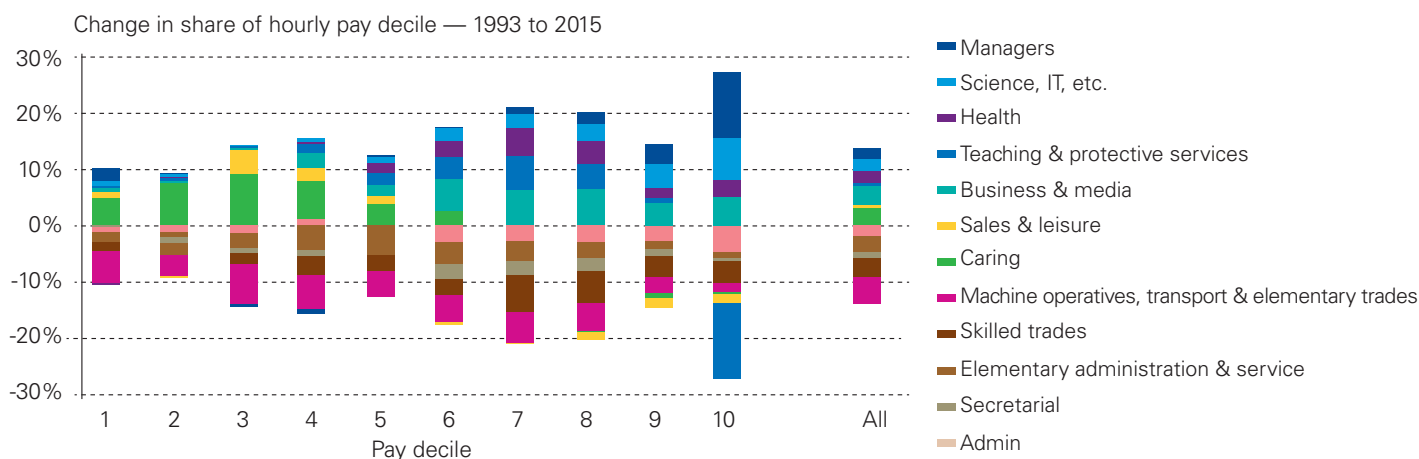
Jobs that are the least susceptible to computerization, they wrote, are "generalist occupations requiring knowledge of human heuristics, and specialist occupations involving the development of novel ideas and artifacts."

From this perspective, most management, business, and finance occupations are at low risk for computerization because they involve intensive generalist tasks requiring social intelligence. The same is true, they argue, for most occupations in education and healthcare and for arts and media jobs. Even many engineering and science occupations

are not susceptible to computerization because they require a high degree of creative intelligence. As technology races ahead, they conclude, low-skill workers will need to find jobs that require creative and social intelligence.

In fact, new jobs are being created. From 1993 to 2015, the hollowing out of jobs in the middle has been accompanied by a filling in with new jobs in precisely those occupations predicted to grow by Frey and Osborne — management, science and healthcare (Figure 1).⁵

Figure 1: The hollowing out of jobs in the middle... has been accompanied by a filling in with new jobs



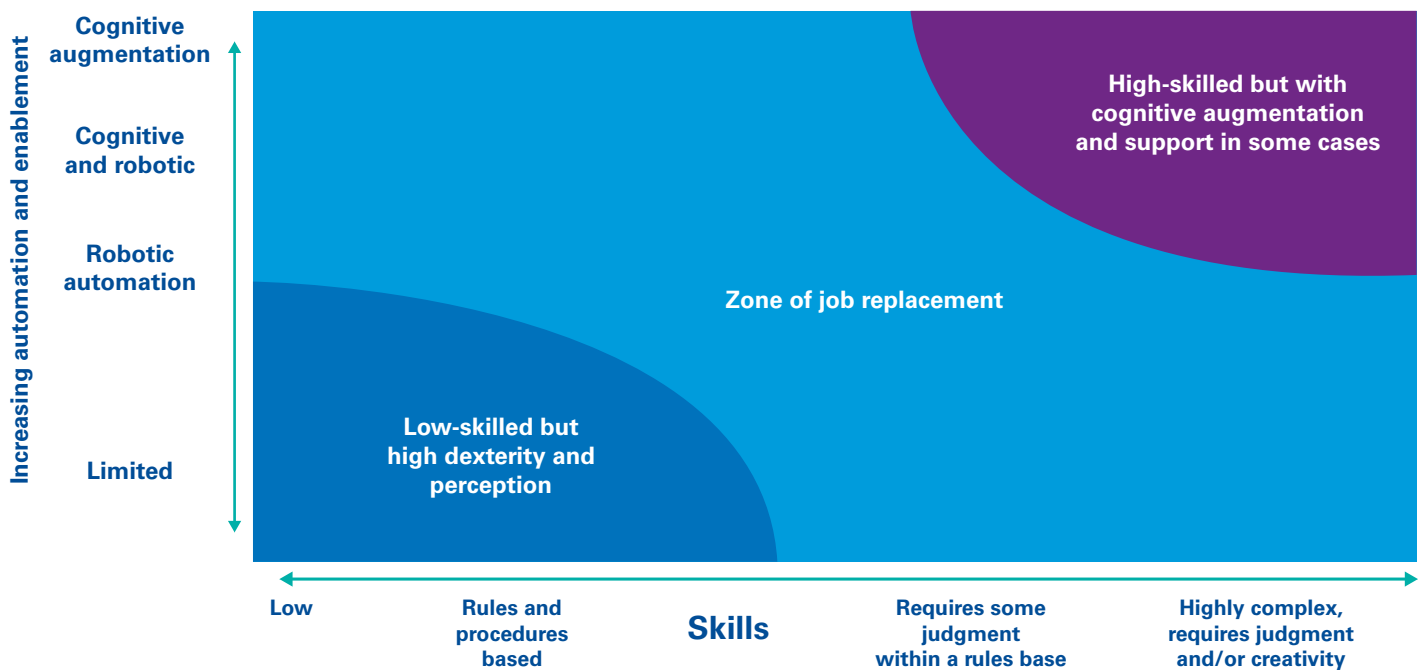
Source: Presentation by Alan Manning to the Resolution Foundation, 2015.

⁵Torsten Bell, "Robot Wars: What do robots mean for Britain's labor market?" ResolutionFoundation Robotics Conference, July 2016.

The key point is the kind and quality of jobs. Goos and Manning coined the phrase “lousy and lovely jobs”⁶ to describe the polarization of the workforce into low-skilled manual work and high-skilled cognitive work, leaving a

hollowing-out of middle-income routine jobs. Informed by their thinking, the diagram below shows how jobs are affected across the spectrum of skills versus increasing automation and enablement (Figure 2).

Figure 2: Job impacts of cognitive processing and robotic automation: The hollowing out of the workforce



Source: KPMG International, HR COE, 2012.

In the midst of this polarization, KPMG professionals see four ways that jobs will likely be transformed. Some or all of these drivers of change can affect any job or role.

Four ways jobs will likely be transformed:

Cognitive automation drivers

- 1 **The leveraged professional** — Allowing lower-qualified people to deliver the same output as a fully qualified professional (a paralegal giving attorney-level advice) or allowing a higher-qualified professional to deliver a world-class output.
- 2 **The connected worker** — Giving everyone the technologies to access the best ideas and knowledge on a topic; for example, a surgeon learns the latest techniques from the world leader in a certain surgical procedure.

Cognitive processing and robotic automation drivers

- 3 **Working at the speed of thought** — Augmented professionals working faster with much greater throughput and efficiency, such as making judgments about the best tax treatments to apply to a set of company reports and accounts.
- 4 **The digital worker** — Using technologies to replace entire roles and job types. In particular, jobs in front line and middle-ranking occupations are likely to see the biggest impact. Digital labor can fully replace or work alongside humans — in a call center, for example.

What these technologies make clear is that human and digital labor will increasingly coexist in organizations, raising a key challenge for leaders and human resources (HR) professionals alike: create a productive integration as opposed to a destructive disconnection between both aspects of labor.

⁶ Maarten Goos and Alan Manning, “Lousy and Lovely Jobs: The Rising Polarization of Work in Britain,” The Review of Economics and Statistics, February 2007.



How cognitive technologies can affect a department: The case of the Human Resources function

The case for applying digital labor in the HR function is not, currently, as strong as it is for other functions and activities. Organizations are already deploying such technology for front-line services such as the case in Banking with customer contact centers and in functions such as Finance where RPA solutions are being applied.

The other challenge for HR is that in too many organizations the state of the core data is too incomplete and fragmented and this needs to be improved before anything more sophisticated can be considered.

This said, the rise of digital labor in HR will likely come, and this section explores what that might mean for the function.

Changing roles and requirements for HR practitioners

Digital labor within HR will likely lead to a distinctly lower demand for human labor, so the remaining HR practitioners will need to evolve strong analytical skills to add further value than cognitive technologies do on their own.

Cognitively enabled data models will likely support fully integrated, real-time reporting across the organization as well as high-level predictions, giving HR access to high-quality data and higher accuracy in strategic decisions. The same systems could be the reason why many HR business partner roles are replaced by intelligent solutions.

The zone of replacement for HR would most likely be Tier 1 and 2 shared service and service delivery roles and HR administration more broadly. Cognitive automation will also augment the roles of business partners and centers of excellence.

Precise HR decision making

Increased connectivity and faster access to virtually stored evidence can give all HR employees access to the best ideas and solutions, enabling lower-qualified staff to review organizational data and perform high-level HR reporting at the level that fully qualified professionals do today.

Digital labor could immediately give workers in the remaining HR function access to organizational data that will enable them to:

- make better, more consistent and predictive decisions; for example, preempt issues with turnover and engagement
- identify the most effective spend for the HR budget
- use objective criteria to identify and assess the company talent base and conduct succession planning
- make performance management more effective

- identify the most efficient compensation and benefit packages to achieve desired behaviors
- fundamentally change recruitment processes
- automate analyses of written communication.

Transparency in HR

Automated HR is likely to lead to improved consistency in the application of HR policies, with less discretionary or emotional variation. In companies whose policies are considered fair and communicated properly, such transparency could be highly appreciated and motivating to employees. They could easily compare their own performance and development with their peers, so they could recognize their own growth potential or need for improvement.

However, transparency could lead to other challenges, such as the effect it might have on actual performance. How do you ensure high performers or average performers are motivated to perform at a higher level if they have access to information confirming their performance is already at an acceptable level?

Effect of automation throughout the HR service value chain

Virtually all HR services can be automated (Figure 3). Functions marked in green could be fully or partially affected by automation.

Challenges the HR function would face as a business partner

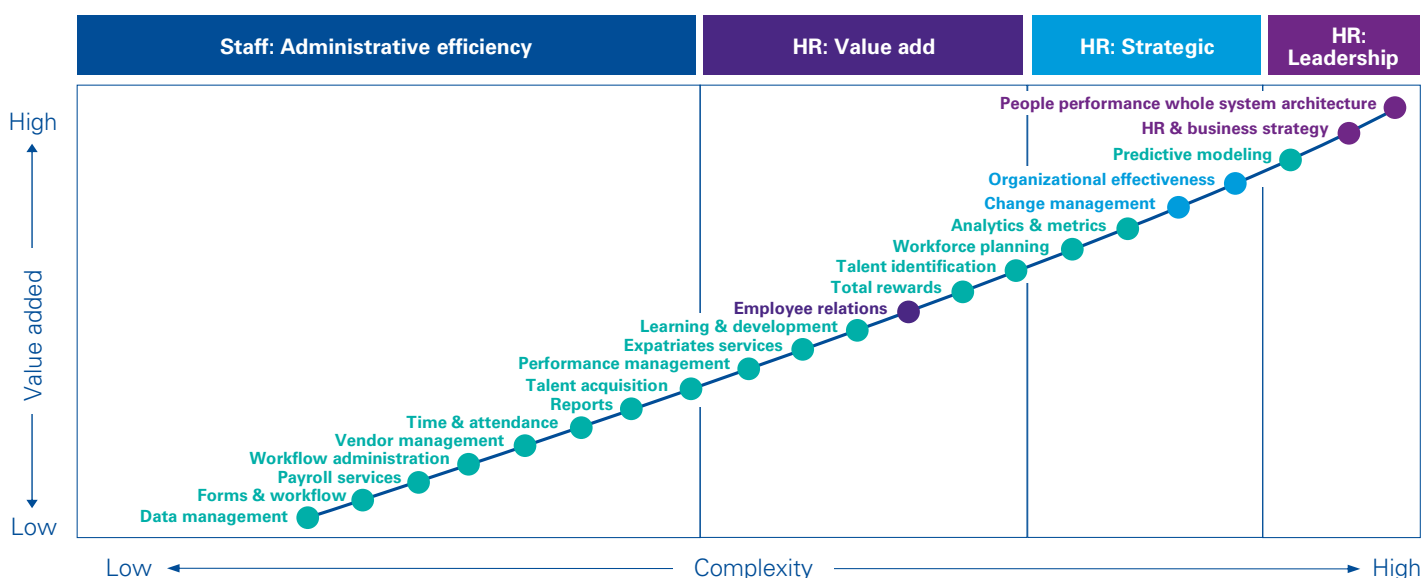
HR technology might fundamentally change the approach to human capital management. In dealing with human beings, standardized tools and applications will require a certain amount of specialized staff able to analyze and recognize threats and weaknesses in the function's people management architecture.

HR management also will need to consider important ethical matters:

- What effect will HR automation have on an individual level? Alterations to career models, job families, and employment models can fundamentally change how employees interact with each other. Will they have the capacity to grasp and handle the change both for the HR function and for the rest of the organization?

- How will privacy regulations and varying ethical considerations concerning day-to-day transparency of human performance (for example, when cognitive and wearable technologies combine) affect companies' ability to implement those technologies?

Figure 3: HR Service value chain



Source: KPMG International, HR COE, 2012.

'HR in a box'

Cognitive robotics can give smaller companies and start-ups an out-of-the-box HR function. Packaged HR services might lead to higher-quality service for smaller companies that previously have not had all the resources they needed.

Overall impact

Cognitive technologies ultimately may make the HR function 'boundaryless' — smaller and with bigger strategic impact. Traditional subdivisions within HR will likely start to break down as digital and human labor work from one source of evidence-based insight. Hand-offs among centers of excellence, HR shared services, and HR business partners may be fewer in number and significance. Therefore, new organizational models for HR will likely follow.

Manifesto for action

The growing impact of cognitive technologies should encourage the HR function to be proactive in developing key objectives, such as:

- **Initiate and — with the CEO — lead the ‘higher purpose’ conversation.** Organizations should give serious thought to the impact of integrating human and digital labor as well as the downstream consequences for learning, career, performance, culture, and society at large. What do we want the world of work to be like?
- **Reposition HR as an evidence-based function.** For too long the practice of HR has been conducted with too little evidence. A number of practices unleashed to fight the so-called ‘war for talent’ — such as the forced distribution of appraisal ratings and nine-box talent grids — are now coming unraveled as evidence shows they do not have a positive impact. With the combination of cognitive, robotic, wearable, analytic, cloud, and social media technologies, the practice of HR is set for an evidence-based revolution. This requires new capabilities in HR, such as behavioral economics, systems thinking, analytics and consultancy skills.
- **Define and communicate a group HR automation strategy.** Position HR as a strategic partner to the business, ensure buy-in from the business and employees, and effectively prioritize activities.
- **Establish shared, technology-enabled processes for core HR programs.** Define clear responsibilities and accountabilities for roll-out and business as usual. Use enabling technologies such as collaboration tools.
- **Build an HR structure with clear governance for the new ways of working.** Establish group HR roles where needed as HR evolves beyond a standardized Ulrich model to more situationally specific models. Clarify responsibilities and accountabilities across all levels in HR and move HR up the value chain in terms of activities performed. Consider changing capability requirements for HR. Embed communication channels that foster collaboration and knowledge sharing, and establish clear and consistent decision-making processes.



The challenge for leaders

As more and more robots and other cognitive technologies work side by side with a human labor force, leaders are increasingly challenged to integrate and make the most of both kinds of labor. This dynamic gives rise to three sets of questions that leaders of organizations, governments, and society must tackle proactively:

Organizations

- What will our workforce of the future look like?
- How do we successfully integrate digital and human labor?
- How does this change what “career” means in our organization?
- How will our operating model evolve to remain relevant and competitive?
- How do we retain and grow employee commitment in an environment where job security is seen as increasingly threatened?
- How do we innovate to create new product and service offerings?

Organizations and society

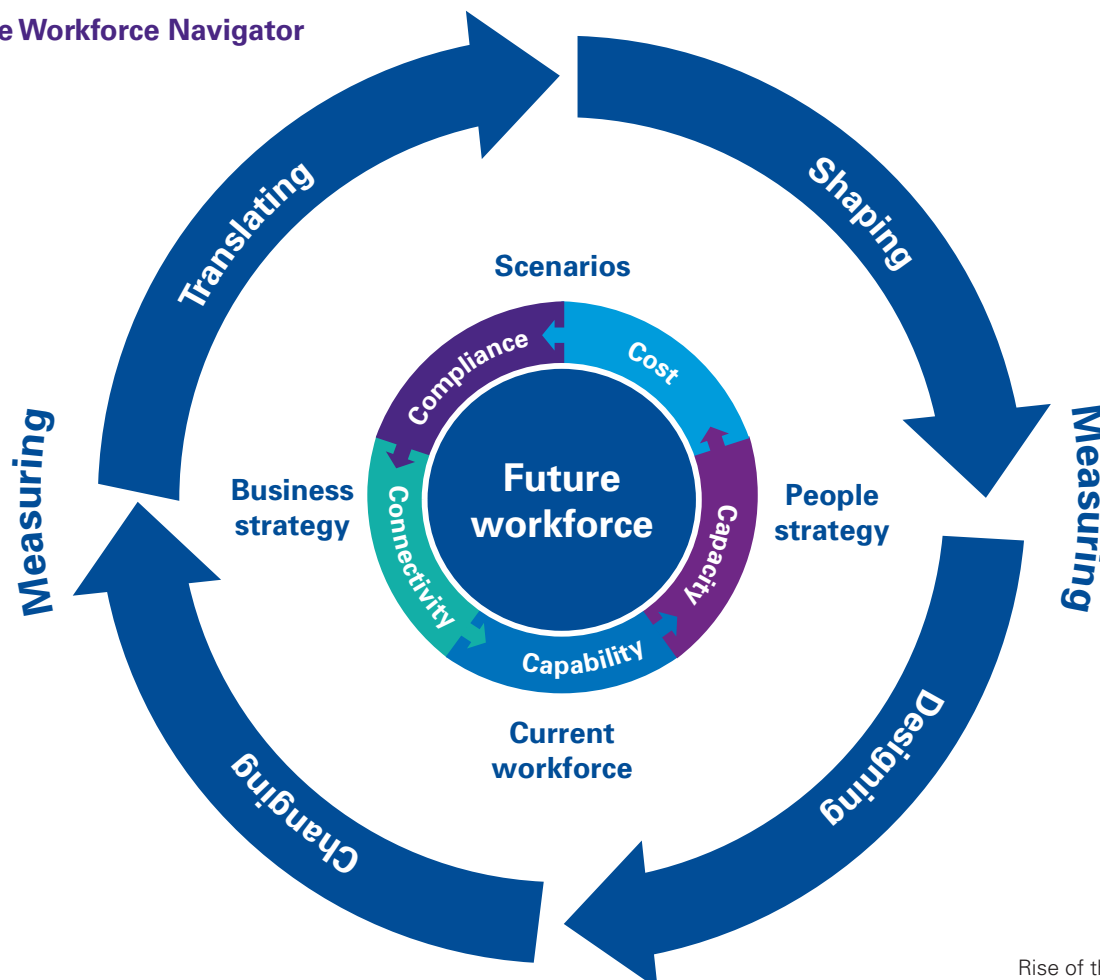
- How do we best prepare workers for the future?
- How do we better plan and forecast in a volatile, uncertain, complex and ambiguous (VUCA) world?

Society and government

- What do we do with surplus human capacity?
- How do we exploit these technologies for the greater good?

A five-stage process of inquiry can help leaders systematically think through how the shape and size of their workforce should change.

The 5 stage Workforce Navigator



The workforce shaping process

It is important to understand the potential impacts that digital labor will have on the shape and size of organizations. Here are five suggested key steps for organizations to better understand the implications of digital labor on their workforce.

1

Translate business strategy into people implications. Think about where you are headed as an organization and how cognitive technologies can help execute that strategy. Then translate this business and technology strategy into the implications for people and explore which jobs will fall within the Zone of Replacement and in what ways the five drivers of change will affect key roles.

2

Shape the size and composition of the workforce and understand how it may evolve over time. In particular, explore different scenarios that might impact the organization and develop an appropriate response to the most likely ones. Design the ideal future profile for your workforce. Pay particular attention to the core dilemmas embedded in realizing the business strategy through people; for example, how to maximize cost-effective technologies at the same time as nurturing employee commitment.

Resolve core dilemmas with a reconciliation approach, so that the organization avoids the risk of not having a planned and managed path to the impact of these technologies on the workforce. In particular, explore supply, demand, and gap-closing strategies for key skills and roles.

3

Design the workforce of the future. Create a detailed blueprint of how human and digital labor can be optimally integrated. The blueprint needs to cover structural aspects, such as who sits where, accountabilities, spans, and layers, as well as enabling factors, such as information flows, capability building, and career path redesign.

4

Change by embarking on the journey of moving to the new shape and size of the workforce. This phase involves a number of components:

- Undertake strategic workforce planning to ensure that workforce supply and demand can be balanced over time to deliver what has been designed in the Shaping and Designing phases.
- Implement a talent strategy to enable shaping and designing to ensure that key skills are developed and careers reframed appropriately; for example, from career ladders to career lattices that promote both lateral and diagonal moves. Emphasize the importance of teams and the talent management of teams as much as individual efforts.
- Undertake the necessary change management through the five phases of:
 - make it clear
 - make it known
 - make it real (to individuals and key jobs)
 - make it happen
 - make it stick

5

Monitor progress. Stay alert to alternative scenarios that might take hold. Adopt an agile response to ensure that all risks are managed, including the supply of talented people, an engaged and committed workforce, organizational innovation and agility to exploit new business opportunities, and continual learning and development to support reskilling and career relevance over time.

Is the jury still out?

For decision makers concerned with the role of people in organizations, the key question seems to be, “should we be pessimistic or optimistic?”

It seems that technologists, concerned about mass job losses, more often take a pessimistic outlook, while economists — the so-called practitioners of the ‘dismal science’ — see cause for hope. Brynolfsson and McAfee, in their book “The Second Machine Age” seem to take a less polarized and more nuanced view. They and others recognize that new technologies bring productivity and lifestyle improvements, what is sometimes called ‘bounty’ as the size of the pie becomes bigger. Indeed,

throughout the 20th century, as productivity increased so did employment and earnings. That said, a more negative trend can also be discerned: the fact that what economist term ‘spread’ increases. This is the concentration of wealth in fewer hands. They also point out that moving to the technological future is going to involve dislocation and turbulence, even if the eventual outcome is still a world of gainful employment for those who want it.

So what are the causes for hope. Here are some fairly complex and inter-related arguments reduced to the bare bones:



The impact of productivity increases

Increasing productivity means that more can be created for less, unit prices can drop, more can be bought, demand for the product increases. Demand for labor remains strong in aggregate, even though unit labor costs reduce. Also, there is an increase in capital that is generated by the owners of

the business, and this needs to be put to productive use so new investments are made, thereby creating more demand for labor. This is the gist of the arguments made by Alan Manning, Professor of Economics at the London School of Economics (LSE).



The impact of technological enablement

Even with the deployment of AI technology, such as the software capable of analyzing large volumes of legal data, this has had a demand boosting effect. One might have expected demand for legal clerks and paralegals, who act as human search engines during the ‘discovery’ phase of a case, to drop. In fact, automation has reduced the cost

of discovery and increased demand for it. Judges are more willing to allow discovery now, because it is cheaper and easier. The demand for such people has slightly increased in the US between 2000 and 2013 according to James Bessen, an economist at Boston University School of Law.



The impact of automation

As automation increases, as was the case in Banking with the introduction of ATMs, there is less need for bank tellers to undertake basic cash transaction activities. This frees them up to do more valuable tasks such as relationship-based selling of more complex products. As the cost of

running a bank branch reduced, this also meant that more branches were opened. Overall, numbers of bank staff increased, as was the case in the 80s and 90s according to David Autor, Professor of Economics at the Massachusetts Institute of Technology (MIT)



The impact of digital technology to create new businesses and job types

Brynolfsson and McAfee also point to the less predictable but potentially exciting aspect that this technology may have: namely that completely new businesses and job types will be invented over the coming years from the way in which digital technologies lower the barriers to creating new combinations of knowledge, product and service offerings. These may

well come from start-ups rather than the big companies, think Fintech in banking for example, but large organizations will need to learn to incubate and protect new business ideas from the dead-hand of bureaucracy. Who knows what businesses may be created with the increasing availability of 3D printing, for example, and of Gene based therapies?

Get ready for the rise of the humans

Disruption has been part of business for decades.

Before the US transformed from an agricultural to an industrial economy, 41 percent of employment was involved in making food.⁷ Today that figure is less than 2 percent. The remaining 39 percent went on to other jobs.

Despite all the bleak views of the rising role of robots in the workplace, automation could not be occurring at a better time. Cognitive technologies are rapidly becoming more intelligent and affordable just when the global supply of talent is getting smaller and more expensive, making the use of digital labor necessary to drive growth. As we use more robots, they become cheaper. And as we use more of them, worker productivity rises and ultimately, so do wages.

These are some of the reasons a counter-balancing dynamic will take hold and job creation will be on the agenda after all. As a result, there is potential for an innovation and agility imperative taking place in organizations. Using these technologies, new products and services can be conceived, limited only by the scope of one's imagination. As new businesses and offerings are developed, people will be needed to build, lead, maintain and market them. It will be incumbent on these organizations to grow their agility — and the agility of their workforce — to take on these new challenges. After all, financial capital will still need to be put to productive use.

Continuous organization renewal and learning will likely be a feature of work in the future — learning both for the known future needs and for positioning for unknown and emergent needs. It will all be critical. This is the reason that how we learn and what we learn in the workplace is set for a revolution.

It is nothing less than a call to arms for the leaders of enterprises and HR functions alike to take principled and proactive stands. Rather than be reactionary first responders, they should lead the conversation and preempt, understand, and manage the changes.

John Maynard Keynes foresaw some of these changes as far back as 1930, when he made two predictions.⁸ One was that within 100 years our standard of living in the developed world would be four to eight times greater. Currently it is five times higher than it was in 1930.⁹ Secondly, he predicted a 15-hour week owing to the liberating effects of new technology. Obviously, this prediction proved wide off the mark.

Whether his second prediction ever has any relevance — and whether his first prediction continues to stay true — depends on how well organizations integrate human and digital labor and make the most of both.

If the job is done well, there is every reason to believe organizations can improve the world of work.

Definitions

Fourth Industrial Revolution refers to the transformation in the way that humans and machines connect and relate. In the view of Klaus Schwab, founder of the World Economic Forum, the first three industrial revolutions were underpinned by steam engines, mass production and electricity, and information technology. According to Schwab, the fourth revolution is in its early stages. It brings machine intelligence together with all other digital technologies that have become incredibly fast and inexpensive.

Second machine age a term coined by Brynjolfsson and McAfee in their book of the same name. Essentially meaning the same as the Fourth Industrial Revolution but in this case the first Machine Age affected manual and physical tasks and the second machine age affects cognitive tasks.

Robotic process automation (RPA) is the use of technology and 'bots' to automate work traditionally done by humans. RPA describes the continuum of technologies used to automate

⁷ Dorothy S. Brady, editor, National Bureau of Economic Research, "Output, Employment, and Productivity in the United States after 1800."

⁸ John Maynard Keynes, *Economic Possibilities for Our Grandchildren*, 1930.

⁹ Nicholas Crafts and Peter Fearon, *The Great Depression of the 1930s: Lessons for Today*, Feb. 28, 2013.

business processes and operations. At one end, it includes the basic automation of parts of a business process, such as auto claim adjudication. At the other end, it covers the application of sophisticated technologies involving cognitive machine processing and elements of artificial intelligence.

Software bots are robots that perform pre-programmed tasks and 'learn' how to get better at performing more intricate and varied tasks and move on to even more complex ones. For example, cognitive processing can interface with humans, thanks to a combination of artificial intelligence and cognitive technologies that mimic human thought processes and communication.

As a result, this supercomputer can pore through massive amounts of information and come to conclusions — sometimes even guesses, just like a human.

Artificial intelligence (AI) is the ability of machines to execute tasks and solve problems in ways normally attributed to humans. However, AI machines are limited by the manual nature of their programming; they cannot do — or learn to do — anything else.

- *Machine learning* — a step beyond AI — is the basis on which all large Internet companies are built. Rigorously honed algorithms rank responses to a search query, give suggestions, and select the most relevant content for a given user.
- *Deep learning*, modeled on the human brain, is infinitely more complex. Unlike machine learning, deep learning can teach machines to ignore all but the important characteristics of a sound or image. Deep learning opened the door to driverless cars, speech recognition engines, and medical analysis systems that are sometimes better than expert radiologists at identifying tumors.

Cognitive process automation is enabled by the convergence of RPA, machine learning, cognitive platforms and advanced analytics. It is one of the most important — and potentially disruptive — changes facing businesses today.

Cognitive augmentation mimics human activities such as perceiving, inferring, gathering evidence, hypothesizing, and reasoning. When combined with advanced automation, analytics, mobile, and cloud technologies, these systems can be trained to execute judgment-intensive tasks.

“**Cognitive process automation is enabled by the convergence of RPA, machine learning, cognitive platforms and advanced analytics.**”

“**Robotic process automation (RPA) is the use of technology and 'bots' to automate work traditionally done by humans. RPA describes the continuum of technologies used to automate business processes and operations.**”



Rise of the humans 2

**Practical advice for shaping
a workforce of bots and
their bosses**

In brief

This paper continues our exploration from our original Rise of the Humans published in 2016. Part 1 we focus on the issues arising from Intelligent Automation in the workplace and its impact on shaping the workforce of the future.

Part 2 explores in more detail what is involved in workforce shaping and is based on our observations and experiences when working with clients.

Specifically we conclude that:

- **Now is the time for leaders of business to conduct conversations for a higher purpose:** to identify the dilemmas, challenges and key considerations that will shape the future workforce we want to create to deliver business objectives.
- **Organizations need to develop transition strategies to manage the disruption to the workforce.** Leaders need to be aware of their role and develop the skills required to ensure success.
- **Traditional supply and demand forecasting must be replaced with agile workforce shaping:** a structured yet agile approach to determine the appropriate shape and size of the workforce incorporating all elements — e.g., employed vs. contingent, human vs. digital, career ladder vs. career lattice, etc.
- **Early movers are already learning lessons** about the best way to deploy Intelligent Automation. One lesson is the importance of preparing the workforce and enabling them to re-skill themselves for new roles.



65%

of organizations
say they view
technological
disruption as
an opportunity
rather than a
threat.

Source: KPMG 2017 CEO Outlook survey

Part 1

Since we wrote our first report last year on Rise of the Humans,¹⁰ we have already seen a significant uptick in the number of organizations seeking advice on how they should understand the implications of Intelligent Automation (IA) on their employee base and how they should shape their workforce of the future.

In particular, banks, insurance companies, retailers and professional services firms are seeking to understand what type of workforce they will need by a given date: 2025 is popular but equally some are looking at 2030 and others are looking to the near horizon of 2020. What is consistent among all organizations is that the current shape and size of their workforce is not necessarily what they think they will need in the future.

As we concluded in our first report, the jury is still out on whether Intelligent Automation will create or destroy jobs, but there's no doubt that the kinds of jobs themselves will change. We further predicted that many middle-income routine jobs would be replaced by cognitive platforms. Sure enough, we're seeing lots of experimentation and pilots in the telecommunications, banking and insurance sectors. To cite just one example: in-person claims adjusters are being replaced by self-service apps in mobile devices. In fact, it has been stated that humans will increasingly be working side by side with robots. As tasks become automated, jobs will change — some drastically — in terms of the tasks humans do versus those tasks undertaken by machines. Automation will change every job category by at least 25 percent, according to independent research firm, Forrester Research, Inc.¹¹

Indeed, the experience of KPMG clients that are adopting Intelligent Automation is that it is the tasks in a job that are being automated but rarely is it the whole job. The overall effect, therefore, which we believe will continue for a few years yet, is that jobs, work teams, processes and functions will need to be redesigned as a result of task automation and decision enablement. In time we will see jobs being automated, such as will happen with driver-less cars, and this will herald an acceleration in transformation, but we have not yet reached that point for most organizations.

Looking at IA through a functional lens — in this case the human resource (HR) function — new KPMG research finds that 36 percent of organizations will use or deploy robotics process automation (RPA) technologies to automate parts of the HR function in the next 12 months.¹² A full 84 percent of organizations currently using robotic process automation (RPA) feel that process automation will have a moderate or significant impact on how HR services are delivered in the future. A further

89 percent feel that RPA will have a moderate to significant impact on the HR operating model and structure.

Perhaps of most interest from the KPMG research is the fact that 45 percent of respondents see that Intelligent Automation will have a significant impact on society and that the HR function has an important role to play in helping their organization prepare for and address these big challenges.¹³ (It does raise the question about what the other 55 percent are thinking, but this paper is not for them.)

And, of course, any move to IA needs to be connected to business strategy and sources of competitive advantage. It's not all about cost. Robotics and other forms of digital transformation represent an opportunity to rethink the business and operating models, reduce costs and enhance customer service. Moving to Intelligent Automation offers the potential to achieve operational excellence, improve customer intimacy and experience, and accelerate product innovation. However it should be noted that this can be fraught with peril, and that the implementation of automation for these purposes will involve a lot of trial and error, some failures and learning along the way. One thing remains constant in what we've seen, heard and researched: without a connection to strategy, deployment of robotics and IA is likely to be sub-optimal.

Just because you can replace humans with bots doesn't mean you must — or should. As more cognitive solutions are deployed, greater coordination and governance is required in order for organizations to scale up from pilots and realize widespread benefits. Businesses also need to think about their reputation and brand when considering a move to robotics, particularly for customer-facing activities.

Dealing with the transition — and change management — associated with the automation revolution will involve pain, too. The company's core values and corporate social responsibility focus may need to be updated.¹⁴

Now is the time for leaders of business to conduct conversations for a higher purpose: to identify the dilemmas, challenges and key considerations that will shape the future they want to create.

¹⁰ KPMG, Rise of the Humans: The integration of digital and human labor, 2016.

¹¹ The Future of Jobs, 2027: Working side by side with robots, Forrester, 2017.

¹² KPMG HR Transformation Survey, 2017.

¹³ KPMG HR Transformation Survey, 2017.

¹⁴ For a deeper discussion see "An ethical compass in the automation age: Decisions require deep dive into company core values," by Todd Lohr, KPMG, 2017, <http://bit.ly/2xAYZao>

Shape or be shaped

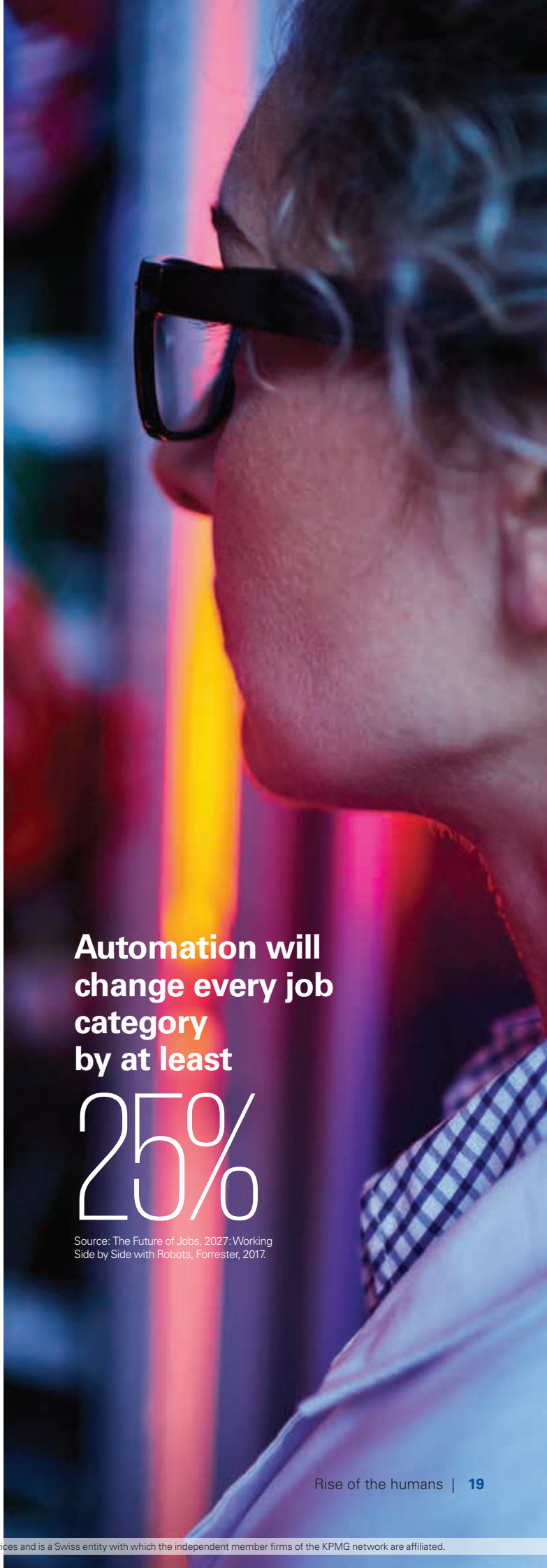
Philip Tetlock, noted thought leader on forecasting, points out that our ability to predict the future is now down to two years, the shortest time horizon in history.¹⁵ Whole business value chains are being entirely reinvented with digital technology, as we see with fintech and insurtech start-ups in financial services. This just adds to the unpredictability and ambiguity, raising the question of whether it's worth undertaking any strategic planning. Perhaps instead our only recourse is to be highly adaptive and fleet of foot in the face of all this uncertainty?

Yes and no. The paradox for people leaders is that not only do they not have all the answers — if they ever did — but the only way they can lead organizations into a viable future is by reassessing approaches to workforce planning.

Of course, leaders need to forecast and plan; otherwise they and their organizations will be forever at the whim of external forces. But the nature of leadership and planning is fundamentally changing in the face of digital disruption.

Digital disruption requires taking a fresh look at the shape and size of the workforce. This does not happen in isolation from the wider societal challenges and changes that are likely to take place. The workforce shaping process stresses the organizational choices and key questions that leaders must focus on that are unique to their own companies.

Addressing and planning for the required shape of the workforce can allow leaders to manage employee expectations and stay agile in the face of rapid workforce change. Evidence from organizations, particularly in financial and professional services, suggests that ignoring workforce concerns means that employees are drawing their own conclusions about where they want to work to the detriment of overall organization morale and performance.



**Automation will
change every job
category
by at least**

25%

Source: The Future of Jobs, 2027: Working Side by Side with Robots, Forrester, 2017.

¹⁵ Philip Tetlock and Dan Gardner, Superforecasting: The Art and Science of Prediction, 2015.

Trends affecting the shape of the workforce

Before an organization can successfully explore the required shape and size of the workforce of the future, it also must be aware of the macro changes occurring in many geographies that have an impact in addition to IA. These include:

The 100-year life combined with increasing job losses

Fifty percent of children growing up now are likely to live to 100.¹⁶ People will be economically active for 60 to 70 years — far longer than they are today — at the same time that the world of work will not necessarily require them.¹⁷ The analyst firm Forrester estimates that by 2027 the US economy will lose 17 percent of jobs to robotics but will create 10 percent. The net loss of seven percent is equal to the job losses experienced in the Great Depression of the last century.¹⁸

Organizations already employ multiple generations in the workplace but they tend to deploy one overarching employee value proposition (EVP). Increasingly, organizations need to reevaluate their core offer to employees and consider multiple EVPs, as well as use consumer marketing techniques applied to different employee segments to attract, retain and engage them.

The gig economy.

We're not just talking about driving for Uber. Traditional jobs in retail, healthcare and academia have been affected by the gig economy. Estimates in the US show that 34 percent of the workforce is engaged in gig work in some way, a figure expected to be 43 percent by 2020.¹⁹

New forms of contingent workforces are spreading into professional domains and are also being disintermediated by new platform providers, such as Amazon Mechanical Turk, Fiverr, Task Rabbit and Upwork. This complicates the planning task because the optimum shape and size of the workforce is much more contingent on organization and economic choices. There is potentially more than one right answer.

Lifelong learning

Alexandra Badenoch, Telstra group executive of HR, recently said at a KPMG forum on the Future of Work: "What we can see is that about a sixth of the core skills of our workforce will need to be different in about three years from what they are today. That's a massive volume shift."²⁰ Added to this is the evidence that millennials are changing jobs much more frequently, including entire occupations at the rate of four job changes in their first 10 years of work.²¹ Bernard Salt, the commentator and thought leader on all things demographics in Australia, predicts that in their lifetime millennials are on track for 25 job changes over a 40-year career.²²

All of this points to one abiding constant: Increasing numbers of economically active people are going to need to embark on lifelong learning in order to maintain skills and capabilities. The extent to which employers facilitate this is an increasingly important question. It also adds to the complexity of forecasting future workforce needs because to some extent, the rate and effectiveness of reskilling employees will dictate future organization performance and competitive advantage.

Quantified workforce technology

According to Forrester²³, the next five years will see a significant expansion in workforce analytics applications designed to give real-time insight into individual, team and organization-wide employee performance. There are already many technology providers offering various forms of wearable technology that provide data on everything from health and sentiment to collaboration levels and performance focus. There are also developments from large technology providers such as Microsoft and their Workplace Analytics solution (for Office 365 customers)

¹⁶ Harvard Business Review, "How Work Will Change When Most of Us Live to 100," June 27, 2016.

¹⁷ Lynda Gratton and Andrew Scott, *The 100-Year Life: Living and Working in an Age of Longevity*, 2016.

¹⁸ J.P. Gownder, *The Future of Jobs, 2027: Working Side By Side with Robots*, Forrester, 2017.

¹⁹ CNN Money, "Intuit: Gig economy is 34% of US workforce," May 24, 2017.

²⁰ KPMG Australia Financial Review Future Now Series <http://reports.afr.com/kpmg/future-of-work/>

²¹ Guy Berger, Ph.D., "Millennials Job-Hop More Than Previous Generations, and They Aren't Slowing Down," LinkedIn, April 12, 2016.

²² Bernard Salt, "Trajectory of Middle-Aged Millennials, Masters of Change," *The Australian*, June 24, 2017.

²³ *Quantifying Your Company's Workforce: Customers Only Benefit when Employees Do, Too*, Forrester, 2017

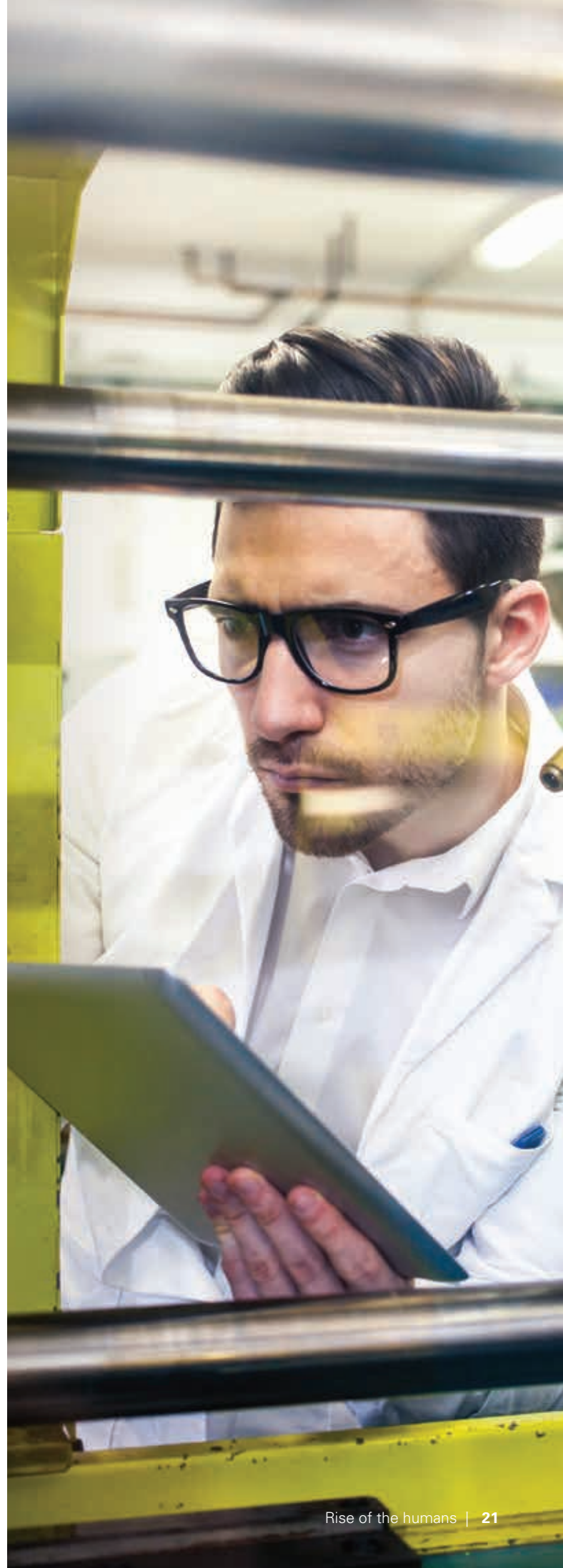
that bring new levels of insight for both individuals as well as for organization leaders, focusing on productivity, optimal utilization of the working day, and collaboration and networking across the enterprise. Handled well, these technologies will be empowering to the individual and informative to organizations seeking to create better working environments. The danger, however, will be that such data will point to symptoms, not systemic root causes. Much dysfunctional behavior seen in organizations comes from the systems and structures that we place people in; no amount of data and feedback about an individual will overcome the inefficiencies created by poorly designed organization structures. This raises the question of whether managers have the systems thinking skills to see beyond the data to why something is happening. The technology also raises questions of privacy of data and trust between employer and employee. Forrester contends that in the next two years, for every exemplar use of these applications we are likely to see organizations creating a “big brother” world where the long-term effects are likely to be declining trust and disengagement from work. Conceivably, the risks arising from the combination of Intelligent Automation and quantified workforce technologies may create a dangerous mix of rising automation anxiety as well as “job paranoia.”



What we can see is that about a sixth of the core skills of our workforce will need to be different in about three years from what they are today. That's a massive volume shift.



— **Alexandra Badenoch**
Telstra group executive of HR





Shaping the workforce

At the organizational level the challenges and choices become more tangible and immediate, including:

Job losses

Some dilemmas are obvious, such as how to handle those who will lose their job because they are training the bot that will do their job.

However, as we have already stated, early adopters of IA are automating tasks rather than whole jobs or they are providing decision support to professionals. This requires reconfiguration of the workforce first and foremost although some job losses may then follow.

One global insurance company addresses this dilemma by communicating to its workforce that with the onset of Intelligent Automation, human labor at their company won't be replaced but will likely move up the food chain instead, allowing employees to focus more time on strategic analysis, building customer relationships and other higher value-add work. This will require individuals to acquire different and in some cases more advanced skill sets.

This insurer realizes it will need to reconfigure its workforce through reskilling and retraining employees to prepare them for the competencies they'll need in the future. The company also recognizes, as do many other similar clients, that the IA journey and workforce optimization is a marathon not a sprint.

One first step that many clients are taking in this marathon is creating Intelligent Automation Centers of Excellence to manage and govern IA opportunities and inform and educate the workforce on what is to come.

Skills and capabilities

Five years from now, over one-third (35 percent) of the skills considered important in today's workforce will have changed.²⁴ By 2020, creativity will become one of the top three skills workers will need, according to the World Economic Forum. With the avalanche of new products, new technologies and new ways of working, workers will need to become more creative to benefit from these changes. Whereas negotiation and flexibility are high on the list of skills for 2015, in 2020 they will begin to drop from the top 10 as machines, using masses of data, begin to make our decisions for us.

²⁴ World Economic Forum, The Future of Jobs, Jan. 19, 2016.

As these developments transform the way we live and work, some jobs will disappear and others will grow and be enhanced through working alongside intelligent machines to make better decisions. For example, doctors aren't disappearing; they're increasingly collaborating with cognitive computing technologies to make better diagnoses. Dr. Herbert Chase realized the value of IBM Watson when attempting to diagnose a woman with symptoms of low strength and muscular weakness. By crunching the data, Watson determined that she suffered from either

hyperthyroidism or rickets, including the possibility of a rare type of rickets resistant to treatment with vitamin D. It turned out that she had the latter, unusual type of rickets; Watson determined this possibility in a few seconds, but the initial care team had failed to diagnose it for days.²⁵

Jobs that don't even exist today will become commonplace. What is certain is that the future workforce will need to align its skill set to keep pace.

The key dilemma for organizations is reconciling human, digital and gig economy labor. In achieving the reconciliation it is important to understand:

Key questions that will shape the workforce

- What is the art of the possible with digital technology?
- What skills and capabilities are needed in your organization in the next two to five years?
- Which organization models and structures achieve the best integration of human and Intelligent Automation?
- How should organizations integrate contingent workers with permanent core employees?
- What is the moral and ethical framework that leaders wish to work within in relation to workforce displacement, transition and replacement?
- How can the existing (human) workforce expand the scope of its current role in the organization to provide value-added services beyond the scope of the bots?
- How can organizations develop a comprehensive strategy to reform the education and training system to be more responsive to demands of the future workforce?
- How can organizations redesign their current job profiles to attract, retain and absorb future talent with advanced technological skills?
- Out of the many emerging technologies claiming to automate work, which ones will work in the context of your organization — and which ones are not applicable, or simply hype?

²⁵ The Future of Jobs, 2027: Working side by side with robots, Forrester, 2017.

Lessons from first movers

In the Spring of 2017, KPMG ran a workshop for member firm clients who are interested in governance of Intelligent Automation. Attendees included global retailers, banks, insurance companies and aerospace manufacturers. What was striking was that these early movers into Intelligent Automation told a consistent story about the lessons they had experienced.

1

Don't focus only on cost

While Intelligent Automation does enable organizations to save time and create additional capacity, it is no longer just about cost, about a "quick fix" automation. If organizations are ready to consider the true potential of IA, they will be able to redefine their business processes to create a better overall customer and employee experience. But this requires a more holistic approach drawing on disciplines such as design thinking to be successful.

2

Start small but address the end-to-end process

Start with small, initial automation pilots to demonstrate quick wins and obtain buy-in from leadership and the workforce to build momentum. But ensure such pilots are based on an end-to-end view of the process, not just the bits that are being automated. Early adopters that did not redesign the entire process sometimes ended up making the process less efficient and effective overall. However, it is easy for a series of small-scale pilots to turn into a "Wild West of experimentation" as one organization described where automation anxiety became evident and there was no overall governance. (See point 5)

3

It's not just about IT. Ensure business involvement and ownership

The right resource mix will help drive efforts forward. Make sure you have sufficient resources in place to support IA efforts, including resources with technical, functional, strategic and creative expertise. Design thinking and customer journey skills in particular are just as important as "bot building" expertise. And perhaps most important: don't drive IA initiatives solely from the IT function. Without business buy-in, IT-driven automation initiatives nearly always fail to deliver sustainable outcomes.





4

Learning and Development is key

Education (and Learning and Development) is imperative. Participants were consistent in stating the need for increased levels of education and training as a result of Intelligent Automation, both for the people involved in the IA program and also, of course, for reskilling people whose jobs are automated. Effective education created a buzz and excitement and minimized automation anxiety for many organizations. More importantly is the fact that with role changes there will be many people in the workforce who are suitable for new roles if they have the necessary training — e.g., for more complex problem-solving interactions in customer-facing roles, or for bot lifecycle management and customer experience design. A number of participants were successful in such redeployments of people following re-skilling. The problem described by organizations is that many existing L&D functions are not configured to provide the new kind of learning, which requires a platform capability for delivery as well as a more dynamic and blended approach to learning, needs assessment and delivery. We see a need for a radical redesign of learning and development capability to respond to these emerging needs. Also, there is a need to train people to build and manage the bots. Our panel described initial attempts at bot building as poor owing to weak skills, which meant that the early bots were not as reusable as they should have been.

5

Build governance early on

Most clients describe the need to evolve from the “Wild West” of functional experimentation toward a more organized and managed approach. As one participant noted, for their organization they have moved beyond pilots to scaling; therefore, they are more concerned with working through organization, people and change, and governance issues. For others, they say that the technology is immature (if innovative) and ever-changing, so a focus on organization people, change management and governance is the best way to deal with the uncertainty and dynamism resulting from these new technologies. Finally, participants such as a global retailer and a global insurer describe the need to create an Intelligent Automation Center of Excellence to coordinate planning, building and maintaining of bots as well as foundational aspects, such as risk, people implications and governance.

6

Managing the transition

In addition to the capability changes already mentioned, the introduction of IA will affect organizational structures, HR policies, such as performance management, and work practices. In turn, this requires management of the transition from old world to new as well as a demand on leadership to bring about the required changes. For example, the early movers commented on things such as the impact of a blended human and digital workforce and what this meant for the performance management of the head of department, who is still accountable for the combined output. At a very basic level one Telco organization spoke about the need to change its Job Evaluation policies as without amendment, managing a workforce of bots and humans reduced the job grading but in reality the manager was delivering increased output and quality.

Conversations worth having now

Ultimately the most fundamental conversations posed by Intelligent Automation turn on these questions:

- **How can businesses profit from new economic opportunities while safeguarding the wellbeing of employees and other stakeholders?**
- **How do businesses capture the cost savings and other bottom-line benefits of automation while releasing the potential of human capital to do other, more valuable things?**
- **How should organizations manage the transition to the workforce of the future?**
- **What is the impact of automation on customer experience, and how can businesses ensure that they are prioritizing customers over cost-cutting?**

These are tough conversations, always aiming for a higher purpose, and they need to be engaged in now.

We see that the workforce issues arising from Intelligent Automation are profound. Not for nothing is the phrase “digital disruption” used to describe the organizational impacts of these new technologies. Assuming that how the

workforce is currently organized is the way it will continue to be organized needs to be challenged. As an immediate next step we recommend that people leaders engage in an organization-wide process of understanding in what ways their workforce needs to evolve in terms of skills, numbers, type, etc.

When leaders consider how to approach these higher-purpose conversations, they should take note of the lessons learned from some of the first movers who have begun to implement Intelligent Automation within their organizations. These pioneers have discovered that implementing IA is a much more complex undertaking than originally thought. It is not just about embedding the right technology but also empowering their workforce with the right skill sets, structure and culture to be successful.

We call this Workforce Shaping. The next section of this document gives some practical advice on what this involves.

Leaders of the organization must engage in the “higher-purpose conversation.” A good place to start is with the questions we refer to in this paper. Are we going to let the future happen to us or are we going to steer towards a preferable future? Do you want to shape the future of your organization or be shaped?

The choice is yours.



Are we going to let the future happen to us or are we going to steer towards a preferable future?



Part 2

Workforce Shaping, an introduction to what is involved





**The challenge is how
to enable and exploit
but the opportunity
is to leverage the
capabilities.**



Shaping the future

The challenge and opportunity for the HR function

The need for accurate forecasting and planning has never been more important for people leaders and HR practitioners in particular. The old certainties about the future of our organizations no longer hold sway with the onset of robotics and artificial intelligence. Yet HR still needs to recruit the right number and types of people, it still needs to develop people with the required critical skills, and it needs to understand in what ways the shape and size of the workforce should evolve to take Intelligent Automation into account. But its forecasts need to occur in a more dynamic and ambiguous context.

To this end process automation is both a challenge and an opportunity for the HR function. The challenge is how

to enable and exploit but the opportunity is to leverage the capabilities. Recent KPMG research cites talent management and talent acquisition and onboarding as the HR activities that will benefit the most from the increased use of process and more so cognitive automation technologies.

We need to replace the relative certainties of supply and demand forecasting that occurred under the heading of “Strategic Workforce Planning” with what should now be called “Agile Workforce Shaping.”

From: Strategic Workforce Planning	To: Agile Workforce Shaping
Supply and demand analysis looking and “gap closing” over a three- to five-year time horizon	Continuous analysis of workforce impact and required skills as Intelligent Automation is deployed
Analysis based on existing job families	Analysis based on job families and new required capabilities based on “to-be” tasks and critical skills for end-to-end processes
Owned and conducted by HR, which consults with the business	Owned and conducted by the business units and end-to-end process owners, facilitated by HR
Employed workers	Human workers both employed and not employed as well as bots owned and not owned
Traditional pyramidal top-down work structures with critical roles driven by hierarchy	Team-based and an end-to-end process view of work organization with critical roles driven by skill scarcity and value-add to the business
Bias for “an answer” with sensitivity analysis on either side based on existing organization mindset	Bias for scenarios with probabilities attached, based on horizon scanning and “outside-in” mindset
Current workforce model (shape and structure of the workforce in terms of spans, layers, rates of attrition and promotion, etc.) provides the dominant mental model for the planning effort	Ongoing reexamination of the workforce model using a framework such as the 5Cs to ensure a more multidisciplinary approach to forecasting and the possibilities for the organization

Managing talent in the digital era

Intelligent Automation has a broad impact on roles and skill sets. The KPMG 5C Framework aims to ensure that organizations take a multidimensional analysis of people impacts and examine their future talent strategy from the perspective of five considerations:

Cost — Is it efficient and effective?

Capacity — Are there sufficient resources in the right locations?

Capability — Is the workforce skilled and agile?

Connectivity — Are employees motivated?

Compliance — Is the reshaping of the workforce going to improve compliance behaviors such as good conduct in banking or health and safety in oil and gas?

Each area asks probing questions to help leaders determine what actions could improve results and the overall people agenda. Results are monitored as changes are implemented. Indicators help organizations identify what areas they might be able to improve and what areas need further follow-up.

Intelligent Automation: Navigating the changes using the 5C Framework

The banking industry provides a good opportunity to see the 5C framework in action. As this example shows, Intelligent Automation will make significant new demands on the HR function and the C-suite. The framework helps organizations analyze the impact on a typical workforce and navigate the changes.



IA's potential impact, Example: Financial institution

From	To
Cost	
Significant numbers of employees involved in roles that are highly procedural within a defined rules base. For instance, a great deal of work may be performed in contact centers.	Retraining of human labor into more complicated roles. Fewer employees overall, particularly in settlements, operations and customer support functions. Much of work previously performed in contact centers is now automated.
Capacity	
Scalable to extent labor can be scaled and in silos based on the value chain of product development, sales, distribution, operations, settlements and customer support. Organizations own primarily full-time resources, while outsourcing for labor arbitrage.	<ul style="list-style-type: none"> — Less complex products require less human interaction — Intelligent Automation will enable a more agile workforce; steady and rapid increase in part-time and contingent workers. Organizations now insource for high-contact roles. — Need for higher-level skills in relationship-based selling. Significant automation in credit, risk, application processing operations and customer support functions
Capability	
Capability based on the end-to-end operating model/value chain that is built from functions outward to the customer. Established, stable roles and career paths that are built from functions outward to the customer	<ul style="list-style-type: none"> — Retraining of the workforce will be a significant demand on HR — Data and artificial intelligence will increase cross-selling opportunities, requiring higher levels of skill in relationship-based selling.
Connectivity	
<ul style="list-style-type: none"> — Banking value chain disconnections — One size fits all products and pricing 	<ul style="list-style-type: none"> — Boundaries between functions more open and fluid value chain; teams are now agile and more closely aligned to the customer journey rather than a function — Project-based teams; roles depend on work requirements — Omni channel enabled by cognitive augmentation of humans — The banking value chain can be more connected, e.g., sales and customer support — Need to engage employees in the drive to automation, e.g. such as we have seen with employers in Telco and Insurance — Culture of agility and innovation required as new entrants disintermediate the banking value chain.
Compliance	
Compliance based on human review and monitoring supported by analytics	<ul style="list-style-type: none"> — More product complexity creates greater risks but artificial intelligence may automate compliance — More automation of data review

Thinking through the implications

Our workforce shaping approach, which we are using across a number of sectors, helps clients analyze the broader implications of Intelligent Automation—including impact on the workforce and operating model and the subsequent opportunities to re-think the business.

We use the 5C Framework to think about the shape of the workforce, pairing it with two templates to show the step-by-step thinking required to consider the impact of IA and robotics on the workforce. This is where we start to generate answers to the many questions.

These templates are used in a top-down approach based on a view of the future operating model. They are also used bottom-up by going into detail on selected processes and business units to develop scenarios, triangulate them (top-down findings with bottom-up analysis) and seek to understand the preferred shape and size of the workforce. In the templates, we begin by identifying a process where there may be potential to implement Intelligent Automation, such as claims processing. Next, within the template we explore the “art of the possible” for that particular process. In an ideal end-to-end claims process, for example, customers are able to submit a claim virtually from their mobile device. Claims are then processed in real time. In addition, technology is leveraged to put preventive measures in place to reduce the number of overall claims.

Once the process is identified, we perform a deep-dive assessment to understand the specific highly manual steps that could be automated and which type of automation would be most appropriate to employ. Depending on the complexity of the process, RPA, machine learning or cognitive automation may be most appropriate to use. To understand how many employees currently execute this process and how many will be needed in the future,

we perform an activity-based analysis and a cost-benefit analysis within the template to measure the amount of FTE time currently spent managing and resolving claims. Then we predict the cost savings and capacity increases that would be realized with Intelligent Automation. As a result of this analysis, organizational leadership will have a clear view into what percentage of roles will be automated, which roles across their organization will be affected and what new roles may be required. Job impacts will vary. In some cases, roles will be fractionally impacted, where the FTE now has increased capacity that can be spent on other more value-add types of work. In other cases, roles will be cognitively augmented, allowing more junior-level employees to execute more complex work, enabled and empowered by technology. Lastly, some new roles may emerge within the organization as a result of this technology (e.g., claims bot manager). These templates are meant to be used as tools to identify potential automation opportunities and the subsequent people impacts and to inform leadership how they must prepare their workforce for the future.

Finally, process by process we build a picture of functional workforces across the 5C model. Based on process that is IA enabled, we can assess capabilities retained and those needed that currently do not exist. Through applying the 5C lenses we build a model of the future shape and size of the workforce that can be scenario tested and updated as processes are redesigned. The key is understanding this to be an ongoing process.

Intelligent Automation—people impact



1 Which processes currently have pain points that could be ripe for Intelligent Automation?

What are the tactical steps in this process that we should examine for automation?

2 What is the “art of the possible”?

What do we want the end-to-end customer journey to look like when we’re finished?

3 Which type of automation would be best to use?

4 How many employees currently are needed to execute this process today?

5 How many employees will be needed to execute this process in the future?



6 What are the different roles and levels associated with this process?

7 What percentage of the job will be automated as a result?

8 How will the job be affected as a result of automation?

- Fractionally
- Cognitively augmented
- New role required
- Managerial responsibilities required
- No change to role

In summary

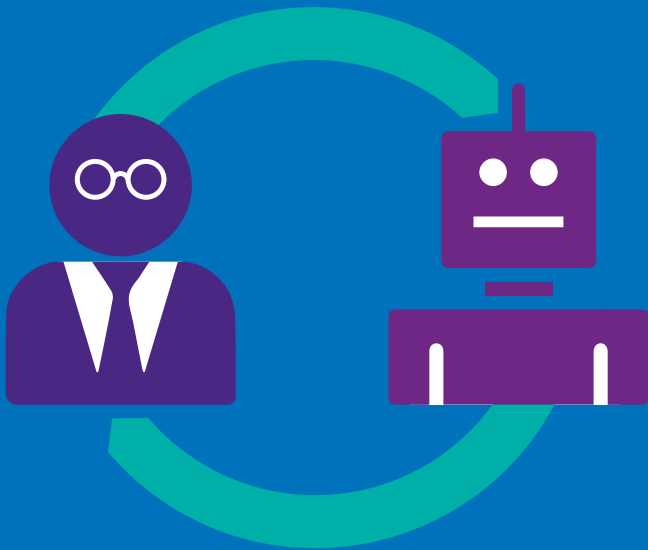
This is an opportunity to reinforce the four key points we made in the beginning: start thinking and talking about this now, develop transition strategies, move to agile workforce shaping and learn from early movers

What



In what areas of the organization will IA deliver the biggest benefit? What are the end-to-end processes that will deliver both cost reduction and increased customer or employee experience?

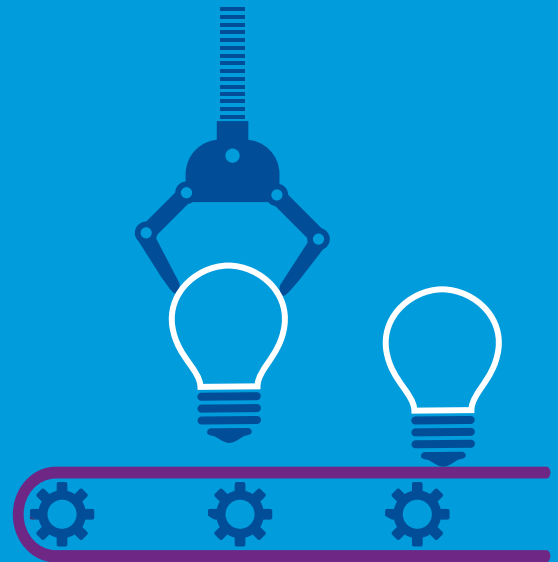
How



How do organizations need to redefine:

- How they teach and train employees?
- Where they source talent from?
- How they develop their current talent?
- How they keep the current workforce engaged and connected throughout these constant technology changes?
- What the shape and size of their workforce needs to look like?

Why



IA offers the opportunity to reinvent the enterprise — from business model to operating model and onwards to organizational structures, processes and practices. Done well, with a strong focus on the people agenda including the insightful combination of humans and bots, we believe IA and associated digital technologies will be a source of competitive advantage. Why not act now and get ahead of the game?

Rise of the humans

The impact on mobile workers in the age of the smart machine

Rise of the humans

The impact on mobile workers in the age of the smart machine

As we showed in our first two reports on *Rise of the Humans*,²⁶ the world of work is changing faster and more drastically than at perhaps any other time in recent history. The World Economic Forum predicts that 35 percent of the skills necessary to thrive in a job today will be different five years from now.²⁷ What's new in our third report is the rising importance of geopolitics and the impact of global mobility on the shape of workforces in the age of artificial intelligence (AI).

While the appetite for businesses to expand internationally continues to grow, the potential withdrawal from trade agreements by some developed countries and the UK's decision to exit the EU show that nationalism is now on the rise. For CEOs, a more nationalistic approach to trade is worrying: a "return to territorialism" is their number one threat to growth.²⁸

Now more than ever, just as CEOs need to develop their geopolitical skills, so do HR professionals as they seek to acquire and mobilize resources across their global business. Rising political uncertainty around the world must be factored into talent decisions. Increasingly, work arrangements have become more flexible and business travel the norm, no longer just for senior executives and salespeople. Employees in their professional and personal lives are behaving in a way that is less constrained by national borders. In this new world order, compliance, risk, and duty of care must be considered just as much as population demographics and the rise of automation.

Automation, in fact, casts less of a shadow across the business psyche as more organizations adopt some form of it. Despite the hair-raising headlines ("Robots will destroy our jobs — and we're not ready for it"²⁹), 62 percent of CEOs expect AI to create more jobs than it destroys.³⁰ They are optimistic about

the sweeping changes that digital transformation brings. The vast majority — 95 percent — see technological disruption as more of an opportunity than a threat.

To win the digital race, CEOs are embracing AI to reshape their businesses. In the process, they are turning traditional talent management on its head. A faster-moving model is coming into focus — what we have called workforce shaping in our past two reports — that is far more fluid than talent management.

Disruptive technologies like AI are not replacing whole jobs as much as pieces of jobs — specific tasks and activities within jobs — which will be automated and replaced. Because of this task-level impact, the prospect of productivity gains can only be achieved if work, processes, and organizations are reinvented to realize the potential of task-level impacts. Ironically, such a granular view of work allows HR professionals to take a holistic view, focusing more on restructuring work around groupings of tasks that require similar skills and capabilities and less on mapping individuals to roles.

That means multinational companies need to identify, acquire, engage, manage, and disengage talent in very different ways than in the past. New roles will emerge within the HR function, including the workforce shaper, who helps bring together business strategy, workforce analytics, innovation, and the people agenda to understand the long-term requirements for people and skills in the business.

At the same time, with the rise of hyperglobalization and short-term, even transient engagement of talent rather than long-term, role-based engagements, the increase in regulations on national employment, payroll, and tax, along with immigration restrictions, are adding extreme amounts of complexity and risk. Together these factors put the brakes on changes desired by the business and talent markets, both in terms of the speed of engagement and the global deployment of talent.

²⁶ KPMG, *Rise of the humans 1: The integration of digital and human labor*, 2016, and *Rise of the humans 2: Practical advice for shaping a workforce of bots and their bosses*, 2017.

²⁷ World Economic Forum, "The 10 skills you need to thrive in the Fourth Industrial Revolution," Jan. 19, 2016.

²⁸ KPMG, *Growing pains: 2018 Global CEO Outlook*.

²⁹ The Guardian, <https://www.theguardian.com/technology/2017/jan/11/robots-jobs-employees-artificial-intelligence>, Jan. 11, 2017.

³⁰ KPMG, *Growing pains: 2018 Global CEO Outlook*.



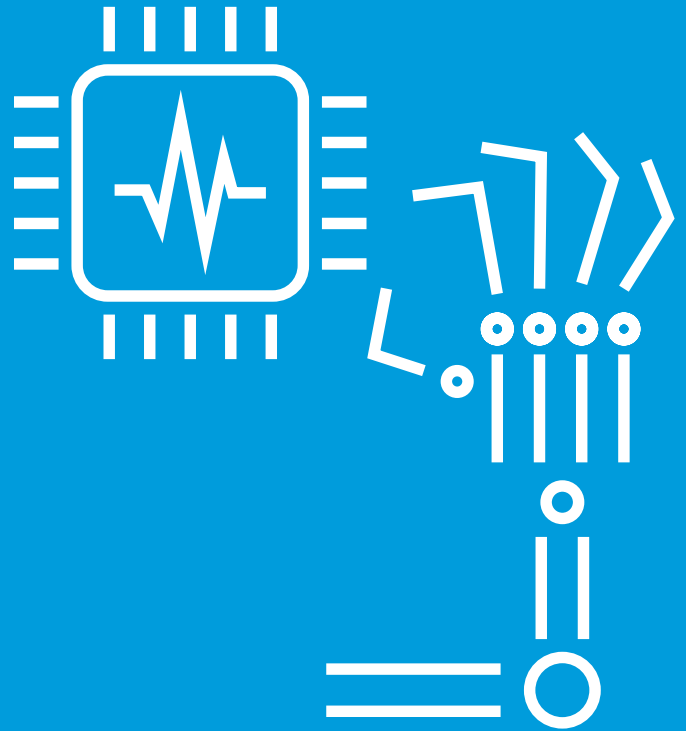
62%

**of CEOs expect
AI to create
more jobs than
it destroys.**

AI in action: New healthcare tasks

In just about any industry you can think of, the use of AI will affect how humans in new roles will need to interact with each other. Take healthcare, for example. Healthcare systems are under intense strain around the world. They need the productivity gains arising from new technologies and AI to bridge the current productivity gap, let alone the growing demands that will be placed on them from older populations.

Healthcare systems will still need more people but people with different skills, in different roles, relating to each other differently, according to Mark Britnell, global chairman of healthcare, government, and infrastructure at KPMG. Under this scenario, pharmacists will operate wellness centers, treatment and consultation will move to virtual forms of interaction supported by AI, and care pathways will be completely redesigned with the use of cognitive AI augmentation. Tasks, interactions, and infrastructure traditionally in the patient's location will be fragmented across multiple countries with all the regulatory complexity that brings.



Worth considering

Increasingly employers are discussing how to infuse their culture and values, compliance requirements, and corporate ethics into their third-party vendors and contractors. As the significance of the gig economy and contingent workers expands, the infusion of corporate culture and compliance will also include these gig employees. Traditionally how

companies indoctrinated employees, would be to send employees to locations to be trained or conducting the training. We expect that as corporate social responsibility and compliance pressures increase, so will the need for employers to fold all employees full time or contingent into their ecosystem; thus requiring some form of mobility.

The increasing impact of the gig economy

There once was a time when talent was hired for full-time employment, but employers today can no longer rely on the traditional full-time hire. Changes in the way talent is engaged are expected to have a significant negative impact on national wage tax revenues and on many economies, putting even more pressure on governments and revenue authorities to protect national tax revenues and aggressively enforce compliance.

The gig economy offers a perfect example of the impact on workforce shaping and the global workforce. More and more skilled professionals are rejecting the 9 to 5 and choosing the gig economy as a long-term career and lifestyle choice. Some 54 percent of independent workers have embraced flexible working by choice to meet their personal needs and goals, according to research by Adecco and LinkedIn.³¹ Only 36 percent of respondents regard gig work as a stopgap between direct, permanent roles. Flexible working is becoming an attractive part of the status quo, rather than a stopgap solution.

Did you ever think your long-term talent management plan would compete with driving for Uber? That's where workforce shaping can make a difference. It begins with first asking the big, defining questions around possible business futures, how much of that future you want to achieve over what timeframe (e.g., one, three, or five-plus years), and what workforce you will need to realize this future. Each business future is based on a set of assumptions.

What makes workforce shaping different from strategic workforce planning is that it is probabilistic; as the future firms up, the probabilities will change and so too will the granular details of the workforce implications. The importance of stating assumptions and where they come from is also vital for believability. These "possible business futures" are the underpinning foundations for workforce shaping.

When considering your future workforce, you also need to consider the associated operating model, workforce composition, workplace practices, and partner ecosystem that will help you achieve this future. More and more, external factors such as compliance and risk need to be

considered as well, which bring together the teams that support the global workforce, including global mobility professionals, to set up a suitable strategy.

For example, gig employees may seem like a good solution to a short-term talent problem or project, but they're much harder to move compared to full-time employees. It can be difficult, if not impossible, to get work permits to move them to different countries, so it's important to pay attention to the location of your project when considering gig workers. Full-time employees, on the other hand, are sponsored by their employer and are much easier to move.

When faced with the increasing use of freelance and contract workers globally, experts weigh in with these considerations:

- **Long-term talent management:** How do you create a diverse workforce? Do workers' rights change?
- **Tax reporting** — Who is an employee today? Will the definition be the same tomorrow?
- **Social security** — Who will be responsible for contributing? What are the longer-term effects on society if people are going from system to system?
- **Immigration** — Can gig workers obtain clearance to work in the country? Are non-compete and non-disclosure agreements valid in other countries?
- **Duty of care** — Is it the same for gig workers as it is for other mobile employees?

54% of independent workers have embraced flexible working by choice to meet their personal needs and goals

³¹ Adecco Group and LinkedIn, "Flexible working: A career and life-style pathway," Nov. 14, 2017.

Shaping a full-time workforce

Focused as it is on probabilities, workforce shaping requires organizational data — and lots of it — to see how your workforce maps to your current and future value chain so you can better inform your workforce shaping scenarios and strategy. More than simply collecting and mapping data, however, you must also seek to understand what the data is telling you by analyzing it against the following questions:

- **What are the opportunities** for automation?
- **How does the organization need to change** in terms of culture and how teams connect?
- **How should the composition** of the workforce change?
- **What are the implications for our capabilities?** Where are our strengths? What new capabilities do we need? How many are changing?
- **How might we invest capabilities** across our value chain to drive growth?
- **How do we decide on the priorities** and actions we need to take?
- **Where should we locate our people** across the globe?
- **What obstacles do we need to navigate** to get them there?

It is these last questions that trigger the need for an expanded group of professionals with cross-border experience such as global mobility, corporate tax, and transfer pricing to sit at the workforce strategy table.



The changing parameters of global mobility

Over the past generation the typical “ex-pat” assignment has changed dramatically. It’s no longer disruptive; it doesn’t require moving an employee’s family — really, her entire life — across the globe. With social media and internet-based phone apps like WhatsApp, employees can remain in regular touch with families.

Yet alternative work arrangements trigger all types of compliance concerns. An employee who prefers to work from home in a different country than his or her employer could potentially trigger permanent establishment, for example, unknowingly creating tax liabilities for the entire company. A seemingly simple alternative work schedule for the summer could be costly for the organization if the employee’s summer home is in another country.

Despite the current focus on cost, however, global business travel continues to rise. Volume was up over six percent in 2017, according to the International Air Transport Association (IATA).³² Whether it’s the employee or employer who decides that business trips are more favorable than relocating, when these trips are international, they can not only produce additional immigration administration and costs but also withholding and reporting requirements all over the globe.

In these situations, human resources, talent, recruiting, and global mobility must be in sync and act as one community of people. Case in point: A role may come with a defined compensation package for a particular country, but will candidates be sourced from across the globe? If so, will you be able to move the candidate seamlessly into the role? Understanding the answers to these questions will make the downstream onboarding of a new employee a much better experience.

Whether your company is multinational or domestic with a few international employees who are locally hired, your workforce must be viewed through a global lens. It’s not just that immigration and tax laws can be tricky. The goalposts are constantly changing.

Today it’s possible to give employees an international experience in a variety of ways without uprooting their entire life. For one thing, they can commute. It’s not uncommon anymore to hear or know of someone who works for two weeks in India and then comes home for two weeks. Short-term assignments are another possibility that may or may not include visits home or from partners and spouses. The important thing is to have the HR and global mobility functions join forces early on to set expectations about the potential disruption to personal lives, the difference in work environments, and the complexity of being compliant with company policies, immigration, and tax laws.

The same point holds true when selecting tasks where AI may be considered. Reactions from jurisdictions gaining or losing jobs to AI could range from increased administrative and immigration requirements to higher taxes, all of which ultimately cost more time and money. In this context, the opportunity cost can be significant. “Automation can be fantastic but the amount of time, effort and money required to program certain tasks and outputs may not be worth it,” notes the head of global mobility management at a global German industrial conglomerate. “Human labor may still be more effective.”

Over
6% rise in business travel
volume in 2017

³¹ According to the International Air Transport Association (IATA), from June 2018, post-recession growth (2009-2017) was 6.4% CAGR. This represents 2.48 billion air travelers in 2009 to 4.1 billion air travelers in 2017.

Is it worth it?

It has often been assumed that it's not worth it to invest in sophisticated, complicated artificial intelligence applications for a mobile workforce that represents only one-half to one percent of a typical employee population. But today's mobile workforce can include virtually all of a company's senior executives, who are also the highest earners, which raises financial and reputational risk exponentially.

Suddenly it can make sense to adopt AI apps to support mobile workers so they're not stopped at the border with the wrong permits, for example, or they're not inadvertently failing to pay their taxes.

Depending on the composition of your mobile workforce, AI may be the perfect solution for connecting the macro vision to the micro reality.

Act local, think global

When a local energy company expanded overseas, it asked a key player to move to a new country to help set up operations, hire local employees and socialize the new branch with the corporate culture of headquarters. The employee and her family were relocated, and she was provided a compensation package plus relocation assistance. She also negotiated that the employer would pay both home and host taxes generated.

From a workforce shaping perspective, the assignment sounded straightforward. When the company decided to expand, it understood the shape it wanted to take: open the new facility in a new market.

However, when the employee was asked to return home and serve on the company's board, everything paid on her behalf, including the taxes, had to be reported in the annual report. Suddenly, her total compensation looked gigantic. The business had not accounted for this "sticker shock." Had the global mobility, executive compensation, and corporate tax functions been consulted before her transfer, together all the stakeholders negotiating the package would have understood the downstream impact on the employee, the corporation, and the shareholders.



It's 2030 and tax revenues are plummeting...

Imagine this scenario: It's 2030 and companies are engaging contingent workers on a project basis. With no wage withholding tax to withhold from the company, treasury revenues are in free-fall and revenue authorities have few ways to control where the tasks are being done. If you are the government revenue authority, what do you do to restore receipts?

Here's what tax professionals expect — and what some are seeing already:

- Lessen the dependence on personal income tax by introducing a value-added tax (VAT) on goods and services or by increasing the rates of VAT, sales tax, and payroll tax where they already exist.
- Move toward uber-BEPS (base erosion profit shifting) whereby all multinationals pay a minimum amount of tax on their global income.
- Reform Social Security. For the US, remove the cap on OASDI (old age, survivors and disability insurance). Allow higher earners to opt out if they pay into private plans but then they lose all government-funded benefits.
- Mandate withholding on all kinds of income (gig, dividends, interest, capital gains, rent and royalties, etc.) at the source.
- Apply a withholding tax on the payment of wages and invoices to overseas workers and service providers (including payments to contractors). India and Thailand already do this to a degree.
- Eliminate tax breaks to expatriates living in another country if residents of that country can perform the same job and an expat is not needed.
- Tax digital platforms by user, by user location, or by user origination, a proposal currently under consideration by the Organization for Economic Cooperation and Development.
- Increase user charges for roads and government services, as Singapore is already doing.
- Encourage movement toward a cashless society, perhaps through cryptocurrency, to begin eliminating the underground economy.
- Exchange data among tax authorities, social security institutions, labor inspectorates, and immigration agencies — nationally and internally — so that all jurisdictions know where contingent workers are located, how much they earn, and where the tax should be applied. This is already happening in the European Union with the implementation of EESSI (electronic exchange of social security information), the EU's biggest IT project. It will allow all European Economic Area countries and Switzerland to exchange information about pensions, health insurance and benefits, certificates of coverage, etc., beginning in the summer of 2019. If the exchange is proven successful, data will also be given to tax authorities, immigration, etc., so that most data will be available by 2030.



The perennial need for soft skills

There's no doubt that the human skills required for working *with* AI will be just as important as the skills for working *on* AI. Emotional intelligence, adaptability, and a willingness to learn will never go out of style, regardless of how many robots take over human jobs. But on that score, no one seems to know how many there will be. The *MIT Technology Review* compiled a list of all the predicted jobs that automation would create and destroy, eventually concluding that no one had any idea how many jobs will actually be lost to the march of technological progress.³³

However, no one disputes the importance of improving customer and employee experience, for which greater emotional intelligence and social skills would be welcome. Indeed, these skills are crucial to differentiate the human workforce from a more automated one.

In terms of workforce shaping, soft skills like empathy and cooperation point the way to employee reinvention. An accountant who has prospered by building strong client relationships, for example, can apply that ability elsewhere. The key is to view employees as a bundle of skills and capabilities, not as a defined role or profession.

Soft skills are also critical for global mobility. Leadership-oriented offshore assignments often require instilling corporate culture in a new country, which in turn requires human character traits like empathy, teamwork, and a positive attitude. People traveling often for their jobs — away from their families and possibly worried about losing their job one day — are increasingly affected by stress, anxiety, and depression, prompting the addition of mental health services to wellbeing packages. Ironically, too, the very self-service features that aim to make offshore living easier can also serve to isolate employees from contact with a global mobility person back home.

"People still want a live person answering their questions, despite how much information they can find online," notes a US global mobility executive. "That's why I didn't move my tax team offshore at the time we were moving operations. I wanted front-facing tax people dealing with individuals."

³³ MIT Technology Review, "Every study we could find on what automation will do to jobs in one chart," Jan. 25, 2018.

Lessons learned so far

By putting workforce shaping and mobility solutions into practice with clients, we've been able to identify some important lessons:

1 Link shaping to business strategy. For workforce shaping to be effective, it must be integrated with the broader business strategy and include workforce planning, talent management, operations, analytics, mobility, and corporate tax. For example, if your leadership determines that labor costs too much in one location and decides to open an office elsewhere — without considering the associated workforce implications — you're essentially shaping your workforce on the fly.

2 A multidisciplinary approach is critical. A team combining HR, talent, mobility, security, travel, and corporate tax departments — along with strategy, operations, and customer relations — will add the most value to workforce shaping and ensure that it supports business strategy.

3 Have lots of Plan B's. Because workforce shaping depends on scenarios and probabilities, enumerate as many as possible. Your workforce is never in a steady state, so there's never one right answer. Agile scenarios with multiple probabilities and assumptions can help counter sudden external changes, like Brexit or H-1B visa restrictions in the US or a tax on digital platforms, which can curtail the movement of human labor or AI.

4 Tell a compelling story with data. Since data underlies scenarios, it's important to present the data and insights effectively to evoke emotion and action from your audience. If you understand the story behind the data, you can tell the story better and know in what direction you're headed and how to get there. This skillset — what we call data artistry — will need to be embedded in the HR function of the future.





Managing and moving talent in the age of AI

As we introduced in last year's report, KPMG's 5C Framework can help guide the multidimensional analysis of people impacts in a digital era. We recommend that leaders examine their future talent strategy from five perspectives:

Cost — How much does the workforce cost to run?

Capacity — Are there sufficient resources in the right locations? Are they efficient and effective in how they work?

Capability — What skills and capabilities should the workforce have to succeed?

Connectivity — How do employees and teams connect with one another? Are they motivated?

Compliance — What are the regulatory and compliance implications of reshaping the workforce? Immigration and tax laws have employer and employee ramifications if not followed.

This year we looked at the framework through the lens of a globally mobile workforce and foresee these impacts:



Cost

How much does the workforce cost to run?

From	To
Relocating employees and their families to roles across borders is a regular part of sourcing global talent. Required cost projections, including immigration support (costs and application of work permits), are the normal cost of doing business. Number of moves is more finite and projectable. Organizations can comfortably predict costs.	Full family, longer-term relocations have decreased if they're not a necessary strategic move, leading to an increase in international business travel, commuting, and flexible working. Costs now span multiple tax and immigration jurisdictions for a more mobile population. Revenue authorities are now catching on to the potential revenue stream. Predicting costs and trailing liabilities are not as finite. Processes monitoring employee movements now require attention.



Capacity

Are there sufficient resources in the right locations? Are they efficient and effective in how they work?

From	To
Talent demands are based on FTE positions in organizational charts.	Business drivers and organizations' strategic goals determine talent needs. It could be that job locations are determined by whether high-skilled talent is managing more automated processes or whether task-based jobs don't have significant technology investment. However, a new layer must be reviewed to include employee and employer costs from a compliance perspective (e.g., employee/contractor registration, corporate and social tax).



Capability

What skills and capabilities should the workforce have to succeed?

From	To
A defined full-time employee role provides a career path in one location. Organizations provide longer-term benefits and packages. Employees are engaged when offered certain rewards, retirement plans, and educational assistance.	A global talent pool that better reflects a self-service economy requires attention to keep the business more flexible and employees engaged. Compensation and benefits packages are still part of the offerings but now can include flex time, alternative work schedules, and virtual employment. Work/life balance is even more important than in the past. Different skills and capabilities are required to manage this flexible workforce effectively and refresh the compensation packages and alternative work arrangements that are based on market drivers.



Connectivity

How do employees and teams connect with one another? Are they motivated?

From	To
Linear defined career paths provide motivation. A move across borders may be necessary for upward mobility or part of a succession plan. The connection between employer and employee is fostered by the career path.	Fluid roles and physical boundaries require additional attention to career paths. The way and frequency that teams connect will be different in the future — from international business travel for managing virtual teams to smaller teams made possible because of AI. New collaboration tools, technologies, and delivery mechanisms — such as social media that enable regular interactions — can keep employees engaged with their teams and bosses.



Compliance

What are the regulatory and compliance implications of reshaping the workforce? Immigration and tax laws have employer and employee ramifications if not followed.

From	To
For years regulatory compliance is more static then volatile from both employee and employer perspectives. Processes and amounts due revenue authorities are projected and followed.	Regulatory compliance is increasingly complex from both an employee and employer perspective. Income, social, corporate, and immigration taxes are examples of what organizations need to assess before moving or expanding to a new location or implementing technologies (e.g., some countries are discussing a tax on robot labor and internet use).

The future of work in 2030

We expect that the future of work will be less about mapping people to specific roles and more about mapping skills to tasks that need to be completed — an essential exercise for global mobility to remain relevant in the digital era. New roles within the HR function will emerge, including the workforce shaper who helps bring together business strategy, workforce analytics, innovation, mobility, and the people agenda to understand the long-term requirements for people and skills in the business.

No part of the people agenda will be out of bounds for change, from how we attract, develop, motivate, and retain talent to the ways that we reward our people and the mix of worker types — contingent vs. permanent, onsite vs. virtual, expatriate vs. local, human vs. robot.

The definition of the workforce itself will change, says the global mobility director of a European pharmaceutical manufacturer. “We will need to manage not only our traditional employees but also our extended workforce — our contingency workers and freelancers, perhaps including those who work with our alliance partners. At the same time, we’ll need to give these groups as much freedom as possible to take full advantage of their entrepreneurial approach. If we embed them into our big core operation they will lose their DNA.”

Workforce shaping will be used as a springboard to enable an organization’s fitness and readiness for the future against a set of redefined jobs that will be required to deliver on strategic ambitions. To best deal with this redefinition, HR, global mobility, talent, recruitment, and reward functions will need to be restructured and operate very differently to keep their strategic value.

We should expect some current specialist areas, such as mobility, either to be blended into other areas or to have its remit expanded substantially and absorb other specialist functions, such as talent acquisition. Systems and processes will need to be fundamentally rethought to manage company compliance and reputational risk and to respond to the speed of the market.

The head of global mobility at another European pharmaceutical company foresees one united global workforce team that has absorbed both global mobility and workforce shaping. “The number of traditional assignments that we have will be minimal,” she says. “We will be looking at global workforce options. The focus of HR will be less on traditional planning and career development and more on how to manage contingent workforces.”

Regardless of which scenario holds true, the trick is to create organizations and societies that grasp the importance of reinventing workplaces to make the most of what humans can do when working with AI. This is a challenge of leadership, design, imagination and creation just as much as one of coding. And it’s the requirement of HR and global mobility working together to prepare their people for the age of the smart machine.

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